



## European Marine Biological Resource Centre Biobank (EBB)

WP 2 Project Communication

**Action 5**

**D2.5.2 Documentary Script**

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[European Marine Biological Resource Centre biobank – Financing programme: 2014 - 2020 INTERREG  
VB Atlantic Area- Grant Number: EAPA\_501/2016]

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## Executive Summary

The present document describes one of the actions taken in the frame of the European Marine Biological Resource Centre Biobank (EBB) project in order to facilitate the dissemination and understanding of its main aim: the preservation of the marine biodiversity.

The deliverable defines the importance of the Marine Biological Resources (MBR) and the regulations governing its utilisation raising awareness on the need reflected in the Nagoya protocol to share the benefits obtained from such utilisation (Access and Benefit-sharing, ABS).

The text tries to explain how EBB project has tackled the communication of these concepts, that are so difficult to understand in many occasions for the general public. For such purpose, a television show with a high local audience was recorded, with the intention to raise awareness in the general public and a large number of users. The TV show was recorded in the two official languages of the Basque Autonomous region (Basque and Spanish), and broadcasted twice on the Saturday and Sunday TV channels in October 2020. The possible audience is of 3 million people, the Basque television having a total share of 12,6% of audience in 2020 and a total of 295,000 viewers.

## Introduction

The European Blue Biobank (EBB) project has two clear objectives: (i) to develop common tools and operation procedures for the main European marine biobanks and collections in the Atlantic Area in order to define methodologies, protocols and techniques that help preserve the marine biological resources (MBRs) both in-situ and ex-situ and (ii) to harmonize the trans-regional application of the regulations on access to genetic resources and on sharing the benefits of their use (ABS-Regulations).

In order to share the knowledge gained in the context of EBB regarding the ABS regulations and the utilisation of marine genetic resources with end-users, we engaged on the preparation and release of information materials aimed to specific media reaching general public but also specific targets (as for instance researchers from academia or industry). Throughout the project implementation, the idea has evolved towards outcomes to allow us to become more visible to the general public, in order to reach a higher audience.

Euskal Irrati Telebista (EiTB), the Basque Regional Radio Television proposed to Dr. Ibon Cancio of The Plentzia Maritime Station (PiE-UPV/EHU) of the University of the Basque Country (UPV/EHU) to record a TV show on Marine Bioresources.

The original idea of creating a script to film a documentary on the economic and cultural implications of Nagoya thus evolved in the creation of completely finalised product, a dedicated television program with a broad audience.

## The TV show: 'Teknopolis'

'Teknopolis' is a scientific and technological dissemination show carried out by the Elhuyar Foundation for EITB. The TV show offers reports that deal with scientific-technological topics in depth but with a didactic and informative approach. It is broadcasted on weekends, so it can attract a large number of viewers.

Ibon Cancio has participated in the TV show, by presenting some of the coastal areas where he usually samples. Ibon explains, in an informative way, the regulations that govern the access to genetic resources and the importance of biodiversity. He also shows some examples of how the most common species can become examples of marine genetic resources which can be utilized by the industry as well as by researchers from academia, in order to obtain products with diverse potential uses.

The video of the TV show in its version in Spanish can be visualized at this [link](#) and it can help other researchers in the future by providing a script on the main points that must be explained to expand biodiversity awareness, the rules that govern the access to genetic resources, or to have on some examples of the possible uses of different marine genetic resources common in the intertidal zone.

## The importance of biodiversity and ABS regulations

A biodiverse ecosystem is a rich ecosystem. The presence of a wide variety of species makes them resourceful areas that can be used for many purposes. Some examples of the use of these genetic resources are the use of their metabolites for cosmetic, medical or pharmaceutical applications or for obtaining new food and feed. The origin of these molecules can also be marine ecosystems where a multitude of species have properties still unknown to science.

However, the genetic resources belong to the country of origin so it is necessary to reach a prior agreement with the competent authorities in the providing country to be able to access and utilize them.

The Convention on Biological Diversity regulates the use of genetic resources. Specifically, its Nagoya protocol on Access and Benefit-Sharing (ABS) is the main global mechanism for regulating access to and utilization of genetic resources, including marine genetic resources in territorial waters. The protocol stipulates that if, as a consequence of the utilization of these biological resources,

benefits are generated, these must be shared with the country of origin so that the generated benefits (economic or no) can be reinvested in biodiversity conservation in the provider country.

*During the TV show, Ibon Cancio showed how biodiversity can be found in any part of nature and not only in those hot-spots of the planet such as the Amazonas. Furthermore, he explained in colloquial language, the main objectives of the Nagoya protocol and the ABS mechanisms.*

## Some examples

The marine coastline is full of multiple genetic resources that can be scientifically/economically exploited. It is not necessary to go to highly biodiverse areas to find species of interest. The research and development applications and the properties that many marine species can allow the discovery and production of different active biomolecules. Alternatively, many marine organisms can be considered relevant model organisms for biomedical research.

