



Silver Jubilee Year 2016-2017



वार्षिक प्रतिवेदन ANNUAL REPORT 2015-2016

राष्ट्रीय औषधीय शिक्षा एवं अनुसंधान संस्थान (नाईपर) एस.ए.एस. नगर
National Institute of Pharmaceutical Education and Research (NIPER) S.A.S. Nagar

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National Institute of Pharmaceutical Education and Research (NIPER) S.A.S. Nagar

Patron

Prof. K.K Bhutani
Director (Officiating), NIPER, S.A.S. Nagar

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FROM THE DIRECTOR'S DESK



It gives me immense pleasure and pride to present to you the Annual Report 2015-2016 of the Institute. NIPER SAS Nagar has completed 25 successful years and we are celebrating our Silver Jubilee this year. The Institute was registered as a Society on February 15, 1991. This report provides a glimpse of our activities and achievements of the past one year and also presents a brief recapitulation of this journey.

The students of the Institute continue to be our pride and joy. Our alumni have established itself firmly in the national pharmaceutical sector (industry and academia) and are making their mark in the international arena as well. A few of the activities of the Silver Jubilee Celebrations have been planned with the active support of our past students. We are also hoping to utilize this opportunity to enhance the visibility of the Institute and to carry out course correction, if required. The Institute is also making a conscious attempt to engage the industry in its progress. For this, it is strengthening the activities of the Small and Medium Pharmaceutical Industry Centre (SMPIC). During the Visitor's conference held in November 2015 and the Silver Jubilee Foundation Day, it has signed Memoranda of Understanding (MoUs) with leading pharmaceutical industries, viz. Sun Pharma, Wockhardt Ltd., Panacea Biotec Pvt. Ltd., Medley Pharmaceuticals Ltd. and others.

In the last 25 years, NIPER S.A.S. Nagar has created a brand name for itself in the national and international arena. The acknowledgement of this achievement is obvious in the decision of the Government of India to set up six other NIPER-like Institutes. A few others are at the planning stage. We are grateful to our mentors who had the vision to establish this multidisciplinary Institute. The contribution of our past and present employees and faculty members is immense and unmatched. The continuous support received from the Department of Pharmaceuticals is helpful. We hope to have our Board of Governors and other statutory bodies reconstituted soon so that we can continue to function and prosper under their guidance. I am thankful to various funding agencies who have continued to support the research work carried out in the Institute. I thank members of our faculty and staff as well as students, who have provided their unreserved support to the overall development of the Institute. I am sure that you will share my optimism about the future of this Institute after reading this report.

(K. K. Bhutani)

OBJECTIVES AND MANDATE

- Provide leadership in pharmaceutical sciences
- Advanced research in new and emerging areas
- National/International collaborative research
- Human resource development
- Media and curriculum development
- Establishment of National Centres
- Sponsored projects
- Promotion of community and institutional pharmacy
- Study of sociological aspects of drug use

MILESTONES

- 1991 Registered as a Society
- 1994 First Director and Core Faculty joined
- 1996 Initiation of research activities
- 1998 Institute of National Importance: NIPER Act
- 1998 Admission of first Batch of Masters' and Ph.D. students
- 1999 Graduation of 1st Batch of Masters' students
- 2000 Dedication of NIPER to the Nation
- 2001 First Convocation held
- 2002 Graduation of 1st Batch of Ph.D. students
- 2003 Statutes proclaimed by the Board of Governors with the prior approval of the Visitor Second Convocation held: HE Dr A.P.J. Abdul Kalam, President of India and Visitor as the Chief Guest
- 2004 Establishment of National Bioavailability Centre
- 2004 'A Decade of NIPER' completed
- 2005 Ordinance regulating the degrees of Masters' and Doctor of Philosophy Third Convocation held
- 2006 Visit of Prince Charles
- 2007 Amendment of NIPER Act to establish six new NIPERs
- 2008 Fourth Convocation held
- 2009 Establishment of SMPIC
- 2010 Amendment of Ordinance regulating the courses of study and procedures thereof Establishment of Patent Facilitation Cell
- 2011 Fifth Convocation held
- 2012 Sixth Convocation held
- 2013 Seventh Convocation held
- 2014 Amendment of Ordinance regulating the courses of study and procedures thereof
- 2016 Silver Jubilee Year

ADMISSION OF STUDENTS IN 2015-2016

The Institute admits postgraduate students [M. Pharm., M. S. (Pharm.), M. Tech. (Pharm.)] through all India NIPER Joint Entrance Examination (NIPER JEE) held each year; students of MBA (Pharm.) are admitted through NIPER JEE, group discussion and interview; students of Ph.D. are admitted through NIPER Ph.D. Joint Admission Test and interview. Candidates should have a minimum CGPA of 6.75 (or 60% marks) for General, 6.25 (or 55% marks) for SC/ST, 5.75 (or 50% marks) for physically handicapped candidates on a 10 point scale in the qualifying examination and also have GPAT/GATE/NET qualification. 5% of total numbers of seats are available for officially sponsored candidates from Govt. Department/PSU/R&D organisations with minimum of 2 years experience with the sponsoring employer. Details of eligibility criteria are available at the Institute website.

DISCIPLINE	Admitted (2015-2016)		Proposed admission (2016-2017)
	MASTERS	Ph.D.	
Medicinal Chemistry	43	02	The Institute proposes to admit 221 Masters', 40 MBA (Pharm.) and 22 Ph.D. students in the next academic year.
Natural Products	16	03	
Traditional Medicine	05	Not offered	
Pharmaceutical Analysis	09	02	
Pharmacology & Toxicology	23	04	
Regulatory Toxicology	09	Not offered	
Pharmaceutical Technology			
Biotechnology	10	-	
Formulations	07	-	
Process Chemistry	14	-	
Pharmaceutics	17	06	
Biotechnology	29	05	
Pharmacy Practice	08	02	
Clinical Research	07	Not offered	
Pharmacoinformatics	19	01	
Pharmaceutical Management	45	Not offered	

GRADUATION OF STUDENTS

168 Masters' students and 28 MBA (Pharm.) students graduated in the current academic year. 36 Ph.D. theses were accepted for award of Ph.D. degree this year. All the MBA (Pharm.) students have been placed with reputed pharmaceutical companies. Among the graduating Masters' students, placement is divided equally between those who opted for employment in pharmaceutical companies and those who opted for higher studies (Ph.D.). Graduating Ph.D. students have either been absorbed by pharmaceutical companies or have found post-doctoral positions in academia in India as well as abroad.

Ph.D. THESIS APPROVED FOR AWARD OF DEGREE IN 2015-2016

Name	Discipline	Title
Harde Harshad Prakash	Pharmaceutics	Development of Smart Nanocarriers for Oral Vaccine Delivery
Ashish Kumar Agrawal	Pharmaceutics	Development and Characterization of Smart Nanocarriers for Oral Insulin Delivery
Nandekar Prajwal Prabhakar Rao	Pharmacoinformatics	Cytochrome P450 1A1: Molecular Modeling Guided Design and In Vitro Studies of Anticancer Compounds and CYP1A1-Biomembrane Interactions
Jasmine Kaur	Pharmacology and Toxicology	Development of Aptamers for Targeted Drug Delivery and Elucidating the Underlying Molecular Mechanisms for Cancer Therapeutics
Pinakin Arun Karpe	Pharmacology and Toxicology	Role of Heat Shock Proteins in Insulin Resistance and Endothelial Dysfunction
Gangawal Rahul Prakash	Pharmacoinformatics	Identification, Biological Evaluation and Pharmacokinetic Profiling of Small Molecules as Anti-Inflammatory Agents
Mahesh Kishorlal Katariya	Pharmaceutics	Nanocarrier based Approaches for Localised Transdermal Delivery of Hormonal Anticancer Drugs
Vikas Chaudhary	Medicinal Chemistry	Novel Heterocyclic-condensed Purines: Synthetic Exploration and Bioevaluation Studies
Ashok Kumar Datusalia	Pharmacology and Toxicology	Diabetes-Induced Cognitive Impairment: Elucidation of the Role of GSK-3 β and NF- κ B using Pharmacological Interventions
Sonam Bhatia	Medicinal Chemistry	Electronic Structure and Reactivity Studies of Medicinally Important Divalent N(I) Compounds
Rajender Kumar	Pharmacoinformatics	A Pharmacoinformatics Approach to Identify Small Molecule Inhibitors for Mtb-ASADH
Neeraj Kumar Patel	Natural Products	Investigations on Selected Medicinal Plants against Pro-Inflammatory Mediators
Kardani Jaykumar Rameshchandra	Biotechnology	Effect of Caffeine and Nicotine on the Mechanism of Aggregation of α -Synuclein
Khemraj Bairwa	Natural Products	Isolation of Bioactive Constituents from Selected Medicinal Plants and their Formulations Development
Shalu	Pharmaceutical Analysis	Identification of rCYP3A4 Amino Acids Covalently Modified by Reactive Metabolites of HIV Protease Inhibitors
Jagdeep Grover	Natural Products	Design, Synthesis and Biological Evaluation of Natural Product Analogues as Potential Anti-Inflammatory Agents

Udai Chand Agrahari	Natural Products	Phytochemical Investigation of Selected Indian Medicinal Plants against Pro-Inflammatory Mediators
Pawar Harish Shankar	Pharmaceutical Technology (Formulations)	Design and Development of Functionalised Nanoparticles for Combination Therapy in Breast Cancer
Kuppala Ramakrishna	Medicinal Chemistry	Synthesis of Sugar-based Molecules as Potential Antibacterial Agents
Bhushan Munjal	Pharmaceutics	Effect of Processing and Formulation Variables on the Solid Form Behaviour of API(s) during Lyophilization
Ram Jee Sharma	Natural Products	Studies on <i>Eugenia jambolana</i> Derived Anthocyanins- and Anthocynidins- Enriched Extracts: Standardization, Biological Evaluation and Formulation Development
Dara Ajay	Pharmacoinformatics	Comparative Anticancer Patent Landscape Analysis of Indian CSIR with Pioneer Universities Worldwide and Design of Patinformatics Tool
Kaushik Thanki	Pharmaceutics	Development and Evaluation of Novel Lipid Conjugates and their Nanoformulations for Oral Delivery of Amphotericin B
Alka Choudhary	Natural Products	Phytochemical Investigations of <i>Potentilla fulgens</i> and <i>Rhodiola imbricata</i> for selected Biological Activities
Rajan Kumar Tripathy	Biotechnology	Improvement of the Catalytic Activities of Recombinant Human Paraoxonase 1 by Mutagenesis Approach
Shivani Mahajan	Natural Products	Design and Synthesis of Natural Product-Based Analogues as Potential Anti-Protozoal and Anti-HIV Agents
Vivek Kumar	Pharmacoinformatics	Identification of Potential Direct InhA Inhibitors for Isoniazid-Resistant Tuberculosis: Insights from Computational Studies
Kapil Kumar	Medicinal Chemistry	Strategies toward Convenient Synthesis of Nitrogen containing Heterocycles
Minhajul Arfeen	Medicinal Chemistry	CADD Assisted Design and Synthesis of Potentially Selective GSK-3 β Inhibitors
Pradeep Jadhavar	Medicinal Chemistry	Diversity Oriented Synthesis of Novel Heterocyclic Scaffolds for the Discovery of New Anti-TB Agents
Kharatmal Shivsharan Balbhim	Pharmacology and Toxicology	Hyperglycemia-induced Alterations in Tetrodotoxin-Resistant Sodium Channels in Dorsal Root Ganglion Neurons: Effects of Sodium Channel Blockers and Calpain Inhibitor
Geetika Aggarwal	Biotechnology	Exploring the Effect of Position 192 in the Catalytic Mechanism of Recombinant Human Paraoxonase 1

Ankan Kumar Bhadra	Biotechnology	Studies on Protein Aggregation in a Yeast Model of Huntington's Disease
Charan Singh	Pharmaceutical Technology (Formulations)	Design and Development of Antitubercular Nano-Formulations of Rifampicin
Sunil Bansal	Medicinal Chemistry	Design and Synthesis of β -Sheet Breaker Peptides as Potential Anti-Alzheimer's Disease Agents
Boradia Vishant Mahendra	Biotechnology	Characterization of <i>Mycobacterium tuberculosis</i> H37Rv Glyceraldehyde-3-Phosphate Dehydrogenase (Rv1436) and its Role in Transferrin Iron Acquisition

CURRENTLY ENROLLED Ph.D. STUDENTS

Sabbir Khan	Rajiv Ahlawat	Umashanker
Jagtap Sneha	Pipaliya Bhavin	Gujjari Lohitha
Satya Prakash Tripathi	Asim Kumar	Piyush
Garima Priyadarshani	Neha Patel	Surbhi Soni
Sheenu Abbat	Nitin Bagra	Seema Kirar
Dharam Pal	Narender Yadav	Vinay Kumar
Neelagiri Soumya	Sumit Sunil Chourasiya	Katiyar Sameer Sarvesh
Kitika Shenmar	Santosh Kumar Giri	Sharma Jagadish
Mukesh Gangar	Shah Purvi Ajaykumar	Shubhra Sharma
Ratnika Sethi	Isha Saraf	Bhimpuria Rohan Ajaybhai
Umesh Ratnakar	Priyanka Mangal	Dinesh Kumar Tanwar
Kashmir Prasad	Rakesh Dilip Nimbalkar	Patel Ketulbhai Vijaybhai
Venkateswara Rao Amara	Sunil Kumar Surapaneni	Firdoos Ahmad Sofi
Vijay Rathod	Bhanu Prakash Arakareddy	Tejender Singh
Sandeep Goyal	Bharat Prasad Dwivedee	Gautam Kumar
Priyank Purohit	Neeraj Singh Thakur	Ambati Goutami Godavari
K S Satyanarayana	Gopal Patel	Rohini Verma
Shivcharan Prasad	Varun Kushwah	Ladumor Mayurbhai Kathadbhai
Chaitanyakumar Jaladanki	Moolchand Kurmi	Dilip Kumar Singh
Krishna Kumar Sharma	Mahendra Singh	Pavan Thapak
Neha Hura	Jethava Krupal Prabhubhai	Durgesh Kumar Dwivedi
Rajesh Gour	Anjana Barola	Yadaigiri Ganesh
Puneet Khurana	Santosh Prakash Rav	Dinesh Kumar
Shiv Gupta	Dhameliya Tejas Manjibhai	Kale Dnyaneshwar Prakashrao
Krishna Prahlad Maremanda	Shweta Bhagat	Poonam Singh Thakur
Yogesh Kumar Bulani	Deepika Kathuria	Yadav Jayprakash Amarpal
Patel Kinjal Ashokbhai	Shailendra Sisodiya	Ikjot Sodhi
Sunil Kumar Jena	Vaja Maulikkumar Dineshbhai	Sandeep Suresh Zode
Chander Parkash	Meenu Saini	Sneha Sheokand
Rohani Prasad Burman	Sanjay Kumar	Pallapati Anusha Rani
Kiran Dashrath Bhilare	Shweta Tiwari	Nimma Ramesh
Patil Mahesh Daga	Ravi Kumar Mittal	Eshita Das
Suyog Madhav Amrutkar	Shahbaz Eqbal	Preeti
Mahesh Sharma	Sujit Ratnakar Tangadpalliwar	Boya Chandra Sekhar
Neha Trivedi	Vishnu Kumar Sharma	Ruchi Singhal
Shaikh Naeem	Kahkashan Resham	G Siva Kumar
G Kapil		

MASTERS' STUDENTS GRADUATED IN JUNE 2015

Discipline	Discipline	Title of thesis
Medicinal Chemistry	Abhisek Bera	Synthesis of Flavones, Flavonols & Flavanones
Medicinal Chemistry	Anurag Kudwal	Synthesis of R-His (2-Ar)-Arg-NH-Benzylamide Class of Peptidomimetics as Potential Antimicrobial Agents
Medicinal Chemistry	Ashok Ramakrishnan	Tautomerism of Biologically Active Hydrazone Derivatives and Exploration of Divalent N(I) Character
Medicinal Chemistry	Azaz Ali	Synthesis of His(2-Alkyl)-Trp-Arg Class of Antimicrobial Lipo-Tripeptidomimetics
Medicinal Chemistry	Bobba Gowthami	Synthesis of Carbohydrate-Based Triazole-Linked Ricinoleic Acid Derivatives as Potential Antibacterial Agents
Medicinal Chemistry	Dadhania Jayna Nagjibhai	Synthesis of 2-Arylquinolin-4(1 <i>H</i>)-One as Potential Topoisomerase II Inhibitors
Medicinal Chemistry	Dinesh Kumar Dhakar	Synthesis of O-Linked Glycopeptides as Potential Analogues of Tn Antigen
Medicinal Chemistry	Firdoos Ahmad Sofi	Synthesis of Artemisinin Lactol Thioethers for Studies of Antimalarial Activity
Medicinal Chemistry	Gaddam Nikitha	Investigation of Diastereoselective Mannich Reaction by using Thioxoimidazolidine-4-One
Medicinal Chemistry	Geetha Chawan	Synthesis of 5-Triazole Substituted L-Histidine Derivatives
Medicinal Chemistry	Gulghane Nikhil Manoharrao	Synthesis of 2-Aminopyrazine and 2-Aminoquinoxaline from <i>vic</i> -1,2-Diamine via Strecker-Ugi Reaction using TMSCN as Isocyanide Equivalent and their Applications in the Synthesis of Imidazopyrazines
Medicinal Chemistry	Gulshan Kumar	Design and Synthesis of 2-(2'-Arylphenyl)Benzothiazole Derivatives as Potential COX-2 Inhibitors
Medicinal Chemistry	Konar Debabrata	Total Synthesis of Tetrahydrofurofuran Lignan and Benzodioxane Lignan by Chiral Auxiliary Approach
Medicinal Chemistry	Ku. Supriya Rai	Design & Synthesis of SGLT-2 Inhibitors as Potential Antidiabetics
Medicinal Chemistry	Madhulika Singh	Design and Synthesis of 2-(2'-Arylphenyl)Benzoxazole Derivatives as Potential COX-2 Inhibitors
Medicinal Chemistry	Mohammed Shameer K	Molecular Docking Studies and Synthesis of Trypanothione Reductase Inhibitors as Antileishmanal Agents
Medicinal Chemistry	Molothu Vasu	Quinazolines as Potential Antimarial Agents
Medicinal Chemistry	More Shital Sunil	Imidazolidinone Based Chiral Auxiliary Mediated Acetate Ardol Reactions of Isatin Derivatives and their Application towards the Synthesis of Makomotindolin
Medicinal Chemistry	Muhammed Shameem K P	Computational Study of Mechanism Based Inhibition of Cytochrome P450 by Cyclopropylamine Containing Drugs
Medicinal Chemistry	Nishant Singh Chauhan	2-(Aminophenyl)Benzthiazoles as New Antileishmanial Chemotypes: Design, Synthesis and Biological Evaluation

Medicinal Chemistry	Pritika Gupta	Molecular Modeling of Organic Cation Transporter (Oct-3)
Medicinal Chemistry	Ravidarshdeep Kaur	Design and Synthesis of Triazole Hydrazone Derivatives as Trypanothione Reductase Inhibitors
Medicinal Chemistry	Ravikant Ravi	His(2-Ar)-Trp-Arg Class of Tripeptidomimetics as Amphiphilic Antimicrobial Agents
Medicinal Chemistry	Sahaj Pancholia	Design and Synthesis of Novel Benzothiazoles as Potential Anti-Tubercular Agents
Medicinal Chemistry	Shah Archana Pravin	Design, Synthesis & Bio-Evaluation of Quinoline Based Compounds as Potential Trypanothione Reductase Inhibiting Anti-Leishmanial Agents
Medicinal Chemistry	Shinde Bharat Dashrath	Design and Synthesis of New Chemotypes as Potential Anti-Tubercular Agent
Medicinal Chemistry	Sigalapalli Dilep Kumar	Molecular Modelling Studies on N-Fused Imidazole Derivative as Human Topoisomerase-II Inhibitors
Medicinal Chemistry	Surjit Kumar	Synthesis of Carbohydrate-Based Green Surfactant-like Molecules by an In(OTf) ₃ -Mediated Mechanochemical Method
Medicinal Chemistry	Syril John	Synthesis of Glycosides of Ricinoleic Acid as Potential Antibacterial Agents
Medicinal Chemistry	Titas Deb	Exploration of Imidazopyridinones as Intermediates in the Syntheses of 2,3- Disubstituted Imidazo(1,2-A) Pyridines and 2-Substituted Pyrido (1,2-A) Pyrimidin-4-Ones
Medicinal Chemistry	Tokala Ramya	Design & Synthesis of Benzothiazole Derivatives as Potential PDE IV Inhibitors
Medicinal Chemistry	Vankodoth Hathiram	Total Synthesis of Ligraminol-E
Natural Products	Jignesh Gajera	Phytochemical Investigations on <i>Euphorbia thymifolia</i>
Natural Products	Kirti Joshi	Design, Synthesis and Biological Evaluation of Capsinoid Derivatives for Anti-Obesity Activity
Natural Products	Maloth Revathi	Quantification of Mangiferin in <i>Mangifera indica</i> Leaves and Fruits and its Large Scale Isolation
Natural Products	N Sarala	Phytochemical Investigations on <i>Tephrosia purpurea</i>
Natural Products	Reena Kanti	Design and Synthesis of Cinnamoyl- tyramine Conjugates for the Inhibition of Pro-inflammatory Mediators
Natural Products	Alur Uday Kumar	Synthesis of 1,2,3-Triazoles as Anti-tubercular Agents
Natural Products	Ambati Goutami Godavari	Phytochemical Investigation of <i>Ailanthus excelsa</i> Roxb. Bark for Anti-inflammatory Constituents
Natural Products	Gondaliya Bhagirath Jitendrakumar	Synthesis of Coumarin based 1,3,4-Oxadiazoles as Anti-tubercular Agents
Natural Products	Palepu Nagasri	Synthesis of Coumarin based 1,3,4-Thiadiazole Derivatives as Anti-tubercular Agents
Natural Products	Richa Singh Baghel	Design and Synthesis of Analogues of Piplartine for Anti leishmanial Activity
Natural Products	Rohini Verma	Design, Synthesis and Biological Evaluation of 6-Gingerol Derivatives for Anti-Obesity Activity

Traditional Medicine	Chandresh Kumar	Evaluation of Anti-eczematic Activity of Hydro-alcoholic Extract of <i>Euphorbia thymifolia</i> and its Prepared Formulations in Eczema Induced Mice Model
Traditional Medicine	Sonali	Evaluation of Anti-obesity Potential of <i>Ferula asafoetida</i> and <i>Murraya koenigii</i> and their Combinations
Traditional Medicine	Gaurav Jaiswal	Development of Phytosome and Liposome Formulation of Pinostrobin for Evaluation of Anti-inflammatory Activity
Traditional Medicine	Poonam Kumari	Development and Evaluation of Phytosome Formulation of Agnuside from <i>Vitex negundo</i> leaves
Traditional Medicine	Zahoor Ahmad Wani	Development of Carbopol Coated Liposome Formulation of Puerarin and Evaluation of its Antidiabetic Activity
Pharmaceutical Analysis	Bhargavi Srija Ramisetty	MS/MS Fragmentation Behavior of Metabolite-Protein Adducts
Pharmaceutical Analysis	Bhavsar Krishna Gautam	QbD Optimization of Protocol for Trypsin Digestion of Membrane Bound Protein
Pharmaceutical Analysis	Deepanmol Singh	Optimal Conditions for Stability of a Peptide Mixture as Evaluated by Study of Influencing Factors using DoE Approach and Quantitation by LC-MS
Pharmaceutical Analysis	Jugal Gupta	Study of Physical and Chemical Interactions in Fixed Dose Combinations Containing Aliskiren, Amlodipine and/or Hydrochlorothiazide
Pharmaceutical Analysis	Ladumor Mayurbhai Kathadbhai	Stress Testing of Ivabradine HCl and Aprepitant and Development for their Stability-indicating HPLC Methods using Quality by Design (QbD) Approach
Pharmaceutical Analysis	Vayila Gopi	Development of Stability-indicating Method(s) for Various Formulations of Tacrolimus
Pharmaceutical Analysis	Vijjagiri Sathish	Stress Testing on Rufinamide and Ranolazine and Characterization of their Degradation Products by using Hyphenated Techniques
Pharmacology & Toxicology	Pavan Thapak	Investigations on the Involvement of Endoplasmic Reticulum Stress in Neuropathic Pain using Pharmacological Interventions
Pharmacology & Toxicology	Anas Ahmad	Evolution of the Efficacy of Citrus Flavonones and their Nanocrystalline Solid Dispersion Formulation in Isoproterenol Induced Myocardial Infarction
Pharmacology & Toxicology	Sanjeev Kumar Paikra	The Determination of the Effect of [D-Ala ² , D-Leu ⁵] Enkephalin on the Phagocytosis of <i>Plasmodium berghei</i> Infected Erythrocyte by Macrophages, In Vitro
Pharmacology & Toxicology	Amirsohel Yunnus Tamboli	NIPER compounds NP-3524, NP-3525, NP-3526 and NP-3527 Belonging to Artemisinin Class: Determination of their Blood-schizonticidal Activity in <i>Plasmodium berghei</i> -infected Mice
Pharmacology & Toxicology	Khyati Dave	Pharmacological Profile of New COX-2 Inhibitors
Pharmacology & Toxicology	Koyada Naresh	Influence of Transplacental Exposure of Nicotine on Ovary and Bone of Mice: Protective Effect of Alpha Lipoic Acid

Pharmacology & Toxicology	Kalyankumar M.	Effect of Beta-carotene on male germ cell toxicity induced by chlorambucil
Pharmacology & Toxicology	Shilpa Lalwani	To Evaluate the Role of ZnO Nanoparticles as SHIP2 Inhibitor and its Implication in Cancer
Pharmacology & Toxicology	Thatikonda Sowjanya	Crosstalk between Estrogen Receptor- α and HER-2 Involves AKT miRNA and in Breast Cancer Cell Lines
Pharmacology & Toxicology	Kakarla Ramakrishna	Effects of Phenyl Butyric Acid, an Endoplasmic Reticulum Stress Inhibitor on Cognitive Impairment Associated with Stroke
Pharmacology & Toxicology	Nitin Kshirsagar	Diabetic Nephropathy and Intervention with Sodium Phenyl Butyrate: A Study in SD Rat
Pharmacology & Toxicology	Sandeep Kumar Komarya	Intervention of Sodium Phenylbutyrate in Streptozotocin Induced Pancreatic and Cardiac Cell Damage in SD Rat
Pharmacology & Toxicology	Lella V.K. Mahalakshmi	Anticancer Effect of Metformin and Gold Nanoparticles on Cancer Cell Lines
Pharmacology & Toxicology	Gurpreet Kaur	Effect ACE2 Activator (Diminazme Aceturate) on the Development and Progression of Type 1 Diabetic Nephropathy
Pharmacology & Toxicology	Chittaranjan Sahu	Protection of Mice from Malaria: Co-treatment with rmGM-CSF and [D-Ala ² , D-Leu ⁵] Enkephalin
Pharmacology & Toxicology	Nalban Nasiruddin	To Determine the Combined Effect of Clarithromycin and [D-Ala ² , D-Leu ⁵] Enkephalin against Malaria Caused by <i>Plasmodium berghei</i> in Mice
Pharmacology & Toxicology	Khushpreet Kaur	Study of Blood Schizonticidal Activity of NIPER Compounds NP-2818, NP-2819, NP-2825, NP-2830 and NP-2832 against <i>P. berghei</i> Infection in Swiss Mice
Pharmacology & Toxicology	Pooladanda Venkatesh	Study the EGFR and VEGFR Pathway in Non Small Cell Lung Cancer
Pharmacology & Toxicology	Nisha Sharma	Effect of NFAT Inhibitor in DOCA Salt Induced Hypertensive Renal Damage
Regulatory Toxicology	Deep Patel	Role of NFAT in High Fat Diet-fed Asthma SD Rats
Regulatory Toxicology	Zahid Rafiq	Intervention of Sodium Valporate Ameliorates Type 2 Diabetes Induced Fibrosis, Oxidative Stress and DNA Damage: A Study in Rat Kidney
Regulatory Toxicology	Kailash Ahirwar	Intervention of Sodium Valporate Ameliorates Type 2 Diabetes Induced Oxidative Stress and DNA Damage: A Study in Rat Hearts
Regulatory Toxicology	Dilip Sharma	Effects of Pharmacological Agents on Hyperglycemia Induced Alteration in Voltage-gated Sodium Channels in Sensory Neurons
Regulatory Toxicology	Santo K. Anto	Influence of Transplacental Exposure of Nicotine on Testes and Bone of Mice: Protective Effect of Alpha Lipoic Acid
Pharmaceutics	Amanpreet Kaur	Nanoemulsion Loaded Gel with Combination of Drugs for Topical Treatment of Psoriasis

Pharmaceutics	Burse Vaibhav Mahavir	Preformulation Profiling of Novel Anti-Inflammatory 2-(2-Arylphenyl)
Pharmaceutics	Devesh Kumar Jain	Anacardic acid Functionalized Stealth Liposomes for Tumor
Pharmaceutics	Neena Sharma	Co-amorphous Drug Delivery System of Cycloserine and Ethionamide
Pharmaceutics	Pawan Kumar Singh	Generation, Characterization and Biopharmaceutical Evaluation of Novel Febuxostat Co-crystals
Pharmaceutics	Swapnil Singh	Insulin and Antioxidant Co-encapsulated LCNPs for Efficient Management of Diabetes Following Oral Administration
Pharmaceutics	Yadav Jayprakash Amarpal	Compaction Behavior of Febuxostat Polymorphs
Pharmaceutics	Anamika Jain	Subcutaneous Delivery Mannosylated Chitosan Nanoparticle and Mannosylated Liposome for Malaria Vaccine
Pharmaceutics	Deepanshu Shilpi	Hydrophobically Modified Gelatin based Nanocarrier for Co-encapsulation of Anti-IHD Drugs
Pharmaceutics	Kritika Nayak	NLCs Containing Combination of Retinaldehyde and CoQ10 for Treatment of Acne
Pharmaceutics	Pailla Sravanthi Reddy	Macromolecular Gemcitabine-Tamoxifen Bio-conjugate for Synergistic Breast Cancer Therapy
Pharmaceutics	Sumit Mukesh	Amorphous Salt Solid Dispersion of Celecoxib with PVP-VA
Pharmaceutics	Vankayala Radhakrishna	Preformulation and Formulation Development of Novel Anti-malarial Artemisinin Analogues (NP-1136 & NP-1138)
Biotechnology	Ankit Sahu	Expression and Purification of <i>M. tuberculosis</i> Enolase
Biotechnology	Bhadoria Ruchita Rakesh	Molecular Cloning, Expression and Purification of Pyridoxal Kinase from <i>Leishmania donovani</i>
Biotechnology	Bhagath Naveenkumar	Cloning of <i>M. tuberculosis</i> Pyruvate Kinase (Rv 1617)
Biotechnology	Chintankumar M Chaudhary	Cloning, Expression and Purification of Recombinant Trypanothione Reductase from <i>Leishmania donovani</i> for In Vitro Enzyme Inhibition Studies
Biotechnology	Gadhavi Joshna Dharmendrabhai	Effect of Glycation on Aggregation of Alpha Synuclein
Biotechnology	Gajjar Parag Laljibhai	An Attempt to Refold the OP Hydrolyzing Enzyme by using Three Phase Partitioning Method
Biotechnology	Harshpreet Kaur	Creation of Stable Cell Lines Expressing Fluorescently Tagged Pyruvate Kinase M2
Biotechnology	Ingarodiya Kinjal Ganpatbhai	Surface Modification of Recombinant DFPase by PEGylation
Biotechnology	Isha Bagdyan	Effect of Alkaloids (Harmine and Harmaline) on Yeast Cells Expressing Mutant Huntingtin Protein
Biotechnology	Km Deepali Gupta	Effect of Alkaloids (Harmine and Harmaline) on Yeast Cells Expressing Mutant Huntingtin Protein
Biotechnology	Kolluri Thulasi	Oxidative Stress Inducible Expression of Mutant Huntingtin Specific RNA Aptamers
Biotechnology	Madaka Surya Teja	Standardization of HPLC Method to Monitor In Vitro Refolding of Recombinant Protein

Biotechnology	Naik Vishal Shyam	Effect of Disaccharides on Aggregation of an Intrinsically Disordered Protein
Biotechnology	Namrata Singh	Storage Stabilization Studies of Recombinant Diisopropyl-fluorophosphatase
Biotechnology	Nirupma Devi	To Study the Interaction of Mutant Huntingtin with Some Cellular Transcription Factors
Biotechnology	Panara Mitesh Nandkishorbhai	Generation of Single Knockout Construct of Acetyl CoA Synthetase from <i>Leishmania donovani</i>
Biotechnology	Patel Pratibhakumari Mahervanbhai	Cloning of 3' Untranslated Region of Ribose 5-Phosphate Isomerase Gene from <i>Leishmania donovani</i> for Generation of Single Knockout Construct
Biotechnology	Ramani Jaydip Ghanshyambhai	Exploring the Role of Active Site Residues of <i>Leishmania donovani</i> 3-Hydroxy 3-Methylglutaryl Coenzyme A Reductase (HMGR) by Site Directed Mutagenesis
Biotechnology	Ravi Pratap Singh Bhadoriya	Creation of Construct for Monoallelic Gene Deletion of 3-Hydroxy 3-Methylglutaryl Coenzyme A Reductase (HMGR) from <i>Leishmania donovani</i>
Biotechnology	Sourabh Sharma	In Vitro Refolding of Recombinant SsoPox by Co-solute Assistance
Biotechnology	Swati Bhojraj	Trafficking of Soluble Glyceraldehyde-3-phosphate Dehydrogenase (GAPDH) in Mycobacterial Strains
Biotechnology	Venkanna Bhukya	Cloning of <i>M. tuberculosis</i> Iron Regulated Elongation Factor-Tu (Rv 0685)
Biotechnology	Zahid Gani	The Immunomodulatory Role of <i>Mycobacterium tuberculosis</i> GAPDH
Pharmaceutical Technology (Formulations)	Shreya Thakkar	Optimization of Particle Characteristics in Celecoxib Nanocrystalline Solid Dispersion
Pharmaceutical Technology (Formulations)	Naveen Singh	Development of Parenteral Nanosuspension based Aspirin Formulation
Pharmaceutical Technology (Formulations)	Ramsevak Sharma	Development of Nanocrystal based Ophthalmic Formulation
Pharmaceutical Technology (Formulations)	Chudasama Vikram Bhai	Phospholipid Complexation to Enhance the Solubility and Oral Bioavailability of Amphotericin B
Pharmaceutical Technology (Formulations)	Vikram Kaithwas	Formulation and Evaluation of Nano-structured Lipid Carrier of Olmesartan medoxomil for Bioavailability Enhancement
Pharmaceutical Technology (Process Chemistry)	Anchal Singh	An Efficient Approach to Raloxifene Synthesis
Pharmaceutical Technology (Process Chemistry)	Bhagawana Ram	Process Development Efforts to Amiodarone Synthesis
Pharmaceutical Technology (Process Chemistry)	Ripu Daman	Exploring an Alternative Approach to Rizatriptan
Pharmaceutical Technology (Process Chemistry)	Arya Atithi Bharatpratap	A Study towards the Synthesis of Carbazole Derivatives
Pharmaceutical Technology (Process Chemistry)	Kamlesh Kumar Jataw	Role of Switchable Green Solvents in Process Development of Substitution Reaction

Pharmaceutical Technology (Process Chemistry)	M Ravi	Advances in Synthesis of Oxi8006(2-Aryl-3-aryl indole) and Synthesis of Potential Anti-tuberculosis Compounds
Pharmaceutical Technology (Process Chemistry)	Menda Sai Siddhardh	Attempted Synthesis of Isatin and 4-Hydroxyisoleucin Derivatives
Pharmaceutical Technology (Process Chemistry)	Nair Akshay Murali	Study of Metal-catalyzed Decarboxylative Benzoylation of α -Oxo acids
Pharmaceutical Technology (Process Chemistry)	Dilip Prajapati	Applications of Dehydrogenative Cross-couplings to the Synthesis of Fused Nitrogen Hetrocycles
Pharmaceutical Technology (Process Chemistry)	Jawharani Urvashi Devidas	Studies toward the Synthesis of Benzofused Sultam by Palladium-catalyzed Direct C-H Activation
Pharmaceutical Technology (Process Chemistry)	Patel Nidhi Jayantibhai	Study of Metal-catalyzed Decarboxylative C-C Bond Formation of Alknyl Carboxylic Acids
Pharmaceutical Technology (Biotechnology)	Amreen Khan	Cloning, Expression and Characterization of Novel Proteins
Pharmaceutical Technology (Biotechnology)	Ankit Puri	Biotransformation of Drugs and Drug Intermediates
Pharmaceutical Technology (Biotechnology)	Darla Balakishor	Investigation of Biocatalysis in A ³ - Coupling-Cycloisomerization : Towards the Synthesis of Imidazo[1,2-a]pyridine
Pharmaceutical Technology (Biotechnology)	Khobragade Taresh Pradip	Scale Up and Optimization of Process Parameters for the Production of a Immunosuppressant Drug, Tacrolimus
Pharmaceutical Technology (Biotechnology)	V Naresh Naik	Production of Antimicrobial Peptides from Probiotic Co-culture System
Pharmaceutical Technology (Biotechnology)	Sooram Banesh	Synthesis and In Silico Studies of Latrozole Analogs as Potential Aromatase Inhibitors
Pharmaceutical Technology (Biotechnology)	Davinder Kaur	Nucleic Acid Functionalized Noble Metal Nanoparticles for Theranostic Applications
Pharmaceutical Technology (Biotechnology)	Shushil Kumar Rai	Generation and Characterization of a Nanobiocatalyst by Immobilization of <i>Candida rugosa</i> Lipase on Nanostructures
Pharmaceutical Technology (Biotechnology)	Yaseen Khan	Cloning, Expression and Purification of Shikimate Dehydrogenase
Pharmaceutical Technology (Biotechnology)	Shinde Kiran Devidas	Optimization of Process Parameters for the Production of Arginine Deiminase by <i>Pseudomonas putida</i> in MTCC 1273
Pharmacy Practice	Abhishek	An Observational Cohort Study in Children with Symptomatic Epilepsy
Pharmacy Practice	Dasari Anil	An Observational Cohort Study in Children with Idiopathic Epilepsy
Pharmacy Practice	Deepak Kumar	Online Pharmacy-Global Scene & Indian Opportunity
Pharmacy Practice	Lavudiya Sreenu	Effectiveness & Quality of Life in Patients with Chronic Low Back Pain: An Observational Study
Pharmacy Practice	Md Aejaz Ahmad	Study on Pricing of Patented Drugs in Different Markets
Pharmacy Practice	Md Salman	A Survey on Medicine Use, Storage and Disposal among Postgraduate Students of Pharmacy

Pharmacy Practice	Shakshi Kumari	Study on Impact of Drug Price Control Order 2013, on Pricing of Drugs
Clinical Research	Dhanuk Pushpendra	A Community Based study in North Indians to Assess the Prevalence, Knowledge, Disability & Service Utilization Regarding in Low Back Pain in People Ages 18-65 Years among North India Population
Clinical Research	Joshi Sachin	Diagnostic Accuracy of Neuropathic Pain Assessment Criteria in Chronic Pain Conditions: An Evidence-based Approach
Clinical Research	Priyamvada	Role of Low Dose Naltrexone in Chronic Pain Condition: A Systematic Review & Meta Analysis
Clinical Research	Shallu Sharma	Evaluation of Physical Functioning, Life Style Factor & Body Composition Analysis in Healthy Volunteers of 18-35 year old age
Pharmacoinformatics	Ankit	Physicochemical Characterization of Acetamide Derivative as Novel Anti-Inflammatory Agent: An In Silico and In Vitro Approach
Pharmacoinformatics	Avagadda Spandana	Molecular Modeling Studies on Ribose-5-phosphate Isomerase Type B from <i>Leishmania donovani</i>
Pharmacoinformatics	Bhukya Asha	Rescuing and Repurposing of Drugs for Cancer
Pharmacoinformatics	G Siva Kumar	Structure Based Pharmacophore Generation and Virtual Screening: Identification of Potential Trypanothione Reductase Inhibitors
Pharmacoinformatics	Jillella Gopala Krishna	In silico Prediction of hERG Toxicity using Machine Learning Approaches
Pharmacoinformatics	Khare Sawani Govind	In Silico and In vitro Physicochemical Characterization of CYP1A1 Substrate 2-Fluro-5-(5-Fluro-1H-Indol-2-yl) Aniline
Pharmacoinformatics	Kotthuri Nagabhushan	MBI of CYP450 by Isocyanate Metabolite : A Quantum Chemical Study
Pharmacoinformatics	Manoj Kumar Gupta	In silico prediction of Ames Mutagenicity using Machine Learning Methods
Pharmacoinformatics	Mayura Borgaonkar	Identification of INHA Homology to Design Multi Target Ligand
Pharmacoinformatics	Mohammad Rizwan	CD47 Targeted Antibody Therapy A Molecular Modelling Study of Anti-CD47 Antibodies Interactions
Pharmacoinformatics	Namani Kranthikumar	Computational Analysis of the Metabolic Networks of <i>H. pylori</i> to Detect Potential Drug Targets
Pharmacoinformatics	Rahul Singh Gurjar	Development of a Software tool for the Prediction of Suitable Dendrimers for Drug Delivery
Pharmacoinformatics	Sivangula Srikanth	Quantitative Structure Activity Relationship and Selectivity Studies on PTP1B Allosteric Inhibitors
Pharmacoinformatics	Tetala Srilaxmi	Physicochemical Characterization of 5-(5-Fluro-1H-indol-2-yl)-2-methyle aniline by In Silico and In Vitro Techniques
Pharmacoinformatics	TG Babu Rajendraprasad	Dimerization of CCR2 Receptor: Insights from Computational Modeling

Pharmacoinformatics	Turakhiya Abhikumar	Tool Development for Computer Aided Process and Formulation Optimization by Statistical Design of Experiments (DoE) Approach
Pharmaceutical Management	Abhishek Rajkumar Lulla	Internationalization Strategies Adopted by Indian Pharmaceutical Companies: A Comparison of Entry Mode Theories
Pharmaceutical Management	Ajay Puri	Comparative Study of Segment Reporting Adopted by Pharmaceutical Companies
Pharmaceutical Management	Amit Khan	To Study the Implication of Mergers and Acquisition on the Price of Major Brands as well as Product Portfolio of Both the Target Pharmaceutical Company and Acquirer Company
Pharmaceutical Management	Arora Chetan Shekhar	To Identify Issues and Challenges in Transfer of Technology in Selective Govt. Backed R&D Institutions
Pharmaceutical Management	Barot Purva Jagdishkumar	Non Tariff Barriers Faced by Indian Pharmaceutical Companies: Perspective of Europe and US Market
Pharmaceutical Management	Bhandari Ankur Rameshchand	Performance Evaluation of Pharma SEZ in India
Pharmaceutical Management	Bharat Kumar	Risk Analysis of Regulatory Non compliance in Pharma
Pharmaceutical Management	Bishwjit Ghoshal	Global Scenario of Monoclonal Antibodies in Therapeutics and Improvements Possible
Pharmaceutical Management	Brijesh Kumar Lodhi	A Comprehensive Study of Outsourcing: A Pharmaceutical Perspective
Pharmaceutical Management	Daniel Adani	To Study the Discrepancy between Import and Export of Medical Device in India
Pharmaceutical Management	Deepak Digamber Chaudhari	To Study the Inflow of FDI in Indian Pharmaceutical Industry and their Impact
Pharmaceutical Management	Divya Bharathi M N	A Study on Novel Framework to Make India a Self Reliant Nation- In Case of Critical Bulk Drugs
Pharmaceutical Management	Gayatri Sharad Parab	Market Orientation vs Brand Orientation- An Insight from Indian Pharmaceutical Industry
Pharmaceutical Management	Jayakumaran Chandana	A Comprehensive Study of Value based Pricing Mechanism as a Means to Increase Patient Access to Medicines
Pharmaceutical Management	Kadamandla Lavnya	Analysis of Consumer Behaviour towards OTC Weight Loss Supplements
Pharmaceutical Management	Kamath Sanketh Balkrishna	Scope of Cell Therapy and its Potential in the Indian Market
Pharmaceutical Management	M Vinod Goud	Regulations in Pricing of Pharmaceutical Products in Global Pharma Market and Alternatives of DPCO
Pharmaceutical Management	Md Hassan Fasahat	Attitude, Belief and Perception of Herbal Medicines among Consumers
Pharmaceutical Management	Mukesh	To Study the Consumer Buying Behaviour towards Health Food Drink Segment

Pharmaceutical Management	Narender Kumar	To Study Attitude Belief and Perception of Diabetic Patients for Glucometers
Pharmaceutical Management	Nellore Sheba Priyanka	Assessment of Issues related to Accessibility of Medicines in India
Pharmaceutical Management	Nishu	Rationale behind FDCs Ban and Impact on Pharmaceutical Industry
Pharmaceutical Management	Nunavath Srinivas	Analysing the Prominent Activities Performed by the Pharma Companies, which Yield Better Results
Pharmaceutical Management	Oshin Santoshi	Market Dynamics of Hepatitis C Segment
Pharmaceutical Management	P Chandravadan Jagdishbhai	Measurement of Effectiveness of Branding Strategy using Brand Score Technique- A Conceptual Study
Pharmaceutical Management	Pottu Rohith Kumar	Customer Perception regarding Online Pharmacies
Pharmaceutical Management	Prabha Yadav	An Evaluation of Complaint Handling System- A Study on Hospitals
Pharmaceutical Management	Ravi Kant	Impact of Aesthetic Consideration on Consumer Purchasing Decision
Pharmaceutical Management	Saurabh Nigam	Impact of Branding on Consumers regarding Nutritional Products
Pharmaceutical Management	Shailee R Patel	To Study the Consumer Perception of Private Label Healthcare Products, with Special Reference to Apollo Pharmacy, Chandigarh
Pharmaceutical Management	Shefali Gulati	The Relationship between Perceived Market Orientation, Perceived Brand Orientation, Perceived Patient Benefits, Patient Loyalty and Satisfaction in Service Sector (Path Lab)
Pharmaceutical Management	Shruti Kochhar	Corporate Social Innovation- A Case Approach
Pharmaceutical Management	Simranjit Singh	States vs Derived Importance Factors to Measure Customer Satisfaction Index of Path labs services
Pharmaceutical Management	Swati Kinger	Operational Excellence in Pharma Industry
Pharmaceutical Management	Vikas Soni	Assessment of Consumer Perception, Knowledge & Attitude towards Self Medication Practices of Prescription Drugs (Antibiotics)
Pharmaceutical Management	Vishakha Chauhan	Impact of Patient Choice in Hospital Selection: A Study of Hospitals
Pharmaceutical Management	Zaib Iqbal Shaikh	Impact of Service Recovery on Customers Loyalty- A Study on Path Labs

RESEARCH ACTIVITIES

MEDICINAL CHEMISTRY

Target-based Design and Synthesis of New Chemical Entities as Inhibitors of Various Enzymes Involved in the Pathophysiology of Different Diseases

Inflammation

Inhibitors of Cyclooxygenase: Design, synthesis and biological evaluation of NCEs to generate novel leads

The nonsteroidal anti-inflammatory drugs (NSAIDs) have been the mainstay of therapy for rheumatoid arthritis manifested as inflammation and pain of the joints but are associated with side effects such as gastrointestinal and renal toxicity due to non-selective inhibition of cyclooxygenase (COX-1 and COX-2) isozymes that witnessed the upsurge of COX-2 selective agents such as rofecoxib, celecoxib, valdecoxib, lumiracoxib etc. in the past several years. However, rofecoxib and valdecoxib were withdrawn from the market due to increase in cardiovascular adverse effects and lumiracoxib due to hepatotoxicity. Due to the inadequacy of safe drugs and the recognition of new avenues for selective COX-2 inhibitors such as cancer, Alzheimer's disease, Parkinson's disease, schizophrenia, major depression, ischemic brain injury and diabetic peripheral neuropathy interest to develop more effective COX-2 selective agents has taken a fresh gear.

