



## Report - International Conference – 28-30 Jan 2019 'Nanotechnology and its Application to Ocular Drug Delivery Systems'



### **Introduction:**

International Conference on “Nanotechnology and its application to Ocular Drug Delivery Systems” was organized by Maliba Pharmacy College (MPC), during 28-30<sup>th</sup> January, 2019 with the Joint efforts of UKA Tarsadia University (UTU) and Dr. D. O. Shah Foundation, USA. The conference was organized in sponsorship with Sun Pharmaceuticals Ind. Ltd., and DST-GSBTM. The conference was aimed at providing a platform for researchers and scientists to assess recent trends and developments in Nano-science and Nanotechnology for promising applications in the field of ocular drug delivery.

### **Day – I 28<sup>th</sup> January 2019**

#### **Inauguration Ceremony**

Following the UTU anthem, Inauguration ceremony of the conference was Chaired by Hon. Provost of the UTU - Prof. D R Shah; Chief Guest Prof. Shailendra Saraf, Vice President, Pharmacy Council of India, Delhi & Vice Chancellor Hemchand Yadav University, Durg Chhattisgarh; Guest of Honor – Prof. D. O. Shah- Professor Emeritus, University of Florida,; Shri Kiritbhai Patel, Vice-President-UTU; Prof. Shailesh Shah, Director, Maliba Pharmacy College and Prof. Ashish Mishra, Dean Faculty of Pharmacy, UTU were present on dais in inauguration ceremony.

#### **Welcome Address:**

Prof. Shailesh Shah-Director, Maliba Pharmacy College delivered a welcome address. He greeted all the Speakers, Chairpersons, researchers, Invited guests and Delegates who came from all over the world. Prof. Shailesh Shah emphasized that preventable blindness is one of the primary health concerns in rural India, yet little is known about the prevalence of eye disease among India's population. He also expressed his happiness that Dr. D O Shah has considered our college to hold this international conference at MPC, UTU.

**About Conference:** Prof. Ashish Mishra- Dean, Maliba Pharmacy College highlighted the thrust areas as well as the topics to be covered during Conference. He also explained the background work done in ocular drug delivery by MPC.

**Provost Address:** Hon. Provost Dr. D.R. Shah highlighted the achievements and progress of Maliba Pharmacy College as well as whole campus of UTU. Hon. Provost said that UTU is honored to host this highly regarded event, supported not only by the NGO D O Shah foundation, but also by the govt agency GSBTM and India's largest pharma giant Sun Pharma, which shows the emphasis that MPC & UTU places on educating its students on the

importance of research. He insisted that this conference should not be just another “talk shop”. He said that by the end of the event, we can intend to formulate a set of recommendations on nanotechnology and ocular drug delivery. Then only this conference will be a benchmark for the future. He requested delegates to get involved in its development through discussion forum of conference.

**Chief Guest Speech:** Prof. Shailendra Saraf addressed all the researchers and students. He started with thank note for being invited as chief guest for this high regarded international conference on nanotechnology. He appreciated the efforts of university management to create such state of art infrastructure facilities for students of University. He also said that university has grown exponentially in such a short span of time. He addressed technical unmet needs in field of ocular drug delivery. He congratulated LOC for their efforts to organize this conference with eminent speakers across the world having high research capabilities. He also highlighted future PCI plans for staff and students of pharmacy colleges of India.

**Felicitation of Dr. D.O.Shah, Professor Emeritus and the First Charles Stokes Professor of Chemical Engineering and Anesthesiology, University of Florida, USA:** UTU honored Prof D O Shah with Award for excellence in research. The award was given by Vice President of UTU Shri Kirit Patel and Provost Dr. D R Shah. The citation was read by Prof Ashish Mishra.

**Blessings by Prof. D. O. Shah:** He showered his blessings to all delegates and talked of integrity, moral and ethical values to be maintained in research. He also thanked University officials for the honor given to him.

**Vote of Thanks:** Organizing Secretary Dr. Furqan Maulvi delivered vote of thanks.

The success of this international conference was due to several organizations funding and support. The conference was sponsored by UKA Tarsadia University, Dr. D. O. Shah foundation-USA, Leo Lens Technology - USA, Sun Pharmaceuticals- Vadodara, GSBTM-Gandhinagar.

More than 14 scientific sessions were held with eminent speakers from across the world.

**The first scientific session** on 28<sup>th</sup> January, 2019 includes plenary lecture, Invited talks,



Panel Discussion followed by Poster Session. The session was chaired by Dr. S. Krishnakumar- Head, Ocular pathology department, Sankara Nethralaya, Chennai. The first plenary lecture was delivered by Prof. Mark Willcox.

