

The Multidisciplinary European Low Dose Initiative (MELODI)

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on behalf of MELODI

The roots of MELODI



<http://www.hleg.de>

In 2009, the European Commission established a **High Level Expert Group (HLEG)** on European Low Dose Risk Research

- to address the following questions

- 1) *How robust is the current system of radiation protection in the light of existing uncertainties?*
- 2) *How can it be improved?*

- to identify the key policy issues

- to assess the state of science and main research challenges

The roots of MELODI

■ Situation in Europe

- Decline of radiation research resources (competences, infrastructures)
- Fragmented research in small groups
- Need for multidisciplinary approaches and new competences
- Need to focus on key questions for radiation protection

■ Recommendations of HLEG

- Need of a trans-national organisation
- Need of a scientific strategy

⇒ Launch of a **M**ultidisciplinary **E**uropean **l**ow **d**ose **I**nitiative



MELODI platform

- **Founded in 2010 as registered association with 15 members**
- **Legal entity: Non-profit organisation under French law**
- **European platform dedicated to low dose radiation risk research**
- **Membership: currently 44 members**
 - *National bodies responsible for defining, funding and implementing research in this domain*
 - *Universities and research institutes committed to R&D efforts*
- **More information: <http://www.melodi-online.eu>**



MELODI - Mission

- To **coordinate and promote** research and long-term competence
- To define **priority** scientific goals, to identify specific **resources** needed and to promote **competence** building by Education & Training
- To promote the **joint programming** of radiation protection research on the national and European level
- To engage the broader scientific community in all its scientific activities by promoting an **open research** policy and **integrating** related radiation protection research activities on national and European level

- **To establish and update a long-term **Strategic Research Agenda****
⇒ Outcome: SRA on website and published paper
- **To identify **research priorities** to guide national and European research programs and the preparation of European call**
⇒ Outcome: MELODI statement on website
- **To organize **Thematic workshops** with experts**
⇒ Outcome: Summary papers published in peer-review journals
- **To organize annual **open workshops****
⇒ Outcome: - Website (abstracts, presentations, poster),
- Published summary papers
- New input for SRA

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REVIEW



Multidisciplinary European Low Dose Initiative (MELODI): strategic research agenda for low dose radiation risk research

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Extended version SRA: MELODI website

http://www.melodi-online.eu/doc/MELODI_SRA_2017_06102017.pdf



Strategic Research Agenda

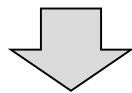
Three key research questions

- **Dose and dose rate dependence (cancer)**
- **Non-cancer effects**
- **Individual radiation sensitivity**

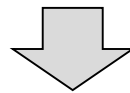
Strategic Research Agenda

Three key research questions

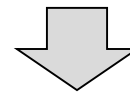
- Dose and dose rate dependence (cancer)
- Non-cancer effects
- Individual radiation sensitivity



Research lines



Research lines



Basic mechanisms

Research to improve the understanding of the mechanisms contributing to radiation risk

Health risk evaluation

Epidemiological research that integrates – where possible and informative – biological approaches for radiation risk evaluation

Impact of exposure characteristics

Research on effects associated with internal exposures, differing radiation qualities and inhomogeneous exposures

~ 40 research priorities

Priorities in **education and training**:

- Support for students and young scientists
- Promotion of E&T for dissemination (workshops, courses, etc.)
Outcome: ~ 50 courses attracting more than 600 students
- Coordination and collaboration of E&T providers

