

Meeting Report

International Cell Death Society Annual Meeting 2009

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Cell Death in Infectious Diseases and Cancer Johannesburg South Africa, 5–8 June 2009

The 2009 Annual Meeting of the International Cell Death Society (ICDS) (<http://www.celldeath-apoptosis.org>) was held in Johannesburg, South Africa, from 5 to 8 June 2009. More than 150 scientists from 23 countries participated in the meeting, which was organized by Zahra Zakeri, Richard A Lockshin, and Marianne J Cronje. Scientific presentations included over 40 abstracts and 40 invited talks on new and innovative discoveries in basic, clinical, and translational research in cell death in cancer and infectious disease. The meeting also featured a lively and interactive educational session that featured 'women in science' that highlighted a broad perspective from active researchers in both western and developing countries.

The program began with awards to Marie-Lise Gougeon (Institute Pasteur, Paris, France) and Doug Green (St. Jude's Children's Hospital, Memphis, TN, USA) presented by Richard Lockshin (St. John's University, Queens, NY, USA). Each year, the ICDS gives recognition awards to meritorious scientists in the field of cell death. Dr. Gougeon outlined the history of the discovery of HIV in relation to apoptosis, and the molecular pathways that lead to the upregulation of Fas-L and HMGB1, inducing bystander apoptosis. Dr. Green outlined the seminal discoveries that linked mitochondria to cell death, and introduced a new pathway for mitochondrial apoptosis that involved sphingomyelin lipid metabolism in the endoplasmic reticulum, creating protein–lipid complexes that lead to Bax activation.

Several sessions focused on apoptosis pathways in cancer cells and how these pathways can be exploited for therapeutic benefit. Among the many interesting talks on this topic, several scientists emphasized a common emerging theme that apoptotic pathways can be reactivated in tumor cells for therapeutic benefit. Roya Khosravi-Far (Harvard Medical School, Boston, MA, USA) provided evidence that Apo-FLIP can engage DISC and activate TRAIL/DR5 signaling pathways, and on a similar note, Simone Fulda (University of Ulm, Germany) showed that cell-penetrating Smac peptides

can restore TRAIL pathways in XIAP-overexpressing cells. Finally, Scott Lowe (Cold Spring Harbor Laboratories, Cold Spring Harbor, NY, USA) elegantly showed that in MLL/ENL-expressing leukemia cells, a single shRNA to Myb can cure chemoresistance in AML, arguing that survival addiction in human cancers can be overcome by selectively targeting cell death pathways.

Several sessions also focused on the role of autophagy in both survival and death pathways in metazoan cells. Eileen White (Cancer Institute of New Jersey, New Brunswick, NJ, USA) introduced the apparent paradox that autophagy has both a tumor-promoting role in cancer by permitting dormancy under conditions of metabolic stress and a tumor-suppressive mechanism. The tumor-suppressing activity of autophagy is multifactorial and complex, and is highlighted by the fact that when autophagy is inhibited in tumor cells, damaged proteins and organelles lead to genetic instability and DNA damage. A series of talks subsequently followed addressing both pro-survival and pro-death end points for autophagy (Jeff McLean, Queens College, Flushing, NY, USA), and another general theme emerged that many microorganisms hijack apoptotic pathways for their replication and survival. Finally, Junying Yuan (Harvard University, Cambridge, MA, USA) gave an overview of the emerging field of necroptosis, a caspase-independent form of death that is dependent on the RIP1 kinase, and is strongly inhibited by necrostatins.

The meeting also highlighted the rapid pace of biomedical research in South Africa and neighboring countries. Several scientists participated from various institutions, and enthusiastically embraced collaborations and sharing of information. Stonard Kanyanda (AuTEK Biomed, Mintek, Johannesburg, South Africa) described efforts to isolate novel apoptotic modulators from various plants and animals in South Africa. This highly interactive meeting opened new avenues of research and collaborations, and provided a culturally enriching experience for all.

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