**Prof. Mark Willcox**

**Professor, School of Optometry and  
Vision Science, University of New  
South Wales, Australia**

**Title: Antibiotic delivery from contact lenses**

There has been a significant increase in interest in alternative means to deliver ocular pharmaceuticals, and within the past few decades contact lenses have emerged as a vehicle of interest due to their biocompatibility and acceptance by both eye care professionals and the public. Various techniques have been used to incorporate antibiotics into contact lenses to improve the kinetics of release of the antibiotics. These techniques include molecular imprinting, vitamin E diffusion barriers, ionic reservoirs and drug impregnated films. This talk will discuss the relative merits of these techniques. Antibiotic release kinetics have been observed *in vitro* but *in vivo* studies are limited. However, some *in vivo* studies have led to evidence of the viability of this drug delivery platform experiments demonstrating improved drug residence time, improved drug penetration and improved clinical outcomes when compared to conventional therapy such as eye drops have been reported. This talk will highlight the *in vivo* evidence for the successful testing of drug releasing contact lenses, including our recent studies using molecular printing to incorporate and release ciprofloxacin from lenses. When tested *in vivo*, these lenses resulted in statistically significantly less bacteria from corneas infected with *Pseudomonas aeruginosa*. Contact lens materials developed for drug may be beneficial to supplement or augment future treatments of sight threatening ocular diseases.

**The Second lecture was chaired** by Prof. K.R. Desai-Professor Emeritus, Dept. of chemistry, UKA Tarsadia University. The invited talk was delivered by Prof. P. R. Vavia.

**Prof. P. R. Vavia**

**Professor in Pharmaceutics at Institute  
of Chemical Technology, Mumbai.**

**Title: Nanotechnology based strategies for intraocular delivery  
of therapeutics**



Drug delivery to the eye presents some unique challenge owing to the complex structure of the eye and the high resistance to foreign substances, including therapeutic agents for ocular diseases. The intraocular regions remain elusive from topically delivered therapeutic agents due to the stringent clearance mechanisms and membrane barriers that exist between the cornea as well as the retina. The treatment

becomes furthermore challenging primarily due to the inability of the delivery systems to effectively reach the target tissues. Although topical administration remains the preferred route for drug delivery to the eye, the other routes of administration currently employed are intravitreal and the less preferred periocular administration. Although effective, injection through such regions can cause complications like infection, retinal tear or retinal detachment. The advent of nanotechnology has provided means to effectively deliver therapeutic agents to the interior regions of the eye. Owing to their size and ability to undergo surface modification, nanocarriers can be designed with respect to their physicochemical properties in order to overcome the biological barriers presented by the eye. In recent times micelles, dendrimers and lipid-based systems have been designed to make them more retentive in and around the ocular surface, thereby increasing the intraocular permeability. Other emerging strategies like cell penetrating peptides and trigger-based systems which utilize the transporter systems and unique molecular markers present in different regions of the eye. Hence there is immense scope for development of delivery systems for the eye to effectively deliver drugs to the intraocular regions.

**The Third lecture** was chaired by Dr. Uday R. Gajiwala-M. S. Opth., Vice President, Divya Jyoti trust, Mandvi. The invited talk was delivered by Dr. Ajay Khopade.



**Dr. Ajay J. Khopade**

**Vice President-R&D, Formulation Development**

**(Non-Orals), Sun Pharma**

**Advanced Research Co. Ltd.**

**Title: Small is a new Big - An Indian Success Story of a Nanotech Product from Lab to**

**Market**

Ocular anatomy and physiology makes it difficult to administer drug to the patient such as small cul-du-sac space, blink spill, nasolacrimal drainage etc. Drug properties and formulation challenges add to this difficulty such as drug insolubility, membrane permeation etc. Nanotechnology has potential to resolve such formulation and administration problems. It also alters the ocular pharmacokinetics of the drug and allows, for example, transport of drugs to the posterior segment though conjunctival-scleral pathway. The presentation shall cover:

- Strategies for ocular drug delivery

- Nano Drug Delivery Platforms
- Understanding its ocular PK profile
- Safety & efficacy maximization
- Case study

**Take Home Message:**

Differentiation through drug delivery technology

**Panel discussion** on topic of “ Nanotechnology- boon or curse” was also held on 28<sup>th</sup> January, 2019 at 3.45 to 5.15 pm. Moderator of panel discussion was Prof. Pranav Shah- Head, Dept. of Pharmaceutics, Maliba Pharmacy College. The panellist were; Prof. D. O. Shah, Prof. Mark Willcox, Prof. Arto Urtti, Dr. Sanjay Tiwari, Dr. Uday Gajiwala, Dr. Bhavik Shah. Poster Session was arranged on the same day (28<sup>th</sup> Jan 2019) at Architecture dept. in UTU Campus. A total of 106 research posters were presented under 5 different track sessions. All the the accepted papers’ abstract are published in the special issue of Journal of Pharmacy and Applied Sciences (JAPS) [ISSN 2395 - 6097 (PRINT), ISSN 2395 - 6100 (ONLINE)] <https://app.utu.ac.in/JPAS/Default.aspx> The poster session was followed by dinner.

