

7th Course
“MOLECULAR DIAGNOSTICS FOR BEGINNERS”
12th – 17th of July 2015
Vilnius, Lithuania



The 7th C-CMBC Course “MOLECULAR DIAGNOSTICS FOR BEGINNERS” was held on 12th – 17th of July 2015 in Vilnius, Lithuania. The President of the Lithuanian Society of Laboratory Medicine, Assoc. Prof. Dalius Vitkus, PhD, invited officially all C-CMBC committee members, and acted as local partner covering all organizational issues.

The IFCC Tutors

Four IFCC tutors and the IFCC junior member from Philippines took part in the Course, namely:

- Dr. Evi Lianidou, PhD, Professor of Analytical Chemistry – Clinical Chemistry, University of Athens, Greece (Chair)
- Dr. Andrea Ferreira-Gonzalez, PhD, Professor of Pathology and Director Molecular Diagnostics Laboratory, VCUHS, Richmond, USA
- Dr. Verena Haselmann, MD, Department: Institute for Clinical Chemistry, University Medicine Mannheim, Medical Faculty Mannheim of the University of Heidelberg, Germany
- Dr. Atsushi Watanabe, PhD, Associate Professor, Head of Division, Division of Personalized Genetic Medicine, Nippon Medical School Hospital, Japan
- Dr. Vincent Alferos, IFCC Junior Member, Philippines



The C-CMBC Course

The Lithuanian Society of Laboratory Medicine sent Dr Dovile Karciauskaite, PhD, as a trainee at the Institute for Clinical Chemistry in Mannheim on April 2015 for one week to be introduced to the program.

The Lithuanian Society of Laboratory Medicine hospitality and organization of the course was perfect. All C-CMBC tutors were hosted by Lithuanian Society of Laboratory Medicine board members and especially Assoc. Prof. Dalius Vitkus and Dr. Dovile Karciauskaite.

The course venue was the Center of Medical Genetics, Santariskes Hospital, Santariskiu str.2, Vilnius, Lithuania. The course attended 18 participants, 17 coming from Lithuania, and one coming from neighbouring country Estonia. The participants were randomly divided into 5 groups, each group was headed by the four Tutors and our IFCC Junior member from Manila. Students followed an update C-CMBC lab manual handed to them for the experimental work. The manuals were

printed by the LSLM.

The pre-course (day 0) was held by Andrea Ferreira Gonzalez on July 11th, while the rest of the committee was setting up the lab, and some were still in transit. At the official course start, the group was welcomed by Assoc Prof. Dr Dalius Vitkus. The trainee, Dr Dovile Karciauskaite was present during all these days in the lab, and both also participated in the closing session. The course program ran for 5 additional days starting at 09:00 with an introduction to the subjects of the day, followed by practical lab work. In the afternoon or in breaks in the lab workflow, experimental results were discussed. Lectures on diagnostic applications were interspersed, and the “preflight seminars” addressing the program for the respective following days concluded the day around 18:00 hours. This is the second time that a real time PCR experimental work was added in this workshop. More specifically, we introduced to participants the basics and clinical applications potential of real time PCR, by giving a specific lecture on that topic, and by combining this lecture with a new experiment: CMV quantitation in DNA isolated from peripheral blood in the LightCycler. All participants showed a significant interest in learning about the basics of real time PCR. Altogether, 21 “technical”, “scientific” and “diagnostic application” lectures were held.

The practical lab work for the students consisted of

- 1) setting-up their molecular lab working area,
- 2) preparation of basic solutions,
- 3) setting-up and performing general and allele-specific DNA amplification, RFLP analysis and tetrameric duplex PCR,
- 4) allele-specific oligonucleotide hybridisation
- 5) real time PCR, and
- 6) computer-lab work to learn and practice assay design strategies using web-based platforms; i.e. gene identification in OMIM, variant analysis in SNPdb/SNPedia, primer design in Primer 3, NEB cutter for *in-silico* restriction fragment analysis and verification.

During daily lunch breaks, tutoring of small groups of interested students was carried out on *in-silico* work. *The tutorials of in-silico* work were fully undertaken by the IFCC Junior member Dr. Vincent Alferos.

According to the evaluation forms distributed, the pre-course on day 0 was received well, particularly by real beginners with no previous contact to molecular diagnostics. It was regarded a good repetition for the students with pre-existing knowledge, also because new aspects were touched in these presentations. 18 forms were returned. The average ranking was 95%. According to the forms completed, most participants replied that they benefit very much (100%) from all the days of the course, found the lectures and seminars very useful and interesting. A final test consisting of 30 multiple choice questions on the course contents in English was carried out in the afternoon of day 5 as first practised in course #2.

The selection of the new IFCC Junior member from the Lithuania Course was based on the evaluation of all participants in respect to: a) the written examination outcome, b) on the general performance in the lab, c) on their ability to understand in-silico analysis and d) personal interview and ability to speak fluently English. Ms Liucija Bikauskaitė, medical genetist, VU MF Department of Human and Medical Genetics, Vilnius, Lithuania was nominated as the IFCC Junior member from Lithuania.

Participant's list and contact names

No.	First name, Last name	Institution	e-mail
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18	Kerli Piir	North Estonia Medical Center	Kerli.Piir@regionaalhaigla.ee

SPONSORS

The Lab Suitcase was completed/extended with the help of faithful sponsors of the program. Specifically, equipment (e) and reagents (r) were provided by BioRad (e), Eppendorf (e), the Lesser-Loewe-Foundation (e,r) and Roche Diagnostics Lithuania. Reagents were bought and shipped through courier, while a real time PCR machine (LightCycler 2.0) was provided by the local Roche Diagnostics Department in Vilnius. Roche Diagnostics Greece provided the CMV kit, and all the necessary reagents used for the real time quantitative PCR experiment.

Photos



Outside the Center of Medical Genetics, Santariskes Hospital, Vilnius



***In-silico* training**



Writing exams



Lab- DNA electrophoresis



Lab – PCR



Lab – DNA isolation



Lab – PCR set-up



Lab – Hybridization set-up



Lectures

