Fecha del CVA	12/10/2024

Parte A. DATOS PERSONALES

Nombre	Rafael		
Apellidos	Zardoya San Sebastián		
Sexo	Hombre	Fecha de Nacimiento	14/12/1966
DNI/NIE/Pasaporte	29144932e		
URL Web	zardoyalab.com		
Dirección Email	rafaz@mncn.csic.es		
Open Researcher and Contributor ID (ORCID)	0000-0001-6212-9502		

A.1. Situación profesional actual

Puesto	Director del Museo Nacional de Ciencias Naturales		
Fecha inicio	2021		
Organismo / Institución	Consejo Superior de Investigaciones Científicas		
Departamento / Centro	Biodiversidad y Biología Evolutiva / Museo Nacional de Ciencias Naturales		
País		Teléfono	
Palabras clave	Biología vegetal, animal y ecología		

A.2. Situación profesional anterior (incluye interrupciones en la carrera investigadora - indicar meses totales, según texto convocatoria-)

Periodo	Puesto / Institución / País
2008 - 2012	Coordinador del Área de Recursos Naturales / Consejo Superior de Investigaciones Científicas
2005 - 2008	Investigador Científico / Consejo Superior de Investigaciones Científicas
2000 - 2005	Científico Titular / Consejo Superior de Investigaciones Científicas
2008 -	Profesor de Investigación / Consejo Superior de Investigaciones Científicas

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Programa Oficial de Doctorado en Bioquímica y Biología Molecular	Universidad Complutense de Madrid	1994
Master Universitario en Biotecnología	Universidad Autónoma de Madrid	1993
Licenciado en Ciencias Biológicas Especialidad Bioquímica	Universidad Autónoma de Madrid	1989

Parte B. RESUMEN DEL CV

Biosketch

In 2000, I obtained a tenured position in the National Museum of Natural Sciences in Madrid (Spain) and established an independent research group. Since then, I have led regularly the work of a team of 2-3 graduate students and one postdoc in intervals of three years. During these years, I have obtained continuous competitive funding as PI, mostly from the Spanish National Science Foundation. In total, I have been awarded >2,4M euros as PI. I have been the advisor of 12 PhDs. In 2008, I promoted to Research Professor. At that point, I intensified my participation in management and science policy committees. Between 2008-2012, I was elected Coordinator of the Natural Resources Area of the CSIC. During that appointment, I coordinated the ERIC of the ESFRI LifeWatch and the establishment of its headquarters in Spain. For several years, I was President of the Spanish Committee of the International Union of Biological Sciences, and member of the BioGenesis (now EvolvES) committee of DIVERSITAS

(now Future Earth). In 2012, I returned to active research and in 2019, I became elected member of the Organismic & Evolutionary Biology section of the Academia Europaea. Since 2021, member of the Scientific Council of the Fundación Gadea. Since 2021, Director of the Museo Nacional de Ciencias Naturales. See list of publications at https://scholar.google.com/citations?user=3Lf6I5MAAAAJ&hl=en

Research interests

My primary interest has always been to gain further insights on the evolutionary processes and mechanisms underpinning the origin and maintenance of biological diversity. This has implied a multidisciplinary approach integrating my expertise in molecular systematics and comparative genomics with the expertise in palaeontology, morphology, and ecology of my principal collaborators. Initially, I focused my attention on fish and amphibians but since I started my own research group, my primary model system has been the gastropods. I have studied evolutionary processes mostly at two different taxonomic levels: species radiations (e.g., Mesoamerican cichlids or Cabo Verde cone snails) and major divergences of animal lineages (e.g., origin and diversification of terrestrial vertebrates or the phylogeny of gastropods). Essentially, in our approach (1) a robust phylogeny of the group is reconstructed using probabilistic methods, (2) natural history (ecological, behavioural, spatial, morphological, developmental, biochemical) traits are mapped onto the phylogeny, and (3) evolutionary processes are inferred through the comparative method (e.g., ancestral character state reconstruction, changes in net diversification rates through time, positive selection analyses).

Back to my PhD, I was one of the first able to sequence a complete animal mitochondrial genome, and I have been using this molecule throughout my career to reconstruct robust phylogenies. In 2012, I started using high-throughput sequencing techniques to (1) obtain nuclear markers for reconstructing deep phylogenetic relationships of gastropods; and (2) open a new research line into venomics. I am currently embarked in comparing the venom repertoires of cone snails within a phylogenetic framework using a transcriptomic approach as well as on the sequencing of chromosomal-level reference genomes of cone snails to understand the genomic basis of conotoxin diversity. During these years, I have run in parallel a rather fruitful research line investigating phylogenetic limitations, trying to understand gene family evolution, and developing appropriate (highly used) software (Prottest, TranslatorX, TRUFA).

