LAURA AVELLANEDA FRANCO

Researcher

Contact.

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Skills.

Laboratory.

·Bacterial culture techniques.
·Nucleic acids purification and detection.
·PCR and RT-PCR.
·Restriction digest and molecular cloning.
·Preparation of electrocompetent cells.
·Enrichment of viral-like particles from fecal samples.
·Illumina libraries preparation.
·Handling gnotobiotic mice.
·Bacteriophage induction.

Bioinformatics.

·Microbiome analysis (DADA2, Qiime/Qiime2)
·Virome analysis.
·Genomes and metagenomes assembly.
·Gene prediction and annotation.
·SNPs analysis.
·Diversity analysis.

Programming.

·General Development: Python and Java.
·Data analysis/Numerical programming: Python, R, Matlab, Comsol Multiphysics, and Aspen Plus.
·Systems administrator: Bash scripting and awk.
·OSs: Linux and MacOSx.

Languages.

·Spanish: Native.
·English (TOEFL iBT 89/120).

Personal Profile.

I am an enthusiastic woman researcher, who is part of the second century of phages explorers, with experience in working on dry and wet lab-techniques. I am investigating the role of prophages in modulating bacterial phenotype, and with this, the way that bacteria interact with mammalian cells. Outside the lab, I like to read novels and knit scarves. Also, I enjoy spending time with friends.

Research Experience.

- **Ph.D. at the Barr Lab, Monash University, Melbourne, Australia.** Project "How to survive in an aggressive environment? Team up with a phage." September 2019 – Current.
- **Research assistant at BCEM, Universidad de los Andes, Bogotá D.C, Colombia.** Working in develop pipelines to study the gut virome and analysing mice gut virome using extensive bioinformatic techniques. February 2019 – July 2019.
- **Graduate research assistant at BCEM, Universidad de los Andes, Bogotá D.C, Colombia.** Master thesis: "Characterisation of human gut virome". June 2016 – June 2018.
- **Research intern at Gordon Lab, Washington University School of Medicine in St. Louis, US.** Research focused on the role of phages in improving the colonisation process of therapeutic bacterial consortium. January 2018 – March 2018.
- **Research assistant at Corporación colombiana de investigación agropecuaria (Agrosavia), Colombia.** Responsibilities included writing research projects in interdisciplinary groups to solve agricultural problems of Colombian's farmers using promoting-growth bacteria. January 2014 – June 2016.
- **Graduate research assistant at CIMIC, Universidad de los Andes, Bogotá D.C, Colombia.** Master thesis: "Phenol degradation kinetics by two immobilized bacteria consortia in batch and continuous experiments". June 2011 – June 2013.
- **Laboratory leader of the Colombian team participating in iGEM (International Genetically Engineered Machine) competition.** Project: Pest-Busters. We attempted to generate a genetically-modified bacteria with a "detect and alert" system for crop defence against fungi. March 2012 – November 2012.
- **Undergraduate research assistant at GDPP, Universidad de los Andes, Bogotá D.C, Colombia.** Research focused on improving the yield of a microbial fuel cell based on in-silico and in-vivo experiments. March 2009 – December 2010.

Teaching Experience.

- Teaching assistant at 22nd and 23rd Biennal Evergreen International Phage Meeting, Olympia, US.
  •August 2019: Viromics.
  •August 2017: A helping hand through the annotation bottleneck.

- Teaching assistant at School of Biological Science. Universidad de los Andes, Bogotá D.C, Colombia.
  •June 2016 -December 2016: Fundamental of Molecular Biology.
  •August 2011 – December 2013: Basics on Molecular Biology and Biology of Prokaryotes.

- Visiting professor at School of Environmental Engineering. Universidad Manuela Beltrán, Bogotá D.C, Colombia.
  •June 2013 – December 2013: Introduction to Statistics, Basics in Ecology, and Toxicology.

Awards, fellowships, and grants.

- Faculty of Science Dean's Postgraduate Research Scholarship and Faculty of Science Dean's International Postgraduate Research Scholarship. Monash University. 2019-2022.

- Travel Grant to attend at 22nd and 23rd Biennal Evergreen International Phage Meeting, Olympia, US. 2017 and 2019.

- Graduate Assistant Fellowship for M.Sc. in Computational Biology. Universidad de los Andes. 2016-2018.

- Selected for the program "Jóvenes Investigadores e Innovadores" of the Colombian Administrative Department of Science, Technology, and Innovation (COLCIENCIAS). 2016.

- Travel Grant to attend the XXI ALAM Conference, Santos, Brazil. 2012.

- Research Grant "Proyecto Semilla" 2012-2 Call for Funding in Research Category: Master and Doctoral Students. School of Biological Science, Universidad de los Andes.

- Graduate Assistant Fellowship for M.Sc. in Biological Science. Universidad de los Andes. 2012-2013.

Publications and Manuscripts in preparation.

- Phages improve therapeutic bacteria consortium gut colonization in mice. Avellaneda-Franco Laura, Venkatesh Siddarth, Droit Lindsay, Handley Scott, Virgin Herbert, Gordon Jeffrey, Reyes Alejandro. (In preparation).

