

**ANDREA L BERNARDINO**

**DENTON – TEXAS**

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## **CURRICULUM VITAE**

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### **EDUCATION**

- 2002 - Ph.D. University of São Paulo, Institute of Biosciences, Brazil  
Doctor in Human Genetics  
Thesis: Molecular Analysis of CFTR gene in patients with Cystic Fibrosis, Congenital Bilateral Absence of Vas Deferens and Chronic Pancreatitis.
- 1995 - B.S. Federal University of Espírito Santo, Brazil - Bachelor of Arts, Biology

### **EXPERIENCES**

- 2021-present - Adjunct Professor at Texas Woman's University, Department of Biology  
Courses: BIOL 4821 - Genetics Lab  
BIOL 4811 - Molecular Cell - Gene Expression Lab  
BIOL 1121 - Principles of Biology II Lab
- 2021-present - Adjunct Assistant Professor at University of North Texas  
Department of Biological Sciences  
Course: BIOL 4590 - Forensic Molecular Lab
- 2021 Adjunct Assistant Professor at University of North Texas  
Department of Biological Sciences  
Courses: BIOC/BIOL 4580/5580 - Biotechnology & Biochemistry of the Gene Lab  
BIOL 3452 - Genetics Lab
- 2016- present- Forensic Microscopy and Molecular Supervisor - University of North Texas  
Department of Biological Science
- Class preparation and training of teaching assistants overseeing students performing the experiments and exercises.
  - Maintenance of existing laboratory experiments and initiation of the development of new experiments and exercises on a continuous basis
  - Assistance with the demonstration of experiments and equipment to undergraduate students. Takes over demonstration and supervision whenever the TAs are not available.
  - Provision of technical support for the purchase of new laboratory equipment.
  - Continuous development and review of the educational goals and outcomes in assigned courses. Works to improve the quality of the educational experience.
  - Teach a laboratory component of BIOL 4240-Forensic Microscopy.

- 2016- present    Microscopist & Microscope Core Manager - University of North Texas  
Department of Biological Science
- Class preparation and training of teaching assistant students. Oversee students performing the experiments and exercises.
  - Assist and training of faculty, students, technicians, and post-docs, and researchers.
  - Maintain and supervise confocal lab.
  - Facilitate interaction between faculty and researchers with confocal instrument company.
  - Act as a liaison and personnel representative for Biological Sciences faculty research with respect to usage of EM equipment at UNT Research Park.
  - Keep up to date on the literature and state-of-the-art in confocal microscopy.
- 2015-2016        Molecular Medical Technologist - MedFusion, Lewisville, TX
- Determined genotypes and/or identify genetic diseases using a variety of tests and diagnostic procedures including PCR, RT-PCR, Real-time PCR, STR analysis, FFL analysis, sequencing.
  - Followed laboratory procedures for specimen handling and processing, test analysis, reporting, and maintaining records of patient results.
  - Recorded and analyzed quality control data.
  - Ability to troubleshoot test systems and take appropriate action where indicated.
  - Maintained instrumentation and lab equipment.
  - Supervised and trained junior medical technologists.
- 2014-2015        Forensic Technologist - Cellmark Forensics, Farmers Branch, TX
- Screened evidence for biological materials, collect and preserve identified substances, perform serological testing as indicated.
  - Sperm elute suspension method and slide preparation.
  - Microscopic identification of sperm.
  - EZ1 DNA extraction and quantification.
  - Interpreted laboratory findings and test results in order to identify and classify substances, materials, and other evidence collected at crime scenes.
  - Maintained instrumentation and lab equipment. Prepared reagents used in analysis.
  - Assisted with tasks facilitating the laboratory's efficiency improvement project.
- 2004-2008        Postdoctoral fellow - Division of Bacteriology and Parasitology  
Tulane National Primate Research Center (TNPRC)
- Investigated the pathogenesis of Lyme neuroborreliosis, with emphasis on Toll-Like Receptors (TLRs). Determined the anti-inflammatory effects of tetracycline antibiotics in Post-Lyme Disease Syndrome.
  - Conducted experiments using a variety of cell and molecular techniques, including siRNA, microarray analysis, RT-PCR, PCR, sequencing, western blot analysis, ELISA, immunofluorescence assay, flow cytometry, and confocal microscopy.
  - Performed *in vitro* experiments using mammalian cell lines and primary cell culture.
  - Worked as a member of a team in a laboratory setting.
  - Gave oral presentations of research to faculty and staff on regular basis.
  - Shared research findings at International meetings.
  - Published reports in three scientific journals. Cover of the American Journal of Pathology and Infection and Immunity Journal.
- 2002-2003        Research Scientist - Section of Experimental Medicine  
Tulane University

