PHARMA FRONTLINE











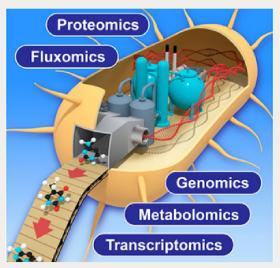


By: Dept. of Pharmaceutics & RA

AI in Pharmacy

Several facets of the pharmaceutical sector could be revolutionized by artificial intelligence (AI). Pharmaceutical technology encounters challenges in identifying patient needs through data mining, conducting extensive medical research, and improving global product distribution. The integration of artificial intelligence in pharmacy has revolutionized the biotech industry, enabling remarkable advancements through the increased utilization of automated algorithms.





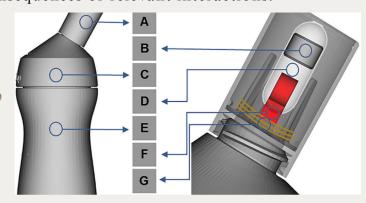
MULTIOMICS -FUSION OF TECHNOLOGY AND BIOLOGY

Many Other Omics Technologies Have Been Developed That Are Capable Of Interrogation Of Entire Pools Of Transcripts, Proteins, And Metabolites, As Well As The Genome.multiomics can provide researchers with a greater understanding of the flow of information, from the original cause of disease (genetic, environmental, or developmental) to the functional consequences or relevant interactions.

The New Filmmakers

The Medicine Maker covered an interesting drug delivery approach designed by Swiss firm EsoCap - a mucoadhesive film that unrolled in the esophagus.

Left - schematic drawing of the application device; right - close-up view of the applicator with EsoCap (A: applicator; B: compressed sinker; C: lid; D: hard gelatin capsule with slit; E: drinking cup; F: rolled-up, mucoadhesive film; G: retainer thread).



MedDRA

Medical Dictionary for Regulatory Activities

VISION OF MEDRA

- · Removal of the need to convert data from one terminology to another preventing the loss and/or distortion of data and allowing savings in resources.
- Improvements in the ease, quality and timeliness of data available for effective analysis, exchange and decision making.
- Consistency of the terminology throughout the different stages of the development of a medicinal product allowing effective crossreferences and analysis of data;
- Facilitation of the electronic exchange of data relating to medicinal products.

Applications of Al in Drug Discovery & Development



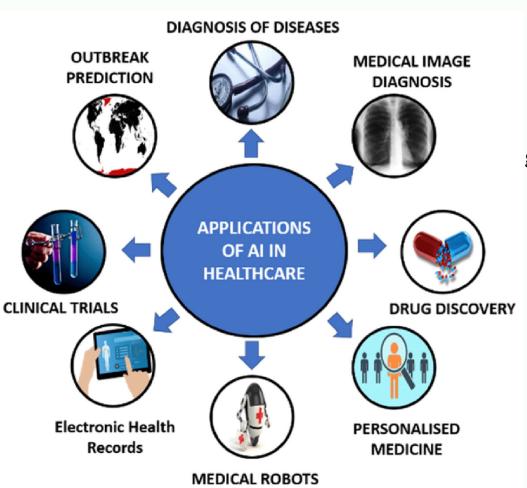








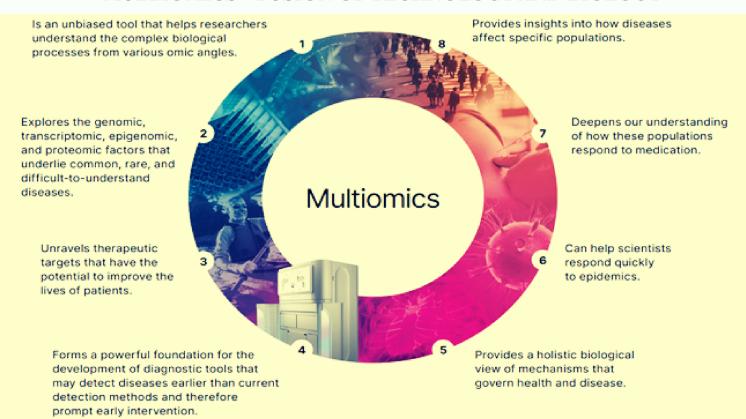
Drug Discovery and Development: By examining enormous volumes of biomedical data, such as genetic data, clinical trial findings, academic literature, and chemical features of drugs, AI is being utilized to speed up the drug discovery process. The efficacy and safety of medication candidates can be predicted by AI algorithms, and drug design can be improved.



