MARINE BIOTECHNOLOGY

HORIZON2020

Garbine Guiu Etxeberria
European Commission
DG RTD/E2 Biotechnologies
garbine.guiu@ec.europa.eu

Bremen Meeting

Recommended priority actions:

To raise the awareness and visibility of marine biotechnology

To continue to support excellence in basic science

To provide access, to improve and integrate research infrastructure

Streamline the management of intellectual property

Establish cross cutting programmes to support innovation

European Strategy for Marine and Maritime Research

„ ...to share the development at EU level of critical marine research infrastructures, as well as optimising their use“

Cross-thematic approach

Climate change & the ocean

Impact of human activities on coastal & marine ecosystems

Ecosystem approach to resource management & spatial planning

Marine biodiversity and biotechnology

Continental margins and deep sea

Operational oceanography & marine technology

Exploitation of marine renewable energy sources

Marine Joint calls

«The Ocean of Tomorrow»

Important tool for an improved **coordination** of marine and maritime research funded at EU level under FP7. Concerned Directorates: Environment, Transport, Energy, KBBE, NMP

"Crosscutting and multidisciplinarity as bases for innovation"

Biotecnology related topics: Microbial biodiversity, oil spill remediation, antifouling materials and biosensors

Coordination of national and regional managers of Marine Biotechnology programmes

- *KBBE-NET working group on Marine Biotechnology*
- *ERA NET preparatory action*

MarineBiotech

- *ERA NET WP 2013*

"Linking and alining national and european research and innovation efforts to create a coherent pan-european science policy and coordination for Marine Biotechnology"

EU US TF: Marine Genomics Working Group

Goal: To address key coordination bottle-necks and new developments in the science, to foster the collaboration of research and training in the EU and the US in the field of marine genomics

Two flagship areas:

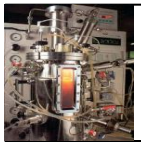
High throughput technologies: opportunities and challenges in marine (meta)genomics.
Next generation scientist training
Optimisation of data utilisation

Application of Marine Genomics to answer real world questions related to environment, ecology, conservation, human health

Activity 2.3 - Biotechnologies

2.3.1. Novel sources of biomass and bioproducts

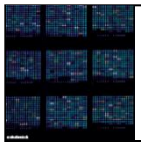
2.3.2. Marine and fresh-water biotechnology



2.3.3. Industrial biotechnology

2.3.4. Biorefinery

2.3.5. Environmental biotechnology



2.3.6. Emerging trends in biotechnology

2.3.2. Marine and fresh-water biotechnology

Marine Biotechnology:

- Use of biotechnology to marine applications
- Marine environment as a unique sources for new products, enzymes and bioactive molecules with wide application

Blue biotech research in FP7 (2008-2010)

MAMBA- *Marine Metagenomics for Biotechnological Applications*

MAREX *-Novel marine bioactive compounds*

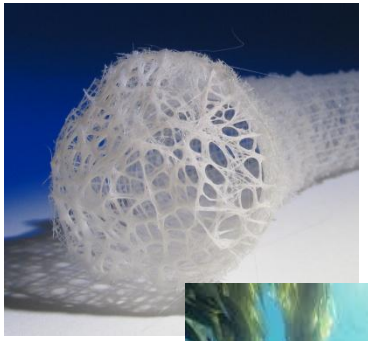
SUNBIOPATH-*Better sunlight to biomass conversion efficiency in microalgae*

GIAVAP-*Genetic improvement of algae*

BAMMBO- *Biomolecules of marine origin*

Marine Fungi- *Natural products for treatment cancer*

SPECIAL*- Sponge enzymes and cells for innovative applications*



Blue biotech research in FP7 (2011-2013)

MICRO B3- *Marine microbial biodiversity*

PHARMASEA *– Marine Biodiscovery Pipeline*
SEBIOTECH *– Marine microbes for industrial biotech*
BLUEGENICS *– Marine genomics for biotech industry*
MACUMBA *– Marine microbes culturing*
KILLPILL*l – Biotech solutions for marine oil spills*

MG4U- *Marine genomics for users*
MARINEBIOTECH *ERANET preparatory action*

2013 *Algae Biorefineries – Biosensors, antifouling*

FP7 EU CONTRIBUTION *140 Million €*

*** Ulixes, MEM-S AquaTerrE; ColorSpore; PolyModE, Lypoyeast, Magicpah*

Related Activities

Research infrastructure and "omics" platforms :

ASSEMBLE, EMBaRC, ELIXIR, EMBRC, MIRRI

Legal bottlenecks for biodiscovery pipelines:

Legal aspects regarding securing access to marine bioresources, related data, their sustainable use - Pilot action embrassing several FP7 projects: Micro B3, Pharmasea, Bluegenics, Seabiotech

New EU Policy initiatives

Blue Growth - opportunities for marine and maritime sutainable growth

- ✓ *Identified five areas where additional effort at EU level could estimulate long-term growth and jobs: Marine biotechnology*

