JORGE ANTONIO DE LOS SANTOS FUNES

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EDUCATION

Ph.D. Animal Science.
University of Wisconsin-Madison. USA. Thesis title: "Early Maternal-Fetal Interactions in Bovine: Exploring Maternal-Fetal. Connections through Molecular Blood Circulating Biomarkers". 2024.

Delta Certificate in Research, Teaching and Learning.
Graduate school University of Wisconsin-Madison Title: "Remote Learning in Biology Labs: Uncovering Crucial Elements of Disengagement". 2024.

MSc, Biotechnology

Facultad de Ciencias, Universidad de la República. Montevideo Uruguay. Thesis title: "Development kits for genotyping of SNPs in human genes, FII, FV, and MTHFR, technology using Real-Time PCR." 2013.

BSc Biological Science

Facultad de Ciencias, Universidad de la República. Montevideo Uruguay. Thesis title: "Training in molecular biological techniques" 2007.

RESEARCH EXPERIENCE

Role: Co-Investigator. Responsibilities: Write the grant, execute the experiments, and write the scientific articles.

Title: Material and fetal communication through the placenta. The research involves detecting cells, miRNA, and DNA in maternal plasma, as well as transcriptomic responses in white blood cells at early stages of pregnancy. This research is being conducted in domestic animals. Madison, Wisconsin, USA. 2017-2023.

Role: Co-Investigator. Responsibilities: execute the experiments and write the scientific articles.

Title: Detection of fetal cell DNA in maternal plasma by PCR reaction and comparison with sonography at an early stage of pregnancy in humans. Montevideo, Uruguay. 2015-2017. Bioplex.

Role: Internship research. Responsibilities: execute the experiments.

Title: Cloning and sequencing of the bovine leukemia virus in milk samples. Montevideo, Uruguay. 2015-2017. Institut Pasteur.

ACADEMIC SERVICES

Member of committee for graduate admission Program. Department of Agricultural Sciences, Texas State University, San Marcos. August 2025- present.

Member Curriculum Committee. Department of Agricultural Sciences, Texas State University, San Marcos. August 2025- present.

REVIEWED SCIENTIFIC ARTICLES

Role: Peer Reviewer for the journal Veterinary Medicine and Science. 2025- Present

TEACHING EXPERIENCE

- **Principles of Livestock Genetics AG 3301. Principles Livestock Genetics Texas state University**

Lecture Professor. I was responsible for generating lectures, exams, and grading for approximately 60 students. Activities included develop new curriculum, prepare and delivery lectures with activities such as leading a flipped classroom, grading weekly assignments, and conducting office hours where I provided feedback on assignments.

- **Cell Biology 570 Fall 2023, University of Wisconsin-Madison**

Position: Teaching Assistant. Responsible for discussion sections with approximately 40 students. Activities included leading flipped classroom, grading weekly assignments, and conducting office hours during which I provided feedback on cell and molecular biology lectures. I also served as a guest lecturer on the last day of class.

- **Biology 151/152 Spring 2018 to Spring 2024, University of Wisconsin-Madison**

Position: Instructor of Biology Laboratory. Responsible for three laboratory sections with approximately 70 students in total, teaching approximately 117 hours per semester independently. Activities included hands-on experiments, grading assignments, and conducting office hours during which I provided feedback on scientific data collection and writing assignments.

- **Equine Reproductive Management (AN SCI 375 Special Topics) Spring 2020-2021, University of Wisconsin-Madison**

Role: Teaching Assistant. Provide laboratory assistant.

- **Neurobiology Psych 523, Summer 2021 and Summer 2022, University of Wisconsin-Madison**

Role: Teaching Assistant. Activities included grading assignments, conducting office hours and review sessions before each exam. I also served as a guest lecturer on the last day of class.

- **WiScience (INTEG 100/150) Summer 2021 and Summer 2022, University of Wisconsin- Madison**

Role: Teaching Assistant. Provided classroom support for summer programming, designed to mentor first-generation students transitioning to college. Activities included grading assignments, conducting office hours, and supervising study tables.

- **Tring students fall 2017 and fall 2022. University of Wisconsin- Madison**

Role: Teach hands-on activities in the lab related to the use and interpretation of detection and quantification of gene expression using QPCR techniques. Responsibilities also include DNA and RNA extraction and quantification. I trained an international graduate student and an undergraduate domestic student.

- **Introduction to Biotechnology Fall 2012 to 2014, ORT University Montevideo Uruguay**

Role: Lecturer. Taught common techniques in biotechnology and industry regulations.

- **Molecular Biology Laboratory Spring 2011 to 2014, ORT University Montevideo Uruguay**

Role: Instructor. Activities included leading two groups of 15 students in hands-on experiments and grading lab reports.