- Used molecular biological techniques to investigate the mechanisms of action for various antineoplastic agents developed at this laboratory, with special emphasis on antagonists of growth hormone-releasing hormone (GHRH) on tumours. Evaluated the effects of GHRH and bombesin antagonists on the expression of tumoral and GHRH receptor splice variants, IGF-I, IGF-II, and IGF receptors. Investigated MAPK and c-Fos activation; measured DP/GTP exchange in response to GHRH in cell lines expressing the tumoral and pituitary isoforms of GHRH.
- Managed *in vivo* oncological assays in nude mice, including implantation of tumours, measurement of tumours volume, blood sampling, s.c. and i.v. drug administration, surgical procedures and autopsies.
- Performed experiments at molecular levels, such as RNA isolation, RT-PCR, PCR, sequencing, and western blot analysis.
- Worked as a member of team in a laboratory setting.
- Accurately and clearly expressed all scientific findings both in writing and verbally to team members and staff at the laboratory.
- Published reports in two scientific journals.

1998-2002 Graduate Research Associate  
Institute of Biosciences, University of São Paulo, Brazil.

- Molecular study and genetic counseling of patients with cystic fibrosis and neuromuscular diseases.

2001 Instructor of Cellular Biology  
College of Science and Health of Vitória/ES (FAESA), Brazil.

- Presented materials to class, prepared lab instruction for students, and helped faculty members complete a variety of tasks such as grading papers, monitoring exams and exercises. Assisted faculties in setting up laboratory equipment for class and maintained inventory of all lab equipment and supplies. Applied safe work practice in the lab and during class.

## **TECHNICAL SKILLS**

- **Molecular biology techniques:** DNA/RNA isolation from cells, tissues (solid tumours) and blood, DNA extraction from paraffin-embedded samples, tissue cores or microdissected tissue, PCR analysis and optimization, real-time PCR, RT-PCR (Taqman chemistry, SYBR green) and statistical analysis, DNA labelling techniques (radioactive and non-radioactive), cloning and expression, Sanger sequencing analysis, cDNA and genomic DNA library screening, southern and northern blotting, RFLP, SSCP, STR analysis, FFL, siRNA, Microarray.
- **Molecular Diagnostic Instrument:** Skilled in using NanoDrop 2000, Rotor-Gene Q - QIAGEN, Veriti Thermal Cycler, BioRad Gel system, Qiagen QIACube, Vidiera NsD Nucleic Sample Detection Platform, ABI 7700 and 7900 thermal cycler system, Cobas® 4800 System, ABI 3730xl DNA Analyzer, SeqStudio.
- **Microscopy:** Stereo, Compound, Polarized and Comparison Microscopes; Fluorescence Microscope (Axio Imager M2, EVOS FL Color); Tabletop SEM; TCS SP2 and SP8 Confocal Laser Scanning microscopes; LSM710 Confocal Laser Scanning microscope; Spinning Disk Confocal microscope.
- **Protein expression and evaluated techniques:** SDS-PAGE, western blotting, silver staining, protein purification, ELISA.
- **Immunological techniques:** Flow-cytometry, FACS analysis, functional assays, immunofluorescence assays, confocal microscopy.
- **Cell and tissue culture:** Culture of mammalian cells lines, primary cell culture, bacterial and yeast culture.

