

Join us on social media:



SYNBEE: EXPANDING SYNTHETIC BIOLOGY ENTREPRENEURIAL ECOSYSTEMS

(01/02/2023 – 31/01/2025)

15 partners (7 beneficiaries)

Budget: 1M€

24 months

Alexandra Chukas
European Project Coordinator
alexandra.chukas@davincilabs.eu
+33 6 16 69 20 57



HORIZON-EIE-2022-SCALEUP-01-01 **Expanding Entrepreneurial Ecosystems**



Funded by
the European Union



Innovation at the service of the planet via a multi-disciplinary deep tech research center in Quantum technologies, Artificial Intelligence, & Synthetic Biology.

Since 2021: **€37M** of raised funding, **6 EC funded projects**, **4 start-up** investments.

INCUBATION / INVESTMENTS



RESEARCH PROJECTS



RESEARCH PARTNERS



INSTITUTIONAL PARTNERS



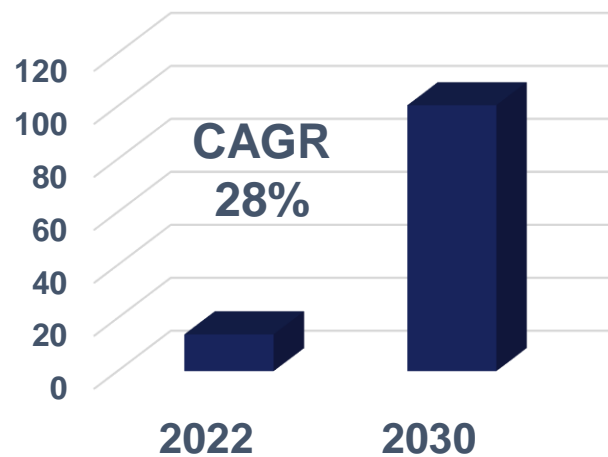


(Synthetic) biology

SynBio is a biological toolbox allowing to engineer living entities (cells, microbes, systems) as if they were made of blocks, switches, gates and circuits, enabling enhanced functions in a broad variety of applications

- ❑ SynBio is a key driver of bioeconomy: \$13T
- ❑ Investments in SynBio grew from \$1 bn in 2010, to \$36 bn in 2021
- ❑ SynBio is a key for multiple current challenges (health, food, energy, environment, manufacturing)

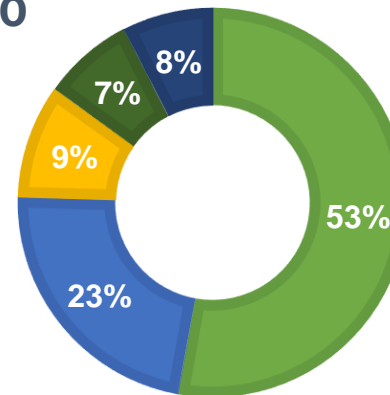
Global SynBio market size (USD Billion)



