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Introduction

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The terrorist attacks perpetrated on September 11, 2001 in the United States (US) prompted the US government to examine the potential for future incidents and, in so doing, identified the projected risk of detonation of either an improvised nuclear device (IND) or a radiological dispersal device (RDD) (Homeland Security Council 2006). Concern has remained at Federal, State, and local levels, since there is compelling evidence that terrorist groups continue to pursue the acquisition of nuclear or radiological devices to use against civilians (Hafer 2010, Statement 2011).

Different radiological scenarios would produce very different levels of injury with respect to population numbers, with the potential for only moderate or even no casualties following an RDD, versus mass casualties after an IND. Currently, however, should such an event occur, there are very limited options available for rapid assessment of radiation dose or injury, or for treatment of victims. When faced with a large affected population, the options are even more limited. Therefore, as part of the efforts to prepare for such events, the US government initiated several programs aimed at minimizing both the threat and impact of future attacks. For example, through the Project Bioshield Act of 2004 (US Public Law 108-276), the US National Institutes of Health (NIH) established the Centers for Medical Countermeasures against Radiation (CMCR) program in 2005, under the purview of the National Institute of Allergy and Infectious Diseases (NIAID). The goals of the CMCR program, now in its second funding period, include identification and development of medical countermeasures to assess, diagnose, mitigate, and treat the immediate and long-term effects of radiation exposure in a civilian population.

This special issue of the *International Journal of Radiation Biology* is the first comprehensive collection of manuscripts illustrating the ongoing research efforts of the CMCR program, including translational drug and treatment investigations, biodosimetry and biomarkers research, model development, as well as basic mechanistic studies. As such, it provides a representation of the robust and varied portfolio of research supported by the parent NIH/NIAID program.

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