Translational and Comparative Models of Infectious Diarrhea

Research emphasis:
Dr. Gookin’s laboratory is interested in finding novel approaches to the treatment of diseases of the gastrointestinal tract that are of comparable importance to human and veterinary medicine. Our research is centered on understanding the host strategy in defense against diarrheal pathogens that infect intestinal epithelia including the protozoal pathogen Cryptosporidium and bacterial pathogen Enteropathogenic E. coli. Our approaches range from cell culture based to ex vivo to experimentally and naturally-occurring models of enteric infection.

Application:
- Naturally-occurring small animal models of infectious diarrhea
- Intestinal epithelial-pathogen interactions in cell culture, ex vivo and in vivo model systems
- Intestinal epithelial barrier function, repair, and electrolyte transport
- Electrophysiology of epithelia (Ussing chambers)

Collaboration potential:
- Large animal models of gastrointestinal infection and injury (pig, dog, cat)
- Ussing chamber applications in epithelial (electro)physiology
- Clinical gastroenterology applications (e.g. endoscopy)

Selected publications:


Foster DM, Stauffer SH, Stone MC, Gookin JL. Proteasome Inhibition of Pathologic Shedding of Enterocytes to Defend Barrier Function Requires X-linked Inhibitor of Apoptosis Protein and Nuclear Factor-κB. Gastroenterology 2012;143:133-144