

## J. Alejandra Rodriguez

E-mail: rodri660@purdue.edu Phone: (+1) 765710820

### EDUCATION

---

#### **Interdisciplinary Life Sciences (PULSe) Ph.D. Student**

Purdue University, West Lafayette, Indiana, United States

**Aug 2022 - Present**

#### **Master in Biochemical Sciences (2 years).**

National University of Colombia, Bogotá Campus.

**Aug 2019 -Aug 2021**

#### **B.S Biology (5 years).**

National University of Colombia, Bogotá Campus.

**Feb 2013- Apr 2019**

### SCHOLARSHIPS AND HONORS

---

- Frederick N. Andrews Fellowship, Purdue University, Aug 2022-Aug 2024.
- Selected among the 650 most qualified young researchers from around the world to participate in the 72nd Lindau Nobel Laureate Meeting Medicine and Physiology, June 2023.
- PULSe Excellence in Research Award recipient for the Purdue University Interdisciplinary Life Science program, June 2023.
- Master's Scholarship at the National University of Colombia, Aug 2019-Aug 2021.
- The highest admission score in the graduate admission exam of the Science Biochemistry Master program at the National University of Colombia, Jul 2019.
- Degree in Biology among the best 5% of the graduating students in the year 2019, Apr 2019.

### RESEARCH EXPERIENCE

---

#### **Immunology and Infectious Diseases, Olson Lab| Ph.D. research student**

**Apr 2023 -Present**

Under the supervision of Prof. Dr. Matthew Olson

#### **Dept of Biological Science, Purdue University, United States.**

- Conducting a study on microbial interactions and immune host defense in an inflammatory disease study, with a particular focus on investigating the role of Granzymes and their interaction with the intestinal microbiota.

#### **Bioinformatics and Systems Biology, Lab| Master research student**

**Aug 2019 -Dec 2021**

Under the supervision of Prof. Dr. Andrés M. Pinzón V.

#### **Institute of Genetics, National University of Colombia, Colombia.**

- Conducted a study on the genetic variability and molecular interaction of the S proteins of SARS-COV2 and human ACE2. On focused on the study of SARS-CoV2 spike variants that emerged during the pandemic and evaluated their binding affinity with variants of ACE2.

#### **Wendt, Lab | Visiting Undergraduate Scholar**

**Aug 2018- Dec 2018**

Under the supervision of Prof. Dr. Michael K. Wendt.

#### **Dept of Medicinal Chemistry and Molecular Pharmacology, Purdue University, United States.**

- Assisted in the study of determining the mechanisms of FGFR1 expression and post-translational modifications. On focused on the glycosylation of FGFR1 and how that affects the ability of breast cancer cells to respond to FGF ligands.

#### **Laboratory of Molecular Phytopathology | Visiting Undergraduate Scholar**

**Jan 2017**

Under the supervision of Prof. Dr. Regine Kahmann and Dr. Mariana Schuster

#### **Max Planck Institute for Terrestrial Microbiology, Marburg, Germany.**

- Assisted in the study to establish the CRISPR-Cas9 system in *U. maydis* and apprentice in laboratory techniques.

#### **Cellular and Molecular Physiology, Lab | Research Student**

**Jan 2016- Aug 2018**

Under the supervision of Prof. Dr. Jean Paul Vernot.

#### **Faculty of Medicine, National University of Colombia, Colombia.**

- Conducted a study on the stromal molecular signals responsible for tumorigenesis in an aggressive breast cancer cell line (MDA-MB-231).

- Developing a new protocol for osteogenic, adipogenic, and chondrogenic differentiation in vitro in mesenchymal cells from bone marrow.

**ECOMIC Microbial ecology, Lab** | Research Student

**Jan 2014- Feb 2016**

Under the supervision of Prof. Dr. Jimena Sanchez.

**Faculty of Science, National University of Colombia, Colombia.**

- Conducted a study on extremophile microorganisms of the xerophytic region of La Tatacoa (Villavieja, Huila-Colombia). Determined the nitrogen fixation activity and solubilization of phosphate.
- Selected and purified bacterial strains resistant to UV radiation from the desert soil of Tatacoa, to catalog them as microorganisms that promote plant growth.

## **TEACHING ASSISTANT EXPERIENCE**

---

**Universidad Nacional de Colombia, Bogotá Campus, Colombia**

- **Biochemistry** **Aug 2020 – Jan 2021**  
Instructed Biochemistry to undergraduate students of Chemistry.
- **100025-Basic Chemistry Laboratory Techniques** **Aug 2019 – Aug 2021**  
Instructed Chemistry Laboratory Techniques to undergraduate students of Chemical Engineering.
- **2021146 - Biology of animal and human behavior** **August 2017- May 2018**  
Instructed Biology to undergrad students.

## **PUBLICATIONS AND PRESENTATIONS**

---

### **First author**

- **Rodríguez, J. A.**, Gonzalez, J., Arboleda-Bustos, C. E., Mendoza, N., Martinez, C., & Pinzon, A. (2022). *Computational modeling of the effect of five mutations on the structure of the ACE2 receptor and their correlation with infectivity and virulence of some emerged variants of SARS-CoV-2 suggests mechanisms of binding affinity dysregulation.* Chemico-biological interactions, 110244.

### **Book Chapters**

- Leal, M.; Méndez, Y.; Sánchez, J.; Infante, A.; **Rodríguez, J.**; Bolivar, H.; Miranda, L.; Mejía, L.; Ballesteros, D.; Tamayo, P.; Cepeda, M.; Ruíz E.; *Microorganismos en ambientes extremos: El desierto como caso de estudio. En: Casos de Estudio y Aplicaciones en Ecología Microbiana.* Universidad Nacional de Colombia, 2017.
- Villalba, L.; Sánchez, J.; Patiño, M.; Campos, S.; Villalba, C.; Delgadillo, N.; Montaña, S.; **Rodríguez, J.**; Espítia, N.; Ruíz, E. Biodeterioro y perspectivas de investigación. En: Leal, M. (Ed). *Ecología Microbiana: Los Microorganismos y algunas de sus aplicaciones.* Universidad Nacional de Colombia. 2017.

### **Symposium**

- Reyes, R.; Mejia, L.; Ballesteros, D.; Gonzales, L.; Miranda, L.; Bolivar, H.; Tamayo, P.; **Rodríguez, J.**; Torres, J.; Suarez, J.; Mendez, Y.; Leal, M.; Tovar, D.; Saavedra, F.; Ruiz, E.; and Sanchez, J.; *Extremophile microorganism of the xerophytic region of La Tatacoa (Villavieja, Huila-Colombia), with nitrogen fixation activity and solubilization of phosphate; and its possible applications astrobiology.* IAU Symposium 328: Living around active stars” held in Maresias, SP, Brazil, October 2016.

## **LANGUAGES**

---

- Spanish: Native. English: Advanced.