



BCIL *seeks partners to license...*

***Mycobacterium leprae* DNA chip for drug target identification**

Biotech Consortium India Limited (BCIL) is seeking companies interested in licensing the oligonucleotide probes for DNA microarray based on *Mycobacterium leprae* protein for identification of potential drug target. The oligonucleotide probes has been developed by Dr V M Katoch and his team at the JALMA Institute for Leprosy and Other Mycobacterial diseases, Agra, India. The DNA chip developed is used for the study of metabolic gene expression and identification of novel drug target genes.

About BCIL:

BCIL was incorporated as public limited company in 1990 under the Indian Companies Act 1956. It is promoted by the Department of Biotechnology, Government of India and is financed by several all India financial institutions, venture capital funds and the corporate sector. BCIL has been actively involved in technology transfer, project consultancy, fund syndication, information dissemination, and manpower training & placement related to biotechnology over the last two decades. BCIL has transferred more than 15 technologies in the last 5 years using its expertise in facilitating licensing agreements that allow healthy and productive cooperation between the inventor and the licensee.

Technology Background

Drug resistance in *Mycobacterium leprae* for dapsone and rifampicin, the prevalent monotherapy for leprosy led to the recommendation of *multidrug* therapy (MDT) by WHO. Screening of the drug target DNA such as folP, rpoB, gyr, and 23S rRNA of drug resistance strain of M. leprae has shown mutation in these genes. Further complete sequences of *Mycobacterium leprae* and their homology to human genomes are being studied to identify other potential genes for drug target.

***Mycobacterium leprae* DNA chip for drug target identification**

Oligonucleotide array for detection of base substitution in *Mycobacterium leprae* involved in resistance against antileprosy drugs is available. Also *Mycobacterium leprae* protein microarrays is available for categorizing the leprosy patients based on differential humoral immune response patterns.

Technology Description

The present technology pertains to a novel set of oligonucleotide probes from *M leprae* protein used to develop DNA microarray for identifying potential drug target genes using structural and functional genomics approaches. The oligonucleotide probes are selected on basis of their proved essentiality for survival and over expression during the active stage of disease as compared to other selected genes of metabolism of the organism. Genes having less than 44% homology with the human genome is searched for the bacterial specific residues or epitopes. These gene targets are useful to find out the bacterial specific blocker to act as bactericidal drug by *in-silico* proteomic approaches. The DNA microarray will be used to study the gene expression of metabolic genes during progression of the disease leading to identification of potential drug targets from clinical samples.

Technology Advantage and Highlights

- ❖ *The technology provides a DNA microarray using a set of oligonucleotide probes derived from Mycobacterium leprae proteins.*
- ❖ *The DNA chip is for identification of potential drug targets for Mycobacterium leprae based on the study of the metabolic gene expression.*
- ❖ *The DNA chip is also used as diagnostic tool for rapid and early detection of infection.*
- ❖ *Probes once synthesized @ 45.00 Rs / base is enough to produce 1000 - 10000 DNA Chip.*

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Validation

Consistent expression of selected genes across the leprosy spectrum was validated independently on total 20 samples collected from different clinical types across the disease spectrum

Patents

This technology is patent pending.

"Probes and primers for identification of mycobacterial protein useful as potential drug targets"

Application No. : 884/DEL/2007

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Publications

- V.M. Katoch, Mallika Lavania, DS Chauhan, Rahul Sharma and Hirawati (2007). Advances in molecular biology of leprosy. *Ind J Lepr* **79**: 151-166.
- Rahul Sharma, Mallika Lavania, DS Chauhan, Kiran Katoch, Amresh, Pramod, Rakhi, Richa and VM Katoch. A metabolic gene (*accA3*) of *M. leprae* as potential marker for leprosy reactions. *Indian J Lepr* (Submitted)