

# SYN BEE

## D2.1 A PRELIMINARY PLAN OF WORKSHOPS



Funded by the European Union under the Grant Agreement No 10100509.  
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**Grant Agreement: 101100509**

<b>DOC. REFERENCE</b>	D2.1 A preliminary plan of workshops to provide interactive training
<b>Version</b>	1.0
<b>WORK PACKAGE No</b>	2
<b>LED BENEFICIARY</b>	HAMK
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<b>REVIEWERS</b>	All Partners
<b>DATE</b>	31/05/2023
<b>TYPE</b>	R – DOCUMENT, REPORT
<b>DISSEMINATION LEVEL</b>	CONFIDENTIAL

<b>VERSION</b>	<b>DATE</b>	<b>RESPONSIBLE</b>	<b>DESCRIPTION</b>
Version 1.0	17/05/2023		First version for review
Version 2.0	30/05/2023		Final version



## EXECUTIVE SUMMARY

The SYNBEE project aims to boost entrepreneurial education for academia in synthetic biology. On the one hand, it is important to consolidate a knowledge base with existing resources, on the other hand, we believe interactive training might bring an additional layer of value, providing deeper understanding of complex topics, and exceptional networking opportunity for the participants.

Interactive training will be organised for biotechnology/SynBio students, researchers, and professionals in cooperation with industrial, investor representatives, consulting companies. The sessions will be organized to allow participants to interact with the tutor, ask questions, network. 4-6 on-line and/or on-site sessions are planned across RIS emerging, moderate, strong, leading innovation countries. Partners have track record of organization of workshops in collaboration with ecosystem (Potter Clarkson – IP workshops, ERS Genomics – pitch workshops, eureKARE – non-dilutive funding). A series of lectures with focus on gender bias, leadership, women role in SynBio will be organized. Certificate of attendance, as well as open badge will be provided to participants. A satisfaction questionnaire will help us to adjust training, propose other types of necessary courses, identified by the candidates, which will allow to compare them to the industry expectations. The interactive webinars will also be recorded, when possible, and added on the project website in the section “KNOWLEDGE BASE”.

Following the SWOT analysis, SYNBEE partners will review the current plan again, and if necessary adjust it accordingly.



## ABBREVIATIONS AND ACRONYMS

AI	Artificial intelligence
ChatGPT	Chat Generative Pre-training Transformer
ERC	European Research Council
EU	European Union
GEC	Gender Equity Committee
IP	Intellectual property
IT	Information technology
ML	Machine learning
MOOC	Massive open online courses
MSCA	Marie Skłodowska-Curie Actions
NGO	Non-governmental organisation
STEM	Science, technology, engineering and mathematics
SWOT	Strengths, weaknesses, opportunities, threats
SynBio	Synthetic biology
tbc	To be confirmed
TWB	Toulouse White Biotechnology
VC	Venture capital



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## INTRODUCTION

The SYNBEE project aims to boost entrepreneurial education in synthetic biology and bring together key players within the space, including academic centres of excellence and their accelerators, incubators, and technology transfer offices, as well as industry partners and investors.

On the one hand, it is important to consolidate a knowledge base with existing resources (MOOCs, videos, articles, books, slideshows), to provide the community with flexible (anywhere, anytime) access to valuable knowledge about entrepreneurship and/or synthetic biology.

On the other hand, we believe interactive training might bring an additional layer of value, providing access to experts in the field through interactive training sessions, thus allowing deeper understanding of complex topics. Such interactive sessions will also help to create connections between community participants.

The work on this task is split into two subsections:

- This document provides a preliminary overview of the planned training based on the consortium current vision about existing and missing knowledge.
- Based on the SWOT analysis and feedback from first training participants we will identify the broader community needs, which will help us to adjust this preliminary plan, add new training ideas in the future, go deeper into specific topics.



# 1 PRELIMINARY PLAN OF WORKSHOPS

Interactive training will be organised for biotechnology/SynBio students, researchers, and professionals in cooperation with industrial, investor representatives, consulting companies. The sessions will be organized to allow participants to interact with the tutor, ask questions, network.

Certificate of attendance, as well as open badge will be provided to participants. A satisfaction questionnaire will help us to adjust training, propose other types of necessary courses, identified by the candidates, which will allow to compare them to the industry expectations. The interactive webinars will also be recorded, when possible, and added on the project website.

## 1.1 ENTREPRENEURSHIP

The consortium plans to organise at least 4-6 on-line and/or on-site sessions across RIS emerging, moderate, strong, leading innovation countries with a focus on entrepreneurship-related topics, such as IP, fundraising, preparation of a pitch. The table 1 recapitulates our preliminary plan of training sessions.