**Day-II 29<sup>th</sup> January 2019**

The first scientific session on 29<sup>th</sup> January, 2019 includes Plenary lecture and Invited talks. The first Lecture was chaired by Prof. R. Krishnamurthy- Director, C. G. Bhakta institute of biotechnology, UKA Tarsadia University, Bardoli . The first Plenary lecture was delivered by Prof. Arto Urtti.



**Prof. Arto Urtti**

**University of Eastern Finland, University of Helsinki (Finland), and St. Petersburg State University, Russia**

**Title: Role of Ocular Pharmacokinetics in Drug Delivery to the Eye**

Pharmacokinetics of the eye depends on anatomy and physiology of the eye as well as the physicochemical drug properties. These

features determine the appropriate routes of drug delivery when drug action is sought. Anterior segment targets can be reached with topical and sub conjunctival delivery system whereas the retina is treated with intravitreal injections. The presentation demonstrates the ocular barriers and their interactions with the drugs. The modeling tools are presented for quantitative feasibility assessment of drug delivery routes, as well as drug dosing (payload, release rate, dosing interval) considerations. The presentation will include data and discussion on topical, sub-conjunctival, intravitreal and systemic drug delivery.

**The Second lecture** of day-II was chaired by Prof. Shailesh Shah- Director, Maliba Pharmacy College, UKA Tarsadia University, Bardoli. The first Invited talk was delivered by Dr. Nitin Patel.



**Dr. Nitin M Patel**

**Medical Director at Aashirwad Eye**

**Hospital & Laser Center, Navsari, India**

**Title: Nano-Ophthalmology: The need of the hour**

Current available drug therapy routes can be divided into anterior and posterior segment. The unique anatomy and physiology of the eye make drug delivery challenging and most of the available formulations target the diseases of the anterior chamber.

Conventional treatments such as eye drops have the problem of low bioavailability or induce toxic side effects at the ocular surface. The available routes for retinal drug delivery, like the intravitreal route, are highly invasive and may cause several complications. The leading causes of blindness in the world include glaucoma, age related macular degeneration and diabetic retinopathy. There has been an increase in lifestyle diseases contributing to the burden of ocular morbidity. An efficient drug delivery system to provide maximum therapeutic efficacy and patient compliance is required. Nano formulations are being developed as potential alternatives to current therapy which will be a boon to the doctor and patient.

**The third lecture** of day-II was chaired by Dr. Ajit Joshi- I/C Director, Department of chemistry, UKA Tarsadia University, Bardoli . The invited talk was delivered by Dr. S. Khrishnakumar.



**Dr. S. Krishnakumar**

**Head of the Department, Larsen and**

## **Toubro Department of Ocular Pathology**

### **Title: Aptamer as Therapeutics for Retinoblastoma**

Retinoblastoma (RB) is an intraocular childhood tumor which, if left untreated, leads to blindness and mortality. Nucleolin (NCL) protein which is differentially expressed on the tumor cell surface binds ligands and regulates carcinogenesis and angiogenesis. We found that NCL is over expressed in RB tumor tissues and cell lines compared to normal retina. We studied the effect of nucleolin-aptamer (NCL-APT) to reduce proliferation in RB tumor cells. Aptamer treatment on the RB cell lines (Y79 and WERI-Rb1) led to significant inhibition of cell proliferation. Locked nucleic acid (LNA) modified NCL-APT administered subcutaneously (s.c.) near tumor or intraperitoneally (i.p.) in Y79 xenografted nude mice resulted in 26 and 65% of tumor growth inhibition, respectively. Down-regulation of inhibitor of apoptosis proteins, tumor miRNA-18a, altered serum cytokines, and serum miRNA-18a levels were observed upon NCL-APT treatment. Desorption electrospray ionization mass spectrometry (DESI MS)-based imaging of cell lines and tumor tissues revealed changes in phosphatidylcholines levels upon treatment. Thus, our study provides proof of concept illustrating NCL-APT-based targeted therapeutic strategy and use of DESI MS-based lipid imaging in monitoring therapeutic responses in RB.

The Forth lecture of day-II was chaired by Mr. Kirit Doshi- Vice president, Leo Lens Technology, Vadodara. The invited talks were delivered by Prof. Sanyog Jain.



