



Institute of Clinical Microbiology

Faculty of Medicine, University of Szeged, Hungary

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Head: Dr. Edit Urbán PharmD, PhD (www.szote.u-szeged.hu/clinmicro)



Introduction

Institute of Clinical Microbiology belongs to the Albert Szent-Györgyi Medical Centre of the University of Szeged. Its main activity is to carry out routine diagnostics for the inpatients of the University Hospital and also for outpatients. The University Hospital of Szeged is a tertiary care medical centre with 1 780 beds.

This Institute provides diagnostic service on the fields of bacteriology, mycology, virology and parasitology using traditional methods and modern automated and molecular genetic techniques. The different departments are handling more than 120 000 samples per year. The Institute got its third accreditation in 2014, more than 100 diagnostic procedures were accredited according to the requirements of ISO 15189/2013 by the Hungarian Accreditation Board.

The Institute hosts the National Reference Laboratory for Anaerobes and the National Reference Laboratory for *Chlamydia* and is one of the educational center for specialization in medical/clinical microbiology by organizing compulsory and facultative postgraduate courses and providing practice for trainees in the field.

Research is carried out on the field of anaerobes (development of diagnostic procedures, investigation of antibiotic resistance and their genetic background, pathogenicity of anaerobes) including looking for their importance in different clinical settings. Since almost 20 years we carry out research on *C. difficile* and its pathogenicity. Research is done on fungal infections, typing of *Candida* spp. by PFGE, resistance of fungi against antifungal drugs. Several studies were done on antibiotic resistance of aerobic and facultative anaerobic bacteria to different antibiotics and how the biofilm formation can influence clinical outcome. The staff have a close collaboration with the medical staff of the different wards providing a consultative service.

Location, equipment, staff

The building housing the laboratory is two-storey building, spread over many small rooms in which the various types of research are conducted. The building is located on the university grounds in the middle of many other pavilions housing various departments.

Modern equipment of sufficient quality is available to enable the required research to be performed quickly and in a reliable manner (Vitek, VIDAS, Concept 400 Anaerobic Chamber, MALDI-TOF, MagNA Pure, GeneAmp, GeneExport, Pipetting Robot, Cobas Taqman).

The laboratory staff consists of 11 university-affiliated members. This group includes 5 MDs (2 Clinical Microbiologists, 3 residents) and 6 biologists (PhDs), There are 16 laboratory technicians on staff and 4 cleaning staff. The members of the staff of the Institute are the members of the Infection Control and Antibiotic Committee of the University Hospital.



Opinions about Observership Visits (2013-2014)

Observership ID: 373. 27. 01.-07.02. 2014: 2 weeks



Dr Kanita DEDIC, Bihac, BOSNIA AND HERZEGOVINA

The main reason for applying to this ECC through the ESCMID Observership program is my wish to become more familiar with the methods of isolation and identification of anaerobes. The Institute is an excellent place for all those who would like to establish this type of diagnostics, but also for experts, since it offers very simple and easy methods, but also highly sophisticated diagnostics and research in one place.

The very professional and approachable personnel in this institution made it possible for me to completely achieve my goal. The Laboratory for Anaerobes operates as the national reference centre, and the professionals working here are exceptionally well educated and well organized as a team. My time in this lab was well planned and packed. Given the fact that the lab often hosts group workshops and individuals, very good coordination within the team and transfer of positive energy to the visitor is evident. Apart from participation in daily lab work, I had the opportunity to test my knowledge and progress through practical work on referencing strains of anaerobes. It was very easy to arrange some additional activities with Dr. E. Urban, the Head of the Institute, and Prof. Dr. E. Nagy during my stay at the Institute. Dr. J. Soki introduced me to the resistance mechanisms of anaerobic bacteria and presented the latest research findings in this area. **The greatest benefit accrued during my visit to this laboratory is the fact that I will be able to use gained knowledge in my daily activities at my workplace, which will be diagnosing infectious diseases caused by anaerobes for the first time.**



