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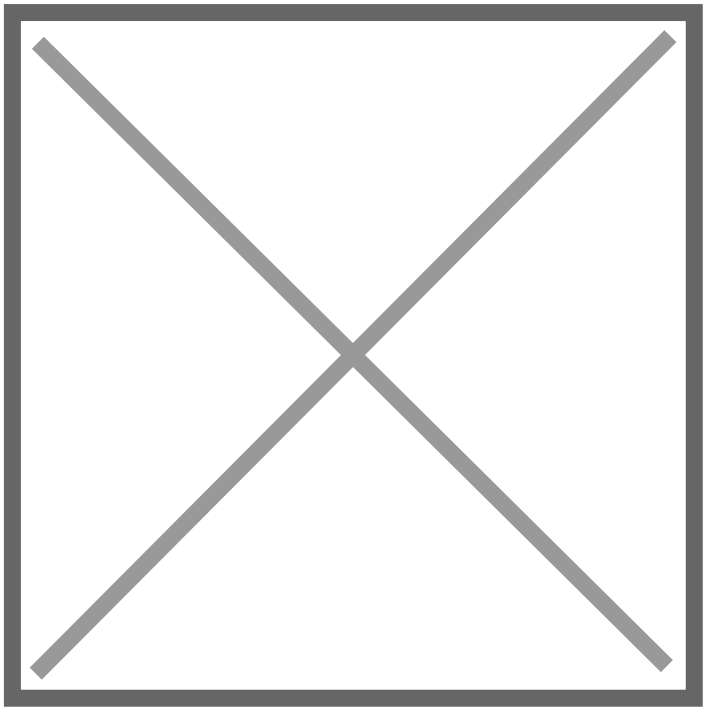
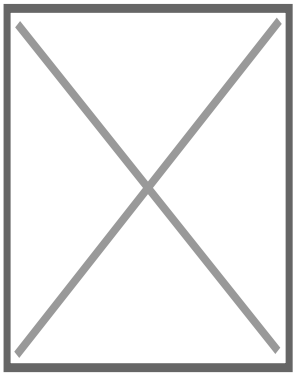
Ã¢â?¬Å?ICGEB set to make headway in dengue researchÃ¢â?¬?

13 September 2010 | News



-Dr Virander S Chauhan, director, ICGEB, New Delhi



Headquartered in Trieste, Italy, the International Center for Genetic Engineering and Biotechnology (ICGEB) has two more components, one each at Cape Town (South Africa) and New Delhi (India). A part of the United Nations system, the center forms an interactive network with affiliated centers in 60 member-states.

The New Delhi-component of ICGEB is dedicated to advanced research and training in molecular biology and biotechnology, and holds out the prospect of advancing knowledge and applying the latest techniques in the fields of biomedicine, crop improvement, environmental protection/remediation, biopharmaceuticals and biopesticide production.

In an interview with BioSpectrum, Dr Virander S Chauhan, director, ICGEB, New Delhi, shares his views on different topics related to the center, biotech industry, tuberculosis (TB) research and many other issues.

An expert in malarial research, Dr Chauhan, joined ICGEB in 1988, and has been responsible for many advancements in drug developments. Currently, he is also a member of Genetic Engineering Appraisal Committee (GEAC), the biotech regulator. Excerpts from the interview:

Q What is the purpose behind establishing ICGEB in India?
Prior to establishment of the Asian Chapter of ICGEB, several proposals were sent to headquarters at Trieste. Among those, the Indian proposal for establishing a center in New Delhi was found to be the most competitive one. Therefore, it was decided to establish a center in New Delhi. With support from Indian and Italian governments, the ICGEB was initially housed at National Institute of Immunology (NII), but was later shifted to the present campus of 10,000 sq.ft.area. I would also like to mention that the former Prime Minister of India, Indira Gandhi, played a big role in establishment of the institute, and was instrumental in its foundation in India.

The purpose behind the establishment of ICGEB was to provide a scientific and educational environment of the highest standard, and conduct innovative research in life sciences, for the benefit of developing countries. The center strengthens the research capability of its members through training and funding programs and advisory services; and represents a comprehensive approach to promoting biotechnology, internationally.

Q What major research activities are given top priority at ICGEB?
We have eight major focus areas including the main research areas of mammalian and plant biology. Biomedical projects are pursued in virology (hepatitis B and E viruses, human immunodeficiency virus and severe acute respiratory syndrome (SARS)

virus); immunology (biology of the immune response and tuberculosis), development of diagnostics and vaccine candidates for dengue viral infection and structural biology (development of synthetic antibiotics, crystal structure determination of proteins and polypeptides) and in the field of malaria; both in basic research, and vaccine and drug development, as well as development of technologies for biopharmaceuticals, and for diagnosis of infectious diseases. In the plant biology area, research projects address the study of insect resistance and biopesticidals, abiotic and biotic plant stresses and crop improvement through biotransformation.

