Pluristem's PLX Cells Effective in Treatment of Acute Myocardial Infarction (AMI) in Animal Trial

Significantly improved cardiac function, smaller infarct size with greater regional left ventricle wall thickness and the pronounced stimulation of new vessels formation were observed in animals treated with PLX cells

HAIFA, ISRAEL, March 20, 2012 -- Pluristem Therapeutics, Inc. (NASDAQ:PSTI; TASE: PLTR) today announced that its PLacental eXpanded (PLX) cells, tested in a preclinical animal model of acute myocardial infarction (AMI), proved to effectively improve several cardiac hemodynamic parameters in animals that received those cells. The study was conducted in collaboration with Professor Christof Stamm, MD and Professor Carsten Tschöpe MD and their respective staffs at the Center for Regenerative Therapies (BCRT), Berlin, Germany.

Twenty mice suffered an AMI by ligating the left anterior descending (LAD) coronary artery via thoracotomy. Immediately following the AMI, animals were given either PLX cells (n=10) or cell-free medium as a control (n=10) into the border zone of the infarct. Additionally, five animals underwent a sham (placebo) operation by incurring the thoracotomy but without ligation of the LAD.

After 4 weeks, transthoracic echocardiography was performed, the mice were sacrificed and their hearts examined histologically. Hemodynamic studies demonstrated improved cardiac contractile function in the mice which received the PLX cells as compared to control-treated mice. The improved cardiac contractile function included a statistically significant increase in stroke volume ($p=0.01$) (fig. 1) and ejection fraction ($p=0.06$) (fig. 2).

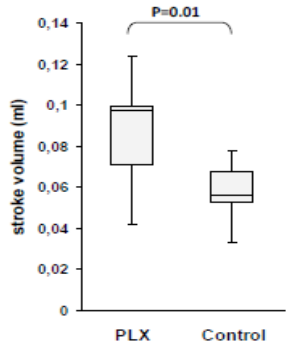


Fig.1: Stroke volume

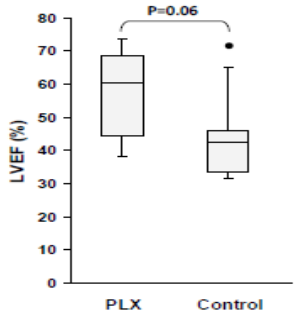
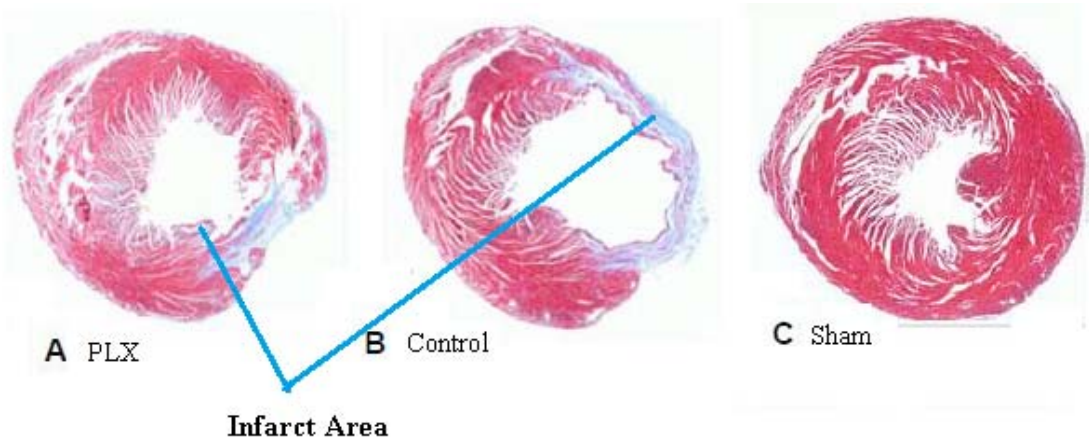


Fig. 2: Ejection fraction

Additionally, PLX cell-treated hearts had significantly smaller infarct sizes (p=0.04) and greater regional Left Ventricular (LV) wall thickness (fig. 3)



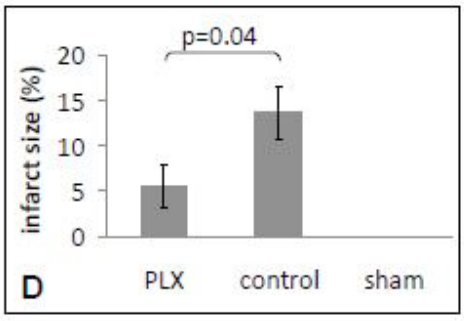


Fig. 3: Infarct size significantly smaller in those animals treated with PLX cells (frame A) versus controls (frame B). No AMI occurred in sham animals (frame C). Infarct size quantified by computerized planimetry on Masson's trichrome stained myocardial sections. The percentage of infarcted myocardium calculated with respect to the entire area of LV myocardium (frame D)

Histological analysis indicated that those animals treated with PLX cells displayed a statistically significant higher number of mature arterial vessels in the infarct border zone than in control animals (p=0.004) and suggests that PLX cells induce the formation of new blood vessels into ischemic myocardium (fig. 4)

