Institute for In Vitro Sciences, Inc
30 W Watkins Mill Road #100
Gaithersburg, Maryland 20878

Curriculum Vitae
Carlos I. Rodríguez

Education

2017 Ph.D. in Molecular and Environmental Toxicology, University of Wisconsin, Madison

2007 B. S. in Biology, University of Puerto Rico, Mayagüez

Experience

2023 – Present Toxicologist I / Study Director – Institute for In Vitro Sciences, Inc.

Assist commercial clients to develop appropriate *in vitro* toxicology programs for their products following assuring strict adherence to current protocols, SOPs, GLPs, and client-specific documents as required. Participate in *in vitro* method development programs involving new tissue engineered models to ensure that new and existing *in vitro* assays become useful tools for industrial safety and efficacy programs.

2017 – 2023 Postdoctoral Training / Assistant Professional Researcher – University of California, San Francisco

I developed a minimally invasive pre-clinical imaging tool using synthetic immunology for detecting and monitoring pre-malignant lesions at high risk for advancing to metastatic cancer. Briefly, T cells engineered with synthetic Notch receptors that target and bind HER2 (a molecular marker associated with high risk for metastasis when overexpressed) drive a quantifiable expression of light emitting proteins for in vivo detection of pre-malignant ductal carcinoma in situ lesions. Additionally, I worked with patient advocates as part of the Cancer Research UK Award to translate lay summaries of current research from English to Spanish.

Fall 2018 Immunology Professor – San Francisco State University

As a postdoctoral trainee, I was a fellow of the Institutional Research and Academic Career Development Award (IRACDA) Scholars Program at the University of California - San Francisco. This allowed me to develop my teaching skills as an Immunology professor in the San Francisco State University (SFSU) as part of my training.

2009 – 2011 **Research Lab Technician**

I had the dual role of lab manager and lab research technician. The goal of the lab was to determine the behavioral and gene expression differences in brain regions known to be related to emotional perseveration using two C57BL/6 mouse sub-strains as behavioral model. I performed several behavioral paradigms such as Elevated Plus Maze (EPM) and Light/Dark Transition Test to measure anxiety in mice. By immunohistochemistry techniques, I looked for expression of related proteins such as CREB, Nurr1, and cFos.

Academic and Professional Honors

2022 Best Poster Award – 27th Breast Oncology Program Scientific Retreat; University of California, San Francisco

2017 – 2021 Institutional Research and Academic Career Development Award (IRACDA) Scholars Program; University of California, San Francisco

2015 – 2017 National Institute for Environmental Health Sciences (NIEHS) T32 Predoctoral Fellow from the Molecular and Environmental Toxicology Graduate Program; University of Wisconsin, Madison

2015 Student Research Grants ("Vilas") Conference Presentation Funds Competition Award; University of Wisconsin, Madison

2014 Society for Investigative Dermatology (SID) Student Research/Fellow Travel Award for the SID Annual Meeting; Albuquerque, New Mexico

2011 – 2013 Advanced Opportunity Fellowships (AOF); University of Wisconsin, Madison

Publications

- Rodríguez CI, Liu R, Chen-Tanyolac C, Gascard P, Garcia J, Chen Y, Roybal K, Tlsty T. Early Detection of HER2-High Ductal Carcinoma In Situ Lesions Using SyNthetic Intramembrane Proteolysis Receptor (SNIPR)-CAR T Cells. 2024. **In Preparation / Embargo**
- Caruso JA, Wang X, Murrow L, Rodríguez CI, Chen-Tanyolac C, Vu L, Chen YY, Gascard P, Gartner ZJ, Kerlikowske K, Tlsty T. Loss of PPARγ activity characterizes early pro-tumorigenic stromal reprogramming and dictates the therapeutic window of opportunity. Proc Natl Acad Sci. 2023: 120(42):e2303774120
- Shin J, Parker MFL, Zhu I, Alanizi A, Rodríguez CI, Liu R, et al. Antigen-dependent inducible T cell reporter system for PET imaging of breast cancer and glioblastoma. Journal of Nuclear Medicine 2022:jnumed.122.2642
- Krishnan A, Bhasker AI, Singh MK, Rodríguez CI, Castro-Perez E, Altameemi S, et al. EPAC Regulates Melanoma Growth by Stimulating mTORC1 Signaling and Loss of EPAC Signaling

