D Y PATIL
UNIVERSITY
PUNE, AMBI

SCHOOL OF PHARMACY

VOLUME 2 - JANUARY 2023

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DY PATIL UNIVERSITY

PUNE AMBI

SCHOOL OF PHARMACY

VYOM MAGAZINE

An initiative by

SCHOOL OF PHARMACY, STUDENTS.

VOLUME 2 - JANUARY 2023

INDEX

PRELIMINARY DETAILS

ACTIVITY NAME	VYOM ORGANIZATION
ACTIVITY TYPE	MAGAZINE
OBJECTIVE	Vyom is a student-led organization that has been made and created by the students for the students for development and improvement of the youth.
INTENDED OUTCOME	• Insights in the field of Pharma Science. • Reaching great heights and conversation with experts • Make Pharma Sector a most desired one

ABOUT

VYOM is a student-led organization that has been made and created by the students for the students for development and improvement of the youth.

VYOM focuses on developing and shaping the minds of students with the help of our mentors and experts from the industry. The team gets to interact with the Pharma Veterans and professionals. **VYOM** directs and gives the chance to show what you're passionate about through the magazine and if you have good communication skills, people can always join ***VYOM*** *Vichaar*, which is our YouTube channel that focuses on taking interviews with professionals.

ADVISORY BOARD

Dr. Vijay D. Patil	Chancellor & President
Mrs. Shivani Vijay Patil	Vice President & First Lady
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Dr. M.D. Burande	Principal
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FOUNDING MEMBER AND MEMBER OF EDITORIAL BOARD

Harshita R. Agarwal is a student of DY Patil University, School of Pharmacy, Ambi. She is the Editor-in-Chief and also the founding member of the **VYOM** Organization.

She works on articles, news, and different write-ups from students, faculty members, and experts in the industry. Her job is to make sure that no article is plagiarised or has any kind of words or sentences that can be used against anyone.

She is also a part-time writer and enjoys reading in her free time.

Miss. Harshita Rajeev Agarwal
"Editor-in-Chief"

FOUNDING MEMBER AND MEMBER OF EDITORIAL BOARD

Mr. Ronit Vikram Handa
"Creative Director"

Ronit V. Handa is a student of DY Patil University, School of Pharmacy, Ambi. He is the Creative Director and also the founding member of the **VYOM** Organization.

His work is to make sure the edited articles have their own place in the editorial. His job is to see that every news, article, and write-up has its voice by making the editorial look appealing to the eyes.

He plays guitar to create a stress-free environment and make sure the team is entertained.

FOUNDING MEMBER AND MEMBER OF EDITORIAL BOARD

Mr. Manas Mahesh Joshi
"Chief Patron"

Manas M. Joshi is a student of DY Patil University, School of Pharmacy, Ambi. He is the Chief Patron and also the founding member of the **VYOM** Organization.

Chief Patron is the glue that binds the team together and makes sure all the work is done on time and that's the job Manas does. He makes sure that every deadline by the Editor-in-Chief and Creative Director has been fulfilled by helping them throughout. His job is to create attractive posts for our Instagram by using his contacts and the knowledge he has of Adobe.

He sings and lets out all the stress and the remaining stress is worked up with him writing good scripts.

FOUNDING MEMBER

Riya M. Chotai is a student of DY Patil University, School of Pharmacy, Ambi. She is the Media Manager and also the founding member of the **VYOM** Organization.

Her job is to make sure every post on Instagram and different social media handles are up on time and that every query is answered through our social media handles.

She loves dancing in her free time.

Laukik V. Kakade is a student of DY Patil University, School of Pharmacy, Ambi. He is the Patron and also the founding member of the **VYOM** Organization.

His job is not just to manage but also to plan events under the Vyom Organization. His job is to make sure everything from little things to huge issues has been managed without letting anything get disturbed.

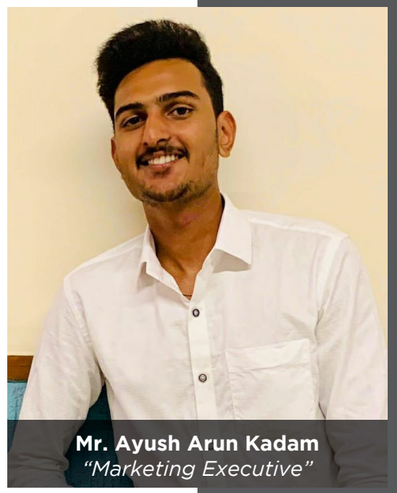
He loves to play table tennis when he gets the time.

TEAM MEMBER

Ayush Arun Kadam is a student of DY Patil University, School of Pharmacy, Ambi. He is the Marketing Executive and also the co-founder member of the **VYOM** Organization.

His work is to make sure that Vyom has reached to every platform possible and that it's been marketed well enough.

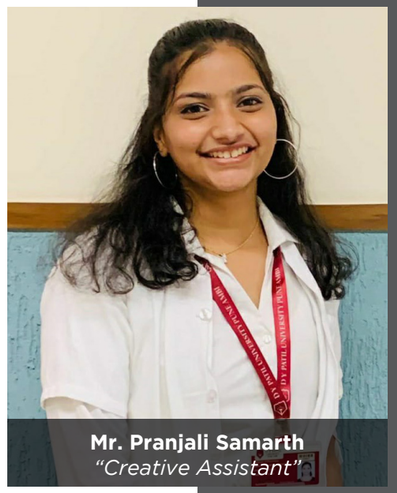
He plays volleyball in his past time when he's not marketing for Vyom.



Pranjali Sachin Samarth is a student of DY Patil University, School of Pharmacy, Ambi. She is the Creative Assistant of the **VYOM** Organization.

Her work is to make sure that her creative assistance has enhanced every decision taken by the committee.

She loves to try out every new thing and try to shape out her skills.



TEAM MEMBERS

Chandreshwar Mali	Stock Market Expert
Poonam Nalawde	Committee Member
Sakshi Ghadigaonkar	Committee Member
Saee Sutar	Committee Member
Omkar Deotarse	Cinematographer
Rutuja Dhone	Committee Member

RESPIRATORY VACCINATION CANDIDATE TESTED IN GERMAN HOSPITAL

Samiksha Barahate, Student

Tuberculosis vaccine tested in a large phase 3 trial against severe respiratory infection disease. There are vaccines for some infections and respiratory diseases including- covid-19 – Influenza, including Pneumonia, Pertussis (whooping cough) Tuberculosis (TB). Investigators are investigating whether the vaccine candidate VPM1002 was originally developed against tuberculosis by the scientist. Against the covid-19 infection, Berlin is also protective.

The vaccine VPM1002 generate specific immunity against tuberculosis but at the same time,

they prepare innate immunity, which is immediately effective against a variety of pathogens. VPM1002 is the trained immunity, and the effects are seen in that, and they are lined with the trials performed with (BCG) Bacillus Calmette Guerin.

The VPM1002 vaccine is safer than Bacillus Calmette-Guerin. And in the future could contribute to the wider reduction of disease burden from respiratory disease across the elderly population. Respiratory diseases are infectious such as influenza, covid-19 and RSV spread from person to person.

This means that if one person in a community gets an infectious disease, they can spread it to others. The best way to help stop the spread of certain diseases is through vaccination. If enough people are vaccinated there are fewer chances for a vaccine-preventable disease to spread, keeping everyone healthier. VPM1002 has turned out not only to be specific against the tuberculosis pathogen but has also the ability to train the immunity.

India is looking to expand its pharmaceutical items in the UK

Chandreshwar Mali, Stock Market Expert

As part of the proposed free trade agreement with Britain, India is looking at expanding market access for its pharmaceutical items in the UK, an official said on Friday.

The official added that a leaked chapter of the agreement on intellectual property (IP), which has been circulated on several portals, has been altered from its original form by the UK.

"The fact that both parties have emphasized their red lines and sensitivities is the best part of the proposed agreement. Generic drug manufacturing must be continuously environmentally friendly "the representative stressed.

In a trade agreement with the UAE, India has already increased market access for the domestic pharmaceutical industry. According to the agreement, pharmaceutical and medical items manufactured in India that have already received regulatory approval in advanced nations including the US, UK, EU, Canada, and Australia will do so in India within 90 days.

Similarly, to that, the trade agreement between India and Australia would expedite approvals and quality inspections of manufacturing plants.

"We expect the India-UK deal to have a favourable impact on the pharmaceutical industry. It is planned to cooperate in regulatory matters with the UK's Medicines and Healthcare Products Regulatory Agency "added the official.

The free-trade agreement (FTA) negotiations between India and Britain were supposed to be finished by Diwali (October 24), however, the deadline was missed.

New Delhi wants to make it simpler for professionals with skills to obtain temporary visas and conduct business.

The pact's reduction or elimination of customs duties would benefit India's labour-intensive industries, such as textiles, leather, gems, and jewellery, by boosting exports to the UK market. The UK is requesting tariff exemptions for products including Scotch whiskey and cars.

The person said that both nations are attempting to negotiate a solution that is in their best interests.

Experts claim that missing the Diwali deadline does not indicate that the agreement is in breach and that these appear to be attempted by those who are hostile to the arrangement.

"The talks are proceeding as planned. Both parties must benefit from it. It must be based on the reciprocity concept and must be advantageous to both parties "the representative stated.

The UK is allegedly pushing for ever-greening of patents, which would allow businesses to retain their legal protections even after making minor adjustments.

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Precious and semi-precious stones, ores, scrap metal, engineering products, professional instruments, non-ferrous metals, chemicals, and machinery are among the major imports.

Another significant investor in India is the UK. In 2021–22, New Delhi got $1.64 billion in foreign direct investment. Between April 2000 and March 2022, the amount was around USD 32 billion.

The UK is one of the biggest markets in Europe for Indian IT services in the services industry.

VYOM-वार्ता

C4XD signs a global licensing agreement with AstraZeneca

Harshita Agarwal, Editor-in-chief

C4X Discovery Holdings PLC is a pharmaceutical company which mainly focuses on drug discovery. The Company's portfolio includes early-stage novel target opportunities as well as late-stage drug discovery programmes ready for partner out-licensing. Its Taxonomy3 technology is used to analyse large genetic datasets in order to find and characterise new drug target candidates.

C4XD, has signed a global licencing agreement with AstraZeneca worth up to $402 million for its NRF2 Activator programme.

C4XD will receive up to $16 million in milestone payments before the first clinical trial.

AstraZeneca will be in charge of the commercialization and development of an oral therapy for the treatment of inflammatory and respiratory diseases, with a particular emphasis on chronic obstructive pulmonary disease (COPD).

Sir Mene Pangalos, AstraZeneca's Executive Vice President, BioPharmaceuticals R&D, said: "At AstraZeneca, we are committed to transforming care in respiratory and immune-mediated disease and move beyond symptom control. Our alliance with C4XD adds an important new asset to our portfolio to push the boundaries of science by targeting underlying disease drivers to potentially modify the course of these diseases."

Dr Clive Dix, CEO of C4XD, said: "Drug Discovery is inherently scientifically complex, and it is through our unique expertise and proprietary cutting-edge technologies that C4XD is yet again proving itself as an exemplar in this field." "NRF2 is thought to be a critical but challenging anti-inflammatory target, and I am proud of the work by our team to achieve a broad stable of intellectual property for this programme, leading to our third significant deal with a truly world-renowned industry leader," he added.

Inflammation is a major contributor to a wide range of pathological conditions, including respiratory diseases. NRF2 is a key natural regulator that controls the expression of antioxidant genes and is involved in both cellular defence against external insults and the regulation of the inflammatory response. Targeting the NRF2 pathway to reduce inflammatory damage holds the promise of a novel approach to treating a variety of inflammatory diseases, including COPD, where activation of NRF2 may aid in reducing the negative effects of oxidative stress-induced disease progression. 3,4 Lead molecules from C4XD's oral NRF2 Activator programme were discovered to significantly activate NRF2 after oral dosing, providing anti-inflammatory and antioxidant activity.

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https://www.pharmatimes.com/news/c4xd_signs_nrf2_activator_deal_with_astrazeneca_1481993

https://www.globenewswire.com/news-release/2022/11/28/2562794/0/en/C4X-Discovery-Holdings-plc-C4XD-signs-exclusive-global-licence-worth-up-to-402-million-with-AstraZeneca-for-the-development-and-commercialisation-of-NRF2-Activator-programme.html

Multi-Drug Precision Medicine Cancer Trial Begins

Ayush Kadam S.Y.B Pharm

What is cancer?

In simple terms, cancer is the abnormal growth of body cells. When the programming of a cell is affected, growth may become uncontrolled.

Some of that can alter the code are chronic irritation, tobacco, smoke and dust, radioactive substances, age, sex, race, and heredity.

Broadly, 19 cancers can be generally related to lifestyle. The most common are Breast cancer, lung cancer, thyroid cancer, etc.

The Cancer Research UK (United Kingdom), The University of Manchester, and Roche products Ltd, on 23rd November 2022, announced that they have opened a multi-drug, precision medicine trial for people with rare cancer who need more treatment options. The trial of medicine is important before use to ensure it is safe and effective and also the quality of the product is sufficient. To determine the trial, they recruit both adult and pediatric patients with any rare cancer type and it is one of the only precision medicine platform studies in the world targeting these wide-ranging populations.

Worldwide, rare cancers make up 22 out of every 100 (22%) cancers that are diagnosed each year which is more than any single type of cancer. If we were to define all rare cancers as a single type, they would top the list of the most prevalent cancers worldwide, above

Alembic Pharmaceuticals gets approved USFDA

Ronit Handa, Creative Director

ALEMBIC PHARMACEUTICALS LIMITED

Alembic Pharmaceuticals LTD on Thursday declared that it has received final approval from the US Food and Drug Administration for its new Abbreviated New Drug Application (ANDA) "The approved ANDA is therapeutically equivalent to the reference listed drug product (RLD), Pennsaid Topical Solution, 2% w/w of Horizon Therapeutics Ireland DAC (Horizon). Diclofenac Sodium Topical Solution is indicated for the treatment of the pain of osteoarthritis of the knee(s). Refer to our label for full indication. Aleor had previously received tentative approval for this ANDA," the pharma company said on Thursday. The drug comes under nonsteroidal anti-inflammatory drugs (NSAIDs) which are basically used to relieve joint pain from arthritis. USFDA has approved a total of 177 ANDA approvals of which 154 are final approvals and 23 are tentative approvals. Alembic Pharmaceuticals LTD is involved in manufacturing and marketing Indian Formulations, International Generics, and Active Pharmaceutical Ingredients with vertical integration capabilities. The total revenue of the company from just the Indian market is estimated over $600 million. Alembic is among one of the oldest industrial houses in India with its presence in other sectors such as glass, chemicals, real estate, engineering, education, and healthcare sectors. It was founded in 1907 as Alembic Chemical Works Company Ltd by Prof T.K. Gajjar. The journey of the company began with tinctures, alcohol, vitamins, and penicillin production, with today's company expanding its business into real estate, engineering, specialty chemicals, and glassware. In 2010 the group demerged its pharmaceutical business to form Alembic Pharmaceuticals Ltd.

