




## Zachary M. Sellers, MD, PhD

Instructor, Pediatrics - Gastroenterology

 NIH Biosketch available Online

 Curriculum Vitae available Online

### CLINICAL OFFICES

- **Pediatric Gastroenterology**

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Palo Alto, CA 94304

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### ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

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### Bio

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#### BIO

I am a pediatric physician-scientist striving to advance cystic fibrosis clinical care and translational research. Clinically, I am focused on gastrointestinal manifestations of cystic fibrosis, developing diagnostic and therapeutic modalities to improve the gastrointestinal and liver health of those with cystic fibrosis. I also specialize in the clinical management of pediatric pancreatitis and am involved with the international INSPPIRE consortium to study pediatric pancreatitis. My research spans the entire spectrum across basic science and translational research to clinical research and trials. In the laboratory, my projects are centered around understanding mechanisms of ion transport in cystic fibrosis tissues and determining how loss of CFTR ion transport leads to pathologic changes in human physiology. We are also very interested in the pathophysiological relationship between pancreatitis and intestinal diseases, such as inflammatory bowel disease. Our laboratory has expertise in epithelial ion transport, with specialized skills in the measurement of bicarbonate transport. We are also part of a Multi-PI collaboration pursuing CFTR gene editing and stem cell engraftment for the treatment of cystic fibrosis. We utilize a combination of immortalized and primary cell culture, organoids, mouse and human tissue, and whole animal in vivo studies.

#### CLINICAL FOCUS

- Pediatric Gastroenterology
- Pediatric Pancreatology
- Gastrointestinal, Hepatologic, and Pancreatic Manifestations of Cystic Fibrosis

#### ACADEMIC APPOINTMENTS

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

#### ADMINISTRATIVE APPOINTMENTS

- Physician-Scientist Advisor, Pediatrics Residency Program, (2019- present)

#### HONORS AND AWARDS

- Young Investigator Award, North American Society of Pediatric Gastroenterology, Hepatology, and Nutrition
- DIGEST Award, Cystic Fibrosis Foundation

- LeRoy Matthews Physician-Scientist Award, Cystic Fibrosis Foundation

## BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Gastroenterological Association
- Member, American Pancreatic Association
- Member, Stanford Society of Physician Scholars
- Member, American Academy of Pediatrics
- Member, North American Society for Pediatric Gastroenterology, Hepatology and Nutrition
- Member, American Physiological Society

## PROFESSIONAL EDUCATION

- Medical Education: University of Illinois College of Medicine Urbana-Champaign (2012) IL
- Fellowship: Stanford University Pediatric Gastroenterology (2018) CA
- Residency: Stanford University Pediatric Residency (2015) CA
- Fellowship, Stanford University , Pediatric Gastroenterology, Hepatology, and Nutrition (2018)
- Residency, Stanford University , Pediatrics (2015)
- MD, University of Illinois, Urbana-Champaign , Medicine (2012)
- PhD, University of Illinois, Urbana-Champaign , Molecular and Integrative Physiology (2010)
- BS, University of California, San Diego , Animal Physiology and Neuroscience (2002)

## LINKS

- Twitter: <http://www.twitter.com/cfmdphd>

## Research & Scholarship

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### CLINICAL TRIALS

- Long-term Study in US Cystic Fibrosis Patients Receiving Digestive Enzyme Supplements to Assess Narrowing of the Large Intestine Causing Adverse Intestinal Symptoms (Fibrosing Colonopathy), Recruiting
- Pediatric Longitudinal Cohort Study of Chronic Pancreatitis, Recruiting

### PROJECTS

- CFTR-independent bicarbonate secretion in cystic fibrosis intestines and airways - Stanford University
- Utilization of MRI to identify early pancreatic and liver disease and develop MRI-based biomarkers of disease for cystic fibrosis - Stanford University
- Improving Management of Pediatric Pancreatitis
- Evaluation of left ventricular myocardial function in cystic fibrosis - Stanford University

