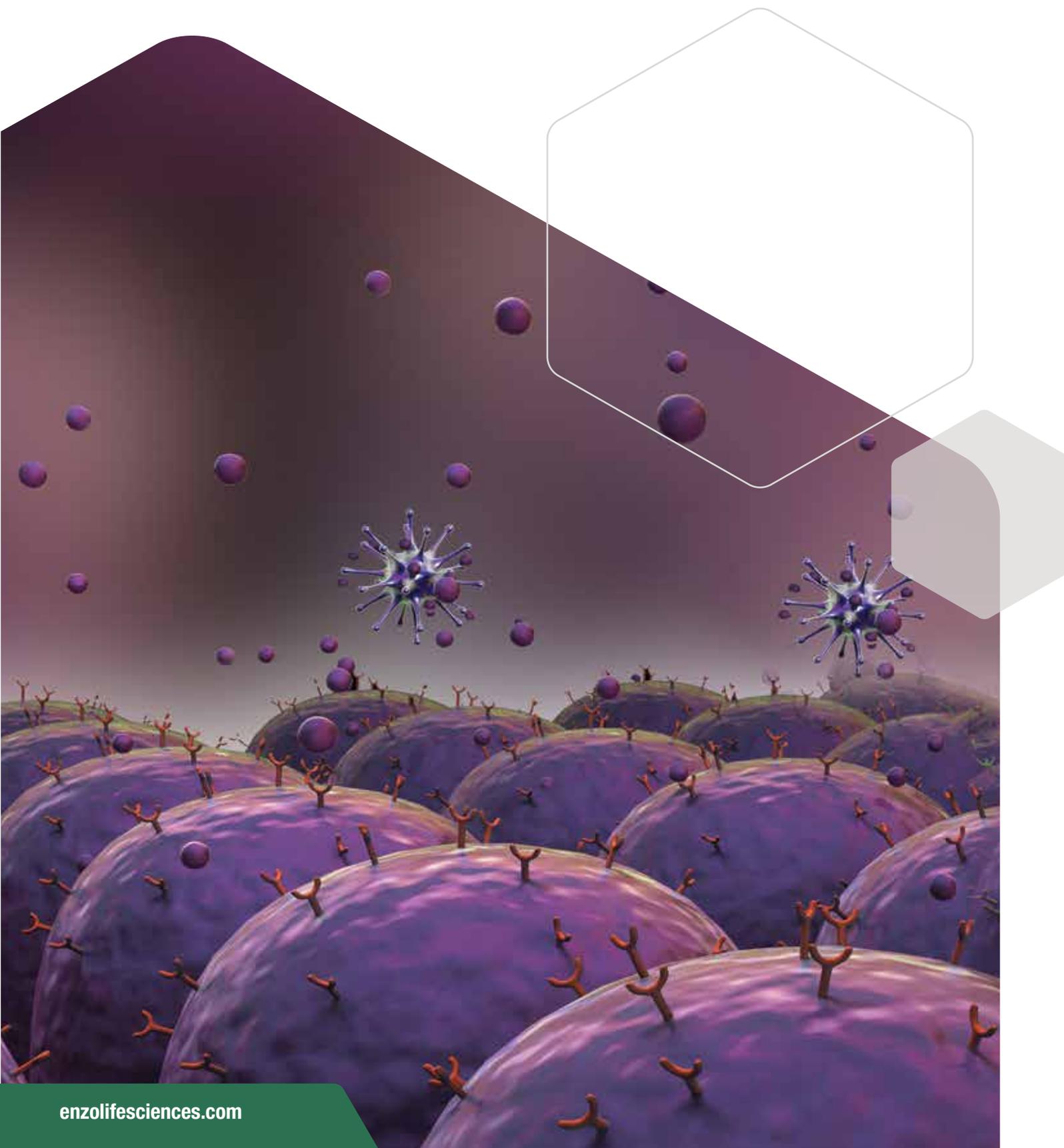




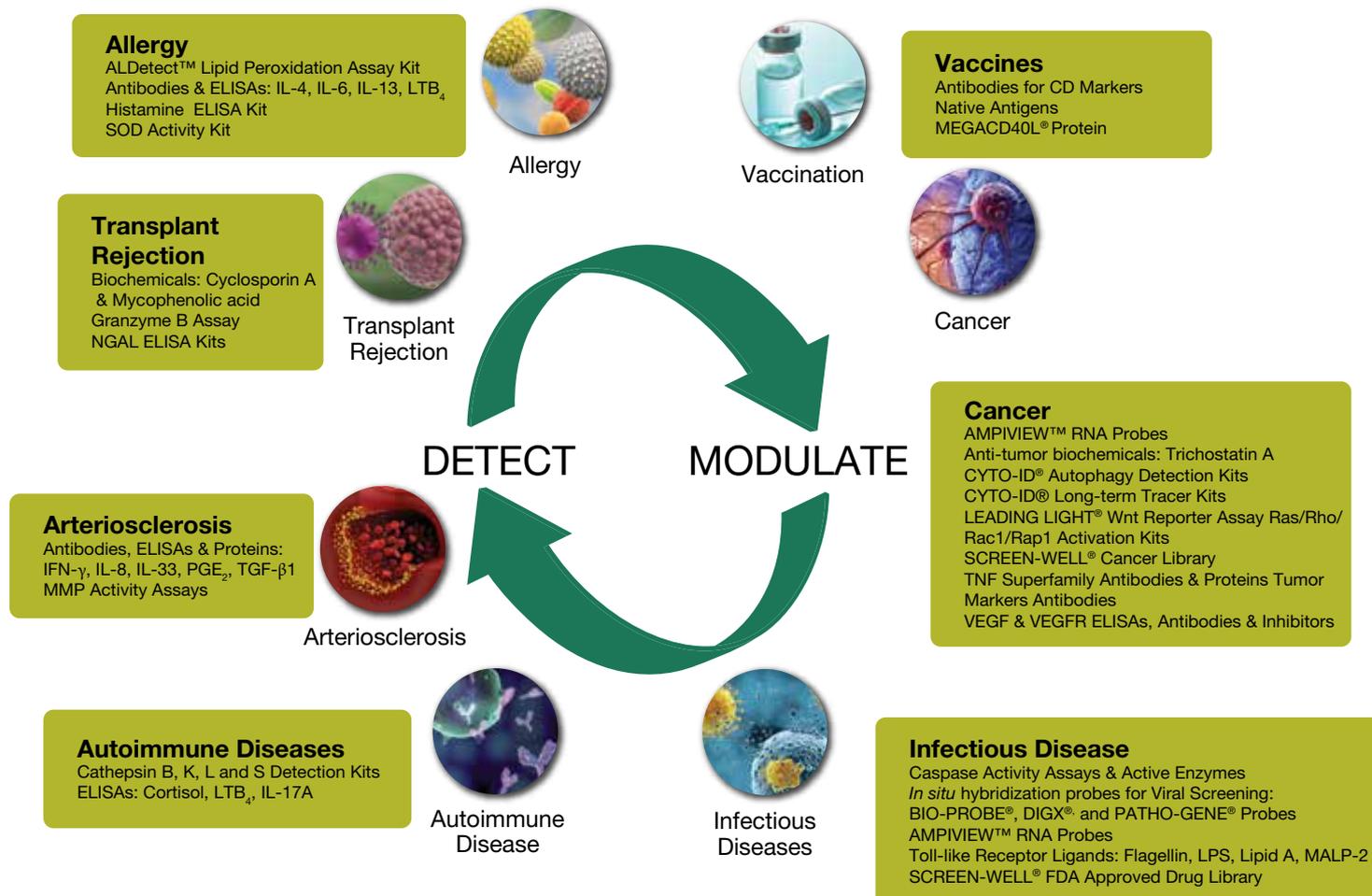
Immunology

Innovative Products to Study the Immune Response



COMPREHENSIVE TOOLS FOR INTERPRETING IMMUNOLOGICAL RESPONSES

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



Cell Analysis & Detection

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. Our expertise in fluorescent probe chemistry and cellular analysis combined provide high-quality, flexible detection platforms for immune cell profiling and functional analysis.

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. We have over 250 immunoassays and detection kits, 3,000 antibodies, and a complete set of IHC/ISH reagents for the analysis of immune response.

Small Molecule Chemistry

We offer 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® libraries or as individual and bulk compounds.