**Prof. Sanyog Jain**

**Associate Professor at Centre for  
Pharmaceutical Nanotechnology, Department  
of Pharmaceutics of National  
Institute of Pharmaceutical Education  
and Research (NIPER), Mohali (Punjab),  
India.**

### **Title: Fundamentals of nanomedicine and drug delivery**

Drug delivery is the science and engineering of converting potent therapeutic drug molecules into practical medical therapies. Delivering drugs to patients in a safe, effective and compliant way is a major challenge in today's health care. In the conventional therapy, tablets, capsules or simple injections are most commonly used modalities for drug(s)

administration. Oral route is generally accepted as the most convenient route of drug administration; however, its use is limited to small molecules. Macromolecular drugs such as peptides and proteins cannot be taken orally because of poor bioavailability problems. Furthermore, many drugs, regardless of their mode of administration, need to localize in specific diseased tissues and systemic administration of these drugs to healthy tissues can be toxic. The ability of drugs to reach from the point of administration to target tissue is limited by multiple barriers in the body such as enzymatic degradation in the stomach, absorption across intestinal epithelium, hepatic clearance and accumulation in non-targeted tissues. These barriers protect various tissues, cells, and organelles from their environment and the existence of these barriers is essential to life but the ability to deliver drugs for therapeutic applications is challenged. Accordingly, the primary challenge in the field of drug delivery lies in understanding these barriers and developing novel strategies to overcome them in order to cargo drugs and their carriers to their destination without compromising safety. The present talk will discuss fundamentals of aspects highlighting these barriers and rational design of nanomedicine for effective drug delivery. The talk will also emphasize the barriers in ocular drug delivery and design of in-situ gel system for sustained ocular drug delivery.

**The fifth lecture of day-II****Prof. Sanyog Jain, NIPER, Mohali, Punjab****Title: Implication of nanotechnology in oral delivery of injection only drugs**

Oral route is considered as the most natural, convenient and safest route of drug administration involving higher patient compliance, lesser complications and cost-effectiveness as compared to parental drug delivery. Nevertheless, therapeutic efficacy of a large number of perorally administered drugs is often obscured by their poor oral bioavailability (BA) attributed to their extensive first pass metabolic effect by cytochrome P-450 liver microsomal enzyme system as also their efflux by an over expressed plasma membrane transporter P-glycoprotein efflux pump (P-gp). In recent years, the exploitation of nanotechnology for oral application has experienced phenomenal strides. Among the broad spectrum of nanocarriers that has shown promise in oral drug delivery, polymeric and lipidic nanoparticles (NPs), deserve special mention. These nanoparticles, when administered via oral route, are taken up by the M cells in Payer’s patches and transported from the gut lumen to intra-epithelial lymphoid cells and thereafter into the blood stream through the lymphatic system. This special transport pathway plays a distinct role in enhancing the BA of NP encapsulated drug while avoiding enzymatic degradation in enterocytes, first pass



metabolism in liver and concomitant reduction in dose and drug associated toxicity. The present talk will focus on the various nanocarriers viz. polymeric nanoparticles, lipidic nanoparticles, liposomes, self-emulsifying drug delivery systems (SEDDS), lipid drug conjugates etc. developed by our group for bioavailability enhancement of wide range of bioactives.

### **Day-III 30<sup>th</sup> January 2019**

The scientific session on 30<sup>th</sup> January, 2019 includes plenary lecture and Invited talks. The Lecture was chaired by Prof. Ambikanandan Misra-Professor Emeritus, M. S. University of Baroda, Vadodara. **The first invited talk** was delivered by Prof. Mark Willcox.



**Prof. Mark Willcox**

**Professor, School of Optometry and  
Vision Science, University of New  
South Wales, Australia**

**Title: Development of antimicrobial contact lenses**

Wearing contact lenses can cause ocular inflammation and infection which are most commonly caused by bacteria adhering to contact lens surfaces. Thus, creating antimicrobial contact lenses has the potential to reduce these adverse responses and make contact lens wear safer. We have produced contact lens coated with a cationic antimicrobial peptide, melimine. Melimine is a membrane active antimicrobial that causes cell lysis. Importantly, growth of bacteria in sub-inhibitory concentrations does not result in bacteria becoming resistant. Laboratory experiments have shown that these lenses are active against *Pseudomonas aeruginosa* (incl. multi-drug resistant strains), *Staphylococcus aureus* (incl. MRSA), *Serratia marcescens*, *Candida albicans*, and *Acanthamoeba* sp. After safety testing using standard in vitro and in vivo (animal) tests, the lenses were tested in 1- day trials using human subjects. There were no adverse clinical responses other than slight increase in corneal staining. Due to this, we redesigned the peptide to produce a shorter version, Mel4, that was also safe to wear, and produced no staining when attached to contact lenses. Mel4-coated lenses have been worn in one and a control non-coated lens in the other eye by 176 participants on an extended wear schedule for 3 months. The rates of keratitis produced by the lenses in each eye were recorded. Prior to wear, we confirmed that the Mel-4- coated lenses gave >1.5 log<sub>10</sub> inhibition of the adhesion of *Pseudomonas aeruginosa* and *Staphylococcus aureus*. The rate

