

Immune Checkpoint Research Solutions

InnoCyto

Precision Antibodies & Proteins for Diverse Applications

Immune checkpoints govern the balance between immune activation and tolerance and their dysregulation is central to cancer immune evasion. InnoCyto offers a comprehensive portfolio of high-specificity antibodies and recombinant proteins targeting the full checkpoint landscape, from established targets like PD-1/PD-L1 and CTLA-4 to emerging targets such as LAG-3, TIGIT, and VISTA. Built for flow cytometry, functional assays, and therapeutic antibody development, our reagents deliver the sensitivity and reproducibility your research demands.

A PORTFOLIO BUILT FOR DRIVING SCIENTIFIC ADVANCEMENTS



Every antibody is validated through rigorous lot-to-lot testing, ensuring consistent specificity and reproducibility across experiments.



Manufactured under stringent quality control standards, with functional validation performed on relevant human and murine cell models.



Low endotoxin, high-purity recombinant proteins formulated for demanding functional and structural studies.



Multiple applications, including flow cytometry, ELISA, and functional assays, for seamless integration into your existing workflows.



Backed by a dedicated scientific support team who understand the nuances of checkpoint biology, not just product specs.



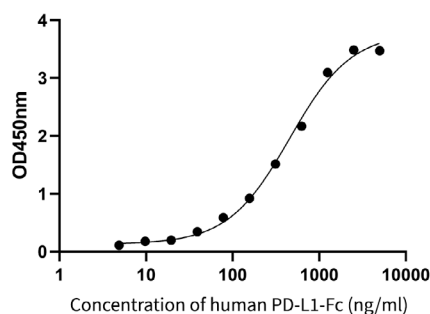
From bench to biologic development, our antibodies and proteins are built to scale with your research, from early discovery through preclinical validation.



FEATURING

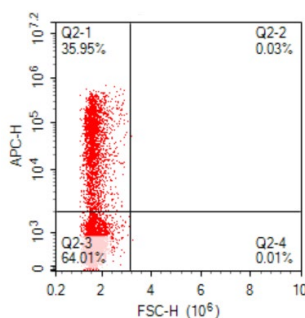
- Fluorescence Labeled Antibodies for Flow Cytometry
- Biosimilar Antibodies & Proteins
- In Vivo Biofunctional Antibodies
- Fluorescence Labeled Proteins for Flow Cytometry
- Purified Recombinant Proteins for Binding Assays and Structural Studies

Binding Response



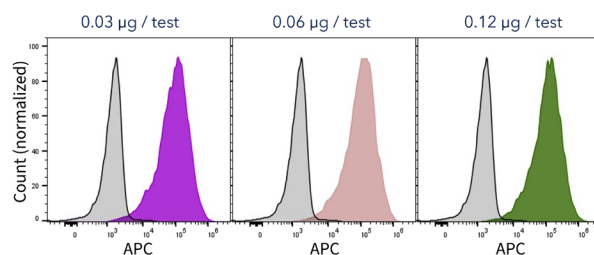
Recombinant human PD-1 (C-His) is immobilized at 1 µg/mL, 100 µL/well. Recombinant Human PD-L1 (C-Fc-Avi, Cat# 801001) binds to PD-1 (C-His) in a dose-dependent manner. HRP Anti-hIgG1 secondary antibody (1:5000) is used as the detection reagent.

CAR Detection



PD-L1 CAR-transfected CHO cells were stained with 5 µL APC-PDL1-Fc (Cat# 801103). Negative gate was determined from mock transfected cells.

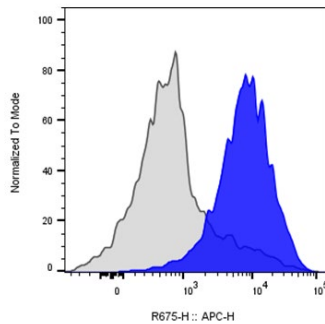
Immunophenotyping



Human peripheral blood lymphocytes were stimulated with anti-CD3 and anti-CD28 antibodies and then stained with APC anti-human CD279, clone EH12.2H7 (Cat#101705) (colored histograms, shown at three dilutions) or isotype control (gray histograms).

