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Erick.NavarroDelgado@bcchr.ca github.com/ErickNavarroD

Erick I. Navarro-Delgado

Profile

I am a bioinformatician interested in developing computational tools and statistical approaches to analyze and integrate multi-omic data. Currently working in understanding how and under which conditions individual genetic susceptibility and environmental exposures work to influence human biology.

Education

2021 - TO DATE **THE UNIVERSITY OF BRITISH COLUMBIA** - FACULTY OF SCIENCE
PhD in Bioinformatics Grade Average: 95.9/100

2016 - 2021 **UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO (UNAM)** - FACULTY OF SCIENCE
B.Sc. in Biology Grade Average: 9.85/10 (3rd highest GPA in 2021's class)

2019 **KING'S COLLEGE LONDON** - FACULTY OF LIFE SCIENCES & MEDICINE
Study Abroad (Exchange) Grade Average: 73.5 (First-Class Honors)

Professional Development

2024 **CARPENTRIES DATA SCIENCE AND CODING INSTRUCTOR CERTIFICATION.** THE CARPENTRIES (16 HOURS).

2020/21 **DATA SCIENCE CERTIFICATE.** BEDU (5 MONTHS).

2020 **INTRODUCTION TO DATA ANALYSIS WITH PYTHON.** EMTECH TECHNOLOGIES INSTITUTE (60 HOURS).

Fellowships

2023/27 **4-YEAR PHD FELLOWSHIP** - ~99 200 CAD, UBC'S PREMIER PHD FELLOWSHIP

2025 **DR. MICHAEL SCHULZER MEMORIAL AWARD IN BIOSTATISTICS (AWARD** - 2 000 CAD, FACULTY OF MEDICINE GRADUATE STUDENT AWARDS - THE UNIVERSITY OF BRITISH COLUMBIA.

2021/25 **INTERNATIONAL TUITION AWARD** - ~12,800 CAD, THE UNIVERSITY OF BRITISH COLUMBIA.

2023 **BCCHR HEALTHY STARTS MASTER'S STUDENTSHIP** (ACCEPTED IN NAME) - 10 000 CAD, BCCHRI

2022 **BANK OF MONTREAL GRADUATE FELLOWSHIP** - 3 200 CAD, THE UNIVERSITY OF BRITISH COLUMBIA

2022 **PATRICK DAVID CAMPBELL GRADUATE FELLOWSHIP** - 4 325 CAD, THE UNIVERSITY OF BRITISH COLUMBIA

2022 **GERTRUDE LANGRIDGE GRADUATE SCHOLARSHIP IN MEDICAL SCIENCES** - 8 475 CAD, THE UNIVERSITY OF BRITISH COLUMBIA

2022 **"SOCIETY TO CELL" CLYDE HERTZMAN MEMORIAL FELLOWSHIP** - 13 000 CAD, SOCIAL EXPOSOME CLUSTER

2021 **GRADUATE GLOBALINK FELLOWSHIP** - 15 000 CAD, MITACS

2020 **SANTANDER TECH FELLOWSHIP** - 30 000 MXN, SANTANDER

2018/20 **ACADEMIC EXCELLENCE SCHOLARSHIP** - 36 000 MXN, FUNDACION TELMEX

2017/19 **EXCELLENCE FELLOWSHIP FOR UNDERGRADUATE STUDENTS** - 54 000 MXN, MEXICAN ACADEMY OF SCIENCES

2019 **EXCELLENCE BECALOS FELLOWSHIP** - 45 000 MXN, ORGANIZACIÓN BECALOS

2019 **INTERNATIONAL STUDENT MOBILITY FELLOWSHIP** - 95 000 MXN, UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO

2019 **GLOBALINK RESEARCH INTERNSHIP FELLOWSHIP** - 7 500 CAD, MITACS

2018 **KUPCINET-GETZ INTERNATIONAL SUMMER SCHOOL FELLOWSHIP** - WEIZMANN INSTITUTE OF SCIENCE

2017 **SUMMER SCIENTIFIC RESEARCH (VIC) FELLOWSHIP** - MEXICAN ACADEMY OF SCIENCES

Awards

2024 **CONFERENCE TRAVEL AWARD** - INTERNATIONAL SOCIETY FOR COMPUTATIONAL BIOLOGY

2024 **BEST POSTER AWARD** - 150 CAD, UBC LIFE SCIENCES SYMPOSIUM 2024. VANCOUVER, CANADA.

