**Curriculum Vitae –** **Assoc. Prof., RNDr. Martin Falk, PhD.**

Born on 14th May 1976 in Teplice, Czech Republic

Institute of Biophysics of the CAS, v.v.i., Královopolská 135, 612 65 Brno, CR

**Head, Department of Cell Biology and Radiobiology**

Head, Laboratory of Chromatin Function, Damage and Repair

**President** of Radiobiological Society for Crisis Planning of the Czech Medical Society of JE Purkyně

ORCID: <https://orcid.org/0000-0002-9229-0468>

Scopus Author ID: 7101733680

Loop profile: 296015

Researcher ID: D-2394-2013

* 2022 – 2024 **Hosting Professor**, Heidelberg University, Heidelberg, Germany, winner of a position within the Project of Exzellenzstrategie - Teilprojekt »Expanding Internationality« (Heidelberg University = one of the three best universities in Germany, 42nd position according to World University Rankings 2022)
* 2021: **President / head organizer of the International Congress on Radiation Research in 2027** (ICRR2027); the ICRR is the largest radiobiology congress in the world, held every 4 years by the International Association for Radiation Research, usually with 1000 to 3000 participants.
* **President of Radiobiological Society for Crisis Planning of the Czech Medical Society of JE Purkyně** (SRKP CLS JEP; SRCP CzMA)
* **Council Member of the European Radiation Research Society (ERRS)**
* **ESRC Councillor at the ICRR** (International Association for Radiation Research)
* **Academic Assembly of the Czech Academy of Sciences** (voted member)
* **Expert of the Czech Academy of Sciences for Radiobiology**
* Czech Republic Management Committee Member in EU-COST projects: RADAM (MP1002 CZ), Nano-IBCT (MP1002 CZ), CliniMARK (CA16113), MultiChem (CA20129)
* **Joint Program Advisory Committee of the Institute of Experimental Biology, Faculty of Science, Masaryk University**, Brno, Czech Rep.

Scientific Profile:

**Radiobiology**: ● Radiation Protection ● Biological Effects of Different Kinds of Ionizing Radiation and the Micro- and Nanoscale; ● Mechanisms of DNA Double-Strand Break (DSB) Formation and Repair; ● Regulation of DNA Repair at the Pan-Nuclear Level and at Individual Damage Sites; ● Complex Cellular Response to Irradiation and Other Stresses; ● Mechanism of Formation of Chromosomal Aberrations; ● Mutagenesis; ● Tumor Cell Radiosensitization for Radiotherapy; ● Nanomaterials for Radiotherapy, Theranostics and Nanomedicine; ● Ion-Beam Cancer Therapy (Hadron Therapy); ● Radio-Immunotherapy; ● Hypoxia; ● Individual- and Tumor-Specific Radioresistance and Perso-nalized Medicine; ● Radiation Exposure Biomarkers; ● Biodosimetry and Radioprotection in Civil protection and Space research

**Cell & Molecular Biology**: ● Chromatin Architecture and the Structure-Function Relationship; ● Higher-Order Chromatin Structure, Function and Dynamics in Regulation of Nuclear Processes and in Pathogenesis, ● Especially Carcinogenesis; ● Epigenetics; ● Genome Maintenance; ● DNA Damage, Repair and Misrepair; ● Solid Tumor and Leukemia Pathogenesis; ● Repeat Expansion Diseases (REDs)

**Microscopy and Superresolution microscopy**; ● (Live) Cell Imaging and Image Analysis; ● Laser Cell Micro-irradiation; ● Specimen Labelling for Microscopy; ● Methods of Cell and Molecular Biology / Biophysics.

Education:

● 2021 Assoc. Prof. in Genomics and Proteomics, Masaryk University, Brno, CR● 2008, Special state exam: Radiation Protection Officer and Qualified Expert at Radiation Protection (valid for workplaces with important sources of ionizing radiation) ● 2004, PhD. in Molecular Biology and Genetics, Faculty of Science, Masaryk University, Brno, Czech Republic **●** 2003, DSc./M.A. (Doctor Rerum Naturalis; RNDr.) in Molecular Biology and Genetics, Faculty of Sciences, Masaryk University, Brno, CR ● 2000, MSc. in Molecular Biology and Genetics, Faculty of Sciences, Masaryk University, Brno, CR ● 1998, BSc. in Molecular Biology and Genetics, Faculty of Sciences, Masaryk University, Brno, CR.

Employment:

● from January 2014: **Head, Department of Cell Biology and Radiobiology, Institute of Biophysics, Czech Academy of Sciences, Brno, Czech Republic**

● 2022 – 2024 Position of a **Hosting Professor, Heidelberg University**, Heidelberg, Germany (one of the three best universities in Germany, 42nd position according to World University Rankings 2022)

● from 2011: Head, Laboratory Chromatin Function, Damage and Repair, Institute of Biophysics of the Czech Academy of Sciences, Brno, CR

● from January 2008: External lecturer and student supervisor at **Masaryk University, Brno, CR**

● 2001–2011: Research Scientist, Institute of Biophysics, CAS, Brno, CR

● 2001–2002: Research Scientist, Dept. of Microbiology, Faculty of Science, MU, Brno, CR

● 2000–2001: Research Scientist, Dept. of Medical Genetics, Faculty Hospital Brno, Lab. Mol-Genetics

Research fellowships and longer-term courses:

● numerous times from 2012 (until now): The Kirchhoff Institute for Physics, Heidelberg University, Heidelberg, Germany ● 2nd - 12th July 2011 – Lecturer on the Sixth International Summer Student School on Nuclear Physics Methods and Accelerators in Biology and Medicine, Russian Academy of Sciences, Dubna, Russia ● 22nd June -2nd July 2011 – Brunel University London, Dpt. of Biomedical Sciences (with Dr. Rhona Anderson) ● October 2008 – Real-time PCR course organized by TATAA bio centre (Sweden) in Prague, Czech Rep ● 2008 – The State Office for Nuclear Safety (SUJB), Brno, Czech Rep. – The preparing course (one week) and special state exam on special expert qualification in radiation protection (Radiation Protection Officer and Qualified Expert) at workplaces with important sources of ionizing radiation) ● January 2002 (1 week) – Joint Institute for Nuclear Research (JINR), Russian Academy of Sciences, Dubna, Russia

Awards:

● 2022: Cooperation Award from IBP Czech Academy of Sciences, Brno, CR

● 2021: A Prize of the European Radiation Research Society (ERRS) awarded to I. Falkova et al., 46th Annual Meeting of the ERRS (ERRS 2021), November 26th – 30, 2021, Caen, France.

● 2018: 1st Prize, The Society for Low Temperature Biology (SLTB) Meeting, 6th Sept 2018, Prague, CR (Falk M. et al. Complex description of cryopreserved cell nuclei defects by immunofluorescence microscopy: DNA lesions, chromatin decondensation, nuclear membrane ruptures; presented by M Golan).

● 2015: Young Investigators Travel Award, 15th International Congress of Radiation Research (ICRR 2015), Kyoto, Japan.

● 2009: **Premium of Otto Wichterle** for outstanding young scientists, Award of the Czech Academy of Sciences

● 2008: The Prize of Deutsche Gesellchaft für DNA-Reparaturforschung (DGDR), 10th Biennial Meeting of the DGDR, Berlin, Germany: Devoted for results obtained at the field of DNA repair: “Different sensitivity and response of functionally distinct chromatin domains to DSB induction”

● 2008: Second place, New England Biolabs Poster Prize, Biochemical Society Annual Symposium – DNA Damage: From Causes to Cures, December 15-17, 2008, Cambridge, Great Britain,

● 2004: The Prize of Institute of Biophysics of ASCR for excellent young scientists

● >50 invited lectures until now

Editorial Boards:

● Editor, Scientific Reports (*Nature Publishing*) Q1

● Editor, Frontiers in Cell and Developmental Biology (IF 5.186 / Q1)

● Frontiers in Physics (IF 5.186 / Q2)

● Editorial Board Member of Biomolecules (IF 6.064) (Q1/Q2)

● Editorial Board of ISRN Genetics

● Editorial Board of International Journal of Radiology

● Editorial Board of Journal of Biochemistry and Biophysics

Memberships:

● President (former Scientific Secretary) of the Society for Radiobiology and Crisis Planning of the Czech Medical Association of J.E. Purkyně (SRKP ČLS JEP; SRCP CzMA)

● Council Member of the European Radiation Research Society (ERRS)

● ERRS Councillor at the ICRR (International Association for Radiation Research)

● Academic Assembly of the Czech Academy of Sciences (member)

● Expert of the Czech Academy of Sciences for Radiobiology

**●** Gregor Mendel Genetical Society (GSGM)

● Czech Microscopic Association

●  Czech Society for Cell Biology

● CANAM (Center of Accelerators and Nuclear Analytical Methods) Committee Member

● Czech Republic national delegate in the European Cooperation in Science and Technology, project Nano-IBCT

● Czech Republic national delegate in the European Cooperation in Science and Technology, project MultiChem

Selected Publications:

**67 articles, 6 book chapters, citations 1568 (SCOPUS), h-index = 25 (Research Gate h-index 27; 18080 citations, 94 issues)**

* Solov'yov A.V., Verkhovtsev A.V., Mason N.J., Amos R.A., Bald I., Baldacchino G., Dromey B., Falk M., Fedor J., Gerhards L., Hausmann M., Hildenbrand G., Hrabovský M., Kadlec S., Kočišek J., Lépine F., Ming S., Nisbet A., Ricketts K., Sala L., Schlathölter T., Wheatley A.E.H., Solov'yov I.A. Condensed Matter Systems Exposed to Radiation: Multiscale Theory, Simulations, and Experiment. ***Chem Rev***. 2024;124(13):8014-8129. doi: 10.1021/acs.chemrev.3c00902. **IF = 51.5 (Q1)**.
* Erenpreisa J, Giuliani A, Yoshikawa K, Falk M, Hildenbrand G, Salmina K, Freivalds T, Vainshelbaum N, Weidner J, Sievers A, Pilarczyk G, and Hausmann M. Spatial-temporal genome regulation in stress-response and cell-fate change. ***IJMS* 2023**, *24*(3):2658; <https://doi.org/10.3390/ijms24032658> (**IF 6.208** / **Q1**)***.***
* Falk, M., et al. Chromatin structure influences the sensitivity of DNA to γ-radiation. ***BBA MCR, 2008***, 1783(12), 2398-2414. **IF = 6.090 (Q1** at the publishing date**)**, ***cited 157 times***
* Falk, M. et al. (Falk, M. corresp. au.). Higher-order chromatin structure in DSB induction, repair and misrepair. ***MutationResearch - Reviews in Mutation Research, 2010***, 704(1-3), 88-100. **IF = 8.741 (Q1)**, ***cited 111 times***
* Falk, M. et al. (Falk, M. corresp. au.). Chromatin dynamics during DSB repair. ***BBA MCR, 2007***, 1773(10), 1534-1545. **IF = 6.090 (Q1** at the publishing date**)**, ***cited 109 times***
* Kozubek S. et al. 2002. 3D Structure of the Human Genome: Order in Randomness, Chromosoma 111/5: 321-331 (IF = 3.442, **Q1**), ***cited 102 time*s**.

-----Recent selected papers----

* Perecko, T.; Hoferova, Z.; Hofer, M.; Pereckova, J.; Falk, M. Administration of Nitro-Oleic Acid Mitigates Radiation-Induced Hematopoietic Injury in Mice. ***Life Sci****.* **2022**, *310*, 121106, doi:10.1016/j.lfs.2022.121106. **IF = 6.87** (**Q1**).
* Dobešová L, Gier T, Kopečná O, Pagáčová E, Vičar T, Bestvater F, Toufar J, Bačíková A, Kopel P, Fedr R, Hildenbrand G, Falková I, Falk M (corresp. au.), and Hausmann M (corresp. au.). Incorporation of Low Concentrations of Gold Nanoparticles: Complex Effects on Radiation Response and Fate of Cancer Cells. ***Pharmaceutics 2022****, 14(1), 166; https://doi.org/10.3390/pharmaceutics14010166.*, **IF = 6.525 (Q1), *cited 9 times***
* [Vicar](https://pubmed.ncbi.nlm.nih.gov/?term=Vicar+T&cauthor_id=34976305) T, [Gumulec](https://pubmed.ncbi.nlm.nih.gov/?term=Gumulec+J&cauthor_id=34976305)  J, [Kolar](https://pubmed.ncbi.nlm.nih.gov/?term=Kolar+R&cauthor_id=34976305) R, [Kopecna](https://pubmed.ncbi.nlm.nih.gov/?term=Kopecna+O&cauthor_id=34976305) O, [Pagacova](https://pubmed.ncbi.nlm.nih.gov/?term=Pagacova+E&cauthor_id=34976305) E, [Falkova](https://pubmed.ncbi.nlm.nih.gov/?term=Falkova+I&cauthor_id=34976305) I, [Falk](https://pubmed.ncbi.nlm.nih.gov/?term=Falk+M&cauthor_id=34976305) M (corresp. au.). DeepFoci: Deep learning-based algorithm for fast automatic analysis of DNA double-strand break ionizing radiation-induced foci. ***Comput Struct Biotechnol J. 2021***;19:6465-6480. doi:10.1016/j.csbj.2021.11.019. eCollection 2021. **IF = 7.271 (Q1), *cited 13 times***
* Hahn H. et al. Topological Analysis of γH2AX and MRE11 Clusters Detected by Localization Microscopy during X-ray-Induced DNA Double-Strand Break Repair. ***Cancers, 2021***, *13*(21), 5561. **IF = 6.639 (Q1), *cited 11 times***
* Falk M, Hausmann M. A paradigm revolution or just better resolution—will newly emerging superresolution techniques identify chromatin architecture as a key factor in radiation-induced dna damage and repair regulation? ***Cancers, 2021***, 13 (1), 1-30, article no. 18. **IF = 6.639 (Q1)**, ***cited 26 times***
* Pagacova E et al. Challenges and contradictions of metal nano-particle applications for radio-sensitivity enhancement in cancer therapy. ***IJMS, 2019***, 20/31, article 588. **IF= 6.208 (Q1), cited*36 times***
* Jezkova, L., et al. (Falk, M. corresp. au.). Particles with similar LET values generate DNA breaks of different complexity and reparability: A high-resolution microscopy analysis of γh2AX/53BP1 foci. ***Nanoscale, 2018***, 10 (3), 1162-1179. **IF = 8.307 (Q1)**, ***cited 62 times*, nomin. for ČLS JEP 2019 Award**
* Falk M et al. (Falk, M. corresp. au.). Chromatin architecture changes and DNA replication fork collapse are critical features in cryopreserved cells that are differentially controlled by cryoprotectants. ***Scientific Reports (Nature)*** *2018*, 8(1), 14694. **IF= 4.996 (Q1), cited *28 times***
* Kratochvílová, I., Golan, M., Pomeisl, K., Richter, J., Sedláková, S., Šebera, J., Mičová, J., Falk, M., Falková, I., Řeha, D., Elliott, K. W., Varga, K., Follett, S. E., & Šimek, D. (2017). Theoretical and experimental study of the antifreeze protein AFP752, trehalose and dimethyl sulfoxide cryoprotection mechanism: correlation with cryopreserved cell viability. ***RSC Advances***, 7(1), 352-360. **IF = 3.9 (Q1), *cited 50 times***
* Hofer, M., Falk M, et al. (Falk, M. corresp. au.). Two new faces of amifostine: protector from DNA damage in normal cells and inhibitor of DNA repair in cancer cells. ***Journal of Medicinal Chemistry, 2016***, 59(7), 3003-3017. **IF = 8.039 (Q1), *cited 60 times***
* Lukasova E et al. Loss of lamin B receptor is necessary to induce cellular senescence. ***Biochemical Journal, 2017,*** 474/2:281-300. **IF= 4.097 (Q1** at the publishing date**), cited *57 times***
* Stefancikova L et al. (Falk, M. corresp. au.) Effect of Gadolinium-based nanoparticles on nuclear DNA damage and repair in glioblastoma tumor cells. ***J Nanobiotechnol. 2016***;14(1):63. **IF= 10.435 (Q1) *cited 53 times***

Invited Lectures (selected)

