



Recombinant Human Gremlin-1

Human, Recombinant (Grem1)

Expressed in E. coli

Cat. 200-070

Lot. No. (See product label)

Product Information

Gremlin, also known as “Increased in High Glucose protein 2” (IHG2) and “Down regulated in Mos-transformed cells protein” (Drm), is a 28 kDa member of the Dan family of secreted glycoproteins. Native human Gremlin consist of 160 amino acids. The mature region contains one potential site for N-linked glycosylation (Asn42), a cysteine-rich region, and a cysteine-knot motif (aa94-184) whose structure is shared by members of the TGF β superfamily. Posttranslational modifications include glycosylation and phosphorylation (1-3). Human Gremlin exists in both secreted and membrane-associated forms (3) and there exist 2 isoforms. The aa sequence identity of human Gremlin with mouse and chicken Gremlin is 99% and 86%, respectively. Northern blot analysis shows that Gremlin mRNA is highly expressed in the small intestine, fetal brain and colon, and weakly expressed in adult brain, ovary, prostate, pancreas and skeletal muscle (4). Gremlin functions as a bone morphogenetic protein (BMP) antagonist. It acts by binding to, and forming heterodimers with, BMP2, BMP4, and BMP7, thus preventing them from interacting with their cell surface receptors (1). This mechanism is thought to be responsible for the pattern-inducing activity of Gremlin during embryonic development (5) and to play a role in human diseases, such as diabetic nephropathy (6). However, intracellular BMP-independent mechanisms of action (7) may mediate the ability of Gremlin to suppress transformation and tumor genesis under certain experimental conditions (8, 9). Gremlin also interacts with Slit proteins and acts as an inhibitor of monocyte chemotaxis (10). In addition, Gremlin has been found to be a proangiogenic factor expressed by endothelium (9). Furthermore Gremlin is a novel agonist of the major proangiogenic receptor VEGFR2 (11).

Country of Origin: Germany

Sequence:

MKKKGSQGAIPPPDKAQHNDSEQTQSPQQPGRNRGRGQGR
GTAMPGEEVLESSQEALHVTERKYLKRDWCKTQPLKQTIHE
EGCNSRTIINRFCYGQNSFYIIPRHIRKEEGSFQSCSFCKP
KKFTTMMVTLNCPQLPPTKKKRVTRVKQCRCISIDL

AA sequence: 161

MW: 18,4 kDa

Purity: > 95% by SDS-PAGE & Silver staining

Endotoxin level: < 0.1 ng per μ g of Grem1

Buffer: 50mM acetic acid

Formulation: lyophilized

Size: 50 μ g

Stability: The lyophilized human Grem1, though stable at room temperature, is best stored desiccated below 0°C. Freeze/thaw cycles will result in significant loss of activity.

Avoid repeated freeze-thaw cycles.

Reconstitution: Human Grem1 should be reconstituted in 50mM acetic acid or sterile water to a concentration of 0.1 mg/ml. This solution can be diluted in water or other buffer solutions or stored at -20°C.

Biological Activity: No biological data available at the moment.

Gene Information

NCBI Accession number

Protein RefSeq: NP_001178252.1

mRNA RefSeq: NM_013372

Uniprot ID: O60565

References

1. Hsu DR et al, Mol Cell 1 (1998);
2. McMahon R et al, JBC 275 (2000);
3. Wordinger RJ et al, Exp Eye Res (2008);
4. Topol LZ et al, Cytogenet Cell Genet (2000);
5. Khokha MK et al, Nat. Genet (2003);
6. Lappin DW et al, Nephrol Dial Transplant (2002);
7. Chen B et al, BBRC (2002);
8. Topol LZ et al, Mol Cell Biol (1997);
9. Stabile H et al, Blood (2007);
10. Chen B et al, J Immunol (2004);
11. Mitola S et al, Blood (2010).

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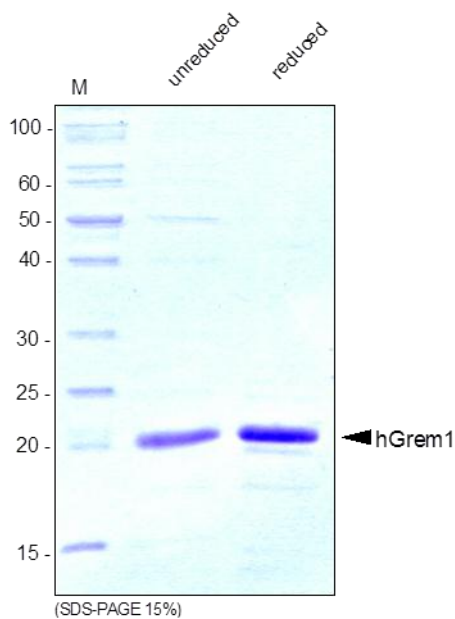


Figure 1. SDS-PAGE analysis of recombinant human Gremlin-1. Samples were loaded in 15% SDS-polyacrylamide gel and stained with Coomassie blue. Lane 1: Molecular weight marker (kDa); Lane 2: unreduced Gremlin-1; Lane 3: reduced Gremlin-1.