

AGENDA

FDA/NCTR-MAQC 2022 Conference (5th Annual Meeting of the MAQC Society)

Venue: U.S. FDA White Oak Campus Great Conference Room (Silver Spring, MD)
Note: All times are shown in Eastern Time Zone.

Monday September 26, 2022

8:00am-8:45am	Registration	
8:45am-9:00am	Welcome and Introduction	<ul style="list-style-type: none"> • Dr. Wendell Jones <i>Q² Solutions</i> • Dr. Tucker Patterson <i>FDA/NCTR (virtual)</i>
9:00am-9:10am	Opening Remarks	<ul style="list-style-type: none"> • Dr. Namandjé Bumpus <i>FDA Chief Scientist</i>
9:10am-9:30am	“From Genomics to AI – Reflections on the MAQC’s Journey to Improve Reproducibility in Life and Health Science”	<ul style="list-style-type: none"> • MAQC Panel • Dr. Leming Shi <i>Fudan Univ. (virtual)</i> • Dr. Benjamin Haibe-Kains <i>Princess Margaret Cancer Center (virtual)</i>
9:30am-10:15am	Special Invited Speaker – “Leakage and the Reproducibility Crisis in ML-based Science”	<ul style="list-style-type: none"> • Sayash Kapoor <i>Princeton University</i>
10:15am-10:25am	Q&A	
10:25am-10:40am	<i>Break</i>	

10:40am-12:01pm Parallel Sessions I-A and I-B		
	<u>Session I-A: XAI Programs</u>	Session Chair: <ul style="list-style-type: none"> • Dr. Cesare Furlanello HK3 Lab
10:40am-11:20am	Special Invited Speaker – “DARPA's explainable AI (XAI) program: A retrospective”	<ul style="list-style-type: none"> • Dr. Matt Turek DARPA (virtual)
11:20am-11:50am	“Drug repurposing for COVID-19 using explainable machine learning and mechanistic models of signal transduction circuits related to SARS-CoV-2 infection with real world data validation”	<ul style="list-style-type: none"> • Drs. Loucera & Dopazo Andalusian Public Foundation Progress & Health (virtual)
11:50am-12:01pm Q&A		
	<u>Session I-B: Real World NGS Challenges</u>	Session Chair: <ul style="list-style-type: none"> • Dr. Joshua Xu, FDA/NCTR
10:40am-11:10am	“Beyond SEQC2 – Next Phase with Real World Data”	<ul style="list-style-type: none"> • Dr. Don Johann UAMS Health (virtual)
11:10am-11:40am	“Some nonobvious factors that enhance or diminish observed and theoretical Illumina library complexity”	<ul style="list-style-type: none"> • Dr. Wendell Jones Q² Solutions
11:40am-11:50am Q&A		
12:01pm-1:15pm Lunch Break		
1:15pm-3:00pm Parallel Sessions II-A and II-B		
	<u>Session II-A: Reproducible AI/ML in Toxicology</u>	Session Chair: <ul style="list-style-type: none"> • Dr. Shraddha Thakkar FDA/CDER
1:15pm-1:40pm	“AI or Animal – A reproducibility perspective”	<ul style="list-style-type: none"> • Dr. Weida Tong DBB Director, FDA/NCTR
1:40pm-2:05pm	“Reproducible AI for supporting regulatory applications – a case study”	<ul style="list-style-type: none"> • Dr. Ting Li FDA/NCTR/DBB
2:05pm-2:30pm	“Enhancing reproducibility of language models in BERTox”	<ul style="list-style-type: none"> • Dr. Leihong Wu FDA/NCTR/DBB
2:30pm-2:55pm	“Improving preclinical pathology analysis with PathologAI”	<ul style="list-style-type: none"> • Dr. Cesare Furlanello HK3 Lab
2:55pm-3:00pm Q&A		
	<u>Session II-B: Tools and Methods for Reproducibility + “Hot Topics” (Posters)</u>	Session Chair:

1:15pm-1:40pm	“An automated bioinformatic software testing and benchmarking platform to standardize the development of accurate, reproducible, and scalable omics analysis tools”	<ul style="list-style-type: none"> • Gwenn Berry <i>Magna Labs, Inc.</i>
1:40pm-2:05pm	“Reproducible toxicogenomics analysis in the three-sample scenario”	<ul style="list-style-type: none"> • Dr. Dongying Li <i>FDA/NCTR/DBB</i>
2:05pm-2:10pm	Q&A	
2:10pm-2:25pm	“LeaSH: a High-Throughput COVID-19 Test to Profile Viral and Host Transcriptomes by Next Generation Sequencing” (Poster)	<ul style="list-style-type: none"> • Dr. Oswaldo Lozoya <i>Q² Solutions</i>
2:25pm-2:40pm	“Evaluation of mutagenic susceptibility of different stages in germ cell development of <i>Caenorhabditis elegans</i> using next generation sequencing” (Poster)	<ul style="list-style-type: none"> • Dr. Tao Chen <i>FDA/NCTR/DGMT</i> (virtual)
2:40pm-2:55pm	“Explainable approach for species identification using LIME” (Poster)	<ul style="list-style-type: none"> • Dr. Aarti Milind Karande <i>S.P.I.T. (virtual)</i>
2:55pm-3:00pm	Q&A	
3:00pm-3:20pm	<i>Break and Posters</i>	
3:20pm-5:20pm	Session III	
	<i>Session III: precisionFDA NCTR Indel Challenge</i>	Session Chair: <ul style="list-style-type: none"> • Dr. Samir Lababidi <i>FDA/ODT</i>
3:20pm-3:40pm	“NCTR indel calling challenge from oncopanel sequencing data”	<ul style="list-style-type: none"> • Dr. Binsheng Gong <i>FDA/NCTR/DBB</i>
3:40pm-3:55pm	Winner presentation #1	<ul style="list-style-type: none"> • in-person
3:55pm-4:10pm	Winner presentation #2	<ul style="list-style-type: none"> • virtual
4:10pm-4:25pm	Winner presentation #3	<ul style="list-style-type: none"> • virtual
4:25pm-4:40pm	Winner presentation #4	<ul style="list-style-type: none"> • virtual
4:40pm-4:55pm	Winner presentation #5	<ul style="list-style-type: none"> • virtual
4:55pm-5:10pm	Winner presentation #6	<ul style="list-style-type: none"> • virtual
5:15pm-5:20pm	Closing Announcements and Adjourn	

