

The background of the slide is a dark, blurred image of a pair of black-rimmed glasses resting on a white document. A red ribbon is visible on the left side of the document. The text is overlaid on this background.

How to Manage a Research Group

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General Overview

- Introductions
- What is the telos of your group?
- What are the goals of all the people involved?
- How is your group structured?
- Group functioning
 - Recruiting, Operating, Troubleshooting, etc.
- Funding, authorship, collaboration, and conflict



Introductions

- Overview of workshop goals
- Who are you?
- What does your research group do?



Why does your research group exist?

- A. To allow me to provide valuable experience to trainees
- B. To allow me to perform, publish, and fund my work
- C. To serve the community that's tied to my research and provide them with actionable information
- D. Something else?



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How is your research group structured?

- A traditional tiered hierarchy
 - PI > Postdoc > Staff > Grad students > Undergraduates
- A flat model
 - PI > Undergraduates
- Something in-between?



As a PI, consider:

- i. What does your group need to do to keep everyone gainfully employed?
- ii. What is negotiable and what isn't?
- iii. Is there only one path to sustainability or are there several to choose from?

How do group members fit in?

- Paid Graduate students and Undergraduates
 - Unpaid Graduate students and Undergraduates
 - Postdoctoral Researchers
 - Staff researchers
1. Why are they here?
 2. What do they need?
 3. Where do their goals intersect with yours?
 4. Where do they *NOT* intersect with yours?

Building and running your team

- Recruiting
- Managing Operations
- Evaluating Progress
- Troubleshooting
- Advancement



*the part where you tell
me the secret to finding
rock-star talent*

- What steps do you take to find postdocs, grad students, undergraduates, and staff people?
 - Networking, word of mouth, broad advertising?
 - In your experience, what approach has been the most successful?



*the part where you tell
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- How do you evaluate candidates?
 - A skills/aptitude test?
 - A probing interview to determine skills/motivation
 - Use a probationary period before fully joining?
 - Other elements?



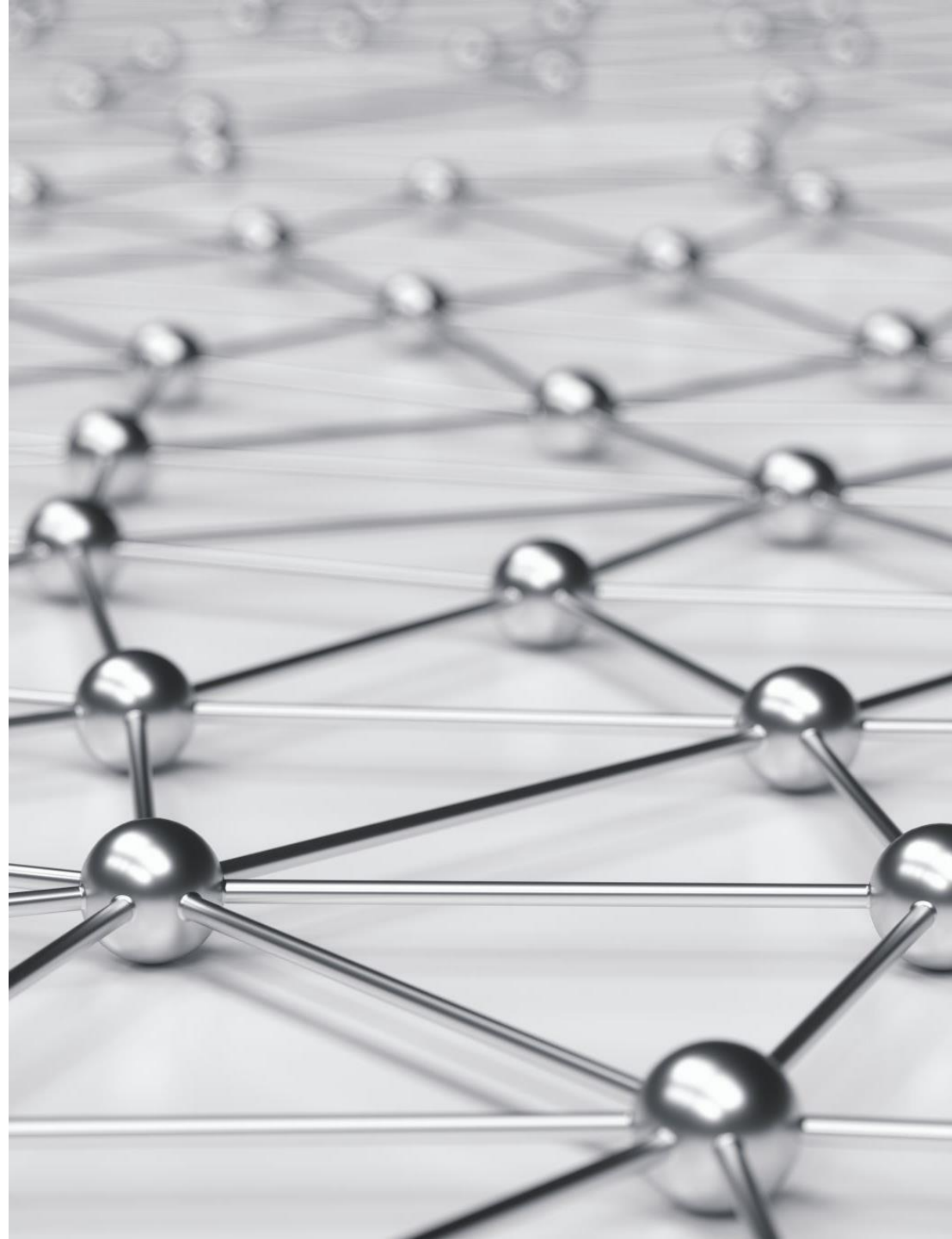
Now that you have a team...

