



enterprise europe

# Boletín de Oportunidades de Cooperación:

## Biotecnología y Salud

**Boletín nº 139**

**Enero 2016**

# enterprise europe

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## Research & Development Request

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# EURONANOMED II: SMEs and research institutes / universities sought for a "magnetic biomaterials for brain tissue repair and imaging" project

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### Summary

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*A Spanish research institute is preparing an application for Euronanomed II call (European Innovative Research & Technological Development Projects in Nanomedicine). The purpose of the project is to repair and image brain tissue through magnetic biomaterials. SMEs, other research institutes or universities from Belgium, Greece, Italy, Israel and France are being sought to complete the consortium.*

<b>Creation Date</b>	14 December 2015
<b>Last Update</b>	15 December 2015
<b>Expiration Date</b>	15 December 2016
<b>Reference</b>	RDES20151214002

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### Details

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#### Description

The project will address tissue repair guided by angiogenesis in the context of an ischemic event. The research institute will take advantage of the potential of nanotechnology to increase the accumulation of growth factors (pro- and anti-angiogenic) in the damaged areas. Moreover, in contrast to drug delivering systems or imaging agents alone, their theranostic materials will provide both imaging and treatment. Regenerative medicine has proposed therapeutic strategies based on the potentiation of angiogenesis that takes place during tissue repair and is linked to different remodeling processes.

Their approach will provide an advanced therapy that could be translated to a clinical stage as non-invasive, safe and available to most patients. In addition, such approach permits its implementation to the patient in several doses for an extended period of time. Biomaterials will be fully characterized including among others aspects cytotoxicity and therapeutic properties both in vitro and in vivo; advanced imaging techniques will be used to monitor and guide the delivery of the biomaterials and to assess the therapeutic effect in vivo over time.

Besides, they will devote research activities to study the encapsulation in biocompatible and biodegradable nanocapsules of cell secretomes, delivering them into the target brain area and imaging its implantation.

The proposer of this profile and coordinator of the proposal is a research group working on tissue repair and cell therapies in neurological diseases in a leading research institute of its country devoted to biomedical and translational research.

The group is focused in stroke research, a leading cause of death and disability worldwide without effective treatments for the 5 million people that survive a stroke every year but remain

permanently disabled. In the last 8 years one of their research lines has been neurorepair based on cell therapies and focusing on angiogenesis mechanisms as repair mechanisms. They can prove strong background on this field which is the focus of the proposed project and within the scope of the Euronanomed II Call.

Several academic partners are already involved within the project. Strong collaboration with another research group in the materials science field (also participating in the consortium) that has obtained results in the biomaterials/repair field in terms of 3 publications (D1), one doctoral thesis and one patent in the last 5 years. Moreover, they have experience in both national and international projects and consortiums.

Therefore, mainly SMEs are being sought to fulfill the consortium.

Call: EURONANOMED II: "European Innovative Research & Technological Development Projects in Nanomedicine"

Call deadline: 11/02/2016

Deadline for Eols: 15/01/2016

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## Keywords

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### Technology

06001003	Cytology, Cancerology, Oncology
06001012	Medical Research
06001013	Medical Technology / Biomedical Engineering
06001014	Neurology, Brain Research
06001024	Medical Biomaterials

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## Network Contact

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### Issuing Partner

AGENCIA ANDALUZA DEL CONOCIMIENTO

### Contact Person

Rocio Muñoz Maestre

### Email

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :**    **Yes**

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## Dissemination

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### Send to Sector Group

Bio Chem Tech

## Restrict Dissemination to Specific Countries

Belgium, France, Greece, Israel, Italy,

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## Client

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### Type and Size of Organisation Behind the Profile

R&D Institution

### Year Established

0

### Already Engaged in Trans-National Cooperation

Yes

### Client Country

Spain

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## Partner Sought

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### Type and Role of Partner Sought

2 types of partners are being sought for this project:

- 1) SME 1: Cells and growth factors up scaled fabrication according to GMP regulations
- 2) SME 2: Nanocapsules (PLGA) upscale fabrication according to Good Manufacture Practice (GMP) regulations, potentially also magnetic nanoparticles (SPIONs).

A third partner could be also considered:

- 3) Research group (institute or university): To perform longitudinal in vivo imaging studies to guide and assess the delivery of the biomaterials and characterize the therapeutic effect in experimental models of ischemia using perfusion and angiographic magnetic resonance imaging (MRI), functional imaging technique and/or others.

