THE LABORATORY ROTATION & SELECTING YOUR THESIS MENTOR

Pre-doctoral training includes a didactic training component (about one to one and one-half years depending on the Program) and a laboratory apprenticeship (about three to five years) in which the graduate student is trained and mentored by one or two members of the graduate faculty of the training program. A positive mentoring experience between the student and mentor is an essential ingredient in the student's preparation for a successful career. This experience will also prepare the trainee to become an effective mentor to future trainees, regardless of the career path chosen. A good mentor is not necessarily one with celebrity status. An effective mentor serves the critical role of teacher and professional guide, serving as both the strongest advocate and the strongest critic for the trainee.

In the US, a major task of the first year of graduate school, and before starting your dissertation research, is to select a thesis mentor (aka a major advisor or major sponsor) who has agreed to mentor you and supervise your dissertation research. Soon after selecting your thesis mentor, you will identify two to three advisors and with your mentor, they will constitute your thesis committee (aka doctoral committee or dissertation committee). The mechanics of this process vary from program to program.

THE LABORATORY ROTATION

The most important mechanism for selecting your mentor is the laboratory rotation. But prior to committing to a rotation, you should attend events such as seminars and works-in-progress where you can informally meet with potential mentors and hear about their research projects. If possible, attend some laboratory meetings in the laboratories of interest. And you should talk with senior students in the program about their experiences with those mentors of interest to you. But be careful how you interpret and use the information from other students; their mentoring needs and personality may be different from yours. A negative experience for one student may be a positive experience for you. You should take away a composite message from the experiences of other students and your discussions with the mentor to help you determine the right fit for you. Below are some questions that you can ask of both advanced students and the mentor, or one or the other.

Laboratory rotations are a two way street: you are trying out the laboratory to see if it is a good fit for you and the laboratory is trying you out to see if you are a good fit for it. Just as you will be asking the questions of the mentor and laboratory, the mentor will also be asking some questions about you and your appropriateness for that laboratory. It is important to use your time in the laboratory to get to know not only the research projects, but also the mentor and all other members of the laboratory, especially other advanced students. You should use the opportunity to

have discussions with the mentor and others in the laboratory to learn about the collegiality and cooperativeness in the laboratory. It is important to use the laboratory rotation to learn about the dynamics and culture of the laboratory and experience the style of the mentor (autocratic vs coaching vs hands-off). What do you need?

During your rotation, you should think about potential dissertation projects. Your rotation project may be a side project or part of someone else's project. And you may have the opportunity to generate some data that can lead to a new line of investigation. Before the end of the rotation you should have some conversations about potential dissertation projects with the mentor if you are still thinking about joining the laboratory. These discussions and their outcomes will help you answer some of the questions listed below. How does the mentor react to your thoughts and ideas? You should also pay attention to the projects you are thinking about; you should not be dazzled by today's hot topic because it may not be a hot topic next year. You should be looking for a laboratory where you will get a solid training experience on which you can build your career.

SELECTING YOUR MENTOR

It is important that you not only pay attention to the culture/style of the laboratory but also to the size and "age" of the laboratory. Some students may prefer a large more established laboratory with more laboratory members and possibly with less contact with the mentor. Others may prefer a small young laboratory where there will be more one-on-one contact with the mentor. Often, students in a young laboratory will have more freedom/independence in determining the dissertation project and even influencing the direction of the group's research vs some older laboratories where they may be handed a project because the direction of the laboratory is deeply established. But the inexperience of a young mentor could be an issue for some students. It is important to discuss these issues with the potential mentor, whether they are senior or junior. There are no rules; each mentor, junior or senior, has their own mentoring style and interests; your goal is to find the mentoring style and research interest overlap that will help you reach your research and training goals.

The goal is to identify a dissertation mentor and laboratory that is intellectually stimulating, supportive and respectful of you, your mentoring and training needs and your career. Your mentor should foster confidence, encourage creativity and critical thinking, and provide networking opportunities for you to advance your career goals.

It is not unexpected that there may be some trade-offs and compromises when you are selecting your mentor. The responses to the questions below can be prioritized based on your mentoring

needs, your learning style and your career goals. You should look for the right balance between the research itself and the training experience.

The following list of questions is by no means exhaustive nor will all the questions be relevant for all students. But getting answers to some of these questions about yourself and the potential mentor is the best way to identify the most compatible mentor and ensure your success in graduate school.

- Is the mentor an expert in your area of interest?
- How much independence will you have in determining your dissertation project? How will the mentor react to your ideas about the direction of the project? With respect or with disdain?
- How much will you be expected to work on projects that are not related to your dissertation project?
- What is the reputation of the mentor with his/her peers? With trainees?
- What is the mentor's funding history?
- What is the mentoring style of the mentor? How available are they to their trainees?
- Are the mentor's work habits compatible with yours? Is the mentor a micro- or macro-manager?
- Are the expectations of the mentor reasonable and realistic or are they over-demanding?
- Would you prefer a young laboratory/mentor or a more established laboratory/experienced mentor?
- How responsive/available is the mentor when their trainees need advice/to meet? How much do they travel? Are there frequent or infrequent interactions between the mentor and laboratory members?
- If the mentor is a senior faculty, how many students have they trained? If none/very few, why?
- How large is the laboratory? How many of the trainees are students and how many are postdocs?
- What is the program length for students who trained in that laboratory?
- What is the attrition rate of students from the laboratory?
- Where have the graduates from that laboratory gone?
- What is the publication record for students in the laboratory?
- What is the authorship policy of the laboratory? For collaborative work that is not part of your dissertation?

- Do students attend and present at scientific meetings where they can network in their discipline?
- Do students in this laboratory get independent funding?
- What is the culture of the laboratory? Is it competitive or collaborative?
- What is the funding source of the research? If it is primarily industry, how will this affect publications? Time to degree?
- Does the mentor take an active interest in the trainees' academic and professional development as a future scientist?
- Does the mentor support the type of career you are thinking about?
- Will they provide the networking opportunities and promote you and your career to their colleagues?
- Does the mentor instill confidence in you?
- What is the mentor's communication style?
- Why are you thinking about joining the laboratory? Is it because the research is a "hot topic"? Is it because the laboratory members are supportive? Is it because the mentor is supportive and respectful, and you will get a solid training experience? What is your priority?
- Can you picture yourself in the laboratory with the laboratory members, for 12-hour days for a few years?

The selection of your mentor should be done with great deliberation and thought to lessen the likelihood that there will be a divorce later which will disrupt your research and likely increase your time to degree. A separation such as this is usually emotionally and professionally exhausting for both the student and mentor. You and your mentor should enter this relationship with as much information about each other as possible. Prior to making a commitment, you should discuss expectations from both sides, as well as your mentoring needs vs the mentor's mentoring style. There should be mutual agreement on the advising plan and the direction of the dissertation project.

For some additional information about the responsibilities of the student and the mentor, see the Compact Between Biomedical Graduate Students and Their Research Advisors, created by the Graduate Research Education and Training (GREAT) Group of the American Association of Medical Colleges (AAMC).