RUTGERS UNIVERSITY
Interdisciplinary Job Opportunities for Biomedical Scientists

iJOBS Career Panel: Research-Intensive Academic Jobs
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Panelists

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Outline of Presentation

Deciding teaching vs reasearch intensive
How to select a postdoc that will eventually help you land an academic career
Discussing with your postdoc PI the project that you will take with you and getting them to help you advance your career
What other things you should be doing during your postdoc to be ready to apply for faculty jobs
Applying for K99/R00 grants
Finding academic jobs to apply to
Networking
Preparing the research statement
Preparing the teaching statement
Preparing the job talk
Preparing the chalk talk
Preparing for the interview itself and tips
Negotiating offers
Setting up the lab
Filling your lab with students, postdocs and techs
Teaching for the first time and preparing classes
Service to the school
Preparing for tenure and expectations

Research-Intensive vs. Teaching-Intensive: Choosing Your Fit

Research-Intensive (R1, med school)

- **Daily reality** Grant writing, personnel management, and travel. You will spend far less time at the bench than you do now.
- **What tenure rewards** Sustained extramural funding and high-impact papers. In many med schools, part of your salary is soft money.
- **Resources** Startup often $500K–$1M+, protected time, core facilities, graduate students and postdocs.
- **You'll thrive if** You want to chase a question at scale and find building and running a team energizing rather than draining.

Teaching-Intensive (Primarily Undergraduate Institution, liberal arts)

- **Daily reality** Three to four courses a semester plus prep, advising, and committee service. Research happens in summers.
- **What tenure rewards** Teaching effectiveness first, then scholarship that meaningfully involves undergraduates.
- **Resources** Modest startup, shared equipment, smaller grants (NSF RUI, NIH R15/AREA).
- **You'll thrive if** Mentoring is the part of the job you would not give up, and you can design projects an undergraduate can finish.

Ask yourself, honestly:

Which part of last week actually energized you — running the experiment, or explaining it to a student?

Do you want to do science yourself, or run an organization that does science?

R1 openings are geographically scarce. How much does where you live constrain the search?

How to select a postdoc that will eventually help you land an academic career

- Who is doing the most exciting work in (my) field right now?
- What skills will I learn if I join their lab?
- Does this person have a track record of students/postdocs with faculty jobs? Are they part of a healthy scientific community/network?
- How will my current skills from PhD be valuable or needed in my postdoc lab (ideally, complement others' skills, rather than exactly same work as PhD)?
- What is the most exciting project(s) that I can work on in my postdoc lab that uses my current strengths as well as strengths of postdoc lab?

CAREER CONVERSATIONS WITH YOUR PI

Shaping the Project You Take With You

01

Discuss early, and keep discussing

Outcomes shift as your research evolves — treat the plan as a running conversation, not a one-time meeting.

02

Say what excites you most

This is a negotiation, not a request. Be honest about your interests — and expect to compromise.

03

Your success is their success

Institutions and funders judge PIs in part by how their trainees turn out — they have a real stake in yours.

Beyond the Bench: What to Build During Your Postdoc

Search committees hire a research program, not a pair of hands. Each of these takes years so start early.

1 Carve out an independent project

Negotiate explicitly with your PI about what you can take with you. Get it in writing before you interview.

2 Win your own funding

F32, K99/R00, foundation fellowships. External money proves independence and de-risks the hire for a department.

3 Publish with a story arc

First-author papers still matter most, but reviews and preprints let a committee see where your program is heading.

4 Mentor and teach on the record

Supervise rotation students, guest lecture, take a teaching certificate. You need real material for a teaching statement.

5 Become visible in your field

Seek out talks, review manuscripts, join society committees, keep a current lab website. Be a name people recognize.

6 Cultivate letters beyond your PI

You will need three to five writers. Collaborations and conference relationships are how those letters get earned.

Timeline: build years 1–2, assemble the package 12–18 months before you want to start.

