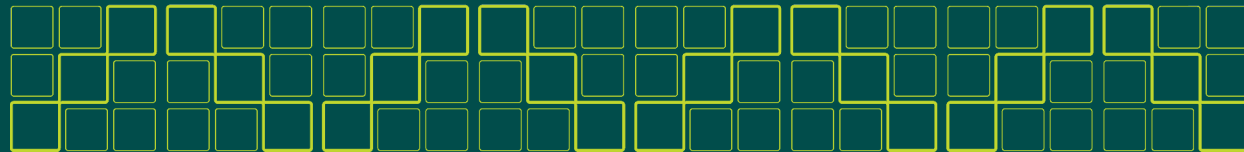
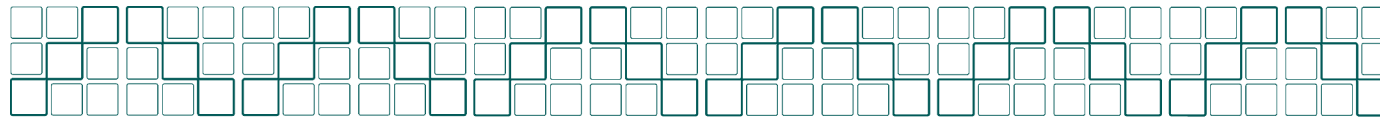

Industry Careers

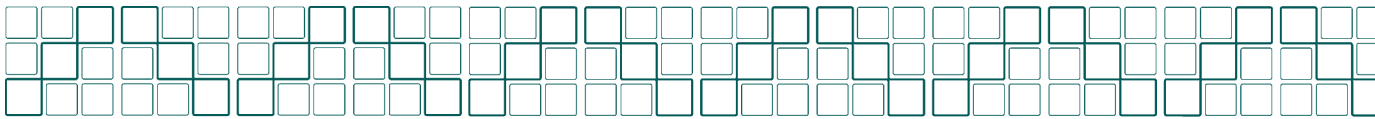
Lori M. Conlan, PhD
Director, Office of Postdoctoral Services
and the Career Services Center





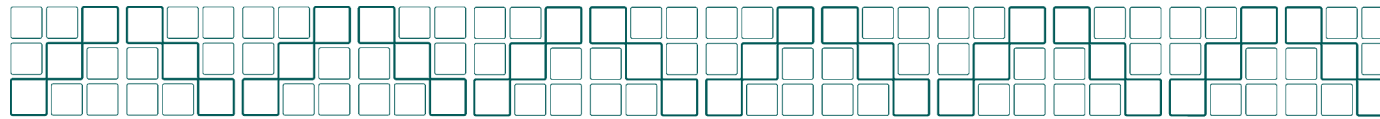
Trends

- From 1980-2010
 - Search for blockbuster drugs
 - Industry consolidation
- From ~2007
 - Inefficient R&D
 - No blockbuster drugs
 - Patent cliff
 - Recession
- New strategies
 - Downsize
 - Acquire technologies (not companies)
 - Switch from blockbuster to market opportunities
 - Reduce costs



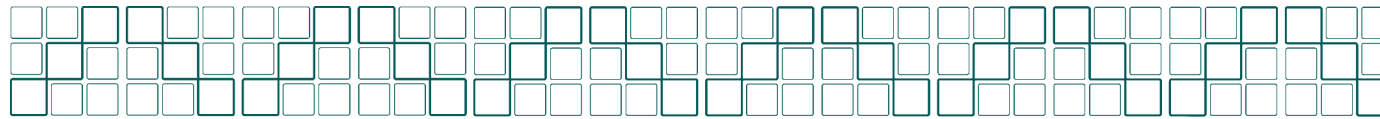
Trends in 2019

- **Innovation is being driven via collaboration from multiple industry stakeholders:** The emergence and development of new tools like nanosensors, bi-specific antibodies, and computational biology have highlighted the success that can be achieved from collaboration
- **Technologies are being adopted to advance drug research:** budgets will continue to increase to allow for new technological advances, including the use of artificial intelligence in R&D decision making. Also new devices (ie diabetes monitors)
- **New types of research are coming to the forefront:** Research in precision medicine, immunotherapy, and the microbiome are opening up new discovery pathways.
- **Digitization of R&D and healthcare will increase:** R&D functions are already beginning to adopt large-scale use of cloud-based platforms, but this will accelerate this year.
- **Academia is increasingly contributing to biologics R&D:** significant contributions to scientific innovation across genetic and cellular therapies, with antibodies, CAR-T, and CRISPR-Cas9, etc