2023 **BURSARY AWARD** - EPIGENOMICS OF COMMON DISEASES 2023 CONFERENCE. HINXTON, UK.

2023 **SPEED TALK COMPETITION - THIRD PLACE** - 100 CAD, 12TH BIG RESEARCH DAY. VANCOUVER, CANADA.

2021 **UNAM BIOLOGY EXCELLENCE AWARD** - AWARD FOR OBTAINING THE 3RD HIGHEST CLASS' GRADE AVERAGE AT UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO CLASS 2021 (BIOLOGY). MEXICO CITY, MEXICO.

2017 **BEST POSTER AWARD** - II UNAM UNDERGRADUATE BIOCHEMISTRY COLLOQUIUM. MEXICO CITY, MEXICO

2016 **GOLD MEDAL, X IBERO-AMERICAN BIOLOGY OLYMPIAD (OIAB)**. BRASILIA, BRAZIL.

2016 **UNAM HIGH SCHOOL STUDENT AWARD IN SCIENTIFIC RESEARCH**. MEXICO CITY, MEXICO.

2016 **THIRD PLACE, ITESM XXI INTERNATIONAL SCIENCE CONTEST (CIC)**. MONTERREY, MEXICO.

2016 **GOLD MEDAL, XXV NATIONAL BIOLOGY OLYMPIAD**. VERACRUZ, MEXICO.

Publications

† *denotes equal contribution*

JOURNAL ARTICLES

- Life B; Petkau TL; Cruz GNF; **Navarro-Delgado EI**; Shen N; Korthauer K ; Leavitt BR. (2023). FTD associated behavioural and transcriptomic abnormalities in 'humanized'progranulin-deficient mice: A novel model for progranulin-associated FTD. *Neurobiology of Disease*. 182: 1-15.
- Duncan E.M., Nowotarski S.H., Guerrero-Hernández C., Ross E.J., D'Orazio J.A., **Clubes de Ciencia México Workshop for Developmental Biology***, McKinney S., Guo L.,McClain M., Alvarado A.S. (2022). Molecular characterization of a flatworm Girardia isolate from Guanajuato, Mexico. *Developmental Biology;* https://doi.org/10.1016/j.ydbio.2022.06.003.

  * I was part of the Clubes de Ciencia Mexico WfDB consortium.
- Salgado-Albarrán M.†, **Navarro-Delgado EI†**, Del Moral-Morales A.†, Alcaraz N., Baumbach J., González-Barrios R., Soto-Reyes E. (2021) Comparative transcriptome analysis reveals key epigenetic targets in SARS-CoV-2 infection. *npj Systems Biology and Applications;* doi: 10.1038/s41540-021-00181-x.
- Cáceres-Gutiérrez R.E., Andonegui M.A., Oliva D.A., González-Barrios R., Luna F., Arriaga-Canon C., López A., Prada D., Castro C., Parmentier L., Díaz-Chávez J., Alfaro-Mora Y.,**Navarro-Delgado EI**, Fabian-Morales E., Tran B., Shetty J., Zhao Y., Alcaraz N., De la Rosa C., Reyes J.L., Hédouin S., Hubé F., Francastel C., & Herrera L.A. (2021). Proteasome inhibition alters mitotic progression through the upregulation of a-satellite RNAs. *The FEBS Journal*; doi:10.1111/febs.16261.

BOOK CHAPTERS

- **Navarro-Delgado EI†**, Salgado-Albarrán M.†, Torres-Arciga K., Alcaraz N., Soto-Reyes E., Herrera L.A. & Gonzalez-Barrios R. (2021). Bioinformatics of Transcription Factor Binding Prediction. In Diego A. Forero, *Bioinformatics and Human Genomics Research*. USA. CRC Press USA (Taylor & Francis Group); doi: 10.1201/9781003005926-10

THESIS

- **Navarro-Delgado EI**., Gonzalez-Barrios R., Alcaraz N. (2021). Bachelors. Identificación de genes codificantes y elementos repetidos regulados por DAXX mediante RNA-SEQ. *Universidad Nacional Autónoma de México. México.* Access: http://132.248.9.195/ptd2021/mayo/0812217/Index.html

