

CURRICULUM VITAE

Dr. Isabel Ferrera

I. Personal Details

Name: Isabel Ferrera
Birth date: 23 Dec 1977
Address: Pg Marítim de la Barceloneta, 37 - 49,
Barcelona, Spain, E-08193
Phone: +34 93 230 95 00 (Office)
Email: iferrera@icm.csic.es
Personal webpage: www.isabelferrera.com



Current position: Post-Doctoral Researcher, Dpt. Biologia Marina i Oceanografia, Institut de Ciències del Mar, Spain

Spoken Languages: Catalan (Native), Spanish (Native), English (Proficiency), Portuguese (Beginner)

II. Academic Achievements

1995-1999 Bachelor's degree in Biology. Autonomous University of Barcelona, Spain

2000-2004 PhD in Microbiology. Autonomous University of Barcelona, Spain

III. Scholarships/Grants

PhD Scholarship. Generalitat de Catalunya. Universitat Autònoma de Barcelona, Spain. Supervisors: Dr. Jordi Mas & Dr. Olga Sánchez. Jan 2000 – Dec 2003

Research Scholarship. Generalitat de Catalunya. Centre d'Estudis Avançats de Blanes (CEAB-CSIC). Supervisor: Dr. Emilio O. Casamayor. Jun - Oct 2004

Postdoctoral Researcher. Dpt. of Biology, Portland State University. Nov 2004 - Nov 2005 & Nov 2007 - Apr 2008, hired on NSF grants funded to Dr. Anna-Louise Reysenbach.

Postdoctoral Fellowship, Spanish Ministry of Education – Fulbright Program. Dpt. of Biology, Portland State University. Supervisor: Dr. Anna-Louise Reysenbach. Dec 2005 – Nov 2007.

Travel Grant. MEC – Fulbright. Dpt. Biologia Marina i Oceanografia, Institut de Ciències del Mar. Supervisor: Dr. Josep M. Gasol. Sep – Oct 2007.

Postdoctoral Award 'Juan de la Cierva' Program, Spanish Ministry of Science and Innovation. Dpt. Marine Biology & Oceanography. Marine Sciences Institute. Supervisor: Dr. Josep M. Gasol. May 2008 – May 2011.

IGB Postdoctoral Fellowship Program in Freshwater Science. Leibniz-Institute of Freshwater Ecology and Inland Fisheries. Supervisor: Dr. Hans-Peter Grossart. 2013

IV. Participation in Research Projects:

REMEI: REMEI: Regulación del (meta)genoma procariótico de un ambiente costero marino: factores biológicos y oceanográficos que determinan la presencia y función biogeoquímica de los procariotas planctónicos. 2016-2018. PI: Josep M Gasol, ICM-CSIC. Hired as Postdoctoral Researcher.

DEVOTES: DEVElopment Of innovative Tools for understanding marine biodiversity and assessing good Environmental Status. European Union. FP7-ENV-2012 308392. 2012-2016. PI: Angel Borja, AZTI, PI-partner CSIC: Esther Garcés. Hired as Postdoctoral Researcher.

ECOAAP: Diversity and distribution of aerobic anoxygenic phototrophic bacteria across contrasting aquatic systems. Leibniz Institute of Freshwater Ecology and Inland Fisheries. PIs: Isabel Ferrera & Hans-Peter Grossart.

Participation as co-PI.

PEGASO: Plankton-derived Emission of trace Gases and Aerosols in the Southern Ocean. Plan Nacional I+D+i. Ministerio de Economía y Competitividad. 2012-2015. PI: Rafel Simó, ICM-CSIC. Participation as Collaborator.

PANGENOMICS: Microbial Ocean Pangenomes: from single cell to bacterial population genomics. Plan Nacional I+D+i. Ministerio de Economía y Competitividad. 2012-2015. PI: Silvia G. Acinas, ICM-CSIC. Participation as Collaborator.

ECOBAF: Papel ecológico de las bacterias aeróbicas anoxigénicas fototróficas marinas a escala global. CTM2010-10462-E. Ministerio de Ciencia e Innovación. 2011- 2012. PI: **Isabel Ferrera, ICM-CSIC**. Participation as Coordinator.

MALASPINA 2010: Expedición de circunnavegación Malaspina 2010: Cambio Global y Exploración de la Biodiversidad del Océano Global. Ministerio de Ciencia e Innovación. 2009-2011. PI: Carlos Duarte, IMDEA-CSIC. Participation as co-PI.

Tara Oceans - TANIT: Diversitat i funció dels bacteris en els oceans a través del projecte de circunnavegació global Tara-Oceans. CONES 2010-0036. Talencia-AGAUR. 2011-2012. PI: Silvia G. Acinas, ICM-CSIC. Participation as Postdoc.

XTM Grup d'Estructura i Funció de Xarxes Tròfiques Microbianes Planctòniques. Grup consolidat de Recerca de la Generalitat de Catalunya. Programa de Grups de Qualitat. Comissió Interdepartamental de Recerca i Innovació Tecnològica, Generalitat de Catalunya (2005SGR/00872). 2009-2013. PI: Josep M Gasol. Participation as Postdoc

STORM Structure of Organic Matter in the coastal ocean: biogeochemical and ecological implications. CTM2009-09352. Ministerio de Ciencia e Innovación. 2010- 2012. PI: M. Monserrat Sala, ICM-CSIC. Participation as Postdoc

FAMOSO: Fate of the northwestern Mediterranean open sea spring bloom. CTM2008-06261-C03-01. Ministerio de Ciencia e Innovación. 2009-2011. PI: Mikel Latasa, ICM-CSIC, IEO. Participation as Postdoc

