Title: Understanding low dose radiation exposure effects: MELODI’s views on developing international cooperation

Abstract:

In the aftermath of the Chernobyl nuclear accident which affected directly most European countries to various degrees, and also in the context of fast growing medical use of radiation for imaging and therapy purposes, the health risks associated to low dose radiation exposure have become an issue of societal concern. Unfortunately this concern is compounded by the fact that science is so far unable to provide satisfactory answers about health risks related to such exposure, due to significant remaining uncertainties, both in the understanding of underlying biological phenomena associated to such exposure, and in the data resulting from epidemiological studies.

In this context MELODI was set up a decade ago, in order to facilitate the steering of research strategies and thus focus efforts on priorities aiming at reducing such uncertainties. This needed a special cooperation between research policy makers at European and national levels on one hand, and the competent communities in the scientific disciplines concerned by low dose effects research on the other hand, which was illustrated by the publication by the European Commission, in 2009, of the “Report on European low dose risk research” of the “High Level and Expert Group” (HLEG).

MELODI’s key operations lead to the development and annual updating of a Strategic Research Agenda (SRA) and derived initiatives concerning education and training and scientific research infrastructures. These documents serve as a basis for the definition of research and training calls which are published periodically by EURATOM, or broad ranging EURATOM funded projects such as OPERRA, or more recently CONCERT, a project also co-funded by several EU member states.

The maturation of such strategies is slow, and a first positive result has been the widespread understanding that the answers to the questions raised in the MELODI SRA could not be discovered without intense and long range focused multidisciplinary cooperation, bringing together biology, medicine and molecular epidemiology, a mode of work which is gradually recognized as the best way forward.

Of course, there is no reason why such a scientific cooperation model should be restricted to the European research community. Indeed, considering the complexity of the biological phenomena to be investigated in order to fully explain the many effects (harmful or not) of human low dose ionizing radiation exposure, there is a strong argument to promote the development of such multidisciplinary approach in a multilateral context associating countries which have so far provided major scientific results contributing to the understanding of low dose radiation effects, such as Japan and the USA. However, an effective move in that direction will require the development of an appropriate multilateral framework going beyond the traditional bilateral arrangements, with the active support of research policy makers at governmental level, and of the leadership of the scientific communities in the disciplines concerned. Such an initiative would most certainly be welcome by international organizations such as NEA, IAEA, WHO and ICRP.