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International Biotech & Medtech
Business Plan Competition

Participants

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Bio Locust Control

The aim of our business project is the distribution of a novel bio-pesticide that is effective against gregarious locusts and is based on a patent-pending combination of natural oils. Locust swarms travel thousands of kilometres while devastating vegetation and crops. As they continually contribute to the emergence of humanitarian crisis, preventing locust-associated migrations is of critical importance. The use of synthetic pesticides for the control of locust outbreaks leads to severe environmental problems. Our bio-pesticide provides an alternative to synthetic pesticides, as it is toxic against the target species but harmless for humans and the ecosystem. The market for bio-pesticides is strongly increasing and is expected to reach a value of 6.4 billion US Dollars by 2023. The main customers are locust control authorities, farmers, food safety companies and crop protection institutions in Africa, Near-East, Asia, Australia, South-America, USA and Southern Europe.

CelHeal

Antimicrobial resistance, developed due to the overuse/misuse of antibiotics, is an increasingly serious threat to global public health and prosperity. Cell-wall polysaccharides have an immunomodulatory property which can be advantageously used to strengthen the immunity to fight with infectious diseases. However, the current hazardous and destructive chemical process employed produces poorly characterized cell-wall polysaccharides with inconsistent quality, which is unsuitable for such biomedical applications. Furthermore, the chemical process also releases a large amount of aqueous waste carrying toxic chemicals which negatively impacts the environment.CelHeal aims to develop highly-specified cell-wall polysaccharides with enhanced immunomodulatory properties customized for biomedical applications. CelHeal offers well-specified and customized structures with consistent quality, high efficacy, and safety. CelHeal employees' enzymes in the process which is widely accepted and eco-safe.

Dr. DI Hanna Harant

A peptide has been identified which can inhibit gene expression and replication of several DNA viruses, including herpes simplex virus-1 and -2 and cytomegalovirus, but also that of adenovirus and vaccinia virus. The peptide has the potential to be a novel broad-acting and pan-herpes antiviral agent. The peptide acts at early steps of virus infection during or after entry of the virus in the cell. Several variants of the peptide have been generated which led to the identification of a “lead structure”. This peptide will be tested in a herpes virus-induced ocular keratitis model, and following that, a systemic cytomegalovirus model will be pursued. Final aim is the achievement of the preclinical proof-of-principle and transition of the molecule to the preclinical development. All steps are described in this business plan.

G.ST Antivirals- Metabolic solutions for viral infections

G.ST Antivirals is a to-be founded Spin-off company of the Medical University of Vienna. G.ST aims at developing antiviral therapies against rhinovirus, the causative pathogen of the common cold. The founders of G.ST are Dr Guido Gualdoni and dir. Johannes Stöckl, both renowned experts on rhinovirus biology. They have identified the metabolic requirements of rhinovirus reproduction and utilized this knowledge for the design of a targeted therapy with 2-deoxyglucose. This simple sugar analogue impairs viral exploitation of the host cell metabolism and potently interrupts viral replication in vitro and in vivo. The substance is very well tolerated and can easily be produced in large scales. G.ST aims at further developing this substance towards clinical utilization and will maintain laboratories and staff at the Vienna Competence Centre at Lazarettgasse 19, 1090 Vienna.

Projects Category Biotech/Pharma

Ganymed

The pitch deck describes development of a novel small molecule compound from bench to market. The compound shall change the market for immunosuppressive drugs in organ transplantation as it separates from competitors in multiple categories. The compound was developed by a multi-national team of scientists from the Medical University of Vienna, Austria and Howard University, Washington D.C., United States. More than 10 years of development yielded a compound that is of very low toxicity, high potency and inexpensive to produce.

human placenta substrate

We have developed a novel non-cellular biomaterial from human placenta (human placenta substrate; hpS) – for applications in tissue engineering and regenerative medicine (TERM). It is a multicomponent-system, which can be used for various in vitro applications (2D/3D/bio-ink/in vitro diagnostic/medium supplementation - e.g. our material can compensate Matrigel(R) or Fetal Calf serum (FCS). Moreover, we aim to develop it for clinical wound healing applications.

Currently, we are a growing research consortium with more and more new applicability for cell culture research (increasing market size). We want to produce our material/product in industrial scale at the Vienna Biocentre starting by the end of 2019. We also aim to automatize the isolation procedure, to minimize Batch-to-Batch variations. Our estimated market size is at least around 500 Million USD - and we aim to penetrate the market to at least 1% by the end of 2025.

