

# University Innovation Cluster- Biotechnology (UIC-B)

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University Innovation Cluster in Biotechnology (UICB) is a milestone program of BIRAC initiative jointly with the Biotech Industries. Here at University of Rajasthan focus area of UIC is Converging Technologies. The key objectives of the program are:

- To play the role of a facilitator to stimulate entrepreneurial activities within the Universities & Academic Institutions and linkages with the industry. To develop and strengthen the Industry-Academia partnership for research sponsorships development and effective transfer of know-how from the University to the entrepreneurs and industry.
- To develop and strengthen the industry-academia partnership for research sponsorships development and effective transfer to know-how from the university to the entrepreneurs and industry.
- To develop area specific technologies for the industries through R&D projects of student entrepreneur.
- To provide Intellectual Property protection and management services and facilitate the technology transfer and commercialization.

The current project aims towards establishment of a platform for increased participation, interaction and mutual co-operation between academia and industry. The focus of the proposal is converging technologies. The project aspires to evolve new strategies, products and services which can be commercialized and can be later taken up for university spin-off and start-ups. Tentatively five major thrust areas have been identified for UIC in collaboration with our industrial partners viz. development of commercially viable phytochemicals, stem cells as cellular therapeutics, isolation and characterization of microbial enzymes for plant secondary metabolite extraction and development of value added food products, industry oriented amalgamation of *in silico* domain with biological data and establishment of nanomaterial synthesis facility for water purification solutions.

The output/outcome of the project would be utilised for an industrial application project and also the potential to develop into a technology or prototype with through academic and industrial mentoring. The initiative would aim towards self-sustainability through endowments, royalty, financial support from government funding agencies and industries, consultancy charges and extension services.

## **Fellowships and Projects**

- **Innovation Fellowships:**

There are two Post-Doctoral and four Post Master's BIRAC Innovation fellowships.

- **Sponsored Research Projects:**

In order to undertake sponsored research projects the potential industrial partners with specific scientific concerns have been identified. A plan of action for solving the problem in collaboration with industry is being formulated. The plan will be executed with the cooperation of all stakeholders. Financial aid in the form of fellowships to execute sponsored research projects will be provided.

- **R&D for testing the ideas/discovery for taking it to proof of Concept:**

This will be done jointly with Industry /academia and other organizations

## **Activities**

### **1. Development of commercially viable phytochemicals**

**Objective:** Development of herbal based bioactive drugs & phytochemicals and their cytotoxicity effects using cell lines

### **2. Stem cells as cellular therapeutics**

**Objective:** Isolation and identification of stem cell derived growth factors and cytokines for tissue regeneration/repair and other cosmetic applications.

### **3a. Microbial enzymes for plant secondary metabolite extraction and development of value added food products**

**Objective:** Commercial exploitation of microbial sources for industrially important enzymes.

### **3b. Microbial enzymes for plant secondary metabolite extraction and development of value added food products**

**Objective:** Development of value added convenience and ready to eat food products enriched with phytochemicals.

### **4. Industry oriented amalgamation of in-silico domain with biological data**

**Objective:** To develop optimized algorithms and simulations for Genome analysis.

### **5. Establishment of nanomaterial synthesis facility for water purification solutions**

**Objective:** Carbon nano-tube synthesis and immobilization into polymeric/ceramic membranes for water purification system.

## **Industrial Partners**

1. Ayushraj Enterprises Pvt. Ltd., Jaipur
2. Plants Med Laboratories Pvt. Ltd., Jaipur
3. Stempeutics, Bangalore
4. Seminal Applied Sciences Pvt. Ltd., Jaipur
5. Confederation of Indian Industry-BioAsia/BioFABA, New Delhi
6. Flowcytometry Solutions, Jaipur
7. Rajasthan Angel Investor Network, Jaipur
8. Lotus Dairy, Jaipur
9. Enkay Groups, Jaipur