

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## RNA Editing and Modifications: From Biology to Therapy (EK5)

September 30-October 2, 2020 • Virtual at your computer • , CO, USA

Scientific Organizers: Jin Billy Li, Stacy M. Horner and Michaela Frye

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

Sponsored by AstraZeneca and Moderna

Global Health Travel Award Deadline: October 2, 2020 / Scholarship Deadline: August 31, 2020 / Abstract Deadline: September 9, 2020 / Discounted Registration Deadline:

### WEDNESDAY, SEPTEMBER 30

#### Welcoming Remarks (Organizers) and Keynote Address (8am Denver/Mountain Time Start)

\***Stacy M. Horner**, Duke University Medical Center, USA

**Chuan He**, University of Chicago, USA

*Reversible RNA Methylation in Gene Expression Regulation*

#### Dynamic Regulation of the Epitranscriptome (8:45am Denver/Mountain Time Start)

\***Blerta Xhemalce**, University of Texas, Austin, USA

*Targeting RNA Methylation in Cancer*

**Aldema Sas-Chen**, Weizmann Institute of Science, Israel

*Short Talk: Dynamic RNA Acetylation as a Mechanism for RNA Thermostabilization*

**Jin Billy Li**, Stanford University, USA

*ADAR1 RNA Editing and Innate Immunity*

**Marisa Almeida Pereira**, iBiMED-Institute of Biomedicine, Portugal

*Short Talk: Lack of m5U Modification in tRNAs Induces the Formation of tRNA-Derived Fragments*

\***Polly Chen**, National University of Singapore, Singapore

*Short Talk: Dynamic Regulation of A-to-I RNA Editing by RNA Helicases*

#### Career Roundtable (12pm Denver/Mountain Time Start)

**Kate Meyer**, Duke University, USA

**Lynn Abell**, Agios Pharmaceuticals, USA

**Chuan He**, University of Chicago, USA

#### "Self" vs "Non-Self" RNA Pattern Recognition (1pm Denver/Mountain Time Start)

**Stacy M. Horner**, Duke University Medical Center, USA

*RNA Methylation in Viral Infection*

\***Carl Walkley**, St Vincent's Institute, Australia

*The in vivo Functions of A-to-I Editing*

**Michael A. Tartell**, Harvard University, USA

*Short Talk: Cap-Proximal N6-Methylation Protects Viral mRNA against Interferon beta Pretreatment*

\***Noam Stern-Ginossar**, Weizmann Institute of Science, Israel

*m6A and Innate Immunity*

**Grace Chen**, Yale University School of Medicine, USA

*Circular RNA Immunity*

**Reshma Kurup**, Indiana University, USA

*Short Talk: ADAR3 Alters the MAVS/NF-kappaB Signaling Pathway in Glioblastoma*

### THURSDAY, OCTOBER 1

#### Functions and Mechanism (8am Denver/Mountain Time Start)

\***Yunsun Nam**, University of Texas Southwestern Medical Center, USA

*Structural Basis for Substrate Specificity of RNA Methyltransferases*

**Kazuko Nishikura**, Wistar Institute, USA

*ADAR RNA Editing and Genome Stability*

**Bei Liu**, Duke University, USA

*Short Talk: Syn-Anti Isomerization of the m6A Methylamino Group as a Molecular Timer that Slows Nucleic Acid Annealing and Conformational Transitions*

**Kate Meyer**, Duke University, USA

*Uncovering m6A and Its Role in RNA Regulation*

\***Peter Beal**, University of California, Davis, USA

*ADAR Structure and Substrate Recognition*

**Kayla Shumate**, Vanderbilt University, USA

*Short Talk: CAPS1 RNA Editing Selectivity Mediates Dopamine Neurotransmission in the Dorsal Striatum*

#### Poster Session 1 (11am Denver/Mountain Time Start)

##### Understanding and Exploiting Epitranscriptome in Cancer (1pm Denver/Mountain Time Start)

**Eli Eisenberg**, Tel Aviv University, Israel

*Human Recoding Sites: Profile, Evolution, Adaptation*

\***Jianjun Chen**, Beckman Research Institute of City of Hope, USA

*m6A in Cancer*

**Anna-Maria Herzner**, Genentech, Inc., USA

*Short Talk: Dual Protection from Endogenous dsRNA-Induced Type-I IFN Responses by ADAR and hnRNP*

\***F. Nina Papavasiliou**, Deutsches Krebsforschungszentrum, Germany

*RNA Deamination in Immunity and Cancer*

**Michael G. Kharas**, Memorial Sloan Kettering Cancer Center, USA

*RNA Methylation and the Control of Cell Fate in the Blood*

**Dhwani Rupani**, MD Anderson Cancer Center, USA

*Short Talk: Loss of Adar1 in Pancreatic Acinar Cells Leads to Apoptosis and Inflammation*

### FRIDAY, OCTOBER 2

#### Transcriptome Engineering and Technology Development (8am Denver/Mountain Time Start)

**Thorsten Stafforst**, Universität Tübingen, Germany

*Harnessing ADAR Activity for Site-Directed RNA Editing*

**Yi-Tao Yu**, University of Rochester Medical Center, USA

*Pseudouridine-Mediated Stop Codon Read Through*

**Meng How Tan**, Nanyang Technology University, Singapore

*Short Talk: Development of an Efficient and Specific Platform for Programmable RNA Base Editing*

\***Eva Maria Novoa Pardo**, Centre for Genomic Regulation, Spain

*Quantitative Profiling of Pseudouridine Modification Dynamics Using Native RNA Nanopore Sequencing*

**Omar Abudayyeh**, Massachusetts Institute of Technology, USA

*Harnessing Novel CRISPR Systems for Programmable RNA Editing*

**Supuni Thalalla Gamage**, National Cancer Institute, USA

*Short Talk: Chemistry to Discover and Decode RNA Acetylation*

#### Poster Session 2 (11am Denver/Mountain Time Start)

##### The Role of Epitranscriptome in Development and Stem Cell (1pm Denver/Mountain Time Start)

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**Michaela Frye**, Deutsches Krebsforschungszentrum, Germany  
*m5C RNA Methylation*

**Guifeng Wei**, University of Oxford, UK  
*Short Talk: Acute depletion of METTL3 Identifies a Role for N6-Methyladenosine in Alternative Intron/Exon Inclusion in the Nascent Transcriptome*

\***Kamil R. Kranc**, Barts Cancer Institute, Queen Mary University of London, UK  
*Targeting m6A mRNA Readers in Blood Malignancies*

**Brian C. Capell**, University of Pennsylvania, USA  
*Short Talk: Dynamic Epitranscriptomic Regulation of Self-Renewing Epithelia via METTL3-Mediated m6A*

\***Alexey Ruzov**, University of Nottingham, UK  
*The Role of m6A in R-Loop Regulation*

**Diana Guallar**, Universidade de Santiago de Compostela, Spain  
*Short Talk: ADAR1-Dependent RNA Editing Promotes MET and iPSC Reprogramming by Alleviating ER Stress*

**Michael McMillan**, University of Michigan, USA  
*Short Talk: Intersection between RNA Methylation and TDP43-Mediated Toxicity in ALS*

### Closing Remarks

**Michaela Frye**, Deutsches Krebsforschungszentrum, Germany