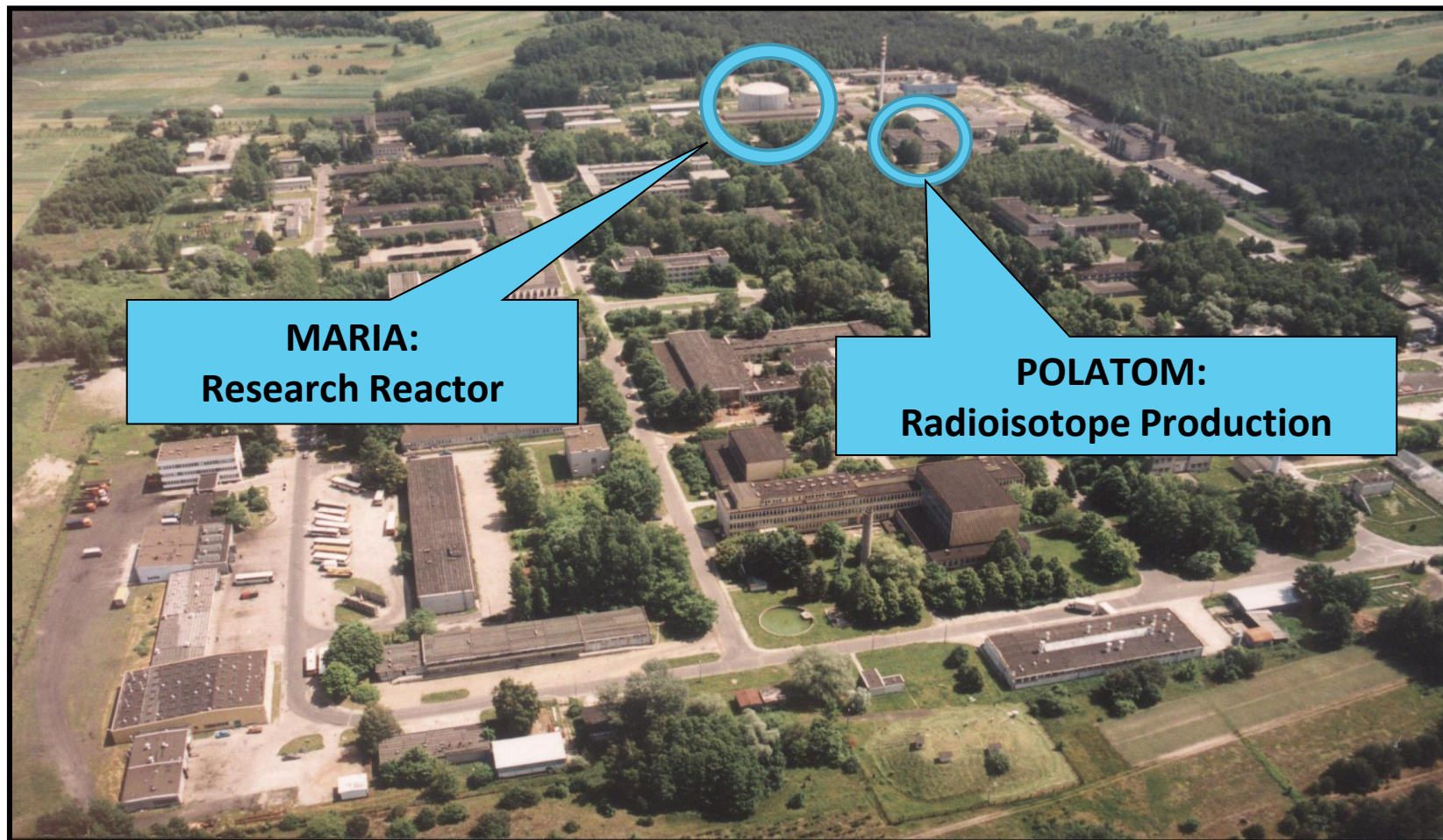


Basic infrastructure of National Centre for Nuclear Research for radiopharmaceuticals



The existing potential of NCBJ:

