



Immuno-Oncology

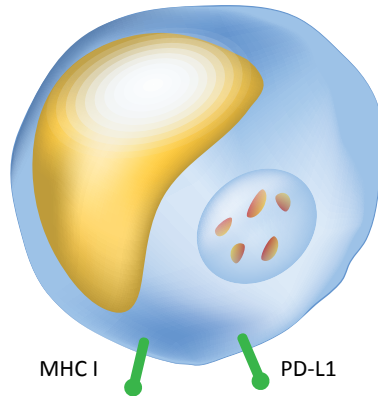
Innovative Tools for
Immuno-Oncology Research



UNDERSTANDING IMMUNE CHECKPOINTS IN IMMUNOLOGY AND CANCER

At Enzo, we offer a complete set of solutions for immuno-oncology research including antibodies, ELISA kits, and recombinant proteins. Our diverse scientific and technical expertise has helped us create innovative assays and reagents to help support immuno-oncology research. We provide flexible and validated tools to help you generate reliable and consistent results.

Tumor Cell



TNF Superfamily Ligands

TRAIL™ Protein and Ligands
KILLERTRAIL™ Ligands
SUPERKILLERTRAIL® Ligands
SUPERFASLIGAND® Protein
FasL Monoclonal Antibodies
TNF-α Antibodies

Recombinant Proteins

PD-1
PD-L1
OX40
OX40L

Key TLR Ligands

Purified Native Ligands
TLRGRADE™ LPS & Lipid A
MEGACD40L® Protein

Antibodies

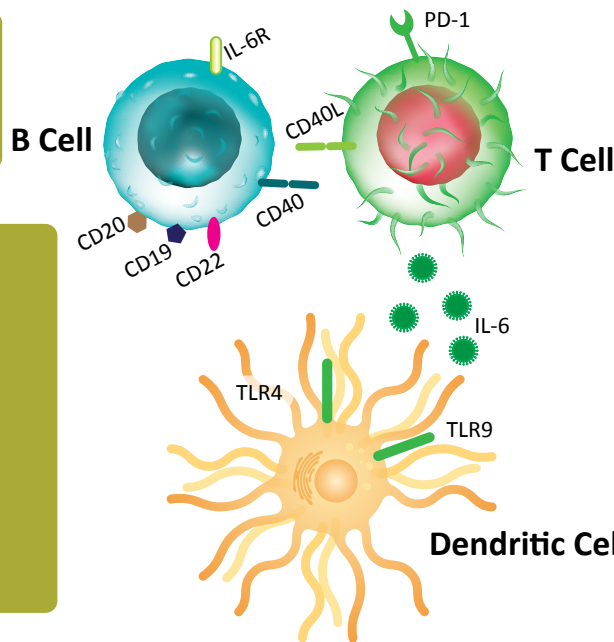
CD Markers
14-3-3
LAG-3
Calcineurin
FasL
GITR
OX40L
PD-1
PD-L1
TIM-3

Bacterial Toxins

C. difficile toxoid A
C. difficile toxoid B
Tetanus toxoid

Highly Sensitive ELISAs

Interleukins
Cytokines
Hormones



Superior Ligands & Toxins

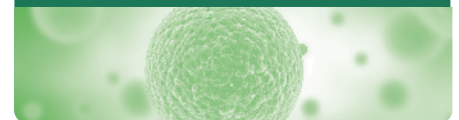
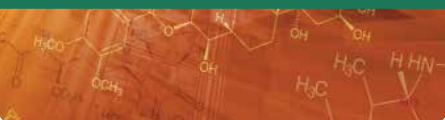
Accelerate your immuno-oncology research by using our enhanced TNF and TLR ligands. Additionally, we offer ultrapure LPS, lipid A reagents, and bacterial toxins. We provide high quality, pure, and consistent reagents specifically designed for your immune system activation research.

Immunoassay Kits

Our catalog of nearly 300 ELISA kits includes sensitive, specific assays for relevant markers of cell viability, signaling pathways, steroid and peptide hormones, inflammation, and more. In addition to traditional antibody pair based immunometric assays, our scientists specialize in the particularly challenging production of high specificity competitive ELISAs for detection of small molecules. With 40 years of assay development experience and state-of-the-art manufacturing facilities, Enzo ensures time-tested reproducibility.

