CURRICULUM VITAE

Karen L. Edelblum, Ph.D.
Assistant Professor and Chancellor Scholar
Department of Pathology and Laboratory Medicine, Center for Immunity and Inflammation
Rutgers New Jersey Medical School

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ACADEMIC POSITIONS

2011-2015 Research Associate (Assistant Professor)
Department of Pathology
The University of Chicago

2015-current Assistant Professor (tenure-track), Chancellor Scholar
Department of Pathology and Laboratory Medicine
Center for Inflammation and Immunity
Rutgers New Jersey Medical School

EDUCATION AND TRAINING

1998-2002 B.S., Biology, French Studies minor
Emory University, Atlanta, GA
Research Assistant, laboratory of Curt H. Hagedorn, M.D.
Research topic: *Mutational analysis of Hepatitis C Virus NS5B polymerase activity*

2002-2008 Ph.D., Cell & Developmental Biology
Vanderbilt University, Nashville, TN
Dissertation advisor: D. Brent Polk, M.D.
Dissertation title: *Raf-1 kinase regulates intestinal epithelial cell survival in response to pro-inflammatory stimuli*.

2008-2011 Postdoctoral fellow, The University of Chicago
Mentors: Jerrold R. Turner, M.D., Ph.D., Anne I. Sperling, Ph.D.
Primary research topic: *Tight junction-mediated regulation of γδ intraepithelial lymphocyte migration*

HONORS, FELLOWSHIPS, AWARDS

2001	Cancer Research Training Award, National Cancer Institute, Frederick Cancer Research and Development Center, laboratory of Peter Johnson, Ph.D.
2007	Selected for the National Graduate Student Research Festival, National Institutes of Health
2007	Travel Award, AGA Gastrointestinal Response to Injury
2008	Distinguished Abstract Plenary, AGA Digestive Disease Week
2010	AGA Academic Skills Workshop (competitive application)
2010	American Physiological Society Research Recognition Award
2010	AGA Fellow Abstract Prize, AGA Digestive Disease Week
2011	American Physiological Society GI & Liver Section Postdoctoral Poster Award
2011	AGA FDHN Research Scholar Award
2012	Travel Award, 5th International γδ T-cell conference, Freiburg, Germany
2013	American Society of Investigative Pathology Trainee Travel Award
2015	Rutgers Biomedical and Health Sciences (RBHS) Chancellor Scholar

TEACHING AND COMMITTEE EXPERIENCE

2006	Thuy Dang, undergraduate, Vanderbilt Center for Science Outreach Research Internship Program
2007	Matthew Mullane, post-baccalaureate, CCFA Student Fellowship Award
2010	Emily Turner, high school summer student
2014	Omoluyi Adesanya, undergraduate student
2012 – 2014	Ty Redler, undergraduate summer student, AGA Student Research Fellowship Award (2014)
2012 – 2015	Gurminder Singh, M.S., research technician

2010 – 2013	Trainee Advisory Committee, American Physiological Society
2010 – 2013	Trainee Representative, GI & Liver Section Steering Committee, American Physiological Society
2015 – 2017	Women in Physiology Committee, American Physiological Society
2015 – 2017	Banquet Coordinator/Councilor, GI & Liver Section Steering Committee, American Physiological Society
2015 – 2017	Patient Education Committee, Crohn's and Colitis Foundation of America

MEMBERSHIPS

2005 – present	Member, American Gastroenterological Association
2010 – present	Member, American Physiological Society
2012 – present	Member, American Society for Investigative Pathology
2014 – present	Professional Member, Crohn's and Colitis Foundation of America

AD HOC REVIEWER

Gastroenterology, American Journal of Physiology – Gastrointestinal and Liver Physiology, Laboratory Investigation, Digestive Disease and Sciences, Mucosal Immunology, PLOS One, Journal of Cell Science, Cellular Immunology

PEER-REVIEWED PUBLICATIONS

Frey MR, Dise RS, **Edelblum KL**, Polk DB. The p38 mitogen-activated protein kinase regulates epidermal growth factor receptor down-regulation in intestinal epithelial cells. EMBO J. 2006 Dec 13;25(24):5683-92. PMID: 17139251

Edelblum KL, Washington MK, Koyama T, Robine S, Baccarini M, Polk DB. "Raf protects against colitis by promoting mouse colon epithelial cell survival through NF-κB." Gastroenterology. 2008 Aug;135(2):539-51. PMID: 18598699

McElroy SJ, Frey MR, Yan F, **Edelblum KL**, Goettel JA, John S, Polk DB. Tumor necrosis factor inhibits ligand-stimulated EGF receptor activation through a TNF receptor 1-dependent mechanism. Am J Physiol Gastrointest Liver Physiol. 2008 Aug; 295(2): G285-93. PMID: 18467504

