



**INCREASING**  
THE

**VISIBILITY**

OF BIOBANKS AND  
SAMPLE COLLECTIONS

# **BIOBANKING IN MICROBIOME RESEARCH**

**MANUELA PAUSAN, PhD**  
*Scientific Stakeholder Specialist*

✉ [manuela.pausan@bbmri-eric.eu](mailto:manuela.pausan@bbmri-eric.eu)

🌐 [www.bbmri-eric.eu](http://www.bbmri-eric.eu)

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- Challenges in Microbiome Research
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  - Metadata & Co-founders
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# BBMRI-ERIC

## ABOUT US

**BBMRI-ERIC** is the **European research infrastructure for biobanking**. We **bring together** all the main players from the biobanking field – **researchers, biobankers, industry, and patients** – **to boost biomedical research**. To that end, we offer **quality management services, support with ethical, legal and societal issues**, and a number of **online tools and software solutions** for biobankers and researchers.

### Our Mission

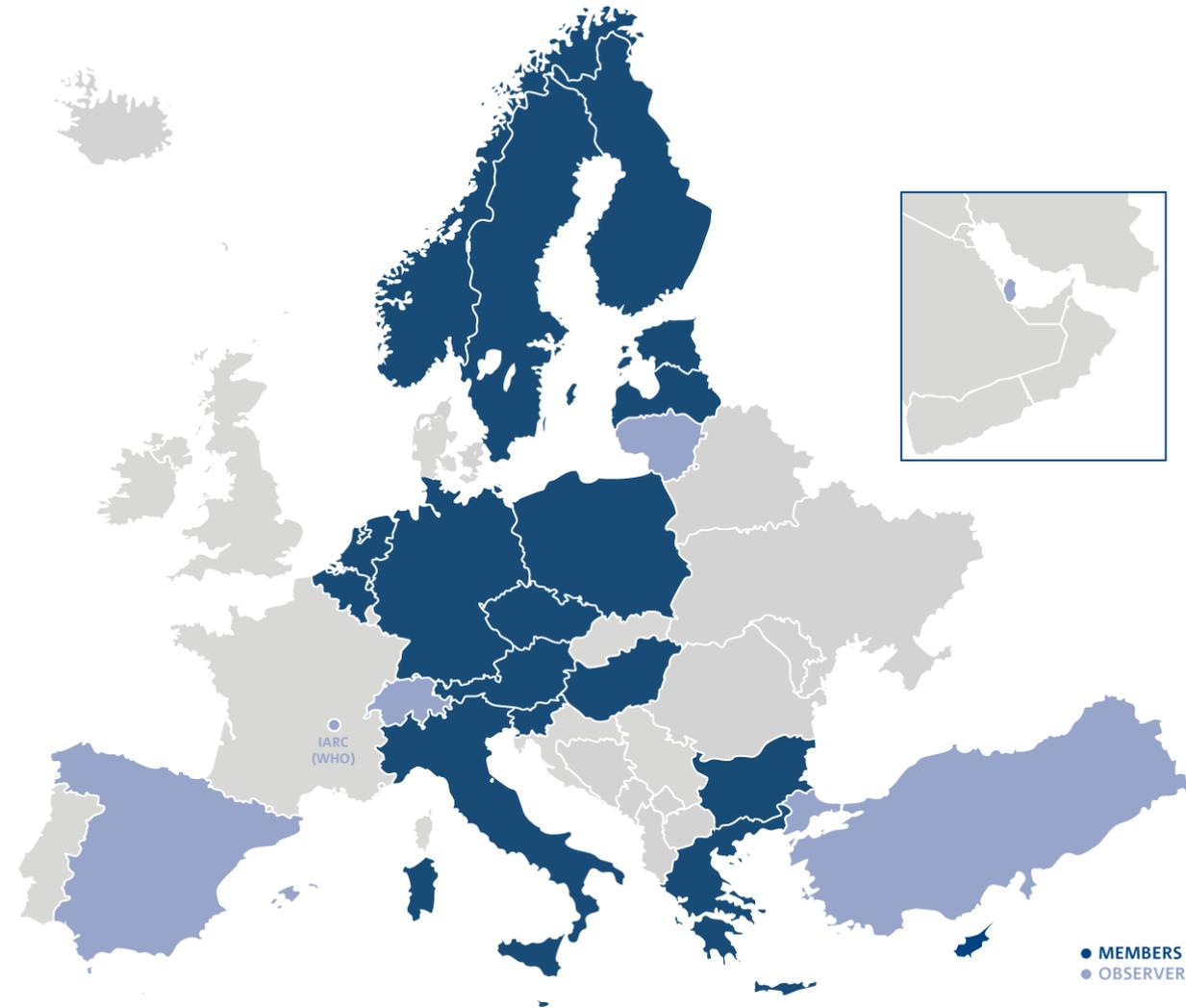
Establish, operate, and develop a pan-European distributed research infrastructure of **biobanks** and **biomolecular resources** to facilitate the **ACCESS** to **RESOURCES** as well as **FACILITIES** and to support high-quality biomolecular and medical research.