New tech ups IVF success from 20% to 50%

Riya Chotai, Media Manager

At the conference "Hope 2022: Infertility and high-risk pregnancies from dilemma to decision-making" held on Sunday, experts say new egg-freezing technology has cost-effectively increased the chances of IVF pregnancy.

Event organizer Dr. Gita Khanna said the traditional slow-freezing technique for freezing human embryos is expensive, time-consuming, and results in inconsistent results due to the potential for crystallization, making clinical trials difficult. said it was not entirely satisfactory. There are now new vitrification techniques that use cryoprotectants, substances that prevent tissue from freezing. No ice crystals form during cooling and heating. As a result, IVF success rates have increased from 20% to 50% over the past five years. "The risk of developing ovarian hyperstimulation syndrome, a fatal side effect of in vitro fertilization, is also reduced by vitrification.

This allows doctors to transfer embryos in the next month rather than the same month of a woman's cycle." Slow freezing requires doctors to collect the eggs, fertilize them, and transfer them to the uterus in the same month, which is not safe," she added.

According to doctors, the main factor in IVF failure is age. The average age of couples visiting the store is 35. Over the next five years, egg and sperm quality will decline. Professor Sonia Malik of Delhi said: After three to four years of unsuccessful treatment, 30% failed to conceive when women opted for IVF because they were past their prime."

Resource:

https://m.timesofindia.com/city/lucknow/new-tech-ups-ivf-success-from-20-to-50-say-experts/amp_articleshow/93993579.cms

India's First Indigenous Vaccine For Cervical Cancer Launched On 1st September

- Riya Chotai, Media Manager

India launches Cervavac - its first indigenously developed Quadrivalent Human Papilloma Virus (HPV) vaccine for the prevention of cervical cancer. This comes at a critical time as cervical cancer will account for nearly 10% of all cancers and 18.3% of new cases by 2020, according to government statistics. On June 15, the Drugs Control Board of India (DCGI) Expert Panel approved the qHPV vaccine for cervical cancer patients aged 9 to 26 years. Following this, DGCI last month granted a marketing license to the Serum Institute of India (SII) to manufacture a locally developed vaccine. Meanwhile, Adar Poonawalla, CEO of the Serum Institute of India (SII), told reporters on the side-lines of the event: However, the final price has yet to be determined." Poonawala further said the vaccine could be launched by the end of the year.

Poonawalla also revealed that it plans to manufacture 200 million doses, with the vaccine first administered in India and then exported to other countries. Biotechnology Department Director Rajesh Gokhale said more than 2,000 volunteers across the country have taken part in the vaccine. According to officials, the qHPV vaccine CERVAVAC demonstrated potent antibody responses nearly 1,000-fold higher than baseline across all doses and age groups against all targeted HPV types.

Rates Of Cervical Cancer In India

Cervical cancer is a type of cancer that arises in the cells of the cervix. According to medical experts, many strains of the human papillomavirus (HPV), a sexually transmitted infection,

play a role in most cervical cancers.

India accounts for about one-fifth of the global burden of cervical cancer, with 1.23 lakh cases and about 67,000 deaths annually. According to WHO's International Agency for Research on Cancer, cervical cancer is the second most common cancer in the world.

HPV vaccination before girls or women are exposed to the virus can prevent most cases of cervical cancer, experts say. In addition, this vaccine may protect against vulvar and vaginal cancers.

HPV types 16 and 18 (HPV-16 and HPV-18) together are estimated to contribute to approximately 70% of all invasive cervical cancers worldwide.

Resource:

https://www.google.com/amp/s/www.timesnownews.com/exclusive/cervavac-indias-first-indigenous-vaccine-against-cervical-cancer-launched-how-cancer-vaccines-can-revolutionise-treatment-article-93920110/amp

https://www.google.com/amp/s/www.financialexpress.com/healthcare/news-healthcare/indias-first-vaccine-for-cervical-cancer-is-ready-cervavac-find-out-its-cost-and-more-details/2652202/lite/

Remdesivir: A Threat or Boon to COVID-19 Patients?

Pranjali Samarth, Creative Assistant

The contagious COVID-19 has led to an outbreak of clinical trials which led to the development of a variety of vaccines and ailments, although the efficacy of some of them is still controversial. Analysts from Japan reported that remdesivir, a drug whose effectiveness and efficacy have been deliberated, occurs to made a huge difference in COVID-19 patients in Japan who received corticosteroids in the ICU.

The remdesivir may reduce mortality in Asian patients if directed shortly after they begin to show COVID-19 symptoms reveals a study published in the Journal of Medical Virology, by researchers from Tokyo Medical and Dental University (TMDU) in September.

Remdesivir can abbreviate the recovery time of patients suffering from COVID-19 as said by several reports but there are inconsistent reports on whether the medication prevents the patient from dying.

The analyst examined the medical records of 168 patients with COVID-19 admitted to the ICU at TMDU Hospital between April 2020 and November 2021. The patients were divided into groups based on whether or not they were also administered Remdesivir.

Takeo Fujiwara, senior author of the study stated that: "The results showed a clear difference in patient survival based on when they received treatment with remdesivir" "In-hospital mortality rates were significantly lower in ICU patients who received remdesivir and corticosteroids within 9 days of symptom onset than in patients whose treatment with remdesivir started 10 or more days after they first developed symptoms."

Few of the patients encountered a number of adverse events such as a rash, requiring them to stop taking remdesivir, while a majority of the patients were encountered with acute kidney injury or liver injury but were able to continue treatment.

Hanafusa M said that "Our findings suggest that, at least in a largely Japanese patient population with severe to critical COVID-19, early treatment with remdesivir and corticosteroids is associated with decreased mortality."

Hanafusa M, Nawa N, Goto Y, Kawahara T, Miyamae S, Ueki Y, Nosaka N, Wakabayashi K, Tohda S, Tateishi U, Fujiwara T.

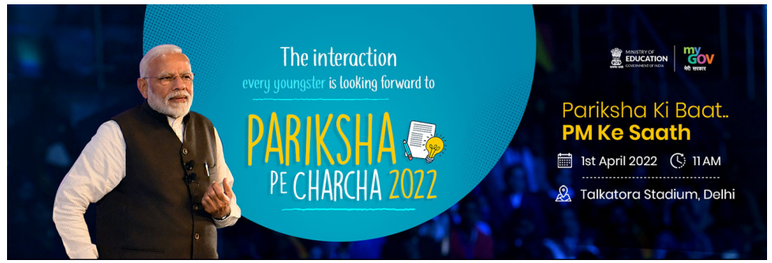
Effectiveness of remdesivir with corticosteroids for COVID-19 patients in intensive care unit: A hospital-based observational study.

J Med Virol. 2022 Sep 23:10.1002/jmv.28168. doi: 10.1002/jmv.28168

VYOM-वार्ता

Pariksha pe charcha

Manas Joshi, Chief Patron



I call upon all #ExamWarriors, their parents and teachers to take part in these interesting activities relating to Pariksha Pe Charcha 2023. Let us collectively work towards creating a stress-free environment for our students," PM Modi tweeted on 30th November 2022.

Prime minister's most awaited interaction with students is here. Class 9th to 12th students & their parents can participate in this interesting interaction with PM Modi. From last five years PM Modi is holding up this interaction with students & their parents. On Wednesday 30th November 2022 called students and parents for the Pariksha pe Charcha 2023. Registration for this session will be start in 1st week of December & conclude on 25th of December. Students, parents & teachers can register themselves through official website innovateindia.mygov.in/ppc-2023.

Following steps could be followed.

1. Participate in Pariksha Pe Charcha competition hosted on MyGov Innovate platform (https://innovateindia.mygov.in/ppc-2023/)
2. Remember, the competition is open for school students of classes 9 to 12
3. Students can submit their responses to any one of the themes provided to them
4. Students may also submit their question to Hon'ble Prime Minister in a maximum of 500 characters
5. Parents and teachers can also participate and submit their entries in the online activities designed exclusively for them

This year, about 2050 students, teachers and parents selected through competitions on MyGov, will be gifted with PPC kits by the Ministry of Education. To create a stress-free atmosphere for youngsters is the main moto behind this interaction. PARIKSHA PE CHAARCHA is the great platform to covey a stress-free motivation to every aspirant.

Pfizer and BioNTech report new data on Omicron BA.4/BA.5-adapted bivalent booster

Ayush Kadam, Marketing Executive

Neutralization data was generated by using a nonvalidated fluorescent focus reduction neutralization test (FFRNT) after a month of administration of a 30-Qg booster (fourth) dose of the companies Omicron BA.4/BA.5-adapted bivalent COVID-19 vaccine or the original COVID-19 vaccine in adults of age 55 and older (approximately 40/vaccine group). Sera were equally laminated by prior SARS-CoV-2 infection. The results showed the bivalent vaccine booster bring out a greater rise in neutralizing antibody titers for all tested Omicron sublineages in comparison to the original vaccine, regardless of prior SARS-CoV-2 infection status.

These results show similarity in recent clinical data showing the Omicron

BA.4/BA.5-adapted bivalent booster invokes a 13-fold increase in BA.4/BA.5 neutralizing titers from pre-booster levels in individuals of 55 years and older, resulting in a 4-fold higher BA.4/BA.5-response than the companies' original COVID-19 vaccine.

A booster dose of the Omicron BA.4/BA.5-adapted bivalent COVID-19 vaccine has been used legally for an emergency by the U.S. Food and Drug Administration (FDA) for ages 5 years and older and has been admitted marketing authorization in the EU by the European Commission for ages 5 years and older.

The Pfizer-BioNTech COVID-19 Vaccines (COMIRNATY®) are based on BioNTech's proprietary mRNA technology and were refined by both BioNTech and Pfizer. BioNTech is the Marketing Authorization Holder for BNT162b2 Wild Type and BNT162b2 Bivalent (Original/Omicron BA.4/BA.5) in the United States, the European Union, the United Kingdom, Canada, and other countries, and the handler of emergency use authorizations or equivalents in the United States (jointly with Pfizer) and other countries.

The first potent COQ8 inhibitor targets ubiquinone biosynthesis

Ayush Kadam, Marketing Executive

The treatment of diseases such as cancer could be beneficial in the inhibition of the COQ8 protein. COQ8 is also needed for the biosynthesis of coenzyme Q, which is also known as ubiquinone. A new synergic study from the University of Eastern Finland, Washington University in St. Louis, the University of Wisconsin-Madison, the University of North Carolina at Chapel Hill, and the Promega Corporation revealed the discovery and application of a modern chemical probe to collectively enjoin human COQ8A in the cells. The results were published in Nature Chemical Biology.

To catalyze phosphate transfer from adenosine triphosphate (ATP) to tyrosine, the enzymes in the action are protein kinase, threonine, or serine residues in precise target proteins. These phosphorylation events of phosphorylation occur in almost every signal transduction pathway which provides regulatory points for therapeutic interference. Profitably kinases have been utilized as drug targets for the last 30 years, with almost 90 kinase inhibitors have been approved by the FDA and most often for the treatment of cancers and inflammatory diseases.

So far, the requirement of Coq8 for coenzyme Q (CoQ) biosynthesis in yeast cells is the only connection between UbiB proteins and biological processes. The entire characterization of Coq8 and other UbiB proteins has been restricted by a lack of potent, particular chemical tools to probe their biological functions. In this work, the researchers publish a highly precise potent inhibitor TTP-UNC-CA157, which targets the human COQ8 proteins and is the first small molecule inhibitor of COQ8A or COQ8B to prove the effects on their known roles in CoQ biosynthesis in cells.

To analyze the lead inhibitor compounds, the researchers found COQ8A as a promising secondary target for 4-anilinoquinolines after searching the presented screening data. Through a series of screenings, UNC-CA157 was selected as the most auspicious top candidate for further development. During the investigation, the team revealed a co-crystal structure of COQ8A compelled to UNC-CA157. This structure approved their medicinal chemistry attempts to mark this compound to the mitochondrial matrix through the addition of triphenylphosphonium (TPP) to the solvent disclosed region of UNC-CA157.

Limitations to CoQ production through genetic or dietary intervention increase lifespan in Caenorhabditis elegans and mice. It is also used by the oxidoreductase FSP1 to help curb cancer cell death, implying that the cell-specific suppression of CoQ biosynthesis might be an active anticancer strategy.

Agro Tech Foods, Mirza International, and Gland Pharma are hot stocks that might return 19 to 30%

Chandreshwar Mali, Stock Market Expert

While Motilal Oswal has maintained a buy call on Gland Pharma NSE -1.84%, brokerage company Ashika Stock Broking has a buy rating on Mirza International NSE -0.05%. Additionally, Phillip Capital recommends buying Agro Tech Foods NSE -0.84%

Top brokerage firms have provided us with the following list of recommendations:

Buy| Target Price of Rs. 370| LTP Price of Rs. 311| Ashika Stock Brokerage on Mirza International 19% increase

With a target price of Rs 370 for the following 12 months, Ashika Stock Broking kept its buy recommendation on Mirza International.

Since March 2022, mobility has grown along with the usage of footwear as COVID instances have begun to decline.

The development of offices and schools creates jobs for shoes, which favors shoe producers, according to the brokerage.

After expanding in metropolitan areas, management is now concentrating on tier 2 and 3 locations where management believes there is far more potential for development.

