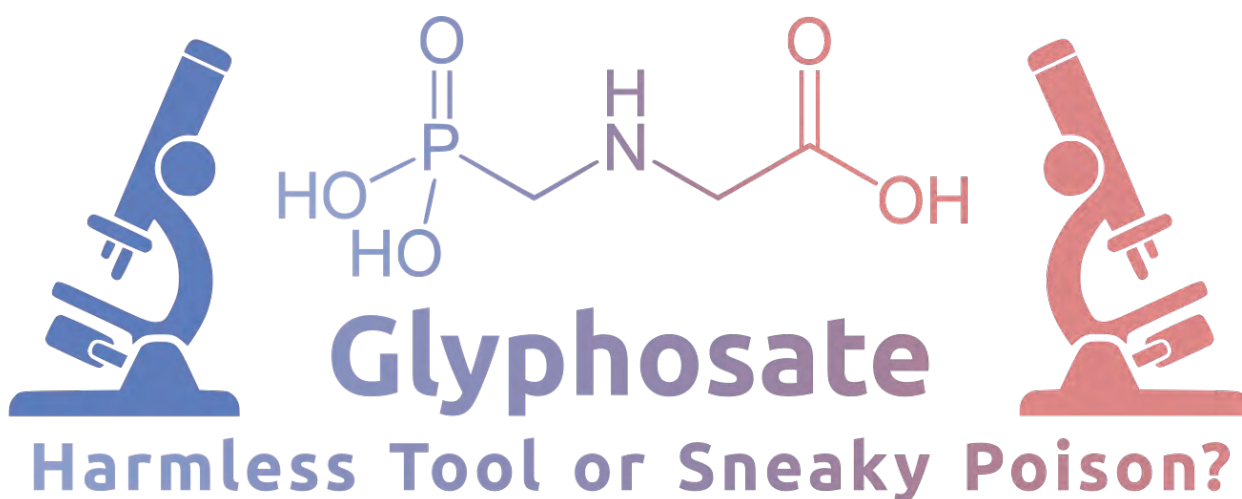




**S&D** Group of the Progressive Alliance of  
**Socialists & Democrats**  
in the European Parliament

**EuCheMS**  
European Chemical Sciences



Hosted by:

**RNDr. Pavel Poc, MEP**

Vice-Chair of the EP Committee on Environment, Public Health and Food Safety

Co-organised with:

**European Association for Chemical and Molecular Sciences (EuCheMS)**  
**European Chemistry Thematic Network Association (ECTN)**

**Wednesday, May 10, 2017**

**14:30-18:00**

**Room ASP 5E2**

**European Parliament, Brussels**

## Agenda

- 13:45 **Registration** (EP Infopoint – Place du Luxembourg Entrance)
- 14:30 **Pavel Poc, European Parliament**  
Opening words
- 14:40 **David Cole-Hamilton, EuCheMS President**  
A Welcome from the Chemistry Community
- 14:50 **Pavel Drašar, UCT Prague, ECTN President and EuCheMS Executive Board Member**  
Current Controversy in the Case of Glyphosate
- 15:05 **Tim Bowmer, European Chemical Agency, Chair of the Risk Assessment Committee**  
Risk Assessment Committee's Assessment of Glyphosate
- 15:20 **Silvia Lacorte, IDEA-CSIC**  
Exposure to Glyphosate: Should We Worry?
- 15:35 **John Coggins, University of Glasgow**  
Glyphosate – An Enzymologist's Perspective
- 15:50 **Kathryn Z. Guyton, International Agency for Research on Cancer**  
The Carcinogenicity of Glyphosate
- 16:05 Coffee Break
- 16:10 **Jack Heinemann, University of Canterbury, New Zealand**  
Herbicides Induce Multiple Antibiotic Resistance in Human Pathogens (video message)
- 16:15 **Tore Midtvedt, Karolinska Institutet**  
Glyphosate and Eco-Toxicological Consequences
- 16:30 **Peter Clausing, toxicologist, PAN Germany**  
Carcinogenicity of Glyphosate and the "Weight of Evidence Approach"
- 16:45 **Helmut Burtcher-Schaden, GLOBAL 2000 / Friends of the Earth Austria**  
Glyphosate and Cancer: Buying Science
- 17:00 **Michael Antoniou, King's College London, Medical and Molecular Genetics**  
Roundup Causes Non-Alcoholic Fatty Liver Disease
- 17:15 **Hartmut Frank, University Bayreuth, Editor "Toxicological and Environmental Chemistry", Chair and Founder of the EuCheMS Working Party on Ethics in Chemistry**  
Do Chemists/Scientists Need to Understand Ethics?
- 17:30 **Discussion**
- 17:55 **Pavel Poc, European Parliament**  
Conclusion

