Together Everyone Achieves More (TEAM): Lessons from Biotech

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“Don't think you are the smartest person in the room, to be a successful company you never should be.”—Mathew Sowa Regardless of where you are working, good science is driven by active curiosity and asking good questions. The differences come in how you approach answering those questions. Continuing our ongoing discussion about biotech careers, this blog will describe some key differences between academia and biotech along with some advice on how to utilize what you learn during your academic training to succeed in biotech. A huge thanks to Michelle Lin (Research Scientist at CRISPR Therapeutics, ~1 year in biotech), Mathew Sowa (Director at C4 Therapeutics, 5+ years in biotech), and Hariharan Jayaram (Associate Director at Editas Medicine, Inc., 6+ years in biotech) for sharing their experiences and advice!

When asked about the biggest difference in day-to-day life in biotech vs. academia, all of our biotech colleagues agreed that team meetings now make up a much larger fraction of their time. This fact is especially true as you move up the corporate ladder; bench time quickly shifts towards more meetings focused on both scientific and strategic planning. Dr. Lin commented, “Some days I have as many as 10 meetings!”

The many meetings have much to do with the teamwork required for a biotech to succeed. Dr. Jayaram commented, “The biggest differences between biotech and academia are team work, the demands on rigor, reproducibility, and the end goal. Here is an example to illustrate how teamwork works and why it is so important in biotech. If you are characterizing a protein, many people might be involved and the group could have one or even two project leaders. One person may design the clones and express and purify the protein, another person may design and carry out the biochemical assays, and a third person may perform all the cell biological characterizations required to understand its behavior in cells.” In academia, all of these aspects might be a part of a single postdoc's project. Dr. Lin noted, “As a postdoc, you have to be a master of your project, controlling every aspect and learning every technique required for your project. In industry, we work as a team and thus you're never alone if you're struggling with any aspect of your project. You utilize everyone's expertise to help drive the project forward.” Dr. Sowa agrees stating, “Academics, though often times collaborative, is still mainly an individual's effort, rarely including more than one or two additional people assisting with a project in an ongoing and meaningful way (though author lists can still be large due to lots of smaller contributions). If a biotech company is to succeed, all people involved have to work with each other and as importantly, work effectively together. If the project/program fails, typically so does the company and all of the

people in it, regardless of how well each individual has done his/her work. In academics, if a project fails, the lab does not disintegrate as there are always multiple projects running (especially in larger labs)."

Teamwork is also important to increase rigor and reproducibility. Dr. Jayaram points out that "The increased scale and multi-team execution of a project allows for a more rigorous characterization. Teams are well suited to explore and analyze results from many angles to make sure all data is well characterized--no matter how routine or un-"sexy" the question. This is particularly important when the end goal is to proceed towards clinical validation."

In addition to team meetings on science, meetings discussing strategic plans and timelines are critical at a biotech. Strategizing where to put limited resources to ensure the biggest return is key to success. Unlike academia where we often let the science naturally unfold and follow interesting offshoots, which could take years, biotech is a moneymaking venture where time is the most precious commodity. Projects must stay focused to succeed, as the ultimate end product is a therapeutic. Dr. Sowa commented, "in biotech, there is a genuine sense of larger purpose - that is, the work being done is leading to something "real" (the drug) that will change people's lives for the better. It does not matter how many or in what journals papers are published, the only thing that really matters is that there is a new drug produced that will treat a human ailment/disease. I think it is that tangible goal, the physical drug, that truly differentiates academic science from biotech and keeping that goal in mind is where the initial similar "basic science" paths diverge."

Despite the many differences between academia and biotech, the basic principles of science and success remain true. Many skills you acquire as a Ph.D. student and postdoc prepare you for a job in biotech. Dr. Jayaram advises, "cultivating curiosity and thirst for problem solving coupled with seeing the bigger picture and focusing lines of inquiry are invaluable skills for success learned during PhD and postdoctoral training." Dr. Lin pointed out that "people have the misconception that industry jobs are very constant, a 9-5 schedule, doing the same things over and over again, etc. While it may be true in some instances, the career path is also what you make of it. If you choose to be a 9-5 person, you will be treated as a 9-5 person. You can either choose to treat it as a job or as a career. You can work as hard as postdocs, sometimes even harder if you choose to and bring more value to the company. Any career, whether it's in academia or industry really is what you make of it."

Whether in industry or academics, it sounds like teamwork is a fun and effective way to do science!

Last bit of advice: Be humble and surround yourself with brilliant colleagues!

*** The opinions in this piece do not reflect the opinions of CRISPR Therapeutics, C4 Therapeutics, or Editas Medicine, Inc..*

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