**VICTOR YUAN**

**PhD Candidate**, Dr. Wendy Robinson’s Lab

Genome Sciences and Technology Program, University of British Columbia

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Vancouver, Canada

**EDUCATION**

Sept 2016 – present *Doctor of Philosophy*

Genome Sciences and Technology*,* University of British Columbia*.*

Vancouver, Canada.

Advised by Wendy Robinson

Sept 2011 - May 2016 *Bachelor of Science*

Honours in Cell & Molecular Biology (cGPA 3.98/4.33), Concordia University.

Montreal, QC.

Advised by Malcolm Whiteway

2011 *High School Diploma*

St. Andrews Regional High School.

Victoria, BC

**RESEARCH INTERESTS**

Epigenomic data analysis in the context of perinatal health, with specific interest in cell-specific processes, population-based analyses, genetic ancestry, and ethnicity.

**RESEARCH EXPERIENCE**

**2017 Jan – present**

**Graduate Student**

**Supervisor: Wendy Robinson, BC Children's Hospital Research Institute, Vancouver, Canada.**

Using genomics (genetic, DNA methylation, gene expression) to investigate how ethnicity and cell composition placental function, and how these types of variation can be accounted for when conducting association studies. Projects include applying a machine learning approach to develop predictive models on DNA methylation data, interacting with public GEO placental databsets, and systems-level integration of gene expression, DNA methylation and genetic data. Skills learned: R statistical programming, machine learning, linear modelling, processing of human placental tissue, microsatellite genotyping, and microarray processing, sequencing analysis/processing.

**2016 Sept – 2016 Nov**

**Rotating Graduate Student**

**Supervisor: Alexander Wyatt, Vancouver Prostate Center, Vancouver, Canada.**

Aided whole exome sequencing library preparation for the identification of markers for resistance to common treatments of metastatic prostate cancer. Followed-up findings on the preservation of plasma volume using EDTA-free blood collection tubes. Skills learned: library prep for exome sequencing, human cell-free plasma DNA extraction

**2016 Aug – 2017 Dec**

**Molecular Biodiversity Lab Assistant**

**Supervisor: Patrick Martone, Department of Botany, UBC, Vancouver, Canada.**

Characterized the impact of weather changes and keystone species lost among the coast of northern BC. Optimized DNA extraction protocol for Coralline red algae, Sanger sequenced and identified over 300 red algal samples using BLAST. Skills learned: species-specific marker alignment for species classification of red algae.

**2015 – 2016**

**Undergraduate Academic Thesis**

**Supervisor: Malcolm Whiteway, Concordia University, Montreal, Canada.**

Characterized *DIG1*, a gene involved in the regulatory pathways that control the filamentous and mating processes of *Candida albicans*. Developed a protocol to generate fusion-proteins using CRISPR in the fungal pathogen, *Candida albicans*. Skills learned: fluorescent microscopy, molecular cloning, in silico vector design, western blotting, growth and maintenance of cell cultures, safety skills appropriate for biohazard level 2 organisms.

**2015**

**CUSRA Summer Research Scholarship**

**Supervisor: Malcolm Whiteway, Concordia University, Montreal, Canada.**

Aided a post-doctoral researcher with implementing CRISPR, a novel genome-editing technique, to generate knockouts in the fungal pathogen, *Candida albicans.* Skills learned: yeast-specific culturing, gene transformation, and drop-out media assays; western blotting, guide RNA design, Sanger sequencing.

**2014**

**iGEM Concordia**

**Supervisors: Malcolm Whiteway, Nawwaf Kharma, Vincent Martin, Concordia University, Montreal, Canada.**

Developed molecular biology ‘toolkit’ for algal species that were specifically desirable for the biotechnology industry (e.g. biofuels, nutrition). Skills learned: PCR, primer design, reagent preparation and storage, DNA extraction, transformation, plating / streaking of algal and bacterial cells, budgeting. (website: <http://2014.igem.org/Team:Concordia>)

**2013**

**Undergraduate Volunteer**

**Supervisor: Vladimir Titorenko, Concordia University, Montreal, Canada.**

Assisted lab technician in regular lab maintenance and experiment prep duties. Skills learned: media preparation, cell counting, inoculations, autoclaving, diluting reagents.

**PUBLICATIONS**

**Yuan V**, Price EM, del Gobbo G, Binder AM, Michels KB, Cox B, Marsit C, Robinson WP. (2019) Inferring population-specific variability in placental DNA methylation data. (In prep).

Konwar C, Del Gobbo G, **Yuan V**, Robinson WP. (2019) Considerations when processing and interpreting genomics data of the placenta. Placenta.

Robinson WP, Penaherrera MS, Konwar C, **Yuan V**, Wilson SL (2018) Epigenetic Modifications in the Human Placenta. Human Reproductive and Prenatal Genetics.