- **Molecular Diagnostic Techniques. Laboratory Summer 2011 to 2013, ORT University Montevideo Uruguay**

Role: Instructor of Cell Biology Laboratory. Activities included leading two groups of 15 students each in hands-on experiments and grading lab reports.

- **Introductory Cell Biology, laboratory course. Spring semester 2010 to 2013, ORT University Montevideo Uruguay**

Role: Teaching assistant. Activities included instructing in how to use microscopes and biological safety cabinet.

- **Physical Sciences 2000 to 2003, Manuel Rose High School Las Piedras and San Luis Canelones Uruguay**

Role: High school Teacher. Activities include teaching, leading labs, and grading assignments.

BIOTECHNOLOGY INDUSTRY EXPERIENCE

Laboratory Technical STgen. Vienna, Wisconsin USA summer 2024 USA. sperm sorting by flow cytometry.

Research Scientist Intern Assay Design. Promega Summer Madison USA. 2023. Develop a Real Time PCR, for microbiological contaminants in mammalian cell culture media.

Researcher and Developer of molecular diagnostic products for human diseases, using molecular biology techniques such as PCR, probe design, real-time PCR primers, cloning techniques, DNA sequencing, and analysis, and design protocols. 2007-2015: ATGen sistemas moleculares, Montevideo, Uruguay.

Interim Production Manager, developing molecular IVD assays and genomics assays by real-time PCR. Execution of production scheduling and preparation of protocols under GMP and ISO standards ISO 9001-2008. 2009-2015: ATGen sistemas moleculares, Montevideo, Uruguay.

Development of a startup company, ViVo Science, dedicated to a reagent for DNA-RNA purification from biological samples (blood, tissue, and cultured bacteria). Supported by the Young Entrepreneurs Program Ecien in 2011, a program sponsored by the Faculty of Science and Chamber of Commerce. 2011-2016: ViVo Science, Montevideo, Uruguay.

GOVERNMENT & TECHNOLOGY TRANSFER EXPERIENCE

2022-2024. WARF Ambassadors helping research on campus (UW) and technology transfer at WARF foundation, University of Wisconsin Madison. Help develop a database for precision farming and identify opportunities for new companies and technologies.

2015. Ministry of Agriculture and Fisheries. Montevideo, Uruguay. Research project "Improving the competitiveness of Uruguayan livestock by developing new genomic tools to improve feed efficiency and carcass quality in Hereford", coordinated by the National Institute for Agricultural Research (INIA). Support in coordination activities that involve efforts of public and institutional coordination at the private institution level, under the Livestock Information System electronics and genomic data. Publication chapter 21.

2012. Development and proposal of consultancy services for "Market research and identification of bio-business opportunities at a regional level". The National Industry Directorate in Uruguay. Participants were Capdeville F., De los Santos J., and Cosentino A.

SCIENTIFIC PUBLICATION

Jorge A. De los Santos Funes. Fetal-Maternal Microchimerism: Insights from Mammalian Placental Biology. Submitted to Journal developmental biology NDPI. 2026

Jorge A. De Los Santos, MaryGrace Erickson, Michel A. Wattiaux, John J. Parrish, Retrospective Ratings of Learning across pre-pandemic, emergency-remote, and post-pandemic instruction in an introductory biology laboratory Accepted for publication NACTA December 2023

De los Santos J.A, João Paulo N. Andrade, Andres Iriarte, Francisco Peñagaricano, John J. Parrish. Transcriptomic analysis reveals gene expression changes in peripheral white blood cells of cows after embryo transfer: implications for pregnancy tolerance. Reproduction in Domestic Animals. July, 58(7):946-954. 2023

De los Santos J.A, João Paulo N. Andrade, Jodi Berndtson, John Parrish. Profiling of Let 7, 16, and 26 family miRNAs expression as early pregnancy in single cow blood samples at day 21 after embryo transfer. Journal of Animal Science. February 28, 2023.

Jorge A De los Santos. The Molecular Approach behind Biotechnological Common Problems. J. Biotech Biores.2(2). 2019

De los Santos J, Martinez C., Cota G., Comparing a polymerase chain reaction-based analysis for gender determination in early stage of pregnancy with sonography. J Med Diagn Meth 2018, 7:3.

Armstrong E., Iriarte A., Nicolini P., **De Los Santos J.,** Ithurralde J., Bielli A., Bianchi G., Peñagaricano F., Comparison of transcriptomic landscapes of different lamb muscles using RNA-Seq. July 24, 2018. journal. Plos One.

Umpierrez M, Jackson E, **De los Santos J**., Ferrari M. Induction the methodologies used Biotechnology". Chapter II Quantification and analysis of macromolecules. Chapter of a book Ed. Universidad ORT, Uruguay 2014. ISSN/ISBN: 9789974846722

De los Santos J., Navajas E., Mondelli M., Public-private partnerships, ICT and genomics networks to improve the competitiveness of domestic meat chain. Anuario OPYPA, MGAP 2014.

