Nuclear reactor as a cancer cure

March 3 2005

Despite the millions of dollars that have been invested into research to improve methods of treatments for various types of cancer, oncological diseases continue to have a high mortality rate, remaining one of the main causes of death globally. Traditional cancer treatment methods, such as chemotherapy, immunotherapy, and radiotherapy are effective in approximately only half of all patients.
A promising technology to more effectively treat certain cancers is Neutron Capture Therapy (NCT), a cutting-edge treatment method that uses neutrons captured during operation of a nuclear reactor to irradiate the tumor. A main advantage of NCT is the selective damage of tumor cells, avoiding many of the common severe side effects of other cancer treatment methods.

In the framework of a project (#1951) funded by the International Science and Technology Center, Russian scientists and researchers developed and implemented an experimental series of pre-clinical studies using NCT to treat melanoma in dogs. Research was carried out at a specially constructed irradiation room attached to the research reactor at the Moscow Institute of Physics (MEPhI), with scientists from MEPhI joined in their work by colleagues from SRC - Institute of Biophysics and the Russian Cancer Research Center.

The project results clearly demonstrate the effectiveness of NCT of inoculated tumors and spontaneous melanoma, with complete involution of tumor observed in 80% of cases.

The scientists and researchers of ISTC Project #1951 are eager to

perform the necessary work in order to introduce NCT in clinical practice.

Professor Otto Harling from the Massachusetts Institute of Technology, and a collaborator on the ISTC Pro-ject, noted: "The Russian scientists have developed promising technologies to treat melanoma basing on in-tra-arterial administration of the compound into the tumor-feeding artery, and to treat osteo-sarcoma using BNCT of the removed neoplastic bone with subsequent reimplantation. The latter results are the first in the world and may find practical application in treating osteosarcoma in various sites."

Source: International Science and Technology Center (ISTC)