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www.aiche.org

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**PUBLISHER**  
David H. Colby  
(212) 591-7125  
davec@aiiche.org

**EDITOR-IN-CHIEF**  
Kristine Chin  
(212) 591-7662  
krisc@aiiche.org

**TECHNICAL EDITOR**  
Cynthia Fabian Mascone  
(212) 591-7343  
cynm@aiiche.org

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(212) 591-8677  
richg@aiiche.org

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(212) 591-7337  
kares@aiiche.org

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franf@aiiche.org

**PRODUCTION COORDINATOR**  
Andrew Triana  
(212) 591-7987  
andrt@aiiche.org

**INTERN**  
Danielle Deutsch  
(212) 591-7317  
david@aiiche.org

**CONTRIBUTING EDITORS**  
Irene Kim

**WASHINGTON EDITOR**  
Darlene Schuster  
(202) 962-8690  
dc@aiiche.org

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# Editorial



## Increasing Involvement in Biotechnology/Pharmaceuticals

More and more chemical engineers are becoming leaders and innovators in the biotechnology/pharmaceutical sector of the chemical engineering industries. "Traditionally, microbiologists have played a dominant role in bioreaction development, with assistance from multiple disciplines, including biochemists, geneticists and chemical engineers," writes this month's cover-story author, John Williams, general manager of EPS: Environmental & Production Solutions, LLC (pp. 34-41). The objective of the article, Williams notes, "is to illustrate the relevance of established chemical engineering practices and processes as they apply to today's bioreaction engineering, as chemical engineers make further inroads into a field once thought to be the sole domain of biology-based scientists."

Universities are coming to realize the increasingly important role chemical engineers are playing in the biotechnology/pharmaceuticals sector. Some have even gone as far as changing the names of their departments. For example, in 2001, Tufts University (Medford, MA) changed its name to Chemical and Biological Engineering Department. According to the university, this change "reflects the broadened endeavors of our profession." Meanwhile, Cornell University (Ithaca, NY) recently added biomolecular engineering to the name of its chemical engineering department. Other universities that also have some form of "bio-" in their names include: the University of Iowa; University of Maryland, Baltimore County; Rutgers, State University of New Jersey; and Stevens Institute of Technology. Whether it's biological, biomolecular or biochemical engineering, they all have one thing in common — they reflect the growing importance of chemical engineers in bio-related fields.

However, chemical engineers do need to adapt to a different way of thinking. For instance, in contributing editor, Irene Kim's news article (pp. 12-14), she quotes Roland Andersson, an analyst for Arthur D. Little, on the topic of working with biological materials, "I came from the deterministic world, and started working with biotech, and it's very frustrating. You don't understand why you get problems, and the excuse you get from scientists is, 'You can't do this because this is a biological material.'" Fortunately, adaptability is a trait found in most chemical engineers. Figuring out the solution to difficult tasks is part of what chemical engineers do. For instance, in Kim's article, she writes about Joseph Kukura's (an engineering associate at Merck) engineering team's solution to scaling up a new active pharmaceutical ingredient (API) that was having granulation difficulties.

To keep up with the changing times, AIChE has been proactive in educating members about the different opportunities available to chemical engineers. For example, at last year's Annual Meeting (Reno, NV), AIChE offered a topical conference on "Pharmaceutical & Biotechnology — Discovery, Development, & Delivery of Medicine." Also, for the past five years, AIChE has offered a course on Bulk Pharmaceutical and Chemical Process Development.

Kristine Chin  
Editor-in-Chief  
krisc@aiiche.org