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Actinium Announces Initiation of Patient Enrollment in Iomab-ACT Trial for Targeted Conditioning Prior to CD19 CAR T-Cell Therapy

- CAR T-cell therapy manufacturing commenced with Iomab-ACT conditioning and patient treatment scheduled for early Q2:2021

- Clinical proof-of-concept data expected in 2H:2021 from first of its kind trial funded by NIH STTR grant

NEW YORK, March 24, 2021 /PRNewswire/ --**Actinium Pharmaceuticals, Inc.** (NYSE AMERICAN: ATNM) ("Actinium" or the "Company") today announced that its collaborator, Memorial Sloan Kettering Cancer Center ("MSK"), has commenced patient enrollment in the Phase 1 study evaluating Iomab-ACT for targeted conditioning prior to treatment with MSK's CD19 targeted CAR T-cell 19-28z. Iomab-ACT is a low dose version of Actinium's Phase 3 drug candidate Iomab-B, a CD45 targeting antibody radiation conjugate ("ARC"). Actinium and MSK were jointly awarded National Institutes of Health Small Business Technology Transfer grant funding for this first ever trial to evaluate ARC-based targeted conditioning prior to CAR-T therapy. The scientific rationale for this trial builds on preclinical data published in 2020 and is further supported by clinical observations from the SIERRA trial to justify combining MSK's 19-28z CAR T-cell therapy with Iomab-ACT. Manufacturing of patient CAR T-cells has commenced and patient conditioning with Iomab-ACT followed by 19-28z CAR T-cell infusion is expected early in the second quarter of 2021, with proof-of-concept data expected in the second half of 2021.

Results of a Phase 2 trial in 53 patients with relapsed and refractory B-cell acute lymphoblastic leukemia with MSK's 19-28z CAR-T published in the New England Journal of Medicine reported complete remissions in 83% (44/53) of patients, median event-free survival (EFS) of 6.1 months and median overall survival (OS) was 12.9 months at a median follow up period of 29 months (range 1 – 65 months). There was a 26% (14/53) rate of Grade 3 of greater cytokine release syndrome (CRS), with 1 patient death as a result, and

42% of patients experienced Grade 3-4 immune effector cell-associated neurotoxicity syndrome (ICANS).

Dr. Dale Ludwig, Actinium's Chief Scientific and Technology Officer, said "MSK's 19-28z CAR T-cell therapy has produced high response rates in patients with relapsed or refractory B-ALL who have previously undergone several lines of standard therapy. However, toxicities such as cytokine release syndrome and neurologic toxicity, as well as durability of response, remain a significant challenge. The ARC technology Iomab-ACT employs enables the delivery of targeted radiation that selective and specifically targets immune cells including those implicated in the CAR-T-associated toxicities of neurotoxicity and cytokine release syndrome. We are eager to begin treating patients in this first of its kind pilot study to explore the potential of Iomab-ACT targeted lymphodepletion to modulate the immune system and improve the safety profile of CAR T-cell therapy. We are hopeful this technology may ultimately enhance our ability to deliver CAR T-cell therapies more safely. Positive results from pilot study could have a meaningful impact on the way we condition patients for CAR-T and other adoptive cell therapies, which have transformed the treatment of patients with blood cancers."

Sandesh Seth, Actinium's Chairman and CEO, said "This is a major milestone for Actinium and one we are very excited by. Adoptive cell therapies like CAR-T and gene therapies have emerged as some of the most promising areas in medicine and hold tremendous promise for patients, many of whom have limited or no treatment options remaining. This promise has led to a large and growing field of therapies where we intend to establish Iomab-ACT as the universal solution for targeted, non-chemotherapy conditioning, that harnesses the power of radiation. With Iomab-B nearing complete enrollment in the Phase 3 SIERRA trial for bone marrow transplant conditioning, starting to treat patients in this Iomab-ACT trial for CAR-T conditioning could not come at a better time. We look forward to continuing to build out our strategic business unit in targeted conditioning to best serve patients seeking potentially curative bone marrow transplant, adoptive cell therapy and gene therapy to improve patient access and outcomes."

