

Mouse recombinant Endocan / ESM-1 (50 kDa)

Carrying a unique DS / DS chain

Essential Notes

Cat. Number: LIP-1003-50U

Biomolecule: Endocan

Clone: HEK-MO

Size: 50 µg / 100 µL

Formulation: solution in PBS

Storage: -80°C

Applications: Elisa, Bioassays, standard for quantification

For research use only

Description

Endocan also called endothelial cell specific molecule 1 (ESM-1) is a secreted proteoglycan of 50 kDa constituted by a protein core of 20 kDa and a single chain of dermatan sulfate linked to the serine 137 (Bechard et al 2001 ; Sarrazin et al 2010). Endocan binds via its DS / CS chain pro-angiogenic molecule such as HGF/SF and regulated their activities. This CS / DS proteoglycan is a biomarker of endothelial dysfunction in cancer and in sepsis.

Source

The recombinant mouse Endocan / ESM-1 is produced by a HEK293 cell line overexpressing mouse Endocan / ESM-1. Recombinant mouse Endocan was then purified by sequential ion exchange chromatography followed by affinity chromatography as described in Depontieu et al. 2012.

Molecular Mass

As a result of post-translational modification, mouse Endocan / ESM-1 is secreted as a 50 kDa proteoglycan.

Formulation

Fifty µg of recombinant Endocan / ESM-1 in a solution in phosphate buffer saline (PBS) at 100 µg/mL.

Storage

Mouse Endocan / ESM-1 can be aliquoted upon reception and stored frozen at -80°C until final use. **Avoid repeated freeze-thaw cycles.**

Applications

Bioassays: Optimal dilutions should be determined by each laboratory for each application.

Western Blot: Can be used as a standard for molecular weight (50 kDa).

ELISA: Can be used for the quantification of Mouse Endocan / ESM-1 in serum, plasma or culture supernatant as a standard.

■ References

- Lassalle et al. (1996)** ESM-1 is a novel human endothelial cell-specific molecule expressed in lung and regulated by cytokines. *J. Biol. Chem.* 271:20458-20464.
- Bechard et al. (2001a)** Endocan is a novel CS/DS proteoglycan that promotes HGF/SF mitogenic activity. *J. Biol. Chem.* 276:48341-48349.
- Depontieu et al. (2012)** Development of monoclonal antibodies and ELISA specific for the mouse vascular endocan. *J Immunol Methods.* 378:88-94.
- Sarrazin et al. (2010a)** Characterization and binding activity of the chondroitin/dermatan sulfate chain from Endocan, a soluble endothelial proteoglycan. *Glycobiology.* 20:1380-1388.
- Scherpereel et al. (2003)** Overexpression of endocan induces tumor formation. *Cancer Res.* 63:6084-6089.

■ BACKGROUND

Endocan, also known as endothelial cell-specific molecule (ESM-1), was originally discovered in endothelial cells from the lungs (Lassalle et al. 1996). Structurally, Endocan is a dermatan sulfate proteoglycan of 50 kDa that is freely circulating in blood (Bechard et al. 2001a; Sarrazin et al. 2010a). Endocan / ESM-1 binds CD11a/CD18 integrin (also called LFA-1 for Leukocyte Function-associated Antigen-1) on human leukocytes inhibiting consequently its binding to ICAM-1 and transendothelial migration (Bechard et al. 2001b; De Freitas Caires et al. 2009). Moreover, Endocan / ESM-1 has been recently described as a biomarker of tip cells (Sarrazin et al. 2010b). The expression of Endocan / ESM-1 is upregulated by pro-inflammatory molecules such as tumor necrosis factor alpha (TNF α), and pro-angiogenic molecules such as vascular endothelial growth factor (VEGF) and fibroblast growth factor 2 (FGF-2) (Grigoriu et al. 2006; Sarrazin et al. 2006; Maurage et al. 2009). Endocan / ESM-1 binds via its dermatan sulfate chain to hepatocyte growth factor/scatter factor (HGF/SF) (Bechard et al. 2001a; Sarrazin et al. 2010b). Elevated blood levels of Endocan / ESM-1 has been reported in patients with lung and kidney cancers as well as in patients with severe sepsis (Bechard et al. 2001b; Scherpereel et al. 2003; Grigoriu et al. 2006; Scherpereel et al. 2006; Sarrazin et al. 2010b; Leroy et al. 2010). Endocan appears as pertinent biomarker of endothelial dysfunctions.

■ Endocan Background Bibliography

- Abid et al. (2006)** Vascular endocan is preferentially expressed in tumor endothelium. *Microvasc. Res.* 72:136-145.
- Bechard et al. (2001a)** Endocan is a novel CS/DS proteoglycan that promotes HGF/SF mitogenic activity. *J. Biol. Chem.* 276:48341-48349.
- Bechard et al. (2001b)** Human ESM-1 binds directly to the integrin CD11a/CD18 (LFA-1) and blocks binding to ICAM-1. *J. Immunol.* 167:3099-3106.
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- Leroy et al. (2010)** Vascular endocan (ESM-1) is markedly overexpressed in clear cell renal cell carcinoma. *Histopathology* 56:180-187.
- Maurage et al. (2009)** Endocan expression and localization in human glioblastomas. *J. Neuropathol. Exp. Neurol.* 68:836-844.
- Sarrazin et al. (2006)** Endocan or endothelial cell specific molecule-1 (ESM-1): a potential novel endothelial cell marker. *BBA Reviews* 1765:25-37.
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- Sarrazin et al. (2010b)** Endocan as a biomarker of endothelial dysfunction in cancer. *J. Canc. Sci. Ther.* 2:47-52.
- Scherpereel et al. (2003)** Overexpression of endocan induces tumor formation. *Cancer Res.* 63:6084-6089.
- Scherpereel et al. (2006)** Endocan, a new endothelial marker in human sepsis. *Crit. Care Med.* 34:532-537.
- Tsai et al. (2002)** Cloning and characterization of the human lung ESM-1 promoter. *J. Vasc. Res.* 39:148-159.

■ Companion products

- Anti-human endocan/ESM-1 mAb (C-ter) ; clone MEP14 : **LIA-1001**
- Anti-mouse endocan/ESM-1 mAb (N-ter) ; clone GGR222 : **LIA-0905**
- DIYEK M1 (ImmunoAssay against human endocan) : **LIK-1102**
- Dermatan sulfate chains from recombinant human endocan : **LIDS-1001**
- Human recombinant endocan/ESM-1 20 kDa : **LIP-1002**
- Mouse recombinant endocan/ESM-1 20 kDa : **LIP-1102**

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