

EU Horizon2020 Funded Innovative Training Network on

BIOMOLECULAR MACHINES

Project Handbook

BIOMOLMACS is a European project funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement number 859416.



Research Excellence

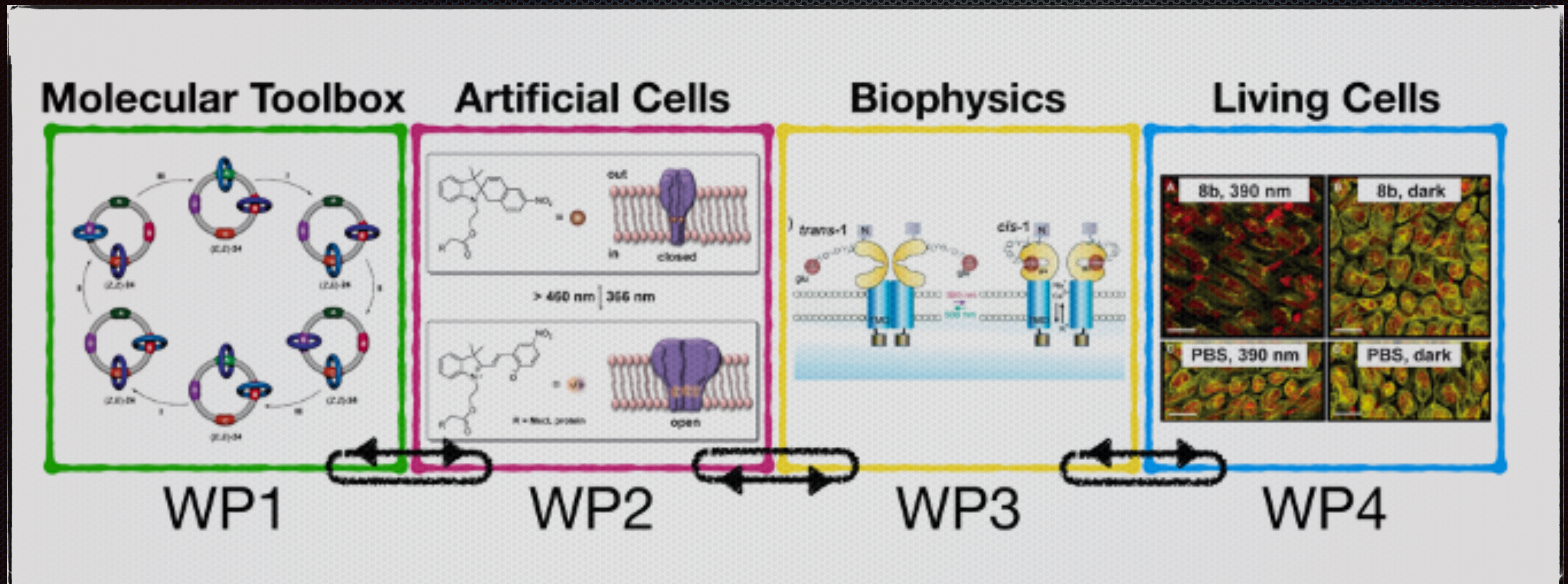
Tiny synthetic machines may soon be toiling away in artificial and natural cells

The Industrial Revolution harnessed the power of steam to put things in motion with huge machines that propelled the world into a new era of productivity. Molecular machines may be poised to deliver the next revolution, invisibly powering novel therapeutics and nanoscale industrial processes. Molecular machines abound in nature. They are the driving force behind functions like muscle contraction, cargo movement within cells along microtubules, and the beating of cilia and flagella.

Nature has inspired the scientific community with its efficient and diverse molecular machinery, and the search for novel synthetic molecular machines with exciting new applications has begun. The BIOMOLMACS training network is working on integrating molecular machines with precisely designed macromolecules for a new era in nanobiomedical applications.

















Work packages of BIOMOLMACS ITN



Research work packages of this ITN are interdisciplinary and combining the best of chemistry, physics, and biology to address biomedical challenges.

