NIBR Science of Therapeutics Symposium

NIBR Science of Therapeutics Symposium: Coronavirus Antivirals, June 8, 2021

The NIBR Science of Therapeutics (NSofT) Symposium aims to bring interested members of the scientific community together in the spirit of open science. The virtual event will feature keynotes and talks by experts from industry and academia around a common theme, with the goal of sharing ‘hard core’ science for drug hunters to advance research and improve potential outcomes for patients.

We envision the symposium as an annual forum for the discussion of timely topics in the science of therapeutics. This year’s topic: Coronavirus Antivirals. We look forward to hosting a global audience of scientists intent on finding therapeutic solutions to this ongoing health crisis.

The symposium is free and open to the scientific community.

Schedule & Speaker Biographies
Footnotes:

Video recordings of talks will be posted following the event.

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**Schedule**

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<td><strong>Coronavirus Antivirals</strong></td>
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<td>9:00 AM - 9:10 AM ET</td>
<td><strong>Opening Remarks</strong></td>
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<td>Jay Bradner, MD, President, Novartis Institutes for BioMedical Research</td>
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<td>9:10 AM - 9:50 AM ET</td>
<td><strong>Opening Keynote</strong></td>
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<td>Session chair: Jonathan M. Spector, MD, MPH, Novartis Institutes for BioMedical Research</td>
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<td>Pei-Yong Shi, PhD, University of Texas Medical Branch at Galveston</td>
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<td><em>SARS-CoV-2 Biology and countermeasure development</em></td>
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June 8, 9:00 AM - 3:30 PM ET
**Coronavirus Antivirals**

9:50 AM - 10:45 AM ET
**Session 1 - Targeting coronavirus entry**
Session chair: Peter Pertel, MD, MPH, Novartis Institutes for BioMedical Research

Lynn Connolly, MD, PhD, Adagio Therapeutics
*ADG20: A broadly neutralizing antibody for the prevention and treatment of COVID-19*

Marcel Walser, PhD, Molecular Partners AG
*Anti-SARS-CoV-2 multi-domain DARPin® molecules as highly potent therapeutics*

10:45 AM - 10:55 AM ET
Break

10:55 AM - 11:50 AM ET
**Session 2 - Targeting the coronavirus main protease**
Session chair: Julien Papillon, PhD, Novartis Institutes for BioMedical Research

Nir London, PhD, Weizmann Institute of Science
*COVID-Moonshot: Crowdsourcing Mpro drug discovery in the open*

Celia Schiffer, PhD, Umass Medical School
&
Stephanie Moquin, PhD, Novartis Institutes for BioMedical Research
*Designing inhibitors to preemptively avoid drug resistance*

11:50 AM - 12:05 PM ET
Break

12:05 PM - 12:15 PM ET
**Afternoon kick-off**
John Tsai, MD, Head of Global Drug Development and Chief Medical Officer for Novartis
*Agile coordination around clinical trials: The future of pandemic preparedness*

12:15 PM - 1:35 PM ET
**Session 3 - Targeting the coronavirus polymerase**
Session chair: Jennifer Leeds, PhD, Novartis Institutes for BioMedical Research

John Bilello, PhD, Gilead Sciences, Inc.
*Remdesivir in response to the SARS-CoV-2 pandemic*

Ashleigh Shannon, PhD, University of Marseille
*Nucleoside analogues: Dual targeting of RdRp and NiRAN domains of SARS-CoV nsp12*

Jay Grobler, PhD, Merck Research Laboratories
*Molnupiravir: A broad spectrum antiviral for the treatment of COVID-19*
June 8, 9:00 AM - 3:30 PM ET
Coronavirus Antivirals

1:35 PM - 2:40 PM ET
Session 4 - Emerging targets
Session chair: Kumar Singh Saikatendu PhD, Takeda Pharmaceuticals

Kumar Singh Saikatendu, Takeda Pharmaceuticals
Emerging targets of SARS-CoV-2 replication complex

Rostom Ahmed-Belkacem, PhD, University of Montpellier
Dinucleosides S-adenosyl-L-methionine analogs as inhibitors of RNA methyltransferases. The hazards of a bisubstrate strategy

