



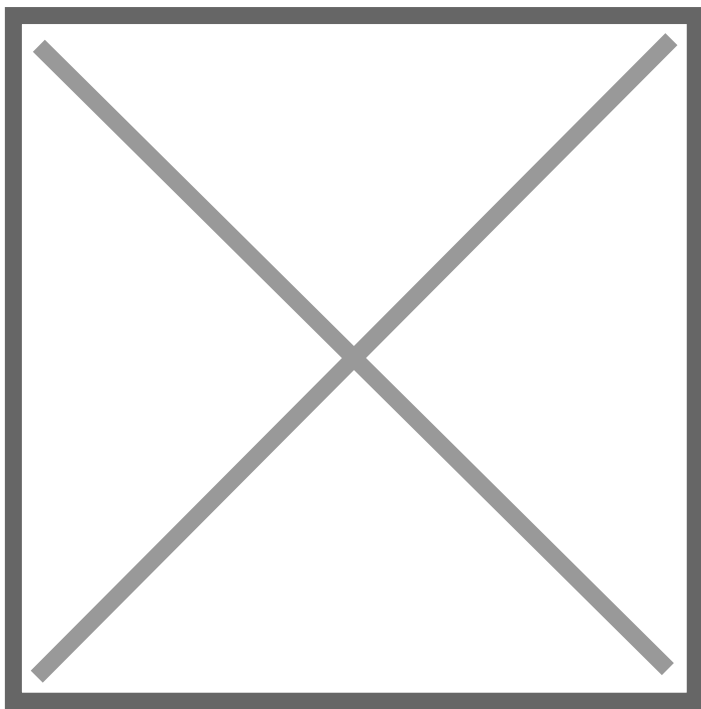
BioSpect

the business of Bio

24 years of leveraging the business of Bio
www.biospectrumindia.com

CDRI - Beautiful lab, Serious work

12 November 2003 | News



CDRI is considered a pioneer research organization in the field of biomedical research. It has the infrastructure and expertise to develop a drug right from the concept stage to the market. The institute's latest techniques and services are employed for developing drugs, diagnostics and vaccines to combat diseases prevalent among mankind in general and Indian population in particular.

Dr CM Gupta, director CDRI, who did his PhD from the institute itself said, "I am really proud to be a part of such a multidisciplinary research laboratory consisting of scientific personnel from various areas of biomedical sciences. The manpower at our institute has been grouped into 17 R&D divisions and a few divisions providing technical and scientific support." He added, "in a country like India, there should be no research work without industry collaboration. In my view, industrial collaboration and industry feedback are some basic things for any successful product." This is another reason for CDRI's success in the industry.

Explaining about the future prospects of the institute he said, "Achieving excellence in drug discovery through modern tools and techniques is among our core focus areas. We also have a strong commitment towards exploiting natural resources so that the problem is approached holistically and multilaterally along with multifaceted infrastructure developments. Taking CDRI to the global platform is also on our mandate. With the facilities available here, we can become a world-class research institute in drug discovery." CDRI envisages discovery of safe and better drug molecules in the area of tropical/infectious diseases and age related degenerative disorders.

There is also a proposal for creation of a "World Class Drug Research Institute" in the new research premises at Sitapur Road, Lucknow. The vision of this new drug research institute is to discover and develop new chemical entities for diseases of national priority and lifestyle and age related disorders.

The new institute would have R&D labs conforming to the current and emerging international standards, a flexible organization structure comprising of only three major divisions viz. biological sciences, chemical sciences and pre-clinical sciences. In the institute the leadership positions at all levels will be merit based with an in-built stringent mechanism for assessing and monitoring projects.

To keep abreast with the global developments, CDRI is conducting an international symposium on "Global Trends in Drug Discovery Research". This symposium will not only provide a platform for interaction between chemists and biologist but it will also address the challenges of the post-genomic era.

"Industry participation is very important for research" - CM Gupta

At the time of independence, when the major challenge facing India was increasing population, a newly opened CSIR lab took the responsibility of furthering scientific research and development. Now, after more than 50 years, this CSIR lab has made a name for itself not only in India but abroad as well. The Central Drug Research Institute, Lucknow, has not only formulated successful market products but also nurtured key people, who are driving the present Indian pharma industry.



Now, with the help of new techniques and tools, the institute is equipped to spearhead the Indian biopharma industry. This has been possible because Dr CM Gupta, director CDRI, has firm faith and belief in the industry. He said, "I don't think that any research can become successful without industry collaboration." A strong believer of taking science into the market, Dr Gupta is satisfied with CDRI's initiatives and efforts. In an exclusive interview with BioSpectrum, he shared some facts and his upcoming plans for the institute.

CDRI has achieved a big name in drug discovery, what are the next targets and how is the institute working towards those?

The institute was started when India had no pharma industry. The focus of the institute at that time was different. We were more inclined towards problems like birth control and producing technical manpower for the Indian industry. We achieved these goals quite some time ago. Now, with the advent of biotech tools, our institute has also developed its skills. With the help of biotech applications we now have world class facilities for research work. Combinatorial chemistry is one of them. Combinatorial chemistry has emerged as a powerful tool for accelerating the drug discovery process. Compared to traditional drug discovery approach, which requires many days of work to synthesize and analyze a single new compound, combinatorial chemistry can produce and screen thousands of compounds in weeks for the discovery of novel drug entities against various disease targets. Apart from this, high throughput screening system, X-ray crystallography and proteomics are among the upcoming areas of research at our institute.

