Understanding the Ocean: The Hidden Majority of SINGEK Uncultured Heterotrophic Flagellates training network

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In aquatic ecosystems, **trophic interactions** are key determinants of how energy and carbon flow within food webs, drive the stability and resilience of co-occurring species. There are many **unknown microorganisms** living in the ocean remaining unknown mainly due to the majority of them being **difficult to culture** in the laboratory. One such group is the diverse **heterotrophic flagellates** MAST (MArine STramenopiles) lineages. Here, we investigate the physiology of several MAST species using a combination



Heterotrophic Flagellates

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of meta-transcriptomics and Single cell genomics in order to extract the genes involved in phagocytosis.

PHAGOCYTOSIS EPIPELAGIC -200m Marker genes? MESOPELAGIC -1,000m **Ecological niche?** Lineage diversity? Phagosome ••• Lysosome • • Phagolysosome -----BATHYPELAGIC **-**4,000m

Phototrophic Flagellates



Bacteria





PHAGOCYTOSIS GENES









This approach is a new opportunity to examine the heterogeneity of microbial communities, recover their true diversity, and better understand specific biological processes performed by particular species.

This work has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. H2020-MSCA-ITN-2015-675752