

Stanford



Wei Gu

Assistant Professor of Pathology

CLINICAL OFFICE (PRIMARY)

- **Stanford Blood Center**

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Bio

BIO

Wei Gu, MD, PhD, is a physician, engineer, and scientist whose research focus is methylation classification within the area of molecular pathology. He has pioneered technologies in cell-free DNA 'liquid biopsy' testing, CRISPR diagnostics, clinical metagenomic sequencing, non-invasive prenatal testing, and COVID diagnostics. Dr. Gu has received awards from the Burroughs Wellcome Career Award and the National Cancer Institute. As a physician, he is a board-certified molecular and clinical pathologist and maintains a clinical practice at Stanford Healthcare.

CLINICAL FOCUS

- Clinical Pathology
- Molecular Pathology

ACADEMIC APPOINTMENTS

- Assistant Professor - University Medical Line, Pathology
- Member, Bio-X

HONORS AND AWARDS

- Career Awards for Medical Scientists (CAMS), Burroughs Wellcome (2018)
- Career Development Award (K08), National Cancer Institute (2017)
- Laurence Marton Research Award, UCSF (2016)
- Julius R. Krevans Award for Clinical Excellence, UCSF (2015)
- Medical Scientist Training Program Scholarship, Stanford University (2005-2014)
- Terumo Scholarship, Terumo (2004-2005)
- Winner (Undergraduate), National Collegiate Inventors Competition, US Patent Office (2004)
- Clifton S. Goddin Scholarship, University of Michigan (2004)
- Regents Award & Engineering Scholarships, University of Michigan (2001, 2003-2005)

PROFESSIONAL EDUCATION

- Board Certification: Molecular Genetic Pathology, American Board of Pathology (2018)
- Fellowship: UCSF Pathology Fellowships (2018) CA
- Board Certification: Clinical Pathology, American Board of Pathology (2017)
- Residency: UCSF Pathology Residency (2017) CA
- Medical Education: Stanford University School of Medicine (2014) CA
- PhD, Stanford University Schools of Medicine and Engineering , Bioengineering (2014)
- BSE, University of Michigan , Chemical Engineering (2005)

LINKS

- Research Lab website: <https://cfna.stanford.edu/>

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Jingru Yu

Publications

PUBLICATIONS

- **Liquid Biopsy Based on Cell-Free DNA and RNA.** *Annual review of biomedical engineering*
Loy, C., Ahmann, L., De Vlaminc, I., Gu, W.
2024
- **Detection of Neoplasms by Metagenomic Next-Generation Sequencing of Cerebrospinal Fluid.** *JAMA neurology*
Gu, W., Rauschecker, A. M., Hsu, E., Zorn, K. C., Sucu, Y., Federman, S., Gopez, A., Arevalo, S., Sample, H. A., Talevich, E., Nguyen, E. D., Gottschall, M., Nourbakhsh, et al
2021
- **Detection of cryptogenic malignancies from metagenomic whole genome sequencing of body fluids.** *Genome medicine*
Gu, W., Talevich, E., Hsu, E., Qi, Z., Urisman, A., Federman, S., Gopez, A., Arevalo, S., Gottschall, M., Liao, L., Tung, J., Chen, L., Lim, et al
2021; 13 (1): 98
- **Cell-Free DNA Tissues-of-Origin by Methylation Profiling Reveals Significant Cell, Tissue and Organ-Specific injury related to COVID-19 Severity.** *Med (New York, N.Y.)*
Cheng, A. P., Cheng, M. P., Gu, W., Lenz, J. S., Hsu, E., Schurr, E., Bourque, G., Bourgey, M., Ritz, J., Marty, F. M., Chiu, C. Y., Vinh, D. C., De Vlaminc, et al
2021
- **Rapid pathogen detection by metagenomic next-generation sequencing of infected body fluids.** *Nature medicine*
Gu, W., Deng, X., Lee, M., Sucu, Y. D., Arevalo, S., Stryke, D., Federman, S., Gopez, A., Reyes, K., Zorn, K., Sample, H., Yu, G., Ishpuniani, et al
2020
- **Genomic surveillance reveals multiple introductions of SARS-CoV-2 into Northern California.** *Science (New York, N.Y.)*
Deng, X., Gu, W., Federman, S., du Plessis, L., Pybus, O. G., Faria, N. R., Wang, C., Yu, G., Bushnell, B., Pan, C. Y., Guevara, H., Sotomayor-Gonzalez, A., Zorn, et al
2020; 369 (6503): 582-587
- **Clinical Metagenomic Next-Generation Sequencing for Pathogen Detection.** *Annual review of pathology*
Gu, W., Miller, S., Chiu, C. Y.
2019; 14: 319-338

