EUROMEDLAB MILANO 2013
19-23 MAY

daily

TUESDAY 21 MAY

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University-Hospital of Verona, Italy

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20th IFCC-EFLM European Congress of Clinical Chemistry and Laboratory Medicine
45th Congress of the Italian Society of Clinical Biochemistry and Clinical Molecular Biology (SIBioC)

Congress at Full Speed


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The first day of the Congress started under the best auspices: we could enjoy a few hours without any rain! By the end of Monday morning around 4.500 registrations from more than 100 different countries were recorded. The Symposia were of an extraordinary scientific level and the attentive audience could therefore enjoy the most important novelties in different fields of Laboratory Medicine. The Plenary lecture was of particular importance. Prof Thomas Ganz took us deeply into the regulatory pathways of iron metabolism; this understanding can lead to pivotal improvements in the management of the disorders of iron homeostasis. People seem to have appreciated very much (at lunch break) the time, free from any other scientific activity, to visit the poster sessions and to attend the poster walks. The Workshop on Publication Ethic and Scietific Writing has been attended by 30 people who could learn on this fundamental aspect of our profession from the invaluable experience of Nader Rifai, Clinical Chemistry Editor and of Thomas M Annesley, Deputy Editor of the Journal.

1: The Congress official opening
2: Plenary Lecture on Iron Metabolism: Prof Thomas Ganz
3: The IFCC session on Harmonization on autoimmune testing
4: The Poster Walk

TODAY'S PROGRAMME OVERVIEW

9:00 - 11:00 ***PARALLEL SYMPOSIA***
• *Room Gold*
SYMPOSIUM 5
CONTEMPORARY ISSUES IN THYROID DISEASE
• *Room Silver*
SYMPOSIUM 6
LABORATORY TESTING IN NEURODEGENERATIVE DISEASE
• *Auditorium*
SYMPOSIUM 7
CLINICAL APPLICATIONS OF QUANTITATIVE MASS SPECTROMETRY
• *Room Brown 3*
SYMPOSIUM 8
MicroRNAs: FROM BENCH TO BEDSIDE
• *Room Brown 1-2*
EFLM SESSION
THE CHANGING LANDSCAPE OF THE CLINICAL EVALUATION OF BIOMARKERS

11:45 - 12:30 ***PLENARY LECTURE***
Sick molecules and amyloidosis
G. Merlini (Italy)

13.30 - 14.30 ***POSTER WALK DISCUSSIONS***
CRITICAL CARE/EMERGENCY MEDICINE
ENDOCRINOLOGY
LABORATORY ERRORS AND PATIENT SAFETY
NEUROLOGICAL DISEASE
PEDIATRIC LABORATORY MEDICINE/PREGNANCY AND NEONATOLOGY
QUALITY ASSESSMENT, STANDARDIZATION, TRACEABILITY
TECHNOLOGY, INSTRUMENTATION AND METHOD EVALUATION/LABORATORY MENAGEMENT AND INFORMATION TECHNOLOGY 1
TECHNOLOGY, INSTRUMENTATION AND METHOD EVALUATION/LABORATORY MENAGEMENT AND INFORMATION TECHNOLOGY 2

15:00 - 17:00 ***SYMPOSIUM***
• *Room Silver*
IFCC SESSION
PUBLIC RELATIONS AND THE VALUE OF LABORATORY MEDICINE

14:30 - 18:30 ***EDUCATIONAL WORKSHOPS***
Abbott
Beckman Coulter
Bio-Rad Laboratories
bioMérieux
Chromsystems Instruments & Chemicals
DiaSorin
Horiba Medical
Immunodiagnostic Systems (IDS) Plc
Randox Laboratories
Roche Diagnostics
Shen Zhen Mindray Bio-medical Electronics
Siemens AG Healthcare Sector

POSTER TOPIC DISPLAYED
Critical care/emergency medicine
Endocrinology
Laboratory errors and patient safety
Laboratory management and information technology
Neurological disease
Paediatric Laboratory Medicine
Pregnancy and neonatology
Quality assessment, standardization, traceability
Technology, instrumentation and method evaluation

LAST CHANGES

9:00 – 11:00
Room Gold SYM 5
Contemporary Issues in Thyroid Disease
C. Carrozza is replaced by G. Canu

