

EPR BioDose 2022 online

Mar. 28-30, 2022

Program

Invited talks

IN-1-D1

Oestreicher, U. and Port, M.

Role of biological and physical retrospective dosimetry in radiological incidents

IN-2-D2

Yoshida M.

Basics and current status of cytogenetic dose estimation

IN-3-D2

Swartz, H.M. and Flood, A.B.

EPR Biodosimetry in 2022: where are we now and where are we likely to go?

IN-4-D3

Ruth Wilkins

Development of high-throughput systems for biodosimetry

IN-5-D1

Christophe Falgueres,

ESR dating and the human evolution: contribution to the chronology of the earliest humans in Eurasia

Poster presentations

***presenter**

Session 1a Molecular biomarkers

1a-01-D1

Li, Shuang.*, Lu, Xue., Liu, Hai-Xiang., Cai, Tian-Jing., Tian, Mei., Liu, Qing-Jie.

Identification of radiation-induced changes in the miRNA of extracellular vesicles released by human lymphoblastoid cells

1a-02-D2

Hai-Xiang Liu, Xue-Lei Tian, Xue Lu, Mei Tian, **Qing-Jie Liu***

Analysis of the acylcarnitines in plasma and small intestine of rats to find new candidate biomarkers for screening local abdominal irradiation

1a-04-D1

Cheema, A.K., Li, Y., Moulton, J., Girgis, M., Wise, S.Y., Carpenter, A., Fatanmi, O.O., **Singh, V.K.***

Identification of novel biomarkers for acute radiation injury using multi-omics approach and nonhuman primate model

1a-06-D3

Ghandhi, S.A.*, Shuryak, I., Ponnaiya, B., Wu, X., Garty, G., Morton, S.R., Kaur, S.P and Amundson, S. A.

Cross-platform validation of a mouse blood gene signature for quantitative reconstruction of radiation dose

1a-07-D1

Shimura, T.*, Ushiyama, A.

Mitochondrial damage as a biological marker for dose assessment

1a-08-D2

Schüle, S.*, Hackenbroch, C., Beer, M., Hermann, C., Muhtadi, R., Ostheim, P., Port, M., Scherthan, H., Abend, M.

Employing gene expression and γ H2AX focus assays for biodosimetry purposes after low-level irradiation

1a-09-D3

Juan cong Dong*, Xiao ming Liu, Ya yi Yuan, Jiao Cheng, Qian qian Meng, Xu hong Dang, Chao Wang, Zhong xin Zhang, Ya hui Zuo

Molecular indices for early biological dose assessment of radiation injury

Session 1b Cytogenetic biomarkers

1b-10-D1

Hua Zhao*, Tian-Jing Cai, Xue Lu, Mei Tian, Qing-Jie Liu

Effects of radiation quality and dose rate on radiation-induced nucleoplasmic bridges in human peripheral blood lymphocytes

1b-11-D2

Goh, V.S.T.*, Fujishima, Y., Nakayama, R., Takebayashi, K., Yoshida, M.A., Kasai, K., Ariyoshi, K., Miura, T.

Shortened 48 h cytokinesis-block micronucleus assay for triage dose assessment

1b-12-D3

Vinnikov, V.A.*

Experimental assessment of cytogenetic damage formation after fractionated inhomogeneous irradiation

1b-13-D1

Beinke C*, Port M, Scherthan H

The influence of repair temperature on DNA lesion repair and dicentric chromosome formation

1b-14-D2

Nakajima, D.*, Echizenya, K., Kameya, Y., Takebayashi, K., Nakayama, R., Fujishima, Y., Goh, V.S.T., Abe, Y., Kasai, K., Miura, T.

Blood culture volume affects mitotic index but not dicentric chromosome frequency

1b-15-D3

Takebayashi, K.*, Goh, V.S.T., Nakayama, R., Fujishima Y., Yoshida, M.A., Kasai, K., Ariyoshi, K., Miura, T.

Cytokinesis-block micronucleus assay performed in 0 and 2 Gy irradiated whole blood and isolated PBMCs in a 6-well co-culture system

1b-16-D1

Garty G.*, Royba E., Repin M, Shuryak I, Deoli N, Obaid R, Brenner DJ

Cytogenetic biodosimetry at ultra-high dose rates

1b-17-D2

Nakayama, R.*, Yanagidate, K., Goh, V.S.T., Kentaro, A., Kasai, K., William, F.B., Yoshida, M.A., Miura, T.

