WTS

WTS PATENT ATTORNEYS

WTS Patent Attorneys

WTS Patent Attorneys specializes in legal assistance in all aspects of industrial property rights management in the life sciences, particularly in pharmacy, biotechnology, agro-biotechnology and chemistry, as well as in trademark cases, utility models and designs. We work for a wide range of clients comprising innovative and generic multinationals, local companies, innovative start-ups, and scientific organizations. With offices in Warsaw and Wroclaw in Poland, and Munich, Germany, we comprise the most competent team of specialists in all aspects of intellectual property relating to life sciences in Poland.

One of our key areas is the support of the investment process in IPR related to biotechnology, medicine, pharmaceutics and chemistry.

WTS Patent Attorneys provides consulting services to investors in innovative enterprises. We assist them in identifying and evaluating the innovativeness of technologies being reviewed.

We carry out complex audits of intellectual property rights, consisting of two primary aspect. We evaluate of the strength of the exclusive property rights portfolio of a given project and the options for augmenting it (patentability),

We also evaluate the freedom to operate (patent purity / freedom-to-operate searches), so as to identify any potential patent barriers which may constitute obstacles to the commercialization of a given product or technology.

According to the needs and requirements of the client, the audit may be enhanced to include:

- Protection of industrial property rights;
- Assistance in finding extant industrial property rights and in negotiations relating to their purchase and /or licensing;
- Preparation of a business plan and determination of the value of IP rights and in finding and evaluating innovativeness of a given product and / or technology.

Our services are used by companies and institutes at various stages of the investment process. The

documentation we compile constitutes an offer designed for potential investors. We cooperate closely with seed-capital funds for investment in start-up companies and prepare pre-investment audits. The partners of WTS Patent Attorneys are also board members in several venture capital funds. We service innovative enterprises wishing to debut on the New Connect trade floor and aid a number of spin-off companies, securing their technologies and drafting tech transfer documents.

Our clients also include large corporate entities looking to radically rejuvenate their product lines and to obtain novel technologies. By regularly evaluating and opining propositions made to them, we aid them in making beneficent business decisions. We also participate in the search, procurement and verification of novel technologies as well as in negotiations with research institutions.

We draft licensing agreements with partners involved in various stages of R&D; starting with the research phase and prototyping, through the construction of distribution network and further development of innovative products and technologies.

WTS Patent Attorneys contacts:
ul. Rudolfa Weigla 12
53-114 Wrocław, Poland
Tel.: (+4871) 346 74 30
Fax: (+4871) 346 74 32
e-mail: wroclaw@wtspatent.pl

ul. Tamka 34/25
00-355 Warszawa, Poland
Tel.: (+4822) 82 95 584
Fax: (+4822) 82 69 807
e-mail: warszawa@wtspatent.pl

Candidplatz 13 (5. OG)
81543 München, Germany
Tel.: +49 (089) 624 23 978
Fax: +49 (089) 624 23 979
e-mail: munich@wtspatent.pl

It is our great pleasure to present a short introduction to several of our client companies, along with their offer of innovative projects for commercialization

SKOTAN S.A.

SKOTAN S.A. is a joint-stock company with verylong traditions. Our goal is simple, to become and be the leader in the biofuel and white biotechnology industries in Poland.

The strategy to achieve the above goals is tripartite, and is based on extantexperience in realizing our biofuel and yeast culturing projects:

- We pursue a scaled investment process to ensure minimal investment risk;
- White biotech (technical development and environmental protection) origins of new technologies due to natural and formal constraints;
- The potential of using public technology development funds for innovative projects dealing with patented technologies, industrial research, R&D and pilot plants.

Significantly, we continue to be active in the area of the reclamation and recycling of waste biomass from biofuel production. We continue to utilize the national oversupply of these resources in an economically viable fashion, while we seek novel second generation biofuel technologies.

Company contacts:

SKOTAN S.A.
ul. Uniwersytecka 13
40-007 Katowice, Poland
Tel. no. (+48 32) 603 06 22
Fax no. (+48 32) 603 06 20
www. skotansa.pl
e-mail: biuro@skotansa.pl

Medical University of Wrocław

The Medical University of Wrocław started as a faculty of the Wrocław University of Technology in 1945. In 1950, the Academy began life as its own entity, with two faculties: Medicine and Pharmacy. Since then we have grown and now possess 5 faculties and an independent English Division.

MUW now possesses its own clinical center, consisting of almost half a million square metres over 9 buildings housing our university hospital, clinics and research facilities.

Although the Medical University is no longer of a purely technical character, it continues to produce new innovative technologies in various medical fields. About 450 patents for inventions made on its premises have been obtained, including several European patents. In 2007, the University received 12, and our scientists applied for the protection of a further 23 innovations. A number of solutions were created in collaboration with researchers from the Wrocław University of Technology, the Wrocław University of Environmental and Life Sciences, and the University of Wroclaw. Wroclaw Medical University holds utility models as well as evening primrose models. A number of the inventions are new medicinal substances and pharmaceutical products. Materials and devices used in dental prosthetics, gynecology and surgery are patented. New patent applications include cell lines, assay tests, and an

extracorporeal blood purification system. Many inventions have been applied in University clinics, and we have signed licensing agreements with a number of pharmaceutical companies.

Currently, the Academy is pursuing a program of assisting the commercialization of inventions, funded in part by Ministry of Science project “Creator of Innovativeness”

University contacts:

Wroclaw Medical University
ul. Wybrzeże L. Pasteura 1
50-367 Wroclaw, Poland
Tel. no. (+48 71) 784 10 02
www.am.wroc.pl
e-mail: patent@ak.am.wroc.pl

Institute of Organic Chemistry Polish Academy of Sciences

The Institute of Organic Chemistry of the Polish Academy of Sciences was established in 1964 when the Department of Organic Synthesis of the Polish Academy of Sciences was advanced by the Council of Ministers to the rank of a Research Institute.

