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APC Human CD171/L1CAM Protein (C-His)

Catalog Number:	805303, 805304
Size:	25 ug, 100 ug
Target Name:	CD171, L1CAM
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	Flow Cytometry
Format:	Liquid, APC
Expression Host:	CHO
Species:	Human
Sources:	Recombinant Human CD171/L1CAM protein (Ile20-Glu1120) with C-terminus His tag is expressed in CHO cells and conjugated to APC
Accession Number:	P32004
Molecular Weight:	The protein has a predicted molecular weight of 124.7 kDa. Under DTT-reducing conditions, it migrates at approximately 160-200 kDa on SDS-PAGE prior to conjugation.
Affinity Tag:	C-His
Formulation:	1xPBS buffer, pH7.4, 0.09% NaN3 with a carrier protein
Endotoxin level:	Not tested
Protein Concentration:	25μg size is bottled at 0.1mg/mL concentration. 100 μg size is bottled at lot specific concentration.
Storage and Handling:	Briefly centrifuge the vial upon receipt. An unopened vial may be stored at 2–8°C for up to six months.

BACKGROUND INFORMATION

CD171, also known as L1 cell adhesion molecule (L1CAM), is a transmembrane glycoprotein belonging to the immunoglobulin superfamily that plays crucial roles in nervous system development and function. It mediates cell-cell adhesion, neuronal migration, axon guidance, and synapse formation during embryonic development and neural plasticity in adults. L1CAM facilitates these processes through homophilic binding (L1CAM-L1CAM interactions between adjacent cells) and heterophilic interactions with various extracellular matrix proteins and cell surface receptors. Beyond the nervous system, CD171 is involved in cell motility, survival signaling, and tissue organization.

Structurally, CD171 is a type I transmembrane protein of approximately 200-220 kDa consisting of several distinct domains. The extracellular region contains six immunoglobulin-like (Ig) domains followed by five fibronectin type III repeats, which mediate protein-protein interactions. These domains enable CD171 to engage in both homophilic and heterophilic binding. The protein also has a single transmembrane domain and a highly conserved cytoplasmic tail that interacts with the actin cytoskeleton through

ankyrin binding and participates in intracellular signaling pathways, including activation of kinases such as ERK and PI3K/AKT that promote cell survival and migration.

CD171 interacts with multiple ligands, including itself (homophilic binding), integrins (particularly αvβ3 and α5β1), neuropilin-1, axonin-1/TAG-1, and components of the extracellular matrix such as laminin and fibronectin. These diverse interactions enable CD171 to coordinate complex cellular behaviors including adhesion, migration, and signal transduction. The cytoplasmic domain also binds adaptor proteins like ankyrin, ezrin, and AP-2, linking membrane events to cytoskeletal reorganization.

In disease contexts, aberrant CD171 expression is implicated in various pathologies. Mutations in the L1CAM gene cause X-linked hydrocephalus and CRASH syndrome (corpus callosum hypoplasia, retardation, adducted thumbs, spasticity, and hydrocephalus), severe neurological disorders affecting brain development. In oncology, CD171 overexpression is observed in numerous cancers, including neuroblastoma, glioblastoma, ovarian, endometrial, pancreatic, and colorectal carcinomas, where it promotes tumor invasion, metastasis, and chemoresistance. Therapeutically, CD171 is being targeted through multiple approaches: monoclonal antibodies, antibody-drug conjugates, chimeric antigen receptor (CAR) T cell therapies, and small molecule inhibitors. Clinical trials are evaluating CD171-directed CAR-T cells for neuroblastoma and other pediatric solid tumors, positioning this molecule as a promising target in precision cancer immunotherapy.

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