EMBRC
EUROPEAN MARINE BIOLOGICAL RESOURCE CENTRE

Italian Forum on Industrial Biotechnology and Bioeconomy
25th-26th September 2014, Genoa (Italy),
Palazzo della Borsa

The European Marine Biological Resource Centre (EMBRC) and its Services to the Blue Biotech Industry

Wiebe H.C.F. Kooistra,
Stazione Zoologica Anton Dohrn,
Villa Comunale,
80121 Naples,
Italy
kooistra@szn.it

www.embrc.eu

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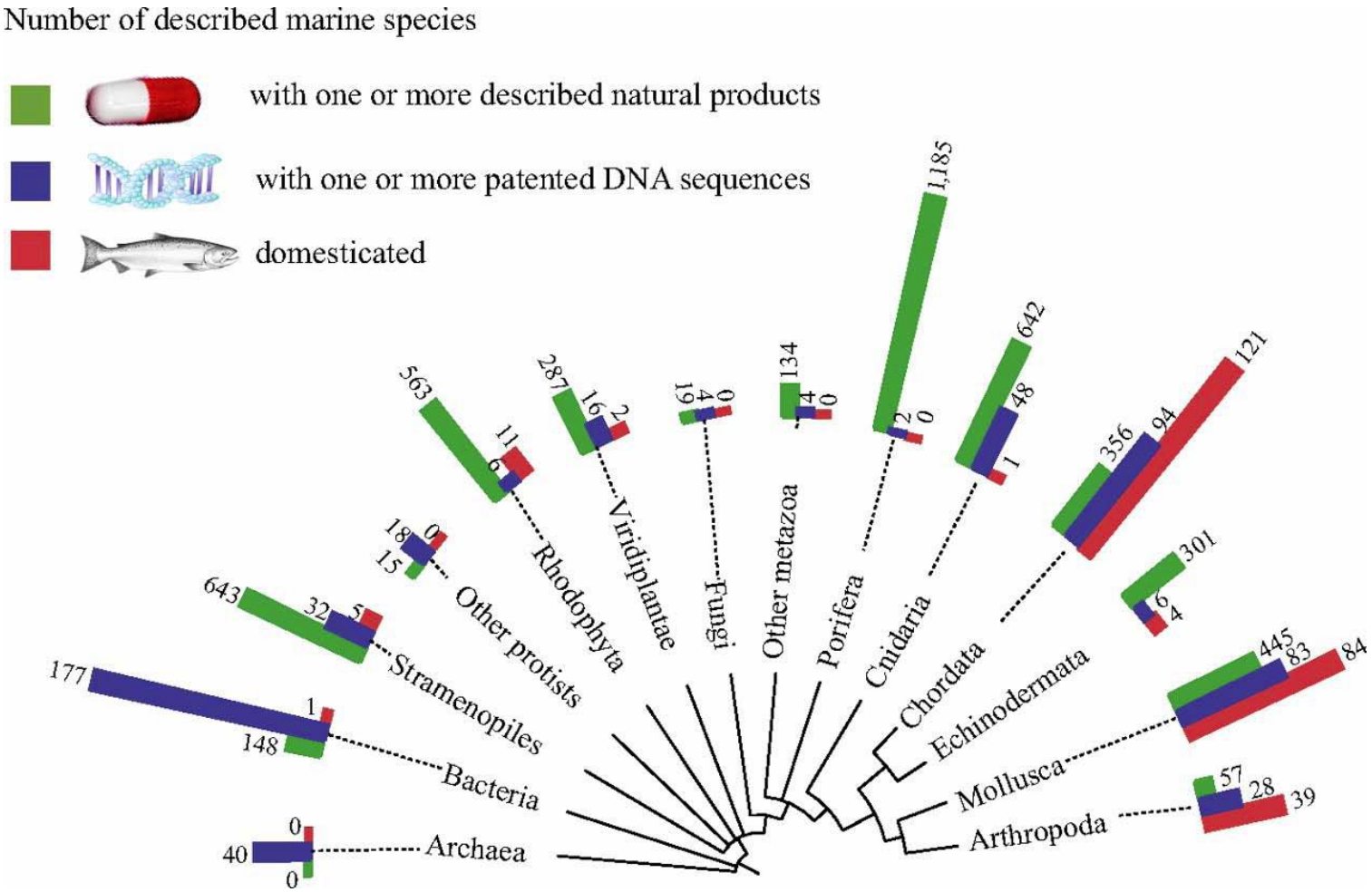
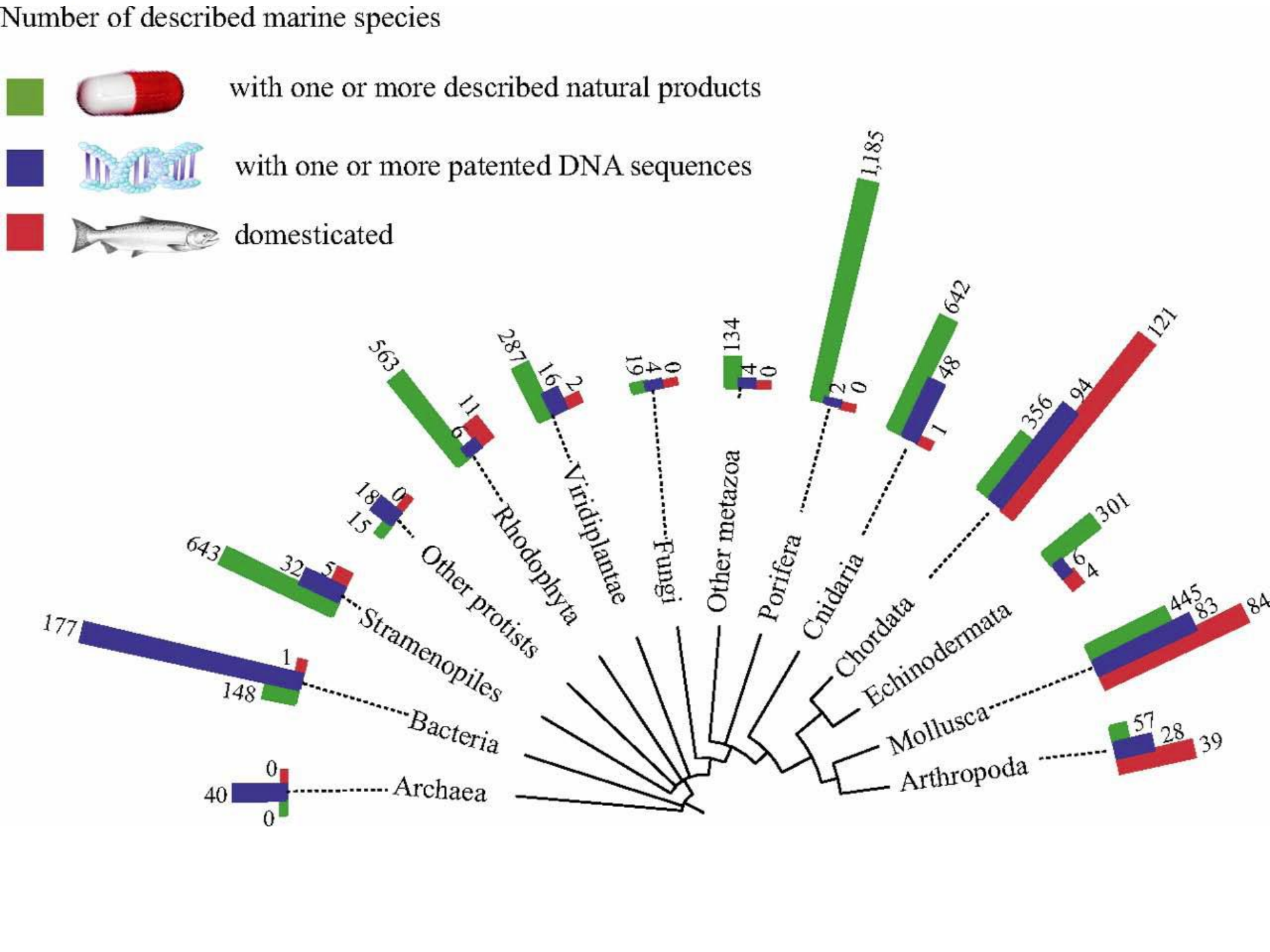
Why Marine Biological Research?

Bio-discovery: Marine biodiversity is a rich source of medicines and natural products, potentially exploitable in the blue biotech industry.




