

# EuroLabNews

THE EFLM BI-MONTHLY NEWSLETTER

EFLM Connects National Societies of Clinical Chemistry and Laboratory Medicine and Creates a Platform for all European "Specialists in Laboratory Medicine"



## HOT TOPICS IN LABORATORY MEDICINE

# Microbiome: an emerging topic in medicine



by Prof. Toni Gabaldón, Ph.D., ICREA Research Professor and group leader at the Bioinformatics and Genomics Programme of the Centre for Genomic Regulation (CRG), Barcelona, Spain

Every square inch of our body surface, from our skin, to the epithelia of our intestines, is populated by a dynamic microbial community comprised of bacteria, archaea, fungi, protozoa, and viruses. This microscopic world is collectively referred to as the microbiota, or microbiome. As the first layer of our most intimate environment, it is not a surprise that the microbiome has an influence on our health and disease. Indeed, more and more studies are showing evidence that an increasing number of diseases are associated with alterations in the microbiome (Young 2017). Although the study of such relationships is still in its infancy, the microbiome entails the promise of providing new opportunities for medicine. Firstly, even if a cause-effect relationship is unclear, the mere finding of a significant correlation of microbiome alterations with a disease state can pave the way for developing new diagnostic tools.

*To be continued on page 2*

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## Foreword

by Harjit Pal Bhattoa, Editor EFLM EuroLabNews



In the first issue of this year, ICREA Research Professor and group leader Toni Gabaldon gives us an overview of the Microbiome as an emerging topic in medicine under the Hot Topic column. Prof Giuseppe Lippi and Prof Emmanuel Favaloro present their comprehensive remarks on the article published by Dr Patricia Wilkie in the December 2018 issue of the EuroLabNews. The EFLM Executive Board Secretary Prof. Giuseppe Lippi announces the change of guard in the EFLM Quality and Regulations Committee. News from the EFLM includes the link provided by the e-learning platform where all

relevant educational material from various conferences can be reached and do mark your calendars for the upcoming EFLM webinar or "New parameters of hematology analyzers and their clinical significance". Evgenija Homsak, Chair of the EFLM WG-CPE exposes the activities of their working group especially highlighting the EFLMLabX program. A total of 10 bursaries are available from the EFLM for young scientists attending the 23rd IFCC-EFLM European Congress of Clinical Chemistry and Laboratory Medicine - EuroMedLab 2019 to be held in Barcelona on 19-23 May 2019. The EFLM office announces some vacancies in two Working Groups. The 5th EFLM conference on preanalytical phase shall be held in Zagreb this March, and the early registration deadline is February 10. The National Society of Serbia presents its latest professional ventures, and the Croatian Society of Medical Biochemistry and Laboratory Medicine, the French Society of Clinical Biology and the Association of Clinical Biochemists in Ireland report changing of the guard. As a recent addition, the EuroLabNews hosts a special corner for the activities of the IFCC. In the present issue this corner highlights the IFCC General Conference held in Budapest last November among other important activities. The Calendar of Events lists all happenings in our field; important dates may be marked in your diaries.





Efforts in this direction are directed towards diseases such as cancer, where an early detection would significantly increase the chances of successful treatment (Garrett 2015). Secondly, if alterations of the microbiome are among the causes of the progression of the disease, or are related to some of the undesired symptoms, then interventions on the microbiome may represent a new treatment opportunity. Selective antibiotics, prebiotics (compounds that promote the growth of certain beneficial microbes) or probiotics (food or products that contain beneficial microbes) are possible ways of altering the microbial composition of certain niches. Ultimately, the idea of complete microbiome transplantation from a healthy donor to a recipient person has been successfully implemented for the gut (Borody and Khoruts 2012).

Disentangling the relationships of the microbiome with our health and disease requires careful study of what a "healthy" microbiome is, and how can vary due to parameters such as age, diet, or habits. Over last decade or so, a significant effort has been made on understanding what are the parameters of normality in healthy individuals, and how this is altered in disease conditions. Altogether, most studies have found that inter-individual variability can be very high, and that environmental influence such as diet tends to be more important than geographical origin or genetic background. The diversity of the microbial communities found in human populations can sometimes be grouped in so-called ecotypes, such as the enterotypes in the gut (Arumugam et al. 2011) or the stomatotypes in the mouth (Willis et al. 2018). Rather than discrete, stable categories – such as the blood types – microbiome ecotypes have to be considered as dynamic equilibria separated by gradients of intermediate compositions (Knights et al. 2014). Moreover, these broad classifications are generally driven by the dominating, most abundant species, and many differences can be found with respect to the composition of less abundant species. Many studies have found correlations between the abundance of certain species and changes in the diet, or habits. Such correlations often involve species to medium to low abundance and are generally difficult to interpret in terms of cause-effect relationships. As with respect to alterations of the microbiome in disease states, one common theme is that of dysbiosis, or altered equilibrium. Such dysbiosis is often evidenced

by a loss of biodiversity in the microbiome, with most of the population dominated by a one or a few species. In contrast, healthy microbiomes have generally higher biodiversity indexes, with a higher number of species, with more balanced proportions.

Of particular interest to the clinical laboratory is how can the microbiome composition be assessed, although the microbiome has been intensively studied over the last century with traditional techniques such as microscopy, and culture-based techniques, these are severely limited. Only recently, advances in sequencing technologies have enabled us to access the composition of the microbiome in a fast, virtually unbiased, cost-effective, and comprehensive way. These techniques, often collectively referred to as "metagenomics" can come in different flavors depending on how targeted they are. A summary of the main approaches is provided in the table below. In brief, such techniques start by extracting the DNA contained in a sample of interest. What type of sample, and how it is obtained is very important, as differences in sampling protocols can result in differences in studies performed at different laboratories. For instance, an oral swab, a sputum sample, and an oral wash, may all inform on the oral microbiome, but they will do so differently. Often, the research or clinical question at hand determines what is the most appropriate type of sample. Once DNA is extracted, several options are available. The most unbiased approach of analyzing this DNA is to use a shotgun metagenomics approach in which the whole DNA content of the sample is sheared, sequenced, and analyzed. The resolution that can be provided by this approach is very high. Complete genomes for the most abundant species can be assembled, and one can obtain information even at the strain level. Moreover, as pieces from the whole genome are sampled, it is possible to obtain not only the most probable taxonomic affiliation of each analyzed sequence but also on which proteins are encoded, thereby providing information of the functional potential. If functional profiling is the main objective, an alternative approach is to use meta-transcriptomics, that targets the RNA molecules in the sample, rather than the DNA, thus providing information of which pathways are actively expressed. Finally, more targeted approaches such as metabarcoding amplify a specific region of the DNA with "universal" primers. Such metabarcoding approaches are the most cost-effective if the relative proportion of the different taxa is the parameter of interest.