Edelblum KL, Goettel JA, Koyama T, McElroy SJ, Yan F, Polk DB. TNFR1 promotes TNF-mediated mouse colon epithelial cell survival through Raf activation of NF-kB. J Biol Chem. 2008 Oct 24;283(43):29485-94 PMID: 18713739

Frey MR, **Edelblum KL**, Liang D, Polk DB. "The ErbB4 growth factor receptor is required for mouse colon epithelial cell survival in the presence of TNF." Gastroenterology. 2009 Jan;136(1):217-26. PMID: 18973758

Goettel JA, Liang D, Hilliard VC, **Edelblum KL**, Broadus MR, Hanks SK, Polk DB. "KSR1 is a functional protein kinase capable of serine autophosphorylation of MEK1." Exp Cell Res. 2011 Feb 15;317(4):452-63.

Marchiando AM, Shen L, Graham WV, **Edelblum KL**, Duckworth C, Guan Y, Montrose MH, Turner JR, Watson AJ. The epithelial barrier is maintained by in vivo tight junction expansion during pathologic intestinal epithelial shedding. Gastroenterology. 2011 Apr;140(4):1208-1218.

Hobbs SS, Goettel JA, Liang D, Yan F, **Edelblum KL**, Frey MR, Mullane MT, Polk DB. TNF Transactivation of EGFR stimulates cytoprotective COX-2 expression in gastrointestinal epithelial cells. Am J Physiol Gastrointest Liver Physiol. 2011 Aug;301(2):G220-9.

Edelblum KL, Shen L, Weber CR, Marchiando AM, Clay BS, Wang Y, Prinz I, Malissen B, Sperling AI, Turner JR. Dynamic migration of γδ intraepithelial lymphocytes requires occludin. PNAS. 2012 May 1;109(18):7097-102. PMID: 22511722

Chen J, Yin H, Xu‚J, Wang Q, **Edelblum KL**, Sciammas R, and Chong AS. Reversing endogenous alloreactive B cell GC responses with anti-CD154 or CTLA-4Ig. Am J Transplant. 2013 Jul 15. PMID:23855587

Nalle SC, Kwak HA, **Edelblum KL**, Joseph NE, Singh G, Khramtsova GF, Mortenson ED, Savage PA, and Turner JR. Recipient NK cell inactivation and intestinal barrier loss are required for MHC-matched graft-versus-host disease. Sci Transl Med. 2014 Jul 2;6(243):243ra87. PMID: 24990882

Edelblum KL, Singh G, Odenwald MA, Lingaraju A, El Bissati K, McLeod R, Sperling AI and Turner JR. γδ intraepithelial lymphocyte migration limits transepithelial pathogen invasion and systemic disease in mice. Gastroenterology. 2015 Jun;148(7):1417-26. PMID: 25747597

JOURNAL REVIEWS

Edelblum KL, Yan F, Yamaoka T, Polk DB. "Regulation of apoptosis during homeostasis and pathological conditions in the intestinal epithelium." Inflamm Bowel Dis. 2006 May;12(5):413-24. PMID: 16670531

Edelblum KL, Turner JR. "The tight junction in inflammatory disease: communication breakdown." Curr Opin Pharmacol. 2009 Dec;9(6):715-20. PMID: 19632896

INVITED BOOK CHAPTERS AND COMMENTARIES

Edelblum KL. Mouse Models of Inflammatory Bowel Disease: Mechanistic Insight into Current and Future Therapeutics. X. Wang (Ed.), *Translational Animal Models in Drug Discovery and Development*. Bentham Scientific Publishers. October 2012.

Edelblum KL. "Networking & Service through Professional Societies." Am J Physiol Gastrointest Liver Physiol. 2013 Dec. PMID: 24381082

Edelblum KL, Turner JR. Epithelial Cells: Structure and Barrier Function. J. Mestecky, M. Russell (Eds.), *Mucosal Immunology, 4th Edition*. Academic Press/Elsevier. Waltham, MA. In press.

ORAL PRESENTATIONS

KSR is required for Raf activation in TNFR-mediated intestinal epithelial cell survival. FASEB Summer Research Conference on Gastrointestinal Research and Disease. Snowmass, CO. August 14, 2005.

TNFR1 mediates mouse colon epithelial cell survival through Raf activation of NF-κB. AGA Institute: Gastrointestinal Response to Injury. Montebello, Quebec. October 5, 2007.

Raf-1 kinase suppresses inflammation-associated colon carcinogenesis. AGA Digestive Disease Week 2008. San Diego, CA. May 21, 2008.

