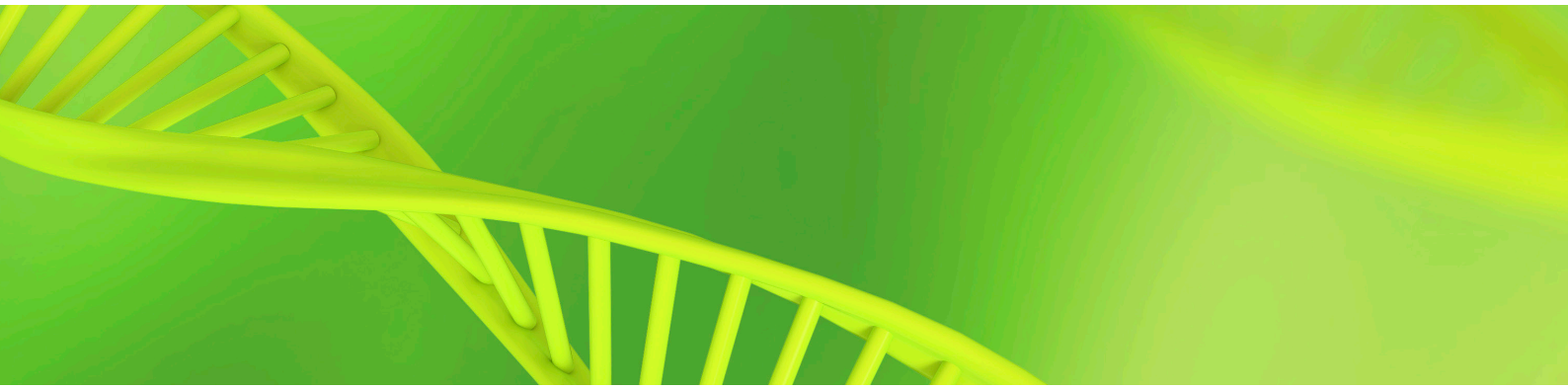
Enzo® Life Sciences

EPIGENETICS



Drug Discovery Assays and Active Enzymes

Deacetylation
- *Chemilum de Lys*™ HDAC & Sirtuin Assay
- *Fluor de Lys*® HDAC & Sirtuin Assays
- *Color de Lys*™ HDAC & Sirtuin Assay
- Active HDAC & Sirtuin Enzymes

Acetylation/Methylation/Demethylation
SUMOylation
Ubiquitinylation

Epigenetic Activators and Inhibitors

Screen-Well™ Epigenetics Library
HDAC Inhibitors
SIRT Modulators
Other Epigenetic Modulators

Antibodies for Detecting Epigenetic Changes

Ubiquitinylation
Lysine Modifications
SUMOylation
DNA Methylation
Histone Modifications

scientists ***enabling*** scientists.

CONTENTS

LEADING INNOVATION IN POST-TRANSLATIONAL MODIFICATION DETECTION

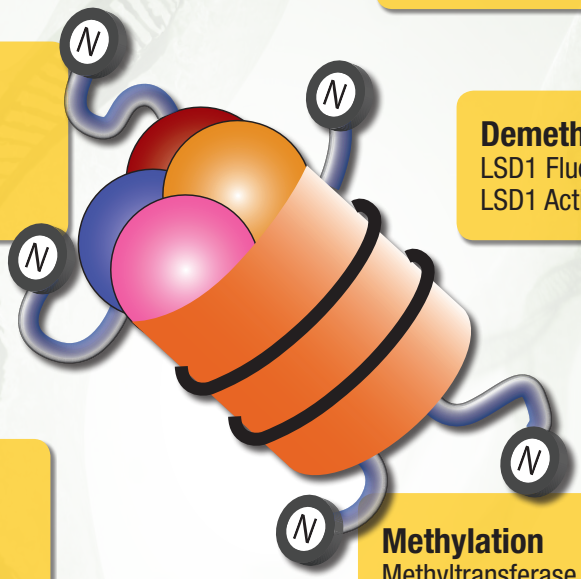
Epigenetic modulation of gene expression is one component of the proteostasis network, and is a focus of Enzo's development efforts supported by our expertise in post-translational modification biology and high-quality manufacturing of enzyme activity assays, biochemicals, antibodies, proteins, and peptide synthesis. Our epigenetics portfolio is focused on the enzymology of epigenetic regulation including HDACs, sirtuins, HATs, methyltransferases, and demethylases.

Our revolutionary *Fluor de Lys*® HDAC and Sirtuin assays allow simple, nonradioactive measurement of deacetylase activity amenable to automated platforms. These assays are founded upon an industry-leading portfolio of active enzymes and high-purity peptide substrates to deliver the sensitivity needed when dissecting epigenetic pathways. We continue to provide innovative products, such as the new *Chemilum de Lys*™, which eliminates false data seen with other detection platforms. In support of screening efforts, our chemists have curated an Epigenetics compound library, a collection of 43 biochemicals with defined activity against epigenetic regulating enzymes, each of which can be supplied individually upon request. Our portfolio of reagents also includes antibodies for the detection of key epigenetic-regulating enzymes and substrates, including modification-specific antibodies for methylated, phosphorylated, or acetylated epitopes.

Acetylation
Acetyltransferase Activity Assays
p300/CBP Inhibitors, Activators, and Antibodies

Deacetylation
Chemilum de Lys™ HDAC & Sirtuin Assay
Fluor de Lys® HDAC & Sirtuin Assays
Color de Lys™ HDAC & Sirtuin Assay
HDAC Antibodies
Resveratrol
Tubacin

Ubiquitinylation
UbiQapture™-Q Kit
In Vitro Ubiquitinylation Kit
Mono- & Polyubiquitinylation Antibodies



Demethylation
LSD1 Fluorimetric Drug Discovery Kit
LSD1 Active Enzyme

SUMOylation
SUMO & PolySUMO-Qapture® Kits
SUMO-Qapture-T® Kits
In Vitro SUMOylation Kit
SUMO 1 & SUMO 2/3 Antibodies

Methylation
Methyltransferase Activity Assays
CARM1, PRMT, and SET7/9 Active Enzymes
Mono- & Tri-methyl-specific Histone Antibodies
Sinefungin

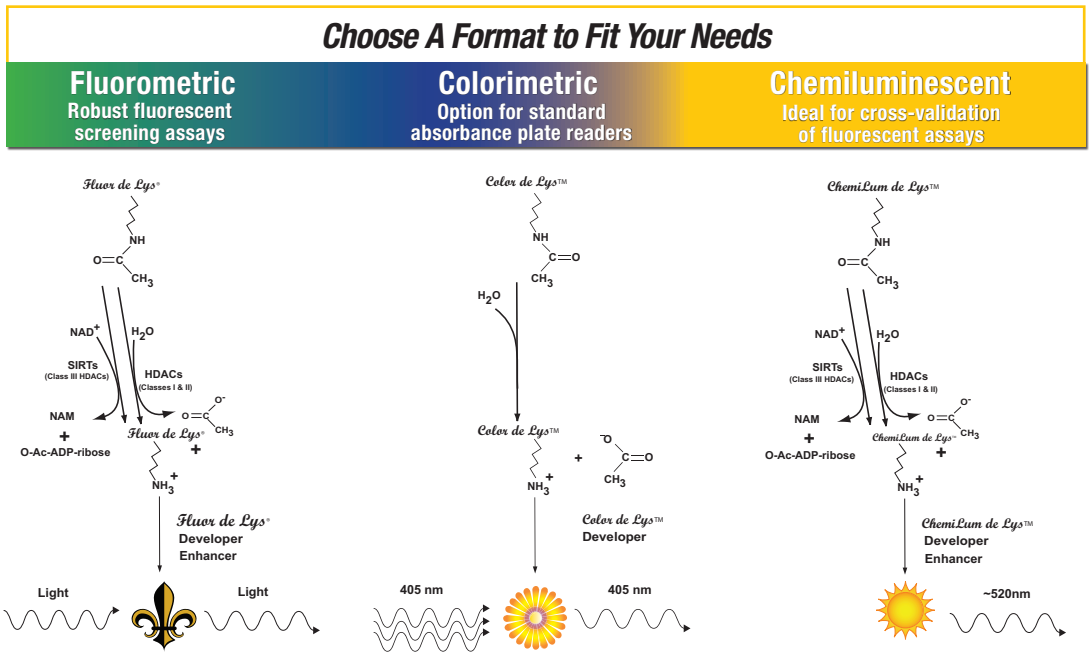
Phosphorylation
Phospho-specific Histone Antibodies
Aurora Kinase Active Enzymes & Inhibitors

