



pharmahorizon

A panorama in the world of health sciences



NEWSLETTER FROM DEPARTMENT OF PHARMACY, SUMANDEEP VIDYAPEETH

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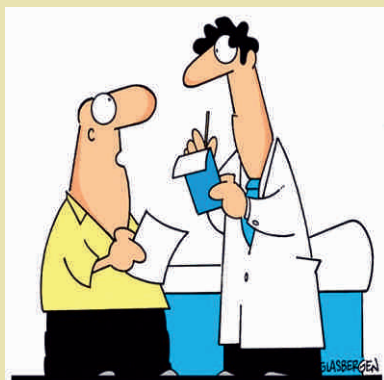
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"Right now I take a blue pill, a purple pill, an orange pill, a white pill, and a yellow pill. I need you to prescribe a green pill to complete my collection."

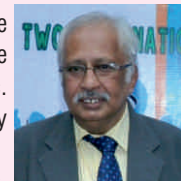
EDITOR-IN-CHIEF'S VIEW:

It is my great pleasure to write the editorial for the first issue of the fourth volume. From this issue onwards, Pharmahorizon would be released half yearly with a new facelift. In this issue, we have incorporated articles from persons from industry, academicians, students, alumni etc. Besides we have other issues like molecule of the millennium, Noble laureate, WHO guidelines, Newly approved drugs and new adverse reactions of the molecules.

We have also incorporated, laurels brought by our staff as well as students in various conferences, seminars and sports arena.

Through this issue we make our first announcement of national level conference and workshop on QbD. I hope the readers will welcome the completely revamped issue of Pharmahorizon. Your feedbacks will go a long way in improving the quality of our newsletter.

Dr. R Balaraman



EVIDENCE BASED DRUG DEVELOPMENT: FOCUS ON NATURAL PRODUCTS

Today there is a huge surge in drug discovery, including research on natural products. However, due to lack of experience and scientific evidence, most of the research results in output which do not solve the main purpose of finding a health care solution, and hence not resulting in the improvement of the primary goal of improving the human life.

By performing evidence based systematic research, the chances of innovating or discovering a drug hugely improves. To help you in improving your research work, this article tries to provide you definitions and a list in a simple direct way, and reduces the task of understanding information from large paragraphs.

A natural product is a chemical compound or substance produced by a living organism, that is, found in nature, it could be Marine organisms, Bacteria, Fungi, or Plants. Evidence based drug discovery mainly includes two steps that is Planning and execution

Planning needs data collection of information on:

- Disease biology and mechanisms, markers.
- Information on natural product characteristics, isolated compounds, phytochemistry, and physio-chemical properties.
- Indications, routes of administration, independent or in combination, frequency and duration of treatment.
- Existing efficacy and mechanism.
- Existing safety and toxicity.

Planning needs data which can be collected through following ways:

- Thorough review of literature, to avoid repetition of experiments, waste of time and resources.
- To have complete and comprehensive information for evidence based decision making.
- Searching published and non-published literature, and selecting quality and reliable reports.
- Searching review articles, meta analysis, animal studies, in vitro studies, clinical studies, pharmacology, pharmacognosy, phytochemistry.

The most important is Search engines and Databases:

- Indian databases and International database
- Grey literature (The term grey literature refers to research that is either unpublished or has been published in non-commercial form)
- Systematic review in Ayurveda by Institute of applied dermatology has provided comprehensive information on search engines and databases.

GLP (Preclinical)

Good Laboratory Practice (GLP) specifically refers to:

- Quality system of management controls for research laboratories and organizations
- Ensuring uniformity and consistency of methods, hence results (system of SOPs)
- Enhances reliability, reproducibility, quality, and integrity (documentation and reporting all deviations and amendments) of chemical & pharmaceuticals, from physio-chemical properties through acute to chronic toxicity tests.

GCP (Clinical)

Good Clinical Practice refers to

- Enforcement of tight guidelines on ethical aspects of a clinical study, clinical protocol, record keeping, training, and facilities, including computers and software.
- Ensuring that the studies are scientifically authentic and that the clinical properties of the investigational product are properly documented.