Source: CMI, 2022

Regional analysis 2020

- North America
- Asia Pacific
- Europe
- South America
- Middle East and Africa



Source: MAXIMIZE, 2020

Some key players

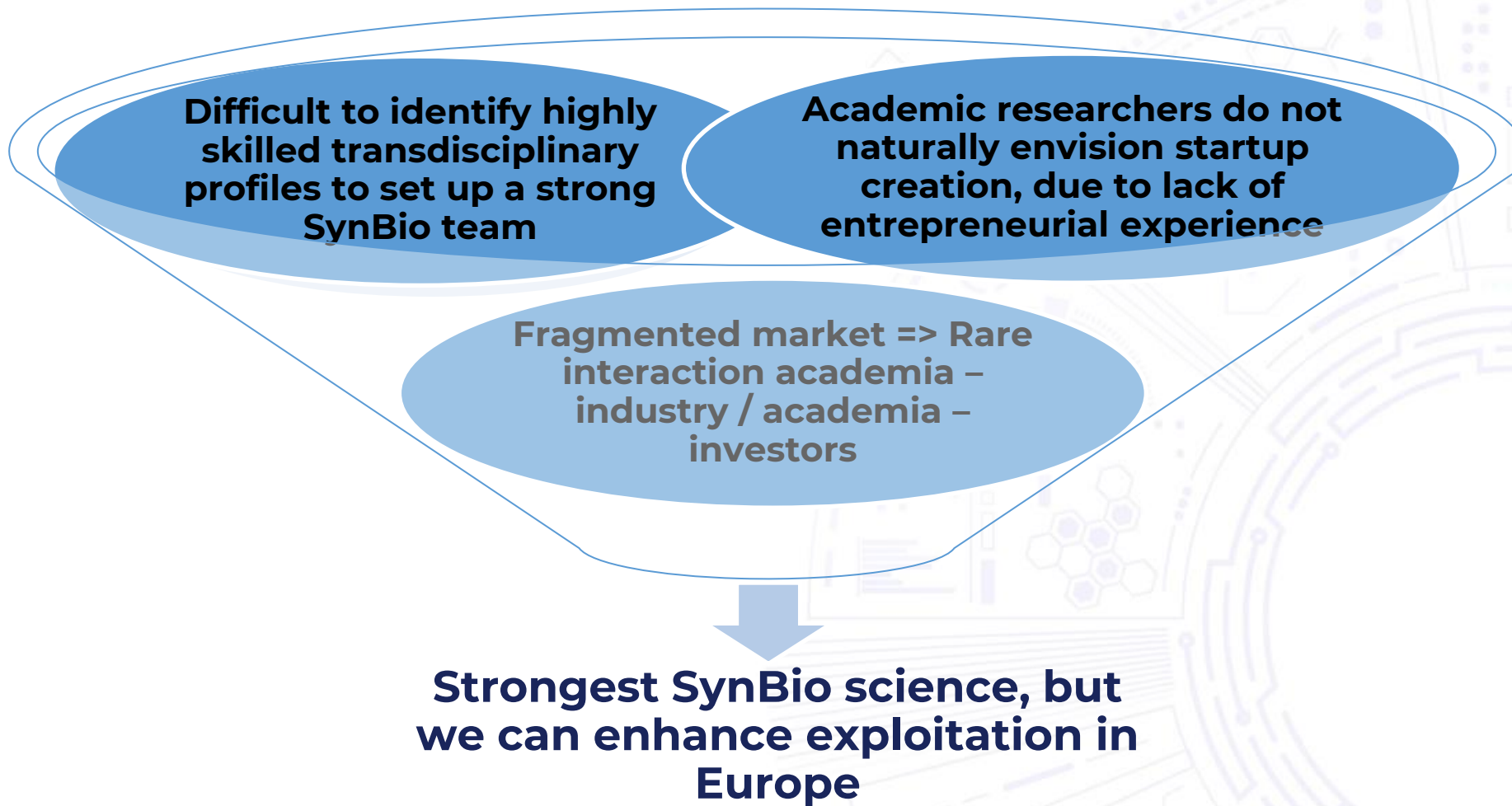
Thermo Fisher (US)
Merck (US)
Agilent (US)
Novozymes (DK)
Ginkgo (US)
Amyris (US)
Intrexon (US)
GenScript (US)
Moderna (US)
Asimov (US)
Benchling (US)