What are the areas of research on which your institute is focusing these days?

There are several focus areas on which we are doing research. Among them the major ones are reproductive health, new drug discovery for birth control, breast cancer, tropical diseases, diabetes and cardio vascular diseases. In new drug development research, our mandate is to explore our own traditional strengths applying some modern tools. For malaria, we have developed two drugs. E-mal and Ablaquin are the two most successful drugs developed so far for curing malaria patients. We are also in the final stages of research for producing a drug for tuberculosis.

What is CDRI's experience in collaborating with the Industry?

Our experience in this line is tremendous. We have expertise in signing MOUs with the industry. I strongly believe that every research work should be collaborated with the industry. Research should be done along with them. Industry feedback is important for us. It is better to have a joint project because in certain researches the risk factor is high.

Why are some corporates and MNCs still hesitating in collaborating with government research labs?

Industry participation in research work is good. Lot of companies are getting attracted towards India because of its knowledge resource, etc. But the process of filling up certain formalities is time consuming. This needs to be reduced. I have always recommended that this time should be cut short. These time consuming formalities make them uncomfortable. As far as MNCs are concerned, we have some European companies as collaborative parties, who are showing good involvement in the project. We review our research every three months.

Why is there no database of patients available in our country? How much can this help in discovering a new drug?

There are some facts and figures, which show India's health scenario. But if a country like India maintains records for specific diseases then it would be very helpful for doing further research. Diabetes is a big challenge for India. If we would have had the database with us, we could produce new and more effective drug in less time. Going through records is essential for any drug research as it helps in limiting the side effects of that drug.

Which are the new products in the CDRI pipeline?

We are working on antibreast cancer drugs, antimalaria, antiTB, antidiabetes and few others.

How is Memory Plus doing in the market?

Memory Plus is one of our key products. Unfortunately, we faced some problems in dealing with the company to whom we had given the marketing rights earlier. But now we have signed a new agreement with Promind for its marketing license. A Canadian company is also approaching us for its marketing rights abroad. But I cannot disclose the name as the agreement is yet to be finalised.

Dr Zaka Imam, a deputy director of the institute and head, technical information said, "research activities at CDRI are aimed at developing drugs, diagnostics and vaccines to cure and get rid of the ailments confronting mankind in general and Indians in particular. The R&D activities of CDRI have been categorised in various research areas. Each research area is focused on the design and development of drugs, diagnostics/vaccines related to a particular disease group right from the synthesis of compounds upto regulatory studies and clinical trials."

Another area of focus is the regulatory studies. "Since, we claim to offer total drug discovery tools and take the drug from the lab to market, we need to focus on the regulatory measures of the country. To launch any new drug we need to have proper understandings of the regulatory tools," informed Dr Gupta.

CDRI focuses on developing new drugs, diagnostics, vaccines and modern technologies for clients in India and abroad. "We always look forward to have close commercial relationship with the pharma industry and other R&D organizations involved in biomedical research. Through such collaborations we want to develop a strong drug research base in the country and make India a stronghold in biomedical research. We offer collaborative as well as contract commercial opportunities in these areas," elaborated Dr Gupta.

Apart from these services, CDRI also offers contract research. "We undertake contract research work as per the requirements of the contracting party and/or as identified by industry/laboratory. We also undertake research, if completely funded by the collaborating organisation or industry."

Among the major facilities available at the institute is the High Throughput Screening System. Dr Sudhir Sinha, assistant director, biochemistry division CDRI, heads this lab. Informing about the facility Dr Sinha said, "The main objective of establishing this facility is doing in vitro screening of chemical libraries and natural products in an enzyme/receptor based assay. Identification of new structural prototypes for drug development is also on the mandate. Apart from this, adoption of screening models for HTS in whole cell based assay is also one of the objectives."

"Removing non essential work is a vital demand in doing any type of research. We have the tools to shorten the research time through this facility," he added.

X- ray crystallography is another facility available at CDRI, which can hasten research. Dr Ravishankar Ramchandran, the lab head said, "we are in the process of finding protein crystals. Infact, the industry needs such tools and efforts. Through this we can design inhibitors and new molecule."

"Determining the three dimensional structure of a protein and its mode of interaction with a ligand/inhibitor is a key step in the drug discovery pathway. CDRI has the facility for collecting diffraction data from both protein and small molecule crystals," he added.

"The macromolecular data collection facility consists of a MAR345 area detector mounted on a RIGAKU rotating anode. The data collection is automated and controlled by a computer while the small molecule data collection facility consists of a modern BRUKER-AXS system. Structure solution, analysis and novel inhibitor design is facilitated by graphics intensive workstations of Silicon Graphics Inc," he informed.

CDRI has formulated many health products, which are been successfully marketed in India and abroad also. After filing the first patent in 1960, the institute has never looked back. It has filed about 650 patents and continues to file 30 to 35 patents per year. Around 1,100 students have been awarded PhD from CDRI so far and currently the institute produces 20-25 PhD scholars every year.