Innovative probiotic for animal use

Summary

A Serbian spin-off company has limited exclusive license for production, sale and distribution of innovative probiotic for prevention and treatment of hardly curable bacterial gut infections in mammals, developed by the scientific institute. Advantages over existing probiotics are usage of safe bacteria in composition of probiotics and probiotic potential. The company is interested in financial, joint venture and license agreement.

Creation Date	22 December 2015
Last Update	26 June 2017
Expiration Date	06 January 2018
Reference	TORS20151222001

Details

Description

A Serbian spin-off company has been founded with goal of production, sale and distribution of the innovative probiotic that is highly effective in treatment of fastidious gut infections of different etiology with wide antimicrobial spectrum for various pathogens. The company has been owned by innovators of the probiotic with years of experience and knowledge in the fields of molecular microbiology, veterinary practice, specifically in farm animals, who set the requirements for this innovation and designed this innovative probiotic. In addition, the company staff has experience in management and their direct contacts with future customers are crucial for the initial distribution of the products. The company staff has also experience in the field of microbiology, technology, food and design of starters and it was crucial for the selection of natural isolates that have entered into the composition of the innovative probiotic culture, as well as for the development of the technological process for its preparation.

Based on preclinical tests, as well as on the basis of farm trials, the company has shown that this innovative probiotic culture has unique immunomodulatory properties as well as the specific antimicrobial activity against a large number of pathogenic bacterial strains. It appeared that this innovative probiotic culture, in contrast to conventional probiotics, may be used as an alternative to use of antibiotics in treatment of intestinal infections, especially in the case of fastidious and hardly curable infections. The novel probiotic culture has been developed during the innovation project financed by the Ministry of Education, Science and Technological Development Republic of Serbia, in 2013-2015.

The company is interested in finding partners for licensing agreement. The company provides limited exclusive license for the production and distribution of probiotics for animals for 10 years (with an obligation of extension of the license agreement if the partner fulfills its part of the contract).

The company is interested also in finding partners for financial agreement in term of investments or joint venture agreement in exchange for percent of share, where the company will produce and distribute the probiotic in Western Balkan region.

Advantages and Innovations

The advantage over existing technical solutions is that this probiotic culture consists exclusively of lactic acid bacteria (LAB), with generally recognized as safe status and specific probiotic potential. Due to safe composition the innovative probiotic culture can be also used for pregnant animals. It increases the immune status of the animal, and the acquired immunity is transmitted to the offspring that are therefore healthier comparing to the controls. Currently available probiotics for animals in Serbia and Western Balkans region are sold in the form of dry feed supplemented with probiotics. In such products the number and survival of probiotic bacteria are not reproducible, bacteria are not metabolically active, and they need some time for activation. The innovative probiotic is a liquid fermented probiotic product, in which probiotic bacteria are metabolically active, the number and survival of bacteria in the product is stable, and their probiotic effects exhibit immediately upon arrival in the intestine. Probiotic product is scalable and prepared in dosages recommended for animals for which it was designed.
The novelty compared to the state of the art is that this probiotic culture has a much broader antimicrobial spectrum of existing probiotics and has specific antimicrobial activity against pathogenic bacteria such as Clostridium sp. and exerts specific immunomodulatory effect. In combination with antimicrobial activity this immunomodulatory activity enables its use in the prevention and treatment of hardly curable infections for which there is no known effective treatment and could be successfully used as replacement for antibiotics.

Stage of Development

Field tested/evaluated

Comments Regarding Stage of Development

The innovative probiotic culture is designed and tested in the Laboratory, University of Belgrade. The toxicology is tested in the Institute for Research and Development of Galenika ad, Belgrade (Preclinical studies), while testing in farm trial was carried out in collaboration with veterinary station. The results of tests showed that the probiotic culture is extremely effective in treatment of various intestinal bacterial infections of ruminants and non-ruminants. Given that in Europe strict regulations of the antibiotic use in livestock production are introduced, this innovative probiotic culture is an alternative to the use of antibiotics in the treatment of intestinal infections.

IPR Status

Patent(s) applied for but not yet granted

Comment Regarding IPR status

The bacteria that are part of the innovative probiotic culture are deposited in the bacterial international collection of the University of Ghent, under patent protection, and a patent application was submitted to Intellectual Property Office of the Republic of Serbia in December 2015.
The company has a limited exclusive license for the production and distribution of probiotic culture for animals for 10 years (with an obligation of extension of the license agreement if the company fulfills its part defined in license agreement) for Serbia, Croatia, Bosnia and Herzegovina, Montenegro, Hungary and Romania.

Keywords

Technology

06002008	Microbiology
07001009	Veterinary Medicine

08001002	Food Additives/Ingredients/Functional Food

Market

04010	Microbiology
05009001	Food & feed ingredients
05009003	Animal health

NACE

C.10.5.1	Operation of dairies and cheese making
C.10.9.1	Manufacture of prepared feeds for farm animals
C.10.9.2	Manufacture of prepared pet foods

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Send to Sector Group

Agrofood

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

2015

Turnover

<1M

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English
Serbian

Client Country

Serbia

Partner Sought

Type and Role of Partner Sought

Type: Industry

Activity: Companies which are in business of production and distribution of probiotics for animals, companies interested in financing in probiotic industry.

