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Actinium Pharmaceuticals, Inc. Announces Greater Difference of Approximately 5x for Iomab-B vs Control Arm in the Number of Patients Potentially Evaluable for the Primary Endpoint of the Pivotal Phase 3 SIERRA Trial at the 63rd ASH Annual Meeting

- Consistent 5-times greater difference between Iomab-B vs Control arm at each 100-day NR-TRM (non-relapse transplant related mortality) interim analysis of the SIERRA trial

- Control arm therapies failed to achieve a remission in 83% of patients with just 14% of patients being potentially evaluable at 100-day NR-TRM for the primary endpoint compared to 100% BMT engraftment with Iomab-B and 70% of patients potentially evaluable for primary endpoint

- Unmet need in relapsed and refractory AML demonstrated by 66% of patients enrolled in SIERRA having received and failed targeted therapies prior to enrollment

- Significantly lower rate of sepsis (p=0.002) and lower rates of febrile neutropenia in patients receiving Iomab-B compared to salvage therapy in the control arm

NEW YORK, Dec. 13, 2021 /PRNewswire/ --**Actinium Pharmaceuticals, Inc.** (NYSE AMERICAN: ATNM) ("Actinium" or the "Company"), a leader in the development of targeted radiotherapies for patients with unmet needs today announced that positive data from the fully enrolled pivotal Phase 3 SIERRA trial of Iomab-B was presented at the 63rd American Society of Hematology Annual Meeting and Exposition (ASH) that is being held December 11 – 14, 2021 in Atlanta, Georgia and virtually. Iomab-B is an antibody radiation conjugate (ARC) targeting CD45 with the Iodine-131 radioisotope payload that is intended to be a targeted conditioning regimen to enable patients to access a bone marrow transplant (BMT). The pivotal Phase 3 SIERRA trial is the only randomized Phase 3 trial for patients age 55 and above with active, relapsed or refractory acute myeloid leukemia (r/r AML) where BMT,

the only potentially curative treatment option for this patient population, is feasible. SIERRA is a randomized trial that will compare outcomes of patients receiving Iomab-B and a BMT to those of patients on the control arm receiving physician's choice of salvage therapy including recently approved targeted agents venetoclax (Bcl-2), midostaurin and giltiritinib (FLT-3), and ivosidenib (IDH) who can potentially receive a BMT if they achieve a remission.

BMT Engraftment Rates in Evaluable Patients Throughout the SIERRA Trial

BMT Engraftment	25% enrollment (n=38)	50% enrollment (n=76)	75% enrollment (n=113)	100% enrollment (n=151)
SIERRA	100%	100%	100%	100%*
Conventional Care	21%	18%	17.5%	17%
Iomab-B Crossover	100%	100%	100%	100%
• Does not include data from 6 Iomab-B patients for which BMT engraftment and 100-day non-relapse transplant mortality data is still maturing				

Dr. Avinash Desai, Actinium's Chief Medical Officer, said, "The remarkably consistent and high rates of BMT engraftment together with the low rates of non-relapse transplant related mortality at day 100 with Iomab-B through 100% enrollment give us great confidence in SIERRA. Despite 9 AML therapies approved since 2017, many of which are targeted, outcomes for relapsed or refractory patients remain dismal and potentially curative bone marrow transplant is rarely accessible, especially for older patients with active disease like those in SIERRA. This is supported by the fact that only 17% of patients were able to go to transplant in the control arm, which included many of the newly approved targeted therapies. We are highly encouraged that the separation in the number of patients potentially evaluable for the primary endpoint of six-month durable complete remission has remained at approximately 5-times or greater through all data analyses and now at full enrollment."

Grade > 3 Adverse Events

Adverse Event	**Iomab-B (n=75) N (%)**	**Control Arm (n=76) N (%)**
Sepsis p=0.002	4 (5.3%)	18 (23.7%)
Febrile neutropenia	25 (33.3%)	34 (44.7%)

SIERRA Patient Demographics Through 100% Enrollment

- Patients in the Iomab-B arm were a median age of 64 (range: 55-77) and had a median blast count of 30% (range: 2-97) while patients in the control arm were a median age of 65.5 (range: 55-76) and had a median blast count of 20% (range: 3-97)
- Over 60% of patients in SIERRA had adverse cytogenetics and over 32% had

intermediate risk cytogenetics
- Over 50% of patients were primary induction failures, approximately 25% had early relapse (less than 6 months) and the remaining patients were relapsed or refractory or second relapse
- 66% of patients enrolled in SIERRA received and failed targeted therapies with 66% of patients receiving venetoclax (Bcl-2) based treatment
- 47% of patients randomized to the control arm in SIERRA received targeted therapies with 81% of patients receiving Venetoclax-based treatment

Dr. Desai continued, "Given the advanced age, high-risk cytogenetic profile, poor disease status and florid active disease of the SIERRA patient population, it is remarkable that Iomab-B has enabled BMT engraftment in 100% of all evaluable patients receiving a therapeutic dose. We are also highly encouraged by the safety and tolerability profile of Iomab-B, which we believe is the result of its targeted nature. We have shown that Iomab-B can deliver high amounts of radiation to the bone marrow but spare vital organs such as the GI tract. We believe this has resulted in the significantly lower rate of sepsis in the Iomab-b arm compared to the control arm, which is a leading cause of transplant related mortality. In addition, lower rates of other adverse events - such as febrile neutropenia combined with the lower rates of 100-day non-relapse transplant related mortality - in the SIERRA arm is exciting. With the final Iomab-B patient receiving their BMT in November 2021, we can confirm our expectation for topline data in the third quarter of 2022. We look forward to presenting additional BMT engraftment, safety and 100-day non-relapse transplant related mortality data from the fully matured data set at a medical conference in early February."