Karla J.F. Satchell, PhD, Feinberg School of Medicine, Northwestern University
Structural biology of the nsp16/nsp10 2’-O-methyltransferase

Joseph Newman, PhD, Oxford University
Structure and X-ray fragment screening of the SARS-CoV-2 helicase nsp13

2:40 PM - 3:20 PM ET
Closing Keynote
Christine Kreuder Johnson, VMD, PhD, One Health Institute, University of California, Davis
Emerging pandemic threats in an era of accelerated global change

3:20 PM - 3:30 PM ET
Closing remarks
Jay Bradner, President, Novartis Institutes for BioMedical Research

Speakers

Opening Keynote
Pei-Yong Shi, PhD

*John Sealy Distinguished Chair in Innovations in Molecular Biology, University of Texas Medical Branch*

Pei-Yong Shi works on RNA virus, drug discovery, and vaccine research, with experience in both basic and translational research in a career that has spanned public health, industry, and academia. Many of his technologies have been used in pharmaceutical companies for countermeasure development, including a reporter neutralization assay that has enabled the rapid development of Pfizer’s COVID-19 vaccine.

Session 1 - Targeting viral entry

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Lynn Connolly, MD, PhD

*Chief Medical Officer, Adagio Therapeutics*

Lynn Connolly has more than 15 years of experience in infectious diseases, including 10 years experience in biotech focused on the discovery and development of new therapies for a broad range of infectious diseases. She is currently CMO at Adagio Therapeutics, a company working to develop best-in-class antibodies that can broadly neutralize SARS-CoV-2, SARS-CoV, and additional pre-emergent coronaviruses.
Marcel Walser, PhD

Senior Director, Research, Molecular Partners

Dr. Walser leads several activities within the Lead Generation Department at Molecular Partners to enable developable DARPin\textsuperscript{®} candidates for various therapeutic programs. He was recently part of a team involved in developing a novel platform for highly specific peptide:MHC DARPin\textsuperscript{®} binders in multi-specific T-cell engager formats and, in March 2020, Dr. Walser started and lead research activities to develop therapeutic DARPin\textsuperscript{®} antivirals against SARS-CoV-2, which are currently in clinical development.

Session 2 - Targeting the coronaviral polymerase

Nir London, PhD
Dr. London completed his PhD in computational structural biology at the Hebrew University in 2012 and then pursued a post-doctoral fellowship with Brian Shoichet at UCSF. He joined the Weizmann Institute of Science in 2015, where his lab is developing new technologies to discover and functionalize covalently acting compounds, and applying them to drug discovery and chemical biology.

Stephanie Moquin, PhD

Principal Scientist, Novartis Institutes for Biomedical Research (NIBR)

Dr. Moquin is a virologist who co-leads the NIBR project team that is working to develop a coronavirus main protease (Mpro) inhibitor. She obtained her PhD in Biomedical Sciences from UCSF, where she studied genomic interactions of the Epstein-Barr virus. She then joined NIBR, first as a postdoctoral fellow, working on the mechanism of action of a dengue antiviral and helping progress the molecule toward the clinic.
Celia Schiffer, PhD

Gladys Smith Martin Chair in Oncology, Professor of Biochemistry and Molecular Pharmacology, and Director of the Institute of Drug Resistance, University of Massachusetts Medical School

As a structural virologist and molecular biophysicist, Dr. Schiffer integrates crystallography, enzymology, molecular dynamics and organic chemistry to elucidate molecular mechanisms of drug resistance and develop robust inhibitors that avoid resistance. Strategies she derived through her work with viral proteases of HIV and Hepatitis C are generally applicable in developing novel drugs that are less susceptible to resistance in other quickly evolving diseases, and she is currently applying these strategies to the SARS-CoV-2 viral proteases.

Session 3 - Targeting the coronaviral polymerase

John Bilello, PhD
Director of Discovery Virology, Gilead Sciences

John Bilello leads the Respiratory and Emerging Viruses group at Gilead, focusing on coronavirus antiviral drug discovery, in addition to advancing other respiratory virus programs to the clinic. Prior to joining Gilead, he served as a Principal Scientist in Infectious Diseases at Merck where he led discovery teams to evaluate HCV preclinical compounds; the implementation of novel antiviral programs for respiratory and emerging viruses; and novel vaccine adjuvant discovery activities that resulted in clinical-stage programs.

