

TGFBR2 Protein, Rat, Recombinant (hFc)

General Information

Synonyms:	transforming growth factor, β receptor II; transforming growth factor, beta receptor II (70/80kDa)
Protein Construction:	A DNA sequence encoding the rat TGFBR2 (P38438) (Met1-Gln166) was expressed, fused with the Fc region of human IgG1 at the C-terminus. Predicted N terminal: Ile 24
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	P38438
Molecular Weight:	43 kDa (predicted); 54 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to bind recombinant canineTGFB1-His in a functional ELISA.
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ μ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μ m filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

TGFBR2 is a member of the Ser/Thr protein kinase family and the TGF β receptor subfamily. It is a transmembrane protein. TGFBR2 is comprised of a C-terminal protein kinase domain and an N-terminal ectodomain. The ectodomain consists of a compact fold containing nine beta-strands and a single helix stabilized by a network of six intra strand disulfide bonds. The folding topology includes a central five-stranded antiparallel beta-sheet, eight-residues long at its centre, covered by a second layer consisting of two segments of two-stranded

antiparallel beta-sheets. TGFBR2 has a protein kinase domain, forms a heterodimeric complex with another receptor protein, and binds TGF-beta. This receptor/ligand complex phosphorylates proteins, which then enter the nucleus and regulate the transcription of a subset of genes related to cell proliferation. Mutations in TGFBR2 gene have been associated with Marfan syndrome, Loeys-Deitz Aortic Aneurysm Syndrome, and the development of various types of tumors. TGFBR2 attenuates the biological activities of TGF-beta in colorectal cancer. TGFBR2 expression is increased in oral squamous cell carcinoma cells. Its expression is decreased by IL-1beta while inducing Sp3 via NFkappaB. TGFBR2 and TGFBR1 are involved in the antiestrogenic activity.

Reference

Yu Y, et al. (2012) MicroRNA-21 induces stemness by downregulating transforming growth factor beta receptor 2 (TGFBR2) in colon cancer cells. *Carcinogenesis*. 33(1):68-76.

Shima K, et al. (2011) TGFBR2 and BAX mononucleotide tract mutations, microsatellite instability, and prognosis in 1072 colorectal cancers. *PLoS One*. 6(9):e25062.

Biros E, et al. (2011) Meta-analysis of the association between single nucleotide polymorphisms in TGF- β receptor genes and abdominal aortic aneurysm. *Atherosclerosis*. 219(1):218-23.

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