EICOSANOIDS

Cayman CHEMICAL

Introduction to **Eicosanoids**

Paper wasps, as shown on the cover, are representative of stinging insects in that their sting injects a venom containing a mixture of bioactive compounds. However, the venom of vespids (wasps, hornets) differs from that of other insects, including the apids (honey bees, bumble bees). Vespid venom includes histamine, which causes swelling, pain, and itching, as well as components which stimulate mast cells to release histamine and the eicosanoids prostaglandin D_2 and leukotriene C_4. These bioactive lipids drive bronchoconstriction and edema, meaning that the wasp sting can be lethal if it occurs near the throat. Moreover, these mediators, with other components in wasp venom, contribute to the development of an allergic response. Sensitization to wasp venom can occur after a single sting, presenting the possibility of a potentially life-threatening anaphylactic reaction at some later date.

The venom of bees contrasts with that of the wasp in that it contains abundant melittin, a peptide which directly associates with cellular membranes and stimulates the action of cytosolic phospholipase A_2 (cPLA$_2$). As described on page 48 of this catalog, cPLA$_2$ plays a critical role in the release of arachidonic acid for the generation of eicosanoids. Bee venom also includes a small (19 kDa) PLA$_2$, unique to bees, which contributes to an allergic response. However, allergy to bee venom requires being stung frequently by bees and, as a result, is less common than sensitivity to wasp stings. Notably, individuals who are allergic to wasp venom are rarely allergic to bee venom.

The roles for eicosanoids in insect stings are indicative of the diversity of actions for these bioactive lipids. Cayman invites you to learn more about eicosanoids by offering you topical updates in this catalog. Of course, we are also creating a buzz by offering the latest reagents and assay kits for eicosanoid research. In addition, Cayman performs cGMP production of prostaglandins for human and veterinarian use; some of these active pharmaceutical ingredients are profiled in an article on page 28. To help make your research possible, we also offer our expertise and facilities through our Contract Services, where we analyze your samples, run your samples in our assays, and perform custom chemical syntheses. Visit our website, **caymanchem.com**, or call us to find out how we can work together to further your understanding of eicosanoids.

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Eicosanoids

4 **Leukotrienes – Something Old, Something New**
Thomas G. Brock, Ph.D.

6 [Products]
Biochemicals

16 **EP_2 and EP_4, Sibling PGE_2 Receptors**
Thomas G. Brock, Ph.D.

28 **APIs – Prostaglandins with a Purpose**
Thomas G. Brock, Ph.D.

38 **Hypertension and Eicosanoids**
Thomas G. Brock, Ph.D.

48 **Intracellular PLA_2 activation and functional cooperation**
Olivia L. May, Ph.D.

50 [Products]
Antibodies

53 [Products]
Assay Kits

61 [Products]
Proteins

62 [Information]
Indices

75 [Information]
Abbreviations

LEUKOTRIENES

Something Old • Something New

by [Thomas G. Brock, Ph.D.]

Leukotrienes (LTs) are well-known lipid mediators. The fundamentals of their biosynthesis and action have been established, yet new aspects are discovered every year. This article considers recent studies involving LTs.

Background

The key LTs are LTB_4 and its structurally distinct relatives, the cysteinyl LTs (CysLTs), LTC_4, LTD_4, and LTE_4 (Figure 1). All are derived from arachidonic acid (AA), a fatty acid which has a degree of structural rigidity resulting from four C=C double bonds. This structure means that AA and its derivatives, including the LTs, can selectively interact with proteins.[1] The biosynthesis of LTs from AA is initiated by 5-lipoxygenase (5-LO) with 5-LO activating protein (FLAP), which catalyze two reactions to give the intermediate LTA_4. LTA_4 hydrolase (LTA_4H) and LTC_4 synthase (LTC_4S) complete the generation of LTB_4 and LTC_4, respectively. These LTs are then actively exported from cells and LTC_4 is metabolized first to LTD_4 and then to LTE_4 by γ-glutamyl transpeptidases and dipeptidases, respectively. 5-LO activity is stimulated by p38 MAP kinase-activated protein kinase 2 (MK2)-mediated phosphorylation on S271 and inhibited by protein kinase A (PKA) phosphorylation on S523.[2,3] Further details on the regulation of LT synthesis are available.[4,5]

News about LTB_4

Every inch of skin is serviced by a dense mesh of capillaries delivering essential nutrients. Circulating blood moves from arterioles into capillary beds, exchanging oxygen for carbon dioxide, then proceeding to venules (Figure 2). Migrating slowly through these narrow channels are many red blood cells and fewer leukocytes. Most relevant to this article are the neutrophils, key effectors of the innate immune response. New technology, including two-photon intravital microscopy, has allowed direct visualization of how neutrophils respond to injury or infection.[6,7] Injury can be as simple as a brief, intense infrared laser pulse which causes focal, dermis-restricted tissue damage. Using this method, neutrophils can be seen to respond in phases. In the first 15 minutes after injury, neutrophils near the damage migrate from capillaries to the site of injury. This is followed by many more neutrophils displaying an amplified chemotactic response, migrating rapidly from more distant interstitial regions in what is described as 'swarming'. This second phase, which results in neutrophil clustering at the site of damage, is mediated by LTB_4.[7] Further experimentation indicated that LTB_4 is essential for both the recruitment of swarming neutrophils and the clustering phase of the swarm response. Comparable results occur in response to infections in skin and other tissues. These studies, which include amazing images, add detail to the actions of LTB_4, which was already known to be involved in inflammation by attracting and activating leukocytes.

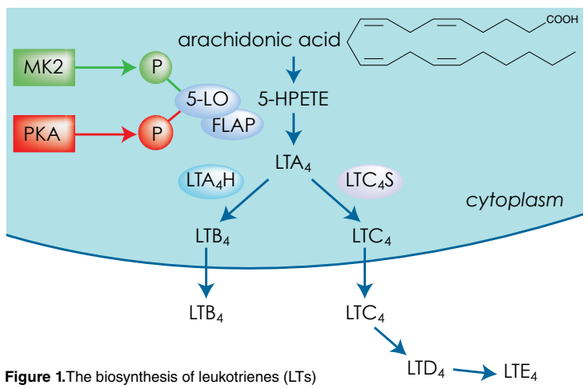


Figure 1. The biosynthesis of leukotrienes (LTs)

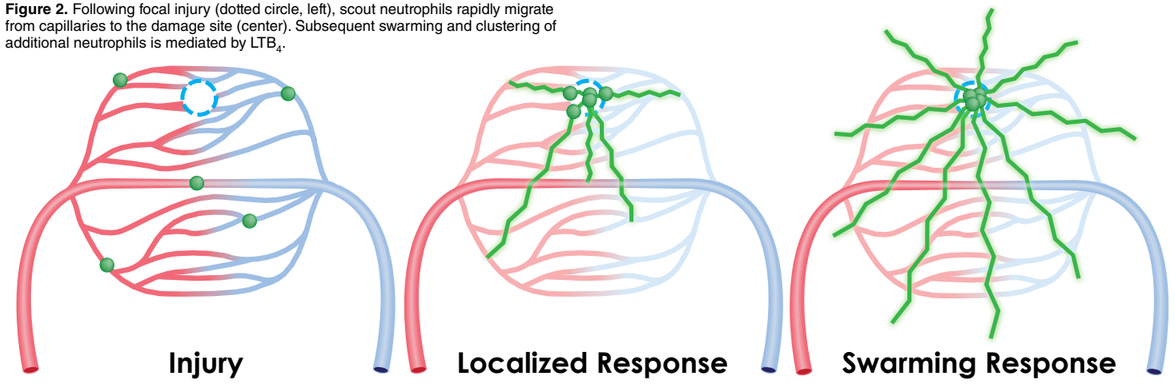
LTB_4 is pivotal in a variety of diseases because it attracts different leukocytes with different roles. Recently, LTB_4 has been shown to promote liver repair after ischemia/reperfusion injury by enhancing macrophage recruitment.[8] Increased LTB_4 in sputum corresponds with neutrophil-associated purulence during COPD exacerbations.[9] LTB_4 may have a role in eosinophil recruitment, particularly in respiratory diseases.[10] In addition, a new study involving twins (again) implicates LTB_4 in atherosclerosis, presumably through its chemoattractive properties.[11]

The Latest about Cysteinyl LTs

LTB_4's sister mediators, the CysLTs (LTC_4, LTD_4, and LTE_4), have also been in the news. Foremost, an Official Practice Guideline released by the American Thoracic Society strongly recommended the use of a daily LT receptor antagonist, or other interventions, before exercise to control exercise-induced bronchoconstriction (EIB) in patients who continue to have symptoms despite the use of a short-acting β_2-agonist.[12] In this context, CysLTs have their well-known effect, provoking smooth muscle contraction. Newer data implicate CysLTs in smooth muscle proliferation, as well, contributing to airway remodeling.[13]

In humans, the major sources of CysLTs are eosinophils and mast cells. CysLTs have been implicated in some aspects of asthma, like EIB and aspirin-exacerbated respiratory disease.[14] CysLTs are also pivotal in vascular leakage associated with Dengue Virus infection, which activates mast cells.[15] As is the case for EIB, CysLT receptor antagonists are useful in treating experimental Dengue Virus infection. Also, the production of CysLTs in asthma may be regulated by a novel secreted phospholipase A_2 ($sPLA_2$-X).[16] This enzyme, which is released from epithelial cells, is increased in the airways of patients with EIB and initiates eicosanoid synthesis in target cells, including eosinophils.

Figure 2. Following focal injury (dotted circle, left), scout neutrophils rapidly migrate from capillaries to the damage site (center). Subsequent swarming and clustering of additional neutrophils is mediated by LTB_4.



LTs in Your Head

Broadly speaking, LTB_4 is produced by neutrophils and drives inflammation, in the form of leukocyte recruitment, while CysLTs, key mediators generated by eosinophils and mast cells, promote smooth muscle constriction and vascular leak. Monocytes make a mix of LTB_4 and CysLTs. In this era of brain research, what roles are there for LTs in the head? The blood-brain barrier, governed by brain microvessel endothelial cells, regulates the entry of leukocytes into the brain, generally excluding all but T lymphocytes. T cells do not generally produce LTs. Two factors weigh heavily on how LTs interplay with the brain. Foremost, microglial cells, phagocytes which reside within the central nervous system (CNS), are activated by LTs and may be involved in LT biosynthesis. Also, circulating leukocytes are slowed as they inch through microvessels and may be activated by reperfusion following ischemia, resulting in an explosion of LT synthesis at points within the brain.

LTs are commonly linked to brain injury, particularly through ischemia/reperfusion models of stroke and traumatic brain injury (TBI). A new study comparing wild type (WT) and FLAP knockout mice finds that disruption of the FLAP gene ameliorates focal ischemic stroke.[17] Moreover, FLAP knockout mice also demonstrate less cognitive deficit, memory loss, and overt neuropathology than WT mice in a mouse model of Alzheimer's disease.[18] Similar results were found in WT mice treated with the FLAP inhibitor MK-591. Unfortunately, older mice lacking FLAP also displayed more anxiety-like behavior.[19] New concerns regarding concussions in sports have elevated interest in TBI. FLAP inhibitors reduce the volume of damaged tissue following localized percussion injury in rats, supporting a role for these compounds in limiting the extent of damage caused by impacts that result in concussions.[20] However, CysLTs appear to be essential components in the regenerative process following TBI in adult zebrafish.[21] As a group, these studies suggest that LTs have multiple roles, some good and some bad, in the brain.

Introducing CysLT Receptor 3?

To aficionados of LTs, LTE_4 is more than a waste product of CysLT metabolism. Certainly, it is a poor agonist of $CysLT_1$ and $CysLT_2$ (IC_{50} = 274 and 693 nM, respectively). However, LTE_4 has long been known to cause contraction of guinea pig trachea sections. In 2008, LTE_4 was shown to promote vascular leak at doses as low as 0.5 nM in mice lacking both $CysLT_1$ and $CytLT_2$.[22] Now, GPR99, previously described as a receptor for oxoglutarate, has been found to be essential for vascular leak in response to LTE_4 in mice lacking $CysLT_1$ and $CysLT_2$.[23] The dissociation constant of LTE_4 for GPR99 (K_d = 2.5 nM) contrasts sharply with the EC_{50} of oxoglutarate (EC_{50} = 69 μM).[24] This latest report regarding the role of GPR99 in LTE_4 signaling is interesting to read, as it gently describes GPR99 as a "potential" CysLT receptor. This may be, in part, because known CysLT receptors interact with, and are affected by, purinergic receptors and GPR99 shares features with $P2Y_1$ receptors, although it is not in that subfamily.[25] That is, it remains possible that GPR99 dimerizes with another unidentified protein, the true receptor for LTE_4. The authors are careful not to over-interpret their data; however, it seems reasonable to anticipate that GPR99 will prove to be a third CysLT receptor. ▯

Receptor	Alternative Names	Ligands	Primary Ligands (binding affinity)
BLT_1	LTB4R1, P2Y7, GPR16	LTB_4 > ATP >> UTP = ADP	LTB_4 (0.154 nM), ATP (37 nM)
BLT_2	LTB4R2, BLTR2, BLT2R	LTB_4 > 12-*epi*-LTB_4 > LTB_5	LTB_4 (23 nM)
$CysLT_1$	CysLTR1	LTD_4 >> LTE_4 = LTC_4	LTD_4 (2.5 nM)
$CysLT_2$	CysLTR2	LTC_4 = LTD_4 >> LTE_4	LTC_4 (3 nM)
GPR99	Oxgr1, $CysLT_3$	LTE_4 >> oxoglutarate	LTE_4 (2.5 nM), oxoglutarate (69 μM)

Table 1. Receptors for LTs

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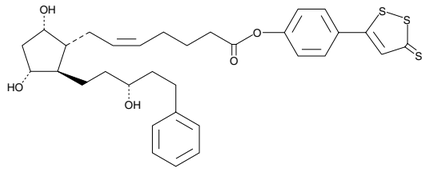
Biochemicals

ACS 67 — 13619

[1088434-86-9]
MF: $C_{32}H_{38}O_5S_3$ **FW:** 598.8 **Purity:** ≥95%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An analog of latanoprost (free acid) that contains a hydrogen sulfide releasing component; reduces IOP better than latanoprost in a rabbit model of glaucoma

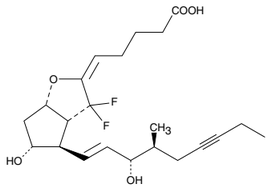
1 mg
5 mg
10 mg
25 mg



AFP 07 (free acid) — 13626

[788799-13-3]
MF: $C_{22}H_{30}F_2O_5$ **FW:** 412.5 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A 7,7-difluoroprostacyclin derivative that acts as a selective and highly potent agonist for the IP receptor (K_i = 0.561 nM); shows weaker affinity for EP receptors, with K_i values of > 100 nM for EP_{1-3} and > 10 nM for EP_4

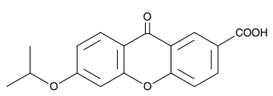
500 µg
1 mg
5 mg
10 mg



AH 6809 — 14050

[33458-93-4]
MF: $C_{17}H_{14}O_5$ **FW:** 298.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at 4°C
Summary: An EP and DP receptor antagonist with nearly equal affinity for the cloned human EP_1, EP_2, $EP_{3\text{-III}}$, and DP_1 receptors

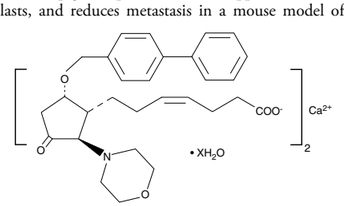
1 mg
5 mg
10 mg
50 mg



AH 23848 (calcium salt, hydrate) — 19023

MF: $[C_{29}H_{34}NO_5]_2$ Ca^{2+} • XH_2O **FW:** 1,011.3 **Purity:** ≥90%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A dual antagonist of TP and EP_4 receptors; inhibits TXA_2-induced platelet aggregation (IC_{50} = 0.26 µM) and bronchial smooth muscle contraction; impairs PGE_2-mediated relaxation of piglet saphenous vein, suppresses serum-induced proliferation of fibroblasts, and reduces metastasis in a mouse model of breast cancer

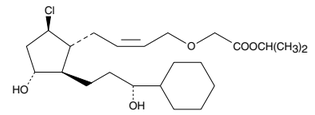
1 mg
5 mg
10 mg



AL 6598 — 13620

[170291-06-2]
MF: $C_{23}H_{39}ClO_5$ **FW:** 431.0 **Purity:** ≥97%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: The isopropyl ester prodrug of AL 6556, a PGD_2 receptor agonist (K_i = 3.2 µM, EC_{50} = 0.80 µM); produces a maximum 53% drop in IOP of the ocular hypertensive monkey with a 1 µg dose given twice daily

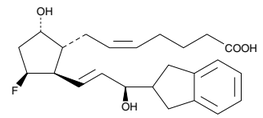
500 µg
1 mg
5 mg
10 mg



AL 8810 — 16735

[246246-19-5]
MF: $C_{24}H_{31}FO_4$ **FW:** 402.5 **Purity:** ≥98%*
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A selective antagonist at the FP receptor; K_i value for the inhibition of several potent agonists at the cloned human ciliary body FP receptor is in the range of 1-2 µM

1 mg
5 mg
10 mg
25 mg

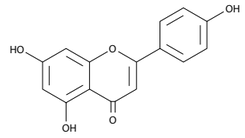


•Also Available: **AL 8810 ethyl amide** (10010470)
AL 8810 isopropyl ester (10113)
AL 8810 methyl ester (10008370)
(S)-AL 8810 (10023)

Apigenin — 10010275

[520-36-5] Chamomile, Flavone, NSC 83244, Versulin
MF: $C_{15}H_{10}O_5$ **FW:** 270.2 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: Inhibits casein kinase II activity in the renal cortex with an IC_{50} value of 30 µM; potent inhibitor of NO and PGE_2 biosynthesis by reducing iNOS and COX-2 expression

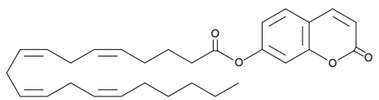
25 mg
50 mg
100 mg
500 mg



7-hydroxycoumarinyl Arachidonate — 62910

[161180-11-6] Umbelliferyl Arachidonate
MF: $C_{29}H_{36}O_4$ **FW:** 448.6 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A fluorogenic substrate for $cPLA_2$

5 mg
10 mg
25 mg
50 mg

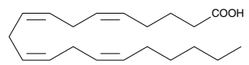


**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

Arachidonic Acid — 90010

[506-32-1] AA
MF: $C_{20}H_{32}O_2$ **FW:** 304.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: Keystone essential fatty acid that is converted by COX, LO, and epoxygenase enzymes into more than 150 potent metabolites in species ranging from fungi to plants to mammals

50 mg
100 mg
250 mg
500 mg

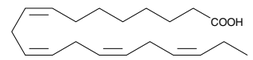


•Also Available: **Arachidonic Acid-biotin** (10007466)
Arachidonic Acid-d_8 (390010)
Arachidonic Acid-d_8 Lipid Maps MS Standard (10007277)
Arachidonic Acid ethyl ester (10008200)
Arachidonic Acid Lipid Maps MS Standard (10007268)
Arachidonic Acid methyl ester (90014)
Arachidonic Acid methyl ester-d_8 (390014)
Arachidonic Acid (peroxide free) (90010.1)
Arachidonic Acid (sodium salt) (10006607)
Arachidonic Acid Quant-PAK (10006835)

ω-3 Arachidonic Acid — 90011

[24880-40-8] ω-3 AA
MF: $C_{20}H_{32}O_2$ **FW:** 304.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A rare PUFA found in trace amounts in dietary sources

1 mg
5 mg
10 mg

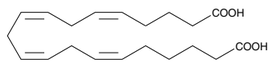


•Also Available: **ω-3 Arachidonic Acid-d_8** (390011)
ω-3 Arachidonic Acid ethyl ester (10009348)
ω-3 Arachidonic Acid methyl ester (10006454)
ω-3 Arachidonic Acid Quant-PAK (10006833)

20-carboxy Arachidonic Acid — 10007912

[79551-84-1] 20-carboxy AA, 20-COOH-AA
MF: $C_{20}H_{30}O_4$ **FW:** 334.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A major metabolite of 20-HETE produced in renal tubular epithelial, endothelial, and microvascular smooth muscle cells; inhibits ion transport in the kidneys and has vasodilatory activity

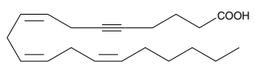
25 µg
50 µg
100 µg
500 µg



5,6-dehydro Arachidonic Acid — 90020

[58688-54-3] 5,6,-dehydro AA
MF: $C_{20}H_{30}O_2$ **FW:** 302.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An analog of AA with the triple bond in a 5,6 position; inhibitor of 5-LO (K_i = 10-15 µM)

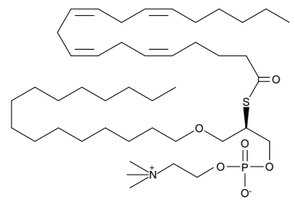
25 µg
50 µg
100 µg
500 µg



Arachidonoyl thio-PC — 62240

[146797-82-2] 2-deoxy-2-thio Arachidonoyl PC
MF: $C_{44}H_{82}NO_6PS$ **FW:** 784.2 **Purity:** ≥98%
A solution in ethanol containing 0.1% BHT **Stability:** ≥1 year at -20°C
Summary: A chromogenic substrate for many PLA_2s including $sPLA_2$, $cPLA_2$, and $iPLA_2$

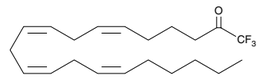
5 mg
10 mg
25 mg



Arachidonyl Trifluoromethyl Ketone — 62120

[149301-79-1] AATFMK, ATK
MF: $C_{21}H_{31}F_3O$ **FW:** 356.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An inhibitor of $cPLA_2$ and $iPLA_2$ but not $sPLA_2$

1 mg
5 mg
10 mg
50 mg



Asthma Treatment Standard Set — 10008640

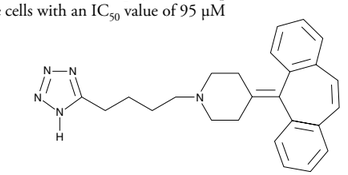
Stability: ≥2 years at -20°C
Summary: Contains zafirlukast, montelukast (sodium salt), and pranlukast, three potent, selective $CysLT_1$ receptor antagonists (10 mg each) currently used clinically for the treatment of asthma

1 ea

AT-56 — 13160

[162640-98-4]
MF: $C_{25}H_{27}N_5$ **FW:** 397.5 **Purity:** ≥95%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A selective, competitive, and highly bioavailable inhibitor of L-PGDS (K_i = 75 µM); inhibits the production of PGD_2 by L-PGDS purified from human CSF and recombinant mouse cells with an IC_{50} value of 95 µM

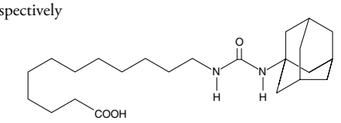
1 mg
5 mg
10 mg
50 mg



AUDA — 10007927

[479413-70-2]
MF: $C_{23}H_{40}N_2O_3$ **FW:** 392.6 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An inhibitor of sEH exhibiting IC_{50} values of 18 and 69 nM for the mouse and human enzymes, respectively

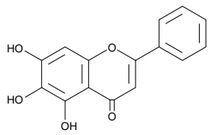
5 mg
10 mg
50 mg
100 mg



Baicalein 70610

[491-67-8]
MF: $C_{15}H_{10}O_5$ **FW:** 270.2 **Purity:** ≥95%
A yellow crystalline solid **Stability:** ≥1 year at -20°C
Summary: A naturally occuring flavonoid with multiple biological activities; inhibits platelet 12-LO (IC_{50} = 0.12 µM); inhibits lipid peroxidation (IC_{50} = 5 µM); inhibits cell growth of three human hepatocellular carcinoma cell lines (IC_{50} = 17-70 µg/ml)

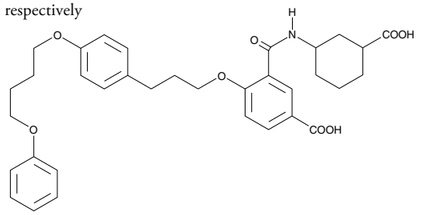
50 mg
100 mg
500 mg
1 g



BayCysLT$_2$ 10532

[712313-33-2] CAY10633
MF: $C_{34}H_{39}NO_8$ **FW:** 589.7 **Purity:** ≥95%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent, selective CysLT$_2$ receptor antagonist that inhibits radioligand binding of LTD$_4$ to CysLT$_2$ and CysLT$_1$ receptor cell lines with IC_{50} values of 35 and >10,000 nM, respectively

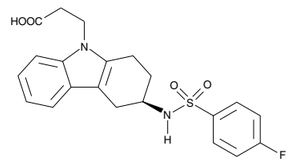
1 mg
5 mg
10 mg
25 mg



BAY-u3405 10156

[116649-85-5] Ramatroban
MF: $C_{21}H_{21}FN_2O_4S$ **FW:** 416.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A TP receptor antagonist approved for the treatment of allergic rhinitis; also an antagonist of the DP$_2$ receptor (IC_{50} = 100-170 nM)

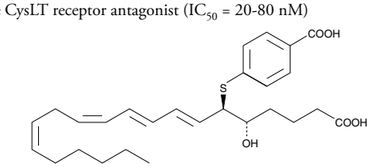
1 mg
5 mg
10 mg
50 mg



BAY-u9773 70770

[154978-38-8]
MF: $C_{27}H_{36}O_5S$ **FW:** 472.6 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A non-selective CysLT receptor antagonist (IC_{50} = 20-80 nM)

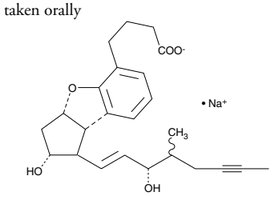
25 µg
50 µg
100 µg
500 µg



Beraprost (sodium salt) 18230

[88475-69-8] ML 1129, Procyclin, TRK 100
MF: $C_{24}H_{29}O_5$ • Na **FW:** 420.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An analog of prostacyclin in which the unstable enol-ether moiety has been replaced by a benzofuran ether function; exhibits a plasma half-life of several hours allowing the compound to be taken orally

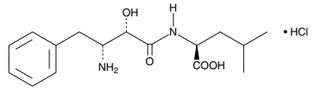
1 mg
5 mg
10 mg
50 mg



Bestatin (hydrochloride) 70520

[65391-42-6]
MF: $C_{16}H_{24}N_2O_4$ • HCl **FW:** 344.8 **Purity:** ≥99%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An inhibitor of aminopeptidases and a potent, irreversible inhibitor of LTA$_4$ hydrolase (K_i = 201 nM)

5 mg
10 mg
50 mg
100 mg



Bio-active Lipid Screening Library I (96-well) 10506

A 0.1 mM solution in DMSO **Stability:** ≥2 years at -20°C
Summary: This screening library consists of 11 plates and contains compounds that include PGs, TXs, cannabinoids, D-*myo*-inositol-phosphates, phosphatidylinositol-phosphates, sphingolipids, inhibitors, receptor agonists and antagonists, ceramide derivatives, and several other complex PUFAs. This collection is ideal for prostanoid or other G protein-coupled receptor screening, target validation, secondary screening, validating new assays, and for routine pharmacological applications.

100 µl
500 µl

Bio-active Lipid Screening Library II (96-well) 10507

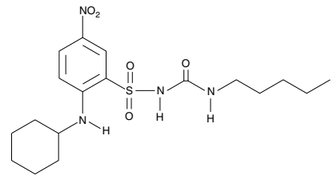
A 0.1 mM solution in DMSO **Stability:** ≥2 years at -20°C
Summary: This screening library consists of 3 plates and contains compounds that include PGs, isoprostanes, TXs, LTs, lipoxins and several other complex PUFAs. This collection is ideal for prostanoid or other G protein-coupled receptor screening, target validation, secondary screening, validating new assays and for routine pharmacological applications.

100 µl

BM 567 10155

[284464-77-3]
MF: $C_{18}H_{28}N_4O_5S$ **FW:** 412.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A dual acting antithrombogenic agent; inhibitor of TXA$_2$ synthase (IC_{50} = 12 nM); acts as an TP receptor antagonist (IC_{50} = 1.1 nM)

1 mg
5 mg
10 mg
50 mg

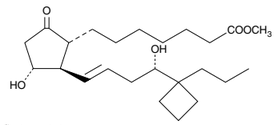


NOTE: Sold under license from Université of Liège

Butaprost 13740

[69685-22-9] 15-deoxy-16S-hydroxy-17-cyclobutyl PGE$_1$ methyl ester, TR 4979
MF: $C_{24}H_{40}O_5$ **FW:** 408.6 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A selective EP$_2$ receptor agonist used frequently to pharmacologically define the EP receptor expression profile of various human and animal tissues and cells

500 µg
1 mg
5 mg
10 mg

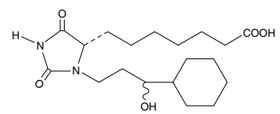


•Also Available: **Butaprost (free acid)** (13741)
(R)-Butaprost (13745)
(R)-Butaprost (free acid) (10006045)

BW 245C 12050

[72814-32-5]
MF: $C_{19}H_{32}N_2O_5$ **FW:** 368.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A potent, selective DP$_1$ receptor agonist (K_i = 0.9 nM); inhibits ADP-induced human platelet aggregation with an IC_{50} value of 2.5 nM

1 mg
5 mg
10 mg
50 mg

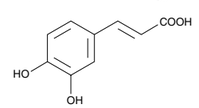


•Also Available: **BW A868C** (12060)

Caffeic Acid 70602

[331-39-5]
MF: $C_9H_8O_4$ **FW:** 180.2 **Purity:** ≥97%
A crystalline solid **Stability:** ≥2 years at room temperature
Summary: An inhibitor of 5-LO (IC_{50} = 3.7-72 µM) and 12-LO (IC_{50} = 5.1-30 µM)

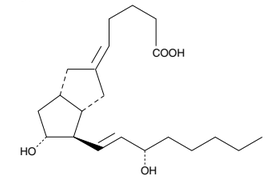
5 g
10 g
25 g



Carbaprostacyclin 18210

[69552-46-1] Carbacyclin, cPGI
MF: $C_{21}H_{34}O_4$ **FW:** 350.5 **Purity:** ≥99%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A stable analog of PGI$_2$ with reduced potency; inhibits ADP-induced platelet aggregation in human PRP (ED_{50} = 47 nM)

500 µg
1 mg
5 mg

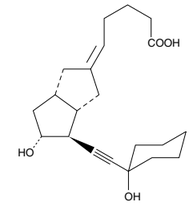


•Also Available: **Carbaprostacyclin-biotin** (18213)
5-*cis* Carbaprostacyclin (18211)

13,14-dehydro-15-cyclohexyl Carbaprostacyclin 18212

[145375-81-1]
MF: $C_{21}H_{30}O_4$ **FW:** 346.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A chemically stable analog of PGI$_2$; inhibits the ADP-induced aggregation of human platelets with an ED_{50} value of about 40 nM in PRP and 77 nM in washed platelets

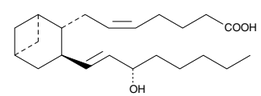
50 µg
100 µg
500 µg



Carbocyclic Thromboxane A$_2$ 19010

[74034-56-3] Carbocyclic TXA$_2$, CTA$_2$
MF: $C_{22}H_{36}O_3$ **FW:** 348.5 **Purity:** ≥98%*
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A stable analog of TXA$_2$ with potent coronary vasoconstrictor activity; inhibits arachidonic acid-induced aggregation (IC_{50} = 4-5 µM); inhibits TXB$_2$ synthesis in rabbit platelets

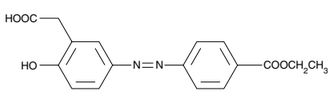
100 µg
500 µg
1 mg
5 mg



CAY10397 70130

[78028-01-0] CK47A
MF: $C_{17}H_{16}N_2O_5$ **FW:** 328.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A selective inhibitor of 15-hydroxy PGDH (IC_{50} = ~10 µM)

1 mg
5 mg
10 mg
25 mg

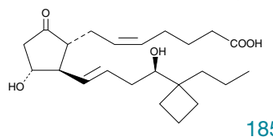


**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

CAY10408 — 13747

[212310-16-2]
MF: $C_{23}H_{36}O_5$ **FW:** 392.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A butaprost analog with a 5,6-double bond and without the methyl ester

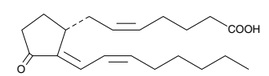
1 mg
5 mg
10 mg
50 mg



CAY10410 — 18590

[596104-94-8] 9,10-dihydro-15-deoxy-$\Delta^{12,14}$-PGJ$_2$
MF: $C_{20}H_{30}O_3$ **FW:** 318.5 **Purity:** ≥98% (isomer mixture)*
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: An analog of PGD$_2$/PGJ$_2$ with structural modifications intended to give it PPARγ ligand activity and resistance to metabolism

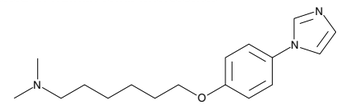
500 µg
1 mg
5 mg
10 mg



CAY10434 — 10005067

[769917-29-5]
MF: $C_{17}H_{25}N_3O$ **FW:** 287.4 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A selective inhibitor of the 20-HETE synthase, CYP4A11, exhibiting an IC_{50} value of 8.8 nM when tested in human renal microsomes

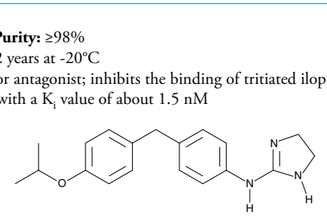
1 mg
5 mg
10 mg
50 mg



CAY10441 — 10005186

[221529-58-4] RO1138452
MF: $C_{19}H_{23}N_3O$ **FW:** 309.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent IP receptor antagonist; inhibits the binding of tritiated iloprost to rodent neuroblastoma cells with a K_i value of about 1.5 nM

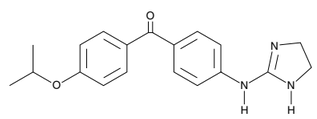
1 mg
5 mg
10 mg
25 mg



CAY10449 — 10005913

MF: $C_{19}H_{21}N_3O_2$ **FW:** 323.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent IP receptor antagonist; inhibits the binding of tritiated iloprost to rodent neuroblastoma cells with a K_i value of about 3 nM

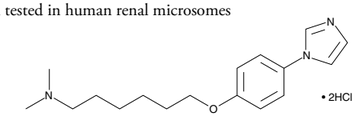
1 mg
5 mg
10 mg
25 mg



CAY10462 — 10006400

[502656-68-0]
MF: $C_{17}H_{24}N_3O$ • 2HCl **FW:** 360.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A selective inhibitor of the 20-HETE synthase CYP4A11; exhibits an IC_{50} value of 8.8 nM when tested in human renal microsomes

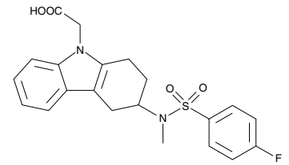
1 mg
5 mg
10 mg
50 mg



CAY10471 — 10006735

[627865-18-3]
MF: $C_{21}H_{21}FN_2O_4S$ **FW:** 416.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An analog of BAY-u3405 which contains modifications that increase both its potency and selectivity for the human CRTH2/DP$_2$ receptor; binds to the human CRTH2/DP$_2$, DP$_1$, and TP receptors with K_i values of 0.6, 1200, and >10,000 nM, respectively

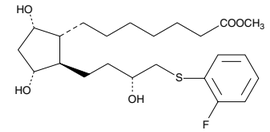
1 mg
5 mg
10 mg
50 mg



CAY10509 — 10009167

[1245699-47-1]
MF: $C_{23}H_{35}FO_5S$ **FW:** 442.6 **Purity:** ≥98%
A solution in ethyl acetate **Stability:** ≥1 year at -20°C
Summary: Derivative of PGF$_{1\alpha}$ containing a thio-fluorobenzene substituent in the lower side chain; binds to the recombinant human FP receptor with an IC_{50} value of about 30 nM

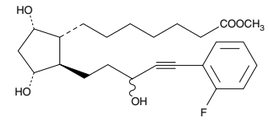
100 µg
500 µg
1 mg
5 mg



CAY10510 — 10009168

[291303-34-9]
MF: $C_{24}H_{33}FO_5$ **FW:** 420.5 **Purity:** ≥98%
A solution in ethyl acetate **Stability:** ≥1 year at -20°C
Summary: Derivative of PGF$_{1\alpha}$ containing an acetylenic fluorobenzene substituent in the lower side chain; binds to the recombinant human FP receptor with an IC_{50} value of 0.5 µM

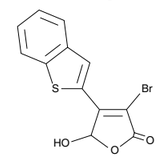
100 µg
500 µg
1 mg
5 mg



CAY10526 — 10010088

[938069-71-7]
MF: $C_{12}H_7BrO_3S$ **FW:** 311.1 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An inhibitor mPGES-1 expression; inhibits PGE$_2$ production in LPS-stimulated RAW 264.7 cells (IC_{50} = 1.8 µM) without affecting COX-2 expression

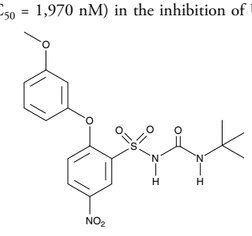
1 mg
5 mg
10 mg
50 mg



CAY10535 — 10010396

MF: $C_{18}H_{21}N_3O_7S$ **FW:** 423.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A TP receptor antagonist that shows ~20-fold selectivity for TPβ (IC_{50} = 99 nM) relative to TPα (IC_{50} = 1,970 nM) in the inhibition of U-46619-mediated Ca^{2+} mobilization

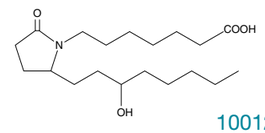
1 mg
5 mg
10 mg
50 mg



CAY10580 — 16835

[64054-40-6]
MF: $C_{19}H_{35}NO_4$ **FW:** 341.5 **Purity:** ≥96%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An 8-aza-9-oxo-15-hydroxy saturated analog of PGE$_2$; selectively binds the EP$_4$ receptor (K_i = 35 nM) relative to the EP$_1$, EP$_2$, and EP$_3$ receptors (K_i = 3,000, 2,000, and >3,000 nM, respectively); stimulates adenosine cAMP in excised mouse ovaries

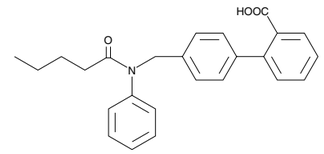
500 µg
1 mg
5 mg
10 mg



CAY10583 — 10012424

[862891-27-8]
MF: $C_{25}H_{25}NO_3$ **FW:** 387.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent, selective full agonist for BLT$_2$ with an EC_{50} value of 20 nM; activates BLT$_2$ at significantly lower concentrations than LTB$_4$ (EC_{50} = 170 nM); dose dependently increases intracellular calcium stores and induces ERK phosphorylation in CHO cells expressing BLT$_2$ with no effect on CHO cells expressing BLT$_1$

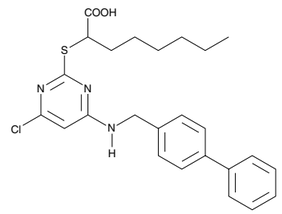
5 mg
10 mg
25 mg
50 mg



CAY10589 — 13164

[1077626-52-8]
MF: $C_{25}H_{28}ClN_3O_2S$ **FW:** 470.0 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A dual inhibitor of mPGES-1 (IC_{50} = 1.3 µM) and 5-LO (IC_{50} = 1.0 µM), inhibiting PGE$_2$ and LT synthesis in both cell free and intact cell assays; has minor effects on COX-1 and COX-2 activities, inhibiting these enzymes 34% and 38.8%, respectively, at 10 µM

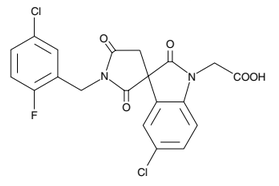
1 mg
5 mg
10 mg



CAY10595 — 10012553

[916047-16-0]
MF: $C_{20}H_{13}Cl_2FN_2O_5$ **FW:** 451.2 **Purity:** ≥97%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent CRTH2/DP$_2$ receptor antangonist that binds to the human receptor with a K_i value of 10 nM; R-enantiomer of CAY10595 inhibits eosinophil chemotaxis induced by 13,14-dihydro-15-keto-PGD$_2$ with an IC_{50} value of 7.3 nM

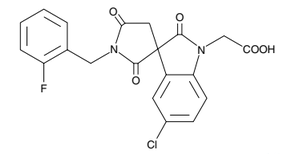
1 mg
5 mg
10 mg
50 mg



CAY10597 — 10012539

[916046-55-4]
MF: $C_{20}H_{14}ClFN_2O_5$ **FW:** 416.8 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent CRTH2/DP$_2$ receptor antagonist that binds to the human receptor with a K_i value of 37 nM; R-enantiomer of CAY10597 inhibits eosinophil chemotaxis induced by 13,14-dihydro-15-keto-PGD$_2$ with an IC_{50} value of 40 nM

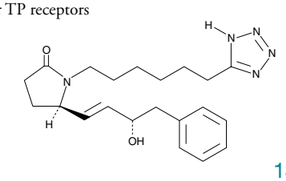
1 mg
5 mg
10 mg
50 mg



CAY10598 — 13281

[346673-06-1]
MF: $C_{21}H_{29}N_5O_2$ **FW:** 383.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A very potent agonist of EP$_4$, binding with a K_i value of 1.2 nM; does not bind EP$_1$, EP$_2$, EP$_3$, DP, FP, IP, or TP receptors

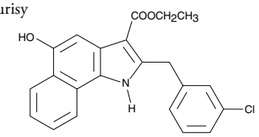
500 µg
1 mg
5 mg
10 mg



CAY10606 — 13381

[1159576-98-3]
MF: $C_{22}H_{18}ClNO_3$ **FW:** 379.8 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent, reversible inhibitor of 5-LO, in cell-free assays (IC_{50} = 86 nM), intact neutrophils (IC_{50} = 230 nM), and in whole blood (IC_{50} = 830 nM); significantly reduces both LT biosynthesis and inflammatory reactions in rats subjected to carrageenan-induced pleurisy

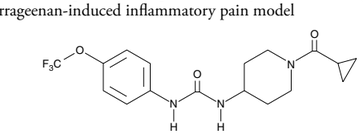
1 mg
5 mg
10 mg



CAY10640 — 10642

[1208549-68-1] sEHi, Soluble Epoxide Hydrolase Inhibitor
MF: $C_{17}H_{20}F_3N_3O_3$ **FW:** 371.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: Inhibits recombinant human and mouse sEH (IC_{50}s both = 0.4 nM) and demonstrates a 1,000-fold increase in potency compared to morphine in reducing hyperalgesia in an *in vivo* carrageenan-induced inflammatory pain model

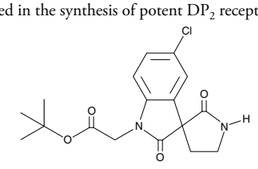
1 mg
5 mg
10 mg



CAY10648 — 9000549

[916048-02-7]
MF: $C_{17}H_{19}ClN_2O_4$ **FW:** 350.8 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An intermediate used in the synthesis of potent DP$_2$ receptor antagonists

1 mg
5 mg
10 mg
50 mg



**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

CAY10649 — 10804

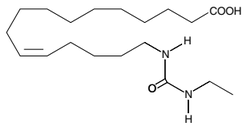
[1272519-89-7]
MF: $C_{17}H_{12}ClNO_2S$ **FW:** 329.8 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A thiazolinone compound that directly inhibits 5-LO product formation in intact polymorphonuclear leukocytes and a soluble fraction of a S100 PMNL cell lysate (IC_{50}s = 0.28 and 0.09 µM, respectively)

1 mg
5 mg
10 mg

CAY10662 — 11042

[1184844-74-3]
MF: $C_{19}H_{36}N_2O_3$ **FW:** 340.5 **Purity:** ≥98%
A solution in methanol **Stability:** ≥2 years at -20°C
Summary: A 1,3 disubstituted urea derivative of 17(R),18(S)-EpETE that is more metabolically robust and reduces the contractility of cardiomyocytes with improved potency (EC_{50} < 1 nM) over its parent compound. At concentrations 1,000-fold higher than required for the effect on cardiomyocytes, 1-5 µM CAY10662 exerts weak dose-dependent sEH inhibition

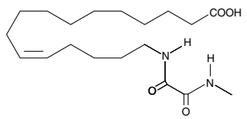
25 µg
50 µg
100 µg
500 µg



CAY10665 — 11044

[1235543-17-5]
MF: $C_{19}H_{34}N_2O_4$ **FW:** 354.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A bioisostere of 17,18-EET which is approximately 50% more effective at reducing arrhythmic contraction frequency, without affecting amplitude, when tested at 30 nM

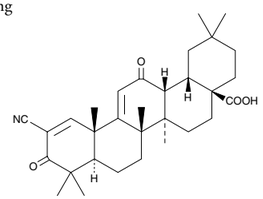
25 µg
50 µg
100 µg
500 µg



CDDO — 81035

[218600-44-3] Bardoxolone, RTA 401
MF: $C_{31}H_{41}NO_4$ **FW:** 491.7 **Purity:** ≥95%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A synthetic oleanane triterpenoid that blocks iNOS and COX-2 synthesis in INF-γ-activated mouse macrophages (IC_{50} = 0.4 nM); inhibits proliferation and induces apoptosis in various cancer cell lines and upregulates genes involved in Nrf2/antioxidant response element signaling

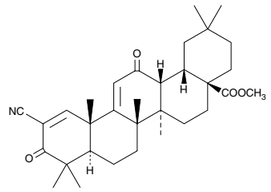
1 mg
5 mg
10 mg



CDDO methyl ester — 11883

[218600-53-4] Bardoxolone methyl, NSC 713200, RTA 402, TP-155
MF: $C_{32}H_{43}NO_4$ **FW:** 505.7 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A synthetic oleanane triterpenoid that blocks iNOS and COX-2 synthesis in INF-γ-activated mouse macrophages (IC_{50} = 0.11 nM); induces apoptosis, induces differentiation, and inhibits the inflammatory response in various tumor cells and has potent antidiabetic activity

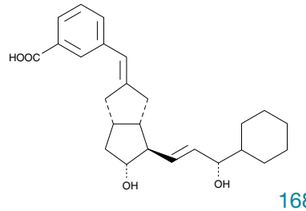
1 mg
5 mg
10 mg
50 mg



CG 4305 — 10012447

MF: $C_{25}H_{32}O_4$ **FW:** 396.5 **Purity:** ≥95%
A solution in methyl accetate **Stability:** ≥1 year at -20°C
Summary: A stable carbacyclic PGI_2 analog of that inhibits ADP-induced platelet aggregation 25% at a concentration of 50 nM; 10 mg/kg (oral) or 1 mg/kg (intraduodenal) prevents thrombotic arterial occlusion

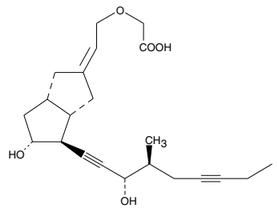
100 µg
500 µg
1 mg
5 mg



Cicaprost — 16831

[94079-80-8] ZK 96480
MF: $C_{22}H_{30}O_5$ **FW:** 374.5 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A prostacyclin analog that is orally active with prolonged availability *in vivo*, having a terminal half-life in plasma of one hour; inhibits the pro-inflammatory actions of certain leukocytes, suppresses cardiac fibrosis, and blocks mitogenesis of certain cell types

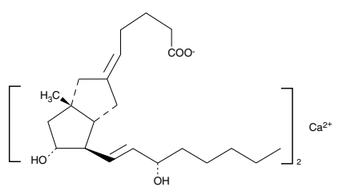
500 µg
1 mg
5 mg
10 mg



Ciprostene (calcium salt) — 18216

[81703-55-1] Ciprostene calcium, U-61431F
MF: $[C_{22}H_{35}O_4]_2 \bullet Ca^{2+}$ **FW:** 767.1 **Purity:** ≥98%
A crystalline solid **Stability:** ≥6 months at -20°C
Summary: A 9β-methyl analog of carbaprostacyclin and a stable analog of PGI_2; exhibits biological activity similar to PGI_2, but is 30-fold less potent

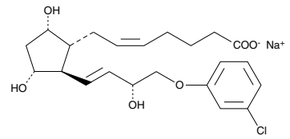
1 mg
5 mg
10 mg
50 mg



Cloprostenol (sodium salt) — 16764

[55028-72-3] (±)-16-m-chlorophenoxy tetranor $PGF_{2α}$, DL-Cloprostenol
MF: $C_{22}H_{28}ClO_6 \bullet Na$ **FW:** 446.9 **Purity:** ≥98%*
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A more water soluble, crystalline form of cloprostenol

1 mg
5 mg
10 mg
50 mg

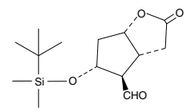


•Also Available: **(+)-Cloprostenol** (16765)
(+)-Cloprostenol isopropyl ester (10010016)
(+)-Cloprostenol methyl amide (100010495)
(+)-Cloprostenol methyl ester (10010115)
(+)-Cloprostenol (sodium salt) (16766)
(+)-5-*trans* Cloprostenol (10004970)
(+)-15-*epi* Cloprostenol (10006692)

TBS-Corey Lactone Aldehyde — 70031

[64091-14-1]
MF: $C_{14}H_{21}O_4Si$ **FW:** 281.4 **Purity:** ≥95%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A versatile, hydroxyl-protected intermediate for the synthesis of PGs and PG analogs

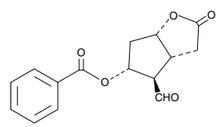
500 mg
1 g
5 g
10 g



Corey Lactone Aldehyde Benzoate — 70030

[39746-01-5]
MF: $C_{15}H_{14}O_5$ **FW:** 274.3 **Purity:** ≥90%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A versatile, chiral intermediate used in the preparation of PGs and PG analogs

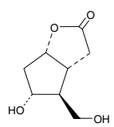
500 mg
1 g
5 g
10 g



(-)-Corey Lactone Diol — 70035

[32233-40-2]
MF: $C_8H_{12}O_4$ **FW:** 172.2 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at room temperature
Summary: A versatile, hydroxy-lactone intermediate for the synthesis of PGs and PG analogs

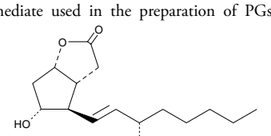
500 mg
1 g
5 g
10 g



Corey PG-Lactone Diol — 70036

MF: $C_{15}H_{24}O_4$ **FW:** 268.4 **Purity:** ≥95%
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A versatile, chiral intermediate used in the preparation of PGs and PG analogs

500 mg
1 g
5 g
10 g



**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

COX Inhibitors

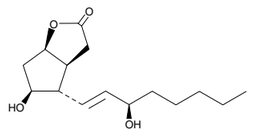
Product Name (Item no.)	COX-1 IC_{50} (µM)	COX-1 K_i (µM)	COX-2 IC_{50} (µM)	COX-2 K_i (µM)
COX-1 Selective				
FR122047 (hydrate) (10039)	0.028 (human)		65 (human)	
Phenylbutazone (70400)	16.0 (human)		>100 (human)	
trans-Resveratrol (70675)	15.0 (ovine)	26.0 (ovine)		
SC-560 (70340)	0.009 (human)		6.3 (human)	
Valeroyl Salicylate (70670)	800 (ovine)		15,000 (human)	
COX-2 Selective				
Cannabidiolic Acid (14028)			2.0	
CAY10404 (70210)	>500 (ovine)		<0.001 (ovine)	
CAY10416 (70635)			50 nM	
Celecoxib (10008672)	22.9 (human)		0.05 (human)	
DuP-697 (70645)	9.0 (human)		0.04 (human)	
N-(4-acetamidophenyl)-Indomethacin amide (70278)	50.0 (ovine)		0.625 (ovine) 0.12 (human)	
N-(2-phenylethyl)-Indomethacin amide (70272)	50.0 (ovine)		0.125 (ovine) 0.06 (human)	
N-(3-pyridyl)-Indomethacin amide (70274)	75.0 (ovine)		50.0 (ovine) 0.052 (human)	
Indomethacin heptyl ester (70271)	>66.0 (ovine)		0.04 (human)	
Indomethacin N-octyl amide (70273)	66.0 (ovine)		0.04 (human)	
Niflumic Acid (70650)	16.0 (human)	2.0 (ovine)	0.1 (human)	0.02 (ovine)
Nimesulide (70640)	70.0 (human) 22.0 (ovine)		1.27 (human) 0.03 (ovine)	
NS-398 (70590)	75.0 (human) 220 (ovine)		1.77 (human) 0.15 (ovine)	
SC-58125 (70655)			70 nM	
Non-Selective				
O-Acetyl Salicylhydroxamic Acid (70263)				
5-Aminosalicylic Acid (70265)	410 (human WB)		61.0 (human WB)	
Aspirin (70260)	750 (ovine)		1,250 (human)	
N-acetyl-2-carboxy Benzenesulfonamide (10008284)	0.06		0.25	
Diclofenac (Sodium Salt) (70680)	0.9 (human) 0.06 (ovine)		1.5 (human) 0.22 (ovine)	
(±)-Flurbiprofen (70250)	0.04 (human)		0.51 (human)	
(±)-Ibuprofen (70280)	2.6 (human)	9.0 (ovine)	1.53 (human)	9.0 (ovine)
Indomethacin (70270)	1.67 (human) 0.1 (ovine)		24.6 (human) 6.0 (ovine)	
Ketoprofen (10006661)	0.5 (human)		2.33 (human)	
Ketorolac (9001148)	31.5 (human)		60.5 (human)	
Meclofenamate (sodium salt) (70550)	1.5 (human)		9.7 (human)	
6-methoxy Naphthalene Acetic Acid (70620)	20 (human)	21 (ovine)	20 (human)	19 (ovine)
(S)-Naproxen (70290)	0.6 (human)		2.0 (human)	
9,12-Octadecadiynoic Acid (90400)		0.6 (ovine)		
Piroxicam (13368)	1.57		1.69	
Zaltoprofen (14662)	1.3 (human)		0.34 (human)	
ZLJ-6 (13271)	0.73		0.31	

