

ImmunoCellular Therapeutics: one of the most promising cancer immunotherapy plays

by Jason Chew June 7, 2011

ImmunoCellular Therapeutics (OTC: IMUC) is a small oncology company focused on the development of active immunotherapies, or cancer vaccines. Its lead candidate, ICT-107 has recently generated unprecedented activity in glioblastoma multiforme (GBM), a highly aggressive brain cancer. This unique therapy has now moved into a large randomized Phase II trial.

Similar to Dendreon's (NASDAQ:DNDN) Provenge, ICT-107 is an individualized therapy with each treatment tailored specifically to each patient. Dendritic cells are removed from patients, expanded, and then loaded with tumor-associated antigens and re-injected into the patients. The dendritic cells once back in the patient, triggers a potent T-cell response against cancer cells exhibiting these antigens.

ImmunoCellular's technology builds on this basic concept. Rather than simply targeting a single tumor-specific antigen, it pursues multiple different antigens found on cancer stem cells (CSCs). Cancer stem cells are thought to be the originators of common tumor cells, difficult to kill, they lead to cancer's re-growth after chemotherapy. It is believed that destroying the CSCs will allow for longer survival without relapse.

ICT-107 is designed to target the antigens HER-2, TRP-2, gp100, MAGE1, IL-13R α 2, and AIM-2. The initial indication is GBM, however, melanoma, breast, and ovarian cancer stem cells also express many of these antigens, increasing the potential of ICT-107 considerably.

The data presented over this past weekend at ASCO has validated this set of targets. Analysis of patient tumors revealed a statistically significant correlation between an increase in progression free survival (PFS) and expression levels of the antigens MAGE1, gp100, AIM2, and HER2. The study also showed patients who demonstrated an immunological response to vaccination with ICT-107 had longer PFS compared to non-responders. Responders also exhibited a trend toward longer overall survival.

The company has recently presented updated results of its Phase I trial of ICT-107 in GBM that was initiated in May 2007. Median two-year survival of 80.2% looked amazing compared to historical 26.5% for standard of care. Median progression free survival of 16.9 months also looked good compared to historical 6.9 months on standard of care. 11 of the 16 patients continue to survive, 6 with no tumor re-growth. Three of these patients have been disease free for almost four years. Median overall survival has not been reached. No serious adverse events have been reported and minor side effects have been limited to fatigue, skin rash and pruritis.

These results also compare well against new treatments. Avastin plus SOC increased median two-year OS to 45% while the experimental candidate CDX-110 from Celldex (NASDAQ:CLDX) improved it to 50%.

The Phase I trial is indeed small, but the high level of activity combined with correlating biomarkers gives confidence in the results. The Phase II trial will enroll about 102 newly diagnosed GBM patients at 15 centers in the U.S. and Canada. It will be double-blinded, placebo-controlled, with a 2:1 randomization to ICT-107 vs. placebo. The trial began enrolling in January and is expected to complete enrollment in 12 months with an interim analysis after about 17 months, based on an estimated 50% events of death.

There is good reason to believe the Phase II will succeed based on the outstanding Phase I results. It is the degree with which it succeeds that remains to be seen. With a larger number of patients and multiple clinical sites, it is highly likely that future results will not be as spectacular as the original; but they don't need to be. Median OS currently stands at over 30 months, more than double historical standard of care data of 14.6 months. It also beats recent results of a 125 patient trial of Avastin in newly diagnosed patients with glioblastoma that yielded median OS of 21.3 months. If ICT-107 can perform as well as Avastin, it would already be a winner due to its much milder side effects compared to Avastin's potential for serious toxicities.

An additional part of the Phase II plan is to add a treatment boost every three to six months to extend its benefit. Over the course of four years, 16 doses would be required. ImmunoCellular is able to do this because their drug manufacturing process creates 20 doses at a time. The treatment can be kept under cryopreservation until administered to patients. With this process, the company does not need to create a new batch for each dose.

It is also worth noting that length on therapy is a major revenue driver for oncology drugs. This is one reason why drugs such as Revlimid and Gleevec do so well; the drugs are highly efficacious and patients are on drug for prolonged periods. ICT-107 has that potential. With a demonstrated median OS of greater than 30 months, each patient can potentially be on drug for more than two years.

In other news, ImmunoCellular just announced that it has formed a joint venture with BioWa, a subsidiary of major Japanese pharmaceutical company, Kyowa Hakko Kirin (TYO: 4151). Each company will contribute antibody technology to form a new company called Caerus Discovery, of which ImmunoCellular will receive a 19% stake. The transaction effectively monetizes ImmunoCellular's non-core antibody technology, allowing the company to stay focused on its cancer vaccine. Importantly, BioWa will fund all development costs of Caerus.

The future looks good for ImmunoCellular Therapeutics. Interim data is not far off, expected in the second half of 2012. The results should solidify its position as one of the most promising cancer immunotherapy plays and significantly de-risk the asset. The company currently trades at about \$2.00 with a market cap of under \$60 million. On June 1, Zacks Investment Research placed an Outperform rating on the stock with a \$7 price target.