

# Joint Workshop QST–CEA-ASNR



**4-6 March 2025**  
**Fontenay-Aux-Roses, France**

## Preliminary agenda

<https://qst-cea-asnr-25.sciencesconf.org/>

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### Context

- NIRS, CEA, and ASNR are three major actors in the fields of radiobiology, radiotoxicology, and dosimetry research worldwide.
- Collaboration agreements exist between these three organizations.
- The previous joint workshop was held in Chiba in 2019.

### Aim

- To present and discuss ongoing research projects.
- To provide an opportunity for research teams to meet and get to know each other better.
- To stimulate the emergence of new areas for collaboration.
- To facilitate the establishment of joint research projects by promoting the exchange of students or young researchers and building joint responses to research project calls.

### Practical Organization

- Morning sessions will be held in the ASNR Auditorium, with the possibility of online participation.
- Visits to research labs at ASNR and CEA will be organized on the afternoons of days 1 and 2.
- Abstracts of all oral and poster presentations will be available on a dedicated website before the workshop.

### Organizing committee

- QST/NIRS
  - MORITAKE Takashi – Director, Department of Radiation Regulatory Science Research
  - IMAOKA Tatsuhiko – Director, Department of Radiation Effects Research
  - UCHIHORI Yukio – Director General
- ASNR
  - BENDERITTER Marc – Deputy Head, Division of Research and Expertise on Health
  - DALLENDRE Robert - International Cooperation Manager
  - LAURIER Dominique – Deputy Head, Division of Research and Expertise on Health
  - VARES Guillaume – Laboratory for Radiotoxicology and Experimental Radiobiology
  - BOSCH Nathalie – Assistant, Division of Research and Expertise on Health
- CEA
  - BOUSSIN Francois, Head of Institute of Cellular and Molecular Radiobiology (iRCM)/IBFJ, CEA
  - GAUTHIER Laurent, Radiopathology Lab, iRCM CEA
  - LE CLOIREC Aude, Assistant, iRCM

#### Information and registration

<https://qst-cea-asnr-25.sciencesconf.org/>

#### Contact

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## Day 1 – Tuesday 4 March 2025

### 09:15 Welcome address

- ASNR – J.C. Gariel, Executive Vice-President in charge of the Health and Environment Division (5')
- CEA – R. Veitia, Head of the François Jacob Institute of Biology (IBFJ) (5')
- QST - R. Kanda, Executive Director (5')

### 09:30 Overview of research programs and facilities

- QST - Y. Uchihori, Director General (10')
- CEA - F. Boussin (10')
- ASNR – M. Benderitter (10')

### 10:00 S1: Biological mechanisms of radiation induced carcinogenesis

*(mutation, stem cells, DNA repair, tumour resistance, etc.)*

- Impact of Lamin B1 dysregulation on DNA repair upon ionizing radiation - P. Bertrand, CEA (10' + 5' Q&A)
- Providing mechanistic basis for low-dose radiation risk assessment: experimental models for molecular and carcinogenesis studies - G. Varès, ASNR, (10' + 5' Q&A)
- Childhood ionizing radiation exposure promotes NASH and hepatocellular carcinoma in mice - Y. Shang, QST (10' + 5' Q&A) *(Remote)*

### 10:50 Coffee break

### 11:10 S2: Radiosensitivity and side-effects of radiotherapy

*(combined treatments, innovative treatments, non-cancer effects, biomarkers)*

- Role of endothelium in radiation-induced normal tissue toxicity - F. Milliat, ASNR (10' + 5' Q&A)
- Mitochondrial, genetic and behavioural effects of protons on the central nervous system. Microbeam applications - C. Adam-Guillermin, ASNR (10' + 5' Q&A)
- Radiation-induced inflammation and senescence in the irradiated brain – H. Sutcu / A. Chicheportiche, CEA (10' + 5' Q&A)
- Carcinogenesis in mice due to carbon-ion beams and fast neutrons - C. Tsuruoka, QST (10' + 5' Q&A)
- Radiochemical insights into the sparing effect mechanism in ultra-high dose rate FLASH radiotherapy- S. Kodaira, QST (10' + 5' Q&A) *(Remote)*

