

Zak Strassberg

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Education

2010 – present

McGill University

Faculty of Science, Department of Biology, U2

Courses taken: Biol 200, 201*, 202*, 205*, 215, 569*, 573[♣]; Chem 110, 120, 212, 222*;
Psyc 215 & 317; Phys 131 & 142 (* denotes Winter 2012, [♣] Summer 2012)

2005 – 2009

Camden Hills Regional High School

GPA: 4.2

Advanced Placement test results:

- Biology: 5
- Literature and Composition: 5
- Calculus: 4
- European History: 4
- American History: 4

University of Maine courses: Java and Introductory Psychology

Work Experience

The Jackson Laboratory – Wayne Frankel, PhD

January 2010 – May 2010

Intern

Cacna1g as a model of absence epilepsy in C3H substrains of mice

My project was to examine gene expression levels of *Cacna1g* in several substrains of C3H mice. Preliminary data were gathered through rt-PCR assays examining mRNA levels of this gene. I learned mouse handling techniques, RNA extraction and cDNA synthesis, as well as PCR.

These data led me to believe that varying levels of gene expression in these strains could be responsible for the variation in seizure incidence and severity which my lab had previously observed. I used qPCR to find quantitative results of gene expression and learned the statistical methods required to analyze these data. My time at the lab ended before conclusive results could be found and my work was continued by other members of the lab once I left.

May 2011 – August 2011

JAX Summer Student Program

*Pcnxl2 as a potential modifier of *Gria4*^{spk^{zw1}} absence epilepsy*

I was invited back to Dr. Frankel's lab, where my project was to look at differences in protein expression and structure. I examined mRNA and protein levels of several isoforms of *Pcnxl2* between two sister strains, one of which included a retrotransposon-like IAP, in order to see if this insertion affected protein expression or function. The major part of my project was co-immunoprecipitation and western blotting of protein samples I prepared. This position gave me the opportunity to refine my knowledge on mRNA techniques as well as the additional challenge of protein analysis.

The challenge was to determine the best conditions for the previously unused antibody. This required experimentation to find optimal reagent ratios to produce clear results of my immunoprecipitation, western blots, and immunohistochemistry. I also designed primers and expanded my knowledge of the UCSC and Ensembl databases. My research was continued after I left.

Pica Design – Rob Dietz

Web Design & Development

Over the course of these three summers I worked at Pica Design doing graphic design, mostly involving the web. I am very experienced with HTML & CSS, and I am proficient with javascript and PHP. Graphic design lets me exercise the creative side of my brain and is a favorite hobby.

Awards

- 2005-2009 National Latin Exam awards (4 years)
- 2008 Nation Merit Scholar semifinalist
- 2011 Selected for the Jackson Labs Summer Student Program

Relevant Skills

Highly Proficient: PCR, immunoprecipitation & western blotting, RNA extraction
Proficient: qPCR, protein extraction, mouse handling, UCSC database, \LaTeX & $X_{\text{F}}\text{TeX}$
Experienced: Immunohistochemistry, behavioral testing, primer design
Familiar: Membrane prep, microscopy, scientific writing, presentations, Java

Academic Interests

I have always been interested in biology, an early fascination with dinosaurs transformed into an intense enthusiasm towards the complexity and intricacy of life. My interests led me to take a university course in psychology while in high school, my first foray into study of brains and behaviors. I have developed interests in the fields of genetics, neuroscience, and pharmacology, powerful tools with the possibility to change almost every aspect of our lives as our knowledge of these fields progresses.

A gap year allowed me to expand my horizons, both geographically and intellectually. I spent the first half of the year sailing with my family through Panama, mainland Ecuador and the Galapagos. Highlights included a guided tour of the Smithsonian Institute's research facility on Barro Colorado Island in the Panama Canal, where we observed intergroup dynamics of Capuchin monkeys. In Ecuador I was able to experience an amazing diversity of climates including a visit to primary jungle and a South American Condor rookery and reserve. The month in the Galapagos, of course, was the most inspirational.

I spent the second half of my gap year working at the Jackson Laboratory. The challenge that lab work presented was both fascinating and fulfilling and by the end of my first internship I had learned an amazing amount, including how much more I had to learn. My second internship, this time in the JAX Summer Student Program, introduced me to more complicated techniques. My project was larger in scope, and I had less guidance. This forced me to take learning into my own hands, and once again my sphere of knowledge increased. At the lab I also had the opportunity to present my findings at the end of the program, and attended my first conference, an eye opening experience.

Personal Interests

Outside of school, I have a number of hobbies, activities, and quirks that make my life better. Recently I've rediscovered a love for photography, where the act of creation is just as rewarding as the product itself. I enjoy working on computers, whether through programming, graphic design, or videos of cats. I also love ultimate frisbee, a sport where the highest honor is the 'Spirit of the Game' award, and reading, which can keep me entranced for entire days.