



## Biomedical Engineer - Industrial PhD –MSCA Doctoral Network 'Stop Spread Bad Bugs'

*CPI0923*

*Are you looking for a high impact PhD position in close collaboration with industry? The European Doctoral Network 'SSBB' now offers a fully funded industrial PhD student position in the area of novel antimicrobial approaches to combat multidrug resistant bacteria, starting in June 2023.*

*SSBB is focused on the discovery of novel antimicrobial approaches to reduce multidrug resistant bacteria. The consortium consists of 14 leading European R&D laboratories from universities, industries, and technology institutes in the domain of drug development, infectiology, immunology and pharmacology, and soft tissue implants, which are located in Austria, Belgium, Germany, Ireland, Italy, The Netherlands, Norway, Spain and Switzerland.*

*SSBB will provide the PhD students with a comprehensive set of theoretical and practical skills relevant for innovation and long-term employability in a rapidly growing sector. This highly innovative training will cover several inter-disciplinary areas. **Each PhD student will be enrolled in a doctoral programme and will have two official employers, one from academia and one from industry.** Highly qualified personnel from both employers will jointly coach the PhD student.*

### Who we are – The Academic Employer

**Institute of Agrifood Research and Technology (IRTA)** is a research institute owned by the Government of Catalonia (Spain) ascribed to the Ministry of Climate Action, Food and Rural Agenda. IRTA is one of the CERCA centers of excellence of the Catalan Research System. IRTA's purpose is to contribute to the modernization, competitiveness and sustainable development of agriculture, food and aquaculture sectors, the supply of healthy and quality foods for consumers and, generally, improving the welfare and prosperity of the society. We are granted by the EU with the HRS4R distinction for "HR Excellence in Research" and thus we offer a rich environment for knowledge development and exchange where to develop a scientific career, and possibilities for professional promotion according to the attained achievements.

The Animal Health Research Program of IRTA operates from the **Animal Health Research Centre (CReSA)** at the University of Barcelona (UAB) Campus. CReSA consists of a technologically advanced building with conventional laboratories, as well as biocontainment with Biosafety Level (BSL-3) laboratories and animal facilities. This program carries out fundamental and applied research on animal and public health, funded by national and international projects, services for public administrations and research contracts with agri-food and pharmaceutical companies. The three main areas of research include epidemiology and risk assessment, endemic diseases of livestock (including zoonosis) and transboundary diseases.



## The Industrial Employer

[HYLOMORPH](http://www.hyломorph-medical.com) is a pre-commercial clinical-stage **MedTech company** based in Zurich, Switzerland. In a dynamic startup environment, our team is developing a platform technology for implantable medical devices aimed at preventing post-operative complications in implants ([www.hyломorph-medical.com](http://www.hyломorph-medical.com)). Our product consists in an easy-to-handle hydrogel envelope that tailor fits target implants and empowers complication-free body healing. Our pre-clinical studies have demonstrated a striking reduction of the inflammatory and fibrotic reactions in implants, ultimately improving patients quality-of-life in the short and long term. We currently collaborate with hospitals in Germany where our *first-in-man* clinical trial is currently ongoing, towards CE mark and FDA authorization. We offer a stimulating and enriching R&D environment at Technopark Zurich, a hub for innovative high-tech startups in the heart of Switzerland. You will be part of our team (9 people) and have the chance to engage directly with a network of >20 specialized sub-contractors (CROs, CMOs, testing laboratories, industry experts, etc). You will experience all aspects of medical device life cycle management and startup development.

## JOB DESCRIPTION

We offer a **3-year full-time position** to test a new generation of antibiotics, so-called non-digestible oligosaccharides (NDOs) or antimicrobial peptides (AMPs) in combination with implant biomaterials and substrates. This project is part of the Doctoral Network Stop Spread Bad Bugs (SSBB) funded by Horizon Europe-MSCA.

3-year full-time employment contract will be issued in accordance with the Marie Skłodowska-Curie Action (MSCA) regulations for Doctoral Candidates; the contracts will be 18 months at each hosting institute (Industrial + Academic).

