



PRESTO

P2X REceptorS as Therapeutic Opportunity

TRAINING SCHOOL 2025: 10 FACTS FROM THE ORGANIZER

The event **in vivo and ex vivo models to study P2X receptors** was organized by Terezia Kiskova (University of Pavol Jozef Safarik, Slovakia) and Valérie Vouret-Craviari (University Cote d'Azur, France).

1. The intention of the event was to introduce approaches for studying the role of P2X receptors using in vitro 2D, ex vivo 3D techniques and in vivo experimental models. Additionally, practical sessions provided technical tips and advice to the participants.
2. The event took place over three days, July 21-23, 2025, at Louis Pasteur University Hospital Faculty of Medicine, Slovakia.
3. The event attracted participants primarily from the PRESTO network, including master's, Ph.D., postdoctoral researchers and medical doctors. Participants with previous experience in 2D cell culture models were interested in developing 3D (spheroids, tumoroids, organoids) culture models, positioning this training as an essential skill-building opportunity for the future P2X receptor-related research projects.
4. The topics included 3D models for oncology, 3D culture of iPSC-derived brain organoids and 3D culture of neurospheres and the value of metabolomic approaches in these models.
5. The key speakers and affiliations were: Valerie Vouret-Craviari (University Cote d'Azur) and Olfa Khalfallah (University Cote d'Azur), Carmen Ludwig-Papst (Biocrates Ltd) and Lucia Slovinska (University of Kosice) and Terezia Kiskova (University of Kosice).
6. The participants gained knowledge of 3D models ranging from single spheroids to complex organoids and practical sessions for an enhanced hands-on experience.
7. Informal feedback was extremely positive. Those already working on organoids, were able to refine their approaches; those soon to implement 3D approaches in their upcoming research, were able to develop an effective strategy. Following expert lead discussions, the participants comprehend that 3D approaches represent an important step in minimizing the number of animals used in research, without completely replacing in vivo approaches to answer vital research questions.
8. In vivo and ex vivo 3D experimental approaches can be used to target / model most of the pathologies and therefore, is transversal to all working packages in PRESTO.
9. The event supported PRESTO's objective of training young researchers with state-of-the-art in P2X receptor research involving inflammation, cancer and cognitive diseases.
10. Plan for dissemination and/or communication: The event was announced in advance to attract interested participants. An exercise book, comprising summaries of plenary lectures and protocols for 3D cultures was distributed to the attendees and will be disseminated within PRESTO. A video from the event will be uploaded to PRESTO's social media channels. The goal is to enhance visibility of 3D experimental approaches, which when integrated with artificial intelligence, will undoubtedly help better model diseases and improve treatment outcomes, the ultimate mission of PRESTO.

Relevant as of October 2025.

Year 3: Grant Period, November 1st, 2024 – October 31st, 2025