**Over 50 invited lectures at conferences and universities; see Attachment for the complete list**

1. Pelicci P.G., PML-RAR − A Model to Cure Leukemia. Salk Institute, **Nature and IPSEN** Foundation Conference on Biological Complexity: Diseases of Transcription. January 11-14, 2007, Salk Institute, La Jolla, CA, USA.
2. Falk M., Lukasova E., Kozubek S.: The role of higher-order chromatin structure and nuclear topography in DSB induction, repair and chromatin translocation. **ESF-EMBO Symposium:** Spatio-Temporal Radiation Biology: Transdisciplinary Advances for Biomedical Applications, 16-21 May 2009, Hotel Eden Roc, Sant Feliu de Guixols (Costa Brava), Spain
3. Falk M., Lukasova E., Bacikova A., Kozubek S.: The role of chromatin structure in DNA damage and its monitoring. **ERR09 – Prague, 37th Annual Meeting of the European Radiation Research Society**, 26-29th August 2009, Prague, Czech Republic.
4. Falk M., Lukášová E., Kozubek S., Štefančíková L. Higher-order chromatin structure in DNA double-strand break induction, repair and formation of chromosomal translocations. **Brunel University** (Invited by Dr. Rhona Anderson), June 29 - July 1, 2011, London, Great Britain.
5. Falk M., Lukášová E., Kozubek S., Štefančíková L. Higher-order chromatin structure in DNA double-strand break induction, repair and formation of chromosomal translocations. *The ARR & UKEMS Joint Annual Meeting*, June 29 - July 1, 2011, **Nottingham University**, Jubilee Campus, Nottingham, Great Britain.
6. Falk M., Lukášová E., Kozubek S., Štefančíková L., Weiterová L. Induction, repair and misrepair of DNA double-strand breaks (DSBs) in the context of higher-order chromatin structure. ***The 14th International Congress of Radiation Research***, 28.08 - 01.09.2011, Warsaw, Poland.
7. Lukášová E., Kořistek Z., Klabusay M., Ondřej V., Grigoryev S., Bačíková A., Řezáčová M., Vávrová J., Kohútová V., (presented by) Falk M., Kozubek S. DNA damage and repair in the context of chromatin structure and function - the influence of cell differentiation and quality of ionizing radiation. *13th International Workshop on Radiation Damage to DNA*, June 14-18, 2014, **Massachusetts Institute of Technology (M.I.T.)**, Cambridge, MA, USA.
8. Štefančíková L., Lacombe S., Salado D., Porcel E., Pagáčová E., Tillement O., Lux F., Depeš D., Falková I., Bačíková A., Kozubek S., and Falk M (presenting & corresponding author). The mechanism of metal nanoparticle-mediated radiosensitization of tumor cells may be independent of DNA damage amplification and DNA repair inhibition. ***7th World Nano Conference***, June 20-21, 2016, **Cape Town**, **South Africa**. (Falk M presenting author, Invited)
9. Falk M. Towards a complex view on DNA damage and repair – epigenetic and spatio-temporal aspects. 2nd International Conference on Systems and Synthetic Biology, August 18-20, 2016 **London**, **UK**. **(Plenary Lecture, invited)**
10. Falk M. Chromatin structure and chromosomal rearrangements in CD34+ cells and lymphocytes from Myelodysplastic syndromes (MDS) patients. 6th International Conference on Genomics & Pharmacogenomics September 12-14, 2016, Berlin, Germany. **(Keynote lecture)**
11. Falk M. Detection of DSB repair foci as a potent tool in biodosimetry and cancer research. ***Future Forces Forum (NATO)*,** Medical Workshop, October 20, 2016, **Prague, Czech Republic** (invited).
12. Falk M et al. Tumor cell radiosensitization-ion beams and metal nanoparticles. 3rd International Conference on Systems and Synthetic Biology, July 20-21, 2017, **Munich**, **Germany**. **(Keynote lecture)**
13. Falk M et al. Metal nanoparticles in tumor cell radiosensitization. ***INTERNATIONAL CONFERENCE ON FUNCTIONAL NANOMATERIALS AND NANODEVICES***, 24-27 September **2017,** Budapest, Hungary
14. Falk M. Sensitive monitoring of DNA damage and repair in biodosimetry and cancer research. ***The Research Institute of Nuclear Engineering*, University of Fukui**, 15-23 March 2017, Tsuruga, Japan.
15. Falk M. DNA damage and repair in normal and tumor cells upon cell exposure to ionizing radiation of different quality. BIT’s 8th Annual World Congress of Molecular & Cell Biology-2018, October 16-18, 2018, **Fukuoka, Japan.**
16. Falk M. Spatio-temporal aspects of DNA damage and repair upon action of ionizing radiations of different types (60 min Educational Lecture). ***World Congress on Medical Physics & Biomedical Engineering***. June 3-8, 2018, **Prague, Czech Republic**. 60 min Invited lecture.
17. Falk M. Multiple mechanisms of metal nanoparticle-mediated radiosensitization of tumor cells? NANOSCIENCE MEET 2018: ***Annual conference on Nanoscience, Nanotechnology and Advanced materials***. November 26-28, 2018, **Bali**, **Indonesia**. Invited lecture.
18. Falk M. SUPERRESOLUTION MICROSCOPY IN RESEARCH OF IRIF NANOARCHITECTURE AND BIOLOGICAL EFFECTS OF HIGH-LET IONS. JINR Workshop on NUCLEAR PHYSICS METHODS IN LIFE SCIENCES: NEURORADIOBIOLOGICAL RESEARCH AND NEW APPROACHES TO RADIATION THERAPY OF TUMORS". April 27-28, 2021, **Joint Institute for Nuclear Research, Dubna, Russia.**
19. Falk M. Biological effects of ionizing radiation of different types as manifested by DNA damage and repair at the micro-scale and nano-scale. ***Brno Oncology Days***, 13. – 15th November 2021, **Brno, Czech Republic**.
20. Falk M. Title to be specified. International Conference "Dynamics of Systems on the Nanoscale". October 18-22, 2021, **Santa Margherita Ligure, Italy**
21. Hausmenn M et al. Space and time in the universe of the cell nucleus after ionizing radiation attacks: a comparison of cancer and non-cancer cell response. 1st International Electronic Conference on Cancers: Exploiting Cancer Vulnerability by Targeting the DNA Damage Response", 1–14 February 2021, **Online**.
22. Hausmann M et al. Ionizing radiation attacks on chromatin of the cell nucleus: Impact of chromatin nano-architecture on the formation of damage sites and repair complexes. ***ConRad 2021 – Global Conference on Radiation Topics – Preparedness, Response, Protection and Research***. May 10th to 12th, 2021, **Online**.
23. Falk M. DNA damage and repair after exposure to different types of ionizing radiation – the context of carcinogenesis and antitumor radiotherapy (Poškození a reparace DNA různými druhy ionizujícího záření v kontextu karcinogeneze a protinádorové radioterapie). ***13th WORLD INTERDISCIPLINARY ONCOLOGY COLLOQUIUM (PragueONCO)***, Jan 26–28, 2022. **Prague**, **Czech Republic**.
24. Hausmann M, Falk M, Scherthan H, Erenpreisa J, Heermann DW, Hildenbrand G, Pilarczyk G. Irradiation and biochemistry driven (re)organization of membrane receptors and cell nucleus chromatin domains. 1st International Conference "Multiscale Irradiation and Chemistry Driven Processes and Related Technologies" (MultIChem 2022). https://mbnresearch.com/ca20129-multichem/main. May 16-18, 2022, **Boppard am Rhein**, **Germany.**
25. Falk M, Michael Hausmann, Wisam Mohammed Hikmat, Georg Hikldenbrand, Ivan Dellino, Mario Faretta, Iva Falková, Olga Kopečná, Eva Pagáčová, Emilie Lukasova, Alena Bačíková, Pier Giuseppe Pellicci, Götz Pilarczyk, Ema Huščavová, Myriam Schäfer, Ruth Winter, Karel Štěpka, Kyra Michalová, Zuzana Zemanová, Elham Parsimehr, Jiří Toufar, Lucie Dobešová. How nanoscale chromatin architecture and chromatin topology within the cell nucleus participates in cancer development – an example of pathogenesis of three different leukemia types. International Symposium: "Spatial-temporal genome regulation in stress- response and cell-fate change“ Lecture Hall and Virtual, ***Latvian Biomedical Research and Study Centre (BMC)****,*July 25th, 2022, **RIGA**, **Latvia**. (**Invited 45 min Lecture**)
26. Hausmann M, Weidner J, Schäfer M, Winter R, Hahn H, Neitzel Ch, Küntzelmann K, Falkova I, Scherthan H, FalkM, Hikldenbrand G, Pilarczyk G. From Schrödinger ́s cat to his chromosomal aperiodic crystal and what an irradiated cell nucleus “thinks” about it. Symposium "Spatial-temporal genome regulation in stress- response and cell-fate change ", July 25th, 2022, ***Latvian Biomedical Research and Study Centre (BMC)***, **Riga**, **Latvia**.
27. Martin Falk, Lucie Dobešová, Ema Huščavová, Olga Kopečná, Tomáš Vičar, Jiří Toufar, Iva Falková, Michael Hausmann, Alena Bačíková, Götz Pilarczyk. IS THERE A SIMPLE EXPLANATION FOR METAL NANOPARTICLE-MEDIATED CELL RADIOSENSITIZATION? *COST MultIChem 2023* " Multiscale Irradiation and ChemistryDriven Processes and Related Technologies". April 26-28, 2023. Vila Lanna **Prague**, **Czech Republic**.
28. Michael Hausmann, Jonas Weidner, Myriam Schäfer, Jakob Leuther, Götz Pilarczyk, Arslan Saleem, Georg Hildenbrand, Harry Scherthan, and Martin Falk (corresp. au,). Topological changes of the whole chromatin of cell nuclei during DNA repair as a collective response to radiation induced damages. *DeGBS Meeting*, September 18-20, 2023, ***Hohenwart Forum***, **Pforzheim**, **Germany**.
29. Martin Falk. DNA repair in the context of chromatin – an opportunity and challenge for modelling. COST Action CA20129 MultiChem Workshop “Multiscale modeling of radiation-induced biodamage for radiotherapy applications”, Particle Therapy Research Center (PARTREC), September 21-22, 2023, ***University Medical Center Groningen*,** **Groningen**, **the Netherlands**.
30. Martin Falk. Mechanism of radiosensitization through metal nanoparticles - nuclear, cytoplasmic, and/or systemic effects. MultIChem COST Action, Nanoparticle Enhanced Radiotherapy workshop. 23rd January 2023. ***University College London (UCL)****,* online.
31. Martin Falk, Jiří Toufar, Lucie Dobešová, Olga Kopečná, Tomáš Vičar, Iva Falková, Michael Hausmann, Alena Bačíková. PERSISTING CONTRADICTORIES WITH METAL NANOPARTICLE-MEDIATED CELL RADIOSENSITIZATION. NIS COLLOQUIUM nBIO-MED: Prospects and challenges of nanomaterial application in the BIO-MEDical field. 19th April, 2024. Aula Castagnoli – Dip. Di Fisica, ***Universita di Torino,* Torino**, **Italy**. (INVITED 35 min LECTURE)
32. Jiří Toufar, Myriam Schäfer, Lucie Dobešová, Georg Hildenbrand, Olga Kopečná, Tomáš Vičar, Jonas Weidner, Iva Falkova, Alena Bačíková, and Micheal Hausmann and Martin Falk (presenting & corresp. au.). Local and global post-irradiation changes in chromatin architecture at DSB sites and in the entire nucleus and their significance for DSB repair and genome stability. The Eight International Conference "Dynamics of Systems on the Nanoscale" and the Third Conference of the COST Action "Multiscale Irradiation and Chemistry Driven Processes and Related Technologies" DySoN-MultIChem 2024. April 08-12, 2024. ***Ivane Javakhishvili Tbilisi State University***, **Tbilisi**, **Georgia**.
33. Martin Falk, Micheal Hausmann, Olga Kopečná, Myriam Schäfer, Tomáš Vičar, Jiří Toufar, Georg Hildenbrand, Lucie Dobešová, Jonas Weidner, Iva Falkova, Ondřej Polák, Alena Bačíková. Importance of Radiation Induced Foci (IRIF) in Radiation Research and Health Science. COPCA-MultIChem 2024—The 2024 Collisions Physics and Chemistry and their Applications Conference and A Workshop of the COST Action 20129: Multiscale Irradiation and Chemistry Driven Processes and Related Technologies. 15th – 18th October 2024. Aula Magna, ***University of Malta***, **Valletta**, **Malta**.
34. Martin Falk, Micheal Hausmann, Jiří Toufar, Lucie Dobešová, Myriam Schäfer, Tomáš Vičar, Georg Hildenbrand, Jonas Weidner, Iva Falkova, Ondřej Polák, Alena Bačíková. DNA damage by different types of ionizing radiation and DNA double-strand break repair within the local chromatin environment and the overall chromatin network. MGH (Bio)Physics Seminar. October 29, 2024. **Harvard Medical University,** Online. **(INVITED 60 min LECTURE)**

Research projects:

Principal Investigator, Co-Investigator or Team Member of/in **>30 national and international projects**. Principal Investigator of 3+3 Projects and Grants of the Plenipotentiary of the Government of the Czech Republic in JINR continuously from 2012. More detailed information will be provided upon request. See the Attachment.

**Czech Republic Management Committee Member in EU COST projects**: RADAM (P9; 2003 – 2007), Nano-IBCT (MP1002; 2010 – 2014), CliniMARK (CA16113), MultiChem (CA20129; 2021 – 2025)

Teaching Activities

* From 2007: **Masaryk University, Brno**, Czech Republic
* 2022 – 2024 **Hosting Professor, Heidelberg University, Heidelberg, Germany (**one of the three best universities in Germany, 42nd position according to World University Rankings 2022); Radiation Biophysics, Chromatin Architecture, etc.
* **Joint Program Advisory Committee of the Institute of Experimental Biology, Faculty of Science, Masaryk University, Brno, Czech Rep**.

**Teaching Courses (Masaryk University Brno. Czech Republic)**

* **F8270 Radiation Biophysics** (2 h/w), Masaryk University, Faculty of Sciences, Brno (from 2007),
* **C9041 Structure and function of eukaryotic chromosomes** (2 h/w), Masaryk University, Faculty of Sciences, Brno (2016-17; 2017-18; 2018-19)
* **XD100 Dissertation thesis supervision**, Masaryk University, Faculty of Sciences, Brno
* **Bi3061 Practicum from General Genetics** (2 h/w), Masaryk University, Faculty of Sciences, Brno, 2000-2001
* **Radiation Biophysics I** (4 h/w), Heidelberg University, Kirchhoff Institute for Physics, Heidelberg, Germany (2022-2024)
* **Radiation Biophysics II** (2 h/w), Heidelberg University, Kirchhoff Institute for Physics, Heidelberg, Germany (2022-2024)
* **Selected Topics of Radiation Biophysics** (2 h/w),Heidelberg University, Kirchhoff Institute for Physics, Heidelberg, Germany (2022-2024)
* **Spezielle Probleme der experimentalien Biophysik** (2 h/w),Heidelberg University, Kirchhoff Institute for Physics, Heidelberg, Germany (2022-2024)
* **Mikroskopie auf der Nanoskala und ihre Anwendungen** (2 h/w),Heidelberg University, Kirchhoff Institute for Physics, Heidelberg, Germany (2022-2024)
* **Biophysics of the Genome** (2 h/w),Heidelberg University, Kirchhoff Institute for Physics, Heidelberg, Germany (2022-2024)
* **Research Seminar** (2 h/w),Heidelberg University, Kirchhoff Institute for Physics, Heidelberg, Germany (2022-2024)
* **Journal Club** (2 h/w),Heidelberg University, Kirchhoff Institute for Physics, Heidelberg, Germany (2022-2024)
* Co-author of Clinical Radiobiology (“Klinická radiobiologie”) textbook, 2020, GRADA, CR
* Co-author of “Radiobiology” textbook prepared by ERRS (in press, 2022)

**Topical educative lectures**

* **>15 lectures at national and international universities/institutes for students**

Masaryk University, Brno, Czech Republic; World Congress on Medical Physics & Biomedical Engineering. June 3-8, 2018, Prague, Czech Republic; University of Fukui, Tsuruga, Japan; National Radiation Protection Institute (SURO) & Nuclear Physics Institute of the Czech Academy of Sciences, Prague, Czech Republic; Charles University, Faculty of Science, Prague, Czech Republic, Palacky University, Olomouc, Czech Republic; Brunel University, London, Great Britain; Nottingham University, Jubilee Campus, Nottingham, Great Britain, 6th International Summer Student School on Nuclear Physics Methods and Accelerators in Biology and Medicine), Russian Academy of Sciences, Dubna, Russia; CIC Biogune, Bilbao, Spain; University of Defense Hradec Kralove, Hradec Kralove, Czech Republic; The Future Forces Forum (NATO), Prague, Czech Republic; CEITEC Brno, Czech Republic. Kirchhoff Institute for Physics, University of Heidelberg, Heidelberg, Germany.

**Some references from students:**

* **"Dr. Falk has an incredible talent for explaining complex things in a simple and engaging way"**

("Doktor Falk má neskutečný talent vysvětlit složité věci jendoduchým a poutavým způsobem")

[Masaryk University, Brno, CR]

* **"Dr. Falk was absolutely enthusiastic and passed it on to the students ..."**

("Dr. Falk působil naprosto nadšeně a přenášel to i na studenty...")

[Masaryk University, Brno, CR]

* What do you value most: "1) **Broad insight and passion for the work!** 2) The lecturer's explanations were well organized, I really liked that he explained how each of the breakthroughs built on each other and what was behind what... the lectures were half physics class and half history class, which was extremely helpful for me to remember the information better because **for the first time in my life I understood the connections leading to the milestones of radiation biophysics**.”

(Čeho si ceníte nejvíce: “1) Všeobecného rozhledu a zápalu pro věc! 2) Výklad vyučujícího byl skvěle zorganizovaný, moc se mi líbilo, že nám vysvětlil jak jednotlivé převratné objevy na sebe navazovaly a co za čím stálo... přednášky byly napůl hodiny fyziky a napůl hodiny dějepisu, což mi velmi pomohlo si jednotlivé informace lépe zapamatovat, protože jsem poprvé v životě pochopila souvislosti vedoucí k milníkům radiační biofyziky.”)

[Masaryk University, Brno, CR]

* “**The lecture was very engaging and informative**. I also appreciate the recording of the presentation” (“Výklad byl velmi poutavý a informativní. Také si cením záznamu prezentace”); [Masaryk University, Brno, CR]
* “**Flexible teaching concept**. **He was able to adapt the interpretation of the content to the focus of his audience**” (“Flexibilní pojetí výuky. Výklad látky byl schopen přizpůsobit zaměření jeho publika”) [Masaryk University, Brno, CR]
* I would like to emphasize that **I personally liked the wide range of the material very much**, as the lecture was thus able to give a **very comprehensive overview of various fundamental aspects of radiation biophysics without getting lost in details**… I also found the chapters on the historical context, such as the discovery of radioactivity, particularly exciting. … **I would basically be very happy to have a follow-up course** on carcinogenesis. Thank you for the interesting lectures! [Heidelberg University, Heidelberg, Germany]
* **I learned a lot from you this semester**. **I really enjoyed the class, and I think that the structure of the class and the way you teach it not only capture attention and curiosity, but also facilitate learning**. Thank you very much, and kind regards  [Heidelberg University, Heidelberg, Germany]
* **I wanted to express my sincere gratitude for your lectures in Radiation Biophysics 1 and 2. Your teaching has sparked a strong interest in me, and I am considering further education or research in this field**. Do you happen to know of any research groups in Heidelberg that would be suitable for a physicist in this area… [Heidelberg University, Heidelberg, Germany]
* … **I thoroughly enjoyed your lectures. You were always very kind and knowledgeable**, and I found the video recordings to be an excellent way to review the material. **I also appreciated the moments when you explained concepts on the blackboard. … it was really interesting**, and blackboard notes were really helpful. … **I also found the course material very engaging, and the lectures were well-structured chronologically**. … **Thank you for always being so kind and helpful. Your support has been very motivating for me**. I wish you all the best for your future endeavors. [Heidelberg University, Heidelberg, Germany]
* I attended your lecture 'Radiation Biophysics 1' and **was very enthusiastic about it… it was very interesting because you brought together many different effects into a larger picture and showed how everything is connected**… **In general, I really appreciated how relaxed and humorous you made the lectures**… **Overall, I was convinced by your teaching style**. **If you ever return to Heidelberg and give lectures in this subject area again, I will definitely attend!** [Heidelberg University, Heidelberg, Germany]
* …**it was a really intriguing and relaxing time, while visiting your lectures**. **The structure of your presentation slides and the words you said is truly coherent and not overly messed up, like in other lectures**. **Also, the amount of information per lecture and in total for the exam was perfect** in my opinion. Not too little, not too much. **So, it was definitely worth visiting the lecture**. ... I really enjoyed the (science) history of the topic … So overall I would recommend the lecture to other people.  [Heidelberg University, Heidelberg, Germany]
* Overall, I think the lecture was good! **You can effectively transmit the content in a way that is fun and engaging**. The recaps and quizzes about the topics covered in the previous lecture were also very helpful to keep up with the course and internalize the topics. **The atmosphere was also good, a lot more "cozy" and laid back than in a lot of the bigger lectures, and you were always approachable and helpful with any queries**… **I also though the contents were interesting**… **I would also be very interested in a follow up course**… [Heidelberg University, Heidelberg, Germany]

