

## BMPR1A/ALK-3 Active Protein | BMPR1A active protein

BMPR1A/ALK-3 Protein, Human, Recombinant (His Tag)

CATALOG #  
**AAA257883**

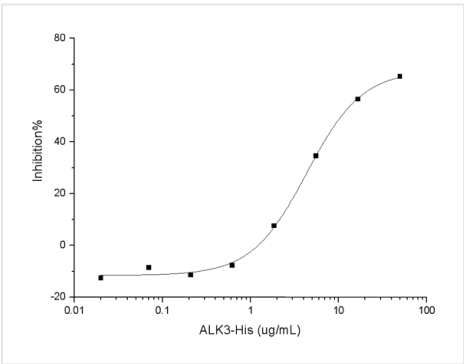
HOST  
**HEK293 Cells**

### PRODUCT SYNONYMS

BMPR1A/ALK-3; BMPR1A/ALK-3 Protein; Human; Recombinant (His Tag); Human BMPRIA/ALK-3/CD292 Protein (His Tag); 10q23del Protein; ACVRLK3 Protein; ALK3 Protein; CD292 Protein; SKR5 Protein; bone morphogenetic protein receptor; type IA; BMPR1A active protein

### PRODUCT SPECIFICATIONS

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Host                    | HEK293 Cells                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Purity/Purification     | >85% as determined by SDS-PAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Form/Format             | Lyophilized from sterile PBS, pH7.4. Normally 5%-8% trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Please refer to the specific buffer information in the hard copy of CoA.                                                                                                                                                                                                                                                                                               |
| Sequence                | Met1-Arg15 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Species                 | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Activity                | Measured by its ability to inhibit BMP4-induced alkaline phosphatase production by MC3T3E1 mouse preosteoblast cells. The ED50 for this effect is 20-120ng/mL.                                                                                                                                                                                                                                                                                                                                                   |
| Endotoxin               | <1.0EU per ug of the protein as determined by the LAL method                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Predicted N Terminal    | Gln 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Tag                     | C-His                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Protein Construction    | A DNA sequence encoding the extracellular domain (Met 1-Arg 152) of human ALK3 (NP_004320.2) was fused with a polyhistidine tag at the C-terminus.                                                                                                                                                                                                                                                                                                                                                               |
| Reconstitution          | A hardcopy of COA with reconstitution instruction is sent along with the products. Please refer to it for detailed information.                                                                                                                                                                                                                                                                                                                                                                                  |
| Preparation and Storage | <p>Samples are stable for up to twelve months from date of receipt at -20 degree C to -80 degree C. Store it under sterile conditions at -20 degree C to -80 degree C. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.</p> <p>In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature. Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice.</p> |



SDS-PAGE

**Application Data**  
Measured by its ability to inhibit BMP4-induced alkaline phosphatase production by MC3T3E1 mouse preosteoblast cells. The ED50 for this effect is 2.5-10 ug/mL.

ADDITIONAL INFORMATION

Related Product Information for BMPR1A active protein

Background: Activin receptor-Like Kinase 3 (ALK-3), also known as Bone Morphogenetic Protein Receptor, type IA (BMPR1A), is a type I receptor for bone morphogenetic proteins (BMPs) which belong to the transforming growth factor beta (TGF-beta) superfamily. The BMP receptors form a subfamily of transmembrane serine/threonine kinases including the type I receptors BMPR1A and BMPR1B and the type II receptor BMPR2. ALK-3/BMPR1A is expressed in the epithelium during branching morphogenesis. Deletion of BMPR1A in the epithelium with an Sftpc-re transgene leads to dramatic defects in lung development. ALK-3 and ALK-6 share a high degree of homology, yet possess distinct signaling roles. The transforming growth factor (TGF)-beta type III receptor (TbetaRIII) enhanced both ALK-3 and ALK-6 signaling. TbetaRIII associated with ALK-3 primarily through their extracellular domains, whereas its interaction with ALK-6 required both the extracellular and cytoplasmic domains. ALK-3 plays an essential role in the formation of embryonic ventral abdominal wall, and abrogation of BMP signaling activity due to gene mutations in its signaling components could be one of the underlying causes of omphalocele at birth. The type IA BMP receptor, ALK-3 was specifically required at mid-gestation for normal development of the trabeculae, compact myocardium, interventricular septum, and endocardial cushion. Cardiac muscle lacking ALK-3 was specifically deficient in expressing TGFbeta2, an established paracrine mediator of cushion morphogenesis. Hence, ALK-3 is essential, beyond just the egg cylinder stage, for myocyte-dependent functions and signals in cardiac organogenesis.

References

Gaussin V, et al. (2002) Endocardial cushion and myocardial defects after cardiac myocyte-specific conditional deletion of the bone morphogenetic protein receptor ALK3. *Proc Natl Acad Sci U S A.* 99(5): 2878-83. Eblaghie MC, et al. (2006) Evidence that autocrine signaling through Bmpr1a regulates the proliferation, survival and morphogenetic behavior of distal lung epithelial cells. *Dev Biol.* 291(1): 67-82. Sun J, et al. (2007) Deficient Alk3-mediated BMP signaling causes prenatal omphalocele-like defect. *Biochem Biophys Res Commun.* 360(1): 238-43. Lee NY, et al. (2009) The transforming growth factor-beta type III receptor mediates distinct subcellular trafficking and downstream signaling of activin-like kinase (ALK)3 and ALK6 receptors. *Mol Biol Cell.* 20(20): 4362-70.

NCBI AND UNIPROT INFORMATION

|                                  |                                              |
|----------------------------------|----------------------------------------------|
| NCBI GI #                        | 41349437                                     |
| NCBI GeneID                      | 657                                          |
| NCBI Accession #                 | NP_004320.2                                  |
| NCBI GenBank Nucleotide #        | NM_004329.2                                  |
| UniProt Accession #              | P36894; Q8NEN8; A8K6U9                       |
| Molecular Weight                 | 60,198 Da                                    |
| NCBI Official Full Name          | bone morphogenetic protein receptor type-1A  |
| NCBI Official Synonym Full Names | bone morphogenetic protein receptor, type IA |
| NCBI Official Symbol             | BMPR1A                                       |

|                               |                                                                                                                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NCBI Official Synonym Symbols | ALK3; SKR5; CD292; ACVRLK3; 10q23del                                                                                                                                                                      |
| NCBI Protein Information      | bone morphogenetic protein receptor type-1A; ALK-3; BMPR-1A; BMP type-1A receptor; activin receptor-like kinase 3; activin A receptor, type II-like kinase 3; serine/threonine-protein kinase receptor R5 |
| UniProt Protein Name          | Bone morphogenetic protein receptor type-1A                                                                                                                                                               |
| UniProt Gene Name             | <b>BMPR1A</b>                                                                                                                                                                                             |
| UniProt Synonym Gene Names    | ACVRLK3; ALK3; BMP type-1A receptor; BMPR-1A; ALK-3; SKR5                                                                                                                                                 |
| UniProt Entry Name            | BMR1A_HUMAN                                                                                                                                                                                               |

**For Research Use Only.** Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/hek293-cells-active-protein/bmpr1a-alk-3/257883>