



**FASEB**

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*Science Research Conferences*

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# **Gastrointestinal Tract XVII: Current Biology of the GI tract, Mucosa, Microbiota, and Beyond**

**July 30-August 4, 2017**

**Steamboat Springs, Colorado**

**Co-Organizers:**

**Andrew S. Neish, MD**

Emory University School of Medicine  
Atlanta, Georgia

**Gail A. Hecht, MD**

Loyola University  
Chicago, Illinois

**Mark R. Frey, PhD**

Children's Hospital Los Angeles and University of Southern  
California  
Los Angeles, California

## **Program Agenda**

### **SUNDAY July 30**

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4:00-9:00 PM: Conference Registration

5:00-6:00: FASEB SRC Welcome Reception

6:00-7:00: Dinner

**7:00-8:00 PM: Keynote Address:** Ramnik Xavier, Massachusetts General Hospital  
*Genes, Microbes, and Gut immunity*

### **MONDAY July 31**

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7:00-8:30: Breakfast

#### **8:30 AM-12:30 PM**

#### **Session 1: Monitoring and responding to the microbiota**

Chair: Theresa Pizarro, Case Western Reserve University

8:30-8:45: Welcome from FASEB

8:45-9:15: Scott Snapper, Boston Children's Hospital  
*Gut microbiota and immune inflammatory responses*

9:15-9:45: Dana Philpott, University of Toronto  
*Role of Nod-like receptors in intestinal disease*

9:45-10:15: Karen Edelblum, Rutgers New Jersey Medical School  
*The role of  $\gamma\delta$  intraepithelial lymphocyte migration in innate immunity*

10:15-10:45: FASEB sponsored coffee break and group photo

10:45-11:15: Ken Cadwell, NYU Langone Medical Center  
*Transkingdom interactions in the gut*

11:15-11:30: *Short Talk:* Ashfaqul Alam, Emory University  
*Gut microbial metabolites establish a gradient of extracellular protons, which mediate intestinal repair and barrier function via proton-sensing G-protein coupled-receptors*

11:30-11:45: *Short Talk:* Erica Alexeev, University of Colorado  
*Microbiota-derived indole metabolites promote intestinal homeostasis and serve as biomarkers of human inflammatory bowel disease*

11:45 AM-12:30 PM: **ePoster session #1**

Sarah Andres, University of Pennsylvania

(Poster #1)

*mRNA binding protein IMP1 promotes colorectal cancer metastasis and enhances exosome production*

Bindu Chandrasekharan, Emory University

(Poster #11)

*Probiotic Lactobacilli Mediate Intestinal Motility*

Ted Espenschied, Duke University

(Poster #23)

*In vivo analysis of intestinal epithelial damage responses in a zebrafish model of NSAID-induced enteropathy*

Wendy Goodman, Case Western Reserve University

(Poster #29)

*Male mice are refractory to estrogen receptor beta-mediated immunoprotection in an experimental colitis model*

Aaron Hecht, University of Chicago

(Poster #37)

*A Two-Component System Regulates Bacteroides fragilis Toxin to Maintain Intestinal Homeostasis and Prevent Lethal Disease*

Joseph Hyser, Baylor College of Medicine

(Poster #41)

*Activation of Aberrant Intracellular and Long-distance Intercellular Calcium Signaling during Rotavirus and Enteric Calicivirus Infections*

Jorn Karhousen, Duke University

(Poster #47)

*Overexpression of Ubc9 enhances global SUMOylation and protects from tissue injury and inflammation after intestinal I/R injury*

Chang Kyung (Joanna) Kim, Stony Brook University

(Poster #48)

*Krüppel-like Factor 5 Promotes Regeneration of Intestinal Stem Cells Following Gamma-Irradiation Injury*

12:30-2:00: Lunch

2:00-4:00: Free time

4:00-6:00: **Poster session #1**

6:00-7:00: Dinner

**7:00-9:00 PM**

**Session 2: Mucosal injury and restitution**

Chair: Sean Colgan, University of Colorado

7:00-7:30: Asma Nusrat, University of Michigan

*Intestinal mucosal barrier repair is orchestrated by pro-resolving and repair mediators released by epithelial and immune cells at sites of injury*

