

## Targeted research for developing world

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Respite from the malarial scourge is in sight. The International Centre of Genetic Engineering and Biotechnology (ICGEB), New Delhi, has developed a vaccine for Malaria. The clinical trial results, so far, have been encouraging. Now the vaccine is all set to enter the human clinical trial stage.

The Malaria Vaccine Initiative (MVI) launched by ICGEB, New Delhi, has been involved in understanding the functional roles of malaria parasite proteins and developing potential vaccine candidates. This much-applauded project is in the final stages now. In a couple of months the vaccine will enter the final phase of human clinical trials. The institute has signed an agreement with Hyderabad-based Bharat Biotech Ltd, which would manufacture the vaccine for human clinical trials later this year.

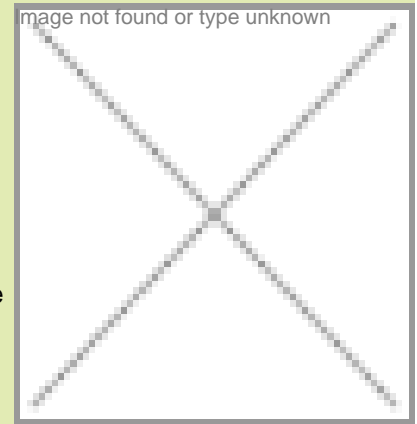
Explaining about the malarial vaccine, Dr VS Chauhan, director ICGEB, New Delhi component, said, "The Indian malaria vaccine program ranks amongst the best in the world and had attracted funds for the production of vaccine grade material from the biotechnology industry in India, clearing the way for the first-ever Indian malaria vaccine trials. Basically, the researchers at ICGEB fine-tuned the candidate vaccine against infection from *Plasmodium vivax*, the most widespread form of malaria in India and then transferred the technology to Bharat Biotech. The challenges faced in developing the vaccine were mainly because of the parasite's complex life cycle, multiplicity of parasite strains, and the global drug resistance."

## "Need to add more values to our skill"

Heading the International Centre for Genetic Engineering and Biotechnology, New Delhi component, Dr VS Chauhan believes that though we have enough skill and knowledge base to start off in biotechnology but we need to constantly improvise.

### How does India compare with other developing nations in the biotech arena?

The term biotechnology is really catching up in India. But it is time to actually analyze our growth path. The question ahead of us is that are we taking the right direction. Biotech in India is like a newborn baby that requires proper attention. Unless and until we catch hold of the cutting edge technologies that can be delivered to the industry, we cannot reach the correct destination. Today in the Indian biotech industry, we have a limited numbers of big players. I think we require more efforts and time to grow and establish ourselves in the global biotech arena.



### What is the status of research on the Malaria vaccine initiative taken up by ICGEB?

The Malaria Group at ICGEB has been involved in understanding the functional roles of malaria parasite proteins and developing potential vaccine candidate antigens. On the basis of the current promising results, the malaria vaccine is about to enter the final phase of trials. The vaccine is moving into the human clinical trials, after a few months. The marketing rights for Indian market of this malaria vaccine have given to Bharat Biotech Ltd.

### What is the status of technology transfer at your center?

It is a known fact that scientists are unfortunately not very good at negotiations for their own science. At ICGEB we are working to improve this situation. For example the Process Development Lab is our initiative to get closer to industry. Through this lab we try to provide a technical platform to bridge the gap between the academia and industry with the aim of making technology transfer easier for the industry. We are open for collaborations with the industry and tend to work on research areas which address the need of the society and the industry.

### How do you rate the potential of India's knowledge base?

Everyone is quoting that the Indian knowledge base has a great potential for attracting international attention. But somehow I personally believe that though we have enough skill and knowledge base to start things, but to become leaders in biotechnology we need to add more values to our skill. Scientific community in India needs to get connected with the latest research tools and the new emerging trends. We need more innovative ideas to take shape into research.

Another feather in the cap of ICGEB, New Delhi component is the recent development of a Dengue Detection Kit. This project was carried out by Gene Expression Group of the Centre in collaboration with Defense Research Development Organization (DRDO). The Center has already filed an application for an Indian patent on it. Since the technology development is almost in its final stages, it will be soon transferred to the industry. Emphasizing the importance of the kit, Dr Naveen Khanna, group leader, Recombinant Gene Expression group, ICGEB said, "Dengue virus infection has emerged as a significant global public health threat. The situation is particularly serious as there is neither an effective antiviral therapy for its treatment nor a vaccine for its prevention."

Elaborating on the other focus areas of Recombinant Gene Expression Group, Khanna said, "This group is engaged in the design and development of laboratory-scale production strategies for several therapeutically useful recombinant proteins and the transfer of these technologies to the pharmaceutical industry. In the past, we have successfully developed laboratory-scale technology for the production of recombinant proteins such as human interferon  $\alpha 2b$ , human interferon  $\gamma$ , human growth hormone and Hepatitis B surface antigen. Our Hepatitis B vaccine preparation has been found to be both safe and efficacious in limited clinical trials carried out at the Sanjay Gandhi Post Graduate Institute, Lucknow."

Today it is important for any research center to not only generate knowledge but also secure it. Speaking on this aspect Dr Chauhan said, "ICGEB adopts a positive patenting and licensing policy. Through the establishment of new guidelines, the centre is in a position to foster an innovative approach for global industrial relations, enhancing the finalisation of joint ventures and other partner orientated approaches for the commercialisation of the results of research in biotechnology. Cooperation with other international agencies is promoted to harmonise and speed up projects of common interest."

As of now, 45 agreements have been finalised with industrial partners located in member and non-member states for the

transfer of know-how related to the production of important compounds, biopharmaceuticals and other biotechnology derived products. During 2002 the Center entered into seven new agreements, one patent application has been licensed in India and negotiations are currently underway for the licensing of a second patent in Argentina. Two of the patent applications owned by the Center have been licensed to companies in the US.

There are 20 patents filed by ICGEB from both the labs at Trieste, Italy and New Delhi, India. Out of these six patents are filed in India. And among these, the Indian patent for "Process for preparation of Recombinant Gamma Interferon" has already been granted.

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