**I thought that was a very interesting part of the lecture**, to really get to know how the understanding of ionizing radiation evolved over time, and it made the lecture overall a lot more interesting and fun, **it was a big plus for me**. **And I think with a topic like this, that evokes a lot of emotions in the general public, it is very important to get an understanding on the cultural and societal implications and views related to ionizing radiation and how they developed**, so I wouldn’t cut the historical parts. Also related to this, I really enjoyed getting a more "Czech" view on the topics, especially on the development, I had never heard… **All in all, I am very glad I visited this lecture this term, and thank you for making it so fun, interesting and educational**. **I would very much be interested in a follow up lecture**. [Heidelberg University, Heidelberg, Germany]

* **… I wanted to inform you that I am interested and would welcome such a lecture/course** [Heidelberg University, Heidelberg, Germany]
* **Regarding the course, I found it consistently interesting and … I always found the atmosphere of the course very pleasant. … I've found the topics, especially with the uploaded slides very good to work on and comprehensible**, even with not that much of prior knowledge. **In principle, I would be very interested in a follow-up course**. [Heidelberg University, Heidelberg, Germany]

• **Very good slides with very good examples**, it did help me to remember some concepts. **Very interesting subject with a good overview of Radiation Biophysics**. Since I want to specialize in Biophysics **I am very interested in a follow up lecture**. [Heidelberg University, Heidelberg, Germany]

* **I would indeed be very much interested in the potential follow-up lecture!** [Heidelberg University, Heidelberg, Germany]
* Interesting topics, well designed Powerpoint slides (like the short summaries; these also helped a lot]; **I also wanted to say that I enjoyed the lecture and I would like to participate in a follow up course.** [Heidelberg University, Heidelberg, Germany]
* **In general I really enjoyed it and the atmosphere, especially with the "fairy tale" parts as you described them :)** I think it was nice to build up to the main topic with the historic background, …  
  **I would also be interested in a follow-up course**, … [Heidelberg University, Heidelberg, Germany]
* **I found the lecture very interesting but yet very tangible.** It was a very good entrance to the world of biophysics for me (as it was my first ever lecture on it) and I got a lot out of it. So, thank you so much for holding it… It is very kind of you to offer the streams and presentations. I really enjoyed how you took your time in explaining the concepts and the history behind the radiation and biology. If anything, that is something that helped me understand the importance and the context of the topics.   
  … **I remember the moments you explained something on the blackboard for example, that it really stuck in my mind and gives a bit of variety. I think this is where you excel best.**  
  **It really helped that your jokes are very funny**… **So all in all I really enjoyed the lecture. Thank you for holding it :)** **I would be interested in a follow up lecture actually**. **Also: Do you offer any spots for the bachelor thesis and or a "Projektpraktikum"?** [Heidelberg University, Heidelberg, Germany]
* I really appreciate the thorough feedback on my mistakes in the exam. As for my feedback on the course, **I found the course very interesting overall**. … **the biological effects of radiation** … **was a part, that I found very interesting. I also really appreciated the recordings of the lectures**… [Heidelberg University, Heidelberg, Germany]
* **I think the course was great**. [Heidelberg University, Heidelberg, Germany]
* I attended the lecture on Radiation Biophysics in the summer semester of 2024, and **I found it an interesting and great course**. The lectures were very well-structured, allowing me to easily follow along with the concepts, even when dealing with complex topics. The professor made effective use of relevant examples that not only clarified theoretical aspects but also showed the practical implications of the subject matter. I particularly valued the short revision of important information before starting with a new topic.  [Heidelberg University, Heidelberg, Germany]

Organization of Conferences

* **Winner of the world competition to organize the International Congress on Radiation Research in 2027 (ICRR2027; the largest radiobiological conference with hundreds to thousands participants)**
* 2024 – **48th European Radiation Research Society (ERRS) Annual Meeting**, September 10 – 13, 2024. Aveiro University, Aveiro, Portugal (Scientific Committee).
* 2024 – The Eight International Conference "Dynamics of Systems on the Nanoscale" and the Third Conference of the COST Action "Multiscale Irradiation and Chemistry Driven Processes and Related Technologies" **DySoN-MultIChem 2024**. April 08-12, 2024. Tbilisi, Georgia. (Scientific Committee)
* 2022 – **Conference of the Society for Radiobiology and Crisis Planning of CLS JEP (CRCP CzMA), CZECH MEDICAL CHAMBER**, Dept. EDUCATION, "**Current radiobiological findings with regard to the increased threat to the population from ionizing radiation**". 26 April 2022. Prague, Czech Republic.
* 2021: **46th Annual Meeting of the European Radiation Research Society (ERRS)**, 29th November – 3rd December 2021, Caen, France (Scientific Committee)
* 2021 – **Experiences with dealing with the consequences of the tornado that hit the South Moravian Region on 24 June 2021 from the perspective of representatives of the IZS and KÚ - Seminar of the Society for Radiobiology and Crisis Planning of the Czech Medical Association of Jan Evangelista Purkyně (SRCP CzMA)**. November 5, 2021. Lecture Hall of the Medical House, **Prague, Czech Republic.**
* 2019 – **Symposium on Cell Biology and Pathology**, 28-29th May 2019, Brno, Czech Republic (main organizer).
* 2019 – **Radicalisation, Terrorism and Population Protection**. **Conferece of the Society for Radiobiology and Crisis Planning of the Czech Medical Association J.E. Purkyně (SRKP CzMA)** under the auspices of the Chair of the Committee for Health Prof. MUDr. Věra Adámková, CSc. in cooperation with the Ministry of the Interior of the Czech Republic and the Faculty of Biomedical Engineering of the Czech Technical University in Prague. February 28, 2019. **The Parliament of the Czech Republic, Prague, Czech Republic**.
* 2018 – **The World Congress on Medical Physics & Biomedical Engineering 2018 (IUPESM 1028)** (organizer of a scientific section, the Scientific Committee member).
* 2018 – **Aspects of Work of Helping Professions (AWHP)**, conference for professionals and students, October 12, 2018. (co-organizer).
* 2017 – XXXI. **Brno Oncology Days**. 26-28the April 2017, Brno, Czech Republic (organizer of an educative section organization an ‘Radiobiology’).
* 2017 – The 3rd International Conference on Systems and Synthetic Biology, 20-21st July, Munich, Germany (co-organizer).
* 2016 – **Conference on Cell Biology and Radiobiology** – Satellite Symposium of the '6th International Conference on Genomics and Pharmacogenomics' held in Berlin, 9th-10th September 2016, Brno, Czech Republic.
* 2016 – **6th International Conference on Genomics and Pharmacogenomics**, Berlin, 12th-14th September 2016, Berlin, Germany (co-organizer).
* etc.

Science Popularization

* **2021: TV Broadcast** - Dec 18, 2021, Czech TV, About Science and Scientists, “Irradiated Cells” (O vědě a vědcích - Ozářené buňky), https://www.ceskatelevize.cz/porady/1181680258-tyden-v-regionech-brno/321281381891218/
* **Radio Broadcast** – Czech Radio (Český rozhlas / Radiožurnál), interview with Martin Falk + Irena Kratochvílová on the topic “Freezing of Tumor Cells Could Improve Cancer Therapy” (“Zmrazování nádorových buněk by mohlo pomoci při léčbě rakoviny”), Author: Vojtěch Koval, Prague 18:36 28th January 2018

Radiožurnál (audio archive): http://prehravac.rozhlas.cz/audio/3974981

iRadio (text comments): short link: <http://irozhl.as/347>

full link:

<https://www.irozhlas.cz/zivotni-styl/zdravi/rakovina-bunky-zmrazovani-vedci_1801281836_pj>

* **Radio Broadcast** – Czech Radio 2 (Český rozhlas 2) – Coffee at 4 o’clock (Káva o čtvrté) on the topic “Cell Aging – Is There an Elixir of Youth?” (“Stárnutí buněk aneb existuje elixír mládí?”). Interview (40 min) with Martin Falk (moderator Tomáš Voženílek).

Archive record (mp3):

<https://dvojka.rozhlas.cz/starnuti-bunek-aneb-existuje-elixir-mladi-7624981>

* Co-author of “**Klinická radiobiologie**” (“Clinical Radiobiology”) textbook, 2020, GRADA, CR
* Co-author of “**Radiobiology textbook**” (2023), Baatout, S. (eds), **Springer, Cham**.
* **Lecture:** Falk M. Spatio-temporal aspects of DNA damage and repair upon action of ionizing radiations of different types (60 min Educational Lecture). **World Congress on Medical Physics & Biomedical Engineering**. June 3-8, 2018, Prague, Czech Republic. 60 min EDUCATIONAL LECTURE
* **Lecture:** Falk M. “Ionizing radiation – a double-edged sword in biology and medicine” (Ionizující záření – dvousečný meč v biologii a medicíně), **60. Studentská vědecká konference**. 25th May, 2016, Masaryk University, Medical Faculty, Brno, Czech Republic (120 min Plenary Lecture, invited)
* **Lecture:** Falk M. **Renaissance of Radiobiology in the New Millennium**. National Radiation Protection Institute (SURO) & Nuclear Physics Institute of the Czech Academy of Sciences, 12th April 2017, Prague, Czech Republic. 120 min EDUCATIONAL LECTURE
* **Lecture:** Falk M. Effects of different types of ionizing radiation on the cell and possibilities of their targeted modification. **30 Years after the Chernobyl Disaster.** The Society for Radiobiology and Crisis Planning of the Czech Medical Association of Jan Evangelista Purkyne (SRKP ČLS JEP) and Czech Technical University in Prague, 6th May 2016, Prague, Czech Republic. 120 min EDUCATIONAL LECTURE
* **Lecture:** Functional structure of chromatin and its nuclear topology, 10.1.2005, Masaryk University, Brno (2 h)
* **Lecture:** The roles of higher-order chromatin structure and nuclear architecture in pathogenesis of malignant and non-malignant diseases, 22.3.2005, Masaryk University, Brno (2 h)
* **Beneficial Concert with the Brno Philharmonic Orchestra** + Open door day (December 2015, 2016, 2017, 2018)
* **Contributions to the Annual Research Reports of IBP ASCR** in years 2006, 2007, 2008, 2009, 2010, 2011, 2012: Institute of Biophysics, Academy of Sciences of Czech Republic (2006-2012), Brno, Czech Republic
* **Annual “Open door day” at IBP CAS Brno** for students and public

National and international collaboration:

* Prof. Michael Hausmann, Ph.D., Kirchhoff Institute for Physics, University of Heidelberg, Heidelberg, Germany (Single Molecule Localization Microscopy and radiobiological research).
* Acad. Prof. Evgeny Krasavin, Ph.D., Joint Institute for Nuclear Research, Dubna, Russia (access to high-LET particle accelerators, radiobiological research).
* Prof. Valentin Djonov, Ph.D., University of Bern, Berne, Switzerland (Microbeam Radiotherapy, MRT)
* Prof. Pier Giuseppe Pelicci, M.D., Ph.D. (EOI Director) and Assoc. Prof. Ivan Gaetano Dellino, Ph.D., European Institute of Oncology (EIO), Milan, Italy (advanced molecular biology methods, leukemia research).
* Prof. Sandrine Lacombe, Ph.D., University Paris Sud, Paris, France (nanoparticle-mediated tumor cell radiosensitization).
* Prof. Dr. Andrey V. Solov'yov, Scientific and Executive Director, MBN Research Center gGmbH at FiZ - Frankfurter Innovationszentrum Biotechnologie, Frankfurt, Germany (radiobiological research, computer modeling).
* Assoc. Prof. Ilia Solov'yov, Department of Physics, Chemistry and Pharmacy University of Southern Denmark (computer modeling).
* Ing. Marie Davídková, Ph.D., Nuclear Physics Institute CAS, Řež by Prague, Czech Republic (access to proton accelerators, radiobiological research).
* Prof. RNDr. Michal Kozubek, Ph.D., Centre for Biomedical Image Analysis, Faculty of Informatics of Masaryk University Brno (microscopy software, image analysis).
* Assoc. Prof. RNDr. Irena Kratochvílová, Ph.D., Institute of Physics CAS, Prague, Czech Republic (research on chromatin cryo-damage).
* Assoc. Prof. Michal Masařík, Ph.D., MUDr. Gumulec, Ph.D., Institute of Pathophysiology, Masaryk University, Brno, CR (tumor cell primocultures, oncological research).
* MUDr. Zuzana Horáková, Ph.D., Faculty Hospital, Olomouc, CR (oncological research).
* Ing. Tomáš Vičar, Ph.D., Brno Technical University, Brno, Czech Republic (advanced software development, statistical big data analyses).
* Prof. Ing. Jan Vacek, Ph.D., Department of Medical Chemistry and Biochemistry, The Palacky University Olomouc, Olomouc, Czech Republic (radiosensitizers/radioprotectants, cell signalling, chemical analysis).
* Jaroslav Katrlík, PhD. Institute of Chemistry, Center for Glycomics, Slovak Academy of Sciences, Bratislava, Slovak Republic (radioprotectants and radiosensitizers).
* Prof. MUDr. Zdeněk Kleibl, Ph.D. and Jan Ševčík, Ph.D., Department of Oncology, First Faculty of Medicine, Charles University in Prague and General University Hospital in Prague (oncological research).
* Prof. RNDr. Bořivoj Klejdus, Ph.D., Mendel University in Brno, Brno, Czech Republic (LC-MS, DART and DESI analyses).
* Prof. Dipl. Ing. Kyra Michalová, DrSc., 1st Department of Medicine – Department of Hematology, First Faculty of Medicine (mFISH, oncological research).

**APPENDIX**

***I. LIST OF PUBLICATIONS***

1. Solov'yov A.V., Verkhovtsev A.V., Mason N.J., Amos R.A., Bald I., Baldacchino G., Dromey B., Falk M., Fedor J., Gerhards L., Hausmann M., Hildenbrand G., Hrabovský M., Kadlec S., Kočišek J., Lépine F., Ming S., Nisbet A., Ricketts K., Sala L., Schlathölter T., Wheatley A.E.H., Solov'yov I.A. Condensed Matter Systems Exposed to Radiation: Multiscale Theory, Simulations, and Experiment. ***Chem Rev***. 2024;124(13):8014-8129. doi: 10.1021/acs.chemrev.3c00902. **IF = 51.5 (Q1)**.
2. Perecko T, Pereckova J, Hoferova Z, Falk M. Cell-type specific anti-cancerous effects of nitro-oleic acid and its combination with gamma irradiation. ***Biol Chem.*** 2024;405(3):177-187 (**IF 4. 7** / **Q2**)

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1. Weidner J, Neitzel Ch, Gote M, Deck J, Küntzelmann K, Pilarczyk G, Falk M\*, Hausmann M. Image-free analysis of the nano-organization of chromatin, proteins, and membrane molecules: A comprehensive set of software tools. ***CSBJ* 2023**, 21:2018–2034 <https://doi.org/10.1016/j.csbj.2023.03.009> (**IF 7.271** / **Q1**)
2. Erenpreisa J, Giuliani A, Yoshikawa K, Falk M, Hildenbrand G, Salmina K, Freivalds T, Vainshelbaum N, Weidner J, Sievers A, Pilarczyk G, and Hausmann M. Spatial-temporal genome regulation in stress-response and cell-fate change. ***IJMS* 2023**, 24(3):2658; <https://doi.org/10.3390/ijms24032658> (**IF 6.208** / **Q1**)***.***
3. Perecko, T., Hoferova, Z., Hofer, M., Pereckova, J., Falk, M. Administration of nitro-oleic acid mitigates radiation-induced hematopoietic injury in mice. ***Life Sciences*** 2022, 310, art. no. 121106. DOI: 10.1016/j.lfs.2022.121106. (**IF 6.78** / **Q1**) (funding No. 19-09212S).
4. Pereckova, J., Martiniakova, S., Payer, J., Falk, M., Killinger, Z., Perecko, T. ANALYSIS OF HEMATOLOGICAL PARAMETERS IN RHEUMATOID ARTHRITIS PATIENTS RECEIVING BIOLOGICAL THERAPY: CONTRIBUTION TO PREVENTION OF AVOIDABLE HEMATOLOGICAL COMPLICATIONS. ***EXCLI Journal*** 2022, 21, pp. 580-594. DOI: 10.17179/excli2022-4702. (**IF 4.022** / **Q2**)
5. Zadneprianetc M, Boreyko A, Jezkova L, Falk M, Ryabchenko A, Hramco T, Krupnova M, Kulikova E, Pavlova A, Shamina D, Smirnova E & Krasavin E. Clustered DNA Damage Formation in Human Cells after Exposure to Low- and Intermediate-Energy Accelerated Heavy Ions. ***Physics of Particles and Nuclei Letters*** 2022, 19:440–450. (**IF 0.57** / **h=21**)
6. Dobešová L, Gier T, Kopečná O, Pagáčová E, Vičar T, Bestvater F, Toufar J, Bačíková A, Kopel P, Fedr R, Hildenbrand G, Falková I, Falk M (corresp. au.), and Hausmann M (corresp. au.). Incorporation of Low Concentrations of Gold Nanoparticles: Complex Effects on Radiation Response and Fate of Cancer Cells. ***Pharmaceutics 2022, 14(1), 166;*** [*https://doi.org/10.3390/pharmaceutics14010166*](https://doi.org/10.3390/pharmaceutics14010166)*.* (**IF 6.525** / **Q1**)*.*
7. Falk M, Vičar T, Gumulec J, Falková I, Kopečná O, Pagáčová E, Kolář R, Toufar J, Parsimehr E, Dobešová L, Huščavová E. NEW SOFTWARE BASED ON ARTIFICIAL NEURAL NETWORKS FOR AUTOMATIC QUANTIFICATION OF DNA RADIATION DAMAGE AND VICTIM TRIAGE. ***Proceedings of the HAZMAT PROTECT 2022***- 4th Scientific Conference on CBRN Protection, 2022, pp 14 – 23, ISBN 978-80-11-01902-0. Available in: https://hazmat-protect.sujchbo.cz/archiv/hazmat-protect-2022/ (invited)

