

NANO2LIFE PARTNERS



CEA

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The CEA (French Atomic Energy Commission) is a French public research organisation and a key player in innovation in the fields of energy, defense, information technologies, communication and health (15,500 p). The CEA Grenoble leads the NanoBio regional cluster, that brings together engineers, physicists, chemists, biologists and medical doctors to develop new miniaturised tools for biological applications (130 people involved incl. SMEs). Fundamental and applied research in nanobiotech is performed by several institutes and universities in Grenoble and Lyon, within the Rhône-Alpes region, in cooperation with leading industrial companies in the diagnostics and biochips sector. The NanoBio cluster is linked to the Minatec Innovation Center, the 1st European centre for micro- and nano-technologies and will rely on its technological facilities



CNRS

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The CNRS (French National Centre for Scientific Research) is a public basic-research organisation employing 11,350 researchers and 13,950 engineers/technical and administrative staff. Through its 1,256 service and joint research units, the CNRS covers all scientific disciplines. The five research units of the CNRS core partner will bring, through their research teams involving physicists, chemists, biologists and biochemists, a multidisciplinary approach allowing the study and the design of nanostructured assemblies and new optical nanotools for the development of biomimetic systems (single-cell chips, proteolipidic structures, nanobiosensors). In the framework of Nano2Life, the involved CNRS teams will welcome Ph.D. students and postdoctoral fellows. They will also participate in dedicated training and advanced courses in nanobiotech.



Inserm

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The INSERM (National Institute of Health and Medical Research) is focused on fundamental research in medicine and biology and is the support structure for clinical and health care investigations. It includes 260 laboratories and 40 teams mainly implanted in hospitals and universities. The scientific, medical and technical personnel include 10,000 employees among which are 2,140 permanent researchers and 2,800 technicians. 1,800 university teachers and hospital physicians are working in INSERM laboratories. INSERM plays an important role in research education, with 2,350 scientific and medical fellows. INSERM will provide expertise in fundamental cell and molecular biology as well as expertise for medical applications in diagnostics and prognostics of clinical trials or medical treatments. It will also contribute to knowledge diffusion by education and training actions.

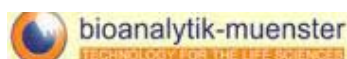




**Westfälische Wilhelms-
University Münster**
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The University of Münster is a national centre for Nanotechnology specialised in nano-analytics due to several leading research groups in the field of Mass spectrometry (TOF-SIMS, MALDI), electron microscopy and AFM/STM. Interdisciplinary collaboration of these research groups with biological, chemical and especially medical groups from one of the largest university clinics in Europe has initiated a variety of nanobiotech projects in recent years. With this experience and by extending these activities the university represents the backbone of the nanobiotech cluster Münster.



bioanalytik-muenster
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The association bioanalytik-muenster was founded by the two Münster universities, local companies, the city of Münster, the Technology Park Münster and scientists in November 2000. It serves as a central communication and information agency for researchers, companies, investors, institutions and the public interested in nanobiotech. bioanalytik-muenster simplifies consultations among all partners, promotes dialogue with the public, motivates interdisciplinary projects and ensures coordinated actions for developing and marketing of the Münster region as a leading nanobiotech location.



University Saarland
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The University of Saarbrücken is a full university and involves most academic disciplines. The total number of students is presently about 16,000. Within the technical and natural science disciplines there is a strong focus on nanobiotech in that Biology, Physics, Chemistry, Medicine and Materials Science have a strong academic exchange and are interacting through a variety of common projects. In this context it is of a certain importance that a full university hospital belongs to the Department of Medicine which gives access to clinical research and application. It is also of importance that the university institutes involved in nanobiotech are completed by external institutes among which are the Institute of New Materials and the Fraunhofer Institute of Biomedical Technologies. The focus on nanobiotech is strongly supported by the local political administration.





University Kaiserslautern
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The University of Kaiserslautern recently built up the „NanoBio-Center at K-Tech“, which offers state-of-the-art nanostructuring, nano- and bioanalysis as well as bioinformatics equipment. The research groups are active in particular in optimising and analysing biointerfaces on a nanometer scale, e.g. for applications in biosensors, neuron-electrode interfaces, biomaterial interfaces, DNA and protein chips. The University also coordinates the the Germany-wide Network „Nanotechnology Competence Center Functionality through Chemistry (CC-NanoChem)“ and is the largest University in Germany offering courses for long-distance learning, but also having full-time students. The University of Kaiserslautern hence has a strong scientific background in nanobiotech and will become one of the European centres for E-learning courses on nanobiotech.



University Mainz
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The core competence of the Universitat Johannes Gutenberg-Universität Mainz is in the field of molecular biology and gene technology (research and training). The Department of Applied Molecular Biology (26 members) is in the lead within Uni Mainz (30,000 students) with respect to an internal ranking of research grants. Key facilities include a high security P3 laboratory and most advanced equipment for gene techno-logical, cell biological and molecular biological studies (e.g., robotic work-station for sequencing studies, confocal LSM, chemi-luminescent imaging system). Input to the network: synthesis of nanostructured silica by recombinant enzymes (silicatein and silicase), gene technology, biomedical applications, commercialization (patenting, spin-ups).



