EUROPEAN SCIENCE FOUNDATION
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EMBO

RESEARCH CONFERENCES

ESF-EMBO Symposium

Spatio-Temporal Radiation Biology: Transdisciplinary Advances for Biomedical Applications

Hotel Eden Roc, Sant Feliu de Guixols (Costa Brava) • Spain
16-21 May 2009

Chair: **Yann A. Gauduel,** INSERM, LOA-CNRS,
Ecole Polytechnique – ENS Techniques Avancées, Palaiseau, FR

Co-Organizers :
Laure Sabatier, CEA Fontenay aux Roses, FR
Georg Bauer, University of Freiburg, DE
Sandrine Lacombe, University Paris Sud 11, FR
John Gueulette, UCL, Bruxelles, BE
Jean Laissue, University of Bern, CH
Frank Wien, Synchrotron Soleil, FR
ESF Rapporteur : **Michel Salzet**, Université des Sciences et Technologies de Lille, FR

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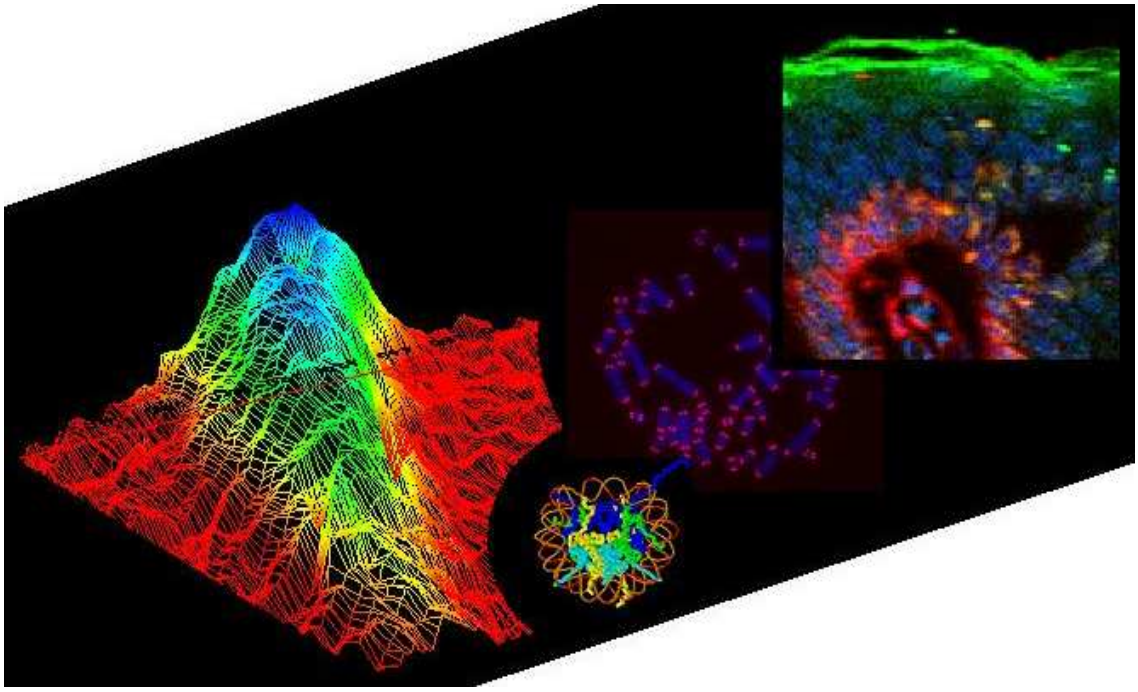

May 11, 2009

Final Programme

Saturday 16 May

Late afternoon / Early evening	Registration at the ESF-RC desk
19.00	Welcome Drink and dinner

Sunday 17 May

08.45-09.00 Conference Opening

Yann A. Gauduel
INSERM, LOA-CNRS, Ecole Polytechnique – ENS Techniques Avancées, FR

Michel Salzet
Université des Sciences et Technologies de Lille, FR *ESF Presentation*

