

Recombinant Rat TGFR1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52423

Size: 10ug, 100ug

Protein Name: TGF-beta receptor type-1 (TGFR-1) (EC 2.7.11.30) (Serine/threonine-protein kinase receptor R4) (SKR4) (TGF-beta type I receptor) (Transforming growth factor-beta receptor type I) (TGF-beta receptor type I) (TbetaR-I)

Synonym: Tgfr1

UniProt ID: P80204

UniProt Link: www.uniprot.org/uniprotkb/P80204/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 501 AA

Molecular Weight: 56 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MEAASAALRRCLLLIVLVAATLLPGAKALQCFCHLCTKDNFTCETDGLCFVSVTETTDKVIHNSMCIA
EIDLIPDRDPFVCAPSSKTGAVTYCCNQDHCNKIELPTTGPFSEKQSAGLGPVELAAVIAGPVCFCVIA
LMLMVYICHNRTVIHHRVPNEEDPSLDRPFISEGTTLKDLIYDMTTSGSGSGLPLLQRTIARTIVLQE
SIGKGRFGGEVWRGKWRGEEVAVKIFSSREERSWFRFAEYQTVMLRHENILGFIAADNKDNGTWTQ
LWLVS DYHEHGS LFDYLNRYTVTVEGMIKLALSTASGLAHLHMEIVGTQ GKPAIAHRDLKSKNILVKK
NGTCC IADLGLAVRHDSATDTIDIAPNHRVGT KRYMAPEVLDD SINMKHFESFKRADIYAMGLVFW EI
ARRCSIGGIHEDYQLPYYDLVPSDPSVEEMRKVVCEQKLRPNIPNRWQSCEALRVMKIMRECWYA
NGAARLTALRIKKTLSQLSQQEGIKM

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant TGF-beta receptor type-1 (TGFR-1) (EC 2.7.11.30) (Serine/threonine-protein kinase receptor R4) (SKR4) (TGF-beta type I receptor) (Transforming growth factor-beta receptor type I) (TGF-beta receptor type I) (TbetaR-I) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Transmembrane serine/threonine kinase forming with the TGF-beta type II serine/threonine kinase receptor, TGFBR2, the non-promiscuous receptor for the TGF-beta cytokines TGFB1, TGFB2 and TGFB3. Transduces the TGFB1, TGFB2 and TGFB3 signal from the cell surface to the cytoplasm and is thus regulating a plethora of physiological and pathological processes including cell cycle arrest in epithelial and hematopoietic cells, control of mesenchymal cell proliferation and differentiation, wound healing, extracellular matrix production, immunosuppression and carcinogenesis. The formation of the receptor complex composed of 2 TGFBR1 and 2 TGFBR2 molecules symmetrically bound to the cytokine dimer results in the phosphorylation and the activation of TGFBR1 by the constitutively active TGFBR2. Activated TGFBR1 phosphorylates SMAD2 which dissociates from the receptor and interacts with SMAD4. The SMAD2-SMAD4 complex is subsequently translocated to the nucleus where it modulates the transcription of the TGF-beta-regulated genes. This constitutes the canonical SMAD-dependent TGF-beta signaling cascade. Also involved in non-canonical, SMAD-independent TGF-beta signaling pathways. For instance, TGFBR1 induces TRAF6 autoubiquitination which in turn results in MAP3K7 ubiquitination and activation to trigger apoptosis. Also regulates epithelial to mesenchymal transition through a SMAD-independent signaling pathway through PARD6A phosphorylation and activation (By similarity).

Subcellular Localization: Cell membrane ; Single-pass type I membrane protein . Cell junction, tight junction . Membrane raft . Cell surface .

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.