NanoBioNet
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The regional Nanobiotech Cluster NanoBioNet is a joint initiative of scientists from various disciplines, entrepreneurs, technology transfer experts, investors, patent attorneys as well as public institutions of the Saarland-Rheinessen/Pfalz region in SW of Germany. NanoBioNet offers research and development along the entire value creation chain, supports the exploitation of research results and offers specialised education and training on nanobiotech for pupils, students, technicians and industry.





Parc Científic de Barcelona
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The Parc Científic de Barcelona (PCB) is a cornerstone of the innovation system mounted by the Universitat de Barcelona (UB). The Parc Científic de Barcelona hosts twenty companies, three research centres, and a bioincubator for technology-based companies, all of which work in emerging research areas of chemistry, pharmacy, biotechnology and nanobioengineering. These research activities are located in a 20,000 m² laboratory building, which is also home to modern scientific and technical services which include several platforms such as: genomics and transcriptomics, proteomics, nanotechnology, biocomputing, NMR for biomolecules and scientific services such as confocal microscopy, flow cytometry, and in situ molecular recognition techniques.



LUND
UNIVERSITY

Lund University
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Lund University (LU) is the largest university in Sweden and has the largest Center for Nanosciences in Northern Europe. It is a key partner of Oresund University associating 19 universities from Sweden and Denmark, comprising about 125,000 students and 5,000 faculty staff. LU forms also a core of the Medicon Valley Region, integrating academia and enterprises focusing on fundamental and applied biomedical research. The Nano2Life partners at LU have performed a long-term collaborative research in the field of nanosciences, education and training. The relevant core competence involves besides education the following main areas: nanomaterials, nanotechnology, spectro(bio)electrochemistry, (bio)sensors, micro and nano-scaled analysis systems, nanoproteomics, imaging techniques, microfluidics.





FORTH – Foundation for Research and Technology
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FORTH is committed to high quality research, pursuing technology innovation, promoting education and contributing to economic growth. Three institutes of FORTH participate in the Nano2Life network. The Institute of Electronic Structure and Laser (IESL) accommodates the European UV Laser Facility. Key facilities are state of the art lasers and advanced optical trapping setups. The Institute of Molecular Biology and Biotechnology (IMBB) places emphasis on the elucidation of basic life processes and molecular machines. Technological platforms include functional genomics and advanced biological imaging. In the Institute of Chemical Engineering and High Temperature Chemical Processes (ICE-HT) forefront research is pursued in materials science and technology. Apart from providing access to the facilities FORTH will also contribute to technological education and training.



NCSR Demokritos
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NCSR “Demokritos” is the largest research centre in Greece (8 Institutes, ~1000 employees) for interdisciplinary R&D including nanotechnology, functional materials, structural chemistry, diagnostics, biology. The centre is equipped with unique facilities in a national level for Si micro/nanofabrication (Clean room class 1000 for MEMs, automatic prober for electrical-fluidic testing of bio-hybrid wafers) and structural characterisation (X-ray, NMR 500 MHz, CD, STM/AFM). Participating institutes focus on nanolithography, biomolecule array patterning, integrated optoelectronic biosensors, biosensors coupled to microfluidic devices, functionalisation (by proteins, organic/inorganic systems), bioanalytical microsystems. NCSR “Demokritos” has also a long experience in education and training.



JRC – Institute of Human Health and Consumer Protection, EC Joint Research Centre
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The Institute for Health and Consumer Protection (IHCP) of the Joint Research Centre has the role of an independent advisor to the Commission and interlocutor in risk assessment of chemicals as well as development of alternative methods for toxicology studies. In the frame of the Institutional project “Nanobiotech for Life Sciences”, the Institute carries out research in the field of development and analysis of biological/non-biological interfaces. The research effort is concentrated in chemical functionalisation and patterning of surfaces at the nanoscale and interaction of proteins and cells with nanopatterned interfaces.





**MIC – Mikroelektronik
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MIC is an autonomous research centre affiliated with the Technical University of Denmark with a staff of 125 including 30 Ph.D. students and 30 postdoctoral students. MIC educates engineers within micro- and nano-technology and transfers know-how to Danish industry. The interdisciplinary research at MIC covers biochemical microsystems, nanotechnology and MEMS. MIC's clean room is the largest in Denmark and covers 560m² and is class 100. There is 700m² of adjoining laboratory space. MIC is currently building a new 500 m² nanolab with state of the art facilities such as nanoimprint and e-beam writing. In Nano2Life, MIC will train researchers and transfer knowledge in micro- and nano-fabrication and nanomechanical biochemical sensors.



Tyndall
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Tyndall undertakes strategic research that focuses on technology bottlenecks and challenges within a three-to-ten year timeframe in photonics, nanotechnology, microtechnologies and at the ICT/Bio interface. The National Nanofabrication Facility (NNF) at Tyndall is a state-of-the-art laboratory that contains some of the most sophisticated nanofabrication technology equipment in the world, and the facility is open to all users from academia to industry for the development of new ideas for the fabrication of nanoscale structures. Nanobiotech research at Tyndall focuses on the development of novel devices for high throughput clinical discovery and screening, medical diagnosis, delivery of therapeutic agents and synthesis, separation and analysis of a range of chemicals and biological entities.



