

JULY 2012

Newsletter



FOREWORD

**Dr. Annette Kremser | Coordinator of ERASynBio
JÜLICH, Project Agency Jülich
Jülich, July 2012**

With great pleasure I present to you this newsletter, which introduces the recently launched ERA-Net in Synthetic Biology "ERASynBio" under the 7th Framework Programme and presents an overview of current developments in Synthetic Biology in Europe.

Synthetic Biology is a fast developing field with high socio-economic potential. ERASynBio will therefore promote the sustainable development of synthetic biology by coordination and complementation of national efforts.

I hope you will enjoy reading about our activities and that you will stay connected to the future activities of ERASynBio.



DEVELOPMENT AND COORDINATION OF SYNTHETIC BIOLOGY IN THE EUROPEAN RESEARCH AREA

ERASynBio aims at promoting the development of synthetic biology by structuring and coordinating national efforts and investment, with the final goal of creating a sound European research community in the field avoiding national fragmentation from the very start.

MAIN ACTIVITIES

- Supporting the emergence of national synthetic biology programs based on a strategic research agenda
- Transnational funding activities via joint calls (2 joint calls planned)
- Strengthening the scientific community by offering training and educational possibilities
- Developing recommendations on governance concepts and regulatory models by integrating ethical, legal, societal and technical aspects of synthetic biology
- Promoting close cooperation between academia and industry
- Providing extensive dialogue options and exchange fora in which all stakeholders are to participate

DURATION

36 months (1.1.2012 – 1.1.2015)

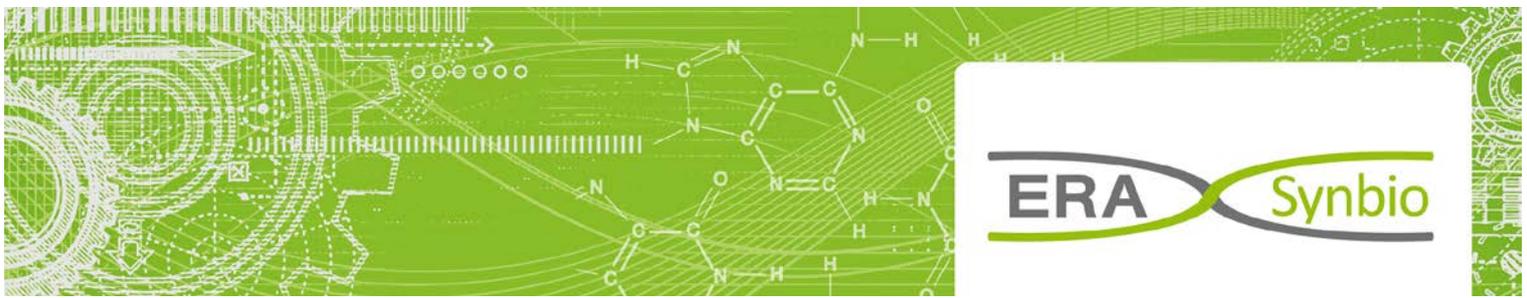
EC FUNDING

1.997.022 Euros

PARTNERS

16 from 14 European countries





ERASynBio IN ACTION

DEVELOPMENTS SO FAR

It has been a productive start for the ERASynBio ERA-Net.

16 governmental funding bodies who act as partners in ERASynBio met at the **KICK-OFF MEETING** in Brussels on March 15 2012, where

- ✿ we learned about the ERASynBio participants' motivation and expectations regarding the project and gained an insight into national activities in the field;
- ✿ Prof. Martins dos Santos gave an inspiring presentation on scientific perspectives in synthetic biology. The presentation was followed by a lively discussion on definition issues and the dissemination of technological benefits;
- ✿ we have taken the decision to propose a core definition of synthetic biology with the aim to align the field in addition to the soft definition for researchers and other stakeholders based on success stories and examples;

6 partners who form the management of ERASynBio met in Paris on June 1 2012 for the first **MANAGEMENT MEETING** to discuss the mapping and call preparation activities and assess ERASynBio's progress.

