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Actinium Presents New Data Demonstrating Effective Lymphodepletion with Lutetium-177 for CAR-T at the 2019 Society of Nuclear Medicine and Molecular Imaging Annual Meeting

- Actinium's - ACT or Adoptive Cell Therapy Program now capable of using multiple warheads, including iodine-131 and lutetium-177, to achieve lymphodepletion for CAR-T and adoptive cell therapies

- CD45 targeted lymphodepletion selectively depletes lymphoid and myeloid immune cell populations while sparing platelets, red blood cells and bone marrow cells

- Actinium's patent estate for the ACT program includes the use of multiple warheads covering composition of matter and methods of use for CAR-T and adoptive cell therapies

NEW YORK, June 25, 2019 /PRNewswire/ --**Actinium Pharmaceuticals, Inc.** (NYSE AMERICAN: ATNM) ("Actinium") today announced at SNMMI or the 2019 Society of Nuclear Medicine and Molecular Imaging Annual Meeting that effective lymphodepletion with the radioisotope Lu-177 or lutetium-177 was achieved with its ACT or Adoptive Cell Therapy program for achieving safe, effective and transient lymphodepletion prior to the administration of CAR-T and other adoptive cell therapies. The ARC's or Antibody Radiation-Conjugates used in the ACT program combines a CD45 targeting antibody with the cell killing power of radioisotopes.

Lymphodepletion is an important step prior to CAR-T and adoptive cell therapies that facilitates infused cells to engraft, expand and persist. Currently, chemotherapy such as Flu/Cy or Fludarabine and Cyclophosphamide are used in standard practice for lymphodepletion. Patients receiving CAR-T and other adoptive cell therapies are often heavily pre-treated and their cancer is refractory or resistant to chemotherapy. Actinium is developing its ACT program to be a potential replacement of non-specific, chemotherapy-based lymphodepletion.

In vivo animal studies demonstrated that a Lu-177 labeled CD45 ARC transiently depleted CD45 positive immune cells while sparing platelets, red blood cells and bone marrow cells. A dose response was observed with 40μCi Lu-177 having a greater lymphodepletion effect on

immune cells -- including B-cells, CD8 and CD4 T-cells, NK cells, myeloid derived suppressor cells and regulatory T-cells -- than 20µCi Lu-177. In tumor bearing mice, the Lu-177 labeled CD45 ARC was given prior to adoptive cell therapy, which demonstrated enhanced tumor control when compared to mice that were untreated and those that only received adoptive cell therapy with no lymphodepletion (Click here for the SNMMI poster).

Dr. Dale Ludwig, Actinium's Chief Scientific Officer, said, "I am truly excited by these additional results from our ACT program that we have presented at SNMMI evaluating lutetium-177 for targeted lymphodepletion. The data generated exceeded my expectations and support the continued development of a Lu-177 CD45 ARC as part of our ACT program. As we work to establish collaborations and partnerships while advancing the ACT program into clinical trials, the expansion to multiple warheads will give us flexibility and utility that I trust will be well received. I look forward to highlighting our continued efforts in this area at future medical conferences and industry meetings."

The antigen CD45 is uniquely expressed on leukemia, lymphoma and immune cells making it an ideal target for targeted condition prior to BMT or Bone Marrow Transplant, CAR-T and adoptive cell therapies. Actinium's Iomab-B and ACT programs utilize the anti-CD45 antibody apamistamab. Apamistamab has been studied in over 300 patients in 13 clinical trials, including the ongoing pivotal Phase 3 SIERRA trial, across multiple hematologic indications including acute myeloid leukemia, myelodysplastic syndrome, acute lymphoblastic leukemia, lymphomas and multiple myeloma. The ACT program utilizes a lower dose of the radioisotope I-131 or Iodine-131 than Iomab-B and can now also utilize Lu-177.

Actinium presented initial feasibility data for its ACT program at the Transplantation and Cellular Therapies Meeting in February 2019. The data demonstrated that a CD45 targeting antibody labeled with I-131 effectively depleted greater than 90% of lymphocytes in preclinical animal models (Click here for poster).

