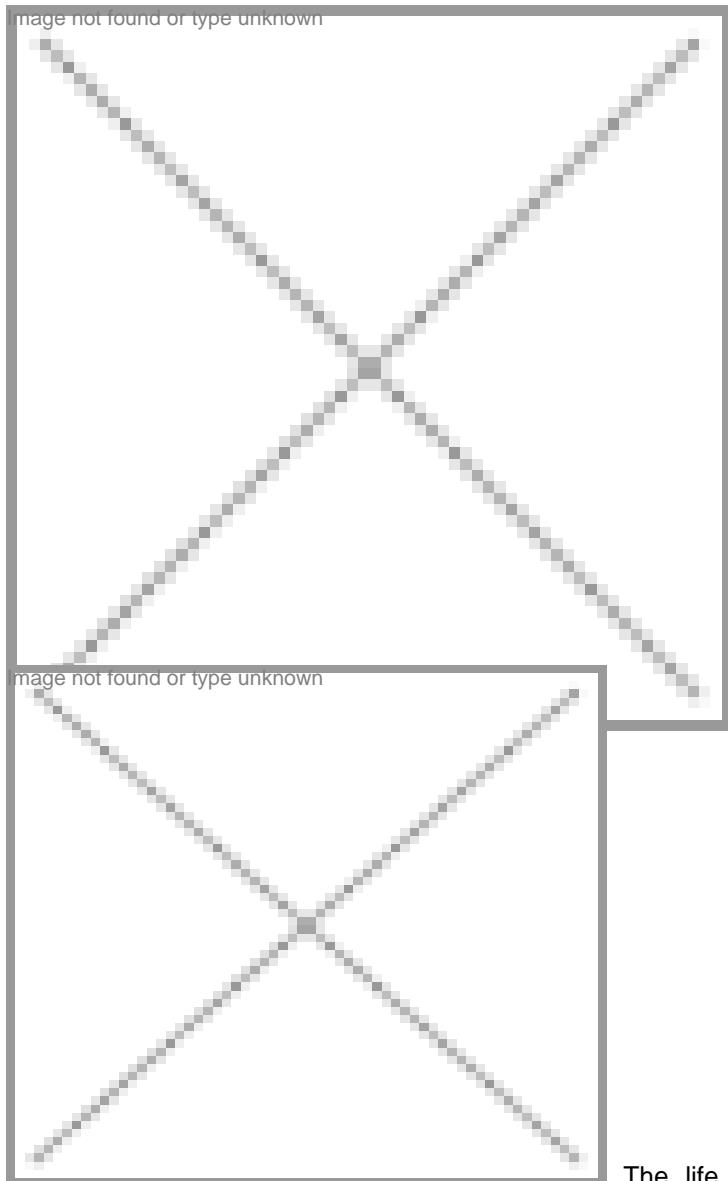


Health Biotech Science Cluster - Faridabad

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The life sciences industry in India has changed for good with the

establishment of academic institutes, research centers and expansion of medical and healthcare industry, however, these have remained restricted within their specific boundaries. There have been few examples in India where one could study, research, ideate and productize and monetize those ideas.

Now, Bangalore, Faridabad and Mohali are all set to host biotech science clusters where such ideas can come to fruition. Among these clusters, a unique Health Biotech Science Cluster (HBSC) is being developed by the Department of

Biotechnology. The HBSC, coming up on a 200 acre stretch, is intended to foster innovative conceptual research in a wide range of biotech-related sciences, with an initial focus on health biotechnology. The cluster will house the UNESCO Regional Center for Biotechnology (URCB) and the Translational Health Science Technology Institute (THSTI) as founding institutes. Initially, these are expected to function from Udyog Vihar, Gurgaon. The first phase of work will start on the 40-acre land at Faridabad and the permanent laboratories are expected to come up over the next three years.

A number of other related centers that will have its presence at the cluster are at conceptual stage and the work for these institutes will start in the second phase. These include Center for Vaccinology, Molecular Medicine Center, Center for Diagnostics, Biotech Park, Center for Health Science Technology, Center for Platform Technologies, Incubator, Center for Animal Model for Clinical Advances, and National center for Biodesign. There will also be a common library for institutes that is expected to serve as a platform for discussions and idea generation.

The Department of Biotechnology (DBT) cell at the National Institute of Immunology (NII), will oversee the whole project being transformed from concept to finish. On being asked about the difference between the institutes in cluster and the already existing institutes, Dr Shrikumar Suryanarayan, director general of ABLE and CEO, Biotech Cluster, Faridabad, says, "Universities have ideas but they get lost. The need is to share those ideas at the right time with right people. Currently, the academic institutes in India are not designed to support what is required for innovation and there is lack of such multi-disciplinary institutes in India. Therefore, this initiative will serve as a major boost towards such approach."

"Innovation is a buzz word and there is a difference between innovation and discovery. Innovation should make a difference to society and translation is the only key to it. Radio waves are considered as discovery but the innovation came in the form of cell phone. Similarly the establishment of this cluster will promote innovation for human health," observes Dr Shrikumar.

The HBSC will include three constituencies -students, industry and patients. With the THSTI and the URCB as founding institutions, there will be domain-specific working groups that will interact in translational research and development programs. The coordinating cluster board will mediate the incorporation of the future institutions such as Clinical Health Center (CHC). The cluster will synergize high-value resources and infrastructure, coordinated development and maximize societal benefits. There will be common policies for all the institutes while keeping their autonomous nature intact.

Purpose of HBSC

- To establish a single entryway to India's translational health science research sector.
- To foster innovative research within India.
- To advance India's research collaboration internationally.
- To secure positive outcomes in healthcare and commercial applications.