1. [Vicar](https://pubmed.ncbi.nlm.nih.gov/?term=Vicar+T&cauthor_id=34976305) T, [Gumulec](https://pubmed.ncbi.nlm.nih.gov/?term=Gumulec+J&cauthor_id=34976305)  J, [Kolar](https://pubmed.ncbi.nlm.nih.gov/?term=Kolar+R&cauthor_id=34976305) R, [Kopecna](https://pubmed.ncbi.nlm.nih.gov/?term=Kopecna+O&cauthor_id=34976305) O, [Pagacova](https://pubmed.ncbi.nlm.nih.gov/?term=Pagacova+E&cauthor_id=34976305) E, [Falkova](https://pubmed.ncbi.nlm.nih.gov/?term=Falkova+I&cauthor_id=34976305) I, [Falk](https://pubmed.ncbi.nlm.nih.gov/?term=Falk+M&cauthor_id=34976305) M (corresp. au.). DeepFoci: Deep learning-based algorithm for fast automatic analysis of DNA double-strand break ionizing radiation-induced foci. ***Comput Struct Biotechnol J. 2021***;19:6465-6480. doi: 10.1016/j.csbj.2021.11.019. eCollection 2021.(**IF 7.271** / **Q1**)
2. [Hahn](https://pubmed.ncbi.nlm.nih.gov/?term=Hahn+H&cauthor_id=34771723) H, [Neitzel](https://pubmed.ncbi.nlm.nih.gov/?term=Neitzel+C&cauthor_id=34771723) Ch, [Kopečná](https://pubmed.ncbi.nlm.nih.gov/?term=Kope%C4%8Dn%C3%A1+O&cauthor_id=34771723) O,  [Heermann](https://pubmed.ncbi.nlm.nih.gov/?term=Heermann+DW&cauthor_id=34771723) DW, [Falk](https://pubmed.ncbi.nlm.nih.gov/?term=Falk+M&cauthor_id=34771723) M, [Hausmann](https://pubmed.ncbi.nlm.nih.gov/?term=Hausmann+M&cauthor_id=34771723) M. Topological Analysis of H2AX and MRE11 Clusters Detected by Localization Microscopy during X-ray-Induced DNA Double-Strand Break Repair. ***Cancers, 2021***, 13(21), 5561. (**IF 6.639** / **Q1**)

1. [Hausmann](https://pubmed.ncbi.nlm.nih.gov/?term=Hausmann+M&cauthor_id=33807337) M,  [Falk](https://pubmed.ncbi.nlm.nih.gov/?term=Falk+M&cauthor_id=33807337) M, [Neitzel](https://pubmed.ncbi.nlm.nih.gov/?term=Neitzel+C&cauthor_id=33807337) Ch, [Hofmann](https://pubmed.ncbi.nlm.nih.gov/?term=Hofmann+A&cauthor_id=33807337) A, [Biswas](https://pubmed.ncbi.nlm.nih.gov/?term=Biswas+A&cauthor_id=33807337) A, [Gier](https://pubmed.ncbi.nlm.nih.gov/?term=Gier+T&cauthor_id=33807337) T, [Falkova](https://pubmed.ncbi.nlm.nih.gov/?term=Falkova+I&cauthor_id=33807337) I, [Heermann](https://pubmed.ncbi.nlm.nih.gov/?term=Heermann+DW&cauthor_id=33807337) DW, [Hildenbrand](https://pubmed.ncbi.nlm.nih.gov/?term=Hildenbrand+G&cauthor_id=33807337) G. Elucidation of the clustered nano-architecture of radiation-induced DNA damage sites and surrounding chromatin in cancer cells: A single molecule localization microscopy approach. **Int J Mol Sci*, 2021***;22(7), Article number 3636. (**IF 6.208** / **Q1**)
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***II. CONFERENCE LECTURES*** (a complete list)

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Falk M. New trends in diagnostics of myotonic dystrophy. Čs. biological society meeting, 4 November 2000, **Brno, Czech Republic.**

Vojtíšková M., Falk M. PCR methods for detection of large trinucleotide repeat expansions. 8. International Fair of Medical Technology and Pharmacy – MEFA 2000 Congress on progress in medicine and pharmacy, section of genetics and physiology, 7.-10.11.2000, **Brno, Czech Republic**. (in English)

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Falk M., Gaillyová R. and Vojtíšková M. Use of new modified PCR-based methods for rapid differential diagnostics of myotonic dystrophy. V. Workshop of Biochemists and Molecular Biologists, 14 February 2001, **Brno, Czech Republic**. (in English)

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Falk M., Lukášová E., Kozubek S., Kozubek M. Topography of dystrophin exons relative to the cell nucleus and to the active and inactive chromosome X territory determined for human lymphocytes. Conference on Biophysics of the Genome and Its Interactions, October 15 – 17, 2001, **Hlohovec, Czech Republic** (in English)

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Španová A., Rittich B., Falk M. Degradation of plasmid and high-molecular weight DNAs by lanthanide ions. 22nd International Symposium on the Separation of Proteins, Peptides and Polynucleotides. **Heidelberg**, **Germany**: Dechema, 2002.

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**2010**

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**2011**

Falk M., Lukášová E., Kozubek S., Štefančíková L. Higher-order chromatin structure in DNA double-strand break induction, repair and formation of chromosomal translocations. Brunel University (Invited by Dr. Rhona Anderson), June 29 - July 1, 2011, **London, Great Britain**. **(INVITED LECTURE)**

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Falk M., Lukášová E., Kozubek S., Štefančíková L. Function of chromatin structure and dynamics in DNA damage, repair and misrepair. *Sixth International Summer Student School on Nuclear Physics Methods and Accelerators in Biology and Medicine*, 2 - 12 th July 2011, **Dubna, Russia**. **(INVITED LECTURE)**

Falk M., Vojtíšková M., Lukáš Z., Falková I., Štefančíková L., Kozubek S. Current detection possibilities of unstable alleles in the myotonic dystrophy and Huntington's disease loci. *EPS Montreal Occupational Safety and Health Forum*, 15th – 16th August 2011, **Montreal, Canada**. **(INVITED LECTURE)**

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Falk M, Lukášová E, Kozubek S, Štefančíková L. Spatio-temporal questions of DNA double-strand break repair and formation of chromosomal translocations. International Symposium for Radiation Research and Medical Physics. May 30 - June 2, 2011. **Shanghai**, **China**.

Lukas Z., Vohanka S., Feit J., Falk M., Falkova I., Hrabalkova R., Zaoralkova J. Sequestration of MBNL1 protein by mutant ZNF9 RNA in lymphocytes of patients with myotonic dystrophy type. 16th International Congress of the World Muscle Society. 18-22 October 2011. Almancil, **Algarve**, **Portugal**.

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**2012**

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Falková I., Ježková L., Baranová E., Štefančíková L., Lukášová E., Kozubek S., Boreyko A., Krasavin E., and Falk M. H2AX/53BP1 foci formation and DSB repair in cycling cells and differentiated cells irradiated with -rays. *Quantum Scattering Codes and Monte Carlo Simulations to Model Dynamical Processes in Biosystems, Nano-IBCT Workshop*, 7. – 9. November 2012, **Madrid, Spain**. **(INVITED LECTURE)**

Falk M. et al. Repair of DNA double strand breaks in the context of chromatin and nuclear structure. 15th. November, 2012, Palacky Univerzity, **Olomouc, Czech Republic**. **(INVITED LECTURE)**

Falk M., Štefančíková L., Lukášová E., Bačíková A., Falková I., Kozubek S. Funkce, poškození a reparace chromatinu – představení činnosti skupiny; vliv uspořádání chromatinu v jádře na vznik jednoduchých a komplexních přestaveb chromosomů. Dynamics and Organization of Chromosomes in the Cell Cycle and during Differentiation under Normal and Pathological Condition. Project Excellence 302/12/G157 Workshop No. 1. 29 – 30 March 2012, **Brno, Czech Republic**

Lukášová E., Bačíková A., Štefančíková L., Falk M., Kozubek S., Trbušek M., Šebejová L. Zvýšená fosforylace H2AX, změny chromatinové struktury a buněčná smrt po zablokování replikace a Chk1 kinázy v leukemických buňkách. Dynamics and Organization of Chromosomes in the Cell Cycle and during Differentiation under Normal and Pathological Condition. Project Excellence 302/12/G157 Workshop No. 1. 29 – 30 March 2012, **Brno, Czech Republic**

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Falk M., Lukášová E., Štefančíková L., Bačíková A., and Kozubek S. Nuclear architecture and DSB repair. International Workshop on Radiation Damage to DNA, June 2nd – 6th, 2012, **Prague, Czech Republic**

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Lukášová E., Falk M., Štefančíková L., Bačíková A., and Kozubek S. Chromatin changes during DSB repair in euchromatin and heterochromatin. International Workshop on Radiation Damage to DNA, June 2nd – 6th, 2012, **Prague, Czech Republic**

Falk M., Lukášová E., Štefančíková L., Falková I., Ježková L., Bačíková A., Davídková M., Vachelová J., Michaelidisová A., Kozubek S. DNA damage and repair in the context of chromatin structure. Advanced Confocal Microscopy and Living Cell Studies, 15 – 19 October, 2012, **Brno, Czech Republic**

Štefančíková L., Porcel E., Lacombe S., Falk M., Kozubek S. Localization of nanoparticles in cancer cells. Advanced Confocal Microscopy and Living Cell Studies, 15 – 19 October, 2012, **Brno, Czech Republic**

Vachelová J., Michaelidesová A., Pachnerová Brabcová K., Falk M., Falková I., Ježková L., Davídková M. Pilotní studie radiačního poškození fibroblastů“ XXXIV. Dny radiační ochrany, 5. - 9. 11. 2012, **Třeboň, CR**

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Lukášová E., Bačíková A., Štefančíková L., Falk M., Kozubek S., Trbušek M., Šebejová L. Zvýšená fosforylace H2AX, změny chromatinové struktury a buněčná smrt po zablokování replikace a Chk1 kinázy v leukemických buňkách – pokroky ve výzkumu. Advanced Confocal Microscopy and Living Cell Studies, enclosed Meeting of GACR Project, Center of Excellence No.: P302/12/G157, 15 – 19 October, 2012, **Brno, Czech Republic**

Štefančíková L., Falk M., Lukášová E., Bačíková A., Kozubek S. Senzitizace nádorových buněk k záření pomocí nanočástic – pokroky ve výzkumu. dvanced Confocal Microscopy and Living Cell Studies, enclosed Meeting of GACR Project, Center of Excellence No.: P302/12/G157, 15 – 19 October, 2012, **Brno, Czech Republic**

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Falk M., Falková I., Davídková M., L. Ježková L., Bačíková A., Štefančíková L., Vachelová J., Michaelidesová A., Kozubek S. Influences of radiation quality and higher-order chromatin structure on DSB induction and repair – comparison of gamma and proton irradiation. R*adiation Damage in Biomolecular Systems: Nanoscale Insights into Ion-Beam Cancer Therapy, 2nd NANO-IBCT Conference 2013*, 20-24 May 2013, Gdansk University of Technology, **Sopot, Poland**. **(INVITED LECTURE)**

Falk M. et al. Heterochromatin – Dr Jekyll and Mr Hyde of the DNA Damage Repair. *3rd World Congress on Molecular Biology*, June 14-16, 2013, **Suzhou, China**. **(INVITED LECTURE)**

Falk M. From genomics to spatio-temporal organization of cellular processes: What can confocal microscopy tell us about the mechanism of DNA repair and formation of chromosomal translocations? *Genomics 2013*, November 12-14, 2013, DoubleTree by Hilton Hotel Chicago-North Shore, **Chicago, IL, USA**. **(INVITED LECTURE)**

Štefančíková L., Porcel E., Eustache P., Li S., Salado-Leza D., Réfrégier M., Kozubek S., Falk M. and Lacombe S. Nanoparticle cellular localization, uptake and effect on DNA damage response upon irradiation. Nano-IBCT meeting, 8th November 2013, **Belfast, Ireland. (INVITED LECTURE)**

Falk M., Lukáš Z., Falková I., Janoušová E., Fajkusová L., Štefančíková L., Zaorálková J., Hrabálková R., Feit J. A multilevel pathogenesis of myotonic dystrophy - dynamic DNA expansions, RNA expansions, and protein interactions come into play. High-Resolution Microscopy in the Biology of the Cell Nucleus, November 18 - 22, 2013, **Hustopeče, Czech Rep.**

Štefančíková L., Porcel E., Eustache P., Li S., Salado-Leza D., Kozubek S., Lacombe S. and Falk M. Nanoparticles cellular localization, uptake and effect on DNA damage response upon irradiation. High-Resolution Microscopy in the Biology of the Cell Nucleus, November 18 - 22, 2013, **Hustopeče, Czech Rep.**

Falkova I., Stefancikova L., Baranova E., Lukasova E., Jezkova L., Bacikova A., Kozubek S., Davidkova M., and Falk M. Heterochromatin structure prevents DSB repair but not formation of repair foci and protrusion of DSBs into the low-dense chromatin. Heavy Ion in Therapy and Space Radiation Symposium 2013 (HITSRS2013). May 15-18, 2013. **Chiba**, **Japan**.

Falk M., Falkova I., Davidkova M., Bacikova A., Stefancikova L., Lukasova E., Jezkova L., Vachelova J., Michaelidesova A., Kozubek S. "Secondary" clustering of DSB repair foci and repair kinetics compared for -rays and protons of different energies. Heavy Ion in Therapy and Space Radiation Symposium 2013 (HITSRS2013). May 15-18, 2013. **Chiba**, **Japan**.

Michaelidesová A., Vachelová J., Havránek V., Štursa J., Zach V., Falk M., Falková I., Ježková L., Vondráček V., Davídková M. Response of human normal fibroblasts to proton irradiation. 11th Microbeam Workshop, Microbeam Probes of Cellular Radiation Response. October 3rd & 4th, 2013. **Bordeaux**, **France**.

Michaelidesova A., Vachelova J., Falk M., Falkova I., Litvinchuk A., Havránek V., Štursa J., Zach V., Vondráček V., Davídková M. Response of normal skin fibroblasts to proton irradiation. 16th International Symposium on Microdosimetry. October 20 - 25.2013. **Treviso**, **Italy**.

Štefančíková L., Porcel E., Eustache P., Kozubek S., Falk M. and Lacombe S. Localization and radiosensitizing effect of Gd nanoparticles in cancer cells. SPRING 13 U: Design of multifunctional nano-objects for biomedical applications. May 27 - 31, 2013. **Strasbourg**, **France**.

Michaelidesová A., Vachelová J., Litvinchuk A., Falk M., Falková I., Havránek V., Štursa J., Vondráček V., Davídková M. Response of cell cultures of normal human skin fibroblasts to proton irradiation. XXXV. Dny radiační ochrany, November 11 - 15, 2013. **Třeboň, Czech Republic.**

**2014**

Falk M. Indukce chromosomálních aberací ionizujícím zářením různých kvalit. XXIII. konference rehabilitační, fyzikální a balneo medicíny, 7. – 8.2.2014, **Jáchymov, Czech Republic. (INVITED LECTURE)**

Falk M. Epigenetics and higher-order chromatin structure in regulation of fundamental nuclear processes including DNA repair (Invited Lectute). International Workshop on Nuclear Architecture. Istitutio Superiore di Sanitá (Italian NIH, Prof. Alessandro Giuliani), April 22 – 28, 2014, **Roma, Italy. (INVITED LECTURE)**

Lukášová E., Kořistek Z., Klabusay M., Ondřej V., Grigoryev S., Bačíková A., Řezáčová M., Vávrová J., Kohútová V., (presented by) Falk M., Kozubek S. DNA damage and repair in the context of chromatin structure and function - the influence of cell differentiation and quality of ionizing radiation. *13th International Workshop on Radiation Damage to DNA*, June 14-18, 2014, Massachusetts Institute of Technology (M.I.T.), **Cambridge, MA, USA**. **(INVITED LECTURE)**

Falk M., Falková I., Ježková L., Davídková M., Bačíková A., Zadneprianetc M., Pagáčová E., Štefančíková L., Vachelová J., Michaelidesová A., Lukášová E., Boreyko A., Krasavin E.A., Kozubek S. DSB Repair and Primary and Secondary (DSB repair-induced) IRIF Clusters upon the Action of High-LET and Low-LET Radiations. *13th International Workshop on Radiation Damage to DNA*, June 14-18, 2014, Massachusetts Institute of Technology (M.I.T.), **Cambridge, MA, USA**.

Pagáčová E., Falk M., Falková I., Štěpka K., Lukášová E., Michalová K., Zemanová Z., Matula P., Kozubek S. Chromosomal rearrangements of the chromosome 5 in myelodysplastic syndrome. Advanced Workshop on Interdisciplinary Views on Chromosome Structure and Function. 15 - 19 September 2014, **Trieste, Italy**

Ježková L., Boreyko A., Bulanova T., Falk M., Falkova I., Davidkova M., Kozubek S., Krasavin E., Kruglyakova E., Valentova E., Zadneprianetc M. Induction and repair of clustered DNA double strand breaks in human fibroblasts after irradiation with Boron ions and g-rays. 60th Annual International Meeting of Radiation Research Society. September 21-24, 2014, **Las Vegas, Nevada, USA**.

Falk M., Ježková L., Falková I., Lukášová E., Bačíková A., Davídková M., Zadneprianetc M., Pagáčová E., Vachelová J., Michaelidesová M., Boreyko A., Krasavin E., Kozubek S. CHARACTERISTICS OF IONIZING RADIATION, CHROMATIN STRUCTURE, AND DNA DOUBLE STRAND BREAK (MIS)REPAIR. 3rd International Conference “Radiation damage in Biomolecular Systems: Nanoscale insights into Ion Beam Cancer Therapy”, Nano-IBCT 2014 Conference, 27th – 31th October 2014, **Boppard am Rhein, Germany. (INVITED LECTURE)**

Falková I., Ježková L., Lukášová E., Bačíková A., Davídková M., Zadneprianetc M., Pagáčová E., Vachelová J., Michaelidesová A., Boreyko A., Krasavin E., Kozubek S., and Falk M. PRIMARY AND SECONDARY gH2AX FOCI CLUSTERS UPON IRRADIATING CELLS WITH DIFFERENT RADIATIONS AND THEIR ROLES IN FORMATION OF CHROMOSOMAL TRANSLOCATIONS. 3rd International Conference “Radiation damage in Biomolecular Systems: Nanoscale insights into Ion Beam Cancer Therapy”, Nano-IBCT 2014 Conference, 27th – 31th October 2014, **Boppard am Rhein, Germany.**

**2015**

Falk M. et al. New trends in radiotherapy from a biologist's point of view – from photons to accelerated ions and combined radio-sensitizing therapy, current and future possibilities of tumor cell radio-sensitization. XXIV. Conference of rehabilitation and physical- and balneo-medicine, February 6 – 7, 2015, **Jáchymov, Czech Rep**.

