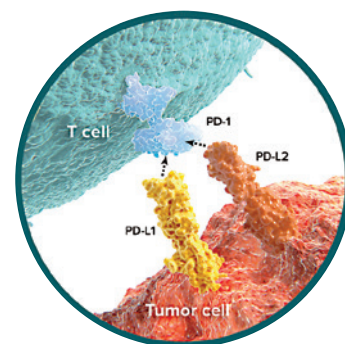


PD-1/PD-L1 Pathway

PD-1 (Programmed Cell Death Protein 1; CD279) is a type I transmembrane protein belonging to the CD28/CTLA-4 family of immune receptors. PD-L1 (B7-H1; CD274) and PD-L2 (B7-DC; CD273) are immuno-coinhibitory ligands of the B7 family binding to PD-1. The PD-1/PD-L1 or PD-L2 signaling pathway is a negative regulatory mechanism that inhibits T cell proliferation and cytokine production. Blockade of the PD-1/PD-L1 interaction enhances antitumor immunity. The PD-1 pathway plays a major role in the inhibition of self-reactive T cells and protection against autoimmune diseases. PD-1 and PD-L1 also exist as soluble forms. Elevated levels of soluble PD-1 (sPD-1) are shown in rheumatoid arthritis, skin sclerosis and autoimmune hepatitis. Levels of sPD-L1 are increased in the plasma of cancer patients as well as in cerebrospinal fluid of gliomas. sPD-L1 is a biomarker of poor survival in patients with B cell lymphoma, renal cell carcinoma, metastatic melanoma or lung cancer and is associated with advanced tumor stages.

SELECTED REVIEWS: Regulatory mechanisms of PD-1/PD-L1 in cancers: X. Lin, et al.; Mol. Cancer **23**, 108 (2024) • PD-1/PD-L1 axis: implications in immune regulation, cancer progression, and translational applications: M.A. Ortega, et al.; J. Mol. Med. **102**, 987 (2024) • Targeting the PD-1/PD-L1 Signaling Pathway for Cancer Therapy: Focus on Biomarkers: A. Strati, et al.; Int. J. Mol. Sci. **26**, 1235 (2025)



Highly Sensitive PD-1/PD-L1 ELISA Assays

PD-1 (human) ELISA Kit

AG-45B-0015

96 wells

Specificity: Detects soluble human PD-1 (sPD-1) in biological fluids.

Sensitivity: 1.6 pg/ml

Range: 3.125 to 200 pg/ml

Sample: Cell Culture Supernatant, Plasma, Serum

PD-L1 (human) ELISA Kit

AG-45B-0016

96 wells

Specificity: Detects soluble human PD-L1 (sPD-L1) in biological fluids.

Sensitivity: 0.8 pg/ml

Range: 2.34 to 150 pg/ml

Sample: Cell Culture Supernatant, Plasma, Serum

IHC GRADE

IHC-Competent Antibodies for PD-1 and PD-L1 Staining

anti-PD-1 (human), mAb (AG-IHC001)

AG-20B-6020

100 µl

FIGURE: IHC Staining of PD-1 in human tonsil tissue using anti-PD-1 (human), mAb (AG-IHC001) (Prod. No. AG-20B-6020).

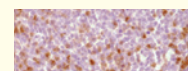


anti-PD-1 (human), Rabbit Monoclonal (RM309)

REV-31-1195-00

100 µl

FIGURE: IHC staining of FFPE human tonsil tissue section using Clone RM309 at a 1:500 dilution.

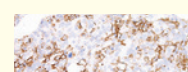


anti-PD-L1 (human), mAb (AG-IHC411)

AG-20B-6022

100 µl

FIGURE: IHC Staining of PD-L1 in human lung tissue using anti-PD-L1 (human), mAb (AG-IHC411) (Prod. No. AG-20B-6022).

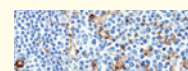


anti-PD-L1 (human), Rabbit Monoclonal (RM320)

REV-31-1205-00

100 µl

FIGURE: IHC staining of FFPE human lung cancer tissue section using Clone RM320 at a 1:1000 dilution.



