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Anti-Human Sulf-2 monoclonal antibodies for research applications

Tech ID: 23805 / UC Case 2011-071-0

INVENTION NOVELTY

This invention identifies novel mouse monoclonal antibodies that recognize both human and mouse Sulf-2, an enzyme that is overexpressed in many cancers.

VALUE PROPOSITION

Heparan sulfate proteoglycans (HSPGs) are components of the extracellular matrix that bind to growth factors, such as VEGFs and FGFs, inhibiting interactions between these ligands and receptors. Sulf-2 is a secreted enzyme that removes 6-O-sulfation from HSPGs, causing the release of ligands and consequent activation of receptors and downstream signaling pathways involved in cell proliferation, angiogenesis, and metabolism. Sulf-2 is synthesized as a 125 kD pre-protein and is subsequently cleaved into 75 kD and 50 kD fragments, which are held together by disulfide bonds in the mature protein.

There is direct evidence that Sulf-2 drives tumorigenesis in non-small cell lung cancers, pancreatic cancers, hepatocellular carcinomas and glioblastomas. Sulf-2 is also overexpressed in breast cancer, pancreatic cancer, gastric cancer, head and neck cancer, kidney cancer, central nervous system neoplasms and multiple myeloma. Furthermore, Sulf-2 is known to regulate lipid metabolism and is overexpressed in mice with type 2 diabetes.

Given the importance of Sulf-2 in various diseases, improved research tools, such as the Sulf-2 antibodies described here, could greatly benefit biomedical research.

TECHNOLOGY DESCRIPTION

Researchers at the University of California, San Francisco have developed two mouse monoclonal antibodies raised against the purified, recombinant 75 kd subunit of human Sulf-2 protein. Clones 8G1 and 5D5 have high affinities toward the 75 kD subunit of Sulf-2 as indicated by ELISA assays with half-max signals of 0.4 nM for both antibodies. 8G1 and 5D5 recognize human as well as mouse Sulf-2. Distinct from the previously commercialized anti-Sulf-2 antibody clone 2B41, 8G1 and 5D5 do not recognize the 50 kD subunit of Sulf-2. Furthermore, 8G1 and 5D5 do not cross-react with Sulf-1.

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OTHER INFORMATION

KEYWORDS

Sulf-2, Anti-human,

monoclonal antibodies,

Research tool

CATEGORIZED AS

- ▶ **Materials & Chemicals**
- ▶ Biological
- ▶ **Medical**
- ▶ Disease: Cancer
- ▶ Research Tools

RELATED CASES

2011-071-0, 2001-B96-0

APPLICATION

- ▶ Western Blotting
- ▶ Immunoprecipitation
- ▶ ELISA
- ▶ Flow Cytometry
- ▶ Immunohistochemistry on paraffin-embedded section

STAGE OF DEVELOPMENT

Fully developed as a research tool

RELATED MATERIALS

- ▶ [Lemjabbar-Alaoui, H. et al. Sulf-2, a heparan sulfate endosulfatase, promotes human lung carcinogenesis. Oncogene 29, 635-646, doi:10.1038/onc.2009.365 \(2010\).](#)

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