



Catalogue of Partnering event profiles

Life sciences, biotechnology and biochemistry for sustainable non-food products and processes

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INTRODUCTION OF EVENT

The EU and India, being strategic partners, have renewed their Scientific and Technological Agreement in 2007, as a basis for a continued and intensified cooperation in all fields of research, through the definition of common joint interest and the mutual benefit of access to respective R&D programmes. In the era of rapid globalisation, the EU and India have agreed to significantly increase their science and technology collaboration as underlined at the India-EU Ministerial Science Conference (New Delhi, February 2008). India and the EU conduct research of mutual scientific interest in several fields, and also share the benefits in terms of political and socio economic developments. In this respect, the EU 7TH Framework Programme for Research and Development (FP7) offers an important window of opportunities for S&T partnership, with an already important track record of successful EU-India collaborative research.

As a step forward in EU-India S&T co-operation, the European Commission and the Government of India, Department of Biotechnology have agreed to pool their resources with reciprocal efforts in the areas of food, agriculture and biotechnology research. They recently implemented a coordinated call for EU-India research in the domain of food, health and well-being. In particular, functional foods and the reuse of by products in food processing that were targeted in this cooperation bear the potential of economic growth and putting the economy on a green path towards more sustainability.

The EU-India S&T Cooperation Days 2009 will further contribute to reinforce the EU-India S&T partnership, in various fields of life sciences and biotechnologies research and innovation. A large number of stakeholders from both India and the EU, from public and private sectors, will pave the way for future co-operation via foresight and research policy dialogues, through exchanges of information, networking and mutual training.

The EU-India S&T Cooperation Days will aim at:

1. **Informing** – highlighting the opportunities for cooperation available for European and Indian researchers (FP7 Info Day)
2. **Networking** – providing an opportunity for stakeholders from the EU and India to initiate cooperation in diverse fields of research, and to identify areas of common interest for future collaboration (Networking and Partnering Event)
3. **Training** – encouraging and facilitating participation in EU research, including practical sessions on Framework Programme 7
4. **Research policy analysis and development**- via interactive roundtable discussions to compare respective EU and India research -agendas, -potentials and -needs and to identify possible main lines of mutual interest in view of further collaboration (Round Tables).

EU-India Partnering Event

The afternoon session of 5th of November is dedicated to an EU-India Partnering Event to stimulate networking between EU and Indian researchers, in order to present together projects under FP7 or ERANET (NEW INDIGO) calls.

EUINEC and EBTC are the main responsible projects for the organisation of the EU-India Partnering Event. The session will be divided into three parts:

- Presentations (10 min) by EU senior researchers on opportunities for EU-India cooperation,
- Presentations (10 min) of Indian researchers of their Organisation,
- Face-to-face meetings between the EU researchers and Indian researchers.

The presentations will be done in 4 parallel sessions: focusing on:

- Sustainable production and management of biological resources from land, forest and aquatic environment**
- Life sciences, biotechnology and biochemistry for sustainable non-food products and processes**
- Fork to farm - Food including seafood, health and wellbeing**
- Health**

The matchmaking will be done through the *EU-India S&T Cooperation Days* website www.euindiacoop.org

ORGANIZATION INVOLVED IN PARTNERING EVENT



EUINEC - *European Union and India Enhanced Cooperation Framework for Improved Bilateral Dialogue in the Field of Science and Technology*

Funded by the FP7 Capacities programme, EUINEC aims at Improving Scientific and technological cooperation between India and the EU by increasing awareness among Indian and European stakeholders about cooperation opportunities as well as capacity building activities for more successful collaboration. www.euinec.org

EBTC - *European Business and Technology Centre*



Co-funded by the EC European Commission Aid Programme and based in New Delhi since March 2008, EBTC provides support services to EU companies and researchers wanting to enter the Indian market, with a focus on technologies related to climate change and sustainable development. The Centre is therefore the reference point for the European scientific and business community who wish to strengthen ties with India, as well as for Indian interested in attain a better understanding of the European Union. Through its Biotech Cluster, EBTC will bring European biotechnology and pharma researchers to take part to the event. www.ebtc.eu



New INDIGO - *Initiative for the Development and Integration of Indian and European Research*

Funded by the FP7 Capacities programme, is a consortium of European and Indian S&T organisations involved in promoting research cooperation between Europe and India. It is intended to strengthen the international dimension of the European Research Area (ERA) by providing a networking platform for Indian and European S&T organisations.



BIO CIRCLE - *Creating a CIRCLE by extending the BIO NCP network to Third Countries*

Funded by the FP7 Co-operation programme, aims at fostering S&T co-operation between the EU and Third Countries, including India, in the area of Food, Agriculture, Fisheries and Biotechnologies

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SECTION LIFE SCIENCES, BIOTECHNOLOGY AND BIOCHEMISTRY FOR SUSTAINABLE NON-FOOD PRODUCTS AND PROCESSES

PROFILE	
Lithuania	
ORGANISATION	
<i>Name</i>	Institute of Biochemistry
<i>Type</i>	Research Center
<i>Short Description</i>	Institute of Biochemistry, the State Research institute, is a modern centre for biochemical research and development, focusing on investigation of biochemical and genetic principles of cell functioning (cell biology, gene engineering, biocatalysis, bioenergetics, theoretical and practical fundamentals of the biosensors and bioanalytical systems functioning), synthesis of the biological active compounds.
<i>Areas of activity</i>	Biochemistry, biotechnology, enzymology, biosensors, bioelectrochemistry, stem cells technology, proteomics valdasl@bchi.lt - www.bchi.lt
PROJECT	
<i>Research project</i>	<i>A number of projects on modern biochemistry, cell biology and biotechnology</i>
<i>Expertise offered</i>	about 50 PhD level scientists

PROFILE	
France	
ORGANISATION	
<i>Name</i>	INST/CEA
<i>Type</i>	Research Center
<i>Short Description</i>	Unité d'Enseignement Radioprotection Biologie Medecine As a part of the CEA (French Atomic Energy Commission), the National Institute for Nuclear Science and Technology (INSTN) is a higher education institution under the joint supervision of the Ministries in charge of higher Education and Industry.
<i>Areas of activity</i>	Imaging, Molecular biology bertrand.tavitian@cea.fr
PROJECT	
<i>Research project</i>	<i>European Master in Molecular Imaging</i>
<i>Description</i>	The European Master in Molecular Imaging (EMMI) is an international program entirely dedicated to in vivo molecular imaging. Supported by the European Commission under the SOCRATES programme,
<i>Expertise offered</i>	This two-year interdisciplinary curriculum is brought together by prominent European molecular imaging research groups. Courses are held at a group of European partner

Institutions: the INSTN (France) – the coordinating institute, and the Universities of Paris Sud 11 (France), Antwerp (Belgium), Crete (Greece) and Turin (Italy).

The curriculum includes courses on the basics of physics, chemistry, biology and physiology for Molecular Imaging, advanced courses on each imaging technology (PET, SPECT, MRI, OI, and ultrasound) as well as a full time six months immersion in one of over forty industrial or academic partner laboratories around the world. A unique feature of the EMMI curriculum is the implementation of joint training programs (10 days Intensive Programmes -IPs) that gather all the EMMI students from partners' institution. Presently six IPs, supported by the EC, are offered and cover the PET (Saclay), OI (Crete) and MRI (Antwerp) modalities as well as the design and validation of imaging probes (Turin), the certificate for laboratory animal experimentation (FELASA, Antwerp) and state of the art and industrial context in MI (Saclay). Those courses are designed to put students in direct contact with specialists of each discipline providing up-to-date knowledge and know-how. At the INSTN, those courses are given by Molecular Imaging specialists of the CEA research centre of MIRCen, NeuroSpin, and SHFJ.

In just two years, EMMI students acquire full theoretical and practical competences in all MI modalities.

The master program is entirely held in English, built for students with a bachelor degree in biology, biomedical sciences but also in physics, chemistry and computer science as optional bridging courses are offered in physiology and biology.

PROFILE	
France	
ORGANISATION	
Name	OZ BIOSCIENCES
Type	SME OZ Biosciences is a product development company that creates, develops and commercializes delivery systems of bioactive materials (DNA, siRNA, proteins...), intended for the worldwide scientific community. Technological tools developed by OZ Biosciences are focusing on transfection reagents. ozelphati@ozbiosciences.com
Areas of activity	Life sciences research reagents
PROJECT	
Expertise offered	Design and development of molecular delivery systems (transfection technologies)

PROFILE	
Hungary	
ORGANISATION	
Name	SOLVO Biotechnology
Type	SME
Short Description	SOLVO Biotechnology, based in Hungary is a privately held biopharmaceutical company established in 1999. It has been the pioneer and the leader in the commercialization of Membrane Transporter technologies, including therapeutics, diagnostics and drug discovery assays. The company offers drug discovery products and services to pharmaceutical, biotechnology and consumer goods industries, relevant to many therapeutic areas and product categories. SOLVO BIOTECHNOLOGY provides "Turn-Key" comprehensive solution from various High Throughput in vitro to in vivo systems to guide drug discovery and development through the relevant transporter mediated pharmacokinetic and drug-drug interactions (DDIs). krajcsi@solvo.com
Areas of activity	ADME, transporter protein, in vitro, in vivo assay, screening, multidrug resistance
PROJECT	
Research project	<i>Crossing the pharmacological barriers: understanding transporter - test compound interactions.</i>
Description	Uptake and efflux membrane transporters are present at all pharmacologically key barriers. Compound transporter interactions may influence the compounds ADME-Tox characteristics. SOLVO has a wide array of assay system to detect transporter interactions, and it continuously expands its portfolio based on the latest results in transporter science, the needs of the pharmaceutical industry and the various regulatory agencies.
Expertise offered	A wide range of in vitro and in vivo assays, including membrane and cell based assays, monolayer studies and microdialyses assays.

PROFILE	
Belgium	
ORGANISATION	
Name	WOW Company S.A.
Type	SME
Short Description	The main activity of WOW Company is the design and implementation of automated systems and specific equipments. mail@wowcompany.com
Areas of activity	prototyping, automation, industrial, test and measurement, instrumentation, diagnostics, turn-key, biotechnology, medical, pharmaceuticals
PROJECT	
Research project	<i>In the pharmaceutical and biotechnological fields, WOW Company offers its expertise in prototyping and production machine, in optimization, in interpretation and in technical management.</i>
Expertise offered	In the pharmaceutical and biotechnological fields, WOW Company offers its expertise in prototyping and production machine, in optimization, in interpretation and in technical management.

PROFILE	
TURKEY	Assoc. Prof. Ahu ALTINKUT UNCUOĞLU
	ahu.uncuoglu@mam.gov.tr
<i>Areas of activity</i>	Deputy Director of GEBI
	Plant Biotechnology for sustainable agriculture: plant biodiversity, biotic and abiotic plant stress tolerance, molecular marker assisted selection, gene mapping.
ORGANISATION	
<i>Name</i>	The Scientific and Technological Research Council of Turkey (TUBITAK), Marmara Research Center (MRC), Genetic Engineering and Biotechnology Institute (GEBI)
<i>Type</i>	Research Center
<i>Department</i>	Genetic Engineering and Biotechnology Institute (GEBI), Plant Biotechnology Strategic Working Unit
<i>Short description</i>	As it is mostly known, Turkey is an associated country in the Framework Programmes since FP6. The programme is coordinated by The Scientific and Technological Research Council of Turkey (TUBITAK, http://www.tubitak.gov.tr). TUBITAK Marmara Research Center (MRC, http://www.mam.gov.tr), Genetic Engineering and Biotechnology Institute (GEBI) perform basic scientific and applied strategic research in the field of genetic engineering and biotechnology by following global developments.
PROJECT	
<i>Research project</i>	<i>Projects related with plant biotechnology regarding plant biodiversity, mapping, abiotic and biotic stress tolerance.</i>
<i>Short description</i>	<p>Interested Topics in FP7 2010 Call:</p> <p>We have been conducting National Projects together with Research Institutes of Ministry of Agriculture from all over Turkey since 2000 and we have also experience on Eureka Projects (Eureka 1322 Cereal Stresstol). We would like to integrate to Europe on similar topics as given above by using our expertise on knowledge and technical facilities.</p> <p>We think that you could be interested in the topics in the FP7 2010 Call of Food, Agriculture and Fisheries and Biotechnology as given below.</p> <p>KBBE-2010-1-1-01: Genetic and genomic tools to increase the breeding efficiency in fruit trees</p> <p>KBBE-2010-1-1-02: Deepened and enlarged European cooperation in the area of Molecular Plant Sciences</p> <p>KBBE-2010-1-1-03: Characterization of biodiversity resources for wild crop relatives to improve crops by breeding.</p> <p>KBBE-2010-3-1-01: Promoting global cooperation to facilitate and accelerate knowledge transfer on abiotic stress tolerance of plants</p> <p>KBBE-2010-1-4-05: EU-China Partnership initiative in plant breeding</p> <p>KBBE-2010-1-4-06: EU-Russia Partnership initiative in Microbes - Plants Biodiversities</p>

<i>Expertise offered</i>	<p>GEBI Plant Biotechnology strategic working group performs research on;</p> <p>1) Plant biodiversity and conservation plant genetic resources: -analyzing the exotic and wild plant germplasm with different type of molecular markers, DNA fingerprints; -utilizing DNA based strategies to assist with the identification, selection, and introgression of novel qualitative and quantitative traits in plant breeding; -construction of DNA (genomic DNA/cDNA/BAC/EST etc. libraries) banks for plant germplasm.</p> <p>2) Biotic and abiotic stress tolerance in plants (mainly drought, salt, yellow rust disease): -development of robust molecular markers and marker assisted selection; -construction of physical/genetic maps; -cloning, characterization and transformation of interested genes; -DNA sequencing and multiple quantitative gene expression analysis of interested genes;</p> <p>Technical Abilites</p> <p>Technical abilities are DNA sequencing, fragment analysis of different type of molecular markers, DNA fingerprinting, gene cloning, multiple quantitative gene expression analysis with Beckman GeXp Genetic Analysis system, establishment of tissue culture systems of plants and fast growing trees, gene transfer to plants via Agrobacterium, biolistic and electroporation, plant proteomics by proteomLab PF2D protein fractionation system, robotic systems for large-scale pipetting by Beckman Biomek3000 and NX ArrayPlex Workstations.</p>
<i>Requested partner expertise</i>	Agricultural Biotechnology

PROFILE	
INDIA	Dr. Devindra Amla
	dvamla@rediffmail.com
<i>Areas of activity</i>	Scientist-G
	Novel plant toxins against insect pests, transgenic plants, gene mining for drought tolerance, physiology of drought, water use efficiency.
ORGANISATION	
<i>Name</i>	National Botanical Research Institute (CSIR)
<i>Type</i>	Research Center
<i>Department</i>	Molecular Biology & Genetic Engineering Division

<i>Short description</i>	National Botanical Research Institute (NBRI) is a premier plant based national laboratory under CSIR New Delhi situated at Lucknow. The institute is focused to undertake multi-disciplinary R&D programmes in the area of conservation, prospecting and sustainable utilization of diverse plant genetic resources, other than agricultural crops, with the objectives of prospecting and developing value added plants and plant products in ecologically sound and economically sustainable, in the service of the society and the Nation. Institute is recognized as referral centre by Govt. of India and UN in the matters related to plant biodiversity and IPRs. Institute has developed excellent globally competitive state-of-art infrastructure facilities with high throughput ultra deep genome sequencing system FLX from 454, Mass array sequenom, MALDI-TOF-TOF, IRMS, Affimatrix microarray, ICPMS, LC-MS and GC-MS for functional genomic and metabolomic, studies. Institute currently having several mega projects on development of desired transgenic plants, gene mining for drought tolerance and water use efficiency, herbal technology and assessment of climatic changes on plant population from CSIR, DBT, DST and ICAR.
PROJECT	
<i>Research project</i>	<i>Designing plants for insect-pest resistance and drought tolerance through biotechnological approaches</i>
<i>Short description</i>	Institute has developed state-of-technology and leads in characterization of novel toxins particularly against sap sucking pests, chimeric insecticidal Bt-cry genes, novel promoters for tissue specific and tightly regulated expression, Agrobacterium-mediated transforamtion of recalcitrant crop plants like cotton, chickpea, tomato and groundnut, established promosing transgenic plants resistant to insect pests. Physiological parameters for drought in Jatropha and cotton have been documented and some leads molecules and genes for tolerance to drought amongst lower plants have been investigated. A synergic approach shall be followed under EU-India joint programme to develop the insect-pest resistant and drought tolerant plants of mutual interest to EU-India.
<i>Expertise offered</i>	Expertise are available in the institute for gene designing, gene synthesis, novel promoters for wound and tissue specific expression, plant genetic transformation, functional genomics, transcriptome sequencing and plant metabolomics.

