

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

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Overview: The yearly training course on innovation and entrepreneurship in the field of biomedical development organized by SPARK Asia and Oceania was held online this year from Feb.22 to Mar.6, using Zoom and Teams online meeting applications. The main contents of the course were lectures and workshop. Throughout the course, questions were taken and answered, and supports were provided, by the organizers via chat and video conversation.

Lectures: The lectures, given by experienced mentors in the field, covered biomedical development especially pharmacological development, including problem definition, design thinking, proof of concept testing and market fitting, domestic and international IP application, evidence collection, FDA submission, pitching and financing, and business modeling.

Workshop: The participants were separated into groups of around four persons to work on a role-playing simulated hands-on project to plan entrepreneurship based on development and production of biomedical products. My group had an otorhinolaryngologist, a healthcare scientist, and a chest surgeon, from Taiwan and myself. Based on combination of the expertise of each member, we decided to propose a robotic system for assisting tongue function during eating of patients after tongue resection surgery. After the surgery, flap is used to reconstruct the tongue shape but since it is immobile, swallowing function is impaired. Therefore, the idea of the device was to make the flap mobile to help sending the food to pharynx by an embedded piezo actuator driven by microcontroller and battery covered in artificial membrane. We named the device 'TonBorgue'. We did not find similar patents. The timeline was scheduled so that the first six months is spent for the development of the initial prototype, and then followed by safety and function assessment in animal experiments, then presubmission for FDA was planned in Class II.



The market was estimated worldwide.

Conclusion: In the two weeks period, the training course covered the fundamental topics of biomedical innovation and entrepreneurship in an organized manner efficiently, but actively at the same time, while interactive and hands-on training was promoted to the most. I would strongly recommend students and staffs of the university to consider attending the course. The course would be very informative not only of course for those who are interested in entrepreneurship, but also for pure academicians because biomedical technologies are by nature intended for humans, and humans are in the society.