

# Anti-Human Endocan/ESM-1 Monoclonal Antibody Clone MEP14 (C-Ter)

## Essential Notes

**Cat. Number :** LIA-1001S

**Clone :** MEP14

**Size :** 20 µg

**Formulation :** PBS pH 7.4

**Storage :** -20°C

**Immunogen :** E. Coli derived C-Ter peptide (60-165)

**Specificity :** human endocan, as well as chicken, rat, pig, mouse and monkey endocan

**Source :** mouse

**Ig isotype :** IgG2a, K

**Applications :** WB, ELISA, IHC

For research use only

## Preparation/source

Endocan/ESM-1 is a 165 amino acid peptide that carries a dermatan sulfate chain. Anti-endocan/ESM-1 antibodies clone MEP14 were produced from a hybridoma resulting from the fusion of mouse myeloma Sp2/0 cells with B cells obtained from mouse immunized with a E. Coli derived C-terminal peptide (60-165) from recombinant human endocan (Lassalle et al. 1996; Bechard et al. 2000). They were purified by protein A affinity chromatography.

## Formulation

Solution in phosphate buffer saline 1x, pH 7.4

## Concentration

The concentration of MEP14 was 1 mg/mL as determined by measurement of protein and mouse IgG concentration.

## Purity

Purity > 90%, as determined by SDS-PAGE and as visualized by silver staining.

## Specificity & Bioactivity

Specificity is determined by ability to recognize **human endocan** as well as **chicken, rat, pig, mouse and monkey endocan**.

## Storage

Samples in PBS can be easily aliquoted. They can be stored frozen from -20°C to -80°C. Avoid repeated freeze-thaw cycles.

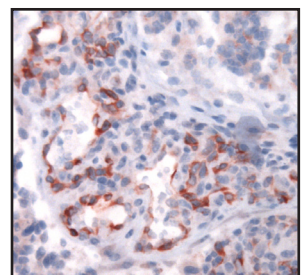
## Applications

**Western blot (WB) :** The anti-human endocan/ESM-1 antibody clone MEP14 is recommended to detect human endocan after electrophoresis and immunoblotting. Recommended working dilutions were determined to be 1 µg/mL. Optimal dilutions should be determined according to sample origins.

**Elisa :** The MEP14 monoclonal antibody can be used in sandwich ELISA procedures as a capture antibody (see references below for details).

**Immunohistochemistry (IHC) :** Recommended working dilutions with anti-human endocan antibody clone MEP14 were determined to be 5 µg/mL. Optimal dilutions should be determined according to tissue origins.

**Other :** to be determined.



*Tumor vessels expressing endocan (brown) in glioblastoma as detected by IHC using the anti endocan/ESM-1 antibody clone MEP14 (Courtesy of Pr. Muraige, Lille, France)*

## ■ Bibliography related to MEP14 Antibody Applications

- Bechard et al. (2000)** Characterization of the secreted form of ESM-1 by specific monoclonal antibodies. *J. Vasc. Res.* 37:417-425.
- Grigoriu et al. (2006)** Endocan expression and relationship with survival in human non-small cell lung cancer. *Clin. Cancer Res.* 12:4575-4582.
- 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.
- Mikkelsen et al. (2011)** Lower Serum Endocan Levels Are Associated with the Development of Acute Lung Injury after Major Trauma. *J. Crit. Care: In Press*, July 2011.

## ■ BACKGROUND

Endocan, also known as endothelial cell-specific molecule (ESM-1), was originally discovered by Lassalle and collaborators in endothelial cells (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 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). Moreover, endocan has been recently described as a biomarker of tip cells (Sarrazin et al. 2010b). The expression of endocan is upregulated by pro-inflammatory molecules such as tumor necrosis factor alpha (TNF $\alpha$ ), 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 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 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 a pertinent biomarker of endothelial dysfunction (Sarrazin et al. 2010b).

## ■ 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.
- 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.
- 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.
- Sarrazin et al. (2010a)** Characterization and binding activity of the chondroitin/dermatan sulfate chain from Endocan, a soluble endothelial proteoglycan. *Glycobiology.* 20:1380-1388.
- 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-murine endocan/ESM-1 mAb (N-ter) ; clone GGR222 : **LIA-0905**
- Anti-human endocan/ESM-1 mAb (N-ter) ; clone MEP21 : **LIA-0902**
- Human recombinant endocan/ESM-1 (50 kDa) : **LIP-1001**
- DIYEK EndoMark H1 (ImmunoAssay against human endocan) : **LIK-1101**
- DIYEK EndoMark M1 (ImmunoAssay against murine endocan) : **LIK-1102**

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