Approach	Approach	Pros	Cons
Shotgun metagenomics	<ul style="list-style-type: none"> <li>- Total DNA extracted from a sample is subjected to shearing, library preparation, and sequencing.</li> <li>- Bioinformatics analysis requires assembling of sequencing reads, annotation, and comparison to sequence databases.</li> </ul>	<ul style="list-style-type: none"> <li>- Provides many levels of information beyond taxonomic composition of the microbial community.</li> <li>- For abundant species, complete genomes, and information at the strain level can be obtained.</li> <li>- Informs on the functional potential of a microbial community (i.e. metabolic pathways, resistances, etc)</li> </ul>	<ul style="list-style-type: none"> <li>- Usually high sequencing coverage is required, which implies comparatively higher costs.</li> <li>- Bioinformatics analysis is not straightforward and requires expertise.</li> <li>- Sequencing is not targeted to the microbiome and for some samples (i.e. biopses, broncho-alveolar lavages, etc) only a small fraction of the sequences will be microbial.</li> </ul>
Metatranscriptomics	<ul style="list-style-type: none"> <li>- Total RNA extracted from a sample is subjected to shearing, library preparation, and sequencing. Depletion of rRNA can optionally be performed</li> <li>- Bioinformatics analysis requires assembling of sequencing reads, annotation, and comparison to sequence databases.</li> </ul>	<ul style="list-style-type: none"> <li>- Total RNA extracted from a sample is subjected to shearing, library preparation, and sequencing. Depletion of rRNA can optionally be performed</li> <li>- Bioinformatics analysis requires assembling of sequencing reads, annotation, and comparison to sequence databases.</li> <li>- Readily informs on what genes and pathways are active in the sample.</li> <li>- Can also inform on what taxons are present in a sample.</li> </ul>	<ul style="list-style-type: none"> <li>- Using RNA requires special preservation of the samples.</li> <li>- Bioinformatics analysis is not straightforward and requires expertise.</li> <li>- Sequencing is not targeted to the microbiome and for some samples (i.e. biopses, broncho-alveolar lavages, etc) only a small fraction of the sequences will be microbial.</li> <li>- Most of the sequencing reads will consist of rRNA</li> <li>- Does not provide quantitative information on the taxonomic composition of the sample.</li> </ul>
Metabarcoding	<ul style="list-style-type: none"> <li>- Primers specific to a selected marker regions (generally conserved regions of 16S rRNA gene) are used to produced amplicons of a given size.</li> <li>- Amplicons are selected and sequenced.</li> <li>- Bioinformatics analyses provide taxonomic information for each sequenced amplicons.</li> </ul>	<ul style="list-style-type: none"> <li>- As a targeted approach, lower coverage is sufficient, and thus this approach is comparatively cheaper than the above.</li> <li>- Bioinformatics analyses are straightforward and ready-to-use pipelines are in place.</li> </ul>	<ul style="list-style-type: none"> <li>- Depending on the primers and sequencing design resolution at the species level is not always possible.</li> <li>- Functional information is only indirect, inferred from the identified taxons.</li> <li>- Primer-based amplification introduces a bias on the species that can be detected (i.e. fungi are not amplified with 16S primers).</li> </ul>

## References

1. Arumugam, M, J Raes, E Pelletier, Paslier Le, T Yamada, D R Mende, G R Fernandes, et al. 2011. 'Enterotypes of the Human Gut Micro biome'. Nature 473 (7346):174–80. <https://doi.org/10.1038/nature09944>.
2. Borody, Thomas J., and Alexander Khoruts. 2012. 'Fecal Microbiota Transplantation and Emerging Applications'. Nature Reviews Gastroenterology and Hepatology. <https://doi.org/10.1038/nrgastro.2011.244>.
3. Garrett, Wendy S. 2015. 'Cancer and the Microbiota'. Science . <https://doi.org/10.1126/science.aaa4972>.
4. Knights, Dan, Tonya L. Ward, Christopher E. McKinlay, Hannah Miller, Antonio Gonzalez, Daniel McDonald, and Rob Knight. 2014. 'Rethinking Enterotypes'. Cell Host and Microbe. <https://doi.org/10.1016/j.chom.2014.09.013>.
5. Willis, Jesse R, Pedro Gonzalez-Torres, Alexandros A Pittis, Luis A Bejarano, Luca Cozzuto, Nuria Andreu-Somavilla, Miriam Alloza-Trabado, et al. 2018. 'Citizen Science Charts Two Major "Stomatotypes" in the Oral Microbiome of Adolescents and Reveals Links with Habits and Drinking Water Composition.' Microbiome 6 (1):218. <https://doi.org/10.1186/s40168-018-0592-3>.
6. Young, Vincent B. 2017. 'The Role of the Microbiome in Human Health and Disease: An Introduction for Clinicians'. BMJ (Online). <https://doi.org/10.1136/bmj.j831>.



## HOT TOPICS IN LABORATORY MEDICINE

# What will laboratory medicine do to meet the expectations of patients: further considerations

by Giuseppe Lippi, Section of Clinical Biochemistry, University of Verona, Verona, Italy and Emmanuel Favaloro, Department of Haematology, Sydney Centres for Thrombosis and Haemostasis, Institute of Clinical Pathology and Medical Research, NSW Health Pathology, Westmead Hospital, Westmead, NSW, Australia

In a recent article published in the December 2018 issue of EuroLabNews (1), Mrs. Patricia Wilkie, President of the UK National Association for Patient Participation, discussed many important aspects around what laboratory medicine should do to meet the expectations of patients. Most of these concepts are indeed universally agreeable, whilst others deserve a more thoughtful consideration in order to ensure the continued safety and wellbeing of all participants to the patient's medical journey.

