



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 INSTRUCTOR CERTIFICATION.** THE CARPENTRIES (16 HOURS).
- 2020/21 **DATA SCIENCE CERTIFICATE.** BEDU / SANTANDER (5 MONTHS).
- 2020 **INTRODUCTION TO DATA ANALYSIS WITH PYTHON.** EMTECH INSTITUTE / SANTANDER (60 HOURS).

Fellowships

- 2023/27 **4-YEAR PHD FELLOWSHIP** - ~99 200 CAD, UBC'S PREMIER PHD FELLOWSHIP
- 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, UNIVERSITY OF BRITISH COLUMBIA
- 2022 **PATRICK DAVID CAMPBELL GRADUATE FELLOWSHIP** - 4 325 CAD, UNIVERSITY OF BRITISH COLUMBIA
- 2022 **GERTRUDE LANGRIDGE GRADUATE SCHOLARSHIP IN MEDICAL SCIENCES** - 8 475 CAD, 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**; Maclsaac, 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, El;** Czamara, D; Edwards, K; Merrill, SM; Konwar, C; MacIsaac, JL; Mandhane, P; Simons, E; Subbarao, P; Moraes, TJ; Lahti, J; Binder, EB; Raikonen, 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, El†;** 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, El;** 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, El.;** 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, El. (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, El. (2024). *Multi-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, El., 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, El. (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, El. (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, El. (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, El. (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, El. (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, El. (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, El. (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, El. (2019). *Identifying 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, El. (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). *Genome-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://ericknavarro.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.

November 2024

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 (LANGE BIO) , CINVESTAV - (IRAPUATO, MEXICO) Supervisor: Dr. Alexander de Luna Fors - Analysis of epistasis among genes in the nutrient sensing regulatory pathway affecting <i>Saccharomyces cerevisiae</i> '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 Kischinevsky Determination of acatalacemic <i>Saccharomyces cerevisiae</i> 's chronological lifespan expressing <i>Debaryomyces hansenii</i> '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 <i>Cacalia decomposita</i> with possible antiviral activity against HIV type 1.

Teaching Experience

2022-2024	THE UNIVERSITY OF BRITISH COLUMBIA- VANCOUVER, CANADA Teaching Assistant of STAT545A & STAT545B (Exploratory Data Analysis) in the Fall 2022, 2023 and 2024 terms (September to December).
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: @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.
November 2024	