

Stanford



Eric Sibley, M.D., Ph.D.

Professor of Pediatrics (Gastroenterology)

Pediatrics - Gastroenterology

Bio

ACADEMIC APPOINTMENTS

- Professor, Pediatrics - Gastroenterology
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Faculty Senator, Stanford University, (2019-2021)
- Associate Chair for Academic Affairs, Department of Pediatrics, (2016-2021)
- Co-Director, Stanford Gastroenterology NIH T32 Training Program, (2011- present)
- Assistant Dean for Academic Advising, Stanford University School of Medicine, (2012- present)
- Director, Junior Faculty Mentoring Program, North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition, (2016-2018)
- Associate Director (Research), Stanford Pediatric Gastroenterology Training Program, (2004- present)
- Mentor and Steering Committee, Stanford Pediatric Mentoring Program, (2007- present)
- Senator, School of Medicine Faculty Senate, (2009-2018)
- Chair/Vice-Chair, Growth, Development and Aging Section, American Gastroenterology Association, (2007-2011)
- Editor-In-Chief, Journal of Pediatric Gastroenterology and Nutrition, (2006-2010)
- Member, Clinical and Integrative Gastrointestinal Pathobiology Study Section, NIH, (2004-2007)
- Admissions Committee, Stanford University School of Medicine, (1998-2001)

HONORS AND AWARDS

- The Bernard A. Newcomb Distinguished Packard Fellow, Stanford University Department of Pediatrics (2018-2021)
- Distinguished Service Award, North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (2017)
- Member, American Clinical and Climatological Association (2010-present)
- Council, elected, American Gastroenterology Association (2007-2011)
- Council, elected, Society for Pediatric Research (2005-2008)
- Named Investigator Award, Stanford Digestive Disease Center (2002-2003)
- Young Faculty Investigator Award, North American Society for Pediatric Gastroenterology and Nutrition (1998)

PROFESSIONAL EDUCATION

- Undergraduate Education, Harvard College , A.B., Biochemical Sciences (1982)
- Graduate Education, Johns Hopkins University , Ph.D., Biological Chemistry (1990)

LINKS

- Sibley Lab home page: http://med.stanford.edu/labs/eric_sibley/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

HISTORICAL DESCRIPTION

Transcriptional Regulation of Intestine-Specific Gene Expression during Gut Development and Maturation.

The mammalian gastrointestinal tract matures from a primitive tube into morphologically and functionally distinct regions during development. The mature small intestine functions in the digestion and absorption of ingested nutrients. Expression of several nutrient hydrolases is spatially restricted to distinct segments along the cephalo-caudal axis of the small intestine and is temporally regulated during postnatal maturation. Intestinal lactase, the hydrolase responsible for the digestion of lactose in milk, is expressed at highest levels in the jejunal segment of the small intestine shortly after birth and then declines dramatically just prior to weaning in most mammals.

Our research is directed towards defining the mechanisms regulating the spatial and temporal restriction of lactase gene expression during intestinal development. The normal maturational decline in lactase enzymatic activity is correlated with a decline in lactase messenger RNA levels and is transcriptionally regulated. We are currently identifying maturation-specific lactase gene cis elements and characterizing the nuclear proteins interacting with those elements in cell culture and transgenic animals. We seek to define the interactions of the lactase gene elements and nuclear factors involved in mediating transcriptional control. The overall goal is to relate these lactase control mechanisms to the broader pathways specifying acquisition of a small intestinal phenotype. We are also investigating gene transfer methods to deliver specific genes to the intestine.

