Fields of Biomedical Research and Related Careers

Minimum Requirements/Conditions
- Indirect Work with Animals
- Work with Animals
- Certification Possible or Required
- Graduate Degree
- College Degree (2 & 4 years)
- High School Diploma

Career Opportunities

Animal Behaviorists
- study animals to collect data on their behavior and activity.

Animal Care/Laboratory Animal Technicians
- provide food and water, clean housing, and enrichment for laboratory animals and monitor animal health on a daily basis.

Animal Facility Supervisors
- oversee the animal facility setting, ensuring that all laws and regulations are followed.

Animal Health Technicians
- monitor animal health and provide medical care as prescribed by a veterinarian.

Biomedical Engineers
- work in the practical application of engineering as it relates to health and medicine.

Cagewashers and Facility Maintenance
- personnel keep research facilities and equipment clean, dependable, and safe.

Clinical Trials Associates
- organize the testing of new drugs and technical procedures on humans.

Computer Scientists and Programmers
- create and design programs for use in research.

Engineers
- design and create equipment, facilities, devices, and materials used in a research environment.

Laboratory Assistants
- help technicians, veterinarians, and researchers in the laboratory setting.

Laboratory Veterinarians
- provide medical care to animals, perform independent research, and serve as consultants and collaborators to research investigators.

Medical Doctors
- provide medical care to humans, work on advances in medical procedures and surgical techniques, and discover new drugs and medical treatments.

Medical Technologists
- perform laboratory tests in medical and hospital diagnostic laboratories.

Nutritionists
- design healthier diets for animals and humans and study foodborne illnesses.

Pharmaceutical Technicians
- assist researchers in discovering and creating new medicines.

Pre-Clinical Trials Associates
- work with scientists testing new drugs and procedures on animals prior to testing on humans.

Regulatory Affairs Specialists
- maintain and enforce the laws and rules that govern the use of animals in all areas of research.

Research Associates/Technicians
- work with scientists, doctors, and vets in laboratories assisting in experiments, analyzing data, and maintaining equipment.

Researchers/Scientists
- study medical conditions and conduct experiments in all fields of biomedical research to develop new medical techniques, devices, treatments, and medicines.

Statisticians
- use computers to help researchers design experiments and analyze the results.

Technical Writers
- record and publish the results of research, the protocols for research, and the specifications and procedures for using new medicines and surgical advances.

U.S. Department of Agriculture Inspectors
- are responsible for inspecting farms, meat packing facilities, zoos, and medical research facilities to ensure that all federal laws are strictly upheld.

Veterinary Technicians
- assist veterinarians with veterinary care. They can work in private animal clinics, animal hospitals, zoos, or research facilities.
What is biomedical research?
Biomedical research is the broad area of science that is undertaken to gain knowledge and understanding of the biological processes and the causes of disease. Biomedical research is an evolutionary process that requires the input and participation of many professionals. Through careful experimentation, laboratory work, analysis, and testing, biomedical researchers look for ways to prevent, treat, and cure diseases that cause illness and death in people and in animals.

Who conducts biomedical research?
This broad field of research includes many important areas of both the life and physical sciences and requires a team of people drawn from different backgrounds and specialties. Such a team might include medical doctors, veterinarians, computer scientists, engineers, animal care technicians, research technicians, and a variety of scientists working together to study the biological processes of a disease in order to develop an effective treatment and search for a permanent cure. They design and conduct experiments that help them understand what causes the problems and to identify ways to either treat or cure the disease. Depending on their area of expertise, researchers investigate many conditions from spinal cord injuries to cancer, from viruses to antibiotics, and from asthma to diabetes. They seek to cure medical conditions and diseases that affect our families and friends, our pets, wildlife, and zoo animals, and even ourselves.

What is laboratory animal science? Why is it important to biomedical research?
Laboratory animal science is the area of biomedical research that specializes in the care and study of animals used in medical research, testing, and teaching. Animals are a critical part of biomedical research for many reasons. Before scientists can develop ways to treat health conditions in both humans and in animals, they need to understand the situation. Researchers use animals to learn more about these conditions and to discover more effective methods for diagnosing, treating, and curing diseases that affect both humans and animals and to assure the safety of new medical treatments and procedures. Scientists and medical researchers continue to look for ways to reduce the number of animals needed to obtain valid results, to refine experimental techniques, and to replace animals with other research methods. Currently, even the most sophisticated technology cannot mimic the complicated interactions occurring among cells, tissues, and organs in a living body; so, animals will continue to play an important, and irreplaceable, role until effective alternatives are found. Researchers remain devoted to providing the care necessary for these animals, which also strengthens valid and reliable research results.

What kinds of careers are there in biomedical research?
Depending on your interests and the field of science you like best, there are many career options in biomedical research:

- Research scientists work in a research laboratory designing and conducting experiments.
- Computer programmers and statisticians work with computers creating programs, tallying data, and doing statistical analysis of research results.
- Technical writers use their good writing skills to prepare grant applications, write research plans, and summarize results.
- Medical doctors work with human patients.
- Veterinarians and animal care technicians care for research animals.
- Engineers design and maintain medical devices, research equipment, animal housing, and laboratory facilities.

The main characteristics these careers have in common are a joy for discovery, a need to further our understanding of disease, medical conditions, and health, and the desire to help both humans and animals. There is a job in biomedical research that will suit you perfectly!

Where would I work?
As a career in biomedical research cover a wide range of positions and fields, jobs can be found around the world and in a variety of work environments. There are positions in:

- Research corporations
- Biotech firms
- Colleges/Universities
- Pharmaceutical companies
- Hospitals/medical schools
- Veterinary schools
- Military/government agencies
- Non-profit associations
- Voluntary health organizations

How do I prepare for a career in biomedical research?
Whether you plan for a career in biomedical research, a strong foundation in the life and physical sciences and math in high school is important. While some jobs in research require only a high school diploma, others need specific training, certification, or a college degree, and still others require education beyond the four-year college degree. It is important that you take advantage of all the classes your school offers in these areas.

Once you are in college, always work with your academic advisor to plan your course load to not only satisfy all graduation requirements, but to also gain exposure to the sciences relating to biomedical research. Knowing more about each field of science can better help you choose the specific area for your future career!

Many in biomedical research have gone onto graduate school after college and obtained advanced degrees. If you want to pursue a career that requires graduate school or a professional degree, keep in mind there are individualized requirements for specific college courses and entrance exams for graduate, medical, or veterinary school.

Work with your academic advisor to ensure you are adequately prepared!

Careers in Biomedical Research

Careers in Biomedical Research is published by the American Association for the Assessment of Laboratory Animal Care (AALAS) and is intended for those desiring to work in the animal care and research field. For more information visit their web site at www.aalas.org.