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PE Human Trop1/EpCAM Protein (C-His)

Catalog Number:	806501, 806502
Size:	25 ug, 100 ug
Target Name:	EPCAM, TROP1, TACSTD1, CD326, DIAR5, EGP2, EGP314, EGP40, ESA, GA733-2, HNPCC8, HNPCC-8, KS1,
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	Flow Cytometry
Format:	Liquid, PE
Expression Host:	CHO
Species:	Human
Sources:	Recombinant Human Trop1 (Gln24-Lys265) with C-terminus His tag is expressed in CHO cell and conjugated PE.
Accession Number:	P16422
Molecular Weight:	The protein has a predicted molecular weight of 29 kDa. Under DTT-reducing conditions, it migrates at approximately 30-40 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

Epithelial cell adhesion molecule (EpCAM), also known as CD326, TACSTD1, or EGP-2, is a type I transmembrane glycoprotein that plays crucial roles in cell adhesion, proliferation, migration, and differentiation. EpCAM is predominantly expressed on the basolateral surface of most normal epithelial tissues, where it mediates calcium-independent homophilic cell-cell adhesion. Beyond its structural role, EpCAM functions as a signaling molecule that regulates cell proliferation and stem cell maintenance. Upon regulated intramembrane proteolysis by ADAM17 and presenilin-2/γ-secretase, EpCAM releases an intracellular domain (EpICD) that translocates to the nucleus and associates with transcription factors to promote expression of genes involved in cell cycle progression, including c-myc and cyclin D1.

Structurally, EpCAM is a 40 kDa protein consisting of an extracellular domain with two epidermal growth factor-like repeats and a thyroglobulin-like domain, a single transmembrane region, and a short cytoplasmic tail. The extracellular domain mediates homophilic interactions between EpCAM molecules on adjacent cells, forming cis-dimers on the same cell surface and

trans-interactions between neighboring cells. The cytoplasmic domain contains binding sites for α-actinin and other cytoskeletal proteins, linking EpCAM to the actin cytoskeleton and enabling its role in cell adhesion and migration.

EpCAM primarily functions through homophilic binding (EpCAM-EpCAM interactions), though it can also interact with claudins and other tight junction proteins to modulate epithelial barrier function. The protein's signaling activity is regulated by proteolytic cleavage rather than traditional ligand-receptor mechanisms. EpCAM also interacts intracellularly with β-catenin and components of the Wnt signaling pathway, influencing stem cell properties and epithelial-mesenchymal transition.

In disease contexts, EpCAM is overexpressed in numerous epithelial cancers, including colorectal, breast, lung, pancreatic, ovarian, and gastric carcinomas, where high expression correlates with aggressive tumor behavior, metastasis, and poor prognosis. EpCAM is also a marker of cancer stem cells in several tumor types. Therapeutically, EpCAM has been extensively targeted through multiple approaches. Catumaxomab, a trifunctional bispecific antibody targeting EpCAM and CD3, was approved for malignant ascites treatment. EpCAM-directed CAR-T cell therapies are under investigation for solid tumors, and the molecule serves as a target for circulating tumor cell detection and isolation. Additionally, EpCAM-targeted antibody-drug conjugates and vaccines are in clinical development, establishing EpCAM as an important biomarker and therapeutic target in oncology.

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