

NIBB-Princeton Joint Proteomics Training Course “– Protein Identification, Quantification and Characterization –”

- Period: July 19 (Wed) – 21 (Fri), 2017
- Participants: 17 (including 4 from NIBB)
- Organizer:
Dr. Naoto Ueno (NIBB), Dr. Shuji Shigenobu (NIBB)
Dr. Ileana Cristea (Princeton Univ.)
- Lecturers:
Dr. Ileana Cristea (Princeton Univ.)
Dr. Todd Greco (Princeton Univ.)
- Program:
Lecture 1: Introduction to Mass Spectrometry and Proteomics
Lecture 2: Protein quantification
Lecture 3: Protein interactions
Lecture 4: Protein posttranslational modifications
Tutorial 1: Manual interpretation on MS/MS Spectra
Tutorial 2: Quantification: introduction to software
Tutorial 3: Hands-on data analysis
Hands-on 1: SDS-PAGE staining and imaging, Gel band excision and dehydration, In-gel digestion
Hands-on 2: Peptide extraction, LC/MS/MS analysis, Demonstration of Mass Spectrometer

As part of international collaboration and cooperation with Princeton University, we held a proteomics training course “NIBB - Princeton Joint Proteomics Training Course 2017 - Protein identification, quantification and characterization -” from July 19 to 21, 2017. Over the three-day course, we conducted lectures and hands-on training to master principles and measurement techniques on protein identification and quantification by mass spectrometry. From Princeton University, Professor Ileana Cristea, who is a head instructor of the summer Proteomics Course at the Cold Spring Harbor Laboratory and a prominent virus researcher using proteomic approaches, was invited as one of the organizers. Dr. Todd Greco, who is a researcher at Cristea’s Laboratory, participated in the course as a lecturer. Participants were selected based on their applications. From 26 domestic and overseas applicants, 17 people, including four NIBB members, participated in the course. There was a wide range of participants including graduate students, postdoctoral researchers, and

faculty members and staff of various universities and institutes. Three of them were graduate students and postdoctoral researchers belonging to universities in Japan from foreign countries.

Professor Cristea was mainly responsible for lectures on proteomics from theoretical background to applied research. The hands-on training was supported by the NIBB faculty and staff, and the participants themselves prepared and analyzed protein samples extracted from *Xenopus* embryos. The lectures and hands-on training for bioinformatics of proteomics analysis was handled by Dr. Greco, and the participants conducted data analysis exercises based on the results obtained from the hands-on training using a computer deployed for each group. Due to being divided among four groups, participants deeply interacted with their partners, and lectures and hands-on training were held with active discussion.

Through the preparation and conduction of the course, I believe that the connection between Princeton University and NIBB researchers has deepened. It was also a good opportunity for us to learn the cutting edge analytical techniques used by Princeton University. We gained a lot of hints that I believe will be useful for Collaborative Research Projects for Integrative Genomics utilizing mass spectrometers.

Shuji Shigenobu (On behalf of the Organizer)

