EMBL

Expanding the Druggable Proteome with Chemical Biology

EMBL CONFERENCE

EMBL Courses and Conferences during the Coronavirus pandemic

With the onsite programme paused, many of our events are now being offered in virtual formats.

Registration is open as usual for many events, with back-up plans in place to move further courses and conferences online as necessary. Registration fees for any events affected by the COVID-19 disruption are fully refundable.

More information for participants of events at EMBL Heidelberg can be found here.

Programme

Got something to say? Tweet it! #EMBLProteome

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Day 1 - Wednesday 05 February 2020

Time	Speaker
11:00-13:00	Arrival and Registration with light refreshments
11:45-12:45	Pre-conference workshop
13:00-13:30	Opening talk The challenge of expanding the druggable proteome Adrian Carter, Boehringer Ingelheim, Germany
13:30-15:00	Session 1: Illuminating the challenge and highlighting the opportunity for creating new medicines Chair: Adrian Carter

13:30-14:00	**Illuminating the Druggable Genome with Informatics, Data Science and Machine Learning** Tudor Oprea - University of New Mexico, USA
14:00-14:30	**Functionalization of the human protein-coding genome to discover medicines for neurodegenerative disease** Heiko Runz - Biogen, USA
14:30-15:00	**Chemical probes and the chemical biology of cancer** Paul Workman - CRUK Cancer Therapeutics Unit, The Institute of Cancer Research, London, UK
15:00-15:30	**Coffee break**
15:30-17:45	**Session 2: Illuminating the most promising proteins by virtue of druggability, human genetics and bioinformatics** **Chair: Patrick Aloy**
15:30-16:00	**Computational identification of drug targets in cancer** Eytan Ruppin - National Cancer Institute, USA
16:00-16:15	**Proteome-wide identification of new druggable targets for antibiotics** Stephan Hacker - Technical University of Munich, Germany
16:15-16:45	**Target Tractability: Making full use of protein homology** Kristin Brown - GlaxoSmithKline, UK
16:45-17:15	**Epigenetic variation across individuals to understand disease mechanisms** Judith Zaugg - EMBL Heidelberg, Germany
17:15-17:45	**Extending the small molecule similarity principle to all levels of biology** Patrick Aloy - IRB Barcelona, Spain
17:45-18:35	**Poster Session 1 (odd numbers)** with beer and snacks, ATC Helix A
18:35-19:30	**Poster Session 2 (even numbers)** with beer and snacks, ATC Helix A
19:30-20:45	**Dinner** EMBL Canteen
20:45-22:00	**After Dinner Drinks** ATC Rooftop Lounge
20:00, 21:00, 22:00	**Bus departure**

Day 2 - Thursday 06 February 2020

Time	Speaker
09:00-12:30	**Session 3: Interrogating the druggable proteome with chemical probes, imaging and sensor proteins, part 1** **Chair: Gerard Drewes**
09:00-09:30	**Shaping biology by modulating access to chemical matter** Giulio Superti-Furga - CeMM Research Centre for Molecular Medicine/ Medical University of Vienna, Austria
09:30-09:45	**The target landscape of 1,200 kinase inhibitors** Maria Reinecke - Technical University of Munich/ DKTK partner site Munich, Germany
09:45-10:00	**Covalent inhibitors for 'undruggable' targets** Nir London - The Weizman Institute of Science, Israel
10:00-10:30	**Targeting protein scaffolding function in kinases** Stefan Knapp - Goethe University Frankfurt, Germany
10:30-11:00	**Coffee break**
11:00-11:30	**Exploring the druggable proteome by image-based phenotyping in cell lines and patient derived organoids** Michael Boutros - German Cancer Research Centre/ Heidelberg University, Germany
11:30-12:00	**Mechanisms of intracellular DNA sensing through the cGAS-STING pathway** Andrea Ablasser - EPFL, Switzerland
12:00-12:15	**Defining the human C2H2 zinc finger degrome targeted by thalidomide analogs through CRBN** Georg Petzold - Friedrich Miescher Institute for Biomedical Research, Switzerland
12:15-12:30	**Stabilization of protein-protein interactions** Pim de Vink - Eindhoven University of Technology, The Netherlands
12:30-14:00	**Lunch and meet the speakers**
14:00-16:00	**Session 4: Interrogating the druggable proteome with chemical probes, imaging and sensor proteins, part 2** **Chair: Anke Müller-Fahrnow**
14:00-14:30	**Tetrahydrobiopterin homeostasis** Kai Johnsson - Max Planck Institute for Medical Research, Germany

