
Developing a Career in Clinical and Translational Research

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Course Objectives

- Identify a research question
- Pick a study design
- Recruit subjects
- Collect and manage data
- Analyze data
- Write an abstract
- Present a poster
- Publish a paper
- Prepare a grant
- Identify institutional resources
- Appreciate the ethical, legal and regulatory issues in human subjects research
- Understand the multidisciplinary nature of research
- Recognize career opportunities in clinical and translational research

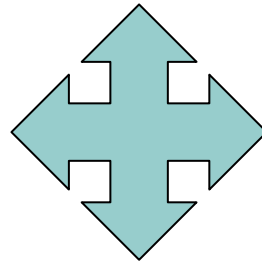
Audience participation

- Faculty
- Staff
- Fellows
- Residents
- Graduate Students
- Professional Students
- Undergraduate Students
- Other?
- Multiple?

My Typical Collaborations

ID Physician
and Clinical
Researcher

Biostatistician



Genomics
scientist

Clinical and
Research
Microbiologist

Clinical Research Team

- Project Manager
- Regulatory Specialist
- Recruiter
- Research assistant
- Quality control coordinator
- Data manager and analyst
- Budget administrator

Careers in Clinical Research

- Industry
 - Pharmaceutical, Biotechnology and Medical Device
- Government Service
 - Regulatory
 - Public Health
- Academic Research
 - Faculty and Staff

Industry

MULTINATIONAL PHARMA



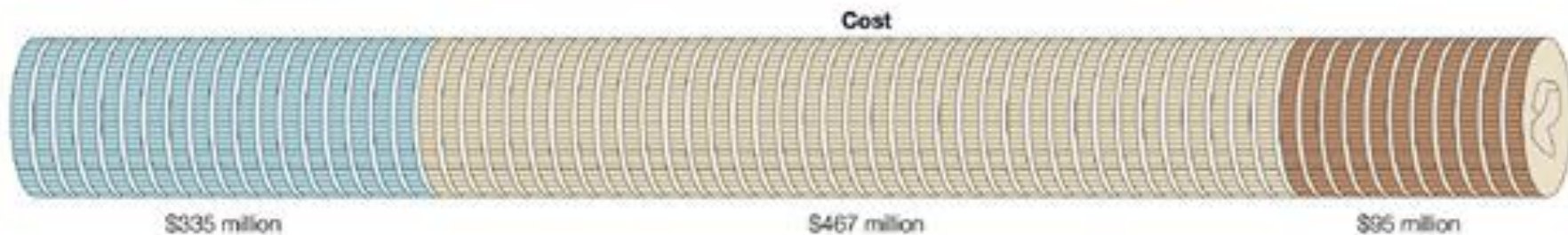
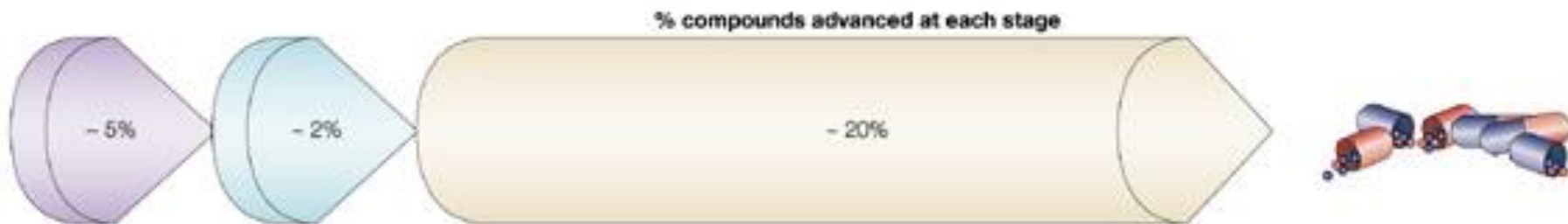
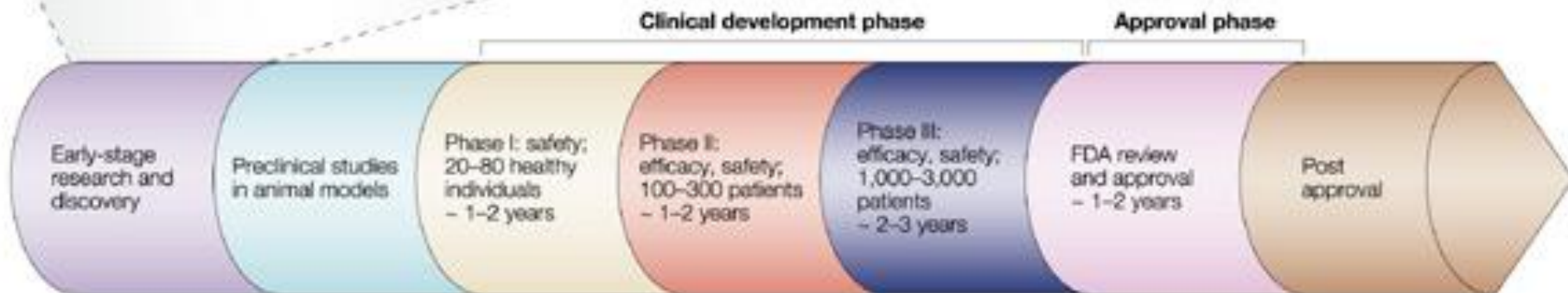
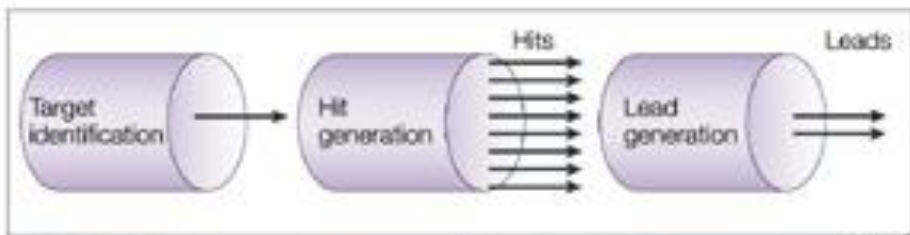
FOREST LABORATORIES, INC.



