



Non-cancer Effects Resulting from Low-dose Exposure to Ionizing Radiation: Main Achievements of The DoReMi European Network of Excellence

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The overarching strategic objective of DoReMi work package on non-cancer effects is to implement a long term, integrated approach involving several disciplines, namely, epidemiology, radiobiology, immunology and toxicology, for the purpose of risk evaluation for radiation induced non cancer effects. The program on non cancer effects focuses on vascular effects, lens opacities and cognitive effects. While some epidemiological studies indicate that such effects could arise as late effects of low dose irradiation, there is almost complete lack of knowledge on the mechanisms contributing to these effects at low doses/dose rates. Since the start of the project, the DoReMi work plan has been amended several times, mainly via three competitive calls for new partners, as well as via three internal calls, providing opportunities to existing partners. Also many tasks that started in the beginning of the project have been extended via internal ad hoc mechanism that has allowed the DoReMi programme to develop further and to respond to current and topical needs. So far the WP on non cancer effects comprises thirteen different tasks and one subtask. This presentation will provide an overview of the major achievements that have been published in the frame of the DoReMi activities. Focus will be given to the results of a feasibility study towards a systems biology approach of radiation response of the endothelium, a pilot epidemiological study of lens opacities among a cohort of interventional radiologists and cardiologists, a pilot study of external irradiation versus internal contamination effects on neurogenesis, a study on the contribution of low dose X radiation in induction of anti inflammation, a study exploring the low dose gene expression signature and its impact on cardiovascular diseases, a study on the contribution of low dose X radiation in induction of cataractogenesis, and a study addressing low and moderate dose radiation effects on brain microvascular pericytes.