



APOTHECA

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PATRON

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Editorial

I am very happy and proud that P.A. College of Pharmacy has completed four years of its existence and has achieved distinction as one of the well known Pharmaceutical teaching institution. The first batch of B. Pharma admitted in the academic 2018 has come out with pride. The students were awarded course completion certificates in the graduation day held on 25th of February 2023 at the hand of Mr. Abdulla Ibrahim the honorable managing trustee of PA Educational Trust. The function was graced by Mr. Sunil Attavar, the Managing Director and CEO of Group Pharmaceutical Bangalore and Dr. S. Mahesh Kumar, General Manager (Production) Biocon Pharma Ltd. Bangalore. The students have already been either employed or joined higher education. Even as the first batch passed out the institution has admitted its 5th batch of the students. P.A. College of Pharmacy is committed to the quality education and training the pharmaceutical education and research and shall bring out many more such batches to serve the human kind.

Congratulations !



FACULTY ACHIEVEMENTS

- Dr.Sindhoor , HoD , Department of Pharmaceutics was featured as Med-Teacher in MedBound Times.
- Dr.Rajisha K, HoD , Department of Pharmacognosy participated in the online session on *“Role of Pharmacognostical Rationalism in Drug Discovery”* organized by Vikas Institute of Pharmaceutical Sciences in Association with IPA Rajahmundry Local Branch and All India Pharmacognosy and Phytochemistry Association (APPA) on 4th March, 2023.
- Dr. Rajisha K, HoD ,Department of Pharmacognosy participated in the National Level Virtual Faculty Development programme on *“ Positioning of Essentials for Perception on Inspirational Teaching & Research for Novice Faculty in Pharmacy ”* jointly organized by School of Pharmacy Shri Balaji Vidyapeeth , Puducherry and Mother Teresa Post Graduate and Research Institute of Health Sciences , Puducherry in association with APTI, Tamil Nadu from 04th April , 2023 to 25th April, 2023.
- Ms.Nishmitha Kottary ,Assistant Professor , Department of Pharmaceutics participated in the National Level Virtual Faculty Development programme on *“ Positioning of Essentials for Perception on Inspirational Teaching & Research for Novice Faculty in Pharmacy ”* jointly organized by School of Pharmacy Shri Balaji Vidyapeeth , Puducherry and Mother Teresa Post Graduate and Research Institute of Health Sciences , Puducherry in association with APTI, Tamil Nadu from 04th April , 2023 to 25th April, 2023.



Graduation Day

P.A. College of Pharmacy celebrated its 1st Graduation Day on 25th Feb, 2023 in the campus. Mr. Sunil Attavar, Chairman, Group Pharmaceuticals, graced the occasion of Chief guest and Dr. S. Mahesh Kumar, General Manager, Biocon Pharma was the guest of honour. Mr. Abdulla Ibrahim, the honourable Managing trustee presided over the function. Dr. Saleemulla Khan, Principal welcomed the gathering and Prof. K. P Soofie administered the oath. Mr. Ismail Khan delivered the vote of thanks. Mr. Attavar in his inaugural address spoke about the opportunities created by the technological advancement in the medical and pharmaceutical field. Dr. S. Mahesh spoke about the importance of being a good human being. Mr. Abdullah wished good luck to the outgoing student.



Annual Day

P.A. College of Pharmacy celebrated its 4th Annual Day – Episteme, on 26th Feb 2023 in the campus. The Annual Report was presented by Dr. Saleemulla Khan, Principal, P.A. College of Pharmacy. The prizes for the Sports and other Extra Curricular activities held during 2022 were awarded, followed by cultural programmes by the students.



Annual Sports Meet

Annual Sports Meet was organized on 18th and 19th of March, 2023. It began with a march past in which all the four houses actively participated. The events included Javelin Throw, 100m Race, 200m Race, 400 m Race, Volleyball, Cricket, Throw ball, Football. Students participated in all the events with zeal and enthusiasm. It concluded with the valedictory function.



EXPERT TALK

Resource Person	Topic	Date
Dr.Nagappa Naik	Role of Community Pharmacy in Health Care	14 th Feb , 2023
Mr.Ramashish Paul, Examiner of Patent & Design Ministry of Commerce and Industry, Govt. of India	Intellectual Property Rights	02 nd March ,2023



Dr.Nagappa Naik explaining the importance of Community Pharmacist to our students



Mr.Ramashish Paul in a friendly interaction with our students.

