ABOUT THE FUND .......................................................... 3-4
DESCRIPTION OF PARTICIPATING COMPANIES PROJECTS ON INNOVATIVE PRIORITIES .......... 5-6

Atlas Biomed Group .......................................................... 7
Aspera ............................................................................. 8
GemoPharm ................................................................. 9
Hepatera .......................................................................... 10
Gero ................................................................................ 11
DRD Biotech ................................................................... 12
IK ST ............................................................................... 13
Incuron ........................................................................... 14
IVIX .................................................................................. 15
INNOVATIVE CENTER ISKRA LIMITED ......................... 16
cardioLOG Technologies .................................................. 17
Knomics ......................................................................... 18
Lactocore ....................................................................... 19
NanoBioTech .................................................................. 20
National BioService ....................................................... 21
Neurochat ....................................................................... 22
Allcardio ......................................................................... 23
Panacela Labs ................................................................... 24
Prostagnost ..................................................................... 25
R&D Intercell .................................................................... 26
Russian Pharmaceutical ................................................ 27
Target Medicals ............................................................. 28
TheraMAB ....................................................................... 29
Health Modeling Technologies ........................................ 30
Morphological data classification laboratory Ltd .......... 31
Fungipack ........................................................................ 32
Fusion Pharma .............................................................. 33
The Skolkovo’s Biomed Cluster’s goal is to create a competitive biomedical technologies industry while bearing in mind that, in addition to trying to maximize revenue, we’re making a decisive contribution to improving the nation’s health.

Our efforts have led to a significant increase in the number of companies seeking to commercialize science and biomedical technologies. As we try to promote this growth, we are seeing that the goal of the companies in our sector is improving healthcare. A healthy nation is a productive nation. Our mission is to support the development of biomedical technologies for a healthy and wealthy Russia.

Number of Skolkovo Biomed startups – 453 companies

Revenue in 2017 – 5.9 bln RUR

Investment – 1.9 bln RUR

Industrial partners – Johnson & Johnson, AstraZeneca, Philips, BioCubaFarma, Syngenta, BIOCAD

FORESIGHTS:

- Medical devices and diagnostics (Imaging, Cell, tissue and organ imaging: tools, analytical algorithms, theparapeutic devices, diagnostic devices, biobanks)
- Drug discovery & development (oncology and immune-oncology, Infectious Diseases and Vaccines, cardio-vascular and methabolism, endocrinology, CNS and neurology, reproductive system)
- Digital medicine & OMICs biology
- Cell & tissue technologies
- Biotechnologies in agriculture and industrial biotechnology
• Myrcludex B, a treatment for chronic hepatitis B and D being developed by the company Hepatera, has been included in the European Medicines Agency’s PRIME (PRIority MEdicines) programme.

• Ivix company is developing a new proprietary drug for a recently recognized unmet medical need: female sexual dysfunction, or FSD. Ivix’s drug candidate Libicore has demonstrated superior efficacy and favorable safety in comparison with known therapies.

• Fusion Pharma. The US Food and Drug Administration has recognized the unique status of the PF-114 drug being developed by Fusion Pharma to treat chronic myelogenous leukemia, including the T3151 mutation variant. It has also recognized the importance of the research being carried out.

• AGCT. Advanced Gene & Cell Technologies (AGCT) offers a new way of treating HIV: patients have one of the genes of specific blood cells altered (so-called hematopoietic stem cells or hemocytoblasts), which means that the virus cannot penetrate them.

• DRD (Diagnostic Reagents & Devices) has developed the world’s first blood test for the rapid diagnosis of a stroke. The compact device can analyse information in just a few minutes and give a result that if necessary can be interpreted using an ordinary mobile phone, and sent to the patient’s doctor.

• The Eidos-Medicine group of companies is Russia’s first developer of medical simulators that doctors can use for training purposes and to boost their qualifications using modern techniques and the latest instruments. This Skolkovo resident is now one of the world leaders in this field.

• UNIM has created Russia’s first cloud platform for digitalizing the results of medical tests of patients with tumors, and for their subsequent analysis by the world’s leading specialists. In the future, the company plans to teach neural networks how to analyze such data in order to lighten the workload of doctors.

• Hemacore Labs has finished developing Thrombodynamics-4D, a new method and diagnosis device for patients with high thrombotic or bleeding risks. The company’s products are in use both in Russian centres and in European clinics.
DESCRIPTION OF PARTICIPATING COMPANIES PROJECTS ON INNOVATIVE PRIORITIES
Atlas Biomed is a personalized health company applying the latest genetic technologies to inspire consumers into a positive lifestyle change, and lead them into a healthier future.

PROJECT:
Atlas combines genetic and microbiome technologies with digital health data to inspire people into positive lifestyle change and lead them to a healthier future.

PROJECT PHASE:
Growth stage.

COMPETITIVE ADVANTAGES:
Presence and synergy with microbiome testing. We aim to create a health ecosystem, uniting multiple sources of information (genetics, self-report data, wearables, laboratory tests, microbiome and medical data).

ESSENCE OF THE INNOVATION:
Atlas has developed consumer-oriented DNA and gut microbiome tests with integrated analysis on the company’s health platform. We are currently the only company worldwide to offer both tests directly to the consumers.

