Meeting of Experts on Education and Workforce Development
Toward Sequencing and Mapping of RNA Modifications

Wednesday, June 21, 2:30pm-4:30pm ET

This meeting of experts will be an opportunity for the committee members to have a discussion with workforce and education development experts as well as current trainees in the RNA Biology field whose research has focused on RNA chemical modifications. During this session we will discuss the workforce needs to support sequencing and analysis of RNA modifications. This will include getting a better understanding of the education and training needs for trainees at various levels. This will also be an opportunity to think about the benefits recruiting a diverse workforce would have in this area of research. This session will be 2 hours with 2 15-minutes presentations at the beginning, followed by an open discussion with all the experts present to learn information related to the goals laid out below.

WEDNESDAY, JUNE 21, 2023

Purpose

- Understand the workforce needs to support sequencing and analysis of RNA modifications. What education is required during each level of training (e.g., HS, undergrad, grad, post doc) to establish the proper workforce?
- Discuss how a diverse workforce can be recruited into the field of RNA Biology with capacities related to analyzing and understanding RNA chemical modifications. Examine the benefits of cultivating and maintaining a diverse workforce.

2:30–2:40 **Opening Remarks**
Steven Moss, National Academies
Lydia Contreras, University of Texas-Austin

2:40–3:10 **Opening Presentations on RNA Modifications Databases**
Each person will give a 15 minute presentation to help set the stage for the rest of the conversation.

Moderator:
Lydia Contreras, University of Texas-Austin

Speakers:
Tracy Johnson, University of California, Los Angeles
John Balchunas, The National Institute for Innovation in Manufacturing Biopharmaceuticals

3:10–4:15 **Open Discussion with Speakers and Discussants**

During this discussion time, we will have a moderated conversation where we ask speakers and invited discussants to comment on the questions related to the "Purpose" of the meeting.

Moderator:
Lydia Contreras, University of Texas-Austin

Discussants:
Charlie Wray, The Jackson Laboratory
Adedeji Aderounmu, University of Utah
Swapna Vidhur Daulatabad, National Cancer Institute
Sahiti Somalraju, Indiana University–Purdue University Indianapolis

4:15–4:30 **Closed Committee Discussion**

Speaker and Discussant Biographies

Lydia María Contreras is currently a Professor in the Department of Chemical Engineering at the University of Texas at Austin. She has previously served appointments in the Institute for Cell and Molecular Biology (ICMB) and is currently a part of the graduate study committees of the Biochemistry, Cell Molecular Biology and Microbiology departments. Her expertise lies in conducting fundamental studies of cellular stress responses, and she leads efforts in using molecular assays and techniques to evaluate cell toxicity induced by different sources of air pollution. She has served as the Primary Investigator for multiple NSF and NIH projects and has received the American Institute of Chemical Engineers (AICHE) Food, Pharmaceutical and Bioengineering Division Early Career Award and ACS BIOT Young Investigator Award. She received a B.S.E in Chemical Engineering from Princeton University in 2003, a Ph.D. in Chemical and Biomolecular Engineering from Cornell University in 2008, and was a post-doctoral Fellow with Dr. Marlene Belfort at the Wadsworth Center (NYS Dept. of Health). She has previously served on the NRC's Panel on Life Sciences.

Tracy Johnson earned her bachelor's degree from UCSD in Biochemistry and Cell Biology and her Ph.D. in Molecular and Cell Biology from UC Berkeley. She was a Jane Coffin Childs postdoctoral research fellow at the California Institute of Technology (Caltech). Dr. Johnson began her first faculty position at UCSD in and moved to UCLA to join the faculty in 2013.In 2020, Dr. Johnson was appointed Dean of Life Sciences at UCLA. Her research lab laboratory focuses on understanding mechanisms of gene regulation, particularly RNA splicing and RNA processing. In addition to her activities at UCLA, Dr. Johnson plays a leadership role in a number of professional societies. She is the current President of the Genetics Society of America. She has served on the RNA Society Board of Directors, the National Cancer Institute Board of Scientific Advisors, and as the chair of the Molecular Genetics NIH study section. She is currently on the Executive Board for the Society of HHMI Professors and recently served as its chair. Dr. Johnson has been the recipient of numerous awards. These include the NSF CAREER Award, the Presidential Early Career Award for Scientists and Engineers (PECASE), and in 2013 was named of the Top 20 Women Professors in California. In 2022 she received the Ruth Kirschstein Diversity in Science Award from the American Society for Biochemistry and Molecular Biology.

