

BIOTECHNOLOGIST

ALSO KNOWN AS:

BIOPROCESS ENGINEER

GENETIC ENGINEER

BIOCHEMICAL ENGINEER

BIOINFORMATICIAN

BIOMEDICAL SCIENTIST

CONJURE SOLUTIONS TO GLOBAL CHALLENGES.

In the microscopic realm where biology meets technology, biotechnologists conjure solutions to global challenges. They're the architects of a future where science fiction becomes science fact.

KEY SKILLS

Skills which may benefit anyone considering a job as a biotechnologist include:

- ☑ Bioinformatics
- ☑ Data analysis
- ☑ Laboratory techniques
- ☑ Bioprocess design
- ☑ Genetic engineering

CAREER PROGRESSION

In this role, you may have the opportunity to progress to other positions. Career progression opportunities include:

- Chemical Engineer
- Supply Chain Manager
- Chief Operating Officer
- Chief Engineering Officer

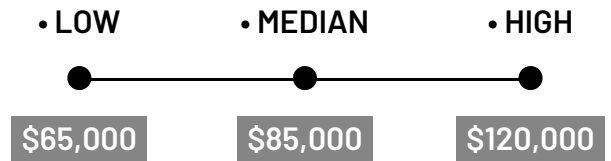
VALUES & ATTRIBUTES

Values and attributes of anyone considering a job as a biotechnologist include:

- ☑ Innovative
- ☑ Attention to detail
- ☑ Curious
- ☑ Ethical
- ☑ Collaborative
- ☑ Investigative – "Thinker"

SALARY EXPECTATION

The expected salary for Biotechnologist can vary across different areas of manufacturing and may vary as you become more experienced.



RELATED INDUSTRIES

► Chemicals, Hydrocarbons and Refining ► Laboratory Operations ► Polymers, Plastic and Rubber

RECOMMENDED SCHOOL SUBJECTS

- Mathematical Methods
- Physics
- Science in Practice

CORE SCHOOL SUBJECTS

- General Mathematics
- Essential English
- Biology
- Chemistry

JOB OVERVIEW

Biotechnologists harness the power of living organisms and biological systems to develop innovative products and processes. From creating disease-resistant crops to developing new pharmaceuticals and sustainable biofuels, these professionals are at the forefront of scientific advancement across various industries including healthcare, agriculture, and environmental conservation.

Working in research laboratories, pharmaceutical companies, or agricultural firms, biotechnologists collaborate with a diverse team of scientists, engineers, and medical professionals. They design and conduct experiments, analyse complex biological data, and develop new biotechnological products and processes. A typical day might involve manipulating genetic material, optimising fermentation processes, analysing protein structures, or developing new diagnostic tools.

Biotechnologists need a strong foundation in biology, chemistry, and genetics, coupled with proficiency in advanced laboratory techniques and data analysis. They must be skilled in using specialised equipment such as DNA sequencers and mass spectrometers. Critical thinking, problem-solving, and the ability to adapt to rapidly evolving technologies are crucial. Additionally, they should stay informed about ethical considerations and regulations in biotechnology.

WHAT WILL YOU DO?

Your role may include duties as follows:

1. Design and conduct experiments to develop new biotechnology products
2. Analyse and interpret complex biological data
3. Develop and optimise bioprocesses for large-scale production
4. Collaborate on interdisciplinary research projects
5. Ensure compliance with safety and ethical guidelines in biotechnology

HOW TO BECOME A BIOTECHNOLOGIST

Becoming a biotechnologist typically requires at least a bachelor's degree in biotechnology, biology, or a related field. Many positions, especially in research or leadership roles, may require advanced degrees. Here are the steps to pursue this career:

1. Complete a bachelor's degree in biotechnology, molecular biology, or a related field
2. Gain practical experience through internships or entry-level positions in biotechnology companies or research institutions
3. Consider pursuing a master's or Ph.D. for advanced research positions or specialisations
4. Stay updated with the latest advancements in biotechnology through continuous learning and professional development

VOCATIONAL EDUCATION & TRAINING

While most biotechnology positions require a bachelor's degree or higher, there are vocational education and training options that can provide foundational knowledge and skills in related areas. These courses can be beneficial for those looking to enter the field as technicians or to supplement their scientific education.

- Certificate III in Laboratory Skills (MSL30118)
- Certificate IV in Laboratory Techniques (MSL40118)
- Diploma of Laboratory Technology (MSL50118)

UNIVERSITY & HIGHER EDUCATION

A bachelor's degree in biotechnology, molecular biology, or a related field is the most common entry point for this career. These programs provide a strong foundation in biological sciences, genetics, and biotechnology techniques. Many universities also offer specialised master's and doctoral programs for those seeking advanced positions or research opportunities.

Typical degree options include:

- Bachelor of Science (Biotechnology)
- Bachelor of Biomedical Science
- Master of Biotechnology
- Doctor of Philosophy (Ph.D.) in Biotechnology or Molecular Biology

These programs offer in-depth knowledge of genetic engineering, bioprocessing, and bioinformatics, preparing graduates for innovative roles in various biotechnology sectors.