# ONE DAY SEMINAR ON

# "INNOVATIONS IN PHARMA RESEARCH AND ORAL PRESENTATIONS IN PHARMACEUTICAL SCIENCES"


# SCIENTIFIC ABSTRACTS

## 22nd DECEMBER , 2012



**G. Pulla Reddy College of Pharmacy**

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Affiliated to Osmania University- Approved by AICTE and PCI ISO 9001 : 2008 Certified Institution

22 - 12 - 2012

## Programme Schdule

09.00 - 10.00 A.M : Registration

10.00 - 10.30 A.M : Inauguration

10.30 - 11.00 A.M : Guest Lecture

11.00 - 11.15 A.M : Tea Break

11.15 - 01.30 P.M : Oral Presentations

01.30 - 02.00 P.M : Lunch Break

02.00 - 05.00 P.M : Oral Presentations

05.00 - 05.30 P.M : Valedictory function

Prize & Certificate Distribution

## Objective of the Seminar:

Many students have sound technical knowledge but lack oral expression and communication capabilities. This one day seminar is organised with the aim of improving the technical communication skills and research approaches among the students.

## VISION

G.Pulla Reddy College of Pharmacy envisages to become the centre of excellence for research in Pharmacy. It aims to contribute significantly to drug development and drug discovery.

## MISSION

G.Pulla Reddy College of Pharmacy aims to be on forefront in imparting the disciplined and quality Pharmacy education. The graduate & postgraduate students shall be groomed as responsible & highly acclaimed professionals in the Pharmaceutical Arena.

**Courses Offered:** B. Pharm

M. Pharm - Pharm. Chemistry
Pharmacognosy
Pharmaceutics
Pharmacology
Pharm. Analysis & QA

Ph. D

# PHARMACEUTICS

# A 001

## NANO PARCTILES IN CANCER THERAPY AND DIAGNOSIS

**T. Sravanthi**

**Teegala Krishna Reddy College Of Pharmacy**

Numerous investigations have shown that both tissue and cell distribution profiles of anticancer drugs can be controlled by their entrapment in submicronic colloidal systems (nanoparticles). The rationale behind this approach is to increase antitumor efficacy, while reducing systemic side-effects. This review provides an update of tumor targeting with conventional or long-circulating nanoparticles. The in vivo fate of these systems, after intravascular or tumoral administration, is discussed, as well as the mechanism involved in tumor regression. Nanoparticles are also of benefit for the selective delivery of oligonucleotides to tumor cells. Moreover, certain types of nanoparticles showed some interesting capacity to reverse MDR resistance, which is a major problem in chemotherapy. The first experiments, aiming to decorate nanoparticles with molecular ligand for 'active' targeting of cancerous cells, are also discussed here. The last part of this review focus on the application of nanoparticles in imaging for cancer diagnosis.

# A 002

## RESEALED ERYTHROCYTES AS TARGETED DRUG DELIVERY SYSTEM – A REVIEW

**Muhsina Taskeen* Prof. Anupama Koneru, Dr. T. Mamatha**

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Drug targeting is the delivery of drugs in a site specific and target oriented manner which exhibit maximal therapeutic index with minimum adverse effects. Various carriers have been used for this drug targeting among which erythrocytes offer greater potential advantages than other systems. Carrier erythrocytes are prepared by collecting blood sample from the organism of interest and separating erythrocytes from plasma. By using various methods the cells are broken and the drug is entrapped into the erythrocytes, finally they are resealed and the resultant carriers are then called Resealed erythrocytes. Resealed Erythrocytes are biocompatible, biodegradable, possess long circulation half-life. After loading, the erythrocytes are exposed to various physical, chemical and biological evaluations. This review explains the different methods of drug loading, evaluation and applications of resealed erythrocytes.