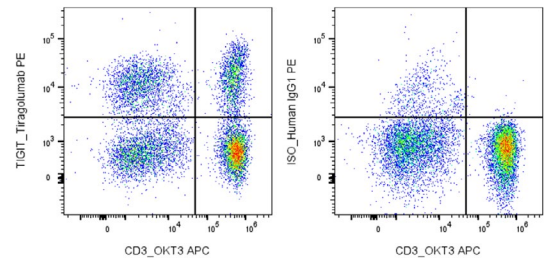
Target Name	Clone	Reactivity	Format
CD27, TNFRSF7, S152, T14	O27AM1	Human	APC, FITC, PE, Purified, iF647, iF700
CD27, TNFRSF7, S152, T14	O323	Human	APC, Biotin, FITC, PE, Purified, iF647
CD28, Tp44	O28AB	Human	Biotin, FITC, iF488, iF647, PB, Purified
CD28, Tp44	CD28.2	Human	APC, FITC, PE, Purified, iF488, iF647
CD28, Tp44	37.51	Mouse	Purified, iF647
CD80, B7-1, B7, Ly-53	16-10A1	Mouse	Purified, iF488, iF647
CD86, B7-2, Ly-58, B70	GL-1	Mouse	PE, Purified
CD112, Nectin-2, PRR2, Hve B	112AMg1	Human	Purified, iF647
CD172a, P84, SHPS-1, PTPNS1	P84	Mouse	APC, FITC, PE, PE/iF594, Purified, iF488, iF647, iF700
CD223, LAG-3, lymphocyte-activation gene-3	Relatlimab	Human	APC, PE, Purified
CD274, PD-L1, B7-H1	10F.9G2	Mouse	APC, Biotin, FITC, PE, Purified, iF560, iF647
CD276, B7-H3, B7H3, B7RP-2	lfinatamab	Human	iF488, iF647
CD278, ICOS	C398.4A	Human, Mouse, Rat	Purified, iF488, iF647, iF700
CD279, PD1, PD-1	279AM1	Human	FITC, Purified, iF488, iF560, iF647, iF700
CD279, PD1, PD-1	EH12.2H7	Human	APC, APC/Cyanine7, FITC, PE, PE/Cyanine7, Purified, iF647
HLA-G, Human Leukocyte Antigen-G	HLAGAM1	Human	APC, APC/Cyanine7, PE, Purified, iF488, iF647
HLA-G, Human Leukocyte Antigen-G	HLAGAR1	Human	Purified, iF488, iF647, iF700
KLRG1, MAFA, 2F1-Ag	2F1	Human, Mouse	APC, FITC, PE, PE/iF594, Purified, iF488, iF647, iF700
TIGIT, VSTM3, VSIG9	Tiragolumab	Human	APC/Cyanine7, PE

iF647 Anti-Mouse CD274 (PD-L1)



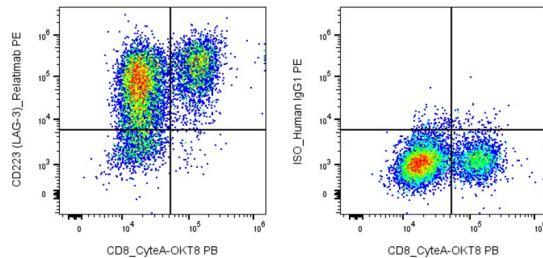
Mouse splenocytes stained with either iF647 anti-Mouse PD-L1 clone 10F.9G2 (Cat# 201305) (blue histogram) or an isotype control (gray histogram).

PE Anti-Human TIGIT (VSTM3)



Human peripheral lymphocytes were stained with APC Anti-Human CD3 clone OKT3 and PE Anti-Human TIGIT biosimilar Tiragolumab (Cat# 112201) (left) or an isotype control (right).

PE Anti-Human CD223 (LAG-3)



Human peripheral blood lymphocytes stimulated with Anti-Human CD3/CD28 for 3-days were stained with PB Anti-Human CD8 clone OKT8 and PE Anti-Human CD223 (LAG-3) clone Relatlimab (Cat# 117203) (left) or an isotype control (right).

In Vivo Star™ Biofunctional Antibodies

Target Antigen	Antibody Clones
Mouse CD28	PV-1-m2a, PV-1, 37.51-mg1, 37.51
Mouse CD152 (CTLA-4)	9D9, 9D9-m2aSL
Mouse CD274 (PD-L1)	10F.9G2-m2aSL, 10F.9G2
Mouse CD274 (PD-L1) / VEGF-A (bispecific)	10F.9G2 / B20-4.1.1, 10F.9G2 / G6-23, 10F.9G2 / G6-31
Mouse CD274 (PD-L1) / VEGFR-2 (bispecific)	10F.9G2 / DC101
Mouse CD274 (PD-L1 / CD279 (PD1) (bispecific)	10F.9G2 / RMP1-14
Mouse CD279 (PD1)	RMP1-14-m2a, RMP1-14-m2aSL, RMP1-14, 29F.1A12-m1, 29F.1A12-m1DA, 29F.1A12-m2a, 29F.1A12-m2aSL, 29F.1A12

