

For Immediate Release



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MMRI FACULTY IDENTIFIES ENZYME THAT REDUCES PREVALENCE OF HEART DISEASE

Dr. Zhiqiang Lin Published Study on New Molecule that Reduces Cardiac Inflammation and Scarring

(UTICA, NY) A paper recently published from the Masonic Medical Research Institute (MMRI) identifies that activation of an enzyme called yes-associated protein (YAP), using a modified mRNA of this enzyme, reduces inflammation in the heart and decreases the deleterious heart growth that occurs in response to stress. The manuscript, published last month in the journal *Life Science Alliance*, was conducted at MMRI in collaboration with Harvard Medical School, Fudan University, Shandong University, and the Houston Methodist Research Institute.

Dr. Zhiqiang Lin, Assistant Professor of Biomedical Research and Translational Medicine at the MMRI and senior author of the manuscript, addresses the complications that arise after a heart attack occurs. Heart attacks result in scar tissue and inflammation, which if left untreated, can lead to severe long-term health consequences. Lin's investigation focuses on testing a YAP modRNA and how it functions to reduce inflammation and death of heart muscle cells. "Cardiac disease is a widespread problem that continues to affect large portions of the world's population. This new molecule is designed to improve the recovery of the heart after a heart attack and avoid further complications" said Dr. Lin.

When one suffers from a heart attack, scarring and inflammation are a natural course. This occurs as part of the normal protective response of the body to prevent further damage of the remaining tissue. However, these effects also lead to fibrosis, a stiffening of the muscle tissue that also creates some loss of heart muscle cells, weakening the heart. "Inflammation is a double-edged sword. You need it, but if you have too much, it can cause big trouble" said Dr. Lin. The main goal of the study was to investigate whether this molecule could reduce the injury of the heart after experiencing a heart attack. By using a mouse model, Lin tested his hypothesis by injecting the activated enzyme directly to the heart, and observed that both inflammation and cell loss were reduced.

The results of this experiment suggest a brighter outlook for the recovery of patients who suffer from heart attacks. Cardiac disease is the leading causes of death in the United States. This new molecule may help in reducing this statistic. "Dr. Lin's work aligns with one of the core missions of the MMRI; to develop novel approaches to understanding and treating heart disease" said Dr. Maria Kontaridis, the Gordon K. Moe Professor and Chair of Biomedical Research and Translational Medicine and MMRI Director of Research.

Dr. Zhiqiang Lin and his work are supported by an American Heart Association (AHA) Scientist Development Grant, PCBC "JUMP START" AWARDS, National Institutes of Health and MMRI lab start-up funding. His article was published on December 16, 2019 and is available online in Life Science Alliance Volume 3, Number 1.

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