

By SINDHU ANAND ('03 BIO)

Pharmacy Group

Pharmaceutics and Biotechnology are set to revolutionize the Health Sector. Many start-ups in the Pharma sector, the Pharma stocks booming, overwhelming research with new discoveries almost every day, all these signal bigger days for the Industry. What is our very own Pharmacy Group doing in the face of these exciting new prospects? The topics raised during a talk with Prof R Mahesh, Group Leader, Pharmacy Group, mirrored the excitement in the Pharma field globally.

The Pharmacy Group of BITS, Pilani is one of the few early schools of Pharmacy in India. Established in 1950, under the able leadership of (Late) Prof. M. L. Schroff, Father of Pharmacy Education in India, it has blossomed into one of the most sought after Schools of Pharmacy in India. The Pharmacy Council of India has granted permission this year to increase the uptake of students to 60 in the B. Pharm program (the maximum permitted to any college of Pharmacy) owing to the huge demand for the program. The M. Pharm course is one of the best in India, with around 800 applicants contesting every year, for the 12-15 available seats. More than 50% of the Ph.D students on campus belong to the Pharmacy Group.

The 20 strong faculty includes **Prof R N Saha** who was awarded the Best Pharmacy Teacher in India for the year 2005.

The group has raised 1.4 crore with the Institute pitching in another crore. Vision 2008 is to gear up for the huge growth expected in the sector,

and aims to explore new areas of research such as – Design and development of new bioactive molecules: (anti-inflammatory, anti-hypertensive, anti-convulsant, anti-psychotic, anti-bacterial, anti-viral, anti-AIDS and 5-HT, Dopamine receptor modulators).

The other objectives of Vision 2008 are to obtain modern industrial manufacturing equipment per latest GMP and ICH guidelines for training of students (UG & PG) and adding Industry sponsored projects.

Prof. R Mahesh emphasizes that all the Programs and CDC's are industry oriented and are reviewed every year to meet current demands of the industry. Practice School is not the only bridge between the School of Pharmacy and the Industry. Several research grants have been obtained from well-known Pharma companies. Several technology transfer programs have borne fruitful results. A first ever of its kind, technology transfer venture, with IPCA Laboratories Mumbai, yielded the drugs Zerodol-CR and Movon-CR. Under the project sponsored by IPCA, the group has designed a novel controlled release tablet Aceclofenac, a

INDUSTRY LINKAGE



BITS Pharmacy Group

non-steroidal anti-inflammatory drug that is used for management of arthritis, joint pains, analgesia and inflammatory diseases. The tablet design, based on bio-erodible matrix technology, will release the drug at a constant rate for uniform availability over a period. So the tablet can be taken only once a day, instead of the

normal twice a day course, making for better patient compliance. The product was developed by Prof. R.N. Saha and his research team and has already been introduced in the market. The Group Leader's pride was obvious while presenting the yellow label on the tablet cover, which says, "Manufactured under Technical Collaboration of IPCA Laboratories Ltd., with BITS Pilani." Technology has been transferred in another project by the same company for the development of novel controlled release tablet of Nimulside, the product is soon to be launched by the company. The other projects making formulations soon to hit the market are oral tablet of selective combination of drugs and development of aqueous injection for selective analgesic drugs. The group also under takes routine drug testing for various Pharmaceutical Industries. It is also actively involved in Consultancy activities in the areas of GMP system implementation, process optimization and validation, design and evaluation of optimal drug delivery systems. The Group has also conducted Human Resource Development



International Symposium on Public Health

programs for Dr. Reddy's laboratories, Hyderabad, LV Prasad Eye Institute, Hyderabad, Shankara Netralaya, Chennai, Srides Acro Labs, Bangalore and Institute of Cardio-Vascular Diseases, Chennai. The strong Academia-Industry symbiosis is quite incredible. This relationship has not only given our students an edge and a rare exposure but has also added to the brand value of the BITS Pharmacy degree in the Industry. The group has shown the way for something that is so wanting in the present day education system, to integrate teaching and research with the current Industry needs.

