

Vacancy for a PhD or postdoctoral researcher in mycelium-based engineered living materials



1 - Position description

We are looking for a **PhD or postdoctoral researcher** to participate in the project **"FUNGATERIA: Enlisting synthetic fungal-bacterial consortia to produce multicellular engineered living materials (ELMs) with computational capability"** funded by the European Innovation Council (<https://vubtechtransfer.be/en/fungateria>).

FUNGATERIA addresses a development gap in mycelium-based Engineered Living Materials (ELMs) by developing a portfolio of ELMs that are composed of a synthetic co-cultivation consortium of a filamentous fungus and a bacterial strain. Sensing and adaptive growth of the fungal hyphae are exploited to develop an autonomous bottom-up and scalable manufacturing technology called Growth Composing that enables an engineered morphogenesis of mycelium materials. Various ELM products are developed, ranging from consumer goods to applications in the environmental and construction sector, which become active through environmental cues of light, temperature, and chemical attractants. To this end, synthetic biology engineering will be implemented to use the bacterial strain as a chassis for sensor-containing genetic circuits that render advanced functionalities to the ELM throughout its life cycle, either through direct activity or by influencing growth and morphology of the fungal partner. ELM activity is verified with probes that reveal bio-electric signalling in the materials - providing additional dimensions of control, monitoring, functionality, and exploitation as actively computing devices.

The role of the researcher at VUB will be to develop a **generic production platform for the controlled morphogenesis of living fungal and fungal-bacterial mycelial material samples** with diverse microbial compositions, dimensions and shapes. The setup will be validated by targeting proof-of-concepts of 2D and 3D prototypes of the ELMs at different scales, and with designed patterns and added functionalities. In collaboration with other VUB researchers, the obtained ELM samples will be mechanically and functionally characterized.

The job involves a combination of **experimental lab research**, the **design and manufacturing of a custom growth chamber and/or 3D bioprinter** in a controlled environment, and the **mechanical and functional characterization of ELMs**.

2 - Working at the VUB

The researcher will be embedded in the **Research Group of Microbiology** (<http://micr.research.vub.be>) at the Department of Bioengineering Sciences, a **dynamic and supportive research environment** in which mono-, inter- and transdisciplinary approaches are used in different fundamental and application research lines on the central theme of developing microbial solutions for a more sustainable future.

Since more than 50 years, the **Vrije Universiteit Brussel** (www.vub.be) stands for freedom, equality and connectedness. These values are strongly present on our campuses, in our students as well as our staff. At the VUB, you'll find a diverse collection of personalities: pure innovators and especially **people who are 100% their authentic selves**. With about **3.500 employees**, we are the **largest Dutch-speaking employer in Brussels**, an international city with which we are all too happy to be connected, and around which our four campuses are located.

Our education and research are grounded in the principles of **free research** with an eye on human progress. We disapprove of every purely authoritative argument and guarantee the free formation of judgement that is necessary for this basic principle to be incorporated in the community.

The VUB is autonomous and managed **democratically**. As such, we guarantee fundamental freedoms within our university, as well as the right of the university community to be involved in making and checking university policy.

The mission of the university includes:

- the development, the transfer and the application of high-standing academic education and scientific research, free from any prejudice;
- community integration of this in a spirit of social compassion;
- critical development of everyone in light of the responsibilities borne in the community.

3 - Profile

We are looking for candidates with...

- a **MSc and/or PhD degree in Engineering Sciences, Bioengineering Sciences, Biotechnology** or equivalent, preferably with relevant experience expressed in authored publications in peer-reviewed journals.
- research skills relevant for a **microbiology laboratory environment** (e.g. aseptic techniques)
- previous research experience with the study of **mycelium-based materials** and/or experience with **technology development for biofabrication** (e.g. bioprinting, custom-built fermentation vessels)
- demonstrated **interdisciplinary research expertise** and a collaborative team player attitude
- an established international **network** in the field of mycelium materials, fungal fermentation, biofabrication, biodesign or ELMs
- a **problem-solver** mindset with a can-do mentality
- a proactive attitude in **project management**

- effective **English communication skills** (oral and written)

4 - Offer

A **full-time researcher position** for 1 year, extendable totalling up to minimally 2 and maximally 4 years (postdoctoral researcher) or to 4 years (PhD researcher) with **planned starting date 01/11/2022**.

Being surrounded by a **dynamic research team** and a **supportive framework** for the successful completion of a PhD trajectory (in case of a PhD researcher).

Becoming part of an **innovative and international research consortium** at the forefront in the research and development of mycelium materials.

As well as this, you'll enjoy various benefits:

- **full reimbursement for your home-work commute with public transport** according to VUB policy, or compensation if you come by bike;
- cost-free **hospitalisation insurance**;
- the space to form your job content and **continuously learn** via VUB LRN;
- **excellent facilities for sport and exercise**;
- **ecocheques**;
- delicious meals at attractive prices in our **campus restaurants**;
- an open, family-friendly work environment where attention is paid to work-life balance, and exceptional holiday arrangements with **35 days of leave** (based on a fulltime contract).

5 - Interested?

More information, also regarding the salary scales, can be inquired with Prof. Dr. ir. Eveline Peeters (Eveline.Peeters@vub.be).

Interested to apply? Please send your CV, motivation letter and contact details of 2 references to Prof. Dr. ir. Eveline Peeters (Eveline.Peeters@vub.be), preferably by **02/10/2022**.