### Type and Size of Partner Sought

SME 11-50, University, R&D Institution, SME <10, SME 51-250

### Type of Partnership Considered

Research cooperation agreement

## Research & Development Request

# URGENT - Research and SME partners sought for H2020 SFS-14-2016 Understanding host-pathogen-environment interactions

### Summary

*UK research organisation specialising in public health seeks research partners for H2020 SFS-14-2016 call. The project focus is animal influenza, investigating the dynamics transmissibility between species. Partners sought are SME and research institutions with active research/expertise in animal influenza, vaccines and novel therapeutics active against influenza, also capabilities in animal models of avian influenza or other zoonotic influenza strains, vaccine discovery/development.*

<b>Creation Date</b>	18 December 2015
<b>Last Update</b>	18 December 2015
<b>Expiration Date</b>	18 December 2016
<b>Reference</b>	RDUK20151218001

### Details

#### Description

The organisation focuses on public health research and encourages discussions, advises government and supports action by local government, the National Health Service and other organisations. They are actively engaged in applied research in microbiology and working across a range of aspects of microbial translational research, from vaccine candidate discovery and evaluation to developing and testing diagnostics and other interventions against infectious diseases and across healthcare and public health. In vaccine evaluation, they are active in developing in vitro evaluation assays, provide immunological measurement of a range of responses from in-vivo models and clinical samples, carry out potency and efficacy studies using a range of specific challenge models, have the most extensive infectious disease modelling capability in the UK with facilities at bio-containment levels 2–4 and provide access to clinical trial centres for onward development. In addition, they have access to an extensive range of authenticated viruses, bacteria, fungi and cell cultures for use as control strains and to support a wide range of biomedical research projects such as disease modelling, drug development, cancer research and vaccine studies. The institution has state of the art facilities for producing and inactivating vaccine antigens as well as for assessing pre-clinical vaccine efficacy, and access to a large collection of authenticated viral strains.

They are seeking partners from other research organisations and SMEs with all aspects of active research on avian and/or other animal influenza to join consortia to investigate the transmissibility of the disease in line with Horizon 2020 topic SFS-14-2016 project 'Understanding host-pathogen-environment interactions'. The project is focused on avian, (H5 & H7) influenza strains and aims to investigate vector interactions and transmission between different agricultural species. This is considered highly relevant and timely given the recent H5

transmissions between farms in the USA. Investigation into avian influenza vector interactions and transmission between different agricultural species will also be required through the project as will assessing a novel zero time response system against highly pathogenic influenza.

The research activities carried out by interested organisations can be diverse as they in the early stages of forming consortia and would be open to negotiating the scope of the project to ensure that all consortium partners are represented. They would like influenza infections which affect animal health to be the area of focus for any new consortia members. Potential partners with research expertise in vaccines and novel therapeutics active against influenza would be particularly welcome, especially those with expertise in universal influenza vaccines. Partners with capabilities in animal models of Avian influenza or other zoonotic influenza strains, vaccine discovery & development and those with European surveillance programmes would be welcomed.

Consortia is currently being formed alongside a group of highly experienced research institutions from Eastern Europe and they are negotiating the participation of one other national non-EU research institution (the latter institution is also eligible to receive Horizon 2020 funding). All of these institutions represent national experts in avian influenza in their respective countries. The institution also has significant experience in previous FP7, H2020 and other EU funding streams.

The deadline for the stage 1 of the two-stage call is 17th February 2016 and the deadline for expressions of interest from interested institutions should be made no later than by Monday 18th January 2016. The deadline for the second stage of the call is 13th September 2016 and the project is expected to start in Q1/Q2 2017.

## Advantages and Innovations

The research organisation is actively engaged in research in microbiology and has state of the art facilities for producing and inactivating vaccine antigens as well as for assessing pre-clinical vaccine efficacy, also with access to a large collection of authenticated viral strains. They have significant experience in previous FP7, H2020 and other EU funding streams. In addition to investigating avian influenza vector interactions and transmission between different agricultural species they will also be assessing a novel zero time response system against highly pathogenic influenza.

## Stage of Development

Proposal under development

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## Keywords

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### Technology

06001012

Medical Research

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## Network Contact

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### Issuing Partner

AGENCIA ANDALUZA DEL CONOCIMIENTO

## Contact Person

Rocio Muñoz Maestre

## Email

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :**   **Yes**

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## Dissemination

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### Send to Sector Group

Healthcare

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## Client

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### Type and Size of Organisation Behind the Profile

Other

### Year Established

0

### Already Engaged in Trans-National Cooperation

Yes

### Client Country

United Kingdom

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## Partner Sought

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### Type and Role of Partner Sought

Research institutions, academia, industrial partners and SMEs from EU and other eligible countries are sought.

The research activities carried out by interested organisations can be diverse as the UK organisation is in the early stages of forming consortia and would be open to negotiating the scope of the project to ensure that all consortium partners are represented. They would like influenza infections which affect animal health to be the area of focus for any new consortia members. Potential partners with research expertise in vaccines and novel therapeutics active against influenza would be particularly welcome, especially those with expertise in universal influenza vaccines. Partners with capabilities in animal models of avian influenza or other zoonotic influenza strains, vaccine discovery & development and those with European

surveillance programmes would be welcomed.

## **Type of Partnership Considered**

Research cooperation agreement

## Technology Offer

# Transport and distribution of radioactive nuclides in human body - modeling and simulation.

## Summary

*A Lithuanian university is working on mathematical and computer modeling of the transport processes and distribution of radioactive nuclides being injected to the human body. Blood transport models in arteries and capillaries as well as transport of radioactive nuclides across membranes of cells will be done. The models can be also applied to transportation of molecules of drugs. The university is seeking for industrial partners, R&D institutions for financial or research cooperation agreements.*

<b>Creation Date</b>	07 December 2015
<b>Last Update</b>	09 December 2015
<b>Expiration Date</b>	09 December 2016
<b>Reference</b>	TOLT20151207002

## Details

### Description

The main purpose of the project is to have the space and time distribution of radioactive nuclides being injected to the human body. Those are necessary for the imaginary of pathologies and physiology (for diagnostics).