## Publications

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### PUBLICATIONS

- **Pancreatic complications in children with cystic fibrosis.** *Current opinion in pediatrics*  
Sellers, Z. M.  
2020
- **Barrier to using APRI and GPR as identifiers of cystic fibrosis liver disease.** *Journal of cystic fibrosis : official journal of the European Cystic Fibrosis Society*  
Sellers, Z. M.  
2020

- **Patient Passport for Pediatric Acute Recurrent and Chronic Pancreatitis** *JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION*  
Sellers, Z. M., Piester, T., Mark, J., Khalaf, R., Abu-El-Haija, M., Husain, S. Z.  
2020; 71 (1): E51–E53
- **Web-based cognitive-behavioral intervention for pain in pediatric acute recurrent and chronic pancreatitis: Protocol of a multicenter randomized controlled trial from the study of chronic pancreatitis, diabetes and pancreatic cancer (CPDPC).** *Contemporary clinical trials*  
Palermo, T. M., Murray, C., Aalfs, H., Abu-El-Haija, M., Barth, B., Bellin, M. D., Ellery, K., Fishman, D. S., Garipey, C. E., Giefer, M. J., Goday, P., Gonska, T., Heyman, et al  
2019: 105898
- **A Unified Treatment Algorithm and Admission Order Set for Pediatric Acute Pancreatitis** *JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION*  
Sellers, Z. M., Dike, C., Zhang, K., Giefer, M. J., Uc, A., Abu-El-Haija, M.  
2019; 68 (6): E109–E111
- **A multi-disciplinary approach to pre and post-transplant management of cystic fibrosis associated liver disease.** *Liver transplantation : official publication of the American Association for the Study of Liver Diseases and the International Liver Transplantation Society*  
Freeman, A. J., Sellers, Z. M., Mazariegos, G., Kelly, A., Saiman, L., Mallory, G., Ling, S. C., Narkewicz, M. R., Leung, D. H.  
2019
- **High-Efficiency, Selection-free Gene Repair in Airway Stem Cells from Cystic Fibrosis Patients Rescues CFTR Function in Differentiated Epithelia.** *Cell stem cell*  
Vaidyanathan, S., Salahudeen, A. A., Sellers, Z. M., Bravo, D. T., Choi, S. S., Batish, A., Le, W., Baik, R., de la O, S., Kaushik, M. P., Galper, N., Lee, C. M., Teran, et al  
2019
- **New Algorithm for the Integration of Ultrasound Into Cystic Fibrosis Liver Disease Screening.** *Journal of pediatric gastroenterology and nutrition*  
Sellers, Z. M., Lee, L. W., Barth, R. A., Milla, C.  
2019; 69 (4): 404–10
- **Reply to "The National Trends in Acute and Chronic Pancreatitis Needs to be Improved," (Manuscript GASTRO-D-18-00901).** *Gastroenterology*  
Sellers, Z. M.  
2018
- **Standard Operating Procedures for Biospecimen Collection, Processing, and Storage: From the Consortium for the Study of Chronic Pancreatitis, Diabetes, and Pancreatic Cancer.** *Pancreas*  
Fisher, W. E., Cruz-Monserrate, Z., McElhany, A. L., Lesinski, G. B., Hart, P. A., Ghosh, R., Van Buren, G., Fishman, D. S., Rinaudo, J. A., Serrano, J., Srivastava, S., Mace, T., Topazian, et al  
2018; 47 (10): 1213–21
- **International Study Group of Pediatric Pancreatitis: In Search for a CuRE Cohort Study: Design and Rationale for INSPPIRE 2 From the Consortium for the Study of Chronic Pancreatitis, Diabetes, and Pancreatic Cancer.** *Pancreas*  
Uc, A., Perito, E. R., Pohl, J. F., Shah, U., Abu-El-Haija, M., Barth, B., Bellin, M. D., Ellery, K. M., Fishman, D. S., Garipey, C. E., Giefer, M. J., Gonska, T., Heyman, et al  
2018; 47 (10): 1222–28
- **Depression and Healthcare Utilization in Patients with Inflammatory Bowel Disease.** *Journal of Crohn's & colitis*  
Wong, J. J., Sceats, L., Dehghan, M., Wren, A. A., Sellers, Z. M., Limketkai, B. N., Bensen, R., Kin, C., Park, K. T.  
2018
- **New Management Guidelines for Both Children and Adults With Acute Pancreatitis.** *Gastroenterology*  
Sellers, Z. M., Abu-El-Haija, M., Husain, S. Z., Morinville, V.  
2018
- **Management of Acute Pancreatitis in the Pediatric Population: A Clinical Report From the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition Pancreas Committee.** *Journal of pediatric gastroenterology and nutrition*  
Abu-El-Haija, M., Kumar, S., Quiros, J. A., Balakrishnan, K., Barth, B., Bitton, S., Eisses, J. F., Foglio, E. J., Fox, V., Francis, D., Freeman, A. J., Gonska, T., Grover, et al  
2018; 66 (1): 159–76
- **Starting Young: Trends in Opioid Therapy Among US Adolescents and Young Adults With Inflammatory Bowel Disease in the Truven MarketScan Database Between 2007 and 2015.** *Inflammatory bowel diseases*

