IRB BARCELONA

INSTITUTE FOR RESEARCH IN BIOMEDICINE

Barcelona BioMed Conference Proximity-inducing pharmacology: Targeted protein degradation and beyond 22-24 May, 2023

Monday, 22 May

8.30 Registration

9.00 Welcome by Directorate of IRB Barcelona and organizers
(Dr. Cristina Mayor-Ruiz and Dr. Georg E. Winter)

Session 1: Proteolysis Targeting Chimeras (PROTACs)
Chair: Dr. Marie-Helene Helene Larraufie (Barcelona, Spain)

9.15 **Interrogating the Druggable Proteome with Proximity Pharmacology**
Dr. Fleur M. Ferguson, University of California San Diego (San Diego, CA, USA)

9.45 **Targeted Protein Degradation at the academic-industry interface**
Dr. William Farnaby, University of Dundee (Dundee, UK)

10.15 **Advancing targeted protein degraders and bringing them into the clinic**
Dr. Danette L. Daniels, Foghorn Therapeutics (CA, MA, USA)

10.45 -11.30 ***Coffee break and poster session***

11.30 Short talk 1: **Directing the E3 ligase pair SIAH1/2 towards degradation of neosubstrates using covalent PROTACs**
Dr. Lena Münzker, Boehringer Ingelheim RCV GmbH & Co KG (Vienna, Austria)

11.45 **How PROTACs Work: Molecular Recognition and Design Principles**
Dr. Alessio Ciulli, University of Dundee (Dundee, UK)

12.15 **What's Next? Looking beyond PROTACs**
Dr. Craig M. Crews, Yale University (New Heaven, CT, USA)

12.45 Short talk 2: **An intramolecular bivalent degrader glues an intrinsic BRD4-DCAF16 interaction**
Dr. Angus Cowan, University of Dundee (Dundee, UK)

13.00 -14.30 ***Lunch and poster session***

Session 2: Molecular glues

Chair: Dr. Jay Bradner (CA, MA, USA)

14.30 **Chasing molecular glues and overcoming broad resistance to degraders**
Dr. Cristina Mayor-Ruiz, IRB Barcelona (Barcelona, Spain)

15.00 Short talk 4: **BTB_{BCL6} dimers as building blocks for reversible drug-induced protein oligomerization**
Dr. Mikołaj Słabicki, Broad Insitiute (Cambridge, MA, USA)

15.15 **Identification and characterization of small-molecule degraders**
Dr. Georg E. Winter, CeMM (Vienna, Austria)

15.45 – 16.45 ***Coffee break and poster session***

16.45 Short talk 3: **Understanding cooperativity effects in the drug-dependent degradation of the Cereblon neosubtrate CK1 alpha**
Dr. Jordi Juárez-Jiménez, UB (Barcelona, Spain)

17.00 **Design principles for cyclin K molecular glue degraders**
Dr. Nicolas H. Thomä, FMI (Basel, Switzerland)

17.30 **Mechanism of action of velcrin small molecules**
Dr. Heidi Greulich, Broad Institute (Cambridge, MA, USA)

18.00 ***End of session***

Tuesday, 23 May

Session 3: Targeted degradation beyond the proteasome
Chair: Dr. Ingo Hartung (Darmstadt, Germany)

9.00 **Targeting extracellular and membrane proteins for degradation via lysosome targeting chimeras (LYTACs)**
Dr. Green Ahn, Stanford University (Stanford, CA, USA)+

9.30 **BacPROTACs mediate targeted protein degradation in bacteria**
Dr. Francesca E. Morreale, IMP, The Francis Crick Institute (London, UK)

10.00 Short talk 5: **Development of next generation AUtophagy TArgeting Chimeras (AUTACs) to enable proximity induced degradation of mitochondria**
Niyaz Zaman, University College London (London, UK)

10:15 Short talk 6: **Multicomponent Reaction-Based Approach to Novel Aryl Hydrocabon Receptor Activators, PROTACs and HomoPROTACs**
Dr. Ouldouz Ghashghaei, IBUB- UB (Barcelona, Spain)