OUR FUTURE PLANS

- ✿ The 1st joint transnational call to be launched in the beginning of 2013 is being prepared
- ✿ The 1st interdisciplinary workshop is scheduled for the second half of 2012
- ✿ The 1st call for project twinning is to be launched soon
- ✿ The 1st ERASynBio Strategy conference is planned for January 2013

WHAT'S AN ERA-Net?

ERA-Net actions together with ERA-Net Plus actions are part of the **ERA-Net scheme** under the **7th Framework Program**, whose objective is to develop and strengthen the coordination of national and regional research programs supporting the development of the **European Research Area**.

ERA-Net actions provide a framework for actors implementing public research programs (ministries, research agencies) to coordinate their activities e.g. by developing joint activities and by mutually supporting joint calls for trans-national proposals.

The funding of projects selected is provided by national agencies, while the funds obtained by the EC are used exclusively for the coordination and management of the network and its activities.

ERA-Net actions typically last three to four years.

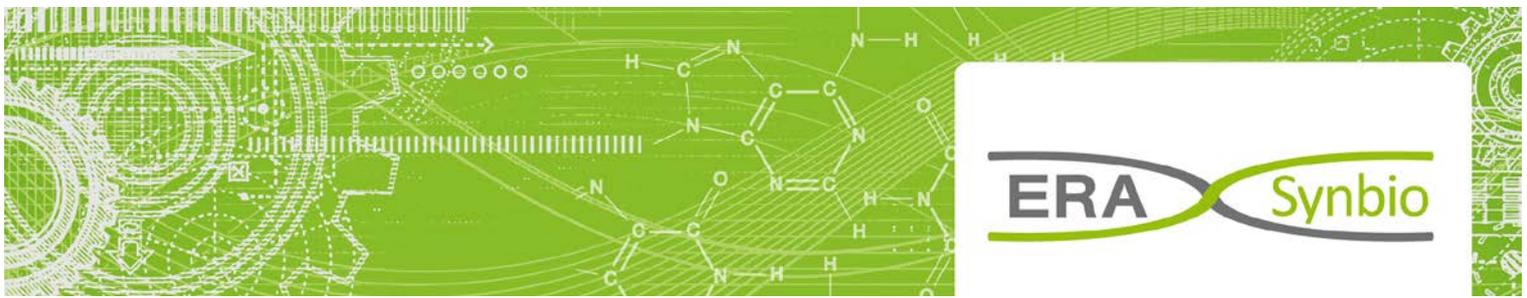
ERASYNBIO'S DEFINITION OF SYNTHETIC BIOLOGY

Synthetic Biology is the engineering of biology: the deliberate (re)design and construction of novel biological and biologically (based) systems to perform new functions for useful purposes, that draws on principles elucidated from biology and engineering.

Please consult our website www.erasynbio.eu for further information on scope and application areas of Synthetic Biology.

Click on the [green underlined text](#) for more information.





EXPAND YOUR KNOWLEDGE

Modeling in systems biology and synthetic biology

What An Erasmus Intensive Program (Erasmus IP) organized by the Latvian University of Agriculture in tight cooperation with 10 partners from 7 EU countries

When From 1st July to 14th July 2012 in Jelgava, Latvia

Purpose To improve the interdisciplinary communication between biologists, computer scientists, mathematicians and other specialists in the field of systems biology and synthetic biology.

ERASMUS IP course partners: University of Manchester (UK), Brunel University (UK), Oxford-Brookes University (UK), Ruprecht Karl University of Heidelberg (Germany), University of Ljubljana (Slovenia), Kaunas University of Technology (Lithuania), Aleksandras Stulginskis University (Lithuania), Lithuanian University of Health Science (Lithuania), University of Iceland (Iceland), Estonian University of Life Sciences (Estonia) and University of Latvia (Latvia). *Only students of partner universities can apply for the course.*

