Division of Dosimetry, Radiological Safety and Biological Effects of Ionising Radiations

Fernando P. Carvalho

During the reporting period the implementation of the National Registry of Individual Doses was continued and attained sufficient dimension for playing an effective role of national database fulfilling the requests of international organizations including the European Union and the International Atomic Energy Agency as well recent provisions made in national laws. The registry has now 217,714 records of individual doses and it is able to respond to the needs of assessing the occupational exposure of workers since the beginning of dosimetry in Portugal. This database is one important piece of a national system of radiation protection that Portugal does not possess yet. Assistance to the implementation of such a system, as well as to the progress in TLD monitoring and harmonization of individual monitoring, has been continuously provided by the IAEA through the Technical Cooperation regional project for the European region. This technical cooperation offered opportunities for specialized training abroad, as well as in the country, to health physicists engaged in the fields of oncology, radiotherapy, nuclear medicine and industrial radiography. Furthermore, the participation of the DPRSN in this IAEA coordinated activities allowed for exchange of information and experience at international level, with the participation of the EU, concerning the implementation of radiation protection systems in European and other countries.

Significant progress was made also in the field of dosimetry by cytogenetic methods. New equipment was purchased to allow for developments in this field such as introduction of new techniques as chromosome painting with DNA FISH probes. These developments were triggered and are an essential component of the multidisciplinary project *MinUrar* on the effects of uranium mine tailings on public health. Collaborative work was started between the Instituto Nacional de Saúde Dr. Ricardo Jorge and the ITN/DPRSN in this field. This includes, for example, the cytogenetic analysis in blood samples from people living in the uranium regions. Assessment of environmental contamination is also in progress.

Knowledge in dose computation and simulation methods in cellular dosimetry progressed also in the framework of a EU concerted action and using Monte-Carlo simulation methods, respectively. Services provided to the community were very valuable and encompassed individual dosimetry to about 9,500 workers, radiological safety assessment of hundreds of radiation facilities, on site verification of radiological safety, and cytogenetic analysis in exposed radiation workers.

In the overall, this Division contributed with excellent scientific knowledge and robust technical skills to meet the legal competences of DPRSN for developing research and ensuring radiation protection of the workers and members of the public.

Division of Dosimetry, Radiological Safety and Biological Effects of Ionising Radiations

Research Team

Researchers

- FERNANDO CARVALHO,
  Principal Researcher
  (Provisional group leader)
- J. P. LUÍS, Principal Researcher
- M. B. MARTINS, Principal Researcher
- M. A. NEVES, Principal Researcher
- J. ALVES, Auxiliar Researcher
- E. AMARAL, Auxiliar Researcher
- O. GIL, Auxiliar Researcher
- A. OLIVEIRA, Auxiliar Researcher
- M. L. PEDRO, Auxiliar Researcher

Students

- D.J. MIRANDA - (until on 1st November of 2003)
- A.R. RODA - (until on 31st January of 2003)
- S.B. ROSA- T (until on 18th August of 2003)
- S.S. RANGEL - Trainee (until on 31st December of 2003)
- R.A MELO – (until on 31st May 2003)
- R. MONTEZUMA - T (until on 21st October 2003)
- J.N. ABRANTES - (since 2nd February 2003)
- R. VIEIRA – (since September 2002)
- P.CARDOSO - (since October 2002)

Technical Personnel

- G.C. RANGEL
- M.A. GAMEIRO
- J. S. JESUS
- M. ÂNGELO
- O.C. MARGO
- C. FAVINHA
- J.M. PAIVA