Tight junction protein expression by γδ IELs regulates lymphocyte-epithelial interactions. Autumn Immunology Conference. Chicago, IL. November 19, 2009.

Tight junction protein expression by γδ intraepithelial lymphocytes (IELs) regulates interactions between lymphocytes and epithelial cells. Experimental Biology: APS Trainee Symposium. Anaheim, CA. April 26, 2010.

Tight junction protein expression by γδ IELs regulates lymphocyte-epithelial interactions. AGA Digestive Disease Week 2010. New Orleans, LA. May 4, 2010.

Dynamic regulation of γδ IEL migration is occludin-dependent. Chicago Gut Epithelium and Mucosal Research Club. January 11, 2011.

Occludin regulates γδ intraepithelial migration in vivo. AGA Digestive Disease Week 2011. Chicago, IL. May 9, 2011.

γδ IEL migration is occludin-dependent and responsive to epithelial barrier loss. γδ T-cell Conference. Freiburg, Germany. June 1, 2012.

Transepithelial movement of intestinal pathogens is limited by γδ IEL occludin-dependent migration. Experimental Biology, American Society of Investigative Pathology. Boston, MA. April 21, 2013.

Intestinal epithelial barrier dysfunction protects against pathogen translocation during initial infection. Experimental Biology, American Physiological Society. San Diego, CA. April 28, 2014.

γδ IEL migration prevents pathogen translocation across the villous epithelium during early infection. γδ T-cell Conference. Chicago, IL. May 17, 2014.

INVITED TALKS

Dynamic regulation of γδ IEL migration is occludin-dependent. Curie Institute, Section of subcellular structure and cellular dynamics. Paris, France. September 23, 2010.

γδ IELs: 'unconventional' surveillance of the intestinal epithelial monolayer. Scripps Research Institute, Department of Immunology and Microbial Science. La Jolla, CA. May 21, 2012.

γδ IELs: 'unconventional' border patrol. Washington University, Gastroenterology Research Conference. St. Louis, MO. September 21, 2012.

γδ IEL/epithelial interactions in intestinal host defense responses. Banff Inflammation Workshop. Calgary, Alberta. February 2, 2013.

γδ IELs: 'unconventional' surveillance of the intestinal epithelium. Children's Hospital of Los Angeles Research Seminar. Los Angeles, CA. February 20, 2013.

γδ IELs and their 'unconventional' role in intestinal host defense. The University of Chicago Pathobiology Seminar. Chicago, IL. May 23, 2013.

γδ IELs in intestinal epithelial surveillance and innate immunity. Rutgers New Jersey Medical School. Newark, NJ. September 12, 2014.

γδ IELs in intestinal epithelial surveillance and innate immunity. University of Texas Health Science Center San Antonio. San Antonio, TX. January 5, 2015.

Commuication between tight junction proteins and immune cells during enteric disease. Experimental Biology. APS Cross-Sectional Symposium. Boston, MA. March 29, 2015.

RESEARCH SUPPORT

Ongoing
February 2012-January 2017 Role: PI
NIH K01 DK093627

Completed
April 2013 – April 2014 Role: PI
Gastro-Intestinal Research Foundation of Chicago Associates' Board Award

December 2012 – November 2013 Role: PI
University of Chicago DDRCC Pilot and Feasibility Award

July 2011- January 2012 Role: PI
AGA Foundation of Digestive Health and Nutrition Research Scholar Award
(terminated early due to funding of K01 award)

October 2009-June 2012 Role: Postdoctoral fellow
NIH F32 DK084859

October 2008- September 2009 Role: Postdoctoral fellow
NIH T32HL007237: Cardiovascular Pathophysiology and Biochemistry Training Program

COMMUNITY SERVICE

2002-2005	Teacher for Vanderbilt Students Volunteering for Science (VSVS), taught hands-on science experiments in 5th and 6th grade classrooms in Nashville Public Schools
2002-2008	Volunteer for Tennessee Chapter of CCFA, coordinating and staffing events, support group speaker
2005-2014	Staff member at Camp Oasis, an overnight camp for children with IBD sponsored by the Crohn's and Colitis Foundation of America (CCFA)
2006-2013	Participant in CCFA Take Steps Walk
2008-2014	Volunteer, Illinois Carol Fisher Chapter of CCFA
2008-2011	Member, CCFA Young Professionals Group, Illinois Carol Fisher Chapter
2009-2013	Take Steps Committee Member, Illinois Carol Fisher Chapter of CCFA
2011	Featured in IBDetermined.org, a national CCFA IBD patient advocacy/outreach campaign
2013	Honored Hero, Chicago CCFA Take Steps Walk