MARKET POTENTIAL:
The company has a unique combination of having both health and ancestry in one DNA test and providing a microbiome test. This brings great prospects in chasing the lead in an over $1b DTC genetic testing market.

CONTACTS:
Olga Orelchikova
orelchikova@atlas.ru
www.atlas.ru
Aspera conducts global development and commercialization of cancer immunotherapy pipeline originating from Mie University (Japan). Pipeline includes therapeutic cancer vaccine, which passed ph1 in Japan and US and being evaluated for the therapy in combination with anti-PD1 antibody. Another product is autologous CAR-T-cell therapy for solid tumors with potential development of allogeneic version. The company focuses on Latin America and Eurasia having offices in Moscow and Tokyo.

**PROJECT:**
Next generation therapeutics cancer vaccines. Next generation cancer immunotherapies.

**ESSENCE OF THE INNOVATION:**
Therapeutic cancer vaccine is being evaluated for the therapy in combination with anti-PD1 antibody to increase efficacy and reduce the price. CAR-T-cell therapy focuses on solid tumors and employs automatic cell processing process to reduce the price.

**MARKET POTENTIAL:**
The potential for vaccine + anti-PD1 combination therapy is $3 bln., while CAR-T-cell therapy’s potential is much higher.

**CONTACTS:**
Lev Tsyrenov, CEO,
Lev_Tsyrenov@Aspera.jp

www.aspera.jp (under construction)
GemoPharm is developing a monoclonal antibody to TfR1(CD71) for the treatment of multiple myeloma. Our target, TfR1, is overexpressed on cancer cells. The high levels of TfR1 expression on cancer cells and its central role in cancer pathology, make it an attractive target for antibody-mediated therapy. Our lead candidate shows extraordinary anti-tumor activity in xenograft models of multiple myeloma in immunosuppressed mice (SCID-Beige).

**PROJECT:**
Development of a monoclonal antibody to TfR1 for the treatment of multiple myeloma.

**PROJECT PHASE:**
Preclinical.

**COMPETITIVE ADVANTAGES:**
Our drug candidate has significantly greater activity in animal models than other therapeutics. In experiments on the xenograft model of multiple myeloma in mice, the administration of a single dose of KB-121 increased the survival rate of animals by 274% comparing to the control group.

**ESSENCE OF THE INNOVATION:**
The drug candidateis a humanized antibody belonging to the IgG1 isotype. It binds to the extracellular domain of TfR1. The binding of KB-121 to the transmembrane domain causes the degradation of TfR1, and thus stops the entry of iron into the cancer cell. Binding KB-121 to the surface of the cancer cell activates the antitumor response of cellular immunity.

**MARKET POTENTIAL:**
In the eight major markets (US, France, Germany, Italy, Spain, UK, Japan, and urban China) the multiple myeloma market was at $8.9 billion in 2014, and it is expected that the market will increase to $22.6 billion in 2023 at a Compound Annual Growth Rate (CAGR) of 11.2%.

**CONTACTS:**
Nail Edikhanov, CEO, edikhanov@gmail.com
www.gemopharm.ru
Hepatera is a private biotech company. The main activity of the company is the development of safe and effective drugs for the treatment of liver diseases for the Russian market. The company’s first product, Myrcludex B, is aimed at the treatment of chronic hepatitis B and D. Myrcludex B is being developed in the framework of international cooperation with the biotechnology company MYR, GmbH (Germany). Since December 2011 Hepatera has become resident of Skolkovo innovation center.

**PROJECT PHASE:**
Phase 2 clinical trials.

**PROJECT:**
Myrcludex B has been tested in a total of six clinical trials (four completed and two ongoing) that include 239 human subjects – healthy volunteers and Hepatitis B and D patients. Compelling results in proof-of-concept clinical trials. Highly positive interim results in MYR 202 clinical trial. Positive feedback from FDA and EMA. Orphan Drug Designation received. Fast-track market approval.

**COMPETITIVE ADVANTAGES:**
- Strong efficacy.
- Excellent safety and tolerability (clinical proof-of-concept shown in HBV and HDV).
- Continuous infection clearance.
- Combination with immune system modulation / direct antivirals to enhance the effect.

**ESSENCE OF THE INNOVATION:**
- First-in-class entry inhibitor for hepatitis B (HBV) and hepatitis delta (HDV) infection: fundamentally new mechanism of action.
- Novel antiviral candidate for treatment of HDV infection. Most clinically advanced pipeline product for HBV.

**MARKET POTENTIAL:**
- ~400M people carry hepatitis B virus and ~20M are HDV-coinfected. HBV cure in focus of development efforts. No approved treatment for HBV/HDV co-infected. > $2,5Bln, significant growth expected, $1Bln+ Myrcludex B sales potential.

**CONTACTS:**
Alexander Alexandrov, alexandrov@myr-pharma.com
www.hepatera.ru
Gero is a longevity biotech company founded by a team of scientists and entrepreneurs with extensive experience in the area of life sciences. Our goal is to extend healthy lifespan and delay age-related health issues. We identify novel anti-aging targets, develop life-extending therapies and estimate personal risks of diseases and mortality with the help of AI and proprietary models.

PROJECT PHASE:

PROJECT:
Gero Apheresis Column is the first generation therapy which will remove blood protein factors associated with aging and alleviate age-related health deficits.

