

Industry – University / National Institutes Partnership

Department of Biotechnology and NPIL Research & Development Limited Sign Agreement on ‘Screening for Bio-molecules from Microbial Diversity Collected From Different Ecological Niches’

Mumbai, February 22, 2008: An agreement was signed on February 22, 2008 in the presence of Shri Kapil Sibal, Hon'ble Minister of Science & Technology and Earth Sciences between the Department of Biotechnology (DBT), New Delhi, and NPIL Research & Development Limited (NRDL), Mumbai, to initiate an industry – university / national institute partnership programme in drug discovery.

The Department of Biotechnology (DBT) has recently initiated a network project called 'Screening for Bio-molecules From Microbial Diversity Collected From Different Ecological Niches'. **The public private partnership project involves nine institutes, with NRDL, Mumbai, as an industrial partner.** The total cost of the project is approximately Rs. 250 million, Rs. 180 million of which are being contributed by the DBT and Rs. 70 million by NRDL.

The participating institutes are:

- National Environmental Engineering Research Institute (NEERI), Nagpur
- National Centre for Cell Science (NCCS), Pune
- Institute of Genomics and Integrative Biology (IGIB), Delhi
- University of Delhi, South Campus (UDSC), Delhi
- Institute of Life Sciences (ILS), Bhubaneswar
- M. S. Swaminathan Research Foundation (MSSRF), Chennai
- Guru Nanak Dev University (GNDU), Amritsar
- Institute of Bioresources and Sustainable Development (IBSD), Imphal
- National Institute of Oceanography (NIO), Panjim

The project envisages a mega-scale screening programme for various environmental isolates. This is the first project in the country in which industry and academia will work together to screen such a large number of bacterial isolates.

Different academic institutes will isolate organisms specific to diverse ecological niches. For each sample, isolation of bacteria will be carried out on 30 different growth media.

This multi-institutional effort will generate approximately 7000 isolates/month (~1000/institute), which will be regularly sent to NRDL, the industrial partner of the project. Each of these institutes is an expert in niche areas of microbial biodiversity. The microbial isolates have not been tested for potent medicinal properties, if any. The purpose of this study is to exploit the biodiversity of microbes. This will help in identifying specific therapeutic properties that may be further used to identify novel molecules, which may then be passed on to the drug development phase.

At NRDL's facility at Goregaon, Mumbai, a team of scientists have been concerting their skills and have established high-end technologies using High-throughput robotics, which help in identifying specific properties that can be further developed. Most biological assays involve the use of living cells under *in vitro* conditions to measure the therapeutic potential of the extract. If this is found to be positive and better than the existing controls, a collective decision may be taken to move forward to the various steps involved in the development phase of the drug.

Natural diversity appears to be a novel source for new drugs worldwide. In the pursuit of new drug development, new drugs are needed so that an effective pipeline of molecules is established whose properties can be effectively validated *in vitro* using modern techniques in proteomics and genomics.

Screening will be carried out for anti-cancer, anti-infective, anti-diabetes and anti-inflammation properties. In addition to the culture-dependent method, the culture-independent approach will also be adopted for a few selected samples.

There are hopes that a bank of novel leads with specific potential will soon be developed. This will aid in the long-drawn process of drug discovery.

The project will lead to the selection of potential candidate molecules, which will be taken to process scale-up strategies with appropriate partners. The credit-sharing in this project amongst the PI and industry has been mutually worked out.

About NPIL Research & Development Limited:

NPIL Research & Development Limited ("NRDL") is an independent company that was recently demerged from Nicholas Piramal India Limited ("NPIL"). NRDL was formerly the NCE R&D division of NPIL. NRDL has state-of-the-art R&D laboratories built over 200,000 square-feet of space and over 300 scientists engaged in world-class drug discovery research and development. NRDL is focused on four therapeutic areas – Cancer, Diabetes, Inflammation and Infectious Diseases – with a pipeline of nine synthetic chemical compounds in pre-clinical development. NRDL's lead chemical compound, a Cdk-4 inhibitor, is currently Phase I/II trials for Multiple Myeloma. NRDL also has three phyto-pharmaceutical candidates in clinical trials for Rheumatoid Arthritis, Infectious Disease and Cancer.

About Nicholas Piramal India Limited

Nicholas Piramal India Limited ("NPIL") is one of India's largest pharmaceutical companies with a growth track record of above 30% CAGR since 1988. The Company is currently ranked 4th in the Indian market with a diverse product portfolio spanning nine therapeutic areas. NPIL's had consolidated Revenues of Rs. 24.7 billion in 2006-07. The Company has R&D capabilities in Custom Chemical Synthesis, Process Innovation, NDDS and Basic Research. It has world-class USFDA-approved formulations and API facilities without any 483s. NPIL has a long track record of successful collaboration with innovator companies. Since 2003, the Company has made significant investments to become a global custom manufacturing organisation ("CMO") for large and medium-sized innovator companies. NPIL is listed in India on the Bombay Stock Exchange and National Stock Exchange.

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