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
Workshop 1: Resolvomics: Potential and Pitfalls

Mechanisms in the Resolution of Inflammation

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

Welcome and Keynote Address

SUNDAY, MARCH 25

Arrival and Registration

SATURDAY, MARCH 24

For the most up-to-date details, visit www.keystonesymposia.org/18C6.

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

*Mauro Perretti, Queen Mary University of London, UK

*Mario Mantovani, Humanitas University, Italy

Charles N. Serhan, Brigham and Women’s Hospital, USA

Pro-Resolving Lipid Mediators & Mechanisms in the Resolution of Inflammation

Derek W. Gilroy, University College London, UK

Susceptibility to Infection or Autoimmunity – It All Depends on How Inflammation Resolves

Ioannis Kourtzalis, 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

IFNbeta is a Novel Effector Cytokine in Resolving Inflammation

Fiona C. McCullicuddy, Conway Institute, University College Dublin, Ireland

Metabolic High Density Lipoprotein Particles in Human Obesity – A Novel Tool for the Measurement of Metabolic Inflammation?

Koen Scheepers, 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

*Ira Tabas, Columbia University, USA

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

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-Ireland, Ireland
Loss of the Molecular Clock in Myeloid Cells Exacerbates T Cell-Mediated CNS Autoimmune Disease

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

Viktoriya Lyngstad, 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 School of Public Health, 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
*Edward A. Fisher, New York University School of Medicine, USA
*Charles A. Parkos, University of Michigan, USA
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 Metainflammation

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
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 Resoluton 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, 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

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
Immuunoresolvents 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