BIOTECH



The drug discovery and development pipeline



Clinical Research Positions in Industry

Positions

- Pharmaceutical development
- Manufacturing
- Medical writers
- Medical monitors, clinical research associates, project managers
- Data management, statisticians
- Regulatory

Backgrounds

- Basic science
 - Chemistry
- Medicine and Nursing
- Engineering
- Pharmacy
- Statistics, computer science
- Patent law
- Business

Careers in Clinical Research

- Industry
 - Pharmaceutical, Biotechnology and Medical Device
- **Government Service**
 - Regulatory
 - Public Health
- Academic Research
 - Faculty
 - Staff

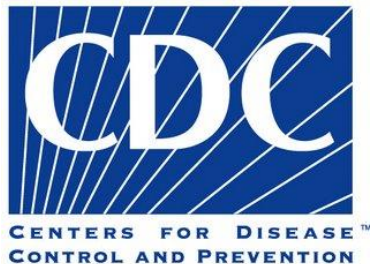
Government: Department of Health & Human Services



- 27 Institutes and Centers
- Intramural research
- Scientific Review Officers, Program Officers



- Scientific Officers
- Medical Officers



- Public Health Officers
- Epidemic Intelligence Officers

Environmental Protection Agency: Epidemiologists, toxicologists, microbiologists

Department of Energy: Los Alamos, Sandria, Brookhaven, Lawrence Livermore, Argonne, Oakridge

Government: Department of Defense



Biological defense and infectious diseases research:

- **U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)** @Ft. Detrick- vaccine and antiviral drug development
- **Aberdeen Proving Ground (APG)**- critical reagents programs (biological detection assays and reagents)

Additional info: www.jpeocbd.osd.mil/packs/Default2.aspx?pg=0



Naval Medical Research Center (Silver Spring),

Research to develop solutions to combat issues (TBI, PTSD, biological agents, etc.)