9:00 – 11:00
Auditorium SYM 7
Clinical Applications of Quantitative Mass Spectrometry
G. Federici (Chair) is replaced by A. Urbani

9:00 – 11:00
Room Brown 1–2 EFLM Session
The Changing Landscape of the Clinical Evaluation of Biomarkers
P. Zammaretti is replaced by S. Baumann

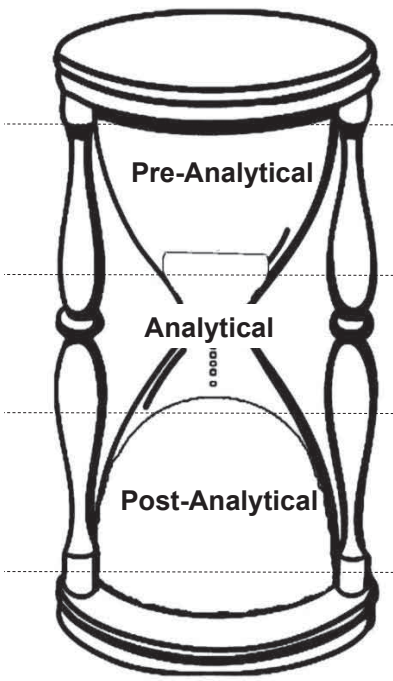
14:30 – 15:30
Room Amber 7–8 EDU W 16
Randox Laboratories
Rapid Detection of Designer Drugs Within the Clinical Laboratory
S. Pichini (Chair) is replaced by L. Morini

Hot Spot in Laboratory Medicine

Errors in laboratory medicine

Mario Plebani
Department of Laboratory Medicine, University-Hospital of Padova, Italy

Laboratory-associated error has a completely different meaning today than it did five decades ago. At that time, the term was used for defects in the analytical performance of the test, the so-called "analytic phase". A comprehensive analysis of the data reported in the literature in the last decades, shows that the analytical error rates remarkably decreased from 162,116 per million laboratory tests (part per million, ppm) to 447 ppm. This dramatic and impressive reduction (i.e., ~300-fold), has principally emerged from the widespread introduction of automation, information technology, improved laboratory technology, assay standardization, well-defined rules for internal quality control (IQC), as well as effective quality assurance schemes and better trained personnel. Major drivers for moving from a "laboratory-centered" scenario - which recognised only analytical errors- to a "patient-centered" scenario that focus on errors in the total testing process (TTP) were the increasing recognition of a patient-centered approach and the related need to assure quality and safety in all steps of the "brain-to-brain loop". In fact, although the importance to errors in the TTP has been recognised many decades ago, only in 1990s a body of evidence has been accumulated to demonstrate the high vulnerability of the pre- and post-analytic phases. In particular, two articles were published in 1997 and 2007[1, 2], using one study design that allowed to assess the TTP within the same clinical context and thereby identify the true error rates. The results obtained were substantially similar, demonstrating that the distribution of errors was 62 to 68% pre-analytical, 13 to 15% analytical, and 18 to 23% post-analytical. Further studies and publications have better elucidated the nature of errors in laboratory testing through the exploration of the initial and final steps of the testing process that have been grouped and defined "pre-pre-analytical" and "post-post-analytical". In particular, the exploration of the initial steps of the procedures which are usually performed neither in the clinical laboratory, nor, at least in part, under the control of the laboratory personnel, has allowed to understand the causes and the underlying mechanisms that produce most pre-analytical errors[3]. Again, in the final steps of the loop, a delayed acknowledgment of laboratory reports, as well as failures in interpretation, follow-up and documentation of laboratory data were found to be responsible for a high percentage of errors in various clinical settings. The state-of-the-art regarding errors in laboratory medicine is represented by the hourglass model, as shown in *Figure 1*. The highest frequency of errors and associated risk for patients is currently found in pre-pre- and post-post-analytical phases with major criticisms in patient and sample identification and in acknowledgment, interpretation and follow-up of laboratory results, including critical values[4]. Project based on risk management in the TTP, the identification of reliable quality indicators, teamwork and an improved safety culture are, therefore, expected to reduce current error rates in laboratory testing.



