2nd International Conference on Base Editing – Enzymes and Applications (Deaminet 2021)

January 21st – 22nd, 2021

Virtual Meeting – This Year Only!

ALL TIMES ARE USA CENTRAL STANDARD TIME (CST)

Organized by:
Rémi Buisson, University of California Irvine
Reuben Harris, University of Minnesota, HHMI
Catriona Jamieson, University of California San Diego
Alexis Komor, University of California San Diego
Audrone Lapinaite, Arizona State University
David Liu, Broad Institute, Harvard University, HHMI
Brandon Moriarity, University of Minnesota
Matthew Weitzman, Childrens Hospital of Philadelphia

With expert assistance from:
Alicia Anderson & Rhonda Layer, University of Minnesota – Twin Cities
College of Continuing and Professional Studies

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JM Foundation
THURSDAY, JANUARY 21st

ALL TIMES ARE USA CENTRAL STANDARD TIME (CST)

09:30 – 10:00  Virtual Networking (byo Scones, Tea & Coffee)

10:00 – 10:05  Opening Remarks

Session 1:  Technology Development

Convener:  Brandon Moriarity, University of Minnesota

10:05 – 10:25  Invited Speaker: Audrey Lapinaite, Arizona State University, USA “DNA Capture by a CRISPR-Cas9 Guided Adenosine Base Editor”

10:25 – 10:45  Speaker Selected from Abstracts: Kiara Berríos, University of Pennsylvania, Philadelphia USA “Controllable Genome Editing with Split-Engineered Base Editors”

10:45 – 11:05  Speaker Selected from Abstracts: Kathleen Christie, Massachusetts General Hospital and Harvard Medical School, USA “Enhanced Precision of Base Editing with Near-PAMless Cas9 Variants”

11:05 – 11:25  Speaker Selected from Abstracts: Jessica Stewart, Wayne State University, USA “Visualization of Uracils Created by APOBEC3A using UdgX”

11:45 – 12:05  Invited Speaker: Abby Green, Washington University, USA “The Experimentally-Defined APOBEC3A Signature Is Prevalent in Human Cancers”

12:05 – 12:25  Speaker Selected from Abstracts: Dmitry Gordenin, National Institute of Environmental Health Sciences (NIH), USA “APOBEC3 Editing Signatures Are Present in ssRNA Viral Genomes of Hypermutated Rubella and of SARS-CoV-2 Accumulated During the COVID-19 Pandemic”

12:25 – 13:10  Break

Session 2:  Therapeutic Base Editing

Convener:  Matthew Weitzman, Childrens Hospital of Philadelphia
13:10 – 13:30  **Invited Speaker: David Liu**, Broad Institute, Harvard University, HHMI, USA “Base Editing in the Mitochondria and in a Mouse Model of Human Progeria”

13:30 – 13:50  **Speaker Selected from Abstracts: Panagiotis Antoniou**, Imagine Institute, France “Base Editing Approaches for the Treatment of β-hemoglobinopathies”

13:50 – 14:10  **Invited Speaker: Alberto Ciccia**, Columbia University, USA “Functional Interrogation of DNA Damage Response Variants with Base Editing Screens”

14:10 – 14:30  **Speaker Selected from Abstracts: Walker S. Lahr**, University of Minnesota, USA “CRISPR-Cas9 Cytidine and Adenosine Base Editing of Splice-Sites Mediates Highly-Efficient Disruption of Proteins in Primary and Immortalized Cells”

14:30 – 14:50  **Invited Speaker: Nicole Gaudelli**, Beam Therapeutics, USA “Title TBD”


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15:10 – 15:30  **Break**

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**Session 3:** Potpourri

**Convener:** Audrone Lapinaite, Arizona State University

15:30 – 15:50  **Invited Speaker: Feng Zhang**, HHMI and Harvard University, USA “Title TBD”

15:50 – 16:10  **Speaker Selected from Abstracts: Silvo Conticello**, Core Research Laboratory - ISPRO, Italy “Dimerisation of APOBEC1 Is Dispensable for Its RNA/DNA Editing Activity and Modulates Its Availability”

16:10 – 16:30  **Speaker Selected from Abstracts: Alberto Martin**, University of Toronto, Toronto, Canada “FAM72A Bridges Base-Excision Repair and Mismatch Repair by Destabilizing UNG2 to Promote Antibody Maturation”

