Adaris Rodríguez-Cortés, PhD

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MOLECULAR & CELLULAR BIOLOGIST

Versatile professional with interdisciplinary technical expertise, drive for innovation, and commitment to excellence. Offers extensive experience in complex in vitro models of cancer and stem / progenitor cells. Background encompasses high-throughput screening and preclinical drug discovery and biological target characterization as well as automated protocol development. Quality-focused in assay development, optimization, and validation and writing / managing standard operating procedures (SOPs); experienced in good laboratory practices (GLPs). Key areas of expertise include:

- Drug potency assays and high throughput screens, cell-based and cell-free assay development
- Communication with cross-functional / interdisciplinary teams and mentoring of junior team members
- Project management, including design and development of experiments and assays tailored to clients' needs

Core Competencies

Molecular Biology | Cell Culture | Cell-free and Cell-based Assay Development
DNA / RNA Isolation, Handling, and Analysis | LIMS | qPCR | RT-PCR | Cloning
Cell Line Establishment | Data Analysis | Project Management

EDUCATION & TRAINING

University of Massachusetts – Amherst, MA

PhD in Molecular and Cellular Biology

- Doctoral Dissertation: Effects of phytochemicals from *Rhodiola crenulata* on highly invasive breast cancer cell lines and embryonic models of migration.

University of Massachusetts – Amherst, MA

Postgraduate Certificate in Cellular Engineering

- Completed advanced training in Drug Delivery, Microarray Analysis, PCR, and Insect Cell Culture.

University of Puerto Rico – San Juan, PR

Bachelor of Science in Biology

Massachusetts Human Stem Cell Bank – Shrewsbury, MA

Human Embryonic Stem Cell / Induced Pluripotent Stem Cell Culture Certification

RESEARCH EXPERIENCE

Boehringer-Ingelheim, Animal Health R&D – Athens, GA
Analytical Biologist (contract) | 03/2020 – Present

- Responsible for performing clinical testing meeting institutional and USDA requirements for vaccine development and licensure.
- Automated select SOPs to increase throughput, reduce turn-around time, decrease operator execution time and improve workflow.
- Improved upon established SOPs. Developed new assays, processes and associated SOPs to improve the analytical turnaround time of tests, expedite delivery of results and help the client accelerate the decision-making steps necessary to further a project.

LifeEDIT, Inc. (subsidiary of AgBiome, LLC) – Research Triangle Park, NC

Mammalian Cell Culture Scientist (contract) | 08/2018 – 11/2018

RESEARCH EXPERIENCE (CONTINUED)

- Established a mammalian cell culture laboratory, including setting up the facility; evaluating and purchasing research materials, chemicals, and other reagents; and acquiring / expanding cells lines.
- Equipped new facilities in collaboration with vendors and Director of Operations to include:
  - Performing trials of, evaluating, and selecting equipment.
  - Negotiating and purchasing equipment, warranties, and maintenance contracts.
  - Identifying informatics requirements for each piece of equipment and coordinating with informatics department to set up necessary software, server domain, and infrastructure.
- Developed SOPs of mammalian cell culture and downstream molecular biology protocols.
- Partnered with vendors to develop and establish a Benchling electronic notebook-mediated laboratory data management and sample tracking system.

University of North Carolina (UNC) BioSpecimen Processing Facility (BSP) – Chapel Hill, NC
Gillings School of Public Health, Department of Epidemiology

Laboratory Manager / Molecular Biologist / Scientist (contract via Aerotek) | 06/2017 – 09/2018

- Processed, stored, and disbursed human bio specimens.
- Performed analysis of a variety of samples with robotic high-throughput machines.
- Extracted, quantitated, and assessed quality of nucleic acids.
- Contributed to project development, consulting, and complex-problem-solving for clients.
  - Redesigned assay and introduced three alternate amplification protocols for use with difficult-to-amplify samples after discovering primer set designed by former staff led to failed sequencing for client.
- Supported laboratory management, including facility and equipment maintenance.
- Established project timeline and developed strategies to achieve milestones.
- Utilized LIMS to process samples, track and manage storage, and perform data entry and queries.
- Established, wrote, and managed SOPs. Developed and optimized protocols; researched and developed new techniques and improved current processes that resulted in publishing of a technical white paper and book chapter.

St. Jude Children's Research Hospital – Memphis, TN
Chemical Biology and Therapeutics Department

Postdoctoral Research Associate | 05/2013 – 04/2015

- Characterized the role of 11βHSD1 as a putative drug target in glucocorticoid (GC)-resistant childhood leukemia by exploring the effect of GC treatment on cell viability in cells engineered for protein gain / loss.
- Developed a high-content screening protocol to identify chemical inhibitors of 11βHSD1.
- Established glucocorticoid-resistant leukemia cell lines to mimic behaviors of drug-resistant acute lymphoblastic to provide a novel in vitro resource for drug discovery and development.
- Identified small molecule and natural product modulators of cancer cell migration.

St. Jude Children's Research Hospital – Memphis, TN
Chemical Biology and Therapeutics Department

Research Technologist | 08/2012 – 05/2013

- Established cell culture methods for primary cells isolated from patient brain tumors.
- Liaised between research and clinical staff to ensure adequate patient sample processing.
- Performed high-throughput drug screen that identified a drug which is currently undergoing an expedited phase III clinical trial, PBTC47: A Clinical Trial of the Drug, Panobinostat, in Children with Brain Tumors: Trial of Panobinostat in Children with Diffuse Intrinsic Pontine Glioma (DIPG), by the Pediatric Brain Tumor Consortium.

