

13th Annual Force Health Protection Conference, 10-13 August 2010, Phoenix, Arizona
Track: Health Physics and Nuclear/Radiological Medical Sciences
Poster Session

Oral Administration of Ex-RAD® - *In vivo* Efficacy in Radioprotection and Radiomitigation Models

Manoj Maniar¹, Kamal Datta², Bo-Hyun Moon², Ramesh Kumar¹

¹ Onconova Therapeutics, Inc., 375 Pheasant Run, Newtown, PA 18940

² Georgetown University Medical Center, Department of Biochemistry and Molecular & Cellular Biology, 3970 Reservoir Rd NW, Washington, DC 20057

Relevance: Radiological terrorism threatens homeland security, with life-threatening irradiation risks to military personnel and civilians. Ex-RAD® is a small molecule developed by Onconova Therapeutics, in collaboration with AFRRI, for radioprotection. Subcutaneously-administered Ex-RAD® is at TRL-7B, with several completed clinical trials and established efficacy in two animal species. Here we report the effectiveness of orally-administered Ex-RAD®.

Methods: C3H/Hen mice (N = 10/group) received Ex-RAD® (or vehicle) SC or PO, at -24h and -15min before 7.5Gy whole-body irradiation (WBI), to determine radioprotectant effects, and PO at +24h and +36h after WBI, to evaluate radiomitigation effects. Thirty-day survival was monitored.

Results: Oral Ex-RAD® was as effective as SC injections in protecting mice from lethal radiation when administered prophylactically. Similar protective effects were observed when administered post-radiation.

Conclusions: For the first time we demonstrate that Ex-RAD® is effective when administered orally. Ex-RAD® has potential for radiation mitigation, and being non-toxic, for wide use in general civilian populations.