Also Available: *4-hydroxy Diclofenac (10008518) • (R)-Flurbiprofen (70255) (S)-Flurbiprofen (10004207) • Ketorolac (tromethamine salt) (70690)*

ent-Corey PG-Lactone Diol 10653

MF: $C_{15}H_{24}O_4$ **FW:** 268.4 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: The opposite enantiomer of corey PG-lactone diol, a versatile, chiral intermediate used in the preparation of PGs and PG analogs

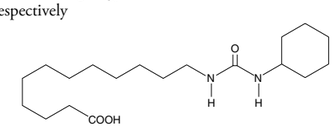
100 µg
500 µg
1 mg
5 mg



CUDA 10007923

[479413-68-8]
MF: $C_{19}H_{36}N_2O_3$ **FW:** 340.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An inhibitor of sEH exhibiting IC_{50} values of 11.1 and 112 nM for the mouse and human enzymes, respectively

5 mg
10 mg
25 mg
50 mg



Cyclopentenone Prostaglandin HPLC Mixture 10000

Purity: ≥98% for each compound
A solution in methyl acetate **Stability:** ≥6 months at -80°C
Summary: Contents: PGA_2, PGB_2, PGD_2, PGE_2, PGJ_2, and 15-deoxy-$\Delta^{12,14}$-PGJ_2 (100 µg each)

1 ea

Cysteinyl Leukotriene HPLC Mixture I 20001

Purity: ≥98% for each compound
A solution in ethanol **Stability:** ≥6 months at -80°C
Summary: Contents: LTC_4, LTD_4, LTE_4, LTF_4, and N-acetyl LTE_4 (5 µg each)

1 ea

Cysteinyl Leukotriene HPLC Mixture II 20002

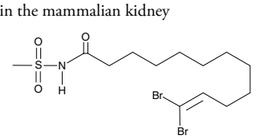
Purity: ≥98% for each compound
A solution in ethanol **Stability:** ≥6 months at -80°C
Summary: Contents: LTC_4, LTD_4, LTE_4, LTF_4, N-acetyl LTE_4 (5 µg each) and PGB_2 (10 µg)

1 ea

DDMS 10018

[206052-03-1] Dibromo-dodecenyl-methylsulfimide
MF: $C_{13}H_{23}Br_2NO_3S$ **FW:** 433.2 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A mechanism-based, irreversible inhibitor of CYP4A2, an enzyme that predominantly synthesizes 20-HETE in the mammalian kidney

1 mg
5 mg
10 mg
50 mg



Dihydroxy Eicosatrienoic Acids (DHETs)

Item No.	Product Name	Sizes
51211	(±)5,6-DHET*	25 µg • 50 µg • 100 µg • 250 µg
51212	(±)5,6-DHET lactone	25 µg • 50 µg • 100 µg • 250 µg
51351	(±)8,9-DHET*	25 µg • 50 µg • 100 µg • 250 µg
10009998	(±)8,9-DHET-d_{11}	25 µg • 50 µg • 100 µg • 250 µg
51511	(±)11,12-DHET*	25 µg • 50 µg • 100 µg • 250 µg
10007975	(±)11,12-DHET-d_{11}	25 µg • 50 µg • 100 µg • 250 µg
51651	(±)14,15-DHET*	25 µg • 50 µg • 100 µg • 250 µg
10008040	(±)14,15-DHET-d_{11}	25 µg • 50 µg • 100 µg • 250 µg

**The corresponding Lipid Maps Standard is also available from Cayman.*

Dihydroxy Eicosatetraenoic Acids (DiHETEs)

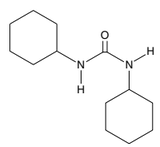
Item No.	Product Name	Sizes
Arachidonic Acid Derivatives		
10467	5,6-DiHETE	25 µg • 50 µg • 100 µg • 250 µg
35200	5(S),6(R)-DiHETE*	25 µg • 50 µg • 100 µg • 250 µg
10009628	5(S),6(R)-11-*trans*-DiHETE	25 µg • 50 µg • 100 µg • 250 µg
35210	5(S),6(S)-DiHETE*	25 µg • 50 µg • 100 µg • 250 µg
35280	5(S),15(S)-DiHETE*	25 µg • 50 µg • 100 µg • 250 µg
35370	8(S),15(S)-DiHETE	25 µg • 50 µg • 100 µg • 250 µg
Eicosapentaenoic Acid Derivatives		
10006998	(±)14,15-DiHETE	25 µg • 50 µg • 100 µg • 250 µg
10006999	(±)17,18-DHETE	25 µg • 50 µg • 100 µg • 250 µg

**The corresponding Lipid Maps Standard is also available from Cayman.*

N,N'-Dicyclohexylurea 10004971

[2387-23-7] DCU, NSC 17013
MF: $C_{13}H_{24}N_2O$ **FW:** 224.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A selective sEH inhibitor with IC_{50} values of 160 and 90 nM for recombinant human and mouse sEH, respectively; at 10 µM, blocks the hydrolysis of *cis*- and *trans*-EETs and completely inhibits 14(15)-EET-induced PPAR activation

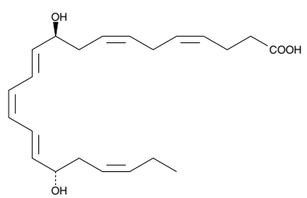
10 g
25 g
50 g



10(S),17(S)-DiHDoHE 10008128

[871826-47-0] PDX, Protectin DX
MF: $C_{22}H_{32}O_4$ **FW:** 360.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A DHA metabolite produced by an apparent double lipoxygenase-mediated reaction; blocks neutrophil infiltration in mouse peritonitis by 20-25% at a dose of 1 ng/mouse; inhibits platelet activation by both impairing TX synthesis and TX receptor activation

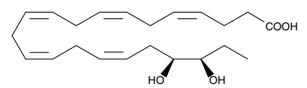
25 µg
50 µg
100 µg
500 µg



(±)19,20-DiHDPA 10007001

(±)19,20-DiHDoPE
MF: $C_{22}H_{34}O_4$ **FW:** 362.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: (±)19,20-DiHDPA is one of the major metabolites produced when DHA is incubated with NADPH-supplemented rat liver microsomes; formed by the slow metabolism of DHA by monkey seminal vesicles

50 µg
100 µg
500 µg
1 mg

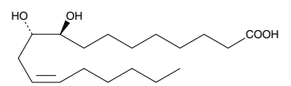


NOTE: Relative stereochemistry shown in chemical structure

(±)9,10-DiHOME 53400

[263399-34-4] Leukotoxin diol
MF: $C_{18}H_{34}O_4$ **FW:** 314.5 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: Racemic version of a product of epoxide hydrolase metabolism of leukotoxin, the 9(10) epoxide of linoleic acid generated by neutrophils during the oxidative burst

25 µg
50 µg
100 µg
500 µg



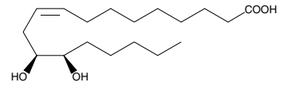
NOTE: Relative stereochemistry shown in chemical structure

•Also Available: **(±)9,10-DiHOME-d_4** (10009993)

(±)12,13-DiHOME 10009832

[263399-35-5] Isoleukotoxin diol
MF: $C_{18}H_{34}O_4$ **FW:** 314.5 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: The diol resulting from the sEH opening of (±)12,13-EpOME

25 µg
50 µg
100 µg
500 µg



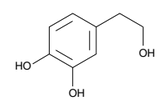
NOTE: Relative stereochemistry shown in chemical structure

•Also Available: **(±)12,13-DiHOME-d_4** (10009994)

3,4-Dihydroxyphenyl ethanol 70604

[10597-60-1] Ba2774, 3-Hydroxytyrosol
MF: $C_8H_{10}O_3$ **FW:** 154.2 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A phenolic component of olive oil that inhibits both 12- and 5-LO; IC_{50} values for the inhibition of rat platelet 12-LO and rat neutrophil 5-LO are 4.2 and 13 µM, respectively

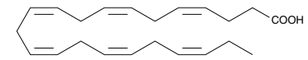
5 mg
10 mg
50 mg
100 mg



Docosahexaenoic Acid 90310

[6217-54-5] Cervonic Acid, DHA
MF: $C_{22}H_{32}O_2$ **FW:** 328.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An essential fatty acid and the most abundant ω-3 fatty acid in neural tissues, especially in the retina and brain

50 mg
100 mg
250 mg
500 mg

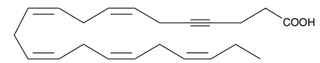


•Also Available: **Docosahexaenoic Acid-d_5** (10005057)
Docosahexaenoic Acid ethyl ester (9090310)
Docosahexaenoic Acid methyl ester (10006865)
Docosahexaenoic Acid Quant-PAK (10006829)

4,5-dehydro Docosahexaenoic Acid 90312

4,5-dehydro Cervonic Acid, 4,5-dehydro DHA
MF: $C_{22}H_{30}O_2$ **FW:** 326.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A novel analog of DHA in which the double bond closest to the carboxyl group has been substituted with a triple bond; the corresponding acetylene in arachidonic acid is a well known inhibitor of 5-LO

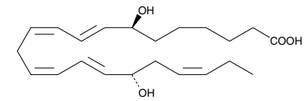
25 µg
50 µg
100 µg
500 µg



7(S),17(S)-dihydroxy-8(Z),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid 10546

[887752-13-8] 7(S), 17(S)-hydroxy DPA
MF: $C_{22}H_{34}O_4$ **FW:** 362.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A DPA-derived analog of the 17(S)-dihydroxy series of docosanoids known as protectins

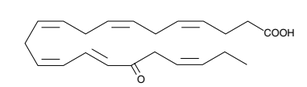
25 µg
50 µg
100 µg
500 µg



17-keto-4(Z),7(Z),10(Z),13(Z),15(E),19(Z)-Docosahexaenoic Acid 9000346

17-keto-(4Z,7Z,10Z,13Z,15E,19Z)-DHA
MF: $C_{22}H_{30}O_3$ **FW:** 342.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥6 months at -80°C
Summary: A metabolite of lipoxygenase-mediated oxidation of DHA; activates Nrf2-dependent antioxidant gene expression, acts as a PPARγ agonist (EC_{50} = ~200 nM), and inhibits pro-inflammatory cytokine and NO production at biological concentration ranges (5-25 µM)

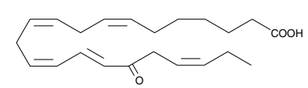
25 µg
50 µg
100 µg
250 µg

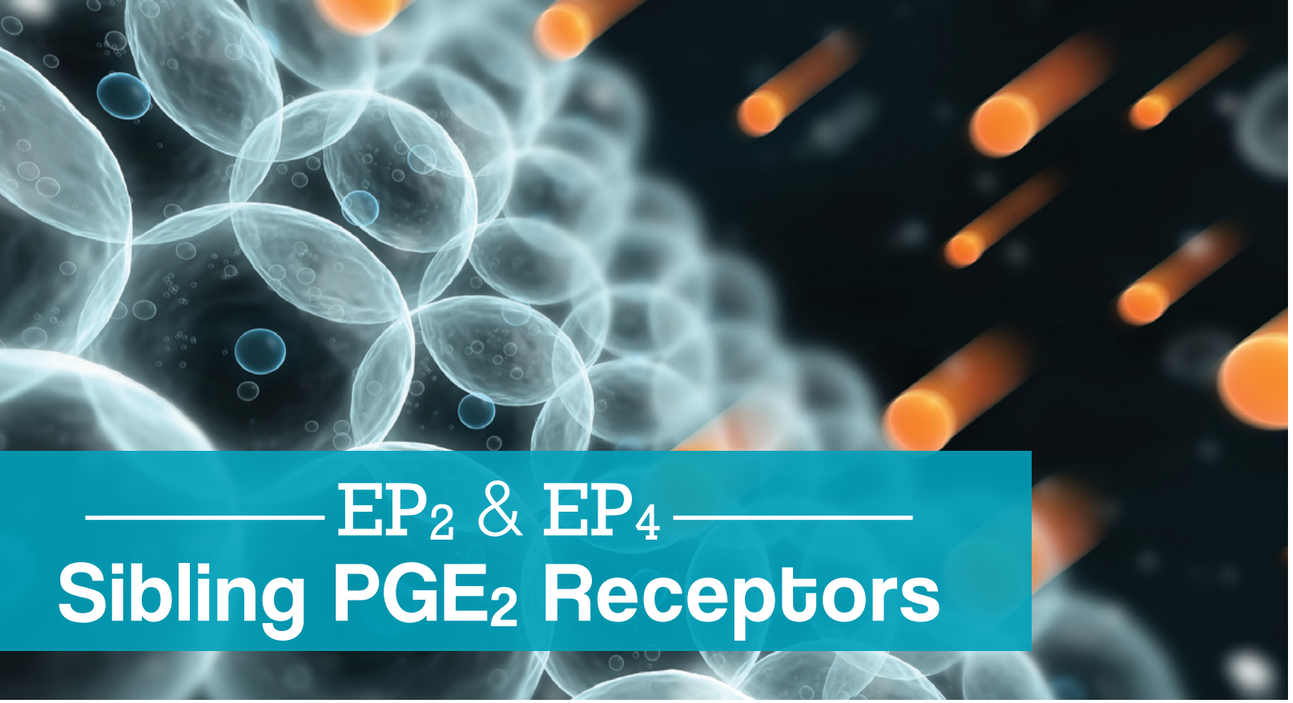


17-keto-7(Z),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid 9000347

17-keto-7(Z),10(Z),13(Z),15(E),19(Z)-DPA
MF: $C_{22}H_{32}O_3$ **FW:** 344.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥6 months at -80°C
Summary: A metabolite of lipoxygenase-mediated oxidation of DPA; activates Nrf2-dependent antioxidant gene expression, acts as a PPARγ agonist (EC_{50} = ~200 nM), and inhibits pro-inflammatory cytokine and NO production at biological concentration ranges (5-25 µM)

100 µg
250 µg
500 µg
1 mg





EP_2 & EP_4 Sibling PGE_2 Receptors

by [Thomas G. Brock, Ph.D.]

Prostaglandin E_2 (PGE_2) has a role in many processes, contributing to pain, fever, and inflammation, reproduction and parturition, cardiovascular tone and blood pressure, and protection of renal, gastrointestinal, and neurological systems. It evokes these effects by targeting four distinct E prostanoid (EP) receptors. The first to be cloned, surprisingly, was not EP_1. Instead, cloning of two isoforms of EP_3 was reported in 1992, followed closely by EP_2 in 1993. The current nomenclature for prostanoid receptors was first proposed over thirty years ago in 1982 and developed over the intervening decade. At that time, receptors were defined on their different tissue distributions, pharmacological profiles, and signal transduction pathways. EP_1 was known to contract guinea pig fundus and elevate intracellular Ca^{2+}, while EP_3 inhibited neuronally-mediated contraction of guinea pig vas deferens and suppressed adenylate cyclase. EP_2 was known to mediate PGE_2-induced relaxation of cat trachea, an effect associated with increased cAMP levels in airway smooth muscle. However, a similar pattern of action, PGE_2-mediated relaxation of chick ileum and piglet saphenous vein associated with increased cAMP levels, could not be triggered by EP_2-selective agonists, raising conjecture of a fourth EP receptor. Confusion in the field climaxed when two papers published in 1994 claimed the cloning of the human EP_2 gene but gave different protein sequences.[1,2] Of course, the gene product that responded to EP_2-selective agonists was deemed the true EP_2 receptor, while the other was eventually recognized to be EP_4. Thus, EP_2 and EP_4 are G protein-coupled receptors (GPCR) which activate adenylate cyclase to convert ATP to cAMP and induce smooth muscle relaxation. With so much in common, one may wonder how they differ. This article explores some of the differences between EP_2 and EP_4.

Getting to Know EP_2 and EP_4

Superficially, EP_2 and EP_4 have notable differences in structure (Figure 1). Aligning the sequences of mouse and human forms of both proteins using the program CLUSTALW reveals that the seven transmembrane domains (TMDs) share high homology. This may, in part, be related to their role in forming the binding pocket for the lipophilic ligand. Of the six loops between TMDs, only the second cytoplasmic loop is similar in both EP_2 and EP_4, suggesting that this region is critical for common intracellular signaling, perhaps by binding a G protein. Two interesting structural features differ between EP_2 and EP_4. Both human and mouse EP_2 have a disulfide bond linking cysteine residues on neighboring extracellular loops. As disulfide bonds are altered by redox balance, the activity of EP_2, but not EP_4, may be affected by changes at this cysteine bridge. As another point of difference, EP_4 has a much longer cytoplasmic tail than EP_2. Human EP_4 has four clustered serine residues which can be phosphorylated, while only three are targeted in mouse EP_4 (the fourth serine is replaced by alanine).[3] These sites are phosphorylated in response to agonist treatment and play a role in binding β-arrestin1 to EP_4 (discussed later). Remarkably, several studies have demonstrated that EP_2 also displays agonist-induced recruitment of β-arrestin, even though its C-terminal domain cannot be phosphorylated.[4-6]

Studies on knockout mice, lacking either EP_2 or EP_4, suggest differences in function. For example, knockouts of either receptor display changes in bone formation.[7-9] Both receptors are involved in osteoclast differentiation.[7] However, only EP_4 is necessary for PGE_2-induced matrix metalloproteinases (MMPs), with MMP-2 and MMP-13 being involved in bone resorption.[8] The importance of EP_4 in bone resorption and formation is revealed in older male mice, where knockout of the EP_4 gene results in impaired repair of fractured long bones.[9] Similarly, knockout mice suggest roles for both EP_2 and EP_4

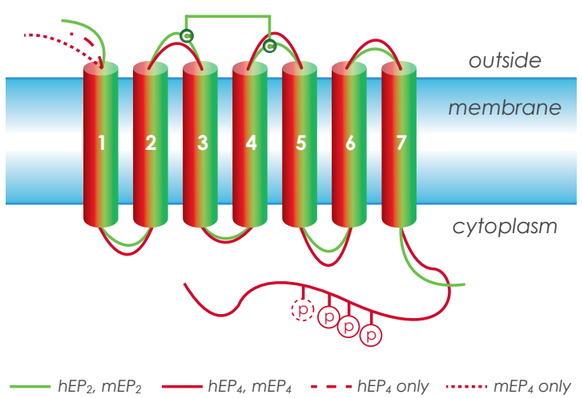
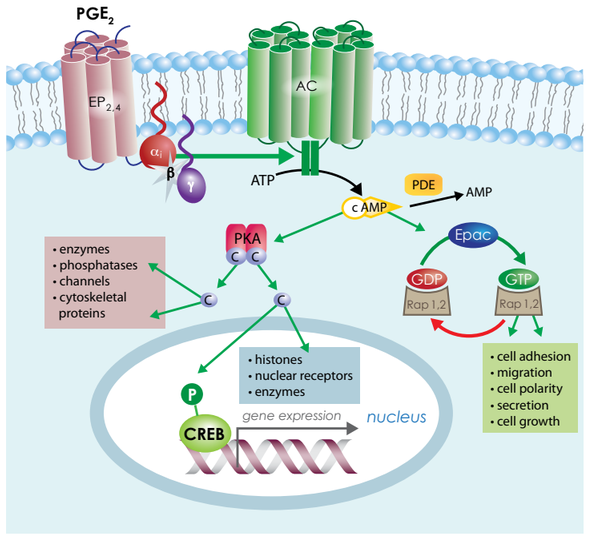


Figure 1. Sequence alignment of human (h) and mouse (m) EP_2 and EP_4 protein sequences reveals low homology in most loops extending from transmembrane α-helices. Notably, hEP_4 differs from mEP_4 at the N-terminal tail.

Figure 2. The classical route of signaling through EP_2 and EP_4 involves activating adenylate cyclase (AC) and increasing levels of the second messenger cAMP. cAMP acts through PKA and Epac to regulate a host of actions both in the cytoplasm and within the nucleus.



in cancer. While both have been implicated in colon cancer, EP_2 has been implicated in skin and breast cancer and EP_4 may have a role in the metastasis of mammary tumor cells to bone.[10-13] Both receptors have been implicated in disruption of the blood-aqueous barrier in the eye, while myocyte EP_4, but not EP_2, plays a role in hypertrophy after cardiac infarct.[14-16]

Early studies reported finding EP_2 predominantly expressed in placenta and lung, while EP_4 is relatively ubiquitous, with highest expression in the small intestine.[1,2] In fact, the cellular and tissue distribution of EP_2 overlaps significantly with that of EP_4, so that they have many actions in common. For example, both induce smooth muscle relaxation related to vasodilation, contribute to angiogenesis and cancer, alter leukocyte function, promote ovarian follicle growth, and stimulate renin release. In many cases, EP_2 and EP_4 provide redundancy or act additively. Both receptors are involved in PGE_2-induced esponse element-binding protein (CREB) leading to gene expression in lymphocytes.[17] Similarly, both EP_2 and EP_4 can mediate a positive feedback loop by which PGE_2 induces, through protein kinase A (PKA) and CREB, the up-regulation of cyclooxygenase-2 (COX-2) expression and more PGE_2 biosynthesis.[11] However, the devil is in the details. For example, the two structural differences mentioned above (cysteine disulfide bridge, C-terminal tail phosphorylation) implies that the activities of the two receptors are modulated differently. In addition, the genes for the two receptors are not expressed in unison, so that one may be induced without the other.[18-20]

Signaling through PKA

As mentioned earlier in this article, EP_2 and EP_4 are GPCRs which activate adenylate cyclase (AC), initiating the conversion of ATP to cAMP (Figure 2). cAMP is best known as an activator of PKA, which exists in resting cells as a tetramer of two regulatory subunits holding two catalytic subunits (Cα) in an inactive state. Binding of cAMP to the regulatory subunits allows release of Cα, which are then functional. In some cases, the PKA complex is parked on A-kinase anchoring proteins (AKAPs) and the activated Cα phosphorylates neighboring targets. Alternatively, released Cα can diffuse to distant targets within the cytoplasm or the nucleus. cAMP also signals through Exchange Proteins Activated by cAMP (Epacs). These guanine nucleotide exchange factors (GEFs) target the Ras GTPase homologs Rap1 and Rap2, which are functional when bound GDP is replaced with GTP by a GEF, like Epac. The cAMP-Epac-Rap pathways are involved in regulating a variety of different cell-specific processes, ranging from cell adhesion to growth. Signaling through cAMP is terminated by its metabolism to AMP by phosphodiesterases (PDE).

β-Arrestins 1 and 2 also interact with EP_2 and EP_4, but in distinctively different ways. In the classical model, agonist activation of GPCRs elicits receptor phosphorylation by GPCR kinases, or GRKs, which generates a binding site for β-arrestin.[21] This leads to receptor internalization, eliminating the response to agonist until the receptor is recycled or regenerated. EP_4, which displays agonist-induced phosphorylation, binds β-arrestin2 in airway smooth muscle cells and is internalized, whereas EP_2 receptors are resistant to internalization.[6,22] For both EP_2 and EP_4, agonist-induced binding of the other isoform, β-arrestin1, activates signaling through c-Src to EGFR. In keratinocytes, EP_2 activation promotes proliferation *via* a c-Src/EGFR axis which stimulates Akt, ERK1/2, and STAT3.[5,23] PGE_2 promotes migration of colorectal and lung cancer cells through EP_4 by a β-arrestin2-dependent c-Src pathway.[24,25] Further signaling through EGFR and Akt may be involved in tumor metastasis in the colon. Curiously, agonist-induced binding of β-arrestin1 to EP_4 depends on a C-terminal domain which is not phosphorylated.[3]

Research Reagents

Please refer to the Table for high purity agonists and antagonists for all four of the EP receptors, which are available from Cayman. Also, within this catalog, you can find information about antibodies for detecting each of the four EP receptors, as well as fluorescently-tagged antibodies for EP_2 and EP_4.

	Agonists	Antagonists
EP_1	Iloprost (18215) K_i = 11 nM	ONO-8711 (14070) K_i = 0.6 nM
	17-phenyl trinor PGE_2 (14810)	SC-51322 (10010744) K_i = 13.8 nM
		AH 6809 (14050) K_i (EP_1) =1.2 µM
		SC-51089 (10011561) K_i = 1.3 µM
		SC-19220 (14060) K_i = 6.7 µM
EP_2	Butaprost (13740) K_i = 2.4 µM	PF-04418948 (15016) IC_{50} = 16 nM
	Butaprost (free acid) (13741) K_i = 73 nM	AH 6809 (14050) K_i (EP_2) =1.1 µM
	19(R)-hydroxy PGE_2 (14910)	
	11-deoxy-16,16-dimethyl PGE_2 (14570)	
EP_3	Sulprostone (14765) K_i = 0.35 nM	AH 6809 (14050) K_i (EP_3) =1.6 µM
	17-phenyl trinor PGE_2 (14810)	
	11-deoxy-16,16-dimethyl PGE_2 (14570)	
EP_4	L-902,688 (10007712) K_i = 0.38 nM	L-161,982 (10011565) K_i = 24 nM
	CAY10598 (13281) K_i = 1.2 nM	GW 627368X (10009162) K_i = 100 nM
	CAY10580 (16835) K_i = 35 nM	AH 23848 (calcium salt, hydrate) (19023)

Table 1. EP receptor agonists and antagonists available from Cayman

References

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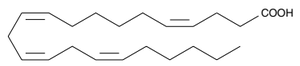
cis-4,10,13,16-Docosatetraenoic Acid 10007289

[122068-08-0]
MF: $C_{22}H_{36}O_2$ **FW:** 332.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A long chain PUFA

10 mg
25 mg
50 mg
100 mg

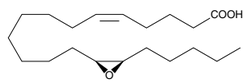


•Also Available: ***cis*-4,10-13,16-Docosatetraenoic Acid methyl ester** (10006866)

14,15-EE-5(Z)-E 10004946

[519038-92-7] 14,15-Epoxyeicosa-5(Z)-enoic Acid
MF: $C_{20}H_{36}O_3$ **FW:** 324.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A structural analog of 14(15)-EET that antagonizes EET-induced relaxation of vascular smooth muscle

25 µg
50 µg
100 µg
500 µg

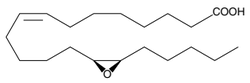


NOTE: Relative stereochemistry shown in chemical structure

14,15-EE-8(Z)-E 10010486

[519038-93-8] 14,15-Epoxyeicosa-8(Z)-enoic Acid
MF: $C_{20}H_{36}O_3$ **FW:** 324.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A structural analog of 14(15)-EET that demonstrates potent vasodilator agonist activity in bovine coronary arteries similar to that of 14(15)-EET

25 µg
50 µg
100 µg
500 µg



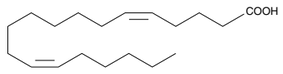
NOTE: Relative stereochemistry shown in chemical structure

•Also Available: **8,9-EE-14(Z)-E** (18112)

5(Z),14(Z)-Eicosadienoic Acid 10010484

[122055-58-7]
MF: $C_{20}H_{36}O_2$ **FW:** 308.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A novel ω-6 C20:2 fatty acid

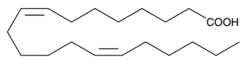
100 µg
500 µg
1 mg
5 mg



8(Z),14(Z)-Eicosadienoic Acid 16854

[135498-07-6]
MF: $C_{20}H_{36}O_2$ **FW:** 308.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An ω-8 C20:2 fatty acid; has been detected in human milk at a level of 0.19% (weight % total fatty acids)

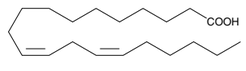
100 µg
500 µg
1 mg
5 mg



11(Z),14(Z)-Eicosadienoic Acid 90330

[2091-39-6]
MF: $C_{20}H_{36}O_2$ **FW:** 308.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An uncommon, naturally occurring PUFA; inhibits the binding of [^{3}H]-LTB_4 to porcine neutrophil membranes with a K_i value of 3 µM

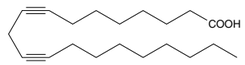
50 mg
100 mg
250 mg
500 mg



8,11-Eicosadiynoic Acid 90100

[82073-91-4] EDYA
MF: $C_{20}H_{32}O_2$ **FW:** 304.5 **Purity:** ≥95%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: An acetylenic fatty acid which inhibits arachidonoyl synthase, acyl-CoA synthase, Δ^5-desaturase, COX, and also arachidonic acid uptake by platelets

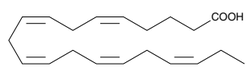
1 mg
5 mg
10 mg
50 mg



Eicosapentaenoic Acid 90110

[10417-94-4] EPA, Timnodonic Acid
MF: $C_{20}H_{30}O_2$ **FW:** 302.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An ω-3 fatty acid abundantly available in marine organisms

50 mg
100 mg
250 mg
500 mg

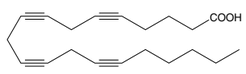


•Also Available: **Eicosapentaenoic Acid-d_5** (10005056)
Eicosapentaenoic Acid ethyl ester (10008884)
Eicosapentaenoic Acid methyl ester (9000295)
Eicosapentaenoic Acid (peroxide free) (90110.1)
Eicosapentaenoic Acid Quant-PAK (13048)

Eicosatetraynoic Acid 90120

[1191-85-1] ETYA
MF: $C_{20}H_{24}O_2$ **FW:** 296.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A nonspecific inhibitor of COXs and LOs; inhibits human platelet 12-LO and COX-1 with IC_{50} values of 4 and 8 µM, respectively

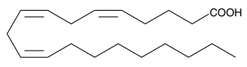
5 mg
10 mg
25 mg
50 mg



5(Z),8(Z),11(Z)-Eicosatrienoic Acid 90190

[20590-32-3] Mead Acid
MF: $C_{20}H_{34}O_2$ **FW:** 306.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A fatty acid that accumulates in the tissues of animals fed diets deficient in both ω-3 and ω-6 fatty acids

1 mg
5 mg
10 mg
25 mg

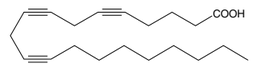


•Also Available: **5(Z),8(Z),11(Z)-Eicosatrienoic Acid-d_6** (10742)
5(Z),8(Z),14(Z)-Eicosatrienoic Acid (10009733)
5(Z),11(Z),14(Z)-Eicosatrienoic Acid (10009999)
11(Z),14(Z),17(Z)-Eicosatrienoic Acid (90192)

5,8,11-Eicosatriynoic Acid 90200

[13488-22-7] 5,8,11-ETI
MF: $C_{20}H_{28}O_2$ **FW:** 300.4 **Purity:** ≥99%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A nonselective LO inhibitor; inhibits A23187 and L-cysteine induced LTC_4 biosynthesis in mouse mastocytoma cells; also inhibits COX

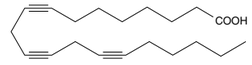
1 mg
5 mg
10 mg
50 mg



8,11,14-Eicosatriynoic Acid 10007900

[34262-64-1] 8,11,14-ETI
MF: $C_{20}H_{28}O_2$ **FW:** 300.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An inhibitor of COX (IC_{50} = 14 µM), human 12-LO (IC_{50} = 0.46 µM), 5-LO (IC_{50} = 25 µM), and the actions of SRS-A (IC_{50} = 10 µM)

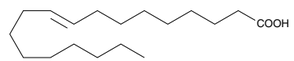
1 mg
5 mg
10 mg
50 mg



Elaidic Acid 90250

[112-79-8] trans-Oleic Acid
MF: $C_{18}H_{34}O_2$ **FW:** 282.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥2 years at -20°C
Summary: The 9-*trans* isomer of oleic acid which can be found in partially hydrogenated cooking oils; inhibits HHTrE and HETE formation while inducing PG and TX synthesis in human platelets

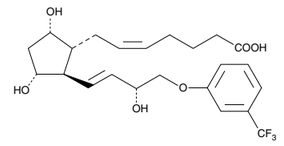
50 mg
100 mg
250 mg
1 g



Fluprostenol 16768

[54276-17-4] 16-m-trifluoromethylphenoxy tetranor $PGF_{2\alpha}$
MF: $C_{23}H_{29}F_3O_6$ **FW:** 458.5 **Purity:** ≥95%*
A solution in ethanol **Stability:** ≥2 years at -20°C
Summary: The optically active enantiomer of fluprostenol

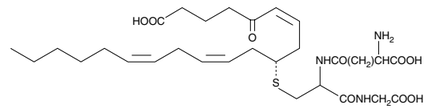
1 mg
5 mg
10 mg
25 mg



FOG9 34265

5-OxoETE-glutathione
MF: $C_{30}H_{47}N_3O_9S$ **FW:** 625.8 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥6 months at -80°C
Summary: A conjugate of 5-oxoETE with glutathione in a 1,6 Michael addition at C-9

25 µg
50 µg
100 µg
500 µg



Epoxy Fatty Acids

Item No.	Product Name	Sizes
Arachidonic Acid Derivatives		
50211	5(6)-EET*	25 µg • 50 µg • 100 µg • 500 µg
10009984	5(6)-EET-d_{11}	10 µg • 25 µg • 50 µg
10008596	5(6)-EET Ethanolamide	25 µg • 50 µg • 100 µg
50210	5(6)-EET methyl ester	25 µg • 50 µg • 100 µg • 250 µg
50351	8(9)-EET*	25 µg • 50 µg • 100 µg • 500 µg
10009532	8(9)-EET-d_{11}	10 µg • 25 µg • 50 µg
10008597	8(9)-EET Ethanolamide	25 µg • 50 µg • 100 µg
50350	8(9)-EET methyl ester	25 µg • 50 µg • 100 µg • 250 µg
50511	11(12)-EET*	25 µg • 50 µg • 100 µg • 500 µg
10006413	11(12)-EET-d_{11}	10 µg • 25 µg • 50 µg • 100 µg
10008598	11(12)-EET Ethanolamide	25 µg • 50 µg • 100 µg
50510	11(12)-EET methyl ester	25 µg • 50 µg • 100 µg • 500 µg
50651	14(15)-EET*	25 µg • 50 µg • 100 µg • 500 µg
10006410	14(15)-EET-d_{11}	25 µg • 50 µg • 100 µg • 250 µg
10008599	14(15)-EET Ethanolamide	25 µg • 50 µg • 100 µg
50650	14(15)-EET methyl ester	25 µg • 50 µg • 100 µg • 250 µg
10009286	14(15)-EET-SI	25 µg • 50 µg • 100 µg
Docosahexanenoic Acid Derivatives		
90314	4(5)-EpDPE methyl ester	25 µg • 50 µg • 100 µg • 500 µg
10174	16(17)-EpDPE	25 µg • 50 µg • 100 µg • 500 µg
10175	19(20)-EpDPE	25 µg • 50 µg • 100 µg • 500 µg
Eicosapentaenoic Acid Derivatives		
90114	5(6)-EpETE methyl ester	25 µg • 50 µg • 100 µg • 500 µg
10470	8(9)-EpETE	25 µg • 50 µg • 100 µg • 500 µg
10462	11(12)-EpETE	25 µg • 50 µg • 100 µg • 500 µg
10173	14(15)-EpETE	25 µg • 50 µg • 100 µg • 500 µg
50861	17(18)-EpETE	25 µg • 50 µg • 100 µg • 500 µg
Linoleic Acid Derivatives		
52400	9(10)-EpOME	25 µg • 50 µg • 100 µg • 250 µg
10009995	9(10)-EpOME-d_4	25 µg • 50 µg • 100 µg • 250 µg
52450	12(13)-EpOME	25 µg • 50 µg • 100 µg • 250 µg
10009996	12(13)-EpOME-d_4	25 µg • 50 µg • 100 µg • 250 µg
*The corresponding Lipid Maps Standard is also available from Cayman.		

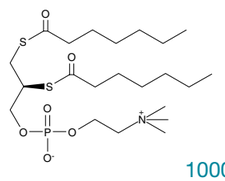
*All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.

Fluprostenol Analogs		
Item No.	Product Name	Sizes
316767	Fluprostenol-d_4	50 µg • 100 µg • 500 µg • 5 mg
16769	Fluprostenol isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
70037	Fluprostenol Lactone Diol	100 mg • 500 mg • 1 g • 5 g
10010406	Fluprostenol methyl amide	1 mg • 5 mg • 10 mg • 50 mg
10010151	Fluprostenol methyl ester	1 mg • 5 mg • 10 mg • 50 mg
10004236	Fluprostenol serinol amide	1 mg • 5 mg • 10 mg • 50 mg
16787	15(S)-Fluprostenol	1 mg • 5 mg • 10 mg • 100 mg
16788	15(S)-Fluprostenol isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
16776	5-*trans* Fluprostenol	1 mg • 5 mg • 10 mg • 100 mg
16777	5-*trans* Fluprostenol isopropyl ester	1 mg • 5 mg • 10 mg • 100 mg
16780	2,3-dinor Fluprostenol	25 µg • 50 µg • 100 µg • 1 mg
13679	13,14-epoxy Fluprostenol isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
11169	13(R),14(R)-epoxy Fluprostenol isopropyl ester	1 mg • 5 mg • 10 mg
11170	13(S),14(S)-epoxy Fluprostenol isopropyl ester	1 mg • 5 mg • 10 mg
16781	9-keto Fluprostenol	1 mg • 5 mg • 10 mg • 50 mg
16782	9-keto Fluprostenol isopropyl ester	1 mg • 5 mg • 10 mg • 100 mg
16783	11-keto Fluprostenol	1 mg • 5 mg • 10 mg • 50 mg
16785	15-keto Fluprostenol	1 mg • 5 mg • 10 mg • 50 mg
16786	15-keto Fluprostenol isopropyl ester	1 mg • 5 mg • 10 mg • 25 mg

1,2-*bis*(heptanoylthio) Glycerophosphocholine 62235

[89019-63-6] Diheptanoyl Thio-PC, 1,2-bis(Heptanoylthio)-1,2-dideoxy-sn-glycero-3-phosphorylcholine
MF: $C_{22}H_{44}NO_6PS_2$ **FW:** 513.7 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A colorimetric substrate for all PLA_2s with the exception of $cPLA_2$ and PAF-AH

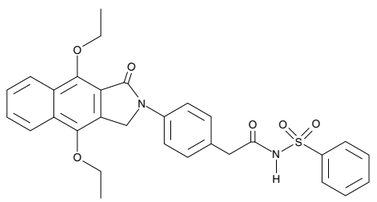
5 mg
10 mg
25 mg
50 mg



GW 627368X 10009162

[439288-66-1]
MF: $C_{30}H_{28}N_2O_6S$ **FW:** 544.6 **Purity:** ≥96%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent and selective EP_4 receptor antagonist with additional human TP receptor affinity; binds to human EP_4 and TP receptors with K_i values of 100 and 158 nM, respectively

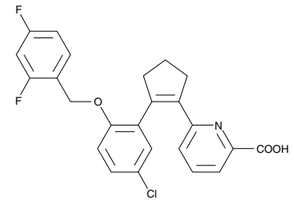
1 mg
5 mg
10 mg
25 mg



GW 848687X 10010410

[612831-24-0]
MF: $C_{24}H_{18}ClF_2NO_3$ **FW:** 441.9 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A potent and selective EP_1 receptor antagonist (IC_{50} = 2.5 nM), with >400-fold selectivity relative to EP_2, EP_3, EP_4, DP_1, and IP; has 30-fold selectivity over TP; shows complete anti-hyperalgesic activity in a rat model of chronic inflammatory joint pain

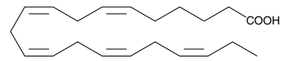
500 µg
1 mg
5 mg



Heneicosapentaenoic Acid 10670

[24257-10-1] HPA
MF: $C_{21}H_{32}O_2$ **FW:** 316.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A 21:5 ω-3 fatty acid present in trace amounts in the green alga *B. pennata* and in fish oils; can be used to study the significance of the position of the double bonds in ω-3 fatty acids; rapidly inactivates PGHS (COX)

1 mg
5 mg
10 mg
25 mg

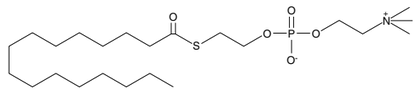


•Also Available: **Heneicosapentaenoic Acid-d_6** (10570)
Heneicosapentaenoic Acid methyl ester (11622)

HEPC 10006695

[60793-01-3] 2-Hexadecanoylthio-1-Ethylphosphorylcholine
MF: $C_{23}H_{48}NO_5PS$ **FW:** 481.7 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A chromogenic substrate for Type II PLA_2 enzymes, such as porcine pancreatic, bee venom, and snake venom PLA_2

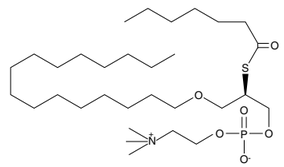
5 mg
10 mg
25 mg
50 mg



Heptanoyl thio-PC 10006809

MF: $C_{31}H_{64}NO_6PS$ **FW:** 609.9 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A chromogenic PLA_2 substrate that contains an ether-linked saturated C_{16} moiety at the *sn*-1 position and a thiol ester at the *sn*-2 position

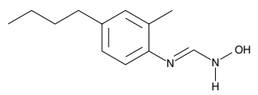
5 mg
10 mg
25 mg
50 mg



HET0016 75780

[339068-25-6] N-hydroxy-N'-(4-n-butyl-2-methylphenyl)Formamidine
MF: $C_{12}H_{18}N_2O$ **FW:** 206.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An inhibitor of 20-HETE formation in human renal microsomes with an IC_{50} value of 8.9 nM, selectively inhibiting CYP4A and 4F isoforms

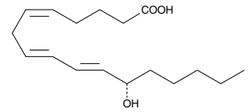
1 mg
5 mg
10 mg
100 mg



12(S)-HHTrE 34590

[54397-84-1] 12(S)-HHT
MF: $C_{17}H_{28}O_3$ **FW:** 280.4 **Purity:** ≥97%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An unusual, yet primary, product of the COX pathway biosynthesized by TX synthase in the human platelet

25 µg
50 µg
100 µg
250 µg

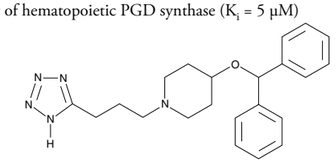


•Also Available: **12(S)-HHTrE Lipid Maps MS Standard** (10007250)

HQL-79 10134

[162641-16-9]
MF: $C_{22}H_{27}N_5O$ **FW:** 377.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A selective inhibitor of hematopoietic PGD synthase (K_i = 5 µM)

1 mg
5 mg
10 mg
100 mg



Hydroperoxy HPLC Mixture 44001

Purity: ≥98% for each compound
A solution in ethanol **Stability:** ≥6 months at -80°C
Summary: Contains 5 µg of the following fatty acid hydroperoxides: 5(S)-HpETE, 12(S)-HpETE, 15(S)-HpETE, 9(S)-HpODE, and 13(S)-HpODE

1 ea

ω-3 Hydroxy Acid HPLC Mixture 34003

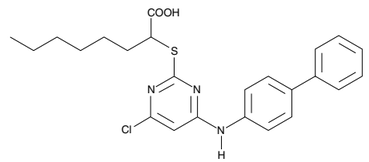
Purity: ≥98% for each compound
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: Contains 5 µg of the following ω-3 fatty acids: 5(S)-HEPE, 12(S)-HEPE, 15(S)-HEPE, 13(S)-HOTrE, and 15(S)-HETrE

1 ea

HZ52 10888

[1077626-51-7]
MF: $C_{24}H_{26}ClN_3O_2S$ **FW:** 456.0 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent, reversible 5-LO inhibitor, blocking LTB_4 synthesis with an IC_{50} value of 0.7 µM in intact human PMNLs; also attenuates LTB_4 synthesis, prevents carrageenan-induced pleurisy, and protects against PAF-induced shock in mice when given intraperitoneally

1 mg
5 mg
10 mg
50 mg



Mono Hydroxy and Hydroperoxy Fatty Acids		
Item No.	Product Name	Sizes
Arachidonic Acid Derivatives		
34210	(±)5-HETE	25 µg • 50 µg • 100 µg • 500 µg
34215	(±)5-HETE lactone	25 µg • 50 µg • 100 µg • 500 µg
34220	(±)5-HETE methyl ester	25 µg • 50 µg • 100 µg • 250 µg
34225	5(R)-HETE	25 µg • 50 µg • 100 µg
34230	5(S)-HETE*	25 µg • 50 µg • 100 µg • 250 µg
334230	5(S)-HETE-d_8*	25 µg • 50 µg • 100 µg
34240	5(S)-HETE lactone	25 µg • 50 µg • 100 µg
34340	(±)8-HETE	25 µg • 50 µg • 100 µg • 250 µg
34350	8(R)-HETE	25 µg • 50 µg • 100 µg
34360	8(S)-HETE*	25 µg • 50 µg • 100 µg
34400	(±)9-HETE	25 µg • 50 µg • 100 µg • 250 µg
34405	9(R)-HETE	25 µg • 50 µg • 100 µg
34410	9(S)-HETE	25 µg • 50 µg • 100 µg
34500	(±)11-HETE	25 µg • 50 µg • 100 µg • 250 µg
34505	11(R)-HETE	25 µg • 50 µg • 100 µg
34510	11(S)-HETE*	25 µg • 50 µg • 100 µg
34550	(±)12-HETE	25 µg • 50 µg • 100 µg • 250 µg
34560	12(R)-HETE*	25 µg • 50 µg • 100 µg
34565	tetranor-12(R)-HETE	25 µg • 50 µg • 100 µg
34570	12(S)-HETE*	25 µg • 50 µg • 100 µg
334570	12(S)-HETE-d_8	25 µg • 50 µg • 100 µg
10007207	tetranor-12(S)-HETE	25 µg • 50 µg • 100 µg
34700	(±)15-HETE	25 µg • 50 µg • 100 µg • 250 µg
34710	15(R)-HETE	25 µg • 50 µg • 100 µg
34720	15(S)-HETE*	25 µg • 50 µg • 100 µg • 500 µg
34722	15(S)-HETE-biotin	25 µg • 50 µg • 100 µg
334720	15(S)-HETE-d_8	25 µg • 50 µg • 100 µg
10169	15(S)-HETE Ethanolamide	25 µg • 50 µg • 100 µg
10010635	(±)16-HETE	25 µg • 50 µg • 100 µg
10004385	16(R)-HETE	25 µg • 50 µg • 100 µg
10004384	16(S)-HETE	25 µg • 50 µg • 100 µg
10010636	(±)17-HETE	25 µg • 50 µg • 100 µg
10010637	17(R)-HETE	25 µg • 50 µg • 100 µg
10011305	17(S)-HETE	25 µg • 50 µg • 100 µg
10010638	(±)18-HETE	25 µg • 50 µg • 100 µg
10007767	19(R)-HETE	25 µg • 50 µg • 100 µg
10007766	19(S)-HETE	25 µg • 50 µg • 100 µg
90030	20-HETE*	25 µg • 50 µg • 100 µg • 500 µg
390030	20-HETE-d_6	25 µg • 50 µg • 100 µg
10008602	20-HETE Ethanolamide	25 µg • 50 µg • 100 µg
44230	5(S)-HpETE*	25 µg • 50 µg • 100 µg • 250 µg
10138	(±)12-HpETE	25 µg • 50 µg • 100 µg • 500 µg
44570	12(S)-HpETE*	25 µg • 50 µg • 100 µg • 250 µg
44720	15(S)-HpETE*	25 µg • 50 µg • 100 µg • 500 µg

**The corresponding Lipid Maps Standard is also available from Cayman.*

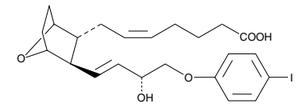
Mono Hydroxy and Hydroperoxy Fatty Acids		
Item No.	Product Name	Sizes
Dihomo-γ-Linolenic Acid Derivatives		
10007527	14(15)-EpEDE	25 µg • 50 µg • 100 µg • 500 µg
10007528	14(15)-EpEDE methyl ester	25 µg • 50 µg • 100 µg • 500 µg
36360	8(S)-HETrE	25 µg • 50 µg • 100 µg • 250 µg
36720	15(S)-HETrE	25 µg • 50 µg • 100 µg • 500 µg
Docosahexanenoic Acid Derivatives		
33200	(±)4-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33300	(±)7-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33350	(±)8-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33400	(±)10-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33450	(±)11-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33500	(±)13-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33550	(±)14-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33600	(±)16-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33650	(±)17-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
10005099	17(R)-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
10009799	17(S)-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
33750	(±)20-HDoHE	25 µg • 50 µg • 100 µg • 250 µg
13185	17(S)-HpDoHE	25 µg • 50 µg • 100 µg • 250 µg
Eicosadienoic Acid Derivatives		
37500	(±)11-HEDE	25 µg • 50 µg • 100 µg • 250 µg
37505	11(R)-HEDE	25 µg • 50 µg • 100 µg • 250 µg
37510	11(S)-HEDE	25 µg • 50 µg • 100 µg • 250 µg
37700	(±)15-HEDE	25 µg • 50 µg • 100 µg • 250 µg
37710	15(R)-HEDE	25 µg • 50 µg • 100 µg • 250 µg
37720	15(S)-HEDE	25 µg • 50 µg • 100 µg • 250 µg
47720	15(S)-HpEDE	25 µg • 50 µg • 100 µg • 250 µg
Eicosapentaenoic Acid Derivatives		
32200	(±)5-HEPE	25 µg • 50 µg • 100 µg • 250 µg
32210	5(S)-HEPE	25 µg • 50 µg • 100 µg • 250 µg
32340	(±)8-HEPE	25 µg • 50 µg • 100 µg • 250 µg
32350	8(S)-HEPE	25 µg • 50 µg • 100 µg
32400	(±)9-HEPE	25 µg • 50 µg • 100 µg • 250 µg
32410	9(S)-HEPE	25 µg • 50 µg • 100 µg
**The corresponding Lipid Maps Standard is also available from Cayman.*		

Mono Hydroxy and Hydroperoxy Fatty Acids		
Item No.	Product Name	Sizes
Eicosapentaenoic Acid Derivatives		
32500	(±)11-HEPE	25 µg • 50 µg • 100 µg • 250 µg
32505	11(R)-HEPE	25 µg • 50 µg • 100 µg
32510	11(S)-HEPE	25 µg • 50 µg • 100 µg
32540	(±)12-HEPE	25 µg • 50 µg • 100 µg • 250 µg
32545	12(R)-HEPE	25 µg • 50 µg • 100 µg
32550	12(S)-HEPE	25 µg • 50 µg • 100 µg
32700	(±)15-HEPE	25 µg • 50 µg • 100 µg • 250 µg
32710	15(S)-HEPE	25 µg • 50 µg • 100 µg • 250 µg
32840	(±)18-HEPE	25 µg • 50 µg • 100 µg • 250 µg
42210	5(S)-HpEPE	25 µg • 50 µg • 100 µg • 250 µg
42550	12(S)-HpEPE	25 µg • 50 µg • 100 µg • 250 µg
42710	15(S)-HpEPE	25 µg • 50 µg • 100 µg • 250 µg
Linolenic Acid Derivatives		
39420	9(S)-HOTrE	100 µg • 500 µg • 1 mg • 5 mg
39620	13(S)-HOTrE	100 µg • 500 µg • 1 mg • 5 mg
39610	13(S)-HOTrE(γ)	25 µg • 100 µg • 500 µg • 1 mg
45120	9(S)-HpOTrE	100 µg • 500 µg • 1 mg • 5 mg
45220	13(S)-HpOTrE	100 µg • 500 µg • 1 mg • 5 mg
45210	13(S)-HpOTrE(γ)	100 µg • 500 µg • 1 mg • 5 mg
HPLC Mixtures		
34002	(±)-HETE HPLC Mixture	1 ea
34001	(S)-HETE HPLC Micture	1 ea
Linoleic Acid Derivatives		
38400	(±)9-HODE	100 µg • 500 µg • 1 mg
38401	(±)9-HODE cholesteryl ester	25 µg • 50 µg • 100 µg
38405	9(R)-HODE	25 µg • 50 µg • 100 µg • 250 µg
38406	9(R)-HODE cholesteryl ester	25 µg • 50 µg • 100 µg
38410	9(S)-HODE	100 µg • 500 µg • 1 mg
38411	9(S)-HODE cholesteryl ester	25 µg • 50 µg • 100 µg
338410	9(S)-HODE-d_4	25 µg • 50 µg • 100 µg
38600	(±)13-HODE	100 µg • 500 µg • 1 mg
38601	(±)13-HODE cholesteryl ester	25 µg • 50 µg • 100 µg
38605	13(R)-HODE	25 µg • 50 µg • 100 µg • 250 µg
38606	13(R)-HODE cholesteryl ester	25 µg • 50 µg • 100 µg
38610	13(S)-HODE	100 µg • 500 µg • 1 mg
38612	13(S)-HODE-biotin	100 µg • 500 µg • 1 mg
38611	13(S)-HODE cholesteryl ester	25 µg • 50 µg • 100 µg
338610	13(S)-HODE-d_4	25 µg • 50 µg • 100 µg
10008875	13(S)-HODE methyl ester	100 µg • 500 µg • 1 mg
10705	(±)9-HpODE	50 µg • 100 µg • 500 µg • 1 mg
48410	9(S)-HpODE	50 µg • 100 µg • 500 µg • 1 mg
10704	(±)13-HpODE	50 µg • 100 µg • 500 µg • 1 mg
48610	13(S)-HpODE	50 µg • 100 µg • 500 µg • 1 mg
Mead Acid Derivatives		
36230	5(S)-HETrE	25 µg • 50 µg • 100 µg • 250 µg
**The corresponding Lipid Maps Standard is also available from Cayman.*		

