

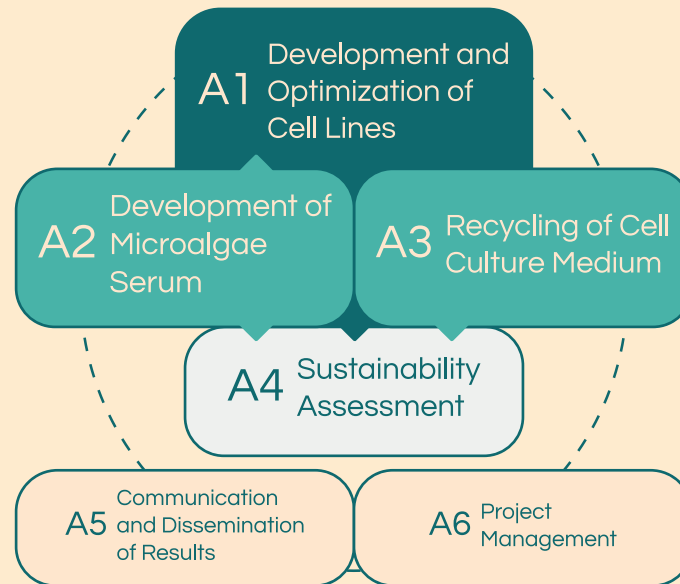
Strategic Objectives

- 01** Develop and optimize cell lines derived from marine organisms, cultivated in animal-free serum media, to ensure ethical, safe, and sustainable production.
- 02** Produce sustainable alternatives to animal serum derived from microalgae, reinforcing the technical feasibility, cost reduction, scalability, and environmental performance of cell culture systems.
- 03** Follow circular economy principles by implementing microalgae-based bioremediation processes to remove nitrogen and phosphate compounds from spent cell medium, allowing water to be reused, recovering waste and boosting efficiency.
- 04** Assess the environmental and economic impacts of the integrated system through Life Cycle Assessment (LCA) and Technical-Economic Assessment (TEA) to confirm sustainability and competitiveness.

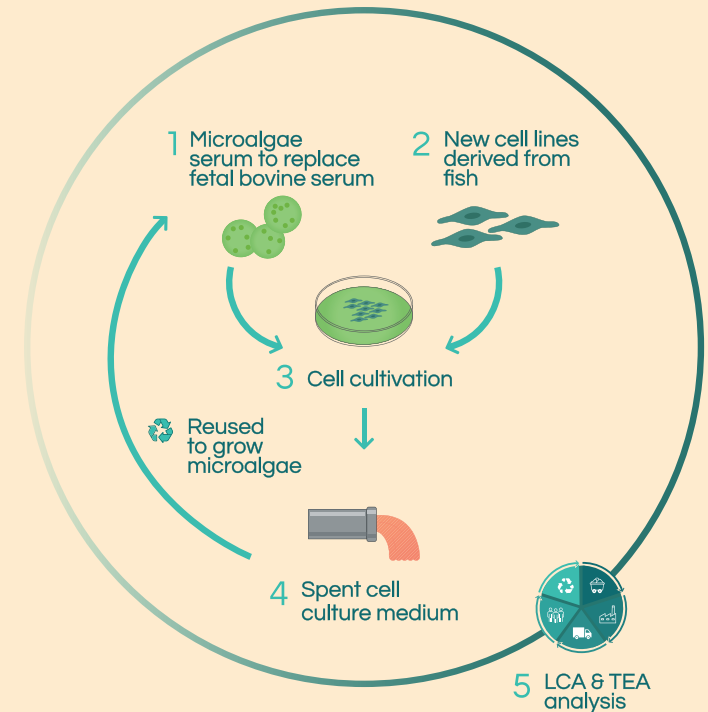
About the Project

INOVACEL is a research project that proposes an innovative approach to the production of marine proteins using **cellular aquaculture**.

Based on the principles of **blue biotechnology** and **circular economy**, the project integrates cell culture techniques with bioactive ingredients derived from microalgae, promoting a production model with reduced environmental impact and high added value.



Sustainable Production Cycle

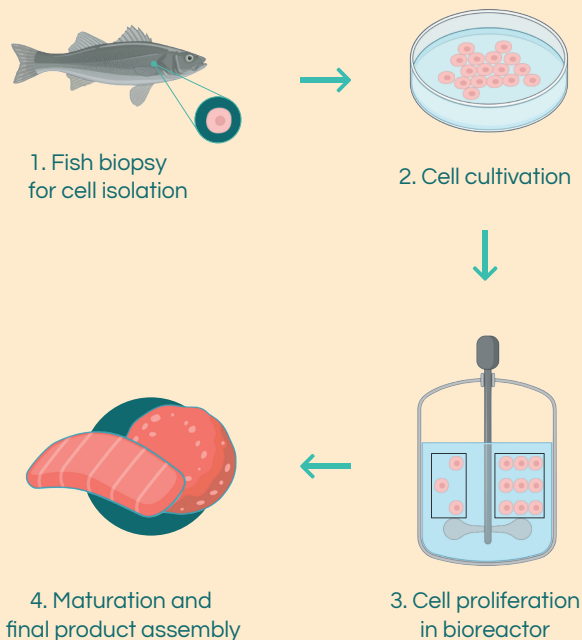


The process begins with the controlled cultivation of microalgae biomass. This biomass is then processed to obtain microalgae-derived sera, which function as substitutes for fetal bovine serum in cell culture media. After the cell culture phase, the culture medium is recovered and reused as a substrate for the growth of new microalgae, thus closing the cycle.

What is Cellular Aquaculture?

Cellular aquaculture produces marine proteins by growing cells in controlled environments, eliminating fishing or slaughter. It reduces environmental impact and resource use, shortens production time, and allows customization of nutritional profiles, offering a safe, ethical, and sustainable alternative to conventional seafood.

How it's made



Project Partners

necton

CCMAR
Centro de Ciências do Mar
Algarve

S²AQUA
Laboratório Colaborativo
Sustentável e Smart Aquaculture

GreenCoLab

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Sustainability
and Innovation in
Cellular Aquaculture