PreHealth ADVISING

Biomedical Research

WHAT IS BIOMEDICAL RESEARCH?
Biomedical research is the pursuit of answers to medical questions. These investigations lead to discoveries, which in turn lead to the development of new preventions, therapies and cures for human and veterinary health. Biomedical research generally takes two forms: basic science and applied research.

Basic biomedical research is the quest for knowledge about how organisms and pathogens function. The applicability of these studies to human health may not always be immediately obvious. For example, one might question the purpose of determining the precise molecular structure of the vitamin folic acid. However, it was this type of investigation that led directly to the synthesis of the first successful anti-leukemia drugs during the 1950s and 1960s. Used in combination, these medicines halved the death rate for leukemia, which had been the second greatest killer of children during the mid-20th century.

WHO ARE BIOMEDICAL SCIENTISTS?
Biomedical scientists bridge the gap between the basic sciences and medicine. The Ph.D. degree is the gateway to a career in biomedical research.
Biomedical scientists:

- Think outside the box and are innovators
- Are critical and analytical thinkers
- Get excited by discovering new things
- Look at biology and see previously unrecognized patterns
- Enjoy the freedom to pursue interesting questions
- Have the persistence to a see a project through from small beginnings to great discoveries
- Want to improve the human condition through their work
- See the power of biomedical research to change the world

BIOMEDICAL RESEARCH DISCIPLINES TO PURSUE BASED ON YOUR AREA OF INTEREST

- Biochemistry
- Bioinformatics
- Biomedical Engineering
- Cancer
- Cell Biology
- Genetics
- Immunology
- Neuroscience
- Physiology
- Translational Research

CAREER PATHS FOR PH.D. GRADUATES
Biomedical scientists may use their knowledge of biomedical research to:

- Direct a research lab and decide which scientific questions to investigate
- Be part of a team of scientists working together to solve problems of health and disease
- Manage and coordinate large scientific projects (across institutions and/or across the world)
- Teach others about biomedical science including how to do research and how to think about and understand scientific information

BIOMEDICAL RESEARCH

- Inform policy makers about scientific matters that impact health and science
- Communicate (by writing and speaking) and disseminate the latest information about scientific and medical discoveries
- Translate discoveries and inventions from the most fundamental level to every day usage

SAMPLE PHD PROGRAMS IN BIOMEDICAL RESEARCH

- Vanderbilt University School of Medicine Interdisciplinary Graduate Program
- Duke University School of Medicine Biomedical Graduate Programs
- Johns Hopkins School of Medicine Graduate Programs
- The Institute for Biomedical Sciences at George Washington School of Medicine & Health Sciences
- Mayo Clinic Graduate School
- Stanford School of Medicine: Biosciences
- Weill Cornell Graduate School of Medical Sciences
- University of Chicago Graduate Programs in the Biomedical Sciences

FOR ADDITIONAL INFORMATION

- National Institutes of Health: *NIH.gov/Science*
- AAMC, PhD in Biomedical Sciences: *AAMC.org/Students/Research/PhD*
- The American Association for the Advancement of Science: *AAAS.org*
- Occupational Outlook Handbook: Medical Scientists Overview: *BLS.gov/OOH/Life-Physical-and-Social-Science/Medical-Scientists.htm*
- Foundation for Biomedical Research: *FBResearch.org*

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