PROFILE	
MACEDONIA	MSci Natalija Atanasova-Pancevska
	atanasovan@yahoo.com
	Teaching and research assistant of microbiology and microbial biotechnology
ORGANISATION	
<i>Name</i>	Ss. Cyril and Methodius University, Faculty of Natural Sciences and Mathematics
<i>Type</i>	University
<i>Department</i>	Institute of Biology, Microbiology Department

<i>Short description</i>	Faculty of Natural Sciences and Mathematics was established during 1946 and played a major role in education and research in the country. It is scientific and higher educational faculty which provides teaching, scholar and applied activities in natural sciences and mathematics. This faculty is part of Ss. Cyril and Methodius University, which has 21 faculties and 9 Research Institutes.
PROJECT	
<i>Expertise offered</i>	Experience and knowledge in microbiology, biotechnology and enzymology of anaerobic fungi, water and food microbiology
<i>Requested partner expertise</i>	We will be working as one of partners in a projects about water or food microbiology, and biotechnology of anaerobic fungi; Research centers involved in the same topics

PROFILE	
ITALY	Dr. Paolo Barberi
	barberi@sssup.it
<i>Areas of activity</i>	Associate Professor in Agronomy and Field Crops Agroecology, Biotechnology, Crop Physiology, Crop Genetics
ORGANISATION	
<i>Name</i>	Scuola Superiore Sant'Anna
<i>Type</i>	University
<i>Department</i>	Land Lab, Plant Lab
<i>Short description</i>	The Scuola Superiore Sant'Anna (SSSUP) is a public university funded by the State to pursue excellence in higher education and research through a multidisciplinary approach. among other things, SSSUP can make full use of and contribute to maintenance of research and experimental facilities at the Centre for Agroenvironmental Research "E. Avanzi" (CIRAA) of the University of Pisa (www.avanzi.unipi.it), where several long-term field-scale experiments on low-input and organic management systems are being carried out. Research carried out at SSSUP is focused on the development of sustainable low-input and organic farming/cropping systems, on functional biodiversity in agroecosystems, on the physiology of higher plants with a molecular and post-genomic approach, on the genetic diversity of staple crops in Europe and ICPC. Additional expertise available at CIRAA is the study of symbioses between plants and arbuscular-mycorrhizal fungi (AMF).
PROJECT	
<i>Research project</i>	<i>International Doctoral Programme on Agrobiodiversity</i>

<i>Short description</i>	<p>The course is aimed to the enhancement of human resource capacities in the utilisation and management of biodiversity in agricultural and natural systems, to improve the sustainability of agricultural systems and the conservation of genetic resources for the well-being of present and future generations. The Programme is structured into two curricula: (a) Plant genetic resources; (b) Functional biodiversity in agroecosystems. Research areas will include the analysis of:</p> <ul style="list-style-type: none"> (i) genetic variation in single genes and entire genomes of agricultural and forestry plants and their wild relatives; (ii) mechanisms that control the variability in genes and/or groups of genes, as those involved in resistance to pathogens and/or pests and tolerance to environmental factors; (iii) role of functional biodiversity in maintaining genetic diversity, including evolution and co-evolution of pests/pathogens and host plants; (iv) role of functional diversity, including interactions between pests/pathogens/weeds and domesticated/volunteer/wild plants, in agroecosystem health; (v) options for applying the acquired knowledge, as a prerequisite for crop improvement, crop protection, sustainable crop/agroforestry management and multifunctional land use. (vi) Physiology of plant adaptation to the environment. <p>Every year 4 to 6 scholarships are available for students from ICPC (including India). Further information: www.sssup.it/agrobiodiversity</p>
<i>Expertise offered</i>	Agronomy, Agroecology, Crop Physiology, Functional Biodiversity, Organic Farming, Plant genetics, Plant genomics, Weed biology and management
<i>Requested partner expertise</i>	Links with research/university partners in any the above-mentioned fields would be welcome

PROFILE	
NETHERLAND	Dr. Madelon Bracke
	Madelon.Bracke@xpanse-biotech.com
	Senior Scientist, Manager Bioreactor Technology
Areas of activity	Mesenchymal Stromal Cells, Bioreactor Technology, Stem Cell Expansion
ORGANISATION	
Name	Xpanse Biotechnology
Type	SME
Department	Bioreactor Technology
Short description	Xpanse Biotechnology BV is a Dutch life sciences company that focuses on stem cell expansion for clinical applications. At Xpanse Biotechnology BV, an innovative automated, closed bioreactor system is being developed that can be placed on location (in the hospital) with which patient-own adult stem cells can be culture expanded in clinically required quantities (200 to 800 million cells). This adult stem cell expander is generic and will allow use of the cells for many different clinical applications, including myocardial and vascular regeneration. The company is ISO 9001 certified. Xpanse has ample experience with writing, contributing to and executing large projects, including EU projects. Xpanse has many national and international collaborations with academic partners and partners in industry.
PROJECT	
Research project	<i>Development of an innovative automated, closed bioreactor system to culture expand patient-own (autologous) adult stem cells in clinically required quantities (200 to 800 million), on location in the hospital.</i>
Short description	Bioreactor technology forms the base for monitoring and controlling stem cell expansion at Xpanse. Adult stem cells or mesenchymal stem cells have the capacity to form various types of tissue such as bone, cartilage, neurons, fat, endothelium and cardiac muscle. An important source for adult stem cells is bone marrow. However, the yield of multipotent stem cells in bone marrow is very low, and cell numbers need to be increased. Therefore 3D culturing conditions are set up to increase the number of cells without increasing the culturing volume. These cells can be used for autologous (patient-own) implantation to treat various tissue disorders varying from bone defects to cardiovascular disease. In addition expanded stem cells can be used as a screening platform for the discovery of new drugs, small molecules and genes.
Expertise offered	Xpanse Biotechnology employees have a strong background in cell process development, adult stem cell culturing techniques, bioreactor technology, and tissue engineering.
Requested partner expertise	Xpanse Biotechnology is looking for partners who are interested in co-developing the adult stem cell technology for clinical applications, such as cardiovascular diseases, skeletal and neural disorders.

PROFILE	
FRANCE	Dr. Serge BRACONNIER
	serge.braconnier@cirad.fr
	Senior scientist / Coordinator of SWEETFUEL project
Areas of activity	Ecophysiology, modeling, breeding, climate change
ORGANISATION	
Name	Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)
Type	Research center
Department	Biological Systems Department
Short description	CIRAD is an industrial and commercial public establishment placed under the joint authority of the Ministry of Higher Education and Research, and Ministry of Foreign and European Affairs. Its mandate is to conduct research centring on the Millenium Development Goals, in which methods and knowledge are built in partnership with stakeholders in developing countries, to contribute to development and poverty alleviation.
PROJECT	
Research project	<i>Sweet sorghum: an alternative energy crop (SWEETFUEL)</i>
Short description	<p>Increasing world market prices for fossil fuels, driven by limited reserves, growing demand and instability in producing regions, now render renewable fuels economical. Such fuels are also a pathway to reducing GHG emissions and mitigating climate change. Bio-ethanol from crop plants is a promising, partial solution to sustainably satisfy the energy demand for road transport. Sweet sorghum, as a source of either fermentable free sugars or lignocellulosics, has many potential advantages, including: high water, nitrogen and radiation use efficiency; broad agro-ecological adaptation; rich genetic diversity for useful traits; and the potential to produce fuel feedstock, food and feed in various combinations. Fuel-food crops can thereby help reconciling energy and food security issues. This project will breed for improved cultivars and hybrids of sorghum for temperate, tropical semi-arid and tropical acid-soil environments by pyramiding in various combinations, depending on region and ideotype, tolerance to cold, drought and acid (Altoxic) soils; and high production of stalk sugars, easily digestible biomass and grain (WP 1- 3). Molecular - genetic and physiological breeding support is given by WP4, and agroecological adaptation and sustainable practices are developed by WP5. Other WPs (6, 7, 8) provide for integrated technology and impact assessments including economics, dissemination and coordination. The Consortium is composed of 10 members from France (leader), Italy, Germany, Brazil, India, Mexico and South Africa, including a seed company. Research involves structured participation of stake holders, including policy makers. Project outcomes will be new germplasm, sustainable practices and commodity chain concepts adapted to each target region. The duration of the project is 5 years.</p>

<i>Expertise offered</i>	<p>CIRAD can provide expertise in the fields of:</p> <ol style="list-style-type: none"> i. agricultural production, ii. production, iii. Forest management, iv. Food and product processing, v. Natural resources vi. Rural territories <p>and according the following six priorities lines:</p> <ol style="list-style-type: none"> i. ecological intensification, ii. Biomass energy, iii. Food, iv. Animal health and emerging diseases v. public policy vi. Rural areas.
<i>Requested partner expertise</i>	<p>Research centers involved in the same topics as CIRAD and/or SWEETFUEL partners. Private sectors interested in developing new tools for crops production</p>

PROFILE	
SWEDEN	Prof. Anders Brahme
<i>Areas of activity</i>	<p>anders.brahme@ki.se</p> <p>Professor</p> <p>Light Ion radiation biology</p>
ORGANISATION	
<i>Name</i>	Karolinska Institutet
<i>Type</i>	University
<i>Department</i>	Medical Radiation Physics
<i>Short description</i>	Scientific use of radiation for Therapy and Imaging
PROJECT	
<i>Research project</i>	<i>Maximizing senescence and apoptotic tumor cell kill with light ions</i>
<i>Short description</i>	To identify the optimal ion for curative cancer therapy
<i>Expertise offered</i>	Mathematical bio effect modelling
<i>Requested partner expertise</i>	Radiation biologists

PROFILE	
ITALY	Dr Diego BREVIARIO
	breviario@ibba.cnr.it
	Staff Research, Head of Biotechnology Branch
Areas of activity	Molecular genetics, functional and structural genomics, oil plants, biodiesel
ORGANISATION	
Name	Istituto Biologia e Biotecnologia Agraria IBBA -Consiglio Nazionale delle Ricerche CNR
Type	Research Center
Department	Agri-Food Department CNR Rome Italy
Short description	<p>IBBA-CNR is a leading National Institute in the field of agricultural research with a wide and robust International recognition. IBBA-CNR is currently collaborating with no less than 30 different research Institutions world-wide. Main activities are carried out in the field of post-genomics dealing with the isolation and the characterization of numerous genes from plants, animals and microorganisms. Genes are studied for their functional role within the cells and are used, when appropriated, for biotechnology purposes generally through gene-mediated transformation. Historical major fields of investigations are those concerning gene expression, protein synthesis and assembly, intracellular trafficking, cell cytoskeleton and plant morphogenesis, cytogenetics and plant transformation. Since few years now, IBBA-CNR has developed great interest in the fields of biodiversity, nanotechnology and bioenergy. To this later regard, IBBA-CNR has recently gained a financial support from the Regione Lombardia (project Mind in Italy 2007-2010) to develop studies on oil producing plants that can grow in the climate of North Italy (Camelina sativa, Oilseed rape). Also, it is 2 years now that IBBA-CNR organizes and holds a Master Program in Bioenergy (http://www.master-bioenergia.org). Of recent, IBBA-CNR has been collaborating with the Institute for Research on Environment & Susatinability of the Newcastle University and the Directorate of Oil seed research of Hyderabad India for the genetic characterization of several world-wide spread accessions of Jatropha curcas. In addition, IBBA-CNR has just concluded a collaboration with the Malaysian Palm Oil Board (MPOB) Organization on the project "Somaclonal variation in oil palm : cytogenetic and molecular analysis of reproductive processes.</p>
PROJECT	
Research project	<i>A multiple approach for a decisive improvement of J.curcas sustainable exploitation</i>

Short description

This project proposal stems out from contacts and collaborations that, to a different extent, have been already established with the following Indian researchers and affiliated Institutions : Dr Saikia Siddhartha (CSIR : Council of Scientific & Industrial Research, North East Institute of Science & Technology, Jorhat) within the frame of a recently approved bilateral CNR-CSIR collaborative project; Dr. Muppala Reddy (Central Salt and Marine Chemicals Research Institute, Bhavnagar) within the context of a EC FP7 submitted proposal, presently registered in a reserve list ; Dr. Mulpuri Sujatha upon a free scientific collaboration. Conversely, our lab has been contacted by a couple of Italian companies that are cultivating *Jatropha curcas* in different African Countries. The project intends to move toward a concrete, decisive improvement in *J. curcas* exploitation as a bio-diesel producing plant providing remedy to two of the actual, widely recognized, strong limitations, that are : 1. instability, unpredictability, variability of yields (flower numbers/plant ; female to male flower ratio ; seed setting and number ; oil content) 2. restricted genetic base. Both limitations relates to the fact that currently spread *Jatropha curcas* accessions should be substantially considered as landraces since no selection, no domestication, no elite cultivars have been established yet. This has profound consequences on seed and oil productivity, more so when considering that the accessions currently under worldwide cultivation (with exception of some in central America that is considered the Centre of origin of this plant) share an astonishingly similar genetic background, verified with the use a wide panel of different molecular markers. So, we have an extremely variable phenotypic development, ultimately resulting in fluctuating yields, and a highly homogeneous genotype. This last issue is currently driving a lot of attention on the possible contribution that epigenetics (i.e. DNA methylation) may give to plant phenotypic variability. All these subjects , and more, are part of ongoing or planned research plans that have been elaborated with our Indian colleagues.

In fact : 1. Under the sponsorship of the CNR and CSIR organizations, our lab and Dr. Saikia's have planned to study the difference in yield production, plant performance, oil content and genome methylation status of different Indian and African *J. curcas* accessions, all characterized by a panel of conventional or unconventional molecular markers. This will also be done by comparing plants propagated from cuttings or seedlings, the former more homogeneous for their genetic base but supposed to have a reduced longevity. 2. Under the possible sponsorship of the EC FP7 KBBE-2009-3 programme, our lab and Dr. Reddy's have planned a systematic, marker-assisted selection of *J. curcas* accessions that show more interesting parameters in relation to flowering time, number of flowers , number of seeds, oil content and composition, phorbol ester and other toxins content. Plants selected for their best score will be used in breeding programmes aimed to eventually established a stable and productive cultivar that should also preferentially exhibit a more variable genomic profile. 3. To this regard, the work performed in collaboration with Dr. Sujatha will come of help since interspecies hybrids were produced and genetically characterized with the help of several molecular markers. Hybrids have an enlarged genomic variability and are ready to be used to develop new germplasm through in vitro manipulation techniques, to surmount the sterility barrier. In conclusion, the goal of the project is to eventually overcome limitation 1 and 2 by a variety of experimental approaches that, while disclosing the molecular basis of phenotypic variability, provide new germplasm with a wider genetic background in otherwise highly productive plants.

Expertise offered

Molecular genetics; structural genomics ; epigenetics; oil and protein biochemistry; plant cell biology ; project managing

Requested partner expertise

Agronomy ; Agricultural practices ; Plant Biology ; oil chemistry, biorefinery, toxins

PROFILE	
INDIA	Mr Sunil CHAWLA
	Director
	sunil@seascapelearning.com
<i>Areas of activity</i>	drug discovery, computational chemistry, toxicology
ORGANISATION	
<i>Name</i>	Seascape Learning
<i>Type</i>	SME
<i>Short description</i>	Seascape is a international collaborative offering computational chemistry software, R&D projects and education services in drug discovery and material sciences.
PROJECT	
<i>Research project</i>	OPENTOX – A Framework for Predictive Toxicology
<i>Short description</i>	Develop a framework for predicitive toxicology a EC funded FP7 Project being led by Douglass Connect in Switzerland
<i>Expertise offered</i>	Scientific software development and related research in collaboration with top Indian Researchers.
<i>Requested partner expertise</i>	A project where our value-add is complementary

PROFILE	
France	Dorothee Browaeys
	dorbro@neuf.fr
<i>Areas of activity</i>	nanotechnology, synthetic biology, environmental health
ORGANISATION	
<i>Name</i>	VIVAGORA
<i>Type</i>	SME
<i>Short description</i>	Our NGO is devoted to citizen engagement in technological choices. We develop specific process to enhance the pluralism of information, the public debates with stakeholders and the open and responsible innovation
PROJECT	
<i>Research project</i>	<i>Expertise on Nanotechnology and the developing countries</i>
<i>Short description</i>	The project tends to analyse the real opportunities of nanotechnologies for people fromemerging countries. We work with the French agency for the development for this specific expertise
<i>Expertise offered</i>	Contribution on this subject

Requested partner expertise

Energy Agency in India
Food and toxicology Agency for analysis on potential impacts

PROFILE	
BELGIUM	Mihai Costea
	mihai_costea@bromotion.be
	Senior Advisor
ORGANISATION	
<i>Name</i>	BROMOTION Consultancy
<i>Type</i>	Representation – Liaison with EC, EP, accredited to EP Activities: Advocacy&lobbying, project management, energetic concept, business plans, development strategies, (pre)feasibility studies, research, analysis and evaluations. Main areas of intervention: <ul style="list-style-type: none"> • Renewable Energy Sources/EE. Energetic Concept Developing • Integrated urban development, including innovative elements -PPPs, financial engineering instruments JESSICA • Rural Development - LEADER • Development of SMEs - innovation JEREMIE • win-win partnerships aggregation

PROFILE	
ITALY	Dr. Roberto Defez
	defez@igb.cnr.it
<i>Areas of activity</i>	nitrogen fixation, salt stress, phytohormone, P solubilization, IAA, Legumes, yield increase, intercropping
ORGANISATION	
<i>Name</i>	CNR - National Reseach Council
<i>Type</i>	Research Center
PROJECT	
<i>Research project</i>	<i>Improving legume yield by bacterial phytohormone delivery</i>

<i>Short description</i>	Increasing IAA production in Rhizobia leads to higher nitrogen fixation, increased central metabolism and storage compound accumulation, higher resistance to salt stress and increase in plant and seeds dry weight production
<i>Expertise offered</i>	Molecular biology, biochemistry
<i>Requested partner expertise</i>	field trials specialist, agronomy; industrial seed company

PROFILE	
Ireland	Dr. Philip Dix
	phil.dix@nuim.ie
<i>Areas of activity</i>	Professor of Biology Stress tolerance in plants, chloroplast engineering, plant pharming
ORGANISATION	
<i>Name</i>	National University of Ireland Maynooth
<i>Type</i>	University
<i>Department</i>	Biology
	<p>Following two centuries of internationally renowned scholarly activity on the Maynooth campus the National University of Ireland, Maynooth was established under the 1997 Universities Act as an autonomous member of the federal structure known as the National University of Ireland. With approximately 8,400 registered students, NUI Maynooth has 26 academic Departments which are organized into three Faculties: Arts, Celtic Studies and Philosophy; Science and Engineering, and Social Sciences.</p> <p>Building on a tradition of scholarship and excellence in all aspects of its Teaching and Learning, and research activities, within the liberal arts and sciences tradition NUI Maynooth is committed to being a first class research-led centre of learning and academic discovery.</p>
PROJECT	
<i>Research project</i>	<i>Chloroplast engineering to improve the environmental stress tolerance of crop plants</i>
<i>Short description</i>	The chloroplast is the most vulnerable target for environmental stress induced damage in plants, whether due direct effects of temperature extremes, drought, salinity etc., or to the resultant elevation of reactive oxygen species (ROS) leading to oxidative stress. Our expertise in chloroplast transformation enables us to explore the potential for engineering the chloroplast for improved resistance to stress through several alternative strategies including ROS-scavenging enzymes, elevated compatible solutes, and modified fatty acid metabolism. We would like to extend our findings with a model system (tobacco) to important crops in India, through collaboration with interested Indian scientists.
<i>Expertise offered</i>	A complete range of molecular biology skills, plant tissue culture and genetic transformation. Extremely specialised expertise in the transformation of chloroplasts.
<i>Requested partner expertise</i>	Plant scientists with experience and knowledge of crop physiology, and an interest in

physiological investigations into the physiological basis of abiotic stress damage and tolerance. Familiarity with basic tissue culture procedures for potential target crops in India might also be helpful.

PROFILE	
TURKEY	Prof. Sara Dolar
	dolar@agri.ankara.edu.tr
<i>Areas of activity</i>	Plant Diseases, Pathotoxin, Plant Microbe Interaction, Molecular Plant Pathology
ORGANISATION	
<i>Name</i>	Ankara University
<i>Type</i>	University
<i>Department</i>	Plant Protection
PROJECT	
<i>Research project</i>	<i>Geographic distrubution, genetic and pathogenic diversity of Fusarium oxysporum f.sp. ciceris on chickpea and determination of resistance sources using molecular markers</i>
<i>Short description</i>	The scopes of project are to detect pathogenic and genetic diversity among geographical populations of Fusarium oxysporum f.sp. ciceris, to renovate international differential lines to new races of pathogen and to optimize disease assessment under different conditions, to determinate available resistant germplasm against common races, to improve resistance breeding programs using molecular markers and to develop chemical control methods.
<i>Expertise offered</i>	We undertake determination of molecular and pathogenic differences among geographic populations and of reaction of avaiable chickpea cultivars to genetically different isolates in Turkey, and development of chemical control methods.
<i>Requested partner expertise</i>	We request detection of molecular markers associated wthih resistance genes against Fusarium wilt, screening of chickpea genotypes for this disease resistance, determination of more practicable differential lines for screening pathogenic variability within different populations, and development of chemical control methods.

