

## CURRICULUM VITAE

**Nita H. Salzman MD, PhD**

**Director, Professor  
Department of Pediatrics  
Division of Gastroenterology**

### **OFFICE ADDRESS:**

Medical Education Building  
8701 Watertown Plank Rd  
Milwaukee, WI 53226

### **EDUCATION:**

09/1979 - 06/1983 BA - Chemistry, Bryn Mawr College, Bryn Mawr, PA  
08/1983 - 06/1990 MD, New York University School of Medicine, New York, NY  
08/1983 - 06/1987 MS, New York University School of Medicine, Sackler Institute of Biomedical Sciences,  
New York, NY  
08/1983 - 06/1990 PhD, New York University School of Medicine, New York, NY

### **POSTGRADUATE TRAINING AND FELLOWSHIP APPOINTMENTS:**

06/1990 - 06/1997 Resident, Pathology and Laboratory Medicine, Hospital of the University of Pennsylvania,  
Philadelphia, PA  
07/1994 - 06/1996 Postdoctoral Fellowship, Division of Human Genetics and Molecular Biology, Children's  
Hospital of Philadelphia, Philadelphia, PA  
07/1996 - 06/1997 Post doctoral Fellowship, Department of Microbiology, University of Pennsylvania School  
of Medicine, Philadelphia, PA

### **FACULTY APPOINTMENTS:**

06/1990 - 06/1997 Assistant Instructor, Department of Pathology and Laboratory Medicine, University of  
Pennsylvania School of Medicine, Philadelphia, PA  
07/1997 - 06/2001 Research Assistant Professor, Department of Microbiology, University of Pennsylvania  
School of Medicine, Philadelphia, PA  
08/2001 - 06/2009 Assistant Professor, Department of Pediatrics, Division of Gastroenterology, Medical  
College of Wisconsin, Milwaukee, WI  
08/2004 - Present Secondary Appointment, Department of Microbiology and Molecular Genetics, Medical  
College of Wisconsin, Milwaukee, WI  
07/2009 - 06/2014 Associate Professor, Pediatrics, Gastroenterology, Medical College of Wisconsin,  
Milwaukee, WI  
07/2014 - Present Professor, Pediatrics, Gastroenterology, Medical College of Wisconsin, Milwaukee, WI

### **ADMINISTRATIVE APPOINTMENTS:**

07/2005 - Present Director, GI Clinical Laboratory, Department of Pediatrics, Division of Gastroenterology,  
Medical College of Wisconsin, Milwaukee, WI  
01/01/2013 - Present co-Leader, Immunology, Inflammation and Infection Research Unit, Children's  
Research Institute, Children's Hospital of Wisconsin, Milwaukee, WI  
01/01/2014 - Present Associate Director, Medical Scientist Training Program, Medical College of Wisconsin,  
Milwaukee, WI  
01/01/2016 - Present Director of Research, Pediatrics, Gastroenterology, Medical College of Wisconsin,  
Milwaukee, WI  
07/01/2016 - Present Scientific Director, Gnotobiotic mouse facility, Medical College of Wisconsin,  
Milwaukee, WI

07/01/2016 - Present Director, Center for Microbiome Research, Medical College of Wisconsin, Milwaukee, WI

**SPECIALTY BOARDS AND CERTIFICATION:**

<u>Board Certified</u>	<u>Issue Date</u>	<u>Expiration</u>
American Board of Pathology, Anatomic Pathology	06/1994	None

<u>Licensure</u>	<u>Number</u>	<u>Issue Date</u>	<u>Expiration</u>
Pennsylvania (inactive)	049744 L	1994	None
Wisconsin	49506-020	07/2006	None

**AWARDS AND HONORS:**

1983 Sigma Xi Scientific Honor Society  
1996 - 1998 Fellowship , Crohn's and Colitis Foundation of America  
2016 Women Pioneer in Research Award, Medical College of Wisconsin

**MEMBERSHIPS IN HONORARY AND PROFESSIONAL SOCIETIES:**

09/12/2017 - Present Medical College of Wisconsin Society for Research Excellence (member)  
American Gastroenterological Association (Member)  
American Association for the Advancement of Science (Member)  
American Society for Microbiology (Member)  
Society for Pediatric Research (Member)

**EDITORSHIPS/EDITORIAL BOARDS/JOURNAL REVIEWS:**

Editorial Board

2011 - Present Infection and Immunity  
2016 - Present Gut Microbes  
02/01/2021 - Present Gut Microbes

Journal Review

2003 - Present Journal of Dairy Science  
2003 - Present Anaerobe  
2003 - Present Microbiology  
2004 - Present Infection and Immunity, Applied and Environmental  
2004 - Present Trends in Microbiology  
2005 - Present Pediatrics  
2007 - Present Gastroenterology  
2008 - Present J. Immunology  
2008 - Present Microbes and Infection  
2010 - Present Cell Host & Microbe  
2010 - Present Proceedings of the National Academy of Sciences  
2011 - Present Science  
2011 - Present Cellular Microbiology  
2012 - Present Nature Immunology  
2014 - Present PLOS Pathogens  
2014 - Present Molecular Cell  
2014 - Present Nature  
2016 - Present Science Translational Medicine  
2016 - Present Nature Microbiology  
2019 - Present mSphere  
2020 - Present Immunity

**NATIONAL ELECTED/APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:**

2003 - 2011 Ad Hoc Reviewer, Crohn's and Colitis Foundation of America

2005 - 2007 Member, CSR Special Emphasis Panel, ZRG1 F07-L (20) Immunology Fellowships and AREA grants, NIH Study Section

2005 - 2008 Member, Microbiology Focus Group-Crohn's and Colitis Foundation of America

2010 Reviewer, National Institute on Aging, program project review, NIH Study Section

2010 Reviewer, Review of "Enteric Research Investigational Network Cooperative Research Centers (ERIN) Cooperative Research Centers (CRCs), NIH Study Section

2011 - 2018 member, Research Training Grant Review Committee, Crohn's and Colitis Foundation of America

2011 Reviewer, Targeting existence in Select Gram Negative Pathogens (R21/R33) Special Emphasis Panel, NIH NIAID

2011 Reviewer, NIDDK Hepatobiliary Pathophysiology Study Section, NIH

2011 Reviewer, CAREER proposal review, NSF

2011 Vice Chair Elect, Gordon Research Conference on Antimicrobial

2012 - 2102 Reviewer, Dynamics of Host Associated Microbial Communities Special Emphasis Panel, NIH NIGMS

