

Roberta MENEZES

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EDUCATION

2018 PhD, University Paris Descartes & “Frontières du Vivant” (FdV) Doctoral School

Thesis in joint program with Paris Descartes University & FdV PhD program, funded by the Bettencourt-Schueller Foundation.

Interdisciplinary research project applying microfluidics, molecular biology, chemistry, and oncology. The aim is to develop a new liquid biopsy method for the detection of miRNAs, as biomarkers for cancer.

Primary supervisor: Valerie Taly, TRAM group at Paris Descartes University.

PhD Fellowship Awarded by: ITMO Cancer.

PhD Collaboration, University of Tokyo/ESPCI Paris Tech

Collaboration for thesis research, with the SPM group of Yannick Rondelez, previously located in Tokyo and now at ESPCI. Involves the study of molecular programming and synthetic biology methods for miRNA detection.

PhD Collaboration, Imperial College London

Collaboration for thesis research, with the group of Sylvain Ladame, located in London. Involves the study of PNA probes for miRNA detection.

2015 Masters of Research in Synthetic Biology (Department of Biochemical Engineering), University College London

Degree Class: Distinction

Lecture topics covered: Genetic circuits, Oscillators, Logic gates, Pathway engineering, and Metabolic engineering.

Laboratory Research Projects:

- DNA origami Project: Construction of a multi-layered DNA origami nanopore to serve as a platform for single molecule detection, for diagnostic purposes. Research at the UCL Chemistry Department in Dr. Stefan Howorka's group.
- Structural Biology: Study of the structure of type 4 secretion system found in Gram-negative bacteria. It is known to be a bacterial method of protein and DNA translocation. Therefore, understanding its structure may help overcome spread of antibiotic resistance. Research at London Institute of Structural & Molecular Biology in Prof. Gabriel Waksman's group.

2012 BSc in Biomedical Sciences, University of Southampton

Subjects: Pharmacology, Biochemistry, Molecular Cell Biology, Immunology, Selective Toxicity, Regulation of Gene Expression, Molecular and Structural Basis of Disease, Cell Signaling in Health and Disease, Biotechnology and Therapeutics.

Library Dissertation Research projects:

- **Synthetic Biology:** Antibiotic resistance and how synthetic biology can be used to tackle such a problem. The engineered bacteriophage can attack gene networks of bacterial stress responses, which are not directly targeted by antibiotics. This two-level attack can make for a successful combination therapy, decreasing the incidence of resistance arising, and additionally enhance bacterial killing.
- **DNA Nanotechnology:** How DNA nanomachines may create a paradigm shift in gene therapy. Focused on a DNA repair nanomachine, which could potentially be used to treat single gene disorders, such as sickle cell disorder. Researchers have successfully been able to increase homologous recombination efficiency by thousands of fold, by fusing zinc-finger DNA-binding domains to a nonspecific nuclease domain, creating zinc-finger nucleases (ZFNs).

2007 Scientific French Baccalaureate; Specialty: Physics/Chemistry

LABORATORY INTERNSHIPS

Aug–Nov 2012 Member of the iGEM team at University of Calgary

Laboratory work in the synthetic biology iGEM team of the University of Calgary. Experience in various laboratory techniques including, colony PCR, running and analyzing gels, transforming E. coli cells. Intensive work in an interdisciplinary research group. The team focused on creating a biosensor and a bioreactor in the goal to bioremediate toxins created from the oil extraction process: <http://2012.igem.org/Team:Calgary>. Worked on the wet lab portion of the project, specifically decarboxylation, denitrification and kill switch. The team was a finalist in the Americas West region, and in the Sweet 16 group at finals.

Aug–Sept 2010 Volunteer in the Biochemistry Laboratory in the Veterinary School of the University of Zaragoza

This research was concerning the genetic components of atherosclerosis and causes of the disease. Experience using various experimental techniques, including: Polymerase Chain Reaction; Agarose and Polyacrylamide gel electrophoresis; Handling laboratory mice and identifying them; X-ray film developing; Minipreps; Western Blot.

July 2009 Volunteer at the Evandro Chagas Institute in Brazil

Helped with the malaria research team in this major center for tropical disease, located at the entrance to the Amazon Rain Forest. Took intravenous blood samples from infected patients and analyzed samples for parasites.

ATTENDED SEMINARS & CONFERENCES

July 14-15 2016 Precision Medicines: Engineering Solutions for Cancer

Poster session; Poster title: New Diagnostic Tools for the Identification and Detection of miRNA Biomarkers for Colorectal Cancer

Nov 12-13 2015 Design, Optimization, and Control in Systems and Synthetic Biology

Two-day synthetic biology conference at Ecole Normale Supérieure, Paris. Attendee only.

Apr 22-23 2015 SynBioBeta

Two-day synthetic biology industry conference at Imperial College London. Attendee only.

Oct 2014-Jan2015 ISMB Seminar Series on Synthetic Biology (UCL)

ADDITIONAL WORK EXPERIENCE

Dec 2013-Sep 2014 TD Insurance Meloche Monnex Underwriter

Authorized to issue, modify and/or cancel insurance contracts. Licensed in home and auto insurance.

Dec 2012-Nov2013 Sales Associate at BCBG Max Azria

Worked as a sales associate and personal stylist.

Jan-May 2011 Customer Advisor at the Royal Bank of Scotland

Customer advisor; performing bank balance checks, transferring funds, paying bills, etc.