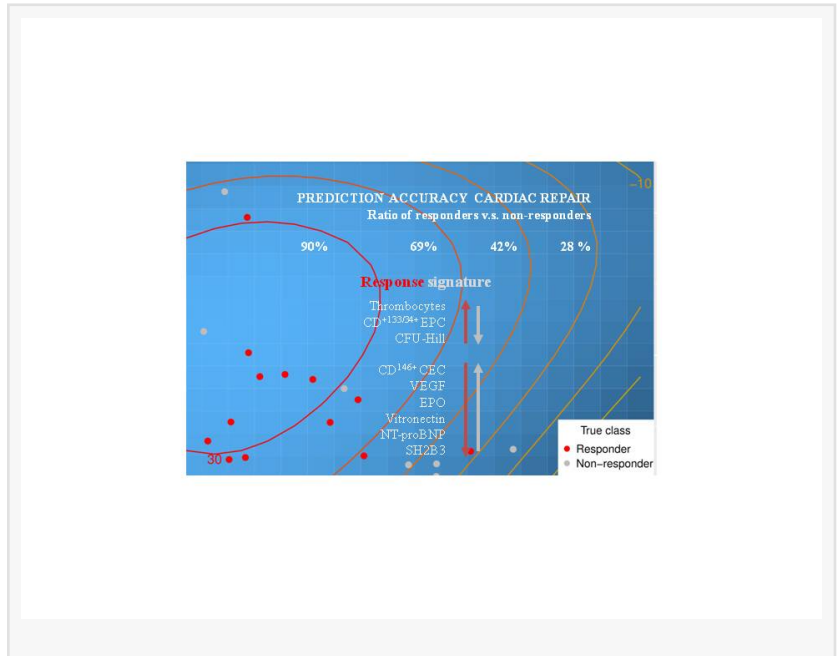


# CAUSE OF HEART FAILURE DETECTED IN BONE MARROW STEM CELLS

*Rostock researchers unravel heart failure mechanism in bone marrow stem cells*

ROSTOCK, GERMANY, August 1, 2017 /EINPresswire.com/ -- The Rostock University cardiac surgeon, Prof. Gustav Steinhoff, and his research team, have now unraveled a cause of heart failure in bone marrow stem cells and published their results in [EBioMedicine](#). In the phase 3 PERFECT-trial studying stem cell therapy in bypass patients, forty percent of all patients were identified as having a suppressed bone marrow response for repair related to the regulatory gene SH2B3. Insufficient bone marrow stem cells prevent small blood vessel growth in the heart muscle and by this cause progressive heart failure.



The researchers succeeded in finding a diagnostic biomarker signature in the peripheral blood of patients by using an artificial intelligence machine learning computer analysis system, allowing pretreatment identification of patient responders for improved heart function. Using this new computer-aided diagnostic technology, responsive patients can be accurately identified prior to treatment with bypass surgery and stem cells. For non-reactive patients, however, therapeutic approaches have to be intensively sought for.

## Highlights of the study

1. Heart function improvement is dependent on circulating endothelial progenitor cells.
2. Suppression of bone marrow response is associated to SH2B3 gene expression
3. Peripheral blood angiogenesis response can be predicted by a biomarker signature

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Abstract:

#### CARDIAC FUNCTION IMPROVEMENT AND BONE MARROW RESPONSE

Outcome analysis of the randomized PERFECT phase III clinical trial of intramyocardial CD133+ application after myocardial infarction

E-BioMedicine <http://dx.doi.org/10.1016/j.ebiom.2017.07.022>

[http://www.ebiomedicine.com/article/S2352-3964\(17\)30296-7/fulltext](http://www.ebiomedicine.com/article/S2352-3964(17)30296-7/fulltext)

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