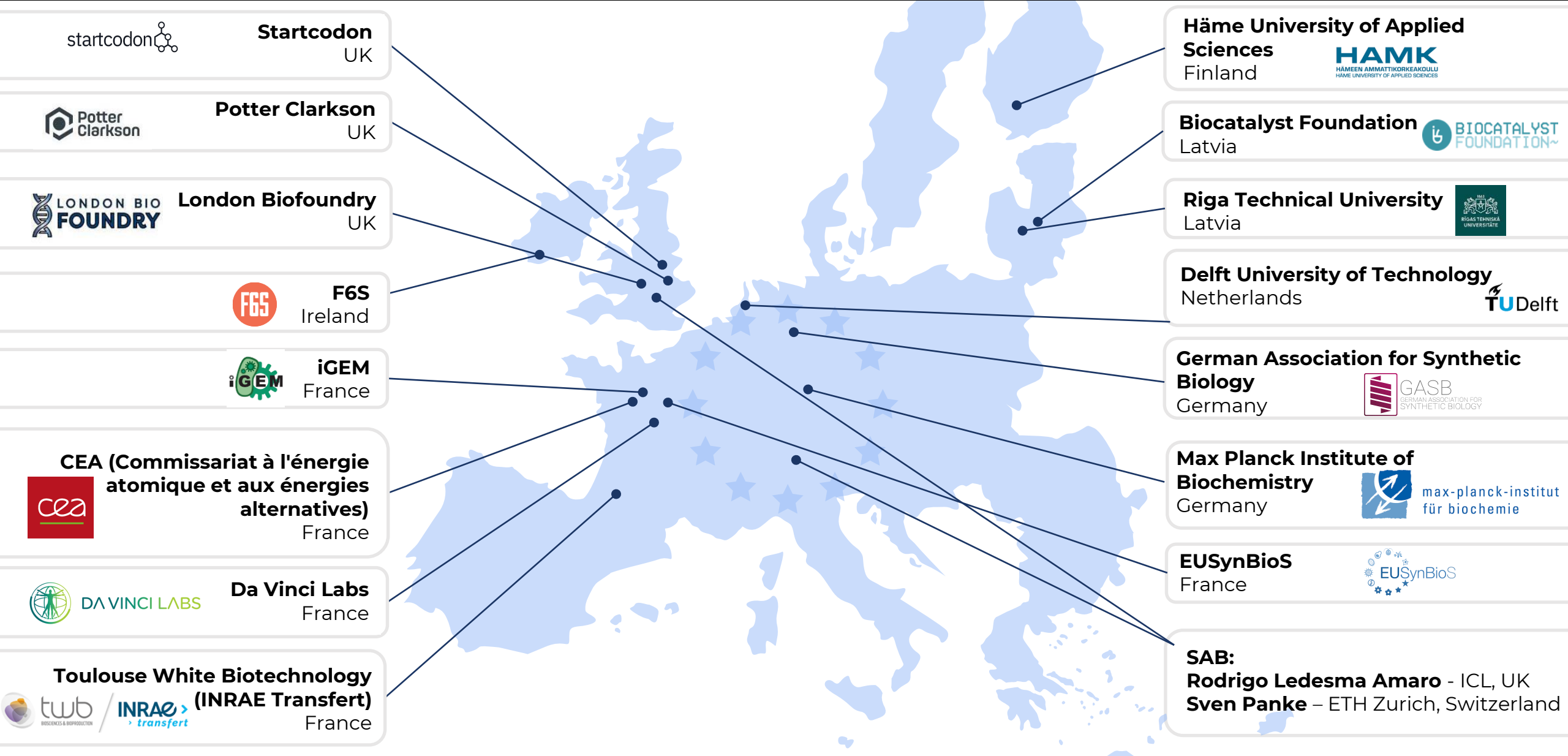
Twist Bioscience (US)
Viridos (US)
Codexis (US)
Synthego (US)
Creative Enzymes (JP)
Eurofins Scientific (LU)
Cyrus Biotech (US)
ATUM (US)
TeselaGen (US)
Arzeda (US)
DNAScript (FR)



Funded by
the European Union









SYNBEE strengths



WHO WE ARE

15 key partners and broader EU SynBio from **25 European countries**

Strong senior **academia** representatives (70+ ERC), young SynBio community via iGEM (6k students)

Key exploitation stakeholders: **SMEs** (>1,5m), **accelerators, incubators, investors**

Policy makers, economic development players

RESOURCES AND TOOLS

Expertise in SynBio, IP, fundraising, start-up, scale-up, BD, PR, etc.

Networks (SynCelleEU: 250 members, Bioconnect: 30 members, IBISBA, F6S, EIT, BIOMOLMACS, MaxSynBio, Global Biofoundry Alliance: 14, Start Codon: 500+ pharma and biotech industry leaders, esteemed investors and mentors, iGEM industry alumni network, GASB: 150 members + EUSynBios, SynBioBeta, DECHEMA)

Databases (financial sources, academia, industry, patents)

Access to state-of-the-art infrastructure (Planet B.o., Bioprocess Pilot Facility, IBISBA, London Biofoundry, automated systems for cell-free prot expression, cutting edge optical tech, high-throughput equipment, etc.)

Established events (TWB Startup Day, Biocatalyst hackathons, RTU summer schools, StartCodon demo-days and showcases, iGEM industry talks, Women Entrepreneurship Bootcamp, SynBio World Café by GASB)

WP 1 – Analysis

Benchmark of practices between developed and developing ecosystems

SWOT analysis per type of ecosystem (local presence of industry and or existing/absent links with SMEs and big industrial companies, existence of remote links, availability of financial resources to implement events, actions, staff placements, etc. risks: IP, cultural differences, regulatory differences, ethics, costs, regional specialization, etc. Opportunities

Matrix of best practices



WP 3 – Application of acquired knowledge

Mapping of public/private SynBio community

Networking between students and industrial community **at training sessions, events + on-line brokerage events (+plan of secondments, signature of framework agreements)**

Matchmaking of students for missions at non-academic organisations (SMEs, big industrial companies, investors, consulting)

Hackathons to search solutions by students for the industry

Pitch contests to support/invest in SynBio projects



WP 2 – Training the research community with the engagement of business experts into the implementation

Workshops on **business modelling, business planning**

Preparation of **financial landscape** (public/private) + **Watch unit: training + database** of relevant calls, investors

Training courses on **communication, preparation of pitch**

Outreach activities training

IT, AI – related skills: e-courses?