Sandesh Seth, Actinium's Chairman and CEO, said, "I am excited to add the lutetium-177 warhead to our targeted conditioning armamentarium and expand our ACT program beyond iodine-131. Our targeted conditioning ARC's are demonstrating promising results across our portfolio*,* including in our pivotal Phase 3 Iomab-B program for BMT and the ACT program for lymphodepletion for CAR-T and adoptive cell therapies. These therapies have the potential to significantly benefit patients and, in some instances, lead to long lasting remissions or even cures. We are confident that our targeted conditioning ARC's can increase the number of patients that can receive these important therapies and improve patient outcomes. Recognizing the growth potential of this field we are committed to continuing to drive innovation across our ARC portfolio and further strengthening our leadership position in targeted conditioning."

About Actinium Pharmaceuticals, Inc.

Actinium Pharmaceuticals, Inc. is a clinical-stage biopharmaceutical company focused on improving patient access and outcomes to cellular therapies such as BMT or Bone Marrow Transplant and CAR-T with its proprietary ARC or Antibody Radiation-Conjugate targeted conditioning technology. 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 indications. It is developing a multi-disease, multi-target pipeline of clinical-stage ARC's targeting the antigens CD45 and CD33 for targeting 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 (AML), Myelodysplastic Syndrome (MDS) and Multiple Myeloma (MM). Actinium's lead product candidate, Iomab-B, is in a pivotal Phase 3 trial for re-induction and conditioning prior to a BMT for patients with active relapsed or refractory AML or Acute Myeloid Leukemia. BMT is the only curative treatment option for this patient population and currently no standard of care exists. Actimab-MDS is its second pivotal program for targeted conditioning that will study the ARC comprised of the anti-CD33 monoclonal antibody lintuzumab linked to the radioisotope actinium-225 in patients with high-risk MDS in combination with RIC or Reduced Intensity Conditioning prior to a BMT. Its ACT or Adoptive Cell Therapy program targets CD45 and utilizes either a lower dose of iodine-131 than what is used with Iomab-B or lutetium-177 and is intended to be used for targeted conditioning or lymphodepletion prior to CAR-T and adoptive cell therapies as a replacement to non-optimized chemotherapies, such a Flu/Cy or fludarabine and cyclophosphamide, that is used in standard practice today. Actinium also has multiple clinical trials ongoing, in startup phase, or in planning, to use its CD33 ARC in combination with other therapeutic modalities such as chemotherapy, targeted agents or immunotherapy. It has initiated several combination trials, including a doublet combination trial with its CD33 ARC and venetoclax, a BCL-2 inhibitor, for patients with relapsed or refractory AML, a triplet combination trial with venetoclax and an HMA or hypomethylating agent and in combination with the salvage chemotherapy regimen CLAG-M (cladribine, cytarabine, filgrastim and mitoxantrone) for patients with relapsed or refractory AML. Actinium is also studying its CD33 ARC as single agent for patients with penta-refractory multiple myeloma. Its AWE technology platform 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, the DOTA linker technology for actinium-225 applications and methods of manufacturing the actinium-225 radioisotope in a cyclotron.

Forward-Looking Statements for Actinium Pharmaceuticals, Inc.

The information in this press release contains forward-looking statements regarding future events, including statements about Actinium's expectations regarding the terms of the offering or completion of the offering. Actinium intends such forward-looking statements to be covered by the safe harbor provisions contained in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Actual results or developments may differ materially from those projected or implied in these forward-looking statements. Factors that may cause such a difference include, without limitation, risks and uncertainties related to market and other conditions, the satisfaction of customary closing conditions related to the offering and the impact of general economic, industry or political conditions in the United States or internationally. There can be no assurance that Actinium will be able to complete the offering on the anticipated terms, or at all. More information about the risks and uncertainties faced by Actinium are more fully detailed under the heading "Risk Factors" in Actinium's Annual Report on Form 10-K for the year ended December 31, 2018 filed with the SEC. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this press release.

Except as required by law, Actinium assumes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

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