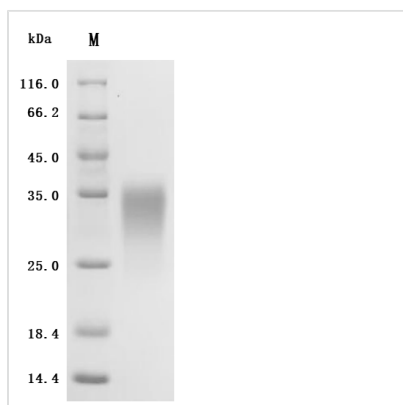


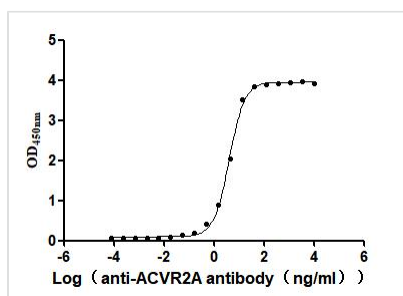


Recombinant Human/Cynomolgus monkey Activin receptor type-2A (ACVR2A), partial (Active)

Product Code	CSB-MP001260HU1
Abbreviation	Recombinant Human/Cynomolgus monkey ACVR2A protein, partial (Active)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20?/-80?. The shelf life of lyophilized form is 12 months at -20?/-80?.
Uniprot No.	P27037/A0A7N9IF81
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 µm filtered PBS, 6% Trehalose, pH 7.4
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized Human ACVR2A at 2 µg/mL can bind Anti-ACVR2A recombinant antibody (CSB-RA623829MA1HU). The EC50 is 3.848-4.375 ng/mL.
Purity	Greater than 95% as determined by SDS-PAGE.
Sequence	AILGRSETQECLFFNANWEKDRTNQTGVEPCYGDKDKRRHCFATWKNISGSI EIVKQGCWLDDINCYDRDCVEKKDSPEVYFCCCEGNMCNEKFSYFPEMEVT QPTSNPVT PKPP
Source	Mammalian cell
Target Names	ACVR2A
Expression Region	20-135aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4? for up to one week.
Tag Info	C-terminal 10xHis-tagged
Mol. Weight	14.8 kDa
Protein Length	Partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.



Activity

Measured by its binding ability in a functional ELISA. Immobilized Human ACVR2A at 2 µg/ml can bind Anti-ACVR2A&ACVR2B recombinant antibody (CSB-RA623829MA1HU). The EC₅₀ is 3.848-4.375 ng/mL.

Description

A DNA fragment encoding the 20-135aa of human ACVR2A was fused with the 10xHis-tag at the C-terminus and expressed in mammalian cells through a vector. The resulting product is the recombinant human ACVR2A protein. It carries a C-terminal 10xHis-tag. Its purity exceeds 95% as determined by SDS-PAGE. It has been validated to be an active protein in a functional ELISA, where immobilized human ACVR2A at 2 µg/mL can bind the anti-ACVR2A recombinant antibody (CSB-RA623829MA1HU), with the EC₅₀ of 3.848-4.375 ng/mL.

The ACVR2A protein is a multifunctional receptor that integrates signals from the TGF-β superfamily to regulate a wide array of biological functions, including muscle growth, immune responses, and skeletal development. It is integral to signaling pathways that regulate cellular proliferation, differentiation, and apoptosis, thereby influencing tissue homeostasis and development [1][2].

ACVR2A mainly regulates muscle growth and differentiation. It is activated by activins, myostatin, and BMPs, which are crucial for muscle development and maintenance [2]. Furthermore, ACVR2A signaling has been implicated in the pathophysiology of various diseases, including cancer and fibrosis. ACVR2A has been shown to mediate the effects of activin A in promoting fibrotic processes in liver diseases, particularly through its interaction with hepatic stellate cells [3]. This highlights its role in inflammation and tissue remodeling, which are critical in chronic disease states.

ACVR2A also modulates immune responses. It is involved in the differentiation of T-helper cells, particularly Th17 cells, which are known to contribute to autoimmune conditions [3]. The signaling pathways activated by ACVR2A can lead to both pro-inflammatory and anti-inflammatory responses, depending on



the context and the ligands involved [4].

Moreover, ACVR2A is essential for proper skeletal development and homeostasis. It mediates signaling pathways that are crucial for bone formation and remodeling, and its dysregulation can lead to skeletal disorders [5]. Its involvement in both normal physiological processes and pathological conditions makes it a significant focus of research for therapeutic interventions in diseases such as cancer, fibrosis, and autoimmune disorders.

References:

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- [4] C. Li, Z. Xu, X. Fan, H. Chen, Q. Yu, S. Fang, et al. Microrna-21 mediates the protective effects of mesenchymal stem cells derived from ipscs to human bronchial epithelial cell injury under hypoxia, *Cell Transplantation*, vol. 27, no. 3, p. 571-583, 2018. <https://doi.org/10.1177/0963689718767159>
- [5] Y. Totoki, A. Yoshida, F. Hosoda, H. Nakamura, N. Hama, K. Ogura, et al. Unique mutation portraits and frequent col2a1 gene alteration in chondrosarcoma, *Genome Research*, vol. 24, no. 9, p. 1411-1420, 2014. <https://doi.org/10.1101/gr.160598.113>

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL. We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.