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## How to Choose a Research Area

Often in our scientific careers we are faced with the question of how to choose an area of research to pursue. As a graduate student picking a laboratory in which to do a PhD, as a postdoctoral researcher wanting to continue his or her career in research, or even as a PI running a laboratory, we are sometimes required to focus on or change direction to a new area of biological research. These decisions may be daunting because we have to devote a significant number of years to our chosen research field and it is important to be confident about the field before diving in.

Here are a few tips to help with picking a research area:

**Read the scientific literature.** Published scientific literature gives a good idea about the research field and the big unanswered questions that are left to be studied. It is often useful to read scientific reviews on the topic to understand the big discoveries in the field and the anticipated future studies. It is also important to know if the research area has sufficient unanswered questions that will be interesting to funding agencies. Try to understand if the field has long-term potential. Scientists often work on certain research areas for decades, so thinking ahead about hypothetical questions and probable answers is one key to success.

**Attend conferences and seminars.** Attending both large and small meetings helps us connect with our peers and have insightful discussions. Meetings also have poster sessions on various topics that may help you learn about the different research areas out there. Such meetings are also a good place to learn about technical details or new experimental strategies, which are often important when forging into a different field.

**Brainstorm ideas with peers.** When looking for a research laboratory it is

important to find something that interests you. Working on an interesting question will help you go the extra mile and aid in making significant discoveries. Talk to your peers about their experiences and the pros and cons of their research field. Peers can also help review research grants, and their experience and perspectives may provide useful feedback.

**Define focused questions in the research area.** Research areas can be very broad. It is easy to digress into multiple directions without focus. Before diving into the research, decide on a few hypotheses and preliminary experiments. Having more than one

hypothesis will be important in case the primary hypothesis does not hold. Once experiments work and the project progresses, remember to stay focused, but as part of your scientific growth learn to think of tangential experiments that may be useful projects for other members of the laboratory.

**Ensure the research is fundable.** To continue doing research it is essential to have funding. Before committing to an area of research define its significance. It is always useful if discoveries can, in the future, cure or treat diseases. Significance also helps us explain our research to nonscientists and family, so that they can relate to the research and understand what we study. Public outreach will help get more funding and aid in conducting more research.

Ultimately the research you do has to pique your interest and stimulate answers to tough questions. Good luck choosing a research laboratory or changing scientific direction! ■

—Sushama Sivakumar, University of Texas Southwestern Medical Center



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