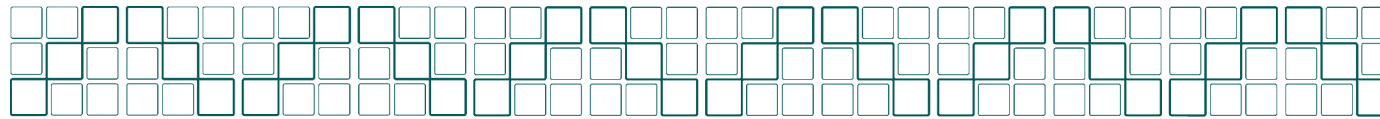
What is different about industry?

- Matrix teams
- Deadline driven
- Results driven
- Money driven
- Resources rich
- Protect intellectual property



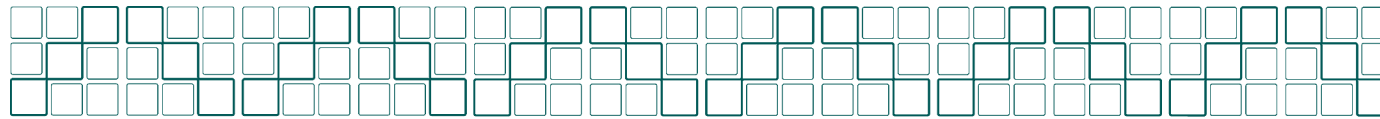
What's Out There?

- Kinds of Companies
 - ◆ Pharma (including generics)
 - ◆ Biotechs
 - ◆ Science supply
 - ◆ Medical Devices and Diagnostics
 - ◆ Service Providers: Contract Research Organizations, Regulatory, Marketing/analytics
 - ◆ Venture cap/investors
 - ◆ Non-profits, NGOs



