

Activin-A Human Active

Activin-A Human Recombinant, Active

GRF0005

Product Overview

Name	Activin-A Human Active
Catalog #	GRF0005
Accession(Primary)	P08476
Description	Activin-A Human Recombinant, Active
Precautions	

Target information(P08476)

Synonyms

Gene ID

Other Names

Function

Cellular location

Note

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.