2012 - 2102 Reviewer, Ancillary Studies to Ongoing Clinical Studies in Areas of Interest to NIDDK, NIH NIDDK

2013 Reviewer, Dynamics of Host Associated Microbial Communities Special Emphasis Panel, NIH NIGMS

2013 Chair, Gordon Research Conference on Antimicrobial Peptides

2013 Reviewer, Pilot and Feasibility Clinical Research Studies in Digestive Diseases and Nutrition Study Section, NIH NIDDK

2013 Reviewer, Liver and Gastrointestinal Physiology, Pathology and Pharmacology Study Section, NIH NIDDK

2013 - 2016 Ad Hoc Reviewer, Gastrointestinal Mucosal Pathobiology Study Section, NIH NIDDK

2014 - 2017 Member, Scientific Advisory Board of the Broad Medical Research Foundation, Crohn's and Colitis Foundation of America

2016 Reviewer, Exploratory Studies for Delineating Microbiome: Host Interactions in Obesity, Digestive and Liver Diseases and Nutrition (R21) Special Emphasis Panel, NIH NIDDK

2016 - 2020 Member, Gastrointestinal Mucosal Pathobiology Study Section, NIH NIDDK

2018 - 2020 vice-Chair, Research Training Award Review Committee, Crohn's and Colitis Foundation

2018 - Present Member, National Advisory Committee, Crohn's and Colitis Foundation

2018 Editorial Review Panel Member, NIH Director's New Innovator Award Program (DP2), NIH

2020 Chair, Gastrointestinal Mucosal Pathobiology Study Section, NIH NIDDK

2020 Reviewer, New Innovators Awards (DP2) Special Emphasis Panel, NIH NIAID

2021 - Present Chair, Digestive System Host Defense, Microbial Interactions and Immune and Inflammatory Diseases (DHMI) Study Section, NIH

## RESEARCH GRANTS/AWARDS/CONTRACTS/PROJECTS:

### Active

#### Peer Review

Title:	Gastroenterology Postdoctoral Research Training Grant T32
Source:	NIH NIDDK
Role & Effort:	co-PI
PI:	Salzman/Shaker
Dates:	07/01/2015 - 06/30/2021
Title:	Intestinal Enterococcal Dynamics: Modeling Host-Commensal and Host-Pathogen Interactions
Source:	NIH NIGMS
Role & Effort:	PI
PI:	Salzman
Dates:	2017 - 2022
Direct Funds:	\$366,000 (per year)

Title: Investigating the role of the microbiome and inflammation in acute and chronic pain in patients with sickle cell disease  
Source: NIH NHLBI  
Role & Effort: Investigator  
PI: Brandow  
Dates: 07/2018 - 06/2023  
Direct Funds: \$499,999 (per year)

Title: Impact of L. plantarum 299v Supplementation on Endothelial Function and Systemic Inflammation  
Source: NIH NHLBI  
Role & Effort: Investigator  
PI: Widlansky  
Dates: 04/01/2019 - 01/31/2023  
Direct Funds: \$600,000 (per year)

Title: Reducing innate inflammation in new onset T1D with Lactobacillus plantarum  
Source: NIH/NIDDK  
Role & Effort: Investigator  
PI: Hessner  
Dates: 01/01/2021 - 05/31/2025  
Direct Funds: \$593,943 (per year)

Title: Inflammatory crosstalk between skin and gut  
Source: NIH/NIDDK  
Role & Effort: Principal Investigator (MPI)  
PI: Salzman/Gallo (UCSD)  
Dates: 03/01/2021 - 02/28/2025  
Direct Funds: \$447,842 (per year)

Title: Blockade of IL-23 for the Prevention of Graft Versus Host Disease  
Source: NIH/NHLBI  
Role & Effort: Investigator  
PI: Drobyski  
Dates: 05/01/2021 - 03/31/2025  
Direct Funds: \$14,999,966 (total)

#### **Non-Peer Review**

Title: The human holobiont: Enhancing health and preventing disease  
Source: Advancing a Healthier Wisconsin Research and Education Program  
Role & Effort: Principal Investigator (MPI)  
PI: Salzman/Williams  
Dates: 07/01/2021 - 06/30/2026  
Direct Funds: \$500,000 (per year)

#### **Prior**

##### **Peer Review**

Title: Human Defensin 5 and Intestinal Colonization

Source:	NIH, NIAID, K08 Clinical Investigator Award
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	04/01/1998 - 03/31/2002
Direct Funds:	\$256,200 (per year)
Title:	The Role of Human Enteric Defensins in Mucosal Immunity
Source:	NIH, Center for Molecular Studies in Digestive and Liver Disease (P30DK50306)
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	07/01/1998 - 06/30/2000
Direct Funds:	\$30,000
Title:	Regulation of Enteric Antimicrobial Peptides by Salmonella Typhimurium
Source:	University of Pennsylvania Research Foundation Award
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	03/01/2001 - 07/01/2001
Direct Funds:	\$20,000
Title:	In vivo Models of Defensin Activity
Source:	NIH, consortium sub to Dr. Charles Bevins, UC Davis
Role & Effort:	Co-investigator
PI:	Bevins
Dates:	02/01/2002 - 01/31/2007
Direct Funds:	\$250,000
Title:	The Regulation of Paneth Cell Antimicrobial Peptides by S. typhimurium
Source:	Children's Hospital of Wisconsin Foundation
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	07/01/2002 - 06/30/2005
Direct Funds:	\$40,000 (per year)
Title:	In Vitro Systems to Study Human Paneth Cell Defensin Function
Source:	Digestive Disease Center of the Medical College of Wisconsin
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	10/01/2002 - 09/30/2004
Direct Funds:	\$15,000
Title:	The Regulation of Paneth Cell Defensins by Bacterial Infection
Source:	NIH, R21
Role & Effort:	Principal Investigator