Mentoring by the industry for students, CEOs



WP 4 – Involvement of the industry into the education process

Mentoring between Un-ties

Hosting students from all ecosystems in private organisations: physically and/or remotely

Policy making work (inclusion of good practices into education programmes: policy makers **workshops**, education institutions' workshops, **white papers**)

WP5 – Coordination, Management, Exploitation

WP6 – Communication, dissemination



June 2023 – October 2023:

- Questionnaires, Interviews
- SWOT draft

SWOT has pointed out to challenges beyond team building in Synthetic Biology:

- Palette of aspects related to Start-up creation (access to infrastructure, skills, advice, ...)
- Regulatory obstacles
- Access to public funding
- Access to private funding

**EIC x SYN BEE day**

- To validate SWOT outcomes
- To identify other challenges
- To brainstorm about solutions

Expected impact:

- Roadmap of actions
- Policy documents

Knowledge base on SYNBEE website

- Principles of Synthetic Biology
- Engineering Life: Synbio, Bioethics & Public Policy
- Systems Biology and Biotechnology Specialization
- Introduction to Industrial Bioprocess Development
- Synthetic biology regulation in Europe: containment, release and beyond
- Modeling and Analysis of Synthetic Biology Systems with SimBiology and MATLAB
- Modeling for SynBio: from ODEs to Gene expression
- Introduction to Emerging Technologies - Part 3. Analyze and Create Hypotheses for Synthetic Biology
- Project Finance: Funding Projects Successfully
- Scaling Product and Processes
- Capital-investissement et capital-risque
- Industrial biotechnology
- Intellectual Property for Entrepreneurs
- Effective Decision Making: Dealing with Business Complexity
- Creative Problem Solving and Decision making
- Big Data Strategies to Transform Your Business
- Business Model Implementation

Key resources identified at different institutions, including:





Mentoring



Identification of

- Projects
- Teams who search for expertise
- Students, searching to join a team



Training in

- IP
- Market need
- Fundraising / VC
- Pitch
- BD
- Branding
- Gender bias



Consolidation of a pitch

Match with investors / industry

Hosting of the trained candidates by the industry / startups

Read~Write~Grow: European SynBio Hackathon



Impact monitoring

Project sustainability - cohort 2

I need a mentor:



I want to become mentor:



Non-dilutive funding: Synthetic Biology landscape in Europe



UK champion track – record in SynBio support

UK RI=> Synthetic Biology for Growth Programme, Synthetic Biology Leadership Council => **50M€** government capital investment back in 2012 + Since – regular support
1,37M€ capital invest - BBSRC
50,5M€ main funding bodies: BBSRC, EPSRC and MRC for academic research + Innovate UK for private (**Up to 10M€**)
93M€ - EPSRC SynBio portfolio (49 projects: 130k€ – 12M€))
102M€ - UKRI SynBio for Growth (2022)
70,5M€: 6 Multidisciplinary Synthetic Biology Research Centres (SBRCs) in Bristol, Nottingham
18M€ - focused on DNA synthesis
2M€ investments in targeted synbio training (Bristol, Oxford, Warwick, UCL)
10M€ capital fund - SynBio Seed Fund (since 2013)
20M€ - UK Research and Innovation (UKRI) and the Defense Science and Technology Laboratory allocate funds for Engineering biology
60M€ - UKRI (2024): Microbial Food Hub + Engineered Genetic Control Systems for Advanced Therapeutics Mission Hub + Preventing Plastic Pollution with Engineering Biology Hub + GlycoCell Engineering Biology Mission Hub



France – ambitious France 2030 Plan = 34bn €

Biotherapies & Biomanufacturing - **800M€ budget**
Ex. previously funded SynBio: TWB – **27M€** . Thanaplast – **22M€**.
 SYNTHACS – **8M€**. BIOIMPULSE – **28M€**
 Main funding sources: ANR, Bpifrance, ADEME



Switzerland
 Swiss Innovation



European Commission

Top-down calls, targeting SynBio:

Cell & Gene therapy (EIC Path.2021) + 1-2 challenges: **132M€**.
 Engineered Living Materials (EIC Path.): **132M€**
 Carbon dioxide & nitrogen management and valorisation, mid-long term, systems-integrated energy storage, cardiogenomics, healthcare continuum technologies,
 DNA data storage (EIC Path.'22) = **167M€**
 x + RNA therapies and diagnostics (EIC Trans.'22) = **60.5M€**
 Renewable energy, low carbon, en. storage (EIC Accel '21) = **495M€**
 Reducing greenhouse emission, carbon removals, climate, energy / clean electricity, sustainable aviation, cars, ships (EIC Accel.2022) = **537M€**

