

Alternate Career Series: I. Patent Law

MicrobeLibrary Article: *Focus on Microbiology Education*

Publication Date: 2/1/2005

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While the majority of graduate students and postdoctoral researchers in microbiology choose to pursue careers in science, a small but growing number are choosing to enter the field of patent law. Those who do find that their scientific knowledge and laboratory experience are highly attractive to industry, private law firms, and the U.S. government. In this article, qualities that are conducive to a successful career in the patent law field are discussed, and various opportunities in the patent law field that are available to graduate level or postdoctoral level educated scientists are listed. Both the positive and negative aspects of each career are also presented. In general, patent law can be a rewarding career for scientists who are willing to trade the lab bench and incubator for a desk and telephone.

Patents are legal rights provided by governments for inventions and discoveries. As granting and enforcement of patents is a legal exercise, attorneys are needed for the process. However, because patents are granted on inventions and discoveries primarily in the scientific and engineering fields, persons with scientific or engineering expertise are also needed, particularly in writing and obtaining patents and in analyzing patents for their technical contributions over previously known technologies. Thus, persons with strong scientific backgrounds are well-suited for a career in patent law. Those with both graduate level scientific training and a law degree are particularly well-suited for this career path.

Although most graduate and postdoctoral level microbiologists choose a scientific career, an increasing number see patent law as an opportunity to not only use the scientific skills and knowledge they possess, but to use and develop other skills as well. Indeed, scientists who have an interest in law often find a career in patent law to be satisfying and rewarding. Scientists who are most satisfied with the career change tend to be those who enjoy writing and the challenges involved in trying to convince others (who are often skeptical) that a particular conclusion is valid in view of the available facts. They also tend to enjoy designing experiments and interpreting data rather than conducting experiments themselves. In addition, those who have successfully bridged from science to patent law are typically those who are able to realize when a sufficient amount of information is available to draw a valid conclusion, rather than continuing the search for more data to further substantiate the conclusion.

A career in patent law is not a wise choice for all scientists. The main difference between the two careers relates to scientific inquiry. Scientists routinely pose questions, design experiments, and answer the questions. In contrast, those in the patent law field rarely, if ever, ask any scientific questions that don't already have an answer, and thus do not advance the body of knowledge of science. Persons who have a drive to make a contribution to science or find scientific truths will likely not be satisfied with a career in patent law. In addition, because of time and monetary constraints, those in patent law rarely have the opportunity for an exhaustive consideration of facts, and must instead draw conclusions based on a reasonable, but limited, amount of information. Accordingly, perfectionists rarely fare well in the patent law field.

Although there are certain overriding qualities that are either beneficial or detrimental to a career in patent law, there are numerous career choices within the field. As might be expected, a particular set of qualities (or lack thereof) might be highly beneficial for one particular career, while not as beneficial for others. Table 1 provides a summary of various careers in patent law, notable attributes of each that distinguish it from others, certain perceived advantages or drawbacks of each, and other information that might be

useful for scientists considering the option of a career change to patent law. The table is not intended to be exhaustive, but merely to provide general information on certain commonly considered characteristics.

As can be seen from Table 1, pay in the patent law field is relatively high. It is important to note that pay in government and industry jobs is generally not directly linked to the amount of work performed (i.e., employees are salaried), but pay and job security in private law firms is generally commensurate, at least to some extent, with the amount of work performed (e.g., although attorneys are typically paid a salary, substantial bonuses are often given based on the number of hours worked in a year). What is not evident from Table 1 is the fact that, in the microbiology and biotechnology fields, graduate and postdoctoral education can be the factor that convinces an employer to make the job offer, and might result in a base pay that is higher than others with the same experience in the patent law field, but who do not have a graduate degree. Likewise, it might be a main factor in offers for admission to law school. To be sure, a graduate degree, and particularly a Ph.D. and/or postdoctoral experience, is highly regarded by employers in the patent law field, and persons holding such a degree are compensated for the experience and knowledge the degree brings with it.

A career in the field of patent law can be an attractive alternative career choice for many scientists. There are numerous careers available for both scientists and scientist-attorneys. The careers span government service, industry, and private law practice. Regardless of the type of career, it is clear that graduate-educated scientists are in high demand in the patent field and are highly coveted by both government and private side employers.

TABLE 1. Summary of careers in patent law

Career	Notable attributes	Education requirement (preferred)	Main advantages and drawbacks	Salary range
Patent examiner at U.S. Patent and Trademark Office (USPTO—government position)	can grant patents	B.S. science or engineering (Ph.D.>M.S.; law)	<ul style="list-style-type: none"> - combine science and law - lots of reading and writing - stay current in science - government benefits - extreme time constraints - must defend scientific and legal positions against attack 	\$50,000– \$120,000
USPTO attorney (USPTO—government position)	help make patent policy	J.D. (science or engineering—Ph.D.>M.S.>B.S.)	<ul style="list-style-type: none"> - consider both legal and scientific questions - lots of reading and writing - stay current in science and patent law - government benefits 	\$80,000– \$120,000
Technical specialist (private position)	scientific advisor to attorneys	Ph.D. generally required	<ul style="list-style-type: none"> - continue to study science - lots of reading, summarizing, teaching others in firm science - strings attached: typically must commit to attending law school 	\$60,000– \$120,000

Patent agent (private position)	function like lawyer before USPTO, but don't need law degree can be self-employed or work in law firm or industry	B.S. science or engineering (Ph.D.>M.S.>B.S.) USPTO examination	- can represent clients before USPTO without having to go to law school - can be self-employed, but pay is based on amount of work available - disfavored in law firms - outsourcing could limit need for agents in U.S.	\$40,000– \$150,000
Patent attorney (private position)	represent clients in obtaining and enforcing patents can be at private law firm or corporation	J.D. (science or engineering— Ph.D.>M.S.>B.S.) USPTO examination for some aspects of job	- consider both legal and scientific questions - lots of reading and writing - stay current in science and patent law - heavy time pressures - highly compensated - little job security	\$40,000– >\$1,000,000