PI:	Salzman
Dates:	09/30/2004 - 05/31/2005
Direct Funds:	\$225,000
Title:	The Regulation of Paneth Cell Defensins by Bacterial Infection
Source:	NIH, R01
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	06/01/2005 - 02/28/2010
Direct Funds:	\$225,000 (per year)
Title:	SIGIRR, a Negative Regulator of Toll- IL-1R Signaling
Source:	NIH, subcontract to Dr. Xiaoxia Li, Cleveland Clinic Foundation
Role & Effort:	Co-investigator
PI:	Li
Dates:	06/15/2005 - 02/28/2010
Direct Funds:	\$50,000 (per year)
Title:	Lactobacillus GG for the Treatment of Minimal Hepatic Encephalopathy
Source:	NIH/NCCAM
Role & Effort:	Co-Investigator
PI:	Bajaj
Dates:	09/01/2009 - 08/31/2012
Direct Funds:	\$50,000 (per year)
Title:	The impact of loperamide on the pathogenesis of Salmonella enteritis in mice
Source:	McNeil Pharmaceuticals
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	11/01/2009 - 10/31/2010
Direct Funds:	\$100,000
Title:	The Intestinal Microbiome in the Development of Pediatric NAFLD
Source:	MCW, DDC/CTSI
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	01/31/2010 - 01/30/2011
Direct Funds:	\$100,000
Title:	The Intestinal Microbiome in the Development of Pediatric NAFLD
Source:	AAP Resident Research Grant
Role & Effort:	mentor (for Dr. Brittany Goldberg, 2nd year Pediatrics resident)
Dates:	07/01/2010 - 06/30/2011
Direct Funds:	\$3,000 ((\$2000 for supplies and \$1000 for travel))
Title:	The Intestinal Microbiome in Pediatric NAFLD-sample collection pilot

Source:	NIH/NIDDK
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	10/01/2010 - 09/30/2011
Direct Funds:	\$236,000
Title:	Biospecimen Collection and Analysis: Metagenomic Assessment of the Microbiome
Source:	NCS
Role & Effort:	Co-Investigator
Dates:	11/01/2010 - 10/31/2011
Direct Funds:	\$130,000
Title:	Paneth Cells, the Microbiome, and Crohn's Disease Susceptibility
Source:	CCFA Microbiome Initiative
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	01/01/2011 - 12/31/2014
Direct Funds:	\$300,000 (per year)
Title:	The intestinal bacterial metagenome in pediatric NAFLD
Source:	NIH/NIDDK R01
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	12/01/2011 - 11/30/2016
Direct Funds:	\$998,000 (per year)
Title:	Bacterial-host dynamics at the intestinal mucosal interface
Source:	NIH/NIGMS, R01
Role & Effort:	Principal Investigator
PI:	Salzman
Dates:	12/01/2011 - 11/30/2016
Direct Funds:	\$250,000 (per year)
Title:	The Role of the Microbiome in Chronic Visceral Hypersensitivity
Source:	Mead Johnson Nutrition
Role & Effort:	co-PI
Dates:	02/16/2012 - 02/15/2014
Title:	Enterococcus niche formation in the GI tract
Source:	NIH NIAID
Role & Effort:	co-PI
PI:	Salzman/Kristich
Dates:	07/01/2012 - 06/30/2015
Direct Funds:	\$275,000 (total)
Title:	Changes in BMI and Intestinal Microbiota with Prebiotics, Probiotics and Synbiotics
Source:	CTSI
Role & Effort:	co-PI

PI: Salzman/Frenn  
Dates: 08/01/2012 - 07/31/2013  
  
Title: Establishing mechanistically validated targets and lead molecules for microbiome-based therapy in IBD  
  
Source: Crohn's and Colitis Foundation of America  
  
Role & Effort: Investigator  
PI: Braun  
Dates: 03/01/2014 - 02/28/2018  
Direct Funds: \$45,000

Title: Lactic Acid Bacteria that Detect and Inhibit Enterococci in the Mammalian GI Tract  
  
Source: NIH/NIGMS subcontract from the University of Minnesota  
  
Role & Effort: co-PI  
PI: Salzman/Dunny/Kaznessis  
Dates: 08/01/2014 - 05/31/2018  
Direct Funds: \$100,000 (per year)

Title: Bacteriophage to prevent infection by antibiotic-resistant enterococci  
  
Source: NIH NIAID  
Role & Effort: Investigator  
PI: Kristich  
Dates: 12/01/2015 - 11/31/2018  
Direct Funds: \$275,000 (total for two years)

Title: Microbial approaches for the treatment of multi-drug resistant enterococci  
  
Source: Advancing a Healthier Wisconsin  
Role & Effort: PI  
PI: Salzman  
Dates: 01/01/2016 - 12/31/2017  
Direct Funds: \$200,000 (total)

Title: Modulation of Gut-Brain Axis Using Fecal Microbiome Transplant Capsules in Cirrhosis  
  
Source: NIH NCATS subcontract from Virginia Commonwealth University  
  
Role & Effort: Investigator  
PI: Bajaj  
Dates: 04/15/2017 - 01/31/2019  
Direct Funds: \$63,000

**Non-Peer Review**

Title: The Role of Enteric Defensins in Mucosal Immunity  
  
Source: Medical College of Wisconsin  
Role & Effort: Principal Investigator  
PI: Salzman  
Dates: 08/15/2001 - 06/30/2004  
Direct Funds: \$255,000



## **INVITED LECTURES/WORKSHOPS/PRESENTATIONS:**

### **International**

- The Impact of Enteric Defensins on the Intestinal Microbiota, The Impact of Enteric Defensins, Barga, Italy, 2003
- The role of enteric defensins in innate mucosal immunity, SBARIS, Tokyo, Japan, 2004
- Intestinal Commensals and Innate Immunity, Innate Immunity and its Modulation in Inflammatory Bowel Disease, Stuttgart, Germany, 2005
- Discussion Leader, Antimicrobial Peptides Gordon Research Conference, Barga, Italy, 2007
- The Commensal Microbiota: From Homeostasis to Disease, A Peter Wall Institute for Advanced Studies and College de France Symposium, Paris, France, 2011
- Defensins as Essential Regulators of Intestinal Microbial Ecology, Antimicrobial Peptides Gordon Conference, Barga, Italy, 2011
- Antimicrobial peptides and the regulation of the intestinal microbiota, International Workshop on Intestinal Mucosal Homeostasis and Disease, Hannover, Germany, 2011
- Paneth cells, antimicrobial peptides, and maintenance of intestinal homeostasis, University of Alberta, Edmonton, Alberta, Canada, 2012
- Paneth cell defensins and intestinal homeostasis: host regulation of the microbiota, PWSE (Pancosma) meeting, Madrid, Spain, 2012
- Antimicrobial Peptides and the Regulation of the Intestinal Microbiome: Implications for Intestinal Homeostasis, International Probiotics Association World Congress, Los Angeles, CA, 2012
- Antimicrobial peptides from host and microbe contribute to intestinal homeostasis, Antimicrobial Peptides Gordon Conference, Barga, Italy, 2015
- Niche competition in the gastrointestinal tract, Wenner-Gren Symposium on Host-Microbe Interaction in the Gut-From Model Systems to Human Disease, Stockholm, Sweden, 2016
- Antimicrobial peptides and bacterial niche competition in the GI tract, Zing Conference on Antimicrobial Activity and Defense Strategies at the Mucosal Surface, Albufeira, Portugal, 2016
- Two sides to intestinal homeostasis: Roles for both host and microbial AMPs, Keynote Speaker, AMP2016, Montpellier, France, 2016
- Microbiome-based therapeutics to eliminate intestinal colonization by multidrug-resistant bacteria, 27th ECCMID (European Congress of Clinical Microbiology and Infectious Diseases), Vienna, Austria, 2017
- Antimicrobial peptides and bacterial niche competition in the GI tract, Cold Spring Harbor Asia Conference on Bacterial Infection and Host Defense, Suzhou, China, 2017