This article is contributed by **Dr. Vinoth Khandelwal** who has over nine years of experience in pharmaceutical and healthcare sector. He has a PhD in Pharmacology, with 4.5 years of postdoctoral research experience in Europe. Presently, he is a **Project Manager of Smart Analyst** which is an evidence based research consulting firm. His therapeutic research areas includes: oncology, cardiovascular diseases, and Alzheimer's disease.

CLINICIAN'S STANCE :

Adverse effects of steroids used in dermatophytic infections: a cross sectional study conducted in Dhiraj General Hospital:

This is one of the interesting studies which was conducted in Department of Dermatology, SBKS Medical Institute & Research Centre, Sumandeep Vidyapeeth under the guidance of Dr. Som Jitendra Lakhani, Assistant Professor and Dr. Freny Bilimoria, Professor and Head; Department of Dermatology, SBKS Medical Institute & Research Centre, Sumandeep Vidyapeeth, Dr. Jitendra D. Lakhani, Professor and Academic Director, SBKS Medical Institute & Research Centre, Sumandeep Vidyapeeth.

This cross sectional study of dermatophytic fungal infections was carried out with research question of 'Is steroid formulation abused in dermatophytic infections? What are their effects and side effects?' All patients of dermatophytic infection were primarily selected over period of six months of which patients who had history or findings of some form of steroid use were further analyzed. Quantitative and qualitative data were collected in regards to steroid formulations about type, duration of use, route of administration and their availability by prescription or "over the counter". Dermatological signs of steroid used were noted.

Of total 180 patients of dermatophytosis, 72 patients (40%) had used steroid formulations either topical (52), intralesional (9) or injectable (11) and 108 did not. Multiple site infection of dermatophytosis was present in 60 of 72 (83%) and in 51 of 108 (47.22%) in patients who used steroids and in patients who did not use steroids. Cutaneous adverse effects observed were noticeable in 52 of the 72 patients who had used topical steroids. Out of the 52 patients 47 patients had duration of steroid use greater than one month. This suggests that the duration of steroid use correlates with the adverse effects. The common adverse effect seen was striae (34), atrophy (15), acneform eruptions (13) and post inflammatory hypopigmentation (6). All nine patients who had been given intralesional steroids developed striae. Out of the 13 patients who had acneform eruptions, nine had history of use of injectable steroids.

Other important conclusions obtained from this study are:

There is wide variety of irrational topical formulations available in India containing high potency steroids in combination with antifungal and antibacterial. The commonest formulation available is a combination of clobetasol propionate, ornidazole, terbinafine and ofloxacin.

Topical, injectable and intralesional steroids tend to cause a prompt symptomatic relief and thus the patients have a false security of efficacy of medication. This could be the reason behind the greater duration of illness in patients with steroid misuse in our study. Also many patients in our study especially patients suffering from Tinea cruris were engaged in self medication to avoid the embarrassment of going to the doctor.

Misuse of steroid formulations in dermatophytic infections may lead to adverse effect as well as chronicity. Multiple site infection, dermatological and systemic side effects and delay in diagnosis may result due to steroid misuse. Awareness of this problem is needed for prevention of steroid modified dermatophytosis, which is a rising menace.



Case Photo 3. showing plaque of Tinea corporis along with striae beneath it due to intralesional steroid use.



Case Photo 5. Acneform eruptions and Cushingoid features in patients with Tinea cruris who was given injectable steroids



Case Photo 2. showing striae due to use of intralesional steroids.

Student's Outlook:

Clinical Project work experience by Pharm. D student

Work experience! Most people expect you to hate it and be on your knees to get back to school. But no one genuinely expects you to have fun.

My work experience performing a research work on identifying newer risk factors for chronic kidney disease (CKD) was different, I was fortunate enough to learn how a research work is initially planned, developed and completed; as well as how much work and detail goes into every stage. Another valuable lesson I have learnt during these 6 months, was regarding different types of work which is to be performed by a student pharmacist in a research field, which in turn, provided me more insights into the different types of roles and responsibilities that I could perform, as a pharmacist.

My days of data collection at Ram Krishna Paramhans Hospital, were memorable. The staff were generous and co-operative. After, completing my 5 week period of data collection at Ram Krishna Paramhans hospital, I continued with my data collection process Dhiraj General hospital. Working with my clinical guide Dr. Arti Muley was altogether a knowledgeable experience. She meticulously framed my study considering all its aspects and objectives and provided me with all the support to conduct the study in meaningful manner. I am equally thankful to my academic guide Dr. Vikas Chandrakar for providing me all the academic support. Subsequently, I started sorting and statistically arranging the data which lead me to a conclusion with two different categories of outcomes.

