The highlights of the WFH/ITHC fellowship training curriculum for Molecular genetics at the Department of Pediatrics, Nara Medical University

Our department is one of the largest leading facilities running molecular diagnosis and analyses of hemophilia in Japan. Our hemostasis group consists of staff physicians/ scientists specialized and dedicated to the care for patients in thrombosis and hemostasis, especially hemophilia.

One of the essential parts of the molecular diagnosis and analysis in this field is genotyping. The blood samples from all over Japan has been sent to our facility and genotyping for hemophilia patients has been performed for clinical and scientific use for more than 10 years. The devices required to genotyping, such as thermal cyclers for PCR, DNA purification systems and the DNA sequencing machine, are well equipped and readily accessible in our clinical hemostasis laboratory. The participants of our training program are welcome to experience the genetic analysis and learn the essential techniques in molecular biology.

We have extensive experience in teaching fellows and can proudly offer most of the basic techniques of molecular biology required for genotyping in hemophilia, such as DNA extraction, PCR, electrophoresis, and direct sequencing methods. The participants are expected to learn these assays in our actual patients. The clinical case conferences which involve genetic issues i.e. carrier detection in hemophilia with the specialists can provide the chance to brush up their sense of ethics and knowledge on genetics, such as the mechanisms of the mutation occurrence in the DNAs, Mendel’s Law, the principle of lyonization. Additionally, it is also possible to participate in the gene counseling if the patient consent is obtained.

On the completion of this program, the participants will be able to recognize the significance of the molecular diagnosis and perform the genetic tests in hemophilia by their own. They will also be able to enhance their research activities with molecular biological techniques. We are also running some basic research projects involving the technique of molecular biology. Participants can experience these advanced molecular biology such as mutagenesis, tissue culture, trasnfection and recombinant protein production. Finally, we are always flexible to modify the fellowship program to fulfill the request of them.