

Press release: BioX Centre Inaugurated in Kamand at IIT Mandi

A new flower has now bloomed in IIT Mandi. The BioX Centre was conceived at IIT Mandi in 2012, driven by the need for affordable health care for India, and advanced technology interventions in agriculture and for preservation of the environment in the Himalayan Region. Since then, IIT Mandi started to hire faculty and made an initial investment of Rs. 10 crores in lab equipment. As it had reached a critical mass, the formal structure of the BioX Centre was approved in December 2016. Now, the BioX Centre building is complete and inaugurated on May 13, 2017, by Professor K. VijayRaghavan, Secretary, Dept. of Biotechnology, and Govt. of India. Professor Sarit Kumar Das, Director IIT Ropar, and Professor Timothy A Gonsalves, Director IIT Mandi were present.



BioX Centre building is inaugurated by Professor K. VijayRaghavan, Secretary, Dept. of Biotechnology, Govt. of India. Professor Sarit Kumar Das, Director IIT Ropar, and Professor Timothy A Gonsalves, Director IIT Mandi were present.

Some of the major research facilities in place at the centre are – cell culture facility, tissue culture lab, a high performance computing cluster, fluorescence microscopy, next genome sequencing, bioreactors, flow cytometer, and stop flow for protein studies. More facilities, like gas chromatography mass spectroscopy are being set up. The centre is also supported by the Advanced Material Research Centre (AMRC) at IIT Mandi.

The vision of the BioX centre is to advance the frontiers of technology development and engineering towards applications in disease prevention and affordable healthcare, agricultural practices with respect to the Himalayan region, Himalayan biodiversity, and exploration in biotechnology. The aim, consistent with the IIT Mandi motto of interdisciplinary R&D, is to bridge the gap between life sciences, physical sciences, and engineering. This is reflected in the name, BioX, of the centre. The centre will work on theme areas like Biomedical Engineering, Biomaterials, Bioinformatics, Himalayan biodiversity conservation and other allied areas to name a few. The centre will also explore the natural products of the Himalayan region for developing applications for healthcare and agriculture.

The BioX centre at IIT Mandi has twenty two faculty members already on board, with eight biologists and others drawn from computing, electrical and mechanical engineering, as also physics and chemistry. The faculty are supported by more than fifty research scholars, pursuing their PhD. IIT Mandi also offers an M.Tech. in Biotechnology starting 2016. The M.Tech program has two specializations -

Systems Biology and Medical & Nanobiotechnology. Since it was set up the centre has attracted more than ten crores of research funding from Dept of Biotechnology and Dept. of Science & Technology, amongst others.



The BioX laboratories at IIT Mandi

Some of the ongoing R&D projects of the BioX Centre are:

- Causes, detection and therapy of diseases such as cancer and diabetes
- Development of novel nano-particles for targeted drug delivery
- DNA-based study of the efficacy of Ayurveda
- Identification and preservation of medicinal plants of the Himalayas, synthesis of medications based on these plants
- Low-cost sensor technology for agricultural applications
- Study of bone structure and artificial bone replacements
- Machine learning for screening of images for cervical cancer
- Design and development of inexpensive, portable MRI and EEG machines

The BioX centre has spearheaded the formation of a *BioX consortium* with IIT Ropar and PGIMER Chandigarh joining IIT Mandi in this venture. The centre will serve as an ecosystem to facilitate collaborative research in various areas of biological sciences and health care technology, attracting researchers from elsewhere as well. Several projects have already been initiated by the consortium, including some of the one's mentioned above.