

th

Mosbacher Kolloquium
„Synthetic Biology -
from Understanding
to Application“



university

Scientific Board

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Welcome



Dear Colleagues,

The traditional spring meetings of the German Society for Biochemistry and Molecular Biology (GBM) are held annually in the picturesque town of Mosbach to promote the exchange of scientific ideas and to foster the education of young scientists. The scientific theme of the 69th meeting is „Synthetic Biology – from Understanding to Application“.

Synthetic biology is a new highly interdisciplinary field of biological research, which aims at rational design of novel biological systems from well-characterized components, inspired by the concepts from engineering, physics and chemistry. It largely profits from the wealth of mechanistic insights and numerous tools generated through decades of research in molecular biology and biochemistry and more recently in systems biology. Synthetic biology addresses fundamental questions about the design of biological systems and also about the very nature of living organisms, and it also holds great promises for future biotechnology and medicine.

At the meeting, leading experts will give an overview of this emerging field, including both bottom-up design of artificial (minimal) cell-like systems and top-down rational modification and rewiring of existing cellular networks. The meeting will further cover multiple biotechnological and biomedical applications of synthetic biology.

We look forward to seeing you in Mosbach.

Victor Sourjik, Anke Becker,
Matias Zurbriggen, Wilfried Weber

Satellite Symposium

„Systems Biology meets Synthetic Biology“

This year the Mosbacher Kolloquium starts with the satellite symposium „Systems biology meets synthetic biology“, organized by DECHEMA.



A separate registration is required.

Academia	- 50 €
PhD students	- 35 €
Bachelor/Master students	- 25 €

13:00 17:00
Lecture hall

Poster
Wednesday, March 21

Satellite Symposium
„Systems Biology meets Synthetic Biology“

13:00 Wolfgang Wiechert /Jülich [DE]
Welcome address

13:05 Ralf Takors /Stuttgart [DE]
Systemic response of E. coli experiencing nutrient gradients of large-scale conditions: What can we learn for bioreactor design and strain engineering?

13:30 Katharina Nöh /Jülich
Simplicity vs. Complexity: Model Selection in Systems Biology and the Role of Ockham's Razor

13:55 Jörg Stelling /Zurich [CH]
Multi-Scale Models for Synthetic Circuit Design

14:20 Andreas Kremling /Munich [DE]
A quantitative approach to metabolic burden

14:45 Coffee break

15:15 Edda Klipp /Berlin [DE]
Systematic integration of models and data for yeast growth and division

16:05 Matthias Heinemann /Groningen [NL]
Flux controls flux

16:30 Steffen Klamt /Magdeburg [DE]
Model-driven engineering of E. coli for itaconic acid production

Proorama

Wednesday, March 21



City hall



Market place



Congress center „Alte Mälzerei“

16:00 Arrival and registration

17:00 - 18:00 How to build a career in science management:
Advice from the expert

What is science management, which opportunities are offered in this field and which skills and interests are required?

Britta Mädge reports on her experiences as program director at the German Research Foundation (DFG), her current position, and as senior editor for the journal "Cell".

Her lecture is followed by a discussion with all participants.

Darre Britta Mädge will also be available for one-on-one conversations during the Mosbacher Kolloquium (upon request).

18:00 - 19:30 Introductory lecture („Primer“)
with following panel discussion on current
topics in synthetic biology

20:00 Welcome Reception /Get together

The Steering Committee of the German Society for Biochemistry and Molecular Biology (Gesellschaft für Biochemie und Molekularbiologie, GBM) and the city of Mosbach invite you to a welcome reception in the city hall (Rathaus, Marktplatz/ Hauptstraße) in Mosbach (to end about 10 p.m. - no registration required)

City hall We thank the city of Mosbach for the kind hospitality.



Proctorium

Thursday, March 22

Opening remarks
Victor Sourjik (Scientific organizer)

Session 1: Cell-free & cell-like systems
(09:00 - 12:00 /Chair: V.Sourjik)

- 09:00 Cees Dekker /Delft [NL]
Shaping E. coli cells to study protein patterns
and chromosome structure and dynamics
- 09:30 Short talk:
Hanna Wagner /Freiburg [DE]
Synthetic biology-inspired design of a biomaterial-based positive feedback loop
- 09:45 Petra Schwille /Munich [DE]
Life from the bottom-up
- 10:15 Coffee break
- 10:45 Sven Panke /Basel [CH]
Towards easily designable biochemical systems
- 11:15 Dora Tang /Dresden [DE]
Bottom up approaches to synthetic cellularity
- 11:45 Lunch break
- 12:00 Lunch sessions (p. 12f)
- 13:00 Poster session I (even numbers)

12:00 - 13:30

How to launch a start-up company – advice from the experts

(Chair: M. Feige)

The GBM working group “Young Investigators” (AK YI) kindly invites all interested participants of the Mosbacher Kolloquium to a podium discussion about the dos and don’ts you have to consider when planning your own start-up company.

