



# 10<sup>th</sup> INTERNATIONAL COMET ASSAY WORKSHOP

18th - 20th | September | 2013

PORTO, PORTUGAL

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## PROGRAM

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## LOCAL ORGANISING COMMITTEE

JOÃO PAULO TEIXEIRA  
ANA SOFIA MENDES  
CARLA COSTA  
CRISTIANA COSTA PEREIRA  
SOLANGE COSTA  
SUSANA PINHO E SILVA

## SCIENTIFIC COMMITTEE

ANDREW COLLINS (NORWAY)  
BLANCA LAFFON (SPAIN)  
DIANA ANDERSON (UK)  
GÜNTER SPEIT (GERMANY)  
ISABEL O'NEILL GAIVÃO (PORTUGAL)  
JOÃO PAULO TEIXEIRA (PORTUGAL)  
MARCIN KRUSZEWSKI (POLAND)  
MARIA DUSINSKA (NORWAY)  
MASSIMO MORETTI (ITALY)  
NURSEN BASARAN (TURKEY)  
STEFANO BONASSI (ITALY)  
VANESSA VALDIGLESIAS (SPAIN)

## SPONSORS



8.30 AM – REGISTRATION

9.15 AM – WELCOME SESSION  
ANDREW COLLINS, JOÃO PAULO TEIXEIRA

9.30 AM – CELLULAR DNA DAMAGE AND DNA REPAIR

SESSION CHAIRS: GUNNAR BRUNBORG, JANA SLYSKOVA

**The effects of ageing and dietary restriction on base excision repair in the brain**

*Joanna Gorniak, Newcastle University, United Kingdom*

**What are appropriate measures of cytotoxicity in the in vitro comet assay?**

*Günter Speit, Ulm University, Germany*

**Implementation of the Comet assay to detect DNA damage and to analyse repair activity in *Drosophila melanogaster***

*Rubén Rodriguez, Salamanca University, Spain*

**Poster Minitalks**

**DNA damage evaluated through the comet assay in fresh versus cryopreserved peripheral blood mononuclear cell samples from a dietary intervention study**

*Cristian Del Bo', Università degli Studi di Milano, Italy*

**Comet assay in mouse spermatozoa using different conditions for decondensation and electrophoresis**

*Aliy Zhanataev, Institute of Pharmacology of RAMS, Russia*

10.45 AM – COFFEE BREAK AND POSTER SESSION

11.15 AM – NANOTOXICOLOGY AND THE COMET ASSAY

SESSION CHAIRS: GUDRUN KOPPEN, SERGEY SHAPOSHNIKOV

**TiO<sub>2</sub> nanoparticles differentially induce more DNA damage in peripheral blood lymphocytes from polyposis coli and colon cancer patients than in healthy individuals**

*Diana Anderson, University of Bradford, UK*

**Toxicity of engineered nano particles in plants and animals: correlation amongst various toxicity assays**

*Anita Mukherjee, University of Calcutta, India*

**The effect of the vehicle on in vivo genotoxicity and inflammation**

*Nicklas Raun Jacobsen, The National Research Centre for the Working Environment, Denmark*

**Neuronal genotoxicity assessment of iron oxide nanoparticles by comet assay**

*Gözde Kiliç, University of A Coruña, Spain*

**Poster Minitalks**

**Genotoxic properties of platinum nanoparticles in human colon carcinoma cells**

*Helge Gehrke, University of Vienna, Austria*

**Genotoxic effects of silver nanoparticles on A549 cell line**

*Corine Reis, University of Aveiro, Portugal*

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## 1.00 PM – LUNCH AND POSTER SESSION

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### 2.30 PM – TECHNICAL ISSUES AND IMPROVEMENTS

SESSION CHAIRS: IRIS BENZIE, BERTRAND POURRUT

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#### **High-throughput comet analysis with fully automated scoring**

*Petra Jackson, NRCWE- National Research Centre for the Working Environment, Denmark*