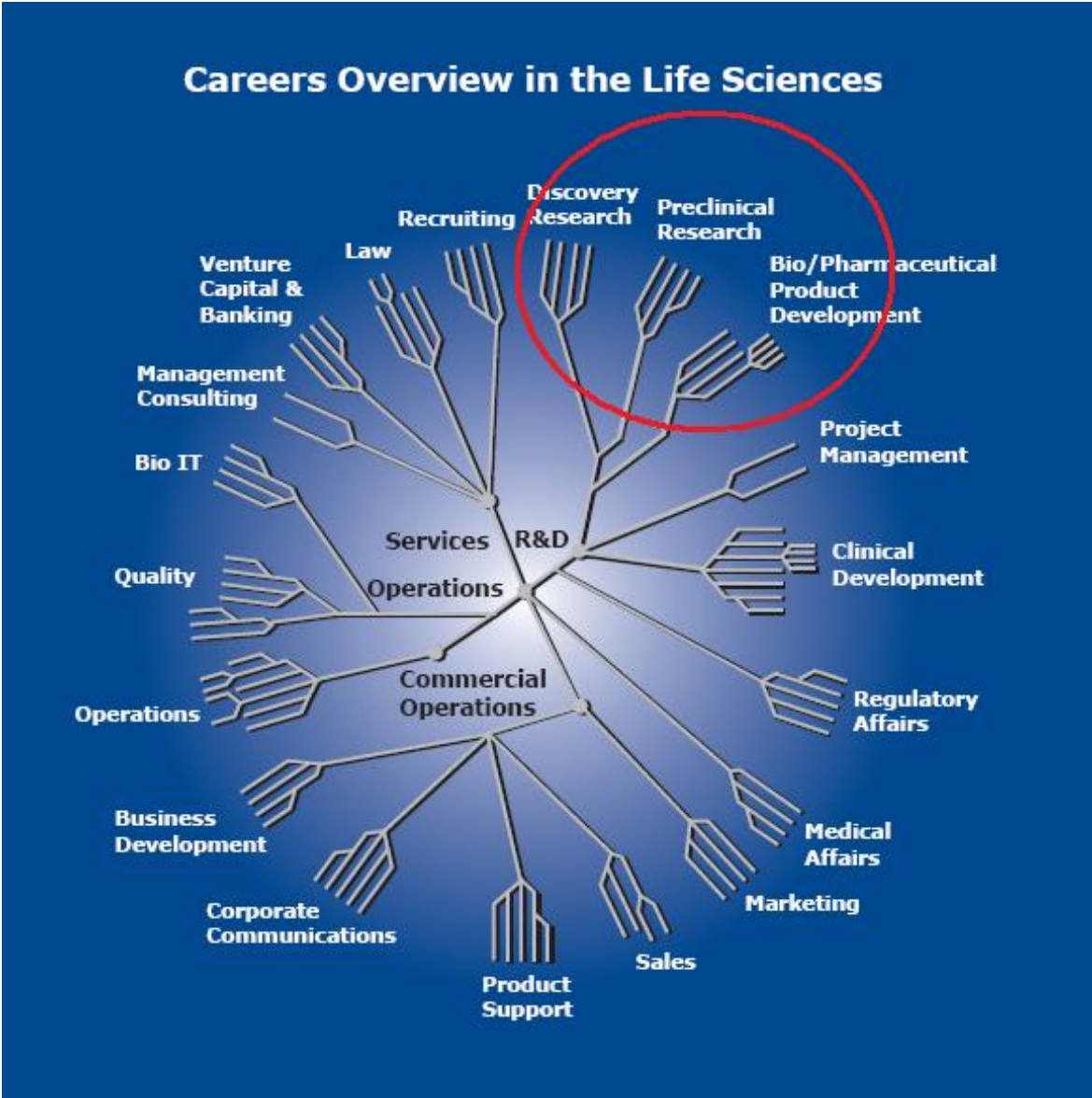
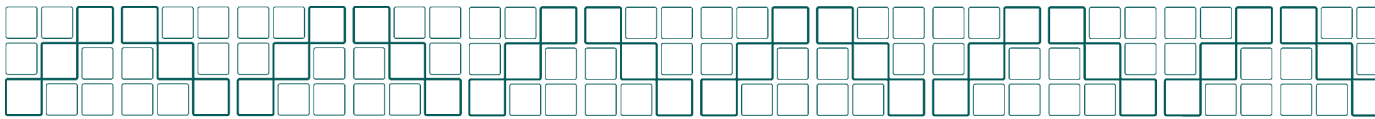
Where are the Jobs?

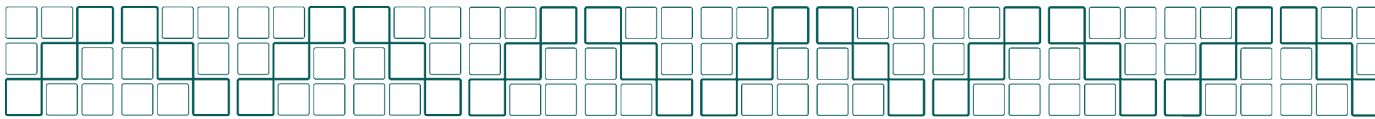
Mega-companies	Annual revenues greater than \$10B 70,000+ employees worldwide
Large Companies	Annual revenues between \$1B - \$10B 2500 - 70,000 employees
Medium Companies	Annual revenues between \$500M - \$1B 100 - 2500 employees
Small Companies	Annual revenues between \$100M - \$500M 20 - 100 employees
Early Stage / Start-ups	Annual revenues between \$0 - \$100M 1 - 20 employees



Example Companies

	Mega	Large	Mid-size	Small	Early Stage/ Start-up
Pharmaceutical	Pfizer BMS GSK	Medimmune Teva B. I.	Endo Eisai Millennium	Macrogenics Purdue	Vanda
Biotech	Amgen	Celgene	Shire HGS	Vertex Alexion	Achillion GlycoMimetics NovaVax
Device	J & J	Baxter	Covidien	PPG	
Consumables	GE	Thermo Fischer Scientific	Life Technologies	Qiagen OriGene	
Contract Organization	Quintiles Covance	PPD	Accelovance	Westat	KAI Research, Inc.