Target Antigen	Antibody Clones
Mouse CD279 (PD-1) / VEGF-A (bispecific)	RMP1-14 / B20-4.1.1, 29F.1A12 / B20-4.1.1, RMP1-14 / G6-23, 29F.1A12 / G6-23, RMP1-14 / G6-31, 29F.1A12 / G6-31
Mouse CD279 (PD-1) / VEGFR-2 (bispecific)	RMP1-14 / DC101, 29F.1A12 / DC101
Mouse CD279 (PD-1) / CD274 (PD-L1) (bispecific)	RMP1-14 / 10F.9G2, 10F.9G2 / 29F.1A12
Mouse CD357 (GITR)	DTA-1, DTA-1-m2a, DTA-1-m2aSL
Mouse CD370 / CD274 (PD-L1) (bispecific)	10B4 / 10F.9G2
Mouse TIGIT	1F4, 10A7
Human CD28	15E8, 9.3, CD28.3, CD28.2

Biosimilars

Product Name	Clone
CTLA-4 Fc Fusion Protein (Abatacept Biosimilar)	Abatacept
Anti-Human PD-L1 (Atezolizumab Biosimilar)	Atezolizumab
Anti-Human PD-L1 (Avelumab Biosimilar)	Avelumab
CTLA-4 Fc Fusion Protein (Belatacept Biosimilar)	Belatacept
Anti-Human PD-1 (Camrelizumab Biosimilar)	Camrelizumab
Anti-Human PD-1 (Cemiplimab Biosimilar)	Cemiplimab
Anti-Human PD-L1 (Durvalumab Biosimilar)	Durvalumab
Anti-Human PD-L1 (Envafolelimab Biosimilar)	Envafolelimab

Product Name	Clone
Anti-Human CD80 (Galiximab Biosimilar)	Galiximab
Anti-Human B7-H3 (Ifinatamab Biosimilar)	Ifinatamab
Anti-Human CTLA-4 (Ipilimumab Biosimilar)	Ipilimumab
Anti-Human PD-1 (Nivolumab Biosimilar)	Nivolumab
Anti-Human PD-1 (Pembrolizumab Biosimilar)	Pembrolizumab
Anti-Human LAG-3 (Relatlimab Biosimilar)	Relatlimab
Anti-Human PD-1 (Spartalizumab Biosimilar)	Spartalizumab
Anti-Human CTLA-4 (Tremelimumab Biosimilar)	Tremelimumab

