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ImmunoCellular Therapeutics Presents Updated ICT-107 Phase II Data in Patients with Newly Diagnosed Glioblastoma at the 2014 ASCO Annual Meeting

Pre-specified MGMT and HLA Subgroup Analyses Show Potentially Clinically Meaningful Survival Advantages for ICT-107 Treated Patients
Previously Reported Total Population Overall Survival and Progression-Free Survival Rates Sustained
Data Support Rationale for Phase III; US and EU Regulatory Meetings to Discuss Registration Strategy Planned for 3Q14

LOS ANGELES, June 1, 2014 /PRNewswire/ -- ImmunoCellular Therapeutics, Ltd. ("ImmunoCellular") (NYSE MKT:IMUC) announced that updated efficacy and safety data from the phase II trial of dendritic cell-based immunotherapeutic vaccine ICT-107 in patients with newly diagnosed glioblastoma multiforme (GBM) were presented at the 2014 American Society for Clinical Oncology (ASCO) annual meeting in Chicago.

When overall survival (OS) and progression-free survival (PFS) were assessed in pre-specified patient subgroups, results favored treatment with ICT-107 over control in HLA-A2 patients within each of the two major MGMT subgroups (unmethylated and methylated). While the subgroups were small in size, and not powered to show statistical significance, the numeric advantages in favor of ICT-107 treated patients were shown to be large and clinically meaningful.

HLA (human leukocyte antigens) are cell-surface antigen-presenting proteins. These molecules are on dendritic cells and present the tumor-associated antigens to T-cells to induce the immune response to the ICT-107 vaccine. HLA-A2 was one of two HLA types that were treated in the phase II trial. Of the two types, HLA-A2 is twice as common in the population as HLA-A1, and is the most common HLA type in North America and the EU.

In the per-protocol (PP) analysis of data from HLA-A2 patients with unmethylated MGMT:

- The control and treated median OS times were 11.8 and 15.8 months, respectively, indicating about a 4-month or 33% numeric survival increase for treated patients (HR=0.612, log-rank p-value=0.175);
- The median PFS times for control and treated patients were 6.0 and 10.5 months, respectively, indicating about a 4.5-month or 75% numeric PFS increase for treated patients (HR=0.758, log-rank p-value=0.442);
- There were also signs of a potential long-term survival benefit for ICT-107-treated patients, with 21% of treated patients still alive compared to only 7% of controls.

In the PP analysis of data from HLA-A2 patients with methylated MGMT:

- The control and treated groups had still not reached median survival times as of the time of data analysis, with the majority of patients still alive (65% of treated compared to 57% of control patients);
- However, the median PFS times for control and treated patients were 8.5 and 24.1 months, respectively, indicating about a 15.6-month or 184% statistically significant PFS increase for treated patients (HR=0.259, log-rank p-value=0.005).

The updated data from the phase II ICT-107 trial were presented in an oral session by Patrick Y. Wen, MD, Director of the Center for Neuro-Oncology at The Dana Farber Cancer Institute and Professor of Neurology at Harvard Medical School, and principal investigator on the trial. The presentation was titled "A randomized, double-blind, placebo-controlled phase 2 trial of dendritic cell (DC) vaccination with ICT-107 in newly diagnosed glioblastoma (GBM) patients."

"We think that the maturing data from the phase II trial demonstrate a compelling rationale for phase III development of ICT-107 in patients with newly diagnosed glioblastoma," said Dr. Wen. "Standard-of-care chemotherapy, temozolomide, has little or no treatment benefit for newly diagnosed GBM patients with unmethylated MGMT, which is the majority of patients. ICT-107 has shown the potential to meaningfully extend both OS and PFS without significant side effects in this patient population which has the poorest prognosis for survival. Furthermore, the early evidence of a potential long-term survival "tail," even in this small phase II trial, is promising, and indicative of what we would expect to see in a highly active immunotherapeutic agent. As the methylated MGMT group is followed further, I am optimistic that the already very large increase in PFS for treated patients ultimately may translate into a survival benefit."

"The pre-specified subgroup analyses in our phase II trial indicate the potential value of a targeted population approach going forward, as the demonstration of treatment benefit in HLA-A2 patients presents a favorable case for selecting these patients for

the population to be studied in phase III clinical testing," said Andrew Gengos, ImmunoCellular's Chief Executive Officer. "HLA-A2 patients comprise the majority of the overall GBM patient population in the US and Europe. These new results will provide a strong basis for conducting registration discussions with US and EU regulatory authorities, which we intend to start within the next few months. We want to express our appreciation to the patients, investigators and clinical teams who have participated in the ICT-107 phase II trial. We look forward to potentially advancing this promising cancer vaccine toward the market."