Activities Lectures and practical modeling activities in a computer class. During the courses students will obtain knowledge about differences and common features of biological and technical systems, modeling of biosystems and bioprocesses on a structural and dynamic level. Background of each participant will be broadened towards skills needed in interdisciplinary teams.

iGEM competition

The International Genetically Engineered Machine (iGEM) competition is an international competition in which student teams from around the world are challenged to design and build their own microbial machine. Teams create and use new biological building blocks, the so-called 'BioBricks' - standard interchangeable parts of DNA, which add new functionality to a microorganism. At the beginning of the summer, participating student teams are given a BioBricks kit from the 'Registry of Standard Biological Parts' where the parts from previous teams are stored. Based on these available parts and self-developed ones, the teams work on a variety of projects that fulfill complex tasks, such as the removal of pollutants, detection of medical conditions or help to stop desertification. The sky is the limit.

iGEM CORNER

European Regional Jamboree

When?
5-7 October 2012

Where?
Amsterdam, the Netherlands

Who?
Fifty-three European and two African teams

Why?
To compete for a ticket to the world championships at MIT in Cambridge, USA.

Program
5.10: discussion on ethical issues involved with the novel technologies in synthetic biology and evaluation of potential significance and implications for society (organized in collaboration with the Rathenau Institute)

6.10 : iGEM teams present projects to a jury, social networking event

7.10: Announcement of winning teams and the European Champion



ERaSynBio is a proud sponsor of the iGEM European Regional Jamboree, supporting qualifying teams in the iGEM World Jamboree.

Click on the [green underlined text](#) for more information.





JOIN THE SCIENTIFIC COMMUNITY

WHERE WE CAN MEET in 2012

ESF EuroSYNBIO Program-wide conference "Progress in Synthetic Biology"

Join project leaders, principal investigators and project members from the EUROCORES Program EuroSYNBIO, as well as coordinators of key European initiatives, including ERASynBio, in the Groningen Centre for Synthetic Biology for a program-wide conference including 8 keynote speakers.

Groningen, the Netherlands, October 3-5 2012

International Workshop on Systems and Synthetic Biology

The intention of this workshop is to consider systems biology and synthetic biology as complementary fields of research, bringing together scientists with diverse views and strategies relevant to the understanding and engineering of biological systems. A diversity of biological systems (and technologies) will be covered, whereby the emphasis will be on underpinning principles and synergy between the respective disciplines. The workshop will feature oral and poster presentations as well as in-depth discussion sessions.

Mallorca, Spain, October 16-20 2012

LOOKING INTO 2013

Gordon research conference (Re-)constructing and Re-Programming Life

An in-depth discussion forum among practitioners of the various fields underlying Synthetic Biology chaired by Professor Vitor Martins Dos Santos

West Dover, Vermont, USA June 9-14 2013

BioBricks Foundation SB6.0: The Sixth International Meeting on Synthetic Biology

Part of the BioBricks Foundation Synthetic Biology Conference Series, which the world's foremost professional meeting in the field of synthetic biology.

Imperial College London, UK July 9-11 2013

Please consult our website www.erasynbio.net for further information on the above and other events, including **the 1st ERASynBio Strategy Conference.**

PAST EVENTS

Crossing Borders – Introducing Synthetic Biology in Buenos Aires

One week (16 - 22 April 2012), six speakers (4 from USA, 2 from France and 1 from Slovenia), 30 PhD students or postdocs, with the goal of contributing to the development of Synthetic Biology in Latin America and the Caribbean.

