



**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

Faculty of Pharmacy

Panpharmacon

A Quarterly E-Newsletter



Department of Pharmacology

Faculty of Pharmacy

Ramaiah University of Applied Sciences

New BEL Road, M S R Nagar, Gnanagangothri Campus

Bengaluru, Karnataka 560054

**April
2023**

Volume: IV

Issue: III

Karmayogi Dr. M. S. Ramaiah



Celebrating 101 Years



RAMAIAH GROUP OF INSTITUTIONS



ज्ञानं विज्ञानं च भक्तिसहितं
jnanam vijnanam cha bhaktisahitam
devotion to enlightenment

Ramaiah Group of Institutions has over 62 years of legacy of nurturing talents in the field of education and healthcare. Ramaiah University of Applied Sciences (RUAS) established in 2013, is an offshoot of this great premise, which has a stronghold of over 5000 small and medium enterprise's built a legacy of a group of institutions that focuses on student-centric higher education and preparing them to meet future challenges through experiential learning with industry 4.0 infrastructure and one is gearing the implementation of NEP 2020. The technology campus is housed amidst the industrial hub at Peenya, Bengaluru.



2 IN BENGALURU & # 6 IN STATE



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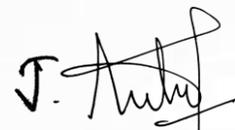


Mrs. Ashwini Somayaji
Associate Editor

Editor's Note

Hello Readers !!!

It is a great pleasure for me to share the first issue of year 2023 of **Panpharmacon**. I am looking forward to expand the scope of our newsletter by including more interesting news, employment opportunities and conference announcements. I am pleased to welcome Dr. Mohamed Shabi, Mrs. Suma Madhuri, Mrs. Ashwini Somayaji to department and to the editorial board of newsletter. In this issue, we have highlighted various initiatives by Panpharmacon Student Club. My hearty congratulations for all the toppers of Samarthyaa - GPAT Mock Exam series. I would like to congratulate the winners of Mind Lab of previous edition & personally thank Dr. Haja Nazeer Ahamed and Ms. Evangelene for their contribution in this issue. I also convey my profound thanks to all other contributors for having put their thoughts and experiences into an engaging read. We would love to hear from you to serve you better. Happy reading !!!



Dr. J Anbu

Editor-Panpharmacon

Acknowledgement

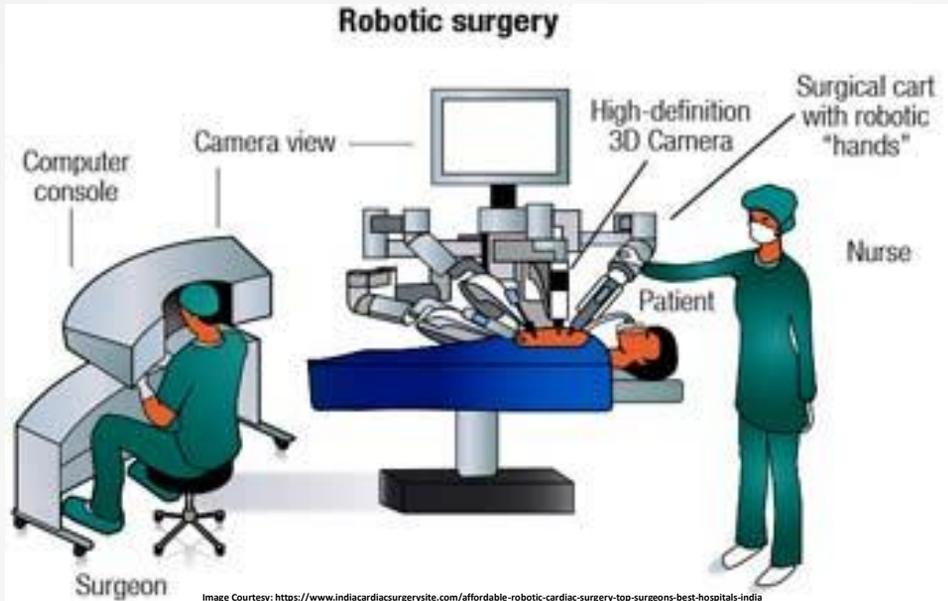
Team Panpharmacon is very much thankful to RUAS management for providing a wonderful platform to explore and utilise our knowledge and skills. We wish to thank our Hon'ble Vice-Chancellor, Pro-Vice Chancellors for their patronage and advising us on the importance of enhancing the visibility of workplace that stimulated us to come out with Panpharmacon, an E – Newsletter. We also thank all our colleagues, well wishers, student concilium and friends for supporting us in making this newsletter.



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ROBOTIC CARDIAC SURGERY: A GAME-CHANGER IN MODERN MEDICINE



Medical robotics has been in use for approximately 30 years. Robotic surgery is considered "revolutionary" by many surgeons who appreciate its numerous potential advantages. Its development is a response to the limitations of the minimally invasive surgery techniques that preceded it. Today, gallbladder removals are routinely performed by surgeons located on different continents from the patients, utilizing robotic telesurgery. The integration of voice-activated robotic arms and haptic feedback allows surgeons to have precise control over the surgical procedure.

Newer Approaches

Advancements in medical robotics have brought natural orifice transluminal endoscopic surgery closer to reality. This approach allows for truly non-invasive surgery by enabling greater stability of flexible instruments, sufficient force for traction and large organ retraction, proper positioning of instruments, greater dexterity, and improved imaging quality.

Robotic Cardiac Surgery

Robotic cardiac surgery employs to perform heart surgery through relatively small incisions in the

patient's chest, using microscopic equipment and robot-controlled tools. The Da Vinci Surgical System is a frequently used robotic surgical system for this type of surgery. Robotic surgery has been used for a range of heart-related operations, including cardiothoracic surgery, coronary artery bypass graft, cardiac ablation, atrial septal defect, and cardiac tumour removal surgery. One of the primary advantages of robotic cardiac surgery is that it is less invasive than open-heart surgery, allowing for quicker recovery and a quicker restoration of normalcy. A healthcare provider may recommend robotic cardiac surgery for procedures such as artery bypass surgery to enhance heart blood flow, repair or replace stiff or leaky heart valves, correct atrial fibrillation, remove a tumour in the heart, or treat congenital heart conditions.

Robotic cardiac surgery has fewer risks than open-heart surgery, as the surgeon does not need to cut through the breastbone to open the chest, which eliminates many complications of open-heart surgery. A tele-manipulator, such as the Da Vinci Surgical System, is a system of remotely controlled manipulators that enables the surgeon to perform stereoscopic real-time operations from a control station apart from the operating table.

Robotic-assisted surgery is a sophisticated treatment option with less downtime than traditional surgery. The procedure uses robotic technology to perform surgeries through small incisions, and can be used to treat various conditions

Robotic arms, docked next to the patient, perform endoscopy-like manoeuvres using end-effectors introduced through specially made trocars. Although a surgical assistant and scrub nurse are still required to change effector tools, offer extra suction, or perform temporary tissue retraction using endoscopic grabbing instruments, the computerized method has advantages such as the possibility for remote surgery and automated procedures.

Robotic Mitral Valve Repair

Robotic mitral valve repair is a frequently performed procedure to address rare instances of blood leakage into the left atrium through the mitral valve. Mitral valve prolapse is a common cause of this illness, known as mitral valve regurgitation. In cases where the valve becomes narrow or constricted, known as mitral valve stenosis, blood can pool in the atrium and lungs.

Robotic mitral valve repair and replacement procedures offer a very high possibility of repair rather than replacement for the majority of patients who require surgery. The use of robotics allow for the utilization of small incisions and provides a high-definition 3D image of the mitral valve to assist with repair.

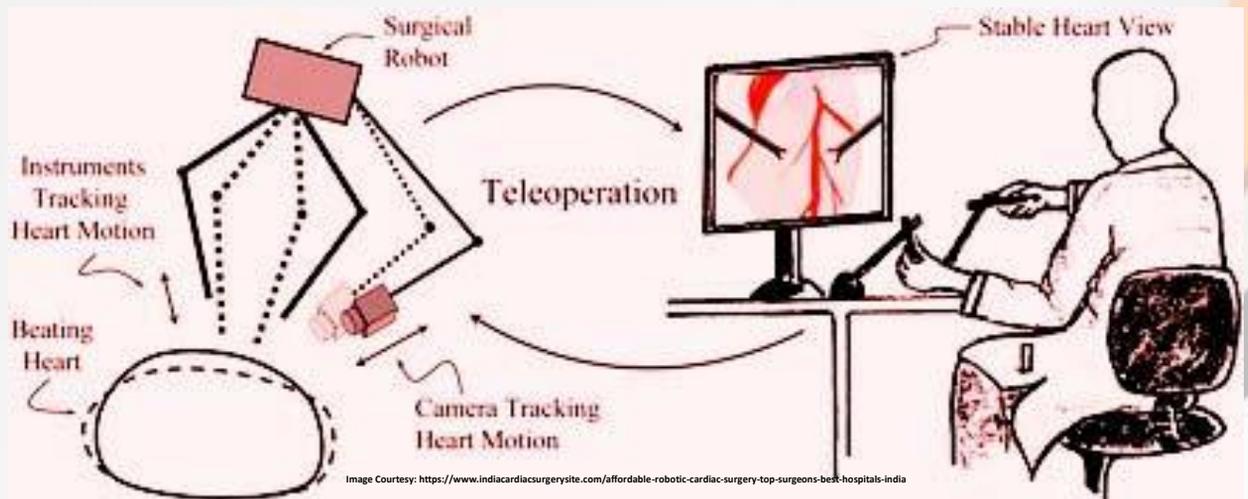
Although the robotic method is most commonly used to repair the mitral valve. If a replacement is necessary due to extensive damage to the mitral valve, it can also be performed using the same robotic incisions in many cases.

