DETECTION OF SARS-COV-2 RNA IN NASOPHARYNGEAL SWAB AND SALIVA USING AN RNA-BRIDGED DNA HYDROGEL CAPILLARY SENSOR. **Honghong Wang,** X. Chris Le, Division of Analytical and Environmental Toxicology, Department of Laboratory Medicine and Pathology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta, T6G 2G3, Canada. (honghon2@ualberta.ca)

Rapid and sensitive detection of specific nucleic acid sequences of infectious agents is critical for diagnosis of infectious diseases and community surveillance. The objective of this research was to apply a newly developed point-of-care technique to the determination of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) RNA. The viral RNA was extracted from nasopharyngeal swab and saliva samples. The viral RNA was detected using an RNA-bridged DNA hydrogel capillary sensor, a technique we developed for the detection of specific RNA sequences. Results from the analysis of 17 nasopharyngeal swab samples and 10 saliva samples were in agreement with the results of the standard polymerase chain reaction (PCR) analysis. Integration of the CRISPR/Cas13a into the RNA-bridged DNA hydrogel facilitated recognition of the specific RNA sequence and increased the detection specificity. This technique provided visual detection with the naked eyes, without the need for any photoelectric equipment for detection. Quantification was achieved by measuring distances using a ruler. This technique has great potential for point-of-care, onsite, and at-home applications.