

Report on Hydra XII Summer School

I would like to thank the GSCN travel grant for giving me the opportunity to attend the Hydra XII Summer School on Stem Cells and Regenerative Medicine. The summer school focused on fundamental stem cell concepts and extends from molecular networks to breaking therapies.

The talk given by Marc van de Wetering, a postdoc from Hans Clevers lab was particularly interesting to me as it is relevant to my research focus. He spoke about the importance of Wnt signaling in the maintenance of the intestinal stem cells. He explained that the fast renewal of the small intestine was not merely due to the high proliferative activity but can also be related to the plasticity of the early stem cell progeny. Using the 3D organoid culture system, their lab has established living biobanks, which allows large-scale mutational analyses, drug screens and personalized therapy.

One of the speakers and organizers of this event was Kim Jensen. His work focuses on tissue homeostasis along with understanding the molecular mechanisms during development and disease in the skin and intestine. He highlighted the different models proposed for the differentiation of the skin stem cells and explained the mechanisms behind the various types of skin cancers. He then focused on the fetal intestine development. He presented data identifying the key molecule, Wnt3A, which is capable to convert fetal enterospheres into mature intestinal organoids.

Matthias Lutolf spoke about his work on building artificial stem cell niches using different biomaterials. His lab is building designer extra cellular matrix to mimic the functionality of an organs microenvironment. He aims to combine self-organizing stem cells with biomaterials to replicate the native organs. Jochen Rink introduced us to planaria as a model organism. His talk focused on the continuously active stem cells called neoblasts. There is an inside out flow of the epithelial progenitors, which helps in turnover during regeneration. Wnt acts as a molecular switch and has prominent effects in the body plan patterning.

There were talks, which centered on the ethical issues in science. Göran Hermerén raised the importance of the ethical aspects of gene testing and stem cell research. We had a debate session with a hypothetical topic given to us and had to debate fellow PhD students. This was very challenging and made me think of the ethical implications of our work.

In the summer school, I had an opportunity to interact with the faculty in small and informal discussion groups. I was able to discuss topics I was interested in and further clarify points from the presentations.

Personally I benefited from the poster session wherein I got a lot of feedback regarding my research and possible experiments that could help me decipher certain aspects I deal with. I was able to interact with fellow PhD students and learn about the various fields they work on.

The Hydra XII Summer School was a perfect opportunity for me to engage with pioneers as well as fellow PhD students from all over the world. The summer school was a great success and once again I thank the GSCN for supporting me.