COMPETITIVE ADVANTAGES:
Apheresis column has the shortest path to proof of concept in humans comparing to other therapeutic approaches to aging and age-related diseases now being developed worldwide.

ESSENCE OF THE INNOVATION:
We used proprietary models and data to identify regulators of aging in blood proteome. Inactivation of these proteins in mice significantly reduced their biological age. Our first-generation therapy will remove aging-driving proteins from human blood.

MARKET POTENTIAL:
Global consumer health market with customers aged 40+ is our primary target market. Market researches predict its growth at a CAGR of 3.1% in 2016-2021. Population aged 40+ has reached 2,7 Bln in 2017 and is predicted to surpass 3,4 Bln in 2030.

CONTACTS:
Maxim Kholin, Founder,
maxim.kholin@gero.com
www.gero.com
DRD Biotech

DRD Biotech develops and implements in vitro diagnostic devices - rapid tests based on innovative biotech and IT-technologies. Company produce 3 types of tests: «NR2-peptide rapid test» (for quick stroke diagnostics in ambulance), «NR2-antibody raid test» (detects level of NR2-antibodies in patient’s blood that shows a risk of stroke and TIA) and «AMPA-peptide test» (for sport medicine, army and emergency).

PROJECT:
Rapid blood test for assessment of the Ischemic Stroke/TIA and mild TBI.

COMPETITIVE ADVANTAGES:
- Sideline or bedside detection (stadium, emergency room, ambulance, combat theater).
- User-friendly and affordable.
- No additional Lab equipment & supplies.
- Results within 5 minutes, with color detection via mobile applications (IOS, Android, W8).
- Safety of personal data storage in the Cloud with restricted access.

ESSENCE OF THE INNOVATION:
Novel biomarkers of the glutamate receptors (NMDA, AMPA) peptides and antibodies which are very sensitive for the brain lesions.

MARKET POTENTIAL:
>$18B.

CONTACTS:
Anzhey Zhimbiev, CEO,
az@drdbiotech.ru
www.drdbiotech.com
IK ST is established in 2012 for an innovative technological platform development for bioresorbable self-expanding devices production.

PROJECT:
«IK ST» focused on developing of a biodegradable self-expanding platform technology for cardiovascular implants in order to reduce the late complications of stent and IVC filters implantation by 50%.

PROJECT PHASE:
• Developed a shape memory polymeric material
• Obtained and tested a laboratory prototype
• Developed a stent delivery system
• Developed production GMP/ISO technology
• Filed US Provisional Patent application and RU patent application
• Developed industrial prototype
• Tested physical and technical material and stent characteristics

COMPETITIVE ADVANTAGES:
The developed material has a shape memory property that allows to install implants without a balloon. It is possible to implant convoluted vessels with preserving physico-anatomical features.

ESSENCE OF THE INNOVATION:
• 12 months resorption in the bloodstream reduces the number of restenosis and thrombosis and preserves the lumen loss;
• Self-expanding due to the shape memory polymer and its elastic deformation;
• Implantation with a radial force of 4 N / cm into inferior vena cava (IVC filter) and crimped peripheral arteries(scaffold);
• Evenly struts dissolution throughout the use period reduces the number of long-term period thromboses because of advanced design
• Minimization of long-term complications allows saving the state and insurance companies budget for hospitalization of patients.

MARKET POTENTIAL:
• US $ 942 million @ 1300 thousand units.
• Russia $ 94.5 million @ 135 thousand units.
• It is planned to take 10% of the market in $ 0.5 billion for 5 years
Russia $ 10 million @ 14 thousand units.
• In the US $0.1 billion @ 125 thousand units.
• Average sale price $ 1100.
• Cost price (for 2000 units) $ 300.

CONTACTS:
Leonid Glushchenko, CEO,
lglushenko@ik-st.ru
Incuron

Russian Pharmaceutical Company Incuron manufactures and markets drugs to treat oncology and autoimmune diseases for high-risk patient populations and therapies worldwide.

PROJECT:
Development of innovative drug candidates Curaxins for treating oncological diseases.

COMPETITIVE ADVANTAGES:
Curaxins affect several targets within a tumor cell limiting its drug resistance capability and increasing the efficiency of tumor growth suppression. Curaxins are applicable for recurrent courses due to the lack of genotoxicity.

ESSENCE OF THE INNOVATION:
Curaxins block activity of the chromatin remodeling complex FACT (Facilitates Chromatin Transcription) and in relation to that simultaneously influence several cell signaling pathways (p53, PI3K/AKT/mTOR, NF-kB, HSP) with disrupted regulation in cancer cells.

MARKET POTENTIAL:
Oncological diseases take a prominent place in the morbidity and mortality ratings. The number of patients grows annually due to the aging of population in developed countries. The market share of targeted antitumor medicines reaches as high as 65-70%.

CONTACTS:
Mariya Nikonova,
Project Manager,
nikonova@bioprocess.ru

www.incuron.ru
www.incuron.com
Ivix is an emerging biopharmaceutical company developing innovative, highly effective drug for treatment of Hypoactive Sexual Desire Disorder. Safety and efficacy of the drug is demonstrated in the full set of preclinical studies and in three clinical trials. Clinical results showed best in class efficacy and persistence of the drug’s effect. The Company was incorporated in 2013 by the investment fund «Bioprocess Capital Ventures».