of keratitis in the eyes wearing the Mel4-coated lenses was 3% of participants, whereas the rates in the eye wearing uncoated lenses was 6%. Thus, the Mel4-coated lenses achieved a 50% reduction in keratitis. This demonstrates that antimicrobial contact lenses can reduce keratitis and is an important step in the commercialization of these lenses.

**The second lecture** was chaired by prof. Shailesh Shah-Director, Maliba Pharmacy College, UKA Tarsadia University. The invited talk was delivered by Dr. Uday Gajiwala.



**Dr. Uday Gajiwala**  
**Divyajyoti Trust, Opp. Hanuman Temple,**  
**Suthar Faliya, Mandvi, Dist. Surat,**  
**Gujarat, India**

**Title: Use of technology in drug delivery in eye care**

Technology has come a long way in making drug delivery in eye care safer and accurate over last 50 years. This is particularly more important for the rural and illiterate population who end up making mistakes in instilling eye medications topically. Self puncture tips, FFS packing, longer lasting effects, contact lenses impregnated with medicines and intra ocular implants are some of the technological advancements which have helped us improve the compliance and effectiveness and also reduced the chances of contamination due to touch. Each drop is utilised ensuring wastage also. In future, nano technology will allow us deliver the drug intra ocularly without piercing the eye at all.

**The Third lecture** was chaired by prof. K.R. Desai- Professor Emeritus, Dept. of Chemistry, UKA Tarsadia University, Bardoli. The invited talk was delivered by Prof. Arto Urtti.



**Prof. Arto Urtti**  
**University of Eastern Finland, University**  
**of Helsinki (Finland), and St. Petersburg**  
**State University, Russia**

**Title: Ocular Drug Delivery Approaches: Melanin Targeting,**  
**Conjugates and Nanostructures**

Ocular drug delivery aims to guarantee adequate drug concentrations in the target tissues and cells. Drug delivery depends on the route of administration: topical, periocular,

intravitreal or systemic. Drug delivery systems can be used to prolong drug retention at the site of application, to control drug release, and to provide targeted drug delivery. The presentation demonstrates three different drug delivery approaches that are based on melanin binding, conjugation technologies, nanoparticles (including light activated release). The delivery systems will be discussed in the context of drug administration route and drug properties (e.g. potency, site of action, physico-chemical features).

**The last lecture** of the conference was chaired by prof. Ashish Mishra- Dean, Maliba Pharmacy College, UKA Tarsadia University, Bardoli. The invited talk was delivered by Prof. Dinesh O. Shah.



**Prof. Dinesh O Shah**  
**Professor Emeritus and the First**  
**Charles Stokes Professor of Chemical**  
**Engineering and Anesthesiology, University**  
**of Florida, Gainesville, FL 32611**  
**USA.**

**Title: My five decades research on precocular tear film and drug delivery systems**

Ophthalmic drug delivery has always been a challenge owing to the various biological barriers. In practice, anterior segment of eye comprising of cornea, conjunctiva, sclera can be easily targeted using the conventional eye drops. But, targeting retina, vitreous humor, choroid which falls in the posterior segment remains challenge in the management strategies, product design and development to treat ocular disorders. Eye drops cover more than 90% of the ophthalmic products in the market, but they bring drug loss and lower bioavailability (<5%) as drawbacks. A key challenge to the ophthalmic drug delivery remains with increased ocular drug residence time which can be modulated by surface tension and viscous forces. Importance of Meibomian Oils in stabilizing tear film thickness will be discussed. A moving monolayer of lipids or surface-active polymer such as PVA can stabilize as much as 10 micron thick aqueous layer on cornea. This talk will cover all of these aspects from barriers limiting the current drug delivery technology to the future scope in ophthalmic drug delivery.