Opportunities in R & D

Discovery

Drug discovery research; also positions in life sciences companies that provide platform technologies, instruments, reagents and medical devices. **Qualifications: PhD with some specialization in post-doctoral work**

Preclinical

Conduct research to identify, synthesize and characterize new drug candidates. **Qualifications: PhD with some specialization in post-doctoral work**

Clinical

Conduct research to test drug safety and efficacy in humans. **Qualifications: Involvement in clinical trial planning, protocol development or evaluation, execution and monitoring of clinical trials.**

Project Mgt.

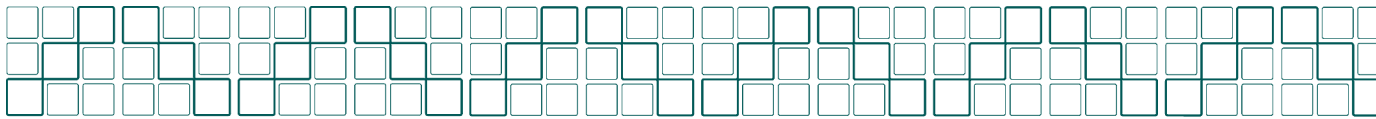
Ensure that projects are moving forward according to pre-established timelines, scope and budget. **Qualifications: MD/PhD with project management experience**

Bio-Pharm

Creating, formulating and manufacturing drug products.

Product Devel.

Qualifications: PhD and formulation experience



Opportunities in Commercial

Marketing

The development and communication of product strategic plans to achieve objectives. **Qualifications: BS/BA/MBA**

Sales

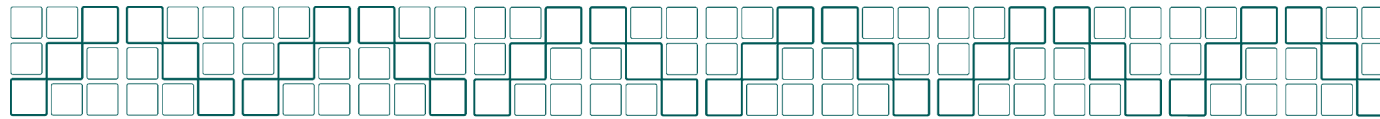
Interact with customers to generate revenues and provide education. **Qualifications: BS/BA and sales experience**

Business Development

Identify and consummate deals that further the company's strategy. **Qualifications: BS/BA/PhD in select therapeutic areas**

Corp. Comm.

Generate interest in a brand and faith in company's ethos. **Qualifications: Ability to "distill" technical information for a variety of audiences**



Opportunities Between R&D and Commercial

Product Support

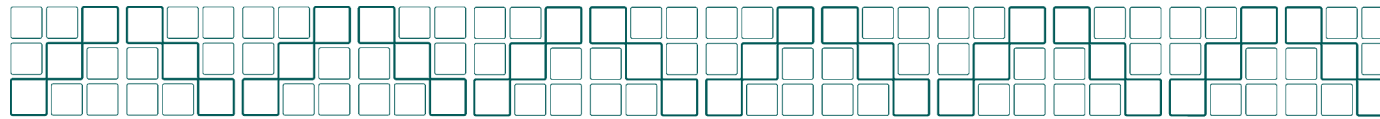
Provide technical support to enable customers to use products correctly and successfully. **Qualifications: MD or PhD with product / therapeutic expertise**

Medical Affairs

Provide medical and scientific support for company's marketing effort. **Qualifications: MD, PhD or PharmD**

Regulatory Affairs

Ensure that discovery and development processes are consistent with regulatory processes. **Qualifications: MD or PhD with knowledge of Agency requirements**



Opportunities In Operations

Operations

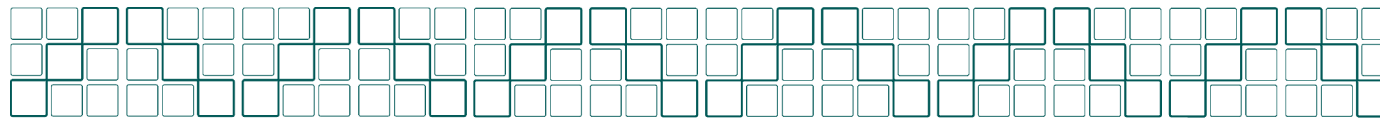
Ensure smooth operations of all processes; manufacturing.
Qualifications: BA / BS or MBA, promotional position for those with advanced science degrees