Role: In licence agreement, it is expected from the partner to distribute the probiotic globally.
In financial agreement, it is expected from the partner to invest in scale up in exchange for percent of share.
In joint venture agreement, it is expected from the partner to have experience in global sale and distribution.

Type and Size of Partner Sought

SME 11-50,SME <10,SME 51-250

Type of Partnership Considered

License agreement
Financial agreement
Joint venture agreement

Attachments

Non-integrative replicative episomal lentiviral vector technology

Summary

A Spanish SME has developed an episomal non-integrative lentiviral vector that provides the lasting, stable and consistent expression of the transgene in dividing and non-dividing cells without modifying the cell genome through integration. The company is interested in collaborating with Biotech/Pharma Companies or Applied Research Centres with a genetic therapy pipeline, in testing and developing genetic therapy drugs in any therapy where lentiviral vectors may be of use.

Creation Date	20 September 2017
Last Update	27 September 2017
Expiration Date	27 September 2018
Reference	TOES20170908001

Details

Description

This technology is designed to enable the safe delivery of therapeutic genes to tissues under proliferation without integration, which makes the technology unique. The innovation takes as start point the enormous knowledge and previous long experience in retroviral vectors but is engineered with genetic elements aimed at providing the unmet properties of gamma-retrovirus and self-inactivating lentiviral vectors (SIN-LV). The technology will minimize the patients monitoring costs, because it avoids transgene integration, while maintaining the efficiency of the treatment during the life of the patient.

To better understand the scenario, we have recorded a snapshot of previous gene therapy studies with gamma-retrovirus, a story of partial clinical recovery, transient benefits to patients and unsuccessful approaches. Despite the success curing several monogenic, rare primary congenital immunodeficiency diseases like X-linked severe combined immunodeficiency (SCID-X1), adenosine deaminase deficiency (ADA-SCID), Wiskott-Aldrich syndrome (WAS) or chronic granulomatous disease (CGD), random insertion of the vector occasionally altered endogenous gene function. Due to this major setback, 5 out of 20 paediatric patients treated for SCID-X1 developed leukaemia one which died as direct consequence of the treatment ; 7 out of 10 treated patients for WAS developed leukaemia, of which two patients died; and some patients treated for CGD resulted in monosomy 7 and myelodisplasic syndrome1. Despite SIN-LV also displays random integration, there are certain preferences in the selection of the integration site that diminish but do not abolish their potential genotoxicity. Moreover, the record of patients treated with SIN-LV is still low and long-term studies are still required to ensure absolute free of genotoxicity.

To overcome the risk of aberrant gene activation or disruption by insertional mutagenesis, the only solution is to obtain a technology that prevents integration in the dividing cells. This has been the breakthrough achievement obtained by the company, that is trying to position as a

global leader, already collaborating with Companies in USA and Europe.

Some of the already tested conditions that can be disclosed are:
▪ Stability upon freezing and storage (>12mo.)
▪ Identity of episomal forms (seq)
▪ NO integration (Alu-PCR; FISH analysis)
▪ Low number of copies (2-4/cell)
▪ Homogeneous level expression
▪ Independent of cell line (HEK293, K562, MOLT4)
▪ Produced at levels similar to integrative lentis
▪ Early studies on CD34+ cells are promising

Advantages and Innovations

This technology consists of a new generation of non-integrative lentiviral vectors.

It is designed for stable gene transfer in cells and tissues, regardless the division rate without integration.

This technology provides in a simple and effective way, the lasting, stable and consistent expression of the transgene in dividing and non-dividing cells without modifying the cell genome through integration.

This new vector incorporates specific eukaryotic sequences, which direct both the binding of the viral genome with the nuclear matrix (Scaffold/Matrix Attachment Regions - S/MAR sequences) and its duplication through the replication of cell DNA (ori sequence). It is generated with a class I mutation in the viral integrase, so the intranuclear viral genome forms are circular episomes.

These facts allow to extend lentiviral vectors clinical use, widening their application to indications in which the modification of tissues or cells with high division rates is required.

Stage of Development

Prototype available for demonstration

Comments Regarding Stage of Development

This technology is ready for animal testing in a preclinical phase.

IPR Status

Patents granted

Comment Regarding IPR status

Patented technology in several countries (USA, Europa, Japan etc.)

