



## Welcome to the FindingPheno newsletter!

Dear FindingPheno friends!

Welcome to the FindingPheno December Newsletter! With 2022 coming to a close, we wanted to share with you some recent project highlights!

In this newsletter you will discover:

- an overview of our 1st Project Review Meeting
- new publications in the project
- promotion and dissemination actions by partners
- other project-related news
- upcoming events

Stay tuned to our website and social media platforms for more updates!

- The FindingPheno team

## REPORT: Periodic Review Meeting

On 24 October 2022, partners of the EU-funded **FindingPheno** project engaged in its first project review meeting with our EU project officer and an external reviewer.

The premise of **FindingPheno** is to combine biological knowledge with novel mathematical and machine learning approaches taken from evolutionary genomics, collective behavior analysis, ecosystem dynamics, statistical modelling and applied agricultural research to improve how we understand and utilize functions provided by microbiomes to combat human diseases and the ways we produce sustainable food for future generations.

Our eight project partners range in expertise from statistics and machine learning, ecology and evolutionary genetics to industrial food production systems experience and developers of world class genomics software. **FindingPheno** was launched in spring 2021 and received over EUR 5M in funding through Horizon 2020.

All partners attended the Review Meeting chaired by the coordinator, Shyam Gopalakrishnan and project manager, Marie Sorivell from the **University of Copenhagen**. During the day-long meeting, leaders of the project's eight work packages summarized activities and major achievements over the first 18 months, and highlighted upcoming next steps. Dissemination and communication activities was presented, including three publications in high-impact peer reviewed journals and a pending new publication. Attention was also given to computational and AI developments, including presentation of the project's landing page on MGnify, an automated pipeline hosted by partner **EMBL-EBI** to analyse and archive microbiome data useful in determining taxonomic diversity and functional & metabolic potential of environmental samples.

The reviewer and project officer lauded **FindingPheno**'s efforts in both technical and outreach aspects of the project. Feedback focused on technical progress made in the first 18 months, highlighting novel aspects of the methods in using multi-omics data. Also, they stressed the importance of moving beyond European borders when identifying potential stakeholders, particularly focusing on stakeholders in Asia and the Americas.

DISCOVER MORE about these and other developments from **FindingPheno** via the link below

[DISCOVER MORE](#)

## PUBLICATIONS

### Frontiers Ecology and Evolution

"Investigating the role of microbial cooperation in forming higher levels of organization"

Researchers at the Center for Ecological Research (CER) investigated the role that intercellular cooperation plays in forming higher levels of organization in microbial communities. In the study, selection forces were identified that promote or inhibit the recovery, reproduction and possible formation of higher levels of organization of microbial communities.

[frontiers](#)

The Evolution of Microbial Patches: Symbioses, Syntrophies, and Transition in Individuality

April 2022 | Editors: Fabio D'Antonio, Emanuele Sartori, Giacomo Bonsu

Open Access Article | DOI: 10.3389/fevo.72905

Proven Model Selection: Generalization and Application

Authors:

Ivanie Zerbe | Centro de Ecología Aplicada, Centro de Investigaciones Científicas de Yucatán, Centro de Investigación en Matemáticas Avanzadas, Universidad Nac

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### Frontiers in Microbiology

"A win-win for mathematicians, statisticians, bioinformaticians and biologists"

Recent publication by the Center for Evolutionary

Hologenomics (CEH) and CER allowed

experts to join forces

and create a strategic

model of a host-microbe-microbe

system showcasing the

importance of a host

immune response and

microbial communities

to combat stress-induced gut dysbiosis.

The resulting novel

mathematical model

not only

complemented and

deepened our

understanding of the

salmon holobiont

system, but broadened

application to a novel

holobiont system.

Quantifying the impact of ecological

memory on the dynamics of interacting

communities

June 2022 | Editors: Giuliano Sommariva, Gianluca Sartori, Giovanni Bonsu

Open Access Article | DOI: 10.3389/fmicb.650208

Authors:

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### PLOS Computational Biology

In this publication, project partners from CER and the University of Turku (UTU) use modeling to investigate how system memory can regulate the dynamics, composition, and stability landscape of ecological communities.