Total 170 compounds belonging to different chemotypes (2-(2'-phenyl benzothiazole / benzoxazole, 2-(2'-alkoxy/acyloxy / carbamates / carbonates phenylbenzoxazole / benzothiazole and 1-(2'-benzoxazol / benzothiazol-yl)-3-phenylurea) have been synthesized. Newer methodologies for the halogenation, amination and Phenolation of 2-phenylbenzoxazole/benzothiazole derivatives via directing group assisted ortho C-H bond activation have been developed and total 70 compounds belonging to Chemotype 2-(2'-halophenyl) benzoxazole / benzothiazole, 2-(benzoxazol-2-yl)-N-phenylaniline/ 2-(benzothiazol-2-yl)-N-phenylaniline, 2-(2'-phenoxyphenyl) benzoxazole / benzothiazole have been synthesized using this methodology. Total 50 compounds belonging to Chemotypes (2-(2'-phenyl benzthiazole / benzoxazole and 1-(2-benzoxazol / benzothiazol-yl)-3-phenylurea) were evaluated for COX-1 and COX-2 enzyme inhibitory activities. Out of these 14 compounds have comparable potency to the marketed COX-2 selective drugs.

Inhibitors of Phosphodiesterase- Design, Synthesis and Biological Evaluation of Novel Heterocyclic Ligands

Recognition of a molecule with multiple pharmacophoric feature is associated with various complications hence strategies were set to design NCEs either by incorporating the

identify pharmacophoric frameworks in one common structure or attaching them through a linker as it offers several pharmacokinetic and pharmacodynamic benefits. Anti-asthmatic activity and PDE-IV inhibitory potentials were selected as prime criteria and different pharmacophore were designed by hybridizing the structural features of anti-asthmatics and PDE-IV inhibitors.

A library of seventy-six compounds containing 2-(biphenyl-2-yl)benzimidazole and alkenylated benzazole derivatives were synthesized and evaluated for their PDE4B2 inhibitory activity. Twenty-seven compounds have shown more than 70% inhibitory activity of PDE4B2 enzyme at 10 μ M concentration.

Leishmaniasis: New anti-Leishmanial Chemotype

Trypanothione Reductase (TR) has been considered as one of more relevant and novel target for leishmaniasis.

Total forty-one compounds to 1-(2-(1H-benzimidazol-2-yl)phenyl)-3-phenylureas were synthesized based on the computational studies that compounds belonging to this structural class would be TR inhibitors. The biological evaluation against leishmania of these compounds is under progress.

Tuberculosis: Design and Synthesis of Novel Heterocyclic Scaffolds as Potential Anti-tubercular Agents

Diversity oriented synthesis (DOS) of new agents targeting the tuberculosis is a well sought exercise to find new anti-TB molecules. Towards this endeavor various small molecules were designed to target the ICL, MS (proteins regulating bacterial energy metabolism in mycobacteria).

142 compounds belonging to different series (2-carboxamidobenzimidazole, tetrazole congaing oxazolidinone, (E)-1/3-(biphenyl-2-yl)-3/1-phenylprop-2-en-1-ones and tert-butyl(2-((2-oxo-2-phenylethyl)amino)phenyl))carbamates) have been synthesized and evaluated for anti-TB activity (MIC = 0.78 - >25 μ g/mL) in collaboration with Birla Institute of Technology & Science-Pilani, Hyderabad Campus, Hyderabad. A few compounds have shown promising anti-TB activity (MIC = 0.78 μ g/mL).

Green Chemistry: Sustainable Chemical Synthesis through Novel Concepts

Metal cooperativity in Metal Nano-clusters

A novel contrast in palladium and copper catalysis has been demonstrated as the change of catalyst from Pd-Ag NC to Cu-Ag NC triggers a twist to form products belonging to different

chemo type that is phenazine to azoarene from the same starting material under similar reaction conditions (oxidative self coupling). The Pd to Cu switch is also associated with a twist in the mechanistic pathway from non-radical C-H activation mode of C-N coupling forming the phenazine catalysed by Pd-Ag to radical N-N coupling to form azoarenes under the catalytic influence of Cu-Ag. A total 28 compound has been synthesized.

A new methodology via the Pd-Ni binary nanoclusters has been reported for the first time for C-O bond activation for Suzuki-Miyaura cross-coupling of bioactive heterocycle-tethered sterically hindered carbonates with aryl boronic acids. A total 20 compounds have been synthesized.

Antimalarial Agents

Dihydroartemisinin derivatives have emerged as important new drugs for treating malaria. However they lack the desired in vivo metabolic stability and therefore compounds with enhanced metabolic stability are of great interest for evaluation as anti malarial agents. Based on this concept the work on the synthesis of S-containing dihydroartemisinin derivatives were continued employing the indigenously developed method. Two compounds that were found to be more active than the naturally occurring compound (artemisinin) were subjected to some of the pre-formulation studies and were brought to completion. In the meanwhile more members of this library of compounds were prepared for evaluation of their antimalarial activity and this work is currently in progress.

Antimicrobial agents

In recent years it has been demonstrated that binding of monovalent receptor molecules to proteins possessing manifold symmetry can be enhanced dramatically by converting them into the corresponding multivalent compounds of the same symmetry. Cholera toxin (CT), the causative agent of the deadly diarrhoeal disease cholera, and verotoxin (VT), produced by certain strains of *E. coli* that causes fatal food poisoning, are typical examples of closely related oligomeric proteins that can possibly be targeted effectively by the use of multivalent receptor antagonists. Towards this end we completed the synthesis of a library of cyclic glycopeptides as potential inhibitors for CT and VT.

Synthesis of a library of ricinoleic acid derivatives including several sugar-linked compounds as potential antibacterial agents has been accomplished. Some of them were found to be indeed potent compounds performing in some instances better than some of the known compounds in use. In order to facilitate a fruitful SAR studies, more of this library of compounds are being prepared currently for evaluation of their activity.

Development of Mechanochemical Methods for Organic Reactions

Complexity in the structures of biologically important carbohydrates and their derivatives makes their synthesis a challenging and difficult task that involves multi-step processes requiring selective functional group manipulations. Many of these reactions involve use of environmentally unfriendly solvents such as pyridine, dimethylformamide, etc. Hence solvent-free synthesis proves more environmentally benign and economically feasible and is extremely important in the context of the fact that waste minimization has become an essential part of the regulatory issues associated with chemical industry worldwide. In this context, ball milling, a mechanochemical technology scarcely used in synthetic organic chemistry, seemed particularly attractive. Under this scheme we explored the possibilities for the application of planetary ball milling technology to carbohydrate reactions with rewarding results. The work has therefore been continued.

Molecular Dynamics Simulation Studies of GSK-3 β ATP Competitive Inhibitors: Understanding the Factors Contributing to Selectivity

Glycogen synthase kinase-3 is a constitutively acting, multifunctional serine threonine kinase, the role of which has been implicated in several physiological pathways and has emerged as a promising target for the treatment of type-II diabetes and Alzheimer's disease. In order to provide a detailed understanding of the origin of selectivity determinants of ATP competitive inhibitors, molecular dynamics simulations in combination with MM-PBSA binding energy calculations were performed using crystal structures of GSK-3 β and CDK-2 in complex with 12 ATP competitive inhibitors. Analysis of energy contributions indicate that electrostatic interaction energy dictates the selectivity of ATP competitive inhibitors against CDK-2. Key interactions as well as residues that potentially make a major contribution to the binding free energy were identified at the ATP binding site. This analysis stresses the need for the inhibitors to interact with Lys85, Thr138, and Arg141 in the binding site of GSK-3 β to show selectivity. The residue-wise energy decomposition analysis further suggested the additional role of Gln185 in determining the selectivity of maleimides. The results obtained in this study can be utilized to design new selective GSK-3ATP competitive inhibitors.

Design and Synthesis of Novel Y-shaped Barbituric Acid Derivatives as PPAR γ Activators

Novel Y-shaped barbituric acid (BA) derivatives have been designed using rational methods including molecular docking. Fourteen novel compounds were synthesized using hydroxyl group protection-deprotection strategies for PPAR γ activation. Competitive binding analysis of the synthesized molecules using time-resolved fluorescence resonance energy transfer (FRET) method was carried out, and the IC₅₀ values were determined. The symmetrically substituted derivatives have shown greater binding affinity than

unsymmetrically substituted derivatives. Nitrobenzyl and cyanophenyl substituted derivatives have shown reasonable binding affinities (10.1 and 6.5 μM , respectively), while mono and diacetate derivatives were found inactive. Molecular dynamics simulations show that the designed compounds have interaction profiles similar to partial agonists. The most significant finding of our study is that BA derivatives with symmetrically substituted weakly polar side chains result in the desired moderate level of PPAR γ binding affinities.

Design, Synthesis and Biological Evaluation of 5-Benzylidene-2-iminothiazolidin-4-ones as Selective GSK-3 β Inhibitors

In this work, iminothiazolidin-4-one derivatives were explored as selective GSK-3 β inhibitors. Molecular docking analysis was carried to design a series of compounds, which were synthesized using substituted thiourea, 2-bromoacetophenones and benzaldehydes. Out of the twenty five compounds synthesized during this work, the *in vitro* evaluation against GSK-3 led to the identification of nine compounds with activity in lower nano-molar range (2–85 nM). Further, *in vitro* evaluation against CDK-2 showed five compounds to be selective towards GSK-3.

Quinacrine Induces Apoptosis in Cancer Cells by Forming a Functional Bridge between TRAIL-DR5 Complex and Modulating the Mitochondrial Intrinsic Cascade

Death Receptor 5 (DR5) is known to be an important anti-cancer drug target. TRAIL is a natural ligand of DR5, but its drug action is limited because of several factors. A few agonistic ligands were identified as TRAIL-DR5 axis modulators, which enhance the cellular apoptosis. Literature suggest that quinacrine (QC) acts as a DR5 agonistic ligand. However, the detailed mechanism explaining how QC interacts with TRAIL-DR5 axis has not been established. Also focused *in vitro* and *in vivo* experimental analysis to validate the hypothesis is not yet performed. In this work, extensive studies have been carried out using *in silico* analysis (molecular dynamics), *in vitro* analysis (cell based assays) and *in vivo* analysis (based on mice xenograft model), to delineate the mechanism of QC action in modulating the TRAIL-DR5 signaling. The MD simulations helped in identifying the important residues contributing to the formation of a QC-TRAIL-DR5 complex, which provide extra stability to it, consequently leading to the enhanced cellular apoptosis. QC caused a dose dependent increase of DR5 expression in cancer cells but not in normal breast epithelial cells, MCF-10A. QC showed a synergistic effect with TRAIL in causing cancer cell apoptosis. In DR5-KD MCF-10A-Tr (DR5 knocked down) cells, TRAIL+ QC failed to significantly increase the apoptosis but over expression of full length DR5 in DR5-silence cells induced apoptosis, further supporting DR5 as a drug target for QC. An increase in the release of reactive species (ROS and RNS) and activation of enzymes (FADD, CASPASES 3, 8, 9

and cytochrome-C) indicated the involvement of mitochondrial intrinsic pathway in TRAIL+QC mediated apoptosis. *In vivo* study pointed out that TRAIL+QC co-administration increases the expression of DR5 and reduce the tumor size in xenograft mice. This combined *in silico*, *in vitro* and *in vivo* analysis revealed that QC enhances the cellular apoptosis via the modulation of TRAIL-DR5 complexation and the mitochondrial intrinsic pathway.

Electronic Structure and Conformational Analysis of P218: An Antimalarial Drug Candidate

P218 is one of the very important and recent lead compounds for antimalarial research. The 3D structural and electronic details of P218 are not available. In this article, quantum chemical studies to understand the possible 3D structures of P218 are reported and compared with 3D structures from the active site cavities of hDHFR and PfDHFR. The neutral P218, can adopt open chain as well as cyclic arrangements. Under implicit solvent condition a zwitterionic-cyclic conformer is found to be quite possible. Microsolvation studies using explicit water molecules indicate that one water molecule may bridge the two ends of zwitterionic-cyclic P218. It was observed that the protonation occurs preferentially at N1 position of the 2,4-diaminopyrimidine ring, with a proton affinity of 274.49 kcal/mol (implicit solvent phase) and 236.35 kcal/mol (gas phase). A dimer of P218 may be zwitterionic dimer, the dimer formation can release upto ~28.60 kcal/mol (implicit solvent phase).

Azine or Hydrazone? The Dilemma in Amidinohydrazones

Azines belong to an important class of compounds which are found to have several applications in medicinal chemistry. Hydrazones are related and more known compounds which carry many biochemical applications. Hydrazones with appropriate substituent can show azine-hydrazone tautomerism. There are many cases in which azines are wrongly considered as hydrazones. In this article, the azine and hydrazone tautomeric energy differences are reported and provide structural details of amidinohydrazones which prefer azine structure rather than the hydrazone structure, an important example being the anti-hypertensive drug - guanabenz. The importance of appropriate tautomeric representation of guanabenz has been established in terms of its molecular interactions with a known enzyme.

Design, Synthesis and Biological Evaluation of Novel Unsymmetrical Azines as Quorum Sensing Inhibitors

Targeting Quorum sensing signals using Quorum Sensing inhibitors has opened new avenues for the application of known antibiotics. In this context, twenty five unsymmetrical azines were synthesised and evaluated as quorum sensing inhibitors. An efficient one pot procedure was adopted that directly link 3-Methyl-2-(methylthio)benzo[d]thiazol-3-ium salt, hydrazine hydrate and substituted aldehyde to give the

designed compounds. The synthesized compounds were preliminarily tested for their potential to inhibit CviR receptor based QS signals in *Chromobacterium violaceum*. The bioassay screening results suggested that two compounds exhibited potent QS inhibition activity against CviR receptor showing violacein inhibition (>50%) at 200 μ M. Further, the putative positive hits were checked for their potential to inhibit LasR receptor based QS using *PlasB-gfp*(ASV) biomonitor strain of *Pseudomonas aeruginosa*. These compounds were found to inhibit the QS mediated GFP signals in a dose dependant manner. Two active compounds were also exhibited biofilm clearance at 50 μ M concentration. Docking studies were performed to examine their potential to bind to LasR protein of 20 *Pseudomonas aeruginosa*.

Design, Synthesis, and Structural Analysis of Divalent NiCompounds and Identification of a New Electron-Donating Ligand

The dative-bond representation ($L \rightarrow E$) in compounds with main group elements (E) has triggered extensive debate in the recent past. The scope and limits of this nonclassical coordination bond warrant comprehensive exploration. Particularly compounds with $(L \rightarrow N \leftarrow L')^+$ arrangement are of special interest because of their therapeutic importance. This work reports the design and synthesis of novel chemical species with the general structural formula $(L \rightarrow N \leftarrow L')^+$ carrying the unusual ligand cyclohexa-2,5-diene-4-(diaminomethynyl)-1-ylidene. Four species belonging to the $(L \rightarrow N \leftarrow L')^+$ class carrying this unconventional ligand were synthesized. Quantum chemical and X-ray diffraction analyses showed that the electronic and geometric parameters are consistent with those of already reported divalent NI compounds. The molecular orbital analysis, geometric parameters, and spectral data clearly support the $L \rightarrow N$ and $N \leftarrow L'$ interactions in these species. The newly identified ligand has the properties of a reactive carbene and high nucleophilicity.

Toxicity Originating from Thiophene Containing Drugs: Exploring the Mechanism using Quantum Chemical Methods

Drug metabolism of thiophene containing substrates by cytochrome P450s (CYP450) leads to toxic side effects, for example, nephrotoxicity (suprofen, ticlopidine), hepatotoxicity (tienilic acid), thrombotic thrombocytopenic purpura (clopidogrel), and aplastic anemia (ticlopidine). The origin of toxicity in these cases has been attributed to two different CYP450 mediated metabolic reactions: S-oxidation and epoxidation. In this work, the molecular level details of the bioinorganic chemistry associated with the generation of these competitive reactions are reported. Density functional theory was utilized (i) to explore the molecular mechanism for S-oxidation and epoxidation using the radical cationic center Cpd I [(iron(IV)-oxo-hemeporphine system with SH- as the axial ligand, to mimic CYP450s] as the model oxidant, (ii)

to establish the 3D structures of the reactants, transition states, and products on both the metabolic pathways, and (iii) to examine the potential energy (PE) profile for both the pathways to determine the energetically preferred toxic metabolite formation. The energy barrier required for S-oxidation was observed to be 14.75 kcal/mol as compared to that of the epoxidation reaction (13.23 kcal/mol) on the doublet PE surface of Cpd I. The formation of the epoxide metabolite was found to be highly exothermic (-23.24 kcal/mol), as compared to S-oxidation (-8.08 kcal/mol). Hence, on a relative scale the epoxidation process was observed to be thermodynamically and kinetically more favorable. The energy profiles associated with the reactions of the S-oxide and epoxide toxic metabolites were also explored. This study helps in understanding the CYP450-catalyzed toxic reactions of drugs containing the thiophene ring at the atomic level.

Discovery of Leishmanicidal Agents: Heterocyclic Ligands of Topoisomerase II, DNA and Trypanothione reductase

Kala-azar (Visceral Leishmaniasis, VL), a most fatal form of leishmaniasis and one of most neglected diseases, is endemic in rural and suburban areas of developing countries including India. Leishmanial topoisomerases I and II, and DNA (AT rich sequence of minor grooves) have been recognized as important targets in the discovery of potential antileishmanial agents. Recent studies have showed *Leishmania donovani* (Ld) Trypanothione reductase (TR) as a new and valuable target. With the aim of discovery of novel agents for VL, we focus on synthesis of rationally designed, antileishmanial drugs/agents-inspired heterocyclic compounds that can interfere with these targets. The lab has developed diversity-feasible synthetic methodologies and synthesized several series of designed heterocyclic compounds. Some of them were found to exhibit potent antileishmanial activities in promastigote assay compared to standard antileishmanial drugs and were significantly less cytotoxic. Further bioactivity studies are going on.

Topoisomerase and Tubulin-Targeting Anticancer Agents

DNA topoisomerases and tubulin are important targets in anticancer drug discovery. About 50% of antitumoral treatment regimens rely on the use of at least one drug that inhibits topoisomerases. Recent studies and marketed tubulin-targeting anticancer drugs are the obvious evidence for tubulin as valuable target. With the aim of discovery of new and potent topoisomerase or tubulin-targeting anticancer agents, our research involves the rational design of target-specific natural product-based/inspired heterocyclic compounds, target-oriented synthesis, and *in vitro* bio-evaluation studies. In the targeted synthesis, diversity-feasible synthetic methodologies that favour the preparation of relevant diverse substituted/functionalized compounds required for lead identification and SAR studies are developed

and utilized. Several of synthesized compounds have been found to be potent catalytic inhibitors of topoisomerase II and anticancer agents (*in vitro* cell line studies). They have showed higher topoisomerase II inhibitory and anticancer activities than a topoisomerase-targeting anticancer drug, etoposide and relatively lower cytotoxicities to normal cells. The study on these compounds for further development is underway. In the antitubulin study, combretastatin A-4 (CA-4, a clinical agent)-inspired compounds were found potent compared to CA-4 in tubulin polymerization inhibition and antiproliferative activities in various cancer cells. Further study is going on.

PHARMACOINFORMATICS

Reconstruction and Constraint-based Analysis of Leishmania donovani Metabolic Network Identifies Potential Drug Targets

Reconstruction of genome-scale metabolic network and its mathematical modeling provides systems-level understanding of a microorganism's metabolism. A rigorously curated constraint-based metabolic model for *Leishmania donovani* BPK282A1 was built. The highly compartmentalized metabolic model is comprised of 1176 reactions, 1155 metabolites and 605 genes. The model showed more than 80% accuracy in producing experimental phenotypes of gene knockout studies and drug inhibition assays. To delineate the stage-specific metabolism of amastigote form, gene-expression data was integrated into the model. By comparing the flux distribution, the stage-specific differences in metabolism and environmental conditions were illustrated. Finally, 27 essential genes were identified using *in silico* knock out studies for amastigote stage with negligible sequence identity to human proteins. Moreover, dissecting functional interdependencies of metabolic pathways, 76 synthetic lethal pairs were identified.

Proteochemometric Drug Interaction Profiling for Transporters

Thirteen transporters were selected for the study, which are considered to have a role in drug absorption and disposition, therapeutic efficacy and safety as guided by International Transporter Consortium. These include efflux transporters viz. Breast cancer resistance protein, P-glycoprotein & Multidrug resistance proteins (MRP 1-4) and influx transporters like Organic cation transporter (OCT1), Peptide transporter (PEPT1) & Organic anion transporting peptide (OATP 1A2, 1B1, 1B3, 2B1). Substrate interaction records were collected from public database and literature. After cleaning and balancing the data 4575 records were identified for selected transporters. Fifteen different types of classifier and 8 types of descriptors were used for model development. Separate machine learning model was developed for each transporter for each combination of classifier and descriptors. In addition a combined proteochemometric (PCM) model was also

developed for all transporters for each combination of classifier and descriptor. As a result, 1680 different machine learning models were developed. Most suitable setting for best predictive modeling for each transporter was identified. Furthermore, results from these models were ensembled to improve prediction. PCM ensemble models were showing average accuracies of 0.84 and 0.87 for 5-fold cross validation and external validation respectively.

e-Scider

Aim of this project is to find structural features responsible for specific Adverse drug reactions (ADRs). ADRs are one of the major causes of failure in drug development, have become an important subject of research in the pharmaceutical industry. A webserver called "e-Scider" was developed in Python using text mining approaches for retrieval of literatures containing ADR or any other terms from various databases like NCBI's PubMed and European Pubmed Central. ADRs from Drug-Drug interaction and Drug-Food interaction are retrieved along with more than 100 proteins-ADRs pairs using e-Scider.

DMPR database in Access and MySQL, containing full description of Drug-Protein-ADRs information, Drug-Drug and Drug-Food interaction information is designed. It contains unique combination of more than 1500 Drug-Protein-Side Effects and few thousand Drug-Side Effects information with evidence from literature.

Development of Computational Model for P-gp Transporter

For ligand-based classification, machine learning methods such as SVM, kNN, DT, RF and BQSAR were used.

- *Comparative binding studies of NADH with InhA and its mutants*: Effect of the mutations on the binding affinity of the NADH was explored to study multi drug resistance.
- *Novel combination of direct InhA inhibitors with isoniazid to combat isoniazid-resistant tuberculosis*: Estimation of the binding affinity of indirect inhibitors in the presence of direct inhibitors in InhA mutants was carried out to study this aspect.
- *Epitope based vaccine design against Ebola virus*: Using several algorithms, specific epitopes were chosen and 3D structures were obtained. The HLA alleles vary in different population and hence those alleles that commonly occur in African and world population were selected. Homology models were built for those HLA alleles whose 3D structures were unavailable. Selected 20 epitopes were docked with selected 8 HLAs and further, validated by molecular dynamics studies.
- *Identification of ATPase inhibitors as anti tuberculosis agents*: Ligand based drug design methods and virtual screening studies were carried out to identify new ATPase agents.

- *Molecular determinants of ATPase and its inhibitors:* The 3D structure of ATPase was determined using homology modeling and the structure was used for rigid and flexible molecular docking studies.
- *Binding site characterization ICL and its inhibitors:* Docking studies on synthetically obtained presumable lead molecules and their derivatives were carried out to design novel molecules of ICL.
- *Studies on the binding mechanism of malate synthase and its inhibitors:* Different computational approaches were used to understand the binding requirements of molecules reported as MS inhibitors and to design structurally diverse molecules for binding.
- *Derivation of novel geometric criteria:* In this study geometric criteria were derived predict the allosteric nature of PTP1B inhibitors. This study helps to understand the structural aspects of the inhibitors in the induced cavity of the binding site.
- *Identification of potential hits as PTP1B inhibitors:* A combinatorial approach of using clustering, pharmacophore mapping, docking, virtual screening and molecular dynamics was used to identify new molecules as PTP1B inhibitors.

NATURAL PRODUCTS

The laboratory is actively engaged in design and synthesis of natural product analogues to find potent antileishmanial, anticancer and anti-HIV compounds. They are also engaged in isolation and characterisation of compounds from natural resources and standardization of herbal formulations. Major research activities are as follows:

- Structural modifications of benzimidazole, indole and β -carboline scaffolds for anti-leishmanial activity
- Design and synthesis of derivatives of indole, naphthyridine, pyrazole and isoquinoline for evaluation of anti-HIV activity
- Phytochemical investigation of Indian and Australian Eucalyptus species
- Standardization and metabolite profiling of *Eugenia jambolana*, *Rhodiola imbricata*, *Potentilla fulgens* by HPTLC, HPLC, and qNMR.

PHARMACEUTICAL ANALYSIS

Assessment of Metabolism-based Herb-drug Interaction Potential of Traditional Indian Ayurvedic Medicine(s) with Modern Drugs

The use of herbal products has increased significantly over the past decades to manage various common chronic diseases

and health. As more consumers concomitantly use herbal products with prescribed drugs, the probabilities of potential pharmacokinetic and/or pharmacodynamic based herb-drug interactions increase. The primary mechanism of reported pharmacokinetic herb-drug interactions is modulation of metabolizing enzymes and/or transporters in the liver and the intestine. The inhibition or induction of enzymes/transporters leads to increased or decreased plasma drug concentration, respectively, which subsequently leads to adverse events/toxicity or therapeutic failure. So this project is being carried out to study metabolism-based herb-drug interaction potential of traditional Indian ayurvedic medicine(s) with modern drugs.

Hepatic and Extra-hepatic Metabolite Detection and Characterization using Hyphenated Techniques

Many drugs, which show good activity and efficacy, are being withdrawn from the market or have received black box warning due to the unexpected toxicities or idiosyncratic adverse drug reactions (IDRs) caused by them. These reactions many times are known to occur due to formation of reactive metabolites. Identifying these metabolites can help explain many of the idiosyncratic reactions caused by the drug.

In Vitro and In Vivo Metabolite Profiling using Hyphenated Mass Tools

Drugs are metabolized in the body extensively through liver and are also responsible for toxicity due to the formation of reactive metabolites. This project is targeted to finding stable and reactive metabolites of multiple drugs using modern hyphenated mass tools, such as LC-MSⁿ, LC-MS/TOF, etc.

In Vitro Metabolite Identification of Selected Drug in Mouse, Rat and Human Models using Hyphenated Techniques

Toxicity of most drugs is attributed to reactive metabolites formed during the metabolism of drug in the body. For the toxicological studies in preclinical phase, animal models are used and on the basis of results of these studies, drug is selected for human studies. Human studies incurred a lot of money and time. And sometimes a drug found to be safe in animal studies is not found safe in human. So that drug can't make its way to market and the investments go in vain. So the difference in metabolism of drug in different models is also being investigated.

Drug-drug and Drug-excipient Interaction Studies on Various Drug Combinations

Many drugs are given in fixed-dose combinations due to their higher efficacy, low dose, reduced resistance and cost-effectiveness, etc., but some combinations show physical and chemical incompatibilities showing stability related problems. Compatibility studies are being carried out on multiple FDCs among different drug categories like anti-HIV, anti-malarial

(artesanate and amodiaquine) and anti-allergic (levocetirizine and montelukast).

Stress Studies on Selected Drugs and Characterization of their Degradation Products by using Hyphenated Techniques

Multiple drugs have been selected for stress testing, particularly those because reports on their degradation behaviour are not available in the literature. For this, degradation studies are under progress under different stress conditions like hydrolytic, photo, oxidative and thermal. Subsequent investigations involve separation of formed degradation products by HPLC method and transfer of the same to LC-MSⁿ, LC-MS/TOF and LC-NMR for characterization of the degradation products. The studies also involve isolation of degradation products with semi-preparative HPLC and characterization by 1D and 2D NMR for final confirmation of the proposed structures.

Comparative Degradation Study of Selected Drugs using Different Oxidative Stressors

Oxidation is the second most common degradation pathway in pharmaceuticals, but the conditions regarding oxidative stress studies are not mentioned in any of the regulatory guidelines. In practice, oxidative stress studies are done by using hydrogen peroxide, free radical initiator, oxygen purging, transition metals, singlet oxygen, Fenton's reagent etc. A number of drugs have been selected for study, especially those where no literature reports are available comparing oxidative degradation profile of the selected drugs using different oxidative stressors. So the objective of this study was to understand the responsible source for oxidative degradation in the selected formulation and critical comparison of solution and solid state oxidative stress degradation profiles to the drug formulations.

PHARMACOLOGY & TOXICOLOGY

Epigenomics in Diabetes and its Complications

Diabetes is associated with high risk of cardiovascular complications, which in turn increases the susceptibility to various disorders like hypertension, atherosclerosis and aneurysms. Hyperglycaemia induces inflammation, hypertrophy and premature endothelial senescence, which are the main culprits for the emergence of diabetic cardiovascular complications. Diabetic nephropathy is becoming the world leading cause of chronic and end-stage renal disease. Hyperglycaemia/hyperinsulinemia is the leading cause for the induction type 2 diabetes and the role of post-translational histone modifications in deregulating the expression of genes has emerged as potential important contributor in the progression of disease. The lab also investigated the role of metabolic memory in HFD induced renal dysfunction using metformin. Diet reversal could improve lipid profile but could not prevent renal complications

induced by HFD. Interestingly, metformin along with diet reversal restored the levels of blood glucose, triglycerides, cholesterol, blood urea nitrogen and creatinine. In kidney, metformin increased the activation of AMPK, decreased inflammatory markers-COX-2, IL-1 β and apoptotic markers-PARP, Caspase3. Metformin was effective in lowering the elevated basal blood pressure, acute change in mean arterial pressure (Δ MAP) in response to Ang II. It also attenuated the tubulointerstitial fibrosis and glomerulosclerosis induced by HFD-feeding in kidney. Here the lab reported for the first time, that metformin treatment overcomes metabolic memory and prevents HFD-induced renal damage. In addition the lab has also investigated the effect of ACE2 activator (DIZE) on the progression of STZ induced type I diabetic nephropathy. Currently, the lab is investigating the effect of L-methionine on DNA methylation in type 2 Diabetes and NASH models.

Cancer

The lab is mainly focused on breast and lung cancer research. It is actively involved in exploring various combination therapies which can potentiate the anticancer activity of chemotherapeutic agents and minimize their toxicity. The cytotoxicity and cell uptake of the SLN formulations were evaluated in MCF-7 and MDA-MB-231 cell lines. The lab provided further evidence that F-DC-SLN improved the efficacy and pharmacokinetic profile of DTX exhibiting enhanced potential in optimizing breast cancer therapy. It is currently investigating the effect of gold nanoparticles in breast cancer and triple negative breast cancer. In addition, gold nanoparticles were conjugated with metformin and artesunate and thereby their effects *in vitro* and *in vivo* were checked. The lab is also checking the effect of Zinc oxide nanoparticles in type 2 diabetes. MiRNAs involvement in the development and progression of cancer is well documented. The lab is currently investigating the role of particular miRNAs in triple negative breast cancer progression by using miRNA mimics and miRNA inhibitors. It investigated the effect of 5-Azacytidine in breast cancer cells (MCF-7: non-invasive, hormone dependent, and MDA-MB-231: invasive, hormone independent) and provided the first evidence that expression of PTPN12 is epigenetically regulated. 5-Azacytidine (5-Azac), a DNA hypomethylating agent, significantly increased the expression of PTPN12 at low concentrations (1 μ M and 2.5 μ M) and decreased the expression of PTPN12 at 5 μ M in the MDA-MB-231 and BT-549 triple-negative breast cancer cell lines.

CNS Research

Stroke Research

Cognitive deficits following stroke are common in stroke and always interfere with recovery. These impairments even further deteriorated in diabetics. Therefore it was planned to assess memory and cognition in diabetic stroke model. It was observed significant impairment in memory in diabetic rats in which middle cerebral artery was occluded. Chronic

administration of phenyl butyric acid (100 mg/kg) and edaravone (3 mg/kg) in diabetic stroke rats demonstrated reduction in neurological deficit and attenuation of ipsilateral turns and paw placing impairment, motor in co-ordination and relative alternations in Y-maze spontaneous test. Overall, these results indicate the neuroprotective effect of PBA and edaravone in diabetic stroke model.

Parkinson's Disease-induced Cognitive Impairment

Despite significant scientific efforts, pathophysiology of Parkinson's disease induced cognitive impairment is not completely understood and there are no pharmacological interventions which can treat these impairments. Effects of combination of PPAR- γ agonist and PGC-1 α activator was investigated in cognitive impairments in PD rats. In these studies bilateral intranigral administration of MPTP to SD rats resulted in impairment of cognitive functions. Combination of PGC 1 α activator-alpha lipoic acid (30 mg/kg) with PPAR γ agonist GW1929 (1 mg/kg) produced better protection in alleviation of cognitive impairment in PD through reduction of oxidative stress, inflammation, DNA fragmentation and increase in expression of mitochondrial biogenesis genes. Overall results of this study suggest the potential of pharmacological interventions targeted at PPARs and PGC1 α for the treatment of cognitive impairment in Parkinson's disease.

Pain Research

Neuropathic pain

Involvement of protease activated receptors in chronic constriction injury (CCI) model of neuropathic pain was investigated. CCI of sciatic nerve produced neuropathic pain which was evident from Hargreaves plantar test, Randall Selitto test and Tail immersion test for thermal, mechanical and cold hyperalgesia, respectively. Pregabalin treatment for 7 days significantly reversed the CCI induced neuropathic pain. Direct thrombin inhibitor argatroban treatment for 7 days significantly reversed the mechanical hyperalgesia and cold hyperalgesia. Combination of argatroban and pregabalin significantly reversed the CCI induced mechanical and thermal hyperalgesia. The involvement of wnt/beta catenin pathway in neuropathic pain is also being investigated.

Inflammatory pain

The efficacy of newer COX-2 inhibitors in carrageenan induced inflammatory pain was investigated. Carrageenan administration in rats produced inflammatory pain which was evident from significant decrease in the paw withdrawal latency in thermal and mechanical hyperalgesia test. COX-2 inhibitor -PP66 at doses of 30 and 60 mg/kg, p.o., significantly reversed the thermal and mechanical hyperalgesia induced by carrageenan initially but its effect was reversed after 3hr. COX-2 inhibitor -PP90 at a doses of 30 and 60 mg/kg, p.o., significantly reversed the thermal and mechanical hyperalgesia induced by carrageenan. Both new COX-2

inhibitors PP90 & PP60 at a dose of 60 mg/kg did not produce gastric ulcers.

Cardiovascular Research

Diabetic cardiomyopathy

Diabetes is considered to be one of the leading cause of cardiovascular complication and diabetic cardiomyopathy (DCM) is a fatal cardiovascular complications associated with diabetes. Despite understanding involvement of mechanisms in the pathophysiology of DCM still, management of diabetic cardiomyopathy remains difficult and demands extensive research on compounds having translational potential. Recently protease-activated receptors (PAR) which are G-protein coupled receptors and activated by thrombin, trypsin or other serine proteases. PAR expression has been reported to be increased in cardiac diseases such as myocardial infarction, viral myocarditis, and pulmonary arterial hypertension etc. Still, there is no study defining the role of PAR in DCM. The role of protease-activated receptors in the conditions of diabetic cardiomyopathy using pharmacological intervention targeting PAR was evaluated. Type-1 diabetes was associated with ventricular dysfunction, increased fibrosis and hypertrophy alongwith increase in the expression of PAR1 and 4. Studies on effect of pharmacological agents targeting PAR are being conducted.

Cardiac hypertrophy

Effect of curcumin, naringenin and their nanocrystalline solid dispersion (NSD) formulation were investigated in renal artery ligation-induced model of cardiac hypertrophy in rats. Renal artery ligation showed increased blood pressure, heart weight, heart weight/body weight ratio, cardiomyocyte diameter and altered cardiac structure (increased interstitial and perivascular fibrosis). Curcumin (30 mg/kg p.o.x 7 days) significantly reversed altered MDA, GSH and perivascular collagen. Naringenin (30 mg/kg p.o.x 7 days) significantly reduced heart weight/body weight ratio, interstitial fibrosis, and MDA levels. Naringenin NSD formulation (30 mg/kg p.o.x 7 days) reduced cardiomyocyte diameter, number of nuclei, interstitial fibrosis, perivascular fibrosis and MDA levels. These studies demonstrated the ameliorative effect of curcumin and naringenin in cardiac hypertrophy.