- How often do you meet as a large group?
- How often do you meet individually?
 - What's their purpose?
 - What do you do in these meetings?
 - Does it vary from group-member to group-member and if so, what are the factors you're accounting for?



Group Projects vs. Individual Efforts?

- When and how can you leverage "parallel" processing in your research to get the most done?
- When is this inappropriate?



You need to collect a lot of data for a project:

Project #1

Collection using a simple, common protocol

Project #2

- Collection across an array of different protocols

Project #3

- Collection using a single incredibly detailed, tricky approach

What type of team would work best for these projects? Pros/Cons?

Project #1

Collection using a simple, common protocol

Project #2

- Collection across an array of different protocols

Project #3

- Collection using a single incredibly detailed, tricky approach

On a similar note, is all work is suitable for all lab members? Who should take on these projects?

Project #4

Routine work that is not related to any specific project, but needs to be completed to keep the research group operational

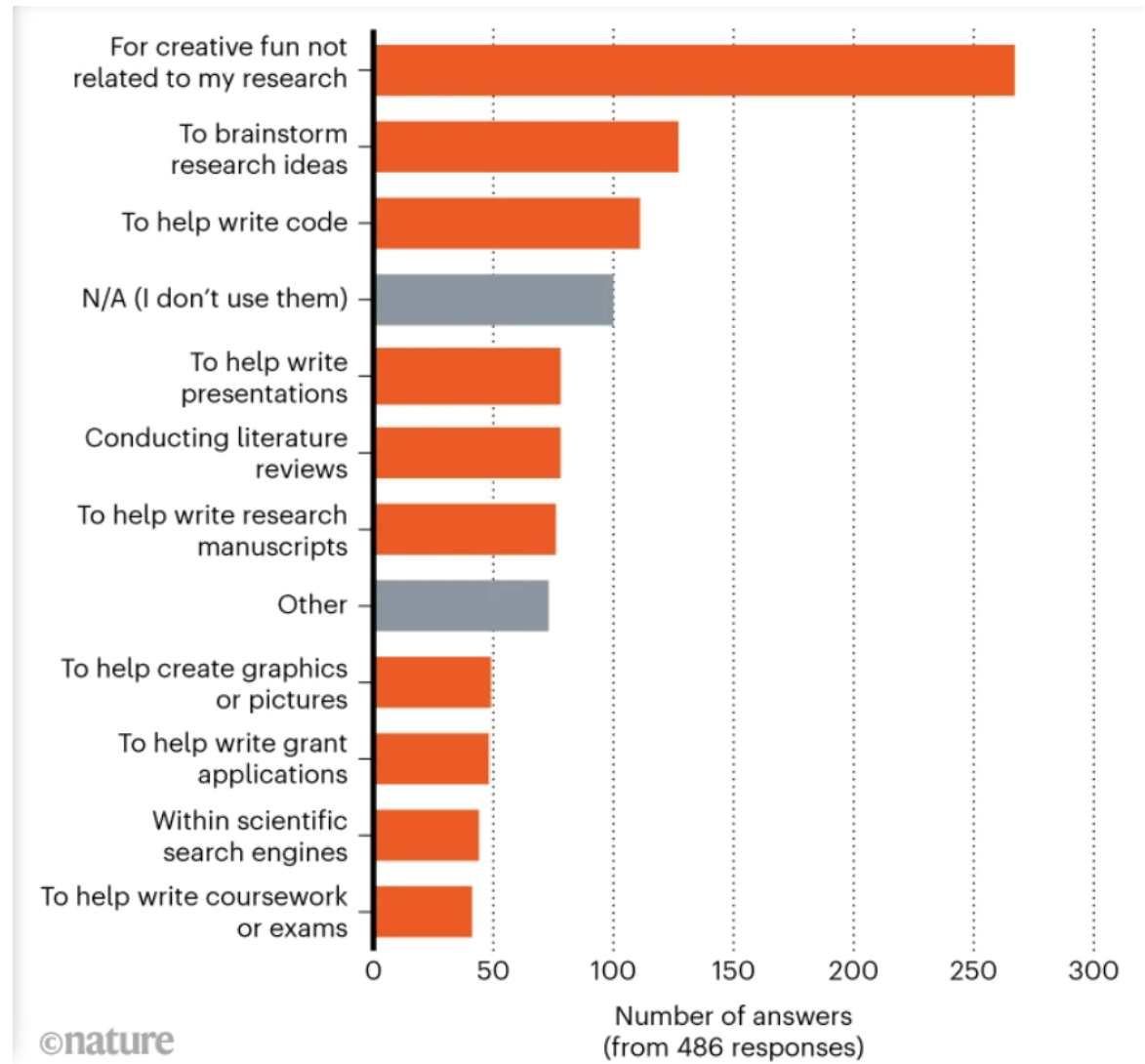
Project #5

A very time-consuming task that is not directly related to a publication, but would be very useful ahead of a PI-led grant submission

Project #6

Tasks that are directly related to a publishable project.