Number of described marine species
with one or more described natural products
with one or more patented DNA sequences
domesticated
563
11
6
Rhodophyta
287
16
2
Viridiplantae
19
4
0
Fungi
134
4
0
Other metazoa
1,185
2
0
Porifera
642
48
1
Cnidaria
356
94
121
Chordata
301
6
4
Echinodermata
445
83
84
Mollusca
57
28
39
Arthropoda
18
0
15
Other protists
643
32
5
Stramenopiles
177
1
148
Bacteria
0
40
0
Archaea

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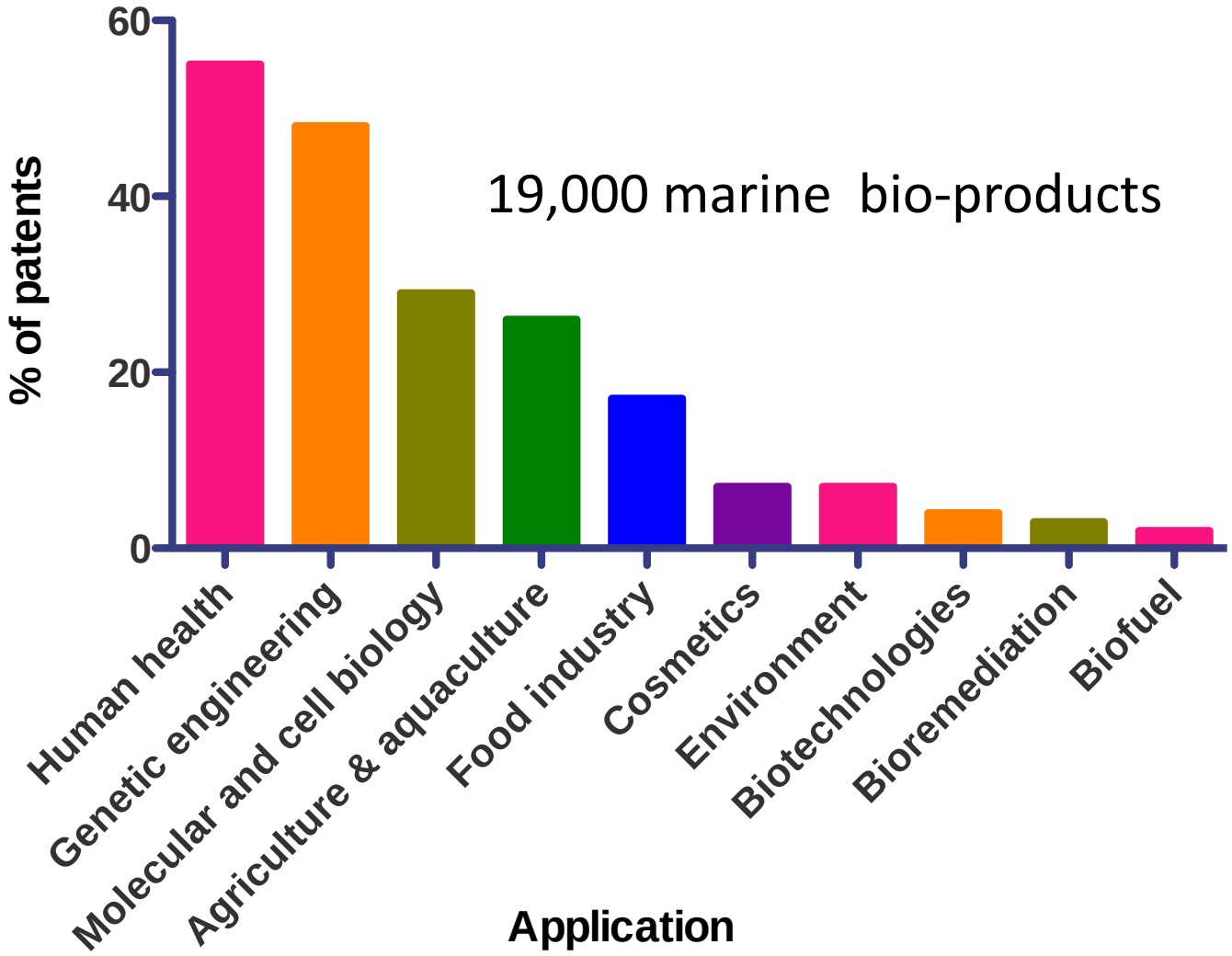