Post-operative care

The recovery of the patients after robotic cardiac surgery is carefully monitored. The recovery time is usually shorter than that of conventional open-heart surgery. Once the patient's pain is under control, they can tolerate liquids without nausea or vomiting, and their lab test results are close to normal or baseline before the procedure, they are discharged. One of the benefits of robotic cardiac surgery is that it leaves only a few smaller scars on the side of the chest, as opposed to a 10-inch scar from open-heart surgery. After leaving the hospital, most patients can manage their pain with medications such as acetaminophen or ibuprofen. Pain relief tends to occur faster than with open-heart procedures. However, it is important to follow the healthcare provider's instructions for recovery, including physical activity restrictions and post-operative care to ensure the best possible outcome.

The healthcare provider will typically schedule follow-up appointments to monitor the patient's progress after robotic surgery. Patients are advised to report any symptoms such as chest pain or discomfort to their healthcare provider immediately. Risks of robotic surgery can be categorized into those directly related to the use of the robotic system and the general risks of the operative procedure. Robotic telesurgery, in which the surgeon may be located at some distance from the patient, exhibit unique risks as the precise control of the robot depends on the quality of the data connection between the surgeon's console and the operating room robot. The quality and maintenance of such data connections may be beyond the control of the surgical team, but represents a risk management challenge that healthcare organizations must be mindful of. The benefits of robotic surgery, when performed by a trained, competent and certified provider, include shorter recovery time, less blood loss, reduced chance of infection, less scarring, superior visualization, and instrument range of motion.

A Block Diagrammatic Representation of Robotic Surgery in Heart



Conclusion

Robotic cardiac surgery is a minimally invasive approach to heart surgery that offers a less intrusive alternative to traditional open-heart surgery. The procedure involves making small incisions in the chest and using microscopic equipment and robot-controlled tools to perform the surgery. The repair of the mitral valve is one of the most common procedures being done using this technique. Patients can expect a quicker recovery time and less scarring with robotic heart surgery. Although complications are rare, it is important to closely monitor for any symptoms and report them to your healthcare provider.

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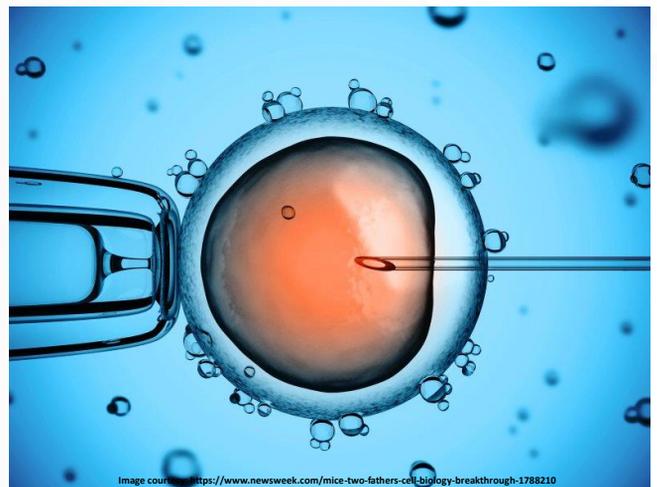
FATHERHOOD REDEFINED: GENERATION OF OFFSPRING FROM TWO MALE MICE

Scientists have successfully produced a litter of mice with two biological fathers, which has the potential to open up new possibilities in human fertility treatments. The study utilized skin cells from male mice to produce female egg cells, resulting in the production of mice with two biological fathers. This breakthrough could pave the way for same-sex couples to have biological children together. The research was led by Katsuhiko Hayashi from Kyushu University in Japan, a well-known pioneer in the field of lab-grown eggs and sperm. The study was presented on March 2023 at the Third International Summit on Human Genome Editing at the Francis Crick Institute in London. While researchers have previously produced mice with two biological mothers and two biological fathers, this is the first time that eggs have been created from male cells.



Japanese scientists have created mice with two biological fathers, an advance that can pave the way for new fertility treatments in humans. The team led by scientists at the universities of Kyushu and Osaka in Japan made the mice using eggs from male skin cells

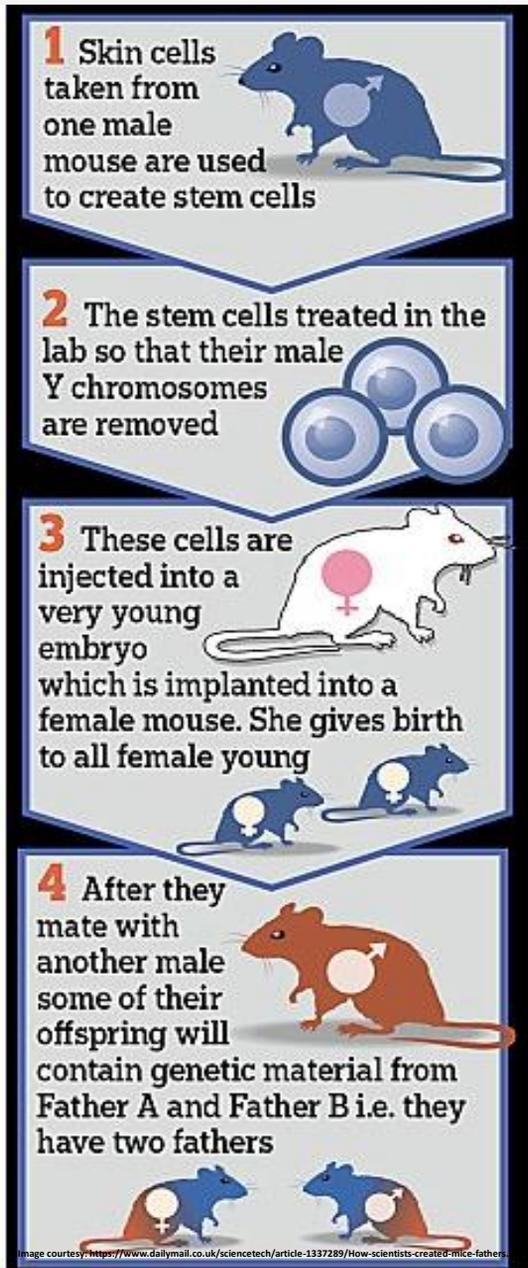
mouse ovary. When these eggs were fertilized with normal sperm, they obtained about 630 embryos, which were then implanted into surrogate mice, resulting in the birth of seven mouse pups. The efficiency is about 1% lower than that achieved with regular female-derived eggs, where about 5% of embryos went on to produce a live birth. The offspring mice lived a normal lifespan, seemed to be in good health, and went on to have offspring as adults.



The study relied on a series of intricate steps to transform a skin cell carrying the male XY chromosome combination into an egg with the female XX version. Male skin cells were first reprogrammed into Induced Pluripotent Stem (iPS) Cells, and then the Y chromosome was deleted and replaced with an X chromosome borrowed from another cell to produce iPS cells with two identical X chromosomes. Finally, the cells were grown in an ovary organoid, a culture system designed to replicate the conditions inside a

The technology is promising but still highly experimental. However, it offers a potential way to treat severe forms of infertility, including women with Turner's syndrome, who have one copy of the X chromosome missing or partly missing. Hayashi said this application was the primary motivation

for the research. The study is still in its early stages. Only 7 of the 630 embryos implanted into surrogate mice resulted in live pups, and researchers are still trying to understand why such a small percentage of embryos were successful. The potential for errors and mutations to be introduced while generating eggs in the lab is a significant additional concern, as genetic mutations can lead to serious health issues in offspring.



Therefore, it is important to thoroughly investigate whether the new process may introduce any genetic flaws or abnormalities into the progeny. Further studies are needed to determine whether the technique can be applied to human stem cells and to address any potential ethical or legal issues that may arise. Additionally, it is too early to determine the effectiveness of this procedure with human stem cells. Despite these limitations, the study represents a significant advance in reproductive biology and stem cell research.

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A 90 SECONDS MEDICAL MARVEL

A team of doctors at All India Institute of Medical Science (AIIMS) recently completed a complicated balloon dilation procedure in just 90 seconds within the heart of a 28-week-old foetus inside the mother's womb. The foetus had a clogged valve in its heart, and the procedure, called balloon valve dilation, was carried out by a group of interventional cardiologists and medical professionals from the obstetrics and gynaecology department. The procedure was performed on a 26-year-old pregnant woman who had a history of two miscarriages and the loss of a child 20 days after delivery, possibly as a result of a cardiac condition.

During the procedure, a needle was inserted into the foetus's heart through the mother's abdomen using ultrasound guidance. During cardiac catheterization, a catheter is introduced into a blood vessel in the groin and guided into the heart, which is technically complex. The blocked valve was then opened using a balloon catheter to increase blood flow. The procedure was technically difficult because the foetus was being operated on while still inside the mother's womb.

A cardiologist on the team, explained that the left ventricle, of the foetus's heart, didn't develop properly, leading to the narrowing of the aortic valve, resulting in significant reduction in the blood flow. If left unaddressed, The infant would have been born with aortic atresia, a rare congenital heart defect that blocks the aorta's entrance, preventing blood from the left ventricle of the heart to reaching the rest of the body.

The purpose of the balloon dilation procedure was to improve the heart development of the foetus. The team completed the treatment to prevent the valve from closing and said that a second balloon dilation of the aortic valve with a larger balloon is



Image courtesy: <https://www.parents.com/pregnancy/week-by-week/baby-development/>

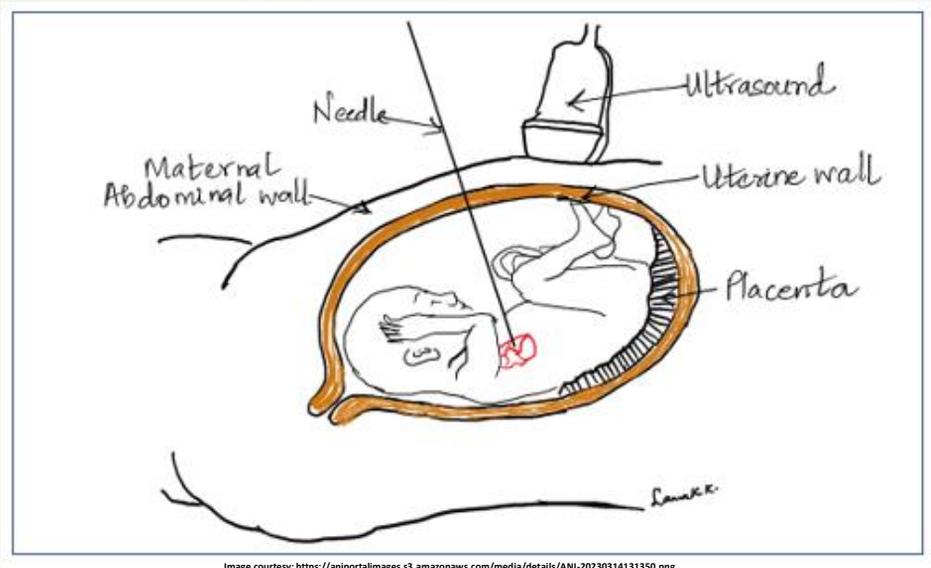
likely to be done in the first week following the baby's delivery.

