

# Daniela Tejada-Martinez

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## EDUCATION BACKGROUND

**PhD in Ecology and Evolution:** Doctorado en Ciencias Mención Ecología y Evolución.  
Universidad Austral de Chile, Valdivia-Chile.

Thesis Project: Cancer and ageing: an evolutionary story told by the tumor suppressor genes in big and long lived species.

Study period: 2015 – 2020

### **Bachelor degree in Biology**

Pontificia Universidad Javeriana

Bogotá - Colombia

Thesis Project: Phylogeography of Puma (*Puma concolor*) in the Neotropics.

Study period: 2007 – 2014

## RESEARCH AFFILIATIONS

### **Postdoctoral associate**

Department of Anthropology

Tucci lab | Human Evolutionary Genomics Laboratory

Yale University

Period: Aug 2022 - Present

<https://serenatucci.wordpress.com>

### **Postdoctoral researcher**

Department of Biochemistry and Molecular Biology

Thomas Jefferson University and SKMC

Period: Oct 2020 - Aug 2022

<https://marcotrizzino.wordpress.com>

### **Honorary Research Assistant**

Integrative Genomics of Ageing Group

Institute of Ageing and Chronic Disease

University of Liverpool

Period: 2018 - 2021

<http://pcwww.liv.ac.uk/~aging/>

## **PhD student**

OPAZOLAB, Understanding the evolution of vertebrate genomes  
Instituto de Ciencias Ambientales y Evolutivas  
Universidad Austral de Chile  
Period: 2017 - 2020  
[http://opazolab.cl/Juan\\_C.\\_Opazo/Home.html](http://opazolab.cl/Juan_C._Opazo/Home.html)

## **INTERNSHIPS**

**Integrative Genomics of Ageing Group**, lead by Dr. Pedro de Magalhães  
University of Liverpool  
United Kingdom  
Internship period: from March 2018 to January 2019

## **PRINCIPAL SKILLS**

**Research:** Ability to write scientific manuscripts, apply to grant proposals, experience working remotely and join research collaborations.

**Bioinformatics:** Knowledge in Bash (Unix shell), high performance computers cluster environments, R, python and advanced biostatistics.

**Molecular evolution:** NGS-analysis and gene regulation (RNAseq, Chip-seq, ATACseq, HiChip-seq) in large-scale genomic data, genome assembly and annotation, comparative genomics, natural selection analysis through codon-based models of evolution (dN/dS), phylogenetics, homology, gene family evolution, functional annotation and population genetics.

**Lab skills:** Stem cell culture, genomics (RNAseq, Chip-seq, ATACseq), sequencing library preparation and sterile techniques.

**Language:** Spanish native and fluent in English.

## PUBLICATIONS

**Tejada-Martinez, D.\***, Avelar, R. A.\*, Lopes, I., Zhang, B., Novoa, G., de Magalhães, J. P., & Trizzino, M. (2022). Positive selection and enhancer evolution shaped lifespan and body mass in great apes. *Molecular biology and evolution*, 39(2), msab369

\*co-first authors

Barnada, S. M., Isopi, A., **Tejada-Martinez, D.**, Goubert, C., Patoori, S., Pagliaroli, L., Tracewell, M., & Trizzino, M. (2022). Genomic features underlie the co-option of SVA transposons as cis-regulatory elements in human pluripotent stem cells. *PLoS Genetics* 18(6):e1010225

**Tejada-Martinez, D.**, de Magalhães, J. P., & Opazo, J. C. (2021). Positive selection and gene duplications in tumour suppressor genes reveal clues about how cetaceans resist cancer. *Proceedings of the Royal Society B*, 288(1945), 20202592.

Edogbanya, J.\*, **Tejada-Martinez, D.\***, Jones, N. J., Jaiswal, A., Bell, S., Cordeiro, R., ... & de Magalhães, J. P. (2021). Evolution, structure and emerging roles of C10RF112 in DNA replication, DNA damage responses, and cancer. *Cellular and Molecular Life Sciences*, 1-12.

\*co-first authors

Orkin, J.D., Montague, M.J., **Tejada-Martinez, D.**, de Manuel, M., Del Campo, J., Hernandez, S.C., Di Fiore, A., Fontserè, C., Hodgson, J.A., Janiak, M.C, Kuderna, L.F, Lizanob, E., Martino, M.P, Niimurap, Y., Perryk, G.H., Valverdeo, C.S., Tanga, J., Warren, W.C., de Magalhães, J.P., Kawamuras, S., Marquès-Bonet, T., Krawetz, R., & Melin A.D. (2021). The genomics of ecological flexibility, large brains, and long lives in capuchin monkeys revealed with fecalFACS. *Proceedings of the National Academy of Sciences*, 118(7).

