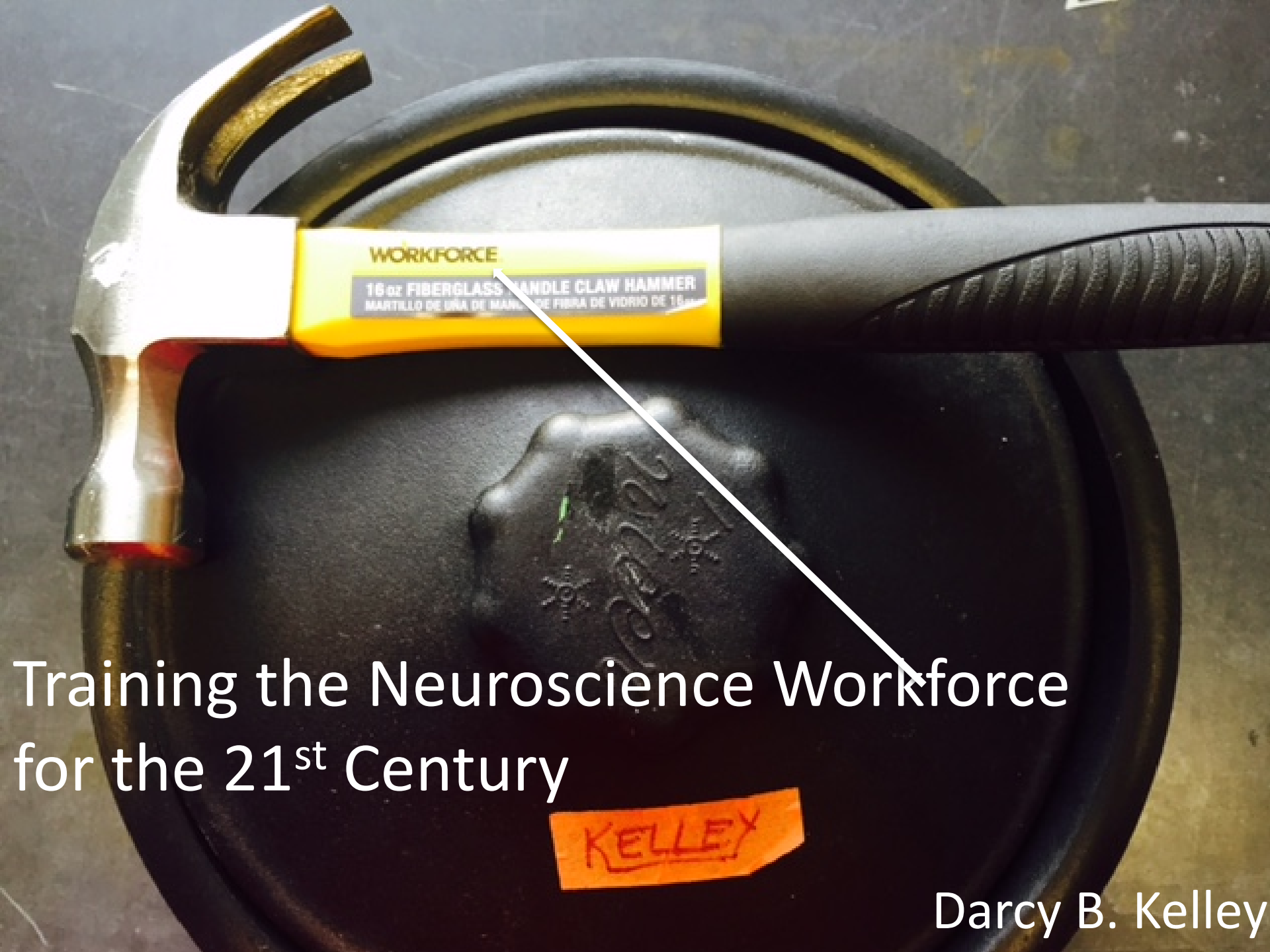