The doctor predicted that the child would lead a decent life if the procedure was successful. The mother is expected to give birth in two to four weeks, and the surgery itself only took 90 seconds to complete after nearly a week of preparation. The entire process was challenging and needed to be completed quickly. Both the mother and foetus are stable and under strict medical observation. The doctor explained that without the procedure, a three-stage surgery would have been necessary at the time of the child's birth, and such patients typically live for only 10-15 years. The first-ever surgery carried out on an unborn baby in the 1960s, although it wasn't until 2013 that doctors carried out the first successful heart surgery on a foetus in Philadelphia, US.

Doctors' at AIIMS have conducted the rarest of rare surgery in just 90 seconds inside the womb on a 28 week foetus's "Grape sized" heart.

This reshaping procedure aims to support the development of foetus's heart and function efficiently.

A Representative Image of Surgery of Foetus Inside the Mother's Womb



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Autophagy degrades and recycles damaged organelles, misfolded proteins, viruses, and bacteria (cargo) to maintain cellular homeostasis. Autophagy delivers improper cellular material to lysosomes for degradation, resulting in stress-induced turnover of cell components that provide energy and macromolecular precursors, which can be important in cancer. Autophagy may have anticancer effects due to hyperactivation which can cause cell death even in absence of proapoptotic proteins BCL-2 homologous antagonist/killer (BAK) and BCL-2-associated X (BCL-2) (BAX). The Na⁺, K⁺-ATPase pump is a mediator of cell death by autosis, which is mediated in part by genes associated to autophagy. As a result, there is a connection between apoptosis and autophagy, and knowing how they interact can aid with cancer treatment.

chain 3 (LC3)-interacting region, which allows them to bridge specific cargo to autophagosomes by binding to members of the ATG8 family, such as LC3.

There are three major types of autophagy:

- 1. Macroautophagy:** The cargo is engulfed in a double-membrane vesicle called an autophagosome, which fuses with lysosomes to form autolysosomes. Here, the cargo undergoes degradation, and the degraded products are recycled.
- 2. Microautophagy:** Endosomal invaginations that the lysosomes immediately ingest transport the cargo to the lysosomes.
- 3. Chaperone-mediated autophagy:** The heat shock protein hsc70 is able to recognise soluble proteins with an exposed amino acid pattern and recycle them. When these proteins attach to lysosomal receptors like LAMP-2A, they are internalised.

The process of degradation occurs when the cargo proteins bind to autophagy receptors, such as p62/SQSTM1, NDP52, OPTN, and NBR1. These receptors consist of a ubiquitin-associated domain and a microtubule-associated protein 1A/1B-light

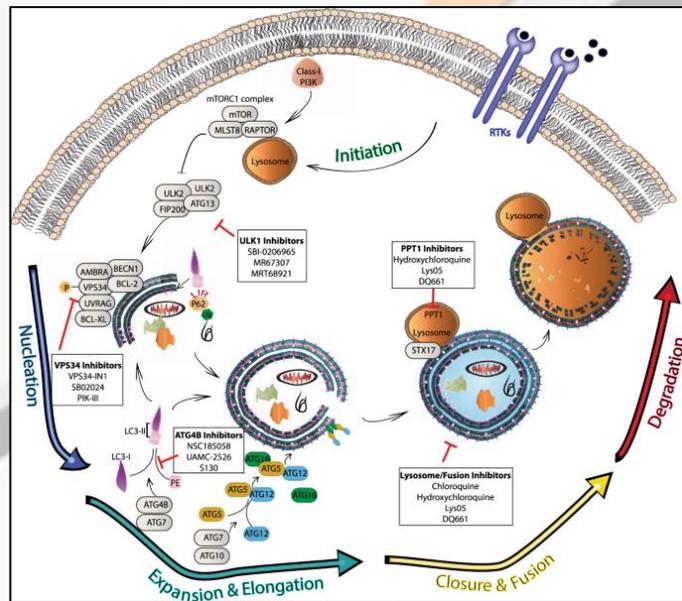


Image Courtesy: Autophagy in cancer: moving from understanding mechanism to improving therapy responses in patients

Stages of Autophagy

Stages of Autophagy

1. Initiation
2. Nucleation of autophagosome
3. Expansion and elongation of autophagosome membrane
4. Closure and fusion with the lysosome
5. Degradation of intravesicular products

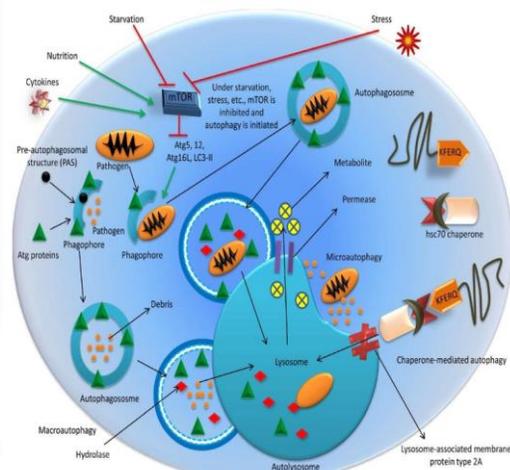


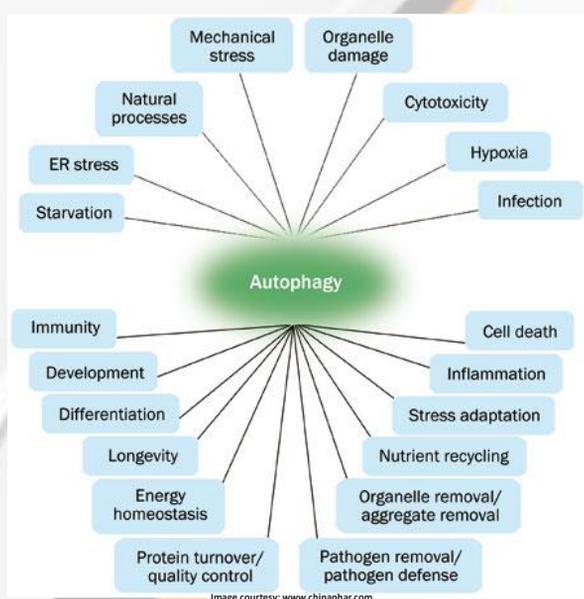
Image courtesy: <https://www.mdpi.com/2073-4409/8/7/674>

Autophagy can modulate the immune response to cancer by promoting the presentation of tumour antigens to T cells and enhancing the activity of natural killer cells. This process can increase the sensitivity of cancer cells to immunotherapy and reduce the risk of tumour recurrence

Autophagy is regulated by the mammalian target of rapamycin (mTOR), specifically mTORC1 and mTORC2, which are involved in the control of cell growth, survival, and proliferation. Other regulators of autophagy include microtubule-associated protein 1A/1B-light chain 3 (LC3), p53, long non-coding RNAs, and microRNAs.

Role of Autophagy in Cancer

Autophagy can either prevent tumorigenesis or enable cancer cell adaptation, proliferation, survival and metastasis.



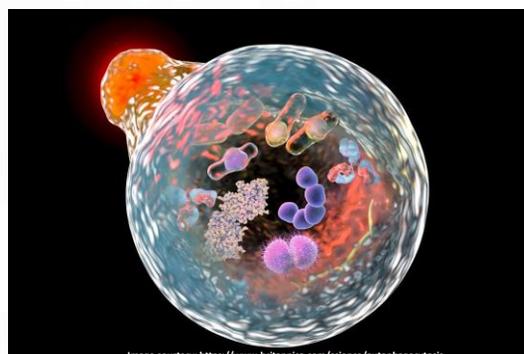
Autophagy as a tumour suppressor

The production of reactive oxygen species (ROS), such as hydrogen peroxide, in cells triggers autophagy by reversibly modifying the cysteine residues of the autophagy-related gene (ATG4) and

disrupting the active site essential for delipidation of LC3. This leads to the accumulation of lipidated LC3 and the increased formation of autophagosomes. Autophagy protects cells from harmful stimuli and prevents the cells from becoming malignant during the early stages of cancer by preventing DNA damage and maintaining the integrity of the genome.

Autophagy as Tumour promotor

Autophagy can also act as a promoter of tumour growth by recycling macromolecules to meet the increased metabolic demands of highly proliferative and poorly vascularized cells. It also promotes the invasion and migration of cancer cells. The opposing roles of autophagy in promoting and suppressing tumour growth pose a major challenge in modulating autophagy for cancer therapy. For instance, metformin, an anti-diabetic drug, impairs tumour growth in melanoma and cervical cancer by promoting autophagy through the activation of the AMPK pathway. The AMPK pathway is activated when the AMP/ATP ratio increases, leading to the inhibition of mTOR complex activities (as mTOR inhibits autophagy). Combining autophagy inhibitors, such as chloroquine and hydroxychloroquine, with autophagy inducers, such as Temsirolimus, can promote drug sensitivity and cell death in renal carcinoma. Therefore, targeting autophagy can have a beneficial outcome in the treatment of cancer, but it requires a deeper understanding of cancer progression and the modulation and mechanisms of autophagy to be considered a standalone therapy.



