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Research into the effects of low doses of radiation involves reviewing basic disciplines and drawing on international cooperation.

LOW DOSES

HEALTH PHYSICS HAS A CHECK-UP

— Since 2002 and now through the RISC-RAD project, the CEA has coordinated a network of some thirty European institutions conducting research into the radiation protection field and health physics – a collaborative approach involving a range of disciplines targeting keenly awaited medical applications.

On 24 April 2005, 75 researchers from eleven European countries working on the RISC-RAD project (Radiosensitivity of Individuals and Susceptibility to Cancer induced by ionizing RADiations) gathered for their first annual meeting in Bad Honnef, Germany. One year after the project launch, they came together to exchange their initial findings and set out a strategy for the future. Whether investigating DNA repair mechanisms or genetic susceptibility to cancer, whether involved in testing or modelling, they all had a common goal: to provide scientific knowledge to help design radiation protection standards based on assessment of individual risk. At present, radiation protection

standards against harmful effects of low doses, like acute doses of less than 100 mSv¹, are based on the extrapolation of known risks from high doses. This method has reached its limits. Not only is the linearity of the dose/effect curve in question, but the body's response to radiation differs from one person to the next. Some people are more radiosensitive than others. It is therefore assumed that genetic predisposition might affect the consequences of exposure to radiation for an individual's health. Following exposure to low doses, could genetic predisposition be a key factor in determining the risk of cancer? What are the mechanisms involved? Who are those most at risk? These are the issues currently being explored by the RISC-RAD project.

HIGHLY SKILLED TEAMS

From 2002, Laure Sabatier – who heads the Radiobiology and Oncology lab in the Life Sciences Division – has been setting up a network that includes some of Europe's finest minds in the field. From this collaborative approach arose the RISC-RAD project whose coordination was entrusted to the CEA. In mid-2003, the European Commission approved funding totalling 10 million euros under EURATOM "radiation protection" activity. The project got underway in January 2004 and will run for 4 years. Its field of research spans a range of areas including complex DNA damage caused by radiation, transmission of chromosomal aberrations observed in irradiated cells and development of radiation-induced cancers. With almost thirty partner institutions involved, achieving high integration of research to match the project's scientific objectives is a real challenge, and one tackled by the CEA and RISC-RAD, both from a scientific and management standpoint. As the European Research Area² grows, it is also a focus for the entire European research community. ■

A STEADFAST EUROPEAN COMMITMENT

For the CEA's Radiobiology and Oncology lab (LRO), coordinating the RISC-RAD project is the product of a long-standing European commitment. Since 1992, the laboratory has taken part in 7 different Framework Programmes for R&D. Following its partnership in programmes such as RADINSTAB and its role as coordinator for the TELOSENS and TELORAD projects, the LRO has acquired the experience needed to manage such a large-scale undertaking as RISC-RAD.

¹ Unit of radioprotection measuring the biological effects of radiation on an exposed organism. Average natural exposure is 2.4 mSv per year per person. ² European structure regrouping all community supports.