Five attributes of a successful manager in a research organization

Grace H W Wong

What does it take to make the transition from scientist to manager?

Little in the education, training or background of scientists prepares them for management. Good managers tend to be good with people; they look at the larger picture, are good at motivating their team, adapt to unanticipated business events, are comfortable working to budgets and are able to assess and respond to risk. In contrast, researchers at the bench spend most of their time focusing on narrow scientific questions, designing experiments and budgeting resources needed for those experiments. One would think that these two professions—business management and scientific research—were mutually exclusive, and in the vast majority of cases, one would be right. But a talented few have been successful in making the transition from the bench to the boardroom. I asked several of these individuals to identify the key attributes to their success and the factors that influenced their transition from academia into management (**Box 1**).

The industry research manager

It's difficult enough managing a team of people in any business. One must manage budgets, prioritize time, delegate tasks, motivate a team and provide clear leadership. But managers in a research-intensive organization, such as a biotech or pharmaceutical company, also have to contend with several additional challenges. First and foremost, a research manager's team (that is, scientists) comprises probably one of the least manageable groups of people on the planet. As Bob Ruffalo, president of R&D at Wyeth (Madison, NJ, USA), succinctly puts it: "Although I enjoy heading a group of scientists, they are, by their nature, very difficult to manage, and they are not always comfortable with change."

Wyeth's Bob Ruffalo: "Scientists are, by their nature, very difficult to manage."

Second, the team's business goal—discovering (if not developing and marketing) drugs—is an endeavor with one of the highest rates of failure and attrition of any industry. This means that a manager is often faced with the decision to close or shelve projects—projects that their teams often are invested in intellectually—and the highs do not necessarily outweigh the disappointments.

Third, the drug sector is so incredibly diverse that expertise may not be transferable. For example, a manager at a small startup venture faces different challenges from one heading a large team at a multinational pharma company. Business and management skills acquired in a small-to-medium enterprise (SME) environment, where money and resources are at a premium, may be less relevant to teams in big pharma, and vice versa.

The jobs themselves are intensive and balance many different skill sets. Although most research managers remain married to the science—devoting as much time as possible to planning experiments, carrying out secondary analysis of data and reviewing key and pertinent literature—they spend an equal amount of their time performing managerial activities (personnel and site-wide meetings), prioritizing workloads for a particular day and attending various conferences. Many of the managers interviewed emphasized the importance of remaining close to their teams, and visiting the laboratories under their supervision to demonstrate interest and support and to answer any questions.

Five key attributes

Given the demands and responsibilities of a manager in a drug research group—whatever its size or focus—it's no surprise that it takes a talented person to succeed. Exceptional individuals may each have a unique way of tackling their jobs, but on the basis of feedback from our respondents, most successful R&D managers share several common attributes.

Determination. In a sector where progress often appears to take the form of two steps forward and one step back, several executives regard staying power, quiet determination and persistence in the face of adversity as a key characteristic. Lex Van der Ploeg, site head for Merck Research Laboratories in Boston, Massachussetts, believes that research managers need "motivation and drive" and a resolve not to "get discouraged by failures."

Wyeth's Ruffalo agrees, saying that you need to "learn how to cope with disappointment. The thing that frustrates me most is the enormous risk that we face in drug discovery and development. Most people do not understand the kinds of risk. . . the pharmaceutical industry is an extremely hard place to work."

Drive and diligence. Long hours and hard work are a given in biotech and pharma research groups. A typical day for Van der Ploeg starts between 4 and 5 a.m. "I get up early, walk the dog and then head to work. Because the days are generally packed with meeting and events, I make sure to reserve space and time for reflection. Evenings are spent with my family or with late-day work events. After 9 p.m., I do a bit more work. This daily cycle runs six days per week."

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Robert Lewis, former senior vice president at Aventis and former chief scientific officer at Seattle-based Cell Therapeutics, also puts in long hours. At Aventis his daily routine included "at least two group scientific meetings on basic or early development projects (1–2 1/2 hours each), a group site management meeting (human resources, budget, site services, etc.) (1/2–1 1/2 hours), up to three one-on-one meetings with colleagues/scientists from the organization (1/2–1 hour each), time for reading enclosed materials on e-mail and answering/initiating correspondence (1 1/2–2 hours), with the remainder of the time spent reading scientific journal articles. This, without lunch, amounted to a 11- to 12-hour day."

