

Organizer / Contact



In January 2010, the Philipps-Universität Marburg and the Max Planck Institute for Terrestrial Microbiology established a Center for Synthetic Microbiology (SYNMIKRO) in Marburg, promoted by the Excellence Program of the state of Hesse (LOEWE). SYNMIKRO employs over 100 scientists in more than 30 groups who conduct its research in the rapidly growing field of synthetic microbiology.

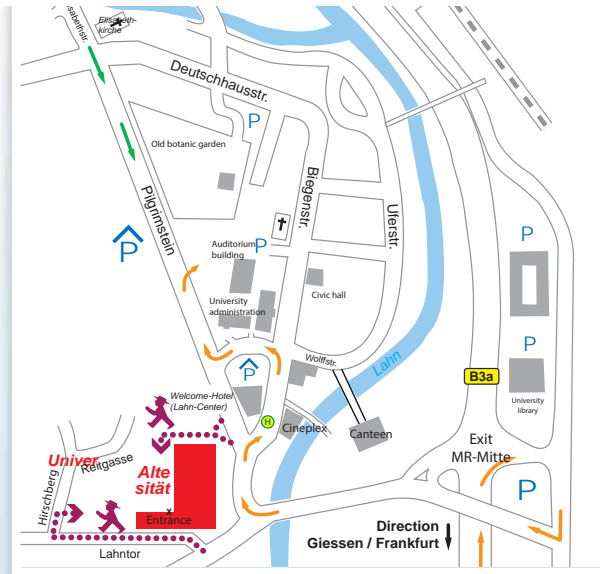


Hessen Trade & Invest GmbH (HTAI) is the economic development company of the State of Hesse. Its primary function is to promote Hesse's long-term success as a business and technology region and enhance its competitiveness on the national and international level.

Hessen-Biotech is the central information, communication and cooperation platform for life science based activities in Hesse. Its principle role is to link industry expertise in order to strengthen the innovation potential and competitiveness of companies and to promote the biotechnology and medical technology industry in Hesse.



Venue



Public transportation (Recommended):

Step out of the main train station, cross the road at the traffic light to get to the bus stop. Bus line 1-5 and 7 will go to "Rudolphsplatz", which is near the venue. After getting out of the bus, use the traffic lights and go left. Turn right twice at "Lahntor" and "Hirschberg".

By car:

Coming from the north, exit the freeway at "Marburg Bahnhofstrasse" and turn right at the first traffic light. Follow the course of the road and always stay right, the street will separate into two lanes and join again at the Elisabeth church. Drive straight ahead until you are in a street called "Pilgrimstein", where you will find a (charged) parking deck at your right.

Coming from the south, exit the freeway at "Marburg Mitte" and turn right twice. Stay in the right lane and turn right again after passing the Lahn bridge. After passing the cinema on your left, turn left. Turn right at the end of the short street. You are now in a street called "Pilgrimstein", where you will find a (charged) parking deck at your left.

Address of the nearest parking garage for navigation devices:
Pilgrimstein 17, 35037 Marburg

Registration

Participation in the symposium is free but registration is required. Deadline for the registration is April 20, 2014. Please register online at:

www.synmikro.de

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Symposium

Microbial Formation of Biofuels and Platform Chemicals



Wednesday, May 7, 2014

Philipps-Universität Marburg, Alte Aula

Lahntor 3, 35037 Marburg

Scientific scope of the symposium

The continued use of fossil fuels as the main energy source and as precursors for the synthesis of chemicals is of concern because the amounts of easily accessible coal, gas and oil are limited. In addition, the combustion of fossil fuels is associated with the formation of carbon dioxide (CO₂), whose concentration in the atmosphere has increased considerably since the beginning of the industrial revolution. This increase in atmospheric CO₂ is worrisome since it correlates with the presently observed climate change and is responsible for the acidification of the oceans. Thus, a search for fossil fuel replacements that rely on renewable sources and that are climate and environmentally friendly is a key task at hand. Plant biomass is such a renewable source. It can be converted chemically and/or microbially into biofuels such as bioethanol, biodiesel, or biogas, or into so called platform chemicals such as glycerol, succinic acid or levulinic acid, which serve as precursors for the synthesis of important polymers.