I-BOP 19600

[128719-90-4]
MF: $C_{23}H_{29}IO_5$ **FW:** 512.4 **Purity:** ≥95%*
A solution in ethanol **Stability:** ≥2 years at -20°C
Summary: A potent TP receptor agonist; induces human platelet aggregation with EC_{50} values of 0.34 and 0.174 nM at pH 7.4 and pH 6.0, respectively

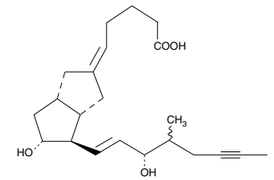
100 µg
500 µg
1 mg
5 mg



Iloprost 18215

[78919-13-8] Ciloprost
MF: $C_{22}H_{32}O_4$ **FW:** 360.5 **Purity:** ≥97%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A second generation structural analog of prostacyclin; binds with equal affinity to the human recombinant IP and EP_1 receptors (K_i = 11 nM)

500 µg
1 mg
5 mg
10 mg

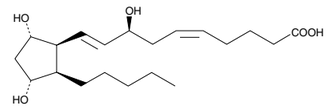


Iloprost Analogs		
Item No.	Product Name	Sizes
10008585	5-*cis* Iloprost	500 µg • 1 mg • 5 mg • 10 mg
10008588	5-*cis*-15(R)-Iloprost	500 µg • 1 mg • 5 mg • 10 mg
10043	15(R)-Iloprost	500 µg • 1 mg • 5 mg • 10 mg
13076	16(R)-Iloprost	500 µg • 1 mg • 5 mg • 10 mg
13077	16(S)-Iloprost	500 µg • 1 mg • 5 mg • 10 mg
10008616	15-keto Iloprost	500 µg • 1 mg • 5 mg • 10 mg

$iPF_{2\alpha}$-IV 16230

[331962-00-6]
MF: $C_{20}H_{34}O_5$ **FW:** 354.5 **Purity:** ≥98%*
A solution in acetonitrile **Stability:** ≥1 year at -20°C
Summary: An isoprostane from the relatively unexplored Type IV isoprostane family

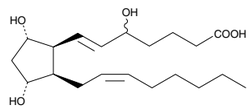
25 µg
50 µg
100 µg
1 mg



5-$iPF_{2\alpha}$-VI 16300

[180469-63-0] $iPF_{2\alpha}$-I
MF: $C_{20}H_{34}O_5$ **FW:** 354.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An isoprostane from the unique Type VI class of isoprostanes; produced in higher concentrations compared to 8-isoprostane

25 µg
50 µg
100 µg

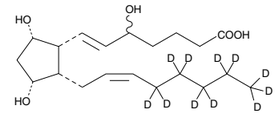


•Also Available: **$iPF_{2\alpha}$-VI-d_4** (316300)
5-$iPF_{2\alpha}$-VI-d_{11} (10006654)

8,12-*iso*-$iPF_{2\alpha}$-VI-d_{11} 10006878

8,12-epi-$iPF_{2\alpha}$-VI-d_{11}
MF: $C_{20}H_{23}D_{11}O_5$ **FW:** 365.6 **Chemical Purity:** ≥95%
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_{11}); ≤1% d_0
A solution in acetonitrile **Stability:** ≥1 year at -80°C
Summary: An internal standard for the quantification of 8,12-*iso*-$iPF_{2\alpha}$-VI by GC- or LC-MS

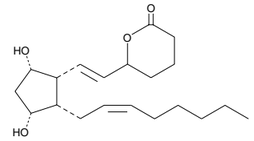
10 µg
25 µg
50 µg
100 µg



8,12-*iso*-$iPF_{2\alpha}$-VI-1,5-lactone 10312

MF: $C_{20}H_{32}O_4$ **FW:** 336.5 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -80°C
Summary: A racemic mixture of the lactone form of the free acid, 8,12-*iso*- $iPF_{2\alpha}$-VI; the free acid is the most abundant F_2-iP regioisomer measured in the urine of rats treated to induce lipid peroxidation; used as a biomarker for oxidative stress

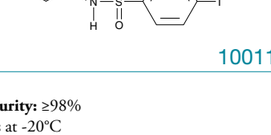
25 µg
50 µg
100 µg
1 mg



I-SAP 19021

[133538-58-6] Iodophenyl sulfonyl amino pinane TXA_2
MF: $C_{22}H_{30}INO_4S$ **FW:** 531.4 **Purity:** ≥98%*
A solution in ethanol **Stability:** ≥2 years at -20°C
Summary: A high affinity TP receptor antagonist; produces platelet shape change, but not aggregation, with an EC_{50} value of 9.7 nM

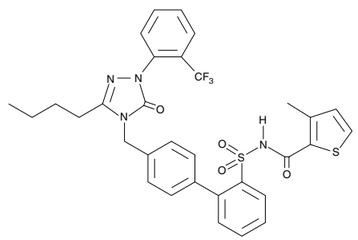
100 µg
500 µg
1 mg
5 mg



L-161,982 10011565

[147776-06-5]
MF: $C_{32}H_{29}F_3N_4O_4S_2$ **FW:** 654.2 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent and selective EP_4 receptor antagonist (K_i = 24 nM); reverses the anti-inflammatory action of PGE_2 in LPS - activated human macrophages at 100 nM

1 mg
5 mg
10 mg
50 mg

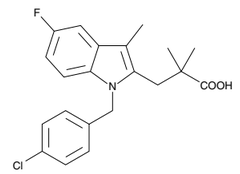


**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

L-655,240 10011562

[103253-15-2]
MF: $C_{21}H_{21}ClFNO_2$ **FW:** 373.9 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent antagonist of the TP receptor (IC_{50} = 7 nM); blocks TP-mediated bronchoconstriction *in vivo* and platelet aggregation *ex vivo*

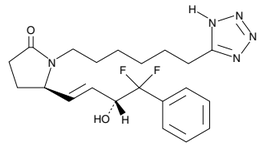
1 mg
5 mg
10 mg
25 mg



L-902,688 10007712

[634193-54-7]
MF: $C_{21}H_{27}F_2N_5O_2$ **FW:** 419.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A potent and selective agonist of the human EP_4 receptor with a K_i value of 0.38 nM and an EC_{50} value of 0.6 nM; induces thermal hyperalgesia when injected into guinea pig forepaw and increases vasodilation of human pulmonary vein

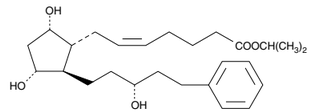
500 µg
1 mg
5 mg
10 mg



Latanoprost 16812

[130209-82-4] 17-phenyl-13,14-dihydro trinor $PGF_{2\alpha}$ isopropyl ester
MF: $C_{26}H_{40}O_5$ **FW:** 432.6 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: An F-series PG analog which has been approved for use as an ocular hypotensive drug; the free acid is a potent FP receptor agonist (EC_{50} = 3.6 nM)

1 mg
5 mg
10 mg
50 mg



Latanoprost Analogs

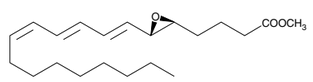
Item No.	Product Name	Sizes
13619	ACS 67	1 mg • 5 mg • 10 mg • 25 mg
10006556	Latanoprost-d_4	50 µg • 100 µg • 500 µg • 5 mg
16822	Latanoprost ethyl amide	1 mg • 5 mg • 10 mg • 50 mg
316822	Latanoprost ethyl amide-d_4	25 µg • 50 µg • 100 µg • 1 mg
16811	Latanoprost (free acid)	1 mg • 5 mg • 10 mg • 50 mg
316811	Latanoprost (free acid)-d_4	50 µg • 100 µg • 500 µg • 5 mg
70049	Latanoprost Lactol	5 mg • 10 mg • 50 mg • 100 mg
70039	Latanoprost Lactone Diol	10 mg • 50 mg • 100 mg • 500 mg
16818	15(S)-Latanoprost	1 mg • 5 mg • 10 mg • 50 mg
16813	5-*trans* Latanoprost	1 mg • 5 mg • 10 mg • 50 mg
10129	5-*trans* Latanoprost (free acid)	1 mg • 5 mg • 10 mg • 50 mg
16816	15-keto Latanoprost	1 mg • 5 mg • 10 mg • 100 mg
16815	15-keto Latanoprost (free acid)	1 mg • 5 mg • 10 mg • 100 mg

**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

Leukotriene A_3 methyl ester 20009

[83851-38-1] LTA_3 methyl ester
MF: $C_{21}H_{34}O_3$ **FW:** 334.5 **Purity:** ≥97%
A solution in hexane containing 1% triethylamine **Stability:** ≥1 year at -80°C
Summary: A putative intermediate in the biosynthesis of 3-series LTs derived from 5,8,11-eicosatrienoic acid *via* the 5-LO pathway

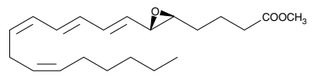
25 µg
50 µg
100 µg



Leukotriene A_4 methyl ester 20010

[73466-12-3] LTA_4 methyl ester
MF: $C_{21}H_{32}O_3$ **FW:** 332.5 **Purity:** ≥97%
A solution in hexane containing 1% triethylamine **Stability:** ≥1 year at -80°C
Summary: A stable formulation of LTA_4, the intermediate in LTs derived from AA by 5-LO

25 µg
50 µg
100 µg
500 µg

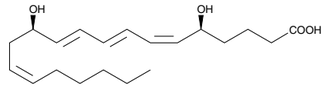


•Also Available: **Leukotriene A_4-d_5 methyl ester** (10006197)

Leukotriene B_4 20110

[71160-24-2] LTB_4
MF: $C_{20}H_{32}O_4$ **FW:** 336.5 **Purity:** ≥97%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A key dihydroxy fatty acid derived from AA through the 5-LO pathway; promotes a number of leukocyte functions including chemotaxis and chemokinesis at subnanomolar concentrations

25 µg
50 µg
100 µg
500 µg



•Also Available: **Leukotriene B_4 Lipid Maps MS Standard** (10007240)

Leukotriene B Analogs

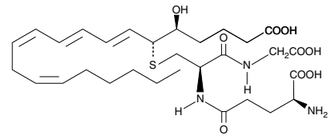
Item No.	Product Name	Sizes
20109	Leukotriene B_3	25 µg • 50 µg • 100 µg • 500 µg
20134	12-*epi* Leukotriene B_3	25 µg • 50 µg • 100 µg • 250 µg
20114	Leukotriene B_4-3-aminopropylamide	25 µg • 50 µg • 100 µg • 500 µg
320110	Leukotriene B_4-d_4	25 µg • 50 µg • 100 µg • 500 µg
20115	Leukotriene B_4 dimethyl amide	25 µg • 50 µg • 100 µg • 250 µg
20112	Leukotriene B_4 Ethanolamide	25 µg • 50 µg • 100 µg • 500 µg
35250	6-*trans* Leukotriene B_4*	25 µg • 50 µg • 100 µg • 250 µg
35265	6-*trans*-12-*epi* Leukotriene B_4*	25 µg • 50 µg • 100 µg • 250 µg
20135	12-*epi* Leukotriene B_4	25 µg • 50 µg • 100 µg • 500 µg
320135	12-*epi* Leukotriene B_4-d_4	25 µg • 50 µg • 100 µg • 500 µg
20170	18-carboxy dinor Leukotriene B_4	25 µg • 50 µg • 100 µg • 250 µg
20180	20-carboxy Leukotriene B_4	25 µg • 50 µg • 100 µg • 250 µg
20150	14,15-dehydro Leukotriene B_4	25 µg • 50 µg • 100 µg • 500 µg
20190	20-hydroxy Leukotriene B_4	25 µg • 50 µg • 100 µg • 500 µg
20140	12-oxo Leukotriene B_4	25 µg • 50 µg • 100 µg • 500 µg
20195	20-trifluoro Leukotriene B_4	25 µg • 50 µg • 100 µg • 500 µg

**The corresponding Lipid Maps Standard is also available from Cayman.*

Leukotriene C_4 20210

[72025-60-6] LTC_4
MF: $C_{30}H_{47}N_3O_9S$ **FW:** 625.8 **Purity:** ≥97%
A solution in ethanol:water (95:5) **Stability:** ≥1 year at -80°C
Summary: The parent CysLT produced by the LTC_4 synthase-catalyzed conjugation of glutathione to LTA_4; potent inducer of bronchoconstriction and enhanced vascular permeability that contributes to the pathogenesis of asthma and acute allergic hypersensitivity

25 µg
50 µg
100 µg
500 µg



•Also Available: **Leukotriene C_4 Lipid Maps MS Standard** (10007241)

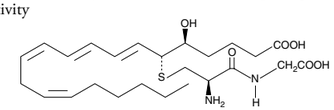
Leukotriene C Analogs

Item No.	Product Name	Sizes
10006198	Leukotriene C_4-d_5	25 µg • 50 µg • 100 µg
10007164	Leukotriene C_4 methyl ester	25 µg • 50 µg • 100 µg
9001287	Leukotriene C_4-d_5 methyl ester	25 µg • 50 µg • 100 µg
13390	N-methyl Leukotriene C_4	25 µg • 50 µg • 100 µg • 500 µg
20230	11-*trans* Leukotriene C_4	25 µg • 50 µg • 100 µg • 250 µg
10011360	14,15-Leukotriene C_4	25 µg • 50 µg • 100 µg • 250 µg

Leukotriene D_4 20310

[73836-78-9] LTD_4
MF: $C_{25}H_{40}N_2O_6S$ **FW:** 496.7 **Purity:** ≥97%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: The first CysLT metabolite of LTC_4; acts as a potent inducer of bronchoconstriction and vascular permeability that contributes to the pathogenesis of asthma and acute hypersensitivity

25 µg
50 µg
100 µg



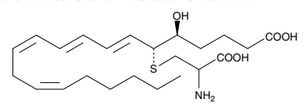
Leukotriene D Analogs

Item No.	Product Name	Sizes
10006199	Leukotriene D_4-d_5	25 µg • 50 µg • 100 µg
10007165	Leukotriene D_4 methyl ester	25 µg • 50 µg • 100 µg
20330	11-*trans* Leukotriene D_4	25 µg • 50 µg • 100 µg • 250 µg

Leukotriene E_4 20410

[75715-89-8] LTE_4
MF: $C_{23}H_{37}NO_5S$ **FW:** 439.6 **Purity:** ≥97%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: Metabolite of LTD_4 and one of the constituents of SRS-A; considerably less active (8- to 12-fold) than LTC_4 in the biological activities characteristic of CysLTs; urinary excretion of LTE_4 is often used as an indicator of asthma

25 µg
50 µg
100 µg



•Also Available: **Leukotriene E_4 Lipid Maps MS Standard** (10007242)

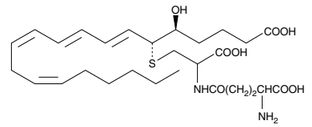
Leukotriene E Analogs

Item No.	Product Name	Sizes
10007858	Leukotriene E_4-d_5	25 µg • 50 µg • 100 µg
10007166	Leukotriene E_4 methyl ester	25 µg • 50 µg • 100 µg
20430	11-*trans* Leukotriene E_4	25 µg • 50 µg • 100 µg • 250 µg
10011362	14,15-Leukotriene E_4	25 µg • 50 µg • 100 µg • 250 µg
20420	N-acetyl Leukotriene E_4	25 µg • 50 µg • 100 µg • 250 µg

Leukotriene F_4 20520

[83851-42-7] LTF_4
MF: $C_{28}H_{44}N_2O_8S$ **FW:** 568.7 **Purity:** ≥97%
A solution in methanol **Stability:** ≥1 year at -80°C
Summary: A CysLT produced *in vitro* by the incubation of LTE_4 with γ-glutamyl transpeptidase and glutathione; exhibits weak ability to contract vascular smooth muscle

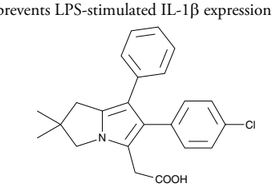
25 µg
50 µg
100 µg
250 µg



Licofelone 10007692

[156897-06-2] ML 3000
MF: $C_{23}H_{22}ClNO_3$ **FW:** 379.9 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A dual inhibitor of COX and LOX pathways, that decreases levels of PGE_2, LTB_4, and lipoxins and prevents LPS-stimulated IL-1β expression

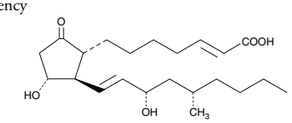
1 mg
5 mg
10 mg
50 mg



Limaprost 13810

[74397-12-9] 17α,20-dimethyl-Δ^2-PGE_1
MF: $C_{22}H_{36}O_5$ **FW:** 380.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: An analog of PGE_1 with structural modifications intended to give it a prolonged half-life and greater potency

1 mg
5 mg
10 mg
50 mg

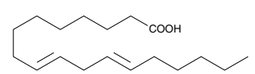


•Also Available: **3-methoxy Limaprost** (10008445)

Linoelaidic Acid 90160

[506-21-8]
MF: $C_{18}H_{32}O_2$ **FW:** 280.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥2 years at -20°C
Summary: An all-*trans* fatty acid homolog of linoleic acid

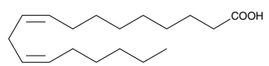
100 mg
250 mg
1 g
5 g



Linoleic Acid 90150

[60-33-3] Telfairic Acid
MF: $C_{18}H_{32}O_2$ **FW:** 280.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥2 years at -20°C
Summary: An essential fatty acid and one of the most abundant PUFAs in the western diet

50 mg
100 mg
500 mg
1 g



•Also Available: **9(E),11(E)-Conjugated Linoleic Acid** (90370)

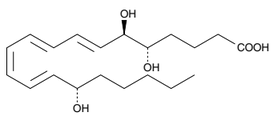
Linoleic Acid Analogs

Item No.	Product Name	Sizes
10010623	Linoleic Acid-biotin	100 µg • 500 µg • 1 mg • 5 mg
90150.1	Linoleic Acid (peroxide free)	50 mg • 100 mg • 250 mg • 500 mg
390150	Linoleic Acid-d_4	1 mg • 5 mg • 10 mg • 25 mg
10008198	Linoleic Acid ethyl ester	50 mg • 100 mg • 500 mg • 1 g
10006834	Linoleic Acid Quant-PAK	1 ea
89430	Linolein Hydroperoxides	500 µg • 1 mg • 5 mg • 50 mg
10556	7-hydroxycoumarinyl-γ-Linolenate	5 mg • 10 mg • 25 mg • 50 mg
90210	α-Linolenic Acid	50 mg • 100 mg • 250 mg • 1 g
9000433	α-Linolenic Acid-d_{14}	100 µg • 500 µg • 1 mg • 5 mg
90220	γ-Linolenic Acid	50 mg • 100 mg • 250 mg • 1 g
10008199	Linolenic Acid ethyl ester	50 mg • 100 mg • 500 mg • 1 g
9000738	γ-Linolenic Acid ethyl ester	50 mg • 100 mg • 250 mg • 1 g
10006579	γ-Linolenic Acid methyl ester	50 mg • 100 mg • 250 mg • 1 g
90230	Dihomo-γ-Linolenic Acid	10 mg • 50 mg • 100 mg • 500 mg
10458	Dihomo-γ-Linolenic Acid-d_6	100 µg • 500 µg • 1 mg • 5 mg
90236	Dihomo-γ-Linolenic Acid ethyl ester	10 mg • 50 mg • 100 mg • 500 mg
10006580	Dihomo-γ-Linolenic Acid methyl ester	10 mg • 50 mg • 100 mg • 500 mg

5(S),6(R)-Lipoxin A_4 90410

[89663-86-5] 5(S),6(R),15(S)-TriHETE
MF: $C_{20}H_{32}O_5$ **FW:** 352.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A trihydroxy fatty acid containing a conjugated tetraene produced by the metabolism of 15-HETE or 15-HpETE with human leukocytes; promotes leukocyte activation, chemotaxis effects, natural killer cell inhibition, and monocyte migration and adhesion

25 µg
50 µg
100 µg
250 µg

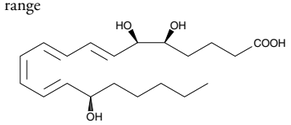


•Also Available: **5(S),6(R)-Lipoxin A_4-d_5** (10007737)
5(S),6(R)-Lipoxin A_4 Lipid Maps MS Standard (10007271)
5(S),6(R)-Lipoxin A_4 methyl ester (10033)

5(S),6(R),15(R)-Lipoxin A_4 90415

[171030-11-8] AT-LXA$_4$, 15-epi Lipoxin A$_4$, 5(S),6(R),15(R)-LXA$_4$
MF: $C_{20}H_{32}O_5$ **FW:** 352.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: An aspirin-triggered lipoxin that inhibits LTB_4-induced chemotaxis, adherence, and transmigration of the neutrophils with twice the potency of LXA_4 demonstrating activity in the nM range

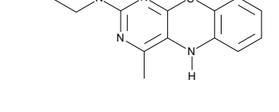
25 µg
50 µg
100 µg
250 µg



5(S),6(S)-Lipoxin A_4 10049

6-epi-Lipoxin A$_4$, 5(S),6(S)-LXA$_4$, 5(S),6(S),15(S)-TriHETE
MF: $C_{20}H_{32}O_5$ **FW:** 352.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: One of at least four distinct isomers of LXA_4 provided as a single pure enantiomer

25 µg
50 µg
100 µg
250 µg



Lipoxin A_5 10011453

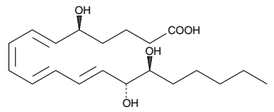
[110657-98-2] LXA$_5$
MF: $C_{20}H_{30}O_5$ **FW:** 350.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A 5-series LO derived from EPA; contracts pulmonary parenchymal strips from guinea pig with similar potency to that of LXA_4 and LXB_4, yet does not exert the vasodilatory effects on aortic smooth muscle exhibited by LXA_4 and LXB_4

25 µg
50 µg
100 µg
500 µg

5(S),14(R)-Lipoxin B_4 90420

[98049-69-5] 5(S),14(R)-LXB$_4$
MF: $C_{20}H_{32}O_5$ **FW:** 352.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A positional isomer of LXA_4 produced by the metabolism of 15-HETE or 15-HpETE by human leukocytes; inhibits PMN migration stimulated by LTB_4 at a concentration of 10^{-7} M and inhibits LTB_4-induced adhesion of PMNs with an IC_{50} value of ~3 x 10^{-10} M

25 µg
50 µg
100 µg
500 µg



15-Lipoxygenase Inhibitor 1 10010468

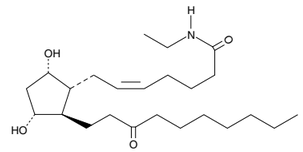
[928853-86-5] 15-LO Inhibitor 1
MF: $C_{16}H_{19}N_5S$ **FW:** 313.4 **Purity:** ≥98%
A solution in chloroform **Stability:** ≥1 year at -20°C
Summary: An inhibitor of 15-LO with an IC_{50} value of 18 µM

500 µg
1 mg
5 mg
10 mg

Lumula 16685

Maxeyprost, Unoprostone N-ethyl amide
MF: $C_{24}H_{43}NO_4$ **FW:** 409.6 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A hybrid eicosanoid analog which incorporates the 'docosanoid' features of unoprostone as well as the amide features of bimatoprost

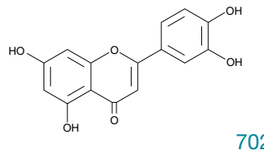
1 mg
5 mg
10 mg
50 mg



Luteolin 10004161

[491-70-3]
MF: $C_{15}H_{10}O_6$ **FW:** 286.2 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent flavanoid inhibitor of soybean and reticulocyte 15-LOs (IC_{50} = 0.6 µM)

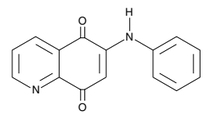
10 mg
50 mg
100 mg
500 mg



LY83583 70230

[91300-60-6]
MF: $C_{15}H_{10}N_2O_2$ **FW:** 250.3 **Purity:** ≥99%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: An inhibitor of soluble guanylate cyclase with an IC_{50} value of 2 µM in human platelets; inhibits LT synthesis in guinea pig lung and rat peritoneal cells (IC_{50} = 1.8 µM)

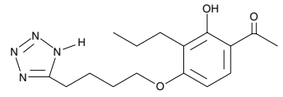
1 mg
5 mg
10 mg
50 mg



LY171883 70710

[88107-10-2]
MF: $C_{16}H_{22}N_4O_3$ **FW:** 318.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at room temperature
Summary: Potent, orally active CysLT receptor antagonist with K_B values of 0.07 and 0.34 µM on guinea pig ileum and parenchyma, respectively

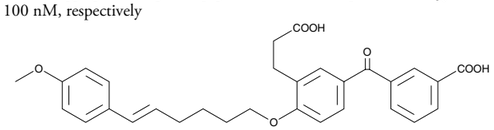
5 mg
10 mg
50 mg
100 mg



LY223982 10010024

[117423-74-2] CGS 23131, SKF 107234
MF: $C_{30}H_{30}O_7$ **FW:** 502.6 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent LTB_4 receptor antagonist that inhibits the specific binding of [^{3}H]- LTB_4 to isolated human neutrophils with an IC_{50} value of 13.2 nM; inhibits the LTB_4-induced aggregation of guinea pig and human neutrophils with IC_{50} values of 74 and 100 nM, respectively

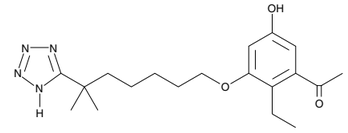
1 mg
5 mg
10 mg
25 mg



LY255283 70715

[117690-79-6]
MF: $C_{19}H_{28}N_4O_3$ **FW:** 360.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A competitive BLT_2 receptor antagonist; exhibits IC_{50} values of ~950 nM and >10 µM at human recombinant BLT_2 and BLT_1 receptors, respectively

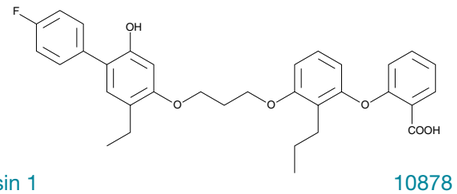
1 mg
5 mg
10 mg
25 mg



LY293111 10009768

[161172-51-6] Etalocib, VML 295
MF: $C_{33}H_{33}FO_6$ **FW:** 543.6 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A potent antagonist of the LTB_4 receptor, BLT_1, that inhibits the specific binding of radiolabeled LTB_4 to isolated human neutrophils (IC_{50} = 17.6 nM); inhibits LTB_4-induced chemotaxis of human neutrophils (IC_{50} = 6.3 nM)

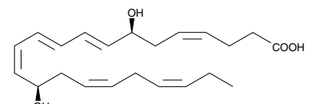
500 µg
1 mg
5 mg
10 mg



7(R)-Maresin 1 10878

[1268720-28-0] 7(R)-MaR1
MF: $C_{22}H_{32}O_4$ **FW:** 360.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A 7,14-dihydroxy DHA formed from 4S-hydroperoxy DHA supplied exogenously to resident peritoneal mouse macrophages activated with zymosan A; reduces infiltration of neutrophils into the mouse peritoneum and increases phagocytosis of FITC-labeled zymosan A by macrophages

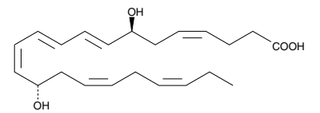
10 µg
25 µg
50 µg
100 µg



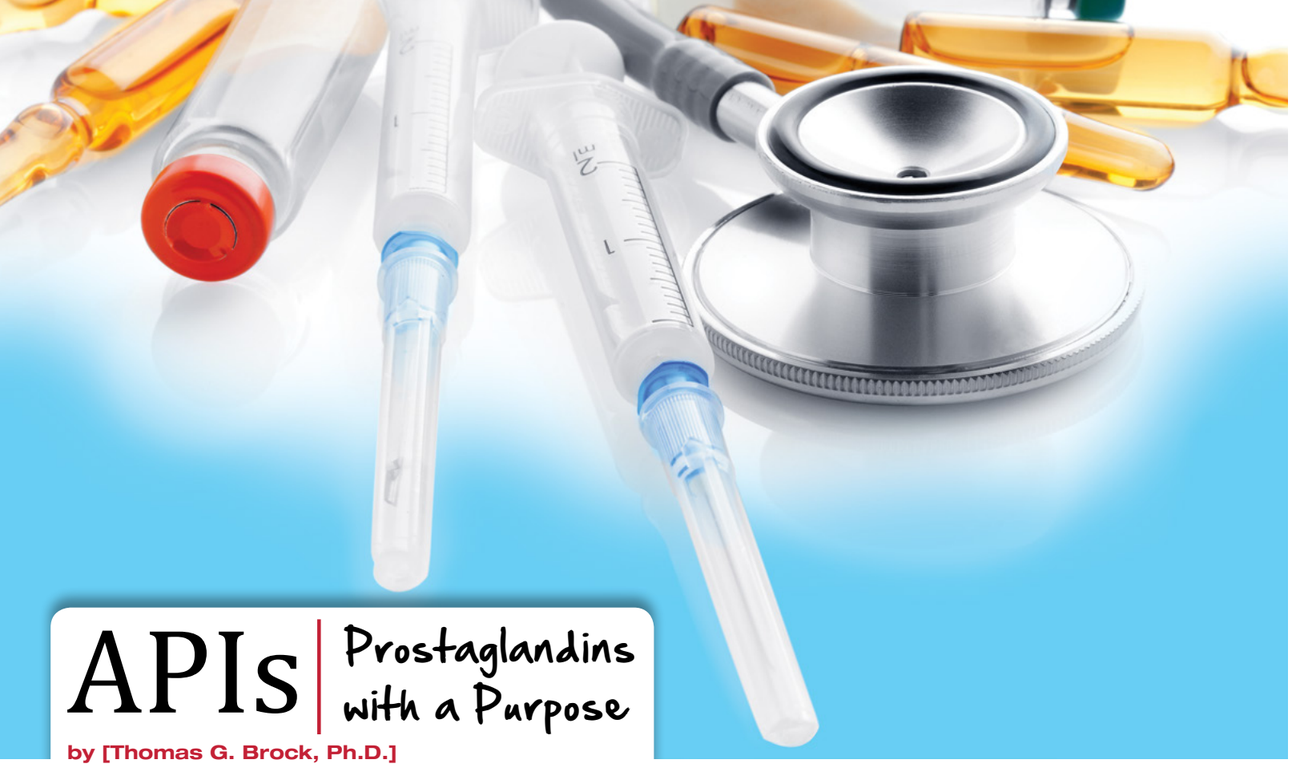
7(S)-Maresin 1 13161

[1268720-66-6] 7(S)-MaR1, 7-epi-Maresin 1
MF: $C_{22}H_{32}O_4$ **FW:** 360.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: An epimer of 7,14-dihydroxy DHA formed from 14S-hydroperoxy DHA supplied exogenously to resident peritoneal mouse macrophages activated with zymosan A; reduces infiltration of neutrophils into the mouse peritoneum and increases phagocytosis of FITC-labeled zymosan A by macrophages

10 µg
25 µg
50 µg
100 µg



**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*



APIs | Prostaglandins with a Purpose

by [Thomas G. Brock, Ph.D.]

Researchers toil long hours, seeking that next big discovery. Sometimes, a discovery can lead to a commercial product, perhaps something that can help mankind. Eicosanoid researchers are familiar with how nonsteroidal anti-inflammatory drugs (NSAIDs) are used worldwide because of their effectiveness in ameliorating pain by inhibiting prostaglandin synthesis. Some may also know that 'leukotriene modifiers', which include synthesis inhibitors and receptor antagonists, are used to manage asthma and allergies. NSAIDs and leukotriene modifiers block the synthesis or action of eicosanoids, which might give the impression that these lipid mediators are generally bad for health and well-being. This article profiles prostaglandins that are useful, because they are the active pharmaceutical ingredients (APIs) in medical formulations. Some have interesting applications.

Epoprostenol (Prostacyclin, Prostaglandin I_2, PGI_2): Flolan™

The American Heart Association refers to high blood pressure, or hypertension, as the silent killer, because it commonly develops without symptoms. Compare that with pulmonary arterial hypertension (PAH), characterized by high blood pressure in the pulmonary artery carrying blood from the heart to the lungs (Figure 1). Elevated resistance to blood flow through the lungs makes the heart work harder while diminishing the delivery of oxygenated blood back to the heart. Symptoms may include chest pain and fatigue, but the most overt sign is shortness of breath with exertion. In advanced cases, even minimal activity will produce shortness of breath, leaving the patient wheelchair-bound. The right ventricle of the heart, which sends blood to the pulmonary artery, may become enlarged, then weakened, and, finally, fail. Flolan™ is a formulation containing epoprostenol, which is identical to prostacyclin (PGI_2), as the API. This bioactive lipid is a natural, short-lived modulator which potently promotes vasodilation of pulmonary and systemic arterial vascular beds while inhibiting platelet aggregation. Given by continuous infusion, Flolan™ reduces pulmonary pressure, eases the load on the heart, and diminishes shortness of breath with exertion. On the short term, Flolan™ lets the patient with PAH breathe easier. They can get rid of the wheelchair and perform everyday activities. Perhaps more importantly, the benefits to the heart can add years of life.

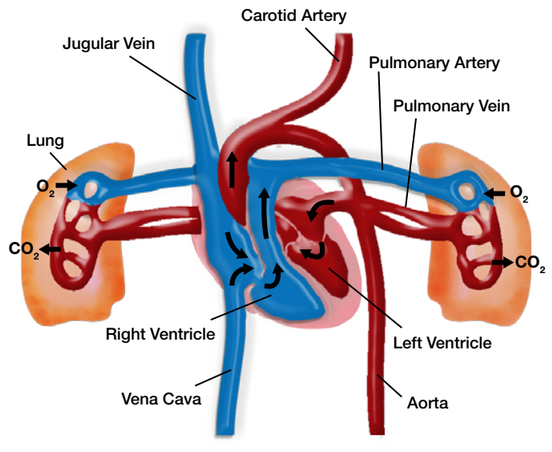


Figure 1. Deoxygenated blood returning to the heart is pumped through the right ventricle to the lungs. The smallest vessels of the lungs, which are crucial for gas exchange, are key points of resistance to blood flow and modulate pulmonary blood pressure

Pharmaceutical compounds have multiple names. Each compound is specified by a unique Chemical Abstracts Service (CAS) Registry number, which may be associated with one or more chemical names. For marketing in the United States, each compound must also have a generic name approved by the U.S. Adopted Names Council. For example, 103-90-2 is the CAS number for the chemical named 4-acetamidophenol, which has the generic name of acetaminophen. The compound will also have a trademark name (*e.g.*, Tylenol®), which must be approved by the US Patent and Trademark Office.

Latanoprost, Travoprost, Bimatoprost: Xalatan™, Travatan™, Lumigan™, respectively

The etymology of glaucoma points to the ancient Greek glaukoma, a general term that referred to blindness due to either glaucoma or cataracts. The etiology of glaucoma, however, centers on damage to the optic nerve. In fact, glaucoma refers to a collection of conditions which result in optic nerve damage. For example, nerve damage can result from an increase in intraocular pressure (IOP), which in turn is affected by the level of aqueous humor (fluid in the cornea). The amount of fluid gradually changes each day, depending on a range of physiological and external factors. If drainage channels through a trabecular meshwork encircling the base of the cornea become partially blocked, then IOP will slowly increase, putting pressure on the optic nerve. Painlessly, vision is lost, first at the periphery. PGE_1, PGE_2, and $PGF_{2\alpha}$, and their respective receptors, have been identified in normal ocular tissues. In addition, natural cannabinoids (CB) and the CB_1 receptor are normally present. Topical application of related lipids modulates IOP and, as a result, is used in the treatment of certain forms of glaucoma. $PGF_{2\alpha}$ causes less hyperemia (redness) than PGE isoforms. Shortening of the ω end combined with phenyl substitution on $PGF_{2\alpha}$ (Figure 2) essentially eliminates eye irritation by preventing cross reactivity with EP receptors. Modification at the carboxyl terminus creates an inactive prodrug which is cleaved, after uptake by the cornea, to produce the active free acid. Latanoprost, travoprost, and bimatoprost are $PGF_{2\alpha}$ analogs that are used clinically as ocular hypotensive agents for the treatment of glaucoma. Cayman synthesizes these APIs for commercial distribution worldwide.

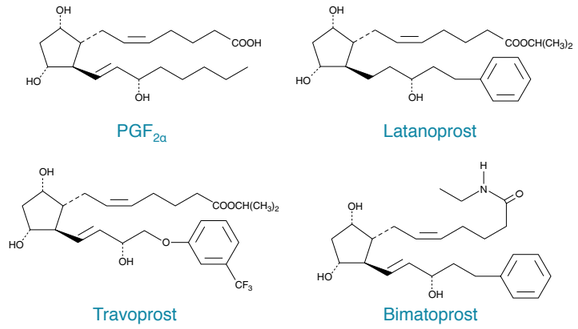


Figure 2. The structures of $PGF_{2\alpha}$ and analogs used in the treatment of glaucoma

Alprostadil (Prostaglandin E_1, PGE_1): Caverject™, Edex™, Muse™, Prostin VR™

In the adult vasculature, PGE_1, like the natural prostaglandin PGE_2, relaxes smooth muscle, resulting in vasodilation and increased blood flow. As discussed in a related article (page 16), this involves activating the 'E prostanoid' receptors EP_2 and EP_4 on smooth muscle, producing an increase in intracellular cAMP. Normally, vasodilation and blood flow return to baseline as cAMP is degraded by phosphodiesterases. Application of PGE_1, by either direct penile injection or urethral suppository, is used to treat erectile dysfunction (ED). Oral phosphodiesterase inhibitors (Cialis™, Viagra™) achieve the same effect, although they may act more slowly.

Prostin VR™ is the same drug used for a different purpose. Before birth, a fetus receives oxygen from its mother through the placenta. The fetal heart sends deoxygenated blood from the right ventricle to the pulmonary artery, which is connected to the aorta by a vessel called the ductus arteriosus (DA). This allows blood to be directed to the placenta, *via* the aorta, rather than to the lungs. Shortly after birth, the DA must close off to prevent aortal blood from backflowing into the pulmonary artery. In the fetus, PGE_2 is necessary for keeping the DA 'patent', or open. After birth, prostaglandin levels fall, the DA closes, and blood is sent from the right ventricle to the lungs. Prostin VR™ is given to neonates to maintain patency of the DA, commonly in newborns awaiting surgical correction of congenital heart defects, particularly those that restrict pulmonary or systemic blood flow. For example, the valve between the right ventricle and the pulmonary artery may not develop properly, preventing normal flow from the heart to the lungs. In this case, reverse flow from the aorta to the lungs can occur, but only if the DA remains open. Prostin VR™ can maintain DA patency until surgery corrects the defect. In short, this drug allows doctors to save the lives of newborn children.

Cloprostenol ((±)-(16-*m*-chlorophenoxy)-17,18,19,20-tetranor-$PGF_{2\alpha}$): Cyclix™, Estrumate™, Lutaprost™

Some female mammals have estrous cycles, during which they reabsorb the endometrium if conception does not occur and sexual activity is largely restricted to the estrus phase, or heat. In these mammals, which include many of those which are bred by humans, the estrous cycle is typically 20 to 21 days in length. Of the many changes that occur in the ovary and uterus during this cycle, one is of principle interest here. Following ovulation (when an egg is released from a follicle in the ovary), the ruptured follicle within the ovary differentiates, by day 5, into the corpus luteum (CL). The CL secretes progesterone, which inhibits the production of the hormones that drive ovulation. After day 15, if the female does not become pregnant, the CL begins to regress, resulting in less progesterone, increased follicular development, and ovulation. Cloprostenol is a luteolytic agent: it induces functional and morphological regression of the CL, inducing ovulation (estrus). It is used in cattle, horses, pigs, sheep, goats, dogs, and South American camelids, as well as other species. It can be injected intramuscularly, in the neck, of most animals, although in some cases it may be administered directly submucous-intravulvar.

One reason to induce luteolysis is simply to observe heat. Remarkably, the primary way to identify when an animal is in heat is by observing behavior, which becomes complicated as herd number increases and animals are out to pasture. Moreover, heat behavior predominantly occurs at night. Inducing luteolysis in favored cows provides the convenience of knowing those cows will be coming into heat in the next few days. This convenience can be extended to timing it to certain days, so that veterinarians can be available, for example, to perform artificial insemination (AI, Figure 3). In fact, failure to detect estrus is the major reason for unsuccessful AI. Inducing luteolysis also allows the convenience of timing, months in advance, when offspring will be delivered.

Perhaps the most remarkable use of cloprostenol is in the breeding of offspring for embryo transfers. In this case, the most valuable cows are induced to superovulate, typically through multiple injections of follicle stimulating hormone, and then treated with cloprostenol. Several days after AI with sperm from the chosen donor bull, multiple embryos are flushed, examined, and transferred to the uterus of surrogate mothers during their luteal phase. By this method, a prized cow can source a dozen embryos at one time and this can be repeated two to three times in a year.

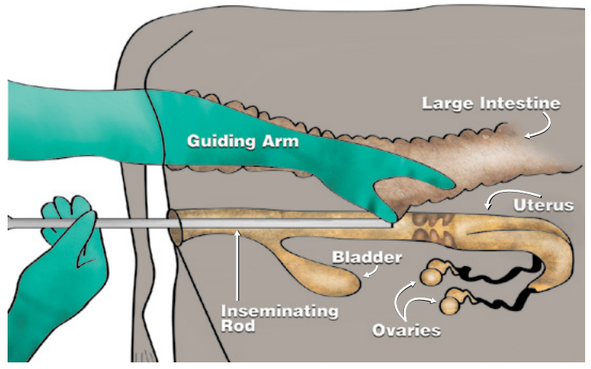


Figure 3. Artificial insemination (AI) in the cow requires physically facilitating the delivery of collected semen through the cervix to the uterus.

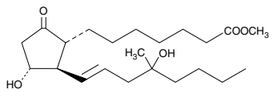
Summary

These are just a few of the applications for PG APIs. More information regarding Cayman's collection of APIs is available at www.caymanchem.com.

Misoprostol 13820

[59122-46-2] Cytotec, SC-29333
MF: $C_{22}H_{38}O_5$ **FW:** 382.5 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A PGE_1 analog with agonist activity mediated by EP_2, EP_3, and EP_4 receptors

1 mg
5 mg
10 mg
25 mg

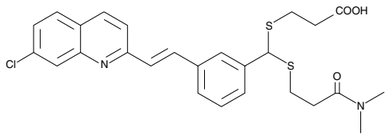


•Also Available: **Misoprostol (free acid)** (13821)
Misoprostol (free acid)-d_5 (10010333)
11β-Misoprostol (13825)
8-*iso* Misoprostol (10047)

MK 571 10029

[115104-28-4] L-660, 711
MF: $C_{26}H_{27}ClN_2O_3S_2$ **FW:** 515.1 **Purity:** ≥95%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A selective, orally active $CysLT_1$ receptor antagonist; blocks the binding of LTD_4 to human and guinea pig lung membranes with K_i values of 0.22 and 2.1 nM, respectively

1 mg
5 mg
10 mg
50 mg

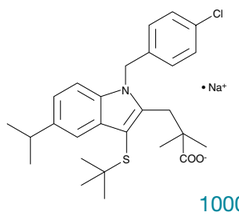


•Also Available: **MK 571 (sodium salt)** (70720)

MK 886 (sodium salt) 10133

[118427-55-7]
MF: $C_{27}H_{33}ClNO_2S$ • Na **FW:** 494.1 **Purity:** ≥99%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A potent 5-LO-activating protein antagonist that prevents 5-LO activation *in vivo*; inhibits LT biosynthesis in leukocytes with an IC_{50} value of 2.5 nM

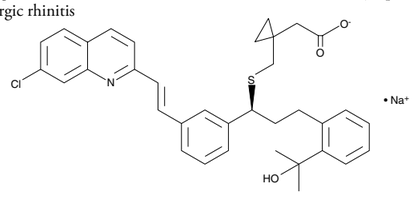
1 mg
5 mg
10 mg
25 mg



Montelukast (sodium salt) 10008318

[151767-02-1] Singulair®
MF: $C_{35}H_{35}ClNO_3S$ • Na **FW:** 608.2 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent, selective $CysLT_1$ receptor antagonist (IC_{50} < 5 nM) sold under the trade name Singulair® for the treatment of asthma as well as for the symptoms associated with allergic rhinitis

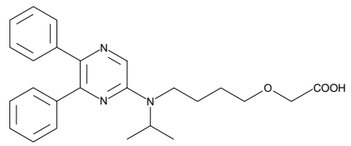
10 mg
50 mg
100 mg
500 mg



MRE-269 10010412

[475085-57-5]
MF: $C_{25}H_{29}N_3O_3$ **FW:** 419.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -80°C
Summary: A stable analogue of prostacyclin that potently and selectively activates the IP receptor (K_i = 20 nM); the active form of the prodrug NS-304 that is stable *in vivo*, as plasma concentrations of MRE-269 remain near peak levels for more than eight hours; exhibits lower affinity for the vasoconstricting EP_3 receptor than other IP receptor agonists

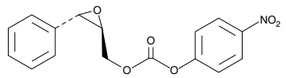
1 mg
5 mg
10 mg
50 mg



S-NEPC 10008609

MF: $C_{16}H_{13}NO_6$ **FW:** 315.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A colorimetric substrate for measurement of sEH activity

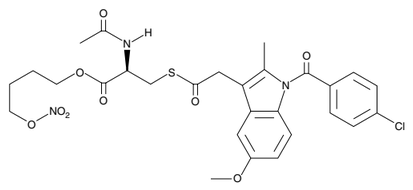
1 mg
5 mg
10 mg
25 mg



Noclоprost 10988

[79360-43-3]
MF: $C_{22}H_{37}ClO_4$ **FW:** 401.0 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A stable PGE_2 analog that demonstrates gastroprotective and ulcer-healing properties in rats (ID_{50}s range from 0.06 to 0.58 µg/kg)

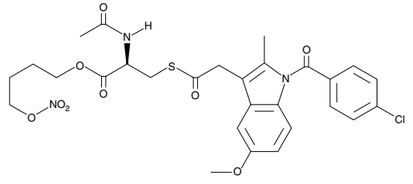
500 µg
1 mg
5 mg



NO-Indomethacin 10005705

[301838-28-8] NCX 2121
MF: $C_{28}H_{30}ClN_3O_9S$ **FW:** 620.1 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A hybrid molecule of indomethacin and a NO donor which combines the anti-inflammatory properties of a NSAID with the gastrointestinal protective effects of NO

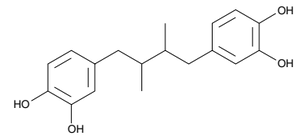
1 mg
5 mg
10 mg
50 mg



Nordihydroguaiaretic Acid 70300

[500-38-9] NDGA
MF: $C_{18}H_{22}O_4$ **FW:** 302.4 **Purity:** ≥95%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A non-selective LO inhibitor; inhibits A23187-induced CysLT biosynthesis in rat peritoneal cells with an IC_{50} value of 5-7 µM; exhibits IC_{50} values of 3.0-5.0 µM for inhibition of human platelet 12-LO and 0.91 µM for rabbit reticulocyte 15-LO

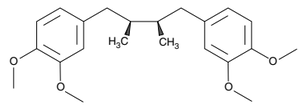
500 mg
1 g
5 g
25 g



tetramethyl Nordihydroguaiaretic Acid 70302

[24150-24-1] EM-1421, M4N, Terameprocol, tetramethyl NDGA, TMNDGA
MF: $C_{22}H_{30}O_4$ **FW:** 358.5 **Purity:** ≥95%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A synthetic derivative of NDGA, a non-selective lipoxygenase inhibitor; inhibits Sp1 transcription factor binding at the HIV long terminal repeat promoter and at the α-ICP4 promoter, a gene essential for herpes simplex virus replication, with IC_{50} values of 11 and 43.5 µM respectively; has antitumorigenic activity inducing growth arrest and apoptosis

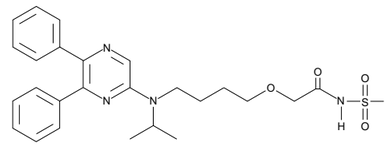
50 mg
100 mg
500 mg
1 g



NS-304 10010411

[475086-01-2] ACT-293987, Selexipag
MF: $C_{26}H_{32}N_4O_4S$ **FW:** 496.6 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A long-acting and potent IP receptor agonist prodrug (K_i = 20 nM)

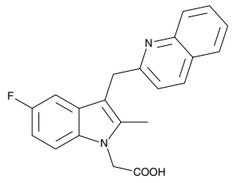
1 mg
5 mg
10 mg
50 mg



OC000459 12027

[851723-84-7]
MF: $C_{21}H_{17}FN_2O_2$ **FW:** 348.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent, selective DP_2 antagonist (K_is = 13, 3, and 4 nM for human recombinant DP_2, rat recombinant DP_2 receptors, and human native DP_2 from Th2 cell membranes, respective); inhibits chemotaxis and cytokine production of human Th2 lymphocytes with IC_{50} values of 28 and 19 nM, respectively; inhibits eosinophilia in rats and guinea pigs (ED_{50}s = 0.04 and 0.01 mg/kg, respectively)

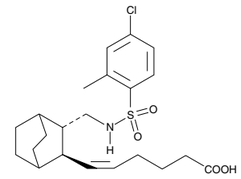
1 mg
5 mg
10 mg
25 mg



ONO-8711 14070

[216158-34-8]
MF: $C_{22}H_{30}ClNO_4S$ **FW:** 439.2 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A potent and selective competitive antagonist of the EP_1 receptor (K_i = 0.6 and 1.7 nM for human and mouse EP_1, respectively); effectively reduces tumor incidence and multiplicity in mouse models of colon, breast, and oral cancer; suppresses pain and acid-induced HCO_3^- secretion in the stomach

1 mg
5 mg
10 mg
25 mg



Oxidized Lipid HPLC Mixture 34004

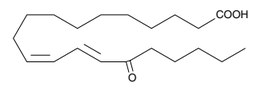
Purity: ≥98% for each compound
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: Contains the free acid forms of racemic 15-HETE, 9-HODE, and 13-HODE, as well as racemic 9-HODE and 13-HODE cholesteryl esters (5 µg each)

1 ea

15-OxoEDE 37730

[105835-44-7] 15-KEDE
MF: $C_{20}H_{34}O_3$ **FW:** 322.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A product of the oxidation of 15-HEDE; inhibits 5-LO from RBL-1 cells, with an IC_{50} value of 55 µM

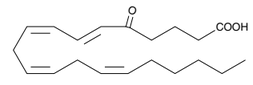
25 µg
50 µg
100 µg
250 µg



5-OxoETE 34250

[106154-18-1] 5-KETE
MF: $C_{20}H_{30}O_3$ **FW:** 318.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A polyunsaturated keto acid formed by the the oxidation of 5-HETE in neutrophils by a specific dehydrogenase; stimulates the increase in cytosolic calcium levels in neutrophils (EC_{50} = 2 nM) and stimulates the migration and degranulation of eosinophils *via* a specific GPCR

25 µg
50 µg
100 µg
250 µg

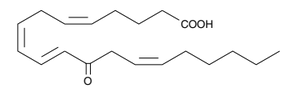


•Also Available: **5-OxoETE-d_7** (334250)
5-OxoETE Lipid Maps MS Standard (10007244)

12-OxoETE 34580

[108437-64-5] 12-KETE
MF: $C_{20}H_{30}O_3$ **FW:** 318.5 **Purity:** ≥90%
A solution in ethanol **Stability:** ≥6 months at -80°C
Summary: An oxidation product of AA synthesized by human platelets and *Aplaysia* nervous tissue

25 µg
50 µg
100 µg
250 µg

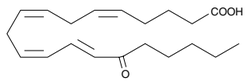


•Also Available: **12-OxoETE Lipid Maps MS Standard** (10007249)

15-OxoETE 34730

[81416-72-0] 15-KETE
MF: $C_{20}H_{30}O_3$ **FW:** 318.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥2 years at -80°C
Summary: A product of the oxidation of 15-HETE

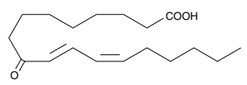
25 µg
50 µg
100 µg
250 µg



9-OxoODE 38420

[54232-59-6] 9-KODE
MF: $C_{18}H_{30}O_3$ **FW:** 294.4 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A product resulting from the oxidation of 9(S)- or 9(R)-HODE

25 µg
50 µg
100 µg

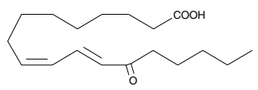


•Also Available: **9-OxoODE-d$_3$** (338420)

13-OxoODE 38620

[54739-30-9] 13-KODE
MF: $C_{18}H_{30}O_3$ **FW:** 294.4 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: A product of 13-HODE made by a NAD$^+$-dependent dehydrogenase present in rat colonic mucosa; also has been detected in preparations of rabbit reticulocyte plasma and mitochondrial membranes, mostly esterifield to phospholipids

25 µg
50 µg
100 µg

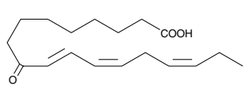


•Also Available: **13-OxoODE-d$_3$** (338620)

9-OxoOTrE 10009215

[125559-74-2] 9-KOTE, 9-KOTrE
MF: $C_{18}H_{28}O_3$ **FW:** 292.4 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥6 months at -80°C
Summary: A product resulting from the oxidation of 9-HpOTrE; exhibits antimicrobial activity against plant pathogenic microorganisms including bacteria and fungi

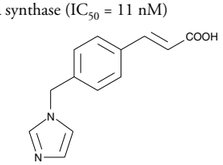
25 µg
50 µg
100 µg
250 µg



Ozagrel 70515

[82571-53-7] OKY-046
MF: $C_{13}H_{12}N_2O_2$ **FW:** 228.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A selective inhibitor of TXA synthase (IC_{50} = 11 nM)

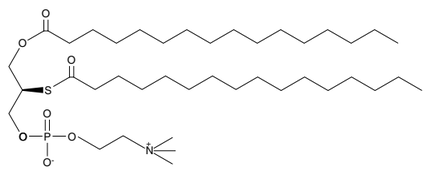
5 mg
10 mg
50 mg
100 mg



Palmitoyl thio-PC 10010521

[113881-60-0]
MF: $C_{40}H_{80}NO_7PS$ **FW:** 750.1 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A chromogenic PLA_2 substrate that contains a palmitoyl thioester at the *sn*-2 position of the glycerol backbone

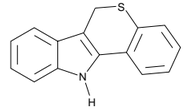
1 mg
5 mg
10 mg
50 mg



PD 146176 10010518

[4079-26-9] NSC 168807
MF: $C_{15}H_{11}NS$ **FW:** 237.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent and selective inhibitor of reticulocyte 15-LO-1

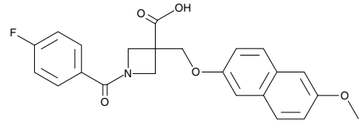
5 mg
10 mg
25 mg
50 mg



PF-04418948 15016

[1078166-57-0]
MF: $C_{23}H_{20}FNO_5$ **FW:** 409.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: An orally active, potent, and selective EP_2 receptor antagonist (IC_{50} = 16 nM); over 1,000-fold less active at other prostanoid receptors, including other EP receptors

5 mg
10 mg
50 mg

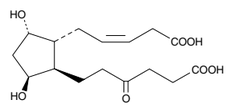


NOTE: Sold for research purposes under agreement from Pfizer Inc.

