

# FAP (F11-24): sc-65398

## BACKGROUND

FAP (fibroblast activation protein) is a cell surface glycoprotein and serine protease that is expressed primarily in fetal mesenchymal tissues and epithelial cancer fibroblasts. In cancer, FAP functions to promote cellular proliferation. In embryonic development, FAP functions to remodel developing tissues. FAP acts as an integral membrane gelatinase composed of N-glycosylated proteolytically inactive subunits. FAP expression on chondrocyte membranes is upregulated by the combination of the cytokines IL-1 and OSM and has been shown to increase in osteoarthritic patients. This expression is co-localized with MMP-1 and MMP-13 as well as CD44 (variants v3 and v7/8). Mice that lack all copies of the FAP gene have been found to be fertile and to have developmental defects or change in cancer susceptibility.

## REFERENCES

1. Scanlan, M.J., et al. 1994. Molecular cloning of fibroblast activation protein  $\alpha$ , a member of the serine protease family selectively expressed in stromal fibroblasts of epithelial cancers. *Proc. Natl. Acad. Sci. USA* 91: 5657-5661.
2. Mathew, S., et al. 1995. The gene for fibroblast activation protein  $\alpha$  (FAP), a putative cell surface-bound serine protease expressed in cancer stroma and wound healing, maps to chromosome band 2q23. *Genomics* 25: 335-337.
3. Pineiro-Sanchez, M.L., et al. 1997. Identification of the 170 kDa melanoma membrane-bound gelatinase (seprase) as a serine integral membrane protease. *J. Biol. Chem.* 272: 7595-7601.
4. Goldstein, L.A., et al. 1997. Molecular cloning of seprase: a serine integral membrane protease from human melanoma. *Biochim. Biophys. Acta* 1361: 11-19.
5. Iwasa, S., et al. 2005. Increased expression of seprase, a membrane-type serine protease, is associated with lymph node metastasis in human colorectal cancer. *Cancer Lett.* 227: 229-236.

## CHROMOSOMAL LOCATION

Genetic locus: FAP (human) mapping to 2q24.2.

## SOURCE

FAP (F11-24) is a mouse monoclonal antibody raised against fibroblast activation protein of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

FAP (F11-24) is recommended for detection of FAP of human origin by immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells).

Molecular Weight of FAP: 170 kDa.

## STORAGE

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

## SELECT PRODUCT CITATIONS

1. Giannoni, E., et al. 2010. Reciprocal activation of prostate cancer cells and cancer-associated fibroblasts stimulates epithelial-mesenchymal transition and cancer stemness. *Cancer Res.* 70: 6945-6956.
2. Gao, M.Q., et al. 2010. Stromal fibroblasts from the interface zone of human breast carcinomas induce an epithelial-mesenchymal transition-like state in breast cancer cells *in vitro*. *J. Cell Sci.* 123: 3507-3514.
3. Cardinale, V., et al. 2015. Profiles of cancer stem cell subpopulations in cholangiocarcinomas. *Am. J. Pathol.* 185: 1724-1739.
4. Doldi, V., et al. 2015. Integrated gene and miRNA expression analysis of prostate cancer associated fibroblasts supports a prominent role for interleukin-6 in fibroblast activation. *Oncotarget* 6: 31441-31460.
5. Patsouras, D., et al. 2015. Fibroblast activation protein and its prognostic significance in correlation with vascular endothelial growth factor in pancreatic adenocarcinoma. *Mol. Med. Rep.* 11: 4585-4590.
6. Knopf, J.D., et al. 2015. The stromal cell-surface protease fibroblast activation protein- $\alpha$  localizes to lipid rafts and is recruited to invadopodia. *Biochim. Biophys. Acta* 1853: 2515-2525.
7. Jia, B., et al. 2016. GPR30 promotes prostate stromal cell activation via suppression of ER $\alpha$  expression and its downstream signaling pathway. *Endocrinology* 157: 3023-3035.
8. Li, W.M., et al. 2016. Matrix metalloproteinase-11 as a marker of metastasis and predictor of poor survival in urothelial carcinomas. *J. Surg. Oncol.* 113: 700-707.
9. Li, H., et al. 2017. Reference component analysis of single-cell transcriptomes elucidates cellular heterogeneity in human colorectal tumors. *Nat. Genet.* 49: 708-718.
10. Wäster, P., et al. 2017. UV radiation promotes melanoma dissemination mediated by the sequential reaction axis of cathepsins-TGF- $\beta$ 1-FAP- $\alpha$ . *Br. J. Cancer* 117: 535-544.
11. Man, Q.W., et al. 2018. Lymphocyte-derived microparticles stimulate osteoclastogenesis by inducing RANKL in fibroblasts of odontogenic keratocysts. *Oncol. Rep.* 40: 3335-3345.
12. Zhou, Q., et al. 2020. The reciprocal interaction between tumor cells and activated fibroblasts mediated by TNF- $\alpha$ /IL-33/ST2L signaling promotes gastric cancer metastasis. *Oncogene* 39: 1414-1428.
13. Nurmik, M., et al. 2020. In search of definitions: cancer-associated fibroblasts and their markers. *Int. J. Cancer* 146: 895-905.

## RESEARCH USE

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