Thinking Out of the Box in Slovenia

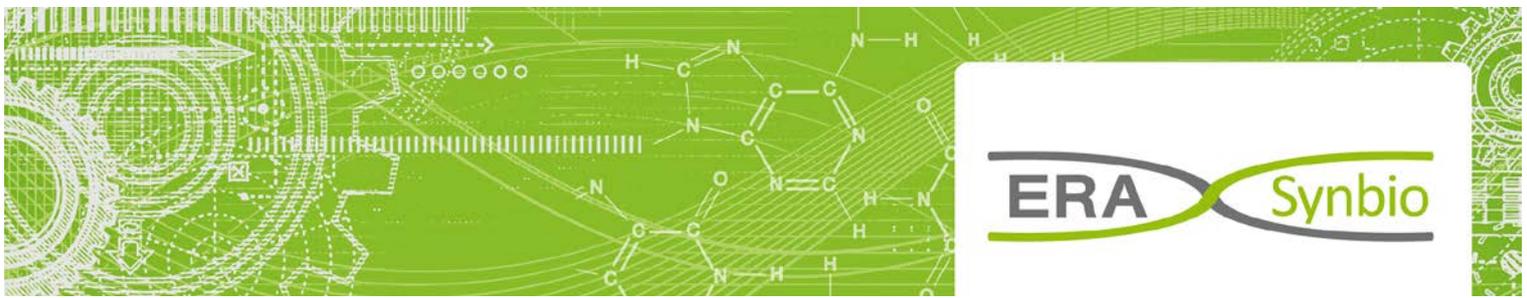
Prof. Roman Jerala presented Synthetic Biology at an interdisciplinary event in which notable personalities from a variety of backgrounds discussed human problems of common interest in the quest to find a common language which will enable ideas for sustainable global solutions to emerge. The 2012 Out of the Box Conference Innovative Ways to Improve the Culture of Living was organized in Maribor, 15-17 May and hosted His Holiness the Dalai Lama as an honorary guest.

Design, optimization and control in systems and synthetic biology

ENS Paris, June 11-12, 2012: a workshop focusing on two recent research directions, namely the rational design and optimization of engineered biological systems in synthetic biology and the development of novel methods for the control of intracellular processes at the cell level. The workshop's main aim was to gather leading international scientists who significantly contribute to these domains. Topics of particular interest included long-term imaging of cellular processes, microfluidics, synthetic biology, quantitative modeling of biomolecular processes, and control theory applied to biological systems.

Click on the [green underlined text](#) for more information.





Synthetic Biology in Denmark



Denmark sees Synthetic Biology as an up-and-coming multidisciplinary field with enormous potential and of great importance to building research and learning environments in order to create innovation and growth.

In Denmark, Synthetic Biology began around 2005 with the funding of a number of smaller projects. In 2008 a 16 million Euro funding was given to the "UNIK Synthetic biology" research center from the Danish Ministry of Science, Technology and Innovation. In 2010 the Novo Nordisk Foundation donated 100 million Euros to the establishment of the "The Novo Nordisk Foundation Centre for Biosustainability" basic research centre with a focus on synthetic biology. Today research within Synthetic Biology is taking place at most of the Danish Universities and in a number of Danish companies.

To hold the strong position The Danish Council for Strategic Research (DCSR) prioritizes Synthetic Biology and will encourage scientists to work in international networks in order to pool competences and resources. In addition to performing world-class research in synthetic biology an education program on the undergraduate, postgraduate and doctoral levels is to be developed.

... Continuation of the previous page
PAST EVENTS section ...

Synthetic biology - enabling sustainable solutions for food, feed, bio-fuel and health: New potentials for the European bio-economy

The STOA workshop was organized in cooperation with the University of Copenhagen and the Technical University of Denmark (DTU) in Brussels on June 6 2012.

The main focus of the workshop was on the role of synthetic biology in enabling a transition towards a greener Europe. By gathering scientific experts from within the nanotechnology, plant biology, neurobiology, chemistry and physics sector, this field is creating novel safe technologies for sustainable production of food, feed, bio-fuels and pharmaceuticals. The event was web-casted.

The Synthetic Biology program at Copenhagen University

The Center for Synthetic Biology is an interdisciplinary research center at University of Copenhagen. The research area of synthetic biology is established on the basis of an elite grant, UNIK (Investment Capital for University Research) of 120 million kroner from the Danish Ministry of Science, Technology and Innovation. The grant runs from 1. April 2009 - to 31. March 2014. The centre creates a framework for research in synthetic biology within four faculties and gathers researchers and students from more than 7 institutes at the University of Copenhagen.

