Careers In Industry

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Outline

My journey

Reasons to choose industry

Industry vs academia

What does one "do" in industry

Biotech vs big pharma

Observations/Lessons

My journey

- Philippines → NY → Texas

- Baylor University

- University of Texas Medical School

- Univ of Chicago (Int Med residency, Heme/Onc fellowship)

- Univ of Pennsylvania (faculty)

- Stanford (faculty)

- Corvus Pharmaceuticals (VP, Clin Development)

- Tempest Therapeutics   (Chief Medical Officer)

Why did I leave academia

- I had accomplished what I wanted to accomplish

- I was restless

- I wanted more of a leadership role

- I didn't want to move

- A great opportunity landed in my lap

Just because you are good at something doesn't mean you have to do it

Do what excites or fulfills you

There are multiple ways to be a physician or a scientist

- What do you want?

- Keep an open mind for opportunities that might land in your lap

Reasons to choose a career in pharma

Industry continues to grow

Worldwide Revenue of the Pharmaceutical Market:

2001	2005	2010	2015	2018	2021
390	601	888	1072	1300	1400

In 2016, worldwide pharmaceutical revenues were over $1.1 trillion.

Reasons to Choose a Career in Pharma

- Less affected by cyclical ups and downs

Pharmaceutical Industry R&D Investment		
5x higher than aerospace and defense	4.5x higher than chemicals industry	2.5x higher than software and computer industry

- Offers rich opportunities for growth/upward trajectory

- Ability to leverage previous work experience

Why consider a career in industry?

- Make a difference on a macro level

- You can be a part of bring science to the clinic
  - Dont have to secure grant support or generate salary by other means

- You will publish

- Interaction with physicians/scientists around the world

- Interact with health authorities around the world

- Interact with smart colleagues

- Job changing less cumbersome/faster

- It is a noble cause and is **not** the "DARK SIDE"

Industry and academia have common goals

- Conduct groundbreaking research
- Improve quality of life
- Improve survival
- Cure cancer
- Both are noble causes
- Exception: revenue/profit

Industry and academia have different deliverables

- **Academia**
  - Research and PUBLISH, PUBLISH, PUBLISH
  - Direct patient care
  - Education (grad and med students, residents, fellows, etc)
  - Research and PUBLISH, PUBLISH, PUBLISH
  - Write grants

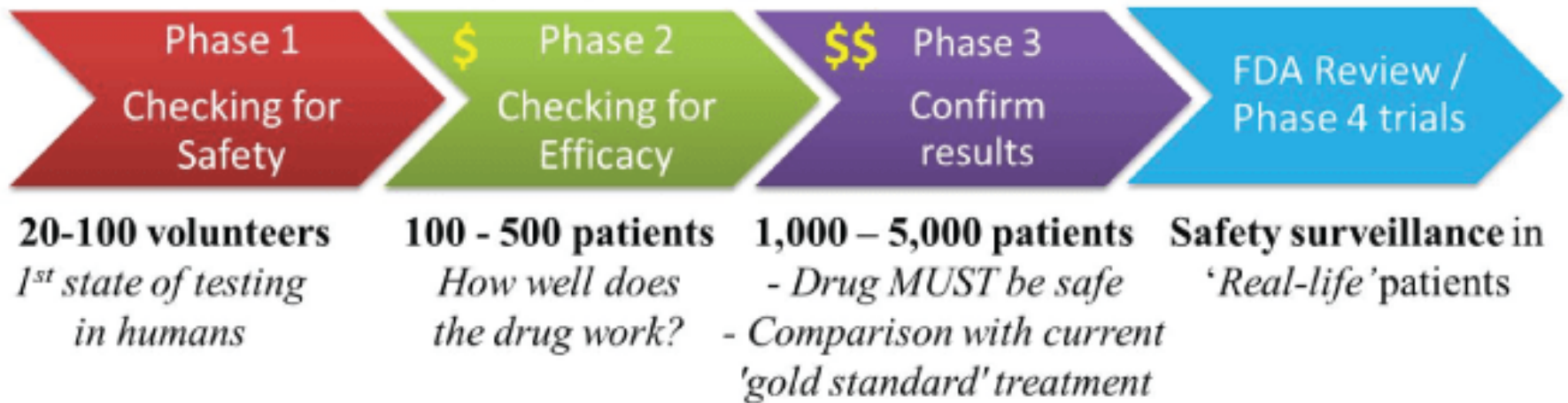- **Industry is Drug Development**
  - Research AND development
  - Identify a target → develop a new molecule → conduct preclinical studies → conduct clinical studies → bring it across the "finish line"

Challenges

- **Drug development is highly regulated and publicly scrutinized**

  - SOPs, SOPs, SOPs….

  - Much more documentation

- **Need to learn to manage up and down**

- **The bottom line is a business bottom line**

  - Doing what is right for patients is best business model BUT…..decisions not always straight forward and depends on decision maker

Drug development:
from birth to patient to market

Phase 1 Checking for Safety	$ Phase 2 Checking for Efficacy	$$ Phase 3 Confirm results	FDA Review / Phase 4 trials
20-100 volunteers *1st state of testing in humans*	**100 - 500 patients** *How well does the drug work?*	**1,000 – 5,000 patients** *- Drug MUST be safe* *- Comparison with current 'gold standard' treatment*	**Safety surveillance** in 'Real-life' patients

What does one "do" in Industry?

- **Broad spectrum of roles (R&D vs clinical)**
  - Scientist (Chemistry, Biology, Engineering)
  - Physician (Clin trials, biomarkers, drug safety)

- **Pipeline work (Early stage)**
  - Partner with scientist to prioritize key targets
  - Work with translational researchers to better understand biology; help select predict prognostic biomarkers
  - Take new molecules thru IND, Phase 1 stage (FIH)

What does one "do" in Industry?

- **Design and implement clinical trials**
  - Collaborative effort with Biostats, Regulatory, data management and Clin Operations
  - Appreciate costs of conducting trials, timelines, regulations, manufacturing implications

- **Late stage development**
  - Conduct "pivotal" trials
  - Typically, phase 3 trial that will lead to registration/approval

Big pharma

Pros

- More resources
- More support
- Stability
- Establish credibility
- One trial failure has less impact

Cons

- Bureaucracy (meetings and more meetings)
- Silos
- More politics

Start up biotech

Pros

- Wear multiple hats
- Learn many functions
- Nimble
- Build something from scratch
- Larger voice
- Potential for large financial reward

Cons

- RISK
- Less resources
- Shorter runway

My observations

- Accountability

- The team vs the individual

- More process driven…lots of SOPs

- Exercise different "muscles"

- Different tools are needed to succeed and thrive

Some of my biggest changes

- No longer knew what was around every corner

- Gave up status as an expert in my field

- It was/is a steep learning curve

- No patient care

- I don't have to work holidays or weekends anymore

Tips for your current and future career

- With any job decision, there should be more of a **PULL** rather than a push

- The perfect job does not exist

- Your first job is rarely your last job

- It is a small world

All told...

- **Working in drug development is highly rewarding**
  - The environment can be academic
  - You can be an integral part of bringing new drugs to the clinic
  - There can be tremendous financial rewards

- **We are all capable of reinventing ourselves**

- **Industry is not going anywhere**

- **We all have the same goal**

This is why we do what we do...

Facts & Figures 2018: Rate of Deaths From Cancer Continues Decline

Cancer mortality drops another 1.7%