



Finding the right academic job

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The career path in academic medicine is full of exciting opportunities as well as great achievements and discoveries. In this review, we discuss various obstacles that fellows face as they explore career opportunities in academic hematology/oncology. We also share thoughts on what might be considered steps for success in maneuvering through a search for the “right” position. We discuss several aims including how to define career goals early on, keys to success in an academic career, how to look for an academic job, successful points for the interview process, and how to negotiate a job offer. Finally, we discuss some roadblocks and limitations of academic careers and promotions. These limitations, frustrations and roadblocks should not be a deterrent from pursuing such a great role in the scientific field. This is a new generation of scientific discovery, improvement in healthcare and great advances in research.

Significant progress has been made in the last decade in the fields of hematology and oncology, with important advances in our understanding of the genetics and epigenetics of complex diseases and the development of novel therapies for our patients. In many respects, the future has never been so bright for fellows graduating from training programs and pursuing positions in academic medicine. For most physician scientists, the training paths are well defined from the time they graduate from medical school onto residency, fellowship, and in some cases post-doctoral training. At some point, though, the predictability gives way to uncertainty as formal training comes to an end and consideration is given to employment opportunities. The merits of private versus academic practice, basic science versus translational research, and one medical center versus another are just a few of the questions that may surface during this process.¹

In this review, we discuss various obstacles that fellows face as they explore career opportunities in academic hematology/oncology. We also share our thoughts on what might be considered steps for success in maneuvering through a search for the “right” position.

Know Your Career Goals

There are three primary activities that occupy the efforts of academic hematologists/oncologists: patient care and clinical research, basic/translational research, and teaching/administrative activities. A successful job search depends on a clear understanding of one’s primary interests and where they lie within this spectrum. Patient care and clinical research are typically appealing to those who enjoy

regular contact with patients and intend to devote significant time during their career to clinical activity. Clinical research can include participating in multicenter or institutional clinical trials, as well as designing investigator-initiated clinical trials. This is especially relevant for fellows who receive an NIH K23 or receive training in clinical research methodologies through ASH-Clinical Research Training Institute (ASH-CRTI) or other clinical research training activities. Basic and translational research, on the other hand, are appealing to physician scientists who intend to devote their attention and efforts addressing specific questions of scientific interest in the lab. Finally, teaching medical students and house-staff, which includes pharmacists, nurses, and nurse practitioners, is a responsibility shared by all who embark on a career in medicine. In addition, some individuals who go into academic practice may elect to become more involved in the administrative side of medicine. This could include a goal of becoming a physician educator with roles ranging from fellowship program director to involvement at the national level in education.

In our view, most academic hematologists/oncologists ultimately participate in one or two of these activities. It is important to identify at an early stage those that are most important on an individual level. If one is interested in performing translational and clinical research in conjunction with clinical work, then a position that doesn’t offer an opportunity to cultivate research interests is not ideal. Ideally, the interview process is used by both the applicant and interviewing party to discern whether the interests of the applicant match the description of the position at hand.

It is important to note in this discussion that opportunities to perform translational research have, historically, been somewhat limited at many academic centers. This has changed in recent years, however, as the NIH has increasingly stressed the importance of such research and broadened funding opportunities for it. Those interested in translational science must persevere in efforts to partner with both clinicians and scientists, creating a team of collaborators with common research and clinical interests.

Understand the Keys to Success in Academic Medicine

In our view, the keys to success in academic medicine include funding, authorship that reflects significant intellectual promise and activity in a chosen specialty area, peer-recognition, and ongoing supportive mentorship. In searching for a position and ultimately beginning one's career as an academic hematologist/oncologist, it is important to seek opportunities where these keys to success can be found.²⁻⁵

There are various funding opportunities for fellows and junior faculty (**Table 1**). Sources of such funding include the National Institute of Health (NIH) K awards, the ASH Scholar Awards, ASCO Young Investigator Awards, Leukemia and Lymphoma Society fellowship awards, and others. Obtaining funding as a fellow or junior faculty clearly demonstrates an ability to not only identify a worthy project but also to communicate it's worth through the grant-writing process. It distinguishes a candidate from

Table 1. Funding opportunities and clinical trials training opportunities.

