

UCSD NANOENGINEERING/CHEMICAL ENGINEERING  
*Virtual* **SEMINAR SERIES**

Wednesday, February 24, 2021

Seminar Presentation: 11:00am - 12:00pm PST

**Zoom Seminar**

*“Hitting the diagnostic sweet spot: Point-of-care SARS-CoV-2 salivary antigen testing with an off-the-shelf glucometer”*

**Drew Hall, PhD***Associate Professor**Department of Electrical and Computer Engineering**University of California at San Diego,**with an Affiliate appointment in the Department of Bioengineering*

**Abstract:** Significant barriers to the diagnosis of latent and acute SARS-CoV-2 infection continue to hamper population-based screening efforts required to contain the COVID-19 pandemic in the absence of effective antiviral therapeutics or vaccines. This talk describes an aptamer-based SARS-CoV-2 salivary antigen assay employing only low-cost reagents (\$3.20/test) and an off-the-shelf glucometer. The test was engineered around a glucometer as it is quantitative, easy to use, and the most prevalent piece of diagnostic equipment globally making the test highly scalable with an infrastructure that is already in place. In clinical testing, the developed assay detected SARS-CoV-2 infection in patient saliva across a range of viral loads - as benchmarked by RT-qPCR - within one hour, with 100% sensitivity (positive percent agreement) and distinguished infected specimens from off-target antigens in uninfected controls with 100% specificity (negative percent agreement).

**Educational Development:** This talk will review general *in-vitro* diagnostic techniques, how to take research from concept through clinical testing, and how to systematically optimize a complex assay.

**Biosketch:** Drew A. Hall received the B.S. degree in computer engineering with honors from the University of Nevada, Las Vegas in 2005, and the M.S. and Ph.D. degrees in electrical engineering from Stanford University in 2008 and 2012, respectively. From 2011 to 2013, he was a Research Scientist in the Integrated Biosensors Laboratory at Intel Corporation. Since 2013, he has been with the Department of Electrical and Computer Engineering, University of California at San Diego, where he is currently an Associate Professor with an Affiliate appointment in the Department of Bioengineering. His research interests include bioelectronics, biosensors, analog circuit design, medical electronics, and sensor interfaces.

Register to receive a zoom link the day of the seminar:

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