



Biotech Career Feature

Work in Drug and Pharmaceutical Research to Further Help Those Who Need It Most

The evolution of the pharmaceutical industry has taken us through intense periods of scientific discovery and social change. Achievements come at the hands of scientists who put in long, hard hours at their research jobs to find breakthroughs in medications, vaccines, vitamins, and dietary supplements, food additives, and other formulations to improve our lives. The social aspect of pharmaceutical development began about forty years ago following the cultural revolution of the '60s, when people felt empowered to question their family physicians about options for maximizing health rather than following orders blindly.

Long before that, in 1785, Massachusetts issued an Act, as it was worded, against selling unwholesome provisions. There were many unscrupulous purveyors of tonics that were nothing more than opiates or alcohol, and sellers of food such as millers who masked poor flour quality by supplementing it with alum or clay. The young government left to its new states the monumental tasks of regulating foods and tonics. For more than a hundred years, the individual states struggled with these issues. Today's Food and Drug Administration (FDA) itself came about to help the individual states in their struggle, and largely because of a horse named Jim.

Jim's story goes back to the 1890s when a German scientist received the first Nobel Prize in medicine for his discovery that the blood of some animals carried an antibody that neutralized bacteria in people. Jim was a milk-wagon horse in Wisconsin, one of the many animals identified with having these special antitoxins, so he spent his retirement years providing blood for serum injections for children suffering from diphtheria. By October 1901 Jim was symptomatic of tetanus, and he was dispatched to that big comfy stable in the sky. Unfortunately, Jim's blood was utilized in some bottles predating his date of death. This contaminated serum remained in use, and when a dozen Missouri children suffering from diphtheria died from tetanus it was ultimately traced back to poor old Jim. This led to the passage of the Biologics Control Act of 1902, the forerunner of the FDA.

Fast forward many years to the wide, wonderful array of pharmaceuticals we have available to cure our ills. Even if we are not exactly ill, our social inquisitiveness—that second component of pharmaceutical evolution—has instigated scientists in [research jobs](#) to search for ways to make us healthier and stronger. Diseases that were once death sentences now just trouble us with a short leave from work to combat them. Physical incapacities or mental illnesses that disabled people can be treated with a pill. We are enhancing our strength and longevity with these medications as well as with organic food products and dietary supplements.

Some experts say it takes about fourteen years to bring a drug from conception to distribution. Scientists in [biotechnology jobs](#) are always studying the hundreds of thousands of proteins in our bodies, and when they identify a problematic protein, they determine whether the problem is a deficiency or just an insufficiency. They use different technologies to investigate solutions including natural products, synthesized chemicals, and computer simulations. This takes about six years. Once a solution is proposed, approximately six more years are devoted to human trials. The last two years are spent guiding a new drug through the FDA's approval process.

It is true that many times leaders in [biotechnology pharmaceutical jobs](#) resolve one problem while they are researching another problem altogether. Penicillin was discovered by accident. Viagra initially was proposed for treating heart ailments when scientists noticed its unusual side effect. Coumadin, widely used to help people at risk for blood clots and strokes, was developed after farmers noticed that cows eating a type of clover were hemorrhaging. The cure for smallpox was revealed when a British scientist overheard a milkmaid commenting that people who came down with harmless cowpox never got smallpox. Minodoxil, used to restore lost hair, originally was intended to treat hypertension.

The FDA has been at the heart of disasters, as well. Today's Baby Boomers remember the thalidomide tragedy, when a drug used to treat nausea in pregnant women resulted in babies born with massively deformed limbs. But even in this millennium mishaps still occur. The anti-inflammatory medication Vioxx was pulled from the market when it was connected with cardiovascular deaths. The antibiotic Ketek resulted in liver failure and deaths. Many drugs are left on the market, with warning labels, such as bupropion. It is used for adult depressive disorders and it helps some smokers kick the nicotine habit, but it has also been associated with seizures.

There are many places in pharmaceutical research for someone wanting to climb up the ladder of his or her career.



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Many positions are available, from lab technician assistants to the heads of research teams, where salaries easily ascend into the six-figure level. Even if you begin at the bottom in maintenance or service support work, you can find jobs that will pay tuition reimbursement so that you can move up in this fascinating, wide-open field. You only need to look at the many jobs available at BiotechCrossing.com, a division of

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