The same goal has to be achieved for the biological active materials (drugs, etc.) being injected to the human body. Those are useful for the study of dynamics of pharmacokinetics of complicated processes taken place in pharmacological treatment.

That's the Research & Development type project with the following working aims:

1. to test the models of processes taken place in investigation;
2. to create the special software (computer models) for the simulation of those processes.

There are the objects and processes of our researches as follows:

1. Blood transport in human body in general.
2. The features of blood transport in arteries and capillaries (including the movement of pressure pulses via arteries).
3. Transport of radioactive nuclides (and their carriers/molecules) across the membranes of various human's organs' cells.
4. Transport of biological active matter (drugs, molecules, micro- and nano-structures - future smart robots) via capillaries and across the membranes of cells.

The physical and mathematical models of above mentioned objects and processes have to be created. Those mathematical models have to have simple mathematical forms, or in other cases have to be interpolated via simple numerical expressions (for example - Pade approximation). All those models have to be integrated into large "Final model" which will be used in the simulation of blood (and injected carriers with active biological/biochemical objects) transport via human body.

The Monte Carlo method has to be used for the numerical simulation of blood transport.

We underline that “Final model” is dynamic, i.e. in the permanent development phase. During the project realization time there will be created a set of “Final models” with different levels of complexity. That R&D strategy enables to shorten the products’ creation time. There will be created the sets of working models with different complexity and accuracy for each physical (and biological) process and object.

Each process and object will be modeling by use of different approaches as follows:

1. models based on interpolation and approximation of experimental data;
2. models based on different theoretical approaches;
3. numerical models;
4. hybrid models.

The simulation results will be compared with experimental data being published in various journals, monographs and gotten via private communications.

The university research group is seeking for industrial partners, R&D institutions from the fields of medical & pharmacy, medical equipment manufactures for financial or research cooperation agreements.

## Advantages and Innovations

There are many uncertainties and difficulties in the knowledge and exact description of transport processes of blood, and various special molecules and nano-structures being injected to the human body.

The special software should be created in the frame of current project. It will be a computer based research and practical instrument for the following aims:

- 1) test of theoretical models in the field of blood transport in arteries and capillaries;
- 2) test of various theories and models of transport across membranes of cells;
- 3) calculate space and time distribution of injected radioactive nuclides and special active biological structures (for example drugs) in human body;
- 4) help in diagnostics and pharmacological treatment.

In general, there would be the practical computer based instrument in solving the problems of pharmacokinetics and medical diagnostics.

So the created products have to be the useful instruments for the pharmaceutical companies and research medical centers.

## Stage of Development

Concept stage

## IPR Status

Secret Know-how

## Profile Origin

Other

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## Keywords

### Technology

01003006	Computer Software
01003016	Simulation
06001011	Heart and blood circulation illnesses
06001013	Medical Technology / Biomedical Engineering
06002001	Biochemistry / Biophysics

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## Network Contact

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### Issuing Partner

AGENCIA ANDALUZA DEL CONOCIMIENTO

### Contact Person

Rocio Muñoz Maestre

### Email

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :**   **Yes**

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## Dissemination

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### Send to Sector Group

ICT Industry and Services

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## Client

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### Type and Size of Organisation Behind the Profile

University

### Year Established

0

### Already Engaged in Trans-National Cooperation

No.

### Languages Spoken

English  
Russian

### Client Country

Lithuania

## Partner Sought

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### Type and Role of Partner Sought

Type of partner sought:

- industrial partners (large companies or SME), R&D institutions from the fields of medical & pharmacy, medical equipment manufactures to cooperate in developing specific software, to test and evaluate it.

Task to be performed by the partner sought:

- to test and evaluate software with a view to considering financial or research cooperation agreements.

### Type and Size of Partner Sought

R&D Institution, 251-500, SME 51-250, >500

### Type of Partnership Considered

Financial agreement

Research cooperation agreement

## Technology Offer

# Highly scalable, ultra-synchronized wireless networked inertial and orientation sensor system for multi-person or multi-object 3-D tracking

## Summary

*A Dutch SME specialized in the development of wireless motion sensor networks, offers a highly scalable, ultra-synchronized wireless networked inertial and orientation sensor specifically designed for multi-person, multi-object motion tracking. The company is looking for end-users and integrators for using this product in a concrete application in the framework of technical cooperation, a commercial agreement with technical assistance or a research cooperation agreement.*

<b>Creation Date</b>	02 December 2015
<b>Last Update</b>	16 December 2015
<b>Expiration Date</b>	16 December 2016
<b>Reference</b>	TONL20151103001