The Institute of Organic Chemistry of the Polish Academy of Sciences was established to advance fundamental research in synthesis, transformations, structure and spectral properties of organic compounds. The Institute conducts research in several broad areas:

- development of new synthetic methods and techniques in organic chemistry nucleophilic aromatic substitution molecular catalysis - phase-transfer catalysis, metathesis organofluorine chemistry and fluorination of organic compounds methodology of asymmetric synthesis target oriented synthesis - natural products and their analogues organic synthesis under high pressure cycloaddition reactions synthesis, reactivity, structural and conformational studies of heterocyclic and macrocyclic compounds selected problems of supramolecular chemistry development of NMR methods and their applications IR, CD/UV, MS and X-ray studies on molecular structure quantum-chemical studies of molecular properties

Besides the basic research programs, the Institute conducts various projects related to applied organic chemistry and technology, particularly oriented towards the pharmaceutical industry.

Institute contacts:

Institute of Organic Chemistry Polish Academy of Sciences
ul. M. Kasprzaka 44/52
Warszawa P.O. Box 58, Poland
Tel no. (+48 22) 343 20 00
Fax no. (+48 22) 632 66 81
www.icho.edu.pl
e-mail: icho@icho.edu.pl

Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology

The Oncology Institute in Gliwice was established in 1947 and in 1951 was transformed into the Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology.

From the beginning our main objective has been to comprehensively diagnose and treat in a connected way neoplasm diseases.

Over the last two decades, the Institute has moved to new buildings equipped with several facilities for its patients. A highly qualified and experienced team of specialists in oncology who trained in the most important European and American oncology centers is supported by professional technicians and oncologic care nurses.

The Institute received quality certificates according to ISO norms 9000:2001, 18001:2004, 14001:2004, HACCP.

The Institute is also a Center of Excellence, Division of Experimental Oncology.

Institute contacts:

Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology, Gliwice Branch
ul. Wybrzeże Armii Krajowej 15
44-101 Gliwice, Poland
Tel. no. (+48 32) 278 86 66
Fax no. (+48 32) 231 35 12
e-mail: onkologia@io.gliwice.pl

Stem Cells Spin Sp. z o.o.

The Group (Stem Cells Spin Sp. z o.o. and Bio Inventions S.A.) was founded around patent-pending inventions relating to novel stem cell line designated MIC-1, originally cultured from the growing deer antlers.

Stem Cells Spin Sp. z o.o. concentrates on the culturing of MIC-1 stem cells and the production of cell extracts based thereon. The company has been perfecting MIC-1 culture techniques and is designing new biotechnological products on their basis.

In January of 2010, we filed made the patent application P.390272, entitled “Homogenate from cells of growing deer antler, a method of its production and use”.

Bio Inventions S.A. produces the homogenate and biotechnological products, which are offered for sale to the medical, cosmetics and veterinary industries.

Company contacts:

Stem Cells Spin Sp. z o.o.
Lenartowicza str. 6
51-140 Wrocław, Poland
Tel. no. (+48) 71 326 54 03
Fax no. (+48) 71 326 54 04
www.stem-cells-spin.com
e-mail: biuro@stemcellsspin.com.pl

Centre for Innovations Technology, Transfer and University Development, Jagiellonian University (CITTRU)

The mission of CITTRU is to promote and support knowledge stemming from the Jagiellonian University, and to support innovation and interface with business.

The Centre for Innovations, Technology Transfer and University Development was established in early 2003.

It is a new institution at the University and its main task is to introduce and promote an open attitude towards entrepreneurship.

The CITTRU team comprises highly competent staff with international experience and a very di-

verse educational background: legal, psychological, economic, sociological, technical, medical and life science.

CITTRU successfully undertakes numerous initiatives such as popularizing entrepreneurship, broad contacts between business and science, as well as projects from the European Union, supporting the development of a knowledge-based economy.

Jagiellonian University in Kraków

The Jagiellonian University consists of 15 faculties (medical, life science, IT, classics), over 40 thousand students and 3000 academic teachers.

The University also encompasses clinical hospitals, libraries (including the most famous one in Poland, the Jagiellonian Library) and fully equipped laboratories.

The University is the site of many new investments, a modern campus, a new Natural Sciences Research Centre and the magnificent Auditorium Maximum.

The Jagiellonian University stands for more than 600 years of tradition enriched by the tenure of Mikołaj Kopernik (Nicolas Copernicus), treatises by professor in medicine Ludwik Rydygier and the great physicists Karol Olszewski and Zygmunt Wróblewski who were the first to liquefy nitrogen from the air.

Contact information:

CITTRU
ul. Czapskich 4
31-110 Kraków, Poland
Tel. no. (+48 12) 663 38 30
Fax no. (+48 12) 663 38 31
www.uj.edu.pl
e-mail: vcittru@uj.edu.pl

Read-Gene

Read-Gene specialises in chemoprevention, clinical trials and genetic testing, which are all complementary fields.

In chemoprevention, natural and synthetic substances are applied to stop, revert or delay cancer formation, and is Read-Gene's main activity. The company has developed the Read-Gene Anticancer Diet, the details of which will be available on website currently under construction.

Read-Gene offers clinical trials to medical, pharmaceutical, chemical and biotechnological companies. Our groundbreaking CT program focuses on patients with a defined genetic profile. In two clinical trials cycles commissioned by pharmaceutical firms, Read-Gene managed to recruit the largest number of patients worldwide, for which the company received letters of recommendation.

Genetic testing and genetic/cancer consulting are open to all patients. In December 2008 the company launched a web platform in Polish and English, through which genetic mutation tests can be ordered from all over the world. Genetic testing is an important part of Read-Gene's work. It allows early diagnosis of cancer susceptibility and, in effect, the timely application of chemoprevention. Read-Gene produces novel genetic testing technologies, and is in the process of commercializing them. The company's Intellectual Property assets include five foreign and six domestic patents, with more patent applications pending.

