

Genetics & Beyond: The Next Frontier

Animal Models of Disease



All living things have DNA. Changes in DNA (mutations) may cause disease. Studies of animal models can help scientists to:

- Explore basic gene function
- Discover genetic links to disease
- Diagnose and treat disease

Microorganisms



All bacteria and viruses have genes to survive and reproduce in their host. Knowing the DNA genome sequence of these organisms permits scientists to:

- Develop new vaccines
- Create new antibiotics
- Combat bioterrorism

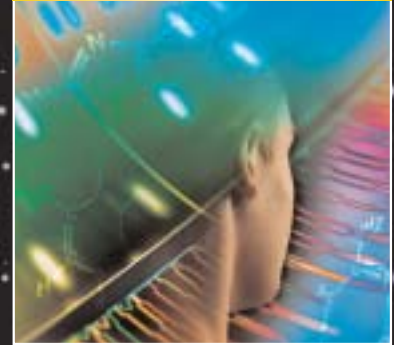
Genetic Engineering



Scientists can manipulate DNA or genes in an organism or transfer the genetic material from one organism to another. Such techniques are used to:

- Clone molecules to produce useful products
- Create genetically modified crops
- Develop gene therapies

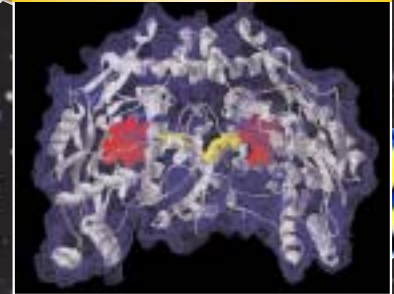
Forensics and Heredity



The similarities and differences in the DNA of individuals are like a fingerprint - DNA analysis has allowed scientists to:

- Solve crimes
- Show disease linkages
- Trace family histories

Protein Structure and Therapy



DNA contains the keys to unlocking the secrets of basic protein structure. Proteins are the complex building blocks of all life forms, so by understanding the path from gene to protein, researchers can:

- Understand protein function
- Design new drugs

<http://www.faseb.org/opa/genetics/>



The Federation of
American Societies for Experimental Biology