

Claudin-9 Protein, Human, Recombinant (His & Avi), Biotinylated

General Information

A DNA sequence encoding the human CLDN9 (O95484) (Met1-Thr184) was expressed, with a polyhistidine tag followed by an AVI tag at the C-terminus. The expressed protein was biotinylated in vivo by the Biotin-Protein ligase (BirA enzyme) which is co-expressed. Nanodisc is a versatile tool for studying membrane proteins. Using styrene-maleic acid (SMA) copolymer, membrane proteins can be extracted directly from prokaryotic and eukaryotic expression systems in the absence of detergents to preserve the protein structure and function better. Compared to membrane scaffold proteins (MSPs) nanodiscs, SMA nanodiscs also have the advantage of preserving proteins' nature by maintaining native lipids surrounded without introducing any heterologous proteins, which allows studies of protein structure and functions in a native-like environment. Predicted N terminal: Met 1

Protein Construction:

Species: Human
Expression Host: HEK293 Cells
Accession: O95484
Molecular Weight: 22.44 kDa (predicted)

QC Testing

Biological Activity: 1. Immobilized Human CLDN9-Nanodisc Protein(His & AVI Tag), Biotinylated on streptavidin precoated (2 µg/mL, 100 µL/well) can bind Anti-Human Claudin9 Antibody, Human IgG1, the EC50 is 10-60 ng/mL.
2. Loaded Biotinylated Recombinant Human CLDN9-Nanodisc Protein, His & AVI Tag on SA Biosensor, can bind Anti-CLDN9 antibody with an affinity constant of 11.15 nM as determined in BLI assay (ForteBio Octet Red384) (Routinely tested).

Purity: >80% as determined by SDS-PAGE.

Endotoxin: < 1.0 EU/µg of the protein as determined by the LAL method.

Formulation: Supplied as 0.2 µm filtered solution in 10 mM HEPES, 50 mM NaCl, pH7.5 with glycerol as protectant.

Preparation and Storage

Stability & Storage:

It is recommended to store the product under sterile conditions at -70°C or lower. Samples are stable for up to 12 months at -80°C. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

Proteins are shipped with blue ice.

Protein Background

Claudin-9 (CLDN9) belongs to the claudins family and is a transmembrane protein found in tight junctions with

two extracellular loops and a cytoplasmic C tail. CLDN9 modulates the ion- and charge-specific permeability of the paracellular pathway in most epithelial tissues. It forms heterotypic interactions with other claudins to create cation-selective channels in the kidney and may contribute to the maintenance of alveolar barrier function in the lung. Deficiency is shown to be associated with autosomal recessive deafness, DFNB116. CLDN9 expression has been shown to be upregulated in certain types of cancer, such as endometrial cancer and hepatocellular carcinoma, and its knockdown has been found to reduce cell proliferation and migration in vitro.

Reference

- Higashi, et al. Claudin-9 constitutes tight junctions of folliculo-stellate cells in the anterior pituitary gland. *Sci Rep*, 202
- Nakano, et al. A claudin-9-based ion permeability barrier is essential for hearing. *PLoS Genet.*, 2009.
- Zheng A, et al. Claudin-6 and claudin-9 function as additional coreceptors for hepatitis C virus. *J Virol*. 2007.
- Endo Y, et al. Claudin 9 is a novel prognostic biomarker for endometrial cancer. *Int J Oncol*. 2022.
- Overgaard, et al. Roles for claudins in alveolar epithelial barrier function. *Annals of the New York Academy of Sciences*, 2012.
- Liu, et al. Claudin-9 enhances the metastatic potential of hepatocytes via Tyk2/Stat3 signaling. *The Turkish Journal of Gastroenterology*, 2019.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

This product is for Research Use Only · Not for Human or Veterinary or Therapeutic Use

Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481