CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

CV date	30/01/2024

Part A. PERSONAL INFORMATION

First name	MANUEL	
Family name	SOTO	
e-mail	manu.soto@ehu.eus	URL Web: www.ehu.eus/pie
Open Research and Contributor ID (ORCID)(*)		orcid.org/0000-0002-4541-8182

A.1. Current position

Position	(1) FULL PROFESSOR IN CELL BIOLOGY (2) DEPUTY DIRECTOR PLENTZIA MARINE STATION		
Initial date	(1) 18/10/2011 (2) 20/12/2012		
Institution	UNIVERSITY OF THE BASQUE COUNTRY		
Departament/Center	ZOOLOGY AND ANIMAL CELL BIOLOGY		
Country	SPAIN	Teleph. number	94-6015512
Key words	Metals, Nanoparticles, microplastics, antibiotics, biological effects, biological complexity, molecular-cell-tissue levels, biomarkers, ecotoxicology		

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciature in Biology	UNIVERSITY OF THE BASQUE COUNTRY	1988
PhD International	UNIVERSITY OF THE BASQUE COUNTRY	1995

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

Manuel SOTO (male) Professor of Cell Biology (UPV/ EHU, 2011). Deputy Director of Research Centre for Experimental Marine Biology and Biotechnology (Plentzia Marine Station) in the University of the Basque Country (2012-). Researcher in the Consolidated Research Group *Cell Biology in Environmental Toxicology (CBET)*. The CBET group develops since 1983 research and teaching activities within environmental toxicology. Pre and postdoctoral research studies in: Univ of Wales (Aberystwyth), Univ Innsbruck (Austria), Univ Azores (Portugal) and University of Wales (Cardiff). He has supervised 7 PhDs and 3 in progress. Interests on the development and application of biomarkers of effect against exposure to metals in aquatic and terrestrial organisms (earthworms, molluscs, polychaetes, fishes), cellular localization and quantification of metal ions, molecular probes in target cellular compartments, and the transit of metals (aqueous forms, massive forms and nanoparticles), plastics and other contaminants. Responsible of the stranced cetaceans network of the Basque Country. >125 papers and book chapters (>85% in Q1; H= Index= 32), and >300 contributions at national and international conferences (regular presentations and invited talks). PI of research projects funded by the Spanish Ministry of Education, Economy, Competitivity, University of the Basque Country, Basque Government (Saiotek & Etortek Programs), and contracts with municipalities, state and local environmental agencies and private companies (foreign and local). He has participated for the past 15 years of uninterrupted way in European research projects VI, VII FP, H2020, H2030. Serves as evaluator Evaluation Agencies Research Projects Spanish, Portuguese, UK and Argentina, Founding Member of the Latin American Society of Environmental Contamination and Toxicology (SICTA), and member of

the board since 2003 and editor of the journal and SICTA website. Usual referee for more than 30 Scientific Journal. Previous activities: Vicedean of the Faculty of Science and Technology (2007-2012), Coordinator of the Master International Marine Environment and Resources (2012-), Member of the Committee of the Commission of Ethics for Animal Welfare (2009-2012), Member of the Committee on Undergraduate Studies of Biology (2010-2013). Deputy Director Plentzia Marine Station (University of the Basque Country) (2012-).

Part C. RELEVANT MERITS

C.1. Publications *(see instructions)* 2019/2024

94.- IMENO-ROMERO A, BILBAO E, VALSAMI-JONES E, CAJARAVILLE MP , SOTO M, MARIGÓMEZ I. 2019. Bioaccumulation, tissue and cell distribution, biomarkers and toxicopathic effects of CdS quantum dots in mussels, Mytilus galloprovincialis. ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY. 167: 288-300.

95- BLANCO-RAYÓN E, SOTO M, IZAGIRRE U, MARIGÓMEZ I. 2019. Enhanced discrimination of basophilic cells on mussel digestive gland tissue sections by means of toluidine-eosin staining. J INVERT PATHOL. 161: 29-39.

