Zaid L. Bayyat

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EDUCATION

Johns Hopkins University School of Medicine 2023 – Present
Ph.D. Candidate, Biochemistry, Cellular and Molecular Biology (BCMB)

Member of Dr. Bert Vogelstein and Dr. Kenneth Kinzler's lab at the Ludwig Center for Cancer Genetics and Therapeutics.

University of South Florida, Honors College 2014 – 2018
Biomedical Sciences B.Sc.

Magna Cum Laude, Dean's List of Scholars, Director's Honors Award

EXPERIENCE

The Lab Post 2025 – Present
Founder

- Built a daily research-paper digest service that ingests papers from academic sources into a local corpus with embeddings, scores them against researcher profiles, and delivers personal digests.
- Engineered a multi-stage retrieval pipeline: hybrid search, cross-encoder reranking, rank-fusion scoring, and per-user fan-out.
- Designed and shipped the product end to end on AWS Lambda + SQS + SES: frontend, backend, billing, email delivery, and deployment.

Broad Institute of MIT and Harvard Dec 2022 – July 2023
Research Associate II – William Sellers Lab

- Identified and evaluated newly discovered genetic hits in the KRAS(G12C) mutant setting.
- Managed the technical training of new associates and trainees in a variety of laboratory techniques.
- Collaborated with pharmaceutical industry leaders from Boehringer Ingelheim and Pfizer to advance therapeutics.

Broad Institute of MIT and Harvard April 2021 – Dec 2022
Research Associate I – William Sellers Lab

- Conducted large-scale combinatorial CRISPR-Cas9 screens to uncover novel paralog dependencies in cancer.
- Identified gene pairs that enhanced sensitivity or resistance to KRAS pathway inhibitors in various cancer lineages.
- Developed and optimized new biochemical assays and experimental protocols.

Broad Institute of MIT and Harvard Sept 2020 – April 2021
Process Development Associate – Genomics Platform

- Spearheaded the launch of a new pooled COVID testing system for public schools across Massachusetts.
- Scaled laboratory operations from 0 to over 10,000 samples processed per day.
- Facilitated the reopening of public schools after prolonged pandemic closures.

SKILLS

- Cancer biology
- Immunotherapy
- Gene delivery systems
- VLP engineering
- Viral vector engineering
- CRISPR-Cas9 systems
- Mammalian cell culture
- Molecular cloning
- Transfection / electroporation
- In vitro transcription
- RNA extraction
- PCR / RT-qPCR
- Flow cytometry
- Western blot
- Assay development
- In silico sequence design

PUBLICATIONS

Comparative optimization of combinatorial CRISPR screens
Li, R., Klingbeil, O., Monducci, D., Young M., Rodriguez, D., **Bayyat Z.**, et al. *Nature Communications*, 2022

PRESENTATIONS

Optimization of Combinatorial CRISPR Screens to Identify Novel Digenic Dependencies in Lung Cancers
Broad Institute 18th Annual Conference, Dec 2022

LEADERSHIP

Horizons for Homeless Children March 2022 – Sept 2022
Playspace Activity Leader

- Volunteered at homeless shelters in the Cambridge area, supporting children in overcoming trauma through interactive play and engagement.

CERTIFICATIONS

- General Business Certification, University of South Florida
- Biomedical Investigators and Key Personnel, CITI Human Research