March 20, 2019

Actinium Announces Update Including IP and New Data from Novel Combination of Actimab-A and Venetoclax Accepted for Poster Presentation at AACR Annual Meeting

- Poster supports rationale for recently initiated Phase 1/2 doublet clinical trial studying novel combination of Actimab-A and venetoclax and planned Phase 1/2 triplet combination trial of Actimab-A and venetoclax with a hypomethylating agent

NEW YORK, March 20, 2019 /PRNewswire/ -- Actinium Pharmaceuticals, Inc. (NYSE American: ATNM), announced today that preclinical data from the novel combination of its CD33 ARC or Antibody Radiation-Conjugate Actimab-A (lintzumab-Ac-225) with venetoclax has been accepted for poster presentation at the American Association for Cancer Research, or AACR, Annual Meeting 2019. The data to be presented builds on research by Actinium that demonstrated a synergy between Actimab-A and venetoclax, which resulted in greater cancer cell killing. This research supported the initiation of a Phase 1/2 doublet clinical trial studying Actimab-A and venetoclax and a planned Phase 1/2 triplet combination trial of Actimab-A and venetoclax with a hypomethylating agent, both for patients with relapsed or refractory AML or Acute Myeloid Leukemia. Actinium is conducting these trials with the goal of improving outcomes for patients with the addition of Actimab-A to address patients who do not respond, have suboptimal responses, no longer respond and patients who relapse after treatment with venetoclax.

Venetoclax is a BCL-2 or B-Cell Lymphoma 2 inhibitor jointly developed and marketed by AbbVie and Genentech. BCL-2 is one of several proteins encoded by the BCL2 gene that regulates apoptosis or programmed cell death. MCL-1 is another protein encoded by the BCL2 gene that has been found to be overexpressed in relapsed or refractory AML patients, that prevents apoptosis and promotes resistance to venetoclax which does not bind to MCL-1. It has been observed that MCL-1 levels can be depleted with radiation, but only external radiation was used in these studies. Actinium believes that the targeted

internalized radiation from Actimab-A can more effectively deplete MCL-1 levels thereby removing the AML cells' resistance mechanism and rendering them more susceptible to venetoclax. Actinium has filed a patent on the combination of a targeted alpha-emitting therapeutic such as Actimab-A together with a BCL-2 inhibitor, which includes venetoclax, as a method to treat cancer. The details on Actinium's poster are as follows:

Title: ^{225}Ac-CD33 Radioimmunotherapy potently increases the sensitivity of resistant acute myeloid leukemia lines to the Bcl-2 inhibitor venetoclax by mediating a reduction in cellular Mcl-1 levels

Session Category: Experimental and Molecular Therapeutics
Session Title: Drug Resistance 5
Session Date and Time: Tuesday Apr 2, 2019 1:00 PM - 5:00 PM
Location: Georgia World Congress Center, Exhibit Hall B, Poster Section 10
Poster Board Number: 13
Abstract Number: 3808

Dr. Dale Ludwig, Actinium's Chief Scientific Officer said, "We are excited to present new data from this Actimab-A ARC and venetoclax combination to further support our recently initiated clinical study and prior work. We have high confidence in the mechanistic rationale of the Actimab-A and venetoclax combination and are encouraged by the results we have seen thus far. With radiation being used in the treatment of up to 60% of cancer patients and a growing body of literature supporting the synergies of radiation therapy with other modalities, we are motivated to capitalize on numerous opportunities that can leverage our AWE or Antibody Warhead Enabling technology platform to exploit radiation's synergistic effects. Indeed, our AWE technology platform is a tool for innovation that has the potential to expand our pipeline and facilitate collaborations and partnerships."

Actimab-A delivers the potent alpha-particle emitting radioisotope Ac-225 or Actinium-225 to cells with the CD33 antigen, which is expressed in the vast majority of patients with AML, MDS or Myelodysplastic Syndrome, and 25-35% of patients with Multiple Myeloma, or MM. Venetoclax is a BCL-2 or B-Cell Lymphoma 2 inhibitor that is jointly developed and marketed by AbbVie and Genentech that is approved for patients with AML, Chronic Lymphocytic Leukemia, and Small Lymphocytic Leukemia. Actinium has initiated a Phase 1/2 trial that is studying Actimab-A in combination with venetoclax for patients with relapsed or refractory AML and is planning a Phase 1/2 trial that is expected to study Actimab-A and venetoclax with a hypomethylating agent also for patients with relapsed or refractory AML.