Applying for NIH K99/R00 Pathway to Independence Award

- Supports 2 years of postdoc research + 3 years of faculty research
- Must apply within first 4 years of postdoc (award can start later)
- Start thinking about a proposal in the first 1-2 years and assume you will need to resubmit (could take up to 2 years in total)
  - Work toward publishing with your K99/R00 primary mentor
- Discuss with your primary mentor and establish a team of co-mentors and/or collaborators
- K99/R00 has two components: 1) Research Proposal; 2) Candidate Background and Career Goals
- Note that the R00 phase is contingent upon securing a tenure-track faculty position

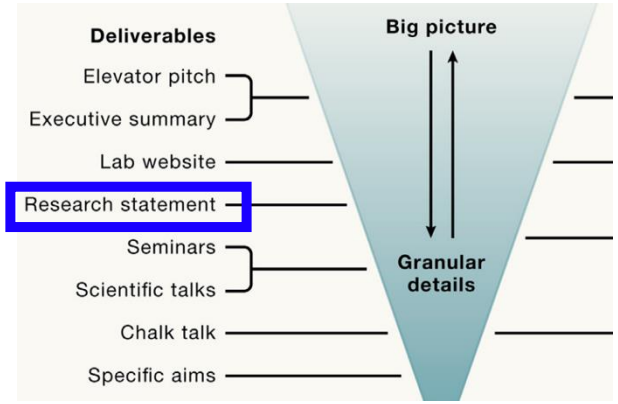
Finding Academic Jobs to Apply to

- Consider what kind of faculty job you want
  - Full-time research
  - Research and teaching
  - Research and clinical
- Depending on the type of position, institutions will want to see that you have a strong publication record, current (ideal) or previous funding, and teaching experience
- Look for open job postings (e.g., institutional website, Society for Neuroscience NeuroJobs, Psychology Job Wiki, Science Careers, Higher Ed Jobs, Chronicles of Higher Ed)
- Directly email departmental chairs or faculty you may already know in a department. Your mentors may also be willing to contact colleagues on your behalf
- Start researching positions in the Fall > apply late Fall/early Winter > Interview late Winter/early Spring > Receive offer/contract negotiations Spring/early Summer

Networking

- Start long before you become a PI, the earlier the better
- Piggyback on your PIs network, especially during your postdoc
- Make a website
- Social media – X
- Attend and participate during seminars and conferences
- Teaching and service within your University – this can also be a great way to attract students

Preparing the Research Statement



Five key questions to tackle:

1. What is the **knowledge gap** I hope to fill or the problem I aim to solve?
2. Why is it **important** to the field that this problem is solved?
3. Why am **I** the best person to answer this question?
4. How is my work **distinct** from my research advisor or other researchers in my topical area?
5. Which **model systems or technologies** will I use or adapt in my research program?

Dah-eun (Chloe) Chung, PhD — Research Statement

Harnessing protective molecular players from the pathology-resistant brain region to counteract neurodegenerative diseases

1, 2: knowledge gap, why important to the field

Every neurodegenerative disease exhibits *regional brain vulnerability*—pathology and the downstream toxicity affecting only selective brain regions but leaving others mostly intact[1]. While the exact mechanisms are unclear, the phenomenon of regional brain vulnerability suggests that resistant brain regions may possess certain factors that can protect against the development of pathology. Understanding such protective factors will help us develop effective treatment options that are urgently needed for neurodegenerative disease patients whose number continues to increase given an ever-growing aging population[2].

Regional brain vulnerability in Alzheimer's disease (AD), the most common cause of dementia, manifests by aggregation of the microtubule-associated protein tau in selective brain regions such as the cortex and hippocampus. Intriguingly, other brain regions like the cerebellum and brainstem are largely spared from tau pathology[3]. In my postdoctoral research[4], I explored the layer of protection against tau pathology in these AD-resistant brain regions. This led me to discover that an understudied "**big tau**" splice isoform, more highly expressed in the resistant brain regions than in the vulnerable forebrain, has striking biochemical properties that can *resist* aggregation and other pathological changes that regular tau isoforms are subject to. My findings uncover a link between an elevated level of big tau and the absence of tau pathology in human brains, hinting at the possibility of leveraging big tau's **pathology-resisting properties** to design new therapies for AD and other tauopathies.

3, 4: why you, how are you unique

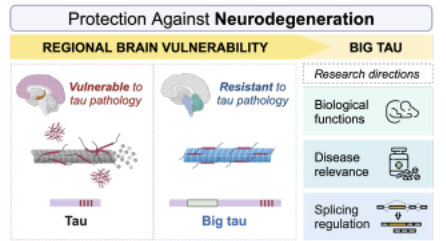


Figure 1. An overview of my research program. Investigating biological functions, disease relevance, and upstream regulation of factors involved in regional brain vulnerability in neurodegenerative diseases. Big tau is my initial target in this study pipeline.

