

Stanford



Elizabeth Holman

Postdoctoral Scholar, Microbiology and Immunology

Bio

HONORS AND AWARDS

- Kirschstein-NRSA Postdoctoral Fellow, National Cancer Institute (2024 - 2027)
- Science Graduate Student Research Awardee, Department of Energy (2018 - 2019)
- NSF Graduate Research Fellow, National Science Foundation (2015 - 2018)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, California Institute of Technology , Chemistry (2022)
- Bachelor of Science, University of California Berkeley , Chemistry (2012)

STANFORD ADVISORS

- Garry Nolan, Postdoctoral Faculty Sponsor
- Garry Nolan, Postdoctoral Research Mentor

LINKS

- Twitter: https://twitter.com/ea_holman

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I currently explore the application of vibrational spectroscopic technologies for biomedical imaging and precision medicine for clinical use. My research interests are directly related to chemical imaging technology development, which include but are not limited to spectral and image processing and analysis, machine learning applications, autonomous adaptive data acquisition, and vibrational spectroscopic applications to the biomedical sciences.

Publications

PUBLICATIONS

- **Tumor-Infiltrating Immune Cells in Colorectal Cancer.** *Neoplasia (New York, N.Y.)*
Ferkel, S. A., Holman, E. A., Sojwal, R. S., Rubin, S. J., Rogalla, S.
2024; 59: 101091
- **Automated spatial omics landscape analysis approach reveals novel tissue architectures in ulcerative colitis.** *Scientific reports*
Holman, D. R., Rubin, S. J., Ferenc, M., Holman, E. A., Koron, A. N., Daniel, R., Boland, B. S., Nolan, G. P., Chang, J. T., Rogalla, S.
2024; 14 (1): 18934

- **Deploying Machine Learning Based Segmentation for Scientific Imaging Analysis at Synchrotron Facilities.** *IS&T International Symposium on Electronic Imaging*
Hao, G., Roberts, E. J., Chavez, T., Zhao, Z., Holman, E. A., Yanxon, H., Green, A., Krishnan, H., Ushizima, D., McReynolds, D., Schwarz, N., Zwart, P. H., Hexemer, et al
2023; 35
- **Toward implementing autonomous adaptive data acquisition for scanning hyperspectral imaging of biological systems** *APPLIED PHYSICS REVIEWS*
Holman, E. A., Krishnan, H., Holman, D. R., Holman, H. N., Sternberg, P. W.
2023; 10 (1)
- **Expanding hyperspectral imaging applications to the clinical scene: non-invasive, label-free approaches for early diagnostics and precision medicine** *Frontiers in Imaging*
Holman, E. A., Holman, D. R., Rogalla, S.
2023; 2
- **MLExchange: A web-based platform enabling exchangeable machine learning workflows for scientific studies**
Zhao, Z., Chavez, T., Holman, E. A., Hao, G., Green, A., Krishnan, H., McReynolds, D., Pandolfi, R. J., Roberts, E. J., Zwart, P. H., Yanxon, H., Schwarz, N., Sankaranarayanan, et al
IEEE.2022: 10-15
- **Autonomous adaptive data acquisition for scanning hyperspectral imaging** *COMMUNICATIONS BIOLOGY*
Holman, E. A., Fang, Y., Chen, L., DeWeese, M., Holman, H. N., Sternberg, P. W.
2020; 3 (1): 684
- **Sensitive Detection and Analysis of Neoantigen-Specific T Cell Populations from Tumors and Blood** *CELL REPORTS*
Peng, S., Zaretsky, J. M., Ng, A. H. C., Chour, W., Bethune, M. T., Choi, J., Hsu, A., Holman, E., Ding, X., Guo, K., Kim, J., Xu, A. M., Heath, et al
2019; 28 (10): 2728-+
- **High pCO₂-induced exopolysaccharide-rich ballasted aggregates of planktonic cyanobacteria could explain Paleoproterozoic carbon burial** *NATURE COMMUNICATIONS*
Kamennaya, N. A., Zemla, M., Mahoney, L., Chen, L., Holman, E., Holman, H., Auer, M., Ajo-Franklin, C. M., Jansson, C.
2018; 9: 2116
- **FOAM (Functional Ontology Assignments for Metagenomes): a Hidden Markov Model (HMM) database with environmental focus** *NUCLEIC ACIDS RESEARCH*
Prestat, E., David, M. M., Hultman, J., Tas, N., Lamendella, R., Dvornik, J., Mackelprang, R., Myrold, D. D., Jumpponen, A., Tringe, S. G., Holman, E., Mavromatis, K., Jansson, et al
2014; 42 (19): e145
- **Synchrotron infrared imaging of advanced glycation endproducts (AGEs) in cardiac tissue from mice fed high glycemic diets** *BIOMEDICAL SPECTROSCOPY AND IMAGING*
Birarda, G., Holman, E. A., Fu, S., Weikel, K., Hu, P., Blankenberg, F. G., Holman, H., Taylor, A.
2013; 2 (4): 301-15