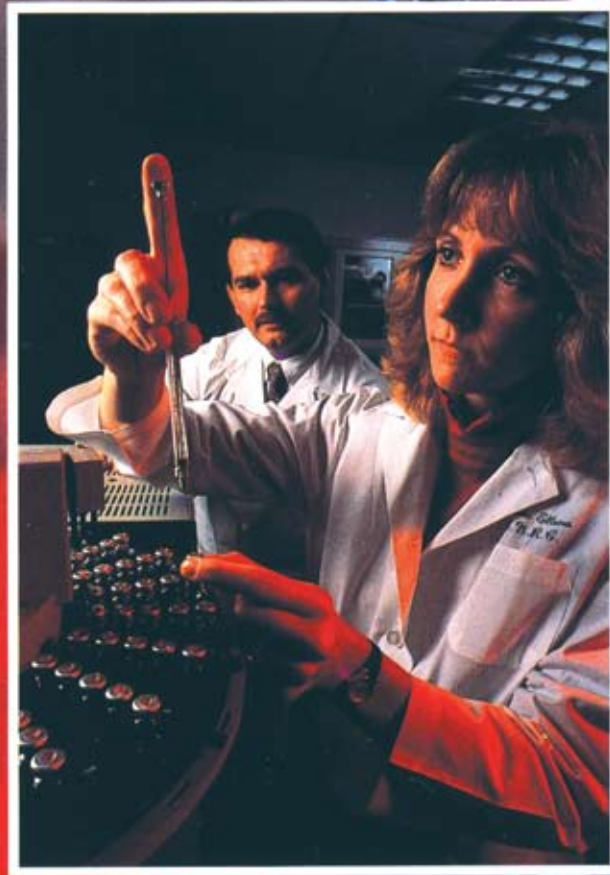


# BIOCHEMIST

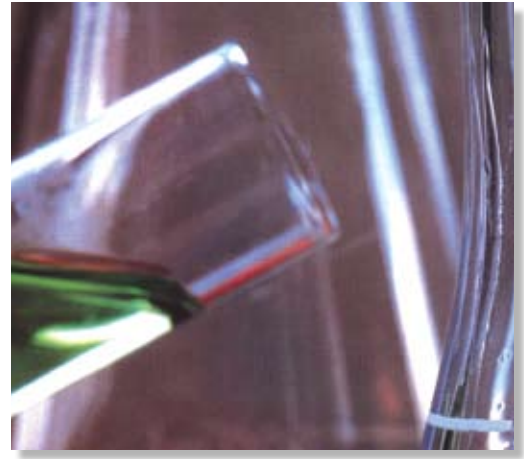


*When the chemistry's  
missing, it's no life!*

# BIOCHEMIST

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**B**iochemists explore the chemical events that cause biological phenomena in living organisms. The knowledge that biochemists gain in their research provides a basic understanding of the marvelous workings of the vast array of life forms. Frequently, that knowledge also can be translated into products that benefit agriculture, human health, and consumers. Laboratory research, whether basic or applied, is at the heart of what most biochemists do. Many students who study biochemistry in college and are interested in research continue their education to earn M.S. or Ph.D. degrees. Others earn medical or veterinary degrees, and then practice medicine. Some biochemists work in marketing and technical sales. Some ultimately move into research and development management positions. A few pursue careers in law or science writing.



Photos: Kathryn Elsesser-Luba, U.S. Department of Agriculture-Agricultural Research Service

Universities, colleges, and medical or veterinary schools typically hire biochemists who spend part of their time as teachers, part as researchers. Agricultural and pharmaceutical industries hire biochemists to discover, develop, test, evaluate and market products that improve food production or that assure human or animal health. Biotechnology discovery firms also hire biochemists to use genetic engineering and the tools of modern molecular biology to help solve problems in health and food production.

Biochemists like to experiment and enjoy working in laboratories. They want to know how cells, organs, and organisms chemically communicate within and among themselves. They want to know how organisms grow and develop, how they regulate the complex chemical events that occur within them, and how they protect themselves from pathogens. Our growing knowledge of the genome of many organisms has opened the door to entirely new approaches for exploring the protein products of an organism's genes, and the processes those proteins bring about.

For an entry-level position as a biochemist, you need a bachelor's degree in biochemistry. Your college courses will include biochemistry, chemistry (general, analytical, organic, and physical), biology, genetics, calculus, and physics. You'll want to round out your education with courses in the humanities and social sciences. Most biochemists go on to earn doctoral degrees, or medical or veterinary degrees.

In high school, take at least **four years of laboratory science (including biology, chemistry, and physics)**, **four years of mathematics (at least through pre-calculus)**, and **four years of English**. It helps to learn about research through science fairs or independent study, and to make it a habit to read about science and scientists in magazine and books.

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Food, Agricultural and Natural Resources Careers