William Shek, senior scientific director at Charles River Laboratories (Wilmington, MA, USA), spends the majority of his waking hours at his company. His working day largely involves resolving "technical and management problems." But once the laboratory has emptied in the late afternoon to early evening, he uses the time to "concentrate on writing and computer programming, which has become an avocation and occupation of mine because of the critical role of information management in the laboratory." He usually goes home "around midnight."

Because of these long and intense workdays, Lewis is keenly aware of the need for managers to develop time management skills.

Long days are the norm, according to Aventis' Robert Lewis.

Box 1 In their own words

William R. Shek, senior scientific director, research animal diagnostic services, Charles River Laboratories, Wilmington, MA, USA. "I became a veterinarian when I was just 13. Consequently, I went to a high school with a special program in agricultural and spent my summers working on dairy farms in upstate New York. At that time, farm experience was a requirement for entry into vet school. I graduated from high school and went on to attend the College of Agriculture at Cornell University where I majored in biology. After three years as a undergraduate, including a semester at Tel Aviv University, I was accepted to the Cornell New York State College of Veterinary Medicine where I matriculated in the fall of 1974. During the summer of 1975, I started graduate research in microbiology at the veterinary school. I graduated from there in 1977, and went on to complete MSc and PhD degrees in 1979 and 1982, respectively. Although I had been offered an a position as assistant professor at the Cornell's State Veterinary Diagnostic Laboratory, I decided after 12 years it was time to move on. And so I accepted a job as director of microbiology and immunology at Charles River Laboratories, where I began work in the spring of 1982 and have been employed ever since."

Gary Peltz, head of genetics and genomics, Roche Palo Alto, Palo Alto, CA, USA. "I was an MD/PhD student at Stanford University who did a residency in internal medicine and a fellowship in rheumatology at the University of California, San Francisco. Although I had planned to go into academic medicine, I changed course when I looked at several academic positions in the early 1990s. The very low level of research funding was very discouraging and was coupled with very demanding clinical obligations placed on junior faculty. This made it very difficult to engage in the type of cutting-edge research that I wanted to pursue. Therefore, my first job was at Syntex Research, which subsequently became part of Roche."

Scott Wadsworth, research fellow, medical devices group, Center for Biomaterials & Advanced Technologies, Johnson & Johnson, Somerville, NJ, USA. "I had an MSc in agricultural biochemistry/marine sciences and wanted to be a marine biologist. When I realized only a few jobs were available, I rethought my option and spent two years in a rheumatology laboratory at Children's Hospital of Philadelphia, which inspired me to obtain a PhD in immunology at the University of Pennsylvania. Between 1985 and 1989, I held postdoctoral/staff fellow positions at the National Institute of Allergy and Infectious Diseases, studying the role of integrins in T cell development and function. And from there I joined J&J as a senior scientist. From 1995 I have been biology leader for J&J's p38 kinase inhibitor program, anti-inflammatory drug discovery, putting four compounds into preclinical development. Since 2002, I have worked on various drug-device combination products, resulting in four prototypes handed off to operating companies for preclinical development. Currently at the Center for Biomaterials & Advanced Technologies I am continuing work on discovery/development of novel drug/biologic-device combination products for indications in orthopedics, postsurgical adhesion, postoperative ileus and drug-eluting stents."

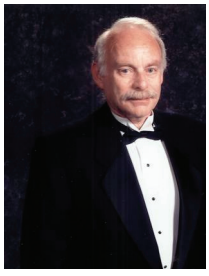
Martin Wasserman, former Pfizer, GlaxoSmithKline, Bristol-Myers Squibb, Roche, Aventis and AtheroGenics (Alpharetta, GA, USA) executive. "I began my career with an undergraduate degree in pharmacy and spent five years as a registered pharmacist in a drugstore. I decided to matriculate to The University of Texas Medical Branch in Galveston to pursue a PhD degree in pharmacology and toxicology, which I received in 1972. I was immediately recruited by The Upjohn Company in Kalamazoo, Michigan (now Pfizer), where I spent over nine years as a bench researcher in the hypersensitivity diseases research department. I was then recruited by SmithKline & French (now GlaxoSmithKline) to head the pharmacology department. When SK&F merged with Beecham in the late 1980s, my position was eliminated and I sought a position with Bristol-Myers Squibb as their first director of human pharmacology (a newly created position in clinical research) where my group performed creative phase 1 studies. After spending over three years at BMS, I was sought and hired by Hoffmann-La Roche as director of bronchopulmonary pharmacology in research, from which four years later I was recruited by Marion Merrell-Dow to become the group director of three departments (immunology, metabolic diseases and respiratory research). Soon after, MMD became Hoechst Marion Roussel and later, Aventis, and then Sanofi-Aventis, where my title was vice president and senior distinguished scientist in the respiratory and rheumatoid arthritis disease group and the acting head of oncology. After seven years, an interesting opportunity arose at a small startup biotech company, AtheroGenics. I became senior vice president of discovery research and chief scientific officer. After four and a half years, I chose to officially retire after 35 years in the drug industry and relocate to be closer to my children in California. Now settled there, I am commencing a campaign to explore opportunities to consult with the industry, academia or institutions.