Anne-Marie Glynn
European Molecular Biology Organization, DE *EMBO Presentation*

Session 1: Molecular and subcellular imaging of radiation events
Chairs: Elena Giulotto, Università di Pavia, IT - Darel Hunting, Faculty of Medicine, Sherbrooke, CA

09.00-09.45

Noel Lowndes
National University of Ireland, Galway, IE
Sensing and responding to DNA damage

09.45-10.10

Marie-Pierre Gaigeot – Short Talk
LAMBE, Evry University, FR
Theoretical investigation of the ultrafast dissociation of ionized biomolecules immersed in water: direct and indirect effects

10.10-10.55

Olga Sedelnikova
NCI, NIH, Bethesda, US
γ-H2AX as a biomarker of DNA damage

10.55-11.20 Coffee break

11.20-12.05

Ennio Prosperi
CNR, Pavia, IT
Spatio-temporal aspects of cell response to DNA damage: recruitment of checkpoint and DNA repair proteins at DNA damage sites

12.05-12.30

Burkhard Jakob – Short Talk
Department of biophysics, GSI, Darmstadt, DE
Analysis of radiation-induced DNA double strand break motion and protein exchange at damaged sites after charge particle irradiation

12.30-13.00 **Flash poster presentations 1** (P1-P10) **Chairs: A. Styczynska, UK – S. Costes, US**

13.00-15.00 Lunch

Session 2: Pre-thermal and thermal radiation processes

Chairs: Andrey V. Solov'yov Goethe University Frankfurt am Mai, DE - **Frank Wien,** Synchrotron Soleil, FR

15.00-15.45 **Dimitra Markovitsi**
CEA-Cnrs, Saclay, FR
Interaction of UV radiation with DNA: from photon absorption to photodamage

15.45-16.10 **Qing-Bin Lu – Short Talk**
University of Waterloo, CA
Effects and applications of prehydrated electrons in radiation biology and radiotherapy

16.10-16.55 **Werner Friedland**
GSF, Neuherberg, DE
Simulation of DNA repair via NHEJ based on track structure calculation

16.55-17.25 Coffee break

17.25-17.50 **Aidan Meade – Short Talk**
Focas Research Institute, Dublin, I.E
Spectroscopic and chemometric approaches to radiobiological analyses

17.50-18.15 **Vaclav Stepan – Short Talk**
Nuclear Physics Institute ASCR, Prague, CZ
Importance of particle track structure in radiation DNA damage calculations

18.20-19.00 **Flash poster presentations 2** (P11-P22) **Chairs: K. Stankova, BG – F. Paris, FR**

19.00-20.30 Dinner

20.30-22.00 Poster session I

Monday 18 May

Session 3: Induction, amplification of damages

Chairs: Martin Falk, Institute of biophysics ASCR, CZ - **Sandrine Lacombe,** University Paris Sud 11, FR

09.00-09.45 **Stanley Botchway**
Rutherford Appleton Laboratory, Didcot, UK
Femtosecond near-infrared laser microbeam technique as a sub-micron point source for high-resolution cell DNA damage, signalling and repair studies

09.45-10.10 **Katsumi Kobayashi – Short Talk**
High Energy Accelerator Research Organization, Tsukuba, JP
Enhancing mechanism of radiation effect by incorporation of heavy elements

10.10-10.55 **Elena Giulotto**
Università di Pavia, IT
Chromosomal aberrations and gene amplification

10.55-11.20 Coffee break

11.20-12.05 **Darel Hunting**
Faculty of Medicine, Sherbrooke, CA
DNA interstrand crosslinks induced by ionizing radiation in the presence and absence of radiosensitizers

12.05-12.30 **Andrey V. Solov'yov – Short Talk**
Goethe University Frankfurt am Main, DE
Physics of ion beam cancer therapy: a multiscale approach

12.30-13.00 **Flash poster presentations 3** (P23-P33) **Chairs: R.Anderson, UK - C.De Wagter, BE**

