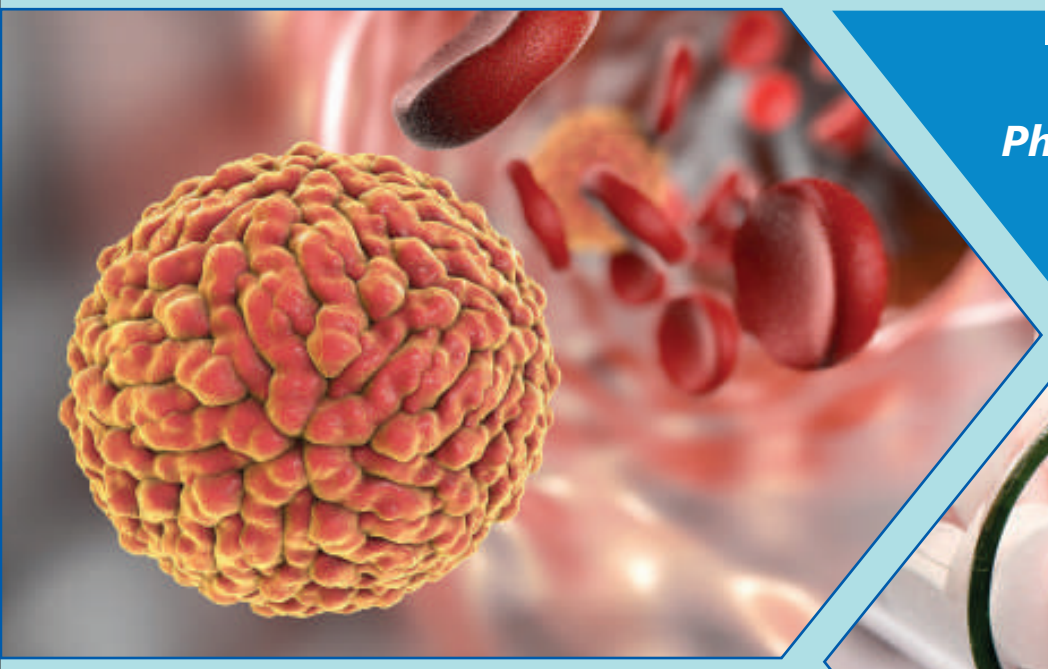
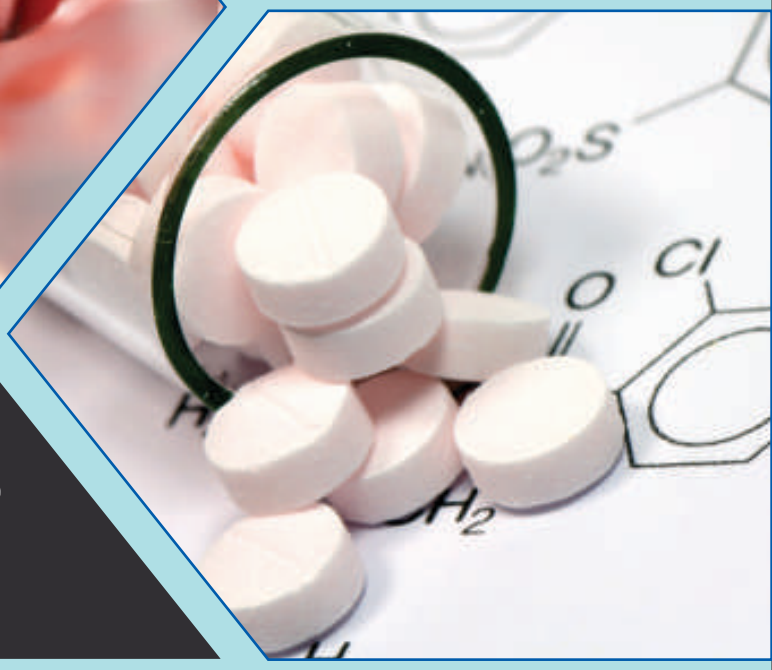
NIRMA UNIVERSITY

INSTITUTE OF PHARMACY

NAAC ACCREDITED 'A' GRADE

"Innovation in Pharmaceutical Research by Interdisciplinary Approach"





NIPiCON-2018

4th Nirma Institute of Pharmacy International Conference

January 23-25, 2018

Souvenir

Organized by

Institute of Pharmacy, Nirma University

S. G. Highway, Ahmedabad - 382481, Gujarat, INDIA

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OUR MOTTO

From darkness, lead me to light

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.

N. Yuvaraj, IAS
Private Secretary
To The Vice-President of India
New Delhi

N. YUVARAJ, IAS

भारत के उप-राष्ट्रपति के निजी सचिव
PRIVATE SECRETARY
TO THE VICE-PRESIDENT OF INDIA
नई दिल्ली/NEW DELHI - 110011
TEL.: 23016344 / 23016422 FAX : 23018124

nyuvarajias@gmail.com / n.yuvaraj36@ias.nic.in

29th August, 2017

Dear Prof. Manjunath Ghate,

It is to acknowledge with thanks the receipt of your letter dated 24th August, 2017 requesting message from Hon'ble Vice President of India for organizing the 4th Nirma Institute of Pharmacy International Conference (NIPiCON) 2018 from January 23 – 25, 2018.

The Hon'ble Vice President conveys his best wishes for the success of the event.

With regards,

Yours sincerely,

29/8/2017

(N. YUVARAJ)

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

Shri Vijay Rupani
Chief Minister of Gujarat

Vijay Rupani
Chief Minister, Gujarat State

apeo/Im/2017/1618/dt

Dt. 18/11/2017

MESSAGE

Health has prime importance in human life as well as the wellness of the psychological balance and social life. The Indian traditions and wisdom has always advocated that the sutra of **"Health is the Wealth"**. We all are very well aware of the fact that the Indian Culture has among the most ancient science of Pharmacy in form of Ayurveda.

I am much pleased to learn that the **Institute of Pharmacy, Nirma University** is organizing **4th Nirma Institute of Pharmacy International Conference (NIPiCON 2018)** at Ahmedabad during **23rd** to **25th January 2018**. I hereby, extend my best wishes to the **NIPiCON-2018** and the Nirma University for the grand success of the event. I am sure the Conference will be instrumental in bringing out new thoughts, researches and inventions in the field of Pharmacy.

(Vijay Rupani)

To,
Prof. Manjunath D. Ghate, *Director*
Institute of Pharmacy,
Nirma University,
Sarkhej-Gandhinagar Highway,
Ahmedabad– 382481.
Email: director.ip@nirmauni.ac.in

Shri Nitinbhai Patel
Dy. Chief Minister of Gujarat

NITIN PATEL
Deputy Chief Minister,
Gujarat State

No. : Finance/R.&B./H.&F.W./M.E./N.,K./C.P.
57/008/18

Finance, Roads and Building,
Health and Family Welfare,
Medical Education,
Narmada, Kalpasar,
Capital Project
Government of Gujarat,
Swarnim Sankul-1, 2nd Floor,
Sardar Bhavan, Sachivalaya,
Gandhinagar-382010
Date : 04.01.2018

Message

I am pleased to know about the organization of the 4th Nirma Institute of Pharmacy International Conference (NIPiCON) 2018 on "Innovation in Pharmaceutical Research by Interdisciplinary Approach" on January, 23-25, 2018 by Institute of Pharmacy, Nirma University.

Interdisciplinary approach in any research is the need of the hour. A conference wherein all the academicians, researchers, students can come together and discuss the various issues and its solution by interdisciplinary approach can really help resolve several issues in pharmaceutical industry.

I extend my warm regards to the Institute of Pharmacy for organizing such a conference. I wish a success to this event.

NRPatel

(Nitin Patel)

To,
Prof. Priti Mehta,
Organizing Secretary, NIPiCON-2018,
Institute of Pharmacy, Nirma University,
S.G. Highway, Ahmedabad-81

Resi. : Minister's Bunglows No. 20, Sector-20, Gandhinagar-382020
Ph. : 23259706, 23232491, 23221891 **Vidhansabha** : 079-23253194/23251058
Office : 079-23250106 to 23250110, 23238072-23248007, Fax : 079-23257616
E-mail : deputycmguj@gujarat.gov.in, nitinpateldycm@gmail.com

Prof. B. Suresh
Vice-Chancellor, JSS University
Mysuru

PHARMACY COUNCIL OF INDIA

(Constituted under the Pharmacy Act,1948)

Prof. B. Suresh M.Pharm., Ph.D., D.Sc.
President

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P.B. No. 7020, New Delhi-110 002
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Vice-Chancellor, JSS University
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sureshbhoraj@gmail.com
sureshjssuni@hotmail.com
www.jssuni.edu.in

September 04, 2017

MESSAGE

It is indeed a matter of pleasure that Nirma Institute of Pharmacy, is organizing 4th Nirma Institute of International conference NIPICON -2018 with the theme of "Innovation in Pharmaceutical Research by Interdisciplinary Approach" from January 23-25, 2018.

Pharmaceutical Innovation is a creative process that helps in the application of knowledge and creativity for discovering and developing new medicinal products that generate improvement in patient's health. I am sure that interdisciplinary approach in pharmaceutical research will resolve real health care problems and can give a different perspective to research area to the complex problems in pharmaceutical field.

I take this opportunity to wish the conference a grand success.

With best wishes,

Dr. B. Suresh

Prof. Ashutosh Sharma
Secretary,
Dept. of Science and Technology,
Govt. of India

सचिव
भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
Secretary
Government of India
Ministry of Science and Technology
Department of Science and Technology

प्रो. आशुतोष शर्मा
Prof. Ashutosh Sharma

4th September 2017

Message

I am happy to learn that Institute of Pharmacy, Nirma University is organizing 4th Nirma Institute of Pharmacy International Conference on *"Innovation in Pharmaceutical Research by Interdisciplinary Approach"* from January 23-25, 2018.

The theme chosen for the conference is very apt in the current scenario. Interdisciplinary approach in pharmaceutical research can resolve real health care problems, give a different perspective to research area and provide answers to complex problems of pharmaceutical field. I hope this kind of conference would be able to bring young researchers from different disciplines on one platform promoting interdisciplinary research which can translate it to the market.

Thus, organizing conferences with such a theme will certainly help in increasing the skills for applications of science amongst the young flourishing minds and promote scientific temper in 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 – NIPiCON 2018.

(Ashutosh Sharma)

Technology Bhavan, New Mehrauli Road, New Delhi - 110016
Tel: 00 91 11 26511439 / 26510068 • Fax: 00 91 11 26863847 • E-mail: dstsec@nic.in • website: www.dst.gov.in

Dr. Narottam Sahoo
Advisor & Member Secretary
GUJCOST, Gujarat

GUJARAT COUNCIL ON SCIENCE AND TECHNOLOGY

Department of Science & Technology, Government of Gujarat
Block: B, 7th Floor, M.S. Building, Nr.Pathikashram, Sector-11,
Gandhinagar, Gujarat - 382011.
Phone : (079) 23259362-65 Fax : (079) 23259363
E-mail : info-gujcost@gujarat.gov.in
URL : www.gujcost.gujarat.gov.in

Dr. Narottam Sahoo
Advisor & Member Secretary

GUJCOST/R&D/2017- 1606 21st November 2017

MESSAGE

I am delighted to know that the Institute of Pharmacy, Nirma University is organizing the 4th Nirma Institute of International Conference (NIPiCON) 2018 on "Innovation in Pharmaceutical Research by Interdisciplinary Approach" during January 23-25, 2018.

Pharmaceutical Sciences is a dynamic and interdisciplinary field that aims to integrate fundamental principles of physical and organic chemistry, engineering, biochemistry, and biology to understand how to optimize delivery of drugs to the body and translate this integrated understanding into new and improved therapies against human disease.

Engaging students and helping them to develop knowledge, insights, problem solving skills, self-confidence, self-efficacy, and a passion for learning are common goals that educators bring to the classroom, by interdisciplinary approach and exploration.

The theme of the conference is of great relevance in today's era of knowledge sharing and collaboration. It recognizes the importance of pharmaceutical innovation and its importance in improving health and quality of life, which in turn drives progress in society.

I have every hope that 4th NIPiCON will provide a wonderful platform for scientific presentations and discussions on the innovative approach and methodologies in this emerging field of future. It will engage and encourage for greater partnership and cooperation between researchers, academicians and professionals in pharmaceutical education, research and innovation.

I wish 4th NIPiCON a grand success.

(Narottam Sahoo)

Dr. H. G. Koshia
Commissioner
FDCA, Gujarat

Office of the Commissione
Food & Drugs Control Admn
Block No.8, 1st floor
Jivraj Mehta Bhavan
Gandhinagar-382 010
Gujarat State
Phone No.079-23253417
Date:- 12/01/2018

Dr.H.G.KOSHIA
Commissioner

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

MESSAGE

I am extremely glad to learn the organization of 4th Nirma Institute of Pharmacy International Conference (NIPiCON-2018) on *"Innovation in Pharmaceutical Research by Interdisciplinary Approach"* from January 23-25, 2018 by Institute of Pharmacy, Nirma University.

Interdisciplinary approach is an apt theme at the present time which can improve the research stature of our country. Being associated with the regulatory agencies, I am aware of several aspects of research on a molecule to be carried out before it can hit the market. We truly face a dearth of interdisciplinary research in pharmaceutical sciences and the steps taken by Institute of Pharmacy, Nirma University is really commendable. This conference will surely give a great platform to all the young researchers to ignite their minds in line of interdisciplinary approach and take their respective research to new heights.

I extend my warm greetings and felicitations for the occasion. I wish all the best to the entire team for the success of the event – NIPiCON-2018.

Dr. H.G. Koshia
Commissioner, FDCA
Government of Gujarat

Dr. Karsanbhai K. Patel
President
Nirma University

NIRMA UNIVERSITY
NAAC ACCREDITED 'A' GRADE

Dr. Karsanbhai K. Patel
President

MESSAGE

I am extremely pleased to know about the organization of 4th Nirma Institute of Pharmacy International Conference (NIPiCON – 2018) with the theme of "*Innovation in Pharmaceutical Research by Interdisciplinary Approach*" from January 23-25, 2018 by Institute of Pharmacy, Nirma University.

The theme of the conference is very apt in today's scenario. To sustain and nurture innovation and translational research, interdisciplinary approach is the key. The horizons are broadening and a co-ordinated approach among all the departments of a pharmaceutical company to develop a novel drug. I truly wish that this conference will help in contending the knowledge of researchers, scientists and healthcare professionals and lead to the betterment of the healthcare sector.

I heartily congratulate the organizing committee of NIPiCON 2018 from Institute of Pharmacy, Nirma University for organizing such event and wish them a grand success for the conference.