- **Bioinformatics/computer skills:** Microsoft Windows Software (Word, Excel, Access, PowerPoint, etc.). Bioinformatics/computational analysis of genome sequences database using different web-based tools, Primer 3, FlowJo, and Ingenuity. Working knowledge of statistical analyses by GraphPad Prism, SigmaStat, REST (Relative Expression Software Tool). Experienced working with LIMS (Laboratory Information Management System). Image processing and analysis using Image J.
- **Animal handling:** *in vivo* oncological assays in nude mice, and tissue collection.
- **Lab Management:** Expertise in many current technologies, a solid foundation in planning, coordination, quality assurance, and safety. Managed lab projects which included selecting and purchasing supplies/equipment for projects as well as cost estimates for future grant applications.

## PUBLICATIONS

**Quedan, D.; Singh, R.; Akel, A.; Bernardino, A.; Thang, C.; Bhaskaruni, M.; Root, D.D.**

“Cooperative & competitive binding of anti-myosin tail antibodies revealed by super-resolution microscopy.” Publication in press (2023) Biophysical Journal.

**Bernardino, A.L.F.; Kaushal, D.; Philipp, M.** “The antibiotics doxycycline and minocycline inhibit inflammatory responses to the Lyme disease spirochete *Borrelia burgdorferii*.” *J Infect Dis.* 199(9): 1379-88, 2009.

**Bernardino, A.L.F.; Myers, T.; Alvarez, X.; Hasegawa, A.; Philipp, M.** “Toll-like receptors: insights into their possible role in the pathogenesis of Lyme neuroborreliosis.” *Infect Immun.* 76(10):4385-95, 2008. **Cover of the Infection and Immunity Journal.**

**Borda, J.T.; Alvarez, X.; Mohan, M.; Hasegawa, A.; Bernardino, A.L.; Jean, A.; Aye, P.; Lackner, A.A.** “CD163, a marker of perivascular macrophages is upregulated by microglia in SIVE after Hb-Hb complex stimulation and is suggestive of breakdown of the blood brain barrier.” *Am J Pathol* 172(3): 725-37, 2008. **Cover of the American Journal of Pathology.**

**Halmos, G.; Schally, A.V.; Bernardino, A.L.; Varga, J.L.** “Characterization of receptors for growth hormone-releasing hormone (GH-RH) in human osteosarcomas and Edwing’s sarcomas.” *Int. J. Oncology* 29(2): 463-9. 2006.

**Kanashiro, C.A.; Schally, A.V.; Groot, K.; Armatis, P.; Bernardino, A.L.; Varga, J.L.** “Inhibition of mutant p53 expression and growth of DMS-153 small cell lung carcinoma by antagonists of growth hormone-releasing hormone and bombesin.” *Proc Natl Acad Sci U S A* 100(26):15836-41, 2003.

**Bernardino A.L.F.; Guarita, D. Mott, C.; Machado, M.C.C.; Laudanna, A.A.; Tani, C.M.; Miranda, K.F.; Almeida, F.L.; Zatz, M.** “CFTR, PRSS1 and SPINK1 mutations in the development of pancreatitis in Brazilian patients.” *JOP* 5: 169-77, 2003.

**Bernardino, A.L.F.; Lima, C.E.; Zatz, M.** “Analysis of mutations in the cystic fibrosis transmembrane regulator (*CFTR*) gene in patients with obstructive azoospermia.” *Genetics and Molecular Biology* 26 (1): 1-3, 2003.

**Schawartzman, J.S.; Bernardino, A.; Nishimura, A.; Gomes, R.R.; Zatz, M.** “Rett Syndrome in a Boy with a 47, XXY karyotype confirmed by a rare mutation in the MESP2 gene.” *Neuropediatric* 32: 162-164, 2001.

**Paula, F.; Vainzof, M.; Bernardino, A.L.F.; McNally, E.; Kunkel, L.M.; Zatz, M.** “Mutations in the Caveolin-3 gene: When are they pathogenic?” *Am. J. Med. Genet.* 99: 303-307, 2001.