13.00 – 15.00 Lunch

Session 4: Microbeam radiation

Chairs: Jean Laissue, University of Bern, CH - Jean Doucet, CNRS, Orsay, FR

15.00-15.45 **Kevin Prise**
Queens University of Belfast, UK
Microbeam technologies for probing radiation responses at the subcellular and tissue levels

15.45-16.10 **Stéphanie Blockhuys – Short Talk**
Faculty of medicine, Ghent, BE
In vitro models for investigating spatially fractionated irradiation: physics and biological results

16.10-16.55 **Elke Bräuer-Krisch**
ESRF, Grenoble, FR
Microbeam radiation therapy (MRT)and dosimetric challenges

16.55-17.25 Coffee break

17.25-17.50 **Guido A. Drexler – Short Talk**
Radiobiological Institute, University of Munich, DE
Sequential ion microirradiation reveals competition effect in DNA damage response

17.50-18.15 **Erik Albert Siegbahn – Short Talk**
Karolinska hospital, Solna, SE
X-ray microbeam dosimetry

18.20-18.50 **Flash poster presentations 4** (P34-P43) **Chairs: K.Ivanova, BG - P.Lopez-Tarifa, ES**

19.00 Dinner

20.30-22.00 **Poster session II**

Tuesday 19 May

Session 5: Cellular imaging for radiation biology

Chairs: Kevin Prise, Queens University of Belfast, UK - Michèle Martin, CEA Evry, FR

09.00-09.45 **Roland Kanaar**
Erasmus MC, Rotterdam, NL
Cellular metabolism of radiation-induced DNA double-strands breaks

09.45-10.10 **Alberto Astolfo – Short Talk**
Synchrotron Trieste, IT
Long term cell tracking in small animals phase using phase contrast based micro CT and synchrotron radiation

10.10-10.35 **Guanghua Du – Short Talk**
Technische Universität München, Garching, Germany
Dynamics of DSB related protein foci: a 2D and 3D analysis

10.35-11.00 Coffee break

11.00.-11.45 **Martin Falk**
Institute of biophysics ASCR, Brno, CZ
Relationship between higher-order chromatin structure, DSB induction and repair

11.45.-12.10 **Igor Belyaev – Short Talk**
General Physics Institute, Russian Academy of Science, Moscow, RU
53BP1/γ-H2AX foci do not always co-localize and their complex kinetics may not correlate with DSB repair

12.10-12.35 **Claire Heride – Short Talk**
CEA, Fontenay-aux-Roses, FR
Chromosome organization in human epithelial cancer cells

12.35-13.00 **José Penagaricano – Short Talk**
Department of radiation oncology, University of Arkansas, Little Rock, US
Evaluation of spatially fractionated radiotherapy (GRID) and definitive chemo-radiotherapy with curative intent for locally advanced squamous cell carcinoma of the heart and neck

13.00-14.00 Lunch

14.00 Half-day excursion

20.00 Pre-Dinner Cocktail (Dali Bar)

20.30 Conference Dinner – including EMBO Poster Prize Award

Wednesday 20 May

Session 6: Microenvironments and radiation responses

Chairs: Noel Lowndes, University of Ireland, Galway, IE - Laure Sabatier, CEA Fontenay-aux-Roses, FR

09.00-09.45 **Sylvain Costes**
LBNL, Berkeley, US
Quantifying and modelling cellular response to ionizing radiation: from DNA damage to phenotype

09.45-10.10 **L'emira Ghida Harfouche – Short Talk**
CEA, Evry, FR
Activation of DNA double strand break repair after γ-rays is dependent on FGF2 signaling in human keratinocyte stem cells

10.10-10.55 **Marie Dutreix**
Hospital Institut Curie, Orsay, FR
Dbait: a trick to lure the DNA damage signalling and inhibit DNA repair in tumors

10.55-11.25 Coffee break

11.25-12.10 **Hans Rabus**
PTB, Braunschweig, DE
Recent advances in particle-track simulations with applications to nanodosimetry

12.10-12.35 **Chris Wang – Short Talk**
Georgia Institute of Technology, Atlanta, US
A nanodosimetry-based linear quadratic cell survival model for radiobiology