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Ms. Evangelene

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Ms. Evangelene completed her Masters in Pharmacology in the year 2022 and graduated in the year 2020 from Faculty of Pharmacy, Ramaiah University of Applied Sciences, Bengaluru, Karnataka. She qualified GPAT in the year 2020. She has an evergreen passion to pursue research in the field of neuropharmacology. Her PG dissertation work: Development of A Suitable Animal Model for the Study of Amyotrophic Lateral Sclerosis using Swiss Albino Mice was awarded with **Best Innovative Project by Ramaiah University of Applied Sciences in 2022. She is also recipient of **Annual Exemplary Student Achiever Award** from Ramaiah University of Applied Sciences in year 2022 in recognition of her contribution towards National Service Scheme.**



STRATEGIES FOR TRAVELLING WITH HEART FAILURE : A REVIEW

Patients with heart failure have a higher risk of cardiovascular events than the general population, especially when travelling domestically or internationally. Patients with heart failure should follow specific recommendations when travelling to reduce their chances of developing heart failure symptoms. People with heart failure are more likely to experience unexpected cardiovascular events, especially while travelling. However, with a little planning, people suffering from heart failure can travel.

Consider the following before deciding on a destination:

A longer travel time can increase a patient's risk of developing health complications such as clots or DVTs (deep vein thrombosis). Weather/season of destination: if extreme or drastically different from home, can increase health risks. Colder climates can cause heart failure to decompensate, and vitamin D deficiency in the winter is also linked to the worsening of heart failure symptoms. Dehydration and heat strokes can occur in tropical and hot climates. Patients are advised to avoid strenuous activities that may cause excessive sweating in order to avoid traveller's diarrhoea. Air pollution levels can affect cardiovascular performance, and highly polluted areas should be avoided. Mandatory immunizations may depend on the destination. Heart failure patients are advised vaccines for pneumococcal disease, influenza and COVID-19.

Carry your most recent prescription as well as enough medications in your hand luggage. Carry your insurance card, travel medical insurance, and a list of your doctors' phone numbers. Carry medical documents to present during security checks if you have an implantable cardiac device. Take measurements to avoid depletion of volume. Keep an eye on your fluid intake and signs of dehydration, as these can exacerbate your heart

failure symptoms. Patients with oxygen saturation $\leq 90\%$ or those who are classified as NYHA class III-IV (indicating more severe symptoms and limitations) might need an on-board medical oxygen supply if traveling by air. Supplemental Oxygen might be useful for patients who are very symptomatic.

Dehydration and fluid intake

Patients with heart failure should exercise extreme caution when changing their fluid volumes, as this can have a direct impact on their cardiac and renal functioning and worsen their heart failure. As a result, they must be aware of weather changes, foods with added salt, traveller's diarrhoea, altitude or motion sickness, and any other factors that may cause a decrease in their bodily fluids.

Patients with heart failure are recommended to schedule a cardiologist consultation for pre-travel risk assessment 4-6 weeks prior to departure

Signs and symptoms of volume depletion and dehydration-associated electrolyte or acid-base imbalance include fatigue, confusion, exercise intolerance, weight loss, increase in heart rate, muscle cramps, weakness, postural dizziness, abdominal pain, low urine volume, low blood pressure etc.

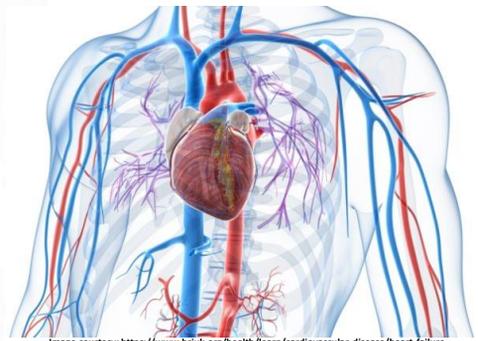
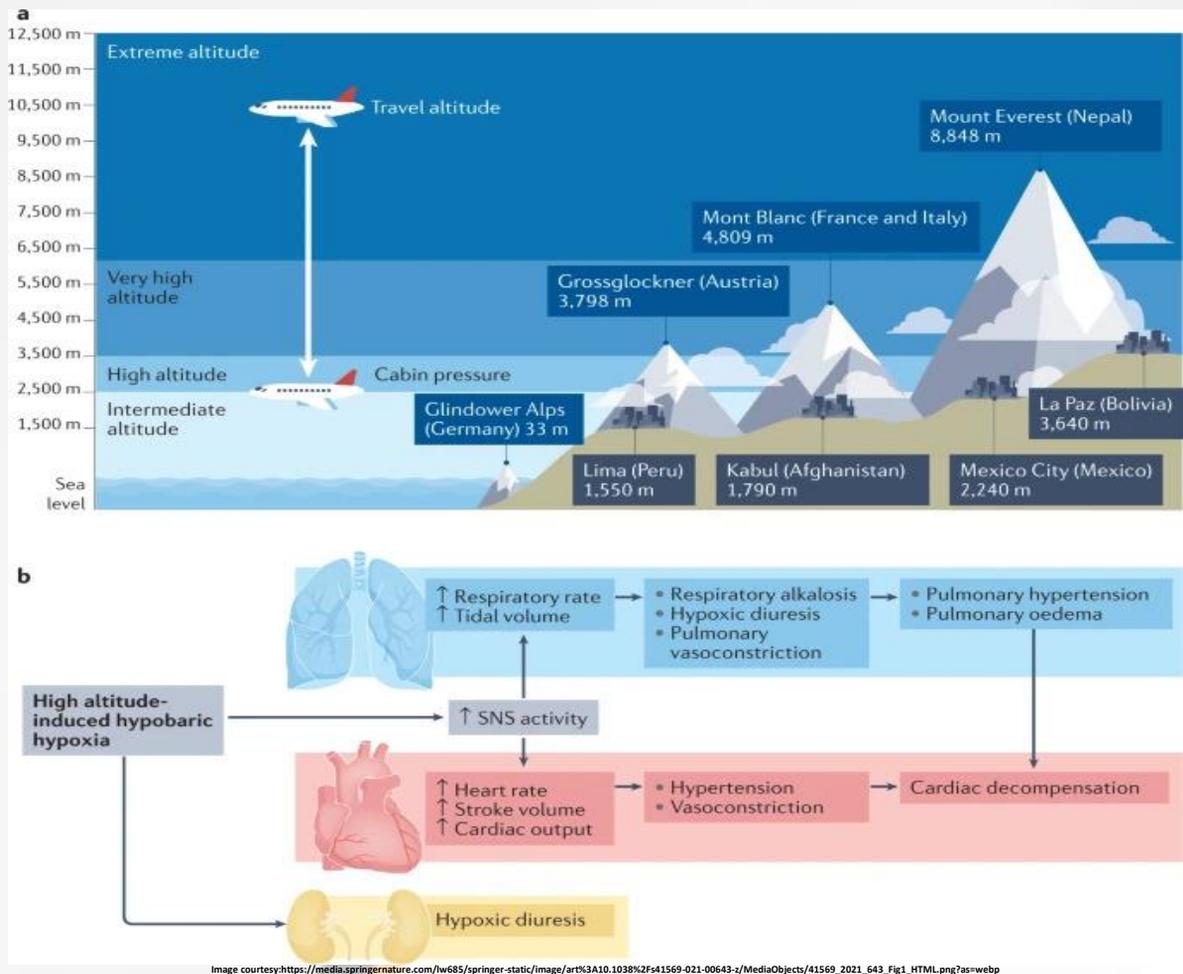


Image courtesy: <https://www.hrtuk.org/health/learn/cardiovascular-disease/heart-failure>



Physiological adaptation processes at high altitudes involved in cardiac decompensation

a | Definitions of height and examples of mountains and cities at different altitudes. Most aircraft fly at approximately 10,000–12,000 m (33,000–42,000 ft) above sea level, with the cabin pressurized to an equivalent of 2,438 m (8,000 ft). b | High altitude-induced hypobaric hypoxia leads to an increase in respiratory rate and tidal volume, which promotes respiratory alkalosis, hypoxic diuresis, pulmonary vasoconstriction and, ultimately, pulmonary hypertension and pulmonary oedema. Compensatory mechanisms of this hypoxia include increases in heart rate and stroke volume via activation of the sympathetic nervous system. Together, these changes can limit exercise capacity and promote cardiac decompensation.

Patients are therefore advised to consult their doctors before embarking on any travel. The following items may be included in the evaluation:

Examine all current medications and your overall health. Some tests may be prescribed based on the results of previous tests and the current state of health. Examine immunisation history. Any adverse health effects/episodes during previous travels.

Destination, time and mode of travel information, planned activities such as large gatherings, walking treks, camping, adventure sports, and so on. Review of what to carry in medical kit and documentation. Patient education on food and water safety, as well as abstaining from alcoholic and caffeinated beverages, which are natural diuretics. How to recognize and treat volume depletion; and whether certain HF medications should be temporarily

discontinued. If the patient is taking diuretics, they may be discontinued to prevent further fluid loss from the body. If your blood pressure has dropped, you should stop taking your blood pressure medication until your blood pressure levels return to normal. How to avoid DVTs or venous clots while travelling. The risk is significantly higher in patients with heart failure who travel for more than 4 hours by air or road. Your doctor will advise you on preventative measures such as wearing compression stockings, increasing mobility, exercising, and staying hydrated.

References:

Stephan von Haehling., Christoph Birner., Elke Dworatzek., Stefan Frantz., Kristian Hellenkamp., Carsten W. Israel., Tibor Kempf., Hermann H. Klein., Christoph Knosalla., Ulrich Laufs., Philip Raake., Rolf Wachter., Gerd Hasenfuss., 2022. Travelling with heart failure: risk assessment and practical recommendations, *Nature Reviews Cardiology*, (19) pp.302–313

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Dr. Haja Nazeer Ahamed

Associate Professor

Crescent School of Pharmacy,

**B. S .Abdur Rahman Crescent Institute of
Science and Technology, Vandalur, Chennai**

Dr. Haja Nazeer Ahamed was associated with various universities like School of Pharmaceutical Sciences, UCSI University, Kuala Lumpur, Malaysia, Faculty of Pharmacy Asia Metropolitan University (AMU) Malaysia, School of Pharmaceutical Sciences VELs Institute of Science, Technology and Advanced Studies (VISTAS), Pallavaram, Chennai, Maldives National University Formerly Known as Maldives College of Higher Education (MAHE), Maldives, Department of Pharmacology VELs College of Pharmacy, Chennai Affiliated to The TN Dr. MGR Medical University, Chennai.

