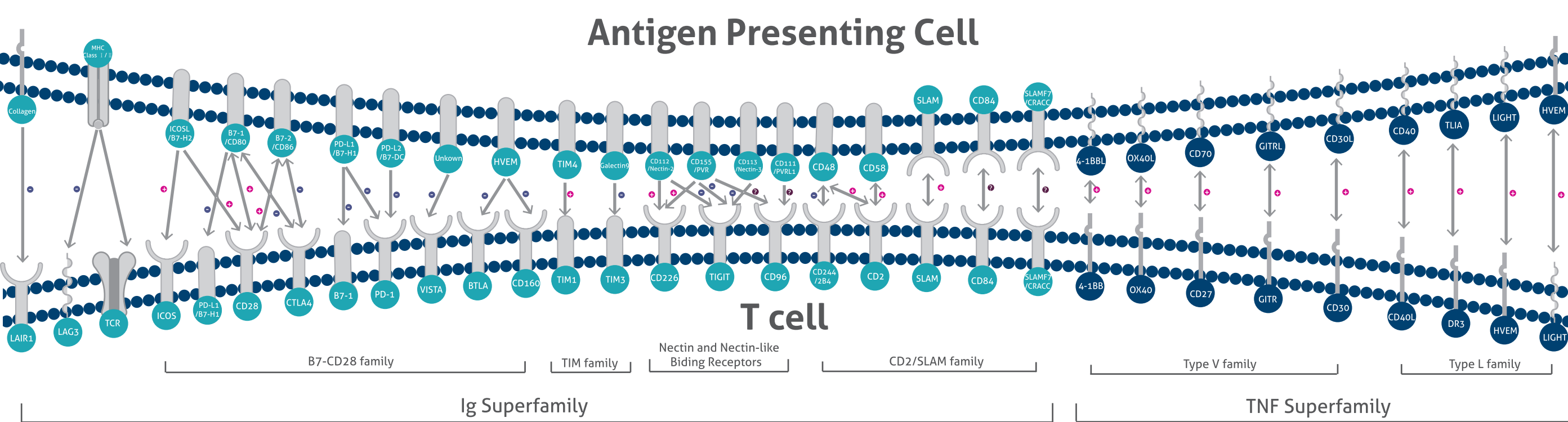




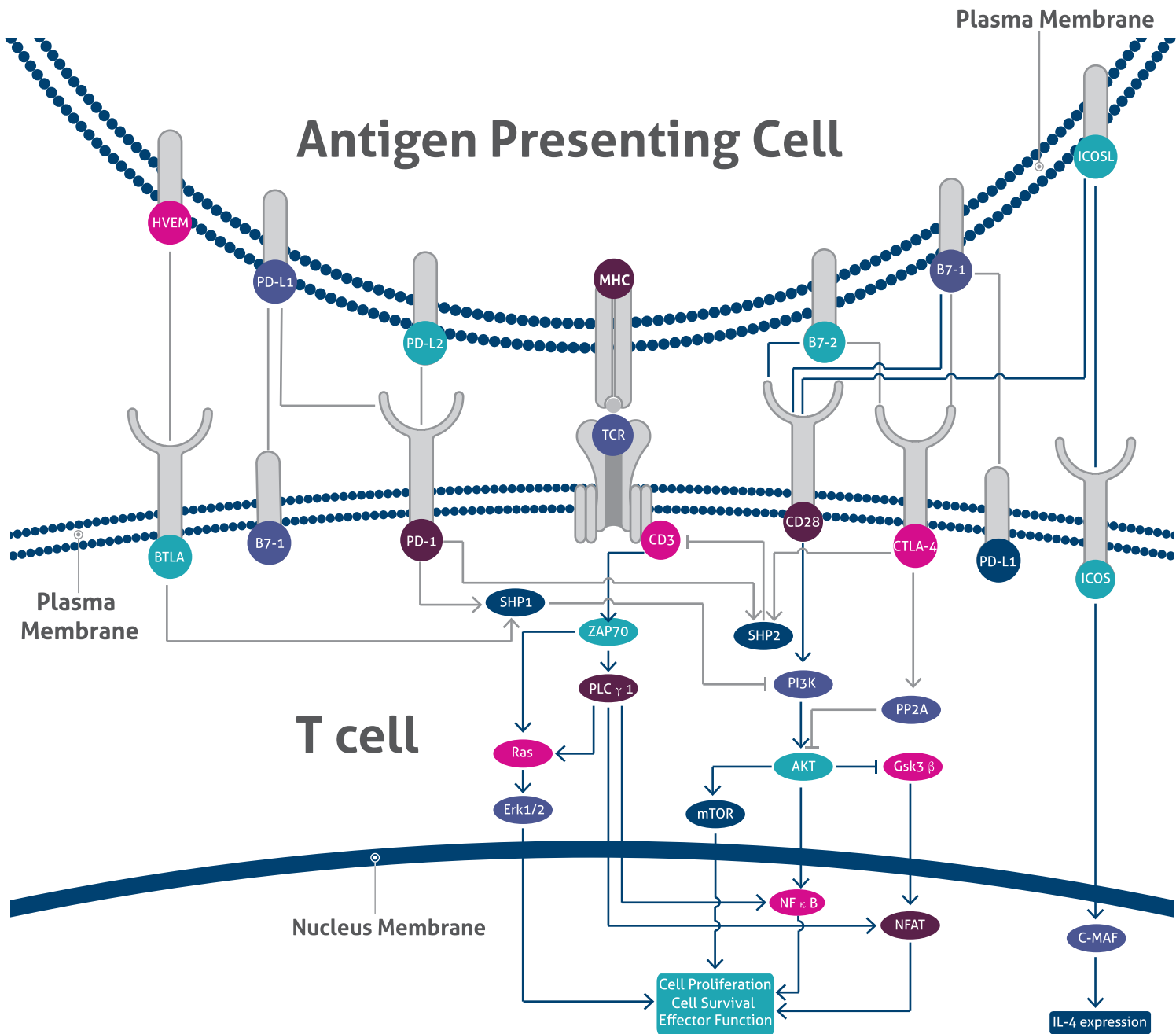
T cell co-signaling pathway

Full T cell activation requires two signals. The first is T cell receptor (TCR) stimulation, provided by antigen-MHC complex presenting on antigen-presenting cells (APCs). The second is a co-stimulatory signal, provided by a ligand for a T cell-expressed co-stimulatory receptor. Co-stimulatory receptors can transduce signals into T cells to positively modulate TCR signalling, while co-inhibitory receptors can negatively regulate activation of T cells. Interactions between T cell co-signalling receptors and their ligands can be unidirectional or bidirectional. Most co-signalling molecules are members of Ig superfamily or TNFR superfamily. According to amino acid sequence, structure and function, they can be further subdivided into some specific families, including B7-CD28 family, TIM family, CD2/SLAM family, nectin and nectin-like bing receptors. The most well-described co-stimulatory molecules are those in the B7-CD28 family, which provide a second signal to T cells to enhance or inhibit the TCR signaling pathway, leading to changes in T cell proliferation, survival, and effector function.

Reference:
1.Nat Rev Immunol.2013 Apr;13(4):227-42.
2.Cell. 2009 May 29;137(5):974-4.
3.Nat Rev Cardiol.2019 Jun;16(6):325-343.

Legend of T cell co-signaling pathway	
	Unidirectional interaction
	Bidirectional interaction
	Co-inhibition
	Co-stimulation
	Unclear

Legend of B7-CD28 family interactions and signaling pathways	
	Co-inhibitory signaling pathways
	Co-stimulatory signaling pathways
	Stimulation
	Inhibition