Primary outcomes included some un-recognized risk factors like obstructive sleep apnoea, insomnia and a palindromic association of CKD with anemia. Consumption of unusually high doses of NSAIDs and antibiotics replaced the previous leading cause of CKD; hypertension and diabetes mellitus, malaria and excessive consumption of un-iodized salt were potential risk factors of CKD. Dietary factors having association with CKD were green mustard, collocasia roots, ivy, pumpkin, sugarcane and Indian sweet items like halwa & chocolate. Conclusively this study has rediscovered the existing risk factors according to Indian scenario as well as exposed some camouflaged risk-factors in worsening of renal diseases. Considering the outcomes of my research work and the experience I gained I can say that my research work experience was positive. I was delighted with the amount of things that I could learn by conducting a research study being a student pharmacist. I ended up learning a lot more than I anticipated.

Saurabh Mamtani, Vth Pharm.

3D PRINTING TECHNOLOGY IN PHARMACEUTICAL DRUG DELIVERY

Three-dimensional (3D) printing technology relies on computer aided designs to achieve unparalleled flexibility, time-saving, and exceptional manufacturing capability of pharmaceutical drug products. The process involves 3D proto-typing of layer-by-layer fabrication (via computer-aided design models) to formulate drug materials into the desired dosage form. Ever since the development at Massachusetts Institute of Technology (1992), 3D printing is gaining increasing attention in pharmaceutical formulation development as an effective strategy to overcome some challenges of conventional pharmaceutical unit operations. The efforts in developing 3D printing in pharmaceutical product development resulted in a landmark FDA approval of Levetiracetam (SPRITAM®) tablets (www.accessdata.fda.gov).



Advantages and Applications of 3D printing in Pharmaceutical Drug Delivery

Fabrication of 3D objects can be achieved through a number of techniques such as inkjet based fabrication, Direct-Write, Zipdose, Thermal inkjet (TIJ) printing and Fused Deposition Modelling (FDM). Compared to conventional pharmaceutical product manufacturing process, 3DP offers a lot of attractive qualities, such as,

- High production rates due to its fast operating systems,
- Ability to achieve high drug-loading with much desired precision and accuracy especially for potent drugs that are applied in small doses,
- Reduction of material wastage which can save the cost of production
- Amenability to broad types of pharmaceutical active ingredients including poorly water-soluble, peptides and proteins, as well as drug with narrow therapeutic windows.

3DP in pharmaceutical drug delivery is anticipated to excel tremendously in the area of personalized medicines. We have reached an era in pharmacy practice and medicine where “one size does not fit all” since medication must be tailored to individual patient’s needs while taking into consideration differences in genetic profiles, age, race, gender, epigenetic and environmental factors. Also, there are situations where the treatment regimens must be customized to improve patient’s adherence to treatment. This is particularly important in treatment of chronic illnesses where patients must follow complicated treatment regimens involving multiple medicines and high frequency of dosing couples with side effects. In all these cases, medicine customization can be achieved through 3D printing technology. This is possible due to flexibility in design, development and manufacture of single or multi-drug products with built-in immediate and controlled-release layers that can be tailored to unique patient’s situations. As such, we envision that through personalized 3D printing medicines, health professionals will have the opportunity to consider a patient’s pharmacogenetic profile before selecting the course of treatment.

It is anticipated that 3D printing will continue to gain much attention in solid dosage forms as the most popular drug dosage forms. Solid dosage forms gain their popularity through many factors such as: ease of manufacture, pain avoidance, accurate dosing, and ability to achieve patient adherence to treatment. However, the multi-step nature of the manufacturing processes of solid dosage forms have been plagued by many challenges such as lengthy operational processes, batch-to-batch variations due to reliance on operator’s judgments, material wastage, low drug loading capacity, and suitability to limited categories of active ingredients.

Challenges, Prospects and Our Perspectives

3D printing technology has many advantages that are not yet proven; as such continuous clinical development of 3D printing will require vision, money, and time. To develop 3D printing for a broader appeal the following important aspects are needed

- Clinical optimization and improvement of software performance,
- Development of new excipients or assessment of old excipients for application in 3D formulations
- Development and optimization of manufacturing process for a wide range of drug products,
- Clinical studies to assess efficacy, safety and stability of new 3D-based formulations.

