SANTA CRUZ BIOTECHNOLOGY, INC.

PD-L1 siRNA (h): sc-39699

BACKGROUND

Engagement of CD28 by B7-1 (CD80) or B7-2 (CD86) in the presence of antigen promotes T cell proliferation, cytokine production, differentiation of effector T cells, and the induction of Bcl-x, a promoter of T cell survival. Conversely, engagement of CTLA4 by B7-1 or B7-2 may inhibit proliferation and IL-2 production. PD-L1 (programmed cell death ligand-1), also known as B7-H1 or Pdcd-1L1, is 290 amino acid type I transmembrane protein which is 20% and 15% identical to B7-1 and B7-2, respectively. Pdcd-1L2 has immunoglobulin V-like and C-like domains and a 30 amino acid cytoplasmic tail. It does not bind CD28, cytotoxic T-lymphocyte A4 or ICOS (inducible co-stimulator). IL-2, although produced in small amounts, is required for the effect of PD-L1 co-stimulation. The gene which encodes PD-L1 maps to human chromosome 9p24.1. PD-L2 (programmed cell death ligand-2) is a 73 amino acid protein which contains a signal sequence, IgV- and IgC-like domains, a transmembrane region and a cytoplasmic region. The gene which encodes PD-L2 maps to human chromosome 9p24.2. The constitutive expression of PD-L1 and PD-L2 on parenchymal cells of heart, lung and kidney suggests that the Pdcd-1-Pdcd-L system could provide unique negative signaling to help prevent autoimmune disease.

CHROMOSOMAL LOCATION

Genetic locus: CD274 (human) mapping to 9p24.1.

PRODUCT

PD-L1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PD-L1 shRNA Plasmid (h): sc-39699-SH and PD-L1 shRNA (h) Lentiviral Particles: sc-39699-V as alternate gene silencing products.

For independent verification of PD-L1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-39699A, sc-39699B and sc-39699C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PD-L1 siRNA (h) is recommended for the inhibition of PD-L1 expression in human cells.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

PD-L1 (1C10): sc-293425 is recommended as a control antibody for monitoring of PD-L1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PD-L1 gene expression knockdown using RT-PCR Primer: PD-L1 (h)-PR: sc-39699-PR (20 µl, 425 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kang, J.H., et al. 2019. B7-1 drives TGF-β stimulated pancreatic carcinoma cell migration and expression of EMT target genes. PLoS ONE 14: e0222083.
2. Kang, J.H., et al. 2020. Transforming growth factor β induces fibroblasts to express and release the immunomodulatory protein PD-L1 into extracellular vesicles. FASEB J. 34: 2213-2226.
3. Rennier, K.R., et al. 2020. Chemerin reactivates PTEN and suppresses PD-L1 in tumor cells via modulation of a novel CMKLR1-mediated signaling cascade. Clin. Cancer Res. 26: 5019-5035.
4. Heckl, S.M., et al. 2021. Programmed death-ligand 1 (PD-L1) expression is induced by Insulin in pancreatic ductal adenocarcinoma cells pointing to its role in immune checkpoint control. Med. Sci. 9: 48.
5. Yang, N., et al. 2022. Stem cells from exfoliated deciduous teeth transplantation ameliorates Sjögren's syndrome by secreting soluble PD-L1. J. Leukoc. Biol. 111: 1043-1055.
6. Jung, M.Y., et al. 2022. Superinduction of immunosuppressive glioblastoma extracellular vesicles by IFN-γ through PD-L1 and IDO1. Neurooncol. Adv. 4: vdac017.
7. Ma, Y., et al. 2022. Tumor-intrinsic PD-L1 exerts an oncogenic function through the activation of the Wnt/β-catenin pathway in human non-small cell lung cancer. Int. J. Mol. Sci. 23: 11031.

RESEARCH USE

For research use only, not for use in diagnostic procedures.