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# Niche Opportunities Open In Pharma

## Recent uptick in biology hiring could herald jobs for chemists in drug discovery

Judah Ginsberg



NIH

Life Science An NIH researcher uses a pipette to remove DNA from a micro test tube.



NIH

IN THE LAB At NIH, Wendy Watford inserts purified lymphocyte cells into a centrifuge to create a concentrated pellet of cells.

**“The job market is terrible,”** says George D. Hartman, who recently retired as executive director responsible for drug research at [Merck & Co.](#) Others, including Bruce E. Maryanoff, agree. The distinguished research fellow at [Johnson & Johnson Pharmaceutical R&D](#) says, “The last three years have been really horrible for chemistry jobs because of massive layoffs.”

To the naked eye, the employment picture for chemists in pharma is ugly, and the news coming out of the boardrooms of big pharmaceutical manufacturers—the industry’s traditional employers—is grim. When examined under a microscope, however, the picture contains some nontraditional niches where chemists with pharma experience can find new positions. And those scanning the employment horizon have the most optimistic perspective: They are predicting increased hiring in the new year, albeit cautiously.

To some extent, the mass layoffs in pharma mirror the current overall job market. Outsourcing has hurt U.S. chemists. Merck, like other pharmaceutical giants, is investing money overseas at an increasing rate, with jobs following the money, Hartman says. In addition, recent mergers among pharma’s big players have packed a wallop, knocking thousands into unemployment. Hartman explains that when companies merge, there are frequently more people qualified for a specific job than there are positions available in the merged company. “The ability to let people go is based on not duplicating efforts at different sites,” he says.

Although savings realized by outsourcing and streamlining may be welcomed by a company’s shareholders, laid-off workers haven’t benefited. They are trying to find jobs in a market flooded with chemistry talent, leaving those who still have jobs wondering when and upon whose neck the ax will fall next. Mark Murcko, chief technology officer at [Vertex Pharmaceuticals](#), says that “there is a lot of anxiety” among chemists, particularly at larger companies.

**The market for chemists in pharma is tied to biology recruiting, with hiring of chemists trailing biology hires by about six months.**

**Chemists**, who have had very low rates of unemployment in the past, are particularly vulnerable to layoffs in the pharmaceutical industry because of several factors peculiar to drug discovery, Maryanoff says. He cites declining profit margins for small-molecule drugs, the traditional source of huge profits for drug companies. “There is a big shift now to large-molecule therapeutics, because you can get much higher margins on them,” he says. Unfortunately for chemists, research in large-molecule drugs puts a premium on biotechnology and on molecular biologists, to the detriment of chemists, Maryanoff says.

Medicinal chemists let go by big pharma should broaden their searches and consider working for the government, says [Michael M. Gottesman](#), deputy director of intramural research at the National Institutes of Health. Much of NIH’s current research in drug therapeutics is coming out of the Human Genome Project, he says, noting that NIH has “relatively stable research support that allows us to take on long-term projects involving diseases that may not have commercial importance but certainly have great health importance.” And better, Gottesman tells C&EN, government laboratories in general, and those at NIH in particular, are hiring.

Layoffs at pharmaceutical companies have created a large pool of talented researchers, and NIH wants to hear from them. Gottesman says NIH seeks talented chemists at all experience levels who are energetic and motivated, adding that the agency “can provide additional training for people who are early in their careers.” All U.S. government jobs are posted online at [www.usajobs.gov](http://www.usajobs.gov).

For those willing to consider overseas relocation, globalization is opening up some opportunities, although not enough to offset the loss of jobs caused by outsourcing. Jeffrey L. Sturchio, president and chief executive officer of the [Global Health Council](#), an alliance of nongovernmental organizations, foundations, corporations, government agencies, and academic institutions, believes that most of the near-term growth in the pharmaceutical industry will likely occur in China, India, Brazil, and other emerging economies. And with this growth will come jobs. Although many of these jobs will go to citizens of these countries, “there is a slow but growing trickle of people moving from the U.S. to those markets because that’s where the jobs are,” Sturchio says.

## Moving On

### A Tale Of Two Chemists



Courtesy of Uday Khire Khire



Courtesy of Philip Skinner

Skinner

The experiences of Uday Khire and Philip J. Skinner illustrate the opportunities and problems affecting today's chemists in pharma. Both are medicinal chemists, and both were laid off by pharmaceutical companies. For Khire, losing his job became an opportunity to do what he had long dreamed of doing. For Skinner, the experience has been frustrating.

Khire worked as a medicinal chemist doing oncology research at Bayer Research Center in West Haven, Conn., for 10 years. In early 2007, Bayer shut down the West Haven site, throwing about 300 researchers out of work. The year before, Bayer acquired Schering, a rival German pharmaceutical company, and then laid off thousands of employees in the newly combined firms. Khire says it was "the usual story."

Except that for Khire the usual story became an unusual opportunity. He founded a contract research organization called Cheminpharma. At Bayer, he had been involved in outsourcing, so it seemed logical for him to start up a company that has headquarters in New Haven, Conn., but also has a growing presence in Pune, India. "Business is not bad compared to the current economic climate," Khire tells C&EN. "We manage to get enough work to survive."

