

KEVIN PORTUNE

Residing in Bilbao, (Northern Spain)

Spanish residency (EU)

Birthdate: 1979 (Ohio, USA)

Cell phone: +34 682 82 47 59

Email: kportune@gmail.com

LinkedIn: <http://www.linkedin.com/in/kevin-portune-95210720>



SUMMARY STATEMENT: Scientific Project Manager, bioinformatics researcher and microbiologist with 10+ years of professional experience in microbiome and health and food-related research activities. Extensive experience analyzing NGS data and carrying out multi-omics data integration/analysis from human, animal and environmental samples. 3+ years of project management experience. Published 28 articles in peer-reviewed journals. Teaching experience with 6 courses taught at the university level in the U.S.A. and in Spain. Fluent in English and Spanish.

PERSONAL SKILLS: Highly dedicated, loyal and persistent professional. Easy-going, positive and friendly, high level of patience and highly adaptable to new circumstances/environments/cultures/languages. Effective mentor, teacher and communicator in diverse situations. Highly attentive to details and excellent analytical skills. Independent in completing tasks. Deep interest in continual learning and self-improvement.

EDUCATION

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| 2008 | Ph.D. in marine biosciences
University of Delaware, USA |
| 2002 | B.S. in biology
Marquette University, Wisconsin, USA |

LANGUAGES

English (native language)
Spanish (Full professional proficiency)

PROFESSIONAL EXPERIENCE

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| 2022-present | Scientific Project Manager
BC3 Basque Centre For Climate Change-Klima Aldaketa Ikergai, Basque Country, Spain (https://www.bc3research.org/) <ul style="list-style-type: none">Supporting BC3 in the coordination and management of the 4-year Horizon Europe funded project BlueAdapt (GA 101057764), consisting of a consortium of 12 European partners. Managing all financial, administrative and logistical aspects of the project at the consortium level, organization of project meetings, and managing all interactions/communication between the European Commission, the project coordinator and project consortium partners, as well as the external advisory board and internal/external specialists on ethical and legal aspects. |
| 2019-2021 | Senior researcher
AZTI, Food and Health department. Technology Center, Basque Country, Spain (https://www.azti.es/) <ul style="list-style-type: none">Developed precision nutrition strategies by implementing different omics techniques (metagenomics, lipidomics, nutrigenetics) to analyze individual genetic and metabolic profiles in diverse populations that require specific nutritional demands (children, senior citizens, professional athletes) as well as patients that suffer from particular medical conditions (obesity, metabolic syndrome, dyslipidemia, cancer). Carried out multivariate statistical analysis and multi-omics data analysis from observational and intervention studies carried out in these respective population groups. |
| 2014-2018 | Postdoctoral researcher
Institute of Agrochemistry and Food Technology (IATA-CSIC), Valencia, Spain (https://www.iata.csic.es/en) <ul style="list-style-type: none">Applied metagenomic techniques to investigate the community structure, diversity, taxonomy and metabolic activities of the host gut microbiota in intervention studies with human and rodents designed to examine the effects of different dietary components in healthy and overweight and obese subjects. |
| 2012-2014 | Postdoctoral fellow, Marie Curie, IAPP (Industry-Academia Partnerships and Pathways program)
Universitat de València, Spain (https://www.uv.es/) <ul style="list-style-type: none">Applied metagenomics approaches to investigate dynamic microbial communities in bioreactors eliminating volatile organic compounds (VOCs) and other industrial pollutants. |