Do you have a great, innovative idea and a smart team? Do you ask yourself what made some entrepreneurs fail and some successful?

The AK YI invited experts from the start-up- and entrepreneurial field to give advice and to discuss the challenges and pitfalls.

Martin Hermatschweiler
(Nanoscribe GmbH)

Marianne Mertens
(High-Tech Gründerfonds Management GmbH)

Michael Jean Nettersheim
(BASF Venture Capital GmbH)

Arne Skerra
(Chair Biological Chemistry, Technische Universität München)

Darre

12:00 - 13:30

Workshop „Wie finde ich die Stelle, die zu mir passt?“

Christoph Lindemann /academics

(in German language)

In Kooperation mit dem Job-Portal „academics“ organisiert die Junior GBM einen Workshop für Master- und Promotionsstudenten um über den aktuellen Arbeitsmarkt zu informieren.

Der Focus des Workshops liegt auf dem Wechsel von Studium in den Job und auf Arbeitsmöglichkeiten außerhalb der akademischen Karriere.

Tenne

12:00 - 13:15

Meet the Prof I

(Chair: N.N.)

(For students only)

Once again the Junior GBM will organize the established event „Meet the Prof“ with distinguished speakers from science and research.

In an informal atmosphere you will get the chance to ask the questions which keep you up at night - e.g. how do I make a career in science? Did the speaker had fun on his/her scientific path and which experiences were decisive?

You are welcome to join and ask further questions.

Guest:

Wendel Lim /San Francisco [US]

Schalander

	Session 2: Transcriptional and post-translational network control (14:30 - 16.45 /Chair: W. Wiechert)
14:30	Wolfgang Schamel /Freiburg [DE] Optogenetic control of T cell activation and inactivation
15:00	Short talk: Yolanda Schaerli /Lausanne [CH] The mechanisms of gene regulatory networks constrain evolution: A lesson from synthetic stripe-forming circuits
15:15	Christopher Voigt /Boston [US] Programming cells
15:45	Coffee break
16:15	Mustafa Khammash /Zurich [CH] Theory and design of Cybergenetic Systems

16:45

Bayer Pharmaceuticals PhD Prize
(Chair: F. X. Schmid)

Hauke Hillen /Göttingen [DE]
Structural basis of human
mitochondrial transcription



17:00

GBM General meeting

19:15

Feodor Lynen Lecture
(Laudatio: A. Beck-Sickinger)

Wendell Lim /San Francisco [US]
Biological design principles: learning by building



The German Society for Biochemistry and Molecular Biology honors Wendell Lim with the distinguished Feodor Lynen medal for his groundbreaking contributions to our understanding on how living cells use molecular networks to process information and make decisions.

After the prize lecture the GBM invites all participants to join the Lynen reception.

20:15

Poster session II (all numbers)

22:00

Party and Dance
(organized by the Junior GBM)

Session 3: Engineering genomes and networks

(09:00 - 12:00 /Chair: W. Weber)

- 09:00 **Martin Fussenegger** /Basel [CH]
Synthetic gene switches
- 09:30 Short talk:
Beatrix Suess /Darmstadt [DE]
RNA aptamers as genetic control devices – the potential of riboswitches as synthetic elements for regulating gene expression
- 09:45 **Barbara Di Ventura** /Freiburg [DE]
Combining inteins and optogenetics to control protein activity in living cells
- 10:15 Coffee break
- 10:45 **John Glass** /La Jolla [US]
Design and synthesis of a minimal bacterial genome
- 11:15 **Sarah O’Conner** /Norwich (UK)
Harnessing the chemistry of plant metabolism for synthetic biology
- 11:45 Lunch break
- 12:00 **Lunch sessions (p. 17)**

12:00 - 13:00

Get to know iGEM

(Chair: H. Jacobsen)

The "international Genetically Engineered Machine" (iGEM) competition is an international contest for student-teams in the synthetic biology field. Multidisciplinary teams work together to design, build, test, and measure a system of their own design. They come together in the fall to present their work and compete at the annual Jamboree at the MIT in Cambridge (USA).