PROFILE	
Slovakia	Phd Julius Durmis
	durmis@synkola.sk
	Executive chief
<i>Areas of activity</i>	Chiral active drug substances, synthesis

ORGANISATION	
Name	SYNKOLA, Ltd.
Type	SME
Description	SYNKOLA, Ltd. was founded on the 1st January 1991 in Bratislava by three partners. They have long-time and international experience in the area of organic substance synthesis and especially in the area of biologically active substances and chemical specialties. They are authors of more than 200 scientific publications and more than 150 patents; many of them have been realized in technical praxis. Nowadays, the organization employs 14 top chemists with Ph.D. qualification, who have graduated post-doctoral and other fellowships at prominent foreign universities and institutes – especially in Switzerland (ETH Zurich), in the USA, France, Canada, Sweden, etc
PROJECT	
Research project	Synthesis of new neuramidinaze inhibitors
Short description	Synthesis of new chiral active drugs against flu. Preparation of compounds for screening and testing.
Expertise offered	Highly qualified staff with good conditions for synthesis of complicated chiral compounds including equipments. Long time experiences in cooperation with big life science companies as well in synthesis of neuramidinaze inhibitors.
Requested partner expertise	Coordination of project, biological screening

PROFILE	
ITALY	Prof. Fabio FAVA
	fabio.fava@unibo.it
Areas of activity	anaerobic digestion; polyhydroxyalkanoates; agro-industrial wastes; municipal solid waste; packed-bed biofilm reactors
ORGANISATION	
Name	University of Bologna
Type	University
Department	Department of Applied Chemistry and Material Science (DICASM)
PROJECT	
Research project	Anaerobic digestion of agro-industrial wastes or of the organic fraction of municipal solid waste for the production of a) a CH₄-rich biogas or b) a VFA-rich effluent, to be employed as the substrate for aerobic biopolymer (polyhydroxyalkanoate) production
Short description	<p>The project aims at valorizing agro-industrial wastes or the mechanically sorted organic fraction of municipal solid waste (MS-OFMSW) through their organic matter anaerobic biotransformation into methane or a mixture of volatile fatty acids (VFAs), representing the substrate for a subsequent aerobic process for polyhydroxyalkanoate production. MS-OFMSW generally contains heavy metals and/or other agents which inhibit the anaerobic microflora: thus, the project has the objective of select a microbial consortium able of effectively digest such a matrix, through a co-digestion approach and by slowly decreasing the co-substrate amount in the feed. In case of agro-industrial waste employment, the process is carried out in packed-bed biofilm reactor, which is typically more robust and stable when fed with high and fluctuant organic loads. If VFA are produced, anaerobic digestion process would be carried out under acidogenic conditions so to avoid VFA biodegradation by methanogenic populations. The effluent is then fed to a SBR mixed culture aerobic process under "feast and famine" conditions, by which select microbial population able to store polyhydroxyalkanoates as a carbon and energy source. The selected mixed culture is finally fed with a high VFA load so to maximize the biopolymer production (cooperation with Prof. Majone, Sapienza University, Rome)</p>
Expertise offered	<p>Development of conventional and packed-bed biofilm anaerobic/aerobic batch/continuous processes; anaerobic digestion processes carried out under acidogenic or methanogenic conditions.</p> <p>Chemical and microbiological process monitoring (COD, VFAs, main inorganic ions, biogas volume and composition, microbial characterization via DGGE)</p>
Requested partner expertise	Partners interested in similar activities which could carry out a parallel research by valorizing different waste, i.e. the one typically produced in India

PROFILE	
Spain	Dr. Cristina Ferrandiz Tenured Scientist
<i>Areas of activity</i>	molecular genetics, legumes, Arabidopsis, plant development, flowering, flower and fruit development
ORGANISATION	
<i>Name</i>	CSIC, Consejo Superior de Investigaciones Cientificas
<i>Type</i>	Research center
<i>Department</i>	CSIC institute: IBMCP, Instituto de Biologia Molecular y Celular de Plantas); Dpt: Plant Development
<i>Short description</i>	CSIC is an autonomous, multidisciplinary public research organization affiliated to the Ministry of Science and Innovation, with its own legal personality, its own assets and a presence throughout Spanish territory. The CSIC consist of more than one hundred institutes with a permanent staff of over 4500 employees.
PROJECT	
<i>Research project</i>	<i>Genetic networks directing carpel patterning and fruit development</i>
<i>Short description</i>	Our work is directed to understand the genetic networks controlling carpel development and fruit morphology in legumes. We aim to gain knowledge that ultimately could lead to molecular breeding and biotechnological tools related to traits such as pod shape and texture, pod shattering or seed number per pod. We are currently focusing on transcription factors that control lignin content and shattering in the pod
<i>Expertise offered</i>	molecular genetics of legumes (pea and Medicago truncatula) and Arabidopsis, in situ hybridization, scanning electron microscopy, laser microdissection
<i>Requested partner expertise</i>	genetic transformation of legume species, QTL analysis

PROFILE	
France	Jean Marie Francois
	fran_jm@insa-toulouse.fr
<i>Areas of activity</i>	Professor, Head of research team in Molecular Microbial Physiology of eukaryotes (yeasts and filamentous fungi) Biochemistry, Bioengineering, functional genomics, Systems Microbiology, white and green biotechnology Applied genomics
ORGANISATION	
<i>Name</i>	University Toulouse, National Institute of Applied Sciences
<i>Type</i>	University
<i>Department</i>	Laboratory of Systems Biology and Bioprocess, UMR-CNRS 5504

PROJECT	
<i>Research project</i>	University, and School of Engineer. 7 different domain in education and researches. In this case, the education is on Biochemical / Bioingener / Biotechnology with application in white biotechnology and environment
<i>Short description</i>	<i>Molecular Microbial Physiology in yeasts and filamentous fungi</i>
<i>Expertise offered</i>	The main activity deals with a systems approach (mainly molecular characterization of genetic and metabolic) of fungal adaptation (yeast and filamentous fungi) to environmental stresses (mimicking industrial constraints) with emphasis on integrated carbon and energy metabolism, cell wall organization, and genomic instability
<i>Requested partner expertise</i>	Molecular biology, Metabolic regulation, functional genomics, bioanalytical tools, bioprocess and fermentation expertise
	expert in Biochemistry , modelling of complex systems as well as in Bioinformatics,

PROFILE	
Spain	Prof. Fernando Garcia - Arena
	fernando.garciaarenal@upm.es
<i>Areas of activity</i>	Professor of Plant Pathology and Director at CBGP Plant virology
ORGANISATION	
<i>Name</i>	UNIVERSIDAD POLITÉCNICA DE MADRID
<i>Type</i>	University
<i>Department</i>	Centro de Biotecnología y Genómica de Plantas The Centro de Biotecnología y Genómica de PLantas is a joint venture of Universidad Politécnica de Madrid (UPM) and Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA) for research in plant biotechnology and genomics with the aim ti improve the productivity of the primary sectors
PROJECT	
<i>Research project</i>	<i>Population genetics and dynamics of plant virus populations</i>

<i>Short description</i>	My research interest is the evolutionary ecology and population genetics of plant-virus interactions as related to emergence of new virus diseases and to the sustainability of strategies for the control of plant viruses
<i>Expertise offered</i>	Epidemiology, analyses of plant virus variability, population genetics of plant viruses
<i>Requested partner expertise</i>	Epidemiology and diagnosis

PROFILE	
ROMANIA	Dr. Eugen Gheorghiu
	office@biodyn.ro
	Director
<i>Areas of activity</i>	Optical and electrochemical sensing using biological recognition elements (including living cells), Assessment of cytotoxicity using unconventional analytical tools, portable analytical tools
ORGANISATION	
<i>Name</i>	International Centre of Biodynamics
<i>Type</i>	Research Center
<i>Short description</i>	<p>According to the Agreement between UNESCO and Romanian Government, the International Centre of Biodynamics-ICB has been established through the decision No. 1378/2000 of the Romanian Government, under the aegis of UNESCO, as a non-profit organization of general interest and public utility. ICB initiates and coordinates research & graduate training programs in the field of Biodynamics, for development of noninvasive, sensitive and cost effective methods to analyze and control biosystems of various hierarchies.</p> <p>Biodynamics is a multidisciplinary field focused on appraisal of biosystems or/and of their dynamics using non invasive, real time assays and (non)linear data analysis. The potential applications of these methodologies have far reaching implications for Ecology, Food industry, Bio-Medicine and Pharmaceutical industry. Some examples are: fast detection of analytes, e.g. contaminants or/and toxic compounds in liquid media, biomass monitoring etc</p> <p>ICB conducts and is involved in a number of collaborative national and international research projects having the following headlines:</p> <ul style="list-style-type: none"> • Characterization techniques for cellular systems, with emphasis on noninvasive, real-time monitoring • Biomass and cell cycle progression monitoring • Detection of contaminants and adulterates in food products and water (microbes, heavy metals, antibiotics & toxins)

	<ul style="list-style-type: none"> • Biomedical applications - hematological assays, pre-clinical drug screening, monitoring of tissues, organs (including ischemic processes), and cell suspensions • Monitoring & Nonlinear Analysis of the effects of external agents on the evolution of cellular systems (drugs, toxic compounds, EM radiation, etc) <p>The International Centre of Biodynamics actively pursues the development of its regional collaborative network that brings together researchers from Romania and of other European Countries</p>
PROJECT	
<i>Research project</i>	<i>Effective portable affinity and cellular platform to detect pathogen bacteria in food</i>
<i>Short description</i>	<p>Detection of bacteria by colony counting and PCR-based methods is either time consuming or requests complex sample preparation steps and expensive instrumentation. Therefore, there is a clear need for novel analytical tools offering rapid detection of bacteria. The present project advances an integrated analytical platform using affinity molecules and living cells (as recognition elements), and several optical and electrochemical methods (as means to translate biorecognition events into useful analytical signals), to detect bacteria in a timescale that is reasonable for use in food industry. Improving the detection limit, shortening the assay time, identifying alternatives to commonly used antibodies, engineering living cells for a convenient observation of bacterial attacks represent the major challenges of this project</p>
<i>Expertise offered</i>	<p>International Centre of Biodynamics (ICB) has expertise in development of (portable) electro-optical biosensors and cellular platforms for detection of contaminants (from heavy metals & antibiotics to toxins and pathogen micro-organisms). ICB has already been involved in several FP's projects e.g., FP5- Aframilk (development of novel methods to assess fraud in milk), two FP6 projects (ROBIOS and CHARPAN) on biosensing and nano-biosensing and one FP7 (NanoMagma) on (bio)sensing using magnetic SPR.</p> <p>Latest developments address:</p> <ul style="list-style-type: none"> - novel electro-optical assays (Electrochemical & SPR, TIRF) to interrogate cellular platforms to appraise cytotoxicity of various compounds, including pharmaceutical products; - experimental and theoretical assays to emphasize the multiphasic, non-monotonous process of interaction between membrane disrupting compounds and lipid membranes <p>Fine research facilities comprise: Biacore 3000 SPR system, Nanowizard II AFM from JPK AG, TIRF microscope from Zeiss and a comprehensive set of electrochemical instrumentation (e.g., Solartron, Agilent, or home made) as well as facilities for thin layer deposition and for culturing cells</p>
<i>Requested partner expertise</i>	<p>Research Institute with expertise in:</p> <ul style="list-style-type: none"> - purification of novel biorecognition elements (both catalytic and affinity) - development of novel reporter cells (i.e. tailor cellular sensitivity to very specific analytes) - development of novel nanomaterials (including magnetic ones) for biosensing applications - use of surface modified magnetic nanoparticles for separation and manipulation (of biomolecules and cells) - microfabrication of miniaturized optical and electrical detectors and microfluidic systems <p>II. End-user for validation and exploitation of the developed analytical platforms (Environmental Protection Agencies, Institutes of Public Health, Industrial partners, etc.).</p>

PROFILE	
ISRAEL	Prof. Amiram Goldblum
	amiram@vms.huji.ac.il
	Head of Laboratory of Molecular Modeling and Drug Design
Areas of activity	Drug Design
ORGANISATION	
Name	The Hebrew University of Jerusalem
Type	University
Department	Medicinal Chemistry The Institute for Drug Research has four drugs on the market and dozens of patents for potential new drugs. One of the drugs, Excellon (Novartis) was sold for \$ 800 Million in 2008. My personal activity is to lead the molecular modeling and drug design efforts in the institute.
PROJECT	
Research project	<i>New Optimization methods for extremely complex problems in the life sciences, biotechnology and drug design and development</i>
Short description	We developed a novel algorithm (First prize in the American Chemical Society Symposium, Washington D.C. 2002) to optimize and find a large set of optimal solutions to highly complex ("combinatorially explosive") problems. The algorithm called Iterative Stochastic Elimination (ISE) is a generic search and optimization method in highly complex problem spaces, and has already led to the discovery of new active enzyme inhibitors and to the design of peptides that inhibit proliferation of chronic myeloid leukemia cells.
Expertise offered	Discovery of novel molecular entities for biological targets. Acceleration of discovery project in the preclinical phase of hit and lead discovery. Developing new Algorithms and applying them for optimizing drug design and drug development; for hit finding, hit to lead programs, focused molecular libraries. Application of "indexing" to all fields of pharmacokinetics and pharmacodynamics, in particular for ligand-target affinities, metabolism, hErg and general toxicities, solubilities, blood brain barrier passage and other important drug characteristics. Design of proteins and peptides.
Requested partner expertise	Pharmaceutical companies that have a drug discovery program or are planning to try drug discovery. Biotechnology companies that wish to develop novel proteins and peptides.

PROFILE	
GERMANY	Prof. Udo Johanningmeier
	kanzler@uni-halle.de
	Professor
<i>Areas of activity</i>	Biotechnology, Photosynthesis, Protein expression in chloroplasts, Green algae, Chlamydomonas
ORGANISATION	
<i>Name</i>	Martin-Luther-University Halle-Wittenberg (MLU)
<i>Type</i>	University
<i>Department</i>	Institute for Biology, Division Plant Physiology The Martin-Luther-University has about 17.000 students. Its natural science departments have a long tradition in plant research.
PROJECT	
<i>Research project</i>	<i>Production of bioactive compounds in chloroplasts of green algae for food, feed, bioremediation and biosensor development</i>
<i>Short description</i>	We are currently exploiting beneficial effects of bioactive peptides/proteins, specifically their antioxidative and antimicrobial properties, by expressing them in chloroplasts of the model organism Chlamydomonas reinhardtii using genetic engineering techniques without the use of antibiotics for selection. This green alga has a GRAS-status (Generally Recognised As Safe) according to FDA and thus has a potential role for food and feed applications.
<i>Expertise offered</i>	Chloroplast transformation of green algae with antibiotic-free selection procedures.
<i>Requested partner expertise</i>	Application- and research-oriented partners

PROFILE	
INDIA	Dr. Hem JOSHI
	hcj_env@yahoo.com
	Principal Scientist and Head
<i>Areas of activity</i>	Wastewater irrigation, pollution control
ORGANISATION	

<i>Name</i>	Environmental Sciences Division, Indian Agricultural Research Institute
<i>Type</i>	Research Center
<i>Department</i>	Agriculture
PROJECT	
<i>Research project</i>	<i>Quantification of thresholds for safe utilization of distillery effluent in agriculture in different agro-climatic regions.</i>
<i>Short description</i>	Distilleries producing alcohol from molasses are recognized among the most polluting agro-based industries in India. Distillery effluent generated by distilleries generally known as spent wash is normally disposed off in nearby carrier drains after primary or secondary treatments. There is always a threat to ground water pollution in adjoining areas of the plants. This effluent being rich in potassium, nitrogen, calcium, magnesium, sulfur and other micronutrients may serve as a source of composite fertilizer. Evaluation of ecofriendly utilisation of this effluent will help in harnessing its nutrient potential and pollution control.
<i>Expertise offered</i>	To develop ecofriendly packages for waste water use in agriculture
<i>Requested partner expertise</i>	Water pollution control through environmentally safer practices for agricultural use of wastewaters

PROFILE	
SPAIN	Dr. Ramon Juste
	rjuste@neiker.net
	Head of Department
<i>Areas of activity</i>	Animal Diseases, zoonosis
ORGANISATION	
<i>Name</i>	Neiker-Tecnalia
<i>Type</i>	Research Center
<i>Department</i>	Animal Health Research and Development in Agriculture, Husbandry and Environment
PROJECT	

<i>Research project</i>	<i>Control and comparative pathogenesis of inflammatory bowel diseases</i>
<i>Short description</i>	The project is focused on the improvement of the knowledge on the diagnostics, prevention and pathogenesis of paratuberculosis in ruminants as a way to reduce economic losses and to decrease risks for humans. We develop strategies to increase the resistance of animals to slow infections by immunization and genetic selection and study the epidemiology and preventive and therapeutic effects of field application of some specific measures like vaccination, testing and culling, molecular diagnostics, etc.
<i>Expertise offered</i>	In depth knowledge on slow infections (bacterial and viral) pathogenesis, diagnostics, molecular biology, epidemiology and control
<i>Requested partner expertise</i>	Comparative pathology and diagnosis, access to field material

PROFILE	
BULGARIA	Dr. Vessela Kancheva
	vedeka@abv.bg
<i>Areas of activity</i>	Group Leader: "Lipid Oxidation Stability and Structure-Antioxidant Activity Relationship Antioxidants, biological activity, lipid oxidation, oxidative stress, irradiation, nutrition, human prevention and health, structure-antioxidant activity relationship
ORGANISATION	
<i>Name</i>	Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences
<i>Type</i>	Research Center
<i>Department</i>	Lipid Chemistry
	The Institute of Organic Chemistry with Centre of Phytochemistry (IOCCP) at the Bulgarian Academy of Sciences was founded in 1960. Since its foundation the Institute has been playing an important role in Bulgaria as a leading scientific institution in the field of organic chemistry. (www.orgchm.bas.bg)
PROJECT	
<i>Research project</i>	<i>New bio-antioxidants for improving human nutrition and health</i>