- 2011-2012 **Professor in Microbiology and Molecular Biology**
 IE University, Segovia, Spain (<https://www.ie.edu>)
- 6-unit lecture/lab course (Microbiology) and 9-unit lecture/lab course (Molecular Biology) focused on the central themes and laboratory techniques of microbiology and molecular biology.
- 2010 **Adjunct professor in Microbiology**
 Merced College, California, USA (<https://www.mccd.edu>)
- 4-unit lecture/lab course (Biol-20, Microbiology) focused on the fundamental topics and laboratory techniques of microbiology with an emphasis on human health and disease.
- 2010 **Instructor in Cell Biology**
 University of California, Merced, USA (<https://www.ucmerced.edu>)
- 4-unit lecture/lab course (Bio 110 - Cell Biology) focused on the structure and cellular functions of animal, plant, and bacterial cells.
- 2010 **Instructor in Contemporary Biology**
 University of California, Merced, USA (<https://www.ucmerced.edu>)
- 4-unit lecture/lab course (Bio 1 - Contemporary Biology) focused on all basic concepts in modern biology.
- 2009 **Instructor in Molecular Biology**
 University of California, Merced, USA (<https://www.ucmerced.edu>)
- 4-unit lecture/lab course (Bio 100-Molecular machinery of life) focused on the essential molecular pathways and mechanisms of cell biology.
- 2008-2009 **Postdoctoral Researcher**
 University of North Carolina, Wilmington, USA (<https://uncw.edu>)
 University of California, Merced, USA (<https://www.ucmerced.edu>)
- Examined developmental and temperature stress-induced transcriptome responses in the early development of embryos from the *Scleractinian* coral *Acropora palmata* using DNA microarrays.
- 2003-2008 **Graduate Research Assistant**
 University of Delaware, USA (<https://www.udel.edu>)
- Developed novel applications of molecular techniques to examine the ecological and physiological causes of harmful algal species bloom initiation caused by the germination of microalgal resting stages from marine sediments.
 - Performed extensive optimization techniques for extraction of nucleic acids from marine sediments and conducted an extensive characterization of the abundances of harmful algal cyst dispersion within resident sediments of the Delaware Inland Bays, USA.
- 2002 **Research Assistant**
 Laboratory of Dr. Jim Maki, Marquette University, Wisconsin, USA (<https://www.marquette.edu>)
- Examined the effects of extended starvation on colony abundance and diversity of aerobic heterotrophic bacterial communities in the zebra mussel *Dreissena polymorpha*.

PROFESSIONAL SKILLS & LABORATORY EXPERIENCE

Bioinformatics

Advanced experience in analysis of data from metagenomic and RNA-Seq studies, high familiarity with following bioinformatics software and databases:

- **Metagenomics and 16S rDNA amplicon sequencing:** FastQC, Cutadapt, Trimmomatic, MetaPhlAn, HUMAnN, Kraken, Metabat, Samtools, bbMap, BLAST, Prodigal, MG-RAST, PICRUST, KEGG, QIIME, QIIME2, Mothur, USEARCH, LEfSe, MaAsLin, AmpliconNoise, Bioconductor.
- **Genome/metagenome assembly and annotation:** megahit, spades, Canu, MaxBin2, prokka, RNAmmer, Prodigal, tRNAscan, MAKER.
- **RNA-Seq:** Hisat2, StringTie, HTSeq, DESeq2, TopHat, Bowtie2, Cufflinks.
- **Microarray analysis:** TIGR TMeV 4.0, TIGR Spotfinder 3.11, TIGR MIDAS 2.19, BAGEL 3.62.
- **Related databases:** GenBank, Ensemble, UniProt, Ribosomal Database Project (RDP), SILVA, Greengenes.
- **Languages/operating systems:** Linux/Unix operating systems, Bash scripting and Python.

Statistics

- Advanced experience with R and SPSS for multivariate data analysis, PCA, PCoA, CCA, MDS, linear/logistic regression, cluster analysis, factor analysis, multi-omics data analysis, MixOmics.

Molecular biology

- Quantitative real-time polymerase chain reaction (qPCR), reverse transcriptase PCR (RT-PCR), reverse transcriptase quantitative real-time polymerase chain reaction (RT-qPCR), cDNA microarray hybridization and analysis, primer/probe development for PCR/QPCR (DNASTAR, Primer3, Primer Express), nucleic acid (DNA/RNA) extraction/isolation/manipulation from environmental samples (sediments, water, coral tissue), aRNA amplification, molecular cloning, Sanger DNA sequencing, denatured gradient gel electrophoresis (DGGE), fluorescence *in situ* hybridization (FISH), DNA plasmid preparation, size exclusion chromatography, gel electrophoresis, SDS-PAGE, Southern blotting, Western blotting, ELISA, sterile technique.