Bio IT

Systems validation, data management, algorithm and software development. **Qualifications: BA / BS with computer skills**

Quality

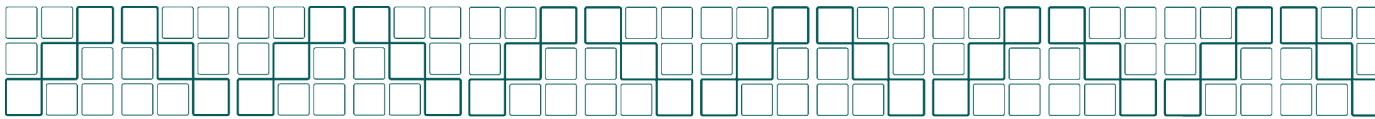
Ensure products are consistent and that all company processes comply with agency standards. **Qualifications: BS / BA, PhD is common in supervisory roles**



Opportunities in Services

Virtually all functions within a company can also be outsourced to a contract provider; i.e. Development, Regulatory, Manufacturing, Medical Affairs, Marketing, Sales, Product Support, Legal etc. Qualifications: similar to those for the internal functions

Agencies	Discovery, research, development and regulatory responsibilities performed in Government supported labs. Qualifications: MD or PhD
Management Consulting	Provide strategic and technical advice to company management. Qualifications: MD's and PhD's generally for technical and subject matter expertise
Health Care Finance	Evaluate technologies to support or reject capital investment. Qualifications: MD or PhD with a knowledge of business operations
Recruiting	Match qualified candidates with job opportunities. Qualifications: MD's and PhD's can be beneficial in recruiting for technical and scientific positions

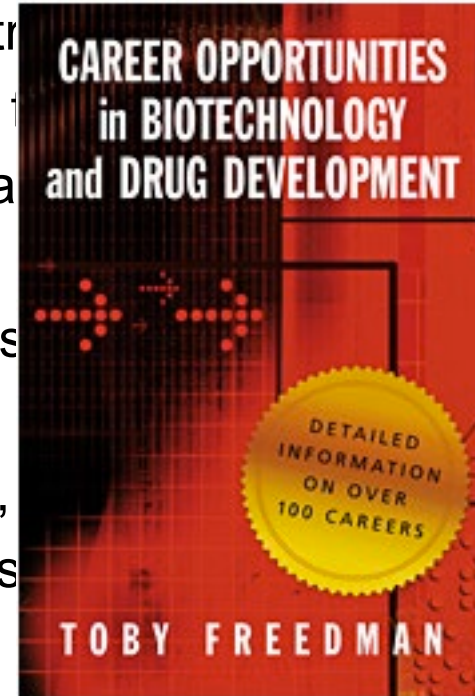
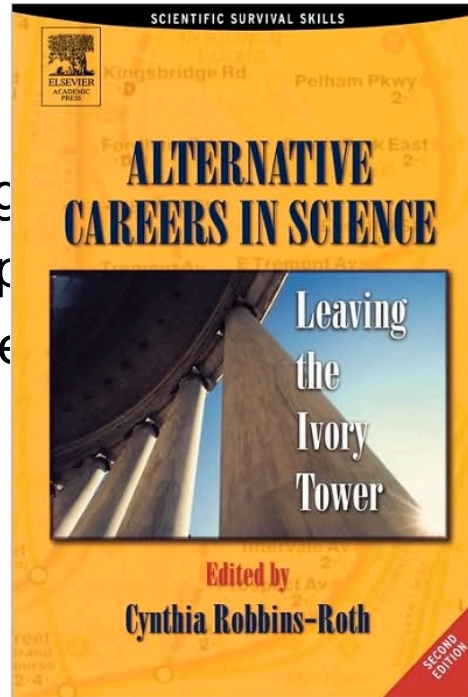


If you like

- Benchmark
- Details
- Financial data
- Organizing things
- Influencing people
- Looking at hot topics
- Being creative
- Writing
- Speaking

Then look at:

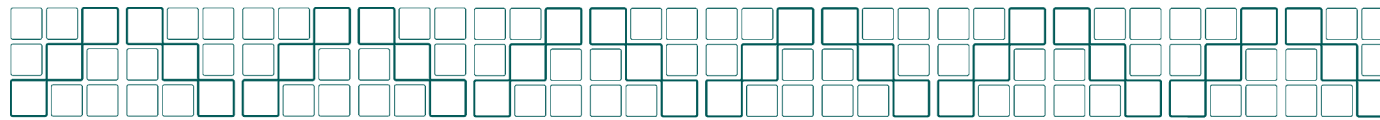
- R&D, manufacturing, QC/QA, toxicology/safety



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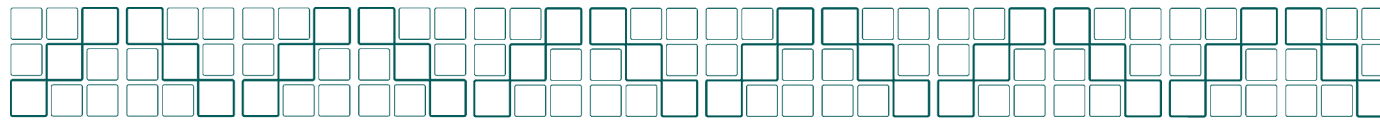
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policy



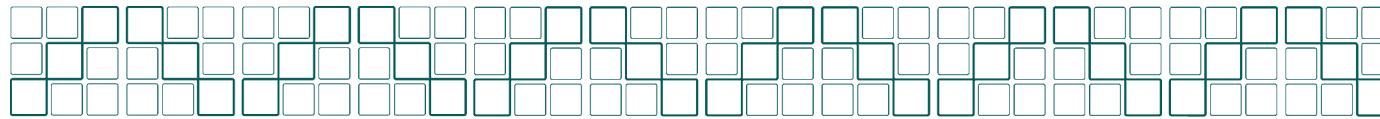
Where the Opportunities Are Likely to Be

Research Positions	Predominantly in biotech and early-stage
Development Positions	Mid- to mega-companies and CRO's
Business Development	Out-licensing - Smaller companies and early-stage In-licensing - Larger companies
Medical Affairs	Larger companies with marketing and launch products
Regulatory Affairs	Service org, Mid- to mega-companies and FDA
Product Support	Larger companies with marketing and launch products
Quality	Companies with manufacturing and Contract Manufacturing Organizations
Management Consulting	Consulting companies



Salary Data-MedImmune/AZ

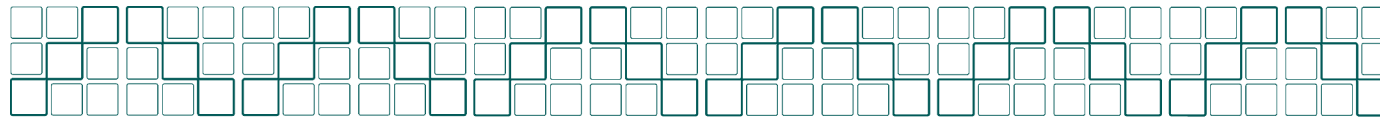
<u>Research Associate I</u>	\$69725	BS
<u>Postdoctoral Fellow</u>	\$67585	PhD
<u>Research Associate II</u>	\$68680	BS/MS
<u>Associate Scientist I</u>	\$76957	MS (maybe BS)
<u>Associate Scientist II</u>	\$93245	MS(maybe BS)
<u>Scientist I</u>	\$104224	PhD/MD
<u>Scientist II</u>	\$131180	PhD/MD
<u>Project Manager</u>	\$127790	
<u>Senior Manager</u>	\$141968	PhD/MD
<u>Senior Scientist</u>	\$152643	PhD/MD
<u>Director</u>	\$201668	PhD/MD



Skills Recruiters Seek

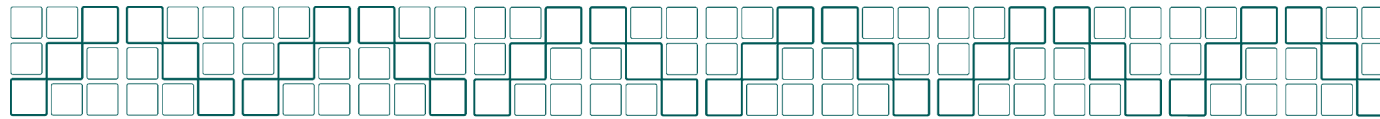
1. Communication
2. Problem solving
3. Team work
4. Self motivation
5. Initiative
6. Logical thinking
7. Ability to work under pressure
8. Time management
9. Work ethic
10. Dependability
11. Adaptability
12. Leadership
13. Organization
14. Self confidence