Open (bottom-up) calls, available for SynBio:

EIC Path. Open '21 = **168M€** / EIC Path. Open '22 = **183M€**
 EIC Trans. Open '21 = **59,6M€** / EIC Trans. Open '22 = **131M€** EIC Accel. Open '21 = **592M€** / EIC Accel. Open '22 = **623M€**
 2017 – 2022: Infrastructure IBISBA - **5M€**
 CSA SUPERBIO – **3,8M€**. IPM-4-CITRUS – **0,8M€**
 9 ITNs MSCA in SynBio = **36M€**
 100 ERC "SynBio" ~**305M€**



Finland – SynBio Powerhouse

FinSynBio (Academy of Finland) call / year – **10M€+2M€**
 VTT gov. funding: - **85M€/year**
 Business Finland grants (2020) bottom-up/focus on biomaterials, carbon neutral tech : **653M€**



Germany – GASB – German Asso of SynBio

BMBF thematic calls HepatoSys, QuantPro, SysMO + FORSYS: 4 excellence centers in SynBio, + RI – **158M€**
 BMBF - ERASysBio bi-lateral calls

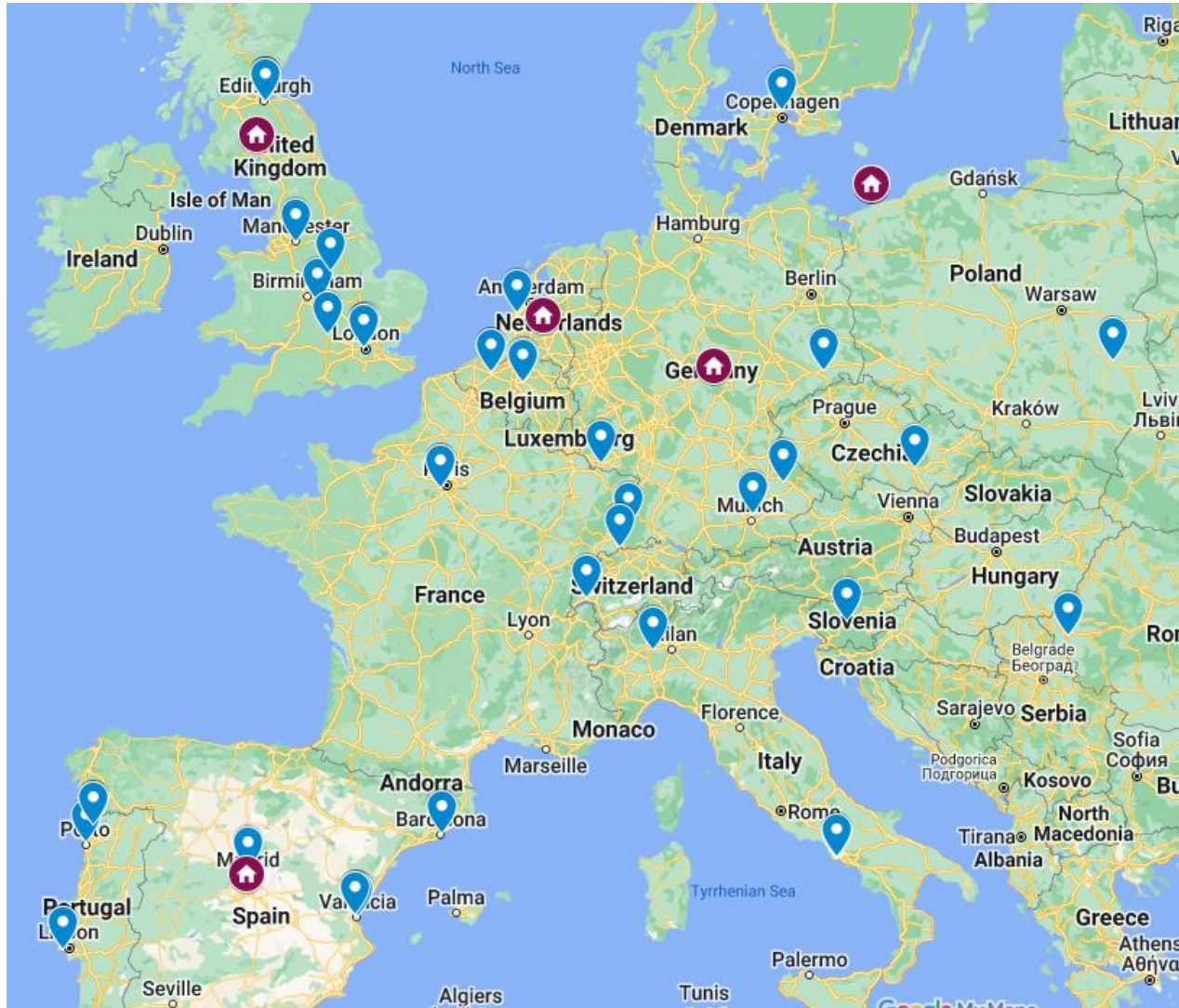


Belgium – BeSynBio

Funding track: mainly bottom-up funding from Innoviris, Wallonia Region (**up to 1M€**). Strategic focus on cell/gene therapy

Engineering and Physical S...	EPSRC synthetic biology po...	Grant	any (80% of costs)	On rolling basis	Bottom-up	You must have either: a Ph...	UK
Alexander von Humboldt F...	Humboldt Research Fellow...	Scholarship	2670€/month + travel, fami...	On rolling basis	Bottom-up	PhD +4 years max. Target: f...	Germany
Engineering and Physical S...	Manufacturing the future	Grant (80%)	3m£	On rolling basis	Bottom-up	3m£ each quarter	UK
Engineering and Physical S...	EPSRC Overseas travel grant	Grant (80%)		On rolling basis	Bottom-up	funding for international tr...	UK
Région IDF	Innov'up	Subsidy. Funding rate : 2...	Up to 500K€ in sub. / up to...	On rolling basis	Bottom-up	Bottom-up. Test de faisabili...	France
Innovate UK, Arts and Hum...	Knowledge Transfer Partner...	Grant (50-70%)	100-200k£	On rolling basis	Bottom-up	Open to businesses or not...	UK
Fritz Thyssen Foundation	Postdoc Stipends	Scholarship	2200€/month+ family allo...	On rolling basis	Bottom-up	Humanities, social science ...	
Biotechnology and Biologic...	BBSRC standard research g...	Grant	Up to 2m£ (80%)	On rolling basis	Bottom-up	Eligible: higher education i...	UK