Buy | LTP Rs 1777 | Target Rs 2470 | Upside 39% | Gland Pharma

With a target price of Rs 2470, we maintained its buy recommendation on Gland Pharma. According to the brokerage, Gland Pharma (GLAND) entered into a Put agreement to buy Cenexi group (Cenex), expanding its CDMO products in the European market.

Agro Tech Foods at Philips Capital: Buy, LTP at Rs. 816, target at Rs. Good 22%

Agro Tech Foods still has a buy recommendation from Phillip Capital, while their target price is Rs 1000. In the letter, it was said that "we feel the high-margin and specialized foods business is becoming meaningful, i.e., hit an inflection point.

Based on the increased importance of the food business—note that food commands higher margins at +40% vs. edible oil (20-25%)—we expect the EBITDA margin to increase to c.8.4% in FY25 from 5.8% in FY22.

Disclaimer:

The experts' recommendations, suggestions, views, and opinions are solely their own. These do not represent the views of Vyom)

Good Manufacturing Practices

Manas Joshi, Chief Patron

Good Manufacturing Practices are the set of principles and procedures that must be observed during the manufacturing of drugs to ensure that the products manufactured will have the required quality. It is mandatory as per the provisions of the drugs and cosmetics act 1940 for the manufacture of drugs for sale in India.

Schedule M consists of these good manufacturing practices. These practices are the most important part of the manufacturing of drugs. to avoid any contamination misbranding, and curiosity about the drug. any contamination or adulteration can cause the death of lots of patients. in past years some of the tragedies were caused due to lack of GMP.

1941-sulfathiazole disaster
Nearly 300 people were killed or injured by Winthrop's sulfathiazole tablets, a sulpha drug tainted with the sedative phenobarbital. each sulfathiazole tablet was contaminated with about 350 mg of phenobarbital. this incident was influential in the introduction of GMP for drugs. this incident caused FDA to revise manufacturing and quality control requirements drastically leading to what would later be called GMP

1962-the thalidomide disaster
The thalidomide disaster is one of the darkest episodes in pharma history. this drug was marketed as a mild sleeping pill or to treat morning sickness even for pregnant women. When permission was given, there was no knowledge of its serious side effects. This drug turned out to be teratogenic and it caused serious deformities in developing fetuses an estimated 10,000 infant deformities with malformed limbs in Europe took place when pregnant women took this drug.

1986- J J hospital glycerine tragedy
14 patients died due to kidney failure on the administration of glycerin. the toxic adulterant diethyl glycol was found present at 18.5 % concentration three times the lethal dose. meant for industrial consumption sold by Kailascompany to Alpana pharma. the act was motivated by greed for more profits.

Public Health and Economy in danger by Pharma counterfeiting

Ronit Handa, Marketing Executive

What is Pharma Counterfeiting? It is a medicine that is deliberately and fraudulently mislabelled with respect to identity and source. Professor Bejon Kumar Misra International Consumer Policy Expert addresses this issue explaining how after becoming one of the top leaders in the pharma industry India faces this issue

and is still considered Not of Standard Quality (NSQ). Indian Pharma has grown its leap in the Pharma world how Indian pharma has fulfilled the world's medical needs and is currently the third largest Pharma leader globally, the rapid investment in this sector has also boosted our economy, manufacturing, and supply of the generic drug has also contributed. Though India has the tag of "Pharmacy of the world" still it is considered as a Not of Standard Quality (NSQ)

This counterfeiting of medicine is also coined as the "Crime of the 21st Century" it is a global menace and affects every economy in the world. It affects the Indian economy with a Whopping Rs 1 trillion every year due to this menace. Due to this the Indian economy as well world economy suffers. Therefore, India must take urgent steps to resolve this issue. The toxicity of the ingredients from spurious drugs has been linked to mass poisoning, organ damage, poor efficacy, and even linked to infant mortality. The drug shortage and high demands encountered during the pandemic have increased the sale of miscellaneous drugs due to lack of surveillance these drugs are sold in the market by multiple authorities such as the Drugs Controller General of India (DCGI) the state drug control authorities need to work together tackle this problem. Due to such problems, the quality of pharma companies is besmirched it is important to take strict action against the seller of false drugs.

Sri Lanka in China's Debt

Harshita Agarwal, Editor-in-chief

China accounts for nearly 20% of Sri Lanka's public external debt.'

Falling global commodity prices, aid from friendly countries, and repurposed funds from multilateral lenders have all assisted Sri Lanka in staying afloat and alleviating crippling shortages. In November, Sri Lanka's inflation slowed for the second month in a row, owing to improved supply conditions and tight monetary policy.

The drop reflects expectations that consumer prices will fall in the coming months after reaching a high of nearly 70%. To tame prices and rein in demand, the Central Bank of Sri Lanka raised borrowing costs by 950 basis points this year, raising the key rate to 15.5%.

On Nov. 24, the monetary authority stated that it is necessary to remain hawkish, despite holding the benchmark interest rate steady for the third consecutive meeting in order to stabilise an economy hit by recession.

Falling global commodity prices, aid from friendly countries, and repurposed funds from multilateral lenders have all assisted Sri Lanka in staying afloat and alleviating crippling shortages.The government is working to secure IMF board approval for a $2.9 billion bailout programme and is currently in talks with bilateral creditors to restructure the debt of the South Asian island.

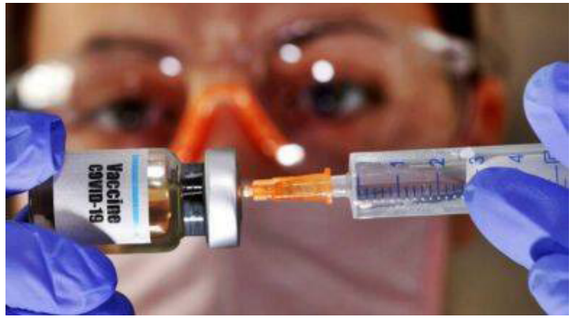
History:
Sri Lanka and China have maintained close diplomatic relations, particularly during the governments of the Sri Lanka Freedom Party. China and Sri Lanka established diplomatic relations on February 7, 1957. On the invitation of then-Chinese leader and CCP general secretary Jiang Zeming, then-Sri Lankan President Chandrika Bandaranaike Kumaratunga paid a state visit to China in 1996. Two agreements were signed by the two parties to strengthen economic cooperation. During the rule of Sri Lankan President Mahinda Rajapaksa, relations between the two countries grew stronger because of Rajapaksa's pro-China stance. Relations remained strong under previous Sri Lankan President Maithripala Sirisena, who was interested in balancing Chinese and Indian influence in the country. Despite this, recent developments have revealed a pro-China tilt in Sri Lanka's current foreign policy, as evidenced by the country's continued Chinese investment and support for China's position in the South China Sea dispute.

Sri Lanka is a major country on the String of Pearls, a Chinese strategic initiative in the Indian Ocean known as the Maritime Silk Road, which is part of the larger One Belt, One Road development strategy.

Disclaimer: ❑ *Hindustan times* ❑ *The Times of India.*

‘VINCOV-19’: India’s First Antidote Against Covid-19 Ready For Phase 3 Clinical Trial!

Pranjali Samarth, Creative Assistant



VINCOV-19 consists of Equinone polyclonal antibodies (EpAbs). It comprises highly purified antibody fragments that have a high neutralizing capacity against the SARS-CoV-2 virus.

VINCOV-19 is India’s first antidote and is said to be a cure for COVID-19. VINCOV-19 is all set for Phase 3 Clinical Trials and even for market authorization. VINCOV-19 is great teamwork by the University of Hyderabad (UoH), the Centre for Cellular and Molecular Biology (CCMB), and VINS Bioproducts Limited.

The CCMB team led by Dr. Krishnan H. Harshan developed viral antigen, the UoH team led by Dr.Nooruddin Khan of the department of animal biology, School of Life sciences, worked on product characterization while VINS Bioproducts manage the equine immunization and clinical development in their state-of-art-manufacturing plant in Telangana.

The development of VINCOV-19 is an affirmation of ‘Atmanirbhar Bharat’.

VNS Bioproducts CEO Siddharth Daga then urged the concerned regulatory authorities to allow marketed authorization to strengthen our fight against COVID-19.

In September 2022, the phase 2 clinical trial of this drug was conducted across various centers in India which consisted of around 200 patients. The patients with moderate severity of COVID-19 were treated with VINCOV-19 as well as Standard of Care (SoC). VINCOV-19 showed a very remarkable safety profile in the Phase 2 Clinical Trials. The trials showed a very well improvement in the clinical condition of patients.

An official statement from UoH emphasizing the urge to tackle the Omicron variant says that: “The Phase 2 Clinical Trials also includes testing the antidote against the virus and mutation.”

Recently, a new sub-variant of the Omicron Variant has shaken the attention of health agencies. As a result of the high transmission rate and the ability to evade immunity, BF.7 which is a sub-variant of Omicron is considered a potential spreader. BF.7 variant is responsible for more than 25% of active COVID cases globally.

Disclaimer: ❑ *Healthworld.com* ❑ *Hindu.com* ❑ *TimesofIndia.com*

Opines Industry CEOs point out having a separate ministry for Pharma Sector

Ronit Handa, Creative Director

Opine Industries Pvt Ltd is a Private incorporated on 18 May 2021. It is classified as a non-govt company and is registered at the register of companies, Patna. Its share capital is estimated at around Rs 1000,000 It is involved in the manufacture of other food products.

“The Government needs to set up a separate ministry for the pharma sector to encourage domestic producers and decrease Chinese imports” opined CEOs said participating in a discussion on the difficulties faced by the sector in the country. The CEO roundtable meeting was held at the 15th edition of CPHI and PMEC India on Tuesday, the Chief Executive Officers (CEOs) of companies and other companies (CEOs) of RPG life science and Fermenta biotech also talked about shifting their respective focus to the domestic industry of market. The leaders also highlighted how our market is dependent on China by using technology and how we need to reduce it.

The Organization of Pharmaceutical Producers of India (OPPI) Director General Vivek Sehgal said that the industry needs to collaborate and co-work and unite together for a collective voice on IPR-related issues. The leader also discussed having a single industry organization for the pharma industry. Speaking at the inaugural session of the 15th edition of CPHI and PMEC India, Pharmexcil Director General Ravi Uday Bhaskar said Indian Pharmaceutical market exports have recorded an outstanding growth of around 5% in the current financial year. “Despite having global challenges, we have exported over USD 25 billion in the biggest market, which means about 30 percent of our exports are going to the US,” he said.

FDA Approves Oral Liquid Formulation to Treat Gastric Issues

Riya Chotai, Media Manager

The FDA has authorized omeprazole and sodium bicarbonate for oral suspension (Konvomep, Azurity) to deal with energetic benign gastric ulcers and decrease the chance of higher gastrointestinal bleeding in significantly unwell patients. Azurity Pharmaceuticals CEO Richard Blackburn said in a press release: Omeprazole and Sodium Bicarbonate Dispersible Oral Suspension combines the proton pump inhibitor omeprazole (PPI) and sodium bicarbonate. Heartburn or heartburn Peptic ulcer. PPIs can treat ulcers, but they can also prevent ulcers. Many people take this PPI for gastroesophageal reflux disease (GERD). Gastroesophageal reflux occurs when acid travels up the esophagus and inflames the tissues.

A gastric ulcer is an open wound that lines the inside of the stomach. It is one of two types of stomach ulcer, the other is called a duodenal ulcer, which covers the first part of the small intestine. Symptoms of stomach ulcers include pain and nausea. , pain in the back, a burning sensation that feels like hunger, and pain aggravated by eating. Practitioners can measure gastrin in the laboratory, perform barium imaging (X-ray) of the upper gastrointestinal tract, or perform gastrointestinal endoscopy to examine the lining of the upper gastrointestinal tract. Examine for ulcers.

There are many forms of gastric ulcer and bleeding treatment, but omeprazole and sodium bicarbonate for oral suspension are liquid formulations.

“Patients who struggle to take solid oral dosage forms can be overlooked, and historically, there have been limited FDA-approved treatment options available as liquid formulations,” said Olga Gilas. (PharmD, MPH, BCPS, BCGP, Professor, Clinical Health Professions, St. John’s University College) said: Her release from the press of her Pharmacy & Health Sciences in Queens, NY.

Her common PPIs include lansoprazole (Prevacid), omeprazole (Prilosec), pantoprazole (Protonix), rabeprazole (AcipHex), and esomeprazole (Nexium).

They are the most potent acid suppressants proven to be effective for chronic gastrointestinal problems. “Patients are our priority and our goal is to provide patients with novel formulations that help them reap the benefits of established medicines,” Blackburn concluded in a press release.

Resource:
https://www.pharmacytimes.com/view/fda-approves-oral-liquid-formulation-to-treat-gastric-issues

Eisai and Biogen present encouraging lecanemab research outcomes

Harshita Agarwal, Editor-in-chief

Lecanemab, the drug, is eagerly awaited because it moderately reduces the progression of a disease for which there are few treatments.

The most common type of dementia is Alzheimer's disease. It is a progressive disease that begins with mild memory loss and may progress to loss of ability to converse and respond to the environment. Alzheimer's disease affects brain regions that control thought, memory, and language.

According to a study published late Tuesday, an experimental Alzheimer's drug moderately slowed the effects of the disease but was linked to patient safety risks that warranted longer clinical trials. The study, published in the New England Journal of Medicine, discovered that a drug developed by Tokyo-based Eisai and Cambridge, Massachusetts-based Biogen reduced the amyloid beta protein, a key marker of Alzheimer's disease, and that patients who received the drug performed better on cognitive and physical measures than a placebo group. The research was funded by the companies.

However, the detailed results concluded that the drug, lecanemab, was associated with "adverse events" and warranted further investigation.

Wall Street analysts were generally positive about lecanemab's prospects on Wednesday, citing consistent improvement across multiple measures of patients on the drug compared to the placebo group and viewing the side effects as manageable. The evidence, according to William Blair analysts, is a "near best-case scenario given the limitations" of amyloid-targeting drugs. They believe the drug will receive both accelerated and full regulatory approval.