He completed his Post-Doctoral Research Fellowship from National University of Singapore (NUS), Singapore and Ph.D. from Faculty of Engineering and Technology, Jadavpur University (JU), Kolkata. His areas of Research Interest are Screening of small molecules derived from natural products in *in-vitro* and *in-vivo* model of cerebral ischemia and diabetes, screening of neuroprotective drugs on viable proteins expressed during transient rat stroke model and Neurobehavioral role of CNS active chemicals in animal model of psychosis. Dr. Nazeer has guided numerous post graduates and under graduates. He has several publication in peer reviewed journals. He is also a Life Member in Malaysian Society of Neurosciences (MSN), Indian Pharmacological Society.

PADMA SHRI DR. HARKISHAN SINGH



Harkishan Singh (25 November 1928 – 20 March 2020) A Legendary Name in the World of Pharmaceuticals. Pharmaceuticals are one of the most crucial industries for human health, and Professor Harkishan Singh's contribution to the field is truly invaluable. He was Professor Emeritus at the Panjab University (Chandigarh, India), is a well-recognized pharmaceutical academic, medicinal chemistry researcher and a science historian.

Harkishan Singh was born on November 25, 1928, in the village of Ladian Kalan, in the district of Ludhiana, Panjab, India. In 1950, Professor Singh received his undergraduate degree from UIPS, his graduate degree from PU, and his doctorate from Banaras Hindu University. Professor Singh was awarded the prestigious titles of Professor Emeritus and Doctor of Science (Honoris Causa) by the Punjab University in 2003 and 2016, respectively, in honour of his eminent contributions to the advancement of medicinal and pharmaceutical chemistry.

Over 50 doctoral and master's theses in the fields of heterosteroids and natural products for the

pharmaceutical developments in India have been completed under his supervision, with a combined experience of more than 40 years in teaching and research in medicinal and pharmaceutical chemistry. His more than 330 works include 21 books, 9 history monographs, 6 book chapters, 16 additional review papers, 125 original medicinal chemistry research papers, 65 research papers on pharmaceutical history, over one hundred pieces on pharmaceutical education, professional issues, and other themes. Additionally, he received up to fourteen patents in the field of heterosteroids.

Throughout his career, Professor Singh made ground-breaking contributions to the field of pharmaceuticals. His research primarily focused on organic chemistry, medical chemistry and natural products. The development of the clinically beneficial medicine Chandonium Iodide (HS-310), which the World Health Organisation (WHO) later renamed Candocuronium Iodide, is one of the rarest achievements to the credit of Professor Singh and of Panjab University, per se. The sole drug found to date from an Indian university is candocuronium, which is incredibly pertinent to mention.

In addition to his research he was a sought-after speaker and delivered lectures at several prestigious universities and conferences around the world. Professor Harkishan Singh has delivered several invited lectures at institutions and conferences within the country, United States of America, United Kingdom, Canada, and China, including the one at the Harvard Medical School and at the International Symposium on Molecular Structure (1986) sponsored by the International Union of Crystallography, at Beijing.

Professor Singh has researched the history of pharmacological advancements in India during the nineteenth and twentieth centuries as a science historian. His historical study has focused on pharmacopoeias and formularies, pharmacy practise, pharmaceutical education, biographies of notable pharmaceutical figures, and pharmaceutical journalism. He has more than eighty articles published.

Professor Singh has been on many academic, scientific, professional and governmental bodies. He was a member of the Committee on International Education of Medicinal Chemists of the International Union of Pure and Applied Chemistry, which prepared the Report on the International Education of Medicinal Chemists (IUPAC Technical Reports Number 13; 1974).

His affiliations with several scientific and professional organizations include emeritus membership of the American Chemical Society, life memberships of the Indian Pharmaceutical Association and Association of Pharmaceutical Teachers of India, and memberships of the American Institute of History of Pharmacy and British Society for History of Pharmacy.

Dr. Singh has co-authored approximately two dozen review articles, several book chapters, and twelve books in addition to his historical and scientific research publications. He published a lot of writing on academic, scientific, historical, and professional topics. His total number of

Candocuronium design, synthesis was led by Professor Harkishan Singh and his research group at Panjab University, Chandigarh. It has been approved for use in some countries and is considered as a useful addition to the existing arsenal of neuromuscular blocking agents

publications was far over 300.

Professor Harkishan Singh was a true legend in the world of pharmaceuticals. His ground-breaking contributions to the field of drug delivery systems and the synthesis of novel drugs have had a significant impact on the industry. He was a visionary leader, a prolific researcher, and an exceptional educator who inspired generations of students.

Professor Harkishan Singh was a recipient of several scientific and professional awards and recognitions. He has been a National Fellow of the University Grants Commission, New Delhi. He has been General President of the Indian Pharmaceutical Congress. He received Eminent Pharmacist Award of the Indian Pharmaceutical Association. Lifetime achievement awards have been conferred on him by several bodies; the recent one is the Lifetime Achievement Award by the Punjab Academy of Sciences. Dr Singh's standing as historian has been recognized through his election to the *Academie Internationale d'Histoire de la Pharmacie*. The University of the Sciences in Philadelphia conferred upon Professor Harkishan Singh the degree of Doctor of Science (Honoris Causa) in recognition of his distinguished academic career and outstanding contributions to scientific research in organic and medicinal chemistry and the history of pharmacy.

His legacy lives on through the countless lives he touched and numerous students he trained, many of whom have gone on to make significant contributions to the field of pharmaceuticals themselves. His passion for research and teaching

inspired generations of students, and his dedication to the field of pharmaceuticals has left an indelible mark on the industry. He will always be remembered as a true pioneer in the industry and a shining example of excellence in research and education.

Neuromuscular Blocker Candocuronium (Chandonium)

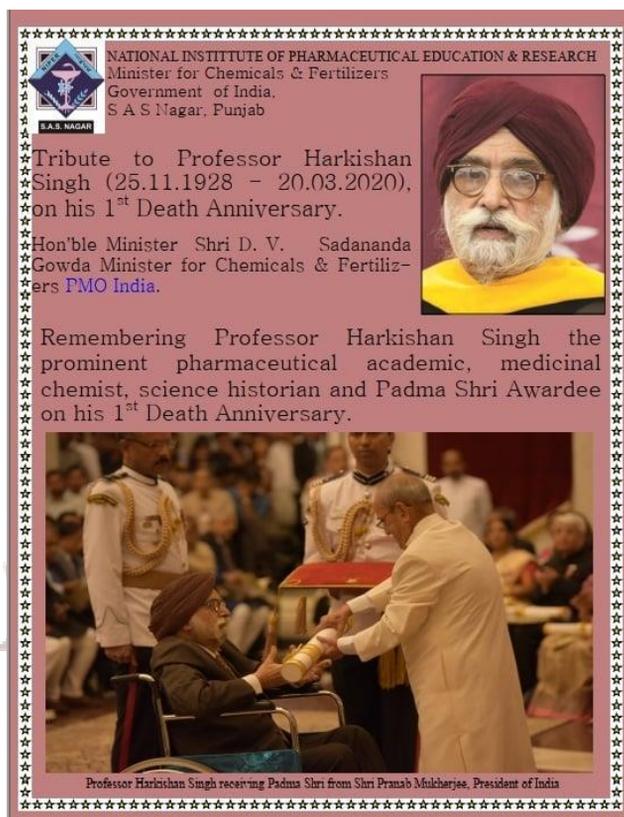
A new neuromuscular blocker, initially named as Chandonium Iodide, was designed and synthesized by the research group of Professor Harkishan Singh at the Panjab University, Chandigarh. Candocuronium iodide (INN, formerly chandonium, HS-310) is an aminosteroid neuromuscular-blocking drug. Its use in anesthesia for endotracheal intubation and to provide skeletal muscle relaxation during surgery or mechanical ventilation was briefly evaluated in clinical studies in India.

Candocuronium is a non-depolarizing neuromuscular blocking agent that works by binding to the nicotinic acetylcholine receptor in skeletal muscles and blocking its activation by acetylcholine. This results in muscle relaxation and is often used during surgical procedures to facilitate endotracheal intubation and improve surgical conditions.

Candocuronium has a rapid onset of action and intermediate duration of action, with a half-life of approximately 40-60 minutes. It is commonly administered intravenously and can be reversed with cholinesterase inhibitors such as neostigmine. The synthesis and development of Candocuronium was indeed led by Professor Harkishan Singh and his research group at Panjab University, Chandigarh. The drug has been approved for use in some countries and is considered a useful addition to the existing arsenal of neuromuscular blocking agents.

Strathclyde University conducted the pharmacological tests. The Central Drug Research Institute, Lucknow, conducted toxicity

investigations, but no negative effects were found. Through the CDRI, the clinical investigations were also successfully finished. The Journal of Anaesthesiology and Clinical Pharmacology, 10, 109-151 (1994), published the proceedings of the symposium on the clinical testing of Chandonium Iodide. The Indian Government's Ministry of Health has approved the medicine for production and clinical usage. The medication was given the INN name Candocuronium Iodide by the World Health Organisation.