Company contacts:

Read-Gene
P.O. Box 899
70-952 Szczecin, Poland
Tel. (+48 91) 433 42 56
www.read-gene.com
e-mail: office@read-gene.com

Plant Breeding and Acclimatization Institute

The Institute consists of a group of laboratories and departments, broadly dealing with research in breeding and seed production of major field crops. We research the theoretical principles and experimental methodologies related to germplasm conservation, enhancement and utilization in breeding of field crops.

Our work concerns the identification of the genetic sources of significant agronomic traits, as well as studies on their genetic control and methods of utilization. We also conduct research on the mechanisms controlling crop resistance to diseases, pests and environmental stresses.

We also apply biotechnological methods in plant breeding and gene transformation. Our applied research culminates in commercial IP, of which the institute has a considerable portfolio.

Our R&D activities are conducted in the Research Center at Radzików and divisions/departments in: Bonin, Bydgoszcz, Jadwisin, Kraków, Młochów and Poznań. There are also seven experimental stations belonging to the Institute and three affiliated plant breeding limited companies, which operate in various regions of Poland.

Institute contacts:

Plant Breeding and Acclimatization Institute
05-870, Błonie, Poland
Tel.: (+48 22) 725 3611
Fax: (+48 22) 725 4714
www.ihar.edu.pl
e-mail: postbox@ihar.edu.pl

1 PCT appl. no. PCT/PL2008/000077
International Publication Number:
WO/2009/061225
Applicant: SKOTAN S.A.
Inventor: Waldemar Rymowicz
Our ref.: PZ/496/PCT

Title: A new strain of Yarrowia lipolytica and its use in the industrial reclamation of glycerol fractions obtained during biodiesel production

This invention relates to an industrial method of reclaiming the glycerol fraction resulting from biodiesel production and the use of the resulting yeast biomass as a high-protein feed additive.

The invention encompasses a specific strain of Yarrowia lipolytica, SKOTAN (accession number KKP 2018 p) for use in this method.

The yeast is cultured on a medium that contains up to of the glycerol fraction. The culturing proceeds until the exhaustion of the fraction. A portion of the post-culture broth seeds the next batch of fresh portion of medium. The invention is specifically designed to be used on batches in excess of 1000 L.

This method results in the increased production of yeast biomass with a protein content of the biomass is in the range 30-50%.

This simple and novel solution disposes of a problematic source material produced in quantity during the production of biodiesel esters.

2 PCT appl. no. PCT/PL2009/050006
International Publication No. WO/2009/ 131476
Applicant: SKOTAN S.A.
Inventor: Waldemar Rymowicz
Our ref.: PZ/520/PCT

Title: Microbiological re-processing of by-products of biodiesel production

This invention concerns an industrial method of reprocessing a mixture of by-products produced during biodiesel production containing a glycerol fraction and degumming residue, as well as a high-protein feed additive produced be obtained by this method.

Yarrowia lipolytica SKOTAN yeast is cultured on a medium which contains from up to 70.0 g/L of the glycerol fraction. The culturing proceeds essentially to the exhaustion of the fraction in the medium. The culture is cyclical, and a portion of the post-culture broth seeds the next batch. The invention is designed specifically to be used on batches in excess of 1000 L.

This method results in the increased production of yeast biomass, where the protein content of the biomass is in the range 42 % to 49.3 %.

This is a simple, yet very novel solution to the problem of utilising an otherwise worthless source material which is produced in quantity during the production of biodiesel.

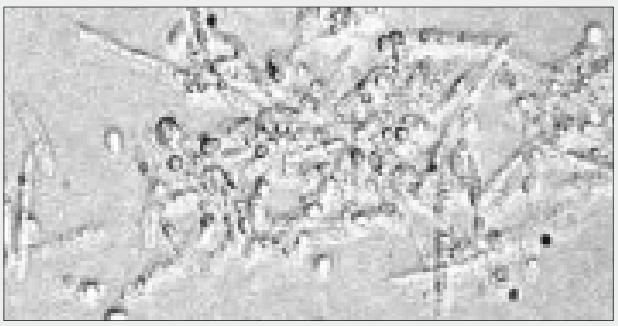

Fig.1

3 PCT appl. no. PCT/PL2009/050005
International Publication No. WO/2009/131475
Applicant/s: SKOTAN S.A.
Inventor/s: Franciszek Baszczok
Our ref.: PZ/570/PCT

Title: Microbiological reprocessing of degumming residue formed during biodiesel production

We offer an industrial method of reprocessing degumming residue from the initial purification of natural fats, as well as a feed additive obtainable using this method from a mixture of by-products of biodiesel production.

Yarrowia lipolytica SKOTAN yeast is cultured on a medium which contains the biodiesel waste glycerol fraction and at least 15% degumming residue until the fraction is essentially exhausted. A portion of the post-culture broth is a seed stock for the next cycle. The invention is designed specifically to be used on batches in excess of 1000 L. Uses claimed for this method are for the reclamation of the biodiesel glycerol fraction and degumming residue, as well as the use of the produced yeast biomass as a high-protein feed additive.

The solutions according to our technology produce a commercially viable product from a substrate that is otherwise difficult and expensive to dispose of.

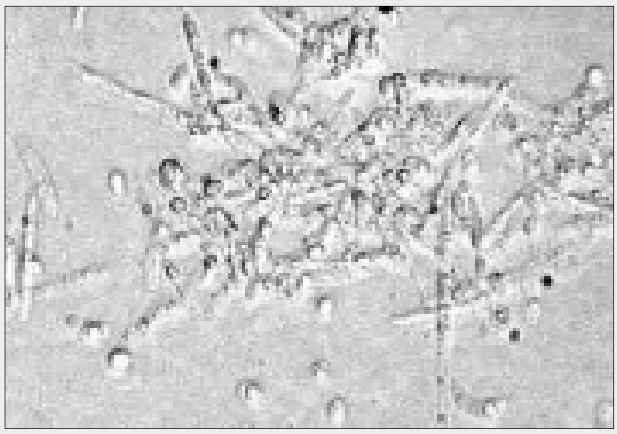

Fig. 2

4 PCT appl. No. PCT/PL2007/000060
International Publication No. WO/2008/026953
Applicant: Wroclaw Medical University
Inventors: Maciej Siewiński, Marek Bryjak, Tadeusz Sebzda, Ewa Kilar, Ireneusz Calkosiński, Anna Janocka, Anil Kumar, Irena Choroszy-Król, Aleksander Pietkiewicz, Marian Grybos, Tadeusz Trziszka
Our ref.: PZ/472/PCT

Title: A system and method for the extra-corporeal purification of blood of pathogenic enzymes

The invention discloses a method and system for the extra-corporeal elimination of pathogenic enzymes from the blood, in particular cathepsin B and L and calpain.