### 12:30 Lunch Buffet

### 14:00 Short presentations: ASNR and QST

- Impact of age on the development of cardiovascular disorders following an external exposure to low or moderate doses of Caesium 137 – TH. Nabet, ASNR (5')
- Effect of co-exposure to rich Diet and gamma internal low dose irradiation on cerebral and cardiac microvascularisation – M. Chajadine, ASNR (5')

- Effect of co-exposure to high fat diet and acute external low or moderate doses of ionizing radiation on cerebral microcirculation – L. Ould Boukhitine, ASNR (5')
- Development of alternative protocols for actinides analysis in emergency situation - C. Bouvier Capely, ASNR (5')
- Innovative biomarkers of therapeutic efficacy and follow-up of localized radiation injury – A. Chemloul, ASNR (5')
- Impact of the x-ray radiation quality on the radiological burn severity and on the in vivo bone response for retrospective dose estimation at different time points – A. Roussel, ASNR (5')
- The DNA damage response relies on the characteristics of ionizing particles in myogenic cells – A. Thomas-Joyeux, ASNR (5')
- Effect of photonic / hadronic irradiation of tumor cells on endothelial cell phenotype: impact on the immune system – L. Portier, ASNR (5')
- Improving the therapeutic index after pulmonary irradiation in stereotactic conditions: response of the bronchoalveolar epithelium and role of club cells – S. Bavanathan S., ASNR (5')
- Mesenchymal stromal cell (MSC) therapy of bladder tissue damage after radiotherapy – AL. Pouliet, ASNR (5')
- Development of micro and nanodosimetric simulations with Geant4-DNA – Y. Perrot, ASNR (5')
- Artificial glycan ameliorates radiation-induced intestinal damage – S. Kamimura, QST (5')
- Establishment of a co-operation system for biodosimetry in Japan - K. Ishii, QST (5')
- Development of *in vivo* counter systems at QST – M. Naito, QST (5')
- Survey of cataract and skin injury in orthopedic surgeons - T. Moritake, QST (5')
- Survey of personal dosimeter wearing rates of medical workers associated with revisions to the law – S. Matsuzaki, QST (5')
- Retrospective dosimetry for the occupational exposure of medical staff - M. Kowatari, QST (5')

#### 15:30 ASNR Research labs and facilities

- Presentation of three ASNR Departments: SERAMED, SESANE, SDOS.
- Tour of ASNR labs and facilities:
  - PARISII: Experimental platform for research on the effects of radioactive substances following ingestion or inhalation.
  - PATERSON: High-tech mass spectrometry analytical platform.
  - Irradiation and analytic infrastructures.

#### 17:00 QST-CEA-ASNR closed meeting

Identifying topics for possible collaborations.

## Day 2 – Wednesday 5 March 2025

### 09:00 S3 - Dosimetry

*(emergency dosimetry, internal contamination, retrospective dosimetry, medical physics, etc.)*

- AI for an automated chromosomal aberration detection in cytogenetic biodosimetry - M. Benadjaoud, ASNR (10' + 5' Q&A)
- Internal dosimetry for occupational exposure and emergency management - D. Broggio, ASNR (10' + 5' Q&A)
- Therapeutic approaches of actinide internal or external contamination using In vivo and ex vivo models - A. Van der Meeren, CEA (10' + 5' Q&A)
- Current status on the development of a population thyroid monitoring system in case of a major nuclear accident in Japan – E. Kim, QST (10' + 5' Q&A) *(Remote)*
- Development of individual monitoring techniques for actinide internal contamination at QST - G. Yang, QST (10' + 5' Q&A)

### 10:20 S4 - Effects of radiation exposure on the offspring

*(transgenerational effects, fertility, etc.)*

- Long-Term Effects of Low-Dose Ionizing Radiation During Pregnancy: Insights and Future Directions in In Vivo Experimental Research – S. Grison, ASNR (10' + 5' Q&A)
- Switching from Homologous Recombination to End Joining allows oocytes to survive radiation – E. Martini, CEA (10' + 5' Q&A)
- Influence of Parents' Eating Habits on Children's Radiosensitivity - B. Wang, QST (10' + 5' Q&A) *(Remote)*