For detailed product information visit us online:
www.enzolifesciences.com

HDAC & SIRTUIN

Convenient Screening Formats from the Pioneer in Non-Radioactive HDAC & Sirtuin Assays

For over a decade, the *Fluor de Lys*® deacetylase assay platform has revolutionized assay of HDAC & Sirtuin enzyme activity, freeing researchers from cumbersome protocols required with radiolabeled or other modified histone-based methods. Our high-quality assays utilize patented substrate/developer chemistry in combination with high-activity, high-purity enzymes, to deliver more high-quality hits. Broad-class HDAC/Sirtuin screening assays are available in chemiluminescent, fluorescent, and colorimetric formats.



2001	2002	2012
The *Fluor de Lys*® platform revolutionized the assaying of HDAC and Sirutin enzyme activity by freeing researchers from cumbersome protocols requiring radioactivity. With an expansive citation record, this is a robust high-throughput screening method for detection of HDAC and Sirtuin modulators.	The *Color de Lys*™ assay was developed to meet our customers demand for an easy-to-use, highly sensitive HDAC/SIRT assay that could be used on standard absorbance-based microplate readers.	In answer to the concern over false positives resulting from fluorescent substrates, Enzo Life Sciences developed the *Chemilum de Lys*™ HDAC/SIRT Drug Discovery Kit. This kit delivers superior signal-to-noise with no interference from detergents, protease inhibitors or kinase inhibitors.

Your Best Defense Against False Data

New *Chemilum de Lys*™ HDAC/SIRT Chemiluminescent Drug Discovery Kit

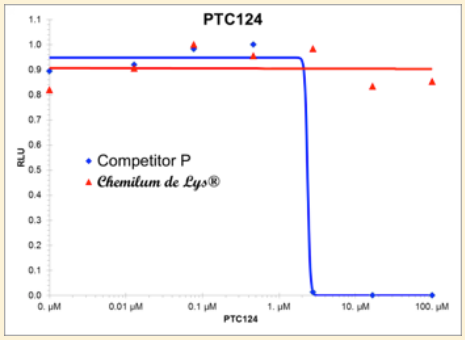
Traditional luciferase- and fluorescence-based screening assays for HDAC and Sirtuin activity are susceptible to the generation of false negatives or positives resulting from the effects of compound(s) being screened on elements of the reporter system (see table below). Based on our patent-pending *Chemilum de Lys*™ substrate and developer combination, the HDAC/SIRT Chemiluminescent Drug Discovery Kit provides a chemiluminescent alternative to radiolabeled and HPLC methods for HDAC activity. Discover the key advantages of this simple 3-step assay procedure is designed to measure HDAC and Sirtuin activity in cellular or nuclear extracts, immunoprecipitates, or using purified enzymes.

- High Specificity assay eliminates false positives or negatives (see table)
- Superior Signal-to-Noise Ratio with no interference from cell extract detergents
- Consistent results from a validated system

Eliminate False HDAC/SIRT Screening Hits with *Chemilum de Lys*™

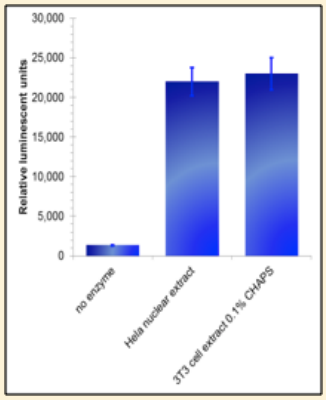
	Chemilum de Lys™	Competitor HDAC Assays		
		Luciferase-Based Chemiluminescent Assay	Colorimetric Assay	Fluorometric Assay
No Artifactual activation by resveratrol	✔	✔	X	X
Resistant to Protease Inhibitors	✔	X	✔	✔
Resistant to Kinase Inhibitors	✔	X	✔	✔

Eliminate Interference Seen in Luciferase-based Assays



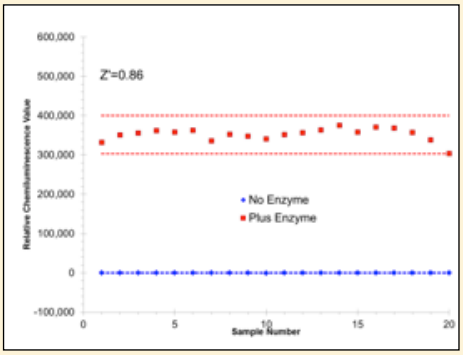
The compound, PTC124, is converted by luciferase in the presence of ATP to a high affinity multi-substrate adduct inhibitor, PTC124-AMP. PTC124 at concentrations greater than 1 µM inhibits the luciferase based assay, but has no effect on the *Chemilum de Lys*™ assay

Minimize Interference from Lysis Detergents



The *Chemilum de Lys*™ assay was performed on Hela nuclear extract, no enzyme or 1.5 x 10^5 3T3 cells extracted with the 0.1% CHAPS. The HDAC reaction was carried out with 25 µM *Chemilum de Lys*™ substrate for 60 minutes at 37° followed by trypsin treatment.

Powerful Reproducibility Ensures Consistent Results



Evaluation of Consistency. Z-factor analysis. HeLa nuclear extract (4µg) (red squares) or buffer (blue diamonds) was incubated for 120 minutes at 24°C with 25µM *Chemilum de Lys*™. Reactions were stopped as described in the manual. Enhancer was added and chemiluminescence was read. Dashed lines indicate the 3*Standard deviation range.

PRODUCT LISTING

Product #	Product Name	Size
Chemilum de Lys™ HDAC/SIRT Chemiluminescent Drug Discovery Kit	BML-AK532	96 reactions

DEACETYLATION

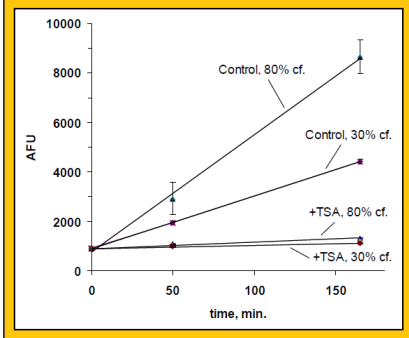
Lighting the Way to Innovation

Fluor de Lys® HDAC Cellular Activity Assay Kit

HDAC activity can vary due to expression level in different cell types. Therefore, cell-based HDAC experiments are especially relevant for their ability to address the natural context of HDAC enzymes.

