

Report for 2021 Biomedical Innovation and Entrepreneurship Training Course for SPARK Asia and Oceania

Yukiyo Shimizu, MD, PhD

Department of Rehabilitation Medicine, Faculty of Medicine, University of Tsukuba

Feb 22-Mar 6, 2021

Venue: Online via Zoom and Microsoft Teams

Contents of the Seminar

1. Lectures
2. Workshops
3. Exercises
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1. Lectures

We had at least a 2-hour seminar each day by various specialists from Stanford University, the University of Technology Sydney, etc.

The themes of lectures included design thinking, intellectual property, proof of concept, and drug repurposing. We also learned how to give effective presentations. Based on the knowledge we learned from those lectures, we had to do activities with team members in workshops.

2. Workshops: Developing novel skin cream "Skin Rehabilitator"

All participants were allocated to each team of three or four members. In our team, three other members came from Taiwan, two were master's degree students, an osteoblast researcher, and an environmental researcher. The other was an ENT surgeon.

The first topic in the workshop was clinical problems in oral cancer treatment because Taiwan has a high incidence of oral cancer. Each team discussed it, and many teams focused on the risk factors, such as smoking, alcohol, and betel nuts. Our team focused on the cosmetic problems regarding cancer.

As we had different backgrounds, it was difficult to find similar interest; therefore, we decided to focus on the first topic "cosmetic problems derived from oral cancer".

Oral cancer patients have to undergo surgery and/ or chemoradiation therapies. Most of them have skin troubles. Cosmetic problems may trigger psychological problems and have a negative impact on the quality of their lives.

Our team project aimed to develop novel skin cream that can heal skin wounds rapidly, retain skin moisture, and enhance patients' QOLs. We named it "Skin Rehabilitator". We chose three ingredients.

The first was growth factor that can coordinate skin cell growth and division. The second was MAA, marine organisms that can protect skin from UV. The last was Chinese herbs.



Our IP strategy was a combination of three materials, those consent ratios, and how to combine to keep each component active. We considered that anti-inflammation effect was the key; therefore, we set reduction of inflammatory cytokine as proof of concept as well as reduction of scar size in mice models. We also set the price compared to competitors, researched marketing and discussed the possibility of global success.

Honestly, other members could not spend a lot of time for workshops due to their classes, experiments, or surgery. As I had adjusted my schedule to focus on this SPARK, I could spend much more time preparing for exercises and workshops. I had to handle the discussion of our team and categorized our topics into four parts, and assigned other team members each topic.

The SPARK coordinator Michael and Isabella gave great support to us. Michael introduced us Stella Valenzuela, a professor of University of Technology Sydney. She is a specialist of molecular biology. She gave us great advice. For example, setting practical milestones, the idea that repurposing of growth factor, etc. It was a great experience for me to talk with such a specialist.

After a discussion with Stella, I shared her advice with other team

members. In the end, we could cooperate with each other to discuss developing this "Skin Rehabilitator".

3. Exercises

We had to submit two exercises. The first one is a project report and the second one is a patent report. We had assigned responsibilities of each part and prepared the reports.

4. Presentations

We had to give two presentations. One is a five-minute pitch. We gave the presentation on Mar 3rd. Each member spoke for around one minute. After the first presentation, we focused on the marketing, patents, and practical goals. We discussed the last presentation around 9 pm one day before the presentation.

On Mar 6th, we managed to give a presentation for Skin Rehabilitator. Each member spoke for around four minutes and finished each responsibility. Finally, we finished our SPARK assignments.

Summary: What I learned through SPARK

I learned some key elements for developing innovative products. First is that we have to deeply understand unmet need. We need to know what end-users really want. Second, setting a practical goal is significantly essential. Considering optimal proof of concept is the key to succeed in development. Last, creating such a medical device requires a solid team. Now, I've been developing some medical devices as a medical specialist with great team members. I am really enjoying it. I am responsible for evaluating optimal end-users, ensure safety and enhance product possibilities.

This SPARK was really tough, but a precious experience for me. Honestly, it was difficult to join such a two-week international seminar, because I am a mother of two children as well as a medical researcher. Even during the pandemic, we could learn a lot from great mentors, and team members with different backgrounds. I am grateful for the opportunity to participate in this seminar, and I appreciate all mentors, members, rehabilitation doctors and therapists of our hospital for their support.