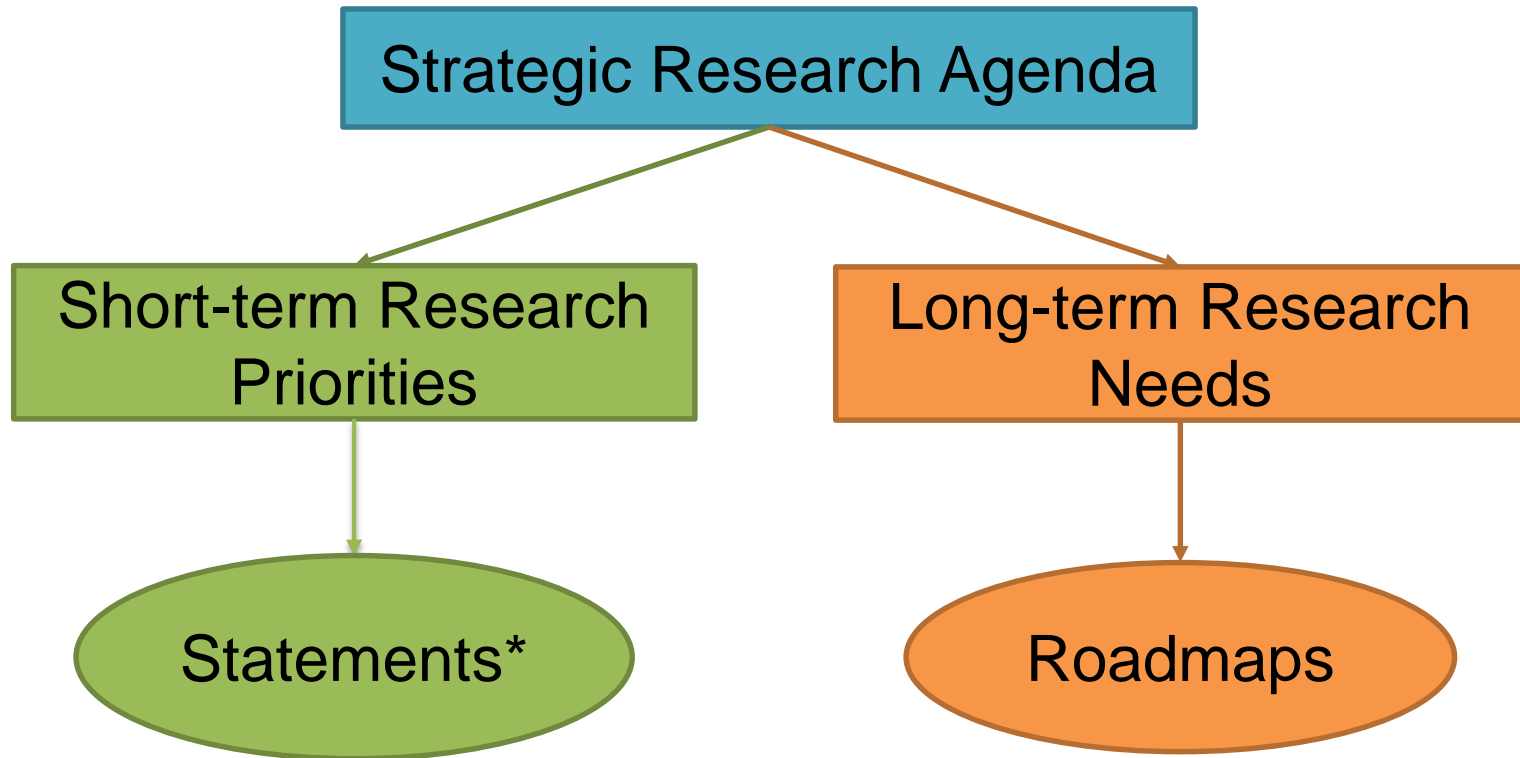
Priorities in **infrastructures**:

- To improve access to research infrastructures
- To develop new infrastructures, if necessary
- To harmonize practices amongst multiple facilities
- Favour open access to radiation research data within STORE

Infrastructures include:

- Exposure facilities
- Cohorts and biobanks
- Data bases and tissue archives (e.g. STORE)
- Analytical platforms („Omics“, „Biodosimetry“)