Timeline

- **1975** Annual Award of the Shri Amrut Mody Research Foundation
- **1981** President, Indian Pharmaceutical Congress, Thirty-third Session, Jaipur
- **1983** G. P. Srivastava Memorial Award, Association of Pharmaceutical Teachers of India, Nagpur
- **1984** Professor M. L. Khorana Lectureship, Indian Pharmaceutical Association, Bombay

- **1985–87** National Fellow, University Grants Commission, the only pharmaceutical academic to get this honour
- **1987** Ranbaxy Research Award in Pharmaceutical Sciences, Ranbaxy Research Foundation, New Delhi
- **1995** Elected Member, *Academie Internationale d'Historie de la Pharmacie*
- **1998** Schroff Memorial National Award, Indian Hospital Pharmacists' Association, New Delhi
- **1999** Eminent Pharmacist Award, Indian Pharmaceutical Association, Bombay
- **2006** Lifetime Achievement Award, Uttar Pradesh Technical University
- **2007** Lifetime Achievement Award, Chandigarh Science Congress
- **2007** Shri Bhojraj Panjamool Lifetime Achievement Award, Association of Pharmaceutical Teachers of India, Bangalore
- **2007** Lifetime Achievement Award, 59th Indian Pharmaceutical Congress, Banaras Hindu University
- **2010** Shri Ramanbhai B. Patel Foundation Lifetime Achievement Award, Indian Pharmaceutical Association, Mumbai
- **2011** Invited Lecture Delivered at Workshop on "Science in India in the 20th Century," Asiatic Society, Kolkata
- **2014** Doctor of Science (Honoris Causa) conferred by the University of the Sciences in Philadelphia, Philadelphia, Pennsylvania, U.S.A
- **2015** Lifetime Achievement Award, Punjab Academy of Sciences, Patiala
- **2016** Doctor of Science (Honoris Causa) conferred by the Panjab University, Chandigarh, India
- **2017 Padma Shri** in Medicine by Govt. Of India for his notable work

References:

Bhupinder S B, Kanwaljit C, 2020. Prof. Harkishan Singh Tribute, APTI Bulletin, 19 July, pp. 1-28

Kulkarni, S K 2019 Professor Harkishan Singh- A Man with a Mission, Indian Journal of Pharmaceutical Education and Research, 53(1), pp. 1-4

Meghna, A 2017, In 2017, Padma Awards to honour unsung heroes of healthcare, Medical Dialogues, pp.1-7



NEVER STOP LEARNING

Image courtesy: <https://coaching4good.com/wp-content/uploads/2018/07/leaders-never-stop-learning.jpg>



WEBINARS

Watch Us On
YouTube

https://www.youtube.com/channel/UC0a59KLSlloDPmcNDL_U_tw

Department of Pharmacology, FPH, RUAS believes in supporting students and pharma fraternity with sharing knowledge spanning beyond regular curriculum. Following webinars were conducted.

POCSO 2012 Act & Gender Equality

By Dr. Ramya Nisal

Senior Trainer / Programme Head,
The Rakshin Project, Sakshi Foundation

Research and Social Media

By Manoj Kumar Yadava

Head, Medical Communication and Digital Solutions, Pharma Pulse

Chromosomal Disorders

By Mansi Mehta

Assistant Professor, Department of Biotechnology, VNSGU, Surat

Transplant – A Sensitization Session on Organ Donation

By Dr. Hemal Kanvinde

Quality Assurance Officer, MOHAN Foundation

The Futility and Absurdity of Demonizing the Placebo Effect

By Dr. M. K. Unnikrishnan

Professor, NGSMIPS, NITTE University



PANPHARMACON CLUB 2nd INSTALLATION

Aspire !! Achieve !! Inspire !!

Team – Mythri



Mythri – 2nd charter of Panpharmacon Student Club was installed on 08-Apr-2023

Panpharmacon Student Club is the extended student wing of Department of Pharmacology, Faculty of Pharmacy named after quarterly E – newsletter of the Department Panpharmacon & was conceptualized with a vision to support and encourage students to thrive beyond academics. Club primarily focuses on three domains: **Education, Research & Social Service** with a motto **Aspire ! Achieve !! Inspire !!!**





PANPHARMACON CLUB OFFICE BEARERS

Aspire !! Achieve !! Inspire !!



Manoj M
President



Harshita Gond
Vice President



Sandra Ross
Secretary



Vaishnavi Patel
Joint Secretary



Liya Biju
Treasurer



Achyuth
Director - Events



Poornima N
Director - Events



Kake Ramya
Director
Outreach Programs



Rojamani N
Director
Virtual Learning



MD. Zuber
Director
Alumni Affairs



Sushmitha N
Director
Alumni Affairs



Shoaib Pasha S
Director
Outreach Programs



Shashidhar N
Director
Social Media & Public Relations



Subhayan Sahu
Director
Social Media & Public Relations



Shivarajkumar
Director
Awards & Achievements



PANPHARMACON STUDENT CLUB RESEARCH ACTIVITIES



2nd Prize – International Conference

International Conference on Innovations and Advancements in Pharmaceutical Sciences : Current scenario and future prospectives at Adhichunchangiri College of Pharmacy, Mandya happened between 10 & 11th Feb 2023, Ms. Vismaya Achutha PG research scholar and Director - Events of Panpharmacon Student Club presented poster of her research work entitled “ Molecular Docking assessment of the anti-inflammatory potential of some phytoconstituents against ulcerative colitis” supervised by Dr. Kesha M Desai bagged 2nd prize Poster and Presentation was evaluated by following Jury: Dr. Yunas Pasha, Professor and HOD , Department of Pharmaceutical Chemistry Dr. Vedamurthy Joshi, Associate Professor, Department of Pharmaceutics



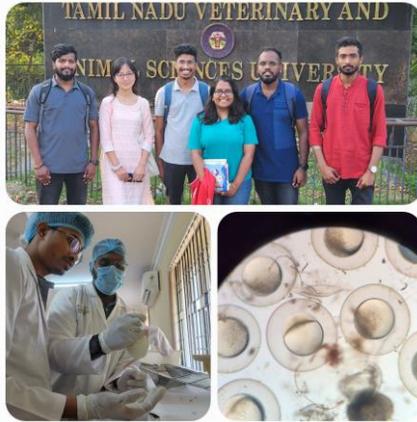
Science Academies' Lecture Workshop

Panpharmacon Club members participated in Two Days Science Academies' Lecture Series at Ramaiah Medical College organized by Department of Biotechnology, Faculty of Life and Allied Health Sciences. Event focused on the latest advances in biotechnology and their translation into clinical applications.

Speakers from various institutions like IISc, NCBS, NIMHANS, InStem, Mazumdar Shaw Medical Foundation and OncoStem Diagnostics discussed the latest research in these fields and their potential to impact clinical practice. The workshop provided a platform for us to exchange ideas, share best practices, and explore new collaborations.



PANPHARMACON STUDENT CLUB RESEARCH ACTIVITIES



Skill Enhancement Training – TANUVAS

Team Panpharmacon participated in a 5-day hands-on workshop organized by the Laboratory Animal Medicine unit (LAM) and Centre for Animal Health Studies (CAHS) at Tamil Nadu Veterinary and Animal Science University (TANUVAS) from 06/02/2023 to 10/02/2023. The training covered topics like Animal Ethics & Welfare, Biology and Behavior of Laboratory Animals, Filling of Form-B, Significance of statistical analysis as well as PREPARE and ARRIVE guidelines, Pathogens and Parasites of Lab Animals, Zoonoses and Occupational Biohazards.

Hands-on training sessions included handling of laboratory animals, Breeding and Embryonic Development of Zebrafish, Sample size calculation using G power, Routes of administration, Animal blood collection techniques, Anesthesia, Euthanasia, Necropsy & Histopathological evaluations.

After returning to department club members organized an internal Student Skill Development Program (SSDP) to disseminate their learning and hands-on experience.





PANPHARMACON STUDENT CLUB RESEARCH ACTIVITIES

- ❖ Ms. Choekyila Ladingpa, Mr. Nihal G S, Mr. Govardhan K R, Mr. Rajenderaa.S, Mr. Shashank S K, Mr. Akhilesh Vatti, Mr. Md Furquan Faisal, Ms. Vismaya achutha participated in the science academies' lecture workshop entitled "Translational Science and Research: Emerging Paradigms in Biotechnology" conducted by Department of Biotechnology, Faculty of Life and Allied Health Sciences on 24th - 25th April 2023
- ❖ Mr. Sammerana Hammigi, Mr. Govardhan K R, Mr. Shannon D Almeida, Ms. Thanuja N K participated in the two days virtual seminar entitled "Recent Trends and Challenges in Drug Discovery" (RTCDD-2023) held on march 3rd and 4th 2023 organised by BITS, Pilani
- ❖ Mr. Shannon D Almeida presented poster of his research work entitled "Exploring the possible mechanism of a cystine moiety in the treatment of Parkinson's Disease – A Computational Approach" supervised by Mr. Damodar Nayak A in 3rd International Congress on Biological and Health Sciences, 14th - 16th April 2023
- ❖ Mr. Sammerana Hammigi presented oral presentation of his research work entitled "Screening of Dunaliella salina moieties for Myocardial Infarction: A Computational Study" supervised by Dr. J. Anbu in 3rd International Congress on Biological and Health Sciences, 14th - 16th April 2023
- ❖ Mr. Govardhan K R presented poster of his research work entitled "Exploring the possible mechanism of a Capsaicin moiety in the treatment of Breast Cancer – A Computational Approach" supervised by Mr. Damodar Nayak A in 3rd International Congress on Biological and Health Sciences, 14th - 16th April 2023
- ❖ Ms. Shreeraksha completed online course - Introduction to systematic review and meta analysis offered by John Hopkins university on Coursera platform
- ❖ Mr. Akhilesh Vatti completed online courses - Design and interpretation of clinical trials & Design and conduct of clinical trials offered by John Hopkins university on Coursera platform
- ❖ Ms. Vaishnavi K Patel participated in Web of Science Training & Certification Program 2023 entitled Clarivate: Accelerating innovation conducted between 30th Jan, 1st & 3rd February 2023
- ❖ Ms. Vaishnavi K Patel participated in Conference talk on: It's all in your DNA; or is it? Conducted by School of Social Sciences on 19th April 2023



PANPHARMACON STUDENT CLUB RESEARCH ACTIVITIES

- ❖ Ms. Thanuja N K presented paper entitled “*In-silico* Repurposing of FDA Approved Drugs For Anti-cataractogenic Activity” in Two Days National Conference on Development of Entrepreneurial Attitude in Pharmacy Students held on 27-28th February 2023 at SRM Modinagar College of Pharmacy, SRMIST, Delhi-NCR Campus.
- ❖ Ms. Thanuja N K Attended 3rd International Conference on New Horizon in Drug Discovery and Development Process held on 23rd February 2023 at Adamas University, Kolkata, in collaboration with AICTE, New Delhi, India.
- ❖ Ms. Thanuja N K Attended IPR awareness/training program under the special mission called “National Intellectual Property Awareness Mission (NIPAM)” on 22nd March 2023 organized by Faculty of Pharmacy, Dr. APJ Abdul Kalam Technical University and Intellectual Property Office, India.
- ❖ Ms. Thanuja N K Attended 21st Annual Community Health Symposium: A Journey Towards Health Equity on 5th April 2023 organized by Stanford Center for Continuing Medical Education, Stanford University School of Medicine, Standford, CA.
- ❖ Ms. Thanuja N K Attended 4th Annual Conference on Disability in Healthcare and Medicine Stanford, CA on 22nd April 2023 organized by Stanford Center for Continuing Medical Education, Stanford University School of Medicine, Standford, CA.
- ❖ Ms. Thanuja N K Attended World IP Day 2023 - Women and IP: Accelerating innovation and creativity on 26th April 2023 at Vanijya Bhawan New Delhi, organized by Government of India.

