9051 Mira Mesa Blvd, #910094
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Activin-A Human Active

Activin-A Human Recombinant, Active
GRF0005

Product Overview

Name	Activin-A Human Active
Description	
Activin-A Human Recombinant, Active	
Accession (Primary)	P08476
Synonyms	
Inhba, Inhibin beta A, FSH releasing protein.	
Introduction	
Activins are homodimers or heterodimers of the different ? subunit isoforms, part of the TGF? family. Mature Activin A has two 116 amino acids residues ?A subunits (?A-?A). Activin displays an extensive variety of biological activities, including mesoderm induction, neural cell differentiation, bone remodelling, haematopoiesis, and reproductive physiology. Activins takes part in the production and regulation of hormones such as FSH, LH, GnRH and ACTH. Cells that are identified 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.	
Source	
Nicotiana benthamiana.	
Physical Appearance	
Lyophilized freeze dried powder.	
Formulation	
Active form Activin-A was lyophilized from a concentrated 1mg/ml protein solution containing 50mM Tris-HCl pH-7.4	
Stability	
For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Repeated freezing and thawing is not recommended.	
Purity	
Greater than 98% as obsereved by SDS-PAGE.	
Amino acid sequence	
HHHHHHGLECDGKVNICCKKQFFVSFKDIGWNDWIIAPSG	
YHANYCEGECPSHIAGTSGSSLSFHSTVINHYRMRGHSPFA	

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NLKSCCVPTKLRPMSMLYYDDGQNIIKKDIQNMIVEECGCS.

Biological Activity

The biological activity of INHBA is measured by its ability to inhibit mouse plasmacytoma cell line (MPC-11) cells proliferation ([3 H]thymidine incorporation). ED 50 < 5ng/ml.

Solubility

INHBA protein should be reconstituted in distilled water to a concentration of 50 ug /ml. Due to the protein nature, dimmers and multimers may be observed.

Precautions

Activin-A Human Active is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (P08476)

Background

Title: Research on Activin A Human Recombinant: Molecular Characteristics, Signaling Pathways, Physiological Functions, and Therapeutic Potential Introduction: Activin A, a member of the transforming growth factor-beta (TGF-?) superfamily, is a multifunctional cytokine that plays a significant role in various biological processes in the human body. Its involvement in diverse physiological and pathological functions has garnered considerable attention in scientific research. This paper aims to provide an overview of Activin A, encompassing its molecular characteristics, signaling pathways, physiological functions, and therapeutic potential. Activin A is encoded by the INHBA gene and is produced as a precursor protein that undergoes post-translational modifications to generate the mature form. The mature Activin A protein consists of two ?-subunits held together by disulfide bonds. These structural features contribute to its functional properties and interactions with specific receptors. Upon binding to its cell surface receptors, Activin A triggers intracellular signaling cascades, leading to various cellular responses. Canonical SMAD-dependent pathway as well as non-SMAD pathways, such as MAPK/ERK, PI3K/Akt, and JNK signaling, are activated by Activin A. The intricate network of signaling pathways enables Activin A to regulate diverse biological processes, including cell proliferation, differentiation, apoptosis, and tissue homeostasis. Activin A exerts its physiological functions in a tissue-specific manner. It plays a critical role in embryonic development, particularly in organogenesis and patterning. Additionally, Activin A is involved in reproductive biology, where it participates in folliculogenesis, spermatogenesis, and hormonal regulation. It also contributes to neural development, immune system modulation, and skeletal homeostasis. The multifunctional properties of Activin A have positioned it as a potential therapeutic target for various diseases. Its involvement in cancer, neurodegenerative disorders, fibrosis, and reproductive disorders has prompted

extensive research to explore its therapeutic potential. Understanding the molecular mechanisms underlying Activin A's actions provides valuable insights for developing innovative therapeutic strategies. In conclusion, Activin A is a versatile cytokine with diverse roles in human biology. This research aims to deepen our understanding of its molecular characteristics, signaling pathways, physiological functions, and therapeutic potential. By elucidating the complexities of Activin A, we strive to pave the way for novel therapeutic interventions in various human diseases.