Report of Students Exchange Program 2014 at Osaka University, Japan

Supervisor : Prof. Ueda Keiji

Sensei : Eriko Ohsaki

Name of student : Meilani, drg (Master Course student, Airlangga University)

I had the opportunity came to Japan to follow the Medical Frontier Program at Graduate School of Medicine, Osaka University from January 8 to March 22, 2014. The activities during stayed at Osaka University was to conduct short experiments at Virology Laboratory related to the purification of Hepatitis B Virus polymerase.

Virology Laboratory

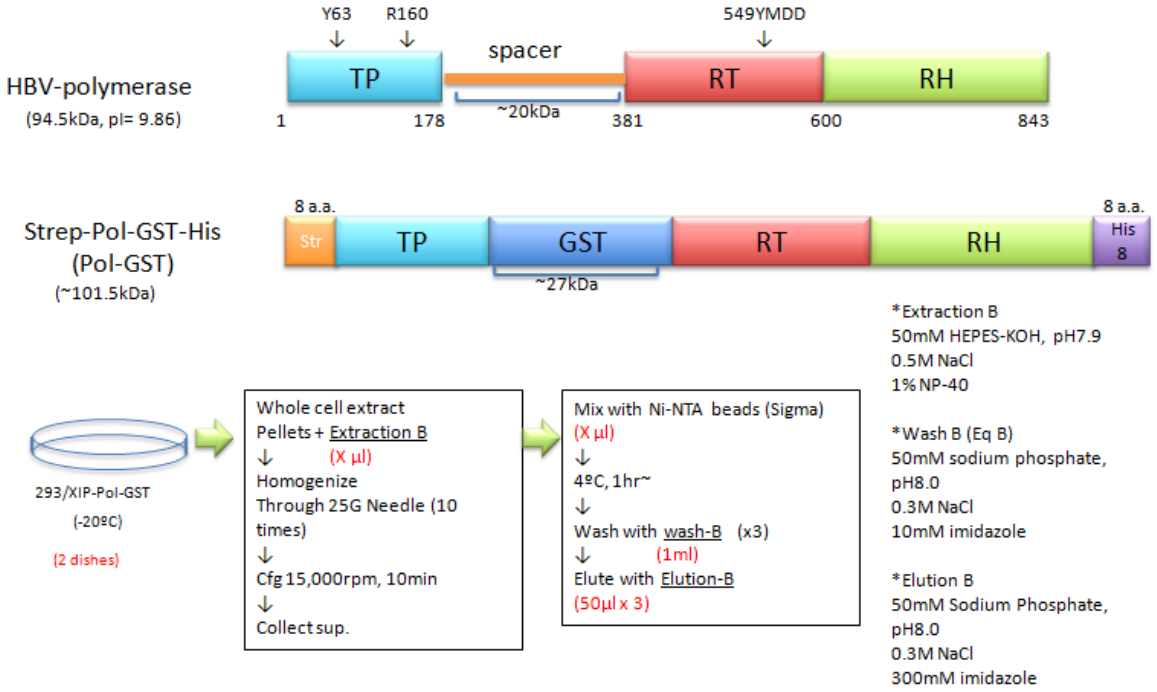
Virology Laboratory is headed by Prof. Ueda Keiji located on seventh floor of Graduate School of Medicine/Faculty of Medicine, Osaka University at Suita campus. Three associate professors support Prof. Ueda to carry out the laboratory systems, research activities and also assist the students. The main research in this laboratory dealing with KSHV and HBV. There are many students working in this laboratory, some of them are foreign students come from China, Bangladesh and Indonesia. The laboratory are equipped with excellent equipments to support the research activities. All of students seemed to enjoy working very hard in order to achieve their goals. They also are very helpfull to new students, teaching them about the systems and the research methods used in laboratory. The Journal Reading is performed every Friday to increase the researchers and students knowledge by presentation of the researchers or students, and Progress Report is conducted every Tuesday to report the result of the research.

