# Curriculum Vitae


## Ana Cristina Leandro, PhD

Assistant Professor of Research
Human Genetics, Research Faculty,
South Texas Diabetes and Obesity Institute,
Alzheimer's Disease Resource Center,
Primary and Community Care


## Contact Information


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## Professional PROFILE– Immunology / Molecular / Cellular

A clinical and research professional with over 20 years of experience in Immunology, Molecular Biology, and Cellular Biology, specializing in infectious diseases and vaccine development. Demonstrated leadership in research projects, scholarly publications, and interdisciplinary collaborations. Committed to advancing scientific knowledge and educational excellence.

## Employment History

2000-2001 Technologist- Fellow from Brazilian Research Council, Fiocruz, Rio de Janeiro, Brazil.
2004-2005 Biosafety and Bioethics Professor, Souza Marques School of Biology, Rio de Janeiro, Brazil.
2006-2009 Research Assistant, Southwest Foundation for Biomedical Research, San Antonio, Texas, USA.
2009-2014 Postdoctoral Scientist, Texas Biomedical Research Institute (known as Southwest Foundation for Biomedical Research), San Antonio, Texas, USA.
2015-2020 Associate Research Scientist, University of Texas Rio Grande Valley, Brownsville, Texas, USA.
2020- Assistant Professor of Research, University of Texas Rio Grande Valley, Brownsville, Texas, USA

## Education

1996-1999 – B.S. Biomedical Science, Rio de Janeiro University, Brazil.
2001-2002 – M.S. Parasitology Biology – Infectious diseases, Oswaldo Cruz Foundation, Brazil.
2003-2009 – Ph.D. Infectious Diseases Clinical Research – Immunogenetics, Oswaldo Cruz Foundation, Brazil.
2009- 2014 – Post doctorate in Vaccine Development, Texas Biomedical Research Institute, San Antonio, USA.

## Awards

- Texas Biomedical Research Institute Forum, Equipment Award, 2010.
- Imperial College Fellowship for Tuberculosis Training in South Africa, 2003.
- Oswaldo Cruz Foundation Best work and presentation – 7th Scientific Undergrad Journey, 2000.

## Journal Peer Review

Reviewer for esteemed journals in the field, including Frontiers of Cardiovascular Medicine, Journal of Pharmaceutical Research International, and Clinical Pharmacology.

## Professional Skills

- Expertise in Immunology, Molecular Biology, and Cellular Biology.
- Proficiency in a wide range of laboratory techniques and technologies.
- Strong analytical, critical thinking, and solving skills.
- Demonstrated leadership in team collaboration and project management.

## Technical Skills

**Immunology:** ELISA, Molecular ELISA (Quanterix); ELISPOT, flow cytometry (intracellular and surface cell receptors, proliferation assays, apoptosis assays, etc), immunohistochemistry, western blot, clinical chemistry, Immunophenotyping (Luminex).

**Molecular Biology:** DNA/RNA extraction, PCR, DNA/RNA electrophoresis, real-time PCR, gene expression, genotyping, high-throughput genomic technologies including array-based genotyping and Next Generation Sequencing, Single Cell Sequencing, Exposome, Proteomic and Metabolomic.

**Cellular Biology:** Cell/tissue isolation and culture, fluorescence and optical microscopy, immunohistochemistry/immunocytochemistry, Immunophenotyping

**Microbiology:** Bacterial culturing, Mycobacteria growth and isolation, CFU counting

**Non-Human Primates:** Rhesus monkeys (*Macaca mulatta*) and cynomolgus (*Macaca fascicularis*), blood handling, processing biological samples.