Sandesh Seth, Actinium's Chairman and CEO, added, "Data from the SIERRA trial have continuously validated our enthusiasm for Iomab-B and its potential to improve patient outcomes. We are struck by not only the consistency of the universal BMT engraftment rates at 25%, 50%, 75% and now 100% enrollment but also the consistency of the SIERRA data with the multiple studies conducted at the Fred Hutchinson Cancer Research Center, which drove our decision to license Iomab-B. As data from the SIERRA trial evolved, the vision to drive a paradigm shift in BMT conditioning, which currently relies on decades old, non-targeted chemotherapy-based regimens that limit access and hinder outcomes, by bringing Iomab-B forward as a targeted conditioning regimen became clear. It is an incredibly exciting time for Actinium to have completed SIERRA trial enrollment and to be on the cusp of producing data to support a BLA filing with the FDA and potential approval. If approved, we will be in a position to execute our vision of leading the paradigm shift to make targeted conditioning for BMT a reality."

The ASH SIERRA presentation can be accessed on Actinium's investor relations page https://ir.actiniumpharma.com/presentations-webinars.

About the SIERRA Phase 3 Trial

The SIERRA trial is a 150-patient, randomized clinical trial, studying Iomab-B compared to the control arm of physician's choice of salvage therapy in patients with active, relapsed or refractory acute myeloid leukemia (r/r AML) age 55 and above. In SIERRA, patients receiving Iomab-B, those achieving a remission after salvage therapy or those patients not achieving remission after salvage therapy that crossed over to receive Iomab-B were offered a bone marrow transplant (BMT), which is the only treatment option with curative potential for patients with active r/r AML. The SIERRA trial is the only randomized Phase 3 trial

intended to offer BMT to this patient population. The control arm of SIERRA included over 20 single agents or combination treatment options based on physician's choice which include salvage chemotherapy and recently approved targeted agents including Bcl-2 inhibitor (Venetoclax), FLT3 inhibitors and IDH 1/2 inhibitors as there is no standard of care for this patient population. The SIERRA trial was conducted at 24 sites in the United States and Canada.

About Iomab-B

Iomab-B (I-131 apamistamab) via the monoclonal antibody apamistamab, targets CD45, an antigen widely expressed on leukemia and lymphoma cancer cells, immune cells and bone marrow stem cells. Apamistamab is linked to the radioisotope iodine-131 (I-131) and once attached to its target cells emits energy that travels about 100 cell lengths, destroying a patient's cancer cells and ablating their bone marrow. By carrying iodine-131 directly to the bone marrow in a targeted manner, Actinium believes Iomab-B may avoid the side effects of radiation on most healthy tissues while effectively killing the patient's cancer (induction) and marrow cells (myeloablation) including those in bone marrow niches due to the "crossfire" effect enabled by the I-131 radioisotope.

Iomab-B was licensed from the Fred Hutchinson Cancer Research Center where it was studied in nearly 300 patients, in multiple clinical trials in 6 blood cancer indications. Iomab-B is being studied in the pivotal Phase 3 SIERRA (Study of Iomab-B in Relapsed or Refractory AML) trial, a 150-patient, randomized controlled clinical trial in patients with relapsed or refractory Acute Myeloid Leukemia (AML) who are age 55 and above. The SIERRA trial was conducted at 24 preeminent transplant centers in the U.S. and Canada. The primary endpoint of durable Complete Remission (dCR) at six months and a secondary endpoint of overall survival. Upon approval, Iomab-B is intended to prepare and condition patients for a bone marrow transplant, also referred to as a hematopoietic stem cell transplant, in a potentially safer and more efficacious manner than the non-targeted intensive chemotherapy conditioning that is the current standard of care in bone marrow transplant conditioning. A bone marrow transplant is often considered the only potential cure for patients with certain blood-borne cancers and blood disorders. Additional information on Iomab-B and the Phase 3 SIERRA clinical trial can be found at www.sierratrial.com.

About Actinium Pharmaceuticals, Inc.

Actinium Pharmaceuticals, Inc. is a clinical-stage biopharmaceutical company developing targeted radiotherapies to deliver cancer-killing radiation with cellular level precision to treat patients with high unmet needs not addressed by traditional cancer therapies. Actinium's current clinical pipeline is led by ARCs or Antibody Radiation-Conjugates that are being applied to 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. Actinium's targeted conditioning ARCs 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) has been studied in several hundred patients including in the recently completed, 150-patient, pivotal Phase 3 Study of Iomab-B in Elderly Relapsed or Refractory Acute Myeloid Leukemia (SIERRA) trial for BMT conditioning. Iomab-ACT, low dose I-131 apamistamab is being studied as a

targeted conditioning agent in a Phase 1 study with a CD19 CAR T-cell Therapy with Memorial Sloan Kettering Cancer Center. In addition, we are leaders in the field of Actinium-225 alpha therapies. Actimab-A, our clinical stage CD33 targeting ARC alpha therapy has been studied in nearly 150 patients including our ongoing combination trials 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 160 patents, know-how, collective research and expertise in the field are being leveraged to construct and study novel ARCs and ARC combinations such as with CD47 immunotherapies 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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