DHVE: Diversity and distribution of thermoacidophiles at deep-sea hydrothermal vents, NSF-OCE-072839. National Science Foundation, USA. 2008-2012. PI: Anna-Louise Reysenbach, Portland State University. Participation as Postdoc

TUIM05MV: Sampling and Initial Characterization of Hydrothermal Fluids, Deposits, Microfauna and Megafauna at Vent Fields along the Eastern Lau Spreading Center TUIM05MV OCE-0242038. National Science Foundation, USA. 2004-2006. PI s: Anna-Louise Reysenbach (PSU) & Margaret Tivey (WHOI). Participation as Postdoc

PEET: Enhancing expertise in bacterial taxonomy: classical and molecular-based monographic research of the *Aquificales*. NSF PEET DEB-0328326. National Science Foundation, USA. 2003-2008. PI: Anna-Louise Reysenbach, Portland State University. Participation as Postdoc

VIARC. Diversidad de microorganismos Archaea en ecosistemas acuáticos templados: dinámica, actividad e impacto en el ciclo del carbono. REN2003-08333-CO2-02. MCYT. 2003-2006. PI: Emilio O. Casamayor, Centre d'Estudis Avançats de Blanes, CEAB (CSIC). Participation as Predoc

ARQUEA. Análisis de la actividad metabólica de nuevos microorganismos Archaea no cultivados y de su implicación en el ciclo biogeoquímico del carbono. REN2002-10671-E / MAR. MCYT. 2003-2004. PI: Emilio O. Casamayor, Centre d'Estudis Avançats de Blanes, CEAB (CSIC). Participation as Predoc

BIOSIGMA: Customized biota for copper bioleaching optimization developed after molecular characterization of natural microbial populations in bioheaps. BIOSIGMA S.A.-Banco Interamericano de Desarrollo. 2003-2005. PI: Cecilia Demergasso, Universidad Católica del Norte, Chile. Participation as Predoc

DESULFOX. Diversidad y estabilidad en comunidades microbianas destinadas a la oxidación de efluentes sulfurados DGICyT BOS 2000-0139. DGICyT. 2000-2002. PI: Jordi Mas. Universitat Autònoma de Barcelona. Participation as Predoc

MATBIOPOL: Role of microbial mats in bioremediation of hydrocarbon polluted coastal zones. CEE EVK3-CT-1999-00010. CEE. 2000-2003. PI: Pierre Caumette. Université de Pau et des Pays de l'Adour (Francia). Participation as Predoc

V. Publications:

Publications listed in SCI:

- (1) Sánchez O, **Ferrera I**, Dahl C, Mas J (2001) *In vivo* role of APS reductase in the purple sulfur bacterium *Allochromatium vinosum*. *Archives of Microbiology* 176:301-305.
- (2) **Ferrera I**, Sánchez O, Mas J (2004) A new non-aerated illuminated packed-column reactor for the development of sulfide-oxidizing biofilms. *Applied Microbiology and Biotechnology* 64:659–664
- (3) **Ferrera I**, Massana R, Casamayor EO, Balagué V, Sánchez O, Pedrós-Alió C, Mas J (2004) High-diversity biofilm for the oxidation of sulfide-containing effluents. *Applied Microbiology and Biotechnology* 64:726–734
- (4) Sánchez O, **Ferrera I**, García de Oteyza T, Grimalt J, Mas J (2004) Growth of indigenous microorganisms in samples of crude oil in the absence of external electron acceptors. *Ophelia** 58:223-232 *Currently *Marine and Freshwater Research*
- (5) Sánchez O, **Ferrera I**, Vigués N, García de Oteyza T, Grimalt JO, Mas J (2006) Presence of opportunistic oil-degrading microorganisms operating at the initial steps of oil extraction and handling. *International Microbiology* 9:119-124
- (6) Sánchez O, **Ferrera I**, Vigués N, García de Oteyza T, Grimalt J, Mas J (2006) Role of Cyanobacteria in oil biodegradation by microbial mats. *International Biodeterioration and Biodegradation* 58:186-195
- (7) **Ferrera I**, Longhorn S, Banta AB, Liu Y, Preston D, Reysenbach AL (2007) Diversity of 16S rRNA gene, ITS region and *acIB* gene of the *Aquificales*. *Extremophiles* 11:57-64
- (8) **Ferrera I**, Sánchez O, Mas J (2007) Characterization of a sulfide-oxidizing biofilm developed in a packed-column reactor. *International Microbiology* 10:29-37
- (9) Casamayor EO, **Ferrera I**, Cristina X, Borrego CM, Gasol JM (2007) Flow cytometric identification and enumeration of photosynthetic sulfur bacteria and potential for ecophysiological studies at the single cell level. *Environmental Microbiology* 9:1969-1985.
- (10) O'Neill AH, Liu Y, **Ferrera I**, Beveridge TJ, Reysenbach, AL (2008) *Sulfurihydrogenibium rodmanii* sp. nov., a sulfur-oxidizing chemolithoautotroph from the Uzon Caldera, Kamchatka Peninsula, Russia and the emendation of the genus *Sulfurihydrogenibium*. *International Journal of Systematic and Evolutionary Microbiology* 58: 1147-1152
- (11) Flores GE, Liu Y, **Ferrera I**, Beveridge TJ, Reysenbach AL (2008) *Sulfurihydrogenibium kristjanssonii* sp. nov., a hydrogen- and sulfur-oxidizing thermophile isolated from a terrestrial Icelandic hot spring. *International Journal of Systematic and Evolutionary Microbiology* 58:1153-1158
- (12) Klomp JE, Murphy MT, Bartos-Smith S, McKay JE, **Ferrera I**, Reysenbach AL (2008) Cloacal microbial communities of female spotted towhees: microgeographic variation and individual sources of variability. *Journal of Avian Biology* 39:1-9
- (13) Caldwell S, Liu Y, **Ferrera I**, Beveridge T, Reysenbach AL (2010) *Thermocrinis minervus* sp. nov., a hydrogen and sulfur-oxidizing, thermophilic *Aquificales* from a Costa Rican terrestrial hot spring. *International Journal of Systematic and Evolutionary Microbiology* 60:338-343
- (14) **Ferrera I**, Massana R, Balagué V, Pedrós-Alió C, Sánchez O, Mas J (2010) Evaluation of DNA extraction methods from complex phototrophic biofilms. *Biofouling* 26:349-357
- (15) Hojerová E, Mašín M, Brunet C, **Ferrera I**, Gasol JM, Koblížek M (2011) Distribution and Growth of Aerobic Anoxygenic Phototrophs in the Mediterranean Sea. *Environmental Microbiology* 13:2717–2725
- (16) **Ferrera I**, Gasol JM, Sebastián M, Hojerová E, Koblížek M (2011) Growth rates of aerobic anoxygenic phototrophic bacteria as compared to other bacterioplankton groups in coastal Mediterranean waters. *Applied and Environmental Microbiology* 77:7451-7458
- (17) Karsenti E. and the Tara Oceans Consortium (several authors) 2011. A holistic approach to marine ecosystems biology. *PLoS Biology* 9 (10):e1001177. *Contributor as part of the *Tara Oceans Consortium*.