German National Academy...	Leopoldina Postdoc Schola...	Scholarship	2000€/month + benefits + ...	On rolling basis	Bottom-up	PhD + 7 years max. Duratio...	Germany
Engineering and Physical S...	EPSRC working with overse...	Grant (80-100%)	any (80% of costs)	On rolling basis	Bottom-up	to work with overseas rese...	UK
Engineering and Physical S...	EPSRC postdoctoral fellows...	Grant	any (80% of costs)	On rolling basis	Bottom-up	energy, mathematical scien...	UK
AID - AGENCE DE L'INNOV...	RAPID (Régime d'Appui à l'...	Subsidy. Funding rate d...	tba	On rolling basis	Bottom-up	Innovation duale. Mono-pa...	France
Bpifrance	Aide pour le développeme...	Reimbursable advance o...	3M€	On rolling basis	Bottom-up	la réalisation et la mise au ...	France
Innosuisse	Innovation project without ...	Grant	tba	On rolling basis	Bottom-up	Personnel and material cos...	Switzerland
Bpifrance	Bourse French Tech	Bourse (70%)	30k€	On rolling basis	Bottom-up	Eligible: startups ou physic...	France
Biotechnology and Biologic...	BBSRC international travel ...	Grant	3k£	On rolling basis	Bottom-up	BBSRC funded researchers	UK
Engineering and Physical S...	EPSRC programme grant	Grant (80%)	any (80% of costs)	On rolling basis	Bottom-up	Programme grants provide...	UK
Alexander von Humboldt F...	Georg Forster Research Fell...	Scholarship	2670€/month + benefits	On rolling basis	Bottom-up	PhD +4 years max from de...	Germany
German Research Foundati...	Research Grant	Grant	10K€-50K€	On rolling basis	Bottom-up	3 years max, but you can a...	Germany
Innosuisse	Innovation project	Grant (50%? + Swiss Inn...	Unlimited?	On rolling basis	Bottom-up	Implementation partners: S...	Switzerland
Bpifrance	Aide pour la faisabilité de l'...	Subsidy or reimbursable...	50K€ - 1M€	On rolling basis	Bottom-up	Eligibles: Etudes d'évaluati...	France
Bpifrance	Diag Europe	Subsidy of 50% of the pr...	10K€	On rolling basis	Bottom-up	Montage des projets EIC-A...	France

European SynBio Map(s)



Associations and Societies

Academic

Vues

Grid view

1 champ masqué

Filtrer

IT Trier

Pinheiro Lab

PI Name

Institution

City

Country

Is synthetic biology the main...