## Details

### Description

A high-tech SME from the Netherlands is active in the field of wireless motion sensor networks. The company is specialized in the development of miniaturized wireless devices that can sense, process and communicate motion and orientation features of interest. The company offers a wireless inertial motion sensor node specifically designed for multi-person, multi-object motion tracking. A network comprises tens of devices that sample and transmit motion and orientation information at high data rates in a fully synchronized manner. The product features a complete set of 3-D digital sensors, offering 10 degrees of freedom (DOF) sensor data: acceleration, turn rate (gyroscope), magnetic field intensity (compass), high-g acceleration and barometric pressure. Full 3-D orientation information, expressed both as quaternions and Euler angles, is also made available to the user. The sensor data is transmitted using the low-power 2.4 GHz wireless radio to a central node, which connects to the computer through a USB. Optionally, the sensor data can be stored on the on-board micro SD-card and retrieved later over USB or wirelessly. The number of nodes in the network scales with the sampling rates, for example a network can have 36 nodes that sample at 200 Hz, or 16 nodes that sample at 500Hz. Further the device is carefully designed for good ergonomics. The curved design makes mounting and wearing on body parts comfortable, without affecting stability in case of surface mounting. Alternatively, the node can be equipped with a Dual-Mode Bluetooth module for direct communication to PCs, smartphones and tablets.

Applications:

- Multi-person, multi-object 3-D tracking
- Fine-grained, synchronized motion capture

- Activity monitoring and recognition
- Virtual reality and gaming
- Inertial navigation

The company is looking for end-users and integrators for using this product in a concrete application in the framework of technical cooperation, a commercial agreement with technical assistance or a research cooperation agreement.

## Advantages and Innovations

- Highly scalable: up to 36 wireless devices in a wireless network
- Extremely synchronized: ground breaking network-wide synchronization accuracy (< 100 ns)
- Optional synchronization with external system
- High performance and throughput: real-time wireless up to 1kHz 10 DOF sensor data: acceleration, turn rate (gyroscope), magnetic field intensity (compass), high-g acceleration and barometric pressure
- 3-D orientation information (quaternions and Euler angles)
- Low-power RF transceiver in the 2.4 GHz license-free band
- Software for real-time visualization and configuration control of sensing and wireless parameters
- Integrated micro-USB interface
- On-board SD card for data storage
- Internal rechargeable battery
- Optional Dual-Mode Bluetooth module
- Miniaturized form-factor

## Stage of Development

Already on the market

## IPR Status

Secret Know-how

## Profile Origin

Private (in-house) research

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## Keywords

### Technology

06001013	Medical Technology / Biomedical Engineering
09001002	Analyses / Test Facilities and Methods
09001009	Sensor Technology related to measurements

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## Network Contact

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**Issuing Partner**

AGENCIA ANDALUZA DEL CONOCIMIENTO

**Contact Person**

Rocio Muñoz Maestre

**Email**

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :** Yes

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**Dissemination****Send to Sector Group**

ICT Industry and Services

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**Client****Type and Size of Organisation Behind the Profile**

Industry SME <= 10

**Year Established**

2008

**Turnover**

<1M

**Already Engaged in Trans-National Cooperation**

Yes

**Languages Spoken**

English

**Client Country**

Netherlands

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**Partner Sought****Type and Role of Partner Sought**

The company is looking for a partner with complementary expertise in a specific domain (industrial, healthcare, sports) that can work together with on the integration of the product into a

specific application in the framework of technical cooperation, a commercial agreement with technical assistance. The collaboration can also be in the form of an European research project.

## **Type of Partnership Considered**

Commercial agreement with technical assistance

Technical cooperation agreement

Research cooperation agreement

## Technology Offer

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# Technology for a fast and gentle production of nanostructured materials

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## Summary

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*A Czech university has designed a technology for the development of a machinery for nanoparticles production. Innovation lies in a replacement of nebulization nozzles with a rotating unit that enables substantial increase in production speed, simplification of operations and machine maintenance and the production of new types of nanostructured materials through drying such as enzymes. The university offers collaboration based on licence agreement and also research cooperation agreement*

<b>Creation Date</b>	20 November 2015
<b>Last Update</b>	08 December 2015
<b>Expiration Date</b>	08 December 2016
<b>Reference</b>	TOCZ20151119002

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## Details

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### Description

In the industry, there are several types of dryers used for the production of nanoparticles. The following drying methods exist – spray drying, pneumatic drying, fluidization, lyophilisation and nebulization. Key parameters differentiating these kinds of devices are: characteristics of entry material, drying temperature, total production capacity of the machine, evaporation capacity, material retention period, operational mode and drying gentleness.

The novel technology has been designed by a Czech university and it combines centrifugal nanomaterial production technology with technologies working with supercritical carbon dioxide.

As for the device being offered it is based on an innovation in the construction of existing nebulization dryers. The innovation lies in replacement of nebulization nozzles with a rotating unit that enables substantial increase in production speed, simplification of operations and machine maintenance and the production of new types of nanostructured materials through drying such as enzymes.

Examples of applications for products produced by carbon dioxide assisted nebulization are:

- Production of nanostructured carriers targeted at delivery and gradual release of biologically active substances such as nutraceuticals or medications
- Encapsulation of probiotic microorganisms
- Gentle drying of biologically active substances
- Production of nanostructured agrochemicals

The new and improved technology combines the advantages of high production rate with gentle drying at laboratory temperature and reduced particle size of the product. The machine is fully

adjustable for different materials and production testing and can be scaled up to the industrial level.