Dr S Natesh, senior advisor, DBT, New Delhi, while speaking to BioSpectrum stressed upon the fact that this being the high-time to create these kinds of clusters where there will be numerous institutes, discussing ideas and partnering for translating them into substantial products.

"The curriculum for the institutes will be the programs relevant to IPR, bioenergy, bio-entrepreneurship, regulatory affairs, health and nanosciences," adds Dr Natesh.

Strengthening research

Translational Health Science and Technology Institute (THSTI) is an autonomous institution, which will be a part of the interdisciplinary HBSC, being mentored by globally-recognized National Institute of Immunology (NII) and the Harvard-MIT Division of Health Science and Technology (HM-HST). The THSTI will be a dynamic and interactive organization with a mission to conduct innovative translational research and develop research collaborations across various disciplines and professions to accelerate the development of concepts into tangible products to improve human health.

The cluster institutions will have access to the state-of-the-art experimental animal facility and the platform technology center for the sophisticated instrumentation.

Dr Martha Gray, director of Health Sciences and Technology, MIT-Harvard, US, while talking about the importance of the partnership between the US and India, says, "The partnership will lead to the opening of a chain of collaborations in translational health."

Vaccine and Infectious Disease Research Center (VIDRC) is an independent research center of the THSTI with a mission to study infectious diseases and pathogens with the aim to generate translational knowledge for developing prophylactic and therapeutic measures against diseases prevalent in India.

The center will be involved in research in relevant areas of immunology, virology, microbiology, structural, chemical and

systems biology with interest in furthering the center's mission. Research areas involving the host-pathogen interactions, covering the entire range of expertise and interest from the statistical and epidemiological to the cellular and molecular levels will also be considered.

UNESCO's center for biotech

Another major highlight of the cluster is a UNESCO-sponsored Regional Center for Biotechnology (URCB). It is an outcome of a joint decision by the Government of India and UNESCO to promote the training and research for generating interdisciplinary human resource relevant to biotechnology.

The center is expected to benefit all countries in the region including India in developing knowledge-rich highly-skilled human resource, harmonization of policies and procedures in biotechnology and indirectly promoting trade.

The primary focus of URCB will be to provide world-class research, training and education in biotech sciences at the interface of multiple disciplines. It will be a meeting place where innovation, enterprise, and industrial development will germinate. The educational programs of URCB will be designed to create innovative opportunities to engage in research and learn to integrate science, engineering and medicine to provide major breakthroughs of relevance to India.

Dr Dinakar Salunkhe, who is currently overseeing the works of URCB, says, "The purpose of URCB will be to focus on human resource, fundamental education and to develop necessary ideas and encourage the growth of industry in the region. It will also function as a platform for integration of the disciplines."

The educational programs of the center are designed to create opportunities for students to engage in research where they learn the tools by integrating science, engineering and medicine to provide healthcare solutions and also for developing agriculture and environment technologies.

The URCB is expected to provide a platform for interdisciplinary research, education and training in order to create human resources required for the biotech interface of engineering, chemistry, physics and medicine, and to empower human resources critical for a wide range of biotech needs and to seek knowledge-based innovation and context-specific biotechnology solutions.

The design and processes of the education at this center will generate technology-savvy solution finders/creators; science entrepreneurs/ knowledge-economy entrepreneurs and R&D leaders.

"An important focus of expertise building will be regulation, product development, scale up, manufacturing science and bio-entrepreneurship thus helping in preparation of next generation students," says Dr Salunkhe.

Functions of URCB

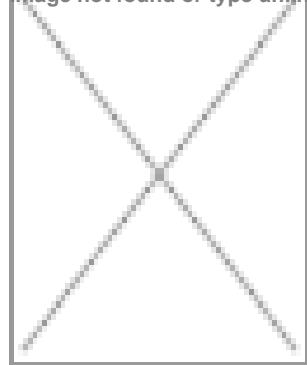
- Create and nurture high quality interdisciplinary human resource.
- Provide globally-oriented education and training.
- Offer training for physicians intending to enter biology and short-term exposure to biologists and engineers through hospitals and medical schools.
- Focus on industry-oriented training in:
 - Regulatory affairs
 - Biomedical enterprise/ business development in biotechnology
 - Biomedical quality systems and product development
 - Bioinformatics
 - Biomedical translational research
 - Technology transfer and commercialization
 - Systems biology

The uniqueness of this project will be the designing of domain specific programs by the faculty of URCB and THSTI in new opportunity areas of discovery science and technological innovations such as drug discovery and systems biology, cell and tissue engineering, nanoscience and technology, synergy of information technology, and advanced biomaterials, in order to create highly-specialized people who delve across various disciplines. Investigators will be provided shared laboratory space and adequate start-up resources. They are expected to generate eventual extramural project-based funding.

The physical proximity of the institutes and the multi-disciplinary approach towards the education are definitely going to have its long-term beneficial implications. Given the enthusiastic response of large number of students, who have blogged to know about the cluster in itself speaks about the importance to transform this unique concept into a reality at a higher speed.

With our western counterparts already following this kind of concept, we surely need to increase our pace so that we don't miss this innovation driven bus.

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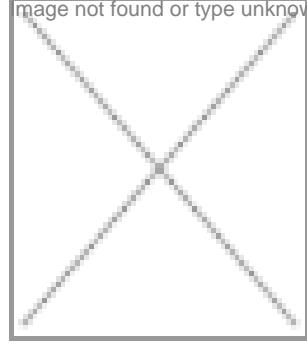


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Professor, Department of Biotechnology, New Delhi



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Senior scientist, National Institute of Immunology, New Delhi



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-Dr Shrikumar Suryanarayan,
director general of ABLE and CEO, Biotech Cluster, Haryana

Rahul Koul in New Delhi