"Today's results show that lecanemab slows cognitive decline, which is welcome news for the millions of patients and families living with Alzheimer's," said Dr Howard Fillit, chief science officer at the Alzheimer's Drug Discovery Foundation. "But this is only a start to stopping Alzheimer's in its tracks. We have a lot of ground to cover to get from the 27% slowing lecanemab offers to our goal of slowing cognitive decline by 100%."

Lecanemab, an amyloid-clearing drug, is expected to be approved by the US Food and Drug Administration in early 2023 and is widely regarded as a significant step forward in the treatment of Alzheimer's disease.

Eisai is leading lecanemab development and regulatory submissions globally, and the treatment will be co-commercialized by Eisai and Biogen.

References:

https://www.washingtonpost.com/business/2022/11/29/alzheimers-drug-eisai-biogen-lecanemab/

https://www.pharmatimes.com/news/eisai_and_biogen_present_promising_lecanemab_study_results_1482234

VYOM-वार्ता

Buy Glenmark Pharmaceuticals at Nomura's India price target of Rs. 580

Chandreshwar Mali, Stock Market Expert

A buy call with a target price of Rs 580 on Glenmark Pharmaceuticals NSE 0.99%. Glenmark Pharmaceuticals is currently available on the market for Rs 431.2. The analyst's suggested time frame for Glenmark Pharmaceuticals' price to reach the specified target is one year.

A Mid Cap company with a market cap of Rs. 12152.98 Crore, Glenmark Pharmaceuticals was established in 1977 and specializes in pharmaceuticals.

Financials The company's Consolidated Total Income for the three months that ended Sept 30, 2022, was Rs 3472.68 crore, up 10.79% from the same time last year and up 17.30% from the previous quarter's Total Income of Rs 2960.44 crore. During the most recent quarter, this company reported a net profit after tax of Rs. 278.67 billion.

The top executives of the firm include Mr. Glenn Saldanha, Mr. D. R. Mehta, Mrs. B. E. Saldanha, Mr. Sridhar Gorthi, Mr. Bernard Munos, Mr. Dipankar Bhattacharjee, Dr. Brian W. Tempest, Mr. Rajesh V. Desai, Mr. V. S. Mani, Mrs. Cherylann Pinto, and Ms. Saira Ramasastry The company's auditors are Walker, Chandiok & Co.LLP. 28 Crore shares of the company's outstanding stock as of September 30, 2022.

Investment Justification

The brokerage has reduced its sales/EBITDA estimates for FY23/24F by 0.5%/2.4% and 13.8%/11.8%, accordingly, in light of the decrease in US sales and inflationary pressure. Estimates of earnings are also dramatically reduced by 32%–43% to account for much higher tax rates and depreciation. As a consequence, Nomura has decreased the stock's Dec. 23 target price from Rs. 580 to Rs757.

Nevertheless, the brokerage maintains a buy rating on the stock since it believes that street expectations are modest. The company trades at a 7.4x FY23F EV/EBITDA ratio, which is 50% less than that of its competitors in the sector. Ichnos can raise its valuation multiple by improving cash flow and creating value.

Advertiser/FII Holdings

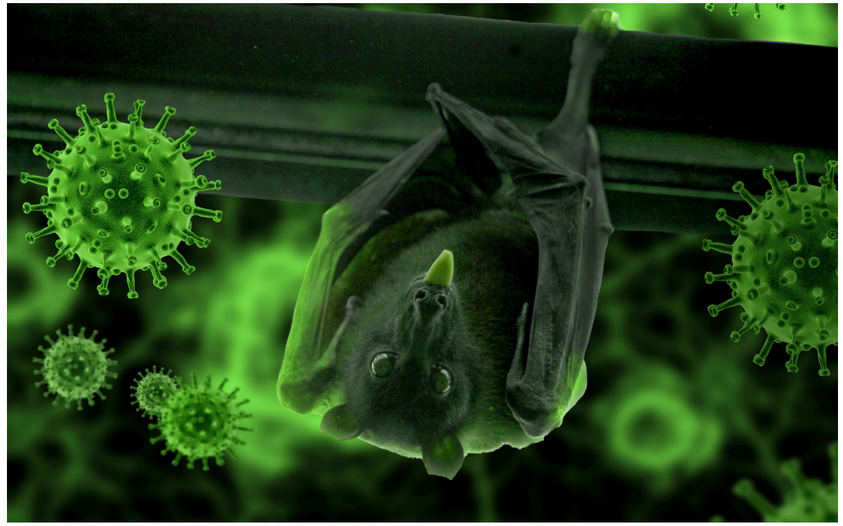
As of September 30, 2022, promoters owned 46.65% of the firm, FIIs owned 28.54%, and DIIs owned 10.68%.

Disclaimer:

The experts' recommendations, suggestions, views, and opinions are solely their own. These do not represent the views of Vyom)

COVID-19: 21ST Century Pandemic

Rutuja Dhone and Samiksha Barahate, Student



COVID-19 is also known as coronavirus caused by severe acute respiratory syndrome (SARS-CoV virus) which caused the death of a patient in critical condition. The origin of the COVID-19 virus is CHINA in the city name WUHAN and the 1st case of this virus was reported on December 19.

The 1st case of COVID-19 i.e. coronavirus in INDIA originated in China and was reported on 27 January 2020 KERALA by a 20-year-old female who returned to Kerala from Wuhan.

On 30 January 2020 WHO (World Health Organisation) declared COVID-19outbreak a global pandemic. In 2020, India had 10 million confirmed cases of COVID-19 infection and more than 150000 deaths with the number of recovery cases and discharge cases.

Cases increased by Mid-September in India with over 90000 cases as reported per day, dropping to the number below 40000 in December. As India's recoveries increased making the situation under control the second wave hit in 2021 which peaked the number of active coronavirus (COVID-19) cases in the country.

COVID-19 affects different people in different ways. The most common symptoms seen in the infected person are fever, cough, tiredness, and loss of taste o smell. Some symptoms also include sore throat, headache, Diarrhoea, or irritated eyes. Sometimes symptoms can be serious in the infected person which can be difficulty in breathing, and chest pain as the virus attacks directly at the lungs and damages the respiratory system in severe conditions. The virus takes 5-7 days on average to show symptoms when someone is infected or it can take up to 14 days to show symptoms depending upon the spread of the infection. A patient with strong immunity can recover from the virus with the help of medication.

However, this virus has no symptoms in many cases and can spread to a non-infected person. This is called ASYMPTOMATIC transmission.

The proper treatment was not available for COVID-19 but with the help of scientists and researchers, the vaccine for this virus was generated. In September, India's former health minister Dr. Harsh Vardhan announced that the 1st vaccine will be available by 2021.

The Drug Controller General of India approved the emergency or conditional use of AstraZeneca's COVID-19 vaccine AZD1222 was marketed as Covishield on 1 January 2021.

COVISHIELDTM is manufactured by serum institute of India Pvt Ltd and the COVID-19 vaccine AstraZeneca is manufactured by AstraZeneca is ChAdOx1 nCoV-19 Corona Virus.

There are many impacts of COVID on different sectors, like commercial established Education Economy, Entertainment, transport, etc, and many workers were left with no livelihood.

As of 2022, the situation is in control and the number of cases has decreased by 6% during the week of 26 September to 2 October 2022 with the number of deaths decreasing by 12%.

As the world faced the unprecedented crisis of COVID-19, it has been the Doctors, Nurses, and healthcare workers who were there to stand with us to face and support the country in the difficult situation.

"WE ARE IN THIS TOGETHER- AND WE WILL GET THROUGH THIS, TOGETHER."

अर्थ-icle

Thin Layer Chromatography: A widely used chromatographic separation technique

Prof. Mrs. Shital R. Kalekar, Faculty

Thin Layer Chromatography (TLC) is an important technique used for the identification and separation of the mixture of chemical compounds into their components. TLC is a form of liquid chromatography consisting of two phases: A mobile phase (liquid) and A stationary phase (solid). Differences in the interactions between the solutes and stationery and mobile phases enable separation.

PRINCIPLE:

- TLC technique involves the distribution of components of a mixture to be separated between two phases.
- The components of the mixture are partitioned between an adsorbent (stationary phase), and a solvent (mobile phase).
- Different compounds will have different solubility and adsorption to the two phases between which they are to be partitioned.
- In TLC separation of the individual substances is based on their relative affinities towards stationary and mobile phases.
- The stationary phase: is a thin layer of adsorbent (usually silica gel or alumina) coated on a plate.
- The mobile phase: is a developing liquid that flows through the stationary phase, carrying the samples with it.
- Components with more affinity towards the stationary phase travel slower.
- Components with less affinity towards the stationary phase travels faster.

Adsorbents used as Stationary Phase:

- Inorganic: Silica Gel, Kieselguhr, Aluminium Silicate, Bentonite.
- Organic: Cellulose & its acetylates, Charcoal & activated Charcoal, Dextran Gel, Polyamides.
- Solvents used as Mobile Phase: - Petroleum ether, Benzene, Carbon tetrachloride.
- Selection of Adsorbents and Solvents.
- Adsorbent should not adhere to glass plate.
- Solvents should be of high purity.
- Selected based on the nature of the compound to be separated (polar or non-polar.)
- Rf value indicates the position of migrated spots on a chromatogram.
- In TLC the results are represented by the Rf value which represents the migration of solute relative to the solvent front.
- The Rf value is calculated as: Rf Value = Distance travelled by the solute/ Distance travelled by the solvent front.

PROCEDURE:

Step 1: Preparation of Slurry

- A plastic, glass, or aluminium sheet is coated with a thin layer of silica gel (adsorbent).
- Plates must be dried, activated, and stored in a desiccator until used.

Step 2: Preparation of Tank

- Solvent mixtures should be freshly prepared for analysis.
- Solvent is poured downside of the tank (1.5cm depth).
- Tank is covered with the glass lid and kept for saturation.
- A very small amount of sample (solution) to be analyzed is applied in a small spot with a capillary tube, ~1cm from the bottom of the TLC plate.

Step 3: Application of Sample (Spot)

- A very small amount of sample (solution) to be analysed is applied in a small spot with a capillary tube, ~1cm from the bottom of the TLC plate.

Step 4: Development of TLC plate

- The TLC is developed in a chamber that contains the mobile phase (solvent).
- When the mobile phase rises up the plate up by capillary action, the components dissolve in the solvent and move.
- Individual components in the sample move up at different rates. More polar analytes interact more strongly with the stationary phase and move very slowly up.
- More nonpolar analytes interact less strongly with the polar silica gel and more strongly with the less polar mobile phase moving higher up.
- Once the solvent reaches the top (below ~1-2 cm) of the TLC sheet the plate is removed from the developing chamber and the position of the solvent front is marked.
- The solvent is allowed to evaporate from the TLC sheet.
- As the compound is colourless, it can be visualized by suitable methods.
- e.g., Lipids-Iodine vapours, Amino acids - Ninhydrin reagent.
- Also, manganese-activated zinc silicate (fluorescent compound), is added to the adsorbent that allows the visualization of spots under a black light (UV254 lamp).
- Once visible, the Rf value of each spot can be determined.

Applications of TLC:

- TLC is used in qualitative and quantitative analysis to separate organic compounds and to test the purity of compounds.
- This technique is useful for the separation of lipids, amino acids, and sugars, etc.

It is useful in:

- Identification of components of a mixture.
- Following the course of a reaction,
- Analyzing fractions collected during purification
- Analyzing the purity of a compound.

Drug: Addiction, classification and stimulant

Nidhi Vichare Student

What is meant by a drug?
Any substance, other than food, used in the prevention, diagnosis, and all aviation or treatment of a disease is called a 'drug'.

Generally, the term drugs are applied to any stimulating or depressing substance that can be habituating or addictive. Addiction is the habitual, psychological, and physiological dependence on a substance or practice which is beyond voluntary control. A person who is habituated to a substance or a practice, especially a harmful one is called an 'addict'

CLASSIFICATION OF DRUGS:

There are a large number of drugs on which people are dependent. These are classified into four major groups-

- Sedatives and tranquilizers: examples are barbiturates and benzodiazepines which give a feeling of calmness and drowsiness to the addictive person.
- Opiate narcotics: examples of these are opium, morphine, codeine, and heroin which suppress brain activity and relax the pain.
- Stimulants: examples of these are Amphetamines, caffeine, and cocaine which make a person more wakeful and alert.
- Hallucinogens: LSQ and mescaline alter thoughts and feelings.

Social diseases are Smoking, drinking, and use of drugs frequently or regularly. They adversely affect the health of the addicts and society. Young people take these habits for fun, show off, or curiosity as an adventure or feeling of freedom. A temporary escape from life problems and mental relaxation felt by taking the drugs, in the beginning, increases a person's interest in them, soon they become habitual and find it difficult to leave. As in other countries, the menace of drug addiction is spreading in India also. A large number of our young men and women have taken to intoxicants. About 87.6% of drug addicts are between the age of 14-25 years. Additional to this is alcohol which

causes intoxication and thus acts as a poison. Alcoholics are found in all sections of society; the drinkers begin with small doses but may afterward start consuming large doses and become addicts. By the time they realize that drinking is adversely affecting them, it is too late to give it up. Alcohol is quickly absorbed in the stomach and the upper part of the small intestine reaches all the tissues in minutes. Its oxidation starts at once and a large amount of heat is produced. Since heat is not needed in the body, it is taken up by the blood and carried to the skin for dissipation. The blood supply of internal organs is greatly reduced resulting in a fall in temperature in them. The energy released by alcohol is not used in any life processes. Rather the energy derived from food is used up in getting rid of excessive heat in the body. Sources of alcohol are ethyl alcohol or ethanol which is a flammable, coloured liquid having a penetrating odour and burning taste.

IS ALCOHOL A STIMULANT?

Many people take alcohol for stimulation or as a depressant, a substance that dulls the senses. It reduces the efficiency of every tissue in the body. The body relaxes and the mind feels fresh after taking drugs. If the person couldn't consume it, peevish temperament occurs and the person doesn't wish to work or even talk. He/she feels anorexia, fever, headache, itching in the body, and sometimes vomiting also occurs. For example - Phensedyl acts as an antitussive and expectorant. Each 5mL contains the following: promethazine hydrochloride (3.6 mg), codeine (9.0 mg), and ephedrine hydrochloride (7.2 mg).