The Junior GBM invites former and current iGEM team members and young participants of the Mosbacher Kolloquium for an exchange of ideas about current and future iGEM activities.

Schalander

12:00 - 13:15

Meet the Prof II

(Chair: N.N.)

(For students only)

This is the second part of this years „Meet the Prof“, an informal meeting with distinguished speakers from science and research.

Darre

Guest:
Peter Hegemann /Berlin [DE]

13:00 Poster session III
(uneven numbers)



Session 4: Application in biotechnology & medicine
(14:30 - 17:30 /Chair: M. Zurbriggen)

14:30 **Jay Keasling** /Berkeley [US]
Engineered Polyketide Synthases
for Production of Commodity and
Specialty Chemicals

15:00 Short talk:
Ralf Wagner /Regensburg [DE]
Synthetic biology: Inspiration for
(HIV) vaccine development

15:15 **Yaakov Benenson** /Basel [CH]
Synthetic mammalian gene circuits:
from fundamentals to applications

15:45 Coffee break

16:15 Junior GBM Session:
(16:15 - 17:15 /Chairs: M. Lafrentz,
H. Jacobsen)

Tobias Erb /Marburg [DE]
CETCH me if you can: Bringing inorganic
carbon into life with synthetic
CO₂-fixation

16:45 **Michael Bott** /Julich [DE]
Genetically encoded biosensors –
valuable tools for white biotechnology

17:30

Otto Warburg Medal (Laudatio: J. Herrmann)

Peter Hegemann /Berlin [DE]
Multicomponent Optogenetics ↔ Sensing is not
Understanding

This year the GBM, Elsevier and Biochimica et Biophysica Acta (BBA) will honor Peter Hegemann from the Humboldt University in Berlin for his pioneering research in the field of the light-induced ion channels with the Otto Warburg Medal.



The highest award in Germany for biochemists and molecular biologists promotes outstanding scientific excellence and encourages groundbreaking achievements in the field of fundamental biochemical and molecular biological research.

Since 1963 the Otto Warburg Medal is intended to commemorate the outstanding achievements of Otto Heinrich Warburg. Elsevier and its flagship title Biochimica et Biophysica Acta (BBA) are exclusive sponsors of the Medal. To emphasize the importance of excellent scientific research and motivate young researchers to achieve outstanding results, the prize is endowed with 25.000 Euro.

Session 5: Application in fundamental research

(09:00 - 12:00 /Chair: A. Becker)

- 09:00 **Jason Chin** /Cambridge [UK]
Reprogramming the genetic code
- 09:30 Short talk:
Dirk Benzinger /Zurich [CH]
Interrogating and tuning stochastic gene expression by optogenetic transcription factor control
- 09:45 **Lukas Kapitein** /Utrecht [NL]
Using light to dissect and direct cellular transport systems
- 10:15 Coffee break
- 10:45 **Teva Vernoux** /Lyon [FR]
From sensors to signal quantification to understand self-organization in plants
- 11:15 **Michael Reth** /Freiburg [DE]
Rebuilding of a mammalian signaling pathway
- 11:45 Poster prizes and closing remarks

Workshop of the GASB
„The future of SynBio in Germany: Challenges, Opportunities and Solutions“
(12:30 - 17:00, p. 22f)

GASB Workshop

„The future of SynBio in Germany: Challenges, Opportunities and Solutions“

The workshop is organised by the German Association for Synthetic Biology (GASB).

The purpose of the workshop will be to debate several topics of importance for the future of this discipline in Germany, for instance Education, Politics, Public Perception, Funding, Industry or Ethics. Any other topic of interest suggested by participants is welcome as well. The goal is to discuss topics in small groups, identify key aspects, arguments, milestones, suggestions and future objectives that need to be addressed and implemented in order to improve the situation in Germany. At the end, the results will be summarized and recorded to present the views of the scientific community on these topics. The final draft is intended to be the RoadMap for SynBio in Germany for the next years.

Room: Malzboden & Tenne

There will be no registration fees. Everyone who is interested is welcome to join this workshop. However due to organisational needs it is required to register for this event by sending a mail to workshop@ga-sb.de.