Kern Tec

The value of stone fruit (apricot, cherry, peach, plum) is currently completed with the use of fruit pulp in Europe. At the European level, more than 550,000 tons of stone fruit kernels are produced annually, which are disposed of or at best used as heating material. However, these raw materials offer several valuable ingredients, as the inner seed is rich in proteins, unsaturated fatty acids and minerals.

A major challenge, however, is cyanide, which is present in all seed varieties. It makes the raw seed or their pressed residues inedible, so that only oils obtained from stone fruit kernels are currently permitted on the market. Kern Tec offers a technology for the splitting, sorting and treatment of stone fruit kernels of all four varieties. The

raw materials can thus be economically refined into high-quality products with many application areas, such as snack products, edible and cosmetic oils, protein flours, muse & plant milk, natural blasting agents and many more.

KinCon biolabs

Kinases are the most important drug-target for the treatment of cancers. We have invented a method termed KinCon to measure kinase-activities. In this regard we have filed patent applications in the US and Europe. Drug-driven effects on specific kinase conformations are reflected by quantifiable changes of emitted light of our KinCon biosensor. Therefore, our reporter-system allows us to predict kinase inhibitor efficacies in vivo. This information is an asset for companies investing in the development of the next 'block buster kinase drug ‘In contrast to existing kinase profiling services KinCon measurements are performed in real-time and within living cells. Moreover, KinCon kinase drug profiling represents a precision medicine approach and allows the integration of defined patient mutations. Based on the KinCon technology we want to establish a fee-for-service kinase profiling business

model to become an international player in the $100 million kinase inhibitor market.

Life Science Startup Accelerator

Pregenerate Inc. is currently based in London, using patent-pending technology "cartilage-on-a-chip" to accelerate drug development and personalized medicine for arthritis. Our cartilage on a chip technology is based on the establishment of an array of fully functional healthy and diseased cartilage-like structures that mimic the onset and progression of osteoarthritis. Consequently, our technology allows early-stage pharmaceutical research and development directly and ethically on physiologically relevant human derived cells, saving pharmaceutical companies cost and time. Pharmaceutical companies spend $ 3.5 billion annually on osteoarthritis and an average drug required 10-12 years to develop to market. Pregenerate Inc. de-risks the final stages of drugdevelopment by increasing the likelihood of compounds to pass phase 3 development. Pregenerate Inc. focuses in the disease on a chip market, poised to highly disrupt the existing arthritis drug development market.

LightMatters

Nano, a principle developed by nature. Current discoveries of the mechanisms behind Nano enable ground-breaking innovations from everyday life products to pharmaceuticals, precision medicine and beyond - making it a key technology of the 21st century. Herein, exact design and reproducibility of Nano materials and particles is challenging but crucial for achieving desired performance, thus reliable measurements within production processes are essential. However, current state of the art measurement technologies is unable to fulfil industry requirements anymore, limiting innovation and yield. The DeepTech StartUp-Project LightMatters solves this problem with its innovative Opto Fluidic Force Induction technology: based on sophisticated combinations of bio photonics and microfluidics, LightMatters enables novel medical diagnostics and provides the first continuous real-time Process Analytical Tool (PAT) for pharmaceutics & biotechnology and beyond - unleashing the future of Nanotechnology.

Lithos

The Western Corn Rootworm (WCR, Diabrotica virgifera) is a pest that has turned into a major threat to Europe's corn production, affecting now 7 million hectares, with billions of Euros in damages.

After the ban of the highly toxic neonicotinoids within the EU, there is currently no effective protection against the WCR.

LITHOS has developed and patented CornProtect, a biological and highly effective solution for protecting corn against WCR. It works as a target specific "contraceptive". It is non-toxic and harmless for all other organisms and the environment. It allows a slow release of the pheromone and mating disruption over the active period of WCR adults. It's also easy to use and affordable and can be used in conventional and organic farming. LITHOS has conducted extensive field tests, which have proven CornProtects effectiveness and long-lasting effect (5-8 weeks):

It is reducing the fertility rate of WCR 2 to 6 times. Root damage generated is reduced by 50%.

mEryLo'

Cancer is one of the most widely spread pathologies, expected to rise in the next two decades. Despite the huge progress towards the development of new therapies, chemotherapy based on drugs/monoclonal antibodies is still largely used, especially for liquid tumours.

mEryLo' is developing an innovative medical device that will work directly on the patients' own blood at their bedside. "Hiding" the drug into the Red Blood Cells (RBCs) will greatly impact the patients' quality of life, reducing the side effects due to overdosing. The RBCs will release the drug gradually, with a sustained release up to 40 days.

The reduction of the hospital admissions and treatment of the side effects can also reduce the sanitary system costs and personnel use. From the point of view of the pharma industry mEryLo' is providing a tool to re-invent any existing and effective drug formulation as an original compound, combining the drug and the patient RBCs.