## Life Science Research Infrastructure built upon:

### 18 Member States

Austria  
 Belgium  
 Bulgaria  
 Cyprus  
 Czech Republic  
 Estonia  
 Finland  
 Germany  
 Greece  
 Hungary  
 Italy  
 Latvia  
 Malta  
 Netherlands  
 Norway  
 Poland  
 Slovenia  
 Sweden



### 7 Observers

IARC/WHO  
 Lithuania  
 Qatar  
 Spain  
 Switzerland  
 Turkey

### Comprising

- > 400 biobanks
- 24 National Nodes
- 3 Expert Centres
- 1 Headquarter
- & affiliated partners

... and growing interest

**BBMRI enabling personalised medicine through:**

Knowledge Base

Helpdesk Network

Ethics Check

Training

Code of Conduct for Health Research

Member States & Strategic Partners

EU & Global Affairs

Patients & Public

Scientific Societies

Industry Collaborations

**ELSI Services & Research**

**Public Affairs & Stakeholder Engagement**

**Biobanking Development**

Biobanks & Universities

National Nodes

Expert Centres

Sustainability

**Outreach, Education & Communication**

[bbmri-eric.eu](http://bbmri-eric.eu)

**IT Services & Research**

Discovery of biobanking resources

Access to samples and data

Data deposition, pooling, analyses

Interoperability

Data protection and access control

Quality controlling & reusability

Training & Support

**Quality Management Services & Research**

Knowledge Hub

Training & Support

Auditing

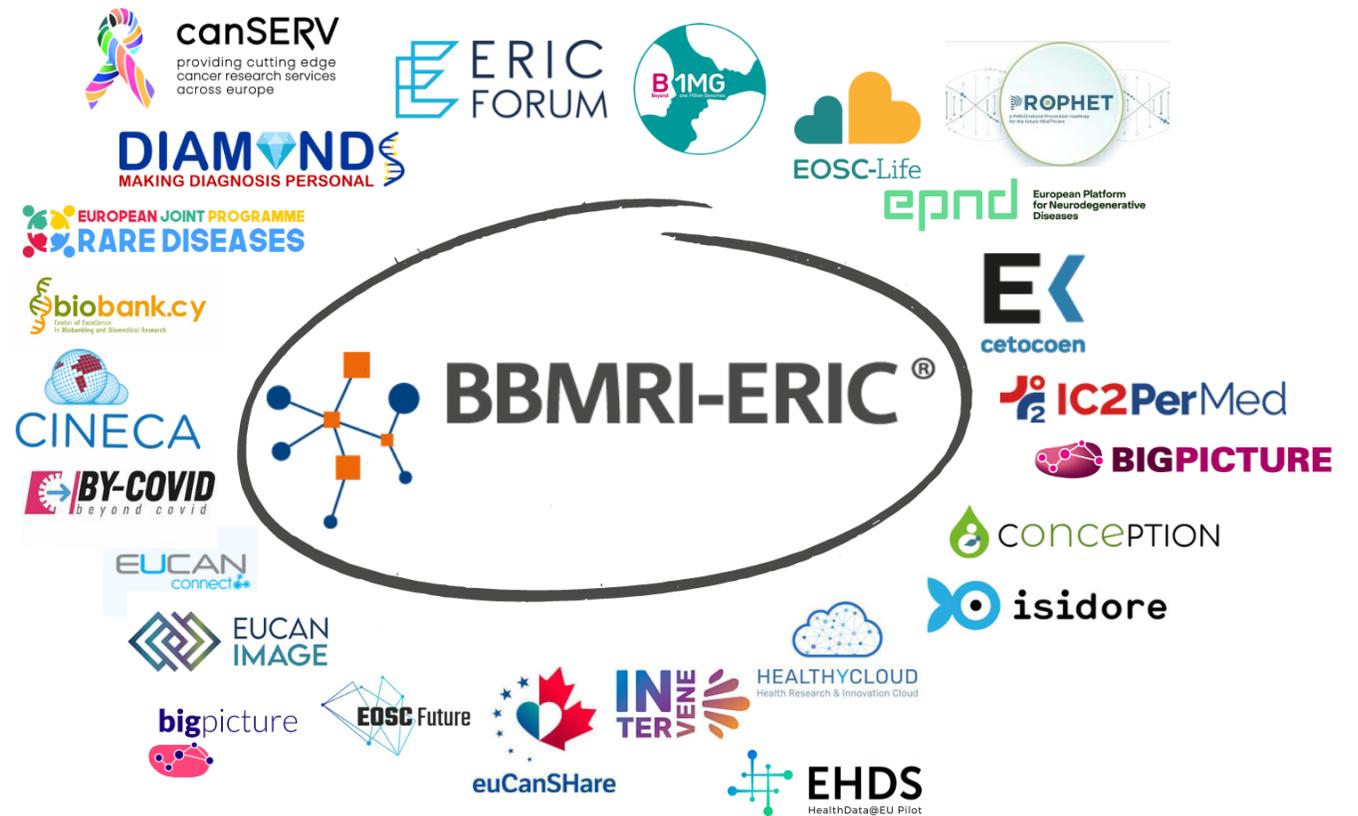
Quality Assurance

● MEMBERS  
● OBSERVERS

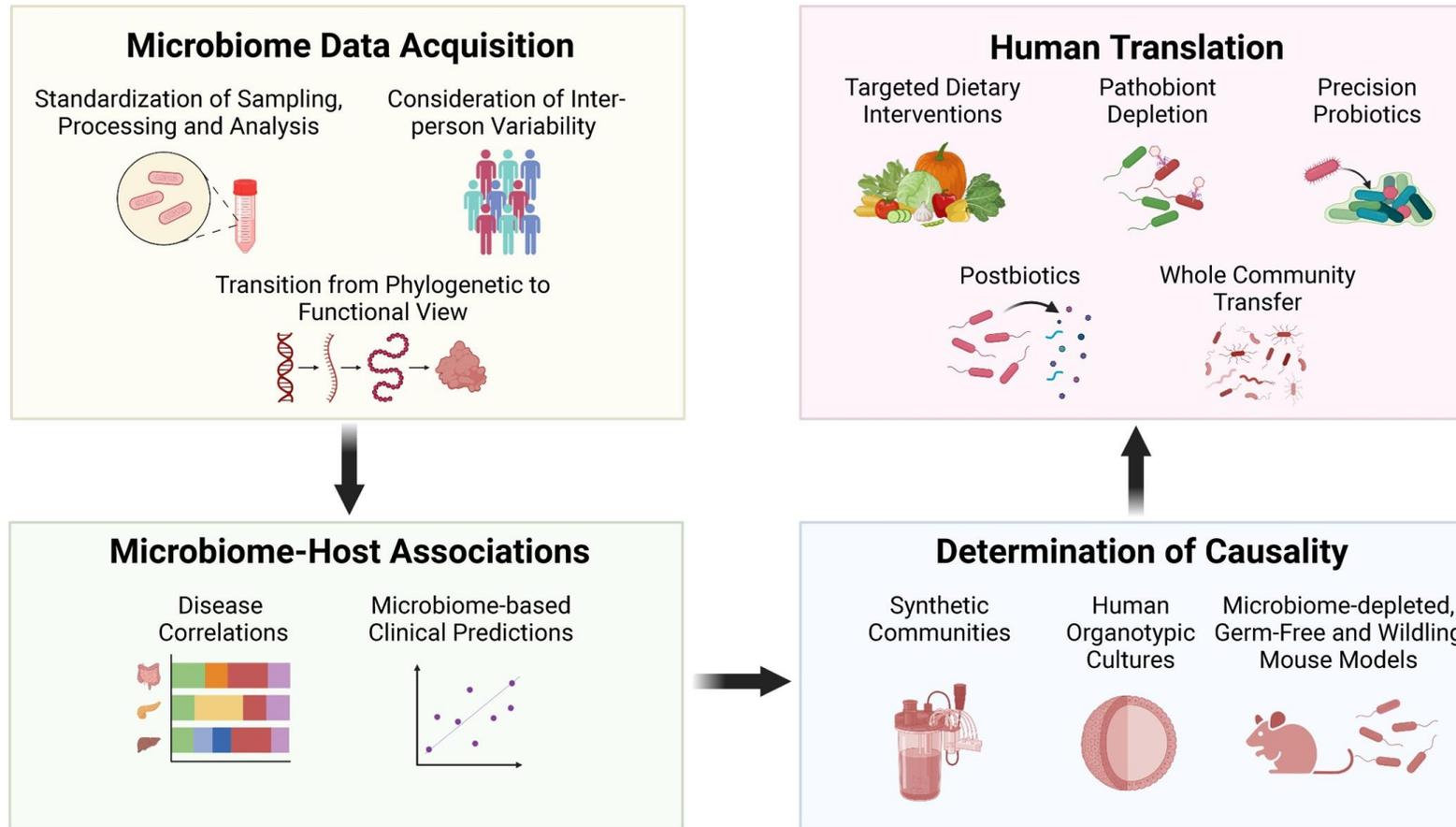
# BBMRI-ERIC is part of 47 EU-FUNDED PROJECTS with our PARTNERS

## Project management & engagement

-  20 completed projects
-  23 active projects
-  2 project coordination
  - ERIC Forum
  - CanSERV
-  4 projects in preparation

