NIRMA UNIVERSITY

INSTITUTE OF PHARMACY

NAAC ACCREDITED 'A' GRADE

SOUVENIR

NIPiCON-2016

3rd Nirma Institute of Pharmacy International Conference

January 21-23, 2016

"Global Challenges in Drug Discovery, Development and Regulatory Affairs"

Organized by

Institute of Pharmacy, Nirma University
S. G. Highway, Ahmedabad - 382481, Gujarat, INDIA
Phone : +91-79-30642714/15 • Fax : +91-2717-241916
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NIRMA UNIVERSITY

INSTITUTE OF PHARMACY

NAAC ACCREDITED 'A' GRADE

VISION

Shaping a better future for mankind by developing effective and socially responsible individuals and organizations

MISSION

Institute of Pharmacy emphasizes the all-round development of its students. It aims at producing not only good professionals, but also good and worthy citizens of a great country, aiding in its overall progress and development.

It endeavors to treat every student as an individual, to recognize their potential and to ensure that they receive the best preparation and training for achieving their career ambitions and life goals.

QUALITY STATEMENT

To develop high quality professionals who reflect and demonstrate values that the University stands for, through innovation and continuous improvement in facilitation of learning, research and extension activities.

Shri Hamid Ansari
Vice-president of India

भारत के उप-राष्ट्रपति के विशेष कार्य अधिकारी
OFFICER ON SPECIAL DUTY
TO THE VICE-PRESIDENT OF INDIA
नई दिल्ली/NEW DELHI - 110011
TEL.: 23016422 / 23016344 FAX : 23012645

MESSAGE

The Hon'ble Vice President of India is happy to learn that the Institute of Pharmacy, Nirma University, Ahmedabad is organizing its 3rd International Conference (NIPiCON – 2016) from January 21 – 23, 2016.

The Vice President extends his greetings and congratulation to the organizers and participants and wishes the event all success.

(Anshuman Gaur)

New Delhi
22nd September, 2015.

Smt. Anandiben Patel
Chief Minister of Gujarat

Dt. 15-10-2015

MESSAGE

Knowledge is a word which conveys various meanings based on its application and utilization. Curiosity to explore any subject gives way to indepth study and research that produces knowledge base which can be a boon for human being, but becomes merely information if not harnessed and utilized in universal benefit. Similarly, it is highly essential to get diverse ideas, informations, researches in the physical wellbeing of all living things.

I am glad to learn that the **Nirma University** is hosting the **3rd Nirma Institute of Pharmacy International Conference "NIPiCON-2016"** during **21st to 23rd January 2016** at Ahmedabad. I am sure that the research papers to be presented during the conference will carve a new path in the field of pharmacy. I congratulate and extend my best wishes to the organizers and the participants for a successful and fruitful event.

(Anandiben Patel)

To,
Prof. Manjunath D. Ghate, *Convenor,*
NIPICON-2016, Institute of Pharmacy,
Nirma University,
S. G. Highway,
Ahmedabad-382481.
E-mail: os@nipicon.org

Anandiben Patel
Chief Minister, Gujarat State

Shri Nitin Patel
Hon'ble Minister
Health, Medical Education,
Family Welfare, Roads and
Building,
Capital Project,
Govt. of Gujarat

NITIN PATEL

No. H.F.W./R&B/C.P./57/12/16
Minister,
Health, Medical Education,
Family Welfare, Roads and Building,
Capital Project,
Government of Gujarat,
Swarnim Sankul-1, 2nd Floor,
Sardar Bhavan, Sachivalaya,
Gandhinagar-382 010.
Date : 6 JAN 2016

Message

I am glad to know about the organization of 3rd NIRMA INSTITUTE OF PHARMACY INTERNATIONAL CONFERENCE NIPiCON-2016 with the theme of "Global Challenges in Drug Discovery, Development and Regulatory Affairs" from January 21-23, 2016.

In the present scenario, regulatory affairs are playing a very major role in the field of new drug discovery and development. There are many challenges to overcome in the development and delivery of the drugs for the treatment of many incurable diseases which is the demand currently. I hope this conference would provide a platform to discuss all such challenges and its solutions leading to the ease in the development of new drugs in line with the regulatory guidelines globally.

I appreciate the Institute of Pharmacy for organizing such a conference on a relevant theme which is the need of the hour. I wish a grand success to this event.

(Nitin Patel)

To,
Prof. Vimal Kumar,
Organizing Secretary, NIPiCON-2016,
Institute of Pharmacy, Nirma University,
S.G.Highway, Ahmedabad-382481

Resi. : Minister's Bunglows No. 20, Sector-20, Gandhinagar-382020 Ph. 23259706, 23232491, 23221891
Office : 079-23250106 to 23250110, 23238072-23248007 **Fax** : 079-23257616 **Vidhansabha** : 079-23253194/23251058

Shri Bhupendrasinh Chudasama
Education (Primary, Secondary and Adult), Higher and Technical Education, Food, Civil Supplies and Consumer Affairs Development, Legislative & Parliament Affairs, Govt. of Gujarat

BHUPENDRASINH CHUDASAMA

No. Edu(P&S). F.C.C.L.P.A /2016

Minister,
Education (Primary, secondary and adult), Higher and Technical Education, Food, Civil Supplies and Consumer affairs Development, Legislative & Parliament Affairs.

Government of Gujarat,
Swarnim Sankul-1, 2nd Floor,
New Sachivalaya, Gandhinagar-382010

Date: 6/ 1/ 2016

Message

It's a jubilant feeling to hear about the organization of 3rd NIRMA INSTITUTE OF PHARMACY INTERNATIONAL CONFERENCE NIPiCON-2016 with the theme of ***"Global Challenges in Drug Discovery, Development and Regulatory Affairs"*** from January 21-23, 2016.

The Regulatory Affairs department is an important part of the organizational structure of pharmaceutical companies. All the products like medicinal products, pharmaceuticals, veterinary medicines, medical devices, and food supplements are subjected to regulations designed by governments to protect public health. Since the regulatory environment is constantly changing the regulatory team need to provide advice on necessary adaptations to development plans and target product profiles. Thus, the awareness of such regulatory guidelines in the discovery and development process of pharmaceuticals is the need of the hour. Such conferences would be of great help in creating such awareness amongst the new budding professionals.

I offer my heartfelt congratulations and best wishes to Institute of Pharmacy for conducting such event that emphasize regulatory affairs and drug discovery process. I wish for the grand success of this ceremony.

(Bhupendrasinh Chudasama)

To,
Prof. Manjunath D. Ghate
Director,
Institute of Pharmacy,
Nirma University,
Sarkhej-Gandhinagar Highway,
Ahmedabad 382 481, Gujarat.

Ph (o) : 23250116 to 23250119, 23239075, 23243389 Fax : 23250120
Residence: Bungalow No. 10, Minister's Residence Sector-20,
Ph (R): 079-23259600, 23259698, 23259603, 23222917
E-mail : min-education@gujarat.gov.in

Dr. G. N. Singh
Drug Controller General
(India)

Dr. G. N. Singh
Drug Controller General (India)
Tel: (011) 23236965
Fax: (011) 23236973

स्वास्थ्य सेवा महानिदेशालय
सी. डी. एस. सी. ओ. (एच. क्यू.)
एफ. डी. ए. भवन, कोटला रोड,
नई दिल्ली- 110002

DIRECTORATE GENERAL OF HEALTH SERVICES
CENTRAL DRUG STANDARD CONTROL ORGANISATION
CDSCO (H.Q.)
F.D.A. BHAVAN, KOTLA ROAD,
NEW DELHI-110002

MESSAGE

I am glad to know that 3rd Nirma Institute of Pharmacy International Conference (NIPiCON – 2016) on "Global Challenges in Drug Discovery Development and Regulatory Affairs is being organized from 21 - 23 January, 2016 by Nirma University in association with GUJCOST & DST at Ahmedabad.

The Indian pharmaceutical industry is ranked third largest in terms of volume and tenth largest in terms of value. However, the rising global challenges from various stakeholders creates bottleneck in the growth of Indian pharmaceutical industry. In order to meet the global requirements, the drug regulators and industry will have to join hands in harmonizing various regulatory mechanisms and the practice of Good Manufacturing Practices to ensure that patient safety is achieved by assuring quality, safety and efficacy of drugs.

On this occasion, I would like to highlight the current global challenges in the treatment and management of life threatening diseases such as Dengue particularly in India. There is an urgent need for the development of drugs / vaccines for these diseases. I hope this conference will provide the platform to the experts from various fields of pharmaceutical sector to share their knowledge in their fields.

I wish all the best to organizers and delegates participating in the conference.

(Dr. G. N. Singh)

Shri H.G. Koshiya
Commissioner, FDCA,
Government of Gujarat

सत्यमेव जयते

Office of the Commissioner
Food & Drugs Control Admn
Block No.8, 1st floor Jivraj Mehta Bhavan
Gandhinagar-382 010
Gujarat State
Phone No.: 079-23253417 Date:- 07/01/2016

MESSAGE

I am greatly pleased to learn about the organization of 3rd NIRMA INSTITUTE OF PHARMACY INTERNATIONAL CONFERENCE NIPiCON-2016 with the theme of *"Global Challenges in Drug Discovery, Development and Regulatory Affairs"* from January 21-23, 2016.

Indian pharmaceutical market has observed a great slowdown in introducing new drugs in the global market. There are many hurdles in the development of novel drugs and the regulatory guidelines are also changing. There are lot of regulatory guidelines to be followed and almost all pharma companies are opening up a separate department to handle the all the regulatory affairs. This department plays a central role in the process of drug discovery and development. Individuals involved in manufacturing, quality control, research and development, and clinical studies of pharmaceutical products will learn the latest information through such conferences.

I heartily congratulate Institute of Pharmacy for organizing such event that provide a platform to discuss all the technological, legal, ethical and market oriented information related to drug discovery, development and regulatory affairs for the delegates to make their contributions. I wish for the grand success of this international conference and expect that Institute of Pharmacy will continue with its tradition to organize such conferences with enlightening themes in future.

(Dr. H. G. Koshia)
Commissioner
Food & Drugs Control Administration
Gujarat State, Gandhinagar.

Prof. D. P. Singh
Director, National Assessment and Accreditation Council

राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद
विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान
NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL
An Autonomous Institution of the University Grants Commission

प्रो. धीरेन्द्र पाल सिंह
निदेशक
Prof. D. P. Singh
Director

MESSAGE

I am glad to know that Nirma University, Ahmedabad, Gujarat is organising a 3rd International conference on "Global Challenges in Drug Discovery, Development and Regulatory Affairs"

The conference topic has a forward looking perspective and assumes great significance in the backdrop of worldwide phenomenon of the emergence of multi drug resistance strain of bacteria/ virus. I hope the conference provide a vital platform for discussions and knowledge dissemination.

I send warm greetings on the occasion and extend my best wishes to the Vice Chancellor, faculty and students of the Institution.