Main subject of the lab

Organisms

Topics

Additional short description of the lab

Vitor Pinheiro

KU Leuven

Leuven

Belgie

Yes, Synbio is the main...

Directed evolution, artificial nucle...

E. coli

DNA synthesis or as...

Wallace Lab

PI Name

Institution

City

Country

Is synthetic biology the main...

Main subject of the lab

Organisms

Topics

Additional short description of the lab

Stephen Wallace

Institute of Quantitativ...

Edinburgh

United Kingdom

Yes, Synbio is the main...

Sustainable chemical synthesis u...

E. coli

Pseudomonas

Environmental appli...

We are a multidisciplinary resear...

Bacterial SynBio Lab

PI Name

Institution

City

Country

Is synthetic biology the main...

Main subject of the lab

Organisms

Topics

Additional short description of the lab

Yolanda Schaeli

University of Lausanne

Lausanne

Switzerland

Yes, Synbio is the main...

Bacterial Synthetic Biology

E. coli

Other Bacteri

Design, characteriza...

we are building and studying syn...

Bioprogrammable Materials

PI Name

Institution

City

Country

Is synthetic biology the main...

Main subject of the lab

Organisms

Topics

Additional short description of the lab

Shrikishnan Sankaran

INM - Leibniz Institute...

Saarbruecken

Germany

Yes, Synbio is the main...

Engineering probiotic bacteria as...

E. coli

Other Bacteri

Design, characteriza...

Bioprogrammable Materials expl...

LBBS - Sustainable Bioprocesses and Bioproducts Laboratory

PI Name

Institution

City

Country

Is synthetic biology the main...

Main subject of the lab

Organisms

Topics

Additional short description of the lab

Ligia Rodrigues

Universidade do Minho...

4710-057 Braga

Portugal

Yes, Synbio is the main...

Design and construction of artific...

E. coli

Bacillus

Pst

Mammalian synthet...

Synthetic biology is an emergent...