Patient involvement is indeed a crucial issue for healthcare, as well as for laboratory medicine. More specifically, the progressive transformation of laboratory medicine into a discipline that is more integrated into a patient-centered healthcare system, and thereby more focused on the patient journey, is a cornerstone of what our profession will look like in the future (2). The EFLM has also established a specific Working Group on "Patient Focused Laboratory Medicine", whose terms of reference encompass exploring and promoting the engagement of patients and professionals and enabling patients to receive individualized support in understanding what their results mean for them. It seems therefore quite disconcerting to read the reflection that "when mistakes are made, laboratories should be more honest and provide appropriate explanations to patients", since the perception that laboratories make many mistakes is not actually reflected by our daily activities. Laboratory medicine has been the forerunner within the practice of medicine in developing a total quality system, aimed at preventing diagnostic errors, minimizing their impact on patient health and communicating with patients. This virtuous journey started more than a century ago (3) and, although many initiatives remain ongoing, these efforts have contributed to considerably decrease vulnerability throughout the total testing process. Reliable evidence attests that error rates in laboratory diagnostics is much lower than in many other diagnostic areas such as radiology and anatomical pathology (4). There is probably no other clinical and diagnostic discipline that has looked into, or disclosed its errors, more than laboratory medicine. It is undeniable that honesty shall encourage respect and trust, but this process must be reciprocated between the laboratory and the patient.

Regarding the invitation to be more accountable, as reflected by the concept that the lines of responsibility shall be clearer and that the responsibility for accuracy of results lying with the laboratory staff

may not be evident, these concepts also necessitates scrutiny. Most public and private laboratories across Europe are certified or accredited (5). The EFLM itself has established a Working Group on "Accreditation and ISO/CEN standards", whose leading term of reference entails harmonizing of accreditation throughout Europe. Indeed, laboratory medicine is perhaps the most regulated of the medical professions. According to the current standards, the matrix of responsibilities is clear and transparent in clinical laboratories. The use of many validate standard operating procedures (SOPs) is a cornerstone in medical laboratories, covering all steps from collection of biological specimens to validation and transmission of test results. Therefore, there are few doubts that patients will always know who is accountable in medical laboratories.

On the other hand, we believe that patients association should collaborate more with scientific associations for tackling the emerging problem of searching information on unreliable websites. This will expose them to the serious threat of believing misinformation or medical fake news, which may deviate the patients from official medicine and science, up to refusing evidence-based therapies and thus facing the risk of serious harm (6).

That being said, we should nevertheless express real gratitude to Mrs. Patricia Wilkie for her comments, because they give us the opportunity to improve further. Should the perceptions of Mrs. Wilkie be shared by many other patients across Europe, then we will need to place additional efforts to make our work more transparent and visible to the general public. We have been devoting huge efforts to make laboratory medicine a much safer and accountable enterprise, and we shall need to now find effective means to more efficiently deliver this information outside the laboratory environment. The "European Laboratory Day" is one of the many initiatives that the EFLM will be promoting within its Strategic Plan 2018-2019, along with improving the recognition of laboratory medicine as a medical profession. These ambitious Strategic Goals will expectedly contribute to enhance partnership and patient empowerment in laboratory medicine.

Disclosure: the opinions expressed in this article are those of the authors and do not reflect those of the EFLM, nor those of the University of Verona or NSW Health Pathology.

## References

1. Wilkie P. What can laboratory medicine do to meet the expectations of patients? EuroLabNews 2018;6:2-3.
2. Plebani M, Laposata M, Lippi G. A manifesto for the future of laboratory medicine professionals. Clin Chim Acta 2019;489:49-52.
3. Lippi G, Guidi GC, Plebani M. One hundred years of laboratory testing and patient safety. Clin Chem Lab Med 2007;45:797-8.
4. Lippi G, Plebani M. A Six-Sigma approach for comparing diagnostic errors in healthcare-where does laboratory medicine stand? Ann Transl Med 2018;6:18.
5. Thelen MHM, Huisman W. Harmonization of accreditation to ISO15189. Clin Chem Lab Med 2018;56:1637-43.
6. Merchant RM, Asch DA. Protecting the Value of Medical Science in the Age of Social Media and "Fake News". JAMA. 2018 Nov 19. doi: 10.1001/jama.2018.18416. [Epub ahead of print].



## THE EFLM EXECUTIVE BOARD INFORMS

# Change of Guard in the EFLM Quality and Regulation Committee (C-QR)

by Giuseppe Lippi, EFLM Executive Board Secretary



### Gratitude to Wim Huisman, outgoing C-QR Chair

Wim Huisman has finished the third term as chair of the Quality and Regulations Committee. During his term he has concentrated on expanding running projects as well as establishing new areas relevant for Quality and Regulations. The Quality and Regulations Committee has gained a high

profile and recognition through the work of recent years thanks to the efforts of Dr. Huisman. In particular, the efforts of the Committee in harmonizing the accreditation schemes in all European Countries have to be prized. Wim's hard work in liaising with the European (and International) regulatory bodies (ISO, CEN) for any topic related to Laboratory Medicine is particularly important. During Wim's Chairship, the EFLM engagement in accreditation and regulatory matters has increased its visibility and acknowledgment throughout Europe. The Executive Board of EFLM is happy and honored that Dr. Huisman has taken over this task and wants to thank him for the valuable contribution in appreciation of the tremendous work he has accomplished as chair of the Quality and Regulations Committee throughout his terms of office. For his successor, Prof. Florent Vanstapel, Wim leaves a very good foundation where to start and build upon this groundwork.



### Introducing Prof. Florent Vanstapel, incoming new C-QR Chair

EFLM Executive Board has appointed Prof. Florent Vanstapel as next chair of the Quality and Regulations Committee (1st term of office 2019/2020).

Florent has worked in the past two years as chair of the EFLM Working Group "Accreditation and ISO/CEN standards" in close collaboration with Wim Huisman, carrying on a great work in the leading issues of this area, i.e., representing the interests of European Laboratories within the European regulatory agencies (EU IVD regulation and EU Health Policy Group). The EFLM Executive Board is therefore confident that Prof. Vanstapel will be a valuable and worthy successor to the former Chairs and will contribute fresh energy and new ideas along the fruitful and challenging path of his predecessor.