## Introduction

Glyphosate is the active substance in the most frequently used herbicide both worldwide and in the EU. Many institutions had provided its expertise on glyphosate's impact on health including the divergent findings of the European Food Safety Authority on one side and of the International Agency for Research on Cancer on the other.

On June 29, 2016 the European Commission decided to amend the Implementing Regulation (EU) No 540/2011 as regards the extension of the approval period of the active substance glyphosate. This extended the approval period of the chemical until six months from the date of receipt of the European Chemicals Agency's classification of glyphosate or until 31 December 2017, whichever is the earlier.

The ECHA's Risk Assessment Committee concluded now that the available scientific evidence did not meet the criteria to classify glyphosate as a carcinogen, as a mutagen or as toxic for reproduction.

MEP Pavel Poc, Vice-Chair of the ENVI Committee of the European Parliament, the European Association for Chemical and Molecular Sciences (EuCheMS) and the European Chemistry Thematic Network Association (ECTN) have invited ECHA representatives and leading experts in the field to participate in a scientific evidence based debate on glyphosate's possible negative effect on human health, specifically in relevance to the biological molecular processes, metabolism, genotoxicity, endocrine disruptors, antimicrobial resistance, and other serious health related concerns.



## Speakers and Abstracts

### **Pavel Poc, European Parliament**

RNDr. Pavel Poc has been a Member of the European Parliament since 2009. He is currently the Vice-Chair of the Committee on Environment, Public Health and Food Safety, Chair of the Parliamentary Intergroup for Climate Change, Biodiversity and Sustainable Development and Vice-Chair of the MEPs Against Cancer Group. As preservation of environment is very much interlinked with the protection of the human health, Dr. Poc focuses significantly on the pollution of our environment and food chain by toxic chemicals causing variety of negative effects on our health.



In the European Parliament MEP Poc drafted the objection against the reauthorisation of glyphosate for another 15 years, which was adopted in 2016. According to the Parliament's recommendations and given concerns about the carcinogenicity and endocrine disruptive properties of the herbicide glyphosate, used in many farm and garden applications, the EU Commission should renew its marketing approval for maximum 7 years and for professional uses only. MEPs also condemned as "unacceptable" the use of glyphosate as a desiccant, because this practice leads inter alia to increased human exposure. MEPs also insisted that glyphosate should not be approved for use in or close to public parks, public playgrounds and public gardens. The Resolution called for an independent review and the publication of all the scientific evidence that the European Food Safety Authority (EFSA) used to assess glyphosate.

### **David Cole-Hamilton, EuCheMS President**

David Cole-Hamilton, EuCheMS President, has served the scientific community as President of the Chemistry Section of the British Association for the Advancement of Science, Chair of the Royal Society of Edinburgh Chemistry Committee and as member of several Committees of the Royal Society of Chemistry. Moreover, he has served 4 years on the Council of the Royal Society of Chemistry and he has been the UK representative on the EuCheMS Division for Organometallic Chemistry since 2005. He has recently been elected to serve as President of the Dalton Division of the Royal Society of Chemistry. David Cole Hamilton is Professor Emeritus of Chemistry at the University of St. Andrews, Scotland. His main research interests are on applications of organometallic compounds to solving problems in material chemistry and homogenous catalysis. He also had excursions into diverse fields as electron transfer across membranes, developing a new process for the conservation of wooden archaeological artefacts using supercritical drying and extensive studies of reaction mechanisms in solutions and in the gas phase. David Cole-Hamilton defines himself as a committed European and a committed chemist, who truly believes that chemistry holds the keys to the future prosperity and quality of life for all.