IN PREPARATION / UNDER REVIEW

- Edward, K; Merrill, SM; Konwar, C; Jude, M; Zhuang, B; Meijer, M; **Navarro-Delgado, EI**; MacIsaac, JL; Butstamante, M; Mandhane, P; Simons, E; Moraes, T; Subbarao, P; Turvey, SE; Kobor, MS. Biological sex impacts immune cell proportions and epigenetic profiles in the developing pediatric immune system. *Manuscript under review*.
- **Navarro-Delgado, EI**; Czamara, D; Edwards, K; Merrill, SM; Konwar, C; MacIsaac, JL; Mandhane, P; Simons, E; Subbarao, P; Moraes, TJ; Lahti, J; Binder, EB; Raikkonen, K; Turvey, SE; Korthauer, K; Kobor, MS. (In preparation). *Multi-omics analysis with RAMEN: Untangling gene-environment contributions to DNA methylation variability in cord blood*.
- Life, B†; **Navarro-Delgado, EI†**; Fornes, O; Wasserman, W; Korthauer, K; Leavitt, BR. (In preparation). *Progranulin variant rs5848 displays ancestry-specific associations with Alzheimer's Disease*.
- Meijer, M; Fu, M.; **Navarro-Delgado, EI**; Engelbrecht, HR; Chan, M; Kobor, MS. (In preparation). *Leaping over the blood-brain barrier: DNA methylation as the link between peripheral and central immune systems*.
- Chan, M. H.; Merrill, S. M.; Meijer, M.; **Navarro-Delgado, EI.**; Konwar, C., MacIsaac; J., LeWinn; K., Zhao, Q.; Mason, A.; Smith, A.; Bush, N.; Kobor, MS. (In preparation). *Converging and Diverging DNA Methylation Patterns of Childhood Internalizing and Externalizing Behaviors*.

Presentations

ORAL PRESENTATIONS

Navarro-Delgado, EI. (2024). *Análisis multi-ómico con RAMEN: identificando interacciones gen-ambiente en la metilación del ADN*. Presented at the LatinR 2024: Latin-American conference about the use of R in R&D conference. Virtual venue.

Navarro-Delgado, EI. (2024). M*ulti-omic analysis with RAMEN: Untangling gene-environment contributions to DNA methylation variability in cord blood*. Presented at the ISCB-Latin America SolBio CCBCOL International Conference on Bioinformatics 2024. CES University, Medellin, Colombia.

Navarro-Delgado, EI., Shen, N (2024). *Making sense of the epigenome: Developing tools to identify DNA methylation variability*. Presented at the Centre for Molecular Medicine and Therapeutics Research Day 2024. BC Children's Research Institute, Vancouver, Canada.

Navarro-Delgado, EI. (2024). *Modelling the genome-exposome contribution to newborn methylome variability with the RAMEN package*. Presented at the 13th BIG research day. UBC Life Sciences Institute, Vancouver, Canada.

Navarro-Delgado, EI. (2023). *Modelling the genome and prenatal exposome contribution to newborn DNA methylome variability with the RAMEN package*. Presented at the Epigenomics of Common Diseases 2023 conference. Wellcome Genome Campus, Hinxton, UK.

Navarro-Delgado, EI. (2023). *Modelling the genome and prenatal exposome contribution to newborn DNA methylome variability with the RAMEN package*. Presented at the Vancouver Bioinformatics Users Group meeting. Simon Fraser University, Burnaby, Canada.

Navarro-Delgado, EI. (2023). *Genetics vs environment? Modelling their contribution to DNA methylome variability in newborns*. Presented at the Centre or Molecular Medicine and Therapeutics Seminar series. BC Children's Research Institute, Vancouver, Canada.

Navarro-Delgado, EI. (2023). *Nature vs Nurture: understanding the influence of genetics and environment on DNA methylation*. Presented at the Vancouver Bioinformatics Users Group Lay-term talks competition. Langara College, Vancouver, Canada.

Navarro-Delgado, EI. (2023). *Modelling the contribution of genetics and prenatal environment to DNA methylome variability with the RAMEN package*. Presented at the 12th BIG Research Day. UBC Life Sciences Institute, Vancouver, Canada.

Navarro-Delgado, EI. (2020). *Identifying targetable epigenetic central players in SARS-CoV-2 infection with a systems biology approach*. Presented at the Mexican Interdisciplinary Network of Epigenomics (RIEM). Universidad Nacional Autónoma de Mexico, Mexico..