Apart from the cost of developing new formulations or re-designing existing formulations through 3D printing, the built-in flexibility may be a major source of liability from safety point of view. It is important to rule out tampering of the dose or drug through the process to ensure there is no adulteration or mix-up of treatment regimens among patients. It is also anticipated that regulatory stipulations for 3DP formulations will be stringent in order to rule out illegal printing of drug products

In conclusion, 3D printing technology opens the doors to a new era of advanced drug delivery with built-in flexibility that is well suited for personalized/customized medicines. With patience and perseverance, 3D printing will continue to revolutionize the development of new generations of pharmaceutical formulations that are safe and effective.

This article is contributed by Maulik M Patel, Formulation Development Department, Zhejiang Jingxin Pharma Pvt. Ltd., Xinchang, Zhejiang, China. (An Alumni of Department of Pharmacy, Sumandeep Vidyapeeth)



NEW DRUG APPROVAL

Ulipristal Acetate

For the pro-operative treatment of moderate to severe symptoms of uterine fibroids in adult women of reproductive age and intermittent treatment of moderate to severe symptoms of uterine fibroids in adult women of reproductive age who are eligible for surgery. The duration of treatment is limited to three months.

Ulipristal is a selective progesterone receptor modulator (SPRM) that has been shown to exhibit agonist, antagonist, or mixed agonist and antagonist activity in endo- and myometrial tissue. The antiproliferative effects on endometrial tissue reduce or eliminate uterine bleeding. Through its antiproliferative and apoptotic effects, ulipristal reduces the size of UFs. Despite inhibition of ovulation, ulipristal is reported to have low affinity for androgen and no affinity for estradiol or mineralocorticoid receptors.

Ulipristal for the treatment of UFs — is dosed orally once daily as a 5 mg tablet initiated during the first seven days of menses and taken continuously for three months. It is taken without regard to food

Side effects: Headache, nausea, abdominal pain, tiredness, dizziness or painful menstrual periods may occur.

Serious adverse effects: The frequency was low (2.1% to 5.2%) and without particular pattern in the PEARL I and II trials.

Warnings: Do not use with concomitant use of contraceptive pill or progesterone-releasing IUD; in patients with mild to severe hepatic impairment, or in patients with severe uncontrolled asthma.

Contraindications: In women who are or may become pregnant, patients with undiagnosed abnormal vaginal bleeding, patients with uterine, cervical, ovarian, breast cancer

Source:

<http://www.cdsc.nic.in/forms/list.aspx?lid=2034&ld=11>.

<https://www.ncbi.nlm.nih.gov/books/NBK195459/>.

<https://www.webmd.com/drugs/2/drug-154868/ulipristal-oral/details>.

WHO RECOMMENDATION 2017-18

WHO Medicines Safety & Vigilance (SAV/Rx) Updates: 2020 Strategy Focus: The goals and core strategy of SAV/Rx for 2017-2018 are very much aligned with its overall 2020 strategy with the prevailing theme of “no country left behind: worldwide pharmacovigilance for safer medicines, safer patients”. The 2020 strategy is focused on building comprehensive, sustainable, results driven pharmacovigilance (PV) systems. This strategy focuses on developing the right infrastructure, ensuring that good quality data are collected, analysed, used for decision-making and appropriately shared with public health programmes.

Much emphasis has been placed on encouraging global collaboration through platforms such as the WHO Annual Meeting of National PV Centers and knowledge-sharing in PV through the WHO Pharmaceuticals Newsletter and other publications. The bulk of this effort is focused on expanding regional and local networks and partnerships. WHO SAV/Rx continues to take a lead role in convening expert committees, for example, ACSoMP or the International Working Group on Drug Statistics Methodology. Country-level support is focused on the development of tools, approaches and norms for low and middle-income countries (LMIC), supporting national assessments, providing technical support, training through interactive workshops, and in providing surveillance and risk management support.