Avelar, R.A., Ortega, J.G., Tacutu, R., Tyler, E.J., Bennett, D., Binetti, P., Budovsky, A., Chatsirisupachai, K., Johnson, E., Murray, A. and Shields, S., **Tejada-Martinez, D.**, Thornton, D., Fraifeld, V.E., Bishop, C.L., de Magalhães, J.P. (2020). A Multidimensional Systems Biology Analysis of Cellular Senescence in Ageing and Disease. *Genome Biology* 21, 1-22.

**Tejada-Martinez, D.**, López, D. N., Bonta, C. C., Sepúlveda, R. D., & Valdivia, N. (2016). Positive and negative effects of mesograzers on early-colonizing species in an intertidal rocky-shore community. *Ecology and Evolution* 6 (16), 5761-5770.

Gaitán-Espitia, J. D., Solano-Iguaran, J. J., **Tejada-Martinez, D.**, & Quintero-Galvis, J. F. (2016). Mitogenomics of electric rays: evolutionary considerations within Torpediniformes (Batoidea; Chondrichthyes). *Zoological Journal of the Linnean Society* 178 (2), 257-266.

Ruiz-García, M., Mejía, D., Escobar-Armel, P., **Tejada-Martínez, D.**, & Shostell, J. M. (2013). Molecular Identification and Historic Demography of the Marine Tucuxi (*Sotalia guianensis*) at the Amazon River's Mouth by Means of Mitochondrial Control Region Gene Sequences and Implications for Conservation. *Diversity* 5 (4), 703-723.

## TRAININGS

### **Invited speaker - Workshop in cancer mosaic, traits and adaptation**

Evolution of Tumor Suppressor Genes in Cetaceans

Montpellier-France

Dates: August/2018

### **Workshop on Molecular Evolution**

Marine Biological Laboratory (MBL), Woods Hole, MA

United States of America

Dates: July 19-29/2018

### **Scottish Ecology Ageing Research Group meeting 2018**

Ashworth Labs

University of Edinburgh

Dates: June/2018

### **Workshop - GeneWeaver 2.0: A platform for cross-species integration of heterogeneous functional genomics data.**

EMBL Heidelberg, Germany.

Dates: October 24/2017

### **Intensive short course - Genomics Applied to Selective Breeding**

São Paulo State University, Jaboticabal, SP, Brasil and Universidad de Chile Santiago de Chile.

Dates: November 28 - December 2/2015

### **Intensive short course on Phylogenetic Comparative Methods in R.**

University of Massachusetts Boston and Universidad Austral de Chile, Valdivia - Chile.

Dates: December 14- 16/2015

### **Satellite marking as a tool for ecological studies in Chondrichthyans.**

Stanford University and Universidad ICESI

Cali-Colombia.

Dates: August 18-20/2010

## CONFERENCES

### **Virtual Symposium on Phylogenomics and Comparative Genomics**

Dates: July 17-18/ 2020

### **Mechanisms of Aging**

Genes under positive selection in the capuchin monkeys (*Cebus imitator*) provide new insight into the evolution of long lives.

Poster

Virtual conference.

Dates: September 22–25/ 2020

### **Second Joint Conference on Evolutionary Biology**

Natural selection in Tumor Suppressor Genes: an evolutionary approach in the study of cancer resistance in Cetaceans. Symposium S-68 The ecology and evolution of cancer.

Poster

Montpellier- France.

Dates: August 19-23/2018

### **EMBL Conference: Mammalian Genetics and Genomics: From Molecular Mechanisms to Translational Applications**

The evolutionary origin of the Cavin tumor suppressor gene family and differential gene retention in therian mammals.

Poster

EMBL Heidelberg, Germany.

Dates: October 24 -27/2017.

### **XVI Latin American Congress of Marine Sciences - COLACMAR and XVI National Seminar of Marine Sciences and Technologies SENALMAR.**

Top down under: Functional consequences of the over-exploitation of consumers for the sessile assembly of a marine rocky-shore.

Poster

Santa Marta, Colombia.

Dates: October 18-22/2015.

### **XXI Colombian Congress and VI International Congress of Human Genetics.**

Santa Marta-Colombia.

Dates: October 10-14/2012

### **XI Research Congress**

Pontificia Universidad Javeriana.

Bogotá, Colombia.

Dates: September 11-15/2011

**II Colombian Conference on Chondrichthyans** (II Encuentro Colombiano sobre condricthios)  
Characterization of shark species for Colombian South Caribbean and first report of shark species for Isla Fuerte, Bolívar.  
Universidad ICESI  
Cali- Colombia.  
Dates: August 21-24/2010

## GRANTS

**Scholarship from the International Mammalian Genome Society** to participate in the EMBL Conference: Mammalian Genetics and Genomics: From Molecular Mechanisms to Translational Applications. Heidelberg - Germany. 2017

**Scholarship from the SSE-Society for the Study of Evolution** to join the Second Joint Conference on Evolutionary Biology. Montpellier - France. 2018

**National Doctoral Scholarships.** National Commission for Scientific and Technological Research CONICYT (Becas de Doctorado Nacional, Comisión Nacional de Investigación Científica y Tecnológica CONICYT).  
Ministry of Education Government of Chile. 2017-2019