- Stuck in the mud – a dark story of the immovable personalities known as phage. Avellaneda-Franco Laura, Boling Lance, Heath Andrew, Rohwer Forest, Whiteson Katrine, Reyes Alejandro. (In preparation).

- Scientometric analysis of Colombian research on bio-inoculants for agricultural production. Universitas Scientiarum, 21 (1): 63-81. doi: 10.11144/Javeriana.SC21-1.saoc. Zambrano-Moreno Diana Corina, Avellaneda-Franco Laura, Zambrano Gregorio, Bonilla-Buitrago Ruth Rebeca.

- Análisis prospectivo de los bioinsumos agrícolas en Colombia: una consulta a expertos. Revista colombiana de Biotecnología XVII (2): 103-113. doi: 10.15446/rev.colomb.biote.v17n2.48472. Zambrano-Moreno Diana Corina, Bonilla-Buitrago Ruth Rebeca, Avellaneda Laura, Zambrano Gregorio.

- cysA, cysP, and rpoS mutations increase the power density in P. aeruginosa microbial fuel cells: Performing enhancement based on metabolic flux analysis. Advances in Bioscience and Biotechnology, 4, 103-111. doi: 10.4236/abb.2013.41015. Juan Diego Mejía, Cindy Stephany Rojas, Laura Avellaneda Franco, David Alejandro Urbina Gómez, Beatriz Helena Correa Arias, Nubia Milena Velasco Rodriguez, Maria Teresa Cortes Montañez, Martha Josefina Vives-Flórez, Andrés Fernando González Barrios.

Complementary training.

- Monash University Workshops:
  - •Publishing and Writing in Biology.
  - •Statistical Modelling of Biological Data.
  - •Using Circos un Galaxy Australia.
  - •Connecting Talent and Industry.
  - •Expanding your networks and raising you profile.
  - •Who, How & Why of having a Mentor.
- Untapping diversity trough metagenomics: An introductory workshop. CABANA. Universidad de los Andes, Colombia. 2018.
- Analysing large datasets with Apache Spark. ISCB-Latin American Conference, Chile. 2018.
- Creative writing. IDARTES, Colombia. 2018.
- Next generation sequencing applied to -omics studies. Data analysis. Corpogen, Colombia. 2015.
- Global trends in higher education. Universidad Manuela Beltrán, Colombia. 2013.
- How to publish in a scientific journal? American Journal Experts Education. Universidad de los Andes, Colombia. 2012

Abstracts and presentations over last four years.

- 2019. 23rd Biennal Evergreen International Phage Meeting, Olympia, US. Metagenomic Analysis of the Human Gut Virome. Laura Avellaneda-Franco, Lance Boiling, Katrine Whiteson, Andrew Heath, Forest Rohwer, Jeffrey Gordon, Alejandro Reyes. Poster.
- 2018. International Society for Computational Biology Latin American Bionformatics Conference (ISCB-LA), Viña del Mar, Santiago de Chile. Virus-like particles from fecal samples of healthy and undernourished children can facilitate the colonization of a probiotic consortium of growth-promoting bacteria. Laura Avellaneda-Franco, Lindsay Droit, Herbet Virgin, Alejandro Reyes, Jeffrey Gordon. Poster.
- 2018. IV Bogotá Microbial Meeting BoMM, Bogotá D.C, Colombia. The Healthy Human Gut Virome. Laura Avellaneda-Franco, Leonardo Moreno, Lance Boiling, Katrine Whiteson, Andrew Heath, Forest Rohwer, Jeffrey Gordon, Alejandro Reyes. Poster
- 2017. 22nd Biennal Evergreen International Phage Meeting, Olympia, US. The Human Gut Virome in Lean and Obese individuals. Laura Avellaneda-Franco, Leonardo Moreno, Lance Boiling, Katrine Whiteson, Andrew Heath, Forest Rohwer, Jeffrey Gordon, Alejandro Reyes. Poster.
- 2017. BoMM, Bogotá D.C, Colombia. Analysis of gene expression during the cacao fermentation process. Laura Avellaneda-Franco, Jorge Iván Diaz, Lorena Dávila, Lina Botero, Alejandro Caro. Poster.
- 2017. Third Colombian Conference of Computational Biology (CCBCOL), Santiago de Cali, Colombia. Deciphering the meta-transcriptome of cocoa seeds during fermentation process. Laura Avellaneda-Franco, Lorena Dávila, Lina Botero, Jorge Diaz-Riaño, Alejandro Reyes, Roxana Yockteng, Alejandro Caro-Quintero. Oral presentation.
- 2016. ISCB-LA, Buenos Aires, Argentina. Metagenomic Analysis for identification of Viruses Associated with Neonatal Calf Diarrhea. Laura Avellaneda Franco, Diego Gómez, Leonardo Moreno, Jeffrey Gross, Alejandro Reyes. Poster.

Updated on March of 2020.