PGDM 13454

[133161-96-3] Prostaglandin D Metabolite
MF: $C_{16}H_{24}O_7$ **FW:** 328.4 **Purity:** ≥90% (mixture)
A solution in methyl acetate **Stability:** ≥6 months at -80°C
Summary: A major urinary metabolite of PGD_2 with a unique lower sidechain that readily undergoes reversible cyclization; used as a biomarker to assess endogenous production of PGD_2

25 µg
50 µg
100 µg

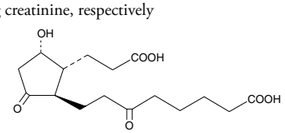


•Also Available: **PGDM-d$_4$** (11344)

tetranor-PGDM 12850

[70803-91-7] tetranor-PGD Metabolite
MF: $C_{16}H_{24}O_7$ **FW:** 328.4 **Purity:** ≥90%
A solution in methanol **Stability:** ≥6 months at -80°C
Summary: A major metabolite of PGD_2 found in human and mouse urine at levels of approximately 1.5 and 8.1 ng/mg creatinine, respectively

25 µg
50 µg
100 µg

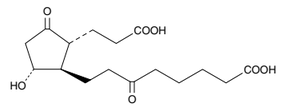


•Also Available: **tetranor-PGDM-d$_6$** (10009039)
tetranor-PGDM lactone (13564)
tetranor-PGDM lactone-d$_6$ (11213)

tetranor-PGEM 14840

[24769-56-0] tetranor-PGE Metabolite
MF: $C_{16}H_{24}O_7$ **FW:** 328.4 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥6 months at -80°C
Summary: Major urinary metabolite of PGE_1 and PGE_2 that is used as a urinary marker of PGE_2 biosynthesis

25 µg
50 µg
100 µg

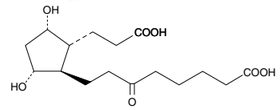


•Also Available: **tetranor-PGEM-d$_6$** (314840)
tetranor-PGEM Lipid Maps MS Standard (10007216)

tetranor-PGFM 16840

[23109-94-6] tetranor-PGF Metabolite
MF: $C_{16}H_{26}O_7$ **FW:** 330.4 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥6 months at -80°C
Summary: A major urinary metabolite of $PGF_{2\alpha}$

25 µg
50 µg
100 µg

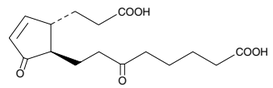


•Also Available: **tetranor-PGFM Lipid Maps MS Standard** (10007228)

tetranor-PGJM 13363

tetranor-PGJ Metabolite
MF: $C_{16}H_{22}O_6$ **FW:** 310.3 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥6 months at -80°C
Summary: An expected J-ring, urinary PGD_2 metabolite that may serve as a useful control in the analysis of PGD_2 biosynthesis

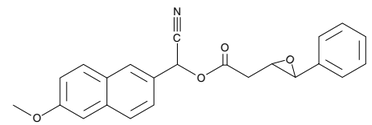
25 µg
50 µg
100 µg



PHOME 10009134

[1028430-42-3]
NOTE: This substrate should only be used with the pure EH
MF: $C_{23}H_{19}NO_4$ **FW:** 373.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A fluorogenic, sensitive substrate for human sEH which displays good aqueous stability and solubility making it ideal for high throughput screening programs

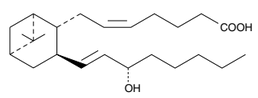
1 mg
5 mg
10 mg
50 mg



Pinane Thromboxane A$_2$ 19020

[71111-01-8] PTA$_2$
MF: $C_{24}H_{40}O_3$ **FW:** 376.6 **Purity:** ≥98%*
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A stable analog of TXA_2 that acts as a TP receptor antagonist and inhibitor of TX synthase

500 µg
1 mg
5 mg
10 mg

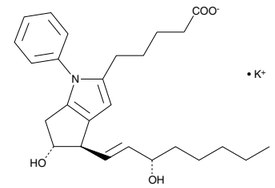


•Also Available: **15(R)-Pinane Thromboxane A$_2$** (10008510)

Piriprost (potassium salt) 18228

[88851-62-1] U-60257B
MF: $C_{26}H_{34}NO_4$ • K **FW:** 463.7 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A structural analog of PGI_2 with low IP receptor-mediated activity; inhibits the release of histamine and LTs from isolated porcine lung cells (IC_{50} = 0.11 µM)

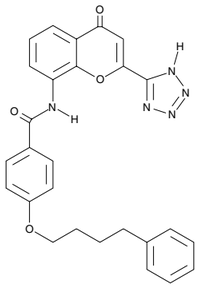
1 mg
5 mg
10 mg
50 mg



Pranlukast 10008319

[103177-37-3] ONO-1078, Ultair™
MF: $C_{27}H_{23}N_5O_4$ **FW:** 481.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent, selective and orally active $CysLT_1$ receptor antagonist sold under the trade name Ultair™ for the treatment of asthma; binds to the human $CysLT_1$ and $CysLT_2$ receptors with IC_{50} values of approximately 4-7 and 3,600 nM, respectively

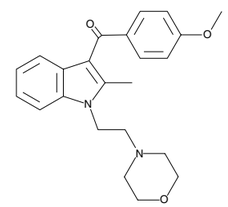
10 mg
100 mg
500 mg
1 g



Pravadoline 10006973

[92623-83-1] WIN 48,098
MF: $C_{23}H_{26}N_2O_3$ **FW:** 378.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A nonacidic, aminoalkylindole analgesic agent that inhibits COX; inhibits PG synthesis (IC_{50} = 5 µM in mouse brain microsomes) and displays antinociceptive activity (ED_{50} = 26 mg/kg in an ACh-induced writhing assay in mice); inhibits neuronally stimulated contractions in mouse vas deferens preparations (IC_{50} = 0.45 µM)

5 mg
10 mg
25 mg



Primary Eicosanoid HPLC Mixture 10001

Purity: ≥98% for each compound
A solution in methyl acetate **Stability:** ≥6 months at -20°C
Summary: Contains PGD_2, PGE_2, $PGF_{2\alpha}$, 6-keto $PGF_{1\alpha}$, and TXB_2 (100 µg each)

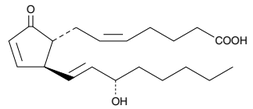
1 ea

**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

Prostaglandin A_2 10210

[13345-50-1] Medullin, PGA_2
MF: $C_{20}H_{30}O_4$ **FW:** 334.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A naturally occurring PG in gorgonian corals where it may function in self defense; generally not present in mammals

1 mg
5 mg
10 mg
50 mg

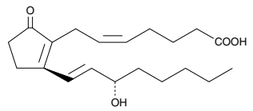


•Also Available: **Prostaglandin A_2 Lipid Maps MS Standard** (10007199)

Prostaglandin B_2 11210

[13367-85-6] PGB_2
MF: $C_{20}H_{30}O_4$ **FW:** 334.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A non-enzymatic dehydration product of PGE_2

1 mg
5 mg
10 mg
25 mg



•Also Available: **Prostaglandin B_2 Lipid Maps MS Standard** (10007201)

Prostaglandin A Analogs

Item No.	Product Name	Sizes
10010	Prostaglandin A_1	1 mg • 5 mg • 10 mg • 50 mg
10013	Prostaglandin A_1-biotin	100 µg • 500 µg • 1 mg • 5 mg
10020	Prostaglandin A_1 ethyl ester	1 mg • 5 mg • 10 mg • 50 mg
9000184	Prostaglandin A_1 methyl ester	1 mg • 5 mg • 10 mg • 50 mg
10070	15-*epi* Prostaglandin A_1	1 mg • 5 mg • 10 mg • 50 mg
10035	8-*iso* Prostaglandin A_1	1 mg • 5 mg • 10 mg • 50 mg
10065	15-deoxy-$\Delta^{12,14}$-Prostaglandin A_1	1 mg • 5 mg • 10 mg • 50 mg
10080	16,16-dimethyl Prostaglandin A_1	1 mg • 5 mg • 10 mg • 50 mg
10010499	Prostaglandin A_2-biotin	100 µg • 500 µg • 1 mg • 5 mg
310210	Prostaglandin A_2-d_4	50 µg • 100 µg • 500 µg • 5 mg
9000185	Prostaglandin A_2 methyl ester	1 mg • 5 mg • 10 mg • 50 mg
10006840	Prostaglandin A_2 Quant-PAK	1 ea
10235	8-*iso* Prostaglandin A_2	1 mg • 5 mg • 10 mg • 50 mg
10010500	8-*iso* Prostaglandin A_2-biotin	50 µg • 100 µg • 500 µg • 1 mg
10265	15-deoxy-$\Delta^{12,14}$-Prostaglandin A_2	500 µg • 1 mg • 5 mg • 10 mg
10260	13,14-dihydro-15-keto Prostaglandin A_2	1 mg • 5 mg • 10 mg • 50 mg
10280	16,16-dimethyl Prostaglandin A_2	1 mg • 5 mg • 10 mg • 50 mg
10295	19(R)-hydroxy Prostaglandin A_2	50 µg • 100 µg • 500 µg • 5 mg
10270	15(R)-15-methyl Prostaglandin A_2	1 mg • 5 mg • 10 mg • 100 mg
10285	16-phenoxy tetranor Prostaglandin A_2	1 mg • 5 mg • 10 mg • 100 mg
10288	17-phenyl trinor Prostaglandin A_2	1 mg • 5 mg • 10 mg • 50 mg
10290	17-phenyl trinor-13,14-dihydro Prostaglandin A_2	1 mg • 5 mg • 10 mg • 50 mg
10310	Prostaglandin A_3	50 µg • 100 µg • 500 µg • 1 mg

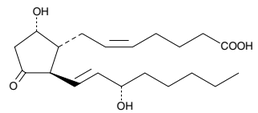
Prostaglandin B Analogs

Item No.	Product Name	Sizes
11110	Prostaglandin B_1	1 mg • 5 mg • 10 mg • 50 mg
311210	Prostaglandin B_2-d_4	50 µg • 100 µg • 500 µg • 5 mg
10006841	Prostaglandin B_2 Quant-PAK	1 ea
11910	19(R)-hydroxy Prostaglandin B_2	50 µg • 100 µg • 500 µg • 5 mg
11990	Prostaglandin B_3	50 µg • 100 µg • 500 µg • 1 mg
11510	Prostaglandin B_x	500 µg • 1 mg • 5 mg • 10 mg

Prostaglandin D_2 12010

[41598-07-6] PGD_2
MF: $C_{20}H_{32}O_5$ **FW:** 352.5 **Purity:** ≥99%*
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: The major eicosanoid product of mast cells that is released in large quantities during allergic and asthmatic anaphylaxis; causes vasodilation, flushing, hypotension, and syncopal episodes; also produced in the brain where it produces normal physiological sleep and lowering of body temperature; additional actions include inhibition of platelet aggregation and relaxation of vascular smooth muscle

1 mg
5 mg
10 mg
50 mg



•Also Available: **Prostaglandin D_2 Lipid Maps MS Standard** (10007202)

*All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.

Prostaglandin D_2 Analogs

Item No.	Product Name	Sizes
12000	Prostaglandin D_1	1 mg • 5 mg • 10 mg • 100 mg
12002	Prostaglandin D_1 Alcohol	1 mg • 5 mg • 10 mg • 100 mg
312000	Prostaglandin D_1-d_4	25 µg • 50 µg • 100 µg • 1 mg
10006842	Prostaglandin D_1 Quant-PAK	1 ea
10010425	13,14-dihydro-15-keto Prostaglandin D_1*	1 mg • 5 mg • 10 mg • 50 mg
10006697	Prostaglandin D_2-biotin	50 µg • 100 µg • 500 µg • 1 mg
312010	Prostaglandin D_2-d_4*	25 µg • 50 µg • 100 µg • 1 mg
10010123	Prostaglandin D_2-d_9	25 µg • 50 µg • 100 µg • 1 mg
12015	Prostaglandin D_2-1-glyceryl ester	1 mg • 5 mg • 10 mg • 50 mg
12012	Prostaglandin D_2 Ethanolamide*	1 mg • 5 mg • 10 mg • 50 mg
9001413	Prostaglandin D_2 Ethanolamide-d_4	25 µg • 50 µg • 100 µg
10008385	Prostaglandin D_2 methyl ester	500 µg • 1 mg • 5 mg • 10 mg
10006843	Prostaglandin D_2 Quant-PAK	1 ea
10192	Prostaglandin D_2 serinol amide	1 mg • 5 mg • 10 mg • 50 mg
12650	Δ^{12}-Prostaglandin D_2	500 µg • 1 mg • 5 mg • 10 mg
10118	15(R)-Prostaglandin D_2	1 mg • 5 mg • 10 mg • 50 mg
12210	5-*trans* Prostaglandin D_2	1 mg • 5 mg • 10 mg • 100 mg
12410	11-deoxy-11-methylene Prostaglandin D_2	1 mg • 5 mg • 10 mg • 100 mg
12415	11-deoxy-11-methylene-15-keto Prostaglandin D_2	100 µg • 500 µg • 1 mg • 5 mg
12700	15-deoxy-$\Delta^{12,14}$-Prostaglandin D_2	500 µg • 1 mg • 5 mg • 10 mg
12610	13,14-dihydro-15-keto Prostaglandin D_2	1 mg • 5 mg • 10 mg • 50 mg
10007978	13,14-dihydro-15-keto Prostaglandin D_2-d_4	25 µg • 50 µg • 100 µg • 1 mg
13100	13,14-dihydro-15-keto-tetranor Prostaglandin D_2	10 µg • 25 µg • 50 µg • 100 µg
13612	13,14-dihydro-16,16-difluoro Prostaglandin D_2	100 µg • 500 µg • 1 mg • 5 mg
12750	16,16-dimethyl Prostaglandin D_2	500 µg • 1 mg • 5 mg • 10 mg
12720	15(R)-15-methyl Prostaglandin D_2	500 µg • 1 mg • 5 mg • 10 mg
12730	15(S)-15-methyl Prostaglandin D_2	1 mg • 5 mg • 10 mg • 50 mg
12810	17-phenyl trinor Prostaglandin D_2	1 mg • 5 mg • 10 mg • 100 mg
12990	Prostaglandin D_3	50 µg • 100 µg • 500 µg • 1 mg

**The corresponding Lipid Maps Standard is also available from Cayman.*

Prostaglandin E_1 Analogs

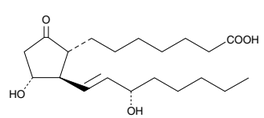
Item No.	Product Name	Sizes
13530	Bicyclo Prostaglandin E_1	1 mg • 5 mg • 10 mg • 50 mg
13020	Prostaglandin E_1 Alcohol	500 µg • 1 mg • 5 mg • 10 mg
313010	Prostaglandin E_1-d_4	50 µg • 100 µg • 500 µg • 5 mg
13012	Prostaglandin E_1 Ethanolamide	1 mg • 5 mg • 10 mg • 50 mg
10006844	Prostaglandin E_1 Quant-PAK	1 ea
13090	Δ^{17}-Prostaglandin E_1	1 mg • 5 mg • 10 mg • 50 mg
13450	11β-Prostaglandin E_1	1 mg • 5 mg • 10 mg • 50 mg
13710	15(R)-Prostaglandin E_1	1 mg • 5 mg • 10 mg • 50 mg
13360	8-*iso* Prostaglandin E_1	500 µg • 1 mg • 5 mg • 10 mg
13510	11-deoxy Prostaglandin E_1	500 µg • 1 mg • 5 mg • 10 mg
13050	1a,1b-dihomo Prostaglandin E_1	1 mg • 5 mg • 10 mg • 50 mg
13610	13,14-dihydro Prostaglandin E_1	500 µg • 1 mg • 5 mg • 10 mg
9000281	13,14-dihydro Prostaglandin E_1-d_4	25 µg • 50 µg • 100 µg • 1 mg
10006845	13,14-dihydro Prostaglandin E_1 Quant-PAK	1 ea
13630	13,14-dihydro-15(R) Prostaglandin E_1	1 mg • 5 mg • 10 mg • 100 mg
13650	13,14-dihydro-15-keto Prostaglandin E_1	1 mg • 5 mg • 10 mg • 100 mg
9000288	13,14-dihydro-15-keto Prostaglandin E_1-d_4	25 µg • 50 µg • 100 µg • 1 mg
9000406	13,14-dihydro-15(R,S)-hydroxy-16,16-difluoro Prostaglandin E_1-d_4	25 µg • 50 µg • 100 µg • 1 mg
9000405	13,14-dihydro-16,16-difluoro Prostaglandin E_1	100 µg • 500 µg • 1 mg • 5 mg
13660	13,14-dihydro-19(R)-hydroxy Prostaglandin E_1	50 µg • 100 µg • 500 µg • 5 mg
13750	16,16-dimethyl Prostaglandin E_1	1 mg • 5 mg • 10 mg • 100 mg
13800	16,16-dimethyl-6-keto Prostaglandin E_1	1 mg • 5 mg • 10 mg • 100 mg
13120	2,3-dinor Prostaglandin E_1	25 µg • 50 µg • 100 µg • 1 mg
13920	15(R),19(R)-hydroxy Prostaglandin E_1	50 µg • 100 µg • 500 µg • 5 mg
13910	19(R)-hydroxy Prostaglandin E_1	50 µg • 100 µg • 500 µg • 5 mg
13260	6-keto Prostaglandin E_1*	1 mg • 5 mg • 10 mg • 50 mg
13680	15-keto Prostaglandin E_1	500 µg • 1 mg • 5 mg • 10 mg
13730	15(S)-15-methyl Prostaglandin E_1	1 mg • 5 mg • 10 mg • 50 mg
13770	16-phenyl tetranor Prostaglandin E_1	1 mg • 5 mg • 10 mg • 100 mg

**The corresponding Lipid Maps Standard is also available from Cayman.*

Prostaglandin E_1 13010

[745-65-3] Alprostadil, PGE_1
MF: $C_{20}H_{34}O_5$ **FW:** 354.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: The theoretical metabolite of DGLA *via* the COX pathway; inhibits ADP-induced human platelet aggregation (IC_{50} = 40 nM); used clinically to treat male erectile dysfunction and to provide emergency vasodilation of the patent *ductus arteriosus* in infants

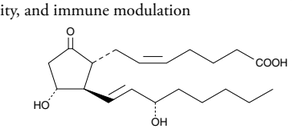
1 mg
5 mg
10 mg
50 mg



Prostaglandin E_2 14010

[363-24-6] Dinoprostone, PGE_2
MF: $C_{20}H_{32}O_5$ **FW:** 352.5 **Purity:** ≥99%*
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: One of the primary COX products of arachidonic acid and one of the most widely investigated PGs; activity influences inflammation, fertility and parturition, gastric mucosal integrity, and immune modulation

1 mg
5 mg
10 mg
50 mg



•Also Available: **Prostaglandin E_2 Lipid Maps MS Standard** (10007211)

*All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.

Prostaglandin E_2 Analogs		
Item No.	Product Name	Sizes
10006987	Prostaglandin E_2-biotin	50 µg • 100 µg • 500 µg • 1 mg
314010	Prostaglandin E_2-d_4*	50 µg • 100 µg • 500 µg • 5 mg
10140	Prostaglandin E_2-1-glyceryl ester	1 mg • 5 mg • 10 mg
14053	Prostaglandin E_2 *p*-acetamidophenyl ester	1 mg • 5 mg • 10 mg • 100 mg
14054	Prostaglandin E_2 *p*-benzamidophenyl ester	1 mg • 5 mg • 10 mg • 100 mg
14029	Prostaglandin E_2-d_4-1-glyceryl ester	50 µg • 100 µg • 500 µg
10581	Prostaglandin E_2-d_9	50 µg • 100 µg • 250 µg • 500 µg
14012	Prostaglandin E_2 Ethanolamide*	500 µg • 1 mg • 5 mg • 10 mg
9001412	Prostaglandin E_2 Ethanolamide-d_4	25 µg • 50 µg • 100 µg
10004197	Prostaglandin E_2-1-glyceryl ester-d_5	50 µg • 100 µg • 500 µg
10384	Prostaglandin E_2 isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
14011	Prostaglandin E_2 methyl ester	500 µg • 1 mg • 5 mg • 10 mg
9000376	Prostaglandin E_2-PEG_{11}-biotin	50 µg • 100 µg • 250 µg • 500 µg
10006846	Prostaglandin E_2 Quant-PAK	1 ea
10193	Prostaglandin E_2 serinol amide	500 µg • 1 mg • 5 mg • 10 mg
14510	11β-Prostaglandin E_2	500 µg • 1 mg • 5 mg • 10 mg
14710	15(R)-Prostaglandin E_2	1 mg • 5 mg • 10 mg • 50 mg
10008294	*ent*-Prostaglandin E_2	1 mg • 5 mg • 10 mg • 50 mg
14350	8-*iso* Prostaglandin E_2	500 µg • 1 mg • 5 mg • 10 mg
10011321	8-*iso* Prostaglandin E_2-d_4	25 µg • 50 µg • 100 µg • 500 µg
14352	8-*iso* Prostaglandin E_2 isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
10009278	8-*iso*-16-cyclohexyl-tetranor Prostaglandin E_2	1 mg • 5 mg • 10 mg • 25 mg
14390	8-*iso*-15-keto Prostaglandin E_2	100 µg • 500 µg • 1 mg • 5 mg
14210	5-*trans* Prostaglandin E_2	1 mg • 5 mg • 10 mg • 100 mg
14530	Bicyclo Prostaglandin E_2	1 mg • 5 mg • 10 mg • 100 mg
14410	9-deoxy-9-methylene Prostaglandin E_2	1 mg • 5 mg • 10 mg • 100 mg
14420	9-deoxy-9-methylene-16,16-dimethyl Prostaglandin E_2	500 µg • 1 mg • 5 mg • 10 mg
14430	9-deoxy-9-methylene-16,16-dimethyl Prostaglandin E_2 (potassium salt)	1 mg • 5 mg • 10 mg • 50 mg
14520	11-deoxy Prostaglandin E_2	1 mg • 5 mg • 10 mg • 100 mg
14570	11-deoxy-16,16-dimethyl Prostaglandin E_2	1 mg • 5 mg • 10 mg • 50 mg
14650	13,14-dihydro-15-keto Prostaglandin E_2*	1 mg • 5 mg • 10 mg • 50 mg
10010606	13,14-dihydro-15-keto Prostaglandin E_2-d_4	25 µg • 50 µg • 100 µg • 500 µg
13101	13,14-dihydro-15-keto-tetranor Prostaglandin E_2	10 µg • 25 µg • 50 µg • 100 µg
14750	16,16-dimethyl Prostaglandin E_2	1 mg • 5 mg • 10 mg • 50 mg
14753	16,16-dimethyl Prostaglandin E_2 *p*-(*p*-acetamido-benzamido) phenyl ester	500 µg • 1 mg • 5 mg • 10 mg
14940	20-ethyl Prostaglandin E_2	1 mg • 5 mg • 10 mg • 50 mg
14920	15(R),19(R)-hydroxy Prostaglandin E_2	50 µg • 100 µg • 500 µg • 1 mg
14910	19(R)-hydroxy Prostaglandin E_2*	50 µg • 100 µg • 500 µg • 1 mg
14950	20-hydroxy Prostaglandin E_2*	50 µg • 100 µg • 500 µg • 1 mg
14720	15-keto Prostaglandin E_2*	500 µg • 1 mg • 5 mg • 10 mg
14725	15(R)-15-methyl Prostaglandin E_2	1 mg • 5 mg • 10 mg • 50 mg
14730	15(S)-15-methyl Prostaglandin E_2	500 µg • 1 mg • 5 mg • 10 mg

**The corresponding Lipid Maps Standard is also available from Cayman.*

Prostaglandin E_2 Analogs		
Item No.	Product Name	Sizes
14760	16-phenoxy tetranor Prostaglandin E_2	1 mg • 5 mg • 10 mg • 50 mg
14770	16-phenyl tetranor Prostaglandin E_2	1 mg • 5 mg • 10 mg • 50 mg
14810	17-phenyl trinor Prostaglandin E_2	500 µg • 1 mg • 5 mg • 10 mg
13532	17-phenyl trinor Prostaglandin E_2 ethyl amide	1 mg • 5 mg • 10 mg • 50 mg
10004238	17-phenyl trinor Prostaglandin E_2 serinol amide	1 mg • 5 mg • 10 mg • 50 mg
10007931	17-phenyl trinor 8-*iso* Prostaglandin E_2	1 mg • 5 mg • 10 mg • 25 mg

**The corresponding Lipid Maps Standard is also available from Cayman.*

Prostaglandin E_3 14990

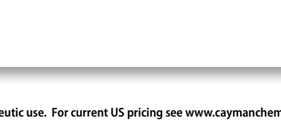
[802-31-3] PGE_3
MF: $C_{20}H_{30}O_5$ **FW:** 350.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A product formed *via* the COX metabolism of EPA; comprises 2.4% of the COX products formed in human ocular tissue

50 µg
100 µg
500 µg
1 mg

17-*trans* Prostaglandin E_3 14995

[210979-33-2] 17-trans PGE_3
MF: $C_{20}H_{30}O_5$ **FW:** 350.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: An isomer of PGE_3 which could theoretically result from the COX metabolism of dietary *trans*-fatty acids

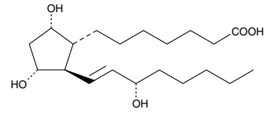
50 µg
100 µg
500 µg
1 mg



Prostaglandin $F_{1\alpha}$ 15010

[745-62-0] $PGF_{1\alpha}$
MF: $C_{20}H_{36}O_5$ **FW:** 356.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: Putative metabolite of DGLA *via* the COX pathway

1 mg
5 mg
10 mg
50 mg



**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

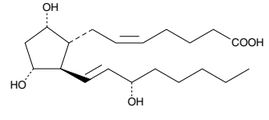
Prostaglandin F_1 Analogs		
Item No.	Product Name	Sizes
15020	Prostaglandin $F_{1\alpha}$ Alcohol	1 mg • 5 mg • 10 mg • 50 mg
10008665	Prostaglandin $F_{1\alpha}$-d_9	25 µg • 50 µg • 100 µg • 500 µg
15350	8-*iso* Prostaglandin $F_{1\alpha}$	25 µg • 50 µg • 100 µg • 500 µg
10008935	8-*iso* Prostaglandin $F_{1\alpha}$-d_9	25 µg • 50 µg • 100 µg • 500 µg
15512	11-deoxy Prostaglandin $F_{1\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
15610	13,14-dihydro Prostaglandin $F_{1\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
15670	13,14-dihydro-15-keto Prostaglandin $F_{1\alpha}$	500 µg • 1 mg • 5 mg • 10 mg
13571	13,14-dihydro-15-keto-tetranor Prostaglandin $F_{1\alpha}$	10 µg • 25 µg • 50 µg • 100 µg
15270	6,15-diketo-13,14-dihydro Prostaglandin $F_{1\alpha}$*	100 µg • 500 µg • 1 mg • 5 mg
15790	17,20-dimethyl Prostaglandin $F_{1\alpha}$	1 mg • 5 mg • 10 mg • 25 mg
15120	2,3-dinor-6-keto Prostaglandin $F_{1\alpha}$ (sodium salt)	100 µg • 500 µg • 1 mg • 5 mg
9000462	2,3-dinor-6-keto Prostaglandin $F_{1\alpha}$-d_9 (sodium salt)	25 µg • 50 µg • 100 µg • 500 µg
15920	15(R),19(R)-hydroxy Prostaglandin $F_{1\alpha}$	50 µg • 100 µg • 500 µg • 5 mg
15910	19(R)-hydroxy Prostaglandin $F_{1\alpha}$	50 µg • 100 µg • 500 µg • 5 mg
15210	6-keto Prostaglandin $F_{1\alpha}$*	500 µg • 1 mg • 5 mg • 10 mg
315210	6-keto Prostaglandin $F_{1\alpha}$-d_4*	25 µg • 50 µg • 100 µg • 500 µg
10006830	6-keto Prostaglandin $F_{1\alpha}$ Quant-PAK	1 ea
15230	Δ^{17}-6-keto Prostaglandin $F_{1\alpha}$	100 µg • 500 µg • 1 mg • 5 mg
15710	15-keto Prostaglandin $F_{1\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
10007850	9,11-methane-epoxy Prostaglandin $F_{1\alpha}$	100 µg • 500 µg • 1 mg • 5 mg
15170	3-methoxy Prostaglandin $F_{1\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
15895	17-trifluoromethylphenyl-13,14-dihydro trinor Prostaglandin $F_{1\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
15410	Prostaglandin $F_{1\beta}$	1 mg • 5 mg • 10 mg • 50 mg
15450	11β-Prostaglandin $F_{1\beta}$	1 mg • 5 mg • 10 mg • 50 mg
15370	8-*iso* Prostaglandin $F_{1\beta}$	1 mg • 5 mg • 10 mg • 50 mg
15510	11-deoxy Prostaglandin $F_{1\beta}$	1 mg • 5 mg • 10 mg • 50 mg
16853	9β-tetranor-13,14-dihydro-15-keto Prostaglandin $F_{1\beta}$	25 µg • 50 µg • 100 µg • 500 µg

**The corresponding Lipid Maps Standard is also available from Cayman.*

Prostaglandin $F_{2\alpha}$ 16010

[551-11-1] Dinoprost, $PGF_{2\alpha}$
MF: $C_{20}H_{34}O_5$ **FW:** 354.5 **Purity:** ≥99%*
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A widely distributed primary PG occuring in many species; causes contraction of vascular, bronchial, intestinal, and myometrial smooth muscle, and also exhibits potent luteolytic activity

1 mg
5 mg
10 mg
50 mg

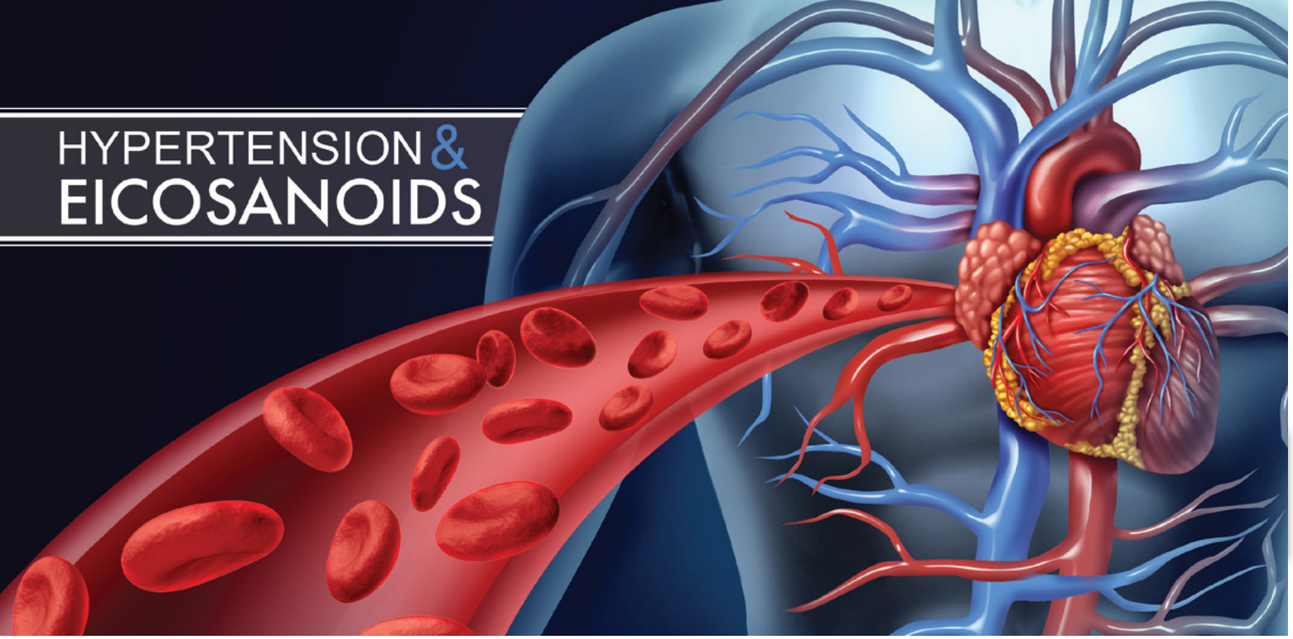


•Also Available: **Prostaglandin $F_{2\alpha}$ Lipid Maps MS Standard** (10007221)

Prostaglandin F_2 Analogs		
Item No.	Product Name	Sizes
10006988	Prostaglandin $F_{2\alpha}$-biotin	50 µg • 100 µg • 500 µg • 1 mg
316010	Prostaglandin $F_{2\alpha}$-d_4*	50 µg • 100 µg • 500 µg • 5 mg
10008643	Prostaglandin $F_{2\alpha}$-d_9	25 µg • 50 µg • 100 µg • 500 µg
10139	Prostaglandin $F_{2\alpha}$-1-glyceryl ester	1 mg • 5 mg • 10 mg
16020	Prostaglandin $F_{2\alpha}$ (tromethamine salt)	1 mg • 5 mg • 10 mg • 25 mg
16012	Prostaglandin $F_{2\alpha}$ Alcohol	1 mg • 5 mg • 10 mg • 50 mg
16014	Prostaglandin $F_{2\alpha}$ Alcohol methyl ether	1 mg • 5 mg • 10 mg • 50 mg
16023	Prostaglandin $F_{2\alpha}$ diethyl amide	1 mg • 5 mg • 10 mg • 50 mg
16032	Prostaglandin $F_{2\alpha}$ dimethyl amide	1 mg • 5 mg • 10 mg • 50 mg
16033	Prostaglandin $F_{2\alpha}$ dimethyl amine	1 mg • 5 mg • 10 mg • 50 mg
16013	Prostaglandin $F_{2\alpha}$ Ethanolamide*	1 mg • 5 mg • 10 mg • 50 mg
316013	Prostaglandin $F_{2\alpha}$ Ethanolamide-d_4	25 µg • 50 µg • 100 µg
10010460	17-chlorophenyl trinor Prostaglandin $F2_{\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg • 50 mg
16016	Prostaglandin $F_{2\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg • 50 mg
10009875	16-phenoxy Prostaglandin $F_{2\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg
13883	Prostaglandin $F_{2\alpha}$-1-glyceryl ester-d_5	50 µg • 100 µg • 500 µg
16030	Prostaglandin $F_{2\alpha}$ isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
16130	Prostaglandin $F_{2\alpha}$ 1,9-lactone	1 mg • 5 mg • 10 mg • 50 mg
16110	Prostaglandin $F_{2\alpha}$ 1,11-lactone	1 mg • 5 mg • 10 mg • 50 mg
16120	Prostaglandin $F_{2\alpha}$ 1,15-lactone	1 mg • 5 mg • 10 mg • 50 mg
16011	Prostaglandin $F_{2\alpha}$ methyl ester	500 µg • 1 mg • 5 mg • 10 mg
10006848	Prostaglandin $F_{2\alpha}$ Quant-PAK	1 ea
10194	Prostaglandin $F_{2\alpha}$ serinol amide	1 mg • 5 mg • 10 mg • 50 mg
16520	11β-Prostaglandin $F_{2\alpha}$*	1 mg • 5 mg • 10 mg • 25 mg
10008989	11β-Prostaglandin $F_{2\alpha}$-d_4	50 µg • 100 µg • 500 µg • 5 mg
16522	11β-Prostaglandin $F_{2\alpha}$ Ethanolamide	1 mg • 5 mg • 10 mg • 50 mg
16540	11β-13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$	50 µg • 100 µg • 500 µg • 5 mg
16740	15(R)-Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
10008122	*ent*-Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
10011545	*ent*-8-*iso* Prostaglandin $F_{2\alpha}$	25 µg • 50 µg • 100 µg • 1 mg
10011721	*ent*-8-*iso* Prostaglandin $F_{2\alpha}$-d_9	10 µg • 25 µg • 100 µg • 1 mg
10010380	*ent*-8-*iso*-15(S)-Prostaglandin $F_{2\alpha}$	10 µg • 25 µg • 100 µg • 1 mg
10011720	*ent*-8-*iso*-15(S)-Prostaglandin $F_{2\alpha}$-d_9	10 µg • 25 µg • 50 µg • 100 µg
16350	8-*iso* Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
316350	8-*iso* Prostaglandin $F_{2\alpha}$-d_4	25 µg • 50 µg • 100 µg • 500 µg
10005764	8-*iso* Prostaglandin $F_{2\alpha}$ Ethanolamide	100 µg • 500 µg • 1 mg • 5 mg
10007652	8-*iso* Prostaglandin $F_{2\alpha}$ Quant-PAK	1 ea
16395	8-*iso*-15(R)-Prostaglandin $F_{2\alpha}$	100 µg • 500 µg • 1 mg • 5 mg
16380	8-*iso*-13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$	50 µg • 100 µg • 500 µg • 1 mg
16390	8-*iso*-15-keto Prostaglandin $F_{2\alpha}$	100 µg • 500 µg • 1 mg • 5 mg
10008435	8-*iso*-17-phenyl trinor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 25 mg
16210	5-*trans* Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16220	5-*trans* Prostaglandin $F_{2\alpha}$ (tromethamine salt)	1 mg • 5 mg • 10 mg • 50 mg

Table continues on page 40

**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*



by [Thomas G. Brock, Ph.D.]

The National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health reports that about 1 in 3 adults in the United States has high blood pressure (http://www.nhlbi.nih.gov/health). We all know high blood pressure, or hypertension, is bad. But, beyond the "120 over 80" for systolic and diastolic pressure, what is it? And what are some key components? The pressure in your vascular system is the integration of several factors which affect, primarily, either the blood or the vessel walls. The level of salts, and in particular sodium, is an important blood factor that affects hypertension. Among other things, increased salt causes an increase in blood volume by osmotically increasing water content. A small increase in blood volume can produce a disproportionately large increase in blood pressure, primarily when the vessel walls stiffen. The elastic properties of the vessel walls will change as the surrounding smooth muscle relaxes or constricts. Changes in the composition of the wall, as may occur with fat deposition and hardening associated with atherosclerosis or with inflammatory disease, will also affect blood pressure. The blood pressure measurement is an indicator of how well your endocrine system is responding to your changing diet and life style to keep the cardiovascular system running normally. Persistent hypertension is a sign that there's a problem and forecasts heart failure, heart attack, stroke or renal failure.

The Renin-Angiotensin System

There are many different types and causes of high blood pressure. The renin-angiotensin system is important in the normal maintenance of blood pressure and, in some cases, problems with this system contribute to hypertension.[1] The kidneys release renin as the pro-peptide, prorenin, into the blood in response to a drop in blood pressure and reduce prorenin release in response to high salt. The conversion of prorenin to renin can occur through either proteolytic or non-proteolytic mechanisms.[1] Prorenin itself has a (poorly understood) biological function, as it, as well as renin, can activate intracellular signaling pathways through specific receptors. Relevant to hypertension, renin protease activity releases the decapeptide angiotensin I from the 118 amino acid angiotensinogen (Figure 1). Angiotensin I is shortened to the octapeptide angiotensin II by the enzyme angiotensin-converting enzyme (ACE). Angiotensin II has multiple actions that act to increase blood pressure by promoting salt and water retention at the kidney and vasoconstriction of the arteries. Some effects of angiotensin II involve stimulating aldosterone secretion at the adrenal cortex and antidiuretic hormone production in the pituitary gland.

Hypertension that involves the overproduction of angiotensin II can be effectively treated with ACE inhibitors. These inhibitors, numerous and diverse in structure, are broadly used, in part because of their minor adverse effects (the most common being cough). Potential effects on fetal development prevent their use in women who are likely to become pregnant. On the upside, ACE inhibitors are used to slow diabetic nephropathy and heart failure following infarction. These effects may be related to the capacity of the ACE enzyme to inactivate bradykinin and the tetrapeptide N-acetyl Ser-Asp-Lys-Pro (AcSDKP) through its carboxypeptidase action.[2] Bradykinin receptor B_1 is upregulated following tissue injury, allowing bradykinin to promote inflammation, while AcSDKP interferes with hematopoiesis.[3,4]

Eicosanoids in Hypertension

Small lipid molecules play big roles in regulating blood pressure. These lipid "hormones" are produced by a simple enzymatic modification of any of four carbon-carbon double bonds on arachidonic acid (Figure 2). In the presence of NADPH and oxygen, various CYP450 isoforms can insert oxygen on the fatty acid to produce an epoxide, with the products referred to as epoxy-eicosatrienoic acids (EET, EpETrE). In fact, EET biosynthesis can be carried out by several cytochrome CYP450 isoforms, including the CYP1A, CYP2B, CYP2C, CYP2D, CYP2E, and CYP2J families.[5] As arachidonic acid has four double bonds, there are four different EETs. All EETs are potent vasodilators that promote renal vasodilation, inhibit sodium reabsorption in renal tubules

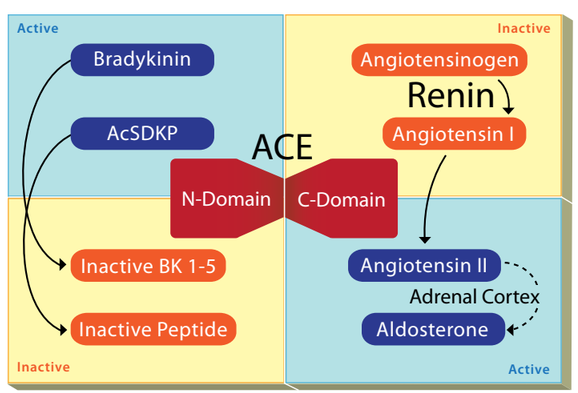
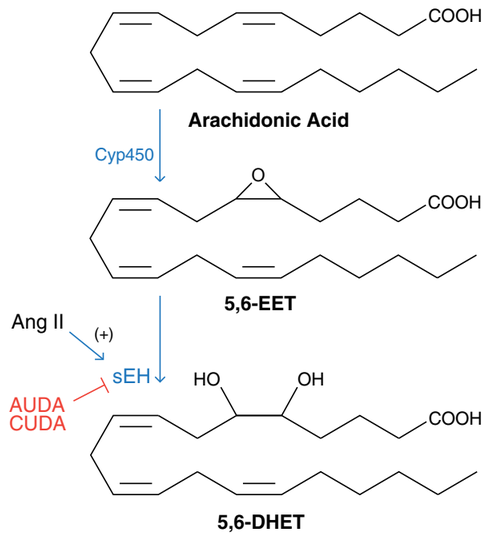


Figure 1. The central role of the protease angiotensin converting enzyme (ACE) in inactivating bradykinin and AcSDKP as well as shortening angiotensin I to the blood pressure-increasing mediator, angiotensin II.

Figure 2. Enzymes and modulators involved in the conversion of arachidonic acid to EETs and DHETs. This shows modification at the 4,5 carbon double bond; identical changes also occur at the three other double bonds on arachidonic acid.



and mediate the pharmacological action of hormones in the kidney. In this way, EETs increase renal sodium excretion and lower blood pressure. The EETs, then, are representative of the endothelium-derived hyperpolarizing factors (EDHF; also called endothelium-derived relaxing factor, or EDRF), which are produced by endothelial cells and evoke relaxation of vascular smooth muscle cells. Their production may be modulated by fibrates, which activate the nuclear receptor PPARα and in this way increase the expression of several CYP450 isoforms.[6]

The EETS are hydrolyzed by soluble epoxide hydrolase (sEH) to the corresponding dihydroxy-eicosatrienoic acids (DHET, or DiHETrE). DHETs are less active than EETs and more readily excreted. Angiotensin II induces sEH expression, leading to a reduction in EETs and the positive effects on blood pressure. Inhibition of sEH, or disruption of sEH gene, reduces blood pressure.[7] This effect is observed in animals pretreated with angiotensin II but not in mice made hypertensive by phenylephrine infusion, suggesting that the depressor effects of sEH inhibition are limited to hypertension linked to angiotensin action.

An interesting side note is that scientists who study nuclear receptors recognize that many nuclear receptor ligands are CYP450 metabolites of more abundant lipids. The receptors for EETs and DHETs have not been clearly delineated. However, interactions with PPARα and PPARγ have been suggested.[8] PPARs have significant anti-inflammatory roles.[9] Possibly, some of the effects of EETs on hypertension are mediated by PPARs.

Pulmonary Hypertension and Prostacyclin

Pulmonary hypertension refers to high blood pressure in the pulmonary arteries, which carry blood from the heart to the lungs, or in the pulmonary veins, which carry blood from the lungs to the heart. Pulmonary arterial hypertension (PAH) is a specific type of pulmonary hypertension, where there is increased blood pressure in the artery between the heart and the lung. This increased pressure puts a strain on the heart, particularly on the right ventricle, which must push blood against this pressure. The disease is progressive and life-threatening. Although PAH can be caused by a variety of factors (*e.g.*, HIV infection, autoimmune disorders, sickle cell disease), the common manifestation is vasoconstriction or tightening of blood vessels connected to and within the lungs. In a second type, hyperoxic pulmonary hypertension, low levels of oxygen in the pulmonary vasculature leads to constriction of pulmonary arteries, much like arterial hypertension. For both conditions, one of the most effective treatments is prostacyclin (prostaglandin I_2, PGI_2), which causes smooth muscle relaxation.[10] Commonly used prostacyclin analogues include treprostinil, which can be given intravenously or subcutaneously, and iloprost, which can be taken as an inhaled medication. As prostacyclin can also suppress immune cell function, the restricted delivery of iloprost to the lungs may be superior over systemic delivery in avoiding the complication of infection.

Preeclampsia and Eicosanoids

Preeclampsia is a disorder which occurs during pregnancy or post-partum, typically occurring after 20 weeks' gestation and most commonly during a first pregnancy. It is characterized by a rapid rise in blood pressure as well as proteinuria (elevated proteins in urine). Preeclampsia can be a devastating disorder as it may lead to eclampsia (seizures), stroke, multiple organ failure, and death of mother and/or child. The incidence of preeclampsia in the US is estimated at 2-6% in healthy women in their first pregnancy; globally, the incidence has been estimated at 5-14% of all pregnancies (http://emedicine.medscape.com).

Remarkably, the pathogenesis of preeclampsia is unknown, although it has been extensively studied. It clearly features abnormality of the maternal immune system, potentially linked to abnormal placentation. This leads to altered placental gene expression during the third trimester, including up-regulation of angiogenesis-related genes (FLT1, VEGFA, PlGF).[11] Endothelial dysfunction drives decreases in the vasodilator PGI_2 as well as increased production of the vasoconstrictor thromboxane, producing increased blood pressure through systemic vasoconstriction.[12] This eicosanoid imbalance can also contribute to uteroplacental vasoconstriction, decreasing fetal nutrient supply and restricting fetal growth. Non-steroidal anti-inflammatory drugs (NSAIDs), including aspirin, inhibit cyclooxygenases, blocking the synthesis of all prostanoids, including PGI_2 and thromboxane. Treatment with low-dose aspirin, starting at 12 to 16 weeks of gestation or earlier in high-risk women, reduces the risk of development of preeclampsia.[13] Additional studies are needed to evaluate whether directed medication using thromboxane synthase inhibitors, perhaps combined with PGI_2 analogs, would provide benefit.

While EETs and DHETs are overproduced and have significant roles in hypertension, less is known about their involvement in preeclampsia. Urinary excretion of DHETs is increased in healthy pregnant women compared with non-pregnant women and increased further in pregnant patients with preeclampsia.[14] The expression of CYP2J2 and the levels of 5,6-EET and 14,15-EET are elevated in placenta and decidua from preeclamptic women compared to controls in the latter two thirds of pregnancy and after delivery.[15] Clearly, their need for further research to understand the role of EETs and DHETs in preeclampsia. ▯

Preeclampsia can be a devastating disorder

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Table continued from page 37

*The corresponding Lipid Maps Standard is also available from Cayman.

Prostaglandin F_2 Analogs

Item No.	Product Name	Sizes
16710	15-cyclohexyl pentanor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16500	11-deoxy Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16050	1a,1b-dihomo Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16660	13,14-dihydro Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16670	13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$*	1 mg • 5 mg • 10 mg • 50 mg
10007793	13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$-d_4	50 µg • 100 µg • 500 µg • 5 mg
16671	13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$ isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
13609	13,14-dihydro-16,16-difluoro Prostaglandin $F_{2\alpha}$	100 µg • 500 µg • 1 mg • 5 mg
16750	16,16-dimethyl Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16530	2,3-dinor-11β-Prostaglandin $F_{2\alpha}$*	25 µg • 50 µg • 100 µg • 1 mg
16290	2,3-dinor-8-*iso* Prostaglandin $F_{2\alpha}$	25 µg • 50 µg • 100 µg • 1 mg
16940	20-ethyl Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16920	15(R),19(R)-hydroxy Prostaglandin $F_{2\alpha}$	50 µg • 100 µg • 500 µg • 1 mg
16910	19(R)-hydroxy Prostaglandin $F_{2\alpha}$	50 µg • 100 µg • 500 µg • 1 mg
16950	20-hydroxy Prostaglandin $F_{2\alpha}$*	50 µg • 100 µg • 500 µg • 1 mg
16720	15-keto Prostaglandin $F_{2\alpha}$*	1 mg • 5 mg • 10 mg • 50 mg
16817	15-keto-17-phenyl trinor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
10010405	15-keto-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg • 25 mg
16730	15(R)-15-methyl Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16734	15(R)-15-methyl Prostaglandin $F_{2\alpha}$ methyl ester	1 mg • 5 mg • 10 mg • 50 mg
16743	15(S)-15-methyl Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
10010064	15(S)-15-methyl Prostaglandin $F_{2\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg • 50 mg
10010063	15(S)-15-methyl Prostaglandin $F_{2\alpha}$ isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
16744	15(S)-15-methyl Prostaglandin $F_{2\alpha}$ methyl ester	1 mg • 5 mg • 10 mg • 50 mg
10010809	16-phenoxy Prostaglandin $F_{2\alpha}$ cyclopropyl methyl amide	1 mg • 5 mg • 10 mg • 50 mg
10010723	17-phenoxy Prostaglandin $F_{2\alpha}$ isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
10010839	17-phenoxy trinor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16760	16-phenoxy tetranor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
10010103	16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ isopropyl ester	500 µg • 1 mg • 5 mg • 10 mg
10010562	16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ methyl amide	500 µg • 1 mg • 5 mg • 10 mg
10010102	16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ methyl ester	500 µg • 1 mg • 5 mg • 10 mg
10010742	17-phenoxy trinor Prostaglandin $F_{2\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg • 50 mg
16810	17-phenyl trinor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 25 mg
16770	16-phenyl tetranor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
16814	15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
10008127	15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide	500 µg • 1 mg • 5 mg • 10 mg
16825	15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
16821	17-phenyl trinor Prostaglandin $F_{2\alpha}$ amide	1 mg • 5 mg • 10 mg • 100 mg
9000686	17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclohexyl amide	1 mg • 5 mg • 10 mg • 50 mg
10010605	17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclopropyl amide	1 mg • 5 mg • 10 mg • 50 mg

*The corresponding Lipid Maps Standard is also available from Cayman.