Table 1 Entrepreneurship – related training sessions

	Training session	Lead Institution	Action Month
1	<b>Workshop 1 – Preparation of a pitch, Jon Kratochvil, ERS Genomics.</b> Practical guidance about presentation of a problem, market size / context, solution, science/technology, why synbio is better than existing solutions, competition, IP, next development steps, budget needs, etc. Ways to present, depth of the provided information, focus on the audience, etc.	ERS Genomics, online	12
2	<b>Workshop 2 – Management of Intellectual Property, patenting in synthetic biology, Sara Holland, Potter Clarkson.</b> Creating value from innovation, bringing vision and clarity of thought to guide a project/researcher through the complexities of intellectual property for business in SynBio. As experts in IP law, Potter Clarkson will help participants create, protect and defend the commercial value of their innovation.	Potter Clarkson, online	12
3	<b>Workshop 3 – Raising non-dilutive funding (Proposal writing and project management), Alexandra Chukas, eureKARE.</b> Importance of non-dilutive funding for the overall strategy, ways to search for non-dilutive funding, eligibility check	eureKARE, Paris / Brussels / online	12-13



	basics, positioning of a person/project/company compared to the call for proposals, competition, specificities of culture of different calls, depending on type of funding agency, its mission, genesis, background, etc. success /failure factors. Tips.		
4	<b>Workshop 4 – Introduction to VC.</b> Startups / fast growing business, investment stages, investment process, financial modeling for startups, raising seed capital, pitch deck, total addressable market, cap table.	eureKARE/tbc, online	12-15
5	<b>Workshop 5 – From student to a startup creation.</b>	TWB, tbc	15
6	<b>Workshop 6 – Market need identification, Igors Berkovics, Biocatalyst.</b> The workshop will focus on the market pull approach to the innovation process, but providing tools to identify market needs before, during and after the research process to facilitate commercialization of the research	Biocatalyst, Riga/Online	16

In addition to organising the workshops, aim is also to design a variety of ways to acquire and demonstrate entrepreneurial skills based on the skills needs identified through a SWOT analysis. To this end, the project will explore how to make use of open badges to identify and recognize entrepreneurial and business skills, which for instance students have acquired either in formal education or in informal and nonformal learning situations. The study will lead to the piloting of the open badges for selected entrepreneurial skills and competences.

## 1.2 GENDER EQUITY

The EU study “She Figures 2015” revealed that women in scientific research remain underrepresented, accounting for 33% of researchers in the EU in 2011. In 2010, within the EU-28, women made up 28 % of scientific and administrative board members and only 22 % of board leaders.

Women remain a minority in most STEM professions and face challenges not experienced by their male colleagues. Synthetic biology is not immune to these problems. One reason is the central role played by engineering as a template for synthetic biology. As a result, synthetic biologists model their field on those STEM professions that have been the least welcoming to women and are most strongly associated with men and masculinity (Pablo Schyfter, EMBO reports, 2020).

According to Women2Invest, women represent only 2% of the C-level investors’ community representatives in Europe.





The SYNBEE project partners specifically support equality between women and men with concrete actions including the creation of the SYNBEE Gender Equity Committee. Among other committee principles, SYNBEE encourages broader women involvement into the project activities at different levels: attracting at least 30% women candidates to our events, pitch competitions, training and other activities, at least 30% of women – mentors for the projects and young startups.

A series of at least 4–6 on-line and/or on-site lectures with focus on gender bias, leadership, women role in SynBio will be organized across RIS emerging, moderate, strong, leading innovation countries. The table 2 recapitulates our preliminary plan of training sessions.

*Table 2 Gender equity – related training sessions*

	<b>Training session</b>	<b>Lead Institution</b>	<b>Action Month</b>
1	<b>Workshop 1 – Decoding Gender Bias, Violetta Zujovic, ICM.</b> science of gender bias and how we can break the cycle of these unconscious prejudices to build a more inclusive and creative society.	ICM	12–18
2	<b>Workshop 2 – Making the right decision for your career, Angela Reid, Firmenich.</b> Gender stereotyping and common career challenges, self-limiting beliefs and how they impact us.	Firmenich	14
3	<b>Workshop 3 – Giving Birth to a Biotech, Dr Caroline Barelle, Elasmogen.</b> Conception - differing from competitors. Delivery - getting a biotech off the ground. Growth - securing investment for expansion.	Elasmogen	15

Through these interactive sessions, we hope by the end of the project to consolidate a network of women alumni, who would stay connected, continue to support and mentor each other and future generations of women researchers, entrepreneurs, investors to amplify the positive impact of this project beyond the project timeline.

### 1.3 INFORMATION AND COMMUNICATION TECHNOLOGIES, DIGITALISATION

The consortium will design the IT training needed for the target group of the projects based on the results of the SWOT analysis. We expect that training in bioinformatics, ChatGPT, AI/ML,



data management will be the most awaited by the community. The consortium will also make use of existing training resources and MOOCs in IT space, i.e. elements of AI (<https://www.elementsofai.com/>), building of AI (<https://buildingai.elementsofai.com/>); ethics of AI (<https://ethics-of-ai.mooc.fi/>).

## 2. INVOLVED PARTNERS/LECTORS/MENTORS

### **ERS Genomics**

ERS Genomics is a biotechnology company based in Dublin, Ireland. The company provides broad access to the foundational CRISPR/Cas9 intellectual property held by Dr. Emmanuelle Charpentier. Jon Kratochvil, ERS Genomics Vice President for Business Development & Licensing for North America will provide pitch training and mentoring.