Date. 22-09-2015

(D.P. Singh)

Place. Bengaluru

पि ओ बाक्स नं. 1075, नागरभावी, बेंगलूरु - 560 072, भारत P.O.Box No. 1075, Nagarbhavi, Bangalore - 560 072, INDIA
दूरभाष Phone : + 91-80-23210267, 23005112, 114, 115. फैक्स Fax : +91-80-23210268
ई-मेल e-mail: director.naac@gmail.com वेबसाइट Website : www.naac.gov.in
Former Vice-Chancellor, BHU, Varanasi, Dr. H.S. Gour University, Sagar & Devi Ahilya Vishwavidyalaya, Indore

Dr. Soumya Swaminathan
Secretary DHR (Department of Health Research) & Director General (ICMR) Indian Council of Medical Research

डा. सौम्या स्वामीनाथन
एम.बी.बी.एस., एम.डी.(पीडी), एफ.आई.सी.पी.
सचिव, भारत सरकार
स्वास्थ्य अनुसंधान विभाग
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
एवं
महानिदेशक, आई सी एम आर
Dr. Soumya Swaminathan
MD, FASc, FNASc, FAMS
Secretary to the Government of India
Department of Health Research
Ministry of Health & Family Welfare
&
Director-General, ICMR

भारतीय आयुर्विज्ञान अनुसंधान परिषद
स्वास्थ्य अनुसंधान विभाग
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
वी. रामलिंगस्वामी भवन, अंसारी नगर
नई दिल्ली-110 029 (भारत)
Indian Council of Medical Research
Department of Health Research
Ministry of Health & Family Welfare
V. Ramalingaswami Bhawan, Ansari Nagar
New Delhi-110 029 (INDIA)

Message

I am pleased to note that the Institute of Pharmacy, Nirma University is organizing the 3rd Nirma Institute of Pharmacy International Conference NIPiCON-2016 with a theme of "*Global Challenges in Drug Discovery, Development and Regulatory Affairs*" from January 21-23, 2016.The theme of the conference is most appropriate in the current scenario.

We currently have stringent regulatory guidelines for drug discovery & development globally, which are undoubtedly essential to ensure patient safety, but need to find ways to reduce cost and time taken for new drug discovery and development. Regulatory affairs liaises at the interface of drug development, manufacturing, marketing and clinical research. It plays a major role as an interface between the pharmaceutical companies and the regulatory authorities all over the globe. I am extremely happy to know that a large number of eminent scientists and regulatory authorities from all over the world will be participating in this conference and will discuss their research and experiences in various disciplines of pharmaceutical sciences, medical devices, drug discovery and development as well as regulatory affairs. This will lead to opportunities for fruitful collaboration for advancement in these areas. The deliberations during the conference may result in useful recommendations for all those concerned with health care, drug discovery and development in the country.

I wish the Conference all success.

Soumya

(Soumya Swaminathan)

Tele: (Off.) +91-11-26588204, 26589620; Fax (Off.) +91-11-26588662, E-mail: [illegible]

Dr. Karsanbhai K. Patel
President
Nirma University

NIRMA UNIVERSITY
NAAC ACCREDITED 'A' GRADE

MESSAGE

It is my extreme pleasure to welcome all the eminent speakers, resource persons and delegates to Institute of Pharmacy, Nirma University for 3rd NIRMA INSTITUTE OF PHARMACY INTERNATIONAL CONFERENCE NIPiCON-2016 with the theme of *"Global Challenges in Drug Discovery, Development and Regulatory Affairs"* from January 21-23, 2016.

The theme of the conference addresses the global issues under the umbrella of regulatory affairs which is an emerging area of the health sector across the globe. The horizons are broadening and a co-ordinated approach among all the departments of a pharmaceutical company to develop a novel drug. Regulatory affairs department plays a lead role in the co-ordination among all the departments for the development of drugs. I have the faith that this conference will help in combating the bottlenecks and expanding the knowledge of researchers, scientists and healthcare professionals and lead to the betterment of the healthcare sector.

I heartily acknowledge the efforts of Institute of Pharmacy, Nirma University for organizing such event that provides a common platform for all stakeholders to put forward their views and opinions. I extend my best compliments to Institute of Pharmacy for a grand success of this conference and We hope that the Institute continues to fill the void in the pharmaceutical sector by arranging many more conferences and workshops in future.

Dr. Karsanbhai K. Patel
President
Nirma University

Shri K. K. Patel
Vice-President (I/c.)
Nirma University

NIRMA UNIVERSITY
NAAC ACCREDITED 'A' GRADE

I am ecstatic to gain information that Institute of Pharmacy, Nirma University is organizing for 3rd NIRMA INSTITUTE OF PHARMACY INTERNATIONAL CONFERENCE NIPiCON-2016 with the theme of *"Global Challenges in Drug Discovery, Development and Regulatory Affairs"* from January 21-23, 2016.

Innovation in the field of science and technology has emerged as a major driver of national development globally. The same is the scenario for pharmaceutical industry. To achieve faster, sustainable and comprehensive growth; pharmaceutical companies need to emerge with innovations in the field of drug development and delivery technology. This can be achieved with the demographic surplus and the enormous talented and skilled manpower in this rapidly growing sector. Regulation plays a central role in the whole development process and since it is changing worldwide. There are many global issues due to difference in the regulatory guidelines across the globe. Thus, organizing conferences with such a theme will certainly help in increasing the skills for application of science amongst the young fledgling minds and discuss the issues to come out with potential solutions to them. I hope that this conference will surely trigger sharing and exchange of innovative ideas through deliberations and discussions.

I appreciate the efforts of the Institute of Pharmacy, Nirma University and wish for the success of this magnificent event.

Shri K.K. Patel
I/c Vie-President
Nirma University

Dr. Anup K. Singh
Director General
Nirma University

NIRMA UNIVERSITY
NAAC ACCREDITED 'A' GRADE

I am delighted to hear that Institute of Pharmacy, Nirma University is organizing an International Conference, the third in the series - NIRMA INSTITUTE OF PHARMACY INTERNATIONAL CONFERENCE NIPiCON-2016 with the theme of *"Global Challenges in Drug Discovery, Development and Regulatory Affairs"* from January 21-23, 2016. It's my honor and privilege to welcome all the eminent speakers and delegates to the exquisite campus of Nirma University.

The drug development industry is restructuring worldwide. This brings different ways of working and new challenges. The development of the concept and target validation to the patient benefit would be a collective task in this changing scenario of drug discovery. Regulation has become critical in this process. Alongswith the changing skills demand, there also need to be a continuing public engagement and education process to help the public and government policymakers better understand the challenges which drug discovery process experience across the world. This would help to develop better regulations for the effective development of the therapies benefitting the patients as well as making them cost effective. Such conferences will help spread the awareness as well as a stage to discuss all the global isssues in drug development and its regulation which are varied across the globe.

It can be foreseen that such a conference will serve as a stimulant to the innovation in the pharmaceutical sector in India and abroad. It would play a major role in discussing the challenges in the development of new drugs alongwith its regulatory guidelines. I anticipate success of this much needed and trailblazing conference and expect such appreciable efforts by the Institute in future.

Dr. Anup Singh
Director General,
Nirma University

From the Desk of Organizers

We are extremely delighted to invite all the eminent speakers, invitees, delegates and our dear students to sprawling campus of Nirma University for the 3rd Nirma Institute of Pharmacy International Conference (NIPiCON – 2016) on the theme of "Global Challenges in Drug Discovery, Development and Regulatory Affairs" supported by DBT and DRDO during January 21-23, 2016.

Pharmaceutical innovation is a complex creative process that harnesses the application of knowledge and creativity for discovering, developing and bringing to clinical use, new medicinal products that extend or improve the lives of patients. A successful pharmaceutical R&D process is one that minimizes the time and cost needed to bring a compound from the scientific 'idea', through discovery and clinical development, to final regulatory approval and delivery to the patient. We are going through a period of very stringent regulatory guidelines for drug discovery & development, which are undoubtedly essential to ensure the consumer health, but have severe effects on cost and time of new drug discovery and development. There is a need for paradigm shift in the approaches to new drug discovery and its development. This conference will provide an open forum to have an opportunity to interact with the leading scientists from across the globe and to enrich their knowledge in the area of drug discovery & development and its regulatory requirements. Let us join our hands together to share our knowledge and experience that will go a very long way in helping to build up the healthy, prosperous and developed nation.

We wish to express our deep gratitude to the Dept. of Biochemistry (DBT) & Defense Research and Development Organization (DRDO), advisory committee, local organizing committee, faculty and student volunteers who have guided and worked hard to make this event successful. We will like to convey thanks to all our plenary and session speakers as well as delegates for their valuable contribution. Attempts at all levels is being made by organizing committee to make your stay enriching, contended and amiable. We also kindly request you to pardon us for any inadequacies experienced by you.

We hope that all of you will enjoy the academic feast, warm hospitality, rich heritage and culture of Gujarat.

With warm regards,

Prof. Vimal Kumar
Organizing Secretary,
NIPiCON - 2016

Prof. Manjunath D. Ghate
Convener
NIPiCON-2016

CONTENTS

ABOUT NIRMA UNIVERSITY

Nirma University was established in the year 2003 as a statutory university under Gujarat State Act at the initiative of the Nirma Education & Research Foundation (NERF). The University is also recognized by the University Grants Commission (UGC) under section 2(f) of the UGC Act. The University has been accredited with Grade 'A' by National Assessment and Accreditation Council (NAAC) in 2015. Nirma University is a member of Common Wealth University Association and also of Association of Indian Universities. Dr. Karsanbhai K. Patel, Chairman, Nirma Group of Companies and Chairman, NERF is the President of the University and Dr. A. K. Singh is the Director General of the University. The 125-acre sprawling green campus with serene picturesque landscape provides refreshing environment for intellectual and creative activities. In addition to Institute of Pharmacy, other constituent institutes of the University include Institute of Technology, Institute of Management, Institute of Science, Institute of Law and Institute of Architecture. The programmes offered by these faculties are rated high by accreditation agencies, industries, business magazines and moreover by the students. Innovation, excellence, and quality are the driving forces on the campus and this has translated the vision of this university into a reality over a short period of time. Today the campus vibrates with world class curricular activities like international conventions, symposiums, conferences, student competitions, conclaves, short-term industry relevant programmes and cultural activities.

ABOUT INSTITUTE OF PHARMACY

Institute of Pharmacy was established with a view to promote excellence in pharmaceutical education and to prepare young men and women to meet the challenges in the area of pharmaceutical industries, education, research & development and marketing. The Institute provides degree, postgraduate and doctoral level education at this centre of excellence. The Institute is poised to face global challenges of the pharmaceutical industry and education with the changed perspectives.

OBJECTIVES :

1. To develop a centre of excellence imparting graduate, postgraduate, doctoral and postdoctoral level education in pharmaceutical sciences.
2. To cater to the human resource needs of the rapidly expanding pharmaceutical industry, educational institutions and research laboratories in Gujarat State and in the country at large.
3. To promote research in high tech emerging and thrust areas of medicine and human healthcare and contribute towards fulfilling the national objectives in pharmaceutical education and technology.
4. To establish excellent industry academy interactions and undertake collaborative professional programmes in the areas of pre-clinical toxicity studies, pharmacokinetics and drug metabolism, formulation and development studies, etc.
5. To undertake research projects sponsored by the government, various funding agencies like CSIR, ICMR, UGC, DST & DBT, GUJCOST and the pharmaceutical industries.
6. To regularly conduct continuing education programmes for the pharmaceutical scientists and academicians

PROGRAMMES OFFERED BY THE INSTITUTE INCLUDE:

1. B. Pharm. (Eight semester programme)*
2. M. Pharm. (Four semester programme)* with specialization in:
   - Pharmaceutical Technology & Bio-pharmaceutics
   - Pharmaceutical Analysis
   - Pharmacology
   - Clinical Pharmacy
   - Regulatory Affairs & Quality Assurance
3. M.Sc. in Cosmetic Technology (Four semester programme)*
4. Ph. D. in Pharmaceutical Sciences (Full time & External)***

**With Industrial Training, ***With Course Work*

THE CAMPUS

The Institute is situated in the Nirma University campus and has facilities like canteen, bank, student store, play ground, indoor games and gymnasium. The campus provides an ambience that motivates students to grow.

