

BIOGRAPHICAL SKETCH

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NAME John Y. Kao, M.D.	POSITION TITLE Assistant Professor of Medicine		
eRA COMMONS USER NAME (credential, e.g., agency login) Johnkao			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
UCLA, Los Angeles, CA	B.S.	June 1992	Psychobiology
USC School of Medicine, Los Angeles, CA	M.D.	May 1996	Medicine
UC Davis Medical Center, Sacramento, CA	Residency	1996-1999	Internal Medicine
University of Michigan Medical Center, Ann Arbor, MI	Fellowship	1999-2002	Gastroenterology
UCLA, Los Angeles, CA	B.S.	June 1992	Psychobiology

A. Positions and Honors.

Positions

- 1991-1992 Research Assistant (part-time), Dept. of Molecular Biology, Dr. Kasamatsu, Ph.D., University of California at Los Angeles, CA
- 1994-1995 Research Assistant (part-time), Immunohistochemistry Lab, Dr. Linthicum, M.D., House Ear Institute, Los Angeles, CA
- 1996-1999 Intern and Resident in Internal Medicine (full-time), Dr. Faith Fitzgerald, M.D. (Program director), University of California at Davis Medical Center, Sacramento, CA
- 1999-2002 Fellowship, Division of Gastroenterology (full-time), Dr. Chung Owyang, M.D. (Chief), University of Michigan Medical Center, Ann Arbor, MI
- 2000-2002 Attending Medical Officer On-Duty (part-time), VA Ann Arbor Medical Center, Ann Arbor, MI
- 2002-2005 Lecturer, Dept. of Internal Medicine, Dr. Marc Lippman (Chair), University of Michigan Medical School, Ann Arbor, MI
- 2005-present Assistant Professor, Dept. of Internal Medicine, Dr. Marc Lippman (Chair), University of Michigan Medical School, Ann Arbor, MI

Honors

- 1986 National Honor Society (Distinction in academia and community service)
- 1988 Golden Key National Honor Society (Undergraduate freshmen academic distinction)
- 1992 Phi Eta Sigma (Undergraduate academic distinction)
- 1992 UCLA Undergraduate Degree: B.S. with cum laude in Psychobiology
- 2001 Best Abstracts, Cancer Research Symposium, University of Michigan, October 19, 2001
- 2000-2002 NIH Training Grant (Basic Science Research)
- 2002, 04 & 06 American Society for Clinical Investigation/Association of American Physicians Trainee Travel Awards
- 2002-2004 American Gastroenterological Association (AGA)/AstraZeneca Fellowship to Faculty Transition Awards
- 2003 National Institute of Health Loan Repayment Program-Health Disparity Scholar
- 2004 GlaxoSmithKline Institute for Digestive Health (GIDH) Award for Basic Research 2004
- 2006 & 2008 Crohn's and Colitis Foundation of America (CCFA) Microbial Host-Interactions Workshop-Travel Award
- 2006 AGA/Chinese Society of Gastroenterology Joint Meeting Travel Award
- 2004-2008 American Society for Clinical Investigation/Association of American Physicians Travel Award
- 2007 Winner of Best Presentation Award, GI Emerging Leaders Programme participant, Sweden.
- 2007 Outstanding Research, Internal Medicine Research Symposium 2007, University of Michigan

2007 Outstanding Teacher Award. Gastroenterology Fellows Class of 2007, University of Michigan
2008 Poster of Distinction (Digestive Disease Week 2008, San Diego, CA)

