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Biotin Human FOLR1 Protein (C-His-Avi)

Catalog Number:	802503, 802504
Size:	25 ug, 100 ug
Target Name:	FOLR-1, FBP, FOLR, FRα
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	ELISA, BLI
Format:	Liquid, Biotinylated
Expression Host:	CHO
Species:	Human
Sources:	Human FOLR1 (Arg25-Met233) with C-terminus His-Avi Tag is expressed in CHO cells. This protein was site-specifically labeled with Biotin by BirA ligase.
Accession Number:	P15328
Molecular Weight:	The protein has a predicted molecular weight of 28.6kDa. Under DTT-reducing conditions, it migrates at approximately 35-45 kDa on SDS-PAGE.
Affinity Tag:	C-His-Avi
Purity:	>95% based on SDS-PAGE under reducing condition
Formulation:	1xPBS buffer, pH7.4, 0.22 μm filtered
Endotoxin level:	Not tested
Protein Concentration:	25μg size is bottled at 0.2mg/mL concentration. 100 μg size is supplied at a lot-specific concentration.
Storage and Handling:	Briefly centrifuge the vial upon receipt. An unopened vial can be stored at 4°C for up to 2 weeks, or at -20°C or below for up to six months. The protein may be further diluted to 0.1 mg/mL using 0.22 μm-filtered PBS buffer (pH 7.4). For long-term storage, the diluted stock solution should be aliquoted and stored at ≤ –70°C to minimize freeze-thaw cycles. If additional dilution is required, carrier proteins such as FBS or BSA should be added to maintain protein stability.
Recommended Usage:	For detection, use a secondary reagent with this product.

BACKGROUND INFORMATION

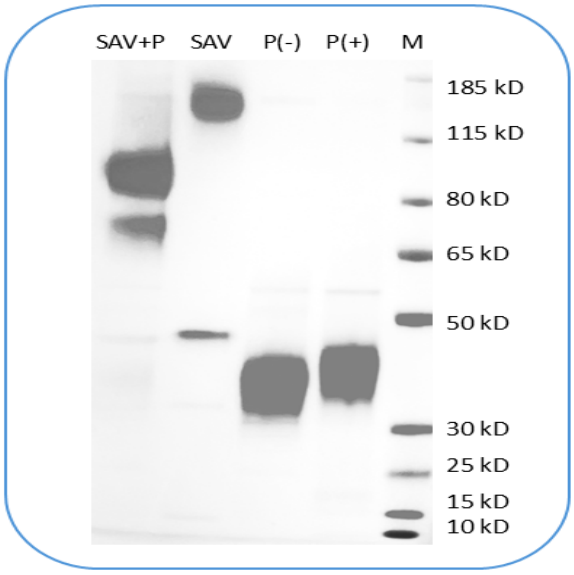
Folate receptor alpha (FOLR1), also known as FRα or folate receptor 1, is a high-affinity, glycosylphosphatidylinositol (GPI)-anchored cell surface protein primarily responsible for binding and internalizing folate and its derivatives. Folates are essential vitamins that participate in one-carbon metabolism, supporting nucleotide synthesis and methylation reactions crucial for DNA replication and repair. FOLR1 mediates cellular uptake of folate through receptor-mediated endocytosis, complementing the activity of other folate transporters such as the reduced folate carrier (RFC) and the proton-coupled folate transporter (PCFT).

Structurally, FOLR1 is a glycoprotein of approximately 38–42 kDa, composed of a single extracellular domain anchored to the plasma membrane via a GPI linkage. The extracellular domain contains a hydrophobic binding pocket that specifically recognizes and binds reduced folate and folate analogs with nanomolar affinity. Structural studies have revealed that this pocket is formed by β-sheets and loop regions that precisely accommodate the pterin and glutamate moieties of folate. The protein's GPI anchor localizes it to lipid rafts, membrane microdomains involved in signaling and endocytosis, thereby facilitating efficient internalization and trafficking of folate-loaded vesicles.

FOLR1 has a particularly high expression in certain normal tissues, including the kidneys, placenta, and choroid plexus, but its expression in most normal epithelial tissues is limited. In contrast, FOLR1 is markedly overexpressed in several epithelial-derived cancers, such as ovarian, endometrial, breast, non–small cell lung, and renal carcinomas. This differential expression pattern plays a role in oncogenesis, as tumor cells exploit high folate uptake to support their increased proliferative demands. Moreover, FOLR1 expression correlates with tumor aggressiveness and poor prognosis in some cancers, making it a valuable biomarker for diagnosis and targeted therapy.

Therapeutically, FOLR1 serves as an attractive target for cancer treatment due to its selective tumor overexpression. Strategies exploiting this receptor include folate–drug conjugates (e.g., vintafolide), antibody–drug conjugates (ADCs) such as mirvetuximab soravtansine, and folate-based imaging agents for tumor detection. These therapies deliver cytotoxic agents specifically to FOLR1-positive cancer cells, minimizing off-target effects. Clinical trials have shown promising efficacy, particularly in ovarian cancers with high FOLR1 expression, establishing the receptor as a key biomarker and therapeutic target in precision oncology.

PRODUCT DATA



Human FOLR1 Protein (C-His-Avi) was biotinylated in vitro using BirA ligase. SDS-PAGE analysis under reducing (P+) and non-reducing (P−) conditions shows the protein has a purity greater than 95%. A gel shift assay using co-incubation with streptavidin indicates that the biotinylation efficiency of the FOLR1 protein exceeds 95%.

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