	Frequency of occurrence
Pre-pre-analytical, very high frequency, high risk • Inappropriate test request • Order entry • Patient/specimen misidentification • Sample collection (hemolysis, clotting, insuff. volume) • Handling, storage and transportation)	12%
Pre-analytical, high frequency • Sorting and routing • Pour-off • Aliquoting, pipetting and labelling • Centrifugation (time and transportation)	2%
Analytical • Equipment malfunction • Sample mix-ups • Interference (endogenous or exogenous) • Undetected failure in quality control	0.2%
Post-analytical, high frequency • Erroneous validation of analytical data • Failure in reporting/addressing the report • Excessive turn-around-time • Improper data entry and manual transcription error • Failure/delay in reporting critical values	2.2%
Post-post-analytical, very high frequency, high risk • Delayed/missed reaction to laboratory reporting • Incorrect interpretation • Inappropriate/inadequate follow-up plan • Failure to order appropriate consultation	5.0%

References

[1] Plebani M, Carraro P. Mistakes in a stat laboratory: types and frequency. Clin Chem 1997; 43: 1348-51.

[2] Carraro P, Plebani M. Errors in a stat laboratory: types and frequencies 10 years later. Clin Chem 2007; 53: 1338-42.

[3] Carraro P, Zago T, Plebani M. Exploring the initial steps of the testing process: frequency and nature of pre-preanalytic errors. Clin Chem 2012; 58: 638-42.

[4] Plebani M. The detection and prevention of errors in laboratory medicine. Ann Clin Biochem. 2010; 47: 101-10.

Leonardo Da Vinci created the Vitruvian Man's drawing in 1490.

SPEAKER'S RECEPTION DINNER

The "Museo della Scienza e della Tecnica" was the location of the Speaker's Reception last night. Founded in 1953, this is the largest science and technology Museum in Italy. The museum is housed in an early sixteenth-century Olivetan monastery, located in centre of Milano, and named after Leonardo da Vinci, the Renaissance intellect who mastered art, science and technology. Through the years, the Museum has collected objects, machinery and evidence that retrace the key phases of Italy's scientific and technological development. The Museum includes the Leonardo Gallery, which hosts a rich selection of models created by a group of engineers who based their work on the study and interpretation of Leonardo's manuscripts. The speakers could enjoy both the visit to the Leonardo Gallery and a beautiful dinner.

Wednesday, 22 May 2013, starting at 19:00

Castello Sforzesco

If you have already booked your ticket, you will find it inside your congress badge. If you have not booked your ticket yet, please check with the Social Events Desk by Tuesday, 21 May at 12:00.

Rate for registered person: €30
Rate for not registered person: €90

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Roche exhibition booth Nr. 65

Topic of the day:

- **Cardiology & Coagulation**

Symposium of the day:

- **Women's Health:**
  Tuesday, May 21st 14.30–15.30, Auditorium

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Tuesday 21st May 14:30 – 15:30

Rapid detection of designer drugs within the clinical laboratory

Chair: J. Lamont (UK) and S. Pichini (Italy)

Room: Amber 7-8

- Methods for the rapid detection of synthetic Cannabinoids
  R. Brent Dixon (USA)
- Multi-target detection of designer drugs by multiplex immunoassay
  J. Darragh (UK)

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Tuesday 21st May 16:00 – 17:00

Emerging biomarkers in stroke

Chair: M.M. Corsi Romanelli (Italy) and R. Christenson (USA)

Room: Amber 7-8

- Biomarkers in stroke diagnosis, classification and prognosis
  K. Makris (Greece)
- Towards development of a novel multiplex test for accurate stroke diagnosis employing biochip array technology
  C. Richardson (UK)

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TUESDAY 21 MAY

Room Gold 11:45-12:30 PLENARY LECTURE

Chair: F. Ceriotti (Italy)

Sick molecules and amyloidosis

G. Merlini
Amyloidosis Research and Treatment Centre, and Clinical Chemistry Laboratories, Scientific Institute Policlinico San Matteo, Department of Molecular Medicine, University of Pavia, Italy.