Dr. Mark Berger, Actinium's Chief Medical Officer said, "Our Actimab-A venetoclax combination trials are a strategic priority within our CD33 program that demonstrate our ability to rapidly translate research from our AWE technology platform to our clinical pipeline. Our preclinical data demonstrating a synergy between targeted radiation from Actimab-A and venetoclax, together with Actimab-A's single agent activity and minimal extramedullary toxicities was well received by investigators, allowing us to develop two distinct clinical trials with this novel combination. As a result, we have created multiple opportunities to advance the treatment of patients with unmet needs with our ARC

approach."

About Actinium Pharmaceuticals, Inc.

Actinium Pharmaceuticals Inc. is focused on improving patient access and outcomes to cellular therapies such as BMT or Bone Marrow Transplant and CAR-T with its proprietary, chemotherapy free, targeted conditioning technology. Actinium is the only company with a multi-disease, multi-target, drug development pipeline focused on targeted conditioning. Its targeted conditioning technology is enabled by ARC's or Antibody Radiation-Conjugates that combine the targeting ability of monoclonal antibodies with the cell killing ability of radioisotopes. Actinium's pipeline of clinical-stage targeted conditioning ARC's are designed to target the antigens CD45 and CD33 for patients with a broad range of hematologic malignancies including AML or Acute Myeloid Leukemia, MDS or Myelodysplastic Syndrome and MM or Multiple Myeloma.

Iomab-B, Actinium's lead targeted conditioning product candidate, is currently enrolling patients in the pivotal Phase 3 SIERRA trial in patients age 55 and older, with active, relapsed or refractory AML. Iomab-B (Iodine-131 apamistamab), combines the anti-CD45 monoclonal antibody labeled with iodine-131 for myeloablation prior to a bone marrow transplant. CD45 is expressed on leukemia, lymphoma and normal immune cells. Iomab-B has been studied in over 300 patients in 10 clinical trials in numerous hematologic diseases. Actinium's Iomab-ACT program is an expansion of its CD45 program that is intended to be a universal, chemotherapy-free solution for targeted lymphodepletion prior to CAR-T. Through targeted lymphodepletion, the Iomab-ACT program is expected to improve CAR-T cell expansion, reduce CAR-T related toxicities and expand patient access to CAR-T treatment and potentially other adoptive cell therapies. Due to its lower payload dose, lymphodepletion with the Iomab-ACT program may be accomplished through a single outpatient infusion. Actinium intends to advance its Iomab-ACT program with CAR-T focused collaborators from academia and industry.

Actinium's pipeline also includes a potentially best-in-class CD33 program with its ARC comprised of the anti-CD33 antibody lintuzumab labeled with the alpha-particle emitter actinium-225. Its CD33 program is currently being studied in multiple Phase 1 clinical trials for targeting conditioning, in combinations and as a therapeutic in multiple diseases and indications including AML, MDS and MM. Notable trials include the planned pivotal trial for Actimab-MDS for targeted conditioning prior to a BMT for patients with high-risk MDS, that is expected to initiate in 2019, and two Actimab-A venetoclax combination trials including the initiated Phase 1 doublet trial and the planned triplet trial with a hypomethylating agent.

Actinium is also developing its proprietary AWE or Antibody Warhead Enabling technology platform which utilizes radioisotopes including iodine-131 and the highly differentiated actinium-225 coupled with antibodies to target a variety of antigens that are expressed in hematological and solid tumor cancers. The AWE technology enables Actinium's internal pipeline and with the radioisotope Actinium-225 is being utilized in a collaborative research partnership with Astellas Pharma, Inc. Actinium's clinical programs and AWE technology platform are covered by a portfolio of over 110 patents covering composition of matter, formulations, methods of use and also methods of manufacturing the radioisotope

Actinium-225 in a cyclotron.

More information is available at www.actiniumpharma.com and our Twitter feed @ActiniumPharma, www.twitter.com/actiniumpharma.

Forward-Looking Statements for Actinium Pharmaceuticals, Inc.

This press release contains "forward-looking statements" within the meaning of the "safe-harbor" provisions of the private securities litigation reform act of 1995 regarding future events or the future performance of Actinium which Actinium undertakes no obligation to update. These statements are based on management's current expectations and are subject to risks and uncertainties that may cause actual results to differ materially from the anticipated or estimated future results, including the risks and uncertainties associated with preliminary study results varying from final results, estimates of potential markets for drugs under development, clinical trials, actions by the FDA and other governmental agencies, regulatory clearances, responses to regulatory matters, the market demand for and acceptance of Actinium's products and services, performance of clinical research organizations and other risks detailed from time to time in Actinium's filings with the Securities and Exchange Commission, including without limitation its most recent annual report on Form 10-K for the period ended December 31, 2018, subsequent quarterly reports on Form 10-Q and Form 8-K, each as amended and supplemented from time to time.

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