

2007 Award Winners



In 2004, SFRBM created a new award for its senior investigators -- a "Discovery Award" which recognizes a significant advancement in the field. We continue to present a "Lifetime Achievement Award" which recognizes an aggregate body of work over the scientist's career.

SFRBM is pleased to present the association's 2007 Discovery Award to **Robert A. Floyd, Ph.D., F.O.S.** of the Oklahoma Medical Research Foundation and the Lifetime Achievement Award to **Ronald P. Mason, Ph.D.** of the National Institute of Environmental Health Sciences-National Institutes of Health (NIEHS/NIH).

SFRBM DISCOVERY AWARD RECIPIENT



Robert A. Floyd, Ph.D., F.O.S.

Robert A. Floyd, Ph.D. holds the Merrick Foundation Chair for Aging Research and is Head of Free Radical Biology and Aging Research Program at the Oklahoma Medical Research Foundation. He has adjunct professor appointment in the Department of Biochemistry and Molecular Biology at the University of Oklahoma Health Sciences Center. Dr. Floyd received his BS and MS degrees at the University of Kentucky and Ph.D. degree at Purdue University. His postdoctoral research was at the University of Pennsylvania with Dr. Britton Chance.

He began research in Free Radicals and Cancer at Washington University before coming to the OMRF in 1974 where he has conducted NIH-funded research on Free Radicals in age-related diseases. Dr. Floyd pioneered in the development and use of ultra sensitive methods to determine the levels of free radicals in tissues undergoing enhanced oxidative stress. These approaches yielded the early demonstrations that 8-hydroxy-2' deoxyguanosine was found during DNA oxidation damage and that brain ischemia/reperfusion insults caused enhanced salicylate trapping of hydroxyl free radicals in the lesioned brain regions. These observations were pivotal in helping to evaluate the role of free radicals in cancer development and in stroke-mediated damage to the brain respectively.

Dr. Floyd's research using the PBN-based nitrones to trap and characterize tissue free radicals serendipitously led to the discoveries that these nitrones have neuroprotective activity in stroke and in cancer development. Based on these discoveries, he has subsequently been very active in helping to ascertain if proprietary derivatives of these agents could be useful in the treatment of stroke and in cancer development.

Dr. Floyd is one of the founding members of SFRBM (formally the Oxygen Society) and continues to be an active fellow member of the society.

SFRBM LIFETIME ACHIEVEMENT RECIPIENT



Ronald P. Mason, Ph.D.

Ronald P. Mason received his B.A. in Chemistry, Cum Laude, from the University of California at Riverside, his Ph.D. in Chemistry (physical), from the University of Wisconsin-Madison, and was a Postdoctoral Fellow at Cornell University, Ithaca, New York. In 1978, he joined the National Institute of Environmental Health Sciences, National Institutes of Health, Research Triangle Park, NC as a research chemist. At present, he is a Senior Investigator and Head of the Free Radical Metabolite Section in the Laboratory of Pharmacology and Chemistry.

Dr. Mason has devoted his career to the detection and study of free radicals derived from or dependent on the metabolism of toxic chemicals, drugs and biomolecules. Dr. Mason's original training was in electron spin resonance (ESR) spectroscopy, which is the only general, but yet selective, method for the detection of free radicals. Although this technique is predominantly used in the fields of chemistry and physics,

Dr. Mason's ESR investigations of free radical metabolites have covered a broad range of topics in the biomedical sciences including the fields of biochemistry, pharmacology and toxicology. He has made several ground breaking discoveries related to the role of nitroreductase in drug toxicity and the free radical post-translational modification of proteins. In addition, he has pioneered studies of in vivo spin trapping of free radical metabolites in whole animals. Using experimental rodent models, Dr. Mason's group has been very successful and productive in in vivo detection of the free radical mechanisms of diseases such as endotoxin-induced acute respiratory distress syndrome, alcohol-induced liver damage, and diabetes mellitus.

Recently, Dr. Mason has invented an immunoassay for detecting free radicals that brings the power of immunological techniques to bear on free radical biology. This approach has led to studies of protein radicals and DNA damage which have been validated by careful comparison with ESR results. In conjunction with mass spectrometry, this approach can determine the exact location of protein free radical formation. ELISA experiments have detected DNA radicals in cultured cells, and confocal fluorescence experiments have localized free radical formation to specific cell organelles. The immuno-free radical assay has been found to be advantageous over ESR due to orders-of-magnitude higher sensitivity than ESR, the need to use only one-thousandth of the sample size, and the ability to analyze multiple samples simultaneously. Lastly, expensive ESR instruments and, even more rare, the quantum mechanical expertise needed for ESR analyses are no longer required, which democratizes rigorous free radical detection.

Dr. Mason has managed to bring to his research a high level of creativity and excitement that has yielded a highly productive program. This program has prepared numerous members of his research group for careers in academic, government and industrial research.

Dr. Mason is a world-renowned and valued member of the world community of ESR spectroscopists, who recognized his work on free radical metabolism with his selection as the 1996 recipient of the prestigious International ESR Society Silver Medal. Dr. Mason is also the 1994 recipient of the Southern Chemist Award and Gold Medal given by the Southeast Region of the American Chemical Society. In 2006, he was recognized as Scientist of the Year by NIEHS. Mason has made major contributions to the field of free radical biology, medicine, and molecular toxicology. He is an accomplished professional, a dedicated scientist, and an effective mentor.