Treatments and recommendations for the patient:
Several fieldwork studies found that many people, especially youths are eager to get rid of drugs. But unfortunately, they can hardly find a way out. The departments of narcotics control, police, BDR, etc, either do not work or/and even somehow are related to business. According to the discussion with the concerned people such as drug abusers, guardians, teachers, and policemen, it is clear that behaviour modification of the abusers is not enough to check the spread of drug taking and drug trafficking.

The concerned people gave the following suggestions to control drug addiction:

- The concerned administration should be reshuffled.
- Culprits those who are hidden in the police, BDR, and narcotics control department must be punished.
- Leaders of social institutions like schools, colleges, clubs, etc should come forward to build resistance against drugs.
- NGOs can play a great role, especially in the awareness and rehabilitation processes.
- Even a pharmacist should not sell the drug before having a look at the prescription given by a registered doctor.
- Many options have been successful in treating the drug-addicted patient including- behavioural counselling, medications, medical devices, and applications used to treat withdrawal symptoms or deliver skills training, evaluation, and treatment for co-occurring mental health issues such

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RANIVISIO: A venture by Pharma Trio

Harshita Agarwal, Editor-in-chief

Ranivisio is used to treat neovascular age-related macular degeneration, visual impairment caused by diabetic macular oedema, and choroidal neovascularisation (CNV). It also treats proliferative diabetic retinopathy and visual impairment caused by macular oedema caused by retinal vein occlusion.

The Committee for Medicinal Products for Human Use (CHMP) issued a favourable opinion in June 2022, recommending that the medicinal product Ranivisio be granted a marketing authorization and applies to all 27 EU member states, as well as Iceland, Norway, and Liechtenstein. The Pharma trio, Polpharma Biologics, Formycon, and Bioeq collaborated to develop Ranivisio, also known as ranibizumab, a biosimilar to Lucentis. The original therapy is already used to treat several serious retinal diseases throughout the EU.

Ranivisio was created by Bioeq in collaboration with Polpharma Biologics and Formycon. Teva also entered into a strategic partnership in mid-2021 for the exclusive commercialization of Ranivisio in Europe and selected other countries.

"The production of biosimilars is a process with high levels of scientific rigor and the approval of Ranivisio is the culmination of years of dedication by Polpharma Biologics, and our partners, to successfully engineer this medical advancement for those with severe retinal impairments," Michael Soldan, CEO of Polpharma Biologics, alleged on this. "We look forward to working with our strategic partners to rapidly get this very important treatment to the people across Europe who need it most."

"Due to the demographic development more and more people in Europe are affected by age-related macular degeneration and other severe retinal diseases. This is very often accompanied by significant impairment of quality of life. We are therefore particularly pleased Ranivisio can contribute to the treatment options of ophthalmologists and best possible care for these patients," Dr. Stefan Glombitza, Formycon's CEO, concluded.

The complete indication is:
Ranivisio is approved for-

- The treatment of neovascular (wet) age-related macular degeneration in adults (AMD)
- The treatment of diabetic macular oedema-related vision loss (DME)
- Diabetic retinopathy proliferative treatment (PDR)
- Treatment of visual impairment caused by macular oedema caused by retinal vein occlusion (branch RVO or central RVO)
- Treatment of choroidal neovascularisation-related visual impairment (CNV).

Ranivisio should be administered by a qualified ophthalmologist with intravitreal injection experience.

After the European Commission grants marketing authorization for this product, the summary of product characteristics (SmPC) will be published in the European public assessment report (EPAR) and made available in all official European Union languages.

What are biosimilar drugs?

- A biosimilar, also known as a biosimilar drug, is a medicine that is structurally and functionally identical to a biologic medicine.
- A biologic, also known as a biologic drug, is a medicine that is created in a living system, such as yeast, bacteria, or animal cells.

Biologics used in cancer treatment can work in a variety of ways. For example, they could:

- Assist the body's immune system in more effectively recognising and killing cancer cells.
- Stop cancer cell growth by working against specific proteins found in or on cancer cells.
- Assist the body in producing more blood cells to replace those lost due to other cancer treatments.

What does the Committee for Medicinal Products for Human Use oversee?
The CHMP is critical in the approval of medicines in the European Union (EU). The CHMP is in charge of the following tasks in the centralised procedure:

- conducting preliminary evaluations of EU-wide marketing authorization applications
- evaluating changes or extensions ('variations') to an existing marketing authorization
- considering the recommendations of the Agency's Pharmacovigilance Risk Assessment Committee on the safety of medicines on the market, and, if necessary, recommending to the European Commission changes to a medicine's marketing authorisation, suspension, or withdrawal from the market.

The CHMP also evaluates medicines that have been approved at the national level and have been referred to the EMA for a unified position across the EU.

What is Lucentis used for?
LUCENTIS is a prescription medication used to treat patients who have:

- Age-related macular degeneration (wAMD)
- Diabetes-related retinopathy (DR)
- Diabetes-related macular edoema (DME)
- choroidal neovascularization in myopia (mCNV)
- Following retinal vein occlusion, macular edoema develops (RVO)

Sources: *PharmaTimes*

1 Pack= 1 Step Towards Death

Manas Joshi, Chief Patron

Nicotine, C10H14N2. It is the most commonly consumed drug in the whole world. A single drag of it pushes you towards the cliff of death. Yes, it is Nicotine! The drug has no suppressant, no antidote, and no cure for the damage it causes. It is a slow poison that makes you consume it more and more. Which will be the last puff of your life you never know.

Nicotine is found in tobacco plants. It is a natural alkaloid. It is a stimulant of autonomic ganglia. Once after getting absorbed in the blood, it gets bind to the nicotinic acetylcholine receptor which secretes the acetylcholine, calcium, and sodium which causes the depolarization of the cell. Dopamine is also secreted into the blood. Dopamine is the main reason behind the euphoria created by nicotine. The release of acetylcholine gives a pleasant feeling after a drag. It is rapidly absorbed and mixed with the blood. Nicotine is the most addictive drug. Secretion of calcium mainly causes the release of epinephrine which causes vasoconstriction, increases in blood pressure, and increases in heart rate & blood sugar level. Intravenous administration of nicotine is responsible for the release of acetylcholine, norepinephrine, dopamine, serotonin, vasopressin, beta-endorphin, and ACTH.

Nicotine addiction is another serious topic for discussion. Nicotine creates euphoria, though it's not as strong as other addictive substances like marijuana or hashish or opioids it's neither safer than those. But the body which gets used to that kick off the nicotine, in absence of its body starts to lose control of its motor neurons. Discrete thoughts, loss of patience, and urge for consumption. The body easily gets addicted to nicotine which gives a kick, creates a euphoric condition, and gives pleasure but, it also makes you pay a large amount. The more the nicotine gets absorbed in the body more harm it could cause. Nicotine first affects your respiratory system. Mainly the lungs, which lose the elasticity of

epithelial tissues. It also affects the heart rate, reproductive system, lungs, kidneys, etc. Nicotine firstly causes irritation and burning sensation in the mouth and throat, increased salivation, nausea, abdominal pain, vomiting, and diarrhoea. Increase in blood pressure and heart rate. Gastrointestinal diseases, kidney failure, infertility, hypothermia, hypoglycaemia, and many more disease can be seen.

Nicotine is used in the process of quitting smoking & tobacco addiction. This process is known as Nicotine replacement therapy. Nicotine patch, and nicotine chews, makes it way easier to quit smoking. In this process, the requirements of the body for nicotine are fulfilled by the patches or the chews in which nicotine is found in synthesized form. This therapy can help to control the physical and mental urge for nicotine. Which helps a little to quit smoking.

Nicotine patch: The sticky patches are directly applied to the upper layer of the skin. It releases a slow but steady flow of nicotine in the body.

Advantage:

- It is easy to use.
- No special skills are required.
- Rapid and safe absorption in the blood.

Disadvantages:

- It causes irritation.
- Patients can feel uneasy
- Stiffness in muscles
- Headache
- Nausea
- Insomnia

Nicotine chews: Type of chewing gum. one can chew it directly without any risk.

Advantages:

- Easily available on counter purchase

Disadvantages:

- Irritation to the mouth and throat
- Pain in jaws
- Increase in heart rate
- Increase in blood pressure.

Nicotine inhalers: The specified amount of nicotine is directly pumped into the respiratory system. which is further mixed with the blood.

Advantages:

- No reduction of the drug
- Directly pumped into the respiratory system
- Rapid absorption and metabolism

Disadvantages:

- Only for prescribed patients.
- Irritation in the mouth & throat.
- Nausea
- Headache
- Runny nose

According to a survey 435,000 premature deaths were recorded in the U.S. and 5 million worldwide every year. Although 19.8% of US adults are currently chain smokers. The Global Adult Tobacco Survey (GATS) conducted in 2016–17 confirmed that the overall prevalence of smoking tobacco use is 10.38% and smokeless tobacco use is 21.38% in India. In adults, 28.6% consume tobacco either in smoked or smokeless form, including 42.4% of men and 14.2% of women. Second-hand smoke (SHS) reports 0.9 million deaths and 24 million disability-adjusted life years This slow poisoning already killed more than a million people and the list is still running. There must be a full stop for it.

"Yes, it is a serious issue for me!"

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Can we expect more Pandemics in the future?

Ronit Handa, Creative Director

This word pandemic in recent times has been discovered by many of us if you would have asked me before 2020 about the word pandemic, I would have said it's a new word for me or something like that. Pandemic is derived from the Greek word pan meaning "all" and demos meaning "local crowd". But if we turn the pages of history pandemic is not new term humankind has seen pandemics for 3 centuries.

Firstly, what is a Pandemic, of course, many are now known for this word but what is the proper definition of pandemic well according to Wikipedia is an epidemic occurring on a scale that crosses international boundaries, usually affecting people on a worldwide scale. The world saw its first-ever major Pandemic in the year 1348 it was the plague pandemic which was also known as the black death the plague first originated in Europe and almost killed the half population of Eurasia. The plague died out in most places but it came back in the late 17th century and recurred in the 18th and 19th centuries.

The second major pandemic was in 1817 the First Cholera Pandemic which is also known as the first Asiatic cholera pandemic. The pandemic was first discovered near Calcutta in British India this pandemic was the first to affect each country in Asia and this pandemic also caught the attention of Europe. Cholera is caused by the bacteria named Vibro Cholera. After spreading in India this disease affected other parts of Asia and Africa. This disease was alone responsible for 1 – 2 million deaths in India the total amount of deaths is unknown. In March 1820 it was also discovered in Siam and this was also spread as far as Bangkok. In 1823 a program was started by name of anti-cholera which was led by a German physician named Dr. Rehmann. In 1824 the disease was declared dead some researchers believe it was due to the cold winter of 1823-1824 which could have possibly killed the bacteria.

The 1918 influenza Pandemic or also known as the Spanish flu was one of the most dangerous pandemics in recent times, this pandemic does not have its specific origin place but the first victim was found in the United States during the spring of 1918. The first case was founded in United States Kanas in March 1918 in later April, it spread to France Germany, and the United Kingdom. The disease was caused by the H1N1 virus the Russian flu and the most recent disease was swine flu caused by this virus. After two years nearly third of the world's population was affected by this disease and around 17-50 million people died.

And the most recent example of the pandemic seen in 2020 was Covid 19 the big question is why all these pandemics occur after every century. Will, there be more Pandemics in my opinion there will be more pandemics dangerous than the black death, the Spanish Flu, COVID 19 but as we progress, we can stay prepared for the future of these diseases and pandemics occur due to outbreaks of various viruses we can expect many more pandemics in future but the way we are progressing I don't think any future pandemic will cause as many deaths as Spanish Flu and Covid 19.

But why there an outbreak of the virus and why this pandemic takes place there are many reasons but some of them are

Urbanization- The world is transforming and becoming more urban in 1950 roughly only two-thirds of the world's population lived in rural areas UN predicts this number will increase and that 66 percent of the population of the world will live in urban areas. This will lead to more people facing problems such as infrastructure, sanitation, and housing problems this will lead to more people staying in an unhygienic environment where deadly viruses can thrive.

Increased contact with animals- the way we contact animals today can lead to outbreaks of zoonotic diseases which are originated from animals when the pathogen jumps species barriers it is unknown and more lethal

We can prevent several pandemic outbreaks if we paid special attention to these small details and personal hygiene

The Serotonin Theory of Depression: Systematic Cross-Sectional Overview of Evidence

Riya Chotai, Media Manager

The “serotonin hypothesis” of clinical depression was originally raised around 60 years ago. At its simplest, the hypothesis says that decreased activity of serotonin plays a role in the pathophysiology of depression. Since then, it’s been extensively believed that depression is resulting from an imbalance of serotonin and different chemicals, known as neurotransmitters, in the brain. The idea was based on the depressogenic effects such as monoamine oxidase inhibitors and tricyclic antidepressants, discovered incidentally in clinical practice but later found in experimental animal studies to enhance the effects of serotonin and other monoamines at the synapses. This assumption is often used to justify the use of antidepressants, especially selective serotonin reuptake inhibitors (SSRIs). For example, the NHS website states that “SSRIs are used to work by increasing levels of serotonin in the brain,” which is often explained when offering this drug to patients.

This was the information by the media and they got it all wrong.

However, a review published in the journal Molecular Psychiatry on July 20, 2022, may have changed all that.

This review concluded that there is no consistent evidence for a link between serotonin and depression, and does not support the hypothesis that depression is caused by decreased activity or levels of serotonin.

The results were widely and somewhat enthusiastically reported in the mainstream media and, while not surprising to many experts, were met with surprise from patients.

The problem is that the evidence simply doesn’t exist to provide patients with clear alternative explanations for the causes of depression, and mental health professionals are concerned about the implications of research, particularly as reported. they were concerned about how the study was conducted — it may depend on the patient’s confidence and willingness to take antidepressants in the future.

Umbrella reviews capture existing systematic reviews and meta-analyses relevant to a research question and represent one of the highest levels of evidence synthesis available. Traditionally limited to systematic reviews and meta-analyses, we wanted to identify the best available evidence. In a national database, the latter includes more people than the entire meta-analysis and should therefore provide even more reliable evidence than the synthesis of individual studies.

