

# Stanford

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## Samuel Lancaster

Scientific Director of the Metabolic Health Center, Genetics

### SUPERVISORS

- Michael Snyder

### Bio

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#### BIO

Scientific Director, Metabolic Health Center, Stanford University School of Medicine

#### EDUCATION AND CERTIFICATIONS

- Postdoctoral Fellow, Stanford University , Genetics (2021)
- Doctor of Philosophy, University of Washington , Molecular and Cellular Biology (2016)
- Master of Science, University of Washington , Epidemiology (2011)
- Bachelor of Arts, Grinnell College , Biology (2008)

#### PATENTS

- Michael P. Snyder, Samuel Lancaster, Samson Mataraso, Jonathan Reiss, Maya Kasowski, Nima Aghaeepour, Karl G. Sylvester. "A Platform that Identifies Diseased and Healthy Signatures from Umbilical Cord Blood Metabolomics", The Board of Trustees of the Leland Stanford Junior University

### Professional

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#### PROFESSIONAL INTERESTS

I perform and integrate metabolomics and metagenomics to understand human biology, improve diagnostics, and identify potential targets for interventions. My work focuses on two main areas:

##### 1) Dietary Fiber Supplementation

I have led a clinical trial where we longitudinally supplement participants with prebiotic dietary fiber. We performed and integrated longitudinal metagenomics and metabolomics to discover the system wide effects of fiber, discovering a new mechanism of microbiome mediated cholesterol reduction, among other discoveries.

##### 2) Integrate Metabolomics and Electronic Health Records

I lead a team investigating the associations between umbilical cord metabolomics and newborn disease. Here we have made discoveries including the protective role bupivacaine plays in newborn health, and developing a Newborn Health Score (NHS) from metabolomics data.

## Publications

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### PUBLICATIONS

- **Beyond the exome: What's next in diagnostic testing for Mendelian conditions.** *American journal of human genetics*  
Wojcik, M. H., Reuter, C. M., Marwaha, S., Mahmoud, M., Duyzend, M. H., Barseghyan, H., Yuan, B., Boone, P. M., Groopman, E. E., Délot, E. C., Jain, D., Sanchis-Juan, A., Starita, et al  
2023; 110 (8): 1229-1248
- **Multi-omics approaches in psychoneuroimmunology and health research: Conceptual considerations and methodological recommendations.** *Brain, behavior, and immunity*  
Mengelkoch, S., Lautman, Z., Alley, J. C., Roos, L. G., Ehlert, B., Moriarity, D. P., Lancaster, S., Miryam Schüssler-Fiorenza Rose, S., Snyder, M. P., Slavich, G. M.  
2023
- **Advances and prospects for the Human BioMolecular Atlas Program (HuBMAP).** *Nature cell biology*  
Jain, S., Pei, L., Spraggins, J. M., Angelo, M., Carson, J. P., Gehlenborg, N., Ginty, F., Gonçalves, J. P., Hagood, J. S., Hickey, J. W., Kelleher, N. L., Laurent, L. C., Lin, et al  
2023
- **Global, distinctive, and personal changes in molecular and microbial profiles by specific fibers in humans.** *Cell host & microbe*  
Lancaster, S. M., Lee-McMullen, B., Abbott, C. W., Quijada, J. V., Hornburg, D., Park, H., Perelman, D., Peterson, D. J., Tang, M., Robinson, A., Ahadi, S., Contrepois, K., Hung, et al  
2022
- **Longitudinal linked-read sequencing reveals ecological and evolutionary responses of a human gut microbiome during antibiotic treatment.** *Genome research*  
Roodgar, M., Good, B. H., Garud, N. R., Martis, S., Avula, M., Zhou, W., Lancaster, S. M., Lee, H., Babveyh, A., Nesamoney, S., Pollard, K. S., Snyder, M. P.  
2021
- **A Customizable Analysis Flow in Integrative Multi-Omics.** *Biomolecules*  
Lancaster, S. M., Sanghi, A., Wu, S., Snyder, M. P.  
2020; 10 (12)
- **Fitness benefits of loss of heterozygosity in *Saccharomyces* hybrids** *GENOME RESEARCH*  
Lancaster, S. M., Payen, C., Heil, C., Dunham, M. J.  
2019; 29 (10): 1685–92
- **Enterolignan-producing phenotypes are associated with increased gut microbial diversity and altered composition in premenopausal women in the United States.** *Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology*  
Hullar, M. A., Lancaster, S. M., Li, F., Tseng, E., Beer, K., Atkinson, C., Wähälä, K., Copeland, W. K., Randolph, T. W., Newton, K. M., Lampe, J. W.  
2015; 24 (3): 546-54
- **Risk factors associated with epidural use.** *Journal of clinical medicine research*  
Lancaster, S. M., Schick, U. M., Osman, M. M., Enquobahrie, D. A.  
2012; 4 (2): 119-26