JOURNAL CLUB

Presented By	Topic	Date
Ms.Nanditha Bhat	Introduction and Basics of Stem Cell Therapy	25 th March 2023
Dr. Saleemullah Khan	The Vanishing Art of Lecturing	11 th March 2023



Silver Leaf Attacking Humans



Sharadhi Shetty

IV B.Pharm

Silver leaf is a fungal disease of trees caused by the fungal plant pathogen *Chondrostereum purpureum*. It attacks mostly species of the rose family. Fungi moved from the oceans onto land in a symbiotic relationship with plants (5–8) and maintain their most intricate host relationships with the plant kingdom. The fungi that fulfill the four criteria to infect humans (thermal resistance, locomotion through or around host barriers, lysis and absorption of human tissue, and resistance to immune defenses) thus belong to only four lineages: the Zygomycota, Entomophthorales, Ascomycota, and Basidiomycota



A 61 year old male patient from the eastern region (Kolkata) of India showed symptoms such as hoarseness of voice, cough, recurrent pharyngitis, fatigue, difficulty in swallowing and anorexia for the last 3 months. He had no history of diabetes, HIV infection, renal or any chronic disease, immunosuppressive drug intake, or trauma. The patient, a plant mycologist by profession was working with decaying material, mushrooms and various plant fungi for a long time as part of his research activities.

CT scan of the neck demonstrated the presence of a right abscess (Fig. 1). CT guided aspiration of the abscess was performed. X-chest was normal.



USE OF PROTEASE AND TELOMERASE INHIBITORS IN CANCER THERAPY



Ms. Geena V

Dept. of Pharmacology

Cancer is a major disease that constitutes a crucial challenge to human health worldwide. It is a complex disease with a number of etiologies behind the disease progression. Growth and progression of the tumour is highly dependent on oxygen and nutrient supply. Development and progression of cancer happens with change in the surrounding cells and environment. The cytokines, chemokines, and a number of other factors were secreted by the cancerous cells to create a microenvironment that helps it to migrate to next cells. This will lead to alter the surroundings of cancer cells to expand and proliferate and finally metastasis.

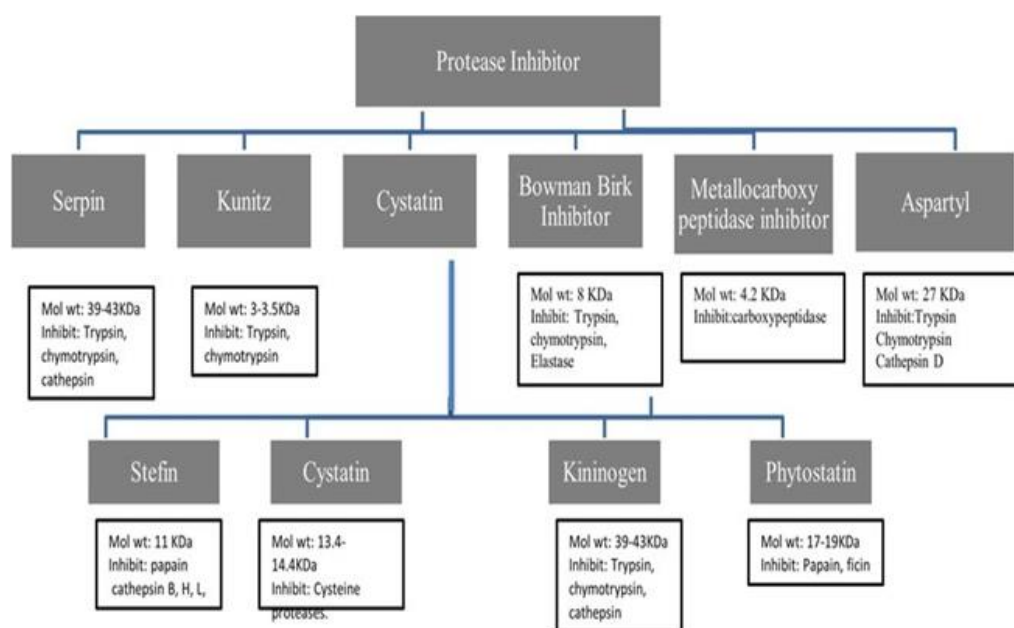
Metastasis of cancer is most dangerous and complex to treat. Metastasis of tumour is the main reason behind deaths related to cancer. It is the process by which cancer cells enter into circulation and travel through blood vessels to the targets. Tumour microenvironment (TME) is an inevitable contributor of cancer metastasis. It helps to develop new blood vessels surrounding the cancer cells and invading the vasculature. The interdependent communication between cancer cells and the microenvironment eventually leads to enhanced proliferation and metastatic capability, and finally death.