An increasing number of diseases are recognized to arise from the failure of proteins to adopt functional conformational states. These pathologic conditions are generally referred to as protein misfolding (or protein conformational) diseases. These proteins behave like "sick molecules", a term coined by Jan Waldenström, since they display a pathological conformation prone to aggregate and become toxic for cells and tissues, producing devastating damage. The largest group of misfolding diseases is associated with the conversion of peptides or proteins from their soluble functional states into highly organized fibrillar aggregates showing a cross-beta super-secondary structure termed "amyloid." It is becoming increasingly apparent that amyloid-forming proteins exist in a complex dynamic equilibrium between soluble monomeric or oligomeric states and various insoluble states of higher-order aggregation. The formation of these aggregates depends on the protein concentration, complex interactions with other molecules and the specific cellular environment. Several lines of evidence support a role for extracellular chaperones in the in vivo clearance of aggregation-prone proteins. To date, at least 28 different proteins have been identified as causative agents of amyloid diseases, ranging from localized cerebral amyloidosis in neurodegenerative conditions, to systemic amyloidoses such as immunoglobulin monoclonal light chain amyloidosis and transthyretin amyloidosis. The process of amyloid formation results in cellular injury, tissue damage, and organ dysfunction through mechanisms that are incompletely understood. The simple explanation of a physical, mechanical replacement of parenchymal tissue by amyloid deposits seems to be insufficient. A growing body of literature has implicated prefibrillar oligomers, rather than the fibrillar form, as the primary pathologic species. Direct cytotoxicity of amyloidogenic immunoglobulin light chains to cardiac cells has also been demonstrated. The clinical chemist plays a central role in the diagnosis and management of these complex diseases. Advances in biomarker studies have enabled detection of amyloid pathology in vivo in presymptomatic stage, before irreversible organ damage has occurred, providing the basis for early intervention trials. The accurate typing of the amyloid deposits is the prerequisite for designing the appropriate therapeutic strategy and involves the precise identification of the amyloid protein by mass spectrometry-based technologies. The assessment of the organ damage by novel biomarkers allows monitoring the efficacy of treatment. Advances in deciphering the molecular mechanisms underlying the amyloid process are leading to the development of novel therapeutic resources and strategies.

POSTER AWARDED ON MONDAY 20 MAY SPONSORED BY SIBioC

M003
EOTAXIN-2 (CCL24) and EOTAXIN-3 (CCL26) LEVELS IN NASAL LAVAGE OF PATIENTS WITH EOSINOPHILIC CHRONIC INFLAMMATION
E. De Corso, R. Penitente, M. Romanelo, M. Battista, G. Paludetti, C. Zuppi, S. Baroni (Italy)

M054
DIAGNOSIS OF CONRADI-HÜNERMANN-HAPPLE SYNDROME: CHOLESTEROL INTERMEDIATES MEASUREMENT, GENETIC TESTING AND HISTOLOGY NEED TO BE ASSOCIATED
K. Belabbas, A. Lamazière, S. Leclerc-Mercier, F. Chevy, S. Schmitt, J. Martinovic, A. Liquier, R. Mangione, A. Dompmartin, M. Barreau, J. Masliah, S. Hadj-Rabia, F. Dufernez (France)

M072
BBS1, BBS10 AND BBS2 ARE MAJOR CAUSATIVE GENES FOR BARDET-BIEDL SYNDROME IN ITALIAN PATIENTS
M. D'Antonio, G. Esposito, I. Tandurella, A. Crispo, F. Simonelli, V. Di Iorio, F. Salvatore (Italy)

M081
ATYPICAL CYSTIC FIBROSIS: DEVELOPED A NEW GENETIC TEST FOR IDENTIFICATION OF ENAC MUTATIONS
A. Renesto, K. Bortolozzo, A. Albanese, A. Tamanini,C. Zampieri, M. Dechecchi (Italy)

M082
MOLECULAR ANALYSIS OF PATIENTS WITH ELEVATED LONG-CHAIN 3-OH-ACILCARNITINES ALLOWS DIFFERENTIAL DIAGNOSIS BETWEEN LCHAD AND MTP DEFICIENCY
C. Cozzolino, R. Romanelli, E. Scolamiero, G. Parenti, G. Andria, M. Ruoppolo, G. Frisso, F. Salvatore (Italy)

M098
EVALUATION OF PRESEPSIN (sCD14-ST) IN CORD BLOOD AS A MARKER FOR EARLY-ONSET NEONATAL SEPSIS
I. Cebreiros-López, J. Noguera-Velasco, A. Martínez-Ruiz, N. Sancho-Rodríguez, I. De Miguel-Elízaga, M. Martínez-Villanueva, J. Vílchez-Aguilera, C. Puche-Morenilla, P. Martínez-Hernández (Spain)