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The inclusion criteria are designed to identify the best available evidence for each research area and consist of:

1. Synthesis of studies, including systematic reviews, meta-analyses, comprehensive reviews, individual patient meta-analyses, and analyzes of large datasets.
2. Research on people with depressive disorders or research for experimental research.
3. Study experimental procedures (tryptophan depletion) including sham or control conditions.
4. Studies fully published in peer-reviewed literature.
5. If there are more than 5 systematic reviews or large analyses, the 5 most recent are included.

Exclusion criteria consisted of:

1. Animal experimentation.
2. Targets only depression associated with physical illness (e.g., post-stroke or Parkinson’s disease). No language or date restrictions were applied. We performed this search using the same search string against this domain without restricting it to a systematic review or meta-analysis.

This was reviewed and said by Molecular Psychiatry on 20th July 2022

What does cause depression?

Scientists are working to understand the mechanism of depression - which is no longer considered to be one disease or a single cause.

Nowadays it is considered that depression is a heterogenous disorder with probably multiple underlying causes. Depression is a consequence of a complex interaction of psychological, social, and biological factors. Because depression is often associated with ‘negative biases’ in the way people see the world and process information, non-pharmacological interventions

such as cognitive-behavioural therapy can challenge automatic negative thinking. The cognitive distortions of depression can also be reversed with antidepressants.

There is consistent evidence that antidepressants can be helpful in treating depression and can save lives.

“In our view, patients should not be told that depression is caused by low serotonin levels or chemical imbalances, but that antidepressants work by targeting these unproven abnormalities. Don’t be fooled. First author, the press release accompanying the study. However, the 2022 study’s findings were quickly picked up by national media, claiming that ‘antidepressant research could lead to a drug used by 8 million people.’ and “Depression ‘not caused by low serotonin levels’: Study suspects.” It has been raised about the widespread use of effective medicines to treat chemical imbalances in the brain.” – Serious fears that this condition has been over-medicated for years. cause among patients. There is strong evidence regarding the use of antidepressants There is evidence that antidepressants, especially SSRIs, help relieve symptoms of chronic depression in many people.

Under review by Umbrella, the College of Mental Health Pharmacy (CMHP) reiterates that antidepressants remain a “lifeline” for many patients prescribed. “It is important that patients taking antidepressants seek advice if they are concerned about current information rather than abruptly stop taking them,” CMHP said in a statement. It is okay to ask our questions to our Pharmacist.

“Not every rumour is true and Not every antidepressant is harmful”

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Pharma Tech: A new digital Pharma world

Saee Sutar, Student

Nowadays, the whole world is going digital. The use of new technologies is increasing day by day. Technologies have gained the most significant and deep impact on living life.

Let's see some examples- When the mobile alarm goes off, our morning starts and we want to wake up early tomorrow morning, then we set the alarm on the gadget. Technologies have now become an integral part of human beings.

In previous times, pharmacists had also faced various issues regarding their field. A major recent example is a pandemic. Doctors and pharmacists were under a lot of pressure in the last 2 years. The whole team fell short of preparing the vaccine. But this situation also passed with the help of technology. For the future and better life, there is a need to understand the importance of technology to overcome these challenges.

Pharmaceutical technology is a branch of the growing pharmacy tree.

This course provides the students with basic knowledge of the manufacturing process and different machines used in the production of tablets of any medicine.

We had to know about the importance of the new technologies in the pharmaceutical industry and their recognition need to concede.

Pharmaceutical technology is one of the pharmaceutical sciences dealing with the composition, formulation, preparation, or manufacturing the drugs.

We know any topic has 2 sides...one is positive and the second one is negative.

But the study concludes that new technologies have had a positive effect on the growth of the pharmaceutical industry. In the future, new technologies will give the pharmaceutical industry more advantages in expanding their businesses in their chosen fields. On the other hand, it also ends with a conclusion that some of the respondents are not satisfied with some technologies used.

There are two equations:

1. The pharmaceutical industry can be improved by training the staff about health care. Lack of attention towards the technologies or some errors made by artificial intelligence somehow believes that pharmacists do better work than technologies. Like communicating and understanding that person/patient's requirements.

On the other hand, the Fear of robot failure is based on a true story, the patient was undergoing gallbladder removal surgery. The patient's liver was injured when a robotic arm moved on its own. The patient died after suffering a nicked intestine, which was not discovered for two days. The patient had been undergoing repair for a hernia.

The next topic is the health care department. Robots misbehave and are dangerous when communicating.

Example: Tay is a robot who learned through interacting with people. The failure is not just that Microsoft. but also, the artificial intelligence application is building its own behaviour based on who it interacts with. If what Tay interacts with is negative or racist people then what? This model, which sounds great on the outside, did not consider the darker side of human interactions. Then that is what will become the basis of that artificial intelligence.

Challenges of adopting robots in healthcare

- Emotional Support and Development.
- Social acceptance
- Privacy and Security
- Power Sources.
- It is very much costly.
- It can cause many complications in the surgeries.
- A lot of space is required for setting up the robotics healthcare system in the hospital.
- The robots will take place of the people and unemployment would occur in the cities. Etc.

2. Study says the pharmaceutical industry can be improved by implementing new technologies and boosting the speed with the help of some machines like Artificial Intelligence, Mobile Technology to communicate digitally with consumers, Wearable Tech Integration, Data Management & Analytics, Single-Use Processes, Precision Medicine, Bioprinting, etc. New technologies play a significant role in the pharmaceutical industry.

Robotic surgery offers many benefits to patients compared to open surgery, including reduced pain and Faster recovery time. Unlike humans, robots don't get bored. Until they wear out, they can do the same thing again and again. They can be very accurate – to fractions of an inch.

Axel Krieger, of Johns Hopkins University, said it marked the first time a robot had performed laparoscopic surgery without human help. Their findings show that they can automate one of the most intricate and delicate tasks in surgery: the reconnection of two ends of an intestine.

The robot also does Colorectal Surgery, General surgery, Gynaecologic surgery, Heart surgery, Endometriosis, etc.

My study deduces that this world is changing and evolving with time. So, we also have to fight with time. And for that, it needs to be digitally renovated.

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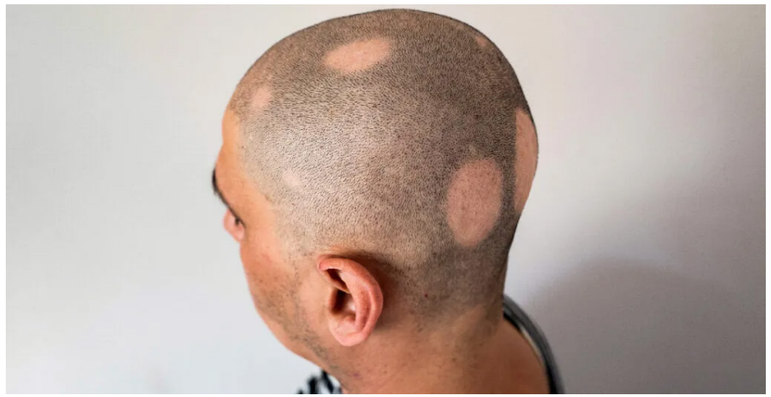
Alopecia Areata

Pranjali Samarth, Creative Assistant



Alopecia Areata generally referred to as (AA) is an autoimmune response in the body that attacks the hair follicle which leads to a type of hair loss. Cornelius Celsus was the first to describe alopecia and Sauvages in 1760 coined the term AA. AA is irrespective of age as well as gender but generally occurs during the beginning of childhood or at the age of 33. The number of individuals diagnosed with alopecia areata has increased over the past few years. Studies about AA say that Hispanic and Asian children are at a greater risk as they may suffer through this condition more likely twice or thrice more likely than an average person. Pediatric patients account for one-fifth of the total cases.

AA is a disorder in which the body's immune cells attack the hair bulb. AA can be associated with various conditions of stress, anxiety, and depression. In some extreme cases, AA could be a reason for suicidal ideation. Diagnosis of AA is done either by the barber or during a clinical diagnosis by the method of skin biopsy. Coin-shaped small patches may be seen on the scalp area which is termed 'Alopecia Areata' while many small patches which may cover your entire scalp are termed 'Alopecia Areata Totalis'. If this condition spreads over your entire body considering the hair of eyebrows or mustache it is termed 'Alopecia Areata Universalis'. Alopecia in an ophiasis pattern or band-like formation around the occipital or temporal scalp can also be seen in some cases.

Most of the ideal symptoms of AA could be pitting and ridges in the fingernails which are observed in 7-66% of cases. Black and yellow dots, and broken or tapering in the hair are a few characteristics of AA. Patients suffering from AA have tremendous black or yellow dots, unlike androgenetic alopecia patients. Many patients are acquainted with transverse leukonychia, onychomadesis, koilonychia, and onychomadesis. 8-28% of patients with AA are also associated with thyroid diseases like Vitiligo and Atopy. Skin conditions that may be associated with AA include temporal triangular alopecia, traction alopecia, aplasia cutis, and chemotherapy-induced AA. AA does not lead to permanent damage to the hair follicle. 34-40% of patients recovered over a year and 14-25% are in the progress of AT or AU. Hair shaft abnormalities in AA can also be detected by OCT (Optical Coherence Tomography). Hair may grow back over some time but it can hurt a person's life and may lack of confidence as well as self-esteem. Children may be particularly affected.

10-42% of patients show a great correlation between AA and family history. AA is associated with SNPs (Single Nucleotide Polymorphisms) have been studied by Genome-wide association. Numerous stressors may affect AA such as infections, vaccinations, hormone fluctuations, and diet. Studies say that levels of Vitamin A and D are most likely to affect AA.

Traditional methods which are used in the treatment of AA include corticosteroids, immunotherapy, and light therapy. Investigational Treatments include Interleukin-2, Phenol, Interleukin-17, Phenol, Quercetin, and many more. Oluminant tablets which treat severe alopecia were approved by FDA in June 2022. This oral tablet can only be consumed by adults. Oluminant is one of the Baricitinib which is a part of a class of drugs of JK Inhibitors. It gives a calming effect on the patients by blocking immune signals. It was the first FDA approval of the systemic treatment. They may lead to little side effects that may reduce over time and are quite mild. Therapeutic options for adolescents and children are limited due to very few and well-controlled clinical trials being done yet some common treatments for children with AA include steroids applied to the skin or via injections. Minoxidil (Rogaine) and immunotherapy are also common treatments for children. Treatment of AA for children is still not approved.

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Is Diabetes not lethal?

Laukik Kakade, Patron

Diabetes is the state of the body in which the blood sugar level increases/decrease (low blood sugar) and the human is likely to face several heart problems like heart attack, stroke, and narrowing of arteries. It occurs due to the less production/secretion of insulin, a hormone produced by an organ called the pancreas located behind the stomach. However, the blood sugar level can be maintained in various ways which help in reducing the risk of high blood pressure and heart problems.

Effects of Diabetes:

Rather than Heart Problems a person also faces vision problems, Impotence in men, nerve diseases, and sometimes kidney problems.

Diabetic Retinopathy is a visual disorder caused by the high blood sugar level in blood vessels at the retina. The blurry vision and stoppage of blood flow results in swelling and leaking of the damaged blood vessel.

Diabetic Neuropathy is a nerve disorder caused by diabetes, few symptoms of Diabetic Neuropathy are

- Numbness and pain in body parts like hands, feet, legs, etc.
- Abnormal sensation.
- Muscle Weakness.

Diabetes affects kidney functioning too. The blood vessel clusters are damaged which filters the waste out of blood, which may lead to high blood pressure and further damage to the kidney as the filtering system at the kidney is delicate.

Which type of diabetes are you suffering from?

There are various types of diabetes out of which Type 2 Diabetes is the most common type of Diabetes (90-95%) while Type 1 Diabetes is less common (8%) while rest of the types are 2%.

Types of Diabetes:

- Type 1 Diabetes.
- Type 2 Diabetes
- Gestational Diabetes.
- Neonatal Diabetes.

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- Maturity onset diabetes of the young (MODY).
- Wolfram Syndrome.
- Alström Syndrome.
- Latent Autoimmune diabetes in Adults (LADA).
- Type 3c Diabetes.
- Steroid included Diabetes.
- Cystic fibrosis Diabetes.

Type 1 Diabetes.

Insulin Dependent Diabetes or Juvenile Diabetes are other names for Type 1 Diabetes as it occurs in younger age group people. It is more severe than type 2 diabetes. You are susceptible to having type 1 diabetes from your parents but the count is less (10-15%) and others are facing it due to their strong immune system, as it attacks the pancreas and destroys the insulin-producing part which stops the production of insulin. The risk of developing type 1 diabetes is high if you have other hormone-related conditions like Hashimoto's Thyroiditis, Addison's disease, or Hypothyroidism.

Symptoms of Type 1 Diabetes

- Increase in urination
- Thirst increases
- Weight loss
- Fatigue
- Blurry vision

Type 2 Diabetes:

It's the most common type of diabetes. It is a chronic or long-term disease. It can occur in any age group but is mostly found in the age group of 30+. It occurs because the pancreas produces less amount of insulin while the cell poorly responds to insulin. Obese people are susceptible to type 2 diabetes. It is comparatively dangerous as it also leads to kidney diseases.

The symptoms are the same as Type 1 Diabetes:

- Increase in urination
- Thirst increases
- Weight loss
- Fatigue
- Blurry vision

Gestational Diabetes:

Gestational Diabetes is diagnosed during the pregnancy period in women as during pregnancy women's body becomes less sensitive to insulin, in most cases, diabetes goes away after the birth of the child but in a few cases, it turns out to be Type 2 Diabetes.

Increased thrust and high urination are the common symptoms of Gestational Diabetes.

Methods to maintain blood sugar level:

- A healthy diet plays an important role in maintaining the blood sugar level. Get a proper diet plan from your doctor.
- Daily exercise, keeps you active and controls blood sugar levels.
- Take regular medicines or insulin injections as per your doctor's prescription.
- Keep a regular check on your blood sugar level and adjust your insulin injection units as per that.

