# Quality Control: A Rapidly Expanding Career Niche

"This wasn't the kind of work I ever thought I'd be doing when I was in college," says Jeffrey Oliver. A quality-control associate for Advanced Tissue Sciences, a small biotech company in San Diego, Oliver had planned to go into veterinary medicine. But when he went to the University of California, San Diego, career center 6 years ago looking for a part-time job, he wound up working for Advanced Tissue Sciences. When he graduated from college, the company offered him a full-time position. He has been there ever since; 2 years ago, he moved into quality control.

This is one of a series of pages in *Science* linked to features on *Science*'s Next Wave, the AAAS/*Science* Web site for young scientists (http://www.nextwave.org). This story highlights an alternative career feature on quality control in the "New Niches" section of the Next Wave, beginning 4 April and running until 6 June.

Oliver is one of a group of young scientists who are gaining a foothold in the biotech industry by working in quality control. These scientists do a wide range of jobs to ensure that the consumer receives a quality product. That includes running tests on products, improving laboratory procedures, and filling out reports. In industries regulated by the Food and Drug Administration (FDA), such as biotechnology, quality control is particularly important because companies are required to adhere to standards set in their product applications.

Quality control is the subject of a "New Niche" feature on *Science*'s Next Wave that begins on 4 April and runs until 6 June. In the New Niche, Oliver and others describe their career experiences and answer questions from the Next Wave audience.

There are two excellent reasons for those with scientific training to consider quality control as a career now. First, this niche is expanding in biotech. "Earlier, there was no quality control needed," says Jagdish Parasrampuria of Genelabs Technologies, another participant in the feature. The reason? Some 10 years ago, most biotech companies had no actual product, only potential ones in research. Now, more and more companies are getting closer to market by entering phase II or phase III clinical trials.

The second very good reason that young scientists may be drawn to this field is that in many cases, it does not require an advanced degree. Ralph Walker, another participant in the Next Wave feature, can attest to that. He received his bachelor's degree in life sciences from Pennsylvania State University in 1989. In addition to being scientifically savvy, he had acquired experience in the "real world" by putting himself through college as a second assistant manager at America's fast-food giant, McDonald's. "That was a very positive thing," he says, "because I learned a lot about managing and finance."

Immediately after graduation, he was hired as a manufacturing technician by an oligonucleotide manufacturing company called Synthecell. While there, Walker moved to other areas of the company, trying technical services and finance. In 1992, he applied for a research position with AT Biochem (now Avitech Diagnostics, a biotech company in Pennsylvania). An alert interviewer suggested that Walker might be better suited for the production area of the company and offered him the position of production supervisor. Walker took the job, which landed him in quality control.

For many young scientists seeking to break into the biotech industry, work experience is not the only key. Showing evidence of creativity and enthusiasm is also important. Quality-control scientists must do more than generate data. They need to be "able to contribute ways to characterize a product, ways to develop an assay," says Lorraine Woods, director of quality control for Advanced Tissue Sciences.

Victoria Brunmeier, quality-assurance manager at Adeza Biomedical and another New Niche participant, showed initiative in graduate school by investigating a job opening for a position about which she knew nothing. At the University of California, Santa Barbara, Brunmeier followed up on an announcement in class that 3M had a job opening. She and her classmates couldn't imagine why 3M would be looking for someone with a molecular biology background. "Everybody said '3M? Don't they make Scotch tape?'" she says.

But Brunmeier checked it out, even though she "had no idea what quality control was at the time." A summer job turned into a full-time position. Brunmeier finished her master's degree in molecular biology and biochemistry in 1988 and stayed at 3M for 3 years. "I guess," she says, "I had the kind of personality that you need for quality control."

Brunmeier and others say that it definitely takes a certain kind of person to work in quality control. "Detail oriented" is a phrase that pops up repeatedly when quality-control professionals are asked what personality characteristics are needed for success. Brunmeier says that for some folks, this niche is definitely not the answer—particularly those who are not detail oriented or abhor routine. People like that, she says, "are typically better off in research and development." Because quality control is not for everyone, she says, "I definitely recommend trying out it before committing yourself."

For young scientists planing a career in biotechnology, working in quality control can also be an excellent steppingstone to other positions. One of the most obvious "next steps" is regulatory affairs, the unit that bridges the gap between the company and the FDA. Brunmeier says she has thought about moving into regulatory affairs, based on her experiences in having "written significant portions of our submissions to the FDA."

In today's competitive job market, many young scientists may find that pursuing a quality-control position is an effective career strategy. It is an area where a Ph.D. is not essential, and it can lead to other opportunities in the biotech industry. Most important for the future, as the industry matures and companies get closer to bringing products to market, they will need to hire scientists in all areas of product development—making quality control a good bet for the next generation of scientists.

–Nicole Ruediger

**For more information on careers in quality control, please go to *Science*'s Next Wave, on the World Wide Web at http://www.nextwave.org, and look under the "New Niches" heading on the home page. There you will find essays by quality-control scientists, along with resources to help you get started.**