July 23, 2019

Actinium Achieves Fifty Percent Enrollment in the Pivotal Phase 3 SIERRA Trial for Iomab-B

- Midpoint reached as 75th patient dosed in Phase 3 SIERRA trial

- The SIERRA trial has yielded promising preliminary feasibility and safety data that were presented at ASH 2018, TCT 2019 and ASCO 2019

- Universal engraftment, strong donor chimerism and no 100-day non-relapse mortality observed in all patients randomized to Iomab-B from interim feasibility and safety analysis of the first twenty-five percent of patients enrolled in SIERRA trial

NEW YORK, July 23, 2019 /PRNewswire/ --**Actinium Pharmaceuticals, Inc.** (NYSE AMERICAN: ATNM) ("Actinium") announced today that the 75th patient has been treated in the pivotal Phase 3 SIERRA trial of Iomab-B, thus achieving 50 percent patient enrollment for the trial.

The SIERRA trial or **S**tudy of **I**omab-B in **E**lderly **R**elapse **R**efractory **A**cute Myeloid Leukemia is the only randomized Phase 3 trial that offers BMT or bone marrow transplant as an option for older patients with active, relapsed or refractory AML or acute myeloid leukemia. BMT is the only potentially curative treatment option for patients with relapsed or refractory AML and there is no standard of care for this indication. Iomab-B is an ARC or Antibody Radiation-Conjugate comprised of the anti-CD45 antibody apamistamab and the radioisotope I-131 or iodine-131. The 19 active SIERRA trial sites in the U.S. and Canada represent many of the leading bone marrow transplant centers by volume.

Dr. Mark Berger, Actinium's Chief Medical Officer, said, "We are delighted to reach this key milestone in the SIERRA trial. The positive data thus far has lately translated to great enthusiasm from the trial sites for the study, and we believe this milestone will provide additional impetus. SIERRA is a first of its kind trial and to reach this point, our team has worked diligently to connect all stakeholders within the trial sites, obtain referrals of these patients who would not normally be considered for transplant, satisfy all regulations and

establish a supply chain to service many of the leading transplant centers in the U.S. and Canada. In addition, we have made several protocol modifications that resulted in a stronger and more efficient trial. With 19 active clinical trial sites, positive preliminary feasibility and safety data and strong investigator enthusiasm, I believe the hardest part of the trial is now behind us. Our SIERRA team, which includes experts in AML, BMT, patient care, drug administration, radiation sciences and trial operations, is stronger and more committed than ever to the execution of SIERRA. Together we bring a multi-disciplinary approach to every patient screened for the SIERRA trial and will work tirelessly to complete a successful trial that can bring this important therapy to patients underserved by current treatment options."

Preliminary feasibility and safety data from the first twenty-five percent of patients enrolled in the SIERRA trial were presented at several key medical conferences, including at an oral presentation at ASH 2018, in a late breaking oral presentation at TCT 2019, and in a poster at ASCO 2019. Key highlights from this data include:

ASH 2018 – Oral Presentation of Preliminary Feasibility and Safety Data

Conclusion: Encouraging results with potential to broaden transplant eligibility and improve outcomes

- 100% (18/18) of patients randomized and receiving the Iomab-B therapeutic dose received a BMT and achieved rapid engraftment
- 79% (15/19) of patients randomized to conventional care did not achieve CR or Complete Remission and could not receive a BMT
- 67% (10/15) of patients who failed to achieve get a BMT with conventional care still met the eligibility criteria and were able to cross over and receive Iomab-B
- 100% (10/10) of patients that crossed over and received the Iomab-b achieved engraftment without delay
- Rapid engraftment achieved despite high blast counts
    - 30% median blast count for Iomab-B patients (range:4-74%)
    - 45% median blast count for crossover patients at time of crossover (range:10-70%)
- Patients receiving Iomab-B received a BMT in a median time of 28 days compared to a median of 67 days for patients receiving conventional care who achieved CR and received a conventional BMT
- 0% (0/18) 100-day non-relapse mortality for Iomab-B patients compared to 25% (1/4) 100-day non-relapse mortality for conventional care patients achieving CR and receiving conventional transplant

