

# The International Society for Stem Cell Research (ISSCR) 2024 Annual Meeting

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The International Society for Stem Cell research annual meeting is likely the major event in the field of stem cell research worldwide. Taking place every year alternating between the USA, Europe and Asia, it gathers almost 4,000 scientists coming from all around the world. Its aim is to be at the forefront of stem cell research, showcasing not only the most groundbreaking research, but also being a link between academia, industry and policy makers to define the ethical boundaries and the policies within and outside the scientific community.

The program of the ISSCR 2024 was comprised of several plenary sessions, outlining the most significant research in fields such as *in vitro* development models, organoids research, ageing and stem cell therapies. In between the plenary sessions, several poster sessions and academic talks allowed to dive deep into a specific field of interest or venture into new interesting emerging fields. Along those, industry showcases showed some new products available for scientists to refine and help in their research efforts.

In particular, there were some presentations that really captured my interest: the first was given by Sarah Teichmann, who described the efforts and challenges in developing a human cell atlas, which will be able to serve as a reference for all future research regarding human cells. On another note, the advances in synthetic embryos models of the last few years were what sparked the Anne McLaren Memorial Lecture by Alfonso Martinez Arias, who did a very interesting excursus on the history of human developmental research and the history of how the current ethical boundaries in this field of research were defined: starting from the history, he also discussed whether these boundaries should be rediscussed and updated with our current knowledge and how far we should push our research. Additionally, I was very interested in the advances in the organoids field, in particular how Matthias Lutolf described the shift from self-assembled organoids to combining organoids and engineered structures to better mimic the assembly of organs *in vivo*. One interesting (albeit rather peculiar) industry presentation was given by the company Colossal Biosciences on their advancements in generating the largest mammal iPSC line, i.e. elephant iPSCs, to be used in the context of de-extinction and species conservation. In a completely different field, Tina Mukherjee described how insects sense odours and have the ability to change their immune system accordingly, showing how urbanization and environmental changes could impact the way they transmit diseases. These presentations only scratch the surface of the broad variety of topics that were covered by the conference, which provided several inputs in different fields.

Last but not least, I have always been interested in the development of new therapies: I heard different talks investigating novel therapies for liver, cardiac conduits and heart valves transplantations just to name a few. Related to this, something was discussed that as scientists we often forget, which is the economic environment in which we operate: a large crowd attended the session regarding strategies for gene and cell-based therapies in Europe, which focused on a few cases where profit risked jeopardizing the accessibility of drugs and therapies, especially in the context of rare diseases. In particular, the speakers addressed the need to define new ways to guarantee access to these therapies which cannot be profit-based.

Most importantly, this was the first conference where I could present my PhD project in its entirety, and likely the last conference during my PhD. It was an immense pleasure to be able to show my results to this large international crowd and also raise interest in the people in my field who might benefit from the results published in my future manuscript. During my poster session, I was also able to meet with a collaborator that I had only met virtually so far, hopefully sparking even more collaborations in the future. To conclude, I was honoured to be chosen to present my research at the ISSCR, as well as being selected as a travel grant recipient, validating and culminating many years of hard work.

I would like to thank a lot the German Stem Cell Network for its support and for investing in us younger scientists: thanks to the network I was able to attend this very prestigious conference, whose experience was further enhanced by all the events organized by the network during the days, such as the meet-up hub and the WunderBar event on the last evening. I am very glad I had this opportunity.

Sincerely,

Giada Bacchin