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# Human Health

## **Objective**

*To enhance Member State capability to address needs relating to the prevention, diagnosis and treatment of health problems through the development and application of nuclear and related techniques within a quality assurance framework.*

## **Roadmap for Cancer Care and Control**

Governments worldwide face the challenge of providing quality care to address the growing burden of cancer. The Agency and WHO jointly developed the Roadmap towards a National Cancer Control Programme to help countries set milestones for establishing nuclear medicine, diagnostic imaging and radiotherapy services. The Roadmap draws on the Agency's nuclear and radiation related expertise and WHO's guidance on developing blueprints for effective programmes on the ground. It provides guidance on implementing services relating to cancer prevention, diagnosis, treatment and palliative care. Along with guiding Member States on the establishment of radiation medicine services and providing guidance documents, the Roadmap also covers questions relating to nuclear safety and legal considerations.

## **New Linear Accelerator Facility at the Dosimetry Laboratory**

A clinical linear accelerator (linac) was installed at the Agency's Dosimetry Laboratory in Seibersdorf, Austria (Fig. 1). In December, a customized robotic arm was installed in the linac bunker, to be used as a platform for performing calibrations. The linac facility will be used for training, audits, calibration of ionization chambers, and research and development in dosimetry.

## **International Virtual Conference on Theranostics**

Recent developments in positron emission tomography, especially the use of fluorine-18 fluorodeoxyglucose and new approaches to targeted radionuclide therapies, have paved the way for more personalized cancer management. The first International Virtual Conference on Theranostics discussed how the integration of diagnostic molecular imaging with radionuclide therapies is key to individualized management of disease. Over 1000 participants from 104 Member States participated remotely, and 393 participants from 79 Member States completed the requirements necessary to be awarded continuing medical education credits. This was the first time that the European Union of Medical Specialists awarded credits to participants of a virtual initiative.



FIG. 1. The new linear accelerator facility at the Dosimetry Laboratory, visit by the Director General.

## Transforming Health Care with Nuclear Techniques

Tissue engineering is poised to revolutionize the field of regenerative medicine by shifting the treatment focus from mitigating symptoms or causes to repairing and regenerating tissue — leading to full recovery. The Agency completed a five year CRP entitled ‘Instructive Surfaces and Scaffolds for Tissue Engineering Using Radiation Technology’. The main aim of the project, which succeeded in producing both the surfaces and scaffolds and artificial tissue for use in regenerative medicine, was to make this technology available worldwide (Fig. 2). The 15 institutions from 14 Member States that participated in the CRP are now ready to implement the new technology.

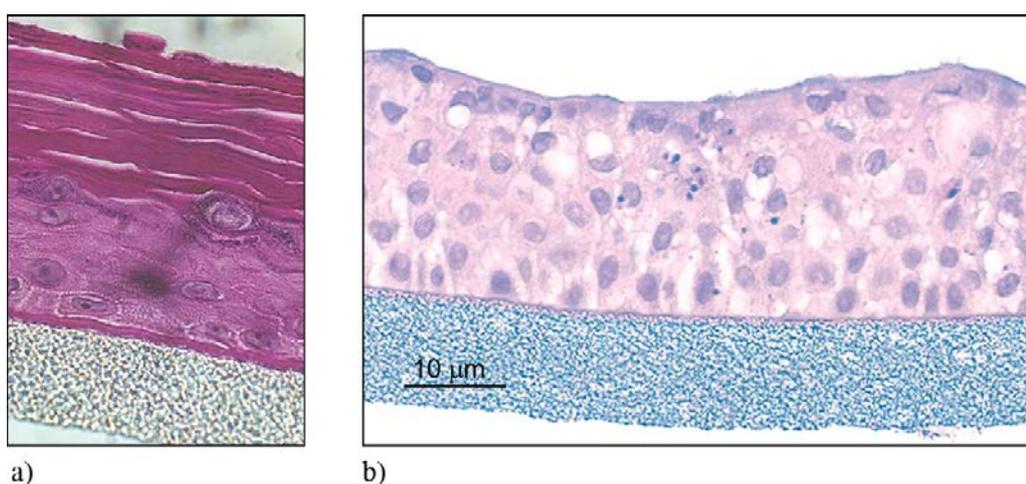


FIG. 2. Artificial skin human tissue system (a) and artificial tracheal/bronchial epithelial human tissue system (b) produced as part of a CRP aimed at making tissue engineering technology available worldwide.

## Directory of Radiotherapy Centres (DIRAC) Update

Created by the Agency in 1959, DIRAC is the world's most comprehensive database on radiotherapy resources. It comprises current and historical global data on radiotherapy centres, teletherapy machines, brachytherapy units, treatment planning systems, computed tomography systems and simulators. Quality Assurance Team for Radiation Oncology (QUATRO) missions, coordinated research and technical cooperation projects, educational resources, partnerships and the results of surveys are linked in DIRAC. DIRAC is now also fully integrated with the International Dose External Audits database, a resource that maintains data on dose quality audits for hospitals. The newly developed option to add comments will help the Agency retain historical data, contacts and valuable metadata.