96.- JIMENO-ROMERO A, KOHL Y, MARIGÓMEZ I, SOTO M. 2019. Nanoparticles Under The Spotlight: Intracellular Fate And Toxic Effects. Chapter 7 (20 pp), In: Cells Of Aquatic Organisms As Revealed By Microscopy. Eds. Ilaria Corsi, Julian Blasco. Elsevier. CRC Press, eBook ISBN 9781315158761.

97.- GARCIA-VELASCO N, IRIZAR A, URIONABARRENETXEA E; SCOTT-FORDSMAND JJ, SOTO M. 2019. Selection of an optimal culture medium and the most responsive viability assay to assess AgNPs toxicity with primary cultures of Eisenia fetida coelomocytes. ECOTOX ENVIRONMENTAL SAFETY. 183: 109545.

98.- BENITO D, AHVO A, NUUTINEN J, BILBAO D, SAENZ J, ETXEBARRIA N, LEKUBE X, IZAGIRRE U, LEHTONEN K, MARIGOMEZ I, ZALDIBAR B, SOTO M. 2019. Influence of season-depending ecological variables on biomarker baseline levels in mussels (Mytilus trossulus) from two Baltic Sea subregions. SCIENCE OF THE TOTAL ENVIRONMENT 689:1087–1103.

99.- FERNANDEZ-WAID P, DIEZ G, BIDAGUREN I, IZAGIRRE U, BLANCO JM, SOTO M. 2019. Morphological Characterization and Hydrodynamic Behavior of Shortfin Mako Shark (Isurus oxyrinchus) Dorsal Fin Denticles. JOURNAL OF BIONIC ENGINEERING. 16: 730–741.

100.- EGIRAUN H, GIL-URIARTE, E, BARRENETXEA L., LIZUNDIA E, ZUAZO I, SOTO M. 2019. Comparative study of mussel shells using 3D scanning. Lecture Notes in mechanical Engineering. 497-504. ISSN: 21954356. DOI: 10.1007/978-3-030-12346-8_48. Book Chapter.

101. APARICIO JD, GARCIA-VELASCO N, URIONABARRENETXEA E, SOTO M, ÁLVAREZ A, POLTI MA. 2019. Evaluation of the effectiveness of a bioremediation process in experimental soils polluted with chromium and lindane. ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY. 181: 255-263.

102.- GARMENDIA M, FDEZ-ORTIZ DE VALLEJUELO S, GREDILLA A, LIÑERO O, ARANA G, SOTO M, DE DIEGO A. 2019. Long term monitoring of metal pollution in sediments as a tool to investigate the effects of engineering works in estuaries. A case study, the Nerbioi-Ibaizabal estuary. MAR POLL BULL. 145:555-563.

103.- JØRGENSEN KS, KREUTZER A, LEHTONEN KK, KANKAANPÄÄ H, RYTKÖNEN J, WEGEBERG S, GUSTAVSON K, FRITT-RASMUSSEN J, TRUU J, KÕUTS T, LILOVER M-J; THOMAS-BENJAMIN SEILER T-B, HOLLERT H, JOHANN S, MARIGÓMEZ I, SOTO M, LEKUBE X, JENSSEN BM, CIESIELSKI T, WILMS LB, HÖGSTRÖM R, PIRNESKOSKI M, VIRTANEN S, FORSMAN B, PETRICH C, PHUONG-DANG N, WANG F. 2019. The EU Horizon 2020 project GRACE – Integrated oil spill response actions and environmental effects. ENVIRONMENTAL SCIENCES EUROPE, 31: 44.

104.- ABDOU M, ZALDIBAR B, MEDRANO R, SCHÄFER J, IZAGIRRE U, DUTRUCH L, COYNEL A, BLANC G, SOTO M. 2020. Organotropism and biomarker response in oyster Crassostrea gigas exposed to platinum in seawater. ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH.3443-7. 105.- URIONABARRENETXEA E, GARCIA-VELASCO N, MARIGÓMEZ I, SOTO M. 2020. Effects of elevated temperatures and cadmium exposure on stress biomarkers at different biological complexity levels in Eisenia fetida earthworms. COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY. PART C. 231: 108735.