**EPFL Swiss Federal
Institute of Technology**
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The Ecole Polytechnique Fédérale de Lausanne counts 210 professors and 2,400 scientific, technical and administrative staff. Its main assets are in biomedical engineering, nanosciences and nanotechnologies, biotechnologies, numerical simulation and new materials. The EPFL Center for MicroNanoTechnology (CMI) is a unique large academic clean room facility equipped with top class micro and nano fabrication instruments. It is run as a users lab currently contributing in more than 50 different research and educational projects. The six research groups from EPFL directly contributing to Nano2Life cover a broad range of competence ranging from basic bio-chemistry to micro and nano-technology research. EPFL is also deeply involved in educational activities at the Master's and Doctoral school levels.



Tel-Aviv University is the largest public research university in Israel. Among Tel Aviv Universities 2,200 faculty members are internationally-renowned scientists who have made significant contributions to the advancement of knowledge in fields as diverse as particle physics, cell biology, biotechnology, genetics, and fiber optics. The University promotes a multidisciplinary approach to research, through centres for brain studies, environmental studies, cardiac research, cancer research, energy studies, cultural studies and others, where academic collaboration is breaking down outmoded barriers between disciplines. Tel Aviv University Research Institute for Nanoscience and Nanotechnology provides a unique multidisciplinary research environment. It incorporates the activity of researchers from exact sciences, engineering, life science and medicine and includes user facility, lab space and faculty and graduate student labs.

MESA+

Institute for Nanotechnology

Mesa+
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Mesa+ is a multidisciplinary research institute of Twente University. It houses approximately 440 people, including over 200 Ph.D. students and post docs and has a yearly turnover of some 31 M. Mesa+ integrates approximately equal contributions from the disciplines of Chemical Engineering, Electrical Engineering and Applied Physics. The activities of 18 groups from these disciplines are focused in 5 central programmes, which are responsible for 70% of the total research volume within the institute. These programmes are all aimed at nanotechnology, which makes Mesa+ the largest nanotechnology institute within the Netherlands. Activities in the nanobiotech area are concentrated in the programme Nanolink, where the focus is on the integration of biomaterials within nanoscaled structures.

INSAT/INEX
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The University of Newcastle Institute for Nanoscale Science & Technology (INSAT), UK is a cross-Faculty University Research Institute linking ~100 members from the physical, biological and medical sciences, electrical, mechanical, chemical and materials engineering. Its research and training focus directly mirrors the biological/physical component integration of Nano2Life, and it manages the largest public-sector microsystems/nanofabrication facility (with integrated Class 2 microbiology/cell culture laboratory) in the UK. The Director of INSAT will co-ordinate the facilities integration workpackage. INSAT's M.Sc. in Biomedical Nanotechnology is a key component of the training workpackage.





CeNTech
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The new Center for Nanotechnology CeNTech will provide the environment to direct selected ideas and results of nanobiotechnological and especially nanoanalytical research into technical applications. A total area of 2400 m² will be at the disposal of researchers from companies and several academic faculties. Vibration-free foundations, clean room facilities and unique technological equipment meet the special needs of nanotechnological research. As part of a national network CeNTech provides the general conditions for entrepreneurs to further develop their research ideas up to marketability. CeNTech offers education and advanced training in the field of nanotechnology. In specific workshops nanotechnological knowledge will be imparted to pupils, students, and researchers.



Fraunhofer
Institut
Biomedizinische
Technik

Fraunhofer – IBMT
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Since its founding in 1987, the Fraunhofer Institute for Biomedical Engineering (IBMT) has been working in close collaboration with industry. Core competencies of IBMT are non- or minimal-invasivity, implant technology, biohybrid systems, molecular bioanalytics, mini/micro/nano systems, molecular & cellular biotechnology, telematic systems, ultrasound technology, sensor manufacturing technology, and computer-aided simulations. The strong relationship between biomedical engineering and micro- & nanotechnologies gives IBMT an outstanding position in Europe. The European Centre of Competence for Biomedical Microdevices (MEDICS, established in 1997) and the German Competence Centre for Miniaturised Monitoring and Intervention Systems (MOTIV, established in 2000) reinforce this special position.



FSRM
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FSRM (Fondation suisse pour la recherche en microtechnique) The Swiss Foundation for Research in Microtechnology (FSRM) acts as an independent non-profit organisation, partially financed by the Swiss government (20% of its turnover in 2002) employing a staff of 10 people. The activities include training courses for a wide target audience in order to help the dissemination of research results and the transfer of new technologies to industry. More than 100 short courses are organised every year. In particular, FSRM leads a European-wide programme for training in microsystems which includes most of the European leading institutes as course providers. A multimedia interactive training tool is currently being developed within an IST project in FP5: CD-MST.

