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Current position: Profesor de Tiempo Completo. Centro de Investigación en Dinámica Celular. IICBA. Universidad Autónoma del Estado de Morelos (UAEM).

Education

2018 - PhD (Doctor of Science). Program: Molecular and Cellular Biology.

Field: Cellular and Systems Immunology.

- Thesis: Modeling the activation response of neonatal and adult CD4⁺ T cells to T Cell Receptor (TCR) and Toll-like Receptor 5 (TLR5) signals.
- Universidad Autónoma del Estado de Morelos (UAEM). Cuernavaca, Morelos, México.
- Supervisors: Angélica Santana (UAEM, México) and Denis Thieffry (IBENS, France).

2013 - Master of Science. Program: Molecular and Cellular Biology.

Field: Computational Biology, Immunology.

- Thesis: A theoretical-experimental model of the NF- κ B pathway induced by TLR5 signals in neonatal and adult CD4 T cells.
- Universidad Autónoma del Estado de Morelos (UAEM). Cuernavaca, Morelos, México.
- Supervisor: Angélica Santana (UAEM, México). Collaboration with Mesuma Atakishiyeva (UAEM, México).

2011 - Bachelor of Science (Biochemistry and Molecular Biology).

- Field: Molecular Biology and Immunology
 - Thesis: Evaluation of the cross-regulation between CD43 and TLR pathways in human T cells.
 - Universidad Autónoma del Estado de Morelos (UAEM). Cuernavaca, Morelos, México.
 - Supervisor: Angélica Santana (UAEM).
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Research Internships

ECOLE NORMALE SUPERIEURE. IBENS. Computational Systems Biology Lab (Dr. Denis Thieffry). Paris, France. Up to one year in total.

- 2016 - Model merging in GINsim and probabilistic modelling with MaBoSS.
- 2015 - Dynamic analysis of logical models in GINsim and Boolnet.
- 2014 - Generation of 2 logical models (TCR and TLR5 pathways). ChIP-seq data analysis.
- 2013 - ChIP-seq, Microarray and RNA-seq data analysis. Cis regulatory sequences. Computational modeling of regulator networks.

AIX-MARSEILLE UNIVERSITY. TAGC (Dr. Salvatore Spicuglia). Marseille, France.

- 2016 - RNA-seq data analysis.
 - 2015 - ChIP-seq data analysis and chromatin states (ChormHMM).
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Publications (by relevance)

1. O. Rodríguez-Jorge, L. A. Kempis-Calanis, W. Abou-Jaoudé, D. Y. Gutiérrez-Reyna, C. Hernandez, O. Ramirez-Pliego, M. Thomas-Chollier, S. Spicuglia, M. A. Santana, D. Thieffry, "Cooperation between T cell receptor and Toll-like receptor 5 signaling for CD4+ T cell activation". *Science Signaling*. 12, eaar3641 (2019).
2. J. A. Sánchez-Villanueva, O. Rodríguez-Jorge, O. Ramírez-Pliego, G. Rosas-Salgado, W. Abou-Jaoudé, C. Hernandez, A. Naldi, D. Thieffry, M. A. Santana. Contribution of ROS and metabolic status to neonatal and adult CD8+T cell activation. *Plos One* (2019).
3. A. O. Galindo-Albarrán, O. H. López-Portales, D. Y. Gutiérrez-Reyna, O. Rodríguez-Jorge, J. A. Sánchez-Villanueva, O. Ramírez-Pliego, A. Bergon, B. Loriod, H. Holota, J. Imbert, A. Hernández-Mendoza, P. Ferrier, E. Carrillo-de Santa Pau, A. Valencia, S. Spicuglia, M. A. Santana. "CD8 T cells from human neonates are biased towards innate immunity (2016)". *Cell Reports*. 17, 2151–2160 (2016).
4. O. J. Suarez, C. J. Vega, E. N. Sánchez, A. E. González-Santiago, O. Rodríguez-Jorge, A. Y. Alanis, G. Chen, E. A. Hernández-Vargas. "Pinning Control for the p53-Mdm2 Network Dynamics Regulated by p14ARF". *Frontiers in Physiology* (2020).
5. O. Rodríguez-Jorge & M.A. Santana. Chapter: "Recent insights in T cell activation and differentiation". Book: Recent trends in Immunology (ISBN: 978-0-9962745-4-8). 2151–216 (2015).
6. J. Suarez, C. J. Vega, E. N. Sánchez, A. E. González-Santiago, O. Rodríguez-Jorge, A. Pardo-García. "Abnormal p53 degradation and apoptosis induction in p53-MDM2 network using pinning control strategy". RCTA (2018).

Pending publication

7. A. Bensussen, O. Rodríguez-Jorge, M. A. Santana, D. Thieffry. "Metabolic alterations impair CD8+ T cell differentiation and effector functions". Submitted
8. O. J. Suarez, C. J. Vega, E. N. Sánchez, A. E. González-Santiago, O. Rodríguez-Jorge, A. Y. Alanis, G. Chen, & E. A. Hernández-Vargas. Chapter: "Pinning control to regulate cellular response in cancer for the p53-Mdm2 genetic regulatory network". Springer (2022). Accepted.
9. L. A. Kempis-Calanis, O. Rodríguez-Jorge, F., D. Y. Gutiérrez-Reyna, S. Spicuglia, M. A. Santana. "Transcriptomic profile of neonatal CD4+ T cells". In preparation.

Research projects (Grants)

Own:

- 1) Role of the metabolic pathways on T cell activation: A focus on neonatal CD4+ and CD8+ T cells. CONACYT – Ciencia de frontera 2019 (1727995). Group project.