Jay Grobler, PhD

Executive Director, Infectious Disease and Vaccines Discovery, Preclinical, and Early Development (DPED), Merck Research Laboratories

Jay Grobler leads early clinical development for infectious disease programs and oversees biology for pipeline and marketed infectious disease products at Merck. Before assuming this role, he held leadership positions in discovery and early clinical development focused on identifying new agents to treat infectious diseases, including HIV and HCV. Among his contributions, Dr. Grobler conducted seminal studies on the mechanism of action of HIV integrase inhibitors, contributing to the identification of the antiviral medicine Isentress.
Ashleigh Shannon, PhD

Postdoctoral researcher, AFMB, University of Aix-Marseille

Dr. Shannon is a postdoctoral researcher in the ‘viral replicase’ lab of Bruno Canard at the Architecture et Fonction des Macromoléculues Biologiques, at the University of Aix-Marseille in France. There, she focuses on the structure and function of enzymes involved in viral replication and RNA capping, and their use in antiviral drug design.

Session 4 - Emerging targets

Rostom Ahmed-Belkacem, PhD

Postdoctoral research scientist, Institute of Biomolecules Max Mousseron

Rostom Ahmed-Belkacem is a postdoctoral research scientist at the Institute of Biomolecules Max Mousseron in Montpellier, France. His main research interests currently focus on the
optimization of hits compounds to fight SARS-CoVs and Dengue infections. Using molecular
docking, he designs and proposes novel nucleosides targeting the 2'O-MTase of SARS-CoV-
2 and supervises their synthesis.

Joseph Newman, PhD

Postdoctoral researcher, University of Oxford

Dr. Newman is a postdoctoral researcher at the University of Oxford, where he started in the
Structural Genomics Consortium in 2013 before joining the Centre for Medicines Discovery.
His current research interests focus on the structure and function of DNA repair enzymes
including helicases and nucleases. He holds an undergraduate degree in biochemistry from
University of Edinburgh and PhD in structural biology from University of Sheffield.

Karla J.F. Satchell, PhD
Professor of Microbiology-Immunology; Principal Investigator & Co-Director, Center for Structural Genomics of Infectious Diseases, Feinberg School of Medicine, Northwestern University

Dr. Satchell earned her PhD in Microbiology at the University of Washington and conducted post-doctoral studies at Harvard Medical School. At Northwestern University Feinberg School of Medicine, she conducts research on the mechanism of action and role in bacterial pathogenesis of MARTX family bacterial toxins. She also leads a multi-site HTP structure biology center that in 2020 shifted to structural biology of SARS-CoV-2. She is a fellow for the American Academy of Microbiology and AAAS.

Kumar Singh Saikatendu, PhD

Director, Drug Discovery Sciences Group, Takeda Pharmaceuticals

Kumar Singh Saikatendu obtained his PhD in molecular biophysics before completing post-docs in structural biology at Southwestern Medical Center at Dallas and Scripps Institute in La Jolla, where he studied SARS-CoV1. He currently leads Takeda’s SARS-CoV-2 research program, which aims to develop direct-acting antivirals targeting various coronaviral replication proteins with small molecule inhibitors, and the spike protein with neutralizing antibodies. The project aspires to develop new, affordable medicines for the current and future coronaviral pandemics.

Closing Keynote
Christine Kreuder Johnson, VMD, PhD

Professor of Epidemiology and Ecosystem Health; Director of the EpiCenter for Disease Dynamics at the One Health Institute, University of California, Davis

Dr. Johnson leads the EpiCenter for Emerging Infectious Disease Intelligence, one of NIAID’s Centers for Emerging Infectious Disease, investigating environmental drivers impacting the spread of ebolaviruses, coronaviruses, and arboviruses. Her transdisciplinary research on the impact of environmental change on animal and human health informs public policy and disease preparedness. Her research has spawned pioneering approaches characterizing emerging and re-emerging pathogens at the animal-human interface in landscapes that constitute “fault lines” for disease emergence, spillover and spread.

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