

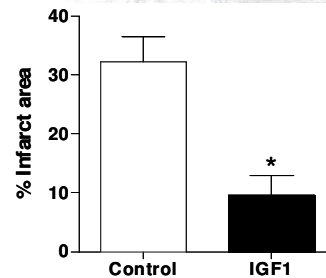
## MirStent- Cardiac repair therapy following heart attack

### VALUE PROPOSITION

After suffering a heart attack (i.e. STEMI type), a single dose IGF-1 therapy is effective in decreasing the size of the dead heart tissue by at least 60%. Considering extensive use of stents in coronary angioplasty, eluting IGF1 from a stent is an ideal way to not only promote heart tissue survival and repair, but also to prevent early stent restenosis (blockage) or delayed thrombosis (blood clots), being the common side-effects associated with stenting. IGF1 delivered on a stent will thus add substantially to the current structural benefits of stent implantation in the STEMI setting. Moreover tissue repair will reduce the requirement for defibrillator implantation in a large number of patients whose heart function continues to deteriorate over the first two months following an attack. This stent will therefore provide a major cost saving for healthcare providers as well as health benefit in patients suffering heart attacks.

### THE TECHNOLOGY

Percutaneous coronary intervention (PCI), commonly known as coronary angioplasty, is the most commonly performed treatment for coronary artery disease. More than 1 million procedures are performed annually in the US. Commercial stents are often coated with a drug to prevent stent restenosis (i.e. drug eluting stents or DES). However, currently no stent based therapy exists for repairing damaged heart tissue following heart attack. The IGF1-coated stent will elute IGF1 protein to promote heart cell survival and speed up recovery and repair. Based on extensive preliminary studies on pigs, this early repair therapy will have lasting consequences for the patient and should prevent deterioration of heart function such that implantable defibrillators are less required. Considering the fact that ~25% of patients receiving DES would also be eligible to receive IGF1, we predict an addressable market for an IGF1 eluting stent (or dual stent) to be \$5.75 billion. Additionally, IGF1 will significantly reduce the incidence of stent restenosis and delayed thrombosis.



**Figure 1:** Therapeutic effect of single dose IGF1 (600 pg) administration by intracoronary route on infarct area in a porcine model of myocardial infarction. The data is represented as Mean  $\pm$  SEM of 6-7 cross sections/pig with 4 pigs in each group.

### STATUS/ DEVELOPMENT OBJECTIVES

- RESUS-AMI Phase 1/2 Clinical trial ongoing 'Evaluation of the Safety and Efficacy of Using Insulin-like Growth Factor-1 in Patients With a Heart Attack'

### FIELDS OF APPLICATION

- Intervention cardiology:
1. myocardial regeneration/repair
  2. preventing in stent restenosis and delayed thrombosis

### FUNDING

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