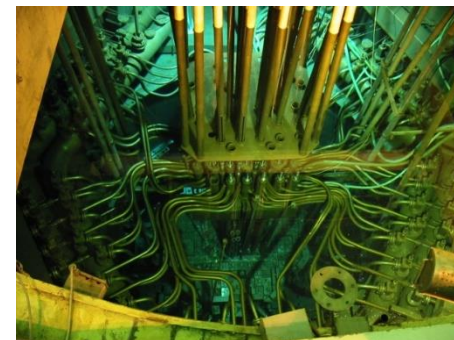
Maria Research Reactor

30 MW, neutron flux 3×10^{14} n/cm²s

Wide range of produced radionuclides:

³²P ⁹⁹Mo, ¹³¹I, ¹⁷⁷Lu,

**Material science,
neutron irradiation investigations**



Radioisotope Centre POLATOM

Pharmaceutical development
and validation

Hot-cells for handling radioisotopes

Research laboratories

Preclinical animal studies

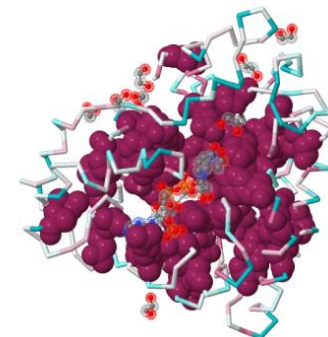


Świerk Computing Centre

HPC cluster on blade multicore servers,
large volume computational capacity

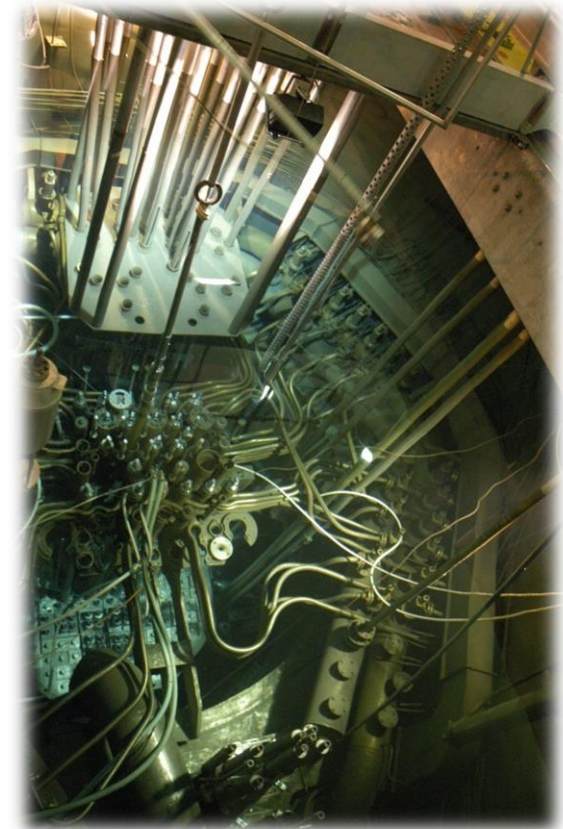
Specialized software

Computational simulations



Maria Research Reactor

- The high flux research reactor MARIA is a water and beryllium moderated reactor of **30 MW** power level;
- Pool type reactor with pressurized fuel channels containing concentric tube assemblies of fuel elements;
- Fuel channels are situated in matrix containing beryllium blocks surrounded by graphite reflector:
 - nominal power 30 MW
 - thermal neutron flux density $2.5 \times 10^{14} \text{ n/cm}^2\text{s}$
 - moderator H_2O , beryllium
 - reflector graphite in Al
 - cooling system channel type
- Operated since **Dec. 16, 1974**
- Expected operation time of reactor: **2030**



Europe's 4th most powerful research reactor

Radioisotope Centre POLATOM

- Division in the National Centre for Nuclear Research
- Results of Polatom's research programs and innovation activities can be directly implemented in the GMP certified production and QC facilities
- Manufacturing site and supplier of high quality radiopharmaceuticals and diagnostic kits for nuclear medicine

www.polatom.pl





Hot-cells for production of ^{90}Y and ^{177}Lu



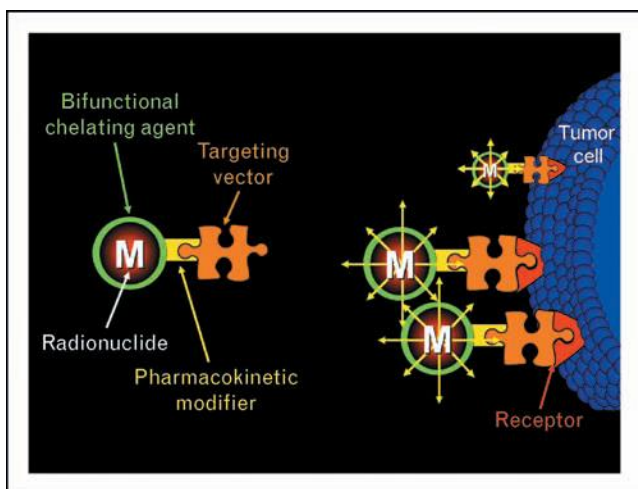
Dry kits for $^{99\text{m}}\text{Tc}$ labelling



