



# The Resolution of Inflammation in Health and Disease

March 24–28, 2018 | Royal Dublin Society | Dublin | Ireland

## Scientific Organizers:

**Catherine Godson**, University College Dublin, Ireland

**Ira Tabas**, Columbia University, USA

**Mauro Perretti**, Queen Mary University of London, UK

*Inflammation and its resolution are critical to effective host defense and tissue homeostasis. There is a steady increase in the recognition that the effective resolution of inflammation is dynamically regulated through cellular responses to endogenously generated mediators. Ineffective resolution of inflammatory responses likely contributes to the pathogenesis of numerous prevalent conditions including atherosclerosis, arthritis and diabetes. Unresolved chronic inflammation may lead to fibrosis and eventual organ failure. Whereas anti-inflammatory therapeutic approaches are conventional, a growing consensus based on experimental data suggests that an alternative approach may be to mimic agonism of resolution. The aim of this meeting is to enhance our understanding of the molecular mechanisms which underpin the effective resolution of inflammation and how these may fail in aging and disease. Specifically, it seeks to: 1) Encourage dialog between those working in areas where the potential of mimicry of resolution of inflammation might play an under-appreciated role; 2) Consolidate data from diverse mediators that promote resolution; and 3) Contribute to the education and training of graduate students, fellows and faculty. These discussions will provide a multi-disciplinary community with insight into physiologic processes underpinning resolution, and potential mimicry of such processes for therapeutic gain in pathological conditions.*

## Session Topics:

- Fundamentals of Inflammation Biology – Cells, Mediators and Mechanisms in the Resolution of Inflammation I & II
- Workshop 1: Resolvomics: Potential and Pitfalls
- Diseases of Dysregulated Resolution and Repair
- Workshop 2: Experimental Models of Resolution
- Diabesity and the Resolution of Inflammation
- Regulation of Defense, Resolution and Repair
- Infection
- Resolution and Repair or Fibrosis?
- Workshop 3: Nano Technologies and Targeting Receptors to Resolve Inflammation
- Therapeutic Innovation in Resolution

**Scholarship Application & Discounted Abstract Deadline: November 29, 2017**

**Abstract Deadline: December 21, 2017**

**Discounted Registration Deadline: January 18, 2018**



Note: Scholarships are for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program. Travel Awards are for researchers in Asia.  
*Upper image of inflammation in cells courtesy of National Institutes of Health image gallery*

Meeting Hashtag: #KSinflam  
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# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## The Resolution of Inflammation in Health and Disease (C6)

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### SATURDAY, MARCH 24

#### Arrival and Registration

### SUNDAY, MARCH 25

#### Welcome and Keynote Address

\***Catherine Godson**, University College Dublin, Ireland

\***Alberto Mantovani**, Humanitas University, Italy

**Charles N. Serhan**, Brigham and Women's Hospital, USA  
*Pro-Resolving Lipid Mediators and Mechanisms in the Resolution of Inflammation*

#### Fundamentals of Inflammation Biology – Cells, Mediators and Mechanisms in the Resolution of Inflammation I

**Derek W. Gilroy**, University College London, UK  
*Susceptibility to Infection or Autoimmunity – It All Depends on How Inflammation Resolves*

**Ioannis Kourtzelis**†, University of Dresden, Germany  
*Short Talk: The Endogenous Homeostatic Factor Del-1 Contributes to Resolution of Inflammation*

**Daniele Piomelli**, University of California, Irvine, USA  
*NAAA-Regulated Lipid Amide Signaling as a Point of Control in Inflammation*

**Charles A. Parkos**, University of Michigan, USA  
*Short Talk: Epithelial Expression of CD47 Plays a Crucial Role in Intestinal Mucosal Wound Healing*

**Sarah R. Walmsley**, University of Edinburgh, Queen's Medical Research Institute, UK  
*Differential Regulation of Leukocyte Function by the HIF/Hydroxylase Pathway*

#### Poster Session 1

##### Workshop 1: Resolvomics: Potential and Pitfalls

\***Derek W. Gilroy**, University College London, UK

\***Bruce D. Levy**, Brigham and Women's Hospital, USA

**Amiram Ariel**, University of Haifa, Israel  
*IFNβ is a Novel Effector Cytokine in Resolving Inflammation*

**Fiona C. McGillicuddy**, Conway Institute, University College Dublin, Ireland  
*Metabolic High Density Lipoprotein Particles in Human Obesity – A Novel Tool for the Measurement of Metabolic Inflammation?*

**Koen Schepers**, Leiden University Medical Center, Netherlands  
*Mapping the Essential Roles of Amino Acid and Lipid Metabolism in Mesenchymal Stromal Cell-Mediated Immunomodulation*

**Daniel Irimia**, Massachusetts General Hospital, USA  
*How to Cool a Chain-Reaction: LXA4 Controls Neutrophil Swarming*

