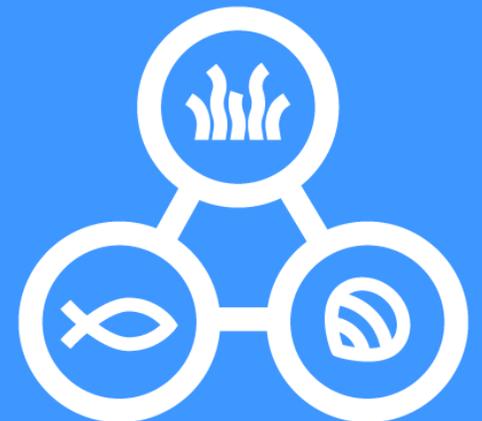


Laboratório Colaborativo
Sustainable and Smart Aquaculture

Applications of *in vitro* fish cell systems as tools to boost aquaculture research and development – the S2AQUAcoLAB approach

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MAIN OBJECTIVE

JOIN SYNERGIES BETWEEN RESEARCH, ACADEMICS, AND INDUSTRIES TO FOSTER **SMART AND SUSTAINABLE AQUACULTURE'S DEVELOPMENT**

PARTNERS

FOCUS AREAS

6 INSTITUTIONAL MEMBERS

1 PRODUCERS ASSOCIATION

9 PRIVATE COMPANIES



WP2

ON-SITE TRAINING

WP3

PRODUCTION OPTIMIZATION

WP4

BIO-INDICATORS OF ANIMAL HEALTH AND WELFARE

WP5

CLIMATE CHANGE

WP6

NEW PRODUCTS, TECHNOLOGICAL DEVELOPMENT AND MARKET

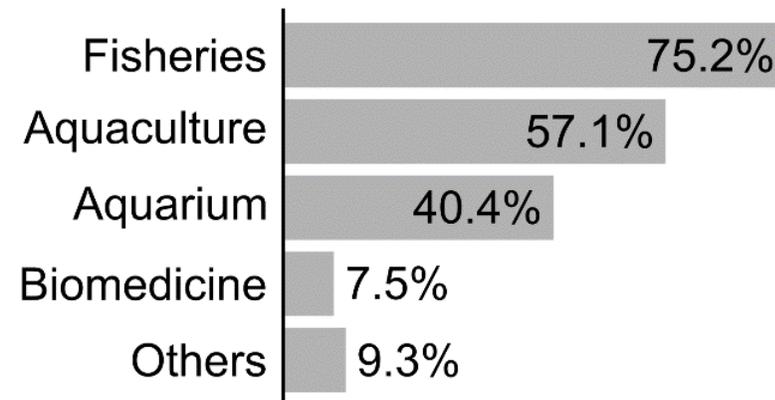
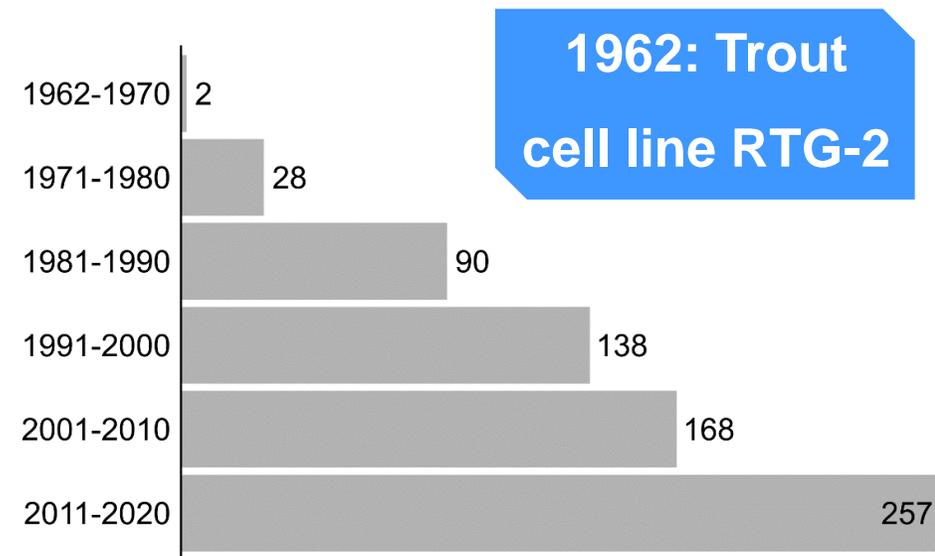


WHY?