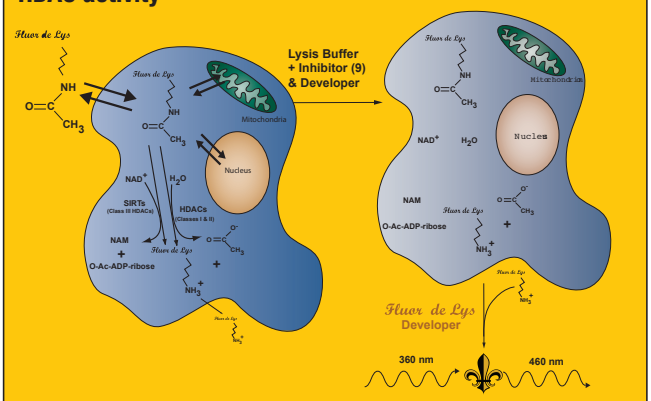
- Cell-permeable substrate for monitoring intracellular deacetylase activity
- Provides accurate activity information reflective of endogenous regulation
- Allows detection of inhibitors or activators that act indirectly to affect deacetylase activity
- Suitable for high throughput analysis

Monitor intracellular deacetylase activity over a wide range of cell densities



Fluor de Lys® Substrate Deacetylation at Two Cell Densities. HeLa cells were seeded at either 0.5 x 10^4 (30% confluence) or 2 x 10^4 (80% confluence) cells per well and grown two days to the indicated confluences. Cells were then incubated with 200 µM *Fluor de Lys*® Substrate, +/- 1 µM Trichostatin A (BML-GR309), and fluorescence was determined as described in product manual (AFU= Arbitrary Fluorescence units, CytoFluor II, Perseptive Biosystems, Ex. 360 nm, Em. 460 nm, gain 85).

A cell permeable substrate for detection of intracellular HDAC activity



PRODUCT LISTING		
General HDAC/SIRTUIN ASSAY KITS		
Product Name	**Product #**	**Size**
Fluor de Lys® HDAC Cellular Activity Assay Kit	BML-AK503	96 reactions
Fluor de Lys® HDAC Activity Assay Kit	BML-AK500	96 reactions
Fluor de Lys® Green HDAC Activity Assay Kit	BML-AK530	96 reactions
Enzyme Specific HDAC/SIRTUIN ASSAY KITS		
Fluor de Lys® HDAC1 Activity Assay Kit	BML-AK511	96 reactions
Fluor de Lys® HDAC2 Activity Assay Kit	BML-AK512	96 reactions
Fluor de Lys® HDAC3/NCOR1 Activity Assay Kit	BML-AK531	96 reactions
Fluor de Lys® HDAC6 Activity Assay Kit	BML-AK516	96 reactions
Fluor de Lys® HDAC8 Activity Assay Kit	BML-AK518	96 reactions
Fluor de Lys® SIRT1 Drug Discovery Kit	BML-AK555	96 reactions
Fluor de Lys® SIRT2 Drug Discovery Kit	BML-AK556	96 reactions
Fluor de Lys® SIRT3 Drug Discovery Kit	BML-AK557	96 reactions
Fluor de Lys® SIRT5 Drug Discovery Kit	BML-AK513	96 reactions
Fluor de Lys® Green SIRT5 Drug Discovery Kit	BML-AK514	96 reactions

Citations

***Fluor de Lys*® Cellular Assay Citations:**

1. S.U. Venkateshaiah, et al.; Exp. Hematol. (2013)
2. S. Balaiya, et al.; Mol. Vis. 18, 114 (2012)
3. A. Purushothaman, et al.; J. Biol. Chem. 286, 30377 (2011)
4. S.J. Greco, et al.; BBRC 414, 170 (2011)
5. H. Mizutani, et al.; Cancer Sci. 101, 2214 (2010)

Other *Fluor de Lys*® Cellular Assay Citations:

1. G. Liszt, et al. J. Biol. Chem. 280 21313 (2005)
2. M.C.Haigis, et al. Cell 126 941 (2006)
3. J. Du, et al. Biochemistry 48 2878 (2009)
4. E. Michishita, et al. Mol. Biol. Cell 16 4623 (2005)
5. T. Nakagawa, et al. Cell 137 560 (2009)
6. U. Mahlknecht, et al. Cytogenet. Genome Res. 112 208 (2008)
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8. S.C. Kim, et al. Mol. Cell 23 607 (2006)
9. B.J. North, et al. Methods 36 338 (2005)
10. A.Schuetz, et al. Structure 15 377 (2007)

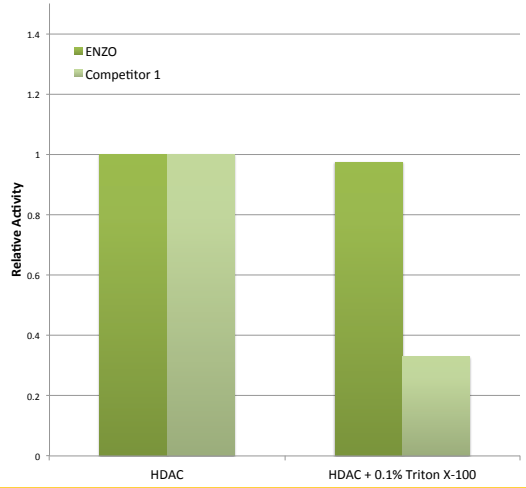
Simplicity Delivered.

Color de Lys™ HDAC Colorimetric Activity Assay Kit

Color de Lys™ assay is designed to measure HDAC activity in cell or nuclear extracts, immunoprecipitates, or purified enzymes. The included HeLa nuclear extract can be used as a positive control, or as a source of HDACs 1&2 for use in inhibitor screening.

- Simple two-step protocol with < 1 hour time to answer
- Colorimetric readout at 405 nm compatible with most plate readers
- Resistant to detergent interference common to antibody-based assays
- Eliminates need for radioactivity, extractions, and/or chromatography
- Suitable for high throughput analysis

Minimize Interference From Lysis Detergents



Our *Color-de-Lys*™ HDAC Colorimetric Assay is Less Sensitive to Detergents than Competitive Antibody-Based Assays

HeLa nuclear extract (8.3 µg) was added to the substrate and buffer recommended by the manufacturer in the presence or absence of 0.1% Triton X-100®. After 60 minutes at 37°, the reaction was stopped and processed as recommended by the manufacturers.

Triton X-100® showed little or no effect on the *Color-de-Lys*™ reaction, but caused an apparent 70% inhibition of the antibody-based assay.

PRODUCT LISTING

Product Name	Product #	Size
Color-de-Lys™ HDAC colorimetric activity assay kit	BML-AK501	96 reactions

Citations

1. L. Ortiz, et al.; Allergy 68, 64 (2013)
2. I.M. Munoz, et al.; J. Biol. Chem. 287, 32346 (2012)
3. A. Druz, et al.; Nucleic Acids Res. 40, 7291 (2012)
4. D.W. Perng, et al.; Pulm. Pharmacol. Ther. 25, 312 (2012)
5. H. Fan, et al.; Epigenetics 7, 1379 (2012)
6. A. Spannhoff, et al.; EMBO Rep. 12, 238 (2011)
7. S. Caito, et al.; FASEB J. 24, 3145 (2010)

HDAC & SIRTUIN

Enzo Life Sciences provides a comprehensive offering of widely cited active HDAC and Sirtuin proteins.

