

## Assessment of Esophageal Epithelium Integrity with Mucosal Impedance in Pediatric Patients

- **The overall goal of this project is to develop and assess a novel, inexpensive, minimally invasive technology to detect mucosal damage based on mucosal conductivity changes in the pediatric population.** We propose that this technology will accurately and reliably measure the mucosal consequence of chronic esophageal and hypopharyngeal exposure to injurious gastroduodenal agents or food allergens. Thus, this test would serve as a minimally invasive screening tool for GERD and EoE prior to endoscopy, and allow longitudinal monitoring of mucosal response to therapy.
  - **Specific Aims #1:** Compare and contrast MI measurements with histologic findings on biopsies in patients with various presentations of GERD to include those with erosive esophagitis and those with normal endoscopy but abnormal histology. When available, changes in mucosal impedance and histology pre and post-therapy will be assessed and followed longitudinally.
  - **Specific Aims #2:** Compare and contrast MI measurements with histologic findings on biopsies in patients with EoE. When available, changes in mucosal impedance and histology pre and post-therapy will be assessed and followed longitudinally.
  - **Specific Aims #3:** Compare and contrast MI measurements with histologic findings on biopsies in patients without histologic abnormalities. When available pH impedance data will also be used to further stratify these patients into reflux with normal histology (abnormal impedance) vs. functional dyspepsia (normal impedance).
  - **Specific Aims #4:** Compare and contrast MI measurements with histologic findings on esophageal and hypopharyngeal biopsies in complex aerodigestive patients with extra-esophageal manifestations of GERD or EoE with or without complaints of dyspepsia.