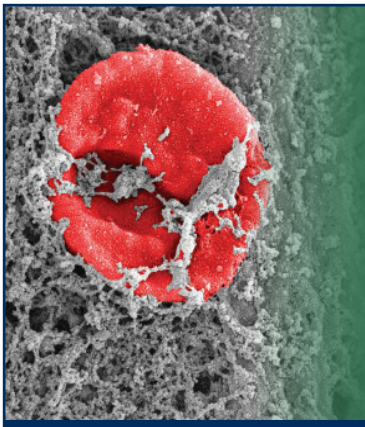

Cell Death and Inflammation

May 29–June 2, 2017 | Royal Dublin Society | Dublin | Ireland

Scientific Organizers:
Seamus J. Martin, Trinity College Dublin, Ireland
John Silke, Walter and Eliza Hall Institute of Medical Research, Australia

*Joint with the meeting on **Integrating Metabolism and Immunity***

Cell death has long been known to be an important instigator of inflammation in sterile injury, as well as an amplifying factor in infection-associated inflammation, but the specific molecules underpinning this remain obscure. Understanding how dead and dying cells initiate and escalate inflammation has important implications for our understanding and treatment of autoinflammatory and infectious diseases. This meeting will explore current knowledge concerning the cellular constituents that drive inflammation (i.e., damage-associated molecular patterns), as well as how abnormal modes of cell death, such as necrosis, necroptosis and NETosis, can perturb inflammatory outputs and responses to dying cells. In particular, the conference aims to explore gaps in our current understanding of how dead and dying cells influence inflammatory responses in disease settings and will bring together experts in two major research fields, "cell death" and "inflammation," for the purpose of clarifying what the key questions and therapeutic targets are in this rapidly evolving area. Many well-known physiological drivers of cell death (e.g., TNF, TRAIL, CD95/Fas), as well as the molecules that transduce signals from these receptors (e.g., RIPKs, IAPs, TRAFs, IKKs), are also centrally involved in promoting inflammation. However, the tremendous overlap between cell death and inflammatory signaling is only becoming appreciated of late, and although it is also widely accepted that the constituents of healthy cells can drive inflammation upon release into the extracellular space, the identity of these cellular constituents is still a matter of debate. This meeting will focus on teasing out the relationships between cell death and inflammatory signaling to highlight how perturbation of either of these processes invariably impacts upon the other. This meeting will also explore the nature of the molecules that promote and modulate inflammation during cell death. The meeting will bring together scientists from diverse fields (cell death, inflammation, cancer, innate immunity) that would not normally interact, and will identify and explore the key questions and directions that will shape the future of research in this field.

Session Topics:

- Inflammatory Responses to Cell Death I
- Inflammatory Responses to Cell Death II
- Inflammatory Signaling I
- Inflammatory Signaling II
- Tissue Responses to Dying Cells
- Stress Signals and Inflammation
- Alternative Cell Death Modalities and Inflammation
- Inflammation and Cancer

Scholarship Application & Discounted Abstract Deadline: January 31, 2017
Abstract Deadline: March 1, 2017
Discounted Registration Deadline: March 29, 2017

Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted.

Upper image courtesy of: National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), National Institutes of Health

Meeting Hashtag: #KScelldeath
www.keystonesymposia.org/17K2

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MONDAY, MAY 29

Arrival and Registration

TUESDAY, MAY 30

Welcome and Keynote Session (Joint)

*__Hongbo Chi__, St. Jude Children's Research Hospital, USA

*__Seamus J. Martin__, Trinity College Dublin, Ireland

Diane Mathis, Harvard Medical School, USA
T Cell Control of Organismal Metabolism

Ruslan M. Medzhitov, HHMI/Yale University School of Medicine, USA
Tissue Homeostasis and Inflammation

Inflammatory Responses to Cell Death I (K2)

*__Seamus J. Martin__, Trinity College Dublin, Ireland

Kenneth L. Rock, University of Massachusetts Medical School, USA
DAMPs and Inflammation

