

# Joint EEMGS meeting & International Comet Assay Workshop



**May 23<sup>rd</sup> – 26<sup>th</sup> 2022**  
***Maastricht, The Netherlands***

*Including discussion forums, young scientist sessions,  
allocated poster sessions and informal gatherings  
on the riverbanks of the Maas.*

*Hosted by Maastricht University's  
departments of Pharmacology & Toxicology and Toxicogenomics,  
and financially supported by the Limburg University Fund/SWOL*



**Maastricht University**



**Universiteitsfonds Limburg**

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# The Team

## Co-Chairs of ICAW/EEMGS 2022



**Sabine Langie**



**Roger Godschalk**



**Simone van Breda**

## Scientific committee

Amaya Azqueta (*Spain*)  
Elisa Boutet-Robinet (*France*)  
Paul Fowler (*UK*)  
Roland Frötschl (*Germany*)  
Goran Gajski (*Croatia*)  
Marko Gerić (*Croatia*)  
Roger Godschalk (*The Netherlands*)  
George Johnson (*UK*)  
Marcin Kruszewski (*Poland*)  
Sabine Langie (*Belgium*)  
Matjaz Novak (*Slovenia*)  
Bertrand Pourrut (*France*)  
Marie Vasquez (*USA*)  
Sona Vodenkova (*Czech Republic*)

## Instructors of the hands-on training session

Amaya Azqueta and Miguel Collía Martín  
*University of Navarra, Spain*

Martina Stampar and Matjaž Novak  
*National Institute of Biology, Slovenia*

Sabine Langie, Roger Godschalk and Shan Wang  
*Maastricht University, The Netherlands*

## **O25 - Application of comet assay in aquatic organisms – summary and lessons learned in past 10 years of field research**

Stoimir Kolarević<sup>1</sup>, Margareta Kračun-Kolarević<sup>1</sup>, Jovana Jovanović Marić<sup>1</sup>, Jelena Đorđević<sup>2</sup>, Momir Paunović<sup>1</sup>, Jovana Kostić-Vuković<sup>2</sup>, Karolina Sunjog<sup>2</sup>, Zoran Gačić<sup>2</sup>, Branka Vuković-Gačić<sup>3</sup>

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Within the past decade, our research group placed great effort in exploration of the impact of treated/untreated wastewaters on aquatic ecosystems as less than 13 % of collected municipal wastewaters are processed before their release to receiving waters in Serbia. Having in mind that more than 90% of the rivers within the territory of Serbia belong to the Danube River Basin, our major focus is naturally on the large transnational waters such as the Danube and Sava rivers. Depending on the concept of the study and hydro-morphological characteristics of the sites, various approaches have been employed for in situ assessment of eco/geno-toxicity which use different organisms in passive and active biomonitoring. Aquatic organisms of different trophic levels have diverse life strategies, metabolism pathways, and consequently, they have a different response to pollutant pressure. In eco/geno-toxicological studies we have successfully employed several species of freshwater mussels (*Unio tumidus*, *Unio pictorum* and *Sinanodonta woodiana*) as well as few economically important fish species (common carp (*Cyprinus carpio*), freshwater bream (*Abramis brama*), bleak (*Alburnus alburnus*, chub (*Squalius cephalus*)). Comet assay is our primary choice for the assessment of DNA damage considering its sensitivity and cost effectiveness. Selection of certain types of tissues for the assessment (such as blood or haemolymph), which do not require sacrificing of the animals or additional manipulation in preparation of cell suspension coupled with mini-gel format of the slides enables high-throughput screening of the genotoxic potential in situ. Additionally, cryopreservation of the blood samples directly onsite expands the research area as it overcomes issues related to safe transportation of the samples to the laboratory. Data obtained so far indicated that the genotoxic response in the studied indicator organisms significantly differ which is understandable considering the difference in uptake, accumulation and physiological responses.