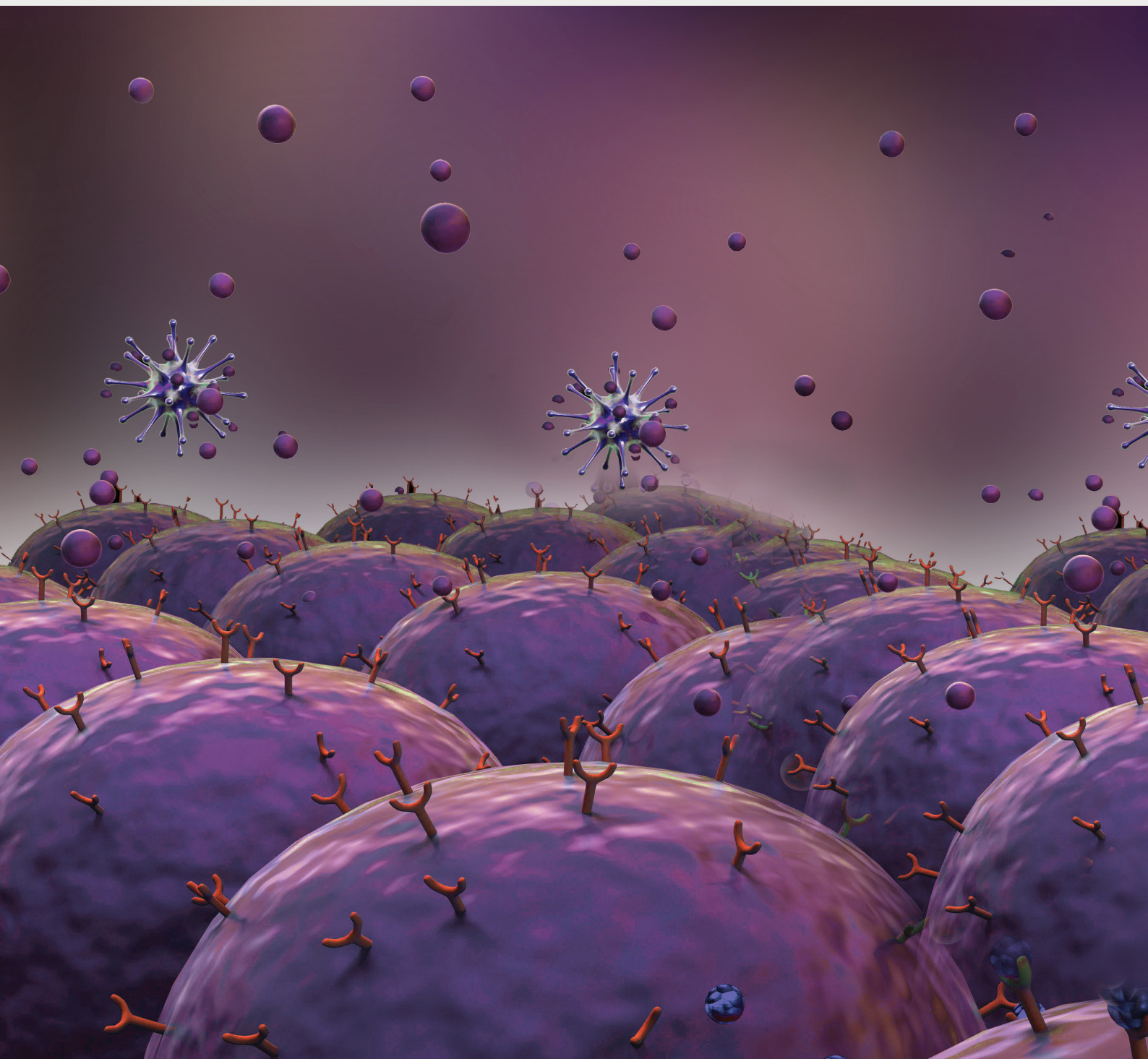




# Immunology

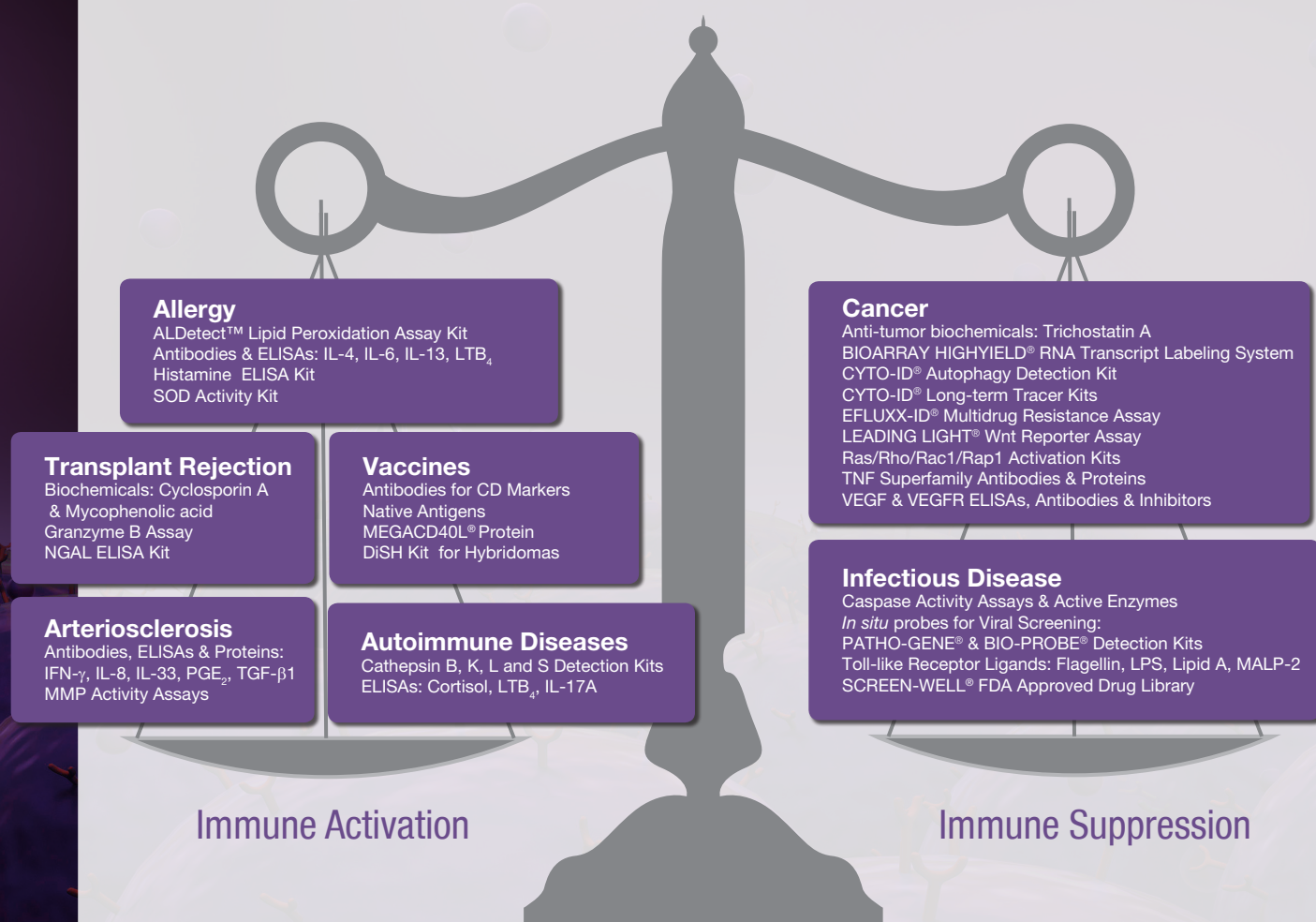
Innovative Products to Analyze  
Immunological Disorders



# TIP THE BALANCE IN YOUR FAVOR

## Comprehensive Tools for Interpreting Immunological Responses

Maintaining the proper balance between immune activation and suppression is critical for physiological functioning of the innate and adaptive immune system. Disruption of this equilibrium leads to immunological disorders including autoimmune diseases, hypersensitivities, and immune deficiency. Enzo Life Sciences provides a comprehensive portfolio of products to detect and modulate the complex processes of immunological disease.



