

"Innovational Biotechnologies" Ltd.

Address: 117071 Moscow, Leninsky pr., 33, building 4

Coordinates: Ph.: 095-9580877 Fax: 095-9520801

E-mail: vpopov@mars.rags.ru

Management: Professor V.Popov (co-owner) - President

M.Piskunov (co-owner) - CEO

A.N.Bakh Institute of Biochemistry of RAS

Employees: full-time-12, part-time 15

Previous financing:)\$250 000

Requested investment: \$350 000

Use of the requested investment: Establishing of manufacturing facilities for production of rapid immunochromatographic tests; further development and international marketing of proprietary technology (BIOREACTOR).

Company Description:

Innovational Biotechnologies Ltd. (INBI) was formed in 1991 to develop and commercialise new technologies and products developed by its co-founder A.N.Bakh Institute of Biochemistry of RAS. INBI's goals are to: promote and foster the commercial development of suitable technologies and products; selectively support basic and applied scientific research; co-operate with private and public, national and international agencies interested in specific project development and technology transfer; render management, marketing, and sales assistance for selected foreign companies going into business in Russia.

Field and Directions of Activity:

Environment protection, biotechnology, diagnostic kits, R&D.

Products/Services/Technologies:

INBI - is a local market leader in the field of biological abatement of volatile organic compounds (VOC) from industrial air emissions. INBI developed a proprietary BIOREACTOR technology which is highly competitive against alternative methods both in price and performance. The unique feature of the BIOREACTOR is a specially selected consortium of natural micro-organisms which is matched to the individual VOC content and enables efficient (80-99 %) degradation of various VOCs, e.g. aromatic hydrocarbons, chlororganic-, carbonyl- and C1-compounds as well as many other air pollutants including malodorous substances. BIOREACTOR plants are supplied on a turn-key basis. In 1995 INBI licensed the BIOREACTOR technology to the British company Sutcliffe Croftshaw Ltd. Several BIOREACTOR plants are now running in UK.

INBI is nominated by the Ministry of Health of the Russian Federation as its official supplier of the diagnostic kits for screening for phenylketonuria in new-borns. Since 1992 INBI covers the whole Russian market and supplies some CIS countries by these diagnostic kits.

In year 2000 INBI initiated a new project aimed in establishing of a local production of rapid immunochromatographic tests for drugs of abuse.

Management Team:

A.N.Bakh Institute of Biochemistry of RAS (Leninskiy pr.33, 117071 Moscow) - 24 %, private persons, 6 - 76 %. Professor V.Popov (co-owner) - President, manager of key projects within the company, winner of the Prize of the Government of Russia in the field of Science and Technology (1997); graduate of the TACIS Management Program (1995). M.Piskunov (co-owner) - CEO, winner of the Prize of the Government of Russia in the field of Science and Technology (1997). Professor A.Bezborodov (co-owner) - R&D for BIOREACTOR project, winner of the Prize of the Government of Russia in the field of Science and Technology (1997). Professor A.Savitskiy, professor B.Dzantiev - development of diagnostic kits.

Markets/Competition:

BIOREACTOR Technology. The world market of environment protection technologies associated with air pollution control amounted to \$30 billions in 1999. According to the Environment Protection Agency of USA market sectors dealing with biological methods of air purification show one of the highest growth rates of about 10 % a year. The distinctive feature of the market of environment protection technologies in Russia and elsewhere in the world is its nearly absolute dependence on national legislation that is implemented through establishing compliance limits for VOC emissions, fines for spending/using of the natural resources, etc. Both European and USA legislation demands substantial reduction of VOC emissions from existing and newly established businesses and imposes dead-lines for introducing either new technologies or end-of-pipe solutions.

Many of these dead-lines have to come into effect already in the near future. There is an urgent demand for environmental friendly, non-expensive and affordable techniques for the VOC control in industrially developed countries. According to the state of the art and current market situation from \$6 to \$15 (\$10 on average) of capital investment are required to erect a facility enabling purification of 1 m³ of air per hour. At present an air purification plant rated for 10,000 m³/h will cost from \$50 000 to \$200 000. The BIOREACTOR technology enables substantial (up to 50 %) savings in manufacturing and erection due to significant intensification of the process and thus reduction in size and footprint of air purification plant. According to Sutcliffe Croftshaw's estimates only UK will require from 3 to 6 BIOREACTOR plants per year with a selling price of an excess of \$100 000 each.

Rapid Immunochromatographic Tests.

Local Russian market of rapid immunochromatographic tests is at present in its infancy. It follows the trend shown by the major world markets. At the moment it is nearly exclusively a market of pregnancy tests dominated by foreign vendors. Monthly sales of pregnancy tests in Moscow only are estimated at 2-3 m millions individual tests a month. Until recently drugs of abuse (DOA) tests as well as other rapid tests comprised only insignificant part of this market. Taking into account general world trends it is anticipated that the market share of the pregnancy tests will gradually decrease, while of the other tests (DOA, cardio-markers, infectious diseases, etc.) will increase. Local manufacturer of the rapid immunochromatographic tests has a good perspectives to control a significant share of the newly emerging market segments, e.g. in DOA control (army draft, police, screening of the risk-groups of population, compulsory screening on the working place, etc.). According to the estimates of the Russian Ministry of Health the minimal demand of the country for DOA rapid tests is about 1 million.

Achievements:

Development of BIOREACTOR technology for VOC abatement in industrial air emissions and establishing of small-scale production of BIOREACTOR plants in Russia. The team that developed the BIOREACTOR technology was awarded in 1997 a Prize of the Government of Russia in the field of Science and Technology. International marketing of BIOREACTOR technology culminated in entering into licensing agreement with a British company. Production of BIOREACTOR plants in UK was initiated in 1996. In 1997 British Society of Chemical Engineers awarded BIOREACTOR plant with its Prize for the best achievement in the field of environment protection. Provision of national neonatal screening program with diagnostic kits for phenylketonuria.

Successful partnership with several foreign companies and promotion of their products on the local markets.

Outlook: Establishing of manufacturing facilities for production of rapid immunochromatographic tests for detection of drugs of abuse, infectious and sexually transmitted diseases, human reproductive functions with a capacity from 1 million tests a year. Marketing of BIIOREACTOR plants in USA and Europe.