RECENT RESEARCH PUBLICATION

- ❖ Rajeshkumar, R.R., Pavadai, P., Panneerselvam, T., Deepak, V., Pandian, S.R.K., Kabilan, S.J., Vellaichamy, S., Jayaraman, A., Kumar, A., Sundar, K. and Kunjiappan, S., 2023. Glucose-conjugated glutenin nanoparticles for selective targeting and delivery of camptothecin into breast cancer cells. *Naunyn-Schmiedeberg's Archives of Pharmacology*, pp.1-16.



PANPHARMACON STUDENT CLUB ACADEMIC ACTIVITY

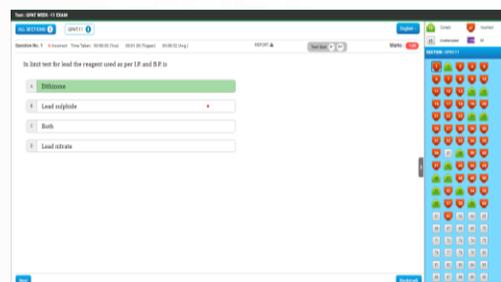
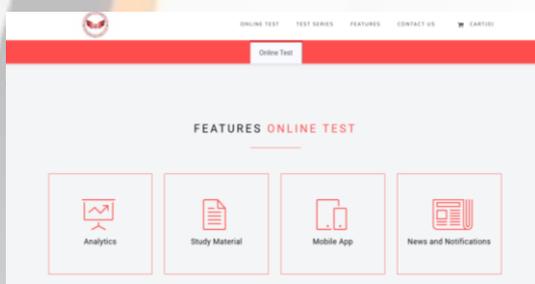
SAMARTHYA GPAT Mock Test Series

A Panpharmacon Student Club Initiative To Support GPAT Aspirants

Samarthya GPAT mock test series was conducted by Panpharmacon Student Club, Department of Pharmacology, Faculty of Pharmacy, Ramaiah University of Applied Sciences, Bengaluru between 22-01-2023 to 09-04-2023.

Samarthya series was an unique initiative of the club as a part of education vertical with an aim to support GPAT aspirants. Mock exams resembling actual GPAT exam were conducted every Sunday between 11:00AM to 02:00PM. Exam was hosted on Samarthya android app and <https://panpharmacon.conductexam.com/> website. A total of 12 mock exams were attempted by the GPAT aspirants. Mock exams were blended with various intricacy levels of questions each week to trigger the curiosity and provide challenging environment for the students. This initiative not only supported students to prepare but also reinforced themselves to evaluate their preparation levels.

Top 3 students GPAT 2023 examination fees was borne by Panpharmacon Student Club. E-Certificate was issued to all the participants who successfully attempted 80% of the total exams conducted in the series. Panpharmacon Student Club, Department of Pharmacology takes this opportunity to thank Mr. Lav and Mr. Vimal from Conduct Exam Technologies for their support. Few glimpses of the Samarthya app is as follows;





PANPHARMACON STUDENT CLUB ACADEMIC ACTIVITY

SAMARTHYA GPAT Mock Test Series

A Panpharmacon Student Club Initiative To Support GPAT Aspirants

Journey & Milestones...



A Student Club Led Activity



12 Weeks of Exams



666 Registrations



1500 Questions



83 Colleges



12 Self Evaluation Parameters



32 Universities



27 Unique Weekly Toppers



**12 States
02 Union Territories**



04 Samarthya Series Toppers



PANPHARMACON STUDENT CLUB SAMARTHYA TOPPERS

A Panpharmacon Student Club Initiative To Support GPAT Aspirants



SUMAIYA BEE S

AI - Ameen College of Pharmacy
Rajiv Gandhi University of Health Sciences



SOHAL MALICK

AI - Ameen College of Pharmacy
Rajiv Gandhi University of Health Sciences



ABINAYA R

Chettinad School of Pharmaceutical Sciences
Chettinad Research and Education



R. KAVIYANJALI

Sathyabama Institute of Science and
Technology, Chennai



CHAITRA

V L College of Pharmacy
Rajiv Gandhi University of Health Sciences



LALIT SANJAY PATIL

R.C Patel Institute of Pharmaceutical
Education and Research
Kaviyatri Bahinabai Chaudhary North
Maharashtra University



CHARUMATHI. P

Crescent School of Pharmacy
B.S. Abdur Rahman Crescent Institute of
Science and Technology



KUSHBOO

Faculty of Pharmacy
Ramaiah University of Applied Science



RAMYA SHREE

V L College of Pharmacy
Rajiv Gandhi University of Health Sciences



PANPHARMACON STUDENT CLUB SAMARTHYA TOPPERS

A Panpharmacon Student Club Initiative To Support GPAT Aspirants



KAYALVIZHI

United College of Pharmacy Coimbatore
Dr. MGR Medical University



RAKESH CHANDRA KALITA

Royal School of Pharmacy
The Assam Royal Global University



JOSEPHINE M JOSEPH

Government College of Pharmacy
Rajiv Gandhi University of Health Sciences



POONAM PATEL

Faculty of Pharmacy
Ramaiah University Of Applied Science



PRIYANKA C

Faculty of Pharmacy
Ramaiah University Of Applied Science



SHAGUFTHA ALI

AI - Ameen College of Pharmacy
Rajiv Gandhi University of Health Sciences



RAJATH N RAJU

Government College of Pharmacy
Rajiv Gandhi University of Health Sciences



BHASKAR MAJUMDER

Aditya College of Pharmacy
Rajiv Gandhi University of Health Sciences



YESHWANTH K

PSG College of Pharmacy
Dr. MGR Medical University



PANPHARMACON STUDENT CLUB SAMARTHYA TOPPERS

A Panpharmacon Student Club Initiative To Support GPAT Aspirants



AKSHAYA GEORGE

AI - Ameen College of Pharmacy
Rajiv Gandhi University of Health sciences



ARLIN P KUNDAR

Manipal College of Pharmaceutical Sciences
MAHE



G . JAYAPRIYA

Sathyabama institute of science and technology,
Chennai



PRERANA KOTAIN

Manipal College of Pharmaceutical Sciences
MAHE



LAVANYA S

Vivekananda College of Pharmacy
Rajiv Gandhi University of Health Sciences



SAYERA M

Aditya College of Pharmacy
Rajiv Gandhi University of Health Sciences



Anushree P

Faculty of Pharmacy
Ramaiah University of Applied Sciences



ARUN KUMAR C

Faculty of Pharmacy
Ramaiah University of Applied Sciences



SUDATT DIXIT

Faculty of Pharmacy
Ramaiah University of Applied Sciences



PANPHARMACON STUDENT CLUB COMMUNITY SERVICES



AAHARA - Food Drive By The Club

As a part of community service Panpharmacon Student Club conducted Aahara - Food drive on 31st January 2023 commemorating the birth anniversary of Major Somnath Sharma. Approximately 300 underprivileged children were provided with freshly prepared sandwiches and sugarcane juice. After the event people showed their gratitude and it also encouraged students to conduct such food drives in the future.



Major Somnath Sharma (31 January 1923 – 3 November 1947), commander of the Delta Company of the 4th Battalion of the Kumaon Regiment of the Indian Army, who fought the Indo-Pak war in October – November 1947. With his valor in the struggle, saved the enemy's sixes. **He was posthumously awarded the Param Vir Chakra by the Government of India. He is the first person to get Param Vir Chakra.**



PANPHARMACON STUDENT CLUB COMMUNITY SERVICES

Annual Service To Society – Directorate of Student Affairs, RUAS



STS coordinator
Damodar Nayak A

Student Volunteers

**1st M. Pharm & Pharm D
Students**



On the occasion of 74th Republic Day students were involved in the mandatory Service to Society initiative of university. Teams were divided as **Team 1 – Mudita (Joy)**, **Team 2 – Shram (Hardwork)**, **Team 3 – Pragma (Knowledge)**, **Team 4 – Avyanna (Powerful women)** executed following activities

- 1. Health Camp** – was carried out at JP Park and Sankey Park, Over 300 people's vitals were measured & were also counselled on general wellbeing and lifestyle modifications.
- 2. Plog Run** – was carried out at Mathikere and Sadashiv Nagar to keep our surroundings and neighbourhood FREE from plastic waste.
- 3. Distribution of Stationaries** – distribution of stationary & interactive and colourful charts prepared by the students of FPH on Human Body, Medications, Healthy Food Habits, Healthy hands etc. One time meal was also provided to Government school children in Mathikere.
- 4. Sanitary Napkin Distribution** – was done in underprivileged areas and awareness was created on menstrual and feminine hygiene.



EVENTS

1st Prize – National Level Competition



Ms. Sandra Ross, Secretary, Panpharmacon Student Club, bagged 1st Prize and Cash award of 10,000 Rs/- , in the 'Speech Salad 2023' an exciting video open mic contest organised by News Karnataka, a leading news organization, between January 22 - 26, 2023, on the occasion of 74th Republic day of India. The contest was open to all individuals who were interested in participating, regardless of age or profession. The theme of the event was 'What does Republic Day mean to me?'.

