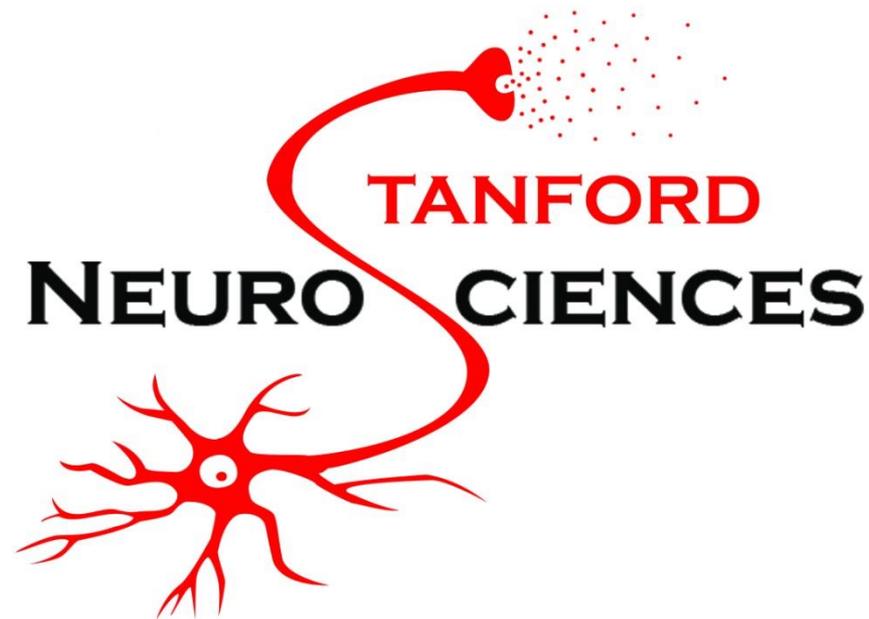


Training in Translational Neuroscience

Anthony Ricci PhD

Director neuroscience training program
Stanford University



Structure of presentation

1- Program Philosophy

2- Program Makeup

3- Curriculum Training to incorporate translational research

4- Professional development as it relates to translational research

5- Obstacles moving forward

Program Philosophy

All students should have broad background in fundamental neuroscience as well experimental design, data collection and analysis, data presentation both oral and written.

Primary goal of the program is to create experts and leaders in their respective fields. At the end of their training period students should be optimally poised to move in whatever direction they choose, be it into academics, policy, industry etc...

Students should have freedom to explore topics and technologies and to design a training plan best suited to their needs.