In collaboration with SAV/Rx, the WHO CC in Lareb is developing an undergraduate pharmacovigilance curriculum, to ensure that future health-care professionals are well equipped to manage ADRs and to improve patient safety in the long-term. The curriculum should enable the student to:

1. Understand the importance of pharmacovigilance in the context of pharmacotherapy
2. Prevent ADRs when possible
3. Recognize ADRs when they occur
4. Respond to ADRs (management, including treatment of ADRs)
5. Report an ADR

Source: http://www.who.int/medicines/regulation/medicines-safety/publications/ACSoMP_14.pdf?ua=1.

NEW WHO TREATMENT GUIDELINE FOR NON-PREGNANT ADULTS WITH DIABETES MELLITUS.

The objective of the guidelines is to provide public health guidance on pharmacological agents for managing hyperglycaemia in type 1 and type 2 diabetes for use in primary health-care in lower resource settings. These guidelines update the WHO Package of Essential NCD Interventions (WHO PEN) for primary care in low-resources settings recommendations for managing hyperglycaemia, reviewing several newer oral agents: dipeptidyl peptidase-4 inhibitors (DPP-4 inhibitors), sodium glucose co-transporter 2 inhibitors (SGLT-2 inhibitors) and thiazolidinediones (TZDs). These agents have formerly been reviewed as first-line treatment options by the WHO Expert Committee on the Selection and Use of Essential Medicines and were not found to be superior to metformin and sulfonylurea. These guidelines consider their use as second- and third- line treatment for hyperglycaemia in type 2 diabetes. The guidelines also present new recommendations on the selection of type of insulin (analogue versus human insulin) for adults with type 1 diabetes and in adults with type 2 diabetes for whom insulin is indicated. WHO PEN recommendations on other aspects of diabetes treatment have not been updated because priority was given to the area where the majority of changes in evidence and practice have occurred since the publication of WHO PEN.

These guidelines also present new recommendations on selecting the type of insulin (human insulin versus insulin analogues) as insulin is used in primary health care in some low- and middle-income countries. The long-acting insulin analogues considered are detemir and glargine, and the short acting insulins aspart, lispro and glulisine. These guidelines do not consider the newer 100U and 200U insulin degludec nor 300U insulin glargine because of lack of direct comparisons with NPH insulin

Source: <http://www.who.int/diabetes/publications/guidelines-diabetes-medicines/en/>.

DRUGS IN CLINICAL TRIALS:

Allergan announces positive top line phase 3 results for ubrogepant - an oral CGRP receptor antagonist for the acute treatment of migraine – (Feb, 2018) Allergan, a leading global pharmaceutical company today announced positive results from ACHIEVE I (UBR-MD-01), the first of two pivotal phase 3 clinical trials evaluating the efficacy, safety and tolerability of orally administered Ubrogapant 50 mg and Ubrogapant 100 mg compared to placebo in a single migraine attack in adults. Both doses showed a statistically significant greater percentage of ubrogapant patients achieving pain freedom at 2 hours after the initial dose as compared to placebo patients ($p=0.0023$, $p=0.0003$) and a statistically significant greater percentage of ubrogapant patients achieving absence of the most bothersome migraine-associated symptom at 2 hours after the initial dose as compared to placebo patients. Ubrogapant is an oral calcitonin gene-related peptide (CGRP) receptor antagonist.

Source: https://www.drugs.com/clinical_trials/allergan-announces-positive-top-line-phase-3-results-ubrogepant-oral-cgrp-receptor-antagonist-acute-17716.html

Study shows significant benefits of nasal high flow therapy for COPD patients using Fisher & Paykel's myAirvo device – Apr, 2018, Fisher & Paykel Healthcare Corporation Limited, announced that new research has been published in the International Journal of COPD which demonstrates significant benefits of nasal high flow therapy for COPD patients using Fisher & Paykel Healthcare's myAirvo device. The study, a randomised controlled trial undertaken in Denmark, investigated the long-term effects of nasal high flow therapy for COPD patients already being treated with long-term oxygen therapy. The trial showed statistically significant results, with the primary outcome being a significant reduction in patients' exacerbation rate, or worsening of their condition ($p < 0.001$) for those being treated with nasal high flow therapy. The study also showed for those patients using the myAirvo, that all cause hospitalisation rates decreased from a rate of 1.39 to 0.79 per patient, over the course of the year, for those who followed the protocol.