Big tau has not been extensively studied since its first reports in the 1990s[5-7] for its biology or disease relevance in the central nervous system. Yet, big tau represents a highly uncharted research area that will help us understand neurodegenerative diseases from a new angle. Using a combinatorial approach encompassing genetic mouse models, cellular models, and postmortem human brain tissues, I will leverage my discoveries into big tau pathophysiology as a novel framework to test if neurodegenerative diseases can be prevented by capitalizing on protective factors in the resistant brain regions. To explore this, my lab will initially pursue the following research directions (**Fig. 1**):

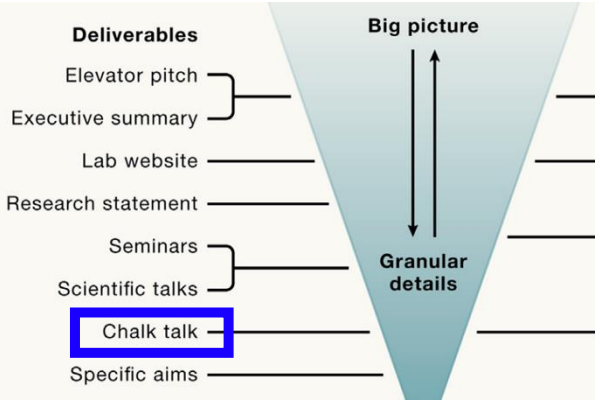
5: tools

Direction 1: *Elucidate the biological functions of big tau.*
Direction 2: *Examine the disease relevance of big tau across tauopathies.*
Direction 3: *Uncover the splicing regulators of big tau expression.*