### **National**

- Innate Intestinal Host Defense: The Role of Defensins in the Small, UMDNJ, Jonty Foundation/The Autism Center Think Tank Conference, Somerset, NJ, 2003
- Analysis of 16S Libraries of Mouse Intestinal Bacteria: "The Real Story of Enteric Flora", IBD Research-Junior Faculty Symposium, Chicago, IL, 2003
- The Role of Enteric Defensins in Innate Mucosal Immunity, Cleveland Clinic Foundation, Cleveland, OH, 2004
- The Role of Enteric Defensins in Innate Mucosal Immunity, California State University, Los Angeles, CA, 2005
- Innate Mucosal Immunity and the Microbial Ecology of the GI Tract, Department of Microbiology-Immunology, Northwestern University Feinberg School of Medicine, Chicago, IL, 2007
- Innate Mucosal Immunity and the Microbial Ecology of the GI Tract, Department of Microbiology and Immunology, University of California Davis School of Medicine, Davis, CA, 2008
- Discussion Leader, Antimicrobial Peptides Gordon Research Conference, Ventura, CA, 2009
- Session Moderator, Digestive Disease Week, Chicago, IL, 2009
- Session Moderator, Digestive Disease Week, New Orleans, LA, 2010
- The Intestinal Microbiome: Regulation, Perturbation, and Susceptibility to Salmonella Infection, Colloquium entitled "Pathogen modulation of the normal microbiota", American Society for Microbiology 110th General Meeting, San Diego, CA, 2010
- Paneth cells, antimicrobial peptides, and maintenance of intestinal homeostasis, Cincinnati Children's Hospital, Cincinnati, OH, 2011

Paneth cells, defensins, and the regulation of the intestinal microbiota, PAS/ASPR, Denver, CO, 2011

Paneth cells: Host defense and the gut microbiome, The NIH Center for Molecular Studies in Digestive and Liver Diseases Penn/CHOP 13th Annual Symposium, "IBD, Functional Genomics and the Intestinal Mucosal Interface", Philadelphia, PA, 2012

Intestinal Host-Microbial Interactions: Implications for Host Immunity, NIA Advisory Committee Meeting on the Microbiome and Aging, Bethesda, MD, 2012

Bacterial-host dynamics at the intestinal mucosal interface, University of Minnesota, Minneapolis, MN, 2013

Bacterial-host dynamics at the intestinal mucosal interface, Dynamics of Host-Associated Microbial Communities, NIH, NIGMS, Bethesda, MD, 2013

Paneth cells, antimicrobial peptides, and the regulation of intestinal homeostasis, New Jersey Medical School, Newark, NJ, 2014

Paneth cells, antimicrobial peptides, and the regulation of intestinal homeostasis, Microbiology Seminar Series, Alumnae Day speaker, University of Pennsylvania School of Medicine, Philadelphia, PA, 2014

Paneth cells, antimicrobial peptides, and the regulation of intestinal homeostasis, Case Western Reserve University School of Medicine, Department of Pathology, Cleveland, OH, 2014

Paneth cells, antimicrobial peptides, and the regulation of intestinal homeostasis, Albert Einstein College of Medicine, Department of Pediatrics, Bronx, NY, 2015

Paneth cells, the microbiome, and Crohn's disease susceptibility, University of Nebraska Medical Center, Omaha, NE, 2015

Assessment of the effects of microbiome composition in pediatric NAFLD., 2015 Annual Meeting of the American Society for Human Genetics, Session: Genetic Control of the Microbiome, Baltimore, MD, 2015

Paneth cell dysfunction, dysbiosis, and Crohn's disease, Experimental Biology 2015, Boston, MA, 2015

The Microbiome, the Immune System and Intestinal Homeostasis: A Delicate Balance, Association for Molecular Pathology AMP2015 Annual Meeting, Austin, Texas, 2015

The CCFA Microbiome Project, CCFA Gala, Northern California Chapter, San Francisco, CA, 2015

Paneth cells, antimicrobial peptides, and the regulation of intestinal homeostasis, University of North Carolina, Chapel Hill, NC, 2015

The Microbiome, the Immune System and Intestinal Homeostasis: A Delicate Balance, Stanley Manne Children's Research Institute, Feinberg School of Medicine, Northwestern University, Chicago, IL, 2016

Antimicrobial peptides shape intestinal niche creation and competition, NIH workshop, The Human Microbiome: Emerging Themes at the Horizon of the 21st Century, Bethesda, MD, 2017

Genetics, Environment and the Microbiome: Implications for Human Health and Disease, DOHaD Society Meeting, Chapel Hill, NC, 2018

Antimicrobial peptides and intestinal homeostasis: Contributions of both host and microbe, University of Iowa Carver College of Medicine, Iowa City, IA, 2018

Antimicrobial peptides and intestinal homeostasis: Contributions of both host and microbe, Vanderbilt University School of Medicine, Nashville, TN, 2018

Antimicrobial Peptides: Mediators of Bacterial Niche Competition in the GI Tract, University of Washington, Seattle, WA, 2018

Enterococcus colonization and competition in the GI tract, Tri-I Immunology and Microbial Pathogenesis Program Research Seminar Series, Sloan Kettering Institute, Rockefeller University, Weill Cornell Medical College, New York, NY, 2018

Antimicrobial peptides and intestinal homeostasis: Contributions of both host and microbe, University of Toledo College of Medicine, Toledo, OH, 2018

Paneth Cells in Host Defense and Homeostasis. State-of-the-art lecture., Digestive Disease Week (DDW) 2018, Washington, DC, 2018

Antimicrobial peptides and bacterial niche competition in the GI tract, Department of Molecular Genetics & Microbiology Symposium entitled "Harnessing Immunity to Combat Infection and Disease", Renaissance School of Medicine at Stony Brook University, Stony Brook, NY, 2019