#### **Controlling variability in the comet assay**

*Andrew Collins, University of Oslo, Norway*

#### **Comet assay electrophoresis is of major importance for the results**

*Gunnar Brunborg, Norwegian Institute of Public Health, Norway*

#### **Poster Minitalks**

#### **Do we really need the lysis step in the standard comet assay?**

*Amaya Azqueta, University of Navarra, Spain*

#### **Increasing the sensitivity of the comet assay as a genotoxicity assay**

*Amaya Azqueta, University of Navarra, Spain*

#### **Long-term storage of agarose slides at low temperature**

*Nikolay Sirota, Russian Academy of Sciences, Russia*

#### **An inter-laboratory calibration trial: To what extent can we compare comet results obtained in different laboratories?**

*Anne Graupner, Norwegian Institute of Health, Norway*

#### **Novel formats for the comet assay**

*Sergey Shaposhnikov, NorGenoTech, Norway*

#### **Comet assay as a reliable tool to enhance knowledge about antioxidant potential in natural matrices**

*João C.M. Barreira, University of Porto, Portugal*

#### **The influence of the number of cells scored on the sensitivity in the comet assay**

*Soussaline Françoise, IMSTAR S.A., France*

#### **Automated scoring of minigels in a 96 format**

*Gunnar Brunborg, Norwegian Institute of Public Health, Norway*

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## 4.10 PM – COFFEE BREAK AND POSTER SESSION

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### 4.40 PM – OCCUPATIONAL EXPOSURE AND GENOTOXICITY

SESSION CHAIRS: GÜNTER SPEIT, ANNE GRAUPNER

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#### **Genotoxic stress in B- and T-lymphocytes of farmers during one spraying season**

*Elisa Boutet, Toxalim INRA/UPS, France*

#### **Oxidative stress and genotoxicity markers measured in a panel study over two seasons**

*Gudrun Koppen, Flemish Institute for Technological Research, Belgium*

**From toxicology to clinic: A systems medicine approach based on biomarkers**

*Stefano Bonassi, IRCCS San Raffaele Pisana, Italy*

**Poster Minitalks**

**Exposure-response relationships in adolescents of the 2nd Flemish Environment and Health Study:**

**The correlation between polycyclic aromatic hydrocarbons (PAHs) and DNA damage**

*Carmen Franken, Flemish Institute for Technological Research, Belgium*

**Impact of occupational exposure to ionizing radiation on the DNA damage in peripheral blood leukocytes of nuclear medicine personnel**

*Malgorzata Dobrzynska, National Institute of Public Health, Poland*

**Analyses of the toxic effect, at chromosomal and DNA levels, on HepG2 cells related to a steroidal drug precursor – Solasodine**

*Natalia Barbosa, Universidade Federal do Rio Grande do Norte, Brazil*

**Application of COMET Assay for detection of DNA damage caused by mycotoxins**

*Marijana Sokolovic, CVI – Poultry Centre, Croatia*

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**6.00 PM – END OF DAY**

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**8.00 PM – CONFERENCE DINNER**

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**9.00 AM –APPLICATIONS OF THE COMET ASSAY TO HUMAN DISEASE**

SESSION CHAIRS: NURSEN BASARAN, JOANNA GORNIK

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**Roles of the DNA damage response in inflammation**

*Ana Neves-Costa, Institute of Molecular Medicine, Portugal*

**Oxidative damage to DNA in diabetes and the role of a “healthy diet”**

*Elisabeth Müllner, University of Vienna, Austria*

**The physiological potential of Bilirubin: A possible antigenotoxic effect?**

*Karl-Heinz Wagner, University of Vienna, Austria*

**Involvement of DNA repair in the onset and treatment of sporadic colorectal cancer**

*Jana Slysokova, Institute of Experimental Medicine, Czech Republic*

**Poster Minitalks**

**Use of the standart and Fpg modified comet assay for the detection of the role of pycnogenol in sepsis induced DNA damage**

*Gökçe Taner, Gazi University, Turkey*

**The Comet Assay in studying the molecular events in cellular transformation in an inherited metabolic disease**

*Piet Pretorius, North-West University, South Africa*

**Health related benefits of a physical exercise program on cellular damage and antioxidant protection**

*Jorge Pinto Soares, UTAD - Sport Science, Exercise and Health Department, Portugal*

