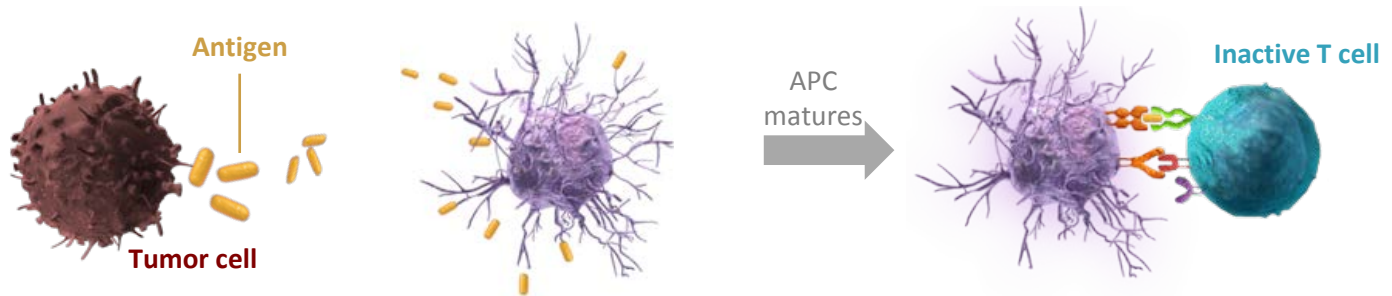
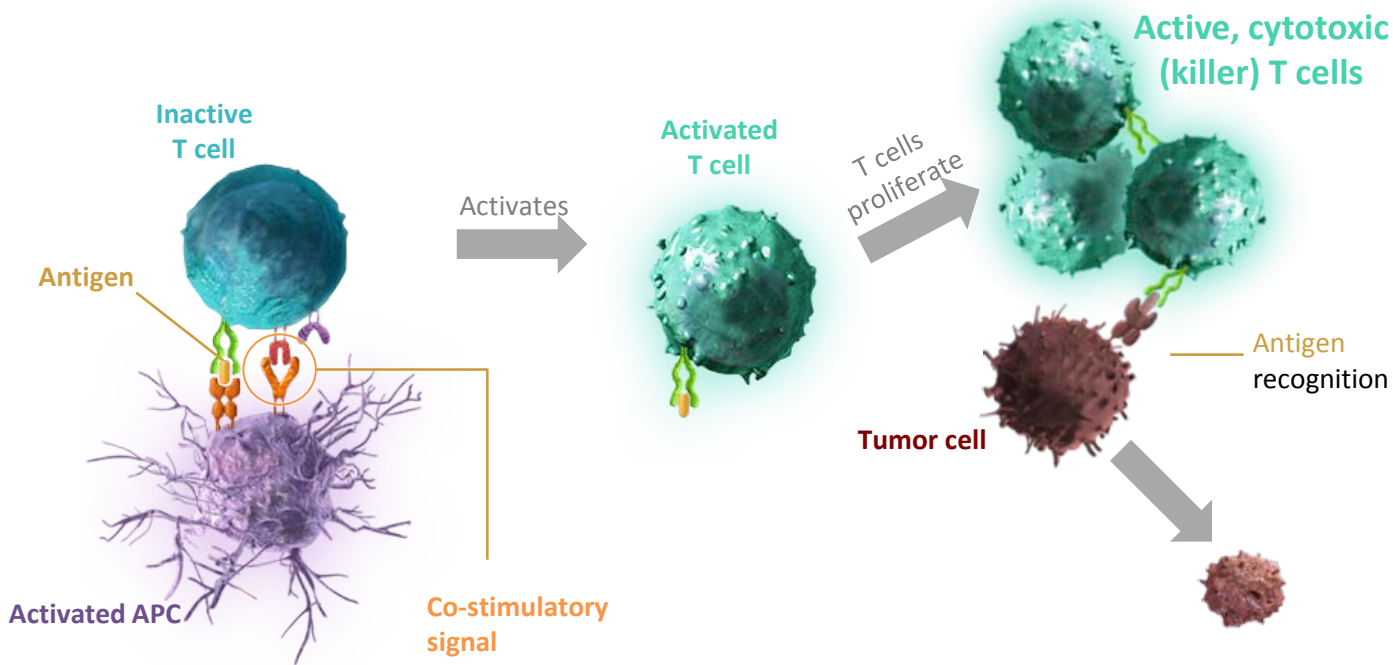