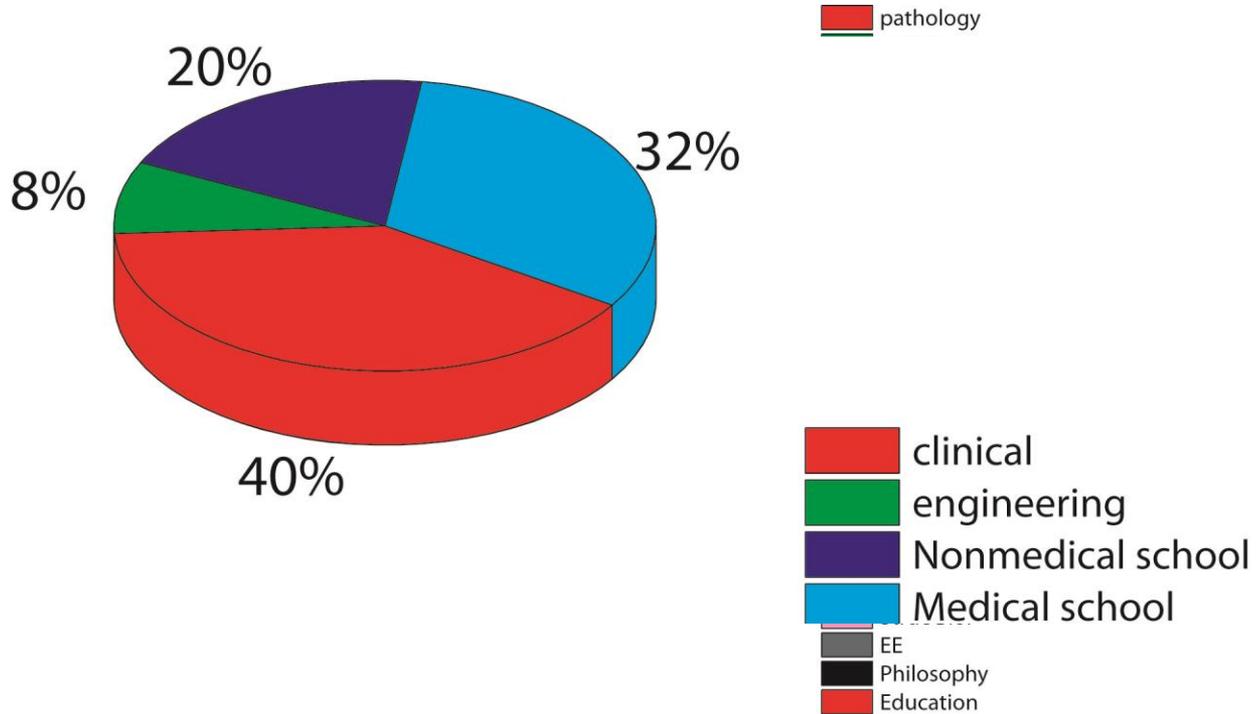
Freedom comes from:

- ability to select faculty PI from any department or program of interest
- financially having resources to select PIs and topics
- academically in selecting coursework both within and outside of program
- ability to participate in programs, internships etc available outside of program at their discretion

