

SARS-CoV-2 Environmental Surface Testing

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Environmental monitoring during the COVID-19 pandemic can be used as a tool to identify locations of asymptomatic or pre-symptomatic carriers, focus clinical testing, and confirm cleaning protocols. LuminUltra developed a surface testing method for the SARS-CoV-2 virus that allows for swabs of high-touch surfaces to be rapidly analyzed for presence of the virus. Researchers at Acadia University adopted this method and developed an environmental monitoring program for the campus as it welcomed students back to classes.



Figure 1: Campus Sampling Locations

- Since September 2020, weekly samples of high-touch surfaces have been collected and analyzed at Acadia
- Surfaces include entrance door handles and elevator buttons of residences, COVID-19 testing centers, meal hall and other high traffic areas
- Collected samples are immediately preserved and transported to the lab in the K.C. Irving Environmental Science Centre for analysis

Method

- Viral sample RNA is captured in a resin and washed
- Purified RNA is then mixed with reagents and analyzed with a LuminUltra GeneCount qPCR
- RNA is “reverse-transcribed” into DNA, then small pieces of DNA are used to amplify sections of viral sequence that is monitored by the device to generate quantitative results based on a cycle threshold

Results

- Over 340 samples collected with a few indeterminate results
- In those instances, additional samples are collected from the same location and analyzed with a duplicate of the original sample
- In all cases, the subsequent results have been non-detect
- All indeterminate results are shared with LuminUltra to help with method optimization

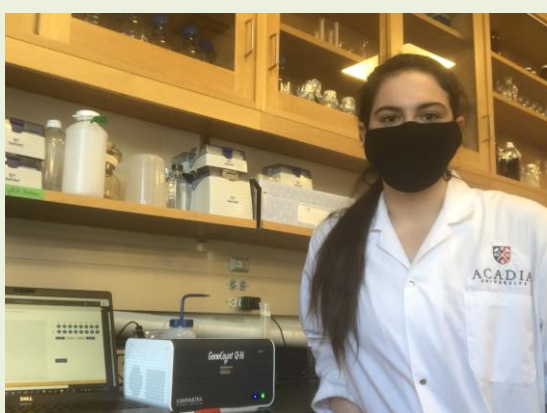


Figure 2: Undergraduate Engineering student Claire Spearns

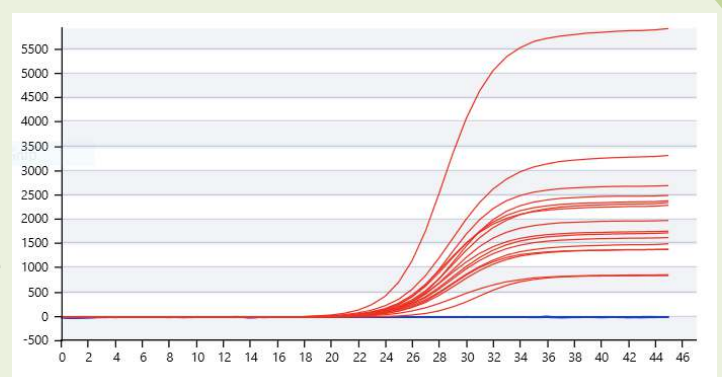


Figure 3: qPCR results
*red represents an internal control and blue represent SARS-CoV-2



A.D. Foulis Chair

