# Ricardo Daniel Gonzalez, Ph.D.

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| |  | | --- | | Summary |   I'm passionate about oncology and precision medicine, driven by expertise in pharmacogenomics, functional genomics, and cutting-edge spatial multi-omics. My hands-on experience spans advanced molecular and cellular technologies, from CRISPR genetic manipulations to drug ADME studies, and working with PDX (patient-derived xenograft) models *in-vivo*, particularly within the context of brain cancers. I possess strong capabilities in bioinformatic multi-omic data analysis, including spatial and single-cell data, and pharmacokinetic/pharmacodynamic (PK/PD) modeling. My goal is to identify promising drug targets and accelerate the translation of research into clinical applications. Education |

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| University of North Carolina (UNC), Chapel Hill, NC | 2023 |

Doctor of Philosophy, Pharmaceutical Science

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| University of Kansas (KU), Lawrence, KS | 2017 |

Bachelor of Science, Chemical Engineering

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| Professional experience |

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| Baylor College of Medicine/Texas Children’s Hospital, Houston, Texas | Apr 2024 - Present |

### Post Doctoral Associate, Dr. Michael D Taylor Lab

**Spatial Omics & Data Integration**

* Pioneered multi-modal spatial and single-cell omics analysis (scRNA seq, proteomics MALDI-MS) on Group 3 and 4 medulloblastoma tissue. Integrated these diverse datasets to construct a 3D molecular atlas, providing unprecedented insights into tumor heterogeneity and molecular interactions.
  + Executed full pipeline from cryosectioning and H&E staining to 10x Genomics VisiumHD and MERFISH, and library prep, sequencing alignment, and advanced data post-processing bioinformatics.

**Preclinical Model Development & Cell Biology**

* Established and managed patient-derived xenograft mouse models of medulloblastoma, performing intracranial injections, brain dissections, to study tumor initiation and treatment responses.
* Engineered CASK gene KO via CRISPR/Cas9 technology to investigate its role as a molecular driver in medulloblastoma cell lines.
* Developed and implemented functional clonogenic assays, including FACS cell sorting for limited dilution assays and flow cytometry-based methods to characterize androgen-induced cellular changes and assess stemness and proliferative potential in PFA Ependymoma primary cells.

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| University of North Carolina Eshelman School of Pharmacy, Chapel Hill, NC | Jun 2017 - 2023 |

### Graduate Research Assistant, Dr. Tim Wiltshire Lab

Pharmacogenomics & Clinical Outcomes

* Validated pharmacogenetic markers predicting chemotherapy response: Identified genetic indicators for drug sensitivity and resistance in cancer patients.
* Led pharmacogenetics analysis for tacrolimus dosing: Performed rare allele testing and analyzed germline genetic variations impacting tacrolimus pharmacokinetics and clinical outcomes in transplant patients.
* Conducted pharmacogenetics analysis of salt sensitivity and blood pressure: Investigated genetic factors influencing hypertension.
* Determined CYP2D6 copy number variations: Identified genetic variations in high-risk patients undergoing percutaneous coronary intervention.

Genomic Analysis & Disease Insight

* Performed survival analysis for clinical outcomes: Analyzed survival data in adult-type diffuse gliomas and colorectal cancer patients.
* Assessed RNA-seq and ATAC-seq profiles: Evaluated the impact of environmental toxins in surrogate tissue (NIEHS TaRGET II Consortium).

Clinical Exposure

* Attended molecular tumor board meetings: Gained clinical experience and insights into molecular oncology.

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| University of Kansas Department of Pharmaceutical Chemistry, Lawrence, KS | May 2014 - 2017 |

### Undergraduate Researcher Assistant

* Targeted research on inflammatory and autoimmune diseases, including multiple sclerosis, Alzheimer's, and other neurodegenerative conditions.
* Investigated the synthesis and properties of cyclic peptides that modulate cadherin interactions in the BBB for improved in vivo brain delivery.
* Developed and applied a method to determine peroxynitrite (ROS) concentrations in macrophage cells via microchip electrophoresis with laser-induced fluorescence probes.