**PROJECT:**
Libicore – best in class treatment for Hypoactive Sexual Desire Disorder.

**PROJECT PHASE:**
Phase 3 clinical study in Russia; Passed pre-IND meeting in USA, ready to submit IND application for Phase 2B.

**COMPETITIVE ADVANTAGES:**
Clinical studies of Libicore demonstrated superior efficacy compare to market competitors. Unique advantage is the persistence of the effect for months after the treatment course. Libicore shows also best safety profile among competitors.

**ESSENCE OF THE INNOVATION:**
Libicore is based on the proprietary peptide, able to normalize function of mechanisms involved in regulation of sexual desire and sexual rewarding in female brain. It triggers non-hormonal mechanisms of sexual desire with long-lasting effect.

**MARKET POTENTIAL:**
Libicore is a potential lead in $6bn market worldwide. There are estimated 17 million sufferers in US alone.

**CONTACTS:**
Dmitry Golikov, CEO, dmitriy.golikov@bioprocess.ru
Mikhail Lomonosov, CSO, mikhail.lomonosov@bioprocess.ru
www.libicore.info
INNOVATIVE CENTER ISKRA

INNOVATIVE CENTER ISKRA develops high-tech medical smart devices, promising and fast-growing areas for today in Russia and around the world. One of the most topical projects is the development of Personal alarm and information system «Sputnik».

PROJECT:
ALERT and INFORMATION SYSTEM «SPUTNIK» – is to improve the effectiveness of emergency medical care. It is for citizens who are in risk group of Cardiovascular Diseases. Click on the SOS button - call for help. Connect the bracelet to the USB - pass your EHR the doctor and get the proper help at time.

ESSENCE OF THE INNOVATION:
In the case of appearance of a new records or changes in an already existing Personal EHR on cloud Data Base Server, automatic synchronization with data on the smart bracelet is started to update the information.

PROJECT PHASE:
The prototype of electronics is already ready. We start the development of the software application.

MARKET POTENTIAL:
SPUTNIK is for elderly people who is in cardiovascular diseases risk that is more than 1 000 000 000 people.

COMPETITIVE ADVANTAGES:
On-line synchronization EHR data on the bracelet with the cloud Data Base Server.

CONTACTS:
Sarafaslanyan Artashes, CEO, artashes@iskra-ic.ru
www.iskra-ic.ru
cardioLOG Technologies is a digital health start-up developing wearable ECG-monitoring system for arrhythmia management and stroke prevention.

PROJECT:
CardioLOG Technologies develops an arrhythmia management system that aims to increase arrhythmia detection rate twice compared to a Gold Standard method. The company focuses on stroke prevention in patients with atrial fibrillation through continuous 7-days ECG monitoring. We develop a body-worn multi-lead adhesive ECG-sensor with clinical grade accuracy and an adaptive algorithm for noisy data analysis.

PROJECT PHASE:
Early stage.

COMPETITIVE ADVANTAGES:
Our biosensor is relatively unobtrusive due to its cableless design. It provides data acquisition from 2 leads for up to a week. The data is then processed with our proprietary algorithms. We can extract valuable parameters from an extremely noisy dataset without missing any information about each heartbeat. With such a robust method, we may provide automotive analysis. We believe that the combination of increased device wear time and robust proprietary algorithm would allow us to improve arrhythmia detection rate twice compared to standard method.

ESSENCE OF THE INNOVATION:
In cardioLOG Technologies, we make wireless biosensor and proprietary data processing algorithms that increase arrhythmia detection rate twice compared to the standard methods. Our body-worn sensor is multi-channel, unobtrusive and it continuously records patient’s electrocardiogram for up to 7 days. We then process the data with our proprietary algorithms with a high level of robustness. We believe this would allow us to achieve high level of automation.

MARKET POTENTIAL:
About 800,000 people have stroke in the USA yearly. U.S. provides more than 4.5 M cardiac tests in a year with an average cost of up to $2000 per single test. Market possibility in the country increases $1.4B. One of our goals is to reach the target market share of 5-10% that corresponds to $15-30M revenue in 5Y.

CONTACTS:
Natalia Glazkova, CEO, natalia.glazkova@skolkovotech.ru
www.cardiolog-technologies.ru
Knomics is a microbiome Big Data research and development company. Using our analytical pipelines based on years of academic experience, we conduct clinical surveys and provide data analysis services for food and pharma companies, as well as develop personalized microbiota tests and B2B solutions.

PROJECT:
Knomics-Biota (KnB): a platform for industrial, clinical and direct-to-customer microbiota data analysis.

PROJECT PHASE:
Individual microbiota tests are sold in Russian and United Kingdom (atlasbiomed.com).
Knomics-Biota is freely available as a beta-version (biota.knomics.ru).

COMPETITIVE ADVANTAGES:
- Online analytical system for interactive exploratory and statistical analysis of microbiota compositions.
- Meta-analysis made easy using a curated database with thousands of publicly available metagenomes.
- Algorithms for interpretation of individual microbiota profiles in the context of disease risks, metabolic potential.
- Development of microbiota-tailored personalized dietary recommendations.
- Framework for microbiota surveys for food and pharma.

