

Biographical Sketch

Alfredo A. González Cintrón

Current Status

PhD Candidate

Department of Biology

University of Puerto Rico, Rio Piedras Campus

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Education:

2008-2013 Bachelor of Science. Molecular Biology

2013-present University of Puerto Rico,

Rio Piedras Campus

2018 PhD Biology (expected)

Current Research Interests:

My main interests in this research consists in searching virulence agents such as *fimbriae*, pro-inflammatory factors and lysogenic virus in environmental *Escherichia coli* isolates from pristine areas of tropical rainforest in Puerto Rico. Studying bacteria that harbored virulence-encoding genes to colonize and control host defense represent a concern to public health. I'm interested in detecting these genes in the environment, because few studies are available as to the impact these have on public health.

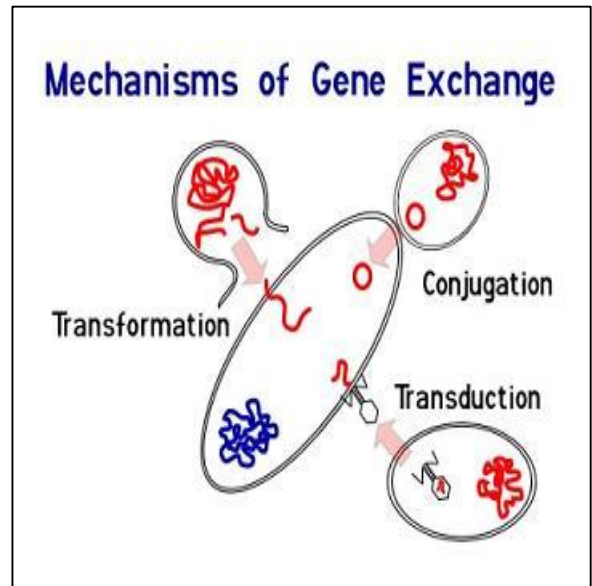
Research Experience:

January 2011-July 2011: Dra. Elvia Ackerman- San Juan ULTRA (Urban Long- Term Research Area)- CREST-CATEC

August 2011-May 2013 At UPR Research Center for Excellence in Renewable Energy. Proposal for a D.O.D. grant at the University of Puerto Rico. PI: Gary Toranzos Ph.D. Identification, isolation and adaptation of fresh and marine water microalgae in Puerto Rico, as possible biofuel sources.

2013-Present: Molecular Characterization of Non-Clinical Isolates of *Escherichia coli* as a Potential Gene Reservoir PI: Gary Toranzos Ph.D.

August 2014- January 2015: Examine the gene expression profile of *Vibrio fischeri* under different growth phases and conditions. In addition, conducting several works in a few cloning projects: PI: Zomary Flores-Cruz Ph.D.



2016- Present: Isolation and molecular characterization of *Enterococcus* spp. from environmental soil. PI: Gary Toranzos Ph.D., Anthony Rivera and Yadeliz Serrano

2016-present: Effect of emerging contaminants on indicators of fecal contamination. PI: Zomary Flores-Cruz Ph.D. and Guivert Michel.

Visiting Student at University of Tennessee Knoxville PI: Dr. Terry C. Hazen. November 2017-Present: Whole Genome Sequencing of Non-Clinical Isolates of *E.coli*. Training for library preparation and Illumina Myseq System.

Teaching Experience:

Graduate teaching assistant. Independent teaching of General Microbiology 2013-2014

Graduate teaching assistant. Independent teaching of General Biology 2014-2015

2013- present: Training and mentoring students in undergraduate research (BIOL 4990)

Honors & Awards:

Undergraduated Fellow for (Urban Long-Term Research Area) CREST-CATEC-(NSF) January 2011-July 2011

Department of Defense Fellowship for Center for Renewable Energy and Sustainability (CRES) August 2011-May 2013

Predocctoral NIH Research Initiative for Scientific Enhancement Fellowship (RISE) Program 2015-Present

Presentations at Local Meetings:

Gonzalez, A., Rivera-Perez, J.I., Davila, C., and Toranzos, G. "Microalgae-based biodiesel production: Possible in Puerto Rico? PRISM Annual Junior Tech Conference, University of Puerto Rico Campus of Carolina (2012)

Rivera, M., **Gonzalez, A** and Flores, Z. Study of gene expression under oxidative stress in *Vibrio fischeri*. PRISM Annual Junior Tech Conference, University of Puerto Rico, Rio Piedras Campus (2015)

Serrano, Y., **González, A.,** Williams, D., Hazen, T., and Toranzos, G. Characterization of *Enterococcus* spp. isolates from pristine areas in El Yunque Forest and the presence of virulence and resistance genes. 52th *Junior Technical Meeting (JTM)* and the 37th Puerto Rico Interdisciplinary Scientific Meeting (PRISM)

González, A., Williams, D., Hazen, T., and Toranzos, G. Whole-genome sequencing of environmental isolates of *Escherichia coli* characterization of virulence and resistance

genes 52th *Junior Technical Meeting (JTM)* and the 37th Puerto Rico Interdisciplinary Scientific Meeting (PRISM)

Presentations at National Meetings:

Davila, C., **Gonzalez, A.**, Sánchez, H and Toranzos, G. “Microalgae as a Possible Source of Biolipids in Puerto Rico” Health-Related Water Microbiology Symposium, Rotorua, New Zealand (2011)

López-Quintero, I.J., Mercado, B., Rivera-Perez, J. I., Cerón, M., Rosario, J., Erazo, A., Pierre,G., Derilus, D., Santiago-Rodriguez, T., **González, A.**, Barceló L. and Toranzos, G. A *Escherichia coli* Diversity In The Human Gut And This Genus As Tetracycline Resistance Reservoir ASM General Meeting, Denver, Colorado, (2013)