Prostaglandin F_2 Analogs

Item No.	Product Name	Sizes
10010810	17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclopropyl methyl amide	1 mg • 5 mg • 10 mg • 50 mg
316810	17-phenyl trinor Prostaglandin $F_{2\alpha}$-d_4	25 µg • 50 µg • 100 µg • 1 mg
16823	17-phenyl trinor Prostaglandin $F_{2\alpha}$ diethyl amide	1 mg • 5 mg • 10 mg
16820	17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg • 50 mg
316820	17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide-d_4	25 µg • 50 µg • 100 µg • 1 mg
16824	17-phenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester	1 mg • 5 mg • 10 mg
13992	17-phenyl trinor Prostaglandin $F_{2\alpha}$ 1,15-lactone	1 mg • 5 mg • 10 mg
10010351	17-phenyl trinor Prostaglandin $F_{2\alpha}$ methyl amide	1 mg • 5 mg • 10 mg • 50 mg
10010110	17-phenyl trinor Prostaglandin $F_{2\alpha}$ methyl ester	1 mg • 5 mg • 10 mg
10004237	17-phenyl trinor Prostaglandin $F_{2\alpha}$ serinol amide	1 mg • 5 mg • 10 mg • 50 mg
10008132	5-*trans*-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg • 25 mg
16890	17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 50 mg
10010061	17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide	1 mg • 5 mg • 10 mg • 50 mg
10010062	17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester	1 mg • 5 mg • 10 mg • 50 mg
10010111	17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ methyl ester	1 mg • 5 mg • 10 mg • 50 mg
16895	17-trifluoromethylphenyl-13,14-dihydro trinor Prostaglandin $F_{2\alpha}$	1 mg • 5 mg • 10 mg • 100 mg
16410	Prostaglandin $F_{2\beta}$*	1 mg • 5 mg • 10 mg • 50 mg
16420	Prostaglandin $F_{2\beta}$ (tromethamine salt)	1 mg • 5 mg • 10 mg • 50 mg
16370	8-*iso* Prostaglandin $F_{2\beta}$	1 mg • 5 mg • 10 mg • 50 mg
10008539	8-*iso*-15-keto Prostaglandin $F_{2\beta}$	1 mg • 5 mg • 10 mg • 50 mg
10008436	8-*iso*-17-phenyl Prostaglandin $F_{2\beta}$	1 mg • 5 mg • 10 mg • 50 mg
16250	5-*trans* Prostaglandin $F_{2\beta}$	1 mg • 5 mg • 10 mg • 50 mg
16510	11-deoxy Prostaglandin $F_{2\beta}$	1 mg • 5 mg • 10 mg • 50 mg
16470	16,16-dimethyl Prostaglandin $F_{2\beta}$	1 mg • 5 mg • 10 mg • 50 mg

*The corresponding Lipid Maps Standard is also available from Cayman.

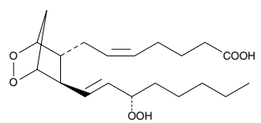
Prostaglandin F_3 Analogs

Item No.	Product Name	Sizes
16990	Prostaglandin $F_{3\alpha}$	100 µg • 500 µg • 1 mg • 5 mg
16992	8-*iso* Prostaglandin $F_{3\alpha}$	50 µg • 100 µg • 500 µg • 1 mg
16995	17-*trans* Prostaglandin $F_{3\alpha}$	50 µg • 100 µg • 500 µg • 1 mg

Prostaglandin G_2 17010

[51982-36-6] PGG_2
MF: $C_{20}H_{32}O_6$ **FW:** 368.5 **Purity:** ≥95%*
A solution in acetone **Stability:** ≥6 months at -80°C
Summary: First intermediate in the COX pathway which is stable enough to be isolated and characterized

25 µg
50 µg
100 µg
500 µg



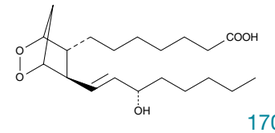
•Also Available: **Prostaglandin G_2 Lipid Maps MS Standard** (10007230)

*All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.

Prostaglandin H_1 17015

[52589-22-7] PGH_1
MF: $C_{20}H_{34}O_5$ **FW:** 354.5 **Purity:** ≥95%
A solution in acetone **Stability:** ≥2 years at -80°C
Summary: A COX metabolite of DGLA and precursor to all 1-series PGs and TXs

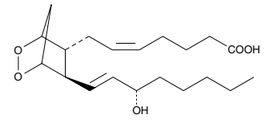
25 µg
50 µg
100 µg
500 µg



Prostaglandin H_2 17020

[42935-17-1] PGH_2
MF: $C_{20}H_{32}O_5$ **FW:** 352.5 **Purity:** ≥95%*
A solution in acetone **Stability:** ≥6 months at -80°C
Summary: A COX metabolite of arachidonic acid and precursor for all 2-series PGs and TXs; acts as a TP receptor agonist and suicide substrate for TX synthase (K_i = 18 µM)

25 µg
50 µg
100 µg
500 µg



•Also Available: **Prostaglandin H_2 Lipid Maps MS Standard** (10007231)

Prostaglandin HPLC Mixture 10002

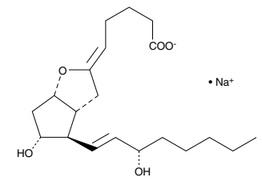
PG HPLC Mixture
Purity: ≥98% for each compound
A solution in methyl acetate **Stability:** ≥6 months at -20°C
Summary: Contains PGE_1, PGE_2, $PGF_{1\alpha}$, 6-keto $PGF_{1\alpha}$, and $PGF_{2\alpha}$ (100 µg each)

1 ea

Prostaglandin I_2 (sodium salt) 18220

[61849-14-7] Epoprosteno, PGI_2, Prostacyclin
MF: $C_{20}H_{31}O_5$ • Na **FW:** 374.5 **Purity:** ≥99%*
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A primary metabolite of arachidonic acid formed by COX and PGI synthase; acts as a potent vasodilator and inhibitor of human platelet aggregation with an IC_{50} value of 5 nM

1 mg
5 mg
10 mg
25 mg

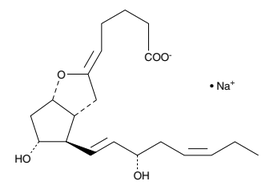


•Also Available: **6α-Prostaglandin I_1** (18110)
6β-Prostaglandin I_1 (18120)

Prostaglandin I_3 (sodium salt) 18300

[68324-96-9] PGI_3
MF: $C_{20}H_{29}O_5$ • Na **FW:** 372.4 **Purity:** ≥99%*
A lyophilized powder **Stability:** ≥6 months at -20°C
Summary: A metabolite of EPA formed by COX and PGI synthase; the platelet and vascular activity of PGI_3 is equivalent to that of PGI_2

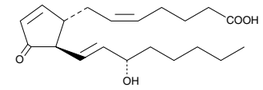
50 µg
100 µg
500 µg
1 mg



Prostaglandin J_2 18500

[60203-57-8] PGJ_2
MF: $C_{20}H_{30}O_4$ **FW:** 334.5 **Purity:** ≥95%*
A solution in methyl acetate **Stability:** ≥6 months at -80°C
Summary: A dehydration product of PGD_2 formed by the elimination of the C-9 hydroxyl group; inhibits platelet aggregation (IC_{50} ~5-10 nM); has antimitotic and antiproliferative effects on a variety of cultured normal cells and tumor cell lines

500 µg
1 mg
5 mg
10 mg



•Also Available: **Prostaglandin J_2 Lipid Maps MS Standard** (10007233)

Prostaglandin J Analogs

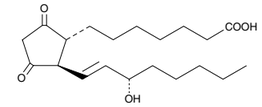
Item No.	Product Name	Sizes
18550	Δ^{12}-Prostaglandin J_2*	100 µg • 500 µg • 1 mg • 5 mg
18570	15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2*	100 µg • 500 µg • 1 mg • 5 mg
18570.1	15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2	1 mg • 5 mg • 10 mg • 50 mg
10141	15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-biotin	50 µg • 100 µg • 500 µg • 1 mg
318570	15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-d_4	25 µg • 50 µg • 100 µg • 1 mg
18580	15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2 Glutathione	50 µg • 100 µg • 500 µg
10010132	15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-2-glycerol ester	100 µg • 500 µg • 1 mg • 5 mg
10006850	15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2 Quant-PAK	1 ea
13635	13,14-dihydro-16,16-difluoro Prostaglandin J_2	100 µg • 500 µg • 1 mg • 5 mg
10008840	13,14-dihydro-15-keto Prostaglandin J_2	500 µg • 1 mg • 5 mg • 10 mg

*The corresponding Lipid Maps Standard is also available from Cayman.

Prostaglandin K_1 18800

[69413-73-6] PGK_1
MF: $C_{20}H_{32}O_5$ **FW:** 352.5 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A 9,11-diketone formed by the oxidation of PGE_1 or PGD_1

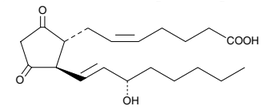
100 µg
500 µg
1 mg
5 mg



Prostaglandin K_2 18900

PGK_2
MF: $C_{20}H_{30}O_5$ **FW:** 350.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A 9,11-diketone formed by the oxidation of PGE_2 or PGD_2

100 µg
500 µg
1 mg
5 mg



•Also Available: **Prostaglandin K_2 Lipid Maps MS Standard** (10007236)

Prostaglandin Metabolite HPLC Mixture 10005

PG Metabolite HPLC Mixture
Purity: ≥98% for each compound
A solution in methyl acetate **Stability:** ≥6 months at -20°C
Summary: Contains the primary metabolites of PGD_2, PGE_2, and $PGF_{2\alpha}$ (100 µg each)

1 ea

*All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.

Prostaglandin Screening Library I (96-well) 10501

A 2 mM solution in DMSO **Stability:** ≥2 years at -20°C
Summary: This screening plate contains a wide range of PGs in the "F-series" configuration (9,11-hydroxy PGs)

50 µl
100 µl
200 µl

Prostaglandin Screening Library II (96-well) 10502

A 2 mM solution in DMSO **Stability:** ≥2 years at -20°C
Summary: This screening plate contains wide range PGs in the "D and E-series" configuration (9-keto, 11-keto, 9-hydroxy, and 11-hydroxy PGs)

50 µl
100 µl
200 µl

Prostaglandin Screening Library III (96-well) 10503

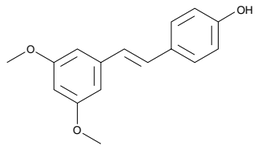
A 2 mM solution in DMSO **Stability:** ≥2 years at -20°C
Summary: This screening plate contains wide range PGs in the "A and J-series"

50 µl
100 µl
200 µl

Pterostilbene 13000

[537-42-8] 3',5'-Dimethoxy-4-Stilbenol, trans-3,5-Dimethoxy-4'-Hydroxystilbene
MF: $C_{16}H_{16}O_3$ **FW:** 256.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A naturally-occurring dimethyl ether analog of resveratrol; acts as a powerful antioxidant, suppresses the synthesis of PGE_2 from LPS-stimulated human peripheral blood mononuclear cells (IC_{50} = 1.0 µM), and inhibits cell proliferation (IC_{50} = ~60 µM); evokes effects that prevent cancer, inflammation, and diabetes

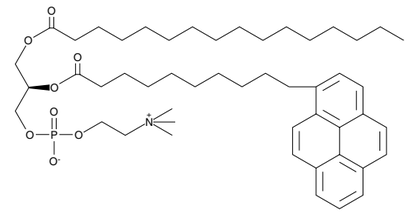
50 mg
100 mg
250 mg
500 mg



10-Pyrene-PC 62245

[95864-17-8] 1-Palmitoyl-2-pyrenedecanoyl Phosphatidylcholine
MF: $C_{50}H_{76}NO_8P$ **FW:** 850.1 **Purity:** ≥98%
A solution in chloroform **Stability:** ≥1 year at -20°C
Summary: A fluorogenic substrate for all PLA_2s with the exception of $cPLA_2$ and PAF-AH

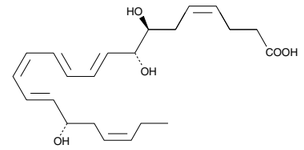
1 mg
5 mg
10 mg
25 mg



Resolvin D1 10012554

[872993-05-0] 17(S)-Resolvin D1, RvD1
MF: $C_{22}H_{32}O_5$ **FW:** 376.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A potent anti-inflammatory mediator derived physiologically from the sequential oxygenation of DHA by 15- and 5-LO; reduces human leukocyte transendothelial migration (EC_{50} = ~30 nM) and limits leukocyte infiltration in a mouse model of peritonitis

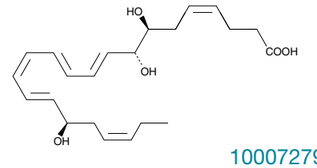
10 µg
25 µg
50 µg
100 µg



17(R)-Resolvin D1 13060

[528583-91-7] Aspirin-triggered-Resolvin D1, 17-epi-Resolvin D1, AT-RvD1, 17(R)-RvD1
MF: $C_{22}H_{32}O_5$ **FW:** 376.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: An aspirin-triggered epimer of RvD1; reduces human leukocyte transendothelial migration (EC_{50} = ~30 nM), and limits leukocyte infiltration in a mouse model of peritonitis

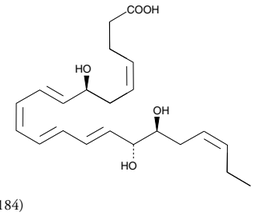
10 µg
25 µg
50 µg
100 µg



Resolvin D2 10007279

[810668-37-2] 7(S),16(R),17(S)-Resolvin D2, RvD2
MF: $C_{22}H_{32}O_5$ **FW:** 376.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -80°C
Summary: Dampens excessive neutrophil trafficking to sites of inflammation; reduces PMN infiltration by 70% at doses as low as 10 pg per mouse and significantly reduces leukocyte adherence and emigration at 1 nM

10 µg
25 µg
50 µg
100 µg

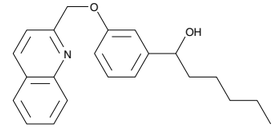


•Also Available: **Resolvin D2-d_5** (11184)

REV 5901 70600

[101910-24-1]
MF: $C_{22}H_{25}NO_2$ **FW:** 335.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥1 year at room temperature
Summary: Antagonist of CysLT receptors with a K_i value of 0.7 µM for guinea pig lung membranes; inhibits rat neutrophil 5-LO (IC_{50} = 0.12 µM)

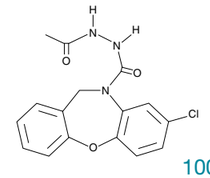
5 mg
10 mg
50 mg
100 mg



SC-19220 14060

[19395-87-0]
MF: $C_{16}H_{14}ClN_3O_3$ **FW:** 331.8 **Purity:** ≥96%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A selective EP_1 receptor antagonist; displaces radiolabeled PGE_2 from the cloned human EP_1 receptor with an IC_{50} value of 6.7 µM; exhibits no binding at the human EP_2 receptor

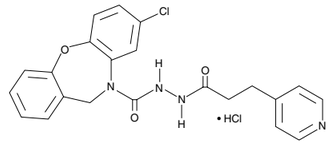
1 mg
5 mg
10 mg
25 mg



SC-51089 10011561

[146033-02-5] CID132748
MF: $C_{22}H_{19}ClN_4O_3$ **FW:** 459.3 **Purity:** ≥95%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A selective EP_1 antagonist that displays analgesic activity in mice (ED_{50} = 6.3 mg/kg when given subcutaneously) and in rats; inhibits the growth of glioma cell lines *in vitro* (IC_{50} = ~1 µM) and slows tumor growth *in vivo*; attenuates neuronal cell death in response to oxidative stress

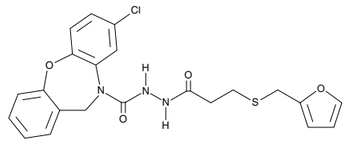
1 mg
5 mg
10 mg
25 mg



SC-51322 10010744

[146032-79-3]
MF: $C_{22}H_{20}ClN_3O_4S$ **FW:** 457.9 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A selective EP_1 antagonist that inhibits PGE_2 signaling in a guinea pig ileum muscle strip assay (pA_2 = 8.1); demonstrates analgesic activity in a mouse writhing assay (ED_{50} = 0.9 mg/kg); potentiates the vasorelaxation of human pulmonary vein induced by PGE_2 (EC_{50} = 7.75 µM)

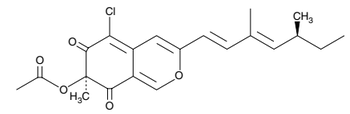
1 mg
5 mg
10 mg
25 mg



Sclerotiorin 89460

[549-23-5]
MF: $C_{21}H_{23}ClO_5$ **FW:** 390.9 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A natural product that inhibits soybean LO-1 (IC_{50} = 4.2 µM), cholesterol ester transfer protein (IC_{50} = 19.4 µM), Grb2-Shc interaction (IC_{50} = 22 µM), and antagonizes endothelin receptors (IC_{50} = 114 and 152 µM for human ET_A and ET_B, respectively)

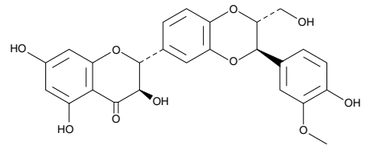
500 µg
1 mg
5 mg
10 mg



Silybin 10006211

[22888-70-6] Silibinin A, Silymarin I
MF: $C_{25}H_{22}O_{10}$ **FW:** 482.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A major flavonolignan from the extracts of milk thistle seed, *S. marianum*; blocks the production of superoxide in PMA-activated rat Kupffer cells (EC_{50} = ~100 µM); inhibits the synthesis of LTB_4 (IC_{50} = ~15 µM)

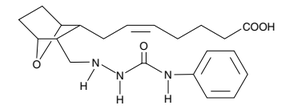
1 g
5 g
10 g
50 g



SQ 29,548 19025

[98672-91-4]
MF: $C_{21}H_{29}N_3O_4$ **FW:** 387.5 **Purity:** ≥99%*
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A highly selective TP receptor antagonist (K_i = 4.1 nM)

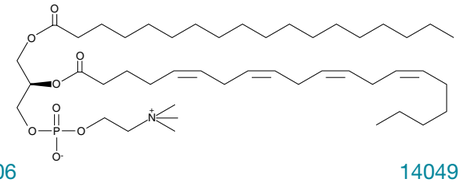
1 mg
5 mg
10 mg
100 mg



1-Stearoyl-2-Arachidonoyl PC 10009864

[35418-59-8] SAPC, 1-Stearoyl-2-Arachidonoyl Phosphatidylcholine
MF: $C_{46}H_{84}NO_8P$ **FW:** 810.1 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: Preferred phospholipid substrate for the $cPLA_2$; an important source of activation-induced arachidonate released as a substrate for COX-2 mediated signaling

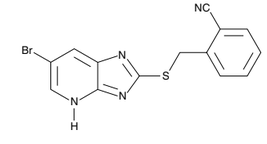
1 mg
5 mg
10 mg
25 mg



STK393606 14049

[355827-05-3]
MF: $C_{14}H_9BrN_4S$ **FW:** 345.2 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A selective and competitive inhibitor of NAD⁺-dependent type-I 15-PGDH (IC_{50} = 26.4 nM; K_i = 5 nM)

1 mg
5 mg
10 mg
25 mg

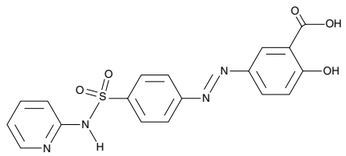


**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

Sulfasalazine 15025

[599-79-1] Azopyrin, NSC 203730, NSC 667219
MF: $C_{18}H_{14}N_4O_5S$ **FW:** 398.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A prodrug of 5-aminosalicylic acid that is used to treat inflammatory bowel disease and rheumatoid arthritis because of its ability to induce T lymphocyte apoptosis, modulate inflammatory mediators from both COX/5-LO pathways and NF-κB signaling pathways, attenuate transcription of proinflammatory cytokines, and activate PPARγ

5 g
10 g

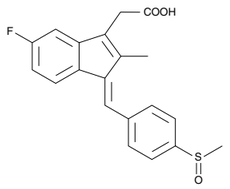


NOTE: Sold for research purposes under agreement from Pfizer Inc.

Sulindac 10004386

[38194-50-2]
MF: $C_{20}H_{17}FO_3S$ **FW:** 356.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A non-selective inhibitor of both COX-1 and COX-2 with extensive epidemiology documenting its effective reduction of human colorectal cancer

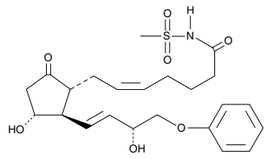
1 g
5 g
10 g
50 g



Sulprostone 14765

[60325-46-4]
MF: $C_{23}H_{31}NO_7S$ **FW:** 465.6 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A metabolism resistant synthetic analog of PGE_2 that acts as a selective EP_3 agonist (K_i = 0.35 nM)

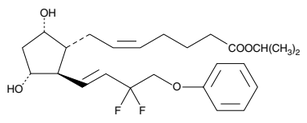
500 µg
1 mg
5 mg
10 mg



Tafluprost 10005440

[209860-87-7] AFP-168
MF: $C_{25}H_{34}F_2O_5$ **FW:** 452.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A 2-series, 16-phenoxy analog of $PGF_{2\alpha}$ incorporating a 15-deoxy-15,15-difluoro modification with ocular hypotensive reducing activity; acts as a very potent FP receptor agonist (K_i = 0.4 nM as the free acid)

1 mg
5 mg
10 mg
25 mg

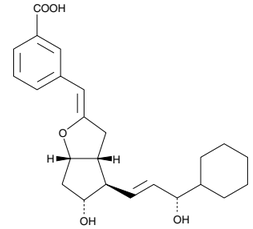


•Also Available: **Tafluprost (free acid)** (10005439)
Tafluprost ethyl amide (9000843)
Tafluprost ethyl ester (11612)

Taprostene (free acid) 10011348

[108945-35-3] CG 4203, Rheocyclan
MF: $C_{24}H_{30}O_5$ **FW:** 398.5 **Purity:** ≥95%
A crystalline solid **Stability:** ≥1 year at -20°C
Summary: A stable prostacyclin analog and agonist of the IP receptor; does not activate EP_4

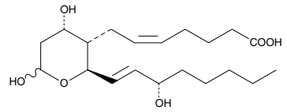
500 µg
1 mg
5 mg
10 mg



Thromboxane B_2 19030

[54397-85-2] TXB_2
MF: $C_{20}H_{34}O_6$ **FW:** 370.5 **Purity:** ≥99%*
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A stable, biologically inert metabolite formed from the non-enzymatic hydrolysis of TXA_2

1 mg
5 mg
10 mg
50 mg



•Also Available: **Thromboxane B_2 Lipid Maps MS Standard** (10007237)

Thromboxane Analogs

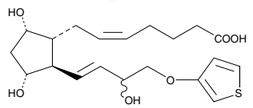
Item No.	Product Name	Sizes
10006610	Thromboxane B_1	1 mg • 5 mg • 10 mg • 50 mg
10006330	2,3-dinor Thromboxane B_1	25 µg • 50 µg • 100 µg • 1 mg
319030	Thromboxane B_2-d_4	25 µg • 50 µg • 100 µg • 500 µg
10006832	Thromboxane B_2 Quant-PAK	1 ea
19500	11-dehydro Thromboxane B_2*	100 µg • 250 µg • 500 µg • 1 mg
19510	11-dehydro-2,3-dinor Thromboxane B_2	*Custom sizes
319500	11-dehydro Thromboxane B_2-d_4	25 µg • 50 µg • 100 µg • 500 µg
10006831	11-dehydro Thromboxane B_2 Quant-PAK	1 ea
19050	2,3-dinor Thromboxane B_2*	*Custom sizes
19990	Thromboxane B_3	50 µg • 100 µg • 500 µg • 1 mg
19995	11-dehydro Thromboxane B_3	50 µg • 100 µg • 500 µg • 1 mg

**The corresponding Lipid Maps Standard is also available from Cayman.*

Tiaprost 13632

[71116-82-0] Iliren
MF: $C_{20}H_{30}O_6S$ **FW:** 398.5 **Purity:** ≥95%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: A synthetic analog of $PGF_{2\alpha}$ that is used in veterinary medicine to synchronize estrus, to treat endometritis, and to induce parturition

500 µg
1 mg
5 mg

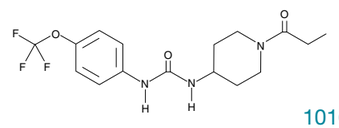


**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

TPPU 11120

[1222780-33-7]
MF: $C_{16}H_{20}F_3N_3O_2$ **FW:** 359.3 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent inhibitor of both human and mouse sEH (IC_{50} = 3.7 and 2.8 nM, respectively); has superior pharmacokinetics compared to the 1-adamantylurea based inhibitors, like AUDA

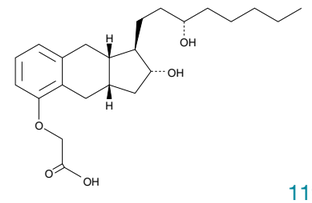
500 µg
1 mg
5 mg



Treprostinil 10162

[81846-19-7] Remodulin™
MF: $C_{23}H_{34}O_5$ **FW:** 390.5 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A stable analog of PGI_2 that is used clinically for the treatment of primary pulmonary hypertension under the trade name Remodulin™

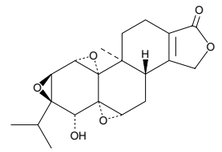
1 mg
5 mg
10 mg
50 mg



Triptolide 11973

[38748-32-2] NSC 163062, PG 490
MF: $C_{20}H_{24}O_6$ **FW:** 360.4 **Purity:** ≥98%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: The major bioactive constituent of *T. wilfordii* Hook F., with known antiproliferative, immunosuppressive, anti-inflammatory, antifertility, and antipolycystic kidney disease effects; inhibits human DCTPP1 (K_i = 168 µM; IC_{50} = 7-10 nM) and COX-2 (IC_{50} = 0.04 µM)

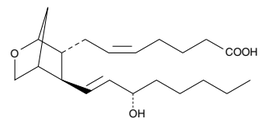
1 mg
5 mg
10 mg



U-44069 16440

[56985-32-1] 9,11-epoxymethano PGH_2, 9,11-dideoxy-9α,11α-epoxymethano $PGF_{2\alpha}$
MF: $C_{21}H_{34}O_4$ **FW:** 350.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A stable analog of PGH_2 and a TP receptor agonist; stimulates shape change in human platelets without a measurable increase in Ca^{2+} with an EC_{50} value of 1.8 nM

1 mg
5 mg
10 mg

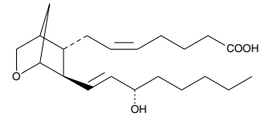


•Also Available: **5-*trans* U-44069** (16442)

U-46619 16450

[56985-40-1] 9,11-dideoxy-9α,11α-methanoepoxy $PGF_{2\alpha}$
MF: $C_{21}H_{34}O_4$ **FW:** 350.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A stable analog of PGH_2 and a TP receptor agonist; exhibits EC_{50} values of 4.8, 6.0, and 7.3 nM for shape change in human, rat, and rabbit platelets, respectively, and 82, 145, and 65 nM for aggregation, respectively

1 mg
5 mg
10 mg
50 mg

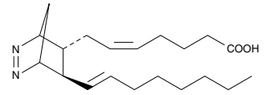


•Also Available: **Δ^{17}-U-46619** (16460)
U-46619 Glycine methyl ester (10010522)

U-51605 16465

[64192-56-9]
MF: $C_{20}H_{32}N_2O_2$ **FW:** 332.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A stable analog of PGH_2 that acts as an inhibitor of both PGI and TX synthases

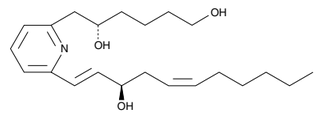
100 µg
500 µg
1 mg
5 mg



U-75302 70705

[119477-85-9]
MF: $C_{22}H_{35}NO_3$ **FW:** 361.5 **Purity:** ≥98%
A solution in ethanol **Stability:** ≥1 year at -20°C
Summary: An BLT_1 receptor antagonist with a K_i value of 159 nM on guinea pig lung membranes; does not antagonize the binding of [^{3}H]-LTB_4 to the human BLT_2 receptor

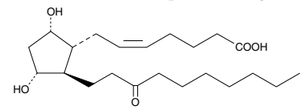
50 µg
100 µg
500 µg
1 mg



Unoprostone 16680

[120373-36-6] 13,14-dihydro-15-keto-20-ethyl $PGF_{2\alpha}$
MF: $C_{22}H_{38}O_5$ **FW:** 382.5 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: An analog of $PGF_{2\alpha}$ with a 13,14-dihydro-15-keto modification and a 2-carbon extension of the aliphatic lower side chain; an isopropyl ester of unoprostone (Rescula®) has been approved for clinical use as an ocular hypotensive drug

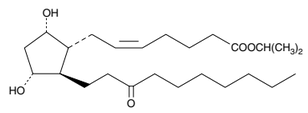
1 mg
5 mg
10 mg
50 mg



Unoprostone isopropyl ester 16681

[120373-24-2] 13,14-dihydro-15-keto-20-ethyl $PGF_{2\alpha}$ isopropyl ester, Rescula ™
MF: $C_{25}H_{44}O_5$ **FW:** 424.6 **Purity:** ≥98%*
A solution in methyl acetate **Stability:** ≥2 years at -20°C
Summary: A clinically approved, prodrug form of unoprostone, with the trade name Rescula™

1 mg
5 mg
10 mg
50 mg



**All 5-cis 2-series PGs (those containing a 5,6-double bond) will contain a small amount of the 5-trans isomer. This isomer is generally undetectable using normal phase silica columns and plates, but may be resolved using RP-HPLC. The purity for all such 2-series PGs excludes the 1-3% trans isomer which will generally be present.*

Vasoactive Eicosanoid HPLC Mixture 10003

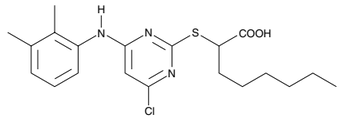
Purity: ≥98% for each compound
A solution in methyl acetate **Stability:** ≥6 months at -20°C
Summary: Contains TXB_2, 11-dehydro TXB_2, 6-keto $PGF_{1\alpha}$, 2,3-dinor-6-keto $PGF_{1\alpha}$ (100 µg each), and 12(S)-HHTrE (5 µg)

1 ea

YS121 13665

[916482-17-2]
MF: $C_{20}H_{26}ClN_3O_2S$ **FW:** 408.0 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A dual inhibitor of mPGES-1 (IC_{50} = 3.9 µM) and 5-LO (IC_{50} = 4.1 µM); blocks PGE_2 and LT synthesis in cell free and intact cell assays, and also in an animal model of inflammation

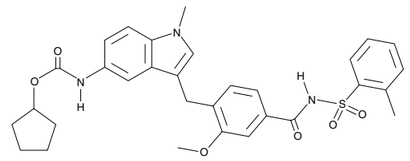
1 mg
5 mg
10 mg
25 mg



Zafirlukast 10008282

[107753-78-6] Accolate™
MF: $C_{31}H_{33}N_3O_6S$ **FW:** 575.7 **Purity:** ≥97%
A crystalline solid **Stability:** ≥2 years at -20°C
Summary: A potent, selective $CysLT_1$ receptor antagonist sold under the trade name Accolate™ for the treatment of asthma as well as for the symptoms associated with allergic rhinitis; binds to the human $CysLT_1$ and $CysLT_2$ receptors with IC_{50} values of approximately 5 and 7,400 nM, respectively

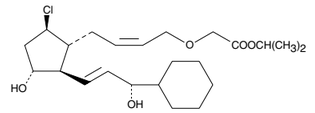
10 mg
100 mg
500 mg
1 g



ZK118182 isopropyl ester 13673

[154927-31-8]
MF: $C_{23}H_{37}ClO_5$ **FW:** 429.0 **Purity:** ≥98%
A solution in methyl acetate **Stability:** ≥1 year at -20°C
Summary: A prodrug formulation of a potent DP receptor-agonist that is designed to enhance corneal absorption; lowers monkey and rabbit IOP 46% and 20%, respectively, two hours after dosing at 0.03 µg demonstrating a much more potent effect compared to the free acid

100 µg
500 µg



Eicosanoid Receptor Agonists and Antagonists

Receptor	Agonists (Item number)	Antagonists (Item number)
DP_1	BW-245C (**12050**), 11-keto Fluprostenol (**16783**), PGD_2 (**12010**), 15-deoxy-$\Delta^{12,14}$-PGD_2 (**12700**), 15(S)-15-methyl PGD_2 (**12730**)	AH 6809 (**14050**), BW A868C (**12060**), MK 0524 (**10009835**)
DP_2	11-keto Fluprostenol (**16783**), Indomethacin (**70270**), PGD_2 (**12010**), 11-deoxy-11-methylene-15-keto PGD_2 (**12415**), 15-deoxy-$\Delta^{12,14}$-PGD_2 (**12700**), 13,14-dihydro-15-keto PGD_2 (**12610**), 15(R)-15-methyl PG D_2 (**12720**), PGJ_2 (**18500**), Δ^{12}-PGJ_2 (**18550**), 15-deoxy- $\Delta^{12,14}$-PGJ_2 (**18570**), 15-deoxy- $\Delta^{12,14}$-PGJ_2-2-glycerol ester (**10010132**)	BAY-u3405 (**10156**), CAY10471 (**10006735**), CAY10595 (**10012553**), CAY10597 (**10012539**), OC000459 (**12027**)
EP_1	PGE_2 (**14010**), 17-phenyl trinor PGE_2 (**14810**), 17-phenyl trinor 8-*iso* PGE_2 (**10007931**)	AH 6809 (**14050**), GW 848687X (**10010410**), ONO-8711 (**14070**), SC-19220 (**14060**), SC-51089 (**10011561**), SC-51322 (**10010744**)
EP_2	Butaprost (**13740**), CAY10408 (**13747**), PGE_2 (**14010**), 11-deoxy-16,16-dimethyl PGE_2 (**14570**), 19(R)-hydroxy PGE_2 (**14910**)	AH 6809 (**14050**), PF-04418948 (**15016**)
EP_3	PGE_2 (**14010**), 11-deoxy-16,16-dimethyl PGE_2 (**14570**), 17-phenyl trinor PGE_2 (**14810**), 17-phenyl trinor 8-*iso* PGE_2 (**10007931**), Sulprostone (**14765**)	AH 6809 (**14050**)
EP_4	CAY10580 (**16835**), CAY10598 (**13281**), PGE_2 (**14010**)	AH 23848 (**19023**), GW 627368X (**10009162**), L-161, 982 (**10011565**), L-902,688 (**10007712**)
FP	CAY10509 (**10009167**), CAY10510 (**10009168**), Cloprostenol (**16764** (sodium salt), **16765** (+), **16766** ((+) sodium salt)), Fluprostenol (**16768**), Latanoprost (free acid) (**16811**), $PGF_{2\alpha}$ (**16010**), 16,16-dimethyl $PGF_{2\alpha}$ (**16750**), 15(S)-15-methyl $PGF_{2\alpha}$ (**16743**), 16-phenoxy tetranor $PGF_{2\alpha}$ (**16760**), 17-phenyl trinor $PGF_{2\alpha}$ (**16810**), Tafluprost (**10005440**)	AL 8810 (**16735**), $PGF_{2\alpha}$ dimethyl amide (**16032**), $PGF_{2\alpha}$ dimethyl amine (**16033**)
IP	AFP 07 (free acid) (**13626**), Beraprost (sodium salt) (**18230**), Carbaprostacyclin (**18210**), 13,14-dehydro-15-cyclohexyl Carbaprostacyclin (**18212**), Ciprostene (calcium salt) (**18216**), Iloprost (**18215**), MRE-269 (**10010412**), NS-304 (**10010411**), PGI_2 (sodium salt) (**18220**), Piriprost (potassium salt) (**18228**), Taprostene (free acid) (**10011348**), Treprostinil (**10162**)	CAY10441 (**10005186**), CAY10449 (**10005913**)
TP	Carboxycyclic TXA_2 (**19010**), I-BOP (**19600**), U-44069 (**16440**), U-46619 (**16450**)	AH 23848 (calcium salt, hydrate) (**19023**), BAY-u3405 (**10156**), CAY10535 (**10010396**), GW 672368X (**10009162**), I-SAP (**19021**), L-655,240 (**10011562**), Pinane TXA2 (**19020**), SQ 29,548 (**19025**)
BLT_1	LTB_4 (**20110**), 20-trifluoro LTB_4 (**20195**)	LY223982 (**10010024**), LY293111 (**10009768**), LTB_4 Ethanolamide (**20112**), 14,15-dehydro LTB_4 (**20150**), 20-hydroxy LTB_4 (**20190**), U-75302 (**70705**)
BLT_2	CAY10583 (**10012424**), LTB_4 (**20110**)	LY255283 (**70715**)
$CysLT_1$	LTC_4 (**20210**), LTD_4 (**20310**)	BAY-u9773 (70770), LY171883 (**70710**), MK 571 (**10029**), Montelukast (sodium salt) (**10008318**), Pranlukast (**10008319**), REV 5901 (**70600**), Zafirlukast (**10008282**)
$CysLT_2$	LTC_4 (**20210**), LTD_4 (**20310**)	$BayCysLT_2$ (**10532**), BAY-u9773 (**70770**), REV 5901 (**70600**)

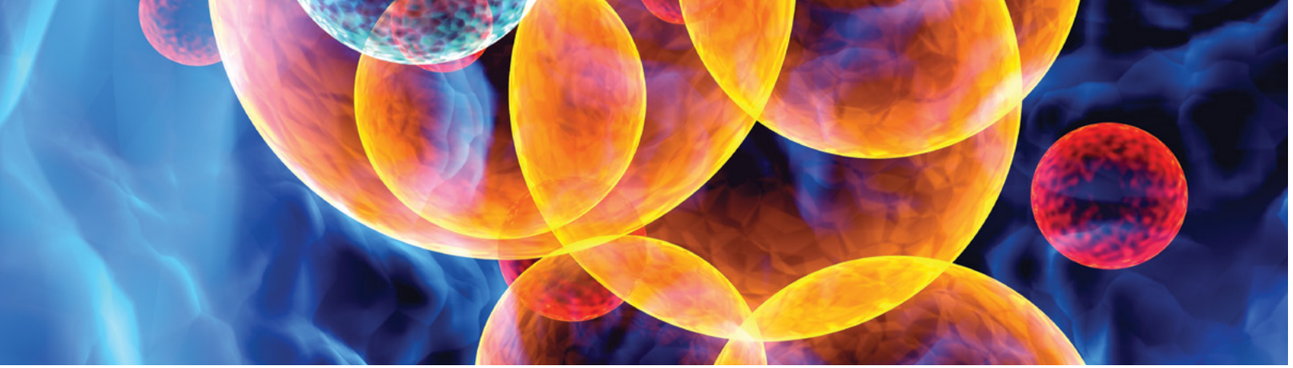
Lipoxygenase Inhibitors

Item No.	Product Name	5-LO (IC_{50})	12-LO (IC_{50})	15-LO (IC_{50})
90020	5,6-dehydro Arachidonic Acid	10.0 µM (guinea pig leukocytes) K_i = 15.0 µM (RBL-1 cells)		
70610	Baicalein		0.12 µM (rat platelets)	
70602	Caffeic Acid	3.7 µM (mastocytoma P-815 2-E-6 cells) 72.0 µM (rat PMNL)	30.0 µM (rat platelets) 5.1 µM (rat platelets)	
70635	CAY10416	3 nM (granulocyte-like cells)		
13164	CAY10589	1.0 µM		
13381	CAY10606	86 nM (cell-free assays) 230 nM (intact neutrophils)		
10804	CAY10649	0.28 µM (PMNL) 0.09 (S100 PMNL cell lysate)		
13285	CBDD			0.28 µM
70604	3,4-Dihydroxyphenyl ethanol	13 µM (rat neutrophil)	4.2 µM (rat platelets)	
90310	Docosahexaenoic Acid	13.0 µM (rat PMNL)	4.2 µM (rat platelets)	
90120	Eicosatetraynoic Acid	3-4.0 µM (rat peritoneal cells)	0.05-4.0 µM (human platelets)	
90200	5,8,11-Eicosatriynoic Acid		24.0 µM (human platelets)	
34720	15(S)-HETE	1.45 µM (rat PMNL) 5.7 µM (rabbit PMNL)	0.34 µM (rabbit platelets)	
34215	(±)5-HETE lactone	27.0 µM (RBL-1 cells)		
36720	15(S)-HETrE	4.6 µM (human PMNL)		
10888	HZ52	0.7 µM (intact human PMNL)		
10010468	15-Lipoxygenase Inhibitor 1			18 µM
10004161	Luteolin			0.6 µM
70300	Nordihydroguaiaretic Acid	5-7.0 µM (rat peritoneal cells)	3-5.0 µM (human platelets)	0.91 µM (rabbit reticulocytes)
90400	9,12-Octadecadiynoic Acid			1.0 µM (soybean)
10115	N-Oleoyl Dopamine	0.0075 µM (RBL-1 cells)		
18228	Piriprost (potassium salt)	100 µM (rat myometrial cells)		
70600	REV 5901	0.12 µM (rat PMNL)		
10006211	Silybin	012 µM (rat PMNL)		
13271	ZLJ-6	0.99 µM		

PLA Inhibitors

Item No.	Product Name	$sPLA_2$ (IC_{50})	$cPLA_2$ (IC_{50})	$iPLA_2$ (IC_{50})	$rPLA_2$
62120	Arachidonyl Trifluoromethyl Ketone		50 µM (human)	15 µM (mouse)	
13823	AX 048		$X_i(50)^\dagger$ = 0.022		
70700	Bromoenol lactone			60 nM (mouse) K_i = 180 nM (canine)	
10008657	CAY10502		4.3 nM (human)		
13181	CAY10590			$X_i(50)^\dagger$ = 0.003	
10743	CAY10650		12 nM		
10111	EA4				K_i = 130 µM
70500	7,7-dimethyl-5,8-Eicosadienoic Acid		16 µM (mouse)		
13179	FKGK 11			$X_i(50)^\dagger$ = 0.0073	
70660	Methyl Arachidonyl Fluorophosphonate		0.6 µM (human)	0.5 µM (mouse)	
70560	Oleyloxyethyl Phosphorylcholine	6.2 µM (porcine pancreatic)			
62650	Palmityl Trifluoromethyl Ketone		45 µM (human)	3.8 µM (mouse)	
11510	Prostaglandin B_x	1.4-7 µM (human)			
13294	Pyrrophenone		4.2 nM		
13343	RSC-3388		1.8 nM		
62750	Thioetheramide-PC	~2 µM (with thio-PC as substrate; cobra venom)			

Also Available: *(R)-Bromoenol lactone (10006800) • (R)-Bromoenol lactone-d_7 (10534) • (S)-Bromoenol lactone (10006801) • (S)-Bromoenol lactone-d_7 (10535)*
**The corresponding Blocking Peptide is also available from Cayman.* *$^\dagger X_i(50)$ = mole fraction that gives 50% inhibition*



Intracellular PLA$_2$ activation and functional cooperation

by [Olivia L. May, Ph. D.]

Phospholipase A$_2$ (PLA$_2$) catalyzes the hydrolysis of the middle (*sn*-2) ester bond of substrate phosphospholipids to release free fatty acids and lysophospholipids. The fatty acids may then be converted to various bioactive lipids. Transforming membrane fatty acids into powerful signaling mediators provides a means for cells to quickly (and transiently) respond to a battery of stimuli. PLA$_2$ enzymes are classically organized into four main types: secreted (sPLA$_2$), cytosolic (cPLA$_2$), Ca^{2+}-independent (iPLA$_2$), and lipoprotein-associated (LpPLA$_2$ or PAF-AH). Of these, cPLA$_2$ is readily the most essential for eicosanoid biosynthesis since this ubiquitously-expressed enzyme shows specificity for phospholipids containing arachidonic acid.[1] iPLA$_2$ is more involved in membrane homeostasis and energy metabolism. sPLA$_2$ is known to regulate extracellular phospholipids but is also expressed in macrophages and epithelial cells where they too may participate in lipid mediator generation. Lysosomal PLA$_2$ (LPLA$_2$) and adipose-specific PLA$_2$ (AdPLA$_2$) represent two more recently identified PLAs whose classifications are based on specific location. While cPLA$_2$ is constitutively expressed, certain PLAs are activated in distinct cell populations to contribute to the supply of lipid mediator precursors needed for each varied function. The *in vivo* biological functions for each PLA$_2$ type continue to be surmised with the emergence of transgenic and knockout mouse strains, the use of specific inhibitors (see page 47 for PLA$_2$ inhibitors available from Cayman), and the analysis of human diseases caused by PLA$_2$ gene mutations. Many of these functions have been thoroughly detailed in a recent review by Murakami, *et al.*, 2011.[1] This article will delve into the mechanics of activation and potential cooperation between the two intracellular PLA$_2$s: cPLA$_2$α and iPLA$_2$β.

cPLA$_2$ structure and function

While 6 isoforms have been identified in the cPLA$_2$ family, group IVA cPLA$_2$α remains the most extensively studied. It acts intracellularly, releasing arachidonic acid from perinuclear membrane phospholipids in response to calcium binding, and thus, initiating eicosanoid production. cPLA$_2$α has been shown to contribute to the airway anaphylactic response, rheumatoid arthritis, bone resorption, autoimmune encephalomyelitis, long term depression, cerebral ischemia/reperfusion, neurodegeneration, cancer, induction of parturition, platelet activation, gastrointestinal and renal tract protection, and negative regulation of muscle growth.[1] Beyond lipid mediator production, roles for cPLA$_2$α in Golgi transmembrane junction protein trafficking, NADPH oxidase activation in phagocytes, and inhibition of synaptic facilitation *via* caveolin-1 have emerged.[1]

cPLA$_2$α activation

All cPLA$_2$ isoforms (except for cPLA$_2$γ) have a C2 domain at their N-terminal region (Figure 1). This domain is essential for perinuclear membrane translocation from the cytosol in response to calcium (Ca^{2+}) and the subsequent release of arachidonic acid. Binding of two ions of Ca^{2+} to the C2 domain reduces the negative electrostatic potential of surface exposed Ca^{2+}-binding loops. This enables a set of hydrophobic residues in the C2 domain, which are important for lipid specificity, to penetrate a phosphatidylcholine (PC)-rich membrane surface, thereby presenting the catalytic domain of cPLA$_2$ in a position where it can be activated (Figure 2). The catalytic domain contains a catalytic dyad consisting of Ser^{228} and Asp^{549} that is located at the bottom of a deep active site channel (Figure 1). This narrow conduit is lined

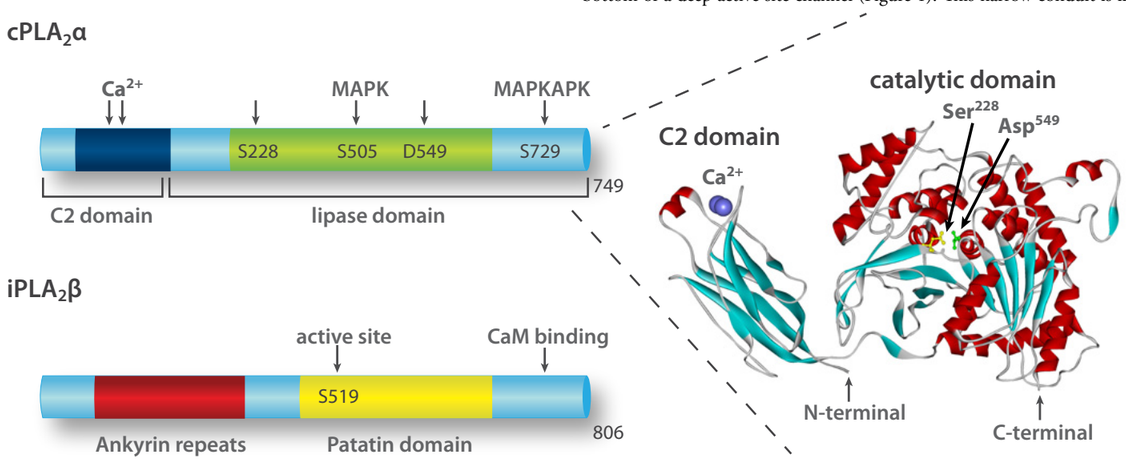
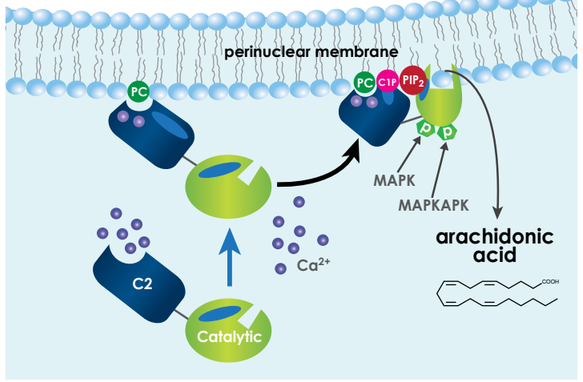


Figure 1. cPLA$_2$α and iPLA$_2$α protein domains and cPLA$_2$α crystal structure. The first comprehensive structural model of iPLA$_2$α was proposed by Hsu *et al.*, 2009.[6] However, its crystal structure remains to be solved.

Figure 2. Ca^{2+}-dependent, C2 domain-directed translocation of cPLA$_2$α to release arachidonic acid.



with hydrophobic residues and forms a pocket to which fatty acyl moieties of phospholipids bind. While the *sn*-2 ester bond of membrane phospholipids is under nucleophilic attack by Ser^{228}, the catalytic center is activated by Asp^{549} when a change in conformation moves the loop, referred to as the lid region, covering the active site.[2]

Beyond the initial jump start from calcium signaling to pry open the active site lid, MAPK phosphorylation at Ser^{505}, which is located near a flexible interdomain linker that connects the C2 and catalytic domains, is required for sustained activation. Phosphorylation at Ser^{505} induces a conformational change that promotes further membrane penetration of the hydrophobic residues and allows a patch of basic residues in the catalytic domain to specifically bind to PIP$_2$, which ultimately controls arachidonic acid release (Figure 2). Proximal to PIP$_2$ binding, a certain set of basic residues in the C2 domain interact with ceramide-1-phosphate (C1P), which is thought to be required for agonist-induced translocation of cPLA$_2$α to the membrane. In all, these hydrophobic interactions reinforce cPLA$_2$α membrane contact even in the face of transient or submicromolar fluxes of Ca^{2+} availability. Hence, while initial association of cPLA$_2$α with the membrane requires Ca^{2+} activation of the C2 domain, the catalytic domain is capable of remaining attached to the membrane even after a decrease in calcium levels. Finally, maximum activation of cPLA$_2$α occurs when MAPK-activated kinases (MAPKAPKs) phosphorylate Ser^{727}, disrupting an inhibitory interaction of Ser^{727} with p11/annexin A2 complexes that routinely prevent full binding of cPLA$_2$α to the membrane.