Zinc and Male Reproductive Health

Zinc (Zn), one of the most important trace elements in the body is ubiquitously present throughout the body and is second only next to iron in its occurrence. Zinc is required for the vital activity of more than three hundred enzymes; even mild zinc deficiency presents several immunological problems. Zn has a very prominent role in the reproductive development, both in males and females. Our goal is to focus on the compounding causes of male infertility, especially those who are under chemotherapy. Our understanding and experimentations in this diverse field led to the conclusion that chemotherapy with agents like cyclophosphamide caused decrease in the zinc

levels both in the serum and testes of the treated rat. Zinc supplementation has proved beneficial to those rats under chemotherapeutic agents. Biochemical, histopathological, and protein expression profiles were determined to decipher the role of Zn in protecting the cellular perturbations. Further, histopathological analyses of testes and epididymis showed deranged architecture along with other noted abnormalities.

Nrf2 in Diabetes Induced Germ Cell Damage

Nrf-2 (nuclear erythroid 2-related factor 2) is a transcription factor binds to the antioxidant response element (ARE) and thereby regulates the expression of a large number of genes involved in the cellular antioxidant, anti-inflammatory and stress associated responses. Nrf-2 also plays a critical role in the maintenance of cellular homeostasis. Based on the literature it has been evident that micro minerals (trace elements) like Zinc and Selenium influence the down regulation of Nrf-2. Zinc and selenium are among the most important micro minerals necessary for the proper development and maintenance of the testes. The emerging evidence that the transcription factor Nrf-2 is a regulator of protein degradation, DNA damage and cell death, suggests that exploring Nrf-2 -ARE molecular pathways in normal and pathological models will have significant human relevance. Zinc and selenium involvement with novel testicular markers at molecular level will improve the detection of the germ cell damage and will also help in understanding the mechanism of the testicular and associated organ injuries during the progression of diabetes.

Inflammasomes in Hepatic Damage and Fibrosis

Inflammation contributes to the pathogenesis of most acute and chronic liver diseases that lead to fibrosis. Inflammasomes are intracellular multi-molecular complexes expressed in both parenchymal and non-parenchymal cells of the liver. Inflammasomes can sense danger signals from damaged cells and pathogens and assemble to mediate caspase-1 activation, which proteolytically activates the cytokines IL-1 β and IL-18. Inflammasome activation has been studied in different human and experimental liver diseases and has been identified as a major contributor to hepatocyte damage, immune cell activation and amplification of liver inflammation. The application and translation of these discoveries using potent protective agents can provide a novel approach in the treatment of inflammatory liver diseases.

Centre for Infectious Diseases

Overall performance

The overall performance of the Centre of Infectious Diseases, which is within the Department of Pharmacology and Toxicology, has been excellent. In the next three to five years, if all goes well, it is expected that a new biomarker (IL-6)-based diagnostic test for tuberculosis shall be developed. Additionally, based on some data generated earlier, it is expected that recombinant granulocyte-macrophage colony-

stimulating factor will be identified as one of the most important and potent biotherapeutic agent, both stand-alone and also in combination with methionine-enkephalin and other known anti-TB drugs, for the treatment of tuberculosis, to be taken to the next higher level. Several new, novel and potent molecules have been identified in rodent malaria models, and it is intended to advance them in the pipe-line as new drugs of the future. The establishment and development of models for the screening of potential anti-leishmanial agents is very lousy and tedious process which is dependent on several host, parasite and other factors. Extensive and sincere efforts have been put-in. Some initial success has been achieved the reproducibility and quantification work is being done.

Study 1. Screening of new potential antimalarial compounds

Compound no. NP- 3285, NP-3286, NP-3288, NP-3290, NP-3291, NP3292, NP-3293, NP3294 NP3295 and NP -1962 were evaluated for their blood schizontocidal antimalarial activity against *Plasmodium berghei* infection in Swiss mice. Out of these 10 compounds 7 were found to be inactive, two of them NP-3294 and 3295 were found to have increased mean survival time (MST) 21days and 35 days respectively as compared to 10-12 days MST of negative (vehicle) treated group.

Study 2: Development of a new model of rodent model of cerebral malaria

*Plasmodium yoelii*nigeriensis infection in Swiss mice may serve as a suitable experimental cerebral malaria model to mimic the human CM. Herein, the centre initiated infection of malaria in Swiss mice by the injecting 1x 10³ infected erythrocytes with *P. yoelii*nigeriensis, intraperitoneally, into ten female and ten male naïve mice of body weight around 14-16 grams. Estimation of serum cytokine levels of infected animals during the course of infection using bioplex method shown that higher levels of proinflammatory cytokines (IL-1 β , TNF- α and IFN- γ) and lower levels of anti-inflammatory cytokines (IL-10). Enkephalin peptides treatment along with standard antimalarial regimen decreased the morbidity and mortality of infected mice and prolonged the life span of the CM infected mice.

Study 3

Clarithromycin (CLTR) in doses of 20, 40 and 60 mg/kg/day showed a suppressive action against *Plasmodium berghei* infection in mice. The CLTR treatment, at a dose of 60 mg/kg/day, showed approximate 50% reduction in the parasitaemia up to day +21. On the other hand, treatment with DADLE at doses 0.3, 0.9 and 2.7 mg/kg/day exerted a suppressive action comparable to that with the negative control. However, when the drugs were administered as a combination, the per cent suppression in parasitemia at doses DADLE 0.9 mg/kg + CLTR 60mg/kg was found to be 88% on

Day +4 and 77.5% on Day +7; on Day +10 it was 77.1%, on Day +14 and Day +21 it was 75.7% and 71.8%, respectively.

Study 4

This study is based on bio-immunotherapeutic activity of co-treatment with rmGM-CSF and DADLE on blood-induced *Plasmodium berghei* infection in Swiss mice. Six different doses of the peptide DADLE (0.1, 0.5, 1, 1.5, 2 and 2.5 mg/kg) were administered three-times per day, and two different doses of rmGM-CSF (2 and 4 ug/kg) were administered three-times per day, starting two hours post-infection with 1×10^7 IE, i/p, on Day 0, +1, +2, +3. The co-treatment of *P. berghei*-infected mice with DADLE 1.5 mg/kg + 2 ugm GM-CSF and DADLE 1.5 mg/kg + 4ug/kg rmGM-CSF on % suppression of parasitemia in *P. berghei* infected Swiss mice was similar to that observed in the negative control group. Curiously, when the *Plasmodium berghei*-infected mice were treated with as a combination therapy with DADLE 1.5 mg/kg + rmGM-CSF 4ug/kg, three-times a day, in the same manner, the co-treated mice showed no apparent circulating parasitemia till Day +14 (i.e. 100% suppression of mean % parasitemia), the mean per cent (%) parasitemia was observed to be 5.25%. However, after Day +14, the parasitemia reappeared and the mice could survive till Day +28.

Study 5: In vivo anti-malarial activity of anti-retroviral protease inhibitor (ritonavir) in *Plasmodium berghei*-infected Swiss mice

In mice infected with *Plasmodium berghei* and treated orally with ritonavir, a delay in patency and a significant reduction of parasitemia was observed. Five different groups were made i.e. 10, 50, 100 and 200 mg/kg/day x 4, of ritonavir and negative control and positive control (chloroquine 8 mg/kg/day x 4). Each group consisted of five mice. On D 0, mice were infected i.p with 1×10^7 IE. Ritonavir, 200 mg/kg/day x 4, has shown significant suppression of parasitemia in *P. berghei*-infected mice. However, higher mortality rate was observed, and reason for that mortality was not known. Additionally, by using the same doses of ritonavir, the parasite suppression in *Plasmodium yoellinigeriensis*-infected mice was examined. Ritonavir, in a dose-dependent manner, suppressed infection against both *P.berghei*-and *P. yoellinigeriensis*-infected mice, separately.

PHARMACEUTICAL TECHNOLOGY (BIOTECHNOLOGY)

Biocatalysis

Nanobiocatalysis, integrating the biocatalyst and nanoscale materials is drawing great attention as an innovative technology. It could achieve higher enzyme loading capacity, a significantly enhanced mass transfer efficiency as well as reasonable stabilization of enzymes in organic solvents. Nanoscaffolds (nanoparticles, nanotubes, nanofibers, nanocrystals etc.) for immobilization of enzymes on solid

support are being developed. It had enhanced the enzyme stability, ease of separation and recovery of enzyme for reuse without significantly hampering their catalytic activity. Work in the lab in **nanobiocatalysis** mainly deals with enzyme immobilization on the nanoscale support via classical immobilization methods such as simple adsorption, covalent attachment, entrapment etc. Beyond the simple combination of nanoscale support and biocatalysis, enzyme stabilization and biotransformation in organic solvent is also being worked out. Many drugs have been successfully synthesized using lipase catalyzed **chemo-enzymatic route**. Microbial strains producing oxido-reductases are employed for the stereoselective oxidation, reduction and stereoinversion reactions, which account to be very good techniques for obtaining 100% pure alcohol from the racemic mixtures.

Nanobiotechnology and Nanophototheranostics

Various metal nanoparticles (selenium, silver, gold, platinum and copper) were synthesized using biological catalysts from microbial and plant sources and characterized using the standard techniques. The functionalization of metal nanoparticles using various dyes and photo sensitizers was performed to improve therapeutic activity, targeted delivery and diagnostic purpose. The therapeutic applications of these nanoparticles were evaluated (In vitro) for antioxidant, antibacterial and anticancer activities. Currently, the group is focusing on **nanophototheranostic** formulation development and their use in biomedical applications. Metallic, polymeric, liposomal and lipid-polymer hybrid **nanophototheranostic formulations** are being developed.

Topoisomerases in the Target based Drug Discovery

The target-based drug discovery involves identification of disease associated bioactive molecules (target), validation of the targets for drugability followed by the establishment of screening assays. DNA-processes are guided by several enzymes, one of which is **DNA topoisomerase**. In support of the ongoing anticancer drug discovery program in the lab based on the target based drug discovery against hTopoII α , *in vitro* assays were developed and validated. Numerous heterocyclic compounds were screened for the hTopoII α inhibitory potential as well as to elucidate their mode of inhibition at different stages of the catalytic cycle. DNA binding studies using gel retardation and UV and CD based DNA affinity studies were carried out to get an idea of the mode of interaction of the compound with DNA. Outcomes from these studies played a key role in the designing and identification of hit candidate.

Bioprocess Technology

A metabolically engineered *Bacillus megaterium* model to increase **shikimic acid** production, an intermediate for pharmaceuticals was developed. Modifying metabolic pathways of microorganisms for the production of

biopharmaceuticals has been in vogue. In this purview, the rate limiting enzyme, shikimate dehydrogenase {aroE} was over-expressed to increase the shikimate production and was found to be 23 times higher than the wild type. Also, shikimate kinase {aroK} was knocked out to block the catabolic pathway and the shikimate production surged by 12 times higher than the wild type. A high-throughput plate based-screening method to select mutants of interest from large libraries of **nitrilase** variants was generated. The process parameters using statistical tool (CCD) analysis for maximizing the yield of a thermostable nitrilase producing mutant (*Escherichia coli* BL21) was optimized in shake flask level. Plackett Burmann model was used in the same direction for realizing the critical factors that would affect the nitrilase production both in shake flask as well as in fermenter. **Arginine** is involved in numerous metabolic pathways and plays important role in maintaining normal cellular functioning. It modulates the metabolic and signalling pathways of cells. Arginine deiminase (ADI) degrades arginine to citrulline and ammonia with great ease than arginase. *Pseudomonas putida* KT2440 was selected as a potential producer of ADI. Effect of various physio-chemical parameters was studied to improve its production in bioreactor level. Various physico-chemical processes were optimized for the downstream processing of ADI from the cellmass of *Pseudomonas putida*. **Mycophenolic acid** (MPA) is an important pharmaceutically active secondary metabolite obtained from various strains of fungi. The effect of different process parameters on the production of MPA from *Penicillium brevicompactum* was investigated in shake flask level both by submerged and solid state fermentation.

PHARMACEUTICAL TECHNOLOGY (PROCESS CHEMISTRY)

The research team is actively engaged in the development of synthetic protocols for the preparation of known or novel N-fused heterocycles which are ubiquitously found in many biologically important active molecules. The prime objective is to find a novel synthetic routes based on palladium-catalyzed C-H functionalization or by green approaches utilizing transition-metal-free reaction conditions. The glimpses of developed approaches are as follows:

Carbazoles and α -carbolines are privileged structures subiquitously found in biologically active natural and unnatural products. A direct one-pot approach to the synthesis of carbazoles and α -carbolines from readily available indoles or 7-azaindoles and alkenes was developed under palladium-catalysis. The synthesis of mono-, di- and tri-substituted carbazoles have been synthesized which are otherwise difficult to obtain by other literature methods. In addition, a palladium-catalyzed regioselective C-2 arylation of 7-azaindoles, Indoles, and pyrroles with arenes has also been developed. On the other way, speedy access to biaryls fused to seven-membered sultams was achieved by starting from readily accessible N-alkylbenzenesulfonamides and 2-

bromobenzyl bromides. The protocol features a domino reaction and proceeds through an N-benylation followed by an intramolecular direct C-H arylation that occurs *ortho* to the sulfonamide group.

The group is also committed to developing a transition-metal-free protocol avoiding generation of metal waste. In this direction, a transition-metal-free protocol to the synthesis of 4-azafluorenone via *tert*-butylhydroperoxide-mediated intramolecular carbonylation of arenes via oxidative C-H functionalizations has been established. In another approach, a transition-metal-free, potassium persulfate mediated intramolecular oxidative nitrogenation/oxygenation of C-H in N-aryl benzylic amines followed by oxidation at the benzylic center has been developed for the synthesis of benzamidine/benzoxazine heterocycles, providing an expedient access to quinazolin-4(3*H*)-ones, N-aryl-2-arylbenzimidazoles, and 4*H*-3,1-benzoxazin-4-ones. Such type of α -functionalized benzylic amine is a central component of a wide range of compounds including pharmaceuticals, agrochemicals, performance materials, and bioactive natural products. A tandem approach to the sustainable synthesis of N-heterocycles from readily available N-aryl benzylamines or imines and *ortho*-substituted anilines is also explored. The key features to the successful development of this protocol include the utilization of N-aryl benzylamines as imine precursors in transimination, the occurrence of transimination in the absence of any catalysts, an intramolecular nucleophilic addition occurring in the newly formed imine causing irreversible transimination, and the tandem event occurring under green conditions.

Research group in this Department is also actively engaged in process R&D, organic synthesis and Lab scale synthesis of pharmaceutical compounds, NCEs, drug intermediates and conjugates. The main focus is to develop scale-able, cost effective, environmentally benign synthetic routes to drug molecules. Following research projects have been either completed or are being pursued by the research group:

- Process for preparing substituted hydantoins and synthesis of antiepileptic drug Ethotoin.
- Process for the preparation of 1,2,4-triazol-3-one and synthesis of its analogues as antidepressant agents
- An improved and scalable synthesis of indolic enamides: Coscinamide A, B and their analogues.
- Synthesis of Isatin semicarbazone as anticonvulsant agents.
- Study toward synthesis of Carpatamide A-B, cytotoxic arylamine derivative from a marine derived *Streptomyces* sp.
- Synthesis and process development of therapeutically important candidates and conjugates
- Design, synthesis and process development for

sulfonylureas derivatives (SU) as antidiabetic agents

PHARMACEUTICS

Nanocrystalline Solid Dispersion using NanocrySP Technology

The lab has developed a novel spray drying based technology (NanoCrySP) for generating nanocrystalline solid dispersions (NCSDs) of APIs along with small molecule excipients. It had already generated a proof-of-concept for the generation of NCSD of numerous poorly water soluble drugs using NanoCrySP. The studies which are further being carried out using this technology involve extensive and a systematic research on finding out the critical parameters (process and /or material) involved in generation of nanocrystals; implementation of a quality-by-design (QbD) approach; development of a robust and commercially viable dosage form of NCSD generated using NanoCrySP; evaluation of biopharmaceutical and pharmacodynamics aspects of solid dosage form consisting of NCSDs; establishment of *in vitro-in silico-in vivo* relationship for a NCSD dosage form.

Lyophilization of Pharmaceuticals

The lab is working on lyophilization based product development wherein the NanocrySP technology for generation of nanocrystals for parenteral administration is currently being explored. This novel bottom up concept in lyophilization is being explored since the technology has great potential in terms of commercial application and intellectual property rights. Further, the lab is striving to improve the stability of amorphous solid form generating in final lyophilized formulation by induction of varying degree of collapse during lyophilization.

Amorphous Drug Delivery Systems

The mechanistic understanding of thermodynamic and kinetic stabilization of amorphous form of different poorly soluble BCS class II drugs is being explored. The projects currently ongoing are related to the study of miscibility behaviour, factors affecting the miscibility and impact of miscibility on *in vivo* supersaturation. This would essentially helpful in selecting the polymers for preparing the robust and commercially viable amorphous solid dispersion based drug products. In another project a newly introduced concept of functionality of excipient and its variability is explored for excipients, mainly polymers, used for developing the amorphous solid dispersions.

Formulation Aspects of Pharmaceutical Co-crystals

This project encompasses generation, characterization and evaluation of biopharmaceutical performance of pharmaceutical cocrystals of poorly water-soluble drugs (BCS class II and IV). Physicochemical and mechanical properties

of cocrystals shall be evaluated which aid in developing suitable formulation. Rational formulation and process design to get cocrystal product having improved biopharmaceutical performance is the principal goal of this project.

Centre for Pharmaceutical Nanotechnology

Centre for Pharmaceutical Nanotechnology (Department of Pharmaceutics) is actively engaged in the formulation development and evaluation of nano-carrier or nano-colloidal based novel drug delivery systems (NanoMedicines) for various biomedical applications. Research group thrives in developing various drug or pharmaceutical active(s) loaded nano and micro carriers for the following applications:

- An enhancement of oral bioavailability of poorly aqueous soluble or poorly permeable drugs using different types of nano formulations.
- An effective and targeted delivery of anticancer or antifungal agent(s) along with antioxidant(s) leveraging nano-carriers in order to improve pharmacokinetic behaviour vis-à-vis to reduce systemic toxicity of drugs.
- Ligand anchored multifunctional nano-carriers for targeted drug delivery of cancer chemo-therapeutics.
- Increasing deliverability and augmenting effectiveness of pharmaceutical actives using nano carriers via topical route for treatment of psoriasis.
- Oral delivery of antigen(s) using targeted or functionalized nano-carriers for mucosal immunization.
- Preparation and characterization of protein functionalized and multi-functionalized drug(s) loaded carbon nano-tubes to explore their biocompatibility and potential in targeted cancer therapy, respectively.
- Pulmonary delivery of chemo-therapeutics for the targeted treatment of infectious diseases.
- Exploration of lipid and emulsion based nano-colloidal formulations to enable oral deliverability of protein and peptides

Nanoparticulate formulations play an important role in delivering anticancer agents in a controlled manner. Delivering drug through the nanoparticles make it possible to achieve the desired concentration of the drug to the specific site. Hence, the group has undertaken nanoformulations of tamoxifen along with P-gp inhibitors to increase the bioavailability and vis-a vis anticancer efficacy of tamoxifen in estrogen receptor positive breast cancer. Tamoxifen loaded mixed micelles were formulated and its pharmacokinetic, anticancer efficacy, and safety potential were assessed. In another project chitosan-thiamine minosuccinate conjugate was synthesized for stomach specific drug delivery. Additionally, proliposomes for drug delivery of exemestane were formulated.

BIOTECHNOLOGY

Protein Misfolding and Stress Response

One of the cytosolic chaperonins, TRiC (Tcp1 ring complex) has been reported to have significant effect on inhibition of aggregation of mutant huntingtin, the protein implicated in the progression of Huntington's disease (HD) as disruption of the hetero-oligomeric structure of TRiC led to enhanced aggregation of mutant huntingtin. The role of age-related post translational modifications of a single subunit (Tcp1) of heteromeric chaperonin TRiC on its ability to inhibit aggregation of mutant huntingtin protein was studied. The expression of histone deacetylase Sir2 was regulated by the expression of glycolytic enzyme Gpd1 (glycerol 3-phosphate dehydrogenase). Sir2 exerted its effect by regulating the modification of chaperonin subunit Tcp1. Tcp1 was the only chaperonin protein which was overexpressed/acetylated in *Gpd1*-deleted cells. It was not the actual amount of either the unmodified or modified chaperonin but the relative extent of modification of the cellular chaperonin pool which dictated its activity in solubilising mutant huntingtin and possibly other client proteins. Glycerol phosphate dehydrogenases (Gpds) eliminate the build-up of DHAP and control the level of the toxic molecule methylglyoxal (MGO) in the cell. Tcp1 was found to be glycosylated with methylglyoxal. Thus, although the level of glycation (or acetylation) was higher in $\Delta Gpd1$ cells, the expression of Tcp1 was also higher in these cells which were able to overcome the inactivating effect of modification of Tcp1. This permitted a higher level of unmodified chaperonin to be available to inhibit aggregation of mutant huntingtin protein. Post translational modifications (PTMs) of chaperones and stress response transcription factors have been reported to dictate their activity. Control and regulation of chaperonin activity through its modification is likely to be a cellular response mechanism to activate the folding aid when required and to conserve its activity when proteostasis is restored. This study is probably one of the very first attempts to study the functional consequence of post translational modification of Tcp1 on its role as a chaperonin in inhibiting aggregation of mutant huntingtin. As TRiC interacts with a number of other cellular proteins, it is likely that modification of its subunits like Tcp1 may be important in (re)folding these proteins as well.

A key benefit of dietary restriction (DR) is the extension of life span, at least in lower organisms. This may not always be true and raises the possibility that life extension by DR may not be universal. The effect of DR (a stress condition for the cell) on the aggregation of mutant huntingtin protein (another stress) was studied in the well-validated yeast model of HD. The cellular response to a combination of stress conditions (DR and aggregation of mutant huntingtin) was characterized and the key proteins involved in modulating cellular response against multiple stress conditions were identified by 2D DIGE (differential gel electrophoresis). DR was found to enhance aggregation of mutant huntingtin in yeast with higher level of

oxidative stress and lower cell survival. In response to dual stress (DR and aggregation of mutant huntingtin), the cell did not react by activating any additional heat shock response. Activation of unfolded protein response (UPR) was induced by aggregation of mutant huntingtin but not by DR as a stress factor. Again, in this case, no additional response was seen when the cell was subjected to multiple stress conditions. Global proteomic analysis indicated that there were five proteins (Eno1, Arp2, Tpi, Hom6 and Fpr1) which were significantly upregulated in yeast cells upon expression of mutant huntingtin. Out of five, three proteins (Eno1, Tpi and Fpr1) were also significantly upregulated under DR condition. The expression of two (Eno1 and Fpr1) of these three proteins was marginally downregulated in yeast cells expressing mutant huntingtin under DR condition as compared to those expressing the protein under normal condition. These results were in line with the results obtained with the aberrant activation of the stress response pathways. These results provide mechanistic understanding of the observation that prolonged activation of these responses is toxic and can result in proteostasis collapse.

Development of Protocol for the Production of Bio-generics

Bio-generics represent a high-growth sector in India. A variety of recombinant proteins are manufactured and sold by a number of biotech companies. The cost of these protein biopharmaceuticals sold by the multinational companies keeps them out of reach for much of the world. Development of cost-effective technologies for the production of these bio-generic proteins along with improving the properties of these proteins (viz. circulatory half-life, immunogenicity, shelf life, etc.) will definitely help to improve the affordability of these drugs in the national health care system. In this project the lab is trying to develop protocol(s) for the production of bio-generic proteins (recombinant human interferons).

Design and Development of Organophosphate-degrading Enzymes as Prophylactic against OP-poisoning

Organophosphates (OPs) are neurotoxic chemicals commonly used as pesticides and insecticides in various industries. Certain OPs are also exploited as nerve agents. Current treatments available for OP-poisoning are inadequate and unsatisfactory and more effective treatment is urgently needed to combat OP-poisoning. OP-degrading enzymes from various organisms have emerged as a new generation antidote for the pre-treatment and therapy of OP-poisoning (e.g., human paraoxonase 1, SsoPox, DFPase, OP-hydrolase). However, there are numerous limitations regarding large-scale production and use of these enzymes as a therapeutic candidate viz., low OP-hydrolyzing activity of the native enzymes, difficulties in expression & purification of these recombinant enzymes, and poor stability of the purified enzymes. In this project the lab is trying to design and develop

these enzymes as prophylactic against OP-poisoning.

Novel Anti-inflammatory Peptides

Peptides derived from apolipoprotein have emerged as a promising candidate for the treatment of various inflammatory diseases in humans. Infusion of these peptides has been shown to reduce the development and progression of inflammatory conditions in variety of animal models and recent study have suggested that these peptides are safe and well tolerated in humans. In this project the lab is trying to design and develop novel anti-inflammatory peptides for therapeutic use.

Multifunctional Proteins in Host Pathogen Interaction

The laboratory is investigating the role of multifunctional enzymes that are involved in pathogenesis of *Mycobacterium tuberculosis*. Areas of interest include their role in iron uptake, bacterial metastasis and virulence. Enzymes of the glycolytic pathway are known to possess alternate functions that promote their virulence, in *M. tb* many of the homologues are yet to be fully characterized, primarily due to the difficulties in obtaining recombinant protein. Studies in the lab have recently established an alternate system to obtain these highly hydrophobic proteins that cannot be purified by expression in conventional hosts such as *E. coli* and *M. smegmatis*. The laboratory has established that the attenuated strain *M. tuberculosis* H37Ra can be used as an alternate expression host, to obtain a high yield of functionally active protein. Using this strategy three enzymes Glyceraldehyde-3-phosphate dehydrogenase, Pyruvate kinase and Enolase have been obtained. Enzymatic characterization of recombinant GAPDH revealed that the host strain could alter the protein functionality in terms of stability, enzymatic activity and multifunctionality. The detailed enzymatic characterization and identification of alternate functions of Pyruvate Kinase and Enolase are ongoing in the laboratory.

In other studies the laboratory has identified that *M. tb* expresses cell surface GAPDH which functions as a plasmin(ogen) receptor and manipulates the host fibrinolytic pathway in order to invade tissues. The laboratory is also evaluating the anti-mycobacterial properties of small molecule inhibitors to some of these enzymes. As part of intra-institutional collaborative research, an *in vitro* assay for two other targets (Isocitrate lyase and Malate synthase) has been established, compound screening to identify potential lead molecules has been initiated.

Other collaborative studies have identified the role of Mammalian GAPDH in transferrin/ lactoferrin mediated iron uptake and retroendocytosis.

Identification of Novel Drug Targets and Analysis of their Functional Roles in *Leishmania donovani*

Acetyl-CoA synthetase (AceCS) is an enzyme of acetate

metabolic pathway whose functions are unknown in *Leishmania* parasite. AceCS from *Leishmania donovani* (LdAceCS) is significantly different from human host to be explored as a potential candidate to develop parasite specific inhibitors. To dissect the functions of LdAceCS in leishmania promastigotes, two approaches were followed. LdAceCS overexpressing parasites were generated by episomal expression of LdAceCS in promastigotes and single knockout (SKO) cell lines of LdAceCS were generated by targeted gene disruption. An insight into the phenotypic changes undergone by the overexpressors revealed an increase in LdAceCS activity, total lipid content and infection by ~ 2.2, 2.2, 1.65 fold respectively with respect to wild type. Similarly SKO transgenic parasites exhibited ~2.5, 3, 1.5, 3 fold decrease in activity, total lipid content, infectivity and ergosterol respectively. Repeated attempts to grow null mutants failed thus indicating that LdAceCS is essential for the parasite and can be selectively targeted to combat *Leishmania* infection. Our study revealed that LdAceCS is important for *in vitro* macrophage infection and is also essential for biosynthesis of total lipids and ergosterol.

HMGR is an important enzyme of the mevalonate pathway which synthesizes mevalonic acid from HMG-CoA. The group had earlier identified HMGR as a potential drug target to treat *Leishmaniasis*. MMGBSA and decomposition energy analysis showed V97, V99, R134, H130, K290, and K430 as significant residues interacting with substrate. Based on these studies, six mutants were generated, sequenced, expressed and purified to homogeneity along with wild type HMGR protein. Analysis of specific activity of the mutant enzymes revealed that except V99 all the other mutants exhibited significant reduction in enzyme activity. Replacement of R134 with glycine, K296 with glutamic acid and K430 with asparagine resulted in complete loss of enzyme activity indicating that these residues are indispensable for enzyme function. However, mutation of V99 to alanine resulted in 1.25 fold decrease in substrate affinity and two fold decrease in catalytic efficiency. H130N resulted in four fold decrease in affinity towards the substrate however overall there was no change in the catalytic efficiency. These findings provide the first evidence of the mechanistic roles of the important residues of this chemotherapeutically targeted enzyme and the homology model generated can be further used for parasite specific design of inhibitors against HMGR.

The group is currently also exploring the role of glutamine synthetase as a parasite virulence factor. Glutamine synthetase catalyzes the ATP-dependent condensation of glutamate and ammonia to form glutamine. To begin with, GS from *Leishmania donovani* has been identified and characterized. The gene encoding putative glutamine synthetase (GS) like sequence from *L. donovani* (LdGS, LDBPK_060370) was cloned. A 43.5 kDa protein with 6X-His tag at the C-terminal end was obtained by overexpression of LdGS in *Escherichia coli* BL21 (DE3) strain. Expression of native LdGS in promastigotes and recombinant LdGS was

confirmed by western blot analysis. An increase in expression of GS along the growth curve of the parasite was observed. Immunofluorescence studies revealed the presence of GS in cytoplasm and mitochondria. Expression of LdGS in promastigotes was confirmed by RT-PCR and analysis of whole cell lysate activity. GS exists as a single copy gene in parasite genome.

Target Specific Screening of Inhibitors

As part of the drug discovery project the lab has screened inhibitors against recombinant trypanothione reductase from *Leishmania donovani*. A number of compounds have shown promising results in the antipromastigote and cytotoxicity assays as well as on recombinant target enzyme.

PHARMACY PRACTICE

A Study of Diabetes Care and Family-functioning in Patients with Type 1 Diabetes

Conceptual model of childhood adaptation to Type 1 diabetes advocates positive family interaction and social support to enhance patient's good attitude towards illness for achieving glycaemic control. No matter how good the medical regimen is, it can only be helpful if patient can afford diabetes care, understands the instruction to take insulin injections and is emotionally capable of following and adhering to given regimen. Despite gaps in the evidence and the need for more high-quality studies, it is clear that Type 1 diabetes is a serious health priority in India. This study aims to understand the family functioning in Type 1 diabetes, the problem areas related to insulin injection and estimate the direct cost involved in diabetes care.

Use of Drugs in Non-modern Systems of Medicine

The efforts of the researchers have been to understand the drug use patterns in secondary and tertiary care modern medicine hospitals. A new short-term project was initiated to understand the profile of the patients and drug use at a non-modern system of medicine. The study is in progress.

Mapping of Healthcare Institutions using Hospital Information Systems

In order to understand the penetration of HIS in the healthcare systems, a study has been proposed in order to map the institutions using the IT in healthcare.

Chronic Low Back Pain: Diagnostic and Prognostic Value of Involvement of Neuropathic Pain Component

Pathophysiology of low back pain is complex and the mechanisms leading to both nociceptive and neuropathic pain are involved. Since it's a mixed pain syndrome the extent of neuropathic pain involvement is not clear; varying between 17-54%. Standard treatments such as NSAIDs and acetaminophen have no proven efficacy in neuropathic pain,

whereas other drug classes, such as anticonvulsants and antidepressants, are more likely to be effective in neuropathic than in nociceptive pain. Thus, in the setting of severe pain, the earlier diagnosis of neuropathic pain will help in minimizing comorbidities, disability, and absenteeism or sick leave. But diagnosis of neuropathic pain remains a challenge to physicians due to lack of golden standard method of assessment of diagnosis of neuropathic pain. Quantitative Sensory testing (QST) is costly, time consuming and the correlation between disability and QST recordings are poor. Screening questionnaires seems a better option. The present research aims to assess the appropriate and reliable method to diagnose neuropathic pain including translation of screening questionnaires in local languages and validating them in Indian population. Research is also going on comparative analysis of QST with screening questionnaires.

Comparative Efficacy and Safety of all Pharmacological interventions for chronic low back pain (CLBP): A systematic review and net-work meta-analysis of randomized controlled trials

Pharmacovigilance Analysis of Adverse Events Reported for newer anti-diabetic drugs- A Real-World Post marketing Experience from the US FDA Adverse Event Reporting System (FAERS).

Research on Chronic Kidney Disease

This study has so far captured data on the medication use behavior, adherence to the drug therapy, quality of life and costing of the treatment in patients suffering from the chronic Kidney disease. In the coming one year, this study shall be wrapped up.

PHARMACEUTICAL MANAGEMENT

The Department of Pharmaceutical Management focuses on Pharma management education more than just business management. The Department of Pharmaceutical Management has privilege to be part of one of the premier Pharma Institute. The Department carries out collaborative projects with other departments of the Institute which gives the benefit in terms of wider view deeper understanding. The Department is also engaged in consultancy activities. Corporate recruiters value our graduates for their intellectual abilities in Pharma and management domain. The students have completed projects last year on:

- 1) FDI inflow in Indian Pharmaceutical Industry and its impact
- 2) Implication of Merger and acquisition on Price of major brands and product Portfolio of selected companies
- 3) Non tariff barriers faced by Indian Pharmaceutical companies in US and Europe market
- 4) Impact of FDC ban on Pharmaceutical Industry
- 5) Assessment of issues related to accessibility of Medicine

in India

- 6) Analysis of consumer behavior towards OTC weight loss supplements
- 7) Customer perception toward online pharmacies
- 8) Customer perception toward private label brands
- 9) Corporate Social Innovation – a study of selected corporate organizations
- 10) Operational excellence in Pharmaceutical Industry

CENTRAL FACILITIES

COMPUTER CENTRE

The Computer Centre (CC) of NIPER SAS Nagar is the central computing resource pool of the whole institute. The Computer Centre is responsible for:

- Providing Email service and Internet Connectivity through the whole NIPER Campus.
- Catering to all the general and high computational needs of the faculty staff and students.
- Manages the Campus-Wide Network.
- Hosting and Updating Information and Maintenance of official website of the Institute.
- Providing Office Automation services.

The activities of the Computer Centre were organized under four verticals: High-Performance Computing, Networks, E-Services and Data Centre. Each vertical is focused on continually improving its services to meet the needs of the NIPER SAS Nagar community.

A. High Performance Computing: A High Performance Computing (PharmaGrid) catering to the needs of all faculty and other researchers in their pharmaceutical research have been placed at Computer Centre.

B. Network: The Campus wide Network connecting all the major blocks / buildings of the Institute. A high speed network was established connecting all the buildings on Fiber Backbone. Video conferencing is also facilitated as a network service. NIPER is an active partner of the National Knowledge Network (NKN). Presently, the Institute has been connected with 100Mbps for high-speed internet services. Regular project meetings and important events are attended through this NKN Connectivity. The following are the key

activities carried out under Networks vertical:

- Building-wise VLAN segmentation
- Bandwidth of Internet Leased Line (HFCL) have been upgraded from 8 Mbps. to 11 Mbps. with no additional cost
- Network Support connectivity for video-conferences and online-interviews for Campus Placement through VC-Setup.

The Central Lab at Computer Centre presently has more than 62 desktops. The Central Lab remains accessible to all authorized users for 16 hours every day. Course lectures and practical examinations of Computer/IT related courses of students held at Central Lab of Computer Centre.

The Computer Centre provides services for successfully accomplishment of major lectures and important national events viz. "Address of The Hon'ble President of India to the Institutes of Higher Learning" through Video-Conference over NKN.

Hardware maintenance, Software support, Anti-Virus and other Malware and troubleshooting are being handled by the Computer Centre. Computer Centre has Cyberoam UTM centralized security of whole NIPER Campus Network.

C. E-Services: The E-Services vertical focuses on services such as web system configurations, e-mail, web access, web security and storage solutions. Several new services were enhanced and added under the e-services. The major services maintained and initiated are Mail services, Web services, Security and monitoring services, User management services, Storage solution and Development and deployment services.

D. Data Centre: The function of the Data Centre vertical is to ensure appropriate facility management for efficient functioning of all the service verticals of the Computer Centre.

Computer Centre also assisted the Placement-Cell during Campus Placement of Students/Research Scholars in conducting online-examination and interviews of the students through Video-Conferencing

In near future, Computer Centre is planning to have a future-ready network that can be easily migrated to a 10-gigabit infrastructure, Implementation of ERP at NIPER and Centralized Campus Surveillance System.

CENTRAL INSTRUMENTATION LABORATORY

Central Instrumentation Laboratory (CIL) is providing analytical services to the faculty members, PhD and Masters' students of NIPER since its inception in 1994. CIL is also

providing its analytical services to the Industry, Educational and Scientific research Institutes across the country on prefixed charges.



DYNAMIC VAPOR SORPTION



2D-GC WITH HEAD SPACE



GCMS-MS



FLUORESCENCE SPECTROMETER



**ATOMIC ABSORPTION
SPECTROMETER**



ELEMENTAL ANALYZER

The laboratory is equipped with the following state of the art analytical instruments:

Atomic absorption spectrometer (Analytical Jena); Circular Dichroism (Jasco, J-815); DSC with auto sampler (Mettler Toledo); DSC (Perkin Elmer); Luminescence Spectrometer (Perkin Elmer); Fluorescence Spectrometer (Varian); Freeze Dryer (Heto FD-8-85); Lyophilizer (Heto FD-1-110); FTIR with IR Microscope (Perkin Elmer); GCMSn where n=5 Polaris Q (Thermo Fisher); High Resolution LCMS Maxis (Bruker); HPLC with UV & ELSD detectors (Shimadzu); HPLC with UV, PDA, Fluorescence & RI detectors (Shimadzu); LCMSn where n=9 with APCI/ESI Probe LCQ (Finnigan Mat); LCMSn where n=9 with APCI/ESI Probe LTQ-XL (Thermo Scientific); MALDI TOF – TOF Mass Spectrometer Ultra flex (Bruker); NMR Spectrometer 400 MHz with auto sampler (Bruker); Polarimeter with 365, 405, 436, 546, 589, and 633 nm wavelength (Rudolph); Powder XRD with auto sampler, temperature and humidity controller (Bruker); Titro Processor with Karl fischer, Potentiometric titration, pH, pKa values (Metrohm); Ultra Centrifuge Refrigerated LE-80K (Beckman

Coulter); UV/VIS Spectrophotometer double beam equipped with sample temperature controller (Shimadzu); 2D GC Trace GC Ultra (Thermo); Elemental Analyzer Flash 2000 (Thermo), DVS Q 5000 SA (TA), Ultra pure water purification system (ELGA Purelab Pulse & Purelab Flex).

All the samples for analysis by CIL instruments and other analytical instruments installed at different departments of NIPER are received through CIL as per the CIL Policy. A revised composite list of CIL instruments and instruments installed at other locations of NIPER are made available to industry, SMPIC, academic and research institutes at nominal charges. The additional available instruments are:

LC-NMR SPECTROMETER, Make: Jeol, Model: ECA 500 MHZ; LC/MS MicroTOF, Make: Bruker, Model: Q-TOF; LCMSn Make: Thermo, Model: LTQ-XL; Accelerated Solvent Extraction (ASE), Make: Dionex, Model: ASE300; HPLC, Make: Shimadzu, Model: SCL-10AVP; HP-TLC, Make: CAMAG, Model: TLC SCANNER-3; GC-MS with Head Space, Make: Perkin Elmer, Model: Clarus 600 C; LCMS, Make:

WATERS, Model: ZQ MIRCROMASS 4000; Spray Dryer, Make: BUCHI, Model: B191; Supercritical Fluid Extraction (SCFE) Facility, Make: Deven Super Critical Pvt. Ltd., Model: Lab Scale; Supercritical Fluid Extraction (SCFE) Facility, Make: Deven Super Critical Pvt. Ltd., Model: Pilot Scale; HR-TEM, Make: FEI, Model: TECNAI G2F-20; Variable Pressure Scanning Electron Microscope (SEM) Hitachi S3400N, Make: Hitachi, Model: S3400N; Atomic Force Microscope-Veeco Bioscope II Life Science (with IOM Nikon TE2000), Make: Veeco, Model: Bioscope II; Confocal Laser Scanning Microscope, Make: Olympus, Model: Microscope FV 1000 SPD; Real Time In Vivo Optical Imaging (Biospace Measures, France), Make: Biospace, Model: Photon Images PI0100002; Research Grade Rheometer, Make: Malvern, Model: Bohlin C-VOR150; High Pressure Homogenizer, Make: Avestin, Model: Emulsified C-3; Zeta Sizer, Make: Malvern Instruments, Model: Nano ZS; Semi Preparative HPLC, Make: Shimadzu, Model: Prominence; Preparative HPLC, Make: Shimadzu, Model: LC-8A; Automated flash purification system, Make: Biotage, Model: Isolera-One; Size Exclusion Chromatography, Make: Spectrum, Model: CF-2; Freeze Dryer, Make: Virtus, Model: Benchtop K; Flow Cytometer, Make: Beckman, Model: Optima TL; ULTRA CENTRIFUGE (Refrigerated), Make: Millipore, Model: Guave Easy Cyte-8HT; CEM Liberty Microwave Peptide Synthesizer, Make: CEM Liberty, Model: 909600; CEM Parallel Microwave Synthesizer, Make: CEM Explorer, Model: 909155; AAPTEC Peptide Synthesizer, Make: AAPTEC, Model: Focus XC 36AA.

CIL provides online data dissemination facility for sample analysis of various analytical instruments at CIL to the faculty members and students of NIPER, directly at their laboratory through LAN network. The data is provided in the pre-created PDF files. For equipments such as NMR and pXRD, the raw data files are also loaded on the server for processing by users at their end, using pre-installed processing software. The server is also used to create a backup of all electronic analytical data generated at CIL.