## NEWS FROM EFLM WORKING GROUP

### Educational material from congresses are now available at EFLM E-Learning Platform

The educational materials of the previous EFLM events are accessible at EFLM E-Learning Platform, created by the EFLM WG Distance Education and e-Learning, chaired by Dr. Daniel Rajdl. Starting from 2005, handbooks, presentations, recording of the speakers' presentations, poster abstracts from EFLM postgraduate courses, conferences and congresses have been uploaded to <https://elearning.eflm.eu>. Materials from upcoming EFLM events will also be available.

Use the link below to access valuable educational material from various conferences:  
<https://elearning.eflm.eu/mod/book/view.php?id=382>

# EFLM project "Exchange of practical knowledge and skills in Laboratory Medicine" – EFLMLabX: How far we are and what is new?

by Evgenija Homšak, Chair of the EFLM WG-CPE

We would like to remind you the **EFLMLabX** project which offers the great opportunity for **exchanging practical knowledge and skills in Laboratory Medicine** and **creating links between the medical laboratories and European Specialists in Laboratory Medicine**.

The EFLMLabX platform is accessible from the homepage of the EFLM website ([www.eflm.eu](http://www.eflm.eu)) or directly at <https://efmlabx.eflm.eu/en>. The programme offers the possibility to search with dropdown menu by country, institution, type of practice, field of diagnostics, period of time, methods, sub-methods and to apply to different training opportunities establishing direct links between users and providers.

## EFLMLabX: Laboratory Exchange Programme

a database of medical laboratories willing to offer practical education/training in different specialties of Laboratory Medicine where Specialists can search for practice

to know more: <https://efmlabx.eflm.eu/en>

### Who and why should apply as user:

Trainee fellows, young specialists and any Specialists in Laboratory Medicine from any EFLM country to gain new skills, to be potential co-workers, to get more knowledge and experience about different methods, IVD products/systems not present in their labs, to make new experiences and establish new contacts and opportunity for research work.

### Who and why should host as offerer:

National institutions and any medical laboratories in any EFLM country providing a good level of practice to share with other Specialists in Laboratory Medicine good models of achieved lab practice and expose these models to a wide audience in Europe.

After one year from the pilot project, we already have 15 laboratories from 11 different EFLM countries (France, Belgium, Spain, Portugal, Poland Netherlands, Slovenia, Croatia, Czech Republic, UK, and lately also Germany) participating as offerers/providers in this project.

We also already had very successful training experiences, which obtained a very positive feedback from the participants. The training was held in **Slovenia** (at the University Clinic for Respiratory and Allergic Diseases in Golnik – on Accreditation and quality in LM), **Czech Republic** (at the Institute of Medical Biochemistry and Laboratory Diagnostics in Prague – on different field and technique of laboratory medicine) and in **Poland** (at the Medical University of Bialystok - on Cerebrospinal / body cavities fluids diagnostics).

During 2019, we are expecting new providers offering new training opportunities (from Germany, Netherlands, France), including the Institute for Clinical Chemistry, University Medicine Mannheim, Germany.

To support this important exchange of knowledge and skills in LM, especially for young trainees, EFLM would like to establish a dedicated bursary programme financially supported by IVD companies to cover travelling and accommodation expenses for participants. That way, we would be able to stimulate the exchange of knowledge between different professionals, laboratories and institutions in EFLM countries.

We now **invite** further specialists in laboratory medicine, trainees and especially laboratories and institutions in Europe to **choose this possibility** and **apply** to become a user or provider in this very important EFLM educational initiative. Detailed information on this project can be found at <https://efmlabx.eflm.eu/en>

**Join the project and take the opportunity to improve your expertise!**



MAY 19-23, 2019  
CCIB, BARCELONA, SPAIN



[www.euromedlab2019barcelona.org](http://www.euromedlab2019barcelona.org)

## 23TH IFCC-EFLM EUROPEAN CONGRESS OF CLINICAL CHEMISTRY AND LABORATORY MEDICINE - NATIONAL CONGRESS OF THE SPANISH SOCIETY OF LABORATORY MEDICINE

This is to announce that EFLM is promoting a bursary programme for young scientists attending the 23rd IFCC-EFLM European Congress of Clinical Chemistry and Laboratory Medicine - EuroMedLab 2019 to be held in Barcelona on 19-23 May 2019.

**10 bursaries are available** to cover the cost of the travel and 4-night accommodation for a maximum of Eur 900. EFLM bursary recipients will also receive the free congress registration, kindly offered by the Congress Organizer Committee, and a free on-line yearly subscription to the journal CCLM, kindly offered by de Gruyter.

### Eligible candidates must be from an EFLM Member Society and meet the following criteria:

- Young participants ( $\leq 35$ y at the date of the congress);
- Having a poster abstract accepted as First Author (deadline for abstract submission January 15, 2019)

Applications must be submitted through a proper application form (downloadable from the EFLM website) and accompanied by the following documentation:

- Copy of the ID or passport,
- Document proving the membership to the National Society,
- Notification of poster acceptance (acceptance/rejection will be sent by the conference organizers within February 28)

**Applications have to be sent to [silvia.cattaneo@eflm.eu](mailto:silvia.cattaneo@eflm.eu) within March 10, 2019**

## Vacancies in EFLM functional units

by Silvia Cattaneo, EFLM Office

Here below the open positions for which EFLM is looking for candidates:

### Working Group "Test Evaluation" (WG-TE) chaired by Prof. Christa Cobbaert (NL)

- Young Scientist Full Member (must be: 35y of age at the time of nomination)
- Deadline to apply: 10 February 2019

### Working Group "Postanalytical Phase" (WG-POST) chaired by Dr. Ann-Helen Kristoffersen (NO)

- 2 Full Members
- Deadline to apply: 28 February 2019

The related WG terms of reference are available at the above indicated links. For all the above mentioned positions, the term of office will be for 2 years (1 Jan 2019 - 31 Dec 2020). The position could be renewable for other two more terms if the work for the Group is deemed essential at that time. The work is mainly conducted by e-mail and teleconferencing, the WG usually meets once per year.