Falk M. Higher-order chromatin structure in induction and repair of DNA double strand breaks upon the action of ionizing radiation of different quality. Functional Organization of the Cell Nucleus Symposium. October 19, 2015, **Prague, Czech Rep**. **(INVITED LECTURE)**

Depeš D., Falk M., Masařík M., Falková I., Gumulec J., Bačíková A., Horáková Z., Pagáčová E., Binková H. Analýza možností využití detekce H2AX/53BP1 ohnisek a monitorování reparace dvouřetězcových zlomů DNA pro pre-terapeutické stanovení radiosensitivity nádorů hlavy a krku. XXXVII. DNY RADIAČNÍ OCHRANY. November 09 – 13, 2015, **Mikulov, Czech Rep.**

Depeš D., Falk M. Automatické počítání reparačních ohnisek DSB v buněčných jádrech pomocí programu FociCounter 1.0. XXXVII. DNY RADIAČNÍ OCHRANY. November 09 – 13, 2015, **Mikulov, Czech Rep.**

Michaelides A., Vachelová J., Pachnerová-Brabcová K., Sýkorová P., Depeš D., Falk M., Falková I., Vondráček V., Davídková M. Vliv dávkového příkonu na odezvu buněčných kultur. XXXVII. DNY RADIAČNÍ OCHRANY. November 09 – 13, 2015, **Mikulov, Czech Rep.**

Falk M. Induction of DNA double strand breaks (as a double-edge sword) in cancer development and treatment. Seminář "Molekulární genetika nádorových onemocnění" pořádaný v rámci výzkumného programu QUALITAS Strategie AV21. 3. prosince 2015, **Prague, Czech Republic.**

Falk M (Chair). AWHP Aspects of work of helping professions (Aspekty práce pomáhajících profesí): Imigrace – bezpečnostní a zdravotní rizika. 2. 10. 2015., **Prague, Czech Rep.**

Pagáčová E., Falk M., Falková I., Štěpka K., Lukášová E., Michalová K., Zemanová Z., Matula P., Kozubek S. Relationship between chromatin structure and chromosomal rearrangements in myelodysplastic syndromes. International Conference on Chromosomal Genetics and Evolution (ICCGE 2015), February 16-17 2015, **London**, **United Kingdom**

Zadneprianetc M., Boreyko A., Bulanova T., Falk M., Falkova I., Davídková M., Ježková L., Kozubek S., Krasavin E., Kruglyakova E., Valentová O. IRIF cluster formation and structure in human fibroblasts after irradiation with boron ions and -rays. RAD 2015, Second International Conference on Radiation and Dosimetry in Various Fields of Research. May 27 – 30, 2014. **Niš, Serbia**.

Falk M., Lukášová E., Štefančíková L., Falková I., Kozubek S. Amifostine, a redioprotective drug acting as radical scavenger, preferentially protects active genes in decondensed chromatin. ICRR 2015 – 15th International Congress of Radiation Research. May 25 – 29, 2015, **Kyoto, Japan**.

Falk M., Falková I., Ježková L., Davídková M., Bačíková A., Zadneprianetc M., Pagáčová E., Vachelová J., Michaelidesová A., Lukášová E., Boreyko A., Krasavin E.A., Kozubek S. DSB repair in normal and radioresistant tumor cells exposed to -rays, protons of different energies, and high-LET ions. ICRR 2015 – 15th International Congress of Radiation Research. May 25 – 29, 2015, **Kyoto, Japan**.

Ježková L., Boreyko A., Bulanova T., Falk M., Falkova I., Davídková M., Kozubek S., Krasavin E., Kruglyakova E., Valenova O., Zadneprianetc. Analysis of DSB repair and structure of IRIF clusters induced by high- and low-LET radiations. ICRR 2015 – 15th International Congress of Radiation Research. May 25 – 29, 2015, **Kyoto, Japan**.

Štefančíková L., Salado D., Porcel E., Maury P., Pagáčová E., Bolsa M., Ivošev V., Sanchez G.J., Roux S., Tillement O., Lux F., Falk M. and Lacombe S. Metal- and lanthanide-based nanoparticles improve the performances of radiotherapies. Nanoparticles. Advances in nanopraticulate carriers: Applications in diseases and infections. October 19th-21st, 2015, Institut Pasteur, **Paris, France.**

**2016**

Falk M. “Ionizing radiation – a double-edged sword in biology and medicine” (Ionizující záření – dvousečný meč v biologii a medicíně), 60th Student Conference (60. Studentská vědecká konference). 25th May, 2016, Masaryk University, Medical Faculty, **Brno, Czech Republic. (Plenary Lecture, invited)**

Falk M., Falková I., Ježková L., Bačíková A., Pagáčová E., Lukášová E., Štefančíková L., Davídková M., Boreyko A., Krasavin E., Kozubek S. Účinky různých druhů ionizujícího záření na buňku a možnosti jejich cílené modifikace. Conference on '30 let od havárie Jaderné elektrárny v Černobylu', 6th May 2016, **Prague, Czech Republic. (Invited lecture)**

Štefančíková L., Lacombe S., Salado D., Porcel E., Pagáčová E., Tillement O., Lux F., Depeš D., Falková I., Bačíková A., Kozubek S., and Falk M (presenting author). The mechanism of metal nanoparticle-mediated radiosensitization of tumor cells may be independent of DNA damage amplification and DNA repair inhibition. 7th World Nano Conference, June 20-21, 2016, **Cape Town, South Africa. (Falk M presenting author, Invited)**

Falk M. Towards a complex view on DNA damage and repair – epigenetic and spatio-temporal aspects. 2nd International Conference on Systems and Synthetic Biology, August 18-20, 2016. **London, UK. (Plenary Lecture, invited)**

Falk M. DNA Repair in Head and Neck Cancers and their Radiosensitivity. 6th International Conference on Genomics & Pharmacogenomics September 12-14, 2016. **Berlin, Germany. (INVITED LECTURE)**

Falk M. Chromatin structure and chromosomal rearrangements in CD34+ cells and lymphocytes from Myelodysplastic syndromes (MDS) patients. 6th International Conference on Genomics & Pharmacogenomics September 12-14, 2016, **Berlin, Germany. (Keynote lecture)**

Svobodova M., Gumulec J., Raudenska M., Polanská H., Balvan J., Fojtu M., Binkova H., Horakova H., Kostrica R., Babula P., Falk M., Falková I., Kopečná O., Bačíková A., and Masarik M. Study and characterization of primary tumour cell lines of head and neck carcinoma and their malignant potential. Conference on Cell Biology and Radiobiology – Satellite Symposium of the '6th International Conference on Genomics and Pharmacogenomics' held in Berlin, 9th-10th September 2016, **Brno, Czech Republic. (New & Notable, Invited)**

Horáková Z., Depeš D., Masařík M., Falk M., Falková I., Kopečná O., Bačíková A., Kozubek S., Binková H., Svobodova M., Gumulec J., Raudenska M., Polanská H, Balvan J., Fojtu M., Kostrica R., Babula P., and Masarik M. A step towards personalized therapy in head & neck cancers: How different cell types isolated from H & N tumors respond to irradiation? Conference on Cell Biology and Radiobiology – Satellite Symposium of the '6th International Conference on Genomics and Pharmacogenomics' held in Berlin, 9th-10th September 2016, **Brno, Czech Republic. (INVITED LECTURE)**

Michaelidesová A., Vachelová J, Konířová J., Havránek V., Štursa J, Zach V., Davídková M, Falková I., Falk M. Cell response of normal human fibroblasts to irradiation by protons and alpha particles. Conference on Cell Biology and Radiobiology – Satellite Symposium of the '6th International Conference on Genomics and Pharmacogenomics' held in Berlin, 9th-10th September 2016, **Brno, Czech Republic. (INVITED LECTURE)**

Falk M. The biological mechanism of metal nanoparticle-mediated radiosensitization. International Conference "Dynamics of Systems on the Nanoscale" (DySoN 2016), 3rd -7th October, **Bad Ems, Germany. (INVITED LECTURE)**

Falk M. Detection of DSB repair foci as a potent tool in biodosimetry and cancer research. Future Forces Forum, Medical Workshop, October 20, 2016, **Prague, Czech Republic. (INVITED LECTURE)**

Horáková Z., Binková H., Falk M., Masařík M., Falková I., Depeš D., Gumulec J., Bačíková A., Pagáčová E., Kostřica R. In vitro stanovení radiosenzitivity nádorů hlavy a krku. XL. Brněnské onkologické dny a XXX. konference pro nelékařské zdravotnické pracovníky, 27.–29. April, 2016, **Brno, Czech Republic.** Abstract in: Klinická onkologie 29/Suppl2, 2016.

Falk M., Štefančíková L., Ježková L., Lacombe S., Pagáčová E., Depeš D., Davídková M., Falková I., Bačíková A., Zadneprianetc M., Daniela Salado., Porcel E., Tillement O., Lux F., Vachelová J., Michaelides A., Boreyko A., Krasavin E., Lukášová E., Kozubek S. Response of normal and tumor cells to ionizing radiations of different qualities. Strategy 21, 8th June 2016, **Brno, Czech Republic.**

Štefančíková L., Lacombe S., Salado D., Porcel E., Pagáčová E., Tillement O., Lux F., Depeš D., Kozubek S., and Falk M. The mechanism of metal nanoparticle-mediated tumor cells radiosensitization – is nuclear DNA damage necessary? Conference on Cell Biology and Radiobiology – Satellite Symposium of the '6th International Conference on Genomics and Pharmacogenomics' held in Berlin, 9th-10th September 2016, **Brno, Czech Republic.**

Falková I., Pagáčová E., Bačíková A., Michalová K., Zemanová Z., Štěpka K., Matula Pa., and Falk M. Relationship between chromatin structure and chromosomal rearrangements in myelodysplastic syndromes. Conference on Cell Biology and Radiobiology – Satellite Symposium of the '6th International Conference on Genomics and Pharmacogenomics' held in Berlin, 9th-10th September 2016, **Brno, Czech Republic.**

Golan M et al. Viability of cryopreserved cells, state of their nuclei and cryoprotectants’ properties. Conference on Cell Biology and Radiobiology – Satellite Symposium of the '6th International Conference on Genomics and Pharmacogenomics' held in Berlin, 9th-10th September 2016, **Brno, Czech Republic.**

Michaelidesová A., Vachelová J., Konířová J., Vondráček V., Davídková M., Falková I., Falk M. When proton meets a cell. Conference on Cell Biology and Radiobiology – Satellite Symposium of the '6th International Conference on Genomics and Pharmacogenomics' held in Berlin, 9th-10th September 2016, **Brno, Czech Republic.**

Štefančíková L., Pagáčová E., Lacombe S., Depeš D., Salado D., Porcel E., Tillement O., Lux F., Kozubek S. and Falk M. Nanoparticles to improve tumor radiotherapy. Functional Organization of the Cell Nucleus Symposium, 3rd November 2016, **Prague, Czech Republic.**

Kopečná O. et al. Krok kupředu ke kombinované personalizované terapii: Jak odpovídají různé typy buněk izolované z nádorů hlavy a krku na ozáření? XXXVIII. DNY RADIAČNÍ OCHRANY, 7. – 11. 11. 2016, Zámek **Mikulov, Czech Republic.**

Štefančíková L., Falk M., Lacombe S., Depeš D., Porcel E., Pagáčová E., Salado D., Tillement O., Lux F., Kozubek S. Nový pohled na radiosenzitizační efekt kovových nanočástic. XXXVIII. Dny radiační ochrany (DRO), 7. – 11. 11. 2016, Zámek **Mikulov, Czech Republic.**

Falk M., Hofer M., Komůrková D., Falková I., Bačíková A., Klejdus B., Pagáčová E., Štefančíková L., Weiterová L., Angelis K., Kozubek S., Dušek L., Galbavý Š. XXXVIII. DNY RADIAČNÍ OCHRANY, 7. – 11. 11. 2016, Zámek **Mikulov, Czech Republic.**

Horáková Z., Falk M., Falková I., Kopečná O., Bačíková A., Kozubek S., Depeš D., Binková D., Gál B., Svobodová M., Gumulec J., Raudenská M., Polanská H., Masařík M. Předléčebné stanovení radiosensitivity nádorů hlavy a krku, cesta k individualizované terapii? XXXVIII. Dny radiační ochrany (DRO), 7. – 11. 11. 2016, Zámek **Mikulov, Czech Republic.**

Falk M., Falková I., Pagáčová E., Bačíková A., Golan M., Šimek D., Ignácová S.S., Mičová J., Šebera J., Richter J., Řeha D., Follett S.E., Elliott K.W., Varga K., Kratochvílová I. Viability of cryopreserved cells, state of their nuclei and properties of cryoprotectants. CRYO2016: The 53rd Annual Meeting of the Society for Cryobiology, July 24-27, 2016, **Ottawa, Canada.** Abstract In: Cryobiology (Elsevier) 2016, 73, pp. 423-423. ISSN 0011-2240

Ježková L., Borezko A., Bulanova T., Falk M., Falkova I., Davidkova M., Koyubek S., Krasavin E., Kruglzakova E., Valentova O., Smirnova E., Yadneprianetc M. Time and dose response of γH2AX and 53BP1 foci in human fibroblasts exposed to radiation of different qualities. Conference on Radiation & Health titled "Public Health Impact of Current Sources of Radiation Exposure: New Data and Insights from Biology, Epidemiology, and Statistics", October 15-17, 2016, **Waikoloa Village, Hawaii**.

**2017**

Falk M et al. Tumor cell radiosensitization-ion beams and metal nanoparticles. 3rd International Conference on Systems and Synthetic Biology, July 20-21, 2017, **Munich, Germany. (INVITED LECTURE)**

Falková I. et al., Relationship between chromatin structure and chromosomal rearrangements in myelodysplastic syndromes. 3rd International Conference on Systems and Synthetic Biology, July 20-21, 2017, **Munich, Germany.**

Falk M et al. Metal nanoparticles in tumor cell radiosensitization. INTERNATIONAL CONFERENCE ON FUNCTIONAL NANOMATERIALS AND NANODEVICES, 24-27 September 2017, **Budapest, Hungary. (INVITED LECTURE)**

Falk M. Sensitive monitoring of DNA damage and repair in biodosimetry and cancer research. The Research Institute of Nuclear Engineering, University of Fukui, 15-23 March 2017, **Tsuruga, Japan**. **(INVITED LECTURE)**

Falkova I. et al. DNA Repair in Head & Neck Cancers and their Radiosensitivity. The Research Institute of Nuclear Engineering, University of Fukui, 15-23 March 2017, **Tsuruga, Japan**. **(INVITED LECTURE)**

Falk M. et al., Confocal Microscopy in research od DNA damage and repair: implications on cacncer, Advanced Techniques Days - New possibilities in high-speed spinning disk confocal microscopy; 9. 01. 2017, Charles University, Faculty of Science**, Prague, Czech Republic**. **(INVITED LECTURE)**

Falk M. Renaissance of Radiobiology in the New Millennium. 2-h lecture for National Radiation Protection Institute (SURO) and Nuclear Physics Inctitute of the Czech Academy of Sciences, 12th April 2017, **Prague, Czech Republic**. **(INVITED LECTURE)**

Falk M, Štefančíková L, Lacombe S, Salado D, Porcel E, Pagáčová E, Tillement O, Lux L, Depeš D, Falková I, Bačíková A, Kozubek S, Horáková Z, Falková I. 10–14 September 2017; **Jerusalem, Israel;** [https://2017.febscongress.org](https://2017.febscongress.org/)

Falková I, Falk M, Pagáčová E, Štěpka K, Michalová K, Zemanová Z, Matula P. Relationship between chromatin structure and chromosomal rearrangements in myelodysplastic syndromes. 10–14 September 2017; **Jerusalem, Israel;** [https://2017.febscongress.org](https://2017.febscongress.org/)

Falková I, Pagáčová E, Falk M (corresp. au.), Štěpka M, Lukášová E, Michalová K, Zemanová Z, Matula P, Kozubek S. Chromosomal rearrangements in myelodysplastic syndromes. October 2-6, 2017, **Varadero, Cuba**.

Ježková L, Zadneprianetc M, Kruglyakova E, Bulanova T, Smirnova E, Boreyko A, Krasavin E, Falková I, Valentová O, Davídková M, Kozubek S, Depeš D, and (corresp. au.). Particles with similar LET values generate DNA breaks of different complexity and reparability: a high-resolution microscopy analysis of γH2AX/53BP1 foci. October 2-6, 2017, **Varadero, Cuba**.

Kopečná O., Masařík M., Horáková Z., Falk M., Falková I., Bačíková A., Depeš D., Hoferová Z., Pagáčová E., Kozubek S. Study of radiosensitivity and DNA repair in different cell lines isolated from head and neck tumors. 6th EU-US Conference on Repair of Endogenous DNA Damage, September 24-28, 2017, University of Udine, **Udine, Italy.**

Falk M. et al. “Micro-scale DNA damage and double-strand break repair compared for high-LET ions of similar LET and low energy. Project Excellence Workshop, 2017, **Brno, CR.**

**2018**

Falk M. Spatio-temporal aspects of DNA damage and repair upon action of ionizing radiations of different types (**60 min Educational Lecture**). World Congress on Medical Physics & Biomedical Engineering. June 3-8, 2018. **Prague, Czech Republic. (INVITED LECTURE)**

DNA damage and repair in normal and tumor cells upon cell exposure to ionizing radiation of different quality. BIT’s 8th Annual World Congress of Molecular & Cell Biology-2018, October 16-18, 2018. **Fukuoka, Japan. (INVITED LECTURE)**

Falková I. et al. Are Myelodysplastic Syndromes (MDS) a Chromatin Structure Disease. BIT’s 8th Annual World Congress of Molecular & Cell Biology-2018, October 16-18, 2018, **Fukuoka, Japan.**

Falk M. Multiple mechanisms of metal nanoparticle-mediated radiosensitization of tumor cells? NANOSCIENCE MEET 2018: Annual conference on Nanoscience, Nanotechnology and Advanced materials. November 26-28, 2018. **Bali, Indonesia. (INVITED LECTURE)**

Bačíková A. et al. Single Molecule Localization Microscopy as a promissing tool for gH2AX/53BP1 foci exploration. XL. Dny radiační ochrany (DRO2018), 5. – 9. 11. 2018, Zámek **Mikulov, Czech Republic.**

Pagáčová E. Tumor Cell Radiosensitivity and Nanoparticles. XL. Dny radiační ochrany (DRO2018), 5. – 9. 11. 2018, Zámek **Mikulov, Czech Republic.**

Lee J.-H. et al. Mechanisms and Challenges for Understanding Radiation Induced Changes in Chromatin Nanoarchitecture. XL. Dny radiační ochrany (DRO2018), 5. – 9. 11. 2018, Zámek Mikulov**, Mikulov**, **Czech Republic.**

Horáková Z. DNA damage and its mechanism in cell cultures of head and neck tumor cells upon experimental irradiation. XL. Dny radiační ochrany (DRO2018), 5. – 9. 11. 2018, Zámek Mikulov**, Mikulov**, **Czech Republic.**

Kopečná O. et al. Applicability of gH2AX/53BP1 foci detection as potential predictive markers of head and neck tumor radioresistance. XL. Dny radiační ochrany (DRO2018), 5. – 9. 11. 2018, Zámek Mikulov**, Mikulov**, **Czech Republic.**

Falk M., Dellino I., Faretta M., Hausmann M., Falková I., Kopečná O., Pagáčová E., Bobková E., Bačíková A., Lukášová E., Kozubek S., Pelicci PG. Higher-order chromatin structure in pathogenesis of the acute promyeloctic leukemia. COST Action CA15214 Workshop: Nuclear Lamins, Nuclear Organization And Transcription. 4-5th July 2018, **Riga, Latvia.**

Falková I., Pagáčová E., Michalová K., Zemnová Z., Štěpka K., Matula P., Kozubek S. and Falk M. Chromosomal rearrangements in myelodysplastic syndromes. COST Action CA15214 Workshop: Nuclear Lamins, Nuclear Organization And Transcription. 4-5th July 2018, **Riga, Latvia.**

Falková I., et al. Study of radiosensitivity and DNA repair in different cell lines isolated from head and neck tumors. COST Action CA15214 Workshop: Nuclear Lamins, Nuclear Organization And Transcription. 4-5th July 2018, **Riga, Latvia.**

Martin Falk, Falková, Iva - Pagáčová, Eva - Kopečná, Olga - Bačíková, Alena - Šimek, Daniel - Golan, Martin - Klejdus, B. - Varga, K. - Teplá, O., Kratochvílová, Irena. Critical defects in cryopreserved cell nuclei: DNA structure changes. CRYO2018**5 (5th Annual Meeting of the Society for Cryobiology)**: Scientific Challenges of Cryobiology. 10-13 July, **Madrid, Spain.** Abstract In: Cryobiology (Elsevier) 2018, 85(12), pp. 135-135. ISSN 0011-2240.