B7-CD28 family interactions and signaling pathways

Related Products

AntigenName	CatalogNo	Host	Application	Species specificity
AKT	CL488-60203	Mouse	IF,ELISA	human,mouse,rat
AKT	 60203-2-Ig	Mouse	WB,IP,IHC,IF,ELISA	human,mouse,rat,hamster
AKT	 10176-2-AP	Rabbit	WB,IHC,IF,FC,ELISA	human,mouse,rat,zebrafish,chicken,cow,hamster,swine
AKT1	 51077-1-AP	Rabbit	WB,IHC,IF,ELISA	human
AKT-phospho-S473	 66444-1-Ig	Mouse	WB,IHC,ELISA	human,mouse,rat
CD134/OX40	20006-1-AP	Rabbit	WB,FC,ELISA	human
CD2	60005-1-Ig	Mouse	WB,IHC,ELISA	human
CD2	23973-1-AP	Rabbit	WB,IHC,ELISA	human
CD2	10299-1-AP	Rabbit	WB,IHC,FC,ELISA	human
CD244	 16677-1-AP	Rabbit	IHC,ELISA	human,pig
CD27	66308-1-Ig	Mouse	WB,IHC,IF,ELISA	human
CD27	11121-1-AP	Rabbit	WB,FC,ELISA	human
CD30	55132-1-AP	Rabbit	IHC,ELISA	human
CD40	66965-1-Ig	Mouse	WB,IHC,ELISA	human
CD40	28158-1-AP	Rabbit	WB,ELISA	human
CD40L/CD154	Biotin-66502	Mouse	IHC,ELISA	human
CD40L/CD154	66502-1-Ig	Mouse	WB,IHC,ELISA	human
CD40L/CD154	 16668-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse
CD48	27519-1-AP	Rabbit	WB,ELISA	human
CD58	10878-1-AP	Rabbit	WB,ELISA	human
CD80/B7-1	 66406-1-Ig	Mouse	WB,IHC,ELISA	human,mouse,pig
CD84	 12566-1-AP	Rabbit	WB,ELISA	human,mouse
CD86 (C-terminal)	26903-1-AP	Rabbit	WB,ELISA	human
CD86	 13395-1-AP	Rabbit	WB,IF,FC,ELISA	human,rat
ERK1/2	CL594-66192	Mouse	IF,ELISA	human,mouse
ERK1/2	CL488-66192	Mouse	IF,ELISA	human,mouse
ERK1/2	 66192-1-Ig	Mouse	WB,IHC,IF,ELISA	human,mouse
ERK1/2	 11257-1-AP	Rabbit	WB,IHC,IF,ELISA	human,mouse,rat
ERK1/2	 51068-1-AP	Rabbit	WB,IHC,IF,ELISA	human,mouse,rat
ERK1/2	 16443-1-AP	Rabbit	WB,IHC,IF,ELISA	human,mouse,rat,pig,sheep,zebrafish,chicken
Galectin 9	 17938-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human
Gi24	24849-1-AP	Rabbit	WB,IHC,ELISA	human
GSK3B	 51065-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse
GSK3B	 24198-1-AP	Rabbit	WB,IP,IHC,IF,FC,ELISA	human,mouse
GSK3B	 22104-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse,rat,pig,hamster
GSK3B	 15113-1-AP	Rabbit	WB,IP,IHC,ELISA	human,mouse,rat,pig,zebrafish
HLA class I ABC	 66013-1-Ig	Mouse	WB,IHC,FC,ELISA	human,pig
HLA class I ABC	 15240-1-AP	Rabbit	WB,IP,IHC,IF,FC,ELISA	human,mouse
HLA-DQA1	 16918-1-AP	Rabbit	WB,IHC,ELISA	human
HLA-DRB1	 15862-1-AP	Rabbit	WB,IP,ELISA	human
HRAS	15531-1-AP	Rabbit	WB,IP,ELISA	human,rat
HRAS-Specific	 18295-1-AP	Rabbit	WB,IP,IHC,IF,FC,ELISA	human,mouse,rat
ICOSLG	67003-1-Ig	Mouse	WB,ELISA	human
ICOSLG	14922-1-AP	Rabbit	WB,IHC,ELISA	human
KRAS	 12063-1-AP	Rabbit	WB,IP,IHC,IF,FC,ELISA	human,mouse,rat