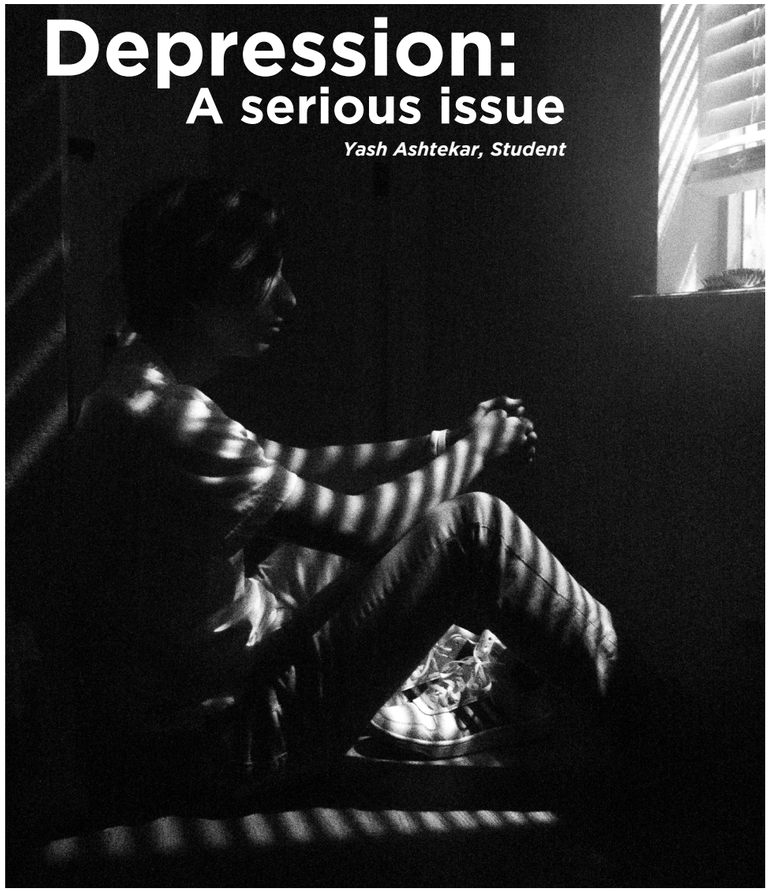
Control of Food habits:

- Carbs are one of the sources of high sugar which leads to an increase the blood sugar level. So have it in your meal as per the diet suggested by your doctor.
- Eat at regular times and avoid skipping meals.
- Eat food that is low in calories, sugar, trans fat, and salt.
- Alcohol should be avoided.
- Increase water intake.
- All other beverages should be exchanged for water.
- Avoid sweets, or exchange it for fruits.

Sources: ❑ *cdc.gov* ❑ *Oxford academic JCEM* ❑ *mayovlinic.org* ❑ *curegarden*

Depression: A serious issue

Yash Ashtekar, Student



Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. Also called a major depressive disorder or clinical depression, there's no single cause of depression. It can occur for a variety of reasons and it has many different triggers. For some people, an upsetting or stressful life event, such as bereavement, divorce, illness, redundancy, and job or money worries, can be the cause. Different causes can often combine to trigger depression.

During the stages of depression symptoms occur most of the day, nearly every day, and may include:

- Feelings of sadness, tearfulness, emptiness, or hopelessness.
- Angry outbursts, irritability, or frustration, even over small matters.
- Loss of interest or pleasure in most or all normal activities, such as sex, hobbies, or sports.
- Sleep disturbances, including insomnia or sleeping too much.
- Tiredness and lack of energy, so even small tasks take extra effort.
- Reduced appetite and weight loss.
- Trouble thinking, concentrating, making decisions, and remembering things.

Symptoms of depression interfere with all areas of a person's life, including work and social relationships. Depression can be classified as mild, moderate, severe, melancholic, or psychotic.

Mild depression can be experienced in day-to-day life, which can be treated easily by meditation, workouts, and some exercise practices. While moderate and severe cannot be treated easily, many medications and therapy you need to go through.

There are some disorders seen in people related to depression such as anxiety disorders, panic disorder, social phobia, and generalized anxiety disorder.

Some disorders are specially observed in women when she is going through their menstrual days. The disorders are Premenstrual Dysphoric Disorder (PMDD).

PMS symptoms along with extreme irritability, anxiety, or depression. These symptoms improve within a few days after your period starts. Premenstrual dysphoric disorder (PMDD) is a more serious form of premenstrual syndrome (PMS). PMS causes bloating, headaches, and breast tenderness a week or two before your period.

There are symptoms seen in women while going through these disorders is:

- Depressed mood.
- Anger or irritability.
- Trouble concentrating.
- Lack of interest in activities once enjoyed.
- Moodiness.
- Increased appetite.
- Insomnia or the need for more sleep.
- Feeling overwhelmed or out of control.

This disorder can be treated by the following:

- Some medications can be managed easily by doing it.
- Antidepressants to help manage your brain's serotonin levels.
- Dietary changes, such as cutting back on salty, fatty, or sugary foods and caffeine.
- Hormonal birth control that has drospirenone and Ethinyl oestradiol.
- Over-the-counter pain medicines to ease cramps (dysmenorrhea), headaches, breast tenderness, and other physical symptoms.
- Regular exercise to improve mood.
- Stress management tools, such as deep breathing exercises and meditation.

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The disorder which is commonly seen in youths of 6-18 years old is Disruptive Mood Dysregulation Disorder. Symptoms seen are as follows:

- Severe temper outbursts at least three times a week.
- Sad, irritable, or angry mood almost every day.
- Reaction is bigger than expected.
- Child must be at least six years old.
- Symptoms begin before age ten.
- Symptoms are present for at least a year.
- There are several therapies to overcome this disorder, but according to doctors, there are no medicines published that are exactly meant to overcome it (DMDD).

To overcome all this, there are a few things we should follow in our life such as -

- Exercise, take a 15- to 30-minute brisk walk every day.
- Eat healthy foods, some people with depression don't feel much like eating.
- Don't dwell on problems, it can feel good to talk through a problem with a person who cares about you genuinely.

Sonochemistry

Dr. Charu Pandya, Faculty

Sonochemistry phenomena involve the technique of ultrasound to promote chemical reactions. It was first introduced by Langevin in 1917 for the estimation of the depth of water. It is related to the phenomenon of how sound affects chemical processes in a chemical reaction brought on by acoustic cavitation.

Ultrasound is the part of the sonic spectrum, which ranges from 20 kHz to 10 MHz

It is divided into three regions:

- High power low-frequency ultrasound- 20-100 kHz
- Medium power high-frequency ultrasound -100kHz- 1MHz
- Low-power high-frequency ultrasound – 1-10 MHz

Principle

The process of sonication utilizes ultrasonic sound waves. During this process, there is the formation of microscopic vacuum bubbles under the applied pressure. The bubbles collapse thereby leading to cavitation. There is a formation of extensive energy since there is the production of sound waves. As a result, disruption of molecular interaction takes place between water molecules. Disruption of molecular interaction also causes the separation of particles and the mixing process takes place.

In the process of ultrasonication, cavitation gives rise to dispersion, disintegration, and sonochemical effects of the liquids. There is the introduction of high-power ultrasound in the liquid, there is the development of regions of high pressure called compression and low pressure called rarefaction.

When low pressure is applied to the liquid, there is the generation of high-intensity ultrasonic waves, small bubbles are created in the liquid. This process is called cavitation.

Principle of sonication

The equipment used for sonication is called a sonicator.

Parts of sonicator:

- Generator – The generator converts AC line power to high-frequency electrical energy. The generator consists of a keypad or buttons by which the user can control the sonication parameters. The generator provides high-voltage energy pulses with a frequency of 20 kHz that activates the piezoelectric converter.
- Convertor- It is a device that is cylindrical. It is connected to the generator using a high-voltage cable. It internally consists of piezoelectric crystals which convert electrical energy to mechanical vibration.
- Probe – The vibration so formed is amplified and mediated through the probe. During the working of the sonicator, the tip of the probe longitudinally expands and contracts.

Parts of sonicator

Sonication methods

- Direct: In this method, a probe is directly introduced into a sample vessel to process the sample. Energy is transferred from the probe to the sample with high intensity.
- Indirect method: This method used an ultrasonicator bath. The ultrasonic energy is transferred probe, through water, and into the vessel or multiple sample tubes.

Sonication methods

Advantages:

- Shorter reaction time
- Higher selectivity
- Higher yield
- Milder conditions

Applications:

- Synthesis of drugs – Expensive drugs can be synthesized using ultrasound waves thereby reducing reaction rate time and producing a good yield.
- Cell therapy – In the treatment of adversely affected tissue, a thermal dose can be given to the affected tissue. Using ultrasound technology coupled with magnetic resonance imaging, affected tissues can be treated with great accuracy.
- Particle agitation – Agitation is performed to mix the solutions, improve the dissolution rate, and evaporate any dissolved gases from the solutions.
- Extraction of active pharmaceutical ingredients from solid matrices.

The Future Of Pharmaceutical Manufacturing Sciences

Ayush Kadam, Marketing Executive

Conventionally, the pharmaceutical and biopharmaceutical industries were not the precursor of innovative engineering solutions and some new principles of chemical engineering. For many centuries, the manufacturing of drug products was controlled by a managerial framework that safeguarded the quality of the final product and the performed testing of batch-based on the operations, raw material and the end products characteristics, fixed process conditions, and in-action material. Limitations related to this quality by testing thinking have broadly been approved both for small molecules and biopharmaceutical products. In variations, the other fields of processing and related manufacturing sciences have successfully executed refined technologies to increase our current process and product understanding.

Over the last few years, there has been growing concern about an increase in the safety and quality of medications and at the same time cutting the cost of manufacturing pharmaceuticals by performing more structured pharmaceutical development and manufacturing approaches. Particularly, the swiftly spreading acceptance of science-based approaches has developed a more adaptive environment for implementing pre-existing as well standard chemical engineering knowledge. A recent example is the insertion of the United States Food and Drug Administration (US FDA) process analytical technology (PAT) guidance and the quality by design (QbD) approach by the International Conference on Harmonization (ICH).

QbD-based thinking is an ideal chance for the pharmaceutical community to carry the manufacturing sciences into the new future. It has to be emphasized that the thought of PAT is not entirely the latest, as the process of analysis or control has been an important area of chemical engineering for decades.

The use of QbD terminology including abstract such as QTPP (quality target product profile), CQAs (critical quality attributes), and CPP (critical process parameters) is intentionally minimized in this check. Although it is necessary to understand these theories, especially QTPP from a patient point of view, when applied QbD into practical use, this study rather aims to cover the essential science which introduces the main techniques which are involved in the QbD approach, and provides an outline of future challenges. One visible part of all PAT and QbD activities during the previous decades has been sensor development. In many cases, near-infrared (NIR) spectroscopy has been used almost as a synonym for PAT. Note that science-based manufacturing of pharmaceuticals involves not only

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the application of novel process analytical sensors and measurement solutions but also the usage of other fundamental tools for increasing our awareness by the implementation of risk management strategies formalized the design of experiments (DoE), modern data analysis techniques, first principles based on process modelling and control, and fundamental material characterization together with the molecular modelling.

In summary, we are currently observing a change in the prototype change, with engineering principles and product designing becoming the guiding principle of pharmaceutical development. We are assuming a way of thinking, according to which pharmaceutical ingredients, pharmaceutical products, the related manufacturing processes, and the biopharmaceutical properties are considered altogether and measurable.

Fundamental Tools For Increased Process Understanding:

Risk Management

Quality risk management (QRM) can be defined as a unified action pointing at first, identifying, assessing, and prioritizing risks and, second, at minimizing, monitoring, and controlling the related undesired event. QRM is most effective when applied throughout the entire life cycle of pharmaceutical or biopharmaceutical products. RM is widely utilized in various industries, and several approaches stand. In the QbD situation, QRM related to the development and manufacturing of pharmaceuticals with a special focus on customer health and safety is important. All risk management activities should be performed by a team that has enough background to examine the given product and related processing. This associative team should have participants with experience in dosage form design, manufacturing, process engineering, and quality functions, and a moderator who can formally lead the risk management process. Risk management

is a continuous process and, in many cases, a repeated operation.

Risk is defined as a combination of the probability of occurrence and the severity of harm. The QRM workflow consists of initiation, assessment, control, review, and communication of risks. The estimate includes the systematic use of information for the recognition of hazards. Then an analysis links the likelihood of occurrence and delicacy with the severity of harm during a qualitative or quantitative process. And finally, according to the criteria risks are evaluated and ranked. Eventually, the risk must be reduced to an acceptable level (control). Here the recommended actions are defined to decrease the probability, severity, and detectability of harm. The goal is to reduce the quality risk to a non-considerable level or to implement decision loops that will ensure keeping the risk under control. The QRM workflow considers the mechanisms that monitor its output in the review phase. The frequency depends on the level of risk.27 Finally, risk must be communicated to various stakeholders.

The most commonly used methods and tools in risk management recommended by the ICH in the Q9 "QRM" guideline are:

- Risk ranking and filtering
- Preliminary hazard analysis-criticality assessment
- Fault tree analysis
- Failure mode and effects analysis (FMEA)
- Hazard analysis and critical control points
- Hazard and operability analysis.

Successful implementation of risk management composes not only the risk-based specification of qualification measures but also the means to control the risks relating to product quality and process performances. This includes the prevention of failure modes caused by computerized systems. Moreover, the control and monitoring of CPPs depending on the assessment's outcome. Risk assessment leads to the definition of preventative maintenance and the repair activities such as scheduling of the standardization interval for equipment, which directly affects the product quality. The output must be integrated into standard operating procedures.

Why is Novartis grabbing all the attention?

Harshita Agarwal, Editor-in-chief

Novartis is a Swiss-American multinational pharmaceutical corporation headquartered in Basel, Switzerland, and Cambridge, Massachusetts, USA (global research). It is one of the world's largest pharmaceutical corporations.

Novartis was formed by the merger of Ciba-Geigy and Sandoz in March 1996; the pharmaceutical and agrochemical divisions of both companies formed Novartis as an independent entity. Other Ciba-Geigy and Sandoz businesses were sold or spun off as independent companies, such as Ciba Specialty Chemicals. The Sandoz brand vanished for three years before reappearing in 2003, when Novartis consolidated its generic drugs businesses into a single subsidiary and renamed it Sandoz. Novartis sold its agrochemical and genetically modified crop businesses in 2000 when it spun off Syngenta in collaboration with AstraZeneca, which also sold its agrochemical business.

