5th SST Scientific Exchange Forum

October 24th, 2023, 17:30 – 19:00

Virtual Meeting using Zoom

Agenda

Time	Topic	Presenter
17:30 - 17:35	Welcome	**Dr. Susanne Mohr** F. Hoffmann-La Roche Ltd
17:35 - 18:10	**Small molecules, big opportunities: an in silico platform for off-target profiling and drug re-purposing** Providing effective and safe treatment options for illnesses to the general population is the ultimate goal of the modern pharmaceutical industry. However, development of a new drug is an extremely time-consuming and costly process. Despite continuous progress in all scientific disciplines, the number of approved drugs reaching the market is decreasing. Multiple retrospective analyses from major research-oriented pharmaceutical companies identify inadequate drug safety and toxicity as major causes for drug failures and high attrition rates. While non-specific modes of toxic action are well-defined and can be easily systematically avoided by rational design, toxic phenomena associated with drug binding to off-targets still pose a major problem. Thus, an early identification of adverse effects is of major importance for successful drug development and has the potential to significantly reduce the development time, animal testing in preclinical studies, and the total development costs. In drug design, computational simulations have witnessed an immense improvement during the past decades rendering them highly time and resource efficient. While the development of the new methods and approaches in this field is predominantly focused on reliable modeling and optimization of the drug–on-target interaction, the main goal of our group is to employ a large variety of structure-based methods for detection, elucidation and explanation of the drug off-target binding.	**Prof. Martin Smiesko** Computational Pharmacy Department of Pharmaceutical Sciences, University of Basel

Time	Topic	Presenter
	By combining carefully curated datasets, the state-of-the-art structure-based modeling and machine learning methods we created an in silico platform for fast identification of off-target liabilities of small molecules. Validation procedures demonstrate excellent reliability in distinguishing binders from non-binders in various metrics. Moreover, a comprehensive interaction-based interpretation of observed binding modes opens new possibilities towards off-target profiling-enabled medicinal chemistry and drug repurposing.	
18:10 - 18:45	**Therapeutic antibody testing in minipigs** Minipigs are a viable alternative to non-human primates for safety testing of new drugs because they are similar to humans in anatomy and physiology, are easily available, and can be genetically modified. Despite these advantages, there are few reports on the use of minipigs for therapeutic antibody testing. This presentation will highlight the opportunities and challenges of human antibody testing in relation to minipig biology. Specifically, the focus will be on factors such as skin permeability, placental transfer, target binding, and interactions with the neonatal Fc receptor and Fc gamma receptors. Moreover, this presentation will address the challenge of immune responses in minipigs to foreign human IgG, and introduce the humanized IgG1/4 Göttingen Minipig as a potential solution to overcome this challenge.	**Dr. Jerome Egli** Toxicology Project Leader, F. Hoffmann-La Roche Ltd, Basel
18:45 - 18:55	**Q&A Session, Networking, Discussion, Feedback**	**All**
18:55 - 19:00	**Closing remarks**	**Dr. Susanne Mohr** F. Hoffmann-La Roche Ltd