### **Pavel Drašar, UCT Prague, ECTN President and EuCheMS Executive Board Member**

2004 Full professor of organic chemistry, 2004 DSc in organic chemistry, 2002- UCT Praha, educator and research worker, 2002 associated professor (docent), 1997 EurChem, 1993 CChem, FRSC, 1972-77 PhD study, Institute of Organic Chemistry CAS, Prague, 1972 RNDr. (Rerum Naturalium Doctor), 1972-2002, Institute of Organic Chemistry and Biochemistry (IOCB), CAS, PhD student, later research worker, 1966-71 Charles University Prague, Faculty of Natural Sciences. Work: 225 documents and 1090/745 citations in WoS, h-index 15, over 150 conferences, 15 books, 36 patents. CEFR: English C1, Russian B2, Slovak B2, German A2. Stays abroad: 1974 Institute of Organic Synthesis, Academy of Sciences, Riga, Latvia; 1984-5 Arizona State University, Cancer Research Institute, Tempe, Arizona, USA; 1987 Institute of Bio-Organic Chemistry, Minsk, Belarus



### **Abstract - Current Controversy in the Case of Glyphosate**

In the contemporary world is everyone aware of every chemical in the surrounding environment. The general public is in its majority emotionally chemophobic. However, without the current development of chemistry (and connected sciences) it will be hardly possible to keep the mankind healthy and protected from starvation. In this situation, the controversy which is already several years over glyphosate calls for scientific and political evaluation of its long term effects.

**Tim Bowmer, European Chemical Agency, Chair of the Risk Assessment Committee**

Timothy Bowmer, PhD., is the Chair of ECHA's Committee for Risk Assessment since 2012. Among other, he previously worked in the fields of toxicology, analytical chemistry and risk assessment. He has been the Chairman of GESAMP, The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, an inter-agency science advisory body sponsored by IMO, IAEA, FAO, UNESCO-IOC, UNEP, UN, WMO, UNIDO and UNDP. He has a PhD. in Marine Biology from the National University of Ireland. He has about 30 peer reviewed papers in scientific and technical journals and he is editor of GESAMP Reports & Studies No. 64 (2002), The revised GESAMP hazard evaluation procedure and its second edition (2013 in prep.)



**Abstract - Risk Assessment Committee's Assessment of Glyphosate**

Mr Bowmer has been Chairman of ECHA's Committee for Risk Assessment since 2012 and chaired the discussions leading to the adoption of the European Chemicals Agency (ECHA) opinion on the harmonised classification and labelling of glyphosate. In line with the European Union Regulation on the classification and labelling of chemicals and mixtures (CLP), a proposal for re-classifying glyphosate was submitted by the authorities of the Federal Republic of Germany in July 2016. ECHA concluded on 15 March 2017, after a public consultation and review of all available toxicological studies, to maintain the current harmonised classification of glyphosate as a substance causing serious eye damage and being toxic to aquatic life with long-lasting effects. It also concluded that the available scientific evidence did not meet the criteria to classify glyphosate as a carcinogen, as a mutagen or as toxic for reproduction.

Mr Bowmer will explain the methodologies applied by ECHA and the findings of its Risk Assessment Committee. Background information can be found on ECHA's website: <http://echa.europa.eu/chemicals-in-our-life/hot-topics/glyphosate>

**Silvia Lacorte, IDAEA-CSIC**

My research career expands over 20 years in the Department of Environmental Chemistry of the Spanish Research Council (IDAEA-CSIC) working in the field of Environmental and Analytical Chemistry. I am specialized in evaluating the presence and impact of organic micropollutants in the aquatic system, with emphasis to identifying the sources of pollution. To do so, my research is based in carrying out monitoring studies in different types of aquatic environments (river water, seawater, groundwater, wastewater) using validated mass spectrometric based methods for the analysis of pesticides, pharmaceuticals, emerging contaminants, persistent organic pollutants, etc. I have participated or coordinated over 40 national and international research projects and I have 180 publications in peer reviewed journals.