Enterococcus colonization and competition in the GI tract, Department of Microbiology, University of Pennsylvania School of Medicine, Philadelphia, PA, 2019

Antimicrobial peptides and intestinal homeostasis: Contributions of both host and microbe., Department of Biology, Bryn Mawr College, Bryn Mawr, PA, 2019

Antimicrobial peptides and intestinal homeostasis: Contributions of both host and microbe, Spring Lecture Series on Cellular Homeostasis 2019, University of Southern California, Los Angeles, CA, 2019

The intestinal microbiome in pediatric NAFLD, North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN), virtual, 2020  
N.H. Salzman, The intestinal microbiome in Pediatric NAFLD, Digestive Disease Research Center Seminar, Vanderbilt University School of Medicine, virtual, 2021  
The intestinal microbiome and host protection from enterococcus infection, Digestive Disease Week, virtual, 2021

### **Regional**

The Role of Enteric Defensins in Innate Mucosal Host Defense, Department of Nutritional Sciences, College of Agricultural and Life Sciences, University of Wisconsin-Madison, Madison, WI, 2003  
The Role of Enteric Defensins in Innate Mucosal Immunity, Ripon College, Ripon, WI, 2004  
The Role of Intestinal Defensins in Innate Mucosal Immunity, 11th Annual Midwest Microbial Pathogenesis Conference, Lansing, MI, 2004  
Paneth cells, the microbiome and intestinal homeostasis: Implications for the development of Crohn's disease, Concordia University, School of Pharmacy, Mequon, WI, 2012  
Paneth cells, the microbiome and IBD, CCFA Patient and Family Education Program, Illinois chapter of the CCFA, Palatine, IL, 2015  
Two sides to intestinal homeostasis: roles for both host and microbial antimicrobial peptides, 9th Annual Center for Human Immunology Symposium: The Impact of the Microbiome on Immunity, Blood Research Institute, Wauwatosa, WI, 2015  
Characterizing and Targeting the Microbiome in Human Disease, BioForward Wisconsin Speaker Series: Introducing the Microbiome, Milwaukee, WI, 2016  
Antimicrobial peptides: Mediators of intestinal colonization, homeostasis and defense, Department of Nutritional Sciences, College of Agricultural and Life Sciences, University of Wisconsin-Madison, Madison, WI, 2017

### **Local**

Human Defensin 5 Transgenic Mice: An In Vivo Model of Defensin Function, Children's Hospital of Wisconsin, Department of Pediatrics, Milwaukee, WI, 2002  
The Role of Enteric Defensins in Mucosal Immunity, MCW Digestive Disease Center Research Seminar, Milwaukee, WI, 2002  
Human Defensin 5 Transgenic Mice: An In Vivo Model of Defensin Function, MCW Department of Microbiology and Molecular Genetics, Milwaukee, WI, 2002  
The Role of Defensins in Mucosal Protection of the Gastrointestinal Tract, MCW Digestive Disease Center Advisory Board, Milwaukee, WI, 2002  
Enteric Defensins and the Regulation of the Intestinal Microbiota, MCW Department of Microbiology and Molecular Genetics, Milwaukee, WI, 2003  
Defending the GI tract: the role of defensins in host-microbe interactions, Children's Hospital of Wisconsin, Department of Pediatrics, Milwaukee, WI, 2005  
The Role of Defensins in Innate Mucosal Immunity, MCW Department of Microbiology and Molecular Genetics, Milwaukee, WI, 2007  
Innate Mucosal Immunity and the Microbial Ecology of the GI Tract, Medical College of Wisconsin, Department of Medicine, Division of Infectious Diseases, Milwaukee, WI, 2007  
The GI microbiota, mucosal immunity, and the "Microflora Hypothesis" of allergic disease, Department of Pediatrics, Division of Allergy and Immunology, Children's Hospital of Wisconsin, Milwaukee, WI, 2008  
Go with your gut: the intestinal microbiome in health and disease, Children's Research Institute, Children's Hospital of Wisconsin, Milwaukee, WI, 2008  
Studies of the intestinal microbiome: Applicability to basic and translational research, Department of Pediatrics, Division of Gastroenterology, Milwaukee, WI, 2008  
Innate Immune Regulation of Intestinal Microbial Ecology, 2008 Pediatric Research Symposium, Children's Research Institute, Children's Hospital of Wisconsin, Milwaukee, WI, 2008  
A niche of one's own: Bacteria-biome-mucosal immune interactions, Medical College of Wisconsin, Department of Medicine, Division of Infectious Diseases, Milwaukee, WI, 2010  
Impact of the immune system on the microbiome, Children's Research Institute, Children's Hospital of Wisconsin, Milwaukee, WI, 2010  
Medical College of Wisconsin Microbiome Project, IBD Family Forum, Children's Hospital of Wisconsin,

Milwaukee, WI, 2011

The role of the intestinal microbiome in immunology and allergic disease, Department of Pediatrics, Division of Allergy and Immunology, Children's Hospital of Wisconsin, Milwaukee, WI, 2011

Paneth cells, the microbiome and intestinal homeostasis: Implications for the development of Crohn's disease, Children's Research Institute Seminar, Children's Hospital of Wisconsin, Milwaukee, WI, 2012

Paneth cells, antimicrobial peptides, and the microbiota: Détente at mucosal surfaces, Department of Pediatrics, Division of Allergy and Immunology, Children's Hospital of Wisconsin, Milwaukee, WI, 2012

Paneth cells, antimicrobial peptides, and the regulation of intestinal homeostasis, Department of Pediatric Surgery, Medical College of Wisconsin, Milwaukee, WI, 2014

Enterococcus faecalis dynamics in the gut: finding and defending your niche, Division of Infectious Diseases, Department of Medicine, Medical College of Wisconsin, Milwaukee, WI, 2014

Enterococcus faecalis niche formation in the GI tract: at least two sides to the story, Division of Hematology and Oncology, Department of Medicine, Medical College of Wisconsin, Milwaukee, WI, 2014

Paneth cells, antimicrobial peptides, and the regulation of intestinal homeostasis, CTSI, Medical College of Wisconsin, Milwaukee, WI, 2014

Paneth cells, the microbiome, and Crohn's disease, Digestive Disease Center Advisory Board Meeting, Medical College of Wisconsin, Milwaukee, WI, 2015

Obtaining grant funding: Persistence Pays!, Department of Pediatrics K Club, Medical College of Wisconsin, Milwaukee, WI, 2015