ACTIVE ENZYMES		
HDAC & SIRTUIN		
Product Name	**Product #**	**Size**
HDAC (rat liver)	ALX-202-052	2 mL
HDAC1 (human), (recombinant) (His-tag)	BML-SE456	50 µg
HDAC2 (full-length) (human), (recombinant) (His-tag)	BML-SE533	50 µg
HDAC2 (human) (1-488), (recombinant) (His-tag)	BML-SE500	50 µg
HDAC3 (human), (recombinant) (His-tag)	BML-SE507	50 µg
HDAC3 / NCOR1 complex (human), (recombinant)	BML-SE515	50 µg
HDAC6 (human), (recombinant) (His-tag)	BML-SE508	50 µg
HDAC8 (human), (recombinant)	BML-SE145	100 U
HDAC10 (human) (recombinant) (Histag)	BML-SE559	50 µg
HDAC11 (human) (recombinant) (Histag)	BML-SE560	50 µg
SIRT1 (human), (recombinant) (His-tag)	BML-SE239	100 U
SIRT2 (human), (recombinant) (His-tag)	BML-SE251	500 U
SIRT3 (human), (recombinant) (His-tag)	BML-SE270	500 U
SIRT5 (human), (recombinant) (His-tag)	BML-SE555	50 KU

SUBSTRATES		
HDAC & SIRTUIN		
Product Name	**Product #**	**Size**
Fluor-de-Lys™ Deacetylase Substrate	BML-K104	50 µl
Fluor-de-Lys™ H4-AcK16 Deacetylase Substrate	BML-K174	0.5 µMol
Fluor-de-Lys™ HDAC8 Deacetylase Substrate	BML-K178	0.5 µMol
Fluor-de-Lys™ SIRT1 Deacetylase Substrate	BML-K177	0.5 µMol
Fluor-de-Lys™ SIRT2 Deacetylase Substrate	BML-K179	0.5 µMol
Fluor-de-Lys™-Green substrate	BML-KI572	50 µl
Fluor-de-Lys™-Succinyl, Desuccinylase Substrate	BML-KI590	50 µl
Fluor-de-Lys™-Succinyl Green, Desuccinylase Substrate	BML-KI591	50 µl
Fluor-de-Lys™ Developer Concentrate	BML-K105	300 µl
Fluor-de-Lys™ Developer II	BML-K176	1.25 ml

SUBSTRATE PREFERENCES FOR HDAC & SIRTUIN ENZYMES

Substrate	**HDAC**								**Sirtuin**			
	1	**2**	**3**	**6**	**8**	**10**	**11**	**HeLa nuclear extract**	**1**	**2**	**3**	**5**
Fluor-de-Lys™ Deacetylase Substrate	+++	++	++++	++	+	++++	++	++	+	+	+	+
Fluor-de-Lys™ H4-AcK16	+++	+++	++++	+++++	+++	n.d.	+++	+++	++++	+++	+	+++
Fluor-de-Lys™ HDAC8	++++	+++++	++++	+++++	+++++	n.d.	+++++	+++++	+++	++++	+++	+++++
Fluor-de-Lys™ SIRT1	+++++	+++++	+++++	+++++	+	+++++	+++++	+++++	+++++	+++++	+++	+++++
Fluor-de-Lys™ SIRT2	+++	++++	++++	++++	++	+	+	++++	++	+++++	+++++	++++
Fluor-de-Lys™ Substrate Concentration	5 µM	5 µM	50 µM	50 µM	25 µM	25 µM	5 µM	25 µM	25/500 µM	25 µM	10 µM	500 µM

High-throughput Assay for Detection of LSD1 Modulators

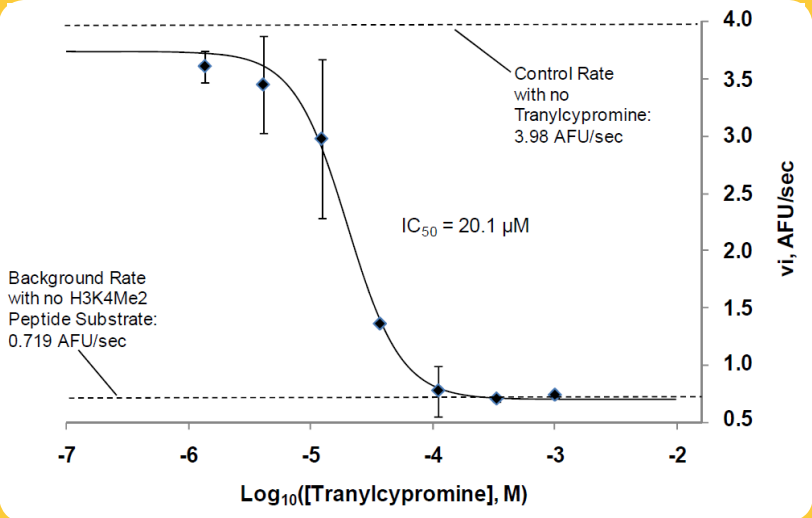
LSD1 Fluorometric/Colorimetric Drug Discovery Kit

A CELLestial® Red Hydrogen Peroxide Assay System

The LSD1 Fluorometric Drug Discovery Kit provides all necessary reagents for measuring human LSD1 activity in a sensitive, real-time fluorescent or colorimetric assay. LSD1 is inhibited by a number of established monoamine oxidase inhibitor drugs, including tranylcypromine. That and the fact that its expression is elevated in a number of cancers may make it a promising target for drug development.

- CELLestial® Red Substrate allows real-time fluorometric or colorimetric detection
- Single-step, homogeneous assay ideal for high throughput screening applications
- 1000U of LSD1 supplied with each kit

High sensitivity assay for measuring demethylation efficiency



Easily Detect Inhibitors of LSD1

Tranylcypromine Inhibition of LSD1. LSD1 enzyme (0.1 µg/µg) was incubated with the indicated concentrations of tranylcypromine for 30 min. at room temperature (23°C). Samples (0.5 µg, 5 µl) were then transferred to wells for the demethylation assay with 20 µM H3K4Me2 peptide. Fluorescence was measured at 47 sec intervals on a CytoFluorTM II fluorescence plate reader (PerSeptive Biosystems, Ex. 530 nm, Em. 590 nm, gain = 60). More details can be found in the product manual posted on www.enzolifesciences.com

RELATED PRODUCTS		
Product Name	**Product #**	**Size**
LSD1 Fluorometric/Colorimetric Drug Discovery Assay	BML-AK544	96 reactions
LSD1 (KDM1) (human, recombinant)	BML-SE544	50 µg
Histone H3 dimethyl lysine-4 peptide	BML-P256	0.5 mg

ACETYLTRANSFERASE/METHYLTRANSFERASE ACTIVITY ASSAYS		
Acetyltransferase Activity Kit	ADI-907-026	96 Wells
Methyltransferase Activity Kit	ADI-907-025	96 Wells
Methyltransferase HT Activity Kit	ADI-907-032	96 Wells

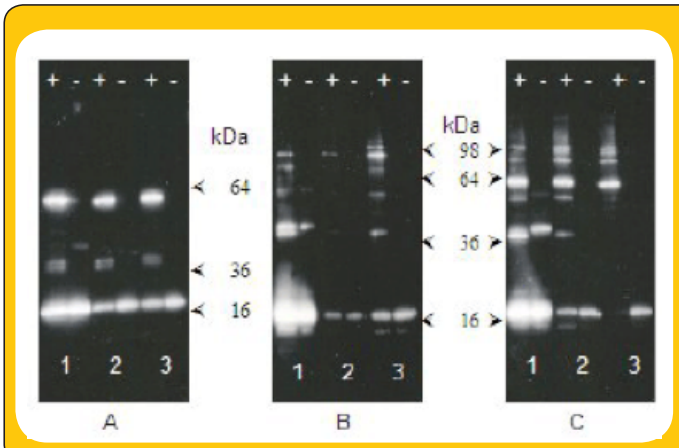
SUMOylation

Modify & Detect With Ease.

SUMOylation Kit
Most highly cited kit for generation of SUMOylated proteins *in vitro*

- Fastest assay time on the market, just under 1.5 hr time to answer
- Simple 4-step assay: **Mix → Incubate → Quench → Analyze**
- Versatile kit with multiple applications including:
  - Investigate sumoylation effect on enzyme activity or regulation of cellular processes
  - Identify novel proteins that are targets for sumoylation
  - Generate substrates for deSUMOylating enzymes

This kit provides a means of generating SUMOylated proteins *in vitro*, by covalent linkage of the carboxy-terminal of SUMO-1, -2 or –3 to specific lysine residues on the target protein via isopeptide bonds, using the SUMOylation enzyme cascade. A control target protein is provided together with all other necessary components. SUMO specific antibodies are provided for detection of SUMOylated proteins via SDS-PAGE and western blotting.