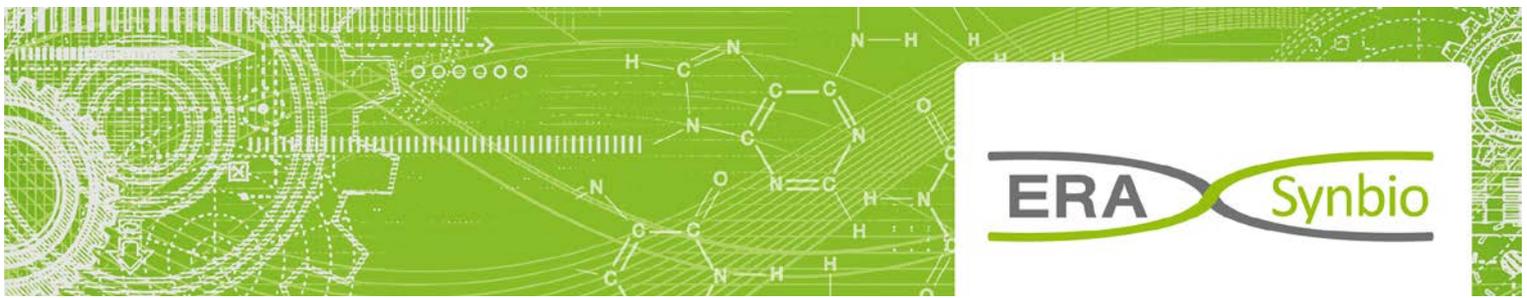


Danish Agency for Science
Technology and Innovation
Ministry of Science
Technology and Innovation

The Danish Agency for Science, Technology and Innovation (DASTI) is an agency under the Danish Ministry of Science, Innovation and Higher Education. DASTI performs tasks relating to research and innovation policy. It also provides secretariat services and supervision to the scientific research councils which allocate funds for independent research, for strategic research and for innovation. Further the agency advises the political system and a key challenge lies in translating the high political prioritisation of research and innovation into growth, prosperity and cultural development in Denmark. The Agency is also responsible for organizing the interaction between the agency itself, government ministries, the independent councils for scientific research and innovation, universities, other research institutions and private enterprises. The object is to create partnerships and alliances to strengthen the quality and relevance of Danish research. DASTI coordinates the ERA-NET on research within ICT and robotics in agriculture and related environmental issues (ICT-AGRI). DASTI is an active contributor to several KBBE ERA-Nets, notably EUPHRESKO, EMIDA and IB etc. and to several JPI's including the JPI on Antimicrobial resistance.

Click on the [green underlined text](#) for more information.





Synthetic Biology in Finland



In Finland, the field of synthetic biology is still in its relative infancy, even though there are many competent researchers and research teams in such areas as gene technology, proteomics, metabolomics, systems biology and computer modeling. For Finland to achieve a strong future position in the synthetic biology field it is important to pool the competencies and resources of these experts and at once to support their networking with colleagues based at world-leading universities.

To achieve these goals the Academy of Finland will launch a four year national research program on synthetic biology FinSynBio (2013-17). The call will be launched with the Academy's September 2012 call.

Finland to launch a national research program on synthetic biology



The Synthetic Biology research program is designed to create a new, more broadly based platform for the closer integration of molecular biology, biochemical, computational and computer-aided modeling, process and materials technologies as well as chemical and physical approaches. The research program covers three thematic areas, which should be seen not as distinct and separate from one another, but rather as mutually complementary approaches

- Modeling and simulation of biological reactions and systems
- Synthetic biology: Tools and production systems
- Socio-cultural issues related to synthetic biology

The idea is to bring these areas together to form a genuinely multidisciplinary perspective.

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Social Scientists' Adventures in Synthetic Biology

The 5th and final seminar in the ESRC-funded series on "Synthetic Biology and the Social Sciences" with a main focus on UK experience, but also involving those from the USA and Europe, took place in London on 19 June 2012. Its aim was to critically analyse and learn from earlier experiments in the involvement of social scientists and other 'outsiders' in synthetic biology presenting findings from the previous seminars, which explored the possibility of developing a 'post-ELSI' interdisciplinary research agenda for the social scientific analysis of synthetic biology.