B. Selected peer-reviewed publications (in chronological order).

1. John Y. Kao, Yusong Gong, Chuan-Min Chen, Qiong-Duan Zheng, and Jian-Jun Chen. Tumor-derived TGF- β reduces the efficacy of dendritic cell/tumor fusion vaccine. *Journal of Immunology* 2003, 170(7):3806-3811.
2. Yana Zavros, Sivaprakash Rathinavelu, John Y. Kao, Andrea Todisco, John Del Valle, Joel V. Weinstock, Malcolm J. Low, and Juanita L. Merchant. Treatment of Helicobacter Gastritis by IL-4 Requires Somatostatin. *Proceedings of the National Academy of Sciences USA* 2003, 100(22):12944-9.
3. Chuan-Min Chen, Wenying Song, John Y. Kao, Qiong-Duan Zheng, and Jian-Jun Chen. Expression of Fas Ligand is not a main mechanisms used by tumor to counteract antitumor immunity. *Frontiers in Bioscience* 2004, 9:448-456.
4. Yana Zavros, Kathryn Eaton, Weiquin Kang, Sivaprakash Rathinavelu, Vinay Katukuri, John Y. Kao, Linda C. Samuelson and Juanita L. Merchant. Chronic gastritis in the hypochlorhydric gastrin-deficient mouse progresses to adenocarcinoma. *Oncogene* 2005, 24(14):2354-66.
5. John Y. Kao, Min Zhang, Chuan-Min Chen, and Jian-Jun Chen. Superior efficacy of dendritic cell-tumor fusion vaccine compared to tumor lysate-pulsed dendritic cell vaccine in colon cancer. *Immunology Letters* 2005, [101\(2\)](#):154-159.
6. Siva Rathinavelu*, John Y Kao*, Yana Zavros, and Juanita L. Merchant. Helicobacter pylori Outer Membrane Protein 18 (Hp1125) induces dendritic cell maturation and function *Helicobacter* 2005, 10(5):424-32.*Authors contributed equally.
7. John Y. Kao, Anna Pierzchala, Siva Rathinavelu, Yana Zavros, Arthur Tessier, and Juanita L. Merchant. Inhibitory effect of somatostatin on dendritic cells during *H. pylori* infection. *Regulatory Peptides* 2006,134(1):23-9.
8. John Y. Kao, Min Zhang, Chuan-Min Chen, Anna Pierzchala, Jian-Jun Chen. Aberrant helper T cell response in tumor-bearing mice limits the efficacy of dendritic cell vaccine. *Immunology Letters* 2006, 105(1): 16-25.
9. John Y. Kao, Siva Rathinavelu, Kathryn A. Eaton, Longchuan Bai, Yana Zavros, Mimi Takami, Anna Pierzchala, Juanita L. Merchant. Helicobacter pylori secreted factors inhibit dendritic cell IL-12 secretion: a mechanism of ineffective host defense. *American Journal of Physiology-GI and Liver* 2006, 291:73-81.
10. Longchuan Bai, John Y. Kao, Dave J. Law, Juanita L. Merchant. Recruitment of Ataxia Telangiectasia-Mutated to the p21waf1 promoter by ZBP-89 plays a role in mucosal protection. *Gastroenterology* 2006, 131:841-852.
11. Bradford E. Berndt, Min Zhang, Gwo-Hsiao Chen, Gary B. Huffnagle, John Y. Kao. The role of dendritic cell in acute dextran sulfate sodium colitis. *Journal of Immunology* 2007, 179:6255-6262.
12. Joel H. Rubenstein, Anne Dahlkemper, John Y. Kao, Min Zhang, Hal Morgenstern, Laurence McMahon, John M. Inadomi. A pilot study of the association of low plasma adiponectin and Barrett's esophagus. *American Journal of Gastroenterology* 2008, 103:1358-64. PMID: PMC Journal - In Process
13. Min Zhang, Bradford E. Berndt, Kathryn A. Eaton, Siva Rathinavelu, Anna Pierzchala, John Y. Kao. Helicobacter pylori-pulsed dendritic cells induce H. pylori-specific immunity in mice. *Helicobacter* 2008, 13(3):200-8. PMID: PMC Journal - In Process
14. Min Zhang, Bradford E. Berndt, Chuan-Min, Jian-Jun Chen, John Y. Kao. Expression of a soluble TGF- β receptor by tumor cells enhances dendritic cell/tumor fusion vaccine efficacy. *Journal of Immunology* 2008, 181(5):3690-7. PMID: PMC Journal - In Process
15. William Zacharias, Mark Tremelling, Colin Noble, Elaine Nimmo, Albert Tenesa, Jennine Cornelius, Leif Torkvist, John Kao, Susan Farrington, Hazel Drummond, Gwo-Tzer Ho, Ian Arnott, Henry Appelman, Lauri Diehl, Harry Campbell, Malcolm Dunlop, Miles Parkes, Sarah Howie, Deborah Gumucio, Jack Satsangi, Charlie Lees. Analysis of Germline Gli1 Variation Implicates Hedgehog Signalling in the Regulation of Intestinal Inflammatory Pathways. *PLoS Medicine* 2008 9:5(12):e239. PMID: PMC2596854
16. Tsu-yin Wu, John Y. Kao, Yu-Ying Tang, Judy Chen, Janilla Lee, Deborah Oakley. Effective Colorectal Cancer Education for Asian Americans: A Michigan Program. *Journal of Cancer Education* (in press).

17. Joel H. Rubenstein, John Y. Kao, Ryan D. Madanick, Min Zhang, Meizhi Wang, Melissa B. Spacek, Jena Donovan, Stephanie D. Bright, Nicholas J. Shaheen. Association of adiponectin multimers with Barrett's esophagus. *Gut* 2009 Jun 30. PMID: PMC Journal - In Process

18. Jay Luther, Maneesh Dave, Peter D.R. Higgins, John Y. Kao. The association between *Helicobacter pylori* infection and inflammatory bowel disease: A systematic review of the literature. *Inflammatory Bowel Disease* 2009 (in press).