The drugs manufactured by Novartis are:

- Clozapine
- Carbamazepine
- Methylphenidate
- Valsartan, etc.

Recently, Kaiku entered into a wider partnership with Novartis:
Kaiku Health expands its collaboration with a leading global pharmaceutical company to provide better cancer care to more patients across multiple indications.

Kaiku Health, a cancer care specialist, announced last year a collaboration with Novartis to develop digital patient monitoring and management for melanoma patients. Following the success of this collaboration, the companies are now looking to expand it into a larger collaboration.

"Our goal is to make precision medicine available for a growing number of cancer patients. The cooperation so far has shown that together we can enhance the monitoring and symptom management of melanoma patients specifically. We are committed and excited to continue this work together, as well as to scale our joint efforts across new cancer types and treatments globally," Henri Virtanen, Kaiku Health's Deputy General Manager and Co-Founder, admits.

In the first phase of the collaboration, Kaiku Health and Novartis created a therapy-specific module for patients receiving the combination targeted therapies Tafinlar® (dabrafenib) and Mekinist® (trametinib) for adjuvant, unresectable, or metastatic melanoma with BRAF mutation. The goal was to generate novel insights on patient outcomes in a real-world setting, as well as to develop more advanced machine learning-based algorithms, such as symptom prediction, for personalising symptom management in patients receiving Tafinlar and Mekinist, as well as other BRAF and MEK combination therapies.

Also, The European Commission has approved Novartis' Scemblix for adults with chronic myeloid leukaemia:

Scemblix, also known as asciminib, has been approved by the European Commission (EC) for the treatment of adult patients with Philadelphia chromosome-positive chronic myeloid leukaemia (CML) in chronic phase who have previously been treated with two or more tyrosine kinase inhibitors (TKIs). Scemblix is the first CML treatment in Europe to specifically target the ABL myristoyl pocket, providing a reimagined treatment approach for patients who have intolerance or resistance to currently available TKI therapies.

Scemblix received EC approval following a positive opinion from the European Medicines Agency's (EMA) Committee for Medicinal Products for Human Use (CHMP) in June and the previous designation of Scemblix as an orphan drug - it is also applicable to all 27 European Union member states, as well as Iceland, Norway, and Liechtenstein.

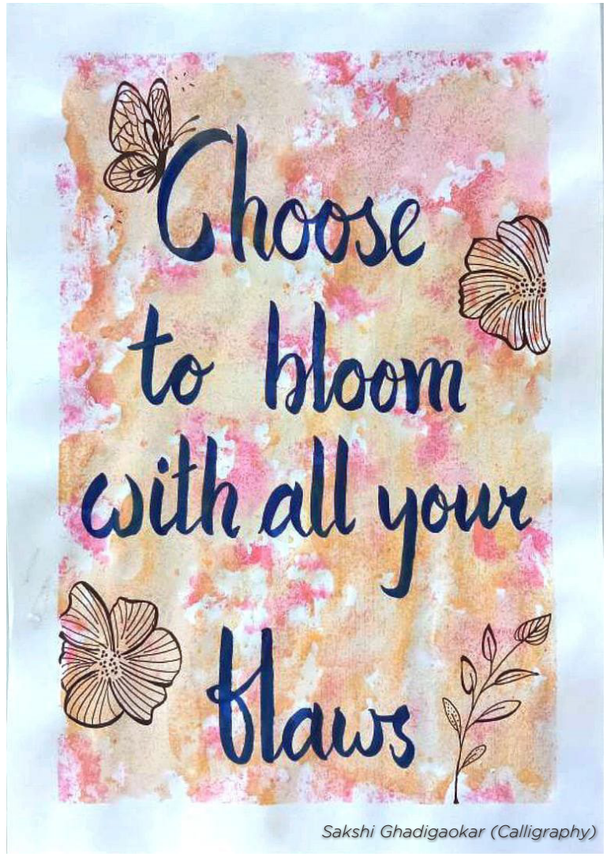
"Until now, patients with CML in Europe had oral TKI therapies with the same mechanism of action to turn to, and those experiencing significant side effects or resistance to these treatment options would often cycle between these very similar therapies, with little success in controlling their disease or improving their quality of life," Dr. Andreas Hochhaus, head of the haematology and medical oncology department at Jena University Hospital in Germany, elaborated. He added: "The approval of Scemblix in Europe is a timely milestone that will help many patients find hope for the management of their CML." "Approval of Scemblix from the European Commission is a critical milestone to help bring this novel treatment to patients living with CML in Europe," said Haseeb Ahmad, president, Europe innovative medicines at Novartis. "Building on more than twenty years of innovation in CML, we are excited by the potential to once again transform the standard of care for more patients around the world."

Sources: ❑ *PharmaTimes* ❑ *Novartis Official Website* ❑ *Kaiku Official Website*

Miss Elizabeth Bennnet

A girl who is bold,
Who you thought you could hold,
Who you also tried to mold.
She is fierce,
She doesn't need a prince,
It's a myth that she needs gifts,
When all she expects is that freedom exists.
She doesn't need your saving,
She doesn't deserve your misbehaving,
All she cares about is that she had a say,
To save the day.
She has fought battles,
For a generation, she never thought about.
She deserves the same admiration,
Same education,
To be a part of the conversation,
A vacation,
But all she gets is a validation.

HARSHITA.R.AGARWAL



Sakshi Ghadigaokar (Calligraphy)

Omkar Deotarse, Cinematographer

Survival of The Fittest

(Chapter 2)

Manas Joshi

Let the end Begin!

‘It’s not finished!’ This is not a good sign. Not everyone, but I could have at least listened to Xang. Perhaps he has something else in mind.’ Ankit was talking to himself while observing the protein membrane of a ‘syra’ virus under the electron microscope in the virology laboratory. He takes off his lab coat. He threw away his hand gloves and began walking towards another lab where Xang was working on his brilliant plan. Xang was nowhere to be found in his cabin. “Xang, what the hell are you doing?” Ankit pushed the laboratory’s transparent glass door open. Xang was running from one end of the laboratory to the other, as if he was trying to catch a chicken in the lab. As soon as he heard Ankit’s voice, he stopped running and stood up straight. “Ankit !!”

“What was it, Xang? What exactly is going on?”

“Have you ever attempted to capture your own shadow? Or to confine it?” Xang inquired.

“I’m sick of your riddles, Xang. It does not pique my interest. Just tell me what’s on your high IQ mind. Are you getting ready to start a poultry farm?” Ankit.

“Ha-ha, that’s a good retirement plan suggestion, I’ll think about it,” Xang laughed. But, on a more serious note, have you ever attempted to confine your own shadow? Simply respond casually. Either yes or no.”

“No,” Ankit said. “You can’t keep your shadow in a cage.”

“Ach... you let me down, Ankit. You certainly can”

“How do you do it?” Ankit inquired.

“Just cage yourself,” he burst out laughing like a lunatic.

“Massacre Massacre.” That was Ankit’s only thought. Ankit stood between all the national delegates, holding his cup of tea and lost in thought. Following the conference, high tea was planned. Ankit was rearranging all of his Xang-related thoughts, theories, and incidents.

“Ankit!” Mr. Ajit interrupted his train of thought. Ankit’s focus had shifted to Ajit’s speech. Ajit was on his way to Ankit with a young and fit guy. They were both approaching. “Let me introduce you to Mr. Neel Agnihotri, Ankit. Your security in charge and your new pal. He will always be by your side and perhaps you two could share a bed” (bursts out laughing). Neel leaned forward for a handshake, a small smile on his face, and Ankit was back to his work. His Sherlock mind had returned. His hands had numerous cuts, some of which were very small. The space between his right hand’s first two fingers, his golden ring with a ruby stone cut in hexagonal crystal on his left forefinger, his shirt collar, and his identity card around his neck. and his gleaming shoes Ankit begins speaking while shaking his hand after giving him a complete look.

“How is your mother doing now? Did she get released from the hospital?” Neel was taken aback by the question. Dr. Ajit noticed his stunned expression and began laughing again. “Ahhh. My boy is back in business. You still have those abilities, right? You are the next prey, Neel. Please pray for your life.” (And leaves the conversation, as he was called by the secretary of the Intelligence bureau)

Neel and Ankit were now seated at the table, and Neel was still stunned. “How did he find out?” This question was weighing heavily on his mind.

“Don’t waste time thinking about it. How do I know this? How did I find out about all of this? and so on. Simply leave it. It’s just a matter of picking up on hints “Ankit stated

“What kind of clues??” exclaimed Neel, excited.

“Your left hand is in pain below the elbow, which is why you’re always standing with your right hand on top of your left hand below the elbow. The antecubital vein is located beneath the elbow that means you donated blood the day before. Your ID card informed me of your blood group, which is AB negative w Which is a unique group. Only people with the AB negative blood group can accept that blood type. So, you gave it to someone close to you, perhaps a loved one. Your ruby ring in your left hand belonged to your father, who had the sun sign LEO gave it to you before he left the world, implying that you are still unmarried. And your shoes are the same ones you wore to the hospital the day before. That strong and blathered phenyl spot smell is still on it, and you worked so hard to remove it with rubbing alcohol, which didn’t work. So, a quick glance at all of these points tells me your mother was in the hospital for dialysis but there was no ab-ve blood available, so you gave the blood and the message on your phone, which is still blinking, proves that I am correct because it is about your next dialysis appointment on the 23rd, i.e., after 15 days.”

Ankit’s explanation stunned Neel; his pupils dilated.

“That’s fantastic,” says Neel.

“What’s great about it is simply a matter of observation.”

And the conversation went on and on.

It was two days after the brief that there was no lead. Ankit was becoming agitated. It was 3:30 p.m. at the time Neel and his men were on duty at night. Ankit’s room was still illuminated a s he walked into the room; his shadow was visible on the curtains.

“What could it be? What happened to Xang? Why is he running away? He is not afraid....”

“Sir...” Neel’s voice and knock on the door put an end to his thoughts.

“Sir... is everything okay?” Neel inquired. Ankit pushed open the door.

“Yes. Are there any new developments?”

“No sir!” Neel’s response fell short of expectations.

“All right!... by the way... may I speak with you?” Ankit inquired of Neel.

“Certainly, sir.” Neel walked into the room. Ankit instructed him to take a seat next to him and request a cup of coffee which Neel did not object to. They sat across from each other, Ankit begins to speak while sipping his coffee.

“ What information has the agency given you about the situation?”

“A traitor by the name of Xang exists. He betrayed India and four other countries. And that person poses a danger to your life. As a result, they have delegated responsibility for your security to us. That’s all.” Neel responded quickly which was only half the truth.

“Whatever we’re dealing with, Neel, it’s not a swarm of terrorists or a series of explosions. It’s not even about betrayal; it’s a global threat that we’ll deal with.

The entire world is on the verge of a massacre. Not only my life, but the life of the entire world, is in jeopardy.”

“What’s going on in the world? I had no idea who you were, sir. Please let me know.” Neel asked as he took his first sip. Ankit was forthright and direct about the situation he was about to explain to Neel. “It all began ten years ago... AIRD was an associative programme run under a treaty signed by the governments of the United Kingdom, the United States, China, and India. Immunology Research and Development Association It was only a 5-year trial programme. We were at a research facility in London, we had a team of five people, and Xang was one of them. China’s most brilliant scientist. He presented his plan to us as we were wrapping up the project. and it was vehemently opposed by everyone in the room.”

“WHY”

“Because he intended to reduce the world’s population by eliminating them with the most powerful virus chain the world has ever seen. Virus recombination is lethal ‘na bhuto, na bhavishyati’ (Neither the past nor the future)”

TIK, TIK, TIK Neel’s Phone rang. it was from the agency. He picked up saying sorry to Ankit for the interruption.

“Sir, we found him,” Neel exclaimed. “But...”

It was getting late. The night was pitch black. Ankit, Neel, Ajit, and other forensic teams were present in the Jupiter hospital morgue. Dr. Solanki instructed everyone to put on masks and open the body bag. The smell of formalin permeated the entire room. The body inside the bag had decomposed and been cankered. The bones were clearly visible. It was a repulsive sight but everyone must stand and listen to Dr. Solanki. Ankit was perusing the PM reports. “It is not a natural decomposition, sir. It’s not possible. According to reports, he died last week. Even if we consider the week before the last week, we cannot decompose that much. Something isn’t right.” Ankit was perplexed but certain of his statement.

“Ajit, Ankit is correct. These reports were re-examined twice under my supervision. But the outcomes were the same. I wanted to show you something before any further examinations, which is why I called.” Solanki handed Ajit a bill. “These are the traces that were discovered on his body tissues, still undetected and no evidence of previous adaptation in the body” Ajit handed Ankit the tab, which Ankit had no idea what it was.

It’s just small dots on body tissues. He couldn’t understand it. “Is there anything else we have?” Ankit inquired of Dr. Solanki.

“Yes, these photos were given to me at the airport, taken from the cottage where they obtained this pointed to the body that was lying on the Post-mortem table Ankit opened the box and examined the images. It contained a pen drive. Those images were difficult to look at. The cottage’s walls were a bright red colour and on that, many images and quotes were painted, scratched, and carved on the walls with iron nails, brushes, pencils, pens, fingers, and coal. Their pictures said a lot. Ankit, on the other hand, was fixated on the dots on the tissues. “Sir, I’d like to reexamine the body as soon as possible,” and Ajit agreed with a nod.

Neel was on the stairs between the first and second floors at 4:15 a.m. I was waiting for Ankit, who was preoccupied with the dead body and the spots on his tissues. And then he heard screams and chaos from the second floor. He sprinted towards it, he walked down the first ten stairs and saw 10 to 15 forensics team members in white coats running downwards. Ankit was chasing them down to get them to stop. As he noticed Neel “Neel, just stop them, close all the exits!” he screamed.

Neel ran like a tiger to close the main gate, and all the members began to beg him to open it. But Neel was perplexed as to why Ankit had asked him to close the exits.

Ankit stood on the stairwell, a scalpel in his right hand. “Please don’t panic, guys.”

“There’s a virus in here, and you’re telling us to stay calm?”

Everyone was scared. Everyone was shivering in terror, Neel and Ankit had no idea what needed to be done!!

To be continued...

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