106.- LACALLE RG, APARICIO JD, ARTETXE U, URIONABARRENETXEA E, POLTI MA, SOTO M, GARBISU C, BECERRIL JM. 2020. Gentle Remediation Options for a soil with chromium (VI) and lindane mixed contamination: Biostimulation, bioaugmentation, phytoremediation and vermiremediation. HELYION. 6

107.- URIONABARRENETXEA E, GARCIA-VELASCO N, ANZA M, ARTETXE U, LACALLE R, GARBISU C, BECERRIL JM, SOTO M. 2021. Application of in situ bioremediation strategies in soils amended with sewage sludges. SCIENCE OF THE TOTAL ENVIRONMENT 766 (2021) 144099.

108.- APARICIO JD, LACALLE RG, ARTETXE U, URIONABARRENETXEA E, BECERRIL JM, POLTI MA, GARBISU C, SOTO M. 2021. Successful remediation of soils with mixed contamination of chromium and lindane: Integration of biological and physico-chemical strategies. ENVIRON RES 194 (2021) 110666.

109.- CABALLERO-HUERTAS M, SOTO M, RIBAS L. 2021. Reviewing Pseudoloma neurophilia infections in the popular zebrafish model. Reviews in Aquaculture, 1–12. doi: 10.1111/raq.12545.

110.- JIMENO-ROMERO A, GWINNER F, HESLER M, MARIUSSEN E, SOTO M, KOHL Y. 2021. Sea bass primary cultures versus RTgill-W1 Cell Line: Influence of cell model on the sensitivity to nanoparticles. NANOMAT. 11, 3136.