- **Non-invasive prenatal measurement of the fetal genome** *NATURE*
Fan, H. C., Gu, W., Wang, J., Blumenfeld, Y. J., El-Sayed, Y. Y., Quake, S. R.
2012; 487 (7407): 320-?
- **Genome-Wide DNA Methylation Identifies Distinct Subgroups of Vulvovaginal Mesenchymal Neoplasia**
Neil, A., Howitt, B., Yu, J., Bennett, J., Pinto, A., Quick, C., Neville, G., Nucci, M., Chapel, D., Heilbronner, L., Wang, A., Yao, Y., Ahmann, et al
ELSEVIER SCIENCE INC.2023: S960-S961
- **CRISPR-Cas12-based detection of SARS-CoV-2.** *Nature biotechnology*
Broughton, J. P., Deng, X., Yu, G., Fasching, C. L., Servellita, V., Singh, J., Miao, X., Streithorst, J. A., Granados, A., Sotomayor-Gonzalez, A., Zorn, K., Gopez, A., Hsu, et al
2020; 38 (7): 870-874
- **Associations of Early COVID-19 Cases in San Francisco with Domestic and International Travel.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Gu, W., Deng, X., Reyes, K., Hsu, E., Wang, C., Sotomayor-Gonzalez, A., Federman, S., Bushnell, B., Miller, S., Chiu, C.
2020
- **Evaluation of SARS-CoV-2 serology assays reveals a range of test performance.** *Nature biotechnology*
Whitman, J. D., Hiatt, J. n., Mowery, C. T., Shy, B. R., Yu, R. n., Yamamoto, T. N., Rathore, U. n., Goldgof, G. M., Whitty, C. n., Woo, J. M., Gallman, A. E., Miller, T. E., Levine, et al
2020
- **Brain Tumor Mutations Detected in Cerebral Spinal Fluid** *CLINICAL CHEMISTRY*
Pan, W., Gu, W., Nagpal, S., Gephart, M. H., Quake, S. R.
2015; 61 (3): 514-522
- **Noninvasive prenatal diagnosis in a fetus at risk for methylmalonic acidemia.** *Genetics in medicine*
Gu, W., Koh, W., Blumenfeld, Y. J., El-Sayed, Y. Y., Hudgins, L., Hintz, S. R., Quake, S. R.
2014; 16 (7): 564-567
- **Noninvasive prenatal diagnosis in a fetus at risk for methylmalonic acidemia** *GENETICS IN MEDICINE*
Gu, W., Koh, W., Blumenfeld, Y. J., El-Sayed, Y. Y., Hudgins, L., Hintz, S. R., Quake, S. R.
2014; 16 (7): 564-567
- **Electromechanical properties of pressure-actuated poly(dimethylsiloxane) microfluidic push-down valves** *ANALYTICAL CHEMISTRY*
Chen, H., Gu, W., Cellar, N., Kennedy, R., Takayama, S., Meiners, J.
2008; 80 (15): 6110-6113
- **A Microfluidic System for Rapid Bacterial Pathogen Detection** *7th IEEE Conference on Nanotechnology*
Mai, J. D., Gaster, R. S., Wu, A., Gu, W., Mach, K. E., Liao, J. C.
IEEE.2007: 1341-1345
- **Handheld recirculation system and customized media for microfluidic cell culture** *LAB ON A CHIP*
Futai, N., Gu, W., Song, J. W., Takayama, S.
2006; 6 (1): 149-154
- **Microscale integrated sperm sorter.** *Methods in molecular biology (Clifton, N.J.)*
Chung, Y., Zhu, X., Gu, W., Smith, G. D., Takayama, S.
2006; 321: 227-244
- **Computer-controlled microcirculatory support system for endothelial cell culture and shearing** *ANALYTICAL CHEMISTRY*
Song, J. W., Gu, W., Futai, N., Warner, K. A., Nor, J. E., Takayama, S.
2005; 77 (13): 3993-3999
- **Microfluidics for flow cytometric analysis of cells and particles** *PHYSIOLOGICAL MEASUREMENT*
Huh, D., Gu, W., Kamotani, Y., Grotberg, J. B., Takayama, S.
2005; 26 (3): R73-R98
- **Computerized microfluidic cell culture using elastomeric channels and Braille displays** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*

Gu, W., Zhu, X. Y., Futai, N., Cho, B. S., Takayama, S.
2004; 101 (45): 15861-15866