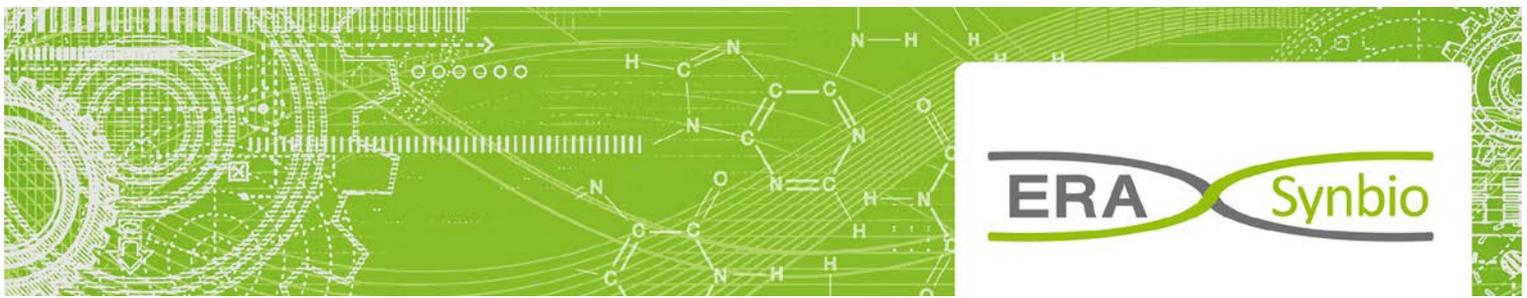
Highlighting Recent Advances in Microbial Engineering – enGENEious

World's leading scientists highlighted recent advances in microbial engineering and discussed challenges and future directions in the field, answering the question of young investigators and scientists, how to piece together their knowledge of chemistry and biology to participate in the field, debating themes such as biofuel production, cellular computing, synthetic gene networks, cellular signaling, bacterial communication and quorum sensing. The student and post-doc organized conference took place in Oxford 25-26 June 2012.



The Academy of Finland is an expert organization in research funding and science policy. It operates within the administrative sector of the Ministry of Education and Culture and is funded through the state budget. AKA provides funding for high-quality scientific research, acts as a science and science policy expert, and works to strengthen the position of science and research. The mission of AKA is to promote career opportunities in research, support the development of high-quality research environments, and take advantage of international opportunities in all fields of research, research funding and science policy. AKA funds research annually with 314 million Euros (year 2010).





Synthetic Biology in France



In France, Synthetic Biology kicked off around 2005 with the creation of an interest group. The first French iGEM team, led by F. Képès in 2007, was awarded the first prize of foundational research at MIT. Synthetic Biology has currently two strongholds in France, one in Evry (Paris area) around Genopole®, Evry University and CNRS, and one in Toulouse around INSA, INRA and CNRS.

In Evry, a [Master 2 of Systems and Synthetic Biology](#) was founded in 2009. A platform of Synthetic Biology started in 2009. [The Institute of Systems and Synthetic Biology](#) officially opened in 2010. Six BioSynTech, out of eight in France, are based at Genopole®. In Toulouse, a wide expertise in biocatalysis and a strong basis of private-public partnership led to the foundation of the pre-industrial demonstrator "[Toulouse White Biotech](#)" (TWB) in 2012, which incorporates some principles from Synthetic Biology.

Documents: In November 2011 the French Ministry of Higher Education and Research released a report on "[Synthetic Biology: development, potential and challenges](#)".

In February 2012 the French Parliamentary Office for the Evaluation of Scientific and Technological Choices issued a report on the challenges of synthetic biology ("[Les enjeux de la biologie de synthèse](#)").

The French Ministry hosts a set of web pages bearing information on synthetic biology aimed at the journalists, in [French](#) and in [English](#).