Poster
Saturday, March 24

12:30	Welcome reception with a small lunch	
13:15	Opening of "Future of SynBio in Germany: Challenges, Opportunities and Solutions" and Introduction of GASB e.V.	
13:30	Topic collection	
13:40	Start of the group work session	
15:00	Coffee break and intermediate results summary of the groups	
15:30	Final group work session	
16:15	Group work presentation	
16:50	Next steps/digital organisation and closing remarks	



for GBM members only!



GBM Stakeholders

Meetings of the GBM stakeholders

March 21	14:00 - 17:00	Schalander	<input type="checkbox"/>
	Sitzung: Arbeitskreis Studium Molekulare Biowissenschaften		
March 21	17:00 - 19:00	Malzboden	
	Sitzung: Sprecher der GBM-Studiengruppen		
March 22	12:30 - 14:00	Malzboden	
	Sitzung: GBM-Kontaktpersonen		
March 22	13:30 - 14:30	Schalander	
	Sitzung: junior GBM Stadt- und Bundessprecher		
March 22	14:45 - 16:30	Schalander	
	Sitzung: Arbeitskreis „Senior Experts“		
March 22	17:00 - 19:15	Lecture hall	
	GBM-Mitgliederversammlung		
March 23	12:00 - 14:30	Malzboden	
	Sitzung: Arbeitskreis „Biochemie in der Medizin“		
March 23	13:15 - 15:15	Schalander	
	Sitzung: Arbeitskreis „Geschichte der Biochemie“		
March 23	19:00 - 21:00	Lecture hall	
	Vollversammlung: junior GBM		

Registration

An onsite registration is possible. Please ask at the registration desk during the opening hours.

	Fee
Member* academia	250 €
Non-member academia	340 €
Member* Master student	50 €
Non-member Master student	75 €
Member* PhD student	100 €
Non-member PhD student	125 €
Member* retiree	120 €
Non-members retiree	170 €

*Member of the GBM, VAAM, DGZ, Dechema, GDCh, Bunsen Society

Conference office

Telephone and Fax numbers during the Kolloquium:

Phone	+49 (0) 6261 9292-78
Fax	+49 (0) 6261 9292-79
Email	info@mosbacher-kolloquium.org

	Opening hours
Wed., March 21	17:00 - 19:45
Thu., March 22	08:00 - 16:30
Fri., March 23	08.00 - 16:30
Sat., March 24	08:30 - 11:00

Internet

There will be two wireless LAN access points in the foyer next to the registration desk.

SSID: GBM
(WPA2 encrypted)

Key: gbm-online

SSID: AM
(unencrypted)

Username: gbm
Password: gbm-online

Lunch & coffee breaks

Coffee, tea and mineral water will be provided for free during the coffee breaks.

Lunch is available at your own expense in the conference center or you can also visit one of the restaurants in the city of Mosbach.

Proceedings

Your name badge and the program booklet are available at the registration desk.

We kindly ask to wear your name badge as an entry ticket during the whole meeting.

Abstracts

All poster abstracts and the abstracts of the talks are available as pdf file for download on the meeting homepage.

A printed abstract booklet is available for viewing purposes at the registration desk.

Venue

Mosbach is located on the railway line (S-Bahn) Mannheim-Heidelberg-Mosbach-Osterburken, 45 kilometres east of Heidelberg.

The nearest airport is Frankfurt/Main. There are convenient train connections from Frankfurt airport station to Mannheim and from there to Mosbach.

By car:

From Frankfurt / Heidelberg: Motorway A6 exit Sinsheim - then B292 to Mosbach

From Stuttgart / Heilbronn:

A6 exit Neckarsulm - B27 to Mosbach

From Würzburg / Nürnberg:

A81 exit Osterburken, B 292 to Mosbach.

The congress center is located above the old city centre. When arriving by car, please follow the yellow signs to parking areas P5 „Alte Mälzerei“ or P6 „Altstadt“.

Address: Alte Mälzerei
 Alte Bergsteige 7
 74821 Mosbach

Posters

The posters should be presented in portrait format (DIN A0 resp. ~120 x 85 cm)

Poster sessions

Thursday, 13:00 - 14:30 - even numbers

Thursday, 20:15 - 21:30 - all numbers

Friday, 13:00 - 14:30 - uneven numbers

During the poster sessions the presenting authors are requested to stay near their posters. Posters should be presented throughout the whole meeting.

Poster numbers

Please see the poster list on page 34 for poster numbers.

Poster prizes

The best three posters will be awarded (with certificate and 300 €).