About Iomab-ACT

Iomab-ACT targets cells that express CD45, an antigen found on immune cells such as lymphocytes and macrophages as well as leukemia and lymphoma cancer cells and delivers the radioisotope warhead iodine-131 to achieve cell depletion. Iomab-ACT is intended to deplete CD45+ immune cells such as macrophages that are implicated in CAR-T related toxicities and may also have an anti-tumor effect on chemo-refractory cancers. Iomab-ACT is a low dose extension of Actinium's lead program, Iomab-B, which is being studied in a pivotal Phase 3 trial for targeted conditioning prior to a bone marrow transplant. Preclinical data supporting Iomab-ACT's application in targeted lymphodepletion prior to ACT such as CAR-T was recently published in the journal Oncotarget (https://www.oncotarget.com/archive/v11/i39/).

In addition, clinical data with trace doses of Iomab-B has shown transient, reversible lymphodepletion in patients and drug clearance pharmacokinetics that fit within the vein-to-vein time of CAR-T manufacturing and administration.

About Actinium Pharmaceuticals, Inc. (NYSE: ATNM)

Actinium Pharmaceuticals, Inc. is a clinical-stage biopharmaceutical company developing ARCs or Antibody Radiation-Conjugates, which combine the targeting ability of antibodies with the cell killing ability of radiation. Actinium's lead application for our ARCs is targeted conditioning, which is intended to selectively deplete a patient's disease or cancer cells and certain immune cells prior to a BMT or Bone Marrow Transplant, Gene Therapy or Adoptive Cell Therapy (ACT) such as CAR-T to enable engraftment of these transplanted cells with minimal toxicities. With our ARC approach, we seek to improve patient outcomes and access to these potentially curative treatments by eliminating or reducing the non-targeted chemotherapy that is used for conditioning in standard practice currently. Our lead product candidate, I-131 apamistamab (Iomab-B) is being studied in the ongoing pivotal Phase 3 Study of Iomab-B in Elderly Relapsed or Refractory Acute Myeloid Leukemia (SIERRA) trial for BMT conditioning. The SIERRA trial is over seventy-five percent enrolled and positive single-agent, feasibility and safety data has been highlighted at ASH, TCT, ASCO and SOHO annual meetings. Iomab-ACT (low dose I-131 apamistamab) is also be studied as a targeted conditioning agent in a Phase 1 study with a CD19 CAR T-cell Therapy with Memorial Sloan Kettering Cancer Center and is intended to be studied for conditioning prior to gene therapy. In addition, we are developing a multi-disease, multi-target pipeline of clinical-stage ARCs targeting the antigens CD45 and CD33 for targeted conditioning and as a therapeutic either in combination with other therapeutic modalities or as a single agent for patients with a broad range of hematologic malignancies including acute myeloid leukemia, myelodysplastic syndrome and multiple myeloma. Ongoing combination trials include our CD33 alpha ARC, Actimab-A, in combination with the salvage chemotherapy CLAG-M and the Bcl-2 targeted therapy venetoclax. Underpinning our clinical programs is our proprietary AWE (Antibody Warhead Enabling) technology platform. This is where our intellectual property portfolio of over 140 patents, know-how, collective research and expertise in the field are being leveraged to construct and study novel ARCs and ARC combinations to bolster our pipeline for strategic purposes. Our AWE technology platform is currently being utilized in a collaborative research partnership with Astellas Pharma, Inc.
Website: https://www.actiniumpharma.com/

Forward-Looking Statements for Actinium Pharmaceuticals, Inc.

This press release may contain projections or other "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 financial performance of the Company which the Company 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 (the "SEC"), including without limitation its most recent annual report on form 10-K, subsequent quarterly reports on Forms 10-Q and Forms 8-K, each as amended and supplemented from time to time.

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