

Ph.D. Aarón Daniel Ramírez Sánchez

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Personal Information Postdoctoral researcher

Sex: Male Age: 34
Nationality: Mexican Birth date: 22.04.1992
Working address: Barrio Sarriena s/n, Leioa, Spain.

Academic goal To uncover the molecular and genetic triggers of autoimmunity in Type 1 Diabetes, Celiac Disease, and Multiple Sclerosis through multi-omics and translational approaches, bridging bench discoveries to clinical applications.

Professional and scientific experience

- 10.2025-up to now University of the Basque Country, Leioa. – Postdoctoral position**
Supervisor: Dr. Izortze Santin and Dr. Ainara Castellanos
Project: Studying the transcriptome, transcriptome and epitranscriptome in autoimmunity.
Goals: To investigate the potential role of viruses in disrupting translation of insulin-producing beta cells in the context of T1D. To examine the effects of nutraceuticals in the context of CeD using single-cell omics technologies.
- 08.2024-06.2025 University Medical Center Groningen, Groningen. – Postdoctoral position**
Supervisor: Dr. Iris Jonkers
Project: Fine Mapping of Genetics Associated to Multiple Sclerosis.
Achievements: Selection of GWAS associated variants to multiple sclerosis, optimization of culture and transfection of several cell lines related to MS, and generation of library to analyze ~30 000 potential gene regulatory elements. Mentoring of four master students and three bachelor students.
- 03.2017-07.2024 University Medical Center Groningen, Groningen. - PhD Student**
Promoters: Dr. Iris Jonkers and Dr. Sebo Withoff
Title: Molecular Mapping of Celiac Disease: a Journey from Biomarkers to Tissues.
Goals: To study celiac disease in different tissue contexts to better understand the role of different cell-types on the pathology of the disease using state-of-art techniques, such as single-cell sequencing of transcriptome and epigenome.
Achievements: Identification of potential biomarkers for CeD. Developing methods to process, store and dissociate biopsies from gut. Design and implementation of multiple antibody panels for the analysis of cell surface markers by flow cytometry. Preparation and analysis of bulk-RNA, and single-cell RNA and ATAC seq libraries. Divulcation of results in congresses, international meetings, and scientific journals. Writing of grants. Mentoring of one master student.
- 01.2016-10.2016 Vitagenesis SA de CV, Monterrey - Head of Bioprocesses Laboratory**
Responsible for coordinating and supervising training, services and assays developed, as well as the R&D projects for the company.
Achievements: Training of five new recruits. Coordination in the conception, development and implementation of detection methods of enzymes, hemagglutination assays, primer walking sequencing, qPCR design for identification of microorganisms; improvement of molecular identification methods; coordination in the submission of four grants to CONACYT.
- 01.2015-05.2015 Vitagenesis SA de CV, Monterrey - Research Assistant of Bioprocesses Laboratory**
Technical responsible of genetic engineering and bioinformatics, as well as the provisional coordination of R&D projects.
Achievements: Optimizing the design of genetic constructs; implementation of new methods for yeast identification; participation in the submission of two projects to CONACYT and private entities.
- 03.2014-07.2014 Vector laboratory, Dept. of Neurology, University of Göttingen, Göttingen - Internship**
Project: Cytotoxicity determination of fluorescent proteins and Construction of AAV for inducible expression/repression on neuron cells using a Tet System.
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Techniques: *In silico* and experimental genetic engineering, transformation by electroporation, transduction by adeno-associated virus vectors (AAV), handling of mouse primary cortical neuronal cultures, fluorescent microscopy, digital image processing and analysis.

08.2012-02.2013 **Gene and Cell Therapy Laboratory, Center for Research and Development in Health Sciences (CIDICS), UANL, Monterrey, Mexico - Internship**
Project: Design and construction of adenoviral vectors for transduction of tumor cell lines.
Techniques: *In silico* and experimental genetic engineering; tissue and cell culture.

Education

03.2017-07.2024 **University Medical Center Groningen, Groningen.**
PhD

Promotors: Dr. Iris Jonkers and Dr. Sebo Withoff

Title: Molecular Mapping of Celiac Disease: a Journey from Biomarkers to Tissues.

08.2009-12.2014 **School of Biological Sciences, Universidad Autónoma de Nuevo León (UANL), Mexico**
Graduate in Genomic Biotechnology

Specialization in Genetic Engineering, Bioinformatics, Systems Biology, Bio-business, Development and Technology Transfer, Industrial and Agricultural Biotechnology.

Top 1 GPA (Overall GPA: 94.3/100).

08.2013-07.2014 **Georg-August Universität Göttingen, Germany**

Academic exchange program DAAD in agreement with the UANL

Master level subjects: General and Applied Microbiology, Molecular Biology and Agricultural Biotechnology, Reproductive Biotechnology and Genome Analysis, Application of Markers in Plant Breeding.