111.- BENITO D, PALEČEK D, LEKUBE X, IZAGIRRE U, MARIGÓMEZ I, ZALDIBAR B, SOTO M. 2022. Variability and distribution of parasites, pathologies and their effect on wild mussel (Mytilus sp) populations in different environments along a wide latitudinal span in the Northern Atlantic and Arctic Oceans. MARINE ENVIRONMENTAL RESEARCH, Volume 176, April 2022, 105585.
112.- URIONABARRENETXEA E, CASÁS C, GARCIA-VELASCO N, SANTOS M, TARAZONA JV, SOTO M. 2022. Predicting environmental concentrations and the potential risk of Plant Protection Products (PPP) on non-target soil organisms accounting for regional and landscape ecological variability in European soils. CHEMOSPHERE, 303 (2022) 135045.
113.- URIONABARRENETXEA E, GARCIA-VELASCO N, ZALDIBAR B, SOTO M. 2022. Impacts of sewage sludges deposition on agricultural soils: effects upon model soil organisms. COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY, Part C 255. 109276
114.- GARCIA-VELASCO N, CARRERO J.A., URIONABARRENETXEA E., DONI L., ZALDIBAR B., IZAGIRRE U., SOTO M. 2023. Innovative in vivo and in vitro bioassays for the establishment of toxicity thresholds of pollutants in sediment quality assessment using polychaetes and their immune cells. CHEMOSPHERE, 311 (2023) 136935. https://doi.org/10.1016/j.chemosphere.2022.136935
115.- GARCIA-VELASCO N, CARRERO J.A., URIONABARRENETXEA E., DONI L., ZALDIBAR B., IZAGIRRE U., SOTO M. 2023. Innovative in vivo and in vitro bioassays for the establishment of toxicity thresholds of pollutants in sediment quality assessment using polychaetes and their immune cells. CHEMOSPHERE, 311 (2023) 136935. https://doi.org/10.1016/j.chemosphere.2022.136935
116.- CALMÃO M, BLASCO N, BENITO A, THOPPIL R, TORRE FERNANDEZ I, CASTRO K, IZAGIRRE U, GARCIA-VELASCO N, SOTO M. 2023. Time-course distribution of fluorescent microplastics in target tissues of mussels and polychaetes. CHEMOSPHERE, 311 (2023) 137087.
117.- ALVES DE ALMEIDA E, BEBIANNO MJ, SOTO M, ABESSA D. 2023. Advances in environmental toxicology in the face of emerging challenges from global contamination. CHEMOSPHERE. 320. 138051.
118.- TURJA R, BENITO D, AHVO A, IZAGIRRE U, LEKUBE X, STANKEVICIUTE M, BUTRIMAVICIENE L, SOTO M, LEHTONEN KK. 2023. Biomarker responses in mussels (Mytilus trossulus) from the Baltic Sea exposed to water-accommodated fraction of crude oil and a dispersant at different salinities. MARINE POLLUTION BULLETIN 192 (2023) 115100.
119.- SANZ-LATORRE M, SOTO M, DIAZ DE CERIO O, VALENCIANO I, GUTIÉRREZ M, IZAGIRRE U. 2023. Distribution of the alien bivalve Xenostrobus securis (Lamarck, 1819) in the coast of Bizkaia (northern Iberian Peninsula). CONTINENTAL SHELF RESEARCH. 267 (2023) 105101. https://doi.org/10.1016/j.csr.2023.105101
120.- BENITO D, GULS HD, HALLDORSSON HP, CIESIELSKI TM, IZAGIRRE U, LEKUBE X, ETXEBARRIA N, MARIGÓMEZ I, ZALDIBAR B, SOTO M. 2023. Integrated assessment of biological responses to pollution in wild mussels (Mytilus edulis) from subarctic and arctic areas in the Norwegian Sea. ENVIONMENTAL POLLUTION 336 122454.
121-. URIONABARRENETXEA E, CASÁS C, GARCIA-VELASCO N, SANTOS MJG, TARAZONA JV, SOTO M. 2023. Environmental risk assessment of PPP application in European soils and potential ecosystem service losses considering impacts on non-target organisms. ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY 266 (2023) 115577. https://doi.org/10.1016/j.ecoenv.2023.115577
122.- BENITO D, IZAGIRRE U, LEKUBE X, ZALDIBAR B, VILLALBA A, DE MONTAUDOUIN X, DAFFE G, SOTO M, DIAZ DE CERIO O. 2023. Molecular confirmation of pearl formation in arctic mussels (Mytilus edulis) caused by Gymnophallus bursicola (Odhner 1900) metacercariae. PARASITOLOGY.
123.- SALIDO M, SOTO M, SEOANE S. 2024. Seaweed: Nutritional and gastronomic perspective. A Review. ALGAL RESEARCH 77 (2024) 103357. https://doi.org/10.1016/j.algal.2023.103357
124.- ARAMENDIA J, GARCÍA-VELASCO N AMIGO JM, IZAGIRRE U, SEIFERT A, SOTO M, CASTRO K. 2024. Evidence of internalized microplastics in mussel tissues detected by volumetric RAMAN imaging. SCIENCE OF THE TOTAL ENVIRONMENT. Volume 914, 1 March 2024, 169960

C.3. Research projects 2019-2021

1. **Integrated oil spill response actions and environmental effects.** 679266-H2020-EU.3.2. Entidad: BG-07-2015 H2020-BG-2015-2. IP: UPV/EHU, I Marigómez, Cordinador: K Jorgenesen (SYKE, Finland). 2016/03/01 – 2019/08/31. 340.000 €; 5.513.252,5 €
2. **Aplicación de estrategias de biorremediación en suelos contaminados por deposición de fangos de depuradora.** IHOBE, Proyectos Eco-Innovacion. IP: Manu Soto. 04/12//2017-30/03/2019. 33.000 €
3. **Nuevas perspectivas sobre las amenazas ecotoxicológicas latentes que plantean los sedimentos estuarinos cronicamente contaminados. CTM2017-87766-R.** Entidad financiadora: MINECO. Proyectos I+D+I, del Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad. Convocatoria 2017. IPs: Manu Soto / Ionan Marigómez. 01/01/2018-31/12/2020. 170.000 €.

