12th September - BioSynSys 1st day

08:15 - 08:45	**Welcome- badge/program distribution**	
08:45 - 09:00	**Moving to amphitheater and welcome word**	
09:00 - 09:30	**Victor DE LORENZO**	Environmental Synthetic Biology, Centro Nacional de Biotecnologia CSIC (Madrid, Spain)

SynBio at a global scale: from the Petri dish to planet Earth

09:30 - 14:50	Prokaryotic Synthetic Biology	
09:30 - 10:00	**Ariel LINDNER**	Systems Engineering and Evolution Dynamics U1284, LPI (France)

Addressable Phase-separated RNAs in E. coli

10:00 - 10:30	**Julia FRUNZKE**	Bacterial Networks and Interactions, Forschungszentrum Jülich (Germany)

Tbd

10:30 - 10:50	**Didier MAZEL**	Bacterial Genome Plasticity, Institut Pasteur (France)

Synthetic toxin-intein combinations as genetic weapons for specific killing of pathogenic bacteria in complex populations.

10:50 - 11:10	**Coffee break**	
11:10 - 11:30	**Amit PATHANIA**	Molecular Microbiology of Actinobacteria, CNRS (France)

A synthetic communication system uncovers self-jamming of M13 transmission

11:30 - 11:50	**Valérie PEZO**	Génoscope UMR 8230, LiSSB, CEA (France)

Exotic and xenobiotic deviations from the set of canonical nucleotides

11:50 - 12:10	**Madeleine BOUZON BLOCH**	Genoscope UMR Genomique Métabolique, CEA (France)

Implementation of a synthetic formate assimilation pathway in Escherichia coli by adaptive evolution

12:10 - 14:00	*Lunch*
13:30 - 14:00	*Poster session 1*

14:00 - 14:20	**Bastien LAMBERT**	Soft Micro Systems, CNRS (France)

Shape control of minimal cells by reconstitution of Spiroplasma citri cytoskeleton

14:20 - 14:50	**Aude BERNHEIM**	U1284 SEED, IAME, INSERM (France)

Genomics driven discovery of anti-phage systems.

14:50 - 15:20	Philosophy
14:50- 15:20	**Alberto MOLINA-PEREZ**	Institute for Advanced Social Studies, Spanish National Research Council (Spain)

Function: the concept that (almost) everyone uses but no one really knows - and why it matters

15:20 - 15:50	**Coffee break + poster session 2**

15:50 - 17:10	Eukaryotic Synthetic Biology
15:50 - 16:20	**Dominik NIOPEK**	Centre for Synthetic Biology, Technical University of Darmstadt (Germany)

Anti-CRISPR protein technologies for precision genome editing

16:20 - 16:50	**Leo SCHELLER**	LPDI, EPFL (Switzerland)

Improving CAR-T cell safety and efficacy through computational protein design

16:50 - 17:10	**Nicholas SOUTHERN**	Centre for Synthetic Biology, Technical University of Darmstadt (Germany)

Photocaged Transcriptional Activators for Optogenetic Gene Expression Control

17:10	First day end

13th September - BioSynSys 2nd day

Time		
09:00 - 09:30	**Welcoming**	
09:30 - 14:40	**Molecular programming and systems biology**	
09:30 - 10:00	**Alexis COURBET**	Institute for Protein Design, University of Washington (USA)
	Towards the computational design of genetically encodable nanomachines	
10:00 - 10:30	**Noelia FERRUZ**	University of Girona (Spain)
	A deep unsupervised language model for protein design	
10:30 - 10:50	**Léon FAURE**	MICALIS, INRAe (France)
	Artificial Metabolic Networks: enabling neural computations with metabolic networks	
10:50 - 11:20	**Coffee break / poster**	
11:20 - 11:50	**Sabine FLITSCH**	MIB, The University of Manchester (United Kingdom)
	Design and implementation of de novo biosynthetic cascades for organic synthesis	
11:50 - 12:10	**Elie-Julien EL-HACHEM**	Sorbonne University, INSERM (France)
	Latent Dirichlet Allocation for Double Clustering (LDA-DC): Discovering patients phenotypes and cell populations within a single Bayesian framework	
12:10 - 13:00	*Lunch*	
13:00 - 14:00	*Poster session 3*	
14:00 - 14:20	**Denis JALLET**	Toulouse Biotechnologies Institute, INRAe (France)
	Towards engineering a native bacterial microcompartment system in Escherichia coli.	
14:20 - 14:40	**Chitaranjan MAHAPATRA**	Paris-Saclay Institute of Neuroscience (France)
	Paclitaxel Causes Cardiac Failure by Inhibiting Voltage-Gated Potassium Current: Insight from an In Silico Study	

| 14:40 - 15:00 | **Marianne DEFRESNE** | TBI INSA Toulouse, INRAe (France) |

Protein Design with Automated Reasoning and Deep Learning

| 15:00 - 15:30 | **Coffee break + poster session 4** |

| **15:30 - 16:20** | Natural product discovery and metabolic engineering |

| 15:30 - 16:00 | **Vincent LIBIS** | INSERM (France) |

Scalable microbial metabolite discovery through synthetic biology

| 16:00 - 16:20 | **Joan HERISSON** | Génoscope UMR 8230, University of Paris-Saclay - Evry (France) |