Furthermore ChemBioChem will provide a poster prize honored with a book token.

The winners will be announced at the end of the colloquium on Saturday. To receive the price, personal attendance is required.

Exhibition

Industrial



Thank you for your kind support!

Please visit the booths of our partners!



International Journal of
Molecular Sciences

HIDEX



Springer Spektrum

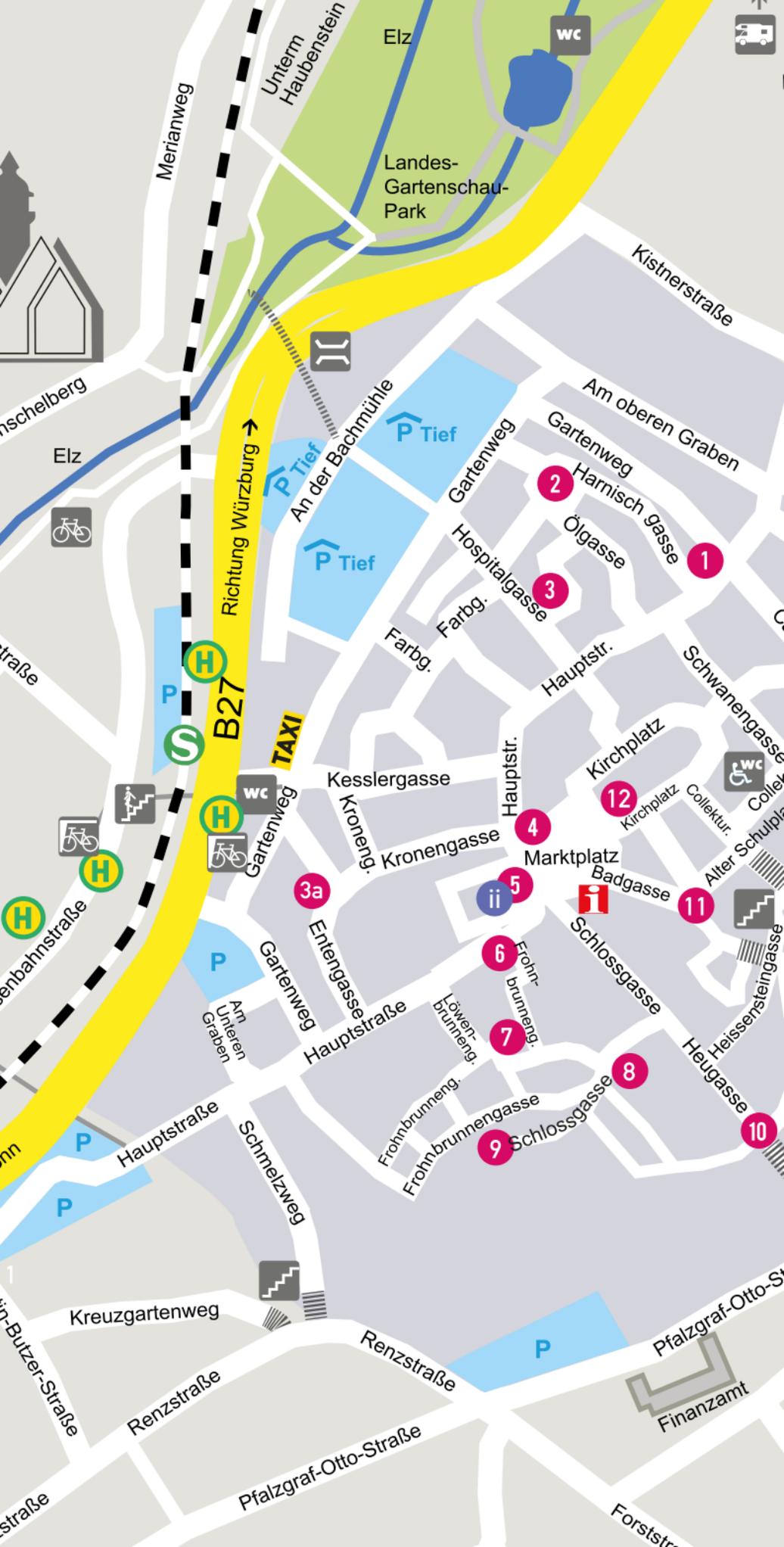
DFG

BioTek



DE GRUYTER





Merianweg

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Kisterstraße

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Elz



Richtung Würzburg

B27

TAXI



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An der Bachmühle

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Am oberen Graben

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1 Oberer Torturm



2 Haus Kickelhain



3 Altes Hospital



3a Scharfrichter-Haus



4 Palm'sches Haus



5 Rathaus



6 Salzhaus



7 Synagogenplatz



8 Altenzentrum Pfalzgrafenstift



9 Mosbacher Schloss



10 Kandel



11 Kiwwelschisserbrunnen



12 Stiftskirche



i Conference venue/Alte Mälzerei



ii Welcome reception/city hall



iii Hotel „Zum Amtsstüble“



Alter, Tobias B. (EG 3)

