BEN GEILING

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Geneticist with Expertise in Chemistry

While in graduate school I designed and built a genetically modified mouse to study the origins of lung cancer. At the same time I was running a successful plant tissue culture business out of my kitchen. Afterwards I took a year off to pilot a small sailboat down the eastern seaboard from Canada to the Gulf of Mexico. Now that adventure is over and I'm looking for my next challenge, here's what I have to offer:

- Five years of lab experience focusing on biotechnology and medical research with projects ranging from the creation of knock-in mouse models of cancer to designing modular viral vector systems with applications for gene therapy. Familiarity with PCR, Western and Southern blots, working with radioisotope (P32), histology, DNA sequence analysis, electrophoresis, performing genetic screens, cloning, lenti/retro-viruses, animal tissue culture, mouse colony management, sterile technique, clean room SOP, writing scientific reports/papers, database management, maintaining a wide range of laboratory equipment.
- Ten years of experience with a wide variety of micropropagation strategies focusing on rare and difficult to culture plant species. Intimate knowledge of aeroponic, ebb/flow and deep water culture systems.
- Four years of undergraduate study in chemistry to draw on. A working knowledge of NMR, GC-MS, IR/UV/VIS spectroscopy, vacuum distillation, gas/liquid/thin layer chromatography, recrystallization strategies, purification methods, stereoselective synthesis, analytical techniques and molecular dynamics.
- A wide range of safety and technical training including: WHMIS, biosafety level 2.5 (enhanced controls for lentivirus), laboratory radiation safety, hazardous waste management/disposal, the safe use of biological safety cabinets, research animal theory and methodology certification (UACC approved), rodent handling, rodent restraint, substance administration, blood collection, anesthesia and analgesia.
- Skilled with Microsoft's Office Suite (including Access/MySQL), Adobe Photoshop, Adobe Illustrator, web/graphic design and the creation of simple scripts in VB, PHP, Javascript or Perl.

Education

Master of Science *(4.0 GPA)*
McGill University, Montreal, QC

- Genetics: While working on my masters degree I participated in cutting edge research in the areas of cell biology, cancer genetics, generation of genetically modified organisms, viral gene delivery systems, RNAi and recombinational cloning. In recognition of my work I was awarded with both the provost’s graduate fellowship and graduate travel awards.

Bachelor of Science with Honors *(4.0 GPA)*
University of Ottawa, Ottawa, ON

- Double Major in Biology and Chemistry: While working on my bachelors degree I focused my studies towards plant biology and organic chemistry. In acknowledgement of my academic success I appeared on the Dean's honor list every year for four years. Additionally, I was awarded yearly merit scholarships and certificates of distinction for academic excellence.

Experience

Biology Graduate Student (2010-2015)
McGill University, Montreal, QC

During my graduate studies I worked on the development and ultimate creation of a genetically engineered mouse to study the origins of lung adenocarcinoma. At the same time I also invented, built and distributed a modular recombination based viral vector construction system (the pBEG system) that allows researchers to quickly over-express or knockdown genes with a high degree of specificity.

Highlights:

- I developed a wide range of new laboratory skills while working on my masters project. While building the knock-in mouse I learned to work comfortably with radioisotope and perform “old school” Southern blots. Using this method I was able to identify 4 correctly targeted recombinants out of nearly 300 candidates.
- Over the course of my research I developed multiple scripts to help analyze my data more efficiently. I designed software to batch convert Excel spreadsheets to BMSL (XML), search cDNA sequences for candidate restriction enzyme sites, streamline our mouse colony database and to format and analyze large numbers of tumor cell proliferation measurements. In addition, I designed and created a modern lab website “from the ground up” using HTML/CSS, PHP and Javascript.
- I honed my technical writing skills by writing and subsequently publishing two scientific papers in peer-reviewed journals, numerous progress reports, technical abstracts for conferences and eventually my masters thesis.

Plant Tissue Culture (2010-2014)
Self-Employed, Montreal, QC

While working on my masters degree I managed a small independent greenhouse and tissue culture laboratory allowing me to grow orchids from seed (primarily *epidendrum sp.*). I sterilized orchid seed pods, transferred the microscopic seeds to sterile nutrient rich flasks and exposed them to the appropriate plant growth regulators to encourage germination. When the plantlets grew large enough they were removed from their flasks and hardened off. Over the course of four years, I was able to incrementally improve my technique eventually allowing me to produce these highly valuable plants with very little overhead cost.

Highlights:

- Managing my own business provided me with an excellent opportunity to focus on my organizational skills. In some cases seedlings would have to be started an entire year before they could be sold. Ensuring that every order would be filled this far in the future took careful planing on my part.

- I was given an excellent chance to practice my sterile technique while using very primitive equipment (small glove boxes, flame sterilization and open air dissecting microscopes). Despite these limitations I was able to achieve success rates of over 90% by working quickly and carefully.

Teaching Assistant (2010-2014)

McGill University, Montreal, QC

I was hired by McGill University for a part-time teaching assistant position every year for four years. Each year I taught either a first year biology lab course or a second year genetics course. I graded students work, gave lectures, maintained regular office hours, invigilated during exams, replied to student emails and monitored communications over an online discussion board.

Highlights:

- Teaching gave me valuable communication and public speaking skills. My students were often under immense pressure to meet certain grade milestones and would become frustrated by the more difficult course material. I was able to consistently diffuse these situations and received an average 90% favorably rating.
- The second year genetics course I taught was only a few years old and was still being actively developed during the time that I was teaching. I was able to work with both my own supervisor and the course coordinator to help modernize the lecture material in a way that ultimately improved student comprehension.

Library Technician (2009)

The Canada Institute for Scientific and Technical Information, Ottawa, ON

I was recruited for a full-time position during the completion of my bachelors degree through the federal student work exchange program (FSWEP). I received requests for journal articles from researchers then located the physical articles and prepared each document for delivery to the client. I also tracked and reported on document delivery service requests with respect to each CISTI clients contractual agreements.

Publications

1. **Geiling B.** Identifying the role of bronchioalveolar stem cells (BASCs) in lung adenocarcinoma. McGill University. PID #130592
2. **Geiling B**, Vandal G, Posner AR, de Bryuns A, Dutchak KL, Garnett S and Dankort D. A modular lentiviral and retroviral construction system to rapidly generate vectors for gene expression and gene knockdown in vitro and in vivo. PLoSone. 8(10)
3. Vandal G, **Geiling B** and Dankort D. Ras effector mutants suggest a negative regulator inhibits lung tumor formation. PLoSone. 9(1)