One Day Training Program on Safeguards against Cyber Crime for the Youth



Panpharmacon Student Club participated and volunteered in One Day Training Program on Safeguards against Cyber Crime for the Youth on 31st January 2023 at Ramaiah Medical College auditorium. Event was jointly organized by Centre for Training, Orientation and Capacity Building, Rajiv Gandhi National Institute of Youth Development, Sriperumbudur, Tamil Nadu and National Service Scheme, Ramaiah University of Applied Sciences. Babu Anjanappa, Deputy Superintendent of Police, State Intelligence, Karnataka and Gagan Jain Founder & CEO Cybersafe Bengaluru were the chief guests of the event and Dr. Anath Prabhu G, Professor in Computer Engineering, Cyber Security & Cyber Law Trainer was the resource person.



EVENTS



CAMPUS TO CORPORATE – ONE DAY CAPACITY BUILDING PROGRAM



Panpharmacon Student Club, Department of Pharmacology, Faculty of Pharmacy organized a One Day Capacity Building Workshop - **Campus to Corporate** on 30-Mar-2023. **Mr. Manoj Kumar Yadava**, Head, Medical communications and Digital solution, Pharma Pulse was the resource person.

The objective of this workshop was to create awareness among students about various job opportunities in pharma sector and tools necessary to prepare themselves with the skill set required for academia to corporate work culture. Some key learning's from this event were different virtual learning platforms available for skill upgradation, hands on training on setting a goal, SWOT analysis, job search tools, basics on using LinkedIn, email etiquettes, and interview prep for graduates. The session was followed by Q&A round.

Over 60 UG and PG students from various colleges across Bengaluru participated in the event. Workshop had gracious presence of Dr. S. Bharath, Dean, FPH, Dr. J. Anbu, Convener, Professor & Head, Department of Pharmacology, FPH, HoD's of various departments, Mr. Damodar Nayak A, Faculty Coordinator, Assistant Professor & Faculty members of Department of Pharmacology, FPH.

A virtual follow up session was also carried out to understand the learnings taken back by the students who underwent training in workshop on 01-Apr-2023.



EVENTS

KAUSHALYA – ONE DAY STUDENT SKILL DEVELOPMENT PROGRAM



Panpharmacon Student Club organized Kaushalya – One Day Skill Development Program on 08-Apr-2023. The aim of this workshop was to provide UG and PG research scholars with basic knowledge about animal husbandry maintenance, animal handling and restraining techniques, understanding the biology and physiological conditions of laboratory animals, CCSEA Guidelines & use of biostatistics for effective construction of research protocol, alternatives available for animal experimentation, hands-on training for animal handling, blood withdrawal techniques and autopsy. Polymerase Chain Reactor applications, advantages and hands-on training.

Following II M.Pharm research scholars and office bearers of club contributed as resource persons Mr. Sameerana Hammigi, President, Mr. Rajenderaa. S, Secretary, Ms. Choekyila Ladingpa, Joint Secretary, Mr. Govardhan KR , Director – social media and public relations, Mr. Shannon D Almeida, Director – awards and achievements, Ms. Aditi S.H, Director – Events, Mr. Shashank – Treasurer & Mr. Shantha Kumar.S.S, Molecular Biology Techno-commercial expert, Hi-media Laboratories was the invited resource person to train on Thermal Cycler.

Over 45 students from PES university, Dayanand Sagar University, Rajiv Gandhi University of Health Sciences and RUAS got benefitted from this students led initiative.





UPCOMING EVENTS

INTERNATIONAL WEBINAR

SMART MULTIFUNCTIONAL NANOPARTICLES IN CANCER THERANOSTICS: PROGRESS AND PERSPECTIVE

Smart multifunctional nanoparticles have emerged as a promising tool in cancer theranostics, which refers to the integration of both therapeutic and diagnostic capabilities into a single system. These nanoparticles can be designed to selectively target cancer cells, deliver therapeutic agents such as chemotherapy drugs or gene therapies, and provide imaging capabilities for monitoring the effectiveness of treatment. One of the key advantages of using nanoparticles in cancer theranostics is their ability to specifically target cancer cells while minimizing damage to healthy cells.



Resource Person

Dr Ashok Kumar

Assistant Professor

Department of Pharmaceutical Technology
UCSI University, Kuala Lumpur, Malaysia

Speaker Profile

Dr. Ashok Kumar Janakiraman is an Assistant Professor in the Faculty of Pharmaceutical Sciences at UCSI University, Malaysia. He was awarded Ph.D. in pharmaceuticals from PRIST University, Thanjavur, India in 2014. His research is situated in the field of pharmaceutical technology and product development, with a special focus on nanotechnology for drug solubility enhancement, fast melting tablets, topical products, and collaborative R&D in industries such as pharmaceuticals and cosmeceuticals. He has published several research papers in peer reviewed national and international journals. He has 4 Indian patents and 1 trade mark. He has received Asian Youth Innovation Award in the Malaysia Technology Expo 2020, Gold award in PECIPTA 2022 international conference.

Convener

Dr. J. Anbu
Professor & Head

Faculty Co-ordinators

Dr. Mohammed Shabi
Mr. Damodar Nayak A

27/May/2023

03:00 PM – 05:00 PM IST

Event Registration Link

Microsoft Teams



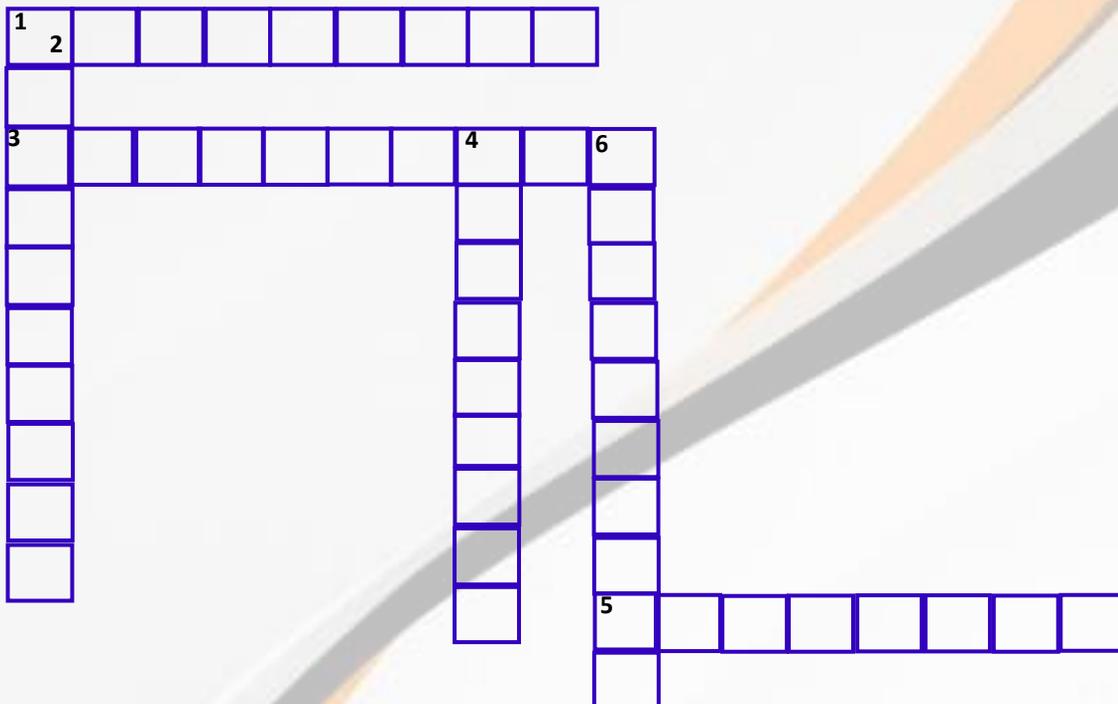
E-Certificate will be provided
for participants



Mind Lab



Solve the Crossword



Across

1. Active metabolite of spironolactone
3. Antiviral drug that work by targeting NS5A
5. Opioid analgesic which does not inhibit PG synthesis

Down

2. Drug of choice for Familial Mediterranean Fever
4. Ariboflavinosis is a disease that results from a deficiency of
6. Adrenergic uptake inhibitor with antihypertensive effects

Terms and conditions

- Mind lab – VIII consists of **Two** segments, Solved answers to be mailed to fphpanpharmacon@gmail.com on or before **15-June-2023**
- It is mandatory to answer both segments to be eligible for availing the prize
- Winners will be selected by lot system & Editorial board – Panpharmacon reserves all the rights
- Winners details will be announced in the upcoming issue
- Participation is restricted for Indian nationals only



Find The Word

A P O P B P C I B I R L O B P A
H T A D U C A N U M A B O A I A
O P C I L T A C E L N N P S B S
T A B V Y U A B A P A A A M M L
K P O P B P C I B I R L O B P Y
C A R I S I T A P A P A O A E B
O R A I C I P B B S S P T M L S
R E J I T I C E Y M I R O U E C
U C N M O M N D I O X L U M O T
Z O U B B B O P N V T T I E V M
E E O E V R D L R I U I V P E B
R S M A B A S P M R V N E E P V
U I E I X T E C I O J I P L S B
M A F T S T M E U G O L A G E Z

Oxlumo, Fibrodysplasia, Rezurock, Zegalogue, Aducanumab

Winners – Mind Lab VII



Dr.S.Nithya

Professor

Department of Pharmacology,
Sri Ramachandra Institute of Higher Education
& Research (SRIHER), Porur, Chennai



Darshan K R

V Pharm.D

Faculty of Pharmacy,
Ramaiah University of Applied Sciences
Bengaluru, Karnataka

The Ramaiah Group, through our Trusts, Gokula Education Foundation (set up in 1963) and Gokula Education Foundation – Medical (set up in 1979), focus on

Healthcare & Education

we seek to move our society towards greater harmony and inclusiveness

॥ ज्ञानं विज्ञानं च भक्तिसहितं ॥



Devotion to Enlightenment

Feel Free to Contact



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