

The report for the internship at a Japanese company in the MERIT curriculum

(2016/8/15~2016/9/30)

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Abstract

I took part in the internship program at Nanotis Inc. for a month and a half (2016/8/15 - 2016/9/30). Nanotis Inc. is a venture company established in June this year and has been working on the development of medical diagnosis devices based on MEMS technology, the detection technology for biological molecules and microfluidics technology. In this internship program, I experienced unique research and development of the venture company through working on the problems which conformed to actual business such as a study for the model structure of a microfluidic device using a new analysis technique and market research toward sales and distribution of future products.

Activities

I researched and studied about detection principles, materials and modification of materials used in the microfluidics device and tried to design the product model and plan the product flow for the prototype development. In order to design the appropriate prototype model, it was thought to be useful to research and understand the techniques and issues of ready-made devices. I proposed the candidates of the detection principle and materials which had a high affinity for the new measurement technique by researching and comparing with some ready-made devices used inside and outside Japan. Moreover I evaluated these candidates from the view point of the reaction rapidity and so on through experiments. Based on these results, candidates of the detection principle, flow structure and materials were narrowed. On the other hand, I learned that it was very important to plan the product flow, predict potential problems and risks in each production process and prepare the second plan for efficient product development.

Summary

Since Nanotis Inc. is a venture company established in June this year, I learned how to work out a plan and how to decide a priority in the period of starting up of a venture company through this internship program. For example, about the financing, it was very important to show the product prototype and the plan of product development to investors at an early stage in order to explain the product concept and appeal to investors in a persuasive manner.

On the other hand, I recognized the gap between the research activity in university and the product development in company through this program. They were different in the priority, particularly. For example, in this venture project, the speed to promote the technical ideas to real products was the most important. On the other hand, in the research activity in university, it takes too much more time to optimize parameters and conditions. Moreover I understood that the product development in companies was proceeded for the mass production. In the mass production, a lot of products which have adequate and homogenous performance have to be produced, so risk management for each product process is very important by planning the product flow. Through this program, I learned how to think and feeling of value in the field of product development which is difficult to learn through the research activity in university. I think this experience is very useful to recognize and deal with the gaps between company and university and helpful for my future career.

Acknowledgement

In this internship program, I received a great help from Ms. Sakashita who is a CEO of Nanotis Inc. and Mr. Arata who is a CTO. Ms. Sakashita told me a lot of things such as how to think the business model and a course of action of a venture company in the period of starting-up from the business side. Mr. Arata taught me many techniques about microfluidics devices and biomolecules detection. I would like to express the deepest appreciation to the both of them. I would like to thank Prof. Sakata who is my supervisor and permitted me to participate this internship program as a good chance to expand my view. Finally I would like to thank MERIT program which gave me a valuable chance to learn as long-term internship program.