SUMOylate and detect a broad range of target proteins

Western Blot of SUMOylation Assays for RANGAP1 control target and SP100/p53 target proteins. Assays set-up and run as described in "Assay Protocol". SUMOylated proteins were detected by Western Blotting on SUMOylation assays containing A: RANGAP1 (Prod. No. BML-KW9755), Figure B: p53 (Prod. No. BML-FW9370) and Figure C: SP100 (Prod. No. BML-UW9825) target proteins with 1: SUMO1 (Prod. No. BML-KW9195), 2: SUMO2 (Prod. No. BML-KW9205) and 3: SUMO3 (Prod. No. BML-KW9215) substrates using the appropriate SUMO antibody (1: Prod. No. BML-PW9460, 2/3:Prod. No. BML- PW9465) as described in "Analysis by Western Blotting".

Citations

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2. Y.C. Wu, et al.; Cancer Res. 72, 4963 (2012)
3. FN.S. Belaguli, et al.; PLoS One 7, e48019 (2012)
4. C. Luise, et al.; PLoS One 7, e49298 (2012)
5. C.L. Bigarella, et al.; FEBS Lett. 586, 3522 (2012)
6. M. Klisczak, et al.; DNA Repair (Amst). 11, 799 (2012)
7. Y. Li, et al.; J Cell Biol 199, 589 (2012)
8. E. Sinigalia, et al.; PLoS One 7, e49630 (2012)

Enzo Kit Modifies & Detects in Half the Time

ENZO KIT		COMPETITOR KIT	
15 Min.	MIX	15 Min.	MIX
1 Hour	INCUBATE	3 Hours	INCUBATE
15 Min.	QUENCH	15 Min.	QUENCH

ANALYZE

PRODUCT LISTING		
SUMO Assay Kits		
Product Name	**Product #**	**Size**
SUMOylation Kit	BML-UW8995	20 reactions
SUMOQaptureT Kit	BML-UW1000A	10 reactions
PolySUMOQapture Kit	BML-UW0955	10 reactions

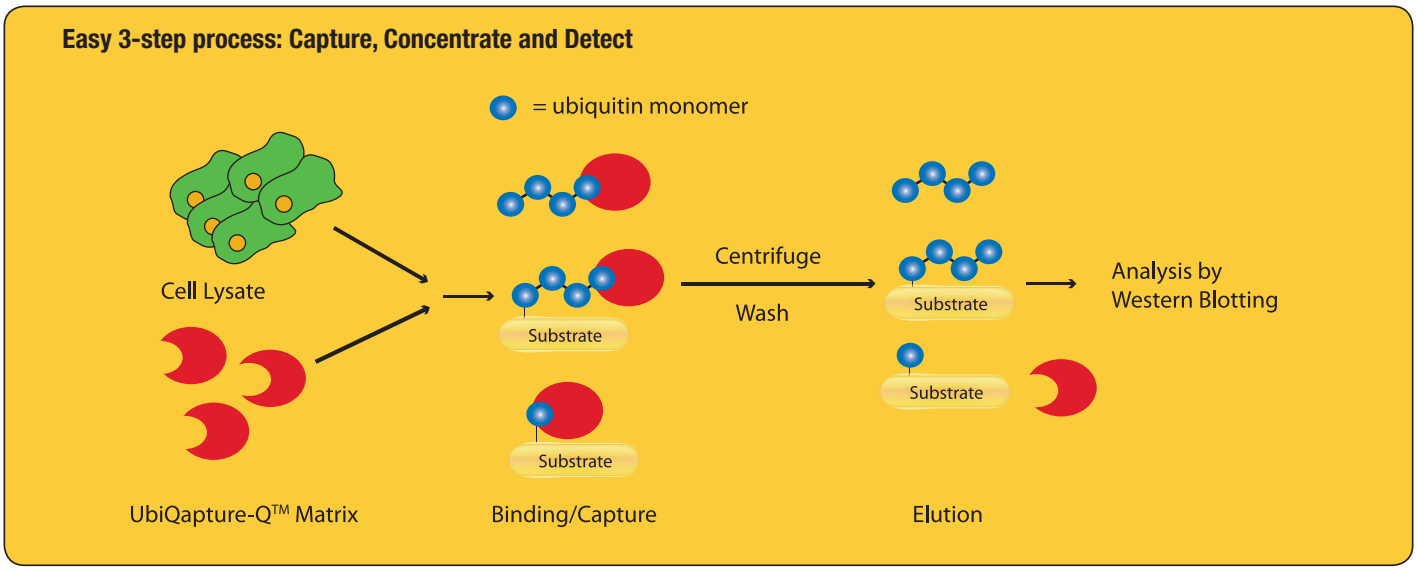
PRODUCT LISTING		
SUMO Proteins		
Product Name	**Product #**	**Size**
SP100 fragment (human), (recombinant) (GST-tag)	BML-UW9825	100 µg
SUMO activating enzyme E1 (human), (recombinant) (His-tag)	BML-UW9330	25 µg
SUMO chains SUMO poly	BML-UW9670	25 µg
SUMO chains SUMO poly	BML-UW9675	25 µg
SUMO-1 (human) (1-097), (recombinant)	ALX-201-045	500 µg
SUMO-1 (human) (1-101), (recombinant)	ALX-201-044	250 µg
SUMO-1 (human), (recombinant) (agarose immobilized)	BML-UW0095	0.5 ml
SUMO-1 (human), (recombinant) (biotin conjugate)	BML-UW0545	100 µg
SUMO-1 (human), (recombinant) (GST-tag)	BML-UW0160	500 µg
SUMO-1 (human), (recombinant) (His-tag)	BML-UW9195	500 µg
SUMO-1 [E93R] (human), (recombinant) (GST-tag)	BML-UW0175	100 µg
SUMO-1 activating enzyme (human), (recombinant)	ALX-201-090	10 µg
SUMO-1 aldehyde	BML-UW0060	25 µg
SUMO-1 pro (human), (recombinant) (His-tag)	BML-UW9190	500 µg
SUMO-1-AMC	BML-UW0040	25 µg
SUMO-2 (human) (1-93), (recombinant)	ALX-201-089	500 µg
SUMO-2 (human) (1-95), (recombinant)	ALX-201-088	250 µg
SUMO-2 (human) (recombinant) (GST-tag)	BML-UW0165	500 µg

UBIQUITINYLATION

Qapture the full range of Ubiquitin-protein conjugates

UbiQapture™-Q kit
For isolation and enrichment of mono-and poly-ubiquitinated proteins

- Superior binding characteristics unlike other commercially available kits which only capture long polyubiquitin chain-conjuated proteins
- Provides high efficiency performance with minimal non-specific binding
- Compatible with a wide range of lysate buffers and cell/tissue samples from a variety of species



PRODUCT LISTING		
UBIQUITIN ASSAY KITS		
Product Name	**Product #**	**Size**
UbiQapture-Q kit	BML-UW8995	20 x 20 µl
Ubiquitinylation kit	BML-UW9920	50 x 50 µl
Ubiquitin conjugating kit (HeLa lysate-based)	BML-UW9915	20 x 50 µl
Autoubiquitinylation kit	BML-UW0970	10 reactions
Ubiquitin activating kit	BML-UW0400A	96 reactions
NEDDylation Kit	BML-UW0590	20 reactions

Citations:

1. A. Mouri, et al.; J. Neurosci 32, 4562 (2012)
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6. P.L. Butler and R.K. Mallampalli; J. Biol. Chem. 285, 6246 (2010)
7. M. Zhang, et al.; J. Biol. Chem. 285, 8703 (2010)
8. E. Lomonosova, et al.; Mol. Cancer Res. 7, 1268 (2009)