Biologically Active Recombinant Proteins

PROTEINS	PID	SIZE	SOURCE	ENDOTOXIN	SPECIES
PD-1 (mouse):Fc (mouse) (rec.)	CHI-MF-110PD1	100 µg	CHO cells	<0.06EU/µg	Ms
PD-1 (mouse):Fc (human) (rec.)	CHI-MF-111PD1	100 µg	HEK 293 cells	<0.06EU/µg	Ms
PD-1 (human) (rec.) (untagged)	CHI-HF-200PD1	50 µg	HEK 293 cells	<0.01EU/µg	Hu
PD-1 (human) (rec.) (His)	CHI-HF-201PD1	100 µg	HEK 293 cells	<0.01EU/µg	Hu
PD-1 (human):Fc (human) (rec.)	CHI-HF-210PD1	100 µg	CHO cells	<0.06EU/µg	Hu
PD-1 (human):Fc (human) (rec.) (non-lytic)	CHI-HF-220PD1	200 µg	CHO cells	<0.06EU/µg	Hu
PD-1 (human):Fc (mouse) (rec.)	CHI-HF-211PD1	100 µg	HEK 293 cells	<0.005EU/µg	Hu
PD-L1 (mouse):Fc (mouse) (rec.)	CHI-MF-110PDL1	100 µg	CHO cells	<0.06EU/µg	Ms
PD-L1 (mouse):Fc (mouse) (rec.) (non-lytic)	CHI-MF-120PDL1	100 µg	CHO cells	<0.06EU/µg	Ms
PD-L1 (human) (rec.) (untagged)	CHI-HF-200PDL1	50 µg	HEK 293 cells	<0.01EU/µg	Hu
PD-L1 (human) (rec.) (His)	CHI-HF-201PDL1	100 µg	HEK 293 cells	<0.01EU/µg	Hu
PD-L1 (human):Fc (human) (rec.)	CHI-HF-210PDL1	100 µg	CHO cells	<0.06EU/µg	Hu
PD-L1 (human):Fc (human) (rec.) (non-lytic)	CHI-HF-220PDL1	100 µg	CHO cells	<0.06EU/µg	Hu
PD-L1 (human):Fc (mouse) (rec.)	CHI-HF-211PDL1	100 µg	HEK 293 cells	<0.005EU/µg	Hu
PD-L2 (mouse):Fc (mouse) (rec.)	CHI-MF-110PDL2	100 µg	CHO cells	<0.06EU/µg	Ms
PD-L2 (human):Fc (human) (rec.)	CHI-HF-210PDL2	100 µg	CHO cells	<0.06EU/µg	Hu
PD-L2 (human):Fc (human) (rec.) (non-lytic)	CHI-HF-220PDL2	100 µg	CHO cells	<0.06EU/µg	Hu
PD-L2 (human):Fc (mouse) (rec.)	CHI-HF-211PDL2	100 µg	CHO cells	<0.06EU/µg	Hu

Proteins & FACS Antibodies from Ancell Corporation



ANTIBODIES	PID	SIZE	ISOTYPE	APPLICATION	SPECIES
anti-CD279 [PD-1] (human), mAb (ANC4H6)	ANC-279-020	100 µg	Mouse IgG1κ	FACS	Hu
anti-CD274 [PD-L1] (human), mAb (ANC6H1)	ANC-274-020	100 µg	Mouse IgG1κ	FACS	Hu
anti-CD273 [PD-L2] (human), mAb (ANC8D12)	ANC-273-020	100 µg	Mouse IgG1κ	FACS	Hu
PROTEINS	PID	SIZE	SOURCE	ENDOTOXIN	SPECIES
CD279 [PD-1] (human)-mulg Fusion Protein	ANC-549-020	25 µg	CHO cells	n.d.	Hu
CD274 [PD-L1] (human)-mulg Fusion Protein	ANC-541-020	25 µg	CHO cells	n.d.	Hu
CD273 [PD-L2] (human)-mulg Fusion Protein	ANC-573-020	25 µg	CHO cells	n.d.	Hu

Mouse-specific PD-1 Blocking Antibody

anti-PD-1 (mouse), mAb (blocking) (1H10)

AG-20B-0075

AG-20B-0075PF

Preservative Free

25 µg | 100 µg

100 µg | 500 µg | 2 mg

Functional Application: Blocks PD-1 binding. Induces a rapid activation and proliferation of T cells at a concentration of 0.25 µg/2x10⁵ cells.

FIGURE: PD-1 receptor-induced CD4 T cell activation and proliferation by PD-1 (mouse), mAb (blocking) (1H10) (AG-20B-0075).

METHOD: Magnetic bead affinity purified CD4+ T cells from C57BL/6 mice are stimulated *in vitro* with PD-1 (mouse), mAb (blocking) (1H10), anti-CD28 and rat IgG2a isotype (control Ig) (0.25µg/2x10⁵ cells) for 48h. Proliferation is determined by [3H] thymidine incorporation. The presence of anti-CD28 mAb increases 1H10 mAb-mediated proliferation.