**Procedure for applications:** each EFLM National Society Member in good standing with the membership fee can submit one nomination using the form circulated to the National Society's representatives to be sent back to [silvia.cattaneo@eflm.eu](mailto:silvia.cattaneo@eflm.eu). A brief plan of the applicant's contribution to the aims and objectives of the relevant Working Group has to be included in the form. Together with the application, a short CV should also be submitted underlining the qualifications and prior experience and publications in the relevant area. Candidates have to be officially recommended by their National Society through a formal letter of support. Applicants who are not selected as full members may be eligible for corresponding membership.



## UPCOMING EFLM EVENTS

# EFLM Webinar: "New parameters of hematology analyzers and their clinical significance"

Daniel Rajdl, Chair of the EFLM WG Distance Education and e-Learning informs about next webinars. EFLM is happy to remind you that the attendance to the webinars is free of charge and that the recording of the lectures will be available afterwards on at the EFLM e-learning platform for those unable to attend.

Speaker: Johannes (Hans) Hoffmann (DE)  
Moderator: Giuseppe Lippi (IT)

Date: 12<sup>th</sup> February 2019 at 18:00 CET



During the webinar, presenter will discuss the technological principles used by the major hematology analyzers and demonstrate how these technologies generate new cellular parameters based on raw data. The second part will focus on understanding the potential use and limitations of new parameters, which are essential for researchers who are interested in investigating their clinical application.

Dr. Johannes (Hans) Hoffmann is a Specialist in Laboratory Medicine whose field of expertise is hematology. After more than 25 year in this hospital position in the Netherlands, he moved in 2008 to Abbott Diagnostics, where he was responsible for global scientific affairs in hematology. Besides conducting scientific studies, he was involved in the development process of Abbott's new hematology analyzer. In that position he was also a member of several international committees and working groups on standardization in laboratory hematology. Dr. Hoffmann retired in 2017, he is now reviewer for many journals in the field of laboratory medicine and hematology. His scientific work comprises over 120 papers in peer-reviewed journals, mainly focused on general hematology, flow cytometry, coagulation and fibrinolysis. He is also author and co-author of textbooks on laboratory medicine and hematology.

### HOW TO REGISTER:

Registration at <https://elearning.eflm.eu/enrol/index.php?id=42>

Did you miss any EFLM webinar? Do not worry: the recorded version of all EFLM webinars is available at <https://elearning.eflm.eu/>

New posted recorded webinar:  
Sepsis Biomarkers (Speaker: Giuseppe Lippi, IT)



## 5<sup>th</sup> EFLM Conference on Preanalytic Phase

Preanalytic challenges - time for solutions

Zagreb (Croatia) 22-23 March 2019



**Hurry up to register – the deadline for the early registration fee is Feb 10!**

5<sup>th</sup> EFLM Conference on Preanalytical Phase, organized by the EFLM Working Group "Preanalytical Phase", will be held on 22-23 March 2019 in Zagreb (Croatia). Chair of the Conference Scientific and Organizing Committee is Prof. Dr. Ana-Maria Simundic.

The focus of the conference is the quality of the preanalytical phase of the laboratory work. It is the largest such conference in Europe, which brings together more than 600 participants every second year. The conference programme has been tailored by the scientific committee to deliver up-to-date knowledge in the field and create an open forum for interactive discussions. Participants' feedback during the previous meetings has guided the selection of the topics.

The conference offers an excellent programme, renowned speakers, lots of practical tools and tips. For detailed scientific programme: <http://www.preanalyticalphase.org/2019/loadpage/info/programme> Participants will present their scientific work as posters. This year, there is a special emphasis to preanalytical cases. The limited number of participants with abstracts including the most interesting preanalytical cases are selected to present their posters in the form of oral presentation during the conference program. The Conference Organizers are delighted to announce that two poster awards will be given during the conference: one by the decision of the Scientific Committee and the other voted by the audience. The award is the free registration for the next conference in 2021.

### Registration fees

Full registration fee within February 10, 2019 EUR 150,00

Full registration fee from February 11, 2019 EUR 200,00

Reduced registration fee for student/Young Scientists\* EUR 75,00

\* Please note that we identify Students and Young Scientists as participant <= 35 years old.

Please save the date and mark your calendars for this interesting scientific conference in the beautiful city of Zagreb. We are looking forward to your attendance!

>> <http://www.preanalytical-phase.org> <<

## Croatian Society of Medical Biochemistry and Laboratory Medicine (HDMBLM)

Prof. Daria Pasalic (Dept of Medical Chemistry, Biochemistry and Clinical Chemistry, Zagreb University School of Medicine) is the new President of the Croatian Society of Medical Biochemistry and Laboratory Medicine, replacing Prof. Ana-Maria Simundic. While Dr. Jasna Lenicek Krleza (Dept of Medical Biochemistry and Hematology, Children's Hospital Zagreb) is the new EFLM National Representative, replacing Prof. Pasalic in this role. A warm welcome to Dr. Lenicek Krleza and a big thank you to both Prof. Simundic and Prof. Pasalic for their always prompt support to all EFLM activities

## French Society of Clinical Biology (SFBC)

Prof. Vincent Sapin (CHU Gabriel Montpied, Centre de Biologie, Clermont-Ferrand) is the new President of the French Society of Clinical Biology replacing Prof. Marc Delpech. A warm welcome to Prof. Sapin and a thank you to the outgoing President, Prof. Delpech, for his always prompt support to EFLM activities.

## Association of Clinical Biochemists in Ireland (ACBI)

Dr. Sean Costelloe (Dept of Clinical Biochemistry, Cork University Hospital) is the new EFLM National Representative for the Association of Clinical Biochemists in Ireland, replacing Dr. Caroline Joyce. A warm welcome to Dr. Costelloe and a thank you to the outgoing National Representative, Dr. Joyce, for her always prompt support to EFLM activities.

### NEWS FROM EFLM NATIONAL SOCIETIES

## 26<sup>th</sup> Congress of Balkan Clinical Laboratory Federation (BCLF) and 6<sup>th</sup> National Congress of MSMBLM-REPORT

The 26<sup>th</sup> Congress of the Balkan Clinical Laboratory Federation (BCLF) and the 6<sup>th</sup> National Congress of the Macedonian Society of Medical Biochemistry and Laboratory Medicine (MSMBLM) was held from 3<sup>rd</sup> to 5<sup>th</sup> of October, 2018 in Skopje and it was organized by MSMBLM. This Association organizes the Congress of BCLF for the fourth time.