Teaching

STANFORD ADVISEES

Academic Advising Dean

Isabel Beshar, Kathrine Casillas, Elizabeth George, Natasha Glenn, Lichy Han, Yu-Jin Lee, Grant Lin, George Liu, David Mahoney, Owen Marecic, Mee Won Park, Edward Pham, Arifeen Rahman, Daniel Stoltz, Mallika Tamboli, Diane Tseng, Daniel Vail, Maite Van Hentenryck, Clare Wise, Catherine Yao, Wendy Zhang, Bright Zhou

Publications

PUBLICATIONS

- **Dual embryonic origin of the mammalian enteric nervous system.** *Developmental biology*
Brokhman, I., Xu, J., Coles, B. L., Razavi, R., Engert, S., Lickert, H., Babona-Pilipos, R., Morshead, C. M., Sibley, E., Chen, C., van der Kooy, D.
2018
- **Impaired PGE2-stimulated Cl⁻ and HCO₃⁻ secretion contributes to cystic fibrosis airway disease.** *PLoS one*
Sellers, Z. M., Illek, B. n., Figueira, M. F., Hari, G. n., Joo, N. S., Sibley, E. n., Souza-Menezes, J. n., Morales, M. M., Fischer, H. n., Wine, J. J.
2017; 12 (12): e0189894
- **PGE(2)-STIMULATED CL⁻ SECRETION AND MUCOCILIARY CLEARANCE IN CYSTIC FIBROSIS AIRWAY**
Sellers, Z., Illek, B., Figueira, M., Hari, G., Joo, N., Sibley, E., Fischer, H., Wine, J. J.
WILEY-BLACKWELL.2015: 236

- **Intestinal Pdx1 mediates nutrient metabolism gene networks and maternal expression is essential for perinatal growth in mice** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
Chen, C., Leavitt, T., Sibley, E.
2012; 424 (3): 549-553
- **The human lactase persistence-associated SNP -13910*T enables in vivo functional persistence of lactase promoter-reporter transgene expression** *HUMAN GENETICS*
Fang, L., Ahn, J. K., Wodziak, D., Sibley, E.
2012; 131 (7): 1153-1159
- **PDX1 regulation of FABP1 and novel target genes in human intestinal epithelial Caco-2 cells** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
Chen, C., Fang, R., Chou, L., Lowe, A. W., Sibley, E.
2012; 423 (1): 183-187
- **Expression profiling identifies novel gene targets and functions for Pdx1 in the duodenum of mature mice** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*
Chen, C., Sibley, E.
2012; 302 (4): G407-G419
- **Theodore E. Woodward Award: lactase persistence SNPs in African populations regulate promoter activity in intestinal cell culture.** *Transactions of the American Clinical and Climatological Association*
Sibley, E., Ahn, J. K.
2011; 122: 155-165
- **The Western Transition** *JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION*
Sibley, E.
2011; 52 (1): 2
- **Congenital Disorders of Digestion and Absorption** *DIARRHEA: DIAGNOSTIC AND THERAPEUTIC ADVANCES*
Mogul, D., Sibley, E., Guandalini, S., Vaziri, H.
2011: 159-75
- **-13915*G DNA polymorphism associated with lactase persistence in Africa interacts with Oct-1** *HUMAN GENETICS*
Olds, L. C., Ahn, J. K., Sibley, E.
2011; 129 (1): 111-113
- **Increased HLA-DR Expression on Tissue Eosinophils in Eosinophilic Esophagitis** *JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION*
Patel, A. J., Fuentesbella, J., Gernez, Y., Nguyen, T., Bass, D., Berquist, W., Cox, K., Sibley, E., Kerner, J., Nadeau, K.
2010; 51 (3): 290-294
- **Three-dimensional optical method for integrated visualization of mouse islet microstructure and vascular network with subcellular-level resolution** *JOURNAL OF BIOMEDICAL OPTICS*
Fu, Y., Lu, C., Lin, C., Juang, J., Enikolopov, G., Sibley, E., Chiang, A., Tang, S.
2010; 15 (4)
- **Eotaxin and FGF enhance signaling through an extracellular signal-related kinase (ERK)-dependent pathway in the pathogenesis of Eosinophilic esophagitis.** *Allergy, asthma, and clinical immunology : official journal of the Canadian Society of Allergy and Clinical Immunology*
Huang, J. J., Joh, J. W., Fuentesbella, J., Patel, A., Nguyen, T., Seki, S., Hoyte, L., Reshamwala, N., Nguyen, C., Quiros, A., Bass, D., Sibley, E., Berquist, et al
2010; 6 (1): 25-?
- **Ciao and Shalom** *JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION*
Sibley, E.
2010; 50 (1): 2
- **Pdx1 inactivation restricted to the intestinal epithelium in mice alters duodenal gene expression in enterocytes and enteroendocrine cells** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*
Chen, C., Fang, R., Davis, C., Maravelias, C., Sibley, E.
2009; 297 (6): G1126-G1137
- **Microtome-Free 3-Dimensional Confocal Imaging Method for Visualization of Mouse Intestine With Subcellular-Level Resolution** *GASTROENTEROLOGY*