- (18) Ruiz-González C, Proia L, **Ferrera I**, Gasol JM, Sabater S. 2013. Effects of large river dam-regulation on bacterioplankton community structure. *FEMS Microbiology Ecology* 84:316-331
- (19) Sánchez O*, **Ferrera I***, González JM, Mas J. 2013. Assessing bacterial diversity in a seawater-processing wastewater treatment plant by 454-pyrosequencing of the 16S rRNA and *amoA* genes. *Microbial Biotechnology* 6:435-442 * **Equal contributors to this article.**
- (20) Hingamp P, Grimsley N, Acinas SG, Clerissi C, Subirana L, Poulain J, **Ferrera I**, Sarmiento H, Villar E, Lima-Mendez G, Faust K, Sunagawa S, Claverie JM, Moreau H, Desdevises Y, Bork P, Raes J, de Vargas C, Karsenti E, Kandels-Lewis S, Jaillon O, Not F, Pesant S, Wincker P, Ogata H. 2013. Exploring nucleocytoplasmic large DNA viruses in Tara Oceans microbial metagenomes. *ISME Journal* 7:1678-1695
- (21) Garrido L, Sánchez O, **Ferrera I**, Tomàs N, Mas, J. 2014. Dynamics of microbial diversity profiles in waters of different qualities. Approximation to an ecological quality indicator. *Science of the Total Environment*. 468-469:1154-1161
- (22) Sánchez O*, **Ferrera I***, L Garrido, MM Gómez-Ramos, A Rodríguez Fernández-Alba, J Mas. 2014. Prevalence of potentially thermophilic microorganisms in biofilms from greenhouse- enclosed drip irrigation systems. *Archives of Microbiology* 196: 219-226 * **Equal contributors to this article.**
- (23) Logares R, Sunagawa S, Salazar G, Cornejo- Castillo FM, **Ferrera I**, Sarmiento H, Hingamp P, Ogata H, de Vargas C, Lima-Mendez G, Raes J, Poulain J, Jaillon O, Wincker P, Kandels-Lewis S, Karsenti E, Bork P, Acinas SG. 2014. Metagenomic 16S rDNA Illumina Tags are a powerful alternative to amplicon sequencing to explore diversity and structure of microbial communities. *Environmental Microbiology* 16: 2659-2671
- (24) **Ferrera I**, Borrego CM, Salazar G, Gasol JM. 2014. Marked seasonality of aerobic anoxygenic phototrophic bacteria in the coastal NW Mediterranean Sea as revealed by cell abundance, pigment concentration and pyrosequencing of *pufM* gene. *Environmental Microbiology* 16: 2953-2965.
- (25) **Ferrera I**, Banta AM, Reysenbach AL. 2014. Spatial patterns of *Aquificales* in deep-sea vents along the Eastern Lau Spreading Center (SW Pacific). *Systematic and Applied Microbiology* 6: 442-448.
- (26) Acinas SG*, Ferrera I*, Sarmiento H, Díez-Vives C, Forn I, Ruiz-González C, Cornejo-Castillo FM, Salazar G, Gasol JM. 2015. Validation of a new CARD-FISH probe for the accurate quantification of marine Bacteroidetes populations. *Environmental Microbiology* 17: 3557-3569 * Equal contributors to this article.
- (27) Gomes A, Gasol JM, Estrada M, Franco-Vidal L, Díaz-Pérez L, **Ferrera I**, Morán XAG. Heterotrophic bacterial responses to the winter-spring phytoplankton bloom in open waters of the NW Mediterranean. 2015. *Deep-Sea Research Part I* 96: 59-68.
- (28) **Ferrera I**, Mas J, Taberna E, Sanz J, Sánchez O. 2015. Biological support media influence the bacterial community responsible for biofouling in two reverse osmosis water reclamation demonstration plants. *Biofouling* 31:173-180.
- (29) **Ferrera I**, Aristegui J, González JM, Montero MF, Fraile-Nuez E, Gasol JM. 2015. Transient changes in bacterioplankton communities induced by the submarine volcanic eruption of El Hierro (Canary Islands). *PLoS One* 10: e0118136.
- (30) **Ferrera I**, Sebastian M, Acinas SG, Gasol JM. 2015. Prokaryotic functional gene diversity in the sunlit ocean: stumbling in the dark. *Curr Opin Microbiol*. 25: 33-39.
- (31) Sunagawa S, Coelho LP, Chaffron S, Kultima JR, Labadie K, Salazar G, Djahanschiri B, Zeller G, Mende DR, Alberti A, Cornejo-Castillo FM, Costea PI, Cruaud C, d'Ovidio F, Engelen S, **Ferrera I**, et al. 2015. Structure and Function of the Global Ocean Microbiome. *Science* 348: 6237, 1261359.
- (32) Lima-Mendez G, Faust K, Henry N, Decelle J, Colin S, Carcillo F, Chaffron S, Ignacio-Espinosa JC, Roux S, Vincent F, Bittner L, Darzi Y, Wang J, Audic S, Berline L, Cabello AM, Coppola L, Cornejo-Castillo FM, d'Ovidio F, Demeester L, **Ferrera I** et al. 2015. Top-down determinants of community structure in the global plankton interactome. *Science* 348:6237, 1262073.
- (33) Turon M, Alacid E, Figueroa R, Reñé A, **Ferrera I**, Bravo I, Ramilo I, Garcés E (2015) Genetic and phenotypic diversity characterization of natural populations of the parasitoid *Parvilucifera sinerae*. *Aquatic Microbial Ecology* 76: 117-132.