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| Skills |

Research & Laboratory Techniques: Spatial Multiomics, Functional Genomics, Genome-Wide Association Studies (GWAS), Pharmacogenetics/Pharmacogenomics, Pharmacokinetics (PK) & Pharmacodynamics (PD) Modeling and Simulation (NCA and compartmental modeling), Population Pharmacokinetics (Covariate model building, model validation with/without stratification), Advanced PK/PD Modeling (Disease progression, TMDD modeling of mAbs), Survival Analysis and Clinical Outcomes, Tissue Culture, Flow Cytometry, Animal Handling (Mice, PDX Models), CRISPR/Cas9, RT-qPCR, Protein Expression and Purification, Fmoc Solid Phase Peptide Synthesis & HPLC Purification.

Programming & Data Analysis: R, Python, Bash, Slurm

Computer software/ frameworks: NONMEM, Phoenix WinNonlin™, ImageJ, QPath, FlowJo, Microsoft Office Suite, Adobe Photoshop

Languages: Spanish (Fluent)

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| Publications |

* Zhang, Jiao et al. (Oct 2025). “Androgen activity in the normal male embryonic hindbrain drives lethal PFA ependymoma.” *Under review*
* Su, Yu et al.  (July 2025). “An interpretable machine learning model for predicting prognosis of medulloblastoma integrating genetic and clinical features.” *Under review*
* Pang , Yan-Chun et al. (June 2025). “Targeting tumor-associated macrophages chemosensitizes SHH subgroup medulloblastoma via suppressing IGF1/PI3K/Zic1 axis.” *Under review*
* Gonzalez, Ricardo D et al. (May 2023). “RYK Gene Expression Associated with Drug Response Variation of Temozolomide and Clinical Outcomes in Glioma Patients. “In: Pharmaceuticals (Basel, Switzerland). DOI: 10.3390/ph16050726.
* Gonzalez, Ricardo D et al. (May 2023). “MKX-AS1 Gene Expression Associated with Variation in Drug Response to Oxaliplatin and Clinical Outcomes in Colorectal Cancer Patients.” In: Pharmaceuticals (Basel, Switzerland). DOI:10.3390/ph16050757.
* Small, George W et al. (June 2023). “Pharmacogenomic Analyses Implicate B Cell Developmental Status and MKL1 as Determinants of Sensitivity toward Anti-CD20 Monoclonal Antibody Therapy.” In: Cells. DOI: 10.3390/cells12121574.
* Dong, Olivia M et al. (June 2018). “Projected impact of a multigene pharmacogenetic test to optimize medication prescribing in cardiovascular patients.” In: Pharmacogenomics. DOI: 10.2217/pgs-2018-0049.

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| Conference Talks |

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| Abstracts |  |

* Importance of Testing Rare Alleles CYP3A56 and 7 for Genotype-Guided Tacrolimus Dosing. APhA Annual Meeting, Seattle, WA, March 2019
* Synthesis of a Cyclic Peptide ADTC5 To Enhance In Vivo Brain Delivery of Drugs. SACNAS National Conference, October 2016
* Detection of Peroxynitrite in Macrophage Cells Using HKGreen-3 and Microchip Electrophoresis with Laser Induced Fluorescence. SACNAS National Conference, October 2015

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| Oral Presentations |  |

* RYK Gene Expression Associated with Drug Response Variation of Temozolomide and Clinical Outcomes in Glioma Patients. UNC ESOP DPET Seminar, September 2022
* Synthesis of Cyclic Peptides and Expression of EC1 Protein to Study the Binding Affinity. KU Research Symposium, April 2017
* Detection of Peroxynitrite in Macrophage Cells Using HKGreen-3 and Microchip Electrophoresis with Laser Induced Fluorescence. KU Research Symposium, April 2016

