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PE Human Trop2 Protein (C-His)

Catalog Number:	805901, 805902
Size:	25 ug, 100 ug
Target Name:	TROP2,TACSTD2, GA733-1, M1S1
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	Flow Cytometry
Format:	Liquid, PE
Expression Host:	CHO
Species:	Human
Sources:	Recombinant Human Trop2 (Gln24-Thr274) with C-terminus His-Avi tag is expressed in CHO cell and conjugated to PE.
Accession Number:	P09758
Molecular Weight:	The protein has a predicted molecular weight of 29 kDa. Under DTT-reducing conditions, it migrates at approximately 40-50 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 0.2 mg/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

Trop2 (trophoblast cell-surface antigen 2), also known as TACSTD2 or epithelial glycoprotein-1 (EGP-1), is a transmembrane glycoprotein encoded by the TACSTD2 gene that plays important roles in cell proliferation, survival, and signal transduction. Originally identified in trophoblast cells, Trop2 is expressed at low levels in normal epithelial tissues but becomes significantly overexpressed in various carcinomas. The protein functions as an intracellular calcium signal transducer that promotes cell growth and survival through multiple signaling pathways. Trop2 undergoes regulated intramembrane proteolysis, releasing an intracellular domain that translocates to the nucleus and activates genes involved in cell cycle progression, self-renewal, and anti-apoptotic responses.

Structurally, Trop2 is a type I transmembrane protein of approximately 36 kDa consisting of an extracellular domain, a single transmembrane region, and a cytoplasmic tail. The extracellular portion contains a thyroglobulin-like domain that mediates protein-protein interactions and cell adhesion functions. The protein also features cysteine-rich regions and glycosylation sites that

contribute to its stability and function. The cytoplasmic domain contains a phosphatidylinositol 4,5-bisphosphate (PIP2) binding site that is critical for calcium signal transduction. Upon cleavage by proteases such as ADAM10 and presenilin/γ-secretase, the intracellular domain is released and can interact with β-catenin and other signaling molecules to promote transcriptional activity and regulate cell cycle proteins.

While specific extracellular ligands for Trop2 have not been definitively identified, the protein appears to function through homophilic interactions (Trop2-Trop2 binding) and potentially through interactions with components of the extracellular matrix. The protein's signaling activity is primarily regulated by its proteolytic cleavage and subsequent release of functional intracellular fragments rather than traditional ligand-receptor binding mechanisms. Trop2 promotes tumor cell proliferation by regulating calcium signaling pathways and inhibits cancer cell apoptosis by increasing bcl-2 expression while reducing bax expression.

In disease contexts, Trop2 overexpression is observed in numerous epithelial cancers, including breast, lung, colorectal, pancreatic, ovarian, gastric, and prostate carcinomas, where it correlates with aggressive tumor behavior, invasion, metastasis, and poor prognosis. Therapeutically, Trop2 has emerged as a highly valuable target for antibody-drug conjugates (ADCs) due to its high expression in cancer cells and its internalizing activity. Sacituzumab govitecan, an anti-Trop2 ADC conjugated to the topoisomerase I inhibitor SN-38, has received FDA approval for metastatic triple-negative breast cancer and urothelial cancer, demonstrating significant clinical efficacy. Additional Trop2-targeted ADCs, including datopotamab deruxtecan, are in clinical development for various solid tumors, establishing Trop2 as one of the most promising targets in precision oncology.

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