Determination of growth-coupling strategies and their underlying principles

Anan Jalan, Abhishek (OT 9)

Investigations into the Folding Mechanism and Conformational Dynamics of a Chimeric Protein

Baumschlager, Armin (NC 8)

Dynamic Blue Light-Inducible T7 RNA Polymerases (Opto-T7RNAPs) for Precise Spatiotemporal Gene Expression Control

Benzinger, Dirk (AR 13)

Interrogating and tuning stochastic gene expression by optogenetic transcription factor control

Born, Johannes (EG 13)

Tetracycline-regulated gene expression in Haloarchaea

Braß, Hannah (BM 6)

Creating Diversity in Prodiginines – Synthetic Biology meets Chemistry

Brechun, Katherine (OT 1)

A Bacterial Bandpass Assay for Protein-Protein Interactions

Brylski, Oliver (OT 4)

Co-factor binding of PAPSS2 APS kinase compensates destabilizing effects of the cellular environment

Cavallari, Marco (BM 19)

Measuring beyond the resolution of light with the branched proximity hybridization assay

Dergai, Oleksandr (OT 10)

Mechanisms of selective recruitment of RNA polymerases II and III to snRNA gene promoters

Diemer, Jascha (AR 18)

ROC'n'Ribo: Characterizing a riboswitching expression system by modeling single-cell data

Diemer, Jascha (OT 8)

Inducible Transcription dynamic for single cell studies on cellular heterogeneity

Dippe, Martin (BM 4)

Biosynthetic access to regioselectively methoxylated flavor compounds

Dombrowsky, Maximilian (AR 22)

streaMD: Novel computational methods for synthetic biology

Dziuba, Marina (BM 29)

Towards Engineering Of Magnetic Nanostructures In Bacteria By Synthetic Biology

Ebert, Antje (BM 15)

Genomic Correction of Mutations in Contractile Proteins for Precision Medicine

Ebert, Birgitta E. (BM 7)

Cyclic triterpenoid production with tailored *Saccharomyces cerevisiae*

Fleischer, Raluca (BM 10)

Engineering of fluorescence complementation assay vectors and customized cell lines

Frei, Timothy (EG 1)

A framework for high-resolution characterization of synthetic biological parts

Fritz, Georg (EG 4)

Engineering orthogonal synthetic timer circuits in bacteria

Garcia-Soriano, Daniela (CS 5)

Study of FtsZ in cell-like microenvironments

Gebauer, Jan (BM 14)

Flavin-dependent Halogenases for the Enzymatic Halogenation in Organic Synthesis

Gelfert, Renate (EG 10)

Optimization and Application of a light-switchable Cas9 variant

Gesing, Katrin (BM 23)

Semi-rational protein engineering to improve the activity of surface displayed exocellulase CelK

Giessmann, Robert T. (AR 10)

Improvement of a toolkit for characterization of non-canonical amino acid incorporation systems

Girr, Philipp (BM 2)
Bacteriochlorophyll bound to water-soluble chlorophyll protein: a potential photosensitizer for photodynamic therapy

Glock, Philipp (AR 17)
Rebuilding pattern formation in a simplified Min system

Grininger, Martin (BM 9)
Engineering fatty acid synthases (FAS) for custom compound synthesis

Groher, Florian (BM 26)
Targeting the bottleneck – new methods to develop biosensors

Harder, Björn-Johannes (BM 27)
Temperature-dependent dynamic control of the TCA cycle for increased volumetric productivity of itaconic acid production by *Escherichia coli*

Harrington, Leon (AR 23)
Switching de novo coiled coils at membranes

Heermann, Tamara (AR 12)
In vitro characterization of molecular processes underlying MinD membrane interaction

Hilgers, Fabiene (BM 1)
(Opto)genetic control of microbial cell factories for an efficient production of valuable secondary metabolites