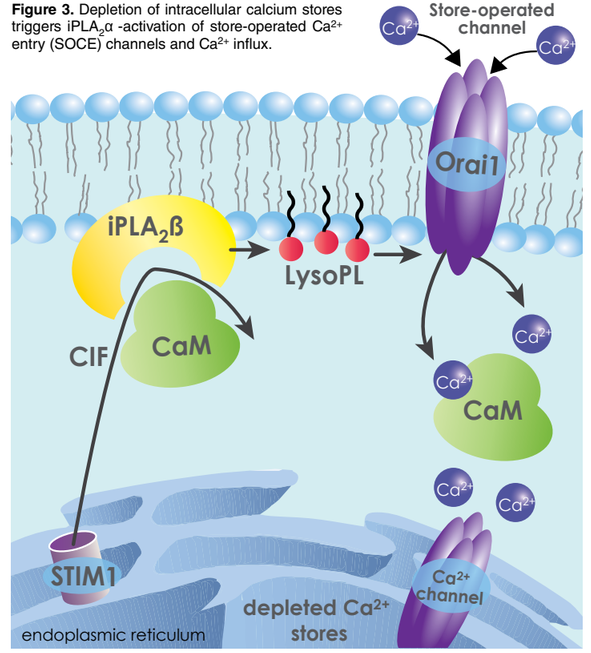
iPLA$_2$ structure and function

To date, 9 isoforms of iPLA$_2$ or patatin-like phospholipase domain-containing lipases (PNPLA) have been identified. Most of the members of this family, however, function as triglyceride lipases rather than phospholipases. Like cPLA$_2$, iPLA$_2$ also is located intracellularly, yet it is calcium independent. While iPLA$_2$ can generate lipid mediators from phospholipids, it acts on a diverse set of substrates including triglycerides and retinol esters. iPLA$_2$β (group *VIA* PLA$_2$ or PNPLA9) is the best described. It largely functions to regulate cell membrane homeostasis by participating in phospholipid remodeling through the deacetylation of phospholipids in the Land's cycle. A role for iPLA$_2$β has also been revealed in signaling leading to cell activation, proliferation, migration, and apoptosis. Additionally, iPLA$_2$β has been shown to be involved in regulating lipid metabolism, intracellular calcium homeostasis (which will be discussed further below), vascular contraction/relaxation, bone formation, sperm development, and glucose-induced insulin secretion.[1]

iPLA$_2$β activation

iPLA$_2$β contains a binding site for calmodulin (CaM) in its C-terminus (Figure 1) that (along with an IQ motif), forms a pocket enabling CaM to bind and inhibit iPLA$_2$β activity. The CaM-iPLA$_2$β complex forms in the absence of calcium, preventing iPLA$_2$β activity. When CaM is not present, the active site of iPLA$_2$β interacts with the CaM-binding domain leading to a catalytically active enzyme. How, then, is this Ca^{2+}-independent phospholipase functional if inactive while bound to a calcium modulated protein? The answer is related to store-operated channels (SOC) and store-operated Ca^{2+} entry (SOCE).

Figure 3. Depletion of intracellular calcium stores triggers iPLA$_2$α -activation of store-operated Ca^{2+} entry (SOCE) channels and Ca^{2+} influx.



SOC and SOCE are activated by depletion of endoplasmic reticulum (ER) Ca^{2+} stores (Figure 3). This depletion is detected by STIM1, a protein located in the ER membrane that binds calcium in the ER lumen, functioning as a low-affinity Ca^{2+} sensor. When ER calcium is depleted, STIM1 triggers a cascade of reactions that leads to the activation of the plasma membrane channel, Orai1 (CRACM1). Orai1 has been shown to form a SOC that is activated exclusively upon depletion of calcium.[3]

STIM1 expression is tightly coupled with the production of a Ca^{2+} influx factor (CIF) that is generated in the ER when intraluminal calcium concentrations drop. CIF has been shown to displace inhibitory CaM from iPLA$_2$β.[4] This would enable iPLA$_2$β to move from the cytosol to the membrane where it can generate lysophospholipids, that in turn activate Orai1-dependent SOC channels that allow Ca^{2+} entry. Calcium influx is terminated when ER stores are refilled (as monitored by STIM1), terminating CIF production, which enables calmodulin to rebind to iPLA$_2$β.

cPLA$_2$α and iPLA$_2$β cooperation

Whereas the entry of extracellular Ca^{2+} through the SOCE pathway is crucial for cPLA$_2$α activation, iPLA$_2$β-mediated activation of SOCE may likely lie upstream of Ca^{2+}-dependent activation of cPLA$_2$α. Moon *et al*,. 2008 have used iPLA$_2$β knockout mice to demonstrate that iPLA$_2$β is required for the initial phase of arachidonic acid release during calcium store depletion-induced Ca^{2+} entry or ionophore stimulation in aortic smooth muscle cells.[5] Furthermore, only the late phase (and not the initial phase) of arachidonic release from wild type cells was shown to be reduced by inhibition of cPLA$_2$α.[5] Thus, Ca^{2+} influx initiated by iPLA$_2$β activation could potentially facilitate subsequent activation of cPLA$_2$α, enhancing arachidonic acid release. More research will be necessary in order to determine the temporal details of this proposed integration. ▯

References

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2. Burke, J.E. and Dennis, E.A. *J. Lipid Res.* **50**, S237-S242 (2009).
3. Bolotina, V.M. *J. Physiol.* **586(13)**, 3035-3042 (2008).
4. Bolotina, V.M. and Csutora, P. *Trends Biochem. Sci.* **30(7)**, 378-387 (2005).
5. Moon, S.H., Jenkins, C.M., Mancuso, D.J., *et al. J. Biol. Chem.* **283(49)**, 33975-33987 (2008).
6. Hsu, Y.-H., Burke, J.E., Li, S., *et al. J. Biol. Chem.* **284(35)**, 23652-23661 (2009).

Two excellent reviews detailing emerging roles for sPLA$_2$:

Murakami, M. and Lambeau, G. *Biochimie* **95(1)**, 43-50 (2013).
Murakami, M., Taketomi, Y., Girard, C., *et al. Biochimie* **92(6)**, 561-582 (2010).

Antibodies

Eicosanoid Receptor Antibodies			
Item No.	Antibodies	Applications	Reactivity
120111	BLT_1 Receptor Monoclonal Antibody (Clone 7B1)	ICC, IHC, FC	(+) H; (-) BLT_1, $CysLT_1$, $CysLT_2$ Receptors
120114	BLT_1 Receptor Polyclonal Antibody	ICC, IHC, FC, WB	(+) H, M, B
100019	BLT_1 Receptor Polyclonal Antiserum	WB, IHC, FC, Confocal Microscopy	(+) H, M, B
120124	BLT_2 Receptor Polyclonal Antibody	WB	(+) H, M
10007002	$CRTH2/DP_2$ Receptor (C-Term) Polyclonal Antibody	ICC, WB	(+) H, M, R
10004886	$CRTH2/DP_2$ Receptor (N-Term) Polyclonal Antibody	ICC, WB	(+) H, M, R
120500	$CysLT_1$ Receptor Polyclonal Antibody	ICC, IHC, FC, WB	(+) H
14713	$CysLT_1$ Receptor Polyclonal FITC Antibody	FC	(+) H, M
120550	$CysLT_2$ Receptor (C-Term) Polyclonal Antibody	IHC, FC,WB	(+) H (-) M, R, O, $CysLT_1$ Receptors
120560	$CysLT_2$ Receptor (N-Term) Polyclonal Antibody	ICC, IHC, FC, WB	(+) H (-) M, R, $CysLT_1$ Receptors
101640	DP_1 Receptor Polyclonal Antibody	ICC, WB	(+) H, M, R
101740	EP_1 Receptor Polyclonal Antibody*	ICC, WB	(+) H, M, R
101750	EP_2 Receptor Polyclonal Antibody*	ICC, WB	(+) H, M, R; (-) EP_1, EP_2, EP_4 Receptors
10477	EP_2 Receptor Polyclonal PE Antibody	ICC, FC	(+) H, M, R
101760	EP_3 Receptor Polyclonal Antibody*	ICC, WB	(+) H, M, R, B; (-) EP_1, EP_2, EP_4 Receptors
101775	EP_4 Receptor (C-Term) Polyclonal Antibody*	ICC, IHC, WB	(+) H, M, O,R; (-) EP_1, EP_2, EP_3 Receptors
10479	EP_4 Receptor (C-Term) Polyclonal PE Antibody	FC, IF	(+) H, M, O,R; (-) EP_1, EP_2, EP_3 Receptors
101770	EP_4 Receptor (N-Term) Polyclonal Antiserum*	WB	(+) H, M, R, O
101802	FP Receptor Polyclonal Antiserum*	WB	(+) H, M, R, O, B
10005518	IP Receptor (human) Polyclonal Antibody*	WB	(+) H, M, R
160070	IP Receptor (mouse) Polyclonal Antibody*	WB	(+) M, R; (-) H
10004452	TP Receptor (human) Polyclonal Antibody*	ICC, WB	(+) H, M, R, Cos-7
10012559	TP Receptor (human) Polyclonal FITC Antibody	ICC, FC, WB	(+) H, M, R, Cos-7
101882	TP Receptor (mouse) Polyclonal Antibody	IHC, WB	(+) H, M, R, Cos-7

H = human, M = mouse, R = rat, O = ovine, B = bovine
**The corresponding Blocking Peptide is also available from Cayman.*

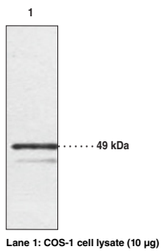
Lipoxygenase Antibodies			
Item No.	Antibody	Application	Reactivity
160402	5-Lipoxygenase Polyclonal Antibody*	WB	(+) H, M, R, Hm, P
10007820	5-Lipoxygenase (Phospho-Ser^{523}) Polyclonal Antibody	WB	(+) H, R, NHP
160704	15-Lipoxygenase-1 (rabbit) Polyclonal Antiserum	WB	(+) H, M, Rb 15-LO-1 and 12-LO (porcine leukocyte); (-) H 15-LO-2 and 5-LO
10004454	15-Lipoxygenase-2 Polyclonal Antibody*	ICC, WB	(+) H; (-) Rb reticulocyte 15-LO-1, P leukocyte 12-LO-1 and H 5-LO

H = human, M = mouse, R = rat, Hm = hamster, P = porcine, NHP = non-human primate, Rb = rabbit
**The corresponding Blocking Peptide is also available from Cayman.*

Chemokine-Like Receptor 1 Polyclonal Antibody — 10325

CMKLR1, DEZ, GPCR ChemR23, Resolvin E1 Receptor
Peptide affinity-purified IgG **Stability:** ≥1 year at -20°C
Summary: Antigen: human CMKLR1 amino acids 358-371 • Host: rabbit • Cross Reactivity: (+) human, mouse, rat, and monkey CMKLR1 • Application(s): FC, ICC, and WB • CMKLR1 is a GPCR relevant to the cellular chemotaxis of dendritic cells and macrophages. Chemerin, or TIG2, and Resolvin E1 are ligands for this receptor.

1 ea



Lane 1: COS-1 cell lysate (10 µg)

•Also Available: **Chemokine-Like Receptor 1 Blocking Peptide** (10326)

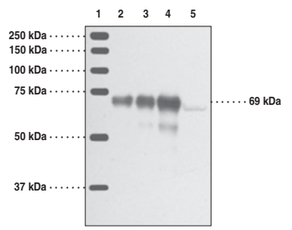
COX Antibodies			
Item No.	Antibody	Application	Reactivity
160103	COX Polyclonal Antibody	ICC, WB	(+) COX-1, COX-2
160110	COX-1 Monoclonal Antibody (Clone CX111)	IHC, WB	(+) H, M, R, B, O; (-) M COX-2
160111	COX-1 Monoclonal FITC Antibody (Clone CX111)	FC	(+) H, M, R, B, O; (-) M COX-2
160120	COX-1 Monoclonal PE Antibody (Clone CX111)	FC	(+) H, M, R, B, O; (-) M COX-2
160109	COX-1 (mouse) Polyclonal Antibody*	IHC, WB	(+) M; (-) H, O COX-1; (-) H, M, R, O COX-2
160108	COX-1 (ovine) Polyclonal Antiserum*	ICC, IHC, WB	(+) H, O, B; (-) M, R COX-1; (-) H, M, O COX-2
160112	COX-2 Monoclonal Antibody(Clone CX229)	IHC, WB	(+) H, Mk, O; (-) COX-1 and M, R, Rb COX-2
160113	COX-2 Monoclonal FITC Antibody (Clone CX229)	FC	(+) H, Mk, O; (-) COX-1 and M, R, Rb COX-2
160122	COX-2 Monoclonal PE Antibody (Clone CX229)	FC	(+) H, Mk, O; (-) COX-1 and M, R, Rb COX-2
160107	COX-2 (human) Polyclonal Antibody*	IHC, WB	(+) H, M, R, GP, O; (-) COX-1
160106	COX-2 (mouse) Polyclonal Antibody* (aa 570-598)	IHC, WB	(+) H, M, R, GP, Mk, Rb; (-) COX-1
10010096	COX-2 (mouse) Polyclonal FITC Antibody	ICC, FC, WB	(+) H, M, R; (-) COX-1
160126	COX-2 (mouse) Polyclonal Antibody (aa 584-598)*	IHC, WB	(+) H, M, O, R; (-) COX-1
160116	COX-2 (mouse) Polyclonal Antiserum*	IHC, WB	(+) H, M, R, GP, Mk, O, R; (-) COX-1
100034	Goat Anti-COX-2 (human) Polyclonal Antibody (Affinity-Purified)	ICC, IHC, WB	(+) H; (-) COX-1

***Also Available**: COX-2 (ovine) Electrophoresis Standard (360120) • RSV Microsomal Immunoblot Control (10004722) • Mouse Microphage Microsomal Immunoblot Control (10004910) • COX-2 (human) Western Ready Control (10009624)*
H = human, M = mouse, R = rat, O = ovine, B = bovine, Mk = Monkey, Rb = Rabbit
**The corresponding Blocking Peptide is also available from Cayman.*

Leukotriene A_4 Hydrolase Polyclonal Antibody — 160250

LTA_4 Hydrolase
Protein-A purified IgG **Stability:** ≥1 year at -20°C
Summary: Antigen: human recombinant LTA_4 hydrolase • Host: rabbit • Cross Reactivity: (+) human LTA_4 hydrolase • Application(s): WB • LTA_4 hydrolase is a bifunctional enzyme that converts LTA_4 to LTB_4 and also acts as an aminopeptidase.

500 µl

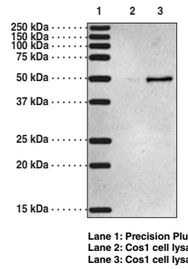


Lane 1: Precision Plus Protein Standard
Lane 2: LTA_4 Hydrolase Standard (0.005 µg)
Lane 3: LTA_4 Hydrolase Standard (0.01 µg)
Lane 4: LTA_4 Hydrolase Standard (0.02 µg)
Lane 5: Raji cell lysate (50 µg)

5-OxoETE Receptor Polyclonal Antibody — 100025

OXER1, R527, TG1019
Peptide affinity-purified IgG **Stability:** ≥1 year at -20°C
Summary: Antigen: human 5-OxoETE receptor C-terminal amino acids 408-423 • Host: rabbit • Cross Reactivity: (+) human, mouse, rat, porcine, and Cos-7 (African green monkey) 5-OxoETE receptors • Application(s): ICC and WB • The 5-OxoETE receptor couples to $G_{i/o}$ to inhibit cyclic AMP production and to mobilize intracellular calcium, enabling chemotaxis for eosinophils and neutrophils.

500 µl



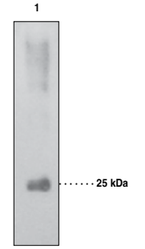
Lane 1: Precision Plus Protein Standard
Lane 2: Cos1 cell lysate (30 µg)
Lane 3: Cos1 cell lysate (60 µg)

•Also Available: **5-OxoETE Receptor Blocking Peptide** (10006618)

15-hydroxy Prostaglandin Dehydrogenase Polyclonal Antibody — 160615

15-hydroxy PGDH
Peptide affinity-purified IgG **Stability:** ≥2 years at -20°C
Summary: Antigen: human 15-hydroxy PGDH amino acids 92-105 • Host: rabbit • Cross Reactivity: (+) human, bovine, guinea pig, and baboon 15-hydroxy PGDH • Application(s): WB • NAD^+-dependent 15-hydroxy PGDH catalyzes the oxidation of PGs to 15-keto metabolites, which have greatly reduced biological activity.

500 µl



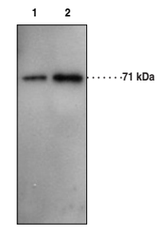
Lane 1: Human Placenta (40 µg)

•Also Available: **15-hydroxy Prostaglandin Dehydrogenase Blocking Peptide** (360615)

Prostaglandin Transporter (C-Term) Polyclonal Antibody — 11860

OATP2A1, PGT, SLCO2A1
Peptide affinity-purified IgG **Stability:** ≥1 year at -20°C
Summary: Antigen: human PGT C-terminal amino acids 627-640 • Host: rabbit • Cross Reactivity: (+) human, mouse, rat, cow, and sheep PGT; expected to react with canine and chicken PGT • Application(s): ICC, IF, and WB • Transport of extracellular prostaglandins into cells occurs *via* a specific PG transporter.

1 ea



Lane 1: Human platelet lysate (25 µg)
Lane 2: Human platelet lysate (60 µg)

•Also Available: **Prostaglandin Transporter (C-Term) Blocking Peptide** (11859)

Soluble Epoxide Hydrolase Antibodies			
Item No.	Antibody	Application	Reactivity
10010146	Soluble Epoxide Hydrolase Polyclonal Antibody*	WB	(+) H, M, R
13560	Soluble Epoxide Hydrolase (FL) Polyclonal Antibody	WB	(+) H, M
H = human, M = mouse, R = rat			
**The corresponding Blocking Peptide is also available from Cayman.*			

PLA Antibodies			
Item No.	Antibody	Application	Reactivity
10337	AdPLA_2 Polyclonal Antibody	WB	(+) H, M
160507	iPLA_2 (Type VI) Polyclonal Antiserum	WB	(+) H, M, R, B, Hm; (-) cPLA_2, sPLA_2
160500	sPLA_2 (human Type IIA) Monoclonal Antibody (Clone SCACC353)	IP, WB	(+) H; (-) bee venom sPLA_2 (type III), H sPLA_2 (type V)
160502	sPLA_2 (human Type IIA) Polyclonal Antiserum	IHC, IP, WB	(+) H, R; (-) H (type V), bee venom (type III), snake venom (*Naja naja*), bovine pancreas, porcine pancreas sPLA_2
160510	sPLA_2 (human Type V) Monoclonal Antibody (Clone MCL-3G1)	ELISA, IHC, WB	(+) H; (-) human sPLA_2 (type IIa) and cPLA_2
160512	sPLA_2 (mouse Type V) Polyclonal Antibody*	WB	(+) H, M, R; (-) bee venom and human synovial sPLA_2 (type II), iPLA_2 (A10 cell lysate), cPLA_2 (HeLa cell lystate)
**The corresponding Blocking Peptide is also available from Cayman.*			

Prostaglandin D, E, and I Synthase Antibodies			
Item No.	Antibody	Application	Reactivity
10004345	Prostaglandin D Synthase (hematopoietic-type; human) Monoclonal Antibody (Clone 2A5)	IHC, WB	(+) H, M
10004349	Prostaglandin D Synthase (hematopoietic-type; mouse) Monoclonal Antibody (Clone 7H4)	IHC, WB	(+) H, M
160013	Prostaglandin D Synthase (hematopoietic-type) Polyclonal Antibody*	WB	(+) H, M, R, Ba
10004337	Prostaglandin D Synthase (hematopoietic -type; human) Polyclonal Antibody	WB	(+) H, M
10004348	Prostaglandin D Synthase (hematopoietic-type; mouse) Polyclonal Antiserum	IHC, WB	(+) H, M
10004342	Prostaglandin D Synthase (lipocalin-type; human) Monoclonal Antibody (Clone 10A5)	IHC, WB	(+) H, M
160003	Prostaglandin D Synthase (lipocalin-type) Polyclonal Antibody*	WB	(+) H, M; (-) hPGES
10004344	Prostaglandin D Synthase (lipocalin-type; mouse) Polyclonal Antibody	IHC, WB	(+) H, M
160150	Prostaglandin E Synthase (cytosolic) Polyclonal Antibody*	IHC, WB	(+) H, M, O; (-) H recombinant mPGES
18219	Prostaglandin E Synthase (cytosolic) Monoclonal Antibody (Clone JJ6)	ELISA, IP, WB	(+) H, M, R, Ch, G, P, *S. cerevisiae* (lower) p23
10209	Prostaglandin E Synthase (cytosolic, FL) Polyclonal Antibody	ICC, WB	(+) H, M; (-) mPGES-1, mPGES-2
10004350	Prostaglandin E Synthase-1 (microsomal) Monoclonal Antibody (Clone 6C6)	ICC, IHC, WB	(+) H; (-) O
160140	Prostaglandin E Synthase-1 (microsomal) Polyclonal Antibody*	IHC, WB	(+) H, M, R, O; (-) cPGES
160145	Prostaglandin E Synthase-2 (microsomal) Polyclonal Antibody*	WB	(+) H, M, R, B, Cos-7; (-) cPGES, mPGES-1
160630	Prostaglandin I Synthase Monoclonal Antibody (Clone 3C8)	IHC, IP	(+) R, B, GP, O, Rb
10247	Prostaglandin I Synthase Monoclonal Antibody (Clone 3C8)	FC, ICC, IHC, IP, WB	(+) H, M, R
160640	Prostaglandin I Synthase Polyclonal Antibody*	IP, WB	(+) H, B, O
100023	Prostaglandin I Synthase (mouse) Polyclonal Antibody*	IHC, WB	(+) H, M, R, B, O
Also Available: *Prostaglandin E Synthase-1 (microsomal) Western Ready Control (10009734)*			
H = human, M = mouse, R = rat, O = ovine, B = bovine, Ba = Baboon, GP = Guinea Pig, Rb = Rabbit, Ch = Chicken, P = Porcine			
**The corresponding Blocking Peptide is also available from Cayman.*			

Thromboxane B_2 11-dehydrogenase Polyclonal Antiserum 160720

Aldehyde Dehydrogenase, ALDH1, Retinal Aldehyde Dehydrogenase, TXB_2 11-dehydrogenase

Lyophilized antiserum **Stability:** ≥3 years at -20°C

Summary: Antigen: human erythrocyte TXB_2 11-dehydrogenase • Host: rabbit • Cross Reactivity: (+) human, porcine, and ovine TXB_2 11-dehydrogenase • Application(s): WB • TXB_2 11-dehydrogenase is an NAD^+-dependent dehydrogenase that catalyzes the oxidation of TXB_2 at C-11.

1 ea

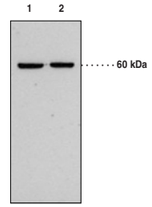
Thromboxane Synthase Polyclonal Antibody 160715

TX Synthase

Peptide affinity-purified IgG **Stability:** ≥1 year at -20°C

Summary: Antigen: human thromboxane synthase amino acids 359-377 • Host: rabbit • Cross Reactivity: (+) human, porcine, mouse, and rat TX synthase • Application(s): IHC and WB • TX synthase catalyzes the conversion of PGH_2 to TXA_2, which is a potent vasoconstrictor and inducer of platelet aggregation.

1 ea



Lane 1: Mouse liver 10,000 x g supernatant (50 µg)
Lane 2: Mouse liver 10,000 x g supernatant (30 µg)

• Also Available: **Thromboxane Synthase Blocking Peptide** (360715)

Assay Kits

COX Activity Assays

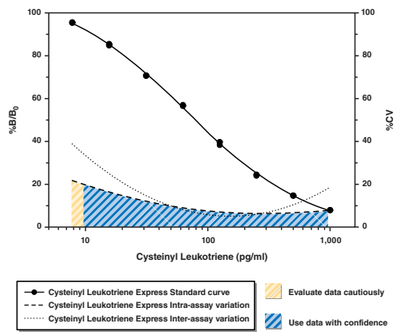
Kit	Detection Method	Activity Measured	Format
COX Activity Assay Kit (760151)	Colorimetric – monitors the appearance of oxidized TMPD	Peroxidase activity	96-well plate
COX Fluorescent Activity Assay Kit (700200)	Fluorometric – monitors the conversion of ADHP to resorufin Both assays include COX-1 and COX-2 specifc inhibitors in order to distinguish between the two enzymes	Peroxidase activity	96-well plate
Cayman Chemical's COX Activity Assays can be used to detect COX activity in cell lysates, tissue homogenates, and purified enzyme preparations.			

COX Inhibitor Screening Assays

Kit	Detection Method	Activity Measured	Format
Colorimetric COX (ovine) Inhibitor Screening Assay Kit (760111)	Peroxidase activity is assayed colorimetrically by monitoring the appearance of oxidized TMPD	Peroxidase activity	Reactions performed in 96-well plate (answer in 30 minutes)
COX Fluorescent Inhibitor Screening Assay Kit (700100)	Fluorescence-based method for screening COX-1 and COX-2 isozyme-specific inhibitors	Peroxidase activity of ovine COX-1 and human recombinant COX-2	Reactions performed in 96-well plate (answer in 30 minutes)
COX Inhibitor Screening Assay Kit (560131)	PGs generated in COX reaction are quantified by EIA	COX and peroxidase activities of ovine COX-1 and human recombinant COX-2	Generate PGs in COX reaction, then perform EIA
COX (ovine) Inhibitor Screening Assay Kit (560101)	PGs generated in COX reaction are quantified by EIA	COX and peroxidase activities of ovine COX-1 and ovine COX-2	Generate PGs in COX reaction, then perform EIA
Cayman Chemical's Inhibitor Screening Assays are used to screen for isozyme-specific inhibitors. All kits contain both COX-1 and COX-2			

Cysteinyl Leukotrienes

LTC_4, LTD_4, and LTE_4 are collectively referred to as CysLTs. LTC_4 and LTD_4 are potent mediators of asthma and hypersensitivity. CysLTs are excreted in urine as intact LTE_4 (~9-12%) and LTE_4 metabolites. Since LTC_4 and LTD_4 are virtually absent from urine, the CysLT measurement in urine is often best accomplished by measuring LTE_4.



Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
Cysteinyl Leukotriene EIA Kit (500390)	50% B/B_0: 103 pg/ml 80% B/B_0: 34 pg/ml	See table below	Overnight at 4°C
Cysteinyl Leukotriene Express EIA Kit (10009291)*	50% B/B_0: 80 pg/ml 80% B/B_0: 20 pg/ml	See table below	2 hours at room temperature
Luminex® Cysteinyl Leukotriene Kit (10007577)	50% B/B_0: 90 pg/ml 80% B/B_0: 15 pg/ml	Cell culture, *in vitro* reactions	4 hours at room temperature
Leukotriene C_4 EIA Kit (520211)	50% B/B_0: 45 pg/ml 80% B/B_0: 10 pg/ml	See table below	18 hours at room temperature
Leukotriene E_4 EIA Kit (520411)	50% B/B_0: 100 pg/ml 80% B/B_0: 25 pg/ml	See table below	18 hours at room temperature

Typical standard curve is depicted at left.

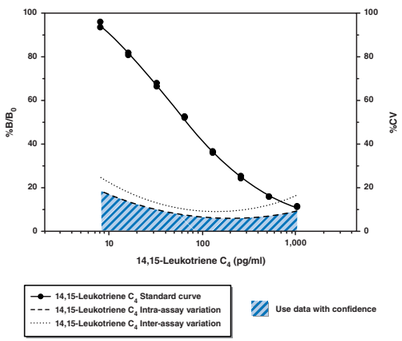
Recommendation for CysLT Assays

Sample Type	LTC_4 EIA Kit (520211)	LTE_4 EIA Kit (520411)	CysLT EIA Kit (500390)	CysLT Express EIA Kit (10009291)	Notes
Cell Culture	✓	X	◆	✓	LTC_4 rapidly exported into media; little or no extracellular metabolism
Bronchiolar Lavage*	◆	X	◆●	●	Contains LTC_4, LTD_4, and LTE_4
Synovial fluid, ascites, *etc.**	◆	X	◆●	◆●	Contains LTC_4, LTD_4, and LTE_4
Plasma/serum*	X	◆●	◆●	◆●	LTC_4 largely metabolized to LTE_4 and β-oxidized metabolites
Urine	X	◆✓	✓	◆✓	LTC_4 largely metabolized to LTE_4 and β-oxidized metabolites

◆Purification required X Not recommended ✓Validated ●Potential option * Limited sample testing performed with all assays

Eoxin

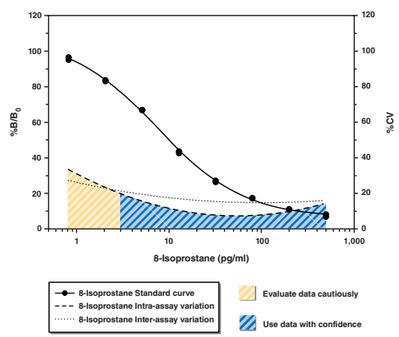
Although the majority of leukotrienes are formed through the 5-LO pathway, a second family of LTs can be formed through an alternate pathway involving the dual actions of 15- and 12-LOs on arachidonic acid *via* 15-HPETE. The resulting epoxytriene, 14,15-LTA_4, can be converted to 14,15-LTC_4, 14,15-LTD_4, or 14,15-LTE_4.



Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
14,15-Leukotriene C_4 EIA Kit (10006748)	50% B/B_0: 66 pg/ml 80% B/B_0: 18 pg/ml	Cell culture, BAL	18 hours at 4°C

Isoprostanes

The isoprostanes are a family of eicosanoids formed by the random oxidation of tissue phospholipids by oxygen radicals. 8-Isoprostane has been proposed as a marker of antioxidant deficiency and oxidative stress.



Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
8-Isoprostane EIA Kit (516351)*	50% B/B_0: 10 pg/ml 80% B/B_0: 2.7 pg/ml	Plasma, urine, tissue, cell culture	18 hours at 4°C
8-Isoprostane Express EIA Kit (516360)	50% B/B_0: 50 pg/ml 80% B/B_0: 10 pg/ml	Plasma, urine, lavage fluids, call culture	2 hours at room temperature
STAT-8-Isoprostane EIA Kit (500431)	50% B/B_0: 180 pg/ml 80% B/B_0: 45 pg/ml	Plasma, urine, culture media, lavage fluids	1 hour at room temperature
$iPF_{2\alpha}$-VI EIA Kit (516301)	50% B/B_0: 250 pg/ml 80% B/B_0: 50 pg/ml	Urine, cell culture	18 hours at 4°C
ent-Prostaglandin $F_{2\alpha}$ EIA Kit (10010382)	50% B/B_0: 110 pg/ml 80% B/B_0: 20 pg/ml	Urine, cell culture	2 hours at room temperature

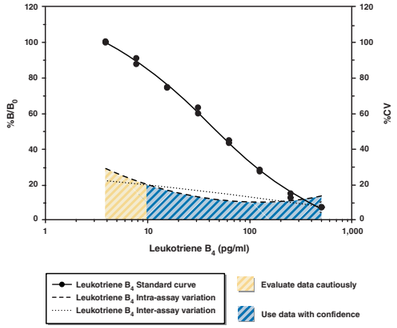
Typical standard curve is depicted at left.

One-step purification of 8-isoprostane

Item No.	Product Name
10367	8-Isoprostane Affinity Purification Kit (4 ml)
400058	8-Isoprostane Affinity Column (4 ml)
10368	8-Isoprostane Affinity Purification Kit (20 ml)
400059	8-Isoprostane Affinity Column (20 ml)
10010365	8-Isoprostane Affinity Sorbent

Leukotriene B_4

LTB_4 stimulates a number of leukocyte functions, including aggregation, stimulation of ion fluxes, enhancement of lysosomal enzyme release, superoxide anion production, chemotaxis, and chemokinesis. Plasma levels of LTB_4 increase from <100 pg/ml to >100 ng/ml following leukocyte stimulation. LTB_4 is metabolized in leukocytes and hepatocytes to less active 20-hydroxy and 20-carboxy LTB_4 and is not excreted in the urine.



Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
Leukotriene B_4 EIA Kit (520111)*	50% B/B_0: 50 pg/ml 80% B/B_0: 13 pg/ml	Plasma, cell culture	Overnight at 4°C
Leukotriene B_4 Express EIA Kit (10009292)	50% B/B_0: 150 pg/ml 80% B/B_0: 45 pg/ml	Plasma, cell culture	2 hours at room temperature
Luminex® Leukotriene B_4 Kit (500260)	50% B/B_0: 138 pg/ml 80% B/B_0: 24 pg/ml	Cell culture, *in vitro* reactions	4 hours at room temperature

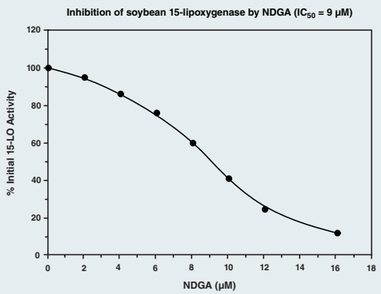
Typical standard curve is depicted at left.

Lipoxygenase Inhibitor Screening Assay Kit 760700

Stability: ≥1 year at 4°C

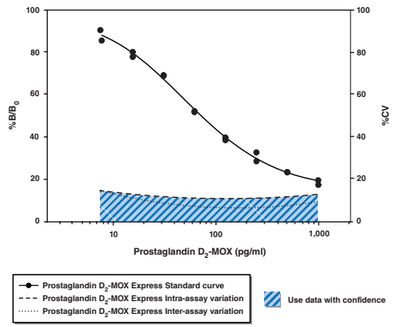
Summary: This assay kit provides an accurate and convenient method for screening LO inhibitors. This assay measures the hydroperoxides generated from the incubation of a LO (5-, 12-, or 15-LO) with either arachidonic or linoleic acid.

96 wells



PGD_2

PGD_2 induces sleep, regulates nociception, inhibits platelet aggregation, and acts as an allergic mediator. It is rapidly metabolized to 11β-$PGF_{2\alpha}$. Thus, urinary measurements of PGD_2 synthesis are most appropriately focused on the measurement of 11β-$PGF_{2\alpha}$. Measurement of the parent eicosanoid PGD_2 is appropriate in the supernatants of cell cultures, where PGD_2 levels may reach several ng/ml, and in CSF, where concentrations of several hundred pg/ml have been measured.



Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
Prostaglandin D_2 EIA Kit (512031)	50% B/B_0: 240 pg/ml 80% B/B_0: 55 pg/ml	Cell culture and enzymatic reactions	Overnight at 4°C
Prostaglandin D_2 Express EIA Kit (512041)	50% B/B_0: 1,300 pg/ml 80% B/B_0: 350 pg/ml	Cell culture and enzymatic reactions	2 hours at room temperature
Prostaglandin D_2 FPIA Kit - Red (512051)	80% B/B_0: 550 pg/ml	Cell culture and enzymatic reactions	60-90 minutes at room temperature
Prostaglandin D_2-MOX EIA Kit (512011)	50% B/B_0: 15 pg/ml 80% B/B_0: 3.1 pg/ml	See table below	Overnight at 4°C
Prostaglandin D_2-MOX Express EIA Kit (500151)*	50% B/B_0: 75.2 pg/ml 80% B/B_0: 16 pg/ml	See table below	1 hour at room temperature
11β-Prostaglandin $F_{2\alpha}$ EIA Kit (516521)	50% B/B_0: 32 pg/ml 80% B/B_0: 5.5 pg/ml	See table below	18 hours at room temperature
tetranor-PGDM EIA Kit (501001)	50% B/B_0: 170 pg/ml 80% B/B_0: 40 pg/ml	See table below	Overnight at 4°C

**Typical standard curve is depicted at left.*

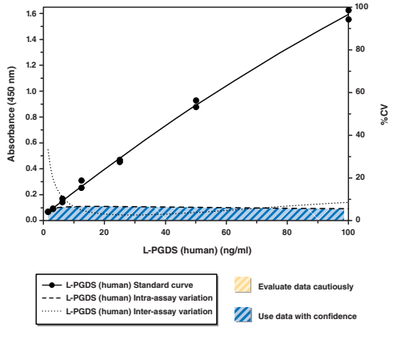
Recommendation for PGD_2 Assays

Sample Type	Prostaglandin D_2-MOX EIA Kits (500151*)	11β-Prostaglandin $F_{2\alpha}$ EIA Kit (516521)	tetranor-PGDM EIA Kit (501001)
Plasma/serum	X	✓	X
Urine	X	✓ (may not be present in mouse urine)	✓
Cell culture	✓	X	X
In vitro PGDS reactions	✓	X	X
CSF	✓	X	X
BAL, sputum	✓	X	X
Notes	Overnight incubation, *most sensitive kit for measurement of PGD_2	Measures the primary plasma metabolic product of PGD_2	Most abundant urinary metabolite of PGD_2

X Not recommended ✓ Recommended

PGD Synthase

PGDS catalyzes the isomerization of PGH_2 to produce PGD_2. Two distinct types of PGDS have been identified. H-PGDS in mast cells releases PGD_2 in large quantities during allergic and asthmatic anaphylaxis. L-PGDS acts as a carrier protein for lipid-like molecules (*i.e.*, retinoids and thyroid hormones).



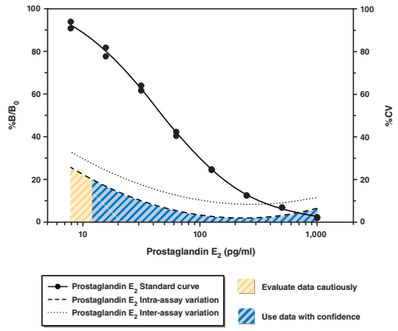
Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
Prostaglandin D Synthase (lipocalin-type; human) EIA Kit (10007684)*	Detection limit: 1.56 ng/ml	CSF, plasma	1 hour at room temperature

**Typical standard curve is depicted at left.*

Product Name (Item No.)	Detection method	Activity Measured
Prostaglandin D Synthase (hematopoietic-type) FP-Based Inhibitor Screening Assay Kit - Green (600007)	Fluorescence polarization-based single step assay	Ability of H-PGDS inhibitors to displace a fluorescein probe
Prostaglandin D Synthase Inhibitor Screening Assay Kit (10006595)	PGD_2 generated by PGDS is quantified by EIA	Includes both H-PGDS and L-PGDS enzymes to screen isozyme-specific inhibitors

PGE_2

PGE_2 is one of the primary arachidonic acid metabolites *via* the COX pathway. *In vivo*, PGE_2 is rapidly converted to an inactive metabolite (13,14-dihydro-15-keto PGE_2) by the prostaglandin 15-dehydrogenase pathway. The half-life of PGE_2 in the circulatory system is approximately 30 seconds and normal plasma levels are 3-12 pg/ml. Because of the rapid metabolism of PGE_2, the determination of *in vivo* PGE_2 biosynthesis is often best accomplished by the measurement of PGE_2 metabolites.



Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
Prostaglandin E_2 EIA Kit - Monoclonal (514010)*	50% B/B_0: 50 pg/ml 80% B/B_0: 15 pg/ml	See table below	18 hours at 4°C
Prostaglandin E_2 Express EIA Kit (500141)	50% B/B_0: 125 pg/ml 80% B/B_0: 36 pg/ml	See table below	60 minutes at room temperature
Prostaglandin E_2 FPIA Kit - Green (500501)	80% B/B_0: 150 pg/ml	Culture medium-free whole cells, *in vitro* assay systems	60-90 minutes at room temperature
Prostaglandin E_2 FPIA Kit - Red (10004517)	80% B/B_0: 100 pg/ml	Culture medium-free whole cells, *in vitro* assay systems	60-90 minutes at room temperature
Luminex® Prostaglandin E_2 Kit (10007501)	50% B/B_0: 180 pg/ml 80% B/B_0: 35 pg/ml	Cell culture	4 hours at room temperature
Luminex® Prostaglandin E_2/ Interleukin-1β Duplex Kit (10009597)	PGE_2: 50% B/B_0: 358 pg/ml 80% B/B_0: 72 pg/ml IL-1β: 80% B/B_0: 25.6 pg/ml	Cell culture	4 hours at room temperature
Prostaglandin E Metabolite EIA Kit (514531)	50% B/B_0: 11 pg/ml 80% B/B_0: 2 pg/ml	See table below	18 hours at room temperature

**Typical standard curve is depicted at left.*

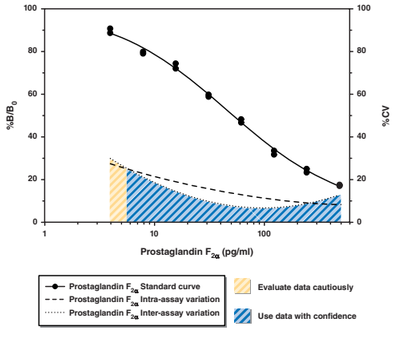
Recommendation for PGE_2 Assays

Sample Type	Prostaglandin E_2 EIA Kit - Monoclonal (514010)	Prostaglandin E_2 Express EIA Kit (500141)	Prostaglandin E Metabolite EIA Kit (514531)
Plasma	X	X	✓
Serum	✓	✓	X
Urine	X	X	✓
Cell culture	✓	✓	X
In vitro COX-2 reactions and mPGES reactions	✓	✓	N/A
Notes	Most sensitive, overnight incubation	1 hr incubation ~2.5-fold less sensitive than overnight format	Converts downstream metabolites of PGE_2 to a single stable product

X Not recommended ✓ Recommended

$PGF_{2\alpha}$

$PGF_{2\alpha}$ is produced from arachidonic acid through the non-enzymatic reduction of PGH_2. $PGF_{2\alpha}$ has a very short half-life in the general circulation. The plasma concentration of $PGF_{2\alpha}$ in humans is <10 pg/ml, and probably no more than 1-2 pg/ml. $PGF_{2\alpha}$ is rapidly metabolized by 15-hydroxy PG dehydrogenase and both β- and ω-oxidation systems to a variety of polar metabolites including 13,14-dihydro-15-keto $PGF_{2\alpha}$. In primary cultures, the metabolism of $PGF_{2\alpha}$ is much more limited, and it may collect in the supernatant medium to easily measured concentrations.

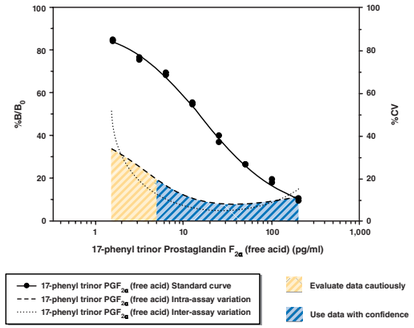


Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
Prostaglandin $F_{2\alpha}$ EIA Kit (516011)*	50% B/B_0: 52 pg/ml 80% B/B_0: 9 pg/ml	Cell culture	18 hours at 4°C
13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$ EIA Kit (516671)	50% B/B_0: 120 pg/ml 80% B/B_0: 13 pg/ml	Plasma, urine	18 hours at 4°C

**Typical standard curve is depicted at left.*

$PGF_{2\alpha}$ Analogs as Ocular Hypotensives

Certain metabolically stable analogs of $PGF_{2\alpha}$ act as highly potent agonists for the FP receptor. In human and animal models of glaucoma, FP receptor agonist activity corresponds very closely with intraocular hypotensive activity. Both 17-phenyl trinor $PGF_{2\alpha}$ ethyl amide, an F-series prostaglandin analog, and Latanoprost, an F-series prostaglandin ester prodrug, have been approved for use as ocular hypotensive agents.

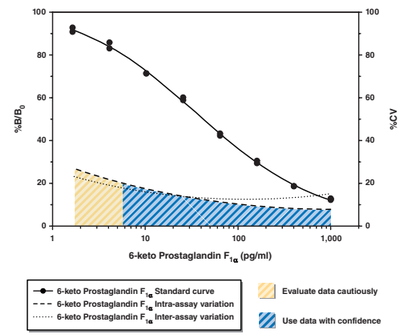


Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
Fluprostenol EIA Kit (516761)	50% B/B_0: 110 pg/ml 80% B/B_0: 16 pg/ml	Aqueous humor, tears	Overnight at 4°C
Latanoprost EIA Kit (516811)	50% B/B_0: 58 pg/ml (free acid) 200 pg/ml (ester) 80% B/B_0: 15 pg/ml (free acid) 43 pg/ml (ester)	Aqueous humor, tears	2 hours at room temperature
17-phenyl trinor Prostaglandin $F_{2\alpha}$ EIA Kit (516821)*	50% B/B_0: 15.5 pg/ml 80% B/B_0: 2.6 pg/ml	Aqueous humor, tears	Overnight at 4°C

Typical standard curve is depicted at left.

Prostacyclin

Prostacyclin is formed from arachidonic acid primarily in the vascular endothelium and renal cortex. It is nonenzymatically hydrated to 6-keto $PGF_{1\alpha}$ ($t_{1/2}$=2-3 minutes), and then quickly converted to the major metabolite, 2,3-dinor-6-keto $PGF_{1\alpha}$ ($t_{1/2}$=30 minutes). Estimates of systemic prostacyclin production have often been assessed by measurement of 6-keto $PGF_{1\alpha}$ alone or in combination with 2,3-dinor-6-keto $PGF_{1\alpha}$.



Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
6-keto Prostaglandin $F_{1\alpha}$ EIA Kit (515211)	50% B/B_0: 40 pg/ml 80% B/B_0: 6 pg/ml	Urine, culture media	18 hours at 4°C

PLA_2 Assays

Item No.	Product Name	Key Information
765021	$cPLA_2$ Assay Kit	Uses Arachidonoyl Thio-PC as a substrate
765001	$sPLA_2$ Assay Kit	Uses the 1,2-dithio analog of diheptanoyl phosphatidylcholine as a substrate
585000	$sPLA_2$ (human Type IIA) EIA Kit	Limit of detection: 15 pg/ml
10004883	$sPLA_2$ (Type V) Inhibitor Screening Assay Kit	Designed for rapid screening of Type V $sPLA_2$ inhibitors in a 96-well format.

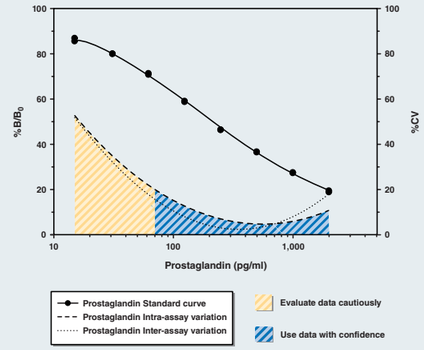
Prostaglandin Screening EIA Kit 514012

Stability: ≥1 year at -20°C
Sensitivity: 50% B/B_0: 220 pg/ml • 80% B/B_0: 29 pg/ml
Summary: This assay was developed for screening applications in which the relative amount of PG production for a large number of cell culture samples must be determined. The antiserum used in this assay exhibits high cross reactivity for most PGs which will allow quantification of all the PGs in a given sample with a single assay.
Specificity:

Prostaglandin E_1	100%
Prostaglandin E_2	100%
Prostaglandin $F_{1\alpha}$	100%
Prostaglandin $F_{2\alpha}$	100%
Prostaglandin $F_{3\alpha}$	51.3%

For a full specificity profile, please go to www.caymanchem.com

96 solid/strip wells
480 solid/strip wells



Resolvin

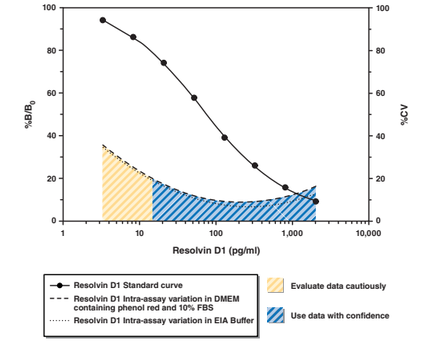
Resolvin D1 EIA Kit 500380

17(S)-Resolvin D1, RvD1
Stability: ≥6 months at -80°C
Sensitivity: 50% B/B_0: 50-100 pg/ml • 80% B/B_0: 10-20 pg/ml
Summary: RvD1 is produced physiologically from the sequential oxygenation of DHA by 15- and 5-LO. The 17(R)- epimer of RvD1 can also be generated with aspirin-treatment. Both RvD1 and its 17(R) configuration reduce human PMNL transendothelial migration, the earliest event in acute inflammation. Cayman's Resolvin D1 EIA Kit is a competitive assay that can be used for quantification of RvD1. Due to the number and variation of potential sample types, this assay has been validated in Cayman's EIA Buffer (Item No. 400060) diluted to 1X (0.1 M potassium phosphate containing 0.1% BSA, 0.1% sodium chloride, 1 mM EDTA, and 0.01% sodium azide) and DMEM containing phenol red and 10% FBS.
Specificity:

17(R)-Resolvin D1	4.2%

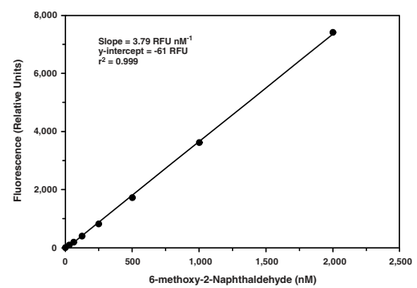
For a full specificity profile, please go to www.caymanchem.com

96 solid/strip wells
480 solid/strip wells



Soluble Epoxide Hydrolase

Mammalian sEH is a member of the α/β-hydrolase fold family of enzymes that catalyze the hydrolysis of exogenous and endogenous epoxides to vicinal diols. Endogenous substrates for sEH include EETs, which exhibit vasodilatory and anti-inflammatory activity. Inhibition of sEH in animal models was shown to effectively treat hypertension and vascular inflammation as well as related syndromes.

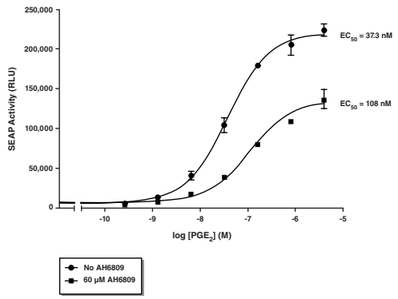


Product Name (Item No.)	Detection method	Activity Measured
Soluble Epoxide Hydrolase Cell-Based Assay Kit (600090)*	Employs Epoxy Fluor 7 as fluorescent substrate for sEH	Epoxide hydrolase activity in whole cells
Soluble Epoxide Hydrolase Inhibitor Screening Assay Kit (10011671)	Utilizes PHOME as fluorescent substrate for sEH	Human recombinant sEH activity in the presence of inhibitors

Typical standard curve is depicted at left.

STEP Reporter Assays

Cayman's EP Receptor STEP Reporter Assay Kits each consist of a 96-well plate coated with a proprietary STEP transfection complex containing EP receptor constructs. Cells grown on the STEP complex will express the receptor at the cell surface. Binding of agonists to the receptor initiates a signal transduction cascade resulting in expression of factors secreted into the cell culture media. Aliquots of media are removed for detection of activity.

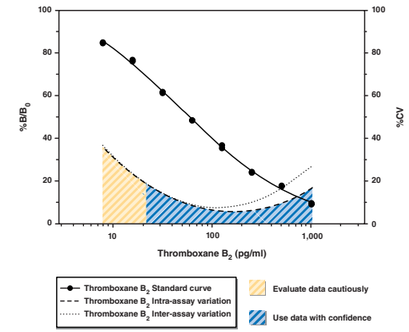


Item No.	Product Name
600340*	EP_2 Receptor (rat) STEP Reporter Assay Kit (Luminescence)
600410	EP_4 Receptor (rat) STEP Plate Assay Kit (cAMP method)
600350	EP_4 Receptor (rat) STEP Reporter Assay Kit (Luminescence)

Typical s active data is depicted at left.

Thromboxane

TXA_2 is produced from arachidonic acid by many cells and causes irreversible platelet aggregation and vascular and bronchial smooth muscle contraction. It is rapidly hydrolyzed non-enzymatically to form TXB_2. Although it is common to estimate TXA_2 levels by measuring TXB_2 in plasma, most of the TXB_2 measured is due to *ex vivo* platelet activation. 11-dehydro TXB_2 is a metabolite of TXB_2 (not formed by platelets or the kidney) with a circulating half-life ($t_{1/2}$) of 45 minutes. Its measurement in plasma or urine will give a time-integrated indication of TXA_2 production and is recommended to estimate TXA_2 levels to circumvent measurement complications associated with TXB_2.



Product Name (Item No.)	Sensitivity	Recommended Sample Matrices	Incubation Time
Thromboxane B_2 EIA Kit (519031)*	50% B/B_0: 57 pg/ml 80% B/B_0: 11 pg/ml	See table below	18 hours at room temperature
Thromboxane B_2 Express EIA Kit - Monoclonal (10004023)	50% B/B_0: 176 pg/ml 80% B/B_0: 45 pg/ml	Serum, culture media, See table below	2 hours at room temperature
11-dehydro Thromboxane B_2 EIA Kit - Monoclonal (519510)	50% B/B_0: 120 pg/ml 80% B/B_0: 34 pg/ml	See table below	2 hours at room temperature
Luminex® Thromboxane B_2 Kit (10007502)	50% B/B_0: ~100 pg/ml 80% B/B_0: ~24 pg/ml	Cell culture	4 hours at room temperature
Luminex® 11-dehydro Thromboxane B_2 Kit (10010971)	50% B/B_0: 650 pg/ml 80% B/B_0: 130 pg/ml	Urine	4 hours at room temperature

Typical standard curve is depicted at left.