**BSL3 training:** How to work in a BSL-3 environment. (7 years of experience)

## Computer Systems and Software

- Statistical Programs (Epi-Info, SPSS, SNPstat)
- Graph prism 7
- Microsoft Office (Word, Excel, Access, PowerPoint, Outlook)
- Adobe Photoshop, Corel Draw
- Scientific Research Sites (PUBMED, SciELO)
- Flow Cytometry software: FlowJo and Summit
- Ingenuity Pathway Analysis (IPA)
- IEM (Illumina expert manager)
- Illumina iScan control software
- GenomeStudio software
- Quant Studio 12K flex software
- Xponent and Milliplex Analyst software
- Quanterix HDX software
- Novaseq6000 and Nextseq1000 software
- ThermoFisher Xcalibur proteomics software
- Bruker Mass Spectrophotometry software
- Proteomic Discovery Software
- Gas Spectrophotometry MassHunter software
- Siemens Magneton Vida (MRI)

## Project Experience

**Mar 2020 to present - University of Texas Rio Grande Valley- UTRGV§**
**Brownsville, TX**

**Title: Assistant Professor of Research**

In my role as an Assistant Professor of Research, I am responsible for maintaining a funded research program; be part of activities specially organized to produce research outcomes as well as activities that apply to all UTRGV faculty.

**Responsibilities:** Grant related activities: literature review, generating publications and data review/laboratory committees; Contributing to the development of collaborative research projects; Compliance training, attendance at department and/or institutional meetings; Compliance, implementation, and monitoring of multiple specialized research projects; General oversight and maintenance of all human genetics' laboratory instrumentation in Brownsville and involvement in evaluation of new techniques and laboratory procedures; Teach at the Human Genetics PhD program and graduate students at SOM.

**Jul 2015-Mar 2020 - University of Texas Rio Grande Valley- UTRGV§ Brownsville, TX**

**Title: Associate Research Scientist**

In my role as an Associate Research Scientist, I was responsible for coordinating, implementing, and monitoring of multiple specialized research projects. I managed the upkeep, training, and supervision of specialized research equipment and was responsible for maintaining the laboratory supply inventory.

**Feb 2009 – 2014 - Texas Biomedical Research Institute – TX Biomed § San Antonio, TX**

**Title: Postdoctoral Scientist/Laboratory Manager**

In this position, I was responsible for planning, assigning, and executing work in the laboratory for a project involving TB vaccine development in a non-human primate (NHP) model. I administratively oversaw and coordinated operational and safety aspects of the laboratory, managing all safety data, and coordinating test requests for laboratory staff. I was responsible for implementing IACUC regulations and SOPs in working with NHP infected by *Mycobacterium tuberculosis*.

**Feb 2006 – Jan 2009- Texas Biomedical Research Institute – TX Biomed § San Antonio, TX**

**Title: Laboratory Assistant / Laboratory Manager**

I was directly accountable for laboratory leadership responsibilities and for setting up laboratory equipment and instrumentation needed to perform tests, research, and process control. I planned, performed, and documented moderately complex and non-routine analytical processes. I prepared chemicals for use in processing materials following standardized formulas or experimental procedures; and implemented IACUC regulations and SOPs in working with NHP infected by *Mycobacterium tuberculosis*.

**Additional Research Experience:**

- 2014-2016 **Co-Investigator,** Faculdade de Medicina de Ribeirão Preto/FMRP/USP, Brazil

*Project.* "Molecular database generated from comprehensive "Omic" studies seeking for human and experimental tuberculosis biomarkers with translational potential."

- May 2005 – 2014 **Co-Investigator**, *Oswaldo Cruz Foundation*, Rio de Janeiro, Brazil

*Project*: "Immunogenicity of new vaccine against tuberculosis in NHP"

- Jun 2003 - Jan 2006 **Principal Investigator**, *Oswaldo Cruz Foundation*, Rio de Janeiro, Brazil

*Project*: "Polymorphisms identification on genes associated with the immunopathology of *Mycobacterium tuberculosis*"

- Mar 2001- Dec 2002 P**rincipal Investigator**, *Oswaldo Cruz Foundation*, Rio de Janeiro, Brazil

*Project*: "Correlation between the colonization of *Mycobacterium avium* clinical isolates and the cellular immune response specific to mycobacterium antigens in HIV-1 positive patients."