<i>Short description</i>	<p>One of the main purposes of the proposed project is to join the efforts and competence of researchers from various areas and by a high level of scientific investigations to combine their knowledge, experience and expertise with nature's wisdom aiming to develop effective antioxidant compositions with poly - functional activity, which can be used for prevention and successful therapy of various diseases.</p> <p>To propose new antioxidants (individual compounds and complex mixtures) with biological activity on the base of results of the structure-antioxidant-biological activity relationship study, effective against oxidative stress and irradiation.</p> <p>For the achievement of this goal two main strategies could be employed: (1) combination of different functional fragments in one molecule, which have synergetic activity during the different stages of the complex multistage process of lipid oxidation and (2) formulation of multi-component compositions from natural product extracts, with a high content of polyphenol antioxidants and various additives as natural antioxidants, vitamins, etc, that would ensure synergism between them.</p>
<i>Expertise offered</i>	<p>1.Effect of different extraction and fractions from natural sources (medicinal plants, spices, propolis) on the lipid oxidation stability. 2.Effect of lipid hydroxy compounds (fatty alcohols, mono- and diacyl-glycerols) on the efficiency of various phenolic antioxidants.</p> <p>3.Kinetics and mechanism of lipid oxidation in presence of prooxidants, antioxidants and surfactants. 4.Application of combinations of kinetic, spectral and theoretical methods to explain structure- antioxidant activity relationship of various synthetic and natural antioxidants. 5.Kinetics and mechanism of action of mono-, bi- and poly-phenols in lipid oxidation in homogeneous and micro heterogeneous media. 6.Kinetic and computer modeling of phenoxy/aroxy radicals' reactions during initiated and autoxidation process.</p>
<i>Requested partner expertise</i>	<p>The increased interest towards the natural antioxidants and their application potential has an impact on the industrial manufacture of food and pharmaceutical products. In this respect, the development of new nontoxic highly effective antioxidants would be a promising goal, likely to be applied in the future. To maintain this, an integrated concept will be implemented by bringing together partners with multidisciplinary expertise and proprietary techniques spanning the area of research. Their expertise include lipid chemistry and technology, analytical chemistry, food technology, biotechnology, homogeneous and heterogenic catalysis, chemical kinetics, drug design and synthesis, chemistry of natural products, quantum chemistry, statistics, lipid oxidation and stability, structure-activity relationship of different antioxidants-synthetic and isolated from natural origin.</p>

PROFILE	
SWEDEN	Phd Elena KASHUBA
	Elena.Kashuba@ki.se
	Associated professor
<i>Areas of activity</i>	Cell transformation, protein-protein interaction, nanomedicine
ORGANISATION	
<i>Name</i>	Karolinska Institutet
<i>Type</i>	University
<i>Department</i>	Microbiology, Tumor and Cell Biology
<i>Short description</i>	Academic Institution, see www.ki.se
PROJECT	
<i>Research project</i>	<i>Delivery of proteins and RNA/DNA immobilized/bound to nanoparticles into t cell in vitro</i>
<i>Short description</i>	It is collaborative project with Professor Chanchal Mitra from Hyderabad University, India
<i>Expertise offered</i>	We have an expertise in cell culture, cell transfections, cell imaging, protein-protein interaction etc at KI
<i>Requested partner expertise</i>	Professor Chanchal Mitra is an expert in chemistry of nanoparticles

PROFILE	
GERMANY	Prof. Oliver Keppler
	oliver.keppler@med.uni-heidelberg.de
	Principal Investigator
<i>Areas of activity</i>	HIV, animal model of HIV infection, drug testing, antiviral restriction factors, innate immunity, HIV pathogenicity, HIV Nef and Vpu
ORGANISATION	
<i>Name</i>	University of Heidelberg
<i>Type</i>	University
<i>Department</i>	Department for Infectious Diseases, Virology
<i>Short description</i>	Leading biomedical University and research institution in Germany
PROJECT	
<i>Research project</i>	<i>From understanding fundamental principles of virus-host interaction to the development of an HIV-susceptible small animal model</i>
<i>Expertise offered</i>	See web address for details on areas of interest: www.klinikum.uni-heidelberg.de/index.php?id=6552
<i>Requested partner expertise</i>	Strong academic track record; primary HIV-1 isolates; cloned genes of HIV nef and vpu; novel, advanced preclinical antiviral drug candidates,

PROFILE	
GREECE	Ph.D. Maria KLAPA
	mklapa@iceht.forth.gr
	Associate Researcher/Laboratory Head
<i>Areas of activity</i>	Metabolic Engineering with emphasis in metabolomics and metabolic flux analysis, quantitative systems biology, mathematical modeling of biological systems – Applications: cell culture engineering, plant biotechnology, molecular diagnostics
ORGANISATION	
<i>Name</i>	Foundation for Research and Technology-Hellas/Institute of Chemical Engineering and High Temperature Chemical Processes (FORTH/ICE-HT)
<i>Type</i>	Research Center
<i>Department</i>	Institute of Chemical Engineering and High-Temperature Chemical Processes/ Metabolic Engineering and Systems Biology Laboratory
<i>Short description</i>	FORTH is one of the largest research centers of Greece with well - organized facilities and a highly qualified staff. Based on the last evaluation sponsored by the Greek state (2005) and carried out by international scientific committees, FORTH was the only Greek research center with all its research institutes assigned an “excellent” grade. The Institute of Chemical Engineering and High Temperature Chemical Processes (ICEHT) was funded in 1984 and focuses on the chemical engineering sciences with three major research focuses: Materials/Nanotechnology, Energy/Environment, Biosciences/Biotechnology, Research Center, SME
PROJECT	
<i>Research project</i>	<i>Making sense of metabolic complexity: Application of metabolomic analysis for the development of molecular diagnostic tools, or enhanced bioprocess monitoring</i>
<i>Short description</i>	Metabolomics is the most recent of the high-throughput “omic” technologies, providing the metabolic equivalent of the transcriptomic and proteomic profiles. Metabolomic analysis can study the metabolic state of a system in a holistic way, providing the means for the identification of early diagnostic patterns of a disease or better monitoring of a process in cell culture engineering. Metabolomic analysis has a series of advantages over the Transcriptomic and proteomic analyses: it is much less costly, it requires less user training, it does not require specific unique platforms for each system and it targets the metabolism , which is the closest to the phenotype cellular level. It is still at its standardization phase, however there exists great potential from its use in agrobiotechnology, cell culture engineering, molecular diagnostics and health. A meeting with pharma companies (protein production companies/cell culture engineering companies) and/or molecular diagnostics companies and/or research partners would be beneficial to discuss issues of mutual interest.
<i>Expertise offered</i>	Extensive expertise in metabolomics, metabolic flux analysis, mathematical modeling, integrated omic research and systems biology/ biochemical and cell culture engineering
<i>Requested partner expertise</i>	One of my former PhD students at University of Maryland, USA is manager of NEOGEN CHEMICALS, in Mumbai, India. We are planning to collaborate on furthering technology development strategies for metabolic network analysis with application in pharma research and cell culture engineering. Additional partners requested from Pharma, agrobiotechnology and cell culture engineering industries

PROFILE	
GERMANY	Prof. Karl-Heinz Koger
	Karl-Heinz.Kogel@agrar.uni-giessen.de
	Vice President of the university
Areas of activity	Plant and microbial biotechnology, microbial ecology and evolution
ORGANISATION	
Name	Justus Liebig University of Giessen
Type	University
Department	Phytopathology and Biotechnology Life Science focal point in medicine, agriculture, environment, nutrition
PROJECT	
Research project	
Short description	<i>Evolution and ecology of microorganisms</i>
Expertise offered	microbial genomics as tool for evolution and ecological research: focus on organismic interactions; endophytes
Requested partner expertise	genomics, bioinformatics, phytopathology, plant biotechnology
	microbiologists, mycologists, with evolutionary background competence

PROFILE	
ISRAEL	Phd Racheli Kreisberg
	racheli@ibexperts.com
	.General Manager
ORGANISATION	
Name	IBEXPERTS Ltd.
Type	SME
Short description	Project management company that specializes in the initiation and management of international biotechnology projects, such as EU projects

PROFILE	
Czech Republic	Jiri Kucera j.kucera@vupp.cz - Senior researcher - consultant
Areas of activity	proteins/enzymes separation and purification; special proteins preparation (e.g. wheat and rye albumins, ovalbumins, gelatin from alternative sources); affinity chromatography; HPLC; immunomethods
ORGANISATION	
Name	Food Research Institute
Type	Research Center
Department	Microbial products
Short description	The main aim of the Institute of future depends in securing of healthy and safe nutrition for the whole population of the Czech Republic. All the above mentioned activities of the Institute are concentrated at attaining of this objective.
PROJECT	
Research project	Separation of bioactive proteins and peptides
Short description	Separation of bioactive proteins from egg white and egg yolk using precipitation, affinity and other type of chromatography.
Expertise offered	Affinity chromatography, separation sciences
Requested partner expertise	Biological testing

PROFILE	
Sweden	Thorleif Lavid tl"at"biomotif.com CEO
Areas of activity	Research and development
ORGANISATION	
Name	Biomotif AB
Type	SME
Department	Biomotif is a small Research & Development company with new technology and instrumentation for use with mass spectrometry.
PROJECT	

<i>Research project</i>	<i>H/D Exchange for Epitope Mapping of Biomarkers and Interaction studies of therapeutic drug candidates</i>
<i>Short description</i>	A new research/analytical tool for studying Molecular Interactions. Protein-Protein Interaction, Protein-Ligand Interaction, Structure/Conformation and Dynamics of Biomolecules with miniscule sample amounts.
<i>Expertise offered</i>	Mass Spectrometry, ElectroCapture technology for analysis of Antibodies, Proteins and peptides.
<i>Requested partner expertise</i>	Biomarkers, Drug candidate screening, clinical diagnostics, epitope mapping, H/D Exchange, Antibodies, Cancer research, Modern Drug Development, PPI, PLI, Protein conformation etc.

PROFILE	
FRANCE	Prof. Pierre Leblond
	leblond@nancy.inra.fr
	Head of the lab
<i>Areas of activity</i>	Molecular Microbiology
ORGANISATION	
<i>Name</i>	University Henri Poincaré - Nancy
<i>Type</i>	University
<i>Department</i>	BIOLOGY The «Genetics & Microbiology» Unit (UMR 1128) is an INRA (Institut National de la Recherche Agronomique)/University (Nancy-Université) research lab. Our research project is focused on LGT mechanisms, including DNA transfer and integration, and impact on bacterial adaptation of our favorite organisms (Streptococci, Streptomyces) to their biotic and abiotic environments. The vectors of genetic exchanges (mobile genetic elements) but also host factors (such as chromosomal recombination, natural competence) are targeted. The impact of LGT will be appreciated by the functional studies on specific functions such as virulence factors, stress response genes and secondary metabolite biosynthetic pathways.
PROJECT	
<i>Research project</i>	<i>Impacts and consequences of lateral gene transfer (LGT) in bacteria</i>

<i>Short description</i>	<ul style="list-style-type: none"> - Consequences of LGT events between Streptococcus thermophilus, lactic acid bacterium used in dairy industries (cheese and yogurt) and other food lactic acid bacteria as well as pathogens - Consequences of LGT events in Streptococcus agalactiae (contaminating raw milks and present in the digestive tract) - Role of the global transcriptional regulators Rgg in adaptation of S. thermophilus to its environment -Streptomyces genomics : mechanisms of genome evolution (genetic instability and compared genomics) - Exploration of secondary metabolism of Streptomyces : genome mining for the search of new secondary metabolites of interest
<i>Expertise offered</i>	Molecular genetics
<i>Requested partner expertise</i>	Environnemental microbiology, Natural product chemistry, Food microbiology

PROFILE	
Spain	Phd Jose Antonio Lopez Guerrero
	jalopez@fivo.org
	CLINICAL CHIEF
<i>Areas of activity</i>	MOLECULAR BIOLOGY, GENETICS, MOLECULAR PATHOLOGY, ONCOLOGY, PROSTATE CANCER, SARCOMAS, MELANOMA
ORGANISATION	
<i>Name</i>	FUNDACION INSTITUTO VALENCIANO DE ONCOLOGÍA
<i>Type</i>	Private Foundation
<i>Department</i>	Laboratory of Molecular Biology
<i>Short description</i>	Private foundation. Oncological Cancer Center with more than 300 beds. our institutions participates in several clinical trials and research projects.
PROJECT	
<i>Research project</i>	<i>Molecular staging of prostate cancer patients and prognostic and predictive involvement of new molecular markers.</i>
<i>Short description</i>	Testing of new molecular markers in prostate cancer for the improving of diagnosis and prognosis. These markers include: Tmprss2-ETS gene fusions, PCA3, PTEN... These markers are tested in urine and peripheral blood, and correlation with clinical follow-up is performed.
<i>Expertise offered</i>	Molecular biology and Genetics.
<i>Requested partner expertise</i>	Research pathologists interested in the field.

PROFILE	
Spain	Dr. Francisco Madueño
	Tenured Scientist
<i>Areas of activity</i>	Molecular genetics, legumes, Arabidopsis, plant development, flowering, plant architecture
ORGANISATION	
<i>Name</i>	CSIC, Consejo Superior de Investigaciones Cientificas
<i>Type</i>	Research Center
<i>Department</i>	CSIC institute: IBMCP, Instituto de Biología Molecular y Celular de Plantas); Dpt: Plant Development
<i>Short description</i>	CSIC is an autonomous, multidisciplinary public research organization affiliated to the Ministry of Science and Innovation, with its own legal personality, its own assets and a presence throughout Spanish territory. The CSIC consist of more than one hundred institutes with a permanent staff of over 4500 employees.
PROJECT	
<i>Research project</i>	<i>Genetic control of inflorescence and plant architecture</i>
<i>Short description</i>	We study the genetic control inflorescence architecture in different species. For legumes, we have isolated a gene for a transcription factor that controls the development of the lateral inflorescences in pea and in Medicago, so that mutants for that gene (VEG1) never flower. We are interested in understanding the genetic network of VEG1 and in its biotechnological potential to manipulate traits of interest in legumes, such as increasing the number of pods/plant or inhibiting flowering.
<i>Expertise offered</i>	molecular genetics of legumes (pea and Medicago truncatula) and Arabidopsis, in situ hybridization, scanning electron microscopy, laser microdissection
<i>Requested partner expertise</i>	genetic transformation of legume species, QTL analysis

PROFILE	
Spain	Prof. Dr. Ricard Marcos
	ricard.marcos@uab.cat
	Professor in Genetics
<i>Areas of activity</i>	Genotoxicity, Biomonitoring, Health risk, Environmental pollutants, Nanogenotoxicity, Heavy metals,
ORGANISATION	
<i>Name</i>	Universitat Autònoma de Barcelona (UAB)
<i>Type</i>	University
<i>Department</i>	Genetics and Microbiology

<i>Short description</i>	
	Inside the UAB, in the Department of Genetics and Microbiology, one of the most important research fields in genotoxicity, the biomonitoring of human populations exposed, mechanisms of genotoxicity/carcinogenicity and nanogenotoxicology
PROJECT	
<i>Research project</i>	Genotoxicity of environmental pollutants and biomonitoring of people at risk
<i>Short description</i>	Detection of mechanisms of genotoxic damage, as well as its repair, both in vitro and in vivo, by human biomonitoring
<i>Expertise offered</i>	Wide expertise in the field of Genetic Toxicology, detecting and analysing the mechanisms of induction of genetic damage
<i>Requested partner expertise</i>	Partnes working in related fields that need our expertise to complements their research

PROFILE	
GERMANY	Dr. Cornelia C. Metges
	metges@ fbn-dummerstorf.de
	Head of Research Unit
<i>Areas of activity</i>	<ul style="list-style-type: none"> - Sustainable production and management of biological resources from land, forest and aquatic environment - Fork to farm: Food (including seafood), health and well being - Life sciences, biotechnology and biochemistry for sustainable
ORGANISATION	
<i>Name</i>	Research Institute for the Biology of Farm Animals
<i>Type</i>	Research Center
<i>Department</i>	Research Unit Nutritional Physiology; http://nutrition.fbn-dummerstorf.de/en
<i>Short description</i>	<p>The FBN Dummerstorf investigates the functional biodiversity of farm animals in its environmental context as a fundament of domestication and as a crucial component in both sustainable agriculture and human nutrition.</p> <p>Our research unit 'Nutritional Physiology' uses a problem-oriented approach aimed at identifying regulatory mechanisms of nutrient intake, absorption, and flux as well as of transformation of nutrients in animal products. Particular consideration is given to the</p>

essential influences on these processes such as nutritional and other exogenous factors, as well as the genotype and the ontogenetic state.

PROFILE	
INDIA	Prof. Chanchal K MITRA
	c_mitra@yahoo.com
	Professor of Biochemistry
<i>Areas of activity</i>	Biophysics; Bioinformatics; Nanoparticles; Biosensors
ORGANISATION	
<i>Name</i>	University of Hyderabad
<i>Type</i>	University
<i>Department</i>	Life Sciences, Biochemistry
<i>Short description</i>	Created by an Act of the Indian Parliament, the University of Hyderabad, has, over three decades, distinguished itself as one of the best in the country as a centre for teaching, research and innovations. With a highly qualified and internationally renowned faculty, motivated students, scholars, and support staff, it has carried out cutting edge research in disciplines such as the sciences, social sciences, humanities, technology, visual arts, communication, management and continuing education.
PROJECT	
<i>Research project</i>	<i>Iron oxide nanoparticles in anemia</i>
<i>Short description</i>	Iron oxide nanoparticles can be covered with proteins and can be used as a tonic. However, some of the biochemistry related to iron overload and related hormones need to be studied in details in a model system
<i>Expertise offered</i>	Good in making nanoparticles; good in making biosensors for various biological molecules; good in bioinformatics
<i>Requested partner expertise</i>	Can help in the studies related to iron overload metabolism studies

PROFILE	
GERMANY	Prof. Bruno MOERSCHBACHER
	moersch@uni-muenster.de
	Professor of Plant Biochemistry
<i>Areas of activity</i>	Molecular plant pathology, renewable resources, bio-active polysaccharides, enzyme engineering, nanobiotechnology
ORGANISATION	
<i>Name</i>	University of Münster
<i>Type</i>	University
<i>Department</i>	Department of Plant Biochemistry and Biotechnology
<i>Short description</i>	<p>The Department of Plant Biochemistry and Biotechnology (IBBP) is one of the strongest Departments of the School of Biology of the University of Münster (WWU), one of the largest universities of Germany. Three research groups are engaged both in fundamental research in plant genetics, genomics, biochemistry, cell biology, and physiology, and in applied research in plant biotechnology and nanobiotechnology, involving projects in agriculture, biomedicine and pharmacology, and material sciences. Prof. Moerschbacher - the initiator and co-ordinator of the European research projects CARAPAX (2000-2005), NanoBioSaccharides (2005-2008) with its international satellite project NBS-TTC including partners from India and Thailand (2006-2008), and PolyModE (2009-2012), and the German spokes-person of the first Indo German International Research Training Group in Molecular and Cellular Glyco-Sciences MCGS (2009-2014) - heads a group of ca. 15 undergraduate, graduate, and postgraduate students, post-doctoral scientists and technicians. The group focuses on an understanding of the molecular basis of cell-cell recognition of cereal plants and their fungal pathogens. In particular, we have over twenty years of experience in analysing on a molecular level the interaction between wheat and its potentially most devastating pathogen, the wheat stem rust fungus. One unique speciality is our ability to grow a pathogenic mycelium of this obligately biotrophic pathogen in axenic culture, including the in vitro induction of infection structure differentiation as well as sporulation (uredinio- and teliospores). The insights gained by this fundamental research is used for the knowledge-based development of plant protection strategies, typically using bio-active polysaccharides isolated e.g. from shrimp shell wastes (chitosans) or marine algae (ulvan). One current research focus is on the development of strategies and tools for the enzymatic bio-engineering of polysaccharides to exploit the potential of renewable resources for the generation of novel, environment-friendly and consumer-safe biomaterials, e.g. for plant disease protection, drug, gene, and vaccine delivery, or medical cell and tissue engineering. Most projects are pursued in international collaborations with partners from Academia and Industry from Europe and beyond, most notably with India, Brazil, and South Africa.</p>
PROJECT	
<i>Research project</i>	<i>SWOT-analysis (Strengths, Weaknesses, Opportunities, Threats) of the new wheat stem rust race Ug99 threatening world wheat production for the development of knowledge-based strategies for plant protection</i>

Short description

In 1999, a new race of the wheat stem rust fungus has evolved in Uganda (Ug99) which has broken the Sr31-gene for stem rust resistance that had been stable for more than 30 years. As all major wheat cultivars in the world rely on Sr31 for stem rust resistance, a potentially dangerous and de-stabilising situation is about to arise. Ug99 has already more than halved the wheat yield in Ethiopia and Kenya, and it has now been found in Iran and, possibly, Pakistan. Carried eastwards by the jet stream, Ug99 poses an imminent threat to Pakistani, Indian, Chinese and, consequently, world wheat production. The recently launched Borlaug Global Rust Initiative, financially supported by the Bill and Melinda Gates Foundation, is heading a US-led consortium of researchers trying to identify new sources of resistant germplasms for the breeding of durable stem rust resistance in wheat.