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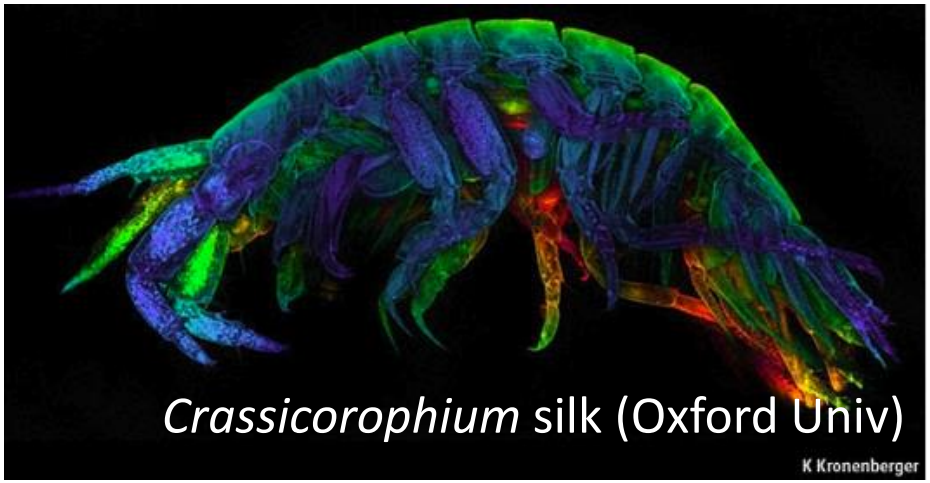

Crassicorophium silk (Oxford Univ)

Bugula neritina, producer of anti cancer agent bryostatin

Haliclona sp. Producer of Manzamine, a drug against malaria

Sarcodictyon roseum, producer of anti cancer agent Sarcodictyin

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Marine Research Stations

Marine stations established in Europe in 19th Century to provide access to the sea to describe marine life, catalogue fisheries resources, provide education, host visiting scientists.

Scientists arrived at **train station**, moved to **marine station**, did their science without bother about any logistics … that was taken care of by the station staff

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What is EMBRC?

- A **distributed Marine Biological Research Infrastructure**
- Composed of **Marine Research Stations** across Europe

- One of the **Research Infrastructures** within the **ESFRI initiative** of the EU-member states

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Objectives of EMBRC

To provide internal and **external researchers** with:

1. Access to **Marine Ecosystems** and their **Biological Resources**,
2. Access to **Equipment, Scientific & Technological expertise, Databases**, …
3. (Support to) **education and training**,
4. Hosting and catering facilities,
5. **Knowledge Transfer** at the European level and assistance with **Technology Transfer** at the local level.

