

## Treatment of Myocardial Infarction

Using protein from human plasma to reduce infarct size

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.

### The technology

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 of a myocardial infarction (Figure 1). The infusion of this protein intravenously can be started in patients with acute myocardial infarction before, during or after therapies or procedures to reperfusion 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.

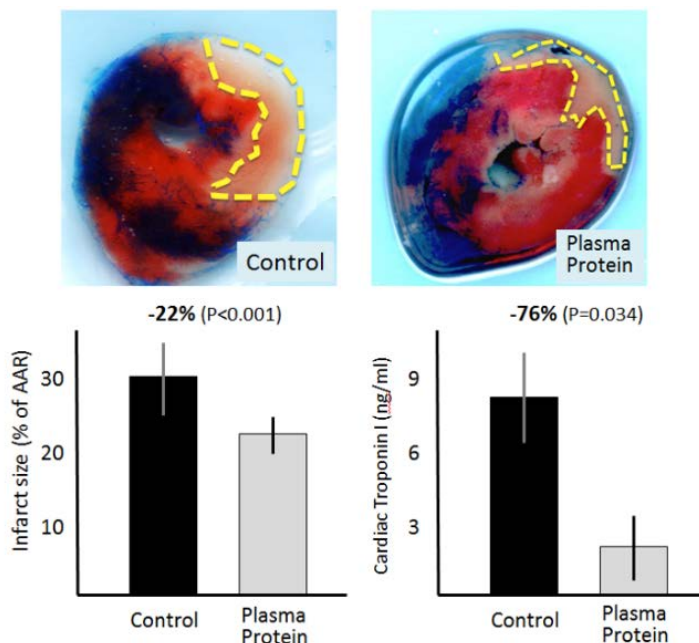


Figure 1. *In vivo* data which shows how the plasma protein reduces the infarct size.

### Benefits

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

### Applications

- » Acute myocardial infarction therapy
- » Adaptations for other anti-inflammatory therapies

#### Patent status:

Patent issued: U.S. rights are available.

#### License status:

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

#### Category:

Biomedical

#### VCU Tech #:

16-041

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*In vitro* and *in vivo* data available

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