Microbiology

- Aerobic/anaerobic bacteria culturing and isolation, staining techniques (gram, simple, negative, spore, acid-fast, capsule), selective/differential/enriched media culturing, bacterial transformation, carbohydrate fermentation, tryptophan metabolism, sulfate reduction, hemolytic and catalase activity, water quality testing for coliforms, antibiotic and antimicrobial chemical sensitivity testing, throat culture, yeast culturing and differentiation, media preparation (nutrient broth, complex and chemically defined media, phenol red-lactose, SIM), and agar preparation (SYTA, GYC, motility, Sabouraud's dextrose, desoxycholate, phenylethyl alcohol, blood, potato dextrose, starch, casein, tributyrin, EMB, MacConkey, Mueller-Hinton).

Cellular biology / Biochemistry

- Flow cytometry, mammalian cell culturing, mussel tissue dissection, light and fluorescence microscopy, confocal microscopy, microalgal culturing, media preparation, nutrient analysis (dissolved and particulate). Spectrophotometry, fluorometry, luminometry, LC-MS, GC-MS, antioxidant enzyme (superoxide dismutase, catalase) activity assays, reactive oxygen species (superoxide, hydrogen peroxide) detection and enumeration, protein preparation and quantification.

28 PUBLICATIONS IN PEER-REVIEWED SCIENTIFIC JOURNALS

Selected publications:

- Fabersani E, **Portune K**, Campillo I., López-Alema I, Montserrat de la Paz S, Romaní-Pérez M, Benítez-Páez A, Sanz Y. (2021) *Bacteroides uniformis* CECT 7771 alleviates inflammation within the gut-adipose tissue axis involving TLR5 signaling in obese mice. Sci Rep 11, 11788. <https://doi.org/10.1038/s41598-021-90888-y>.
- Jauregibeitia I, **Portune K**, Gaztambide S, Rica I, Tueros I, Velasco O, Grau G, Martín A, Castaño L, Larocca AV, Di Nolfo F, Ferreri C, Arranz S. (2021) Molecular differences based on erythrocyte fatty acid profile to personalize dietary strategies between adults and children with obesity. Metabolites. Jan 8;11(1):43. doi: 10.3390/metabo11010043. PMID: 33435565; PMCID: PMC7827034.
- Jauregibeitia I, **Portune K**, Rica Itxaso, Tueros I, Velasco O, Grau G, Trebolazabala N, Castaño L, Vita Larocca A, Ferreri C, Arranz S. (2020). Fatty acid profile of mature red blood cell membranes and dietary intake as a new approach to characterize children with overweight and obesity. Nutrients. 12, 3446; doi:10.3390/nu12113446.
- González-Ramos S, Paz-García M, Fernández-García V, **Portune KJ**, Acosta-Medina EF, Sanz Y, Castrillo A, Martín-Sanz P, Obregon MJ, Boscá L. (2020) NOD1 deficiency promotes an imbalance of thyroid hormones and microbiota homeostasis in mice fed high fat diet. Scientific Reports. 10:12317. <https://doi.org/10.1038/s41598-020-69295-2>.
- Portune KJ**, Pérez MC, Álvarez-Hornos J, Gabaldon C. (2020) Contribution of bacterial biodiversity on the operational performance of a styrene biotrickling filter. Chemosphere. 247. <https://doi.org/10.1016/j.chemosphere.2019.125800>
- Beaumont M, **Portune KJ**, Steuer N, Lan A, Cerrudo V, Audebert M, Dumont F, Mancano G, Khodorova N, Andriamihaja M, Airinei G, Tomé D, Benamouzig R, Davila AM, Claus SP, Sanz Y, Blachier F. (2017) Quantity and source of dietary protein influence metabolite production by gut microbiota and rectal mucosa gene expression: a randomized, parallel, double-blind trial in overweight humans. American Journal of Clinical Nutrition. 106(4):1005-1019. DOI:<https://doi.org/10.3945/ajcn.117.158816>.
- Portune KJ**, Beaumont M, Davila AM, Tomé D, Blachier F, Sanz Y. (2016) Gut microbiota role in dietary protein metabolism and health-related outcomes: The two sides of the coin. Trends in Food Science & Technology. 2016. DOI: 10.1016/j.tifs.2016.08.011. Volume 57, Part B, November 2016, Pages 213-232.

