RafaelJ. Gonzalez-Ricon

Master of Science

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**CURRENT POSITION**

Neuroscience PhD student-University of Illinois at Urbana-Champaign, USA.



**EDUCATION**

**2020 / 2021 \*** MSc. Edward R. Madigan Laboratory- University of Illinois at Urbana-Champaign, USA.

**2013 / 2015 \*** BSc. Clinical Biochemistry – School of Chemistry. Universidad de la Republica, Uruguay (UDELAR).

**2005 / 2011 \*** BSc. Biochemistry – School of Science. Universidad de la República, Uruguay (UDELAR).



**PERSONAL STATEMENT**

I have a strong desire to focus on innovation and development of new technologies that serve as therapeutic tools for genetic, virological, and immunological base diseases.



**WORK EXPERIENCE**

**2020/2021- Research Assistant (MSc)-** Edward R. Madigan Laboratory- University of Illinois at Urbana-Champaign, USA.

* Design and conduct mouse model of endotoxemia.
* Primer design.
* Examine tracer distribution in endotoxemia models using high-resolution microscopy (Light-sheet Microscopy, LSM 880, Axio Scan Z1).
* Study the effect of a specific aquaporin 4 inhibitor (AER-271) in endotoxemia model.
* Develop a method for tissue clearing (FDISCO).

**2016/2019- Research Scientist-** FERTILAB. Immunodiagnostic department. <http://www.fertilab.com.uy/>

* Conduct experimental design with human samples for determine the role of the anti-Müllerian hormone (AMH) as a predictor of ovarian response in patients undergoing hormonal stimulation.
* Pre-analytical control of automated techniques for the determination and quantification of sex hormones with automated instrumentation.
* Quality assurance through the monitoring of pre-analytical and analytical processes of 4 compliance programs (RIQAS, RIQAS screening, CECC, CEMIC). This involves the validation of the performance of our analytical platform.
* Processing of biological samples and technical validation through last- generation technology.
* Extraction of blood samples by venipuncture under specific quality criteria to maintain their integrity for subsequent analysis.

**2013/2016- Research Assistant-** Technological Institute of Pando (IPTP), Universidad de la República (UDELAR).[http://www.polotecnologico.fq.edu.uy](http://www.polotecnologico.fq.edu.uy/)

* Development and monitoring of applied and basic science research projects using high resolution analytical techniques: Time of Fligth Mass spectrometer (Q tof), Ion Trap (Bruker Esquire 3000), HPLC (Agilent), UHPLC (Agilent) and HPLC- MSMS.
* Participated in interlaboratory tests as part of quality programs. This involves the validation of the performance of the mass spectrometry equipment in our laboratory.
* Trained interns from the College of Chemistry and Chemical Technologist, as part of their final career internships.
* Represented the student order, where I gained experience in the area of management and administration.

# 2016- Internship. Laboratory of Clinical Analysis. Instituto Asistencial Colectivo (IAC).

[http://www.iac.com.uy](http://www.iac.com.uy/)

* Technical assistance in pre-analytical and analytical processes, as well as interpretation of results for later technical validation.
* Assistance in calibration and maintenance of automated instrumentation.

# 2015- Undergraduate-Intern. Neonatal Research Unit, Banco de Prevision Social (BPS).

[*http://www.bps.gub.uy/3543/pesquisa-neonatal.html*](http://www.bps.gub.uy/3543/pesquisa-neonatal.html)

* During my internship at BPS, I had the opportunity to work side by side with multidisciplinary groups of researchers and health professionals, including Biochemists, laboratory technicians and Physicians, in the Neonatal Research Unit of Uruguay. This program focuses on diseases that do not present clinical symptoms at the time of birth but which produce biochemical alterations that can be detected by means of specific analyzes.
* All metabolic diseases are studied with high resolution analytical techniques such as Mass Spectrometry, HPLC; and in the case of Cystic Fibrosis, genomic sequencing is performed to identify the 98 most frequent mutations of the CFTR gene, where I had the opportunity to acquire extensive experience in these techniques.
* My undergraduate thesis focused on tuning a tandem mass method to detect succinylacetone in blood samples as a metabolic marker of type I tyrosinemia. This assay will be used by the Uruguayan health system for screening for this disease.

**2012- Internship**. Institute Pasteur of Montevideo. Analytical Biochemistry and Proteomics department. [*http://pasteur.uy*](http://pasteur.uy/)

* My research focused on the development of an analytical method for the detection and purification of synthetic peptides by HPLC-coupled mass spectrometry (HPLC-MALDI- TOF).
* During my internship at Pasteur, I gained extensive experience in the technical and practical fundamentals of HPLC and MALDI-TOF, which allowed me to know and develop the method and the most suitable matrix for the purification of synthetic proteins.

