



Final Report on Erasmus+ Internship

Internship in UCB Pharma S.A. Headquarters, Upstream Process Sciences Department

1. Internship Preparation

Working abroad and getting the chance to interact in multicultural environments is beyond any doubt a constructive experience for any engineer that wants to evolve his/her skills and abilities. Nowadays, more and more international companies employ people from different cultural backgrounds and it is certainly of great importance for future employees to already have gained experiences from working abroad in order to get accustomed to new environments easily and be able to collaborate with their international colleagues effectively.

As a master student focusing in advanced processes and bioprocessing, I was always keen in collecting some experience within industry while working abroad. Pharmaceutical industry specifically is the domain that interested me the most. After reviewing many websites of companies in this field, I have made applications in companies that offer opportunities for internships. Searching for an internship in pharmaceutical industry and specifically in research and development departments can be proven really challenging and time-consuming. Thankfully, UCB Pharma S.A. offers every 7-8 months a limited number of positions for internships.

After my application was received by the department, an 1-hour phone interview was arranged, where discussion has been made concerning the internship context and what is expected from the candidate. Various questions were asked concerning my previous work experiences and the experience within the field of biopharmaceuticals. Also, questions regarding my educational background in relation to bioprocessing were asked. After

successfully completing the phone interview, I was informed at a later point that I was selected for the position.

2. Accommodation and Transportation

The UCB Pharma site is located in Braine l' Alleud, 30 km south of Brussels. There is the alternative to live somewhere close to the site in the small town of Braine l' Alleud or in Brussels and commute to UCB daily by train and bus. I have chosen to find a room in the city of Brussels, since the offered rooms are more in the capital city and also there are more choices in terms of entertainment and social life. The travelling time from Brussels to UCB site was around 45 minutes. The transportation system in Belgium is supported very well with regular trains, metro lines and buses. It is possible to buy a monthly card and for young people under the age of 26, this card is offered with a significant reduction in price. Car-pooling is also possible and can be arranged with your colleagues.

Concerning the search for a room, it is true that the prices in the city of Brussels are quite expensive in comparison to the small towns outside of Brussels. It is possible to find a room in a flat-share at prices commonly around 420-550 Euros per month. If you choose to stay in the small towns of Braine l' Allèud or Waterloo, the price can be reduced up to 100 Euros per month.

3. The Company and the Internship

UCB Pharma S.A. is a multinational biopharmaceutical company with revenues of €3.3 billion that focuses primarily on R&D, specifically involving medications centered on Epilepsy, Parkinson's, & Crohn's diseases. The Company's efforts are focused on treatments for severe diseases treated by specialists, particularly in the fields of central nervous system (CNS) disorders (including epilepsy), inflammatory disorders (including allergy), and oncology. UCB has already developed and launched in the market various medicines based both on chemical formulas as well as on biological origin.

My 10-month internship was based in the Upstream Process Sciences Department of the Research and Development section and it was focused on bioprocessing. My main task as cell culture process sciences intern was the participation in ongoing process development activities for an upstream manufacturing process (monoclonal antibody production from CHO cells in

fed-batch model). I have worked with shake flasks, wave culture bags and 2L/10L scale bench-top bioreactors as well as 50L single-use bioreactors. I had also the opportunity to work with harvest equipment for cell culture and primary recovery processes. Furthermore, I conducted laboratory cell culture experiments to investigate the impact of operating process parameters on cell growth and productivity as well as on the quality of a model recombinant protein.

During my time in UCB Pharma, I gained practical experience in working with CHO cells producing recombinant antibodies including: aseptic cell culture handling, medium preparation, shake flask cultures, bioreactor cultures in various scales, cell culture harvest, at-line analysis, titer quantitation, antibody purification with HPLC technique, cell banking techniques. Knowledge was also gained on the development of monoclonal antibody production, quality attributes of monoclonal antibodies and use of data analysis tools. A fundamental understanding of biologic drug development was therefore achieved and it was possible for me to have an overview of all the related actions that are taken in the UPS for process development with cell culture.

Moreover, weekly one-to-one meetings were arranged with my supervisor so that a continuous feedback and mentoring was possible. Through these meetings, my personal overall progress was easier tracked down while discussions and explanations were given for any activity planned in my personal calendar. Questions and vague points were also resolved during these sessions and therefore a meaningful interaction could be established that was useful for both sides.

Regarding the working hours, I was working the normal working hours and I was present 5 days per week and 8 hours per day. It needs to be mentioned here that sometimes weekend work is required and some colleagues need to come on Sunday or on Saturday in order to sample the bioreactors and feed the cells. The colleagues that work one extra day per week in the weekend have the right for one extra day off in order to compensate.

The main language that was used in the company was English, even though a lot of French people work in the company. As a result, I have learnt French at a basic level. However, meetings and work conferences were conducted in English.

4. Intercultural Experience and Student Life

Brussels, the capital city of Belgium, is an international city that hosts many of the European institutions. Since there are a lot of European citizens that work here, English is very often used and people can easily communicate and interact in English. Belgium is a country with 3 official languages: French, Flemish and German. Depending on the area that you live, the main language used from Belgians can be different. In the Brussels region, most Belgians use French.

Since Belgium is a comparatively small country, it is possible to explore it with the Belgian railways that run daily with frequent routes. During weekends, the ticket to every Belgian city and back to your starting point costs only like a one-way ticket. Belgium is famous for its beers, fried fries and waffles. Brussels is a renowned destination and many tourists go around the vivid capital city for sightseeing.

There are 2 big universities in Brussels: ULB and VUB. Each one of these universities offer French and Flemish language courses. Student associations and ERASMUS groups are also to be found in these universities and can help you with the social life in Brussels.

5. Conclusion

My stay in Belgium was undoubtedly a constructive experience that will help me a lot for my future professional career as I have earned significant work experience for 10 months in a real industry environment. During this internship, I gained valuable knowledge concerning the pharmaceutical industry and I became acquainted with many techniques and methods used primarily in biopharmaceutical process development. My internship helped me to understand that I want to stay in the field of pharmaceuticals and medicines in the future by giving me insight in the industry.

I had also the opportunity to work and interact in an international environment with colleagues from different countries, who helped me a lot and showed many aspects of the performed job. My time in UCB and in Belgium generally was a high-quality time and has taught me a great number of lessons. I value highly the time that I spent in Belgium because I became more professional in many ways and I gained significant knowledge and skills. It was a very positive experience and I am very happy I had the chance to live it.