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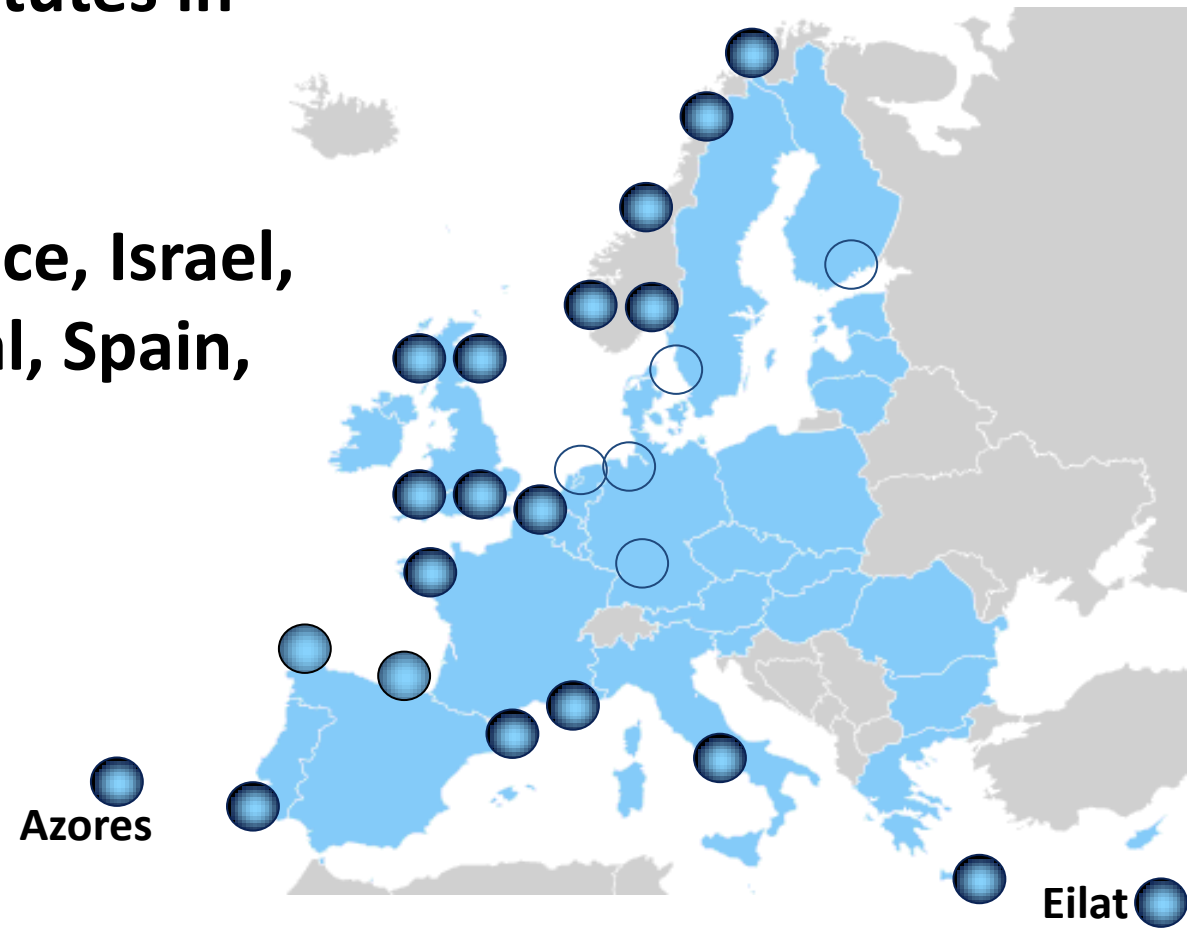
Which stations are in EMBRC?

About 20 Marine Institutes in nine countries

Belgium, France, Greece, Israel, Italy, Norway, Portugal, Spain, UK



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Why is a grouping of marine stations into a pan European EMBRC needed?

Together they:

1. Provide access to a **broad spectrum of marine biodiversity** in Europe and beyond,

2. Provide **legal clearance** to utilize these resources across Europe.

3. Afford the **full range of expensive technologies** and offer these **integrated** with databases, background knowledge, services, etc., needed to explore marine biodiversity

4. Possess the critical mass to set ambitious research, technology development and innovation objectives,

5. Share best practices, standards, data, personnel….

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Who will be the end users of EMBRC?

1. EMBRC will provide **external researchers** from **across the life sciences** with access to its facilities:
   - From **academia**
   - From **private companies**
   - From academia **in collaboration with** private companies

2. EMBRC will foster research projects that carry **bio-discovery** all the way to **product development** - **blue biotech industrial applications**

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Who will be paying all this?

1. **Member States**: for setting up and maintaining the hardware, paying salaries, **Lead member state** for **headquarters,**

2. **Structural Funds (**EU – Member States): targeted investment of infrastructure in economically under-developed regions,

3. **EU:** targeted funding of **cooperation among existing RIs**,

4. **Users**, at **full costs**, which could be funded from
   - National funding schemes, ERA-NET, JPI
   - EU: H2020, Marie Curie, etc.
   - Private resources

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ESFRI Biological and Medical Sciences (BMS) community

Roadmap 2006

BBMRI	Biobanking & biomolecular resources
EATRIS	Translational research in medicine
ECRIN	Clinical trials and biotherapy
ELIXIR	**Biological information repositories**
Infrafrontier	Phenotyping & archiving of mouse genomes
INSTRUCT	**Structural biology**

Update 2008

EMBRC	**Marine biological resources**
ERINHA	High-security labs for highly pathogenic agents
Eu-BioImaging	**Imaging technology for biology and medical sciences**
Eu-Openscreen	**Screening platforms for chemical biology**

