NEWS RELEASE

Inovio Announces Clinical Trial Collaboration to Evaluate a Novel T-cell Immunotherapy in Combination with a PD-L1 Checkpoint Inhibitor

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Phase 1b/2 clinical trial to evaluate combination of Inovio's T cell immunotherapy INO-5401 and Genentech's PD-L1 checkpoint inhibitor atezolizumab

PLYMOUTH MEETING, Pa., June 01, 2017 (GLOBE NEWSWIRE) -- Inovio Pharmaceuticals, Inc. (NASDAQ:INO) today announced a clinical collaboration with Genentech, a member of the Roche Group, for advanced bladder cancer. The phase 1b/2 immuno-oncology trial will evaluate Genentech's atezolizumab (TECENTRIQ®) in combination with Inovio's INO-5401, a T cell activating immunotherapy encoding multiple antigens, and INO-9012, an immune activator encoding IL-12.

The multi-center open-label trial will be managed by Inovio, and Genentech will supply atezolizumab. It is anticipated to start in 2017 and designed to evaluate the safety, immune response and clinical efficacy of the combination therapy in approximately 80 patients with advanced bladder cancer, specifically advanced unresectable or metastatic urothelial carcinoma (UC), the most common type of bladder cancer. The majority of the patients to be enrolled in the trial will have previously received and failed to demonstrate meaningful response to a checkpoint inhibitor alone. Thus the study will evaluate potential benefit of a checkpoint inhibitor combined with a DNA-based immunotherapeutic and T-cell activator within a bladder cancer patient population with very limited treatment options and poor outcomes. The immunologic analyses accompanying the study will provide further insight into mechanisms of checkpoint inhibition and T-cell activation in bladder cancer.

Nearly 430,000 new cases of urinary bladder cancer are diagnosed each year worldwide; it accounts for about 165,000 deaths worldwide annually. Advanced unresectable or metastatic UC remains a high unmet medical need as survival remains poor for most patients who experience disease progression or intolerance to treatment during or after platinum-containing chemotherapy. The approval of several checkpoint inhibitors for advanced unresectable or metastatic UC has improved response and survival rates for some patients, however, the majority of patients do not experience meaningful clinical responses to checkpoint inhibitor monotherapy.

Inovio's INO-5401, an immunotherapy encoding multiple cancer antigens, is designed to generate and activate T-cells to many cancer

types including bladder cancer. INO-9012, an immune activator encoding IL-12, is designed to amplify and accelerate T cell immune responses to INO-5401. Combining INO-5401/INO-9012 with atezolizumab may provide a synergistic therapeutic effect as a result of generating higher levels of activated T cells and simultaneously inhibiting PD-L1. Atezolizumab is a monoclonal antibody designed to bind with a protein called PD-L1 expressed on tumor cells and tumor-infiltrating immune cells, blocking its interactions with both PD-1 and B7.1 receptors. By inhibiting PD-L1, atezolizumab may enable the activation of T cells.

Dr. Joaquim Bellmunt, MD, PhD, Dana-Farber/Brigham and Women's Cancer Center Associate Professor, Harvard Medical School, said, “Urothelial carcinoma represents an area of high unmet need. Checkpoint inhibitors offer significant potential, however, only a proportion of patients respond to these therapies alone. Increasing evidence suggests that combinatorial approaches are needed and a combination of a checkpoint inhibitor with an immunotherapy that generates antigen-specific T cells may offer the potential for significantly increased benefit.”

Dr. J. Joseph Kim, Inovio's President and Chief Executive Officer, said, “We are excited to collaborate with Genentech, a leader in the development of transformative products to treat cancer. I am a strong believer in combination immuno-oncology regimens employing an immunotherapy to generate significant antigen-specific killer T cells then blocking T cell suppression via checkpoint inhibition. We believe INO-5401 has significant potential as a cancer immunotherapeutic in combination with a checkpoint inhibitor to address the high unmet medical need for advanced bladder cancer patients and to provide meaningful benefit for checkpoint inhibitor refractory patients.”