**Abstract - Exposure to Glyphosate: Should We Worry?**

Glyphosate is a popular herbicide used in olive, citric, sunflower, wheat and grape crops, among others. It is a very soluble compound, quite stable in water and soil, with low volatility and low potential for bioaccumulation. In the environment, glyphosate is degraded to aminomethylphosphonic acid (AMPA), and both residues are generally detected in soils and waters. However, only a limited number of crops generate residues. This presentation will discuss the potential human risks associated to glyphosate and AMPA exposure, considering the residues present in food and water, the maximum pesticide residues according to Regulation (EU) No 293/2013, the acceptable daily intake and several toxicological endpoints.

**John Coggins, University of Glasgow**

John Coggins FRSE, FRSB, is Emeritus Professor of Molecular Enzymology and Honorary Senior Research Fellow in the School of Biology at the University of Glasgow where he was formerly Vice Principal for the Faculties of Biomedical & Life Sciences, Clinical Medicine and Veterinary Medicine and Dean of Biomedical & Life Sciences. His major research interests are the structure and mechanism of biosynthetic enzymes and the rational design and development of novel anti-microbial and anti-parasitic agents. John is a member of the Council of the Royal Society of Biology. Among his previous roles he has been Vice President for Life Sciences of the Royal Society of Edinburgh, Treasurer of the Biosciences Federation and a Council Member of BBSRC.



**Abstract - Glyphosate – An Enzymologist's Perspective**

Studies on microbial and plant enzymes in the early 1980s demonstrated that the broad spectrum herbicide glyphosate is a potent and specific inhibitor of the shikimate pathway enzyme 5-enolpyruvylshikimate phosphate synthase. Plant molecular biologists

were able to exploit this knowledge to develop crops resistant to glyphosate and this heralded a revolution in agricultural practice. Since the shikimate pathway is absent in mammals, glyphosate has negligible mammalian toxicity. In contrast, the shikimate pathway is essential for bacteria and fungi as well as plants. Soil micro-organisms are readily able to develop the ability to metabolise glyphosate so that persistent use of the herbicide does not lead to the build-up of harmful residues in the soil.

**Kathryn Z. Guyton, International Agency for Research on Cancer**

Dr. Kate Guyton is a Senior Toxicologist at the International Agency for Research on Cancer (IARC), World Health Organization in Lyon, France. Dr. Guyton received her scientific training in the United States. She earned her BA (cum laude) and her PhD degrees from Johns Hopkins University, and her completed postdoctoral training at the National Institutes of Health. Dr. Guyton has been certified as a Diplomate of the American Board of Toxicology since 1998. Prior to joining IARC, she worked for the United States Environmental Protection Agency (2005-2014), receiving a Gold Medal for exceptional service. She also has experience, as the Director of Scientific Affairs at CCS Associates (1998-2005), working with the United States National Cancer Institute. Dr. Guyton has authored more than 50 scientific publications in her area of expertise.



**Abstract - The Carcinogenicity of Glyphosate**

Glyphosate is a broad-spectrum herbicide used worldwide in products for agriculture, forestry, urban, and home applications. Glyphosate was classified by IARC as “probably carcinogenic to humans” (Group 2A) in March 2015. This classification followed the procedures published in the Preamble to the IARC Monographs (<http://monographs.iarc.fr/ENG/Preamble/CurrentPreamble.pdf>) for the systematic assembly and review of all publicly available studies by independent experts, free from vested interests. The classification reflects the strength of evidence for carcinogenicity arising from human and experimental data, and from mechanistic studies. From studies in humans, the evidence was “limited”. Increased risk for non-Hodgkin lymphoma that persisted after adjustment for other pesticides was reported in case-control studies of occupational exposure in Canada, Sweden, and the USA. The Agricultural Health Study cohort did not report significantly increased non-Hodgkin lymphoma. From studies in experimental animals, the evidence was “sufficient”. Glyphosate induced a positive trend in the incidence of a rare tumour, renal tubule carcinoma, in male mice. A positive trend for haemangiosarcoma was reported in a separate study of male mice. Mechanistic studies in rodents and in vitro provided strong evidence that glyphosate induces oxidative stress. Although bacterial mutagenesis tests were negative, glyphosate induced damage to DNA and chromosomes in mammals, and in human and animal cells in vitro. In one study, blood micronuclei were increased after glyphosate spraying operations when compared with the same individuals before spraying, indicating the likelihood that genotoxicity can occur in humans. The “strong” evidence for oxidative stress and for genotoxicity, and that these can be operative in humans, further supported the Group 2A classification of glyphosate based on “limited” evidence of cancer in humans and “sufficient” evidence of carcinogenicity in experimental animals.

