BIOGRAPHICAL SKETCH

NAME: Goyal, Alka

eRA COMMONS USER NAME (credential, e.g., agency login): alkgyl

POSITION TITLE: Clinical Professor of Pediatrics

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Delhi. India	B.Sc.	06/1979	Zoology
Lady Hardinge Medical College. University of Delhi. India	M.B.B.S.	12/1984	Medicine and surgery
University of Delhi	M.D.	06/1988	Pediatrics
Yorkhill Children's Hospital, Glasgow. Scotland	Senior House Officer	04/1991	Pediatrics
University of Connecticut Health Center	Pediatric Residency	06/1993	Pediatrics
Washington University. St. Louis	Fellowship	06/1996	Pediatric Gastroenterology
Washington University. St. Louis	Post-Doctoral research fellowship	06/1998	Pediatric Gastroenterology

A. Personal Statement

My main research interest involves translational research in Inflammatory Bowel disorders (IBD). I am a pediatric gastroenterologist by training and have been involved with both clinical and translational research for last several years. My training under the mentorship of Dr. Deborah Rubin at Washington University, St. Louis, Missouri for four years during my research fellowship laid a strong foundation for me in basic science research. I studied the "Role of Epimorphin on Gut Morphogenesis". I then worked as a full-time clinical faculty at University of Pittsburgh. As our inflammatory bowel disease program grew, I had the opportunity to serve as a site investigator or co-investigator in several multicenter clinical-translational studies. I gained expertise in clinical translational research in children by active participation in several multicenter studies including Very Early Onset IBD (NEOPICS), RISK (Risk Stratification and Identification of Immunogenetic and Microbial Markers of Rapid Disease Progression in Children with Crohn's Disease), PROTECT (Predicting Response to Standardized Pediatric Colitis Therapy) and autologous stem cell transplant in medically refractory Crohn's disease. I also conducted a single center study under an IND on the therapeutic potential of gut microbiota in inflammatory bowel disease. I have also had the opportunity to participate in several other multicenter studies recently through ImproveCareNow at Children's Mercy, Kansas City like COMBINE (Clinical Outcomes of Methotrexate Binary treatment with Infliximab or adalumimab in practice) study. I was the site PI for the PRODUCE (Personalized Research on Diet in Ulcerative Colitis and Crohn's Disease) study and NIH funded "Growth Study" until I moved to Stanford recently in January 2020. Despite all the work and advancement of

knowledge in the field of IBD, we still need to have a better understanding of risk stratification, natural history and ability to correlate clinical picture and biomarkers with mucosal healing.

B. Positions and Honors

Positions and Employment

1998-2012	Assistant Professor of pediatrics. University of Pittsburgh School of Medicine. Pittsburgh, PA
2012-2016	Associate Professor of Pediatrics. University of Pittsburgh School of Medicine. Pittsburgh, PA
2016- 2019	Associate Professor of Pediatrics. Director, Inflammatory Gastrointestinal Diseases, Children's Mercy Hospital and University of Missouri Kansas City, MO
2019-2020	Professor of Pediatrics. Director, Inflammatory Gastrointestinal Diseases, Children's Mercy Hospital and University of Missouri Kansas City, MO
2020-	Clinical Professor of Pediatrics. Stanford University School of Medicine.

Other Experience and Professional Memberships

1988-	Indian Academy of Pediatrics
2000-	American Gastroenterological Association
2002-	North American Society for Pediatric Gastroenterology, Hepatology and Nutrition
2006-	Crohn's & Colitis Foundation of America

Honors

1996	American Digestive Health Foundation Advanced Research Training Award
2004	Outstanding Achievement in Patient Care
2010	Award for Commitment and Service (ACES), UPMC
2012-2015	Best Doctors, Pediatric Gastroenterology

C. Contribution to Science

1. My main contribution to basic science has been during my fellowship under the mentorship of Dr. Deborah Rubin at Washington University, St. Louis, Missouri for four years. I studied the "Role of Epimorphin on Gut Morphogenesis". The biological pathway leading to intestinal morphogenesis was not well understood at that time. Dr. Yohei Hirai reported Epimorphin to be a key mesenchymal protein participating in the morphogenesis of lungs and skin in 1992. We first studied the developmental expression of messenger RNA in fetal rat intestines. The peak of epimorphin expression coincided with intestinal morphogenesis in rat intestines. I then isolated the protein, sequenced it and developed fibroblast cell lines that overexpressed the rat epimorphin protein in culture. I subsequently studied the effect of epimorphin on gut morphogenesis in co-culture experiments using fetal endoderm and the transfected fibroblasts.