Development of shortened chemical premature chromosome condensation assay for high-dose exposed patients

1b-18-D3

M'kacher, R.*, Colicchio, B., Junker, S., Plesch, A., Heidingsfelder, L., Soehnen, K., Najar, W., Hempel, W.H., Dieterlen, A., Girinsky, T., Jeandidier, E., Fenech, M., Voisin, P., Carde, C.

Unique DNA breakpoint mechanisms in the formation of radiation induced structural chromosomal aberrations

Session 1c New technical developments for established biomarkers

1c-19-D1

Pecoskie, S.*, Boell, S., Norton, F.

Applying Amnis® AI Software to Analyze the Imaging Flow Cytometry-Based Cytokinesis-Block Micronucleus Assay for Use in Large Scale Radiological/Nuclear Events

1c-20-D2

Yeo, J.J.W.*, Chew, Z.H., Teo, S.X., Goh, V.S.T., Chua, C.E.L.

Semi-automated Dicentric Chromosome Assay

1c-21-D3

Shirley, B.C., Mucaki E.J. , Knoll, J.H.M., **Rogan, P.K.***

Radiation Exposure Determination in a Secure, Cloud-based Online Environment

1c-22-D1

Ujiie, R.*, Kawamura, K., Suzuki, K., Yamashita S., and Mitsutake N.

A Novel fluorometric method for dicentric chromosome assay using anti-CENP-C antibody

1c-23-D2

Testa, A.*, Patrono, C., Palma, V., Kenzhina, L., Mamyrbayeva, A., Biyakhmetova, D., Zhamaldinov, F., Della Monaca, S., Fattibene, P., Quattrini, M.C., Maltar-Strmečki, N., Erceg, I., Vojnič-Kortmiš, M., Vidotto, M., Bortolin, E.

NATO Science for Peace and Security (SPS) Project “BioPhyMeTRE” “Novel biological and physical methods for triage in radiological and nuclear (R/N) emergencies”

1c-24-D3

Christian Schunck*, Thomas Lörch, Richard Kowalski, Michael Porter, Ryan Mahnke, Chris Capaccio, Jay Perrier, Ken Damer

Standardized and Automated Biological Dosimetry

1c-25-D1

Mayenburg, J.M.*, Cuadros Sanchez, S., Darwish, R., Lachapelle, S., Burt, J., Marro, L., Wilkins, R.C, Beaton-Green, L.A.

Multi-parameter analysis of Cytokinesis Block Micronucleus Assay Calibration Curves

1c-26-D2

Royba E.*, Ponnaiya B., Garty G., Brenner D.J.

Development of a same-day dicentric chromosome assay

1c-27-D3

Meher, P.K.*, Lundholm, L., Wojcik, A

Interphase Fluorescence In Situ Hybridization (FISH) for interphase chromosomal aberration-based biological dosimetry

1c-28-D1

Cheyne, E. B.*, Mayenburg, J. M., Patel, J. M., Cuadros Sanchez, S., Lachapelle, S., Wilkins, R. C., Beaton-Green, L. A.

Detection of DNA Damage from Ionizing Radiation Using Markers of DNA Double-Strand Breaks and Imaging Flow Cytometry

1c-29-D2

Ponnaiya, B.*, Wang, Q., Lee, Y.a, Pujol-Canadell, M., Perrier, J.R., Smilenov, L., Harken, A., Garty, G., Brenner, D.J., and Turner, H.C.

Cytogenetic damage of human lymphocytes in humanized mice exposed to neutrons and X rays

Session 1d Dose response of biomarkers

1d-30-D3

Furukawa A.*

The project of another low-cost metaphase finder (Third Report)

1d-31-D1

Ma, L.P, Tian, M., **Gao, L.***, Liu, Q.J.

Biodosimetry based on γ -H2AX quantification in human peripheral blood lymphocytes after partial-body irradiation

1d-32-D2

López-Riego, M.*, Meher, P.K., Akuwudike, P., Bucher, M., Oestreicher, U., Lundholm, L., Wojcik, A.

Inter- and intraindividual response to alphas, X-rays and mixed beams analysed at exon-level gene expression and chromosomal aberrations

1d-33-D3

Dong-Jing Chai, Ya-Yi Yuan, Xu-Hong Dang, **Ya-Hui Zuo***

Preliminary Study on Radiation-sensitive genes of Neutron/gamma Mixed Radiation Field

Session 2 Biological and EPR dosimetry for medicine

2-01-D2

Lee, Y.*, Lee, Y.H., Yang, S.S., Seong, K.M.

