

Key Definitions

- Cell:** The basic unit of life. All plants and animals are made up of millions of cells organized into specialized functions.
- Gene:** Structures acting as “blue-prints” that determine physical traits in organisms.
- Clones:** A genetic copy of another organism.
- Xenotransplantation:** The transplantation of organs, cells or tissues from animals to humans.
- Genetic Testing:** The analysis of a person’s genetic material for identification of specific health conditions.
- Genetically Modified Foods:** Foods that had their genes changed to enhance desirable characteristics.
- Gene Therapy:** The replacement of a defective gene in an organism suffering from a genetic disease. The functioning gene is placed inside the cell.

Resources:

**Biotechnology Training Materials,
North Carolina Association for Biomedical
Research:** www.ncabr.org

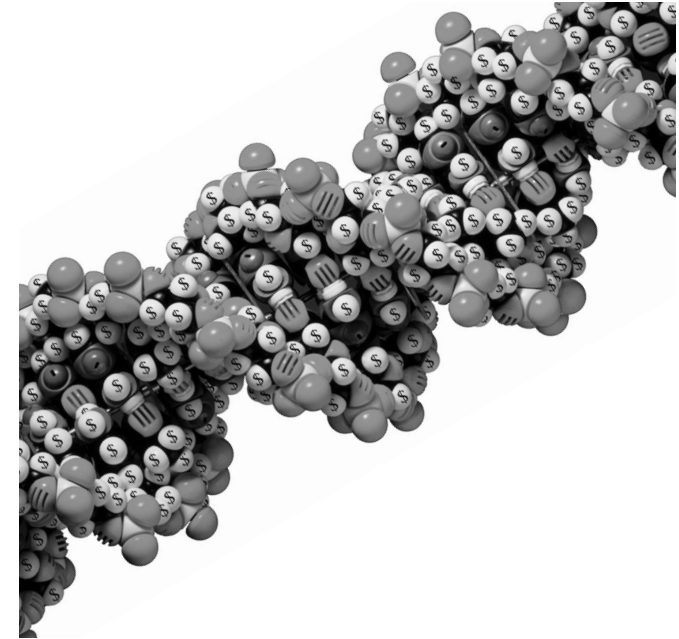
**Listing of Southern State Biotechnology
Associations:**
www2.bio.org/members/biostateaffiliates.asp

**Southern Technology Council,
Southern Growth Policies Board:**
Scott Doron, Director, sdoron@southern.org,
(919) 941-5145
www.southern.org

*“Biotechnology has shown us
personally that it can change our lives
for the better and build a healthier
future for our children.”*

*— Sharron Jones, mother of Curtis,
diagnosed with diabetes at age 3 and now
a healthy 25 due to bioengineered insulin.*

A Pocket Guide to Biotechnology



*The South must harness the economic
opportunities presented by the biotech
revolution. If we fail to do this, the region
will fall further behind in a global econo-
my that’s now built on technological
knowledge.*

— Gov. Mike Huckabee, Arkansas

What is biotechnology?

Break the word “biotechnology” into parts and you get a good idea:

Bio — the use of biological processes.

Technology — to solve problems or make useful products.

What are the uses of biotechnology?

Medical Applications: drugs, vaccines and tests.

Agriculture: crops and forestry products, animals, food processing and safety.

Industrial: manufacturing processes, specialty chemicals, mineral extraction, enzymes.

Environment: clean-up.

Homeland Defense: Bioterrorism detection and treatment.

Biotechnology drugs target chronic diseases.

Including cancer, Alzheimer’s disease, heart disease, diabetes, multiple sclerosis, AIDS and arthritis.

What are the impacts of bioengineered plants?

Bioengineered plants can withstand pests and herbicides, can increase yields to feed the world’s hungry, and can be resistant to water and temperature extremes. In 2001, U.S. bioengineered crops such as corn, potatoes and soybeans increased yields by 4 billion pounds, saved growers \$1.2 billion by lowering production costs, and reduced pesticide use by 46 million pounds.

Biotechnology already improves the economic health of Southerners.

Biotechnology Industry Data, 2002

Ernst & Young’s Americas Biotechnology Report, 2003

U.S. (Public and Private Companies)

Revenues	\$34 Billion
Jobs	195,000
Companies	1,466
R&D Expenditures	\$21 Billion

South (Public Companies Only)

Revenues	\$5 Billion
Jobs	33,000
Companies	50
R&D Expenditures	\$2.3 Billion

“It is our obligation to utilize the Divine creativity within each of us to enhance the quality of human life. Technology, used ethically, holds great promise for a better future.”

**— Rev. Dr. Lisa W. Davison,
Professor of Old Testament,
Lexington Theological Seminary, Kentucky**

“For hundreds of years, virtually all food has been improved genetically by plant breeders. Genetically altered antibiotics, vaccines and vitamins have improved our health, while enzyme-containing detergents and oil-eating bacteria have helped to protect the environment.”

— Former President Jimmy Carter, Georgia

“Southern legislators must facilitate the benefits of biotechnology for the economic and physical well being of our constituents. The biotechnology industry is growing so quickly, and the potential for new jobs holds tremendous promise.”

**— Senator Marc Basnight,
President Pro Tem, North Carolina**