"Rust SWOT - Know Your Enemy"

I would like to suggest to complement this host plant targeted strategy by the establishment of a EU/India led consortium of researchers focusing on the stem rust fungus itself, to provide a knowledge-base for the development of efficient counteractions. We need to know the Strengths and Weaknesses of Ug99, the Obstacles we encounter in combatting it, and the real Threat it poses to wheat production in the world. Such a strategy requires an intimate knowledge of rust biology which is all but lost in the US and elsewhere due to the immense problems in handling an obligately biotrophic pathogen and the in-attractiveness of working with an organism that is not amenable to molecular genetic techniques. However, such knowledge is still existing in a very few labs e.g. in Europe and Israel (and, hopefully, elsewhere, e.g. in India). This knowledge needs to be combined with modern and highly efficient genetic and genomic techniques available in many labs worldwide, but used on rust fungi in very few. To be successful, this approach necessarily needs to include partners with experience and expertise in wheat rust protection in the area and climate of the next crucial step in Ug99 spread, namely India.

Expertise offered

We have over twenty years of experience in wheat stem rust research, both on the pathogen side and on the side of the host plant. We have developed a unique protocol to grow the wheat stem rust fungus in liquid axenic culture, yielding a pathogenic mycelium that closely resembles the mycelium grown in planta. We are able to induce the differentiation of almost the complete series of infection structures rust fungi produce, i.e. germ tube, appressorium, substomatal vesicle, infection hyphae, and haustorial mother cells in vitro. We are also able to induce sporulation in vitro, both for urediniospores and teliospores. This allows us to study the molecular biology, biochemistry, and physiology of the fungus away from its host plant. Currently, we are developing a transformation system based on this axenic culture.

In a collaboration with Prof. Pretorius from South Africa, who had first described the appearance of Ug99, we have recently succeeded in growing this race and its presumed progenitor race UV55 in axenic culture, allowing us to isolate pure DNA of both strains. We are currently analysing and comparing these DNAs in an attempt to isolate the Avr31 gene and to understand, how Ug99 has managed to escape Sr31 recognition. We have also begun a histological study of fungal growth of both races in susceptible and near-isogenic, Sr31-resistant wheat lines in order to understand fungal growth and successful or failing plant defense responses. This needs be followed by a molecular analysis of induced resistance reactions, their elicitation and suppression in the infected plants. For these studies, we have ample experience from former work concerning other resistance genes, including both hypersensitive and non-hypersensitive type major gene based resistances and QTL-based adult plant resistance.

<i>Requested partner expertise</i>	<p>We need partners from Academia and Industry with expertise and experience in other aspects of rust biology. Most importantly, we need a partner able to grow all stages of the complex life cycle of the fungus, including teliospore germination and barberry infection. This is a prerequisite for genetic crossing studies which would be highly desirable for pinpointing the events that led to the evolution of Ug99. (The only expert in this area I know is Prof. Anikster from Israel who is still active and willing to contribute, but already retired).</p> <p>We will also need a partner with access to Ug99 and the descendant races which have already developed, picking up additional virulences. As Prof. Pretorius in South Africa is no longer allowed to work with Ug99 due to quarantine reasons, such a partner will have to come from Ethiopia or Kenya; first contacts to potential partners in the area exist. Then, we will need a partner with the required class 3 safety facilities to work with such a potentially devastating pathogen. Currently, I only know of two labs in the US and Canada that are allowed to handle Ug99 in the winter months, but such partners can probably be identified in Europe as well. And we will need partners with the expertise and infrastructure required to perform e.g. large scale next-generation sequencing which can also easily be found in Europe (we have very good contacts to colleagues in Germany, the Netherlands, and UK).</p> <p>Lastly, we will need partners in India who are experts in stem rust of wheat, its biology and epidemiology under tropical and sub-tropical agricultural conditions. Just as an example, while the rust fungus faces the problem of over-wintering in Europe where the uredospores cannot tolerate sub-zero temperatures, the problem in India is over-summering. Consequently, successful strategies for rust prevention and combat will require local knowledge. Then, partners experienced in developing low cost, adapted and sustainable protection strategies for wheat against rust fungi in collaboration with local farmers will be important. Finally, I also hope that in India, we will find mycologists and plant pathologists who still have good knowledge and expertise in this equally complex, fascinating and threatening biotrophic pathogens.</p>
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PROFILE	
NETHERLAND	Dr. Diego Monti
<i>Areas of activity</i>	diego.monti@istm.cnr.it Research Director antimalarial and anticancer drugs, nanobiotechnology, superparamagnetic nanoparticles, bioorganic-functionalization, HR-MAS NMR spectroscopy
ORGANISATION	
<i>Name</i>	C.N.R. (National Research Council)
<i>Type</i>	Research Center
<i>Department</i>	Institute of Molecular Sciences & Technology (I.S.T.M.)
<i>Short description</i>	Main goals of I.S.T.M. : Modelling of molecules and nanosystems; Design, synthesis and characterization of functional molecules; Application of novel technologies in chemistry, nanobiotechnology and materials science.
PROJECT	

<i>Research project</i>	Functionalization of iron oxides nanoparticles with bioactive molecules for applications in nanomedicine.
<i>Short description</i>	The main goal of our project is the design, synthesis and characterization of superparamagnetic nanosystems, bearing newly synthesized organic structures in order to achieve cytotoxic effects in cancer cell lines.
<i>Expertise offered</i>	HR-MAS NMR spectroscopy to characterize colloidal hybrid nanostructures. Competence in organic synthesis of bioactive compounds and in the preparation of functionalized iron oxides nanoparticles.
<i>Requested partner expertise</i>	A collaboration would be appreciated with partners having expertise in cancer cells lines cultures and evaluation of interactions between nanoparticles and cells. Bioorganic chemists interested in exploiting their compounds linked to iron-oxides nanoparticles as new delivery and imaging systems are invited to contact us.

PROFILE	
Poland	Prof. Wieslaw Oleszek
	wo@iung.pulawy.pl
<i>Areas of activity</i>	Head of the Department Secondary metabolism, phytogetic additives, bioactive substances, biotechnology, new plant sources
ORGANISATION	
<i>Name</i>	Institute of Soil Science and Plant Cultivation, State Research Institute
<i>Type</i>	Research Center
<i>Department</i>	Biochemistry and Crop Quality
<i>Short description</i>	The Institute of Soil Science and Plant Cultivation - State Research Institute (IUNG) is a research unit of the Polish Ministry of Agriculture and Rural Husbandry. It is located in Pulawy, in the south east of Poland. It employs 250 persons, out of which 79 experienced researchers, 33 young researchers, 128 technicians and 10 PhD-students. This performs research on a broad range of activities, from crop production, to soil sciences, fertilisation and agricultural areas' protection; and support the state and local administrative agencies in decision-making in agricultural and rural development policies. The aim is to improve farming efficiency and quality of agriculture products. The core interest of the DEpartment of Biochemistry is plant secondary metabolism including isolation and structure elucidation of secondary metabolites (flavonoids, isoflavones, saponins, alkaloids, glucosinolates, plant phenolics, cyanogenic glucosides, tocals, vitamins) their biological activity (antioxidant, anticancer, antibacterial, allelopathic estrogenic etc.) and occurrence in plants, structure-activity relationships, determination in food and feeding stuffs, in vitro tissue cultures for secondary metabolite production. One of the topics connected to feedstuff quality is the possibility of replacement of antibiotic growth promoters with natural, plant derived products, fitogenic food and feedstuffs additives. The Department is well equipped for phytochemical research with 3 HPLC systems, UPLC (Ultra Performance Liquid Chromatography) combined with Tripple Quadruple Mass Detector, LC-MS/MS (Thermo-Finnigan) system with ion trap, The DBCQ participated in one FP5 "Fate and toxicity of allelochemicals (natural plant toxins) in relation to environment and

consumer”, and in three FP6: “Evaluating physiological and environmental consequences of using organic wastes after technological processing in diets for livestock and humans”, “Ready-to-eat food for breakfast and sport with high content of nutraceuticals preventing disease and promoting public health”, “Healthy Feed for Safety – Dissemination of research results of EC funded research on feed quality” in COST 926 action “Impact of new technologies on the health benefits and safety of bioactive plant compounds”. In FP7 department coordinates the project in area of REGPOT-2009-1, Acronym ProFiCienCy “Managing the Production of Food and feedstuff, their safety and quality under global Climatic Change”

PROJECT	
<i>Research project</i>	<i>Phytogenic food and feedstuffs supplements and additives</i>
<i>Short description</i>	Herbal substances, also called phytogenic (= plant based) feed additives, have recently aroused the interest of the feed industry and are one major alternative for Antibiotic Growth Promoters. Aim of the present project is the development of phytogenic product innovations for piglets and growing-finishing pigs in order to establish a new phytogenic product line for the entire pig production for a complete replacement of antibiotic growth promoters without incurring economic losses. Human health promoting active phytogenic food supplements are also of interest. New plant sources, industrial organic wastes products, biotechnological production possibilities are of interest.
<i>Expertise offered</i>	Expertise provided by the Department of Biochemistry includes isolation, structure elucidation of natural products, development of analytical techniques for product standardization, elucidation of biological activity of isolated products (SAR -structure activity relationship), in vitro techniques, callus and cell cultures.
<i>Requested partner expertise</i>	Botanical skills in identification of new species and recognition of market for waste product availability, biological activity testing in vitro and in vivo, marketing and legislative knowledge, phytochemistry and biotechnology techniques

PROFILE	
Italy	Prof. Luisa Pistelli
	ASSOCIATE PROFESSOR
<i>Areas of activity</i>	phytochemistry and pharmacognosy, quality control, medicinal plant biotechnology
ORGANISATION	
<i>Name</i>	University Of Pisa
<i>Type</i>	University
<i>Department</i>	Department Of Pharmaceutical Sciences
<i>Short description</i>	<p>The actual Department of Pharmaceutical Sciences (DSF) is the natural association (2009) between the two old departments present in the Faculty of Pharmacy: the Department of Bioorganic and Biopharmaceutical Chemistry (DCBB) and the Department of Pharmaceutical Sciences, both officially founded in November 1998.</p> <p>The Phytochemical Group inside DSF is coordinated by Prof. Luisa Pistelli . the group works actively on Medicinal, Aromatic and Food plants, coming from several geographical areas). At first the plants studied were collected in the Mediterranean area, especially in Italy, and were selected between some endemic and not endemic species belonging to Rosaceae, Asteraceae, Lamiaceae, and Fabaceae families. The essential oils obtained from several of these species were also analyzed and tested for their antimicrobial activity against human and animal pathogenic organisms. More recently medicinal and food plants from different geographical areas, such as Latin America (Venezuela), Asia (Jordan and Turkey), were selected and studied also in collaboration with local foreign institutions (Universidad Central de Venezuela, Caracas; Al-Zaytoonah University of Jordan, Amman, Jordan). Many collaborative projects were the established with foreign institutions with the aim of exploring and valorizing the local natural resources.</p>
PROJECT	
<i>Research project</i>	<i>Phytochemical analysis of plant material coming from wild land, agriculture or biotechnology</i>
<i>Short description</i>	valorization of the edible, medicinal and aromatic plants used locally to improve the quality of the raw plant material, better commercialization and use in health products or dietary supplements.
<i>Expertise offered</i>	Extraction, isolation and structural elucidation of secondary metabolites from plants, with biological screening of their activity; quantitative evaluation of secondary metabolites in extracts of plants with agronomic, cosmetic and biological interest and in vitro plant cell and tissue cultures. Essential oil analysis.
<i>Requested partner expertise</i>	knowledge of ethnobotany, ethnopharmacology or in vitro biological test

PROFILE	
Spain	Dr. Maria Pla
	maria.pla@udg.edu tengmp@cid.csic.es
	Professor Agregat Universitat de Girona
<i>Areas of activity</i>	Genetically Modified Organisms (GMO), plant, biotechnology, biofactory, unintended effects, transcriptomics, qPCR, detection, quantification, Antimicrobial peptides (AMP)
ORGANISATION	
<i>Name</i>	Centre for Research in Agri-Genomics (CRAG), consortium CSIC-IRTA-UAB
<i>Type</i>	
<i>Department</i>	Biological Quantitative Analysis Service (SABQ)
<i>Short description</i>	<p>The Centre for Research in Agri-Genomics (CRAG) CSIC-IRTA-UAB has a very strong tradition on molecular biology studies on plants, especially maize, rice, potato, and others. It has developed a number of transgenic plants mainly for research purposes, and has greenhouses officially validated to grow GM plants.</p> <p>This Centre comprises also the “Biological Quantitative Analysis Service” (SABQ) for the detection, identification and quantification of genetically modified organisms (GMO) in food. This service has developed real-time PCR methods for specific quantification of GMO, mostly based on border (plant-transgene) or rearrangement-specific sequences that The SABQ has characterized. They have also developed species-specific real-time PCR systems to be used as endogenous control in GMO quantification assays. The SABQ has experience with different real-time PCR chemistries, both sequence-specific (e.g. TaqMan) and universal (e.g. SYBR-Green I; AmpliFluor). Besides, The SABQ has optimised multiplex assays both based on the amplicon size and on its Tm. Some of the methods that the SABQ has developed are currently been validated in the context of the EU.</p> <p>This service operates as the Official Reference Laboratory of the Office of Plant Species of the Spanish Ministry of Agriculture, Fishing and Foods for the execution of obligatory scientific tests for the detection, identification and quantification of Genetically Modified Organisms (GMOs).</p> <p>The Biological Quantitative Analysis Service is a member of the European Network of GMO Laboratories (ENGL). ENGL is a network of official laboratories of the European Union members, created for the development, standardization of sampling, detection, identification and quantification methods of GMOs in the European Union.</p> <p>The SABQ has a track of successful research projects in the framework of projects financed both at national and European Union level (VI Framework Programme),</p>
PROJECT	
<i>Research project</i>	<i>GMO analysis, variability associated to the insertion and expression of transgenes in plants</i>
<i>Short description</i>	GMO detection, identification and quantitation. Genomic stability of transgenes; transgenic RNA. Transcriptomic and proteomic approaches to the unexpected effects of transgenes in plants. Production of peptides in plants as biofactories.
<i>Expertise offered</i>	Basic biotechnology techniques, GM analysis by qPCR, RT-qPCR, transcriptome analysis, production of GM plants

PROFILE	
Germany	Dr. Christian Plank plank@lrz.tum.de
Areas of activity	Nanobiotechnology
ORGANISATION	
Name	Klinikum rechts der Isar. Technische Universität München.
Type	University
Department	Institute of Experimental Oncology and Therapy Research
Short description	Klinikum rechts der Isar is the university hospital of Technische Universität München. TUM has the reputation as a foremost academic institution with 6 Nobel prizes and many other prestigious awards, making it repeatedly the number one German university in various rankings. TUM has been among the first to be declared a German Universities of Excellence. Our university covers a large spectrum of fundamental and applied research with studies ranging from engineering, natural sciences, including life and medical sciences, to economics. Today TUM comprises 13 faculties with more than 23,300 students (about 20 percent of whom come from abroad), 420 professors, and roughly 6,500 academic and non-academic staff. TUM is thus well positioned to create new knowledge and know-how.
PROJECT	
Research project	<i>Development of nonviral gene vectors and drug delivery systems</i>
Short description	<p>We develop tools and technologies for targeted delivery of active substances and uses such tools for therapeutic purposes. In this context, a major focus has been the construction of virus-like particles for nucleic acid delivery. Synthetic modules representing essential viral functions are self-assembled to form nanoparticles with virus-like biological function. Equipping these delivery systems with superparamagnetic nanoparticles allows remote-controlling and localizing delivery by magnetic force. "Magnetofection", as we called this form of magnetic drug targeting, greatly improves dose-response profiles and delivery kinetics, briefly the efficiency, of most gene vectors and is therefore used by many researchers worldwide. We use Magnetofection with great therapeutic success in a veterinary clinical study of immuno gene therapy of feline fibrosarcoma. Another goal is generating a platform technology for combined magnetic cell separation and nonviral stable genetic modification of adult stem cells.</p> <p>An extension of the magnetic drug targeting concept is its combination with ultrasound-triggered delivery. For this purpose, we develop magnetic microbubbles. These are gas-filled spheres that comprise in their shells the active agent to be delivered and a multitude of magnetic nanoparticles. Microbubbles are responsive to ultrasound, that is, ultrasound can be used to destroy them. Hence, magnetic microbubbles can be accumulated at a target site by magnetic force, and local drug release can be triggered by ultrasound irradiation.</p> <p>Another example of combining two different physical forces for localized drug delivery and localized therapy is using static magnetic gradient fields for magnetic drug targeting and using alternating magnetic fields for achieving localized heating mediated by the magnetic nanoparticles comprised in magnetic drug formulations. For this purpose, we develop thermosensitive magnetic liposomes.</p>

<i>Expertise offered</i>	<p>A recently evolving aspect of our work is using our magnetic formulations and microbubbles for medical imaging. Magnetic nanoparticles and their formulations can be used as contrast agents in magnetic resonance imaging, microbubbles can be used in ultrasound diagnostics.</p> <p>We are also engaged in biomaterials science and tissue engineering. Implant materials such as titanium and steel devices (e.g. screws, plates, stents) or collagen or fibrinogen are modified with synthetic gene vectors. Cells that colonize such implants get transiently programmed to produce desired growth factors that induce a desired cell differentiation process. In this context we have developed a gene activated fibrin glue. We focus on wound, bone and cartilage healing. Fields of application will be plastic and orthopedic surgery as well as dental medicine.</p> <p>In all these projects, the chemistry of biologically functional molecules, their biophysics and the biological activity resulting from chemical structure and physical properties are decisive factors. Concerning methods, our work comprises everything from chemical synthesis (peptide and polymer chemistry, synthesis of magnetic nanoparticles), to biophysical characterization, to exploiting self-assembly in pharmaceutical formulation, to application in cell culture and animal models including the relevant biological and biochemical characterization techniques. It is intended to forward this work into human clinical application within the coming years.</p>
<i>Requested partner expertise</i>	<ol style="list-style-type: none"> 1) Synthesis of different peptides and magnetic nanoparticles 2) Development of magnetic nanoparticles based nonviral gene vectors 3) Development of liposomes and microbubble based targeted and triggered drug delivery systems 4) Development of bioactive scaffold for tissue engineering
<i>Requested partner expertise</i>	Materials science. Nano(bio)technology. Drug delivery systems. Innovative drugs.