**Jack Heinemann, University of Canterbury, New Zealand**

Jack Heinemann is a professor of genetics and molecular biology in the School of Biological Sciences and director of the Centre for Integrated Research in Biosafety at the University of Canterbury, Christchurch, New Zealand. He served the UN Roster of Biosafety Experts (to 2009) and he has served the Secretariat for the Convention of Biodiversity on the Ad Hoc Technical Expert Group on Risk Assessment and Risk Management (to 2016). He was commissioned by the United Nations Food and Agriculture Organisation (UN FAO) to prepare a definitive view on gene flow from transgenic crops. Jack was a lead author on Chapter 6 of the global report, and of the biotechnology section of the Synthesis Report, for the International Assessment on Agricultural Knowledge, Science and Technology for Development (IAASTD). In this latter role, he was invited by the Director of the IAASTD to represent the authors at the intergovernmental plenary at which the report was adopted. In addition to that role, he has been a biotechnology advisor on an ad hoc basis to governments in New Zealand and Tasmania, and agencies of the US, India and Norwegian governments. Jack has published broadly in the peer-reviewed scientific literature, with nearly 100 scholarly publications in such international peer-reviewed journals as Science, Nature, Nature Biotechnology and Trends in Biotechnology. He is a recipient of the ICAAC Young Investigator Award from the American Society for Microbiology (ASM) and the New Zealand Association of Scientists Research Medal.



**Abstract - Herbicides Induce Multiple Antibiotic Resistance in Human pathogens**

Antibiotic use in agriculture and medicine has caused antibiotic resistant disease-causing bacteria. Unfortunately, prudent use of

antibiotics or invention of new ones may not be enough to sustain the use of antibiotics because other chemistry-based biocides may also contribute to antibiotic resistance. Herbicides are among the most commonly released biocides on Earth. They are used in all environments also used by people, eg home gardens and city parks, or for food and materials production, eg genetically modified soybeans and cotton. Herbicides are routinely detected in household dust and the atmosphere. We have undertaken testing for 3 herbicides used at large scales - those based on glyphosate, dicamba or 2,4-D. We found that all 3 herbicides induced multiple antibiotic resistance in bacteria that can be human and animal pathogens. The resistance included critical clinical antibiotics such as ciprofloxacin. The increase in resistance was up to 6-fold, well beyond a threshold that can compromise antibiotic therapy of infections. Despite the near ubiquitous presence of herbicides, they have never been evaluated for their sub-lethal effects on microbes by any competent national safety authority, at least not to my knowledge. I believe that such testing should be conducted to inform proper use and regulated restrictions of herbicides.

**Tore Midtvedt, Karolinska Institutet**

Dr. Midtvedt is a physician specialised in microbial ecology. He defended his PhD thesis at the Karolinska Institute in Stockholm in the 1960's on microbial bile acid transformations and has been working on functional aspects of the gastrointestinal and environmental microbiome ever since. For two decades, he worked at Oslo University / National Hospital and since 1983 as a full time professor at the Department of Medical Microbial Ecology at the Karolinska Institute. Dr. Midtvedt has published more than 380 papers cited in PubMed, has supervised several PhD students, and has acted as PhD opponent in six different countries. He is a member of several international scientific societies, and is Editor in Chief for the international scientific journal *Microbial Ecology in Health & Disease*.



**Abstract - Glyphosate and Eco-Toxicological Consequences**

Glyphosate and glyphosate based herbicides are the most commonly used herbicides world-wide - in 2014, nearly 0.5 kg/hectar cropland on the planet. I is now more and more realized that this usage is causing several ecological and toxicological adverse effects which will be commented upon.