There are hundreds of thousands of different microorganisms, each with different synthetic potentials. Combining these potentials in individual organisms principally allows the development of microbes that can synthesize any desired chemical. The yield of the desired product will be determined by thermodynamics, kinetics, specific activities, by the number of the involved enzymes and by fermenter design. The effectiveness of microbial cell factories and of the chosen processes have to ensure high yields and rates if the product is to be economically viable. Ideally, product formation should also be carbon neutral (net zero CO₂ emissions).

Currently, hundreds of research groups worldwide are focusing on the synthetic design of recombinant microbes or chemical catalysts for the conversion of plant biomass into biofuels and platform chemicals. This one-day SYNMIKRO symposium will give examples of the scientific and technological frontiers in this exciting research area, presented by internationally renowned speakers from both academia and leading industrial companies.

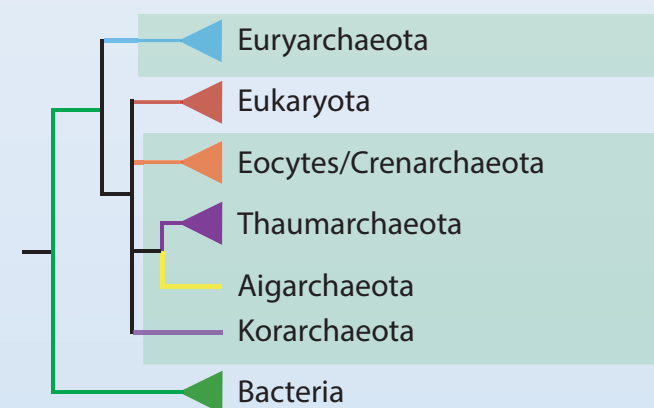
We are looking forward to interesting presentations and discussions. We warmly welcome all participants of this symposium to the Philipps-Universität Marburg and the LOEWE Center for Synthetic Microbiology.

Local organizers: Rolf Thauer and Erhard Bremer

Program

09:15 - 09:30	Opening remarks: Erhard Bremer , SYNMIKRO Rainer Waldschmidt , Hessen Trade & Invest GmbH
09:30 - 09:45	Domenica Martorana (University Marburg, Germany) SYNMIKRO's participation in the international Genetically Engineered Machine competition (iGEM)
09:45 - 10:05	Rolf Thauer (Max Planck Institute for Terrestrial Microbiology, Marburg, Germany) Availability of biomass as an energy source
10:05 - 10:50	Jay Keasling (University of California, Berkeley, USA) Synthetic biology for synthetic fuels
10:50 - 11:20	Coffee break
Chair:	Volker Müller (University Frankfurt, Germany)
11:20 - 11:50	Peter Dürre (Ulm University, Germany) Pathway engineering and synthetic biology using acetogens
11:50 - 12:20	Thomas Haas (Evonik Industries, Marl, Germany) Biochemicals from syngas
12:20 - 12:50	Miriam Agler-Rosenbaum (Institute of Applied Microbiology, Aachen, Germany) Microbial electroreduction of biomass intermediates to fuel components
12:50 - 14:15	Lunch break

Chair:	Wolfgang Buckel (University Marburg, Germany)
14:15 - 15:00	Kristala Jones Prather (Massachusetts Institute of Technology, Cambridge, USA) Design and assembly of novel pathways for biological synthesis
15:00 - 15:30	Volker Wendisch (Bielefeld University, Germany) Synthetic biology approaches to carbon utilization of <i>Corynebacterium glutamicum</i>
15:30 - 16:00	Andrea Herold (BASF SE, Ludwigshafen, Germany) White biotechnology for black gold: BASF-Wintershall initiatives for enhanced oil recovery
16:00 - 16:30	Coffee break



Adapted from: Williams T.A. et al. (2013)
Nature 504: 231-236

Chair:	Manfred T. Reetz (University Marburg, Germany)
16:30 - 17:00	Uwe Maier (University Marburg, Germany) Solar fueled microfactories from the oceans
17:00 - 17:30	Sandra Novak (AUDI AG, Ingolstadt, Germany) Fuels for sustainable mobility
17:30 - 18:15	Ferdi Schüth (Max Planck Institut für Kohlenforschung, Mülheim, Germany) Depolymerization of cellulose and lignocellulose by mechano-catalytic conversion
18:15	Closing remarks: Bruno Eckhardt Director of SYNMIKRO
18:30	Get-together



Pictures were kindly provided by:
Fernan Federici and Jim Haseloff, University of Cambridge
and AUDI AG, Germany