

# COL18A1 (91318): sc-59819

## BACKGROUND

Collagen Type XV (COL15 gene product) and XVIII (COL18 gene product) form the new subgroup MULTIPLEXIN, within the diverse family of collagens, which contains 19 distinct types of collagens found in vertebrates. Both Collagen Type XV and Type XVIII are characterized by extensive interruptions in their collagenous sequences. Members of the MULTIPLEXIN subgroup contain polypeptides with multiple triple-helical domains separated and flanked by non-triple-helical regions. Type XV is predominantly expressed in internal organs such as adrenal gland, kidney and pancreas. Type XVIII encodes two different  $\alpha 1$  chains, which have different signal peptides and variant N-terminal non-collagenous NC1 domains of 495 and 303 amino acids. The long variant NC1-434 Type XVIII mRNAs are prominently expressed in liver, while the variant NC1-303 mRNAs are predominantly expressed in heart, kidney, placenta, prostate, ovary, skeletal muscle and small intestine. Endostatin is a fragment of the C-terminal domain NC1 of Collagen Type XV and Type XVIII that inhibits angiogenesis and tumor growth. Unlike endostatin-XVIII, endostatin-XV does not bind zinc or heparin, however both endostatins can inhibit chorioallantoic membrane angiogenesis induced by basic FGF or VEGF. Collagen Type XV and XVIII are also widely present in basement membrane zones, suggesting their roles in basement membrane-stromal interactions and involvement with angiogenic and pathological processes.

## REFERENCES

1. Muragaki, Y., et al. 1994. The human  $\alpha 1$ (XV) Collagen chain contains a large amino-terminal non-triple helical domain with a tandem repeat structure and homology to  $\alpha 1$  (XVIII) collagen. *J. Biol. Chem.* 269: 4042-4046.
2. Kivirikko, S., et al. 1994. Primary structure of  $\alpha 1$  chain of human Type XV Collagen and exon-intron organization in the 3' region of the corresponding gene. *J. Biol. Chem.* 269: 4773-4779.
3. Oh, S.P., et al. 1994. Cloning of cDNA and genomic DNA encoding human Type XVIII Collagen and localization of the  $\alpha 1$ (XVIII) collagen gene to mouse chromosome 10 and human chromosome 21. *Genomics.* 19: 494-499.
4. Myers, J.C., et al. 1997. Biochemical and immunohistochemical characterization of human Type XIX defines a novel class of basement membrane zone collagens. *Am. J. Pathol.* 151: 1729-1740.
5. Saarela, J., et al. 1998. Complete primary structure of two variant forms of human Type XVIII Collagen and tissue-specific differences in the expression of the corresponding transcripts. *Matrix Biol.* 16: 319-328.
6. Sasaki, T., et al. 2000. Endostatins derived from Collagen XV and XVIII differ in structural and binding properties, tissue distribution and anti-angiogenic activity. *J. Mol. Biol.* 301: 1179-1190.

## CHROMOSOMAL LOCATION

Genetic locus: COL18A1 (human) mapping to 21q22.3; Col18a1 (mouse) mapping to 10.

## SOURCE

COL18A1 (91318) is a rat monoclonal antibody raised against recombinant Collagen Type XVIII of mouse origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>2b</sub> in 1.0 ml of PBS with < 0.1% sodium azide and protein stabilizer.

## APPLICATIONS

COL18A1 (91318) is recommended for detection of Collagen Type XVIII of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for COL18A1 siRNA (m): sc-43073, COL18A1 shRNA Plasmid (m): sc-43073-SH and COL18A1 shRNA (m) Lentiviral Particles: sc-43073-V.

Molecular Weight of COL18A1: 180-200 kDa.

Positive Controls: mouse pancreas extract.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rat IgG-HRP: sc-2006 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-rat IgG-HRP: sc-2032 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.