ACADEMIC ORAL PRESENTATION IN CONFERENCES

Oral presentation: Graduate Student Oral Competition – Ph.D. "Impact of pregnancy status on the transcriptome of peripheral white blood cells," American Society of Animal Science, March 13, Madison, Wisconsin, USA.

Oral presentation: "Can we know the genome of our children before they are born?" Alianza Cultural EEUU, Uruguay, Alianza Ciencia y Tecnología 2013.

Oral presentation: "Development of SNP genotyping kits using Real-Time PCR technology," VII Congress of Clinical Biochemistry Uruguay, Telecommunications Tower, Montevideo, November 2009.

CONFERENCE POSTER PRESENTATIONS

De los Santos J.A. and John Parrish. “Remote Learning in Biology Labs: Uncovering Crucial Elements of Disengagement” Teaching and Learning Symposium. May 15, UW Madison, USA 2024

De los Santos, J.A., João Paulo N. Andrade, Jodi Berndtson, and John Parrish. "Validation of 26a and let7 microRNA as early pregnancy markers in single cow blood samples, at day 21 after embryo transfer." Research Symposium on Endocrinology and Reproductive Physiology, UW Madison, USA, 2020.

De los Santos, J., Ferrari E., Tedesco S., Sarlos F., Abin J. "Early diagnosis of fetal sex in maternal blood samples." IV Uruguayan Congress of Graduates and Technicians in Clinical Laboratory, 2012. Special mention.

De los Santos, J., Cota G., Abin A. Oral presentation of the work "Development of SNP genotyping kits under the Real-Time PCR Technology." VII Congress of Clinical Biochemistry Uruguayan, Telecommunications Tower, Montevideo, November 2009.

De los Santos, J., Moratorium G., Prisch O. Poster presentation at Biolatina and AMSUD bioempresarios Fourth Conference Pasteur. "Diagnostic System for Bovine Leukosis Virus (BLV)." San Paulo, Brazil, October 2008.

FELLOWSHIPS AND AWARDS

2025 Funding in internal start-up funds from Texas State University, San Marcos to establish laboratory of genetics and genomics. Secured $2,500,000

2023 Edward D. Morris Memorial Scholarship, University of Wisconsin-Madison. Total awarded $250

2023 Theodora Herfurth Kubly Memorial Scholarship, University of Wisconsin-Madison. Total awarded $750

2022. James Graaskamp Scholarship. University of Wisconsin-Madison. Total awarded $750.

2021. Teaching Assistant Award, Dorothy Powelson University of Wisconsin-Madison. Total awarded $1,000.

2020. William Burns & Fraser Teaching Enrichment Scholarship. University of Wisconsin-Madison Total awarded $750.

2019. John Lyman Cooper Scholarship. University of Wisconsin-Madison Total award $450.

2018. John Lyman Cooper Scholarship University of Wisconsin-Madison. Total awarded $300.

2016-2018. Fulbright Scholarship to start a Ph.D. program at the University of Wisconsin-Madison. Total award: $191,064.

2015. Fulbright Scholarship for studying English as a second language at the University of Kansas, USA, and supporting a Ph.D. program at the University of Wisconsin-Madison for two years.

2015. Fulbright Scholarship to study English as a second language at the University of Kansas, USA, and prepare for standardized tests such as the GRE and TOEFL. The program awarded a total of $50,854.

2013. Employee of the Year at ATGen Company, recognized for exceptional performance, teamwork, and dedication to achieving company goals. Total awarded $1,000.

2012. I participated in the International Visitor Leadership Program (IVLP) professional exchange program, “Science Entrepreneurship: From Lab to Market”, organized by the US Department of State's Bureau of Educational and Cultural Affairs. The program involved visiting labs and research facilities, meeting with entrepreneurs and investors, and developing professional networks to learn about the business aspects of bringing new technologies to market. I visited incubators and technology-based companies at universities in Pennsylvania and California before finishing the tour in Washington DC. The program awarded a total of $7,630.

VOLUNTEERING

2023 Moderator for the 24th Annual Undergraduate Symposium at the University of Wisconsin-Madison, USA.

2023 Participated as a selection committee member for the Teacher Assistant Award Reviewers, College of Letters & Science, University of Wisconsin-Madison.

2019-2022 Worked as a soccer coach at Shorewood Hills School, Madison, mentoring 12 children between the ages of 6 to 7 years old.

2018 Volunteered for Eye to Eye, a non-profit organization dedicated to fostering academic success among disadvantaged children, at the Wright Middle School chapter in Madison, Wisconsin.

2010 – 2017 Conducted drumming workshops as a university extension program at the Facultad de Ciencias, Montevideo, Uruguay.

2015 Founding partner of the Asociación de Egresados de Facultad de Ciencias, Montevideo, Uruguay.