NEWS RELEASE

Inovio Pharmaceuticals Begins Phase 1b/2 Cancer Efficacy Trial Combining Its T-cell Immunotherapy with a PD-L1 Checkpoint Inhibitor in Advanced Bladder Cancer

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Trial to evaluate Inovio's INO-5401 and Genentech's TECENTRIQ® in patients with metastatic bladder cancer

PLYMOUTH MEETING, Pa., Oct. 16, 2017 (GLOBE NEWSWIRE) -- Inovio Pharmaceuticals, Inc. (NASDAQ:INO) today announced initiation of a phase 1b/2 immuno-oncology trial to evaluate Genentech/Roche'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 efficacy trial will be managed by Inovio, and Genentech will supply atezolizumab. The trial will 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 an anti-PD-1 or PD-L1 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.

Dr. Joaquim Bellmunt, MD, PhD, Director of Bladder Cancer Center, Dana-Farber Cancer Institute and Associate Professor, Harvard Medical School, said, "The unmet need for effective treatments for advanced UC patients remains very high even in the midst of approvals of multiple checkpoint inhibitors in this space -- as only a small subset of patients respond to these therapies alone. Increasing evidence suggests that combinatorial approaches are needed to improve upon the initial success of checkpoint inhibitors; the benefit to this patient population may be significantly improved when combination therapies that also generate activated T cells are utilized. Furthermore, there is a very high need for effective treatment approaches in checkpoint-refractory patients."

Dr. J. Joseph Kim, Inovio's President and CEO, said, "Combining INO-5401 with TECENTRIQ may provide a synergistic therapeutic effect as a result of generating high levels of activated T cells and simultaneously inhibiting PD-L1. Bladder cancer has often been

described as an immunogenic tumor, and here our approach is to augment the anti-PD-1/PD-L1 driven efficacy by further enhancing the T cells against the tumor in a cancer antigen-specific manner. We believe we can demonstrate the immense potential of INO-5401 as a universal cancer immunotherapy to treat patients with multiple cancers."

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 (HTERT, PSMA, and WT1), is designed to generate and activate T cells to many cancer types including bladder cancer. INO-9012, a DNA-based 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.

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, Genentech/Roche, 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, including the planned initiation and conduct of clinical trials and the availability and timing of data from those trials, and the sufficiency of 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, 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 including INO-5401, our ability to support our 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, our Form 10-Q for the period ended June 30, 2017, and other regulatory filings we make from time to time. There can be no assurance that any product candidate in Inovio's pipeline will be successfully developed, manufactured or commercialized, that final results of clinical trials 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. Forward-looking statements speak only as of the date of this release, and Inovio undertakes no obligation to update or revise these statements, except as may be required by law.

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