## Marine genetic resources and applied research

*During the television show, Ibon Cancio showed different marine species in the intertidal rocky zone that present properties that can be used by pharmaceutical, cosmetic or food companies. Some of the examples that he encountered on his tour during the TV show are collected in the Table 1.*

Table 1. Some examples of marine resources used in applied research and to obtain active biomolecules.

Species	Type of organism	Possible exploitation as a genetic resource	Utility for
<i>Lichina pygmaea</i> (Figure 1A)	Lichen	Microsporins that protect from ultraviolet radiation	Cosmetic or pharmaceutical industry
<i>Rivularia sp</i>	Cyanobacteria	Pigments	Industry
<i>Colpomenia peregrina</i> / <i>C. sinuosa</i> (Figure 1B)	Algae	Accumulation of antioxidant compounds	Cosmetic industry or cancer research
<i>Padina pavonia</i>	Algae	Antimicrobial, antioxidant and anticancer	Cosmetic or pharmaceutical industry

## Marine genetic resources as laboratory research models

There are also marine species that can be used as laboratory study models, both to analyse and to learn about physiological, metabolic, cell or biochemical

aspects of life that can be extrapolated to human health and also to environmental health.

*During the show, Ibon Cancio showed some marine organisms that can be utilised as models for the study of diseases, cell and physiological processes. Some of the examples that were described in the TV show are listed in Table 2.*

Table 2. Some examples of marine genetic resources used as laboratory research models.

Species	Type of organism	Study model of
<i>Paracentrotus lividus</i>	Echinoidea	Fertilization, cell signalling, development, immune response, toxicity testing....
<i>Anemonia viridis</i> (Figure 1C)	Cnidaria	Anaphylactic shock in humans. (Nobel prize 2013 already conducted) Coral bleaching Symbiosis
<i>Holothuria forskali</i> (Figure 1D)	Holothuria	Tissue regeneration process and Stem cell Germinal cells studies.
<i>Symsagittifera roscoffensis</i>	Acoela	Symbiosis, phototaxis Neuroregeneration

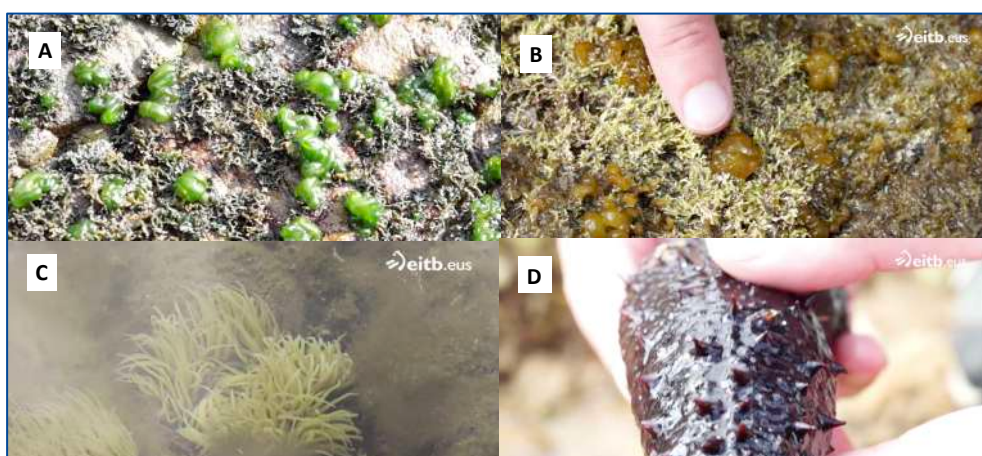


Figure 1. Examples of marine organisms which genetic resources can be utilized. (A) *Lichina pygmaea*; (B) *Colpomenia peregrina*; (C) *Anemonia viridis*; (D) *Holothuria forskali*.

### The biobanks and culture collections

Collections and biobanks are key repositories for facilitating access to biological resources, which can have a great biotechnological potential for both private and public companies. Collections also play an important role in preserving biodiversity and in conserving biological resources in the countries of origin.

Biobanks and collections gather resources that can be utilised by researchers anywhere in the world. Therefore, they also biological resource centres that provide genetic resources of different countries and must comply with the

provisions of the Nagoya protocol and the ABS regulations in the countries of origin of the resources.

*During the TV show, Ibon Cancio showed a biobank of environmental organisms, The Biscay Bay Environmental Biospecimen Bank (Figure 2) and The Basque Microalgae Culture Collection (BMCC), of the University of the Basque Country (UPV/EHU). He also explained the legal procedures that are necessary to access these resources and how easy or difficult they can be to obtain depending on the country where the genetic resource will be sampled.*



Figure 2. Dr. Ibon Cancio in the Biscay Bay Environmental Biospecimen Bank and in the Basque Microalgae Culture Collection of the Plentzia Marine Station (PiE-UPV/EHU)