The Microbiome, the Immune System and Intestinal Homeostasis: A Delicate Balance, Department of Pediatrics, Children's Hospital of Wisconsin, Children's Research Institute Seminar, Milwaukee, WI, 2015

Microbial Niche Competition in the GI Tract, Department of Cell Biology, Neurobiology and Anatomy, Medical College of Wisconsin, Milwaukee, WI, 2015

Good Bugs, Bad Bugs, the Microbiome and You, "It's contagious: inside the world of infectious disease", Conversations with Scientists. Advancing a Healthier Wisconsin, Medical College of Wisconsin, Milwaukee, WI, 2016

Characterizing and Targeting the Microbiome in Human Disease, Children's Research Institute Golden Angels Meeting, Milwaukee, WI, 2016

The microbiome and allergy, Division of Allergy and Immunology, Department of Pediatrics, Children's Hospital of Wisconsin, Milwaukee, WI, 2016

The Microbiome, the Immune System and Intestinal Homeostasis: A Delicate Balance, Children's Hospital of Wisconsin Board Meeting, Medical College of Wisconsin, Milwaukee, WI, 2016

The Microbiome in Health and Disease, 10th Annual Diabetes Symposium of Wisconsin, Milwaukee, WI, 2017

Creating and defending your niche: antimicrobial production and resistance, UW Microbiology Club, Milwaukee, WI, 2017

Antimicrobial peptides and intestinal homeostasis: Contributions of both host and microbe, Department of Obstetrics and Gynecology Research Seminar, Medical College of Wisconsin, Milwaukee, WI, 2018

The microbiome in health and disease, Milwaukee Academy of Medicine, Milwaukee, WI, 2018

A role for the microbiome in pediatric NAFLD, Children's Research Institute Seminar, Children's Hospital of Wisconsin, Medical College of Wisconsin, Milwaukee, WI, 2018

Therapeutic bacteria to prevent multidrug-resistant enterococcal infections, First Look Forum Event: What's Brewing in MKE?, Milwaukee, WI, 2018

A role for the microbiome in pediatric NAFLD, Inaugural Dean's Hour seminar series, Medical College of Wisconsin, Milwaukee, WI, 2019

A role for the microbiome in pediatric NAFLD, Pediatric GI divisional meeting, Medical College of Wisconsin, Milwaukee, WI, 2019

The intestinal microbiome in pediatric NAFLD, Children's Research Institute Seminar Series, Children's Hospital of Wisconsin, Milwaukee, WI, 2020

#### **PEER REVIEWED WORKSHOPS/PRESENTATIONS:**

##### **International**

Inhibition of Paneth Cell Antimicrobial Peptide Expression Following Salmonella Infection Requires SPI1

- Type III Secretion, Antimicrobial Peptides Gordon Conference, Ventura, CA, 2001
- Regulation of the Intestinal Microbiota by Paneth Cell Defensins, Antimicrobial Peptide Gordon Conference, Ventura, CA, 2005
- Enteric Defensins are Essential Regulators of Intestinal Microbial, Antimicrobial Peptides Gordon Conference, Barga, Italy, 2007
- Chakraborty, R. J. Stromich, D. Bretl, M. Hayward, C. Kristich, and N.H. Salzman, Enterococcus faecalis dynamics in the gastrointestinal tract: Interaction between antibiotics, microbiota and antimicrobial peptides, Gordon Research Conference on Antimicrobial Peptides, Ventura, CA, 2013
- Kommineni, S., M. Hayward, Bretl, D., P. Bousounis, C. J. Kristich, and N.H. Salzman, Factors associated with bacteriocin encoding plasmid dependent Enterococcus faecalis colonization in the GI tract, Gordon Research Conference on Antimicrobial Peptides, Ventura, CA, 2013
- Liu, T. C., B. Gurram, V. Lam, M. Baldrige, R. Head, M. Stephens, D. Lerner, M. Hayward, P. Bousounis, M. Holtz, Y. Cao, P. Simpson, H. Virgin, T. Stappenbeck and N. H. Salzman, Paneth cells, the microbiome, and Crohn's disease susceptibility, Antimicrobial Peptides Gordon Conference, Barga, Italy, 2015
- Kommineni, S., D. Bretl, V. Lam, R. Chakraborty, M. Hayward, P. Bousounis, C. J. Kristich and N. H. Salzman, Bacteriocin production augments niche competition by enterococci in the mammalian GI tract, Antimicrobial Peptides Gordon Conference, Barga, Italy, 2015

### **National**

- Increased Enteric Defensin Expression in Necrotizing Enterocolitis, Society for Pediatric Research, Annual Meeting, Washington, DC, 1996
- Oral Infection with *S. typhimurium* Causes Down-regulation of Enteric Antimicrobial Peptide Expression, Keystone Symposia on Molecular and Cellular Biology. Innate and Acquired Immunity at Mucosal Surfaces, Taos, NM, 2000
- Human Defensin 5 Transgenic Mice: An In Vivo Model of Defensin Function, Digestive Disease Week, AGA, Distinguished Plenary Presentation, San Francisco, CA, 2002
- Enteric Defensins are Essential Regulators of Intestinal Microbial Ecology, SPR Research Conference, 2007
- Enteric Defensins are Essential Regulators of Intestinal Microbial Ecology, ASM Conference on Beneficial Microbes, San Diego, CA, 2008
- Kommineni, S., M. Hayward, P. Bousounis, C. J. Kristich, and N.H. Salzman, Factors associated with Enterococcus faecalis colonization in the GI tract, 2013 Molecular Genetics of Bacteria and Phages Conference, Madison, WI, 2013
- Gurram, B., Stephens, M., V. Lam, M. Hayward, P. Bousounis, U. Broeckel, E. Worthey, P. Simpson, and N.H. Salzman, Paneth Cells, the Microbiome, and Crohn's Disease Susceptibility, IBD Advances Meeting, Hollywood, FL, 2013
- Liu, T.C., N.H. Salzman, C.A. Arnold, and T.S. Stappenbeck, Evolution of Paneth Cell Phenotype in Crohn's Disease: Implications for Disease Etiopathogenesis, Digestive Disease Week, Chicago, IL, 2014
- Kommineni, S., M. Hayward, P. Bousounis, C. J. Kristich, and N.H. Salzman, The Bacteriocin-21 confers a competitive advantage for *E. faecalis* intestinal colonization through competition, conjugation, and microbiome manipulation, ASM Conference on Beneficial Microbes, Washington, DC, 2014
- Simpson P, Pan A (Cao Y), Huang B, Johnson J, Schwimmer J, Holtz M, Weinstock G, Weinstock E, Salzman N., For the microbiome, zeroes are definitely of non-zero importance, Joint Statistical Meetings, Chicago, IL, 2016
- Banla, I., M. Hayward, N.H. Salzman and C.J. Kristich, Determinants of Enterococcus faecalis cell envelope integrity and antimicrobial resistance modulate intestinal colonization in mice, 2016 Molecular Genetics of Bacteria and Phages Conference, Madison, WI, 2016
- Schwimmer JB, Newton KP, Africa J, Durelle J, Arroyo S, Bross C, Behling C, Hamilton G, Sirlin CB, Borecki I, Mitreva M, Tyagi R, Belt P, Yates KP, Lavine JL, Johnson J, Sodergren E, Weinstock G, Holtz M, Simpson P, Salzman N., The intestinal microbiome in children with nonalcoholic fatty liver disease: A case-control study., Digestive Disease Week, San Diego, CA, 2016
- Jennings KC, Banla I, Kristich C, Salzman NH, Growth phase and osmotic stress drive subcellular localization of Enterococcus faecalis OGIRF\_11271, a conserved protein involved in cell envelope integrity., Molecular Genetics of Bacteria and Phages Meeting, Madison, WI, 2019