TCT 2019 – Late Breaking Oral Presentation of Additional Feasibility and Safety Data

New Findings: Conditioning with Iomab-B results in Full Donor Chimerism, indicating successful bone marrow transplant

- 94% (17/18) of patients randomized to Iomab-B achieved Full Donor Chimerism > 95% within 100 days post-BMT with 1 patient achieving 65% donor chimerism
- 90% (9/10) of patients who crossed-over to receive Iomab-B achieved Full Donor Chimerism > 95% within 100 days post-BMT with 1 patient achieving 86% donor chimerism

ASCO 2019 – Poster Presentation of Iomab-B Single Agent Activity

Conclusion: Iomab-B as a single-agent rapidly clears circulating leukemic blasts leading to targeted myeloablation and successful engraftment after BMT, which benefits patients who had prolonged neutropenia due to active and refractory disease prior to transplant

- Iomab-B as a single agent produced a 98% reduction in peripheral blasts by day 3 and a 100% reduction in peripheral blasts by day 8 leading to a significantly lower circulating leukemia tumor burden prior to BMT
- Time to clearance of circulating tumor blasts shown to be an independent prognostic marker for Relapse-Free Survival in patients receiving chemotherapy that superseded all other known risk factors including karyotype and number of cycles of induction therapy needed to achieve CR[1].

Dr. Vijay Reddy, VP, Clinical Development and Head of Transplant at Actinium, added, "I am thrilled with the data we have seen from the SIERRA trial thus far. This strong and supportive data being prominently featured at three major medical conferences has resulted in robust appreciation and interest for the SIERRA trial from sites and investigators. This has facilitated extensive site visits and interactions where we have highlighted the robust body of evidence supporting Iomab-B and SIERRA to transplant physicians, referring hematologists and caregivers at current and prospective sites, which have been well received. We will continue an extensive outreach effort to highlight the universal engraftment seen in all patients receiving Iomab-B despite high leukemia burden, the high BMT and engraftment rates for patients who fail the control arm and crossover to receive Iomab-B, and Iomab-B's strong single agent activity. Our team is excited to continue our efforts to drive further interest for patient enrollment, and we are optimistic for the remainder of the SIERRA trial based on the data we have observed thus far, which is trending in line with results shown by Iomab-B in several prior Phase 2 trials."

Sandesh Seth, Actinium's Chairman and CEO, said, "I am proud of our team for reaching this key milestone in the SIERRA trial as it represents a major inflection point for Actinium. Iomab-B is our lead asset for targeted conditioning prior to a BMT. Targeted conditioning is an area of opportunity and unmet medical need for which we have assembled a multi-target pipeline of assets for several attractive indications. We believe we can create significant value by focusing on targeted conditioning indications where, due to safety and efficacy issues related to existing regimens, patients either cannot access, or receive sub-optimal results from, potentially lifesaving therapies such as BMT, CAR-T and other adoptive cell therapies. Our vision is to create the leading franchise producing multiple therapies for BMT, CART-T and cell therapy-related targeted conditioning and to deliver them via a world-class supply chain and commercial organization to the concentrated number of leading medical centers that treat a majority of patients receiving these therapies. We are confident that Iomab-B and the SIERRA trial can become the linchpin to make this vision a reality, and we are fully committed to achieving near-term success with the SIERRA trial and long-term value with our multi-asset, targeted conditioning pipeline."

Sources:

1) Elliott et al. Early peripheral blood blast clearance during induction chemotherapy for acute myeloid leukemia predicts superior relapse-free survival. Blood. 2007 Dec 15;

110(13):4172-4. Epub 2007 Oct 1.

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 a lower dose of iodine-131 than 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 100 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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