Allied Healthcare careers- public health officers, pharmacists, clinical psychology, etc.

www.airforce.com/opportunities/healthcare/careers/allied-health

Careers in Clinical Research

- Industry
 - Pharmaceutical, Biotechnology and Medical Device
- Government Service
 - Regulatory
 - Public Health
- **Academic Research**
 - Faculty
 - Staff

Classic academic research career path

Graduate student



Postdoctoral fellow



Assistant Professor



Associate Professor



Professor



**Develop original research ideas,
write grants, publish, write grants,
mentor, write grants, publish, write
grants, write grants, write....**

Clinical Research Education Options at UMB

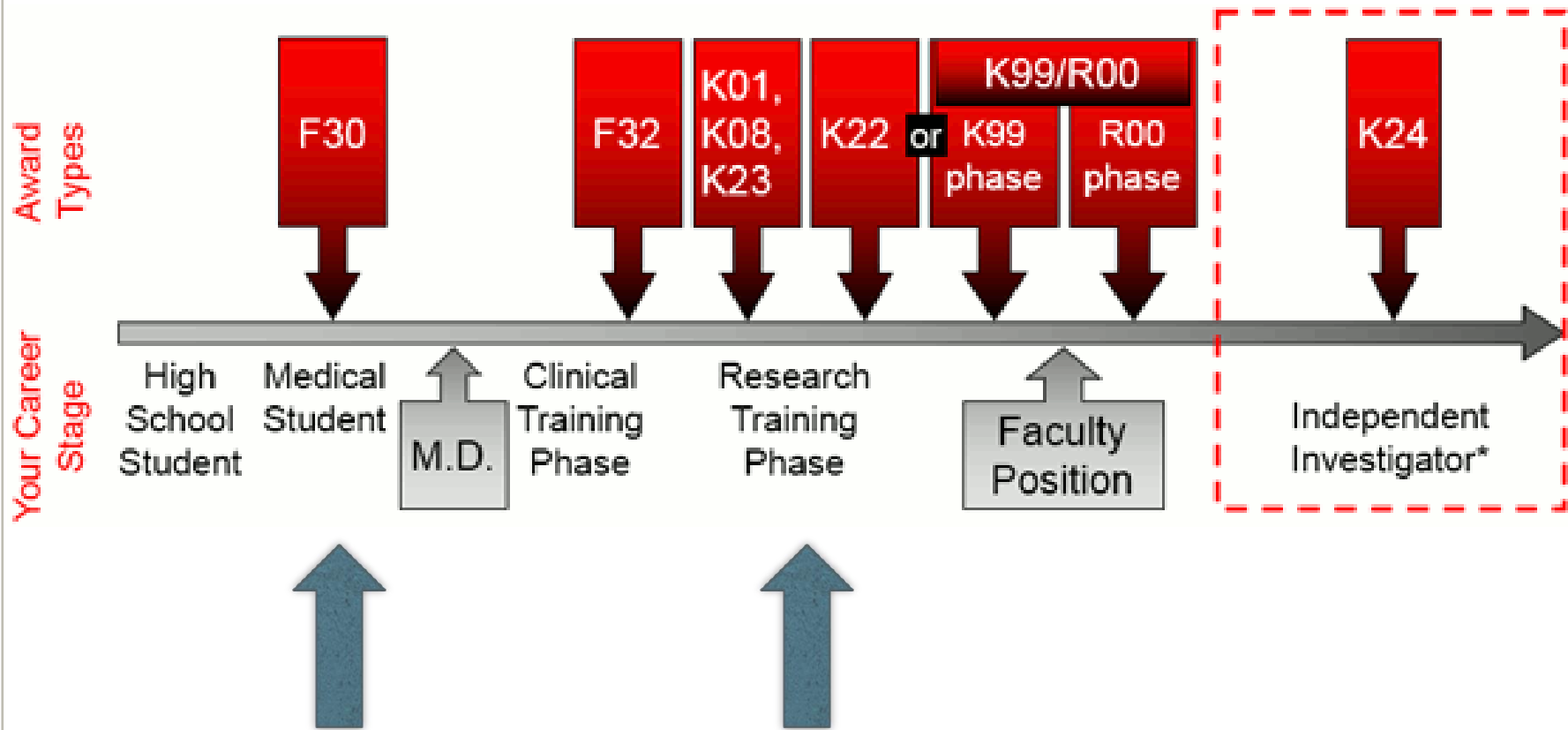
Investigators

- Selected coursework
 - 6 credits
- Certificate in Clinical Research
 - 12 credits
- Masters in Clinical Research
 - 30-36 credits

