

Ana Isabel Castillo Orozco
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Education

- **PhD Candidate (1 year)**, Human Genetics, McGill University, Canada (2020-Present)
Research Trainee-RI-MUCH, Glen Site. Supervisor: Dr. Livia Garzia
- **MSc with Distinction in Genomic Medicine**, The University of Manchester, UK (2017)
Faculty of Biology, Medicine, and Health
- **BSc magna cum laude in Biotechnology Engineering**, Major in Molecular Biology
Monterrey Institute of Technology and Higher Education (ITESM), Puebla, Mexico (2014)

Further Training

- **Immunology**, Certificate of **Achievement**, HMX Fundamentals Program (2018)
Harvard Medical School online learning platform
- **Pharmacology**, Certificate of **Achievement**, HMX Fundamentals Program (2018)
Harvard Medical School online learning platform

Research Experience

- **USMP and EMBL-EBI**, Peru, Cambridge, UK (May 2019-Dic 2019)
CABANA Research Secondment
Center for Genetics and Molecular Biology Research, USMP, Perú
Research Assistant; Advisor: Dr. Ricardo Fujita Alarcón
-Project: Determination of ancestry and reconstructing pre-Columbia history of South American human populations with genomic markers
-Contributions: Bioinformatic analysis of whole-exome sequencing data of 250 Peruvian patients to compare genetic variants with other populations and archaic genomes, and investigate variants that may provide information regarding disease susceptibility
- **National Institute of Genomic Medicine (INMEGEN)**, Mexico (Nov 2018- Jan 2019)
Functional Cancer Genomics Lab
Volunteer Research Assistant; Advisor: Dr. Jorge Meléndez Zajgla
-Project: Whole Exome sequencing in Mexican family affected with an unknown syndrome to identify candidate genomic variants responsible for their disease.
-Contributions: Annotation, filtration and bioinformatic analysis of VCF files from whole-exome sequencing data to isolate potentially implicated genetic variants to elucidate diagnosis and improve treatment.
- **Manchester Centre of Genomic Medicine**, Greater Manchester, UK (June-Sept 2017)
St. Mary's Hospital, University Hospitals, NHS Foundation Trust
Graduate Student; Advisor: Dr. Miriam Smith
-Project: Genetic Predisposition to Multiple Meningiomas [Dissertation with Distinction]
-Contributions: Performed bioinformatic analysis of coding-regions from whole-genome sequencing data, assessed DNA integrity from FFPE samples, designed primers to validate identified germline mutations, set up sequencing PCR reactions and analyzed exons from Sanger-Sequencing data of candidate genes
-Supervisory Experience: Assisted one undergraduate student in the management of genomic databases and primers design

- **A New Hope, Cancer Research Center**, Puebla, Mexico (May-August 2016)
Molecular Biology and Tumor Cells Lab
Research Assistant; Advisors: Dr. Elena Soto Vega and MSc José Zárate Alvarado
-Project: P-glycoprotein (P-gp) Activity in Acute Lymphoblastic Leukemia
-Contributions: Executed research protocols and analyzed pediatric patient samples using multi-parameter flow cytometry to assess multidrug resistance

- **National Institute of Genomic Medicine (INMEGEN)**, Mexico (June-August 2014)
Immunogenomics and Metabolic Diseases Lab
Summer Internship; Advisor: Dr. Federico Centeno Cruz
-Project: Chronic low-level arsenic exposure induces progressive aberrant DNA methylation that correlates with cell transformation in HaCat cell line
-Contributions: Maintained tissue culture cell lines, performed anchorage-independent cell growth assays, isolated RNA/DNA from HaCaT cells and assessed the integrity of nucleic acids

- **Angeles Hospital**, Puebla, Mexico (January-May 2013)
Molecular Pathology Lab
Undergraduate Research Assistant; Advisor: Dr. Silvia Montilla
-Project: Analysis of polymorphisms in genes encoding xenobiotic metabolizing enzymes in Mexican patients with thyroid and colorectal cancer
-Contributions: Performed Multiplex PCR for SNP genotyping to determine presence and frequency of *MTHFR677*, *MTHFR677*, and *MTHFR1298* polymorphisms in the Mexican population

Work Experience

- **A New Hope, Cancer Research Centre**, Puebla, Mexico (2014-2016)
Laboratory Technician at Molecular Biology and Tumor Cells Lab
-Performed Immunophenotype and Minimal Residual Disease tests (at affordable costs)
-Processed PBMCs samples to establish RNA/DNA biobanks
-Managed and updated patient databases and lab inventory
Secondary Roles: Facilitated collaborations with Cancer Research Centers abroad, promoted dissemination events, and edited newsletters for the web-page and donors

- **Angeles Hospital**, Puebla, Mexico (2012-2013)
Technical Laboratory Assistant at Pathology Lab
-Isolated DNA from FFPE samples for research and biobank, and performed molecular diagnostic tests for the detection of oncogenic mutations (Colorectal and Thyroid cancer) and infectious diseases (HPV and *Mycobacterium*)