Known carriers of cysteine peptidases are used in the system. The device contains a column with valves at both ends and two peristaltic pumps, where the column feeds into a porous, granular or fibrous absorbent which is saturated with a cysteine protease inhibitor. On both sides, the column has porous membranes with pores of less than 20 μm.

The method of ex vivo purification of blood is characterised in that blood collected from patients is put into contact with the insoluble carrier bearing cysteine peptidase inhibitors and then the purified blood is separated and reintroduced into the patient or stored using standard methods. The contact time between the blood and inhibitors is adjustable, and the carriers containing cysteine protease inhibitors are exchanged as needed.

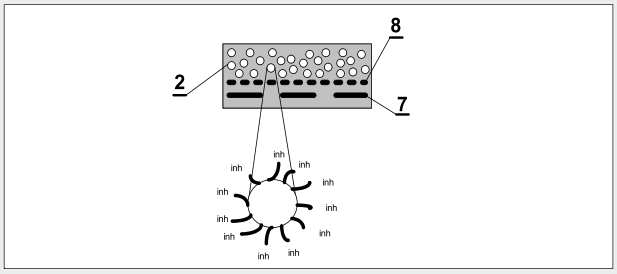

Fig.3

5 PCT Appl. no PCT/PL2008/000086
Polish No. P 383 819
Applicant: Institute of Organic Chemistry
Polish Academy of Sciences
Inventors: Ryszard Ostaszewski, Waldemar Kurek, Dorota Patralska, Dominik Koszelewski

Title: Lovastatin esterase enzyme immobilized on solid support, process for enzyme immobilization, use of immobilized enzyme, biocatalytic flow reactor and process for preparation and/or purification of simvastatin

Lovastatin is prepared via fermentation using a strain of Aspergillus terreus. Simvastatin, with a stronger pharmacological activity and a lower toxicity than lovastatin, is prepared semi-synthetically from lovastatin. This invention discloses lovastatin esterase immobilized on a solid support in water and its use in the process of selective hydrolysis of lovastatin and simvastatinammonium salt mixtures. Selective hydrolysis of the lovastatin ammonium salt into the triol salt, followed by lactonization and crystallization facilitates the full and efficient separation of simvastatin from lactone.

Performing the enzymatic hydrolysis reaction using the native lovastatin esterase enzyme results in a loss of the enzyme, which increases the costs of transforming lovastatin into simvastatin. The use of whole-cell materials from the culture of Clonostachys compactiuscula is possible but this complicates the isolation of the product.

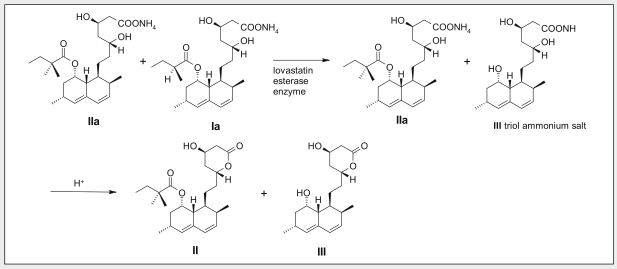

Fig. 4

The immobilization of the enzyme on a solid support makes it possible to avoid these inconveniences and the described reaction sequence can be performed efficiently and productively, resulting in the economical production of pharmaceutical-grade simvastatin under industrial conditions.

Application of Innovative Methods for Lovastatine Esteraze Immobilization to the Synthesis of Simvastatin", No POIG.01.03.02-00-013/09 part-financed by the European Union within the European Regional Development Fund.

6 PCT Appl. no. PCT/PL2010/000010
Applicant: Institute of Organic Chemistry
Polish Academy of Sciences,
Inventors: Piotr Krajewski; Agnieszka Woźniak
Our ref.: PZ/939/PCT

Title: Enaminocarbonyl compounds and their use

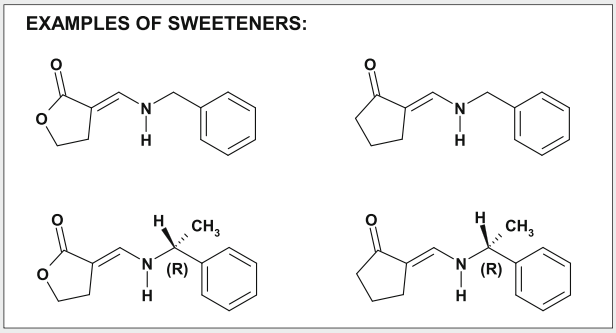

Fig. 5

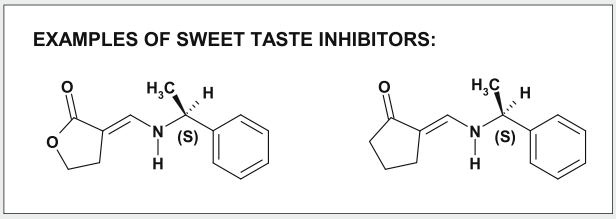

Fig. 6

The invention describes new synthetic sweeteners and sweet taste inhibitors, as well as the use of compounds to modify taste. The invented compounds are produced via an efficient, two-step synthesis from inexpensive commercially available starting materials. The sweeteners are 200-250 times sweeter than a 10% saccharose solution and are characterized by a beneficial taste profile. They may have synergistic effects with known sweeteners and can serve as new model compounds for research.