Recommendation for Thromboxane B_2 Assays

Sample Type	Thromboxane B_2 EIA Kit (519031)	Thromboxane B_2 Express EIA Kit - Monoclonal (10004023)	11-dehydro Thromboxane B_2 EIA Kit - Monoclonal (519510)
Plasma	X	X	✓
Serum	✓	✓	X
Urine	Application dependent - Urinary TXB_2 may be of renal origin	Application dependent - Urinary TXB_2 may be of renal origin	✓
Cell culture	✓	✓	
In vitro COX-2 reactions	✓	✓	X
Notes	Most sensitive, overnight incubation	2 hr incubation ~4.5-fold less sensitive than TXB_2 EIA Kit	

X Not recommended ✓ Recommended

Proteins

Cyclooxygenases

Item No.	Product Name	M_r	Purity	Source	Specific Activity
60100	COX-1 (ovine)	70 kDa/subunit	≥70%	Isolated from ram seminal vesicles	>40,000 U/mg
60122	COX-2 (human recombinant)	70 kDa/subunit	≥70%	Active recombinant N-terminal His-tagged enzyme expressed Sf21 cells	>8,000 U/mg
60120	COX-2 (ovine)	72 kDa/subunit	~70%	Isolated from sheep placenta	>3,000 U/mg

Endocannabinoid Metabolism

Item No.	Product Name	M_r	Purity	Source
10010183	Fatty Acid Amide Hydrolase (human recombinant)	67.5 kDa	Whole-cell lysate	Active human recombinant N-terminal His-tagged protein expressed in Sf21 cells
10007812	Monoacylglycerol Lipase (human recombinant)	34 kDa	≥95%	Active human recombinant N-terminal His-tagged protein expressed in *E. coli*

Leukotriene Hydrolase

Item No.	Product Name	M_r	Purity	Source
10007817	Leukotriene A_4 Hydrolase (human recombinant)	69.3 kDa	≥90%	Active recombinant C-terminal His-tagged enzyme expressed in *E. coli*

Lipoxygenases

Item No.	Product Name	M_r	Purity	Source	Specific Activity
60402	5-Lipoxygenase (human recombinant)	78 kDa	100,000 x g supernatant	Active recombinant enzyme expressed in *Sf* 21 cells	
60400	5-Lipoxygenase (potato)	85 kDa	≥98%	Isolated from fresh potato tubers	>12,000 U/mg
10341	12-Lipoxygenase (platelet-type, mouse recombinant)	76.4 kDa	≥85%	Active recombinant N-terminal His-tagged protein expressed in Sf21 cells	
60700	15-Lipoxygenase (soybean P1) -Purified	94 kDa	≥98%	Isolated from soybeans (Provar)	>1 million U/mg
10011263	15-Lipoxygenase-2 (human recombinant)	76 kDa	≥95%	Active recombinant C-terminal His-tagged protein expressed in *E. coli*	
***Also Available:** 15-Lipoxygenase (soybean P1) (60712)*					

Prostaglandin Dehydrogenase

Item No.	Product Name	M_r	Purity	Source
10007950	15-hydroxy Prostaglandin Dehydrogenase (human recombinant)	55 kDa	≥95%	Active recombinant N-terminal GST-tagged protein expressed in *E. coli*

Prostaglandin Synthases

Item No.	Product Name	M_r	Purity	Source
10004347	Prostaglandin D Synthase (hematopoietic-type; mouse recombinant)	23.5 kDa	≥85%	Active recombinant enzyme expressed in *E. coli*
10006788	Prostaglandin D Synthase (lipocalin-type; human recombinant)	46 kDa	≥95%	Active recombinant GST-tagged enzyme expressed in *E. coli*
10006787	Prostaglandin D Synthase (lipocalin-type; mouse recombinant)	46 kDa	≥95%	Active recombinant GST-tagged enzyme expressed in *E. coli*
10010548	Prostaglandin D Synthase (lipocalin-type; rat recombinant)	47.5 kDa	≥95%	Active recombinant N-terminal GST-tagged protein expressed in *E. coli*
10010498	Prostaglandin E Synthase (cytosolic) (human recombinant, inactive protein)	22.3 kDa	≥75%	Recombinant His-tagged protein expressed in *E. coli*
10007939	Prostaglandin E Synthase-1 (microsomal) (human recombinant)	21 kDa	16,000 x g supernatant	Active recombinant enzyme expressed in *Sf* 21 cells
10007940	Prostaglandin F Synthase (human recombinant)	~37 kDa	≥90%	Active recombinant C-terminal His-tagged protein expressed in *E. coli*

Soluble Epoxide Hydrolase

Item No.	Product Name	M_r	Purity	Source
10011669	Soluble Epoxide Hydrolase (human recombinant)	64 kDa	≥95%	Active recombinant N-terminal His-tagged protein expressed in Sf21 cells
10011670	Soluble Epoxide Hydrolase (mouse recombinant)	64 kDa	≥95%	Active recombinant N-terminal His-tagged protein expressed in Sf21 cells

Phospholipases

Item No.	Product Name	M_r	Purity	Source
10009563	$sPLA_2$ (human recombinant Type V)	14 kDa	≥95%	Active recombinant protein expressed in *E. coli*
60500	$sPLA_2$ (Type III)	14 kDa	~20-50%; likely to contain melittin of unknown percentage	Active enzyme isolated from bee venom

Alphabetical Index

A

AA (Arachidonic Acid) 7
ω-3 AA (ω-3 Arachidonic Acid) 7
20-carboxy AA (20-carboxy Arachidonic Acid) 7
20-COOH-AA (20-carboxy Arachidonic Acid) 7
5,6-dehydro AA (5,6-dehydro Arachidonic Acid) 7
AATFMK (Arachidonyl Trifluoromethyl Ketone) 7
Accolate™ (Zafirlukast) 46
N-(4-acetamidophenyl)-Indomethacin amide 13
N-acetyl-2-carboxy Benzenesulfonamide 13
N-acetyl Leukotriene E_4 25
O-Acetyl Salicylhydroxamic Acid 13
ACS 67 6,24
ACT-293987 (NS-304) 31
AdPLA$_2$ Polyclonal Antibody 52
AFP 07 (free acid) 6,46
AFP-168 (Tafluprost) 44
AH 6809 6,17,46
AH 23848 (calcium salt, hydrate) 6,17,46
AL 6598 6
AL 8810 6,46
AL 8810 ethyl amide 6
AL 8810 isopropyl ester 6
AL 8810 methyl ester 6
(S)-AL 8810 6
Aldehyde Dehydrogenase (Thromboxane B_2 11-dehydrogenase Polyclonal Antiserum) 53
ALDH1 (Thromboxane B_2 11-dehydrogenase Polyclonal Antiserum) 53
Alprostadil (Prostaglandin E_1) 35
5-Aminosalicylic Acid 13
Apigenin 6
7-hydroxycoumarinyl Arachidonate 6
Arachidonic Acid 7
Arachidonic Acid-biotin 7
Arachidonic Acid-d_8 7
Arachidonic Acid-d_8 Lipid Maps MS Standard 7
Arachidonic Acid ethyl ester 7
Arachidonic Acid Lipid Maps MS Standard 7
Arachidonic Acid methyl ester 7
Arachidonic Acid methyl ester-d_8 7
Arachidonic Acid (peroxide free) 7
Arachidonic Acid (sodium salt) 7
Arachidonic Acid Quant-PAK 7
ω-3 Arachidonic Acid 7
ω-3 Arachidonic Acid-d_8 7
ω-3 Arachidonic Acid ethyl ester 7
ω-3 Arachidonic Acid methyl ester 7
ω-3 Arachidonic Acid Quant-PAK 7
20-carboxy Arachidonic Acid 7
5,6-dehydro Arachidonic Acid 7,47
2-deoxy-2-thio Arachidonoyl PC (Arachidonoyl thio-PC) 7
Arachidonoyl thio-PC 7
Arachidonyl Trifluoromethyl Ketone 7,47
Aspirin 13
Aspirin-triggered-Resolvin D1 (17(R)-Resolvin D1) 42
Asthma Treatment Standard Set 7
AT-56 7
ATK (Arachidonyl Trifluoromethyl Ketone) 7
AT-LXA$_4$ (5(S),6(R),15(R)-Lipoxin A$_4$) 26
AT-RvD1 (17(R)-Resolvin D1) 42
AUDA 7
AX 048 47
Azopyrin (Sulfasalazine) 44

B

Ba2774 (3,4-Dihydroxyphenyl ethanol) 15
Baicalein 8,47
Bardoxolone ..... *See CDDO*
BayCysLT$_2$ 8,46
BAY-u3405 8,46
BAY-u9773 8,46
N-acetyl-2-carboxy Benzenesulfonamide 13
Beraprost (sodium salt) 8,46
Bestatin (hydrochloride) 8
Bicyclo Prostaglandin E_1 35
Bicyclo Prostaglandin E_2 36
Bio-active Lipid I Screening Library (96-Well) 8
Bio-active Lipid II Screening Library (96-Well) 8
BLT$_1$ Receptor Monoclonal Antibody (Clone 7B1) 50
BLT$_1$ Receptor Polyclonal Antibody 50
BLT$_1$ Receptor Polyclonal Antiserum 50
BLT$_2$ Receptor Polyclonal Antibody 50
BM 567 9,46
Bromoenol lactone 47
(R)-Bromoenol lactone 47
(R)-Bromoenol lactone-d_7 47
(S)-Bromoenol lactone 47
(S)-Bromoenol lactone-d_7 47
Butaprost 9,17,46
Butaprost (free acid) 9,17
(R)-Butaprost 9
(R)-Butaprost (free acid) 9
BW 245C 9,46
BW A868C 9,46

C

Caffeic Acid 9,47
Cannabidiol dimethyl ether 47
Cannabidiolic Acid 13
Carbacyclin (Carbaprostacyclin) 9
Carbaprostacyclin 9,46
Carbaprostacyclin-biotin 9
5-*cis* Carbaprostacyclin 9
13,14-dehydro-15-cyclohexyl Carbaprostacyclin 9,46
Carbocyclic Thromboxane A_2 9,46
Carbocyclic TXA$_2$ (Carbocyclic Thromboxane A$_2$) 9,46
20-carboxy AA (20-carboxy Arachidonic Acid) 7
20-carboxy Arachidonic Acid 7
18-carboxy dinor Leukotriene B_4 24
20-carboxy Leukotriene B_4 24
CAY10397 9
CAY10404 13
CAY10408 10,46
CAY10410 10
CAY10416 13,47
CAY10434 10
CAY10441 10,46
CAY10449 10,46
CAY10462 10
CAY10471 10,46
CAY10502 47
CAY10509 10,46
CAY10510 10,46
CAY10526 10
CAY10535 10,46
CAY10580 11,17,46
CAY10583 11,46
CAY10589 11,47
CAY10590 47
CAY10595 11,46
CAY10597 11,46
CAY10598 11,17,46
CAY10606 11,47
CAY10633 (BayCysLT$_2$) 8
CAY10640 11
CAY10648 11
CAY10649 12,47
CAY10650 47
CAY10662 12
CAY10665 12
CBDD 47
CDDO 12
CDDO methyl ester 12
Celecoxib 13
Cervonic Acid (Docosahexaenoic Acid) 15
4,5-dehydro Cervonic Acid (4,5-dehydro Docosahexaenoic Acid) 15
CG 4203 (Taprostene (free acid)) 44
CG 4305 12
CGS 23131 (LY223982) 27
Chamomile (Apigenin) 6
Chemokine-Like Receptor 1 Blocking Peptide 50
Chemokine-Like Receptor 1 Polyclonal Antibody 50
(±)-16-*m*-chlorophenoxy tetranor PGF$_{2\alpha}$ (Cloprostenol (sodium salt)) 13
17-chlorophenyl trinor Prostaglandin F$_{2\alpha}$ ethyl amide 37
Cicaprost 12
CID132748 (SC-51089) 43
Ciloprost (Iloprost) 23
Ciprostene (calcium salt) 12,46
Ciprostene calcium (Ciprostene (calcium salt)) 12
CK47A (CAY10397) 9
Cloprostenol (sodium salt) 13,46
DL-Cloprostenol (Cloprostenol (sodium salt)) 13
(+)-Cloprostenol 13,46
(+)-Cloprostenol isopropyl ester 13
(+)-Cloprostenol methyl amide 13
(+)-Cloprostenol methyl ester 13
(+)-Cloprostenol (sodium salt) 13,46
(+)-5-*trans* Cloprostenol 13
(+)-15-*epi* Cloprostenol 13
CMKLR1 (Chemokine-Like Receptor 1 Polyclonal Antibody) 50
Colorimetric COX (ovine) Inhibitor Screening Assay Kit 53
9(E),11(E)-Conjugated Linoleic Acid 26
20-COOH-AA (20-carboxy Arachidonic Acid) 7
TBS-Corey Lactone Aldehyde 13
Corey Lactone Aldehyde Benzoate 13
(-)-Corey Lactone Diol 13
Corey PG-Lactone Diol 13
ent-Corey PG-Lactone Diol 14
COX Activity Assay Kit 53
COX Fluorescent Activity Assay Kit 53
COX Fluorescent Inhibitor Screening Assay Kit 53
COX Inhibitor Screening Assay Kit 53
COX (ovine) Inhibitor Screening Assay Kit 53
COX Polyclonal Antibody 51
COX-1 Monoclonal Antibody (Clone CX111) 51
COX-1 Monoclonal FITC Antibody (Clone CX111) 51
COX-1 Monoclonal PE Antibody (Clone CX111) 51
COX-1 (mouse) Polyclonal Antibody 51
COX-1 (ovine) 61
COX-1 (ovine) Polyclonal Antiserum 51
COX-2 (human) Polyclonal Antibody 51
COX-2 (human recombinant) 61
COX-2 (human) Western Ready Control 51
COX-2 Monoclonal Antibody (Clone CX229) 51
COX-2 Monoclonal FITC Antibody (Clone CX229) 51
COX-2 Monoclonal PE Antibody (Clone CX229) 51
COX-2 (mouse) Polyclonal Antibody (aa 570-598) 51
COX-2 (mouse) Polyclonal Antibody (aa 584-598) 51
COX-2 (mouse) Polyclonal FITC Antibody 51
COX-2 (mouse) Polyclonal Antiserum 51
COX-2 (ovine) 61
COX-2 (ovine) Electrophoresis Standard 51
cPGI (Carbaprostacyclin) 9
cPLA$_2$ Assay Kit 58
CRTH2/DP$_2$ Receptor (C-Term) Polyclonal Antibody 50
CRTH2/DP$_2$ Receptor (N-Term) Polyclonal Antibody 50
CTA$_2$ (Carbocyclic Thromboxane A$_2$) 9
CUDA 14
15-cyclohexyl pentanor Prostaglandin F$_{2\alpha}$ 40
Cyclopentenone Prostaglandin HPLC Mixture 14
Cytotec (Misoprostol) 30
CysLT$_1$ Receptor Polyclonal Antibody 50
CysLT$_1$ Receptor Polyclonal FITC Antibody 50
CysLT$_2$ Receptor (C-Term) Polyclonal Antibody 50
CysLT$_2$ Receptor (N-Term) Polyclonal Antibody 50
Cysteinyl Leukotriene EIA Kit 54
Cysteinyl Leukotriene Express EIA Kit 54
Cysteinyl Leukotriene HPLC Mixture I 14
Cysteinyl Leukotriene HPLC Mixture II 14

D

DCU (N,N'-Dicyclohexylurea) 14
DDMS 14
5,6-dehydro AA (5,6-dehydro Arachidonic Acid) 7
5,6-dehydro Arachidonic Acid 7,47
13,14-dehydro-15-cyclohexyl Carbaprostacyclin 9,46
4,5-dehydro Cervonic Acid (4,5-dehydro Docosahexaenoic Acid) 15
4,5-dehydro DHA (4,5-dehydro Docosahexaenoic Acid) 15
4,5-dehydro Docosahexaenoic Acid 15
14,15-dehydro Leukotriene B_4 24,46
11-dehydro Thromboxane B_2 44
11-dehydro Thromboxane B_2-d_4 44
11-dehydro Thromboxane B_2 EIA Kit - Monoclonal 60
11-dehydro Thromboxane B_2 Quant-PAK 44
11-dehydro-2,3-dinor Thromboxane B_2 44
11-dehydro Thromboxane B_3 44
2-deoxy-2-thio Arachidonoyl PC (Arachidonoyl thio-PC) 7
15-deoxy-16S-hydroxy-17-cyclobutyl PGE$_1$ methyl ester (Butaprost) 9
11-deoxy-16,16-dimethyl PGE$_2$ 17
15-deoxy-$\Delta^{12,14}$-Prostaglandin A_1 34
15-deoxy-$\Delta^{12,14}$-Prostaglandin A_2 34
11-deoxy-11-methylene Prostaglandin D_2 35
11-deoxy-11-methylene-15-keto Prostaglandin D_2 35,46
15-deoxy-$\Delta^{12,14}$-Prostaglandin D_2 35,46
11-deoxy Prostaglandin E_1 35
9-deoxy-9-methylene Prostaglandin E_2 36
9-deoxy-9-methylene-16,16-dimethyl Prostaglandin E_2 36
9-deoxy-9-methylene-16,16-dimethyl Prostaglandin E_2 (potassium salt) 36
11-deoxy Prostaglandin E_2 36
11-deoxy-16,16-dimethyl Prostaglandin E_2 36,46
11-deoxy Prostaglandin $F_{1\alpha}$ 37
11-deoxy Prostaglandin $F_{1\beta}$ 37
11-deoxy Prostaglandin $F_{2\alpha}$ 40
11-deoxy Prostaglandin $F_{2\beta}$ 40
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2 41,46
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-biotin 41
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-d_4 41
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2 Glutathione 41
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-2-glycerol ester 41,46
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-Quant-PAK 41
DEZ (Chemokine-Like Receptor 1 Polyclonal Antibody) 50
DHA (Docosahexaenoic Acid) 15
4,5-dehydro DHA (4,5-dehydro Docosahexaenoic Acid) 15
17-keto-(4Z,7Z,10Z,13Z,15E,19Z)-DHA (17-keto-4(Z),7(Z),10(Z),13(Z),15(E),19(Z)-Docosahexaenoic Acid) 15
(±)5,6-DHET 14
(±)5,6-DHET lactone 14
(±)8,9-DHET 14
(±)8,9-DHET-d_{11} 14
(±)11,12-DHET 14
(±)11,12-DHET-d_{11} 14
(±)14,15-DHET 14
(±)14,15-DHET-d_{11} 14
Dibromo-dodecenyl-methylsulfimide (DDMS) 14
Diclofenac (sodium salt) 13
4-hydroxy Diclofenac 13
N,N'-Dicyclohexylurea 14
9,11-dideoxy-9α,11α-epoxymethano PGF$_{2\alpha}$ (U-44069) 45
9,11-dideoxy-9α,11α-methanoepoxy PGF$_{2\alpha}$ (U-46619) 45
10(S),17(S)-DiHDoHE 14
(±)19,20-DiHDoPE ((±)19,20-DiHDPA) 15
(±)19,20-DiHDPA 15
Diheptanoyl Thio-PC (1,2-*bis*(heptanoylthio) Glycerophosphocholine) 20
5,6-DiHETE 14
5(S),6(R)-DiHETE 14
5(S),6(R)-11-*trans*-DiHETE 14
5(S),6(S)-DiHETE 14
5(S),15(S)-DiHETE 14
8(S),15(S)-DiHETE 14
(±)14,15-DiHETE 14
(±)17,18-DiHETE 14
(±)9,10-DiHOME 15
(±)9,10-DiHOME-d_4 15
(±)12,13-DiHOME 15
(±)12,13-DiHOME-d_4 15
Dihomo-γ-Linolenic Acid 26
Dihomo-γ-Linolenic Acid-d_6 26
Dihomo-γ-Linolenic Acid ethyl ester 26
Dihomo-γ-Linolenic Acid methyl ester 26
1a,1b-dihomo Prostaglandin E_1 35
1a,1b-dihomo Prostaglandin F$_{2\alpha}$ 40
13,14-dihydro-15-keto-20-ethyl PGF$_{2\alpha}$ (Unoprostone) 45
13,14-dihydro-15-keto-20-ethyl PGF$_{2\alpha}$ isopropyl ester (Unoprostone isopropyl ester) 45
9,10-dihydro-15-deoxy-$\Delta^{12,14}$-PGJ$_2$ (CAY10410) 10
13,14-dihydro-15-keto Prostaglandin A_2 34
13,14-dihydro-15-keto Prostaglandin D_1 35
13,14-dihydro-15-keto Prostaglandin D_2 35,46
13,14-dihydro-15-keto Prostaglandin D_2-d_4 35
13,14-dihydro-15-keto-tetranor Prostaglandin D_2 35
13,14-dihydro-16,16-difluoro Prostaglandin D_2 35
13,14-dihydro Prostaglandin E_1 35
13,14-dihydro Prostaglandin E_1-d_4 35
13,14-dihydro Prostaglandin E_1 Quant-PAK 35
13,14-dihydro-15(R)-Prostaglandin E_1 35
13,14-dihydro-16,16-difluoro Prostaglandin E_1 35
13,14-dihydro-15(R,S)-16,16-difluoro Prostaglandin E_1-d_4 35
13,14-dihydro-15-keto Prostaglandin E_1 35
13,14-dihydro-15-keto Prostaglandin E_1-d_4 35
13,14-dihydro-19(R)-hydroxy Prostaglandin E_1 35
13,14-dihydro-15-keto Prostaglandin E_2 36
13,14-dihydro-15-keto Prostaglandin E_2-d_4 36
13,14-dihydro-15-keto-tetranor Prostaglandin E_2 36
13,14-dihydro Prostaglandin F$_{1\alpha}$ 37
13,14-dihydro-15-keto Prostaglandin F$_{1\alpha}$ 37
13,14-dihydro-15-keto-tetranor Prostaglandin F$_{1\alpha}$ 37
11β-13,14-dihydro-15-keto Prostaglandin F$_{2\alpha}$ 37
13,14-dihydro Prostaglandin F$_{2\alpha}$ 40
13,14-dihydro-16,16-difluoro Prostaglandin F$_{2\alpha}$ 40
13,14-dihydro-15-keto Prostaglandin F$_{2\alpha}$ 40
13,14-dihydro-15-keto Prostaglandin F$_{2\alpha}$-d_4 40
13,14-dihydro-15-keto Prostaglandin F$_{2\alpha}$ EIA Kit 57
13,14-dihydro-15-keto Prostaglandin F$_{2\alpha}$ isopropyl ester 40
13,14-dihydro-16,16-difluoro Prostaglandin J_2 41
13,14-dihydro-15-keto Prostaglandin J_2 41
7(S),17(S)-dihydroxy-8(E),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid 15

3,4-Dihydroxyphenyl ethanol 15,47
6,15-diketo-13,14-dihydro Prostaglandin $F_{1\alpha}$ 37
3',5'-Dimethoxy-4-Stilbenol (Pterostilbene) 42
trans-3,5-Dimethoxy-4'-Hydroxystilbene (Pterostilbene) 42
7,7-dimethyl-5,8-Eicosadienoic Acid 47
17α,20-dimethyl-Δ^2-PGE_1 (Limaprost) 25
16,16-dimethyl Prostaglandin A_1 34
16,16-dimethyl Prostaglandin A_2 34
16,16-dimethyl Prostaglandin D_2 35
16,16-dimethyl Prostaglandin E_1 35
16,16-dimethyl-6-keto Prostaglandin E_1 35
16,16-dimethyl Prostaglandin E_2 36
16,16-dimethyl Prostaglandin F_2 *p*-(*p*-aceamidobenzamido) phenyl ester 36
17,20-dimethyl Prostaglandin $F_{1\alpha}$ 37
16,16-dimethyl Prostaglandin $F_{2\alpha}$ 40,46
16,16-dimethyl Prostaglandin $F_{2\beta}$ 40
Dinoprost (Prostaglandin $F_{2\alpha}$) 37
Dinoprostone (Prostaglandin E_2) 35
2,3-dinor Fluprostenol 20
2,3-dinor Prostaglandin E_1 35
2,3-dinor-6-keto Prostaglandin $F_{1\alpha}$ (sodium salt) 37
2,3-dinor-6-keto Prostaglandin $F_{1\alpha}$-d_9 (sodium salt) 37
2,3-dinor-11β-Prostaglandin $F_{2\alpha}$ 40
2,3-dinor-8-*iso* Prostaglandin $F_{2\alpha}$ 40
2,3-dinor Thromboxane B_1 44
2,3-dinor Thromboxane B_2 44
Docosahexaenoic Acid 15,47
Docosahexaenoic Acid-d_5 15
Docosahexaenoic Acid ethyl ester 15
Docosahexaenoic Acid methyl ester 15
Docosahexaenoic Acid Quant-PAK 15
4,5-dehydro Docosahexaenoic Acid 15
17-keto-4(Z),7(Z),10(Z),13(Z),15(E),19(Z)-Docosahexaenoic Acid 15
7(S),17(S)-dihydroxy-8(E),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid 15
17-keto-7(Z),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid 15
cis-4,10,13,16-Docosatetraenoic Acid 18
cis-4,10-13,16-Docosatetraenoic Acid methyl ester 18
DP_1 Receptor Polyclonal Antibody 50
7(S),17(S)-hydroxy DPA (7(S),17(S)-dihydroxy-8(E),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid) 15
17-keto-7(Z),10(Z),13(Z),15(E),19(Z)-DPA (17-keto-7(Z),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid) 15
DuP-697 13

E

EA4 47
EDYA (8,11-Eicosadiynoic Acid) 18
8,9-EE-14(Z)-E 18
14,15-EE-5(Z)-E 18
14,15-EE-8(Z)-E 18
5(6)-EET 19
5(6)-EET-d_{11} 19
5(6)-EET Ethanolamide 19
5(6)-EET methyl ester 19
8(9)-EET 19
8(9)-EET-d_{11} 19
8(9)-EET Ethanolamide 19
8(9)-EET methyl ester 19
11(12)-EET 19
11(12)-EET-d_{11} 19
11(12)-EET Ethanolamide 19
11(12)-EET methyl ester 19
14(15)-EET 19
14(15)-EET-d_{11} 19
14(15)-EET Ethanolamide 19
14(15)-EET methyl ester 19
14(15)-EET-SI 19
7,7-dimethyl-5,8-Eicosadienoic Acid 47
5(Z),14(Z)-Eicosadienoic Acid 18
8(Z),14(Z)-Eicosadienoic Acid 18
11(Z),14(Z)-Eicosadienoic Acid 18
8,11-Eicosadiynoic Acid 18
Eicosapentaenoic Acid 18
Eicosapentaenoic Acid-d_5 18
Eicosapentaenoic Acid ethyl ester 18
Eicosapentaenoic Acid methyl ester 18
Eicosapentaenoic Acid (peroxide free) 18
Eicosapentaenoic Acid Quant-PAK 18
Eicosatetraynoic Acid 18,47
5(Z),8(Z),11(Z)-Eicosatrienoic Acid 18
5(Z),8(Z),11(Z)-Eicosatrienoic Acid-d_6 18
5(Z),8(Z),14(Z)-Eicosatrienoic Acid 18
5(Z),11(Z),14(Z)-Eicosatrienoic Acid 18
11(Z),14(Z),17(Z)-Eicosatrienoic Acid 18
5,8,11-Eicosatriynoic Acid 19,47
8,11,14-Eicosatriynoic Acid 19
Elaidic Acid 19
EM-1421 (tetramethyl Nordihydroguaiaretic Acid) 31
EP_1 Receptor Polyclonal Antibody 50
EP_2 Receptor Polyclonal Antibody 50
EP_2 Receptor Polyclonal PE Antibody 50
EP_2 Receptor (rat) STEP Reporter Assay Kit (Luminescence) 60
EP_3 Receptor Polyclonal Antibody 50
EP_4 Receptor (C-Term) Polyclonal Antibody 50
EP_4 Receptor (C-Term) Polyclonal PE Antibody 50
EP_4 Receptor (N-Term) Polyclonal Antiserum 50
EP_4 Receptor (rat) STEP Plate Assay Kit (cAMP method) 60
EP_4 Receptor (rat) STEP Reporter Assay Kit (Luminescence) 60
EPA (Eicosapentaenoic Acid) 18
4(5)-EpDPE methyl ester 19
16(17)-EpDPE 19
19(20)-EpDPE 19
14(15)-EpEDE 22
14(15)-EpEDE methyl ester 22
5(6)-EpETE methyl ester 19
8(9)-EpETE 19
11(12)-EpETE 19
14(15)-EpETE 19
17(18)-EpETE 19
9(10)-EpOME 19
9(10)-EpOME-d_4 19
12(13)-EpOME 19
12(13)-EpOME-d_4 19
Epoprostenol (Prostaglandin I_2 (sodium salt)) 41
14,15-Epoxyeicosa-5(Z)-enoic Acid (14,15-EE-5(Z)-E) 18
14,15-Epoxyeicosa-8(Z)-enoic Acid (14,15-EE-8(Z)-E) 18
13,14-epoxy Fluprostenol isopropyl ester 20
13(R),14(R)-epoxy Fluprostenol isopropyl ester 20
13(S),14(S)-epoxy Fluprostenol isopropyl ester 20
9,11-epoxymethano PGH_2 (U-44069) 45
Etalocib (LY293111) 27
20-ethyl Prostaglandin E_2 36
20-ethyl Prostaglandin $F_{2\alpha}$ 40
5,8,11-ETI (5,8,11-Eicosatriynoic Acid) 19
8,11,14-ETI (8,11,14-Eicosatriynoic Acid) 19
ETYA (Eicosatetraynoic Acid) 18

F

Fatty Acid Amide Hydrolase (human recombinant) 61
FKGK 11 47
Flavone (Apigenin) 6
Fluprostenol 19,46
Fluprostenol-d_4 20
Fluprostenol EIA Kit 58
Fluprostenol isopropyl ester 20
Fluprostenol Lactone Diol 20
Fluprostenol methyl amide 20
Fluprostenol methyl ester 20
Fluprostenol serinol amide 20
15(S)-Fluprostenol 20
15(S)-Fluprostenol isopropyl ester 20
5-*trans* Fluprostenol 20
5-*trans* Fluprostenol isopropyl ester 20
2,3-dinor Fluprostenol 20
13,14-epoxy Fluprostenol isopropyl ester 20
13(R),14(R)-epoxy Fluprostenol isopropyl ester 20
13(S),14(S)-epoxy Fluprostenol isopropyl ester 20
9-keto Fluprostenol 20
9-keto Fluprostenol isopropyl ester 20
11-keto Fluprostenol 20,46
15-keto Fluprostenol 20
15-keto Fluprostenol isopropyl ester 20
(±)-Flurbiprofen 13
(R)-Flurbiprofen 13
(S)-Flurbiprofen 13
FOG9 19
N-hydroxy-N'-(4-*n*-butyl-2-methylphenyl)Formamidine (HET0016) 20
FP Receptor Polyclonal Antibody 50
FR122047 (hydrate) 13

G

1,2-*bis*(heptanoylthio) Glycerophosphocholine 20
GPCR ChemR23 (Chemokine-Like Receptor 1 Polyclonal Antibody) 50
GW 627368X 17,20,46
GW 848687X 20,46

H

(±)4-HDoHE 22
(±)7-HDoHE 22
(±)8-HDoHE 22
(±)10-HDoHE 22
(±)11-HDoHE 22
(±)13-HDoHE 22
(±)14-HDoHE 22
(±)16-HDoHE 22
(±)17-HDoHE 22
17(R)-HDoHE 22
17(S)-HDoHE 22
(±)20-HDoHE 22
(±)11-HEDE 22
11(R)-HEDE 22
11(S)-HEDE 22
(±)15-HEDE 22
15(R)-HEDE 22
15(S)-HEDE 22
Heneicosapentaenoic Acid 20
Heneicosapentaenoic Acid-d_5 20
Heneicosapentaenoic Acid methyl ester 20
HEPC 20
(±)5-HEPE 22
5(S)-HEPE 22
(±)8-HEPE 22
8(S)-HEPE 22
(±)9-HEPE 22
9(S)-HEPE 22
(±)11-HEPE 22
11(R)-HEPE 22
11(S)-HEPE 22
(±)12-HEPE 22
12(R)-HEPE 22
12(S)-HEPE 22
(±)15-HEPE 22
15(S)-HEPE 22
(±)18-HEPE 22
1,2-*bis*(Heptanoylthio)-1,2-dideoxy-*sn*-glycero-3-phosphorylcholine (1,2-*bis*(heptanoylthio) Glycerophosphocholine) 20
1,2-*bis*(heptanoylthio) Glycerophosphocholine 20
Heptanoyl thio-PC 20
HET0016 20
(±)-HETE HPLC Mixture 22
(S)-HETE HPLC Mixture 22
(±)5-HETE 21
(±)5-HETE lactone 21,47
(±)5-HETE methyl ester 21
5(R)-HETE 21
5(S)-HETE 21
5(S)-HETE-d_8 21
5(S)-HETE lactone 21
(±)8-HETE 21
8(R)-HETE 21
8(S)-HETE 21
(±)9-HETE 21
9(R)-HETE 21
9(S)-HETE 21
(±)11-HETE 21
11(R)-HETE 21
11(S)-HETE 21
(±)12-HETE 21
12(R)-HETE 21
tetranor-12(R)-HETE 21
12(S)-HETE 21
12(S)-HETE-d_8 21
tetranor-12(S)-HETE 21
(±)15-HETE 21
15(R)-HETE 21
15(S)-HETE 21,47
15(S)-HETE-biotin 21
15(S)-HETE-d_8 21
15(S)-HETE Ethanolamide 21
(±)16-HETE 21
16(R)-HETE 21
16(S)-HETE 21
(±)17-HETE 21
17(R)-HETE 21
17(S)-HETE 21
(±)18-HETE 21
19(R)-HETE 21
19(S)-HETE 21
20-HETE 21
20-HETE-d_6 21
20-HETE Ethanolamide 21
5(S)-HETrE 22
8(S)-HETrE 22
15(S)-HETrE 22,47
2-Hexadecanoylthio-1-Ethylphosphorylcholine (HEPC) 20
12(S)-HHT (12(S)-HHTrE) 21
12(S)-HHTrE 21
12(S)-HHTrE Lipid Maps MS Standard 21
(±)9-HODE 22
(±)9-HODE cholesteryl ester 22
9(R)-HODE 22
9(R)-HODE cholesteryl ester 22
9(S)-HODE 22
9(S)-HODE cholesteryl ester 22
9(S)-HODE-d_4 22
(±)13-HODE 22
(±)13-HODE cholesteryl ester 22
13(R)-HODE 22
13(R)-HODE cholesteryl ester 22
13(S)-HODE 22
13(S)-HODE-biotin 22
13(S)-HODE cholesteryl ester 22
13(S)-HODE-d_4 22
13(S)-HODE methyl ester 22
9(S)-HOTrE 22
13(S)-HOTrE 22
13(S)-HOTrE(γ) 22
HPA (Heneicosapentaenoic Acid) 20
17(S)-HpDoHE 22
15(S)-HpEDE 22
5(S)-HpEPE 22
12(S)-HpEPE 22
15(S)-HpEPE 22
5(S)-HpETE 21
(±)12-HpETE 21
12(S)-HpETE 21
15(S)-HpETE 21
(±)9-HpODE 22
9(S)-HpODE 22
(±)13-HpODE 22
13(S)-HpODE 22
9(S)-HpOTrE 22
13(S)-HpOTrE 22
13(S)-HpOTrE(γ) 22
HQL-79 21
Hydroperoxy HPLC Mixture 21
ω-3 Hydroxy Acid HPLC Mixture 21
N-hydroxy-N'-(4-*n*-butyl-2-methylphenyl)Formamidine (HET0016) 20
7-hydroxycoumarinyl Arachidonate 6
7-hydroxycoumarinyl-γ-Linolenate 26
4-hydroxy Diclofenac 13
7(S),17(S)-hydroxy DPA (7(S),17(S)-dihydroxy-8(E),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid) 15
20-hydroxy Leukotriene B_4 24,46
15-hydroxy PGDH (15-hydroxy Prostaglandin Dehydrogenase Polyclonal Antibody) 51
19(R)-hydroxy PGE_2 17
19(R)-hydroxy Prostaglandin A_2 34
19(R)-hydroxy Prostaglandin B_2 34
15-hydroxy Prostaglandin Dehydrogenase Blocking Peptide 51
15-hydroxy Prostaglandin Dehydrogenase (human recombinant) 61
15-hydroxy Prostaglandin Dehydrogenase Polyclonal Antibody 51
15(R),19(R)-hydroxy Prostaglandin E_1 35
19(R)-hydroxy Prostaglandin E_1 35
15(R),19(R)-hydroxy Prostaglandin E_2 36
19(R)-hydroxy Prostaglandin E_2 36,46
20(R)-hydroxy Prostaglandin E_2 36
15(R),19(R)-hydroxy Prostaglandin $F_{1\alpha}$ 37
19(R)-hydroxy Prostaglandin $F_{1\alpha}$ 37
15(R),19(R)-hydroxy Prostaglandin $F_{2\alpha}$ 40
19(R)-hydroxy Prostaglandin $F_{2\alpha}$ 40
20-hydroxy Prostaglandin $F_{2\alpha}$ 40
trans-3,5-Dimethoxy-4'-Hydroxystilbene (Pterostilbene) 42
3-Hydroxytyrosol (3,4-Dihydroxyphenyl ethanol) 15
HZ52 21,46

I

I-BOP 23,46
(±)-Ibuprofen 13
Iliren (Tiaprost) 44
Iloprost 17,23,46
5-*cis* Iloprost 23
5-*cis*-15(R)-Iloprost 23
15(R)-Iloprost 23
16(R)-Iloprost 23
16(S)-Iloprost 23
15-keto Iloprost 23
Indomethacin 13,46

NO-Indomethacin 30
N-(4-acetamidophenyl)-Indomethacin amide 13
N-(2-phenylethyl)-Indomethacin amide 13
N-(3-pyridyl)-Indomethacin amide 13
Indomethacin heptyl ester 13
Indomethacin N-octyl amide 13
Iodophenyl sulfonyl amino pinane TXA_2 (I-SAP) 23
$iPF_{2\alpha}$-I (5-$iPF_{2\alpha}$-VI) 23
$iPF_{2\alpha}$-IV 23
$iPF_{2\alpha}$-VI-d_4 23
$iPF_{2\alpha}$-VI EIA Kit 55
5-$iPF_{2\alpha}$-VI 23
5-$iPF_{2\alpha}$-VI-d_{11} 23
8,12-*epi*-$iPF_{2\alpha}$-VI-d_{11} (8,12-*iso*-$iPF_{2\alpha}$-VI-d_{11}) 23
8,12-*iso*-$iPF_{2\alpha}$-VI-d_{11} 23
8,12-*iso*-$iPF_{2\alpha}$-VI-1,5-lactone 23
$iPLA_2$ (Type VI) Polyclonal Antibody 52
IP Receptor (human) Polyclonal Antibody 50
IP Receptor (mouse) Polyclonal Antibody 50
I-SAP 23,46
Isoleukotoxin diol ((±)12,13-DiHOME) 15
8-Isoprostane Affinity Column (4 ml) 55
8-Isoprostane Affinity Column (20 ml) 55
8-Isoprostane Affinity Purification Kit (4 ml) 55
8-Isoprostane Affinity Purification Kit (20 ml) 55
8-Isoprostane Affinity Sorbent 55
8-Isoprostane EIA Kit 55
8-Isoprostane Express EIA Kit 55

J

K

15-KEDE (15-OxoEDE) 31
5-KETE (5-OxoETE) 31
12-KETE (12-OxoETE) 31
15-KETE (15-OxoETE) 32
17-keto-(4Z,7Z,10Z,13Z,15E,19Z)-DHA (17-keto-4(Z),7(Z),10(Z),13(Z),15(E),19(Z)-Docosahexaenoic Acid) 15
17-keto-4(Z),7(Z),10(Z),13(Z),15(E),19(Z)-Docosahexaenoic Acid 15
17-keto-7(Z),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid 15
17-keto-7(Z),10(Z),13(Z),15(E),19(Z)-DPA (17-keto-7(Z),10(Z),13(Z),15(E),19(Z)-Docosapentaenoic Acid) 15
9-keto Fluprostenol 20
9-keto Fluprostenol isopropyl ester 20
11-keto Fluprostenol 20,46
15-keto Fluprostenol 20
15-keto Fluprostenol isopropyl ester 20
15-keto Iloprost 23
15-keto Latanoprost 24
15-keto Latanoprost (free acid) 24
Ketoprofen 13
6-keto Prostaglandin E_1 35
15-keto Prostaglandin E_1 35
15-keto Prostaglandin E_2 36
6-keto Prostaglandin $F_{1\alpha}$ 37
6-keto Prostaglandin $F_{1\alpha}$-d_4 37
6-keto Prostaglandin $F_{1\alpha}$ EIA Kit 58
6-keto Prostaglandin $F_{1\alpha}$ Quant-PAK 37
Δ^{17}-6-keto Prostaglandin $F_{1\alpha}$ 37
15-keto Prostaglandin $F_{1\alpha}$ 37
8-*iso*-15-keto Prostaglandin $F_{2\alpha}$ 37
15-keto Prostaglandin $F_{2\alpha}$ 40
15-keto-17-phenyl trinor Prostaglandin $F_{2\alpha}$ 40
15-keto-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
8-*iso*-15-keto Prostaglandin $F_{2\beta}$ 40
Ketorolac 13
Ketorolac (tromethamine salt) 13
9-KODE (9-OxoODE) 32
13-KODE (13-OxoODE) 32
9-KOTE (9-OxoOTrE) 32
9-KOTrE (9-OxoOTrE) 32

L

L-161,982 17,23,46
L-655,240 24,46
L 660,711 (MK 571) 30
L-902,688 17,24
Latanoprost 24
Latanoprost-d_4 24
Latanoprost EIA Kit 58
Latanoprost ethyl amide 24
Latanoprost ethyl amide-d_4 24
Latanoprost (free acid) 24,46
Latanoprost (free acid)-d_4 24
Latanoprost Lactol 24
Latanoprost Lactone Diol 24
5-*trans* Latanoprost 24
5-*trans* Latanoprost (free acid) 24
15(S)-Latanoprost 24
15-keto Latanoprost 24
15-keto Latanoprost (free acid) 24
Leukotoxin diol ((±)9,10-DiHOME) 15
Leukotriene A_3 methyl ester 24
Leukotriene A_4 Hydrolase (human recombinant) 61
Leukotriene A_4 Hydrolase Polyclonal Antibody 51
Leukotriene A_4 methyl ester 24
Leukotriene A_4-d_5 methyl ester 24
Leukotriene B_3 24
12-*epi* Leukotriene B_3 24
Leukotriene B_4 24,46
Leukotriene B_4-3-aminopropylamide 24
Leukotriene B_4-d_4 24
Leukotriene B_4 dimethyl amide 24
Leukotriene B_4 EIA Kit 55
Leukotriene B_4 Ethanolamide 24,46
Leukotriene B_4 Express EIA Kit 55
Leukotriene B_4 Lipid Maps MS Standard 24
6-*trans* Leukotriene B_4 24
6-*trans*-12-*epi* Leukotriene B_4 24
18-carboxy dinor Leukotriene B_4 24
20-carboxy Leukotriene B_4 24
14,15-dehydro Leukotriene B_4 24,46
12-*epi* Leukotriene B_4 24
12-*epi* Leukotriene B_4-d_4 24
20-hydroxy Leukotriene B_4 24,46
12-oxo Leukotriene B_4 24
20-trifluoro Leukotriene B_4 24,46
Leukotriene C_4 25,46
Leukotriene C_4-d_5 25
Leukotriene C_4 EIA Kit 54
Leukotriene C_4 Lipid Maps MS Standard 25
Leukotriene C_4 methyl ester 25
Leukotriene C_4-d_5 methyl ester 25
11-*trans* Leukotriene C_4 25
14,15-Leukotriene C_4 25
14,15-Leukotriene C_4 EIA Kit 54
N-methyl Leukotriene C_4 25
Leukotriene D_4 25,46
Leukotriene D_4-d_5 25
Leukotriene D_4 methyl ester 25
11-*trans* Leukotriene D_4 25
Leukotriene E_4 25
Leukotriene E_4-d_5 25
Leukotriene E_4 EIA Kit 54
Leukotriene E_4 Lipid Maps MS Standard 25
Leukotriene E_4 methyl ester 25
11-*trans* Leukotriene E_4 25
14,15-Leukotriene E_4 25
N-acetyl Leukotriene E_4 25
Leukotriene F_4 25
Licofelone 25
Limaprost 25
3-methoxy Limaprost 25
Linoelaidic Acid 25
Linoleic Acid 26
Linoleic Acid-biotin 26
Linoleic Acid-d_4 26
Linoleic Acid ethyl ester 26
Linoleic Acid (peroxide free) 26
Linoleic Acid Quant-PAK 26
Linolein Hydroperoxides 26
7-hydroxycoumarinyl-γ-Linolenate 26
Linolenic Acid ethyl ester 26
α-Linolenic Acid 26
α-Linolenic Acid-d_{14} 26
γ-Linolenic Acid 26
γ-Linolenic Acid ethyl ester 26
γ-Linolenic Acid methyl ester 26
Dihomo-γ-Linolenic Acid 26
Dihomo-γ-Linolenic Acid-d_6 26
Dihomo-γ-Linolenic Acid ethyl ester 26
Dihomo-γ-Linolenic Acid methyl ester 26
5(S),6(R)-Lipoxin A_4 26
5(S),6(R)-Lipoxin A_4-d_5 26
5(S),6(R)-Lipoxin A_4 methyl ester 26
5(S),6(R)-Lipoxin A_4 Lipid Maps MS Standard 26
5(S),6(R),15(R)-Lipoxin A_4 26
5(S),6(S)-Lipoxin A_4 26
6-*epi*-Lipoxin A_4 (5(S),6(S)-Lipoxin A_4) 26
15-*epi* Lipoxin A_4 (5(S),6(R),15(R)-Lipoxin A_4) 26
Lipoxin A_5 26

5(S),14(R)-Lipoxin B_4 26
Lipoxygenase Inhibitor Screening Assay Kit 55
5-Lipoxygenase (human recombinant) 61
5-Lipoxygenase Polyclonal Antibody 50
5-Lipoxygenase (Phospho-Ser^{523}) Polyclonal Antibody 50
5-Lipoxygenase (potato) 61
12-Lipoxygenase (platelet-type, mouse recombinant) 61
15-Lipoxygenase Inhibitor 1 26,47
15-Lipoxygenase (soybean P1) 61
15-Lipoxygenase (soybean P1) - Purified 61
15-Lipoxygenase-1 (rabbit) Polyclonal Antiserum 50
15-Lipoxygenase-2 (human recombinant) 61
15-Lipoxygenase-2 Polyclonal Antibody 50
15-LO Inhibitor 1 (15-Lipoxygenase Inhibitor 1) 26
LTA_3 methyl ester (Leukotriene A_3 methyl ester) 24
LTA_4 ..... *See Leukotriene* A_4
LTB_4 (Leukotriene B_4) 24,46
LTC_4 (Leukotriene C_4) 25,46
LTD_4 (Leukotriene D_4) 25,46
LTE_4 (Leukotriene E_4) 25
LTF_4 (Leukotriene F_4) 25
Lumula 27
Luminex® Cysteinyl Leukotriene Kit 54
Luminex® Leukotriene B_4 Kit 55
Luminex® Prostaglandin E_2 Kit 57
Luminex® Prostaglandin E_2/Interleukin-1β Duplex Kit 57
Luminex® Thromboxane B_2 Kit 60
Luminex® 11-dehydro Thromboxane B_2 Kit 60
Luteolin 27,47
5(S),6(R),15(R)-LXA_4 (5(S),6(R),15(R)-Lipoxin A_4) 26
LXA_5 (Lipoxin A_5) 26
5(S),14(R)-LXB_4 (5(S),14(R)-Lipoxin B_4) 26
LY83583 27
LY171883 27,46
LY223982 27,46
LY255283 27,46
LY293111 27,46

M

7(R)-MaR1 (7(R)-Maresin 1) 27
7(S)-MaR1 (7(S)-Maresin 1) 27
7(R)-Maresin 1 27
7(S)-Maresin 1 27
7-*epi*-Maresin 1 (7(S)-Maresin 1) 27
Maxeyprost (Lumula) 27
Mead Acid (5(Z),8(Z),11(Z)-Eicosatrienoic Acid) 18
Meclofenamate (sodium salt) 13
Medullin (Prostaglandin A_2) 34
9,11-methane-epoxy Prostaglandin $F_{1\alpha}$ 37
3-methoxy Limaprost 25
6-methoxy Naphthalene Acetic Acid 13
3-methoxy Prostaglandin $F_{1\alpha}$ 37
Methyl Arachidonyl Fluorophosphonate 47
N-methyl Leukotriene C_4 25
15(R)-15-methyl Prostaglandin A_2 34
15(R)-15-methyl Prostaglandin D_2 35,46
15(S)-15-methyl Prostaglandin D_2 35,46
15(S)-15-methyl Prostaglandin E_1 35
15(R)-15-methyl Prostaglandin E_2 36
15(S)-15-methyl Prostaglandin E_2 36
15(R)-15-methyl Prostaglandin $F_{2\alpha}$ 40
15(R)-15-methyl Prostaglandin $F_{2\alpha}$ methyl ester 40
15(S)-15-methyl Prostaglandin $F_{2\alpha}$ 40,46
15(S)-15-methyl Prostaglandin $F_{2\alpha}$ ethyl amide 40
15(S)-15-methyl Prostaglandin $F_{2\alpha}$ isopropyl ester 40
15(S)-15-methyl Prostaglandin $F_{2\alpha}$ methyl ester 40
Misoprostol 30
Misoprostol (free acid) 30
Misoprostol (free acid)-d_5 30
11β-Misoprostol 30
8-*iso* Misoprostol 30
MK 571 30,46
MK 571 (sodium salt) 30
MK 886 (sodium salt) 30
ML 1129 (Beraprost (sodium salt)) 8
ML 3000 (Licofelone) 25
M4N (tetramethyl Nordihydroguaiaretic Acid) 31
Monoacylglycerol Lipase (human recombinant) 61
Montelukast (sodium salt) 30,46
Mouse Macrophage Microsomal Immunoblot Control 51
MRE-269 30,46

N

6-methoxy Naphthalene Acetic Acid 13
(S)-Naproxen 13
NCX 2121 (NO-Indomethacin) 30
NDGA ..... *See Nordihydroguaiaretic Acid*
S-NEPC 30
Niflumic Acid 13
Nimesulide 13
Nocloprost 30
NO-Indomethacin 30
Nordihydroguaiaretic Acid 31,47
tetramethyl Nordihydroguaiaretic Acid 31
NS-304 31,46
NS-398 13
NSC 17013 (N,N'-Dicyclohexylurea) 14
NSC 83244 (Apigenin) 6
NSC 163062 (Triptolide) 45
NSC 168807 (PD 146176) 32
NSC 203730 (Sulfasalazine) 44
NSC 667219 (Sulfasalazine) 44
NSC 713200 (CDDO methyl ester) 12

O

OATP2A1 (Prostaglandin Transporter (C-Term) Polyclonal Antibody) 51
OC000459 31,46
9,12-Octadecadiynoic Acid 13,47
OKY-046 (Ozagrel) 32
N-Oleoyl Dopamine 47
trans-Oleic Acid (Elaidic Acid) 19
Oleyloxyethyl Phosphorylcholine 47
ONO-1078 (Pranlukast) 33
ONO-8711 17,31,46
OXER1 (5-OxoETE Receptor Polyclonal Antibody) 51
Oxidized Lipid HPLC Mixture 31
15-OxoEDE 31
5-OxoETE 31
5-OxoETE-d_7 31
5-OxoETE-glutathione (FOG9) 19
5-OxoETE Lipid Maps MS Standard 31
5-OxoETE Receptor Blocking Peptide 51
5-OxoETE Receptor Polyclonal Antibody 51
12-OxoETE 31
12-OxoETE Lipid Maps MS Standard 31
15-OxoETE 32
12-oxo Leukotriene B_4 24
9-OxoODE 32
9-OxoODE-d_3 32
13-OxoODE 32
13-OxoODE-d_3 32
9-OxoOTrE 32
Ozagrel 32

