

## 070: Biological therapeutics targeting molecular causes of heart failure

### Key Facts

- ✓ Superior therapeutic profile of gene-based and peptide-based treatments derived from the protein S100A1.

### The Technology

Gene therapy and short peptide therapy based on S100 protein with a positive inotropic effect which can be used for treating acute and chronic skeletal muscle or cardiac muscle dysfunctions.

### Background

At present, there are no clinical inotropic therapies available for skeletal muscle disorders. Approved therapeutics currently available for the inotropic treatment of cardiomyopathies, such as glycoside derivatives, catecholamines, and phosphodiesterase inhibitors, are afflicted with severe side effects such as increased heart rate and life threatening proarrhythmogenic potential. Therefore, there is an urgent need for novel therapeutics for the inotropic treatment of cardio-myopathies and also therapeutics having the ability to increase the contractile performance of skeletal muscle cells.

### Advantages

- ✓ contractility enhancing
- ✓ no proarrhythmic side effects
- ✓ no heart rate changes

### Commercial Opportunity

Drug Development

### Inventors

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### Intellectual Property

WO/2000/061742  
PCT/EP2010/002343  
CA 2756249  
CN 201080016920.2  
EP 10 714 584.9  
JP 2012505091  
US 13/260,862

### Reference:

Most P, Remppis A, Pleger ST, Katus HA, Koch WJ. S100A1: a novel inotropic regulator of cardiac performance. Transition from molecular physiology to pathophysiological relevance. Am J Physiol Regul Integr Comp Physiol. 2007 Aug;293(2):R568-77. Epub 2007 Apr 25. Review.  
<http://www.klinikum.uni-heidelberg.de/Prof-Dr-med-Patrick-Most.8031.o.html>

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