David Wallach, Weizmann Institute of Science, Israel
Non-Deadly Pro-Inflammatory Functions of Mechanisms that Signal for Programmed Necrosis

John Silke, Walter and Eliza Hall Institute of Medical Research, Australia
Beware the MLKL, the Jaws that Bite: Uffish Thoughts on the Role of Necroptosis and Inflammation

Stephen Tait, Cancer Research UK Beatson Institute, UK
Short Talk: Mitochondrial Permeabilization Engages NFkB and Anti-Tumor Immunity under Caspase-Deficient Conditions

Kate E. Lawlor, Walter and Eliza Hall Institute of Medical Research, Australia
Short Talk: Cell Death-Induced Inflammasome Activation: Mechanisms and Disease Relevance

Glucose Metabolism to Fuel Immune Cell Functions (E4)

*__Jeffrey C. Rathmell__, Vanderbilt University, USA
Glut1 and Metabolic Reprogramming of CD4 T Cell Subsets

Luke A. J. O'Neill, Trinity Biomedical Sciences Institute, Ireland
The Warburg Effect in LPS-Activated Macrophages

Edward J. Pearce, Max Planck Institute of Immunobiology and Epigenetics, Germany
Glucose Metabolism in Alternative Macrophage Activation

Thomas Weichhart, Medical University of Vienna, Austria
Short Talk: Metabolic Aspects of Granuloma Formation by Macrophages Regulated by mTORC1

Maxim Artyomov, Washington University in St. Louis, USA
Short Talk: Itaconate Links Inhibition of Succinate Dehydrogenase with Macrophage Metabolic Remodeling and Regulation of Inflammation

Workshop 1: Molecular Controls of Cell Metabolism in the Immune System (E4)

*__David K. Finlay__, Trinity Biomedical Sciences Institute, Ireland

*__Madhusudhanan Sukumar__, NCI, National Institutes of Health, USA

Carlos Carmona-Fontaine, New York University, USA
Metabolic Origins of Spatial Organization in the Tumor Microenvironment

Linda V. Sinclair, University of Dundee, Scotland
Temporally Regulated Amino Acid Uptake through SLC7A5 Is Required for T Follicular Helper Cell Differentiation

Roger Geiger, Institute for Research in Biomedicine, Switzerland
L-Arginine Modulates T Cell Metabolism and Enhances Survival and Anti-Tumor Activity

Dirk Brenner, Luxembourg Institute of Health, Luxembourg
Glutathione Primes T Cell Metabolism for Inflammation

G-One Ahn, Pohang University of Science and Technology, South Korea
Reduced Glycolytic Metabolism in Adipose-Tissue Macrophages Facilitates Lipolysis in Mice

Lena Pernas, University of Padua, Italy
Mitochondria Limit Toxoplasma Growth by Competing for Fatty Acids

Inflammatory Responses to Cell Death II (K2)

*__John Silke__, Walter and Eliza Hall Institute of Medical Research, Australia

Peter Vandenabeele, VIB, Ghent University, Belgium
Role of Ferroptosis in Cancer Treatment and Immunogenic Cell Death (ICD)

Seamus J. Martin, Trinity College Dublin, Ireland
Neutrophil-Derived Proteases Escalate Inflammation through Activation of IL-1 Family Cytokines Released via Necrosis

Siddharth Balachandran, Fox Chase Cancer Center, USA
Short Talk: Influenza Virus-Activated DAI-RIPK3-Driven Cell Death

Andrew Oberst, University of Washington, USA
Short Talk: Death-Independent Roles of RIPK1 and RIPK3 in the Restriction of Neuroinvasive Flavivirus Infection

Murray CH Clarke, Cambridge University, UK
Short Talk: The Coagulation and Immune Systems Are Fundamentally Linked by the Activation of interleukin-1α by Thrombin