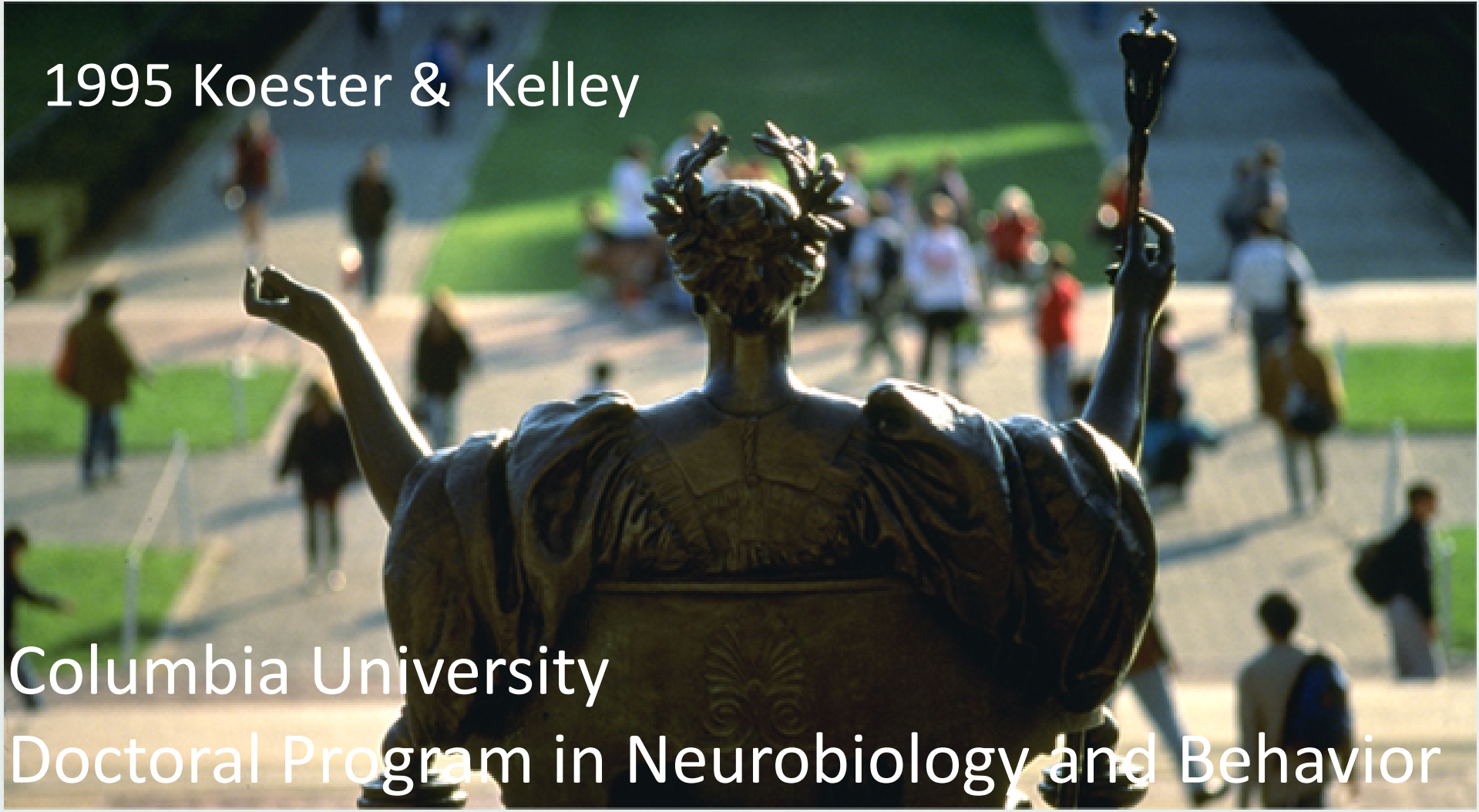