Clean room facility for aseptic manufacture of kits



Research team at RC POLATOM

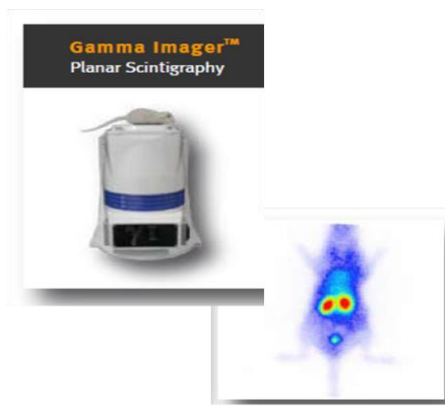


DB – Research Department
 (radiopharmaceuticals, radioactive sources)

BW - LWR – Laboratory of Radioactivity Standards
 (metrology of radionuclides)

DA – Quality Control Laboratory (analytical and microbiological laboratories)

Quality and pre-clinical investigations



First in human and Exploratory clinical trials

Laboratory of Radioactivity Standards

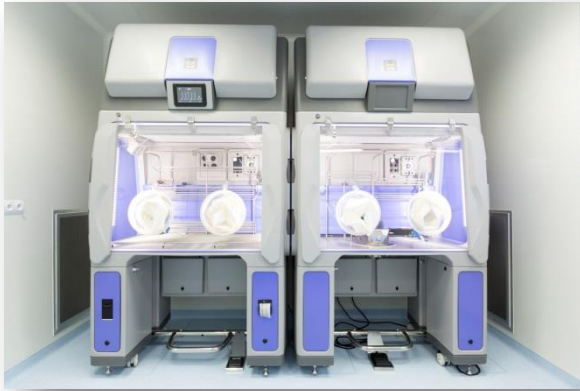
- Depositary of the National Standard of Radioactivity Unit
- Services in measurements of radionuclides radioactivity and in the calibration of radioactivity measuring devices
- Quality assurance system accredited according to PN-EN ISO/IEC 17025:2005
- QC of radioactive sources and preparations manufactured at the RC POLATOM
- Research and development in methods for measurement of radionuclides activity
- Technologies for standard radioactivity sources



AP 120



Microbiological Laboratory



Modern isolator for sterility testing, with hydrogen peroxide decontamination, the environment is monitored during analysis.



Microscope with camera,
Laminar Flow cabinets



Bacterial Endotoxines
Analyzer



Analyzer VITEK 2
for identification of isolated
microorganisms

Active Pharmaceutical Ingredients (API) Laboratory

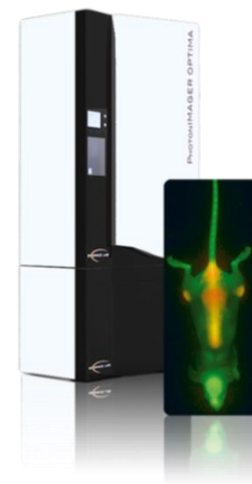
- research and development on the synthesis routes for APIs and their optimisation
- preparation of documentation for API according to the regulatory requirements
- synthesis of API for manufacture of radiopharmaceuticals



Laboratory for Preclinical Research

Modern animal facility at POLATOM

- In vivo imaging of tracers' physiological distribution in specialized experimental animal models using radioactivity and optical probes
- Well equipped laboratory with systems and cabinets, ensuring high hygienic standard for laboratory animals.
- Small animal gamma camera and optical imaging system for comprehensive in vivo investigations of new tracers.



**Authorized laboratory
 for animal studies
 Registration Nr 0162**



CERAD - Cyclotron facility



current status as of 10.09.2020





European Research Area Network
funded by the European
Commission under FP7

ERA-NET on Translational Cancer Research



Pomorski Uniwersytet Medyczny
w Szczecinie

