January 13, 2021

Actinium and Astellas Announce Research Collaboration Focused on Novel Actinium-225 Based Targeted Radiotherapies

- Builds the collaboration utilizing Actinium's Antibody Warhead Enabling (AWE) Technology Platform with selected Astellas targeting agents

NEW YORK, Jan. 13, 2021 /PRNewswire/ --**Actinium Pharmaceuticals, Inc.** (NYSE AMERICAN: ATNM) ("Actinium") today announced the research collaboration with Astellas Pharma Inc. (TSE:4503) ("Astellas") to develop novel targeted radiotherapies using its Antibody Warhead Enabling (AWE) technology platform. Under this agreement, Actinium will utilize its AWE Platform technology to develop and characterize selected Astellas targeting agents labeled with the potent alpha-emitting radioisotope Actinium-225 (Ac-225). This collaboration is a component of Astellas' internal initiative to develop theranostics as part of its Rx+ ® business (For more information, please visit https://www.astellas.com/en/news/16356).

"We are excited to execute on this research collaboration with Astellas, a global leader at the forefront of healthcare innovation," stated Dr. Dale Ludwig, Chief Scientific and Technology Officer of Actinium. "Targeted radiotherapy has a highly differentiated mechanism of action with the potential to address multiple disease indications and therefore has been an area of significant exploration and investment of late. Through our AWE technology platform, we are able to bring our significant know-how in working with Actinium-225, as well as our robust clinical experience with targeted radiotherapies and supply chain to bear in this collaboration. With our enhanced laboratory capabilities and the expertise of our R&D team, we are well positioned to execute on this collaboration with Astellas as well as our own R&D strategy, to complement our Iomab-B and Actimab-A clinical programs."

The intellectual property encompassing Actinium's AWE technology platform covers its gold standard linker technology, methods of ARC manufacture in addition to methods of use for ARCs in multiple diseases, including indication, dose and scheduling, radionuclide warhead, and therapeutic combinations. Actinium's AWE technology patent portfolio includes 30 patent families comprised of over 135 issued or pending global patent applications, of which 10 are issued and 24 pending in the United States.

Sandesh Seth, Chairman and Chief Executive Officer of Actinium, added, "Through our development efforts, Actinium has established itself as a leader in the field of Actinium-225 based targeted radiotherapies. We have amassed the most experience treating patients with Actinium-225 via our CD33 program's several Actimab-A trials and have gained important insights in developing targeted radiotherapies through the execution of the Actimab-A and also SIERRA Phase 3 pivotal trial for our lead asset, Iomab-B. This expertise and experience with radiopharmaceuticals has been invaluable to us and we believe will also be to Astellas in this collaboration. As Iomab-B and Actimab-A advance in the clinic with multiple clinical milestones upcoming from each of our trials, we look forward to executing this collaboration and furthering the field of targeted radiotherapy with Astellas."

About Our Antibody Warhead Enabling Platform Technology

The Antibody Warhead Enabling (AWE) Program has at its centerpiece the AWE Platform Technology. The Company's proprietary AWE Platform Technology is supported by intellectual property and know-how that enables the creation of Actinium-225 (Ac-225) Radio-Conjugates (ARCs) wherein a biomolecular targeting agent is stably labeled with the powerful Ac-225 payload to enhance targeted cell killing. The AWE Platform is protected by intellectual property covering the use of the "gold standard" chelator DOTA, and any conceivable derivative thereof. Additionally, Actinium holds intellectual property protection covering methods of chelation or labeling of the targeting agent with Ac-225, including newer next-generation methodologies for chelation of Ac-225.

The AWE Program is structured to provide the opportunity for partners or collaborators to derive maximum value from a collaboration by leveraging Actinium's extensive technical know-how, access to its ARC drug development infrastructure and to its underlying AWE Platform Technology. The AWE Program provides a partner or collaborator with access to Actinium's knowledge bank and infrastructure allowing collaborators to benefit from accelerated development timelines for its ARCs.

To learn more about the AWE Technology Platform or the AWE Program please contact our Business Development team at dludwig-bd@actiniumpharma.com.

About Astellas Pharma, Inc.'s Rx + ® Business

Rx+ ® business: A business that leverages the expertise and knowledge of Astellas, which has been cultivated through its prescription drug (Rx) business, integrates innovative medical technology with cutting-edge technology in different fields, contributes to patients through Patient Journey (overall medical care, including diagnostic, preventive, therapeutic, and prognostic care), and creates new revenue streams separate from Astellas' core Rx products. For more information, please visit https://www.astellas.com/en/partnering/rx-plus.

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 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 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 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 100 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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