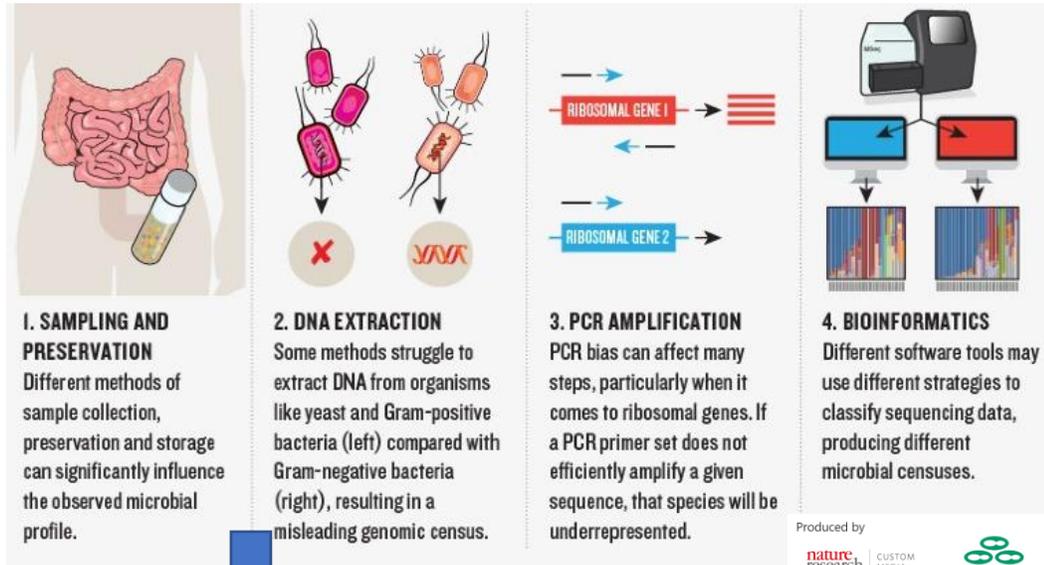


# CHALLENGES IN MICROBIOME RESEARCH



# MICROBIOME DATA ACQUISITION

## STANDARDIZATION OF PROCESSING



### Variables

- Donor (e.g. demographics, genetics, diseases, medication, life style)
- Collection site
- Collection method/device
- Specimen (heterogeneous)
- Storage/transport (e.g. duration, temperature, oxygen, light)
- Stabilization
- Microbiome DNA extraction
- Contamination (from e.g. samples, humans, reagents, environment)

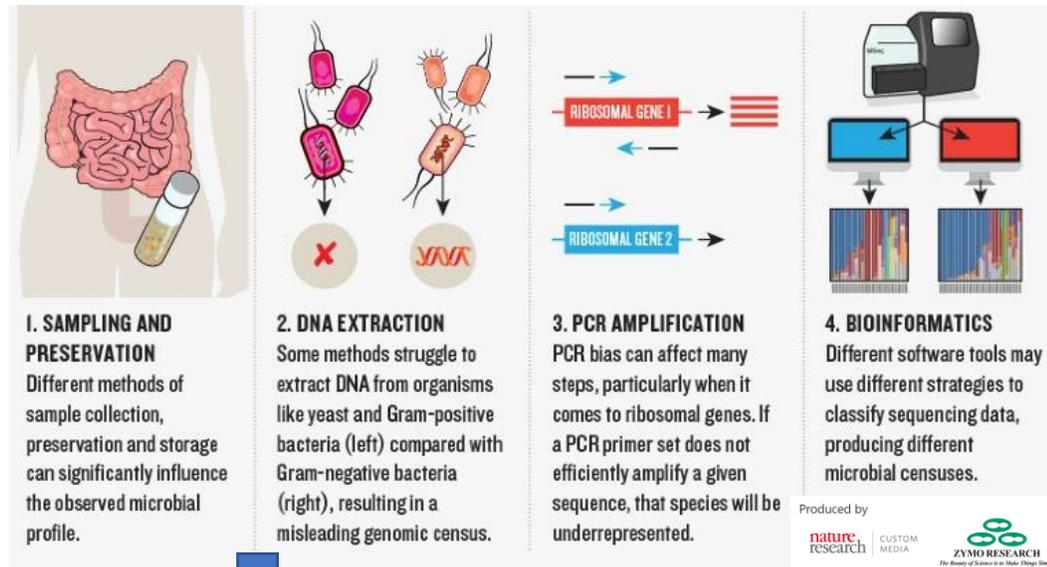
### Impact microbiome DNA analysis result

#### Different microbiome composition/yield/integrity...

- Undesired growth/decline of microorganisms
- Degradation of microbiome DNA
- Contamination with microbiome („cells“, DNA)
- Different lysis requirements of cells
- Presence of human/host cells/DNA
- Inhibitory compounds

# MICROBIOME DATA ACQUISITION

## STANDARDIZATION OF PROCESSING



## ISO/AWI TS 18701: Molecular in vitro diagnostic examinations — Specifications for pre-examination processes for human specimens — Isolated microbiome DNA

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- Human Microbiome Project
- MetaHIT
- International Human Microbiome Standards (IHMS)
- ISO/AWI TS 18701

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# MICROBIOME DATA ACQUISITION

## STANDARDIZATION OF PROCESSING

**ISO/AWI TS 18701:** Molecular in vitro diagnostic examinations — Specifications for pre-examination processes for human specimens — Isolated microbiome DNA

### **Scope:**

Requirements & recommendations for the **pre-examination phase of human specimens**, e.g. stool, saliva, skin and urogenital specimens, **intended for microbiome DNA examination(s)**

### **Relevant for target groups:**

- In vitro diagnostics developers and manufacturers
- Medical labs (lab developed tests ISO15189/IVDR)
- Regulatory bodies
- Biobanks
- Research labs etc.