Dr. Karsanbhai K. Patel
President
Nirma University

Shri K. K. Patel
Vice-President,
Nirma University

K. K. Patel
Vice President

NIRMA UNIVERSITY
NAAC ACCREDITED 'A' GRADE

MESSAGE

It is a moment of pride and pleasure to know about the organization of 4th Nirma Institute of Pharmacy International Conference (NIPiCON – 2018) with the theme of "*Innovation in Pharmaceutical Research by Interdisciplinary Approach*" from January 23-25, 2018 by Institute of Pharmacy, Nirma University.

Interdisciplinary work ethics promotes and drives innovation and ideas in internationally relevant areas of research. Interdisciplinary research is an approach, not an end. It arises out of challenge in response to a problem which cannot be solved by a single discipline. This having a conference on this theme satisfies the need of the hour. I am delighted to welcome the international and national speakers, presenters, delegates from various research groups across the world to join and interact on this wonderful platform provided by Institute of Pharmacy, Nirma University.

We look forward to an exciting tenure of insightful presentations, discussions, and sharing of technical ideas with colleagues from around the world. We hope that you enjoy your visit to vibrant campus of Nirma University located at the India's first world heritage city, Ahmedabad. 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.

Shri K.K. Patel
Vice-President
Nirma University

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Email: vp@nirmauni.ac.in Website: www.nirmauni.ac.in

Dr. Anup K. Singh
Director General
Nirma University

Dr. Anup K. Singh
Director General

NIRMA UNIVERSITY
NAAC ACCREDITED 'A' GRADE

MESSAGE

I am pleased to welcome you to the 4th Nirma Institute of Pharmacy International Conference (NIPiCON – 2018) with the theme of "*Innovation in Pharmaceutical Research by Interdisciplinary Approach*" scheduled during January 23-25, 2018 by Institute of Pharmacy, Nirma University in the wonderful city of Ahmedabad, India's first world heritage city.

Over the years, NIPiCON has evolved to become a very significant international conference, dedicated to research in the pharmaceutical sector in our region. The great success of the previous conferences together with interaction with several international speakers confirms this. I am sure that NIPiCON 2018 will also become a unique opportunity for all the participants bringing all of the researchers, academicians, young pharmacists on one platform to address the health needs of the people. This conference focusses on both single disciplinary research and interdisciplinary work including translational approach.

I heartily congratulate Institute of Pharmacy for organizing such an event, which would certainly help uplift the research approaches carried at universities as well as the entire pharmaceutical community as a whole.

Anup K. Singh, Ph.D.

Nirma University
Sarkhej-Gandhinagar Highway, Ahmedabad 382 481, INDIA, Ph.: +91-02717-241900/01/02/03/04
Email: dg@nirmauni.ac.in, Website: www.nirmauni.ac.in

From the Desk of Organizers

We are extremely privileged and delighted to host the 4th Nirma Institute of Pharmacy International Conference on "Innovation in Pharmaceutical Research by Interdisciplinary Approach" from January 23-25, 2018 in the city of Ahmedabad, India's first world heritage city.

"The future of research is interdisciplinary and will quickly take us into areas that today we cannot even foresee" – Michael Tanner

Keeping the existing scenario of research in mind, the theme of this conference was kept onto interdisciplinary approach. Drug development process is a herculean task involving the knowledge from various disciplines to be combined so that the molecule is successful hit in the market. It is very true that great ideas emerge from interdisciplinary communication. We wish the conference will prove fruitful to all the delegates, budding scientists and industry personnel providing them an opportunity to interact with leading scientists across the globe. This interdisciplinary communication happening at this platform will certainly lead the research in the area of pharmaceutical sciences to a new level in our region and the globe as a whole. The conference has been planned to deliver the most recent advancements happening in the area of pharmaceutical development through scientific sessions that would benefit to the community and the country. The poster presentation will give an insight into the latest research being conducted by the budding scientists of today.

We are deeply thankful to all the national and international resource persons who have travelled far distance to participate and interact with the young researchers. This challenging and demanding task would not have been possible without the voyage travelled together by the advisory committee, organizing committee and our beloved student volunteers.

Such an event is not possible without the financial support. We are extremely thankful to Indian Council of Medical Research (ICMR), Gujarat State Biotechnology Mission (GSBTM) and Gujarat Council of Science and Technology (GUJCOST) for their generous support. Last but not the least, a conference is successful by the active participation of the delegates for which we thank them proudly. The organizing committee has left no stone unturned in terms of scientific excellence and warm hospitality to make your stay at our vibrant campus, memorable.

Your presence is the essence and makes a difference at Institute of Pharmacy, Nirma University, expecting your whole-heartedly participation.

Welcome to NIPICON 2018.

With warm regards,

Prof. Priti Mehta
Organizing Secretary,
NIPiCON - 2018

Prof. Manjunath D. Ghate
Convener
NIPiCON - 2018

CONTENTS

ABOUT NIRMA UNIVERSITY

Nirma University was established by the initiative of the NERF. The University was established in the year 2003 as a statutory university under a special act passed by the Gujarat State Legislative Assembly. It is recognized by the University Grants Commission (UGC) under Section 2 (f) of the UGC Act. The University is duly accredited by National Assessment and Accreditation Council (NAAC) with 'A' grade. The University is a member of Association of Indian Universities (AIU) and the Association of Commonwealth Universities (ACU).

Functioning under the aegis of NERF, the University consists of Faculty of Technology and Engineering, Faculty of Management, Faculty of Pharmacy, Faculty of Law, Faculty of Science, Faculty of Architecture & Planning, Faculty of Commerce and Faculty of Doctoral Studies and Research and Department of design.

Innovation, excellence, and quality are the driving forces on the campus and this has translated the vision of these institutions into a reality over a short period of time. Today the campus vibrates with not only world class curricular activities but also with myriad activities like international conventions, symposia, conferences, student competitions, conclaves, short-term industry relevant programs, cultural activities, etc.

The University is identified with cutting edge research, robust academic programmes, quality teaching learning process and over-all personality development interventions of its students. The 115 acres sprawling state of art campus provides refreshing environment and stimulates intellectual growth and creativity.

The university has been consistently ranked among the top 10 private universities in India. The university in the year 2015 has been recognized as among the leading Universities in the Country by India Today. In the year 2014, it has been ranked as the 6th best university among the top 25 universities in India by Higher Education Review and 3rd among the top private universities by The Week.

The University has been awarded under the category of 'Excellence in Technology for Education Delivery' during the FICCI Education Awards 2015, as a part of the Eleventh FICCI Higher Education Summit 2015 held during November 3-4, 2015 organized by FICCI in association with the Ministry of Human Resource Development, Government of India.

In addition to above the University has also been accorded recognition as Scientific and Industrial Research Organization by the Department of Scientific and Industrial Research, Department of Science and Technology, Government of India in 2014. As per National Institutional Ranking Framework (NIRF) in April 2017 ranking Nirma University ranked among 100 top universities of India.

ABOUT INSTITUTE OF PHARMACY

The 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. Institute of Pharmacy is a model centre of excellence in pharmacy, conducting various graduate, post graduate, full time and external doctoral and research programs in pharmaceutical sciences. The institute is poised to face global challenges of the pharmaceutical industry and education with the changed perspectives. The future pharmacists will be required to function, communicate and work effectively in multidisciplinary teams. Institute of Pharmacy was established with a view to promote excellence in Pharmaceutical education and to prepare generation next to meet the challenges in the area of pharmaceutical industries, education, research and development as well as marketing. Institute of Pharmacy is ranked 5th in 2016 and 16th in 2017 among best Pharmacy Institutions of the country by Ministry of Human Resource Development in its National Institutional Ranking Framework (NIRF) in April 2017.

OBJECTIVES :

1. To develop a centre of excellence in 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.

5. To undertake research projects sponsored by the government, various funding agencies 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)*
   a. Pharmaceutics
   b. Pharmacology
   c. Pharmaceutical Chemistry
   d. Regulatory Affairs
   e. Pharmaceutical Analysis
3. **Ph. D. in Pharmaceutical Sciences** (Full time & External)**

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

THE CAMPUS

The Institute of Pharmacy is situated on the sprawling 125 acre green campus of Nirma University. It has all the modern facilities like Sophisticated Instruments, State of the art Labs, Excellent Computing & IT infrastructure including latest software, Rich Library, canteen, playgrounds, indoor games and gymnasium. The campus provides an ambience that motivates the students to grow. The Institute building has modern amenities, with enough space and replenished with modernity and grandeur. The post graduate laboratories are independently developed for M.Pharm. and Ph.D. students. In addition the campus has sports facilities and the overall ambience is distinguishable by its serenity, which is conducive for intellectual pursuits.

CLASS ROOMS

The classrooms are spacious, ventilated and equipped with multimedia and audiovisual equipments to facilitate effective learning. The classrooms are designed to provide maximum interaction between the faculty and students.

COMPUTER CENTRE

The central computer facilities consist of 20+ servers and more than 1900 systems, which are interconnected by fiber optic cables and 256 Mbps, leased line internet connectivity. Computing facilities for students include a laboratory equipped with 24 computers for U.G. and 24 for P.G. to the Windows XP and Local Area Network. The institute also houses a language laboratory to improvise the students in languages & communication skills. The network also connects the faculty and staff for information sharing and communication. The students have an easy access to the internet. The faculties are also provided laptop and internet facilities. The Institute has the Wi-Fi facility also. The central computer facilities consist of 20+ servers and more than 1900 systems, which are interconnected by fiber optic cables and 256 Mbps, leased line internet connectivity.

LEARNING RESOURCES CENTRE (LIBRARY)

At Institute of Pharmacy, it is a belief to facilitate production and dissemination of knowledge, information, insights & intellect in all scientific communities. The Library 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.

The Library at Institute of Pharmacy houses more than 8,829 volumes of books selectively chosen for reading and reference, 358 CDs, 1,703 Bound Volumes, 652 Project Reports (B.Pharm), 436 Research Project Reports (M.Pharm), 50 PhD Theses and subscribes about 26 printed national, 3 international periodicals, 16 magazines and 9 newspapers. Library is also providing Web access to 113 e- journals: Science Direct: Pharmacology, Toxicology and Pharmaceutical Sciences Module (89), Bentham Science Publisher (23) and Pharmacological Review (1). Library also provides remote log-In facility to access e-resource 24×7 off campus.

SOPHISTICATED INSTRUMENTS LABORATORY

The Institute has modern instruments like High Pressure Homogenizer, Particle Size Analyzer and Zeta Potential Analyzer, Lyophilizer, FT-IR, Fluorescence Spectrometer, Super Critical Fluid Chromatography, UV-Spectrophotometer, HPLC Binary Gradient with PDA Detector, HPLC with Autosampler Quaternary Gradient, GC, Supercritical Fluid Chromatography and Extraction, HPTLC, PCR, Gel documentation system, data acquisition system and Raman Spectrophotometer which provide analysis comprising elemental composition, chromatography, diffraction, particle/ material characteristics. The laboratory provides analytical support and intellectual input to both in-house and externally funded R & D projects.

MACHINE ROOM

The machine room is equipped with Rotary Tablet Machine, Fluidized Bed Drier cum Coater, Digital Tension Meter, Texture Analyzer, Mini Spray Dryer, Freeze dryer, Automated Dissolution Apparatus etc. The laboratory provides facilities to carry out extensive research and consultancy for pharmaceutical industries.

ANIMAL HOUSE

The Institute has state-of-art Animal House facility registered by CPCSEA, Government of India. It provides pre-clinical testing in conformity with national and international regulatory guidelines (Schedule Y, GLP and OECD). The animal house facilitates the availability of healthy and homogeneous animals for U.G. and P.G. studies and for research / outsourced testing. An incinerator is also available at the Animal House.

NIRMA HERBAL WEALTH

A medicinal plants garden, covering a total area of 3556 sq. meters has been developed at the University campus. More than 150 genus of various medicinal plants have already been planted. The medicinal plants garden provides a strong impetus for herbal drug research and for the training of the students of the Institute.

RESEARCH LABORATORY

A fully dedicated research laboratory helps the faculty members & research scholars to undertake research projects as well as to carry out doctoral research work in the areas of dosage form design, stability studies, phytochemistry, pharmacological screening, synthetic and analytical chemistry and bio-Pharmaceutics.

DRUG DISCOVERY LAB

The Institute has a separate Drug Discovery Laboratory equipped with necessary computational facilities. It possesses seven workstations (computers) with latest configurations. It also possesses molecular modeling software like SybylX1.3 and Gold Suite 5.1. The students are trained on these softwares for docking, pharmacophore modelling and QSAR studies 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), CSIR, ICMR, UGC, DST, AYUSH, GUJCOST, GSBTM, DBT, SAC-ISRO, FIST and BRNS. 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, women scientist fellowsip 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, INSA and CSIR in organizing various workshops, conferences and symposia of national and international level on recent advances in pharmaceutical sciences.