The inhibitors are tasteless, and inhibit the sweetness of natural and synthetic sweeteners and their combinations. They are structurally related to the sweeteners and are produced essentially in the same way. Sweeteners, if chiral, have an R configuration, and inhibitors have the opposite, S configuration. They may have synergistic effects with known sweet taste inhibitors, like lactisole.

New Synthetic Sweeteners and Sweet Taste Inhibitors", No POIG.01.03.02-00-012/09 part-financed by the European Union within the European Regional Development Fund.

7 European no.: EP 10461504.2
Applicant: Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology, Gliwice Branch
Inventors: Michał Jarząb, Małgorzata Oczko-Wojciechowska, Małgorzata Wiench, Krzysztof Fujarewicz, Aleksandra Pfeifer, Michał Świerniak, Barbara Jarząb
Our ref.: PZ/923/EP

Title: Kit, method and use for the detection of the gene expression profile of anaplastic thyroid cancer.

This invention was made under the auspices of Project 1.3.2 of the program entitled "Innovative Economy" at the Institute of Oncology in Gliwice. The goal of the program was to discover RNA markers for thyroid cancer, specifically for the detection it's most common variant, anaplastic thyroid cancer.

Information regarding the gene expression profile of thyroid cancer and its use in diagnostics are thus far insufficient for the effective and certain identification of anaplastic thyroid cancer.

Our invention, based on the genetic signature delivers an excellent molecular tool which allows the differentiation of varius types of cancers, in particular using microarrays.The diagnosis of a particular form of the disease, anaplastic thyroid cancer, allows one to tailor therapy to the variant of the illness, making the treatment not only more efficacious, but greatly reducing the time and funds spent on trial-and-error approaches to treatment selection, as well as cutting down on the side effects of the often ineffective treatments.

8 Polish no. P.390272
Applicant: STEM CELLS SPIN Sp. z o.o.
Inventors: Wojciech Dziewiszek, Marek Cegielski, Marek Bochnia
Our ref.: PZ/941

Title: Homogenate from stem cells derived from growing deer antlers, a method of manufacturing it as well as its use

We offer a bioactive homogenate of MIC-1 (DSM ACC2854) stem cells from deer antlers, methods of its production and uses.

This invention delivers a preparation based on MIC-1 stem cells and products based for the regeneration of the skin.

The invention provides for a method of producing the bioactive cell homogenate through cell lysis. One unit of homogenate contains the titrated extract from a million cells. It may be used on its own or as the active ingredient in a pharmaceutical or cosmetic composition.

MIC-1 stem cells lack the ethical considerations caused by human embryonic cells.

Some benefits and uses of the MIC-1 stem cell homogenate are:

- Rapid epithelium formation conducive to healing,
- Hair growth, collagen fibre synthesis and dermal angiogenesis.
- Potent anti-wrinkle, lifting and anti-aging ingredient.

- Treatment of diabetic, vascular, radiation and chemotherapy lesions.
- Biostimulating treatment of mucosa during halitosis, oral, nasal and vaginal ulceration

11 Polish patent appl. No. P 388 996
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University

Title: Application of angiotensin (1-9) for dendritic cells stimulation

New stimulant of dendritic cell migration:

The offered technology is a new application of a biogenic peptide to stimulate the chemotaxis of dendritic cells, and thereby to modulate the immune response. The increase in the migration capacity of these cells is of clinical relevance and may be useful in the treatment of autoimmune diseases, viral infections and atherosclerosis, as well as during preparation of cancer vaccines ex vivo.

Dendritic cells are specialised leukocytes present in almost all tissues of the body. The regulation of their migration can be used to modulate many immune reactions. The technology is based on the discovery that an endogenous peptide, which has been reported as biologically inactive, has the ability to stimulate the chemotaxis of dendritic cells. The stimulant can be used in the therapy of a number of diseases and disorders, including asthma, atopic diseases, cerebral stroke and myocardial infarction.

12 PCT appl. no. PCT/PL2009/000034
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University

Title: Thermosensitive polymer of natural origin with anti-adhesive properties for biomedical applications

The subject of the offer is a new thermosensitive polymer with anti-adhesive properties based on modified hydroxypropyl cellulose, as well as the method of its production. The offered material can be used in a range of biomedical applications, including implant manufacturing, as well as the production of semi-permeable membranes, contact lenses and microcapsules for controlled drug release.

The material can be used in a number of biomedical applications, including:

- anti-thrombogenic medical coatings,
- implant production, including implanting of cells and tissues,
- microcapsules for controlled release of drugs,
- anti-adhesive surfaces in production of contact lenses,
- semi-permeable membranes, biosensors and other surfaces resistant to protein aggregation.

13 PCT appl. no. PCT/PL2009/000110
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University

Title: Composite material for prolonged release of heparin

The subject of the offer is a novel material in gel form that facilitates the prolonged release of heparin in a patient. The material is a composition of

algin and hydroxypropyl cellulose, which contains immobilised heparin. The offered material can be used for controlled administration of heparin and in tissue engineering.

Heparin is a potent inhibitor of blood clotting with many clinical applications. However, the biological duration of the drug is just an hour, which is a serious limitation to its use. The offered material, based on algin-hydroxypropyl cellulose gel, can be used for the controlled delivery of heparin. The drug is released from the gel for as long as two weeks and the rate of the process can be controlled both by the composition and temperature, due to the thermosensitivity of the material in physiological temperatures.

14 PCT appl. no. PCT/PL2010/050007
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University
Inventors: Przemysław Łabuz, Wojciech Macyk, Grażyna Stochel, Piotr B. Heczko, Magdalena Strus, Justyna Derdzińska
Our ref.: PZ/754/PCT

Title: Nanocrystalline photocatalytic colloid, a method of producing it and its use

Modified nanocrystalline titanium dioxide materials are offered, useful for the photocatalytic inactivation of microorganisms and degradation of organic pollutants using visible light.

Unlike most titanium dioxide-based photocatalysts, the offered TiO2 modifications exhibit photodegradation/photoinactivation in visible light conditions. Their main advantages are:

- no dark toxicity and a strong light-induced phototoxicity;
- no need to use UV light sources;
- transparent colloids are applicable as surface impregnation and coatings;
- stability over a wide pH range, especially in the neutral conditions,
- low production costs.