CIL has generated analysis reports for more than twenty eight thousand one hundred ninety two (>28192) samples in the fiscal year 2015-2016. This contains approximately 27249 internal samples and 943 outside samples. Some of the highly used equipments in CIL are: NMR (~15818 samples); LCMS LCQ (~1384 samples); LTQ (~2486 samples); HPLC (~1085 samples); HRMS (~1469 samples); Fluorescence (~265 samples); Circular Dichroism (~497 samples); pXRD (~507 samples) and MALDI-TOF-TOF MS (~128 samples). CIL has also generated receipts of more than Rs. 14.06 lakhs for analyzing outside samples in the fiscal year 2015-2016.

SMALL AND MEDIUM PHARMACEUTICAL INDUSTRY CENTRE

NIPER-S has set up a dedicated Small and Medium Pharmaceutical Industry Centre (SMPIC) to serve SME

Pharma sector. The main objective of the centre is to develop and assist SME pharma units to meet global challenges including Good Laboratory Practices and regulatory requirements. The centre provides forum for manufacturers, regulators and suppliers to come together to discuss topics of mutual interest and new technologies. The centre was also set up to build a pool of trained man power by training science and technology students in analytical instruments, thus enhancing their practical skills. SMPIC is well-known for its trainings and educational programs. The centre organizes seminars on issues of relevance to pharma SMEs. Practical training sessions on sophisticated analytical instruments are conducted for Pharma personnel from government agencies, Science and Pharmacy students. NIPER also extends help to registered pharma SMEs through SMPIC, by allowing them to avail its existing testing facilities in various departments.

During the period, April 2015 to March 2016, eight hands-on practical training sessions on analytical instruments were conducted with a total of 79 participants. Additionally, four seminars were organized. The centre also provided analytical testing facilities to SMEs registered with SMPIC.

LIBRARY AND INFORMATION CENTRE

The Library & Information Center comprises of a large collection of over **7578** books and text books, **1708** hindi books, **19382** bound journals, **53** pharmaceutical market reports, **1608** thesis and dissertation, **270** CD-ROM databases, etc.

The library subscribes to **82** international and national journals in the field of pharmaceutical and allied sciences for research scholars. The library has Chemical Abstracts from 1907 till date which is also accessible online through Sci-Finder Scholar, a leading and comprehensive scientific online information service, giving access to a wide diversity of research disciplines like chemistry, pharmaceutical sciences, biotechnology and biomedical engineering. The library subscribe to **203** electronic journals of Science Direct, an online electronic full text journal collection on Science, Technology & Medical Sciences. Apart from this library also subscribes to E-journals from Wiley Inter-science, Springer Link, Taylor and Francis etc.

Library has LIBSYS 7 (Web centric Library Management Software) software for library automation.

Library is institutional member of Chandigarh Library Consortium, British Library Chandigarh, and Current Science Association Bangalore, Association of Indian Universities (AIU), Delhi.

The library and Information centre is accessible to all pharmacy professionals from the country and abroad and provides information to the academia, researchers and the industry personnel.

Services

The following services are provided to the users,

- Circulation (Issue & Return of Books)
- Photocopy
- News Clipping Service
- Literature search service (Online and Offline)
- Reference and Information
- Document Delivery
- Interlibrary Loan

Apart from this library has set up contacts with other libraries for getting articles, copies of books which are not available in our library through Chandigarh Libraries consortium

Services to Corporate Members

NIPER library also caters to the needs of non-governmental organizations and Industry personnel engaged in the area of pharmaceutical and allied sciences

Photocopying facility to corporate members is available in the library at nominal charges as per NIPER Library rules.

Current awareness service: Journal contents (of the currently subscribed journals) can be sent through e-mail by mutual arrangement.

NATIONAL TOXICOLOGY CENTRE

One of the GLP approved toxicity testing facility in government sector, National Toxicology Centre was established as preclinical toxicity testing facility at NIPER in June, 2005. Department of Science and Technology also provided the financial support under DPR programme after considering this facility as one of the centre having potential of excellence in area of regulatory toxicology. This centre got GLP certification in June 2009 from National GLP Compliance Monitoring Authority, Dept. of Science and Technology (DST), Govt. of India.

This certification will facilitate in the testing of new chemical entities (NCEs) for regulatory submission by different pharmaceutical industries and academic institutions, apart from making use of the facility in internal research project and hands-on training for research students in area of regulatory toxicology.

The facility can undertake the following studies under the principles Good Laboratory Practice (GLP) for testing of New Chemical Entities (NCEs).

- Acute Toxicity Study
- Sub-chronic Toxicity Study
- Chronic Toxicity Study
- Cytotoxicity Study
- Genotoxicity Study

The test facility is also in process of standardization of Guinea pig sensitization assay.

INFRASTRUCTURE

National Toxicology centre has six state-of-art animal rooms and one *in vitro* testing room to conduct toxicity testing of different pharmaceuticals. The centre is also equipped with an *in vitro* assay room to screen chemicals in the early phase of development to support further testing in the drug discovery pipe line. Different laboratories have equipped with fully and semi automated instruments including Inhalation Chamber (CH technologies), Metasystem (Carl Zeiss, Germany), and Blood cell counter (MS, France), HPLC (Shimadzu) and All histological slide preparation preparation set-up (Leica, Germany) carry out testing of different aspects of toxicology.

For the proper storage of SOPs, raw data, study reports, wet tissues, paraffin blocks, slides etc. a dry and wet archive provisions have been made in the facility. The genotoxicity lab has provision to undertake both *in vitro* as well as *in vivo* testing and software based data computation facility has been created.

NATIONAL CENTRE FOR SAFETY PHARMACOLOGY

National Centre for Safety Pharmacology (NCSP) is equipped to carry out evaluation of safety pharmacology of NCEs/Formulations in non-GLP environment. CNS safety pharmacology core battery, CVS safety pharmacology core battery, Respiratory system safety pharmacology core battery and Gastrointestinal system supplemental safety pharmacology can be carried out on NCEs/Formulations. The Centre investigated the safety pharmacology of quinolone derivative (SKG 40-16) using CNS core battery safety pharmacology. SKG 40-16 did not show any adverse effects in FOB except for a slight decrease in the locomotor and rearing activity while an increase in the resting period of rats. Besides these there were no abnormalities observed in home cage, hand held, open field, sensory responses, neuromuscular measurement, stereotypic behavior, rotarod performance and body weight observations. These results indicate that SKG 40-16 did not produce any undesirable pharmacodynamic effect on Functional Observational Battery (FOB) parameters. However, slight reduction in locomotor and rearing activity was observed. The Centre also investigated safety pharmacology of new COX-2 inhibitor benthiazole derivative PP90. PP90 at higher dose did not have any significant changes in cardiovascular parameters; however another benthiazole derivative PP66 at the same dose produced significant decrease in blood pressure.

TECHNOLOGY DEVELOPMENT CENTRE

NIPER, a national institute of excellence, caters to the diverse human resource, research and consultancy needs of the pharmaceutical industry. As a part of its mandate, it has set up a state of the art Technology Development Centre (TDC) – Pilot Plant, where in experimental, pilot plant scale-up and

validation, and infrastructural facilities have been made available to companies. Pilot plant facility caters to needs for advanced studies and to support strong API and Herbal generic India pharma role by offering the facility to SME industry. As per the directions of the competent authority up to 40% of the facility to be used for contract research, and 60% for internal use, i.e. NIPER scale-up projects and training to the students.

Technology Development Centre-Pilot Plant carried out a number of contract research projects during the fiscal year 2015-2016.

Industrial Training

Industrial training titled "Practical training on in-process testing and plant machinery, process and management" was imparted to the students of NIPER. This, a four week program, involves safety, cGMP manufacturing, pilot plant operations, and in-process testing aspects, and has been conducted during the month of June, 2015. In addition to PTPC students, other students from NIPER also participated.

NATIONAL BIOAVAILABILITY CENTRE

A. For getting business of Bioavailability / Bioequivalence (BA/BE) trials

- i) Correspondence with different Pharma industries was done.
- ii) Visited Auriga Research Laboratories, New Delhi and Aarbro Pharmaceuticals Limited, New Delhi.
- iii) Visit of Accutest Research Laboratories, Mumbai's representatives was organized.
- iv) Visit of Mr. Pandya (Director, Synergist Therapeutic Pvt. Ltd., Ahmadabad) was organized.

B. Costing of budget for conducting clinical trial of BA/BE studies:

- i) Marketing survey for budget preparation for BA/BE studies was done.
- ii) Costing of budget for clinical trial of BA/BE studies involving 14 and 24 volunteers was done.
- iii) Visit of RDPL (Rajasthan Drugs and Pharmaceuticals Limited) was organized and budgetary quote was communicated to them.

C. Miscellaneous

Two days medical camp was organized at National Bioavailability Centre by SGHS (C) Multi Specialty Hospital, Sohana.

CENTRAL ANIMAL FACILITY

NIPER), S.A.S. Nagar as an establishment is registered with

Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Ministry of Environment, Forest & Climatic Change, Government of India for the Research for education, Research for the commercial purposes, Breeding for in-house use and Breeding for the purpose of trading of small laboratory animals (108/GO/ReBi/S/1999/CPCSEA). The Central Animal Facility (CAF) of NIPER is the double storied building with 'Two-way corridor system' to minimize the cross contamination and for the efficient animal house operations. The first floor is dedicated to the breeding of different small laboratory rodents like mice, rats, hamsters, gerbils and guinea pigs for the supply to the investigators for the research purpose. In the year 2015-16, the animals were supplied to in-house and consultancy research projects after getting approval from IAEC. The animals were also supplied on request to the outside CPCSEA registered establishments on stipulated terms and conditions.

Each animal species is housed separately in individual room to prevent inter-species disease transmission and anxiety due to interspecies conflict. The animals are well maintained under controlled environmental conditions (temperature $(23\pm 3^{\circ}\text{C})$, relative humidity (30-70 %), 12:12 h light and dark cycle with 100 % of fresh air exchange in animal rooms. The macro- and micro-environment around the animals are maintained as per the CPCSEA guidelines. In addition to the breeding unit, there is a separate experimental unit available for the holding and conducting the experiments on animals. A high degree of personal hygiene and sanitation is being practiced. Regular cleaning and disinfection of animal rooms, corridors, storage spaces and other areas are carried out. Routine cleaning and sterilization of animal supplies like cages, water bottles and bedding are performed. Horizontal heavy duty autoclave is installed for the sterilization purpose and regularly monitored for its effectiveness of operations. Periodic health monitoring of the animals is carried out. In addition, feed and water analysis are carried out for ensuring their quality and microbiological contamination. Waste disposal is carried out through incinerator. The routine works at CAF are carried out as per the standard operating procedures adopting GLP principles to achieve the quality production and supply of the experimental animals.

PHARMACEUTICAL HERITAGE CENTRE

The Pharmaceutical Heritage Centre, vividly portraying the pharmaceutical heritage of the country, was inaugurated by Honorable Shri Hansraj Gangaram Ahir, Minister of State, Ministry of Chemicals & Fertilizers, Government of India on 1.10.2015. The Centre was established with an objective to cater information on the development from the ancient system of health care to the current era of pharmaceuticals; to acquire specimens, archival materials related to the subject; preserve, study, document, interpret and exhibit the collections in systematic manner; and educate and inspire the public on the country's rich and vast heritage in this regard.



Hon'ble Minister of State Shri Hansraj Gangaram Ahir, inaugurating the PHC, seen with other dignitaries.



Hon'ble Minister of State, lighting the inaugural lamp.



Prof. K. K. Bhutani, introducing the Centre to the Hon'ble minister.



Prof. K. K. Bhutani introducing an exhibit at the Centre to the Hon'ble minister.

During the period the Centre was actively involved in enriching its collections on archival materials. The exhibits added and put on display during the period include: a) Custom-made Tangkhas of Medicine Buddha, Maharishi Agashtya and Maharishi Patanjali and b) Certificates of Degrees, Awards and Trophies/Medals of Professor Harkishan Singh and Professor Gorakh Prasad Srivastava.

The exhibits of the Centre are portrayed and arranged in the following galleries:

1. Lord Dhanvantari iGallery (Central Gallery, Gallery 1)
2. Ancient & medieval period health care practices (Gallery 2)
3. Western medicine system during the colonial era & its pioneers in India (Gallery 3)
4. Professor Harkishan Singh's Archival Collection & Luminaries of Indian Pharmacy (Gallery 4)



A view of the central gallery (Gallery 1).



A view of Gallery 2 on the ancient & medieval period health care practices.



A view of Gallery 3 on the western medicine system during the colonial era.



A view of Gallery 3 on the pharmacopoeial history of India.



A view of Gallery 4 on Professor Harkishan Singh's Archival Collection



A view of Gallery 4 on the luminaries of Indian pharmacy.

Other Activities

- a) Visitors from all sections of life including students from the neighboring institutions are taken around the Heritage Centre and apprised of the importance of the exhibits, collections and the activities of the Centre during their visit. They are also educated on the country's rich heritage in this context;

- b) Dedicated audio-visual room was accomplished; and
- c) Five wooden false partitions were readied for convenient partitioning of the display areas.

A paper on "Indian Health Care Systems practice during the Prehistoric era to Asoka's period: A Retrospective report" was presented by Mr. M Arbindo Singh at the National Seminar on

“Anthropology and Human Welfare: Bio-Cultural Perspectives”, organized by the Department of Anthropology, Panjab University, Chandigarh, during March 10-11, 2016.

INTELLECTUAL PROPERTY RIGHTS (IPR) CELL

IPR Cell was created at NIPER to look after the activities related to the Intellectual Property of the Institute, Evaluation

and filling of patents, copyrights and design. IPR Policy of the institute provides the principles for preservation, protection and use of intellectual property and also describes the procedures through which inventions and discoveries developed in Institute are made available to the public through the transfer of technology.

During the year the IPR cell carried out the activities related to filing of patent applications (12 in 2015-16) and drafting of the CDA/Non disclosure agreement.

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PATENTS FILED

S.No.	Inventors	Title	Application No. and Date of Filing
1.	Sanyog Jain, Kaushik Thanki	Novel Lipid Drug Conjugates for Improved Oral Delivery of Amphotericin B and Nanoformulations Thereof	1450/DEL/2015 22.05.2015
2.	Kunnatheri Pallathu Madhom Ravindaranathan Kartha, Kuppala Ramakrishna, Mugunthan Govindarajan, Kamlesh Kumar Bhutani, Hemraj Nandanwar	Ricinoleic acid Glycoside Compounds as Antimicrobial Agents	1855/DEL/2015 23.06.2015
3.	Asit Kumar Chakraborti, Priyank Purohit, Shyam Sunder Sharma, Kapileswar Seth, Shivsharan Balbhim Kharatmal, Madhulika Singh, Gulshan Kumar	2-(2-Aryl/Alkyl Phenyl) Benzazoles as Selective COX-2 Inhibitors	2540/DEL/2015 18.08.2015
4.	Manjinder Singh Gill, Dinesh Kumar Tanwar, Nandini Sarvia, Rohani Prasad Burman, Sarasija Suresh,	A One Pot Synthesis of (\pm) Propranolol, a β Adrenergic Blocking Agent	2643/DEL/2015 26.08.2015
5.	Manjinder Singh Gill, Nandini Sarvia, Dinesh Kumar Tanwar, Sarasija Suresh	Novel Process for Synthesis of Propaphenone	2757/DEL/2015 02.09.2015
6.	Asit K Chakraborti and Babita Tanwar	Synthesis of New 2-(2'-Aminophenyl)benzazoles as Potential Anti-tubercular Agents'	2838/DEL/2015 10.09.2015
7.	Manjinder Singh Gill, Sarasija Suresh, Dinesh Kumar Tanwar, Rohani Prasad Burman, Dilip Kumar Panninti, Bhavana Deshmukh	Process for the Preparation of Monosubstituted Ureas	3384/DEL/2015 20.10.2015
8.	Manjinder Singh Gill, Sarasija Suresh, Dinesh Kumar Tanwar, Rohani Prasad Burman, Bhavana Deshmukh, Dilip Kumar Panninti	Process for the Preparation of Semicarbazides	3385/DEL/2015 20.10.2015
9.	Manjinder Singh Gill, Sarasija Suresh, Dinesh Kumar Tanwar, Rohani Prasad Burman, Anjali Ratan	Process for the Preparation of Sulfonylureas	3386/DEL/2015 20.10.2015
10.	Manjinder Singh Gill, Sarasija Suresh, Dinesh Kumar Tanwar, Rohani Prasad Burman, Anjali Ratan	Process for the Preparation of Unsymmetrical Ureas	3387/DEL/2015 20.10.2015
11.	Asit Kumar Chakraborti, Babita Tanwar	Alkyl 1,2-Diamines and its Bioisoster β -Aryloxyamines as Potential Anti-tubercular Agents and Preparation thereof	3430/DEL/2015 23.10.2015
12.	Asit Kumar Chakraborti, Babita Tanwar	Novel 2-Biarylbenzoxazole Compounds and the Process of Preparation Thereof	3433/DEL/2015 23.10.2015

AWARDS & HONOURS

Name	Discipline	Award
Prof. A. K. Chakraborti	Medicinal Chemistry	Elected Fellow of Indian National Science Academy (FNA), New Delhi
Prof. K. P. R. Kartha	Medicinal Chemistry	President, ACCTI, India Member, Editorial Board, Carbohydrate Research
Prof. Shyam Sunder Sharma	Pharmacology and Toxicology	ICMR Dr D. N. Prasad Memorial Oration award. Editorial Advisory Board Member: Current Neurovascular Research, published by Bentham Science. Editor: Behavioural Neurology. Review Editor: International Journal of Pharmaceutical Sciences and Nanotechnology, published by Pharma Book Syndicate.
Prof. Inder Pal Singh	Natural Products	Member, American Chemical Society (3 years)
Dr. S. K. Guchhait	Medicinal Chemistry	Professor D. Nasipuri Memorial Award by Indian Chemical Society
Dr. Sanyog Jain	Pharmaceutics	Illustrious Alumnus Award, Department of Pharmaceutical Sciences, Dr. Hari Singh Gour University, Sagar, Diamond Jubilee Celebration
Dr. Chaaya Iyengar Raje	Biotechnology	National Women Bioscientist Award (2014), Young Category, by Department of Biotechnology (DBT), Government of India
Dr. K. Srinivasan	Central Animal Facility	DBT International Travel Award
Dr. J. N. Singh	Pharmacology and Toxicology	ICMR HRD Fellowship-Long Term Fellowship/Training in Foreign Institute
Rajan Tripathy	Biotechnology	DST International Travel Award CICS International Travel Award
Sahaj Pancholia	Medicinal Chemistry	Rajinibhai V. Patel PharmInnova Award for the most "Innovative Thesis" in M. Pharm. (Pharmaceutical Chemistry) category in Pharmaceutical Sciences 2015-16
Sumit Arora	Pharmaceutics	Ranbaxy SunPharma Science Scholar Award 2016
Varun Kushwah	Pharmaceutics	Commonwealth Split-Site (PhD) Scholarship, University of Strathclyde, Scotland, UK, Feb-July 2016
Rajiv Ahlawat	Pharmacy Practice	Bill & Melinda Gates Foundation Award for Young Investigator from India and Southeast Asia
Sumit Arora	Pharmaceutics	SIPRA Innovative Pharma Research Award 2015
Rambabu Vatte	Pharmacy Practice	Best Oral Presentation Award at 4 th International Conference of Pharmacoeconomics and Outcomes Research (ISPOR-2015) India Regional Chapter, New Delhi, India, Oct 31-Nov 1, 2015

Sameer Modi	Pharmaceutics	Best poster award, International School of Crystallography 2015, Erice, Italy, June 5-14, 2015
Minhajul Arfeen	Medicinal Chemistry	Best poster award at 6 th International Symposium "Current Trends in Drug Discovery Research (CTDDR)", CDRI, Lucknow, Feb 25-28, 2016
Murali Krishna	Pharmacy Practice	Best Poster Presentation Award at 4 th International Conference of Pharmacoeconomics and Outcomes Research (ISPOR-2015) India Regional Chapter, New Delhi, India, Oct 31-Nov 1, 2015
Rajiv Ahlawat	Pharmacy Practice	Third prize for the poster presentation at the Paediatric Conference of North India, New Delhi, Sept 26-27, 2015
Sumit Arora	Pharmaceutics	DST International Travel Award AstraZeneca Travel Award
Chander Prakash	Pharmaceutics	DST International Travel Award
Neetu Dayal	Pharmaceutical Technology (Process Chemistry)	DST International Travel Award
Suyog M. Amrutkar	Pharmaceutical Technology (Biotechnology)	DST International Travel Award
Ankan Kumar Bhadra	Biotechnology	ICMR International Travel Award CSIR International Travel Award
Ashok Kumar Datusalia	Pharmacology and Toxicology	DBT International Travel Award
Kiran D. Bhilare	Pharmaceutical Technology (Biotechnology)	DBT International Travel Award
Sameer Modi	Pharmaceutics	International Union of Crystallography Award
Sumit Arora	Pharmaceutics	PAT Burnell New Investigator Award 2015
Varun Kushwah	Pharmaceutics	Amgen Travel Award
Kapil Gudala	Pharmacy Practice	Korean Society for the Study of Obesity (KSSO) Travel Grant Award
Amarnath Mullapudi	Pharmacy Practice	Korean Society for the Study of Obesity (KSSO) Travel Grant Award
Rambabu Vatte	Pharmacy Practice	Korean Society for the Study of Obesity (KSSO) Travel Grant Award
Rajiv Ahlawat	Pharmacy Practice	International Society for Infectious Disease Travel Award

VISITS ABROAD

Name	Discipline	Visit
Dr. M. E. Sobhia	Pharmacoinformatics	Invited talk delivered at “Drug Discovery & Therapy World Congress 2015”, Boston, MA, USA, July 22-25, 2015.
Dr. Sanyog Jain	Pharmaceutics	Invited Talk at Drug Delivery Australia 2015 conference organized by Controlled Release Society (Australian Chapter), University of Queensland, Brisbane, Nov 19-20, 2015 Guest Seminar at Mater Medical Research Institute, Translational Research Institute, The University of Queensland, Brisbane, Nov 23, 2015 Guest Seminar at Institute of Pharmaceutical Sciences, Monash University, Melbourne, Nov 24-25, 2015
Dr. K. Srinivasan	Central Animal Facility	38 th Annual Meeting of the Japan Neuroscience Society (Neuroscience-2015), Kobe, Japan, July 28-31, 2015
Dr. J. N. Singh	Pharmacology and Toxicology	ICMR HRD Fellowship-Long Term Fellowship/Training at School of Biomedical Sciences, Faculty of Biological Sciences, University of Leeds, UK, Jan 29, 2016-Jan 28, 2017
Rajan Tripathy	Biotechnology	Poster presentation at Industrial Biotechnology Congress, Birmingham, UK, Aug 10-12, 2015
Ankan Kumar Bhadra	Biotechnology	Poster presentation at EMBO Conference, Heraklion, Crete, Greece, May 8-13, 2015
Ashok Kumar Datusalia	Pharmacology and Toxicology	38 th Annual Meeting of the Japan Neuroscience Society (Neuroscience-2015), Kobe, Japan, July 28-31, 2015
Sameer Modi	Pharmaceutics	International School of Crystallography 2015, Erice, Italy, June 5-14, 2015
Sumit Arora	Pharmaceutics	2015 AAPS Annual Meeting and Exposition, Orlando, USA, Oct 25-29, 2015
Varun Kushwah	Pharmaceutics	2015 AAPS Annual Meeting and Exposition, Orlando, USA, Oct 25-29, 2015
Chander Prakash	Pharmaceutics	2015 AAPS Annual Meeting and Exposition, Orlando, USA, Oct 25-29, 2015
Kiran D. Bhilare	Pharmaceutical Technology (Biotechnology)	Poster presentation at Gordon Research Conference, Galveston, USA, Jan 17-22, 2016
Suyog M. Amrutkar	Pharmaceutical Technology (Biotechnology)	Poster presentation at 251 st ACS National Meeting and Exhibition, San Diego, USA, Mar 12-17, 2016
Neetu Dayal	Pharmaceutical Technology (Process Chemistry)	250 th ACS National Meeting, Boston, USA, Aug 16-20, 2015

Kapil Gudala	Pharmacy Practice	Oral presentation at International Congress on Obesity and Metabolic Syndrome (ICOMES)-2015, Seoul, South Korea, Nov 12-15, 2015
Amarnath Mullapudi	Pharmacy Practice	Oral presentation at International Congress on Obesity and Metabolic Syndrome (ICOMES)-2015, Seoul, South Korea, Nov 12-15, 2015
Rambabu Vatte	Pharmacy Practice	Oral presentation at International Congress on Obesity and Metabolic Syndrome (ICOMES)-2015, Seoul, South Korea, Nov 12-15, 2015
Kapil Gudala	Pharmacy Practice	Oral presentation at 31 st International Conference on Pharmacoepidemiology and Therapeutic Risk Management (ICPE-2015), Boston, Massachusetts (MA), USA, Aug 22-26, 2015
Sreenu Lavudiya	Pharmacy Practice	Oral presentation at 31 st International Conference on Pharmacoepidemiology and Therapeutic Risk Management (ICPE-2015), Boston, Massachusetts (MA), USA, Aug 22-26, 2015

SEMINARS/WORKSHOPS

Date	Seminars/Workshops
June 12, 2015	Seminar on 'HVAC and Infrastructure Designing in Pharmaceutical Industry' (SMPIC)
September 2, 2015	Seminar on 'Documentation and SOPs' (SMPIC)
October 26-November 05, 2015	Pharmaceutical Quality by Design: A Risk-Based Approach (ITEC SCAAP)
December 17, 2015	Seminar on 'Challenges in Indian Pharmacopoeial Testing' (SMPIC)
February 14-16, 2016	Industry Academia Meet
February 22-24, 2016	International Symposium on Integrated Drug Development: Chemistry, Manufacturing and Control (CMC)
March 28, 2016	Seminar on 'Applications of Dissolution Techniques in Pharmaceutical Formulations' (SMPIC)

LIST OF EMPLOYEES: SCIENTIFIC AND TECHNICAL STAFF

Name	Designation
Dr. K. K. Bhutani	Director (Officiating)
Dr. A. K. Chakraborti	Dean
Dr. P. V. Bharatam	Associate Dean (Academic)
Dr. Ipsita Roy	Associate Dean (Students)
Department of Medicinal Chemistry	
Dr. A. K. Chakraborti	Professor and Head
Dr. K. P. R. Kartha	Professor
Dr. P. V. Bharatam	Professor
Dr. Rahul Jain	Professor
Dr. Vipin Nair	Associate Professor
Dr. Sankar Guchhait	Associate Professor
Dr. Meenakshi Jain	Scientist Grade I
Dr. Srikant Bhagat	Scientist Grade I
Mr. Pravin Jaikrishna Wanjari	Technical Assistant
Mr. G. Murugesan	Technical Assistant (Glass Blowing)
Mr. Santosh Kumar Giri	Technical Assistant
Mr. Anang Pal	Technical Assistant
Mr. C.V.Ravi Prakash Reddy	Technical Assistant
Mr. Binod Kumar Prasad	Junior Technical Assistant
Department of Pharmacoinformatics	
Dr. P. V. Bharatam	Professor and In Charge
Dr. Prabha Garg	Professor
Dr. Elizabeth M. Sobhia	Associate Professor
Mr. Vishnu Kumar Sharma	Junior Technical Assistant
Department of Natural Products	
Dr. K. K. Bhutani	Professor and Head
Dr. Sanjay Jachak	Professor
Dr. Inder Pal Singh	Professor
Dr. A. S. Sandhu	Garden Supervisor
Dr. S.M. Tripathi	Scientist Grade I (TM)
Dr. Alok Goyal	Scientist Grade II
Dr. Pamita Bhandari	Scientist Grade II
Mr. Mohd. Shahid Khan	Technical Assistant
Mr. Sanjay Vir	Technical Assistant
Mr. Amit Srivastava	Technical Assistant
Mr. K. Prasanna	Junior Technical Assistant
Mr. Rakesh Kumar	Junior Technical Assistant

Department of Pharmaceutical Analysis

Dr. Saranjit Singh

Professor and Head

Dr. Archana Sahu

Scientist Grade II

Mr. Sanjay Kumar

Scientist Grade II

Ms. Parul Sharma

Technical Assistant

Department of Pharmacology and Toxicology

Dr. K. B. Tikoo

Professor and In Charge

Dr. S. S. Sharma

Professor

Dr. G. B. Jena

Associate Professor

Dr. Jitendra Narain Singh

Scientist Grade II

Dr. Malti Singh

Scientist Grade II

Ms. Rupinder Pal Kaur

Technical Assistant

Ms. Nidhi Singh

Technical Assistant

Mr. Sharath Babu S.

Technical Assistant

Mr. Jang Bahadur Ram

Junior Technical Assistant

Center for Infectious Diseases

Dr. P. P. Singh

Professor

Dr. Savita Singh

Scientist Grade I

Department of Pharmaceutical Technology

Dr. U. C. Banerjee

Professor and Head

Dr. Manjinder Singh

Assistant Professor

Dr. Joydev Laha

Assistant Professor

Dr. Alka Mittal

Scientist Grade II

Mr. S. Roy

Scientist Grade II

Mr. Villendra Singh Negi

Junior Technical Assistant

Mr. Subhash Chander

Junior Technical Assistant

Department of Pharmaceutics

Dr. Arvind K. Bansal

Professor and Head

Dr. Sanyog Jain

Associate Professor

Dr. Abhay T. Sangamwar

Assistant Professor

Mr. Gunjan

Technical Assistant

Mr. Kishore Totaba Dhotare

Technical Assistant

Mr. Mahesh Chand

Technical Assistant

Mr. Mahajan R. Ramesh Rao

Junior Technical Assistant

Mr. Sanjaya Kumar Samal

Junior Technical Assistant

Department of Biotechnology

Dr. U. C. Banerjee

Professor and In Charge

Dr. Ipsita Roy

Associate Professor

Dr. Abhay H. Pande

Associate Professor

Dr. Chaaya Iyengar

Assistant Professor

Dr. Sushma Singh

Assistant Professor

Mr. Shivcharan Prasad

Technical Assistant

Mr. N. Kishore Babu

Mr. Ranbir Singh

Mr. Rajan Kumar Tripathy

Mr. Rajesh Kumar

Department of Pharmacy Practice

Dr. Pramil Tiwari

Dr. Dipika Bansal

Department of Pharmaceutical Management

Dr. Anand Sharma

Dr. Sunil Gupta

Dr. Anil Angrish

Pharmaceutical Heritage Centre

Dr. K. P. R. Kartha

Mr. M. Arbindo Singh

Computer Centre

Mr. Rajwinder Singh

Mr. Amandeep Jindal

Mr. Deepak Joshi

Mr. Promod Kumar

Mr. Satendra Rawat

Library and Information Centre

Dr. A. K. Chakraborti

Mr. Anurag Sharma

Mr. Amit Thapar

Central Instrument Laboratory

Dr. Rahul Jain

Mr. Vikas Grover

Dr. Manish Kumar Goyal

Mr. Sandeep Sachdeva

Mr. Mallikarjun Bolusani

Dr. Ashish Chauhan

Dr. Bharti Mittu

Mr. Rajdeo Kumar

Ms. Preeti

Mr. Anil Kr. Saw

Mr. Jashwant Singh

Mr. Vishal Gupta

Mr. Vinod Kumar

Technology Development Centre

Dr. Manjinder Singh

Dr. Animesh Roy

Technical Assistant

Junior Technical Assistant

Junior Technical Assistant

Junior Technical Assistant

Professor and Head

Assistant Professor

Professor and In Charge

Associate Professor

Associate Professor

Professor and In Charge

Museum Curator

Head

Programmer

Technical Assistant

Data Processing Assistant

Data Processing Assistant

Professor and In Charge

Library and Information Assistant

Library and Information Assistant

Professor and In Charge

Technical Supervisor Grade II

Technical Assistant

Technical Assistant

Technical Assistant

Technical Assistant

Technical Assistant

Technical Assistant

Technical Assistant

Junior Technical Assistant

Junior Technical Assistant

Junior Technical Assistant

Junior Technical Assistant

Assistant Professor and In Charge

Scientist Grade II

Mr. Mukesh Kumar

Mr. Anil Bhardwaj

Mr. Sunil Kumar

Mr. Manish Kumar Verma

Mr. Tara Dutt Bhatt

National Bioavailability Centre

Dr. Arvind Bansal

Mr. Inderjit Singh

Ms. Kanwal Jit Kaur

Mr. B. Shantharam R.

National Toxicology Centre

Dr. K. B. Tikoo

Ms. Vibha Ahuja

Central Biological Testing Laboratory

Dr. K. B. Tikoo

Dr. Balkar Singh

Dr. Anubha Singh

Mr. S. S. Jhamb

Mr. Vijay K. Mishra

Central Animal Facility

Dr. S. S. Sharma

Dr. K. Srinivasan

Mr. Mohd. Yamin Saifi

Mr. Sanjeev Bhardwaj

Small and Medium Pharmaceutical Industries Centre

Dr. Arvind Bansal

Ms. Nishi Sharda

Mr. Baljinder Singh

Intellectual Property Rights Cell

Dr. Anand Sharma

Technical Cell

Dr. Alok Goyal

Mr. Lalit Sood

Academic & Examination Section

Govindaraj G.

Amandeep Jindal

Engineering Section

Mr. Ajay K. Sharma

Mr. Major Singh

Mr. T. P. Singh

Mr. Kamal Kishore

Technical Assistant

Junior Technical Assistant

Junior Technical Assistant

Junior Technical Assistant

Junior Technical Assistant

Professor and In Charge

Scientist Grade II

Scientist Grade II

Technical Assistant

Professor and In Charge

Junior Technical Assistant

Professor and In Charge

Scientist Grade II

Scientist Grade II

Scientist Grade II

Junior Technical Assistant

Professor and In Charge

Scientist Grade I

Junior Technical Assistant

Junior Technical Assistant

Professor and In Charge

Scientist Grade I

Technical Assistant

Professor and In Charge

Scientist Grade II

Stenographer Gr. C

Junior Technical Assistant (Audio Visual)

Programmer

Assistant Engineer

Assistant Engineer

Junior Engineer

Sub-overseer

LIST OF EMPLOYEES: ADMINISTRATIVE STAFF

Name	Designation
Wg. Cdr. PJP Singh Waraich (Retd.)	Registrar
Mr. Jitendra Kumar Chandel	Deputy Registrar (Finance and Accounts)
Mr. Sushil Kumar Singh	Deputy Registrar (Admn and Purchase)
Mr. M. Jose	Finance and Accounts Officer
Ms. Bhuvan Gautam	Store and Purchase Officer
Mr. K. G. N. Acharya	Secretary to Director
Mr. Gautam Khanna	Section Officer (Store & Purchase)
Mr. Vishal Kumar	Section Officer (Finance and Accounts)
Mr. Ranbir Singh Kanwar	Security Supervisor (Security-Admn)
Mr. K. S. Saini	Stenographer Gr. B (Pharmaceutical Management)
Mr. Deepraj Sharma	Stenographer Gr. B (Recruitment Cell and PR Cell)
Mr. John K. J.	Stenographer Gr. C (Pharmacology and Toxicology)
Mr. Manoj K. Sood	Stenographer Gr. C (Registrar's Office)
Mr. Lalit Sood	Stenographer Gr. C (Director's Office, Technical Cell and Natural Products)
Mr. Binay K. Sinha	Stenographer Gr. C (A&E)
Mrs. Yogita	Stenographer Gr. C (Medicinal Chemistry)
Mrs. Nisha Sharma	Stenographer Gr. C (S&P)
Ms. Uma	Stenographer Gr. C (A&E)
Mr. Ashu Kumar	Stenographer Gr. C (Pharmaceutical Analysis)
Mr. Anil Gupta	Storekeeper (S&P; Engineering Stores)
Mr. S. U. S. Ramesh	Storekeeper (S&P)
Mr. Jairaj Meena	Storekeeper (S&P)
Mr. Lipton Sharma	Data Processing Assistant (Administration)
Ms. Sukhwinder Kaur	Assistant Gr. I (S&P)
Ms. Prakriti Aggarwal	Assistant Gr. I (A&E)
Mr. Nityanand Gahan	Assistant Gr. I (F&A)
Ms. Vijay Kumari Sharma	Assistant Gr. II (Biotechnology)
Ms. Dimple Sohal	Assistant Gr. II (F&A)
Mr. Pardeep K. Verma	Data Entry Operator (A&E)
Mr. Geeta Prasad Nautiyal	Data Entry Operator (S&P)
Mr. Baldev Raj Bains	Data Entry Operator (Dean's Office)
Ms. Promila Thakur	Jr. Hindi Translator (Administration)
Mr. Dheeraj Bhardwaj	Guest House In Charge
Mr. Arun Gautam	Assistant Gr. III (S&P)
Mr. Mohinder Singh Dhiman	Assistant Gr. III (F&A)

Ms. Usha Rani	Assistant Gr. III (Registrar's Office)
Mr. Gagandeep Singh	Assistant Gr. III (Administration)
Ms. Beena Negi	Receptionist-cum-Telephone Operator
Mr. Kuldeep Singh Chouhan	Receptionist-cum-Telephone Operator
Mrs. Meena	Stenographer Gr. D (Pharmacy Practice)
Ms. Meenakshi	Stenographer Gr. D (Pharmacology & Toxicology)
Ms. Arti Chetri	Stenographer Gr. D (Pharmaceutics)
Mr. Sunil Kumar Pandey	Hindi Typist (Hindi Cell)

Staff Resigned and Relieved

Sh. Ashok Aggarwal	Scientific Officer, CIL	Superannuated on 31.07.2015
Sh. Vishal Gupta	Junior Technical Assistant	Resigned on 09.07.2015

नाईपर में राजभाषा गतिविधियाँ (2015-16)

• राजभाषा कार्यान्वयन समिति की बैठक:

संस्थान में वर्ष 2015-16 में राजभाषा कार्यान्वयन समिति की तीन बैठकों का आयोजन किया गया। विदित है कि मंत्रालय द्वारा दिए गए लक्ष्यों के अनुसार प्रत्येक तिमाही में राजभाषा कार्यान्वयन समिति की बैठक का आयोजन किया जाता है। यह बैठकें 28 जुलाई 2015, 30 नवंबर 2015 तथा मार्च 2016 की प्रस्तावित बैठक 29 अप्रैल 2016 को आयोजित की गई। इन बैठकों में संस्थान में राजभाषा की प्रगति हेतु राजभाषा गतिविधियों, प्रचार-प्रसार, प्रयोग एवं प्रगति की चर्चा के साथ साथ राजभाषा के सही कार्यान्वयन के प्रयास की समीक्षा की जाती है।

• हिन्दी पखवाड़ा

राष्ट्रीय औषधीय शिक्षा एवं अनुसंधान संस्थान (नाईपर), एस.ए. एस. नगर (मोहाली) में 01 से 15 सितम्बर 2015 तक राजभाषा के प्रचार-प्रसार के लिए 'हिन्दी पखवाड़ा' का आयोजन किया गया। हिन्दी पखवाड़ा के आयोजन का मुख्य उद्देश्य संस्थान में हिन्दी भाषा का प्रचार-प्रसार तथा राजभाषा के प्रयोग को अधिक से अधिक प्रोत्साहित करना है।

01 सितम्बर से प्रारंभ हुए हिन्दी पखवाड़ा के दौरान 04 विभिन्न प्रतियोगिताओं जैसे अंग्रेजी शब्दों का हिन्दी अनुवाद, हिन्दी में तत्काल व्याख्यान, हिन्दी टंकण एवं स्वरचित कविता वाचन प्रतियोगिता का आयोजन किया गया जिसमें 120 के करीब प्रतिभागियों ने अपनी सहभागिता निभाई।

15 सितम्बर 2015 को आयोजित हिन्दी पखवाड़ा के समापन समारोह के मुख्य अतिथि प्रो. अशोक कुमार गांगुली, निदेशक, नैनो विज्ञान एवं प्रौद्योगिकी संस्थान, मोहाली थे। उन्होंने कहा कि 14 सितम्बर 1949 को हिन्दी को संविधान द्वारा राजभाषा का दर्जा दिया गया तथा इसी दिन को हिन्दी दिवस के रूप में मनाया जाता है। उन्होंने यह भी कहा कि भाषा का ज्ञान हमारे व्यक्तित्व को निखारता है तथा भाषा पर हमारी जितनी पकड़ होगी, मनुष्य उतना ही ज्ञानी होगा। प्रो. क. कु. भूटानी, कार्यवाहक निदेशक, नाईपर ने अपने विचार रखते हुए कहा कि केवल हिन्दी का ज्ञान होना ही पर्याप्त नहीं है, बल्कि हमें हिन्दी का प्रयोग अपने दैनिक कार्यों में करना चाहिए। हमें हिन्दी के सरल शब्दों का प्रयोग करना चाहिए ताकि वह लोगों की समझ में आसनी से आ सके।

संस्थान के कुलसचिव विंग कमांडर पी.जे.पी. सिंह वड्डैच (से.नि.) ने मुख्य अतिथि, कार्यवाहक निदेशक नाईपर, हिन्दी पखवाड़ा आयोजन समिति, समस्त अधिकारियों एवं कर्मचारियों का

धन्यवाद व्यक्त किया। डॉ. सविता सिंह, कार्यकारी हिन्दी अधिकारी एवं वैज्ञानिक ने वर्ष 2014-15 के दौरान संस्थान का राजभाषा प्रगति-प्रतिवर्दन प्रस्तुत किया। हिन्दी पखवाड़ा के समापन कार्यक्रम के दौरान विभिन्न हिन्दी प्रतियोगिताओं के विजयी प्रतिभागियों को कार्यवाहक निदेशक प्रो. क.कु. भूटानी, मुख्य अतिथि तथा कुलसचिव द्वारा नगद पुरस्कार, प्रमाण-पत्र तथा हिन्दी की पुस्तकें प्रदान की गईं।