Teaching and Advising Experience

- **Monterrey Institute of Technology and Higher Education (ITESM)** (2018-Present)
Lecturer, Department of Biotechnology and Bioengineering, Mexico City, MX
Courses: Genetics, Genetic Engineering, and Tissue Culture Labs [In English]
Received **9.85/10** for teaching effectiveness from student evaluations

- **Monterrey Institute of Technology and Higher Education (ITESM)** (2014-2016)
Lecturer, Department of Exact Sciences, High-School Level, Puebla, MX

Courses: Organic and Inorganic Chemistry, Biology, Health Sciences,
Research Methods and Introduction to Biotechnology [In English]

Responsibilities: Help and direct laboratory sessions, preparation of presentations,
assessment of students performance and tutorship in research projects

Leadership Experience

- Established and implemented the first Henrietta Lacks (HeLa) day at ITESM (2018)
- Developed the first course of *Pharmacogenomics* at ITESM (2018)
- Mentoring/Coaching to advice and guide a low-income undergraduate student awarded with the full Scholarship "**Leaders of Tomorrow**" at ITESM (2018-To date)
- Wrote a piece to share my academic and personal history to inspire students at the Faculty of Biology, Medicine, and Health, The University of Manchester (2018)
Title: "*Contributing to your community is vital. I found out the hard way*"
Link: <https://manchesterbmhstudents.wordpress.com/2018/05/14/contributing-to-your-community-is-vital-i-found-out-the-hard-way/>
- Competed at **Biostars 2016 Program: Startup Accelerator Competition, Panacea Innovation, University of Oxford, UK** (2016-2017)
 - Role: Scientific Leader
 - Project title: Fire Gene Therapies, Improving Medulloblastoma Treatment by targeting *PVT1-MYC* fusion gene to reduce *EZH2* overexpression

Honors and Awards

- The University of Manchester Volunteer of the Year Awards, 3rd Place (2019)
- Selected as one the **100 Biotechnology Leaders in Latin America**, Allbiotech (2018)
 - Invited to represent Mexico at the Second Summit of Biotechnology Leaders to boost Biotech and Bioengineering in Latin America Nations
- Best Policy Advice Award for regulation of disclosure of genetic data, (2018)
Awarded by Coursera Platform
 - Proposal discussed in a public webinar with **Dr. David Koepsell** and mentors
- Third Best Oral Presentation Award, Second Meeting of Young Researchers (CONCyTEP), Puebla, Mexico (2013)
- Acknowledgment for academic excellence in Undergraduate Studies, MX (2012 and 2013)

Fellowships

- CABANA Research Secondment Fellowship, EMBL-EBI, Cambridge, UK (2019)
- Tuition Waiver for two HMX fundamental courses, HMS Online learning platform (2018)
- CONACyT Scholarship for High-Quality Postgraduate Studies (2016-2017)
- FIDERH-Bank of Mexico Scholarship for Postgraduate Studies (2016-2017)
- Summer Internship Fellowship, Mexican Academy of Sciences (2014)
- Grant for Third Best Oral Presentation, Second Meeting of Young Researchers (2013)
- Academic Scholarship for Undergraduate Studies, ITESM, Puebla, MX (2009-2014)
- Academic Scholarship for High-School Education, ITESM, Puebla, MX (2006-2009)

Posters, conferences, and presentations

- **(Invited Workshop) Castillo, Ana. I.** Cancer Genomics and Bioinformatics, International Day for Women and Girls in Science, *SEBIOTEC*, ITESM, Puebla, February, 2019
- **(Invited Talk) Castillo, Ana. I.** Selected Topics in Oncology, Genomics and Bioinformatics, *Mutagen: Biotech Student Society*, ITESM, Mexico City, November 2018
- **Invited Talk) Castillo, Ana. I.** Challenges and Advances in Personalized Medicine, *Women in Optics Student Chapter Meeting*, Puebla, Mexico, June 2018
- **(Talk) Castillo, Ana I.** and Smith, M. Genetic Predisposition to Multiple Meningiomas, *XV Symposium of Mexican Studies and Students in the UK*, Durham, UK, July 2017
- **(Poster) Castillo, Ana I.** Testing Children for Genes Predisposing to Cancer, *North West Coast Genomics Healthcare Alliance and North West Coast Oncology Education: Genomics and Oncology Study Day*, Liverpool, UK, March 2017
- **(Invited Talk) Castillo, Ana. I.** Why focusing on only a scientific discipline is not enough? *TEDx Talk. TEDxTecMtyPuebla*, ITESM, Puebla, MX, June 2016
- **(Invited Talk) Castillo, Ana I.** Importance of Nutrition in Cancer Prevention. International Childhood Cancer Day, *Cancer Day Meeting (3rd Edition)*, Puebla, MX, February 2016
- **(Poster) Castillo, Ana I.** and Zárate, J.L. Molecular Classification of Medulloblastoma and Relationship with Pathologic Classification, *VI National and III International Meeting for the Study of Pediatric Tumors of the Central Nervous System*, Puebla, MX, November 2015
- **(Talks) Castillo, Ana I.** Nutrition and Cancer Prevention. Profits donated to aid children with cancer, *Cancer Research Centre “Una Nueva Esperanza” (A New Hope)*, Puebla, Mexico, **Dates:** February, April, and July 2015
- **(Talk) Castillo, Ana I.** and Ornelas O.D. Genetic Variation in Mexican Population with Susceptibility to Colorectal Cancer, *Second Meeting of Young Researchers CONCyTEP*, Puebla, Mexico, October 2013