Bovine serum albumin photodegradation and Escherichia coli photoinactivation confirmed the high photocatalytic activity of the modified nanocrystalline titanium dioxide under visible light irradiation. Applications of this group of materials as well as the procedure of producing modified nanocrystalline titanium dioxide are the subjects of two patent applications.

15 PCT appl. no. PCT/PL2009/000070 and PCT/PL2010/000012
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University

Title: Polymer material based on chitosan for heparin removal and neutralization in medical applications

The offered technology is a use of modified chitosan, in solution or as cross-linked microspheres, for the removal of heparin from bodily fluids. The technology can be used for internal heparin neutralisation in a patient, but also in extracorporeal medical.

Heparin is an anticoagulant used during surgical procedures and in many medical device applications. It may cause serious side-effects, including bleeding, and must be removed or neutralised. Current methods of heparin removal can themselves produce side-effects, i.e. protamine adversely affects up to 10% of patients. The alternative is based on modified chitosan, which is a biodegradable and biocompatible polysaccharide.

Using the polymer in solution allows for quick administration to the patient (e.g. as an intravenous formulation) and neutralisation of heparin anticoagulant activity.

Material in the form of microspheres and/or film can be used for construction of devices for extracorporeal heparin removal, mostly from blood and plasma.

16 Polish patent appl. no. P 388 555 and P 388 556, PCT to be submitted in July 2010
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University

Title: Novel position emission tomography

Novel PET technology for medical diagnosis is offered, including novel methods of signal analysis used for tomographic image reconstruction. The use of organic scintillators leads to a significant reduction of the manufacturing cost and allows for construction of larger diagnostic chambers.

PET is the most advanced diagnostic method for non-invasive medical imaging. Currently, all commercial PET devices use expensive inorganic scintillators as gamma detectors. The detector spatial and time resolution limits the imaging accuracy. The solution offered here has the following advantages:

- the use of affordable organic scintillation materials;
- the reduction of the number of photomultipliers, while improving the accuracy of the reconstructed image;
- the possibility of enlarging the size of the diagnostic chamber.

Both described PET devices are the subjects of patent applications. The research and development efforts concerning this technology are being continued at the Faculty of Physics, Astronomy and Applied Computer Science of the Jagiellonian University.

17 PCT appl. no. PCT/PL2009/000004
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University

Title: Drug candidates for treatment of epilepsy and / or neuropathic pain

A group of 80 molecules, containing two in late preclinical phase, has been developed at the Jagiellonian University Medical College. The two most active molecules have been tested in an array of pre-clinical assays and their efficacy has been evaluated and confirmed in vivo.

The key features of the offered compounds are:

- small-molecule sodium channel blockers,
- well described solubility and stability – the compounds fulfil the Lipinski rule of five,
- broad spectrum of efficacy in both epilepsy and neuropathic pain models – exceeding currently available antiepileptic drugs (AEDs),
- efficacy in focal seizures and pharmacoresistant seizures exceeding other AEDs,
- long duration of activity,
- extensively tested in vitro, ex vivo and in vivo for other possible mechanisms of action,
- well tested for possible side effects: broad safety, no mutagenicity, minimal CYP influence.

Several of these molecules have undergone proof of concept studies within the Antiepileptic Drug Development program at the NIH. Complete documentation for selected molecules is available.

18 Polish patent appl. no. P 384 305
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University
Inventors: Jerzy Dobrucki, Zbigniew Darzynkiewicz, Brian W. Lee, Gary L. Johnson
Our ref.: PK/524

Title: Fluorescent probe for collagen staining

The offered technology is a new fluorescent probe for collagen staining suitable for use in medical diagnostics and research. This marker allows the selective observation of collagen in vivo in intact tissue, something which was not previously possible using existing methods for visualizing these proteins.

Collagen is an extracellular matrix protein that is the main protein component of mammalian organisms. In animal tissues it forms fibres, which are responsible for mechanical integrity of tissues and play role in wound healing, aging and other important biological processes, including many morbid conditions. The technology can be used for observation of collagen in vivo in intact tissues, as well as in fixed tissue and other collagen-containing materials. The fluorescent probe is the only one that allows specific visualization and study of 3D-structure of collagen fibre network in situ in living tissues.

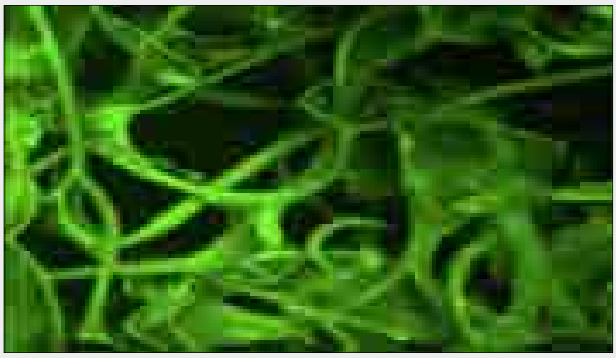

Fig. 7

The research and development efforts concerning this technology are being continued at the Faculty of Physics, Astronomy and Applied Computer Science of the Jagiellonian University.

19 PCT appl. no. PCT/PL2010/000016
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University

Title: Hybrid photocatalysts based on nanoclays for water purification

The offer covers hybrid photocatalysts based on nanoclays and their application in photocatalytic reactions, in particular in environment-friendly methods of water purification.

This technology is based on the photocatalytic degradation of contaminats using materials produced by the modification of layered nanoclays with polymers that can absorb both visible and UV light. The key features of the hybrid photocatalysts are:

- low cost, abundant, natural, non-toxic components (clays + chromophores + polymers),
- energy source: solar,
- versatile, can be tailored to specific needs (pollutants),
- easy after-use removal – precipitation in water,
- efficient – may use both UV and visible light,
- no heavy metals.