**Peter Clausing, toxicologist, PAN Germany**

Dr. Peter Clausing graduated as an agronomist at the University of Leipzig and earned his doctoral degree in 1974. After post-graduate studies in toxicology he became a board-certified toxicologist in 1988 and held positions at two research institutes of former East Germany. As a postdoctoral scientist he worked at the U.S. FDA's National Center for Toxicological Research from 1994-1996. From 1997 until retirement in 2010 he was employed as a senior toxicologist in the pharmaceutical industry. He published 54 papers and 4 book chapters in the area of toxicology.



**Abstract - Carcinogenicity of Glyphosate and the "Weight of Evidence Approach"**

He also wrote two books on conflicts between and the compatibility of agriculture and nature conservation. Since 2014 he is a member of the Pesticide Action Network (PAN) Germany and was elected to its executive board in 2015. He authored several of PAN Germany's publications.

Based on a weight of evidence approach, the European authorities provided five reasons for dismissing the carcinogenic effects of glyphosate. These five reasons are critically assessed focussing on malignant lymphoma in mouse carcinogenicity studies. This includes study selection, the way statistical analysis is performed, historical control data, the alleged inconsistency of study results, and the so-called "high-dose" effect.

**Helmut Burtscher-Schaden, GLOBAL 2000 / Friends of the Earth Austria**

Dr. Helmut Burtscher-Schaden was born in 1966 in Höchst, Austria. He studied biochemistry at the Vienna University of Technology and worked in medical and immunological research at the Medical University of Vienna, completing his thesis at the University's Institute of Immunology. Since 2001 he has worked for the environmental NGO GLOBAL 2000 (Friends of the Earth Austria). He is one of seven initiators of the European Citizens' Initiative "Stop Glyphosate"



**Abstract - Glyphosate and Cancer: Buying Science**

IARC's classification of glyphosate as a probable human carcinogen is based on three strands of evidence: from exposed humans, from regulatory animal studies and from genotoxicity in experimental models. BfR's cancer assessment, which relied heavily on the arguments provided in industry's unpublished and published studies, initially neglected all three strands of evidence. But after evaluating the IARC monograph, BfR had to confirm IARC's findings of limited evidence in humans, statistically significant tumour findings in animals, and oxidative stress as a possible mechanism. Although industry's arguments could no longer be defended, BfR kept the old conclusion that was initially drawn by industry: glyphosate does not pose a carcinogenic hazard.

**Michael Antoniou, King's College London, Medical and Molecular Genetics**

Dr. Michael Antoniou is the Head of the Gene Expression and Therapy group at King's College London (UK), which is part of the Department of Medical and Molecular Genetics. Historically, the main focus of research within his group is the study of the molecular mechanisms of the regulation of gene function. He has also used these discoveries to develop efficient gene expression systems for efficacious and safe biotechnological, including gene therapy, applications. Dr Antoniou holds inventor status on a number of patents with industrial partners in this area. More recently, Dr Antoniou has expanded his research programme to include using molecular profiling "omics" methods (transcriptomics, proteomics, metabolomics) in evaluating the safety of foods derived from GMO crops, low dose exposure from their associated pesticides and other chemical pollutants. He has recently published a study showing that a widely grown GMO maize is not substantially equivalent to its non-GMO counterpart thus calling into question its regulatory approval. In another recent publication Dr Antoniou's group has shown that rats fed an extremely low dose of the glyphosate-based herbicide Roundup at a daily intake well below regulatory permitted levels results in non-alcoholic fatty liver disease.



**Abstract - Roundup Causes Non-Alcoholic Fatty Liver Disease**

In-depth molecular profiling compositional analysis (proteomics, metabolomics) was conducted on the livers of female rats administered with an extremely low dose of Roundup weedkiller over a 2-year period. The dose of glyphosate from the Roundup administered was thousands of times below what is permitted by regulators worldwide. The study revealed that these animals suffered from non-alcoholic fatty liver disease (NAFLD) and the more serious fatty liver condition non-alcoholic steatohepatitis (NASH). The study is unique in that it is the first to show a causative link between consumption of Roundup at a real-world environmental dose and a serious disease condition.

