

# **Antibodies for Cancer Immunotherapy**

## Immune Checkpoints In Cancer Immunotherapy

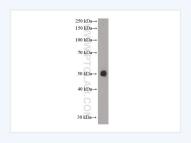
## Antigen-presenting cell T cell PDL1 or PDL2 Unknown PDL1 or PDL2 PD1 CD80 or CD86 CD28 CD80 or CD86 CTLA4 B7RP1 ICOS B7-H3 Unknown B7-H4 Unknown **HVEM** BTLA KIR Peptide 🚽 MHC class I or II TCR LAG3 CD137L CD137 OX40L OX40 **CD70** CD27 - CD40 CD40L GAL9 TIM3 A2aR Adenosine Cytokines (TGFβ, IL-1, IL-6, IL-10, IL-12, IL-18)

# Reference: Nature Reviews Cancer 12, 252-264 (April 2012).

## **Immune Checkpoint Proteins**

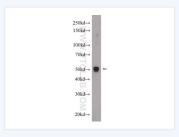
| Antigen-presenting cell | T cell  | Response       |
|-------------------------|---------|----------------|
| PD-L1/PD-L2             | Unknown | Co-stimulatory |
| PD-L1/PD-L2             | PD-1    | Co-inhibitory  |
| CD80/CD86               | CD28    | Co-stimulatory |
| CD80/CD86               | CTLA4   | Co-inhibitory  |
| B7RP1                   | ICOS    | Co-stimulatory |
| B7-H3                   | Unknown | Co-inhibitory  |
| B7-H4                   | Unknown | Co-inhibitory  |
| Unknown                 | VISTA   | Co-inhibitory  |
| HVEM                    | BTLA    | Co-inhibitory  |
| HVEM                    | LIGHT   | Co-stimulatory |
| MHC class II            | LAG3    | Co-inhibitory  |
| CD137L                  | CD137   | Co-stimulatory |
| OX40L                   | ОХ40    | Co-stimulatory |
| CD70                    | CD27    | Co-stimulatory |
| CD40                    | CD40L   | Co-stimulatory |
| GAL9                    | TIM3    | Co-inhibitory  |
| GITRL                   | GITR    | Co-stimulatory |
| CD155                   | DNAM-1  | Co-stimulatory |
| CD155                   | TIGIT   | Co-inhibitory  |

## PD-L1 Catalog Number: 66248-1-lg



Human skeletal muscle tissue was subjected to SDS PAGE followed by western blot with PD-L1/CD274 antibody (66248-1-Ig) at a dilution of 1:1000.

#### Catalog Number: 17952-1-AP

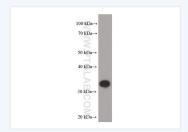


Mouse heart tissue was subjected to SDS PAGE followed by western blot with PD-L1/CD274 antibody (17952-1-AP) at a dilution of 1:300.



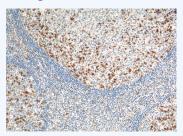


## PD-1 Catalog Number: 66220-1-lg



Raji cells were subjected to SDS PAGE followed by western blot with PD-1/ CD279 antibody (66220-1-1g) at a dilution of 1:1000.

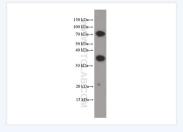
#### Catalog Number: 18106-1-AP



Immunohistochemistry of paraffinembedded human tonsillitis tissue slide using PD-1/CD279 (18106-1-AP) antibody at a dilution of 1:200 (10x objective). Heat-mediated antigen retrieved with Tris-EDTA buffer (pH9).

#### TIM<sub>3</sub>

#### Catalog Number: 60355-1-lg



Daudi cells were subjected to SDS PAGE followed by western blot with TIM3 antibody (60355-1-Ig) at a dilution of 1:2000.

#### Catalog Number: 11872-1-AP



Immunohistochemistry of paraffinembedded human lung cancer tissue slide using TIM3 antibody (60355-1-lg) at a dilution of 1:400 (10x objective). Heat-mediated antigen retrieved with Tris-EDTA buffer (pH9).

# **Targets For Antibody Therapy Of Cancer**

| Antigen category   | Examples of antigens   |
|--|--|
| Hematopoietic differentiation antigens                   | CD20, CD30, CD33, CD52   |
| Glycoproteins expressed by solid tumors                  | EpCAM, CEA, gpA33, Mucins, TAG-72,<br>CAIX, PSMA, Folate-binding protein |
| Targets of anti-angiogenic mAbs                          | VEGF, VEGFR, Integrin αVβ3,<br>Integrin α5β1                             |
| Growth and differentiation signalling                    | EGFR, ERBB2, ERBB3, MET, IGF1R,<br>EPHA3, TRAILR1, TRAILR2, RANKL        |
| tromal and extracellular FAP, Tenascin<br>natrix antigen |  |
| Immune-mediated tumor cell killing                       | CTLA4, PD-1, PD-L1   |

Since 1997, more than 10 antibodies have received approval from the FDA for the treatment of various solid tumors and hematological malignancies, such as monoclonal antibodies for ERBB2, VEGF, EGFR, CD20, CD30, CD33, CD52, CTLA4, PD-1, and PD-L1, and a large number of additional therapeutic antibodies are currently being tested in early-stage and late-stage clinical trials.

Reference: Nature Reviews Cancer 12, 278-287 (April 2012).

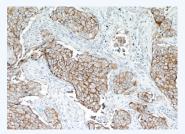
#### HER2/ErbB2

#### Catalog Number: 60311-1-lg



Immunohistochemistry of paraffinembedded human breast cancer tissue slide using ERBB2 antibody (60311-1-Ig) at a dilution of 1:200 (10x objective).

#### Catalog Number: 18299-1-AP



Immunohistochemical of paraffinembedded human breast cancer using ERBB2, p185-Specific antibody (18299-1-AP) at a dilution of 1:50 (10x objective).

#### **CD20**

#### Catalog Number: 60271-1-lg



Immunohistochemistry of paraffinembedded human tonsillitis tissue slide using MS4A1, CD20 antibody (60271-1-1g) at a dilution of 1:200 (10x objective). Heat-mediated antigen retrieved with Tris-EDTA buffer (pH9).

Catalog Number: 24828-1-AP



Immunohistochemistry of paraffinembedded human tonsillitis tissue slide using MS4A1, CD20 antibody (24828-1-AP) at a dilution of 1:200 (40x objective). Heat-mediated antigen retrieved with Tris-EDTA buffer (pH9).

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