7:30-8:00: Eoin McNamee, University of Colorado

*Monocyte-derived microRNAs shape intestinal inflammation*

8:00-8:30: Marshall Montrose, University of Cincinnati

*New models and mechanisms of gastric wound repair*

8:30-8:45: Short Talk: Ronen Sumagin, Northwestern University

*Neutrophil microparticles deliver active myeloperoxidase to injured mucosa to inhibit epithelial wound healing*

8:45-9:00: Short Talk: Beng San Yeoh, Penn State University

*Neutrophil Extracellular Traps (NETs) in Gastrointestinal Pathophysiology*

## **TUESDAY August 1**

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*At breakfast: Meet-the expert mentoring session #1, "From Trainee to Faculty: Making the Jump"*

This session will feature the Assistant Professor-level speakers at the meeting, and will be primarily geared towards trainees interested in how these junior investigators made the critical transition from being trainees to getting their first faculty appointment. Signup sheets will be available on Sunday and Monday, capped at six participants per participating faculty. Attendees will be divided up among breakfast tables with one expert per group of six for direct interaction and discussion.

### **9:00 AM - 12:30 PM**

#### **Session 3: Microbiota-host cross-talk**

Chair: Jesus Rivera-Nieves, University of California, San Diego

9:00-9:30: Suzanne Devkota, Cedars-Sinai Medical Center

*Modulating inflammation via fasting-induced suppression of commensal pathobionts*

9:30-10:00: Gary Wu, University of Pennsylvania School of Medicine

*A Signature for Bacterial Nitrogen Metabolism in IBD Associated with Gut Microbiota Dysbiosis: From Bedside to Bench*

10:00-10:30: Andrew Gewirtz, Georgia State University

*Mismanaged microbiota drives promotes colitis and metabolic syndrome*

10:30-11:00: FASEB sponsored coffee break

11:00-11:15: Short Talk: Gretchen Diehl, Baylor College of Medicine

*Impact of individual members of the microbiota on host immunity against intestinal pathogens*

11:15-11:30: Short Talk: Jordan Mar, Genentech

*IL-22 drives short-term enrichment of short-chain fatty acid producing bacteria and depletion of Proteobacteria in mice*

11:30-11:45: Short Talk: Carol Aherne, University of Colorado  
*Epithelial netrin-1 restores mucosal barrier function following acute injury.*

11:45-12:30: **ePoster session #2**

Mark Lewis, Washington University  
(Poster #59)

*A single gene is required for the recruitment of reserve stem cells in regeneration and cancer in multiple organs*

Randi Lundberg, Taconic Biosciences  
(Poster #61)

*Can fecal microbiota transplantation in mice be improved by the diet?*

Lyndsey Moore, University of North Carolina  
(Poster #67)

*The yersiniabactin high pathogenicity island of pathobiont E.coli promotes fibrosis in  $Il10^{-/-}$  mice*

Wenyang Mei, University of Illinois at Urbana-Champaign  
(Poster #65)

*hnRNP I is an important regulator of the intestinal innate immunity*

Shivesh Punj, Children's Hospital Los Angeles  
(Poster #74)

*Cell-specific tumor necrosis factor receptor 2 restricts microbial dysbiosis in mouse model of colitis*

Nataliya Razumilava, University of Michigan  
(Poster #75)

*Hedgehog signaling regulates cell differentiation and proliferation in the biliary progenitor cell niche: Observations in In Vivo and in Biliary Organoid Models*

Zachary Slifer, North Carolina State University  
(Poster #82)

*Intestinal  $Na^+/H^+$  exchangers play a key role in recovery of barrier function following intestinal ischemic injury*

Simon Valès, North Carolina State University  
(Poster #89)