Cell-Based Assays

Our CELLESTIAL® portfolio of fluorescent probes and assay kits for cellular analysis provides a complete set of tools for monitoring cell viability, proliferation, death, oxidative stress and toxicology. Our dye-based assays have been optimized for the most demanding imaging applications including confocal microscopy, wide-field fluorescence microscopy, flow cytometry, and high content screening, where consistency and reproducibility are essential.



ACCELERATE YOUR IMMUNE ACTIVATION STUDIES

Toll-like Receptors

Toll-like receptor ligands play a role in the innate immune system, detecting pathogen-associated molecule patterns (PAMPs) of bacterial, viral, fungal, and protozoal origin.

KEY TOLL-LIKE RECEPTOR LIGANDS

TLR	Ligands	Product #	TLR	Ligands	Product #
TLR1/TLR2	Pam ₃ Cys-Ser-(Lys) ₄ trihydrochloride	ALX-165-066	TLR5	Flagellin (high purity)	ALX-522-058
TLR3	Polyinosinic-polycytidylic acid. potassium salt (TLRGRADE™) (synthetic)	ALX-581-013	TLR2/TLR6	MALP2	ALX-162-027
	LPS from E. coli, Serotype O55:B5 (TLRGRADE™)	ALX-746-013		TLR7/TLR8	R-848
TLR4	Lipid A from E. coli, Serotype R515 (Re) (TLRGRADE™)	ALX-581-200	TLR9	ODN 1668 (TLRGRADE™) (synthetic)	ALX-746-001
	Monophosphoryl Lipid A (synthetic)	ALX-581-205		ODN 1826 (TLRGRADE™) (synthetic)	ALX-746-002
	Paclitaxel	BML-T104		ODN 2006 (TLRGRADE™) (synthetic)	ALX-746-006
		ODN 2216 (TLRGRADE™) (synthetic)		ALX-746-005	
				ODN 2395 (TLRGRADE™) (synthetic)	ALX-746-020

Co-stimulation of T-cell Response

Superior Performance from Carefully Engineered TNF Superfamily Ligands

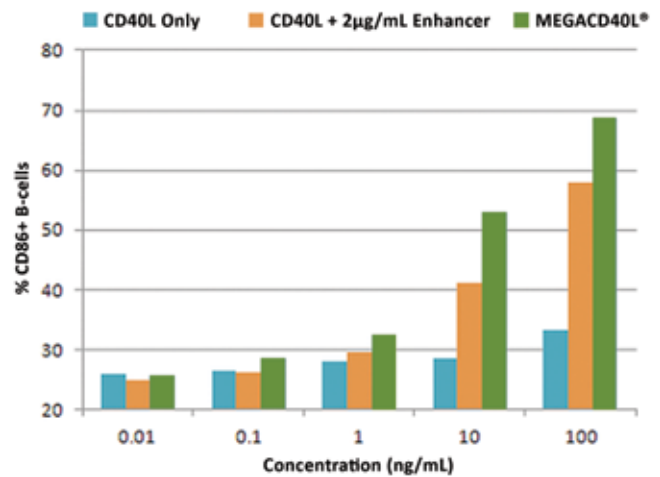
MEGACD40L® Protein (soluble) (human), (recombinant) (ALX-522-110)

- Improved stability and enhanced activity, when compared to CD40L alone or with enhancers
- Reliable results are guaranteed through consistent lot-to-lot performance

RELATED PRODUCTS

Product Name	Product #
CD40 (human):Fc (human), (recombinant)	ALX-522-016
CD40L (soluble) (human), (recombinant)	ALX-522-015
CD40L (soluble) (mouse), (recombinant)	ALX-522-070
Enhancer for Ligands	ALX-804-034
Fc (human):CD40L (soluble) (human), (recombinant)	ALX-522-076
MEGACD40L® (soluble) (mouse), (recombinant)	ALX-522-120

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, CD40L + 2 µg/mL Enhancer, or MEGACD40L® Protein. Cells were dual-stained with α-human CD19-PE and α-human CD86-APC and analyzed by flow cytometry. Data are presented as the percent of CD19+ B cells that co-stain as CD86+.