**Imbalance in the antioxidant defense system and pro-genotoxic status induced by high glucose concentration (hyperglycemia) in HepG2 liver cells**

*Samuele Vannini, University of Perugia, Italy*

**Insulin plus clonazepam protect against DNA and protein damage in cerebral cortex of diabetic rats under depressive-like behaviour**

*Carlos Wayhs, UFRGS, Brazil*

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**10.45 AM –COFFEE BREAK AND POSTER SESSION**

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**11.15 AM –ECOGENOTOXICOLOGY**

SESSION CHAIRS: JOHN EINSET, SABINE LANGIE

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**Genotoxic effects caused by food deprivation and protozoa exposure on *Dreissena polymorpha* hemocytes**

*Mélissa Palos Ladeiro, University of Reims Champagne-Ardenne, France*

**Comet Assay on *Daphnia magna* in eco-genotoxicity testing of aquatic environments**

*Valerio Pellegrini, University of Parma, Italy*

**Comet assay for detecting DNA damage related to reptile lead in blood of freshwater, Tabasco, Mexico**

*Tere Gamboa-Rodríguez, University Autonomous of Tabasco, Mexico*

**Comet assay, metals, mussels and fish- Tell me something new!**

*Awadhesh Jha, Plymouth University, UK*

**Can estuary sediment contaminants interfere with the DNA repair capacity of HEPG2 cells?**

*Miguel Pinto, National Health Institute, Dr. Ricardo Jorge, I.P., Portugal*

**Evaluation of some phenolic compounds on sepsis induced DNA damage by alkaline comet assay**

*Nursen Basaran, Hacettepe University, Turkey*

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**1.15 PM – END OF DAY**

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**2.00 PM – SOCIAL PROGRAMME**

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**9.00 PM –PERFORMING THE COMET ASSAY ON PLANTS**

SESSION CHAIRS: AWADHESH JHA, AMAYA AZQUETA

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**Induction and repair of DNA damage caused by x-irradiation in *Arabidopsis thaliana***

*John Einset, Norwegian University of Life Sciences, Norway*

**Genotoxicity tests and FT-NIR spectroscopy to evaluate the essential oils toxicity on *Vicia faba* roots**

*Priscilla Boccia, INAIL, Italy*

**Employment of the alkaline single-cell gel electrophoresis assay on tree cell cultures: protocol development and application**

*Pedro M. Costa, IMAR – Instituto do Mar, Portugal*

**Development of a high-throughput nucleus extraction method on plant tissues**

*Bertrand Pourrut, LGCgE - Groupe ISA, France*

**Posters Minitalk**

**Comet-FISH for evaluation of plant DNA damage after mutagenic treatments**

*Jolanta Kwasniewska, University of Silesia, Poland*

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**10.25 AM – COFFEE BREAK AND POSTER SESSION**

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**11.00 AM –TESTING EFFECTS OF PHYTOCHEMICALS**

SESSION CHAIRS: CARLA COSTA, ELISABETH MÜLLNER

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**Effect of regular intake of green tea on oxidation-induced DNA damage and repair in healthy adults**

*Iris Benzie, The Hong Kong Polytechnic University, Kowloon, Hong Kong, China*

**Maternal folate depletion and high-fat feeding from weaning affects DNA methylation and DNA repair in brain of adult offspring**

*Sabine Langie, Flemish Institute for Technological Research, Belgium*

**The effects of lycopene on oxidative stress and DNA protection in streptozotocin induced diabetic rats**

*Selim Sekkin, Adnan Menderes University, Turkey*

**Poster Minitalks**

**Impact of oxidative metabolism on the genotoxic potential of genistein**

*Anika Schroeter, University of Vienna, Austria*

**The *A. occidentale* stem bark extracts do not evidence a potential for genotoxicity using the comet assay in mice**

*Nuno Graça, University of Lisbon, Portugal*

**Effects of *Cinnamomum cassia* bark hexane extract on apoptosis and DNA damage in HL-60 cells**

*Ferzan Lermioglu Erciyas, Ege University, Turkey*



**Effect of beta-carotene on catechol-induced genotoxicity in vitro: Evidence of both enhanced and reduced DNA damage**

*Rikard Åsgård, Uppsala University, Sweden*

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**12.45 AM –CLOSING SESSION**