Höbenreich, Sabrina (BM 11)
Engineering the Substrate Scope of a Fe(II)-dependent Halogenase

Hochrein, Lena (EG 5)
Establishment of optogenetic tools for the control of gene expression and recombination in *Saccharomyces cerevisiae*

Hofmann, Anja (EG 9)
Multiple genetic circuits in the yeast *S. cerevisiae* for tight regulation of gene expression

Hörner, Maximilian (AR 14)
Investigating mechanosignaling by utilizing intra- and extra-cellular optogenetic switches

Jia, Haiyang (CS 4)
Spatiotemporal regulation toolbox for cell free synthetic biology

Jung, Fabian (BM 3)
Binding of Pheophytin in Water-Soluble Chlorophyll-Protein Increases Photo-Stability without Decrease of Singlet Oxygen Production

Jurkowski, Tomasz (NC 12)
Synthetic epigenetics - from engineering of the chromatin state to cellular differentiation

Kettner, Carsten (AR 25)
Towards the PDB for enzyme function data – STRENDA DB

Kienle, Simon (AR 3)
Characterization of ubiquitin acetylation

Koeppl, Heinz (NC 7)
Design of optimal inducer profiles for the inference of transcriptional circuits on the single-cell level

Kolar, Katja (OT 11)
OptoBase: A platform for molecular optogenetics

Kordes, Sina (AR 8)
Extending a de novo designed TIM-barrel

Krafczyk, Ralph (NC 2)
Activation of translation elongation factor EF-P of Escherichia coli by the non-cognate rhamnosyltransferase EarP

Kries, Hajo (AR 2)
A pipeline for biosynthetic design of antibiotic peptides

Krink, Nicolas (BM 8)
Engineered production of short chain acyl-coenzyme A esters in *S. cerevisiae*

Kuldyushev, Nikita (OT 2)
A genetically encoded indicator of methionine oxidation

Lammers, Michael (AR 24)

Synthetic Biology: Lysine-acylation in cellular regulation, ageing and disease

Lassak, Jürgen (NC 2)

Activation of translation elongation factor EF-P of *Escherichia coli* by the non-cognate rhamnosyl-transferase EarP

Lehr, Francois-Xavier (CS 3)

Engineering RNA-based logic gates from Cell-Free Transcription-Translation (TX-TL) to living cells

Lemaire, Stephane (BM 5)

Birth of a photosynthetic chassis: a MoClo toolbox for synthetic biology in the microalga *Chlamydomonas reinhardtii*

Lenz, Florian (EG 8)

Metabolic engineering for heterologous ethanol production by *Pseudomonas putida*

Lepak, Alexander (BM 20)

Production of Glycosylated Natural Compounds: Advantages of Nucleotide-sugar Regeneration

Lichtenstein, Bruce (AR 7)

Engineering principles of a targeted intracellular delivery system for protein cargo

Liebal, Ulf (EG 6)

Genome-Scale Model Reconstruction of *Ogataea polymorpha*

Lisette Kailing, Lyn (AR 19)

S-adenosyl-L-homocysteine hydrolase and synthetic nicotinamide cofactor biomimetics

Liu, Benye (BM 12)

Engineering yeast for the production of acylphloroglucinol derivatives

Lobos, Francisco (AR 9)

Functional protein design from evolutionarily conserved fragments

Loechner, Anne (BM 22)
Robust Population Control in Synthetic Communities

Machens, Fabian (EG 2)
A universal CRISPR/Cas9 toolkit for multiplexed genome editing and transcriptional reprogramming in *Saccharomyces cerevisiae*

Manschwetius, Jascha T. (AR 21)
Stapled Peptides Targeting Protein Kinase A Provide Efficient Inhibition and Cellular Accessibility

Mansfeld, Jörg (AR 4)
Conditional control of fluorescent fusion protein degradation by an auxin-dependent nanobody

Meier, Doreen (NC 9)
ECFs as orthogonal regulators in *Sinorhizobium meliloti*

Müller, Günter (OT 6)
Construction of a chip-based sensor for glycosylphosphatidylinositol-anchored proteins in complex with phospholipids in extracellular fluids and their potential in differentiating metabolic states

Neumann, Heinz (AR 5)
Directed evolution of lysine deacetylases

Neves, Dario S. (NC 10)
Optimized expression cassettes for efficient enzyme synthesis

Nies, Salome C. (NC 5)
Comprehensive analysis and cross-species comparison of synthetic promoters