The Institute building has modern amenities, with enough space and replenished with modernity and grandeur. The postgraduate laboratories are independently developed for M.Pharm and Ph. D students. Apart from this, the campus has sports facilities and the overall ambience is distinguishable by serenity, which is conducive for intellectual pursuits.

MAJOR FACILITIES AVAILABLE AT THE INSTITUTE:

CLASS ROOMS: The classrooms are spacious, ventilated and equipped with multimedia and audio visual equipment to facilitate effective learning. The classrooms are designed to provide maximum interaction between the faculty and students.

LEARNING RESOURCES CENTRE (LIBRARY): The Library at Institute of Pharmacy plays a vital role in the collection, development and dissemination of scientific information and includes a wide range of volumes of different branches of Pharmaceutical Sciences and allied subjects and also provides extensive access to leading Indian and International research journals. Currently it houses more than 8680 volumes of books selectively chosen for reading and reference, 392 CDs, 1654 Bound Volumes, 585 Project Reports (B. Pharm), 378 Research Project Reports (M. Pharm), 34 PhD Theses and subscribes about 26 printed national, 10 international periodicals, 17 magazines and 11 newspapers. Library is also providing Web access to 132 e-journals: Bentham Science Publisher (23), Science Direct – Pharmacology, Toxicology and Pharmaceutical Sciences (103), Journal of Pharmacological Reviews, The Analyst and 4 journals from Inventi Publishers. Library also providies remote log-In facility to access e-resource 24×7 off campus.

COMPUTER CENTRE: The central computer facilities consist of 20 servers and more than 1100 systems, which are interconnected by fibre optic cables and 4 Mbps, leased line internet connectivity. Computing facilities for students include a laboratory equipped with 24 computers for U.G. and 16 for P.G. lab and Local Area Network. The network also connects the faculty and staff for information sharing and communication. The students have an easy access to the internet with Wi- Fi facility. The faculty members are also provided with computer, remote log-in and internet facilities.

SOPHISTICATED INSTRUMENT LABORATORY: The Institute houses modern analytical instruments like FT-IR, Fluorescence Spectrophotometer, UV- Spectrophotometer, HPLC, Supercritical Fluid Chromatography and Extraction, HPTLC, MPLC, GC, gradient PCR and RAMAN Spectrophotometer which provide analysis comprising elemental composition, chromatography, diffraction, particle/material characteristics including various spectroscopes. The laboratory provides analytical support and intellectual input to both in-house and externally funded R&D projects.

DRUG DISCOVERY LABORATORY: The Institute has a separate Drug Discovery Laboratory equipped with necessary computational facilities. It possesses seven workstations (computers) with latest configurations. It is also equipped with molecular modeling software like Sybyl X1.3 and Gold Suite 5.1. Students are trained on these soft wares for docking, pharmacophore modeling and QSAR studies etc.

MACHINE ROOM: A centralized machine room is equipped with Rotary tablet machine, Fluidized bed drier cum coater, Digital Tensiometer, Texture Analyzer, Mini Spray Dryer, Freeze Dryer, Automated Dissolution Apparatus and Extruder-Apheronizer, Multiple Diffusion Assembly, Powder Flow Tester etc. The laboratory provides facilities to carryout extensive research and consultancy for pharmaceutical industries.

NIRMA HERBAL WEALTH: A medicinal plants garden covering a total area of 2000 sq. meters has been developed at the university campus. More than 170 genus of various medicinal plants have already been planted. The plants garden provides a strong impetus for herbal drug research and for the training of our P.G. & U.G. students

ANIMAL HOUSE: The two storey conventional animal house has been registered by CPCSEA, Government of India. It is envisaged to provide pre-clinical testing in conformity with national and international regulatory guidelines. The animal house facilitates the availability of healthy and homogeneous animals for U.G. and P.G. studies and for research/outsourced testing. Incinerator is also available at animal house.

RESEARCH LABORATORY: A fully dedicated research laboratory helps the faculty members to undertake sponsored research projects as well as to carry out doctoral research work in various areas. The Institute houses state-of-art analytical instruments like FT-IR, Fluorescence Spectrometer, Raman Spectrometer, UV-Spectrophotometer, HPLC, GC, Texture Analyser, Automated Dissolution Apparatus, SFC & SFE, Microwave Synthesizer, Biochemical Analyser, ELISA Reader etc.

ACHIEVEMENTS

A team of highly qualified and dedicated faculties are continuously skilled in latest methods of educational technology and in their respective fields of specialization. Faculty members are actively involved in research, consultancy and financially funded and sponsored projects.

Total 17 recognized Ph. D guides with more than 100 research scholars are actively working in the diversified thrust areas of pharmaceutical sciences. Apart from presenting and publishing their work in reputed journals and conferences, faculty members and students have won laurels for the Institute by publishing of books, patenting their research work and by receiving many prestigious awards.

The Institute had received more than 3 crore rupees grant from various external funding agencies like GMDC (Ahmedabad), DST, DBT, ICMR and GUJCOST. Institute has very high intellect faculty members who are actively involved in research, consultancy, testing and are supported financially with sponsored projects from different government as well as private organizations.

Many full time PhD research scholars have received the prestigious DST INSPIRE (Innovation in Science Pursuit for Inspired Research) fellowship from the DST and CSIR, Government of India and from Confederation of Indian Industries (CII).

Many M. Pharm students and research guides from the department of Medicinal Chemistry, Pharmaceutical Technology & Bio-pharmaceutics, Pharmacology, Pharmacognosy and Pharmaceutical Analysis have received national recognition for "R. V. Patel Competition for Best Thesis at Masters Programm" supported by DST, Government of India and Troikaa Pharmaceuticals Ltd. Faculty members have been awarded with P. D. Sethi awards, N. S. Dhalla Young Scientist award and APTI awards for publishing the best research papers and presentations during symposiums and conferences. Faculty members have contributed in innovative pharmaceutical research by solving web based challenges floated by the Innocentive. Inc. USA.

The graduate students have been awarded for securing the highest grade in B.Pharm Examinations and many students performed well to achieve All India rank in GPAT and secured admissions at reputed institutes like IITs, NIPER and other PG centres of India and also abroad. The post graduate students have been placed at reputed academic institutions and industries of India.

Different departments of Institute have received support from government organizations like ICMR, DST, AICTE, ISTE, GUJCOST, DBT, DRDO and CSIR in organizing various workshops, conferences and symposia of national and international level on recent advances in pharmaceutical sciences.

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SCIENTIFIC SCHEDULE AT A GLANCE

(Venue for Scientific Sessions: Auditorium, Institute of Management)

Theme: Global Challenges in Drug Discovery, Development and Regulatory Affairs

DAY 1: JANUARY 21, 2016	
9:00 to 10:30	**Registration & Breakfast**
10:30 to 11:30	**INAUGURATION**
11:30 to 12:00	**TEA BREAK** Venue: Lawn, Institute of Management
12:00 to 13:00	**KEY NOTE ADDRESS**
13:00 to 13:45	**When to Say No: Deciding to Terminate Novel and Follow-On Drugs During Standard Paths of Development** ***Dr. Eric D. Kupferberg*** *Vice-President and Director, India Partnership Programs* *Cambridge Graduate University, USA*
13:45 to 15:00	**LUNCH BREAK** Venue: Lawn, Institute of Management
15:00 to 15:45	**Challenges In Oncology Drug Discovery** ***Dr. A. Sankaranarayanan*** President, Vivo Bio Tech Ltd., Secunderabad
15:45 to 16:30	**Molecular basis of sirtuins to prevent aging associated cardiac remodeling and dysfunction** ***Dr. Mahesh Gupta*** Center of Cardiac Cell Biology, Department of Surgery, Basic Science Division, University of Chicago Medicine, Chicago, USA
16:30 to 17:00	**TEA BREAK** Venue: Lawn, Institute of Management
17:00 to 17:45	**Determination, interpretation and significance of absorption rate constant** ***Prof. Sunil Jambhekar*** *Professor and Associate Dean, LECON School of Pharmacy,* *Bradenton, Florida, USA*
17:45 to 19:00	**CULTURAL PROGRAMME**
19:00 onwards	**GALA DINNER** Venue: Lawn, Institute of Management

DAY 2: JANUARY 22, 2016	
8:45 to 9:15	**BREAKFAST** Venue: Lawn, Institute of Management
9:15 to 10:00	**Alzheimer's disease (AD): Prevention and Treatment with focus on herbal alternatives** ***Dr. Balvantsinh Chauhan*** *Faculty, Roosevelt University, USA*
10:00 to 10:45	**Importance of Process Research and Green Chemistry in Pharma Industry** ***Dr. Dhileep K Krishnamurthy*** Vice President & Global Head R&D-API Pharma Solutions, Piramal Enterprises Limited
10:45 to 11:00	**TEA BREAK** Venue: Lawn, Institute of Management
11:00 to 11:45	**Concerns of Drug Discovery via Nano Drug Delivery : Case Studies** ***Prof. P. R. Vavia*** *Professor of Pharmaceutics* *Dean, Academic Programs, Institute of Chemical Technology (ICT), Mumbai*
11:45 to 12: 30	**Amorphous Formulation For Poorly Soluble Drugs** ***Dr. Parijat Kanaujia*** *Scientist, Crystallization and Particle Sciences, Institute of Chemical and Engineering Sciences, Singapore*
12:30 to 13:15	**Synchronised and Controlled Release Co-Loaded Liposomal Delivery System of Oxaliplatin and Irinotecan for Enhanced Colorectal Cancer Therapy** ***Dr. Sanjay Garg*** *Professor of Pharmaceutical Sciences, University of South Australia, Adelaide, Australia*
13:15 to 14:15	**LUNCH BREAK** Venue: Lawn, Institute of Management
14:15 to 15:00	**Biomarker Development in the Context of Disease Diagnosis, Treatment and Drug Discovery: Lessons learned from Cancer and Low Back Pain Research** ***Dr. Ranajit Chakraborty*** *Professor, Department of Molecular and Medical Genetics* *Director, Center for Computational Genomics Institute of Applied Genetics* *University of North Texas Health Science Center, Texas, USA*
15:00 to 15:45	**Targeting Specificity Protein Transcription Factors For Inducing Therapeutic Efficacy In Human Cancers** ***Dr. Riyaz Basha*** *Associate Professor, UNT Health Science Center, Fort Worth, Texas, USA*
15:45 to 16:00	**TEA BREAK** Venue: Lawn, Institute of Management
16:00 to 18:00	**POSTER PRESENTATION** Venue: Institute of Pharmacy **Tracks** Pharmaceutical Technology & Biotechnology Pharmaceutical Analysis & Quality Assurance

