

Progenitor cell population to generate functional blood vessels *in vivo*

Researchers at Stanford have developed methods to identify, isolate, and use specific progenitor cell populations to generate adipose tissue and functional blood vessels *in vivo*. Ischemic cardiovascular disease, including coronary artery disease (CAD), peripheral arterial disease (PAD) and stroke, is a leading cause of death in the developed world. New therapies to treat this disease are needed. As such, stem cell biologists are trying to identify a population of progenitor cells capable of treating vascular disease. Progress has been made, but the ability to isolate a pure population of such progenitor cells has been lacking. With this technology, the inventors have helped meet this need. They have identified a stromal progenitor cell subpopulation (that can be isolated from bone marrow, fat, and other tissues) and developed methods to use these cells to form adipose tissue and functional vasculature *in vivo*. This technology can be used to treat ischemic injury in the peripheral limbs and heart.

Stage of research

The inventors identified a progenitor cell subpopulation that can form functional vessels and adipose tissue. Using a mouse xenotransplant model of hindlimb ischemia they showed that this subpopulation of human cells significantly enhanced revascularization.

Applications

- Vascular therapy for cardiovascular ischemic disease including:
 - Myocardial infarction
 - Stroke
 - CAD

- PAD
- Reconstructive surgery

Advantages

- Promotes the formation of functional blood vessels *in vivo*
- Method can be applied autologously without *in vitro* culture
- Yields purer cell populations than competing techniques
 - Forms blood vessels that are functionally superior
 - More pure population of adipose cells allows for better augmentation with minimal reabsorption

Patents

- Published Application: [20190183940](#)
- Issued: [11,369,641 \(USA\)](#)

Innovators

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