

Give credit where it is due

Thoughts on the ‘competition’ between senior and young investigators

By Eleftherios P. Diamandis

Nowadays, science rarely is performed by a single person or a few individuals. Modern science frequently is done by multiple collaborating groups or consortia. This sometimes creates confusion as to who did what and how credit should be given when authors are considered for promotions, grants, patents and awards, including the highest ones, such as Nobel Prizes. Shared first or last authorship is a new invention meant to accommodate these new realities.

The position of young investigators (usually postdocs, graduate students or visiting fellows) on who should receive more credit is straightforward and might go something like this:

- “If I did the critical experiments, made the discovery and showed its value, I should be credited.”
- “Without my hard work, endless nights in the lab, countless lost weekends (I have not seen a movie for three years), and not spending much time with my family (when I leave or go home my kids are asleep), this discovery would have not been made. Not to mention that I do not see my supervisor more than once every six months, and I take full initiative in designing and executing more and more experiments.”
- “I wrote the first draft of the paper, I prepared all the figures, I presented the data at international meetings, and I won poster and oral presentation awards in numerous conferences.”
- “Since I was the first author in the Nature paper, everybody knows that I was the major player in the discovery. How could I have been

neglected by the Nobel committee?” (For example, Dominique Stéhelin wrote an open letter to the Nobel committee of physiology and medicine expressing displeasure that the 1989 award went to Michael J. Bishop and Harold E. Varmus but not to him.)

The lab director’s view may be slightly different. Postdocs and graduate students working in the lab may not immediately recognize that a line of experimentation likely was ongoing for many years and that their projects have been built by tens, if not hundreds, of previously serving associates.

Modern science requires appropriate space, sophisticated instrumentation (sometimes costing millions of dollars) and expert technicians

to operate them, at the cost of the principal investigator. The PI needs to spend considerable time to identify financial resources to keep the lab going. Moving fast with the research project requires buying expensive reagents, participating in conferences, bringing in other scientists for discussions and consultations, and securing clinical material, including human tissues and fluids, as well maintaining animals, sometimes counted in the hundreds.

Students sometimes forget that even a rare meeting with the supervisor can generate ideas about how to perform experiments better or smarter. In general, bench researchers sometimes underestimate the collective contributions of the principal

WHAT ABOUT ME?

Controversies for credit are numerous for the Nobel Prizes and other high-profile awards.

For example, one of the most controversial Nobel Prizes was the 1923 prize for physiology or medicine for the discovery of insulin, awarded to Canadians Frederick Banting and John Macleod. While Banting clearly deserved the prize, Macleod’s contribution was controversial.

Banting complained that Macleod’s contribution was providing space at the University of Toronto and that Macleod was on vacation when the discovery was made.

But Macleod also loaned Charles Best, a lab assistant, and 10 dogs for experimentation. He also reviewed some early and rather unsuccessful experiments, provided advice and suggested more experiments. He also later provided better lab equipment, more dogs and better lab space. He also began paying Banting.

Subsequent experiments were a success. Around the same time, other scientists contributed significantly to the project with insulin purification. The Nobel committee considered that Macleod’s grant to finance the project was a major factor for awarding him half of the prize.

For more Nobel controversies see http://en.wikipedia.org/wiki/Nobel_Prize_controversies.

investigator.

Should financial and other background support be enough to supersede ingenuity and technical competence in credit allocation? There is no simple answer to this, but in order for a discovery to reach fruition, a number of elements need to come together, and ingenuity alone likely will not make it. There are countless examples of collaborations between senior and young investigators that led to great success.

A superhorse may not win the

Kentucky Derby without a skilled jockey, and a fast car may not win the Indianapolis 500 without a top-notch driver. A team of highly talented basketball players will likely not win an NBA title unless they have excellent coaching staff.

An interesting observation (that I and others have made) is that most young scientists tend to overrate their contributions in comparison to their mentors, but when they become established investigators themselves they change their minds. It seems

appropriate to conclude that in science, best results can be achieved by a combination of the creative mind and energy of the youth and the resources and wise advice of his or her mature mentor.



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path.

When I started building my policy CV, I didn’t know anyone involved in policy. So my asking-questions process started with a number of cold calls and emails to people who I hoped could help me refine my policy interests. My experience reaching out like this ran the gamut: One person flat-out told me I was wasting her time, whereas another was so helpful and supportive that I asked her to write recommendation letters for me. Finding out what policy is and how it works from those who have been involved in it for years was the most important thing I did in my entire job search.

Pay attention

How do you make sure you don’t get scooped in science? Read the relevant literature. How do you make sure you’re speaking intelligently on science-policy topics? Pay attention to the news. Science funding, minority affairs, immigration reform and many other science policy matters are discussed in top-tier scientific journals and the mainstream media. Read these stories! You also should search for blogs and other publications that discuss policy topics. No one expects

you to be an expert on all the issues, but knowing a little about a lot of issues will allow you to converse intelligently with others in the field.

When I was investigating science-policy jobs, I came across a notice that the National Institutes of Health had released a request for information pertaining to the future of the biomedical workforce. Workforce issues are a passion of mine, and I saw this call for input as an opportunity to practice researching and writing about science policy. Of course, this had to be done after my daily lab work was complete, but I was excited about this chance to gain policy experience on a topic I cared about. Simply paying attention to what was going on provided a great opportunity to learn more about science policy while making my voice heard in the process.

Write — a lot

The vast majority of policy work is writing. Policy writing requires the precision of science writing while weaving a narrative together with enough data to make a compelling point. This is true whether you’re writing blog posts, op-eds, position statements or news releases. The only way you can develop your policy-writing skills is to practice. What you

write is up to you, but the goal is to become proficient at conveying a single, cogent message about science and science policy for a variety of audiences. Search out opportunities, and start writing! (ASBMB Today always welcomes contributions. Contact Editor Angela Hopp at ahopp@asbmb.org to find out more.)

I also wrote several letters to the editor of my local newspaper. None of them was published, but I still found the exercise of writing about policy issues an important step in my growth into science policy. My most extensive experience with policy writing was when I was crafting policy fellowship applications. While the string of initial rejections was disheartening, when I was finally offered a fellowship position, it signaled that my writing skills had matured to a point that was appropriate for a policy position.

To transition from the bench to science policy, you have to be passionate about science as well as interested in how government operations affect the course of research. These interests, as well as working on the skills listed here, will help you blaze your own path from the bench to science policy.

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