

33rd Annual meeting of the Network for European CNS Transplantation and Restoration (NECTAR)

23th-25th October 2023, Naples, Italy

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The 33rd Annual meeting of the Network for European CNS Transplantation and Restoration (NECTAR) was held in Naples (Italy) from 23th-25th of October 2023. This international gathering united preeminent scientists from around the globe in the disciplines of neuroscience and regenerative medicine, with a primary focus on the latest breakthroughs in modeling human brain disorders, notably Parkinson's disease, and unraveling the underlying molecular mechanisms. Furthermore, the conference delved into recent strides made in the realm of cell and gene therapies for Parkinson's disease. Attendees engaged in discussions exploring the cutting-edge advancements in gene therapy and cell transplantation methodologies, pushing the boundaries of our understanding and treatment options for this complex neurological condition.

The conference commenced with an illuminating session dedicated to the 3D Modeling of Human Brain Disorders, which presented a comprehensive overview of recent themes, spanning from 3D brain organoids to single-cell omics. Madeline Lancaster's presentation, in particular, captivated my interest as it primarily centered on the effective resetting of induced pluripotent stem cells—an integral component of my own research project. Lancaster's treatment of the stem cells showcased a notable reduction in the significant variability observed among different cell lines associated with a specific disease form. This invaluable information not only contributes to the advancement of the scientific community at large but also holds profound implications for the progress of my own project.

The session on Cell Therapy & Clinical Trials for CNS particularly piqued my interest, and it was Gesine Paul-Visse from Lund University in Sweden who delivered an enthralling presentation. He unveiled the initial findings of the groundbreaking first-in-human clinical trial design of STEM-PD, a pioneering project focused on the transplantation of human embryonic stem cell-derived dopaminergic progenitors in individuals with Parkinson's disease. This presentation offered a unique opportunity to gain insight into previously undisclosed data derived from the first clinical trials that received approval in February. As a scientist immersed in the field of Parkinson's research, continuously seeking innovative therapeutic avenues, this revelation was incredibly intriguing and promising.

Furthermore, the inclusion of presentations by prominent pharmaceutical companies, including Novo Nordisk and Blue Rock, offered valuable insights into ongoing treatment therapies. The inception of this dynamic exchange between the industry and scientific community served as a catalyst for numerous stimulating discussions and ideas.

Patrick Yu-Wai-Man's presentation on his research into mitochondrial blindness proved to be an invaluable resource for my own project. Although his work pertains to a different medical condition, the fresh insights he shared about mitochondrial dysfunction and the various methods to enhance the precision of measuring its residual function hold great promise for my research. Specifically, my project focuses on addressing the loss of DJ-1-induced mitochondrial dysfunction and the resulting dysregulation of dopamine metabolism. Additionally, during one of the poster sessions, I had the privilege of engaging in a conversation with Zhijun Wang from the University of Edinburgh. He is currently developing a plasmid-based radiometric fluorescent sensor for quantifying mitochondrial stress in the context of Parkinson's disease. The potential collaboration with him and the utilization of this sensor represent a significant leap forward for my own research.

Overall, NECTAR 2023 provided an exceptional platform for sharing cutting-edge insights in Parkinson's research among professionals from various backgrounds. Engaging with leading experts in stem cell research was a valuable addition. The conference facilitated sharing my own contributions and gaining fresh perspectives, fostering collaboration. As a young researcher, it was not only encouraging but also motivating, driving me to pursue impactful outcomes. I'm grateful for the GSCN travel grant's support, enabling my participation in this enlightening conference and integration into a vibrant community of scholars and innovators.