COLLABORATION WITH RESEARCH INSTITUTIONS

The University, recognizing research as the main drive of success in an academic setting, has established a distinct Faculty of Doctoral Studies and Research to initiate research programmes independently or in collaboration with National Laboratories that have the potential in terms of infrastructure and expertise. As a beginning such collaboration exists with institutions like-

- Piramal Drug Development Services Ltd., Ahmedabad
- Plovdiv University, Bulgaria
- Physical Research Laboratory (PRL), Ahmedabad
- B. V. Patel Pharmaceutical Education and Research Centre, Ahmedabad
- Cadila Pharmaceutical Research Centre, Ahmedabad
- Intas Pharmaceuticals Ltd., Ahmedabad
- Directorate of Forensic Science, Government of Gujarat
- Space Application Centre (ISRO), Ahmedabad
- Ayurlab Herbal Pvt. Ltd., Vadodara
- Appollo Hospitals International Ltd., Ahmedabad
- CII (Confederation of Indian Industry), Ahmedabad
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SCIENTIFIC SCHEDULE OF NIPICON-2018 AT A GLANCE

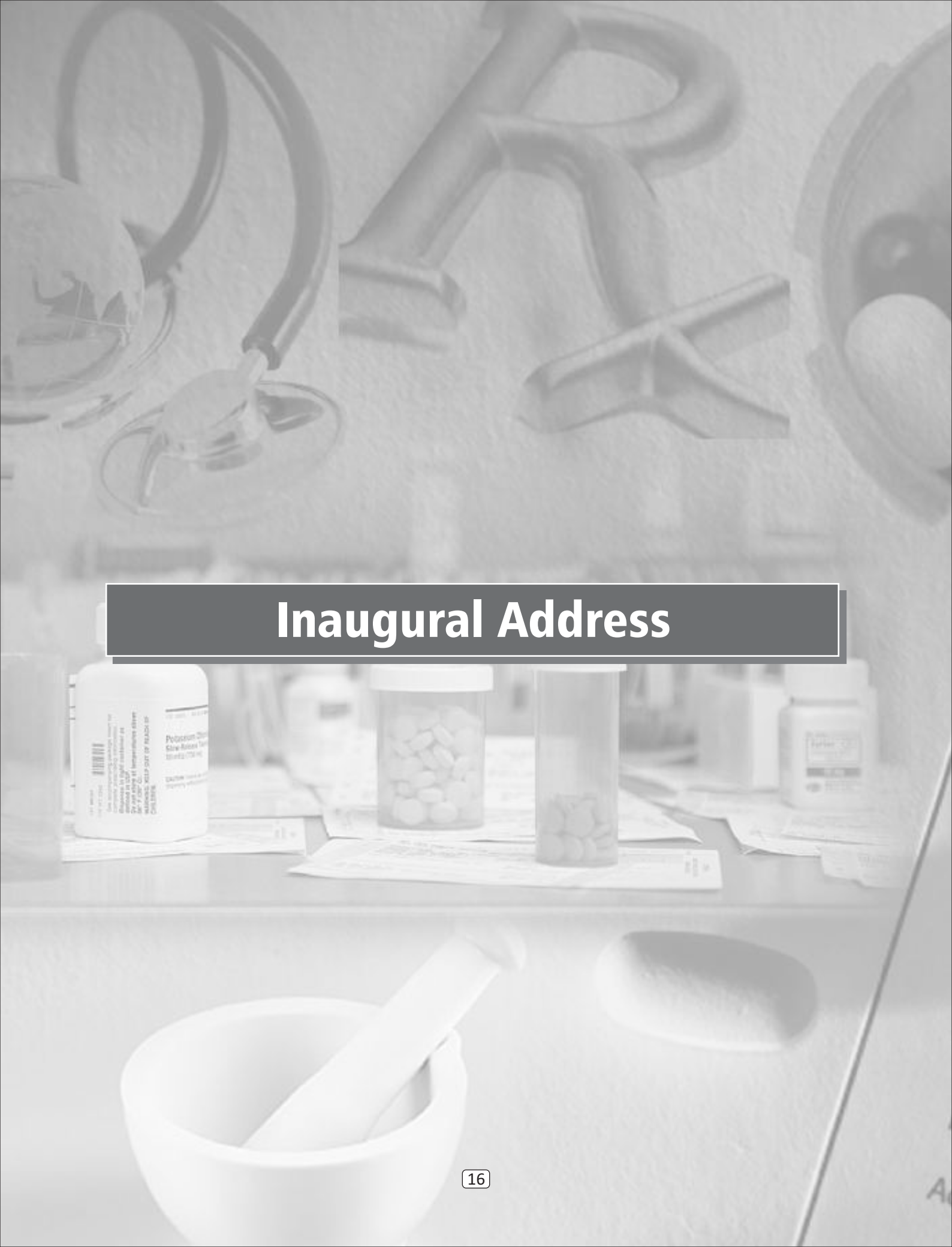
Theme: Innovation in Pharmaceutical Research by Interdisciplinary Approach

23rd to 25th January, 2018

DAY 1: JANUARY 23, 2018 (Tuesday)		
8:45 to 10:00	**Registration and Breakfast**	
10:00 to 10:45	**Dr. Sabu Thomas** Mahatma Gandhi University, Kottayam, Kerala	**Title:** Development of Polymer Nanocomposite Scaffolds for Tissue Engineering
11:00 to 12:45	**INAUGURATION**	
	Inaugural Address : Dr. Daniel G. Miller Excorp Medical International Pte Ltd, Singapore **Title:** Essential Concepts for Clinical Trial Design in Regenerative Medicine	
12:45 to 13:45	**LUNCH BREAK** Venue: Lawn, Institute of Management	
13:45 to 14:30	**Dr. Anamik Shah** Gujarat Vidyapith, Ahmedabad	**Title:** Synthesis & Development of New Antitubercular Agents : An overview
14:30 to 15:15	**Dr. Bhushan Patwardhan** Interdisciplinary School of Health Sciences, Savitribai Phule Pune University, Pune	**Title:** Interdisciplinary Research Approach for Evidence based Ayurveda
15:15 to 16:00	**Dr. Nikolaos G. Kostopoulos** Holistic Health Centre, Athens, Greece	**Title:** Management of Chronic pain through thermal cautery (Agnikarma): A model of interdisciplinary approach to innovation in modern research
16:00 to 16:15	**TEA BREAK**	
	Venue: Auditorium, IM,NU	**Venue: Seminar hall, IP,NU**
16:15 to 16:45	**Dr. Mukul Jain** Zydus Research Centre, Ahmedabad **Title:** awaited	**Dr. Lal Hingorani** Pharmanza Herbal Pvt Ltd, Dharmaj **Title:** Anti-Aging, Longevity, Vayasthapana Mahakashya
16:45 to 17:15	**Dr. Jyoti Paliwal** PhaEx, Ahmedabad **Title:** Drug Discovery Efforts of India: Retrospective Analysis	**Dr. Shivprakash** Synchron Research Services Pvt. Ltd., Ahmedabad **Title:** Reactive Oxygen species progression inhibitor (rospi) as a new drug target: α12-a plant based enriched compound in various disease models
17:15 to 18:00	**Dr. Balwantsinh Chauhan,** Roosevelt University, USA **Title:** Current perspectives on 'personalized medicine'-a long way to go (Part-I)	
18:00 to 19:00	**CULTURAL PROGRAMME**	
19:00 onwards	**GALA DINNER**	

DAY 2: JANUARY 24, 2018 (Wednesday)		
8:45 to 9:30	**BREAKFAST**	
9:30 to 10:15	**Dr. Balwantsinh Chauhan** Roosevelt University, USA -Part-II	**Title:** Current perspectives on 'personalized medicine'-a long way to go (Part-II)
10:15 to 11:00	**Prof. Sunil Jambhekar** LECOM School of Pharmacy, Bradenton, Florida, USA	**Title:** In vitro In Vivo Correlations and its Utility in Biowaivers
11:00 to 11:15	**TEA BREAK**	
11:15 to 11:45	**Dr. Neelima Chauhan** Department of Pediatrics, University of Illinois, USA	**Title:** Theranostic Potential of Curcumin in AD
11:45 to 12:15	**Dr. Ajay Khopade** Sun Pharma Advanced Research Company Ltd, Vadodara	Title: Ultrathin Capsules-multidisciplinary extension to the material science concept
	Venue: Auditorium, IM,NU	**Venue: Seminar hall, IP,NU**
12:15 to 12:45	**Dr. Kiran Marthak** Lambda Therapeutic Research Limited, Ahmedabad **Title:** Medical ethics in research	**Dr. Bhaswat Chakraborty** R & D Cadila Pharmaceuticals Ltd., Ahmedabad **Title:** Interdisciplinary approach for evaluation of new drug application in developed countries
12:45 to 13:15	**Dr. S. V. Gopalakrishnan** Zydus Cadila, Ahmedabad **Title:** Changing trends in pharmaceutical industry from regulatory perspective	**Dr. Prabhudas Patel** Department of Cancer Biology, Gujarat Cancer & Research Institute, Ahmedabad **Title:** Molecular Basis of Oral Cancer: Focusing on Invasion and Metastasis
13:15 to 14:15	**LUNCH BREAK**	
14:15 to 14:45	**Dr. Manoj Mishra** Cancer Biology research and Training, Alabama State University, Montgomery, AL, USA	**Title:** Role of immune cells in prostate cancer development and clearance
14:45 to 15:15	**Dr. Harish Padh** Sardar Patel University, Vallabh Vidyanagar	**Title:** Optimization of therapeutic outcome through pharmacogenetics in Indian population
15:15 to 15:45	**Dr. Maya Nair** UNT Health Science Center, Fort Worth, Texas, USA	**Title:** Inducing the Response of Standard Care in Cancer Treatment: Emphasis on Pediatric and Adolescent and Young Adult Cancers
15:15 to 15:45	**TEA BREAK**	
15:45 to 17:45	**POSTER PRESENTATION** Venue: Institute of Pharmacy **Tracks:** Pharmaceutical Technology, Biotechnology & Nanotechnology Natural Products & Herbal Technology Computer Aided Drug Design & Pharmaceutical Chemistry	

DAY 3: JANUARY 25, 2018 (Thurssday)		
8:45 to 9:30	**BREAKFAST**	
	Venue: Auditorium, IM, NU	**Venue: Seminar Hall, IP,NU**
9:30 to 10:00	**Dr. Bipin pandey** Center of Excellence, Saurashtra University, Rajkot **Title:** Saroglitazar - A CMC (Chemistry, Manufacturing and Control) Perspective	**Dr. Manish Nivsarkar** B.V. Patel PERD Centre, Ahmedabad **Title:** Berberine based targeted delivery for the treatment of hepatic fibrosis
10:00 to 10:30	**Dr. M.T.Chhabria** L.M. College of Pharmacy, Ahmedabad **Title:** Autophagy inducers or inhibitors as novel therapeutic targets	**Dr. Rakesh Raval** Department of Life Sciences, Gujarat University, Ahmedabad **Title:** NutrimiRomics: Cross-kingdom regulation beyond phyto-pharmaceuticals
10:30 to 11:00	**Dr. Shivpriya Kirubakaran** Chemistry & Bioengineering, IIT-Gandhinagar, Palaj **Title:** DDR-Kinases: Targeted therapy towards cancer	**Dr. Nina Sharma** Shamisha Resources Management, Ahmedabad **Title:** Interdisciplinary approach in successful Tech transfer of Pharmaceutical Dosage forms challenges, Risks and opportunities
11:00 to 13:00	**POSTER PRESENTATION** **Venue: Institute of Pharmacy** **Tracks** Pharmaceutical Analysis & Quality Assurance Regulatory Affairs & Intellectual Property Rights Medical Devices and related technology Pharmacology, Clinical Pharmacy, Pharmacovigilance & Pharmacy Practice	
13:00 to 14:00	**LUNCH BREAK**	
14:00 to 14:30	**Dr. Vijay Raina** Nektar Therapeutics, Hyderabad	**Title:** Role of Bio-Analytics in Drug Development
14:30 to 15:00	**Dr. Nandakumar Kalarikkal** School of Pure and Applied Physics Mahatma Gandhi University, Kottayam	**Title:** Novel Nanostructured Materials for Biomedical Applications
15:00 to 15:30	**Dr. Eric D. Kupferberg** Cambridge Graduate University International (CGUI), USA	**Title:** Effect of the current deregulation movement on drug development and drug safety
15:30 to 16:30	**VALEDICTORY FUNCTION**	



Inaugural Address

Essential Concepts for Clinical Trial Design in Regenerative Medicine

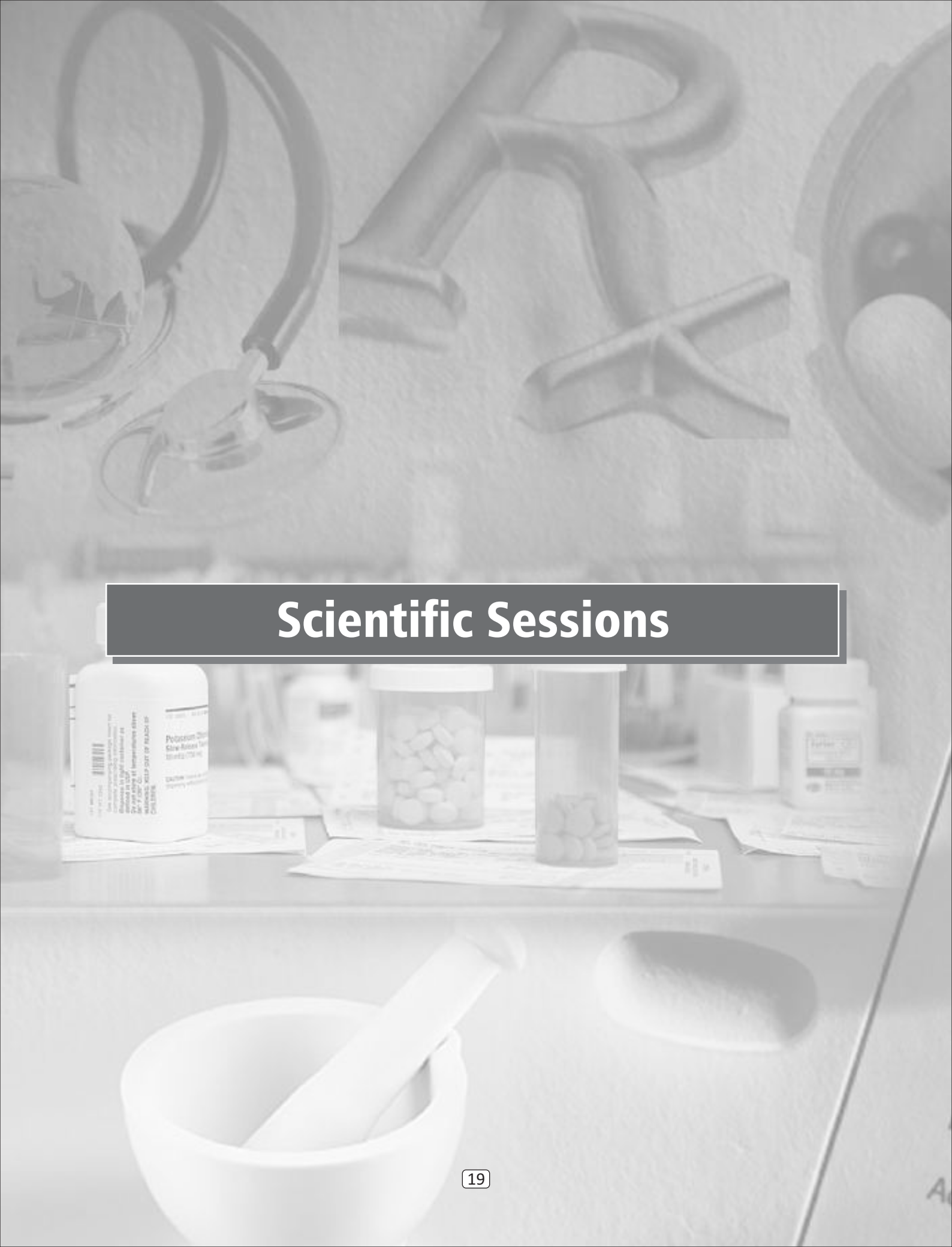
Dr. Daniel G. Miller
President and CEO,
Excorp Medical International Pte. Ltd, Singapore

BIODATA

Dr. Daniel G. Miller is President, CEO and founder of Excorp Medical, Inc. with over 30 years of experience in the US and International health care industry. Much of this experience bears directly on the challenges involved in developing the world's first clinically effective bioartificial liver system. Dr. Miller earned his Ph.D. in Pharmaceutical Biochemistry at the University of Wisconsin in a program jointly administered by the School of Pharmacy, the Department of Chemistry and Biochemistry at one of the elite research universities in the US and the world. His thesis project centered on novel ways to combine microbial and organic synthetic techniques to prepare important intermediates of the antitumor agent known today as doxorubicin.™ Dr. Miller spent nearly 5 years as an Assistant Professor in the College of Pharmacy. His research involved immune response mediators of the type now commercialized for restoring bone marrow after cancer chemotherapy which today comprises a billion dollar industry. Dr. Miller at 3M developed the products and technologies for various disease like rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE or lupus). The team under Dr. Miller's direction completed preclinical and clinical studies of this technology and gained FDA approval. As Vice President of R&D, Dianon Systems. Dr. Miller selected technologies that answered important questions confronting oncologists among these includes biomarker assays. Other tests included the first clinical use of Her2 in development of Herceptin™ by Genentech, Dr. Miller and his research collaborators at Cedar Sinai Medical Center founded the Gilda Radner Ovarian Detection Center with Gene Wilder. Excorp Medical, Inc. has complete laboratory, preclinical and initial clinical trials of the first effective and commercially viable bioartificial liver system. This challenge has relied on Dr. Miller's experience in research, regulatory affairs and clinical trial design to reach the point where it is ready for final commercial development. When deployed, the Excorp Medical system will be a lifesaving and cost-effective system for liver failure patients worldwide.

