



A streamlined method to isolate Fibroadipogenic progenitor cells from muscle (2020-195)

A method to isolate fibroadipogenic progenitor cells (FAPs) based on the presence of a single surface marker (CD73).

IP Status US Patent Issued; Issued Patent No. 12,221,629

Applications

- Cell purification kit
- Basic research on FAPs and muscle cell biology
- Drug development, screening, toxicity assays
- Cell-based therapies

Key Benefits & Differentiators

- **Isolation of a cell-type of broad interest:** Due to their integral role in muscle biology and implication in disease, FAPs are of interest to academic researchers and therapeutic companies.
- **Simple purification approach:** Isolation of FAPs using a single surface marker increases reliability and reduces trouble-shooting.

Critical roles for FAPs in muscle biology

Fibroadipogenic progenitor cells (FAPs), have been shown to play critical roles in skeletal muscle function, regeneration and response to injury and are an area of interest for further research and potential development for clinical use. However, the ability to identify and isolate FAPs from human skeletal muscle has been incredibly challenging and has limited progress in this area. Led by Dr. Michael Kyba, researchers at the University of Minnesota have developed a strategy to identify FAPs based on surface markers and subsequently purify the cells. This technology offers a streamlined method to isolate FAPs for downstream use in basic research or drug development (including compound screen or cell transplant-based therapies).

A simplified approach to purifying FAP cells

FAP cells are mesenchymal cells located in interstitial spaces of tissues such as skeletal muscles and possess the ability to differentiate into adipocytes or fibroblasts. Dr. Kyba's team found that FAPs are positive for the receptor CD73 while freshly isolated human skeletal muscle stem cells are CD73 negative. The researchers illustrated that CD73+ cells isolated from muscles were capable of both adipogenic differentiation and fibrogenesis in vitro as would be anticipated by FAPs. Current approaches to isolate FAPs require the use of multiple markers, while this technology facilitates purification based on a single marker. This streamlined method would be ideal for development of kits for FAP cell purification and has the potential to accelerate both basic and clinical research around FAP cell biology.

Phase of Development

Technology ID

2020-195

Category

Life Sciences/Biomarkers
Life Sciences/Human Health
Life Sciences/Research Tools
Life Sciences/Therapeutics

Learn more



TRL: 3

Fibroblastogenic progenitor cells have been isolated from human skeletal muscles based on CD73 positivity and characterized.

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

- **"Prospective isolation of human fibroblastogenic progenitors with CD73"**. Heliyon, 2020.
<https://doi.org/10.1016/j.heliyon.2020.e04503>

References

1. Natalya A. Goloviznina, Ning Xie, Abhijit Dandapat , Paul A. Iuzzo, Michael Kyba(2020) ,
<https://doi.org/10.1016/j.heliyon.2020.e04503>, Heliyon