Career Opportunities in the Life Sciences

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The Experiment

• A comprehensive, systematic assessment of careers in the biotechnology, pharmaceutical and medical device industries

• Not hypothesis driven, discovery based research

• Resource guide for career planning
Goals: Get on the Right Track
Goals: Be Sure To Enjoy a Job

If you are doing what you love, then it’s not really “work”
Methods

- 200+ interviews
- 1-2 hour telephone interviews
- Mostly VPs, most had Ph.D. or MD or other type of advanced degree
- About 10 interviews per chapter
- Data was compiled, analyzed and summarized
- Interviewees reviewed draft chapters
- Project took three years to complete
Results: So Many Careers To Choose!

- Discovery Research
- Recruiting
- Law
- Venture Capital & Banking
- Management Consulting
- Bio IT
- Quality
- Operations & Manufacturing
- Business Development
- Corporate Communications
- Services
- R&D
- Commercial Operations
- Operations
- Product Support
- Sales
- Medical Affairs
- Regulatory Affairs
- Clinical Development
- Project Management
- Bio/Pharmaceutical Product Development
Careers for Chemists
Careers for MDs
Careers for MBAs

- Bio IT
- Operations & Manufacturing
- Business Development
- Corporate Communications
- Sales
- Marketing
- R&D
- Services
- Operations
- Discovery Research
- Recruiting
- Preclinical Research
- Bio/Pharmaceutical Product Development
- Clinical Development
- Regulatory Affairs
- Medical Affairs
- Product Support
- Law
- Management Consulting
- Venture Capital & Banking

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If you want a 9-5 job
Who wants to be a CEO one day?

- Discovery
- Research
- Recruiting
- Law
- Venture Capital & Banking
- Management Consulting
- Bio IT
- Quality
- Operations & Manufacturing
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- Commercial Operations
- Services
- Operations
- Product Support
- Sales
- Marketing
- Regulatory Affairs
- Medical Affairs
- Clinical Development
- Project Management
- Bio/Pharmaceutical Product Development
- Preclinical Research
If you love writing...

[Diagram with various career paths such as Law, R&D, Clinical Development, Regulatory Affairs, Marketing, Product Support, Sales, Medical Affairs, Corporate Communications, Business Development, Bio IT, Project Management, Quality, Operations & Manufacturing, Management Consulting, Venture Capital & Banking, Bio/Pharmaceutical Product Development, Preclinical Research, Discovery Research, Recruiting, and Operations & Manufacturing.]
The Hidden Jobs
Hot Jobs
So Many Careers To Choose!

- Discovery Research
- Recruiting
- Management Consulting
- Law
- Venture Capital & Banking
- Bio IT
- Quality
- Operations & Manufacturing
- Business Development
- Corporate Communications
- R&D Services
- Operations
- Commercial Operations
- Product Support
- Sales
- Marketing
- Medical Affairs
- Regulatory Affairs
- Clinical Development
- Project Management
- Bio/Pharmaceutical Product Development
Many Areas to Consider

Table 6-1: Biotechnology and Drug Development Overview... Where the Jobs Are

<table>
<thead>
<tr>
<th>Drug Discovery &amp; Development</th>
<th>Biotechnology &quot;Tools&quot;</th>
<th>Biotechnology Services</th>
<th>Other Pharma/Biotech Areas</th>
<th>Government Institutions</th>
<th>Medical Devices</th>
<th>Academia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical companies</td>
<td>Reagents and Chemical suppliers</td>
<td>Management consulting and accounting firms</td>
<td>Agricultural</td>
<td>Food and Drug Administration (FDA) and CBER</td>
<td>Medical devices</td>
<td>Technology transfer</td>
</tr>
<tr>
<td>Biotechnology therapeutic companies</td>
<td>Instruments (e.g., microscopes)</td>
<td>Law firms</td>
<td>Industrial biotechnology</td>
<td>Centers for Disease Control (CDC)</td>
<td>Diagnostic companies</td>
<td>Industry-supported labs</td>
</tr>
<tr>
<td>Vaccines</td>
<td>Platform companies (e.g., genomics, proteomics, nanotechnology)</td>
<td>Venture capital and investment banking</td>
<td>Molecular diagnostics</td>
<td>National Institutes of Health (NIH)</td>
<td>eHealth</td>
<td>and institutes</td>
</tr>
<tr>
<td>Drug delivery</td>
<td>Bio-IT</td>
<td>Recruiting firms</td>
<td>Veterinary companies</td>
<td>US Patent and Trademark Office (USPTO)</td>
<td></td>
<td>Education</td>
</tr>
<tr>
<td>Molecular Diagnostics</td>
<td>Software and hardware</td>
<td>Contract research organizations (CROs)</td>
<td>Foundations, non-profits, social philanthropy</td>
<td>Research institutes and government labs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Molecular diagnostics</td>
<td>Contract manufacturers (CMOs)</td>
<td>Clean tech/energy</td>
<td>Homeland security &amp; defense</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bio-IT</td>
<td>Research and clinical testing: clinical labs, customized antibodies</td>
<td>Nanotech</td>
<td>CIA, FBI, and NASA</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Other agencies and niche providers: PR, advertising, market research, medical communications</td>
<td></td>
<td>Journalism</td>
<td>Trade commissions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Product Development Overview

