Accurate estimation of intraspecific microbial gene content variation in metagenomic data with MIDAS v3 and StrainPGC

Byron J. Smith A (ORCID: 0000-0002-0182-404X)

Chunyu Zhao B (ORCID: 0000-0001-9589-2416)

Veronika Dubinkina A (ORCID: 0000-0002-4844-6795)

Xiaofan Jin A (ORCID: 0000-0002-0802-7692)

Jacqueline Moltzau-Anderson C (ORCID: 0000-0003-1398-5980)

Katherine S. Pollard A,B,D,\* (ORCID: 0000-0002-9870-6196)

A The Gladstone Institute of Data Science and Biotechnology, San Francisco, CA  
B Chan-Zuckerberg Biohub San Francisco, San Francisco, CA  
C Department of Gastroenterology, University of California, San Francisco, CA  
D Department of Epidemiology and Biostatistics, University of California, San Francisco, CA

\* Corresponding author:  
[katherine.pollard@gladstone.ucsf.edu](mailto:katherine.pollard@gladstone.ucsf.edu)

**Running Title:** Microbial gene content with MIDAS and StrainPGC