APS WK9: Advances in COVID-19 Prevention and Treatment Enabled by Structural Biology Research

Tuesday, May 11, Morning

10:00 – 10:05 Kay Perry (NE-CAT, Argonne National Laboratory)
Opening Remarks

10:05 – 10:25 Jason McLellan (University of Texas-Austin)
Structural-based Design of Coronavirus Vaccine Antigens

10:25 – 10:45 Fang Li (University of Minnesota)
Structural Basis of Receptor Recognition by SARS-CoV-2

10:45 – 11:05 Nicholas Hurlburt (Fred Hutchinson Cancer Research Center)
Structural Basis for Potent Neutralization of SARS-CoV-2 and the Role of Antibody Affinity Maturation

11:05 – 11:25 Ian Wilson (The Scripps Research Institute)
Structural Insights into Antibody Responses to SARS-CoV-2 RBD and Escape Mutants

11:25 – 11:45 Q/A, Break

11:45 – 12:05 Pamela Bjorkman (California Institute of Technology)
Neutralizing Antibodies against Coronaviruses

12:05 – 12:25 Cheng Zhang (University of Pittsburgh)
Structural Basis for SARS-CoV-2 Neutralization by Potent and Diverse Nanobodies

12:25 – 12:45 James Davis (Advanced Leadership Computing Facility, Argonne National Laboratory)
SARS-Cov-2 in the City of Houston: Insights from the Largest Sequencing Effort in the United States in 2020

12:45 – 1:05 Q/A, Break

1:05 – 1:25 Drew Weissman (University of Pennsylvania)
Nucleoside-modified mRNA-LNP Vaccine for SARS-CoV-2

1:25 – 1:45 Andrea Carfi (Moderna)
Coming soon

1:45 – 2:05 Erica Saphire (La Jolla Institute for Immunology)
Antibodies Against SARS-CoV-2: A Global Collaboration

2:05 – 2:25 Q/A, Roundtable

Wednesday May 12, Morning

10:00 – 10:05 Karolina Michalska (SBC-CAT, Argonne National Laboratory)
Opening Remarks

10:05 – 10:25 Youngchang Kim (SBC-CAT, Argonne National Laboratory)
Overview of SARS-CoV-2 Proteome Structural Study

10:25 – 10:45 Alice Douangamath (Diamond Light Source, UK)
The XChem Platform at Diamond Light Source: Addressing Covid-19 with Fragment-based Drug Discovery

10:45 – 11:05 Arvind Ramanathan (Advanced Leadership Computing Facility, Argonne National Laboratory)
Accelerating the Discovery of Therapeutics Using Artificial Intelligence (AI) against COVID-19

11:05 – 11:25 Natalie Strynadka (University of British Columbia)
Crystallographic Structure of Wild-type SARS-CoV-2 Main Protease Acyl-enzyme Intermediate with Physiological C-terminal Autoprocessing Site

11:25 – 11:45 Q/A, Break

11:45 – 12:05 Andrew Mesecar (Purdue University)
*Structure-based Design of Broad-spectrum Coronavirus Protease Inhibitor*s

12:05 – 12:25 Robert Hoffman (Pfizer)
The Discovery of Ketone-based Covalent Inhibitors of Coronavirus 3CL Proteases for the Potential Treatment of COVID-19

12:25 – 12:45 Yogesh Gupta (University of Texas-San Antonio)
Structural Basis of RNA Cap Modification by SARS-CoV-2: An Inside View

12:45 – 1:05 Karla Satchell (Northwestern University)
Structural Insights into SARS-CoV-2 mRNA Capping

1:05 – 1:25 Q/A, Break

1:25 – 1:45 Haley Dugan (University of Chicago)
Memory B Cells Targeting the SARS-CoV-2 Nucleoprotein Display Endemic Strain Cross-reactivity and Adapt over Time

1:45 – 2:05 Andrzej Joachimiak (SBC-CAT, Argonne National Laboratory)
Structures of Human Fabs in Complex with N-protein Nucleocapsid RNA Binding Domain

2:05 – 2:25 Christine Kreuder Johnson (University of California-Davis)
Catalyzing Innovation for Surveillance of Emerging Pandemic Threats

2:25 – 2:45 Jonna Mazet (University of California-Davis)
Transcending Disciplinary Boundaries to Identify and Characterize Risk from Emerging Viruses before They Become Disease X

2:45 – 3:05 Q/A, Roundtable

3:05 – 3:10 Michael Becker (GM/CA@APS, Argonne National Laboratory)
Closing Remarks