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- Fu, Y., Lin, C., Enikolopov, G., Sibley, E., Chiang, A., Tang, S.
2009; 137 (2): 453-465
- **Expression profiling analysis of the effects of intestine-specific Pdx1 inactivation in mouse proximal small intestine**
Chen, C., Sibley, E.
FEDERATION AMER SOC EXP BIOL.2009
 - **Transient cytochalasin-D treatment induces apically administered rAAV2 across tight junctions for transduction of enterocytes** *JOURNAL OF GENERAL VIROLOGY*
Fu, Y., Sibley, E., Tang, S.
2008; 89: 3004-3008
 - **Application of doxorubicin-induced rAAV2-p53 gene delivery in combined chemotherapy and gene therapy for hepatocellular carcinoma** *CANCER BIOLOGY & THERAPY*
Chen, C., Lo, C., Lin, B., Sibley, E., Tang, S.
2008; 7 (2): 303-U3
 - **Genetic modification of somatic gut mucosa: An adeno-associated virus approach** *JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION*
Tang, S., Sibley, E.
2006; 43 (2): 158-159
 - **Spatio-temporal patterns of intestine-specific transcription factor expression during postnatal mouse gut development** *GENE EXPRESSION PATTERNS*
Fang, R. X., Olds, L. C., Sibley, E.
2006; 6 (4): 426-432
 - **Lactase gene promoter fragments mediate differential spatial and temporal expression patterns in transgenic mice** *DNA AND CELL BIOLOGY*
Wang, Z., Maravelias, C., Sibley, E.
2006; 25 (4): 215-222
 - **Proteasome modulating agents induce rAAV2-mediated transgene expression in human intestinal epithelial cells** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
Tang, S. C., Sambanis, A., Sibley, E.
2005; 331 (4): 1392-1400
 - **Transcriptional regulation of the lactase-phlorizin hydrolase promoter by PDX-1** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*
Wang, Z., Fang, R. X., Olds, L. C., Sibley, E.
2004; 287 (3): G555-G561
 - **PCR-RFLP genotyping assay for a lactase persistence polymorphism upstream of the lactase-phlorizin hydrolase gene** *GENETIC TESTING*
Chao, C. K., Sibley, E.
2004; 8 (2): 190-193
 - **Carbohydrate intolerance** *CURRENT OPINION IN GASTROENTEROLOGY*
Sibley, E.
2004; 20 (2): 162-167
 - **Genetic variation and lactose intolerance: detection methods and clinical implications.** *American journal of pharmacogenomics*
Sibley, E.
2004; 4 (4): 239-245
 - **Lactase persistence DNA variant enhances lactase promoter activity in vitro: functional role as a cis regulatory element** *HUMAN MOLECULAR GENETICS*
Olds, L. C., Sibley, E.
2003; 12 (18): 2333-2340
 - **Regulation of intestine-specific spatiotemporal expression by the rat lactase promoter** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Lee, S. Y., Wang, Z., Lin, C. K., Contag, C. H., Olds, L. C., Cooper, A. D., Sibley, E.
2002; 277 (15): 13099-13105
 - **Subarachnoid hemorrhage and isolated atresia of the aortic arch** *JOURNAL OF EMERGENCY MEDICINE*
Sibley, E., Doroshov, R. W., Milliken, J. C., Anand, S. K.