- (34) Teira E, Hernando-Morales V, Cornejo-Castillo FM, Alonso-Sáez L, Sarmiento H, Valencia-Vila J, Catala TS, Hernández-Ruiz M, Varela MM, **Ferrera I**, Morán XAG, Gasol JM. 2015. Sample dilution and bacterial community composition influence empirical leucine-to-carbon conversion factors in surface waters of the world's oceans. *Applied and Environmental Microbiology* 81: 8224-8232.
- (35) Cuadrat RR, **Ferrera I**, Grossart HP, Dávila AM (2016) Picoplankton Bloom in Global South? A High Fraction of Aerobic Anoxygenic Phototrophic Bacteria in Metagenomes from a Coastal Bay (Arraial do Cabo-Brazil). *OMICS* 20: 76-87.
- (36) **Ferrera I**, Sánchez O (2016) Insights into microbial diversity in wastewater treatment systems: How far have we come? *Biotechnology Advances* 34: 790-802.
- (37) **Ferrera I**, Giner CR, Reñé A, Camp J, Massana R, Gasol JM, Garcés E (2016) Evaluation of alternative high-throughput sequencing methodologies for the monitoring of marine picoplanktonic biodiversity based on rRNA gene amplicons. *Frontiers in Marine Science* 3: 147.
- (38) Danovaro R, Carugati L, Berzano M, Cahill AE, Carvalho S, Chenuil A, Corinaldesi C, Cristina S, David R, Dell'Anno A, Dzhenbekova N, Garcés E, Gasol JM, Goela P, Feral JP, **Ferrera I**, Forster R, Kurekin AA, Rastelli E, Marinova V, Miller PI, Moncheva S, Newton A, Pearman JP, Genevieve Pitois S, Reñé A, Rodriguez-Ezpeleta N, Saggiomo V, Simis SGH, Stefanova K, Wilson C, Lo Martire M, Greco S, Cochrane S, Borja A. (2016). Implementing and innovating marine monitoring approaches for assessing marine environmental status. *Frontiers in Marine Science* 3: 213.
- (39) **Ferrera I**, Sarmiento H, Priscu J, Chiuchiolo A, Gonzalez JM, Grossart HP (2016) Diversity and distribution of freshwater aerobic anoxygenic phototrophic bacteria across a wide latitudinal gradient. *Frontiers in Microbiology* 8, 175.
- (40) **Ferrera I**, Kolarova E, Sanchez O, Koblizek M, Gasol JM (2017) Light enhances the growth rates of natural populations of aerobic anoxygenic phototrophic bacteria. *The ISME Journal* doi:10.1038/ismej.2017.79.
- (41) Sanchez O, Koblizek M, Gasol JM, **Ferrera I** (2017) Effects of grazing, phosphorus and light on the growth rates of major bacterioplankton taxa in the coastal nw mediterranean. 2017. *Environmental Microbiology Reports* 9: 300-309
- (42) Royo-Llonch M, **Ferrera I**, Cornejo-Castillo FM, Sánchez P, Salazar G, Stepanauskas R, González JM, Sieracki ME, Speich S, Stemmann L, Pedrós-Alió C, Acinas SG. 2017. Exploring Microdiversity in Novel *Kordia* sp. (Bacteroidetes) with Proteorhodopsin from the Tropical Indian Ocean via Single Amplified Genomes. *Frontiers in Microbiology* 8, DOI=10.3389/fmicb.2017.01317
- (43) Reñé A, Alacid E, **Ferrera I**, Garcés E (2017) Evolutionary trends of Perkinsozoa (Alveolata) characters based on observations of two new genera of parasitoids of dinoflagellates, *Dinovorax* gen. nov. and *Snorkelia* gen. nov. *Frontiers in Microbiology* 8, 1594
- (44) Alberti A, Poulain J, Engelen S, Labadie K, Romac S, **Ferrera I**, Albin, G, Aury JM, et al. (2017) Viral to metazoan marine plankton nucleotide sequences from the Tara Oceans expedition. *Nature Scientific Data*, 4, 170093
- (45) Mestre M, Ferrera I, Borrull E, Ortega-Retuerta E, Mbedi S, Grossart HP, Gasol JM, Sala MM. 2017. Spatial variability of marine bacterial and archaeal communities along the particulate matter continuum. *Molecular Ecology*, Accepted.
- (46) Uria N, **Ferrera I**, Mas J. 2017. Electrochemical performance and microbial community profiles in microbial fuel cells in relation to electron transfer mechanisms. *BMC Microbiology* 17, 208