## Teaching and Supervisory Experience

### Teaching

Mar 2003 – Dec 2005 **Oswaldo Cruz Foundation– FIOCRUZ**, Rio de Janeiro, Brazil

- Taught immunology and microbiology classes
- Supervised Masters and PhD students
- Taught in the infectious diseases clinical research postgraduate courses

Jun 2004 – Dec 2005 **Technology and Educational Souza Marques University** § Rio de Janeiro, Brazil

- Immunology classes for undergraduate students in nursing
- Biosafety and Bioethics classes for undergraduate students in biology

### Supervision of Undergraduate Students

- Taught biosafety and laboratory research techniques to undergraduate students
- Andres A Hernandez - Feb 2016 - present - Bachelor of Science in Biology**-** UTRGV
- Deborah Jones - Feb 2016 - present - Bachelor of Science in Biomedicine- UTRGV
- Austin Knuplund - Bachelor of Biomedical Science at UT Austin
- María De Erausquin - 2016 Summer Volunteer at UTRGV
- Giannina Natalia Ladaga - 2016 Summer Volunteer at UTRGV
- Kenia Becerra - 2017 Summer Internship at UTRGV

- Vanessa Hernandez - 2017 Summer Volunteer at UTRGV
- Renata Rose Guedea - 2022 Summer Volunteer at UTRGV
- Martin Garza – 2023 Internship at UTRGV
- Emma Gonzalez-Wooding - 2023 Internship at UTRGV

**Human Genetics PhD program**

- HGEN-8375-01- Spring2024
- HGEN-8395-01-Spring2024

**UTRGV School of Medicine Pre-clerkship**

- MEDI-8600- Attack and Defense 2023-2024; 2024-2025
- MEDI-8600 Self-Directed Study-USMLE Step 1 2023-2024; 2024-2025

## Courses and training

- IACUC training – TX Biomed Institute (2008)
- SOP writing (2009)
- BSL-3 training: How to work with *Mycobacterium tuberculosis* in a BSL-3 environment (2010).
- TB intensive- Heartland National TB center, San Antonio, TX (2010)
- GLP training – Deborah Rhandall (QA and QC specialist at TX BioMed) (2011)
- Flow Cytometry- Beckman Coulter training 2005 and 2015
- Operetta and Enspire equipment – Perkin Elmer – 2015
- Genotyping and NGS (Hiseq, iScan, MiSeq) – Illumina -2016
- Luminex clinical chemistry – 2016
- Shipping Biological Substances, Infectious Substances and Related Hazards according to IATA/ICAO and USDOT regulations – July 2016 and August 2018.
- CITI trainings -UTRGV: Animal Biosafety; Basic Introduction to Biosafety; Biomedical Responsible Conduct of Research Course 1; Emergency and Incident Response to Biohazard Spills and Releases; Initial Biosafety Training; Institutional Biosafety Committee Member Training; Investigators, Staff and Students; NIH Recombinant DNA Guidelines; OSHA Bloodborne Pathogens; Select Agents, Biosecurity, and Bioterrorism – January 2024.
- Evacuation Assistant/Fire Extinguisher training – UTRGV – 2016, 2017,2018, 2020 and 2023
- NIH - Understanding the New NIH Data Management and Sharing (DMS) Policy August 11, 2022.
- HIPAA training - KnowBe4 - October 25, 2022.

- Agilent – Mass Spectrophotometer 7810B training – January 2023.Illumina NextSeq training – 18 and 19 of January 2023.
- TubeWriter 360 training – January 23, 2023.ThermoFisher Mass Spectrophotometer maintenance training – April 5, 2023.
- OLS Needle Sticks and Splashes, Texas Department of State Healthy Services – Community Preparedness Section 2023, 2024
- OBHP HIPAA Compliance Training - Texas Department of State Healthy Services – Operation Border Health Preparedness – 2023,2024
- Faculty Development: The Future is NOW: Medical Education in the age of AI – UTRGV School of Medicine, 2024
- Thermo Scientific Orbitrap 480, Nanoelute3000 and Vanquish proteomics training January 2023
- Bruker TimsTOF proteomics training May 2023
- Alfa Wassermann Ace Axcel Clinical Chemistry System – August 2024.
- Medical Education Certification (MedEd) – Class of 2023-2024
- America Council on Education – Effective Teaching Practices – 25-week course, 2024

## Languages

- English
- Portuguese (primary language)
- Spanish (strong comprehension)

## Publications

1. **Leandro AC**, Rocha MA, Cardoso CS, Bonecini-Almeida MG (2009) Genetic polymorphisms in vitamin D receptor, vitamin D-binding protein, Toll-like receptor 2, nitric oxide synthase 2, and interferon-gamma genes and its association with susceptibility to tuberculosis. *Braz J Med Res* 42(4): 312 - 322. doi: 10.1590/s0100-879x2009000400002. PMID: 19330258.