Research Activities

My activities during work at Virology Laboratory, generally would be classified in two terms. Almost all of the first month was used to learn about the laboratory systems and also the research methods are used in the laboratory, and the rest of time, more than two months, were used to conduct short research. Now, these laboratory are trying to establish the in vitro assay of HBV polymerase. So, the aim of my research was to purificate the HBV polymerase. We

hope these activity will help us to elucidate the molecular mechanism of HBV DNA replication and suggest to establish the new theurapeutic strategy. The results of purification checked by Western Blot and CBB machines.

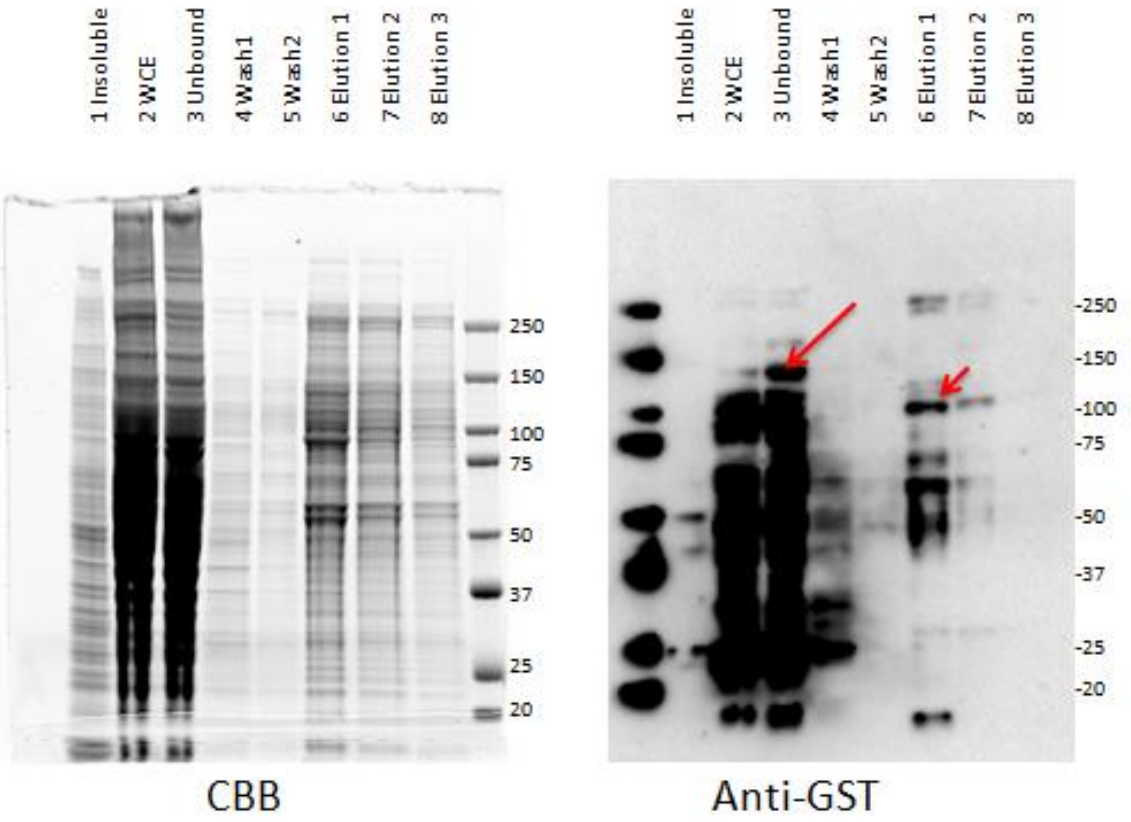
The purification of Pol-GST from 293 cells