Publications

*First author publications papers indicated by **

1. Mooiweer, J., Anwar, S., Ribeiro, N., **Ramírez Sánchez, A. D.**, Simpson, H., Smits, E., Moerkens, R. A. M., Gelderloos-Arends, J., Modderman, R., Gonera, G., Wessels, M., Wijmenga, C., Withoff, S., & Jonkers, I. H. (2026). Autologous biopsy-derived co-culture platform for interrogation of intestinal epithelial-T cell crosstalk. *bioRxiv*. <https://doi.org/10.64898/2026.08.03.742484>
2. Moerkens, R., Mooiweer, J., Smits, E., Berg, M., **Ramírez-Sánchez, A. D.**, Modderman, R., ... & Withoff, S.# (2025). Gene expression profiling reveals enhanced nutrient and drug metabolism and maturation of hiPSC-derived intestine-on-chip relative to organoids and Transwells. *Stem Cell Reports*, 102715. DOI: 10.1016/j.stemcr.2025.102715
3. **Ramírez-Sánchez, A. D.***, Zühlke, S., Aguirre-Gamboa, R., Vochteloo, M., Franke, L., Lundin, K. E., ... & Jonkers, I. H.# (2025). Transcriptomics and eQTLs reveal inflammatory heterogeneity in the duodenal lining in coeliac disease. *Genes & Immunity*, 1-12. DOI: 10.1038/s41435-025-00356-0
4. Moerkens, R., Mooiweer, J., **Ramírez-Sánchez, A. D.**, Oelen, R., Franke, L., Wijmenga, C., ... & Withoff, S. (2024). An iPSC-derived small intestine-on-chip with self-organizing epithelial, mesenchymal and neural cells. *Cell Reports*, 43(7). DOI: 10.1016/j.celrep.2024.114247
5. **Ramirez-Sanchez, A. D.***, Chu, X., Modderman, R., Kooy-Winkelaar, Y., Koletzko, S., Korponay-Szabo, I. R., ... Jonkers I.# & Li, Y.# (2022). Single-cell RNA sequencing of peripheral blood mononuclear cells from pediatric coeliac disease patients suggests potential pre-seroconversion markers. *Frontiers in Immunology*, 13, 843086. DOI: 10.3389/fimmu.2022.843086
6. Uniken Venema, W. T., **Ramírez-Sánchez, A. D.***, Bigaeva, E., Withoff, S., Jonkers, I., McIntyre, R. E., ... & van der Wijst, M. G.# (2022). Gut mucosa dissociation protocols influence cell type proportions and single-cell gene expression levels. *Scientific Reports*, 12(1), 9897. DOI: 10.1038/s41598-022-13812-y
7. Bakker, O. B., **Ramírez-Sánchez, A. D.***, Borek, Z. A., de Klein, N., Li, Y., Modderman, R., ... & Jonkers, I. H.# (2021). Potential impact of celiac disease genetic risk factors on T cell receptor signaling in gluten-specific CD4+ T cells. *Scientific reports*, 11(1), 9252. DOI: 10.1038/s41598-021-86612-5

8. **Ramírez-Sánchez, A. D.***, Tan, I. L., Gonera-de Jong, B. C., Visschedijk, M. C., Jonkers, I., & Withoff, S.# (2020). Molecular biomarkers for celiac disease: Past, present and future. *International Journal of Molecular Sciences*, 21(22), 8528. DOI: 10.3390/ijms21228528

Scholarships/Awards

04.2026	Beca Joven Talento 2025, DiabetesCERO, España.
01.2026-present	Juan de la Cierva 2024, Agencia Estatal de Investigación, España.
03.2021-09.2021	Scholarship from Graduate School of Medical Sciences, UMCG, University of Groningen, The Netherlands.
03.2017-03.2021	Scholarship for post-graduate studies 2017, CONACyT-Gobierno del Estado de Nuevo León, México.
12.2014	Awarded Best Overall GPA of BS in Genomic Biotechnology, UANL, México.
12.2014	Awarded Best Overall GPA of BS in School of Biology, UANL, México.
12.2014	First Place of Biotechnology Award 2014: Project modality, UANL, México.
08.2013	Support Program University Mobility in North America, Europe and Asia-Pacific Cycle 2013, SEP, Mexico.
08.2013-07.2014	Scholarship for Academic exchange program DAAD (Germany) in agreement with the UANL, México.
01.2010-08.2014	Member of Institutional Program: University Talent Development, UANL, México.
08.2009-08.2013	Scholarship of Science Olympiad Program, Academia Mexicana de Ciencias, México.
07.2009	Bronze medal of 20th International Biology Olympiad, Tsukuba, Japan.
09.2008	Bronze medal of 2nd Iberoamerican Biology Olympiad, Rio de Janeiro, Brazil.

