

Study Group / Task Force Name: **Bioanalytics Study Group**

Study Group / Task Force Members and Affiliations:

Head of Study Group: George Horvai – Hungarian Chemical Society

Wolfgang Buchberger – ex officio

Hendrik Emons –IRMM-JRC, European Commission

Guenter Gauglitz – Gesellschaft Deutscher Chemiker (GDCh)

Jose M. Pingarron – Spanish Royal Society of Chemistry

Jan Labuda – Slovak Chemical Society

Raluca-Ioana van Staden – Romanian Chemical Society

Jacobus Frederick van Staden – South African Chemical Institute

Objectives:

The aim of the Bioanalytics study group is to search ways for bringing closer the analytical and bioanalytical chemistry community. This is still a formidable task because a community of bioanalytical chemists does not appear to have formed yet.

A sign of change is that analytical journals publish more and more bioanalytical papers, also from European authors. According to our statistics over 300 articles were published in the fields of bioanalysis and biomedical analysis only by Romanian researchers in ISI journals.

New university chairs have been recently called “bioanalytical” and been taken by young analytical chemists (e.g., VU Amsterdam/Somsen, Tübingen/Lammerhofer, Gothenburg/Ewing). A chair for “effect based analytics” (C. Huhn, Tübingen) has also been established. In the pharmaceutical industry the fast growing business with biosimilars gave a push to bioanalytical method development. This will very likely increase the need for bioanalytical chemists trained according to the rigorous quality assurance principles of traditional analytical chemistry. Therefore we can expect growing interest for our societies by bioanalytical chemists.

A very recent report in Nature (attached) speaks of the enormous accuracy problems in bioanalysis and reflects the lack of analytical expertise among bioanalytical chemists.

Activities and Outputs in 2014-2015 (e.g. reports, publications, seminars, meetings):

The members of the task force have been working on or collecting good practices for bringing bioanalysts and analytical chemists closer.

Meetings:

In September 2014 a special session on bioanalysis was organized during 2nd Romanian International Conference on Analytical Chemistry: Analytical Chemistry for a Better Life. In May 2015, an International Seminar on Food Analysis was organized by the Romanian Chemical Society in cooperation with University Ovidius, Constantza, Romania. A special session was dedicated to bioanalysis of food.

Prizes:

The International Chapter of the American Chemical Society awarded during national and international conferences held in Romania, awards for young researchers, for posters and oral presentations in the field of bioanalysis.

Collaboration with IUPAC:

Professor Labuda acts as the vicepresident of the IUPAC Analytical Chemistry Division and continues to be responsible for the contact with DAC. He continued to work as a task group chairman on the finalization of the “Chapter 11, Bioanalytical Methods” of the Compendium on Terminology in

Analytical Chemistry (Orange Book) of IUPAC. In parallel, an IUPAC Recommendation of new terms was prepared for submission to Pure and Applied Chemistry. Professor G. Gauglitz and others have started an internal review process of this work.

Textbook:

In Slovakia, the new textbook on Analytical Chemistry (672 pp, in Slovak) was published by the Slovak University of Technology in Bratislava (STU) with a special subchapter on Bioanalytical Methods.

New bioanalytical research group:

At STU, a small international team of Prof. J. Labuda, consisting of Dr. Teodora Ignat (on leave from the Laboratory of Nanobiotechnology, IMT-Bucuresti, Bucharest, Romania), BSc Brigitta Kallai (from the Budapest University of Technology and Economics, Budapest, Hungary), and some Slovak members has been formed to study the potential toxicity of nanomaterials by bioanalytical methods. The results obtained are continuously published.

Activities planned for 2015-2016:

A discussion with the former editor of the Analyst, a journal which has in recent years published many bioanalytical papers has shown effective ways of getting bioanalytical chemists involved. Analyst had approached a few excellent bioanalytical chemists who were also highly regarded as analytical chemists (e.g., professors E. Hall and J. Bergquist) and with their help the journal could attract more and more bioanalytical papers. As an editor of ABC professor Gauglitz notes that the amount and percentage of bioanalytical papers is increasing in this journal, too, and he supports this by all means.

Thus our future goal might be to go a similar way, i.e. to invite some colleagues, who are recognized by both communities, to integrate these communities. We should refresh our list of areas in which bioanalytics is essential and in which form and which "school" is doing it. Persons doing bioanalytics but being in other fields than chemistry or biology (e.g., in physics, medicine, food, environment) should not be left out. The overlap between the area of nanoparticles and bioanalysis appears also to be important. Last but not least teachers of both analytical and bioanalytical chemistry and the respective industrial experts need to be contacted.

One should see, however, the difficulties. In some analytical conferences that we attended, and where the organizers succeeded to attract quite many bioanalytical chemists, the audiences of the bioanalytical and analytical sessions, respectively, were not very much mixing. Despite of this we try to organize a bioanalytics session at next year's EuCheMS Congress. This or a similar meeting might serve for the members of the task force to have a brainstorming session with the aforementioned experts of overlapping areas.

Meetings:

During the 3rd Romanian International Conference on Analytical Chemistry in 2016, there is planned a special session on bioanalysis.

Professor Gauglitz considers to extend the present Biosensor Symposium (last one was in Munich in 2015) from a German one to an European one. He plans also to convince the other organisers to handle it as a DAC activity in EuCheMS.

Oral additions to this report by individual members of the task force are possible at the AM.

Report submitted by: George Horvai

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