Dependence Correlates with Melanoma Progression. Mol Cancer Res. 2022; Epub 20220714. doi: 10.1158/1541-7786.MCR-22-0026. PubMed PMID: 35834616

- Prabhakar K, Rodríguez CI, Jayanthy AS, Mikheil DM, Bhaske AI, Perera RJ, et al. Role of miR-214 in regulation of beta-catenin and the malignant phenotype of melanoma. Molecular Carcinogenesis. 2019;58(11):1974-84
- Castro-Pérez E, Rodríguez CI, Mikheil D, Siddique S, McCarthy A, Newton MA, et al. Melanoma Progression Inhibits Pluripotency and Differentiation of Melanoma-Derived iPSCs Produces Cells with Neural-like Mixed Dysplastic Phenotype. Stem Cell Reports. 2019;13(1):177-92
- Mikheil DM, Prabhakar K, Arshad A, Rodríguez CI, Newton MA, Setaluri V. Notch signaling activation induces cell death in MAPKi-resistant melanoma cells. Pigment Cell Melanoma Res. 2019;00:1-12
- Rodríguez CI, Setaluri V. EPAC mediates the dual role of cAMP signaling in melanoma. Oncoscience 2019;6:283-4
- Seenivasan R, Warrick JW, Rodríguez CI, Mattison W, Beebe DJ, Setaluri V, et al. Integrating electrochemical immunosensing and cell adhesion technologies for cancer cell detection and enumeration. Electrochimica Acta 2018;286:205-11
- Prathap MUA, Rodríguez CI, Sadak O, Guan J, Setaluri V, Gunasekaran S. Ultrasensitive electrochemical immunoassay for melanoma cells using mesoporous polyaniline. Chem Commun (Camb) 2018;54:710-4
- Rodríguez CI, Castro-Pérez E, Longley BJ, Setaluri V. Elevated cyclic AMP levels promote BRAFCA/Pten-/- mouse melanoma growth but pCREB is negatively correlated with human melanoma progression. Cancer Lett 2018;414:268-77
- Rodríguez CI, Castro-Pérez E, Prabhakar K, Block L, Longley BJ, Wisinski JA, et al. EPAC-RAP1 Axis-Mediated Switch in the Response of Primary and Metastatic Melanoma to Cyclic AMP. Mol Cancer Res 2017;15:1792-802
- Rodríguez CI, Setaluri V. Cyclic AMP (cAMP) signaling in melanocytes and melanoma. Arch Biochem Biophys 2014;563:22-7
- Rodríguez CI, Setaluri V. Resistance to MAPK inhibition: come see(c) AMPed up melanoma. Pigment Cell Melanoma Res 2014;27:323-5

Abstracts / Presentations

- Rodríguez CI, Early Detection of HER2^{High} Ductal Carcinoma *In Situ* Lesions Using SyNthetic Intramembrane Proteolysis Receptor (SNIPR)-CAR T Cells. 2023. Oral Presentation, STORMing Cancer Integration Meeting / Cancer Grand Challenges, Durham, NC
- Rodríguez CI, Liu R, Chen-Tanyolac C, Gascard P, Garcia J, Roybal K, Tlsty T. Detection of Pre-malignant Lesions at High Risk for Future Metastasis Using Synthetically Engineered T Cells. 2022. Poster Presentation, Cancer Grand Challenges Future Leaders Conference, Barcelona, Spain
- Rodríguez CI, Liu R, Chen-Tanyolac C, Gascard P, Garcia J, Roybal K, Tlsty T. Early Detection of HER2-High Ductal Carcinoma In Situ Lesions Using SyNthetic Intramembrane

