

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Why So Many Ways to Die? Apoptosis, Necroptosis, Pyroptosis and Beyond (T3)

November 19-23, 2019 • Casa Grande Hotel • Guarujá, São Paulo, Brazil

Scientific Organizers: Karina R. Bortoluci, Vishva M. Dixit and Andreas E. Strasser

Organized in collaboration with the São Paulo Research Foundation (FAPESP)

Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation

Global Health Travel Award Deadline: July 16, 2019 / Discounted Abstract & Scholarship Deadline: July 18, 2019 / Abstract Deadline: August 20, 2019 / Discounted Registration Deadline: September 19, 2019

### TUESDAY, NOVEMBER 19

#### Arrival and Registration

### WEDNESDAY, NOVEMBER 20

#### Welcome and Keynote Address

\***Karina R. Bortoluci**, Federal University of São Paulo, Brazil

**Kim Newton**, Genentech, Inc., USA

*The Cut That Makes the Difference – A Caspase-8 Story*

#### Advances in Molecular Control of Cell Death I

\***Jonathan C. Kagan**, Boston Children's Hospital, USA

**Hao Wu**, Harvard Medical School, Boston Children's Hospital, USA  
*Inflammasomes: NLRP3 and Gasdermin D (GSDMD)*

**Veit Hornung**, Ludwig-Maximilians-University Munich, Germany  
*Molecular Regulation of Inflammatory Cell Death*

**Daniel Kastner**, National Institutes of Health, USA  
*Inflammasomes in Auto-Inflammatory Diseases*

**Niklas A. Schmacke**, Ludwig-Maximilians-University Munich, Germany

*Short Talk: Priming Enables a NEK7-Independent Route of NLRP3 Activation*

**Bart Tummers**, St. Jude Children's Research Hospital, USA

*Short Talk: A Non-Apoptotic Function of Caspase-8 Mediates Inflammation and Blocks the Development of ALPS*

#### Workshop 1: Host Defense

\***Ricardo T. Gazzinelli**, Fundação Oswaldo Cruz-CPqRR, Brazil

**Youssef Aachoui**, University of Arkansas for Med, USA  
*Innate Lymphocytes Prime Caspase-11 in Neutrophils to Defend against a Cytosol Invasive Bacterium*

**Thomas Burke**, University of California, Berkeley, USA  
*Inflammasome-Mediated Antagonism of Type I Interferon Enhances Rickettsia Pathogenesis*

**Laura Migliari Branco**, University of São Paulo, Brazil  
*Molecular Mechanisms Involved in NAIP/NLRC4 Inflammasome Activation*

**Alejandro Rodriguez Gama**, Stowers Institute for Medical Research, USA  
*The Inflammasome-Nucleating Interactome Reveals Specificity and Crosstalk in Cell Death Signaling*

**Lucas Secchim Ribeiro**, University of Bonn, Germany  
*Inflammasome Activation and Pyroptosis Drive the Formation of Nuclear Filaments between Macrophages*

**Kateryna Shkarina**, University of Lausanne, Switzerland  
*Optogenetic Control of Programmed Cell Death Reveals Differential Responses towards Apoptotic and Necrotic Cells*

**Monica Varela**, Leiden University, Netherlands  
*Mycobacteria Exploit Host Caspase 11 and Gasdermin D Tandem for Phagosome Permeabilization, Macrophage Pyroptosis and Infection Dissemination*

#### Advances in Molecular Control of Cell Death II

\***Domagoj Vucic**, Genentech, Inc., USA

**Feng Shao**, National Institute of Biological Sciences, China  
*Mechanism and Function of Gasdermin-Mediated Pyroptosis*

**Eicke Latz**, University of Bonn, Germany  
*Posttranslational Regulation of NLRP3 Inflammasome Activation*

**Oliver Florey**, Babraham Institute, UK  
*Eaten Alive! - Mechanisms and Consequences of Cell Cannibalism*

**Catherine L. Day**, University of Otago, New Zealand  
*Short Talk: Regulation of Ubiquitin Transfer by TRAF E3 Ligases*

**Charles L. Evavold**, Harvard University, USA  
*Short Talk: A Genome-Wide CRISPR/Cas9 Screen Identifies Novel Regulators of GSDMD Pore Formation in Engineered Macrophages*