- Wren, A. A., Bensen, R., Sceats, L., Dehghan, M., Yu, H., Wong, J. J., MacIsaac, D., Sellers, Z. M., Kin, C., Park, K. T.  
2018
- **Nationwide Trends in Acute and Chronic Pancreatitis Among Privately Insured Children and Non-Elderly Adults in the United States, 2007-2014.** *Gastroenterology*  
Sellers, Z. M., MacIsaac, D., Yu, H., Dehghan, M., Zhang, K. Y., Bensen, R., Wong, J. J., Kin, C., Park, K. T.  
2018
  - **Plasmapheresis for Hypertriglyceridemia-Induced Acute Pancreatitis in a Child A Case Report and Brief Review of the Literature** *PANCREAS*  
Zhang, K., Cox, K. L., Sellers, Z. M.  
2017; 46 (7): E58-E59
  - **Feeling the Impact of Long-Term Total Parenteral Nutrition.** *Digestive diseases and sciences*  
Sellers, Z. M., Thorson, C., Co, S., Schaberg, K. B., Kerner, J. A.  
2017
  - **Technological advances shed light on left ventricular cardiac disturbances in cystic fibrosis.** *Journal of cystic fibrosis*  
Sayyid, Z. N., Sellers, Z. M.  
2017
  - **Market share and costs of biologic therapies for inflammatory bowel disease in the USA.** *Alimentary pharmacology & therapeutics*  
Yu, H., MacIsaac, D., Wong, J. J., Sellers, Z. M., Wren, A. A., Bensen, R., Kin, C., Park, K. T.  
2017
  - **Impaired PGE2-stimulated Cl<sup>-</sup> and HCO<sub>3</sub><sup>-</sup> secretion contributes to cystic fibrosis airway disease.** *PloS one*  
Sellers, Z. M., Illek, B., Figueira, M. F., Hari, G., Joo, N. S., Sibley, E., Souza-Menezes, J., Morales, M. M., Fischer, H., Wine, J. J.  
2017; 12 (12): e0189894
  - **Strain rate echocardiography uncovers subclinical left ventricular dysfunction in cystic fibrosis.** *Journal of cystic fibrosis*  
Sellers, Z. M., McGlocklin, L., Brasch, A.  
2015; 14 (5): 654-660
  - **Left ventricular and aortic dysfunction in cystic fibrosis mice.** *Journal of cystic fibrosis*  
Sellers, Z. M., Kovacs, A., Weinheimer, C. J., Best, P. M.  
2013; 12 (5): 517-524
  - **MRP4 and CFTR in the regulation of cAMP and beta-adrenergic contraction in cardiac myocytes** *EUROPEAN JOURNAL OF PHARMACOLOGY*  
Sellers, Z. M., Naren, A. P., Xiang, Y., Best, P. M.  
2012; 681 (1-3): 80-87
  - **Cardiomyocytes with disrupted CFTR function require CaMKII and Ca<sup>2+</sup>-activated Cl<sup>-</sup> channel activity to maintain contraction rate** *JOURNAL OF PHYSIOLOGY-LONDON*  
Sellers, Z. M., De Arcangelis, V., Xiang, Y., Best, P. M.  
2010; 588 (13): 2417-2429
  - **A critical GxxxA motif in the gamma(6) calcium channel subunit mediates its inhibitory effect on Cav3.1 calcium current** *JOURNAL OF PHYSIOLOGY-LONDON*  
Lin, Z., Witschas, K., Garcia, T., Chen, R., Hansen, J. P., Sellers, Z. M., Kuzmenkina, E., Herzig, S., Best, P. M.  
2008; 586 (22): 5349-5366
  - **Heat-stable enterotoxin of Escherichia coli (STa) can stimulate duodenal HCO<sub>3</sub><sup>-</sup> secretion via a novel GC-C- and CFTR-independent pathway** *FASEB JOURNAL*  
Sellers, Z. M., Mann, E., Smith, A., Ko, K. H., Giannella, R., Cohen, M. B., Barrett, K. E., Dong, H.  
2008; 22 (5): 1306-1316
  - **Calcium channel gamma subunits: a functionally diverse protein family** *CELL BIOCHEMISTRY AND BIOPHYSICS*  
Chen, R., Deng, T., Garcia, T., Sellers, Z. M., Best, P. M.  
2007; 47 (2): 178-186
  - **Esomeprazole therapy for gastric acid hypersecretion in children with cystinosis** *PEDIATRIC NEPHROLOGY*  
Dohil, R., Fidler, M., Barshop, B., Newbury, R., Sellers, Z., Deutsch, R., Schneider, J.