"A manager should ask him/herself how able he/she is to thoughtfully delegate and monitor tasks without micromanaging, on one hand, or being blindly dependent upon others, on the other hand," he says. "It is important for a scientific manager to be able to modulate the pace of his/her day and not to be constantly overworked. There is no reward for burnout!"

Passion. Given the workload and day-to-day frustrations associated with working in the drug industry, a common motivation among the interviewees was altruism—to help reduce human suffering through the discovery of new medicines. Franz Hefti, formerly at Genentech and Merck, and now executive vice president at Rinat Neuroscience (S. San Francisco, CA, USA), says: "It has always been my dream and goal to bring better medication to people who suffer from diseases of the nervous system. The ability to help [do] this is [my] dominant motivational force." Van der Ploeg is also upbeat about the drug discovery endeavor: "I am in this business because of great science, stimulating and excellent colleagues, and motivated teams." At Roche Palo Alto in California, head of genetics and genomics Gary Peltz emphasizes the research challenge: "I enjoy solving scientific problems that can impact human health. I am particularly fortunate to work with a motivated and talented multidisciplinary team of scientists (in genetics, statistics, computation, genomics and biology) that can undertake high risk/high reward projects."

Rinat's Franz Hefti: Helping people is the dominant motivational force.

Several other managers also emphasize the rewards of participating in the research endeavor. "I enjoy the collegial nature of scientific/biomedical pursuit, the people-to-people interactions and achieving global recognition for my work," says Martin Wasserman, a former manager at five pharma companies who recently retired from his post as chief scientific officer at AtheroGenics (Alpharetta, GA, USA). Elsewhere, Aventis' Lewis praises "the people, individually, the science (as a continuous learning experience) and the opportunity to drive many new and potentially productive ideas into actual experiments that challenge hypotheses." Reinhard Ebner, principal scientist at Avalon Pharmaceuticals (Germantown, MD, USA), feels that a manager's capacity to play an instrumental, or even leading, role in a team that finds the answer to a complex, long sought-after problem can be an "indescribably rewarding experience, second only to the involvement in an initiative that succeeds in making a concrete contribution to the development of a solution for a previously unmet medical need."



Martin Wasserman advises scientists interested in management to network.

And it's not only the altruistic side of the drug discovery business that galvanizes people. For Scott Wadsworth, research fellow at Johnson & Johnson (New Brunswick, NJ, USA), it's "the independence and entrepreneurial spirit that exists, despite being part of a huge corporation. I like the opportunity to have an impact in a large corporation."

Broad experience. Given the diverse responsibilities and skill required in a research manager position, it helps to be well read and to develop as broad a scientific and business knowledge as possible. Wadsworth says it is important to "diversify your experience," adding, "Make sure you have demonstrated significant, quantifiable, reproducible successes in your early career. Network as much as possible within your company and outside. Gain as much exposure outside your company as possible, via speaking engagements, chairing meetings, publishing, etc. Gain as much

Reinhard Ebner of Avalon says the smaller the company, the more demanding and wide-ranging the management problems.

Box 2 Starting out

The research managers interviewed for this article had several pieces of advice for those thinking of moving from the bench into research management at a company. Wyeth's Bob Ruffalo exorts fledgling managers to "work very hard, publish extensively and remember that discovering and developing new drugs is one of the most noble professions, which patients depend upon us to do."

But what practical steps can you take to increase your chances of making the transition? Roche's Gary Peltz says that when he visits universities and meets with graduate students and postdocs, he was initially quite surprised to find one universally asked question: "What was it like in industry?" "They were more concerned with my answer to that question than discussing their science," he says. "It was clear that virtually all academic programs offer very little career counseling or direction for trainees, which is a major deficiency." Rinat's Franz Hefti agrees: "It's important to understand the differences between academic and industrial research. The goal of academic research is to understand nature; the goal of biopharmaceutical research is to find effective treatment for human diseases. Academic research favors an individualistic approach that emphasizes the contribution of an individual; industrial research favors teamwork and emphasizes the common goal."