Profile Origin

Private (in-house) research

Keywords

Technology

06001013	Medical Technology / Biomedical Engineering
06002001	Biochemistry / Biophysics
06002002	Cellular and Molecular Biology
06002005	Genetic Engineering

Market

04004	Other Genetic Engineering
04005	Biochemistry / Biophysics
04006	Cellular and Molecular Biology
04008	Genetic Engineering

NACE

M.72.1.1	Research and experimental development on biotechnology
Q.86.2.2	Specialist medical practice activities
Q.86.9.0	Other human health activities

Network Contact

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Open for EOI : Yes

Dissemination

Send to Sector Group

Bio Chem Tech

Client

Type and Size of Organisation Behind the Profile

Industry SME 11-49

Year Established

2015

Turnover

1 - 10M

Already Engaged in Trans-National Cooperation

Yes

Experience Comments

The company is currently working for different customers based both in Europe and USA.

Certification Standards

EMAS
other

Languages Spoken

English
Spanish

Client Country

Spain

Partner Sought

Type and Role of Partner Sought

The company is looking to collaborate with Biotech/Pharma Companies or Applied Research Centres for the development and/or manufacture of lentiviral vectors.

The company is interested in contacting with colaborators with a genetic therapy pipeline developing drugs using lentiviral vectors that do not integrate into DNA, willing to test their genetic therapy in pre-clinical phase.

Type and Size of Partner Sought

SME 11-50,University,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

Manufacturing agreement
Commercial agreement with technical assistance
Technical cooperation agreement
Research cooperation agreement

Attachments

Technology Offer

Novel multiplex polymerase chain reaction (PCR) detection methods for infectious disease testing and cancer mutation detection

Summary

A UK SME has developed a novel detection method which has multiple possible applications in medical diagnostics. The method allows the detection of multiple targets in a single analysis using current standard instrumentation, enabling multiplex detection of more targets in a single closed-tube reaction than currently possible. The company seeks companies/institutions for licensing & marketing opportunities, or for co-development via technical or commercial agreement with technical assistance.

Creation Date	11 July 2016
Last Update	03 July 2017
Expiration Date	10 January 2018
Reference	TOUK20160711001

Details

Description

The company has developed several patented technologies in the fields of multiplex real-time PCR and Next Generation Sequencing, and has CE IVD (In-Vitro Diagnostic Medical Devices) products in the market.

•MPA (Multiplex Probe Amplification) is a platform real-time PCR-based technology allowing detection and genotyping of up to 20 different targets in a single closed-tube reaction, significantly increasing throughput capabilities. Papilloplex HR-HPV Genotyping Assay is a CE IVD marked product for detection, differentiation and quantitation of all 14 high-risk HPV types in a single analysis.

•MMD-PCR (Multiplex Mutation Detection) is technology for cancer gene mutation detection. It has features: detection of multiple mutations in a single analysis; reduced reaction tubes to preserve clinical material, save reagents and allow high-throughput; sensitive simple real-time PCR reaction; internal endogenous control to further reduce the number of reactions required.

•TBD-seq (Tagged BiDirectional Sequencing) is a sensitive next generation sequencing technology, which is well suited to detecting ultra-rare cancer gene mutations in the blood.

They are seeking companies or research centres to co-develop the products via commercial agreements with technical assistance or technical cooperation agreements, or to license the technologies.

Advantages and Innovations

Multiplex real-time PCR offers numerous advantages, including time savings, elimination of contamination risk, reduced reagent costs, increased throughput, conservation of precious sample material and reliable results. However, current probe-based methods allow detection of only one target sequence per fluorescence channel. The multiplex fluorescent PCR is therefore limited by the availability of fluorescence dyes and channels; up to five or six targets, depending on particular PCR machines, can be detected simultaneously in the current platforms.

This technology inherits all the benefits of the traditional TaqMan-based real-time PCR at the same time offering several advantages due to its increased multiplexing capabilities:

- increased speed of analysis
- reduced quantity of staring material
- reduced risk of contamination
- reduced overall costs as more targets are analyzed with the same amount of reagents

Stage of Development

Already on the market

IPR Status

Patents granted

Comment Regarding IPR status

The patents have been granted in Europe, US, China, pending in Japan, Canada, Australia

Profile Origin

Other

Keywords

Technology

06001005	Diagnostics, Diagnosis
06002002	Cellular and Molecular Biology
06002007	In vitro Testing, Trials

Market

04001003	Medical genetic engineering applications
05001001	Diagnostic services
05001002	In-vitro diagnostics
05004005	Diagnostic equipment

NACE

M.72.1.1	Research and experimental development on biotechnology
Q.86.2.2	Specialist medical practice activities
Q.86.9.0	Other human health activities

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Open for EOI : Yes

Dissemination

Send to Sector Group

Bio Chem Tech

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English
Chinese

Client Country

United Kingdom

Partner Sought

Type and Role of Partner Sought

- Type of partner sought: companies or research institutions
- Specific area of activity of the partner: development of novel diagnostic applications
- Task to be performed by the partner sought: co-development of technology to new applications via commercial agreement with technical assistance, or technical cooperation agreements or licensing of existing technology

Type of Partnership Considered

License agreement
Commercial agreement with technical assistance
Technical cooperation agreement

Attachments