**Astrid S. Kahnt**, Goethe University, Germany  
*SPM Biosynthesis in Human Leukocytes – Who's Involved?*

#### Fundamentals of Inflammation Biology – Cells, Mediators and Mechanisms in the Resolution of Inflammation II

\***Mauro Perretti**, Queen Mary University of London, UK

\***Lina Hsiu Kim Lim**, National University of Singapore, Singapore

**Alberto Mantovani**, Humanitas University, Italy  
*Macrophage Plasticity and Tuning of Innate Immunity and Inflammation*

**Marc Peters-Golden**, University of Michigan, USA  
*Vesicular SOCS as a Vector of Macrophage to Epithelial Cell Crosstalk at the Respiratory Surface*

**Douglas Brubaker**, Massachusetts Institute of Technology, USA  
*Short Talk: Systems Biology Approaches To Precision Medicine in Inflammatory Bowel Disease*

**Carla V. Rothlin**, Yale University, USA  
*TAM Receptor Signaling in Resolution of Inflammation*

### MONDAY, MARCH 26

#### Keynote Address

\***Ira Tabas**, Columbia University, USA

\***Sarah R. Walmsley**, University of Edinburgh, Queen's Medical Research Institute, UK

**Christopher K. Glass**, University of California, San Diego, USA  
*Nature and Nurture of Tissue-Resident Macrophages*

#### Diseases of Dysregulated Resolution and Repair

**Lina Hsiu Kim Lim**, National University of Singapore, Singapore  
*Annexins in Breast Cancer: Regulation of Inflammation and Metastasis*

**Joan Claria**, University of Barcelona, Spain  
*Short Talk: Specialized Pro-Resolving Mediators (SPM) and Resolution of Inflammation in Obese Adipose Tissue and Liver*

**Bruce Cronstein**, New York University, USA  
*What Goes Around Comes Around. Adenosine, A Retaliatory Metabolite, Dampens Inflammation and Promotes Wound Healing*

**Edward A. Fisher**, New York University School of Medicine, USA  
*Short Talk: Inflammatory Monocytes Drive the Resolution of Atherosclerosis in a Plaque Regression Mouse Model by Becoming M2 Macrophages with Distinct Molecular Features*

**Gabrielle Fredman**, Albany Medical Center, USA  
*Dysregulation of Resolution Pathways in Chronic Inflammatory Disease*

#### Workshop 2: Experimental Models of Resolution

\***Matthew Spite**, Harvard Medical School and Brigham and Women's Hospital, USA

\***Gabrielle Fredman**, Albany Medical Center, USA

**Audrey Bernut**†, University of Sheffield, UK  
*Balancing the Immune Response in Cystic Fibrosis: Using Zebrafish Models of Inflammation to Uncover New Therapeutic Approaches*

**Steven Bozinovski**, RMIT University, Australia  
*Aspirin-Triggered Resolvin D1 Reduces Pneumococcal Lung Burden in a Viral and Bacterial Co-Infection Model*

**Annie Curtis**, Royal College of Surgeons in Ireland, Ireland  
*Loss of the Molecular Clock in Myeloid Cells Exacerbates T Cell-Mediated CNS Autoimmune Disease*

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**Stephanie A. Legere**, Dalhousie University, Canada  
*A Potential Role for Human Mast Cells in the Resolution of Cardiac Inflammation*

**Viktoria Lyngstadaas**<sup>†</sup>, Harvard Medical School, USA  
*The Pro-Resolving Mediator Annexin A1 Regulates MUC5AC Secretion in Cultured Goblet Cells, Suggesting a New Use in Inflammatory Conjunctival Diseases*

### Diabetes and the Resolution of Inflammation

\***Joan Claria**, University of Barcelona, Spain

\***Eoin P. Brennan**, Conway Institute, Ireland

**Gökhan S. Hotamisligil**, Harvard University, USA  
*Journal of Lipid Research Lectureship: Metaflammation, Organelle Function and Metabolic Homeostasis*

**Yun Sok Lee**, University of California, San Diego, USA  
*Tissue Hypoxia in Metaflammation and Type 2 Diabetes*

**Brian Sansbury**, Harvard Medical School, USA  
*Short Talk: Resolvin D1 Promotes Revascularization during Limb Ischemia via its Receptor, ALX/FPR2*

**Catherine Godson**, University College Dublin, Ireland  
*Lipoxins: Resolving Inflammation, Suppressing Diabetic Complications*

### Poster Session 2

#### TUESDAY, MARCH 27

##### Keynote Address

\***Edward A. Fisher**, New York University School of Medicine, USA

\***Charles A. Parkos**, University of Michigan, USA

**Lalita Ramakrishnan**, University of Cambridge, UK  
*Host Genotype Dictates Inflammation, Resolution and Repair*

### Regulation of Defense, Resolution and Repair

**Ira Tabas**, Columbia University, USA  
*The Interplay Between Efferocytosis and Inflammation Resolution*

**Michelle Amantéa Sugimoto**, Universidade Federal de Minas Gerais, Brazil and Queen Mary University of London, UK  
*Short Talk: Plasminogen and the Plasminogen Receptor, Plg-RKT, Regulate Efferocytosis and Macrophage Reprogramming*

