



Jon Arizti Sanz

Postdoctoral Scholar, Bioengineering

Bio

BIO

Jon is a Schmidt Science Fellow and postdoctoral researcher in the Hill-Maini Lab. His work combines genomics, molecular biology, computational and experimental approaches to characterize and engineer mushroom-forming fungi for sustainability and food applications. He hopes to combine genomics, synthetic biology and policy to address critical challenges in global food systems, sustainable agriculture and food security.

Jon was born and raised in the Basque Country, Spain. He received his PhD in Medical Engineering and Medical Physics from the joint Harvard-MIT program in Health Sciences and Technology under Prof. Pardis Sabeti. His PhD research focused on developing genomic technologies for early pathogen detection. During this time, he developed SHINE, a suite of CRISPR-based diagnostic platforms for viral detection in decentralized settings. In 2024, Jon worked as a Biosecurity Game Changers Fellow at the Pandemic Center at Brown University, where he developed a Global Diagnostic Gap Assessment report in collaboration with the International Pandemic Preparedness Secretariat (IPPS) and FIND. The report provides evidence-based and actionable priorities to boost the development and global access of diagnostics for outbreak-prone pathogens. Outside the lab, Jon enjoys cooking (and eating), dancing, sports, and watching films.

HONORS AND AWARDS

- Imperial College Emerging Alumni Leader Award, Imperial College London (2025)
- Schmidt Science Fellow, Schmidt Sciences (2025)
- Biosecurity Game Changers Fellowship, Pandemic Center at Brown University (2024)
- STAT Wunderkinds Award, STAT News (2024)
- Regeneron Prize for Creative Innovation – finalist, Regeneron (2022)
- Excellence and Achievement Award - For extraordinary work related to the COVID-19 pandemic., Broad Institute of MIT and Harvard (2020)
- "La Caixa" Fellowship for Postgraduate Studies in North America, "La Caixa" Foundation (2018)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Massachusetts Institute of Technology (2024)
- Master of Engineering, Imperial College of London (2018)
- PhD, Massachusetts Institute of Technology & Harvard Medical School , Medical Physics and Medical Engineering (2024)
- M.Eng., Imperial College London , Biomaterials and Tissue Engineering (2018)
- B.Eng., Imperial College London , Material Science and Engineering (2017)

STANFORD ADVISORS

- Vayu Hill-Maini, Postdoctoral Faculty Sponsor

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Basidiomycetes, mushroom-forming fungi, hold great potential for converting agricultural waste into valuable food and products, but we lack basic tools to understand and engineer their metabolism. My work leverages genomic data and computational methods to develop a suite of synthetic biology tools to engineer and modulate mushrooms biology. In addition, I use *Coprinopsis cinerea* as a model to probe substrate-dependent growth and metabolic output across defined and real-world feedstocks.

Publications

PUBLICATIONS

- **Bead-based approaches for increased sensitivity and multiplexing of CRISPR diagnostics** *NATURE BIOMEDICAL ENGINEERING*
Siddiqui, S. M., Welch, N. L., Nguyen, T. G., Razmi, A., Chang, T., Senft, R., Arizti-Sanz, J., Mirhashemi, M. E., Stirling, D. R., Ackerman, C. M., Cimini, B. A., Blainey, P. C., Sabeti, et al
2025
- **Establishing Methods to Monitor Influenza (A)H5N1 Virus in Dairy Cattle Milk, Massachusetts, USA.** *Emerging infectious diseases*
Stachler, E., Gnirke, A., McMahon, K., Gomez, M., Stenson, L., Guevara-Reyes, C., Knoll, H., Hill, T., Hill, S., Messer, K. S., Arizti-Sanz, J., Albeez, F., Curtis, et al
2025; 31 (13): 70-75
- **Ensuring Biosecurity and Research Agility for Outbreak Response: A Researcher's Perspective on the Federal Nucleic Acid Screening Framework** *APPLIED BIOSAFETY*
Siddiqui, S. M., Arizti-Sanz, J., Rao, A. S., Ozonoff, A., Sabeti, P. C.
2025; 30 (3): 211-216
- **CRISPR-Based Assays for Point-of-Need Detection and Subtyping of Influenza.** *The Journal of molecular diagnostics : JMD*
Zhang, Y. B., Arizti-Sanz, J., Bradley, A., Huang, Y., Kosoko-Thoroddsen, T. F., Sabeti, P. C., Myhrvold, C.
2024; 26 (7): 599-612
- **Simplified Cas13-based assays for the fast identification of SARS-CoV-2 and its variants.** *Nature biomedical engineering*
Arizti-Sanz, J., Bradley, A., Zhang, Y. B., Boehm, C. K., Freije, C. A., Grunberg, M. E., Kosoko-Thoroddsen, T. F., Welch, N. L., Pillai, P. P., Mantena, S., Kim, G., Uwanibe, J. N., John, et al
2022; 6 (8): 932-943
- **Biosecurity risks and governance in the age of synthetic biology** *MIT Science Policy Review*
Arizti Sanz, J., Dunlap, G., Nolan, N., O'Leary, C.
2022
- **Streamlined inactivation, amplification, and Cas13-based detection of SARS-CoV-2.** *Nature communications*
Arizti-Sanz, J., Freije, C. A., Stanton, A. C., Petros, B. A., Boehm, C. K., Siddiqui, S., Shaw, B. M., Adams, G., Kosoko-Thoroddsen, T. F., Kembell, M. E., Uwanibe, J. N., Ajogbasile, F. V., Eromon, et al
2020; 11 (1): 5921