Cytogenetic and hematologic changes in breast cancer patients after partial-body and fractionated radiotherapy

2-02-D1

Evans, A.C.*, Edmondson, D.A., Matthay, K. K., Granger, M.M., Marachelian, A., Haas-Kogan, D.A., DuBois, S.G., and Coleman, M.A.

Differentiating exposed vs. unexposed persons following ¹³¹I internalized exposure using transcriptional analysis: Biodosimetry using a high-risk neuroblastoma patient cohort

2-03-D3

Maznyk, N.*, Sypko, T., Starenkiy, V., Gukova, I., Artiukh, S., Sukhina, O.

Chromosome aberrations outcome peculiarities during radiotherapy course followed by previous radiation exposure

2-04-D2

Yayi Yuan, Juancong Dong, Yahui Zuo, **Xuhong Dang***, Yuyang Dong

Association Between SNPs of DNA Damage Repair Genes and Radiosensitivity in Healthy People

2-05-D2

Marrale, M.*, D'Oca, M.C., Castronovo, E.R.A., Collura, G., Gasparini A., Vanreusel V., Verellen D., Felici G., Mariani G., Galante F., Pacitti M., Romano, F.
Dosimetric characterization of an ultra-high dose rate beam for FLASH radiotherapy through alanine EPR dosimetry

Session 3 Biological and EPR dosimetry for emergency

3-01-D3

Ryan T.L., Escalona M.B., Iddins C.J., **Balajee A.S.***
A Tiered Biodosimetry Approach for Triage after Radiological/Nuclear Mass Casualty Incidents

3-02-D1

Yamaguchi, I.*, Nakai, Y., Miyake, M., Hirota, S., Gonzales, C.A.B., Yasuda, H.
Signal detected by in vivo EPR tooth dosimetry in a nurse with many years of experience in endoscopic retrograde cholangiopancreatography

3-03-D3

Kenzhina, L.*, Mamyrbayeva, A., Biyakhmetova, D., Zhamaldinov, F. Testa, A., Patrono, C., Palma, V., Bortolin, E., Fattibene, P.
The importance of the National biodosimetric laboratory of the Republic of Kazakhstan for ensuring national and regional preparedness and response in radiation nuclear emergencies

3-05-D2

Maltar-Strmečki, N.*, Vidotto, M., Della Monaca, S., Erceg, I., Dragoš, M., Fattibene P., Vojnić Kortmiš, M., Quattrini M.C., Bortolin E.
Recent findings regarding PSL detection on salt-containing fortuitous dosimeters

3-06-D1

Ece E.*, Ozmen A., Biyik R., Sayin U.
Gamma irradiation effect on some asthma drugs: EPR detection of radiosterilization

3-07-D3

Adamu, R.*, Wong, J.D. and Nor, N.M.
EPR dosimetric properties of X-ray irradiated potassium bitartrate

3-08-D2

Babayeva, N.*, Ece, E., Biyik, R., Ozmen, A., Sayin, U.
EPR investigation of gamma irradiated Famoser drug: For dosimetric purposes

3-10-D3

Mobasher, M.*, Giovanelli, D., Li, C., Ollier N., Trompier F.
EPR dosimetry on touch screen of smartphones: dosimetric investigations of the latest generation of glass

3-11-D2

Yasuda, H.*, Gonzales, C.A.B.
Heat-induced EPR signals of human fingernails

Session 4 Biological and EPR/luminescence dosimetry for epidemiology

4-01-D2

Suto, Y.*, Abe, Y., Miura, T., Tsuyama, N., Takebayashi, K., Nakayama, R., Goh, V.S.T., Sugai-Takahashi, M., Takashima, Y., Akiyama, M., Kudo, K., Alkebsi, L., Ishii, K., Sakai, A., Akashi, M.

A preliminary report on retrospective dose assessment by FISH translocation assay in FDNPP Nuclear Emergency Worker Study (NEWS)

4-02-D1

Oka, T.*, Takahashi, A., Shinoda, H.

Usage of enamel as a dosimeter below 200 mGy

4-03-D3

Shishkina E.A.*, Degteva M.O., Volchkova A.Yu., Napier B.A.

EPR-based validation of the uncertainties of calculated external doses for population exposed in Urals region

4-04-D2

Seredavina T.A., **Mukan Zh.T.***, Sushkova N.S.

EPR studies of soils in vicinity of the former testing site in RK and used approaches

4-05-D2

Martinez, J.S.*, Dugué, D., Fernandez, P., Grégoire, E., Gruel, G.