Collaborations:

- 2) Análisis de aprendizaje automático integrativo de datos clínicos, funcionales y ómicos para identificar biomarcadores tempranos de enfermedades neonatales: hacia una medicina de precisión para enterocolitis necrosante y sepsis. CONACYT – Ciencia de frontera 2019 (116325). Group project. INPer. Claudine Irles, PhD.
- 3) Respuesta inmune en el neonato prematuro y su relación con su crecimiento y salud. Caracterización genómica, epigenómica, funcional y clínica. CONACYT - Fronteras de la Ciencia (2016-01-1690). CIDC-UAEM. Angélica Santana, PhD.

Conferences

- Keystone Symposia. eSymposia: Maternal-Fetal Newborn Immunity (2021). Poster
- Congreso Nacional de Inmunología-SMI. (Monterrey-virtual, México, 2021). Poster.
- European Conference of Computational Biology (The Hague, Netherlands, 2016). Poster.
- BioNetVisA symposium (The Hague, Netherlands, 2016). Talk.

- Congreso Nacional de Bioquímica (Aguascalientes, México, 2016). Talk.
 - European Congress of Immunology (Vienna, Austria, 2015). Poster.
 - European Conference on Computational Biology (Strasbourg, France, 2014). Poster.
 - Logical modelling and analysis of biological networks symposium (Strasbourg, France, 2014). Poster.
 - Keystone Symposium: Emerging Topics in Immune System Plasticity (New Mexico, USA, 2013). Poster.
 - IMMUNOLOGY 2013 AAI Annual Meeting (Hawaii, USA, 2013). Poster.
 - 13th IUBMB Conference & 3rd Meetings the Signal Transduction and Oxidative Stress Branches of the Mexican Biochemistry Society (Mérida, México, 2011). Poster.
 - Congreso Nacional de Bioquímica (Tuxtla Gutiérrez, México, 2010). Poster.
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Additional courses

- Tutorial: Genome-wide association analysis and post-analytic interrogation with R (The Hague, 2016). During ECCB16.
 - ChIP-seq data analysis by Morgane Thomas-Chollier (Cuernavaca, 2015).
 - Advanced course on regulation of gene expression by Dr. Salvatore Spicuglia (Cuernavaca, 2015).
 - Tutorial: Computational Modelling of biological networks (Strasbourg, 2014). During ECCB14.
 - Regulation of gene expression in eukaryotic cells by Dr. Salvatore Spicuglia (Cuernavaca, 2014).
 - High-throughput data analysis for genomics by Dr. Stéphane Le Crom (Paris, 2013).
 - Computational analysis of cis-regulatory sequences by Dr. Morgane Thomas-Chollier (Paris, 2013).
 - Dynamical modelling of cellular regulatory networks by Denis Thieffry and Vincent Hakim (Paris, 2013).
 - Bioprocesses Modelling (Cuernavaca, 2013).
 - Cell Signaling Networks (Mexico City and Mérida, 2011).
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Teaching (2017-2022).

- Basic Biochemistry. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2022).
- Microbiota and Mucosal Immunity. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2022).
- Metabolic Biochemistry. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2020, 2021).
- Immunology and Nutrition. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2021)
- Organic Chemistry. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2021)
- Molecular biology and genetics. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2020, 2021).
- Mathematical – logical thinking. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2020, 2021).
- Molecular basis of Nutrition. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2020).
- General biochemistry. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2018, 2019).
- Biostatistics. Program: Bachelor of nutrition at UAEM (Axochiapan, México, 2019, 2020, 2021).
- Biostatistics. Program: Bachelor of nursing at UAEM (Axochiapan, México, 2019, 2020).
- General biochemistry. Program: Bachelor of nursing at UAEM (Axochiapan, México, 2018, 2019, 2021).
- Immunity in Defense and Disease. Program: Rural Surgeon-Physician at UAEM (Axochiapan, México, 2017, 2018).
- Energy and Homeostasis. Program: Rural Surgeon-Physician at UAEM (Axochiapan, México, 2017, 2018).
- Molecular Basis of Disease. Program: Rural Surgeon-Physician at UAEM (Axochiapan, México, 2017, 2018).

Other teaching experiences:

- Course: Computational modeling of immune networks, by Dr. Denis Thieffry at UAEM (Cuernavaca, México, 2022).
 - Assistant in course: Modelling of regulatory networks, by Dr. Denis Thieffry at UAEM (Cuernavaca, México, 2015).
 - Topic: T cell activation. Immunology course. Program: Bachelor of Science (Biochemistry and Molecular Biology) at UAEM (Cuernavaca, México, 2013).
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Teaching training courses (original name)

- Diplomado práctico de Formación Docente para la multimodalidad. UAEM (2020).
 - Diplomado Inferencia Estadística para el Análisis de Datos. SciData – UACM (2020).
 - Herramientas del Docente - Tutor para apoyar el rendimiento académico. ANUIES-UAEM (2020).
 - Metodología para la evaluación del impacto de la tutoría desde la percepción del estudiante. ANUIES - UAEM (2020).
 - Taller exprés para la pedagogía en línea. IDB - INDES (2020).
 - Curso de inmersión a la docencia en entornos virtuales durante la contingencia. e-UAEM (2020).
 - Curso de Tutoría Multimodal. e-UAEM (2019).
 - Herramientas del Docente - Tutor para apoyar el rendimiento académico. ANUIES-UAEM (2019).
 - Curso Herramientas didácticas para la enseñanza de las Ciencias de la Salud. EESAxo-UAEM (2019).
 - Curso de Tutoría Multimodal. e-UAEM (2018).
 - Diseño y Elaboración de Programas Operativos de Tutoría. UAEM (2018).
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