10.30 -11.30 ***Coffee break and poster session***

11.30 Short talk 7: **Induced self-elimination of the Clp protease system as antibiotics strategy**
Dr. David M. Hoi, Institute of Molecular Pathology (Vienna, Austria)

11.45 **Targeting unexplored E3 ligases with small molecules**
Dr. Carles Galdeano, UB Barcelona (Barcelona, Spain)

12:15 **Target degradation of disease-causing RNAs with ribonuclease targeting chimeras (RiboTACs)**
Dr. Mathew Disney, UF Scripps Biomedical Research (La Jolla, CA, USA)

12:45-14.30 ***Lunch and poster session***

Session 4: Inducing and removing post-translational modifications: ubiquitin and beyond
Chair: Dr. Ingo Hartung (Darmstadt, Germany)

14.30 **Two new ways to drug targets**
Dr. Sayumi Yamazoe, Bristol-Myers Squibb (CA, USA)

15.00 **Reimagining Druggability using Chemoproteomic Platforms**
Dr. Daniel K. Nomura, University of California, Berkeley (Berkeley, CA, USA)

15.30 Short talk 8: **Development of a novel type of proteolytic chimera based on direct 26S proteasome targeting**
Dr. Bernat Crosas, IBMB-CSIC (Barcelona, Spain)

15.45 Short talk 9: **E3-ID: an innovative system to identify targets of E3 ligases**
Dr. James D. Sutherland, CIC bioGUNE (Bizkaia, Spain)

16.00- 16.45 ***Coffee break and poster session***

16.45 **Protein editing using small molecules**
Dr. Amit Choudhary, Broad Institute (CA, MA, USA)

17:15 **Chemoproteomic-Enabled Development of Proximity-Inducing Molecules**
Dr. Christopher G. Parker, The Scripps Research Institute (La Jolla, CA, USA)

17.45 Short talk 10: **HiBiT-SpyTag: A minimal tag for covalent protein capture and degrader development**
Dr. Radosław P. Nowak, Dana-Farber Cancer Institute (Boston MA, USA)

18.00 ***End of session***

20.30 ***Speakers dinner (Restaurant Can Pineda) (Sant Joan de Malta, 55)***

Wednesday, 24 May

Session 5: Proximity-inducing pharmacology: new approaches and computational methods
Chair: Dr. Modesto Orozco (Barcelona, Spain)

9.00 Short talk 11: **Target- and E3-driven discovery of molecular glue degraders via accelerated protein energy-landscape exploration**
Dr. Carles Perez-Lopez, IRB Barcelona (Barcelona, Spain)

9.15 Short talk 12: **Finding all our switches: fast global mapping of the allosteric landscape for KRAS inhibition**
Dr. Ben Lehner, Wellcome Sanger Institute & CRG (Barcelona, Spain)

9.30 **Assessing ternary complex formation for protein degradation**
Dr. Víctor Guallar, BSC/ ICREA (Barcelona, Spain)

10.00 **Blending Chemistry and Biology to Enable Systems Pharmacology**
Dr. Patrick Aloy, IRB Barcelona/ ICREA (Barcelona, Spain)

10.30 -11.15 ***Coffee break and poster session***

11.15 Short talk 13: **Supercharging kinase turnover – rationalizing non-obvious destabilization mechanisms**
Dr. Natalie S. Scholes, CeMM (Vienna, Austria)

11.30 Short talk 14: **Transcriptional chemical inducers of proximity to rewire cancer drivers**
Sai Gourisankar, Stanford University (Stanford, CA, USA)

11.45 **AI/ML-enabled global ligandability maps allow quantitative and qualitative drug interactome predictions**
Dr. Miquel Duran-Frigola, Ersilia Open Source Initiative (Cambridge, UK)

12.15 Short talk 15: **DEGRONOPEDIA - a web server for proteome-wide inspection of degrons**
Natalia A. Szulc, IIMCB (Warsaw, Poland)

12.30 ***Concluding remarks and end of conference***