June 1, 2015

# Onconova Presents Clinical Data on Rigosertib in Higher-Risk Myelodysplastic Syndromes (HR-MDS) at the 2015 ASCO Annual Meeting

## Data Support Planned Phase 3 Pivotal Trial in HR-MDS

NEWTOWN, Pa., June 1, 2015 (GLOBE NEWSWIRE) -- Onconova Therapeutics, Inc. (Nasdaq:ONTX), a clinical-stage biopharmaceutical company focused on discovering and developing novel products to treat cancer, today announced the presentation of clinical data on rigosertib in HR-MDS at the 2015 American Society of Clinical Oncology (ASCO) Annual Meeting in Chicago, IL, May 29 - June 2, 2015.

The poster presentations by Dr. Lewis R. Silverman of Mount Sinai Hospital and his co-authors provide detailed results from the Phase 3 ONTIME trial of IV rigosertib in HR-MDS, highlighting important subgroups and prognostic factors favoring activity of rigosertib in HR-MDS patients previously treated with hypomethylating agents (HMAs). The significance and brief summaries of the presentations are listed below.

"These clinical data provide the foundation for the design of a new pivotal study in HR-MDS by identifying patients who are likely to respond to IV rigosertib," said Ramesh Kumar, Ph.D., President and CEO of Onconova. "We continue to anticipate, pending receipt of appropriate financing, initiating this Phase 3 trial in 2015."

**International Prognostic Scoring System-Revised (IPSS-R) provides an objective predictor of survival benefit in post-HMA HR-MDS patients treated with IV rigosertib**

**Abstract number:** 7092
**Title:** Prognostic and predictive value of IPSS-R in assessing overall survival (OS) in a phase III study of rigosertib in second-line higher-risk (HR) MDS patients.
**Time and location:** May 31, 8:00 AM - 11:30 AM, McCormick Place, S Hall A
**Summary:** A subgroup analysis of the ONTIME trial revealed a significant survival advantage for patients in the revised International Prognostic Scoring System (IPSS-R) Very High Risk category (IPSS-R calculates a risk score for MDS patients based on the location and type of chromosome abnormalities, number and degree of cytopenias, and percentage of bone marrow blasts observed at diagnosis). Among the 134 patients (45% of patients in the trial) who were in the IPSS-R Very High Risk category, median overall survival was 7.6 months in the rigosertib arm (93 patients) compared to 3.2 months in the best supportive care arm (41 patients), with a hazard ratio of 0.56 (95% confidence interval 0.37,0.84; p=0.005). Baseline characteristics among IPSS-R Very High Risk patients, including primary HMA failure, FAB classification, ECOG performance status, bone marrow blast percentage, hemoglobin levels, platelet count and neutrophil count also correlated with better survival with IV rigosertib. These characteristics and IPSS-R are being incorporated into the design of a new Phase 3 trial for IV rigosertib in HR-MDS.
**Note:** This poster was selected for the Poster Discussion Session where the lead author, Dr. Lewis R. Silverman, provided highlights of the data and discussed their implications for future studies. The Poster Discussion Session was held on May 31, 11:30 - 12:45 AM at McCormick Place, S Hall A.

**Interim assessment of bone marrow blast response may serve as an intermediate clinical endpoint for survival benefit evaluation of novel therapeutic agents in HR-MDS**

**Abstract number:** 7017
**Title:** Correlation of overall survival (OS) with bone marrow blast (BMBL) response in patients (pts) with myelodysplastic syndrome.
**Time and Location:** May 31, 8:00 AM - 11:30 AM, McCormick Place, S Hall A
**Summary:** A correlation between overall survival and bone marrow blast response was established through a retrospective analysis of 887 patients from seven clinical trials, including the Phase 3 ONTIME trial, as well as Phase 2 and 3 randomized studies with azacitidine. The analysis of these studies, spanning more than a decade and with different therapeutic agents, demonstrated a consistent positive correlation between BMBL response and overall survival in HR-MDS patients. These findings suggest BMBL can be used as an early response parameter for novel therapeutics under development in HR-MDS, such as IV rigosertib.