PRODUCT LISTING

UBIQUITIN & UBIQUITIN LIKE PROTEINS

Product Name	Product #	Size	Product Name	Product #	Size
Ubc9 (human), (recombinant) (untagged)	BML-UW9320	100 µg	Tri-ubiquitin (linear)	BML-UW0780	100 µg
UbcH1 (human), (recombinant) (His-tag)	BML-UW9020	100 µg	Tetra-ubiquitin (K48-linked)	BML-UW8645	25 µg
NEDD8 pro (human), (recombinant) (GST-tag)	BML-UW8740	100 µg	Tetra-ubiquitin (K63-linked)	BML-UW0715	25 µg
NEDD8 pro (human), (recombinant) (His-tag)	BML-UW9220	500 µg	Tetra-ubiquitin (linear)	BML-UW0785	100 µg
Ubiquitin	BML-UW8795	5 mg	Penta-ubiquitin (linear)	BML-UW0790	100 µg
Ubiquitin (bovine), (native) (methylated)	BML-UW8555	1 mg	Hexa-ubiquitin (linear)	BML-UW0795	100 µg
Ubiquitin (human), (recombinant) (GST-tag)	BML-UW8620	1 mg	Hepta-ubiquitin (linear)	BML-UW0800	100 µg
Ubiquitin (human), (recombinant) (His-tag)	BML-UW8610	1 mg	Octa-ubiquitin (linear)	BML-UW0805	100 µg
Ubiquitin, (agarose immobilized)	BML-UW8630	0.5ml	Nona-ubiquitin (linear)	BML-UW0810	100 µg
Ubiquitin, (biotinylated)	BML-UW8705	100 µg	Deca-ubiquitin (linear)	BML-UW0815	100 µg
Chloroethyl ubiquitin (HA-tag)	BML-UW0885	25 µg	Poly-ubiquitin chains (Ub2-16) (K48-linked)	BML-UW0670	100 µg
Ubiquitin (human, fluorescein labeled)	BML-UW1240	100 µg	Poly-ubiquitin chains (Ub2-7) (K48-linked)	BML-UW8860	100 µg
Ubiquitin (human, recombinant)	BML-UW0280	1 mg	Poly-ubiquitin chains (Ub2-7) (K63-linked)	BML-UW9570	100 µg
Ubiquitin vinyl methyl ester, (HA-tag)	BML-UW0880	25 µg	Ubiquitin K06-only (human), (recombinant) (untagged)	BML-UW0210	1 mg
Ubiquitin vinyl sulfone, (HA-tag)	BML-UW0155	25 µg	Ubiquitin K11-only (human), (recombinant) (untagged)	BML-UW0215	1 mg
Ubiquitin aldehyde, (recombinant)	BML-UW8450	50 µg	Ubiquitin K27-only (human), (recombinant) (untagged)	BML-UW0220	1 mg
Ubiquitin-Rhodamine	BML-SE761	25 µg	Ubiquitin K29-only (human), (recombinant) (untagged)	BML-UW0225	1 mg
Ubiquitin [D77] (human), (recombinant) (untagged)	BML-UW0345	1 mg	Ubiquitin K33-only (human), (recombinant) (untagged)	BML-UW0230	1 mg
Ubiquitin [K^{06}R] (human), (recombinant) (untagged)	BML-UW0245	1 mg	Ubiquitin K48-only (human), (recombinant) (untagged)	BML-UW0235	1 mg
Ubiquitin [K^{11}R] (human), (recombinant) (untagged)	BML-UW0250	1 mg	Ubiquitin K63-only (human), (recombinant) (untagged)	BML-UW0240	1 mg
Ubiquitin [K^{27}R] (human), (recombinant) (untagged)	BML-UW0255	1 mg	Ubn-ubiquitinylated substrate	BML-UW0610	25 µg
Ubiquitin [K^{29}R] (human), (recombinant) (untagged)	BML-UW0260	1 mg	([K^{6}-only]Ub)$_n$-ubiquitinylated substrate	BML-UW0615	25 µg
Ubiquitin [K^{33}R] (human), (recombinant) (untagged)	BML-UW0265	1 mg	([K^{11}-only]Ub)$_n$-ubiquitinylated substrate	BML-UW0620	25 µg
Ubiquitin [K^{63}R] (human), (recombinant) (untagged)	BML-UW0275	1 mg	([K^{27}-only]Ub)$_n$-ubiquitinylated substrate	BML-UW0625	25 µg
Ubiquitin [K^{all}R] (human), (recombinant) (untagged)	BML-UW0205	1 mg	([K^{29}-only]Ub)$_n$-ubiquitinylated substrate	BML-UW0630	25 µg
Ubiquitin^{+1}, (recombinant) (His-tag)	BML-UW8790	100 µg	([K^{33}-only]Ub)$_n$-ubiquitinylated substrate	BML-UW0635	25 µg
Ubiquitin$_5^{+1}$ (recombinant) (His-tag)	BML-UW8855	25 µg	([K^{48}-only]Ub)$_n$-ubiquitinylated substrate	BML-UW0640	25 µg
Ubiquitin activating enzyme E1 (human), (recombinant) (His-tag)	BML-UW9410	50 µg	([K^{63}-only]Ub)$_n$-ubiquitinylated substrate	BML-UW0645	25 µg
[(N^{ε}-biotinyl)Lys^{6}]Ubiquitin	BML-UW8470	100 µg	Polyubiquitin chains Ub_{2-7} linear recombinant	BML-UW1010	100 µg
[(N^{ε}-biotinyl)Lys^{6}, (Nε-biotinyl)Lys^{48}]Ubiquitin	BML-UW8475	100 µg	Ubiquitinconjugating enzyme sampler pack	BML-UW8975	1 pack
[(N^{ε}-biotinyl)Lys^{6}, (Nε-biotinyl)Lys^{63}]Ubiquitin	BML-UW8480	100 µg	Ubiquitin binding entities, sampler pack	BML-UW0120	1 pack
Di-ubiquitin (K48-linked)	BML-UW9800	100 µg	Linear polyubiquitin chains sampler pack	BML-UW0825	1 pack
Di-ubiquitin (K63-linked)	BML-UW0730	50 µg	Ubiquitinconjugating enzyme sampler pack	BML-UW8975	
Di-ubiquitin (linear)	BML-UW0775	100 µg			
Tri-ubiquitin (K63-linked)	BML-UW0745	50 µg			

Benchmark Against Known Epigenetic Modulators

Epigenetics Compound Library

The Screen-Well® Epigenetics library is a curated set of compounds with defined activity against epigenetic modulating enzymes. It is a convenient tool for use with HDAC & Sirtuin drug discovery kits:

- Contains 43 compounds with defined activity against lysine-modifying enzymes and DNA methylation inhibitors
- Available in 100 uL and 500 uL formats, dissolved in DMSO
- Includes a variety of structurally and mechanistically different compound classes targeting HDACs, SIRTs, HATs, HMTs, DNAMTs, and Lysine demethylases

We offer a diverse collection of Epigenetic pathway targeting compounds.