Funding opportunities

- NIH: <http://grants.nih.gov/training/kawardhp.htm>
- Other federal research grant opportunities including NHLBI and NIDDK are listed on the ASH website at: <http://www.hematology.org/education/grants/grants.cfm>
- ASH Scholar Awards: <http://www.hematology.org/education/awards/scholar.cfm>
- ASCO Young Investigator award: <http://www.ascofoundation.org/TACF/Grants>
- AACR: <http://www.aacr.org/home/scientists/research-funding—fellowships.aspx>
- Patient-based foundation grants including the Leukemia and Lymphoma Society and other societies are listed on the ASH website at: http://www.hematology.org/education/grants/group_grants.cfm

Clinical trials training opportunities

- ASH-CRTI: <http://www.hematology.org/education/training/crti.cfm>
- ECCO-AACR-ASCO workshop "methods in clinical cancer research": www.ecco-org.eu

others who may be competing for the same position and provides academic leverage during contract negotiations with employers. Funding sources differ depending on the academic track one pursues. Early and consistent efforts as a fellow and junior faculty to procure funding for projects of interest are therefore recommended.

A strong publication record indicates enthusiasm and the ability to complete work, which are important attributes for a new applicant. The quality of the manuscripts and where they are published also demonstrate the level of scientific rigueur that the applicant possesses.⁶ Trying to perform research that is innovative, that asks important questions, whether clinically or scientific, and that makes a significant impact on the field of your disease will greatly enhance an application. It is also important to have research focused in one area. The research focus can be disease-based, such as in the field of leukemia or lymphoma, or it can be pathway or mechanism-based, such as in angiogenesis or apoptosis. Having this focus will aid in achieving greater peer-recognition as the work will become better known within this field.

Publication in a focused area and becoming the expert in this field is one way to build peer-recognition. It is also important to attend meetings, such as ASH and ASCO, to start networking and getting to know the current experts in the field who can act as a mentors and supports in career development. In addition, participating in key local, national, and international committees through ASH or ASCO or co-operative groups will also facilitate networking and peer-recognition. Smaller meetings can be more helpful as they can facilitate direct interaction with the leaders, specifically during oral presentations and poster presentations. Networking significantly helps with fostering collaborations and developing new ideas and suggestions for new research. Finally, these experts in the field are likely to be the ones who will be reviewing manuscripts and grants; therefore, it can be very beneficial to seek their guidance and perspective.

A good mentor is perhaps the most important key to success.^{7,8} He/she will help in writing grants and reviewing them. The mentor will help with publications as well as help with guiding the research concepts and improving the design of the clinical trials or research studies. He/she can also make introductions to leaders in the field and help bring recognition. A good mentor can always come from a different institute. There are great examples of how a mentor has significantly affected the career path of a mentee and advised him/her, even if they were not from the same institution or from the same field of research. Sometimes, a very successful mentor who is well known can actually be a

problem to fellows as they are always in the shadow of their mentor and cannot be recognized as independent investigators. Therefore, consider having a team of mentors who give different perspectives to aid in career development.

How to Find an Academic Job and When to Look for It

Academic jobs are usually advertised in major medical journals or are posted during large national and international meetings such as ASH and ASCO. However, many job opportunities come from networking and colleagues who know that a position will be available. This highlights the role of the mentor who can help contact other colleagues in the field and help find the right academic position. One must remember that just because a position is not advertised does not mean it does not exist. In many cases, the department chair will receive email notifications of open positions before they get posted in medical journals. The best strategy is therefore to contact the department Chair or start contacting colleagues and Chairs of Hematology/Oncology divisions and indicate one's interest. The mentor's support is critical in this situation as he/she can help contact colleagues and recruiters. Timing is also important. Many fellows may require further training after their fellowship to improve their research experience or to obtain a masters degree that can help them in finding the right academic position.

The Interview Process

The interview process usually includes a presentation and meeting with faculty members. The presentation should reflect the specific area of one's research and expertise. One should know some of the main or recent publications along with the areas of interests and research of the faculty members who are conducting the interview. Asking them about a specific topic of research helps give a good impression. It usually takes two or three interviews to ensure it is a good fit. The first interview usually includes the presentation and getting to know the candidate. The second and third interviews should involve negotiation details of the job and discuss specifics.

What to Negotiate for in Your Job Offer

The job offer process in academic medicine is very different from the interview process for a fellowship or residency program. The job offer process involves negotiations about salary, start-up fund, lab space, protected time, time on inpatient service, etc. Many fellows feel they should stay in their training institute: that their leaders noticed them and want to retain them could be a sign of their success. Some feel disappointed by not having an offer from their own institute. However, we believe that there are advantages to working in a different academic center. Looking elsewhere may also help to build a career as an independent investiga-

tor much faster than remaining in the shadow of a mentor for a long time.

The job offer contract should also define what is expected in order to prevent miscommunication and allow for greater productivity and success. Important points to be aware of when negotiating a contract and job offer include start-up funds, lab space, clinical focus, protected time and salary. These negotiations are not easy to make when in a dependent position; however, it is worth attempting to make adjustments and changes in the offer before signing.