The Congress was organized under the auspices of the International Federation of Clinical Chemistry (IFCC), European Federation of Laboratory Medicine (EFLM) as well as Ss. Cyril and Methodius University in Skopje and Medical Faculty in Skopje.

Thirteen invited plenary speakers from Norway, Italy, France, USA, Slovenia, Montenegro, Bulgaria, Greece, and R. Macedonia presented their lectures at the Congress as well as 32 lecturers with their 15-minute oral presentations from all Balkan countries: Albania, Bosnia and Herzegovina, Bulgaria, Greece, Serbia, Romania, Turkey, Montenegro, and the host country R. Macedonia. Sixty-nine participants from the Balkan countries and from other European countries and Canada presented their e-posters. A total of 260 participants attended the Congress.

At the Opening ceremony, on 3<sup>rd</sup> of October, Prof. Dr. Danica Labudovic, President of MSMBLM and President of the Organizing Committee of the 26<sup>th</sup> BCLF Congress and Prof. Dr. Jozo Choric, BCLF President had their opening speeches. The guests and participants of the Congress were welcomed by the Rector of the Ss. Cyril and Methodius University in Skopje, Prof. Dr. Nikola Jankulovski, the Dean of the Medical Faculty in Skopje, Prof. Dr. Sonja Topuzovska, the Dean of the Faculty of Pharmacy in Skopje, Prof. Dr. Svetlana Kulevanova, and the Minister of Health of R. Macedonia, Prof. Dr. Venko Filipche.

This BCLF Congress was traditionally enriched with a short music program. The Harflea quartet played a remix of Macedonian traditional folk songs. The Opening ceremony continued with the exceptionally interesting 45-minute scientific lecture of Prof. Dr. Sverre Sandberg from Norway, EFLM representative. His lecture was entitled "The challenging of point-of-care Testing".

Both working days of the Congress (Thursday and Friday) were characterized by a very tight schedule of lectures, beginning from 8.30 am and finishing at 6.30 pm on Thursday and at 6.00 pm on

Friday.

The first morning session on Thursday (4<sup>th</sup> Oct), which topic was Harmonization and standardization in laboratory working was opened by Prof. Giuseppe Lippi from Italy who spoke about EFLM strategy for harmonization of the preanalytical phase. This lecture was followed by presentations on: causes of analytical errors and mechanisms for their detection (Dr. Vera Lukic from Serbia), standardization and harmonization of laboratory diagnostics in chronic kidney diseases (Dr. Vanja Radishik Biljak, Croatia), accreditation of medical laboratories (Irina Leimoni, Greece) and clinical chemistry in R. Macedonia (Prof. Dr. Jasna Bogdabnska from R. Macedonia).

After the coffee break, one-hour lecture entitled "Six Sigma QC Design and Risk assessment for QC Frequency" was given by Prof. Sten Westgard (USA) in which he spoke about the control of laboratory working quality. Then professional presentations followed suggested by the firms – sponsors of the Congress.

The afternoon session began with the lecture on the pathophysiology of protein carbamylation (Prof. Phillipe Gillery from France), followed by the lecture on biomarkers in macular degeneration (Christos Kroupis from Greece), ST2 – a novel biomarker in end-stage renal disease (Prof. Evgenija Homshak from Slovenia), association of resistin and chronic kidney disease (Jelena Munjas from Serbia), urinary nephrin – a biomarker in detection of diabetic nephropathy (Assist. Prof. Irena Kostovska from Macedonia), the effect of NaF on the expression genes in renal cell line (Assist. Prof. Semiha Dede from Turkey), and determination of methyl-glyoxal with ultra-performance liquid chromatography (Assist. Prof. Abdullah Sivirkaya from Turkey).

Endocrinology was the topic of Session 3 on Thursday, and the first lecturer Assist. Prof. Milena Velizarova from Bulgaria spoke about thrombocytopenia in pregnancy; then, Prof. Sonja Kuzmanovska from R. Macedonia spoke about thyroid tests in pregnancy; Dr. Nela Rasheta from Bosnia and Herzegovina presented her lecture on PTH and BMD in hyperparathyroidism; Dr. Sci. Aleksandara Atanasova Bosku from R. Macedonia had a presentation on adipokine and insulin resistance in women with POS, and Tamer Bego from Bosnia and Herzegovina on genetic variants in the BIH population with diabetes mellitus.



The final, 7<sup>th</sup> session of the Congress was reserved for presentations related to seasonal variability of VD in Bilecik province (Dr. Saadet Celik, Turkey), EF of hemoglobin in thalassemia patients (Selma Dyca, Albania), alterations in bone metabolism of obese patients (Prof. Dr. Aylin Sepichi Dincel, Turkey), risk management in biochemical laboratories (Prof. Dr. Katerina Tosheska-Trajkovska, R. Macedonia), and food intolerance (Dr. Pecko Desoski).

The Congress was declared to be closed by Prof. Dr. Danica Labudovic by expressing her gratitude to all lecturers and poster presenters as well as to the sponsors, who all together contributed in creating an excellent environment for exchange of scientific results, ideas, experiences and in building a professional net among the participants.