#### Poster Session 1

### THURSDAY, NOVEMBER 21

#### Cell Death and Cancer

\***Gustavo P. Amarante-Mendes**, Universidade de São Paulo, Brazil

**Andreas E. Strasser**, Walter and Eliza Hall Institute of Medical Research, Australia

*Towards Targeting MCL-1 for Cancer Therapy*

**Henning Walczak**, University College London, Cancer Institute, UK  
*Cell Death and Ubiquitin in Cancer*

**Ricardo Weinlich**, Hospital Israelita Albert Einstein, Brazil  
*Necroptosis, Inflammation and Cancer*

**Ruth M. Kluck**, Walter and Eliza Hall Institute of Medical Research, Australia  
*BAK and BAX in Cancer*

**Gabriela Brumatti**, Walter and Eliza Hall Institute, Australia  
*Short Talk: RIPping Leukaemias Apart: The Role of RIP Kinase 1 in Acute Myeloid Leukaemia*

**Dhyan Chandra**, Roswell Park Comprehensive Cancer Center, USA  
*Short Talk: Novel Nuclear-Mitochondrial Crosstalk Regulates Cell Death and Survival in Cancer*

**Eli Arama**, Weizmann Institute of Science, Israel  
*Short Talk: Parthanatos Steps Out of the Shadows of Cell Death and into the Developmental Spotlight*

#### Consequences of Cell Death

\***Jaclyn S. Pearson**, Hudson Institute of Medical Research, Australia

**Vishva M. Dixit**, Genentech, Inc., USA  
*The Non-Canonical Inflammasome Pathway*

**Jonathan C. Kagan**, Boston Children's Hospital, USA  
*Regulation of Innate Immunity*

**John Silke**, Walter and Eliza Hall Institute of Medical Research, Australia  
*Cell Death in Cancer and Inflammation*

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**Konrad Aden**, University Hospital Kiel, Germany  
*Short Talk: XBP-1 Coordinates DNA Damage Induced Stem Cell Repression in the Intestinal Epithelium via p53-Ddit4l-Dependent mTOR Inhibition*

**Randal Halfmann**, Stowers Institute for Medical Research, USA  
*Short Talk: Waiting to Die: Signalosome Nucleation Kinetically Controls Cell Fate*

**Caitlin Schneider**, McGill University, Canada  
*Short Talk: Migration-Induced Cell Shattering Due to DOCK8 Deficiency Causes a Type-2 Biased T Helper Response*

### Poster Session 2

#### FRIDAY, NOVEMBER 22

##### Cell Death and Host Defense I

\***Thirumala-Devi Kanneganti**, St. Jude Children's Research Hospital, USA

**Petr Broz**, University of Lausanne, Switzerland  
*Cell Death during Bacteria Infections*

**Ricardo T. Gazzinelli**, Fundação Oswaldo Cruz-CPqRR, Brazil  
*Caspase 8 Mediates Experimental Cerebral Malaria*

**Russell E. Vance**, University of California, Berkeley, USA  
*Sensing of Pathogen-Encoded Activities by the NLRP1 Inflammasome*

**Karina R. Bortoluci**, Federal University of São Paulo, Brazil  
*Inflammasomes: Cell Death, Cytokines and Beyond*

**Katie Deets**, University of California, Berkeley, USA  
*Short Talk: Investigating a Role for the NAIP/NLRC4 Inflammasome in Adaptive T Cell Responses*

**Sergio Costa Oliveira**, Universidade Federal de Minas Gerais, Brazil  
*Short Talk: Guanylate-Binding Protein 5 Licenses Caspase-11 for Gasdermin-D Mediated Host Resistance to Intracellular Bacterial Infection*

##### Cell Death and Host Defense II

\***Russell E. Vance**, University of California, Berkeley, USA

**Edward A. Miao**, University of North Carolina at Chapel Hill, USA  
*Infectious Models Reveal a Unique Role for Caspase-7 after Cytotoxic Lymphocyte Attack*

**Dario S. Zamboni**, University of São Paulo, Brazil  
*Inflammasomes in Host Response to Pathogenic Microbes*

**Larissa D. Cunha**, Ribeirão Preto Medical School, University of São Paulo, Brazil  
*Short Talk: Regulation of Macrophage Function by LC3-Associated Phagocytosis*

**Marcel Doerflinger**, Walter and Eliza Hall Institute, Australia  
*Short Talk: Functional Overlap of Different Cell Death Pathways Ensures Host Protection against Intracellular Bacterial Pathogens*