Twenty-two years later: Consistent dose estimation of an accidental overexposure by retrospective biological dosimetry

4-07-D2

Khoirunnisa, N., Purnami, S., Tetriana, D., Dasumiati, D., **Syaifudin, M.***

Assessment of the Cytogenetic Abnormalities in Blood of Local Inhabitants Due to Continuously Exposed to High Background Radiation in Mamuju

4-08-D2

Ramadhani, D.*, Purnami, S., Wanandi, S.I., Wibowo, H., Syaifudin, M.

Preliminary study of chromosome aberrations using two-color FISH and giemsa assays in lymphocytes of individuals living in elevated radon concentration areas

4-09-D3

Gough, E.*, Hassan, A., Waller, E.J.

Investigating Manganese Concentrations in Shelled Species and the Effect on EPR Spectra

4-10-D2

Tzivaki, M.*, Waller, E.J.

Electron Paramagnetic Resonance for Dosimetry of Dreissenid Mussels

4-11-D1

Mitsuyasu Y.*, Oka, T., Takahashi, A., Kino, Y., Okutsu, K., Sekine, T., Yamashita, T., Shimizu, Y., Chiba, M., Suzuki, T., Osaka, K., Sasaki, K., Urushihara, Y., Suzuki, M., Fukumoto, M., Shinoda, H.

External exposure dose estimation of wild Japanese macaques captured in Fukushima Prefecture: Decomposition of electron spin resonance spectrum

Session 5 Networking in biological and EPR dosimetry, QA & QM

5-01-D3

Gallas, R. R.*, Kapsch, R.-P.

Alanine/EPR dosimetry in magnetic fields

5-02-D3

Vinnikov, V.A., Hayes, J.M., **Belyakov, O.V.***

Research and Training Program of the IAEA Biodosimetry Model Laboratory:
focus on clinical applications of classic and novel biodosimetry methods

5-03-D3

Satyamitra, M.M.*, Cassatt, D.R., Molinar-Inglis, O., Rios, C.I, Taliaferro, L.P.,
Winters, T.A., and DiCarlo, A.L.

The NIAID Biodosimetry Development Program: An Overview

5-04-D3

Gunasekara, D.G.*, Wilkins, R.C., Tessier, F., Beaton-Green, L.A.

Monte Carlo Modelling of Experimental Setup Used for Biodosimetry
Intercomparison

5-05-D2

D'Oca, M.C.*, Collura, G., Marrale, M.

Monte Carlo simulation of the energy released by neutrons on organic compounds
for EPR dosimetry

5-07-D3

Toyoda, S.*, Inoue, K., Yamaguchi, I., Hoshi, M., Hirota, S., Oka, T., Shimazaki, T.,
Mizuno, H., Tani, A., Yasuda, H., Gonzales, C.A.B., Okutsu, K., Takahashi, A.,
Tanaka, N., Todaka, A.

Interlaboratory comparison of EPR tooth enamel dosimetry with investigations of
the dose responses of the standard samples

Session 6 EPR dating and related topics

6-01-D1

Ekici, G., **Sayin, U.***, Demir, A., Delikan, A., Kapan, S., Isik, M., Karaaslan, H., Biyik,
R., Orhan, H., Engin, B., Tapramaz R., Ozmen, A.

The success of ESR for dating of fossil mollusc shells: Samples from Old Konya
Lake

6-02-D1

Ekici, G.*, Sayin, U., Isik, M., Kapan, S., Demir, A., Karaaslan, H., Delikan, A.,
Biyik, R., Orhan, H., Engin, B., Tapramaz, R. Ozmen, A.

Paramagnetic characterization of fossil mollusc shells at eastern part of the old
Konya Lake: Its importance for EPR dating

6-03-D1

Yokoyama, Y.*, Isogai, S., Kusuki, K., Nishido, H., Tani, A.

The behaviour of organic radical species and atomic hydrogen in gamma-irradiated
chibaite at low temperature

6-04-D1

Tanaka, K.*, Muto, J., Takahashi, M., Oka, T., Nagahama, H.

Effect of high-velocity friction on ESR signal in quartz

6-05-D1

Kobayashi, R., Kojima, H., **Tani, A.***

Investigation of the origin of Okinose sand using ESR signals of quartz in granite around Osaka Bay

6-06-D1

Obata, N.*, Toyoda, S.

Thermal stability of the ESR signals in tephra quartz and evaluation of equivalent doses