UNIVERSITY OF MINNESOTA
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Monoclonal Anti-FAP for cancer research and therapeutic development (2019-131)

A plasmid encoding a recombinant monoclonal antibody against tumorigenic protein FAP in the tumor stroma that is ideal for both basic research and therapeutic drug development.

Technology No. 2019-131

IP Status: US Patent Pending; **Application #:** 16/778,977

Applications

- Basic research of solid/epithelial tumors
- Anti-cancer therapeutic
- Cancer diagnostic

Key Benefits & Differentiators

- **Strong and specific binding in a variety of applications:** B12 binds to FAP and FAP expressing cells in applications including ELISA, SPR, flow cytometry, microscopy and live in-vivo imaging.
- **Useful in a variety of preclinical cancer models:** Cross-reactivity of the antibody with murine and human FAP facilitates translatability of research finding.
- **Ideal for anti-cancer drug development:** B12 is rapidly internalized by tumor cells (unlike many other anti-FAP mAbs), a property that is highly desirable for use in human therapeutic and diagnostic applications.

Targeting a protein associated with aggressive cancers

Researchers at the University of Minnesota have developed a recombinant novel monoclonal antibody that strongly and selectively binds to fibroblast activation protein alpha (FAP). FAP is highly expressed in cancer-associated fibroblasts, in 90% of epithelial tumors including common cancers like breast, colorectal, lung, prostate, pancreatic, skin and some soft tissue and bone sarcomas. FAP activity contributes to tumorigenesis and aggressiveness through degradation of the extracellular matrix and activation of growth factors. Together, FAP is an

attractive target for research to elucidate tumor pathogenicity and as a putative target for therapeutic intervention.

A useful research tool and potential therapeutic

The LeBeau laboratory used an antibody phage display library to develop an antibody (clone B12) that selectively binds FAP and FAP-expressing cells in a variety of applications. B12 recognizes FAP positive cells as evaluated by ELISA, SPR, flow cytometry and microscopy. Furthermore, B12 can be used as a live imaging fluorescent probe in tumor xenograft models in mice by conjugating the antibody to a near-infrared dye. The cross-reactivity of B12 to both murine and human FAP proteins allows its use in murine preclinical cancer models and subsequent translation to relevant human cancer research and therapeutic development. Furthermore, B12 shows rapid internalization by tumor cells, a property lacking in another anti-FAP antibody that failed in clinical trials (sibrotuzumab). Anti-FAP monoclonal antibody B12 represents a valuable research tool for oncology research and future humanization of the antibody could lead to the development of a promising anti-cancer therapy.

Phase of Development

Validated as a research tool in both in vitro and in vivo models.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact us to share your business' needs and learn more.

Publications

- **"Imaging fibroblast activation protein alpha improves diagnosis of metastatic prostate cancer with Positron Emission Tomography."** Clinical Cancer Research, 2020.

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