Precision Medicine:

AI can support
personalized medicine by
examining a patient's
genetic and molecular data
to pinpoint the best
suitable treatments and
anticipate how they will
affect them. Based on the
patient's particular traits,
it can help customize
treatment programs and
dosages, increasing
therapeutic results.

MULTIOMICS -FUSION OF TECHNOLOGY AND BIOLOGY

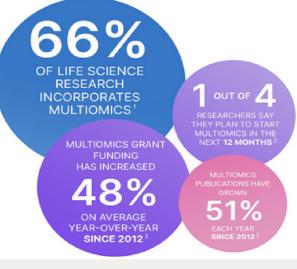


Multiomic is a next-generation precision medicine business, applying computational systems biology to develop and commercialize data assets for metabolic syndrome — the world's largest healthcare burden.

Multi-omic fingerprints detected by MAUI are useful for a wide spectrum of precision oncology applications

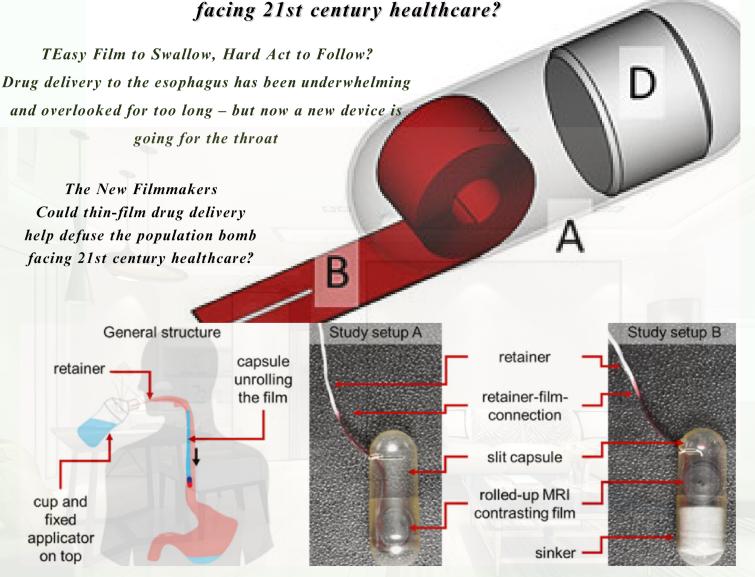
largest healthcare burden. One or more omics layers are arranged, normalized, and scaled Pan-cancer classification Modeling clinical³ features Cancer subtype modélina Dimensionality reduction and multi-omics integration using **INCORPORATES** deep learning MULTIOMICS Multi-omic MULTIOMICS GRANT Fingerprints Drug HAS INCREASED response prediction

These technologies
constitute genomics,
transcriptomics,
proteomics,
metabolomics, etc.
Collectively, these
high-throughputs are
referred to as multiomics technologies.



The New Filmmakers

Could thin-film drug delivery help defuse the population bomb

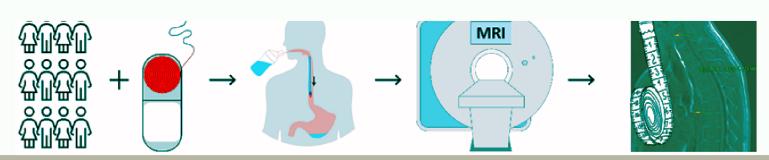


Esophageal conditions affect ~370 million people a year worldwide. The EsoCap for esophageal drug delivery consists of several parts: the rolled-up film, the slitted <u>capsule</u>, the sinker device and the retainer.