Update 2010

ANAEE	Analysis and experimentation on ecosystems
ISBE	**Systems biology**
MIRRI	**Microbial Resources – Culture Collections**

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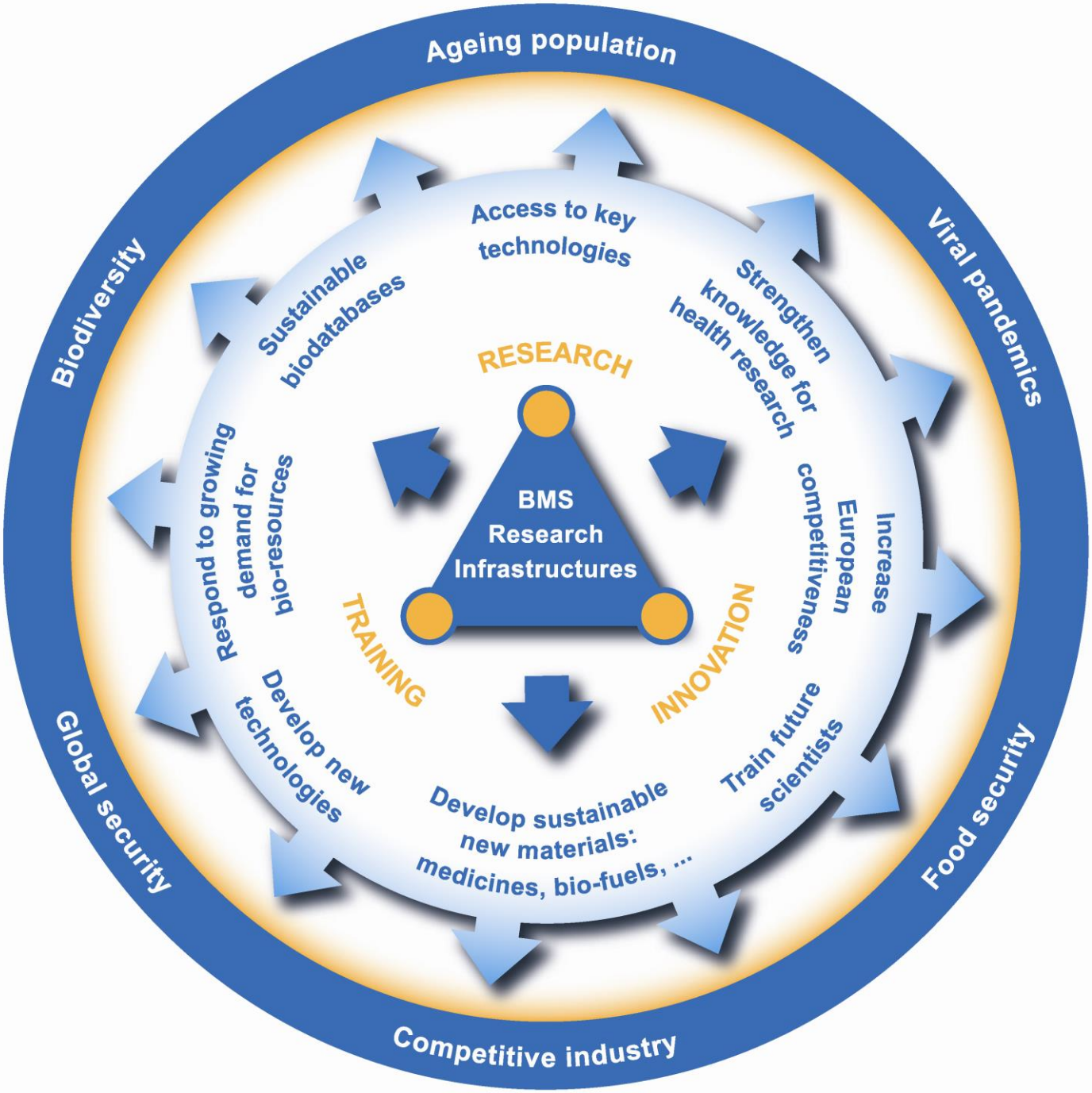
Meeting the European Grand Challenges



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Thanks

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