Preclinical Studies
- Discovery Research
- Lead Optimization of Drug Candidates
- Bio/Chemical Process Development
- IND filing
- Preclinical Studies
- Clinical Trials
- Scale-Up / Manufacturing
- NDA or BLA filing
- FDA review
- Product Launch!
- Commercial Operations and Sales
- Phase IIIB/IV Trials

Clinical Development and Regulatory Affairs
- Medical Affairs
- Commercial Operations: Marketing, Sales, and Technical Support

Chemical and Biological Development, Operations and Manufacturing, Quality

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Drug Development: A Risky Endeavor

Discovery Research
Lead Optimization of Drug Candidates
Preclinical Studies
Bio/Chemical Process Development
IND filing
Clinical Trials
Scale-Up / Manufacturing
NDA or BLA filing
FDA review
Product Launch!
Commercial Operations and Sales
Phase IIIB/IV Trials

Discovery Research  Preclinical Studies  Clinical Development and Regulatory Affairs

Millions of compounds  6-7 → 1-2  1 in 6
Career Ladder in Discovery Research

CEO

VP R&D

VP Research or CSO

Fellow or Principal Scientist Track

Director

Group Leader

Scientist I - III

Postdoc
Why Work in Industry???

• Most common answer to why people enjoyed their jobs?
Why Work in Industry???

- Overwhelming feeling of higher aspirations for developing drugs that promise to benefit mankind
Additional Pros to Working in Industry

• Applied results
• Team orientation
• Numerous career choices to consider
• Job variety
• Intensive and continued learning
• Unlimited resources to do “big science”
Negative Aspects to Working in Industry

- Job security
- Travel
- Stress and deadline pressure
- No time to get to the bottom of interesting biological questions
- Project failures and terminations are frequent and disappointing
- Decision making
Things you can do to Increase Job Security...

- Learn new skills
- Stay at the cutting edge
- Become a recognized expert in a niche area
- Work in large companies with robust pipelines
- Work in biotechnology hubs
- Stay flexible in career
Themes to Excel

Personality attributes to be successful, regardless of the career?
Personality Attributes to be Successful in Industry

- Flexibility
- Communication skills
- Team player attitude
- Interpersonal skills
- Can-do positive attitude, sense of humor
- Ability to multitask
- Being able to see the “forest through the trees”
- Ability to understand customer’s point of view
- Creative problem solving skills
Academia is Attractive Also!

• An important role in society
• Tenure
• Pension plans
• Freedom for decision making
• Ability to remain an expert/retain narrow focus
What You Can do Now to Help Eventually Land a Job...

• Work on projects related to human disease rather than esoteric science
• Do drug screens, applied science
• Form collaborations with industry
• Gain experience with or learn about clinical trials
• Publish, publish, publish (but don’t perish)
• Give presentations and attend conferences and become a perceived expert (get visibility)
• Postdoc in industry
Follow the Industry News

• BioSpace
  – www.biospace.com

• FierceBiotech
  – www.fiercebiotech.com

• FierceBioResearch
  – www.fiercebioresearcher.com

• Nature Biotechnology and Nature Reviews Drug Discovery
  – www.nature.com/nbt/

• The Scientist
  -www.the-scientist.com
Job Search

• Build your network
Career Planning

Try to go from big to small
Career Planning

Embrace the concept of “Continued Life-Long Learning”
Career Advice...

Try to pick your boss, not the company
Career Advice...

Make sure you fit into the culture
More Career Advice...

Interview the company as much as they interview you
More Interviewing Advice...

• Don’t interview like a postdoc!
Career Planning

Find your niche
Recent and some spectacular layoffs in the Bay Area in both biotech and medical device companies:
Amgen, Roche, Scios, Alza, Renovis, Corgentech, Sunesis, Telik, Ilypsa, Affymetrix, Threshold, Nektar, PDL, more
Boston Scientific, Abbott, Medtronic, more

Large lay-offs in pharma also
Large pool of qualified talent is available—highly competitive
VCs are Funding Biotech and Medical Device Companies

Source: PriceWaterhouseCoopers, Money Tree
The Future of Biotech is Promising

• Significant unmet medical needs remain—neurological disorders, cancer, infectious diseases, diabetes, obesity, cardiovascular diseases
• Energy
• Aging population
• Tremendous market opportunity in China and India
Thank you!

Wishing you much success in your endeavors!

May you find a cure for cancer!
Speaking Engagements

• Teri Hankes’s ‘Alternative Careers in Medicine Series’, April 17\textsuperscript{th}, Stanford, from 5-6 pm

• Free sample chapter on Careers in Project Management available on my website at www.careersbiotech.com

• Books available at campus career centers
Contact Information

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Website for book: www.careersbiotech.com
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If only books grew on trees!

Happy Holidays