Ranja Salvamoser, Walter and Eliza Hall Institute of Medical Research, Australia
Short Talk: Impact of Deleting All Murine CARD Containing Caspases on Cell Death and Other Cell Signaling Pathways

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Transcriptional and Epigenetic Control in Immune Metabolism (E4)

*__Susan M. Kaech__, Yale University School of Medicine, USA

__Douglas R. Green__, St. Jude Children's Research Hospital, USA
c-Myc and Metabolic Regulation of T Cell Activation and Differentiation

__John J. O'Shea__, NIAMS, National Institutes of Health, USA
Regulatory Nodes in T Cells

__Hai-Hui (Howard) Xue__, University of Iowa, USA
Short Talk: Runx3 Guards Cytotoxic CD8+ Effectors Against Tfh Deviation in Acute Viral Infection

__Mihai G. Netea__, Radboud University, Netherlands
Metabolic and Epigenetic Reprogramming in Myeloid Cells

__Kenneth Smith__, University of Cambridge, UK
Short Talk: Distinct Pathways Governing Susceptibility and Patient Outcome in Autoimmune and Inflammatory Disease

Poster Session 1

WEDNESDAY, MAY 31

Inflammatory Signaling I (K2)

*__Kim Newton__, Genentech, Inc., USA

__Mads Gyrd-Hansen__, University of Oxford, UK
EMBO Young Investigator Lecture: Regulation of Ubiquitination in Inflammatory Signaling

__Henning Walczak__, University College London, Cancer Institute, UK
Cell Death and Ubiquitin in Cancer, Inflammation and Immunity

__Rune Busk Damgaard__, Medical Research Council Laboratory of Molecular Biology, UK
Short Talk: The Deubiquitinase OTULIN Restricts M1-Linked Ubiquitin Signaling to Prevent Inflammation and Autoimmunity

__Patricia Brazee__, Northwestern University, USA
Short Talk: LUBAC Mediated Epithelial Signaling During Influenza Infection

__Marion MacFarlane__, MRC Toxicology Unit, UK
FADD: Caspase-8 Signalling Complexes and Co-ordinated Control of Life/Death Decisions

__Pascal Meier__, Institute of Cancer Research, UK
Ubiquitin Signaling in Cell Death and Inflammation

__Nader Yatim__, Institut Pasteur, France
Short Talk: RIPK3 in Dendritic Cells Promotes Cross-Priming Upon Stimulation with dsRNA

__Todd Douglas__, McGill University, Canada
Short Talk: Caspase-Mediated Cleavage of HOIP Terminates LUBAC Function and Promotes Cell Death

Fatty Acids and Metabolic Signaling (E4)

*__Edward J. Pearce__, Max Planck Institute of Immunobiology and Epigenetics, Germany

__Erika L. Pearce__, Max Planck Institute of Immunobiology and Epigenetics, Germany
Mitochondrial Priming By CD28

__Dan R. Littman__, HHMI/New York University School of Medicine, USA
Regulation of RORgt Function in Lymphocytes

__Laurence A. Turka__, Massachusetts General Hospital, USA
Short Talk: Maintenance of CD4+ T Cell Metabolic Fitness through Regulation of Foxo1

__Tim D. Sparwasser__, Institute of Infection and Immunology, Germany
Fatty Acid Metabolism in the Development and Function of T Cell Subsets

__Vijay K. Kuchroo__, Brigham and Women's Hospital, Harvard Medical School, USA
Metabolic Pathways that Regulate Development of Pathogenic Th17 Cells and Autoimmunity

__Daniel W. McVicar__, National Institutes of Health, USA
Short Talk: Itaconic Acid Mediates Crosstalk between Macrophage Metabolism and Tumor Progression

Poster Session 2

Inflammatory Signaling II (K2)

*__Eric H. Baehrecke__, University of Massachusetts Medical School, USA

__Ana Martin-Villalba__, DKFZ German Cancer Research Center, Germany
CD95 Inflammatory Activities: A Tale of Myeloid Cells and Vessels