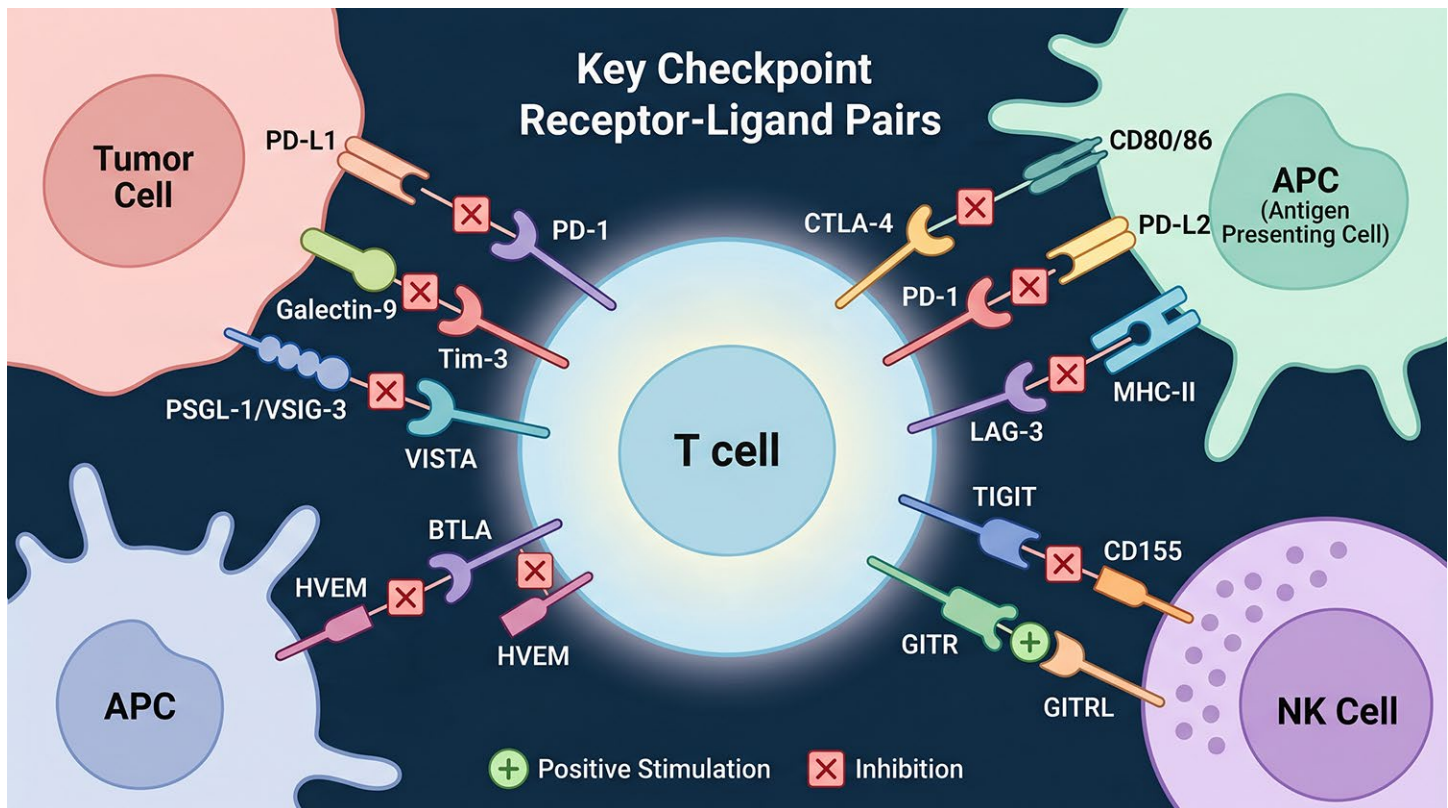
Recombinant Proteins

Protein Name	Species	Format
CD80, B7-1, B7, BB1	Human	APC, Biotin, PE, Purified
CD86, B7-2, B70, CD28LG2	Human	APC, Biotin, PE, Purified
CD152, CTLA4	Human	APC, Biotin, PE, Purified
CD273, PD-L2, Butyrophilin B7-DC	Human	APC, Biotin, PE, Purified
CD274, PD-L1, B7-H1, PDCD1L1, PDCD1LG1	Rhesus monkey	Purified
CD274, PD-L1, B7-H1, PDCD1L1, PDCD1LG1	Human	APC, Biotin, PE, Purified

Protein Name	Species	Format
CD279, PD1, PDCD1, SLEB2	Human	APC, Biotin, PE, Purified
CD357, TNFRSF18, AITR, GITR	Human	APC, Biotin, PE, Purified
TIM3, HAVCR2, TIMD3, FLJ14428, KIM3	Human	Biotin, Purified
GITRL, TNFSF18, GITR Ligand, AITRL, TL6	Human	Biotin, Purified
VISTA, B7-H5, SISP1, Gi24	Human	APC, Biotin, PE, Purified

Would you like to try free samples for validation? Visit: innocyto.com/web/free-sample-program.php

KEY MOLECULES



CTLA-4 (CD152) is expressed on activated T cells and constitutively on regulatory T cells (Tregs). It competes with the co-stimulatory receptor CD28 for binding to CD80/CD86 (B7-1/B7-2) on APCs, with higher affinity and avidity than CD28. By outcompeting CD28 engagement, CTLA-4 dampens the initial priming phase of T-cell activation in lymph nodes. Ipilimumab, the first FDA-approved checkpoint inhibitor (2011), targets this axis.

PD-1 (CD279) is upregulated on chronically stimulated or "exhausted" T cells within peripheral tissues and the tumor microenvironment (TME). Its ligands, PD-L1 (CD274) and PD-L2 (CD273), are expressed on tumor cells, myeloid cells, and stromal cells. PD-1/PD-L1 engagement recruits SHP-2 phosphatase, dephosphorylating TCR/CD28 signaling components and attenuating effector function locally at the site of antigen encounter—distinguishing it functionally from the more centrally-acting CTLA-4.

LAG-3 (CD223) binds MHC class II and the alternative ligand FGL1, contributing to T-cell exhaustion and Treg suppressive function. It is frequently co-expressed with PD-1 on exhausted T cells, providing rationale for combination blockade.

TIM-3 (HAVCR2) engages multiple ligands, including galectin-9, phosphatidylserine, HMGB1, and CEACAM1, and marks terminally exhausted CD8⁺ T cells, often in a triple-positive state alongside PD-1 and LAG-3.

TIGIT competes with the co-stimulatory receptor CD226 (DNAM-1) for shared ligands CD155 (PVR) and CD112, suppressing both T-cell and NK-cell activity—a mechanism of particular interest for flow cytometry panels assessing NK-cell functional status.

VISTA and **B7-H3 (CD276)** represent additional inhibitory ligands with broader expression across myeloid and stromal compartments, implicated in maintaining an immunosuppressive TME independent of the classical PD-1/CTLA-4 axes.

Drive your Immune Checkpoint discovery at: www.innocyto.com