### Cell Analysis & Detection

Enzo's expertise in fluorescent probe chemistry and cellular analysis combine to provide high-quality, flexible detection platforms for immune cell profiling and functional analysis. Our unique fluorescent probe-based assays and widely cited antibodies enable multiplex detection of cellular markers and key parameters of cell viability, cell signaling, death pathways, and toxicity.

### Immunoassays & Antibodies

As a trusted manufacturer of thousands of widely cited and thoroughly validated ELISA kits and antibodies, we understand quality means delivering sensitivity, specificity, and consistency. With over 300 immunoassay and detection kits, 3,000 antibodies, and a complete set of IHC reagents, Enzo enables sensitive & specific analysis of biomarkers for immune dysfunction to determine the source and consequence of the immunological response.

### Small Molecule Chemistry

Enzo offers more than 3,000 biologically characterized small molecules and the industry's most diverse collection of compound libraries for predictive toxicology. Our catalog includes hundreds of REDOX compounds, natural products, and bioactive lipids available as ready-to-screen SCREEN-WELL<sup>®</sup> libraries or as individual and bulk compounds.

# ARM YOURSELF WITH HIGH PURITY LIGANDS & ANTIBODIES FOR INFECTIOUS DISEASE RESEARCH

## Toll-like Receptors

Providing the purest ligands for recognition by pattern recognition receptors

### WORRY-FREE ANTIBODIES

Enzo offers over 50 TLR antibodies validated for flow cytometry and microscopy applications.

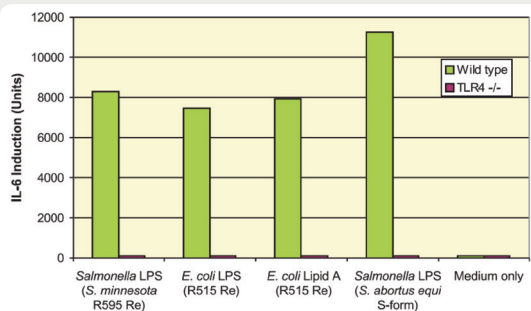
### TLRGRADE™ LPS & Lipid A Reagents

- Ultrapure (≥99.9%)
- Sterile, ready-to-use liquid formulation
- No hazardous handling

### Key Toll-like Receptor Ligands

TLR	Ligands	Product #
TLR 1/2	Pam <sub>3</sub> Cys-Ser-(Lys) <sub>4</sub> trihydrochloride	ALX-165-066
TLR 2 & TLR 6/2	MALP-2	ALX-162-027
TLR 3	Polyinosinic-polycytidylic acid, potassium salt (TLRGRADE™) (synthetic)	ALX-746-021
TLR 4	Paclitaxel	BML-T104
TLR 5	Flagellin (high purity)	ALX-522-058
TLR 7/8	R-848	ALX-420-038
TLR 9	ODN 2006 (TLRGRADE™) (synthetic)	ALX-746-006
	ODN 1826 (TLRGRADE™) (synthetic)	ALX-746-002
TLR 11	Profilin ( <i>Toxoplasma gondii</i> ), (recombinant) (GST-tag)	ALX-522-093

### High Purity LPS & Lipid A Preparations Do Not Activate TLR2 or other TLRs



Activation of macrophages from TLR4 wild type compared to TLR4 deficient mice by TLRGRADE™ LPS and TLRGRADE™ Lipid A from Enzo Life Sciences. Lipid A or LPS concentrations, which induced maximal activation of TLR4 wild type mouse macrophages, were also applied to TLR4 deficient mouse macrophages (105) as follows: 80ng *Salmonella* LPS (*S. minnesota* R595 Re), 80ng *E. coli* LPS (R515 Re), 400ng *E. coli* Lipid A (R515 Re) and 400ng *Salmonella* LPS (*S. abortus equi* S-form). 10 units of IL-6 correspond to the detection limit of the IL-6 ELISA.