Reference: Monster 2011 Biotech Job Conditions Report



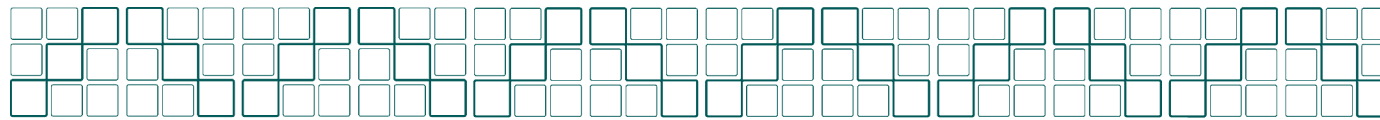
From AZ last week

- Astra Zeneca wants people who are:
 - Swift to action
 - Agile and resilient
 - Confident to lead
 - Open to collaboration
 - Curious and inspired
 - Brave
 - Focused
 - Take ownership



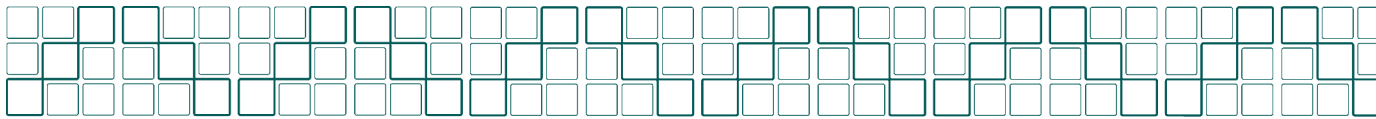
Finding a Job

- Identify companies with money and/or cash infusions
 - [Fierce](#), [BIO](#), [LifeSciVC](#)
- Identify companies with R&D projects that interest you
 - Pubmed, googlepatent, conference presentations
- Identify companies in an area you would like to live
- Build a Network- university alumni, NIH Alumni database, LinkedIn
- Prepare an industry resume



Common industry myths

- Industry does not do good science
 - Great science happens- they put those drugs into people
- No scientific freedom
 - Yes and no, you may have a defined project goal, but you can decide scientifically how to get there
- Your project can get yanked from you
 - Yes and no, priorities change and you may have to change too
- No job security
 - Yes and no, but once you have experience the next job is easier



Other OITE stuff on industry

■ BLOG Posts

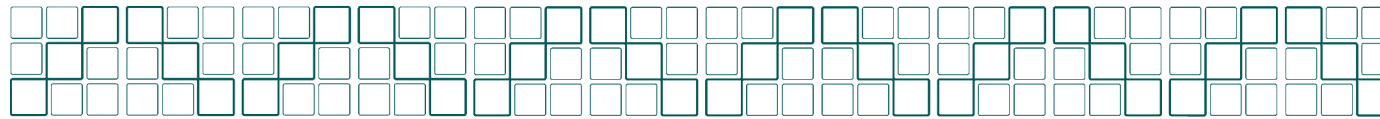
- [Where Do I Begin? Industry Careers for Scientists](#)
- [Science Careers in Industry: Top Ten Myths](#)
- [The Industry Job Search is a Marathon, Not a Sprint](#)
- [In Industry, It's About More Than Just Salary](#)
- [Industry vs. Academia: Which is Right for You?](#)

■ YouTube Videos

- [Resumes and Cover Letters](#)
- [The Business of Science](#)
- [Career Opportunities](#)