PROFILE	
France	Dr. Fabienne Poncin-Epaillard
<i>Areas of activity</i>	fabienne.poncin-epaillard@univ-lemans.fr Directeur of PCI biopolymers, biomaterials
ORGANISATION	
<i>Name</i>	PCI UMR CNRS -6120 -Université du Maine
<i>Type</i>	University
<i>Department</i>	chemistry, materials
<i>Short description</i>	PCI is a CNRS academic research team whose activity is focused on specific polymeric materials (preparation, physicochemical and physical characterization).
PROJECT	
<i>Research project</i>	Preparation, characterization of complex polymeric systems
<i>Short description</i>	Our current research topics involve :

	<ul style="list-style-type: none"> - the study of nanocomposites where model systems are formulated with innovative ways of particle treatments like plasma modification of the particle's surface, or grafting of polymer chains onto the particles. - synthesis of new polymeric materials based on self-assembled systems where transient states are frozen by covalent links. - surfaces containing light stimuable grafted molecules which can find applications in the field of microfluidics. - aggregation of globular proteins under various conditions (pH, ionic strength, etc.), at rest or under shear, eventually with a polysaccharide. - Monte Carlo simulations of reversible aggregation that are compared to experimental studies on associating polymers.
<i>Expertise offered</i>	Chemistry, light scattering, rheology, plasma technology
<i>Requested partner expertise</i>	expertise in biochemsity, biology, biotechnology

PROFILE	
Italy	Prof. Anna Maria Puglia ampuglia@unipa.it
<i>Areas of activity</i>	Molecular microbiology, actinomycetes, gene expression and regulation, proteomics, microbial degradation of pollutants, fine chemicals biosynthesis
ORGANISATION	
<i>Name</i>	Dipartimento di Biologia Cellulare e dello Sviluppo (DBCS)
<i>Type</i>	University
<i>Short description</i>	Areas of activity: Cellular and Developmental Biology, Human Physiology, Molecular Genetics , Microbiology
PROJECT	
<i>Research project</i>	<i>Exploring catabolic pathways of environmental pollutants in actinomycetes</i>
<i>Short description</i>	Isolation and functional characterization of genes involved in degradation of environmental contaminants. Chemical analisys of metabolic intermediates during growth on pollutant as sole carbon source. Improvement of degrading capacity by metabolic engeneering . Heterologous expression of key enzymes in model actinomycetes Identification of gene expression regulatory networks, signals and uptake. Purification of fine chemicals sinthesized as intermediates and genetical approchs in order to perform large scale bioproduction
<i>Expertise offered</i>	Molecular Microbiology and Genetics ; Biochemistry.
<i>Requested partner expertise</i>	Organic chemistry, Bioinformatic and Chemical engeneering

PROFILE	
INDIA	Sharma Pushkar
	pushkar@nii.ac.in
	Staff Scientist V
<i>Areas of activity</i>	Neuronal apoptosis, cell signaling, malaria parasite
ORGANISATION	
<i>Name</i>	National Institute of Immunology
<i>Type</i>	Research Group
<i>Department</i>	Eukaryotic Gene Expression laboratory
<i>Short description</i>	<p>My Research group at NII, New Delhi is interested in signal transduction events in two diverse biological systems malaria parasite and mammalian neurons.</p> <p>While my group has 10 members, NII has a faculty of 40 investigators and more than 250 employees. NII is a an autonomous instiute of Department of Biotechnology, Goverment of India.</p>
PROJECT	
<i>Research project</i>	<i>Dissection of signaling pathways in eukaryotes</i>
<i>Short description</i>	<p>We have the following two major areas of interest, wherein, we are involved in dissection of signal transduction pathways in two different systems. A multi-disciplinary approach which couples basic biochemical and cell biology studies with bioinformatics, proteomics and structural biology is used to study</p> <p>I. Dissection of intracellular signaling and trafficking cascades of Plasmodium falciparum.</p> <p>II. Characterization of novel signaling pathways in neuronal apoptosis.</p> <p>More information can be had from http://202.54.226.233/jsp/faculty/scientist_pushakar.html</p>
<i>Expertise offered</i>	Cell signaling, protein kinases, malaria, neuronal apoptosis
<i>Requested partner expertise</i>	Chemical libraries for screening kinase inhibitors, mouse models for neurodegenerative disorders, proteomics, DNA microarray, miRNA

PROFILE	
INDIA	Dr. Ram RAJASEKHARAN
	ram@cimap.res.in / lipidindia@yahoo.com
	Director
<i>Areas of activity</i>	Bio-energy, Bio-fuel
ORGANISATION	
<i>Name</i>	Central Institute of Medicinal and Aromatic Plants (CIMAP) , CSIR
<i>Type</i>	Research Center
<i>Department</i>	Information and Project Management
<i>Short description</i>	Central Institute of Medicinal and Aromatic Plants, popularly known as CIMAP, is an ISO 9001: 2000 certified frontier plant research laboratory of CSIR. Established as CIMPO in 1959, CIMAP is steering research on medicinal and aromatic plants (MAPs) with its nucleus at Lucknow and extending its wings as four Resource Centres, (Bangalore, Hyderabad, Pantnagar & Purara), representing different agro-climatic zones of the country for multi-location field trials, research and technology dissemination.
PROJECT	
<i>Research project</i>	Renewable, sustainable production of green fuel
<i>Short description</i>	Bio-fuel from biomass of medicinal and aromatic plants
<i>Expertise offered</i>	Production of bio-fuel from spent biomass of medicinal and aromatic crops
<i>Requested partner expertise</i>	Supercritical extraction; energy efficient extraction processes

PROFILE	
India	Dr. Srinivasa Rao
	p.srinivasarao@cgiar.org
<i>Areas of activity</i>	Sorghum, multipurpose crop, bioenergy, abiotic stress, sugar yield,
ORGANISATION	
<i>Name</i>	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
<i>Type</i>	Research Center
<i>Department</i>	Crop improvement
<i>Short description</i>	ICRISAT is a non-profit and non-political international research organization that serves the poorest of the poor in the semi-arid areas of the developing world. We use science as a means to serve the poor, not as an end in itself. This is the human face of science and agricultural research that we do with our partners. The geographic mandate of ICRISAT is the SAT regions in Asia and Eastern and Southern Africa (ESA) and Western and Central Africa (WCA). ICRISAT focuses its research on sweet sorghum as a triple purpose crop i.e., food, fodder and fuel requirements.
PROJECT	

<i>Research project</i>	<i>Sweet sorghum: an alternative energy crop (SWEETFUEL)</i>
<i>Short description</i>	<p>Sweet sorghum, as a source of either fermentable free sugars or lignocellulosics, has many potential advantages, including: high water, nitrogen and radiation use efficiency; broad agro-ecological adaptation; rich genetic diversity for useful traits; and the potential to produce fuel feedstock, food and feed in various combinations. Fuel-food crops can thereby help reconciling energy and food security issues. This project will breed for improved cultivars and hybrids of sorghum for temperate, tropical semi-arid and tropical acid-soil environments by pyramiding in various combinations, depending on region and ideotype, tolerance to cold, drought and acid (Al-toxic) soils; and high production of stalk sugars, easily digestible biomass and grain. ICRISAT is involved in improving the drought tolerance in sweet sorghum under WP2* and economic assessment under WP6* of SWEETFUEL project. Two distinct drought-stress responses were identified in sorghum: pre-flowering coinciding with stem elongation and, more frequently, post-flowering drought during grain filling. Symptoms of post-flowering (terminal) drought include premature leaf senescence, stalk lodging, charcoal rot and a reduction in seed size . Sorghum genotypes resistant to pre-flowering and/or post-flowering drought were identified. Genotypes resistant to post-flowering drought are called 'stay-green' types because these plants retain green leaves and maintain photosynthesis longer than 'senescent' genotypes. (WP*: work package)</p> <p>The specific objectives are:</p> <ol style="list-style-type: none"> 1.To identify promising sweet sorghum hybrids through multilocation testing 2.To screen sorghum core germplasm and reference collections for high and juice volume 3.To develop sweet sorghum hybrid parents for high grain and sugar yields for rainy and post rainy season adaptations 4.To develop high biomass and sugar yielding brown midrib (bmr) hybrid parents 5.To develop stay green hybrid parents with drought tolerance 6.To demonstrate the economic advantages with sweet sorghum under rainfed situation
<i>Expertise offered</i>	<p>ICRISAT can provide expertise in the fields of:</p> <ol style="list-style-type: none"> i. Agricultural productivity enhancement, ii. crop by product utilization iii. Natural resources management vi. Impact assessment in SAT areas v. Biotechnologies <p>and according the following six priorities lines:</p> <ol style="list-style-type: none"> i. Food and feed security, ii. Biomass energy, iii. Ecological intensification, iv. Public policy
<i>Requested partner expertise</i>	<p>Research organizations interested to improve the livelihood opportunities in SAT areas following Integrated Genetic and Natural Resource Management (IGNRM) approach.</p>

PROFILE	
INDIA	Dr. Siva Reddy
	vsreddy@icgeb.res.in
<i>Areas of activity</i>	Group Leader Molecular farming using plants as expression platform for recombinant proteins useful in human health, Biofuels from Agriculture waste and other renewable plant sources, Genomics of cotton fiber
ORGANISATION	
<i>Name</i>	International Centre for Genetic Engineering and Biotechnology
<i>Type</i>	Research center
<i>Department</i>	Plant Transformation Group
<i>Short description</i>	<p>The International Centre for Genetic Engineering and Biotechnology provides a scientific and educational environment of the highest standard and conducts innovative research in life sciences for the benefit of developing countries. It strengthens the research capability of its Members through training and funding programmes and advisory services and represents a comprehensive approach to promoting biotechnology internationally.</p> <p>The Centre is dedicated to advanced research and training in molecular biology and biotechnology and holds out the prospect of advancing knowledge and applying the latest techniques in the fields of: biomedicine, crop improvement, environmental protection/remediation, biopharmaceuticals and biopesticide production</p> <p>With Components in Trieste, Italy, New Delhi, India and Cape Town, South Africa, the Centre forms an interactive network with Affiliated Centres in ICGEB Member States. ICGEB is part of the United Nations System.</p>
PROJECT	
<i>Research project</i>	<i>Development of technologies for large scale production of recombinant proteins using plants as expression platform through chloroplast genetic engineering</i>
<i>Short description</i>	Plant based production is considered to be cost-effective for large-scale production of recombinant proteins. For this we have been following chloroplast genetic engineering and expressed a number of foreign proteins useful in agriculture, industry and human health. We over expressed, for example, xylanase, an enzyme that degrades xylan, used in paper pulp, bakery and animal feed industries and in the biofuel industry to convert lignocelluloses into ethanol. We are currently working to produce monoclonal antibodies and other cell wall degrading enzymes. We have also developed a strategy to purify plant expressed pharmaceutically useful proteins. Under the EU-India S&T Cooperation we propose to develop cost effective technologies for the production and purification of high value molecules such as antibodies, enzymes and therapeutic molecules useful in human and animal health.
<i>Expertise offered</i>	<ol style="list-style-type: none"> 1. Expertise available for high level expression systems in plants based on chloroplast genetic engineering. 2. Established a fully functional proteomics facility consisting MALDI TOF/TOF, nano-LC and 2D electrophoresis systems, with expertise in the plant proteome analysis and the characterization of proteins with post translational modifications 3. Biosafety related activities related to capacity building in the area of Risk Assessment for the deliberate release of GMOs

<i>Requested partner expertise</i>	Looking for partnerships with similar interest in the above areas and can lift the research activities into translation mode for the development of sustainable and safe biotechnological products for their application in human health and industry
PROFILE	
GERMANY	Dr. Richard Reinhardt
	rr@molgen.mpg.de
<i>Areas of activity</i>	Head of Analytics, Automation, Computing marine, terrestrial and environmental science, genomic, high throughput sequencing and annotation
ORGANISATION	
<i>Name</i>	Max-Planck-Institute for molecular Genetics
<i>Type</i>	Research Center
<i>Department</i>	Analytics, automation, computing
<i>Short description</i>	the institute consists of several department being active in the field of vertebrate and human genomics, computational biology and marine, terrestrial and environmental science
PROJECT	
<i>Research project</i>	<i>will concentrate on marine and environmental genomics, but not finally determined so far</i>
<i>Expertise offered</i>	high throughput methods in genomics and transcriptomics
<i>Requested partner expertise</i>	being active in marine and environmental field

PROFILE	
Germany	Prof. Tobias Restle
	restle@imm.uni-luebeck.de
	Associate Professor
<i>Areas of activity</i>	oligomeric nucleic acids drugs, non-viral vectors, Argonaute proteins, mechanism of RNA interference, mechanism of polymerases
ORGANISATION	
<i>Name</i>	University of Lübeck
<i>Type</i>	University
<i>Department</i>	Molekulare Medizin
<i>Short description</i>	The UK-SH is the 2nd largest university hospital in Germany, with a staff of greater than 5.300, 1.200 beds and 36 clinical and theoretical institutes. It stems from the former Medical University of Lübeck, which is renowned for its high clinical and research standards. Within this small and highly specialized university the medical faculty and the technical faculty are intensively integrated, forming a basis for highly synergistic and effective medical research. The Institute of Molecular Medicine bridges the clinical and theoretical activities of the medical faculty and is active both in academic research and pre-commercial research and development. Research topics are focused on the structure-function relationship and therapeutic application of siRNA, microRNA, aptamers and antisense nucleic acids including new concepts and non-viral vectors for the cellular delivery of therapeutic nucleic acids.
PROJECT	
<i>Research project</i>	possible projects: oligomeric nucleic acids drugs, non-viral vectors, Argonaute proteins, mechanism of RNA interference, mechanism of polymerases
<i>Expertise offered</i>	The group comprises a staff of about 20 people (including two professors). The clinical experimental research laboratory specializes in basic and applied research on nucleic acid-based tools and drugs with a strong focus on drug targeting. The team comprises competences from the fields of chemistry, biology, biochemistry, biophysics and medicine.

PROFILE	
SPAIN	Prof. Lluís RIBAS
	lluis.ribas@irbbarcelona.org
	Group leader and ICREA research professor
<i>Areas of activity</i>	Infectious diseases, metabolic diseases linked to gene translation defects.
ORGANISATION	
<i>Name</i>	Institute for Research in Biomedicine
<i>Type</i>	Research Center
<i>Department</i>	Gene Translation
<i>Short description</i>	The IRB is a non-profit research institution dedicated to advancing knowledge in biomedical fields. It is housed at the Barcelona Science Park of the University of Barcelona. Our group coordinates a European research network that is participated by two Indian research groups from New Delhi and Lucknow.
PROJECT	
<i>Research project</i>	<i>The study of mitochondrial myopathies caused by mutations in tRNAs or aminoacyl-tRNA synthetases (ARS).</i>
<i>Short description</i>	Mitochondrial myopathies are a set of rare and incurable diseases that can affect up to 1 in every 10.000 newborns. No treatment or animal model is available. We would like to collaborate with groups interested in the research of these diseases or organizations looking to provide animal models for the development of therapies.
<i>Expertise offered</i>	Extensive knowledge of tRNA and ARS biology.
<i>Requested partner expertise</i>	Generation of animal models, access to relevant biological samples, chemical libraries and screening technology.

PROFILE	
UK	Dr. Jackie Rogers
	enquiries@sourcebioscience.com
	Head Pharma BioTech Business Development Worldwide
<i>Areas of activity</i>	Companion Diagnostics; Preclinical; Clinical Trials; Target Discovery; Target Validation
ORGANISATION	
<i>Name</i>	SourceBioScience
<i>Type</i>	Industry
<i>Department</i>	Pharma BioTech
<i>Short description</i>	<p>SourceBioScience is a Biotechnology company with an expertise in the development and validation of biomarkers as companion diagnostics to support new drug launches or as endpoints for clinical and FDA studies.</p> <p>We also provide pharmacogenomic, clinical and reference laboratory testing services, providing pre-clinical & clinical trial support for different therapeutic areas, as well as supporting academic institutions for all genomic needs.</p> <p>The emerging interest in “pharmacogenomics” is well supported to aid in the clinical development of new diagnostic, prognostic and predictive tests as well as support for drug development pipeline studies from target identification through to clinical trials.</p> <p>The company specialises in the provision of niche testing such as circulating tumour cells (CTCs) and circulating endothelial cells (CECs) to support research and clinical trial studies.</p>
PROJECT	
<i>Research project</i>	<i>Companion diagnostic development and validation to support new drug launch.</i>
<i>Short description</i>	Source BioScience (SBS) has developed and validated a PI3K assay to support the launch of new PI3K inhibitors to stratify patients into responders and non responders. SBS is looking to partner with companies interested in using its expertise to develop tailor made companion diagnostics for their new drug launches.
<i>Expertise offered</i>	Development and validation of companion diagnostics; preclinical FDA submission studies; Clinical trial support; biomarker assays development and validation as endpoints for clinical studies. Patient stratification using molecular tests.
<i>Requested partner expertise</i>	We are looking to partner with Pharma/BioTech with new drugs ready to launch requiring companion diagnostic support, or biomarker assay development and validation for clinical studies.