The university seeks partners interested in adaptation of technology for specific needs based on a research cooperation agreement and also companies interested in licence agreement. Primarily, we are looking for partners in the biotechnology, food and pharmaceutical sectors.

## Advantages and Innovations

- Replacement of nebulization nozzles with a rotating unit that enables substantial increase in production speed
- Simplification of operations and machine maintenance
- Production of the new types of nanostructured materials through drying (such as enzymes)
- Possibility to dry various thermolabile materials, including various types of biologically active molecules and living microorganisms
- High production rate with gentle drying at room temperature – gentleness comparable with lyophilization
- Reduced particle size of the product
- Very low energy consumption
- Opportunity to develop materials of significantly smaller size, having special features when compared to materials produced with conventional spraying facilities

## Stage of Development

Prototype available for demonstration

## IPR Status

Patent(s) applied for but not yet granted

## Comment Regarding IPR status

Patent application for the USA and Europe

## Profile Origin

National R&D programme

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## Keywords

### Technology

02002016	Microengineering and nanoengineering
02007024	Nanomaterials
05005	Micro- and Nanotechnology
06004	Micro- and Nanotechnology related to Biological sciences
07001010	Micro- and Nanotechnology related to agriculture

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## Network Contact

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## Issuing Partner

AGENCIA ANDALUZA DEL CONOCIMIENTO

## Contact Person

Rocio Muñoz Maestre

## Email

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :**   **Yes**

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## Dissemination

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### Send to Sector Group

Nano- and Microtechnologies

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## Client

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### Type and Size of Organisation Behind the Profile

University

### Year Established

0

### Already Engaged in Trans-National Cooperation

No.

### Languages Spoken

English  
Czech

### Client Country

Czech Republic

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## Partner Sought

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### Type and Role of Partner Sought

The university seeks partners interested in adaptation of technology for specific needs based on a research cooperation agreement and also companies interested in licence agreement. Primarily, the university is looking for partners in the biotechnology, food and pharmaceutical sectors.

## **Type and Size of Partner Sought**

R&D Institution,>500 MNE,251-500,SME 51-250,>500

## **Type of Partnership Considered**

License agreement

Research cooperation agreement

## Technology Offer

# Lithuanian scientific company is offering portable healing laser device for astronauts in ISS

## Summary

*Lithuanian scientific company designed portable laser-magnetic device for healing various joint diseases, for curing muscles and for regenerative processes. Proficiency of the cure is based on the non-contact exposure to the biologic tissue with the laser radiation and magnetic field at the same time. Device heals faster than any other similar ones existing on the market. Company seeks for implementation of device for astronauts healthcare working at ISS.*

<b>Creation Date</b>	09 December 2015
<b>Last Update</b>	10 December 2015
<b>Expiration Date</b>	10 December 2016
<b>Reference</b>	TOLT20151207003

## Details

### Description

Lithuanian company is well experienced in laser-based applications in the field of regeneration of human body functioning. Company's laser devices are exported in more than 40 world countries.

The biophysical mechanism of the effect of laser irradiation and magnetic field therapy to biological tissues and blood have not been investigated enough. However, findings of experimental research provide an explanation of this phenomenon related to the molecular power level. When living cells are influenced by a quantum of laser irradiation, ion channels of membranes excite and open. The move of ions is then activated. The theory of screw explains how the channel influenced by laser irradiation gets into resonance. Such bio-resonance phenomenon is the source of excitation of biochemical reactions, bio-stimulation, activation of membrane and metabolic processes. Therefore, molecules are exciting, the microcirculation of substances is activating, the metabolism is getting better and the blood viscosity is decreasing.

Magnetic field influence on living tissues is positive too. Human organism consists of approx. 70 percent of water. If water molecules are influenced by a magnetic field their magnetic dipoles are orientating along lines of the magnetic field. In addition, this improves the conditions for quantum absorption of laser irradiation and expands the effect of laser therapy.

Helium-Neon and Argon lasers have been mostly used in earlier medical laser devices. Recently, other devices of wide spectrum of electromagnetic waves have appeared. However, these and other devices of intensive light effect have little influence on a surface (about 1.5 cm of depth into bio-tissues). Other limitations include very big size of the devices and large energy outlay.

Due to the progress in modern laser, nano- and microelectronic technologies, new possibilities

have emerged in designing innovative, subcompact, noninvasive, sterile, with painless effect, high efficiency and with high technical characteristics laser – magnetic devices, which can be applied in various fields of medicine.

Research and experience has shown that the laser radiation and magnetic field effects in complex biological tissues, blood, skin is:

- changes blood viscosity, lowers blood pressure;
- Anti-inflammatory in nature;
- Relieves pain by avoiding the use of painkillers;
- Stimulates metabolism and blood circulation;
- Biologically stimulate a variety of human functions;
- Strengthens the body's immune system, liquefy the blood;
- Improves oxygen uptake in the cells and cell nutrition microcirculation;
- Accelerates healing, regeneration of cells, the body's defense processes.

The above mentioned features, especially lowering of blood pressure might help astronauts feel better during their work at ISS. The company seeks for contract with NASA Glenn research centre.

