

"CAJANY" JSC

Novosibirsk

Owners:	natural persons, 5 persons
Staff:	Personnel Staff - 19 members, 12 recruits
Previous financing:	\$ 100,000
Current financing:	\$ 50,000
Volume of investment required:	\$ 1,500,000, strategic partner
Intended use of the investments required:	Development of highly efficient universal modular biotechnological production of monoclonal antibodies and vaccine based on the use of Gas-Vortex reactors

Purpose of investments

1994-1996 the year of foundation, development activity, production of development type's bioreactors.

1996-1997 testing works, design debugging.

1998 filling of application for patenting in Europe, USA, Japan.

1997-2000 production of 5 - 10 l laboratory bioreactors "BIOK". Joint scientific - practical works with the institutes of SB RAS and SB RAMS and production biotechnological enterprises on cultivation of different types of cells and microorganisms. Creation of the concept of highly efficient universal modular biotechnological production. Patenting is transferred into the national phases in the USA (No 09/787,525), Europe (No.98963676.6).and Japan (No.200574215).

2000-2002 development and putting into operation with the institute of Molecular Biology and Biophysycs of the functioning prototype of universal modular biotechnological production.

Production of human recombinant angiogenin and recombinant DNA Publication in the magazine "Biotechnology", No3,2001. Issue by the Publishing house "Nauka"of the monograph "Gas-Vortex bioreactors "BIOK". Use in modern biotechnology.

Together with NPO "Virion" Development of production procedures of vaccine production for tick encephalitis. Development of production procedures of vaccine production for hepatitis. Development of production procedures of vaccine production of polysaccharide.

Activity fields and directions

Development of highly efficient universal modular biotechnological production based on the use of gas vortex reactors.

Development and finalizing of new technologies in biological, chemical, pharmacological, medical etc.

Products/Services/Technologies

Bioreactor - a device for cultivation of different types of cells and microorganisms used in pharmacological, microbiological, medical, food and chemical industries. The results of cultivation of different types of cells and microorganisms confirm the uniqueness of the bioreactor "BIOK" which allows to cultivate plant, insect, animal cells, including the easily damaged. Existing bioreactors specialize on cultivation of certain types of cells and microorganisms. More "delicate" cell requires more specialized bioreactor and production. As a result production loses its mobility flexibility.. Demand reduction, impossibility of quick, efficient changeover to a new production is destructive even for a prosperous enterprise. The enterprise will be efficient if it has a "head construction unit" of the universal bioreactor which allows to cultivate a great number of different types of cells and microorganisms and a modular "tail" responsible for the processing of the obtained biomass supplemented or modified.

"BIOK" bioreactor is that one that allows having that "head construction unit" It performs mildest, yet efficient, mixing without foaming, water hammers, cavitation, highly turbulent and stagnant zones. It provides 3high mass exchange rate (3-6-fold increase compared to bioreactors with mechanical agitator). It functions, leaving the characteristic equations unchanged, being filled with a suspension of 10-90% of the vessel volume. It has low power consumption - 0,3 VT/l !!! Economic efficiency of production is achieved by the sharp decrease in the number of the intermediate bioreactors needed in the technological circuit, the feasibility of using bioreactor in a continuous cycle, the increase in biomass yield, the

considerable decrease in the needed production areas, water supply, detergents, wage funds, etc.

"SAJANY" implements:

1. Production, sale and rent of Gas - Vortex bioreactors
2. Production of human recombinant angiogenin ANGIOSIB in ointment form and different DNA on the prototype of highly efficient universal modular biotechnological production
3. Development of the technology of production of different biotechnological product together with NPO "VIRION", NPO "Vector", Berdsk Plant of biologicals the Institute of Catalysis SB RAS etc.

Achievements

Gas - vortex bioreactors with a volume of 5, 10 liters have been successfully used for more than 4 years in scientific and industrial activity by "SAJANY" together with the institutes of RAS and RAMS and biotechnological enterprises (NPO "VIRION", NPO "Vector", Berdsk Plant of biologicals etc.).

At present work on launching 100 liters gas - vortex bioreactor has been performed together with the Berdsk Plant of biologicals.

The functioning prototype of highly efficient universal modular biotechnological production is built up by " SAJANY" together with the Institute of Molecular Biology and Biophysics SB RAMS.

Technology of vaccine production for tick encephalitis is developed together with NPO "Virion".

The Gas - vortex bioreactor does not have analogs all over the world according to the conclusion of institute for industrial property and international patent institutes.

The Gas - Vortex bioreactor was presented at the exhibition of Russian progressive developments and high technologies organized by the Ministry of Industry and Science and the Government of Malaysia in Kuala-Lumpur in 2001.

The monograph " Gas - Vortex bioreactors "BIOK". The Publishing house "Nauka" issued use in modern biotechnology." in 2002. Gas - Vortex bioreactor and its use is given in the magazines "Biotechnology"", No.4, 2000, No.3, 2001.

Prospects of Development

The Russian market is in great need of universal bioreactors of this type.

Reconstruction of plant bioreactors into Gas -Vortex on the Berdsk Plant of biologicals and supply of NPO "Virion" with 25-liter Gas - Vortex bioreactor for vaccine production have been under negotiation.

But the development of highly efficient universal modular biotechnological production for production of monoclonal antibodies and vaccine based on the use of Gas - Vortex bioreactor is considered to be the most perspective.

The concept of highly efficient universal modular biotechnological production has been promoted within the working State Program "Biotechnology for medicine and agroindustrial complex".

License sale is planned to USA, Japan, Europe.

Sales volume (over the last 12 months): \$ 11,000

year	
2002	\$ 15,000 - 20,000
2003	\$ 100,000 - 120,000
2004	\$ 100,000 - 150,000
2005	\$ 150,000 - 200,000