Cystic fibrosis (CF) is a genetic disease that causes a buildup of sticky mucus, trapping microorganisms. This leads to chronic lung infections and makes breathing increasingly difficult. Patients experience lung inflammation and pulmonary exacerbations (PEs) or a point of acute health. PEs increase morbidity and decrease lung function. Although the cause of PEs is unknown, the shift in health is often attributed to changes in lung microbiota. Research has been done showing possible connections between specific bacteria and PEs. However, little research has been done on other lung microorganisms and their role in PE onset.

Viruses have been detected in sputum samples from CF patients experiencing a PE. They are also found in close to 50% of patients experiencing a PE. Viral infections in CF patients are difficult to treat and compounded with bacteria are even more complex to treat. Thus, patients often require more antibiotics and longer hospitalization. Therefore, early detection of viruses can play a major role in prevention and decreased severity of PEs. Research has shown that bacteria can be a possible health indicator; something measurable that represents a biological state or condition. Thus, since viruses seem to have such a large impact on PEs, it is possible that they too could be an indicator of health.

Two very common respiratory viruses found in CF patients, human rhinovirus (HRV) and respiratory syntactical virus (RSV), will be researched. Sputum samples have been collected from one adult patient and will be collected from several adolescent patients. HRV and RSV are expected to be detected in both the adult patient and the adolescent patients. They both are expected to be correlated with changes in health. Because the selected viruses are commonly found in CF patients during stable periods and during PEs, they are expected to be present.