**Muredach P. Reilly**, Columbia University, USA  
*Genomic Discoveries in Metaflammation*

**Matt DeBerge**, Northwestern University, USA  
*Short Talk: Divergence of TAM Receptor Tyrosine Kinase Control of Inflammation Resolution and Repair after Heart Attack*

**Maksim Plikus**, University of California, Irvine, USA  
*Reactivating Embryonic-Like Regeneration Programs in Adult Skin Wounds*

### Workshop 3: Nano Technologies and Targeting Receptors to Resolve Inflammation

\***Nan Chiang**, Harvard Medical School, USA

\***Carla V. Rothlin**, Yale University, USA

**Louise M. Topping**, Queen Mary University of London, UK  
*Targeting Neutrophil Microvesicles to Damaged Cartilage Using Antibodies to Post-Translationally Modified Collagen II*

**Eva Koziolova**, Institute of Macromolecular Chemistry, Czech Republic  
*Polymer-Based Drug Delivery Systems for Targeted Therapy of Inflammatory Diseases – Their in vivo Biodistribution in Mice with Acute Arthritis*

**Simon Rauber**, Friedrich-Alexander University Erlangen-Nürnberg, Germany  
*IL-9-Producing Type 2 Innate Lymphoid Cells – Key Players that Orchestrate Resolution of Chronic Inflammation in Arthritis*

**Miguel Quiros**, University of Michigan, USA  
*Specialized Pro-Resolving Lipid Mediator Resolvin E1 Promotes Intestinal Mucosal Wound Repair*

**Takehiko Yokomizo**, Juntendo University School of Medicine, Japan  
*12-Hydroxyheptadecatrienoic Acid Accelerates Epithelial Wound Healing through Leukotriene B4 Receptor 2, BLT2*

### Infection

\***Nathalie Vergnolle**, INSERM UMR-1220, France

\***Charles N. Serhan**, Brigham and Women's Hospital, USA

**Bruce D. Levy**, Brigham and Women's Hospital, USA  
*Specialized Pro-Resolving Mediators: Endogenous Regulators of Infection*

**Asma Nusrat**, University of Michigan, USA  
*Intestinal Mucosal Barrier Repair Is Orchestrated by Pro-Repair Mediators Released by Epithelial and Immune Cells at Sites of Injury*

**Aoife Keogh**, Royal College of Surgeons in Ireland, Ireland  
*Short Talk: MSC-Monocyte Interactions in Sepsis*

**Mauro Martins Teixeira**, Universidade Federal de Minas Gerais, Brazil  
*The Impact of Resolution Pathways in Acute Infections – Annexin-a1 and Dengue*

**Prabir Ray**, University of Pittsburgh, USA  
*Short Talk: The Mito-DAMP Cardiolipin Suppresses Resolution of Bacterial Pneumonia*

### Poster Session 3

#### WEDNESDAY, MARCH 28

##### Resolution and Repair or Fibrosis?

\***Lalita Ramakrishnan**, University of Cambridge, UK

\***Lucy V. Norling**<sup>†</sup>, Queen Mary University of London, UK

**Nathalie Vergnolle**, INSERM UMR-1220, France  
*Proteolytic Balance in Mucosal Inflammation and Repair*

**Robert F. Schwabe**, Columbia University, USA  
*Liver Cancer: A Wound That Does Not Heal*

**Takayoshi Suganami**, Nagoya University, Japan  
*Short Talk: CD11c+ Resident Macrophages Drive Hepatocyte Death-Triggered Liver Fibrosis in Nonalcoholic Steatohepatitis*

**Jörg H.W. Distler**, University of Erlangen-Nuremberg, Germany  
*Targeting Persistent Fibroblast Activation in Fibrotic Diseases*

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**Preethi Vijayaraj**, University of California, Los Angeles, USA  
*Short Talk: Modeling Progressive Fibrosis with Pluripotent Stem Cells  
Identifies an Anti-Fibrotic Small Molecule*

**Jesmond Dalli**, Queen Mary University of London, UK  
*Immunoresolvents Promote Tissue Repair and Regeneration*

### Therapeutic Innovation in Resolution

\***Daniele Piomelli**, University of California, Irvine, USA

\***Bruce Cronstein**, New York University, USA

**Arthur Christopoulos**, Monash University, Australia  
*Harnessing GPCR Allostery and Bias for Novel Drug Targeting*

**Mauro Perretti**, Queen Mary University of London, UK  
*From Resolution of Inflammation to Resolution Pharmacology:  
Therapeutic Innovation in Inflammation*

**Monica de Gaetano**, University College Dublin, Ireland  
*Short Talk: Investigation of the Bioactions of Novel Synthetic Lipoxin  
Mimetics*

**Makoto Arita**, Keio University, Japan  
*Genetics and Lipidomics of Omega-3 Polyunsaturated Fatty Acid  
Biology*

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

#### THURSDAY, MARCH 29

#### Departure