



Recombinant Human Activin A protein

Human recombinant protein expressed in *Nicotiana benthamiana*. **Formulation:** Lyophilized from Tris HCl 0.05M buffer at pH 7.4
RF009

Molecular formula: C₆₀₀H₉₁₁N₁₇₃O₁₇₄S₁₃

Extinction coefficient: E^{0.1%} = 1.27 (A_{280 nm})

Molecular weight: 13.7 kDa βA single chain, containing 116 amino residues

p.I: 7.27

Purity: > 97% by SDS-PAGE gel

Endotoxin level*: <0.04 EU/ μg protein (LAL method)

Xeno-free product*

Sequence:

HHHHHHGLECDGKVNICKKKQFFVSFKDIGWNDWIIAPSG
YHANYCEGECPSHIAGTSGSSLSFHSTVINHYRMRGHSPFA
NLKSCCVPTKLRPMSMLYDDGQNIKKDIQNMIVEECGCS

Description: Activins are homodimers or heterodimers of the various β subunit isoforms, belonging to the TGFβ family. Mature Activin A has two chains of 116 amino acids residues (βA-βA). Activin exhibits a wide range of biological activities, including mesoderm induction, neural cell differentiation, bone remodelling, haematopoiesis, and reproductive physiology. Activins plays a key role in the production and regulation of hormones such as FSH, LH, GnRH and ACTH. Cells known to express Activin A include fibroblasts, endothelial cells, hepatocytes, vascular smooth muscle cells, macrophages, keratinocytes, osteoclasts, bone marrow monocytes, prostatic epithelium, neurons, chondrocytes, osteoblasts, Leydig cells, Sertoli cells, and ovarian granulosa cells.

As with other members of the super-family, Activins interact with two types of cell surface [trans-membrane receptors](#) (Types I and II) which have intrinsic [serine/threonine kinase](#) activities in their cytoplasmic domains, [Activin type 1 receptors](#), [ACVR1](#), [ACVR1B](#), [ACVR1C](#) and [Activin type 2 receptors](#), [ACVR2A](#), [ACVR2B](#). The biological activity of Activin A can be neutralized by inhibins and by the diffusible TGF-B antagonist, Follistatin.

Source: Produced by transient expression of Activin A in non-transgenic plant. Recombinant human Activin A contains a 6-His-tag at the N-terminal end and is purified by sequential chromatography (FPLC). Contains no animal –derived components or impurities.

Reconstitution recommendation: Lyophilized protein should be reconstituted in water to a concentration of 50 ng / μl. Due to the protein nature, dimmers and multimers may be observed.

Storage and Stability: This lyophilized preparation is stable at 2-8° C. For long storage should be kept at -20° C and it is recommended to add a carrier protein (0.1% HSA or BSA). Repeated freezing and thawing is not recommended.

References

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-Sulyok S., Wankell M., Alzheimer C. and Werner S. (2004). Activin: an important regulator of wound repair, fibrosis, and neuroprotection. *Mol. Cell. Endocrinology*, 225 (1-2): 127–32.

-Bamberger C., Schärer A., Antsiferova M., Tychsen B., Pankow S., Müller M., Rülcke T., Paus R. and Werner S. (2005). [Activin controls skin morphogenesis and wound repair predominantly via stromal cells and in a concentration-dependent manner via keratinocytes](#). *Am. J. Pathol.*, 167 (3): 733–47.

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***Agrenvec products are expressed in a plant system and intrinsically have extremely low endotoxin levels and are Xeno-free.**

For R+D purposes only. Purchaser must determine the suitability of the product(s) for their particular use.