# A 003

## TRANSDERMAL DRUG DELIVERY SYSTEM: A NOVEL APPROACH

**Syed Wajahath and Abdul mutalib**

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A transdermal patch is a medicated adhesive patch that is placed on the skin to deliver a specific dose of medication through the skin and into the bloodstream. Often, this promotes healing to an injured area of the body. An advantage of a transdermal drug delivery route over other types of medication delivery such as oral, topical, intravenous, intramuscular, etc. is that the patch provides a controlled release of the medication into the patient, usually through either a porous membrane covering a reservoir of medication or through body heat melting thin layers of medication embedded in the adhesive. The main disadvantage to transdermal delivery systems stems from the fact that the skin is a very effective barrier; as a result, only medications whose molecules are small enough to penetrate the skin can be delivered in this method. A wide variety of pharmaceuticals are now available in transdermal patch form.

# A 004

## MEDICATED CHEWING GUMS: A NOVEL APPROACH

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Chewing gums are mobile drug delivery systems. It is a potentially useful means of administering drugs either locally or systemically via, the oral cavity. The medicated chewing gum has through the years gained increasing acceptance as a drug delivery system. Several ingredients are now incorporated in medicated chewing gum, e.g. Fluoride for prophylaxis of dental caries, chlorhexidine as local disinfectant, nicotine for smoking cessation, aspirin as an analgesic, and caffeine as a stay alert preparation. MCGs are solid, single dose preparations with a base consisting mainly of gums that are intended to be chewed but not swallowed. They contain one or more active substances which are released by chewing and are intended to be used for local treatment of mouth diseases or systemic delivery after absorption through the buccal mucosa.

# A 005

## A REVIEW ON SUBLINGUAL DOSAGE FORMS

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Various routes of drug administration are used for effective delivery of drugs. Sublingual route is an important route for drug delivery since it offers many advantages for some drugs. The dosage form is placed beneath the tongue which releases the drug quickly for rapid absorption of drug. High blood flow, very thin mucous, greater permeability, continuous saliva flow and importantly avoidance of first pass metabolism are favourable features of this route. In addition, ease of administration and patient compliance are also the advantages of this route of administration.The dosage forms generally used in sublingual routes are tablets, films, sprays and drops. Tablets and films are placed beneath the tongue by hand while sprays and drops are administered with suitable devices for administration correct dose. Tablets are again presented as fast disintegrating tablets and porous tablets prepared by free drying that dissolves in 10 seconds in saliva. Sprays and drops provide additional advantage of formulating in novel drug delivery forms such as liposomes, polymerosomes, nanoparticles etc.The drug in dosage forms is released quickly in available saliva and further release happens due to continuous secretion of saliva. The only barrier for drug transport is the keratinized layer that is more lipophilic in nature. The dissolved drug is absorbed mainly by passive diffusion through transcellular and intercellular pathways and enters into systemic circulation directly thus avoiding first pass metabolism in gut and liver. Therefore, a quick onset of action with increased bioavailability is achieved. These advantages enable use of drugs that need rapid onset such as nitroglycerin used in the treatment of angina pectoris and fentanyl for pain relief. Dose reduction could be achieved due to reduced first pass metabolism. Various marketed products in different dosage forms are available that utilizes the advantages of this route.

# A 007

## ORGANOGEL: TOPICAL AND TRANSDERMAL DRUG DELIVERY SYSTEM

**Sravanthi**

**Teegala Krishna Reddy College Of Pharmacy**

Organogel a viscoelastic system can be regarded as a semi-solid preparation which as an immobilized external apolar phase. The apolar phase gets immobilized within spaces of the three-dimensional networked structure formed due to the physical interactions amongst the self assembled structures of compounds regarded as gelators. In general, organogels are thermodynamically stable in nature and have been explored as matrices for the delivery of bioactive agents. In the current manuscript, attempts have been made to understand the properties of organogels, various types of organogelators and some applications of the organogels in controlled delivery. These are simple to prepare and are more advantageous than other approaches. It has the advantage of delivery by various routes, including oral, parenteral, topical routes. The present article reviews the current methods used to prepare organogel and their application in drug delivery.