**About Onconova Therapeutics, Inc.**

Onconova Therapeutics is a clinical-stage biopharmaceutical company focused on discovering and developing novel products

to treat cancer. Onconova's clinical and pre-clinical stage drug development candidates are derived from its extensive chemical library and are designed to work against specific cellular pathways that are important in cancer cells, while causing minimal damage to normal cells. In addition to rigosertib, the Company's most advanced product candidate, two other candidates are clinical stage, and several candidates are in pre-clinical stages. For more information, please visit http://www.onconova.com.

**About Rigosertib**

Rigosertib is a small molecule that inhibits cellular signaling by acting as a Ras mimetic. This is believed to be mediated by direct binding of rigosertib to the Ras-binding domain (RBD) found in many Ras effector proteins, including the Raf kinases and PI3K. The initial therapeutic focus for rigosertib is myelodysplastic syndromes (MDS), a group of bone marrow disorders characterized by ineffective formation of blood cells that often converts into acute myeloid leukemia (AML). Clinical trials with intravenous (IV) and oral formulations of rigosertib are being conducted at leading institutions in the U.S. and Europe.

**About the ONTIME Trial**

The ONTIME Trial, a Phase 3 multi-center, randomized, controlled study, assessed the efficacy and safety of rigosertib 72-hour continuous intravenous infusion plus best supportive care (BSC) compared to BSC alone, in higher-risk MDS patients with excess blasts (5% to 30% bone marrow blasts), who had progressed on, failed or relapsed after treatment with HMAs. Results of stratified and exploratory subgroup analyses, demonstrating heterogeneity in the study population, were presented at the 2014 American Society of Hematology Annual Meeting (Garcia-Manero et al., Abstract 163). The ONTIME trial did not meet its primary endpoint in the intent-to-treat population, but improvements in median overall survival (mOS) were observed in various pre-specified and exploratory subgroups of patients, including "primary HMA failure" patients (those who had progressed on or failed to respond to previous treatment with HMAs) and patients in the Revised International Prognostic Scoring System (IPSS-R) Very High Risk category (IPSS-R calculates a risk score for MDS patients based on the location and type of chromosome abnormalities, number and degree of cytopenias, and percentage of bone marrow blasts observed at diagnosis). Among the 184 patients (62% of patients in the trial) with primary HMA failure, mOS was 8.6 months in the rigosertib arm (127 patients) compared to 5.3 months in the best supportive care arm (57 patients), with a hazard ratio of 0.69 and a p value of 0.040. Among the 134 patients (45% of patients in the trial) who were in the IPSS-R Very High Risk category, mOS was 7.6 months in the rigosertib arm (93 patients) compared to 3.2 months in the best supportive care arm (41 patients), with a hazard ratio of 0.56 and a p value of 0.005. Further, the safety and tolerability of rigosertib IV in the ONTIME trial was acceptable.

**Forward Looking Statements**

Some of the statements in this release are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, Section 21E of the Securities Exchange Act of 1934, as amended, and the Private Securities Litigation Reform Act of 1995, which involve risks and uncertainties. These statements relate to future events or Onconova Therapeutics, Inc.'s future operations, clinical development of Onconova's product candidates and presentation of data with respect thereto, regulatory approvals, expectations regarding the sufficiency of Onconova's cash and other resources to fund operating expenses and capital expenditures, Onconova's anticipated milestones and future expectations and plans and prospects. Although Onconova believes that the expectations reflected in such forward-looking statements are reasonable as of the date made, expectations may prove to have been materially different from the results expressed or implied by such forward-looking statements. Onconova has attempted to identify forward-looking statements by terminology including "believes," "estimates," "anticipates," "expects," "plans," "intends," "may," "could," "might," "will," "should," "approximately" or other words that convey uncertainty of future events or outcomes. These statements are only predictions and involve known and unknown risks, uncertainties, and other factors, including those discussed under the heading "Risk Factors" in our most recent Annual Report on Form 10-K and quarterly reports on Form 10-Q.

Any forward-looking statements contained in this release speak only as of its date. We undertake no obligation to update any forward-looking statements contained in this release to reflect events or circumstances occurring after its date or to reflect the occurrence of unanticipated events.

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