Navarro-Delgado, EI. (2019). I*dentifying the main biological mechanisms in asthma and food allergy: adapting ALLIGATOR to RNA-seq data*. Presented at the Summer Student Research Day. Robson Square, Vancouver, Canada.

Navarro-Delgado, EI. (2018). *Use of senolytics as a therapeutic approach to prevent cancer development*. Presented at the Kupcinet-Getz International Summer School Colloquium. Weizmann Institute of Science, Rehovot.

POSTER PRESENTATIONS

Navarro-Delgado, EI; Czamara, D; Edwards, K; Merrill, SM; Konwar, C; MacIsaac, JL; the CHILD study team, the PREDO study team; Turvey, SE; Korthauer, K; Kobor, MS (2024). RAMEN: *Modelling the genome-exposome contribution to newborn methylome variability*. Presented at the 2024 Life Sciences Institute Symposium. UBC Life Sciences Institute, Vancouver, Canada.

Navarro-Delgado, EI; Czamara, D; Edwards, K; Merrill, SM; Konwar, C; MacIsaac, JL; the CHILD study team, the PREDO study team; Turvey, SE; Korthauer, K; Kobor, MS (2024). *Modelling the genome-exposome contribution to newborn methylome variability with the RAMEN package*. Presented at the 13th BIG research day. UBC Life Sciences Institute, Vancouver, Canada.

Navarro-Delgado, EI; Edwards, K; Merrill, SM; Konwar, C; MacIsaac, JL; the CHILD study team, Turvey, SE; Korthauer, K; Kobor, MS (2024). G*enome-exposome contribution to newborn methylome variability modelling with the RAMEN package*. Presented at the 2024 Healthy Starts Research Day. BC Children's Research Institute, Vancouver, Canada.

Navarro-Delgado, EI; Konwar, C; Edwards, K; Merrill, SM; MacIsaac, JL; Liang, X; Zhao, Q; Mozhiu, K; LeWinn, KZ; Bush, NR; the CHILD study team, the CANDLE study team; Korthauer, K; Kobor, MS (2023). *Modelling the contribution of genetics and prenatal environment to cord blood and placenta DNA methylation variability*. Presented at the Centre for Molecular Medicine and Therapeutics Research Day. BC Children's Research Institute, Vancouver, Canada.

Navarro-Delgado, EI; Konwar, C; Edwards, K; Merrill, SM; MacIsaac, JL; Liang, X; Zhao, Q; Mozhiu, K; LeWinn, KZ; Bush, NR; the CHILD study team, the CANDLE study team; Korthauer, K; Kobor, MS (2023). *Modelling the contribution of genetics and prenatal environment to cord blood and placenta DNA methylation variability*. Presented at the 12th BIG research day. UBC Life Sciences Institute, Vancouver, Canada.

Navarro-Delgado, EI; Edwards, K; Merrill, SM; Konwar, C; MacIsaac, JL; the CHILD study team; Korthauer, K; Kobor, MS (2023). *Modelling the contribution of genetics and prenatal environment to newborn DNA methylation variability*. Presented at the 2023 Healthy Starts Research Day. BC Children's Research Institute, Vancouver, Canada.

Invited talks

Navarro-Delgado, EI. (2024). *Modelling the genome and prenatal exposome contribution to newborn DNA methylome variability with the RAMEN package*. Presented at the Genetics Seminar Series. Centre for Fertility and Health, Oslo, Norway.

Software

- *RAMEN* : Regional Association of Methylome variability with the Exposome and geNome, an R package to model the genome and exposome contribution to methylome variability (https://ericknavarrod.github.io/RAMEN).

Research Experience

SEP 2021 - TO DATE **BC CHILDREN'S HOSPITAL RESEARCH INSTITUTE** (VANCOUVER, CANADA)

Supervisors: Dr. Michael Kobor & Dr. Keegan Korthauer

- Developing RAMEN: a bioinformatic tool to model the genome and exposome contribution to DNA methylome variation across early life with a ML approach.

NOV 2018 - JUN 2021 **NATIONAL CANCER INSTITUTE (INCAN) -** (MEXICO CITY)

Supervisor: Dr. Rodrigo Gonzalez Barrios

- Conducted a bioinformatic analysis to identify epigenetic central players in SARS-CoV-2 infection with therapeutic potential through a weighted gene co-expression network approach using RNA-seq data, leading to a first co-author publication.

