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Jobs in the Drug Industry

Richard J. Friary

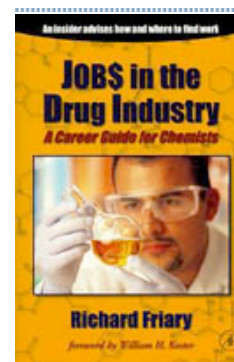
This book, subtitled 'A Career Guide for Chemists', discusses the types of jobs available in the pharmaceutical industry, why they are desirable, and how to go about finding suitable openings. While much of the information is specific to this industry, there is a little bit of general career advice. It was written by Richard Friary, Ph.D., a synthetic organic and medicinal chemist at the Schering-Plough Research Institute (SPRI). He has been in the industry for nearly 30 years, all of them at either CIBA-Geigy or SPRI. A 'Sources and Supplements' section at the end of each chapter provides pointers for further research, but since the book was written in mid-1999, some of the web related resources are outdated, and newer ones are missing. While industry specific information contained in this book is not available anywhere else, the general career information is probably covered better in other books.

According to the preface, the intended audience is beginning career chemists, those who advise them, and others in related fields who are interested in learning about careers in the pharmaceutical industry. This book is comprised of 8 chapters and 2 appendices.

The first chapter is entitled 'Enticements', and talks about why a chemist might want to work in the pharmaceutical industry – Friary's main reason is evident from the title of the book. Besides high salaries and fringe benefits, he also cites job availability, job stability, and altruism. A significant portion of this chapter talks about typical salaries, using data from the 'now-outdated 1998 and 1996 (American Chemical Society) Salary Surveys', the most current information available at the time the book was written.

Chapter 2 is called 'Elements of Drug Discovery and Development', and is an excellent introduction to the process of drug discovery. It describes the process, the different approaches used by different types of companies, the different types of groups involved at various stages, required interactions with the Food and Drug Administration (FDA), why drug discovery is different from other scientific research endeavors, and so on.

'Jobs in the Drug Industry' is the third chapter. It describes which types



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of positions are most likely to be found at which type of company, and how the corporate research organization is likely to be structured – discovery research (medicinal chemistry, natural products, structural chemistry, drug metabolism, radiochemistry), service groups (analytical chemistry, cheminformatics, compound registration, patent coordinators, synthetics services, profiling, chromatography, regulatory affairs), development research (natural products, bioorganic catalysis, safety) and process chemistry. Degree level and work experience combine to determine which types of positions will be appropriate for a particular chemist. The effects of outsourcing, a relatively recent trend which effectively moves jobs from large pharmaceutical companies to smaller, startup or service firms, are discussed. These smaller companies are much harder for the job seeker to identify and target. At the end of this chapter is a brief description of some of the non-traditional companies, peripherally related to the pharmaceutical industry, that hire chemists.

Chapters 4 and 5 are entitled 'Discovery and Developmental Chemical Research' and 'Discovery Research', respectively. Both chapters discuss the types of work done by organic chemists in pharmaceutical companies. Chapter 4 discusses performance reviews, goal setting, budgeting, corporate meetings, communicating research results, aids to productivity, and so on. A significant portion of this chapter discusses patents, an area very important to the drug discovery industry. While knowing how patents work may not help one find a job, it may aid in deciding if you want to take a position that requires patent work. Chapter 5 begins with a 10-page long fictional account of a day in the life of a medicinal chemist, then goes on to talk about typical new hire responsibilities, and how synthesis in industry differs from synthesis in academia. For example, searching in-house for starting materials before ordering from outside vendors, not expending efforts to improve workable procedures or effective syntheses, the fact that qualitative or semiquantitative data is usually sufficient, and so on. Friary also includes tips for working in this industry that are specific to chemists – for example, how to interpret NMR spectra, special considerations when developing syntheses, how to handle impurities in samples to be submitted for biological testing, and so on.

Chapter 6 is entitled 'Chemical Development', and discusses what happens once a potential drug candidate with desirable and selective pharmacological activities has been identified. Development chemists are responsible for scaling up the synthesis to make large supplies of the potential drug for use by formulators, toxicologists and clinicians. Process chemistry is the next step, the creation of a synthesis suitable for large-scale manufacturing of the now proven drug candidate. At each step, the criteria that define a good synthesis change. The remainder of the chapter discusses the various ways pharmaceutical companies can be organized, or which tasks are likely to get assigned to which types of groups. An interesting part of the chapter lists some practices that are commonplace in laboratories but would be inappropriate for large-scale process work, and also describes other factors that are important to consider when developing large-scale syntheses.

'Qualifying and Searching for Jobs in the Drug Industry' is the title of Chapter 7. Typical prerequisites, desired personal qualities, and qualifications expected of candidates at different levels are described. There is a section on visas that will mainly be of interest to foreign-born scientists, a brief section that describes services for job seekers offered by the American Chemical Society, a section on how to find job openings and a brief section on how to network.

The 8th and final chapter is entitled 'Evaluating Companies and Job Offers', and gives not only general advice such as comparing the cost of living in different geographic areas and fringe benefits, but also tips on how to evaluate a pharmaceutical company's potential and stability. It also includes a considerable discussion of pensions.

Appendix A lists the names (without affiliation) of organic chemists who have won various awards. Working for an award-winning chemist is always a positive step for one's career, and knowing who they are makes this easier, though including affiliations would have made this list much more valuable.

One of the most valuable parts of this book is Appendix B, which contains two indices. The first list the names of over 500 chemical companies that hire organic chemists as researchers in discovery or development by location (United States and Canada only). The second section of this Appendix includes contact information for the companies listed in the first section. While a great place to start researching, the information is spotty – while some entries include full contact information and a corporate description, others include only a phone number. There are also some oddities in the organization – Eli Lilly, for example, appears under 'L'.

Overall, as Friary points out again and again, the successful job seeker will learn as much as possible about the company before the interview. This book is certainly a fine place to start such research. While all of his information will not apply to all companies, he does point out some areas in which new hires may be surprised at the difference between school and the 'real world'. While this book will be of use to those seeking a first job in the pharmaceutical industry, it would also be useful at an earlier time, in helping a chemist decide whether or not to seek a job in this industry. Perhaps a better title might have been 'Is a Job in the Drug Industry for You?' ■

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