वर्ष 2014-2015 में हिन्दी में प्रशंसनीय कार्य के लिए डॉ. अभय एच. पाण्डे, सह प्राध्यापक को अधिकारी वर्ग में तथा श्रीमती बीना नेगी, आर.टी.ओ. को कर्मचारी वर्ग में रु 500/- एवं प्रतीक चिन्ह तथा हिन्दी की पुस्तक द्वारा पुरस्कृत किया गया। हिन्दी प्रबोध परीक्षा उत्तीर्ण करने पर डॉ. के. श्रीनिवासन, वैज्ञानिक को भी नगद पुरस्कार से सम्मानित किया गया। इसके अतिरिक्त हिन्दी पखवाड़े के दौरान आयोजित प्रतियोगिताओं के निर्णायकों को भी प्रतीक चिन्ह से सम्मानित किया गया।

समापन कार्यक्रम में 150 से ज्यादा लोगों ने भाग लिया जिसमें नाईपर के संकाय सदस्य, अधिकारीगण कर्मचारीगण तथा विद्यार्थीगण उपस्थित थे। कार्यक्रम का सफल संचालन डॉ. संयोग जैन, सह प्राध्यापक ने किया। संस्थान में आयोजित हिन्दी पखवाड़ा, हिन्दी पखवाड़ा आयोजन समिति के मार्गदर्शन में हिन्दी कक्ष द्वारा आयोजित किया गया।

• हिन्दी कार्यशालाएं:

29 जून 2015

29 जून 2015 को नाईपर में राजभाषा के प्रचार-प्रसार हेतु हिन्दी कार्यशाला का आयोजन किया गया। कार्यशाला का उद्देश्य राजभाषा के अधिक से अधिक प्रयोग के लिए नाईपरवासियों को अभिप्रेरित करना था। कार्यशाला को मनोरंजक एवं ज्ञानवर्धक बनाने के लिए दो प्रतियोगिताओं का आयोजन किया गया जिसमें प्रथम "सुलेख प्रतियोगिता" तथा द्वितीय "वाद-विवाद प्रतियोगिता" थी। दोनों प्रतियोगिताओं में लगभग 20 प्रतिभागी सम्मिलित हुये। "सुलेख प्रतियोगिता" में सुश्री नम्रता सिंह (छात्रा) प्रथम स्थान पर तथा सुश्री तन्मू जैन (छात्रा) द्वितीय स्थान पर रही तथा "वाद-विवाद प्रतियोगिता" में प्रथम स्थान पर सुश्री साक्षी खुराना (छात्रा) तथा श्री महेश चन्द, तकनीकी सहायक द्वितीय स्थान पर रहे। विजयी प्रतिभागियों को श्री सुशील कुमार सिंह, उपकुलसचिव (प्रशासन एवं क्रय) द्वारा क्रमशः रु 300/- एवं रु 200/- नगद पुरस्कार एवं प्रमाणपत्र से सम्मानित किया गया। हिन्दी कार्यशाला के अवसर पर श्री सुशील कुमार

सिंह, उपकुलसचिव (प्रशासन एवं क्रय) ने अपने विचार रखते हुए उपस्थित नाईपरवासियों को स्वतंत्रता संग्राम आंदोलनों से आज तक राजभाषा की महत्ता से अवगत कराया।

कार्यशाला के समापन अवसर पर डॉ. सविता सिंह, कार्यकारी हिन्दी अधिकारी ने उपस्थित नाईपरवासियों का आभार जताया तथा विजेताओं को बधाई दी। कार्यशाला में आयोजित “सुलेख प्रतियोगिता” में निर्णायक की भूमिका में डॉ. ईप्सिता रॉय, सह प्राध्यापक तथा “वाद-विवाद प्रतियोगिता” में निर्णायक की भूमिका श्री सुशील कुमार सिंह, उपकुलसचिव (प्रशासन एवं क्रय) ने निभाई। कार्यशाला में अधिकारीगण, कर्मचारीगण, तथा विद्यार्थीगण सहित लगभग 30 लोग उपस्थित थे।

18 दिसम्बर 2015

18 दिसम्बर 2015 को नाईपर में राजभाषा के प्रचार-प्रसार हेतु हिन्दी कार्यशाला का आयोजन किया गया। इस कार्यशाला में संस्थान के अधिकारियों, कर्मचारियों एवं विद्यार्थियों ने भाग लिया। इसमें दो प्रतियोगिताओं का आयोजन किया गया जिसमें प्रथम “चित्र से पंक्तियों तक (स्लोगन) प्रतियोगिता” तथा द्वितीय “तत्काल व्याख्यान” प्रतियोगिता थी। दोनों प्रतियोगिताओं में लगभग 25 प्रतिभागी सम्मिलित हुये। “चित्र से पंक्तियों तक (स्लोगन) प्रतियोगिता” में सुश्री सुरभि सोनी (छात्रा) प्रथम स्थान पर तथा श्री नीरज सिंह ठाकुर (छात्र) द्वितीय स्थान पर रहे तथा “तत्काल व्याख्यान प्रतियोगिता” में प्रथम स्थान पर सुश्री किंजल पटेल (छात्रा) तथा श्री विष्णु कुमार शर्मा, कनिष्ठ तकनीकी सहायक द्वितीय स्थान पर रहे। विजयी प्रतिभागियों को श्री राजविन्द्र सिंह, हेड कम्प्यूटर सेंटर द्वारा क्रमशः ₹0 300/- एवं ₹0 200/- नगद पुरस्कार एवं प्रमाणपत्र से सम्मानित किया गया। कार्यशाला में आयोजित “चित्र से पंक्तियों तक (स्लोगन) प्रतियोगिता” में निर्णायक की भूमिका श्री राजविन्द्र सिंह, हेड कम्प्यूटर सेंटर तथा “तत्काल व्याख्यान प्रतियोगिता” में निर्णायक की भूमिका डॉ. जे.एन. सिंह, वैज्ञानिक ने निभाई।

16 मार्च 2016

16 मार्च 2016 को नाईपर हिन्दी कार्यशाला का आयोजन किया गया जिसका उद्देश्य संस्थान में राजभाषा का प्रचार प्रसार एवं अधिक से अधिक प्रयोग करना था। 16 मार्च को आयोजित कार्यशाला में दो प्रतियोगिताओं का आयोजन किया गया जिसमें सुलेख एवं स्वरचित कविता वाचन प्रतियोगिता का आयोजन किया गया। दोनों प्रतियोगिताओं में लगभग 25 प्रतिभागियों ने भाग लिया। सुलेख प्रतियोगिता में श्री जी. गोविन्दराज, कर्मचारी प्रथम स्थान पर तथा श्री संजू यादव और श्री विजय प्रेमसिंह राठौड़ संयुक्त रूप से द्वितीय स्थान पर रहे तथा स्वरचित कविता

वाचन में प्रथम स्थान पर सुश्री किंजल पटेल (छात्रा) तथा श्री जगदीश शर्मा, छात्र द्वितीय स्थान पर रहे। विजयी प्रतिभागियों को डॉ. संयोग जैन, सह प्राध्यापक द्वारा क्रमशः ₹0 300/- एवं ₹0 200/- का नगद पुरस्कार एवं प्रमाणपत्र से सम्मानित किया गया। कार्यशाला में आयोजित स्वरचित कविता वाचन प्रतियोगिता में निर्णायक की भूमिका डॉ. अभय एच. पाण्डे, सह प्राध्यापक तथा स्वरचित कविता वाचन में डॉ. संयोग जैन, सह प्राध्यापक ने निभाई।

• नगर राजभाषा कार्यान्वयन समिति (नराकास), चण्डीगढ़ की बैठकें:

चण्डीगढ़ नगर राजभाषा कार्यान्वयन समिति की बैठक किसान भवन, सैक्टर 35 में 10 जून 2015 को आयोजित की गई जिसकी अध्यक्षता श्री प्रदीप आर. सेठी, प्रधान मुख्य आयकर आयुक्त, उत्तर पश्चिम क्षेत्र, चण्डीगढ़ ने की जिसमें केन्द्र सरकार के विभागों, संगठनों तथा संस्थानों के करीब 100 से अधिक प्रतिनिधि सम्मिलित हुए। नाईपर से इस बैठक का प्रतिनिधित्व सुश्री प्रौमिला ठाकुर, कनिष्ठ हिन्दी अनुवादक एवं श्री सुनील कुमार, हिन्दी टाईपिस्ट ने किया।

नगर राजभाषा कार्यान्वयन समिति की द्वितीय छमाही बैठक किसान भवन, सैक्टर 35 में 19 नवंबर 2015 को आयोजित की गई जिसकी अध्यक्षता श्री राजेन्द्र कुमार, प्रधान मुख्य आयकर आयुक्त, उत्तर पश्चिम क्षेत्र, चण्डीगढ़ ने की। इसमें केन्द्र सरकार के विभागों, संगठनों तथा संस्थानों के करीब 80 से अधिक प्रतिनिधि सम्मिलित हुए। नाईपर से इस बैठक का प्रतिनिधित्व डॉ. सविता सिंह, कार्यकारी राजभाषा अधिकारी एवं वैज्ञानिक ने किया।



29 जून 2015 को हिन्दी कार्यशाला में विजयी प्रतिभागी को पुरस्कार देते श्री सुशील कुमार सिंह, उप कुलसचिव (प्रशासन एवं क्रय)



29 जून 2015 को आयोजित हिन्दी कार्यशाला में भाग लेते नाईपरवासी।

18 दिसम्बर 2015 को आयोजित हिन्दी कार्यशाला में विजयी प्रतिभागी को पुरस्कार देते श्री राजविन्दर सिंह, हेड, कंप्यूटर सेंटर।



हिन्दी पखवाड़ा 2015 के समापन कार्यक्रम के दौरान उपस्थित नाईपरवासी।

मुख्य अतिथि प्रो. अशोक कुमार गांगुली, निदेशक, नैनो विज्ञान एवं प्रौद्योगिकी संस्थान, मोहाली को प्रतीक चिन्ह भेंट करते हुए प्रो. क.कु. भूटानी, निदेशक नाईपर। साथ में विंग कमांडर पी.जे. पी.सिंह वड़ेच, कुलसचिव, नाईपर।



MEMBERS, BOARD OF GOVERNORS

The term of BOG expired on 21.06.2014. Currently, the BoG is under reconstitution.

MEMBERS, ACADEMIC PLANNING AND DEVELOPMENT COMMITTEE (APDC)

The term of APDC expired on 06.09.2014. Currently, the APDC is under reconstitution.

MEMBERS, SENATE

The term of the Senate expired on 06.09.2014. Currently, the Senate is under reconstitution.

MEMBERS, LABORATORY SERVICES BUILDINGS & WORKS COMMITTEE (LSBWC)

The term of LSBWC expired on 06.09.2014. Currently, LSBWC is under reconstitution.

MEMBERS, FINANCE COMMITTEE

S. No.	Name	Designation
1.	Prof. K. K. Bhutani Officiating Director, NIPER	Chairman
2.	Prof. A. K. Chakraborti Dean, NIPER	Member
3.	Sh. A. V. Lakra Deputy Secretary (IFD) Department of Pharmaceuticals Ministry of Chemicals and Fertilizers Govt. of India	Member Member
4.	Sh. Sushil Thakur Financial Advisor PGIMER (Research) Sector 12, Chandigarh	Member
5.	Sh. Raj Kumar Droch Finance & Accounts Officer Institute Of Microbial Technology CSIR-IMTECH, (Govt. of India) Sector 39A, Chandigarh	Member
6.	Sh. Satish Reddy Chairman Dr Reddy's Group of Companies 7-1-27, Ameerpet Hyderabad (A.P.)	Member
7	Wing Cdr P. J. P. Singh Waraich (Retd.) Registrar, NIPER	Member Secretary

GRANT-IN-AID

Plan Budget (2015-2016)

Plan Head	Amount (Rs. in crores)
Teaching and other infrastructure facilities	9.79

Non-Plan Grant Received/Expenditure (2015-16)

Expenditure Head	Grant-in-Aid received (Rs. in crores)	Expenditure (Rs. in crores)
Salary and allowances	14.75	24.52
General	12.73	16.36
Total	27.48	40.88

Against the non-plan budget estimate (BE) of Rs. 52.76 crore, Department of Pharmaceutical (Gol) has released Rs. 27.48 crore as Grant-in-Aid (Non Plan) for Financial Year 2015-16.



NIPER employees marking the Constitution Day



NIPER employees attending the function marking Vigilance Awareness Week

EXTRAMURAL FUNDING

Project No.	Funding agency	Principal Investigator	Amount (Rs.)
GP-252	Department of Biotechnology	Dr. U C Banerjee	2963911.00
GP-326	Department of Science & Technology	Dr. Prabha Garg	10000.00
GP-339	Department of Biotechnology	Dr. Abhay H Pande	199433.00
GP-375	Department of Biotechnology	Dr. A T Sangamwar	236900.00
GP-385	Department of Biotechnology	Dr. A K Bansal	552000.00
GP-387	Indian Council of Medical Research & Department of Biotechnology	Dr. Inder Pal Singh	1401209.00
GP-391	Science Education and Research Board	Dr. P V Bharatam	1500000.00
GP-393	Department of Biotechnology	Dr. K K Bhutani	848075.00
GP-394	Science Education and Research Board	Dr. Chaaya Iyengar	500000.00
GP-396	Department of Biotechnology	Dr. U C Banerjee	464400.00
GP-398	Science Education and Research Board	Dr. M E Sobhia	600000.00
GP-401	Science Education and Research Board	Dr. J K Laha	700000.00
GP-404	Science Education and Research Board	Dr. Abhay H Pande	1000000.00
GP-405	Centre for Scientific & Industrial Research	Dr. S K Guchhait	359200.00
GP-406	Department of Biotechnology	Dr. A K Bansal	50000.00
GP-407	Science Education and Research Board	Dr. Ipsita Roy	2625000.00
GP-408	Department of Science & Technology	Dr. P V Bharatam	4000000.00
GP-409	Defence Research and Development Organisation	Dr Inder pal Singh	650000.00
GP-411	Department of Biotechnology	Dr. Inder Pal Singh	1370000.00
GP-412	Indian Council of Medical Research	Dr. Dipika Bansal	210850.00
GP-413	Science Education and Research Board	Dr. K B Tikoo	2395000.00
GP-414	Science Education and Research Board	Dr. G B Jena	1053000.00
GP-415	Biotechnology Industry Research Assistance Council	Dr. A K. Bansal	2910000.00
SP-215	BMS Syngene International Ltd.	Dr. P V Bharatam	2022636.50
SP-223	M/S Zoetis Pharmaceutical Resersch Pvt Ltd	Dr. A K Bansal	723300.00

OTHER SERVICES

Consultancy No.	Title	Principal Investigator	Sponsor
GC-AKB-15-01	Identification of solid form and Particle size analysis of API in Reference and Test Tablet	Dr A K Bansal	M/s Perrigo Laboratories India Pvt. Ltd., Ambernath
GC-AKB-15-02	In-vitro Adhesion – Comparative Performance of Buccal Tablets	Dr A K Bansal	M/s Watson Pharma
GC-AKB-15-03	Performance Evaluation of NCE Formulation	Dr A K Bansal	M/s Windlas Healthcare Private Limited
GC-AKB-15-04	Identification, Isolation and Analysis of Particle Size of Isotretinoin in Capsules	Dr A K Bansal	M/s Olive Healthcare, Mumbai
GC-AKB-15-05	Identification of solid form and particle size evaluation of Efavirenz in Sustiva tablets	Dr A K Bansal	M/s Cipla Ltd.
GC-AKB-15-06	Identification of solid form and particle size evaluation of Dasatinib in Sprycel tablets	Dr A K Bansal	M/s Cipla Ltd., Mumbai
GC-AKB-15-07	Formulation development and analysis of Alagard	Dr A K Bansal	M/s Alliance Formulations, Baddi
GC-AKB-15-08	Identification and Particle Size analysis of API in Reference formulations	Dr A K Bansal	M/s Fusion Scientific Laboratories Pvt. Ltd.
GC-AKB-15-09	Identification, isolation and Particle size analysis of Fenofibrate in capsules	Dr A K Bansal	M/s Ajanta Pharma Limited
GC-AKB-15-10	Surface Area analysis of samples	Dr A K Bansal	M/s Genovo Development Services Ltd.
GC-AKB-15-11	Identification, isolation and particle size analysis of Fexofenadine hydrochloride acid in Telfast Tablets	Dr A K Bansal	M/s Genovo Development Services Ltd.
GC-AKB-15-12	Identification, Isolation and Analysis of Particle Size of API in Test and Reference Product	Dr A K Bansal	M/s Glenmark Pharma
GC-AKB-15-13	Identification, isolation and particle size analysis of Candesartan in Amias Tablets	Dr A K Bansal	M/s Genovo Development Services Ltd.
GC-AKB-15-14	Surface Area Analysis of samples	Dr A K Bansal	M/s INTAS Pharmaceuticals Ltd. – Astron Division
GC-AKB-15-15	Characterization of Mesalamine Samples	Dr A K Bansal	M/s Dr. Reddy's Laboratories Ltd.
GC-AKB-15-16	Particle Size Analysis of API in Tablets	Dr A K Bansal	M/s Piramal Pharmaceuticals Development Services Pvt. Ltd.

GC-AKB-15-17	Identification, isolation and particle size analysis of Carbamazepine in Tablets	Dr A K Bansal	M/s Genovo Development Services Ltd.
GC-AKB-15-18	Assessment of wetting kinetics of API with different probe liquids (Contact Angle Determination as per P.O.)	Dr A K Bansal	M/s Johnson and Johnson Ltd.
GC-AKB-15-19	Identification, isolation and particle size analysis of Nicorandil in Ikorel Tablets	Dr A K Bansal	M/s Genovo Development Services Ltd.
GC-AKB-15-20	Identification, isolation and particle size analysis of APIs in Innovator and Test Tablets	Dr A K Bansal	M/s CIPLA Ltd
GC-AKB-15-21	Particle Size Analysis of Tadalafil API samples	Dr A K Bansal	M/s Micro Advanced Research Centre, Bangalore.
GC-AKB-15-22	Particle Size Analysis of Tetrabenazine in Reference and Test Tablets	Dr A K Bansal	
GC-AKB-15-23	Gel Strength Analysis of Mesalamine Delayed release tablets	Dr A K Bansal	M/s Natco Pharma Limited, Hyderabad
GC-AKB-15-79	Identification, Isolation and Analysis of Particle Size of API in Tablets	Dr A K Bansal	M/s Aizant Drug Research Solutions Pvt. Ltd., Hyderabad
GC-AKB-15-80	Polymorphs Studies of Azithromycin	Dr A K Bansal	M/s Glenmark Pharma
GC-AKB-15-81			
GC-KBT-15-01	Particle Size Distribution of API in Tadalafil Tablets	Dr A K Bansal	M/s Rajasthan Antibiotics
GC-KBT-15-02	To investigate the antihyperlipidemic and hepatoprotective effect of VISIVABRM	Dr. K B. Tikoo	M/s Jubilant Lifesciences Ltd.
GC-MSG-15-01	Toxicity studies of nutraceutical compound Neomust (Acute oral toxicity study (up and down procedure) and 28 days oral toxicity study) in rats under GLP environment	Dr. K B. Tikoo	M/s Sivanaray INC, 8332 Lost River Road, Corona, California, USA
GC-MSG-15-02	Hydrogenation of a Semisynthetic Intermediate	Dr. Manjinder Singh Gill	M/s Morepen Laboratories LimitedM/s Chemical Resources, Panchkula
GC-MSG-15-03	Pilot Studies Involving Hydrogenation of an Intermediate	Dr. Manjinder Singh Gill	M/s Chemical Resources, Panchkula
GC-MSG-15-04	Lab Scale Process for Pethidine HCL	Dr. Manjinder Singh Gill	M/s ARK Healthsciences Pvt. Ltd., Dera Bassi, India
GC-MSG-15-05	Batch validation Studies of P24 Stage II Product	Dr. Manjinder Singh Gill	M/s DSM Anti-Infectives India Limited, Toansa

GC-MSG-15-06	Synthetic process for N-Acetyl Dicloxacilloic acid	Dr. Manjinder Singh Gill	M/s Celeste Life Sciences Pvt. Ltd., B-550, Sarita Vihar, New Delhi
GC-MSG-15-07	Synthetic process for 6-AA Dicloxacillin amide	Dr. Manjinder Singh Gill	M/s DSM Anti-Infectives India Limited, Toansa
GC-MSG-15-08	Synthetic process for DCMICG-Dicloxacilloic acid	Dr. Manjinder Singh Gill	M/s DSM Anti-Infectives India Limited, Toansa
GC-MSG-15-09	Lab Sample Preparation of DOTP Drying Trials of AZPH	Dr. Manjinder Singh Gill	M/s Veekay Polycoats Ltd.
GC-MSG-15-10	Development Batches for ISLLC-361 Project	Dr. Manjinder Singh Gill	M/s HPL Additives Ltd.
GC-MSG-15-11	Lab Scale Synthesis of Prednisolone 21-(3-Sulfobenzoic Acid) Sodium Salt	Dr. Manjinder Singh Gill	M/s Ind-Swift Laboratories Ltd.
TS-AKB-15-01	Spray drying of Cephalosporin samples	Dr A K Bansal	M/s Nectar Lifesciences
TS-AKB-15-02	Spray drying of Cephalosporin samples	Dr A K Bansal	M/s Nectar Lifesciences



Prof. K. K. Bhutani hoisting the National Flag at the Independence Day 2015 celebrations at NIPER, S.A.S. Nagar



Prof. K. K. Bhutani hoisting the National Flag at the Republic Day 2016 celebrations at NIPER, S.A.S. Nagar



Cultural function presented by students at the Independence Day 2015 celebrations at NIPER, S.A.S. Nagar

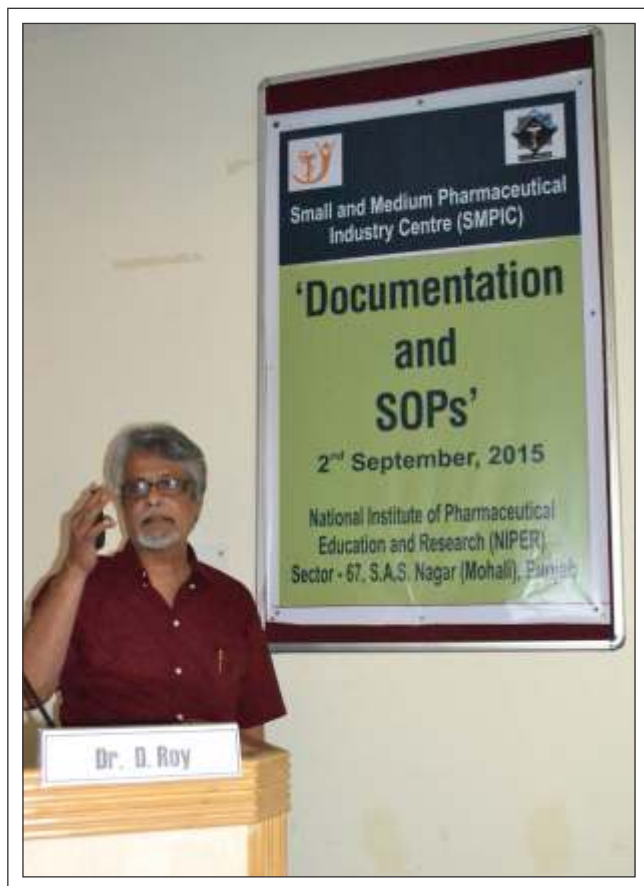
Prof. Shyam S. Sharma receiving the ICMR Dr D. N. Prasad Memorial Oration award for his contribution in the area of pharmacology from Shri Jagat Prakash Nadda, Hon'ble Union Minister of Health & Family Welfare in the presence of Dr. Soumya Swaminathan, DG, ICMR on Jan 19, 2016



Dr. Rajan Tripathy, Junior Technical Assistant, interacting with delegates at Industrial Biotechnology Congress, held at Birmingham, UK, Aug 10-12, 2015



Prof. V. R. Sinha, University Institute of Pharmaceutical Sciences, Panjab University, addressing delegates at the seminar conducted by SMPIC on March 28, 2016



Dr. D. Roy, former Deputy Drugs Controller, CDSCO, addressing delegates at the seminar conducted by SMPIC on Sept 02, 2015



Delegates attending the seminar conducted by SMPIC on Sept 02, 2015

HIGHLIGHTS OF VISIT OF THE HON'BLE MINISTER OF STATE, MINISTRY OF CHEMICALS AND FERTILIZERS, SHRI HANSRAJ GANGARAM AHIR, TO NIPER, S.A.S. NAGAR, ON OCT. 01, 2015



Planting of sapling



Visiting facilities in the Institute



Visiting exhibits in the Pharmaceutical
Heritage Centre



Inauguration of Pharmaceutical
Heritage Centre



Interacting with faculty members



Interacting with staff members



Welcome address and a glimpse of NIPER, S.A.S. Nagar by Officiating Director



Release of Annual Report 2014-2015 of NIPER, S.A.S. Nagar



Addressing the gathering



Felicitation by Officiating Director



Interacting with students



Interacting with pharma industrialists

VISITOR'S CONFERENCE 2015



with Dr. Alexander Gebauer, President and Head,
Global R&D, Sun Pharmaceuticals Industries Ltd.



with Mr. S. B. Bhadrannavar, Managing Director,
Rajasthan Drugs and Pharmaceuticals Ltd.



with Dr. Murtaza Khorakiwala, Managing Director,
Wockhardt Ltd.



with Mr. Sahir Khatib, Vice Chairman,
Medley Pharmaceuticals Ltd.



with Dr. Rajesh Jain, Joint Managing Director,
Panacea Biotec Ltd.

During the Visitor's Annual Conference at Rashtrapati Bhavan held on Nov 4-6, 2015, NIPER S.A.S. Nagar has signed MoUs with five industries on various areas of mutual interest, including formulation development, research and development on anti-inflammatory and lifestyle disease segments, collaborative research in the areas of metabolic disorders, CNS disorders, oncology and infectious diseases in the august presence of the Hon'ble President of India, Hon'ble Union Minister of Human Resource Development, Hon'ble Minister of State for Chemicals and Fertilizers and other dignitaries.

SILVER JUBILEE CELEBRATIONS

February 14-16, 2016	NIPER-Industry Business Meet	<p>The theme of the meet was “Leveraging the Research Potential of NIPER S.A.S. Nagar in National Program on 'Make in India' for Holistic Development of Pharma Industry”.</p> <p>The topics which were discussed during the meet were</p> <ul style="list-style-type: none"> • API Overview and Opportunities- India Perspective, • Novel drug delivery systems: tool for pharmaceutical innovation – world versus India vs. NIPER, • Impurity Levels – Riddle of the Day, • Issues faced by Pharma SSI”, “Pharmaexcil's role in Export Promotion, • Promise of Molecular Diagnostics: Is India Ready?, Can India be the hub of High End Medical device manufacturing – Journey of a collaborative international research, • Moving towards self-reliance in Medical Devices in India, • Development of Biosimilars: Industry Perspective and • Challenges being faced by the manufacturers specially MSME.
February 15, 2016	Foundation Day and Flag-off of Silver Jubilee celebrations	<p>On 25th anniversary of registration of NIPER as a Society, year-long celebrations have been planned, including events scheduled till February, 2017.</p> <p>Silver Jubilee Foundation Day lecture was delivered by Dr N K Mehra, National Professor, AIIMS, New Delhi, on the topic “From Genome to Genetics: Opportunities and Challenges”.</p> <p>A Coffee Book, capturing achievements of 25 glorious years of NIPER, and a Souvenir, were released along with silver jubilee memorabilia (Flash Drive and a Broach)</p>
February 17-18, 2016	Motivational lecture	<p>A motivation lecture on the theme 'Happiness, Wellbeing and Work' was delivered by Dr V Mohan. NIPER faculty, staff and students attended the interactive lecture.</p>
	Medical camps	<p>A two day medical camp was organized for NIPER faculty, staff and students at National Bioavailability Center (NBC) at NIPER. On 17 February, 2016, camp was organized for Eyes, Skin and General Medicine. On 18 February, 2016, Eye, Dental, ENT and Ortho camp was arranged.</p>
February 17, 2016	Yoga Session	<p>Yoga session on the topic 'Meditate Rejuvenate' by Yogi Buddhadeva</p>
February 19, 2016	AstraZeneca Oration Award	<p>The award was given to Dr Soumya Swaminathan, Director General, ICMR and Secretary, Department of Health Research. She delivered a lecture on the topic “Recent Advances in Management of TB”.</p>

	Dr. Parvinder Singh Memorial Award	The award was given to Dr D B Anantha Narayana, Chief Scientific Officer, Ayurvedic Trust, Bangalore. He delivered a lecture on the topic "Innovations in Pharmaceutical Industry and Research in India and opportunities for Future".
February 22-24, 2016	International Symposium on Integrated Drug Development: Chemistry, Manufacturing and Control (ISIDD 2016)	An International Symposium was organized from Feb 22-24, 2016 which comprised speakers from India and abroad. It was preceded by a short-course of one day on 'Significance on pre-formulation in developability and deliverability'. Short course and Symposium was attended by more than 120 participants. Participants comprised industry professionals, academicians, researchers, faculty from reputed institutions and students. The event was sponsored by BMS (BBRC), Natco Pharma, DRL, Piramal Enterprises, Syngene International, Janssen (J&J), Sun Pharma, Vimta Labs Ltd., Bruker AXS, Water, Agilent, Thermo Fisher Scientific and Zoetis.
February 26, 2016	81 mg	An event organized by students of Department of Pharmaceutical Management where students of all departments participate in managerial activities like case presentation, sales presentation, business solutions for strategic problems, stock market analysis, leadership activities, etc.
March 18-19, 2016	Spandan: Inter-NIPER Sports Meet	A sports meet was organized where students from different NIPERs participated in sports events over a period of 3 days. The event culminated with a colorful cultural program where students showcased their talent on stage.
September 13-26, 2016	Training programme on 'Advanced Analytical Techniques: Basic Principles & Application for Quality Assessment of Drugs and Pharmaceuticals for Export' for analytical and regulatory personnel from developing countries (ITEC-SCAAP)	The course was sponsored by Ministry of External Affairs. A total of 21 participants from 13 countries attended the course. Hands on training and pharma industry visits were highlights of this 2 week training program.
October 18, 2016	Workshop on Gender Sensitivity at Workplace	Two lectures were organized for employees of the Institute: <ol style="list-style-type: none"> 1. Lecture on "Provisions of the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act 2013" (Dr. Upneet Lalli) 2. Lecture on "Psycho-social aspects of prevention and dealing with sexual harassment" (Dr. Vidhu Mohan)
November 7-17, 2016	Training programme on 'Pharmaceutical Quality by Design: A Risk-Based Approach' for analytical and regulatory personnel from developing countries (ITEC-SCAAP)	-Due-

November 18-20, 2016	Fifth International Biennial Conference on New Developments in Drug Discovery from Natural Products and Traditional Medicines (DDNPTM 2016)	-Due-
February 12-14, 2017	International Symposium in Pharmacology and Toxicology	-Due-
February 15, 2017	Foundation Day and Valedictory function of Silver Jubilee celebrations	-Due-
February 15-17, 2017	Knowledge Partner for "Health and Pharma Summit and Expo "Healthy India: Vision 2030, Transforming India's Health Care System" to be conducted by ASSOCHAM.	-Due-



Release of Coffeetable Book chronicling the journey of 25 years of NIPER S.A.S. Nagar during the Silver Jubilee Foundation Day. L-R: Prof. A. K. Chakraborti, Dean, NIPER, Prof. N. K. Mehra, Guest of Honour, Dr. C. L. Kaul, Former and Founder Director, NIPER, Prof. Harkishan Singh and Prof. K. K. Bhurani, Director (Officiating), NIPER



Inauguration of Silver Jubilee celebrations on Foundation Day 2016 by Dr. C. L. Kaul, Former and Founder Director, NIPER S.A.S. Nagar, in the presence of Prof. N. K. Mehra, Prof. Harkishan Singh, Dean and Director



Prof. N. K. Mehra, National Professor, AIIMS, New Delhi, delivering the Silver Jubilee Foundation Day lecture on "From Genome to Genetic Medicine: Opportunities and Challenges"



Release of other memorabilia during the Silver Jubilee Foundation Day by the Director



Dr. H.P.S. Chawla, the first Dean of NIPER S.A.S. Nagar was felicitated by the Director on the Silver Jubilee Foundation Day



Dr. Vidhu Mohan, former Head, Department of Psychology, Panjab University, delivered a motivational lecture on "Happiness, Wellbeing and Work" during the Silver Jubilee celebrations on Feb 18, 2016

A Yoga Camp on 'Meditate Rejuvenate' by Yogi Buddhadeva was conducted as a part of the Silver Jubilee celebrations on Feb 17, 2016



A Health Camp for all Institute employees and students was organized to mark the Silver Jubilee celebrations on Feb 17-18, 2016

AWARD LECTURES



Dr. Soumya Swaminathan, Director General, ICMR and Secretary, Department of Health Research, was honoured with the AstraZeneca Oration Award. She delivered a lecture on "Recent Advances in Management of TB" on Feb 19, 2016



Dr. D.B. Anantha Narayana, Chief Scientific Officer, Ayurvede Trust, Bangalore and former Director, Regulatory Affairs, Foods, Home & Personal Care, Unilever Research, was honoured with Dr. Parvinder Singh Memorial Award. He delivered a lecture on "Innovations in Pharmaceutical Industry and Research in India and Opportunities for Future" on Feb 19, 2016



INDUSTRY-ACADEMIA MEET

Industry Academia Meet was held from February 14 to February 16, 2016 with the theme, "Leveraging the Research Potential of NIPER S.A.S. Nagar in National Program on 'Make in India' for Holistic Development of Pharma Industry". Topics covered: "API Overview and Opportunities- India Perspective", "Novel drug delivery systems: tool for pharmaceutical innovation - world versus India vs. NIPER", "Impurity Levels - Riddle of the Day", "Issues faced by Pharma SSI", "Pharmaexcil's role in Export Promotion", "Promise of Molecular Diagnostics: Is India Ready?", "Can India be the hub of High End Medical device manufacturing - Journey of a collaborative international research", "Moving towards self-reliance in Medical Devices in India", "Development of

Biosimilars: Industry Perspective" and "Challenges being faced by the manufacturers specially MSME".

Eminent speakers comprised Dr. Rahul Saxena (CSO, SRF Chemicals), Dr. Rajeev Raghuvanshi (VP, DRL), Mr. Jagdeep Singh (MD, Parex Pharma), Dr. Girish Jain (VP, Alkem), Dr. Abhay Sinha (Pharmaexcil), Dr. S. M. Nagendra (Scintilla Bio-Marc), Dr. Gurmeet Singh Chugh (MD, Translumina Therapeutics LLP), Mr. Arun Mudgal (COO, B. Braun), Dr. Samir Kulkarni (AVP, Intas Pharma) and Mr. P. K. Gupta (Chairman, CIPI).



Inauguration of Industry-Academia Meet during Silver Jubilee celebrations by Dr. S. M. Nagendra, Scintilla Bio Marc, in the presence of Prof. K. K. Bhutani, Director (Officiating), NIPER, S.A.S. Nagar and Prof. A. K. Bansal, Chairman, Organizing Committee



Delegates attending the Industry-Academia Meet



Exchange of MoU with representatives of Tirupati Medicare during Industry-Academia Meet



Exchange of MoU with representatives of Dow Chemicals during Industry-Academia Meet

INTERNATIONAL SYMPOSIUM ON INTEGRATED DRUG DEVELOPMENT: CHEMISTRY, MANUFACTURING AND CONTROL (ISIDD:CMC 2016)

An International Symposium was organized from Feb 22-24, 2016 which comprised speakers from India and abroad. It was preceded by a short-course of one day on 'Significance on pre-formulation in developability and deliverability'. Short course and Symposium was attended by more than 120 participants. Participants comprised industry professionals, academicians, researchers, faculty from reputed institutions and students.

Key speakers comprised Dr. Sailesh Varia (Director, Drug Product Science and Technology, Bristol Myers Squibb, USA), Neil Mathias (Principal Scientist, Drug Product Science and Technology, BMS, USA), Dr. John Crison (Managing Partner,

Pharmaceutical Consulting LLC, USA), Dr. Sridhar Desikan (Vice President and Site IPDO-Bengaluru, Dr. Reddy's Laboratories, Bengaluru, India), Dr. Rajan Deshpande (Head, API Manufacturing, Janssen, USA), Dr. Rakeshwar Bandichhor (Director, API-R&D, DRL, India), Dr. Rajappa Vaidyanathan (Director, Early Phase Chemical Development, BMS, India), Dr. Anandi Krishnan (Ex-Director, Janssen, India), Dr. Pankaj Shah (Executive Director, Analytical & Bioanalytical Development, BMS, USA), Joel Young (Director, Analytical & Bioanalytical Development, BMS, USA), Dr. Krishna Venkatesh (Vice President, DRL, Bengaluru, India), Dr. Jatin Patel (Group Director, Drug Product Science and Technology, BMS, USA), Dr. Gopal Vaidyanathan (Vice President, Analytical R&D, Natco Pharma, India), Dr. Romi Singh (Director, Pharma Research, SPIL R&D, Gurgaon), Kris Schoeters (Product Manager Continuous Processing, APC Pharma, Solid Dosage, GEA), and Stephen McDonald (Senior



Experts addressing the gathering. L-R: Dr. Pankaj Shah, Executive Director, Analytical & Bioanalytical Development, Bristol-Myers Squibb, USA; Dr. Purushottam Singnurkar, Research Director, Syngene International Ltd.; Dr. Joel Young, Director, Analytical & Bioanalytical Development, Bristol-Myers Squibb, USA; Dr. Jatin Patel, Group Director, Drug Product Science and Technology, Bristol-Myers Squibb



A cultural event organized during the symposium



Dr. Sailesh A. Varia, Group Director, Drug Product Science and Technology, Bristol Myers Squibb, USA, delivering a lecture on "Developability of compounds and what it means, what are the barriers to developability with the case studies, BCS Classification, fixed dose combination and challenges associated with their developability" during the short course preceding the conference

Manager, Pharmaceutical Strategic Business Development, Waters Pharmaceutical Business Operations, Milford, Massachusetts).

Organizing Committee comprised Prof. K. K. Bhutani (Chief Patron), Dr. Anil Kumar Angrish, A.K.M. Chandrasekhar (Janssen, J&J), Dr. Gopal Vaidyanathan (Natco Pharma), Dr. Hemant Bhutani (BMS), Dr. Pankaj Shah (BMS), Dr.

Purushottam Singnurkar (Syngene International Ltd.), Dr. Rajappa Vaidyanathan (BMS), Dr. Sailesh Varia (BMS), Sridhar Desikan (DRL), and Vishakh Kharat (Piramal Healthcare)

The event was sponsored by BMS (BBRC), Natco Pharma, DRL, Piramal Enterprises, Syngene International, Janssen (J&J), Sun Pharma, Vimta Labs Ltd., Bruker AXS, Water, Agilent, Thermo Fisher Scientific and Zoetis.



Group photograph of participants, speakers and organizing committee

INTER-NIPER SPORTS MEET



SPANDAN 2016



JOURNEY OF 25 YEARS OF NIPER S.A.S. NAGAR: The Making of an Institute of National Importance

Next I may write on the movement for creation of Central Institute of Pharmacy which after a long struggle fructified in establishment of the National Institute of Pharmaceutical Education & Research.

Following the recommendation of the Pharmaceutical Enquiry Committee (1954) for establishment of Central Institute of Pharmacy, the Ministry of Health of the Government of India asked the Pharmacy Council of India to prepare a concrete plan; Professor M.L. Schroff was the president of the council at the time. A plan was drawn out first in 1955 and revised with pruned down financial requirements when Dr S. Rohatgi had become the PCI president. No progress occurred for creating the institute and in 1972 the Union Ministry of Health transferred the CIP scheme to the Ministry of Education.

My interest in the move for CIP was kindled through my interaction with Dr G. P. Srivastava and other PCI members from Banaras, of whom I was a junior colleague at the Banaras Hindu University during the 1950s. I kept myself informed on the subject during the years which followed. My active involvement in the project, however, started when I became a PCI member in 1970 and Dr Rohatgi inducted me for preparing fresh draft of the institute plan. When we met at the 24th Indian Pharmaceutical Congress at Cuttack in December 1972, he briefed me about meeting of the Pharmaceutical Education Committee, All India Council for Technical Education, Ministry of Education, of which he was the Chairman; a meeting of the Committee had been held early in the month. The committee felt that the CIP scheme prepared by the Pharmacy Council of India needed revision. There was formed a subcommittee for preparing the revised plan, a meeting of which was scheduled for 30 March 1973.

Dr Rohatgi had asked me to write on aims and objectives of CIP and spell out the requirements for the Division of Pharmaceutical Chemistry. I did that and communicated the same to him through my letter of 15 January 1973. I suggested that the institute may better be given the title Central Institute of Pharmaceutical Sciences and Technology. Not exactly this but the new name Central Institute of Pharmaceutical Sciences got to be accepted by the PCI. Professor S. N. Sharma from the University of Saugar as Chairman of the PCI Education Regulations Committee was also actively associated for preparing the scheme. A coverage of undergraduate and postgraduate studies and advanced research was envisaged at the projected institute.

Dr Rohatgi followed up the CIPS project and did his very best but unfortunately his efforts were not successful. From him

Professor P. C. Dandiya took over as the new PCI president in April 1976. He started working anew for the institute. For the purpose he constituted an *ad hoc* committee of 'Professor Harkishan Singh (Convener), Professor P. N. Kaul (University of Oklahoma, USA) and K. N. Shanbhogue (PCI vice president).' The committee met on 3 January 1977. The aims and objectives were redefined and fresh efforts started. The efforts continued without any positive results.

When nothing else was working, in early 1977 an idea was mooted that the Panjab University Department of Pharmaceutical Sciences be selected for upgradation to central level institute (Section 93). But later I myself realized that any inherent weakness of an existing department may act as an impediment for developing novel and progressive programmes. The matter was not pursued further.