Training the Neuroscience Workforce for the 21st Century

Darcy B. Kelley



2014

CoDirectors Grueber, Kelley, Mason and Miller

Columbia University

Intercampus, inter School, interdepartmental

PhD

Stats: 400 applicants

40 inteviewed

20 admitted

10 students/yr average

70 students in training

TTD 5.5 yrs

MD/PhD

16 students in training

120 faculty members

Governance

Executive Committee

Advisory: Int. Ext.

Student Faculty consultations

Admissions

Curriculum

Academic

Year 1

- **Bootcamp**
- **2 survey courses**

Year 2*

- **2 advanced seminars**

Professional Development

Year 1

- **Exp App (write NSF proposal*)**
- **Ethics**

Year 2

- **Write QE/NRSA proposal***
- **Professional development***

Presentation skills:
Journal club
Research presentation
Neuwrite
Retreat

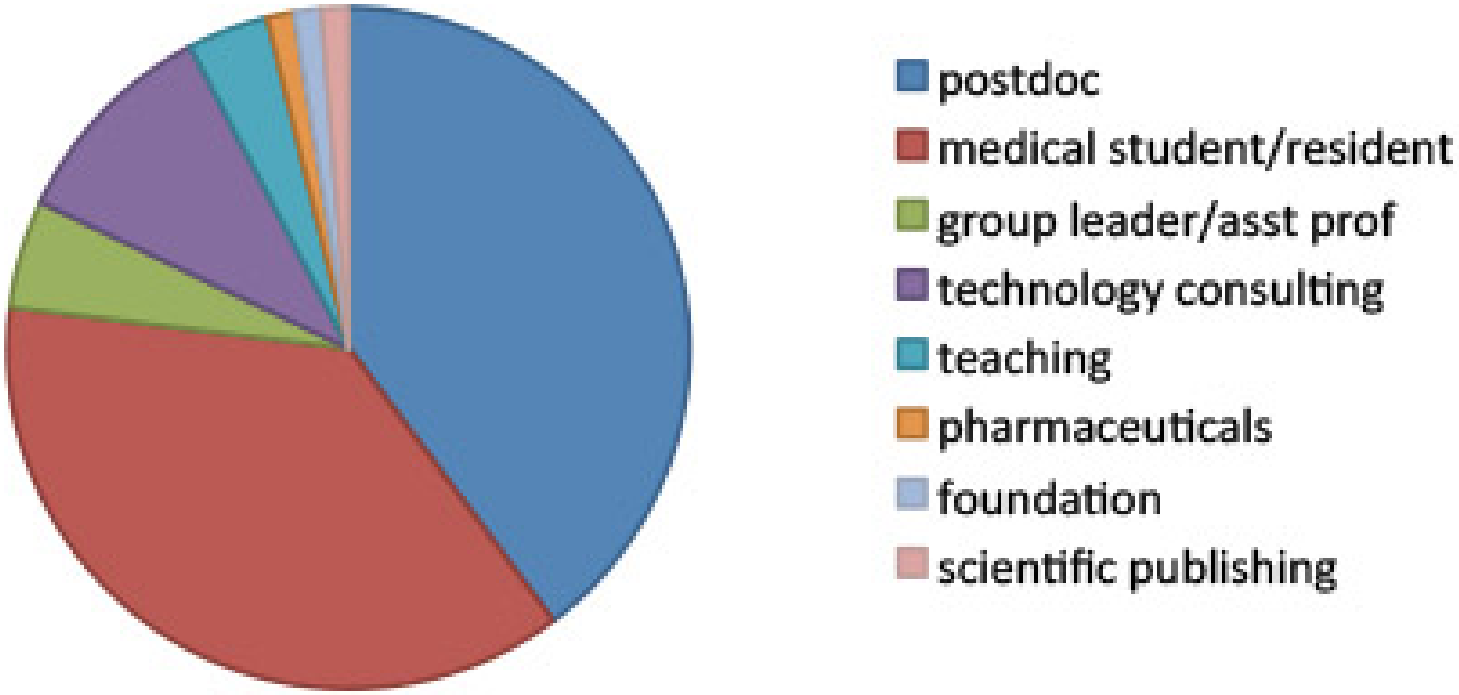
Med to grad
CTV
Science/health policy