Neurolentech

Autism and epilepsy are neurodevelopmental disorders affecting 1-2% of the population. Autism or epilepsy are not one but hundreds of genetically distinct disorder subtypes. Currently, precise diagnosis by doctors is limited and often does not capture the precise cause of the disorder. We will offer a unique, personalized and precise genetic and cellular diagnostic analysis for paediatric patients with currently intractable neurodevelopmental disorders employing the patient's own reprogrammed cells, which will be further exploited to identify novel drug treatment options. This personalized medicine approach puts the patient in the direct spotlight. With millions of affected people there is a huge market potential. With our team of 5 highly skilled researchers we have secured initial funding to bring our translational science to life. Our vision: translating basic research into treatments for epileptic or autistic children will hopefully change the destiny of many suffering children.

NexGen

The product, a tubular PVA prosthesis, is designed to suture blood vessels and peripheral nerves.

From slide 2 up to 7, the product is presented with its main characteristics. Weaknesses and strengths are listed and compared to an average of products available in the market.

From slide 8 to 12, the business model is presented on how to get money from the idea. This kind of model is aggressive, ambitious and disruptive as it foresees more than half for the total investment for the industrial partner.

Marketing analysis takes under consideration different growth trends in the medical devices sector itself but also in the proper target segments (like private hospitals and clinics). Having the numbers is possible to get different models of forecast and see the future growth. This combined with the cost's projections, gives the revenues stream across 4 years.

The time to market is estimated to be of 1 year, giving the possibility to reach the break event point already in year 2.

pramo molecular

pramo is developing molecular delivery systems for nucleotide drugs as siRNA or antisense DNA that can target "undruggable" diseases like cancer or infections. These drugs have blockbuster potential if they can be produced in GMP-compliant form and efficiently reach the patient's destination without causing significant side effects.

This is hardly possible until now, since the nucleotide drugs are highly charged and severely overcome the cell membrane. So far, nucleotide drugs are mainly applied locally or packaged in nanoparticulate delivery systems. These are immunogenic and are easily eliminated or degraded.

Therefore, intensive efforts are being made to develop molecular delivery systems. pramo molecular has provided the proof of principle for a lipid-based delivery system in cells and in the mouse. Through close cooperation with start-ups and institutes along the value chain, we want to quickly develop and market efficient delivery systems for different target cells and diseases.

Rockfish Bio

Recently, it was shown that senescent cells accumulate during the aging process in vivo in various tissues and at sites of age-associated pathologies and that their clearance increases the health span and blocks the development and progression of age-related diseases. Since then the quest for pharmacological compounds selectively eliminating senescent cells termed “senolytics” has begun.

We discovered the arachidonic acid metabolism to be altered in senescent cells and found a way to use this knowledge for the development of novel senolytic compounds. Since then, we generated convincing in vitro data that our approach is indeed feasible. Our next goal is the confirmation in an in vivo model for an age-related disease. With this in vivo proof-of-principle we will be able to secure funding from venture capitalists, as stated in their letter of intent. We then plan to proceed to drug development and pre-clinical/clinical trials after foundation of our company 'Rockfish Bio'.

STAT5 inhibitors

Cancer is a prevalent disease with high mortality. Progress in the development of new therapy options has been made, prolonging the survival and life quality of many patients. However, due to the frequent development of

therapy resistance and severe side effects, it is crucial to develop novel targeted anti-cancer therapies that are safer and more efficient. The most common reasons for severe side effects of cancer therapeutics is either that they are untargeted, such as chemotherapy, or that targeted therapy is not specific for cancerous cells and hits healthy cell types also. Notably, previous work has shown that oligomerization of oncogenic STAT5 transcription factors occurs only in leukemic cells and not in healthy cell types. Furthermore, genetic approaches to normalize excessive oncogene transcription validated the efficacy of blocking STAT5 oligomerization as a tumour-specific vulnerability of leukemic cells. Our aim is to develop new classes of targeted anti-cancer drugs.

UmYummy FOODLABS GmbH

UmYummy FOODLABS manufactures natural and bio-certifiable food ingredients that are taste-intensive and healthy. These ingredients are created efficiently and economically by refining regional raw materials for the respective use in industrial and commercial food production.