ABSTRACT

The emerging field of Regenerative Medicine encompasses a wide variety of innovations intended to exploit the human body's innate regenerative capabilities. These advances include notably high profile, headline grabbing procedures involve so-called stem cells in one or more configurations, to gene-editing techniques, to various devices intended to provide temporary support. Invariably, medical innovations come against the dual questions "Is it safe for use in the intended patient group" and "is it effective in ameliorating a clinical condition. The answer to both questions comes from well designed and executed clinical trials. At the present time, leading regulatory agencies are struggling with this problem. Innovators of medical technology are looking for guidance as to how to conduct a scientifically sound clinical trial in an ethical manner. Cost efficiency is another determining factor. These questions are not trivial. Regenerative treatments almost without exception address chronic disease that are on the rise worldwide especially as our populations age. Such diseases occur in a background of co-morbidities that make patient selection and control of variables extremely difficult. One example of this combination of issues is the development of a bioartificial liver. It is well known that the liver has enormous regenerative potential due to its population of resident stem cells. Various means of taking advantage of this potential have been proposed and a few have reached the clinical trial stage. To date, all such trials have be conducted under flawed assumptions preventing the successful demonstration of efficacy, the more difficult of the two tests to prove, statistically speaking. An examination of this particular technology and the clinical trial solution should be instructive, guiding the general advancement of the field.



Scientific Sessions

Development of Polymer Nanocomposite Scaffolds for Tissue Engineering

Dr. Sabu Thomas
Pro-Vice Chancellor, Mahatma Gandhi University,
Kottayam, Kerala, India

BIODATA

Professor Sabu Thomas is currently Pro-Vice Chancellor of Mahatma Gandhi University, Founder Director and Professor of the International and Interuniversity Centre for Nanoscience and Nanotechnology. Prof. Thomas is an outstanding leader with sustained international acclaims for his work in Nanoscience, Polymer Science and Engineering, Polymer Nanocomposites, Elastomers, Polymer Blends, Interpenetrating Polymer Networks, Polymer Membranes, Green Composites and Nanocomposites, Nanomedicine and Green Nanotechnology. Dr. Thomas's ground breaking inventions have made transformative differences in the development of new materials for automotive, space, housing and biomedical fields. He has received a number of national and international awards which include: Fellowship of the Royal Society of Chemistry, London FRSC, Distinguished Professorship from Josef Stefan Institute, Slovenia, MRSI medal, Nano Tech Medal, CRSI medal, Distinguished Faculty Award, Lifetime Achievement Award of the Malaysian Polymer Group, Sukumar Maithy Award for the best polymer researcher in the country to name a few. He is in the list of most productive researchers in India and holds a position of No.5. Prof. Thomas has been conferred Honoris Causa (DSc) Doctorate by the University of South Brittany, Lorient, France and University of Lorraine, Nancy, France. Professor Thomas has published over 750 peer reviewed research papers, reviews and book chapters and co-edited 72 books. He has H index 83, more than 31,000 citations. He is the inventor of 6 patents. He has supervised 84 PhD theses.

ABSTRACT

Biodegradable polymer scaffolds are useful materials to integrate the femoral part of the implant with the bone, and provide a matrix for cellular growth. Synthetic biodegradable polymers can provide temporary scaffold for cell adhesion and expansion both in vitro and in vivo and guide tissue regeneration with defined sizes and shapes. The fibrillar structure is important for cell attachment, proliferation and differentiated function in tissue engineering. The structure allows for growth and is convenient for transport of nutrients. The synthetic polymers such as Polycaprolactone (PCL), Poly l-lactic acid (PLLA), and their copolymers have attracted wide attention for their biodegradation in the human body and are used for tissue engineering. Several methods have been practiced to create highly porous scaffold including fiber bonding, solvent casting/ salt leaching, gas foaming, phase separation and electrospinning. Out of which electrospinning is the simple and cost effective technique for producing nanofibers from polymer solution. Introduction of organically modified clay in polymers leads to different types of structures which include intercalated or exfoliated morphology. The nano reinforcement increases the mechanical rigidity, mobility, stiffness and biodegradability in biodegradable polymers. Moreover it also increases the porosity of the polymer nanocomposite. Nanoparticle reinforced scaffolds are yet to achieve importance. In fact they have wide range of interest in tissue engineering. Literature reports regarding nanoparticle reinforced scaffolds are very scant. Hence the present investigation will be interesting and will find application in tissue engineering in the foreseeable future. In the present talk the state of the art on the synthesis, morphology, structure, properties and applications of dual porous nanocomposite scaffolds will be presented.

Interdisciplinary Research Approach for Evidence based Ayurveda

Prof. Bhushan Patwardhan,
Director, Center for Complementary and Integrative Health,
Interdisciplinary School of Health Sciences,
Savitribai Phule Pune University, Pune, India

BIODATA

Professor Bhushan Patwardhan brings over 30 year experience in research and development in the area of evidence based Ayurveda, ethnopharmacology, drug discovery & development and integrative medicine. Prof. Patwardhan is a Fellow of National Academy of Sciences (India) and National Academy of Medical Sciences (India). He worked as academic head of Manipal Education Group; Director, Institute of Ayurveda and Integrative Medicine, Bengaluru; Vice Chancellor, Deemed University in Pune, and visiting Professor at Indian Institute of Advanced Studies, Shimla. He has worked on Boards of several Universities and member of important national committees of the University Grants Commission, Council for Scientific & Industrial Research, Department of Science & Technology, Department of Biotechnology, and Indian Council of Medical Research. He has worked on several policy making bodies and also has worked on Taskforces of National Knowledge Commission, Planning Commission, and Ministry of AYUSH. He was invited as temporary consultant to the World Health Organization Geneva. He is recipient of many orations, awards has delivered invited lectures at many national and international His recent scholarly books 'Integrative Approaches for Health' and 'Innovative Approaches to Drug Discovery' both published by Academic Press Elsevier have received excellent reviews. He has guided 19 PhD students, 8 Indian Patents, 2 US Patents and over 120 research publications with Scholar h-Index 41 and over 6250 citations.

ABSTRACT

Evidence based medicine is globally accepted concept. Every medical therapy require evidence to support its practice. Reliable evidence requires rigorous scientific research involving multiple disciplines. Ayurveda as ancient science of life is no exception. The basic principles of Ayurveda are being studied in context to modern biology, nutrition and genomics. Role of Ayurveda in drug discovery and development has also been studied. Ayurveda has personalized approach involving constitutional assessment to guide primary prevention, diagnosis and therapeutics. Ayurveda offers detailed guidance about food, nutrition and diet as per the geographical location, season and individual constitution or Prakriti. This lecture will present glimpses of research on Ayurveda from our group including ayugenomics, ayusoft, reverse pharmacology, ayurvedic biology, immunoadjuvants, regenerative rasayana, network pharmacology and formulation discovery.

Management of Chronic pain through thermal cautery (Agnikarma)-A model of interdisciplinary approach to innovation in modern research

Dr. Nikolaos Kostopoulos,
Managing Director, Holistic Health Centre, Athens, Greece

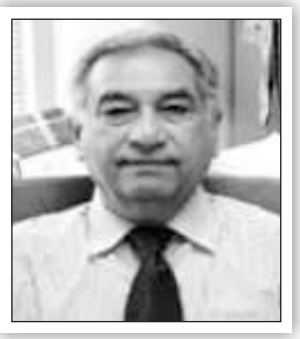
BIODATA

Dr. Nikolaos Kostopoulos graduated from Athens Medical University, Greece. He has worked in the Renal Unit of the Naval Hospital and the Intensive Care Unit of the Hospital of Chest Diseases, both in Greece and also in the Respiratory Unit of the Manchester Royal Infirmary, U.K. He is a member of the Faculty of Homeopathy in U.K. and of the Hellenic Homeopathic Association in Greece. Dr. Kostopoulos was introduced to Ayurveda by Vaidya Asvin Barot and, in collaboration with him, he practiced in Harley street in London (UK) Ayurveda and integrated medicine. He established the Holistic Health Centre in Greece in 1999. In addition to running his medical practice, Dr. Kostopoulos is involved in ongoing research within the field of psychosomatic disease and stress management through Ayurveda. Together with Vaidya Barot has conducted research in Miami University, U.S.A., developing a herbal cream for burns management. He has collaborated with the Banaras Hindu University, India, and the Civil Hospital of Ahmedabad, India, doing clinical research in the management of the post burn hypertrophic scars, which was presented in international conferences. He regularly participates in International conferences and has given lectures in the UK, Ireland, Germany, France, Switzerland, Japan, Canada and India promoting a modern, scientific approach to Ayurveda. He applies the (thermal cautery) agnikarma treatment as a part of a holistic approach for osteoarthritis and migraine pain

ABSTRACT

Chronic pain is becoming an epidemic in the Western world. Sedentary lifestyle, wrong nutrition, ageing population and stress are some of the causative factors for this epidemic. Available drugs include N.S.A.I.D.S.,antidepressants, antiepileptics and opioids. Efficiency decreases with the chronic use of these drugs and side effects become more prominent and debilitating. In the U.S.A. the opioid epidemic is now a declared health emergency and the yearly cost of chronic pain is more than $500 billion. Following an interdisciplinary approach, we started using a treatment applied in Ayurveda called Agnikarma, or in modern terms, thermal cautery of a peripheral nerve field, with amazing results for osteoarthritic pain. We also used this treatment for the holistic management of migraines. The theory of a silver bullet chemical eliminating a disease looks old fashioned. New findings like microbiome, gut brain connection, stress affected pain thresholds, vagus nerve stimulation and autoimmune disorders, make the interdisciplinary approach in pharmaceutical research a necessity for a cost efficient management of chronic pain. In the talk, the method of thermal cautery, together with a holistic approach to pain management, will be presented as a model and an example of an interdisciplinary approach to innovation for modern research.

Current perspectives on 'personalized medicine- a long way to go



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. His Ph.D. work was in the field of 'reproductive endocrinology'. Dr. Chauhan became faculty at Department of Zoology (Faculty of Science, M.S. University of Baroda, Vadodara). He left for U.S.A. in 1987, and obtained post baccalaureate certificate in 'toxicology technology'. He got involved in 'biomedical- research' related to breast cancer for several years. He was also involved in generation of transgenic mouse model for study of insulin resistance. Currently, Dr. Chauhan's primary interest is teaching human anatomy, neuroanatomy, physiology, pathophysiology, immunology, medical genetics and pharmacogenomics. Before joining college of pharmacy (Roosevelt University, Schaumburg, Illinois, U.S.A), he served the college of medicine doing research and teaching medical students at University of Illinois at Chicago (UIC, Chicago, U.S.A.). His teaching experience spans totally for over more than twenty-five years. Dr. Chauhan's current research interests include: (1). Screening of Indian, and Chinese plants for their bio-medical properties especially antiobesity and antimelanoma properties, (2) Alzheimer's Disease and (3) Generation of rodent melanoma model and Benzanthrone's Dermal-Toxicological aspects. Dr. Chauhan has co-authored several peer-reviewed publications and scientific abstract/ posters; some of them received international merit awards.

ABSTRACT

Pharmacogenomics (PGs) is a rapidly evolving and complex scientific field. Healthcare providers equate 'pharmacogenomics' as 'personalized- medicine'. The key to personalized medicine is pharmacogenomics (PGs), which is a discipline combining classical human genetics and pharmacology/pharmacotherapy. The term 'genetic - variability' is not new anymore to pharmacists, physicians, and health scientists because of evolution of knowledge and technological advancement in the field of molecular biology, genetics and inception of Human Genome Project. Many of genetic variations are being considered as predisposing factors for disease; their influence on drug metabolisms and thereby altered therapeutic response or outcomes. Specific genetic traits/ variations are now accounted for variation(s) in drug metabolism. These genetic variations explain several adverse reactions to the drugs. The goals of PGs are to optimize drug efficacy, limit drug toxicity, reduce overall costs, and thereby improve the quality of care, and life. The lack of appropriate education on genomics world-wide is considered a major barrier to the implementation of pharmacogenomics in clinical practice. It is well known now, that understanding and application of PGs knowledge can improve the therapeutic outcomes in patients. In reality, globally very few pharmacists and other healthcare professionals use PGs in their clinical practice. Historically, there has been a lack of education focusing PGs in the pharmacy curriculum. The purpose of this informative presentation is to identify and introduce in brief the fundamental concepts in genetics/ genomics as they relate to understanding and teaching of pharmacogenomics. Application and important issues in practicing PGs. This commentary will aim to highlight critical topics surrounding the development of stand-alone core-course in PGs as a part of pharmaceutical education in order to accelerate the understanding of the subject. Further, by using a patient case, this presentation will highlight significance and use of PGs in clinical practice and its importance in improving therapeutic outcomes and quality of care. At the end of this introductory presentation, audience should be able to comprehend the current state of PGs- knowledge and application.