COURSES AND LABORATORIES

In terms of course structure and projects, Prof R Mahesh says that more emphasis has been given to Clinical pharmacy. The layman's view of looking at a pharmacist as a drug storekeeper is what they want to change, radically! Students undertake case studies at Birla Sarvajanik Hospital and Medical Center where they analyze each case, speak to the patients to obtain additional information and

suggest changes if any to the prescription along with proper references and diagnostic tests validating the required change. This report is submitted to the physician and serves to augment the treatment.

It has received financial assistance under **Special Assistance Programme (SAP)**

of UGC at the level of Department Research Support (DRS) with financial assistance of Rs 32,60,000 for three years period. The Department of Science and Technology, Government of India has given a grant of Rs. 35,00,000 to strengthen post-graduate research.

There are around 7 laboratories with the **Central Analytical Laboratory** housing the most sophisticated instruments like NMR, HPLC, FT-IR spectrophotometer, Spectrofluorimeter, Atomic absorption Spectrophotometer, High Vacuum Lyophilizer, Digital Plethysmometer, Differential Scanning Colorimeter, Pharmacol (Animal monitoring and Tracking system) to name a few. The other laboratories are-

- **Industrial Pharmacy Laboratory**

Facilities for pharmaceutical formulation manufacturing (tablets, capsules, ointments, liquid orals, parenterals) and in-process quality control procedures

- **Formulation Development and Pharmacokinetics laboratory:** Facility for design and development of Novel and Controlled drug delivery systems
- **Pharmacology and Physiology Laboratory:** Facility for screening and evaluation of NCE's
- **Synthetic Medicinal Chemistry Laboratory** Facility for design, synthesis and process optimisation of potential anti-psychotic, anti-microbial, anti-cancer, anti-viral and anti-inflammatory agents
- **Radio-Isotope Laboratory:** Facility for gamma scintigraphy, gamma spectrophotometry, Beta counter study of reaction kinetics using radio labelled probes and estimation of radio probes by atomic absorption spectrophotometer.
- **Molecular Biotechnology Laboratory:** Facility for nucleic acid and protein isolation and purification, rDNA manipulations, Cloning experiments, DNA sequencing, PCR, Gel

Electrophoresis and Gel Documentation System

A new addition has been the **Animal Farm** a visit to which left me in total awe! The place situated right behind FD III is extremely well maintained and has 1100 experimental mice along with experimental rats, rabbits and guinea pigs. The sparkling floor and glass doors, a well-furnished laboratory, neatly stacked rows and rows of animals, a small operation theatre all seem to usher in an era of change in BITSian labs.

OTHER ACTIVITIES

International Symposium cum Workshop on Recent Advances in Drug Design and Drug Delivery System

The Group conducted an International Symposium cum Workshop on Recent Advances in Drug Design and Drug Delivery System during 24-27 February 2005 in collaboration with Molecular Design and Information Technology Centre (MDIT), University of Toronto, Ontario, Canada and was supported by Seascope- A Tripos Inc. It was co-sponsored by University Grants Commission (UGC), New Delhi, India.

With the main objective of holding deliberations on recent advances in drug design, computer aided drug design (CADD), medicinal and pharmaceutical technology the event attracted many experts and resource personnel from

India, USA and Canada.

International Symposium on Public Health

The Pharmacy Group with the Biological Sciences Group in collaboration with Uniformed Services University of Health Science, Bethesda organized an International Symposium on Public Health Education- International Scenario and Challenges during 9-11 April 2005. The focus of the symposium was on the need to impart quality education in the area of public health, curriculum design and course development. As a development of this discussion, an M.Phil course is being introduced by BITS. The programme is aimed at developing public health administrators with expertise in related areas of community health in collaboration with Uniformed Services University of Health sciences, Bethesda, Armed Forces Medical College, (AFMC) Pune and Christian Medical College, (CMC) Vellore.

MORE INFORMATION

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The Group conducts routine Health Awareness camps, Health Checks and organizes lectures and seminars. Pharmacy communiqué is a magazine brought out the group about recent trends,

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Animal Farm

1100 experimental mice living in harmony with rats, rabbits, and guinea pigs