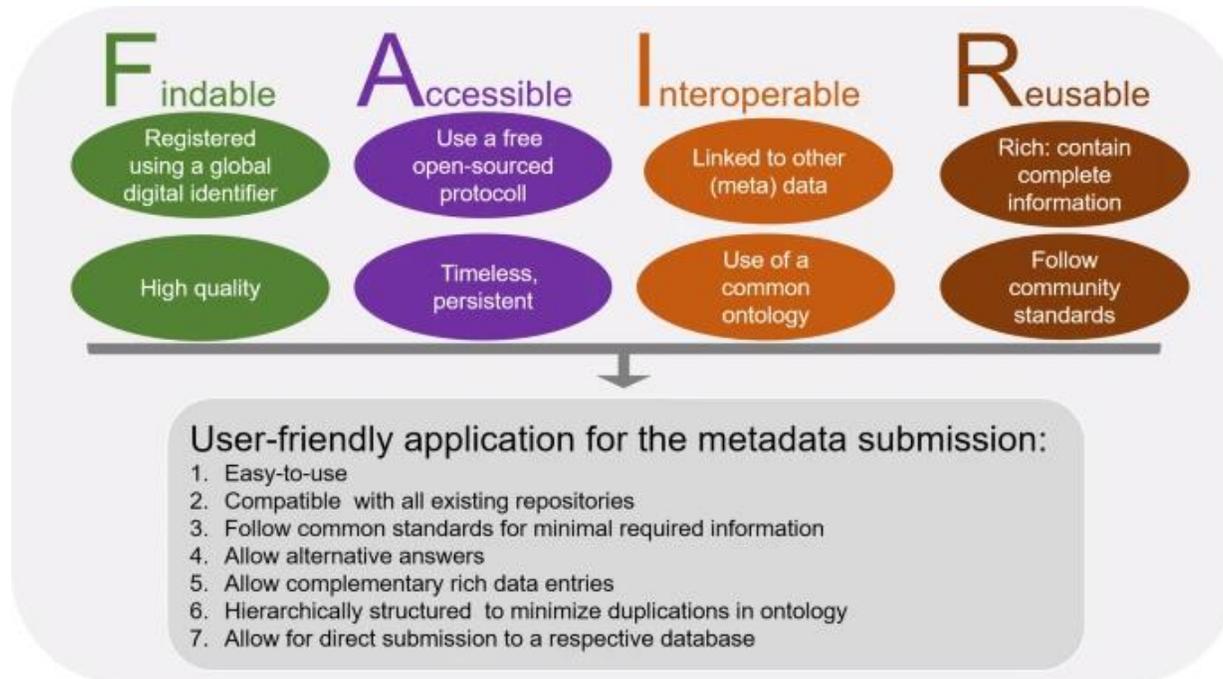
# MICROBIOME DATA ACQUISITION - METADATA

## BIOBANKING

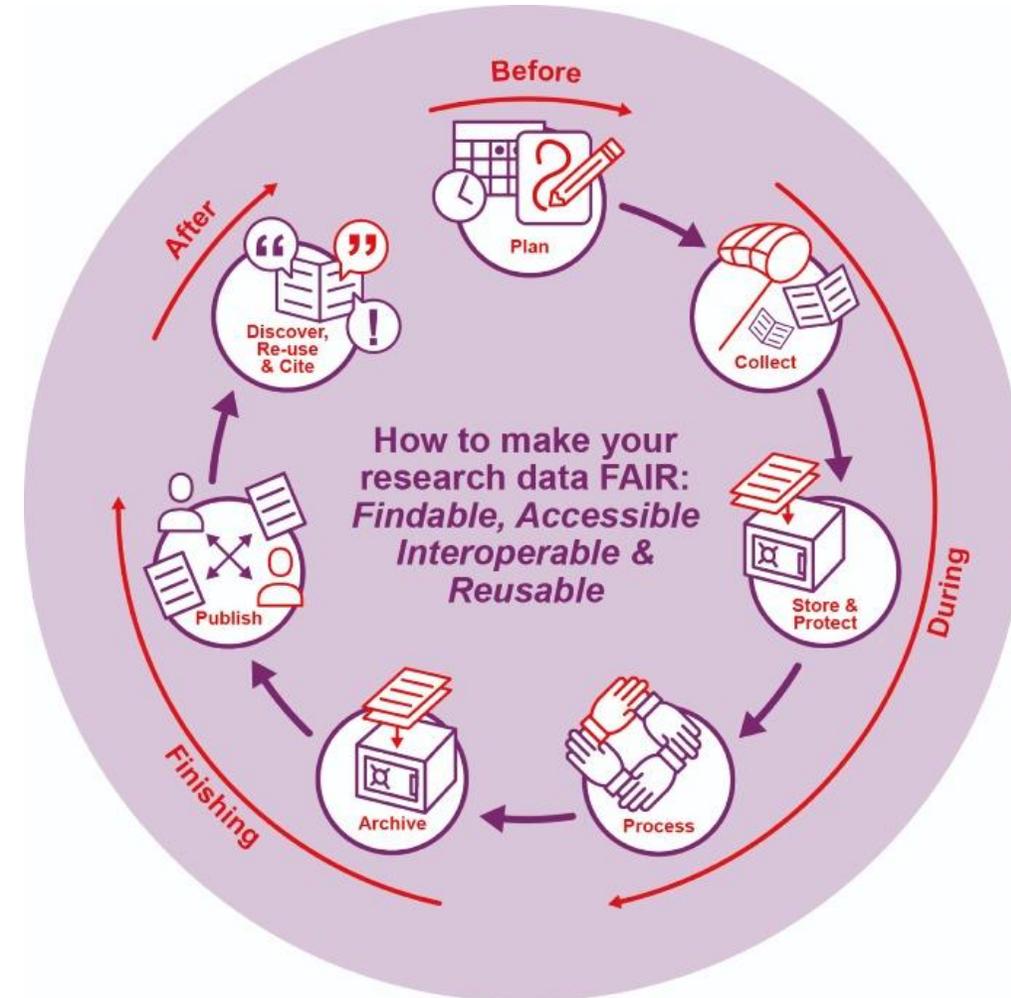
### ISO/AWI TS 18701: Molecular in vitro diagnostic examinations — Specifications for pre-examination processes for human specimens — Isolated microbiome DNA