**Bernardino, A.L.F.; Ferri, A.; Passos-Bueno, M.R.; Kim, C.A.E.; Nakaie, C.M.A.; Gomes, C.E.T.; Damaceno, N.; Zatz, M.** “Molecular Analysis in Brazilian Cystic Fibrosis Patients Reveals Five Novel Mutations.” *Genetic Testing* 4(1): 69-74, 2000.

**Bortolini, E.R.; Bernardino, A.L.F.; Lopes, A.L.; Ferri, A.; Zatz, M.; Passos-Bueno, M.R.** “Sweat Electrolyte and Analysis of Cystic Fibrosis Mutation allows Early Diagnosis in Brazilian Children with Clinical Sign Compatible with Cystic Fibrosis”. *Am. J. Med. Genet.* 76:288-290, 1998.

## **SELECTED ABSTRACTS AND POSTER PRESENTATIONS**

**Quedan, D.; Bernardino-Schaefer, A.; Singh, R.; Thang, C.; Bhaskaruni, M.; Root, D.D.**

‘Cooperative activation of striated muscle thick filament by S2 binding’, *Biophysical Journal*, 2018.

**Bernardino, A.L.F.; Kaushal, D.; Philipp, M.** The antibiotics doxycycline and minocycline inhibit inflammatory response to the Lyme Disease spirochete *Borrelia burgdorferi*. 11TH International Conference Lyme Borreliosis and Other Tick-Borne Disease, 2008.

**Bernardino, A.L.F.; Myers, T.; Alvarez, X.; Hasegawa, A.; Philipp, M.** TLRs 1, 2, and 5 in the CNS response to *Borrelia burgdorferi*. General 107th meeting of American Society for Microbiology, 2007.

**Bernardino, A.L.F.; Myers, T.; Embers, M. Alvarez, X.; Hasegawa, A.; Philipp, M.** Toll-like receptors in Lyme neuroborreliosis: activation of microglia and astrocytes by *Borrelia burgdorferi* via TLRs. Recent Advances in Pattern Recognition – TOLL2006, 2006.

**Bernardino, A.; Mullin, W.J.; Noponen-Hietala, N.; Gilbert, T.J.; Czarny-Ratajczak, M.; Burton, C. Transfeldt, E.; Ala-Kokko, L.; Heithoff, K.B.** Analysis of collagen IX genes for mutations in juvenile discogenic disease. Spine Week, 2004. (Oral Presentation)

**Bernardino A.L.F.; Guarita, D. Mott, C.; Machado, M.C.C.; Laudanna, A.A.; Tani, C.M.; Miranda, K.F.; Almeida, F.L.; Zatz, M.** Screening of SPINK1 mutations indicate further heterogeneity for chronic pancreatitis. *The American Journal of Human Genetics* 71(4), (10255), 2002.

**Bernardino, A.L.F.; Richieri-Costa, A.; Passos-Bueno, M.R.; Cerqueira, A.M.P.; Zatz, M.** A new form of Autosomal Dominant late onset Spinal Muscular Atrophy. *The American Journal of Human Genetics* 69(4), 524 (2010), 2001.

**Paula, F.; Moreira, E.S.; Bernardino, A.L.F.; Kai, A.; Passos-Bueno, M.R.; Vainzof, M.; Zatz, M.** Recurrent LGMD2A (Calpainopathy) mutation in Brazilian patients. *The American Journal of Human Genetics*.67(4):251 (1370), 2000.

**Bernardino A.L.F.; Guarita, D. Mott, C.; Machado, M.C.C.; Laudanna, A.A.; Tani, C.M.; Miranda, K.F.; Almeida, F.L.; Zatz, M.** Análise dos genes CFTR e PRSS1 em pacientes portadores de pancreatite aguda recidivante idiopática (PARI) e de pancreatite crônica (PC). VII International Meeting of Gastroenterology, 2000.

**Bernardino A.L.F.; Guarita, D. Mott, C.; Machado, M.C.C.; Laudanna, A.A.; Tani, C.M.; Miranda, K.F.; Almeida, F.L.; Zatz, M.** Screening of CFTR and PRSS1 mutations in patients with pancreatitis *The American Journal of Human Genetics*.67(4):361 (2018), 2000.