AntigenName	CatalogNo	Host	Application	Species specificity
KRAS-2A-specific	16156-1-AP	Rabbit	WB,IF,FC,ELISA	human
KRAS-2B-specific	16153-1-AP	Rabbit	WB,IF,ELISA	human,mouse
LAG-3	16616-1-Ig	Rabbit	WB,IP,IHC,ELISA	human,mouse,rat
MAF	 55013-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse,rat
mTOR	 66888-1-Ig	Mouse	WB,IP,IHC,IF,ELISA	human,mouse,rat
mTOR	28273-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human
mTOR	 20657-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse,rat,chicken,pig,swine
Nectin 2	27173-1-AP	Rabbit	WB,IHC,ELISA	human,mouse,rat
NFATc1	 66963-1-Ig	Mouse	WB,ELISA	human,rat
NFATc2	66917-1-Ig	Mouse	WB,IF,ELISA	human
NFATc2	 22023-1-Ig	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse
NFKB1	66992-1-Ig	Mouse	WB,IF,ELISA	human
NFKB1	 23576-1-AP	Rabbit	WB,IHC,IF,ELISA	human
NFKB1,p105,p50-Specific	 15506-1-AP	Rabbit	WB,ELISA	human
NF-kappa B	 14220-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse,rat,calf,chicken
p65/RELA	 66535-1-Ig	Mouse	WB,IHC,IF,ELISA	human,rat
p65/RELA	 10745-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse,rat,pig,dog,hamster
pan Ras	 60309-1-Ig	Mouse	WB,IP,IHC,FC,ELISA	human,mouse,rat,pig
PD-1/CD279	CL488-66220	Mouse	IF,ELISA	human,rat,mouse
PD-1/CD279	66220-1-Ig	Mouse	WB,IHC,IF,ELISA	human,rat,mouse
PD-1/CD279	 18106-1-AP	Rabbit	WB,IHC,IF,ELISA	human,mouse
PD-L1/CD274	 66248-1-Ig	Mouse	WB,IHC,IF,FC,ELISA	human,mouse,rat,pig
PD-L1/CD274 (C-terminal)	 28076-1-AP	Rabbit	WB,IHC,ELISA	human
PD-L1/CD274	 17952-1-AP	Rabbit	WB,IP,IHC,IF,FC,ELISA	human,mouse,rat
PD-L2/CD273	 18251-1-AP	Rabbit	WB,IHC,ELISA	human,mouse,rat
PI3K p110(beta)	 21739-1-AP	Rabbit	WB,IHC,IF,ELISA	human
PLCG1	28362-1-AP	Rabbit	WB,ELISA	human
Poliovirus receptor	66913-1-Ig	Mouse	WB,ELISA	human
Poliovirus receptor	27486-1-AP	Rabbit	WB,ELISA	human
PPP2R4	 10321-1-AP	Rabbit	WB,IHC,ELISA	human,mouse,rat
PTPN11	66795-1-Ig	Mouse	WB,IHC,IF,ELISA	human,mouse,rat
PTPN11	24570-1-AP	Rabbit	WB,IHC,IF,ELISA	human
PVRL1	24713-1-AP	Rabbit	WB,IHC,IF,ELISA	human,mouse
PVRL3/Nectin 3	 11213-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse,rat
SHP1	 24546-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human
SHP2	 20145-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse,rat
SLAM/CD150	60043-1-Ig	mouse	WB,ELISA	human
SLAM/CD150	10949-2-AP	Rabbit	WB,ELISA	human
SLAMF7	12905-1-AP	Rabbit	WB,ELISA	human
TIM3	 60355-1-Ig	Mouse	WB,IHC,ELISA	human,mouse,rat,pig
TIMD4	12008-1-AP	Rabbit	IHC,ELISA	human
TNFSF8	17852-1-AP	Rabbit	WB,IHC,ELISA	human,mouse,rat
TNFSF9	66450-1-Ig	Mouse	WB,ELISA	human
ZAP70	60200-1-Ig	Mouse	WB,IHC,ELISA	human,mouse,pig
ZAP70	22207-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse
ZAP70	15592-1-AP	Rabbit	WB,IP,IHC,IF,ELISA	human,mouse,rat