4. Desarrollo de sistema avanzado y sostenible para la cría en cautividad del Múgil. AKURA.
Entidad financiadora: Gobierno Vasco. Dep. Desarrollo Económico e Infraestructuras. Dirección Pesca y Acuacultura. Convocatoria 2017. Exp. 33-2017-00250 Coordinadores: Javi Etxebarria (Gaiker), Grupo BCTA (Manu Soto). 01/01/2018-31/12/2019 TOTAL (BCTA):74.492.45 €

5. "Grupo consolidado tipo A BCTA "Biología Celular en Toxicología Ambiental
Entidad financiadora: Gobierno Vasco. Ayudas para apoyar las actividades de grupos de investigación del Sistema Universitario Vasco. Departamento de Educación del Gobierno Vasco, convocatoria 2018. Referencia: IT1302-19 - 2019 – 2021. IP: Miren P. Cajaraville 01/01/2019-31/12/2021. 347.000 €

6. Desarrollo de un sistema sostenible para la cría en cautividad de mugílidos. Viabilidad Técnica. AKURA II. Entidad financiadora: Gobierno Vasco. Dep. Desarrollo Económico e Infraestructuras. Dirección Pesca y Acuacultura. Convocatoria 2019. Exp. 00 IPs: Javi Etxebarria, Manu Soto. 18/11/2019-31/12/2021. 84.783.90 €
7. Emergencia y diseminación de resistencias a los antibióticos: Vínculos entre salud humana, ganadería, alimentación y medioambiente (KONTRAE) Entidad financiadora: Gobierno Vasco. ELKARTEK 2020. Proyectos de Investigación Fundamental Colaborativa (ELKARTEK) IPs: Carlos Garbisu (NEIKER), Grupo BCTA (Manu Soto). 05/2020-31/12/2021 IMPORTE TOTAL (BCTA): 39.187 €
8.- Moving forward with the application of innovative strategies of Phyto-management in contaminated areas of the Sudoe space. Phy2sudoe. Entidad financiadora: INTERREG SUDOE. REF: SOE4/P5/E1021. IP Carlos Garbisu (NEIKER), IP (UPV/EHU): Manu Soto). 01/11/2020-30/04/2023. 838.424,25 (UPV/EHU: 88875€)
9.- Protección de los ecosistemas costero y edáfico: efectos de los contaminantes sobre la salud de los ecosistemas y mecanismos de adaptacion en un medio ambiente cambiante. ECOHEALTH. 2.0. REF. PES 20/45. Entidad financiadora: UPV/EHU. IP: Manu Soto. 01/11/2020-30/10/2025. 49.628,15 € (prov.)
10.- Multi-scale approach for identifying (micro)plastics and understanding their transport, distribution, impact and interaction with trace elements in real environmental compartments (PLASTeMER). MINECO. PID2020-118685RB-I00. IP: Manu Soto / Urtzi Izagirre. 01/09/2021-31/08/2025. 254.100 €
11.- Detection of microplasics by machine learning-assisted multispectroscopy. nG21. Convocatoria: Elkartek 2021. IPs: Andreas Seifert (CIC NANOGUNE), Urtzi Izagirre. 2021-2022. 123.843,00 €
12.- . Caracterización y producción artificial de la secreción mucosa de pez Disco para la mejora sostenible de su cría. Gobierno Vasco. Pesca y Acuacultura. 2020. IP: Urtzi Izagirre. 2021-2022. 98.250,30 €.
13.- Identificación y estudio de macro algas de la costa vasca para su uso gastronómico – definir cadena de valor gastronómico de las macro algas en euskadi. Slow alga. Gobierno Vasco. Dirección Pesca y Acuacultura. Convocatoria 2021. Ref. 00001-INA2021-33. IP: Manu Soto. 2021-2022. 127.597,5 €.