Research Projects

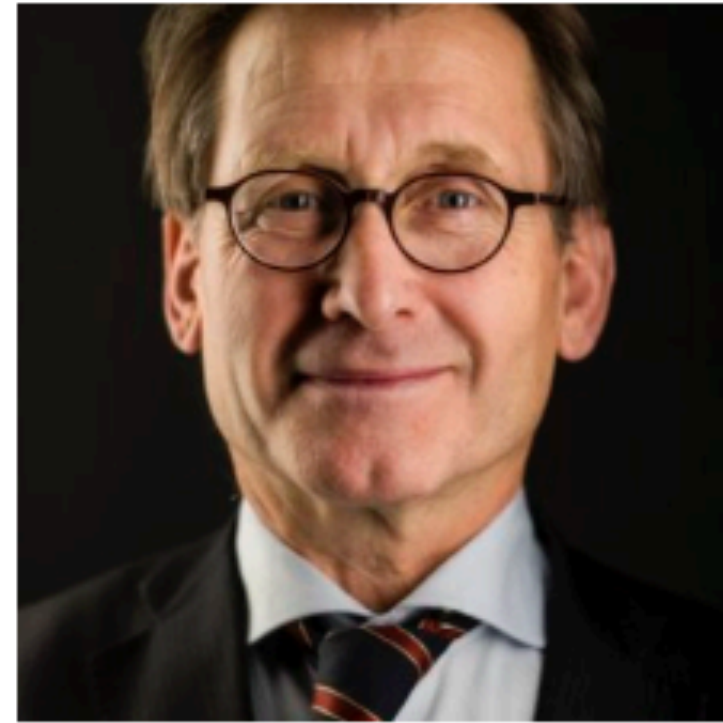
 <p>university of groningen</p> <p>ESR 1- SUPERVISED BY FERINGA (UNIVERSITY OF GRONINGEN, THE NETHERLANDS)</p> <p>MOLECULAR MOTOR BASED ARTIFICIAL MUSCLES</p> <p>FURTHER INFO</p>	 <p>university of groningen</p> <p>ESR 2- SUPERVISED BY FERINGA (UNIVERSITY OF GRONINGEN, THE NETHERLANDS)</p> <p>AMPHIPHILIC MOLECULAR MOTORS FOR CELLULAR RECOGNITION AND UPTAKE</p> <p>FURTHER INFO</p>	 <p>MANCHESTER 1824 The University of Manchester</p> <p>ESR 3- SUPERVISED BY LEIGH (UNIVERSITY OF MANCHESTER, UNITED KINGDOM)</p> <p>TRANSPORT AND SYNTHESIS WITH CHEMICALLY FUELLED MOLECULAR MOTORS</p> <p>FURTHER INFO</p>	 <p>THE UNIVERSITY OF WARWICK</p> <p>ESR 4- SUPERVISED BY BECER (UNIVERSITY OF WARWICK, UNITED KINGDOM)</p> <p>CELL-MEMBRANE PENETRABLE GLYCOPOLYMER ANCHORS</p> <p>FURTHER INFO</p>	 <p>THE UNIVERSITY OF WARWICK</p> <p>ESR 5- SUPERVISED BY BECER (UNIVERSITY OF WARWICK, UNITED KINGDOM)</p> <p>SEQUENCE CONTROLLED FUNCTIONAL POLYMERS FOR TARGETED DRUG DELIVERY</p> <p>FURTHER INFO</p>
 <p>TU/e Technische Universiteit Eindhoven University of Technology Where innovation starts</p> <p>ESR 6- SUPERVISED BY VAN HEST (EINDHOVEN UNIVERSITY OF TECHNOLOGY, NETHERLANDS)</p> <p>NANOMOTOR-BASED CELL TARGETING AND SORTING</p> <p>FURTHER INFO</p>	 <p>TU/e Technische Universiteit Eindhoven University of Technology Where innovation starts</p> <p>ESR 7- SUPERVISED BY VAN HEST (EINDHOVEN UNIVERSITY OF TECHNOLOGY, NETHERLANDS)</p> <p>NANOMOTOR-BASED QUORUM BEHAVIOUR WITH DIRECTIONAL AND ROTATIONAL CONTROL</p> <p>FURTHER INFO</p>	 <p>université de BORDEAUX</p> <p>ESR 8- SUPERVISED BY LECOMMANDOUX (UNIVERSITY OF BORDEAUX, FRANCE)</p> <p>FUNCTIONAL ARTIFICIAL CELLS FROM COMPARTMENTALIZED POLYMERSOMES</p> <p>FURTHER INFO</p>	 <p>SyMO-Chem TU/e Technische Universiteit Eindhoven University of Technology Where innovation starts</p> <p>ESR 9- SUPERVISED BY HENK (SYMO-CHEM, NETHERLANDS)</p> <p>NANOMOTOR-INDUCED MOTION IN SYNTHETIC CYTOSKELETONS</p> <p>FURTHER INFO</p>	 <p>UltraX GHENT UNIVERSITY</p> <p>ESR 10- SUPERVISED BY HOOGENBOOM (AVROXA, BELGIUM)</p> <p>FUNCTIONAL LIPOSOMES AND POLYMERSOMES WITH HIGHLY SELECTIVE TARGETING</p> <p>FURTHER INFO</p>
 <p>ESR 11- SUPERVISED BY SCHWILLE (MAX PLANCK, GERMANY)</p> <p>BIOMIMETIC CELL SURFACES FOR THE BIOPHYSICAL INVESTIGATION OF MEMBRANE-CROSSING AGENTS</p> <p>FURTHER INFO</p>	 <p>University of Basel</p> <p>ESR 12- SUPERVISED BY MEIER (UNIVERSITY OF BASEL, SWITZERLAND)</p> <p>ARTIFICIAL ORGANELLES IN CELLS</p> <p>FURTHER INFO</p>	 <p>VNIVERSITAT ID VALÈNCIA PRINCIPE FELIPE CENTRO DE INVESTIGACION</p> <p>ESR 13- SUPERVISED BY VICENT (UNIVERSITY OF VALENCIA, SPAIN)</p> <p>MITOCHONDRIA TARGETED ROS MEDIATED POLYPEPTIDE-DRUG CONJUGATE DELIVERY PLATFORMS</p> <p>FURTHER INFO</p>	 <p>Imperial College London</p> <p>ESR 14- SUPERVISED BY SHATTOCK (IMPERIAL COLLEGE LONDON, UNITED KINGDOM)</p> <p>NANO-STRUCTURED VEHICLES FOR OPTIMIZED RNA DELIVERY</p> <p>FURTHER INFO</p>	 <p>PTS polypeptide therapeutic solutions VNIVERSITAT ID VALÈNCIA</p> <p>ESR 15- SUPERVISED BY NEBOT (PTS, SPAIN)</p> <p>IMPLEMENTATION OF EFFICIENT CONTROLLED POLYPEPTIDE SYNTHESIS UNDER VALIDATED TECHNOLOGIES</p> <p>FURTHER INFO</p>