DAY 3: JANUARY 23, 2016		
8:45 to 9:15	**BREAKFAST** Venue: Lawn, Institute of Management	
9:15 to 10:00	**Peptide- and Polymer-based Biomaterials as Antimicrobials: Prospects and Challenges** ***Dr. Ee Pui Lai, Rachel*** *Department of Pharmacy, National University of Singapore, Singapore*	
9:45 to 10:30	**Ayurveda and chronic pain management. Ancient wisdom and Innovation** ***Dr. Ashwin Barot*** *Ayurveda Physician & Clinical Specialist, London, UK*	
	Session Lectures	
	Venue : Auditorium, Institute of Management	**Venue : Seminar Hall Institute of Pharmacy**
10:45 to 11:05	**Design and Liquid Phase Synthesis of Benzimidazole Derivative for antituberculosis activity** ***Dr. Manjunath Ghate*** *Director, Institute of Pharmacy, Nirma University, Ahmedabad*	***FTNIR: a Versatile Tool for Pharmaceutical Analysis*** ***Dr. Deepti Jain*** *Professor in Pharmacy* RGPVV, Bhopal
11:05 to 11:25	**Role of Bioinformatics in Identifying New Molecular Targets For Drug Discovery** ***Dr. Surendra Jain*** *Director, SIRT Pharmacy, Bhopal*	**Safety and Toxicity Concerns of Nanopharmaceuticals** ***Dr. Hetal Thakkar*** *Assistant Professor* *M. S. University, Baroda*
11:25 to 11:45	**Voicing PLCM: strategic perspectives in Pharma environment** ***Mr. Swagat Tripathi*** *Project Manager, Cipla Ltd., Mumbai*	***Challenges In Drug Discovery: Anti-Convulsant Agents Via Green Chemistry*** ***Dr. Ms. Anna Pratima G. Nikalje*** *Professor, Y. B. Chavan College of Pharmacy, Aurangabad*
11:45 to 13:15	**POSTER PRESENTATION** Venue: Institute of Pharmacy **Tracks** Drug Discovery & Medicinal Chemistry Pharmacognosy, Ayurvedic & Herbal Technology Pharmacology, Clinical Pharmacy & Pharmacy Practice Regulatory Affairs, IPR & Pharmaceutical Management	
13:15 to 14:15	**LUNCH BREAK** Venue: Lawn, Institute of Management	
14:15 to 15:00	**Regulatory Science - Compulsion for Drug Development and Pharma Industry** ***Dr. P G. Shrotriya*** *Director (Pharma Research), SPPSPTM, NMIMS University, Mumbai*	
15:15 to 16:00	**VALEDICTORY FUNCTION**	

Plenary Sessions

When to Say No: Deciding to Terminate Novel and Follow-On Drugs During Standard Paths of Development

Dr. Eric D. Kupferberg
Vice-President and Director, India Partnership Programs
Cambridge Graduate University, USA
Graduate Programs Coordinator, Clinical Trials Management,
Salem State University, USA

BIODATA

Eric D. Kupferberg, PhD, received his doctorate in the history and sociology of science from MIT and his M.A. in the history and philosophy of biology from the University of Maryland. Before coming to Salem State University and Cambridge Graduate University International, he served as a Senior Fellow at Northeastern University's College of Professional Studies and directed the Masters of Science in Regulatory Affairs of Drugs, Biologics, and Medical Devices. He has brought the Regulatory Affairs curriculum to sixteen Asian nations and consulted in China, India, Singapore, and Brazil and created partnership programs for foreign universities, governments, and corporations in Europe, South America, and Asia. For six years, Kupferberg was the Senior Assistant Dean of Academic and Faculty Affairs and directed nine graduate programs encompassing 1,500 students and 200 faculty members. Prior to coming to Northeastern University, he served as the Associate Director of Harvard School of Public Health's Trust Initiative, a research arm dedicated to studying stakeholder relations in health care markets. He has led seminars on research and writing strategies in history and has advised more than 30 masters and senior theses. Prior to arriving to the College of Professional Studies, Kupferberg helped direct the public programs at Harvard Medical School's Division of Medical Ethics. Kupferberg is the collaborating author of High Stakes: The Critical Role of Stakeholders in Health Care, published in May 2011 by Oxford University. He is also a contributing author for the edited volume Forces of Change: Strategies for Flourishing in an Evolving Health Care Marketplace, published by Jossey-Bass Press in August 2012.

ABSTRACT

Scholars and commentators often examine drug development from the perspective of supporting the successful development of a novel drug or follow-on drug. They examine the decisions leading to well-designed multi-phase studies and eventual approval from a regulatory agency. In addition, we can easily find examinations of how to effectively manufacture and profitably market a drug. Yet, the majority of hopeful compounds and biologics never make it to the submission stage. They "die" along the long series of steps comprising full development. This paper inverts the common narrative of new drugs. Instead of detailing the well-planned or fortuitous path to a successful niche drug or blockbuster, the presentation describes a series of landmarks and decision points when it makes sense to terminate a program. From both a business perspective and scientific perspective, knowing when to declare a "no-go" is as important, if not more so, than finding ways to keep a program continuing and well-funded.

Challenges In Oncology Drug Discovery

Dr. A. Sankaranarayanan
President
Vivo Bio Tech Ltd., Secunderabad

BIODATA

Dr. Sankaranarayanan is currently the President of Vivo Bio Tech Ltd, Hyderabad, India. He received BVSc (1966) and MVSc (1969) degrees from University of Madras and PhD (1975) in Pharmacology from the Postgraduate Institute of Medical Education & Research (PGIMER), Chandigarh. He has held the position of Additional Professor of Pharmacology at the PGIMER where he taught for MSc, MD and PhD degree courses in Pharmacology and DM in Clinical Pharmacology. He moved to pharma industry in 1995 and has held the position of Senior Advisor for Drug Discovery at the Torrent Research Centre, Ahmedabad where he has patented several NCEs for cardiovascular diseases and metabolic disorders. He continues to be associated with the PGIMER as a Visiting Faculty and had been an Adjunct Professor (Hon.) of Birla Institute of Technology & Sciences, Pilani. He has held key positions at GVK Biosciences, Hyderabad and PSG Institute of Medical Sciences, Coimbatore. He has published about 75 research publications and has to his credit about 40 patents granted in various countries including 7 US patents. His research interests include drug discovery and development in metabolic disorders and cardiovascular diseases.

ABSTRACT

The number of people dying of cancer globally is expected to increase from 8.2 million in 2012 to 14.5 million in 2035. However, the discovery and development of drugs for cancer is ever more challenging. Failure of new therapeutics in Phase III clinical trials is appalling in spite of advances in understanding the pathogenesis of cancer and the molecular mechanisms involved. The reasons for this situation are several - one of the major difficulties appears to be the disconnect between the molecular characteristics of the screening models employed and the molecular mechanisms of the disease. It is essential to focus on the characterization of the models used in identifying anti-cancer activity. In-vitro screening on cellular systems like NCI-60, combined with biochemical assays for targeted kinases are employed for selecting the lead compounds. However, these investigations are inadequate to identify potential toxicities, ADME / PK properties and activities on multiple targets. Mouse xenografts of human tumor cell lines have been traditionally used for in-vivo screening of anticancer drugs. These models have been shown to be of variable predictive value in the clinic. Alternatively, models involving transfer of patient-derived tumor tissues into immuno-deficient mice (PDX models) have been developed and shown to be more predictive of clinical efficacy. These experimental tumors resemble the patient tumors in histological structure as well as gene expression profiles, particularly when engrafted orthotopically. They also have greater tendency for metastasis, unlike mouse tumors. Genetically engineered mouse models (GEMMs) have also been developed that offer better modeling of therapeutic efficacy and resistance to targeted therapies. The challenges in use of these models in oncology drug discovery shall be discussed.

Molecular Basis of Sirtuins to Prevent Aging Associated Cardiac Remodeling and Dysfunction

Dr. Mahesh Gupta
Center of Cardiac Cell Biology, Department of Surgery, Basic Science Division, University of Chicago Medicine, Chicago, USA

BIODATA

Dr. Mahesh Gupta is Associate Professor and Director of the Cardiothoracic Research Program at the Basic Science Division, University of Chicago, USA. Dr. Gupta received his MS and PhD degrees from All-India Institute Medical Sciences, New Delhi and carried out his advanced training at University of Manitoba and University of Chicago. His research has been funded from federal funding agencies like American Heart Association and National Institute of Health, USA. Dr Gupta`s laboratory was first to define a cardiac-specific element in the first intron of the α-MHC gene, which is essential for its tissue-specific expression of this gene. Another main contribution of Dr Gupta`s laboratory is the discovery of a new signaling pathway where he demonstrated that PARP1 activation kills cells by depleting cellular NAD stores and hence blocking the activity of NAD-dependent deacetylases sirtuins (SIRT1). More recently, his laboratory has demonstrated that sirtuins regulate the entire IGF/Akt signaling pathway and the fusion-fission dynamics of mitochondria.

ABSTRACT

Sirtuins have emerged as key regulators of verity of biological functions, including cell growth, apoptosis, metabolism and longevity. Members of the sirtuin family are NAD-dependent deacetylases, which are considered to be sensors of the cellular energy status. Mammalian genome encodes seven sirtuin isoforms (SIRT1-SIRT7). Among them SIRT3 is the only isoform whose increased expression was linked to increased lifespan of humans. SIRT3 is primarily localized in mitochondria, where it regulates activity of many metabolic enzymes involved in ATP biosynthesis and ROS production. Because bioenergetic capacity of mitochondria is also dependent upon the fusion-fission dynamics of the organelle, this study was undertaken to study the effect of SIRT3 in regulating mitochondrial dynamics. We found that OPA1, an inner mitochondrial fusion protein was hyper-acetylated in hearts under pathological stress, including hearts with pressure overload hypertrophy, doxorubicin-induced cardiac toxicity and diabetic cardiomyopathy. OPA1 was also acetylated in SIRT3KO hearts, and this modification led to reduced GTPase activity of OPA1. In cardiomyocytes, SIRT3 was capable of deacetylating and elevating GTPase activity of OPA1. Moreover, SIRT3 over expression prevented doxorubicin-mediated mitochondrial fragmentation and myocyte cell death by activating OPA1. In vivo studies conducted with SIRT3 over expressing transgenic mice showed that SIRT3 protects the heart from developing cardiac hypertrophy and heart failure by preserving health of mitochondrial population. In summary, our data showed that SIRT3 promotes mitochondrial function not only by regulating activity of metabolic enzymes, but also by regulating mitochondrial dynamics by targeting OPA1. Based on this and other published data from our laboratory, we propose that SIRT3 could be a therapeutic target for the treatment of heart failure.

Determination, interpretation and significance of absorption rate constant

Dr. Sunil S. Jambhekar
Professor, Pharmaceutical Sciences, LECOM Bradenton, School of Pharmacy
Bradenton, Florida, USA

BIODATA

Dr. Jambhekar is the Professor of Pharmaceutics in Pharmaceutical Sciences Discipline at LECOM Bradenton, School of Pharmacy. He received his B. Pharm degree from L. M. College of Pharmacy, Gujarat University, India, and M.S. and Ph.D. degrees in pharmaceutics from The University of Nebraska. He has worked on a number of product development formulation projects for various pharmaceutical companies in the USA. Dr. Jambhekar's research interests include the application of physical chemical principles to the development and evaluation of immediate and controlled release dosage forms, the application of cyclodextrins and co-processed cyclodextrins as excipients in a tablet dosage form and as complex forming agents to improve the dissolution and stability of drugs, and in vitro and in vivo correlations. Dr. Jambhekar is a recipient of three Fulbright Scholarships; once in the lecture/research category (1993) for India and twice as a Senior Specialist. As a Fulbright Senior Specialist, Dr. Jambhekar has taught (2006) for six weeks at J.S.S. College of Pharmacy in Ooty and for five weeks (2014) at BITS, Pilani. Dr. Jambhekar is a recipient various awards including the Teacher of the Year, Faculty of the Year, Adviser of the Year, as well an award for Scholarly Publication.

