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Onconova and DoD Collaborators Publish Research Demonstrating Increased Survivability of Previously Lethal Radiation in Mice with New Radioprotective Drug Ex-RAD™

- Publication in *Radiation Research* Details Novel Mechanism of Action: Enhancement of the Cell's Ability to Repair DNA Damaged by Irradiation –
- Proof of Concept Supports Ongoing Phase 1 Trial Announced Today –

JANUARY 23, 2009 – LAWRENCEVILLE, NJ – Onconova Therapeutics, Inc. announced today the publication of *in vivo* research findings in *Radiation Research* exploring the mechanism of action and impact on cells of Ex-RAD™, the company's first-in-class radiation protection drug for both prophylactic and therapeutic applications. The study was a collaboration of Onconova with researchers at the Armed Forces Radiobiology Research Institute (AFRRI), a Department of Defense (DoD) organization whose mission includes research on the prevention and treatment of radiation injuries. *Radiation Research* is a peer-reviewed journal of the Radiation Research Society of America.

The findings provide proof of concept for the Onconova's Phase I clinical trial of Ex-RAD™ in normal healthy volunteers, announced today.

In the *Radiation Research* article, "Radiation Protection by a New Chemical Entity Ex-RAD™: Efficacy and Mechanisms," scientists from AFRRI and Onconova reported that Ex-RAD™ promoted survival of lethally irradiated mice. Treated mice could withstand lethal doses of gamma radiation. The study also showed that Ex-RAD™ -treated cells could withstand more radiation than untreated cells.

Dr. Manoj Maniar, Senior Vice President, Product Development, of Onconova said that the researchers used various methods to decipher Ex-RAD's molecular mechanism of action. The findings reported in this paper suggest that:

- Ex-RAD™ enhances the cell's ability to repair damaged DNA.
- Ex-RAD™ rescues cell from p53 mediated cell death induced upon exposure to radiation.
- Ex-RAD™ treatment leads to a reduction in the amount of proteins involved in the cell death (apoptotic) pathways.

The study was carried out under a Cooperative Research and Development Agreement (CRADA) among The Uniformed Services University of the Health Sciences which includes AFRRRI, led by Col. Patricia Lillis-Hearne, Director; an institution of higher learning within the DoD, an agency of The United States Government; The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc., a private, not-for-profit organization that supports medical research and education at the university and the military medical community; and Onconova.

About Ex-RAD™

Ex-RAD™ is a novel, synthetic, low molecular weight compound with a demonstrated protection from DNA damage and programmed cell death (apoptosis). Ex-RAD™ also protects bone marrow stem cells, gastrointestinal crypt cells, and peripheral blood cells from radiation lethality. The compound significantly enhances survival rates, when administered prophylactically or therapeutically, in model *in vivo* systems of Acute Radiation Syndrome.

Onconova's Product-Pipeline

Onconova is developing therapeutic candidates directed at critical targets involved in signal transduction, cell-cycle and DNA repair. These candidates are derived from the Company's proprietary library of new chemical entities and non-ATP competitive chemotypes. In addition to Ex-RAD™, the company is developing ON 01910.Na, a novel broad spectrum anticancer agent, now in Phase II trials. Other promising programs include regulators of Cyclin D, ON 013105 (in Phase I), and inhibitors of JAK and Bcr-abl pathways.

About Onconova Therapeutics, Inc.

Onconova, with offices in Newtown, PA and Lawrenceville, NJ, discovers and develops novel, small molecule therapeutic agents for cancer, radiation protection and hematological disorders. Employing a proprietary chemical library platform, Onconova has discovered non-ATP competitive kinase inhibitors directed at validated and novel targets, and is developing a new immunoconjugate technology (comprising potent active compounds and proprietary linkers) that arm monoclonal antibodies for cancer therapy. All of the Company's products and technologies are being developed internally.

For more information on Onconova Therapeutics, Inc., please visit www.onconova.com.

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