A hard gelatin capsule size 00 was used as a shell around the rolled-up film. For application, a slot was inserted using a mini electric circular blade.

Eosinophilic esophagitis is a common condition affecting the esophagus, particularly in children and young adults. Eso-101, Innovative technology consists of a drug-loaded thin film rolled up in a capsule that unravels and sticks to the esophageal mucosa when

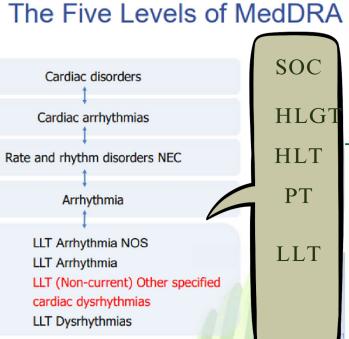
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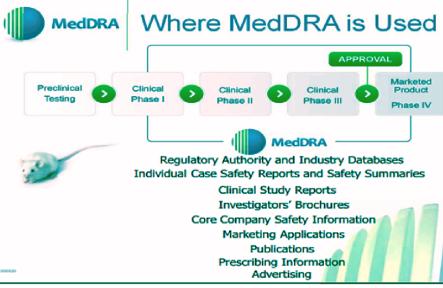


MedDRA

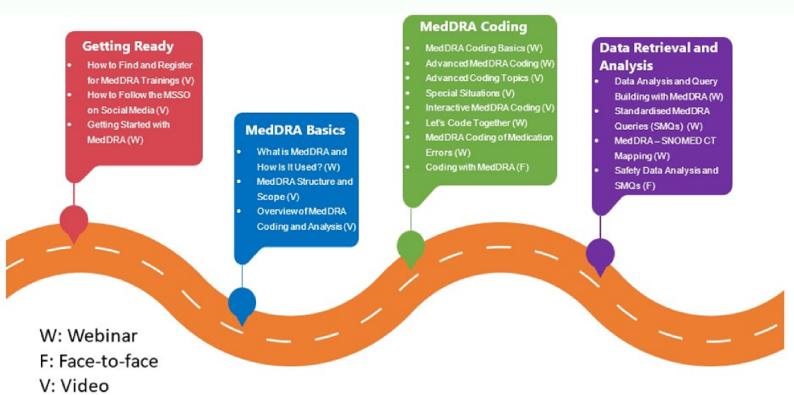
Medical Dictionary for Regulatory Activities

MedDRA was developed under the auspices of the International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH).





Medical Dictionary for Regulatory Activities is a clinically validated international medical terminology dictionary-thesaurus used by regulatory authorities and the biopharmaceutical industry during the regulatory process, from premarketing (clinical research phase 0 to phase 3) to post-marketing activities (pharmacovigilance or clinical research phase 4), and for safety information data entry, retrieval, evaluation, and presentation. Also, it is the adverse event classification dictionary



UPDATES ON DRUG DELIVERY & FORMULATION

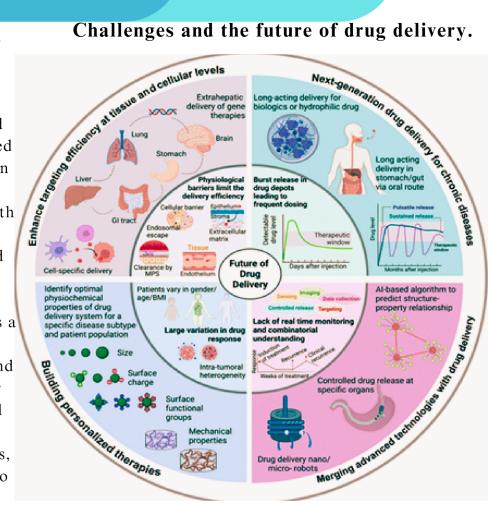
Merging Advanced Technologies with Drug Delivery