Death Receptor Ligands

Members of the tumor necrosis factor (TNF) receptor gene superfamily bind to extrinsic ligands and transduce intracellular signals leading to the destruction of the cell. Ligands, such as FasL and TNF- α , hold potential as targets for therapeutic and diagnostic applications.

SUPERFASLIGAND® Protein (soluble)(human), (recombinant) (ALX-522-020)

- Features an N-Terminus linker shown to improve stability
- Enhanced immune activation compared to other recombinant ligands

Induction of Cell Death with SUPERFASLIGAND® Protein



Jurkat cells were incubated with the indicated concentration of SuperFasL and cell proliferation was assayed. % Viability was determined in comparison to control wells with no SuperFasL.

RELATED PRODUCTS

Product Name	Product #
FasL [CD95L,CD178] (soluble) (human), (recombinant)	ALX-522-001
Fc (h):TNF- α (soluble) (human), (recombinant)	ALX-522-087
KILLERTRAIL® Protein (soluble) (human), (recombinant)	ALX-201-073
SUPERKILLERTRAIL® Protein (soluble) (human), (recombinant)	ALX-201-115
TNF- α (human) (recombinant), (cell culture grade)	ALX-520-002
TNF- α (soluble) (human), (recombinant)	ALX-522-008
TRAIL (soluble) (human), (recombinant)(His-tag)	BML-SE721
TRAIL (soluble) (mouse), (recombinant)	BML-SE722

Learn more at enzolifesciences.com/immuno-oncology

ANALYZE INFLAMMATORY BIOMARKERS WITH ELISA

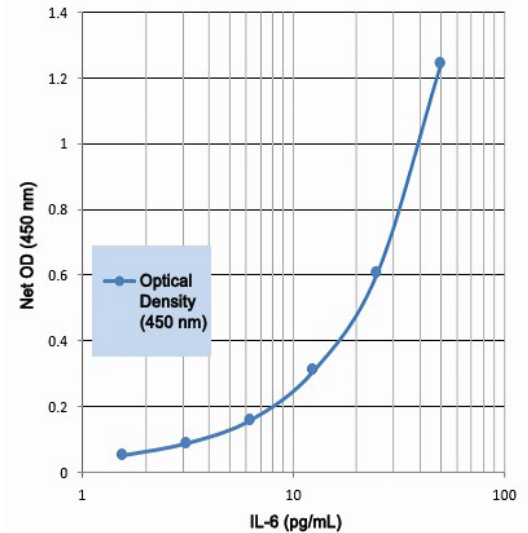
High-Specificity ELISAs for Innate and Adaptive Immune Research

Enzo offers a large variety of immunoassay kits in both immunometric and competitive assay formats. As scientists and manufacturers of kits, we understand the critical nature of your research. Each kit is put through rigorous testing to ensure high precision, accuracy, sensitivity, and specificity. You can be confident that you will obtain reproducible results, day-after-day, and lot-after-lot.

- Sensitivity – detect even the lowest sample concentration
- Broad Range – minimize need for dilution
- Consistent – strict quality control guidelines ensure reproducible results, lot-after-lot

CYTOKINE/INTERLEUKIN ELISAs				
Human			Mouse	
Adiponectin	IL-4	Leptin	IFN- γ	Leptin
CD40	IL-6	Lipocalin 2 (NGAL)	IL-1 β	Lipocalin 2 (NGAL)
CD40L	IL-8	Nampt	IL-2	Nampt
FasL	IL-10	Osteoprotegerin	IL-4	TGF- β 1
IFN- γ	IL-12p70	RANKL	IL-6	TNF- α
IGF-1	IL-13	TNF- α		
IL-1 β	IL-17A	TNF-R1		
IL-2	IL-33			