The research and development efforts concerning this technology are being continued at the Faculty of Physics, Astronomy and Applied Computer Science of the Jagiellonian University.

24 PCT appl. no. PCT/PL2010/050005
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University
Inventors: Michał Bereta and Paulina Chorobik
Our ref.: PZ/643/PCT

Title: New strain of Salmonella enteric s. Typhimurium, its use and a method to obtain a therapeutic vaccine vector

The offered technology is a novel cancer therapy based on genetically modified bacterial strain of Salmonella typhimurium VNP20009 that is able to colonise tumour tissue. Tumour targeting was enhanced by antibody fragments specific to carcinoembryonic antigen. Further genetic modifications were introduced to increase apoptosis and necrosis within the tumour microenvironment, resulting in augmented cancer-specific immunity. The vaccine exhibited potent efficiency in animal studies.

Main features:

- efficient anti-cancer activity in animal studies (subcutaneous tumour model and lung colonisation model),
- mechanism of action based on natural features of Salmonella typhimurium as an intracellular pathogen,
- improved targeting with anti-tumour antibodies,
- enhanced proapoptotic potential due to site-specific protein overexpression,
- favourable toxicity profile: previous clinical studies shown safety of therapies based on VNP20009 strain.

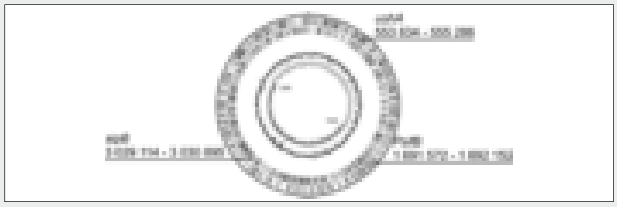

Fig. 8

29 PCT appl. no. PCT/PL2009/000034
Applicant: Centre for Innovations Technology, Transfer and University Development, Jagiellonian University

Title: Thermosensitive polymer of natural origin with anti-adhesive properties for biomedical applications

The subject of the offer is a new thermosensitive polymer with anti-adhesive properties based on modified hydroxypropyl cellulose, as well as the method of its production. The offered material can be used in a range of biomedical applications, including implant manufacturing, as well as production of semi-permeable membranes, contact lenses and microcapsules for controlled release of drugs.

The material can be used in a number of biomedical applications, including:

- anti-thrombogenic medical coatings,
- implant production, including implanting of cells and tissues,
- microcapsules for controlled release of drugs,
- anti-adhesive surfaces in production of contact lenses,
- semi-permeable membranes, biosensors and other surfaces resistant to protein aggregation.

30 PCT appl. no. PCT/PL04/00044
Applicant: Read-Gene
Inventors: Cezary Cybulski, Jan Lubiński, Bohdan Górski, Bartłomiej Gliniewicz, Andrzej Sikorski
Our ref.: PZ/104/PCT

Title: Polymorphism in the human NBS1 gene useful in diagnostic of inherited predisposition to cancer

The invention defines means and methods of diagnosis and treatment of inherited predispositions to cancer, especially prostate cancer or lobular invasive breast cancer using NBS1 germline changes for diagnosis.

This invention encompasses polynucleotides of NBS1 gene variants (and vectors containing them) associated with an inherited predisposition to prostate cancer or lobular invasive breast cancer.

Also claimed are host cells and their use for the production of NBS1 protein variants, including the NBS1 variants themselves and antibodies against them. The invention discloses transgenic animals comprising the above-described variants or vectors, as well as methods for identifying and producing drugs against cancers based on NBS1 malfunctions.

Lastly, we provide for a pharmaceutical and diagnostic compositions comprising the above. These are particularly useful for diagnosis and treatment of various cancers, using substrates, inhibitors or modulators of the NBS1 gene or its product.

31 PCT appl. no. PCT/PL2005/00006
Applicant: Read-Gene
Inventors: Jan Lubiński, Cezary Cybulski, Tadeusz Dębniak, Grzegorz Kurzawski, Janina Suchy
Our ref.: PZ/141/PCT

Title: Determining a Predisposition To Cancer

CHEK2 is involved in prostate, breast, stomach, thyroid, colon or kidney cancers and myeloproliferative syndrome. NOD2 plays a role in breast, colorectum, larynx, lung, ovary, stomach and thyroid cancers. CDKN2A is implicated in malignant melanoma, breast, colon and lung and likely pancreas and larynx cancers.

This invention provides methods and kits for detecting these predispositions, including the detection of alterations in the sequences of CHEK2, NOD2, and CDKN2A in a biological sample.

The present invention provides the methods and a diagnostic kit for identifying a predisposition to at least one of the abovementioned cancers. The kit includes material and at least two different polynucleotides capable of amplifying at least one region of CHEK2, NOD2 and/or CDKN2A. The variants shown are markers of significantly altered susceptibility to various cancers. We can now identify individuals who should be covered by special prophylaxis programs.

32 PCT appl. no. PCT/PL2007/000035
Applicant: Read-Gene
Inventors: Tomasz Byrski, Jacek Gronwald, Jan Lubiński, Tomasz Huzarski, Steven Narod
Our ref.: PZ/304/PCT

Title: Fast assignment of adequate neoadjuvant chemotherapy for breast cancer patients based on the identification of constitutional BRCA1 mutations

This invention encompasses a mode and means for optimizing breast cancer neoadjuvant chemotherapy using the BRCA1 genotype. It is now possible to identificaty anomalies of germline BRCA1 correlated to a weak clinical response to taxane derivatives in breast cancer patients who have already developed a tumour.

This invention encompasses a method for predicting the response to taxane chemotherapy of breast cancer patients by analysing genetic material. As the method analyses germline founder mutations, the prediction may be made when a predisposition to breast and ovarian cancer is suspected.

Our solution facilitates BRCA1 germline mutation analysis based on population-specific panels, reliably and rapidly pinpointing the alterations. The mutations may be detected directly or indirectly in DNA, RNA or protein.

The biological material is not necessarily a tumour biopsy, but preferably an easily available biological material, such as peripheral blood or saliva, limiting potential therapies even before tumour development.