ESSENCE OF THE INNOVATION:
Knomics-Biota is an integrated analytical system for interpreting large-scale as well as individual metagenomic datasets in the context of publicly available data. It facilitates microbiota research for academy, industry and clinicians.

MARKET POTENTIAL:
Microbiota market is rapidly growing and the demand in precise and comprehensive bioinformatic analytical tools supports great marketing potential for Knomics-Biota framework.
The potential for vaccine + anti-PD1 combination therapy is $3 bln., while CAR-T-cell therapy’s potential is much higher.

CONTACTS:
Dmitry Alexeev, CEO, alexeev@knomics.ru
www.knomics.ru
www.biota.knomics.ru

PROJECT PHASE:
Individual microbiota tests are sold in Russian and United Kingdom (atlasbiomed.com).
Knomics-Biota is freely available as a beta-version (biota.knomics.ru).
Lactocore aims at developing peptide pharmaceuticals for therapy and correction of various socially significant diseases, including the nervous system pathologies, particularly, depression and anxiety. Owing to its confirmed nootropic, antidepressant and anxiolytic properties, the developed peptides can become a breakthrough basis for low-toxic therapeutic methods. Both pre-clinical and clinical trials are required.

**PROJECT PHASE:**
Proof of concept, pre-clinical studies.

**PROJECT:**
Lactocore - peptides for fighting stress and depression.

**ESSENCE OF THE INNOVATION:**
Our project leads to the development of a peptide pharmaceuticals pipeline preventing various diseases, particularly, diseases of the nervous system among different age groups.

**COMPETITIVE ADVANTAGES:**
Essential advantages of peptide pharmaceuticals - high specificity, the absence of metabolic side effects, efficiency comparable to classical therapy.

**MARKET POTENTIAL:**
Our focus – major depressive disorder, treatment resistant depression, postpartum depression, post-traumatic stress disorder, attention deficit hyperactivity disorder.

**CONTACTS:**
Igor Doronin, BD, doroninii@lactocore.com

www.lactocore.com
NanoBioTech is a Russia-based R&D company that has developed a line of innovative plant protection products based on chemically modified colloidal silver.

**PROJECT:**

**COMPETITIVE ADVANTAGES:**
Based on the chemically modified silver particles, Zerebra Agro and Zeroxxe are the first of their kind products in the world which combine high efficiency (productivity growth; immune system boost) with low-level toxicity.

**ESSENCE OF THE INNOVATION:**
Colloidal silver reduces the sensitivity to ethylene, a hormone of aging, and increases the concentration of auxin, a growth hormone. Due to its elicitor properties, colloidal silver inhibits the development of pathogens.

**MARKET POTENTIAL:**
Zerebra Agro and Zeroxxe are the first of their kind products to be registered anywhere in the world which can be used as a substitute or a part of the traditional plant protection scheme. Sales in Russia and CIS have reached 3 million USD in 2017.

**PROJECT PHASE:**
Zerebra Agro has been registered and is now being sold in Russian Federation and CIS countries, with sales in Ecuador and Vietnam to start in mid-2018.

**CONTACTS:**
Alexey Terekhov; International Projects Development Specialist, aeterekhov@mail.ru
www.zerebra-agro.com
National BioService

National BioService (NBS) is the first and still the only commercial research biobank and bioservice in Russia that operates in compliance with the requirements of the International Society for Biological and Environmental Repositories (ISBER). NBS was established to be instrumental in developing the infrastructure of biomedical research in Russia and integrating into international activities, aimed at improving human healthcare and developing personalized medicine.

PROJECT:
Creation of a national biobanking and bioservice platform for biomarker discovery, in vitro preclinical research, and development of digital biomedicine.

PROJECT PHASE:
Creating national biobanking network in Russia.

COMPETITIVE ADVANTAGES:
NBS offers a wide range of services focused on the sourcing, processing, analysis and management of biological samples and development of cell and tissue-based products. NBS network includes many medical centers in Russia and 3 biobank branches in Moscow, St-Petersburg and Nizhniy Novgorod.

ESSENCE OF THE INNOVATION:
National BioService is the only developer and manufacturer of custom tissue microarrays (TMA) in Russia, used to test and develop therapeutic and diagnostic antibodies.

MARKET POTENTIAL:
NBS already operates worldwide as a research biobank providing the high-quality services for the Top 20 Pharma and diagnostic companies. NBS team directly manage medical sites and this is an important basic for flexibility and efficiency of performing a wide variety of projects.

CONTACTS:
Oleg Granstrem, PhD, Director of Business Development, oleg.granstrem@nbioservice.com
www.nbioservice.com
In 2016 Inter-Ministerial Working Group of the Presidency Council under the President of Russian Federation approved Neurochat project. OOO «Neurochat» became the ‘Employer’ in the contract to perform R&D. The project’ Executor «Expert» received the grant from the Fund for Support of National Technological Initiative to perform R&D. The grant is given in order to realize the plan of “Neuronet” road map.

PROJECT:
«Neurochat» is the first specialized social network on the basis of brain-computer interface, that allows people with severe speech and movement disorders to communicate.

ESSENCE OF THE INNOVATION:
Apart from the opportunity to type through mental intention, the technology includes an interface for fast intellectual typing, built-in translator and social networks integration. For the first time in the world the BCI technology is used for network communication.

PROJECT PHASE:
Approbation.