ABSTRACT

Determination and interpretation of the absorption rate constant, following the administration of an extravascularly administered drug, plays an important role in assessing the bioavailability of a drug as well as in establishing bioequivalence between two or more chemically and pharmaceutically equivalent Products. Additionally, the absorption rate constant plays an important role in evaluating formulations of a dosage form as well as choosing a suitable route of administration for a therapeutic agent to achieve optimum therapeutic benefits. This stems from the fact that establishing bioequivalence and/or comparative bioavailability require determination and comparison of the rate and extent of drug absorption. The rate of absorption is characterized by using parameters peak time and peak plasma concentration and the extent of drug absorption is assesses from the knowledge of $(AUC)0^{\infty}$.

Accurate determination of peak time and peak plasma concentration, in turn, depends heavily on an accurate estimate of the absorption rate constant. Though there are a number of methods available, which will be mentioned briefly, this presentation will focus on the Wagner and Nelson method since the fidelity of this method has been well established for many years. Though Wagner and Nelson method permit determination of the absorption rate constant from urinary as well as plasma concentration data, this presentation will focus on the on the use of this method when plasma concentration versus time date is available.

Alzheimer's disease (AD): Prevention and Treatment with focus on herbal alternatives

Dr. Balvantsinh Chauhan
College of Pharmacy, Roosevelt University, USA

BIODATA

Dr. Chauhan took his B.Sc., M.Sc. and Ph.D. from Faculty of Science, The Maharaja Sayajirao University of Baroda, Baroda, Guj., India. He obtained his M.D. degree in 1998 from College of Medicine, Spartan Health Sciences University (Vieux- fort, St. Lucia, W.I.). His Ph.D. work was in the field of 'reproductive endocrinology'. Dr. Chauhan became faculty (Asst. Lecturer) in 1970 at Department of Zoology (Faculty of Science, M.S. University of Baroda, Baroda) and was promoted to "Reader (Associate Professor)" in 1983. He left for U.S.A. in 1987, and did biomedical research as post-doctoral fellow/ research asst. professor in various fields for several years. Later, he worked as Laboratory Manager and Lab. Director with environmental toxicology analytical laboratories. Currently, Dr. Chauhan's primary interest is teaching human anatomy, neuroanatomy, physiology, pathophysiology and pharmacogenomics. He taught in past at college of medicine, University of Illinois at Chicago (UIC, Chicago, U.S.A.), and now he is with college of pharmacy, Roosevelt university, (Schaumburg, Illinois, U.S.A.). His teaching experience spans over more than twenty-five years. Dr. Chauhan's current research interests include: (1). Screening of Indian and other plants for their bio-medical properties; (2) Stem cell research; (3) Alzheimer's Disease and (4) Dermal-Toxicology. Dr. Chauhan has co-authored several peer-reviewed publications and scientific abstract/ posters; some of them received international merit awards.

ABSTRACT

Alzheimer's disease is afflicted in 36- million people word wide. AD is age-dependent neurodegenerative disorder. AD is characterized by β – Amyloidal plaques (Aβ-plaques), neurofibrillary tangles (NFTs), inflammation and oxidative damage, synapse and neuronal loss. This neuropathy leads to functional deficiency, especially Mild Cognitive Impairment (MCI) at the onset, prior to the deposition of plaques and tangles. As time passes, the damage advances to limbic and cortical areas of brain with further deterioration in cognition. Progress in finding effective disease- modifying treatments is very slow, and is not adequate. Results are far from encouraging. This review will describe pathology involved in AD, complexity of AD, and current AD treatments. Limitations and adversities associated with current treatment of Alzheimer's disease will be discussed. Review will provide highlights on topics like- Why AD's treatment(s) fail, as well as usefulness of nature made products in treatment of AD. Few selected herbal products' role in prevention and treatment of AD will be described also.

Importance of Process Research and Green Chemistry in Pharma Industry

Dr. Dhileep K Krishnamurthy
Vice President & Global Head R&D-API Pharma Solutions
Piramal Enterprises Limited

BIODATA

Dr. Dhileep Krishnamurthy is a Vice President and Global Head of R&D-API Pharma Solutions, Piramal Enterprises Limited. He received his M.Sc. degree from Indian Institute of Technology, Bombay and Ph.D. from the University of Utah, USA. He has Over 20 years of scientific and leadership experience in post-doctoral, multinational major pharmaceuticals (BMS and Boehringer-Ingelheim in USA), CRO, CMO and generic pharmaceutical companies (India) in synthetic organic chemistry, API process R&D and providing a CMC leadership support in development and filing IND, NDA, and DMF. His research interest includes discovery and development of patent free economical, green, and practical synthesis for biologically active molecules (API) using traditional and modern approaches. He has more than 65 publications and patents. He has delivered invited lectures in many academic institutions and international professional conferences. He is a member of many professional organizations and involved with various advisory committees. Most recently, he served in the judging panel for the USA's presidential green chemistry challenge award. Currently he is serving as EAB member in Org. Process Research and Development and Green Chemistry Journals. In 2013 he was named as Fellow of Royal Society of Chemistry by Royal Society of Chemistry, UK for his outstanding contribution to chemistry community. Dr. Krishnamurthy is an invited Fellow in Royal Society of Chemistry from 2014. Currently he is a member of Editorial Advisory Board of Organic Process Research and Development Published by American Chemical Society and Green Chemistry Published by Royal Chemical Society. He is a former member in Presidential Green Chemistry Challenge Awards Selection Committee, USA.

ABSTRACT

The presentation will highlight various roles of synthetic organic chemists in current Pharma Industry with the emphasis on Process Research and Green Chemistry. Number of case studies will be provided to illustrate importance of process research in successful development and commercialization of APIs

Concerns of Drug Discovery via Nano Drug Delivery : Case Studies

Prof. P. R. Vavia
B. Pharm., M.Pharm., Ph.D. (Tech), FIPA, FMASc
Professor of Pharmaceutics and Dean, Academic Program, Institute of Chemical Technology (ICT), Mumbai

BIODATA

Prof. P. R. Vavia is Professor in Pharmaceutics at Institute of Chemical Technology, Mumbai. He has more than 25 years of teaching experience to undergraduate, post-graduate and doctoral students. Prof. P. R. Vavia has guided total 42 Master students and 31 Ph.D. students so far who are placed at key positions in leading pharmaceutical organizations. Presently he is guiding 6 masters and 14 Ph.D. students. He has more than 125 peer reviewed scientific publications in national and international journals with 1696 citation and h-index of 20. Prof. Vavia has given more than 225 research presentations at national and international levels. He has 1 granted patent and 33 complete patent specifications filed in the area of drug delivery technology. He has received various prestigious awards to name a few "COSAT (Corporate of Science and Technology) Award" of Johnson & Johnson, USA, 2001, "Best Teacher's Award" University Institute of Chemical Technology, 2007 and 2010, "Incentives to Meritorious Teachers", Dr. K. H. Gharda Reward, 2009, the VASVIK Award in the category of Biological Science & Technology for the year 2014 and many more. Prof. Vavia and his research group has developed more than 25 value added pharmaceutical products for Indian and international Pharmaceutical Companies.

Prof. Vavia has always served his best while being at prestigious positions like President of IPA (Indian Pharmaceutical Association) 2002-2004, Inspector by PCI (Pharmacy Council of India) and AICTE (All India Council of Technical Education) for the inspection of various pharmacy institutions, Vice-chancellor nominee for appointment of teachers/professors at Mumbai University, Controller of Examinations at Institute of Chemical Technology, Committee member for selecting 'Drug Inspectors' for state of Maharashtra appointed by MPSC, Government of Maharashtra, Expert Member, DSIR (Department of Scientific and Industrial Research) for inspection of industrial R & D facility.

ABSTRACT

Through the process of drug discovery several new drugs were identified. This process involves several steps, it is time consuming and expensive. In recent years several new drugs were discovered in the areas of oncology, infectious disease, metabolic and endocrinology and others. Some of these new drugs have shown issues regarding selectivity, solubility, stability and patient compliance. These issues can be address using Nano drug delivery systems. The presentation will cover several case studies dealing with nanotechnology as a key to drug delivery problems. These case studies will cover issues related to toxicity, selectivity, solubility and bio-variability.

Amorphous Formulation for Poorly Soluble Drugs

Dr. Parijat Kanaujia
Scientist, Crystallization and Particle Sciences
Institute of Chemical and Engineering Sciences, Singapore

BIODATA

Parijat Kanaujia is Formulation Scientist at Institute of Chemical and Engineering Sciences, Singapore. He received B. Pharm. (1993), M. Pharm. (1995) Pharmaceutics and Ph.D. (2001) in Pharmaceutical Sciences from Dr. Hari Singh Gour University, Sagar (MP). He worked as Lecturer of Pharmaceutics at Dr. Hari Singh Gour University, Sagar for 7 years and Head of NDDS division of Strides Arcolab Ltd. Bangalore for 3 years. He joined Crystallization and Particles Sciences group of ICES in 2008 and currently working as Scientist III. He is recipient of prestigious BOYSCAST fellowship of DST, Govt. of India in 2001-02.

Dr. Parijat's research interests include novel drug delivery systems, formulation of poorly soluble drugs using hot melt extrusion, topical drug delivery systems and drug delivery of nutraceuticals. He has published more than 25 research papers in reputed research journals and holds 1 patent.

ABSTRACT

Low aqueous solubility of APIs and NCEs is still a major challenge for the formulation scientist. As a large number of APIs and NCEs is falling into Biopharmaceutical Classification System (BCS) class II category having dissolution rate limited bioavailability, this has led to higher attrition rate of NCEs in the developmental phase.

Among the various strategies to enhance dissolution rate of BCS class II drugs, the conversion of crystalline solid to amorphous by disrupting or preventing long-range crystalline molecular order in solid-state drug compounds has been successfully applied in the pharmaceutical industry. Generally, amorphous forms exhibit several fold higher dissolution rate but suffers from the drawback of returning back to the crystalline state over time and thereby losing back the enhanced dissolution properties. Stabilization of the amorphous form over an acceptable shelf-life remains a formidable technical challenge.

This presentation will discuss the need for APIs in the amorphous state, use of several techniques to amorphize APIs. Selection of stabilizing excipients and their effect on the stability of the amorphous form under stress test conditions will be discussed. Industrially feasible hot melt extrusion and spray drying with polymeric and inorganic excipients will be presented in detail with case studies.The mechanism of stabilization of amorphous form by excipients like hydrogen bond formation, increase in Tg and confinement are also included.

Synchronised and Controlled Release Co-Loaded Liposomal Delivery System of Oxaliplatin and Irinotecan for Enhanced Colorectal Cancer Therapy

Dr. Sanjay Garg
Professor of Pharmaceutical Sciences
University of South Australia, Adelaide, Australia

BIODATA

Sanjay Garg is Professor of Pharmaceutical Sciences at the School of Pharmacy and Medical Sciences and Director of the Centre for Pharmaceutical Innovation and Development (CPID), Sansom Institute, University of South Australia, Adelaide. He is responsible for the China Australia Centre for Health Science Research (CACHSR). Before joining UniSA in 2012, Sanjay acted as Deputy Head, School of Pharmacy, and Founding Chief Scientific Officer of AnQual GLP analytical laboratory at the University of Auckland, New Zealand; and as Associate Professor in NIPER Mohali from 1998-2003. A number of formulations from his laboratory have reached clinical stages and market. Sanjay has published 144 peer reviewed articles, 20 book chapters, several patents, and participated in over 200 conference presentations. The Young Pharmacy Teacher of the year in 2002, Fellow of IPA, Butland award for excellence in research supervision in 2007, and APSA medal in 2015 are the honors, with which he has been honored.