11:10 *Coffee break*

### 11:30 S5 - Health effects of low-dose acute and chronic exposures

*(biomarkers, exposome, radiotox, etc.)*

- Effects of ionizing radiation on microbiome: a missing link in understanding the mechanisms of health effects of low dose and low dose rate radiation? - D. Klokov, ASNR (10' + 5' Q&A)
- Iodinated contrast medium: a strategy for thyroid radioprotection – B. Cambien, CEA (10' + 5' Q&A)
- Impact analysis of low ionizing radiation thyroid doses on public health through omics and organoids-based approaches – C. Ory, CEA/ASNR (10' + 5' Q&A)
- Biological mechanisms of dose-rate dependent rat mammary carcinogenesis - K. Nagata, QST (10' + 5' Q&A) *(Remote)*

12:35 *Lunch Buffet*

### 14:00 Short presentations: CEA and QST

- Improving radiotherapy by targeting the TRIM33 chromatin reader in myeloid cells, G. Rousselet, CEA (5')
- Compromise stability of mtDNA as a new therapeutic tool to improve cancer radiotherapy, A. Campalans, CEA (5')

- JMY, a new therapeutic target against radiation-induced invasion of glioblastoma stem cells, L. Gauthier, CEA (5')
- NHEJ-dependent mutagenesis at very low and very high dose rates, S. Marcand, CEA (5')
- Structural and functional insights into the Rad51 paralog complexes in homology directed repair, E. Coïc, CEA (5')
- Advanced human cerebral organoids as a model for investigating glioma stem cell interactions with microglia and vascular cells and response to radiotherapy, MA. Mouthon, CEA (5')
- Intravital microscopic thermometry of rat mammary epithelium using a nanodiamond-based quantum sensing technique – T. Imaoka, QST (5')
- Mechanism of radiation carcinogenesis in a novel Brca1 mutation rat model – Y. Nakamura, QST (5')
- Genomic changes in radiation-induced precursor B-cell lymphoma – K. Amano, QST (5')
- Current status on BL14B1 beamline at SPring-8, XAFS analysis and microbeam irradiation for radiological science. – A. Shiro, QST (5')

**15:00 CEA Research labs and facilities**

- Presentation of IBFJ - R. Veitia, CEA
- Tour of CEA/iRCM labs and facilities:
  - CIGEx: Genetic engineering and protein biochemistry – D. Busso, CEA
  - PARI: High-Throughput screening facility – G. Pinna, CEA
  - Irradiation Platform – V. Ménard, CEA

**17:00 QST-CEA-ASNR closed meeting**

Identifying topics for possible collaborations.

**19:30 Social event in Paris**



## Day 3 – Thursday 6 March 2025

### 09:00 S6 - Treatment of radiation injury

*(stem cell therapy, decontamination, new drugs, etc.)*

- Advancing the therapy of acute radiation syndrome: Inductive pluripotent stem cells as a new therapeutic tool - A. Chapel, ASNR (10' + 5' Q&A)
- Therapy with Muse cells prevents radio-induced gastrointestinal syndrome by promoting regeneration of the intestinal epithelium - N. Gault, CEA (10' + 5' Q&A)
- Application of Muse Cells in the Treatment of Radiation-induced intestinal injury - T. Miura, QST (10' + 5' Q&A)

### 09:50 S7 – QST Remote short presentations

- Research on oncometabolites that affect radioresistance – M. Fujita (5') *(Remote)*
- Recent studies on nuclear track detectors for application to medical fields - T. Kusumoto (5') *(Remote)*
- "Single Cell Radio-Biology" project at SPICE-QST microbeam facility – T. Konishi (5') *(Remote)*
- Evaluation of uranium decorporation efficiency in serum using chelating agents by X-ray absorption spectroscopy. - A. Uehara (5') *(Remote)*

### 10:15 S8 - Organisation of radiation research

*(Pianoforte, Planet, Collaborating centers, etc.)*

- European Partnership Pianoforte - J. Garnier-Laplace, ASNR (10')
- PLANET: Planning and Acting Network for Low Dose Radiation Research in Japan- Y. Yamada, QST (10') *(Remote)*
- Resilience Framework Partnership - Y. Saintigny, CEA (10')
- Discussion (10')

10:55 *Coffee break*

### 11:25 S9 - General discussion

Potential topics for collaboration (feedback from closed meetings).

Support mechanisms for student and researcher exchanges at ASNR, QST and CEA.

Relevant funding sources for joint Franco-Japanese research activities.

### 12:30 Closing session

- QST - Y. Uchihori (5')
- CEA - F. Boussin (5')
- ASNR – M. Benderitter (5')

12:45 *Lunch Buffet*