Scientists ARE Leaders!

Leveraging the Scientific Method in teaching and practice

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Employment of Young Biomedical PhD’s

- Postdoc Research, 43%
- Govt or Industry Research, 27%
- Out of Research, 17%
- Tenure Track Research, 7%
- Unemployed, 6%

Source: USA Today March 29, 2013
Myth: Postdocs are “Over-qualified and Under-experienced”
Job Example: Senior Scientist, Antibody Engineering

Job Description
The candidate will lead a group focused on the establishment and development of innovative recombinant antibody engineering technologies. He/she will develop novel technologies in the areas of antibody discovery to support GSK therapeutic protein and antibody programs in autoimmune, oncology and infectious disease areas. In addition, the candidate will manage internal collaborations with other GSK research and development groups on relevant projects as well as external collaborations/contracts with current or future GSK partners.

Desired Skills & Experience
A PhD in Chemistry, Biochemistry, Molecular Biology or a related field is required in addition to a strong publication record in peer-reviewed journals, demonstrating significant postdoctoral and independent research. The candidate must also have at least five years of demonstrated successful leadership of an academic or industrial research lab group (research associate and Ph.D. scientist) with managerial skills and be able to independently plan, design and execute experiments as well as follow literature, interpret results and direct new approaches. He/she should be passionate about new engineering technologies and have hands-on experiences with all modern molecular biology techniques. The candidate should have broad knowledge of antibody structure and function and have extensive expertise in antibody/protein engineering. The candidate should also have good knowledge of the relevant literature and be able to develop creative solutions to scientific problems. Experience in the application and development of protein and antibody phage/yeast or attentive display methods and high throughput screening/selection are preferred. Strong interdisciplinary problem solving, communication, presentation and writing skills are essential.
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The Scientific Method
It’s all about Solving Problems

- How can I beat the competition?
- What innovative things can be done to get faster better answers?
- What new innovative products/services meet the needs of our customers?
Problem Solving

Leadership
Communication
Project Management
Team Performance

Innovation
Tactical Planning
Collaboration

Vision
Innovation

• Using the best technologies and knowledge available to solve scientific problems and answer new questions that distinguishes you from your competitors
Group Exercise

• Q: Provide detailed example(s) of scientific innovation that you are currently using to solve a real problem

• Share examples at your table and select one for the group
Innovation Debrief
Innovation

• Feeling comfortable in fast-changing environments; being willing to take risks and to consider new and untested approaches

• The extent to which original and creative solutions are needed to resolve an organizational requirement; The opposite of being conservative and relying on historical solutions
Group Exercise

• Tell me about a time when you have been innovative in your problem-solving?
Tactical Planning

• Detailed work process to perform specific scientific tasks that considers logistics of equipment, reagents, subject matter experts and facilities in order to execute an experiment
Group Exercise

• Q: Provide example(s) of the tactical planning of your science that show your mastery of your subject area and your discipline as a scientist.

• Share examples at your table and select one for the group
Tactical Planning Debrief
Tactical Planning

• Emphasizing the production of immediate results by focusing on short-range, hands-on, practical strategies.

• Reflects to the NOW actions of people. Emphasis is on the short term, hands on, pragmatic and immediately observable results.
Group Exercise

• Tell me about a time when you have applied tactical approaches to meet your deadlines and objectives.
Collaboration

- Coordinated research efforts that rely on the subject matter expertise of multiple scientists in order to solve a complex problem
Group Exercise

• Q: Provide example(s) of scientific collaborations that you have experienced in successfully performing your science

• Share examples at your table and select one for the group
Collaboration Debrief
Collaboration

• Accommodating the needs and interests of others by being willing to defer performance on your own objectives in order to assist colleagues with theirs.

• Taking the initiative to place individual goals in the service of group goals to help attain a common outcome in terms of people cooperation as well as task accomplishment.
Group Exercise

• Tell me about a time when you have been part of a collaborative effort and the outcome of that effort
PhD Thesis LifeCycle
Business LifeCycle
Summary

• Scientists are problem solvers
• Business needs problems solved!!
• Scientists must learn to express their expertise and accomplishments in language that business understands and values
What do I do now?

- Learn the language of business
- Identify the critical skills business values
- Relate those valued skills to your own experiences
- Identify the gaps
- Use your remaining time to gain those experiences
- Express your experiences with accomplishments
One more thing...
On-line learning

• Career Opportunity Options
• Transferable skills
• Preparing for Interviews
• How social media can help with the job search
SciPhD Programs

Half Day Workshop  ➔  2 Day Bootcamps  ➔  Certificate Program

[Map of North America with locations marked]
Thank You

… keep on rowing!!!

Questions & Feedback

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www.sciphd.com
What is Project Management?

“an organized, accountable approach to conceiving, designing, executing and reporting on a specific set of objectives”

… on schedule and on budget
<table>
<thead>
<tr>
<th>Scientific Method</th>
<th>Real World</th>
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<td>Hypothesis</td>
<td>Strategic Planning</td>
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<td></td>
<td>• Conceptual</td>
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<td>• deliverables and their value</td>
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<td>Experimental Design</td>
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<td>Risk Management</td>
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<td>Resource allocation</td>
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<td>• Human, physical and financial</td>
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<td>Time, cost and objectives</td>
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<td>Execution</td>
<td>Mentoring and Delegation</td>
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<td>Project Management (time, cost, objectives)</td>
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<td>Tactical</td>
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<td>Ability to vet the science</td>
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<td>Peer review and feedback</td>
<td>Review and Audit</td>
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Mapping Science to Project Management

- For your science, define:
  - Goal
  - Success Criteria
  - Assumptions
  - Risk Management (plan B)
Group Exercise

• Q: Tell me about a time when you were in charge of a project and you had a major setback. How did you manage that situation?