

Final Report for DOE Grant #DE-FG02-05EDR64139

"Radiation Research Symposium: Chemistry and Biology of Radical-mediated Deoxyribose Oxidation in DNA"

Project Director: Peter C. Dedon

Presented 10/19/06 at the Radiation Research Society Meeting in Denver

Executive Summary

The \$3000 of funding provided by this grant supported a well-attended (150 people) symposium at the annual Radiation Research Society meeting in Denver, Colorado, on October 19, 2005. The symposium was entitled, "Chemistry and Biology of Radical-mediated Deoxyribose Oxidation in DNA," and it focused on the chemistry of damage to deoxyribose caused by radiation and other oxidants, and the role of this chemistry in the biological consequences and responses of cells to chemical and physical insults. The talks highlighted the emerging evidence for a major role for deoxyribose oxidation in the toxic effects of ionizing radiation.

The symposium was comprised of four presentations by a highly diverse group of well-respected scientists who spoke on their latest research findings in a progression from chemistry to biology:

Prof. Amanda Bryant-Friedrich

Associated Professor, Department of Chemistry, Oakland University, Rochester, MI
Title: "The role of the C-3'-nucleotide radical in DNA damage"

Prof. Yuriy Razskazovskiy

Associate Professor, Department of Physics, East Tennessee State University, Johnson City, TN
Title: "5-Methylenefuranone releasing lesions in radiation-damaged DNA: Formation, quantification and thermal stability"

Prof. Peter Dedon

Professor and Associate Director, Biological Engineering Division, Massachusetts Institute of Technology, Cambridge, MA
Title "Chemical approaches to defining the biological consequences of radical-mediated deoxyribose oxidation in DNA"

Prof. Bruce Demple

Professor, Dept. of Genetics and Complex Disease, Harvard School of Public Health, Boston, MA
Title "Ape1, DNA polymerase-beta and the repair of oxidized abasic sites: Roadblocks, detours and divided highways"

The symposium accomplished the intended objective of stimulating interest and raising awareness of the important role played by deoxyribose oxidation in the toxic effects of exposure to ionizing radiation and other free radical-generating species.