JUNE - SEP 2019 **THE UNIVERSITY OF BRITISH COLUMBIA** - (VANCOUVER, CANADA)

Supervisor: Dr. Denise Daley

- Adapted the GWAS permutation-based Gene Set Analysis bioinformatic tool ALLIGATOR to be used with RNA-seq data.

JUNE - AUG 2018 **WEIZMANN INSTITUTE OF SCIENCE** - (REHOVOT)

Supervisor: Dr. Valery Krizhanovsky

- Tested the effect of senolytics as a therapeutic approach to prevent Pancreatic Ductal Adeno-carcinoma development in a Kras-driven transgenic mouse model and cultured human cell lines

JUNE - AUG 2017 **NATIONAL LABORATORY OF GENOMICS FOR BIODIVERSITY (LANGEBIO) , CINVESTAV -** (IRAPUATO, MEXICO)

Supervisor: Dr. Alexander de Luna Fors

- Analysis of epistasis among genes in the nutrient sensing regulatory pathway affecting *Saccharomyces cerevisiae*'s chronological lifespan using a high-throughput parallelizable approach

JAN - JUNE 2017 **FACULTY OF SCIENCE , UNAM -** LABORATORY OF MOLECULAR BIOLOGY AND GENOMICS (MEXICO CITY, MEXICO)

Supervisor: Dr. Claudia Segal Kischinevzky

Determination of acatalacemic *Saccharomyces cerevisiae*'s chronological lifespan expressing *Debaryomyces hansenii*'s catalase in plasmids under different promoters.

SEP 2015-MAY 2016 **NATIONAL INSTITUTE OF NEUROLOGY AND NEUROSURGERY (INNN) -** LABORATORY OF NEUROINFLAMMATION RESEARCH (MEXICO CITY, MEXICO)

Supervisor: Dr. Agnes Fleury

Evaluation of specific antibodies in patients affected with neurocysticercosis before and after regular treatment.

MAY - JULY 2015 **INSTITUTE OF CHEMISTRY (IQ), UNAM -** DEPARTMENT OF NATURAL PRODUCTS(MEXICO CITY)

Supervisor: Dr. Ricardo Reyes Chilpa

Extraction of bioactive natural products from the plant *Cacalia decomposita* with possible antiviral activity against HIV type 1.

Teaching Experience

2022-2024 **THE UNIVERSITY OF BRITISH COLUMBIA-** VANCOUVER, CANADA

Teaching Assistant of STAT545 (Data Wrangling, Exploration, and Analysis with R) in the Fall terms of 2022, 2023 and 2024 (September to December). My overall student evaluation score is 4.6 out of 5 (interpolated median) and 100% Favourable Rating (the percentage of respondents who responded with a 4 or 5 (Agree or Strongly Agree) on a scale of 1 to 5).

JUL 2024 **TRAINEE 'OMICS GROUP, BCCHR -** VANCOUVER, CANADA

Led the workshop "Introduction to Functions in R"

MAR 2021 **UNIVERSIDAD AUTÓNOMA METROPOLITANA -** MEXICO CITY

Developed and led the 20 hours-long workshop "Introduction to RNA-seq data analysis"

JAN - JUNE 2020 **UNIVERSIDAD NACIONAL AUTÓNOMA DE MEXICO (UNAM)-** MEXICO CITY

Teaching Assistant of the Epigenetics course in the 2020-2 term.

Professional service and leadership

2024 - TO DATE **SALSEO VANCOUVER**- FOUNDER AND DIRECTOR (INSTAGRAM ACCOUNT: @SALSEO_VAN). FREE QUEER SALSA AND CUMBIA CLASSES.

2023 - 2024 **TRAINEE 'OMICS GROUP SEMINAR DIRECTOR** - BC CHILDREN'S RESEARCH INSTITUTE, VANCOUVER,

CANADA.

2023 **CLIMATE CHANGE WORKSHOP LEAD** - UBC LET'S TALK SCIENCE. VANCOUVER, CANADA.

2017 - 2019 **MEXICO'S NATIONAL BIOLOGY OLYMPIAD ORGANIZING COMMITTEE** - MEXICO.

2015 - 2016 **MEXICO CITY'S HEADQUARTER PRESIDENT**- SOCIEDAD CIENTIFICA JUVENIL. MEXICO CITY, MEXICO.