About Metastatic Urothelial Carcinoma (UC)

The prognosis for patients with advanced unresectable or metastatic UC is poor, with limited treatment options. It is a disease that has seen no major advances for more than 30 years until the approvals of checkpoint inhibitors. Expected survival is generally less than 12 months; in the U.S., five-year survival of patients with distant metastasis is 5%. In the US, an estimated 79,000 new cases of urinary bladder cancer are expected in 2017.

About INO-5401

INO-5401 includes Inovio’s SynCon® antigens for WT1, hTERT and PSMA and has the potential to be a powerful cancer immunotherapy in combination with checkpoint inhibitors. The National Cancer Institute previously highlighted WT1, hTERT and PSMA among a list of attractive cancer antigens, designating them as high priorities for cancer immunotherapy development and placing WT1 at the top of the antigen list. The hTERT antigen is expressed in 85% of cancers; the WT1 and PSMA antigens are also widely prevalent in many cancers. In addition, INO-5401 is being evaluated for the treatment of GBM in combination with a checkpoint inhibitor.

About Inovio Pharmaceuticals, Inc.

Inovio is taking immunotherapy to the next level in the fight against cancer and infectious diseases. We are the only immunotherapy company that has reported generating T cells in vivo in high quantity that are fully functional and whose killing capacity correlates with relevant clinical outcomes with a favorable safety profile. With an expanding portfolio of immune therapies, the company is advancing a growing preclinical and clinical stage product pipeline. Partners and collaborators include MedImmune, Regeneron, The Wistar Institute, University of Pennsylvania, DARPA, GeneOne Life Science, Plumbline Life Sciences, ApolloBio Corporation, Drexel University, NIH, HIV Vaccines Trial Network, National Cancer Institute, U.S. Military HIV Research Program, and Laval University. For more information, visit **www.inovio.com**.

Tecentriq® (atezolizumab) is a registered trademark of Genentech, a member of the Roche Group.

This press release contains certain forward-looking statements relating to our business, including our plans to develop electroporation-based drug and gene delivery technologies and DNA vaccines, our expectations regarding our research and development programs and our capital resources. Actual events or results may differ from the expectations set forth herein as a result of a number of factors, including uncertainties inherent in pre-clinical studies, clinical trials and product development programs, including the cancer immunotherapy INO-5401, the availability of funding to support continuing research and studies in an effort to prove safety and efficacy of electroporation technology as a delivery mechanism or develop viable DNA vaccines, our ability to support our broad pipeline of SynCon® active immunotherapy and vaccine products, the ability of our collaborators to attain development and commercial milestones for products we license and product sales that will enable us to receive future payments and royalties, the adequacy of our capital resources, the availability or potential availability of alternative therapies or treatments for the conditions targeted by the company or its collaborators, including alternatives that may be more efficacious or cost effective than any therapy or treatment that the company and its collaborators hope to develop, issues involving product liability, issues involving patents and whether they or licenses to them will provide the company with meaningful protection from others using the covered technologies, whether such proprietary rights are enforceable or defensible or infringe or allegedly infringe on rights of others or can withstand claims of invalidity and whether the company can finance or devote other significant resources that may be necessary to prosecute, protect or defend them, the level of corporate expenditures, assessments of the company's technology by potential corporate or other partners or collaborators, capital market conditions, the impact of government healthcare proposals and other factors set forth in our Annual Report on Form 10-K for the year ended December 31, 2016, Form 10-Q for the quarter ended March 31, 2017, and other regulatory filings from time to time. There can be no assurance that any product in Inovio's pipeline will be successfully developed or manufactured, that final results of clinical studies will be supportive of regulatory approvals required to market licensed products, or that any of the forward-looking information provided herein will be proven accurate.

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