Further information on individual projects can be found on www.biomolmacs.com

Academics and Companies



Remzi BECER



Ben FERINGA



Jan van HEST



David LEIGH



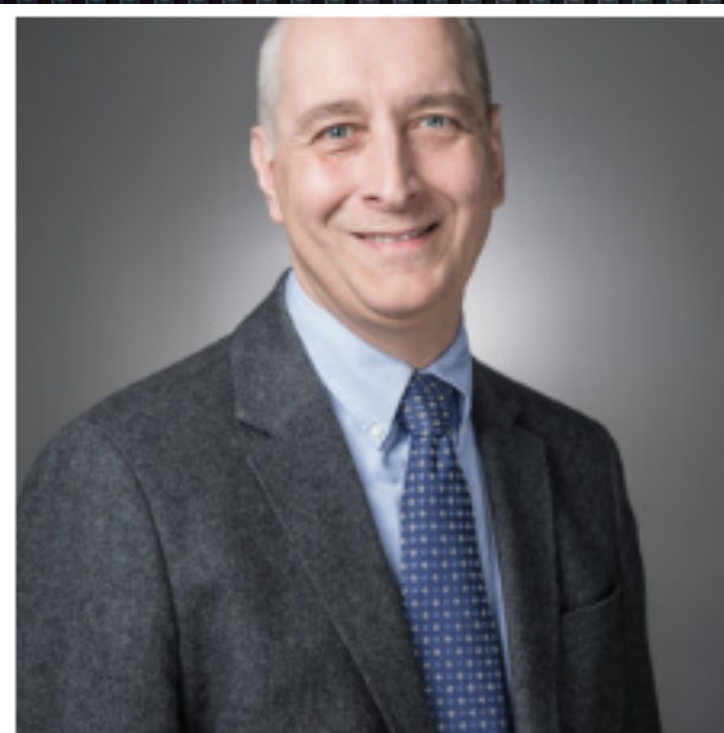
Petra SCHWILLE



Sebastien LECCOMANDOUX



Maria Jesus VICENT



Wolfgang MEIER



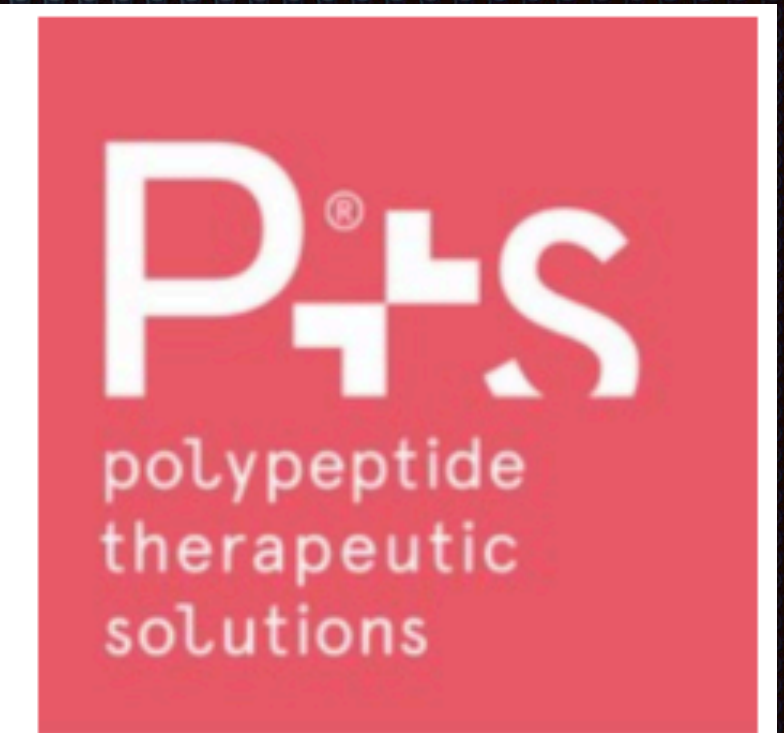
Robin SHATTOCK



ULTROXA - Belgium



SyMO - The Netherlands



PTS - Spain

WE HAVE 9 UNIVERSITIES AND 4 INDUSTRY PARTNERS FROM 7 DIFFERENT EUROPEAN COUNTRIES INVOLVED IN SUPERVISION AND TRAINING OF EARLY STAGE RESEARCHERS.

Early Stage Researchers



ESR 1-ADRIEN COMBE



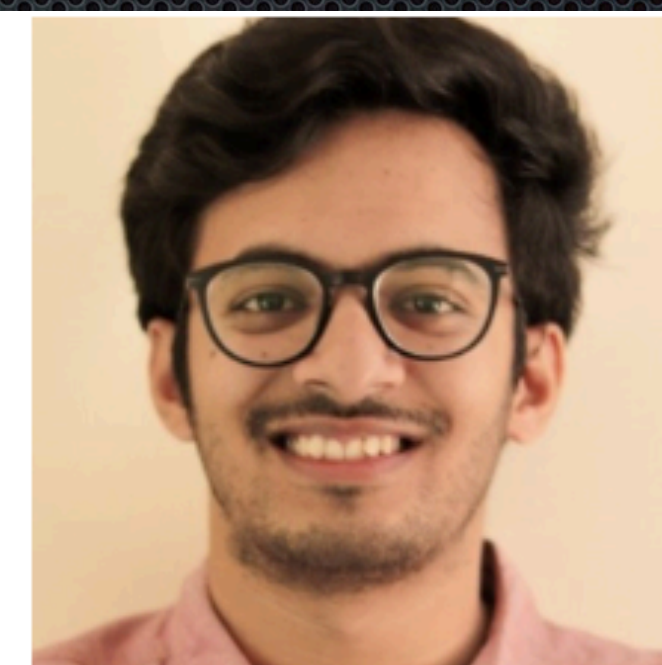
ESR 2-AINOA GUINART PLANEL...



