



## Novel Healthcare & Medicine in RF- ISTC Engagement

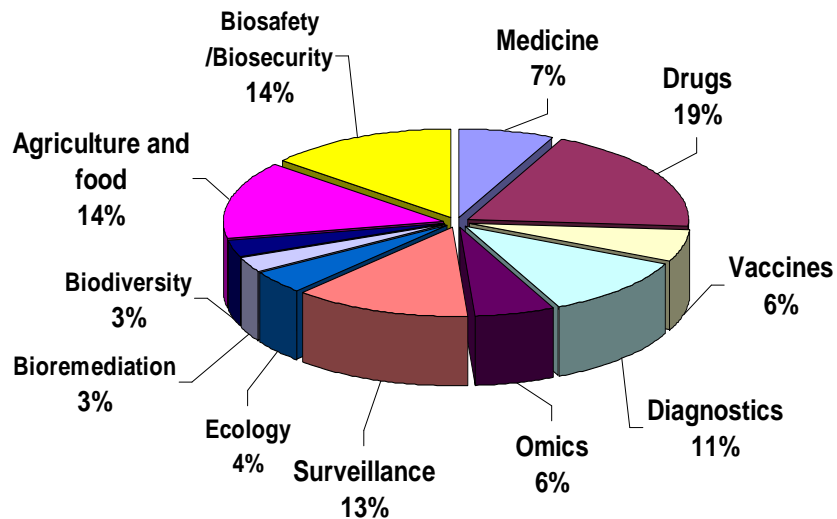


Moscow 2011

## *Collaborative Research*

### **Health at the Heart of ISTC Priorities**

During the period of 1994-2010, ISTC received a total of 1,359 proposals in the area of life sciences, including Medicine and Healthcare. From them, **622 projects** for an amount of **\$232,218,219** were funded in the broad range of directions displayed below:



Currently, ISTC is actively implementing 28 projects in the Russian Federation in the areas of medicine and health care devoted to improvement of disease surveillance, development of new diagnostics, devices, drugs and vaccines, creating of a center of proton therapy of cancer, and creating a center for new drug development.

#### **Tuberculosis Prevention & Treatment:**

Mycobacterium tuberculosis (TB), Multi-Drug Resistant (MDR), and Extremely Drug Resistant (XDR) - and from the year 2010 - Totally Drug Resistant (TDR) Tuberculosis are among the most significant health threats facing Russia and the CIS. Russia ranks 12th among the world's 22 countries identified as having a high tuberculosis burden. TB incidence doubled during the 1990s but has remained constant since 2000. More than 117,000 Russians contract tuberculosis and about 25,000 die from tuberculosis disease every year. These figures are up to eight times higher than European norms.

ISTC has supported 50 research projects investigating TB in Russia and other countries of the CIS for more than \$11 million. These projects have improved infrastructure to detect and treat TB and also provided epidemiologic data that is helping to prevent the spread of drug resistant strains in Armenia, Georgia, Kazakhstan, and Russia. ISTC has also successfully funded development of microchip technology - innovative diagnostic tools - to identify Mycobacterium tuberculosis antibiotic resistance profile. This research has been implemented and commercialized.

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A new company was created to produce microchips for RF MOH (OOO Biochip-IMB, [www.biochip.ru](http://www.biochip.ru)).



Another critical project with the **Research Center for Tuberculosis at the Research Institute for Physiopulmonology in Moscow, Russia** is carrying out TB trials for new medicine.



Trials are reviewing and developing a TB treatment regimen in accordance with WHO guidelines that includes moxifloxacin in the initial, two-month phase of treatment for newly diagnosed patients with pulmonary tuberculosis.

## **Cancer Diagnostics & Treatment**

Positron Emission Tomography is used heavily in clinical oncology (medical imaging of tumors and the search for metastases) and cardiology, and for clinical diagnosis of certain brain diseases. The construction of a building designed for Positron Emission Tomography was recently completed in Snezhinsk.



Collaboration between ISTC and the Russian Federation Government will enrich the Chelyabinsk region with a state-of-the-art facility for cancer diagnostics and imaging of the human body. The Russian research center RFNC-VNIITF was the leading institute on the project.

A number of ISTC projects have been devoted to development of new anticancer drugs:

- $^{212}\text{Pb}$  alpha-emitter conjugated to a receptor-specific peptides that targets melanoma for therapeutic applications against melanoma;
- Compounds for treatment of prostate cancer;
- Development of individual anti-tumor vaccines based on molecular chaperones;
- cytotoxic conjugates fusion vaccines which selectively target specific human cancer cells (ovarian, endometrial, cervical, breast and prostate).

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In 2007, a consortium of five research institutes headed by the **Institute of Biomedical Chemistry** (Moscow, RF) completed the research stage and started preclinical testing of recombinant L-asparaginase, a new and potentially highly effective drug against children's leukemia and acute leucosis. According to clinicians, the drug may save thousands of lives every year.

The preliminary data has proved that the drug is highly efficient and much more affordable compared to similar western products. In addition to promoting the product on the Russian market it is also planned to test the new drug in western clinics.

### **Targeted Initiative “Drug Design and Development”**

A new Targeted Initiative has been developed to facilitate development of novel therapeutics to combat emerging and re-emerging infectious diseases and cancer. The Initiative is built upon a set of workshops and projects with a view to establishing long-term, cooperative research and development of relationships between institutes with Russian/CIS/International health care, pharma and bioscience bodies.

*New Molecular Targets for Drug Design and Discovery. The perspectives of Integration Russian Scientists and International Cooperation.* Moscow, 2006.

*International expert meeting “Research on tuberculosis: state of the art in Russia and way toward foundation of a Russian research cluster”* Moscow, 2007.

*Drug Design and Development ISTC Targeted Initiative - A Review of ISTC Projects to date and a Call for Proposals.* December, 2007, Moscow. More than a hundred participants from CIS, USA, Canada, EU, Japan were participating discussing cutting edge problems in drug discovery and future collaborative prospective work.



*Forum on Drug Discovery, Development, and Translation.* Institute of Medicine, USA, Moscow, 2010.

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**Bio-Japan, 2010** – Business promotion for Drug Discovery experts from Russia, Armenia and Kazakhstan. Participants were promoting their products, which were presented at the exhibition during a one-hour dedicated session. A lot of meetings and negotiations were conducted with representatives of research and business organizations.



### Targeted Initiative “Probiotics and Health”

Innovative functional healthy foods, developed on the base of Lactic acid bacteria isolated in Russia, can be used for prevention and complex therapy of gastrointestinal, urogenital, cardiological and oncological diseases.



50 Leading researchers from Russia, Ukraine, Georgia, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, USA, Canada and Japan attended the 1st ISTC Workshop on probiotics in Yerevan, Armenia, in October, 2010. The Probiotic Platform and new projects were developed. A 2nd Probiotic Workshop will be held in October, 2011 in Kazakhstan.

An ISTC Science Café on Probiotics was devoted to the results of a lactic acid bacteria biodiversity study funded by Danone Research. Dr. Chantal Cayuela, R&D Director, and Danone Eastern Europe commented: “We see a great potential in collaboration with Russian experts for probiotic research”.



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