

CERAD@NCBJ

Renata Mikolajczak

National Centre for Nuclear Research, Radioisotope Centre POLATOM, 05-400 Otwock, Poland

Center of Design and Synthesis of Radiopharmaceuticals for Molecular Targeting, CERAD - strategic research infrastructure entered the list of Polish Road Map of Research Infrastructure.

The aim of the project is to establish a modern research infrastructure within the field of new radiopharmaceuticals for the diagnostics and therapy, based on ligands which are biologically active at the cellular and molecular level. Molecularly targeted pharmaceuticals constitute a special group of drugs using special biological mechanisms to deliver radioactive isotopes to the pathologically changed region for the diagnostic or therapeutic purposes. The combination of isotopic techniques with molecular disease markers shall enable earlier detection of diseases and implementation of relevant therapeutic procedures. Thus, CERAD addresses the global social and demographic trends and challenges connected with the development of effective methods for the diagnostics and therapy of cancer and other civilization diseases. CERAD infrastructure will be used for both research and commercial activities. Project joins the research potential of NCBJ as consortium leader and partner institutions: University of Warsaw, Warsaw Medical University, Institute of Nuclear Chemistry and Technology, Jagiellonian University Medical College and Medical University of Białystok.

The elements of the CERAD infrastructure are: MARIA nuclear reactor, Świerk Computing Centre with specialist software for molecular modelling and dosimetric calculations, Pre-clinical Tests Laboratory and radiopharmaceutical facilities of POLATOM. Installation of a new high-current cyclotron in NCBJ, accelerating protons and alpha particles to 30 MeV energy and deuterons to 15 MeV energy, with an equipment and infrastructure, combined with already existing scientific base, creates unique and pro-development research capabilities in Poland. 30 MeV cyclotron will extend the existing basis with additional spectrum of medically attractive radionuclides, which cannot be obtained in Poland currently, and the costs for their provision from abroad are very high (e.g. ^{123}I , ^{44}Sc). CERAD shall be the platform for conducting comprehensive studies directed at searching and designing new medicinal products, in particular radiopharmaceuticals, and at implementing diagnostic and therapeutic procedures for diseases, which are currently treated ineffectively.

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