Marine biological resources

LIVING DEEP

UNDERSTANDING THE GENOME AND MOLECULAR STRUCTURE OF A PIEZOPHILE LIVING AT EXTREME DEPTHS AND TEMPERATURES

Exploring life in the oceans and within the Earth's crust at depths of over 1000 metres poses a significant challenge. This is particularly the case for understanding the carbon cycle. Life develops in hydrothermal springs despite a paucity of nutrients and an absence of photosynthesis. This phenomenon is known as anaerobic chemolithotrophy, namely the chemical assimilation of the inorganic carbon contained in the hydrothermal flows which percolate through the ocean floor.

The LIVING DEEP project aims to establish the genetic basis of high hydrostatic pressure (HHP) adaptations, also known as piezophily, in an isolated piezophile in deep-ocean hydrothermal vents.

The project is a first step towards identifying a method for characterising the abundance and activity of life in the deep biosphere. It will provide important data that will enable enzymes with considerable biotech potential to be genetically engineered.

Partners

Research centers

UBO, UMR 6197, Brest [Project Developer]
CNRS, UMR 5075, Grenoble
ENS-Lyon, UMR 5570, Lyon
Université Claude Bernard Lyon 1, Lyon
Université Joseph Fourier Grenoble 1, Grenoble

Funder

- Agence Nationale de la Recherche

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