**Paes, M.F.; Pinto, E.M.; Bernardino, A.L.; Leite A.V.; Lopes, A.L.; Perrone, A.M.S.; Busato, V.C.W.; Rabbi-Bortolini, E.** Estudo molecular em 2.441 pacientes com suspeita clínica de Fibrose Cística atendidos pelo sistema de Aconselhamento Genético da UFES. *Genetics and Molecular Biology* 23(3): 616 (GH153), 2000.

**Bernardino A.L.F.; Guarita, D. Mott, C.; Machado, M.C.C.; Laudanna, A.A.; Tani, C.M.; Miranda, K.F.; Almeida, F.L.; Zatz, M.** Análise do gene CFTR em pacientes com pancreatite crônica idiopática e pancreatite aguda idiopática. *Genetics and Molecular Biology* 23(3): 617 (GH155), 2000

**Errera, F.I.V.; Alecrim, O.I.; Bernardino, A.L.; Rabbi-Bortolini, E.** Estudo da mutação DF508 em indígenas do Espírito Santo. *Genetics and Molecular Biology* 23(3): 617 (GH157), 2000

**Bernardino, A.L.F.; Ferri, A.; Passos-Bueno, M.R.; Kim, C.A.E.; Nakaie, C.M.A.; Gomes, C.E.T.; Damaceno, N.; Zatz, M.** Molecular Analysis in Brazilian Cystic Fibrosis Patients Reveals Five Novel Mutations. *The American Journal of Human Genetics*. 65 (4): A211, 1999.

- Bernardino, A.L.F.; Glina, S.; Serafini, P.; Mota, E.; Chedid, S.; Cedenho, A.; Zatz, M.** Analise molecular do gene CFTR em pacientes com Agenesia Congenita Bilateral de Vasos Deferentes. *Genetics and Molecular Biology* 22(3): 201 (05-014), 1999.
- Bernardino, A.L.F.; Ferri, A.; Passos-Bueno, M.R.; Kim, C.A.E.; Nakaie, C.M.A.; Gomes, C.E.T.; Chiba, S.; Damaceno, N.; Zatz, M.** Triagem de mutacoes no gene CFTR em 160 pacientes com Fibrose Cística do Pancreas. *Genetics and Molecular Biology* 22(3): 217 (05-051), 1999.
- Miranda, K.; Bernardino, A.L.F.; Paula, F.; Ferri, A.; Passos-Bueno, M.R.; Kim, C.A.E.; Nakaie, C.M.A.; Gomes, C.E.T.; Chiba, S.; Damaceno, N.; Zatz, M.** Estudo da mutacao R334W em sete pacientes com Fibrose Cística do Pancreas. *Genetics and Molecular Biology* 22(3): 255 (05-139), 1999.
- Leite, A.; Bernardino, A.L.F.; Toso, G.C.; Lopes, A.L.; Bortolini, E.R.** Deteccao das mutacoes G542X, G551D e R553X em pacientes com Fibrose Cística em Vitoria – ES. *Genetics and Molecular Biology* 21(3): 255 (Q.26), 1997
- Bernardino, A.L.F.; Bortolini, E.R.; Kim, C.A.E.; Nakaie, C.M.A.; Passos-Bueno, M.R.; Zatz, M.** Triagem de mutacoes em pacientes com Fibrose Cística do Pancreas. *Brazilian Journal of Genetics* 20(3): 233 (F.101), 1997.
- Bernardino, A.L.F.; Bortolini, E.R.; Lopes, A.L.; Ferri, A.; Passos-Bueno, M.R.; Zatz, M.** Mutacao DF508 em individuos com sinais clínicos sugestivos de Fibrose Cística. *Brazilian Journal of Genetics* 18(3):560 (C.301), 1995.
- Bortolini, E.R.; Lopes, A.L.; Bernardino, A.L.F.; Ferri, A.; Passos-Bueno, M.R.; Zatz, M.** Mutacoes no gene da Fibrose cística em vitoria-ES. *Brazilian Journal of Genetics* 18(3):561 (C.302), 1995.