Source: <http://www.pharmabiz.com/NewsDetails.aspx?aid=108490&sid=2>

ThromboGenics begins phase 1 study evaluating safety of THR-149 to treat diabetic macular edema (DME) – May, 2018, ThromboGenics NV, a biotechnology company developing novel medicines for diabetic eye disease, has successfully enrolled the first patient in a phase 1 open-label, multicenter, dose escalation study evaluating the safety of THR-149 in the treatment of diabetic macular edema (DME). THR-149 is a novel plasma kallikrein inhibitor generated using Bicycle Therapeutics' Bicycles technology platform, and the kallikrein-kinin system is considered a valid target for the treatment of DME through inhibition of plasma kallikrein. Preclinical studies have demonstrated the potency and efficacy of bicyclic peptide inhibitors of PKal, such as THR-149, supporting its progression into clinical trials for the potential treatment of DME, via a VEGF-independent mechanism. The phase 1 study will primarily assess the safety of a single intravitreal injection of escalating dose levels of THR-149 in patients with DME. Approximately 18 patients will be enrolled.

Source: <http://www.pharmabiz.com/NewsDetails.aspx?aid=109122&sid=2>

DIETARY RESEARCH:

Dietary Antioxidants May Reduce Parkinsonism Risk, Progression

Dietary antioxidants, including carotenoids, lutein, and vitamins E and C, have been strongly linked to a reduced risk for parkinsonism as well as progression of parkinsonian symptoms in older adults, new research shows. Investigators at Rush University Medical Center in Chicago, Illinois, found adults with the largest intake of these nutrients from food had significantly lower rates of parkinsonism when compared with those in the lowest quintile. Study investigator Puja Agarwal observed "For total carotenoids those in the highest quintile of intake had a 30% reduced risk of developing parkinsonism while those in the highest quintile of lutein intake, a nutrient found in leafy green vegetables, such as kale, collard greens, and spinach, had a 44% reduced risk". The investigators analyzed data on 706 participants from the Rush Memory and Aging Project, an ongoing longitudinal cohort study. The mean age of participants at study entry was about 80 years. To assess incident parkinsonism, the researchers used the United Parkinson's Disease Rating Scale. Parkinsonism was present if there were two or more signs of the disorder. These included bradykinesia, tremors, rigidity, and gait.

Source: <https://www.medscape.com/viewarticle/895868>

NEW MOLECULE ENTITY & NEW THERAPEUTIC BIOLOGICAL PRODUCT

Pegvaliase-pqpz

May, 2018 – The U.S. Food and Drug Administration approved Palynziq (pegvaliase-pqpz) for adults with a rare and serious genetic disease known as phenylketonuria (PKU). Patients with PKU are born with an inability to break down phenylalanine (Phe), an amino acid present in protein-containing foods and high-intensity sweeteners used in a variety of foods and beverages. Palynziq is a novel enzyme therapy for adult PKU patients who have uncontrolled blood Phe concentrations on current treatment. PKU affects about 1 in 10,000 to 15,000 people in the United States. If untreated, PKU can cause chronic intellectual, neurodevelopmental and psychiatric disabilities. In clinical trials, patients treated with Palynziq achieved statistically significant reductions in blood phenylalanine concentrations from their pre-treatment baseline blood Phe concentrations.

Source: <https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm608835.htm>

Erenumab-aooe

May, 2018 – The U.S. Food and Drug Administration approved Aimovig (erenumab-aooe) for the preventive treatment of migraine in adults. The treatment is given by once-monthly self-injections. Aimovig is the first FDA-approved preventive migraine treatment in a new class of drugs that work by blocking the activity of calcitonin gene-related peptide, a molecule that is involved in migraine attacks. Patients often describe migraine headache pain as an intense pulsing or throbbing pain in one area of the head. Additional symptoms include nausea and/or vomiting and sensitivity to light and sound. The effectiveness of Aimovig for the preventive treatment of migraine was evaluated in three clinical trials. In all the clinical trials, Aimovig showed better results in comparison to Placebo.

Source: <https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm608120.htm>

FACULTY ACHEIVEMENTS:

- ❖ Dr. R. Balaraman has been presented a memento of honor appreciating his dedicated contribution in the field of Pharmacology at IPSCON 2017, held at SVKM's NMIMS, Mumbai.
- ❖ Dr. Ghanshayam Parmar, Assistant Professor, Department of Pharmacy, Sumandeep Vidyapeeth, served as resource person in a workshop on RT-PCR, conducted by K. M. Shah Dental College & Hospital.