## Advantages and Innovations

The Lithuanian company is an experienced scientific-technical institution in the area of portable healing laser. It creates and produces modern non-contact portable laser, laser-magnetic medical devices for individual uses, civil and war medical posts; laser technologies in medicine and industry.

Laser medical devices are used in physiotherapy, Arthrology, Traumatology, Dermatology, Proctology, Neurology, Pulmonology, Stomatology, Gynaecology, Gastrology and etc. The effectiveness of treatment is reached by influencing human's bio-tissues, bioactive points, and blood, skin with a flow of laser infrared rays together with magnetic field.

It is known that during long stay and work at ISS human heart's blood pumping features are slightly changing. The device is not tested yet for specialists working in microgravity conditions. This is why the company seeks for mutual research of devices' healing effects on human heart functioning. Company is ready to present device for NASA for further research aims.

[http://www.nasa.gov/centers/glenn/moonandmars/Bioscience\\_Engineering.html](http://www.nasa.gov/centers/glenn/moonandmars/Bioscience_Engineering.html)

## Stage of Development

Already on the market

## IPR Status

Patents granted

## Profile Origin

National R&D programme

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## Keywords

## Technology

06001011

Heart and blood circulation illnesses

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## Network Contact

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### Issuing Partner

AGENCIA ANDALUZA DEL CONOCIMIENTO

### Contact Person

Rocio Muñoz Maestre

### Email

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :**   **Yes**

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## Dissemination

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### Send to Sector Group

Aeronautics & Space

### Restrict Dissemination to Specific Countries

USA,

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## Client

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### Type and Size of Organisation Behind the Profile

Industry SME <= 10

### Year Established

0

### Already Engaged in Trans-National Cooperation

Yes

### Languages Spoken

English  
French

### Client Country

Lithuania

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## Partner Sought

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### Type and Role of Partner Sought

- Type of partner sought: Glenn Research Centre, NASA
- Specific area of activity of the partner: health, safety, and effective performance of astronauts
- Task to be performed by the partner sought: testing of portable laser device in ISS

### Type of Partnership Considered

Technical cooperation agreement  
Research cooperation agreement

## Technology Offer

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# Methods for deposition of hybrid nanocomposite coatings and 3D Biohybrid printing

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## Summary

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*Bulgarian SME developed 2 innovative technology platforms for synthesis and deposition of hybrid nanocomposite coatings and direct 3D Biohybrid printing. The technologies can be used in design and manufacture of smart medical implants, in vitro models for testing of drugs and tissue regeneration and transplant. The company aims at contracting of License/Joint venture agreement with companies in the sector of the Physical vapor deposition or coatings manufacturing and 3D printing industries.*

<b>Creation Date</b>	11 November 2015
<b>Last Update</b>	22 December 2015
<b>Expiration Date</b>	22 December 2016
<b>Reference</b>	TOBG20151027001

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## Details

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### Description

The Bulgarian company is a developer of two technology platforms: Hybrid nanocomposite coatings (i) and 3D Biohybrid printing (ii). The first technology platform (i) is a laser based Physical Vapor Deposition approach and the main purpose is for simultaneous synthesis and deposition onto large area of hybrid (inorganic/organic) nanocomposite coatings as inorganic nanoparticles and drugs or proteins onto different substrates with complex geometry as stents and balloons/catheters. The 3D Biohybrid technology (ii) is an additive technique, especially developed for micro- nano manufacturing. Biohybrid printing aims at control and management of the printed common complex organic and living objects by means of non-biogenic or inorganic nanostructures and printing of pre-programmed Biohybrid nanocomposites by means of simultaneous synthesis and printing (by one step and one technological cycle) of 3D Biohybrid objects and creation of new printed functional advanced materials and systems as Self-assembled materials and systems, Biomimetic nanocomposite systems, Biocompatible and Bioabsorbable composites, all for custom and personal use. The both technology platforms are completely new and are intended to be used in biomedical industry as Biomedical Engineering, new drugs screening (short and middle terms), Tissue regeneration and transplant (longer term) and they cover/meet the need of direct synthesis and deposition/printing in one technological cycle of large areas (i) and nano-micron areas (i) of nanocomposite/hybrid nanocomposite materials.

The aim of the company is to contact potential partners, willing to contract License agreement or Joint venture agreement for the implementation of the innovative technologies in the appropriate industrial sectors.

### Advantages and Innovations

The company's products allow customization of the medical products - generating of the type, form and hence the functionality of hybrid and biohybrid nanocomposite objects, virtually unlimited. Effective cost: no need for the supplier to purchase expensive nanostructures. Reduces drastically the total time required to generate a finished part or object. Scalable - useful for large and complex objects compatible to Roll to Roll technologies. Simultaneous synthesis, deposition and printing of 2D and 3D biohybrid nanocomposite objects by one step and in one technological cycle. Highest resolution and printing of homogeneous and heterogeneous structures. The technological platform can be used also in plastic electronic industry, sensors and biosensors and new metamaterials.

## Stage of Development

Available for demonstration

## Comments Regarding Stage of Development

The company has sufficient experience and is a leader in world using hybrid- and biohybrid nanocomposite coatings for medical implants class IV(stents and balloons catheters) based on own know how (laser based Physical Vapor Deposition-PVD technique) on level in vitro tests (in vivo trials are in progress). The company uses the most modern bare metal stents and balloons/catheters from leading EU manufactures as platforms. Hybrid biocompatible coatings are deposited in semi industrial prototype-device (laser based Physical Vapor Deposition -PVD technology platform) ready for demonstration.