__Domagoj Vucic__, Genentech, Inc., USA
Regulation of Inflammatory Cell Death Signaling by RIP Kinases

__Elizabeth K. Brint__, University College Cork, Ireland
Short Talk: Engagement of Fas Differentially Regulates the Production of LPS-Induced Pro-Inflammatory Cytokines and Type I Interferons

__Igor E. Brodsky__, University of Pennsylvania, USA
Short Talk: RIPK1 Kinase-Dependent Apoptosis Promotes Antibacterial Immunity in Response to Pathogen Inhibition of Inflammatory Signaling

__Cristina Giogha__, University of Melbourne, Australia
Short Talk: A Bacterial Cysteine Protease Effector Targets RHIM Proteins to Block Host Immune Signaling

Mitochondria as Platforms for Key Intracellular Signaling (E4)

*__Douglas R. Green__, St. Jude Children's Research Hospital, USA

__Navdeep S. Chandel__, Northwestern University, USA
Mitochondria as Signaling Organelles

Gerald S. Shadel, Yale School of Medicine, USA
A Mitochondrial DNA Stress-Induced ISG Response

David Artis, Cornell University, USA
Immune Regulation at Barrier Surfaces

Mercedes Rincon, University of Vermont, USA
Short Talk: MCJ (DnaJC15) Negatively Regulates CD8+ T Cell Mitochondrial Respiration and Immune Effector Functions

Ping-Chih Ho, University of Lausanne, Switzerland
Short Talk: Integration of alpha-Ketoglutarate/Succinate Balance Controls Macrophage Polarization through Immunometabolic and Epigenetic Reprogramming

THURSDAY, JUNE 1

Tissue Responses to Dying Cells (K2)

*__Thomas Brunner__, University of Konstanz, Germany

Julie Magarian Blander, Weill Cornell Medicine, Cornell University, USA
Phagocyte Responses to Dying Cells

Eric H. Baehrecke, University of Massachusetts Medical School, USA
Inflammatory Signaling, Autophagy and Dying Cell Clearance

Thomas H. Oguin, National Institute of Environmental Health Sciences, USA
Short Talk: LC3-Associated Phagocytosis Is Required to Defend Against Environmental Bacterial Infection

Ed C. Lavelle, Trinity College Dublin, Ireland
Role of IL-1 Family Cytokines in Adjuvanticity

Shigekazu Nagata, IFReC, Osaka University, Japan
Exposure of Phosphatidylserine to the Cell Surface

Akira Shibuya, University of Tsukuba, Japan
Short Talk: Apoptotic Epithelial Cells Control Regulatory T Cell Expansion

Conor J. Kearney, Peter MacCallum Cancer Centre, Australia
Short Talk: IAP Antagonists Promote Cytotoxic Lymphocyte Anti-Tumor Immunity

Interplay between mTOR/AMPK Signaling and Cell Metabolism (E4)

*__Laurence A. Turka__, Massachusetts General Hospital, USA

*__Mercedes Rincon__, University of Vermont, USA

Giuseppe Matarese, Università degli Studi di Napoli Federico II, Italy
Metabolic Control of Immune Tolerance and Autoimmune Diseases

Jonathan D. Powell, Johns Hopkins University School of Medicine, USA
mTOR Signaling in T Cell Fate, Activation and Metabolism

Bin Li, Shanghai Institute of Immunology, China
Short Talk: Regulation of Treg Cell Metabolism and Function by Pkm2 and Foxp3

Hongbo Chi, St. Jude Children's Research Hospital, USA
mTORC1 Signaling and Systems Proteomics in T Cell Metabolic Reprogramming

Russell G. Jones, McGill University, Canada
Rethinking Metabolic Reprogramming in T cells

Jeroen Roose, University of California, San Francisco, USA
Short Talk: Tonic Signals to Regulate Transcriptional, Translational, and Metabolic Programs in CD4 T Cells

Poster Session 3

Stress Signals and Inflammation (K2)