The start-up fund should offer enough support to perform work for three years, allowing enough time to apply for grants and become independent. Lab space will again differ; however, a lab-based investigator who is offered a position without adequate lab space will be limited. This problem is more common with investigators who stay close to their mentors, are provided a faculty position, but do not get laboratory space and consequentially stay in the same lab with their mentors. This is a mistake because it does not allow for separation from the mentor as an independent investigator. If a lab space is not offered early on, then try to get independent funding and re-negotiate with the chairman. Clinical focus, in most institutions, is not a problem. Typically, fellows are recruited specifically to become a lymphoma or leukemia expert. Occasionally there is need to cover several services or other physician groups, and the junior faculty can become the go-to coverage. Be careful not to be the one being pulled to cover all senior faculty members because they are traveling or writing their grants. It is important to emphasize that a candidate needs to consider what arenas they are willing to work within; of course, some flexibility is reasonable, but the candidate should be willing to say no if it is not an area they are passionate about or have a potential research interest in. Discuss early on with the chairman the area of clinical practice of interest.

It is critical to establish protected time in order to achieve academic success. Negotiate early on the time that will be spent on service and in the clinic. It is important to be collegial and help other physicians, but at the same time be careful to have adequate time to fulfill personal career expectations. It is also important to investigate the available support staff including data managers, nurses, research nurses, and nurse practitioners. Furthermore, it is also important to inquire about the number of months on service and number of days in clinic, which are important considerations with respect to protected time and research goals. Clinical duties versus research duties are divided based on the job offer and the area of focus. Most offers are divided as 80:20 or 70:30 tracks. For example, a research scientist

who is focusing mainly on lab work may have 80% research time and 20% clinical effort. The opposite may be true for a clinical/translational physician who spends more time seeing patients.

Although academic medicine does not offer salaries that are on par with private practice salaries, it is possible to negotiate the salary being offered to a certain extent. This is probably the biggest sacrifice that physician scientists are willing to make to reach other successes in their life, including scientific discovery, leadership in clinical trials, teaching activities and peer recognition. Most physicians start their first job in their mid-thirties; they may already have families and responsibilities. Therefore, it is a much harder decision to make the sacrifice. Most academic institutions are aware of the discrepancies in salary and some of them offer a bonus for clinical productivity or other methods to somewhat compensate for the sacrifices that are made by choosing this career path. It is also critical to remember that the NIH offers loan repayment options for fellows going into academics. We encourage people to look into opportunities within the contract for tuition reductions for children of faculty going into college at the same institution and in addition available funds to cover a fellow's home/onc board costs, licensure, education (ie, coursework they may want to take) and travel to meetings.

Limitations and Roadblocks to Success

Success in academic medicine can be elusive and many physicians/scientists do not fulfill their aspirations. Some specific groups of scientists are more vulnerable to failure: minorities, women, physicians with a dual-career family, scientists with poor support in their institute, and scientists who are waiting for a tenure-track position and are in the "waiting" or "in-between" time. In addition, academic promotion and success in centers outside the US is sometimes more difficult, and international physicians face more roadblocks compared to their US counterparts.

Although most academic institutes are working diligently to promote women and minorities, the discrepancies in promotion and leadership roles are still apparent.⁹⁻¹² We still see fewer women and minorities being promoted to full professors or to leadership roles in large academic centers. Having a dual-career family is a problem that many physician scientists who both want to achieve success in academic medicine face.¹³ It becomes hard to find the right academic job for both partners in the same city, and sometimes one of the partners compromises or delays their career more than the other.

Some great scientists lose their potential because they do not have the environment and support system that allows

them to grow. They cannot find strong collaborators and scientists to give them advice on how to write grants and improve their science. However, there are many great leaders and scientists within ASH who have built successful careers despite the limitations of their institutes. These are great examples of how to persevere despite the limitations.

Many large institutions have positions that are not tenure track faculty positions, but are not training fellowship positions either, such as an instructor position. These are likely the most frustrating positions for many physician scientists. If more training is desired after completion of the fellowship in order to achieve academic success, this could be a great opportunity to improve a publication record and grant-writing ability. However, it is important to avoid being lost in this transition position until a new job opens, and to have a well-defined career development plan that is discussed with the department chair.

Most International centers outside the US face similar roadblocks and limitations. However, given that the number of open positions and available centers is smaller, the competition is fiercer and the frustration with the system is greater.¹⁴

In summary, the career path in academic medicine is full of exciting opportunities and great achievements and discoveries. The limitations, frustrations and roadblocks should not be a deterrent from pursuing such a great role in the scientific field. This is a new generation of scientific discovery, improvement in healthcare and great advances in research. Therefore, with consistent perseverance, having a good mentor and continuing to "try, try again," there are many more opportunities than limitations

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