

Postdoc and postgrad positions at Yale University: single-cell multi-omics, bioinformatics, and immunology of HIV cure

Combining single-cell technology, bioinformatic analysis, RNA biology, and mechanistic interrogations on clinical samples revolutionized our understanding of viral immune responses. The Ho Lab at Yale University School of Medicine (Twitter @HoLabHIV, <https://medicine.yale.edu/lab/yachiho/>) is recruiting motivated, productive, independent, and collegial postdocs interested in innovative single-cell genomics on HIV-induced immune dysfunction and HIV persistence. The immediate projects may involve **single-cell multi-omic profiling and bioinformatic analysis** of clinical samples from people living with HIV (*Immunity* 2022, *Immunity* 2023) or **mechanistic understanding of epigenetic and transcriptional regulation of HIV persistence** (*JV* 2022, *Genome Research* 2023). This postdoctoral researcher will combine wet-lab **molecular biology** methods, dry-lab **bioinformatic analysis**, and a **translational** approach using clinical samples from people with HIV. The overall goal is to understand mechanisms of HIV persistence and guide the development of HIV cure strategies.

The start date is negotiable – a successful candidate can immediately start the job or defer until up to Fall 2024. Several positions are available and this recruitment process will continue until Fall 2024.

Scope of work

The training will involve (a) the development and application of **innovative single-cell RNAseq methods, which may include spatial transcriptomics**, (b) **bioinformatic** analysis of single-cell genomics datasets, (c) a **translational approach** using blood or tissue **samples from humans**, (d) wet-lab methods in virology (such as sterile cell culture in an enhanced biosafety level 2 (BSL2+) lab), immunology (such as flow cytometry), and molecular biology (such as CRISPR, RNA biology), (e) collaboration with other researchers both inside and outside of Yale, including virologists, immunologists, bioinformaticians, computer scientists, and clinicians, (f) presentation in international conferences, and (g) manuscript preparation and grant applications.

Training opportunity

Funded by several NIH grants (R01, U01, and P01) in HIV structural biology, HIV Cure Collaboratories, and NIH single cell consortium, our lab provides a collaborative environment and multi-disciplinary training for scientific and career development from virology, single-cell genomics, bioinformatics, immunology, to translational research. Our lab has a track record of training postdoctoral researchers: our postdocs have international conference presentations, New Investigator Awards, pilot grants, and first-authored original articles. Our lab is dedicated to recruiting researchers from a diverse background.

Qualifications

For postdoc positions, a successful candidate will likely have (a) a recent (<4 years) PhD degree in bioinformatics, genomics, genetics, microbiology, molecular biology, immunology, or a related discipline; PhD students who are about to graduate are eligible; (b) a track record of research productivity, as evidenced by first-authored original publication(s) in high-quality peer-reviewed journals; (c) experience or interests in programming languages such as R or python; (d) willingness to work with HIV+ samples following BSL2+ procedures; (e) independence to lead a project as well as willingness to work in a team; (f) an open mind to learn new methods from junior researchers and collaborators; (g) good scientific presentation and writing skills. Previous experience and publications in bioinformatics, immunology, or virology are preferred but not required. Salary will be commensurate with experience and qualifications based on Yale University regulations, starting at \$65,000 per year.

For postgrad positions, the candidate should have a recent bachelor's degree in bioinformatics, genomics, genetics, microbiology, molecular biology, immunology, or a related discipline. Undergrad students who are about to graduate are eligible. The postgrad candidate needs to have prior wet-lab research experience beyond course work. Prior experience in virology or HIV is not required. The postgrad candidate will be assigned with lab maintenance work as well as training opportunities (such as hypothesis-driven research, independent research projects, meeting presentations, and manuscript preparation).

Selected publications:

1. *Immunity* 2023, Single-cell epigenetic, transcriptional, and protein profiling of latent and active HIV-1 reservoir revealed that IKZF3 promotes HIV-1 persistence. <https://pubmed.ncbi.nlm.nih.gov/37922905/>
2. *Immunity* 2022, Single-cell multiomics reveals persistence of HIV-1 in expanded cytotoxic T cell clones. <https://pubmed.ncbi.nlm.nih.gov/35320704/>
3. *Genome Research* 2023, Integration site-dependent HIV-1 promoter activity shapes host chromatin conformation. <https://pubmed.ncbi.nlm.nih.gov/37295842/>
4. *Journal of Virology* 2022, Inhibition of a Chromatin and Transcription Modulator, SLTM, Increases HIV-1 Reactivation Identified by a CRISPR Inhibition Screen. <https://pubmed.ncbi.nlm.nih.gov/35730977/>

To apply

Interested candidates may send a CV, a personal statement, and the contact information for three referees to ya-chi.ho@yale.edu. **The applicant is encouraged to read one of the above publications and describe interests in related work.** Applications will be reviewed on a rolling basis until the position is filled.

Yale University is an Affirmative Action/Equal Opportunity employer. Yale values diversity among its students, staff, and faculty and strongly welcomes applications from women, persons with disabilities, protected veterans, and underrepresented minorities.