Review papers:

- (1) **Ferrera I**, Reysenbach AL (2007) Thermophiles. *Encyclopedia of Life Sciences*. John Wiley & Sons, Ltd. DOI: 10.1002/9780470015902.a0000406 . By invitation.
- (2) **Ferrera I**, Takacs C, Reysenbach AL (2008) Archaeal Ecology. *Encyclopedia of Life Sciences*. John Wiley & Sons, Ltd. DOI: 10.1002/9780470015902.a0000338.pub2. By invitation.

- (3) Colman DR, **Ferrera I**, Takacs C, Reysenbach AL (2016) Archaeal Ecology. Encyclopedia of Life Sciences. John Wiley & Sons, Ltd. DOI: 10.1002/9780470015902.a0000338.pub3. By invitation.

Book chapters:

- (4) Sánchez O, **Ferrera I**, Mas J (2008) Laboratory model systems for the study of microbial communities. Van Dijk T. (ed). Microbial Ecology Research Trends. pp 87-114. Nova Publishers ISBN: 978-1-60456-179-1.
- (5) **Ferrera I** (2011) Determinación de la abundancia y contenido de pigmento de las bacterias fototróficas aeróbicas anoxigénicas. Moreno-Ostos, E (Ed). 2012. Libro Blanco de Métodos y Técnicas de Trabajo Oceanográfico. Ed. CSIC-BBVA.
- (6) **Ferrera I**, Balagué V, Voolstra CR, Aranda M, Bayer T, Abed RMM, Dobretsov S, Owens SM, Wilkening J, Fessler JL, Gilbert JA (2014) Molecular methods for biofilms, in Biofouling Methods (eds S. Dobretsov, J. C. Thomason and D. N. Williams), John Wiley & Sons, Ltd, Oxford, UK. doi: 10.1002/9781118336144.ch4 ISBN: 978-0-470-65985-4.

Books edited:

- (7) Climate Change and the Oceanic Carbon Cycle. Climate Change and the Oceanic Carbon Cycle. Apple Academic Press, 2016. **Isabel Ferrera** (ed.) ISBN 978-1-77188-536-2

Others:

- (8) **Ferrera I.** (2010) Vida extrema a les fumaroles termals oceàniques. *Omnis Cèl·lula* 25:6 (Journal of the Catalan Society of Biology).
- (9) Acinas, S.G., del Campo J, Coll-Lladó M, Cornejo FM, **Ferrera I**, Lefort T, Salazar G, Sarmento H, Sebastián M, Massana R, Pedrós-Alió C, Gasol JM. 2011. Sota la pell de l'oceà. Projecte Telemàtic de divulgació de la recerca. Publicat a: Recerca en Acció, Fundació Institució Catalana de Suport a la Recerca.

VI. International conference contributions and invited talks:

Oral presentations:

- Ferrera I.** Exploration of the hidden diversity of the oceans in the omics era and its potential applications in biotechnology. *10th Annual Congress of the Spanish Federation of Biotechnologists*. Gijón, Spain, Jul 2016. Invited talk.
- Ferrera I**, Alacid E, Reñe A, Garces E. Chytrids in the marine environment, a black box to be opened. Nombre del congreso: First Plankton Chytridiomycosis Workshop. Leibniz Society, Berlin, Germany. Jul 2015.
- Ferrera I.** Marine planktonic biodiversity monitoring and assessment of ecosystem health status through high-throughput sequencing. *Congreso Nacional de Biodiversidad*, La Orotava, Spain, May 2015.
- Ferrera I**, Gasol JM, Sebastián M, Hojerova E, Koblizek M. Effects of top-down and bottom-up control manipulations in the growth rates of different functional and phylogenetic bacterial groups. *1 International Workshop on Aerobic Anoxygenic Phototrophic Bacteria*. Trebon, Czech Republic. Sep 2010. Invited talk.
- Ferrera I**, Gasol JM, Sebastián M, Hojerova E, Koblizek M. Manipulation of top-down pressure and its effects on the growth rates of different bacterial functional and phylogenetic groups. *The microbial view of marine biogeochemical cycles*. Banyuls-sur-mer, Francia. May 2010
- Ferrera I**, Banta AB, Webb J, Kelly SM, Kirshtein JD, Vouytek MA, Reysenbach AL. Diversity and distribution of *Aquificales* from deep-sea vents in the Lau Basin. *RIDGE meeting: From Mantle to Microbe*. Portland, OR, USA. Mar 2008

Ferrera I, Longhorn S, Kelly SM, Banta AB, Reysenbach AL. Diversity of 16S rRNA, ITS and *acIB* gene sequences within the *Aquificales*. *Thermophiles meeting*. Gold Coast, Australia. Sep 2005

Ferrera I, Sánchez O, Massana R, Casamayor EO, Balagué V, Pedrós-Alió C, Mas J. High microbial diversity in a sulfide-oxidizing biofilm. *X International Symposium on Microbial Ecology*. Cancún, Mexico. Aug 2004.