14:30-15:00	**Chemical physiology of natural products and antibody conjugates** Gonçalo Bernardes - University of Cambridge, UK and iMM Lisboa, Portugal
15:00-15:30	**Within our control? Leveraging precision electrophile signaling toward drug discovery** Yimon Aye - EPFL, Switzerland
15:30-16:00	**Understanding cellular phenotypes; from screens to probes towards clinical candidates** Marcus Bauser - Bayer AG, Germany
16:00-16:30	**Coffee break**
16:30-19:00	**Session 5: Interrogating the druggable proteome with phenotypic screens** **Chair: Herbert Waldmann**
16:30-16:45	**Towards improved biophysical models of protein folding to identify disease-causing mutations and rescue by small molecules** Amelie Stein - University of Copenhagen, Denmark
16:45-17:00	**Using metabolic fingerprints to rationally design combination therapies** Mattia Zampieri - ETH Zürich, Switzerland
17:00-17:30	**Pseudo Natural Products** Herbert Waldmann - Max Planck Institute of Molecular Physiology, Germany
17:30-18:00	**A systems approach to functional precision medicine by deep learning and multi-OMICs** Berend Snijder - ETH Zürich, Switzerland
18:00-18:30	**Advances in phenotypic and pathway profiling: Elucidating novel target biology and drug mechanism-of-action under appropriate biological context** Neil Carragher - The University of Edinburgh, UK
18:45-20:30	**Conference Dinner** EMBL Canteen
20:30-23:00	**After Dinner Drinks, live music** ATC Rooftop Lounge
20:00, 21:30, 23:00	**Bus departure**

Day 3 - Friday 07 February 2020

Time	Speaker

09:00-10:45	**Session 6: New engineering approaches for expanding the druggable proteome** **Chair: Stefan Knapp**
09:00-09:30	**Mapping genetic networks using functional and chemical genomics** Brenda Andrews - University of Toronto, Canada
09:30-10:00	**Biophysical screening of combinatorial libraries to target protein-protein interactions with covalent agents** Maurizio Pellecchia - University of California, Riverside, USA
10:00-10:15	**NanoBRET cellular target engagement assays are versatile in enabling drug screening for various proteins – the SGC experience** Benedict Berger - Structural Genomics Consortium, Goethe University Frankfurt, Germany
10:15-10:45	**Chemical biology at the interface of discovery to deliver novel to targets to the Drug Discovery Pipeline** Christine Donahue - GlaxoSmithKline, USA
10:45-11:15	**Coffee break**
11:15-13:15	**Session 7: New engineering approaches for breaking the druggability barrier** **Chair: Katrin Rittinger**
11:15-11:45	**Targeting the active site of E3 ligases with chemical tools** Katrin Rittinger - The Francis Crick Institute, UK
11:45-12:15	**Structure based PROTAC design to expand the druggable proteome** Alessio Ciulli - University of Dundee, UK
12:15-12:45	**Chemical probes in target discovery** Paul Brennan - University of Oxford, UK
12:45-13:15	**Identification of microbiome-encoded enzymes involved in drug metabolism** Michael Zimmermann - EMBL Heidelberg, Germany
13:15-13:30	**Closing remarks and Poster Prize**
13:30-14:00	**End of conference** **Packed lunch and departure**
14:00	**Bus departure all stops downtown**
14:10	**Bus to Frankfurt Intl. Airport**