**2009/2011**- **Undergraduate-Intern,** Department of Microbiological Sciences, School of Veterinary Medicine, Universidad de la República (UDELAR). [*http://www.fvet.edu.uy*](http://www.fvet.edu.uy/)

* My research focused on the quantification of interleukins gene expression related to inflammation in horse macrophages after different doses of LPS and the protective effect of an antagonist by qPCR.
* During my internship as a researcher, I gained extensive experience in the planning, management, design and interpretation of real-time PCR studies (qPCR), as well as in the design of primers for rt-PCR, qPCR with computer software and manipulation of cell cultures.



**PUBLICATIONS AND ACADEMIC RESEARCH**

**2009/2011.**Research focused on my B.S project degree in Biochemistry titled: “Quantification of the gene expression of pro-inflammatory molecules in equine macrophages activated by bacterial lipopolysaccharides”.

**2015.** Research focused on my B.S project degree in Clinical Biochemistry titled: “Determination of Succinylacetone by Tandem Mass Spectrometry for Type I Tyrosinemia”.

**2013/2016.** Research Assistant: "Identification and characterization of pathogens causing fusariosis in barley".

**2016.** Main researcher: “Antimullerian hormone (AMH) as an ovarian response marker” which consists of a high-impact work that will be used to guide clinical staff and clarify hormonal treatment more suitable in patients with problems of conception.

**2021.** Burra, P., Soto-díaz, K., Chalen, I., Gonzalez-Ricon, R. J., Istanto, D., & Caetano-anollés, G. (2021). Temperature and Latitude Correlate with SARS-CoV-2 Epidemiological Variables but not with Genomic Change Worldwide. https://doi.org/10.1177/1176934321989695



**AWARDS**

**2021.** Neuroscience Program Fellowship



**CONFERENCES AND POSTGRADUATE COURSES**

* BIG symposium 2022. Monday/Tuesday, April 25-26, 2022. Eric P. Newman Educational Center at Washington University School of Medicine in St. Louis.
* XVII Uruguayan Congress of Clinical Pathology. November 21, 22, 23 and 24, 2018. Radisson Hotel Montevideo. (Uruguay).
* XXIII Latin American Congress of Clinical Biochemistry and XI Uruguayan Congress of Clinical Biochemistry. September 17 to 20, 2017. Palacio de Congresos of Punta del Este (Uruguay).
* Intra-flow cytometry congress. September 17 to 20, 2017. Palacio de Congresos of Punta del Este (Uruguay).
* Symposium: Metropolitan Primary Care Network-Neonatal Research, 2015. ASSE, Montevideo, Uruguay.
* 3rd Uruguayan Congress of Analytical Chemistry. Montevideo, Uruguay- 6 to 9 October 2014: "Development of an Analytical Method for the Detection and Quantification of Mycotoxins of the Fusarium Genus by HPLC and Tandem Mass Spectrometry".
* Mitochondria: bioenergetics, oxidative metabolism and signaling, 2012. School of Medicine- Universidad de la República (UDELAR), Uruguay.
* Symposium - Role of mitochondria in human pathology, 2012. Hotel Cala Di Volpe.
* Fundamentals and biological applications of fluorescence spectroscopy, 2012 School of Science Universidad de la República (UDELAR), Uruguay.
* Separative methods, 2012. School of Chemistry. Universidad de la República (UDELAR), Uruguay. Mass Spectrometry (MS) in Proteomics, 2012. UNU-BIOLAC -Instituto Pasteur de Montevideo.
* Use and management of laboratory animals, 2010. School of Chemistry - Universidad de la República (UDELAR), Uruguay.
* Introduction to Sequence Analysis, 2010. School of Veterinary Medicine. Universidad de la República (UDELAR), Uruguay.
* Expression of recombinant proteins, 2010. School of Sciences - Universidad de la República (UDELAR), Uruguay.
* Methods of protein purification and its application in biotechnology, 2010. School of Veterinary Medicine. Universidad de la República (UDELAR), Uruguay.



**REFERENCES**

* Alvaro G. Hernandez, PhD. Director of DNA Services. University of Illinois at Urbana-Champaign. Roy

J. Carver Biotechnology Center. [aghernan@illinois.edu](mailto:aghernan@illinois.edu)

* Uruguaysito Benavidez, DVM, PhD. Professor and Chairman of Immunology. Department of Microbiology. School Veterinary Medicine. Universidad de la República (UDELAR).

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