Rapid Detection of SARS-CoV-2 Viral Nucleic Acids Based on Surface Enhanced Infrared Absorption Spectroscopy

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Figure S1. Statistics of the SEIRA spectra collected from different samples in different groups: t-nCoV-N, p-nCoV-N, t-nCoV-ORF and t-non-nCoV. The spectra are shifted along the y-axis for clarity of presentation.



Figure S2. (a) Comparison of the SEIRA spectra between the complementary DNA target (t-nCoV-N, SARS-CoV-2 sequence), thiol-modified DNA probe (p-nCoV-N) and noncomplementary DNA target (t-nCov-ORF, based on the sequence of COVID-19 strain). (b) From top to bottom: the 2nd derivative of the spectra of t-nCoV-N, loading plot of PC1 for the spectra obtained from t-nCoV-N and t-nCoV-ORF samples, and loading plot of PC2 for the spectra obtained from t-nCoV-N and t-nCoV-ORF samples. The red and blue bars indicate characteristic absorption peaks for identification of t-nCoV-N and t-nCOV-N



Figure S3. (a) Comparison of the SEIRA spectra between the complementary DNA target (t-nCoV-N, SARS-CoV-2 sequence), thiol-modified DNA probe (p-nCoV-N) and noncomplementary DNA target (t-non-nCoV, sequence synthesized by company). (b) From top to bottom: the 2nd derivative of the spectra of t-nCoV-N, loading plot of PC1 for the spectra collected from t-nCoV-N and t-non-nCoV samples, and loading plot of PC2 for the spectra collected from t-nCoV-N and t-non-nCoV samples. The red and blue bars indicate characteristic absorption peaks for identifying t-nCoV-N and t-non-nCoV based on PC1 and PC2, respectively.



PC1 (44.1%)





Figure S4. PCA analysis of a set of 19 SARS-CoV-2 sequence samples.







Figure S5. PCA analysis of a set of 16 non-SARS-CoV-2 sequence samples.