

## TECHNOLOGY OFFER

# CYANOBACTERIAL BIOACTIVE COMPOUNDS FOR ANTICANCER AND ANTIFOULING ACTIVITY

## Background

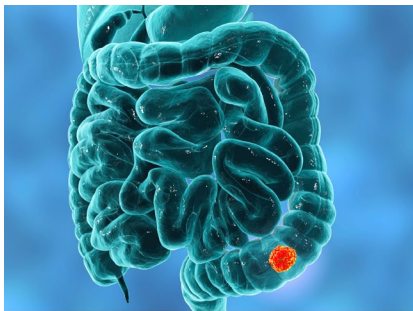
Cyanobacteria are a diverse group of photosynthetic prokaryotes, known to produce secondary metabolites with promising bioactivities.

These promising results push forward novel biotechnological applications to deliver new chemotherapeutic agents to aid cancer treatment and novel strategies to combat the economic and ecological burden of marine biofouling.

## Technology

The present invention relates to bioactive compounds - hypoxanthine (1) arabinoside, 2'-deoxyinosine (2), and phormidolide D (3) - obtained from the cyanobacterium strain *Leptothoe* sp. LEGE 181152, through bioassay-guided approaches. The compound 3 has cytotoxic activity towards cancer cells, for example spheroids of the human colorectal carcinoma cell line (HCT 116).

Additionally, the compounds 1-2 have activity against macrofouling (e.g., *Mytilus galloprovincialis plantigrades*) and microfouling (e.g., *Roseobacter litoralis* biofilm-forming bacteria) marine organisms.



(A) Anticancer activity



(B) Antifouling activity

## Advantages

- Reduction of colon cancer cells viability;
- Inhibition of the settlement of one of the most problematic fouling species (mussels);
- Inhibition of the growth of fouling marine bacteria;
- Natural product, biodegradable properties.

## PATENT STATUS

European Patent Application  
EP4233857

Priority date: 28.02.2022

Pending in Europe

## DEVELOPMENT STAGE

TRL 3 – Experimental proof of concept

Further research required

## APPLICATIONS

Pharmaceutical;  
Antifouling formulations for underwater structures and vessels.

## COOPERATION

Research Cooperation  
Agreement;  
Licensing Agreement.

## KEYWORDS

Anticancer  
Antifouling  
Cyanobacteria  
Natural compounds

## DEVELOPED BY

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