

# T Cell Immune Checkpoints

## APC / Tumor cell / Dendritic cell

PD-L1 [B7-H1; CD274]

PD-L2 [B7-DC; CD273]

CD80 [B7-1]  
or CD86 [B7-2]

ICOSL [B7-H2; B7RP1; CD275]

B7-H3 [CD276] / B7-H4 [VTCN1]

VISTA [B7-H5; PD-1H; Gi24]

B7-H7 [HHLA2]

HVEM  
[TNFRSF14; CD270]

LIGHT

MHC class I or II  
FGL1

CD137L [TNFSF9; 4-1BBL]

OX40L [TNFSF4; CD252]

CD70 [TNFSF7; CD27L]

CD40 [TNFRSF5]

GITRL [TNFSF18]

CD155 [PVR; Necl-5]

CD112 [PVRL2; Nectin-2]

CD200

CD48 [BCM-1; BLAST-1]

HMGB1

Gal-9

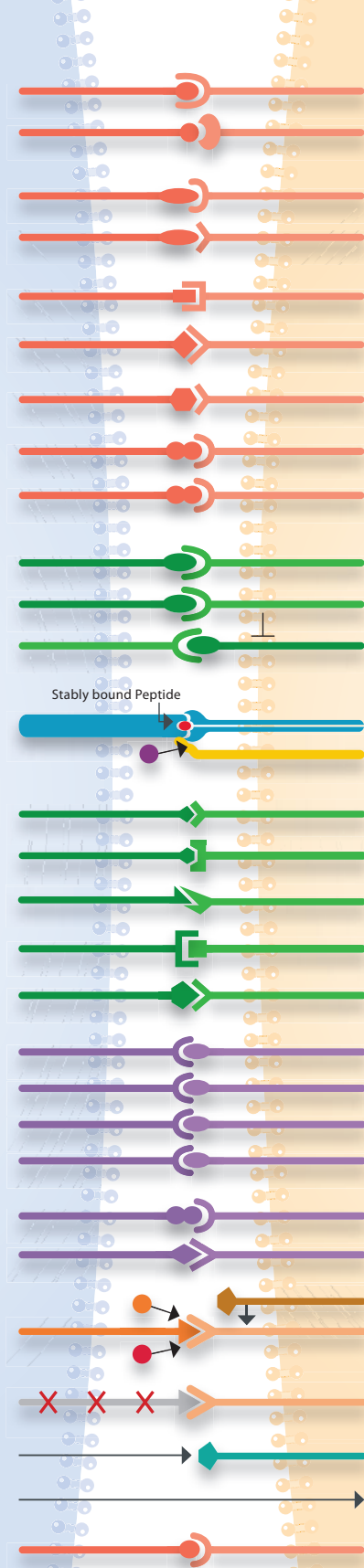
Phosphatidylserine (Apoptotic cell)

no Ligand

Adenosine

IDO1, TDO

Butyrophilin Family Members  
(e.g. Btl2, Skint1, MOG, CD277)



## T cell

CD80 [B7-1]

PD-1 [CD279]

CD28

CTLA-4 [CD152]

ICOS [CD278]

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TMIGD2 [IGPR-1; CD28H]

?

CD160

BTLA [CD272]

HVEM [TNFRSF14; CD270]

TCR

LAG-3 [CD223]

CD137 [TNFRSF9; 4-1BB]

OX40 [TNFRSF4; CD134]

CD27 [TNFRSF7]

CD40L [TNFSF5; CD154]

GITR [TNFRSF18; CD357]

CD96

CD226 [DNAM-1]

TIGIT

CD112R

CD200R

2B4 [CD244]

CEACAM-1

TIM-3 [HAVcr-2]

TIM-3 [HAVcr-2]

A2aR

| ↓ Tryptophan |

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Regulation and activation of T lymphocytes depend on signaling by the T cell receptor (TCR) and also by cosignaling receptors that deliver negative (●→) or positive (●→) signals.

Cytokines  
(TGFβ, IL-1, IL-6,  
IL-10, IL-12, IL-18)