award 1

1st Meeting of the Iberian Ecological Society & XIV AEET Meeting

"Ecology: an integrative science in the Anthropocene"

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"Ecology: an integrative science in the Anthropocene"

TRANSMITTING SCIENCE poster award

category: "innovative methodology"

WINNER

Yaiza Mercedes Castillo

Elisabeth M.R. Robert
(coordinator)

Andreia Gonçalves Sousa
(coordinator assistant)

transmitting science

Transmitting Science

Eugènia Martí

Laura Prieto

Miguel Verdú

The award committee members

TS.22-P2

“How to visualize the interaction between a virus and its host in a marine environment”

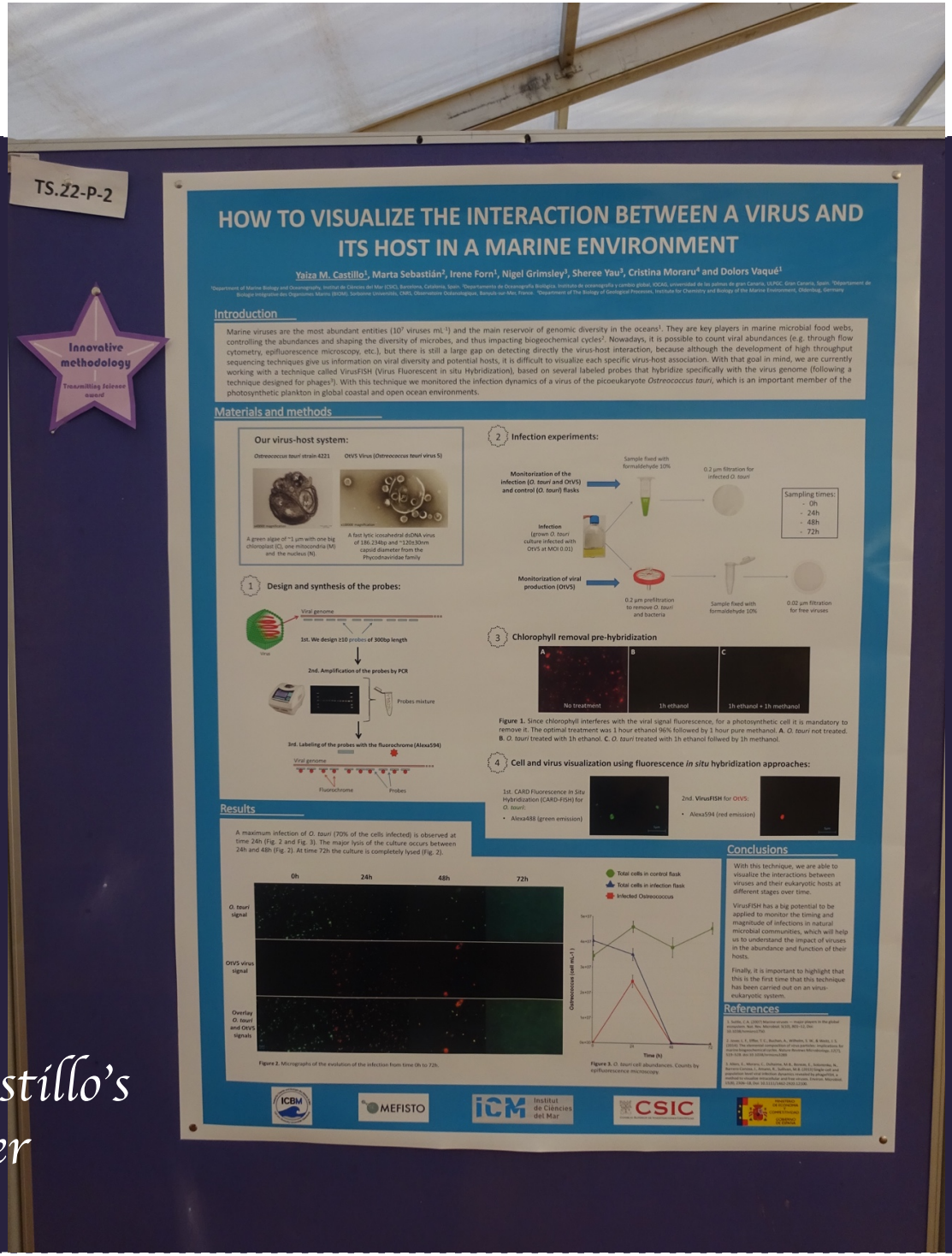
First author (winner): Yaiza M. Castillo

Department of Marine Biology and Oceanography, Institut de Ciències del Mar (CSIC), Barcelona, ES

Award: free course from the Transmitting Science course offer

Co-authors: Marta Sebastián, Irene Forn, Nigel Grimsley, Sheree Yau, Cristina Moraru and Dolors Vaqué

“This clear poster shows an innovative methodology in the spirit of the SIBECOL meeting, developed in the marine ecosystem but applicable in the terrestrial and limnologic fields.”



Yaiza Mercedes Castillo's presented poster

“How to visualize the interaction between a virus and its host in a marine environment”

Yaiza Mercedes Castillo et al.

Abstract: Marine viruses are the most abundant entities (107 viruses mL-1) and the main reservoir of genomic diversity in the oceans. They are key players in the marine microbial food webs, controlling the abundances and shaping the diversity of microbes, and thus impacting the biogeochemical cycles. Several questions have arisen since the discovery of the relevance of viruses in the marine environment: who are they? How many are there? and especially, who infects whom? Nowadays, it is possible to count the viral abundances (e.g. through flow cytometry, epifluorescence microscopy, etc.), but there is still a large gap on knowing who infects whom. Although the development of high throughput sequencing gives information on viral diversity and potential hosts, it is difficult to visualize each specific virus-host interaction. With that goal in mind, we are currently working with a technique called VirusFISH (Virus Fluorescent in situ Hybridization). With this technique, we are able to visualize, thanks to fluorescence microscopy, the interactions between viruses and their eukaryotic hosts at different stages over time. Also, we are able to detect and count a specific virus within the natural community. How does it work? We design and synthetize several fluorescently labeled probes (~10 DNA molecules of 300bp length each), that will specifically attach to the genome of our virus of interest. Thus, we can monitor the timing and magnitude of infections in natural microbial communities, and understand the impact of the virus in the abundance and function of its host.