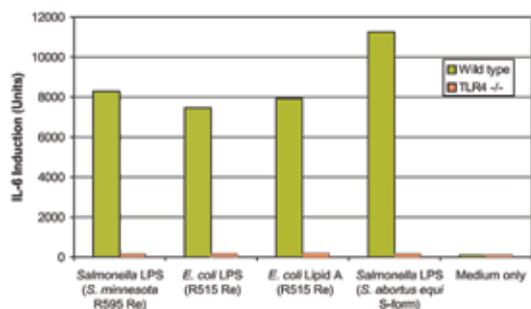
HIGH PURITY LIGANDS

Toll-like Receptors

Providing the Purest Ligands for Recognition by Pattern Recognition Receptors

TLRGRADE® LPS & Lipid A Reagents	Key Toll-like Receptor Ligands		
	TLR	Ligands	Product #
<ul style="list-style-type: none"> • Ultrapure (≥99.9%) • Sterile, ready-to-use liquid formulation • No hazardous handling • Widely cited in peer-reviewed literature 	TLR 1/2	Pam ₃ Cys-Ser-(Lys) ₄ trihydrochloride	ALX-165-066
	TLR 2/6	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 TLR4-activating LPS & Lipid A Preparations Do Not Activate TLR2 or other TLRs



Activation of macrophages from TLR4 wild type (green) compared to TLR4 deficient mice (orange) by TLRGRADE® LPS and TLRGRADE® Lipid A.

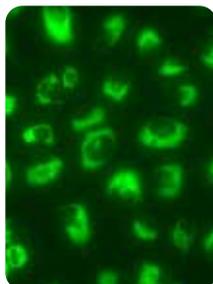
RELATED PRODUCTS

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 (Synthetic) (Ready-to-Use)	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

FLUORESCENT DYES FOR VISUALIZING CELLULAR RESPONSES

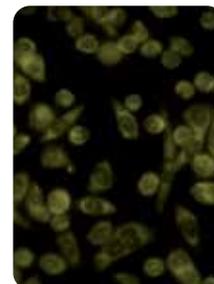
CYTO-ID® Autophagy Detection Kit 2.0 (ENZ-KIT175)

- No-transfection and quantitative approach for monitoring autophagy in live cells
- Validated under a wide range of conditions and with small molecule modulators known to influence autophagy pathways
- Stringently manufactured to control and eliminate non-specific assay artifacts



ROS-ID® Total ROS/Superoxide Detection Kit (ENZ-51010)

- Distinguishes between different reactive species such as hydrogen peroxide, peroxynitrite, and hydroxyl radicals
- High sensitivity, specificity, and accuracy for live cell studies
- Complete set of reagents, including ROS inducers and scavengers



TOOLS FOR 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. Purified native protein 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.

- High purity
- Reproducible scale-up for bulk quantities
- Lyophilized format for extended shelf-life

BACTERIAL TOXINS AND TOXOIDS	
Product Name	Product #
<i>B. pertussis</i> toxin	BML-G101
<i>B. pertussis</i> toxin (ultra pure)	BML-G100
<i>C. difficile</i> toxin A	BML-G140
<i>C. difficile</i> toxin B	BML-G150
<i>C. diphtheriae</i> toxin	BML-G135
<i>V. cholera</i> toxin B subunit	BML-G125
<i>V. cholera</i> toxin, (azide free)	BML-G117
<i>C. difficile</i> toxoid A	BML-G145
<i>C. difficile</i> toxoid B	BML-G155
Tetanus toxoid	ALX-630-108

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

Viral Agent Probes

Virus Detection Probes for use in a variety of hybridization techniques, including *in situ* hybridization (ISH) at low concentrations (50-100 ng/mL). Biotinylated probes have been shown to hybridize to homologous DNA at the same rate and to the same extent as non-biotinylated probes.