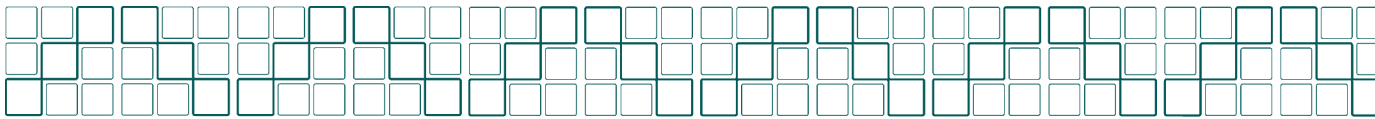
■ Videocasts

- [Top 10 List: Things Scientists Ask about Finding an Industry Job](#) [Industry Careers Overview and Job Packages](#)
- [An Overview of Careers in Industry for PhD Scientists](#)
- [The Industry Job Search: Navigating the Application Process](#)
- [Industry: Interviews](#)
- [Business Etiquette](#) (NIH only)
- [Making the Transition to Industry](#)



More resources

- Join our Listserv to get info while you are not at the NIH
 - Go to www.training.nih.gov to sign up.
- Connect with me on Linked-In and join the NIH Intramural Science Linked-In group
- Watch previous OITE career workshops, including many on CVs, resumes and cover letters
- Read the OITE Careers blog
- Join the OITE NIH Training Alumni database if you are/were a student or fellow here
- Email me at conlanlo@mail.nih.gov

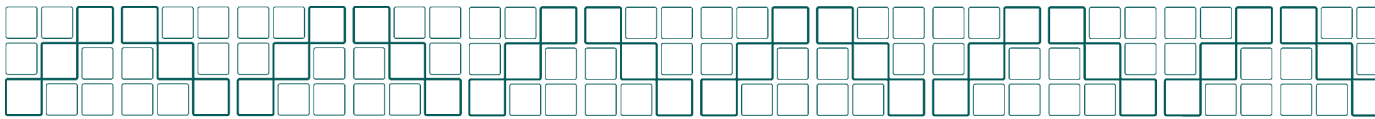


■ **Research Associate II, Formulation/Associate Scientist I, Formulation (\$60-\$65K)**

■ The candidate will be tasked with the characterization and formulation development of monoclonal antibody and novel molecule therapeutics, with a primary responsibility of supporting late stage formulation development activities. Preference will be given to those with experience in standard protein formulation development and characterization techniques (SEC, RP-HPLC, IEF, HIAC, and MFI, etc.), along with a fundamental understanding of the basic methodologies and practices of protein formulation. Experience with protein/peptide formulation, lyophilization, and protein characterization is a plus, but not required. The candidate will make detailed observations, analyze data, interpret results, maintain documentation, and prepare precise technical reports, summaries and protocols under supervision. The candidate is expected to present findings at internal meetings and contribute to the preparation of manuscripts, posters, and patent applications to highlight scientific achievement externally. The candidate also must be able function effectively as a member of a larger project and cross-functional teams as required.

Position Requirements

For the Research Associate II level, we require a BS degree with 2 - 5 years of relevant experience or an MS with 0 - 2 years of relevant experience. For the Associate Scientist I level, we require a BS with 5 - 8 years of relevant experience or an MS with 2 - 5 years of relevant experience.



■ Scientist I, Cell Line Development/Associate Scientist II, Cell Line Development (\$90K) Medimmune

The successful candidate will develop stable production cell lines for therapeutic antibodies or other protein pharmaceuticals using mammalian cell lines (CHO and NS0). In addition, responsibilities will include: being a leader in technology development projects including some or all of the following: improving the molecular biology technologies involved in cell line development; implementing recombinase-mediated targeted integration of expression cassettes; developing high-throughput robotic procedures for clonal cell line generation, expansion and evaluation; flow sorting to clone or enrich high-expressing populations; developing automated data management systems; as well as microarray or protein array profiling of cell lines to diagnose expression bottlenecks. You will maintain knowledge of current cell culture literature, presenting and publishing results inside and outside MedImmune. As a team player in our department, you will maintain the laboratory and some of its equipment and provide technical support for upstream processes in therapeutic protein manufacturing and research groups. You will keep detailed and accurate records of your work. You will author and review SOPs, batch records, development reports, regulatory filings and assist in other areas as needed, including operating bioreactors.

- Position Requirements We can hire this position at the Scientist I or the Associate Scientist II level. For Scientist I: Ph.D. 0-3 years industry experience, or M.S. degree plus 8-10 years industry experience, or B.S. degree plus 10-13 years industry experience. For Associate Scientist II: B.S. plus 8-10 years industry experience or M.S. plus 5-8 years