The vain attempts for establishing the institute did not dishearten the profession and movement towards the goal continued. The initial name of the Central Institute of Pharmacy (CIP) (1955) had changed to Central Institute of Pharmaceutical Sciences (CIPS). On the suggestion from Dr V. P. Arya of the Ciba-Geigy Research Centre to me, the name was modified to National Institute of Pharmaceutical Sciences (NIPS) and this was the name which I used at the Jaipur session (1981) of the Indian Pharmaceutical Congress in my address as the general president; a resolution passed for the institute also bore this new name. The *American Pharmacy*, published by the American Pharmaceutical Association, while featuring my Jaipur address highlighted my statement, 'There is a pressing requirement for an institute of higher learning in pharmaceutical sciences of world standard' (1982).

The issue of creating an institution for nurturing pharmaceutical excellence had become a mission for me in person. To propagate its importance I kept writing and speaking on the subject every time when an occasion arose; all what I said stands collected in the *Views and Reviews 1*. In 1982, I suggested that to make a beginning a nucleus for the institute could be created where most of the basic and allied facilities already existed and Lucknow appeared to be the likely venue where there were several national laboratories and other reputed institutions. It was my view that things could be planned in a way that the building and other infrastructure might start coming up at some other location if the ultimate aim was to have the full grown institute at a location other than Lucknow. I prepared a working paper for the purpose but the location at Lucknow, which could lead to the institute getting overshadowed by CDRI, was not accepted.

A new phase of the movement for establishing the national institute started. Dr Parvinder Singh of Ranbaxy Laboratories had become president of the India Pharmaceutical Association (1982-84) and was later to preside over the Indian Pharmaceutical Congress Association (1985-86); he was also keen about establishment of the institute. We exchanged some correspondence on the subject. While attending the 34th Indian Pharmaceutical Congress at Varanasi in December 1982, we discussed the matter in details. He wanted me to prepare an approach paper for the institute.

I prepared the paper and on 31 January 1983 mailed to him the write-up. In the covering letter I stated that for the proposed institute the name National Institute of Pharmaceutical Education & Research would be more expressive. I titled the approach paper I prepared as such. A part of the new connotation was picked up by me from the name of the Postgraduate *Institute of Medical Education & Research*, Chandigarh. So there was change of the acronym from NIPS to NIPER. At the time the national institute was only a dream; odds were many in the way of its establishment. At the stage it was not visualized that within a decade the institute would become a reality and the acronym NIPER for short for the institute would reverberate all over.

Dr Parvinder Singh had the contacts and facilities available to effectively pursue the cause. He had with him an able associate in Dr Paramjit Rai Pabrai and they both worked in tandem. Dr Pabrai was now a Ranbaxy man and had earlier held the position of Head Corporate Quality Assurance with the company, after retirement as Director of the Central Indian Pharmacopoeial Laboratory. Dr Pabrai in turn could benefit from interaction and discussion on the subject with Professor S. N. Sharma now settled at Delhi; the latter had been involved in preparing CIPS document under the aegis of the Pharmacy Council of India. Dr Pabrai had on hand the enormous task of handling all the paper work. At a later stage Dr Parvinder Singh in his letter to me was all praise for the support he got from Dr Pabrai regarding work for creation of the NIPER.

Dr Parvinder Singh continued with lobbying for the institute. At his presidential address at the 37th Indian Pharmaceutical Congress at New Delhi in December 1985, he laid emphasis on pressing requirement for creation of the institute of higher learning in pharmaceutical sciences, named as National Institute of Pharmaceutical Education & Research. The Prime Minister of India Mr Rajiv Gandhi had agreed to inaugurate the Congress. It was for the first time that a Prime Minister of India listened first hand to the requirements of the pharmaceutical profession. Regarding the institution the Prime Minister said that the issue would be examined soon by concerned Ministries. Thereupon Dr Parvinder Singh as IPCA president invited views from prominent members of the profession and

for preparing detailed proposal constituted a committee consisting of 'Professor Harkishan Singh, Dr Nitya Anand, Dr S. Rohtagi, Professor S. N. Sharma, Professor E. Venkata Rao, Ramanbhai B. Patel, Dr P. Pabrai and Dr Parvinder Singh.'

For consideration of the committee a detailed proposal was prepared. In the proposal the interdisciplinary approach and intermingling of different scientific disciplines were emphasised. When one comes to higher stage of education and research, it is all science. At the institute the major focus was to be on education and research in medicinal chemistry, natural product, pharmacology and toxicology, pharmaceutical technology, pharmaceutical analysis, biotechnology, community and institutional pharmacy and pharmaceutical management. The courses of study were to be interdepartmental to a large or lesser extent. To begin with there were to be studies for M.S. and Ph.D. degree. The overall approach was organizational; there was no escape from it if the institute were to produce first rate pharmaceutical scientists, technologists and professionals. Dr S. K. Kulkarni helped me in working out structural details of the proposed Institute.

The committee set up by the IPCA president met on 16 April 1986. At the meeting I defended the academic structuring and all what had been laid out in the above proposal. The committee finalised the documents and the modified proposal was submitted to the Ministry of Human Resource Development on 19 May 1986. In March 1987 the Ministry constituted a special committee to consider the IPCA proposal with S. S. Kattishettar, president Pharmacy Council of India, as the Chairman. The first meeting of the Special Committee was held on 6 April 1987 at New Delhi. In the absence of S. S. Kattishettar, this and the subsequent meetings of the Committee were presided by Dr Parvinder Singh. The Committee constituted two Working Groups. I was on one of the Groups. The observations and recommendations of the Working Groups were discussed at a combined meeting of the Special Committee and Working Groups on 25 May 1987. A subcommittee was appointed to consolidate the recommendations and I was asked to prepare the initial draft, which I did. The draft was examined by the subcommittee on 22 June 1987, and placed before a combined meeting of the Special Committee and the Working Groups on 4 August 1987 at New Delhi. It may be mentioned that this important meeting was attended by 'Dr M. Balasubramanian, Dr Prem K. Gupta, Professor Harkishan Singh, Professor G. J. V. Jagannanda Raju, Dr J. K. Lalla, Dr P. R. Pabrai, Dr Parvinder Singh, Dinesh S. Patel, Ramanbhai B. Patel, Dr S. K. Roy, Professor E. Venkata Rao and R. N. Panda, latter from the HRD Ministry. The meeting finalised the report.

Having come to recommend setting up of the Institute the Special Committee examined various aspects related to it. It was recommended that the NIPER be an autonomous institute granting its own degrees. The status of the Institute should be like any Indian Institute of Technology. For the purpose 'the statutes may be introduced through an ordinance and a formal Act can come later.' 'The Governing Board, akin to the syndicate executive council of a university may be constituted. The Director of NIPER, in protocol ranking of a Vice-Chancellor, should be its Chairman.' 'The Director should be a pharmaceutical academician of the stature so that he attracts talent, commands respect of the Institute faculty and is looked up to for academic and executive leadership.'

There were several other salient features of the observations and recommendations, all of which cannot be reproduced here. It may be just mentioned that in addition to the departments in the subjects named earlier, there were also added two separate Departments in Computer Science, and Allied Subjects. At some stage in 1988 the Ministry sent the Special Committee Report to the Technical Teachers Training Institute (Western Region), Bhopal, for the purpose of rendering it to a Project Report format for examination at higher levels of the Ministry; Dr P. R. Pabrai and myself were requested to assist in the matter. We visited Bhopal and interacted with Professor G. N. N. Rao of the Media Research and Development Centre at the TTTI and at his suggestion a new Department of Curriculum and Media Development was also added.

The final project report running into 74 pages was now with the HRD Department of Education. The recommendations of the Special Committee, though acceptable, could not bear fruits due to financial crunch and HRD Ministry was now unwilling to take up the project; thus ended sixteen years of prodding with the Ministry. The Institute was orphaned before it was created. The Institute always remained very low on the list of priorities both for the Health and Human Resource Development Ministries.

Dr Parvinder Singh kept his efforts on. Ultimately it became possible to find support from the Department of Chemicals and Petrochemicals of the Ministry of Chemicals & Fertilizers, Government of India. Dr Manohar Singh Gill, who was then Secretary of the Department, took up the project and pursued it at several of the governmental levels for final sanction. But for the personal interest taken by Dr Gill establishment of the NIPER would not have become possible.

I had not known about the above fast developments when I received a long distance call from Laj Kumar Malhotra, Joint Secretary (Finance), Department of Chemicals and Petrochemicals, in the last week of October 1989, for a meeting regarding NIPER. We both met in his office in the

Shastri Bhawan on 26 and 27 October 1989. We discussed the HRD Special Committee recommendations at great length and I provided the technical details which were needed for formulating departmental proposal on the project for a follow-up. For the technical details, I had come prepared with the particulars, which had been worked out by me with the help of Professor V. K. Kapoor.

I am not privy to the government documents and as such cannot say for sure as to what happened in between. Possibly a move had started for location of NIPER in the Punjab during the tenure of Mr Rajiv Gandhi as the Prime Minister of India. However, the public learned about the location in the Punjab from announcement in Lok Sabha by Prime Minister Vishwanath Pratap Singh on 5 October 1990. The proposal for setting up the Institute was approved by the Union Cabinet at its meeting held on 19 December 1990; Mr Chandra Shekhar was the Prime Minister at the time. A grant of Rs. 25 crores was sanctioned.

There had been talks of setting up the NIPER at different locations in the Punjab. I insisted that if the Institute was to be in Punjab, it should be at a location close to Chandigarh, since there were several other important institutions, an interaction with them would be of interest, and prospective faculty members would be attracted to the place.

On 7 February 1991 a high powered committee from Delhi headed by Dr M. S. Gill visited Chandigarh. The other members included Vinod Vaish (Joint Secretary, Pharmaceutical Industries Division), Dr Prem K. Gupta (Drugs Controller of India), V. N. Dutta (Deputy Secretary, T, AICTE) and L. K. Malhotra. I joined at Chandigarh. The Punjab was under President's Rule at the time. A meeting was held in the chamber of Gen. O. P. Malhotra, Governor, Punjab. A couple of spots were visited and choice fell on the site at Mohali. On visiting the place, while I was standing by the side of His Excellency I said that the tract of land available would be inadequate, looking to visualised developments of the Institute in coming decades. The Governor stated that 'separate land can be given for housing;' it is nowhere put on record. The Governor and the committee finally selected the 130.7 acres of land in Sector 67, Sahibzada Ajit Singh Nagar (Mohali), where the Institute now stands.

On 15 February 1991 a meeting chaired by Dr M. S. Gill was held in his chamber (Room 501, A Wing, Shastri Bhawan, New Delhi), with several officers of the Government of India and the Punjab and the technical persons from the industry, academic and professional bodies. The Memorandum of the Association of NIPER Society and Rules were discussed and adopted. The constitution of Executive & Finance Committee, Building & Works Committee, and Selection Committee, was agreed to. Dr Gill was elected Chairman of the NIPER Society and the

Board of Governors. L. K. Malhotra who was earlier handling the project was formally appointed Officer on Special Duty (NIPER).

The meeting dispersed on a happy note. While coming down the stairway from the fifth floor of Shastri Bhawan, Dr Parvinder Singh said to me in an emotive tone, '*daktarsabh, niper bangaie*' (Doctor, the NIPER has become a reality).

The National Institute of Pharmaceutical Education & Research Society was registered on 27 February 1991.

Board of Governors was constituted. Dr P. R. Pabrai and myself attended the Board meetings as special invitees till October 1993 when Dr Nitya Anand, Dr Parvinder Singh and myself formally became regular Board members as Central Government nominees, in addition to Dr A. V. Rama Rao (IICT, Hyderabad), B. E. Rao (IDPL) and R. C. P. Sinha (BHU Registrar).

The National Building Construction Corporation Limited was engaged as construction agency for the project and S. D. Sharma & Associates were the architects. The Executive & Finance Committee & Building and Works Committee were formed. Dr P. R. Pabrai and myself continued to be invited to meetings of the committees. Professor S. K. Kulkarni also participated as invited to several meetings. For execution of construction and related work a task force was formed with L. K. Malhotra as the convenor; Dr Pabrai and myself were associated with the task force; Professor Kulkarni and Handa also attended certain meetings.

I was given the honour of digging the first clod of earth on 12 August 1991 to start the construction work with erection of the boundary wall. For some reasons the construction work got delayed. It was on the 24 July 1992 that Dr M. S. Gill performed ground breaking ceremony for construction of the library. The civil construction work began on 20 September 1992 and start of work on other Institute buildings followed in quick succession.

For working out plan for drug garden and consideration of ancillary matters, in June 1992 there was constituted a Working Group consisting of 'Professor Harkishan Singh, Dr Rajender Prasad (National Bureau of Plant Genetic Resources), and Professor S. S. Handa.' The group submitted its report in December 1992. It was visualised that in general the whole campus should project an image of a medicinal plants garden. The deep bowl near the nallah on the campus measuring some 15 acres was to be used for the NIPER Medicinal Plants Garden. A list of nearly 1,500 plants was prepared out of which appropriate ones were to be selected for introduction in the garden.

The position of the NIPER Director was advertised in November 1991. The follow-up did not lead to a positive result.

My name was floated for directorship, but my age came in the way, at the time I already over 63 years in age.

It was realised right in the beginning that the objective of the NIPER would not be served by its affiliation with any established university and not even by its becoming a deemed university. If the results envisaged were to be delivered, the NIPER had to have the status of an institution of national importance. The first draft of the NIPER bill was prepared by Dr Pabrai on which we both had previous discussions. It was a beginning of the long process for enactment to materialize.

With the transfer of Dr M. S. Gill and appointment of Mr K. K. Mathur in August 1992 as Secretary of the Department of Chemicals and Petrochemicals, the latter became the new Chairman of the Board of Governors. The Practice of appointment of the respective secretaries in their ex-officio capacities as chairmen continued till in later years the appointment was made as per the statutes for the NIPER, which were to be formalized.

At the third meeting of the Board of Governors at Mountview Hotel in Chandigarh in October 1993, while deep discussion was on pertaining to agenda items, at a pause Dr B. N. S. Walia, Director PGIMER, who was a member, suggested my name to the chair for appointment as adviser for the NIPER. It was acceptable to the Board Chairman and the members attending. However, on my own I expressed my wish to continue helping the progress of the project as I was then doing, without my formal appointment as the adviser. The matter was dropped there.

It was felt that hiring of the faculty could not be delayed any further. The positions were duly advertised and selection committee was formed in November 1993, with Dr Nitya Anand, Dr Pabrai and myself as members from technical side, the director joining when appointed. At a meeting of selection committee it was decided to change 'Department of Pharmaceutical Technology' as listed in the project report to Department of Pharmaceutics. The Department of Pharmaceutical Technology was now to have focus on production of bulk drugs and formulations.

The post of director was advertised afresh in June 1993. Having the selection process gone through, the choice fell on Dr Chaman Lal Kaul, who at the time was Director of Research Developments, Boots Pharmaceuticals Ltd., and had earlier worked with the Ciba-Geigy Research Centre.

L. K. Malhotra remained the OSD-NIPER till 31 August 1994. He ably conducted the NIPER affairs. All what had been covered as stated above was accomplished while he was in office. He efficiently and effectively handled first phase of the planning and construction at the NIPER campus.

The material for Section 121-124 has been largely drawn for brief description here, from appropriately documented series of research papers on conception of Central Institute of Pharmacy, later leading to the establishment of the National Institute of Pharmaceutical Education & Research, published by me in the *Eastern Pharmacist* (1993-1994) first and subsequently collated into a chapter on NIPER in my book *Pharmaceutical Education* (Vallabh Prakashan, 1998, pp 164-194) in the pharmaceutical history series.

The recommendations of the selection committee for the faculty were processed and some appointments were formalised. Dr Saranjit Singh was the first among them to join as associate professor in pharmaceuticals on 1 August 1994.

Dr C. L. Kaul took charge as Director on 1 September 1994. The faculty members who joined the same day were Dr H. P. S. Chawla (professor, pharmaceutical technology), Dr K. K. Bhutani (associate professor, natural products), and Ramesh Panchagnula (associate professor, pharmaceuticals). The other faculty members who joined in 1994 were Dr C. S. Dey (associate professor, biotechnology) and Dr A. K. Chakraborti (assistant professor, medicinal chemistry). Dr P. Rama Rao joined as associate professor of pharmacology and toxicology in July 1995.

I have named the respective faculty members above as this group of seven led by the Director Kaul was to play pivotal role in the beginning to make the NIPER functional. Later out of them Professor Chawla became the first Dean, followed by Professor Bhutani and then Professor Saranjit Singh.

The NIPER Bill issue has been taken up on priority basis (Section 124), but enactment procedure was long and tedious. In July and August 1995 meetings of Inter-Ministerial Expert Group on NIPER were held with Secretary (Chemical and Petrochemicals) in chair at which the C & PC Department, Ministry of Health, Planning Commission and NIPER, were represented. Dr Parvinder Singh, Dr Nitya Anand and myself were individual experts. It was the unanimous view of the Group that it was essential for NIPER to have the status of national importance. The Committee of Secretaries approved recommendation of the Group. Thereafter the Union Cabinet at its meeting held on 5 September 1996 approved to award the status of National Importance to the NIPER. The NIPER papers now reached the Lok Sabha Secretariat and the Parliamentary Standing Committee started examining the NIPER Bill 1997. I received a letter of 31 March 1997 from the Secretariat to furnish a memorandum containing my views on the 1997 Bill, a copy of which was supplied; such requests may have also been made to others. I studied the document and sent my views with appropriate explanations on 7 April. After that the next what came to our knowledge was NIPER Ordinance, 1998, published in the *Gazette of India* in January

1998, which after due processing became the National Institute of Pharmaceutical Education & Research Act 1998 in July 1998. So now the NIPER was a statutory body by Act of the Parliament. On constitution of the Board as per the Act Dr R. A. Mashelkar, Director General of the Council of Scientific and Industrial Research, was nominated to be the Chairman of the Board, the position till then had been held by the C & PC Secretaries in their ex-officio capacities.

Dr Parvinder Singh wrote to the Board Chairman K. K. Mathur in January 1995, making a case for formation of Academic Committee to assist the Board on academic matters. For the proposed committee from technical side he suggested the names of Dr Nitya Anand, myself, Dr B. N. S. Walia of the PGIMER and the NIPER Director. In the letter he wrote that 'it should be headed by a scientist and I would venture to suggest Prof. Harkishan Singh (who incidentally is Chandigarh based) or Dr. Nityanand.' Dr. Parvinder Singh's suggestion was accepted at Board meeting in February 1995 and on my suggestion Dr. Nitya Anand was made the chairman.

The Academic Committee continued to function till as per Statutes of the NIPER there was constituted Academic Planning and Development Committee in September 2000. Dr Nitya Anand became the chairman. I was nominated to the Committee

For the development of the NIPER, the Board of Governors, the Academic Committee/Academic Planning and Development Committee, Selection Committee and the Senate were the main decision making bodies at the appropriate levels for the NIPER.

Dr P. R. Pabrai remained an invitee to the Board meetings for the period 1991-1993 and was also a member of the selection and other committees and Academic Committee for several years in the beginning. Dr Parvinder Singh was on the Board from 1993 onwards till his demise in 1999.

I started attending Board meetings as an invitee during 1991-1993 and then formally as a member from 1993 onwards. In 2000 when the Board was constituted as per the Act, Professor B. M. Mittal from BITS Pilani was listed as a member but before the official letter reached him, he had passed away in May 2000. In his place I was inducted again as a member. My association with the Board continued till around 2005. I had remained a member of the Academic Committee/Academic Planning and Development Committee and selection and several other committees all through. Now I voluntarily decided to cease having any formal connection with the NIPER.

It was advantageous to have a scientist of the standing of Dr Nitya Anand on the NIPER bodies during formative years of the Institute. He started attending meetings of the Board of

Governors from 1994 onwards, he continued in that capacity till the year 2006. He remained the chairman of the Academic Committee/ Academic Planning and Development Committee, right from their inceptions in the respective years till 2011. He also chaired selection and several other committees. His counsel in the shaping of NIPER was valuable.

Some information pertaining to certain departments of the NIPER may be given.

The creation of ten departments for the NIPER listed in the Special Committee Report of the Ministry of Human Resource Development included the Department of Community and Institutional Pharmacy and Department of Allied Subjects. The latter department was to take care of instructions in humanities, mathematics etc.; no action was taken for setting up this department.

The Department of Community and Institutional Pharmacy, at some stage got to be referred as Clinical, Community and Institutional Pharmacy. To examine the issue the Academic Committee appointed a subcommittee with myself as the chairman, four outside experts and the director as members. The subcommittee at its meeting (February 1998) with experts Dr B. G. Nagavi(Mysore), Dr N. S. Parmar (Ahmedabad) and Dr B. D. Miglani (Delhi) attending, recommended that the department be rechristened as Department of Pharmacy Practice and elaborated on its functions, structuring and staffing. In later years the Department became operational.

At the level of the HRD Ministry institution of Department of Curriculum and Media Development was added to the original list of the departments to be set up (Section 122). A subcommittee (chairman Dr Nitya Anand) was formed by the Academic Committee to study the matters pertaining to the new department, with which I was also associated. The subcommittee was of the view that scope of the department be made broad based and as such it should have the name Department of Educational Development. This department has not become functional.

It was on my prompting that proposal for studies in pharmaceutical heritage was considered and working paper drafted by me for Pharmaceutical Heritage Centre was examined by a committee (November 1998). The recommendation of the committee was positive for creation of the Centre with structural components of a library, a museum and a portrait gallery. The Academic Planning and Development Committee favoured the name Department of Pharmaceutical Heritage in preference to Pharmaceutical Heritage Centre (May 2001). The Department became functional in later years.

Dr C. L. Kaul was appointed Director for a term of five years and he could also avail of a second term. During the decade he was there at the helm, the new institution got well established and its reputation spread not only within the country but also in international circles emergence of pharmaceutical institute of its kind in India was noted. At the time of retirement of Dr Kaul as the Director by end of August 2004, the publication of *A Decade of NIPER (1994-2004)* brought out embodied the accomplishments of the period by the Director of the Institute, faculty and supporting staff and the students and scholars. Such an institution was need of the nation which came up at right time.

Dr Kaul was followed by Professor P. Rama Rao as the Director (2004-2009), who passed on the charge to Professor K. K. Bhutani (2010).

Before closing, I may mention here my attending two meetings related to other NIPER-like institutions.

I was invited to a meeting of a Committee which the Department of Chemicals & Petrochemicals had called for setting up of NIPER-like institutions, in October 2006 at New Delhi. There were about a score of persons who attended the meeting with Dr C. L. Kaul, former NIPER Director, in chair. There was almost a unanimous view that more of NIPER-like institutions should be created and it seemed that the Government was keen for it; I was the only one who differed. I said that even one NIPER at S. A. S. Nagar has not yet attained the stage of optimal functioning. There were almost one-third of the total sanctioned faculty positions still lying vacant because of non-availability of competent qualified candidates. If the NIPER had earned a name in not only national but also international pharmaceutical circles, it was because of right type of faculty in position which was selected. It is possible to make available the required land, raise imposing buildings, buy expensive instruments and provide the other infrastructure, but what will be the use of all this if right type of faculty is not there in NIPER-like institutions. I opposed setting up any more of the NIPERs.

The Government went ahead and opened six more NIPERs, at different locations in the country and the NIPER Act was amended for the purpose. 'To make all these NIPERs attain the best standards a brain-storming session' was held at the Habitat Centre, New Delhi, in May 2009 which I attended as an invitee. Mr Ashok Kumar, Secretary, Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Government of India, presided. It was a gathering of departmental officials, Project Directors of the new NIPERs, the Director of the NIPER, and experts. Here also I questioned the utility of opening of new NIPERs when suitable faculty is not going to be available. I said that if the new NIPERs have come to stay, only those courses need be started for which adequately qualified faculty gets appointed.

The premature creation of new NIPERs was an unwise step.

As per the National Institute of Pharmaceutical Education and Research Act, the NIPER is "an institution of national importance." Under the statutorily laid norms the NIPER is mandated 'to nurture and promote quality and excellence in pharmaceutical education and research,' 'to develop a world level centre for creation of new knowledge and transmission of existing information in pharmaceutical area, with a focus on national educational, professional and industrial commitments,' and 'to develop a multi-disciplinary approach in carrying out research and training of pharmaceutical manpower so that the larger interests of the profession, academic and pharmaceutical industry are better served and a pharmaceutical work culture is evolved which is in tune with the changing world trends and patterns of pharmaceutical education and research,' in addition to listed other functions. What the nation requires the NIPER to deliver has been clearly enunciated.

The NIPER at S.A.S. Nagar has made a laudable progress and has emerged as a seat of higher pharmaceutical learning and research of world level. The Institute has justified its creation as a centre of excellence. The major strength of the institute is the academic structuring with a focus on interdisciplinary approach to moulding and grooming the young students to acquire in-depth knowledge in the respective specialities.

The master and doctoral level courses offered are carefully designed and delivered. There is sufficient flexibility for a student to select courses according to the requirement of the field one is specializing in. The master degree programmes have a novelty and modernity in their formulation and execution. The specializations offered include M.S.(Pharm.) in medicinal chemistry, natural products, traditional medicines, pharmaceutical analysis, pharmacology and toxicology, regulatory toxicology, pharmaceuticals, biotechnology, pharmacokinetics and pharmacoinformatics; M.Pharm. in pharmaceutical technology (formulation), and pharmacy practice; M.Tech.(Pharm.) in pharmaceutical technology (bulk drugs), pharmaceutical technology (biotechnology); and M.B.A (Pharm.) and Ph.D. in different disciplines. The academicians and scientists visiting the institute from abroad are amazed at the uniqueness of the Institute providing international level facilities for education and research in all the pharmaceutical disciplines at a single location. For its quality of performance, the NIPER (S.A.S. Nagar) has earned a name nationally and world over in top pharmaceutical and related circles.

The credit for developing this centre of excellence and earning approbations goes to the talented students joining the institute from all over the country, even some from abroad, and the

faculty selected considering the merit, ability and capability possessed by each to meaningfully contribute to the broad objectives of producing high grade pharmaceutical scientists, technologists and professions. The students and the faculty on the NIPER campus constitute a talented cosmopolitan community, working towards better comprehension of what is known and creation of new knowledge.

The All India Institute of Medical Sciences and Postgraduate Institute of Medical Education and Research and Indian Institutes of Technology are not encumbered with any requirements of the Medical Council of India or the All India Council for Technical Education, respectively; likewise, the National Institute of Pharmaceutical Education and Research, an institution of national importance, functions and is governed by its own statute, the NIPER Act 1998, and is independent from the purview of the Pharmacy Council of India and AICTE.

World over, the denotation 'Pharmacy' stands for pharmacy practice which implies practice in community and institutional (hospital) settings; this is the kind of vocation the Pharmacy Act regulates. One who engages in pharmacy practice is a pharmacist. The D.Pharm. and Pharm. D. courses coming under the purview of the PCI are there to primarily provide manpower for pharmacy practice. There is no statutory exclusivity for B.Pharm. graduates in our country for job placements. For the purpose of registration as pharmacists the PCI inspects the pharmacy degree schools to determine whether the course work also covers the syllabi contents as per diploma course under the PCI regulations. Otherwise the B.Pharm. courses come under the purview of the All India Council for Technical Education.

We borrowed the concept of training bachelors of pharmacy (B.Pharm.) from Britain over seven decades back. There the pharmacy graduates mostly go for pharmacy practice and the courses are designed as per requirements for membership of the Royal Pharmaceutical Society of Great Britain, earlier designated as Pharmaceutical Society of Great Britain, a semi-official pharmaceutical body. A membership of the Society (M.P.S.) is a statutory need for pharmacy practice. At some stage two of the total sixteen schools of pharmacy at the time also had some industrial orientation which they gave up when the Britain joined the European Union to fall in line with the pharmacy practices in the continental Europe. The pharmacy graduation had a well defined focus.

Now in Britain for practice of pharmacy the curricular requirement stands upgraded to master of pharmacy (M.Pharm.) status; a B.Pharm. degree is not in vogue any more. M.Pharm. degree is truly a professional degree necessary for practicing the pharmacy profession. If a pharmacy school runs any other master course with

pharmaceutical orientation, the degree granted does not carry the M.Pharm. title. For the purpose of illustration we may look at the courses of study at the School of Pharmacy of the University of London. The School grants M.Pharm. degree for one to qualify for M.P.S. designation for pharmacy practice. The School also has programmes for postgraduation in Clinical Pharmacy, International Practice and Policy; Drug Delivery; Drug Discovery; and Pharmacognosy; such postgraduates are granted M.Sc. degrees and they are not entitled for pharmacy practice. Another important centre in Britain, Strathclyde Institute of Pharmacy & Biomedical Sciences of the University of Strathclyde at Glasgow, conducts studies leading to master degrees in Clinical Pharmacy; Pharmaceutical Analysis, and Pharmaceutical Quality & Drug Manufacturing Practice; and such postgraduates again are given M.Sc. degrees. Apparently, in Britain there is a clear line drawn between the postgraduate degrees for entitlement to pharmacy practice and postgraduations in other specializations of pharmaceutical nature.

In the United States of America, and the countries subscribing to their professional pharmacy culture, for quite some time Doctor of Pharmacy (Pharm.D.) is the qualification required to engage in pharmacy practice. Some pharmacy schools in the USA provide for postgraduation; the candidates so qualifying are granted M.S./Ph.D. degrees but these qualifications are not acceptable for practice of pharmacy. The PCI has adopted the Pharm.D. qualifying system from America. If the PCI recognized Pharm.D. degree fits in for a vocation other than pharmacy practice that can be incidental, but to consider that to be the objective is not in consonance with the spirit of the Pharmacy Act 1948.

When the Special Committee of the HRD Ministry debated on the objects and scope of the new institution the developments as narrated above had taken place in the western world or were in the offing. The descriptor 'Pharmacy' there is reserved for pharmacy practice; the way we use it, is a misnomer. The Committee aimed at a pharmaceutical work culture in tune with 'the changing world trends and patterns of pharmaceutical education and research' and going in for 'multidisciplinary approach in carrying out research and training of pharmaceutical manpower,' the objective which later got to be made obligatory through the NIPER Act.

It needs an explanation that why the Special Committee decided for name and acronym Master of Science (M.S.). The traditional name Master of Pharmacy (M.Pharm.) was not acceptable, for postgraduates trained at the NIPER, as 'Pharmacy' as understood world over refers only to pharmacy practice. There was not going to be a statutory sanction for them to become pharmacy practitioners. Further, to avoid

confusion the designation M.Sc. was also discarded since that acronym in our country generally applies to masters in pure science disciplines.

The Committee had recommended M.S., the inappropriate change at the NIPER (S.A.S.Nagar) to M.S.(Pharm.) took place later. There is a case for not only reverting to M.S. designation in general but also for the traditional M.Pharm. degrees given to two of the courses, to go under the same common MS title. This will be in line with the approach world over for reserving 'pharmacy' descriptor for pharmacy practice and 'pharmacist' for pharmacy practitioner.

It is irrational to club any and every pharmaceutical activity under the head 'Pharmacy.' This makes the real pharmacy-pharmacy practice to suffer. Pharmacy is a very important component of health care and its promotion needs our undiluted focus and attention.

Having projected the above composite picture, finally, a few words about suitability of NIPER M.S. postgraduates for teaching at our pharmaceutical schools. One has to look at the academic structuring and course contents evolved and delivered at the NIPER. The multi-and interdisciplinary approach followed has enabled provision of a greater depth in the respective specialties and the borderline subjects of study. The feedback the Institute has gathered, from experts within the country and in the western world, shows that the postgraduates from the NIPER are better equipped academically than the postgraduates from the existing pharmaceutical teaching institutions. We should not be put off by the notation of the degree, which has been done for the reasons elaborated above.

Almost all students joining NIPER hold B.Pharm. degrees and as such their professional orientation is assured. On going through in-depth postgraduate studies for the respective specializations they are better equipped for teaching the research positions. The need of the hour is to qualitatively improve the standard of instructions at the pharmaceutical schools and for that hiring NIPER groomed professionals can be of greater advantage. Not only that but in due course the pharmaceutical teaching centres will also be required to be broadly patterned on the NIPER concept of pedagogy; there is no escape from overhauling the traditional system.

I thought that my having initiated the move on academic structuring of the NIPER (Section 122), it was obligatory on my part to dilate upon the basic concept at the back of adopting the Master of Science (MS) notation for master degrees conferred by the Institute.

While closing I may depict again the pharmaceutical scene as it is the world over and how we are placed in our country. Pharmacy is a pharmaceutical vocation but any other

pharmaceutical activity is not pharmacy, pharmacy is only pharmacy practice. For the degrees granted the abbreviation Pharm. Is used only if degree holders are legally allowed to engage in pharmacy practice; in the United States of America and the United Kingdom the qualifications are Pharm.D (Doctor of Pharmacy) and M.Pharm. (Master of Pharmacy), respectively, the degrees granted for any other pharmaceutical studies go by acronyms M.S. (Master of Science) and M.Sc. (Master of Science). In India the use of the Pharm. Abbreviation is justified only for the D.Pharm. (Diploma in Pharmacy) and Pharm. D. (Doctor of Pharmacy) since such trained personnel exclusively are accepted for practice of pharmacy as per law of the land, the Pharmacy Act. The indiscriminate use of M.Pharm. notation for other pharmaceutical studies at master level education is not in

order.

The above requires careful examination by the seniors in the Indian pharmaceutical profession, I avoid calling it pharmacy profession. The issue is serious since the postgraduates from the Indian pharmacy schools are facing dwindling market acceptability (Section 111). We should be concerned with the future of young bright students who enter the pharmaceutical schools with great hopes for success as professionals. It is not only notation of degrees but the course structuring also require careful looking into.

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Alumni (Ph.D.)

V. Suryanarayana, MC/98-I/01/P
 Anurag Sood, PE/98-I/11/P
 N. V. Subrahmanya Kumar, PC/98-I/05/P
 Amit Kumar Jain, PE/98-1/10/P
 Gullapalli Srinivas, PC/98-1/06/P
 Rajesh Gandhi, PE/98-1/15/P
 P. Omathanu Pillai, PE/98-1/13/P
 Vinod Balkrishnan Nair, PE/98-1/14/P
 D. Anand Babu, PE/98-I/09/P
 Hira Lal Goel, BT/99-III/31/P
 Arvind Gunwant Kinhikar, BT/98-II/28/P
 Pradeep Sharma, PE/98-I/12/P
 Lalima Sharma, MC/98-I/02/P
 Rajan Kumar Verma, PE/98-II/24/P
 Naresh Kumar, BT/99-III/30/P
 Desh Deepak Singh, NP/98-I/03/P
 Gulhane Rajesh Sheshrao, MC/98-II/22/P
 Pawar Rahul Shamrao, NP/98-II/23/P
 Monika Bakshi, PE/98-II/25/P
 Atul Kondaskar, MC/98-II/21/P
 N.Sunil Thomas Kumar, PE/98-II/26/P
 Ashwani Khurana, BT/99-III/33/P
 Mohit Raja Jain, BT/98-I/19/P
 Tambwekar Kaustubh Ramesh, PE/99-IV/35/P
 Raghupathi Kandarapu, PE/2000-V/41/P
 Shilpi Mittal, MC/98-III/29/P
 Agrawal Shrutidevi K., PE/2000-V/43/P
 Kavita Vermani, PE/2000-V/42/P
 H.S.Arun Kumar, PC/2001-VII/57/P
 C.Selvam, NP/2000-V/39/P
 Priya Singal, PC/2001-VII/48/P
 Atul N. Jadhav, NP/2000-V/38/P
 Hemant R. Jadhav, NP/2000-V/37/P
 Sanjeev Kumar, PTB/2000-V/45/P
 T. Thanga Mariappan, PA/2001-VII/56/P
 Jayanarayan K.G., BT/2001-VI/51/P
 Piyush Gupta, PTF/2001-VI/54/P

Raman Preet Singh, PC/2006-XIV/138/P
 Aeshna Amin, PE/2006-XIV/149/P
 Wahid Khan, PE/2006-XIV/140/P
 Satyendra Kumar Rajput, PC/2006-XIV/133/P
 Amit Singh, PT/2007-XV/182/P
 Ajit Vikram, PC/2007-XV/170/P
 Vibha Puri, PE/2006-XIV/151/P
 Jeena Gupta, PC/2006-XIV/144/P
 Bodiwala Hardik Satishbhai, NP/2006-XIV/127/P
 Chetna Madaan, MC/2007-XV/155/P
 Wubeante Yenet Ayen, PE/2007-XV/175/P
 Silvia Navis A., PC/2003-XI/97/P
 Shikhar Gupta, PI/2007-XV/188/P
 Shalini Verma, PE/2006-XI/139/P
 Prajapati Kanaiyalal D., PC/2006-XIV/137/P
 Rajesh Chebolu, MC/2007-XV/161/P
 Lokesh Kumar, PE/2007-XV/184/P
 Sudipta Raha Roy, MC/2007-XV/163/P
 Yoganjaneyulu Kasetti, MC/2007-XV/165/P
 Mandavi, PP/2008-XVI/208/P
 Shubhangi Kaushik, PT/2008-XVII/205/P
 K. Srinivasan, PC/2006-XIV/132/P
 Pawan Kumar Gupta, PI/2007-XV/187/P
 Anupama Mittal, PE/2007-XV/171/P
 Patel Sanjaykumar R., MC/2007-XV/160/P
 Jasmeen, NP/2006-XIV/129/P
 Vachan Singh Meena, PT/2007-XV/183/P
 Gopal Lal Khatik, MC/2007-XV/159/P
 Brahman Pujala, MC/2007-XV/154/P
 Nishant Kumar Jain, BT/2007-XV/176/P
 Dixit Vaibhav Anil, MC/2007-XV/157/P
 Subhabrata Kar, BT/2007-XV/190/P
 Varun Kumar, MC/2007-XV/189/P
 Ravinder Malik, BT/2007-XV/179/P
 Gohil V. Mahimansinh, NP/2007-XV/167/P
 Sanjeev Kumar Garg, MC/2007-XV/162/P
 Chhuttan Lal Meena, MC/2007-XV/156/P

- Chitra G., NP/2001-V/47/P
 R.Thilagavathi, MC/2000-V/36/P
 Hemlata, BT/2001-VI/53/P
 Navneet Kaur, MC/2001-VII/55/P
 M.V.S.Varma, PE/2002-VIII/62/P
 Anirban Banerjee, PTBT/2001-VI/50/P
 Sukhraj Kaur, PC/2001-VI/49/P
 M.Thiyagarajan , PC/2000-V/40/P
 Smriti Khanna, MC/2002-VIII/58/P
 Ashokraj Y., PE/2002-VIII/64/P
 Kandavilli Sateesh, PE/2002-VIII/61/P
 Amit Nayyar, MC/2002/VIII/71/P
 Pankaj Soni, BT/2002-IX/74/P
 Kakumanu Vasukumar, PTF/2002-IX/76/P
 Sawraj Singh, PT/2002-VIII/66/P
 Mr Hemant Bhutani, PA/2003-XI/89/P
 Ms. Geetanjali, BT/2002-VIII/67/P
 Rakesh Kumar, PTB/2003-XI/96/P
 Amanpreet Kaur, PC/2002-VIII/60/P
 Sandip B. Bharate, NP/2003-XI/86/P
 Shivani, MC/2002-IX/72/P
 Mani Shankar Bhattacharyya, BT/2003-X/79/P
 P.Senthil Kumar, MC/2002-IX/70/P
 Gaganmeet Singh, BT/2002-IX/75/P
 Raj Kumar, MC/2003-XI/82/P
 Sukriti Kalra, BT/2003-X/80/P
 Praveen Kaul, BT/2003-XI/91/P
 Garima Chawla, PTF/2003-XI/95/P
 Vikramdeep, MC/2003-XI/84/P
 Sonia Pahwa, BT/2002-IX/73/P
 Manash Kumar Paul, BT/2003-X/78/P
 Rudrawar Santosh Vijaykumar, MC/2003-XI/83/P
 Aditya Mohan Kaushal, PE/2002-VIII/63/P
 Bharti Bisht, BT/2003-X/77/P
 Vikram Sharma, PC/2003-XI/94/P
 Sandeep Sundriyal , MC/2004-XII/98/P
 Sunay V. Chankeshwara, MC/2004-XII/99/P
 Amit Mittal, PTB/2004-XII/111/P
 Srikant Bhagat, MC/2004-XII/100/P
 Maneesh, MC/2008-XVI/194/P
 Siddheshwar Kisan Chauthe, NP/2006-XIV/130/P
 Dinesh Kumar, MC/2008-XVI/192/P
 Deepak Yadav, PE/2007-XV/173/P
 Ashish Kumar Pandey, PI/2008-XVI/211/P
 Kalpna Garkhal, PE/2007-XV/174/P
 Pawar Yogesh Bapurao, PE/2009/XVII/230/P
 Kapileswar Seth, MC/2008-XVI/195/P/157
 Amandeep Kaur, NP/2007-XV/166/P
 Ramesh M., MC/2008-XVI/191/P
 Damodara Naidu Kommi, MC/2008-XVI/196/P
 Rajeev Kumar, BT/2007-XV/170/P
 Rajesh Singh, PI/2008-XVI/209/P
 Saleh Aliabbas Ahmedbhai, BT/2008-XVI/200/P
 Naisargee R. Parikh, MC/2010/XVIII/237/P
 Amit Goyal, PC/2010/XVIII/251/P
 Somendu Kumar Roy, NP/2008-XVI/198/P
 Chanchal Gupta, PC/2008-XVI/199/P
 Deepak Chitkara, PE/2007-XV/172/P
 Amit Kumar Jain, PE/2009-XVII/231/P
 Karmase Aniket Ashok, NP/2008-XVI/197/P
 Abhishek Kaler, PT/2008-XVI/204/P
 Sandeep Kumar, PTBT/2009-XVII/228/P
 Geeta Negi, PC/2009/XVII/222/P
 Linga Banoth, PT/2008-XVI/207/P
 Mangilal Chouhan, MC/2008-XVI/213/P
 Shinde Ranajit Nivrutti, PI/2008-XVI/210/P
 Amit Mahindra, MC/2009/XVII/218/P
 B. Ashish Triambak, PTBT/2010/XVIII/276/P
 Baljinder Kaur Grewal, PI/2008-XVI/212/P
 Nikhil Taxak, MC/2009/XVII/213/P
 Nitin Kumar Swarnakar, PE/2009/XVII/232/P
 Amit Kumar Mittal, PTBT/2010/XVIII/254/P
 Priyanka Bajaj, BT/2009/XVII/225/P
 N.Mallikarjun, PA/2010/XVIII/247/P
 Mohit Tyagi, MC/2009/XVII/219/P
 Khomane Kailas Shivaji, PE/2010/XVIII/256/P
 Vaibhav Jain, PI/2009/XVII/221/P
 Ratnesh Sharma, MC/2008/XVI/193/P