The successful candidates will receive an attractive salary in accordance with the MSCA regulations for doctoral candidates. This includes a living allowance EUR 37,000- 52,000 annually (this is a variable amount, based on an automatically calculated adjustment assuming the expected cost of living in the country of recruitment), and an additional mobility allowance (EUR 7,200 per person per year). If applicable, a family allowance (maximum of EUR 660 per person per month) will be paid. Please note that all compulsory national contributions (social security, pension, insurances, taxes etc.) to be borne by the employer and employee shall be deducted from the abovementioned amounts in line with MCSA Rules. These deductions vary between countries and institutes.

**@ IRTA-CReSA (ES)** - You will work under the supervision of the head of the research line *Bacterial enteric diseases and antimicrobial resistance* and a scientist expert in systems biology and bacterial metabolism at IRTA-CRESA. You will investigate *in vitro* the antibacterial activity of the new generation of antibiotics (NDOs

and AMPs) on the implant materials, by testing the inhibition of growth and biofilm formation of bacterial pathogens responsible for infections connected to soft tissue implants in humans.

**@ HYLOMORPH (CH)**- You will work under the supervision with our Chief Scientific Officer (CSO) and in close collaboration with our R&D team. The main part of the job will be focused around the production of implant prototypes and the mechanical and structural characterizations of implant materials, with particular focus on hydrogels. You will investigate the interaction of implant materials with the new generation of antibiotics developed within the SSBB consortium and develop their use toward the prevention of post-implantation infections. You will be introduced to fermentation and fabrication protocols and to the main processes for clean room imaging and characterization. You will develop and use custom- and tailor-made mechanical tester. You will learn to work within an ISO 13485 regulated framework and will experience therein all aspects of Quality Management System for the Medtech industry. Your own work organization will be your responsibility. The specific project timelines and deliverables will be defined by CSO. Working in presence is required.

## **Required qualifications and experience**

Candidates must not hold a doctoral degree and be in the first four years of their research career. For the PhD positions the EU 'Mobility rules' apply. This means that candidate students cannot have resided for more than 12 months during the period of 3 years immediately before the start of the PhD, in the prospective first host country (a candidate who has stayed in Switzerland for more than 12 months in the last 3 years cannot be hired for the position where the first placement is at HYLOMORPH). Applicants must have an ability to understand and express themselves in both written and spoken English to a level that is sufficiently high for them to derive the full benefit from the network training.

### Specifically:

- You hold a Master of Science in Engineering (Ideally Biomedical, Mechanical/Process Engineering also accepted). Experience in microfabrication, clean room and optical microscopy is a plus.
- You wish to work in the life science field, in particular on drug-device combinations.
- You are excited to work in a start-up environment.
- You are willing to alternate your work between industry and academia. In particular you are keen to lead work at the interface of the two, and you understand the differences and needs involved.
- You are ready to relocate between Zurich and Barcelona for the time periods required for project execution (18 months each).
- You are a team-player with a "roll-up your sleeves" attitude.
- You are a hands-on person. Yet you understand the importance of condensing your work into well prepared reports.
- You are outgoing and at ease outside your comfort zone.

- You are flexible on the type of technical work you will perform, eager to learn new frameworks and processes.
- You possess a pro-active attitude and are naturally self-motivated.

### **Languages**

- Proficiency in English
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*The position has a minimum duration of 3 years. Starting date is between July and September 2023. Applications will be considered as off now, until the position is filled.*

### **Application process**

Applicants must include their CV and motivation letter with detailed academic and professional records (e.g. work experience and publications). Applicants must possess a Master of Science Degree issued by an officially recognized academic institution.

Pre-selection: will be based on CV, motivation letter, experience, and skills.

Short-listed candidates will be encouraged to apply to the formal selection process (formal verification of eligibility criteria, titles and interview).

If you wish to apply, please send your application ([indicating the reference DC13](#)) by email to:

**Aldo Ferrari**  
**SSBB.horizonEU@erasmusmc.nl**