8. **Portune KJ**, Benítez Paéz A, Gomez del Pulgar EM, Cerrudo V, Sanz Y. (2016) Gut microbiota, diet, and obesity-related disorders—The good, the bad, and the future challenges. *Molecular Nutrition & Food Research*. DOI: 10.1002/mnfr.201600252.
9. Benítez-Páez A, **Portune KJ**, Sanz Y (2016) Species-level resolution of 16S rRNA gene amplicons sequenced through the MinIONTM portable nanopore sequencer. *GigaScience*. 5:4 DOI 10.1186/s13742-016-0111-z.
10. **Portune KJ**, Voolstra CR, Medina M, Szmant AM (2010) Development and heat stress-induced transcriptomic changes during embryogenesis of the scleractinian coral *Acropora palmata*. *Marine Genomics*. 3:51-62.

For a full list of all 28 publications see: **ORCID: <https://orcid.org/0000-0002-3428-8044>

BOOK CHAPTERS

1. Sanz Y, **Portune K**, Gómez EM, Benítez-Páez A. (2016) Targeting the Microbiota: Considerations for Developing Probiotics as Functional Foods. *The Gut-Brain Axis*. Chapter 2 pp. 17 - 30. Elsevier.

PARTICIPATION IN SELECTED RESEARCH PROJECTS

- 2020-2022 **Title**: Red de Tecnologías Ómicas aplicadas a la Innovación y Desarrollo industrial de Ingredientes, Alimentos Funcionales y Nutracéuticos (TECNOMIFOOD)
Financial Entity: Centro para el Desarrollo Tecnológico Industrial (CDTI), Spain
Duration: 3 years - **Total**: 4,400,000 €
- 2019-2021 **Title**: OBINTER: Obesidad: intervención y nuevas soluciones para una nutrición de precisión.
Financial Entity: Eusko Jaurlaritza - Gobierno Vasco, Elkartek
Duration: 2 years - **Total**: 195,016 €
- 2019-2020 **Title**: Obesidad y dislipemia, epidemia global: caracterización molecular y de parámetros dinámicos para el desarrollo de estrategias diagnósticas y terapéuticas personalizadas.
Financial Entity: Eusko Jaurlaritza - Gobierno Vasco, Osasun saila - Dpto. de Salud
Duration: 2 years - **Total**: 80,760 €
- 2013-2018 **Title**: MyNewGut: Microbiome influences on energy balance and brain development/function put into action to tackle diet-related diseases and behaviour.
Financial Entity: European Union's Seventh Framework Programme for research, technological development and demonstration. Grant Agreement no: 613979
Duration: 5 years - **Principal Investigator**: Dr. Yolanda Sanz Herranz
- 2011-2015 **Title**: Developing the next generation air treatment based on replacing non-renewable resources by microbiology.
Financial Entity: People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007–2013/ under REA grant agreement n° 284949
Duration: 4 years - **Principal Investigator**: Dr. Carmen Gabaldón García
- 2008-2009 **Title**: Internal funding provided by the UNCW Academic Affairs to enhance coral reef research and education at UNCW.
Financial Entity: University of North Carolina, Wilmington, USA, Academic Affairs
Duration: 9 months - **Principal Investigator**: Dr. Alina Szmant
- 2007 - 2010 **Title**: The Future of Harmful Algal Blooms: An Empirical Approach to Predicting the Combined Impacts of Rising CO₂, Temperature, and Eutrophication.
Financial Entity: USA Environmental Protection Agency - ECOHAB (#833221)
Duration: 3 years - **Principal Investigators**: Drs. David A. Hutchins, Kathryn J. Coyne, Mark A. Warner
- 2006-2007 **Title**: Assessment and Monitoring of Harmful Algal Cysts Within High Nutrient-Rich Areas of the Delaware Inland Bays.
Financial Entity: Delaware Center for Inland Bays, USA (#EPA 99399-008-2)
Duration: 6 months - **Principal Investigators**: Dr. S. Craig Cary, **Kevin J. Portune**