Golan, Martin - Přibyl, J. - Pešl, M. - Jelínková, Š. - Acimovic, I. - Jaroš, J. - Rotrekl, V. - Falk, Martin - Skládal, P. - Kratochvílová, Irena. Human fibroblast post-thaw regeneration monitored by AFM and fluorescence microscopy. CRYO2018**5 (5th Annual Meeting of the Society for Cryobiology)**: Scientific Challenges of Cryobiology. 10-13 July, **Madrid, Spain.** Abstract In: Cryobiology (Elsevier) 2018, 85(12), pp. 133-134. ISSN 0011-2240.

Falk M., Falková I., Pagáčová E., Kopečná O., Bačíková A., Varga K., Golan M, Kratochvílová I. Complex description of cryopreserved cell nuclei defects by immunofluorescence microscopy: DNA lesions, chromatin decondensation, nuclear membrane ruptures. The Society for Low Temperature Biology (SLTB) Meeting, 6th September 2018, **Prague, Czech Republic** (**1st Prize for poster presentation**).

Pagáčová E., Falk M., Falková I., Kopečná O., Michalová K., Kozubek S. Chromosomal instability of the chromosome 5 in myelodysplastic syndrome. Genetic Conference of The Gregor Mendel Genetic Society, 12-14th September 2018, **Bratislava, Slovakia**.

Falková I. et al. Radio-sensitization of resistant head and neck tumor cells by metal nanoparticles. NANOSCIENCE MEET 2018: Annual conference on Nanoscience, Nanotechnology and Advanced materials. November 26-28, 2018, **Bali**, **Indonesia**. Invited lecture.

Falk M et al. Radiobiology and Cancer Treatment – Current Research Topics. Interactions of Ionizing Radiation with Live Organisms – Seminar of The Society for Radiobiology and Crisis Planning of the Czech Medical Association of Jan Evangelista Purkyne (SRKP ČLS JEP) and University of Defense, 11th November 2018, **Hradec Kralove, Czech Republic**.

**2019**

Falk M. et al. Critical damage in frozen and thawed cells. Symposium on Cell Biology and Pathology, 28-29th May 2019, **Brno, Czech Republic**

Gumulec J. et al. Image analysis of microscopic image data using machine learning approaches. Symposium on Cell Biology and Pathology, 28-29th May 2019, **Brno, Czech Republic**

Perečko T. et al. Neutrophils: Friends or Foes. Symposium on Cell Biology and Pathology, 28-29th May 2019, **Brno, Czech Republic**

Lee J-H. et al., Single Molecule Localization Microscopy of Nanoprobes to Study Chromatin Architecture, Function and Dynamics. Symposium on Cell Biology and Pathology, 28-29th May 2019, **Brno, Czech Republic**

Dobešová L. et al. Radiosensitizing effect of metal nanoparticles. Symposium on Cell Biology and Pathology, 28-29th May 2019, **Brno, Czech Republic**

Falk M., Ježková L, Hausmann M, Lee Jin-Ho, Kopečná O, Pagáčová E, Falková I, Bobkova E, Bačíková A, Krasavin E, Kozubek S. Micro-scale and nano-scale complexity of DNA double-strand break repair foci induced by accelerated ions of similar LET. XLI DRO (Radiation Protection Days). November 4-8, 2019. Mikulov castle, **Mikulov, Czech Republic**.

Hausmann M et al. Localization microscopy towards understanding of the impact of nanotopology of repair clusters after DNA radiation damaging. XLI DRO (Radiation Protection Days). November 4-8, 2019. Mikulov castle, **Mikulov, Czech Republic**.

Kopečná O., Falk M., Masařík M., Horáková Z., Falková I., Pagáčová E., Bačíková A., Depeš D., Svobodová M., Gumulec J., Raudenská M., Binková H., Kozubek S. Possibilities of γH2AX/53BP1 foci quantification as a potential predictive marker of head and neck tumor radiosensitivity: analysis of the 30 patient cohort. XLI DRO (Radiation Protection Days). November 4-8, 2019. Mikulov castle, **Mikulov, Czech Republic**.

Falková I., Kopečná O., Pagáčová E., Bačíková A., Golan M., Kratochvílová I. and Falk M. Freezing and thawing cells to radio-sensitize tumors? XLI DRO (Radiation Protection Days). November 4-8, 2019. Mikulov castle, **Mikulov, Czech Republic**.

Pagáčová E., Kopečná O., Falková I., Bačíková A., Falk M. Analysis of metal nanoparticle radiotoxicity. XLI DRO (Radiation Protection Days). November 4-8, 2019. Mikulov castle, **Mikulov, Czech Republic**.

Hausmann M., Lee J.-H., Maus E., Brieger E., Muhtadi R., Wagner E., Bobkova E., Bestvater F., Schumann S., Falkova I., Falk M., Pilarczyk G., Hildenbrand G., Scherthan H. A Pointillist View on Particle Tracks and DNA-Repair in 3D-Conserved Cell Nuclei by means of Super-Resolution Localization Microscopy. 1st Biophysics Collaboration Meeting, 20-22 May 2019, **GSI Darmstadt, Germany**. **(INVITED LECTURE)**

Hausmann M., Lee J.-H., Maus E., Hofmann A, Pilarczyk G., Heermann D.W., Falkova I., Falk M., Hildenbrand G., Scherthan H. Analysis of the nano-topology of repair clusters by localization microscopy: Towards understanding of topological impact on repair pathway decision. ***16th International Congress of Radiation Research (ICRR 2019)***, 25th-29th August 2019, **Manchester, England**. (selected for oral presentation)

Falkova I., Pagáčová E., Kopečná O., Gumulec J., Raudenská M., Vičar T., Bačíková A., Horáková Z., Binková H., Kozubek S., Masařík M., Falk M. (corresp. au.). Inter-individual and cell type-specific differences in response to radiation-induced DNA damage of different cell types isolated from patients’ head-and-neck tumors. ***16th International Congress of Radiation Research (ICRR 2019)***, 25th-29th August 2019**, Manchester, England**. (poster presentation)

Falk M., Ježková L., Hausmann M., Lee J.-H., Kopečná O., Pagáčová E., Falková I., Bobkova E., Bačíková A., Smirnova E., Zadneprianetc M., Kulikova E., Bulanova T., Boreyko A., Krasavin E., Davidkova M., Kozubek S. Micro-scale and nano-scale complexity of DNA double-strand break repair foci induced by accelerated ions of similar LET. ***16th International Congress of Radiation Research (ICRR 2019),*** 25th-29th August 2019**, Manchester, England**. (selected for oral presentation)

Falková I et al. Relevance of DNA double strand break repair in head and neck tumor cell radioresistance. Chromatin Architecture in Cancerogenesis and (Particle Enhanced) Radiation Treatment (discussion workshop on novel approaches). September 21, 2019. International Academic Forum Heidelberg (IWH), KIP, Heidelberg University, **Heidelberg, Germany. (INVITED LECTURE)**

Pagáčová E et al. (Falk M. presenting and corresponding author). The promises and contradictions of nanoparticle-mediated tumor cell radiosensitization. Chromatin Architecture in Carcinogenesis and (Particle Enhanced) Radiation Treatment. September 21, 2019. International Academic Forum Heidelberg (IWH), KIP, Heidelberg University, **Heidelberg, Germany. (INVITED LECTURE)**

Falk M. Current possibilities to monitor DNA damage and repair. Meeting on Biodosimetry. National Radiation Protection Institute (SURO), 23rd May 2019, **Prague, Czech Republic**.

**2020**

Martin Falk. Interplay between chromatin architecture and radiation properties - consequences for DNA damage and repair. Epigenetics in the era of coronavirus. Biofyzikální ústav , Akademie věd České republiky, v. v. i., Centrum Epigenetiky, September 3, 2020. Freskový sál na Zelném trhu, **Brno, Czech Republic.**

Martin Falk, Evgeny Krasavin, Michael Hausmann, Lucie Ježková, Tatiana Chramko, Olga Kopečná, Eva Pagáčová, Alla Boreyko, Albin Biswas, Theresa Gier, Charlotte Neitzel, Iva Falková, Mariia Zadneprianetc, Elena Kulikova, Elena Smirnova, Georg Hildenbrand, Alena Bačíková, Tomáš Perečko, Jana Perečková, Lucie Dobešová, Vladimír Rak, Dieter W. Heermann, Andreas Hofmann.Biological effects of ionizing radiation of different types as manifested by DNA damage and repair at the micro-scale and nano-scale. "Days of the Czech Republic at the United Institute for Nuclear Research (JINR), Dubna”. March 29 – April 1, 2020. **Dubna, Russia, ONLINE. (INVITED LECTURE)**

Martin Falk. DNA damage and repair in normal and tumour cells - the micro-scale and nano-scale views. The Sixth International Conference "Dynamics of Systems on the Nanoscale", DySoN 2020. November 23-27, 2020. Regina Elena Hotel, **Santa Margherita Ligure**, **Italy**. **(INVITED LECTURE)**

**2021**

Martin Falk, Iva Falk and Leos Navratil. Conference Opening. Experiences with dealing with the consequences of the tornado that hit the South Moravian Region on 24 June 2021 from the perspective of representatives of the IZS and KÚ - Seminar of the Society for Radiobiology and Crisis Planning of the Czech Medical Society Jan Evangelista Purkyně (SRCP CzMA). November 5, 2021. Lecture Hall of the Medical House, **Prague**, **Czech Republic**.

Martin Falk, Michael Hausmann, Olga Kopečná, Eva Pagáčová, Charlotte Neitzel, Iva Falková, Tatiana Chramko, Lucie Dobešová, Jiří Toufar, Elham Parsimehr. Biological effects of ionizing radiation of different types as manifested by DNA damage and repair at the micro-scale and nano-scale. Brno Oncology Days (BOD). October 13-15, 2021. **Brno**, **Czech Republic**. (**INVITED LECTURE**)

Michael Hausmann, Charlotte Neitzel, Hannes Hahn, Ruth Winter, Iva Falkova, Dieter W. Heermann, Götz Pilarczyk, Georg Hildenbrand, Harry Scherthan, Martin Falk. Space and time in the universe of the cell nucleus after ionizing radiation attacks: a comparison of cancer and non-cancer cell response. The 1st International Electronic Conference on Cancers: Exploiting Cancer Vulnerability by Targeting the DNA Damage Response, Part of INTERNATIONAL ELECTRONIC CONFERENCE ON CANCERS (IECC). 1–14 Feb 2021, ONLINE. (Published in **Cancers** special issue proceedings, **INVITED LECTURE**)

Michael Hausmann1, Götz Pilarczyk, Georg Hildenbrand, Martin Falk, Dieter W. Heermann, Harry Scherthan. Ionizing radiation attacks on chromatin of the cell nucleus: Impact of chromatin nano-architecture on the formation of damage sites and repair complexes. ConRad, 2021: - Global Conference on Radiation Topics - Preparedness, Response, Protection and Research. May 10 to 12, 2021. **Munich**, **Germany**.

Jiri Toufar, Lucie Dobesova, Eva Pagacova, Olga Kopecna, Iva Falkova, Alena Bacikova, Michael Hausmann & Martin Falk. Proteins of double-strand break and western blot analysis. ***XLII. Days of Radiation Protection (DRO).*** November 8-12, 2021. **ONLINE**

Elham Parsimehr, Lucie Dobesova, Jiri Toufar , Eva Pagacova, Olga Kopecna, Iva Falkova, Alena Bacikova, Michael Hausmann & Martin Falk. The relationship between PD-L1/PD-1/MHC-1/Her2/and other immune or oncogenic receptors. ***XLII. Days of Radiation Protection (DRO).*** November 8-12, 2021. **ONLINE**

Lucie Dobesova, Jiri Toufar , Eva Pagacova, Olga Kopecna, Iva Falkova, Alena Bacikova, Michael Hausmann & Martin Falk. Radiosensitizers in radiotherapy – Gold Nanoparticles. ***XLII. Days of Radiation Protection (DRO).*** November 8-12, 2021. **ONLINE**

Martin Falk: Elham Parsimehr, Charlotte Neitzel, Lucie Dobešová, Jiří Toufar, Elizaveta Bobkova, Theresa Gier, Georg Hildenbrand, Abin Biswas, Lucie Jezkova, Olga Kopečná, Eva Pagáčová, Iva Falkova, Tatyana Chramko, Elena Smirnova, Mariia Zadneprianetc, Dieter W. Heermann, Andreas Hofmann, David Nagel, Felix Bestvater, Götz Pilarczyk, Alena Bačíková, Elena Kulikova, Tatiana Bulanova, Alla Boreyko, Marie Davidkova, Anna Michaelides, Martin Falk, Michael Hausmann, and Evgeny Krasavin. Superresolution microscopy in research of IRIF nanoarchitecture and biological effects of high-LET ions. "NUCLEAR PHYSICS METHODS IN LIFE SCIENCES: NEURORADIOBIOLOGICAL RESEARCH AND NEW APPROACHES TO RADIATION THERAPY OF TUMORS". April 27-28, 2021. Joint Institute for Nuclear Research (JINR), Dubna, Russia. (**INVITED LECTURE**)

Tomáš Vičar, Martin Falk (corresp. au.), Iva Falková, Jaromír Gumulec, Radim Kolář, Olga Kopečná, Eva Pagáčová. Automatic Analysis of Ionizing Radiation-Induced Foci (IRIFs) and Extraction of Advanced IRIF Parameters with our Newly-Developed Software Based on Artificial Neural Networks and Deep Learning. ***46th European Radiation Research Society Meeting (ERRS2021).*** November 26-30, Caen, France. (**POSTER AWARD**)

Jiri Toufar, Elham Persimehr, Lucie Dobesova, Elizaveta Bobkova, Hannes Hahn, Charlotte Neitzel, Ruth Winter, Götz Pilarczyk, Georg Hildenbrand, Olga Kopecna, Eva Pagacova, Iva Falkova, Alena Bacikova, Tatiana Bulanova-Chramko, Mariia Zadneprianetc, Elena Kulikova, Alla Boreyko, Evgeny Krasavin, Dieter W. Heermann, Harry Scherthan and Martin Falk (corresp. au.) and Michael Hausmann. Functional Micro- and Nano-Scale Architecture of DNA Double Strand Break Repair Foci (IRIFs) in Normal and Cancer Cells – Implications for DSB Repair and Cell Radiosensitivity. ***46th European Radiation Research Society Meeting (ERRS2021).*** November 26-30, Caen, France. (LECTURE)

Martin Falk. DeGBS General Meeting: Laudatio on Prof. Dr. Rer. Nat. Michael Hausmann, Ph.D. on the occasion of the prestigious **Ulrich-Hagen** Prize. Online. (**INVITED LECTURE**)

Martin Falk, Michael Hausmann, Evgeny Krasavin, Olga Kopecna, Eva Pagacova, Elizaveta Bobkova, Iva Falkova, Hannes Hahn, Charlotte Neitzel, Lucie Dobesova, Tatiana Bulanova-Chramko, Mariia Zadneprianetc, Georg Hildenbrand, Jiri Toufar, Elham Persimehr, Alena Bacikova, Ruth Winter, Götz Pilarczyk, Elena Kulikova, Alla Boreyko. DNA damage and repair research in the era of super-resolution microscopy and planed interplanetary space missions. University of Naples Federico II, Dec 2021, Naples, Italy. (**INVITED LECTURE**)

Martin Falk, Michael Hausmann, Lucie Dobešová, Theresa Gier, Olga Kopečná, Eva Pagáčová, Tomáš Vičar, Felix Bestvater, Jiří Toufar, Franz Schmidt‐Kaler, Alena Bačíková, Pavel Kopel, Radek Fedr, Georg Hildenbrand, Frederik Wenz, Elham Parsimehr. Challenges and Contradictions in Metal Nanoparticle‐Mediated Radiosensitization. ADVANCED STRATEGIES FOR RADIOTHERAPY—From the Lab Bench to Medical Applications. Interdisciplinary Center for Nanotechnologies & Radiation-Based Cancer Therapies. November 15-17, 2021. University of Paris-Saclay, **Paris**, **France**. **(INVITED LECTURE**)

**2022**

Falkova I, Falk M, Kopecna O, Pagacova E, Golan M, Bacikova A, Kratochvilova I, Hausmann M. Freezing and thawing cells to radio-sensitize tumour cells. ***47th Annual Meeting of the European Radiation Research Society (ERRS 2022),*** **Catania**, **Sicily (Italy)**, September 21–24, 2022.

Falk M, Dobesova L, Kopecna O, Pagacova E, Gier T, Vicar T, Falkova I, Bestvater F, Toufar J, Hausmann M, Bacikova A, Kopel P, Hildenbrand G, Fedr R. New insights into metal nanoparticle-mediated effects on chromatin organization at the micro- and nano-scale: Relevance for tumor cell radiosensitization. ***47th Annual Meeting of the European Radiation Research Society (ERRS 2022)***, **Catania**, **Sicily (Italy)**, September 21–24, 2022.

Falk M, Vičar T, Gumulec J, Falková I, Kopečná O, Pagáčová E, Kolář R, Toufar J, Parsimehr E, Dobešová L, Huščavová E. New software based on artificial neural networks and deep machine learning for automatic quantification of DNA radiation damage and triage of irradiated population. ***Future Forces Forum (NATO), Medical Conference***. 17-21st October, 2022, Prague, Czech Republic.

Falk M et al. New software using artificial neural networks for automatic quantification of radiation damage to DNA and triage of irradiated. 4th annual expert conference on protection against CBRN substances, ***HAZMAT PROTECT 2022, "New research challenges in the light of real CBRN events"*** (https://hazmat-protect.sujchbo.cz/). State Institute of Nuclear, Chemical and Biological Protection, v. v. i., Milín, Czech Republic. 14-15 September 2022.

