The Multidisciplinary European Low Dose Initiative (MELODI)

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on behalf of MELODI
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

http://www.hleg.de
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 Multidisciplinary European low dose Initiative
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
MELODI – Activities

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

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Extended version SRA: MELODI website
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

<table>
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<tr>
<th>Basic mechanisms</th>
<th>Health risk evaluation</th>
<th>Impact of exposure characteristics</th>
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<tr>
<td>Research to improve the understanding of the mechanisms contributing to radiation risk</td>
<td>Epidemiological research that integrates – where possible and informative – biological approaches for radiation risk evaluation</td>
<td>Research on effects associated with internal exposures, differing radiation qualities and inhomogeneous exposures</td>
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~ 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“, „Bodosimetry“)
MELODI – planning research

Strategic Research Agenda

Short-term Research Priorities

Long-term Research Needs

Statements*

Roadmaps

* 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](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 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
Funding and Integration activities of the EC

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

CONCERT^2 ?? (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