John Balchunas is the Workforce Director for the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) where he is responsible for guiding strategy around workforce and talent development for a federally-funded public private partnership focused on transforming biopharmaceutical manufacturing. John's career has largely centered around biopharma workforce and economic development. Prior to NIIMBL, John was responsible for business development and industry partnership for the professional development program at North Carolina State University's Biomanufacturing Training and Education Center (BTEC). Prior to BTEC, John served as the Director of Workforce Development for the North Carolina Biotechnology Center (NCBiotech) for 10 years where he forged an array of partnerships with industry to understand and communicate biopharmaceutical manufacturing workforce needs. John started his career as a technical writer in the biomanufacturing and medical diagnostic industries. John holds a Master of Science in Technical Communication and a Bachelor of Science in Microbiology from North Carolina State University and was selected as a Marano Fellow in the Aspen Institute's 2012-2013 Sector Skills Academy.

Charlie Wray is the Vice President of Education at The Jackson Laboratory. He focuses the majority of his time on education and training program development in genetics and genomics. He provides direction and strategic leadership for training programs for undergraduates, graduate students, post-doctoral fellows at JAX and for genetics education offerings for external scientists, teachers, professors, and healthcare professionals who participate in courses, workshops, and online programs. Earlier in his career, he served as bioinformatics curator for the Mouse Genome Database. Charlie has been a science educator since 1986, teaching high school and college and providing professional development for high school teachers and college professors. Recently, with other JAX colleagues, he created the *Teaching the Genome Generation* program which aims to increase student genomic and genetic literacy by training and equipping high school teachers. Previously as Director of Outreach for the Maine INBRE (NIGMS), he taught >20 intensive laboratory-based biomedical research training courses, including Functional Genomics, Molecular Neuroscience, Molecular Evolution, Environmental Toxicogenomics, Molecular Ecology and Population Genetics & Conservation Genetics. Charlie received his Ph.D. from Yale University and B.A. from Amherst College.

Swapna Vidhur Daulatabad is currently a Bioinformatics Analyst in the Pediatric Oncology Branch of CCR at NCI, NIH. His primary focus is on understanding and dissecting the nature of rare endocrine tumors and performing NGS data analysis of the POB and rare tumor initiative patients. Vidhur graduated from IUPUI with a Ph.D. in Bioinformatics and Data Science earlier this year, where he developed methods for functional and structural annotation of long non-coding RNAs. During his Doctoral research, vidhur has contributed significantly to the non-coding RNA scientific community and RNA-modification domain by publishing novel impactful tools and observations in highly cited journals. Vidhur has also served as an Adjunct Faculty at IUPUI for more than 4 years, mentoring and teaching more than 270 students in fundamental programming skills.

Sahiti Somalraju is a student at Indiana University-Purdue University (IUPUI). She is currently in her final year of her undergraduate studies in Biomedical Informatics, with a specialization in Bioinformatics. Additionally, she is a research assistant at the Janga Research Lab. Focusing on RNA modifications, her work in analyzing polyA tails and predicting m6A methylation has contributed to our understanding of RNA modifications and their diverse impacts on biological processes. As a promising young researcher, Sahiti is honored to share her insights and experiences at the conference, offering a fresh and innovative outlook on the intersection of education, workforce development, and RNA chemical modifications.