### RELATED PRODUCTS

Product Name	Product #
LPS from <i>E. coli</i> , Serotype EH100 (Ra) (TLRGRADE™) (Ready-to-Use)	ALX-581-010
LPS from <i>E. coli</i> , Serotype R515 (Re) (TLRGRADE™) (Ready-to-Use)	ALX-581-007
LPS from <i>E. coli</i> , Serotype O111:B4 (TLRGRADE™) (Ready-to-Use)	ALX-581-012
LPS from <i>E. coli</i> , Serotype O55:B5 (TLRGRADE™) (Ready-to-Use)	ALX-581-013
LPS from <i>S. abortus equi</i> S-form (TLRGRADE™) (Ready-to-Use)	ALX-581-009
LPS from <i>S. abortus equi</i> S-form (TLRGRADE™) (Ready-to-Use) (Biotin)	ALX-581-150
LPS from <i>S. minnesota</i> R595 (Re) (TLRGRADE™) (Ready-to-Use)	ALX-581-008
LPS from <i>S. typhimurium</i> S-form (TLRGRADE™) (Ready-to-Use)	ALX-581-011
Monophosphoryl Lipid A	ALX-581-205
Monophosphoryl Lipid A from <i>E. coli</i> , Serotype R515 (Re) (TLRGRADE™) (Ready-to-Use)	ALX-581-203
Monophosphoryl Lipid A from <i>S. minnesota</i> R595 (Re) (TLRGRADE™) (Ready-to-Use)	ALX-581-202

## Monitor Activity of Therapeutic Compounds

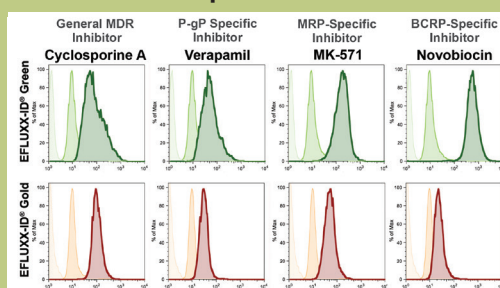
### High-throughput screening for multidrug resistance

EFLUXX-ID® Green Multidrug Resistance Assay Kit (ENZ-51029)

EFLUXX-ID® Gold Multidrug Resistance Assay Kit (ENZ-51030)

- Quantitative measurements of multidrug resistance activity in live cells
- Simple and reproducible mix-and-read protocol optimized for flow cytometry
- Two dye formats allows multiplexing with GFP-expressing cell lines or other CELLESTIAL® dyes

### The Only Assay for Functional Detection of All Three Clinically Relevant ABC Transporter Proteins



Profiling of ABC transporter activity by known inhibitors was assessed in CHO K1 cells using EFLUXX-ID® Green and EFLUXX-ID® Gold dyes.

# COMPLETE TOOLSET FOR DIAGNOSTICS & VACCINE DEVELOPMENT

## Native Bacterial and Viral Antigens

### Optimized Expression Systems Deliver Superior Antigenicity

We offer a broad range of native state bacterial and viral antigens for vaccine research and *in vitro* diagnostics markets. Purified native protein or production in the latest mammalian expression systems ensure that the resultant antigens are expressed to a high level, are in their native folded state, and possess all relevant post-translational modifications.

- Higher specificity and sensitivity
- Minimal lot-to-lot variation
- Reproducible scale-up for bulk quantities
- Lyophilized format for extended shelf-life

#### Highly Virulent Bacterial Toxins

<i>B. pertussis</i>	<i>M. pneumoniae</i>
<i>C. difficile</i>	<i>N. gonorrhoeae</i>
<i>C. diphtheriae</i>	<i>T. vaginalis</i>
<i>C. trachomatis</i>	<i>V. cholerae</i>

RELATED PRODUCTS	
Product Name	Product #
Adenovirus Type 5 hexon protein	ALX-630-120
Adenovirus type 40 antigen	ALX-630-121
Astrovirus type 1 antigen	ALX-630-122
CMV native antigen	ALX-630-125
Dengue NS1 ST1, (recombinant)	ENZ-PRT104
Dengue NS1 ST2, (recombinant)	ENZ-PRT105
Dengue NS1 ST3, (recombinant)	ENZ-PRT106
Dengue NS1 ST4, (recombinant)	ENZ-PRT107
HSV-1 native antigen	ALX-630-126
HSV-2 native antigen	ALX-630-127
Yellow Fever NS1, (recombinant)	ENZ-PRT109