*Enteric Glial Cells Stimulate Colon Cancer Stem Cell Chemoresistance*

12:30-2:00: Lunch

2:00-4:00: Free time

4:00-6:00: **Poster session #2**

6:00-7:00: Dinner

**7:00-9:00 PM**

**Session 4: Signaling mechanisms coordinating gastrointestinal homeostasis and response to inflammation**

Chair: Jason Mills, Washington University School of Medicine

7:00-7:30: Peter Dempsey, University of Colorado

*The role of ADAM10 in intestinal crypt homeostasis, inflammation and tumorigenesis*

7:30-8:00: Cormac Taylor, University College Dublin, Ireland

*The role of hypoxia in immunity and inflammation in the gastrointestinal tract*

8:00-8:30: Christopher Dekaney, North Carolina State University

*Paneth cells in the intestinal injury response*

8:30-8:45: *Short Talk:* Kari Chesney, University of Missouri

*Histologic Analysis of Ileal and Colonic Tissues in a Novel Genetic Susceptibility Model of Crohn's Disease in the Rat*

8:45-9:00: *Short Talk:* Megan Radyk, Washington University

*Metaplastic cells in the stomach can arise, independent of stem cells, via de- or trans-differentiation*

**WEDNESDAY August 2**

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*At breakfast: Meet-the expert mentoring session #2, "Sustaining and surviving your career"*

Similar format to the Tuesday session, but featuring senior members of the field, drawn from our pool of senior invited speakers and session chairs. Attendance will be open to both trainees and junior faculty.

**9:00 AM - 12:00 PM**

**Session 5: The stem cell niche, inflammation, and cancer**

Chair: Melissa Wong, Oregon Health & Science University

9:00-9:30: Linda Samuelson, University of Michigan Medical School

*Notch Pathway Regulation of Gastrointestinal Stem Cells*

9:30-10:00: James Goldenring, Vanderbilt University School of Medicine

*Immune regulation of metaplasia induction in injury and pre-neoplasia*

10:00-10:15: *Short Talk:* Christian Gomez, University of Kansas

*Increased Levels of APC in Goblet Cells Linked to Endoplasmic Reticulum Stress and Non-O-Glycosylated Muc2*

10:15-10:30: *Short Talk:* Michael Schumacher, Children's Hospital Los Angeles

*Loss of Sprouty2 promotes IL-33 expression in the colon and protects against experimental colitis*

10:30-11:00: FASEB sponsored coffee break

11:00-11:30: Christopher Williams, Vanderbilt University School of Medicine  
*Micronutrients in intestinal stem cell biology and cancer*

11:30-11:45: *Short Talk*: Luai Zarour, Oregon Health & Science University  
*Circulating MΦ-cancer cell hybrids reflect disease status and evolution in cancer patients*

11:45-12:00: *Short Talk*: Blair Madison, Washington University  
*PLAGL2 is a Let-7 Target that Promotes a Stem Cell Phenotype and Drives Cellular Transformation in Intestinal Epithelial Cells*

12:00-1:30: Lunch

**1:30-3:00 PM Career Development Session #1:  
The Art of Publishing Your Science**

This session will feature Dr. Richard Peek, Editor of *Gastroenterology* and Dr. Kim Barrett, Editor of *Journal of Physiology*. The topical focus of this session will be strategies to prepare work for successful publication in high-impact journals. It will begin with a brief panel presentation of the key issues, challenges, and barriers to publication in the current scientific landscape, with an emphasis on preparing early-career scientists to make the most of their work. Following the formal panel presentation there will be a Q&A session to provide individual access to the panelists' expertise.

**3:00-4:30 PM Career Development Session #2:  
Writing for a K award with an eye towards your first R01**

This session will feature Dr. Beth McCormick (U. Mass) and Dr. Wayne Lencer (Harvard) moderate a discussion with Dr. David Saslowsky and Dr. Patricia Greenwel, program directors at NIDDK for career development awards and several R01-based programs, respectively. The panel will discuss grant writing and logistics of acquiring career development awards and transitioning from them to independent R01 grants. A particular focus will be on common mistakes and how to avoid them.