Tuesday September 27, 2022

8:00am-8:45am	Registration	
8:45am-8:50am	Introduction	<ul style="list-style-type: none"> • Dr. Wendell Jones <i>Q² Solutions</i>
8:50am-9:30am	Keynote: “Reproducibility and Transparency in Medical AI”	<ul style="list-style-type: none"> • Dr. Hugo Aerts <i>Dana-Farber, Harvard (virtual)</i>
9:30am-9:35am	Q&A	
9:35am-10:40am	Session IV MAQC Society Awards	
	Award announcements – MAQC Society Award and Outstanding Reproducibility in Science Award	
9:35am-9:40am	MAQC Society Award – Dr. Ira Deveson, <i>Garvan Institute of Medical Research</i> Outstanding Reproducibility in Science Award – Dr. Marzyeh Ghassemi, <i>MIT</i>	<ul style="list-style-type: none"> • Dr. Becky Kusko <i>Immuneering</i> • Dr. Cesare Furlanello <i>HK3 Lab</i>
9:40am-10:10am	Outstanding Reproducibility in Science Award – “Reproducibility Challenges in AI/ML”	<ul style="list-style-type: none"> • Dr. Marzyeh Ghassemi <i>MIT</i>
10:10am-10:40am	Outstanding Reproducibility in Science Award Runner-up – “Reproducibility Issues with Pre-Clinical Data”	<ul style="list-style-type: none"> • Dr. Brian Nosek <i>University of Virginia</i>
10:40am-10:50am	<i>Break</i>	
10:50am-12:01pm	Parallel Sessions V-A and V-B	
	<u>Session V-A: Single Cell Annotation and Inference</u>	Session Chair:
10:50am-11:20am	“De novo analysis of bulk RNA-seq data at spatially resolved single-cell resolution”	<ul style="list-style-type: none"> • Dr. Xiaohui Fan <i>Zhejiang University, China (virtual)</i>
11:20am-11:50am	“A signaling-informed neural network for scRNA-seq annotation of known and unknown cell types”	<ul style="list-style-type: none"> • Drs. Joaquin Dopazo & Carlos Loucera <i>Andalusian Public Foundation Progress & Health (virtual)</i>
11:50am-12:01pm	Q&A	
	<u>Session V-B: Enhancing Reproducibility of and Confidence in Studies</u>	Session Chair:
10:50am-11:20am	“Systematizing Confidence in Open Research and Evidence (SCORE)”	<ul style="list-style-type: none"> • Dr. Brian Nosek <i>University of Virginia</i>

11:20am-11:50pm	“The FAIR Cookbook: pharma and academics join forces to make data FAIR”	<ul style="list-style-type: none"> • Dr. Susanna Sansone <i>University of Oxford</i>
11:50am-12:01pm	Q&A	
12:01pm-1:00pm	Lunch Break	
1:00pm-1:45pm	Keynote: “Interpretable AI”	<ul style="list-style-type: none"> • Dr. Zachary Lipton <i>CMU</i>
1:45pm-2:00pm	Q&A and Break	
2:00pm-3:45pm	Parallel Sessions VI-A and VI-B	
	<u>Session VI-A: SEQC2 Targeted RNA-seq</u>	Session Chair: <ul style="list-style-type: none"> • Dr. Wendell Jones <i>Q² Solutions</i>
2:00pm-2:30pm	“Targeted RNA-seq for small variant detection to enhance precision medicine”	<ul style="list-style-type: none"> • Dr. Dan Li <i>FDA/NCTR/DBB</i> (virtual)
2:30pm-3:00 pm	“Integrated Calling and Evaluation of Gene Fusion Detection by Targeted RNA Sequencing of Reference Samples with Long and Short Reads”	<ul style="list-style-type: none"> • Dr. Joshua Xu <i>FDA/NCTR/DBB</i>
3:00pm-3:30pm	“Resolving complex gene expression and splicing with targeted long-read RNA sequencing”	<ul style="list-style-type: none"> • Dr. Pawel Labaj <i>Jagiellonian University</i> (virtual)
3:30pm-3:40pm	Q&A	
	<u>Session VI-B: New Single-Cell Assays and Tools</u>	Session Chair:
2:00pm-2:30pm	“Knowledge-graph-based cell-cell communication inference for spatially resolved transcriptomic data with SpaTalk”	<ul style="list-style-type: none"> • Dr. Xiaohui Fan <i>Zhejiang University, China</i> (virtual)
2:30pm-3:00pm	“Mutual genome and transcriptome enrichment and sequencing in single cells with ResolveOME amplification chemistry to illuminate complex biological mechanisms”	<ul style="list-style-type: none"> • Dr. Isai Salas-Gonzalez <i>BioSkryb Genomics</i>
3:00pm-3:10pm	Q&A	
3:40pm-3:45pm	Short Break	
3:45pm-4:00pm	Plans for 6th Annual Meeting of the MAQC Society in 2023	
4:00pm-5:00pm	Discussion for new MAQC Society Working Groups	
5:00pm-5:05pm	Closing Remarks	