**Valedictory ceremony of International Conference (30<sup>th</sup> January, 2019):**

Valedictory ceremony was chaired by Hon. Provost of the University -Prof. D R Shah, Chief Guest-Shri. N. G. Patel-Donor Maliba Campus, UKA Tarsadia University, Guest of Honor – Prof. D. O. Shah- Professor Emeritus, University of Florida and Shri. Bhagubhai Patel-



## Report - International Conference – 28-30 Jan 2019 'Nanotechnology and its Application to Ocular Drug Delivery Systems'



President of Bardoli Pradesh Kelvani Mandal, Bardoli, Prof. Shailesh Shah-Director, Maliba Pharmacy College, Shri Kiritbhai Patel-Vice-President-UTU, Dr. Furqan Maulvi-Organizing Secretary of International conference and Asst. Professor, Maliba Pharmacy College, Prof. Arto Urtili- University of Eastern Finland and Prof. Mark Willcox- University of New South Wales were present on dais in valedictory ceremony.

The success of the conference was measured and inferred by the collected feedback forms. A total of 300 participants attended the conference. Participants of conference also gave their positive and constructive feedback during valedictory session of conference. This conference was an extraordinary event with huge success and with participants from across the globe made this event a landmark in the field of Ocular Drug Delivery and Nanotechnology Conferences. All the winners of poster and oral papers were given prizes and certificates during valedictory session. Best selected posters were awarded with Certificate and mementoes, out of which 2 best oral presenters were awarded with cash prize of 11,000/- and 5,000/-. Ms. Sapna R. Poojari from Indoco remedies won the bumper prize of Rs. 11000/- for her work on Development Of Stable Formulation Of Travoprost Ophthalmic Solution 0.004%. Ms. Ankita Desai from Maliba Pharmacy College won the second prize of Rs. 5000/- for her work on Drugs Delivery From The Implants-Laden Contact Lens To Treat Glaucoma. The certificates of participants were distributed from registration counter.

**Vote of thanks** was delivered by Dr. Bhavin Vyas - Maliba Pharmacy College, UKA Tarsadia University, Bardoli.

### Analysis of Feedback

1. More than 90% of the delegates assessed overall event as excellent
2. More than 90% delegates found that their awareness about nanotechnology, ocular drug delivery and related issues was raised
3. All the delegates rated the speakers and their contents to the highest note
4. More than 85% delegates rated hospitality, food and kit given during the conference of high quality and excellent

### **Judges for Poster Session**

1. **Dr. Avinash Gangurde**, Manager, Sun Pharma Advanced Research Company Ltd., Vadodara
2. **Dr. Ravi Patel**, Manager, Sun Pharma Advanced Research Company Ltd., Vadodara

3. **Dr. Bhupendra G. Prajapati**, Associate Professor, Shree S. K. Patel College of Pharmaceutical Education & Research, Ganpat University, Mehsana
4. **Mr. Prignesh Patel**, Sun Pharma Advanced Research Company Ltd., Vadodara
5. **Dr. Gautam Singhvi**, Associate Professor, BITS-Pilani
6. **Prof. Rakesh Patel**, Professor, Shree S. K. Patel College of Pharmaceutical Education & Research, Ganpat University, Mehsana
7. **Dr. Siraj Shaikh**, Associate Professor, Ali Allana College of Pharmacy, Nandurbar
8. **Shri. Kirit Doshi**, Vice President, Leo Lens Technology, Vadodara
9. **Dr. Mitesh Dwivedi**, Assistant Professor, C.G. Bhakta Institute of Biotechnology, Bardoli
10. **Prof. Shailesh A. Shah**, Director, Maliba Pharmacy College, Uka Tarsadia University, Bardoli.
11. **Dr. Sandesh Lodha**, Associate Professor, Maliba Pharmacy College, Uka Tarsadia University, Bardoli.
12. **Dr. Shrikant Joshi**, Associate Professor, Maliba Pharmacy College, Uka Tarsadia University, Bardoli.

#### **Judges for Oral Session**

1. **Prof. Mark Willcox**, University of New South Wales, Australia
2. **Prof. Arto Urtti**, University of Helsinki, Finland
3. **Prof. Shailesh Shah**, Uka Tarsadia University, India

#### **Achievers in Poster Session**

<b>Thrust Area</b>		<b>Name Of Presenting Author</b>	<b>Topic</b>	<b>Institute</b>
<b>Advances In Ocular Drug Delivery</b>	Winner	Ankita Desai	Drugs Delivery From The Implants-Laden Contact Lens To Treat Glaucoma	Maliba Pharmacy College
	Runner-Up	Sapna R. Poojari	Development Of Stable Formulation Of Travoprost Ophthalmic Solution 0.004%	Indoco Remedies
<b>Pharmaceutical Nanotechnology, Colloids And Interface, Medical Devices And Related Technologies</b>	Winner	Mitali Patel	Enhanced Bioavailability And Antipsychotic Activity Of Poorly Soluble Drug By Fabricating Novel Lipid Based Nanocarrier System	Maliba Pharmacy College