VECTR

The application of gene editing technology is currently limited by the lack of safe and efficient methods to deliver RNA-guided endonucleases to target cells. We have engineered lentivirus-based nanoparticles to co-package the CRISPR-associated protein 9 (Cas9) as a fusion with Vpr and the U6-sgRNA template for simultaneous delivery to cells. The nanoparticles outperform currently available CRISPR/Cas9 delivery technologies in their efficiency, safety, and capability to edit even the "hard-to-manipulate" cells such as T lymphocytes. The novel approach may provide a platform for the efficient, safe, and selective delivery of genome editing enzymes to cells for the treatment of the genetic diseases and cancers (in combination with CAR-T therapy currently approved by the FDA). In the pitch deck for the early

phase track, we describe our vision of how to bring the new technology to patients as well as to scientists aiming to develop disease models.

Vienna Textile Lab

The textile industry is one of the largest industrial polluters globally and has one of the largest water footprints, with the dyeing process being one of the main culprits of polluting rivers and lakes and posing a working hazard for textile workers. That is why Vienna Textile Lab, a young Austrian company, has decided to take up the challenge and combines biotech and chemistry to produce dyes from naturally occurring and non-hazardous bacteria to colour yarns, fabrics and textiles. The Vienna Textile Lab has already won several prices among which the renowned Climate Launchpad in 2017.The strength of Vienna Textile Lab relies on a large and international team with complementary skills, education and seniority, as well on as on 3 very tight partnership with a research Institute (TU Wien), a Viennese dyehouse(Fritsch Färberei) and a Chemist and Bacteriograph (Erich Schopf). Finally, Vienna Textile Lab pride itself to be also a female founder company.

digitAAL Life GmbH

digitAAL Life GmbH offers a tablet-based solution for multimodal activation to foster cognitive performance. The serious game can be used for trainings by professionals and private persons and is developed and tested especially with elderly people.

Hero21

A simple way to increase physical activity, or to get in good health again soon, is developed by Hero21, a start up in Graz. The new eHealth solution allows patients that need long-term treatments such as type 2 diabetics to easily build healthy habits and stick to them in a long term. The coordinated combination of two innovative concepts lay the groundwork of the new method: scientifically based behaviour changes techniques and serious games.

An intelligent personal coach determines the current situation and provides personalized action plans. Intelligent algorithms assist by promoting short- and long-term goals that are achievable for the use to get long-term results. Through the dynamically adapted

game patients get the tools and interventions that they need in their respective situation. A fun roleplay game against the personal inner devil (“Schweinehund”) has been developed with the research partner Graz University of Technology to achieve this goal.

MyMind

MyMind is a life science company based in Vienna. Our vision is to help people with neurological impairments to live towards their full brain potential and to be a visible part of society. Our first product is a Neurofeedback game called Brain Hero. Using a mobile EEG plus tablet, brain waves are measured, and the user gets visual feedback of concentration and relaxation levels. Regular training sessions of just 10 minutes per day visibly improve brain fitness and social interaction.

MyMind’s objective is to include mobile Neurofeedback with therapy methods for children with autism and ADHD and to conduct a medical study to enable the use of Brain Hero as part of the therapy. There are also plans to include other neurological impairments such as dementia, stroke, but also address burn-out and burn-out prevention.

NutriCare.Life

Today solutions which proved already their limitations are "Try and Error" and "One size fit all", but we are all different and we have different nutritional needs.

We democratize access to PRECISION NUTRITION for everybody providing FREE access to a DIGITAL PLATFORM.

Using GENETICS, MICROBIOME PROFILE and a PATENT-PENDING ALGORITHM we provide PERSONALIZED PREVENTION or THERAPEUTIC NUTRITIONAL SOLUTION: the exact quantity of food and supplements intake to cover NUTRIENTS DEFICIENCIES.

Technology is transforming the world and changes are fundamental, bringing new service (NUTRITION ASSESSMENT) and products (NUTRIGENETIC and MICROBIOME TESTS) in the market we forge closer relationships between nutritionists, clinicians and patients, allowing

PANAKAIA

Panakaia is the „all healing" Greek goddess, cited in the Hippocratic oath. Panakaia will be the Mercedes among video consultation technologies. It provides excellent usability for doctors and their patients fulfilling all necessary ethical and legal requirements. It will change health care to a modern and patient centred system. 50 % of practitioners will retire within the next decade. Chronic diseases will challenge our aging societies.

Repeated diagnostic tests are expensive and unnecessary, leaving no time for trust and adherence building conversations. But these are urgently needed to increase adherence to therapy and reduce polypharmacy. In a query of 2015 by Bertelsmann-Stiftung 50% of patients affirm video consultation, especially when it will be offered by their practitioners. Besides the personal advantage of staying in bed when fever and infection hit, stopping spreading of germs might be the major advantage for our societies.