16:30 – 16:50  **Speaker Selected from Abstracts: Yunxiang Mu**, University of Texas MD Anderson Cancer Center, USA “UNG-RPA Interaction Promotes Mutagenic Uracil Repair”

16:50 – 17:10  **Invited Speaker: Javier Di Noia**, McGill University, Canada “Insight into AID Function by Proximity Labeling”

17:30 – 19:00 Posters in Individual Breakout Rooms with DIY Refreshments

P1 – Asra Abukar, Martin Wipplinger & Ananya Hariharan, University Hospital Zurich, Switzerland “RNA Binding Motif Protein 8A: A Novel RNA Editing Target in Mesothelioma”

P2 – Lene Alsøe, University of Oslo, Norway “Influence of Uracil Base Excision Repair on Mutagenesis and Cancer Formation in APOBEC3B Expressing Mice”

P3 – Michael Breen, Icahn School of Medicine at Mount Sinai, USA “Expansion of Sequence Space and RNA Editing Rates Through Cortical Development”

P4 – Lucyna Budzko, Polish Academy of Sciences, Poznan, Poland “AID/APOBEC Engineering to Target Modified DNA and RNA Substrates”

P5 – Patricia Claudio Vázquez, University of Minnesota, USA “Targeted Correction of Severe Combined Immunodeficiency (SCID) of Athabascan-speaking Native Population”

P6 – Eli Eisenberg, Tel-Aviv University, Israel “Landscape of Endogenous Adenosine-to-Inosine RNA Recoding Across Human Tissues”

P7 – Michael Grillo, University of Minnesota, USA “Biophysics-Driven Discovery of Small Molecule Ligands Targeting APOBEC3B DNA Cytosine Deaminase”

P8 – Elena Harjes, Massey University, New Zealand “Biophysical Analysis of APOBEC3A(E72A) Interaction with Different Forms of DNA”

P9 – Joanne Kamens, Addgene, USA “What’s New at Addgene”

P10 – Liam Keegan, Masaryk University, Czech Republic “Elucidating the Biological Roles of ADARs”

P11 – Bill Kim, Pairwise Plants LLC, USA “Base Editing for Consumer Traits in Fruits and Vegetables”

P12 – Nerissa Kirkwood, University of Kent, England “Generation and Characterization of a Humanized APOBEC3 Mouse”

P13 – Renata Kleinova, Medical University of Vienna, Austria “The ADAR–EDITOME: Target Specificity of ADAR1 Isoforms”

P14 – Mitchell Kluesner, University of Minnesota, USA “MultiEditR: A Tool to Detect and Quantify Multiple RNA and DNA Base Edits from Sanger Sequencing Demonstrates Comparable Fidelity to RNA-Seq”
P15 – **Mitchell Kluesner & Cara-Lin Lonetree**, University of Minnesota, USA “Base Editors as a Singular Platform for High-Order Multiplex Engineering of Immune Cells for Cancer Immunotherapy”

P16 – **Sergei Manakov**, Eclipse BioInnovations Inc., USA “eCLIP Reveals Differences in Binding Preference Between p110 and p150 ADAR1 Isoforms”

P17 – **Afonso Mendes**, Universidade NOVA de Lisboa, Portugal “Mechanisms Underlying the Packaging of the Antiretroviral Factor APOBEC3G into Exosomes”

P18 – **Yasha Nazir Butt**, Wayne State University, USA “Mapping of Genomic Targets of APOBEC3B Using UPD-Seq”

P19 – **Christian Pfaller**, Paul-Ehrlich-Institute, Germany “ADAR1, but not ADAR2, Is Proviral for Orthomyxoviruses and Paramyxoviruses”

P20 – **Helen Piontkivska**, Kent State University, USA “Mapping ADAR Editing Landscapes in the Brain using Guttman Scale Profiles”

P21 – **Roy Rabinowitz**, Tel Aviv University, Israel “Synonymous Corrections Expand the Targeting Scope of Base Editing”

P22 – **Kartik Rallapalli**, University of California San Diego, USA “Retracing the Evolutionary Trajectory of Adenine Base Editors”

P23 – **Amanda Rieffer**, University of Minnesota, USA “Precision Base Editing with Engineered APOBEC3B-Cas9 Complexes”

P24 – **Darina Šikrová**, Leiden University Medical Center, The Netherlands “Therapeutic Adenine Base Editing of the DUX4 Polyadenylation Signal in Facioscapulohumeral Muscular Dystrophy”