ICGEB is also making a unique headway in anti-dengue research. Dengue vaccine program is in progress and since it has got a long hibernation period, it is expected to take more time. In case of dengue, it might take a year-and-a-half to substantiate.

Q How is the progress on the TB drug development front and malarial research?
The progress on the Gates Foundation-funded research on TB and malaria, has been very positive so far; but the rest of the funding would be granted only after the evaluation by the Gates Foundation. We are highly hopeful of that, otherwise, we would have to look for some industrial partner for the support to continue the research.

The phase-I trials for our malaria vaccine will begin soon; because it took a long time to get approvals from the Drugs Controller General of India (DCGI), as their approach is very cautious. Since we have a very good facility for TB and malaria research, we are looking forward to more industry collaborations. We have, in the past, partnered with many companies for technology transfer in malarial research. I think we have the required skills to translate the ideas into products. We are in negotiation with a few companies for the TB drug, and would be announcing the same within three months time.

Moreover, a recent study undertaken by the Immunology Group at ICGEB, in collaboration with the All India Institute of Medical Science (AIIMS), focuses on new pathways for TB therapy.

The findings, published in the journal, Cell, explains the way the TB bacterium survives inside the human body. The results could be used to create a TB therapy that is not antibiotics-based, and could be a valuable tool in the fight against antibiotic-resistant TB.

Q How do you evaluate your experiences in working with the industry ?
When we began in 1988, we came up with many new technologies. We developed many diagnostic kits in the past, and collaborated with industry for technology transfer. But, somehow I feel that we didn't get a better deal out of that. However, I don't blame any of our industrial partners, as it was our own lack of awareness about intellectual property rights (IPR) that has to be blamed for it. Despite having the access to technology, the lack of trained manpower and sufficient knowledge about handling technology made us apprehensive about it.

Q Although we started late, we have been quick to adopt the same. But, now I am happy to see the initial hiccups are tackled and we have come a long way.
How do you plan to bridge the gap between basic and translational research?
We try to find the balance between the basic and translation research. However, it is not feasible for us to get into translational model, as we are involved in doing the basic research.

Therefore, we are in need of a translational facilitator that can help to translate the basic research into the product outcome.

Q What are your views on the patent rights in the current context ?
The lack of awareness about the IPR has been a very bad experience for public institutes. This has led to many situations where despite having the authority over the product, we could not ask more from our industrial partner because of the papers signed under contract.

Ideally, if a scientist is producing some new product, he cannot be the owner, because of the fact that he utilizes the public funding for the research.
Therefore, I feel that the product created by the utilization of public funds is the property of institute, and should not be owned by an individual.

Q What kind of funding is received by the ICGEB ?
We have received `14.07 crore ($3 million) from the Bill & Melinda Gates Foundation for the initial research focused on malaria and TB drug development.
The Indian government has provided core funding. The Department of Biotechnology (DBT) gave us many projects, and we have been allowed to write proposals to put our focus on Indian issues pertaining to agriculture (drought resistant rice), and cotton research.

The DBT has helped us, and the Wellcome Trust has supported us in many ways. Italian and Indian governments committed funds; and the United Nations (UN) agreed to provide the logistics support. The role of the UN is also administrative in nature, and we don't get any financial support from them.

Q What are the initiatives taken by ICGEB to strengthen ties with its members?
ICGEB plays a crucial role in encouraging talent across member countries to promote research in core areas. We select students from the member-countries and their expenses are borne by ICGEB. In total, there are 60 members who contribute funding to ICGEB, but those contributions are almost negligible.

Q What is the role played by ICGEB on biosafety front?
ICGEB plays an important role in biosafety-related issues, and in the environmentally sustainable use of biotechnology.

In biosafety-related issues, we need to have our own system and cannot follow Europe blindly. We do have perception issues in India, and people sometimes get too apprehensive, which is not a good thing. I agree that we have to be very cautious as it is directly related to our health; but the concerns according to me should be genuine.

Q Since you have been a member of GEAC, what is your opinion on the Bt brinjal issue?
As the moratorium continues, I would not like to comment on this. However, I would like to add that we need to deliberate to arrive at a decision whether to use Bt or not, because otherwise the other crops in the trials would meet the same fate.

At the 100th meeting of GEAC, it was decided that a panel of prominent and expert scientists be formed, to decide on the further biosafety tests to be conducted on the Bt brinjal.

Rahul Koul in New Delhi