C. Research Support

Ongoing Research Support

1 K08 DK06997-01A1

07/2005-06/2010

Mentored Clinical Scientist Development Award (K08)

Adaptive Immune Mechanism in Acute *Helicobacter pylori* Infection

The Specific Aims of this study are: 1) determine the time course of DC recruitment from blood to *H. pylori* infected stomach and the role of CCR2 and its ligand, MCP-1, in DC recruitment; 2) dissect the steps in the DC-*H. pylori* interaction in vivo and DC migration to secondary lymphoid organs; 3) significance of DCs in *H. pylori* gastritis.

Role: PI

1 R03 DK081678-01

07/2008-06/2010

Small Grant Program for NIDDK K08/K23 Recipients (R03)

The impact of *Helicobacter pylori* infection on inflammatory bowel disease susceptibility

The Specific Aims of this study are: 1. Study the mechanism of how *H. pylori* maintains DC tolerogenic phenotype by studying the role of *H. pylori* factors (PAI, CagA, VacA) and TLR-2 signaling and IRAK-M. 2. Examine the role of *H. pylori*-induced Tregs on mouse susceptibility to chronic dextran sulfate sodium (DSS)-colitis by demonstrating the presence of extragastric *H. pylori*-specific Treg response induced by *H. pylori* and their influence on DSS colitis severity.

Role:PI

CTSA Collaborative Type I Proposal (PI: Kao/Gumucio)

4/1/2009-3/31/2010

Michigan Institute for Clinical and Health Research

C. Hedgehog signaling deficit as an underlying cause for inflammatory bowel disease

The Specific Aims of this study are: 1) characterize the role of epithelial Hh signals in homeostatic (tolerogenic) conditioning of human and mouse myeloid cells; 2) determine the extent to which lowering Hedgehog signals promotes an inflammatory subtype of myeloid cell in humans and mice.

Role: Co-PI

1F32DK084694-01A1

09/01/2009-08/31/2010 0.6
calendar

Ruth L. Kirschstein National Service Research Award (F32) for NIDDK

Mechanism of *H. pylori*-induced risk reduction for inflammatory bowel disease.

The Specific Aims are: 1) to study the effect of *H. pylori* DNA on DC phenotype. 2) to study the impact of *H. pylori* DNA on mouse susceptibility to dextran sulfate sodium (DSS)-colitis.

Role: PI

Completed Research Support

Pilot Feasibility Grant Kao (PI) \$70,000

09/2003-08/2005

GI Peptide Center

The Role of Dendritic Cells in *Helicobacter pylori* Infection

The Specific Aims of this study are: 1) compare the maturation markers and the cytokine profiles of DCs cocultured with PBS or *H. pylori* (DC+PBS or DC+HP); 2) compare DC+PBS- vs. DC+HP-stimulated T cell proliferations and cytokine productions; 3) assess *in vivo* DC priming of T cells by immunizing mice with

DC+PBS or DC+HP and determine the tissue distribution of DCs; 4) examine the influence of genetic background on the responsiveness of DCs to *H. pylori*.

Role: PI

Hypertrophic Gastropathy Grant Kao (PI)

10/2004-04/2006

National Organization for Rare Disorders

The mechanism of *Helicobacter pylori* induced Giant hypertrophic gastropathy

The Specific Aims of the proposal are: 1) determine the natural histological progression of *H. pylori* infection, and 2) investigate the role of TGF- α and EGF receptor in the development of hypertrophic gastropathy.

Role: PI

Basic Research Award Kao (PI)

10/2004-09/2006

The GlaxoSmithKline Institute for Digestive Health

The Role of Dendritic Cells in *Helicobacter pylori* Infection.

The Specific Aims of the proposal are: 1) determine whether DCs mediate the immune recognition of *H. pylori* in vitro and in vivo in C57BL/6 mice; 2) examine the influence of genetic background on the responsiveness of DCs to *H. pylori* by studying two different strains of mice (C57BL/6 vs. BALB/c).

Role: PI

Hypertrophic Gastropathy Grant Kao (PI)

10/2005-10/2006

National Organization for Rare Disorders

Somatostatin in the Pathogenesis of Giant Hypertrophic Gastropathy.

The Specific Aims of the proposal are: 1) look for evidence of SOM deficiency in *Helicobacter felis*-induced Giant Hypertrophic Gastropathy; 2) demonstrate the effect of SOM on TGF- α signaling in human gastric epithelial cells; 3) show the therapeutic effect of SOM analogue, octreotide, in *Helicobacter felis*-induced Giant Hypertrophic Gastropathy.

Role: PI

Pilot Research Award Kao (PI)

07/2007-06/2008

AGA Foundation

The Roles of Dendritic Cells in the Pathophysiology of Inflammatory Bowel Diseases

The Specific Aims of this study are: 1) establish a flow cytometry - based assay to measure quantitative and phenotypic changes of leukocytes in colonic mucosa and its draining lymph nodes during induction of 2,4,6-trinitrobenzene sulfonic acid (TNBS) colitis; 2) demonstrate the presence of colitogenic DCs in mice with TNBS colitis; 3) determine the effect of DC ablation on established colitis and disease recurrence.

Role: PI