



Basic Science Research

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Basic Science Research

Basic science research is the investigation of a subject to increase knowledge and understanding about it. The information gathered from basic science research is essential for “translating” or applying new discoveries to patient care. For example, scientists might study certain types of cancer cells to observe how they multiply and grow in a lab. Other research models, such as studies involving animals, often are used to gain such knowledge. Basic research does not necessarily produce results that are immediately relevant for medical care, but the knowledge gained often is essential for progress in the various steps involved in new discoveries.

In medicine, basic science research aims to better understand certain diseases. Understanding the changes in cells and molecules associated with illnesses provides the knowledge that helps eventually find new ways to diagnose, treat, and prevent a variety of ailments. Clinical research, on the other hand, usually involves testing medications and other treatments for specific illnesses and conditions.

The April 3, 2002, issue of *JAMA* is dedicated to basic science and translational research.



VALUE OF BASIC SCIENCE RESEARCH

Basic science research can help in a number of ways. It can provide

- Information about genetic and environmental factors that increase disease risk, which may be useful for disease prevention or early treatment
- Information leading to new drug treatments that cure illnesses or reduce symptoms
- New findings that lead to advances in surgical tools and procedures that improve treatment and save lives
- Information for the development of medical devices that improve quality of life (such as hearing aids or artificial limbs)

HOW IS RESEARCH FUNDED?

Continuous, well-funded basic science research is the key to new discoveries in medicine and other scientific fields. In the United States, the National Institutes of Health is the main federal agency that distributes taxpayers' money to universities for research. Other federal agencies, such as the National Science Foundation, also fund research. Private companies, philanthropies, and voluntary health agencies are funding an increasing amount of research. Researchers compete for grants from these sources to fund their work.

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Lise M. Stevens, MA, Writer

Cassio Lynn, MA, Illustrator

Richard M. Glass, MD, Editor

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