Product Description

Bone morphogenetic protein receptor type 1A (BMPR-1A) is a type I receptor of the BMP receptor family of transmembrane serine/threonine kinases (Abe; Fischerauer et al.); it is also known as ALK3. BMPR-1A is a receptor for BMP-2, BMP-4, GDF-5, and GDF-6. Binding of BMPs to receptor complexes results in phosphorylation of intracellular SMADs, which go on to regulate transcription (Pan et al.). BMP regulation plays a role in proliferation, differentiation, migration, and apoptosis of endothelial and vascular smooth muscle cells (Abe). BMPR-1A deficiency is lethal during gastrulation (Mishina et al.). BMPR-1A is important in chondrogenesis and osteogenesis, along with BMPR-1B (Fischerauer et al.; Jing et al.). This protein contains a C-terminus linker (IEGRMD) to an Fc tag (Human IgG1).

Product Information

Alternative Names: Activin receptor-like kinase 3, ACVRLK3, ALK3, BMP type-1A receptor, BRK-1, CD292, Serine/threonine-protein kinase receptor R5, SKR5

Accession Number: P36894

Amino Acid Sequence:

<table>
<thead>
<tr>
<th>Accession Number</th>
<th>Amino Acid Sequence</th>
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<tbody>
<tr>
<td>P36894</td>
<td>QNLDSLHGT GMKSDDSQKK SENGVTLAPE DTPFSLKCYY GCQHCPDDAIN NTCITNGHCF AIIEEDDOGE TTLASGCMKY EGSDFQCKDS PAKQLRRTIE CCRTNLCNQY LQPTLPPVI GPFFDGSIRI EGRMDDKTHT CTPCPAPEL GQPSVFLFPF PKPDTLMISR TPEVTCVVD VSHEDEPEVKF NWYVDGVEVH NAKTKPREEQ YNSTYRVSV LTVLHQDWNL GKEYKCKVSN KALPAPIEKT ISKAKGQPRE PQYTLPPSR DELTKQVSL TCVKGFYPS DIAVECESNG QPENNYKTTP PVLSDGSSF LSYKLSVDKS RWQSGNVFSC SVMHEALHNH YTKSLSLSP GK</td>
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Predicted Molecular Mass:

40.4 kDa monomer; 80.8 kDa dimer

Species: Human

Cross Reactivity: Not determined

Formulation: Lyophilized from a sterile-filtered solution containing phosphate-buffered saline.

Source: CHO

Specifications

Activity: The specific activity is ≥ 8.3 x 10^3 units/mg (EC50 ≤ 120 ng/mL) as determined by inhibition of alkaline phosphatase production induced by BMP-4 in ATDC-5 cells.

Purity: ≥ 95%

Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/μg protein.

Preparation and Storage

Storage: Store at -20°C to -80°C.

Stability: Stable as supplied for 12 months from date of receipt.

Preparation: Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -20°C to -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.
The biological activity of Human Recombinant BMPR-1A Fc was tested by its ability to inhibit BMP-4-induced alkaline phosphatase production in ATDC-5 cells. Inhibition of BMP-4-induced alkaline phosphatase production was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which inhibition of alkaline phosphatase production is at 50% of maximum. The EC50 in the above example is 61.5 ng/mL.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References


Fischerauer EE et al. (2013) BMP-6 and BMPR-1a are up-regulated in the growth plate of the fractured tibia. J Orthop Res 31(3): 357–63.


Pan H et al. (2017) BmpR1A is a major type 1 BMP receptor for BMP-Smad signaling during skull development. Dev Biol 429(1): 260–70.