Phenaris / ToxPHACTS

Development of a new drug takes 10-12 years with costs of around $2 bio. Main reasons for failures comprise lack of efficacy and unforeseen toxicity. For the latter, a standard process pursued to minimise the risk is toxicological read across. Toxicologists query the available literature for compounds which are structurally similar to their development candidate in order to retrieve information on potential hazards. This is done by manual searches, which is time consuming and prone to errors.

With ToxPHACTS we offer an expert system which will help pharmaceutical companies to foresee possible toxicology of new development candidates. In contrast to the current options, ToxPHACTS

- uses innovative ways of similarity searching, such as bioisosteric similarity
- allows complex queries across multiple, semantically integrated data sources
- provides advanced visualisation tools for rapid and easy analysis of read across search results

Thus, ToxPHACTS will help to save time, money & animal experiments.

Predicting Health

Predicting Health is developing and implementing machine learning based, patient-related predictive models for the clinical use.

reha buddy

reha buddy improves process and outcome of physical rehabilitation for both patients and therapists. Our body-worn sensors and an easy-to-use app allow for objective quantification of the patients' progress and performance and put their exercises in an entertaining and game-like context. Patients benefit by being able to leave the clinic earlier and do their exercises at home with real-time feedback. Therapists can monitor the patients' compliance and results in an objectively documented form for the first time. The collected data can even be used to improve the effectiveness of the prescribed exercises.

AVVie Team

AVVie GmbH is a medical device start up focusing on the development of minimally invasive implants for heart valve repair. Mitral regurgitation occurs when the mitral valve leaflets do not close properly. While small leaks are usually not considered a problem, more severe cases weaken the heart over time and can lead to heart failure.

The Mitral Butterfly® implant is deployed by means of a catheter (thin tube) through the vascular system onto the beating heart, thereby eliminating the need for open-heart surgery. The treatment can reduce costs due to shortened hospitalization times and may be available to non-option patients, along with younger, healthier patients.

The AVVie product has clear advantages over their competitors; a one-stage delivery, as opposed to a complicated multiple-stage delivery, and a physiological design, where the leaflets continue to function in a normal pattern post-implantation. Repair of the diseased valve takes less than 12 minutes.

CHIMERA

Chronic Kidney Disease is a silent, asymptomatic and an irreversible renal damage affecting millions of people globally. Medicines are used to treat and slow further kidney damage, but they cannot reverse CKD. Therefore, early detection of CKD is prime to halt the end-stage renal failure. At present, the diagnosis is carried out via the measurement of serum urea nitrogen, creatinine, albumin, and estimated glomerular filtration. However, these tactics are invasive and time consuming during which, half millions of nephrons may be damaged. Hence, notwithstanding these present limitations, we developed RENASENSTM, a novel low-cost, rapid, user-friendly, point of care and non-invasive sensor involving high-throughput methods majorly focusing on early detection of kidney damage. This biosensor will lay emphasis over the on-site test allowing patients high mobility and flexibility, reducing the risk of severe progression of CKD towards end stage or reducing the economic burden of dialysis.

Cornea Dome Lens

The cornea dome lens (CDL) team develops a camera-based imaging device to create standardized high-resolution photographs of the ocular surface for professional use. The CDL is designed as add-on module to existing slit lamps and will yield quantitative image data applicable to telemedical use.

Haidar - Oral Biofilm Disruption Device

The microbiological war happening inside the mouth in each one of us every day is a constant battle between the different types of bacterial flora found in the oral biofilm. When the balance is shifted toward the pathogenic bacteria, destruction leads to periodontal disease, foul smell and eventually tooth loss.

The oral biofilm is a microbiological complex associated with the breakdown of the periodontium which leads to bone loss. The severity of periodontal disease varies between individuals depending on the composition of the oral biofilm and the balance between the different species. The proposed method aims to disrupt the growth of the pathogenic microorganisms that can harm

the oral tissues to restore health of the gum and the mouth. Usual treatment methods include periodic cleaning and antibiotic use with surgical intervention in the advanced cases. The aim of this method is to work in both prevention and treatment stages of the periodontal disease.

Helpsole

Nearly 3.000.000 persons worldwide are suffering from Parkinson caused freezing. Helpsole will provide affected persons with a hidden wearable to overcome this kind of symptom. The function of the Helpsole is a tactile trigger to stimulate the nerves of the patient which helps the overcome of the freezing or trippeling symptom. The combination of sensors and actors with an adequate control unit provides the function when it´s needed.

For further information:
Eva Maria Beck
bob@bestofbiotech.at

Federal Ministry
Republic of Austria
Digital and
Economic Affairs

Boehringer
Ingelheim

LISAvienna
life science austria

Roche