M109
IDENTIFYING DENV-1 B-CELL EPITOPES USING PHAGE DISPLAY TECHNIQUE
E. Kuusela, G. Batra, U. Lamminmäki (Finland)

M186
AFFINITY IMPROVEMENT OF A UNIQUE PSA ANTIBODY USING PHAGE DISPLAY TECHNOLOGY
M. Liton, E. Brockmann, M. Peltola, M. Vehniäinen, E. Kuusela, U. Lamminmäki, K. Pettersson (Finland)

M329
SIGNIFICANT DECREASE OF PLUMBEMIA IN LEAD-EXPOSED WORKERS DUE TO EFFECTIVE PREVENTIVE MEASURES
F. Los, L. Kotackova, T. Zima (Czech Republic)

M398
IDENTIFICATION OF THE SOLUBLE MANNOSE RECEPTOR IN HUMAN SERUM AS A NEW MACROPHAGE-RELATED BIOMARKER
S. Rødgaard-Hansen, A. Rafique, P. Christensen, M. Maniecki, T. Sandahl, E. Nexø, H. Møller (Denmark)

NEWS FROM THE WORLD

WORLD METEROLOGY DAY

NEW YORK - The federal poverty thdate was chosen in recognition of the signing of the Meter Convention on 20 May 1875, the beginning of formal international collaboration in metrology. The theme chosen for 2013 is **"Measurements in daily life"**. The organizers state that: "In the course of a typical day it is surprising how often measurements come into play, whether (among many possible examples) checking the time, purchasing food or produce, filling up a vehicle with fuel, or undergoing a blood pressure check". As Clinical Chemists, we have to add to this list, the enormous amount of measurements of constituents of body fluids that every day are performed in thousands laboratories all around the world.

NEWS FROM ASIA

NEW KOREAN SANCTIONS

SEOUL - The U.S. and China introduced a new round of sanctions against North Korea to impede the development of Pyongyang's nuclear and missile programs, in response to its test of an atomic bomb and the recent activity of fired of short-range missile into the sea off the eastern coast of the Korean peninsula. South Korea's defense ministry estimated that the launched missiles had a range of 120 kilometers and could possibly be the KN-02 surface-to-surface missile. The action was provocative South Korean said. The sanctions would, among other measures, bring new focus to North Korea's financial transactions and the activities of its diplomats abroad, and call on nations to help prevent leaders of the poverty-stricken country from obtaining specific luxury items, including yachts and race cars.

TODAY!

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EduW 17: Improving Patient Outcome Through the Use of Biomarkers

Chair: C. Müller (Switzerland), M. Zaninotto (Italy)
Speakers: Christian Müller, Rudolf de Boer, Patrick Murray
Time: Tuesday, 16:00-17:00 (Auditorium)

EduW 23: Quantifying the Added Value of *in vitro* Diagnostics

Chair: P. Jülicher (Germany), C. Price (UK)
Speakers: Lieven Annemans, Olaf Stanger
Time: Tuesday, 16:00-17:00 (Room Amber 5-6)

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- The eJournal of the IFCC features articles, debates, reviews, and editorials aimed at clinical laboratory medicine specialists.

All lab specialists from all countries are invited to submit manuscripts, reviews, and opinions to eJIFCC and eNews!

The C-PR provides brochures translated into Arabic, Chinese, Farsi, French, Italian, Polish, Russian, Spanish, and Turkish, as well as slide shows available for presentation at regional, national or local meetings.

Educational Workshop
22 MAY 2013

14:30 – 15:30
Room Brown 1-2

THE IMMUNOFLUORESCENCE TECHNIQUE FOR ANTI-NUCLEAR ANTIBODIES: PRESENT AND FUTURE

Chairs: *N. Bizzaro (Italy) – C. Kallenberg (The Netherlands)*

14:30 - Diagnostics of autoimmune disease using indirect immunofluorescence tests for detection of antinuclear antibodies: 60 years old and it does not show
A. Wiik (Denmark)

15:00 - The use of different technologies for automated detection and classification of anti-nuclear antibodies
E. Tonutti (Italy)

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