Posters:

Ferrera I, Gasol JM, Massana R, Reñe A, Flo E, Camp J, Garces E. Is bacterioplankton biodiversity a good descriptor of the environmental status of marine ecosystems? *XVI International Symposium on Microbial Ecology, ISME*. Montreal, Canada. Aug 2016

Ferrera I, Gasol JM, Massana R, Reñe A, Flo E, Camp J, Garces E. Marine planktonic biodiversity monitoring and assessment of ecosystem health status through high-throughput sequencing. *Gordon Research Conference in Marine Molecular Ecology*. Hong Kong, China. Aug 2015

Ferrera I, Gasol JM, Massana R, Reñe A, Flo E, Camp J, Garces E. Marine planktonic biodiversity monitoring and assessment of ecosystem health status through high-throughput sequencing. *ASLO Aquatic Sciences Meeting*. Granada, Spain. Feb 2015

Ferrera I, Gasol JM, Massana R, Reñe A, Flo E, Camp J, Garcés E. Marine planktonic biodiversity monitoring and assessment of ecosystem health status through high-throughput sequencing. *XV International Symposium on Microbial Ecology*. Seoul, South Korea, 24 – 29 Aug 2014.

Ferrera I, Priscu JC, Chiuchiolo A, Sarmento H, Grossart HP. Exploring the diversity and distribution of freshwater aerobic anoxygenic phototrophs in a latitudinal gradient. *XV International Symposium on Microbial Ecology, ISME*. Seoul, South Korea, 24 – 29 Aug 2014.

Ferrera I, Mas J, Taberna E, Sanz J, Sánchez O. Bacterial diversity in the different compartments of two full-scale reverse osmosis wastewater reclamation demonstration plants. *XV International Symposium on Microbial Ecology*. Seoul, South Korea, 24 – 29 Aug 2014.

Ferrera I, Gasol JM, González JM, Montero MF, Fraile-Nuez E, Aristegui J. Effects of the submarine volcanic eruption of El Hierro (Canary Islands) on the bacterioplankton communities of the surrounding waters. *IV International Symposium on Marine Sciences*. Las Palmas de Gran Canaria, Spain. 11 – 14 Jun 2014

Ferrera I, Borrego C, Salazar G, Gasol JM. Seasonal dynamics in abundance and diversity of aerobic anoxygenic phototrophic bacteria in northwestern Mediterranean waters. *13th Symposium on Aquatic Microbial Ecology (SAME13)*. Stresa, Italy. 8 – 13 Sep 2013

Teira E, Hernando-Morales V, Hernández M, Morán XAG, **Ferrera I**, Varela MM, Gasol JM. Effect of solar radiation, grazing and resource availability on heterotrophic bacteria in surface waters of the world oceans. *13th Symposium on Aquatic Microbial Ecology (SAME13)*. Stresa, Italy. 8 – 13 Sep 2013

Salazar G, Sarmento H, Díez-Vives C, **Ferrera I**, Gasol JM, Acinas SG. Diversity patterns of cultured marine bacteria using different organic matter sources as compared to single amplified genomes. *12th Symposium on Aquatic Microbial Ecology (SAME12)* Rostock/Warnemünde, Germany 28 Aug – 2 Sep 2011

Hojerová E, **Ferrera I**, Gasol JM, Duhamel S, Koblížek M. Top-down and bottom-up controls on growth of aerobic anoxygenic phototrophs. *12th Symposium on Aquatic Microbial Ecology (SAME12)* Rostock/Warnemünde, Germany 28 Aug – 2 Sep 2011

Ferrera I, Gasol JM, Sebastián M, Hojerova E, Koblizek M. The magnitude of bacterial growth rate in the ocean: effects of the reduction in grazer and viral abundance on the growth of different functional and phylogenetic groups. *Gordon Research Conference: Marine Microbes*. Tilton, NH, USA. Jul 2010

Ferrera I, Banta AB, Flores G, Caldwell S, Meneghin J, Reysenbach AL. Enhancing expertise in bacterial taxonomy: classical and molecular-based monographic research of the *Aquificales*. *Partnerships for Enhancing Expertise in*

Taxonomy (PEET VI Meeting). Athens, GA, USA. Mar 2007

Ferrera I, Banta AB, Webb J, Kelly SM, Kirshtein JD, Voytek MA, Reysenbach AL. Diversity and distribution of *Aquificales* from deep-sea vents in the Lau Basin. *XI International Symposium on Microbial Ecology (ISME)*. Vienna, Austria. Aug 2006

Ferrera I, Banta AB, Webb J, Kelly SM, Kirshtein JD, Voytek MA, Reysenbach AL. Diversity and distribution of *Aquificales* from deep-sea vents in the Lau Basin. Census of Marine Microbes (Census of Marine Life). First Annual Meeting. Amsterdam, Netherland. Jun 2006.

Reysenbach AL, Banta A, Dixon J, **Ferrera I**, Kelly S, Kirshtein J, Liu Y, Voytek MA. Bacterial and Archaeal Diversity From the Eastern Lau Spreading Center. *American Society for Microbiology, NW Branch meeting*. Seattle, WA, USA. Mar 2006

Ferrera I, Banta AB, Webb J, Kelly SM, Kirshtein JD, Voytek MA, Reysenbach AL. Diversity and distribution of *Aquificales* from deep-sea vents in the Lau Basin. *American Society for Microbiology, NW Branch meeting*. Seattle, WA, USA. Mar 2006

Kelly SM, Banta AB, **Ferrera I**, Von Damm K, Reysenbach AL. Patterns of microbial diversity along a mid ocean ridge, 9° North – 21° North, East Pacific Rise. *ASLO Aquatic Sciences Meeting*. Salt Lake City, UT, USA. Feb 2005

Sanchez O, **Ferrera I**, García de Oteyza T, Grimalt J, Mas J. Identification of opportunistic oil-degrading microorganisms at the initial steeps of oil extraction and handling. *XIII International Biodeterioration and Biodegradation Symposium*. Madrid, Spain. Sep 2005

Ferrera I, Sánchez O, Massana R, Casamayor EO, Balagué V, Pedrós-Alió C, Mas J. High microbial diversity in a sulfide-oxidizing biofilm. *X International Symposium on Microbial Ecology (ISME)*. Cancún, Mexico. Aug 2004.