The morning session on Friday (4<sup>th</sup> Oct.) was reserved for presentations related to markers in malignant diseases and was started with the plenary lecture of Prof. Tomris Ozben from Turkey on the use of circulating free DNA (cfDNA) in the diagnosis of different diseases, among which cancer diseases (liquid biopsy). Another plenary lecture was given by Prof. Dr. Diana Plasheska-Karanfilska from R. Macedonia, where she spoke about the high-risk genes in onset of breast carcinoma. This was followed by 15-minute-oral presentations on the elevated IMA in patients with breast cancer (Ali Unlu, Turkey), telomerase targeted therapies in carcinomas (Zeliha Gunnur Dikmen, Turkey), activity of LCAT and POX-1 in patients with colorectal cancer (MS Pharm. Marija Mihajlovic, Serbia), and the benefit of multi-marker panels in diagnosis of ovarian carcinoma (Veselina Koleva, Bulgaria). Session 5 was characterized by various presentations and lectures. The first two plenary lectures were given by Dr. Nevena Terzic Stanic (Montenegro) on laboratory disorders in patients with SLE, and the second given by Prof. Sanja Stankovic on pharmacokinetics in cardiovascular diseases. Fifteen-minute-oral presentations followed on: DEXA and bone biomarkers in the evaluation of bone diseases in patients with thalassemia and hemoglobinopathies (Prof. Etleva Refatlari, Albania), evaluation of SP-A and SP-D as biomarkers of chronic obstructive pulmonary disease (Regina Hasa, Albania), and blood proficiency testing study (Prof. Dr. Tanja Makarovska, R. Macedonia). The session continued with the professional presentations suggested by the sponsors of the Congress and presented by Assist. Prof. Aleksandar Petlichkovski from R. Macedonia, Dr. Dubravka Antova from R. Macedonia and Panagiota Evangelakou from Greece. The afternoon session was reserved for topics related to enhancing precision in medical diagnostics by using mass spectrometry (Prof. Dobrin Svinarov, Bulgaria), the future in the application of mass spectrometry in the clinical laboratory diagnostics (Fehime Benli Aksungar, Turkey), and the application of liquid chromatography – tandem mass spectrometry in determination of serum arginine in pregnant patients (Sedat Abusoglu, Turkey).

## Society of Medical Biochemists of Serbia, the twenty first annual professor ivan berkeš scientific conference

by Dr Snežana Jovičić, Society of Medical Biochemists of Serbia

A Scientific Conference dedicated to the life and work of the esteemed Prof. Dr Ivan Berkeš, one of the founders of medical biochemistry in the former Yugoslavia, has been organized for the past twenty one years now under the auspices of the Society of Medical Biochemists of Serbia (SMBS), and Scientific Foundation "Professor Ivan Berkeš". The Conference is the occasion when the best graduate students of the Faculty of Pharmacy, University of Belgrade are awarded by the Scientific Foundation "Professor Ivan Berkeš".

The 2018 Annual Scientific Conference "Professor Ivan Berkeš" is the second co-organized and hosted by the Faculty of Pharmacy, University of Belgrade, with over 200 participants: students, older colleagues who were the students of Professor Berkeš, young graduate medical biochemists, and teachers of the Faculty of Pharmacy. Traditional guests were the family members of Professor Berkeš – his son and grandson, with their families. This traditional meeting of students and professors of the Faculty of Pharmacy, honoring the legacy of one of its most distinguished professors, was held on 6 December 2018. After the opening words of the organizer, Prof. Nada Majkić-Singh, the musical band of pharmacy students performed, adding the festivity to the event. Following the welcoming address of the Dean Prof. Dr Slađana Šobajić, Prof. Majkić-Singh, together with the President of the SMBS, Dr Zorica Šumarac, presented the awards of the Foundation.

This year's recipients were Jelena Pavlović, Master of Pharmacy-Medical Biochemist, and Natalija Arsić, Master of Pharmacy. During the scientific part of the program, chaired by Prof. Dr Svetlana Ignjatović, Prof. Dr Vesna Spasojević-Kalimanovska, and Dr. Zorica Šumarac, this year's defended doctoral thesis at the Faculty of Pharmacy of the University of Belgrade, were presented. This year, their doctoral theses also included the colleagues from the Faculty of Medicine of the University of Banja Luka, Republic of Srpska – Bosnia and Herzegovina. The first speaker was Dr Dragana Bačković, with her thesis on the influence of CYP2C19\*2 gene variant on therapeutic response during clopidogrel treatment in patients with carotid artery stenosis. Dr Dragana Puhalo Sladoje's thesis was about the concentration of appetite regulators and adipocytokines in the blood plasma of

adolescents with obesity and/or metabolic syndrome. Oxidative stress status in blood and lipoprotein fractions in patients with chronic kidney disease was the topic of the lecture of Dr Milica Miljković. The lecture on risk factors for the occurrence and development of chronic obstructive pulmonary disease associated with oxidative stress in a Serbian population by Dr Živka Malić followed. Redox imbalance and inflammation influence on PON1 activity and distribution at the HDL lipoprotein particles in polycystic ovary syndrome was presented by Dr Iva Perović-Blagojević. The conference closed with the doctorate of Dr Vanja Todorović on antioxidant and anti-microbial potential of cocoa powder and its impact on mice behavior after short-term and long-term supplementation.



This years laureates, Jelena Pavlović and Natalija Arsić, with Prof. Dr Nada Majkić-Singh and Dr Zorica Šumarac.



Chairs and lecturers, from left to right: Dr Milica Miljković, Dr Iva Perović-Blagojević, Prof. Vesna Spasojević-Kalimanovska, Prof. Nada Majkić-Singh, Dr Živka Malić, Prof. Svetlana Ignjatović, Dr Dragana Bačković, Dr Dragana Puhalo-Sladoje, and Dr Zorica Šumarac.



## IFCC NEWS

### “Laboratory medicine: Preparing for the 2020’s” IFCC General Conference 10-11 November 2018

by Howard Morris, President IFCC

Our triennial General Conference is one of the most important items on the IFCC calendar. It brings together National Society representatives to work with IFCC officers to identify the current major issues for our profession and to advise on our strategic plan to effectively address our mission. In order to plan for the future it is useful to think about why professional societies exist? Why do national societies join the IFCC? Why should clinical laboratory specialists join national societies? Three basic answers come to mind from my own experience. I want professional organizations to support me through (1) assistance to meet my daily challenges in providing optimal clinical laboratory practice, (2) guidance to pursue a fulfilling career and (3) the opportunity for meeting, networking and exchanging views with other clinical laboratory specialists. To develop a strategy to meet the challenges of providing optimal laboratory practice we need to consider our work environment and the major challenges facing healthcare providers internationally. Our laboratories are facing increased demands without the appropriate resources as a result of growing rates of chronic diseases, increasing patient expectations, ageing of populations, increasing costs of medical advances and limited growth of healthcare budgets. These are difficult and uncertain times for our profession but it is similar for all healthcare workers. We as professionals have a responsibility and self-interest to discover and test alternate methods for delivering sustainable healthcare. We need to be part of the solution not part of the problem. During the conference a short poll was taken of the delegates with some 60% indicating that their major challenge in the laboratory was funding either the allocated budget or reimbursement constraints. Approximately 15% identified either quality laboratory performance or training and continuing professional development as their major challenges and some 5% identified either the introduction of new technologies and new biomarkers into the laboratory or opportunities for career development. To read more click [here](#)

### IFCC Programmes for Personal Support

IFCC is pleased to announce the operation of the newly created IFCC Working Group for Personal Support (WG-PS), which is part of the Education and Management Division. The WG-PS brings together two previous IFCC programmes that offer one-to-one support to individual laboratory medicine specialists:

1. The IFCC Register of Experts: a database of experts from around the world who have offered to share their scientific or management expertise with senior trainees or newly qualified laboratory medicine practitioners
2. The IFCC Mentoring Programme: a voluntary process in which an experienced individual helps another person develop his or her goals and skills through a series of time-limited, confidential, one-on-one conversations and other learning activities.