Santiago- Rodriguez, T. M., Patricio, A. R., Rivera, J. I., Coradin, M., **Gonzalez, A.**, Tirado, G., and Toranzos, G. A. Mesozoic era bacterial communication ASM General Meeting, Denver, Colorado, (2013)

López-Quintero, I.J., Mercado, B., Rivera-Perez, J. I., Cerón, M., Rosario, J., Erazo, A., Pierre,G., Derilus, D., Santiago-Rodriguez, T., **González, A.**, Barceló L. and Toranzos, G. A. Contradictions with using 16srRNA as an indicator of genomic diversity in antibiotic-resistant E.coli strains Health-Related Water Microbiology Symposium, Florianopolis, Brazil (2013)

González, A., Perea, J. and Toranzos, G. A. *Escherichia coli* populations in tropical soils: an Environmental Gene Reservoir? ASM General Meeting, New Orleans, Louisiana, (2015)

González, A., Perea, J.,Cano R. and Toranzos, G. A. Microbial Source Tracking Versus Human Fecal Source Tracking 18th International Symposium Health-Related Water Microbiology, Lisbon , Portugal (2015)

González, A., and Toranzos, G. A. Indicators of Microbial Quality of Waters: From D’Herelle to “What the Hell?” UNC Water Microbiology Conference, Water Institute of the University of North Carolina, Chapel Hill (2015)

González, A., Perea, J., Baerga A. and Toranzos, G. A. Tropical soil as a molecular toolbox for virulence factors Water Microbiology Coference, Chapel Hill, North Carolina, (2016)

González, A., Perea, J., Baerga A. and Toranzos, G. A. Prevalence of lysogens and virulence genes show that tropical soil environment as a gene reservoir ASM General Meeting, Boston, Massachusetts, (2016)

González, A., Perea, J.,and Toranzos, G. A Prophages Integrases As Specific Marker for Bacteriophages Identification ASM General Meeting, New Orleans,Louisiana (2017)

Michel, G., **González, A.**, Diaz, L.M, Flores, Z. Effect of emerging contaminants on indicators of fecal contamination ASM General Meeting, New Orleans, Louisiana (2017)

González, A., Serrano, Y., Williams, D., Hazen, T., and Toranzos, G. Broad host-range lysogenic enterophages isolated from soil and water from Puerto Rico: Possible role in evolution - ASM General Meeting, Atlanta, Georgia (2018)

Oral Presentations

González, A., Perea, J., Baerga A. and Toranzos, G. A. Prophages and Virulence Genes In Tropical Escherichia Coli Populations: It is Synonymous Of Diversity And Pathogenicity 18th International Symposium Health-Related Water Microbiology, Lisbon, Portugal (2015)

González, A., Perea, J., Baerga A. and Toranzos, G. A. Prevalence of virulence genes and prophages in tropical Escherichia coli populations. Fourth Student Research Symposium Puerto Rico Society of Microbiologist (2015)

González, A., Perea, J., Rivera J., and Toranzos, G. A. Bacteriophages Integrases as a Specific Molecular Marker for MST 5th Food and Environmental Virology conference, ISFEV, Kusatsu, Japan(2016)

Scholastic Performance

Science outreach:

Microbiology Student Chapter at University of Puerto Rico, Rio Piedras Campus

American Society for Microbiology

American Water Works Association

2016: Vice-President of the Microbiology Student Chapter of the University of Puerto Rico, Rio Piedras Campus

Skills

Laboratory: Aseptic techniques, sterilization and bacteriology procedures. Bacterial culture, Enumeration of coliform bacteria and viruses, Growth Curves, Bacteriophage Induction, Isolation of bacteriophages from environmental samples, Virus Precipitation and purification, DNA extraction from environmental samples, Isolation, purification and quantification of DNA, e.g. Thermo Scientific NanoDrop spectrophotometers, Agilent bioanalyzer and Invitrogen Qubit fluorometric quantitation, PCR, DNA Electrophoresis and Cloning.

Next Generation Sequencing: Trained for library preparation for Nextera XT DNA Library Preparation Kit and Illumina MySeq System.

Computational: Proficient in Microsoft Word, Power Point, Excel and Mendeley

Statistics: R (statistical software) and Primer 6.

Bioinformatics:

Primer design: Primer 3, NetPrimer.

Sequence analysis: CodonCodeAligner

Alignment tools: BLAST, ClustalW, CLC Main Workbench.

Phylogenetics: Mega4

Languages: English and Spanish.

Special Training:

December 24, 2017 Whole genome sequencing of bacterial genomes - tools and applications.

December 13,2017 CLC Genomics Workbench: Consultation Sessions and Transcriptomics (RNAseq) Workshop

January 4-5,2018 Joint Genome Institute Workshop: Integrated Microbial Genomes(IMG) & Microbiomes

Publications:

Santiago- Rodriguez, T. M., Patricio, A. R., Rivera, J. I., Coradin, M., **Gonzalez, A.**, Tirado, G., and Toranzos, G. A. (2014). luxS in bacteria isolated from 25- to 40- million- year- old amber. *FEMS microbiology letters*, 350(1), 117-124.

Book Chapters:

Rivera-Pérez, J. I., **González, A. A.**, & Toranzos, G. A. (2017). From evolutionary advantage to disease agents: forensic re-evaluation of host-microbe interactions and pathogenicity. *Microbiology spectrum*, 5(1).

González, A. A., Rivera-Pérez, J. I., & Toranzos, G. A. (2017). Forensic Approaches to Detect Possible Agents of Bioterror. *Microbiology spectrum*, 5(2).

Articles:

González, A. A. & Toranzos, G. A. (2018) Technology and the identification of possible biotreatments. *Infectious Disease Hub*