Medical Xpress

# Fibroblasts could offer alternative to heart transplants

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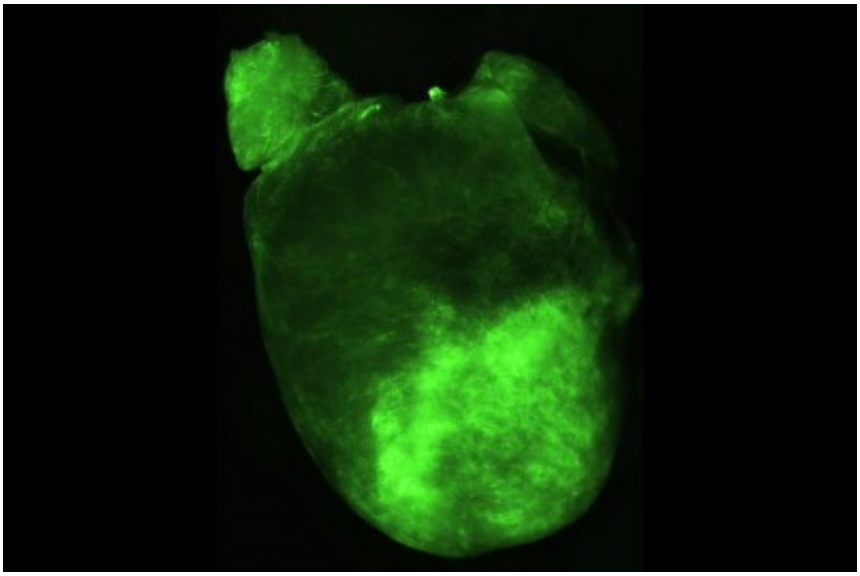

Cardiac fibroblasts

(Medical Xpress)—Fibroblasts, cells long thought to be boring and irrelevant, could offer an alternative to heart transplants for patients with heart disease.

Researcher Dr Milena Furtado, and her team from the Australian Regenerative Medicine Institute (ARMI) at Monash University, found the heart cell fibroblast is a close relative to a cardiomyocyte, the cell responsible for a healthy beating heart.

In research published today in *Circulation Research*, Dr Furtado has found that cardiac fibroblasts are unique cells due to their genetic program, and will aid in the development of cell therapies for congenital heart disease and heart failure.

"Heart disease is still one of the major killers in our society and so far no effective therapeutic options are available. Our laboratory aims to understand how the various cell types present in a heart can improve the outcome of heart failure,' Dr Furtado said.

"Fibroblasts were thought to act as a sort of biological glue, making sure that all parts of the body work effectively. We now know they are far more specialised than that and have organ specific functions."

Using cutting edge technology, the team found that cardiac fibroblasts have specific genes called transcription factors that tell them they should become a heart cell. Dr Furtado said they could be the best cells to use in replacement therapies, because they are the only fibroblasts in the body that have these characteristics.

"The cardiac fibroblasts are truly unique, no other cells remember where they came from, but these remember that they are heart cells. They hold the key to tackling changes that result in heart failure. Through our research our ultimate aim is to modify these cells so that we can improve the function of a sick heart," Dr Furtado said.

Dr Furtado and her team at ARMI will continue their research into heart cells, with a particular focus on fibroblasts. Development in this area will potentially lead to obtaining the cells from patients and modifying them in a laboratory to explore patient tailored therapies, promoting better outcome for patients with heart disease.