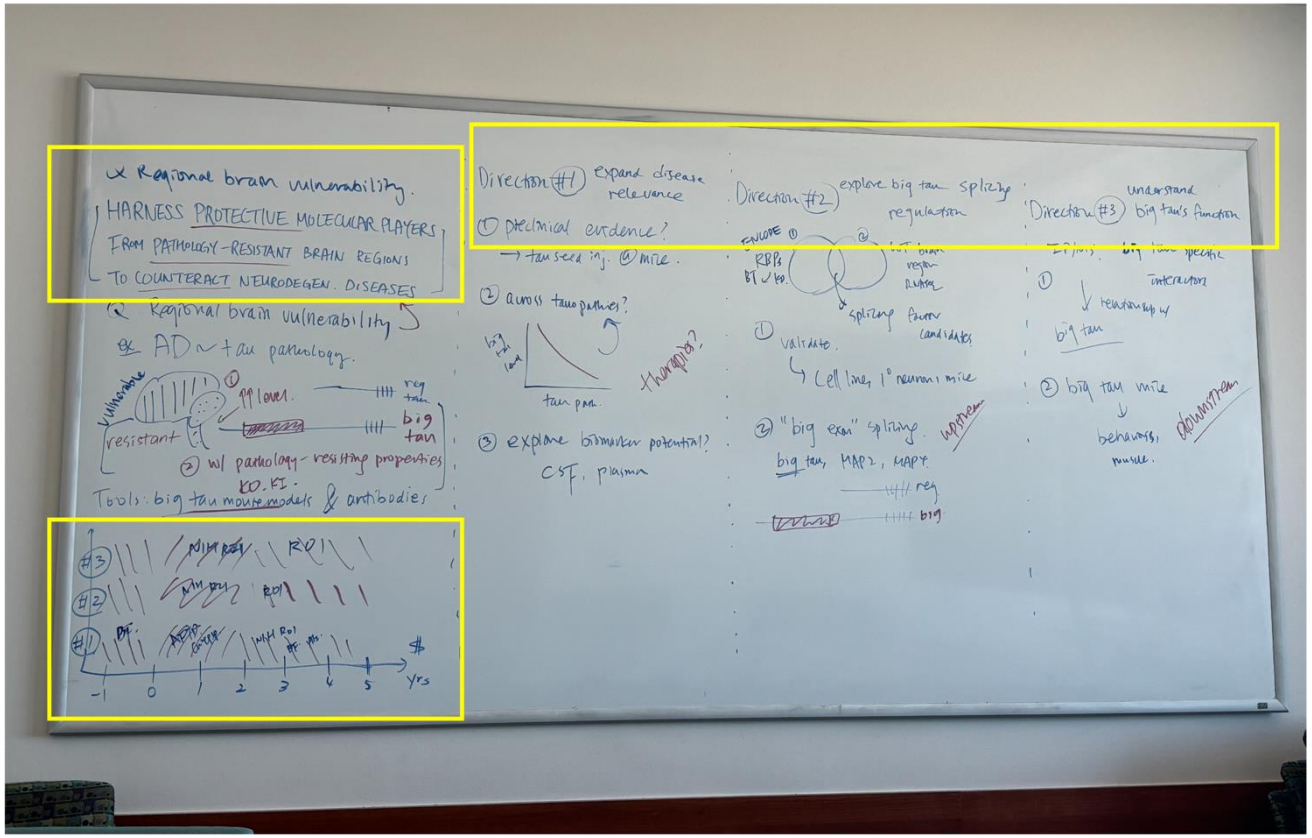
Preparing the job talk

- Why I am the best candidate for this job?
- What is my research trajectory, and why is this job a natural next step?
- What research contributions have I made that will be the foundation for my new lab? (my big postdoc paper and fellowship/grant for research independence)
- What will be my first big grant (R01 submission)?
- What will be the exciting, major contribution that my lab makes in the next 3-5 years that establishes my reputation, and secures funding and tenure?

Preparing the Chalk Talk



- ~1 hr explanation of your research vision with **more details**
  - Postdoc work + vision (5 min – summarize your seminar again)
  - Three research directions with project outlines (5 min each)
  - Q&A will fill up the rest of 1 hr
- Persuade the audience on the scientific rationale and feasibility of your vision (incl. funding strategies)
- Try to not get caught up too much in the first part of your chalk talk
- If possible, sit in others' chalk talk to see how this unfolds in general



FACULTY INTERVIEWS

Preparing for the Interview Itself

01

Learn who you're meeting

Read a recent paper from each person. Find where your research might intersect with theirs.

02

Come with questions

Shows genuine interest — and it's your best chance to get unvarnished opinions about the place.