Developing a Marine Strategy for the Atlantic Ocean Area

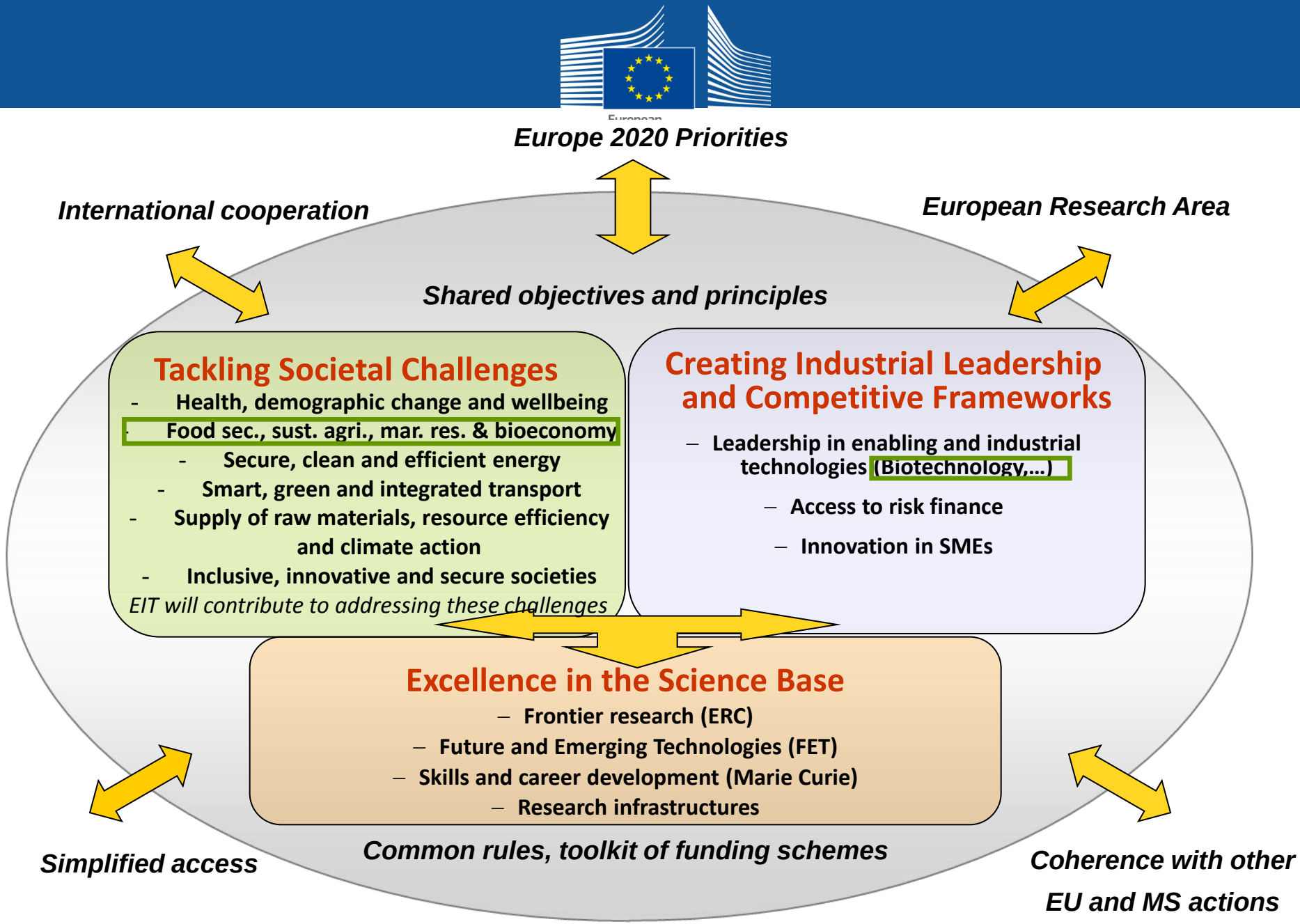
- ✓ *Sustainable explotation of the Atlantic natural resources: understanding of what the rich biodiversity of the ocean can offer*

European Commission

HORIZON 2020

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

- **Commission proposal for a 80 billion euro research and innovation funding programme (2014-2020)**
- **A core part of Europe 2020, Innovation Union & European Research Area:**
  - **Responding to the economic crisis** to invest in future jobs and growth
  - **Addressing people's concerns** about their livelihoods, safety and environment
  - **Strengthening the EU's global position** in research, innovation and technology


Europe 2020 Priorities
International cooperation
European Research Area
Shared objectives and principles
Tackling Societal Challenges
- Health, demographic change and wellbeing
- Food sec., sust. agri., mar. res. & bioeconomy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Supply of raw materials, resource efficiency and climate action
- Inclusive, innovative and secure societies
EIT will contribute to addressing these challenges
Creating Industrial Leadership and Competitive Frameworks
– Leadership in enabling and industrial technologies (Biotechnology,…)
– Access to risk finance
– Innovation in SMEs
Excellence in the Science Base
– Frontier research (ERC)
– Future and Emerging Technologies (FET)
– Skills and career development (Marie Curie)
– Research infrastructures
Simplified access
Common rules, toolkit of funding schemes
Coherence with other EU and MS actions

Priority 1. Societal Challenges

Food security, sustainable agriculture, marine and maritime research & the bioeconomy

Unlocking the potential of aquatic living resources

✓ Boosting marine and maritime innovation through biotechnology

Explore the large potential offered by marine biodiversity and aquatic biomass to bring new innovative processes, products and services to the markets (chemical, material indutries, pharmaceutical etc)

Priority 2. Industrial leadership

Biotechnology as key enabling technology (KET)

Boosting cutting-edge biotechnologies as a future innovation driver

Biotechnology based industrial processes

Innovative and competitive platform technologies

- ✓ *Development of "omic" platform technologies : understanding and exploitation of marine biodiversity for novel applications.*

At the heart of Horizon 2020 objectives will also be the need to develop **«cross cutting marine and maritime scientific and technological knowledge »**

This strategic coordinated approach for research across all challenges and pillars of Horizon 2020 will be key to support the implemettaion of relevant Union policies and to help deliver **« blue growth objectives».**

HORIZON 2020

http://ec.europa.eu/research/horizon2020/index_en.cfm

KBBE website Marine Research

http://ec.europa.eu/research/bioeconomy