

## Human MDG-1

Synonyms: Microvascular endothelial differentiation gene 1 protein, DnaJ homolog subfamily B member 9, ERdj4

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### Description

Angiogenesis research has focused on receptors and ligands mediating endothelial cell proliferation and migration. Little is known about the molecular mechanisms that are involved in converting endothelial cells from a proliferative to a differentiated state. Microvascular differentiation gene 1 (Mdg1) has been isolated from differentiating microvascular endothelial cells that had been cultured in collagen type I gels (3D culture). In adult human tissue Mdg1 is expressed in endothelial and epithelial cells. Sequence analysis of the full-length cDNA revealed that the N-terminal region of the putative Mdg1-protein exhibits a high sequence similarity to the J-domain of Hsp40 chaperones. It was shown that this region functions as a bona fide J-domain as it can replace the J-domain of Escherichia coli DnaJ-protein. Mdg1 is also upregulated in primary endothelial and mesangial cells when subjected to various stress stimuli. GFP-Mdg1 fusion constructs showed the Mdg1-protein to be localized within the cytoplasm under control conditions. Stress induces the translocation of Mdg1 into the nucleus, where it accumulates in nucleoli. Costaining with Hdj1, Hdj2, Hsp70, and Hsc70 revealed that Mdg1 colocalizes with Hsp70 and Hdj1 in control and stressed HeLa cells. These data suggest that Mdg1 is involved in the control of cell cycle arrest taking place during terminal cell differentiation and under stress conditions.

- Source *E. Coli*
- Purity ≥ 95 % (SDS-PAGE, silver stained)

### Amino Acid Sequence

MKHHHHHHSA GLEVLFQGPM ASKSYYDTLG VPKSASERQI KKAFHKLAMK YHPDKNKSPD AEAKFREIAE  
 AYETLSDANR RKEYDTLGH S AFTSGKGQRG SGSSFEQSFN FNFDLFKDF GFFGQNQNTG SKKR芬HFQ  
 TRQDGGSRRQ RHHFQEFSFG GGLFDDMFED MEKMFSFSGF DSTNQHTVQT ENRFHGSSKH CRTVTQRRGN  
 MVTTYTDCSG Q

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