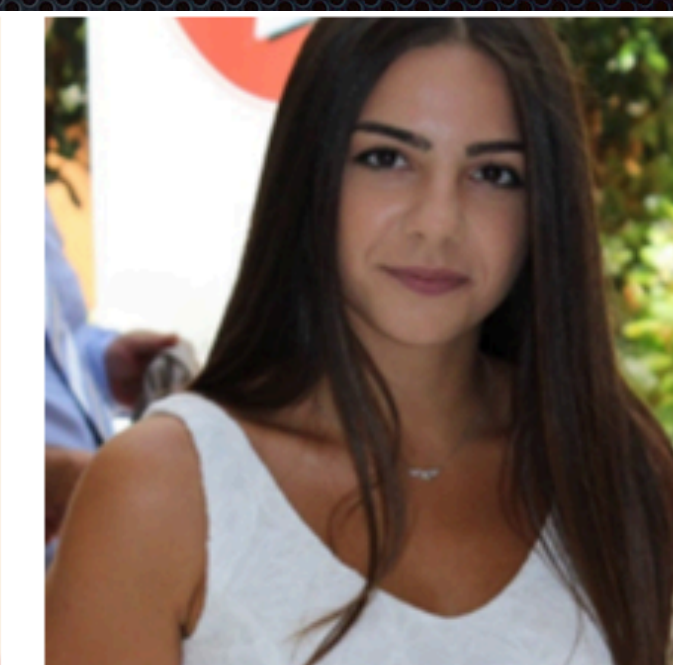
ESR 3-KE DU



ESR 10-ROSA NOEMI VILLANOVA



ESR 11-YUSUF QUTBUDDIN



ESR 12-MARIA KORPIDOU



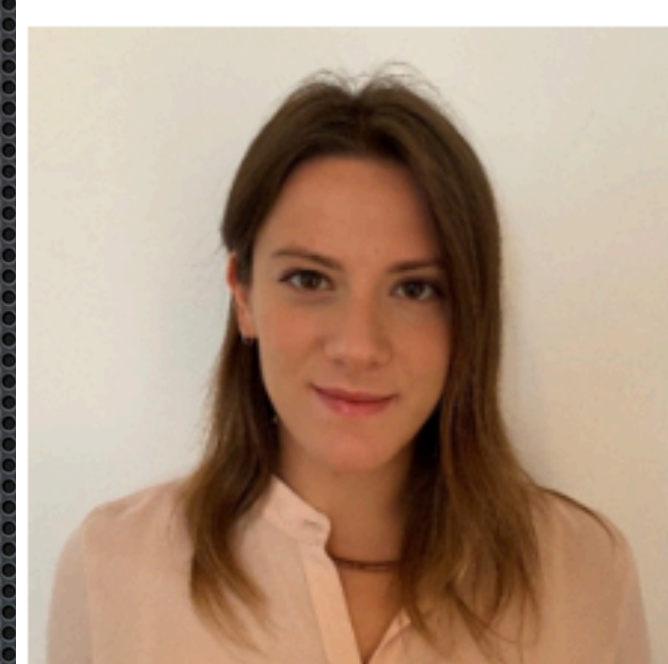
ESR 4-ROBERTO TERRACCIANO



ESR 5-JONAS BECKER



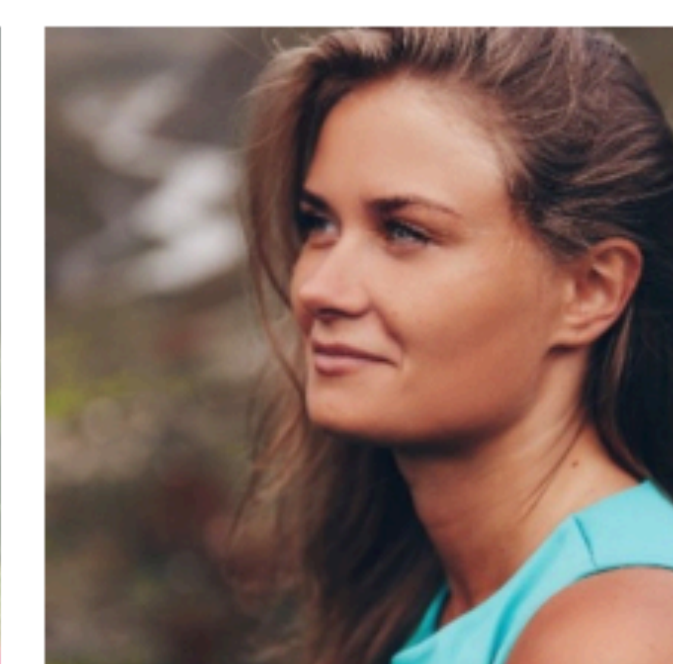
ESR 6-YUECHI LIU



ESR 13-CAMILLA PEGORARO



ESR 14-BEATRIZ DIAS BARBIER