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con “peer review” y conferencias

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

1. **Artículo científico**. Rondón JJ; Pisarenco VA; Pardos-Blas JR; Sánchez-Gracia A; Zardoya R; Rozas J. 2024. Comparative genomic analysis of chemosensory-related gene families in gastropods. Molecular Phylogenetics and Evolution. 192, pp.107986.
2. **Artículo científico**. Abalde, S.; Crocetta, F.; Tenorio, M.J.; et al; Zardoya, R,. 2023. Hidden species diversity and mito-nuclear discordance within the Mediterranean cone snail, Lautoconus ventricosus. Molecular Phylogenetics and Evolution. 107838.
3. **Artículo científico**. Pardos-Blas, J.R.; Irisarri, I.; Abalde, S.; Afonso, C.M.L:; Tenorio, M.J.; Zardoya, R.2021. The genome of the venomous snail Lautoconus ventricosus sheds light on the origin of conotoxin diversity. Gigascience. 10, pp.giab037.
4. **Artículo científico**. Irisarri, I.; Uribe, J.E.; Eernisse, D.J.; Zardoya, R.2020. A mitogenomic phylogeny of chitons (Mollusca: Polyplacophora). BMC Evolutionary Biology. 20, pp.1-15.
5. **Artículo científico**. Uribe, J.E.; Irisarri, I.; Templado, J.; Zardoya, R.2019. New patellogastropod mitogenomes help counteracting long-branch attraction in the deep phylogeny of gastropod mollusks. Molecular Phylogenetics and Evolution. 133, pp.12-23.

6 **Artículo científico**. Abalde, S; Tenorio, MJ; Afonso, CML; Zardoya, R. 2018. Conotoxin Diversity in Chelyconus ermineus (Born, 1778) and the Convergent Origin of Piscivory in the Atlantic and Indo-Pacific Cones. Genome Biology and Evolution. 10, pp.2643-2662.

7 **Artículo científico**. Abalde S; Tenorio MJ; Afonso CML; Uribe JE; Echeverry AM; Zardoya R. 2017. Phylogenetic relationships of cone snails endemic to Cabo Verde based on mitochondrial genomes. BMC Evolutionary Biology. 17, pp.231.

8 **Artículo científico**. Uribe JE; Zardoya R. 2017. Revisiting the phylogeny of Cephalopoda using complete mitochondrial genomes. Journal of Molluscan Studies. pp.doi:10.1093/mollus/eyw052.

9 **Artículo científico**. Osca, David; Templado, Jose; Zardoya, Rafael.2015. Caenogastropod mitogenomics.Molecular Phylogenetics and Evolution.Academic Press INC Elsevier Science,. 93, pp.118-128.

10 **Artículo científico**. Abascal, F.; Irisarri, I.; Zardoya, R.2014. Diversity and evolution of membrane intrinsic proteins. Biochimica et Biophysica Acta - General Subjects. 1840-5, pp.1468-1481.

C.3. Proyectos o líneas de investigación

1 **Proyecto**. Evolucion adaptativa en radiaciones insulares de conos (Gastropoda: Conidae) usando datos de genomas completos de alta calidad PID2022-138477NB-C21. Ministerio de Ciencia e Innovación. (Museo Nacional de Ciencias Naturales). 2023-2027. 243.750 €.

2 **Proyecto**. Genómica de la adaptación en radiaciones evoutivas PID2019-103947GB-C22. Ministerio de Ciencia e Innovación. Rafael Zardoya San Sebastián. (Museo Nacional de Ciencias Naturales). 2020-2022. 222.640 €.

3 **Proyecto**. Red temática en genómica de la adaptación CGL2017-90681-REDT. Ministerio de Ciencia e Innovación.y Universidades. Fernando González Candelas. (Universitat de València). 2018-2020. 13.000 €.

4 **Proyecto**. Genómica comparada y de la adaptación en el estudio de la radiación en Islas Macaronésicas: los caracoles marinos Conus de Cabo Verde y sus conotoxinas como sistema modelo CGL2016-75255-C2-1-P. Ministerio de Economia y Competitividad. Zardoya R. (Museo Nacional de Ciencias Naturales). 2017-2019. 157.000 €.

5 **Proyecto**. Red Temática en genómica de la adaptación CGL2015-71726-REDT. Rozas J. (Universitat de Barcelona). 2016-2018. 40.000 €.

6 **Proyecto**. Comprendiendo la base molecular de las radiaciones en islas: estudio evolutivo de las conotoxinas en los caracoles marinos Africonus de Cabo Verde mediante transcriptomica CGL2013-45211-C2-2-P. Ministerio de Ciencia e Innovación y Universidades. Rafael Zardoya San Sebastián. (Museo Nacional de Ciencias Naturales). 2014-2016. 130.000 €.