In January 2011 the French Multi-organization Thematic Institute on Molecular and structural bases of living organisms (ITMO) issued its [strategic plan](#), which includes a specific part on synthetic biology.

Initiative: Observatoire de la biologie de synthèse

Publication: Synthetic Biology: Mapping the Scientific Landscape : Analysis of the scientific landscape for synthetic biology using a bibliometric approach, published on PLoS ONE: April 2012 | Volume 7 | Issue 4 | e34368 ([Click on the title for more information](#))

Event: "La Biologie synthétique" ("Synthetic Biology) Conference at the French Academy of Sciences organised by Henri Korn, Member of the « Académie des sciences" Paris, 12 June 2012



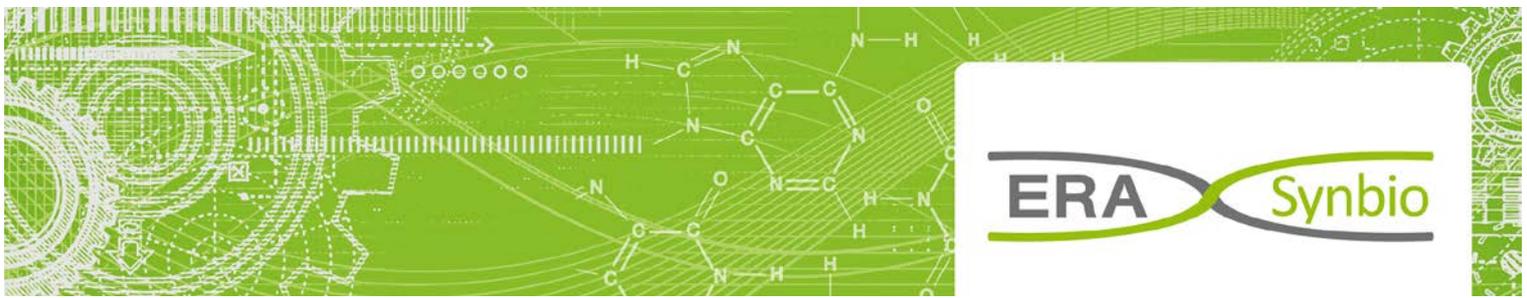
The National Center for Scientific Research (CNRS) is a government-funded research organization, under the administrative authority of France's Ministry of Higher Education and Research. CNRS research units are located throughout France, and employ a large body of tenured researchers, engineers, and support staff. As the largest fundamental research organization in Europe, CNRS carries out research in all fields of knowledge. It encourages collaboration between specialists from different disciplines, opening up new fields of enquiry to meet social and economic needs. Interdisciplinary research is undertaken in various domains, including Life sciences and its interfaces to other sciences. In keeping with its long-standing tradition for multi-disciplinary endeavors, CNRS has a strategic commitment for synthetic biology.



The ANR is a research funding organization established by the French government in 2005. It aims at increasing the number of research projects issued from the entire scientific community, and to provide funding based on calls for proposals and peer review selection processes. The ANR targets both public research institutions and industries with a double mission of producing new knowledge and promoting interaction between public and industrial laboratories through the development of partnerships. In the field of Biology & Health, ANR runs interdisciplinary national and trans-national programs (17 in 2011), allocating yearly about 180 M€ to more than 300 French research teams working in both fundamental and applied academic laboratories as well as in private companies. International activities are one of the priorities of the ANR; all scientific departments participate in ERA-Nets and multilateral actions.

Click on the [green underlined text](#) for more information.





Synthetic Biology in the UK



The UK views Synthetic Biology as an emerging multidisciplinary field with strong potential for impact on innovation and global grand challenges. Two of the UK's funding Research Councils, BBSRC and the Engineering and Physical Sciences Research Council (EPSRC) have made Synthetic Biology a strategic priority, investing over £60m of public funding, conducting public dialog and regulation exercises and working with the UK Technology Strategy Board (TSB) on support for the industrial applications of this field.