- Vineet Agrawal, BT/2003-XI/93/P
 Himani Kansal, PTBT/2004-XII/108/P
 B.Viswanad, PC/2003-XI/90/P
 Rohit Kumar Sharma, MC/2004-XII/102/P
 Dhanaraj E., PC/2002-VIII/59/P
 Dhiraj G. Kabra, PC/2004-XII/103/P
 Utpal Mohan, PT/2005-XIII/124/P
 Vijay Kumar, PA/2005-XIII/118/P
 Paul Atish Tulshiram, NP/2003-XI/85/P
 Kirandeep Kaur, MC/2005-XIII/113/P
 Nitish Mittal, BT/2004-XII/106/P
 Satish Malik, MC/2005-XIII/114/P
 Uma Ranjan Lal, NP/2003-XI/87/P
 Gaikwad Anil Bhanudas, PC/2005-XIII/121/P
 Durga Nand Tripathi, PC/2006-XIV/134/P
 Patel Sarasvatkumar Babulal, PE/2006-XIV/150/P
 Monu Kumari, PE/2006-XIV/145/P
 Praveen Kumar Sharma, BT/2003-XI/92/P
 Ravinder Kumar Kaundal, PC/2005-XIII/120/P
 Leggesse Adane Bahiru, MC/2005-XIII/125/P
 Kamble Ashwani Laxman, PT/2006-XIV/146/P
 Patil Premanand Ramrao, MC/2005-XIII/112/P
 Godugu Chandraiah PC/2006-XIV/135/P
 Bhagwat Prasad, PA/2007-XV/168/P
 Raju Gautam, NP/2005-XIII/117/P
 Jay Prakash Jain, PE/2005-XIII/119/P
 Brahm Bhatt Keyur G., NP/2006-XIV/128/P
 Shah Ravi Piyushkumar, PA/2007-XV/169/P
 Amit Gupta, BT/2005-XIII/123/P
 Anirban Sarkar, MC/2005-XIII/115/P
 Patel Dhilon Sureshbhai , MC/2006-XIV/126/P
 Amit Agarwal, PT/2006-XIV/147/P
 Mugunthan G., MC/2004-XII/110/P
 Nafees Ahmed M. Yunus, NP/2006-XIV/131/P
 Ashutosh Kumar, PC/2006-XIV/136/P
 Birari Rahul Bajirao, NP/2005-XIII/116/P
 Nankar Sunil Ashok, BT/2009/XVII/224/P
 Devendra K. Dhaked, MC/2009/XVII/214/P
 Tarun Handa, PA/2009/XVII/233/P
 Sapana, PC/2009/XVII/223/P
 Vajinder Kumar, MC/2009/XVII/217/P
 Priyanka Trivedi P., PC/2010/XVIII/249/P
 Harde Harshad Prakash, PE/2010/XVIII/257/P
 Ashish Kumar Agrawal, PE/2010/XVIII/260/P
 N. Prajwal Prabhakar Rao, PI/2010/XVIII/277/P
 Jasmine Kaur, PC/2011/XIX/291/P
 Pinakin Arun Karpe, PC/2010/XVIII/248/P
 Gangawal Rahul Prakash, PI/2011/XIX/308/P
 Mahesh Kishorlal Katariya, PE/2009/XVIII/229/P
 Vikas Chaudhary, MC/2009/XVII/216/P
 Ashok Kumar Datusalia PC/2010/XVIII/252/P
 Sonam Bhatia, MC/2010/XVIII/239/P
 Rajender Kumar, PI/2011/XIX/309/P
 Neeraj Kumar Patel NP/2010/XVIII/244/P
 K. J. Rameshchandra, BT/2010/XVIII/263/P
 Khemraj Bairwa, NP/2010/XVIII/245/P
 Shalu, PA/2011/XIX/290/P
 Jagdeep Grover, NP/2011/XIX/287/P
 Udai Chand Agrahari, NP/2009/XVII/220/P
 Pawar Harish Shankar, PTF/2011/XIX/304/P
 Kuppala Ramakrishna, MC/2010/XVIII/240/P
 Bhushan Munjal, PE/2010/XVIII/259/P
 Ram Jee Sharma, NP/2010/XVIII/243/P
 Dara Ajay, PI/2011/XIX/307/P
 Kaushik Thanki, PE/2011/XIX/296/P
 Alka Choudhary, NP/2011/XIX/285/P
 Rajan Kumar Tripathy, BT/2010/XVIII/273/P
 Shivani Mahajan, NP/2010/XVIII/246/P
 Kapil Kumar, 12MCP314
 Vivek Kumar, PI/2010/XVIII/278
 Minhajul Arfeen, MC/2010/XVIII/236/P

Alumni [M.S.(Pharm), M.Pharm, M.Tech.(Pharm)]

1998

MC	Balasubramaniam V.	PC	M. Thiyaarajan	BT	M. Rajeshwari
MC	R. Thilagavathi	PC	Murugundla Anjaneyulu	BT	S. Senthil Kumar
MC	Shahul Hameed P.	PC	P. Thomas Chacko	BT	Ranbhor R. Sudhakar
MC	Vema Aparna	PE	Agrawal Shrutidevi	PTB	Sanjeev Kumar
MC	C. Selvam	PE	T. Geetha	PTB	Shantharam U.
MC	D. Gangadhar Goud	PE	Kolhe Ujwal Damu	PTF	Jasjit Kaur
NP	Jadhav H. Ramanlal	PE	T. Thanga Marripan	PTF	R. Manikandan
NP	Jadhav Atul Namdeorao	PE	Kavita Vermani	PTF	K. Raghupathi
PC	Yogyata	PE	Salve Promod Shridhar	PTB	Manoj Kumar Khera

1999

MC	Surade Sachin B	PC	Patel N. Lakshmanbhai	BT	Jayanarayan K.G.
MC	Akash Khandelwal	PC	Sridhar B.	BT	Gaikwad Anil Nilkanth
MC	Sanju Narayanan	PC	Patole P. Shivaji	BT	A. Ishrath
MC	Smriti Khanna	PC	Snehasis Jana	BT	Balaji M.
MC	Amit Ramesh Nayyar	PE	R. Shankar	PTB	Taranpreet S. Lamba
MC	Palde P. Bhaskar	PE	Rajeev Kumar	PTB	Chander Mohan
MC	Rudrawar S. V.	PE	Vijay V. Upreti	PTB	Pravin S. Shirude
NP	Harish Vasudevan	PE	Tausif Ahmed	PTF	Piyush Gupta
NP	Sripriya C.	PE	D. M. Krishna	PTF	V. Madhuri
NP	Chitra G.	PE	Sancheti P. K. Madanlal	PTF	K.Venu Gopal
PC	Saurabh Gupta	PE	Shradha Rungta	PTF	Ashokraj Y.
PC	K. Gurumoorthy	PE	Amita		

2000

MC	Malde A. Keshavji	PA	Venkataramarao K.	PE	Vikas Anand
MC	Udas M. Madhukar	PC	Sri Kumar B.N.	PE	Amit Kumar Bajpai
MC	Anurag Bansal	PC	Shankar M.	PE	Dravid P.Vidyasagar
MC	Pooja Chandna	PC	Srinivas Ghatta	BT	Anand G.C.S.
MC	Jatinder Singh	PC	Dhanaraj E.	BT	Jiteshnarayan P. Iyer
MC	S.Magesh	PC	Pawar Rahul Devdas	BT	Amandeep Gargi
MC	Harpreet Singh	PE	Kandavilli Sateesh	PTF	Vibha Puri
NP	Musalman T. Usmankha	PE	M.V.S. Varma	PTF	Chayapathi I.
NP	Aruna T.S.	PE	Hari Raghu Ram Desu	PTF	Kakumanu V. Kumar
NP	Shukla Yatin Jagannath	PE	Aditya Mohan Kaushal	PTF	Sanjay Verma
PA	Tina Ojha	PE	Kakaria Ritesh Bherulal	PTB	Rajeev Kumar Singh
PA	Santosh K. N. Patil			PTB	Amit Mittal

2001

MC	Raj Kumar	PA	Hemant Bhutani	PE	Renu Singh
MC	Sonia Kundu	PA	Mohini Bajaj	PE	Ramnik Singh
MC	Tiwari Rohit Vijay	PA	Pakhale S. Pundlik	PE	Prakash. S
MC	Daga Pankaj R.	PC	Vikarm Babu Rao	BT	Rohit K. Jain
MC	Harmeet Kaur	PC	Dhiraj G.Kabra	BT	Anuhar Chaturvedi
MC	Majid A. A.Haleen	PC	Sokhindra Kumar	BT	Edward R. Miranda
MC	Harsh Vardhan Jain	PC	B.Viswanad	BT	Vineet Agrawal
MC	Preeti Gupta	PE	Gaurav Kumar	BT	Shruti Agarwal
MC	Vikram Deep	PE	Lavit Jambu	BT	Praveen Kaul
NP	Gnana Oli R.	PE	Sachin Arora	PTF	Garima Chawla
NP	Paul Atish Tulshiram	PE	Jaspreet Kaur Vasir	PTF	Nachaegari S. Kumar
NP	Bharate S. Bibishanrao	PE	Randeep Bokhalial	PTF	Jitender Madan
NP	Aji Abraham	PE	K. Vinayagam	PTF	Rashim Singh
PA	Harpinder Kaur	PE	Pearl Bindra	PTB	Rakesh Kumar
				PTB	Monika

2002

MC	Jadhav K.Bhaskrao	PA	Deepti Gholap	PE	Sonia Bedi
MC	Chawrai S. Rameshlal	PA	Dunge A. Mamade	PE	Parmar J.Premjibhai
MC	Gurpreet Singh	PC	Venkateswaran C.	BT	Renu Singh
MC	Sandeep Sundriyal	PC	Shah K. Kirtikumar	BT	Jaskirat Singh
MC	E. Bharathy	PC	Anuj Kumar Saini	BT	Patil Y. Nanasaheb
MC	Chankeshwara S. V.	PC	Swapnil K.Sonkusare	BT	Deepti Sharma
MC	Monika Singhal	PC	Patel Rashwin J.	PTF	Koradia Vishal Shamji
MC	Sawant D.Madhukar	PC	ARTi Dhar	PTF	K. Madhava Rao
MC	Sarika Ramnani	PC	Prajapati K.Dahyabhai	PTF	Phanidhara Rao K.
MC	Bhat Beenu Kashinath	PC	Lydia Asrat Haile	PTF	Niraj S. Trasi
MC	Teshome Leta Aboye	PE	Anil Kumar Gupta	PTB	Ashish Thakur
NP	Birari Rahul Bajirao	PE	Shah D. Kiritikumar	PTB	Nikam S.Mahadeo
NP	Steve-Li- Stephen	PE	Vivekanand Bhardwaj	PTB	Umesh Kathuria
NP	Chauthe S.Kisan	PE	Inder Gulati	PTB	Vivek Kumar
NP	Sachan A.Dilipkumar	PE	Vrushali M. Wanknis	PP	H.KaPIL Dev Jhawar
PA	A. Visalakshi Noojilla	PE	Puneet Sharma	PP	Kanchan Vohra
PA	Bamhane S.Sukhdev	PE	Tripta Bansal	PP	Pawar S. Bajrang
PA	Ashwani Gaur	PE	Tarate B.Pandurang	PP	Sukhpreet
				PP	Jayalakshmi Venugopal

2003

MC	Kaki Venkatarao	PC	Sangeetha Gupta	PTF	Sheera Banga
MC	Surendra K. Nayak	PC	Shukla Praveen K. C.	PTF	Mudassar N. Mulla
MC	RaMChander Besra	PC	RamaNPreet Singh	PTB	Abhishek Kothari
MC	Shaikh M. A. S.	PC	Asif Pathan	PTB	Lad R. Ramchandra
MC	Kulkarni Rushikesh A.	PC	Sayyed S. Ali G.Ali	PTB	Risbud K. Prakash
MC	Gavande N.Sahebrao	PC	Lalit Kumar S. Doshi	PP	Parvinder Singh
MC	Rajni	PC	Manoj Kumar Karwa	PP	Tarun Rajpal
MC	Patil Premanand R.	PE	Jay Prakash Jain	PP	Joshi H. Vinayak
MC	T. Devadoss	PE	Mahua Sarkar	PP	Ali Sajjad Bohra
MC	Patel Dhillon S.	PE	Namita Kapoor	PP	Swagatika Joshi
MC	Patel Sanjay K. R. Bhai	PE	Sarita Hariharan	PP	Jayanti Panda
MC	Sanjeev Kumar Garg	PE	Modi S. Jugal Kishore	PP	Dhagale P. Navnath
NP	Raju Gautam	PE	Indu Bala	PP	R. Padmavathi
NP	Sarade Kunjesh Amar	BT	Nanaware Nisha Gupta	PI	Palak Gulati
NP	Brahmbhatt K. G.Bhai	BT	Kamble Ashwini L.	PI	Shashi Bala
NP	Nafees A. M. Yunus	BT	Chandarana R. C.	PI	Manishika Sharma
NP	Nikita Varshney	BT	Kate Bhushan Narayan	PI	Pranav Singh
NP	Bodiwala Hardik S.	BT	Naik S. C.Sub Rao	PI	Jagmohan S. Saini
PA	Paruchuru Vijaya	BT	Kansagra S. M. Bhai	PI	Sahjogita
PA	Vijay Kumar	BT	Rahul Kumar Verma	PI	Kiran V.M.
PC	Ravinder Kumar Kundal	BT	Kharade Sujay Vasantrao	PI	Jitendra Verma
PC	Gaikwad Anil Bhanudas	PTF	Saurabh Aroa	PI	Vibha Vashistha
PC	Chandak P. Gopaldas				

2004

MC	Shah P. Pruthvish	PC	Karm Veer Singh	PTBT	Yaqoot Fatima
MC	Sanchita	PC	Godugu Chandraiah	PTBT	Akhil Verma
MC	Ratnesh Sharma	PC	Rakesh Kumar Singh	PTBT	Rahul Dev Jayant
MC	Panchal J.Rameshbhai	PC	Roshan Lal Meena	PTBT	Chitresh Kumari
MC	Bhalara Hiral Dolarbhai	PC	Ashutosh Kumar	PTBT	Kamlesh Meena
MC	Motiwal H. Fakhruddin	PC	Anupama Tamta	PTF	Patel S. Babulal
MC	Majmudar J.Devraj	PE	Gaurav Sharma	PTF	Aeshna Amin
MC	Raman Bahal	PE	Italia J.Laxmanbhai	PTF	Shah B. Pankajbhai
MC	Dixit Vaibhav Anil	PE	Girish Mittal	PTF	Manisha Tiwari
MC	Rikta Saha	PE	Wahid Khan	PTB	Waqar Ahsan
MC	Gopal Lal Khatik	PE	Dhawal D. Ankola	PTB	Kavitha B.
MC	Chhuttan Lal Meena	PE	Shalini Verma	PTB	Israr Ali
MC	Nigus Dessalew Ambaye	PE	Kiran Bapu Sonaje	PP	Pawar Sunil Vasantrao
NP	Jasmeen	PE	Mamta Kapoor	PP	Rane Yogesh B.
NP	Sane Meera Shrikant	PE	Suthar R.Kanaiyalal	PP	Pankaj Pant

NP	Kausik Kapat	PE	Venkat Ratnam D.	PP	Arindam Pal
NP	Nitin Mukesh	PE	Dipak Kumar Sahana	PP	Rajshree
NP	Gohil V. Mahimansinh	PE	Kalpna	PP	Mandavi
NP	Shivali Garg	PE	Rajesh Rathore	PI	Sumit Deswal
NP	Manas Ranjan Sahoo	BT	Tripat Kaur	PI	Avantika Agrawal
NP	Nisha	BT	Patkari Minal Ashok	PI	Sandrea M.Francis
NP	Anju Singh	BT	Chavan H.Dilip	PI	Divita Garg
PA	Tarun Handa	BT	Sazal Patyar	PI	Preeti Singh
PA	Bhagwat Prasad	PTBT	Sachin Kumar Dubey	PI	Wahajuddin
PA	Patel S. Pravinchandra	PTBT	Sumali	PI	Shinde Ranajit Nivrutti
PC	Durga Nand Tripathi	PTBT	Khokale P. Vinodrao	PI	Kadam R.Uttamrao
PC	Iyer S.Ramalingam	PTBT	S. Jesin	PC	Chourasia Ashish J.
PC	Deepak Kumar Bhatt	PTBT	Amit Singh	PE	Nandini Kashyap
PC	Satyendra Kumar				

2005

MC	Maneesh	PC	Manish Arora	PTBT	Alemu Tekewe
MC	Hemlata Nimesh	PC	Sonawane Rakesh D.	PTBT	Shinde Shailesh B.
MC	Meenakshi Dhanawat	PC	Ashok Kumar	PTF	Lokesh Kumar
MC	G. Ranganath	PC	Parmar Sanjay k. A.	PTF	Hiwale Pradip .
MC	Dimmy Pohani	PC	Bhagawati Saxena	PTF	Smiti Kumar
MC	Gupta V. Nandlal	PC	Mussie Ghezu	PTB	Arun Sharma
MC	Dinesh Kumar	PE	Kasturi Ramesh Pawar	PTB	Bavneet Singh
MC	Gaurav Sharma	PE	Ashok K. Meena	PTB	Shah Krupesh J.
MC	Anita Sharma	PE	Mohammed. G. A.	PP	Rohit M.Dahyabhai
MC	Yogananeyulu Kasetti	PE	Momin Mohd. Y. M. S.	PP	B.S. Ubhadiya
MC	Joshi Anand Anant	PE	Shyam Sunder	PP	B. M.Bhailalbhai
MC	Chetna Madaan	PE	Anupama Mittal	PP	Narvilkar P. Sudhir
NP	Somendu Kumar Roy	PE	Abhijeet B.Joshi	PP	Nitesh K. Singh
NP	Preeti Jayant Deshpande	PE	Pallab Datta	PP	Pote Sayali Sudhir
NP	Vijay Kamal	PE	Tesfa Marew	PP	Sandeep Kumar Verma
NP	Shreyans Kumar Jain	BT	Rajinder Kumar	PP	Seema Dimri
NP	Sagnik Chatterjee	BT	Shivange A.V.	PP	Mengistu Alem
NP	Samuel K Kutty	BT	Shruti Sharma	PP	Ephrem Abebe
NP	Shikha Misra	BT	Bharti Gupta	PI	Manish Kumar Chohan
NP	Patni D.Devjibhai	BT	Nishant Kumar Jain	PI	Virag Sharma
NP	Amandeep Kaur	BT	K. Thanzami	PI	Ronghe S. Vijayrao
PA	Sunny Piyush Bhardwaj	PTBT	Sanjay Rawat	PI	Tamanna Gandhi
PA	Vineet Kumar	PTBT	Vachan Singh Meena	PI	Chavan A.Gopichand
PA	Shah Ravi Piyushkumar	PTBT	Wagh Anil Vishvanath	PI	Kotasthane A.Pramod

PC	Bhupesh Pratap	PTBT	Deepak Jain	PI	Aher Yogesh Dinkar
PC	Amol Ashok Pawar	PTBT	Jagmohan	PI	Pawan Kumar Gupta
PC	S. Sathish Kumar	PTBT	Megha Gupta	PI	Nair Pramod C.
PC	Pawar C. Anaji	PTBT	Mukty Sinha	PE	Deepak Chitkara
PC	Ajit Vikram	PTBT	R Sarvan Kumar	PE	Neha Shoree

2006

MC	Pradeep Chopra	PC	Idrish Ali	PTBT	Abhishek Kaler
MC	Lalita	PC	Bharat Bhushan	PTBT	Linga Banoth
MC	Mrinal Singha	PC	Shweta Padmanabhan	PTBT	Tamane K. Dhananjay
MC	Malothu Narender	PC	Bahirat Umakant Ashok	PTBT	Honrao C.Dilip
MC	Gadakh Bharat K.	PC	Nihar Ranjan Das	PTBT	Pawar Sandip Vithoba
MC	Vinay Kumar	PC	Kaushik Debnath	PTBT	Sandeep Kumar
MC	Tarandeep Kaur	PC	Himanshu Jain	PTBT	Thorat Alpna Ankush
MC	Hussain B.Mohammed	PC	Payal Gupta	PTBT	Sandeep Kumar
MC	Patel Shetul Vishnubhai	PC	Rohini Sharma	PTF	Md. Shahnwaj Alam
MC	Shaikh Samreen Ilyas	PC	Chanchal Gupta	PTF	Bhushan Munjal
MC	Sharma S.Shriprakash	PC	Kalavatala Saandeep	PTF	Bora Pushpak Satishlal
MC	Ankita Sharma	PC	More Sandeep Vasant	PTF	Pawar Yogesh Bapurao
MC	Patel N. Kanaiyalal	PC	Abera Hadgu Berhe	PTF	Zelalm A. Worku
MC	Pradeep Jadhavar	PC	Derbew Fikadu Berhe	PP	Rohitbhai
MC	Mohsin R. Arabiani	PE	Prashant S. Jadhav	PP	Amal Kumar
MC	Ahmed Mehdi Debela	PE	Poonam Negi	PP	Ravi Kant Bhatia
NP	Amit Kumar	PE	Surwase Sachin A.	PP	Rajbharan Yadav
NP	Patel Raj Bharatbhai	PE	Shinde Ramhari Dattu	PP	Patel C.Ravjibhai
NP	Dhaval Kumar Patel	PE	Gupta D.Kumar G.	PP	Gujar Amol Goroba
NP	Udai Chand Agrahari	PE	Shaikh J.Sharifuddin	PI	Parmar V.Karshanbhai
NP	Karmase Aniket Ashok	PE	Kalaria D. Rasikbhai	PI	K. Srikanth
NP	Phadke Rasika Uday	BT	Pinakin K.Makwana	PI	Modi Niraj H.
NP	Karkhile Kailas Vinayak	BT	Ramavath R. Naik	PI	Bipin Chand
NP	Mandowara V.K.	BT	Gurjot Kaur	PI	Awale M.Eknath
PA	Bedse Gaurav Ashok	BT	Anil Kumar	PI	Chaudhari P.Natha
PA	Amrit Paudel	PTB	Satyakam Rahul	PI	Shruti B. Mathur
PA	Thakare R. Narayan	PTB	Darpan Khurana	PI	Ashish Kumar Pandey
PC	Pramod Kumar	PTB	Neeraj Kumar	PI	Gadhe C.Gorakshnath
PC	Parveen Kumar	PTBT	Abdul Basit A.Hameed	PI	Mungalpara J.C.
PC	Mukesh Kumar Meena	PTBT	Anil Kumar		

2007

MC	A. K.Danodia	PC	Krishna Akkiseti	PTB	Patel A.Ramanlal
MC	Rangan Mitra	PC	Ingole Shubhada R.	PTB	Ravi Kant Dubey
MC	Patel Bhargav	PC	Mulay Shrikant R.	PTBT	Gangurde P.S.
MC	Kulin Kumar Sharma	PC	Patel Harsh D.	PTBT	Umesh Kumar T.
MC	Thakkar B.S.	PC	Mehta Ketan A.	PTBT	Baviskar Ashish T.
MC	Shuddham Saraf	PC	Dadhania V. P	PTBT	Amit Kumar Rai
MC	Bhalala Ronak B.	PC	Dakshesh Patel	PTBT	R. Sonali Bhausaheb
MC	Vikas Sharma	PC	Gaurav Jain	PTBT	Joshi Rupali Dilip
MC	Atin Goel	RT	Limbsiya Nirav B.	PTBT	Sav A.K. Ramachal
MC	Nikhil Taxak	RT	Anup Kumar S.	PTBT	Mulay Vikas C.
MC	Apsunde Tushar D.	RT	Sapana	PTBT	Kshipra Pachauri
MC	Parikh N.R.	PE	Samir Das	PTBT	Mogal Poonam V.
MC	Umashankar Meher	PE	Chaudhari B. H.	PP	Sumeeta Singh
MC	Yogeshwar V. B.	PE	Ankit Mittal	PP	Patel Kirpa Babulal
MC	Jadeja Khyati H.	PE	Mahesh Kishorlal K.	PP	Amisha Gandhi
NP	Khemraj Bairwa	PE	Bhavsar C.Kumar R.	PP	Raval Amitkumar D.
NP	Harkesh Meenaa	PE	Choudhari A. C. S.	PP	Patel D.Somabhai
NP	Vegad Udaykumar G.	PE	Mistry M.A.	PP	Gor Deval M.
NP	Kania M. K.	PE	Shaikh Mohsin S. H.	PP	Maitreyee Mohanty
NP	Patel Maulik G.	PE	Kurapati P.	PP	Gupta A.Sanjay
NP	Ram Jee Sharma	BT	Khadatare P. B.	PI	Vivek Kumar
TM	Katekhaye S.D.	BT	Tsunungrenla Jamir	PI	Akanksha Arvind
PA	Mayatra Sujal J.	BT	Nankar Sunil Ashok	PI	M Losery S. Paul
PA	Rajjada Dharaben K.	BT	Limbachiya M.S	PI	Prakash C. Rathi
PA	Surbhi Mehta	BT	Ruchira Banerjee	PI	Hirdesh Kumar
PA	Devinder Sharma	BT	Kaluskar M.Shirish	PI	Patel Hitesh J.
PA	Savaliya Akash A.	BT	Uma Kumari	PI	Rajendra Kumar
PC	Sambhu Charan M.	PTF	Patil Sachin Ramrao	PI	Mihir S. Jaiswal
PC	Kharatmal S. B.	PTF	Sonje Vishal M.	PI	N. Gaurav Ramesh
PC	Chaudhari H. S.	PTF	Shete Ganesh B.	PI	Sudha K. Rajgadga
PC	Trinity Nagpal	PTF	Lale Shantanu Vijay	PI	Pillutla Sri Divya
PC	Pawan Kumar	PTF	Dharmesh Verma	PI	Vaibhav Jain
PC	Geeta Negi	PTB	Untwal L. S.	PI	Sonali Dhindwal

2008

MC	Aasif Ansari	PC	Patel Fenil P.	PTB	Sachin Bindal
MC	Atul Bakshi	PC	Pandya Kavan A.	PTB	Sonawane M. D.
MC	K. H. Shantilal	PC	Mule Nandkishor K.	PTB	Sunil Mahlavat
MC	Amit Sharma	PC	Sane Mukta Subhash	PTBT	Pai Omkar B.
MC	Sanjay Bhattarai	PC	Butani M.C.	PTBT	Belsare Ketaki D.

MC	Smita Jain	PC	Patel K. N.	PTBT	Parveen Parvez S.
MC	Sonam Bhatia	PC	Karpe Pinakin Arun	PTBT	Yogesh Goel
MC	Garikapati Sarala	PC	Nishant Bagherwal	PTBT	Patil Rachit Ramesh
MC	Namita Dube	PC	Dipak Moreshwar D.	PTBT	Nankar Rakesh P.
MC	Vishal Maingi	PC	Rickey Fernandoo M.	PTBT	Ingle Subhash G.
MC	Vishwa Deepak	PC	Mahajan Ujwal M.	PTBT	Damare Milind S.
MC	Pankaj Kumar	PC	Surse Vivek M.	PTBT	Bhukya Chandarrao
MC	Kamble H.B.	PC	Ramanj. S V V S	PTBT	Jejurkar Vinod R.
MC	Maddi Soumya	PC	Kuldeep Sharma	PP	Panchal Meghana A.
MC	C. P. Panwar	RT	Shinde Abhijit Babaji	PP	Sanjay Bagani
MC	Dinesh K.Tanwar	RT	Trivedi Priyanka P.	PP	Chovatiya Ketan D.
MC	K Sreelatha	RT	Murli Mishra	PP	Vani Yadav
MC	Prahlad Kumar M.	RT	Amreen Mughal	PP	Aditi Nigam
MC	Muhammed S.K.	PE	Khomane Kailas S.	PP	Bhavsar Ankit B.
MC	Randive Nitin A.	PE	Dahiya S.	PP	Rohit Manisha M.
NP	Himanshu	PE	Thakare Vivek S.	PP	Himmat Singh
NP	Ballar Punith. B.	PE	Rathi Vishal V.	PP	Immaculich Rani
NP	Javia Vishal A.	PE	Sagar C.U.	PP	Ashiyani Ashish M.
NP	Dharmendra Yadav	PE	Pawar Prasad Vilas	PP	Sonika Chawla
NP	Neha Jain	PE	Banrida Wahlang	PI	Chavan S.Shivaji
NP	Bhatt Akshay I.	PE	Harde Harshad P.	PI	Suresh V
NP	Patel Rohitkumar B.	PE	Nikalaje Sanjay K.	PI	Sachin Kumar
NP	Ghagargunde K.G.	BT	Vachharajani S. N.	PI	Shah Anup Dileep
NP	Mohan Rahul S.	BT	Boradia Vishant M.	PI	G. Rahul Prakash
NP	R. Lalawmpuii	BT	Shah Alok K.	PI	Ankit Tyagi
TM	Jyoti Gupta	BT	Mhadeshwar M.A.	PI	Barve Sagar Dinesh
TM	Shah Ankitabab V.	BT	Patel Mayur I.	PI	Patel J. Babubhai
TM	Pankaj Sharma	BT	Jethva P. N.	PI	Kare Pavan Tanaji
TM	Mahesh Kumar	BT	Tillu Vikas Ajit	PI	KaPll Jain
PA	Modhave D.T.	BT	Solanki Vipul A.	PI	Chachar A.Arvid
PA	Amit Kumar Garg	BT	Neeradi Dinesh	PI	N.Yogesh Bhaskar
PA	Takwani Hardik S.	BT	Shiv Charan Meena	PI	Gaurav Panwar
PA	Bhandhavi D.	PTF	Bhushinge Omesh M.	PI	Dudhmal L.Narhari
PA	Rajan B. Jog	PTF	Prateek Dilip Dani	PI	Dara Aja Y.
PA	Rudra Narayan Sahu	PTF	Ankit Baheti	PI	Mewa K.Meena
PC	Deshpande T.Anil	PTF	Patil Swapnil R.	PI	Nandekar P. P.
PC	Prashant Soni	PTF	Satyavert	PI	V. Hymavathi

2009

MC	Amit	PC	Chaudhari N. K. J.	PTF	Dharmesh D. P.
MC	Amita Ranhotra	PC	Gaddam M. Babu	PTF	Pohekar M. Arun
MC	Bagul C.D.	PC	Gajjar A. B.	PTF	Sharma J. M.
MC	Cheshta Kapoor	PC	Goutham Vasam	PTB	Kandekar S.G.
MC	Divya Sood	PC	Gurudevi D. S.	PTB	Sweta Khare
MC	G. Priyadarshani	PC	Joshi Rayanta Pawan	PTB	Tailor A. S.
MC	Himanshu	PC	Koladia Mohit G.	PTB	Babita
MC	Husan Chand	PC	Koradiya Chirag N.	PTBT	Anita Rani
MC	Jagtap S.S.	PC	Mahesh Rachamalla	PTBT	Anshul Bharti
MC	Kanani V. P.	PC	Parekh Chintan V.	PTBT	Aparna V.Mula Y
MC	Kishna R. Senwar	PC	Ruby P K	PTBT	Bhagwat P. K.
MC	Mohit Gupta	PC	Sabbir Khan	PTBT	Bihade U. R.
MC	Moon D. D.	PC	Shah Kunalkumar U.	PTBT	Kapil Jain
MC	Neha Mahajan	PC	Shweta	PTBT	Kemsarapu R.
MC	P. Majhi	PC	Tauseef Ahmad	PTBT	Kubetkar A. N.
MC	R Mohan P.	PC	Wagh P.Ravindra	PTBT	Patel N. B.
MC	Ravi Khurana	PC	Solomon Tesfaye	PTBT	Pawar Harish S.
MC	Renu Prasad M. U.	RT	Manish K. J.	PTBT	Suryavanshi A. V.
MC	Rohit Bansal	RT	Namoju R. Y.	PTBT	Tarun Sharma
MC	Santosh K. Prajapti	RT	P. Ronakk. S.	PTBT	Thete Karuna N.
MC	Satav T. Narendra	RT	Shera F. Y.	PP	Anil Kumar
MC	Sunil Kumar	RT	Vekariya K.K.	PP	Hemant Kumar
MC	Vidhi	PE	Datir Satyajit R.	PP	Hemantkumar K. C.
NP	Afsana	PE	Dinesh Kumar	PP	Parmar Hitesh M.
NP	Alka Choudhary	PE	Kanika Sarpal	PP	Plpalava Parag D.
NP	Amanika P	PE	Kirti Kalra	PP	Rangoonwala A. N.
NP	Aruna Meena	PE	Modi S. Ramanlal	PP	Renuka R. M.
NP	Jagdeep Grover	PE	Nirbhavane Pradip G.	PP	Shilpi Singh
NP	Jagtap Sneha C.	PE	Pradeep Valekar	PP	Swati Jain
NP	Neeta Joshi	PE	Santosh R. B.	PP	Thakker Divyesh N.
NP	Preeti Singh	PE	Sonawane R. A.	PP	Demissew B. Haile
NP	Rajesh Ghanta	PE	Upadhyay Pratik P.	PI	Amit Koli
NP	Salauni A. Shah	PE	Valvi Pankaj U.	PI	Boghani Chirag V.
NP	Santosh P. Rav	BT	Deshmukh Ruhi S.	PI	Juzer Stationwala
NP	Shiv Gupta	BT	Devarakonda C. B.	PI	Mahesh Sharma
NP	Shweta Arya	BT	I Sravan Kumar	PI	Manoj Kumar C. D.
TM	Iqbal Zafar	BT	Joshi Abhijeet R.	PI	Nitu Bansal
TM	Joshi B.	BT	Krishna A.	PI	P.Jigneshk.D.
TM	Kunal	BT	Meenakshi Rana	PI	Raj K. G.

TM	Renu Bala	BT	Mitulkumar A.P.	PI	R. Prajapati
TM	Shruti Chawla	BT	Neelagiri S.	PI	Rathod V.P.
PA	Deepak Kumar	BT	P Janaki R. Ram	PI	Raut Avnik U.
PA	Lal Singh Narvariya	BT	Sravanthi R	PI	S. Tripathi
PA	Mahendra Junwal	BT	Sutariya N. M.	PI	Shinde Pravin V.
PA	Mukherjee A.	BT	Suvarnakar U. V.	PI	Shirishk.Pawar
PA	Shalu	BT	V Bhavana	PI	Shishir Rohit
PA	Wagh Santosh J.	BT	Virkhade Y. B.	PI	Tarun Batra
PC	Akhilesh Meena	PTF	Amar K.M. M.	PI	T. R. A. K. Singh
PC	Avinash Thakur	PTF	Charan Singh	PI	Vijay Singh

2010

MC	Shah Tapan M.	PC	Shriya Khandwe	BT	Rajesh K. Shah
MC	Neha Hura	PC	Sunkara M. Rao	BT	Kirank. Chikka
MC	Shaikh J.S. Rahim	PC	Plyush Deshmukh	BT	Vinay K. Satla
MC	Priyank Purohit	PC	Krishna P. Maremanda	BT	Kumbhar P.R.
MC	Varun K. Jain	PC	Dadiseti Pradeep	BT	Kuljit Singh
MC	Krishna K. Sharma	PC	Richa Chhabra	BT	Anilgoud K.
MC	Abid Ali Shaik	PC	G. Ravinder Reddy	PI	Chaitanyaprasad K
MC	Seladiya D. Rameshbhai	PC	Bendale D. Sharad	PI	Ashok K.Sharma
MC	Bhogayta Nikita Pankaj	PC	Shah H.Sudhirkumar	PI	Kale N. Shamrao
MC	Kapil Kumar	PC	Yamini Kohli	PI	Tumbi M.K. T. A. W.
MC	Devendra K. Jain	PC	Salve Y. Pandharinath	PI	Anushree Tiwari
MC	Sunkavalli S. L. Suchitra	PC	Arti	PI	Mrudula Potluri
MC	S. N. C. Sridhar	PC	Ravi K. Jatab	PI	Kapadia T. S.
MC	Jain P. Rakeshkumar	PC	Garasiya A.Ajitbhai	PI	S. Abhinaya
MC	Shah V. Rajeshbhai	PC	Vineet Kumar	PI	Bhayye Sagar Santaram
MC	Mradul K. Shrivastava	PC	Vasanth N	PI	Pradip Kadam
MC	Manesh Nautiyal	PC	Makwana N. Chitharbhai	PI	Jahnavi Bolla
MC	Auti P.Bhaskarrao	PC	Ranjeet S. Patel	PI	Pravin S. Ambure
MC	Shweta Bhagat	PC	Mukesh Kumar	PI	Chirag Vora
MC	Sandeep Goyal	PC	Aher J. Sunil	PI	Karunakar R.Pothula
MC	Bairi Suresh	PC	Goswami N. L.	PI	Mahesh
MC	Malkhede Y.J.	PC	Vishal Sachan	PI	Anand Balupuri
MC	Dinesh Kumar R.	PC	Ashok Jangra	PI	Dhoke G.Vishwanathji
MC	Rambabu Guguloth	PC	Arvind Singh Dangi	PI	Jyoti
MC	Shyam S. Meena	RT	Sonam Jain	PI	Venkatesh G.
MC	Ramniwas Jangir	RT	Dinesh Thummuri	PI	Vasava J.Mohanbhai
MC	Nitesh Sanghai	RT	Sandala B.	PI	Shaikh N. S. Lalmiyan
MC	Bhagyaraj S	RT	Madhu B.	PI	Udghosh Singh
MC	Umamaheshwara R. K	RT	Panchamvedi P. V.	PI	Haraprasad Mandal

MC	Choure S.Housrao	RT	Shete S. Prabhakarrrao	PI	Harish
MC	Pelli Ketha Devi	RT	Hirani P. Harasukhlal	PI	Charde S. Mahadeo
MC	Shinde T. Nivrutti	PE	Sonam Jain	PI	Vijendra K. Malav
MC	Mudam Ganesh	PE	Purohit Hitesh Shridev	PI	Bhat J. Shahaji
MC	Md Imam Ansari	PE	Sandeep Zode	PI	Belekar V. Maroti
MC	Ramu Eppa	PE	Kambam Sindhu	PP	G. Kapil
MC	Samala Mohan Reddy	PE	Nanakwani K. G.	PP	Ruchi Singhal
MC	Taruna Bhat	PE	Indulkar A. Suresh	PP	Sohit Mangla
NP	Ruchi Shekhar	PE	Preksha Laad	PP	Pravallika Vepa
NP	Rakholiya V. G.	PE	Vinay S. Dubey	PP	MaNPreet Kaur
NP	Mayuri P. Shinde	PE	Phanisri Alla	PP	Rajiv Ahlawat
NP	Richa Mittal	PE	Nikhil K. Akkenapelli	PP	Malla Swathi
NP	Patel D. Upendrabhai	PE	Lalith Mohan T	PP	Purohit V. K.
NP	Murali Krishna P S	PE	Guru R. V	PP	Jagannath Behera
NP	Ravikumar Bandaru	PE	Manisha Bhateria	PP	Ashok Kumar
NP	Lokesh Kumar Joshi	PE	Munti M.Eameema	PP	G. Sujata
NP	Naresh Marella	PE	More Parth Kishanlal	PP	Vallakatla Srikanth
NP	Parag Kaushik	PE	Neha Bhankur	PP	Manda Neelima
NP	Dilip Kumar	PE	A Srinivas Naik	PP	Sahaja Banda
NP	Bhalerao A. Sahebrao	PE	K. S. Girinath	PP	M.Kondapalkala
NP	Brijraj Singh	PE	Bagul P. Dayaram	PP	Krishna Undela
NP	Ishwari N. Singh	PE	Sangale S. Bhausasheb	PTF	Sandeep K. Jain
NP	Ekhar P. Murlidharrao	PE	Pooja Yadav	PTF	Supreet Kaur
NP	Manju	PE	Gunda U. Rao	PTF	Dheeraj Sharma
NP	Divya S	PE	Pawar V. Pundlik	PTF	Mane P.Tanaji
NP	P Priyanka	PE	Shah P. Dhirajlal	PTF	Priya Juneja
TM	Priyanka Jindal	PE	Saurabh Goklaney	PTF	Mahendra Singh
TM	Shruti Jain	BT	Gune U. Satish	PTF	Mansingh Varthya
TM	Shah I. Ashokkumar	BT	Thakkar J. Shrikant	PTF	Adepu A. Babu
TM	Jyotshna	BT	Jamkhindikar A. A.	PTF	Battini S.
TM	Chavan N. Chintaman	BT	Turakhiya A. P.	PTF	KaPill Pal
TM	Chauhan K. Kishorsinh	BT	Parakra R.D.	PTB	Monika Jain
PA	Kriti Jindal	BT	Ankita Giri	PTB	Rohani P. Barman
PA	Ahire D. Suresh	BT	Shweta K.	PTB	Chandgude A. Laxman
PA	Sheetal Sharma	BT	Bhavsar R. Dilipbhai	PTB	Neetu Dayal
PA	Manish K. Modi	BT	Kamaliya N.L.	PTB	Santhosh K.Manupati
PA	Dilip Kumar Singh	BT	Shah H. S.	PTB	Rajesh Gour
PA	Deepika B	BT	Gaikwad U. V.	PTB	Prashant S
PA	Bukke V. Naik	BT	Konduru P. Raju	PTBT	Bhilare K. Dashrath
PA	Yashbir Rohilla	BT	Jatekar D. Dhondur	PTBT	Priyanka Mishra
PA	Varkhede N. Ramesh	BT	K Kiran Kumar	PTBT	Amrutkar S. Madhav