4:30-6:00: Free time

6:00-7:00: Dinner

**7:00-9:00 PM**

**Session 6: Transport and Barrier**

Session Chair: Pradeep Dudeja, University of Illinois College of Medicine

7:00-7:30: Chang-Hyon (Chris) Yun, Emory University  
*Regulation of human NHE3 by ubiquitination*

7:30-8:00: Stephen Keely, Royal College of Surgeons in Ireland  
*Of Bugs and Bears: Bile Acids as Targets for Treating Intestinal Disease*

8:00-8:15: *Short Talk*: Andrei Ivanov, Virginia Commonwealth University  
*Roles of the actin filament turnover in regulating the intestinal epithelial barrier and mucosal inflammation*

8:15-8:30: *Short Talk: Rocio Tapia, Loyola University Chicago  
EPEC effector EspF promotes Crumbs3 endocytosis and disrupts epithelial cell polarity*

8:30-8:45: *Short Talk: Namrata Iyer, Brown University  
Intestinal epithelium intrinsic RARa signaling regulates gut barrier integrity via IL-18*

8:45-9:00: *Short Talk: Jennifer Foulke-Abel, Johns Hopkins University  
Enterotoxigenic *E. coli* (ETEC) pathogenesis modeled in human enteroid monolayers demonstrates MRP-related cyclic nucleotide secretion*

9:00-? **Entertainment by GI Distress...**

## **THURSDAY August 3**

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**9:00 AM - 12:30 PM**

### **Session 7: Host-pathogen Interactions**

Session Chair: Simon Keely, University of Newcastle, Australia

9:00-9:30: Yana Zavros, University of Cincinnati  
*Epithelial Responses to Helicobacter pylori Infection*

9:30-10:00: Vanessa Sperandio, University of Texas Southwestern Medical Center  
*"You're hot and you're cold": neurotransmitters modulation of bacterial virulence gene expression*

10:00-10:15: *Short Talk: Wayne Lencer, Harvard Medical School  
Innate host defense at mucosal surfaces by rapid degradation of PARD6B and aPKC to deplete the apical endosome*

10:15-10:30: *Short Talk: Melanie Gareau, University of California Davis  
Intestinal dysbiosis during neonatal development alters the microbiota-gut-brain axis in adulthood*

10:30-11:00: FASEB sponsored coffee break

11:00-11:30: Juliane Bubeck-Wardenburg, Washington University  
*A two-component system regulates Bacteroides fragilis toxin to maintain intestinal homeostasis and prevent lethal disease*

11:30-12:00: James Casanova, University of Virginia School of Medicine  
*Active suppression of autophagy by Salmonella: The best offense is a good defense.*

12:00-12:15: *Short Talk: Carlo De Salvo, Case Western Reserve University  
IL-33 induces early eosinophil (EOS)-dependent events leading to intestinalized gastric metaplasia*

12:15-12:30: *Short Talk: Charles Herring, Vanderbilt University School of Medicine  
p-Creode mapping of multi-immunofluorescence single-cell data reveals an alternative tuft cell origin in the gut*



12:30-1:15: BUSINESS MEETING: Select next FASEB site and organizers

1:15-2:15: Lunch

2:15-6:00 Free Time (or group activity)

6:00-7:00: Dinner

**7:00-9:15 PM**

**Session 8: Novel approaches to GI Biology**

Session Chair: Juanita Merchant, University of Michigan

7:00-7:30: Rheinallt Jones, Emory University  
*Homeostasis in the Drosophila intestine*

7:30-8:00: François Leulier, Institut de Génomique Fonctionnelle de Lyon, France  
EMBO Young Investigator Award  
*Host-microbiota mutualism upon chronic undernutrition: lessons from gnotobiotic animal models*

8:00-8:30: John Rawls, Duke University  
*Conserved mechanisms underlying developmental and microbial control of intestinal epithelial gene expression*

8:30-9:00: Matthew Grisham, Texas Tech University Health Sciences Center  
*Use of Humanized Mice to Study the Immunopathology of Chronic Inflammation*

9:00-? **Entertainment by GI Distress...**

**FRIDAY August 4**

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*Breakfast, departures*

End of Conference

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