**Hartmut Frank, University Bayreuth, Editor "Toxicological and Environmental Chemistry", Chair and Founder of the EuCheMS Working Party on Ethics in Chemistry**

Hartmut Frank was born at Bernburg/Saale in Central Germany in spring 1943. After the end of the war, he grew up and went to school at Eschwege, a small county capital just west of the iron curtain in the American occupied zone. After finishing high school in 1963 and the compulsory military service in 1964, he studied chemistry, first at the University of Marburg and finishing at the University of Tübingen where he received his doctoral degree in organic chemistry in 1972. Following postdoctoral studies as visiting assistant professor at the Baylor College of Medicine in Houston, Texas, USA (1974-76), he returned to Tübingen to work as research associate in toxicology from 1977-94. He spent research visits of about half a year each in China (Dalian), Australia (Canberra) and the USA (Memphis, Oklahoma City). In 1986 obtained his credentials (habilitation) as lecturer in toxicology and taught analytical chemistry, environmental chemistry, and toxicology, receiving invitations as guest or honorary professor to Portugal (Lisbon), Austria (Innsbruck), South Africa (Bloemfontein), China (Changsha), Italy (Ferrara), and India (Noida/New Delhi). From 1993 until his retirement in 2008 he held the Chair of Environmental Chemistry and Ecotoxicology of the University of Bayreuth. He was involved the organization of a number of international conferences and received numerous invitations to others. From 1990 onward he was editor-in-chief of three scientific journals, till today of Toxicological and Environmental Chemistry.





He was scientific advisory board member of several professional associations and institutions, such as the GSF Research Center Neuherberg/Munich (1996-2000) or chairman of the EU-Centre of Excellence of the Technical University Gdansk/Poland (2002-06). In 2010 he initiated the foundation of the EuCheMS Working Party "Ethics in Chemistry". He published more than 170 scientific on peptide synthesis, development of chromatographic methods for enantiomeric separation, applications of chromatography in toxicology and environmental chemistry, and on bio/chemical mechanisms of toxicity. Lately his main interest is to understand how ethical principles may be invoked to support the practice of chemistry and to raise its societal reputation.

**Abstract - Do Chemists/Scientists Need to Understand Ethics?**

Chemistry in its applied form is basically an activity by which man converts natural raw materials by controlled use of energy to new materials of unprecedented quality and high practical usefulness. Since Neolithic times its practice, at that time intuitively, enabled homo ludens, together with other sciences such as physics, to occupy and expand into more ecological niches than any other species, to become the master species on earth. Over the last two centuries until today, its realization in chemical industries is a core activity of economic growth. On the other hand, all these advances and quantitative expansions to higher material wealth are associated with increased ecological risks (Ulrich Beck's "Risk Society"), analogous to the second law of thermodynamics. Today's sheer size and potency of the activities of homo faber overstressing the limited global ecosystem, forces him to develop more empathy to the world he lives in and to become a true homo sapiens, wise enough to avoid system collapse. To achieve this goal, there is a need for every single practitioner of chemistry to learn this philosophical discipline of ethics, not in a theoretical academic way, but in a practically applied sense. Initiatives with the goal to promote such education are developing between chemists and their professional bodies and societies, for example by the establishment of the Working Party "Ethics in Chemistry" of EuCheMS or, in view of a more dramatic involvement of chemical professionals, by "The Hague Ethical Guidelines" of the Organization for the Prohibition of Chemical Weapons. In a similar sense, priorities in chemical safety management depend, besides scientific-analytical knowledge and technical abilities, upon such abilities of the various societal stakeholders. If their different interests are not properly considered and balanced, the outcome of environmental-scientific investigations can become inefficient (Daniel Sarewitz) or even grossly unfair (Kristin Shrader-Frechette). Equipped with such knowledge about ethical guidelines and empathy to others, the stakeholders of democratic societies including science professionals, have the flexibility and freedom, other than in monolithic dictatorial systems, to find peaceful ways of balancing group interests and adapting to ever changing ecological conditions.