DEPARTMENT OF PHARMACY ACTIVITIES

Pharmashine-2017-18

Department of Pharmacy, SV celebrated Pharmashine on 27th December, 2017. Pharmashine is the annual cultural program of Department of Pharmacy. The event was diligently organized by the department student council with the help of departmental cultural committee. The program included competitions such as singing, dancing, fashion show, drama and mime.

Career Counselling for Industrial Employability

The program was held in Department of Pharmacy Lecture hall 103 on 27th Jan 2018. The program was conducted by Mr. Stavan Master, Director, Saakshar Skill Academy. Mr. Stavan Master started his talk with the importance of skill in industrial employability. He also emphasized about the need of industries and how to prepare students for that.

Guest Lecture on "Quality system management in Pharmaceutical Industry"

Mr. Abhijeet R Lakhe, Senior Executive in Analytical R&D, Sun Pharmaceutical Industries Ltd. Vadodara delivered a guest lecture on topic "Quality system management in Pharmaceutical Industry" at Dept. of Pharmacy, Sumandeep Vidyapeeth on 10th February 2018. Mr. Abhijeet explained the quality management system like TQM and six sigma.



International Women's Day Celebrations -2017

Department of Pharmacy, SV celebrated International Women's Day on 16th March, 2018. The theme selected for this year was "BETI BACHAO BETI PADHAO". Members of a Vadodara based NGO, Sahiyar stree sangthan, which works for woman empowerment conducted seminar at Medical Auditorium, SBKS MI & RC and community awareness program at Banaj, Dabhoi. The main objective of the celebration was to create awareness among the students and public about the importance of preventing female foeticide and educating girl child.

Pharmaorientation 2017

Department of Pharmacy, Sumandeep Vidyapeeth organized Pharmaorientation (A One Day National Seminar Cum Workshop) "Pharmacists' Intervention in Identification, Prevention and Management of Drug Therapy Problems" on 10th March, 2018. The session started with lecture of Dr. Chaitri T. Shah, In charge ICU, Dhiraj General Hospital, SV on the topic "Potential Drug-Drug Interaction in Critically ill Patients". The afternoon session started with workshop on the topic "Pharmacists Intervention In Drug Therapy Problems" by Dr. Kartik Rakam, Associate Director, Tychee Innovations, Hyderabad.





DEPARTMENT OF PHARMACY

Sumandeep Vidyapeeth

An Institution Deemed to be University Under Section 3 of UGC Act, 1956
NAAC 'A' Grade University with Highest CGPA (3.53) in Gujarat

Admissions Open 2018-19

Bachelor of Pharmacy (B.Pharm)

Duration : 4 years

Eligibility : A Pass in 12th Sci with PCB/PCM

Doctor of Pharmacy (Pharm D)

Duration : 5 years + 1year Internship

Eligibility : A Pass in 12th Sci with PCB/PCM

Doctor of Pharmacy [(Pharm D (PB))]

Duration : 2 years + 1year Internship

Eligibility : B.Pharm from an Institution approved by the PCI

Master of Pharmacy (M. Pharm)

Duration : 02 years

Pharmaceutics

Quality Assurance

Pharmacology

Contact

(M) 8980802938, 8980802947 | Web : www.sumandeepvidyapeethdu.edu.in

Sumandeep Vidyapeeth has not authorized any individual to deal with the admission



First Announcement

A Two Day National Seminar & workshop on

"QbD: The Integrated Approach for Quality Product Development"

A Science-Driven, Systematic and holistic Approach for Pharmaceutical Development

24th & 25th August 2018



Eminent Speakers:

- Dr. M. C. Gohel – Director of Research and Professor, Anand Pharmacy College, Anand, Gujarat
- Dr. G. K. Jani – Director of Research and Professor, K.B. Raval college of pharmacy, Gandhinagar, Gujarat
- Dr. Shivang Chaudhary – Manager & Intellectual Property Sentinel- CIIE, IIM Ahmedabad, Gujarat
- Dr. Lalji Baldania – Associate professor, Faculty of Pharmacy, Marwadi University, Rajkot, Gujarat
- Dr. Vaishali Thakkar – Associate Professor, Anand Pharmacy College, Anand, Gujarat
- Training professionals from Minitab® Inc. – Cubic Computing (P) Ltd., Bangalore, Karnataka (Workshop)