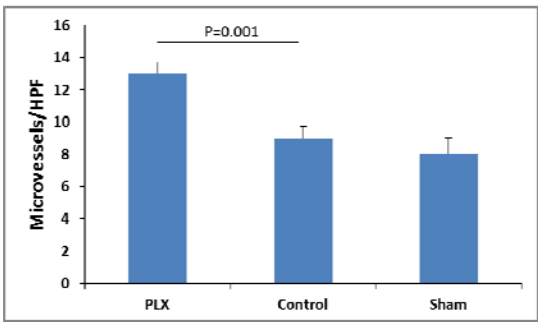


Fig 4: Micro-vessel density in the peri-infarct myocardium represented by immunohistology for CD31. Comparison of micro-vessel density between experimental groups. Original magnification 20x. HPF= high power field.

The New England Journal of Medicine reported that approximately 624,000 patients suffer an Acute Myocardial Infarction (AMI) annually in the USA (N Engl J Med 2010;362:2155-65), a number that will most likely increase with the rising prevalence of obesity, diabetes and the aging of the population.

"As a cardiac surgeon, the unique ability demonstrated by Pluristem's PLX cells for the treatment of heart disease is very exciting," said Professor Stamm. "Currently, millions of patients worldwide suffer from cardiac ischemia and physicians are looking for new therapies to treat those patients. PLX cells showed promising results in the AMI studies."

"These results demonstrate the potential benefits of our cells for use in the treatment of ischemic heart disease, a multi-billion dollar annual market, and one in which many pharmaceutical companies are constantly looking to provide patients with innovative and effective solutions," said Zami Aberman, Chairman and CEO of Pluristem. "In addition to moving ahead with our AMI trial, we look forward to continuing to work on finding cell therapy solutions for numerous debilitating diseases."

# # #

About Pluristem Therapeutics

Pluristem Therapeutics Inc. (NasdaqCM: PSTI; TASE: PLTR) is a leading developer of placenta-based cell therapies. The company's patented PLX (PLacental eXpanded) cells drug delivery platform releases a cocktail of therapeutic proteins in response to a variety

of local and systemic inflammatory diseases. PLX cells are grown using the company's proprietary 3D micro-environmental technology and are an off-the-shelf product that requires no tissue matching or immune-suppression treatment prior to administration.

Data from two Phase I clinical trials indicate that Pluristem's first PLX product, PLX-PAD, is safe and potentially effective for the treatment of end stage PAD. Pluristem's pre-clinical animal models have demonstrated PLX cells are also potentially effective in nerve pain and muscle damage when administered locally and in inflammatory bowel disease, MS and stroke when administered systemically.

Pluristem has a strong patent portfolio, company-owned GMP certified manufacturing and research facilities, strategic relationships with major research institutions and a seasoned management team. For more information visit www.pluristem.com, the content of which is not part of this press release. Follow Pluristem on Twitter @Pluristem.

CLICK HERE to watch a video where CLI patients and doctors involved with the clinical trials share their stories.

Contact:
Pluristem Therapeutics Inc.:

William Prather R.Ph., M.D. Sr. VP Corporate Development
1-303-883-4954
William.PratherMD@pluristem.com

Daya Lettvin
Investor & Media Relations Director
+972-54-674-5580
daya@pluristem.com

Media Contact:
Matthew Krieger
Ruder Finn – for Pluristem
+972-54-467-695l
matthew@finnpartners.co.il

Safe Harbor Statement
This press release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995 and federal securities laws. For example, we are using forward looking statements when we discuss the results our PLX cells showed in the AMI studies and the potential ability and benefits of our cells for use in the treatment of ischemic heart disease, when we discuss our plan to move ahead with the AMI trial, when we say that we look forward to continuing to work on finding cell therapy solutions for numerous debilitating diseases, when we discuss the safety and potential effectiveness of PLX-PAD for the treatment of end stage peripheral artery disease, or when we discuss the potential effectiveness of PLX cells in

nerve pain and muscle damage, and in inflammatory bowel disease, MS and stroke. These forward-looking statements are based on the current expectations of the management of Pluristem only, and are subject to a number of factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. The following factors, among others, could cause actual results to differ materially from those described in the forward-looking statements: changes in technology and market requirements; we may encounter delays or obstacles in launching our clinical trials; our technology may not be validated as we progress further and our methods may not be accepted by the scientific community; we may be unable to retain or attract key employees whose knowledge is essential to the development of our products; unforeseen scientific difficulties may develop with our process; our products may wind up being more expensive than we anticipate; results in the laboratory may not translate to equally good results in real surgical settings; our patents may not be sufficient; our products may harm recipients; changes in legislation; inability to timely develop and introduce new technologies, products and applications; loss of market share and pressure on pricing resulting from competition, which could cause the actual results or performance of Pluristem to differ materially from those contemplated in such forward-looking statements. Except as otherwise required by law, Pluristem undertakes no obligation to publicly release any revisions to these forward-looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events. For a more detailed description of the risks and uncertainties affecting Pluristem, reference is made to Pluristem's reports filed from time to time with the Securities and Exchange Commission.