Cystic fibrosis is a genetic disease that is caused by a mutation in Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) gene. CFTR is a chloride channel that plays a critical role in the maintenance of a specific height of liquid layer on the luminal surface of respiratory tract. CFTR mutation disrupts this function that initiates a cascade of events that leads to a muco-obstructive lung disease. Our research is focused on understanding: how a single gene defect results in a complex lung disease? In particular, we are investigating the early-stage cellular and molecular changes that lead to mucus obstruction and inflammation.