**PRESENTATIONS AND CONFERENCES**

**V Yuan**, EM Price, GF Del Gobbo, S Mostafavi, AM Binder, KB. Michels, B Cox, CJ Marsit, WP Robinson. Accurate ethnicity prediction from placental DNA methylation data. *BIG18 Research Day*. Vancouver, Canada. Mar 14th, 2019. [Poster]

**V Yuan**, EM Price, GF Del Gobbo, S Mostafavi, AM Binder, KB. Michels, B Cox, CJ Marsit, WP Robinson. Accurate ethnicity prediction from placental DNA methylation data. *Healthy Starts Research Day*. Vancouver, Canada. Feb 6th, 2019. [Talk]

**V Yuan**, C Konwar. Population-specific DNA methylation differences and their implications in placental pathologies. *International Federation of Placenta Associations Annual Meeting*. Tokyo, Japan. Sept 21-24, 2018. [Talk]

**V Yuan**, EM Price, GF Del Gobbo, AM Binder, KB Michels, B Cox, CJ Marsit, WP Robinson. Accounting for population structure in placental DNA methylation studies: a novel method for inferring ethnicity from DNA methylation microarray data*. International Federation of Placenta Associations Annual Meeting*. Tokyo, Japan. Sept 21-24, 2018. [Poster]

**V Yuan**, EM Price, GF Del Gobbo, AM Binder, KB. Michels, B Cox, CJ Marsit, WP Robinson. Accounting for ancestry in placental DNA methylation studies: a novel method for predicting ethnicity from DNA methylation microarray data*. BIG18 Research Day*. Vancouver, Canada. Mar 9th, 2018. [Poster & Talk]

**V Yuan**, EM Price, GF Del Gobbo, AM Binder, KB. Michels, B Cox, CJ Marsit, WP Robinson. Accounting for ancestry in placental DNA methylation studies: a novel method for predicting ethnicity from DNA methylation microarray data. *Faculty of Medicine Research Trainee Day & Lecture Series*. Vancouver, Canada. Feb 16th, 2018. [Poster]

**V Yuan**, EM Price, GF Del Gobbo, AM Binder, KB. Michels, B Cox, CJ Marsit, WP Robinson. Accounting for ancestry in placental DNA methylation studies. *Healthy Starts Research Day*. Vancouver, Canada. Feb 7th, 2018 [Poster & Talk]

**V Yuan**, M Wan, M Yuen, N Thatra, A Zhang, EM Price, WP Robinson. DNA methylation ethnicity predictor of placental tissue. *Faculty of Medicine Graduate Student Research Day: From Cells to Societies*. Vancouver, Canada. April 21st 2017. [Poster]

**V Yuan**, LR Rodríguez-Ortiz, M Whiteway. CRISPR: a novel method of editing DNA in Candida albicans. *Concordia Undergraduate Research Showcase.* Montreal, Canada. Oct 16th, 2015. [Poster]

**RECOGNITIONS & AWARDS**

**2019/2** Top 3 trainee talk for PhD category, Healthy Starts Research Day ($750 CAD)

**2018/9** Y.W. (Charlie) Loke Award for Early Career Researchers ($500 USD)

**2018/2** Invitation forlightning talk, BIG18 Research Day

**2018/2** Best poster for master’s category, Healthy Starts Research Day ($750 CAD)

BC Children’s Research Institute

**2018/2** Top 3 trainee talk for Masters category,Healthy Starts Research Day

($50 CAD)

BC Children’s Research Institute

**2015/9 - 2016/5** Dean's list - annual GPA of 3.75 or above (4.00), Concordia University

**2015/5 - 2015/8** Concordia Undergraduate Summer Research Award (CUSRA) - ($5,625 CAD) Competitive award to fund 16 weeks of summer research

Concordia University

**2014/9 - 2015/5** Dean's list, Concordia University (GPA = 4.0)

**2013/9 - 2014/8**  Dean's list, Concordia University (GPA = 4.0)

**SCHOLARSHIPS**

2016/9 - 2017/8

NSERC Canada Graduate Scholarships-Master’s Program

**Principal Investigator**: Malcolm Whiteway

**Funding Sources:** Natural Sciences and Engineering Research Council of Canada (NSERC)

Canada Graduate Scholarships-Master’s Program, University of Victoria

**Total Funding** - 17,500 (Canadian dollar)

**Funding Competitive?:** Yes

**Declined** to pursue graduate studies at another institution (UBC).

2016/9 - 2017/8

NSERC Canada Graduate Scholarships-Master’s Program

**Principal Investigator:** Malcolm Whiteway

**Funding Sources:** Natural Sciences and Engineering Research Council of Canada (NSERC)

Canada Graduate Scholarships-Master’s Program, Concordia University

**Total Funding** - 17,500 (Canadian dollar)

**Funding Competitive?:** Yes

**Declined** to pursue graduate studies at another institution (UBC).

2016/9

Concordia University Special Entrance Award

**Funding Sources:** Concordia University

**Total Funding** – 6,000 (Canadian dollar)

**Funding Competitive?:** Yes

**Declined** to pursue graduate studies at another institution (UBC).

2015/5 - 2015/9

Concordia Undergraduate Research Award (CUSRA) - Rewarded to undergraduates at Concordia University with high academic achievement and research potential to conduct a summer research project over the summer.