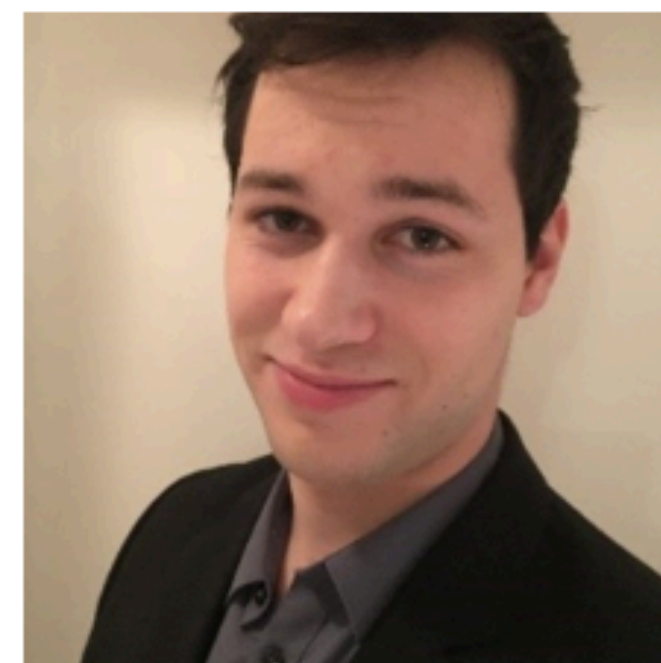
ESR 15-EKATERINA KARPOVA



ESR 7-ALEXANDER DEEN FUSI



ESR 8-CLÉMENCE SCHVARTZMAN



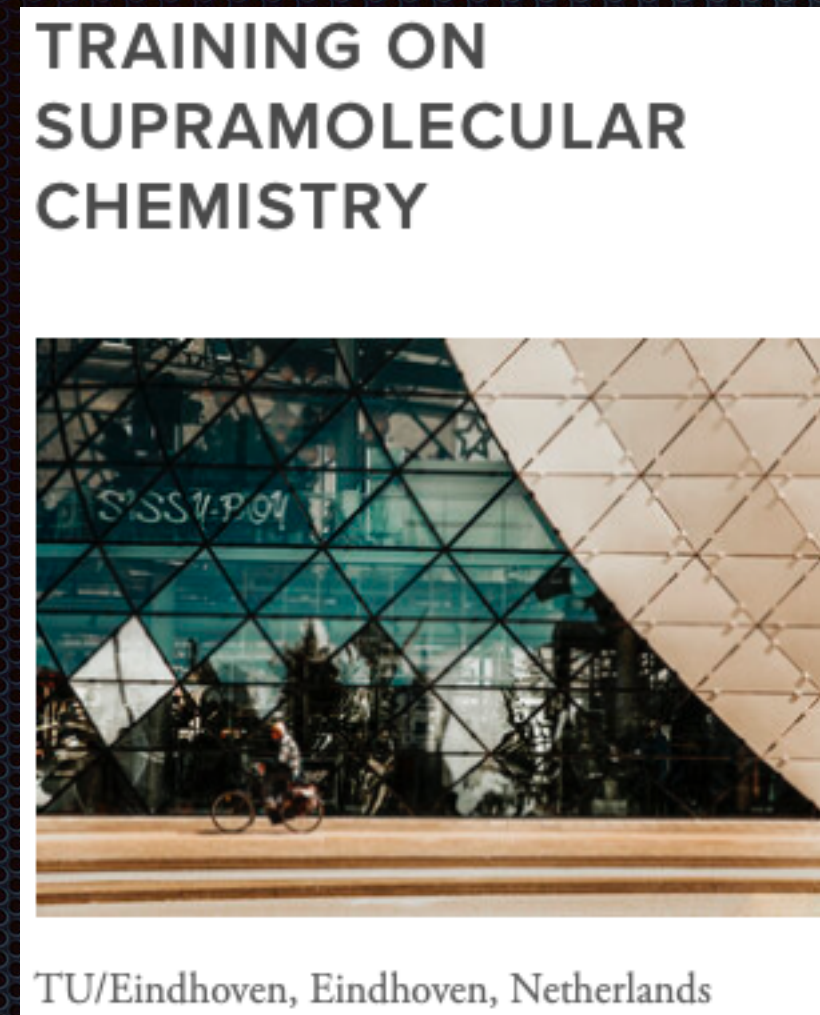
ESR 9-SEBASTIAN NOVOSEDLIK

Our Early Stage Researchers are from 10 different countries. They are all registered for a PhD degree in their institutions and will graduate in 2023-2024.

