

Should You Make a Career Move as an Academic Lab Scientist?

Are you lab bench scientist? Trying to decide if an academic lab career or a rewarding private sector job is better for you? Read our comparison & career tips!

AUSTIN, TX, USA, February 5, 2018 /EINPresswire.com/ -- In a time of limited government funding for basic research and a reduced number of tenure-track positions offered by universities, many of today's young [lab bench](#) scientists face a stark career choice. Do they continue efforts to move up the traditional academic lab career ladder? Or do they choose to move out — to pursue rewarding scientific or management-oriented careers outside of academia?



Wet lab with phenolic tops

The Incredible Shrinking Budget for Basic Scientific Research Grants

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Finally, recognize your value. Avoid letting job title semantics* stand in the way of pursuing a rewarding career outside laboratory science if that's what you want.”

Formaspace

It comes as no surprise to those in the laboratory science community that US government funding for basic research is increasingly hard to come by. While there are many sources of federal grants, the National Institutes of Health (NIH) provide the bulk of laboratory research funding through its R01 awards program. Yet, as you can see in the accompanying chart, Congress has kept NIH grant funding flat over recent years.

That's bad news for grant applicants, but the story doesn't end there. Not only have NIH budgets failed to keep up with inflation, there's also a strong tendency for NIH to bestow grants to a narrow group of more experienced researchers. As a result, first-time applicants at the beginning of their lab careers have less than a 1 in 10 chance of receiving an NIH grant.

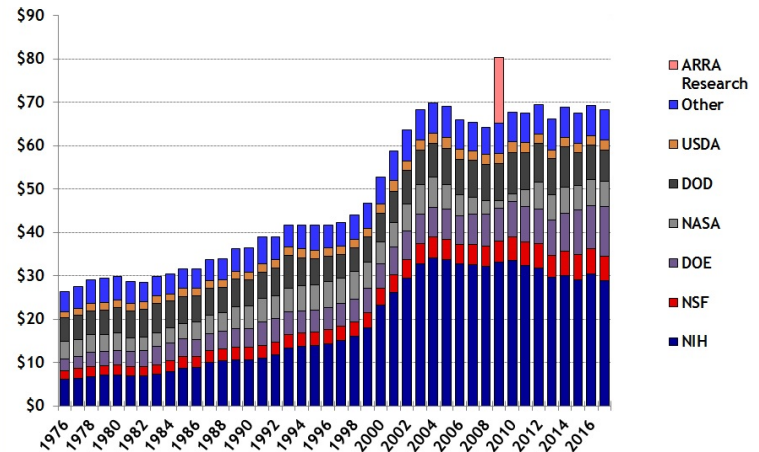
Here are five suggestions to think about that could help boost your quest for laboratory funding:

Tips for Surviving and Thriving in a World of Shrinking Grant Budgets

1. If you are a Ph.D. candidate, a young post-doc, or post post-doc who wants to be part of a successful lab team, it's critical to seek out a PI (primary investigator) who has demonstrated an ability to bring in research funding.
2. A University of Michigan Mechanical Engineering professor suggests you can raise the odds of receiving an NIH award by volunteering to serve on grant review committees. By understanding the process from an insider's perspective, you'll see first-hand which proposals get serious consideration and which are left behind (in the dreaded "not discussed" category).
3. If you have the flexibility to move abroad, you might find opportunities in other countries that are seeking researchers in your area of specialty. Canada and Europe (especially France) are recruiting technologists and researchers in many fields. The UK, traditionally a stronghold in pharma research, appears to be in a holding pattern as the implications of Brexit have yet to be clarified on scientific research funding programs currently funded by the EU (such as Erasmus et al.). Chinese and Indian Ph.D. graduates of US institutions are also increasingly open to returning to their home countries thanks to offers to fund research laboratories in an effort to reverse the "brain drain."
4. Take the opportunity to voice your opinion about the value of scientific research with your friends, families, and colleagues who may not share this viewpoint. Consider joining and volunteering for organizations that promote the value of basic scientific