Sanchez O, **Ferrera I**, García de Oteyza T, Grimalt J, Mas J. Role of cyanobacteria in oil biodegradation by microbial mats. *X International Symposium on Microbial Ecology (ISME)*. Cancún, Mexico. Aug 2004.

Sánchez O, **Ferrera I**, Garcia de Oteyza T, Grimalt J, Mas J. Presence of hydrocarbon degrading microorganisms in a crude oil sample. *X International Symposium on Microbial Ecology (ISME)*. Cancún, Mexico. Aug 2004.

Sánchez O, **Ferrera I**, Dahl C, Mas J. *In vivo* role of APS reductase in the purple sulfur bacterium *Allochromatium vinosum*. *X International Symposium on Phototrophic Prokaryotes (ISPP)*. Barcelona, Spain. Aug 2000.

VII. Participations in Workshops and Courses.

XI Curs Avançat d'Ecologia Microbiana. Societat Catalana de Biologia. Delta del Ebro, Tarragona, 9-12 Jun 2001.

Workshop on Sediments and Biofilms. In situ approach to Limnic Systems. Limnological Research Center (EAWAG). Kastanienbaum (Switzerland), 10-14 Sep 2001

ARB-Workshop. A software environment for sequence data. Max-Planck Institute for Marine Microbiology. Bremen (Germany), 10-12 Feb 2003

II Jornada d'Avenços en Ecologia. Societat Catalana de Biologia. Centre d'Estudis Avançats de Blanes-CSIC. 14 Nov 2003

Basic Real Time PCR – Applied Biosystems. Barcelona, 8-9 Oct 2008.

Workshop: BRIDGES - Microbial ecologists meet general ecologists CEAB-CSIC, Blanes, Spain, 22-24 Oct 2008.

Workshop on Tara Oceans Expedition Protocols. Sharm-el-Sheik, Egypt. 5-7 Jan 2010.

BD Bioscience Environmental Biology Workshop. ICM, Barcelona, Spain. 15-16 Mar 2010.

Workshop Comparative Genomics and Metagenomics: Impacts on Health and Environment. Granada, Spain, 5-8 Oct 2009

Workshop Bioinformatics for Metagenomics. Oslo, Norway, 4-8 Apr 2010.

Data Analysis and Experimental Design with R. University of Barcelona, 13-17 Jul 2015

Workshop on application of genomic tools for biomonitoring of marine environment: from technology to legal and socio-economic aspects. Natural History Museum, Geneva (Switzerland). 4-5 April 2016.

Course on omic data analysis with R/Bioconductor. CREAL-PRBB, Barcelona, España, 21-24 April 2016

VII. Research field trips.

2005. Two field trips to Yellowstone National Park to sample terrestrial hot springs. Chief: Dr. Anna-Louise Reysenbach (Portland State University) (10 days).

2006. Oceanographic cruise AT15-13. R/V Atlantis (USA). Pacific Ocean. Chief: Dr. Karen Von Damm, University of New Hampshire (15 days at sea).

2007. Oceanographic cruise AT15-27. R/V Atlantis (USA). Pacific Ocean. Chief: Dr. Karen Von Damm, University of New Hampshire (15 days at sea).

2009. FAMOSO1 and FAMOSO 2. BIO Sarmiento de Gamboa (Spain). NW Mediterranean. Chief: Dr. Mikel Latasa, Instituto Español de Oceanografía (38 days at sea).

2010. Tara Oceans Expedition. Teaser TARA (France). Red Sea. Chief: Dr. Fabrice Not, CNRS (17 days at sea).

2010. QTIP. R/V Kilo-Moana (USA). ALOHA station, Pacific Ocean. Chief: Dr. Benjamin van Mooy, WHOI (11 days at sea).

2012. Tara Oceans Expedition. Teaser TARA (France). Sargasso Sea. Chief: Dr. Lee Karp-Boss, U. Maine (12 days at sea).

2015. PEGASO Cruise. R/V Hesperides (Spain). Antarctica. Chief: Dr. Rafel Simó, ICM-CSIC (42 days at sea)

2017. REMEI Cruise. R/V Garcia del Cid (Spain). NW Mediterranean. Dr. **Isabel Ferrera**, ICM-CSIC (5 days at sea)

2008-present. Active participation in the monthly sampling of the coastal Blanes Bay Microbial Observatory (NW Mediterranean). Chief: Dr. Josep M. Gasol (ICM-CSIC). Badia de Blanes-BBMO (Girona).

VIII. Teaching Experience:

Teaching License for the Spanish (ANECA) and Catalan (AQU) University System.

2011-2013 - Teaching at undergraduate and master level (Universitat Autònoma de Barcelona, 180hours/year). Teaching students of Bachelor in Biology, Microbiology, Biotechnology, Environmental Biology, Environmental Sciences and Master in Microbiology.

2014-2015 - Teaching at undergraduate level (Universitat Internacional de Catalunya, 60h/year).