**Doctoral Scholarship.** Partnership Programme for Education and Training (PAEC), Department of Human Development, Education and Employment of the Organisation of American States (OAS) and the National Commission for Scientific and Technological Research of Chile (CONICYT). 2017

**Doctoral Scholarship.**  
Teaching assistantship MECESUP for the insertion of foreign PhD students in National Programs. Performance Agreement AUS 1203. Ministry of Education - Government of Chile. 2015-2016

## TEACHING ACTIVITIES

### Mentor

Dr. Robert Pavlica Authentic Science Research Program at Byram Hills  
Byram Hills High School in Armonk, New York, USA  
<https://www.byramhills.org/academics/academic-departments/science/science-research/information-for-mentors>  
March 2021-present

### Programing languages R and linux for data science

Laboratory members and colleges  
March 2021- present

## **Teacher assistant:**

2016. August – December. Genetics (CAEV 113). Institute of Environmental and Evolutionary Sciences. Universidad Austral de Chile. Valdivia-Chile.

2016. March – July. Advanced biostatistics (CAEV 113). Institute of Environmental and Evolutionary Sciences. Universidad Austral de Chile. Valdivia-Chile.

2015. August – December. Genetics (CAEV 113). Institute of Environmental and Evolutionary Sciences. Universidad Austral de Chile. Valdivia-Chile.

2015. March – July. Genetics and evolution (CAEV 116). Institute of Environmental and Evolutionary Sciences. Universidad Austral de Chile. Valdivia-Chile.

2012 – 2013. Genetics for biology. Pontificia Universidad Javeriana. Bogotá-Colombia, 2013.

2011 July - December. Coastal zones and aquatic ecosystems. Pontificia Universidad Javeriana. Bogotá-Colombia, 2013

## **OUTREACHING**

### **Seminar - Introduction to R for DATA SCIENCE**

The Jefferson Postdoctoral Association (JPA) - Technical Skills Seminar Series (TSSS)  
May 20th, 2021

**Drug Discovery News (DNN):** Focus Feature: Researchers collect critters to unlock cancer secrets

<https://www.drugdiscoverynews.com/focus-feature-researchers-collect-critters-to-unlock-cancer-secrets-15177>

June 1, 2021

**Cetacean sessions:** How cetaceans resist cancer

[https://www.crowdcast.io/e/cetacean-session-5?utm\\_source=profile&utm\\_medium=profile\\_web&utm\\_campaign=profile](https://www.crowdcast.io/e/cetacean-session-5?utm_source=profile&utm_medium=profile_web&utm_campaign=profile)

May 27th, 2021

**CNN:** How do whales defy the odds of getting cancer? The answer is in their genes, new study says

<https://www.cnn.com/2021/03/05/us/whales-dolphins-cancer-resistance-study-scn-trnd/index.html>

March 5th, 2021

**NewScientist:** Whales and dolphins can resist cancer and their DNA reveals why

<https://www.newscientist.com/article/2268865-whales-and-dolphins-can-resist-cancer-and-their-dna-reveals-why/#ixzz6xQBN3FqW>

February 24th, 2021

**NATGEO en español:** Descubren los genes que protegen a las ballenas de tumores cancerígenos y alargan su vida

[https://www.ngenespanol.com/animales/descubren-los-genes-que-protegen-a-las-ballenas-de-tumores-cancerigenos-y-alargan-su-vida/?fbclid=IwAR3SGJbRXL1XW6\\_s5om3-v3\]xr\\_P7mddXIP3djS4aLC4vTQvUUmQUlxTTsw](https://www.ngenespanol.com/animales/descubren-los-genes-que-protegen-a-las-ballenas-de-tumores-cancerigenos-y-alargan-su-vida/?fbclid=IwAR3SGJbRXL1XW6_s5om3-v3]xr_P7mddXIP3djS4aLC4vTQvUUmQUlxTTsw)

February 25th, 2021

**LUN:** Biólogos de la Universidad Austral analizaron genes que protegen del cáncer a las ballenas

[https://www.lun.com/Pages/NewsDetail.aspx?dt=2021-03-03&PaginaId=10&bodyid=0&fbclid=IwAR236mhWfib7l\\_fsB1RI-vCBKD5CJTfr08V97\]Cnwe00duWa4YPLgagTBsc](https://www.lun.com/Pages/NewsDetail.aspx?dt=2021-03-03&PaginaId=10&bodyid=0&fbclid=IwAR236mhWfib7l_fsB1RI-vCBKD5CJTfr08V97]Cnwe00duWa4YPLgagTBsc)

March 3rd, 2021

**Ciencia en Chile:** Cetáceos y sus mecanismos de represión contra el cáncer.

<http://www.cienciaenchile.cl/cetaceos-y-sus-mecanismos-de-supresion-contra-el-cancer/>

June 22nd, 2020