Future efforts to improve interpretability, provide guidance on machine learning model selection, and improve the quality of the data collected are critical to realizing AI's potential in drug delivery fully. Another exciting direction is combining drug delivery with soft electronics, sensors, chips, an internal or external power supply, and micro-or nano-robots. For example, IntelliCorp (AAPS)—an ingestible wirelessly transmitting device—includes a motor to enable drug release, a microprocessor to control the pump, and pH and temperature sensors. Another example is a liquid autoinjector-based robotic pill that has been shown to improve the bioavailability of biologics, including a peptide or protein, by up to 80% upon oral administration.

For example, a computer-based programmer communicated wirelessly to confirm the proper operation of a drug delivery microchip, which was designed to deliver microgram quantities of an antiosteoporosis drug once daily for up to three weeks



Challenges and the future of drug delivery.



New drug approval in the month of May & June

Drug name: Columvi

Active Ingredient: glofitamab-gxbm

Approval Date: 15/06/23

Use: To treat diffuse large B-cell lymphoma, not otherwise specified, or large B-cell lymphoma arising from follicular lymphoma after two or more lines of systemic therapy.

· Drug name: Litfulo

Active Ingredient: ritlecitinib **Approval Date: 6/23/2023**

Use: To treat severely patchy hair loss

· Drug name:Rystiggo

Active Ingredient:rozanolixizumab-noli

Approval Date: 6/26/2023

Use:To treat generalized myasthenia gravis in adults who are anti-acetylcholine receptor- or anti-muscle-specific tyrosine kinase antibody-positive.

· Drug name: Beyfortus

Active Ingredient: nirsevimab-alip

Approval Date: 7/17/2023

Use:To prevent respiratory syncytial virus (RSV) lower respiratory tract

disease.

Al vs Human Intelligence: Top Strengths

Artificial Intelligence (AI)	Human Intelligence
Makes Objective Decisions	Makes Efficient Decisions for Ambiguous and Uncertain Cases
Fast Calculation Abilities	Works Better in Novel Situations
Able to Mimic Human Conversations	Emotional and Social Intelligence
Low Chances of Errors in Familiar Problems	Abstract Thinking Ability
Able to Conduct Research and Hunt Facts Within Few Seconds	Ability to Look Ahead to Future

AI algorithms can analyze medical pictures like radiographs, MRI scans, and pathology slides to help diagnose illnesses accurately. Healthcare workers can use AI-based diagnostic technologies to find patterns, uncover anomalies, and reach better-educated conclusions

By offering decision support systems that look for drug interactions, allergies, and appropriate dosages, AI can help with medication management. AI can also assist in identifying medication compliance tendencies and reminding patients to take their medications to increase compliance.

Human intelligence and artificial intelligence (AI) are two distinct types of intelligence, each with certain advantages and disadvantages. Here are some major comparisons between artificial intelligence and human intelligence



Department Activities MAY-JULY 2023









Mandya, Karnataka, India
Sri Adichuncharagiri college of pharmacy B G Nagara. Department of
Let 12:088022*

Department of
Pharmacdeutics and
Regulatory Affairs
organized an session on
"THE ART OF WRITING
A RESEARCH
PROTOCOL" to the
M.Pharm II sem students of
the department on July 20,
2023.

Dr. Prakash Goudanavar, Vice Principal and Head, Dept. of Pharmaceutics & Regulatory affairs Department emphasized on Basics for dissertation protocol writing (Title, Introduction, Aim, Objectives, literature review and Introduction) Dr. N Raghavendra Naveen, Assistant Professor dealt with Writing research methodology and referencing style, Results & Discussion, and Use of Mendeley Software. It was an Informative Presentation for the

students.



Founders Meet@ Deshpande Foundation-Hubli on 18/07/23.

Harsha T L, Asha B R, Tejaswini K S, have been selected for Startup Bootcamp, YUVA Entrepreneurship Program of Deshpande Startups and received an invitation to participate in Founders Meet with Gururaj Desh Deshpande, Founder of Deshpande Foundation.