# The Basics of T Cell-Mediated Immunotherapy on Cancer

Tumor-specific immune cell responses triggered by tumor-associated antigens



- 1** Tumors express a multitude of proteins, known as tumor-associated antigens
- 2** Antigen presenting cell (APC) captures tumor-associated antigens
- 3** Activated APC can interact with T cells



- 4** Activated APC presents the tumor-associated antigen to the T cell along with a co-stimulatory signal
- 5** Cytotoxic T cell induces apoptosis in tumor cell

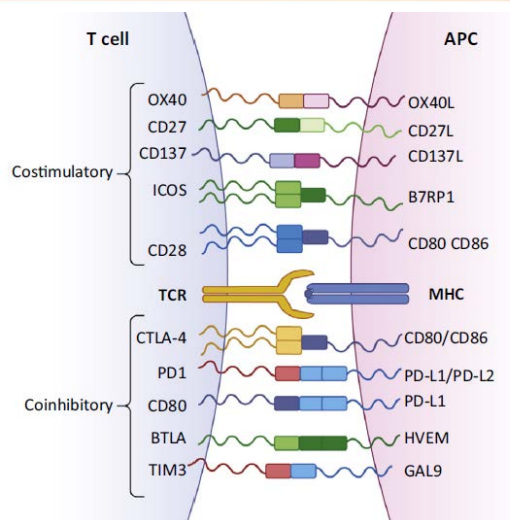
## References

Pardoll DM. *Nat Rev Cancer*, 2012.  
Heemskerk B, et al. *EMBO J*, 2013.  
[www.nature.com/nrclinonc/journal/vaop/ncurrent/fig\\_tab/nrclinonc.2016.25\\_F1.html](http://www.nature.com/nrclinonc/journal/vaop/ncurrent/fig_tab/nrclinonc.2016.25_F1.html)  
[www.immunooncologyhcp.bmsinformation.com/](http://www.immunooncologyhcp.bmsinformation.com/)

Mellman I, et al. *Nature*, 2011.  
Boudreau JE, et al. *Mol Ther*, 2011.

# Fine-tuning of the Immune Responses

## Coordinated by Checkpoint Receptors on T Cell & APC



Costimulatory and coinhibitory receptors in the immune synapse. Most of these receptors require the T cell receptor (TCR) to specifically recognize a peptide displayed by a MHC molecule on an antigen-presenting cell (APC), to deliver their costimulatory or coinhibitory signal. These interactions can take place either in secondary lymphoid sites where naive T cells encounter antigen for the first time, or in the periphery where effector cells may be activated (or suppressed).

Image retrieved from Pico de Coaña Y, et al., *Trends Mol Med*, 2015

### From Genomics to Proteomics

### Comprehensive solutions to Immuno-Oncology studies



CRISPR



cDNA



shRNA/siRNA



Proteins



Antibodies



ELISA  
Luminex

### Search our website for products of Immuno-Oncology targets

B7RP1 (CD275/ICOSLG)	CD112	EGFR	LAG3
BTLA	CD113	EGFR VIII	Mesothelin
CD19	CD123	EphA2	MUC1 (EMA)
CD20	CD133	FAP	OX40 (TNFRSF4)
CD22	CD137 (4-1BB/TNFRSF9)	GAL9 (LGALS9)	OX40L (TNFSF4)
CD27	CD137L (4-1BBL/TNFSF9)	GD2	PD-1
CD27L (CD70)	CD138	GITR	PD-L1 (CD274)
CD28	CD155	GITRL	PD-L2 (PDCD1LG2)
CD30	CD171	GPC3	ROR1R
CD33	CEA (CEACAM5)	HER2	SS1
CD80	CEACAM1	HVEM (TR2/TNFRSF14)	TIGIT
CD86	cMet (MET)	ICOS (CD278)	TIM3 (HAVCR2)