*__Cristina Muñoz-Pinedo__, Institut d'Investigacio Biomedica de Bellvitge, Spain

Junying Yuan, Harvard Medical School, USA
The Role and Mechanism of RIPK1 in Cell Death and Neurodegeneration

Kevin M. Ryan, Beatson Institute for Cancer Research, UK
The p53 Pathway and Inflammation

Erwin F. Wagner, Spanish National Cancer Research Centre, Spain
Stress Signaling in Inflammation and Cancer

Lisa Bouchier-Hayes, Baylor College of Medicine, USA
Short Talk: Caspase-1 and Caspase-5 Are Differentially Activated by Extracellular Heme

Joanna Majkut, Queen's University Belfast, UK
Short Talk: Development and Pre-Clinical Assessment of a First-in-Class Small Molecule Inhibitor of FLIP

Adam Lacy-Hulbert, Benaroya Research Institute, USA
Short Talk: A Forward Genetic Screen to Identify Mechanisms of Resistance to Caspase-Mediated Cell Death Induced by Pore-Forming Toxins

Immune-Tissue Interaction in Inflammation and Metabolic Disease (E4)

*__Vijay K. Kuchroo__, Brigham and Women's Hospital, Harvard Medical School, USA

Axel Kallies, Walter and Eliza Hall Institute of Medical Research, Australia
Molecular Regulation of Adipose Tissue-Resident Regulatory T Cell Development

Lydia Lynch, Harvard Medical School, USA
The Interdependence of Systemic and Cellular Metabolism in Innate Immunity

David K. Finlay, Trinity Biomedical Sciences Institute, Ireland
Short Talk: Fueling Natural Killer Cell Anti-Tumor Responses

Richard M. Locksley, HHMI/University of California, San Francisco, USA
Innate Helper Type 2 Cells (ILC2s) and Intestinal Homeostasis

Giuseppe Danilo Norata, University of Milan, Italy
Short Talk: Dendritic Cells' Derived Apolipoprotein E Orchestrates Adaptive Immune Response by Controlling Cellular Lipid Metabolism

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FRIDAY, JUNE 2

Alternative Cell Death Modalities and Inflammation (K2)

*__Domagoj Vucic__, Genentech, Inc., USA

__Arturo Zychlinsky__, Max Planck Institute for Infection Biology, Germany
NETosis and Inflammation

__Thomas Brunner__, University of Konstanz, Germany
Extra-Adrenal Synthesis of Immunoregulatory Glucocorticoids and its Implication in Local Tissue Homeostasis, Inflammation and Cancer

__Ling-Ling An__, MedImmune, Inc., USA
Short Talk: ICs-Induced NETosis Requires PAD4 but Not Histone Citrullination

__Cristina Muñoz-Pinedo__, Institut d'Investigacio Biomedica de Bellvitge, Spain
Short Talk: Glucose Deprivation Induces ATF4-Mediated Apoptosis through TRAIL Death Receptors

__Kim Newton__, Genentech, Inc., USA
Regulation of Cell Death by RIPK1 and Caspase-8

__Kate Schroder__, University of Queensland, Australia
Myeloid Cell Identity Shapes Inflammasome Signaling Pathways and Cell Death Decisions

__Jerome Estaquier__, CHU de Québec Research Center Infectious Disease Research Center, Canada
Short Talk: Anti-apoptosis Agent Prevents AIDS

__James M. Murphy__, Walter and Eliza Hall Institute of Medical Research, Australia
Short Talk: Mechanistic Studies of How the Pseudokinase, MLKL, Is Activated and Kills Cells by Necroptosis

Nutrient Sensing and Signaling in Immune Microenvironment (E4)

*__Joel D. Schilling__, Washington University School of Medicine, USA

__Mark A. Febbraio__, Garvan Institute of Medical Research, Australia
How Do Macrophages Sense Nutrient Overload to Induce an Inflammatory Response?