ABSTRACT

Oxaliplatin and irinotecan hydrochloride combination chemotherapy is recommended for the treatment of colorectal cancer. The traditional combination in clinic is simply a cocktail which causes the uncertainty owing to varying pharmacokinetics of two drugs. Therefore, co-delivering two drugs into the tumor cells synchronously would be an effective approach to enhance the colorectal cancer therapy. The project aimed at designing co-loaded liposomes to achieve the synchronised delivery and release of oxaliplatin and irinotecan hydrochloride, hence improve the colorectal cancer therapy. Oxaliplatin and irinotecan hydrochloride co-loaded liposomes were prepared using ethanol injection method. Particle size, zeta potential, encapsulation efficacy and morphology were characterized. In vitro release, in vitro cellular uptake, in vitro cytotoxicity, in vivo anti-tumor activity and histopathology were evaluated. The liposomes had uniform size distribution with particle sizes less than 200 nm. In vitro release study showed that both drugs could be synchronously released in optimum synergistic ratio from the liposomes. In vitro cellular uptake revealed that co-loaded liposomes could efficiently deliver different drugs into the same cells, indicating their potential as carriers for enhancing the cancer therapy. In vitro cytotoxicity evaluation demonstrated that co-loaded liposomes exhibited higher cytotoxicity than the mixture of single loaded liposomes in both CT-26 and HCT-116 cells. Furthermore, co-loaded liposomes also presented superior in vivo anti-tumor activity in CT-26 bearing BALB/c mice. In vivo preliminary safety assessment confirmed that liposomes had lower toxicities than their solution formulations. These results indicated that oxaliplatin and irinotecan hydrochloride co-loaded liposomes would be an efficient delivery system for improving colorectal cancer therapy with potential clinical applications.

The project was supported by China Australia Centre for Health Science Research.

Biomarker Development in the Context of Disease Diagnosis, Treatment and Drug Discovery: Lessons learned from Cancer and Low Back Pain Research

Dr. Ranajit Chakraborty
Professor, Department of Molecular and Medical Genetics
Director, Center for Computational Genomics Institute of Applied Genetics
University of North Texas Health Science Center, Texas, USA

BIODATA

Dr. Ranajit Chakraborty is the Director of the Center for Computational Genomics (CCG) at the Institute of Applied Genetics, and a Professor of Molecular and Medical Genetics at the University of North Texas Health Science Center at Fort Worth, Texas. He received his PhD degree in Biostatistics and Population Genetics in 1971 from the Indian Statistical Institute at Kolkata, India. Since 1971 he served as faculty member at numerous universities in India and USA and had been a visiting professor in Germany, Chile, Japan, and Sweden. He served in numerous Governmental and International committees that created the present-day platforms of forensic DNA analysis, radiological protection, and risk management of complex diseases. With almost 600 research articles and 8 edited books, he contributed in the areas of molecular population genetics, complex disease genomics, strategies of gene mapping, statistics of parentage testing, radiation risk estimation, and DNA and Microbial forensics. He also co-authored 8 National and International Committee/ Governmental Reports. His discoveries lead to 6 US patents. He served as associate editor for over 23 international journals. He has graduated 52 PhD and MS students and trained 36 post-doctoral fellows.

ABSTRACT

Biomarkers for any disease condition can be classified generically as: diagnostic, prognostic, and predictive. Though these three categories of biomarkers serve three different purposes, each of them are equally important for precise diagnosis of the disease, to assess clinical risk of the disease condition, and to evaluate efficacies of drug or therapeutic treatment of diseases. History of development of analytical criteria of effective biomarkers is quite long, but in the wake of the new paradigm of precision medicine, many of these criteria are receiving new attention as to how evidence-based medicine and individual-specific patient characteristics are to be implemented in development of biomarkers and in their clinical applications.

While statistical concepts of sensitivity, specificity, and receiver-operating characteristics (ROC) behaviors of biomarkers are essential to define efficient biomarkers, to translate such information to bedside management of patients, other operational considerations are also important. In addition, past research on biomarker development for cancer and low back pain have demonstrated that both phenotypic and genetic considerations are needed for effective biomarker development and in their practical use for patient management. Knowledge gaps from these reviews are identified, with suggestions for future research. Study designs for such future research are also formulated indicating their plausible cost-benefit analyses.

In conclusion, this presentation hypothesizes that biomarker development is a systems-biology concept, and its success would depend upon combinations of development of molecular epidemiology, clinical genetic and efficient bioinformatic infrastructure for improving patient management and their quality of life. In addition, establishment of such infrastructures would also dictate how drug development can be individualized based on individual-specific patient characteristics.

Targeting Specificity Protein Transcription Factors for Inducing Therapeutic Efficacy in Human Cancers

Dr. Riyaz Basha
Associate Professor,
UNT Health Science Center, Fort Worth, Texas, USA

BIODATA

Riyaz M. Basha, Ph.D., is a basic and translational science researcher. He has extensively worked on developmental basis of adult diseases studying the association of environmental insult during development causing late-life abnormalities. Dr. Bahsa is currently working on diseases of children focusing on improving the therapeutic efficacy in cancer patients and reducing the morbidity associated with chemotherapeutic agents. He is also interested in developing strategies for predicting the risk in young and adolescent population for certain adult diseases. He is well acquainted with laboratory techniques in biotechnology and molecular biology and conducting molecular profiling analysis on various samples. He has been working closely with Physicians and basic researchers and successful in securing grant funding from various agencies. In his career, Dr. Basha received young scientist travel award from Asian Pacific Society for Neurochemistry, four research presentation awards from the Society of Toxicology and a research presentation award (1st t place) at the International Conference on Drug Discovery & Therapy. He has presented several invited talks in Canada, Dubai, Korea, India, and USA. Dr. Basha served as Guest Editor for two journals and co-Editor for a book. He has co-authored more than 60 peer-reviewed publications and serving as a reviewer for more than 25 journals

ABSTRACT

Anti-cancer activity of small molecule and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are widely tested in cancer therapy and prevention. NSAIDs response is typically associated with cyclooxygenesae (COX)-dependent pathways. Interestingly, recent data from our group and others identified a small molecule and NSAID, Tolfenamic Acid (TA) that acts through COX-independent mechanisms and causes higher efficacy and minimum side-effects (toxicity). TA targets Specificity proteins (Sp) transcription factors that play critical role(s) in the growth and metastasis of cancer. Sp proteins modulate the expression of several oncogenes. Sp1 and Sp3 regulate the expression of Survivin, a member of Inhibitor of Apoptosis Protein family that is associated with resistance to chemo- and radiation therapies and impacts the prognosis. Pre-clinical screening showed that TA inhibits cancer cell growth through inducing apoptosis and causing cell cycle arrest. We also found that by suppressing survivin, TA augmented the response of human cancer cells and mouse tumors to radiation and/or chemotherapy. Experiments using clinical specimens showed a strong association of Sp1 and survivin in multiple cancers. Molecular profiling analysis further confirmed that Sp1 is the key player for the therapeutic activity of TA. These findings are crucial in developing novel strategies for treating human cancers.

Peptide- and Polymer-based Biomaterials as Antimicrobials: Prospects and Challenges

Dr. Ee Pui Lai, Rachel
Department of Pharmacy
National University of Singapore, Singapore

BIODATA

Associate Professor Rachel Ee received her B.Sc. (Pharmacy) degree with First Class Honours from the National University of Singapore and obtained her Ph.D. degree in Pharmaceutics in 2004 at the University of Illinois at Chicago under the supervision of Professor William T. Beck. She is registered to practise as a pharmacist in Singapore since 1998. In 2004, Dr. Ee was awarded a fellowship from the Singapore Economic Development Board and received overseas industrial training in drug discovery and development in ProSkelia, France, a spin-off company from the former Aventis Pharma. She joined the Department of Pharmacy in 2006 and has since managed multiple national research grants as Principal Investigator. Her research interests include drug/cell/gene delivery using hydrogels and nanoparticles and peptide therapeutics. She has also published widely in international high-impact journals such as Angewandte Chemie International Edition, ACS Nano, Biomaterials, NanoToday and Cancer Research. She recently received the 2014 DAAD (Deutscher Akademischer Austausch Dienst) Fellowship and the UCLA-Banco Santander W30: Women Leaders in University Administration Program Award as recognition of her research and administrative excellence.

ABSTRACT

The dramatic increase in antibiotic-resistant infections has created a pressing need for new and more efficacious antibiotics. An area that has garnered significant clinical interest is the production of cationic antimicrobial peptides and hydrogels. Charge and facial amphilicity in the design allow electrostatic interaction with the bacterial membrane leading to events that culminate in cell destruction. In this talk, I will give an overview of our work in the development of novel antimicrobial therapeutics using synthetic cationic peptides and stereocomplexed antimicrobial hydrogels that demonstrated broad spectrum antimicrobial activities against various types of pathogens, including clinically isolated gram-positive, gram-negative bacteria, fungi and yeast. In addition, I will discuss the developmental prospects and challenges that have to be overcome for this unique class of therapeutics in order to emerge as integral tools for combating drug resistant infections.

Ayurveda and Chronic Pain Management. Ancient Wisdom and Innovation

Dr. Ashwin Barot
Ayurveda Physician & Clinical Specialist, London, UK

BIODATA

Vaidya Asvin Barot was born in East Africa. He studied Ayurveda in Nadiad, Gujarat, India and graduated from 'The Gujarat Ayurved University' Gujarat. He has been a leading Ayurvedic Practitioner in England, in Harley street, where he established a prestigious practice where many conventional medical doctors would go to learn the art of practicing Ayurveda in a Holistic way. Vaidya Barot is known internationally for teaching the fundamental principles of Ayurveda and their application in daily life and he participates in international conferences promoting Ayurveda as a science and an Art of Being. In the last few years, he has been involved in Ayurvedic research with the Holistic Health Centre,Athens, Greece, related to psychosomatic disease and stress management through Ayurveda, Yoga and meditation. He has revived the Agnikarma treatment that although it was described in Sushruta Samhita was not practiced widely at present.

ABSTRACT

Ayurveda is an ancient tradition that is like a hidden treasure. As with every hidden treasure a careful approach to clear the reality, the real value, from the claims and the assumptions is needed.

The final proof of the value of this treasure is the clinical efficacy or putting it in simple words: Is the patient getting better, really so much better, that he or she can walk, sleep, work and enjoy as much as possible?

Living in 2016 presents challenges and chronic pain is one of these challenges. Sedentary lifestyle, wrong nutrition, and stress have created this problem that made necessary the establishment of a new" Chronic pain speciality" in medicine.

In Ayurveda in Shusruta samhita there are few slokas describing the Agnikarma technique for pain that is difficult to manage otherwise. However the fact that an essential part of Agnikarma is to create a thermal burn to alleviate the pain has not allowed this ancient method to be used effectively up to now.

We have conducted research with the Department of Dermatology and Cutaneous Surgery in Miami U.S.A., and created an innovative herbal preparation that can be used to bypass this complicated possible side effect of Agnikarma.

