

Department of Environmental Science and Engineering

## Project GreenOrigins

IMAR – Instituto do Mar / CMA



## The IMAR team

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## Objectives

Project GreenOrigins is dedicated to marine biotechnology, consisting of an exploratory, multidisciplinary project focusing on the isolation, identification and exploration of the potential application of pigments and secretions from a marine polychaete, *Eulalia viridis*, characterized for its bright green pigmentation.

The work involves understanding the physiological processes underneath the production of natural toxins, pigments and antioxidants and their relation to the organism's environment.

## Methodology

The research is holistic in nature, involving bioassays to understand the worm's relation with the environment (especially feed and reproduction), involving: histology, histochemistry and electron microscopy; molecular biology; toxicology and biochemistry (e.g. SDS-PAGE, mass spectrometry and HPLC).

The IMAR group is leading the project that includes research groups from **REQUIMTE** (FCT/UNL), **CiiEM** (ES Egas Moniz) and **CBA** (FCUL).

## Expected Results

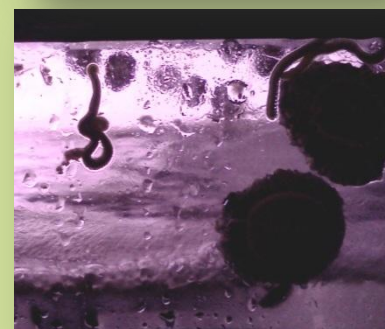
To isolate and identify the main secreted substances (especially by integumentary cells). The findings suggest several types of organic pigments and peptides.

Cells and structures responsible for secretion and biotransformation are currently being identified and mapped. These substance do not appear to be uptaked from feed but rather produced by the worm itself.

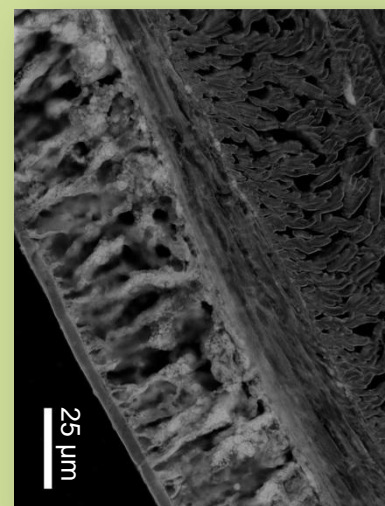
Through biochemical reactions and the simple Microtox™ test, substances that hold particular redox abilities and potential biocide properties are being identified.

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The worm in rearing tanks at our facilities.



A 3D rendering of the microanatomy of the skin of *E. viridis*.