Recombinant Mouse GDF-9
Catalog Number: 739-G9

DESCRIPTION
Source
Chinese Hamster Ovary cell line, CHO-derived
Gly307-Arg441
Accession # AAA53035

N-terminal Sequence Analysis
Gly307
Predicted Molecular Mass
15.6 kDa

SPECIFICATIONS
SDS-PAGE
20 kDa, reducing conditions
Activity
Measured by its ability to induce cell death using Mv1Lu mink lung epithelial cells. The ED50 for this effect is 0.1-0.4 μg/mL.
Endotoxin Level
<0.10 EU per 1 μg of the protein by the LAL method.
Purity
>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation
Lyophilized from a 0.2 μm filtered solution in HCl with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE
Reconstitution
Reconstitute at 100 μg/mL in 4 mM HCl containing 0.1% bovine serum albumin.
Shipping
The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage
Use a manual defrost freezer and avoid repeated freeze-thaw cycles.
- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA
Bioactivity
Recombinant Mouse GDF-9 induces Mv1Lu mink lung epithelial cell death. The ED_{50} for this effect is 0.1-0.4 μg/mL.
Growth Differentiation Factor-9 (GDF-9) is an oocyte secreted paracrine factor in the TGF-β superfamily (1, 2). It is synthesized as a prepropeptide and is subsequently processed by proteases into the mature protein (1, 2). Mature mouse GDF-9 has a predicted molecular weight of 15.6 kDa, and shares 90% and 95% amino acid sequence identity with mature human and rat GDF-9, respectively. It forms both non-covalent homodimers and heterodimers with BMP-15, which is coordinately expressed with GDF-9 in the oocyte (3-5). GDF-9 signals through TGF-βRI/ALK-5 and BMPRII, while the GDF-9:BMP-15 heterodimer is believed to signal through BMPRII, ALK-4, -5, -7, and BMPRIIB/ALK-6 (5-8). SMAD2 and SMAD3 are phosphorylated following activation of receptor complexes by GDF-9 (5, 6).

GDF-9 functions as a paracrine factor in the development of primary follicles in the ovary (9, 10). It is critical for the growth of granulosa and theca cells and for the differentiation and maturation of the oocyte (11, 12). GDF-9 is thought to act synergistically with BMP-15 to control development of the oocyte-cumulus cell complex (5, 12-14). In mice, GDF-9:BMP-15 heterodimers have been shown to be more potent regulators of granulosa cell functions compared to GDF-9 homodimers (6).

Studies on GDF-9 null mice have demonstrated arrested follicular development at the primary follicle stage (10). In humans, aberrant GDF-9 expression and activation is associated with a multitude of common human ovarian disorders including premature ovarian failure and polycystic ovary syndrome (15-17).

References: