Lion Biotechnologies CSO Laszlo Radvanyi Co-Authors Study in Journal of Immunotherapy

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Research Validates More Practical, Cost-Efficient Method for TIL Manufacturing

LOS ANGELES, Oct. 20, 2014 (GLOBE NEWSWIRE) -- Lion Biotechnologies, Inc. (OTCBB:LBIO), a biotechnology company that is developing novel cancer immunotherapies based on tumor infiltrating lymphocytes (TILs), today announced that research by chief scientific officer Laszlo Radvanyi, PhD, has been published in the current issue of *Journal of Immunotherapy*. The research, which Dr. Radvanyi conducted with former colleagues at MD Anderson Cancer Center, validates a more practical and cost-efficient method of manufacturing TIL therapy for the treatment of metastatic melanoma.

TIL therapy has demonstrated robust efficacy in the treatment of metastatic melanoma, with objective response rates of up to 50%. This novel form of adoptive cell therapy is made by extracting TILs from the patient's tumor, expanding them by billions in a laboratory, and infusing them back into the patient. Typically, manufacturing requires healthy donor blood to supply peripheral blood mononuclear cells (PBMC), or "feeders," to fuel TIL expansion. By substituting these PBMC feeders with genetically modified, artificial antigen-presenting cells (aAPC), the new method reliably expands TILs to therapeutic levels, while reducing the cost and complexity of manufacturing.

"This research represents a major breakthrough for the manufacturing of TIL therapy for melanoma treatment," Dr. Radvanyi said. "Our findings indicate that these artificial, designer cells are as effective as blood-derived PBMC at rapidly expanding TILs to clinical scale. We look forward to applying this reliable and more cost-effective method of manufacturing TIL therapy in the clinical setting."

In the study, investigators used aAPC or irradiated PBMC feeders to expand TILs extracted from melanoma tumors and measured rates of expansion. Activation and differentiation states were measured by flow cytometry and differential gene expression analyses. Clonal diversity was assessed based on the pattern of T-cell receptor usage. T-cell effector function was measured by evaluation of cytotoxic granule content and killing of target cells.

Results indicated that aAPC and PBMC feeders expanded TILs to equal numbers. The aAPC platform did not skew clonal diversity, and the anti-tumor function of its expanded TILs was comparable to that of TILs expanded with PBMC feeders.

"Activation and Propagation of Tumor-infiltrating Lymphocytes on Clinical-grade Designer Artificial Antigen-presenting Cells for Adoptive Immunotherapy of Melanoma" was published in the November-December 2014 issue *Journal of Immunotherapy*, vol. 37(9): pp. 448-460. To view or purchase the article, please click here.

About Lion Biotechnologies

Lion Biotechnologies, Inc. is engaged in the development of T-cells and engineered T-cells for the treatment of various cancers. The company's lead product candidate is a ready-to-infuse autologous T-cell therapy utilizing tumor-infiltrating lymphocytes (TILs) for the treatment of patients with Stage IV metastatic melanoma, and is based on a clinical CRADA with the National Cancer Institute along with physician-sponsored investigational therapy at the MD Anderson Cancer Center and the H. Lee Moffitt Cancer & Research Institute. For more information, please visit http://www.lionbio.com.

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Source: Lion Biotechnologies, Inc.