School: High Energy Accelerator Science
Department: Materials Structure Science
Name: Simin Rahighi
Receiving University: Goethe University Medical School, Institute for Biochemistry II
Period of stay: 1 month

Institute for Biochemistry II in the Goethe University Medical School is a very well equipped and organized interdisciplinary department.
My PhD project (role of Ubiquitin in regulation of cellular signaling pathways) is directed in collaboration with Professor Ivan Dikic, leader of the molecular signaling group at the Institute for Biochemistry II. Since working on this project I could have solved the structure of the ubiquitin binding domain of NEMO(Nuclear factor-κB essential modulator) protein (data not published, yet). Structure reveals a highly interacting coiled- coil, homo-dimer. So, as the aim for this project is to define how NEMO and its binding to ubiquitin can affect the signaling pathway in the living organism, I decided to introduce mutations to the amino-acid residues which seemed to be interacting in the dimer structure. So that we could check first, the importance of those residues in the formation and stabilization of the dimer and second, if mutation of any of them can disrupt the dimer formation then, how this destabilization can affect the ubiquitin binding of NEMO and consequently activation of the NF-κB signaling pathway. During my stay in Professor Dikic's lab I started making mutations and learned about the mutagenesis conditions and procedure. Also, I learned techniques related to the binding assays including human cell manipulation, western blotting and pull down.
Although, one month was not enough to finish the experiments and get to the final results, as each result needs to be confirmed by repeating the experiment. However, I am now able to perform most of the experiments, excluding the signaling activation assays, by my self, here.
In the other hand, having discussions with the scientists who were most involved in the pure biological work was very helpful for me to extend my knowledge about the biological view of my thesis and plan other useful experiments than only crystallographic.

Although, I did not know German language I did not encounter any problem for communication as the lab was very international and they were all speaking in English! The seminars and reports were also presented in English and I could easily get involved.
Regarding the expenses the grant could only difficultly cover everything including traveling, living expenses and transportation. So, I think that it would be much better if the amount of this grant would be more flexible according to the destination country expenses.
And , the most important point or better to say difficulty was the short duration of the trip. This is the usual trend that in order to get involved to the experimental work in an unfamiliar lab, one needs a bit of time to get to know even how very routine things are going. But when the time is very short all these things together with the rush to do the experiments and get the results will cause too much pressure on the researcher which can also affect the yield of the work. So, I believe that this very nice program can be much more productive if it would be a bit longer.