The major UK Synthetic Biology stakeholders are currently developing future UK Synthetic Biology strategy through an independent Roadmap exercise, commissioned by Minister for Universities and Science, David Willetts. The Roadmap will examine how the UK can develop an economically vibrant, diverse and sustainable Synthetic Biology industry which delivers clear public benefit and is underpinned by a cutting edge science base.



The Biotechnology and Biological Sciences Research Council (BBSRC) invests in world-class bioscience research and training on behalf of the UK public. Our aim is to further scientific knowledge, to promote economic growth, wealth and job creation and to improve quality of life in the UK and beyond.

Funded by Government, and with an annual budget of around £445M, we support research and training in universities and strategically funded institutes. BBSRC research and the people we fund are helping society to meet major challenges, including food security, green energy and healthier, longer lives. Our investments underpin important UK economic sectors, such as farming, food, industrial biotechnology and pharmaceuticals.

News from the UK*

**Click on each news item for more information*

BBSRC, EPSRC, ESRC and TSB are to invest up to £6.5m to encourage businesses to explore innovative industrial applications of synthetic biology. Funding will be provided to demonstrate the feasibility of using this approach in the creation of novel or improved products or processes

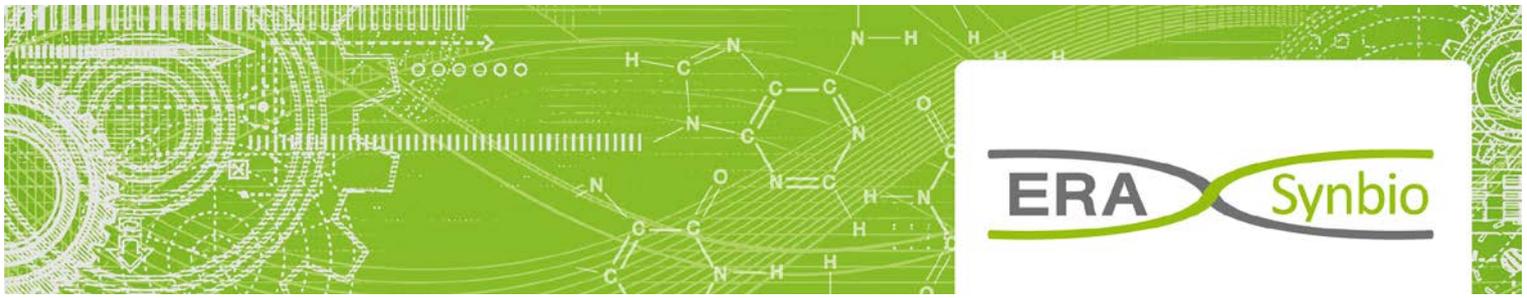
The UK Biotechnology and Biological Sciences Research Council (BBSRC) has made a £4,000,000 investment in 'click' chemistry for Synthetic Biology. Funding was provided through BBSRC's Strategic Longer and Larger (LoLa) grant scheme for research proposals with a value over £2,000,000 in an areas of strategic importance: BBSRC is currently assessing LoLa applications to the 2011 and 2012 calls, which included Synthetic Biology for white biotechnology as a priority area.

The UK Engineering and Physical Sciences Research Council (EPSRC) has made a £5,000,000 investment in Synthetic Biology at the five British universities (Imperial College, Cambridge, Edinburgh, LSE/Kings and Newcastle) for the development of platform technologies in synthetic biology.

BBSRC, EPSRC, the UK Medical Research Council and the UK Defence Science & Technology Laboratory (Dstl) have assessed proposals through the Joint Synthetic Biology Initiative (JSBI). The outcome will be announced soon with £1,700,000 to be assigned to Synthetic Biology projects with potential defense and security applications.

The UK Technology Strategy Board (TSB) is launching a new Special Interest Group (SIG) in Synthetic Biology, with the aim of establishing a network between research-base and industry partners.





MEET THE PARTNERS*

*Click on the partner names to learn more about them

Austria



France



Germany



The Netherlands



Portugal



Spain



United Kingdom



Denmark



Finland



Greece



Latvia



Norway



Slovenia



Switzerland



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