Trends in Research by Agency, FY 1976-2017

Billions of constant FY 2016 Dollars

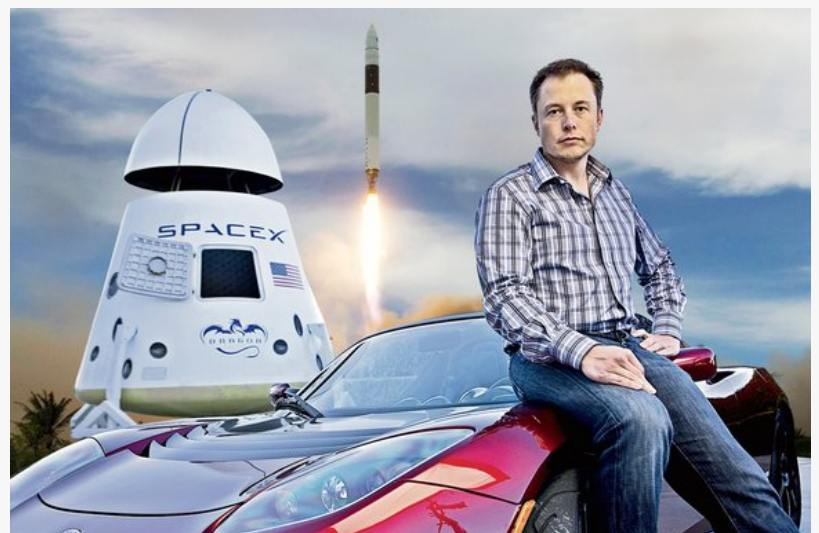


Source: 1975-1994 figures are from the NSF federal funds survey; remainder is from AAAS R&D reports. FY 2016 are estimates, FY 2017 is the President's request. © 2016 AAAS

Trends in Research by Agency



Lab technician using lab equipment



Elon Musk – image by imgur.com

research. This might not help you today, but it could help you and your fellow lab scientists in the future.

5. Finally, be prepared with a robust career “Plan B” in case your quest for traditional academic research funding doesn’t pan out. (Hopefully, information in the sections below will give you some ideas.)

The Narrowing Tenure Track for Lab Bench Scientists at Colleges and Universities



Fully Customized Diagnostics Laboratory Furniture

Things have not been looking so good in the academic tenure-track world either. Just as the federal government’s financial support for basic research has shrunk, so too, has the number of available tenure-track positions at US colleges and universities. As many post-doc researchers know, an increasing number of faculty-level academic jobs have been reclassified as non-tenure-track positions (as many as 70% of new academic positions, according to in a 2004 survey). The bottom line? In 2003, only 7% of Ph.D. candidates had a shot at a tenure-track position.

This is alarming for a couple of reasons.

The first reason could be highly personal: it means you or one of your colleagues have fewer opportunities to pursue a career as a tenured professor.

The second reason has to do with the narrowing of academic freedom and the diversity of ideas. Why? At most academic institutions, only tenure-track faculty are permitted decide which research topics they want to pursue.

Not only does this narrow the range of applicants to a very small number (recall the tendency of NIH grants to be awarded to serial “winners”), it also poses a long-term conflict with the up-and-coming generations of young scientists who have been trained in STEM programs to work together as teams in a more interdisciplinary manner.

Of course, from the academic institution’s point of view, putting more wood behind the arrow of their best candidates has a certain financial logic. Kitting out a laboratory for a new tenure-track researcher can cost anywhere from \$300,000 to as much as a million dollars annually; leaving the institution with

a fiscal hole to fill until the research (hopefully) begins to win its share of NIH grants to cover the expenses in future years.

Tips for Surviving and Thriving in the Face of Fewer Tenure Track Opportunities

If you are fortunate enough to be given the opportunity, obtaining a degree from an elite university appears to have a lasting, positive impact on your academic career. Statistics indicate that the limited number of available tenure-track positions tend to go to candidates who graduated from elite schools, such as Stanford or one of the top Ivy League schools.