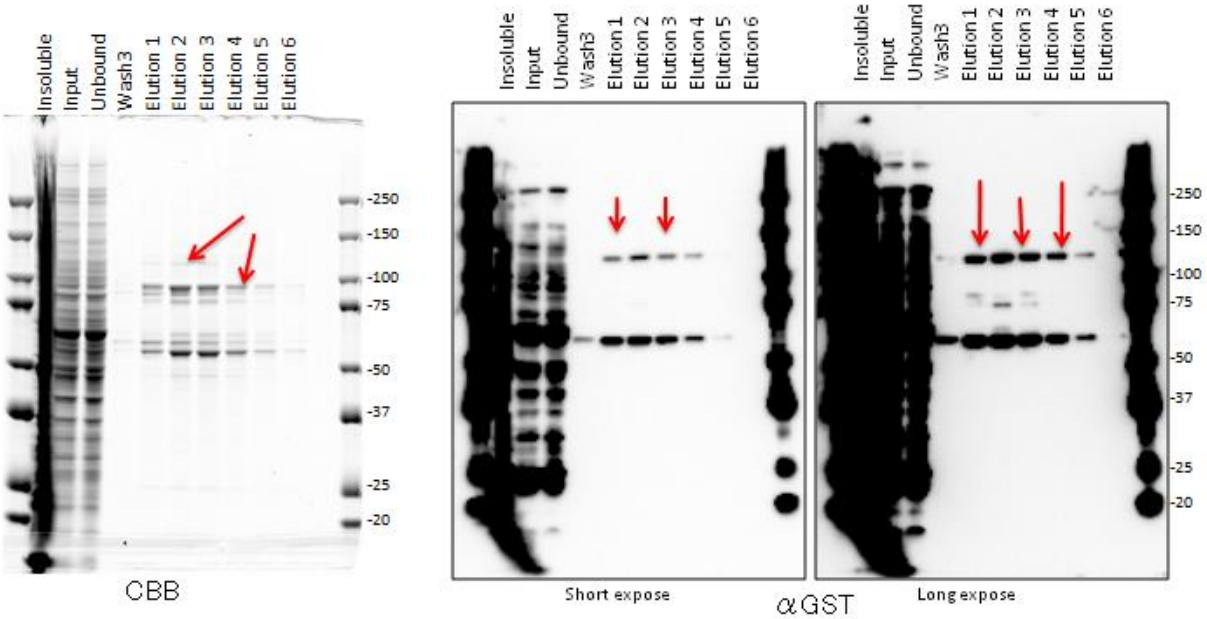
Pic.1.

The picture 1 shows the base method that we used to purificate the HBV polymerase. We used many conditions with different volume of Buffers, cells condition, and volume of elutions. We applied the α-GST and HRP from mouse antibodies as the first and second antibodies to bind with the Pol-GST.

Result



Pic.2



Pic.3

From many conditions that we tried, we got the good result as showed in Pic.3. The bands which shows by the red arrows were suggested as the specific target protein. This was because the band positioned between 100-150 kDa. But these result still didn't the pure protein yet, because we can see other bands which were non-specific protein in the bottom. These conditions also didn't reproducible yet, because if we tried again in the same condition it showed different results.

In these study we also tried with Gluthatione sepharose Gel for binding reaction. But purification Pol-GST used Nickel-Affinity Gel gave better result than Gluthatione sepharose Gel to bind with the Pol-GST. We concluded that we should paid attention in harvest time of the cells, in beads volume and also elution volume that we will use to purificate the Pol-GST.

Osaka city sightseeing

Besides laboratory activities, of course during holidays I enjoyed the beauty of the city at Osaka. Good public services were impressed me such as good public transportations, clean environments, helpfull people, and low criminality incidents. I felt so lucky to visit Japan this time because I met winter (for the first time i felt snow) and the beginning of spring season that makes Osaka city was very colorfull along the streets, super markets, stations and many other places. Also there are many interesting places to see such as Osaka castle, Aquarium Kaiyukan, Universal Studio of Japan (i didn't enter because the ticket price too expensive), Shinsaibashi area that very famous. But unfortunately i cann't see the cherry blossom because it wasn't bloom yet at the time i have to go back to my country.

in front of Osaka castle

Conclusion

This Medical Frontier Program has provided many advantages to me to improve my knowledge, my laboratory skills and also my research experiences, esspecially in HBV fields. I believe all that i have been studied during at Osaka University will be very usefull for my research activities and my proffesion in the future, esspecially for completing the research for my thesis in Master course degree at this time. I really enjoy during my stays in Osaka. Thank you very much.