Falk M, Falkova I. Effects of different types of ionizing radiation on DNA from the perspective of medicine and planned manned interplanetary flights. Conference of the Society for Radiobiology and Crisis Planning of CLS JEP, CZECH MEDICAL CHAMBER, Dept. EDUCATION, "Current radiobiological findings with regard to the increased threat to the population from ionizing radiation". 26 April 2022. **Prague**, **Czech Republic.** (**INVITED LECTURE**)

Falk M, Hausmann M, Falková I, Kopečná O, Pagáčová E, Bačíková A. Repair focus micro- and nano architecture in double strand break repair efficiency and pathway selection. ***The Mendel Genetics Conference***, **Brno**, **Czech Republic**, 20-23 July, 2022.

Falk M., Hausmann M, Falková I, Kopečná O, Pagáčová E, Bačíková A. Repair focus micro- and nano architecture in double strand break repair efficiency and pathway selection. ***The Mendel Gentetics Conference***, **Brno**, **Czech Republic**, 20-23 July, 2022.

Hausmann, M, Weidner J, Schäfer M, Kopečná O, Pagáčová E, Neitzel C, Winter R, Hahn H, Fischer E.F, Küntzelmann K, Rozo Prado, L, Falkova I, Falk M, Pilarczyk G.The impact of chromatin architecture, its geometry and topology, on radiation induced damaging and following DNA repair processes. ***47th Annual Meeting of the European Radiation Research Society (ERRS 2022)***, **Catania**, **Sicily (Italy)**, September 21–24, 2022.

Falk M. DNA damage and repair after exposure to different types of ionizing radiation – the context of carcinogenesis and antitumor radiotherapy (Poškození a reparace DNA různými druhy ionizujícího záření v kontextu karcinogeneze a protinádorové radioterapie). 13th WORLD INTERDISCIPLINARY ONCOLOGY COLLOQUIUM (PragueONCO), Jan 26–28, 2022. **Prague**, **Czech Republic**. **(INVITED LECTURE)**

Hausmann M, Falk M, Scherthan H, Erenpreisa J, Heermann DW, Hildenbrand G, Pilarczyk G. Irradiation and biochemistry driven (re)organization of membrane receptors and cell nucleus chromatin domains. 1st International Conference "Multiscale Irradiation and Chemistry Driven Processes and Related Technologies" (MultIChem 2022). https://mbnresearch.com/ca20129-multichem/main. May 16-18, 2022, **Boppard am Rhein**, **Germany.** **(INVITED LECTURE)**

Falk M, Michael Hausmann, Wisam Mohammed Hikmat, Georg Hikldenbrand, Ivan Dellino, Mario Faretta, Iva Falková, Olga Kopečná, Eva Pagáčová, Emilie Lukasova, Alena Bačíková, Pier Giuseppe Pellicci, Götz Pilarczyk, Ema Huščavová, Myriam Schäfer, Ruth Winter, Karel Štěpka, Kyra Michalová, Zuzana Zemanová, Elham Parsimehr, Jiří Toufar, Lucie Dobešová. How nanoscale chromatin architecture and chromatin topology within the cell nucleus participates in cancer development – an example of pathogenesis of three different leukemia types. International Symposium: "Spatial-temporal genome regulation in stress- response and cell-fate change“ Lecture Hall and Virtual, BIOMEDICAL RESEARCH AND STUDY CENTRE (BMC), July 25th, 2022, **RIGA**, **Latvia**. **(INVITED LECTURE)**

Hausmann M, Weidner J, Schäfer M, Winter R, Hahn H, Neitzel Ch, Küntzelmann K, Falkova I, Scherthan H, Falk M, Hikldenbrand G, Pilarczyk G. From Schrödinger ́s cat to his chromosomal aperiodic crystal and what an irradiated cell nucleus “thinks” about it. Symposium "Spatial-temporal genome regulation in stress- response and cell-fate change ", July 25th, 2022, **Riga**, **Latvia**. **(INVITED LECTURE)**

**2023**

Martin Falk, Lucie Dobešová, Ema Huščavová, Olga Kopečná, Tomáš Vičar, Jiří Toufar, Iva Falková, Michael Hausmann, Alena Bačíková, Götz Pilarczyk. IS THERE A SIMPLE EXPLANATION FOR METAL NANOPARTICLE-MEDIATED CELL RADIOSENSITIZATION? COST MultIChem 2023 " Multiscale Irradiation and ChemistryDriven Processes and Related Technologies". April 26-28, 2023. Vila Lanna **Prague, Czech Republic**. **(INVITED LECTURE)**

Martin Falk, Jiří Toufar, Michael Hausmann, Charlotte Nietzel, Olga Kopečná, Tomáš Vičar, Hannes Hahn, Lucie Dobešová, Iva Falková, Götz Pilarczyk, Theresa Gier, Alena Bačková. Update on the relationship between the architecture of repair foci (IRIF) and DSB repair. International Conference "Dynamics of Systems on the Nanoscale", DySoN 2023. April 24-26, 2023. Vila Lanna, **Prague**, **Czech Republic**.

Michael Hausmann, Jonas Weidner, Myriam Schäfer, Jakob Leuther, Götz Pilarczyk, Arslan Saleem, Georg Hildenbrand, Harry Scherthan, and Martin Falk. Topological changes of the whole chromatin of cell nuclei during DNA repair as a collective response to radiation induced damages. DeGBS Meeting, September 18-20, 2023, Hohenwart Forum, Pforzheim, Germany. (**INVITED LECTURE**)

Martin Falk. DNA repair in the context of chromatin – an opportunity and challenge for modelling. COST Action CA20129 MultiChem Workshop “Multiscale modeling of radiation-induced biodamage for radiotherapy applications”, Particle Therapy Research Center (PARTREC), September 21-22, 2023, University Medical Center Groningen Groningen, the Netherlands. (**INVITED LECTURE**)

Michael Hausmann, Jonas Weidner, Myriam Schäfer, Götz Pilarczyk, Georg Hildenbrand, Harry Scherthan, Martin Falk. Radiation damage response of the whole chromatin in cell nuclei during DNA repair: An approach by topological analyses. 17th International Congress for Radiation Research (ICRR), August 27-30, 2023, **Montreal**, **Canada**.

Martin Falk, Olga Kopečná, Eva Pagáčová, Lucie Dobešová, Ema Huščavová, Jiří Toufar, Tomáš Vičar, Iva Falková, Michael Hausmann, Alena Bačíková, Götz Pilarczyk. Gold nanoparticle radiosensitizers—weak but complex effects on chromatin and whole cells after exposure to keV and MeV photon radiation. 17th International Congress for Radiation Research (ICRR), August 27-30, 2023, **Montreal**, **Canada**.

Martin Falk. Mechanism of radiosensitization through metal nanoparticles - nuclear, cytoplasmic, and/or systemic effects. MultIChem COST Action, Nanoparticle Enhanced Radiotherapy workshop. 23rd January 2023. University College London (UCL), online. (**INVITED LECTURE**)

Michael Hausmann et al. Changes of chromatin nano-organization induced by nano-particle enhanced radiation: What makes up the difference? MultIChem COST Action, Nanoparticle Enhanced Radiotherapy workshop. 23rd January 2023. University College London (UCL), online. (**INVITED LECTURE**)

**2024**

Martin Falk, Micheal Hausmann, Olga Kopečná, Myriam Schäfer, Tomáš Vičar, Jiří Toufar, Georg Hildenbrand, Lucie Dobešová, Jonas Weidner, Iva Falkova, Ondřej Polák, Alena Bačíková. Importance of Radiation Induced Foci (IRIF) in Radiation Research and Health Science. COPCA-MultIChem 2024—The 2024 Collisions Physics and Chemistry and their Applications Conference and A Workshop of the COST Action 20129: Multiscale Irradiation and Chemistry Driven Processes and Related Technologies. 15th – 18th October 2024. Aula Magna, University of Malta, **Valletta**, **Malta**. **(INVITED LECTURE**)

Jiří Toufar, Myriam Schäfer, Lucie Dobešová, Georg Hildenbrand, Olga Kopečná, Tomáš Vičar, Jonas Weidner, Iva Falkova, Alena Bačíková, and Micheal Hausmann and Martin Falk. Local and global post-irradiation changes in chromatin architecture at DSB sites and in the entire nucleus and their significance for DSB repair and genome stability. The Eight International Conference "Dynamics of Systems on the Nanoscale" and the Third Conference of the COST Action "Multiscale Irradiation and Chemistry Driven Processes and Related Technologies" DySoN-MultIChem 2024. April 08-12, 2024. **Tbilisi**, **Georgia**. **(INVITED LECTURE**)

Martin Falk, Micheal Hausmann, Olga Kopečná, Myriam Schäfer, Tomáš Vičar, Jiří Toufar, Georg Hildenbrand, Lucie Dobešová, Jonas Weidner, Iva Falkova, Ondřej Polák, Alena Bačíková. Implications of local and global changes in chromatin architecture after irradiation at NHEJ- or HR-DSB sites and throughout the nucleus for DSB repair and genome stability. ***48th European Radiation Research Society (ERRS) Annual Meeting***, September 10 – 13, 2024. Aveiro University, **Aveiro**, **Portugal**. (**SELECTED FOR ORAL PRESENTATION**)

Martin Falk, Micheal Hausmann, Jiří Toufar, Lucie Dobešová, Myriam Schäfer, Tomáš Vičar, Georg Hildenbrand, Jonas Weidner, Iva Falkova, Ondřej Polák, Alena Bačíková. DNA damage by different types of ionizing radiation and DNA double-strand break repair within the local chromatin environment and the overall chromatin network. MGH (Bio)Physics Seminar. October 29, 2024**. Harvard Medical University,** Online. (**INVITED 60 min LECTURE**)

Martin Falk, Tomáš Vičar, Iva Falková, Jiří Toufar, Lucie Toufarová. CURRENT OPTIONS FOR THE DETECTION OF DNA DOUBLE-STRAND BREAKS (DSB) INDUCED BY IONIZING RADIATION AND CHEMICAL AGENTS. ***HAZMAT PROTECT 2024: 5th Scientific Conference on CBRN Protection***. September 25 – 26, 2024. **National Institute for Nuclear, Biological and Chemical Protection (SUJCHBO), Milín**, **Czech Repaublic**.

Martin Falk, Jiří Toufar, Lucie Dobešová, Olga Kopečná, Tomáš Vičar, Iva Falková, Michael Hausmann, Alena Bačíková. PERSISTING CONTRADICTORIES WITH METAL NANOPARTICLE-MEDIATED CELL RADIOSENSITIZATION. NIS COLLOQUIUM nBIO-MED: Prospects and challenges of nanomaterial application in the BIO-MEDical field. 19th April, 2024. Aula Castagnoli – Dip. Di Fisica, **Universita di Torino**, **Torino**, **Italy**. (**INVITED 35 min LECTURE**)

Hausmann M, Schäfer M, Gier T, Schmidt-Kaler F, Hudetz D, Kopečná O, Dobešová L, Huščavová E, Pagáčová E, Wolinsky M, Falkova I, Hildenbrand G, Falk M (2024) Changes of chromatin nano-organization induced by nano-particle enhanced radiation: What makes up the difference? Int. Caparica Symp Nanoparticles and Nanomaterials, ***6th ISN2A 2024***, 22. - 25. 01. 2024, **Lissabon**, **Portugal.**

Hausmann M, Weidner J, Schäfer M, Agosta D, Leuther J, Saleem A, Hildenbrand G, Scherthan H, Falk M (2024) Topological and geometric approaches to quantify chromatin radiation damage response on the nano-scale Int. Caparica Symp Nanoparticles and Nanomaterials, ***6th ISN2A 2024***, 22. - 25. 01. 2024, **Lissabon**, **Portugal**.

Topical educative lectures

* Martin Falk, Micheal Hausmann, Jiří Toufar, Lucie Dobešová, Myriam Schäfer, Tomáš Vičar, Georg Hildenbrand, Jonas Weidner, Iva Falkova, Ondřej Polák, Alena Bačíková. DNA damage by different types of ionizing radiation and DNA double-strand break repair within the local chromatin environment and the overall chromatin network. MGH (Bio)Physics Seminar. October 29, 2024. **Harvard Medical University**, Online. (INVITED 60 min LECTURE)
* Falk M. Current possibilities to monitor DNA damage and repair. Meeting on Biodosimetry. **National Radiation Protection Institute (SURO)**, 23rd May 2019, **Prague, Czech Republic**. 60 min EDUCATIONAL LECTURE
* Falk M et al. Radiobiology and Cancer Treatment – Current Research Topics. Interactions of Ionizing Radiation with Live Organisms – **Seminar of The Society for Radiobiology and Crisis Planning of the Czech Medical Association of Jan Evangelista Purkyne (SRKP ČLS JEP) and University of Defense**, 11th November 2018, Hradec Kralove, Czech Republic.
* **Bi8141, Molecular Physiology of the Genome**, Masaryk University, Faculty of Sciences, Brno (2008), 120 min EDUCATIONAL LECTURE
* **Bi7015, Chemical properties, structure and interactions of nucleic acids**, Masaryk University, Faculty of Sciences, Brno (2008-2010) 120 min EDUCATIONAL LECTURE
* Falk M. Spatio-temporal aspects of DNA damage and repair upon action of ionizing radiations of different types (60 min Educational Lecture). **World Congress on Medical Physics & Biomedical Engineering**. June 3-8, 2018, Prague, Czech Republic. 60 min EDUCATIONAL LECTURE
* Falk M. Sensitive monitoring of DNA damage and repair in biodosimetry and cancer research. The Research Institute of Nuclear Engineering, **University of Fukui,** 15-23 March 2017, **Tsuruga, Japan.** 60 min EDUCATIONAL LECTURE
* Falkova I. DNA Repair in Head & Neck Cancers and their Radiosensitivity. The Research Institute of Nuclear Engineering, **University of Fukui,** 15-23 March 2017, **Tsuruga, Japan.** 60 min EDUCATIONAL LECTURE
* Falk M. Renaissance of Radiobiology in the New Millennium. **National Radiation Protection Institute (SURO)** **& Nuclear Physics Institute of the Czech Academy of Sciences**, 12th April 2017, **Prague, Czech Republic**. 120 min EDUCATIONAL LECTURE
* **Lecture:** Falk M. Effects of different types of ionizing radiation on the cell and possibilities of their targeted modification. **30 Years after the Chernobyl Disaster.** The Society for Radiobiology and Crisis Planning of the Czech Medical Association of Jan Evangelista Purkyne (SRKP ČLS JEP) and Czech Technical University in Prague, 6th May 2016, Prague, Czech Republic. 120 min EDUCATIONAL LECTURE
* Falk M. et al., Confocal Microscopy in research of DNA damage and repair: Implications on cancer. **Advanced Techniques Days – New Possibilities in High-Speed Spinning Disk Confocal Microscopy**. February 9, 2017, Faculty of Science, Charles University, Prague, Czech Republic. Invited speaker. 45 min EDUCATIONAL LECTURE
* Falk M. “Ionizing radiation – a double-edged sword in biology and medicine” (Ionizující záření – dvousečný meč v biologii a medicíně), **60th Student Conference (60. Studentská vědecká konference)**. 25th May, 2016, Masaryk University, Medical Faculty, Brno, Czech Republic (120 min Plenary Lecture, invited)
* Falk M. Detection of DSB repair foci as a potent tool in biodosimetry and cancer research. **Future Forces Forum (NATO), Medical Workshop**, October 20, 2016, Prague, Czech Republic (invited).
* Falk M. et al. Repair of DNA double strand breaks in the context of chromatin and nuclear structure. 15th. November, 2012, **Palacky University, Olomouc, Czech Republic**. 120 min EDUCATIONAL LECTURE
* Falk M., Lukášová E., Kozubek S., Štefančíková L. Higher-order chromatin structure in DNA double-strand break induction, repair and formation of chromosomal translocations. Brunel University (Invited by Dr. Rhona Anderson), June 29 - July 1, 2011, **London, Great Britain**. 60 min EDUCATIONAL LECTURE
* **6th International Summer Student School on Nuclear Physics Methods and Accelerators in Biology and Medicine), Russian Academy of Sciences, Dubna, Russia**, 2 - 12th July 2011 (in English, invited by Prof. Dr. E. A. Krasavin and Assoc. Prof. Ing. Ivan Štekl, CsC.) 45 min EDUCATIONAL LECTURE
* **CIC Biogune, Bilbao, Spain** (invited by Dr. Luis Antonio Parada, PhD., that time The Cellular Biology and Stem Cells Unit of the Co-operative Bioscience Research Centre) 60 min EDUCATIONAL LECTURE

Supervisor (Bachelor, Master and Dissertation Thesis)

* Ing. Jiří Toufar, “DNA damage and repair in carcinogenesis and cancer therapy” (“Poškození a oprava DNA v karcinogenezi a léčbě rakoviny”), Masaryk University, Faculty of Sciences, Brno, Dissertation Thesis, from 2016 (supervisor)
* Ing. Lucie Dobešová (Toufarová), “DNA damage and repair in carcinogenesis and cancer therapy” (“Poškození a oprava DNA v karcinogenezi a léčbě rakoviny”), Masaryk University, Faculty of Sciences, Brno, Dissertation Thesis, from 2016 (supervisor)
* MUDr. Vladimír Rak (interrupted for work and family reasons – the birth of son)
* **Mgr. Daniel Depeš**, “Response of different cell types isolated from head and neck tumors to radiation damage of DNA” (Odpověď různých typů buněk izolovaných z nádorů hlavy a krku na poškození DNA vyvolané ionizujícím zářením), Masaryk University, Faculty of Sciences, Brno, Dissertation Thesis, from 2016 (supervisor)
* **Ing. Lucie Ježková**, “DNA damage and repair upon action of ionizing radiation with different linear energy transfer” (Poškození a oprava DNA po působení ionizujícího záření s různým lineárním přenosem energie), University of Chemistry and Technology Prague, Faculty of Food and Biochemical Technology, Department of Biochemistry and Microbiology (Vysoká škola chemicko-technologická v Praze, Fakulta potravinářské a biochemické technologie, Ústav biochemie a mikrobiologie), Disertation Thesis (supervisor-specialist)
* **RNDr. Iva Falková**, “The relationship between the higher-order chromatin structure, repair of DNA double strand breaks and mechanism of formation of chromosomal translocations relevant in carcinogenesis” (Vztah mezi strukturou chromatinu vyššího řádu, reparací dvouřetězcových zlomů DNA a mechanismem tvorby chromosomálních translokací relevantních z hlediska karcinogeneze), St. Elizabeth University of Healt and Social sciences, Bratislava (Vysoká škola zdravotníctva a sociálnej práce sv. Alžbety, Bratislava, Katedra teoretických disciplín, laboratorných vyšetřovacích metód a zubnej techniky), Disertation Thesis, 2012-2016 (supervisor-specialist)
* **Mgr. Iva Falková**, “Research on the roles of ribonuclear inclusions in molecular pathogenesis of myotonic dystrophy type I and II”. St. Elizabeth College of Health and Social Work in Bratislava, Dpt. of Theoretical Disciplines, Laboratory Examination Methods and Dental Technology, Programme: Laboratory Examination Methods in Healthcare, Rigorous thesis, 2011-2012 (supervisor-specialist)