Other team members

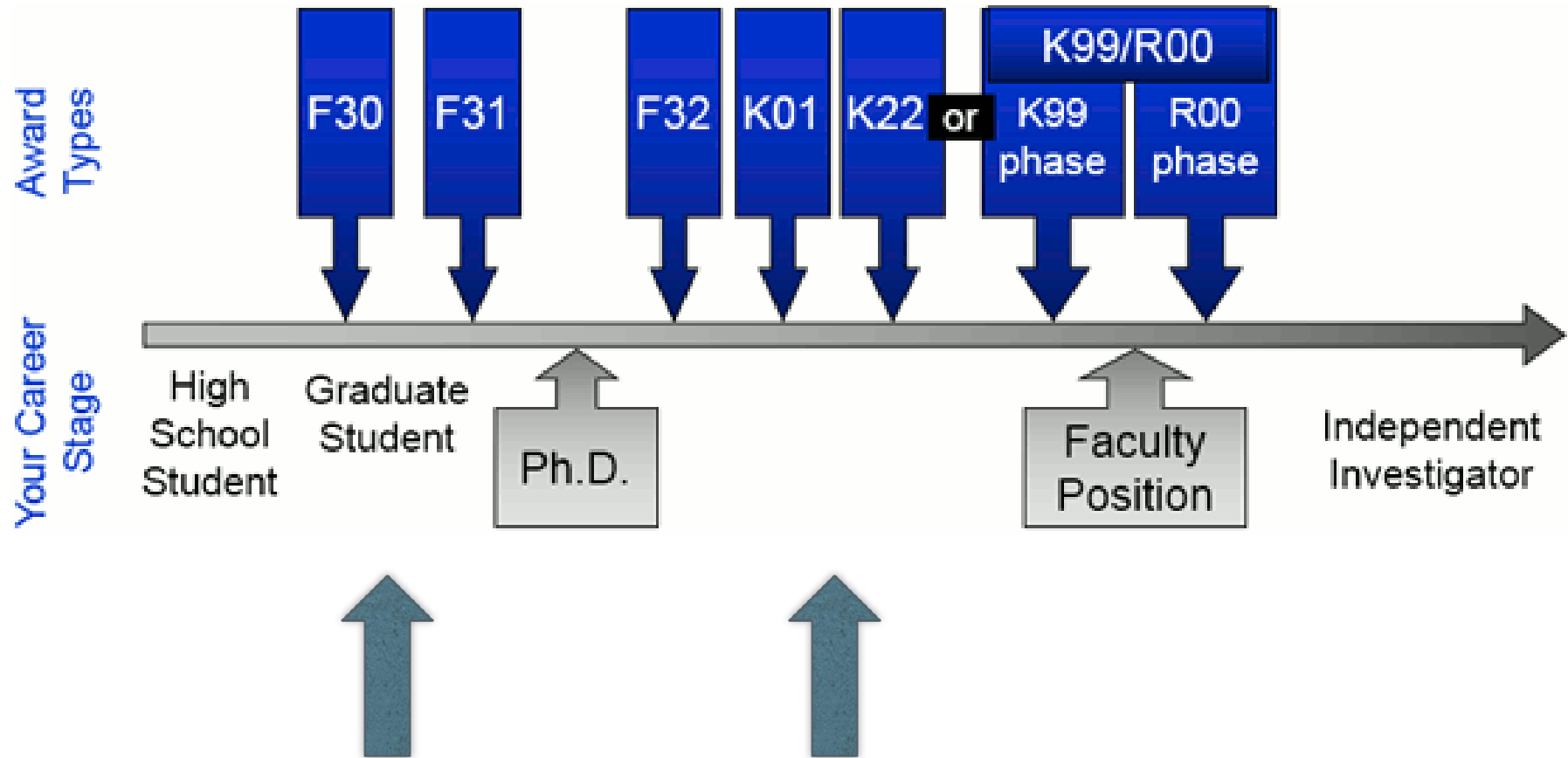
- *Depending on role and background*
- Certificate in Research Ethics
- Certificate in Clinical Research
- Masters in Public Health
 - 42 credits
- Masters of Regulatory Science

M.D. Track- When to add clinical research training



<https://www.niaid.nih.gov/researchfunding/traincareer/pages/careermd.aspx>

Ph.D. Track- When to add clinical research training



Resources

- Clinical Research Education and Training Program
 - medschool.umaryland.edu/K30/default.asp