Cardiac Function in Pre-Clinical Diabetic Diastolic Heart Failure Subjects Improved by Pluristem's PLX Cells

Study was conducted under the European Commission's Seventh Framework Program (FP7) Collaboration

HAIFA, ISRAEL, May 15, 2012 -- Pluristem Therapeutics, Inc. (NASDAQCM:PSTI; TASE: PLTR) today announced that cardiac function in a diabetic-induced diastolic dysfunction in animals improved following PLacental eXpanded (PLX cells) administration. The study was conducted as part of the European Commission's Seventh Framework Program (FP7) in collaboration with Professor Doctor Carsten Tschöpe and his staff at the Charite Universitaetsmedizin Berlin, Berlin-Bradenburg Center for Regenerative Therapies (BCRT), Berlin, Germany. Dr. Tschöpe is also a member of the Translational Research Committee of the Heart Failure Association of the European Society of Cardiology.

"Currently, there are limited treatment options for diastolic dysfunction and even fewer options for diabetic induced diastolic dysfunction," said Dr. Tschöpe. "This study holds promise that PLX cells might be able to inhibit diabetic induced diastolic dysfunction progression as well as possibly repair the existing damage, hypotheses that will be further explored in future studies."

Diabetes was induced in thirty-six C57b/6 mice, which resulted in the development of diastolic heart failure. After seven days, the animals received either PLX cells from two separate batches or placebo (12 subjects in each of the three groups). Ten mice were not treated (controls).

After twenty-one days, several cardiac parameters were assessed and found to be significantly improved following the treatment with PLX cells. Important measurements included the cardiac ejection fraction and the left ventricular (LV) relaxation time constant, believed to be the best index of LV diastolic function and a determination of the stiffness of the ventricle. Cardiac ejection fraction improved 19%, the left ventricular (LV) relaxation time constant decreased 16% and the stiffness of the ventricle decreased 19%.

Additionally, the administration of either batch of PLX cells resulted in a significant anti-inflammatory effect, documented by findings including a significant down regulation of

the left ventricular vascular cell adhesion inflammatory mediator-1 (LV VCAM-1) and a significant up regulation of the left ventricular interleukin-10 anti-inflammatory mediator (LV IL-10).

“As we demonstrated last week with the announcement that our cells successfully treated the seven years old patient suffering from aplastic bone marrow disease, our strategy is to develop a minimally invasive cell therapy solution that can be used to treat a wide range of life-threatening diseases," said Zami Aberman, Chairman and CEO of Pluristem. “Our initial testing of a treatment for diastolic heart disease opens a new potential indication where our cells can be used and potentially positions Pluristem as a "first-line of defense" for diastolic dysfunction. Based on these studies as well as the previously announced acute myocardial infarction data, and with the support of the European Commission’s Seventh Framework Program, we were able to determine that our PLX cells can become an important treatment for various cardiac indications and we look forward to quickly moving from these initial studies towards human trials.”

About Cardiac Diastolic Dysfunction

Diastolic heart failure or diastolic dysfunction refers to a decline in performance of one or both ventricles of the heart during the time phase when the heart is filling with blood. The National Heart, Lung, and Blood Institute reports that approximately 4.8 million Americans suffer from heart failure with approximately 400 thousand new cases appearing annually. Additionally, it has been reported that 50% of these heart failure patients are afflicted with diastolic heart failure (J Am Coll Cardiol. 1999;33:1948–55).

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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 are a drug delivery platform that releases a cocktail of therapeutic proteins in response to a host of local and systemic inflammatory and ischemic 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 prior to administration. Pluristem is focusing on the development of PLX cells administered locally to potentially treat systemic diseases and potentially obviating the need to use the intravenous route.

Data from two phase I/II studies indicate that Pluristem’s first PLX product candidate, PLX-PAD, is safe and potentially effective for the treatment of end stage peripheral artery disease when given locally. Additionally, Pluristem is developing PLX-PAD for cardiac ischemia, PLX-BMP for Acute Radiation Exposure, Bone Marrow Transplant Failure and Chemotherapy induced Bone Marrow Aplasia, PLX-ORTHO for orthopedic indications and PLX-PAH for Pulmonary Hypertension in collaboration with United

Therapeutics. Pluristem's pre-clinical animal models have demonstrated PLX cells are also potentially effective in other inflammatory/ischemic indications, including diastolic heart failure, inflammatory bowel disease, neuropathic pain and pulmonary fibrosis.

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.

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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

how cardiac function in pre-clinical diabetic diastolic heart failure subjects was improved following administration of our PLX cells, when it is discussed how the study conducted holds promise that PLX cells might be able to inhibit diabetic induced diastolic dysfunction progression as well as possibly repair the existing damage, when we discuss how the results of this study open a new potential method for PLX cells as a first-line treatment for diastolic dysfunction, when we discuss how the information from this study, together with the previously announced acute myocardial infarction data, suggests that our PLX cells have great potential to become an important product for various cardiac indications, 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 inflammatory/ischemic indications, including diastolic heart failure, inflammatory bowel disease, neuropathic pain and pulmonary fibrosis. 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.