Additional Updated ICT-107 Phase II Results

As reported in December 2013, and in the updated data presented at ASCO, OS for the ITT and PP populations showed a numeric, but not statistical, treatment benefit. PFS for the ITT and PP populations showed a statistical treatment benefit.

- The data presentation from the 124-patient randomized, controlled phase II trial was based on about 17.6 and 16.2 months of median follow-up for ICT-107 and control patients, respectively. As of April, a total of 79 events (patient deaths) had been recorded, representing 12 additional events since the top-line data from the phase II trial were reported in December 2013. 30 active and 15 control patients were alive for a total of 45 patients available for additional follow-up.
- Median OS in the ITT updated results was 18.3 months for ICT-107 and 16.7 months for control, representing a numeric advantage for the treatment group of 1.6 months (HR=0.89, p-value=0.643). In the PP population, median OS was 18.6 months for ICT-107 and 16.7 months for control, representing a numeric advantage for the treatment group of 1.9 months (HR=0.84, p-value=0.477).
- Median PFS in the ITT updated results was 11.2 months for ICT-107 and 9.0 months for control, representing a statistically significant advantage for the treatment group of 2.2 months (HR=0.57, p-value=0.011). In the PP population, median OS was 11.4 months for ICT-107 and 9.0 months for control, representing a statistically significant advantage for the treatment group of 2.4 months (HR=0.54, p-value=0.006).
- Both the OS and PFS median results in the ICT-107 phase II trial were measured from the time of randomization (i.e., at the start of vaccination after standard-of-care surgery and chemoradiation). In historical studies of newly diagnosed GBM patients (e.g., Stupp, et al.), OS and PFS measurements were likely assessed from the time of surgery. In the ICT-107 phase II trial, there was an average of about 83 days from surgery to randomization.
- Vaccine potency was assessed via measurements of key dendritic cell indicators of cell maturity and activation and their correlation with survival time. Two key indicators relating to IL-12 secretion and HLA-DR expression were predictive of survival in all treated patients in the results announced in December. In the updated results, IL-12 secretion and HLA-DR expression were again correlated with treated patient survival time in Cox Proportionate Hazards models, with p-values of 0.048 and 0.006, respectively.

Assessment of Additional Trial Parameters

Data on quality of life as well as certain immunological parameters, including vaccine potency and antigen expression, were also presented.

- Quality of life was assessed in the phase II trial both by using the FACT-BR assessment tool and through monitoring patient performance levels according to the Karnofsky Performance Status (KPS). For the FACT-BR, there was no difference in the overall assessment between the treated and control groups from baseline through progression. Because treated patients had a statistically longer PFS, this means that they had more months of similar quality of life compared to the control group prior to progression. Treated patients also maintained a higher KPS from immediately before vaccination started through 19 weeks. The signed rank test p-value was less than 0.05 for each of four KPS assessments between these time points.
- Patients were assessed for vaccine response at baseline (pre-vaccination) and at three time points during vaccination. Response was assessed via Elispot, and patients were deemed responders if their T-cells (from blood samples) reacted to any of the six antigens used to challenge the samples. 27% of treated patients were responders as compared with 15% of controls. In the HLA-A2 subgroup, 33% of treated patients were responders as compared with 15% of controls.
- The primary tumors of patients were assessed for expression of the six vaccine antigens via qPCR. In all treated patients, 75% expressed at least one antigen and 51% expressed at least four antigens. In the control group, 93% expressed at least one antigen and 65% expressed at least four antigens. In the HLA-A2 subgroup for treated patients, 94% expressed at least one antigen and 85% expressed all four HLA-A2 antigens. For the control patients, 100% expressed at least one antigen and 97% expressed all four HLA-A2 antigens.

Next Steps in the ICT-107 Program

ImmunoCellular plans to consult further with the international neuro-oncology community, and to hold regulatory agency discussions in both the US and EU concerning ICT-107.

The Company is in the process of finalizing the design of the phase III protocol, in anticipation of discussions with the FDA and the European Medicines Agency, or EMA. Plans are underway to request an end-of-phase II meeting with the FDA, anticipated to take place during the summer. Following typical European protocol in preparation for meeting with the EMA, ImmunoCellular

has requested advice meetings at the national level in Germany, the UK and the Netherlands to discuss ICT-107. These meetings are scheduled to take place later in June. In the third or fourth quarter of 2014, the Company plans to seek advice from the EMA on the approval process for ICT-107.