RESEARCH EXPERIENCE (CONTINUED)

University of Massachusetts – Amherst, MA
Pioneer Valley Life Sciences Institute (PVLSI), Molecular and Cellular Biology Graduate Program

Graduate Research Assistant | 02/2008 – 07/2012

- Characterized mechanism of action for *Rhodiola crenulata* (plant extract) inhibition of malignant breast cancer cells.
- Utilized complex in vitro models of cell migration and development.
- Established collaboration between PVLSI and an expert in natural-product-derived drugs to elucidate bioactive components and spectrum of activity for natural product extracts.

KEY SKILLS SUMMARY

- ***Molecular Biology***: RT-PCR, qPCR, PCR, cloning, immunofluorescence, Western blot
- ***Cellular Engineering***: Exogenous and endogenous protein expression, small-scale bioreactor culture, fluorescent protein expression
- ***Cellular Phenotype Output Measurements***: Viability, cytostasis, apoptosis, immunocytochemistry
- ***Microscopy***: Confocal, fluorescence, live-cell imaging, high content
- ***Photometric Assays, High and Low Content***: TR-FRET, luminescence, fluorescence
- ***Nucleic Acid Purification, Analysis, and Quality Assessment***: Phenol-Chloroform, TRIzol-based and kit-based extractions, Magnetic Separation Module 1, spectrometry, Bioanalyzer, TapeStation
- ***Tissue / Cell Culture***: Primary PBMCs, brain tumor cells, MEFs, neurospheres, mammospheres, stem cells (ESCs and iPSCs), cell lines
- ***Automated Liquid Handling Robots***: Beckman BioMek, Perkin-Elmer JANUS, Liconic incubators, Thermo Fisher Matrix WellMate microplate dispensers
- ***Software***: LIMS (Laboratory Information Management System), GraphPad Prism, Microsoft Office (Word, Excel, PowerPoint), microscopy image processing software
- ***Languages***: Spanish (native), English (fluent)

PUBLICATIONS

Ling T, Miller DJ, Lang WH, Griffith E, **Rodríguez-Cortés A**, Ayachi IE, Palacios G, Min J, Miranda-Carboni G, Lee RE, Rivas F, Mechanistic Insight on the Mode of Action of Colletoic Acid. J Med Chem. 2019; 62(15):6925-6940. DOI: 10.1021/acs.jmedchem.9b00187.

Divaris K, Shungin D, **Rodríguez-Cortés A**, Basta PV, Roach J, et al. The Supragingival Biofilm in Early Childhood Caries: Clinical and Laboratory Protocols and Bioinformatics Pipelines Supporting Metagenomics, Metatranscriptomics, and Metabolomics Studies of the Oral Microbiome. Methods Mol Biol. 2019; 1922: 525–548. DOI: 10.1007/978-1-4939-9012-2_40.

Lopez AB, Caruso, A, Schoenen F, Jaentges U, Zinn T, Deochand SS, **Rodríguez-Cortés A**, El-Fahmawi B, Basta PV. A High-Yield, High-Performance Automated gDNA Isolation System Utilizing the iSWAB-DNA Oral Sample Collection Device. 2018. DOI: 10.13140/RG.2.2.32131.81449.

PUBLICATIONS (CONTINUED)

Bruhn DF, Wyllie S, **Rodríguez-Cortés A**, Carrillo AK, Rakesh, Kiplin Guy R, Fairlamb AH, Lee RE. Pentacyclic Nitrofurans that Rapidly Kill Nifurtimox Resistant Trypanosomes. J Antimicrobial Chemother. 2016; 71(4): 956–963. DOI: 10.1093/jac/dkv417.

Gauger KJ, **Rodríguez-Cortés A**, Hartwich M, Schneider SS. *Rhodiola crenulata* Inhibits the Tumorigenic Properties of Invasive Mammary Epithelial Cells with Stem Cell Characteristics. J Med Plants Res. 2010. 4(6): 446–454.

Rodríguez-Cortés A, Dugger BN, Rivera-Rivera NL, Serrano-Vélez JL, Rosa-Molinar E. Improving the DiOlistics Imaging Technique: Visualizing Ventral Horn Spinal Motor Neurons in the Western Mosquitofish, *Gambusia affinis affinis*. Microsc. Microanal. 2005; 11(S02), 1104–1105. DOI: 10.1017/S1431927605509929.
**Paper presented at Microscopy and Microanalysis 2005; Honolulu, HI; Jul 31–Aug 4, 2005.*

Rosa-Molinar E, **Rodríguez-Cortés A**, Serrano Vélez JL, Rosario-García MG, Rivera-Ortiz JM. Advances in Preparative and Labeling Technology for Microscopy and Imaging of the Developing Nervous System: Transport Studies of Novel Multi-Functional Correlative Probes. Microsc. Microanal. 2004; 10(S02): 1214–1215. DOI: 10.1017/S1431927604887385.
**Paper presented at Microscopy and Microanalysis 2004; Savannah, GA; Aug 1–5, 2004.*