BIO-PROBE INFECTIOUS AGENT PROBES			
Product Name	Product #	Product Name	Product #
BIO-PROBE® Adenovirus	ENZ-40834	BIO-PROBE® Epstein-Barr Virus (EBV)	ENZ-40836
BIO-PROBE® BK Virus	ENZ-40848	BIO-PROBE® Herpes Simplex	ENZ-40838
BIO-PROBE® Blur 8	ENZ-40849	BIO-PROBE® JC Virus	ENZ-40847
BIO-PROBE® Cytomegalovirus	ENZ-40835	BIO-PROBE® SV 40	ENZ-40845

Factors for Modulating the Host Response

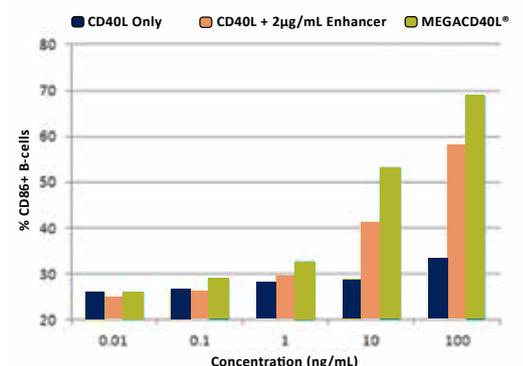
Superior Performance from Carefully Engineered TNF Superfamily Ligands

MEGACD40L® Protein (soluble) (human), (recombinant) (ALX-522-110)

- Highly active MEGACD40L® oligomer mimics *in vivo* membrane-assisted CD40L aggregation and stimulation without the need for enhancers
- High purity with low endotoxin levels
- Experienced manufacturing results in consistent and dependable lot-to-lot performance
- Optimized formulation for improved stability and enhanced activity

RELATED PRODUCTS	
Product Name	Product #
MEGACD40L® Protein (soluble) (mouse), (recombinant)	ALX-522-120
CD40L (soluble) (human), (recombinant)	ALX-522-015
CD40L (soluble) (human), (recombinant) Set	ALX-850-064
Fas (human):Fc (human), (recombinant)	ALX-850-016

Enhance Immune Activation with MEGACD40L® Protein



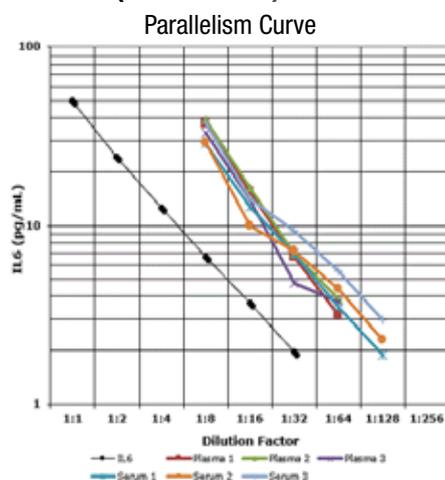
B cell lymphocyte activation by various CD40L constructs. PBMCs were treated for 48 hrs in media containing serially diluted CD40L (blue), CD40L + 2 µg/mL Enhancer (orange), or MEGACD40L® Protein (green).

QUANTIFY BIOMARKERS OF INFLAMMATION

Detect Mediators of Acute and Chronic Inflammation

IL-6 (human), High Sensitivity ELISA Kit (ENZ-KIT178)

- Most-sensitive (0.057 pg/mL) colorimetric kit for IL-6 quantification
- Rapid quantitative results in 3 hours
- High-throughput immunoassay measures up to 40 samples in duplicate per 96-well kit



Histamine ELISA Kit (ENZ-KIT140A)

- Highly sensitive measurement, detecting as little as 0.068 ng/mL
- Unique assay which does not require an additional acylation step
- Rapid results in 2.5 hours for up to 40 samples in duplicate

LTB₄ ELISA Kit (ADI-900-068)

- Ultrasensitive measurement of LTB₄, detecting as little as 5.63 pg/mL
- Broad dynamic range suitable for a large variety of samples
- High throughput format with results in 4 hours for up to 39 samples in duplicate

RELATED PRODUCTS

Product Name	Product #	Product Name	Product #
Corticosterone ELISA Kit	ADI-900-097	IFN- γ (human) ELISA Kit	ADI-900-136
Cortisol ELISA Kit	ADI-900-071	IL-8 (human) ELISA Kit	ADI-900-156
IL-10 (human) ELISA kit	ADI-900-036	TGF- α ELISA Kit	ENZ-KIT132
PGE ₂ High Sensitivity ELISA Kit	ADI-930-001	TGF- β 1 ELISA Kit	ADI-900-155

Detect Specific Cell Populations with Antibodies for CD Markers

We offer 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. For more details about this program visit www.enzolifesciences.com/antibodies.

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 (CD324)							•		•
p-glycoprotein (CD243)							•		

SCIENTISTS ENABLING HEALTHCARE™



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