Peltz's pragmatic suggestions for students: "First, inquire about and explore a number of options before choosing a career path. Second, realize that there is a wide range of options within industry. Just as the experience at Stanford is very different from that at a local community college, the cultures and experiences in small startup companies differs from that in large pharma companies. Lastly, I strongly suggest that students read Tom Friedman's book, *The World Is Flat*. Things are changing within the pharma industry; the pace of change is going to accelerate, and you'd better be prepared for it."

Martin Wasserman advises those interested in research management careers to "consider an undergraduate degree in pharmacy, which permits exposure to most of the biomedical disciplines, unlike a pre-med degree," adding, "Where possible, take courses in biotechnology." Charles River's William Shek also notes, "some of my colleagues have gotten MBA degrees and gone on to senior management."

Wasserman also stresses the importance of attending job fairs and local and national meetings for exposure and appointments. "Try to network with recruiting firms," he says, "and consider investing in society memberships; invest in the FASEB [the Federation of American Societies for Experimental Biology] directory of members." Finally, he advises "learn who the executives are and try to set up appointments with them."

management experience as possible, by leading project teams, mentoring postdocs, hosting interns, etc. Do all that and management positions will come naturally."

Charles River's Shek also emphasizes the importance of broad horizons. "I have found it to be particularly important to acquire knowledge and skills beyond my field of scientific specialization in the areas of quality control, project management and bioinformatics," he says. He adds, "I have had the resources to do many interesting things, to expand my knowledge and skills and to collaborate with highly intelligent and talented colleagues at and/or outside [the company]. As a member of the research models and services division of Charles River, I have participated in a wide array of projects involving diverse disciplines including genetics, diagnostics, engineering, bioinformatics and so forth."

Flexibility, inspiration and leadership. There is no doubt that the pharma industry is currently undergoing a difficult period in terms of sustaining growth, meeting investor expectations and public perception. Working to improve the poor productivity and high attrition of drug pipelines is a key goal for many research managers. Roche's Peltz puts the problem like this: "My major challenge is maintaining momentum and progress within a constantly changing environment that has an increasingly near-term outlook. This makes it more difficult to maintain cohesion among the large number of individuals performing the work, and with the stakeholders concerned about the outcome. Discovery science is a lot like cooking; if you open the oven door too often, the cake will not rise."

There is a burgeoning demand for experienced research managers in biotech companies; many of these are being recruited from pharma. But as Avalon's Ebner points out, having consecutively worked for established large, growing medium-sized, and entirely new startup biotech companies, the decision paths in small and large enterprises are very different. "The younger and more unfinished an institution, the more demanding, wide-ranging and intensive the management problems. This is most acute in the startup setting, which is a bit like starting a family restaurant, where everyone has to help out on every front."

The increasingly cross-disciplinary nature of research and the need to collaborate intramurally and extramurally also creates management headaches. "Some of the bigger and most difficult, yet most important, questions can only be answered by the coordinated studies of many investigators, often from different institutions and countries. This has been true for many fields of discovery for a while, but is now increasingly apparent in the biological sciences. Making the best use of combined efforts almost always requires a great deal of organizational, communicative, planning and even diplomatic skills," says Ebner.

A research manager's job also offers the opportunity to mentor and reward excellence and achievement within a team. According to Lewis, with senior management positions, he really enjoyed the chance to do "things that seriously affect the quality-of-life for employees in a positive way; this means that the 'power' of a senior job is most useful when it is used to (appropriately) enrich the lives of the most junior colleagues."

Conclusions

There are several keys to success in making the transition from the bench to the boardroom (**Box 2**). Research managers need determination, diligence and passion to do work that matters and that makes a difference. They must also possess the experience to lead and ability to inspire their team. The most effective managers are patient, have a sense of humor, respect their colleagues and are willing to subordinate their ego for the benefit of the organization.

If you love being a scientist but crave the financial and professional benefits of management, heading a research group as a department or division leader at a company offers several opportunities. In this role, you will have greater supervisory and budget management responsibilities, and the compensation that comes with them. A person who is a great bench scientist will never be happy being a mediocre manager, but a great scientist who has the ability and desire to move into management has a whole new set of opportunities to achieve important and satisfying results.