P

Palmitoyl thio-PC 32
1-Palmitoyl-2-pyrenedecanoyl Phosphatidylcholine (10-Pyrene-PC) 42
Palmityl Trifluoromethyl Ketone 47
PD 146176 32
PDX (10(S),17(S)-DiHDoHE) 14
PF-04418948 17,32,46
PG 490 (Triptolide) 45
PGA_2 (Prostaglandin A_2) 34
PGB_2 (Prostaglandin B_2) 34
PGD_2 (Prostaglandin D_2) 34
15-hydroxy PGDH (15-hydroxy Prostaglandin Dehydrogenase Polyclonal Antibody) 51
PGDM 32
PGDM-d_4 32
tetranor-PGDM 32
tetranor-PGDM-d_6 32
tetranor-PGDM EIA Kit 56
tetranor-PGDM lactone 32
tetranor-PGDM lactone-d_6 32
tetranor-PGD Metabolite (tetranor-PGDM) 32
PGE ..... *See Prostaglandin E*
15-deoxy-16S-hydroxy-17-cyclobutyl PGE_1 methyl ester (Butaprost) 9
17α,20-dimethyl-Δ^2-PGE_1 (Limaprost) 25
11-deoxy-16,16-dimethyl PGE_2 17
19(R)-hydroxy PGE_2 17
17-*trans* PGE_3 (17-*trans* Prostaglandin E_3) 36
tetranor-PGEM 33
tetranor-PGEM-d_6 33
tetranor-PGE Metabolite (tetranor-PGEM) 33
tetranor-PGEM Lipid Maps MS Standard 33
PGF ..... *See Prostaglandin F*

(±)-16-*m*-chlorophenoxy tetranor $PGF_{2\alpha}$ (Cloprostenol (sodium salt)) 13
9,11-dideoxy-9α,11α-epoxymethano $PGF_{2\alpha}$ (U-44069) 45
9,11-dideoxy-9α,11α-methanoepoxy $PGF_{2\alpha}$ (U-46619) 45
13,14-dihydro-15-keto-20-ethyl $PGF_{2\alpha}$ ..... *See Unoprostone*
17-phenyl-13,14-dihydro trinor $PGF_{2\alpha}$ isopropyl ester (Latanoprost) 24
16-*m*-trifluoromethylphenoxy tetranor $PGF_{2\alpha}$ (Fluprostenol) 19
tetranor-PGFM 33
tetranor-PGF Metabolite (tetranor-PGFM) 33
tetranor-PGFM Lipid Maps MS Standard 33
PGG_2 (Prostaglandin G_2) 40
PGH ..... *See Prostaglandin H*
9,11-epoxymethano PGH_2 (U-44069) 45
PG HPLC Mixture (Prostaglandin HPLC Mixture) 41
PGI ..... *See Prostaglandin I*
PGJ_2 (Prostaglandin J_2) 41
9,10-dihydro-15-deoxy-$\Delta^{12,14}$-PGJ_2 (CAY10410) 10
tetranor-PGJM 33
tetranor-PGJ Metabolite (tetranor-PGJM) 33
PGK ..... *See Prostaglandin K*
PG Metabolite HPLC Mixture (Prostaglandin Metabolite HPLC Mixture) 41
PGT (Prostaglandin Transporter (C-Term) Polyclonal Antibody) 51
16-phenoxy Prostaglandin $F_{2\alpha}$ ethyl amide 37
16-phenoxy tetranor Prostaglandin A_2 34
16-phenoxy tetranor Prostaglandin E_2 36
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ 40,46
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ cyclopropyl methyl amide 40
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ methyl amide 40
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ methyl ester 40
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
17-phenoxy trinor Prostaglandin $F_{2\alpha}$ 40
17-phenoxy trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
17-phenoxy trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
Phenylbutazone 13
16-phenyl tetranor Prostaglandin E_2 36
17-phenyl-13,14-dihydro trinor $PGF_{2\alpha}$ isopropyl ester (Latanoprost) 24
N-(2-phenylethyl)-Indomethacin amide 13
16-phenyl tetranor Prostaglandin E_1 35
16-phenyl tetranor Prostaglandin $F_{2\alpha}$ 40
17-phenyl trinor Prostaglandin A_2 34
17-phenyl trinor-13,14-dihydro Prostaglandin A_2 34
17-phenyl trinor Prostaglandin D_2 35
17-phenyl trinor Prostaglandin E_2 36,46
17-phenyl trinor Prostaglandin E_2 ethyl amide 36
17-phenyl trinor Prostaglandin E_2 serinol amide 36
17-phenyl trinor 8-*iso* Prostaglandin E_2 36,46
17-phenyl trinor Prostaglandin $F_{2\alpha}$ 40,46
17-phenyl trinor Prostaglandin $F_{2\alpha}$-d_4 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ EIA Kit 58
17-phenyl trinor Prostaglandin $F_{2\alpha}$ amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclohexyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclopropyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclopropyl methyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ diethyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide-d_4 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ 1,15-lactone 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ methyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ methyl ester 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ serinol amide 40
15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ 40
15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
8-*iso*-17-phenyl trinor Prostaglandin $F_{2\alpha}$ 37
5-*trans*-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
PHOME 33
Pinane Thromboxane A_2 33,46
15(R)-Pinane Thromboxane A_2 33
Piriprost (potassium salt) 33,46,47
Piroxicam 13
$AdPLA_2$ Polyclonal Antibody 52
$cPLA_2$ Assay Kit 58
$iPLA_2$ (Type VI) Polyclonal Antibody 52
$sPLA_2$ Assay Kit 58
$sPLA_2$ (human Type IIA) EIA Kit 58
$sPLA_2$ (human Type IIA) Monoclonal Antibody (Clone SCACC353) 52
$sPLA_2$ (human Type IIA) Polyclonal Antiserum 52
$sPLA_2$ (human recombinant Type V) 61
$sPLA_2$ (human Type V) Monoclonal Antibody (Clone MCL-3G1) 52
$sPLA_2$ (mouse Type V) Polyclonal Antibody 52
$sPLA_2$ (Type III) 61
$sPLA_2$ (Type V) Inhibitor Screening Assay Kit 58
Pranlukast 33,46
Pravadoline 33
Primary Eicosanoid HPLC Mixture 33
Procyclin (Beraprost (sodium salt)) 8
Prostacyclin (Prostaglandin I_2 (sodium salt)) 41
Prostaglandin A_1 34
Prostaglandin A_1-biotin 34
Prostaglandin A_1 ethyl ester 34
Prostaglandin A_1 methyl ester 34
15-*epi* Prostaglandin A_1 34
8-*iso* Prostaglandin A_1 34
15-deoxy-$\Delta^{12,14}$-Prostaglandin A_1 34
16,16-dimethyl Prostaglandin A_1 34
Prostaglandin A_2 34
Prostaglandin A_2-biotin 34
Prostaglandin A_2-d_4 34
Prostaglandin A_2 Lipid Maps MS Standard 34
Prostaglandin A_2 methyl ester 34
Prostaglandin A_2 Quant-PAK 34
8-*iso* Prostaglandin A_2 34
8-*iso* Prostaglandin A_2-biotin 34
15-deoxy-$\Delta^{12,14}$-Prostaglandin A_2 34
13,14-dihydro-15-keto-Prostaglandin A_2 34
16,16-dimethyl Prostaglandin A_2 34
19(R)-hydroxy Prostaglandin A_2 34
15(R)-15-methyl Prostaglandin A_2 34
16-phenoxy tetranor Prostaglandin A_2 34
17-phenyl trinor Prostaglandin A_2 34
17-phenyl trinor-13,14-dihydro Prostaglandin A_2 34
Prostaglandin A_3 34
Prostaglandin B_1 34
Prostaglandin B_2 34
Prostaglandin B_2-d_4 34
Prostaglandin B_2 Lipid Maps MS Standard 34
Prostaglandin B_2 Quant-PAK 34
19(R)-hydroxy Prostaglandin B_2 34
Prostaglandin B_3 34
Prostaglandin B_x 34,47
Prostaglandin D Metabolite (PGDM) 32
Prostaglandin D Synthase (hematopoietic-type) FP-Based Inhibitor Screening Assay Kit - Green 56
Prostaglandin D Synthase (hematopoietic-type) Polyclonal Antibody 52
Prostaglandin D Synthase (hematopoietic-type; human) Monoclonal Antibody (Clone 2A5) 52
Prostaglandin D Synthase (hematopoietic-type; mouse) Monoclonal Antibody (Clone 7H4) 52
Prostaglandin D Synthase (hematopoietic-type; human) Polyclonal Antibody 52
Prostaglandin D Synthase (hematopoietic-type; mouse) Polyclonal Antiserum 52
Prostaglandin D Synthase (hematopoietic-type; mouse recombinant) 61
Prostaglandin D Synthase Inhibitor Screening Assay Kit 56
Prostaglandin D Synthase (lipocalin-type) Polyclonal Antibody 52
Prostaglandin D Synthase (lipocalin-type; human) Monoclonal Antibody (Clone 10A5) 52
Prostaglandin D Synthase (lipocalin-type; human) EIA Kit 56
Prostaglandin D Synthase (lipocalin-type; human recombinant) 61
Prostaglandin D Synthase (lipocalin-type; mouse) Polyclonal Antibody 52
Prostaglandin D Synthase (lipocalin-type; mouse recombinant) 61
Prostaglandin D Synthase (lipocalin-type; rat recombinant) 61
15-hydroxy Prostaglandin Dehydrogenase Blocking Peptide 51
15-hydroxy Prostaglandin Dehydrogenase (human recombinant) 61
15-hydroxy Prostaglandin Dehydrogenase Polyclonal Antibody 51
Prostaglandin D_1 35
Prostaglandin D_1 Alcohol 35
Prostaglandin D_1-d_4 35
Prostaglandin D_1 Quant-PAK 35
13,14-dihydro-15-keto Prostaglandin D_1 35
Prostaglandin D_2 34,46
Prostaglandin D_2-biotin 35
Prostaglandin D_2-d_4 35
Prostaglandin D_2-d_9 35
Prostaglandin D_2 EIA Kit 56
Prostaglandin D_2 Ethanolamide 35
Prostaglandin D_2 Ethanolamide-d_4 35
Prostaglandin D_2 Express EIA Kit 56
Prostaglandin D_2 FPIA Kit - Red 56
Prostaglandin D_2-1-glyceryl ester 35
Prostaglandin D_2 Lipid Maps MS Standard 34
Prostaglandin D_2 methyl ester 35
Prostaglandin D_2-MOX EIA Kit 56
Prostaglandin D_2-MOX Express EIA Kit 56
Prostaglandin D_2 Quant-PAK 35
Prostaglandin D_2 serinol amide 35
Δ^{12}-Prostaglandin D_2 35
15(R)-Prostaglandin D_2 35
5-*trans* Prostaglandin D_2 35
11-deoxy-11-methylene Prostaglandin D_2 35
11-deoxy-11-methylene-15-keto Prostaglandin D_2 35,46
15-deoxy-$\Delta^{12,14}$-Prostaglandin D_2 35,46
13,14-dihydro-15-keto Prostaglandin D_2 35,46
13,14-dihydro-15-keto Prostaglandin D_2-d_4 35

13,14-dihydro-15-keto-tetranor Prostaglandin D_2 35
13,14-dihydro-16,16-difluoro Prostaglandin D_2 35
16,16-dimethyl Prostaglandin D_2 35
15(R)-15-methyl Prostaglandin D_2 35,46
15(S)-15-methyl Prostaglandin D_2 35,46
17-phenyl trinor Prostaglandin D_2 35
Prostaglandin D_3 35
Prostaglandin E Metabolite EIA Kit 57
Prostaglandin E Synthase (cytosolic) (human recombinant, inactive protein) 61
Prostaglandin E Synthase (cytosolic) Monoclonal Antibody (Clone JJ6) 52
Prostaglandin E Synthase (cytosolic) Polyclonal Antibody 52
Prostaglandin E Synthase (cytosolic, FL) Polyclonal Antibody 52
Prostaglandin E Synthase-1 (microsomal) (human recombinant) 61
Prostaglandin E Synthase-1 (microsomal) Monoclonal Antibody (Clone 6C6) 52
Prostaglandin E Synthase-1 (microsomal) Polyclonal Antibody 52
Prostaglandin E Synthase-1 (microsomal) Western Ready Control 52
Prostaglandin E Synthase-2 (microsomal) Polyclonal Antibody 52
Prostaglandin E_1 35
Prostaglandin E_1 Alcohol 35
Prostaglandin E_1-d_4 35
Prostaglandin E_1 Ethanolamide 35
Prostaglandin E_1 Quant-PAK 35
Δ^{17}-Prostaglandin E_1 35
11β-Prostaglandin E_1 35
15(R)-Prostaglandin E_1 35
8-*iso* Prostaglandin E_1 35
11-deoxy Prostaglandin E_1 35
1a,1b-dihomo Prostaglandin E_1 35
13,14-dihydro Prostaglandin E_1 35
13,14-dihydro Prostaglandin E_1-d_4 35
13,14-dihydro Prostaglandin E_1 Quant-PAK 35
13,14-dihydro-15(R)-Prostaglandin E_1 35
13,14-dihydro-16,16-difluoro Prostaglandin E_1 35
13,14-dihydro-15(R,S)-16,16-difluoro Prostaglandin E_1-d_4 35
13,14-dihydro-15-keto Prostaglandin E_1 35
13,14-dihydro-15-keto Prostaglandin E_1-d_4 35
13,14-dihydro-19(R)-hydroxy Prostaglandin E_1 35
16,16-dimethyl Prostaglandin E_1 35
16,16-dimethyl-6-keto Prostaglandin E_1 35
2,3-dinor Prostaglandin E_1 35
15(R),19(R)-hydroxy Prostaglandin E_1 35
19(R)-hydroxy Prostaglandin E_1 35
6-keto Prostaglandin E_1 35
15-keto Prostaglandin E_1 35
15(S)-15-methyl Prostaglandin E_1 35
16-phenyl tetranor Prostaglandin E_1 35
Prostaglandin E_2 35
Prostaglandin E_2 *p*-acetamidophenyl ester 36
Prostaglandin E_2 *p*-benzamidophenyl ester 36
Prostaglandin E_2-biotin 36
Prostaglandin E_2-d_4 36
Prostaglandin E_2-d_4-1-glyceryl ester 36
Prostaglandin E_2-d_9 36
Prostaglandin E_2 EIA Kit - Monoclonal 57
Prostaglandin E_2 Ethanolamide 36
Prostaglandin E_2 Ethanolamide-d_4 36
Prostaglandin E_2 Express EIA Kit 57
Prostaglandin E_2 FPIA Kit - Green 57
Prostaglandin E_2 FPIA Kit - Red 57
Prostaglandin E_2-1-glycerol ester 36
Prostaglandin E_2-1-glyceryl ester-d_5 36
Prostaglandin E_2 isopropyl ester 36
Prostaglandin E_2 Lipid Maps MS Standard 35
Prostaglandin E_2 methyl ester 36
Prostaglandin E_2 PEG_{11}-biotin 36
Prostaglandin E_2 Quant-PAK 36
Prostaglandin E_2 serinol amide 36
11β-Prostaglandin E_2 36
15(R)-Prostaglandin E_2 36
ent-Prostaglandin E_2 36
8-*iso* Prostaglandin E_2 36
8-*iso* Prostaglandin E_2-d_4 36
8-*iso* Prostaglandin E_2 isopropyl ester 36
8-*iso*-16-cyclohexyl-tetranor Prostaglandin E_2 36
8-*iso*-15-keto-tetranor Prostaglandin E_2 36
5-*trans* Prostaglandin E_2 36
9-deoxy-9-methylene Prostaglandin E_2 36
9-deoxy-9-methylene-16,16-dimethyl Prostaglandin E_2 36
9-deoxy-9-methylene-16,16-dimethyl Prostaglandin E_2 (potassium salt) 36
11-deoxy Prostaglandin E_2 36
11-deoxy-16,16-dimethyl Prostaglandin E_2 36,46
13,14-dihydro-15-keto Prostaglandin E_2 36
13,14-dihydro-15-keto Prostaglandin E_2-d_4 36
13,14-dihydro-15-keto-tetranor Prostaglandin E_2 36
16,16-dimethyl Prostaglandin E_2 36
16,16-dimethyl Prostaglandin E_2 *p*-(*p*-aceamidobenzamido) phenyl ester 36
20-ethyl Prostaglandin E_2 36
15(R),19(R)-hydroxy Prostaglandin E_2 36
19(R)-hydroxy Prostaglandin E_2 36,46
20-hydroxy Prostaglandin E_2 36
15-keto Prostaglandin E_2 36
15(R)-15-methyl Prostaglandin E_2 36
15(S)-15-methyl Prostaglandin E_2 36
16-phenoxy tetranor Prostaglandin E_2 36
16-phenyl tetranor Prostaglandin E_2 36
17-phenyl trinor Prostaglandin E_2 36,46
17-phenyl trinor Prostaglandin E_2 ethyl amide 36
17-phenyl trinor Prostaglandin E_2 serinol amide 36
17-phenyl trinor 8-*iso* Prostaglandin E_2 36,46
Prostaglandin E_3 36
17-*trans* Prostaglandin E_3 36
Prostaglandin F Synthase (human recombinant) 61
Prostaglandin $F_{1\alpha}$ 36
Prostaglandin $F_{1\alpha}$ Alcohol 37
Prostaglandin $F_{1\alpha}$-d_9 37
8-*iso* Prostaglandin $F_{1\alpha}$ 37
8-*iso* Prostaglandin $F_{1\alpha}$-d_9 37
11-deoxy Prostaglandin $F_{1\alpha}$ 37
13,14-dihydro Prostaglandin $F_{1\alpha}$ 37
13,14-dihydro-15-keto Prostaglandin $F_{1\alpha}$ 37
13,14-dihydro-15-keto-tetranor Prostaglandin $F_{1\alpha}$ 37
6,15-diketo-13,14-dihydro Prostaglandin $F_{1\alpha}$ 37
17,20-dimethyl Prostaglandin $F_{1\alpha}$ 37
2,3-dinor-6-keto Prostaglandin $F_{1\alpha}$ (sodium salt) 37
2,3-dinor-6-keto Prostaglandin $F_{1\alpha}$-d_9 (sodium salt) 37
15(R),19(R)-hydroxy Prostaglandin $F_{1\alpha}$ 37
19(R)-hydroxy Prostaglandin $F_{1\alpha}$ 37
6-keto Prostaglandin $F_{1\alpha}$ 37
6-keto Prostaglandin $F_{1\alpha}$-d_4 37
6-keto Prostaglandin $F_{1\alpha}$ EIA Kit 58
6-keto Prostaglandin $F_{1\alpha}$ Quant-PAK 37
Δ^{17}-6-keto Prostaglandin $F_{1\alpha}$ 37
15-keto Prostaglandin $F_{1\alpha}$ 37
9,11-methane-epoxy Prostaglandin $F_{1\alpha}$ 37
3-methoxy Prostaglandin $F_{1\alpha}$ 37
17-trifluoromethylphenyl-13,14-dihydro trinor Prostaglandin $F_{1\alpha}$ 37
Prostaglandin $F_{1\beta}$ 37
11β-Prostaglandin $F_{1\beta}$ 37
8-*iso* Prostaglandin $F_{1\beta}$ 37
11-deoxy Prostaglandin $F_{1\beta}$ 37
13,14-dihydro-15-keto tetranor-Prostaglandin $F_{1\beta}$ 37
Prostaglandin $F_{2\alpha}$ 37,46
Prostaglandin $F_{2\alpha}$ Alcohol 37
Prostaglandin $F_{2\alpha}$ Alcohol methyl ester 37
Prostaglandin $F_{2\alpha}$-biotin 37
Prostaglandin $F_{2\alpha}$-d_4 37
Prostaglandin $F_{2\alpha}$-d_9 37
Prostaglandin $F_{2\alpha}$ diethyl amide 37
Prostaglandin $F_{2\alpha}$ dimethyl amide 37,46
Prostaglandin $F_{2\alpha}$ dimethyl amine 37,46
Prostaglandin $F_{2\alpha}$ EIA Kit 57
Prostaglandin $F_{2\alpha}$ Ethanolamide 37
Prostaglandin $F_{2\alpha}$ Ethanolamide-d_4 37
Prostaglandin $F_{2\alpha}$ ethyl amide 37
Prostaglandin $F_{2\alpha}$-1-glyceryl ester 37
Prostaglandin $F_{2\alpha}$-1-glyceryl ester-d_5 37
Prostaglandin $F_{2\alpha}$ isopropyl ester 37
Prostaglandin $F_{2\alpha}$ 1,9-lactone 37
Prostaglandin $F_{2\alpha}$ 1,11-lactone 37
Prostaglandin $F_{2\alpha}$ 1,15-lactone 37
Prostaglandin $F_{2\alpha}$ Lipid Maps MS Standard 37
Prostaglandin $F_{2\alpha}$ methyl ester 37
Prostaglandin $F_{2\alpha}$ Quant-PAK 37
Prostaglandin $F_{2\alpha}$ serinol amide 37
Prostaglandin $F_{2\alpha}$ (tromethamine salt) 37
11β-Prostaglandin $F_{2\alpha}$ 37
11β-Prostaglandin $F_{2\alpha}$-d_4 37
11β-Prostaglandin $F_{2\alpha}$ EIA Kit 56
11β-Prostaglandin $F_{2\alpha}$ Ethanolamide 37
17-chlorophenyl-trinor Prostaglandin $F_{2\alpha}$ ethyl amide 37
11β-13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$ 37
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 37
15(R)-Prostaglandin $F_{2\alpha}$ 37
ent-Prostaglandin $F_{2\alpha}$ 37
ent-8-iso Prostaglandin $F_{2\alpha}$ 37
ent-8-iso Prostaglandin $F_{2\alpha}$-d_9 37
ent-8-iso-15(S)-Prostaglandin $F_{2\alpha}$ 37
ent-8-iso-15(S)-Prostaglandin $F_{2\alpha}$-d_9 37
ent-Prostaglandin $F_{2\alpha}$ EIA Kit 55
8-*iso* Prostaglandin $F_{2\alpha}$ 37
8-*iso* Prostaglandin $F_{2\alpha}$-d_4 37

8-*iso* Prostaglandin $F_{2\alpha}$ Ethanolamide 37
8-*iso* Prostaglandin $F_{2\alpha}$ Quant-PAK 37
8-*iso*-15(R)-Prostaglandin $F_{2\alpha}$ 37
8-*iso*-13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$ 37
8-*iso*-15-keto-Prostaglandin $F_{2\alpha}$ 37
8-*iso*-17-phenyl trinor Prostaglandin $F_{2\alpha}$ 37
5-*trans* Prostaglandin $F_{2\alpha}$ 37
5-*trans* Prostaglandin $F_{2\alpha}$ (tromethamine salt) 37
17-chlorophenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 37
15-cyclohexyl pentanor Prostaglandin $F_{2\alpha}$ 40
11-deoxy Prostaglandin $F_{2\alpha}$ 40
1a,1b-dihomo Prostaglandin $F_{2\alpha}$ 40
13,14-dihydro Prostaglandin $F_{2\alpha}$ 40
13,14-dihydro-16,16-difluoro Prostaglandin $F_{2\alpha}$ 40
13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$ 40
13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$-d_4 40
13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$ EIA Kit 57
13,14-dihydro-15-keto Prostaglandin $F_{2\alpha}$ isopropyl ester 40
16,16-dimethyl Prostaglandin $F_{2\alpha}$ 40,46
2,3-dinor-11β-Prostaglandin $F_{2\alpha}$ 40
2,3-dinor-8-*iso* Prostaglandin $F_{2\alpha}$ 40
20-ethyl Prostaglandin $F_{2\alpha}$ 40
15(R),19(R)-hydroxy Prostaglandin $F_{2\alpha}$ 40
19(R)-hydroxy Prostaglandin $F_{2\alpha}$ 40
20-hydroxy Prostaglandin $F_{2\alpha}$ 40
15-keto Prostaglandin $F_{2\alpha}$ 40
15-keto-17-phenyl trinor Prostaglandin $F_{2\alpha}$ 40
8-*iso*-15-keto Prostaglandin $F_{2\alpha}$ 37
15(R)-15-methyl Prostaglandin $F_{2\alpha}$ 40
15(R)-15-methyl Prostaglandin $F_{2\alpha}$ methyl ester 40
15(S)-15-methyl Prostaglandin $F_{2\alpha}$ 40,46
15(S)-15-methyl Prostaglandin $F_{2\alpha}$ ethyl amide 40
15(S)-15-methyl Prostaglandin $F_{2\alpha}$ isopropyl ester 40
15(S)-15-methyl Prostaglandin $F_{2\alpha}$ methyl ester 40
16-phenoxy Prostaglandin $F_{2\alpha}$ ethyl amide 37
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ 40,46
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ cyclopropyl methyl amide 40
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ methyl amide 40
16-phenoxy tetranor Prostaglandin $F_{2\alpha}$ methyl ester 40
17-phenoxy trinor Prostaglandin $F_{2\alpha}$ 40
17-phenoxy trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
17-phenoxy trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
16-phenyl tetranor Prostaglandin $F_{2\alpha}$ 40
17-phenyl tetranor Prostaglandin $F_{2\alpha}$ serinol amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ 40,46
17-phenyl trinor Prostaglandin $F_{2\alpha}$-d_4 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclohexyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclopropyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ cyclopropyl methyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ diethyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ EIA Kit 58
17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide-d_4 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ 1,15-lactone 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ methyl amide 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ methyl ester 40
17-phenyl trinor Prostaglandin $F_{2\alpha}$ serinol amide 40
15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ 40
15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
15(R)-17-phenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
5-*trans*-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
8-*iso*-17-phenyl trinor Prostaglandin $F_{2\beta}$ 40
15-keto-17-phenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
17-trifluoromethylphenyl-13,14-dihydro trinor Prostaglandin $F_{2\alpha}$ 40
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ 40
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ methyl ester 40
Prostaglandin $F_{2\beta}$ 40
Prostaglandin $F_{2\beta}$ (tromethamine salt) 40
8-*iso* Prostaglandin $F_{2\beta}$ 40
8-*iso*-15-keto Prostaglandin $F_{2\beta}$ 40
8-*iso*-17-phenyl trinor Prostaglandin $F_{2\beta}$ 40
5-*trans* Prostaglandin $F_{2\beta}$ 40
11-deoxy Prostaglandin $F_{2\beta}$ 40
16,16-dimethyl Prostaglandin $F_{2\beta}$ 40
Prostaglandin $F_{3\alpha}$ 40
8-*iso* Prostaglandin $F_{3\alpha}$ 40
17-*trans* Prostaglandin $F_{3\alpha}$ 40
Prostaglandin G_2 40
Prostaglandin G_2 Lipid Maps MS Standard 40
Prostaglandin H_1 41
Prostaglandin H_2 41
Prostaglandin H_2 Lipid Maps MS Standard 41
Prostaglandin HPLC Mixture 41
Prostaglandin Screening EIA Kit 59
Prostaglandin I Synthase Monoclonal Antibody (Clone isn-1) 52
Prostaglandin I Synthase Monoclonal Antibody (Clone 3C8) 52
Prostaglandin I Synthase Polyclonal Antibody 52
Prostaglandin I Synthase (mouse) Polyclonal Antibody 52
6α-Prostaglandin I_1 41
6β-Prostaglandin I_1 41
Prostaglandin I_2 (sodium salt) 41,46
Prostaglandin I_3 (sodium salt) 41
Prostaglandin J_2 41,46
Prostaglandin J_2 Lipid Maps MS Standard 41
Δ^{12}-Prostaglandin J_2 41,46
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2 41,46
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-biotin 41
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-d_4 41
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2 Glutathione 41
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-2-glycerol ester 41,46
15-deoxy-$\Delta^{12,14}$-Prostaglandin J_2-Quant-PAK 41
13,14-dihydro-16,16-difluoro Prostaglandin J_2 41
13,14-dihydro-15-keto Prostaglandin J_2 41
Prostaglandin K_1 41
Prostaglandin K_2 41
Prostaglandin K_2 Lipid Maps MS Standard 41
Prostaglandin Metabolite HPLC Mixture 41
Prostaglandin Screening Library I (96-Well) 42
Prostaglandin Screening Library II (96-Well) 42
Prostaglandin Screening Library III (96-Well) 42
Prostaglandin Transporter (C-Term) Blocking Peptide 51
Prostaglandin Transporter (C-Term) Polyclonal Antibody 51
Protectin DX (10(S),17(S)-DiHDoHE) 14
PTA$_2$ (Pinane Thromboxane A_2) 33
Pterostilbene 42
10-Pyrene-PC 42
N-(3-pyridyl)-Indomethacin amide 13
Pyrrophenone 47

Q

R

R527 (5-OxoETE Receptor Polyclonal Antibody) 51
Ramatroban (BAY-u3405) 8
Remodulin™ (Treprostinil) 45
Rescula™ (Unoprostone isopropyl ester) 45
Resolvin D1 42
Resolvin D1 EIA Kit 59
17-Resolvin D1 ..... *See Resolvin D1*
Resolvin D2 42
Resolvin D2-d_5 42
7(S),16(R),17(S)-Resolvin D2 (Resolvin D2) 42
Resolvin E1 Receptor (Chemokine-Like Receptor 1 Polyclonal Antibody) 50
trans-Resveratrol 13
Retinal Aldehyde Dehydrogenase (Thromboxane B_2 11-dehydrogenase Polyclonal Antiserum) 53
REV 5901 43,46,47
Rheocyclan (Taprostene (free acid)) 44
RO1138452 (CAY10441) 10
RSC-3388 47
RTA 401 (CDDO) 12
RTA 402 (CDDO methyl ester) 12
RvD ..... *See Resolvin D*
17(R)-RvD1 (17(R)-Resolvin D1) 42

S

O-Acetyl Salicylhydroxamic Acid 13
SAPC (1-Stearoyl-2-Arachidonoyl PC) 43
SC-560 13
SC-19220 17,43,46
SC-29333 (Misoprostol) 30
SC-51089 17,43,46
SC-51322 17,43,46
SC-58125 13
Sclerotiorin 43
sEHi (CAY10640) 11
Selexipag (NS-304) 31
Silibinin A (Silybin) 43
Silybin 43,47
Silymarin I (Silybin) 43
Singulair® (Montelukast (sodium salt)) 30
SKF 107324 (LY223982) 27
SLCO2A1 (Prostaglandin Transporter (C-Term) Polyclonal Antibody) 51
Soluble Epoxide Hydrolase Cell-Based Assay Kit 59
Soluble Epoxide Hydrolase (human recombinant) 61
Soluble Epoxide Hydrolase Inhibitor (CAY10640) 11
Soluble Epoxide Hydrolase Inhibitor Screening Assay Kit 59
Soluble Epoxide Hydrolase (mouse recombinant) 61
Soluble Epoxide Hydrolase Polyclonal Antibody 52
Soluble Epoxide Hydrolase (FL) Polyclonal Antibody 52
sPLA$_2$ Assay Kit 58
sPLA$_2$ (human Type IIA) EIA Kit 58
sPLA$_2$ (human Type IIA) Monoclonal Antibody (Clone SCACC353) 52
sPLA$_2$ (human Type IIA) Polyclonal Antiserum 52
sPLA$_2$ (human recombinant Type V) 61
sPLA$_2$ (human Type V) Monoclonal Antibody (Clone MCL-3G1) 52
sPLA$_2$ (mouse Type V) Polyclonal Antibody 52
sPLA$_2$ (Type III) 61
sPLA$_2$ (Type V) Inhibitor Screening Assay Kit 58
SQ 29,548 43,46
1-Stearoyl-2-Arachidonoyl PC 43
1-Stearoyl-2-Arachidonoyl-Phosphatidylcholine (1-Stearoyl-2-Arachidonoyl PC) 43
3',5'-Dimethoxy-4-Stilbenol (Pterostilbene) 42
STK393606 43
STAT-8-Isoprostane EIA Kit 55
Sulfasalazine 44
Sulindac 44
Sulprostone 17,44,46

T

Tafluprost 44,46
Tafluprost (free acid) 44
Tafluprost ethyl amide 44
Tafluprost ethyl ester 44
Taprostene (free acid) 44,46
TBS-Corey Lactone Aldehyde 13
Telfairic Acid (Linoleic Acid) 26
Tetrameprocol (tetramethyl Nordihydroguaiaretic Acid) 31
tetramethyl NDGA (tetramethyl Nordihydroguaiaretic Acid) 31
tetramethyl Nordihydroguaiaretic Acid 31
tetranor-12(R)-HETE 21
tetranor-12(S)-HETE 21
tetranor-PGDM 32
tetranor-PGDM-d_6 32
tetranor-PGDM EIA Kit 56
tetranor-PGDM lactone 32
tetranor-PGDM lactone-d_6 32
tetranor-PGD Metabolite (tetranor-PGDM) 32
tetranor-PGEM 33
tetranor-PGEM-d_6 33
tetranor-PGEM Lipid Maps MS Standard 33
tetranor-PGFM 33
tetranor-PGFM Lipid Maps MS Standard 33
tetranor-PGE Metabolite (tetranor-PGEM) 33
tetranor-PGF Metabolite (tetranor-PGFM) 33
tetranor-PGJM 33
tetranor-PGJ Metabolite (tetranor-PGJM) 33
TG1019 (5-OxoETE Receptor Polyclonal Antibody) 51
Thioetheramide-PC 47
Carbocyclic Thromboxane A_2 9,46
Pinane Thromboxane A_2 33,46
Thromboxane B_1 44
2,3-dinor Thromboxane B_1 44
Thromboxane B_2 44
Thromboxane B_2 EIA Kit 60
Thromboxane B_2 Express EIA Kit - Monoclonal 60
Thromboxane B_2-d_4 44
Thromboxane B_2 11-dehydrogenase Polyclonal Antiserum 53
Thromboxane B_2 Quant-PAK 44
11-dehydro Thromboxane B_2 44
11-dehydro Thromboxane B_2-d_4 44
11-dehydro Thromboxane B_2 EIA Kit - Monoclonal 60
11-dehydro Thromboxane B_2 Quant-PAK 44
11-dehydro-2,3-dinor Thromboxane B_2 44
2,3-dinor Thromboxane B_2 44
Thromboxane B_3 44
11-dehydro Thromboxane B_3 44
Thromboxane Synthase Blocking Peptide 53
Thromboxane Synthase Polyclonal Antibody 53
Tiaprost 44
Timnodonic Acid (Eicosapentaenoic Acid) 18
TMNDGA (tetramethyl Nordihydroguaiaretic Acid) 31
TP-155 (CDDO methyl ester) 12
TPPU 45
TP Receptor (human) Polyclonal Antibody 50
TP Receptor (human) Polyclonal FITC Antibody 50
TP Receptor (mouse) Polyclonal Antibody 50
TR 4979 (Butaprost) 9
Treprostinil 45,46
16-*m*-trifluoromethylphenoxy tetranor $PGF_{2\alpha}$ (Fluprostenol) 19
17-trifluoromethylphenyl-13,14-dihydro trinor Prostaglandin $F_{1\alpha}$ 37
17-trifluoromethylphenyl-13,14-dihydro trinor Prostaglandin $F_{2\alpha}$ 40
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ 40
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ ethyl amide 40
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ isopropyl ester 40
17-trifluoromethylphenyl trinor Prostaglandin $F_{2\alpha}$ methyl ester 40
5(S),6(R),15(S)-TriHETE (5(S),6(R)-Lipoxin A_4) 26
5(S),6(S),15(S)-TriHETE (5(S),6(S)-Lipoxin A_4) 26
Triptolide 45
TRK 100 (Beraprost (sodium salt)) 8
TXB$_2$ (Thromboxane B_2) 44
TXB$_2$ 11-dehydrogenase (Thromboxane B_2 11-dehydrogenase Polyclonal Antiserum) 53
TX Synthase (Thromboxane Synthase Polyclonal Antibody) 53

U

U-44069 45,46
5-*trans* U-44069 45
U-46619 45,46
Δ^{17}-U-46619 45
U-46619 Glycine methyl ester 45
U-51605 45
U-60257B (Piriprost (potassium salt)) 33
U-61431F (Ciprostene (calcium salt)) 12
U-75302 45,46
Ultair™ (Pranlukast) 33
Umbelliferyl Arachidonate (7-hydroxycoumarinyl Arachidonate) 6
Unoprostone 45
Unoprostone N-ethyl amide (Lumula) 27
Unoprostone isopropyl ester 45

V

Valeroyl Salicylate 13
Vasoactive Eicosanoid HPLC Mixture 46
Versulin (Apigenin) 6
VML 295 (LY293111) 27

W

WIN 48,098 (Pravadoline) 33

X

Y

YS121 46

Z

Zaltoprofen 13
Zafirlukast 46
ZK 96480 (Cicaprost) 12
ZLJ-6 13,47

Item No. Index

10000....14
10001....33
10002....41
10003....46
10005....41
10010....34
10013....34
10018....14
10020....34
10023....6
10029....30,46
10033....26
10035....34
10039....13
10043....23
10047....30
10049....26
10065....34
10070....34
10080....34
10111....47
10113....6
10115....47
10118....35
10129....24
10133....30
10134....21
10138....21
10139....37
10140....36
10141....41
10155....9
10156....8,46
10162....45,46
10169....21
10173....19
10174....19
10175....19
10192....35
10193....36
10194....37
10210....34
10219....52
10235....34
10247....52
10260....34
10265....34
10270....34
10280....34
10285....34
10288....34
10290....34
10295....34
10310....34
10312....23
10325....50
10326....50
10337....52
10341....61
10367....55
10368....55
10384....36
10458....26
10462....19
10467....14
10470....19
10477....50
10479....50
10501....42
10502....42
10503....42
10506....8
10507....8
10532....8,46
10534....47
10535....47
10546....15
10556....26
10570....20
10581....36
10642....11
10653....14
10670....20
10704....22
10705....22
10742....18
10743....47
10804....12,47
10878....27
10888....21,47
10988....30
11042....12
11044....12
11110....34
11120....45
11169....20
11170....20
11184....42
11210....34
11213....32
11344....32
11510....34,47
11612....44
11622....20
11859....51
11860....51
11883....12
11910....34
11973....45
11990....34
12000....35
12002....35
12010....34,46
12012....35
12015....35
12027....31,46
12050....9,46
12060....9,46
12210....35
12410....35
12415....35,46
12610....35,46
12650....35
12700....35,46
12720....35,46
12730....35,46
12750....35
12810....35
12850....32
12990....35
13000....42
13010....35
13012....35
13020....35
13048....18
13050....35
13060....42
13076....23
13077....23
13090....35
13100....35
13101....36
13120....35
13160....7
13161....27
13164....11,47
13179....47
13181....47
13185....22
13260....35
13271....13,47
13281....11,17,46
13285....47
13294....47
13343....47
13360....35
13363....33
13368....13
13381....11,47
13390....25
13450....35
13454....32
13510....35
13530....35
13532....36
13560....52
13564....32
13571....37
13609....40
13610....35
13612....35
13619....6,24
13620....6
13626....6,46
13630....35
13632....44
13635....41
13650....35
13660....35
13665....46
13673....46
13679....20
13680....35
13710....35
13730....35
13740....9,17,46
13741....9,17
13745....9
13747....10,46
13750....35
13770....35
13800....35
13810....25
13820....30
13821....30
13823....47
13825....30
13883....37
13910....35
13920....35
13992....40
14010....35,46
14011....36
14012....36
14028....13
14029....36
14049....43
14050....6,17,46
14053....36
14054....36
14060....17,43,46
14070....17,31,46
14210....36
14350....36
14352....36
14390....36
14410....36
14420....36
14430....36
14510....36
14520....36
14530....36
14570....17,36,46
14650....36
14662....13
14710....36
14713....50
14720....36
14725....36
14730....36
14750....36
14753....36
14760....36
14765....17,44,46
14770....36
14810....17,36,46
14840....33
14910....17,36,46
14920....36
14940....36
14950....36
14990....36
14995....36
15010....36
15016....17,32,46
15020....37
15025....44
15120....37
15170....37
15210....37
15230....37
15270....37
15350....37
15370....37
15410....37
15450....37
15510....37
15512....37
15610....37
15670....37
15710....37
15790....37
15895....37
15910....37
15920....37
16010....37,46
16011....37
16012....37
16013....37
16014....37
16016....37
16020....37
16023....37
16030....37
16032....37,46
16033....37,46
16050....40
16110....37
16120....37
16130....37
16210....37
16220....37
16230....23
16250....40
16290....40
16300....23
16350....37
16370....40
16380....37
16390....37
16395....37
16410....40
16420....40
16440....45,46
16442....45
16450....45,46
16460....45
16465....45
16470....40
16500....40
16510....40
16520....37
16522....37
16530....40
16540....37
16660....40
16670....40
16671....40
16680....45
16681....45
16685....27
16710....40
16720....40
16730....40
16734....40
16735....6,46
16740....37
16743....40,46
16744....40
16750....40,46
16760....40,46
16764....13,46
16765....13,46
16766....13,46
16768....19,46
16769....20
16770....40
16776....20
16777....20
16780....20
16781....20
16782....20
16783....20,46
16785....20
16786....20
16787....20
16788....20
16810....40,46
16811....24,46
16812....24
16813....24
16814....40
16815....24
16816....24
16817....40
16818....24
16820....40
16821....40
16822....24
16823....40
16824....40
16825....40
16831....12
16835....11,17,46
16840....33
16853....37,40
16854....18
16890....40
16895....40
16910....40
16920....40
16940....40
16950....40
16990....40
16992....40
16995....40
17010....40
17015....41
17020....41
18110....41
18112....18
18120....41
18210....9,46
18211....9
18212....9,46
18213....9
18215....17,23,46
18216....12,46
18219....52
18220....41,46
18228....33,46,47
18230....8,46
18300....41
18500....41,46
18550....41,46
18570....41,46
18570.1....41
18580....41
18590....10
18800....41
18900....41
19010....9,46
19020....33,46
19021....23,46
19023....6,17,46
19025....43,46
19030....44
19050....44
19500....44
19510....44
19600....23,46
19990....44
19995....44
20001....14
20002....14
20009....24
20010....24
20109....24
20110....24,46
20112....24,46
20114....24
20115....24
20134....24
20135....24
20140....24
20150....24,46
20170....24
20180....24
20190....24,46
20195....24,46
20210....25,46
20230....25
20310....25,46
20330....25
20410....25
20420....25
20430....25
20520....25
32200....22
32210....22
32340....22
32350....22
32400....22
32410....22
32500....22
32505....22
32510....22
32540....22
32545....22
32550....22
32700....22
32710....22
32840....22
33200....22
33300....22
33350....22
33400....22
33450....22
33500....22
33550....22
33600....22
33650....22
33750....22
34001....22
34002....22
34003....21
34004....31
34210....21
34215....21,47
34220....21
34225....21
34230....21
34240....21
34250....31
34265....19
34340....21
34350....21
34360....21
34400....21
34405....21
34410....21
34500....21
34505....21
34510....21
34550....21
34560....21
34565....21
34570....21
34580....31
34590....21
34700....21
34710....21
34720....21,47
34722....21
34730....32
35200....14
35210....14
35250....24
35265....24
35280....14
35370....14
36230....22
36360....22
36720....22,47
37500....22
37505....22
37510....22
37700....22
37710....22
37720....22
37730....31
38400....22
38401....22
38405....22
38406....22
38410....22
38411....22
38420....32
38600....22
38601....22
38605....22
38606....22
38610....22
38611....22
38612....22
38620....32
39420....22
39610....22
39620....22
42210....22
42550....22
42710....22
44001....21
44230....21
44570....21
44720....21
45120....22
45210....22
45220....22
47720....22
48410....22
48610....22
50210....19
50211....19
50350....19
50351....19
50510....19
50511....19
50650....19
50651....19
50861....19
51211....14
51212....14
51351....14
51511....14
51651....14
52400....19
52450....19
53400....15
60100....61
60120....61
60122....61
60400....61
60402....61
60500....61
60700....61
60712....61
62120....7,47
62235....20
62240....7
62245....42
62650....47
62750....47
62910....6
70030....13
70031....13
70035....13
70036....13
70037....20
70039....24
70049....24
70130....9
70210....13
70230....27
70250....13
70255....13
70260....13
70263....13
70265....13
70270....13,46
70271....13
70272....13
70273....13
70274....13
70278....13
70280....13
70290....13
70300....31,47
70302....31
70340....13
70400....13
70500....47
70515....32
70520....8
70037....20
70560....47
70590....13
70600....43,46,47
70602....9,46
70604....15,47
70610....8,47
70620....13
70635....13,47
70640....13
70645....13
70650....13
70660....47
70655....13
70670....13
70675....13
70680....13
70690....13
70700....47
70705....45,46
70710....27,46
70715....27,46
70720....30
70770....8,46
75780....20
81035....12
89430....26
89460....43
90010....7
90010.1....7
90011....7
90014....7
90020....7,47
90030....21
90100....18
90110....18
90110.1....18
90114....19
90120....18,47
90150....26
90150.1....26
90160....25
90190....18
90192....18
90200....19,47
90210....26
90220....26
90230....26
90236....26
90250....19
90310....15,47
90312....15
90314....19
90330....18
90370....26
90400....13,47
90410....26
90415....26
90420....26
100019....50
100023....52
100025....51
100034....51
101640....50
101740....50
101750....50
101760....50
101770....50
101775....50
101802....50
101882....50
120111....50
120114....50
120500....50
120550....50
120560....50
160003....52
160013....52
160070....50
160103....51
160106....51
160107....51
160108....51
160109....51
160110....51
160111....51
160112....51
160113....51
160116....51
160120....51
160122....51
160126....51
160140....52
160145....52
160150....52
160250....51
160402....50
160500....52
160502....52
160507....52
160510....52
160512....52
160615....51
160630....52
160640....52
160704....50
160715....53
160720....53
310210....34
311210....34
312000....35
312010....35
313010....35
314010....36
314840....33
315210....37
316010....37
316013....37
316300....23
316350....37
316767....20
316810....40
316811....24
316820....40
316822....24
318570....41
319030....44
319500....44
320110....24
320135....24
334230....21
334250....31
334570....21
334720....21
338410....22
338420....32
338610....22
338620....32
360120....51
360615....51
360715....53
390010....7
390011....7
390014....7
390030....21
390150....26
400058....55
400059....55
500141....57
500151....56
500260....55
500380....59
500390....54
500431....55
500501....57
501001....56
512011....56
512031....56
512041....56
512051....56
514010....57
514012....59

514531....57
515211....58
516011....57
516301....55
516351....55
516360....55
516521....56
516671....57
516761....58
516771....58
516811....58
516821....58
519031....60
519510....60
520111....55
520211....54
520411....54
560101....53
560131....53
585000....58
600007....56
600090....59
600340....60
600350....60
600410....60
700100....53
700200....53
760111....53
760151....53
760700....55
765001....58
765021....58
9000184....34
9000185....34
9000281....35
9000288....35
9000295....18
9000346....15
9000347....15
9000376....36
9000405....35
9000406....35
9000433....26
9000549....11
9000642....37
9000686....40
9000738....26
9000843....44
9001148....13
9001287....25
9001412....36
9001413....35
9090310....15
10004023....60
10004161....27,47
10004197....36
10004207....13
10004236....20
10004237....40
10004238....36
10004337....52
10004342....52
10004344....52
10004345....52
10004347....61
10004348....52
10004349....52
10004350....52
10004384....21
10004385....21
10004386....44
10004452....50
10004454....50
10004517....57
10004722....51
10004883....58
10004886....50
10004910....51
10004946....18
10004970....13
10004971....14
10005056....18
10005057....15
10005067....10
10005099....22
10005186....10,46
10005439....44
10005440....44,46
10005518....50
10005705....30
10005764....37
10005913....10,46
10006045....9
10006197....24
10006198....25
10006199....25
10006211....43,47
10006330....44
10006400....10
10006410....19
10006413....19
10006454....7
10006556....24
10006579....26
10006580....26
10006595....56
10006607....7
10006610....44
10006618....51
10006654....23
10006661....13
10006692....13
10006695....20
10006697....35
10006735....10,46
10006748....54
10006787....61
10006788....61
10006800....47
10006801....47
10006809....20
10006829....15
10006830....37
10006831....44
10006832....44
10006833....7
10006834....26
10006835....7
10006840....34
10006841....34
10006842....35
10006843....35
10006844....35
10006845....35
10006846....36
10006848....37
10006850....41
10006865....15
10006866....18
10006878....23
10006973....33
10006987....36
10006988....37
10006998....14
10006999....14
10007001....15
10007002....50
10007164....25
10007165....25
10007166....25
10007199....34
10007201....34
10007202....34
10007207....21
10007211....35
10007216....33
10007221....37
10007228....33
10007230....40
10007231....41
10007233....41
10007236....41
10007237....44
10007240....24
10007241....25
10007242....25
10007244....31
10007249....31
10007250....21
10007268....7
10007271....26
10007277....7
10007279....42
10007289....18
10007466....7
10007501....57
10007502....60
10007527....22
10007528....22
10007577....54
10007652....37
10007684....56
10007692....25
10007712....24,46
10007737....26
10007766....21
10007767....21
10007793....40
10007812....61
10007817....61
10007820....50
10007850....37
10007858....25
10007900....19
10007912....7
10007923....14
10007927....7
10007931....36,46
10007939....61
10007940....61
10007950....61
10007975....14
10007978....35
10008040....14
10008122....37
10008127....40
10008128....14
10008132....40
10008198....26
10008199....26
10008200....7
10008282....46
10008284....13
10008294....36
10008318....30,46
10008319....33,46
10008370....6
10008385....35
10008435....37
10008436....40
10008445....25
10008510....33
10008518....13
10008539....40
10008585....23
10008588....23
10008596....19
10008597....19
10008598....19
10008599....19
10008602....21
10008609....30
10008616....23
10008640....7
10008643....37
10008657....47
10008665....37
10008672....13
10008840....41
10008875....22
10008884....18
10008935....37
10008989....37
10009039....32
10009134....33
10009162....17,20,46
10009167....10,46
10009168....10,46
10009215....32
10009278....36
10009286....19
10009291....54
10009292....55
10009348....7
10009532....19
10009563....61
10009597....57
10009624....51
10009628....14
10009733....18
10009734....52
10009768....27,46
10009799....22
10009832....15
10009864....43
10009875....37
10009984....19
10009993....15
10009994....15
10009995....19
10009996....19
10009998....14
10009999....18
10010016....13
10010024....27,46
10010061....40
10010062....40
10010063....40
10010064....40
10010088....10
10010096....51
10010102....40
10010103....40
10010110....40
10010111....40
10010115....13
10010123....35
10010132....41,46
10010146....52
10010151....20
10010183....61
10010275....6
10010333....30
10010351....40
10010365....55
10010380....37
10010382....55
10010396....10,46
10010405....40
10010406....20
10010410....20,46
10010411....31,46
10010412....30,46
10010425....35
10010460....37
10010468....26,47
10010470....6
10010484....18
10010486....18
10010495....13
10010498....61
10010499....34
10010500....34
10010518....32
10010521....32
10010522....45
10010548....61
10010562....40
10010605....40
10010606....36
10010623....26
10010635....21
10010636....21
10010637....21
10010638....21
10010723....40
10010742....40
10010744....43,46
10010809....40
10010810....40
10010839....40
10010971....60
10011263....61
10011305....21
10011321....36
10011348....44,46
10011360....25
10011362....25
10011453....26
10011545....37
10011561....17,43,46
10011562....24,46
10011565....17,23,46
10011669....61
10011670....61
10011671....59
10011720....37
10011721....37
10012424....11,46
10012447....12
10012539....11,46
10012553....11,46
10012554....42
10012559....50

Abbreviations

ADP	Adenosine Diphosphate
BHT	Butylated Hydroxy Toluene
BLT	Leukotriene B_4 Receptor
CHO	Chinese Hamster Ovary
COX	Cyclooxygenase
cPLA$_2$	Calcium-dependent Cytosolic Phospholipase A_2
CRTH2	Chemoattractant-receptor Homologous Molecule Expressed on Th2 Cells
CSF	Cerebrospinal Fluid
CYP	Cytochrome P450
CysLT	Cysteinyl Leukotriene
DGLA	Dihomo-γ-Linolenic Acid
DHA	Docosahexaenoic Acid
DP	Prostaglandin D_2 Receptor
ED$_{50}$	Effective dose, 50%
EET	Epoxyeicosatrienoic Acid
EP	Prostaglandin E_2 Receptor
EPA	Eicosapentaenoic Acid
FC	Flow Cytometry
FITC	Fluorescein Isothiocyanate
FP	Fluorescence Polarization
GPCR	G Protein-Coupled Receptor
HIV	Human Immunodeficiency Virus
IC$_{50}$	Half maximal inhibitory concentration
ICC	Immunocytochemistry
IF	Immunofluorescence
INF	Interferon
iNOS	Inducible Nitric Oxide Synthase
IOP	Intraocular Pressure
iPLA$_2$	Calcium-independent Phospholipase A_2
LO	Lipoxygenase
LOX	Lipoxygenase
LPS	Lipopolysaccharide
LT	Leukotriene
NAD	Nicotinamide Adenine Dinucleotide
NADPH	Nicotinamide Adenine Dinucleotide Phosphate
Nrf2	Nuclear Factor Erythroid 2-related Factor 2
PAF-AH	Platelet-Activating Factor Acetylhydrolase
PG	Prostaglandin
PMNL	Polymorphonuclear Leukocyte
PPAR	Peroxisome Proliferator-activated Receptor
PRP	Platelet-rich Plasma
PUFA	Polyunsaturated Fatty Acid
RBL	Rat Basophil Leukemia
sEH	Soluble Epoxide Hydrolase
sPLA$_2$	Secretory Phospholipase A_2
Th2	T helper type 2
TP	Thromboxane Receptor
TX	Thromboxane
WB	Western Blot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