33 PCT appl. no. PCT/PL2006/000062
Applicant: Read-Gene
Inventors: Jan Lubiński, Cezary Cybulski, Tadeusz Dębniak, Grzegorz Kurzawski, Janina Suchy
Our ref.: PZ/335/PCT

Title: Determining a predisposition to cancer by identification of genotype combinations of specific variants of the genes CYP1B1, BRCA2 and CHEK2

This invention defines a method and composition for the detection of an inherited predisposition to various cancers, as well as the use of particular germline variant combinations within the CYP1B1, CHEK2 and BRCA2 genes for such a diagnosis. We have made it possible to synthesize DNA and identify genomic abnormalities which are correlated with an increased genetic predisposition to cancers of various organs, with a synergistic effect over the individual variants.

The invention comprises the detection of genetic predispositions to various cancers characterized by the analysis of biological material from a patient. The presence of any of the examined genotype combinations of these three gene variants indicates a high predisposition to breast cancer and, likelihood of colon, kidney, larynx, lung, pancreas, prostate, thyroid, vaginal and ovarian cancers. This is different than the sum of the individual low-risk effects of the mentioned variants of these three genes.

34 PCT appl. no. PCT/PL2009/050011
Applicant: Read-Gene
Inventors: Tomasz Byrski, Jacek Gronwald, Jan Lubiński, Tomasz Huzarski, Steven Narod
Our ref.: PZ/611/PCT

Title: Fast assignment of adequate chemotherapy with platinum based drugs for cancer patients based on the identification of constitutional BRCA1 mutations

The offered invention defines a method for predicting the response of a cancer patient to platinum-based chemotherapy, depending on BRCA1 genotype, based on the analysis of the patient's genetic material. As the method is focused on germline founder mutations, the prediction is already possible at a stage well before cancer development.

A genetic analysis of BRCA1 germline mutations based on population-specific panels of known founder mutations is particularly favourable, since it facilitates the highly reliable identification of the most common BRCA1 mutants with conventional DNA/RNA techniques.

The biological material for genetic analysis is not necessarily a tumour biopsy. The identification of the constitutive BRCA1 genotype is preferably performed on easily available biological material, such as peripheral blood or saliva. An analysis based on constitutive BRCA1 mutations constrains the spectrum of potential therapies already from the outset, even before tumour development.

35 No. PCT/PL2008/050015
Applicant: Institute of Plant Breeding and Acclimatization
Inventor: Włodzimierz Przewodowski
Our ref.: PZ/480/PCT

Title: Immunological tests for the presence of bacteria which make use of antibodies obtained using a specific method

The offered invention comprises the use of a bacterial surface antigen to produce an immunological test for detecting potato ring rot-causing bacteria in a sample suspended in a buffer. This suspension is mixed with an antibody specific against the bacterial antigen and filtered on a membrane impermeable to the bacteria to detect the presence of bound cells using antibodies tagged with colloidal gold and silver ion reduction.

Alternatively, bacteria can be immuno-trapped on PC membranes permeable to the bacteria and modified with glutaryl aldehyde, containing immobilised anti-Cms antibodies.

We define two kits and their uses: one contains nutrients for the immuno-trapped bacteria, the other contains a granular absorbent with a chemically activated surface, colloidal gold and immobilised antibodies specific against the selected bacterial antigen. Immunological assays such as ELISA or IFAS are also provided for. The test is a simple and quick method for evaluating the presence of Cms bacteria.

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

INNOVATIVE ECONOMY
NATIONAL COHESION STRATEGY

Applicants:

SKOTAN S.A.
Uniwersytecka Str. 13
40-007 Katowice, Poland
Tel. no. (+4832) 603 06 22
Fax no. (+4832) 603 06 20
Mail address: biuro@skotansa.pl.
www.skotansa.pl

Wroclaw Medical University
Wybrzeże L. Pasteura 1
50-367 Wroclaw, Poland
Tel. no. (+4871) 784 10 02
Mail address: patent@ak.am.wroc.pl
www.uni.wroc.pl

Institute of Organic Chemistry Polish Academy of Sciences
M. Kasprzaka str. 44/52 Warszawa, Poland
P.O. Box 58
Tel no. (+4822) 343 20 00
Fax no. (+4822) 632 66 81
Mail address: icho@icho.edu.pl
www.icho.edu.pl

Stem Cells Spin Sp. z o.o.
Lenartowicza str. 6
51-140 Wrocław, Poland
Tel. no. (+4871) 326 54 03
Fax no. (+4871) 326 54 04
www.stem-cells-spin.com

Centre for Innovations Technology, Transfer and University Development, Jagiellonian University
Address: Czapskich str. 4
31-110 Kraków, Poland
Tel. no. (+4812) 663 38 32
Fax no. (+4812) 663 38 31
e-mail address: cittru@uj.edu.pl
www.cittru.uj.edu.pl

Read-Gene S.A.
Address: P.O. Box 899
70-952 Szczecin, Poland
Tel no. (+4891) 433 42 56
e-mail address: office@read-gene.com
www.read-gene.com

Plant Breeding and Acclimatization Institute at Radzików
05-870 Błonie, Poland
Tel. no. (+4822) 725 36 11
Fax no. (+4822) 725 47 14
e-mail address: postbox@ihar.edu.pl
www.ihar.edu.pl

WTS RZECZNICY PATENTOWI | WTS PATENT ATTORNEYS

ul. Rudolfa Weigla 12, 53-114 **Wrocław**
tel. +48 71 346 74 30, fax +48 71 346 74 32
e-mail: wroclaw@wtspatent.pl

ul. Tamka 34/25, 00-355 **Warszawa**
tel. +48 22 829 55 84, fax +48 22 826 98 07
e-mail: warszawa@wtspatent.pl

Candidplatz 13 (5. OG), 81543 **Munchen**
tel. +49 (089) 624 23 978, fax +49 (089) 624 23 979
e-mail: munchen@wtspatent.pl

www.wtspatent.pl