Sierra Oncology Announces Momelotinib Achieved Statistically Significant Benefit on Symptoms, Anemia and Splenic Size in the Pivotal MOMENTUM Study for Myelofibrosis

—New Drug Application submission planned for second quarter of 2022—
—Full data set to be presented at an upcoming medical meeting—

SAN MATEO, Calif., January 25, 2022 - Sierra Oncology, Inc. (NASDAQ: SRRA), a late-stage biopharmaceutical company dedicated to delivering targeted therapies for rare cancers, today announced positive topline data from the pivotal Phase 3 MOMENTUM study—a global, randomized, double-blind clinical trial evaluating momelotinib (MMB) in myelofibrosis patients who are symptomatic and anemic and previously treated with an approved JAK inhibitor. The trial met all of its primary and key secondary endpoints.

"These data are extremely exciting and everything we had hoped to see from the trial," said Stephen Dilly, MBBS, PhD, President and Chief Executive Officer of Sierra Oncology. *"To achieve statistically significant and clinically important efficacy across all prespecified primary and key secondary endpoints while maintaining platelet counts in such a difficult to treat patient population is remarkable, and a confirmation of the anemia response we identified in the comprehensive review of our previous Phase 3 studies."*

Topline data announced based on 195 patients (MMB n = 130; DAN n = 65) include:

- Primary Endpoint of Total Symptom Score (TSS) of ≥50%: 25% in the MMB arm vs. 9% in the control arm (p=0.0095)
- Secondary Endpoint of Transfusion Independence (TI): 31% in the MMB arm vs. 20% in the control arm (one-sided p=0.0064; non-inferiority)
- Secondary Endpoint of Splenic Response Rate (SRR) ≥35%: 23% in the MMB arm vs. 3% in the control arm (p=0.0006)
- The rate of Grade 3 or worse adverse events in the randomized treatment period was 54% in the MMB arm and 65% in the control arm. Serious treatment emergent adverse events were 35% in the MMB arm and 40% in the control arm.
- Mean baseline characteristics for all patients were TSS of 27, Hemoglobin (Hgb) of 8 g/dL and platelet count of 145 x 10^9/L
- The full data set will be presented at an upcoming medical meeting

"As a clinician, I am thrilled to see data that confirm the potential of momelotinib as a treatment option for myelofibrosis patients who are anemic or at risk of becoming anemic," said Ruben Mesa, MD, FACP, Executive Director of the Mays Cancer Center, home to UT Health San Antonio, MD Anderson Cancer Center, and co-Principal Investigator of the study. *"Anemia of myelofibrosis is strongly correlated with reduced quality of life and a decrease in overall survival. Half of all myelofibrosis patients present with anemia at diagnosis and virtually all become anemic over time. With currently approved therapies being myelosuppressive, it's wonderful to know that we may soon have such an effective treatment option for these patients."*

Barbara Klencke, MD, Chief Medical Officer of Sierra Oncology, stated, *"We are committed to working tirelessly to bring momelotinib to patients as quickly as possible. We would like to thank*

the patients and investigators who participated in this study and look forward to presenting the full data set at an upcoming medical meeting."

Conference Call & Webcast
In connection with this announcement, Sierra will host a conference call and webcast on Tuesday, January 25, 2022, at 8:00 am ET. The call may be accessed by calling (833) 927-1758 (Toll-free in North America) or +1 (929) 526-1599 (International Dial-in) and entering the Conference ID number: 007608. 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 potent, selective and orally bioavailable JAK1, JAK2 and ACVR1 / ALK2 inhibitor under investigation for the treatment of myelofibrosis in symptomatic, anemic patients previously treated with an approved JAK inhibitor. More than 1,200 subjects have received momelotinib since clinical studies began in 2009, including approximately 1,000 patients treated for myelofibrosis, several of whom remain on treatment for over 11 years. Momelotinib is the first and only JAK inhibitor to demonstrate positive data for all key hallmarks of the disease—symptoms, splenic response and anemia.

About Myelofibrosis
Myelofibrosis is a rare blood cancer that results from dysregulated JAK-STAT signaling and is characterized by constitutional symptoms, splenomegaly (enlarged spleen) and progressive anemia. From prior studies with momelotinib, we know approximately half of myelofibrosis patients are moderately to severely anemic when eligible for JAK inhibitor treatment. Furthermore, currently approved JAK inhibitors only address symptoms and splenomegaly and are myelosuppressive. This can lead to worsening anemia, resulting in dose reductions that potentially reduce treatment effect.

About the Pivotal MOMENTUM Clinical Trial
MOMENTUM is a global, randomized, double-blind Phase 3 clinical trial of momelotinib versus danazol in patients with myelofibrosis who were symptomatic and anemic, and had been previously treated with an FDA-approved JAK inhibitor. The study was designed to evaluate the safety and efficacy of momelotinib for the treatment and reduction of the key hallmarks of disease: symptoms, blood transfusions (due to anemia) and splenomegaly (enlarged spleen).

The primary endpoint of the study is Total Symptom Score (TSS) reduction of ≥50% over the 28 days immediately prior to the end of Week 24 compared to baseline TSS, using the Myelofibrosis Symptom Assessment Form (MFSAF). Secondary endpoints included Transfusion Independence (TI) rate for ≥12 weeks immediately prior to the end of Week 24 with Hgb levels ≥ 8 g/dL, and Splenic Response Rate (SRR) based on splenic volume reduction of ≥35% at Week 24. The study enrolled 195 patients based on a planned 180 patients across 21 countries.

Danazol was selected as the treatment comparator given its use to ameliorate anemia in patients with myelofibrosis, as recommended by National Comprehensive Cancer Network (NCCN) and European Society of Medical Oncology (ESMO) guidelines. Patients were randomized 2:1 (MMB n = 130 and DAN n = 65) to receive either momelotinib or danazol. After 24 weeks of treatment,

patients on danazol were allowed to crossover to receive momelotinib. Early cross-over to momelotinib was available for confirmed symptomatic splenic progression.

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 regulatory timeline, presentation of the results of the MOMENTUM trial, commercialization and future success of momelotinib, the company's potential opportunity in myelofibrosis, the company's ability to identify compounds and statements by the company's Chief Medical Officer and the Executive Director of the Mays Cancer Center. 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 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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