

Fields of Biomedical Research & Related Careers



Research Veterinarians research the diseases and conditions associated with domestic pets, livestock, and wild animals and develop vaccines, treatments, and cures.



Toxicologists study toxic substances and their effects on organisms, helping people and animals that have been poisoned by household or industrial toxins, environmental toxins, and prescription and nonprescription drugs.



Microbiologists research the causes of disease such as viruses, bacteria, fungi, and parasites.

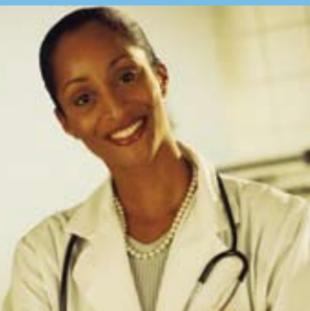


Endocrinologists research disorders of the endocrine system and related conditions such as diabetes, obesity, and thyroidism.



Oncologists research ways to treat and cure all types of cancer, in humans and in animals.

Cardiologists research disorders of the heart and blood vessels and develop life-saving drugs and surgical techniques such as pacemakers and artificial heart valves.



Immunologists study the body's defense mechanisms against viral or bacterial invasions and develop preventative vaccines and treatments.



Geneticists study heredity, genes, and DNA. Stem cells and genetically modified organisms are areas of such research.



Pulmonologists research ways to treat diseases of the lungs and airways such as lung cancer, pneumonia, pleurisy, asthma, sleep disorders (which often affect breathing), and emphysema.



Hematologists research ways to treat diseases of the blood, spleen, and lymph glands, such as anemia, sickle cell disease, hemophilia, and leukemia.



Career Opportunities

Career Opportunities	Minimum Requirements/Conditions					
	High School Diploma	College Degree (2 & 4 years)	Graduate Degree	Certification Possible or Required	Work with Animals	Indirect Work with Animals
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 food-borne 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. Look around the edges of the chart for some examples!				●	●	●
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.		●		●	●	



www.ca-biomed.org/csbr



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FOR LABORATORY ANIMAL SCIENCE
www.aalas.org



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www.kids4research.org

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researchers continue to look for
Scientists and medical
treatments and procedures.
the safety of new medical
and animals and to assure
that affect both humans
treating, and curing diseases
methods for diagnosing,
and to discover more effective
learn more about these conditions
to understand the situation. Researchers use animals to
conditions in both humans and in animals, they need
are a critical part of biomedical research for many
used in medical research, testing, and teaching. Animals
research that specializes in the care and study of animals
Laboratory animal science is the area of biomedical

Important to biomedical research? Why is it

an effective treatment and search for a permanent cure.
of a disease in order to develop
study the biological processes
scientists working together to
technicians, and a variety of
care technicians, research
scientists, engineers, animal
veterinarians, computer
include medical doctors,
specialties. Such a team might
different backgrounds and
team of people drawn from
areas of both the life and physical sciences and requires a
This broad field of research includes many important



Who conducts 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.

What is biomedical research?

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Careers in Biomedical Research



Accept the Challenge to Care

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

are positions in:
Just as careers 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

Where would I work?

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!

- **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.

Depending on your interests and the field of science
you like best, there are many career options in biomedical
research!

What kinds of careers are there in biomedical research?

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
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 best care for these animals, which also
strengthens valid and reliable research results.

How do I prepare for a career in biomedical research?

colleges, a strong grounding in the sciences and math,
grades, or an advanced degree, make sure you have good
school or a career that requires a
a career right out of high
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four-year college degree. It
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research require only a high school diploma, others need
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Start right now! For any career in biomedical research,



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requested through:



www.ca-biomed.org/csbr

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For additional information, resources, and web links
about the interesting career opportunities in biomedical
research, visit:

- www.kids4research.org
- www.ca-biomed.org/csbr

Have your teacher or guidance counselor request a
copy of the video, *Accept the Challenge to Care: Careers in
Laboratory Animal Science* from the American Association
for Laboratory Animal Science (AALAS) at www.aalas.org. This video explores a variety of career choices in
laboratory animal science and the benefits of biomedical
research to both people and animals.

Some photos were provided by:
National Cancer Institute, Diane A. Reid; J. W. Hastings, Harvard University, through E. G. Ruby, University of
Hawaii; Argonne National Laboratory; Georgia Institute of Technology, Stanley Leary; CDC / James Gathany

Not all careers in biomedical research require a college
or advanced degree. Some careers
in research require certification
or specialized training instead
of, or in addition to, college
or graduate school. The
American Association for
Laboratory Animal Science
(AALAS) has both technician
and management certification
programs for those desiring to
work caring for animals in the
research field. For more information visit their web site at
www.aalas.org.



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
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are adequately prepared!

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Careers in biomedical research provide an opportunity
for discovery, and each day professionals in this broad
field know they are making a difference in the lives of
people and animals. Their work provides hope to millions
suffering from medical conditions or diseases—hope
for new and better treatments, hope for a better life,
hope for a cure. Through their individual contributions,
biomedical researchers have the potential to improve
the lives of countless people and animals all over the
world. From engineers to scientists, from nutritionists
to computer scientists, and from technical writers to
laboratory animal technicians, these people have chosen
to accept the challenge to care. You can too—by choosing
a career in the exciting, demanding, and rewarding field
of biomedical research.

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