



Biomedicine Travel Grant report

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Conference: Tissue Engineering and Regenerative Medicine International Society (TERMIS) – Asia Pacific (AP) 2022

Place and Date: Jeju Island, South Korea, Oct 5th – 8th, 2022

First of all, I would like to thank Biomedicine program for their support on my participation at Tissue Engineering and Regenerative Medicine International Society (TERMIS)-AP 2022. TERMIS-AP is the conference that hosts the meeting of the scientists working in various topics on tissue engineering and regenerative medicine field. In this event, people from 33 countries shared their ideas about their current works, future plans and potential collaborations. With the theme of the conference, many talks and posters focused on developing new applications of engineered cells and establishing new methods for 3D cell culture. In addition, several sessions were dedicated for cultured meat production and organoids.

On the first day of the conference, Paulo André Nóbrega Marinho gave a talk about “Effect and application of cryopreserved three-dimensional microcardiac spheroids in myocardial infarction therapy”. In this study, they produced microcardiac spheroids from patients derived iPSCs and injected them to myocardial infarction model. To improve the regeneration potential of the spheroids, they identified the cell surface marker CD71 that is abundant in the functional (beating) cardiac spheroids and injected Cd71 purified spheroids. Injection of functional cardiac spheroids enhanced the survival of functional cardiac myocytes in hypoxic environment in vivo and improved their therapeutic effects.

In addition, there were many interesting talks related to disease modeling using patient-derived iPSC organoids. One talk given by Dong-Hun Woo from NEXEL was about “Modeling heart disease using hiPSC-derived cardiac organoids”. Their lab generated the iPSCs derived cardiac organoids and demonstrated that their organoids can mimic MI environment under hypoxic condition and heart fibrosis under TGF-beta treatment. Another talk titled “Alveolar organoids from human pluripotent stem cells: research and applications” given by Seok-Ho Hong focused on developing alveolar organoids composed of alveolar type I and type II epithelial cells. They also treated TGF-beta to their organoids and induced lung fibrosis model which further can be used for patient specific drug screening. These in vitro organoid platforms will be beneficial to evaluate the effect of the potential drugs or toxins in patient specific manner.

While learning from other talks, I had a wonderful opportunity to give a talk about my current work in SYIS ‘Stem cell engineering’ session. After my presentation, I was able to discuss with other students about the project including in vivo study and some suggestions that may improve the project further. And personally, it was a very precious experience to present my work in my hometown as well as at the international conference. Most importantly, I received the best oral presentation award in SYIS oral session which I think is a great achievement.

In conclusion, I would like to thank again Biomedicine program for their support to enable me to be there in the conference and to have this unforgettable experience during my PhD. It was challenging to go all the way to S.Korea and present my work in front of the international audiences in person (also in a very short time), but in the end everything was successful.