Synthesis & Development of New Antitubercular Agents : An overview

Prof. Anamik Shah,
Vice-Chancellor, Gujarat Vidyapith, Gujarat, India

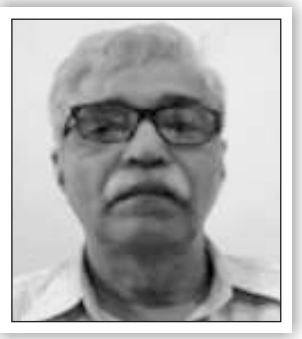
BIODATA

Prof. Anamik Shah is Vice-Chancellor, Gujarat Vidyapith, Gujarat, India. Dr. Shah is received PhD from Saurastra University in 1983. Prof. Shah is also Chairman, Gujarat Vidyapith Trust. He is also President, Indian Society of Chemists and Biologists (ISCB), Lucknow. He is In-charge, Centre of Excellence for Drug Discovery and Former Professor, Department of Chemistry, Saurashtra University, Rajkot. He has 33 years of teaching experience at Saurashtra University. He has supervised 60 Ph.D Scholars and 8 scholars are currently enrolled, several M.Sc and M.Pharm (Ayurved) were also guided for Dissertation work. He has more than 205 International and National Publications in peer reviewed journals with citation exceeding 2020. He has been Invited speaker and Chaired the Sessions at more than 50 National and International Conferences. He has worked as a Principal Investigator with number of Projects funded by various agencies worth Rs. 25 Crore. He has visited various countries for scientific purpose. His research interest includes Synthetic Organic Chemistry, Analytical Environmental Chemistry, Medicinal Chemistry, Natural products chemistry, Isolation & screening of marine based natural products, QSAR, anticancer, anti-tubercular drug research, MDR reverter development, Analytical Method Developments of Several Active Pharma Intermediates.

ABSTRACT

Resurgence of Tuberculosis, especially drug resistance by Mycobacterium Tuberculosis has posed a great threat to mankind & it is now at ever alarming stage. There is a need for working on new drug discovery by more innovative ways in compare to efforts done is past. Identification of now leads and drugs is a herculean task. The present talk will give an overview of two decade of a collaborative work done by our research team involving design, synthesis, biological screening, use of bioinformatic tools & redesigning of some potential lead to arrive at some promising patented molecules.

Anti-Aging, Longevity, Vayasthapana Mahakashya



Dr. Lal Hingorani,
MD, Pharmanza Herbal Pvt Ltd,
Dharmaj, Gujarat, India

BIODATA

Dr. Lal Hingorani is currently the Chairman and Managing Director, at Pharmanza Herbal Pvt. Ltd., Dharmaj, Gujarat, India. After having academic carrier at National college, Bandra, affiliated to Mumbai university and having PhD in Chemistry from IIT, Pawai, Mumbai Dr. Lal joined mainstream modern pharma R&D and excelled in various capacities for over one and half decade. In 1997 he took over Directorship at pharmanza (India), a leading veterinary pharmaceutical manufacturing company in India. However in 2005 Dr. Lal took lead in foundation of a Pharmanza Herbal Pvt Ltd which provides a total package for new herbal products from concept, selection of ingredients, formulations, analysis methods, manufacturing to marketing strategies with strong R&D backing. He pursues his academic interest by guiding several PhD students working on nutritional and herbal products. As a Managing Director of Pharmanza Herbal Pvt Ltd., Dr. Lal has tied up with various universities, academic institutions in India and abroad for research in Nutritional supplements and Herbal extraction. He is on the board of Gujarat Technical University for developing new labs for research. He is a reviewer for several reputed bio-medical and herbal and traditional medicine publications. He has to his credit over 35 scientific publications in peer reviewed journals.

ABSTRACT

Everyone as he or she ages wants to live more. The fear of death which has ever haunted man has been the most potent motivator to develop and discover medicines, nutrition and other techniques to prolong life. The early attempt was to prolong life as much as possible. Death generates strong sense of fear and health is becoming major source of concern. You cannot escape death but you could prevent diseases. In the olden days disease was thought to be due to evil spirits so black magic, witchcraft and sorcery gained importance. Development from the irrational beliefs to this modern medicine has been gradual. Acharya Charka has given importance to Vayasthapana Mahakashya drugs for maintaining vitality and manage ageing.

In modern era, there is lot work going on Metformin, resveratrol and rapamycin. A good clinical study can be designed to see benefits and problems of using these products.

Dr. Mukul Jain
Senior Vice-President, Cadila Healthcare Ltd,
Ahmedabad, Gujarat, India

BIODATA

Dr. Mukul Jain is a Senior Vice President, and Head of Nonclinical Research & Development at Zydus Research Centre (ZRC) at Ahmedabad. Since July, 2000 he has been associated with Zydus Cadila group and is involved in discovery & development of New Chemical Entities in different therapeutic areas. He was the key person responsible for discovery & development of Saroglitazar / LipaglynTM, the first new drug from Indian Pharmaceutical Industry in recent time and also the first 'Glitazar' class drug approved anywhere in the world for human use. Besides Saroglitazar, his group has contributed to development of 13 other NCEs that received IND approvals in India or abroad. He has also contributed to nonclinical development of 13 recombinant biologics and 12 vaccines of Zydus Cadila.

Reactive oxygen species progression inhibitor (ROSPI) as a new drug target: a12- a plant based enriched compound in various disease models

Dr. Shivprakash Rathnam
Managing Director,
Synchron Research Services Pvt. Ltd., Ahmedabad, Gujarat, India

BIODATA

Dr. Shivprakash Rathnam is PhD from LM College of Pharmacy, Ahmedabad. Dr. Rathnam was Head-Pharmacology Research, Zydus Cadila Healthcare up to 1996. He served Sun Pharma Advanced Research Centre (SPARC), Baroda as Head-Pre-Clinical Pharmacology and Toxicology and later started his own company Synchron Research Services Pvt. Ltd. a CRO in 1998. Synchron is the first CRO in India in Private Sector totally dedicated to BA/BE studies and Clinical Research. At present he is the Founder & Managing Director of Synchron Research. He started Synchron in Thailand in 2007 and acquired 100% PAREXEL Bio-analytical facility in France in 2007. He also started Avance Phytotherapies in 2003 to formulate effective therapies for those ailments for which there is no allopathic intervention and started INTERVEIN, a central lab for clinical trials in 2006. He is the Founder Chairman of the company. He is the former Chief Editor of Indian Journal of Pharmacology (2007-2009). He has more than 60 research papers published in various International and national journals. He has written many articles in various magazines and book chapters. He has co-authored a book on Screening Methods in Pharmacology with Late Prof. NS Parmar. Dr. Shivprakash was awarded "Udyog Ratttan Award" by Institute of Economic Studies in 2008 for his contribution for the development of Clinical Research in India.

ABSTRACT

Reactive oxygen species (ROS) are responsible for many progressive disorders like autoimmune diseases, neurodegenerative diseases, cancer and various cardiovascular diseases. Many progressive disorders have no drugs to treat and some can be only controlled. Not enough antioxidant protection is produced in the body to ward off these diseases. Supplements with multiple antioxidants and micronutrients are not able to offer the needed protection from causing these diseases. Small molecules are not available and/or poorly effective ones are used to treat progressive disorders. An attempt has been made to enrich a potent antioxidant from an Indian plant and tested on various progressive disease models. This study helps to use ROS and ROS generating systems as a new drug target for drug development. ROSPI is the new term we coined to use in future for all developments utilizing this target. Some of the striking results will be discussed form seven year research project with Avance Phytotherapies, India.

Theranostic Potential of Curcumin in AD

Dr. Neelima Chauhan
Associate Professor, Department of Pediatrics,
University of Illinois, USA

BIODATA

Dr. Neelima Chauhan completed her masters and PhD from M.S. University of Baroda, Vadodara, India. Dr. Chauhan completed her post-doctoral training in Molecular & Cellular Neuroscience, Neurology, Hines and at Center for Research on Occupational & Environmental Toxicology, Oregon Health Sciences Univ., Portland during 1990-1992. Dr. Chauhan has served in various capacities as Research Biologist: Neuroscience Research, Jesse brown VA Medical Center, Chicago, Mentor Faculty-Graduate Education in Medical Sciences GEM), Medical Scientist Training program (MSTP), UIC and Associate Professor, Department of Pediatrics, University of Illinois at Chicago. She is associated with various academic committees as well as grant review committee including NIH. She has more than 45 papers published in Neuroscience Peer-Review Consortium (NPRC) peer-reviewed journals, six review articles published, four book chapters published and chaired 3 Scientific Sessions. She has completed 3 research projects and 1 research project is ongoing. She has supervised more than 11 PhD/Doctoral Dissertation Evaluation(s). The focus research interest is mainly translational neuroscience aimed at promoting repair of degenerated neurons under pathological conditions such as Alzheimer's disease (AD) and Traumatic Brain Injury (TBI) using interventions including immunization, statins, PDE-inhibitors, and herbal alternatives. She is a member of Editorial board for various reputed journals.

ABSTRACT

Alzheimer's disease (AD) is a global health epidemic currently afflicting >5 million Americans and is projected to stagger by ~16 million Americans afflicted with AD by mid-century, if breakthrough disease-modifying treatments are not discovered. Currently, there are no effective treatments to prevent or halt AD. There is a growing consensus that Alzheimer's is a multifactorial disease compounded by various aging factors including oxidative, inflammatory, vascular, endocrine and cholinergic dysfunctions triggering pathological aging of the brain likely leading to AD. Current Alzheimer's symptomatic monotherapies (NSAIDs, AChEIs, NMDA receptor agonists), have failed to slow, halt or cure the disease, since they do not address multifactorial nature of the disease with systemic adversities. Therefore, there is an unmet medical need to validate effective treatment for AD addressing the heterogeneity of the disease. In that regard, pleiotropic alternatives such as curcumin, aimed at treating multiple therapeutic targets with least adversities, are of great promise. Principal effects of curcumin are reported to be anti-inflammatory and anti-amyloid among other pleiotropy. Although, pre-clinical studies of curcumin did build a strong rationale for clinical translation, clinical trials involving the oral use of curcumin have been inconclusive or effective only during early stages of the disease. Observed inconclusiveness of curcumin trials could be attributed to its poor brain uptake and bioavailability resulting from systemic extraction/metabolism after oral dosing. Despite many efforts currently made to improve the bioavailability, low brain uptake after parenteral routes of administration continues to remain a big challenge. We have successfully shown that intranasal route of administration, using a mucoadhesive thermosensitive hydrogel rendering extended resident time on nasal mucosa while simultaneously circumventing systemic extraction and adversities, achieves appreciable brain uptake as compared to other parental routes of administration. Such nose to brain direct delivery of curcumin could be exploited both as amyloid diagnostic agent by virtue of curcumin's Congo-red-like amyloid-binding ability, and its use as a potential therapy aimed at treating multiple therapeutic targets in AD. In that regard, pleiotropy of nasally delivered bisdemethoxy-curcumin (the most efficient Aß-binding form of curcumin) as a theranostic agent for AD is discussed.

In vitro In Vivo Correlations and its Utility in Biowaivers

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

BIODATA

Dr. Sunil Jambhekar is the Professor of Pharmaceutics in Pharmaceutical Sciences Discipline at LECOM Bradenton, School of Pharmacy. Dr. Jambhekar 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. Dr. Jambhekar worked on a number of product development formulation projects for various pharmaceutical companies in the USA. He is an author or co-author of many presentations at national and international conferences, peer-reviewed scientific publications, and many book chapters; he is a co-author of a textbook Basic Pharmacokinetics and, he has reviewed many books and scientific research articles for a number of professional journals. 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. He is a recipient of three Fulbright Scholarships; once in the lecture/research category (1993) for India and twice as a Senior Specialist. 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

Formulation development and optimization is an ongoing process in the design, manufacturing, and marketing of a therapeutic agent. Depending upon the dosage form and delivery goals of a particular dosage form, the process of formulation development and optimization may require a significant amount of time as well as financial investment. Formulation optimization, frequently, requires altering formulation composition, manufacturing, equipment and batch sizes. In the past when these types of changes were applied to the formulation of a dosage form bioavailability or bioequivalence studies would also have to be performed in many instances to ensure that the "new" formulation displayed statistically similar in Vivo performance as the "old" formulation: in other words, that the formulation changes did not alter the bioavailability of a drug significantly. This requirement, often, delayed the marketing of the new formulation and added cost to the process of formulation optimization. Therefore, the main objective of In Vitro In Vivo correlation is to serve as a surrogate for in Vivo bioavailability and to support biowaivers. Additionally, In-Vitro In-Vivo Correlations could be employed to establish dissolution specifications and to support and/or validate the use of dissolution methods. This may result in lesser number of bioequivalence studies required for approval as well as during scale up and post-approval changes. Consequently, in recent years, the concept of In Vitro In Vivo Correlation (IVIVC) for pharmaceutical dosage forms has attracted attention of pharmaceutical industry, academia, and regulatory sector.

Recently, a regulatory guidance for both immediate and modified release (i.e. IR and SR) was developed by the Food and Drug Administration based on scientifically sound research. The guidance states that the main objective of developing and evaluating an In Vitro In Vivo Correlation (IVIVC) is to enable the dissolution test to serve as a surrogate for an In Vivo bioavailability study.

In this presentation, the author will discuss various types of In-Vitro In-Vivo correlations and their advantages and shortcoming, parameters necessary to establish such correlations and their computations, and illustrations of various types of IVIV correlations.

Changing trends in pharmaceutical industry from regulatory perspective

Dr. S. V. Gopalakrishnan
Senior Vice-President, Cadila Healthcare Ltd,
Ahmedabad, Gujarat, India

BIODATA

Dr. S. V. Gopalakrishanan is Senior Vice President - Corporate Quality at Cadila Healthcare Ltd, Ahmedabad, Gujarat, India. He has total 26 years of experience in quality functions of pharmaceutical industry. He has exposure to all quality functions including Quality Control, Quality Assurance and Analytical Development both API and Drug Product manufacturing of various dosage forms. Dr. Gopalakrishnan has worked in leading pharmaceutical organizations such as Ranbaxy Laboratories Limited, Lupin Laboratories Limited and Currently working in Cadila Health care limited since 2001. He joined as a Senior Manager in Analytical development and now working as Senior Vice President – Corporate Quality. He is overall responsible for Quality operations at the India based manufacturing sites.

ABSTRACT

The talk will be focusing on what challenges the industry is facing and how it is gearing up to counter these. The changing scenario because of the experience faced by the regulators and the way the agency drives compliance to ensure Quality in medicine.

Ultrathin Capsules-multidisciplinary extension to the material science concept

Dr. Ajay Khopade,
Vice President-Formulations,
Sun Pharma Advanced Research Company Ltd,
Vadodara, Gujarat, India

BIODATA

Dr. Ajay Khopade is a Vice President R&D (Formulation Development) and Heading non-oral division at Sun Pharma Advanced Research Co. Ltd. (SPARCL), a pharma research and drug discovery company separated out from a leading speciality pharma Sun Pharmaceutical Industries Limited. With over 18 years of experience in pharmaceutical product development, in his current role as VP-R&D, is responsible for development of SPARC's innovative and differentiating drug product portfolio and product life-cycle management through strategic innovation planning & road mapping. Currently he is leading a team of scientists supporting development of niche products and platform technologies. Dr. Khopade has extensive end-to-end (ideation-technology development-preclinical POC-clinical-commercial) development experience across multiple therapeutic areas in novel parenteral dosage forms. He has participated as CMC expert in the submission of number of INDs, NDAs and technology evaluation for in-licensing opportunities. He is an inventor of a platform nanotechnology in the field of oncology (Nanotecton®), ophthalmics (GFR®, SMM®and TearAct®) and depot injections protected by various IPs globally with over a dozen patents. Most of these technologies have endured clinical tests to reach into the market. Dr. Khopade has been a Humboldt post-doctoral fellow at Max Plank institute of Colloids and Interfaces, Germany. He holds a Ph.D. degree in Pharmaceutical Sciences from the University of Sagar, MP, India. His areas of interest are understanding physical chemistry of drug delivery system design.