PLOS COMPUTATIONAL BIOLOGY

Quantifying the Impact of Ecological

Memory on the Dynamics of Interacting

Communities

June 2022 | Editors: Giuliano Sommariva, Gianluca Sartori, Giovanni Bonsu

Open Access Article | DOI: 10.1371/journal.pcbi.1016008

Authors:

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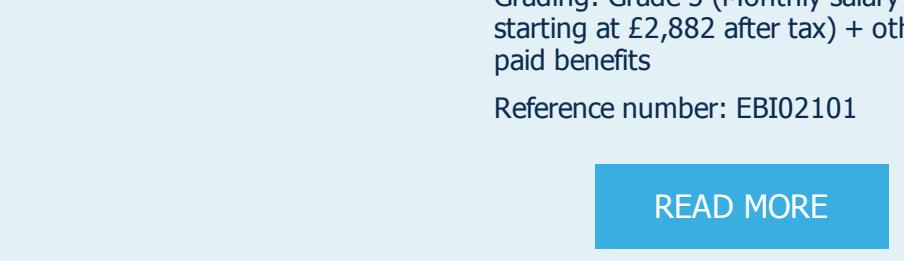
Ivanie Zerbe | Centro de Ecología Aplicada, Centro de Investigaciones Científicas de Yucatán, Centro de Investigación en Matemáticas Avanzadas, Universidad Nac

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## Outreach

### Explore our internal & external activities...

#### Presentation



APPLIED MATHEMATICS DAYS - SEPTEMBER 5-6, 2022

BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS INSTITUTE OF MATHEMATICS BME

Applied Mathematics Without Borders Celebrating the 60th birthday of Gábor Domokos

Online: 02.09.2022-03.09.2022 Virtual Event Location: BME, Institute of Mathematics, Building 6, Room 304

Dr István Scheuring from CER was invited to speak at the Applied Mathematics Without Borders Days where he presented the Scheuring et al Front. in Microbiology 2022 paper.

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#### Poster



Max Planck Institute for Evolutionary Biology

14 - 16 September 2022 Plön, Germany

Deadline extended: July 12th 2022 (23:59 CEST)

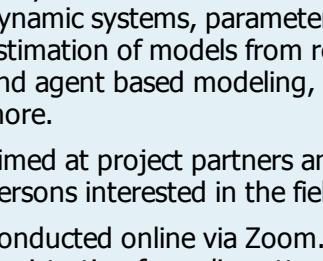
Dr István Scheuring from CER was invited to present a poster on the Scheuring et al Front. in Microbiology 2022 paper.

[READ MORE](#)

#### Other News: Vacancies

The European Bioinformatics Institute (EMBL-EBI) is recruiting to support a series of new grants, that will bring additional datasets to MGnify and FindingPheno. See below:

##### Bioinformatician



EMBL-EBI at its Hinxton UK site is currently recruiting a Bioinformatician Leverhulme.

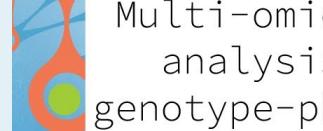
Closing date: 6 January 2023

Contract duration: 3 years

Grading: Grade 5 (Monthly salary starting at £2,882 after tax) + other paid benefits

Reference number: EBIO2101

[READ MORE](#)



EMBL-EBI at its Hinxton UK site is currently recruiting a Bioinformatician MgrInformatik.

Closing date: 6 January 2023

Contract duration: 3 years

Grading: Grade 5 (Monthly salary starting at £2,882 after tax) + other paid benefits

Reference number: EBIO2102

[READ MORE](#)



EMBL-EBI at its Hinxton UK site is currently recruiting a Website Developer.

Closing date: 6 January 2023

Contract duration: 3 years

Grading: Grade 5 (Monthly salary starting at £2,882 after tax) or Grade 6 (monthly salary starting at £3,224) + other paid benefits

Reference number: EBIO2100

[READ MORE](#)

#### Upcoming Events

01 - 02 February 2023 TRAINING: Mechanistic models of microbiome dynamics

We are pleased to announce our upcoming two-day training, organized by project partner, CER!

Course covers:

- basic Lotka Volterra model systems

- mathematical and numerical models for analysis

- macroecological and metabolism-based models

- agent based modelling techniques

- interactive tutorials for dynamic systems, parameter estimation of models from real data and agent based modeling, and more.

Aimed at project partners and persons interested in the field.

Conducted online via Zoom.

Registration for online attendance available early January 2023!

23 - 26 May 2023 Annual Meeting + Midway Stakeholders Symposium

Both events are hosted by University of Turku (UTU).

The Symposium is scheduled to occur on May 23rd.

The **FindingPheno** internal meetings will take place on May 24th to 25th.

On May 26th, the UTU and EBI-EMBL will host a hackathon focusing on EBI's data resources and their use.

[READ MORE](#)

#### Have a look at our explainer video...



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 952914

Designed with BEE

Twitter Instagram LinkedIn YouTube

European Union's Horizon 2020 research and innovation programme No 952914