2005; 20 (12): 1786-1793

- **Heat-stable enterotoxin of Escherichia coli stimulates a non-CFTR-mediated duodenal bicarbonate secretory pathway** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*  
Sellers, Z. M., Childs, D., Chow, J. Y., SMITH, A. J., Hogan, D. L., Isenberg, J. I., Dong, H., Barrett, K. E., Pratha, V. S.  
2005; 288 (4): G654-G663
- **Na<sup>+</sup>/Ca<sup>2+</sup> exchange regulates Ca<sup>2+</sup>-dependent duodenal mucosal ion transport and HCO<sub>3</sub><sup>-</sup> secretion in mice** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*  
Dong, H., Sellers, Z. M., Smith, A., Chow, J. Y., Barrett, K. E.  
2005; 288 (3): G457-G465
- **A role for CagA/VacA in Helicobacter pylori inhibition of murine duodenal mucosal bicarbonate secretion** *DIGESTIVE DISEASES AND SCIENCES*  
Tuo, B. G., Sellers, Z. M., SMITH, A. J., Barrett, K. E., Isenberg, J. I., Dong, H.  
2004; 49 (11-12): 1845-1852
- **5-HT induces duodenal mucosal bicarbonate secretion via cAMP- and Ca<sup>2+</sup>-dependent signaling pathways and 5-HT<sub>4</sub> receptors in mice** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*  
Tuo, B. G., Sellers, Z., Paulus, P., Barrett, K. E., Isenberg, J. I.  
2004; 286 (3): G444-G451
- **A role for guanylate cyclase C in acid-stimulated duodenal mucosal bicarbonate secretion** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*  
Rao, S. P., Sellers, Z., Crombie, D. L., Hogan, D. L., Mann, E. A., Childs, D., Keely, S., Sheil-Puopolo, M., Giannella, R. A., Barrett, K. E., Isenberg, J. I., Pratha, V. S.  
2004; 286 (1): G95-G101
- **The evaluation and treatment of gastrointestinal disease in children with cystinosis receiving cysteamine** *JOURNAL OF PEDIATRICS*  
Dohil, R., Newbury, R. O., Sellers, Z. M., Deutsch, R., Schneider, J. A.  
2003; 143 (2): 224-230