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## POSTERS

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- P01. DNA oxidation damage and DNA repair capacity in lymphocytes from mothers and newborns**  
*Naouale El-Yamani, University of Oslo, Norway*
- P02. Usefulness of the Premature Chromosome Condensation assay for biological dosimetry – comparison with the comet assay, the micronucleus assay and the  $\gamma$ -H2AX assay**  
*Maria Wojewódzka, Institute of Nuclear Chemistry & Technology, Poland*
- P03. DNA damage evaluated through the comet assay in fresh versus cryopreserved peripheral blood mononuclear cell samples from a dietary intervention study**  
*Cristian Del Bo', Università degli Studi di Milano, Italy*
- P04. Isolation of limbal epithelial cells for tissue engineering**  
*Yolanda Lorenzo Corrales, Center for Eye Research, Norway*
- P05. Comet assay in mouse spermatozoa using different conditions for decondensation and electrophoresis**  
*Aliy Zhanataev, Institute of Pharmacology of RAMS, Russia*
- P06. In vitro risk assessment of single-walled carbon nanotubes on the human embryonic fibroblast's line**  
*Viktoria Nikitina, Research Centre of Medical Genetics of the Russian Academy of Medical Sciences, Russia*
- P07. Toxic and geno-toxic effect of titanium and cobalt oxide nanoparticles in tumor and primary cell lines**  
*Alessio Perotti, Università degli Studi di Parma, Italy*
- P08. Genotoxic properties of platinum nanoparticles in human colon carcinoma cells**  
*Helge Gehrke, University of Vienna, Austria*
- P09. Assessment of the Protective Effects of Resveratrol on Titanium Dioxide Induced DNA Damage by Comet Assay**  
*Deniz Ozkan Vardar, HITIT University, Turkey*
- P10. Size, charge and stabilizer dependent genotoxicity of nanosilver**  
*Maria Dusinska, NILU, Norway*
- P11. Genotoxic effects of Silver Nanoparticles on A549 cell line**  
*Corine Reis, University of Aveiro, Portugal*
- P12. Application of the comet assay in nanotoxicology. Example of nanosilver.**  
*Anna Huk, NILU, Norway*
- P13. Do we really need the lysis step in the standard comet assay?**  
*Amaya Azqueta, University of Navarra, Spain*
- P14. Increasing the sensitivity of the comet assay as a genotoxicity assay**  
*Amaya Azqueta, University of Navarra, Spain*
- P15. Long-term storage of agarose slides at low temperature**  
*Nikolay Sirota, Russian Academy of Sciences, Russia*
- P16. An inter-laboratory calibration trial: To what extent can we compare comet results obtained in different laboratories?**  
*Anne Graupner, Norwegian Institute of Health, Norway*