	1 <sup>st</sup> Runner- Up	Urjita Sheth	Core-Shell Micelles From Biocompatible Amphiphilic Copolymers As Nanoreservoirs In Drug Delivery Systems	C. G. Bhakta Institute Of Biotechnology
	2 <sup>nd</sup> Runner- Up	Vidhi Shah	Surfactant Interplay At Surface Of Nanoparticles For Size Control	Institute Of Pharmacy, Nirma University
<b>Computer Aided Drug Design, Synthesis Of Drugs And Drug Discovery</b>	Winner	Jayaveersinh Mahida	Application Of Silica Supported Aluminum Hydroxide As A Low-Cost Green Catalyst For The One-Pot Multi Component Synthesis	Sardar Patel University
<b>P’ceutical Biotechnology, Pharmacology, Clinical Pharmacy, Pharmacovigilance And Pharmacy Practice</b>	Winner	Hemali Savla	Anti-Oxidant Based Novel <i>In Situ</i> Gelling Systems For Amelioration Of Age-Related Macular Degeneration	Bombay College Of Pharmacy
<b>Impurity Profiling And Method Development, Standardization Of Herbal Drugs</b>	Winner	Jyoti Bhanushali	Development And Validation Of First Derivative Spectrophotometric Method For Estimation Of Curcumin And Co Enzyme Q10 In Novel Topical Formulation For Hand Foot Syndrome.	Faculty Of Pharmacy Dharmsinh Desai University

**Schedule**

**Day 1: January 28, 2019 Monday [Venue: Manjula Hall, CGPIT, 3<sup>rd</sup> Floor, F-wing]**

<b>Time (IST)</b>	<b>Event</b>
8:45 to 9:45 am	<b>Registration and breakfast (Outside Manjula Hall)</b>
10:00 to 11:00 am	<b>Inauguration - (Master of ceremony – Dr. Rutvi Vaidya &amp; Ms. Jaimini Gandhi)</b>
11:00 to 12:00 noon	<b>Plenary Lecture</b> Speaker: <b>Prof. Mark Duncan Willcox</b> (University of New South Wales, Australia) <b>Topic: Antibiotic Delivery from Contact lens</b>
12:00 to 1:00 pm	<b>Invited talk</b> Speaker: <b>Prof. P. R. Vavia</b> (ICT - Mumbai, India) <b>Topic: Nanotechnology based strategies for intraocular delivery of</b>

	<b>therapeutics</b>
<b>Group photo of Delegates at F-wing, CGPIT Lunch: 01:00 to 02:00 pm; 1<sup>st</sup> floor, Girls’ hostel, opp. cricket ground, UTU</b>	
2:00 to 3:00 pm	<b>Invited talk</b> <b>Speaker: Dr. Ajay Khopade</b> (Vice President, R & D, Sun Pharmaceutical Advance Research Centre, Vadodara) <b>Topic: Small is a new Big: An Indian Success Story of a Nanotech Product from Lab to Market</b>
<b>Tea Break – 03:00 to 03:30 pm, Outside Manjula Hall</b>	
03:30 to 05:00 pm	<b>Panel Discussion on Nanotechnology a boon or curse</b> <b>Moderator: Prof. Pranav Shah, Maliba Pharmacy College, Bardoli, Gujarat.</b> <b>Panelist: Prof. Dinesh O. Shah, Prof. Mark Willcox, Prof. Arto Urtti, Prof. P. R. Vavia, Dr. Sanjay Tiwari, Dr. Uday Gajiwala, Dr. Bhavik shah</b>
05:15 - 07:00 pm	<b>Poster Presentation</b> <b>Dr. Pranav Shah - Chairperson</b> [Venue: Ground Floor, Raman Bhakta School of Architecture, UTU]
<b>Dinner: 07:00 pm onwards, 1<sup>st</sup> floor, Girls’ hostel, opp. cricket ground, UTU</b>	

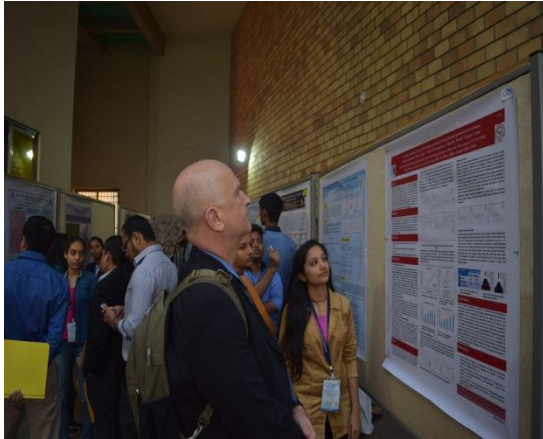
**Day 2: January 29, 2019 Tuesday [Venue: Manjula Hall, CGPIT, 3<sup>rd</sup> Floor, F-Wing]**