COMPOUND LIBRARY		
Product Name	**Product #**	**Size**
Screen-Well® Epigenetics Library	BML-2836	100 µg/well, 500 µg/well

HDAC INHIBITORS			
Product Name	**Product #**	**Activity**	**Size**
Tubacin	BML-GR362	HDAC inhibitor	100 µg, 500 µg
Trichostatin A	BML-GR309	HDAC inhibitor	1 mg, 5 mg
Trichostatin C	ALX-280-239	HDAC inhibitor	0.5 mg
M344	ALX-270-297	HDAC inhibitor	1 mg, 5 mg
Phenylbutyrate sodium	BML-EI320	HDAC inhibitor	1g
Niltubacin	BML-GR363	HDAC inhibitor	100 µg, 500 µg
Apicidin	BML-GR340	HDAC inhibitor	1 mg, 5 mg
Scriptaid	BML-GR326	HDAC inhibitor	1 mg, 5 mg
Oxamflatin	ALX-270-379	HDAC inhibitor	1 mg, 5 mg
Suberoyl bis-hydroxamic acid	BML-GR323	HDAC inhibitor	100 µg, 500 µg
BML-210	BML-GR330	HDAC inhibitor	1 mg, 5 mg
HC Toxin	BML-GR320	HDAC inhibitor	1 mg
Splitomicin	BML-GR331	HDAC inhibitor	5 mg, 25 mg
ITSA-1	BML-GR350	HDAC inhibitor	25 mg, 100 mg
Nullscript	BML-GR327	HDAC inhibitor	1 mg, 5 mg
Depudecin	BML-EI319	HDAC inhibitor	100 µg
Sodium butyrate	ALX-270-301	HDAC inhibitor. Apoptosis inducer.	1g
MS-275	ALX-270-378	HDAC1 inhibitor	BULK
MC1293	ALX-270-344	HDAC1 inhibitor	5 mg
BML-281	BML-GR361	HDAC6 inhibitor	1 mg, 5 mg

SIRT MODULATORS			
Product Name	**Product #**	**Activity**	**Size**
Resveratrol	BML-FR104	Antioxidant. SIRT1 activator.	100 µg, 500 µg
BML-278	BML-GR359	SIRT activator	5 mg, 25 mg
Triacetyl resveratrol	BML-FR119	SIRT activator	10 mg, 50 mg
Sirtinol	ALX-270-308	SIRT inhibitor	1 mg, 5 mg, 25 mg
BML-266	BML-GR346	SIRT inhibitor	10 mg, 50 mg
6-Chloro-2,3,4,9-tetrahydro-1H-carbazole-1-carboxamide	ALX-270-437	SIRT inhibitor	1 mg
Aristoforin	ALX-350-129	SIRT inhibitor	1 mg

OTHER EPIGENETIC MODULATORS			
Product Name	**Product #**	**Activity**	**Size**
AGK2	ALX-270-484	SIRT2 inhibitor	1 mg, 5 mg
B2	ALX-270-485	SIRT2 inhibitor	0.5 mg
Piceatannol	ALX-270-202	Syk inhibitor. SIRT1 activator.	1 mg, 5 mg, 50 mg
Valproic acid . sodium salt	ALX-550-304	Anticonvulsant and anti-depressant	5g
Celastrol	ALX-350-332	Anti-inflammatory and immunosuppressive	5 mg, 25 mg
Quercetin . dihydrate	ALX-385-001	Antioxidant flavonoid	5g, 25g
Pristimerin	ALX-350-411	Antitumor agent	5 mg, 25 mg
Betulinic acid (High Purity)	ALX-350-277	Antitumor and anti-HIV agent	5 mg, 25 mg, 100 mg
Tranylcypromine	BML-EI217	Demethylase inhibitor	1g, 5g
O_6-Benzylguanine	ALX-480-019	DNA alkyltransferase substrate and inhibitor	10 mg
Zebularine	BML-GR344	Dnmt inhibitor	10 mg
Kendomycin	ALX-380-066	Endothelin receptor antagonist	500 µg
BIX 01294	ALX-270-473	G9a histone methyltransferase inhibitor	2 mg, 10 mg
Compound A	ALX-550-516	Glucocorticoid receptor modulator	5 mg, 25 mg
Garcinol	BML-GR343	HAT inhibitor	10 mg, 50 mg
Thielavin B	ALX-350-340	Inhibitor of Glucose-6-phosphatase and PLC	0.5 mg
Butyrolactone 3	ALX-270-411	Inhibitor of histone acetyltransferase Gcn5	5 mg
beta-Rubromycin	ALX-380-067	Inhibitor of HIV-1 reverse transcriptase and human telomerase	1 mg, 5 mg
Curcumin (high purity)	ALX-350-028	Inhibitor of Lipoxygenase and COX	10 mg, 50 mg, 250 mg
(-)-Epigallocatechin gallate	ALX-270-263	Inhibitor of NOS, telomerase and Dnmt	10 mg, 50 mg
Nutlin03	ALX-430-128	Inhibitor of p53/MDM2 interaction	1 mg, 5 mg, 25 mg
Epoxomicin	BML-PI127	Key inhibitor for use in proteasome research.	100 µg
Betulinic acid 1	ALX-350-298	Proteasome activator	0.1 mg, 0.5 mg, 1 mg
clasto Lactacystin β-Lactone	BML-PI108	Proteasome inhibitor	100 µg
Lactacystin (native)	ALX-350-245	Proteasome inhibitor	100 mg, 500 mg, 1g
Gliotoxin	BML-PI129	Proteasome inhibitor	2 mg, 10 mg
Hypothemycin	ALX-380-116	MEK inhibitor	250 µg, 1 mg
Sinefungin	ALX-380-070	Methyltransferase inhibitor	1 mg, 5 mg
Chaetocin	BML-GR349	Methyltransferase inhibitor	200 µg
CTPB	ALX-420-033	p300 HAT activator	1 mg, 5 mg
Suramin . hexasodium salt	ALX-430-022	Purinergic receptor inhibitor	50 mg, 250 mg, 1 g
BPPA	BML-GR321	Telomerase inhibitor	25 mg
Butein	ALX-350-246	Tyrosine kinase inhibitor	10 mg
BML-282	BML-EI400	UCH inhibitor	5 mg
TCID	BML-EI399	UCH-L3 inhibitor	10 mg, 50 mg

ANTIBODIES FOR DETECTING EPIGENETIC CHANGES

UBIQUITIN & UBIQUITIN MODIFICATION ANTIBODIES

Go For the Gold!

Mono- and Polyubiquitinylated Conjugates (FK2)
The gold standard antibody for detection of ubiquitinylated proteins

- Detect K^{29}-, K^{48}-, and K^{63}-linked mono- and polyubiquitinylated proteins
- Most cited multi-ubiquitin antibody with over 500 citations
- Validated for WB, IP, IHC and ELISA applications
- Available as HRP, biotin, ATTO 488, and FITC conjugates

This monoclonal antibody to Mono- and Polyubiquitinylated Conjugates (FK2) has been extensively characterized by one-dimensional Western blotting and has been shown to recognize K29-, K48-, and K63-linked polyubiquitinylated and monoubiquitinylated proteins but not free ubiquitin. It has been used for a wide range of applications including immunoprecipitation, ELISA and western blot. FK2 is available with a variety of labels to meet your specific research needs.

The FK2 clone has been validated for a variety of applications including Western Blot analysis

Western blot of multi-ubiquitin chains using MAb to Polyubiquitinylated Conjugates (FK1) (Prod. No. BML-PW8805) (lanes A-C) and MAb to Mono- and Polyubiquitinylated Conjugates (FK2) (Prod. No. BML-PW8810) (lanes D-F). Lanes A & D: K48-linked chains.Lanes B & E: K49-linked chains. Lanes C & F: K63-linked chains.

