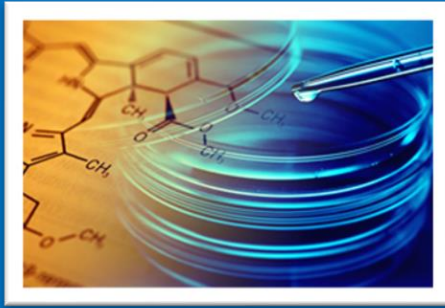


CAREER PROFILE: Biotechnology/Pharmaceuticals/Medical Devices

CAPD E17-294 www.capd.mit.edu 617-715-5329



Employment and Internship Opportunities

EXAMPLES OF EMPLOYERS HIRING MIT STUDENTS (2018)

- Ethicon
- Finch Therapeutics
- GE Healthcare
- CRISPR Therapeutics
- Amgen
- Genentech
- Medtronic
- MGH
- Neocis
- Roivant Sciences
- Vertex Pharmaceuticals
- Plus others

OVERVIEW

Biotechnology, pharmaceutical, and medical device companies are involved with the research, development, and manufacturing of drugs, medical diagnostics, or medical devices.

In general, biotechnology/biopharmaceutical companies are smaller start-ups while pharmaceutical companies are larger well-established entities that have grown through mergers of US and international firms. Successful biotech start-ups are often acquired by pharmaceutical companies seeking new pipeline drugs or technologies.

CAREER PATHS

Job seekers with a BS degree typically enter the field by working as a research assistant in the laboratory of a PhD scientist. Master's degree research scientists may have slightly more responsibility than those with BS degrees but often hold similar roles.

Depending on the degree field, it is sometimes difficult for PhD graduates to obtain high-level research positions without post-doctoral experience and publication history.

In addition to research, this industry offers numerous positions in business and management. Familiarity with industry-specific issues (e.g., regulatory affairs) is of great value in obtaining non-research positions.

GEOGRAPHIC LOCATIONS

The main biotech "clusters" are located in the Bay Area in Northern California and in the Cambridge/Boston area in Massachusetts. Many headquarters for major US pharmaceutical companies are in New Jersey and New York.

EDUCATION

Degrees in these majors are especially valued:

Biology
Chemistry
Chemical Engineering
Biological Engineering
Mechanical Engineering
Computer Science
Computer Science and Computational Biology
Brain and Cognitive Sciences
Mathematics
Management

GAINING EXPERIENCE WHILE AT MIT

Undergraduate research positions are offered at MIT through the Undergraduate Research Opportunities Program (UROP). For positions in the biotechnology field, it's recommended that undergraduates gain experience in at least two laboratories to help them determine a specific research interest.

- UROP <https://urop.mit.edu/>
- Bio-Instrumentation Laboratory <https://bioinstrumentation.mit.edu/>
- Center for Biomedical Engineering <http://web.mit.edu/cbe/www/>
- Center for Environmental Health Sciences <http://cehs.mit.edu/>
- Koch Institute for Integrative Cancer Research <https://ki.mit.edu/>
- MIT Synthetic Biology Center <http://synbio.mit.edu/>
- Whitehead Institute for Biomedical Research <http://wi.mit.edu/>

In addition, pharmaceutical and biotechnology companies often have summer internship programs that can provide valuable industry experience.



BIOTECH / PHARMA / MED DEVICES

CAPD KEY COMPETENCIES

Communication
Interpersonal Skills
Leadership & Mentoring
Career Advancement
Social Responsibility
Teaching
Personal Development

INTERVIEW QUESTIONS

Behavioral – use the **STAR** (Situation, Task, Action, and Result) approach to answer questions. Be specific rather than general in your answers, and quantify the results whenever possible.

1. Why do you want to work at this company?
2. Tell me about a time when you had to resolve conflict within a team.
3. Have you ever encountered unexpected challenges in your research? How did you resolve them?
4. What is a technical accomplishment you are most proud of and why?

PhD candidates will be asked to prepare a talk as a part of the interview process.

Expect to be asked about your research, lab skills and familiarity with certain equipment and techniques. For entry-level research positions, companies often expect a baseline level of familiarity with the most common techniques such as pipetting, measuring/weighing chemicals, assays, etc. You can acquire these skills in laboratory classes and in an Undergraduate Research Opportunities Program (UROP).



HIRING TIMELINE

Jun July Aug Sept Oct Nov Dec Jan Feb Mar Apr May

Recruitment for full-time biotechnical, pharmaceutical, and medical device positions occurs year-round but is highest from Jan - Apr

WHAT TO INCLUDE ON A RESUME

Research experience- include all relevant research and laboratory classes that demonstrate your skills, techniques and familiarity with using equipment.

Publications- are very important in this field since they prove your work was reviewed and respected by your peers. Include complete citations.

Presentations-The ability to create and deliver a presentation is also a skill that should be highlighted.

If you have a PhD, industry positions typically want a 2-page resume.

For business positions, as well as research positions, highlight your management skills, teamwork experiences, communication skills, collaboration, leadership, etc.

RESOURCES

Massachusetts Biotechnology Council (Mass Bio)

<https://www.massbio.org/>

Biotechnology Innovation Organization (BIO) <https://www.bio.org/>

BioSpace <https://www.biospace.com/jobs/>

American Assoc. of Pharmaceutical Scientists (AAPS)

<https://www.aaps.org/home>

American Society for Microbiology (ASM): <https://www.asm.org/>

European Federation of Pharmaceutical Industries & Assoc.

<https://www.efpia.eu/>

Pharmaceutical Research and Manufacturers of America

(PhRMA) <http://www.phrma.org/>

MIT Alumni Advisors Hub: <https://alumniadvisors.mit.edu/>

MIT Biotechnology Group: <http://biotech.mit.edu/>

MIT Bioengineering Comm Lab: <https://mitcommmlab.mit.edu/be/>

SALARY INFORMATION

Recent salaries offered to new graduates in Pharmaceuticals, Biotechnology, and Medical Devices can be found at:

<https://capd.mit.edu/resources/survey-data>

These salaries may include non-research management positions.

2018 MIT Bachelors Median Salary: \$75,000 (range \$50,000 - \$82,000)

2018 MIT PhD Median Salary: \$102,000 (range \$40,000 - \$140,000)