5 Outside the laboratory	Patient/specimen donor	Demographics (e.g. age, gender, geography), disease/health condition, medication and treatment (incl. e.g. antibiotics), nutrition (incl. prebiotics, habits), frequency, life style, (smoking, personal care habits, stress, physical activity)
	Selection of specimen collection method & device(s) Specimen collection & stabilization	Collection method & device(s) (e.g. swab, tape, tube, collection site, spatula), process of collecting (incl. self-collection by donors), contamination, (pre-)treatment of collection site, labelling, stabilization (chemical, physical)
	Specimen storage & transport	Intermediate storage, with/without stabilizer; transport container; temperature, duration, oxygen, UV-light
6 Inside the laboratory	Specimen reception	Identification
	Sample preparation	Homogenization, enrichment (e.g. centrifugation), aliquoting, labelling
	Sample Storage	Duration, temperature, humidity, oxygen, UV-light
	Microbiome DNA isolation Quantity and quality assessment of microbiome DNA	Isolation method (e.g. cell lysis), reagents/kit (e.g. type, lot.no., contaminants), process of the isolation, host DNA content, quantity/quality assessment (e.g. method, process)
	Storage of microbiome DNA	Duration, temperature

# MICROBIOME METADATA STANDARDIZATION



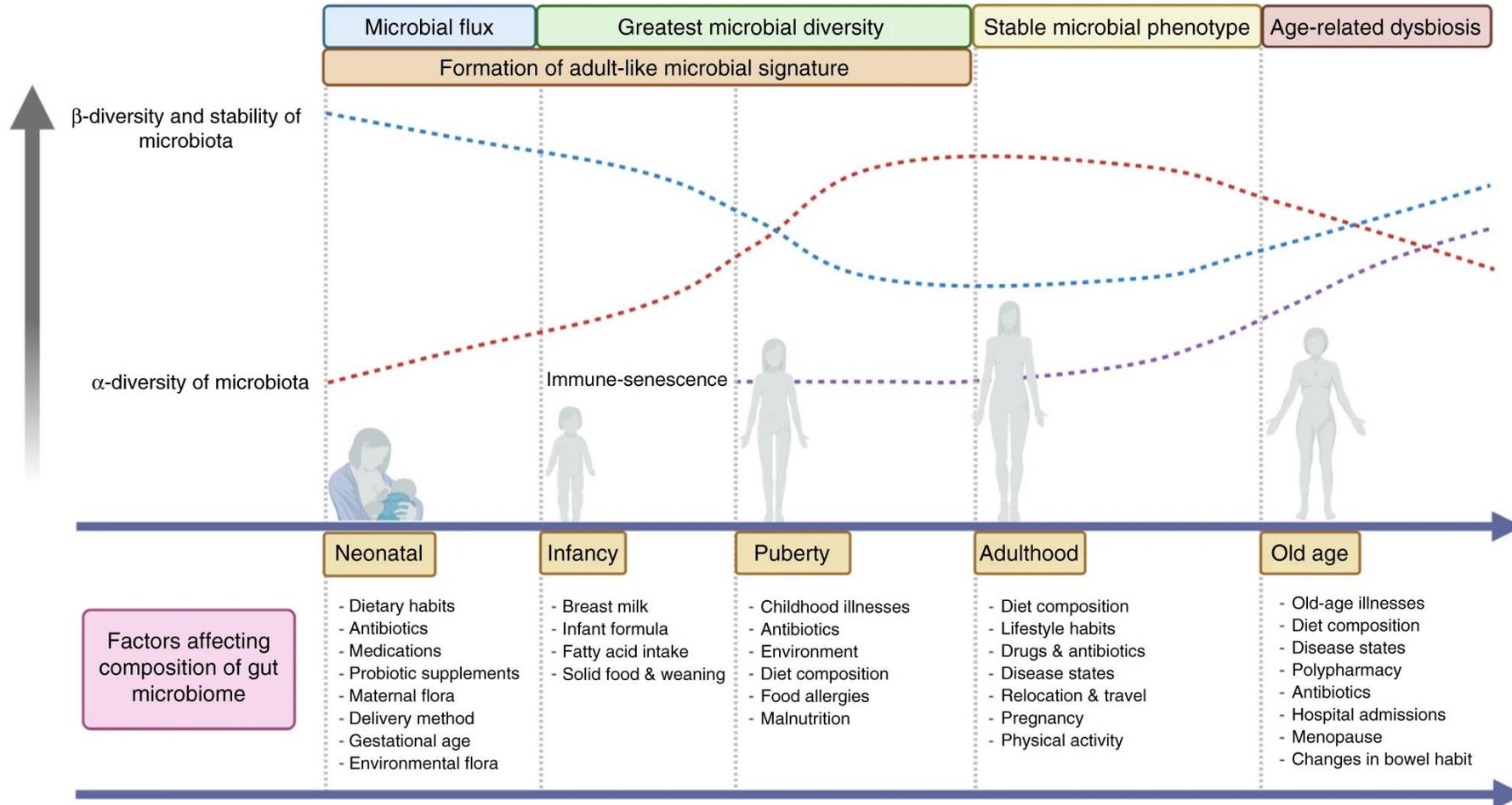
Cernava, T., Rybakova, D., Buscot, F. *et al.*, 2022, *Environmental Microbiome*



