Starting A Lab: Some Solicited Advice

Alexander W. Pastuszak, MD, PhD
Assistant Professor
Center for Reproductive Medicine
Division of Male Reproductive Medicine and Surgery
Scott Department of Urology
Baylor College of Medicine
Houston, TX
Disclosures

• I have no relevant financial relationships to disclose

• There will be a lot of text on the following screens… Sorry…

• The information herein is based on personal experience and the sampling of other scientists
Most scientists start their first (and second) faculty position with almost no understanding of the financial and management aspects of running a research group

- Joseph (Jody) Puglisi, 2009
Overview

- Startup package
- The Budget
- The Equipment
- The People
- Project(s)
- Grants
- Collaborators & Mentors
Running a Lab = Running a (Small) Business

- Funding and people are key elements
  - Create a realistic budget → Stick to it!!
- Personnel decisions are critical
- Negotiating space and time are integral
- Building relationships / collaborations is key
The Lab Startup Roadmap

Budget -> People -> Project(s)

Budget <-> Collaborators

People -> Grants

Grants <-> Equipment

Project(s) <-> Equipment
First Contract Considerations

“Protected” Academic Time
- Define “protected” clearly
- Minimize administrative / teaching responsibilities

Salary
- Minimize contingencies (i.e., clinical productivity)

Seed Funds
- Define your project(s) early
- Get quotes for large equipment needs
- Budget, budget, budget...

Everything needs to be in WRITING from your chair / dean!!!
The Budget

- Project out 2-3 years
- Embrace shared costs / core facilities

Budget for:
- Personnel
- Equipment purchase and use
- Disposables / Reagents
- Animal care
- Travel / publications / computers, etc.

Other things you might have to pay for:
- Instrument user fees
- Maintenance contracts
- Renovations
- Expensive stuff that breaks
How Big Startup Funds Become Small – The Setup

Joanna Smythe Blow receives a startup package of $700,000. She starts on July 1, 2017 as an Assistant Professor of Urology at a salary of $320,000/year at a prominent Medical school.

Time → 50% protected research, 50% clinic

Salary:
• Years 1 & 2 → 100% covered
• Year 3 → 25% from her funds
• Year 4 → 50% from her funds
How Big Startup Funds Become Small – The Needs

Equipment:
• Standard wet lab equipment
• Xylophobochromatoscope (critical for her work) → $250,000

Personnel:
• 2 postdocs (without funding)
• 1 lab tech
• Graduate student (not on a fellowship)
How Big Startup Funds Become Small – The Spend

Start:
• July 1, 2017 → $700,000

Day 1:
• Buy xylophobochromatoscope → $450,000 left

Next 2 Weeks:
• $100,000 in lab equipment → UV spec, FPLC, centrifuges, PCR machine, glassware → $350,000 left
• 2 postdocs → $50k/y; 1 lab tech → $50k/y; 1 grad student → $25k/y → $175,000 / year

Within 2 years → $0 left!!
Lab Space

How Much Space Do You Need?
• Depends on:
  • Grant funding
  • Number of lab members
  • Direct costs from extramural funding

Condition of the Space
• Ready vs. renovations needed
• Who’s paying for renovations? \(\rightarrow\) shouldn’t be you!

Equipment

SHOPPING SPREE!
• One of the joys and pitfalls of faculty-hood

Go Slow...
• See how other labs are equipped
• Buy what you use EVERY DAY
• Find / get advice on vendors
• Get multiple quotes for each item
• Use shared equipment AS MUCH AS POSSIBLE

DON’T OVERSPEND!  ➔ better to have lots of people than lots of equipment!

https://industrialequipmentsonline.wordpress.com
The People

STAFFING IS THE MOST IMPORTANT ASPECT OF A LAB

Logistics:
• What are your initial personnel needs?
• What are your goals project-wise?
• What is your funding situation?
• Who will train lab members?

Realities:
• Grad students / postdocs will come later
• Target high-value technical staff / research associates
The People - Recruitment

- Get job openings posted ASAP
- Use overflow from colleagues
- Get yourself known
  - School talks / courses
  - Meetings
- Interview EVERYONE who is a candidate

NEVER HIRE SOMEONE SIGHT UNSEEN
Projects

• Define project(s) early
• Try to take an existing project with you
• Be ambitious, but know your limitations
  • Personnel – number and quality
  • Resources – money, equipment, samples, etc.
• Your availability and commitments
Grants

• Numerous sources…

NIH – “holy grail”
  • K grants – K08, K23
  • R01

Private / Foundation Grants
  • Keck, Packard, Searle
  • Urology Care Foundation
  • SMSNA, others

Internal Awards
Considerations When Writing Grants

Preliminary Data
• Necessary for R01, good for K award

Timing
• NIH - ~9 months from submission to $$$
• Others vary from ~3-6 months

Paylines (NIH) – low, but not impossible
• NIDDK ~10-15%
• NICHD ~7%

LOTS OF SYMPATHY FOR NEW INVESTIGATORS
Collaborators & Mentors

SCIENCE IS A TEAM SPORT!

- International and “national”
- Can help with a lot of things
  - Sample acquisition
  - Publications
  - Expertise with protocols / fields of study
  - Career, lab, work, etc. advice
Acknowledgments

**Funding**

- Urology Care Foundation Russell Scott, Jr., Resident Research Award
- Burnett Research Fund
- Notsew Orm Sands Foundation
- K12 HD073917, K12 Male Reproductive Health Research Career Development Program (to Dolores J. Lamb)

**Mentors / Collaborators**

Larry I. Lipshultz, MD  
Dolores J. Lamb, PhD  
Carolina J. Jorgez, PhD  
Wayne J.G. Hellstrom, MD  
Faysal Yafi, MD  
Jason Kovac, MD, PhD

**Lab**

Juan Bournat, PhD  
Yofre Cabeza-Arvelaiz, PhD  
Nathan Wilken  
Peter Butler
Thank you!