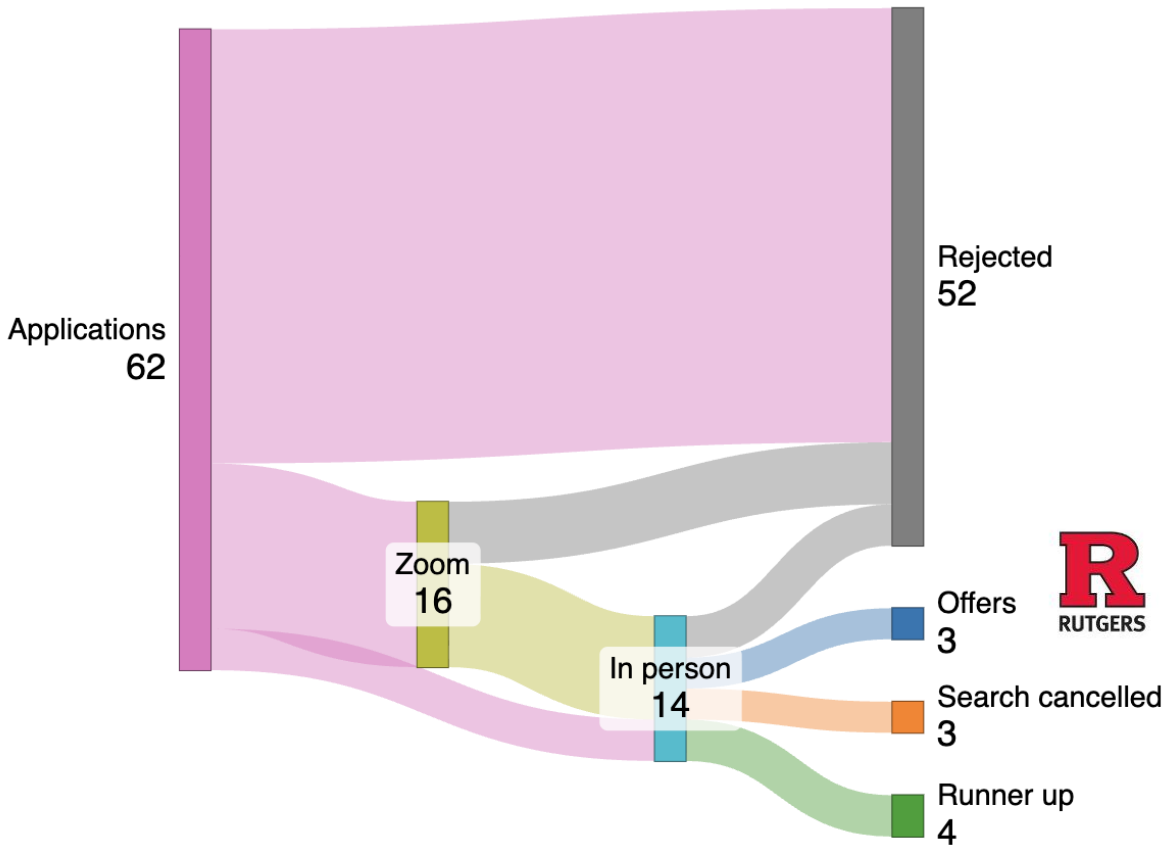
03

Get rest

Interview days run breakfast to dinner. Skip the last-minute, late-night preparation — you need the sleep more.

Negotiating offers

- Think deeply about your needs. Do not hesitate to ask for what you need to be successful.
- Universities may pressure you to give a response sooner than you would like. It's a balancing act that must be handled tactfully.
- Have a detailed budget breakdown with exact amounts for what you think things will cost
- Space> Startup>Salary.
- It is possible to negotiate for more if you have other competing offers. Without those, it is incredibly hard.



Setting up the lab

- It will be slow, that's okay. After the first 3 months, things get easier.
- Build a lab website early to get visibility.
- Tasks range from hiring, grant writing, purchasing, managing finances, setting up infrastructure, building furniture, managing documentation, IT.
- Keep an eye out for early career investigator grants and apply for them.
- Figure out the procurement and purchasing system at your university. It will likely be tedious and confusing.
- Minimize decision fatigue – do not agonize over minor choices.
- Be frugal, but also, do not obsess over small dollar amounts.

Recruiting students, postdocs and techs

- You’re not just hiring individuals, you’re building a team
- Be practical but don’t settle, good people will come
- Advertisement and self-promotion
  - jobRxiv
  - Social media – X
  - Leverage your contacts within your institution and outside
  - See “Networking”
- Talk to many applicants
- Discuss with mentors
- Call their references!

Service to the School

Paradox: **Goal #1:** Establish your scientific career but your services to the school shows you are a reliable, constructive colleague. **DON'T** let administrative duties erode lab/writing time.

Local level (Institute/Department):

Organizing: -Summer program for student.
-Seminar series (hosting a few per year)
-Focus group journal club
-Work-in-progress meetings.
-Retreat

University level:

Organizing: -Retreat of focus group
-Multi center meeting (focus group) Journal club, Work in progress (***Can lead to collaborative grants***)
Participating to: -Thesis committee (Ph.D. defense, Master Thesis, etc…)
-Recruitment committee for grad student, new faculty members
-Core facility boards

(Inter)National level:

Organizing: -conference, symposium.
Participating to: -Peer reviewing, Editorial boards, grant study section

The art of saying NO! to protect your research program

Preparing for tenure and expectations

<u>Evalution for tenure relies on</u>:

1- Research & Scholarship* (75-80%)*: Grants (NSF, NIH, etc…), Published articles, national/international reputation

2-Teaching & Mentorship* (10-15%)*: organizing/participating to classes or courses + undergraduate/graduate students &post-doctoral fellow mentoring (Fellowship obtained

3- Service* (5-10%)*: good citizenship.

<u>Reappointment review every 3 years.</u> (the process starts sometimes 6months to 1 year prior the end date)
reappointment approval goes through a committee at the university level.

<u>Tenure relies on confidential letters from tenured professor in your field (non collaborators and eexternal to the university) that evaluate your contribution to the field.</u>