Industry Opportunities: What’s Available?

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My Path

- UCSF: MD; Internship; Residency; Fellowship
- Rheumatology Practice 21 years: Swedish Hospital, Seattle
- Biopharmaceutical Industry 15 years: Seattle, Thousand Oaks, Seattle
  - Immunex/Amgen 14.5 years: Medical Director/Associate Medical Director
    - Etanercept: RA; PsA; AS; JIA
    - Denosumab: RA
    - AMG 714; AMG 139; AMG 557; AMG 570; AMG 357; AMG 181; brodalumab
  - Consultant 0.5 years: Celimmune and others
    - AMG 714
- UW Clinical Faculty: Medicine and Rheumatology
Strengths

- Egalitarian meritocracy
- Wide range of opportunities
- Scientific culture with science-based decisions
- Cutting edge
  - Very "cool" stuff
- Talented and committed teams
- Generous resources for high priority/profile programs
- Many opportunities for continued learning while employed
  - National and international conferences
  - Learning from team members
  - Interaction with national and international thought-leaders
- Generous reimbursement; salary and incentives
- Performance-based rewards and advancement
Weaknesses

**Ethical issues**
- Dark side
  - Martin Shkreli
  - How do I explain what I have done to my best friends?
- Competing interests: altruistic medicine and business; “light on the dark side”
  - The promise of creating the future of medicine v. delivering for investors

**Challenges**
- Identifying winners
- Matching investment with opportunity
- Recognizing opportunity costs
- Answering to Wall Street and Venture Capital
  - Investment in R&D versus EPS
  - Their timelines are frequently shorter than yours
- At-will employment without tenure
- Challenging academic reentry
Opportunities

- Different sizes and flavors
  - Big Pharma v. Smaller Early-stage Pharma
    - Stable but cumbersome with multiple stakeholders, competing programs and therapeutic areas, and layers of internal governance and review
    - Focused development committed to fewer programs; streamlined decisions and governance with greater risk but potential for greater reward if successful
  - Traditional Pharma v. Biotechnology Pharma v. Medical Device Companies
    - Traditional Pharma: expertise in small molecule chemistry and drug development
    - Biotechnology Pharma: protein therapeutics; RNAi; vaccines; cellular therapeutics
    - Medical Device Companies: drug delivery systems and implantable devices
    - Big Pharma: modality agnostic, selecting best therapeutic for the selected target
      - Target cell surface receptors and ligands with protein therapeutics including mAbs and cytokines
      - Target intracellular targets with small molecules
      - Medical devices: novel drug delivery systems; prosthetics
Opportunities

• Range of opportunities with differing prerequisites
  • Discovery Science
  • Development
    • Early Development/Translational Medicine
    • Clinical Development
    • Biosimilar Development
    • Biomarkers/Precision Medicine
    • Pharmacology: PK; DM
    • Toxicology
    • Regulatory and Safety Science
    • Epidemiology/Observational Research
    • Pharmacoeconomics
  • Commercialization
    • Medical Affairs/Post-approval Studies
  • Executive Management
Challenges

- **Corporate imperatives**
  - Medical need and corporate need are not necessarily congruent
    - Build value of the company and maintain independence; maintain and increase EPS
    - Timelines for shareholders and venture capitalists are invariably shorter than for scientists and clinicians
      - Advance science with realistic timelines and expectations
  - Dynamic prioritization of therapeutic areas, programs, and focus; flexibility and adaptability required

- Working in a hierarchical, matrixed, and highly regulated environment
  - You’re already there but management and scrutiny are greater in industry
  - Learning to navigate in a new environment
Challenges

- Working in matrixed, diverse, dispersed teams
  - Working with peers in different organizations and time zones with diverse skills, opinions, and motives
  - Geographic and cultural diversity with international organization and global clinical trials
- Perpetual review
- Need to be nimble and quick; anticipate change and adapt
- Navigating corporate and academic society
  - Amgen as example
    - Roger Perlmutter (WU-UW-Merck-Amgen-Merck)
    - Joe Miletich (WU-Merck-Amgen-Merck)
    - Mike Severino (JHU-MGH/HMS-Merck-Amgen-Abbvie)
  - Ultimately, a very small world
- Is any of this different from academia?
Closing Thoughts

- The bottom-line
  - Inform critical science-based decisions (provide decisive killer data enabling decision-making)
    - Goal: economical, speedy delivery of accurate useful data/information
    - Speed x Precision = Cost
    - Wise, purposeful, and efficient data generation and capture
  - All about the teamwork
  - Deliver for patients and the enterprise
- Doing well in academia predicts easier entrance to biopharmaceutical industry but does not insure success
- Research, clinical trial, teaching, practice, or administrative experience beyond fellowship increases your value for any biopharmaceutical employer