

## **Upregulation of Isl1, A Transcription Factor Mastering Embryonic Cardiogenesis, in AMI Patients**

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**Background:** The transcription factor Isl1 plays a crucial role in the embryonic development of the myocardium and its vasculature. While a population of cardiac Isl1+ adult stem cells was found, their role in ischemic heart disease is yet unknown.

**Objective:** The aim of the current study was to examine whether human hematopoietic stem cells express Isl1, and whether Isl1 expression is up regulated in patients suffering from acute myocardial infarction, or from chronic atherosclerotic disease.

**Methods:** Patients diagnosed with acute myocardial infarction, three vessel atherosclerotic disease and their referent population, were matched for gender, age and atherosclerosis risk factors. Mononuclear cells were extracted from whole blood samples taken from all patients. Numbers of hematopoietic stem cells expressing Isl1 were studied by FACS analysis and by real time PCR.

**Results:** We show for the first time an expression of Isl1 within a distinct population of human circulatory hematopoietic stem cells. Moreover, an abrupt increase in Isl1 expression was demonstrated in patients experiencing acute myocardial infarction compared to patients with normal coronaries.

**Conclusions:** These data imply to up regulation and mobilization of Isl1+ stem cells under the setting of acute myocardial infarction.