- 2003-2006 **Title:** Investigation of toxic Raphidophyte population dynamics using molecular and physiological tools.
Financial Entity: USA Environmental Protection Agency – ECOHAB (#831041)
Duration: 3 years - **Principal Investigators:** Drs. David A. Hutchins, S. Craig Cary, Kathryn J. Coyne, and Martina A. Doblin

PARTICIPATION IN PRIVATE CONTRACTS

- 2017-2018 **Title:** Isolation and characterization of intestinal human bacteria from subjects with metabolic syndrome and controls.
Financial Entity: LABORATOIRES NUTRITION ET CARDIOMETABOLISME (LNC)
Duration: 1 year - **Budget:** 85.977.5 €

PRESENTATIONS - CONFERENCES & MEETINGS

Speaker/presenter in 20 American and European meetings

Selected oral presentations:

- **Portune K.J.**, Beaumont M., Steuer N., et al. Investigations of the effects of dietary protein source and quantity on human intestinal microbiota and host physiology. 31st EFFoST International Conference. Sitges, Spain. November 14-16, 2017. Oral presentation.
- **Portune K**, Pérez MC, Álvarez Hornos FJ, Gabaldón C. Evaluation of dynamic microbial communities in a styrene-degrading biotrickling filter using 16S rDNA tag pyrosequencing and denaturing gradient gel electrophoresis. 16th European Congress on Biotechnology. July 13-16, 2014. Oral presentation.

ADDED TEACHING EXPERIENCE

- Taught classes "Sports nutrition - Membrane lipidomics: new tools for innovation in food design with health properties" in the Master's program in Nutrition and Health at the Universidad de País Vasco (UPV/EHU), Vitoria. Nov 5, 2019, as well as Nov 10, 2020.
- Taught classes "Sports Nutrition: Application of membrane lipidomics" to students with a specialization in "Chemistry and Genetics in Health, Nutrition and Sport" at the Universidad de País Vasco (UPV/EHU). May 15, 2020 and May 22, 2021.

PARTICIPATION AS JURY MEMBER FOR DISSERTATION THESIS:

- Angela Casanova. 'Action of natural bioactive compounds on the enteroendocrine system.' Biochemistry & Biotechnology Department. MoBioFood Research Group. Universitat Rovira i Virgili. Nov. 6, 2017.

ADDITIONAL TRAINING COURSES

- mixOmics R Essentials for Biological Data Integration course, Oct 11 – Nov 7 2021.
- Statistics course – regression, multivariate analysis. Hospital of the Sea Institute for Medical Research (IMIM) - online, Dec10-18, 2020.
- Strategic skills and sale of the added value for customer management. In house course - AZTI, Feb 12-13, 2020.
- Advanced RNA-Seq and ChIP-Seq Data Analysis Course. EMBL-EBI, Hinxton, Cambridge, UK, May12-15, 2014.

OUTREACH

- **Career day at American School of Valencia high school (1/16/13):** Provided seminar discussing professional career and current work on NextAir Biotreat project from the University of Valencia.
- **Volunteer at EXPOCIENCIA (5/25/13 and 5/24/14)** at Parc Científic and the Universitat de València: Communication of research activities to general public of Valencia, Spain.
- **University of Delaware, College of Marine and Earth Studies, Coast Day volunteer (2003-4, 2006):** Community outreach instruction of graduate research and science topics to Delaware residents.
- **Extreme 2004, Exploring the Deep Frontier, (11/30/04-12/22/04):** Interaction/communication with middle- and high school students worldwide to discuss deep sea hydrothermal vent research.
- **Governor's school volunteer (7/18/07, 7/21/06, 7/19/04):** Led expeditions of grades 6-12 students to learn about salt marsh ecology and scientific field research.

OCEANOGRAPHIC CRUISES

- **Hydrothermal Vent Cruise** (10/15/07-11/8/07): Guaymas Basin and 9° N, East Pacific Rise Vent Expedition.
- **Extreme 2004, Exploring the Deep Frontier, Hydrothermal Vent Cruise** (11/30/04-12/22/04): 9° N, East Pacific Rise hydrothermal vent expedition.

Other Interesting information about me:

I have a passion for art and music of many different styles with more than 20 years of playing guitar, piano and singing.