COMPETITIVE ADVANTAGES:
Relatively small cost, opportunity to receive a feedback, user-friendly design, no medical education required, extra software solutions to increase the field of use.

MARKET POTENTIAL:
According to World Heart Federation, 17 million strokes occur every year; 5 million people become disabled. In Russia alone 450-500 strokes are registered every year; more than 5,5 million people need to communicate without voice and movements.

CONTACTS:
Igor Zimin, Development Director, zimin@neurochat.ru
Alesya Chichinkina, PR Director, alesya@neurochat.ru

www.neuro.chat
AllCardio is a biotechnology company focused on developing treatments for arrhythmias (bradycardia and atrial fibrillation) and heart failure using its proprietary revolutionary miniature implantable wireless pacemakers. With combined 50 years of experience, AllCardio’s team consists of professionals in clinical and fundamental cardiology, electrophysiology, microelectronics, clinical trials, and business management. Extensive preclinical trials and first in human device implantation in 2013 have demonstrated its long-term efficacy and exceptional safety profile.

PROJECT:
Solem-I is a revolutionary tiny wireless epicardial pacemaker offering the lifetime on a single charge that is at least twice as long compared to all existing models.

PROJECT PHASE:
Registration of the device in Russia.
Development of the new models (dual-chamber).
Development of self-recharge and telemetry features.
Information on new development is strictly confidential at the moment.

COMPETITIVE ADVANTAGES:
The Allcardio’s device completely excludes the possibility of intravascular and intracardiac thrombosis thus decreasing the number of complications and repeat procedures. This results in a significant reduction in long-term costs of repeated procedures and complications and drastically improves patient’s quality of life. It also greatly improves patient quality of life and provides a much more physiological pacing of left ventricle thus reducing the development of pacemaker syndrome and of heart failure.

ESSENCE OF THE INNOVATION:
AllCardio first in class miniature epicardial wireless pacemaker reduces common thrombotic and infectious complications by avoiding contact with cardiac chambers.

MARKET POTENTIAL:
The global pacemaker market was valued at USD 4.9 billion in 2015 and is expected to grow at a CAGR of 9.2% over the next 10 years.

CONTACTS:
Olga Bockeria, CEO, olga@allcardio.pro
www.allcardio.pro
Panacela Labs

Panacela Labs – clinical stage biotech company developing the innovative anticancer drug product in collaboration with the Roswell Park Cancer Institute (Buffalo, USA) and Cleveland Clinic Foundation (Cleveland, USA). Panacela Labs was founded in 2011 by biotechnology company Cleveland Biolabs, Inc (CCLI), Buffalo, USA, NASDAQ: CBLI) with a focus on oncology and orphan drug development, and Open Joint Stock Company “RUSNANO”, the largest Russian investment company.

PROJECT:
Mobilan is a nanoparticle-formulated, recombinant non-replicating adenovirus immunotherapeutic drug that directs expression of both toll-like receptor 5 (TLR5) and a specific agonistic ligand, entolimod (which is a recombinant form of the natural TLR5 ligand, flagellin).

PROJECT PHASE:
To date, two clinical studies of Phase I and Phase Ib have been completed in patients with nonmetastatic prostate cancer.

COMPETITIVE ADVANTAGES:
• Favorable tolerability
• Attracting of immune cells in the prostate
• Induction of cytokines
• PSA Reduction in some patients
• No neutralizing antibodies, which enables multiple receiving

ESSENCE OF THE INNOVATION:
Mobilan (M-VM3) mechanism of action involves transduction of tumor cells with a bicistronic recombinant adenovirus that drives expression of one of the innate immune receptors: human Toll-like receptor 5 (TLR5) and its agonistic ligand, a derivative of a bacterial flagellin, which leads to constitutive autocrine stimulation of TLR5 signaling. This results in strong induction of the innate immune system with subsequent development of adaptive anti-tumor responses. This proprietary technology allows one to turn any accessible tumor nodule into a vaccine targetable by innate and subsequently adaptive immunity and is applicable to treatment of different cancer types.

MARKET POTENTIAL:
Currently it is impossible to estimate, as the target group of patients is not characterized.

CONTACTS:
Vasily Kazey, PhD, CEO, vkazey@panacelalabs.com
www.panacelalabs.com
Prostagnost has two world-class opportunities that are poised for partnership. The first is in the emerging field of urological cancer diagnosis to create what is called a “biofluid-based biopsy” that could test exosomes and proteins in urine to determine cancer development and monitoring the efficiency of treatment. The second potential is in the highest growth sectors of biotechnology developing new approaches of exosome purification from biofluids to use in a routine clinical practice.

PROJECT:
Creation of a non-invasive method for the differential diagnosis of prostate cancer (PCa) and development of a complete kit for conducting such diagnostics in a routine clinical practice.

ESSENCE OF THE INNOVATION:
Our proprietary simple to use technology can harvest the rich and comprehensive molecular information contained within exosomes and proteins from any biofluid, fresh or frozen, without requiring the use of tissue to guide clinical treatment decisions.

PROJECT PHASE:
Early stage.

COMPETITIVE ADVANTAGES:
Cheap, easy-to-use, precision diagnostics of PCa on total urine (screening) or exosomes (differential by stage) with unique method of isolating exosomes.