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| Poster Presentations |  |

* A Pharmacological Investigation of Synergism and Antagonism Using Asynchronous Paclitaxel and Epirubicin Combination Chemotherapy Dose-Response. American Association of Pharmaceutical Scientists PHARMSCI 360, October 2021
* Functional Follow-Up of GWAS Associated SNP Effects in The RYK and MKXAS1 Genes Associated with Drug Response Variation of Monotherapy Temozolomide and Oxaliplatin. American College of Clinical Pharmacology Annual Meeting, September 2021
* An in vitro model of oxidative stress induced epigenetic changes when exposed to Lead and Dioxin as an alternative toxicity marker. Mid Atlantic PREP-IMSD Research Symposium, May 2018
* Determining Copy Number Variations in CYP2D6 Using a TaqMan Real-Time PCR Assay. ABRCMS National Conference, November 2017
* Synthesis of Cyclic Peptides and Expression of EC1 Protein to Study the Binding Affinity. KU Research Symposium, April 2017
* Detection of Peroxynitrite in Macrophage Cells Using HKGreen-4A and Microchip Electrophoresis with Laser Induced Fluorescence. SACNAS National Conference, October 2016
* Detection of Peroxynitrite in Macrophage Cells Using HKGreen-3 and Microchip Electrophoresis with Laser Induced Fluorescence. SACNAS National Conference, October 2015

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| TRAININGs |

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| COURSEWORK |  |

* Pharmacokinetic Concepts and Applications, DPET 853, PK Module 1
* Pharmacodynamic Concepts and Applications, DPET 854, PK Module 2
* Population Pharmacokinetic/Pharmacodynamic Analysis, DPET 857, Module 3
* Advanced Pharmacokinetic/Pharmacodynamic Analysis, DPET 858, Module 4
* Precision Therapeutics Through Genomics, DPET 873
* Experimental Design Considerations in Clinical Research, DPET 833

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| CERTIFICATES & WORKSHOPS |  |

* Regulatory Affairs Training Program, Duke University

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| Service & Mentorship |

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| Research Mentor |  |

* University College London (Mentee: Cathy Then), 2022–2023
* Young Innovators Program UNC (Mentees: Cecilia Lee, Lauren), 2021
* NC School of Science and Mathematics (Mentee: Elizabeth A. Redding), 2016–2017

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| Teaching Assistant |  |

* Precision Therapeutics Through Genomics (DPET 873), UNC 2022–2023

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| Service |  |

* Research Ambassador, KU 2016–2017
* Scholarship Chair, Phi Iota Alpha, KU 2017
* Mentor Award Committee, KU Center for Undergraduate Research 2017
* IMSD Scholar, KU 2015–2017
* Engineering Expo Volunteer, KU 2014–2017
* Positive Directions (HIV/STI prevention) Volunteer, 2013

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| Achievements |

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| National & Professional Honors |  |

* AACR Early-career Hill Day Participant, American Association for Cancer Research, 2023
* ACCP Elliot S. Vesell Abstract Award, American College of Clinical Pharmacology, 2021

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| Academic Awards & Honors |  |

* UNC Eshelman Fellowship Award, University of North Carolina, 2018
* Oral Presentation Symposium Winner, KU, 2017
* IMSD Scholar, KU, 2015–2017
* Honors Scholar/Jayhawk Scholarship Recipient, KU, 2013
* Engineering Diversity Scholarship Recipient, KU, 2013–2015

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| Organizations |

* American College of Clinical Pharmacology (ACCP)
* American Association of Pharmaceutical Scientists (AAPS)
* American Society for Clinical Pharmacology and Therapeutics (ASCPT)
* American Association for Cancer Research (AACR)
* Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS
* Phi Iota Alpha Fraternity Inc. (FIA)

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| References |

Michael D Taylor, M.D., PhD. Director, Pediatric Brain Tumor Research Program Texas Children’s Hospital

Professor, Department of Pediatrics, Section of Hematology-Oncology

Baylor College of Medicine

Email: michael.taylor@bcm.edu

Tim Wiltshire, PhD Retired Associate Professor

Formerly, School of Pharmacy, University of North Carolina at Chapel Hill

Email: timw@unc.edu

Alison Motsinger-Reif, PhD Chief, Biostatistics & Computational Biology Branch and Principal Investigator

Biostatistics & Computational Biology Branch NIEHS

Email: [alison.motsinger-reif@nih.gov](mailto:alison.motsinger-reif@nih.gov)

Erin Heinzen, PharmD, PhD Associate Professor; Vice Chair of Research and Graduate Education

School of Pharmacy, University of North Carolina at Chapel Hill

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Amber Cipriani, PharmD, BCOP Clinical Associate Professor; Precision Medicine Pharmacy Coordinator, UNC Health

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