The Automated Galaxy-SynBioCAD Pipeline for Synthetic Biology Design and Engineering

| **16:20 - 18:00** | IRN's member meeting |

14th September - BioSynSys 3rd day

08:00 - 8:30	**Welcoming**

09:00 - 14:20	Cell-free synthetic biology and Build-a-cell

08:30 - 09:00	**Christophe DANELON**	Delft University of Technology (Netherlands)

Building a synthetic cell via evolution

09:00 - 09:30	**Kristina GANZINGER**	Physics of Cellular Interactions, AMOLF (Netherlands)

A New Spin on Efficient Reconstitution of Biological Systems in GUVs

09:30 - 09:50	**Amir PANDI**	Dept. Biochemistry & Synthetic Metabolism, Max Planck Institute for Terrestrial Microbiology (Germany)

Cell-free biosynthesis combined with deep learning accelerates de novo development of antimicrobial peptides

09:50 - 10:10	**Nicolas MARTIN**	Centre de recherche Paul Pascal, U. Bordeaux CNRS (France)

Enzyme reactions in coacervates droplets as artificial membraneless organelles

10:10 - 10:30	**Coffee break / poster**

10:30 - 10:50	**Paul SOUDIER**	MICALIS, INRAe (France)

PeroxiHUB: A Modular Cell-Free Biosensing Platform Using H2O2 as Signal Integrator

10:50 - 11:10	**Angelo CARDOSO BATISTA**	MICALIS, INRAe (France)

Optimized cell-free protein synthesis using unprotected linear dna from exonuclease-deficient cellular extracts

11:10 - 11:30	*End word and poster prize*

11:30 - 13:00	*iGEM Workshop*

- **Evry-Paris-Saclay** - *Electricia Coli*
- **GO-Paris-Saclay** -*The CO2CURE project: Development of autotrophic Streptomyces capable of producing molecules of interest such as antibiotics by carbon fixation*
- **Ionis_Paris** - *StrachLight*
- **Sorbonne_U_Paris** - *The NAWI project*
- **INSALyon** - *Lighting up the future of agriculture: Fiat Lux, a biosynthetic tool to track pathogenic bacteria in plants*
- **Paris_Bettencourt** - *A synthetic biology toolkit to interface genetic circuits with electronics*

11:30 - 14:00	*Lunch*
14:00 - 17:30	*SynBio of Lactic Acid Bacteria Workshop*

14:00 - 14:15	***Opening of the workshop and introduction of participants***

14:15 - 15:30	Session 1 : Tools for genetic engineering of LABs	
14:15 - 14:30	**Luis BERMUDEZ**	MICALIS, INRAe (France)
	Use of recombinant Lactic Acid Bacteria to treat infectious diseases: a focus on human papillomavirus (HPV)-induced cancer	
14:30 - 14:45	**Elsa FRISTOT**	Centre de Biochimie Structurale, INSERM (France)
	Genetic toolbox for lactic acid bacteria : LactoClo kit, promoters library and new reporter genes	
14:45 - 15:00	**Marc Blanch ASENSIO**	Bioprogrammable Materials Group, Leibniz Institute for New Materials (Saarbrücken) (Germany)
	Novel genetic modules encoding high-level antibiotic-free protein expression in probiotic Lactobacillus	
15:00 - 15:15	**Kamilla WIULL**	Norwegian University of Life Sciences (Norway)
	The pSIP-system as a tool for genetic engineering of Lactobacillales	
15:15 - 15:30	**Kevin DEBATISSE**	BLADE - Bacterial Adaptation, Diversity and Engineering (France)
	The phage mv4 recombination system: towards a reprogrammable tool for bacterial genome engineering?	

15:30 - 15:45	***Coffee break***	
15:45 - 16:45	Session 2: Applications of LABs engineering	
15:45 - 16:00	**Philippe LANGELLA**	MICALIS, INRAe (France)
	Potential use of recombinant biocontained lactococci to deliver the antiprotease elafin in IBD patients	
16:00 - 16:15	**Catherine DANIEL**	Cellular Microbiology and Physics of infection - CIIL - U1019-UMR9017 (Lille) (France)
	Potential and opportunities for use of recombinant lactic acid bacteria in the gut	
16:15 - 16:30	**Aleš BERLEC**	Department of Biotechnology, Jožef Stefan Institute (Slovenia)
	Engineered Lactococcus lactis with simultaneous tumor antigen targeting and proinflammatory cytokine binding ability	

| 16:30 - 16:45 | **Jean Marc CHATEL** | MICALIS, INRAe (France) |

Use of recombinant LAB as cDNA delivery vehicle and its applications

| **16:45 - 17:30** | Discussion about potential needs and end of the workshop |