

GSCN Travel Award Report

Conference: Development & 3D Modeling of the Human Brain

Data: December 9th-12th, 2024

Location: Cold Spring Harbor, New York, USA

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I would like to extend my gratitude to the German Stem Cell Network (GSCN) for supporting my participation at the Cold Spring Harbor (CSH) conference on Development & 3D Modeling of the Human Brain. Attending this event was an incredible opportunity to engage with leading scientists in the field of brain organoids and to immerse myself in the latest advancements in this rapidly evolving area of research.

The conference attracted over 400 attendees, nearly reaching the venue's maximum capacity. Accommodations were available both on campus and in nearby hotels. Those fortunate enough to stay on campus enjoyed picturesque views of the lake, while others, including myself, had to plan our daily schedules around the shuttle service. Meals were provided by the conference, creating a relaxed and informal setting to connect with fellow early-career researchers in-between the big talks. It was particularly engaging to discuss challenges, share methodologies, and exchange tips on best practices in brain organoid research.

My PhD research focuses on induced pluripotent stem cell (iPSC)-derived brain organoids, and while I have attended other stem cell conferences in the past, this was my first experience at a conference dedicated exclusively to brain organoids. Compared to larger conferences, this was a relatively intimate gathering, with a single conference hall for all talks. I appreciated not having to choose between parallel sessions, allowing me to attend every presentation.

The lineup of speakers was outstanding, featuring a mix of well-established professors and early-career researchers. One of the highlights for me was hearing Dr. Paola Arlotta speak again. This was my second time attending one of her presentations, and I find her work consistently fascinating. The first time I heard her speak, she discussed brain organoids in her lab that were five years old. This year, those same organoids are now seven to eight years old. In her latest talk, she explored an intriguing experiment in which neural progenitor cells (NPCs) from older organoids were introduced into younger organoids to investigate their developmental trajectory—whether they would mature faster due to some form of cellular memory or if they would adapt to the younger organoids' timeline.

Additionally, it was amusing to hear Dr. Gray Camp, who recently published a brain organoid atlas, express his frustration over the difficulties in compiling the atlas due to inconsistent metadata reporting in single-cell RNA sequencing (scRNA-seq) studies, because most of the data used was data published by many of the professors in that conference hall. His remarks underscored the need for more standardized regulations in data publishing.

I had the opportunity to present my poster, titled "Patient-Derived Cortico-Striatal Assembloids for Modeling Mitochondrial Disease," on the first night of the conference. While I greatly appreciated the

chance to share my work and receive feedback, the three-hour duration of the poster session was quite lengthy. Despite this, the discussions were insightful and allowed for meaningful exchanges with other researchers.

A unique aspect of this conference was the limited industry presence, with only three companies—3Brain, Axion Biosystems, and StemCell—participating. This allowed for a more focused academic environment, fostering deeper scientific discussions rather than extensive commercial promotions.

A memorable tradition of the Cold Spring Harbor conference is its concluding lobster dinner. A great tip for future attendees: sit with someone from New England who can teach you how to properly open a lobster to fully enjoy the experience!

In summary, this conference provided a valuable platform for networking, sharing research, and gaining new insights into the field of brain organoids. I am incredibly grateful to the GSCN for sponsoring my trip, as this experience has been instrumental in broadening my scientific perspective and reinforcing my enthusiasm for my research.

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