- *In vitro* cell systems are a complement to *in vivo* systems
- Alternatives to reduce fish experimentation - 3R's policy

A GROWING INTEREST FOR CELL LINES OF FISH ORIGIN

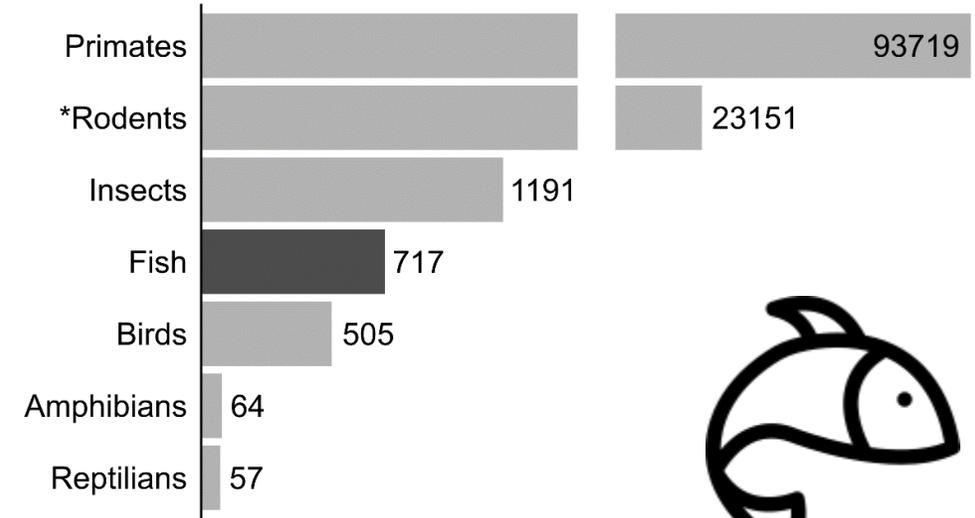
- Steady increase in the last 6 decades
- More research on fish species and fish models
- Marine species are more represented than freshwater species (52%)
- Fish species are important to fisheries and in a lesser extent to aquaculture and aquarium





HOWEVER....

- Few fish cell lines in comparison to mammalian
- Techniques & reagents are those developed for mammalian cultures
- Less than 5% of the fish cell lines are available in cell banks



Laizé et al., 2022

APPLICATIONS OF FISH CELL LINES

- Control of disease outbreak
- Monitoring upstream & downstream water conditions
- Biotechnology
- Gene function
- Cellular aquaculture
- Species conservation



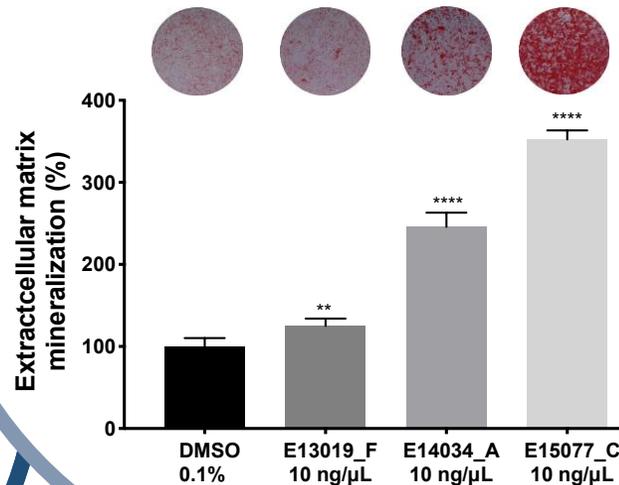


- Repository of cell lines derived from marine species central to Portuguese aquaculture (Biobank)
- Establishment of new cell lines derived from a variety of tissues of aquatic species with commercial value
- Development of intestinal organoids for nutritional studies

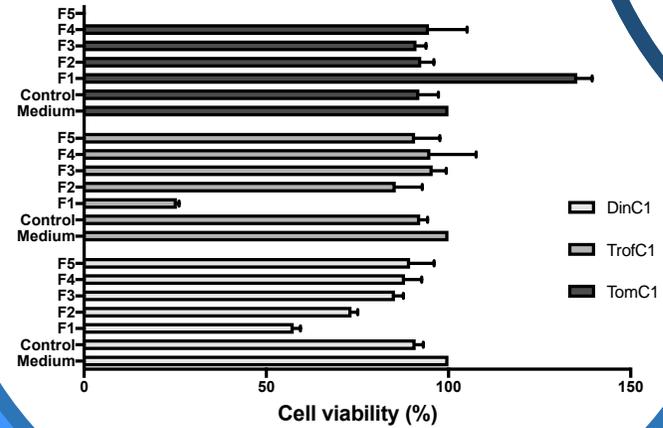
New cell lines from meagre



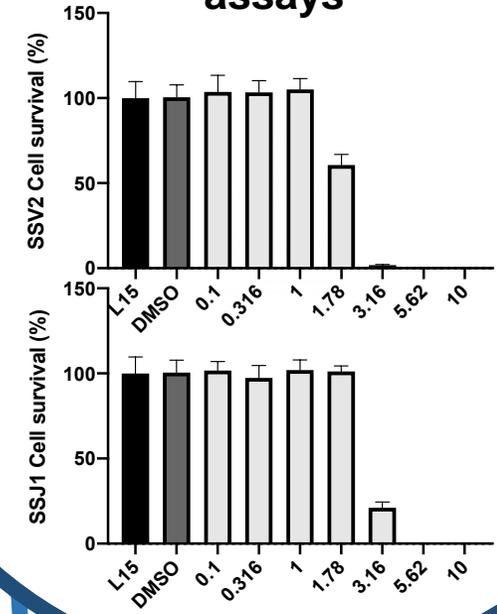
Screening of compounds beneficial to skeletal development



Effect of parasitic infections on fish cell viability



Cytotoxicity assays





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More info:



Thank you

Elevating Aquaculture to a new level