Further details of WG-PS can be found on the IFCC website by using the following link: <http://www.ifcc.org/ifcc-education-division/working-groups-special-projects/wg-ps/>

Past President Graham Beastall, Chair of WG-PS, offers the following comment on the operation of the Working Group. “One of the strengths of IFCC is its global network of Experts and senior professionals who are willing to support more junior individuals and/or practitioners from developing countries on a one-to-one basis. WG-PS aims to utilise this network. WG-PS is an unusual IFCC programme because it targets individual laboratory medicine practitioners rather than IFCC Member societies or companies. To be effective WG-PS needs help to promote its two programmes to individuals and we have asked IFCC Members to help us to do this. In addition, we will be using our Young Scientist network and social media to help spread the word. Ultimately, the success of WG-PS will depend on our ability to reach the individuals who can benefit from the personal support programmes. Please draw the attention of this article to your colleagues and refer them to:

<http://www.ifcc.org/ifcc-education-division/working-groups-special-projects/wg-ps/> “Any queries about WG-PS should be addressed to Silvia Cardinale in the IFCC Office ([ifcc@ifcc.org](mailto:ifcc@ifcc.org)).

### IFCC task force for young scientist (TF-YS)

IFCC is promoting the importance of networking and cooperation with colleagues across the world by means of working groups and task forces that bring together people from all over the world. The Task Force for Young Scientists (TF-YS) was created to facilitate the exchange of knowledge, ideas and experience between young professionals in laboratory medicine and to contribute in the dissemination of the importance of Laboratory Specialists. The aim of the Task Force is essentially to help young scientists finding their way and building their career by enabling access to many educational tools and to opportunities for mentoring and international exchange. To know more: <http://www.ifcc.org/task-force-young-scientists-web-pages/>

# Calendar of EFLM events and events under EFLM auspices

Do not miss the opportunity to have your event listed here.

**Apply for EFLM auspices!** For more information visit: <https://www.eflm.eu/site/page/a/1048/> or email [eflm@eflm.eu](mailto:eflm@eflm.eu)

7-8 February 2019

**International Congress on Quality in Laboratory Medicine**  
Helsinki (FI) <https://www.labquality.fi/en>

14 May 2019

**Monitoring of Internal Quality Control System Using Patients' Data**  
EFLM webinar  
on-nline <https://elearning.eflm.eu/enrol/index.php?id=40>



12 February 2019

**New parameters of hematology analyzers and their clinical significance**  
EFLM webinar  
on-line <https://elearning.eflm.eu/enrol/index.php?id=42>

18 May 2019

**VII International Symposium Laboratory Medicine and Quality. Satellite Meeting EuroMedLab 2019**  
Barcelona (SP) [www.seqc.es](http://www.seqc.es)



20-22 February 2019

**IV Turkish in vitro Diagnostic (IVD) Symposium "Biosensors"**  
Izmir (TR) <http://ivdbiosensor2019.org/tr/>

19-23 May 2019

**EuroMedLab 2019**  
**23<sup>rd</sup> IFCC-EFLM European Congress of Clinical Chemistry and Laboratory Medicine**  
Barcelona (SP) <http://www.euromedlab2019barcelona.org>



22-23 March 2019

**5<sup>th</sup> EFLM-BD European Conference on Preanalytical Phase Biannual Conference organized by the EFLM Working Group on "Preanalytical Phase" in collaboration with BD**  
Zagreb (HR) <http://www.preanalytical-phase.org/>

19 May 2019

**International Symposium: Breast Cancer and Environment. Satellite Meeting EuroMedLab 2019**  
Barcelona (SP) [www.seqc.es](http://www.seqc.es)



4-5 April 2019

**10<sup>th</sup> European Symposium on Clinical Laboratory and In Vitro Diagnostic Industry 'The clinical laboratory in the pregnancy monitoring'**  
Barcelona (SP) <http://www.iec.cat/jornades/laboratoriclinic2019.asp>

19 May 2019

**International Symposium: Standardization and Recommendations in the Laboratory of Haematology. Satellite Meeting EuroMedLab 2019**  
Barcelona (SP) [www.seqc.es](http://www.seqc.es)

11-12 April 2019

**15<sup>th</sup> Belgrade Symposium for Balkan Region "Neighbouring Countries: The Same Professional Aim"**  
Belgrade (SRB) [www.dmbj.org.rs](http://www.dmbj.org.rs)

5-7 June 2019

**3<sup>rd</sup> Conference of Romanian Association of Laboratory Medicine (RALM)**  
Iasi (RO) <http://www.congres-amlr.ro/>

18-21 April 2019

**12<sup>th</sup> International & 17<sup>th</sup> National Congress on Quality Improvement in Clinical Laboratories**  
Tehran (IR) [www.iqctehran.ir](http://www.iqctehran.ir)

16-18 October 2019

**5<sup>th</sup> ESPT Congress Precision Medicine and Personalised Health**  
Seville (SP) <http://www.2019esptcongress.eu/>

1-3 May 2019

**Focus 2019 – Annual Meeting of the ACB**  
Glasgow (UK) [www.acb.org.uk/focus](http://www.acb.org.uk/focus)

9-12 June 2020

**XXXVII Nordic Congress in Medical Biochemistry**  
Trondheim (NO) [www.nfkk2020.no](http://www.nfkk2020.no)

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	1 issue	6 issues
1 quarter of page	500 €	2000 €
Half a page	1000 €	4000 €

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