Audrey Effenberger

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Education

Massachusetts Institute of Technology, PhD 2019 –
Field: Brain & Cognitive Sciences

Harvard College, AB 2015 – 2019
Concentration in Neurobiology; Secondary in Mathematical Sciences. GPA: 3.7

Research

Cellino Biotech, Inc, Biology R&D Intern Jun 2018 – May 2019
Designed experiments and conducted transient transfection of human iPS cells to develop directed differentiation protocols for dopaminergic neurons with laser-based intracellular delivery technology. Key skills:

- Aseptic technique and iPS cell culture
- Confocal microscopy
- Flow cytometry
- ImageJ (Java) scripting
- Immunofluorescence
- Lipofection of gRNA
- Plasmid design and amplification
- qPCR assay and data analysis

Biogen Inc, Biopharmaceutics Intern Jun – Aug 2017
Designed and validated new USP Apparatus III assay to correlate *in vitro* drug dissolution with *in vivo* pharmacokinetics of new oral extended release drugs in neurology. Key skills:

- *In vitro–in vivo* correlation
- Modeling with Phoenix WinNonlin, GastroPlus
- USP Apparatus III dissolution assay
- UV fiber-optic probe operation
- Design of experiments (DOE) for large-scale screen optimization

Z. He Lab, Harvard Medical School & Boston Children's Hospital Jun 2016 – May 2017
Studied microglia activation and oligodendrocyte progenitor cell proliferation/differentiation after optic nerve injury *in vivo*. Investigated effect of disease-modifying drugs for MS on microglia activity *in vivo*. Key skills:

- Anesthetization
- Assistance in sterile neurosurgery
- Dissection and tissue collection (whole brain, retina, optic nerve)
- Behavioral assays (looming, visual cliff)
- Immunohistochemistry
- Injection (i.v., s.c., intravitreal)
- Perfusion

O'Connell Lab, Harvard University Feb – May 2016
Conducted proteomic and ecological study of the dietary hypothesis of poison frog toxicity in *Mantella laevigata*. Identified toxin-binding protein candidates and constructed phylogeny of insect prey species.

Publications

N A Moskowitz, et al. Seasonal changes in diet and toxicity in the Climbing Mantella frog (*Mantella laevigata*). *PLOS ONE*, 26 Dec 2018. doi: 10.1101/361998

Teaching

MCB80.2x (Neurons and Networks, HarvardX) — Jun 2019 – present
Discussion Moderator

MCB80.1x (The Electrical Properties of the Neuron, HarvardX) — Jan 2019 – present
Discussion Moderator & Curriculum Developer

Awards and Honors

Jacob Wendell Scholarship Prize, Finalist — 2017

Harvard College Scholar — 2015 – 2016