PA	Ranjeet Tiwari	BT	Vaniya S.Sumanray	PTBT	Borse V. Bhaskar
PC	A Vamshi Krishna	BT	Raju K	PTBT	Moravkar K. Kalicharan
PC	S Vijay Kumar	BT	Patil P.Hansraj	PTBT	Sneha H Meshram
PC	Kamran Shekh	BT	P D. S. Ram	PTBT	Patil Mahesh Daga
PC	Karthik Bharadwaj P	BT	Chaudhari S.B.	PTBT	Patil G. Shrikant
PC	Swamini Taran	BT	Gopu Srinivas	PTBT	Neha Sahu
PC	Dedeeppya Uppalapati	BT	Sharath Ch. R		

2011

MC	Abhishek J.Maddela	PC	Hareesh Ch	BT	Suthar M. N.
MC	Ankur Khare	PC	Gowri Irgam	BT	Parmar Sanjay M.
MC	Asim Kumar	PC	Yadav J. Deepnarayan	BT	Mulkalapalli N.
MC	Singhal A. Ashok	PC	Santosh K	BT	Suryawanshi P. Mohan
MC	Banothu Naga Raju	PC	Saritha L	BT	Sowmya Priya G.
MC	D. Charan Kumar	PC	Nakkina Vanaja	BT	Rajashekhar A
MC	Digvijay Gahtory	PC	Deshpande O.P.	BT	Vijaya Bhilala
MC	Tharun K. G. V. V.	PC	Kamble P. Ankush	PTF	Anupam K. Choubey
MC	Gopi Bathina	PC	Parmar A. Ramanbhai	PTF	Chirumamilla S. Kalyan
MC	Sunesara H. K.	PC	Pawan K.Sharma	PTF	Eslavath Puramdas
MC	Jitendra Patidar	PC	Pragyanshu Khare	PTF	Jodave L.Ramdas
MC	K. Rajkumar	PC	Rathej Meerupally	PTF	Mahendra S. Rajput
MC	Karthik Nooney	PC	Chapa Revathi	PTF	Vikram M.
MC	K. N. V. Sastry	PC	Sachin Jain	PTF	Malge V. Shankarrao
MC	Patel M.D.	PC	Sandeep Patidar	PTF	Vineeth K. Ekbote
MC	Methuku Supriya	PC	Jogu S.Kumar	PTF	Avasatthi V.A.
MC	Qadri M.M. A. Gulrez	PC	Talreja S.S.	PTF	Patel Yogin H.
MC	Mohd. Tosif Khan	PC	S. Sivanaga Jyothi	PTPC	Petiwalla B. M.
MC	Narender Yadav	PC	Sri Lakshmi Yannani	PTPC	D. Ramya Sri
MC	Neha Patel	PC	R. Sruthi	PTPC	Gurpreet Kaur
MC	Nitin Bagra	PC	Sunilkumar Surapaneni	PTPC	Mukul Dhiman
MC	Nitin Bansal	PC	Divya Sri P. T	PTPC	Shah P. U.
MC	Nivedita	PC	Solanki V. Hasmukhray	PTPC	Bhimpuria R. A.
MC	Shah P. J. Kumar	PC	Yogendra Yadav	PTPC	Shivanand Kaurav
MC	Patel J.Khodidas	PC	Gopal Mudavat	PTPC	Swati Singh
MC	Pooja Goyal	RT	Kulkarni A. Sunil	PTBT	Bharat P. Dwivedee
MC	Mahire R. Popatrao	RT	Goru S.	PTBT	Salve D. Dilip
MC	Patel R.Arvinbhai	RT	Lokesh Yadav	PTBT	Gopal Patel
MC	Ram Brajesh	RT	Kulkarni M. Kishor	PTBT	Gadgil M. Ashutosh
MC	R Divya Pravalika	RT	Mudekulam Balaji Naik	PTBT	Neeraj S. Thakur
MC	Phad R. Prahlad	RT	Soni Parth Gajendra	PTBT	Prateek K. Gupta
MC	Sameek Singh	RT	Salavadi Ratnakar	PTBT	Preeti

MC	Sanjay Singh	PE	A. Ramu	PTBT	Mulik Sachin Dasu
MC	Satish Dhanani	PE	Anjali Chauhan	PTBT	Seema Kirar
MC	Bhat Shreesha K. V.	PE	B. Pradeep K. Reddy	PP	Garima
MC	Shrikant Uraon	PE	Bhawana K.	PP	M. Harini
MC	Srinivas Angapelly	PE	Dhameliya N.J.	PP	M. Raj Kumar
MC	V. Shravan Kumar	PE	Gandrathi K. Kumar	PP	Neha Dasari
MC	V. Vidyasagar Chowdary	PE	Gollapalli S.	PP	Panduranga Ballur
MC	Varu Kana Meraman	PE	Heeralal B.	PP	Ramadevi S. Kani
NP	Dhanunjaya Reddy B.	PE	Hemant K.Singya	PP	Sneh Lata
NP	D. Sreekanth	PE	Ikjot Sodhi	PP	Raja Vikram V.
NP	G. Krishna Rajitha	PE	Patel M. Mukeshbhai	CR	Patel A. Chhaganlal
NP	Harikrishna Bandi	PE	Muliya N. Chandubhai	CR	Laxmiraju Kandikatla
NP	Kanchan Tiwari	PE	Nagar A. Kamlesh	CR	Chavada M. Vithalbhai
NP	KaRThik Dandi	PE	Naresh Chandra	CR	Paleti Sivarama Krishna
NP	Kodati S. B. Prakash	PE	P Hari K. Prasad	CR	Rudroju Neelima
NP	Neha Shrivastava	PE	Pradeep K. Margam	CR	Shah C. Shashikant
NP	Priyanka Mangal	PE	Chiliveri Rahul	CR	Badhan Y. Ramesh
NP	Sravani Pulipaka	PE	Rajeev Ranjan	PI	Patil A.Subrao
NP	Pulyala Abhinav	PE	Roopal Jain	PI	Alekhyia Kakkula
NP	Sruti Rasabattula	PE	Patil S. Pralhad	PI	Ankit Geete
NP	Ravi Kumar Koyyala	PE	Surikutchi B. Teja	PI	Anuseema
NP	Sanjay Kumar	PE	Swathi K	PI	Dipna Sharma
NP	Srikanth Munnagi	PE	Upendra Bulbake	PI	Swetha G
NP	Sufia Javed	PE	Veeraiah Banothu	PI	Golla V. Kumar
NP	Veldandi Swetha	BT	AlapaRThi M. Devi	PI	Kanchan K.
NP	Vikram Singh	BT	Anjali Yadav	PI	Kesireddy Anusha
TM	Tanna B. Chhaganlal	BT	Ankita Jadhav	PI	Ganji Kiranmai
TM	Isha Saraf	BT	Athavale Dipti Anil	PI	Lata Rani
TM	Sonam Jain	BT	Mohanani D. M.	PI	Makadia N. Jeevanlal
TM	Mevada Y. H.	BT	Gade V. Reddy	PI	Damre M. Vitthalrao
PA	Modhe G. Yadavrao	BT	Jakka S. S. Supin	PI	Manisha Lalit
PA	Harsita Tiwari	BT	Jetani H.Chhaganbhai	PI	Narishetti S.
PA	Jaya Dhiman	BT	Jitendra Singh	PI	Naveen Verma
PA	Shah Jill Gopalbhai	BT	Kalva B.	PI	Naveen Kumar Racha
PA	Moolchand Kurmi	BT	Modh H.Bharatkumar	PI	Patel N. Nareshbhai
PA	Neha Parashar	BT	Parekh M.Prakashbhai	PI	Iyer P. Srinivasan
PA	Pavan Kumar Dappili	BT	Patel D.Amrutbhai	PI	Preeti Pragyan
PA	Praveen Kumar Muthe	BT	Patel J.Narendrabhai	PI	Dhakne R.S.
PA	Mehta Ronak Ambalal	BT	Patel V.Gautambhai	PI	Rohith A. Varikoti
PA	Sidduri Padmaja	BT	B. Pravalika	PI	Satish Kumar
PC	Akansha Singh	BT	Choudhary P. V.	PI	Kesharwani S. S.

PC	A. V. D.Sudheer	BT	Prithvi Raj Paleti	PI	P. Thapaswini
PC	B. O. R. Reddy	BT	S. Rashmi	PI	R. V. Krishnan
PC	Bhanu P. Arakareddy	BT	Shambhavi Pokhriyal	PI	Nathavad Z. Pramod
PC	Patel G. Arvindbhai	BT	Shantanu Shankar Iyer		

2012

MC	Abhishek Gautam	PC	Ganesh Yadaigiri	BT	Patel Hinal D.
MC	Adarsh Sahu	PC	Geeta Kumari	BT	Rajdeep Dalal
MC	Anamika Thakur	PC	Gujjari Lohitha	BT	Rajwadi K. R.
MC	Bhoyar A. Shamraj	PC	Hina L. Nizami	BT	Ramanjeet Kaur
MC	Borra L. Narsaiah	PC	Jawale A. Dilip	BT	S Shivaprasad
MC	Ch Rajesh	PC	K. Gayathri	BT	Sabbavarapu Sirisha
MC	Charankumar C.	PC	Kumar Sambhav	BT	Sheth C. P.
MC	Chatale B. Chhagan	PC	Malek V. M.	BT	Sravani Ganga Ch
MC	Chaudhari A. Z.	PC	Malvika Sharma	BT	Tejasree Chelluboina
MC	DeePIka Kathuria	PC	Mangala Singh	BT	Vidhi Guha
MC	Dhameliya Tejas M.	PC	Manjeet Singh	PI	Abdul Wahid Khan
MC	Gandhi H. G.	PC	Meera Shah	PI	Adivishnu Naga Swathi
MC	Gohil K. Labhubhai	PC	Mudita Jain	PI	Hitendra K. Tandan
MC	Hina Gupta	PC	Nadeem Akhtar	PI	Kancharla R. Deepika
MC	Jagani Pooja G.	PC	Naveen K. Sharma	PI	Konduru G. Varma
MC	Jitendra Gour	PC	Pamulapati H.	PI	Lingineni Karthik
MC	Julekha	PC	Patel A. J.	PI	Mori A. M.
MC	Kamal Ki. Ahirwar	PC	Plyush	PI	Mutyala Kuladeep
MC	Kaushal Kishor	PC	Prem K. Babu T.	PI	Nakka M. Baba K.
MC	Kodam Ramakrishna	PC	Randheer Kumar	PI	Neha Verma
MC	M. R. Suswara	PC	Sanjeev Kallapari	PI	P. Gangadhar
MC	Sagar R. Mudshinge	PC	Sedmaki Kavitha	PI	Pankaj Kumar
MC	Naiya M. M.	PC	Shailendra S. Dhakad	PI	Parikh R. J.
MC	Naresh Kashyap	PC	Sheth V.G.	PI	Patil U. Premeukh
MC	Patel B. Kanubhai	PC	Uma Shanker	PI	Richpreet Kaur
MC	Patel D. I.	RT	Arya Priyanka	PI	Rohit Bansal
MC	Patel Minoli K.	RT	Dhavale V.Shrirang	PI	Rosiamliana Colney
MC	Pawar R.Prakash	RT	Kiranmai Gorre	PI	Sanchit Dahikar
MC	Pratima Rajpoot	RT	Namoju Navya	PI	Sapna Rani
MC	Preeti Pal	RT	Prashant Gupta	PI	Sumit Jain
MC	Priyanka Jain	RT	Ramlakhan Patel	PI	Vivek Neekhra
MC	Rana V. Amrutlal	RT	Sanghavi M. S.	PI	Vyas P. Ashvinkumar
MC	Revoju Sravanthi	PE	Bhatt Varun N.	PI	Waghmare S.Sayajirao
MC	S. Venkataramesh	PE	Chamala S.Reddy	PTF	Bhupesh Kumar
MC	Shah Hardik V.	PE	Chavan R. Baburao	PTF	Devasari Naresh

MC	Shaikh Jazib I.	PE	Deeksha Punj	PTF	Dharmendra K. Yadav
MC	Sharma Swagat H.	PE	Dileep Urimi	PTF	L. V. Seshu K. Koduri
MC	Shikha Jain	PE	Ealpuogonda Naveen	PTF	Paidi S. Kumar
MC	Shweta Mishra	PE	Ellanki Anudeepa	PTF	Patel A. D.
MC	Surendra Jatava	PE	Gangadia K. Anilbhai	PTF	Prajeet Bansod
MC	Tejender Singh	PE	Harale Vitthal Ganpat	PTF	Surbhi Bagri
MC	Udaya Bhaskar Goda	PE	Jain H.Vimalchandra	PTF	Wankhade S.Ramesh
MC	Umesh Pandey	PE	Kale D.Prakashrao	PTF	Yogesh Chandra
MC	Vaja M.Dineshbhai	PE	Karhale S. Begaji	PP	Anita Sheoran
MC	Vikram T.	PE	Kasukurthi C. Babu	PP	Anuradha
MC	Vura Sirisha	PE	Kiran K. Gindam	PP	Boya C. Sekhar
MC	Wasnik A. Ramdas	PE	Korivi Rajesh	PP	Esam Hariprasad
MC	Yeswanth S	PE	Narinder Singh	PP	G. B. Naga Sireesha
NP	Anukatalla S.	PE	Pandi Nagesh Kumar	PP	Gundu Mounika
NP	Bamaniya R. R.	PE	Parmar P. Khodabhai	PP	Kandukuri Priyanka
NP	Bhatt Nirav Chhaganlal	PE	Patel K. Manubhai	PP	Kanukula Raju
NP	Deshmukh B. D.	PE	Patel K. R.	PP	Ramya Smruthi Raj N
NP	D. N. Prabhakar Rao	PE	Payal Sharma	CR	Basa Pradeep
NP	Godasu S. Kumar	PE	Poonam S. Thakur	CR	Divya
NP	Irfan Mudassir	PE	Prajapat H. Kantibhai	CR	Kapala Pavan Kumar
NP	Jotva R. Hamirbhai	PE	Priya Akotiya	CR	Pagada A. Jayntibhai
NP	Kagithala Vamsi Priya	PE	Rahul Kumar Soni	CR	Shaik Mahammadrafik
NP	K. H.Chowdary	PE	Sekhar R.	CR	Y. Manohar Babu
NP	Lata Choudhary	PE	Shailja Tripathi	PTPC	Anuja Jain
NP	Manoj K. Sharma	PE	Siddhapura K. C.	PTPC	Balat K. Nagjibhai
NP	Naik D. Hitendrabhai	PE	Sneha Sheokand	PTPC	Bhaskar S. Rathore
NP	Parikh M.Nanjibhai	PE	Sonu	PTPC	Dasari Manikanta
NP	Pawara S. Premsing	PE	Swati Jain	PTPC	Gitanjali
NP	Ramandeep	PE	Tanya Garg	PTPC	K. Lakshmi Narayana
NP	Shweta Tiwari	PE	Uma Gohiya	PTPC	Kadam M. Popat
NP	Sindhuja Galipalli	PE	Venkata A. R. Goli	PTPC	Kumaraswamy Musku
TM	Mandala Archana	PE	Yadav B. Amarnath	PTPC	Lekshmi Vijay
TM	Monika	PE	Yelchuri M. Latha	PTPC	Nandini S.
TM	O. Harika Supraja	BT	Alok K. Soni	PTPC	Nishtha
TM	Roohi M. U. Din	BT	Anirudh Nema	PTPC	Pasumarthi S. K.
TM	Seema Soni	BT	AR Satvik Iyengar	PTPC	Patel K. Vijaybhai
TM	Shashi P. Dubey	BT	Baigadda Shamiulla	PTPC	Patel Nikunj
PA	Banothu K. Kumar	BT	Beladiya C.V.	PTPC	Puneet K. Jain
PA	Gadara D.Chandulal	BT	Chandak G.S.	PTPC	Raghavender Reddy B.
PA	Kaleem A. A. Ahmed	BT	Chitirala Mounica	PTPC	Roli Jain
PA	Navindra Chakradhari	BT	Desale Jayesh Namdev	PTPC	Sumant Kumar Bhaskar

PA	Parmar K. Raman	BT	Eshita Das	PTBT	A. Pavan Kumar
PA	Patel J. H.	BT	Garima Diwan	PTBT	Amit Ghanghoriya
PA	Sandeep Thakkar	BT	Joshi R. Himanshu	PTBT	Amrutkar R. Prakash
PA	Sreeram Tejaswee	BT	Kamalpreet Kaur	PTBT	Irfan A. Ahanger
PA	Surapuraju P.	BT	Kayala K. Swamy	PTBT	Kela N. Kamalkishor
PC	Akhil Kalia	BT	Landage N. Gorakh	PTBT	Salunkhe S. Sunil
PC	Amit Khurana	BT	Makwana B. Kanji	PTBT	Sawant G. Maruti
PC	Arun K. Undrasapu	BT	Milan Kumar Patel	PTBT	Thaware M. Maruti
PC	Ekta Sharma	BT	Motghare R.D.	NP	Sourabh Jain
PC	Gajbe S. Wasudeo	BT	Parikh Harsh D.	BT	Avadhesh Bhardwaj

2013

MC	Abhisek Bera	PC	Chittaranjan Sahu	BT	Swati Bhojraj
MC	Anurag Kudwal	PC	Dilip Sharma	BT	Zahid Gani
MC	Ashok Ramakrishnan	PC	Kailash Ahirwar	PI	Ankit
MC	Azaz Ali	PC	Kakarla R.	PI	Avagadda Spandana
MC	Bobba Gowthami	PC	Khushpreet Kaur	PI	Bhukya Asha
MC	Dadhania J. N.	PC	Khyati Bhaskar Dave	PI	G. Siva Kumar
MC	Dinesh Kumar Dhakar	PC	Lella V. K. M.	PI	Jillella G. Krishna
MC	Firdoos Ahmad Sofi	PC	Nalban Nasiruddin	PI	Khare S. Govind
MC	Gaddam Nikitha	PC	Nisha Sharma	PI	Kotthuri N.
MC	Geetha Chawan	PC	Nitin Kshirsagar	PI	Manoj K. Gupta
MC	Gulghane Nikhil M.	PC	Pavan Thapak	PI	Mayura Borgaonkar
MC	Gulshan Kumar	PC	P. Venkatesh	PI	Mohammad Rizwan
MC	Konar Debabrata	PC	Sandeep K. Komarya	PI	Namani K.
MC	Ku. Supriya Rai	PC	Sanjeev K. Paikra	PI	Rahul Singh Gurjar
MC	Madhulika Singh	PC	Shilpa Lalwani	PI	Sivangula Srikanth
MC	Mohammed S. K.	PC	Tamboli A. Innus	PI	Tetala Srilaxmi
MC	Molothu Vasu	PC	Thatikonda Sowjanya	PI	T. Babu R.
MC	More Shital Sunil	PC	Zahid Rafiq	PI	Turakhiya A.T.
MC	Muhammed S. K. P.	RT	Deep Patel	PTF	Chudasama V.B.
MC	Nishant S. Chauhan	RT	Gurpreet Kaur	PTF	Naveen Singh
MC	Pritika Gupta	RT	Koyada Naresh	PTF	Ramsevak
MC	R. Kaur	RT	Malayamarutham K.	PTF	Shreya Thakkar
MC	Ravikant Ravi	RT	Santo K. Anto	PTF	Vikram Kaithwas
MC	Sahaj Pancholia	PE	Amanpreet Kaur	PP	Abhishek Bhardwaj
MC	Shah A.Pravin	PE	Anamika Jain	PP	Dasari Anil
MC	Shinde Bharat Dashrath	PE	Burse V. Mahavir	PP	Deepak K. Yadav
MC	Sigalapalli D. K.	PE	Deepanshu ShilPI	PP	Lavudiya Sreenu
MC	Surjit Kumar	PE	Devesh Kumar Jain	PP	Md Aejaz A. Ansari
				PP	Md Salman Hussain

MC	Syril John	PE	Kritika Nayak	PP	Shakshi Kumari
MC	Titus Deb	PE	Neena Sharma	CR	Dhanuk P. Ataraj
MC	Tokala Ramya	PE	Pailla S. Reddy	CR	Joshi S. Mulshankar
MC	Vankodoth H.	PE	Pawan K. Singh	CR	P. Bhardwaj
NP	Alur Uday Kumar	PE	Sumit Mukesh	CR	Shallu Sharma
NP	Ambati G. G.	PE	Swapnil Singh	PTPC	Anchal Singh
NP	Gondaliya B. J.	PE	Vankayala R.	PTPC	Arya Atithi B.
NP	Jignesh Gajera	PE	Yadav J. Amarpal	PTPC	Bhagawana Ram
NP	Kirti Joshi	BT	Ankit Sahu	PTPC	Dilip Prajapati
NP	Maloth Revathi	BT	Bhadoria R. Rakesh	PTPC	Jawharani U. Devidas
NP	N. Sarala	BT	Bhagath N.	PTPC	Kamlesh K. Jatav
NP	Palepu Nagasri	BT	C. M. Chaudhary	PTPC	M Ravi
NP	Reena Kanti	BT	Gadhavi Joshna D.	PTPC	Menda Sai Siddhardh
NP	Richa S. Baghel	BT	Gajjar P. Laljibhai	PTPC	Nair Akshay Murali
NP	Rohini Verma	BT	Harshpreet Kaur	PTPC	Patel N. Jayantibhai
TM	Chandresh K.	BT	Ingarodiya K. G.	PTPC	Ripu Daman
TM	Gaurav Jaiswal	BT	Isha Bagdyan	PTBT	Amreen Khan
TM	Poonam K.	BT	Km D. Gupta	PTBT	Ankit Puri
TM	Sonali	BT	Kolluri Thulasi	PTBT	Darla Bala Kishor
TM	Zahoor A. Wani	BT	Madaka S. Teja	PTBT	Davinder Kaur
PA	Bhargavi S. Ramisetty	BT	Naik V. Shyam	PTBT	Khobragade T. Pradip
PA	Bhavsar K. Gautam	BT	Namrata Singh	PTBT	Mohammad Y. Khan
PA	Deepanmol Singh	BT	Nirupma Devi	PTBT	Shinde Kiran Devidas
PA	Jugal Gupta	BT	Panara M. N.	PTBT	Shushil Kumar Rai
PA	Ladumor M. K.	BT	Patel P. Mahervanbhai	PTBT	Sooram Banesh
PA	Vayila GoPI	BT	Ramani J. G.	PTBT	Vadthya N. Naik
PA	Vijjagiri Sathish	BT	Ravi P. S. Bhadoriya		
PC	Anas Ahmad	BT	Sourabh Sharma		

Alumni [M.B.A.(Pharm)]

2002

Deepshikha Sharma
Keertimaan Joshi
Gauri Sharma
Rachna Srivastava
Bamzai Ashish
Aditya K. Khanna
Poonam
Nalin Diwan
Sudha Sharma
Sharma N. Joginderpaul

Abhishek Mittal
Vishwavijay Pratap Singh
Kannan I.
Gautam Arora
Harjit Kaur
Amar Kumar Pandey
Gaurav Kandhari
Purvi Dev
G. Mamatha

Kalgaonkar A. Dattatraya
Mehta F. Bhanukumar
Navneet Singh Tewatia
Navdeep Gill
Gaurav Sexana
Manvi Sharma
Gaurav Midha
Anurag Dhingra
Sukhpreet Singh Sukhija

2003

Anuj Kumar Agarwal
Biplab Kar
Chaware S. Diwakar
Divesh Kumar Singla
Ekta Dhawan
G.Ranjith
Gunjan
Gupte Namita Pravin
Harkamalpreet Singh
Harwinder Singh

Hemant Kumar
Imran Parvez
Jayanand Shiragavi
Madhur Raina
Mahajan Jayesh Arjun
Manoj Kumar
Mohd. Arif Khan
Nandini Aravind
Nisha Kaushal
Pilot Triptikumar

Pushpinder Singh
Rahul Bhargava
Rajesh Gupta
Sapan Parikh
Saurabh Goel
Seema Rai
Shailender S. Pundir
Shalini Anand
Sucheta Sharma

2004

Alok Kumar
Apuve Sharma
Ashish Mohan
Darji D. Dineshchandra
Deepak Kumar
Dharmendra Kumar
Dholia V. Bhanubhai
Eshwar Chandra
Gadhia Nanadan Navalkishore
Gite Anil Bhagwan

Jai Singh
Jyoti
Kamalpreet
Mohd. Zafar Khan
Monika Jain
Navpreet Pandher
Praveen Kumar Singh
Priyanka Srivastava
Rahul Pandey
Reena Garg

Sandeep Singh Mahal
Sarfraz Nawaz
Aakanksha Lall
Ashish Panwar
Umesh Kumar Singh
Kamal Kumar Joshi
Jitender Narayan Tiwary
Chodavadiya Mayurkumar Panchabhai

2005

Meena Solanki

Ram Kumar

Surinder Kumar

Neha Singh

Shweta Srivastava

Pareek Kalpana

Patel N. Parshottambhai

Sunil Kumar Jaiswal

Gaurav Pratap Singh Rohella

Bhavsar Neha Jagdishchandra

Saurabh Suhas Mittal

Agrawal Shilpa Narayan

Sunil Kumar Garg

Parikh Parth Rajesh

Rakesh Kumar Agrawal

Vijeta

Sanjiv Kumar

Ramandeep Kaur

Roopesh Kumar

2006

Ashish Prakash Jawalkar

Abhishekkumar Ashokkumar
Harde

Mohd. Iqubal Ansari

Vinod Kumar

Vikas Kumar

Vaghela B. Chandra Ramubhai

Rahul Sethi

Ardeshtana Rohitkumar Tulsidas

Ruparelia Hardik Kantilal

Tejas A. Trivedi

Soni Hitesh Champaklal

Aman Thukral

V. Murali

Adroja B. Girishbhai

Parikh Parth Ajay

Vikram Kumar

Patil Prashant Narayan

Patel C. Ishvarlal

Ravinder Choudhary

Tarun Gupta

Patel Bhavin Mohanbhai

Rajiv Kumar Pandey

Amit Gupta

Pulkit Guglani

Pangal Darshana Deepak

Prabhpreet Singh

Ravat V. Vitthalbhai

Parmod Kumar

Priyanka Garg

Pendharkar A. S.

2007

Kshitij Arora

Vikas

Shah Bijalbaben Satishkumar

Ladia A. Kiritkumar

Upasani Riddhi Vivek

Atanu Samanta

Jain Pritesh B. Lal Ji

Buva Shashikant Yashawant

Mehta Ankit N.

Ritesh Singh

Chaman Singh Rana

Pankaj R. Shikha Tomar

Prabhat Gautam

Kuchara V. Jivanlal

Simran Singh

Jagmeet Singh

Kamalika Nandi

Rajesh Ganguly

Abid Ahmed Shahsroha

Durgesh Nandini Kahol

Banerjee S. Subhashkumar

Kanchan Kumari

Patel Nihar Fulchandbhai

Sagar Panseriya

Anjali Chaurasiya

Patel M. Chandulal

Shah W. Kalandar

Ghudasara Pareshkumar T.

Amit Kumar

Vasudha Chhabra

Baheti P. Shivnarayan

Pallavi

Boricha J. Maganbhai

2008

Abhishek Gaur

Abhishek Singh

Alifia Yusuf Ali Jaliwala

Amol Maroti Tekam

Bhagat Ram

Chambhare O. Vinayak

Makwana Jayesh Chhaganbhai

Makwana Rahul Samatbhai

Modh Hiteshkumar Hasmukhlal

Panchariya Chetan Ashok

Parag Bhandari

Parghi Ashwinbhai Jivabhai

Savaliya Sanjay Dhirajlal

Shabnam

Shah Dhaval Rajendra

Shah Rahul Kaushikbhai

Shah Ruchi Rajivbhai

Shah Shruti Narendrabhai

Deepak Wadhwa
Dhaduk S. Ashokkumar
Gamit Mayankkumar Govindbhai
Hirve Mandar Vasant
Khade Kiran Prabhakar
Kushal Pal Singh

Patel Bhavesh Rameshbhai
Patel Montukumar Vishnubhai
Pooja Thakur
Priti Kumari
Rahul Wadhwa
Ritu Hooda
Rughwani R. Shankerlal

Shelke Yogesh Shashikant
Singhvi Akash Ratanlal
Tuplondhe S. Ramkrishna
Yadav Ajaypal Totaram
Vikas Kumar
Virendra Kumar

2009

Abhimanyu Roy
Aditi Upadhyay
Agrawal Vikas Shamsundar
Ankita Sharma
Bhujade Praful Govinda
Davda Tapankumar
Mahendrakumar
Dixit Kinnar Manishbhai
Doshi Achal Rohitkumar
Dudhekar Amit Mukund
Fithani S. Mohanlal
Gagandeep Kaur
Gevariya Avnish Ghanshyambhai
Jasvinder Singh Banga

Kapadia Tarpan Satish
Kendale Gitesh Kailasrao
Khadse Latikshay Manohar
Khochare Sneha Babaji
Lovelesh Sharma
Malvika Gupta
Mehmood Hasan Naqvi
Kalpana
Kanakavally R.
Mehta Harsh B.
Mete Vinayak Vasantrao
Mohammad Aadil Ansari
Muthal Rahul Ashokrao
Narendra Pratap Kannoja
Patel Tushar Laxmanbhai

Pooja Rani
Poonam Makhija
Rachna Kamra
Rohan Bansod
Rupal Sood
Sanjam Kaur Vilku
Shah Kushal Jatinkumar
Patel Umeshbhai Vitthalbhai
Peeyush Potdar
Shah Sapan Prakashchandra
Thakkar Pratik Pareshkumar
Unnati Bhatt
Velhal Suyograj Chandrakant
Vikas Jindal
Visave Lalit Madan

2010

Aamir Azad Chauhan
Aarti Raina
Ajgaonkar Rohan Ravindra
Anil Kumar
Anil Kumar Tripathi
Arpit Jhavar
Arun Kumar
Ashwin Kumar Konga
Barve Darshana Prashant
Brijendra Singh
D. Rahulkumar
Gandhi K. Arvindbhai
Gandhi Rushabh Munirbhai
Gohil Brijrajsinh Balvirsinh
Goon Abhijeet Nikhil Ranjan

Malladi Aparna
Megha Choubey
Mevada Hardik Vishnubhai
Pujara Mihir Harshadbhai
Mishra Sanjaykumar Avadheshprasad
Modi Amit Suresh
N. Gnaneshwar
Naiya Mittal
Naman Shukla
Naveen Kumar
Neha Agarwal
Pallavi Ghosh
Parag Nimbolkar
Patel Brijesh Arvindbhai
Patel Dhaval Navinkumar

Prasun Kumar Nelli
Pulloori Balakrishna
Rahul Shrotri
Rakesh Kumar Yadav
Ram Shankar Durga
Renuka Paresh Jaysukhlal
Saurabh Vasista
Shruti Gulati
Srinivas Kaushik K
Sufiyan H. M. Hasan
Sushant Sumele
Ugalmugale S. Jalindar
Upasana
V. V. Udayakiran Bonu
Varun Arora

Govind Naik Maloth
Ismail Katta
Jagannath Kadavendi
Karan Gupta

Patel R. Arvinbhai
Patel Y. Vitthalbhai
Prabhakar Udatha

Vasava B. Bhupendrabhai
Wankhede J. Ambadas
Zala A. Rajnikant
Zambare Kedar Rajendra

2011

B. Pavani Naik
Bhalala Maheshkumar
Devchandbhai
Bhoraniya J. Ramniklal
Buktare Rahul Ashok
Chavda Ekta Dineshbhai
D. Ravikanth
Deepjot Kaur
Dukre Balaram Mahadeo
Erukulla Navyatha
Garima Lour
Gaurav Jaiswal
Harideep Palakurthy
Ingale Yogesh Rajendra
Jadhav Jayesh Arun
Jani Viyat Hasmukhbhai
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Kalyan Jannawar

Kalyan Reddy Tokala
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MA Ahmed Pasha
Mayank Agrawal
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Nitish Sharma
Pagidala S. P. Reddy
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Pankaj Kumar
Pardh Paniganti
Patadia Tejas Sudhirbhai
Patel D. Maheshbhai
Patel Om Rohitkumar
Pattipaka Janardhan
Pratibha Soni

Ritu Rana
Ragho S. Kashinathrao
Ranti Deo
Sanjay Choudhary
Sanjeet Kumar
Satish Kumar
Shah K. Rajeshkumar
Sonam Deep Kaur
Srikanth K.
Sripathi Reddy
Tanwirul Quamar
Vakil J. Jayantibhai
Vartika Varma
Vikram Singh
Y. Kishore K. Reddy
Yogesh Bhargava
Baviskar A. Janardan
Jetwani Y. Devrajibhai

2012

Amit Kumar
Anil Kumar
Anup Maurya
Arvind Patidar
Barhate Janu Arun
Bhatt K. Himanshukumar
Bhawna Sharma
Bikya Suresh
Bodiwala D. Ashvinkumar
Bojja Vijay Kumar
Chatla Chandrasheker
Chetana Priya Maddi
Dasari Ganesh
Dheeraj Singh Patel
G. Srisailam
Himanshu Kumar

Kumbha Srinivasarao
Lakhmir Singh
Lalvani R. Dolatbhai
M Jyothsna Devi
M Sharath Chandra
Madhuri Luthra
Mansuri Altamash Raees
Mohd Omar Farooq
Nandini Nema
Naveen Patidar
Neeraj Kumar Pandey
Pallavi Vishwakarma
Patel Ankik Bharatbhai
Patel Maulik Babubhai
Patel R. Kanjibhai
Patel Vinus Ashokbhai

Ritika Jain
Rupesh Gandhi Naik M.
Sai Krishna Sangem
Sana Kauser
Sanchit Gupta
Shah Nehal Sanjay
Shah V. Satishkumar
Shamshad Ah Riyaz Ah
Sheth D. Bharatkumar
Shinde Mangesh Dhanaji
Shinde Nitin Dattatraya
Sneha Rajan
Soni P. Jagdishchandra
Swapnil Jain
V. S. Karthik Yada
Vadali Sagar Raju

Isha Jain
J. Prem Kumar
Kadam Raju Vitthalrao
Kaushik Parmar
Koneru Gayathri Devi
Krishna M. Siripuram

Peruka V. R. Prasad
Prashant Kumar
Pruthviraj U.
Rahmat Hadi
Ramkrishna Birle

Vamika P.
Varun Yadav
Vikas Kumar
Vyas V. Pravinbhai
Raj K. Pottavathini

2013

Acharya H. Kishorbhai
Ankit
Ankit Agrawal
Arun Kumar Rathod
B. Prathyusha
B. Satish Kumar
Ch. Vamsikrishna
Ch. Vishwaroop Chary
Chandan Raj
Chenda Ashok Kumar

Diwan H. Dineshbhai
Jayakumaran Swarna
K. Sathish Kumar
Kalathiya Ketankumar
Ghanshyambhai
Kathirya B. Harjibhai
Kavita Yadav
Khadela Umesh Babubhai
Km Neelu Prajapati
Maheswari Bojanapu

Mysa Harish
Nitin Shakra
Parne Madhuri
Pendyala C. Kiran
Pradeep Kumar Yadav
Prajapati J. Dilipbhai
Renuka V. Jaysukhlal
Sisangia S. Rajendra
Srishti Rajoria

CAPACITY BUILDING PROGRAMMES

Name of the Workshop/seminar/conference	Year	Participants trained (approx.)
ITEC/SCAAP-1999	1999	15
ITEC/SCAAP-2000	2000	15
Workshop Module on "Pharmacological and Toxicological assessment of Pharmaceuticals, in an intensive course on "Preparation and assessment of pharmaceutical registration dossier"	2000	20
ITEC/SCAAP-2001	2001	15
Workshop on Molecular Modelling and Pharmcoinformatics	2002	45
ITEC/SCAAP-2003	2003	26
Workshop on "Drug Discovery & Development in New Millennium (D3NM-1)	2004	80
Workshop on Molecular Modelling and Pharmcoinformatics	2004	60
ITEC/SCAAP-2004	2004	10
ITEC/SCAAP-2005	2005	14
Workshop on "Drug Discovery & Development in New Millennium (D3NM-2),	2005	100
Workshop on Pharmcoinformatics	2005	50
Workshop on "Acquaintance with CPCSEA Guidelines and handling, care and use of small laboratory animals"	2006	80
Statistics in Clinical Research	2006	50+
ITEC/SCAAP-2006	2006	14
Workshop on "Drug Discovery & Development in New Millennium-3 (D3NM-3)	2006	100
Workshop on Pharmcoinformatics: QSAR	2006	50
40 th Annual Conference of Indian Pharmacological Society (IPSCON 2007)	2007	1000
Workshop on Pharmcoinformatics: Target identification and validation	2007	50
Green Chemistry Conference	2007	210
National Conference on Carbohydrate Chemistry	2007	150
ITEC/SCAAP-2008	2008	19
DDNPTM-2008	2008	328
Workshop on Pharmcoinformatics: Structure based drug design	2008	35
SERC Summer School on Modeling and Informatics in Drug Design	2008	55
3 rd Mid-year symposium of Chemical Research Society of India	2008	120

Continuing education programme under World Bank sponsorship for (i) Drug Regulatory Personnel, (ii) Staff from Small Scale Drug Industries, (iii) Staff from Government and Private Testing Laboratories	2004-2008	2600+
Mini symposium on Newer Targets/treatment of diabetic and diabetic complications	2009	100
Symposium on Clinical Research and Training	2009	50+
Workshop on Clinical Trial Protocol Writing	2009	50+
1 st International Symposium on Drug Metabolism and Pharmacokinetics (DMPK)	2009	50+
2 nd Summer School on Nanotechnology in Advanced Drug Delivery at Centre for Pharmaceutical Nanotechnology,	2009	55
2 nd Summer School on Nanotechnology in Advanced Drug Delivery at Centre for Pharmaceutical Nanotechnology	2009	42
Hands-on Practical Trainings conducted on sophisticated Analytical Instruments (19 Programmes)	2009	144
Good Manufacturing Practices (GMP)	2009	11
Good Laboratories Practices (GLP)	2009	13
GMP and GLP	2009	14
GMP and GLP	2009	11
ITEC/SCAAP-2009	2009	15
Hands-on Practical Trainings conducted on sophisticated Analytical Instruments (18 Programmes)	2010	123
2 nd International Symposium on Drug Metabolism and Pharmacokinetics (DMPK)	2010	55+
3 rd Winter School on Nanotechnology in Advanced Drug Delivery	2010	38
3 rd sSummer School on Nanotechnology in Advanced Drug Delivery	2010	55
Mini-symposium in medicinal chemistry	2010	150
SMPIC Seminar on Documentation	2010	137
SMPIC Seminar on Common Technical Document	2010	82
ITEC/SCAAP-2010	2010	15
DDNPTM-2010	2010	203
3 rd International Symposium on Drug Metabolism and Pharmacokinetics (DMPK)	2011	55+
4 th Winter School on Nanotechnology in Advanced Drug Delivery	2011	100
Hands-on Practical Trainings conducted on Sophisticated Analytical Instruments (17 Programmes)	2011	89
SMPIC Seminar on Validation	2011	88
SMPIC Seminar on Risk Analysis	2011	42

ITEC/SCAAP-2011	2011	20
ITEC/SCAAP-2012	2012	24
4 th International Symposium on Drug Metabolism and Pharmacokinetics (DMPK)	2012	55+
Hands-on Practical Trainings conducted on sophisticated analytical instruments (14 Programmes)	2012	85
SMPIC Seminar on current GMP	2012	62
SMPIC Seminar on Export Registration of Pharmaceutical Products	2012	28
SMPIC Seminar on Environment ,Hazard and Waste Management in Pharmaceutical Industry	2012	49
DDNPTM-2012	2012	142
5 th International Symposium on Drug Metabolism and Pharmacokinetics (DMPK)	2013	55+
Hands-on Practical Trainings conducted on sophisticated Analytical Instruments (10 Programmes)	2013	50
SMPIC Seminar on Quality Aspects of Oral Solid Dosage Forms	2013	83
SMPIC Seminar on Quality Aspects of Sterile preparations	2013	38
SMPIC Seminar on Formulation development of Oral Solid Dosage Forms	2013	26
SMPIC Seminar on GLP and GMP- A Regulatory Perspective	2013	28
ITEC/SCAAP-2013	2013	24
11 th Annual Conference of International Society of Heart Research (ISHRCON 2014)	2014	200
Conference of Modeling Chemical and Biochemical Reactivity (Indo-German)	2013	140
GCP training course	2014	5
6 th International Symposium on Drug Metabolism and Pharmacokinetics (DMPK)	2014	50+
Hands-on Practical Trainings conducted on sophisticated Analytical Instruments (9 Programmes)	2014	82
SMPIC seminar on Stability Testing in Pharmaceutical Industry	2014	45
SMPIC seminar on Formulation Development of Liquid Oral Dosage Forms	2014	21
SMPIC seminar on Dissolution and solubility Enhancement Techniques in Pharmaceutical Formulations	2014	35
SMPIC seminar on HPLC Method Development and Validation	2014	40
ITEC/SCAAP-2014	2014	17
DDNPTM-2014	2014	159
Indo US Conference on Modelling and Informatics in Drug Design	2014	140
Recent Advances in Medicinal Chemistry	2014	120

7 th International Symposium on Drug Metabolism and Pharmacokinetics (DMPK)	2015	59
Hands-on Practical Trainings conducted on sophisticated Analytical Instruments (9 Programmes)	2015	77
Process Validation and Equipment Qualification: A Risk Based Approach	2015	36
HVAC & Infrastructure Designing in Pharmaceutical Industry	2015	34
Documentation and SOP	2015	23
Challenges in Indian Pharmacopoeial Testing	2015	33
ITEC/SCAAP-2015	2015	23
Hands-on Practical Trainings conducted on sophisticated Analytical Instruments (5 Programmes)	2016	31
SMPIC Seminar on Applications of Dissolution Techniques in Pharmaceutical Formulations	2016	19
SMPIC Seminar on Selection of Excipients For Oral Solid Dosage Forms	2016	27
ITEC/SCAAP-2016	2016	21



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