

Report of Mechanisms of Aging Conference 2022

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The Mechanisms of Aging Conference 2022 took place from 27.09-01.10.2022 in Cold Spring Harbor, NY, USA. As one of the largest Aging conferences in the world, it gathered experts on Aging from all fields of expertise including: Human Aging Interventions, Senescence / DNA Repair / Stress Response, Cell-Nonautonomous Control of Aging, Homeostasis/Stem Cells, Metabolism, Genotype/Sex-Specific Effects on Aging, Reprogramming/Clocks and Comparative Biology of Aging.

As usual in CSHL Conferences, schedule of final speakers was not disclosed until 3-5 days before the start of the conference. On the one side this increased interaction among participants a lot because we all stayed from beginning to end. On the other side, the final content of the conference was slightly unclear, which turned out being a positive surprise for me given the prevalence of neural field scientists, especially of neural stem cells experts. Of note, a whole day and many of the keynote's sessions were reserved to the key role of stem cells in aging, namely: talks by Dr. Kelsey R Babcock from Prof. Ashley E. Webb's lab (neural stem cells), Dr. Leanne Jones (intestinal stem cells), Dr Tyson J. Ruetz from Prof. Anne Brunet's lab (neural stem cells).

Getting more into detail on the neural stem cell field, it was extremely interesting to see preliminary results that linked impaired adult neurogenesis in Alzheimer's disease to defects in the quiescence of neural stem cells (NSCs), proving an hypothesis that has been suggested for long in the field. In addition, it was nice to see how the NSC field is expanding from transcriptomics and epigenome to also chromatin accessibility finding some key differences between young and old NSCs. Last, it was also interesting to see how the field is also opening up to new forms of cell-to-cell communication such as extracellular vesicles also in the brain.

Generally, on aging, a huge percentage of assistants were experts and working with either epigenome clocks or dietary and metabolism in different organs and models. These two topics were not entirely of my expertise nor interest before the conference, but it was great to learn a lot about how metabolism and diet affect lifespan, how changing human diet in more recent studies can effectively change lifespan and health life-style biomarkers and to see also the potential of these interventions in also affecting the homeostasis of stem cells, although not on the focus on the dietary restriction field.

Very importantly, I had the opportunity to present our under-revision preprint as a poster titled "Interferon regulates stem cell function at all ages by orchestrating mTOR and cell cycle". This gave me the chance to get a lot of positive feedback especially from participants working with mTOR in different organs or animal models, in which despite not working with stem cells, would see similar results upon aging, supporting the direction of my research. Of especial mention additional discussion with experts from the neurogenic field, where inflammation is being highly studied from different perspectives in the last 5 years and found our results highly relevant as they show interferon as a bona-fide regulator of stem cells and not just a side-product of inflammaging.

On my personal opinion side, I found establishing scientific network challenging in this conference as I realized the majority had US affiliations and attended with many members of their labs. In addition, all these labs had previous interactions, running collaborations and long-term relations that drove them continuously into discussions in which I would feel excluded. Nevertheless, it was worth the effort and the time as I significantly increased my network in the USA especially among PhDs and young scientists.

Interestingly, I would like to highlight the absence of Industry booths in this conference, which made it extremely academic. However, the interesting presence of speakers belonging to managing committees of pharma industry, consulting field and many early-career researchers belonging to the recently-established biotech anti-aging companies AltosLab and Calico.

Last, I would like to thank the German Cancer Stem Cell Network for granting me with this opportunity and funding my trip and participation with 1,000 eur. This networking and knowledge-expanding experience was outstanding and will be a remarkable step in my next career steps as a researcher. I would like to also highlight that going to my first stem cell USA conference I also learnt that the Annual GSCN Conference has nothing to envy to US conferences, contrary to the wrong stereotypes I had.

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