14.- Reducing climate based health risks in blue environments: Adapting to the climate change impacts on coastal pathogens (BlueAdapt). H2020. HORIZON-HLTH-2021-ENVHLTH-02-03. IP: Ionan Marigómez. 2022-2024. 221.250 €.
15.- Red de varamientos y rescate de especies marinas de Euskadi e incoporación de muestras al biobanco de la UPV/EHU (SAREUS). Fundación Biodiversidad.Convocatoria: Plan de Recuperación Transformación y Resiliencia (Financiado por la UE), Next Generation). IP: Manu Soto. 354.502.37 €. 2022-2025.
16.- **Grupo consolidado tipo A** BCTA "Biología Celular en Toxicología Ambiental BCTA/Cell Biology in Environmental Toxicology + One Health (CBET+). Gobierno Vasco. IT1743-22. IP: Maren Ortiz-Zarragoitia. 2022-2025. 304.000 €
16.- Strategies to minimize the transfer of port pollution through ballast waters. Environmental Diagnosis of three Spanish Ports (ECOTRANSEAS). MICINN-TED 2021 PROYECTOS TRANSICIÓN ECOLÓGICA Y DIGITAL. Ref: TED2021-130994B-C33. IPs: Sergio Seoane, Manu Soto. 1/12/2022-31-12-2024. 120.750 €.
17.- Identificación y estudio de macro algas de la costa vasca para su uso gastronómico – definir cadena de valor gastronómico de las macro algas en euskadi. SLOW ALGA 2. Gobierno Vasco. Pesca y Acuacultura. Convocatoria 2021. Ref. 00002-INA2022-33. IP: Manu Soto. 1-11-2022/31-07-2023. 69.228 €
18.- Cría en cautividad de Mugílidos: viabilidad de la puesta y diseño de piensos específicos. AKURA III. Gobierno Vasco. Pesca y Acuacultura. Convocatoria 2022. Ref: 00003-INA2022-33. IP: Manu Soto. 1-11-2022/31-07-2023. 124.436 €.
19. Next generation imaging technologies to probe structure and function of biological specimen across scales in their natural context (IMAGINE). HORIZON-INFRA-2022-TECH-01-01 (Ref. 101094250). IP: EMBL. IP: PiE-UPV/EHU I Marigómez. 1/05/2023-30/04/2028. 9.569.677,50. €. PiE-UPV/EHU: 131.000€
20.- Environmental Antibiotic Resistance LTC Sarea. Gobierno vasco. 2022. IP: Itziar Alkorta. 01/01/2023 – 31/12/2023. 6.000 €.
21.- Estaciones Marinas Experimentales: una Infraestructura de Investigación Europea EMBREC-ERIC Gobierno vasco. 2023. IP: Ionan Marigómez. 01/01/2023 – 31/12/2023. 751.000 €
22.- Promoción de las actividades del PiE-UPV/EHU como integrante de la infraestructura de investigación europea EMBRC. PES23/22. UPV/EHU. IP; Ibon Cancio. 08/05/2023-07/05/2027. 26.619,06
23.- Cría en cautividad de mugílidos: viabilidad de la puesta y diseño de piensos específicos (AKURA IV). Gobierno Vasco. Dirección Pesca y Acuacultura. Convocatoria 2022. Expediente 00005-2101022023. Investigador principal: Manu Soto. 1-12-2023/31-12-2024. 122.640 €.
24.- Identificación y estudio de macroalgas de la costa vasca para su uso gastronómico – cultivo y pruebas gastronómicas (SLOWALGA 3). Gobierno Vasco. Dirección Pesca y Acuacultura. Convocatoria 2022. Expediente 00006-2101022023. IP: Manu Soto. 1-12-2023/31-12-2024. 97.085 €