Citations:

1. Aillet,F et al; PLoS One. 7 (2012)
2. T. Wenger et al.; Autophagy 8, 350 (2012); 8:350 - 363
3. L.R. Butler et al; EMBO 31, 3918 (2012)
4. K. Tamai, et al.; Am. J. Pathol. 173, 1806 (2008)
5. Matsumoto, M. et al.; Proteomics 5, 4145 (2005)

ANTIBODIES FOR DETECTION OF:

UBIQUITIN AND UBIQUITIN MODIFICATION

Product Name	Product #	Size
Mono and polyubiquitinylated conjugates mAb FK fluorescein labeled	BML-PW1210	25 µl
Mono- and polyubiquitinylated conjugates, mAb (FK2)	BML-PW8810	500 µg
Mono- and polyubiquitinylated conjugates, mAb (FK2) (ATTO 488 conjugate)	BML-PW1335	25 µl
Mono- and polyubiquitinylated conjugates, mAb (FK2) (HRP conjugate)	BML-PW0150	25 µg, 100 µg
Mono- and polyubiquitinylated conjugates, mAb (FK2) (biotin conjugate)	BML-PW0755	25 µl, 100 µl
Polyubiquitinylated conjugates, mAb (FK1) (fluorescein labeled)	BML-PW1215	25 µl
Polyubiquitinylated conjugates, mAb (FK1)	BML-PW8805	500 µg

UBIQUITIN AND UBIQUITIN MODIFICATION

Product Name	Product #	Size	Product Name	Product #	Size
AMSH (human), pAb	BML-PW0655	25 µl, 100 µl	NEDD8 (human), pAb	BML-PW9340	25 µl, 100 µl
CYLD (human), pAb	BML-PW0760	25 µl, 100 µl	NEDD8, pAb	ALX-210-194	200 µl
FAT10, pAb	BML-PW9585	25 µl, 100 µl	Parkin (human), pAb	BML-PW9365	25 µl, 100 µl
FAT10, pAb	BML-PW9680	25 µl, 100 µl	Polyubiquitin (K63-linkage-specific), mAb (HWA4C4)	BML-PW0600	25 µl, 100 µl
Fub1 (human), pAb	BML-PW9615	25 µl, 100 µl	Polyubiquitin (K63-linkage-specific), mAb (HWA4C4) (HRP conjugate)	BML-PW0605	25 µg, 100 µg
Huwe1 mouse pAb	BML-PW0950	25 µl, 100 µl	Ub+1, pAb	BML-PW9780	25 µl, 100 µl
ISG15 (human), pAb	BML-PW9575	25 µl, 100 µl	UBA6 (human), pAb	BML-PW0525	25 µl, 100 µl
MYSM1 (human), pAb	BML-PW0660	25 µl, 100 µl	Ubc9, pAb	ALX-210-233	50 µg
			Ubiquitin activating enzyme (CT), pAb	BML-PW8395	25 µl

ANTIBODIES FOR DETECTION OF:

UBIQUITIN AND UBIQUITIN MODIFICATION

Product Name	Product #	Size
Ubiquitin activating enzyme (NT), pAb	BML-PW8385	25 µl, 100 µl
Ubiquitin activating enzyme, pAb	BML-PW8390	25 µl, 100 µl
Ubiquitin conjugating enzyme UbcH1, pAb	BML-UG9520	25 µl, 100 µl
Ubiquitin mAb EX fluorescein labeled	BML-PW1225	25 µl
Ubiquitin mAb EX9	BML-PW0580	25 µl
Ubiquitin mAb EX9 HRP conjugate	BML-PW0835	25 µl
Ubiquitin, mAb (P4D1)	BML-PW0930	100 µg, 1 mg
Ubiquitin, mAb (P4D1) (fluorescein labeled)	BML-PW1220	25 µl
Ubiquitin, mAb (P4D1) (HRP conjugate)	BML-PW0935	25 µl, 100 µl
Ubiquitin, mAb (P4G7-H11)	ADI-SPA-203	50 µg, 200 µg
Ubiquitin, pAb	ADI-SPA-200	50 µg, 200 µg
Ubiquitin, pAb (DyLightTM 488 conjugate)	ADI-SPA-200-488	50 µg, 200 µg
Ubiquitin, pAb (PE conjugate)	ADI-SPA-200PE	50 µg, 200 µg
Ubiquitinprotein conjugates pAb fluorescein labeled	BML-PW1235	25 µl
Ubiquitin-protein conjugates, pAb	BML-UG9510	100 µl
Ubl5 (human), pAb	BML-PW9605	25 µl, 100 µl
Urm1 (human), pAb	BML-PW9595	25 µl
Use1 (human), pAb	BML-PW0770	25 µl, 100 µl

LYSINE MODIFICATIONS

Product Name	Product #	Size
Acetylated Lysine, pAb	ADI-KAP-TF120	100 µg
Acetylated Lysine, pAb (biotin conjugate)	ADI-KAP-TF1201B	100 µg
Acetylated Lysine, pAb (HRP conjugate)	ADI-KAP-TF1203	100 µg
Acetyl-lysine, pAb	BML-SA615	100 µl
Acetyl-Lysine, pAb	BML-SA440	400 µl
Acetyl-lysine, pAb (affinity purified)	BML-SA627	100 µl
Butyryl-lysine, pAb (affinity purified)	BML-SA682	100 µl
Dimethyl-lysine, pAb	BML-SA667	100 µl
Dimethyl-lysine, pAb (affinity purified)	BML-SA668	50 µg
Methylated Lysine, pAb	ADI-KAP-TF121	100 µg
Methylated Lysine, pAb (biotin conjugate)	ADI-KAP-TF1211B	100 µg
Methylated Lysine, pAb (HRP conjugate)	ADI-KAP-TF1213	100 µg

SUMO PROTEINS OR MODIFICATIONS

Product Name	Product #	Size
SUMO-1 (human) (CT), pAb	BML-PW9460	25 µl, 100 µl
SUMO-1 (human) (NT), pAb	BML-PW8330	25 µl, 100 µl
SUMO-1 (human), pAb	BML-PW0505	25 µl, 100 µl
SUMO-1 activating enzyme subunit SAE1 (human), pAb	ALX-210-328	50 µg
SUMO-2 (human), pAb	BML-PW0510	25 µl, 100 µl
SUMO-2/3 (human) (NT), pAb	BML-PW9465	25 µl, 100 µl
SENP6 (human), pAb	BML-PW0370	25 µl, 100 µl
Sp100 (human), pAb	BML-PW0325	25 µl, 100 µl
Sp100 (SUMO modified) (human), pAb	BML-PW0330	25 µl, 100 µl

ANTIBODIES FOR DETECTION OF:

DNA METHYLATION

Product Name	Product #	Size
Dnmt1, mAb	ALX-804-369	100 µg
Dnmt3a (mouse), mAb	ALX-804-370	100 µg
Dnmt3b, mAb	ALX-804-233	100 µg

HDAC & SIRTUIN

Product Name	Product #	Size
HDAC1, mAb	ALX-804-599	200 µg
HDAC1, pAb	BML-SA401	100 µg
HDAC2, pAb	BML-SA402	100 µg
HDAC3, pAb	BML-SA403	100 µg
HDAC4 (NT), pAb	ALX-210-339	100 µg
HDAC4, pAb	BML-SA404	100 µg
HDAC5, pAb	ALX-210-340	100 µg
HDAC6, pAb	ALX-210-341	100 µg
SIRT1 (human), pAb	BML-SA427	100 µl
SIRT2 (human), pAb	BML-SA444	100 µl
SIRT3, pAb	BML-SA463	100 µl
SIRT5, pAb	BML-SA464	100 µl
Sirtuin 6 (human), mAb	ALX-804-771	50 µg

HISTONE & HISTONE MODIFICATIONS

Product Name	Product #	Size
Histone H2AX (pSer139), pAb	ADI-905-771	100 µg
Histone H3 (acetyl-Lys9), pAb	ADI-905-705	100 µg
Histone H3 (dimethyl-Lys9), pAb	ADI-905-778	100 µg
Histone H3 (K9 trimethylated), mAb (6F12-H4)	ALX-804-673	50 µg
Histone H3 (pSer10), pAb	ADI-905-780	100 µg
Histone H3 (pSer28), pAb	ADI-KAP-CC012	50 µl
Histone H3 (pSer28), pAb	ADI-905-752	100 µg
[K20-monomethyl]Histone H4, mAb (5E10-D8)	ALX-804-674	1mL
[K20-trimethyl]Histone H4, mAb (4H1-G3)	ALX-804-675	1mL
[K20-trimethyl]Histone H4, mAb (6F8-D9)	ALX-804-676	1mL

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