The American Heart Association states that someone in the United States experiences a heart attack every 40 seconds. Recent research has suggested the cellular environment of heart tissue changes as a result of a heart attack, altering communication between cells. The damaged tissues around the heart lead to an accumulation of scar tissue and a subsequent decrease in heart function. By studying the proteins that connect heart cells to this environment, researchers can better understand the damaged heart tissue and its possible regeneration. These proteins can be studied using gene-editing tools to induce specific mutations that alter how heart cells of embryonic mouse models communicate with their environment. We propose using these mutants in experimental conditions where heart attacks are induced through administering a high cholesterol diet and strenuous exercise. Heart tissues can then be surgically sampled after the heart attack and compared with healthy heart tissues to observe the effects of the mutation. As a result, this protein and its role specifically disrupted by the mutation can be found to have a role in mechanical signalling and the recruitment of cells involved in tissue repair. This study could help develop new drugs that target these signalling pathways and strategies to improve regeneration of heart tissue in patients.

Themes:

Check (highlight) the most applicable theme according to the abstract.

| Innovation and Technology | Health and Wellness | Culture and Society | Sustainability and Conservation |

Comments: Well-written and inclusive for the MURC audience. Could elaborate on the types of protein/protein structure if you choose, for a bit more context. All the best at MURC!