<https://www.rug.nl/digital-competence-centre/research-data/fair-data-open-science?lang=en>

# FACTORS INFLUENCING THE HUMAN MICROBIOME

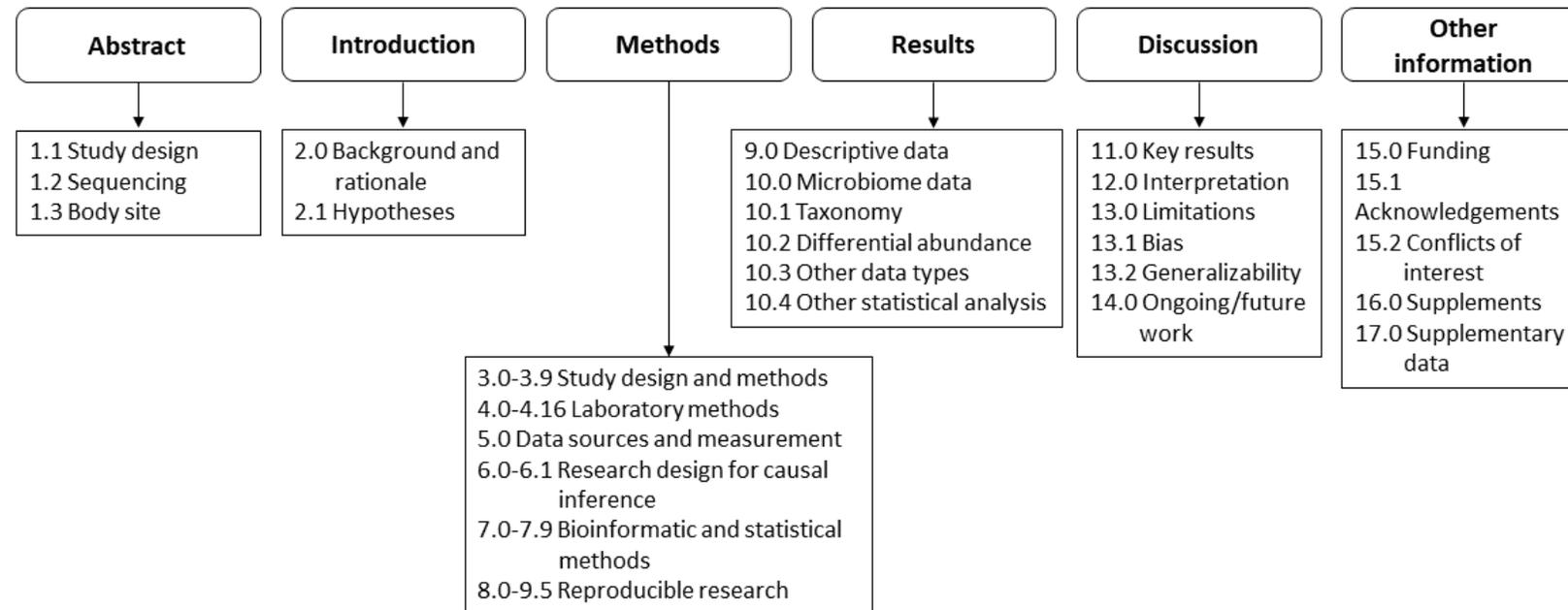
## Co-Founders



# REPORTING OF MICROBIOME STUDIES

Strengthening The Organization And Reporting Of Microbiome Studies (**STORMS**)

## Strengthening The Organizing and Reporting of Microbiome Studies (STORMS)



The **STORMS** consensus statement has been published in **Nature Medicine**



What is STORMS?

Strengthening The Organization and Reporting of Microbiome Studies (STORMS) is a checklist for reporting on human microbiome studies, organized into six sections covering all sections of a scientific publication, presented as a table with space for author-provided comments and intended for inclusion in



What is the current status of STORMS?

The **STORMS consensus statement** has been published. We are now reaching out to journal editorial boards to promote implementation of the STORMS checklist.

**STORMS is also registered on the EQUATOR**



Can I join the STORMS Consortium?