I will talk about our experience with Agnikarma applied as a method to manage chronic pain used in parallel with an Innovative herbal preparation.

It is possible that Innovation in our research methods combined with our ancient tradition of Ayurveda gives solutions for other health conditions.

Regulatory Science - Compulsion for Drug Development and Pharma Industry

Dr. P.G. Shrotriya
Director (Pharma Research),
SPPSPTM, NMIMS University, Mumbai

BIODATA

Dr. P.G. Shrotriya worked as Executive Director, Cadila Pharmaceuticals Ltd.; Sr. Vice-President Operations, Intas Pharmaceuticals Ltd; General Manager – Location Head Ranbaxy Laboratories Ltd at Devas – their biggest Manufacturing Location; Whole Time Director, M.J. Pharmaceuticals Ltd.; Sr. Manager, Warner Hindustan Ltd. He was instrumental in achieving approvals of International Regulatory Agencies – US FDA, MHRA- UK, TGA –Australia, ANVISA-Brazil etc. for number of Organizations and also through Consultancy Services. He was first to achieve approval of i) US FDA and ANDA and ii) Medicine Control Agency in UK and Export of Pharmaceutical Products to these countries from India.

He is WHO, Global Resource Person for Drugs and Pharmaceuticals and contributed to several International Standards. He was Member Indian Pharmacopoeia Commission and Chairman Parenteral Committee. He is Member-Subject Committee National Formulary of India, Indian Pharmacopoeia Commission. He worked as a Consultant to Cadila Pharmaceuticals Ltd., Jubilant Organosis, Alkem Laboratories Ltd., M J Biopharm and GMP, GLP, GCP auditor for European and USA organizations. He is CEO, Elite Pharmaceutical Consultants at Global level.

He delivered several lectures at international and national levels. He guided 22 M.Pharm students for their research projects (including stem cells).

He served IPA as a Gen. Secretary for 9 years in Andhra Pradesh, Vice President and President in Gujarat for 3 years, President for 2 years in Madhya Pradesh. He was Gen. Secretary of Indian Pharmaceutical Congress in 1984, 1986 and Chairman in the year 1999. He is Member, P.C. Dandiya Endowment Trust. He organized K.C. Chatterjee Memorial Lecture for 20 years in Indian Pharmaceutical Congress. He is Member of International Society for Pharmaceutical Engineering (ISPE, one of the Founder Directors in India), Drug Information Association (DIA), Indian Pharmacy Graduate's Association (IPGA) etc.

Session Lectures

Design and Liquid Phase Synthesis of Benzimidazole Derivative for Antituberculosis Activity

Dr. Manjunath Ghate
Director, Institute of Pharmacy, Nirma University, India

BIODATA

Prof. Manjunath Ghate is the Director & Dean, Faculty of Pharmacy, Nirma University. He has more than 18 years of teaching and research experience. His Ph.D is from Karnataka University, Dharward. He has also done Postdoctoral Research in National Dong Hwa University, Hualein, Taiwan and Changwon National University, Changwon, South Korea. For presenting papers and conducting research work, he has visited number of countries like South Korea, Taiwan, Bulgaria, Germany, USA, Canada. Under Guide Category, he has been awarded the Best M.Pharm. Thesis by Shri Rajanibhai Foundation. He has also received several travel grants from AICTE, Department of Science and Technology (DST), CSIR etc. Besides these, he has organized number of National Seminars, Short Term Training Programmes as convener, Chairperson supported by Government agencies. Presently, he is working on Indo-Bulgarian collaboration project with Prof. Ivanov, of Plovdiv University, Bulgaria. He is a recognized guide for PG and Ph.D under Nirma University.

ABSTRACT

According to WHO, 9.2 million new cases and 1.7 million deaths from TB have been reported. Drug resistance surveillance data show that an estimated 480000 people developed MDR-TB in 2013 and 210 000 people died. Extensively drug-resistant TB (XDR-TB) has been reported by 100 countries in 2013. On average, an estimated 9% of people with MDR-TB have XDR-TB. Based on extensive literature review benzimidazole was found as major common heterocycle in previously reported inhibitors and FtsZ offers a significant potential advantage over traditional targets as it is a highly conserved protein in prokaryotes. We designed various benzimidazole derivatives in order to achieve, discovery of new antitubercular agents which were subjected to the docking studies using the co-crystal structure of FTsZ catalytic site retrieved from the protein data bank (PDB ID: 1RQ2) to predict both ligand orientation and binding affinity. Compounds were docked into the binding site of the protein using Surflex-Dock interface implemented into SYBYL X1.3. The compounds having best score in the target protein along with similar amino acid interactions as compared with the reference ligand of the protein and not found reported in scifinder substance search were selected for the synthesis. The synthesis of compounds was carried out using liquid phase combinatorial synthesis. The resulting benzimidazole derivative were characterized by 1-H NMR, 13-C NMR, Mass, IR, LCMS. The purity of compounds was confirmed with HPLC analysis. The synthesized compounds were tested against Mtb H37Rv strains to obtain minimum inhibitory concentration. Cytotoxic study was carried out for finding drug toxicity (IC50) in a mammalian Vero cell line.

FTNIR: A Versatile Tool for Pharmaceutical Analysis

Dr. Deepti Jain
Professor in Pharmacy, RGPVV, Bhopal

BIODATA

Dr. Deepti Jain is working as Associate Professor and Course coordinator in School of Pharmaceutical Sciences, RGPV (State technological University of MP) Bhopal. She received her Doctoral degree in Faculty of Pharmacy from DAVV Indore in 2001. She did her M. Pharm from Department of Pharmacy, SGSITS, Indore in 1997. She is recipient of Senior Research Fellowship by CSIR, New Delhi while pursuing Ph.D. and recipient of Junior Research Fellowship granted by AICTE while pursuing her masters. She has received Best Paper Award during 57th and 58th IPC held at Hyderabad (2005) and Mumbai (2006). She has around 32 papers in international journals and 25 papers in national journal to her credit. Her one paper is ranked first on the TOP 25 articles of SCIENCEDIRECT for Journal of Pharmaceutical and Biomedical Analysis by Elsevier. She is recipient of research and travel grants from DST, AICTE etc. 05 Ph.D research students and 70 M. Pharm Students has worked in her guidance. Her area of research is in analytical method Development for impurity profiling, bioanalysis and phytochemical analysis.

ABSTRACT

Rely on our experience and expertise in FTIR (Fourier Transform Infrared) spectroscopy to produce accurate and reliable results across a diverse and expansive range of applications. Choose from a range of Frontier™ spectrometers covering, near, mid and far infrared regions, offering superior spectroscopic performance in demanding applications. The unrivalled flexibility of Frontier means we can offer a unique selection of specialized application accessories in addition to standard sampling options. Surprisingly simple to upgrade in the field, the optical system can be configured to use microscopy and imaging systems.

A near-infrared spectrum (12000 – 4000 /cm) is composed of combination and overtone bands that are related to absorption frequencies in the mid-infrared region. These combination and overtone bands correspond to the frequencies of vibrations between the bonds of the atoms making up the material. Because each different material is a unique combination of atoms, no two compounds produce the exact same near-infrared spectrum. Therefore, near-infrared spectroscopy can result in a positive identification (qualitative analysis) of each different material. In addition, the size of the peaks in the spectrum is a direct indication of the amount of material present. With modern software algorithms and statistical treatments, NIR spectroscopy is an excellent tool for quantitative analysis, offering a practical alternative to time-consuming wet chemical methods and liquid chromatographic techniques. NIR has become a versatile technique with no sample preparation, decreased costs and analysis time, and the ability to sample through glass and packaging materials. Fourier transform near-infrared (FT-NIR) spectroscopy was developed in order to overcome the limitations encountered with dispersive NIR instrumentation.

Role of Bioinformatics in Identifying New Molecular Targets for Drug Discovery

Dr. Surendra Jain
Professor and Director
Sagar Institute of Research & Technology –Pharmacy, Bhopal, India

BIODATA

Prof. Surendra Kumar Jain is working as Director in the Sagar Institute of Research and technology – Pharmacy, Bhopal. He completed his Doctoral degree in Faculty of Pharmacy from RGPV (State technological University of MP) in 2004 in Computer Aided Drug Design. He did his M. Pharm in Medicinal and Pharmaceutical Chemistry from Department of Pharmacy, SGSITS, Indore in 1997. He has published 30 papers in international journals and 45 papers in national journal. He has been Awarded Full Travel grant from AICTE, for attending International Conference at Manchester, UK, for the scientific paper presentation at BPC 2006 and from MPCST, Bhopal, for attending International Conference at Amsterdam, The Netherland (Holland) for the presentation of paper at 13th Tetrahedron Symposium 2012. He completed project sanctioned from MPCST and RPS from AICTE. He has supervised 7 Ph. D. students and 35 M. Pharm Students. His area of research is in Bio analytical method Development, analytical and synthetic chemistry including CADD.

ABSTRACT

Bioinformatics is the application of computer technology to biology in order to harness the voluminous amount of genetic and other biological information emerging from numerous biological research endeavors. Bioinformatics occupies a central and essential role in drug discovery. Classical drug discovery has largely proceeded on the basis of trial and error. Bioinformatics has essentially replaced bench chemistry in the hunt for better drugs. Bioinformatics is essential for using genomic information to understand human diseases and identify new molecular targets for drug discovery. Bioinformatics harvest genetic information through use of specialized computer software programs for database creation, data management, data warehousing, data mining and global communications.

Bioinformatics can be defined as "The collecting, Archiving, Organization and Interpretation of Biological Data". Application of CS and informatics to biological and Drug Development science Bioinformatics is the field of science in which biology, computer science, and information technology merge to form a single discipline. The ultimate goal of the field is to enable the discovery of new biological insights as well as to create a global perspective from which unifying principles in biology can be discerned Bioinformatics can significantly reduce the overall time and cost of drug discovery process by reducing the hit and trials that are involved in the conventional drug discovery by, Identification of homolog's of functional proteins, Identification of targets by cross species examination, Visualization of molecular models, Docking, vHTS, QSAR, Pharmacophore mapping.

Safety and Toxicity Concerns of Nanopharmaceuticals

Dr. Hetal Thakkar
Assistant Professor
M. S. University, Baroda

BIODATA

Dr. Hetal Thakkar is Asst. Prof. at Faculty of Pharmacy, The Maharaja Sayajirao University of Baroda. She has completed her Ph.D. from the same department. She has more than 3 years of industrial and more than 11 years of academic experience. In her academic career, she has guided 27 M. Pharm. students and presently guiding 5 Ph.D. and 3 M. Pharm. Students. Her research thrust area includes development of new drug delivery systems for oral, transdermal, ocular, nasal, pulmonary and vaginal route to overcome the current limitations and improve safety, efficacy and stability of the formulations. She has filed 2 patents, published 32 papers in various national & international peer reviewed journals and delivered 23 presentations at scientific conferences. She has received 'Career Award for Young Teachers-2010' from AICTE under which Rs. 10.5 lakhs were granted to explore transdermal route for delivery of anti-HIV agents. She has also granted with Rs. 14.62 lakhs from UGC to undertake a major research project entitled 'Development of formulation for uterine targeting of drugs via vaginal route'. She has received 'Prof. M. L. Khorana Memorial Best Paper Award-2013' from Indian Pharmaceutical Association. She has undertaken training in reputed organizations or institutions like INMAS, Mercer University, Atlanta, USA and Queen's University, Belfast, UK. Dr. Thakkar is a life member of several professional bodies including Indian Pharmaceutical Association, Association of Pharmaceutical Teachers of India (APTI), MSU Pharmacy Alumni association, LMCP Alumni association etc. She is a reviewer in many national & international journals of repute.