PROFILE	
SPAIN	Dr. Engineer Mario ROSATO
	mario.rosato@sustainable-technologies.eu
	R&D Manager - partner
<i>Areas of activity</i>	Biological depuration of wastewater , biogas, biohydrogen, sustainable development, algae biofuels, algae for fodder or nutraceuticals, low-visual-impact wind energy, sustainable construction with bamboo, phytodepuration systems, integrated cycles in agriculture (using wastewater for fodder production), appropriate technologies, pistonless (thermoacoustic) Stirling engines.
ORGANISATION	
<i>Name</i>	Sustainable Technologies SL
<i>Type</i>	SME
<i>Department</i>	R&D
<i>Short description</i>	<p>Start-up. Patent holder of the AFADS wastewater depuration system, which has zero CO2 emissions. The idea has already won some prizes and is to be subventioned by the Spanish Ministry of Science. The construction of a second prototype which simultaneously eliminates CO2 and valorises the N present in wastewater for the production of Spirulina and other high value food is being negotiated with the Agricultural Dept. of the Province of Udine, Italy.</p> <p>A derivate of the AFADS system is the COBIHYPRO, compound bioreactor for hydrogen production. The Consortium COBIHYPRO was composed by the University of Pondicherry and 6 European Universities. The proposal prequalified with 10,5 score, but was not financed because of the financial weakness of the SME which took part.</p> <p>Start-up. Patent holder of the AFADS wastewater depuration system, which has zero CO2 emissions. The idea has already won some prizes and is to be subventioned by the Spanish Ministry of Science. The construction of a second prototype which simultaneously eliminates CO2 and valorises the N present in wastewater for the production of Spirulina and other high value food is being negotiated with the Agricultural Dept. of the Province of Udine, Italy.</p> <p>A derivate of the AFADS system is the COBIHYPRO, compound bioreactor for hydrogen production. The Consortium COBIHYPRO was composed by the University of Pondicherry and 6 European Universities. The proposal prequalified with 10,5 score, but was not financed because of the financial weakness of the SME which took part.</p>
PROJECT	
<i>Research project</i>	COBIHYPRO – Compound Bioreactor for Hydrogen Production

<i>Short description</i>	<p>It is a bioreactor in which biohydrogen is synergically produced by dark fermentation of wastewater (technology of Pondicherry University) and the digested water with remaining nutrients is used to grow cyanobacteria which produce more H by photosynthesis. The cyano bacteria help keeping warm the fermenter. The cyanobacteria biomass cumulates and must be removed form time to time, so this biomass could boost the dark fermentation if re-injected in the digester. The result is CO2 free energy (biohydrogen) and water depleted of its nutrients and part of its organic matter.</p>
<i>Expertise offered</i>	<p>Mathematical modeling of the reactors</p>
<i>Requested partner expertise</i>	<p>The University of Pondicherry already contributes with the special bacteria for dark fermentation. One or two partners with expertise in proton exchange membranes and fuel cell electrodes are wanted, in order to turn the compound bioreactor into a compound microbial fuel cell which can produce electricity directly from wastewater.</p>

PROFILE	
ITALY	Vincenzo Rossi
	Vincenzo.Rossi@entecra.it
	Senior Scientist
<i>Areas of activity</i>	epigenetics - histone modification - chromatin - gene expression - maize
ORGANISATION	
<i>Name</i>	Unità di Ricerca per la Maiscoltura - Consiglio per la Ricerca e Sperimentazione in Agricoltura (CRA)
<i>Type</i>	Research Center
<i>Department</i>	Molecular Biology
<i>Short description</i>	The Unità di Ricerca per la Maiscoltura (CRA-MAC) is one of the Institutes of CRA that are wide-spread in different regions of Italy. CRA is affiliated to Italian Agricultural Council to promote research and trials using different crops. Research activity in CRA-MAC is mainly devoted to maize. Various aspects of maize biology are investigated spanning from genetics, molecular biology and biochemistry.
PROJECT	
<i>Research project</i>	Currently I am involved in a EU-funded collaborative project in FP7 focused on the study of environment interaction with epigenetic variability in Arabidopsis and maize (the acronym of the project is AENEAS)
<i>Short description</i>	The AENEAS project aims to investigate at a mechanistic level how environment induces epialleles formations in Arabidopsis. In parallel, the project aims to transfer knowledge from Arabidopsis model plant to maize: one of the most important crop for Europe. In particular, the constitution of a maize environmental epigenetics platform (collection of new maize mutants affecting epi-regulators, identification of stress treatments to induce epialleles formation, and identification and characterization of environmentally-induced epialleles with particular attention to epialleles stably inherited through different generations)
<i>Expertise offered</i>	maize epigenetics - study of histone modifications (ChIP, ChIP-seq, etc.) in maize and in others crops - maize mutants including epi-regulators mutants
<i>Requested partner expertise</i>	bioinformatics - genome-wide techniques - plant epigenetics

PROFILE	
UK	<p>Karen Rowland Yeo</p> <p>k.r.yeo@simcyp.com; h.mishra@simcyp.com</p> <p>Senior Scientific Advisor and Head of Bioinformatics</p>
ORGANISATION	
<i>Name</i>	Simcyp Ltd.
<i>Type</i>	SME
<i>Short description</i>	<p>Simcyp is a research-based company providing predictive pharmacokinetic tools, workshops and consultancy services.</p> <p>Simcyp's user-friendly simulator and databases predict drug absorption, clearance, distribution and metabolic drug-drug interactions from in vitro data. By simulating pharmacokinetics in virtual patient populations and identifying individuals at extreme risk, the Simcyp Simulator is able to accelerate drug discovery and development.</p>
PROJECT	
<i>Research project</i>	Development of an E-learning system to aid dissemination of the In Vitro In Vivo extrapolation (IVIVE) approach for prediction of pharmacokinetic parameters
<i>Short description</i>	<p>The disposition of xenobiotics in various in vitro systems is studied extensively as part of the drug development process. At this stage, the main aim of the studies is to rank the candidates, with respect to absorption, distribution and elimination. However, integration of this data into models that provide a more quantitative assessment of the overall outcome is now appreciated. In Vitro - In Vivo extrapolation (IVIVE) in the broad sense is the extension or translation of in vitro data to in vivo data and can be used to predict the pharmacokinetic parameters of a drug (or potential drug).</p> <p>The primary benefit of IVIVE is that it maximises the use of prior in vitro information generated during drug discovery and pre-clinical development. A better understanding of IVIVE will help scientists and researchers to interpret their data more appropriately and to make more informed decisions about candidate selection. This means that early-phase pharmacokinetic studies become confirmatory rather than exploratory. Specifically, in vitro – in vivo extrapolation can accelerate the development of a drug by:</p> <ul style="list-style-type: none"> • summarising the likely impact of prior information • posing and answering 'what if' questions • identifying gaps and weighing the importance of missing data • assisting in the optimal design of the next real experiment. <p>Establishment of an E-learning Knowledgebase for IVIVE will help the personnel in pharmaceutical industries and research institutions alike to learn more about IVIVE and can also prove as a refresher for the established Scientists & researchers in the Drug Discovery field.</p>
<i>Expertise offered</i>	<p>Extensive experience and collaborations in the area of in vitro in vivo extrapolation.</p> <p>Some key publications are presented below:</p> <p>(1) Jamei M, Dickinson GL, Rostami-Hodjegan A. A framework for assessing inter-individual variability in pharmacokinetics using virtual human populations and integrating general knowledge of physical chemistry, biology, anatomy, physiology and genetics: A tale of 'bottom-up' vs 'top-down' recognition of covariates, Drug Metab Pharmacokin 2009, 24(1): 53-75.</p>

<i>Requested partner expertise</i>	<p>(2) Rostami-Hodjegan A. Translation of in vitro metabolic data to predict in vivo drug–drug interactions: ivive and modelling and simulations; in “Enzyme- and Transporter-Based Drug–Drug Interactions: Progress and Future Challenges” Pang KS, Rodrigues AD, Peter RM Eds, Springer, New York, 2009.</p> <p>(3) Rostami-Hodjegan A. Predicting Inter-individual Variability of Metabolic Drug-Drug Interactions: Identifying the Causes and Accounting for them Using Systems Approach, in “Enzyme Inhibition in Drug Discovery and Development: The Good and the Bad”, Lu C and Li AP Eds, John Wiley & Sons, New Jersey, 2009</p> <p>Expertise in teaching and conducting IVIVE workshops worldwide.</p> <p>1) Experience in development of a virtual campus or E-learning system (IT capabilities / expertise) and or 2) Experience in using an E-learning system.</p>
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PROFILE	
INDIA	Dr. Debendra SAHOO
	debsahoo@imtech.res.in
	Scientist
<i>Areas of activity</i>	Biochemical Engineering, Applied Microbiology, Fermentation Technology, Downstream Processing, Environmental Biotechnology: Our major research activities pertain to process development for production and purification of protein therapeutics, pasmid-DNAs, enzymes, biofuels and delivery of protein therapeutics and vaccines
ORGANISATION	
<i>Name</i>	Institute of Microbial Technology
<i>Type</i>	Research Center
<i>Department</i>	Biochemical Engineering Research and Process Development Centre
<i>Short description</i>	established in 1984, the Institute of Microbial Technology (IMTECH) is one among the chain of 37 national laboratories under the aegis of Council of Scientific & Industrial Research (CSIR), India. Set-up to be a fore-runner in the area of Biotechnology, the Institute's primary asset is a team of 48 highly motivated scientists with many of them having several years of training in world-renowned laboratories. Supported by a staff of more than 150 well-trained technical people and graduate students, these scientists are engaged in cutting edge research, in both basic and applied areas of biotechnology. Biochemical Engineering Research and Process Development Centre, a National Facility, funded jointly by Department of Biotechnology, Government of India and CSIR, was established in 1986 in IMTECH. It is one of India's largest and most sophisticated centres for research in bioprocess development, process optimization and scale-up in the field of Biochemical Engineering and Industrial Fermentation. The centre has excellent fermentation and downstream processing facilities and is equipped with several laboratory and pilot scale fermenters with accessories, upstream and downstream processing equipments including lab scale and pilot scale chromatography, membrane separation, cell homogenization and lyophilization systems. The facility is supported by various analytical equipments and Institute's instrumentation, computational and library facilities.
PROJECT	
<i>Research project</i>	Production and delivery of biopharmaceuticals: application of tools of 'omic' sciences for bioprocess analysis and process development.
<i>Short description</i>	Most biopharmaceuticals are produced through the use of recombinant DNA technology wherein a genetically modified host cell is used as a recombinant production system. The majority of recombinant therapeutic proteins are produced in either mammalian cell systems with Chinese Ovary Cells (CHO) representing the most common platform or in Escherichia coli using cell culture processes where the productivity and stability of the transfected gene of interest are two important criteria that determine the validity of a process. The cell culture process involves a very complex interaction between the cell and its environment and needs detailed investigation for optimal process development. Besides cell culture process, separation of desired product from the culture broth and subsequent purification and processing are critical steps in determining the final productivity and product quality. The basic aim of our research efforts is to apply biological sciences and engineering principles to processing of biomolecules. We propose to use the tools of 'omic' sciences (genomics, proteomics and metabolomics) for bioprocess analysis: studying the metabolic state of

	<p>the system and exploring cellular functions to enhance productivity, understanding and applying the knowledge of cell functions with reference to change in its environment and exploiting the knowledge of cell function and properties to improve product purification and its quality. These studies are aimed to aid in process development and optimization.</p> <p>Many biopharmaceuticals especially proteins, antibodies and nucleotides show lower bioavailability and stability. The development of biodegradable polymer based delivery system is an important option for solving many of these problems. Our research efforts will be focused on the formulation of biodegradable polymeric nano/micro particles and studies on stability of these biomolecules during processing to improve efficiency and yield. Our investigations will also include delivery of therapeutic proteins, vaccines, antibodies and nucleotides.</p> <p>A meeting with research partners with similar research interests will be mutually beneficial.</p>
<p><i>Expertise offered</i></p>	<p>Expertise in biochemical and cell culture engineering, analysis and characterization of metabolites, downstream processing, bioprocess optimization and scale-up, product isolation and process scale purification, synthesis of nano/ micro particles, process development for production of protein therapeutics, plasmid-DNAs, industrial enzymes and biofuels, transfer and successful commercialization of know-how/ technologies on therapeutic proteins and ethanol and consultancy.</p> <p>We have facilities for bioprocess scale up and large scale culture of microbial cells and characterization of metabolites including proteins.</p>
<p><i>Requested partner expertise</i></p>	<p>Integrated omic research and systems biology, metabolic engineering, mammalian cell culture, in vitro and in vivo delivery of therapeutic proteins and vaccines.</p> <p>We will like to collaborate with partners with similar research activities and interest. Among EU participants, we will like to interact with Dr. Maria Klapa, FORTH, Greece, Dr. Elena Kushoba, Karolinska Institutet, Sweden, Prof. Fabia Fava, University of Bologna, Italy, Mr. Mario A. Rosato, Sustainable Technologies SL, Spain for collaboration. .</p>

PROFILE	
AUSTRIA	Prof. Dr. Werner Sieghart
	Werner.Sieghart@meduniwien.ac.at
<i>Areas of activity</i>	Prof. and Head of the Department for Biochemistry and Molecular Biology receptors, transporters, structure, function, pharmacology, central nervous system diseases
ORGANISATION	
<i>Name</i>	Center for Brain Research, Medical University Vienna
<i>Type</i>	University
<i>Department</i>	Department of Biochemistry and Molecular Biology
<i>Short description</i>	The Medical University of Vienna is the largest medical University in Austria. The Center for Brain Research of the Medical University Vienna is devoted to basic research on the brain, and currently consists of 5 Departments and 3 Sections (see Web page). The Department of Biochemistry and Molecular Biology is devoted to research on GABA, glutamate, and nACh receptors as well as to research on transporters and on human diseases of the nervous system.
PROJECT	
<i>Research project</i>	GABAA receptors, structure, function, pharmacology
<i>Short description</i>	We investigate the structure, function and pharmacology of GABAA receptors using large scale expression in Sf9 cells, expression in Xenopus oocytes, mutagenesis, electrophysiology, pharmacology, receptor modeling, identification of interacting proteins using proteomics approach, cell biology.
<i>Expertise offered</i>	biochemistry, pharmacology, modeling, cell biology, electrophysiology, see homepage
<i>Requested partner expertise</i>	any expertise that supplements our approach

PROFILE	
INDIA	Prof. Sudhir SOPORY
	sopory@icgeb.res.in
<i>Areas of activity</i>	Group Leader Plant Adaptation to stress environment
ORGANISATION	
<i>Name</i>	International Centre for Genetic Engineering and Biotechnology
<i>Type</i>	Research Center
<i>Department</i>	Plant Molecular Biology
<i>Short description</i>	ICGEB is an autonomous body having membership of about 50 developing countries and . It has three main research centres at Trieste (Italy), New Delhi (India) and Cape Town (South Africa) and is devoted to carry out research in the field of medical biology, diseases and in agricultural biotechnology areas.

PROJECT	
<i>Research project</i>	Functional Validation of genes of unknown functions in rice for stress tolerance and development
<i>Short description</i>	Our studies on differential screening have shown that function of a large number of genes is unknown. We wish to understand their role in development and stress tolerance if any by using overexpression and knock out studies.
<i>Expertise offered</i>	Our group has expertise in plant molecular biology and in plant tissue culture and transformation.
<i>Requested partner expertise</i>	Any group that has expertise in raising mutants, RNAi lines and has interest in undertaking role of novel genes to decipher their functions in plants

PROFILE	
ISRAEL	Prof. Hermona Soraq
	soreq@cc.huji.ac.il
<i>Areas of activity</i>	Professor; Head, the National Committee for R&D in life and medical sciences Molecular neurochemistry; oligonucleotide therapeutics; cholinergic signaling; brain-to-body communication
ORGANISATION	
<i>Name</i>	The Hebrew University of Jerusalem
<i>Type</i>	University
<i>Department</i>	Biological Chemistry and the Interdisciplinary Center of Neural Computation
<i>Short description</i>	The first and leading Research University in Israel, 22,000 students in all fields; 7 Nobel prizes to faculty and graduates (Ada Yonath, David Gross, Aharon Chiechanover, Avraham Hershko, Israel Auman, Roger Kornberg, Jonathan Kahanman), covers over 25% of the experimental research efforts in Israel.
PROJECT	
<i>Research project</i>	Cholinergic regulation of the neuro-immune interface
<i>Short description</i>	We combine human and mouse systems for studying the various aspects of cholinergic control over neuro-immune imbalances, particularly as those refer to cholinesterase regulation by alternative splicing and micro-RNA targeting in brain and blood cells.
<i>Expertise offered</i>	oligonucleotide therapeutics, microarray analyses, genetic engineering.
<i>Requested partner expertise</i>	anticholinesterase screening and human samples preparation

PROFILE	
GREECE	Dr. Georgios A. Spyroulias
	G.A.Spyroulias@upatras.gr
<i>Areas of activity</i>	Faculty member, Associate Professor
	Structural Biology, Protein expression, NMR Spectroscopy 3D structure determination, Biomolecular simulations and design of bioactive molecules
ORGANISATION	
<i>Name</i>	University of Patras
<i>Type</i>	University
<i>Department</i>	Department of Pharmacy
<i>Short description</i>	<p>The University of Patras is one of the largest Universities in Greece. It includes 22 Departments, with a large number of sectors and consequently a great range of disciplines, which operate 112 laboratories and 14 clinics fully equipped. It has 22,000 undergraduate and 3,500 postgraduate students. It enumerates 800 of faculty members, 240 of teaching staff, and 480 administrative personnel.</p> <p>The Department of Pharmacy was founded in 1977 and initially operated as Department of Natural Sciences School. At 1983, the Department of Pharmacy together with Department of Medicine constituted the School of Health Sciences. The Department of Pharmacy has 23 faculty members and 5 technicians in eight Laboratories.</p> <p>Our group has a long-term experience in Structural Biology studying the Structure-Activity Relationship of peptide, proteins and other biological molecules with pharmaceutical interest. It uses both computational tools and experimental techniques for physicochemical and conformational studies of biomacromolecules.</p>
PROJECT	
<i>Research project</i>	<i>Structural Biology - In silico & NMR study of Protein Architecture and Interaction</i>
<i>Short description</i>	<p>The group research efforts encompass the in silico and in vitro...</p> <ul style="list-style-type: none"> ● Structural characterization of Protein Architecture and Peptide Conformation to study and understand of the way that a biopolymer folds into an ordered structure, ● Investigation of Protein-Protein Interaction and Socialization to identify structure alterations that these systems undergo during its co-existence with other biomolecules, ● Illumination of Proteins and Protein Complexes dynamics since function needs action, ● Perturbation of Proteins and Protein Complexes by mapping disease mutations to extrapolate the mutant-protein-effect relationships, ● Modelling, simulation of Protein-ligand/substrate and Drug interactions to elucidate the conformational dynamics of complex 3D structures and ● Design of new Protein/Peptide analogues for (bio)synthesis, combinatorial chemical libraries for virtual screening and for organic synthesis

<i>Expertise offered</i>	<ul style="list-style-type: none"> • Protein Expression, isolation/purification, labelling (in NMR active nuclei, i.e. ²H, ¹³C, ¹⁵N) and physicochemical characterization • Advance NMR techniques for the 3D structure determination of proteins in solution. • Structural Bioinformatics and Biomolecular Simulations related to the design, molecular modeling & docking, molecular dynamics simulation, database searching, prediction and analysis of biomolecular structures
<i>Requested partner expertise</i>	<p>A partner with interest and activities on the field of Biological chemistry, Biochemistry and Protein science to whom structure elucidation may be important for the understanding of proteins'/peptides' function.</p> <p>Specific targets: E3 Ubiquitin Ligases (especially new RING finger domains) and Zn or other metalloproteases, toxins (like new conotoxins, cobratoxins, etc.)</p>

PROFILE	
GERMANY	Prof. Uwe Strähle
	uwe.straehle@itg.fzk.de
<i>Areas of activity</i>	Director of the Institute of Toxicology and Genetics
	Neural stem cells, muscle repair, cell-cell communication, gene networks, environmental toxins, molecular toxicology, embryo development, zebrafish
ORGANISATION	
<i>Name</i>	Institute of Toxicology and Genetics, Karlsruhe institute of Technology (KIT)Campus North
<i>Type</i>	University
<i>Department</i>	<p>Institute of Toxicology and Genetics (ITG)</p> <p>The main focus of the ITG is the understanding and identification of molecular and cellular interactions at functional interfaces, identification of key biological targets playing a crucial role in signal transduction, cell differentiation and proliferation, in development and disease. Other research focuses are proteomics, genomics and environmental toxicology. The activities are part of the new research programme "BioInterfaces" in the research field key technologies of the Helmholtz Association. In close collaboration with chemists, physicists, engineers, IT experts the goal is to develop smart devices, biofunctional surfaces,...artificial stem cell niches.</p>
PROJECT	
<i>Research project</i>	<i>Neural stem cells and muscle repair</i>
<i>Short description</i>	<p>We study the development of the vertebrate nervous system and the musculature. Our main goals are to understand the gene networks controlling differentiation and function of the nervous system and musculature, and how these processes are disturbed by environmental toxins. We use genetic, embryological, biochemical and cell biological methods to unravel the underlying regulatory processes. As experimental systems, we employ mostly zebrafish but also mouse.</p>

<i>Expertise offered</i>	Molecular and cellular biology, genetics, embryo development, Zebrafish, toxicology, bioinformatics
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PROFILE

UK	Dr. Ranjan Swarup ranjan.swarup@nottingham.ac.uk Academic Staff
<i>Areas of activity</i>	Molecular Biology (RNAi, gene cloning including Gateway, Epitope Tagging, Fluorescent Protein Fusions, Cell Biology, Confocal Microscopy, Protein Expression in E.coli, Antibody Production, in situ Immunolocalisation, Auxin Transport, Root Gravitropism, Protein Trafficking, Trans-activation

ORGANISATION

<i>Name</i>	University Of Nottingham
<i>Type</i>	University
<i>Department</i>	Biosciences
	University of Nottingham ranks among the Top 1% of all universities worldwide in The Times Higher World Rankings 2009. It has campuses in UK, Malaysia and China and have over 35000 students.