## About the Organisers



RNDr. Pavel Poc has been a Member of the European Parliament since 2009. He is currently the Vice-Chair of the Committee on Environment, Public Health and Food Safety, Chair of the Parliamentary Intergroup for Climate Change, Biodiversity and Sustainable Development and Vice-Chair of the MEPs Against Cancer Group. As preservation of environment is very much interlinked with the protection of the human health, Dr. Poc focuses significantly on the pollution of our environment and food chain by toxic chemicals causing variety of negative effects on our health.

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**EuCheMS**  
European Chemical Sciences



EuCheMS, the European Association for Chemical and Molecular Sciences, aims to nurture a platform for scientific discussion and to provide a single, unbiased European voice on key policy issues in chemistry and related fields.

Representing more than 160,000 chemists from more than 40 Member Societies and other chemistry related organisations, EuCheMS relies on a unique network of active researchers involved in all the fields of chemistry. Through this network, EuCheMS organises several specialised academic conferences as well as the biannual EuCheMS Chemistry Congress, the European congress of chemical sciences. EuCheMS also promotes the role and image of the chemical sciences among the general public and policy-makers through social media, newsletters and through the organisation of conferences and workshops open to the society.

Through the promotion of chemistry and by providing expert and scientific advice, EuCheMS aims to take part of the solution to today's major societal challenges.

<http://www.euchems.eu>  <http://on.fb.me/1B8Qa0n>  <https://twitter.com/EuCheMS>

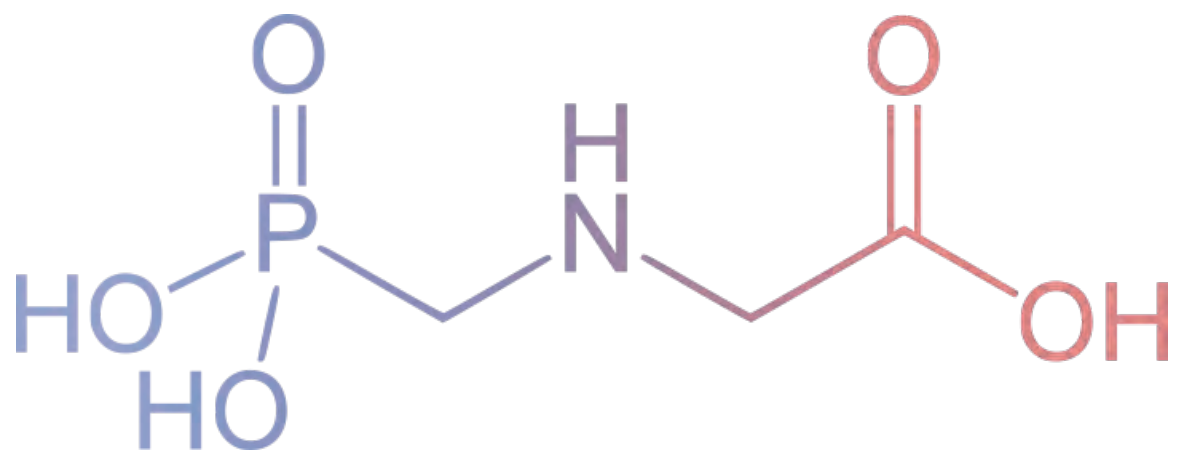


ECTN, the European Chemistry Thematic Network Association, is a non-profit making association registered in Belgium and is an outcome of six years of network activity (1996-2002). The Association was created to provide a sustainable future for the European Chemistry Thematic Network.

Higher education institutions, national chemical societies and chemical and software companies comprise our members. There are currently over 120 members of the network coming from 30 different European countries and with associate members world-wide.

Expert European groups work on a range of topics and produce reports with a real European dimension. These reports and recommendations are available on our website. A multi-lingual series of tests, that can be used for certification / validation of competence in chemistry at various levels is now available on Internet. Associated E-learning facilities have been produced. The purpose of the tests is to validate the competence of all citizens, irrespective of their learning path.

[www.ectn.eu](http://www.ectn.eu)  [https://twitter.com/ECTN\\_chem](https://twitter.com/ECTN_chem)



This programme and more info on this event at <http://www.euchems.eu/?p=8910>