2. Albuquerque MC, Aleixo AL, Benchimol EI, **Leandro AC**, das Neves LB, Vicente RT, Bonecini-Almeida Mda G, Amendoeira MR (2009) The IFN-gamma +874T/A gene polymorphism is associated with retinochoroiditis toxoplasmosis susceptibility. *Mem Inst Oswaldo Cruz* 104 (3): 451 - 455. doi: 10.1590/s0074-02762009000300009. PMID: 19547871.

3. Martineau AR, **Leandro AC***, Anderson ST, Newton SM, Wilkinson KA, Nicol MP, Pienaar SM, Skolimowska KH, Rocha MA, Rolla VC, Levin M, Davidson RN, Bremner SA, Griffiths CJ, Eley BS, Bonecini-Almeida MG, Wilkinson RJ (2010) Association between Gc genotype and susceptibility to TB is dependent on vitamin D status. *Eur Respir J* 35(5): 1106 - 1112. PMCID: PMC2864196 *** co-first author.** doi: 10.1183/09031936.00087009. PMID: 19797128; PMCID: PMC2864196.

4. **Leandro AC**, Rocha MA, Lamoglia-Souza A, VandeBerg JL, Rolla VC, Bonecini-Almeida Mda G (2013) No association of IFNG+874T/A SNP and NOS2A-954G/C SNP variants with nitric oxide radical serum levels or susceptibility to tuberculosis in a Brazilian population subset. *Biomed Res Int* 2013: 901740. doi: 10.1155/2013/901740. PMID: 24024215; PMCID: PMC3759278.

5. Cepeda M, Salas M, Folwarczny J, **Leandro AC**, Hodara VL, de la Garza MA, Dick EJ Jr, Owston M, Armitige LY, Gauduin MC (2013) Establishment of a neonatal rhesus macaque model to study Mycobacterium tuberculosis infection. *Tuberculosis (Edinb)* 93 Suppl: S51 - S59. doi: 10.1016/S1472-9792(13)70011-8. PMID: 24388650; PMCID: PMC4051704.

6. Knowles EEM, Curran JE, Göring HHH, Mathias SR, Mollon J, Rodrigue A, Olvera RL, **Leandro AC**, Duggirala R, Almasy L, Blangero J, Glahn DC. Family-based analyses reveal novel genetic overlap between interleukin-8 and risk for suicide attempt. Brain Behav Immun. 2019 Aug; 80:292-299. doi: 10.1016/j.bbi.2019.04.004. PMID: 30953777; PMCID: PMC7168352.

7. Rodrigue AL, Knowles EEM, Mollon J, Mathias SR, Koenis M, Peralta JM, **Leandro AC**, Fox PT, Sprooten E, Kochunov P, Olvera RL, Duggirala R, Almasy L, Curran JE, Blangero J, Glahn DC (nd) Evidence for pleiotropy between human cerebral white matter microstructure and inflammation. Hum Brain Mapp. 2019 Oct 1;40(14):4180-4191. doi: 10.1002/hbm.24694. PMID: 31187567; PMCID: PMC6707845.

**8.** Blackburn NB, Michael LF, Meikle PJ, Peralta JM, Mosior M, McAhren S, Bui HH, Bellinger M, Giles C, Kumar S, **Leandro AC**, Almeida M, Weir JM, Nestel PJ, Simes J, Sullivan DR, Tonkin AM, Mahaney MC, Dyer TD, Almasy L, VandeBerg JL, Williams-Blangero S, Glahn DC, Duggirala R, Kowala M, Blangero J, Curran JE (nd) A rare variant in DEGS1 with major effects on the de novo ceramide synthesis pathway. J Lipid Res. 2019 Sep;60(9):1630-1639. doi: 10.1194/jlr.P094433. PMID: 31227640; PMCID: PMC6718439.

**9.** Kumar S, Espinosa EC, **Leandro AC**, Curran JE, Blangero J. microRNA and mRNA interactions in induced pluripotent stem cell reprogramming of lymphoblastoid cell lines. Am J Stem Cells. 2019 Aug 15;8(2):28-37. eCollection 2019. PMID: 31523484; PMCID: PMC6737382.