Skinner has been less fortunate. The 35-year-old was a senior scientist with eight years' experience when he lost his research position with Arena Pharmaceuticals in San Diego. Arena concentrates on developing oral drugs to treat cardiovascular, central nervous system, inflammatory, and metabolic diseases. The company's compounds target G-protein-coupled receptors. Its leading drug candidate treats obesity and is currently in Phase III clinical trials.

In April, Arena announced it was cutting 31% of its U.S. workforce because, as the company wrote in a filing with the Securities & Exchange Commission, "we believe it is necessary to reduce our cash usage and provide Arena with additional financial flexibility" as its new drug moves through the clinical pipeline. Skinner was one of 130 Arena employees who lost their jobs. He isn't bitter about it. "They needed to conserve cash and focus on the clinical side," he says. "That's just the way the world works."

With a Ph.D. from the University of Durham, in England, he has been looking for work and doing a lot of networking. His preference is a position in medicinal chemistry, but he is realistic about his prospects. "The medicinal chemistry market is peculiarly horrible at the moment," he says. He's had interviews, but they have been "few and far between," and so far, no offers, he says.

Skinner says he is willing to relocate and has been broadening his search beyond medicinal chemistry, although he is "determined to still be in science." To this end, he has taken an extensive online course in biotech project management and is looking for jobs in "cleantech" or green chemistry. He has also made inquiries into management consultancy.

**Closer to home**, pressure to "go green" and increased emphasis on developing sustainable manufacturing processes is affecting the pharmaceutical industry, although indirectly. "Pharmaceuticals need to be produced, and so you need a process for making them that is consistent with the principles of environmental protection and green chemistry," says Paul S. Anderson, who spent more than 40 years as a medicinal chemist with Merck, DuPont-Merck, and Bristol-Myers Squibb and is also a former ACS president. Highly skilled process chemists will likely play a large role in

greening U.S. manufacturing.

Some companies involved in specific areas of research, such as cancer, are bucking the downsizing trend by bringing chemists on board now. Jing-Tao Wu, director of drug metabolism and pharmacokinetics at Millennium Pharmaceuticals, is hiring medicinal chemists. "Oncology is a highly unmet medical need," Wu says, adding that it is "one of the faster growing therapeutic areas in the pharmaceutical industry." He says Millennium's experience may be unusual. It was purchased one year ago by Takeda Pharmaceuticals, a major Japanese drug company, and the parent company is trying to position Millennium as a global leader in oncology research.

Millennium can afford to be picky. As Wu says, a bad job market means "a buyer's market." He says he has been hiring medicinal chemists for a number of years, but now he can find scientists who precisely meet his requirements. "This year," Wu notes, "we can find the quality candidate who has exactly the experience we are looking for."

Milind S. Deshpande, executive vice president and chief scientific officer at [Achillion Pharmaceuticals](#), agrees that "the bar has been raised to some extent." Achillion focuses on therapies for infectious diseases, notably HIV and chronic hepatitis C. Deshpande sees opportunities, but observes that a few years ago a medicinal chemist "could expect multiple, multiple offers." Now the market works in favor of the employer who is seeking "very talented medicinal chemists" who can, he says, "push a molecule forward in discovery and development."

Marc Miller, director of medicinal and process chemistry at executive search firm [Klein Hersh International](#), is optimistic that there is "some potential for growth for chemistry moving into the new year." New opportunities for medicinal chemists may precede an uptick in overall hiring but will likely follow the current increase in biology hires, he says. The market for chemists in pharma is tied to biology recruiting, with hiring of chemists trailing biology hires by about six months, Miller says. And biology has been "hot for the last two quarters," he says.

For this reason, Miller's boss, Josh Albert, managing partner at Klein Hersh, says that although he expects the company to place 10% fewer medicinal chemists in 2009 than in past years, he thinks the number placed in 2010 will be around the average. He cautions, however, that these placements will be in specifically targeted areas of medicinal chemistry.

Anderson hopes that those who are bearing the brunt of the current industry upheaval will take heart. He is optimistic about the future for chemists in pharma and predicts that interest in therapies for attacking metabolic diseases and cancer will create research positions in medicinal chemistry. In addition, he says, "one shouldn't forget that there are still major mental health problems that have not been solved." He cites dementia and Alzheimer's disease in particular as targets for research. He also names depression and schizophrenia, for which there are not adequate treatments, as opening further areas for drug discovery.

Usually, Anderson says, the development time for mental health drugs is longer than that for many other therapeutic areas, so the investment risks are greater. But an increasingly aging population will put pressure on researchers to find therapeutic cures for geriatric conditions such as Alzheimer's and other forms of dementia.

"It's very easy to become discouraged," says Anderson, who nevertheless can't recall "any time in history when a rapid expansion of the scientific knowledge base has not led to new opportunities for employment. There is a gap between the realization of new knowledge and attempts to convert that knowledge into value in the commercial marketplace." That gap is normal, but it does not last, he says.

"My guess," he concludes, is that the continuing expansion of knowledge in biology, biochemistry, biotechnology, and medicinal chemistry "will eventually create jobs. It is just that we are in a period in time when that hasn't been fully realized, so one has to be patient."

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