Proteolysis Receptor (SNIPR)-CAR T Cells. 2022. Poster and Oral Presentation, UCSF 27th Breast Oncology Program Scientific Retreat, San Francisco, CA

- Rodríguez CI. Using Engineered Immune Cells to Detect Pre-cancers. 2021. Oral Presentation, STORMing Cancer Virtual All-Team Meeting
- Rodríguez CI. Detection of High-Risk Ductal Carcinoma In Situ Lesions Using Engineered T Cells. 2021. Oral Presentation, Future Faculty Diversity Program, Virginia Tech, Blacksburg, VA
- Rodríguez CI. Early Detection of High-Risk Premalignant Lesions Using Non-Invasive Imaging. 2019. Oral Presentation, Emerson Collective - Cancer Research Fund Joint Symposium, Palo Alto, CA
- Rodríguez CI, Liu R., Wang X, Caruso J, Roybal K, Tlsty T. Early Detection of High-Risk Premalignant Lesions Using Non-Invasive Imaging. 2019. Abstract for poster presentation, Gordon Research Conference: Mammary Gland Biology - Heterogeneity in Mammary Gland Development and Breast Cancer, Newry, ME
- Rodríguez CI, Setaluri V. Topical application of cyclic AMP modulators regulates melanoma tumor development and tumor growth. 2016. Abstract for poster presentation, Society for Investigative Dermatology, Scottsdale, AZ
- Rodríguez CI, Setaluri V. Cyclic AMP signaling in melanoma: Paradoxical downregulation of pCREB upon activation of adenylate cyclase confers resistance to MAPK inhibition. 2015. Abstract for poster presentation, American Association for Cancer Research, Philadelphia, PA
- Rodríguez CI, Maddodi N., Setaluri V. Investigation on crosstalk between cAMP signaling and BRAF(V600E) in melanoma. 2014. Abstract for oral presentation, Society for Investigative Dermatology, Albuquerque, NM
- Rodríguez CI, Maddodi N, Setaluri V. cAMP signaling in BRAFV600E melanoma. 2014. Abstract for poster presentation, American Association for Cancer Research, San Diego, CA
- Rodríguez CI, Maddodi N, Setaluri V. Role of G-Protein signaling in BRAFV600E melanoma. 2013. Abstract for poster presentation, PanAmerican Society for Pigment Cell Research, Madison, WI
- Rodríguez CI, Maddodi N, Setaluri V. Role of GPCR Signaling Pathways in Melanoma Tumorigenesis. 2012. Poster presentation, Graduate Engineering Research Scholars & SciMed Graduate Research Scholars Annual Poster Session, Madison, WI
- Rodríguez CI, Santos I, Landrau S, Vilarchao J, Pérez M, López O, Peña S, Méndez-Merced A. Exploring Innate Anxiety Levels Between C57BL/6 N and J Mice to Explain Fear Extinction Learning Disparity related to Post Traumatic Stress Disorder (PTSD). 2010. Abstract for poster presentation, Society for Neurosciences, San Diego, CA
- Rodríguez CI, Santos I, Landrau S; Vilarchao J, Pérez M, López O, Peña S, Méndez-Merced A. Determination of Pre-Existing Anxiety Differences Between C57BL/6 N and J Mice to Investigate Fear Extinction Learning Disparity Related to Post Traumatic Stress Disorder (PTSD). 2009. Abstract for poster presentation, Puerto Rico Neuroscience Conference, San Juan, PR

- Rodríguez CI, Santos I, Camacho C, Landrau S; Pérez M; Peña S, Méndez-Merced A. Elevated-Plus Maze Paradigm as a Behavioral Tool to Study Innate Differences in Anxiety Within C57BL/6 N and J Mouse Substrains. 2009. Abstract for poster presentation, Molecular and Cellular Cognition Society for Neuroscience, Chicago, IL