<b>Time (IST)</b>	<b>Schedule</b>
09:00 to 10:00 am	<b>Breakfast</b> (Outside Manjula Hall)
10:00 to 11:00 am	<b>Plenary Lecture</b> <b>Speaker: Prof. Arto Urtti</b> (University of Helsinki, Finland) <b>Topic: Role of Ocular Pharmacokinetics in Drug Delivery to the Eye</b>
11:00 to 12:00 noon	<b>Invited talk</b> <b>Speaker: Dr. Nitin Patel</b> (MS, DOMS, Aashirwad Eye Hospital, Navsari) <b>Topic: Nano-Ophthalmology: The need of the hour</b>
12:00 to 01:00 pm	<b>Invited talk</b> <b>Speaker: Dr. S. Krishnakumar</b> (MD Pathology, Sankara Nethralaya, Chennai) <b>Topic: Aptamer as Therapeutics for Retinoblastoma</b>
<b>Lunch: 01:00 to 02:00 pm; 1<sup>st</sup> floor, Girls’ hostel, opp. cricket ground, UTU</b>	

02:00 to 2:45 pm	<b>Invited talk</b> Speaker: <b>Dr. Sanyog Jain</b> (Associate Professor, N.I.P.E.R, Mohali, Chandigarh) <b>Topic: Fundamentals of nanomedicine and drug delivery</b>
<b>Tea Break: 02:45 to 03:00 pm; Outside Manjula Hall</b>	
03:00 to 03:45 pm	<b>Invited talk</b> Speaker: <b>Dr. Sanyog Jain</b> (Associate Professor, N.I.P.E.R, Mohali, Chandigarh) <b>Topic: Implication of nanotechnology in oral delivery of injection only drugs</b>
03:45 to 5:45 pm	<b>Oral Presentation</b> Venue: Manjula Hall, CGPIT, 3 <sup>rd</sup> Floor, F-Wing
06:00 to 7:30 pm	<b>Cultural Programme</b> Venue: Pushpam Tarsadia Hall, CGPIT, 3 <sup>rd</sup> Floor, F-wing
<b>Dinner: 07:30 pm onwards; 1<sup>st</sup> floor, Girls’ hostel, opp. cricket ground, UTU</b>	
<b>Day 3: January 30, 2019 Wednesday [Manjula Hall, CGPIT, 3<sup>rd</sup> Floor, F-Wing]</b>	

<b>Time (IST)</b>	<b>Schedule</b>
09:00 to 10:00 am	<b>Breakfast</b> (Outside Manjula Hall)
10:00 to 10:50 am	<b>Invited Talk</b> Speaker: <b>Prof. Mark Duncan Willcox</b> (University of New South Wales, Australia) <b>Topic: Development of Antimicrobial contact lenses</b>
10:50 to 11:20 am	<b>Invited talk</b> Speaker: <b>Dr. Uday R. Gajiwala</b> (M. S. Ophth., Vice President, Divya Jyoti Trust Ranabhai Eye Hospital) <b>Topic: Use of Technology in Drug Delivery in Eye Care</b>
11:20 to 12:10 pm	<b>Invited talk</b> Speaker: <b>Prof. Arto Urtti</b> (University of Helsinki, Finland) <b>Topic: Ocular Drug Delivery Approaches: Melanin Targeting, Conjugates and Nanostructures</b>
<b>Lunch break: 12:10 to 1:10 pm; 1<sup>st</sup> floor, Girls’ hostel, opp. cricket ground, UTU</b>	
1:15 to 2:00 pm	<b>Invited talk</b> Speaker: <b>Dr. Dinesh O. Shah</b> (Professor Emeritus, University of Florida, Gainesville, USA) <b>Topic: My Five Decades Research on Preocular Tear Film And Drug Delivery Systems</b>
<b>Valedictory function: 2:00 to 3:00 pm; Manjula Hall, CGPIT, 3<sup>rd</sup> Floor, F-Wing</b>	
<b>Group photo</b>	





Weblink for photos: [https://photos.google.com/share/AF1QipPd2XrVBj-wmr1C96mrleD\\_DQmh8yr22IW0rRjJVHaU6rCw1VDJQI7SlshU-s-9zA?key=UnRYNGR6OFZnak9wS3dNVU1fQ1pmSmpISmVQMEZ3](https://photos.google.com/share/AF1QipPd2XrVBj-wmr1C96mrleD_DQmh8yr22IW0rRjJVHaU6rCw1VDJQI7SlshU-s-9zA?key=UnRYNGR6OFZnak9wS3dNVU1fQ1pmSmpISmVQMEZ3)