ABSTRACT

Polyelectrolyte (PE) multilayer films prepared by an iterative electrostatic self-assembly process is a Material and surface science concept It involves layer-by-layer (LbL) deposition of anionic and cationic PEs onto planar supports. The presentation will focus on how to understand these physical chemistry concepts by different techniques. To support this, Multilayer film growth was monitored by use of UV-vis spectrophotometry, quartz crystal microbalance (QCM), ellipsometry and atomic force microscopy (AFM). Having proved multilayer growth, hollow nanothin membrane microcapsules were prepared by depositing PE multilayers on decomposable colloid particles by the LbL self-assembly technique and subsequently dissolving the templated cores. Multilayer growth and capsule formation was characterized by zeta potential, single particle light scattering, confocal laser scanning microscopy, and transmission electron microscopy. The presentation shall include understanding of the basic LbL technology as a method to control thicknesses of films at nanometer range, production of nano-thin membranous capsules. The presentation will focus and their biological applications with a specially on drug delivery.

Multidisciplinary Approach for Evaluation of New Drug & Biologicals Applications in Developed Countries

Dr. Bhaswat Chakraborty
Former Senior Vice President, R & D Cadila Pharmaceuticals Ltd., Ahmedabad, Gujarat, India

BIODATA

Dr. Bhaswat S. Chakraborty graduated with a B. Pharm. (Hons.) from Banaras Hindu University and a PhD in Clinical Pharmacology of anti-psychotic drugs. Following his post-doctoral fellowship and a brief spell of teaching at University of Saskatchewan, Canada, Dr. Chakraborty joined the Health Protection Branch, Ministry of Health, Government of Canada (Canadian FDA) in Ottawa and served as a Senior Clinical Reviewer and Acting Department Head of the New Drug Applications. In this role, he has evaluated more than 300 Abbreviated New Drug Applications and 20 Pharmacokinetics based New Drug Applications. He was the Director of Biopharmaceutics at Biovail Corporation International, Toronto. Till date, he has designed and investigated ~510 Phase I and 46 higher Phase Clinical Studies for the FDA, TPP, EU and other Agencies. He is recipient of many prestigious research grants. Dr. Chakraborty was Former Senior Vice President – Research & Development at Cadila Pharmaceuticals Ltd., Ahmedabad. He is also an author and co-author of more than 70 scientific papers and abstracts in refereed international journals. He is a PhD Guide and Honorary Professor; also External Examiner to a few universities; editorial board member of two international journals; reviewer of many professional journal manuscripts, and also on the board of several Institutes and Universities in India in various capacities.

ABSTRACT

New Drug Applications (NDAs) and new Biological Licenses Applications (BLAs) are scientifically advanced and complex documents containing hundred thousand pages or more scientific data. Notwithstanding the legal and regulatory complexities, a thorough, transparent and meaningful review of such dossiers requires organization, policy bass and careful planning by a multidisciplinary team of experts. Developed regulatory jurisdictions like US FDA and European EMA have published guidelines and directives for multi-disciplinary review of NDAs and BLAs.

Both NDAs and BLAs contain three major parts: chemistry manufacturing and controls; non-clinical studies and clinical studies (microbiology and biotechnology may be very importanat in some cases). Thus, overall and each of the sections require expertise and review experience in multiple disciplines. Lately, under good review (GRP) practices, US FDA is trying to uphold the values of quality, efficiency, clarity, transparency and consistency. The foundation of good review management is actually built during product development and sponsor-FDA interactions during that pre-review period. While making an accurate and complete application is the sponsors' responsibility, giving a timely and effective review is FDA's responsibility. Planning and setting up a multi-discipline review team is the structural foundation of such an efficient review. As the review goes on, timely expert inputs come from each member of the review team.

The speaker will illustrate the nuances of the multidisciplinary review with examples of real life approvals of NDAs and BLAs. Setting up such multidisciplinary review system should be an ideal for all developing jurisdiction.

Drug Discovery & Development: A Retrospection of Indian Contribution

Dr. Jyoti Paliwal
Consultant, PhaEx, Ahmedabad, Gujarat, India

BIODATA

Dr. Jyoti Paliwal had been serving Indian Pharmaceutical institutions, industry and academia for more than three decades. He has worked in a variety of administrative, academic, research and clinical trial capacities, stating his career with UP drugs and Pharmaceuticals followed by Central Drug Research Institute, University of Michigan, Ranbaxy, Wockhardt, BV Patel PERD Centre, NIPER-Mohali and Troikaa Ahmedabad. He is presently contributing as an Independent Consultant in his own Venture "PhaEx Consulting". Dr. Paliwal has led teams in clinical research, pharmacokinetics, metabolism and bioanalytics. He contributed to over a dozen INDs and First in Human trials resulting in commercialization of two products: Centchroman and Synriam, which are in current clinical practice in India. Dr. Paliwal possesses a Ph D (Central Drug Research Institute/Agra University) an M Pharm from Nagpur University, and Diploma in Business Management from Bharatiya Vidya Bhavan. He has been associated with academics in India & abroad as visiting faculty, examiner and guide for PhD programs. Prof. Paliwal has authored over 55 research articles and reviews in peer reviewed journals and has delivered over 100 talks at national and international symposia.

ABSTRACT

Development of traditional medicines in India dates back to Ayurveda treatise, "Charak Samhita" 300 BC whereas the history of Allopathic or the Modern system of medicine is less than 300 years old. The discovery of modern drugs in India started way back in 1920 when Prof. U.N. Brahmachari marked one of the first major success stories with urea stibamine and its effective use for the treatment of kala azar. However, nothing much happened until the establishment of Council of Scientific and Industrial Research (CSIR) and its Laboratories; Central Drug Research Institute (CDRI), Indian Institute of Chemical Technology (IICT) and National Chemical Laboratory (NCL) as major players in drug discovery. Around 1994, Indian pharma companies started in-house drug discovery activities, aiming at developing the country's first home-made drug. Pioneers like Ranbaxy and Dr Reddy's were joined by companies like Glenmark, Biocon, Piramal, Sun, Torrent, Wockhardt, Advinus, Zydus Cadila, Suven etc. Backed by the strength of ancient traditional system of medicine, CDRI made major contributions such as α/β arteether (antimalarial), Consap (spermicidal cream) and Isaptent (cervical dilator) Gugulipid (hypolipidaemic) and Bacopa monniera standardized fraction (memory enhancer). Later the focus of Government institutions and also of Indian pharmaceutical industry shifted to developing small synthetic block busters in competition with developing world. The first decade of this century witnessed strong pipeline of NCEs and few early out licensing activities as well. However, the Indian dream was restrained to marketing of just two drugs in India; Synriam by Ranbaxy and Lipaglyn by Zydus in 2013 along with fall out of many outlicenced molecules. The end result was shutting down of discovery labs by major Pharma companies starting with Reddy's in 2009 without delivering a single commercially viable molecule to international society.

In this presentation, a critical analysis of factors for our failure will be shared. Also an effort will be made to lookback as to what could have been done to put Indian discovery efforts today on global map.

Medical Ethics in Research

Dr. Kiran Marthak
Global Head – Clinical Development, Lambda Therapeutic Research Limited, Ahmedabad, Gujarat, India

BIODATA

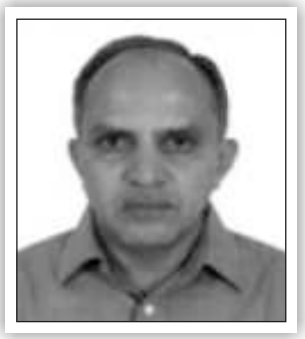
Dr. Kiran Marthak is Post Graduate in Medicine from Grant Medical College, J.J. Group of Hospitals, Mumbai. He is also a Fellow of Royal Society of Medicine, London and Fellow of Faculty of Pharmaceutical Medicine, University of London. He is in Clinical Research for more than 35 years with a rich experience in conducting studies in Healthy subjects as well as in patients not only in India but in USA, Canada, UK, Japan, China, South Africa, etc. He is associated with many academic institute including NIRMA. He is a co-chairman of Medical Committee in IDMA. He is closely associated with Regulatory Authorities in India. He is Chairman of Ethics Committee – ISBEC in Mumbai.

ABSTRACT

In any branch of research in Intersystem Biomedical modalities, Medical Ethics plays a very major role while conducting clinical trials and also while treating the patients in the practice. The utmost importance in Medical Ethics is 'Autonomy, Beneficence, Non-malficence and Justice.' These items are essential to protect patient's rights. Besides these 'Confidentiality' and 'Privileged Communication' under certain circumstances would be discussed.

Ethics Committee- Inter- System Biomedical Ethics Committee (ISBEC) plays a major role in maintaining Ethical Standards in Research.

Molecular Basis of Oral Cancer: Focusing on Invasion and Metastasis



Dr. Prabhudas Patel

Head, Department of Cancer Biology, Gujarat Cancer & Research Institute, Ahmedabad, Gujarat, India

BIODATA

Dr. Prabhudas S. Patel is currently Professor & Head of Cancer Biology Department at The Gujarat Cancer & Research Institute, Ahmedabad. His research group is investigating role of glycosylation in relation to the development and progression of different types of cancer mainly tobacco related cancers. He is also working on salivary glycosylation to establish saliva as a non-invasive diagnostic tool for oral cancer. Dr. Patel is also involved in studying molecular pathogenesis of oral cancer and breast cancer in relevance p53 and its clinical significance. The research interest also include study of HPV infections. He has actively participated in more than 50 research projects supported by various agencies and has above 100 original research publications in many peer-reviewed international/national journals. He has received numerous prestigious awards and honours. He has delivered invited lectures during various international/national conferences. During his 30 years career, he has supervised 21 students for their Ph.D. degree. In addition to clinical research and academic activities, he has also organized 20th Annual Convention of IACR, Oncology Tomorrow-The Pre-Indian Science Congress event, 6th International TCR conference and many other scientific events. He is serving in various capacities in professional bodies which include IACR-Gujarat Chapter, Gujarat State Representative, ACBI and Editor, IACR Newsletter. He is also Reviewer for various international/national journals and member of Technical/Scientific Committee at various Institutions.

ABSTRACT

Oral cancer is major health hazard in India. There is no significant improvement in the success of anticancer treatment and survival of oral cancer patients in last decade. Invasion and Metastasis are the major strenuous problems in successful cancer treatment, and it is believed that they begin in the growth of the primary tumor. Hence, we have studied vascular epithelial growth factors (VEGF), matrix metalloproteinases (MMPs), phosphorylated epidermal growth factor receptor (pEGFR), truncated E-cadherin, c-Jun protein in oral cancer patients. The results revealed significant revealed significant VEGF183 and VEGF165 were significantly downregulated in malignant tissues as compared to adjacent normal tissues. VEGF183 and VEGF189 were significantly associated with tumor differentiation and tumor size. VEGF165 was significantly higher in recurrent early stage tumors. Serum VEGF levels were significantly higher in cases as compared to the controls and were associated with tumor differentiation. Serum VEGF levels were significantly higher in patients with recurrent advanced stage tumors. Further, patients with high levels of VEGF165 and serum VEGF levels had worst prognosis. Significantly high expression of pEGFR, truncated E-cadherin and c-Jun protein, MMP2 and MMP9 in malignant oral tissues as compared to adjacent normal tissues was observed. Plasma pro, active and total MMP-2, MMP-9 as well as TIMP-1 and TIMP-2 levels were significantly higher in oral cancer patients as compared to the controls. An increase in the levels of pEGFR and truncated E-cadherin protein was observed in advanced and metastatic disease. Further, elevated expression of pEGFR, truncated E-cadherin, c-Jun protein, active MMP-2, pro MMP-9, total MMP-2 and total MMP-9 were associated with reduced overall survival. A positive correlation was observed between truncated E-cadherin, MMPs and c-Jun protein. Further, pEGFR was positively correlated with truncated E-cadherin protein. The data suggested that VEGF, pEGFR, truncated E-cadherin, c-Jun protein and MMPs, the major molecular signature of the disease play a prominent role in management of oral cancer. Therefore, the combination therapies either by pharmaceutical or nutraceutical products targeting these molecular signatures might help in combating oral cancer.

Role of immune cells in prostate cancer development and clearance

Dr. Manoj K Mishra

Director, Cancer Biology Research and Training program, Department of Biological Sciences, Alabama State University, Montgomery, USA

BIODATA

Dr. Manoj Mishra received his M.Sc. and Ph.D. degrees from Banaras Hindu University, Varanasi, India. After obtaining his Ph. D., he did his postdoctoral trainings in the Division of Biology, Kansas State University, Manhattan, KS; Division of Allergy and Immunology, Department of Pediatrics, Washington University School of Medicine, St. Louis, MO; and Division of Rheumatology, Department of Pediatrics at Medical College of Wisconsin, Milwaukee, WI. Before coming to Alabama State University in February 2009, Dr. Mishra continued at Medical College of Wisconsin as a Research Scientist in the Division of Allergy and Clinical Immunology within the Department of Pediatrics. Dr. Mishra serves on several NIH study sections and editorial board of scientific peer-reviewed journals. Dr. Mishra lab is currently supported by research and educational grants from US Department of Defense, National Institutes of Health and National Science Foundation. His research interest focuses on broader of areas of immunology and tumor biology. Currently, Dr. Mishra lab is engaged in investigating the roles of dietary compounds, microbial metabolites and immune cells in prostate cancer development and progression. Dr. Mishra's other research interest is in regenerative medicine. His lab is currently elucidating the role of polymeric scaffold in bone tissue regeneration.

ABSTRACT

Prostate Cancer (PCa) is the most common non-skin malignancy and the most commonly diagnosed cancer in men in the United States. The immunotherapeutic role of immune cells in regulation of PCa has been studied but still the specific interplay between these cells to regulate cancer needs further investigation. In this study, we analyzed the role of immune cells in tumor development and progression using a prostate cancer model. We used TRAMP cells (TRAMP C1, C2 and C3 derived from transgenic adenocarcinoma of mouse prostate) to induce tumor in C57/B6 mouse. Interestingly, TRAMP-C1 and TRAMP-C2 cells are tumorigenic while TRAMP-C3 cells fail to form tumor. Briefly, tumor induction studies were performed on different groups of mice. Mice were inoculated with these three cell lines, tumors were analyzed at different time points, and the percentage and absolute number of different immune cells such as CD4, CD8, NK, NKT, Macrophages, regulatory T cells, and Dendritic cells were analyzed. Our data demonstrated that the capacity of TRAMP-C1 and TRAMP-C2 cells to form tumors and the inability of TRAMP-C3 cells to induce tumors is mediated by number of different immune cells such as NK, NKT, macrophages and regulatory T cells in the tumor microenvironment. Therefore, the data suggest an understanding of function and effect of immune cells during tumor progression and clearance is needed to successfully develop a targeted therapy to modulate the number of immune cells in the tumor microenvironment.