**Co-investigator**: Luis R. Rodríguez-Ortiz;

**Principal Investigator:** Dr. Malcolm Whiteway

**Funding Sources:** 2015/5 - 2015/9 Concordia University OVPRGS

**Total Funding** - 5,625 (Canadian dollar)

**CREDENTIALS**

**2016/11** Biological Safety Training Course, University of British Columbia

**2016/10** Preventing and Addressing Workplace Bullying and Harassment Training Course,

University of British Columbia

**2016/10** Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on

Research Ethics (TCPS 2: CORE), Panel on Research Ethics

**2016/10** Chemical Safety Course, University of British Columbia

**2016/8** Code Red - Fire Safety Training (Acute & Residential Facilities), Provincial Health

Services Authority (BC)

**2016/8** Privacy and Confidentiality (All PHSA Agencies), Provincial Health Services Authority (BC)

**2016/8** Respectful Workplace - Fostering a Culture of Respect, Provincial Health Services

Authority (BC)

**2014/8**  WHMIS for laboratory personnel training, Concordia University

**2014/8**  Hazardous Waste Disposal for Lab Personnel Training, Concordia University

**MENTORING & LEADERSHIP EXPERIENCE**

**(2018-present)** **Graduate student mentor**

Mentored three students – 1 undergraduate, 1 graduate, and 1 directed studies student in 3-4 month-long epigenetic data analysis research projects in the Robinson lab. Taught these students basics of genomic analysis with a focus on DNA methylation and RNA expression data. I also provided guidance on finding /choosing post-undergraduate research experiences, such as how to pursue research areas of interest, communicating effectively (e.g. preparing conference talks, posters), and choosing potential graduate school supervisors. Weekly supervision ranged from 6-30 hours / week.

**(2017-2018) Tutor**

Tutored grades 10-12 and first-year University students in Math, English, Chemistry, Biology, and general science.

**(2017-2018) Stats support group,** University of British Columbia

Helped form the growing ‘Stats support group’ at BC Children’s Research Insitute, which includes several other on-site graduate students, staff, and postdocs. The group serves the institute by providing a network of researchers who meet bimonthly to discuss how they use statistics in their research, and to provide new trainees with resource for their statistics-related needs.

**(2017-2018) R programming help session organizer and host,** University of British Columbia

Hosted a bimonthly 1-hour tutorial/workshop-like session for graduate trainees at BC Children’s Research Institute. We teach a variety of techniques including use of R Markdown for code writing, basic R programming, how to use R packages for association testing in high-dimensional biological datasets, and assisting with the development of analysis pipelines in R to answer a variety of research questions.

**(2018) Healthy Starts Research day: trainee organizing committee,** University of British Columbia

Aided in the organization of the Healthy Starts Research day at BC Children’s Research institute. Created a rubric for evaluating abstracts for oral presentations. Performed audio-video support for oral presentations.

**(2017) GSS x SUS Mentorship Program graduate mentor**, University of British Columbia

Mentored an undergraduate student on transitioning through UBC, program & course selections, career planning & opportunities, and finding suitable research & laboratory experiences. We held monthly 1-hour in-person meetings over the course of one semester.

**(2017) Let’s talk science: Data literacy day workshop host**

Helped design and host a programming workshop for young children (< 12 y.a.) for the purpose of promoting data literacy at Science World, Vancouver, Canada.

**(2017) Biodiversity molecular biology advisor**

Assisted Professor Patrick Martone’s (UBC) graduate students on various molecular biology experiments, including troubleshooting PCR experiments, sanger sequencing protocol, and DNA contamination clean up.

**(2016) Benchling tutorial host**, Centre for Structural and Functional Genomics, Concordia University

Hosted a 1-hour tutorial on Benchling, a data analysis software, for a molecular biology lab at Concordia

University. Led a group of ~10 researchers various data analysis and experimental design applications using Benchling. This included plasmid/linear DNA visualization, restriction enzyme analysis, sequencing alignment, lab notebook, and CRISPR gRNA design.

**(2015) iGEM Concordia, co-lead**

Co-led a group of a team of 10 undergraduate students for a 8-month long synthetic biology project cumulating with an international competition/research conference in Boston, MA, USA.