Highly Sensitive Measurement of IL-6



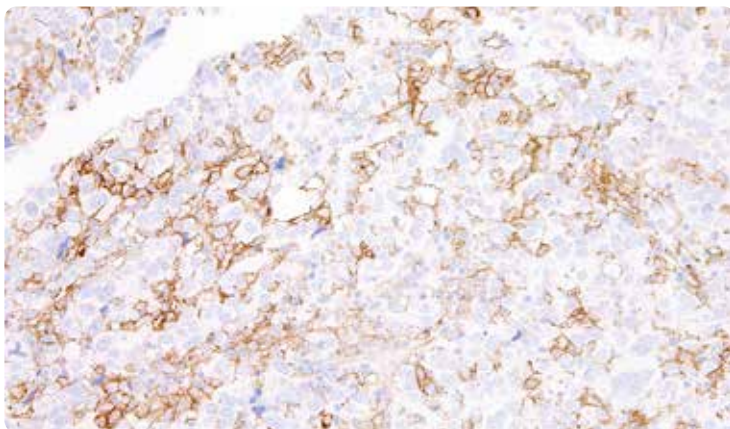
A typical standard curve for IL-6 (human) High Sensitivity ELISA kit (ENZ-KIT178)

For product information visit enzolifesciences.com/immunology

Immune Checkpoints

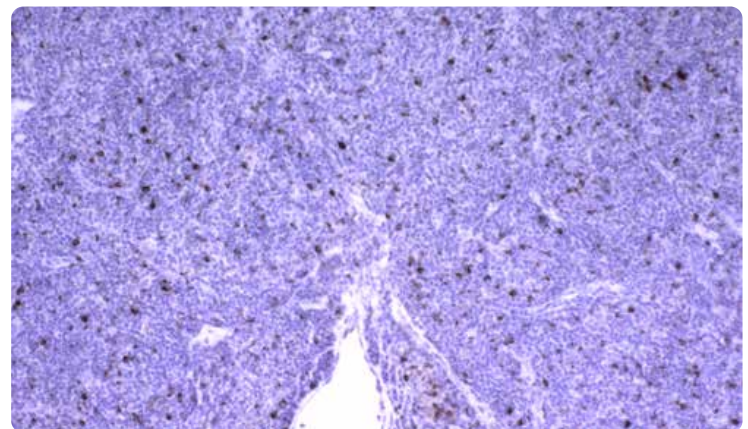
Highly specific antibodies validated for various applications, from flow cytometry to IHC, help you discover immune checkpoint inhibitors, develop novel immunotherapies, and support your immuno-oncology research. For more information, go to: www.enzolifesciences.com/antibodies.

PD-L1 (human) mAb (ENZ-ABS693)



IHC using anti-PD-L1 (ENZ-ABS693) on lung adenocarcinoma tissue.

LAG-3 (human) mAb (ENZ-ABS677)












IHC using anti-LAG-3 (ENZ-ABS677) on human tonsil tissue.

Learn more at enzolifesciences.com/immuno-oncology

HIGH QUALITY ANTIBODIES DELIVER SUPERIOR RESULTS

Detect Specific Cell Populations with Antibodies for CD Markers

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

CD Marker	T Cells	B Cells	Dendritic Cells	NK Cells	Stem Cell Precursor	Macrophages	Granulocytes	Endothelial Cells	Epithelial Cells
									
CD3	•								
CD4	•								
CD8	•			•					
CD9	•	•				•	•	•	•
CD11a	•	•		•		•	•		
CD18	•	•	•	•		•	•		
CD20	•	•							
CD23	•	•	•			•	•		•
CD31	•	•		•		•	•	•	
CD38	•	•	•	•	•	•			
CD39	•	•	•	•		•		•	•
CD40	•	•	•		•	•	•	•	•
CD40L	•								
CD41a					•				
CD41b					•				
CD42					•				
CD44	•	•		•		•	•	•	•
CD45	•	•	•	•	•	•	•		
CD45RA	•	•	•	•	•	•			
CD49b/CD29	•	•	•	•	•	•	•	•	•
CD51						•		•	
CD52	•	•		•					•
CD54	•	•				•		•	
CD66a							•		•
CD66b							•		
CD66c							•		•
CD66e									•
CD68	•	•	•		•	•	•		
CD74	•	•	•			•		•	•
CD80	•	•	•			•			
CD83		•	•						
CD87	•			•		•	•	•	
CD107b	•						•	•	
CD123			•		•		•	•	
CD127	•				•	•			
CD134L	•								
CD163						•			
CD194	•		•	•		•		•	
CD205		•	•			•			
CD207			•						
CD208			•						
CD223	•			•	•				
CD243					•				
CD279	•								
CD324					•				•
CD325					•				

SCIENTISTS ENABLING HEALTHCARE™



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