Thinking About Starting a Lab
Scientific Focus

• Work on your “bread and butter” first and foremost, and have a clear focus on your scientific goal.
• Avoid mentor separation anxiety. This will come naturally and you should usually plan on evolving away from your postdoc research.
• DO develop one or two new ideas, but do so as side projects.
• Make sure you are working on an important, primary research problem and not a second order spin off.
• Try to incorporate modern, novel, and state-of-art technology and approaches.
Doing Research

• Initial productivity and papers are even more important than initial grant funding—this is your currency for the next several years.

• You should spend as much time as possible in the lab and away from your desk. You are by far the best post-doc or student you could hire for yourself. YOU are responsible for most of the productivity and experiments in the first few years.

• You can also much better mentor and instruct new staff and students when you are in the lab vs in the office.
Teaching and Administration

- Keep both light, but not nonexistent.
- Teach especially when you can get exposure to grad students and especially earlier in the term/year.
- Do take on one or two minor departmental tasks. Being valuable to the department and school is an important aspect of your career development and promotion. It also diversifies your interests and gets you involved in your institutions.
- None of this should realistically take up more than 10% of your time in the first 2-3 yrs.
Grants

• Stay focused in terms of grant submission.
• Do not submit something premature to a major granting agency.
• Do apply to foundation and smaller grants initially, but try not to cannibalize your major R01 submission.
• One R21 grant on your major new or developmental project is OK, but do not put your R01 grant material into an R21.
• Limit the time you spend writing grants, but when in that mode, go all out and perfect your grants.
Meetings and Literature

- It is critical to stay on top of the broad literature and very abreast (deeply) of that in your focused area.
- Attending meetings is good for both education and exposure of your work.
- Suggest two meetings per year, one more broad or even outside your major area and one smaller one in your focused area.
- When at meetings (of course) network and become known by:
  - Your poster
  - Visiting as many posters as feasible
  - Asking questions at public talks
  - Meeting people at meals, etc. See if you can get help from prior mentors
- Use a literature tracking software package (Endnote, Papers, etc.), keep and distribute to your lab papers of interest, and file papers according to author if you do keep them.
Publication

• Too many new investigators delay publication too long.
  – No deadline for a publication, unlike a grant.
  – Want that “perfect” high-profile paper.
  – Medium profile is fine. Better to get the work out in published form. Your mentor’s high profile paper will not be high profile for you!

• If you TRULY have that high profile paper in the bag, then go for it.

• Make sure you finish and publish ALL of your postdoc work ASAP.

• Focus your lab’s attention on the experiments needed for the papers you want to publish.
Lab Organization

• Databases and reagents
• Tracking spending
• Organizing lab tasks (lab manager?) and having an organizational lab meeting.
• Validating and keeping reagents for lab success.
• Lab notebook maintenance. Establish standards and **visually check** every lab notebook. Also establish data management standards and procedures for electronic data storage.
Validating and Keeping Reagents

- Try as much as possible to keep, track, and validate “lab” stocks rather than personal stocks.
  - More cost efficient.
  - Fewer “wasted” orders.
  - Better reagent validity and sharing of information about optimal reagent use and performance.

- Titer all antibodies and similar reagents and keep track of it on a shared spreadsheet.
Lab Organization-Databases and Reagents

• Use either Filemaker (or equivalent database) and for simpler things, Excel, to track: plasmids, oligos, mice, cell lines, antibodies and any other key reagents.

• Store these files on a shared server or on Dropbox or equivalent.

• Put time and energy into seeing that they are kept current and used by lab staff.

• Consider using an online service in lieu of this (e.g. Labguru) but there are pros and cons to this.
Screenshots of my databases

Cell code: 22X
Full name: 3H9
Specificity/function: anti-DNA
Date frozen: 3/24/1995
Vial number: 2
Rack: [Blank]
Box: [Blank]
Row: [Blank]
Column: [Blank]
Date thawed: [Blank]
Comment: From Mark Monestier

Full location:
Initials of Person Freezing: MJS
Serial Number: 121
Tracking Spending

• Review personally all major reagent purchases (above a certain value, e.g. $100).
• Sure, track spending at a detailed level.
• But, more important, have a budget with projections, so that you know what you can and can’t do.
• A budget that is updated will aggregate areas of spending and let you see trends, as well as your commitments to salaries, animals and other fixed costs.
Tracking Animals

• In many labs, animals will be a major cost factor.

• If that’s true, use a spreadsheet or other appropriate software to track animal strains and census (census management).

• Breeding management is also needed, either through commercial software, a paper system, or homegrown simple software (e.g. spreadsheet).
Organizing Lab Tasks and Lab Meeting

- Have a weekly or at most bi-weekly lab meeting.
- Dedicate a part of every lab meeting for administrative tasks and oversight of all aspects of lab management and use an agenda.
- Have a list of lab tasks to maintain equipment, space and reagents and assign them to lab members. Probably do not want a lab manager initially but your first tech can do some of this.
Equipping a Lab

• Don’t buy what you can possibly share.
• Try to buy only what you need at first; you can add more later.
• Negotiate with every vendor and get multiple quotes on all important equipment pieces.
• Search reviews on the internet and speak to equipment owners regarding major equipment pieces.
Hiring and Personnel

• Criteria for hiring and evaluation and when to use them
  – Track record
  – Aptitude
  – Experience and knowledge base

• Importance of references
• How to conduct the interview
Mentoring and Working with Staff

- Treating each person as an individual and focusing in on both their specific talents and needs.
- Being fair, at the same time.
- Mentoring and supervising is bidirectional and transactional. You need to be sure that the person who works for you is getting something out of it.
Highly recommended handbook for starting and running a lab

Also see: “At the Bench” For your lab members