Knowledge and skills

Languages	Spanish (Native). English (TOEFL iBT 99/120) Full professional proficiency. German (B2-C1) Intermediate level. Dutch (A1) Basic level.
Bioinformatics / Dry Lab Skills	R: Data cleaning, Plotting, Analysis, and Genomic packages. Unix environment in HPC: Data cleaning and Bioinformatics workflows. Data management. Version control systems: Git (GitHub), Perforce. Omics analysis workflows: bulk and single-cell RNA-seq, spatial transcriptomics, alternative splicing, bulk and single-cell ATAC-seq, Ribo-seq, MPRA-like. Genomics analysis tools: Bedtools, VCFtools, PLINK. Genotype analysis and imputation. Flow-cytometry analysis: Kaluza Analysis, FlowJo. Use of biological databases (NCBI, EMBL, KEGG, SILVA, RDP, PDB). Basic programming: C#, Python, Java. Other bioinformatics tools: Staden Package, Mega7, ImageJ. Microsoft Office Suite (Word, Excel, PowerPoint), Adobe Suite (Illustrator, Acrobat, InDesign) and Affinity family (Designer).
Technical / Wet Lab Skills	Flow Cytometry: Design, Implementation, Analysis, and Interpretation (Conventional and Spectral Flow Cytometry; multicolor panels). Bulk and Single-Cell RNA and ATAC sequencing (10X Genomics platform). Ribo-seq analysis Tissue culture and Cell dissociation: experience with 3 primary cells, 10 immortal cell lines, and 3 types of tissues. - Good laboratory practices (ISO:17025, ISO:15189 standards). Molecular Biology: DNA/RNA/protein techniques (RT-qPCR, capillary electrophoresis, Western blot, etc.). Genetic Engineering: human cell lines and primary cells (viral and plasmid based, CRISPR-Cas9 gene editing), bacteria and yeast (plasmid based). Fluorescence Microscopy: Axio Scope, ZEISS. Analytical chemistry and biochemistry.

Congresses/Meetings

- 06.2026 **European Islet Study Group Conference 2026**, Barcelona
-Poster presentation and attendance
- 05.2026 **Ribored 2026**, Sant Feliu de Guíxols
-Oral presentation and attendance
- 04.2026 **XXXVIII Congreso de la Fundación Sociedad Española de Diabetes**, Sevilla
-Oral presentation and attendance
- 03.2026 **29th Asociación Española de Gastroenterología**,
-Poster presentation
- 10.2022 **19th International Celiac Disease Symposium**, Sorrento
-Poster presentation and attendance
- 05.2022 **K.G. Jebsen Coeliac Disease Research Centre Retreat 2022**, Oslo
-Oral presentation and attendance
- 01.2022 **27th PreventCD progress meeting**, Online
-Oral presentation and attendance
- 03.2021 **Accelerating Progress in Celiac Disease Workshop**, NIH, Online
-Attendance
- 09.2019 **18th International Celiac Disease Symposium**, Paris
-Poster presentation and attendance
- 06.2019 **K.G. Jebsen Coeliac Disease Research Centre Retreat 2019**, Oslo
-Oral presentation and attendance
- 02.2019 **20th PreventCD progress meeting**, Leiden
-Poster presentation and attendance
- 09.2018 **5th European Congress of Immunology**, Amsterdam
-Instructor in workshop of Big Data and attendance
- 02.2018 **K.G. Jebsen Coeliac Disease Research Centre Retreat 2018**, Oslo
-Poster presentation and attendance
- 02.2018 **19th PreventCD progress meeting**, Leiden
-Oral presentation and attendance
- 12.2017 **NVVI Annual Meeting 2017**, Amsterdam
-Poster presentation and attendance

Teaching activities

- 09.2024, 09.2023, 10.2022, 09.2021, 09.2020, 09.2019, 11.2018 **“from big data to personalized medicine”**, UMCG
-Wet-Lab instructor (Practicum: RNA sequencing)
-Dry-Lab instructor (Analysis of RNA sequencing)
-Lecturer (“RNA sequencing”, “Introduction to Big Data in Personalized Medicine”)
-Co-Organizer
- 09.2024, 09.2023, 09.2022 **Systems Biology and Medicine**, UMCG
-Invited Lecturer (“Non-coding Genome”, “The Human Genome and Genetic Variation”)
- 02.2024, 06.2023, 05.2022, 03.2020, 03.2019 **Big Data in Human Diseases**, UMCG
-Invited Lecturer and Tutor (“Big data in Immunology”, “single-cell RNA/ATAC sequencing in celiac disease”)
- 05.2022 **Laboratoriumspecialisten klinische genetica**, UMCG
-Invited Lecturer (“Non-coding Genome”)
- 11.2020 **Experimental techniques in research**, UMCG
-Invited Lecturer (“Lecture Experiences of a PhD student”)
- 12.2019 **Practical scRNA-seq analysis in R**, Practical training – UMCG for Netherlands Organ on Chip Initiative
-Instructor in analysis of single-cell RNA sequencing
- 09.2018 **Analyzing of Big Data (HW5)**, Workshop at 5th European Congress of Immunology
-Instructor in bulk/single-cell RNA sequencing