Advice For Young Investigators in Clinical and Translational Research

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Muscle Study Group Annual Meeting
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## Career Recommendations For Clinical Translational Researchers

### Academic Stages – When and What to do

<table>
<thead>
<tr>
<th>YEAR</th>
<th>GRANTS</th>
<th>ACADEMIC RANK</th>
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</thead>
<tbody>
<tr>
<td><strong>Late 20’s – Early 30’s = descriptive</strong></td>
<td></td>
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<tr>
<td>• Case Reports</td>
<td>• Obtain Boards</td>
<td>None</td>
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<tr>
<td>• Case Series</td>
<td></td>
<td>MS, Res, Fel</td>
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<tr>
<td><strong>Mid 30’s – Early 40’s</strong></td>
<td></td>
<td>Career development award</td>
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<tr>
<td>• Write lots of abstracts / Review papers</td>
<td>• Get on disease group consortium trials</td>
<td>Asst. Prof</td>
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<tr>
<td>• Measurement/Endpoint papers</td>
<td>• Networking nationally</td>
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<tr>
<td>• Review/Criteria papers</td>
<td>• MSCR</td>
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<tr>
<td>• Get in pharma trials</td>
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<tr>
<td><strong>Mid 40’s</strong></td>
<td></td>
<td>RO3/R21/Foundation</td>
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<tr>
<td>• Your own Investigator Initiated Trials (IIT) – single site, small, pilot</td>
<td></td>
<td>Assoc. Prof</td>
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<tr>
<td>• Asked to be in other’s multisite IIT’s, esp NIH/PCORI</td>
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<tr>
<td>• Become study section</td>
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<tr>
<td><strong>Late 40’s – Early 50’s</strong></td>
<td></td>
<td>RO1/PCORI/Industry</td>
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<tr>
<td>• Your own multicenter IIT’s – 1st pharma, then federal</td>
<td></td>
<td>Prof</td>
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<tr>
<td>• International networking</td>
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<tr>
<td><strong>Mid 50’s</strong></td>
<td></td>
<td>US4/Ps</td>
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<tr>
<td>• Lead a consortium/Program project</td>
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<td>Prof</td>
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<tr>
<td>• No more abstracts</td>
<td></td>
<td>Endowed Chair</td>
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<tr>
<td>• Write a book / Journal Editor?</td>
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<tr>
<td>• Lead a study section</td>
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<tr>
<td><strong>Late 50’s – Early 60’s</strong></td>
<td></td>
<td>Raise Money</td>
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<tr>
<td>• Start a website/Organization/Pontificate</td>
<td>• Stop study sections</td>
<td>Distinguished Prof</td>
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<tr>
<td>• Stop reviewing / start travelling more</td>
<td>• Stop talking at big national meetings</td>
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<tr>
<td><strong>Mid – Late 60’s &amp; 70’s</strong></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>• I don’t know yet – ask Berch</td>
<td></td>
<td>Still alive</td>
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More Advice from RB
Decade 30’s & 40’s

• Get your name out there
• Present abstracts at many meetings, and more than one
• Academic networking leads to pharma recognition
• Don’t work in isolation
• Be a site in multi-center trials
  • Started by academics
  • Started by pharma
  • Don’t be selective initially
• Become affiliated with patient groups in your area
• Lecture at national meetings – academic and patient groups
Write, Write, Write!

- Grant reviewers need to know who you are
- Abstracts – lead to papers
- Case reports
- Scales/methods
- Early results
- Negative data
- Pivotal papers

- Use 1st, 2nd, 3rd tier and “fringe” journals
- Review articles – even early in career
- Book chapters – not too much
- Books??
- ??? Open access
  - Good and bad
More Words of Advice for Success in Clinical and Translational Research

- Use all available resources
- Find a mentor, or two, or three
- Network – locally, nationally, internationally
- Be Flexible/opportunistic
- Have 3 to 4 projects in various stages
  - Don’t wait for the “big one”!
  - Don’t focus too narrow
- Speed is important in clinical trials
  - Regulatory speed
  - Recruitment speed
  - Writing speed
- Persistence – DON’T GIVE UP
Career Decision Points for Physicians

Academic vs. Practice

Academic
- Research
  - Basic / Lab
    - 90% Res
    - 10% Clin
    - Tenure Track
- Clinical 95-100%
- Education
- Clinical / Translational
  - NIH Path
  - Non-NIH Path
    - 80% Res
    - 20% Clin
    - Tenure Track
- Clinical Scholar Track

Practice
- Health System
  - Hard to do trials
- Private
  - Can do trials
What You Ask For in First Academic Job Depends on Decision Points

1. Basic / Lab & CTR – Tenure Track
   a. Start-up packages
   b. Protected time (80-90% for 2-3 years)

2. Clin Scholar Track – Non-tenure
   a. Usually no start-up
   b. Usually ½ - 1 day per week protected
   c. If get any funding, buy out of more clinic time

3. Clinical Track at University
   a. No start-up
   b. No protected time
   c. Hard to do research
Pathways To Discovery

- Traditional
  - Laboratory
  - Clinical
- Data Mining
- Quality Improvement
- Simulation
- Entrepreneurship
  - Intellectual Property/Patent
  - License to a company or
  - Create your own start-up
    - Raise venture capital
- Crowd source
- Outsource
Motives For Discovery

• Improve Health and Humanity
  • Improve health care team performance
  • Improve patient care outcomes

• Seek New Knowledge
  • Publish

• Patents

• Money
  • Grants
  • Business
  • Job

• Power – Access
  • Narcissism/Ego
  • Fame
Advice to Young Investigators From Successful, Wise Scientists Over Last 150 Years

• Claude Bernard – *An Introduction to the Study of Experimental Medicine* (1865)
• Santiago Ramon y Cajal – *Advice for Young Investigators* (1916; 1999 English translation)
• Walter Cannon – *The Way of an Investigator: A scientist’s experiences in medical research* (1945)
• Edward O. Wilson – *Letters to a Young Scientist* (2013)
Next Generation of Discoverers May Need a New Type of Advice

• Less focus on:
  • Writing / Publishing / Grants
  • Scientific method
  • Academic position
  • MSCR

• More focus on:
  • Big data mining
  • Forming start-up
  • Raising venture capital to run a start-up company
  • Selling / Licensing to a larger company
  • MBA – or not

• OR A BLEND!

• Can this be done in academics/university setting?
  • Yes, but does it need to be done in this setting?
Modern Day Scientific Investigation Advising

Atul Butte, MD, PhD

Director, Institute for Computational Health Sciences and
Professor of Pediatrics, University of California, San Francisco
Executive Director for Clinical Informatics, University of California
Health Sciences and Services

*Also he started 3 start-up companies

PRESENTATION:
Translating a Trillion Points of Data into Therapies, Diagnostics, and New Insights into Disease

2016 KCALSI Annual Dinner Keynote Speaker

My summary of his main points:
• Writing papers and grants is not valuable
• Big data analysis leading to ideas for biomarkers and treatments is valuable
• Paraphrase: “Don’t write about it, do it.”
• Do what? Patents / Start-ups / License to a company
  • 50% of his graduate students start start-ups!