a. **Goyal A**, Singh R, Swietlicki EA, Levin MS, Rubin DC. Characterization of rat intestinal epimorphin expression suggests a role in crypt-villus morphogenesis. Am J Physiol Gastrointest Liver Physiol 275:G114-G124, 1998. PMID 9655691

2. After completing my fellowship I joined as a clinical faculty. Along with Dr. David Keljo I built the clinical and research inflammatory bowel disease program by more than 3-folds. This gave me the opportunity to participate in several important trials like Inflammatory Bowel Disease Collaborative, RISK study which is funded by the Crohn's and Colitis Foundation looking at genetic, demographic and microbial risk factors to predict the possibility of developing a complicated Crohn's disease phenotype in an inception cohort. The PROTECT study was funded by National Institutes of Health to study the effectiveness on mesalamine therapy in pediatric ulcerative colitis but also analyze microbiome, histology and genetic factors which determine and predict the outcome of these diseases.

3. I completed an open label trial on effectiveness of Fecal transplantation in 23 children with refractory inflammatory bowel disease, funded by "Children's Hospital of Pittsburgh Foundation". We found that there was about 57% response at 1 month which tapered off to 28% at 6 months. Similarly, we found that the responders had a more pronounced disturbance of their microbiome at baseline (dysbiosis) and had a greater shift towards donors (after fecal transplantation) compared to non-responders.

a. **Goyal A**, Yeh A, Bush BR, Firek BA, Siebold LM, Rogers MB, Kufen AD, Morowitz MJ. Safety, Clinical Response, and Microbiome findings Following Fecal Microbiota Transplant in Children with Inflammatory Bowel Disease. Inflamm Bowel Dis. 2018 Jan 18;24(2):410-421. PMID: 29361092

4. More recently, at Children's Mercy Kansas City, I was the site PI for single and multicenter studies including the NIH funded "Sex Differences in Statural Growth Impairment in Pediatric Crohn's Disease" (Growth Study), Very Early Onset Inflammatory Bowel Disease (VEOIBD study) funded by Crohn's and Colitis Foundation, "Personalized Research on Diet in Ulcerative Colitis and Crohn's Disease" (PRODUCE study) funded by PCORI. I was Co-PI for the "Low Dose Methotrexate in Pediatric Crohn's patients initiating Anti-Tumor necrosis factor therapy' (COMBINE study) funded by PCORI and "PRO-IMPACT" study through ImproveCareNow (ICN) collaborative.

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/alka.goyal.2/bibliography/public/

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

Completed Research Support

American Gastroenterological Association (American Digestive Health Foundation Advanced Research Training Award - Alka Goyal), Basic Research Grant from the March of Dimes Birth Defects Foundation and by National Institute of Health Grant DK-46122 (PI: Deborah Rubin) 07/1/1996-06/30/1998
Role of Epimorphin on Gut Morphogenesis
Role: Co-Investigator

Children's Hospital Foundation Grant, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, PA 9/1/2014-10/30/2016
Clinical Efficacy and Microbiome Findings Following Fecal Microbiota Transplant in Children with Refractory Inflammatory Bowel Disease
Role: PI

Crohn's and Colitis Foundation of America, Muise (PI) , Kappelman (C0-PI), Klein (Co-PI), Snapper (Co-PI)
Very Early Onset Inflammatory Bowel Disease (VEOIBD) Consortium 11/10/16-05/31/2017
Role: Site PI

National Institute of Health
Sex Differences in Statural Growth Impairment in Pediatric Crohn's Disease. (NIH/NICHD RO1HD075929, Crohn's and Colitis Foundation Senior Research Award 545496. PI: Neera Gupta) 11/16/2016 - 01-20-2020
Role: Site PI

PCORI
"Personalized Research on Diet in Ulcerative Colitis and Crohn's Disease" (PRODUCE study)
NCT03301311. PI: Heather C. Kaplan.
Effective 04/10/2018- 01/27/2020

Role: Site PI