Own prototype CNC laser based for 3D Biohybrid printing is used for successfully synthesized new advanced functional materials as: micron 2D area and patterns from organic dye – Rhodamine 6G (R6G is laser dye with application in medicine, microbiology and genetics, as fluorescent label) as matrix and embedded aluminum (Al) NP, 3D micron spherical object with Al NP and R6G shell, as well as 2D area and 3D mini-tube from matrix - Biosteel /Spidroin (recombinant protein) with embedded magnesium (Mg) biodegradable and biocompatible NP and Paclitaxel-drug. Physical and chemical study of this printed biohybrid nanocomposites are done successfully.

Further development of the potential of the materials and the methods are possible.

## IPR Status

Secret Know-how, Design Rights, Granted patent or patent application essential

## Profile Origin

Private (in-house) research

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## Keywords

### Technology

02002002	Coatings
05003002	Optics
05005	Micro- and Nanotechnology
06001013	Medical Technology / Biomedical Engineering
06004	Micro- and Nanotechnology related to Biological sciences

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## Network Contact

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### Issuing Partner

AGENCIA ANDALUZA DEL CONOCIMIENTO

### Contact Person

Rocio Muñoz Maestre

### Email

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :**    **Yes**

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## Client

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### Type and Size of Organisation Behind the Profile

Industry SME <= 10

### Year Established

2014

### Turnover

<1M

### Already Engaged in Trans-National Cooperation

No.

### Languages Spoken

English  
Bulgarian

### Client Country

Bulgaria

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## Partner Sought

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### Type and Role of Partner Sought

The technological platforms are designed to be used from companies, involved in innovative Physical vapor deposition or coatings manufacturing and additive technologies as 3D printing industries. The potential partners of the company are manufacturers in the sphere of the medicine and nanotechnologies, willing to implement new technologies in their production processes or entrepreneurs ready to establish a new enterprise with activities, based on the

offered technologies. The coatings and printing recipes may be modified/adapted according to the user's needs in compliance with the Open Source principle: Everyone knows what is best for him.

The company aims at contracting of License agreement or Joint venture agreement.

## **Type of Partnership Considered**

License agreement

Joint venture agreement

## Technology Offer

# Cytokine Angio - Trispecific monoclonal antibodies for the treatment of renal cell carcinoma

## Summary

*A French research team has identified new therapeutic targets for the treatment of renal cell carcinoma. They developed innovative tri-specific antibodies with impressive anti-tumor activity, which could replace or be prescribed as a 2nd line treatment for patients Avastin® or Sutent® resistant. The team is currently looking for an industrial partner interested in a license agreement and/or a technical cooperation agreement.*

<b>Creation Date</b>	11 May 2015
<b>Last Update</b>	08 December 2015
<b>Expiration Date</b>	08 December 2016
<b>Reference</b>	TOFR20150511003

## Details

### Description

Renal Cell Carcinoma (RCC) is the most common type of kidney cancer and current treatments only allow five-year relative survival rates between 46.6-73.3% in the eight major markets. Current treatments only improve the progression-free survival of patients but not their overall survival. This treatment linked with this invention aims to be a second line approach for renal cell carcinoma. Between 40 and 65 percent of patients who progress following first-line therapy receive a second-line treatment. Accordingly, this new approach aims to improve dramatically this survival rate.

A research team of a French academic laboratory showed that cytokines CXCL1, CXCL7 and CXCL8 and CXCL receptors (CXCR1 and CXCR2) are overexpressed in RCC cells and are markers of bad prognosis. The secretion of these CXCL and the presence of their receptors on tumor cells generate autocrine proliferations loops via activation of the ERK/MAP (Extracellular signal-Regulated Kinases/Microtubule-Associated Protein) signaling pathway.

2 tri-specific monoclonal antibodies able to inhibit simultaneously the CXCL1,7 and 8 have been selected among 3840 hybridomas in lab.

CXCL antibodies show a triple effect: anti-inflammatory, anti-angiogenesis and tumor regression. This could be an immunotherapy different from the existing drugs for RCC which target VEGF (Vascular endothelial growth factor) or tyrosine kinases.

The research team is looking for R&D oriented companies focused on oncology : Pharmaceutical companies, Biotechnology companies, of all size small, medium and large companies. License agreement is expected to pursue the development of the pre-clinical phase. Technical cooperation agreement is expected for further developments.

## Advantages and Innovations

This invention has the following advantages:

- Target the tumor cells as well as their tumor-prone environment
- Target the cancer stem cells (express CXCL receptors)
- Same inhibition profile of tumor growth than the gold standard Sutent® on RCC xenografts in mice
- Efficacy on Avastin-resistant RCC tumors
- CXCL1,7 and 8 are trapped simultaneously: no tumor escape
- No predicted off target effect: high specificity of the antibodies (Biacore™ affinity = 3-40 nM - nanomolar).

