Sierra Oncology Signs Exclusive Global In-Licensing Agreement with AstraZeneca for Novel BET Inhibitor to Expand Myelofibrosis Pipeline

—Combination study to build upon momelotinib's differentiated potential as a cornerstone myelofibrosis therapy—

SAN MATEO, CA, August 4, 2021 - Sierra Oncology, Inc. (NASDAQ: SRRA), a late-stage biopharmaceutical company on a mission to deliver targeted therapies that treat rare forms of cancer, today announced it has acquired an exclusive global license from AstraZeneca (LSE/STO/NASDAQ: AZN) for AZD5153, a potent and selective BRD4 BET inhibitor with a novel bivalent binding mode. Sierra plans to initiate a Phase 2 study examining momelotinib in combination with AZD5153 in myelofibrosis patients in the first half of 2022.

"This global in-licensing deal is of two-fold importance to Sierra's long-term strategy. First, it brings another novel compound into the Sierra development pipeline, expanding our opportunity to deliver transformative therapies for patients with rare cancers. Second, it may allow us to enhance and extend our ability to treat myelofibrosis patients, building on momelotinib's potential as a cornerstone therapy," said Stephen Dilly, MBBS, PhD, President and Chief Executive Officer at Sierra Oncology.

Inhibitors of the Bromodomain and Extra-terminal Domain (BET protein family consisting of BRD2, BRD3, BRD4 and BRDT) can modify a range of pathological cellular processes, including the initiation and continuation of transcription and cell cycle control. BET inhibition can lead to decreased inflammatory cytokine release, anti-fibrotic activity and reduced mutant cell proliferation, all of which are indicative of disease-modifying effects. Several BET inhibitors are under clinical investigation in multiple solid tumor and hematologic indications, including myelofibrosis.

AZD5153 is a selective BRD4 inhibitor with a novel bivalent binding mode that inhibits both protein bromodomains, resulting in improved potency. Unlike currently available JAK inhibitors, momelotinib is not myelosuppressive, therefore the combination of momelotinib and AZD5153 may provide an efficacy and safety advantage over other JAK inhibitor plus BET inhibitor combinations and allow for prolonged dose intensity and treatment duration. This trial will be designed to provide preliminary proof of concept for a future confirmatory study and support potential additional studies of momelotinib with other novel agents in development for myelofibrosis. Trial initiation is anticipated to begin in the first half of 2022.

Mark Kowalski, MD, PhD, Chief, Early Research and Development at Sierra added, "*The combination of JAK inhibition and BET inhibition has been identified as a promising emergent approach for the treatment of myelofibrosis. However, currently available JAK inhibitors are myelosuppressive, leaving a critical unmet need for patients with anemia or those at risk of developing treatment-emergent anemia. Given momelotinib's unique mechanism as an inhibitor of ACVR1 / ALK2 in addition to JAK1 and JAK2, we are excited by the potential for improved outcomes for myelofibrosis patients with this promising combination."*

Deal Terms

Under the terms of the agreement, Sierra will pay AstraZeneca an upfront payment, as well as certain pre-determined development, regulatory and commercial milestones. In addition, Sierra will provide tiered royalty payments based on future commercial success. Sierra will be responsible for the initial Phase 2 trial execution and all future global development and commercialization activities.

Conference Call & Webcast

In connection with this announcement, Sierra will host a conference call and webcast today, August 4, 2021, at 5:00 pm ET. The call may be accessed by calling (844) 200-6205 (Toll-free in North America) or +44 208 0682 558 (International Dial-in) and entering the Conference ID number: 956684. The call will be webcast live and will be accessible through the Investor section of the Company's website at www.SierraOncology.com. An archived replay of the webcast will be made available at the same location.

About Momelotinib

Momelotinib is a selective and orally bioavailable JAK1, JAK2 and ACVR1 / ALK2 inhibitor for the potential treatment of myelofibrosis. Myelofibrosis results from dysregulated JAK-STAT signaling and is characterized by constitutional symptoms, splenomegaly (enlarged spleen) and progressive anemia.

Momelotinib is currently under investigation in the MOMENTUM clinical trial, a global, randomized, double-blind Phase 3 study for symptomatic and anemic myelofibrosis patients. Top-line data are anticipated in Q1 2022. The U.S. Food & Drug Administration has granted Fast Track designation for momelotinib.

About Sierra Oncology

Sierra Oncology is a late-stage biopharmaceutical company on a mission to deliver targeted therapies that treat rare forms of cancer. We harness our deep scientific expertise to identify compounds that target the root cause of disease to advance targeted therapies with assets on the leading edge of cancer biology. Our team takes an evidence-based approach to understand the limitations of current treatments and explore new ways to change the cancer treatment paradigm. Together we are transforming promise into patient impact.

For more information, visit www.SierraOncology.com.

Cautionary Note on Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, including, but not limited to, statements regarding Sierra Oncology's expectations regarding the commercialization and future success of momelotinib and future expansion of its pipeline, the potential of AZD5153 including its impact on Sierra Oncology's ability to treat myelofibrosis patients and its potential safety and efficacy advantages when combined with momelotinib, the timing of Sierra Oncology's initiation of a Phase 2 study examining momelotinib in connection with AZD5153, including the timing of enrollment and the expected timing for top-line data in the MOMENTUM clinical trial. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. These statements are based on management's current expectations and beliefs and are subject to a number of risks, uncertainties and assumptions that could cause actual results to differ materially from those described in the forward-looking statements. Such

forward-looking statements are subject to risks and uncertainties, including, among others, the risk that Sierra Oncology may not be able to successfully develop, obtain regulatory approval for and commercialize momelotinib or experience significant delays in doing so, Sierra Oncology may not be able to demonstrate acceptable safety and efficacy of momelotinib and momelotinib in combination with AZD5153, the risk that disruptions and impacts of COVID-19 will be significant and lengthy, Sierra Oncology's cash resources may be insufficient to fund its current operating plans and it may be unable to raise additional capital when needed, Sierra Oncology may be unable to acquire additional assets to build a pipeline of additional product candidates, Sierra Oncology's third-party manufacturers may cause its supply of materials to become limited or interrupted or fail to be of satisfactory quantity or quality, Sierra Oncology may be unable to obtain and enforce intellectual property protection for its technologies and momelotinib and the other factors described under the heading "Risk Factors" set forth in Sierra Oncology's filings with the Securities and Exchange Commission from time to time. Sierra Oncology undertakes no obligation to update the forward-looking statements contained herein or to reflect events or circumstances occurring after the date hereof, other than as may be required by applicable law.

For Further Information:

Investor Contact

DeDe Sheel
415.732.9828
dsheel@sierraoncology.com

Media Contact

Lauren Musto
615.351.7777
lmusto@sierraoncology.com

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