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MacroGenics Announces Presentation of Pre-Clinical Data on DART(R) Molecule Targeting CD123-Positive Leukemic Stem Cells at 55th Annual Meeting of the American Society of Hematology

Results Support Clinical Development of MGD006 in Hematologic Malignancies

ROCKVILLE, Md., Dec. 9, 2013 (GLOBE NEWSWIRE) -- MacroGenics, Inc. (Nasdaq:MGNX), a clinical-stage biopharmaceutical company focused on discovering and developing innovative monoclonal antibody-based therapeutics for the treatment of cancer and autoimmune diseases, today announced the presentation of pre-clinical data for its proprietary DART® molecule, MGD006, at the 55th Annual Meeting of the American Society of Hematology (ASH), taking place in New Orleans. These data demonstrate activity of MGD006, a bispecific molecule that redirects T cells against CD123-positive leukemic cells and results in the clearance of acute myeloid leukemia (AML) blasts in vitro and in vivo.

Muneera H. Al-Hussaini, M.D., an investigator from the Division of Hematology & Oncology, Washington University School of Medicine in St. Louis, presented a talk titled, [Targeting CD123 In Leukemic Stem Cells Using Dual Affinity Re-Targeting Molecules \(DARTs\)](#).

"CD123 represents a very important target for the treatment of a broad range of hematologic malignancies and the early, but very encouraging, data presented by Dr. Al-Hussaini at ASH demonstrate the potential advantages of MGD006 as a novel, targeted therapy for CD123-expressing cancers," said Scott Koenig, M.D., Ph.D., President and CEO of MacroGenics. "We are therefore very enthusiastic about the initiation of a Phase 1 study that is anticipated to begin at Washington University in the first half of 2014, in which we will explore MGD006's ability to redirect T cells in relapsed and refractory AML."

Pre-Clinical Study Results

The pre-clinical study investigated the ability of a DART, constructed from MacroGenics' proprietary anti-CD3 antibody and an antibody to CD123, to redirect T cells against CD123-positive AML blasts. Investigators demonstrated that the CD3 x CD123 DART, MGD006, binds to both human CD3 and CD123 to mediate target-effector cell aggregation, T-cell activation and proliferation. MGD006 induced a dose-dependent reduction of primary AML blast survival in vitro and in vivo. Notably, a short course of treatment with MGD006 in mice engrafted with an AML patient sample (at an initial T cell : blast ratio of 1:111) induced a near complete elimination (> 97%) of AML blasts from the peripheral blood and significant clearing from the spleen and bone marrow at 6 weeks post AML cell infusion.

The results of this study provide a strong rationale for the clinical development of the MGD006 as a novel molecule for the treatment of patients with AML.

CD123, the Interleukin-3 receptor alpha chain, has been reported to be overexpressed on malignant cells in a wide range of hematologic malignancies including AML and myelodysplastic syndrome, or MDS. Overexpression of CD123 is associated with a poorer prognosis in AML. AML and MDS are thought to arise in and be perpetuated by a small population of leukemic stem cells, or LSCs, which generally resist conventional chemotherapeutic agents. LSCs are characterized by high levels of CD123 expression, which are not present in the corresponding normal hematopoietic stem cell population in normal human bone marrow.

About MGD006

MacroGenics is developing MGD006 for the treatment of hematologic cancers. MGD006 is a DART molecule that recognizes both CD3 and CD123. The primary mechanism of action of MGD006 is its ability to redirect T cells via their CD3 component to kill CD123-expressing cells, as shown pre-clinically. This product candidate is poised to enter the clinic in the first half of 2014.

About MacroGenics, Inc.

MacroGenics is a clinical-stage biopharmaceutical company focused on discovering and developing innovative monoclonal

antibody-based therapeutics for the treatment of cancer and autoimmune diseases. The company generates its pipeline of product candidates from its proprietary suite of next-generation antibody technology platforms, which it believes improve the performance of monoclonal antibodies and antibody-derived molecules. The company creates both differentiated molecules that are directed to novel cancer targets, as well as "bio-betters," which are drugs designed to improve upon marketed medicines. The combination of MacroGenics' technology platforms and antibody engineering expertise has allowed the company to generate promising product candidates and enter into several strategic collaborations with global pharmaceutical and biotechnology companies. www.macrogenics.com

Cautionary Note on Forward-Looking Statements

Any statements in this press release about future expectations, plans and prospects for the Company, including statements about the Company's strategy, future operations, clinical development of the Company's therapeutic candidates, milestone or opt-in payments from the Company's collaborators, the Company's anticipated milestones and future expectations and plans and prospects for the Company and other statements containing the words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue," and similar expressions, constitute forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including: the uncertainties inherent in the initiation and enrollment of future clinical trials, expectations of expanding ongoing clinical trials, availability and timing of data from ongoing clinical trials, expectations for regulatory approvals, other matters that could affect the availability or commercial potential of the Company's product candidates and other risk factors described in the Company's filings with the Securities and Exchange Commission. In addition, the forward-looking statements included in this press release represent the Company's views as of the date hereof. The Company anticipates that subsequent events and developments will cause the Company's views to change. However, while the Company may elect to update these forward-looking statements at some point in the future, the Company specifically disclaims any obligation to do so. These forward-looking statements should not be relied upon as representing the Company's views as of any date subsequent to the date hereof.

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