Telomerase are the enzyme in cells that helps to keep the cells alive by adding DNA to the telomeres. Telomere shortens during each cell division and it leads to arrest of cell proliferation. Telomerase prevents the cells senescence by inhibiting telomere shortening. G-quadruplex are the guanine rich (G-rich) sequences present in telomere and other promoters of oncogenes. They are involved in the cellular functions like replicating DNA, gene expression, telomere protection and apoptosis. The telomeric G-quadruplex was arranged in the form of folds/loops. These were responsible for the shortening of telomeres during the successive cell division to reach a 'Hayflick limit'. After this stage, the cell division comes to an end and would cause apoptosis. The use of a G-quadruplex stabilizer was an indirect method to target the telomerase so that it could prevent the process of cancer gene transcription. The stabilization of G4 structures has been found to have transcriptional regulation in non-telomeric domains, including proto-oncogenes and promoter areas, leading to anti-proliferative and anti-tumour activities in many in vitro and in vivo studies of human types of cancer. Over-expression of telomerase documented by the human telomerase reverse transcriptase (hTERT) regulation is the most prevalent method utilized by cancer cells to attain unmanageable growth. A decline in hTERT expression in various carcinomas contributes to cellular senescence, growth suppression, tumour size reduction, and selective apoptosis by telomere shortening and end-to-end chromosomal fusions in cancer cells. BRACO-19, BMSG-SH-3, telomestatin, etc. are the examples for telomere G4 stabilizers.

Protease inhibitors are drugs that target proteases, which are enzymes that play a role in the growth and spread of cancer cells. By blocking the activity of proteases, these drugs can slow down or stop the growth of cancer cells. Telomerase inhibitors, on the other hand, target telomerase, an enzyme that helps cancer cells maintain their ability to divide and grow. There are six classes of proteases; cysteine, matrix metalloproteases (MMPs), serine, threonine, glutamic acid and aspartate proteases and these are one of the most important factors that implemented in the cancer progression.

In normal cells protease enzymes are very essential for the normal biological process like gene expression, cell differentiation and cell death. In cancer the roles of proteases are evident in cell proliferation, angiogenesis, tumour invasion, metastasis and tumour growth and development. Tumour cells and the surrounding normal cells have a high expression of protease enzymes. Cysteine (e.g.: Cathepsins, calpains, caspases, papain) act as a catalytic core for carboxypeptidase. Endopeptidase (e.g.: Trypsin, chymotrypsin, elastase, Proteasome, urokinase plasminogen activator, kallikreins, prostate specific antigen, matriptase) has catalytic core that has serine/ threonine centre. Aspartic proteases (e.g.: Pepsin, cathepsin, renin, presenilins) work by the two highly conserved aspartate combined with water molecule and MMPs (e.g.: Thermolysin, angiotensin converting enzyme) possesses a metal ion in catalytic core and they act on extra cellular matrix (ECM) by breaking most of its constituents. Proteases are found to be an effective novel target for cancer treatment. It's a complex process to develop those inhibitors. And no single inhibitor can be used for all classes of proteases to inhibit their actions. The most important example of protease inhibitor for cancer treatment that developed in the last decade is bortezomib. Bortezomib, carfilzomib, ixazomib, have been approved by the USFDA for clinical use in multiple myeloma. Nelfinavir is another protease inhibitor used in cancer. In cancerous conditions, usually MMPs and cysteine proteases are dysregulated.

Protease inhibitors:



Proteases are the enzymes that play a vital role in various biological processes in the body. They are also known as peptidases or proteinases, are responsible for breaking down protein into small peptides and amino acids. These enzymes are involved in the digestion of food, processing of proteins for cellular functions, and the regulation of cellular processes.

In addition to their role in normal physiological processes, proteases have been implicated in several diseases, including cancer, inflammatory disorders and neurodegenerative diseases. In cancer, proteases play a crucial role in the tumour growth, invasion and metastasis. Cancer cells use proteases to degrade extracellular matrix proteins and basement membranes, allowing them to invade the surrounding tissues and spread other parts of the body.

Therefore, protease inhibitors have been developed as a potential treatment option for cancer. The protease inhibition by the developed drugs can slow down or stop the cancerous growth and invasion. Protease inhibitors have also been shown to enhance the effectiveness of chemotherapy and radiation therapy.

Our students participated in ' Kalajna – A National Level Arts and Literary Fest ' which was organized by Nitte Gulabi Shetty Memorial Institute of Pharmaceutical Sciences on 2nd and 3rd Feb ,2023 .

Ms.Asiyath Yusra of Final Year B.Pharm bagged 1st prize in 'Alfaaz-Poetry Writing Competition.

Kudos !



P A College of Pharmacy celebrated International Womens Day on 10th March , 2023 .

Games and other fun-filled programs were held in which students and faculty both participated with enthusiasm.

Congratulations!



Srinivas Institute of Technology conducted 'Envision – An Inter College Tech Fest' in which Mr. Mohiddin Tayib of Second Year B.Pharm bagged 1st Prize in Chess Competition.

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Upcoming News & Events

16 May , 2023 : PACE Knowledge City in association with P A First Grade College is conducting 'Dietec : An Intercollege Food Fest ' at PACE Knowledge City , Mangalore .

17 May , 2023 : NSS unit of P A College of Pharmacy in association with KMC Blood Bank is organizing Blood Donation Camp at PACE Knowledge City , Mangalore.

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