10. Satish Kumar, Joanne E. Curran, Erica DeLeon, **Ana C. Leandro**, Tom E. Howard, Donna M. Lehman, Sarah Williams-Blangero, David C. Glahn, John Blangero. Role of miRNA-mRNA interaction in neural stem cell differentiation of induced pluripotent stem cells. Int J Mol Sci. 2020 Sep 23;21(19). doi: 10.3390/ijms21196980.PMID: 32977388; PMCID: PMC7582477.

11. Yetsko K, Farrell JA, Blackburn NB, Whitmore L, Stammnitz MR, Whilde J, Eastman CB, Ramia DR, Thomas R, Krstic A, Linser P, Creer S, Carvalho G, Devlin MA, Nahvi N, **Leandro AC**, deMaar TW, Burkhalter B, Murchison EP, Schnitzler C, Duffy DJ. Molecular characterization of a marine turtle tumor epizootic, profiling external, internal, and postsurgical regrowth tumors. Commun Biol. 2021 Feb 1;4(1):152. doi: 10.1038/s42003-021-01656-7.PMID: 33526843; PMCID: PMC7851172.

12. Blackburn NB, **Leandro AC**, Nahvi N, Devlin MA, Leandro M, Martinez Escobedo I, Peralta JM, George J, Stacy BA, deMaar TW, Blangero J, Keniry M, Curran JE. Transcriptomic Profiling of Fibropapillomatosis in Green Sea Turtles (*Chelonia mydas*) From South Texas. Front Immunol. 2021; 12:630988. doi: 10.3389/fimmu.2021.630988. eCollection 2021. PMID: 33717164; PMCID: PMC7943941.

13. Kumar S, Curran JE, Kumar K, DeLeon E, **Leandro AC**, Peralta J, Williams-Blangero S, Blangero J. Disease Modeling and Disease Gene Discovery in Cardiomyopathies: A Molecular Study of Induced Pluripotent Stem Cell Generated Cardiomyocytes. Int J Mol Sci. 2021 Mar 24;22(7). doi: 10.3390/ijms22073311. PMID: 33805011; PMCID: PMC8037452.

14. Blackburn NB, Meikle PJ, Peralta JM, Kumar S, **Leandro AC**, Bellinger MA, Giles C, Huynh K, Mahaney MC, Göring HHH, VandeBerg JL, Williams-Blangero S, Glahn DC, Duggirala R, Blangero J, Michael LF, Curran JE. Identifying the Lipidomic Effects of a Rare Loss-of-Function Deletion in *ANGPTL3*. Circ Genom Precis Med. 2021 Jun;14(3): e003232. doi: 10.1161/CIRCGEN.120.003232. Epub 2021 Apr 22. PMID: 33887960; PMCID: PMC8206021.

15. **Leandro AC**, Michael LF, Almeida M, Kuokkanen M, Huynh K, Giles C, Duong T, Diego VP, Duggirala R, Clarke GD, Blangero J, Meikle PJ, Curran JE. Influence of the Human Lipidome on Epicardial Fat Volume in Mexican American Individuals. Front Cardiovasc Med. 2022; 9:889985. doi: 10.3389/fcvm.2022.889985. eCollection 2022. PMID: 35734277; PMCID: PMC9207321.

16. Xiong X, Samollow PB, Cao W, Metz R, Zhang C, **Leandro AC**, VandeBerg JL, Wang X. Genetic and genomic architecture in eight strains of the laboratory opossum *Monodelphis domestica*. G3 (Bethesda). 2022 Jan 4;12(1): jkab389. doi: 10.1093/g3journal/jkab389. PMID: 34751383; PMCID: PMC8728031.

17. de Lima, M.R. †; **Leandro, A.C.C.S**. †; de Souza, A.L.; Barradas, M.M.; Roma, E.H.; Fernandes, A.T.G.; Galdino-Silva, G.; Carvalho, J.K.M.R.; Marchevsky, R.S.; Coelho, J.M.C.O.; et al. Safety and Immunogenicity of an *In Vivo* Muscle Electroporation Delivery System for DNA-*hsp65* Tuberculosis Vaccine in Cynomolgus Monkeys. Vaccines (Basel). 2023 Dec 18;11(12):1863. doi: 10.3390/vaccines11121863. PMID: 38140266; PMCID: PMC10747856. † These authors contributed equally to this work.

