

National Institute for R&D in Microtechnologies, IMT-Bucharest
"Integrated Research Network Devoted to Nanobiotechnology for Health - Romanian Nanomedicine Network" RO-NANOMED
<http://www.imt.ro/ro-nanomed>

The **RO-NANOMED** project is devoted to the creation and development of an integrated research network in the field of nanobiotechnology for health. This network is targeting integration into the European Technology Platform (ETP) "NanoMedicine".

IMT-Bucharest (Prof. Dan Dascalu) was nominated as contact point of the mirror group for the European Technology Platform (ETP) "NanoMedicine" (each country may have a national representative, acting as a contact point). IMT has created an interest group - "Nanomedicine" Romania - with 71 participants: 25 participants from 10 National R&D Institutes, 5 participants from 3 R&D Institutes of the Romanian Academy, 3 participants from 3 R&D Institutes, 28 participants from 15 Universities, 6 participants from 6 SMEs, 4 participants from 4 Hospitals. The contact address is nanobio@imt.ro.

RO-NANOMED PARTNERS:

Project Coordinator: National Institute for R&D in Microtechnologies (IMT-Bucharest); Contact person: **Prof. Dan Dascalu** (dascalu@imt.ro)

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P3: Institute for Macromolecular Chemistry "Petru Poni", Iasi; Contact person: **Dr. Gabrielle Charlotte Chitanu** (chita@icmpp.ro)

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P5: National Institute for Chemical-Pharmaceutical R&D (ICF); Contact person: **Dr. Biochim. Mihaela Albuiescu** (mihaela@ncpri.ro)

P6: R&D National Institute for Nonferrous and Rare Metals (IMNR); Contact person: **Dr. Ing. Radu Robert Piticescu** (rpiticescu@imnr.ro)

P7: Institute of Biology of the Romanian Academy; Contact person: **Dr. Lucia Dumitru** (lucia.dumitru@ibiol.ro)

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ASSOCIATED PARTNERS:

PA 14: University of Medicine and Pharmacy Iasi ; **PA 15:** University "Politehnica" of Bucharest; **PA 16:** Emergency Hospital Iasi, Plastic and Reconstructive Surgery Clinic; **PA17:** Emergency Hospital Bucharest, Orthopaedic Clinic ; **PA18:** University of Agricultural Science and Veterinary Medicine Cluj-Napoca

The project consortium involves all 9 partners collaborating previously in a network of centres of excellence (the Virtual Centre of Research for Nano-biotechnology called CENOBITE). The focus of this very successful CENOBITE has been already on biomedical applications (with significant multi-disciplinary scientific results), and the present RO-NANOMED is a natural continuation and extension of the previous network.

OBJECTIVES:

1. Creating a Romanian research network in nano-biotechnology for health, which is continuing and amplifying the previous activity of the CENOBITE network (2002-2004).
2. Focusing the research on the domains targeted by the ETP Nanomedicine. This will be achieved by financing 14 "research mini-projects", devoted precisely to the three domains of the ETP NanoMedicine (i.e. regenerative medicine, targeted drug-delivery, nano-diagnostics).
3. Creating a physical platform of research integration through NANOBIO LAB, a laboratory implemented in the technological area of IMT-Bucharest, part of MINATECH-RO (The Scientific and Technological Park in Micro and Nanotechnologies).
4. Providing intensive networking at national level, by extending the network with new partners (including companies, NGOs etc.)
5. Promoting durable integration of national activities in the European Technology Platform. The previous experience of the common work, as well as the focus on the main scientific topics in Nanomedicine will facilitate European cooperation.

Services offered by RO-NANOMED partners inside the network IMT-Bucharest:

Access to:

- ♦ equipments
- ♦ facilities for micro-nanofabrication: the only clean room class 100 in Romania, offering conditions for controlled temperature and humidity; services for silicon, glass and quartz micromachining.
- ♦ laboratories for simulation and computer aided design for Microsystems and micro-nanostructures (COVENTOR and CADENCE and Mentor Graphics)
- ♦ characterization equipment
- ♦ education and training through the International Centre for Education and Training in Micro and Nanotechnology (ICETMNT)

Institute of Macromolecular Chemistry "Petru Poni", Iasi:

- ♦ Training activities on specific equipments, training during different courses and summer schools
- ♦ Dissemination during various events
- ♦ Access to equipments
- ♦ Consultancy

Institute of Biochemistry of the Romanian Academy:

- ♦ Access to equipments
- ♦ Consultancy: for biocompatibility tests of different materials; for evaluating the nanomaterials applications

R&D National Institute for Nonferrous and Rare Metals:

- ♦ Access to equipments
- ♦ Assistance for the following activities: Functionalized nanoparticles synthesis by sol-gel and hydrothermal processes; Thin films obtaining by hydrothermal-electrochemical and electrophoresis techniques; Obtaining of compact sintered layers; Methods for complete chemical analysis;
- ♦ Training and educational activities
- ♦ Dissemination and protection of property rights, promotion of participation to international and European projects by collaborating with CTT AVANMAT and CTT Baneasa

"Victor-Babes" University of Medicine and Pharmacy Timisoara:

- ♦ Offers educational program at European level to Romanian or foreign PhD students
- ♦ Will develop a program for biomedical research, according to European standards and educational and research programs, assuring also competent clinical services

New equipments in IMT-Bucharest acquired through RO-NANOMED

GeneTAC UC4 Microarray Scanner – this equipment will be used for reading the chips, acting as a pair of the nano-plotter, for DNA detecting and deposition.



The Microarray Scanner offers high resolution scanning across the entire surface of standard microarray substrates.

This two-color system includes green (532nm) and red (635nm) lasers coupled with high performance optics optimized to maximize collection of fluorescence signal while minimizing the damage caused by photobleaching.

GeneMachines OmniGrid Micro - Nano-Plotter, allowing bio-chips development; dispersing of adhesives and liquid crystals; analysis of adherent cells or tissue slices, for nanobiotechnology projects as lab on chip, biochips. The equipment has a print speed of 10,000 spots/11 slides in less than 3.5 hr with optional split pin. A Control Computer assures the utilization interface.



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