* outreach

***teaching**

* nanocourses

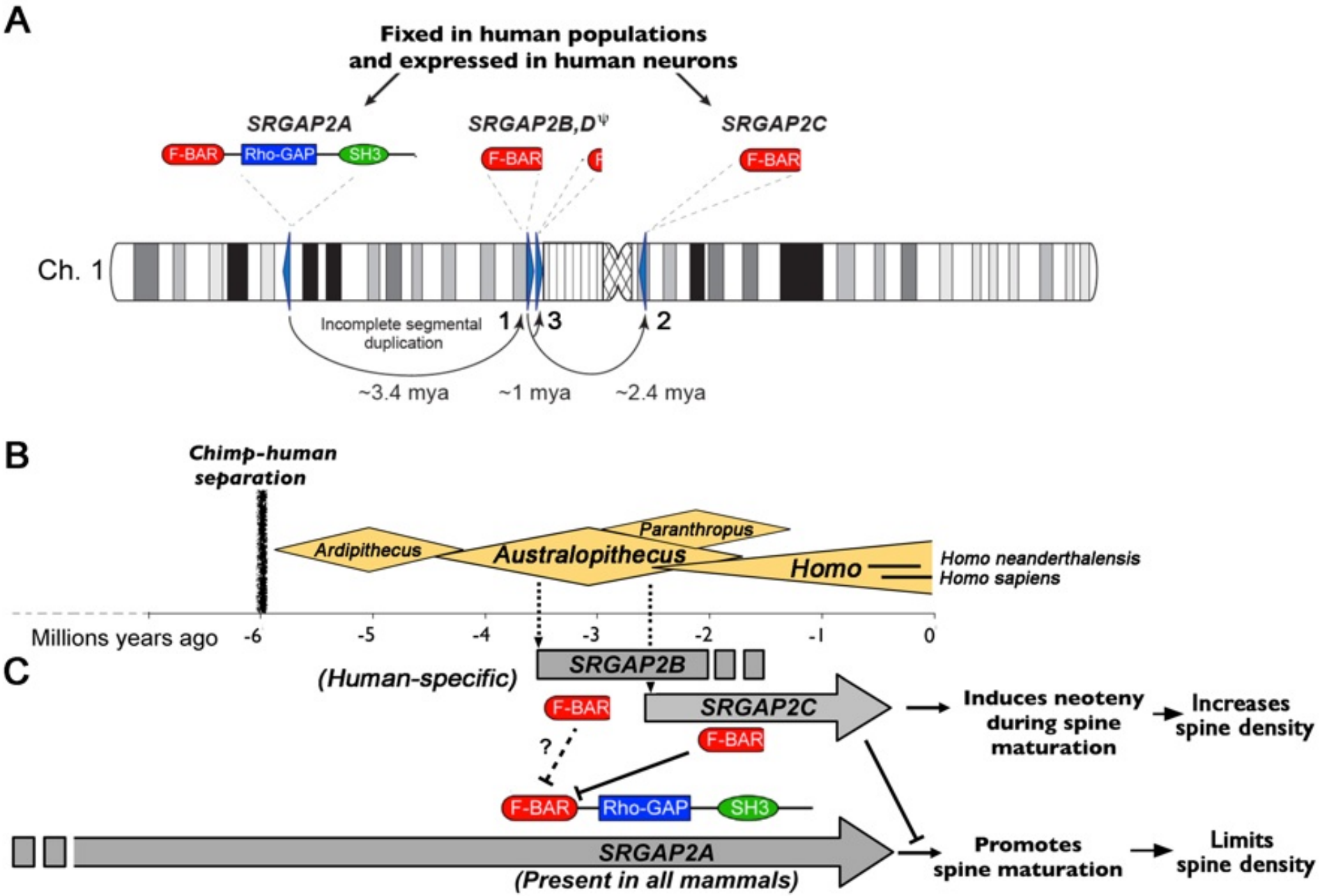
Current positions of 2006-2012 program graduates



Talent
*Creativity

Neuroscience vs Math
*Disease? Brain evolution?

*case studies


A
Fixed in human populations
and expressed in human neurons
SRGAP2A
SRGAP2B,D
SRGAP2C
F-BAR
Rho-GAP
SH3
F-BAR
F-BAR
Ch. 1
Incomplete segmental
duplication
1
3
2
~3.4 mya
~1 mya
~2.4 mya
B
Chimp-human
separation
Ardipithecus
Australopithecus
Paranthropus
Homo
Homo neanderthalensis
Homo sapiens
Millions years ago
-6
-5
-4
-3
-2
-1
0
C
(Human-specific)
SRGAP2B
F-BAR
SRGAP2C
F-BAR
?
F-BAR
Rho-GAP
SH3
SRGAP2A
(Present in all mammals)
Induces neoteny
during spine
maturation
Increases
spine density
Promotes
spine maturation
Limits
spine density

Calcium is slow

Neurons are clustered

Support
International
NSF
TG Joint
TG Advanced
MD/PhD TG
Columbia
NRSA
GRA