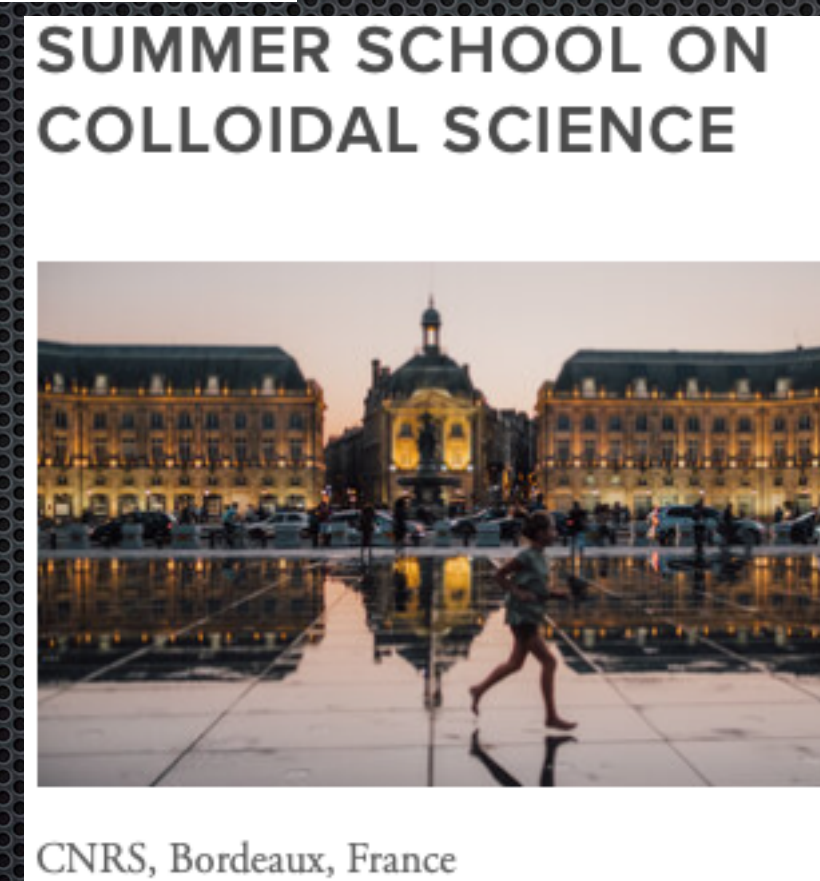
Training Programme of BIOMOLMACS



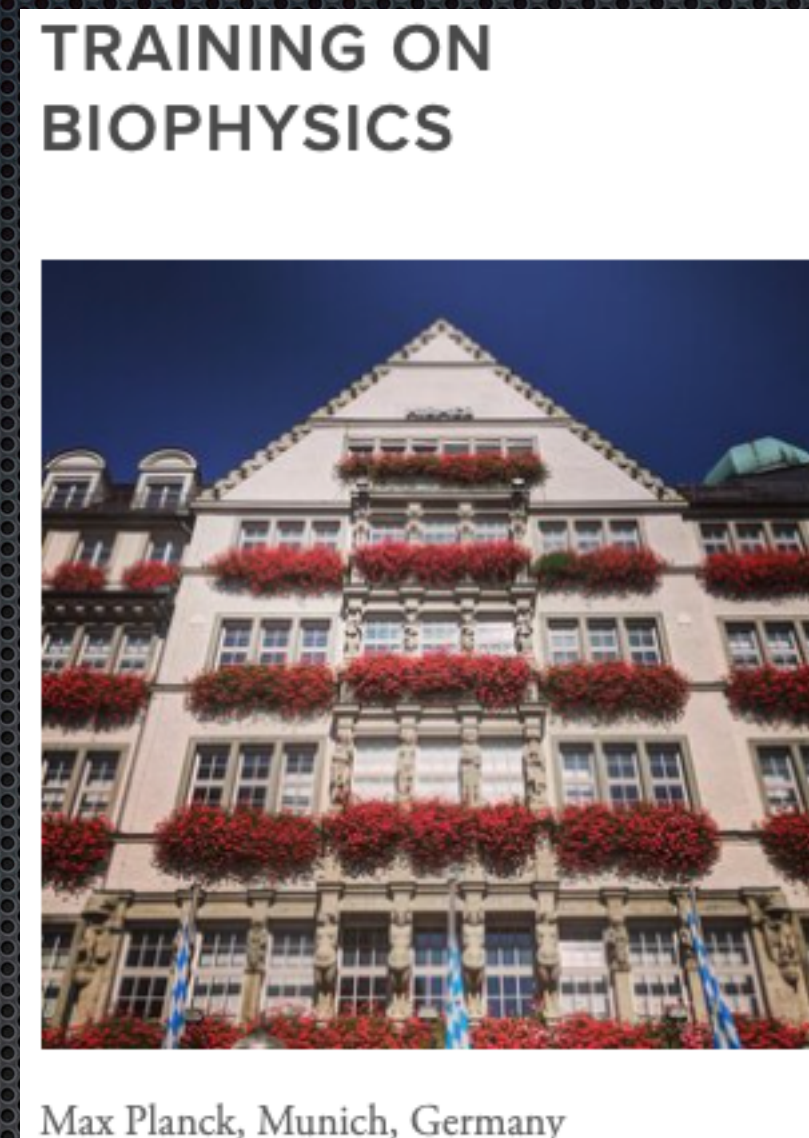
2020



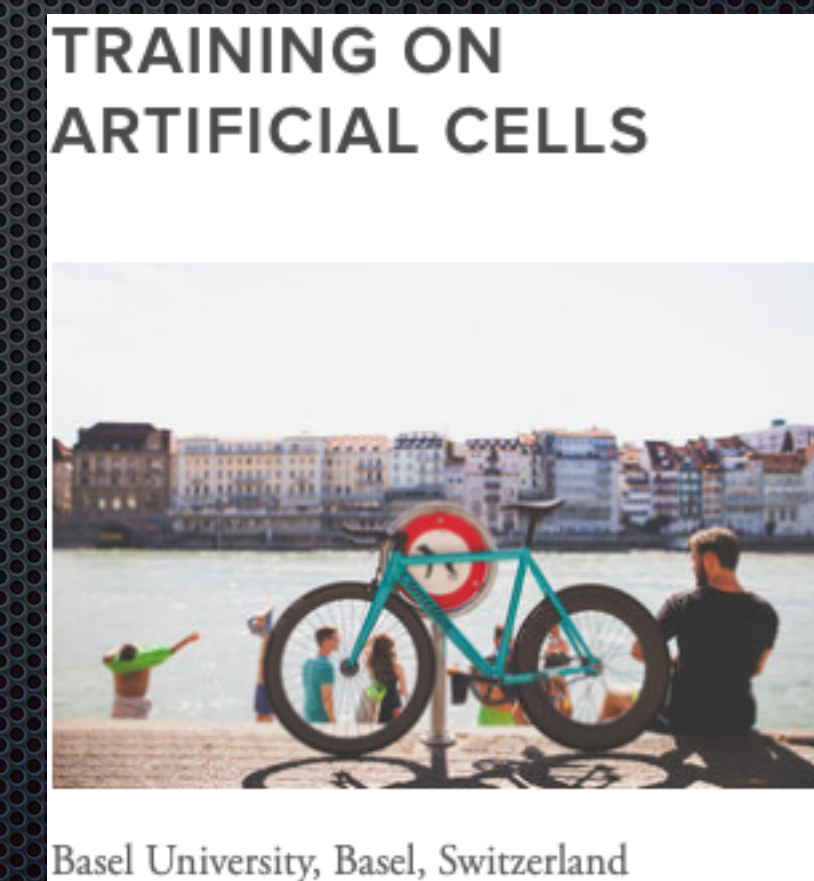
2021



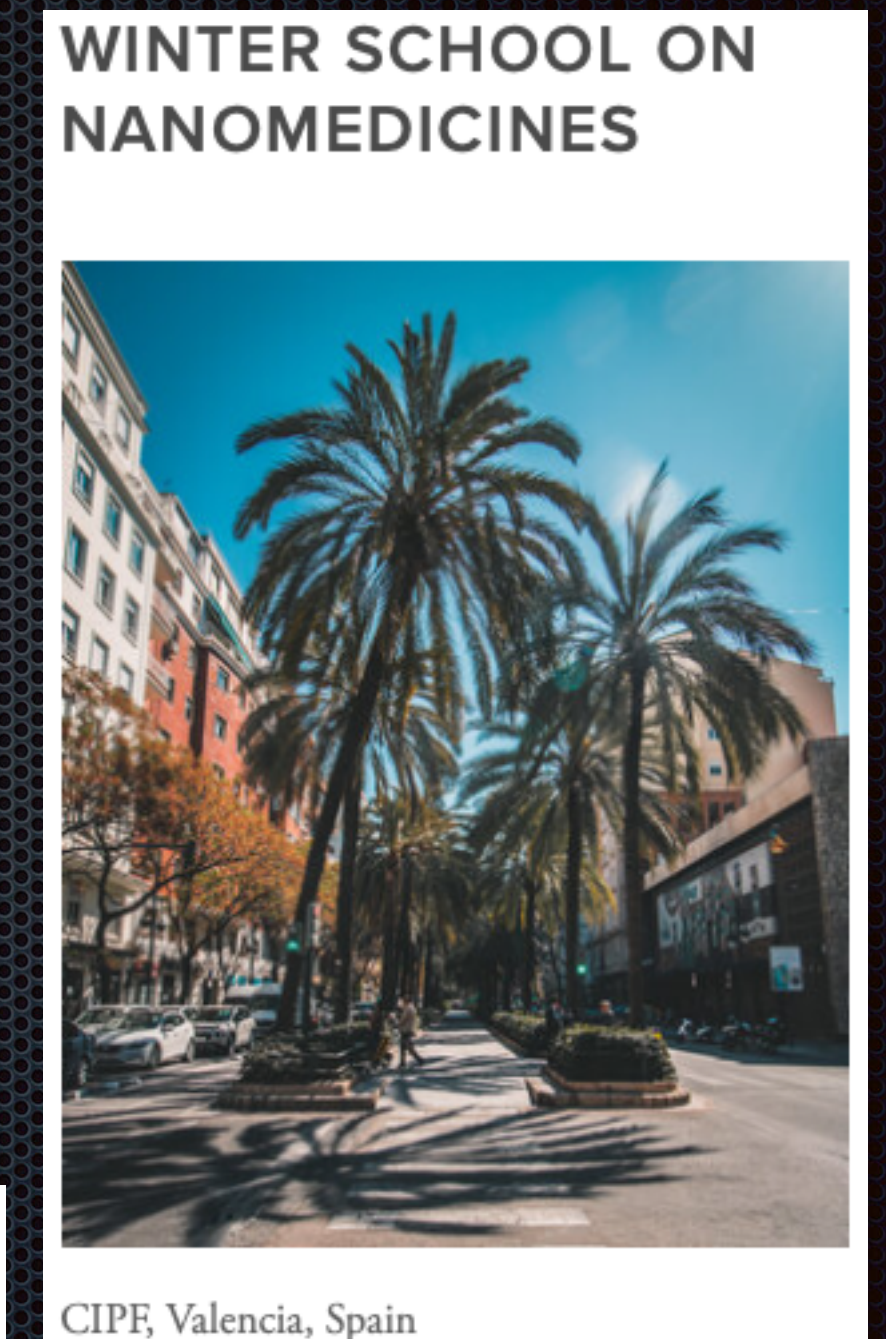
2021



2021



2022



2022

Our training activities are open access to anyone who wants to learn further on biomolecular machines. Please contact to the project coordinator for further information.



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Dr. Gokhan Yilmaz (BIOMOLMACS Manager, gokhan.yilmaz.1@warwick.ac.uk)

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