MELODI – planning research



* http://www.melodi-online.eu/m_docs_statement.html

- **Define the top priorities to guide national/ EU calls**
- **Criteria for prioritization:**
 - **Feasibility** (research judged to be achievable in the near future)
 - **Importance** in terms of improved radiation protection system
 - **Relevance** for operational radiation protection (BSS implementation)
 - **Synergy** with other radiation research platforms
 - **Avoidance of overlap** with topics of other calls or projects
- **How is this done?**
 - ⇒ Recommendation by the MELODI WG SRA
 - ⇒ Open consultation process (e.g. in workshops, polls,..)
 - ⇒ MELODI Board, Scientific Committee,..
- http://www.melodi-online.eu/m_docs_statement.html



Integration activities



Multidisciplinary European **Low Dose Initiative**

<http://www.melodi-online.eu/>



Network of European organisations involved in

emergency preparedness: <http://www.eu-neris.net/>



The European **Radioecology** ALLIANCE

<http://www.er-alliance.eu/>



European Radiation **Dosimetry** Group

<http://www.eurados.org/>



European Alliance for **Medical** Radiation Protection Research

<https://www.euramed.eu/>

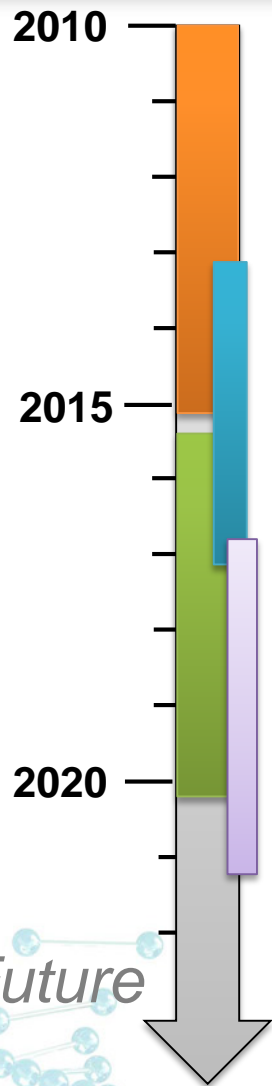
(in near future)

Social Sciences and Humanities, SHARE



CONCERT - European Joint Programme for Integration of Radiation Research

- **CONCERT** is a co-fund action (2015-2020) – Coordinated by BfS
- **Umbrella structure** for the research initiatives of the different radiation research platforms
- Aims attracting and pooling national research efforts with European ones ⇒ to make better use of R&D resources and to tackle common European challenges in radiation protection more effectively
- **Joint programming:** defining joint research priorities and road mapping, initiating and funding projects via open calls
- **Cross-cutting issues:** Access to research infrastructure, Education and training, Stakeholder Involvement and communication of scientific evidence base
- More information: www.concert-h2020.eu



Foundation of MELODI (2010)

DoReMi Project – 13 Mio € EC contribution
Operational tool to develop MELODI

OPERRA Project - 8 Mio € EC contribution
Operational tool for the establishment of the European Joint Programme

EJP CONCERT - European Joint Programme for the Integration of Radiation Protection Research
-19,8 Mio € EC contribution

MEDIRAD Implications of Medical Low Dose Radiation Exposure -10 Mio € EC contribution

NFRP-2019-2020-12 → Further integrating Radiation Protection research in the EU
18 Mio € EC contribution

CONCERT² ?? (Horizon Europe)

Summary

- **10 years experience with Low-dose Radiation Research Europe**

- **MELODI**
 - Large consortium, multidisciplinary scientific network established,
 - SRA successful basis for research planning
 - Numerous projects carried out and results published
 - More than 50 courses attracted more than 600 students
 - Overview and description of key infrastructures available

- **CONCERT: Integration of all radiation research areas**
 - Joint priority setting, joint roadmapping, multidisciplinary call topics
 - Synergistic effects, broader range of expertise, more exchange
 - Recent evaluation of the project through EC was very positive.

Thank you for your attention