P25 – **Christopher Sipe**, University of Minnesota, USA “CRISPR-Cas9 Base Editing of Fanconi Anemia Patient Primary Cells”

P26 – **Minjing Wang**, University of Minnesota, USA “Multiplex Base Editing of NK Cell to Enhance Cancer Immunotherapy”

P27 – **Irena Zotova**, St. Petersburg State University, Russia “APOBEC3A Mutation Signatures in Haploid and Diploid Yeast”

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FRIDAY, JANUARY 22\textsuperscript{nd}

ALL TIMES ARE USA CENTRAL STANDARD TIME (CST)

09:30 – 10:05  Virtual Networking (byo Scones, Tea & Coffee)

Session 4:  Base Editing in Cancer

Convener:  Rémi Buisson, University of California Irvine

10:05 – 10:25  Invited Speaker: Steve Roberts, Institution, USA “Genetic Modifiers of APOBEC-Induced Mutagenesis”


10:45 – 11:05  Invited Speaker: Ludmil Alexandrov, University of California San Diego, USA “The Role of APOBEC Deaminases in Human Cancer and Precancer”

11:05 – 11:25  Speaker Selected from Abstracts: Mia Petljak, Broad Institute of MIT and Harvard, USA “APOBEC3A Cytosine Deaminase Drives Episodic Mutagenesis in Cancer Cells”

11:45 – 12:05  Invited Speaker: Reuben Harris, HHMI and University of Minnesota, USA “Murine Models for Mutagenesis and Carcinogenesis by Human APOBEC3A and APOBEC3B”

12:05 – 12:25  Speaker Selected from Abstracts: Travis Stracker, Institute for Research in Biomedicine (IRB Barcelona), Spain, and National Cancer Institute, USA “Loss of HMCES is Synthetic Lethal with APOBEC Activity in Cancer Cells”

12:25 – 13:10  Break

Session 5:  RNA Base Editing

Convener:  Catriona Jamieson, University of California San Diego

13:10 – 13:30  Invited Speaker: Chuan He, HHMI and University of Chicago, USA “Anti-Tumor Immunity Controlled Through RNA Methylation”

13:30 – 13:50  Speaker Selected from Abstracts: Rafail Tasakis, German Cancer Research Center (DKFZ), Germany “DNA Mutations by ADAR1 as Collateral Genomic Damage of Aberrant RNA Editing Activity in Multiple Myeloma”

13:10 – 14:30  **Speaker Selected from Abstracts: Rajagopal Varada**, Medical University of Vienna, Austria “RNA Modification in Filamin A Pre-mRNA and Its Role in Colon Inflammation”

14:30 – 14:50  **Invited Speaker: Alexis Komor**, University of California San Diego, USA “Mechanistic Insights into Adenine Base Editors”

14:50 – 15:10  **Speaker Selected from Abstracts: Thorsten Stafforst**, University of Tuebingen, Germany “Harnessing ADAR for Drug Discovery”

15:10 – 15:30  Break

Session 6:  New Analyses and Applications of Base Editing

Convener:  Alexis Komor, University of California San Diego

15:30 – 15:50  **Invited Speaker: Keith Joung**, MGH and Harvard University, USA “Title TBA”

15:50 – 16:10  **Invited Speaker: Rémi Buisson**, University of California Irvine, USA “Mechanisms of Transient APOBEC3A Expression in Cancer”

16:10 – 16:30  **Speaker Selected from Abstracts: Nicola Smith**, University of Kent, England “Potent EGF-dependent APOBEC3A Induction in Epithelial Cells: A Potential Source of Somatic Mutation During Carcinogenesis”

16:30 – 16:50  **Invited Speaker: Catriona Jamieson**, University of California San Diego, USA “Inflammation Driven Deaminase Deregulation Fuels Human Pre-Leukemia Stem Cell Evolution”

16:50 – 17:20  **Speaker Selected from Abstracts: Shisheng Huang**, ShanghaiTech University, China “A Cas-Embedding Strategy for Minimizing Off-Target Effects of Base Editors”

17:20 – 17:40  **Invited Speaker: Caixia Gao**, Chinese Academy of Sciences, China “Title TBA”

17:40 – 18:00  Closing Remarks including discussion on venue/dates for the next meeting – Deaminet 2022