ABSTRACT

Nanocarriers such as polymeric and lipid nanoparticles are increasingly used in pharmaceutical formulations because of their ability to i) enhance the stability of the drug ii) increase the bioavailability iii) control the release rate iv) provide site specific drug release. However, because of the drastic change in the polymer characteristics at nano scale, these nanocarriers carry the risk of causing toxicity. The products containing nanocarriers used topically such as creams, lotions, and even medical textiles suffer from the risk of being absorbed in the body. Their low clearance results in their accumulation in the body causing serious side effects. One of the important issues with the use of nanocarriers is the environmental toxicity caused by them during manufacturing, use by the patient and ultimately when they are excreted out of the patient's body. They are reported to cause serious environmental hazards as they remain suspended in the atmosphere for prolonged periods and are inhaled by humans and animals. They also harm flora and fauna thereby affecting the ecological balance. Toxicity issues of nanopharmaceuticals need to be addressed seriously at formulation development stage in order to provide an effective therapy, which is safe, both for the user as well as the environment.

Voicing PLCM: Strategic Perspectives in Pharma environment

Mr. Swagat Tripathi
Project Manager,
Cipla Ltd., Mumbai

BIODATA

Mr. Tripathy is currently working as a Project Manager at Cipla. In his recent assignment, he has been engaged in strategic affairs and building/monitoring Company's portfolio basket. He has presented several papers in national and international forums as a speaker, which has been well-received and highly acclaimed. In past, he held positions in Ipca, Apotex and Ranbaxy. He is a recognized expert in Pharma - BD, DRA, strategic and PM area. He is also associated with number of journals and pharma colleges as as editors, visiting faculty and adviser. He earned his business degree from XIMB, M. Pharm. from Utkal University and diploma in IPR from Indian Law Institute.

ABSTRACT

In recent years, the pharmaceutical industry has witnessed rising pressure due to expiry of blockbuster patents, short drug lifecycles, increasing development costs, stringent expectations of regulatory authorities, scattering markets, increased competition and last but not least need for latest technologies. Therefore, the pharmaceutical industry should essentially integrate product life cycle management (PLCM) onto business model. PLCM can be defined as a strategic approach for creating and managing individual company's product-related intellectual capital starting from its initial conception to retirement. It is the sequencing of strategies as the product passes through its lifecycle to make the most of a product's lifetime value, enhance product development processes, use detailed information to make improved business judgements, and most importantly bringing superior value to customers. Effective PLCM plan is a methodology and necessitates information from all CFTs, to name few - an exploration of intellectual property, regulatory, product features and benefits, competitors and their product offerings landscape, and a clear understanding of company's capabilities in terms of R&D, scaling up, manufacturing sales/distribution etc. A pharmaceutical product's life is always complex one and can be described in five distinct phases- development phase, approval phase, introduction phase, commercialization & quality management phase and decline phase. The strategies are generally coupled with regulations, so the choice of strategy may vary on country to country. So, let's take the journey by lensing through various scope of PLCM strategies in so called challenging Pharma environment.

Challenges in Drug Discovery: Anti-Convulsant Agents Via Green Chemistry

Dr. Anna Pratima G. Nikalje

Professor

Y. B. Chavan College of Pharmacy, Aurangabad

BIODATA

Dr. Anna Pratima Nikalje, has 26 years of teaching experience and currently is Professor & Head, Dept. of Pharmaceutical Chemistry at Y.B. Chavan College of Pharmacy, Aurangabad. She is Ph.D. (Chemistry), Post-doctoral Research Excellence at University of Santiago de Compostela, Spain and also P.G. Diploma IPR Law. She has published 81 International Research, published Complete Patent, Guided 30 M. Pharm and 7 Ph. D. students. She has many academic and research awards to her credit such as ERASMUS PEIN Research Excellence Award at University of Santiago de Compostela, Spain, Dr. R.V. Patel Innovative M. Pharm Thesis Award, Dr. P.D. Sethi Best Research Paper, Award of Scholarship of 500 Euro at International Symposium HPLC 2007, Belgium and many Best Paper presentation awards. She has received Major Research Grant of Rs. 9,09507 from UGC 2011. She is invited as visiting Professor for collaborative research and teaching at various European and US Universities such as Technishe University, Berlin, Northeastern University-USA, University of Santiago de Compostela-Spain, University College Dublin- Ireland and Vilnius University, Lithuania. She is Trainer of teachers of UGC -Capacity building program for women managers in higher education.

ABSTRACT

Epilepsy is ubiquitous neurological disorder characterized by recurrent attack of seizures due to continuous firing threshold of neurons from cerebral origin, manifested as brief episodes of loss of consciousness. Currently available first generation anticonvulsant agents like phenytoin, ethosuximide, benzodiazepines exhibits an unwanted side effect profile and failure to adequately control seizures. These findings demand for the development of more effective and reliable anticonvulsant drugs. In view of this, my research team has contributed towards the synthesis of various novel and more potent anticonvulsant agents using Green chemistry tools:

i)The combined use of ultrasonic energy and molecular sieves was investigated for synthesis of 3-(5-substituted-1, 3, 4-thiadiazol-2-ylimino) indolin-2-one derivatives. ii) Two series of novel indolyl thiazolidin-4-one derivatives 4a–j and 5a–j were obtained by an eco-friendly synthetic protocol by treating a mixture of Schiff's bases with thioglycolic acid or thiolactic acid and anhydrous zinc chloride in catalytic amount in DMF as solvent under ultrasound irradiation, using an ultrasound synthesizer with a synthetic solid probe. iii) A series of 2-(substituted-phenyl)-3-(2-oxoindolin-3-ylidene) amino)-thiazolidin-4-one derivatives were designed and synthesized under microwave irradiation, using an eco-friendly, efficient, microwave-assisted synthetic protocol. iv) A series of N-(2-oxo-2((4-oxo-2-substituted thiazolidin-3yl)amino)ethyl) benzamide derivatives under microwave irradiation was designed and synthesized v) Novel series of 2-(1,3-dioxoisoindolin-2-yl)-N-(4-oxo-2-substitutedthiazolidin-3-yl) acetamide derivatives were designed and synthesized using appropriate synthetic route, keeping in view the structural requirement of pharmacophore and evaluated for anticonvulsant activity and CNS depressant activities in mice. vi) A series of novel N1-substituted-N2,N2-diphenyl oxalamides were synthesized in good yield .

About Ahmedabad

Ahmedabad, one of the liveliest cities in India and one of the major industrial centers in India, had often been called the 'Manchester of the East'. Ahmedabad is the largest city in Gujarat with a population of about 5 million. The city has developed itself into a leading industrial centre and has become economic capital of Gujarat. Ahmedabad offers something to celebrate all year round that ranges from celebrations of 'Deepawali', 'Navratri' and 'Kite Festival'. The city has many places to visit, like Science City, Akshardham Temple, Gandhi Ashram, Adalaj Vav (step well) etc. The weather of Ahmedabad is very pleasant during the month of January.

Acknowledgements

Department of Biotechnology
Ministry of Science & Technology,
Government of India

- Aculife Healthcare Ltd. (Formerly Nirlife), Ahmedabad (Platinum Sponsor)
- BAN Labs Ltd., Rajkot (Conference Kit Bag Sponsor)
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- Mehta Sales Corporate, Ahmedabad
- Troikaa Pharmaceuticals Ltd., Ahmedabad
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- Greenchem Ltd., Banglore
- Lab Intelligence Appliances (LIA), Ahmedabad
- MP Biomedicals India Pvt. Ltd.
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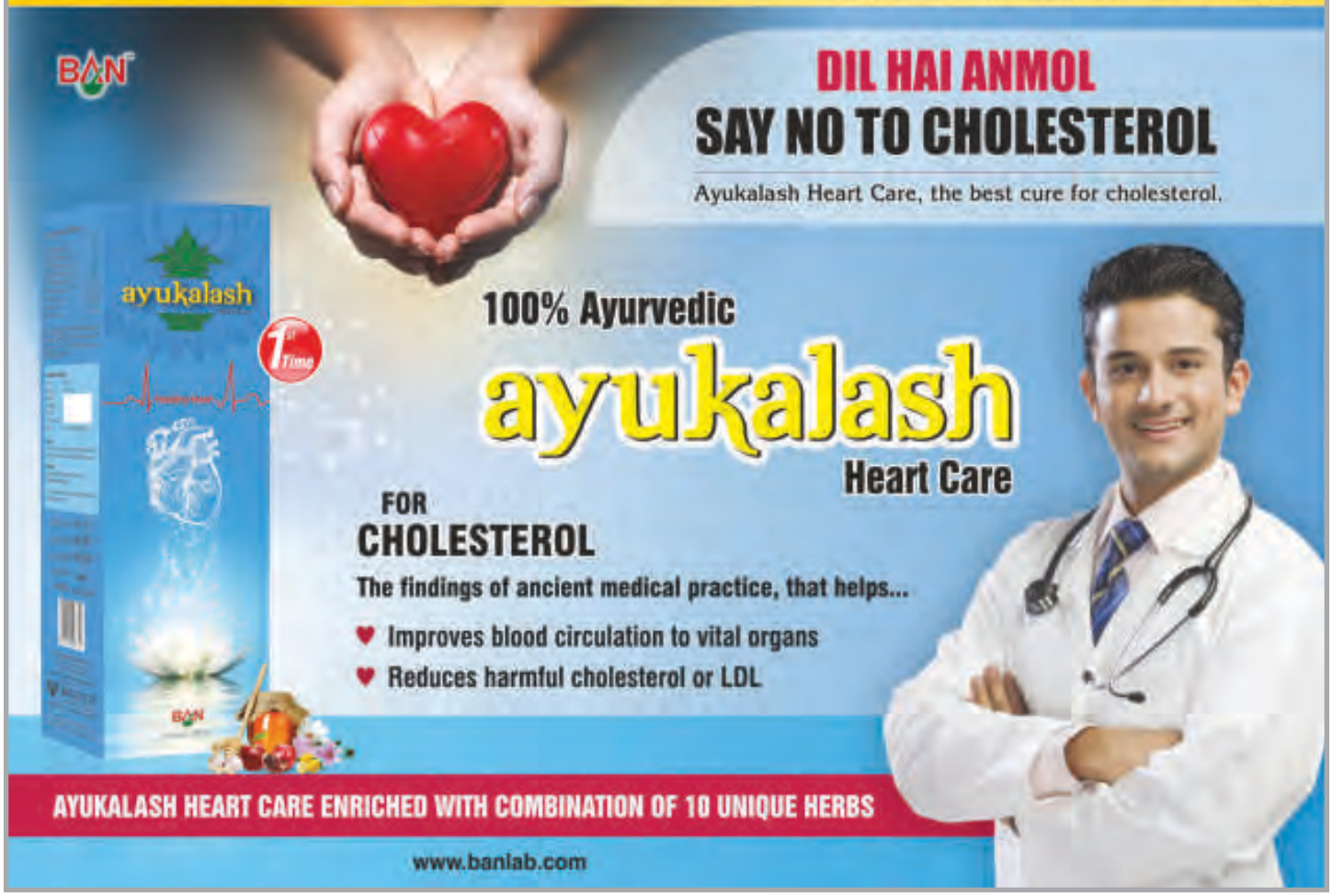
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