2002; 22 (2): 179-183

- **Lactase gene transcription is activated in response to hypoxia in intestinal epithelial cells** *MOLECULAR GENETICS AND METABOLISM*
Lee, S. Y., Madan, A., Furuta, G. T., Colgan, S. P., Sibley, E.
2002; 75 (1): 65-69
- **Thyroid hormone and the D-type cyclins interact in regulating enterocyte gene transcription** *41st Annual Meeting of the Society-for-Surgery-of-the-Alimentary-Tract*
Meng, S. F., Badrinarain, J., Sibley, E., Fang, R. X., Hodin, R.
SPRINGER.2001: 49-55
- **GATA family transcription factors activate lactase gene promoter in intestinal Caco-2 cells** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*
Fang, R. X., Olds, L. C., Santiago, N. A., Sibley, E.
2001; 280 (1): G58-G67
- **The homeodomain protein Cdx2 regulates lactase gene promoter activity during enterocyte differentiation** *GASTROENTEROLOGY*
Fang, R. X., Santiago, N. A., Olds, L. C., Sibley, E.
2000; 118 (1): 115-127
- **EVOLVING ASYMMETRIC HYPERTROPHIC PYLORIC-STENOSIS ASSOCIATED WITH HISTOLOGIC EVIDENCE OF EOSINOPHILIC GASTROENTERITIS** *PEDIATRIC RADIOLOGY*
Blankenberg, F. G., Parker, B. R., Sibley, E., Kerner, J. A.
1995; 25 (4): 310-311
- **SUBSTRATE PHOSPHORYLATION CATALYZED BY THE INSULIN-RECEPTOR TYROSINE KINASE - KINETIC CORRELATION TO AUTOPHOSPHORYLATION OF SPECIFIC SITES IN THE BETA-SUBUNIT** *JOURNAL OF BIOLOGICAL CHEMISTRY*
FLORESRIVEROS, J. R., Sibley, E., Kastelic, T., Lane, M. D.
1989; 264 (36): 21557-21572
- **CHARACTERIZATION OF THE MOUSE INSULIN-RECEPTOR GENE PROMOTER** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Sibley, E., Kastelic, T., Kelly, T. J., Lane, M. D.
1989; 86 (24): 9732-9736
- **DIFFERENTIATION-INDUCED GENE-EXPRESSION IN 3T3-L1 PREADIPOCYTES - CHARACTERIZATION OF A DIFFERENTIALLY EXPRESSED GENE ENCODING STEAROYL-COA DESATURASE** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Ntambi, J. M., BUHROW, S. A., Kaestner, K. H., Christy, R. J., Sibley, E., Kelly, T. J., Lane, M. D.
1988; 263 (33): 17291-17300
- **EXPRESSION OF THE DIFFERENTIATION-INDUCED GENE FOR FATTY ACID-BINDING PROTEIN IS ACTIVATED BY GLUCOCORTICOID AND CAMP** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Cook, J. S., Lucas, J. J., Sibley, E., BOLANOWSKI, M. A., Christy, R. J., Kelly, T. J., Lane, M. D.
1988; 85 (9): 2949-2953
- **HIGH-LEVEL EXPRESSION OF A CLONED HLA HEAVY-CHAIN GENE INTRODUCED INTO MOUSE CELLS ON A BOVINE PAPILOMAVIRUS VECTOR** *MOLECULAR AND CELLULAR BIOLOGY*
DiMaio, D., Corbin, V., Sibley, E., Maniatis, T.
1984; 4 (2): 340-350