PROJECT

<i>Research project</i>	<i>Investigating mechanisms of cell type specific targeting</i>
<i>Short description</i>	My group investigates the mechanisms of cell type specific targeting using a genetic, molecular and bioinformatic approaches. Advancement in the in situ localisation of proteins in the last decade has revealed that several membrane proteins show cell type specific localisation. In Arabidopsis roots for example, targeting of auxin transporters AUX1, LAX2 and LAX3 is cell type dependent. In the protophloem cells, AUX1 is localised on the apical face of the cells but in contrast, is localised symmetrically in columella and lateral root cap cells. On the other hand, LAX3 is targeted to the plasma membrane in the cortical and epidermal cells but not in the mature vascular cells. Ectopic expression of LAX2 and LAX3 revealed even more interesting patterns of localisation indicating complex regulatory mechanism(s). Besides cell type specific targeting, my other research interests are lateral root formation and role of ER accessory proteins in protein trafficking
<i>Expertise offered</i>	My major area of interest is Auxin Transport, Root Gravitropism and Protein Trafficking. I am a very experienced molecular cell biologist with expertise in various routine (RNAi, gene cloning including Gateway, Epitope Tagging, Fluorescent Protein Fusions, Protein Expression in E.coli) and highly specialised techniques (Confocal Microscopy, Antibody Purification, in situ Immunolocalisation) in Molecular Cell Biology area.
<i>Requested partner expertise</i>	Crop Biotechnology, Food security, Plant Tissue Culture

PROFILE	
THE NEDERLANDS	Prof. Phd Hans Tanke
	h.j.tanke@lumc.nl
<i>Areas of activity</i>	<p>Head, Department of Molecular Cell Biology Leiden University Medical Center</p> <p>His research relates to the development of novel fluorescence based technology including advanced imaging to study the molecular composition of cells and chromosome. A special research focus is the analysis of molecular interactions in living cells using CSLM, FRAP and FRET-FLIM techniques. Aim is to unravel the molecular mechanisms that determine normal and abnormal cell function, aiming to understand the cause of inherited and acquired disease.</p> <p>Besides the above; more than 10 years ago he also initiated a research group that is involved in multidisciplinary international collaborations with the goal to develop rapid point-of-care devices for diagnosis of infectious diseases and diseases in general. In this collaboration microfluidic devices are developed that allow simultaneous detection of various types of biomolecules. Cost-effective devices/assays are developed for use under various conditions; including testing by patients themselves at home and on-site testing under rural conditions. Potential applications are diverse (not only clinical); e.g. a minor researchline is focussing on detection of fruit-ripening markers.</p>
ORGANISATION	
<i>Name</i>	Leidsch Universitair Medisch Centrum
<i>Type</i>	University
<i>Department</i>	Moleculair Cell biology
PROJECT	
<i>Research project</i>	<i>Development of cost-effective robust microfluidic devices for point-of-care detection of infectious diseases.</i>
<i>Short description</i>	Using a novel ultra-sensitive reporter technology and immunochromatography, disease markers can be detected with rapid point-of-care assays. Required sample processing will be fully integrated in disposable microfluidic devices reducing hands-on operator handling to addition of the clinical sample (blood, urine, saliva, or other) only; thereby reducing operator introduced error to a minimum.
<i>Expertise offered</i>	<ul style="list-style-type: none"> - Assay development with the novel reporter and the lateral flow platform. - Expertise in translating clinical assays to a fully integrated microfluidic devices. - A consortium of international multidisciplinary collaborators
<i>Requested partner expertise</i>	<ul style="list-style-type: none"> - A clinical laboratory or point-of-care facility - Scientific/practical input for the accurate decision on the molecular components required to detect the (clinical) target. - Access to clinical samples

PROFILE	
Romania	Phd. Ionelia TARANU
	ionelia.taranu@ibna.ro
	Head of Department
ORGANISATION	
<i>Name</i>	The National Research-Development Institute for Animal Biology and Nutrition (IBNA)
<i>Type</i>	Research Center
<i>Department</i>	Animal Biology
<i>Short description</i>	<p>The National Research-Development Institute for Animal Biology and Nutrition (IBNA) is the most important research unit and the only one National Institute in the field of animal science in Romania. The institute is enlarging its fields of activity and according to the new Law of Agricultural Research (L45/2009) it will be reorganized as National Institute for Animal Science. Currently, IBNA is the only one Romanian institute performing complex research-development activity in biology and nutrition of the main species and categories of farm animals (from research to extension). The main research topics (including both fundamental and applied sides) of our institute are:</p> <ul style="list-style-type: none"> - effects of nutrition on farm animal health: modulation of the immune response to various dietary factors (mycotoxins, pre- and probiotics, fibers, etc.); gastro-intestinal barrier (in vitro studies on cultures of epithelial cells and in vivo studies on pigs, poultry); - rumen metabolism (nitrogen, acidosis, methane); - alleviate the environmental impact of animal production (reduce nitrogen excretion / increase its efficiency in ruminants, reduce phosphorus excretion in poultry, reduce copper and zinc excretion in pigs, etc); - updating the local feeding system: nutritive value of feeds, animal requirements, procedures for diet optimization (e.g. the institute is the official source for Romanian feeding tables); - rapid evaluation of the nutritive value of animal feeds; - use of experimental animal models to study nutrition diseases in humans; - animal nutrition within the food chain context (development of functional foods beneficial to human health, contaminants etc); - support for alternative production systems (traditional, ecologic, organic, low-input, etc) <p>The above-mentioned activities are sustained by several research departments (Physiology of Nutrition, Animal Biology, Biotechnology, Animal Nutrition) and one of the best infrastructures among research institutions in Romanian agriculture. The main laboratory equipment consists in GCs, HPLCs, TLC, Kjeltex, Dumas, Fibertec, Soxtec, amino acid analyzer, atomic absorption and other spectrometers, PCR, microbiological safety cabinets etc. The institute has good facilities for trials on animal physiology (digestibility stands / cages; rooms with controlled climate – for the main farm animal categories, fistulated animals, in vitro equipment). IBNA has its own experimental farm (capacity: 400 cattle, 2000 pigs, 150 sheep and 15000 poultry) adapted for nutrition trials and 200 hectares of arable land (for experimental feeds). Also, the institute has its own experimental feed mill, serving both for research and extension purposes. There are good facilities for training / dissemination activities (multimedia amphitheater, IT equipment, Internet access). It also has a strong national network of relationships due to its traditional position as leader in animal nutrition.</p> <p>Of our staff, 60 persons are involved in research activities, of which 30 graduates from</p>

various faculties (biology, animal production, biochemistry, chemistry, veterinary medicine, agronomy, etc.). Most of this staff has a PhD degree or is preparing a PhD thesis. Most of our scientific staff benefited of medium- and long-term specializations (including PhD's and post-docs) in developed countries.

The research activity of our institute is conducted mostly within national financing programs for research through various financing bodies (35-45 projects running yearly). The institute also runs research contracts with private companies and international projects (World Bank, FP6-FP7, regional & bilateral projects). All research projects are won on competition basis.

PROFILE	
INDIA	Dr. Rakesh TIWALI
	rakesh@cimap.res.in / mail2rt@gmail.com
<i>Areas of activity</i>	Scientist and Head, Information and Project Management Project Management; Knowledge Management; Agroinformatics; ICT for Rural Development
ORGANISATION	
<i>Name</i>	Central Institute of Medicinal and Aromatic Plants (CIMAP) , CSIR
<i>Type</i>	Research Center
<i>Department</i>	Information and Project Management
<i>Short description</i>	Central Institute of Medicinal and Aromatic Plants, popularly known as CIMAP, is an ISO 9001: 2000 certified frontier plant research laboratory of CSIR. Established as CIMPO in 1959, CIMAP is steering research on medicinal and aromatic plants (MAPs) with its nucleus at Lucknow and extending its wings as four Resource Centres, (Bangalore, Hyderabad, Pantnagar & Purara), representing different agro-climatic zones of the country for multi-location field trials, research and technology dissemination.
PROJECT	
<i>Research project</i>	Knowledge Management in the area of Medicinal and Aromatic Plants; Value addition
<i>Short description</i>	Technology validation , dissemination and business development with special reference to agrotechnology and value addition in economically important medicinal and aromatic plants (MAPs); IT enabled entrepreneurship building on the basis of MAPs
<i>Expertise offered</i>	Project Management; Knowledge Management
<i>Requested partner expertise</i>	Medicinal and aromatic plants agrotechnology , processing , value addition / product formulation and marketing

PROFILE	
INDIA	Dr. Paul Tomkins
	ptomkins@ait.ie
	Head of School of Science
<i>Areas of activity</i>	natural products, biocides, cell lines, toxicology, medical devices, recycling
ORGANISATION	
<i>Name</i>	Athlone Institute of Technology
<i>Type</i>	University
<i>Department</i>	School of Science
<i>Short description</i>	Provides teaching & research across science, engineering, business & humanities. Specialises in applied programmes, from Higher Certificate to PhD. Research includes: toxicology, cell biology (biotech), decontamination tech, IT networks, polymer processing & medical devices
PROJECT	
<i>Research project</i>	<i>eg, Development of biochip devices for rapid toxicity testing</i>
<i>Short description</i>	Incorporation of novel cells with selected reporter genes into a biochip device
<i>Expertise offered</i>	Cell line development, expression analysis, reporter technology, 3D culture
<i>Requested partner expertise</i>	Microfluidics device development & fabrication with optical platform

PROFILE	
Austria	Volker Wacheck
	Volker.Wacheck@meduniwien.ac.at
<i>Areas of activity</i>	Head, Section of Experimental Oncology/Molecular Pharmacology clinical trial (Phase I-III)
ORGANISATION	
<i>Name</i>	Medical University Vienna
<i>Type</i>	University
<i>Department</i>	Department of Clinical Pharmacology
<i>Short description</i>	Clinical Pharmacology Vienna was established in 1992 as an independent department within the Medical University Vienna. It is based in one of Europe's largest medical centers, the 2.200-bed Vienna General Hospital . Our goal is to provide expertise and infrastructure for state of the art research on patients and healthy volunteers, collaborating with the clinical departments at the

	<p>hospital and other teaching hospitals in the Vienna region.</p> <p>Approximately 50% of our activities are directed at industry-sponsored contract research, creating revenues which support innovative academic research projects in the field of clinical pharmacology.</p> <p>Realizing the competitive nature of international contract research, Clinical Pharmacology Vienna developed special-study capabilities not readily available from non-academic or smaller clinical research contractors.</p>
PROJECT	
<i>Research project</i>	<i>Performing Phase I-III clinical trial at our clinical trial unit in collaboration with industrial and academic partners</i>
<i>Short description</i>	<ul style="list-style-type: none"> - Performing Phase I-III clinical trial at our clinical trial unit in collaboration with industrial and academic partners - Preclinical in vitro and in vivo proof of concept studies for molecular targeting compounds
<i>Expertise offered</i>	Translational research in preclinical and clinical trials
<i>Requested partner expertise</i>	Drug development

PROFILE	
Italy	Prof. Raffaele Zanoli
	zanoli@agrecon.univpm.it
<i>Areas of activity</i>	Full Professor Agricultural Economics and Marketing Organic and Low-Input Farming, Biofuels
ORGANISATION	
<i>Name</i>	Università Politecnica delle Marche
<i>Type</i>	University
<i>Department</i>	DIIGA
<i>Short description</i>	Our University has 5 Faculties. Agriculture, Economics, Engineering, Science and Medicine, all focusing on innovation and sustainable development.
PROJECT	
<i>Research project</i>	<i>Consumer Research and Organic Food Supply Chain Management</i>
<i>Expertise offered</i>	Consumer Research, Supply Chain Management, Marketing

PROFILE	
GREECE	Dr. Christos ZERVAS
	czervas@bioacademy.gr
	Principal Investigator, Assistant Professor level.
<i>Areas of activity</i>	functional genomics, morphogenesis, cell adhesion, cytoskeleton, nanotechnology, model organisms, muscle, myopathies, cardiomyopathies, epithelia, cancer, stem cells, Drosophila, mice
ORGANISATION	
<i>Name</i>	Biomedical Research Foundation, Academy of Athens
<i>Type</i>	Research Center
<i>Department</i>	Genetics
<i>Short description</i>	The Biomedical Research Foundation (BRF) of the Academy of Athens is a not profit institute dedicated to understanding, treating, and preventing human ailments through biomedical research. BRF seeks to serve science and medicine, and to participate fully in global innovation through its commitment to the true integration of biology, medicine and informatics.
PROJECT	
<i>Research project</i>	<i>Functional genomic analysis of tissue morphogenesis in genetic models</i>
<i>Short description</i>	Several human diseases including muscle dystrophies, cardiomyopathies and cancers arises due to defective connection of the cytoskeletal elements to the cellular junctions. This cellular dysfunction is caused by mutations in particular genes. Identifying the key genes and further characterizing the molecular mechanism of their function in the whole organism as well as second-site screens designed to uncover novel genetic modifiers, will provide a framework of understanding and modeling human diseases at the molecular level and will enable building protein interaction networks. My group at BRF Academy of Athens shares scientific interests with the group of Dr Maithreyi Narasimha (TIFR, Mumbai). We propose to apply a combination of approaches including functional genomics and live-imaging to analyse developmental processes at the cellular level of resolution, using Drosophila and mice as genetic models.
<i>Expertise offered</i>	My group is focused on muscle biology, including molecular biology, Drosophila genetics.
<i>Requested partner expertise</i>	Epithelial biology, live imaging, laser induced nanoscale perturbations, Drosophila and mice genetics

PROFILE	
ITALY	Dr. Vincenzo ZONNO
	vincenzo.zonno@unisalento.it
	Senior Researcher
<i>Areas of activity</i>	Wastewater, effluent treatment, pollution prevention, aquaculture
ORGANISATION	
<i>Name</i>	University of Salento
<i>Type</i>	University
<i>Department</i>	Department of Biological and Environmental Science and Technology
<i>Short description</i>	<p>Università del Salento (IT, HE) is a young, dynamic and fast growing institution with more than 28.000 students enrolled and a choice of 10 faculties, 65 between first and second level degree courses, 27 post-graduate courses and masters, one of the 6 schools of excellence in Italy, and more than 1500 teaching and nonteaching staff, distributed in 17 Departments and 22 research centres, including a Botanical Garden and the Marine Aquaculture and fisheries Research Centre of Acquatina. The University, and in particular the Department of Biological and Environmental Science and Technology, has an extensive experience of coordinating research and development projects (it is currently acting as coordinator of the FP6 collective research project AQUAETREAT (contract n. 500305), FP6 Coordination Action AQUAGRIS (contract FOOD-CT-2006-036298) and FP7 Marie-Curie IRSES project PASSA (contract 230847). University research areas include aquaculture technology, water treatment, fish biology, ecology, oceanography, animal physiology, eco-toxicology, plant physiology, agronomy and biotechnology.</p>
PROJECT	
<i>Research project</i>	<i>Biotechnological Application in wastewater treatment for the Prevention of Pollution and Bioremediation in Intensive Aquaculture (Acronym Aquaetreat Biotech)</i>

<p><i>Short description</i></p>	<p>The aim of the project is to develop a comprehensive integrated bioremediation technological package for the sustainable development of intensive aquaculture industry.</p> <p><u>Key Objective</u> To make innovative improvement in the aquaculture effluent treatment systems through the application of novel biotechnological solutions for reducing the environmental impact and promoting sustainable processes and products</p> <p><u>Specific objectives</u></p> <ol style="list-style-type: none"> 1. To characterise aquaculture sludge, determine biogas potential and develop biogas production model from aquaculture waste (sludge) and wastewater. 2. To convert the aquaculture sludge into superior quality fertiliser with high percentage of bio-available nutrients. 3. To develop alternative bio-filters for nutrient remediation based on nano-catalyst 4. To identify and undertake product development trials of bio-coagulant as substitute to synthetic materials in water treatment. 5. To develop integrated plankton (phyto and zooplankton) bioremediation models for the treatment of aquaculture wastewater (effluent). 6. To develop mathematical and computer model for the efficient control and management 7. To analyse the social economic aspects related to the implementation of the novel treatment systems and verify their cost-effectiveness. 8. To undertake adaptive research to implement treatment systems for shrimp culture industries.
<p><i>Expertise offered</i></p>	<p>Project management Characterisation of water and wastewater including sludge Anaerobic Digestion By-product valorization Development of nano-catalyst Development of bio-coagulant and bio-flocculant Integrated wastewater modeling System design and configuration Demonstration of technology.</p> <p>These expertise are offered by 4 Universities in 4 EU Countries (Italy, Spain, France and Finland), 1 Research Institute in South Australia, 1 SME in 1 EU Country (Italy)</p>
<p><i>Requested partner expertise</i></p>	<p><u>Research Institution:</u> Integrated wastewater treatment and plankton production model, Mathematical and computer model for the treatment system, Aquaculture, Cost benefit analysis and socio-economic evaluation</p> <p><u>Research Institution:</u> Development of nano-catalyst</p> <p><u>SME:</u> Shrimp farm for demonstration activity</p> <p><u>SME:</u> Biotechnology enterprise with interest in exploitation of marine product and by-products coming from the systems</p>