12.35-13.00 **Chunlin Shao – Short Talk**
Fudan University, Shanghai, CN
Signaling factors and regulating of irradiation induced bystander responses

13.00-15.00 Lunch

Session 7: Innovating approaches for radiotherapies

Chairs: Peter M. Corry, Arkansas University for Medical Sciences, US - John Gueulette, UCL, Bruxelles, BE

15.00-15.45 **Victor Malka**
LOA-CNRS, Ecole Polytechnique – ENSTA, Palaiseau, FR
Laser plasma accelerators : innovative electron beam and potential applications for radiation biology and radiotherapy

15.45-16.10 **Robert Griffin – Short Talk**
University of Arkansas for medical sciences, Little Rock, US
Precise millimetre beam positioning of a conformal radiation therapy for the optimization and study of spatially fractionated radiotherapy

16.10-16.35 **Janusz Dabrowski – Short Talk**
Faculty of Biochemistry, Biophysics and Biotechnology, Krakow, PL
New opportunities of near infrared radiation for cancer diagnosis and therapy

16.35-17.05 Coffee break

17.05-17.50 **Tadashi Kamada**
NIRS, Chiba-Shi, JP
The past, present and future of carbon ion radiotherapy at NIRS-HIMAC

17.50-18.15 **Emanuele Scifoni – Short Talk**
Frankfurt Institute for Advanced Studies, Frankfurt am Main, DE
Ion-beam induced damage: spectra of secondary electron generated by carbon ions in tissue-like media

18.15-18.40 **Lorenzo Manti – Short Talk**
University of Naples Federico II, Naples, IT
Time-dependent onset of cellular senescence in response to carbon-ions: implications for hadrontherapy

19.00-20.30 Dinner

20.45-22.00 Forward Look Plenary Discussion

Thursday 21 May

Breakfast & Departure

Flash Poster Presentations & Poster sessions

Each contribution benefits of 2 minutes Flash Poster Presentation (2 electronic slides).

Posters will be presented on May 17 (Session I) and May 18 (Session II).

***A poster prize** sponsored by EMBO will be awarded during the Conference Dinner*

Poster Session I

1	Abdullaev	Serazhutdin	RU	*Determination of mutations in tissue mitochondrial DNA of X-irradiated mice by means of CEL I nuclease*
2	Anderson	Rhona	UK	*Quantification and determination of size of radiation induced 53BP-1 foci over time in primary human lung cells*
3	Baragiola	Raul Antonio	US	*Radiation chemistry of ices and implications in astrobiology*
4	Benzina	Sami	FR	*Genome-wide screen for kinases involved in phosphorylation of histone H2AX, using siRNA microarrays*
5	Brun	Emilie	FR	*Parameters governing gold nanoparticle X-ray radiosensitization of DNA in solution*
6				*High sensitivituy of human centrin 2 toward radiolytical oxidation*
7	Bug	Marion	DE	*Nanodosimetric modelling of low energy electrons in a magnetic field*