General Microbiology – Lectures for Dentistry Degree.

General Microbiology – Laboratory classes for Dentistry, Environmental Sciences and Environmental Biology degrees.

Food Microbiology – Seminars for Microbiology Degree.

Environmental Microbiology – Lectures and seminars for Biology, Microbiology and Environmental Sciences degrees.

Environmental Biotechnology – Lectures for Biotechnology Degree.
Microbial Ecology – Laboratory classes for Microbiology Degree.
Industrial Microbiology – Laboratory classes for Microbiology Degree.
Marine Microbiology – Lectures for Master in Microbiology

IX. Other relevant information:

Laboratory and analytical skills:

Isolation and cultivation of microbes, radiolabeled substrate uptake, flow-cytometry, epifluorescence microscopy, FISH, DNA extraction, RNA extraction, PCR, qPCR, cloning, DGGE, microarrays, DNA sequencing, high-throughput sequencing, bioinformatics.

Laboratories where I have worked:

Laboratori de Fisiologia Microbiana i Microbiologia Ambiental. Dpt. Genètica i Microbiologia, Universitat Autònoma de Barcelona, Spain (5 years, 1999-2004). PI: Jordi Mas.

Laboratorio Microbiología Técnica, Universidad Católica del Norte, Antofagasta, Chile (1 month, 2003) PI: Cecilia Demergaso.

Centre d'Estudis Avançats de Blanes, CEAB-CSIC, Blanes, Spain (5 months, 2004) PI: Emilio O. Casamayor.

Biology Department. Portland State University. Portland, OR, USA (3.5 years, 2004-2008) PI: Anna-Louise Reysenbach.

United States Geological Survey (USGS), Reston, VA, USA (2 weeks, 2006) PI: Mary Voytek

Biology Department. University of Georgia. Athens, GA, USA. (2 weeks, 2005) PI: Mike Adams

Institute of Microbiology, Czech Academy of Sciences. Trebon, Czechia (1 month, 2009) PI: Michal Koblizek.

Dpt. Marine Biology & Oceanography. Institut de Ciències del Mar, ICM-CSIC, Barcelona, Spain (3.5 years, 2008-2011). PI: Josep M. Gasol

College of Earth, Ocean and Environment, University of Delaware. Lewes, DE, USA (1 month, 2010). PI: David L. Kirchman

Leibniz Institute of Freshwater Ecology and Inland Fisheries. Neuglobsow, Germany (5 month, 2012-2013). PI: Hans-Peter Grossart.

Dpt. Marine Biology & Oceanography. Institut de Ciències del Mar, ICM-CSIC, Barcelona, Spain (Since Nov 2013). PI: Esther Garcés

Awards:

Best PhD Thesis award (Premio Extraordinario de Tesis). Universitat Autònoma de Barcelona. Oct 2006

Supervision of students:

Research Supervisor of undergraduate students at Portland State University (Alli Bigeh) and at the ICM-CSIC (Maria Pellicer, Laura Gómez, Marta Royo-Llonch, Helena Catena).

Master Co-Supervision (with Silvia G Acinas) of Marta Royo-Llonch: Microdiversity within Single Cell Genomics of marine Bacteroidetes: *Kordia* spp. as model microorganisms. September 2013.

Master Supervision of Sergio Estruch: Marine planktonic protist diversity in the Palma Bay (Mallorca) as revealed by Illumina sequencing

Master Supervision of Daniel Romano: Microbiological study of an underwater volcano in a degassing stage: island of El Hierro.

Master Supervision of Adria Auladell: Community ecology of aerobic anoxygenic phototrophic (AAP) bacteria at temporal and spatial scales

PhD Co-Supervision (with Josep M Gasol): Regulation of the prokaryotic metagenome: effect and quantification of biological and oceanographic factors

Comities:

PhD Committee Member of Hana Medová – Phototrophic microorganisms in extreme environments. University of South Bohemia, Ceske Budejovice, Czech Republic. 07/06/2013

PhD Committee Member: Naroa Uría – Microbial fuel cell performance: Design, Operation and Biological factors. University Autònoma de Barcelona, Barcelona, Spain. 07/09/2012

PhD Proposal Committee Member: Caterina Rodríguez Giner – Patterns of genetic diversity and biogeography of marine picoeukaryotes. Universitat Politècnica de Catalunya, Barcelona, Spain. 17/02/2014

Reviewer:

Journal reviewer for *Biogeosciences*, *Environmental Microbiology*, *Extremophiles*, *Canadian Journal of Microbiology*, *Geobiology*, *Aquatic Microbial Ecology*, *International Journal of Systematic and Evolutionary Microbiology*, *ISME Journal*, *Polar Biology*, *Microbial Ecology*, *Environmental Science and Pollution Research* and *PLOS One*.

Grant Reviewer for NASA (USA), NSF (USA), Minerva Foundation (Israel), Fundacio La Caixa (Spain), INACH (Chile) and ANEP (Spain)

Contribution to outreach websites:

Understanding Microbial Diversity. Blog in website of FLEXE-The GLOBE Program.
http://classic.globe.gov/fsl/html/templ.cgi?flex-cruise_updates17Dec&lang=de

Viendo lo invisible. Website of FAMOSO Cruise. Unidad de Tecnología Marina.
http://www.utm.csic.es/sarmiento_diario.asp?id={C4316DFA-1369-4352-9129-F588A178D4C6}

Recerca en Acció: Sota la pell de l'oceà

http://www.recercaenaccio.cat/agaur_reac/AppJava/ca/projecte/20110420-sota-la-pell-de-.jsp