This is an exclusive meeting for selected entrepreneurs and innovators from the Deshpande Startups ecosystem. The founder's meeting helped in getting more insights related to scale-up, branding, marketing, and various funding opportunities





Certificate of Registration for a UK Des

Design number: 6296554 Grant date: 22 July 2023

Registration date: 14 July 2023



CONGRATULATIONS

On receiving acceptance for the manuscript by Saudi Pharmaceutical Journal (Elsevier Indexed) of Impact Factor: 4.1 & CiteScore - 7.5







M.Pharm -IV Sem (Dept. of Pharmaceutics)

Guided and supported by Dr N Raghavendra Naveen & Dr Prakash Coudanavar

This is to certify that,

in pursuance of and subject to the provision of Registered Designs Act design of which a representation or specimen is attached, had been re as of the date of registration shown above in the name of

Dr Arun Radhakrishnan , Anupam Jana, Akash Mukherjee, Dr Pradeej

Jalaj Dubey, Devi Violina, Shiva Mishra, Dr Vedamurthy Joshi

in respect of the application of such design to:

Portable Tablet Friability Tester

International Design Classification: Version: 14-2023
Class: 24 MEDICAL AND LABORATORY EQUIPMENT
Subclass: 02 MEDICAL INSTRUMENTS, INSTRUMENTS AND TOOL
LABORATORY USE



Adam Williams

Comptroller-General of Patents, Designs and Trade Marks Intellectual Property Office The attention of the Proprietor(s) is drawn to the important notes overle

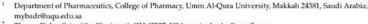






Design and Evaluation of S-Protected Thiolated-Based Itopride Hydrochloride Polymeric Nanocrystals for Functional Dyspepsia: QbD-Driven Optimization, In Situ, In Vitro, and In Vivo Investigation

Moutaz Y. Badr 10, Pratap Basim 20, Khaled M. Hosny 3,*, Waleed Y. Rizg 3,40, N. Raghavendra Naveen 5, Mallesh Kurakula 6,*0, Fayez Alsulaimani 7, Awaji Y. Safhi 80, Fahad Y. Sabei 80, Mohammed Alissa 9 and Abdulmohsin J. Alamoudi 100

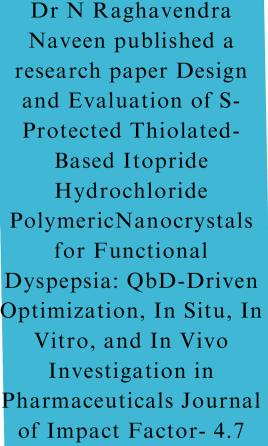


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Abstract: Mucoadhesive nanosized crystalline aggregates (NCs) can be delivered by the gastrointestinal, nasal, or pulmonary route to improve retention at particular sites. Itopride hydrochloride (ITH) was selected as a drug candidate due to its absorption from the upper gastrointestinal tract. For drug localization and target-specific actions, mucoadhesive polymers are essential. The current work aimed to use second-generation mucoadhesive polymers (i.e., thiolated polymers) to enhance mucoadhesive characteristics. An ITH-NC formulation was enhanced using response surface methodology. Concentrations of Tween 80 and Polyvinyl pyrrolidone (PVP K-30) were selected as independent variables that could optimize the formulation to obtain the desired entrapment efficacy and particle size/diameter. It was found that a formulation prepared using Tween 80 at a concentration of 2.55%





Hosny, K.M.; Rizg, W.Y.; Naveen, N.R.; Kurakula, M.; Alsulaimani, F.; Safhi, A.Y.; Sabei, F.Y.; Alissa, M.; et al. Design and Evaluation of S-Protected Thiolated-Based Itopride lydrochloride Polymeric crystals for Functional osia: QbD-Driven ation, In Situ, In Vitro, and In tigation. Pharmaceuticals https://doi.org/

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