GSCN Travel Award Report

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Conference: Cold Spring Harbor Meeting on Stem Cells Biology (17th to 21st September 2019)

The Cold Spring Harbor Meeting on Stem Cells Biology took place at the Cold Spring Harbor Laboratory (CSHL) from 17th to the 21st of September 2019. The venue is a well-known biomedical research centre in Long Island, which is reachable by train in almost an hour from New York central stations. It is located in proximity of the seaside and surrounded by vegetation, a naturalistic frame that conveyed a pleasant sense of relaxation, the ideal location to enjoy science and the late September exceptional warm weather.

The meeting, organized by Anne Grapin-Botton, Kenneth Zaret and Marius Wernig, gathered scientists active in different stem-cell related research fields: from naive pluripotency to reprogramming, from embryonic development to tissue regeneration. The main themes were the pluripotent state and the establishment and maintenance of cell identity in development and disease, addressing concepts of epigenetic control of stem cell states, stem cell niches and mechanisms of homeostatic self-renewal.

The program consisted of 10 talk sessions, which were scheduled until late in the evening, and 2 poster sessions, not overlapping, allowing the participants to attend all the sessions without need to choose.

The event was opened by the talk of the keynote speaker Luis Parada, whose research addresses the biology of brain tumours using mouse models. The neurobiology topic was later on carried out by other speakers, such as Francois Guillemot, who elucidated mechanisms of maintenance of neural stem cell quiescence and neurogenesis in adult mice. Most of the scientific topics focused on the use of the organoids in multiple contexts, for example to model brain, retinal, cardiac and hepatic development and diseases. Also the generation of blastoids and gastruloids, which recapitulate in a dish the earliest phases of embryonic development, was introduced as a fascinating model to solve fundamental biological questions.

As a pancreas developmental biologist, I was impressed by the talk given by Yi Arial Zeng, who revealed the discovery of a progenitor population in the adult pancreatic islets, that could give rise to insulin releasing cells in an organoid culture. This novel finding has significant implications, since the existence of multipotent cells in the adult pancreas is still debated and can be harnessed for therapeutic purposes in the context of diabetes. Another popular and interesting focus was the liver, in particular I enjoyed science regarding signalling pathways controlling liver zonation (Roel Nusse) and chromatin remodelling underlying cellular reprogramming (Lijian Hui). I also found inspiring for my research project the discussion about 3D genomic changes in cell fate transitions involving works by Effie Apostolou and Thomas Graf. Maria-Elena Rorres-Padilla presented an insight of the epigenetic mechanisms underlying cellular plasticity in totipotent-like cells, while other interesting talks illustrated intriguing concepts of intestinal (Klaus Kaestner) and hematopoietic (Elisa Laurenti) stem cell niches. During the tissue engineering session, Sara Wickstrom talked

about factors and mechanic forces governing stem cell niches in the epidermis. Findings in Ya-Chieh Hsu lab elucidated the role of melanocytes stem cells in acute stress-induced hair greying elucidate, raising curiosity in the whole audience.

I presented my poster entitled “Tgif2 acts as a regulator of pancreatic identity and plasticity” during the second session, on the 19th of September. I could interact with students from any background and the organizers themselves, who are experts in my field, that gave me valuable feedbacks, suggesting alternative explanations of the phenotypes I study *in vivo*. It was a useful occasion to present my PhD work and get more confidence in networking and sharing my data to the scientific community.
Finally, the program included social events such as a “lunch with the speaker”, to informally interact with invited speakers while enjoying the delicious food from the restaurant, a “wine and cheese” tasting and a cocktail aperitif. The closing lobster banquet, a notorious and kind of funny tradition of the CSH meetings, was unmissable.

Overall it was a formative and exciting meeting, that gave me the chance to gain an insight into the current findings and trends in stem cells research. Moreover, I was happy to connect with many international students working in different contexts and share our life experiences in research and future perspectives.

I am very grateful to German Stem Cell Network for supporting my participation to this conference, which was also my first visit overseas and an important step before submitting my doctoral thesis.