Yes! The STORMS Consortium is looking for interested members of the microbiome research community. **If you're interested in joining STORMS, please contact us.**

<https://www.stormsmicrobiome.org/>



**canSERV**  
providing cutting edge  
cancer research services  
across europe



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The European research infrastructure  
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resources in health and life sciences

# canSERV

HORIZON PROJECT

- canSERV's mission is to make **cutting-edge and customised research services** available to the **cancer research community EU wide**, **enable innovative R&D projects** and **foster precision medicine** for patients' benefit across Europe.
- **19 Partners, 400+ Services**

## canSERV's Service Catalogue

 <p><b>Disease Models</b></p> <p><a href="#">Explore More →</a></p>	 <p><b>Advanced Technologies for Personalised Oncology</b></p> <p><a href="#">Explore More →</a></p>	 <p><b>Biomarker Research, Development, and Validation</b></p> <p><a href="#">Explore More →</a></p>
 <p><b>New Therapeutic Solutions</b></p> <p><a href="#">Explore More →</a></p>	 <p><b>Clinical Trials</b></p> <p><a href="#">Explore More →</a></p>	 <p><b>Accelerated Translation into Personalised Oncology Clinical Practice</b></p> <p><a href="#">Explore More →</a></p>
 <p><b>Open Digital Research Services</b></p> <p><a href="#">Explore More →</a></p>	 <p><b>Access to Human Samples and Data</b></p> <p><a href="#">Explore More →</a></p>	 <p><b>Training</b></p> <p><a href="#">Explore More →</a></p>



 **Funded by the European Union**  
Grant agreement No. 101058620  
[www.canSERV.eu](http://www.canSERV.eu)



# canSERV

OPEN CALLS – “ADVANCING PERSONALISED ONCOLOGY”



**canSERV**  
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cancer research services  
across europe

**BBMRI-ERIC**<sup>®</sup>  
The European research infrastructure  
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resources in health and life sciences

## canSERV | Call Release



**canSERV**  
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cancer research services  
across europe

canSERV's 1st **TNA Call** is now

# OPEN

## "Advancing Personalised Oncology"

2 Challenges

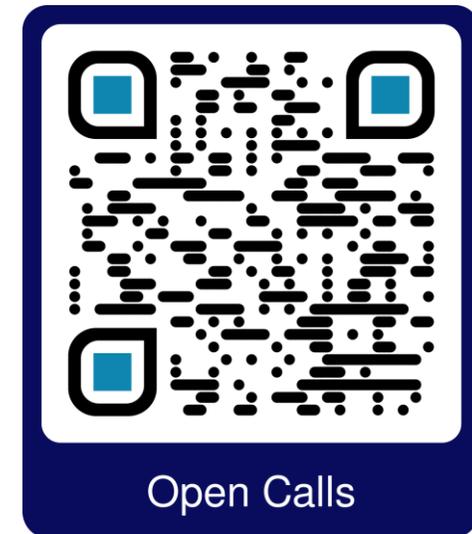
7 Service Fields

400+ Services

**APPLY NOW!**

<https://www.canserv.eu/calls/>

Submission Deadline:  
25th April 2023, 12:00 CEST



Open Calls

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**THANK YOU!**

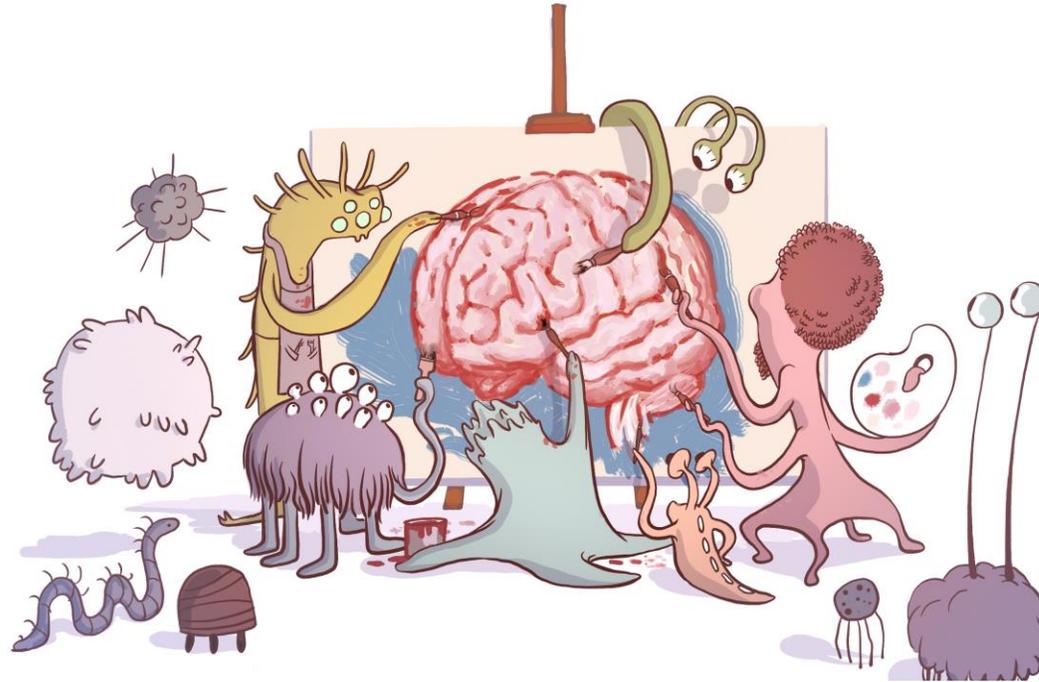


Illustration by Benjamin Arthur for NPR

✉ [manuela.pausan@bbmri-eric.eu](mailto:manuela.pausan@bbmri-eric.eu)

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**World  
Microbiome  
Day | 27<sup>th</sup> June**