__Susan M. Kaech__, Yale University School of Medicine, USA
Anti-Tumor T Cells – You Are What You Eat

__Laurence Morel__, University of Florida, USA
Short Talk: Unique Requirement of High Levels of Glucose Metabolism by Autoreactive Follicular Helper T Cells

__Janelle S. Ayres__, The Salk Institute for Biological Studies, USA
Gut Microbe, Growth Factor Signaling and Metabolic Regulation of Wasting Disease

__Mala Maini__, University College London, UK
Metabolic Regulation of T Cell Immunity in Viral Hepatitis

__Andreas Bergthaler__, Austrian Academy of Sciences, Austria
Short Talk: Systemic Crosstalk of Metabolism and Inflammation in Viral Infection

Workshop 2: Importance of Metabolic Reprogramming in in vivo Functioning of the Immune System and Immune-Mediated Diseases (E4)

*__Martin Thurnher__, Medical University of Innsbruck, Austria

*__Julian J. Lum__, British Columbia Cancer Agency, Canada

__Jennifer Martinez__, NIEHS, National Institutes of Health, USA
LC3-Associated Phagocytosis Links Efferocytosis to Inflammation and Metabolism

__Rianne G. J. W. van der Windt__, Academic Medical Center, Netherlands
Impact of Signals from the Tumor Microenvironment on Chronic Lymphocytic Leukemia Metabolism

__Sagar P. Bapat__, The Salk Institute for Biological Studies, USA
PPARg Activation Suppresses Th2-Driven Atopic Disease via Metabolic Reprogramming

__Rafael de Queiroz Prado__, NIAID, National Institutes of Health, USA
The L-Arginine Transporter Slc7a2 Regulates Asthma Pathogenesis by Inhibiting Inflammasome Activation in Non-Hematopoietic Cells

__Andrea J. Wolf__, Cedars-Sinai Medical Center, USA
A Role for the Glycolytic Enzyme, Hexokinase, in Innate Immune Sensing by the NLRP3 Inflammasome

__Autumn G. York__, Yale University, USA
Synthesis of Mono-Unsaturated Fatty Acids Negatively Regulates Inflammation

__Bin Zheng__, Massachusetts General Hospital, Harvard Medical School, USA
Targeting Metabolic Vulnerabilities of MDSCs to Enhance the Anti-Tumor Activity of PD-1 Blockade

__Bart Everts__, Leiden University Medical Center, Netherlands
LKB1 Expressed in Dendritic Cells Governs the Development of Thymus-Derived Regulatory T Cells

__Richard A. Flavell__, HHMI/Yale University School of Medicine, USA
Immunometabolism

__Daniel Mucida__, Rockefeller University, USA
Intestinal Epithelial and Intraepithelial T Cell Crosstalk Mediates a Dynamic Response to Infection

Closing Keynote Address (K2)

*__Seamus J. Martin__, Trinity College Dublin, Ireland

__Douglas R. Green__, St. Jude Children's Research Hospital, USA
Cell Death as a Key Modulator of Inflammation: What Are the Key Factors?

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (K2)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (E4)

SATURDAY, JUNE 3

Departure

* Session Chair † Invited but not yet accepted Program current as of ***May 30, 2017***. Program subject to change. Meal formats are based on meeting venue.
For the most up-to-date details, visit ***www.keystonesymposia.org/17K2*** and ***www.keystonesymposia.org/17E4***.

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Inflammation and Cancer (K2)

*__Peter Vandenabeele__, VIB, Ghent University, Belgium

__Frances R. Balkwill__, Barts Cancer Institute, Queen Mary University of London, UK
Inflammation in the tumor microenvironment

__Scott W. Lowe__, Memorial Sloan Kettering Cancer Center, USA
Inflammatory Regulators and Cancer Progression

Microbiota Metabolism and Immune Cell Functions (E4)

*__Laurence Morel__, University of Florida, USA

__Yasmine Belkaid__, NIAID, National Institutes of Health, USA
White Adipose Tissue is a Hub for Memory T Cells and Promotes Memory Responses