Ohuchi, Shoji (NC 11)
PRSeq (Promoter RNA Sequencing): Massive and quantitative method for promoter analysis in vitro

Peterhoff, David (BM 13)
Exploring the toolbox of synthetic biology for HIV vaccine design

Piskovatska, Veronika (OT 3)
Adsorption of modified proteins from human plasma – potential effects for inflammation and senescence

Prangemeier, Tim (NC 7)
Design of optimal inducer profiles for the inference of transcriptional circuits on the single-cell level

Querques, Irma (BM 28)
The second life of Sleeping Beauty: Mechanism and design of a synthetic DNA transposon for genome engineering

Romano, Edoardo (NC 3)
BLADE, a new light-inducible bacterial transcription factor

Rottmann, Philipp (CS 2)
Droplet-based screening for artificial metalloenzymes based on the streptavidin-biotin technology

Rullan, Marc (NC 1)
A platform for real-time optogenetic regulation and visualization of transcription in single cells

Sanchez, Maria Florencia (AR 11)
In situ light control of macromolecular protein assembly in time and space

Schaerli, Yolanda (NC 13)
The mechanisms of gene regulatory networks constrain evolution: A lesson from synthetic stripe-forming circuits

Schempp, Florence M. (BM 17)
Identification of monoterpeneoid resistance mechanisms in *Pseudomonas putida*

Schlichting, Niels (OT 5)
Computer-aided Prediction of DNA Assembly Reactions and Experimental Workflows

Shkarina, Kateryna (AR 16)
Optogenetic control of inflammasome assembly and cell death

Siemann-Herzberg, Martin (CS 1)
Cell-free protein synthesis from non-growing, stressed *Escherichia coli*

Spinck, Martin (AR 5)
Directed evolution of lysine deacetylases

Stabel, Robert (AR 6)

Engineering of light-regulated cNMP-specific phosphodiesterases

Stanisic, Aleksa (AR 1)

A multiplexed, hydroxamate based UPLC-MS/MS assay for adenylation specificity

Steiniger, Charlotte (BM 16)

Harnessing Fungal Nonribosomal Cyclodepsipeptide Synthetases for Mechanistic Insights and Tailored Engineering

Suess, Beatrix (EG 12)

RNA aptamers as genetic control devices – the potential of riboswitches as synthetic elements for regulating gene expression

Taxis, Christof (EG 11)

Optogenetic modules to control protein biosynthesis and proteolysis in budding yeast

Toma, Georgiana (AR 20)

Sirtuin transcripts expression in activated T cells from young and old healthy blood donors

Tripp, Joanna (BM 24)

Synthetic biology strategies for the improvement of biochemical pathways in *Saccharomyces cerevisiae*

Vogel, Marc (AR 15)

Machine learning with Tetracycline Dimers - A large-scale approach towards the in silico prediction of riboswitch performance

Volkwein, Wolfam (NC 2)

Activation of translation elongation factor EF-P of *Escherichia coli* by the non-cognate rhamnosyltransferase EarP

Volkwein, Wolfram (NC 6)

Controlling Protein Levels in Diverse Gram-negative Bacteria using Acetyl-lysine Dependent Amber Suppression

Wagner, Hanna (CS 6)

Synthetic biology-inspired design of a biomaterial-based positive feedback loop

Wagner, Ralf (BM 25)

Synthetic biology: Inspiration for (HIV) vaccine development

Waldminghaus, Torsten (EG 7)
Learning by Building – Synthetic Neochromosomes
in Escherichia coli

Wehler, Pierre (OT 7)
Engineering optogenetic control of p53 to study
the effects of its nuclear accumulation dynamics on
cellular outcome independent of stress
Weihmann, Robin (BM 21)

Rapid cloning, transfer and expression of biosynthetic
pathways using the yTREX-toolbox

Weis, Daniel (NC 4)
Combining inteins and optogenetics to control
protein activity in living cells

Wieden, Hans-Joachim (BM 18)
Investigating the design principles of bacterial gene
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biology: Terminator libraries and non-canonical
translation initiation devices for genetic engineering
in bacteria

Wieden, Hans-Joachim (iG 1)
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Wieneke, Ralph (OT 12)
Optochemical Biology – In-situ Receptor Clustering
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Zingler, Philipp (OT 13)
Palmitoylation - Emerging roles in TNF-R1 endocytic
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69. Mosbacher Kolloquium

March 22 - 24, 2018
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