



Name of Research Team, brief description and photo

BACTERIOPHAGE RESEARCH GROUP from AZTI

The **Bacteriophage Research Group** belongs to the Food Quality, Safety and Identity Area of AZTI, a non-profit private foundation committed to the social and economical development of the food sector.

We are a multidisciplinary team with extensive expertise in applied microbiology, foodborne pathogens, molecular biology, and food technology. The main goal of our group is to design and develop natural and green solutions, based on the application of bacteriophages, to be used as pre- and/or post-harvest innovative tools for the biocontrol of pathogenic and spoilage bacteria in the fields of aquaculture, animal production and food safety.

➤ **Group Members:**

- Dr. Amaia Lasagabaster
- Dr. María Lavilla
- Dr. Elisa Jimenez
- Dr. Cristina García
- Ainara García
- Estibaliz Ruiz

➤ **Research topics**

Current research lines are focused to combat the pathogens:

- *Listeria monocytogenes*
- *Campylobacter* spp.
- *Vibrio* spp.

➤ **Recent articles**

- Nafarrate I., Mateo E., Miranda-Cadena K., Lasagabaster A. Isolation, host specificity and genetic characterization of *Campylobacter* specific bacteriophages from poultry and swine sources. 2021. Food Microbiology 97, 103742. <https://doi.org/10.1016/j.fm.2021.103742>
- Lasagabaster A., Jiménez E., Lehnerr T., Miranda-Cadena K., Lehnerr H. Bacteriophage biocontrol to fight *Listeria* outbreaks in seafood. 2020. Food and Chemical Toxicology 145, 111682. <https://doi.org/10.1016/j.fct.2020.111682>
- Nafarrate I., Mateo E., Amárita F., Martínez de Marañón I., Lasagabaster A. 2020. Efficient isolation of *Campylobacter* bacteriophages from chicken skin, analysis of several isolation protocols. Food Microbiol.90:103486. <https://doi.org/10.1016/j.fm.2020.103486>
- Arias-Jayo N., Alonso-Sáez L., Pardo M.A, Lasagabaster A., Ramirez-Garcia A. and Igor Hernández. 2020. Aquaculture Phage AS-A: Effects on Zebrafish Conventionalised with Human Microbiota. Acta Scientific Microbiology 3.4: 129-136. <https://doi.org/10.31080/ASMI.2020.03.0556>

➤ **Research projects:**

Our group has coordinated and participated in several projects dealing with the application of bacteriophages for the biocontrol of non-desired bacteria in the fields of aquaculture, animal production and food safety.

- **FISHEALTH:** Red de excelencia aplicada a la innovación y desarrollo de soluciones para el control de enfermedades infecciosas en producción acuícola. Funded by CDTI – Programa Cervera (CER-20211010). 2021-2023.
- **SoNatA:** Soluciones Naturales basadas en bacteriófagos para su aplicación Alimentaria. Funded by Basque Government. 2021.
- **KONTRAE:** Emergencia y diseminación de resistencias a los antibióticos: vínculos entre salud humana, ganadería, alimentación y medioambiente. Funded by Basque Government. ELKARTEK Program (No. KK-2020/00007) 2019-2022.
- **C-SNIPER:** *Campylobacter*-Specific Nullification via Innovative Phage-mediated Enteropathogen Reduction. Funded by - EIT-Food (No. 19141) 2019-2021.
- **SEAFOOD^{TOMORROW}:** Innovative sustainable solutions for improving the safety and dietary properties of seafood. Funded by European Union – H2020, No. 773400). 2017-2020. <https://seafoodtomorrow.eu/>
- **PHAGE-A:** Desarrollo de una herramienta innovadora a base de fagos para el biocontrol de microorganismos en productos transformados de la pesca. Funded by Basque Government - ELKARTEK Program (No. KK-2018/00052). 2018-2019
- **BERRIPHAGE:** Nuevas herramientas basadas en fagos para el control biológico de patógenos alimentarios. Funded by Basque Government. 2016-2019.

- **ENVIPHAGE:** Environmental impacts on bacterial ecology of bacteriophage use in aquaculture. Funded by European Union -Life+ Programme (Ref. LIFE13 ENV/ES/001048). 2014-2017. <https://www.enviphage.eu/>

➤ **Doctoral Thesis**

- «Isolation, characterization and selection of new *Campylobacter* specific bacteriophages to use as biocontrol agents».
PhD Program: Inmunology, Microbiology and Parasitology of the University of the Basque Country UPV-EHU
PhD student: Ibai Nafarrate Méndez
Period: 2016-2020
Date: 28 febrero 2020
- «Design and optimization of an innovative bacteriophage-based tool for the biocontrol of *Campylobacter*»
PhD Program: Inmunology, Microbiology and Parasitology of the University of the Basque Country UPV-EHU
PhD student: Estibaliz Ruiz Santamaría
Period: 2020-2024
Date: *In progress*

URL de la página del grupo en su institución: www.azti.es

<https://www.azti.es/servicios/bacteriofagos-para-el-biocontrol-de-patogenos-y-bacterias-no-deseadas/>