Faculty Name:

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Faculty Email:

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Lab:

Laboratory for Stem Cells and Tissue Engineering

Project Title:

Cardiac Fibroblast BAG3 contribution to heart disease

Description:

Mutations in Bcl2-associated athanogene 3 (BAG3) are associated with dilated cardiomyopathy (DCM), a highly prevalent heart disease characterized by an enlarged left ventricle (LV), systolic dysfunction, and fibrosis. Aside from monogenic disease, loss of BAG3 is observed in patients with non-genetic heart failure (HF), making it an attractive therapeutic target. BAG3 is a ubiquitously expressed co-chaperone protein with key binding domains critical to protein quality control. In cardiomyocytes (CMs),

BAG3 forms a complex with heat shock protein (HSP) 70 and HSPB8 to chaperone

sarcomere proteins denatured by mechanical stress. However, BAG3's function in other cell types is unexplored. Mature engineered heart tissues (EHTs) formed with BAG3 KO CFs and WT CMs mimic the clinical phenotype of DCM of decreased contractility and increased matrix deposition, highlighting the importance of BAG3 in CFs to cardiac function. This project focuses on Cardiac Fibroblast BAG3 and its contribution to heart disease and fibrosis. The project will use a range of molecular biology techniques, such as RT-qPCR, Western Blot, luciferase assays, combined with tissue engineering approaches to develop EHTs.

Location of Research:

On Site

# of hrs/week:

35

Department/Program:

Biomedical Engineering

Eligibility:

MS

To apply, please contact:

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