- P17. Novel formats for the comet assay**  
*Sergey Shaposhnikov, NorGenoTech, Norway*
- P18. Comet assay as a reliable tool to enhance knowledge about antioxidant potential in natural matrices**  
*João C.M. Barreira, University of Porto, Portugal*
- P19. The influence of the number of cells scored on the sensitivity in the comet assay**  
*Soussaline Françoise, IMSTAR S.A., France*
- P20. Automated scoring of minigels in a 96 format**  
*Gunnar Brunborg, Norwegian Institute of Public Health, Norway*
- P21. Detection of alkylation DNA damage induced sulphur mustard and 2- chlorethyl ethyl sulphide using comet assay**  
*Petr Jost, University of Defence, Faculty of Military Health Sciences, Czech Republic*
- P22. Exposure-response relationships in adolescents of the 2nd Flemish Environment and Health Study: The correlation between polycyclic aromatic hydrocarbons (PAHs) and DNA damage**  
*Carmen Franken, Flemish Institute for Technological Research, Belgium*
- P23. Impact of occupational exposure to ionizing radiation on the DNA damage in peripheral blood leukocytes of nuclear medicine personnel**  
*Malgorzata Dobrzynska, National Institute of Public Health, Poland*
- P24. Analyses of the toxic effect, at chromosomal and DNA levels, on HepG2 cells related to a steroidal drug precursor – Solasodine**  
*Natália Barbosa, Universidade Federal do Rio Grande do Norte, Brazil*
- P25. Application of COMET Assay for detection of DNA damage caused by mycotoxins**  
*Marijana Sokolovic, CVI – Poultry Centre, Croatia*
- P26. DNA repair in peripheral blood lymphocytes of patients with non-small cell lung cancer treated with platinum-based derivatives**  
*Petra Fikrova, Charles University in Prague, Czech Republic*
- P27. Use of the standard and Fpg modified comet assay for the detection of the role of pycnogenol in sepsis induced DNA damage**  
*Gökçe Taner, Gazi University, Turkey*
- P28. The Comet Assay in Studying the Molecular Events in Cellular Transformation in an Inherited Metabolic Disease**  
*Piet Pretorius, North-West University, South Africa*
- P29. Evaluation of DNA damage induced by naproxen on MG-63 osteosarcoma cell line using the comet assay**  
*Isabel Gaivão, UTAD, Portugal*
- P30. Health related benefits of a physical exercise program on cellular damage and antioxidant protection**  
*Jorge Pinto Soares, UTAD - Sport Science, Exercise and Health Department, Portugal*
- P31. Synthesis and Photobiological Evaluation of Fluoroquinolones as Anticancer Agents**  
*Monica Savio, University of Pavia, Italy*
- P32. Imbalance in the antioxidant defense system and pro-genotoxic status induced by high glucose concentration (hyperglycemia) in HepG2 liver cells**  
*Samuele Vannini, University of Perugia, Italy*

- P33. Insulin plus clonazepam protect against DNA and protein damage in cerebral cortex of diabetic rats under depressive-like behaviour**  
*Carlos Wayhs, UFRGS, Brazil*
- P34. Is DNA damage induced by the herbicide Garlon® in fish (*Anguilla anguilla* L.) transient and reversible upon cessation of exposure?**  
*Sofia Guilherme, University of Aveiro, Portugal*
- P35. Chromosomal and DNA damage assessment in fish (*Anguilla anguilla* L.) exposed to Mancozan® - a carbamate fungicide formulation**  
*Andreia Rego, University of Aveiro, Portugal*
- P36. Evaluation of DNA integrity in peripheral erythrocytes of *Anguilla anguilla* upon short-term exposure to the thiram-based fungicide Pomarsol®**  
*Ana Marques, University of Aveiro, Portugal*
- P37. In vitro evaluation of okadaic acid genotoxicity in haemocytes of the mussel *Mytilus galloprovincialis* using the comet assay**  
*M. Verónica Prego-Faraldo, University of A Coruña, Spain*
- P38. Comet-FISH for evaluation of plant DNA damage after mutagenic treatments**  
*Jolanta Kwasniewska, University of Silesia, Poland*
- P39. Single Cell Gel Electrophoresis (Comet) Assay with plants: Research on DNA repair and ecogenotoxicity testing**  
*Monica Savio, University of Pavia, Italy*
- P40. Impact of oxidative metabolism on the genotoxic potential of genistein**  
*Anika Schroeter, University of Vienna, Austria*
- P41. The *A. occidentale* stem bark extracts do not evidence a potential for genotoxicity using the comet assay in mice**  
*Nuno Graça, University of Lisbon, Portugal*
- P42. Evaluation of radioprotective effect of Turkish propolis extracts on Gamma-irradiated foreskin fibroblast cell cultures**  
*Yuksel Aliyazicioglu, Karadeniz Technical University, Turkey*
- P43. Assessment of the Genotoxic Effects of Luteolin on V79 Cell Lines by Comet Assay**  
*Zehra Sarıgöl, Hacettepe University, Turkey*
- P44. Effects of *Cinnamomum cassia* bark hexane extract on apoptosis and DNA damage in HL-60 cells**  
*Ferzan Lermioglu Erciyas, Ege University, Turkey*
- P45. Effect of beta-carotene on catechol-induced genotoxicity in vitro: Evidence of both enhanced and reduced DNA damage**  
*Rikard Åsgård, Uppsala University, Sweden*