

Report of MERIT Long-term Overseas Dispatch (2016.1.10–2016.3.21 University of Florida)

Masahiro Hatazawa

Department of Chemistry and Biotechnology, Graduate School of Engineering

2nd generation student of MERIT

I worked for Sumerlin Research Group in University of Florida as a visiting student from the 10th of January to the 21st of March, 2016. For this visit, I used the MOFA “Student Internship program” for the matching and financial support. During this visiting, I could know the research environment and research management in one of the top polymer lab. And I also understood the culture of other country’s people through the many lab discussion, room share with Korean student and party at the home of Prof. Sumerlin. This made me confident and positive for my future vision.

• The research in Sumerlin Research Group

For my visit, Prof. Sumerlin and Mr. Bryan Tucker prepared the new project about polymer-protein conjugation to respond to my request, “I want to do the project about protein”. The first project was the synthesis of new water-soluble RAFT polymerization Chain Transfer Agent which will be used for the connector between polymer and protein. The water solubility will make a functionalization of protein with polymer easier. The other project is the synthesis of polymer’s library that have the same molecular weight and different number of branch to attach for some proteins. After the synthesis of polymer-protein conjugation that have different branch in the polymer, those conjugations will inject to the mouse and investigate the property changes in the mouse’s body. These types of project have been carried out by Mr. Tucker in the Sumerlin Research Group and these are completely different from the project in the Nozaki lab. As a result, I gave up the first project in the middle of my visiting because of the synthetic difficulty of that molecules. Then, after the discussion with Bryan and Prof. Sumerlin, I concentrated in the second project and I synthesized 6-types of polymer-protein conjugation finally. The characterization of polymer is quite difficult, but I suggest some



Party held at the home of Prof. Sumerlin

measurement to do.

- **The research in Sumerlin Research Group**

In the Sumerlin Research Group, people are synthesizing the various kinds of functional polymer via the control of polymer structure and network by using the living radical polymerization method. Recently they eagerly conducted the project about “polymer-protein conjugation” and “self-healing polymer material”. Furthermore, they have many collaboration works with other laboratories such as Vogt lab.

- **Interaction with local people and students**

With Bryan Tucker, I told a lot. We frequently discussed about the difference between American lab. and Japanese lab. And he sometimes taught me the weak point of American lab. Mr. Kubo, the Japanese student of Sumerlin Research Group, did not prevent my interaction with local people but in the Friday night, he taught me a lot about the American lab. culture. I taught him a lot about Japanese lab. culture and recruiting activity in Japan. All other lab. members were very gentle and kind for me and talked a lot with me in the party at the home of Prof. Sumerlin.

- **The good point and weak point of Japanese lab.**

In Japan, for the sake of academic chair system, many faculty staff coach every student's experiment very kindly. American people said that this is the good habit. On the other hand, they said that “No limitation of time for research” and “Too long meeting and too many meeting” is bad habit of Japan. In Japan, many labs are doing too long meeting every week, many times. For that meeting and for the preparation of meeting, student spend many times. That limited the research time and that connected to the too long working time of Japanese lab. On the other hand, American lab spend a minimum time for the meeting and preparation of that. They don't require the presentation practice in lab because they practice presentation in the class of University. So, if we can shorten the time for the meeting, it can improve the efficiency of Japanese lab.

- **Acknowledgement**

I'm really grateful to the MOFA (Ministry Of the Foreign Affair) for coordinating the Internship program for students and many financial support. This visiting was really good opportunity to know the culture and research of United States of America. I'm now really want to do the work in United States. Thanks MERIT program for the financial support, Prof. Nozaki and Prof. Sumerlin for the fruitful discussion and advice for me, the lab secretary, Mr. Frank Farley for helping my many paper work in Florida. Mr. Bryan Tucker and Tomohiro Kubo for support my lab. life and research, other lab members and room-mate Mr. Kim for the good relationship and interaction.