ImmunoCellular also plans to continue to monitor patients in the phase II trial and update the data analysis at upcoming scientific meetings, such as potentially the Society for Neuro-Oncology (SNO) meeting in November.

About the ICT-107 Phase II Trial

The ICT-107 phase II trial is a randomized, double-blind, placebo-controlled phase II study of the safety and efficacy of ICT-107 in newly diagnosed patients with glioblastoma multiforme following resection and chemoradiation. ICT-107 is an intradermally administered autologous vaccine consisting of the patient's dendritic cells pulsed with six synthetic tumor-associated antigens: AIM-2, MAGE-1, TRP-2, gp100, HER-2, IL-13Rα2. The control consists of the patient's unpulsed dendritic cells.

A total of 124 patients were randomized at 25 clinical trial sites in the US. One third of the patients or 43 patients were treated with placebo (their own dendritic cells not exposed to antigen), and the treatment arm included two thirds or 81 patients who received the ICT-107 vaccine. All patients in the trial received standard-of-care temozolomide. The regimen is four induction doses of ICT-107 after chemoradiation, and then maintenance doses until the patient progresses. The primary endpoint of the trial is OS, defined as the time from randomization until date of death or the last date the patient is known to be alive. Secondary endpoints include PFS, defined as the time from randomization until the date of documented progressive disease or death, whichever occurs first, or the last date the patient is known to be alive and progression-free if progression or death is not observed. Other secondary endpoints include the rates of OS and PFS at six months after surgery, then assessed every three months until the end of the study. Safety and immune response are additional secondary endpoints.

The subgroups analyzed in the phase II trial were based on age, gender, HLA type, MGMT status, performance status and resection status.

HLA-A2 patients comprised about 62% of all patients randomized in the trial, meaning that these numeric and statistical outcome benefits were conveyed to a majority of treated patients.

MGMT status has been demonstrated to be predictive of response to radiation or chemotherapy. The O(6)-methylguanine-DNA methyltransferase, or MGMT, gene is responsible for a DNA repair mechanism in cells. Methylation of MGMT impedes the DNA repair mechanism in cancer cells, making them susceptible to radiation or chemotherapy, such as temozolomide. The DNA repair mechanism in cancer cells with unmethylated MGMT is intact, enabling them to survive and proliferate. GBM is the most common and aggressive primary cancer of the brain. Patients with this disease have few therapeutic options; temozolomide is currently the only FDA-approved systemic chemotherapy for newly diagnosed GBM.

For patient-related information about the ICT-107 clinical program in glioblastoma, please visit the ImmunoCellular website at www.imuc.com and access the ICT-107 "Frequently Asked Questions." The email address to contact the company directly is clintrials@imuc.com.

About ImmunoCellular Therapeutics, Ltd.

ImmunoCellular Therapeutics, Ltd. is a Los Angeles-based clinical-stage company that is developing immune-based therapies for the treatment of brain and other cancers. ImmunoCellular is conducting a phase II trial of its lead product candidate, ICT-107, a dendritic cell-based vaccine targeting multiple tumor-associated antigens for glioblastoma. ImmunoCellular's pipeline also includes ICT-121, a dendritic cell vaccine targeting CD133, and ICT-140, a dendritic cell vaccine targeting ovarian cancer antigens and cancer stem cells. To learn more about ImmunoCellular, please visit www.imuc.com.

Forward-Looking Statements for ImmunoCellular Therapeutics

This press release contains certain forward-looking statements that are subject to a number of risks and uncertainties, including the risk that ICT-107 can be further successfully developed or commercialized, the timing and outcome of the post-phase II meeting with the FDA and EU regulatory authorities, the status of the current data and whether further analyses or later studies may confirm the successful PFS results to date, the potential for initiation of phase III trials and possibility of successful results from such studies. Additional risks and uncertainties are described in IMUC's most recently filed quarterly report on Form 10-Q and annual report on Form 10-K. Except as permitted by law, IMUC undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. In this press release, you can identify forward-looking statements by terms such as "may," "will," "should," "could," "would," "expect," "plan," "anticipate," "believe," "estimate," "project," "predict," "potential," "future," "intend," "certain," and similar expressions intended to identify forward-looking statements.

Contact:

ImmunoCellular Therapeutics, Ltd.
Investor Relations
Jane Green
415.348.0010 direct
415.652.4819 mobile
jane@jmgcomm.com

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