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DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY COLLOQUIUM  
UTAH STATE UNIVERSITY

*SARS-CoV-2 Emergence and the Race to Identify Treatments  
and Vaccines for Prevention of Covid-19*

2020

Coronavirus disease of 2019 (Covid-19) caused by emergence of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has caused an international public health crisis. SARS-CoV-2 infection leads primarily to a respiratory disease, with a wide spectrum of severity ranging from asymptomatic infections to those with symptoms of fever, cough, fatigue and myalgia, and in a small percentage of infected individuals may progress to an acute respiratory distress syndrome (ARDS). The most severe symptoms tend to occur in those over 65-years-of age, and those with comorbidities such as cardiovascular disease, diabetes mellitus, and obesity. Remarkably, children have milder disease and progress to ARDS less often than do adults, even though a multisystem inflammatory syndrome has been identified in a small number of children with COVID-19. The international scientific community has marshaled its forces to develop animal models for the identification of antiviral therapies for treatment of Covid-19, and vaccines for prevention of SARS-CoV-2 infection. In March 2020, the Institute for Antiviral Research at Utah State University (USU) received NIH funding to develop a SARS-CoV-2 infection model in hACE2-hamsters (transgenic animals developed by Dr. Zhongde Wang at USU) that demonstrates a progression from infection to a disease state comparable to that seen in severe human infections with COVID-19.

Clinical signs observed in hACE2-hamsters after infection by SARS-CoV-2, include elevated body temperatures, reduced mobility, weight loss, lung injury, and mortality. In addition, we observed virus titers in lungs, heart and brain tissues, with the highest titers ( $10^6$  logs) observed in lungs on days 1-3. This model will be used to evaluate potential antiviral therapies and vaccines for COVID-19.

4-5PM (MDT) | Zoom

Meeting ID: 991 3991 8394

Passcode: 4W3tYY

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