

**European Network on Myalgic Encephalomyelitis/Chronic Fatigue Syndrome
(EUROMENE)**

COST action CA15111

Report on Training school

From **24 June – 29 June 2018** the **2nd summer school of EUROMENE** took place at the Institute of Medical Immunology, Charité Berlin. Under the topic “**Summer school for translational research in ME/CFS**” 12 international trainees, 3 external lecturers and 6 lecturers and trainers from Charité met for a week to have lectures, seminars, discussions and practical courses. The meeting started with a come-together and introduction on Sunday evening. The workshop had 5 topics.

The first day was on **Clinical approach to ME/CFS**. It started with short presentations about the background and work of the students participating in the summer school. **Carmen Scheibenbogen** and **Patricia Grabowski** gave an overview on the complex differential diagnosis and pathophysiology of fatigue and the clinical picture and diagnosis of ME/CFS. **Eliana Lacerda** gave an overview on diagnostic tools to assess symptoms in ME/CFS.

Biobanking and data management was the topic of the 2nd day which was held by **Eliana Lacerda** and **Luis Nacul** from the London School of Hygiene and Tropical Medicine, UK to provide information about the use of biobanks to enhance biomedical research in ME/CFS. In the morning session on Biobanking, data management, and ethics, trainees learned about how to plan and establish a high-quality bio-sample collection for ME/CFS research, and discussed the current ethical, legal, and social issues associated with biobanks. The afternoon session was on clinical and socio-demographic data, research questionnaires and measurements including practical work on how to use and evaluate various questionnaires.

On the 3rd day focusing on **Antibodies and soluble biomarkers** **Franziska Sotzny** gave an overview on soluble biomarker in CFS and the EUROMENE Biomarker project.



Biomarker include both markers for diagnosing as well as those which may allow to classify subtypes of the disease, be of value as indicators of prognosis, and to be predictive for response to treatment. Potential markers of interest for ME/CFS were discussed. In the practical work detection of specific EBV antibodies by cytometric bead array was taught and performed.

The 4th day was on **Metabolic biomarker**. **Bhupesh Prusty** gave an overview on Metabolics in ME/CFS. Mitochondria play a key role in cell metabolism as well as multitudes of other cellular processes. ME/CFS is known to be a disorder in which mitochondrial dynamics as well as metabolic pathways associated with mitochondria are affected during the disease progression. During this session facts about alterations in mitochondrial metabolic state in ME/CFS were discussed. Further the lecture provided new insights into novel ideas and technologies being developed to study mitochondrial alteration in ME/CFS. Reactive oxygen species ROS are one important product of mitochondria. In the practical work, it was learned how ROS can be assessed by flow cytometry.

The last day was on **Infection biomarker**. In the introductory lecture **Bhupesh Prusty** covered the current knowledge on chronic infection in ME/CFS. In addition, this lecture discussed scientific and technical difficulties in chronic infection studies in CFS. Further potentials of novel ideas in this field and how to implement them to know more about role of chronic infection in CFS was discussed as well as sample selection methods and what to expect from them. In the practical work it was learned how EBV can be assessed by PCR from peripheral blood specimen.

Students and teachers agreed that they had a very interesting and informative week, learned a lot about ME/CFS and biomarker and met many like-minded people as a start for future collaborations.