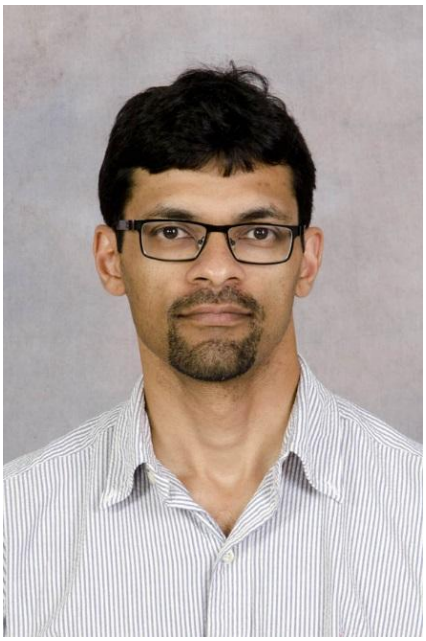

Theo Moraes, MD, PhD, FRCPC

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The major focus of my research with respect to Cystic fibrosis (CF) is the development of primary human airway epithelial cell culture. These are cells that will be grown in an air liquid interface. In that regard, they will be a good model of the in vivo situation. These cultures can be taken from an individual patient, so we can potentially study an individual patient's epithelial response in the lab and get a sense of why an individual may respond differently to different medications or why an individual is behaving a certain way to various factors (such as a viral infection). My research applies to CF because we can take epithelial samples from an individual with CF and grow those epithelial cells in culture to study them. Right now, we are doing this by performing a nasal brushing, with no need for sedation or anesthesia.

This model can potentially lead to improved treatment for CF patients since being able to take an individual's epithelial cells and study them may allow us to better predict mechanisms of disease, such as why some children with CF may behave differently than other children. It may also allow us predict a response to therapeutics before we need to treat the patient. Some CF medications are toxic while some are expensive, so it would help to have to a way to learn which children would benefit most from therapeutics. This information may also provide us with clues as to how drugs are working and how different CF mutations lead to problems. Currently, most of the epithelial culture work comes from cells obtained from patients who have died or had a lung transplant. If we can start studying the general population, we can make some potentially important findings based on CF in general as opposed to only based on the population that is very sick.

My main motivation to study and become involved in science and research stems from the fact that I like being able to answer questions and understand mechanisms. When I was studying medicine, I always had a lot of questions. Research gives me some ability to think about and answer some of the questions. My involvement in cystic fibrosis research comes from trying to study epithelial cells and immune response to human respiratory syncytial virus (RSV). RSV is the main focus of my lab but I realize that some of the techniques and the methodology that I am developing and working with are very applicable to CF research.

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