## Factors for Modulating the Host Response

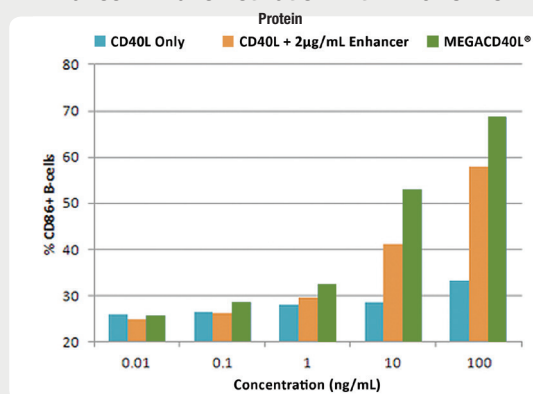
### Superior Performance from Carefully Engineered TNF Superfamily Ligands

#### MEGACD40L<sup>®</sup> Protein (soluble) (human), (recombinant) (ALX-522-110)

- Improved stability and enhanced activity, when compared to CD40L alone or with enhancers
- Superior purity eliminates experimental artifacts
- 100-fold lower endotoxin levels than comparable products
- Guarantees reliable results through consistent lot-to-lot performance

RELATED PRODUCTS	
Product Name	Product #
MEGACD40L <sup>®</sup> Protein (soluble) (mouse), (recombinant)	ALX-522-120

### Enhance Immune Activation with MEGACD40L<sup>®</sup>



B cell lymphocyte activation by various CD40L constructs. PBMCs were treated for 48 hrs in media containing serially diluted CD40L, CD40L + 2 µg/mL Enhancer, or MEGACD40L<sup>®</sup> Protein. Cells were dual-stained with  $\alpha$ -human CD19-PE and  $\alpha$ -human CD86-APC and analyzed by flow cytometry. Data are presented as the percent of CD19+ B cells that co-stain as CD86+.

## Detect and Identify Viral Infection

### PATHO-GENE<sup>®</sup> HPV Probes

HPV probes and typing assays for sensitive detection of pathogen-expressed genes from fresh or FFPE tissue sections.

RELATED PRODUCTS	
Product Name	Product #
PATHO-GENE <sup>®</sup> Alk Phos-NBT/BC	ENZ-32895
PATHO-GENE <sup>®</sup> HPV type 6/11	ENZ-32885
PATHO-GENE <sup>®</sup> HPV type 16/18	ENZ-32886
PATHO-GENE <sup>®</sup> HPV type 31/33/51	ENZ-32887

### BIO-PROBE<sup>®</sup> Probes

Biotinylated probes for specific detection of:

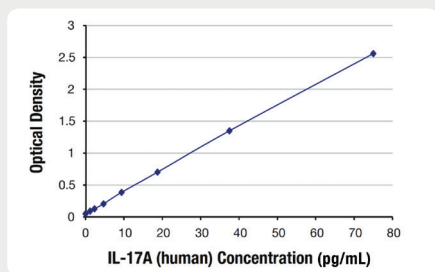
Adenovirus	Hepatitis A Virus
BK Virus	JC Virus
Cytomegalovirus	SV 40
Herpes Simplex	

# QUANTIFY BIOMARKERS OF INFLAMMATION WITH HIGH-SENSITIVITY ELISA KITS

## Detect Mediators of Acute and Chronic Inflammation with Enzo's Portfolio of Over 100 Sensitive ELISAs for Cytokines and Eicosanoids

### IL-17A (human), ELISA Kit (ADI-900-177)

- Ultra-sensitive assay detects as little as 0.201 pg/mL in cell supernatants, serum and plasma
- Highly specific with negligible reactivity to other family members
- Rapid results in just 3 hours



Dose response curve of recombinant human IL-17A standard.