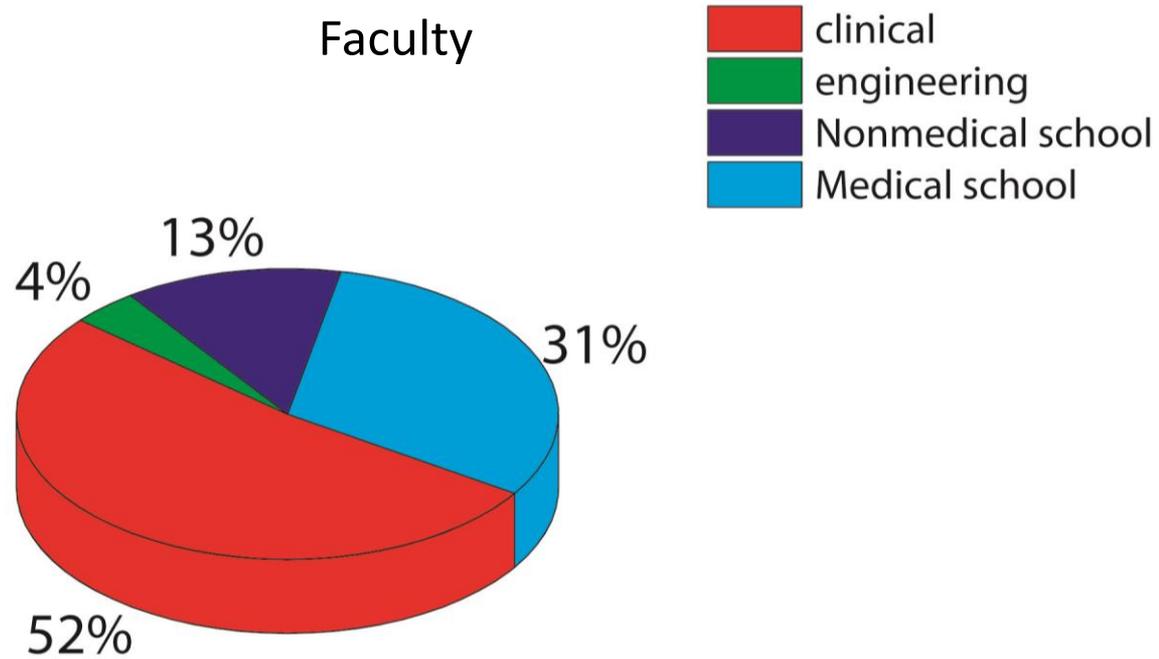
Program Makeup

25 Departments

Schools

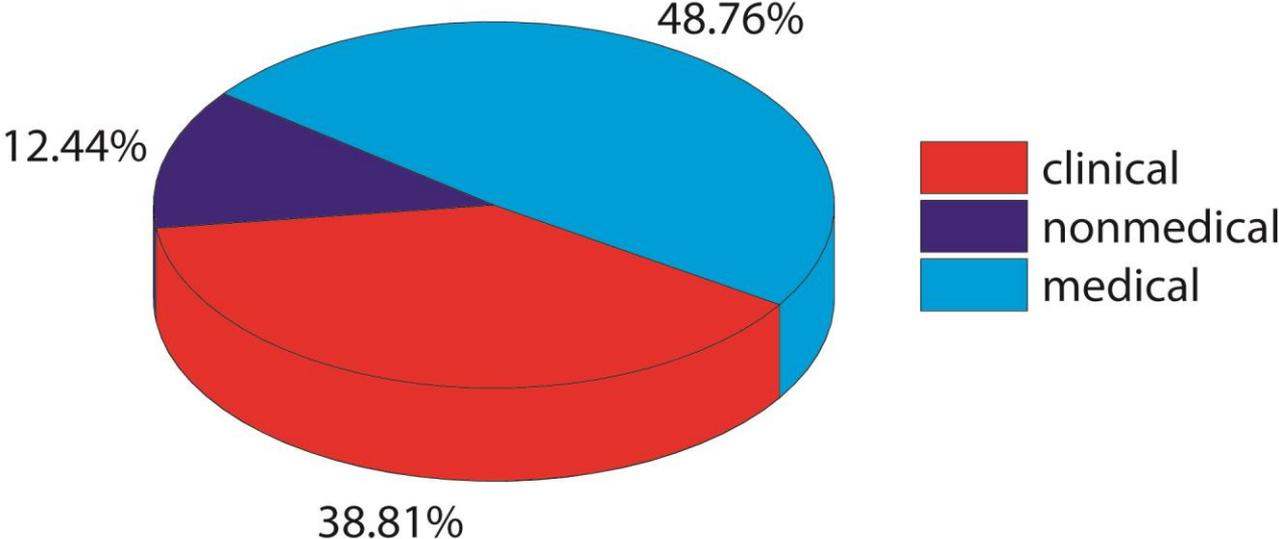


Program Makeup

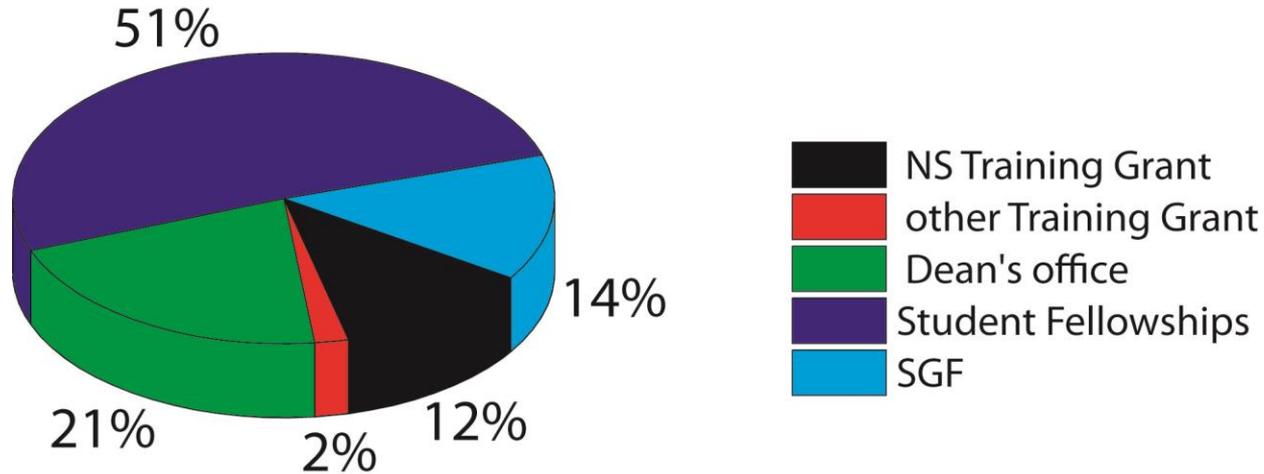


Program Makeup

Student breakdown



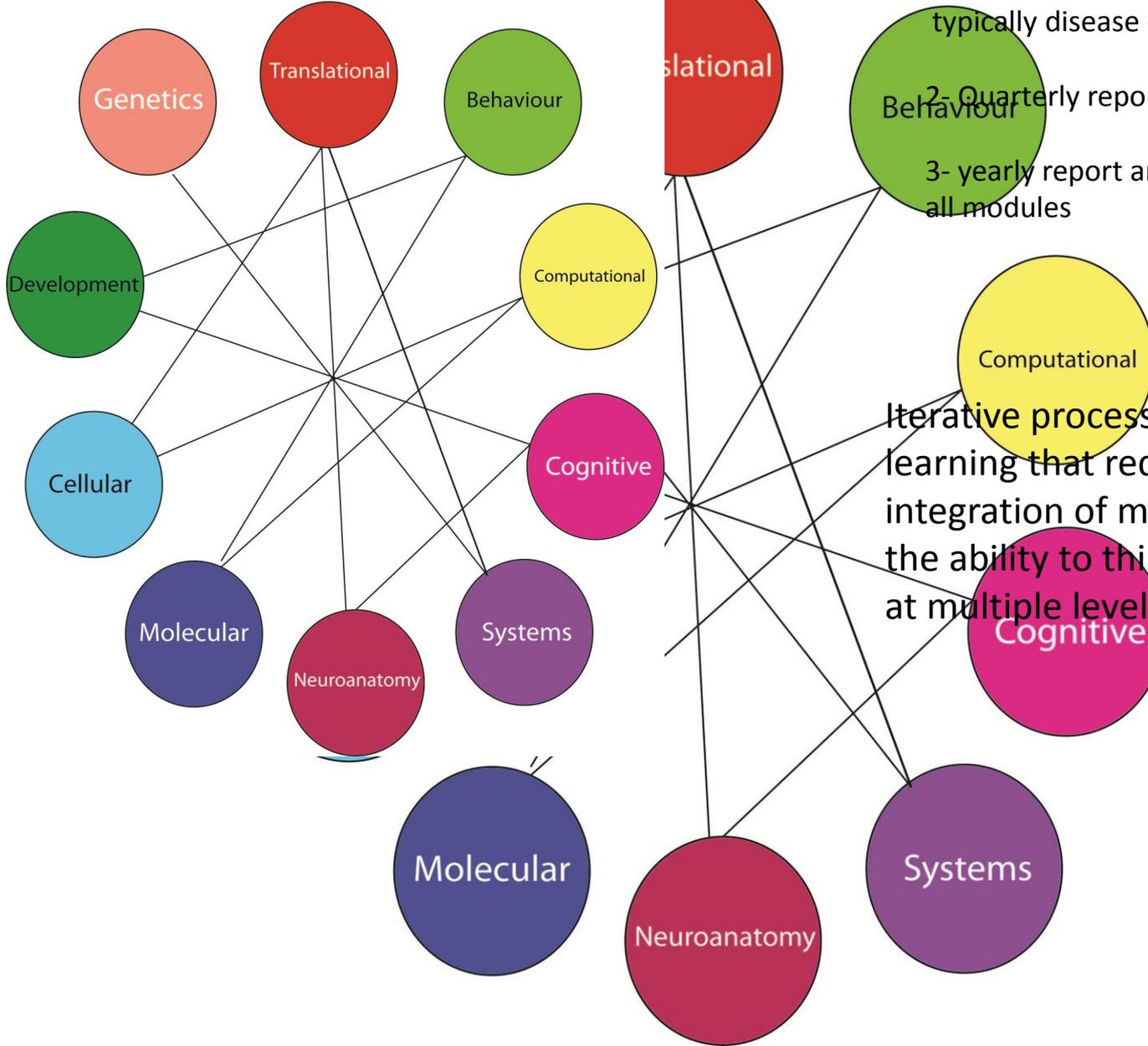
Student Support



Requirements for the Neuroscience training grant as well as individual student fellowships are different with reference to translational research and this can send mixed messages.

Core Coursework Year 1

Core Coursework Year 1



1- Each student selects a topic in neuroscience typically disease oriented but not required.

2- Quarterly report on topic using 3 modules

3- yearly report and presentation incorporating all modules

Iterative process of repetitive learning that requires a broad integration of materials and fosters the ability to think about problems at multiple levels.

Additional Coursework

- Requirements are to focus and take courses to specialize you in your area of interest
- These requirements include taking advanced courses in several broad areas of Neuroscience
 - Includes a translational component
- Many students specialize using courses outside of neuroscience for example
 - Computer science
 - mechanical engineering
 - machine language
 - education
 - philosophy
 - material sciences