MASTER THESES

* **Bc. Ema Huščavová**, “Nuclear and cytoplasmic aspects of the radiosensitizing effect of metal nanoparticles“ (Jaderné a cytoplasmatické aspekty radiosensitizačního účinku kovových nanočástic). Masaryk University, Faculty of Sciences, Brno, Diploma Thesis, 2023 (supervisor)
* **Bc. Lucie Dobešová**, “Cellular Effects of Various Nanoparticles and the Mechanism of Nanoparticle-Mediated Radio-Sensitization” (Buněčné efekty vyvvolané různými nanočásticemi a mechanismus jejich radio-sensitizačního účinku). Mendel University Brno, Faculty of AgriSciences, Department of Molecular Biology and Radiobiology, Diploma Thesis, 2019 (supervisor)
* **Bc. Daniel Depeš**, “Radiosensitizing effect of metal nanoparticles in tumor therapy” (Radiosenzitizační efekt kovových nanočástic v terapii nádorů), Masaryk University, Faculty of Sciences, Brno, Diploma Thesis, 2016 (supervisor)
* **Bc. Iva Falková**, “Introduction of RNA fluorescence in situ hybridisation (RNA-FISH) for molecular-genetic diagnostics and research of the pathogenesis of myotonic dystrophy type I and II”, St. Elizabeth College of Health and Social Work in Bratislava, Dept. of Theoretical Disciplines, Laboratory Examination Methods and Dental Technology, Programme: Laboratory Examination Methods in Healthcare, Diploma thesis, 2009-2011 (supervisor-specialist)

**BACHELOR THESES**

* **Zita Sotorníková**, “The correlation between biochemical, genetic and pathological findings in foetuses indicated for abortion” (Korelace biochemických, genetických a patologických nálezů u plodů indukovaných k umělému přerušení těhotenství), University of Pardubice, Institute of healthcare studies, Programme: Birth assistant, theoretical-practical, research bachelor thesis, 2001-2005, http://hdl.handle.net/10195/18574 (supervisor-specialist)

Supervisor: Practical courses for students and other pedagogical leadership:

* **2 – 6 students/y**, Mendel University, Brno, Faculty of AgroSciences, Programme: Animal Biotechnology, 20-day Bachelor practice (supervisor)
* **Kristýna Nakládalová**, Mendel University, Brno, Faculty of AgroSciences, Programme: Animal Biotechnology, 19. 6. - 30. 6. 2019, 20-day Bachelor practice (supervisor)
* **Jin Ho-Lee**, University of Heidelberg, Heidelberg, Germany: 2-week master student visit (supervisor), May 2019 (supervisor)
* **Lucie Dobešová**, Mendel University, Brno, Faculty of AgroSciencesy, Programme: Molecular Biology and Biotechnology, 3. 6. - 28. 6. 2019, 20-day Bachelor practice (supervisor)
* **Ida Tolboll Friis**, University of Southern Denmark, Department of Physics, Chemistry and Pharmacy, Odense, Denmark: 2-month student visit + Ph.D.-practice, 20th July – 19th October
* **Karina Blaženiaková**,Mendel University, Brno, Faculty of AgroSciences, Programme: Molecular Biology and Biotechnology, 18. 7. - 29. 7. 2017, Bachelor practice (supervisor)
* **Yuma Nagasaki**, The Research Institute of Nuclear Engineering, University of Fukui, Tsuruga, Japan, November 2016, 1 week student visit (supervisor)
* **Elena Baranova**, Laboratory of Radiation Biology, Joint Institute for Nuclear Research/University Dubna, Dubna, Russia, one month student visit (May 2012) in the frame of her postgradual studies (supervisor)
* **Ing. Lucie Ježkova**, Institute of Chemical Technology Prague/JINR Dubna, one month student visit (September 2012) in the frame of her postgradual studies (supervisor)
* **Mgr. Lenka Štefančíková**, project OPVK - „Development of human resources in the field of cell biology, MŠMT OPVK CELLBIOL“ CZ.1.07/2.3.0030.0030, years 2012-2013 (supervisor)
* **Mgr. Eva Pagáčová**, Mentor in the project OPVK - „Development of human resources in the field of cell biology, MŠMT OPVK CELLBIOL“ CZ.1.07/2.3.0030.0030, years 2014-2015 (supervisor)

Opponent (Bachelor, Master and Dissertation Thesis)

* **Ing. Luděk Vyšín**, Dissertation Thesis: “Dose rate effect on the radiation-induced damage of the model biological structures using densely and sparsely ionizing radiation” (Vliv dávkového příkonu na radiační poškození biologických soustav hustě a řídce ionizujícím zářením), Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering, Department of Dosimetry and Application of Ionizing Radiation (ČVUT, Fakulta jaderná a fyzikálně inženýrská, Katedra dozimetrie a aplikace ionizujícího záření, Praha), Dissertation thesis, 2019
* **Mgr. Aneta Kohútová**, Dissertation Thesis: “ Genome instability and DNA repair mechanisms in human pluripotent stem cells: Base excision repair and friends: the ultimate choice of human embryonic stem cells” (Genomová nestabilita a DNA reparační mechanizmy u pluripotentních buněk: Bázový excizní reparační mechanismus a přátelé: nejdůležitější životní rozhodnutí lidských pluripotentních kmenových buněk), Masaryk University, Faculty of Medicine, Department of Biology, Brno (Masyrykova universita, Lékařská fakulta, Brno),
* **Bc. Markéta Hurychová,** Dipploma Thesis: “Induction of apoptosis in meduloblastoma cells irradiated under clinical conditions by using Leksell gamma knife Perfexion” (Indukce apoptózy v buňkách meduloblastomu při ozařování v klinických podmínkách na Leksellově gama noži Perfexion). Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering, Department of Dosimetry and Application of Ionizing Radiation (ČVUT, Fakulta jaderná a fyzikálně inženýrská, Katedra dozimetrie a aplikace ionizujícího záření, Praha), Diploma thesis, 2019
* **Ing. Pavel Bláha**, Dissertation Thesis: “Induction of HPRT mutations in mammalian cells after irradiation with heavy ions”, Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering, Department of Dosimetry and Application of Ionizing Radiation (ČVUT, Fakulta jaderná a fyzikálně inženýrská, Katedra dozimetrie a aplikace ionizujícího záření, Praha) / Joint Institute for Nuclear Research, Dubna, Russia (JINR), Dissertation thesis, 2018
* **Mgr. Jana Suchánková**, Dissertation Thesis: “DNA repair mechanism studied by advanced confocal microscopy” (Mechanismy oprav DNA studované metodami pokročilé konfokální mikroskopie), Masaryk University, Faculty of Sciences, Brno (Masyrykova universita, Fakulta přírodovědecká, Brno) Dissertation thesis, 2018
* **Mgr. Michal Franek**, Dissertation Thesis: “Study of nucleolar reorganization in embryonic stem cells” (Studium reorganizace jadérek u embryonálních kmenových buněk), Masaryk University, Faculty of Sciences, Brno (Masyrykova universita, Fakulta přírodovědecká, Brno),, Dissertation thesis, 2017
* **Bc. Marek Sommer**, “Radiation damage of p53 protein” (Radiační poškození proteinu p53), Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering, Department of Dosimetry and Application of Ionizing Radiation (ČVUT, Fakulta jaderná a fyzikálně inženýrská, Katedra dozimetrie a aplikace ionizujícího záření, Praha), Diploma thesis, 2016
* **Mgr. Michaela Hložková**, Dissertation Thesis: “Analysis of SF3B1 gene and protein in chronic lymphocytic leukemia patients” (Analýza genu a proteinu SF3B1 u pacientů s chronickou lymfocytární leukémií), Masaryk University, Faculty of Sciences, Brno (Masyrykova universita, Fakulta přírodovědecká, Brno, Obor Genomika a proteomika), Dissertation thesis, 2015
* **Mgr. Jan Hojný**, Dissertation Thesis: “Structure, function and importance of BRCA 1protein” (Struktura, funkce a význam proteinu BRCA1), Charles University in Prague, 1st Medical Faculty, Bachelor thesis, 2010
* **Bc. Belma Skendr**, “Induction of apoptosis of colon epithelial cells by TRAIL and docosahexaenoic acid” (Indukce apoptózy epiteliálních buněk tlustého střeva působením TRAIL [tumor necrosis factor-related apoptosis-inducing ligand] a kyseliny dokosahexaenové), Masaryk University, Faculty of Sciences, Brno (Masyrykova universita, Fakulta přírodovědecká, Brno), Diploma thesis, 2009
* **Ing. Eva Vondrušková–Scholzová**, Dissertation Thesis: “Development of the system for functional analysis of BRCA1 mutations in breast cancer cell lines”, Charles University in Prague, 1st Medical Faculty, Dissertation thesis, 2008
* **Zuzana Koubková**, Diploma Thesis: “Cell lipids changes during induced differentiation and apoptosis of epithelial intestine cells” (Změny buněčných lipidů v průběhu indukované diferenciace a apoptózy epiteliálních střevních buněk), Masaryk University, Faculty of Sciences, Brno (Masyrykova universita, Fakulta přírodovědecká, Brno), Diploma thesis, 2007

***IV. RESEARCH PROJECTS*** (selected important projects)

Principal Investigator, Co-Investigator or Team Member of/in >30 national and international projects.

Research projects NATIONAL, M Falk = Principal Investigator/Co-Investigator

* 2019-2021 **GAČR 19-09212S** – ‘Electrophilic fatty acids as important regulators of cell response irradiation, genomic instability and carcinogenesis’ (Elektrofilní mastné kyseliny jako důležité regulátory buněčné odpovědi na záření, genomovou nestabilitu a karcinogenezi)
* 2016-2019 **AZV (MZCR) 16-29835A** – Molecular-genetic markers for prediction of radiotherapy response in head and neck cancer
* 2012-2014 **MEYS COST LD12039** – Influence of higher-order chromatin structure on the mechanism of DNA double-strand break (DSB) repair and formation of chromosomal translocations in cells irradiated with gamma rays and medically potentially relevant ion beams
* 2008-2011 **IGA (MZCR): NS 9877-4/2008** – Expression of DMPK mRNA a DMPK protein in normal human tissues and presence of nuclear foci containing (CUG)n and (CCUG)n DMPK transcripts in tissues of myotonic dystrophy patients: the relationship with RNA-binding proteins (M. Falk – Co-Investigator)
* 2008-2011 **GAAV IAA500040802** – New mechanisms of oncoprotein action in genesis of promyelocytic leukemia (in cooperation with European Institute of Oncology, Prof. P. G. Pelicci, Assoc. Prof. I. G. Dellino) (Accomplished without objections)
* 2006-2009 **Czech Science Foundation (GAČR) 204/06/P349** – Dynamic structure a function of the cell nucleus associated with DNA breaks (Accomplished as “Excellent results with international importance”).
* 2002-2004 **Czech Science Foundation (GAČR) GA202/02/1361** – Interactions of metal ions with Dnase immobilized at magnetic carriers (Accomplished as “Excellent results with international importance”).

Research projects INTERNATIONAL, M Falk = Principal Investigator

* 2024 – 2025 **DAAD-24-08** Projects of the Czech Academy of Sciences + DAAD ‘New nano-enhancers for future cancer radiotherapy – research on systemic cell response to irradiated metal nanoparticles (CancerNano)’ – Principal Investigator (CR): Falk Martin, Principal Investigator (Germany): Hausmann Michael (KIP, Heidelberg)
* 2020 – 2023 **DFG-GAČR 20-04109J** New Insights into cooperation of micro- and nano-scale elementary structural chromatin units in decision-making on DNA damage repair pathway (NANOREP). Principal investigator Martin Falk (CR), Michael Hausmann (Germany)
* **EU COST Action P9 – RADAM**: Radiation Damage in Biomolecular Systems, 2003 – 2007, MC Member Substitute
* 2017 – 2020 No: **INTER-EXCELLENCE Project** of the Ministry of Youth and Education CR (sub-programme: ‘INTER-ACTION’, **LTAUSA: LTAUSA17160** – ‘Prevention and therapy of chronic inflammation diseases with nitrated fatty acids – PROTHECID’.
* 2019 – 2020 **DAAD-19-03** Projects of the Czech Academy of Sciences + DAAD ‘Nano-enhancers for future radiotherapy: New insights into the mechanism of nanoparticle-mediated tumor cell radiosensitization (NanoCancer)’ – Principal Investigator (CR): Falk Martin, Principal Investigator (Germany): Hausmann Michael (KIP, Heidelberg)
* 2019-2021 **The 3-Plus-3 Project:** Ionizing radiations of different quality and cell manipulations tools to eradicate radioresistant tumors. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2019/2020 „Ionizing radiations of different quality and cell manipulations as tool to eradicate radioresistant tumors” (Principal investigators: A.E. Krasavin and M. Falk)
* 2019 **The Grant of Czech plenipotentiary:** Effect of LET on DNA damage and complex response of normal and tumor cells to ionizing radiation - New insights into the mechanisms of radiation-induced repair foci (IRIF) formation at microscale and nanoscale. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2015/2020 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2016-2018 **The 3-Plus-3 Project:** Ionizing radiations of different quality and cell manipulations tools to eradicate radioresistant tumors. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2015/2017 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2018 **The Grant of Czech plenipotentiary:** Effect of RBE on DNA damage and complex cellular response to ionizing radiation - New insights into the mechanisms of formation of chromosomal translocations. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2015/2017 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2017 **The Grant of Czech plenipotentiary:** Effect of RBE on DNA damage and complex cellular response to ionizing radiation - New insights into the mechanisms of formation of chromosomal translocations. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2015/2017 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2016 **The Grant of Czech plenipotentiary:** Effect of RBE on DNA damage and complex cellular response to ionizing radiation - New insights into the mechanisms of formation of chromosomal translocations. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2015/2017 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2015 **The 3-Plus-3 Project:** Effect of RBE on DNA damage and complex cellular response to ionizing radiation - New insights into the mechanisms of formation of chromosomal translocations. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2015/2017 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2015 **The Grant of Czech plenipotentiary:** Chromatin structure modification and DNA repair pathways inhibition as tools to therapeutically increase or decrease cell survival upon the action of ionizing radiation of different quality. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2015/2017 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2014 **The 3-Plus-3 Project:** DNA double-strand break (DSB) repair and formation of chromosomal translocations in the context of higher-order chromatin structure and upon action of ionizing radiation of different quality. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2012/2014 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2014 **The Grant of Czech plenipotentiary:** Grant of the Government Plenipotentiary of CR, Chromatin structure modification and DNA repair pathways inhibition as tools to therapeutically increase or decrease cell survival upon the action of ionizing radiation of different quality (in the frame of the cooperation with JINR, theme number 04-9-1077-2012/2014 (Principal investigators: A.E. Krasavin and M. Falk)
* 2013 **The 3-Plus-3 Project:** Effect of RBE on DNA damage and complex cellular response to ionizing radiation - New insights into the mechanisms of formation of chromosomal translocations. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2012/2014 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2013 **The Grant of Czech plenipotentiary:** Grant of the Government Plenipotentiary of CR, Chromatin structure modification and DNA repair pathways inhibition as tools to therapeutically increase or decrease cell survival upon the action of ionizing radiation of different quality (in the frame of the cooperation with JINR, theme number 04-9-1077-2012/2014 (Principal investigators: A.E. Krasavin and M. Falk)
* 2012 **The 3-Plus-3 Project:**  Effect of RBE on DNA damage and complex cellular response to ionizing radiation - New insights into the mechanisms of formation of chromosomal translocations. Project is included in Topical Plan for Research and International Cooperation in JINR in the frame of the theme number 04-9-1077-2012/2014 „Investigations of Induction and Repair Mechanisms After Action of Ionizing Radiation of Different Qualities” (Principal investigators: A.E. Krasavin and M. Falk)
* 2012 **The Grant of Czech plenipotentiary:** Grant of the Government Plenipotentiary of CR, Chromatin structure modification and DNA repair pathways inhibition as tools to therapeutically increase or decrease cell survival upon the action of ionizing radiation of different quality (in the frame of the cooperation with JINR, theme number 04-9-1077-2012/2014 (Principal investigators: A.E. Krasavin and M. Falk)

Some other national projects (selection)

* **2017-2019 Czech Science Foundation Project GACR 17-08066Y (JUNIOR)** – Complex view on the role of nitrated fatty acids in regulation of cell functions and processes (Komplexní pohled na roli nitrovaných mastných kyselin v regulaci buněčných).
* **2016-2018 Czech Science Foundation (GAČR) 16-12454S** – Characterizing & modifying complex response of head & neck tumor cells to different radiations - a step forward to combined personalized radiotherapy
* **MEYS LC535:** **The Project of Excellence** – Dynamics and Organization of Chromosomes in the Cell Cycle and during Differentiation under Normal and Pathological Conditions (2012-2018)
* **OPVK CZ.1.07** : – Development of human resources in the field of cell biology (2012-2015)
* **GAČR: P302/10/1022** – Chromatin dynamics during DNA repair (2010-2015)
* **MEYS: LC535** – Dynamics and organization of chromosomes during cell cycle in norm and pathology (2005-2009)
* **1QS500040508** – Histone H3 methylation in granulocytes as a prognostic marker of chronic myeloid leukemia remission (2005-2009)
* **GAAV CR: IAA5004306** – The structure of the human genome (2003-2007)
* **Czech Science Foundation (GAČR) GA202/04/0907** – Live cell high-resolution microscopy (2004-2006)
* **Czech Science Foundation (GAČR) GA202/02/0804** – Estimation of the radiation risk for chronic myeloid leukemia development based on the distance measuring between ABL and BCR genes in hematopoietic cells (2002-2004)
* **IGA MZ: NC6987** – Epigenetically controlled changes of gene expression in tumor diseases (2002-2004)
* **GAAV CR: IBS5004010** – Development of new diagnostic tools for oncology (2000-2004)

**Participation in international research projects**

* **EU COST Action CA20129 – MultiChem**: Multiscale Irradiation and Chemistry Driven Processes and Related Technologies, 2021 – 2025, MC Member
* **EU** **COST Action CA16113 – CliniMARK**: **CliniMARK: ‘good biomarker practice’ to increase the number of clinically validated biomarkers,** 2017 – 2021, MC Member
* **EU COST Action MP1002 – Nano-IBCT**:Nano-scale insights in ion beam cancer therapy, 2010 – 2014, MC Member
* 2005-2007 **COST 405 (MŠMT 1P05OC084):** Dynamic structure and function of the cell nucleus after irradiation. Accomplished as excellent (excellent results with international importance).
* 2004-2006 **LSHG-CT-2003-503441, 6th EU Frame program:** 3D Genome structure and function (principal investigator Prof. Roel van Driel, Uni Amsterdam).