### **Regional**

- Regulation of the Intestinal Microbiota by Paneth Cell Defensins, Digestive Disease Week, AGA, Poster of

- Distinction, Chicago, IL, 2005
- Reduced Paneth cell alpha-defensin expression in Crohn's Disease of the ileum, Digestive Disease Week, AGA, Poster of Distinction, Chicago, IL, 2005
- Banla, I.L., M. Hayward, N.H. Salzman and C.J. Kristich, Stable and long-term colonization of the murine GI tract by *E. faecalis* is dependent on ireK, Midwest Microbial Pathogenesis Conference, Indianapolis, IN, 2015
- Chakraborty, R., J. Stromich, M. Hayward, T. Nelson, C.J. Kristich, and N.H. Salzman, The role of the innate immune system in systemic enterococcus dissemination and clearance, Midwest Microbial Pathogenesis Conference, Indianapolis, IN, 2015
- Banla I, Kommineni S, Hayward M, Kristich C, Salzman N., Contributions of *Enterococcus faecalis* Cell Surface Proteins to Intestinal Colonization, 9th Annual Immunology Conference, Blood Research Institute, Milwaukee, WI, 2017
- Chakraborty R, Stromich J, Bretl D, Hayward M, Kristich C, Salzman N., Role of the Innate Immune System in Systemic *Enterococcus* Dissemination and Clearance, 9th Annual Immunology Conference, Blood Research Institute, Milwaukee, WI, 2017
- Chakraborty R, Lam V, Kommineni S, Stromich J, Hayward M, Kristich C, Salzman N., Ceftriaxone-mediated dynamics between the host, microbiota and enterococci in mouse gastrointestinal tract., 12th Annual Immunology Conference, Blood Research Institute (Versiti), Milwaukee, WI, 2019

### **Local**

- Jennings K, Chakraborty R, Kristich C, Salzman N., Mononuclear phagocytes respond to ceftriaxone-induced *Enterococcus faecalis* dissemination, 11th Annual Immunology Scientific Retreat, MCW, Milwaukee, WI, 2020

### **COMMITTEE SERVICE:**

#### **Medical College of Wisconsin**

- 2004 Member, Basic Science Innovation Task Force, Department of Pediatrics, Medical College of Wisconsin
- 07/2005 - 06/2008 Member, Institutional Animal Care and Use Committee, Medical College of Wisconsin
- 2005 - 2006 Member, Task Force on Conflict of Interest, Department of Pediatrics, Medical College of Wisconsin
- 2006 Member, Biophotonic Core Oversight Committee, Medical College of Wisconsin
- 2006 Member, "Advancing a Healthier Wisconsin" Scientific Peer Review Panel, Medical College of Wisconsin
- 2006 Chair, DDC grant review committee, Medical College of Wisconsin
- 2010 Member, DDC grant review committee
- 2011 - 2014 Member, Faculty Career Development Committee, Medical College of Wisconsin
- 2013 - Present Member, Internal NIH grant review committee, Department of Pediatrics
- 2016 Member, Bioinformatics Faculty Advisory Group
- 2019 - Present Member, University Rank and Tenure Committee

### **MCW TEACHING ACTIVITIES:**

#### **Medical Student Education**

- 2001 - 2008 Lab Instructor, Microbiology
- 2011 New Curriculum Development
- 2013 - 2018 Instructor, GI and Nutrition Unit
- 2017 - Present Lecturer, Infectious Agents and Host Immunity (IAHI)

#### **Graduate Student Education**

- 2009 - Present Instructor, Mucosal Pathogenesis
- 2010 - Present Instructor, Mucosal Immunology
- 2014 - 2019 Instructor, Cellular and Molecular Immunology
- 2017 - Present Instructor, Translational Genetics
- 2017 - 2019 Instructor, Cellular Microbiology
- 2019 - Present Instructor, Integrated Curriculum