MARKET POTENTIAL:
The global prostate cancer diagnostics market is projected to grow to nearly US$ 1.1 billion in 2022. We expect active implementation of our diagnostic kits in this market.

CONTACTS:
Konstantin Sorokin, CEO,
konst.sorokin@gmail.com

www.prostagnost.com
R&D Intercell

The main specialization of the company is advanced Research & Development in the field of intercellular substance physics. Commercialization of unique breakthrough biotechnology which consequences from the results of basic research in the field of intercellular substance physics. Development of next generation smart integrated wearable devices, applicable to healthcare and wellbeing, in particular, non-invasive metabolic microcalorimeter to monitor in real time blood sugar levels.

**PROJECT:**
Non-invasive real-time opportunity to monitor blood sugar.

**PROJECT PHASE:**
Prototype/Closed Beta.

**COMPETITIVE ADVANTAGES:**
The deterrent of non-invasive R&D is the current underdevelopment of living tissue physics. This area of modern physics was not sufficiently developed and advanced. The advance knowledge (know-how) and long-term experience in living tissue physics is our real and serious competitive advantage in comparison with others non-invasive R&D companies, including big market players.

**ESSENCE OF THE INNOVATION:**
The multi-sensors device, with the sensors placed on the skin surface, measures metabolic rate and blood sugar level using a microcalorimeter and intercellular microfluidics detector.

**MARKET POTENTIAL:**
Non-invasive glucose monitoring device, with consumer characteristics reflecting the expectations of patients suffering from diabetes, has a global market, targeting more than 415 million diabetes patients globally and an important and growing part of the healthy population who want to become more connected with their own health.

**CONTACTS:**
Ramil Musin, CEO,
ramil.msn@gmail.com
www.rdintercell.ru
The primary goal of the company is to study the first allosteric inhibitor FGFR2 - alofanib. “Ruspharmtech” became a resident of the Skolkovo Foundation in 2012. Preclinical studies of alofanib were successfully carried out in well-known Russian and foreign laboratories, which have extensive experience in studying new drugs with the support of Foundation grants.

**PROJECT:**
Study of RPT835, a low-molecular inhibitor of fibroblast growth factor receptor type 2 in cancer therapy.

**PROJECT PHASE:**
1 phase clinical trials.

**COMPETITIVE ADVANTAGES:**
The low toxicity of RPT835 (Alofanib). Activity against different receptor isoforms. Selective blocking FGFR2 leads to a growth inhibition of malignant neoplasms, whose cells have increased expression FGFR2 or activating mutations in this gene.

**ESSENCE OF THE INNOVATION:**
Alofanib is the first allosteric a low-molecular selective inhibitor of FGFR2, which decreases a receptor activity blocking the receptor site different from the active center. Currently allosteric targeted drugs in oncology are not registered.

**MARKET POTENTIAL:**
Achievement of projected safety and efficacy parameters will allow to use Alofanib in the treatment of common cancers for which currently there is not independent (without combination with conventional methods) treatment targeted drugs.

**CONTACTS:**
Nadezhda Dragun, office@ruspharm.com

www.ruspharm.com
Target Medicals LLC is a private biotech company focused on platform-based discovery and development of first-in-class therapeutics.

**PROJECT PHASE:**
Pre-clinical stage.

**PROJECT:**
Development of aldosterone synthase inhibitors.

**COMPETITIVE ADVANTAGES:**
We have developed a unique technological platform “CRISTA” for targeted drug discovery, based on our achievements in research of clinically relevant Cytochromes P450 – a family of enzymes, playing a crucial role in bioregulation processes in human and microorganisms.

**ESSENCE OF THE INNOVATION:**
With CRISTA we can study the structure and function of cytochromes P450 as a drug targets for ensuing discover and development of novel and highly selective compounds. Our current pipeline includes first-in-class drugs for cardio-metabolic disorders (aldosterone-mediated arterial hypertension and metabolic syndrome) and for treatment of MDR/XDR forms of tuberculosis.

**MARKET POTENTIAL:**
Total market potential of our current assets is around 3,5-4 bln USD/year.

**CONTACTS:**
Alexei Kliuchenovich, MD, BBA CEO, alexk@target-medicals.com
www.target-medicals.com
TheraMAB is an emerging biopharmaceutical company developing innovative, highly effective and broadly applicable immunotherapeutic monoclonal antibody. TheraMAB focuses on the development of potential drug that, by its unique capacity to selectively modulate the activity of T-lymphocytes, may provide new treatment options in cancer. The Company was incorporated in August 2009 by the investment fund «Bioprocess Capital Ventures» and the German biotechnology company TheraMAB GmbH.

PROJECT:
TAB08 – Immune checkpoint activator for the Cancer treatment.

COMPETITIVE ADVANTAGES:

ESSENCE OF THE INNOVATION:
TAB08 – is the first-in-class humanized IgG4 MAb, specific for the human T-lymphocyte co-stimulatory receptor CD28. TAB08 provides direct and strong activation of T-cells, involved in natural tumor response.

MARKET POTENTIAL:
Approved immune checkpoint drugs (anti-CTAL4, anti-PD1) demonstrate annual sale >$1Bln per drug with CAGR>10%. Recent licensing and M&A deals in immunooncology field were within range of $200M-$500M.