18. Kumar S, Granados J, Aceves M, Peralta J, **Leandro AC**, Thomas J, Williams-Blangero S, Curran JE, Blangero J. Pre-Infection Innate Immunity Attenuates SARS-CoV-2 Infection and Viral Load in iPSC-Derived Alveolar Epithelial Type 2 Cells. Cells. 2024 Feb 21;13(5):369. doi: 10.3390/cells13050369. PMID: 38474333; PMCID: PMC10931100.

19. Yifan Huang, Katarzyna M Dziegielewska, Mark D Habgood, Fiona Qiu, **Ana CC Leandro**, Paul D Callaghan, Joanne E Curran, John L VandeBerg, Norman R Saunders. ABC efflux transporters and SLC solute carriers in the early developing brain of a marsupial Monodelphis domestica (South American grey short-tailed opossum). The Journal of Comparative neurology, Submitted 12/14/2023.

20. Aceves, M. [1], Granados, J. C. [1], **Leandro, A. C**. [2], Peralta, J. M. [2], Glahn, D.C. [3], Williams-Blangero, S. [2], Curran, J.E. [2], Blangero, J. [2], Kumar and S. Neurocellular Endoplasmic Reticulum Stress Response in Alzheimer's Disease and Related Dementias (ADRD) Risk. Genes. Manuscript ID genes-2975805. Submitted 04/05/2024

## Grants Submitted (most recent)

1) NIH-R01 Integrative Lipidomic and Proteomic Analysis of ADRD in Hispanics

Requested funding period: 09/01/24 – 08/31/29

Costs: $38,000,000 Total ($ 2,032,949Direct; $987,817 Indirect)

Role: Assistant Professor/Research

Percent effort planned: 25%

2) NIH - Title: Identification of Epigenetic Signatures Associated with Alzheimer's Disease Progression in Hispanic Population

Requested funding period: 12/01/23 – 11/30/25

Costs: $407,000 Total ($275,000 Direct; $132,000 Indirect)

Role: Co-Investigator

Percent effort planned: 5%

# Grant Awards

**Ongoing Research Support**

1. NIH R01(GM149403) Leandro Role: Associate Professor (45%) 09/18/23 – 05/31/28

Title: Experimental Cellular Approaches to Genotype × Environment Interaction
Role: Associate Professor/Research

2. NIH U54 (HG013247) Leandro Role: Associate Professor (25%) 09/18/23 – 05/31/28

Title: UTRGV Diversity Center for Genome Research
Role: Associate Professor/Research

3. NIH R21 (AG077501) Leandro Role: Associate Professor (10%) 09/18/23 – 05/31/28

Title: Identification of Endophenotypes Associated with Alzheimer's Disease Progression in Hispanic Population
Role: Co-Investigator

**Completed Research Support**

1. Valley Baptist Legacy Foundation Leandro Role: Assistant Professor (95%) 03/01/20 – 08/31/23

Title: THRIVE: A unique medical hub for improving health through advanced research and clinical care for the Rio Grande Valley

2. NIH/NIMH R01 MH106324 Leandro Role - Associate Research Scientist (15%) 09/01/14 – 08/31/19

Title: Gene Networks Influencing Psychotic Dysconnectivity in African Americans

3. AD-RCMAR Leandro Role – PI (8%) 07/01/19 – 06/30/20

Rio Grande Valley Alzheimer's Disease Resource Center for Minority Aging Research (AD-RCMAR) Pilot Studies Program

Title: Epigenetic Influences on Alzheimer's Disease Risk

4. NIH/NHLBI R01 HL140681 Leandro Role - Associate Research Scientist (40%) 01/15/18 – 12/31/21

Title: Genetic Determinants of Lipidomic Variation and Their Role in CVD Risk

5. Faculdade de Medicina de Ribeirão Preto/FMRP/USP Leandro Role – Post Doctorate Scientist 01/01/12-10/31/14

Title: Molecular database generated from comprehensive "omic" studies seeking for human and experimental tuberculosis biomarkers with translational potential