Date of creation	Institution name	Institution type (University, research institute, industry, SM startup, policy maker, association)	Location	Description	Main topic (energy / cosmetics / consumable products / environment / generalist)	SynBio examples	Contact information (email/phone)	Website
1945	3i Group	Investor	UK	3i is an international investment manager focused on mid-market Private Equity, Inf...		synbio amor	irteam@3i.com	www.3i.com
2000	AGORANOV	Incubator	France	Agoranov is a public Science & Tech incubator based in Paris.		synbio amor	courrier@agoranov.com	www.agoranov.com/
2009	Almi Invest	Investor	Sweden	Almi Invest is a venture capital company that invests in Swedish companies with sca...		synbio amor	maria.kessling@almi.se	www.almi.se/almi-invest
	Alter Equity	Investor	France	Impact investment			victoire.charlet@alter-equity.com	https://www.alter-equity.com
2010	Anthemis	Investor	UK	Anthemis Group is a global platform that cultivates Impact investment			www.anthemis.com	
	Aperam Ventures	Investor	Luxembourg	Aperam Ventures is a strategic investor who invests in Impact investment			christophe.pompey@aperam.com	http://www.aperam.com
2013	Aqua-Spark	Investor	Netherlands	Aqua-Spark is an investment fund with a focus on Impact investment			info@aqua-spark.nl	www.aqua-spark.nl
2022	Arctic Investment Group AS	Investor	Norway	Arctic Investment Group is a northern Norwegian investment company			eskild@ai-group.no	www.ai-group.no
1-Sep-12	Ascension	Investor	UK	Ascension is an early-stage VC built by exited entrepreneurs to back the next genera...		synbio amor	info@ascension.vc	www.ascension.vc
	Astanor Ventures	Investor	Belgium	Food and Agritech Venture Capital investing in Impact investment			vanira@astanor.com	http://astanor.com
	Astarte Capital Partners	Investor	UK	Astarte is an asset management firm investing in Impact investment			george.zamparas@astartecp.com	http://www.astartecp.com
	Audacia	Investor	France	Blue biotechnology, renewable energy, ocean pl Impact investment			quentin.robert@audacia.fr	https://www.audacia.fr/
2018	A-Ventures	Investor	South Korea	A Ventures is a venture capital investment firm.			stephane@a-ventures.vc	
	b.value AG	Investor	Germany	As an early-stage deep tech investor, we promote Impact investment			Marie.Kappen@bvalue.de	http://www.bvalue.de
2000	Balderton Capital	Investor	UK	Balderton Capital is a venture capital investor that supports technology businesses.		synbio amor	inbound@balderton.com	www.balderton.com
2018	BioInnovation Institute	Investor	Denmark	BioInnovation Institute is a biotechnology startup that offers entrepreneurs and researchers in li...			cbt@bii.dk	
2021	Blue Pelican Capital	Investor	France	Blue Pelican Capital is supporting climate innov Impact investment				bluepellicancapital.com
2016	Blue Yard Capital	Investor	Germany	BlueYard invests in founders with transforming ideas that decentralize markets and empower humanity. Typically \$1-3m as an initial investm...				www.blueyardcapital.com
	BlueCrow Capital	Investor	Portugal	structuring and setting up investment and dives Impact investment			info@bluecrowcapital.com	https://www.bluecrowcapital.com
	BNP Paribas SA	Investor	France	Impact investment			syvain.tabon@bnpparis.com	https://www.bnpparis.com
	BOLD (L'Oréal)	Investor	France	Cosmetics, cosmeceuticals				https://www.lorealbold.com
	Bonafide Wealth Management AG	Investor	Liechtenstein	We are one of the leading global asset manager Impact investment			mb@bonafide-ld.com	https://www.bonafide-ld.com
31-Dec-12	Bpifrance	Investor	France	Bpifrance provides financial solutions for companies that are booting up the listing		synbio amor	F3A@bpifrance.fr	bpifrance.fr
2-Feb-11	Business Growth Fund	Investor	UK	Business Growth Fund is an influential investor in small and mid-sized businesses.		synbio amor	enquiries@businessgrowthfund.co.uk	www.bgf.co.uk
1-Aug-10	Crowdcube	Financial services	UK	Crowdcube enables individuals to invest in small companies in return for equity or a synbio amor		synbio amor	info@crowdcube.com	www.crowdcube.com/
1956	DWS Investment GmbH	Investor	Germany	DWS Investments is an asset management com Impact investment			info@dws.com	www.dws.de
1-Jul-97	Earlybird Venture Capital	Investor	Germany	Earlybird is a venture capital investor focused on European technology innovators.		synbio amor		earlybird.com/
2004	EASME - EU Executive Agency for SMEs	Gouv agency	Belgium	EASME is the European Union executive agency for SMEs in charge of Enterprise Eu...		synbio amor	EASME-SME-HELP@ec.europa.eu	ec.europa.eu/easme/en
1989	Eight Roads Ventures	Investor	UK	Eight Roads Ventures is a global venture capital firm managing \$11bn of assets across synbio amor			eightroads.com/en/	
	Elia	Investor	France	We are a vc fund investing in 828 tech europeans Impact investment			ramarouche@elia.com	https://www.elia.com
4-Apr-13	Eleven Ventures	Investor	Bulgaria	Eleven supports early-stage tech companies from Southeast Europe in Fintech, Heal...		synbio amor	elevan@11.me	11.me
1998	Enterprise Ireland	Gouv agency	Ireland	Enterprise Ireland is the government agency responsible for the development and p...		synbio amor	equitydept@enterprise-ireland.com	www.enterprise-ireland.com
1-Sep-11	Entrepreneur First	Investor	UK	Entrepreneur First brings ambitious founders together to build globally important te...		synbio amor	info@joinef.com	www.joinef.com



Min. TRL2: Technology concept formulate



Deadline: December 8th 2023 - 12pm



Pitch competition during SYNBEE day - March 2024
EIC Facilities - Brussels



All: Join the SYNBEE community & get initial assessment of your idea

Finalists: Training on good pitching practices & meet syn bio experts

Winners: in-kind prizes

3 CHALLENGES



Green innovations: Create solutions with a positive environmental impact

Biofuels from cyanobacteria, genetically modified enzymes to capture methane and transform it into new biodegradable biopolymers...



Blue economy: Innovate while preserving oceans ecosystem

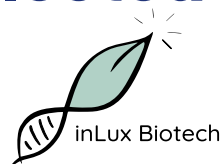
Aquatic microorganisms to produce sustainable hydrogen, ocean decontamination via bacteria digesting hazards...



Sustainability: Rethink how to protect existing resources of our land

Multi-use textiles, biomining, nature conservation...

Selected finalists – awards at EIC x SYNBEE Day





Join us on social media

Thank You

Alexandra Chukas
Da Vinci Labs

 @synbee_eu

 @synbee

 alexandra.chukas@davincilabs.eu

 **SYNBEE**





DA VINCI LABS

Da Vinci Labs SAS
La Vallière 37380
Reugny, France

www.davincilabs.eu