Poster Presentation Session:

Poster in any of the following branches will be considered for review and presentation:

- ✓ Pharmaceutics
- ✓ Pharmaceutical chemistry/ Quality Assurance/ Analysis
- ✓ Pharmacognosy
- ✓ Pharmacology/ Pharmacy practice/ Clinical Pharmacy

Organized by:

Department of Pharmacy

Sumandeep Vidyapeeth

(An Institution deemed to be university, Accredited NAAC 'A' Grade)

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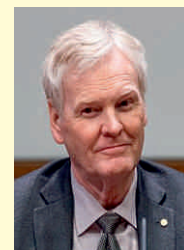
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A TRIBUTE TO MICHAEL WARREN YOUNG (NOBEL LAUREATE: 2017)



Michael Warren Young (born March 28, 1949) is an American biologist and geneticist. He has dedicated over three decades to research studying genetically controlled patterns of sleep and wakefulness within *Drosophila melanogaster*. At Rockefeller University, his lab has identified three key genes associated with regulation of the internal clock responsible for circadian rhythms. These include period gene, timeless and doubletime genes. This work won him a 2017 Nobel Prize in Physiology or Medicine.

Discovery of period gene: In 1980 Dr. Young and team have constructed segments of recombinant *Drosophila* DNA, amplified them in bacteria, and injected them in per mutant animals. A locomotor behavior monitor was used to assay behavioral activity. The team watched and recorded fly activity through the day and night to show that the fly restored circadian behavioral rhythms by transferring a functional per gene.

Discovery of timeless gene: In 1994, Young's lab discovered that if PER proteins were protected from degradation, they would accumulate without TIM, but could not move to the nuclei. They concluded that PER and TIM worked together. PER and TIM associate with each other to stabilize each other and to allow their nuclear accumulation.

Discovery of doubletime gene: In 1998, Young's lab discovered a kinase called doubletime that phosphorylates PER on certain serine residues. This signal marks it for degradation. When PER and TIM are bound, doubletime does not seem to be able to phosphorylate PER, allowing it to accumulate. This study was followed by the 2001 discovery of a form of Familial Advanced Sleep Phase Syndrome (FASPS) in humans

MOLECULE OF THE MILLENIUM

Ebola virus (EBOV) in humans causes a severe illness with high mortality rates. Several strategies have been developed in the past to treat EBOV infection, including the antibody cocktail ZMapp, which has been shown to be effective in nonhuman primate models of infection and has been used under compassionate-treatment protocols in humans. ZMapp is a mixture of three chimerized murine monoclonal antibodies (mAbs) that target EBOV-specific epitopes on the surface glycoprotein. However, ZMapp mAbs do not neutralize other species from the genus Ebolavirus, such as Bundibugyo virus (BDBV), Reston virus (RESTV) or Sudan virus (SUDV).

Recently, three naturally occurring human cross-neutralizing mAbs, from BDBV survivors, were discovered that target an antigenic site in the canonical heptad repeat 2 (HR2) region near the membrane-proximal external region (MPER) of the glycoprotein. The identification of a conserved neutralizing antigenic site in the glycoprotein suggests that these mAbs could be used to design universal antibody therapeutics against diverse ebolavirus species. Furthermore, we found that immunization with a peptide comprising the HR2-MPER antigenic site elicits neutralizing antibodies in rabbits. Structural features determined by conserved residues in the antigenic site described here could inform an epitope-based vaccine design against infection caused by diverse ebolavirus species.

Source:

<https://www.nature.com/articles/s41564-018-0157-z>

LAUGH & LIVE LONGER

Patient: Oh Doctor, I am so nervous. This is my first operation.

Doctor: Calm down. This is my first operation, too.

Patient: Doctor, doctor, will I be able to play the violin after the operation?

Doctor: Yes, of course

Patient: Great! I never could before.

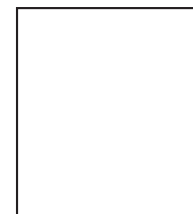
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Department of Pharmacy
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