**Antonia R. Bass**, University of Pennsylvania, USA  
*Short Talk: Human Noncanonical Inflammasome Responses to Legionella Pneumophila*

**Kshiti Meera Phulphagar**, Max Planck Institute of Biochemistry, Germany  
*Short Talk: Quantitative Spatial Proteomics Reveals Specific Nlrp3 and Cell Death Mediated Reprogramming of Essential Cellular Functions and Organelles*

### Poster Session 3

#### SATURDAY, NOVEMBER 23

##### Manipulating Cell Death for Therapeutic Intervention

\***Andreas E. Strasser**, Walter and Eliza Hall Institute of Medical Research, Australia

**Andrew W. Roberts**, Walter and Eliza Hall Institute of Medical Research, Australia  
*Translational and Clinical Updates on Targeting BCL2 and MCL-1*

**Jaclyn S. Pearson**, Hudson Institute of Medical Research, Australia  
*The Role of RIPK1 in Controlling Gastrointestinal Bacterial Infections*

**Domagoj Vucic**, Genentech, Inc., USA  
*Regulation of Inflammatory Cell Death Signaling by RIP Kinases*

**Lisa Drew**, AstraZeneca, USA  
*Broad Opportunity of Cell Death Agents as Mono- and Combination Therapies in Haematological and Solid Cancers*

**Pedro Elias Marques**, KU Leuven, Belgium  
*Short Talk: Displacement of Necrotic Cell Debris In Vivo by a Chemokine-Based Peptide Dampens Tissue Inflammation*

**Jun Sun**, University of Illinois at Chicago, USA  
*Short Talk: Intestinal Vitamin D Receptor Determines Cell Fate via Apoptosis and Autophagy*

**Lynn Wong**, University of Zurich, Switzerland  
*Short Talk: TNFR2 Induced Priming of NLRP3-Inflammasome via RIPK1 Leads to Pyroptosis in XIAP Deficient Cells*

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*Short Talk: TNFR2 Induced Priming of NLRP3-Inflammasome via RIPK1 Leads to Pyroptosis in XIAP Deficient Cells*

##### Workshop 2: Cancer

\***Laura D. Attardi**, Stanford University School of Medicine, USA

**Silvina Odete Bustos**, ICESP, Brazil  
*A New Imidazacridine Derivate with Antineoplastic Activity in Melanoma*

**Annette Jacobsen**, Walter and Eliza Hall Institute, Australia  
*Up Close and Personal with the Necroptotic Death Effector, MLKL: Lessons Learned from Mutagenesis Studies*

**Bruna dos Santos Mendonça**, Brazilian National Cancer Institute, Brazil  
*Nuclear Localization of X-Linked Inhibitor of Apoptosis Protein (XIAP): Impact on Drug Resistance, Cell Growth and Prognosis in Breast Cancer*

**Daria Raquel Queiroz de Almeida**, University of São Paulo, Brazil  
*Ferroptosis Contributes to MB-PDT Efficacy on Killing Human PDAC Cells*

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**Maria Tanzer**, Max Planck Institute of Biochemistry, Germany  
*Phosphoproteome and Secretome Analysis Reveal Differences between TNF-Induced Apoptosis and Necroptosis*

**Angelica Beate Winter Boldt**, Universidade Federal do Paraná, Brazil  
*At the Edge of Survival: Genetic Associations for Cell Death in Pemphigus Foliaceus*

**Mikaela Catherine Coleman**, University of Sydney, Australia  
*Dissecting the Ways to Die: A Single-Cell Assay to Simultaneously Quantify Cell Loss and Discriminate Death Program*

### Keynote Address

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\***Vishva M. Dixit**, Genentech, Inc., USA

**Shigekazu Nagata**, IFRc, Osaka University, Japan

*Phosphatidylserine-Dependent Efferocytosis and Entosis*

### Cell Death in Inflammatory Diseases

\***John Silke**, Walter and Eliza Hall Institute of Medical Research, Australia

**Francis Ka-Ming Chan**, Duke University, USA

*RIPK3 in Anti-Viral Immunity and Tissue Homeostasis*

**Thirumala-Devi Kanneganti**, St. Jude Children's Research Hospital, USA

*Regulation of Inflammasome Activation and Cell Death*

**Laura D. Attardi**, Stanford University School of Medicine, USA

*Deconstructing p53 Cellular Responses and Transcriptional Programs in Tumor Suppression and Developmental Syndromes*

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

### SUNDAY, NOVEMBER 24

#### Departure