Mr. Kratochvil was the Director of Business Development and Licensing at MilliporeSigma in St. Louis. Mr. Kratochvil and his team were responsible for all global business development opportunities for MilliporeSigma's gene editing and novel modalities technologies. Prior to joining MilliporeSigma, he was the COO for QMAXX Products Group Inc., a specialty chemicals company in St. Louis, Missouri that developed novel anti-corrosive lubricants for industrial and consumer uses. Mr. Kratochvil was the Business Development Director for Washington University for 16 years managing a portfolio of over 1000 life science technologies which generated in excess of \$70 million in revenue during his tenure. He was also involved with helping establish several University start-up companies and has served as a business expert on several government and community advisory boards. He was employed for over a decade as a licensing manager and the competitive intelligence analyst for Abbott Laboratories diagnostics division, working on novel detection platforms and pharmacogenetics. He is an inventor on over 40 patents and patent applications.

Mr. Kratochvil received a BS in Biology from Rutgers University. He also received graduate degrees from Northwestern University in Microbiology/Immunology and Loyola University in Chicago in Law.

### **Potter Clarkson**

Potter Clarkson creates value from your innovation, brings vision and clarity of thought to guide you through the complexities of intellectual property for business in SynBio. As experts



in IP law, they will help you create, protect and defend the commercial value of your innovation.

Sara Holland has an extensive experience in prosecuting and drafting patent specifications across a range of technologies. Dr. Holland has been ranked as a Managing IP “Rising-Star” for the last three years. Having had a previous academic career largely based at the University of Nottingham and with a PhD in engineering artificial yeast chromosomes, Dr. Holland has a particular focus on intellectual property arising from higher education institutions and spinouts and has drafted and prosecuted patent applications for a number of start-ups and universities across Europe. Dr. Holland is a keen synthetic biology advocate and is interested in seeing what biotech can do beyond therapeutics.

### **eureKARE**

eureKARE is an investment company focused on financing and developing synthetic biology innovation across Europe. Driven by the belief that synthetic biology holds the key to many of the world’s most pressing challenges (health, clean energy, climate change), eureKARE’s experienced team is focused on harnessing Europe’s untapped leadership in the field to build the companies of the future. eureKARE is championing a new model of start-up creation and development to constitute a dynamic ecosystem of early and later stage ventures through its network of biotech studios. eureKARE’s studios act as a bridge between academia and industry, helping to catalyse innovations into companies with access to all the ingredients they need to grow, prosper, and bring benefits to society.

Alexandra Chukas is head of non-dilutive funding, working on application for, management of public and private grants for the eureKARE biotech studios, portfolio companies and the community to support R&D, obtain the excellence seal and credibility and create more value for investors without further diluting. She has assured management of a portfolio of 200+ projects in parallel, including European projects, and submission of up to 25 EU projects per year (H2020, MSCA, ERC) with a personal success rate 46-60%. She has helped to raise over 40 million euro of public funding since 2016.

### **Biocatalyst Foundation**

Biocatalyst Foundation is an NGO created to help researchers in the field of biotechnology to commercialize their scientific work in the Baltic sea region.



Igor Berkovics – a mentor with extensive hands-on experience with design thinking approach to innovation and focus on early identification of high impact ideas will share tools that researchers can use to define the market needs at the research plan preparation stage thus significantly increasing the chance of future successful commercialization.

### **Paris Brain Institute (ICM)**

Founded in 2010 and located in the heart of the Pitié-Salpêtrière University Hospital, the first neurology center in France, the ICM represents a strong link between fundamental research and the clinical world. The Institute gathers more than 700 researchers and clinicians, 10 cutting-edge core facilities and 1000m<sup>2</sup> dedicated to startup incubation. Its aim is to produce ambitious research by combining scientific creativity and therapeutic purpose. Its innovative model brings together patients, doctors and researchers in a transversal approach of research that promotes collaborations and accelerates the discovery of medical innovations.

Dr. Viotella Zujovic, one of the founding members of the Paris Brain Institute Gender Equity Committee, has become a leading figure of raising awareness on gender biases in science. After obtaining her PhD at the Paris XII University in Neurosciences in 2001 in the pharmaceutical industry (Sanofi), Violetta Zujovic did her post-doctoral training at the pharmacology department of the University of Florida then a second post-doctoral training at the National Institute of Health and Medical Research (INSERM). In 2011, she was appointed principal investigator at INSERM and joined the Paris Brain Institute to pursue her research. In 2019, she became the team leader of “Myelin plasticity and regeneration team,” exploring treatment possibilities for Multiple sclerosis (MS). She received the Bouvet Labruyère Fondation de France prize in 2012 and Sanofi innovation award for her projects on Multiple sclerosis in 2018. Violetta Zujovic is one of the founding members and the coordinator of Paris Brain Institute Gender Equity Committee. She has presented many seminars to raise awareness on gender biases in science and co-organized a workshop that gathered world-class international scientists, scholars, and participants to address issues associated with gender biases.