What role does AI play on your team?



It's a valuable contributor to some work...



Surfaces and Interfaces

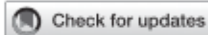
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The three-dimensional porous mesh structure of Cu-based metal-organic-framework - aramid cellulose separator enhances the electrochemical performance of lithium metal anode batteries

1. Introduction

Certainly, here is a possible introduction for your topic: Lithium-metal batteries are promising candidates for high-energy-density rechargeable batteries due to their low electrode potentials and high theoretical capacities [1], [2]. However, during the cycle, dendrites forming on the lithium metal anode can cause a short



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Cellular functions of spermatogonial stem cells in relation to JAK/STAT signaling pathway

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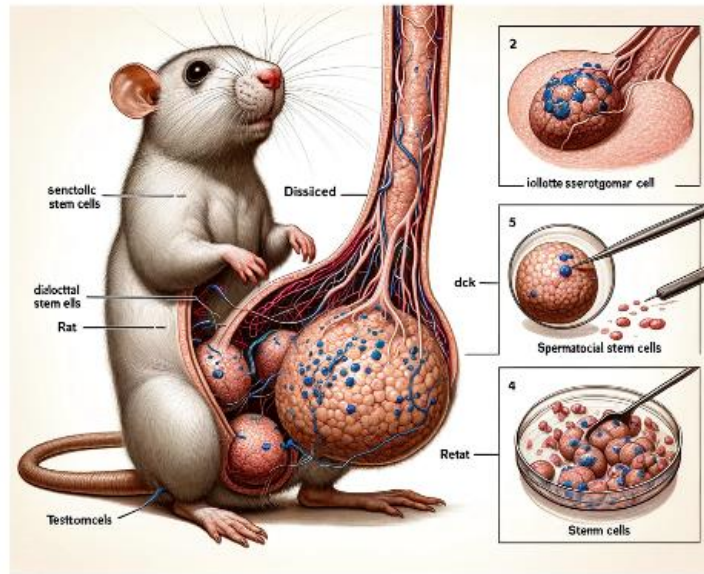
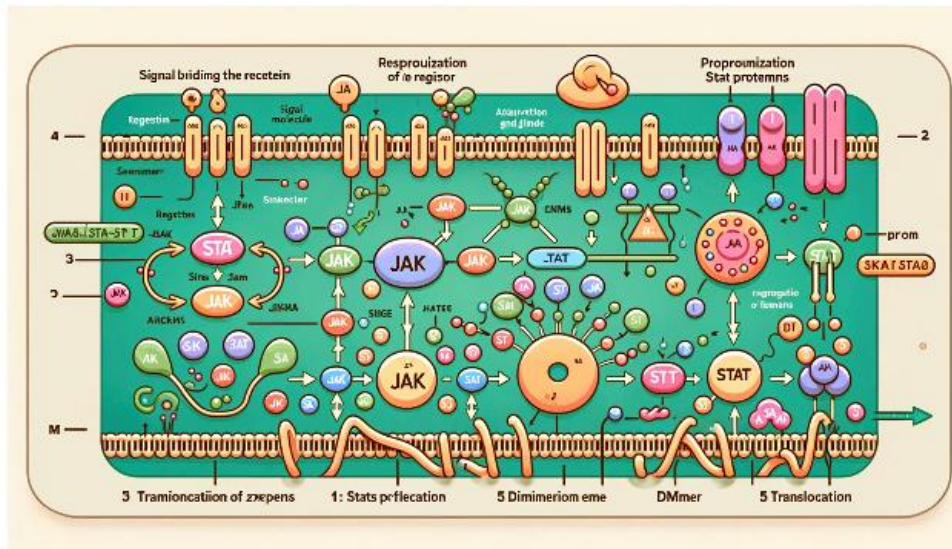


FIGURE 1
Spermatogonial stem cells, isolated, purified and cultured from rat testes.



Troubleshooting

When things aren't going smoothly



1: INTERPERSONAL
CONFLICTS



2: SCHEDULING AND
TIME-MANAGEMENT
ISSUES



3: PERFORMANCE
AND SKILL ISSUES



4: THE AUTHORSHIP
DEBATE



5: FUNDING ISSUES



6: DATA AND
RESEARCH ETHICS
VIOLATIONS

Next up:

- Strategies for securing funding and managing budgets
- Creating an inclusive research space
- Professional development for trainees
- To collaborate or not to collaborate
- Mentoring humans

