“Treatment of Myocardial Infarction using a Protein from the Human Plasma” VCU #16-041

Applications
- Acute Myocardial infarction therapy
- Adaptations for other anti-inflammatory therapies

Advantages
- Natural and abundant plasma protein
- Protein easily isolated from plasma
- Significant reduction of infarct size

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Technology Summary
Myocardial Infarction is the irreversible death of heart muscle due to prolonged lack of oxygen supply. Reperfusion, or re-oxygenation, of the infarcted area of the heart is normally attended by an intense inflammatory reaction causing further damage to the tissue. Although many are being studied, currently there are no anti-inflammatory drugs approved for acute myocardial infarction therapy. Thus, turning to a readily available plasma protein which cascades an anti-inflammatory and pro-survival signal could provide an easy solution to this problem.

Thought to be irrelevant, this abundant plasma protein is currently discarded by companies that process blood and plasma. As myocardial necrosis occurs, Troponin levels increase in the plasma and directly correlate with the infarct size of a myocardial infarction. When injected intraperitoneally, in vivo experiments show this naturally occurring plasma protein significantly lowers plasma levels of Troponin I and reduces the infarct size (pictured) of a myocardial infarction. The infusion of this protein intravenously can be started in patients with acute myocardial infarction before, during or after therapies or procedures to reperfuse the ischemic myocardium. This protein exerts a previously unrecognized cardio-protective effect, is naturally occurring in the plasma and easily isolated. After infusion, no laboratory tests are needed to monitor the activity or toxicity of the protein.

Technology Status
In vivo and in vitro data available.
Positive experimental results yielded from experimental model of acute myocardial ischemia in mice.

This technology is available for licensing to industry for further development and commercialization.