Mehmet Umut Caglar, a post-doc Research Fellow in the University of Texas at Austin, comments that the increased competition for funding and tenure-track positions has caused academia to turn to metrics to evaluate and compare tenure-track candidates. The most commonly used metrics include: The number of citations you receive from other researchers for your work.

The h-index (named after Jorge Hirsch), which attempts to quantify the productivity of a researcher, e.g. number of citations per amount of time/resources expended.

The Impact Factor, which measures how often one of your journal articles is cited in a particular year.

In a world that's increasingly influenced by social media and self-promotion (e.g. "personal branding"), developing complimentary "soft skills" in communications may help improve your chances in a job interview situation, including those for tenure-track positions. If you are an introvert by nature, challenge yourself to become more open and communicative. If you are shy at presenting or can't easily synthesize complex information and data into sound bites that are comprehensible to non-experts, consider public speaking training, such as Toastmasters. If you are not a native English speaker, engage a proofreader to review your written materials and a speech coach to reduce your native accent. Finally, consider preparing and presenting a local TED Talk on your area of laboratory research and posting it on your YouTube account. These steps might tip the balance in your favor when competing with a similarly qualified candidate.

The Encroaching Corporatization of the Academic Research Community

For many years now, quite a number of academic research institutions have created Business Development offices whose purpose is to monetize the intellectual property of academic research. A common strategy is to register as many patents as possible in order to build up a patent portfolio that can be sold, licensed, or traded. The proceeds from these activities can help fund further research or, if wildly successful, the institution as a whole.

More recently, a number of large corporations have sought to create deeper financial partnerships with academic institutions that go far beyond endowing a professor's chair or putting their name on a new laboratory science building. Take J&J for example. This pharma giant has funded a number of research centers, known as J Labs, which are located at academic institutions around the world. The idea is to get as close as possible to the source of academic research and, in the case of pharmaceuticals, have first right-of-refusal for new discoveries in the drug development pipeline.

Academic institutions are also creating Business Incubator and Makerspaces on their campuses to encourage innovation. This may be an avenue for helping non-tenure-track research scientists gain access to the equipment needed to create a proof-of-concept prototype that can, in turn, be used to get the necessary VC (venture capital) funding to launch a startup business.

Tips for Surviving and Thriving the Corporatization of Academic Research

The blending of academic research and commercial interests can be a very powerful combination. But, as aircraft pilots say, you need to maintain “situational awareness” by keeping an eye on the big picture. Corporate and university interests may align or diverge over time. Also, be savvy about intellectual property rights. Look over any patent agreements or other obligations carefully before you sign documents.

It’s also very important to have a conversation with yourself about personal ethics. Do you find a high level of corporate involvement a positive influence, or do you consider it a transactional quid pro quo type relationship that could undermine your academic freedom and independence? Be realistic about where your bread is buttered. If you are not happy with this kind of relationship from the start, you should look for alternatives.

On the other hand, corporate-sponsored laboratories and university business incubators could be just the ticket for those lab bench scientists who haven’t found success landing a tenure-track faculty position but still want to want to pursue a lab career (or start a business based on a research idea).

Entrepreneurs and the Rise of Scientific Research outside Academia and Government

Is now the time to make the leap out of academic research into a lab career in private enterprise?

As the federal government has pulled back on funding basic research, commercial ventures have stepped in.

Many of today’s major basic research advances have come from private companies, such as:

- Apple: Integrated mobile devices
- IBM: Machine Deep Learning / AI
- nVidia: Visual processing hardware for autonomous vehicles

- Samsung: Next generation batteries for EVs
- SpaceX: Reusable space vehicles
- Tesla: Powerpack energy systems for utility companies

(You'll notice that we've included two of Elon Musk's companies (Tesla and SpaceX) on our short list. There's no question the audacity of his research-led ventures is inspiring a new generation of scientists who missed out on the excitement of the Space Race in the 1960s.)

Tips for Surviving and Thriving in Private Enterprise Research Careers

Read more ... https://formaspace.com/articles/education/need-help-moving-beyond-the-lab-bench/?utm_source=einpresswire&utm_medium=content&utm_campaign=article-101017

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