Optimization of therapeutic outcome through pharmacogenetics for Indian population

Dr. Harish Padh
Former Vice-Chancellor, Sardar Patel University, Vallabh Vidyanagar, Gujarat, India

BIODATA

Dr. Harish Padh, Former Vice-Chancellor, Sardar Patel University, Vallabh Vidyanagar and currently as Professor, Emeritus, National Law University. Sir obtained his Ph.D. in Biochemistry from University of Delhi in 1978. From 1978 to 1995 for 17 years, he has developed his academic career in USA at places like Temple University, Philadelphia, University of Chicago, Chicago and Northwestern University, Evanston, Illinois. Sir was Assistant Director and Associate Professor at Northwestern University for Biotechnology. In 1996, sir returned to India and joined as Professor of Biochemistry at M. S. University of Baroda and later he joined as Director, B. V. Patel Pharmaceutical Education and Research Development (PERD) Centre in Ahmedabad. In 2007, sir also took responsibility as Project Director for NIPER, a Government of India's Institution at Ahmedabad. Later, sir joined Sardar Patel University as Vice-Chancellor in 2010. Sir has more than 150 research publications in reputed journals. Sir is the member in several Editorial Boards and Societies. In addition, Sir is the Advisor to Government of Gujarat for pharmaceuticals and biotechnology matters. Sir is a recent recipient of B-School Excellence Award given jointly by UTV-Bloomberg, STAR group of Industries; and The Name in Science Award by European Science Congress and European Business Assembly, UK. Sir is member of Governing Council of Gujarat Forensic Science University Gandhinagar, Central University of Gujarat-Gandhinagar, Association of Indian Universities-New Delhi, Member, Indian Institute of Science, Bangalore.

ABSTRACT

In the eyes of doctors all patients were similar for a given disease during pre-genomic era. In post-genomic era we have realized that this is not true. Two patients with similar diagnosis may have varied etiology of the disease, and two patients may respond very differently to a given therapy.

We have begun to understand the molecular basis of inter-individual variability in disease development as well as drug response. Genotype and resulting phenotype variability needs to be studied and characterized in Indian population. This presentation will review the available literature of pharmacogenetics in drug response in Indian population and our studies illustratively validate and establish that Indian population is different from other studied populations of the world.

The implications of the findings will be discussed.

Inducing the Response of Standard Care in Cancer Treatment: Emphasis on Pediatric and Adolescent and Young Adult Cancers

Dr. Maya Nair

Assistant Director, Department of Environment Health and Safety, University of North Texas Health Science CenterFort Worth, Texas, USA

BIODATA

Dr. Maya Nair graduated with a PhD in Chemistry in 1993. After completing her Postdoctoral training at UT Austin and UT Health Science Center, San Antonio, Texas, USA. She joined the Department of Biochemistry and Molecular Biology at UNT Health Science Center. Currently she is an Assistant professor at UNT Health Science Center at in the department of Microbiology, Immunology and Genetics and Assistant Director at the Environmental Health and Safety Department. In this capacity she is responsible for reviewing research proposals to be in compliance NIH regulations. She play a key role in facilitating collaborative research, teaching and training graduate students and promoting research in health professional areas. Her research interest is on improving cancer chemotherapy. Development and characterization of lipoprotein based drug delivery system for cancer chemotherapy is one of the main areas of her research. She is a recipient of various grants, awards and co-authored more than 20 publications and a patent.

ABSTRACT

Toxicity associated with standard care in cancer treatment is especially devastating in pediatric and young populations. Our laboratory is investigating the strategies to induce therapeutic efficacy of the chemotherapeutic agents used in the standard care. Screening of Ewing sarcoma, medulloblastoma and neuroblastoma cell lines showed that clotam, a drug used for the treatment of migraine headaches is effectively increasing the anti-proliferative activity of chemotherapeutic agents. An anti-cancer anti-biotic, Mithramycin-A also showed beneficial effects in Ewing sarcoma cell lines. Chemotherapeutic agents, Cisplatin, Doxorubicin, Etoposide and Vincristine were tested using various cancer cell lines (Ewing sarcoma: TC71, TC205 and TC32; medulloblastoma: DAOY and D283; neuroblastoma: LA155n and SH SY5Y). Medulloblastoma and neuroblastoma are mostly diagnosed in children, while Ewing sarcoma is found in adolescent and young adults. The anti-cancer and chemo-sensitization activity of clotam is attributed to its inhibitory effect on transcription factor Specificity protein1 (Sp1) and an inhibitor of apoptosis protein, survivin. Molecular profiling analysis and sequencing data also supported the inhibitory activity of clotam against Sp1 and survivin. Sp1 transcription factor regulates critical genes including survivin, an inhibitor of apoptosis protein, important for cell proliferation and maintenance. Overexpression of Sp1 and survivin is associated with aggressiveness and considered as poor prognostic factors in multiple cancer types. Clotam treatment inhibited cell viability of medllublastoma, neuroblastoma and Ewing sarcoma. Notably, the observed inhibition of cell viability correlated with the inhibition of Sp1 and survivin protein expression as assessed using western blot analysis. Clotam also increased the apoptotic markers such as: caspase 3/7 activity (2-3 fold), Annexin-V positive cells, and c-PARP protein expression at 48 h post treatment. Interestingly, qPCR results showed that TA significantly decreased mRNA expression of survivin but not Sp1, indicating the involvement of post-translational regulation such as activation of proteasome-dependent degradation of Sp1. Gel shift assay result suggested that TA could directly disrupt the binding of Sp1 with the GC rich sequence in the promoter of target genes. Moreover, our results showed that TA induced G0/G1 cell cycle phase arrest in association with the up-regulation of p21 and inhibition of Cyclin D1 protein expression in cancer cells. The combination of chemotherapeutic drugs and Clotam resulted in significantly higher cancer cell growth inhibition in some cell lines showing a synergistic effect as measured by Combination Index. Taken together, these results indicate that Clotam can offer a promising strategy to inhibit cancer cell growth and inducing the response of chemotherapy by targeting Sp1 and Survivin.

Saroglitazar - A CMC (Chemistry, Manufacturing and Control) Perspective

Dr. Bipin Pandey
Director, Center of Excellence
Saurashtra University, Rajkot, Gujarat, India

BIODATA

After completing Ph.D. (Organic Chemistry) from IIT Kanpur in 1980, Dr.Bipin Pandey visited Purdue University, USA (1981-83), Max Planck Institute, Germany (1983-86) and University of California, Berkeley, USA (1990-92) as visiting scholar. He was an Alexander von Humboldt (AvH) fellow at Max Planck Institute (1983-1985). Subsequently, he was a senior level scientist at N.C.L. Pune (1986-94) ,where he was involved with basic research and supervised Ph.D. programme of 8/10 students. In 1994, he shifted to industry. During last 20 years, he has been mainly associated with Ranbaxy, Sun Pharma and Zydus Cadila as a process researcher. His areas of interest are total synthesis of complex organic molecules, medicinal chemistry, process research, scale up and manufacturing, intellectual property, R &D strategies for generics and new drug discovery, regulatory and life cycle management of NCE's. He has filed 14 IND's and one NDA to DCGI, India and US FDA, as CMC head. He has 65 + publications in high impact journals (6 of them in JACS and Angew. Chem.) and has around 75 + patents, several of them are commercialized. He was the key member from Chemistry for the design, discovery, development, clinical trials and launch of the first new drug in Sept. 2013, Saroglitazar, from an Indian Pharma company, Zydus Cadila. Recently he retired from ZRC and has joined Saurashtra University, Chemistry Department as an Adjunct Professor, since Oct. 2013.From August 2015, he has been appointed as Director, Center of Excellence at NFDD complex at Saurashtra University, Rajkot.

ABSTRACT

The CMC perspectives of First New Drug designed, discovered, developed and launched by an Indian Pharma company, Zydus Cadila, Ahmedabad, will be described. Saroglitazar was launched in Sept.2013 in India as Lipaglyn, for the treatment of diabetic dyslipidemia. Its chemistry, synthesis, manufacturing, impurities, IP issues, polymorphs and a broad overview of how impurities are formed, during development stage, will be discussed. The importance of understanding acid, base, oxidation, reduction, organometallic, catalytic, thermal, photochemical, stereochemical, dissolution and analytical aspects of API's and Intermediates, for predicting probable impurities, involving 8 reactive species of carbon and 5 reactive species of nitrogen, will be discussed.

Berberine based targeted delivery for the treatment of hepatic fibrosis

Dr. Manish Nivsarkar
Director, B. V. Patel PERD Centre,
Ahmedabad, Gujarat, India

BIODATA

Dr. Manish Nivsarkar has 23 years of research and 8 years of teaching experience. He stared his carrier as a Research Scientist in Sir H.N.M.R.S Mumbai, then he joined B. V. Patel PERD Centre as Scientist A, currently he is director of B. V. Patel PERD Centre. He completed his PhD from Devi Ahilya Vishwavidyalaya Indore. Dr. Manish has actively participated and organized various national and international symposia and conferences. He is recipient of Indian Drugs Best Paper Award (2002) for the best paper in the discipline of Pharmacology and Best Poster Award in 14th National Convention of Indian Society of Pharmacognosy, 2010. He has more than 122 research publications and general articles in many national and international peer-reviewed journals to his credit. He is a recognized guide from Nirma University (Ahmedabad), Sardar Patel University (Vallah Vidyanagar), Bhavnagar University and Ahmedabad University. His area of expertise includes Reproductive Physiology, Pre-clinical and Clinical Pharmacokinetics of Synthetic and Herbal Drugs, Development of Bioenhancement Techniques, Novel Drug Delivery System, Targeted Gene Delivery, Cancer, Diabetes and Toxicoproteomics. He has commendable expertise in development of toxicity studies, development and validation of animal models for pharmacology.

ABSTRACT

The liver is one of the most vital organs of the body. Liver can suffer with many types of diseases i.e. viral hepatitis, cirrhosis, primary liver cancer etc. Regardless of the type of the liver disease, progression of the liver diseases is similar which goes through liver fibrosis. Liver fibrosis is the excessive accumulation of extracellular matrix proteins including collagen. Liver uptakes high drug amount, mainly due to first pass-effect and most of the macrophages resides in the liver. However, liver disease Incidence rate is increasing and there is no promising pharmacotherapy available that can completely cure the disease. In case of liver fibrosis, hepatic stellate cells (HSCs) are the keys cells involved in the fibrogenic cascade. Targeting of antifibrotic drugs to HSCs; is a promising strategy to block fibrotic processes. Mannose -6-Phosphate (M6P) receptors are reported to be over expressed on the surface of HSCs in fibrotic conditions. So, the present study is designed to target berberine; reported to possess good hepatoprotective and antifibrotic properties; to HSCs of the liver for the treatment of hepatic fibrosis.

In the current study, berberine was isolated from Berberis aristata and characterized by different chromatographic and spectroscopic techniques. Berberine was encapsulated in the liposomes which were prepared by thin film hydration method and optimized by Box-benhken design. Targeting ligand, i.e. p-amino-6-phospho-α-D-mannopyranoside was synthesized and characterized by different chromatographic and spectroscopic techniques. Berberine loaded liposomes were tagged with ligand using carbodiimide chemistry. Liposomes were characterized for size, PDI, zeta potential, TEM, IR, DSC etc. To determine in vivo fate in biological milieu, ex-vivo colloidal stability study of liposomes was also performed before administering in vivo. To check in vivo efficacy, thioacetamide induced liver fibrosis model was developed in Wistar rats and efficacy of targeted liposomes was checked and compared with different groups. Liver targeting efficiency was checked by tissue distribution and pharmacokinetic studies. The results showed that the formulation was successfully optimized and showed better efficacy for the treatment of liver fibrosis. The tissue distribution study showed selective targeting of berberine to liver. Thus, it was concluded that M6P-functionalised berberine loaded liposomes can be used for efficiently targeting the HSCs for the treatment of liver fibrosis.

Autophagy inducers or inhibitors as novel therapeutic targets

Dr. M. T. Chhabria,
Principal, L.M. College of Pharmacy, Ahmedabad, Gujarat, India

BIODATA

Prof. M. T. Chhabria is working as Principal of L.M. College of Pharmacy, Ahmedabad. Dr.Chhabria did his M.Pharm., Ph.D. From Gujarat University under supervision of Prof. C. J. Shishoo. He has more than 26 Yrs of Teaching Experience and 1.5 Yr. of Industrial Experience. He has more than 70 Research Publications, 71 presentations and 4 published patents to his credit. He has also contributed as an author for a chapter in international reference book. Sir has received funding for several research projects from state and central government agencies worth Rs. 83 lacs. He has received grant of Rs. 8.36 crore for setting up Atal Incubation Centre at L. M. College of Pharmacy, from Atal Innovation Mission, Niti Aayog, New Delhi. He has also received grant of Rs. 40 lakhs per year for three years from State Government under Student Startup and Innovation Policy (SSIP). His Area of Research Interest is Design and synthesis small heterocyles of biological interest. Therapeutic areas of interest are antiTB, Anticancer, Lipid lowering agents (HDL elevators), Antihistamines (H1-receptor antagonist) and Antipsychotics (D2 antagonist), Application of Green Chemistry approach in organic synthesis. He has guided more than 119 M.Pharm projects and 7 Ph.D students and 4 PhD students are working under him. Sir has delivered more than 50 invited lectures at various scientific symposium and programmes. He is also serving to several professional bodies and universities in different capacities. Sir is also a fellow of Indian Chemical Society and Gujarat Science Academy.

NutrimiRomics: Cross-kingdom regulation beyond phyto-pharmaceuticals

Dr. Rakesh Rawal

Professor, Department of Life Sciences, Gujarat University, Ahmedabad, Gujarat, India

BIODATA

Dr. Rakesh Rawal is Professor in Life-Science, Gujarat University with 25 years of experience at Gujarat Cancer Research Institute (GCRI), Ahmedabad. He received PhD in "Role of Biochemical markers in Oral cancer" at GCRI under Gujarat University in 1999. His last designation at GCRI was Senior scientific officer & Head, Divison of Medicinal Chemistry & Pharmacogenomics where he did a lot of work on cancer stem cells, biological screening assays for new synthetic/natural anticancer agents. He has more than 50 research publications of national and International repute to his credit. He is in the academic & advisory board of many prestigious institution e.g. GSBTM, NIF, NIRMA. He is in the board of directors of GUSEC (Gujarat University Startup & Enterpreneurship Council) and co-ordinator for Virtual Lab with IIT-Mumbai. He has 15 research projects from various agencies. His area of interest include Establishing a tumour repository for Biomarker development using Genomic and Proteomic technologies, Insilico analysis of Drug target and Invitro models for Cancer stem cell to predict drug response and resistance. He is also interested in Regenerative Medicine using cell based therapy in cancer management.