8	Constans	Jean-Marc	FR	*4 year longitudinal MR1 and 1H single voxel MRS follow-up in 25 patients with oligodendoglial tumors or gliomatosis treated with temodal and radiotherapy*
9	De Wagter	Carlos	BE	*Spatio-temporal aspects of current advanced radiotherapy delivery methods and their dosimetric and potential biological implications*
10	Destraze	Maris-Eve	CA	*A time and place for everything mapping radiation-induced interstrand cross-links in DNA*
11	Doucet	Jean	FR	*X-ray synchrotron techniques for cell and tissue imaging: radiation induced skin changes revealed by microfluorescence*
12				*Time-resolved degradation of a hard alpha-keratin tissue irradiated with a high flux X-ray synchrotron microbeam*
13	Fournier	Isabelle	FR	*MALDI-MSI: from developments to clinical applications*
14	Francis	Ziad	FR	*A GEANT 4 based development for microdosimertic studies, adapted for applications on the molecular scale*
15	Granzotto	Adeline	FR	*X-rays-induced bystander effects and hypersensitivity to low doses: late DNA double strand breaks and novel observations with immunofluorescence*
16	Grau	Elena	ES	*Genetic polymorphisms on DNA damage influence the frequency of dicentrics and translocations in interventional radiologist*
17	Hervé du Penhoat	Marie-Anne	FR	*Ultrafast dissociation of a core-ionized biomolecules in liquid water: molecular dynamics simulations*
18	Ivanova	Katia	BG	*The proteasome inhibitor MG132 modifies the early radiation response in human lymphocytes*
19	Joubert	Aurélie	FR	*Radiation-induced DNA damage and signalling specific to neutron radiation*
20	Larivière	Damien	FR	*Realistic 3D modelling of cellular processes: a new approach for studying intracellular organization of integrated biological systems under radiative perturbations*
21	Lopez-Tarifa	Pablo	ES	*Theoretical investigation of the ultrafast dissociation of ionized biomolecules immersed in water: direct and indirect effects*
22	Markova	Eva	SK	*Possible early diagnostics of radiosensitivity and optimisation of radiotherapy using DNA repair foci in lymphocytes of breast cancer patients*

Poster Session II

23	Martin	Michèle	FR	*Analysis of radiation-induced damages on basal keratinocytes of human epidermis using a single cell model reveals heterogeneous functional consequences and acquisition of genomic abnormalities*
24	Moati	Frédérique	FR	*Towards a submicrometric dose determination in radioimmunotherapy*

25	Nicolas	Christophe	FR	*Molecular dynamics and elementary processes involved in damage induced by synchrotron radiation in the soft X-ray regime on biomolecules*
26	Paris	François	FR	*Radiation induced p38-mediated endothelial cell death through ceramide generation and membrane remodelling*
27	Pchelovska	Svitlana	UA	*Assessment of breast feeding risk on child growth and development for the radiation polluted regions of Ukraine*
28	Petrenyov	Danlil	BY	*Delayed macrophage activation as a system response to injure from ionizing and nonionizing radiation*
29	Porcel	Erika	FR	*Effect of platinum nanoparticles in ion induced damages in DNA*
30	Rebière	François	FR	*Radionuclides microdistribution by secondary ion mass spectrometry in a biological matrix after internal contamination*
31	Redon	Christophe Elian	US	*Gamma-H2AX as a biodosimeter for ionizing radiation exposure: an in vivo study with non-human primates*
32	Sabatier	Laure	FR	*Telomere maintenance and chromosome instability in human fibroblast and keratinocyte cultures*
33	Sedelnikova	Olga	US	*The complexity of phosphorylated H2AX foci formation and DNA repair assembly at DNA double-strand breaks*
34	Stankova	Katya	BG	*The natural product celasrol can modulate the radiation-induced changes in human lymphocytes*
35	Stashkevich	Dzmitry	BY	*Influence of iomozing radiation on hematologic and biochemical indicators of animal blood. Cardiorhythm regulation after radiation treatment*
36	Stypczynska	Agnieszka	UK	*Directly induced damage of biomolecules studied by means of X-ray photoelectron spectroscopy*
37	Vasilyev	Stanislav	RU	*Aneugenic effect of plutonium-239 in somatic cells of nuclear-chemical plant workers*
38	Vavrova	Jirina	CZ	*Response of peripheral blood lympocytes to DNA damage caused by fractionated irradiation in vitro and in vivo*
39	Villagrasa	Carmen	ES	*Low energy electron transport effect in proton track calculations*
40	Wien	Frank	FR	*VUV radiation impact on macromolecules observed with synchrotron radiation circular dichroism (SRCD)*
41	Wysokinski	Tomasz	CA	*05ID-2 beamline-radiation therapy facility at the Canadian light source*
42	Zaidi	Habib	CH	*Comparative methods for 18F-FET-PET guided delineation of target volumes in high grade glioma*
43	Zàrybnickà	Lenka	CZ	*Peripheral blood lymphocytes as biodosimetric marker?*