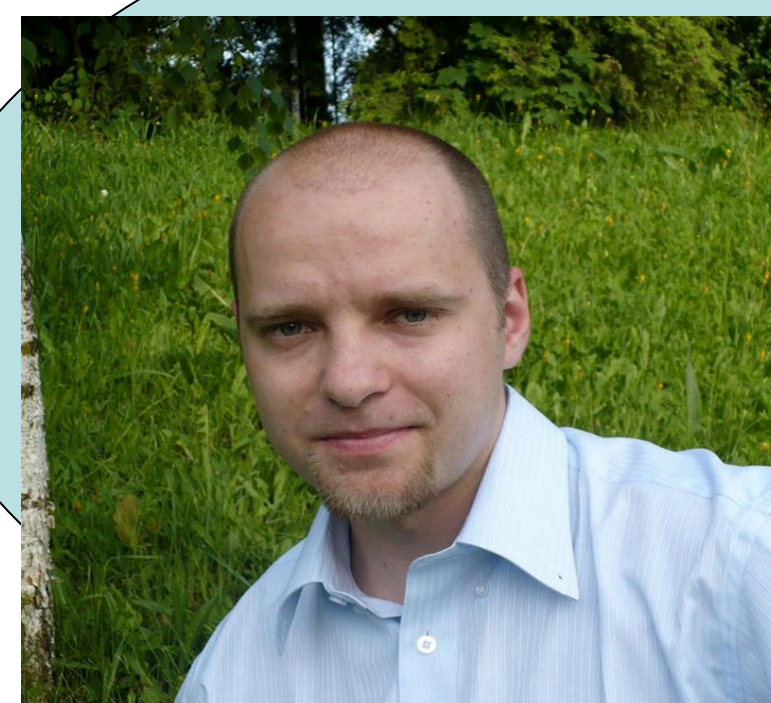
Observership ID: 380. 01.-03.-31.03. 2014. 4 weeks

Dr Cansu ÇİMEN The Observership met all my expectations.
Istanbul, Turkey

It was a really great experience!!!

I visited different laboratories of the Institute, which were the bacteriology, virology, parasitology, mycology and molecular diagnostics departments. I spent most of the time in the Laboratory for Anaerobic Bacteria, which is the reference laboratory for Hungary. E. Urbán and N. Bartha truly shared their experience and knowledge concerning anaerobic bacteria with me. I not only observed their routine work, but also participated in the whole sample processing procedure. I also saw different types of selective media used for the successful isolation of anaerobic bacteria. I also had the chance to see all the different colonies of anaerobic isolates, obtained from clinical samples, under the colony microscope, and I did subculturing for the final identification. I had the opportunity to work with MALDI-TOF MS on my own as well; a sophisticated instrument, which is used in the everyday identification of microorganisms in the lab. On the last day of the week I went to the Paediatrics Clinic with N. Bartha, where she shared her knowledge about the consultation between clinicians and microbiologists. During the next week, I also participated in the routine work of the other sections of the bacteriological laboratory. J. Soki showed me how to use real time PCR, which is a routine procedure in the Institute, to diagnose fungaemia.

Observership ID: 314. 17.-06.-28.06. 2013. 2 weeks



Dr. Szabolcs MOLNÁR
Targu Mures, Romania

The primary goal of my visit was the continuation of the collaborative study which we started one year ago within ESGAI. This was a great opportunity to get an insight into the routine workflow of the anaerobic Ref. Lab. as well as.

The institute is very well equipped with modern instruments including PCR, real-time PCR, VITEK and MALDI-TOF systems which are used in routine diagnostics and for research purposes as well. It was very exciting to see MALDI-TOF in action. It is a very fast and reliable technique for bacterial identification and it was interesting to find out that it can even differentiate *cfiA*-harbouring *Bacteroides* strains from the *cfiA*-negative ones. We performed real-time PCRs for the detection of resistance genes like *cfiA*, *ermF*, *terQ*, *cfxA*, *cepA* and *nim* and for the detection of IS Elements in the upstream region of the *cfiA* gene. **In my opinion Observerships are beneficial from all aspects you can think of: you have the chance to visit another city in another country, to meet people, to expand and deepen your knowledge, to gain experience in new techniques, to observe how other laboratories operate and to build up new professional relationships or strengthen existing ones.**

If you want to visit us please contact Prof. Dr. Elisabeth Nagy nagy.ertzsebet@med.u-szeged.hu

Observership ID: 514. 02.02.-06.02. 2015. 1 week



Dr. Samo JEVERICA
Ljubljana, SLOVENIA

The laboratory has an especially well-known reputation for its excellence in the field of anaerobic bacteriology; knowledge, processing and research. As a head of a smaller laboratory that shares common interest in anaerobes it was a great satisfaction to receive an invitation for a visit.

My visit was well structured, nicely organized and very intensive. The 1. day we immediately focused on anaerobes and had started with the molecular characterization of an interesting clinical isolate of *C. perfringens*. The following 4 days were divided into two main sessions. I was actively involved in the routine laboratory activities of the anaerobe laboratory and during that time E. Urban was my main teacher and mentor. I was introduced to the main research work of the laboratory. J. Soki was my main guide during that part of the day. We had discussed several interesting papers of the laboratory and the field. He is a real expert in the resistance mechanism of anaerobes. Our discussions were enlightening and his approach focused and analytic. We had typed several laboratory strains of *B. fragilis* using MALDI TOF. He showed me that with this unique new tool one can easily distinguish between division I and division II isolates with one of the main differences in *cfiA* gene possession. **We have immediately started to search for some possible collaborations and also possible ESGAI projects**, which can strengthen the knowledge of clinical significance of anaerobes and also the possibilities of early diagnostics of this sometimes neglected group of bacteria.