Volunteer Experience

- **(Invited Talk) Castillo, Ana I.** Panorama of Mexican Women in Science, Second Biotechnology Student Congress, Instituto Politécnico Nacional, Mexico, May, 2019
- **(Panel Discussion) Castillo, Ana I;** Reyes, C; Spezzia, T; & Nava, J. “Role of Women in STEM” Third Meeting of STEM: Girls and Science, INAOE, Puebla, May, 2019
- Coordinator, Equity and Diversity Committee, ALLBIOTECH (2019-Present)
- e-Campaigner Cancer Research UK (2018-2019)
Volunteer to influence the British Government to beat cancer sooner
- Second and Third Meeting to promote inclusion of women in STEM (2018 and 2019)
Provided the workshop: “Discovering DNA. Isolation of Genetic Material”
Tonanzintla, Puebla, Mexico
- “Science Books for Young Mexican Girls” Crowd-Funding campaign (2018)
Raised funds to purchase 90 Science Books for low-income high-school girls
Tonanzintla, Puebla, Mexico
Link: https://www.youtube.com/watch?v=5y_kkzAeluk
- Cancer Campaign Ambassador Cancer Research UK, Political Campaigning (2017)
Role: Influencing politics to make sure cancer is a priority, Manchester, UK
- A New Hope volunteer to aid children with cancer (2014-2016)
Participated in events to raise funds and gave tours/talks to invite people to make donations, established social service at ITESM to collaborate at A New Hope, and developed a promotional video for dissemination

Puebla, Mexico

Link Video:

<https://www.dropbox.com/s/ckl1dd38c08w1dv/Una%20Nueva%20Esperanza.mov>

- Student Research Project (GENTEC) volunteer (2012-2013)
Helped to design a genetic diagnostic lab focused on Mexican patients
Puebla, Mexico

Affiliations/ Memberships

- Member Board, Mexican RGS, International Society for Computation Biology (2019-Present)
- Regular Member, Mexican College for Cancer Research (C-MIC), Mexico (2018-Present)
- Student Member, The American Society for Cell Biology (ASCB), USA (2018-Present)
- Junior Member, Cancer Epigenetics Society, Vienna, Austria (2017-Present)
- Student Member, Women in Science and Engineering Society (WISE), UK (2016-2017)
- Regular Member, Mexican Society of Biotechnology and Bioengineering, MX (2014-2016)
- Committee Member, Secretary, Biotechnology Engineering Student Society (SAIBT), ITESM, Mexico: Participated in the creation of the 1st Biotech Congress at the University (“Biosynthesis 1.0”) (2011)

Additional Courses and Professional Development

- Nutrigenomics: Advanced Online Course, Nutrigenomics Institute, Madrid, Spain (2018)
- Nutrigenomics: Basic Online Course, Nutrigenomics Institute, Madrid, Spain (2018)
- Genetic Privacy: Should we be concerned? Leiden University, Coursera Platform (2018)
- Introductory seminar on functional and structural Neuroanatomy (2018)
Neurosciences Institute, Puebla, Mexico
- ASCB-Keck Graduate Institute (KGI) Biotech Mini-Course, ASCB|EMBO Meeting Philadelphia, PA, USA (2017)
- Applications in Flow Cytometry Course, National Institute of Genomic Medicine, MX (2016)
- Genomic Medicine Gets Personal, Georgetown University, edX Platform (2015)
- Introduction to Genomic Technologies, Johns Hopkins University, Coursera Platform (2015)
- Epigenetics: Control of Gene Expression, The University of Melbourne, Coursera Platform, (lectures provided by Dr. Marnie Blewitt) (2015)
- Pharmacogenomics, National Autonomous University of Mexico (UNAM) (2015)
Held by National Institute of Genomic Medicine (INMEGEN), MX, (May-August)
- Genetics and Society: A Course for Educators, (2015)
American Museum and Natural History, Coursera Platform
- Introduction to Proteomic Applications in Medicine, UNAM. (2014)
Held by National Institute of Genomic Medicine (INMEGEN), MX, (June-September)
- Molecular Biology applied in Surgical Pathology Congress (2012)
Held by Angeles Hospital, August, Puebla, Mexico

Skills

- Proficient in the use of bioinformatic tools for the analysis of genetic variants
- Rapid incorporation into any work environment and research project
- Experience in molecular biology and tissue culture laboratory techniques
- Background in Next-Generation Sequencing Platforms and Human Genetics
- Experience in flow cytometry technologies
- Public speaking skills
- Language Programs:
 - R programming (Intermediate level) IDE: Rstudio
 - Python (COMP 598: Computer Programming for Research in Life Sciences. IDE: Spyder

Languages

-Spanish (Native); English (Fluent in speaking and writing); French (Basic)