ABSTRACT

Natural products derived from plants have been a rich source of lead molecules in drug discovery. Till recent times only phytopharmaceuticls were thought to be active compounds with drug likeness properties. These plant derived secondary metabolites isolated by cold or hot extraction procedures using aqueous or organic solvents have been extensively studied for their bioactivity through guided fractionation in quest of obtaining New Chemical Entity (NCE). Many drugs listed as conventional medications are derived from plants and were originally administered in plant form (powder, decoction or paste) as depicted in Ayurveda, which goes in favour of the modern day saying "We are what we eat". This impact of nutrition on human health gave birth to an OMIC offshoot "NutrimiRomics", which studies the influence of the diet on the modification of gene expression through epigenetic influence by microRNA. MicroRNAs (miRNAs) are a class of small noncoding RNAs that act as efficient post-transcriptional regulators of gene expression. Several studies have shown experimental evidences of potential cross-kingdom action of plant-derived miRNAs, through dietary intake, in regulating mammalian gene expression either by targeting human miRNA or mRNA. Innovative dereplication strategy comprising of novel approaches for the analysis of crude extracts seems to be the future for all chemical classes of natural products. Natural-product chemistry and organic synthesis are powerful tools for optimising natural leads and for generating new diversity from natural scaffolds. Hence, amalgamation of both may be expected to become an important strategy in future drug design. Besides focusing on phytopharmaceuticals, innovative approaches e.g. simulated digestion derived metabolite identification and miRNA profiling seems to be the future of herbal therapeutics favoring a paradigm shift in drug discovery.

DDR-Kinases: Targeted therapy towards cancer

Dr. Sivapriya Kirubakaran
Assistant Professor, Chemistry & Bioengineering
IIT-Gandhinagar, Palaj, Gujarat, India

BIODATA

Dr. Sivapriya Kirubakaran did her Ph.D (Organic chemistry) from Indian Institute of Science, Bangalore and Postdoctoral fellowship From Harvard Medical School and Whitehead Institute, MIT. From 2013 she is working as an assistant professor in chemistry and Bio-engineering at Indian Institute of Technology, Gandhinagar. She has co-authored about 24 publications, 1 book chapter and have 5 US and 4 Indian patents to her credit. She is also a recipient of prestigious DST Ramanujan Fellowship. Her current areas on interest include targeted drug discovery and medicinal chemistry. She is studying mechanistic pathways of Kinases (ATR, ATM, TLK and RAS) using small molecules to develop novel therapeutics for cancer as well exploring H pylori survival pathways for developing drugs against the infection. Her long-term goal would be to make affordable medicines for cancer.

ABSTRACT

Cancer is considered to be a severe health concern worldwide. Deregulation of the kinase activity has emerged as a primary mechanism by which cancer cells evade normal physiological constraints on the growth and survival. Such aberrant functions of the kinases in a cancer cell have highlighted them as one of the most successful families of drug targets. Innovative approaches in chemical biology have played a key role in validating the importance of kinases as molecular targets. However, the detailed understanding of the protein structure and the mechanisms of protein–drug interaction through biochemical and biophysical techniques demands a method for the production of an active protein of exceptional stability and purity on a large scale. We will present the recept developments in the discovery of small molecules towards the most important kinases that are part of DNA damage and repair pathway such as ATR, ATM and TLK developed in our lab.

Interdisciplinary approach in successful Tech transfer of Pharmaceutical Dosage forms challenges, Risks and opportunities

Dr. Nina Sharma
Managing Director, Shamisha Resources Management, Ahmedabad, Gujarat, India

BIODATA

Dr. Nina Sharma is M.Pharm (Gold Medalist) and PhD from IIT, Banaras Hindu University (BHU), Varanasi. She has experience in top level R&D Operations of Formulation Development, Global Portfolio and ¬Resource management with successful projects completion and Formulation launches in various therapeutic categories in reputed organizations. She as Senior Director with Johnson and Johnson led 10 million USD Formulation R &D project for early development and late Development ANDA, manufacturing of clinical supplies for advanced market and Integrated drug product development for Emerging markets of China, Korea, Taiwan and Mexico. She was associated in various capacities with various pharmaceutical industries including Teva Pharmaceuticals, Gresen Lehmann Group, Avesthagen, Johnson and Johnson, Novartis Healthcare Private Limited, Pfizer India Limited, Colgate Palmolive India Ltd, Searle India Ltd, Ranbaxy Laboratories Ltd, Procter & Gamble India Ltd. She has published twenty research publications including four in international journals, she is US and European Patent holder. She has expertise in launching new products in conventional dosage forms, solids, liquids, sterile and semisolids and New Drug delivery systems covering full span of therapeutic area for infectious, psychiatry, cardiology, virology and biotechnology, pain and HIV and Containment strategies. Currently, she is Managing Director, Shamisha Resources Management, Ahmedabad and Mumbai. She is member of various professional bodies.

ABSTRACT

Technology transfer is a process to transfer information and technologies necessary to manufacture quality drug product consistently or technology transfer is the process of taking an invention from its inception in a laboratory to a commercialized product. Investment in R&D is a necessary but not a sufficient condition for economic growth. Productivity gains only result from the natural diffusion of innovation to the marketplace (technology transfer). Responsible departments for successful technology transfer of a product in pharmaceutical industry are R&D, Production, Engineering, QC and QA. Technology transfer from R&D to Production is a complex play of data /knowledge sharing, PM Tools, Execution skill , leadership and most important managing human emotions. It is a perfect example of Interdisciplinary approach to successful commercialisation of Innovation- the process is full of Risks, complexities but offers tremendous opportunity to be Right first time.

Role of Bio-Analytics in Drug Development

Dr. Vijay Raina
Senior Director, Nektar Therapeutics India Private limited, Hyderabad, India

BIODATA

Dr. Vijay Raina is currently Senior Director at Nektar Therapeutics, Hyderabad with over 25 years of experience in Bioanalytical, Clinical and Analytical Research. He is currently heading the bioanalytical development laboratory at Nektar and has expertise in method development of conjugated small and large molecules. He worked previously with Sun Pharma Advanced Research Centre and Malti-Chem Research Centre at Vadodara, Gujarat. He has established regulatory compliant bioanalytical labs and clinical facilities at Nektar and Sun Pharma. He did his Masters in Chemistry from University of Kashmir, Srinagar and Ph.D. in Chemistry from KSV Gandhinagar, Gujarat. He is associated with Applied Pharmaceutical Analysis of Boston Society (APA –India) since 2010.

ABSTRACT

The innovation in pharmaceutical research is regarded successful if a new chemical entity (NCE) or a new biological entity (NBE) is approved by regulatory authorities as a new drug (NDA or BLA) for a disease indication after rigorous review of safety and efficacy data that is generated during the course of the research. To get to a new drug involves stage appropriate activities conducted by different specialized domains to generate quality data that supports drug approval. The accuracy and precision in experimental measurements play a vital role for go-no-go decision and timely conclusions enable drug companies to save cost and time on potential failing drugs. However, the success rate to get to a successful new drug is very low owing to its failure at different stages of drug development. The success comes at an exorbitant cost of about $3-4 billion per drug in a span of 12-15 years. This discussion in this presentation revolves around the interdisciplinary approach to develop new drugs with enhanced success rate at optimized cost.

Novel Nanostructured Materials for Biomedical Applications

Dr. Nandakumar Kalarikkal

Director, International and Inter University Centre for Nanoscience and Nanotechnology, Mahatma Gandhi University, Kottayam, Kerala, India

BIODATA

Dr. Nandakumar Kalarikkal received M. Sc (Master of Science) in Industrial Physics and PhD from Cochin University of Science & Technology, Kerala, India. Dr. Kalarikkal was Postdoctoral Fellow at CSIR-National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram, Kerala, India. He has 150 publications with H index 16, 1 patent, 3 projects completed and 6 projects ongoing, 16 book chapters and 12 books edited. He has supervised 10 PhD and 25 M.Phil and M.Sc students. His research interest include Nanostructured materials for energy, water, food and health security applications. He is guest scientist at Leibniz-Institut fur Polymerforschung Dresden, Germany, Visiting Professor, Alemaya University (1998-2002) & Mekkele University (2006-2007), Ethiopia, Visiting Fellow, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India. Conference Fellowship Award of the Seventh International Conference on Phonon Scattering in Condensed Matter held at Cornell University, USA. He has received Research Associate Fellowship from DST & CSIR, Govt. of India (1992), Senior Research Fellowship from CSIR, Govt. of India (1990) and Junior Research Fellowship from Department of Atomic Energy, Govt. of India (1987). He has research collaborations with various institutes including Bhabha Atomic Research Centre, Mumbai, India, University of Lorraine & Institute of Jean Lamour, France, University of South Brittany, Lorrient, France, Kansas State University, USA, North Carolina State University, USA to name a few. He is member of various professional bodies - The Indian Physics Association- Life Membership, Plasma Science Society of India-Life Membership and Academy of Physics Teachers- Annual.

ABSTRACT

Nanoscience and Nanotechnology research has made significant contributions addressing issues related to many field in particular in the area of biomedical applications. Hybrid nanostructures are found to be much more promising as we can integrate the properties of the constituents and achieve synergetic effects. One of the most promising aspects of the emergent field of polymer nanostructuration is the ability to generate a variety of different morphologies with structural definition on the nanometric scale. The properties and behaviors of the nanostructured materials depend on both, the nature of its molecular constituents and their precise spatial positioning. In this talk, the results of our recent works on Synthesis, antibacterial, cytotoxicity and sensing properties of starch-capped silver nanoparticles, biodegradable electrospun membranes of PCL and P(VDF–TrFE) polymers containing ZnO and TiO2 nanoparticles as skin substitutes with microbial barrier and wound healing properties, in-vitro cytotoxicity and cellular uptake efficiency of zidovudine-loaded solid lipid nanoparticles modified with Aloe Vera in glioma cells and alginate nanoparticles for effective anti-viral drug delivery will be discussed.

Effect of the current deregulation movement on drug development and drug safety

Dr. Eric Kupferberg

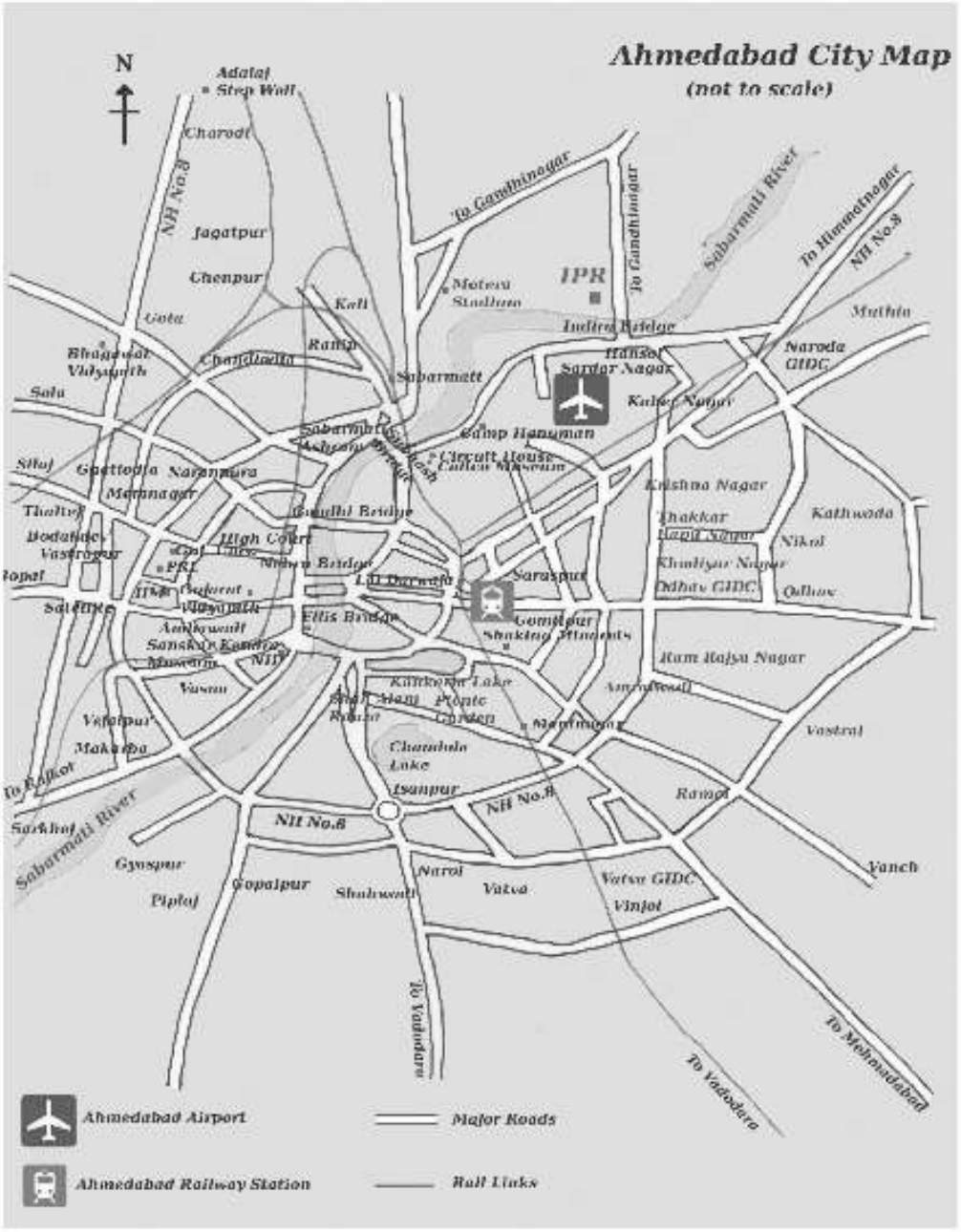
Vice President and Director of India Partnership Programs, Cambridge Graduate University International (CGUI), USA

BIODATA

Dr. Eric D. Kupferberg 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 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, Dr. 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. For nearly two decades, Kupferberg has taught at Harvard University, MIT, and Northeastern University, offering various courses as "Understanding the Health Care Landscape," "FDA Culture and Behavior," "The Economics and Sociology of Food," "The History of Germs" to name a few. 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. He 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.

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.



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