



## Anti-human Gremlin-1

„Cell proliferation-inducing gene 2 protein“

**Catalog Number** 102-PA46S  
**Lot Number** (See product label)  
**Size** 100µg  
**Species Reactivity** Human  
**Isotype** Polyclonal Rabbit IgG  
**Immunogen** Recombinant human Grem1 (RT# 200-070)  
*Accession codes:*  
O60565  
NM\_013372

**Preparation:** Produced from sera of rabbits pre-immunized with highly pure (>95%) recombinant human Grem1 (Lys25-Asp184) derived from E. coli.

**Purification:** Protein-A purified

**Endotoxin level:** < 0.1 EU/1µg of the antibody (LAL)

**Formulation:** Lyophilized from PBS, pH 7.2

**Reconstitution:** Centrifuge vial prior to opening. Reconstitute in sterile water to a concentration of 0.1-1.0 mg/ml.

**Storage/Stability:** The lyophilized antibody is stable at room temperature for up to 1 month. The reconstituted antibody is stable for at least two weeks at 2-8°C. Frozen aliquots are stable for at least 6 months when stored at -20°C. **Avoid repeated freeze-thaw cycles!**

### APPLICATIONS

**Western Blot:** 2-5µg/mL

**NOTE:** Optimal dilutions should be determined by each laboratory for each application!

**Country of Origin:** Germany

**For Research use only**  
**Not for human use.**

### 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 TGFβ 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).

### Reference

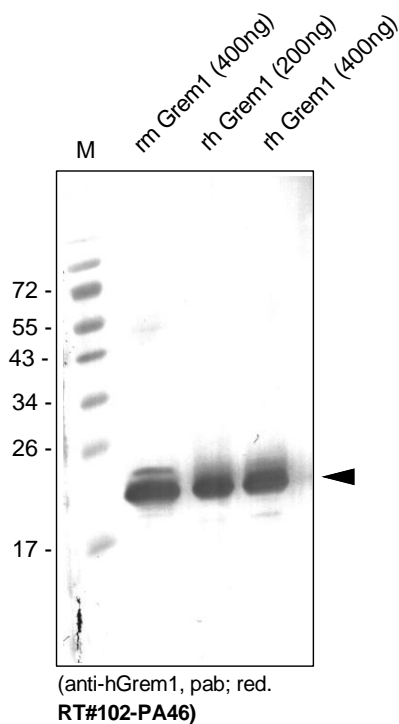
1. Hsu DR et al, Mol Cell 1 (1998); 2. McMahon R et al, JBC 275 (2000); 3. Wordinger RJ et al, Exp Eye Res (2008); 4. Topol LZ et al, Cytogenet Cell Genet (2000); 5. Khokha MK et al, Nat. Genet (2003); 6. Lappin DW et al, Nephrol Dial Transplant (2002); 7. Chen B et al, BBRC (2002); 8. Topol LZ et al, 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.** Western Analysis of anti-human Gremlin-1. Samples were loaded in 15% SDS-polyacrylamide gel under reducing conditions. Lane 1: MWM (kDa); lane 2: rm Gremln1; lane 3: rh Gremln1; lane 4: rh Gremln1.