December 8, 2020

Actinium Reports 67 Percent Overall Response Rate in First Cohort in Actimab-A Venetoclax Combination Trial in Relapsed and Refractory AML at ASH

- 67% overall response rate includes one complete response in patient with TP53 mutation and one partial response reported in patients with poor risk adverse cytogenetics with subtherapeutic dose of Actimab-A indicative of mechanistic synergy with venetoclax

- Next generation sequencing showed elimination of certain mutations after only one cycle of Actimab-A and venetoclax combination with no DLT's reported

- Additional proof of concept data from advancing cohorts expected in 2021

NEW YORK, Dec. 8, 2020 /PRNewswire/ --**Actinium Pharmaceuticals, Inc.** (NYSE AMERICAN: ATNM) ("Actinium" or the "Company") today announced that first-in-human data from the first dose cohort of the Phase 1 portion of the Actimab-A venetoclax Phase 1/2 combination trial in patients with relapsed or refractory Acute Myeloid Leukemia (AML) were presented at the 62nd American Society of Hematology (ASH) annual meeting. The poster presentation highlighted results from the first three patients treated with the initial subtherapeutic dose level of 0.5 µCi/kg of Actimab-A and venetoclax.

The enrolled patients had a median of 2 prior therapies (range 2-3) and a median bone marrow blast percentage of 30% (range 20 - >60). All 3 patients had poor risk disease with adverse cytogenetics, and each patient had an additional high-risk marker (FLT3-ITD+, antecedent JAK2+ myelofibrosis, or TP53 mutation). One patient who had multiple genetic mutations including IDH2, RUNX1, TP53 and others, achieved a complete remission with incomplete blood count recovery (CRi) after the first cycle of Actimab-A and venetoclax. Next generation sequencing at the end of the first cycle showed that patient was negative for the known IDH2 and RUNX1 mutations. This patient has continued treatment receiving the second cycle and their bone marrow remains normocellular with no excess blasts. In addition, another patient achieved a partial response after one cycle of Actimab-A and venetoclax. There were no Actimab-A related dose limiting toxicities or nonhematologic Grade 3 or greater related AEs reported in the first cohort. The trial has advanced to the second dose cohort of 1.0 µCi/kg of Actimab-A and venetoclax with patient enrollment ongoing.

Sandesh Seth, Actinium's Chairman and Chief Executive Officer, commented, "This ASH meeting, we are excited to highlight the promising data emerging from both our combination trials with Actimab-A in the R/R AML setting, namely the Actimab-A venetoclax and Actimab-A CLAG-M trials. Particularly compelling is the complete response reported in a patient with complex mutations like TP53 with Actimab-A and venetoclax and the high MRD negativity rate with Actimab-A and CLAG-M. The results clearly demonstrate that a superior clinical effect without adding meaningful toxicity is achievable using Ac-225 ARC's to precisely deliver powerful internal radiation and elicit a potentiating and synergistic treatment effect with chemotherapy and targeted agents. With this clinical validation in hand, we look forward to expanding our ARC combinations with other therapeutic modalities in AML and into additional indications to further establish our leadership position in the field by leveraging our enhanced R&D capabilities including new research facilities and key hires."

Dr. Mark Berger, Actinium's Chief Medical Officer, said, "We were thrilled to report a complete response in the Actimab-A venetoclax combination trial, in addition to the partial response previously highlighted in the abstract. Both responses occurred after just one cycle of a subtherapeutic dose of Actimab-A. These initial results, the one complete response and safety profile to date, support the potential mechanistic synergy of Actimab-A with venetoclax. As a single agent, venetoclax has produced low response rates of 19% in patients with R/R AML[1] so we are pleased with the results seen in our first dose cohort. In addition, the clinical data from Actimab-A and Iomab-B presented at this year's ASH demonstrates our strong commitment to addressing the unmet needs of patients with R/R AML with our ARCs as best in class therapeutics, bridge to transplant and targeted conditioning for potentially curable bone marrow transplant. With this in mind, we look forward to guidance on Iomab-B expected from the ad-hoc DMC meeting before year-end."

This Phase 1/2 trial is a multicenter, open label trial of Actimab-A (lintuzumab-Ac225) added to venetoclax for patients with CD33 positive R/R AML. A Phase 2 trial studying Actimab-A as a single agent produced a 69% overall response rate in older unfit patients with newly diagnosed AML. In a poster presentation at the American Association of Cancer Research (AACR) Annual Meeting 2019, Actimab-A was shown to be synergistic with venetoclax in venetoclax resistant cell lines, by depleting MCL-1, a protein shown to mediate resistance to venetoclax. Further, the induction of direct AML cell death via double-stranded DNA breaks by Actimab-A provides a second mechanism for enhancing synergistic potency with venetoclax. Venetoclax is a B-Cell Lymphoma 2 (BCL-2) inhibitor that is jointly developed and marketed by AbbVie and Genentech and is approved for patients with AML, Chronic Lymphocytic Leukemia (CLL), and Small Lymphocytic Leukemia (SLL). Despite its approval in AML, venetoclax has produced low response rates of 19% as a single agent in R/R AML.[1] This is due in part to the type of AML, risk factors, and cytogenetics of this patient population. The Phase 2 trial results, together with a synergistic mechanism of action with venetoclax demonstrated in pre-clinical studies, are driving this combination trial with an initial focus on the high unmet needs of R/R patients including those who have relapsed or do not respond to treatment with venetoclax based regimens.

1 Aldosset al. Efficacy of the combination of venetoclax and hypomethylating agents in relapsed/refractory acute myeloid leukemia. Haematologica2018.1888094.

About Actinium's CD33 Program

Actinium's CD33 program is evaluating the clinical utility of Actimab-A, an ARC comprised of the anti-CD33 mAb lintuzumab linked to the potent alpha-emitting radioisotope Actinium-225 or Ac-225. CD33 is expressed in the majority of patients with AML and myelodysplastic syndrome, or MDS, as well as patients with multiple myeloma. The CD33 development program is driven by data from over one hundred treated patients, including a Phase 1/2 trial where Actimab-A produced a remission rate as high as 69% as a single agent. This clinical data is shaping a two-pronged approach for the CD33 program, where at low doses the Company is exploring its use for therapeutic purposes in combination with other modalities and at high doses for use for targeted conditioning prior to bone marrow transplant. Actinium currently has multiple clinical trials ongoing including the Phase 1 Actimab-A CLAG-M and Phase 1/2 Actimab-A venetoclax combination trials and is exploring additional CD33 ARC combinations with other therapeutic modalities such as chemotherapy, targeted agents or immunotherapy.

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. More information on this Phase 3 clinical trial can be found at www.sierratrial.com. I-131 apamistamab will also be studied as a targeted conditioning agent in a Phase 1 study with a CD19 CAR T-cell therapy and in a Phase 1/2 anti-HIV stem cell gene therapy with UC Davis. 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 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 130 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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