## Stage of Development

Under development/lab tested

## IPR Status

Patent(s) applied for but not yet granted

## Comment Regarding IPR status

European patent filed in 2013, PCT filed in 2014

## Profile Origin

National R&D programme

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## Keywords

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### Technology

06001003	Cytology, Cancerology, Oncology
06001015	Pharmaceutical Products / Drugs

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## Network Contact

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### Issuing Partner

AGENCIA ANDALUZA DEL CONOCIMIENTO

### Contact Person

Rocio Muñoz Maestre

### Email

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :**    **Yes**

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## Client

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### Type and Size of Organisation Behind the Profile

University

### Year Established

2012

### Already Engaged in Trans-National Cooperation

Yes

### Experience Comments

The client is one-stop shop for transfer and commercialization of innovative technologies from Public Research in South of France.

### Languages Spoken

English

### Client Country

France

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## Partner Sought

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### Type and Role of Partner Sought

The research team is looking for industrial companies still engaged in R&D and focused on oncology : Pharmaceutical companies, Biotechnology companies, of all size small, medium and large companies.

These industrial partners are expected to follow the development of the pre-clinical phase (license agreement). The team also plans proof of concept studies about the CXCL antibodies for breast cancer treatment (technical cooperation agreement).

### Type and Size of Partner Sought

SME 11-50,SME <10,>500 MNE,251-500,SME 51-250,>500

### Type of Partnership Considered

License agreement

Technical cooperation agreement

## Technology Offer

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# Innovative organic molecules and plant hormones to develop a new generation of biofertilizers for sustainable agriculture

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## Summary

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*An Italian university spin-off has developed a method to synthesize and produce innovative organic molecules and new plant hormones to develop new concepts of sustainable agricultural practises, in particular through Strigolactone analogues to be used in the design and development of a new generation of biofertilizers. The new molecules have unique biological properties both for plant and human health (antitumor agents). Industrial and R&D partners are sought for technical cooperation agreement.*

<b>Creation Date</b>	01 December 2015
<b>Last Update</b>	09 December 2015
<b>Expiration Date</b>	09 December 2016
<b>Reference</b>	TOIT20151106002

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## Details

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### Description

An Italian spin-off aims at a lab to lab collaboration in the field of agrochemicals. Its mission is to synthesize and distribute organic molecules, among which Strigolactone analogues to be used in the design and development of new a generation of biofertilizers. In addition the spin-off can produce small molecules and prepare the requested intermediates either by following known literature procedures or synthesis protocols. For new compounds, experienced chemists can design the synthesis route for the preparation of the material themselves. Enantiopure compounds can be provided on demands.

The technology consists in the synthesis of a new class of plant hormones, their analogues and inhibitors. These molecules, called Strigolactones, are natural compounds produced at nanomolar concentration by the roots of most plants and show a unique set of biological properties:

- i) they are plant hormones affecting the plant productivity, senescence, plant resilience to osmotic and nutritional stress;
- ii) they act as signalling molecules in the rhizosphere;
- iii) they are potent antitumor agents.

All these features make Strigolactones interesting products for different kind of customers.

The team of the spin-off consists of organic chemists, plant physiologists and mycologists with a strong scientific background in the field of bioactive compounds, their design and bioactivity tests.

Industry and R&D partners belonging to the agrochemical sector are sought for technical cooperation agreement.

## Advantages and Innovations

Strigolactones are a new class of plant hormones whose role is currently under study and whose potential has not been completely exploited yet; one of the limiting aspect is the limited availability of bioactive compounds: the natural Strigolactones are produced in a nanomolar amount, and are thus not reliable source. The bustling research activity on Strigolactones and their role needs standard, analogues and inhibitors to perform bioactivity test and to make Strigolactones a real opportunity to develop new concepts of sustainable agricultural practises. The SME will provide molecules whose activity has already been reported in the literature as well as new designed compounds according to custom synthesis requests.

Domain of application:

1. Agrochemicals
2. Pharmaceutical

## Stage of Development

Already on the market

## IPR Status

Secret Know-how

## Comment Regarding IPR status

Italian patent on the synthesis granted  
2 PCT patents for pharmaceutical applications

## Profile Origin

Private (in-house) research

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## Keywords

### Technology

05001004	Organic Chemistry
06002001	Biochemistry / Biophysics
06002009	Molecular design
07001003	Biocontrol

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## Network Contact

### Issuing Partner

AGENCIA ANDALUZA DEL CONOCIMIENTO

### Contact Person

Rocio Muñoz Maestre

### Email

rocio.munoz.maestre@juntadeandalucia.es

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**Open for EOI :**    **Yes**

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## Dissemination

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**Send to Sector Group**  
Agrofood

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## Client

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### Type and Size of Organisation Behind the Profile

Industry SME <= 10

### Year Established

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### Already Engaged in Trans-National Cooperation

No.

### Languages Spoken

English  
Italian

### Client Country

Italy

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## Partner Sought

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### Type and Role of Partner Sought

- Type of partner sought:  
Industry, academy, research organisations
- Specific area of activity of the partner:  
Agrochemical companies, agricultural research centres
- Task to be performed:  
Evaluate technology offer to negotiate collaboration

### Type of Partnership Considered

Technical cooperation agreement