### Histamine ELISA Kit (ENZ-KIT140)

- Highly sensitive measurement, detecting as little as 0.03 ng/mL
- Unique assay which does not require an additional acylation step
- Rapid results in 2 hours

### CRP (human) ELISA Kit (ENZ-KIT102)

- Sensitive measurement of CRP, detecting as little as 12.685 ng/mL
- Highly specific with negligible reactivity to other family members
- High-throughput format with results in less than 2 hours for up to 40 samples in duplicate

### RELATED PRODUCTS

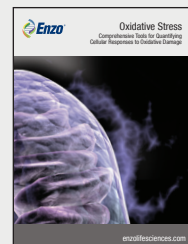
Product Name	Product #	Product Name	Product #
Cortisol ELISA kit	ADI-900/1-071	IFN $\gamma$ (human), ELISA kit	ADI-900-136
Corticosterone ELISA kit	ADI-900/1-097	IL-6 (human), ELISA kit	ADI-900-033
LTB $_4$ ELISA kit	ADI-900/1-068	IL-8 (human), ELISA kit	ADI-900-156
PGE $_2$ High Sensitivity ELISA kit	ADI-930/1-001	TGF- $\beta$ 1 ELISA kit	ADI-900-155

## Detect Specific Cell Populations with Antibodies for CD Markers

Enzo Life Sciences offers a broad range of antibodies for use in all areas of immunology. Many are validated for use in key applications such as flow cytometry, immunohistochemistry, immunoprecipitation and Western blotting. Every antibody is backed by our Worry-free Antibody Trial Program, allowing you to evaluate any of our antibodies of interest for your specific application or species without risk.

CD Marker	T Cells	NK Cells	B Cells	Dendritic Cells	Granulocytes	Macrophages	Stem Cell Precursor	Endothelial Cells	Epithelial Cells
CD3	•								
CD40			•	•		•	•	•	•
CEACAM1 (CD66a)					•				•
CEACAM6 (CD66c)									•
uPAR (CD87)	•	•			•	•		•	
CD40L (CD154)	•								
CD163						•			
LAG-3 (CD223)	•	•					•		
E-cadherin (CD234)							•		•
p-glycoprotein (CD243)							•		

*You may also be interested in:*



**Global Headquarters**  
**ENZO LIFE SCIENCES, INC.**  
10 Executive Blvd.  
Farmingdale, NY 11735  
Ph: 800.942.0430  
Fax: 631.694.7501  
info-usa@enzolifesciences.com

**European Sales Office**  
**ENZO LIFE SCIENCES (ELS) AG**  
Industriestrasse 17  
CH-4415 Lausen, Switzerland  
Ph: +41 61 926 8989  
Fax: +41 61 926 8979  
info-eu@enzolifesciences.com

#### LOCAL EUROPEAN OFFICES

**Belgium & Luxembourg**  
Enzo Life Sciences BVBA  
Frankrijklei 33 – Bus 31  
BE-2000 Antwerpen  
Belgium  
Ph: +32 3 466 0420  
Fax: +32 3 808 7033  
info-be@enzolifesciences.com

**France**  
Enzo Life Sciences (ELS) AG  
Branch Office Lyon  
13, avenue Albert Einstein,  
F-69100 Villeurbanne, France  
Ph: +33 472 440 655  
Fax: +33 481 680 254  
info-fr@enzolifesciences.com

**Germany**  
Enzo Life Sciences GmbH  
Basler Strasse 57a  
DE-79540 Lörrach  
Germany  
Ph: +49 7621 5500 526  
Fax: +49 7621 5500 527  
info-de@enzolifesciences.com

**Netherlands**  
Enzo Life Sciences BVBA  
Postbus 47  
NL-4940 AA Raamsdonksveer  
Netherlands  
Ph: +32 3 466 0420  
Fax: +32 3 808 7033  
info-nl@enzolifesciences.com

**UK & Ireland**  
Enzo Life Sciences (UK) Ltd.  
1 Colleton Crescent  
Exeter EX2 4DG  
Ph: 0845 601 1488 (UK customers)  
Ph: +44 1392 825900  
Fax: +44 1392 825910  
info-uk@enzolifesciences.com

**For local distributors and detailed product information visit us online:  
[www.enzolifesciences.com](http://www.enzolifesciences.com)**

**Put our experience to work for you!**  
Our broad range of scientific expertise and industry-proven manufacturing capabilities enables us to provide a comprehensive set of solutions for immunology research.