Translational courses include:

Neurobiology of Disease

Current issues in Ageing

Molecular Mechanisms of Neurodegenerative diseases

Experimental Stroke

Masters of Medicine (MOM)

Director: Ben Barres

- Our goal is to help train the next generation of leading translational medicine researchers.
- During their first 1.5 years here, MOM students will take basic biomedical science courses with the medical students.
- MOM students will concurrently take their PhD course requirements and lab rotations.
- By early in their 2nd year, they will choose a lab for their thesis research and a clinical co-mentor.

Other components of the MOM curriculum

- Selection of a physician mentor
- Required clinical rotation
- Special seminar course designed for MOM students
- Translational medicine seminar series
- Elective coursework in translational medicine

Limitations: Large courseload that often interferes with courses for graduate work and reduces lab time. These problems tend to extend the time to degree in the program.

SPARK Program

Daria Mochly-Rosen

Kevin Grimes

Medicinal Chemistry , practical approach to drug development

Partnership between university and industry to:

- Educate faculty, fellows and graduate students on the translational process (discovery and development) for therapeutics and diagnostics
- Education: Year-long seminar on drug and diagnostics development
- Mentorship: local biotech, VC experts, Stanford faculty



Biodesign program

Interdepartmental, interschool program to bring new devices to market

Couples engineers, basic scientists and often clinicians together to identify and resolve needs

Brings industry ties at all levels for design, development and implementation

Other professional development workshops

- 1- Meet and greets with scientists from a variety of industry positions
- 2- Alumni interactions where alumni from any area of work discuss strengths and weakness of their respective fields.
- 3- Quarter long internships in biotech companies

Obstacles

1- Time to graduate being reduced, while the breadth of training is increasing. Programs like those described above tend to increase the time to graduate.

2- Motivation of faculty

- to teach given that more than 50% are in soft money positions where teaching is not a priority
- to promote/accept nonacademic positions and training toward these goals
- to obtain training in best practices for teaching and mentoring
- to allow nontraditional training such as internships and SPARK or Biosdesign to be part of the students training.

3- Work-life balance for students