## MCW STUDENTS, FACULTY, RESIDENTS AND CLINICAL/RESEARCH FELLOWS MENTORED:

### Undergraduate Students

2021 Miranda Lyles, CTSI 500 Stars Summer Internship, MCW

### Graduate Students

#### PhD Students Advised

2021 - Present Sritejasvinithi Karimikonda, MCW

## PROGRAMMATIC DEVELOPMENTS:

### Research Programs

2016 - Present Center for Microbiome Research

## BIBLIOGRAPHY

### Refereed Journal Publications/Original Papers

1. Haribhai D, Williams JB, Jia S, Nickerson D, Schmitt EG, Edwards B, Ziegelbauer J, Yassai M, Li SH, Relland LM, Wise PM, Chen A, Zheng YQ, Simpson PM, Gorski J, Salzman NH, Hessner MJ, Chatila TA, Williams CB. A requisite role for induced regulatory T cells in tolerance based on expanding antigen receptor diversity. *Immunity*. 2011 Jul 22;35(1):109-22. PMID: PMC3295638
2. Zimmerman, N.P., Vongsa, R.A., Faherty, S.L., SALZMAN, N.H., and M.B. Dwinell. Targeted intestinal epithelial deletion of the chemokine receptor CXCR4 reveals important roles for extracellular-regulated kinase-1/2 in restitution. *Lab Invest*. Epub 2011 May 2. PMID: 21537329
3. Duerr, C.U., N.H. SALZMAN, A. Dupont, A. Szabo, B.H. Normark, S. Normark, R.M. Locksley, P. Mellroth, and M.W. Hornef. Control of intestinal Nod2-mediated peptidoglycan recognition by epithelium-associated lymphocytes. *Mucosal Immunology*, 2010, (27 October 2010) doi:10.1038/mi.2010.71.
4. Biswas, A., Y. Liu, L. Hao, A. Mizoguchi, N.H. SALZMAN, C.L. Bevins, and K.S. Kobayashi. Induction and rescue of Nod2-dependent Th1-driven granulomatous inflammation of the ileum. *Proc. Natl. Acad. Sci.* 2010, 107(33): 14739-14744. PMID: 20679225
5. SALZMAN, N.H., K. Hung, D. Haribhai, H. Chu, J. Karlsson-Sjoberg, E. Amir, P. Tegatz, M. Barman, M. Hayward, D. Eastwood, M. Stoel, Y. Zhou, E. Sodergren, G.M. Weinstock, C.L. Bevins, C.B. Williams, and N.A. Bos. Enteric defensins are essential regulators of intestinal microbial ecology. *Nature Immunology*, 2010, 11(1): 76-83. published online 22 October 2009; doi:10.1038/ni.1825. PMID: 19855381
6. Crosswell, A., E. Amir, P. Tegatz, M. Barman, and N.H. SALZMAN. Prolonged Impact of Antibiotics on Intestinal Microbial Ecology and Susceptibility to Enteric Salmonella Infection. *Infection and Immunity*, 2009, 77(7):2741-53. PMID: PMC2708550
7. Haribhai, D., Lin, W., Edwards, B., Ziegelbauer, J., SALZMAN, N.H., Carlson, M.R., Li, S-H., Simpson, P.M., Chatila, T.A., and C. B. Williams. A Central Role for Induced Regulatory T Cells in Tolerance Induction in Experimental Colitis. *J. Immunol.* 2009, 182(6): 3461-8.
8. Underwood, M.A., SALZMAN, N.H., Bennett, S.H., Barman, M., Mills, D.A., Marcobal, A., Tancredi, D.J., Bevins, C.L., and M.P. Sherman. A Randomized Placebo-controlled Comparison of Two Prebiotic/Probiotic Combinations in Preterm Infants: Impact on Weight Gain, Intestinal Microbiota, and Fecal Short Chain Fatty Acids. *J. Pediatr. Gastroenterol. Nutr.* 2009 48(2):216-225.
9. Pechous, R.D., McCarthy, T.R., Mohapatra, N.P., Soni, S., Penoske, R.M., SALZMAN, N.H., Frank, D.W., Gunn, J.S., and T.C. Zahrt. A Francisella tularensis Schu S4 Purine Auxotroph is Highly Attenuated in Mice but Offers Limited Protection Against Homologous Intranasal Challenge. *PLoS ONE* 2008 Jun 25; 3(6); e2487.
10. Barman, M., D. Unold, K. Shifely, E. Amir, K. Hung, N. A. Bos, and N.H. SALZMAN. Enteric Salmonellosis Disrupts the Microbial Ecology of the Murine Gastrointestinal Tract. *Infection and Immunity*, 2008: 76(3): 907-915.

11. Olivier, V., N.H. SALZMAN, K. J. Fullner Satchell. Prolonged Colonization of Mice by *Vibrio cholerae* El Tor O1 Depends on Accessory Toxins. *Infection and Immunity*, 2007; 75(10): 5043-5051.
12. Wehkamp, J., N. H. SALZMAN, E. Porter, M. Weichenthal, R. E. Petras, B. Shen, E. Schaeffeler, M. Schwab, R. Linzmeier, R. W. Feathers, H. Chu, H. Lima, K. Fellermann, T. Ganz, E. F. Stange, and C. L. Bevins. Reduced Paneth cell  $\alpha$ -defensin expression in Crohn's Disease of the ileum. *Proc. Natl. Acad. Sci.* 2005; 102 (50): 18129-18134.
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14. SALZMAN, N. H., M. Chou, H. deJong, L. Liu, E.M. Porter, and Y. Paterson. Enteric Salmonella Infection Inhibits Paneth Cell Antimicrobial Peptide Expression. *Infection and Immunity*, 2003; 71(3): 1109-1115.
15. SALZMAN, N. H., H. de Jong, Y. Paterson, H. J. M. Harmsen, G. W. Welling and N. A. Bos. Analysis of 16S libraries of mouse gastrointestinal microflora reveals a large new group of mouse intestinal bacteria. *Microbiology* 2002; 148: 3651-3660
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17. SALZMAN, N. H., R. A. Polin, M. C. Harris, E. Ruchelli, A. Hebra, S. Zirin-Butler, and C. Bevins. 1998. Enteric defensin expression in necrotizing enterocolitis. *Pediatric Research* 44(1): 20-26.
18. SALZMAN, N.H., E. B. Mallow, A. Harris, J.P. Russell, R.J. DeBerardinis, E. Ruchelli, and C.L. Bevins. 1996. Human enteric defensins: Gene structure and developmental expression. *J. Biol. Chem.* 271(8): 4038-4045.
19. SALZMAN, N.H., and F.R. Maxfield. 1989. Fusion-accessibility of endocytic compartments along the recycling and lysosomal endocytic pathways in intact cells. *J. Cell Biol.* 109: 2097-2104.
20. SALZMAN, N.H., and F.R. Maxfield. 1988. Intracellular fusion of sequentially formed endocytic compartments. *J. Cell Biol.* 106:1083-1091.
21. Cais, R.E., J.M. Kometani, and N.H. SALZMAN, 1986. NMR characterization of the chemical microstructure of vinylidene halide and vinyl halide copolymers. *Macromolecules* 19: 1006-1012.
22. Cais, R.E., J.M. Kometani, and N.H. SALZMAN, 1983. Analysis of the chemical microstructure of copolymers by high-resolution nuclear magnetic resonance spectroscopy. *Analytical Proceedings* 20: 579-582.
23. Bevins CL, Salzman NH. The potter's wheel: the host's role in sculpting its microbiota. *Cell Mol Life Sci.* 2011 Nov;68(22):3675-85. PMID: PMC3222938
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- Human  $\alpha$ -defensin 6 promotes mucosal innate immunity through self-assembled peptide nanonets. *Science*. 2012 Jul 27;337(6093):477-81. PMID: PMC4332406
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