CONTACTS:
Dmitry Golikov, CEO,
dmitriy.golikov@bioprocess.ru
www.theramab.ru
Health Modeling Technologies develops mobile services aimed at the diagnosis and expert assessment of the health status of an individual. In this area the company has a patent for the invention «Method for imaging the functional status of the individual and the system for implementing the method».

**PROJECT:**
Software development for tablets and smartphones, a personalized 3D-model of the human body is generated to aid the visual perception of the physiological and morphological state of the organism. The indicators are selected from the personal health account and external sources.

**PROJECT PHASE:**
Visualized digital health card (alpha version at the moment of the application) includes:
- Medical data visualization block
- Data synchronization block from different medical information systems.

**COMPETITIVE ADVANTAGES:**
Convenient interface, reduction in time of evaluation. Visualization of the obtained data in 3D, highlighting areas of pathology, and possible risk areas in an accessible, intuitive manner for end users without medical education.

**ESSENCE OF THE INNOVATION:**
The visualization of the anthropometric, diagnostic and biochemical indicators is presented in the form comprehensible for end user with no medical training. The product is designed to integrate with other medical information systems.

**CONTACTS:**
E Van, International Projects Manager, Asia-Pacific Region, e.van1989@yandex.com
www.tmzrf.ru
“Third Opinion” is the brand and technology owner. Third Opinion guarantees technical development and support of the platform and receives license fees from affiliated companies. It constitutes an agreement or gives a mandate for concluding a treaty with external agencies on technology development.

PROJECT:
Medical Neural Network Third Opinion Project aims to create a service for doctors/patients/students/professors of medical academic institutions on online data recognition using downloaded medical images based on neural network. This new instrument will shorten the time for a repeated review of an image, to reduce regional and country medical Inequalities, will set the scene for the development of a unified standard for digitalization of medical images.

COMPETITIVE ADVANTAGES:
We have
• well-established technology development process of Neural network learning, that will allow to scale up and widen the number of covered nosologies. We expect reducing relevant specialist’s working time by 95% using “Third Opinion” AI based recognition service.

ESSENCE OF THE INNOVATION:
“Third Opinion” is a universal SaaS-platform for the analysis of medical images (ultrasound imaging, CT, MRI, microscopic images of blood) based on AI analysis. “Third Opinion” also includes intelligence decision support system that is based on AI algorithms as an assistance to clinical setting.

CONTACTS:
Anna Mesheryakova, CEO,
anna@mesheryakova.ru
www.3opinion.ru

PROJECT PHASE:
Product prototype ready (first «product applicaton»).
Neural network recognizes 25+ types of blood cells types.
Fungipack

Fungipack focused on the creation of new environmentally safe, but efficient methods of plants protection from insects. Initially targeting locust control products, by now we have created a new generation of protected bioinsecticides. Company have successfully finalized the trials, registered products that are permitted for use on the local market, and open our own production with first sales in 2017.

PROJECT PHASE:
Small scale production firm, first sales in 2017.
• Protected technology and method, protected stains;
• Successful field trials, first product registered and certified in Russia;
• Small scale industrial production in Russia;
• Registration and certification on other local markets (CIS).

PROJECT:
New form of protection for bio insecticides – microcontainers (MCC).

COMPETITIVE ADVANTAGES:
We created technologies of production of MCC and bioinsecticides based on MCC, that are:
• Safe for environment compared to chemicals;
• Easy to use and reliable compared to other bioinsecticides;
• Economically effective compared to known technologies.

ESSENCE OF THE INNOVATION:
MCC is a micro shell with a small hole:
• Inside we place the microorganism, nutrient rich substance and dry it.
• Add water and spray it over the target area to use.
• It provides protection and nutrients for its growth of the microorganism.

MARKET POTENTIAL:
• The worldwide market of bioinsecticides is estimated 1-3 bln USD with 10-15% growth forecast;
• Almost every bio- product can benefit from our technology;
• We already have registered products for the local markets with volumes exceeding 100 m USD.

CONTACTS:
Andrei Fokin, Co-Founder, afokin@bioinsecticide.ru
www.bioinsecticide.ru
Fusion Pharma

Fusion Pharma is a clinical stage startup developing a small molecule drug candidate PF-114 for the treatment of refractory Chronic Myelogenous Leukemia (CML), including cases with T315I mutation. Currently PF-114 undergoes Phase 1 clinical trial and its interim results, support the hypothesis of safety and efficacy in heavily pretreated CML patients. We are looking for an investment to support a pivotal Phase 2 international trial which is planned to begin in 2018.

PROJECT:
PF-114 – a 3rd generation inhibitor of Bcr-Abl for the treatment of resistant forms of chronic myeloid leukemia (CML).

COMPETITIVE ADVANTAGES:
PF-114 is expected to be devoid of Iclusig serious adverse effects, while preserving superior efficacy; that would potentially allow PF-114 to take a significant share of ~$1,7B niche of resistant CML.

MARKET POTENTIAL:
PF-114 is expected to take a significant share of ~$1,7B niche of resistant CML.

CONTACTS:
Ghermes Chilov, General Director,
Ghermes@fusion-pharma.com
www.fusion-pharma.com

ESSENCE OF THE INNOVATION:
PF-114 – a 3rd generation inhibitor of Bcr-Abl for the treatment of resistant forms of chronic myeloid leukemia (CML).