# A 008

## NANO POLYMER-LOADED CHEMOTHERAPEUTIC IMPLANTS IN MALIGNANT GLIOMA BY SCF (SUPERCRITICAL FLUID TECHNIQUE)

**Shashank.B**

**Gokaraju And Rangaraju College Of Pharmacy**

Approximately 50,000 new cases of primary malignant brain tumour are diagnosed each year in India. Despite the significant advances in neurosurgery,imaging radiation theraphy,oncology and chemotherapy,the prognosis for patients with malignant brain tumour remains dismal.In order to improve the control of local disease,we have developed a biodegradable controlled release nanoparticle drug polymer implanted directly at tumour site by SCF technique.Nanoparticles with smooth surface and compact internal structure were observed by scanning electron microscopy which presented a mean particle in the range of 400-600nm and narrow distribution profiles. For patients with glioblastoma, mean survival is still less than 1 year after surgical resection, conventional external beam therapy and systemic chemotherapy. New chemotherapeutic agents,angiogenesis inhibitors,cytokines and other anticancer therapies are unable to cross blood brain barrier because they are hydrophilic in nature and produces systemic toxicity in large doses and even we cannot give chance to patient to cure this disease because cancers are diagnosed at a later stage.Hence the development of implantable polymers that releases chemotherapeutic agents directly into cns had great impact on glioma therapy.

# A 009

## NANO PARTICLES: A NOVEL PULMONARY DRUG DELIVERY SYSTEM

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Tuberculosis is a common and in many cases lethal infectious disease caused by various strains of mycobacteria. This article mainly focuses on the development of Nano particle systems and methods for delivering anti-tubercular drugs directly to the lungs via the respiratory route. The main advantages of inhaled drug delivery include direct drug delivery to the diseased organ, targeting to alveolar macrophages, reduced risk of systemic toxicity and improved patient compliance. Researchers have demonstrated the possibility of various drug delivery systems using lipids, polymers and proteins to serve as inhalable anti-tubercular drug carriers. In recent years, encapsulation of antimicrobial drugs in Nano particle systems has emerged as an innovative and promising alternative that enhances therapeutic effectiveness and minimizes undesirable side effects of the drugs. Beginning with the respiratory delivery of a single anti-tubercular drug, it is now possible to deliver multiple drugs simultaneously with a greater therapeutic efficacy.

# A 011

## ARTIFICIAL RED BLOOD CELLS USING NANOTECHNOLOGY

**Lakshmi Narasimha*, A.Shylaja Rani, A.Tamil Selvan, Raju Manda, R.Suthakaran**

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Nanotechnology marks a drastically different approach in manufacturing. Instead of sealing materials down to create something, nanotechnology produces things by building then up piece by piece on a molecular level by providing broad scope. Nanotechnology has the potential for a nearly limitless number of applications in a wide range of fields. Now, In medical field we deal in detail about nanotechnologies potential in developing artificial red blood cells design of artificial RBC and their efficiency compared to normal RBC working of the developed artificial RBC their use in the medical field. The application is to provide metabolic support in the event of impaired circulation. Controlled release of oxygen from the diamonded sphere could be done using the selective transport method proposed by .It shows transport in the wrong direction but simply, the ability to heal disease and make the body stronger: all these and more are possible given the potential of nanotechnology. Machines could be produced, down to the size of viruses, which would work at incredible speeds. Through the use of nanotechnology, the number of possible worlds we can create is limited only by what we can imagine.

# A 012

## NIOSOMES: A SITE SPECIFIC DRUG DELIVERY SYSTEM

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The ideal drug delivery system delivers drug at rate decided by the need of the body throughout the period of treatment and it provides the active entity solely to the site of action. At present no available drug delivery system achieves the site specific delivery with controlled release kinetics of drug in predictable manner.The concept of incorporating the drug into niosomes for a better targeting of the drug at appropriate tissue destination .They presents a structure similar to liposome and hence they can represent alternative vesicular systems with respect to liposomes. Niosomes are thoughts to be better candidates' drug delivery as compared to liposomes due to various factors like cost, stability etc. Various type of drug deliveries can be possible using niosomes like targeting, ophthalmic, topical, parenteral, etc. Niosomal drug delivery system is the one of the best targeted drug delivery system. However, the technology utilized in niosomes is still in its infancy. Hence, researches are going on to develop a suitable technology for large production because it is a promising targeted drug delivery system

# A 013

## CUBOSOMES: A NOVEL APPROACH FOR DRUG DELIVERY SYSTEMS

**P.Monika**

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Cubosomes are the biocompatible novel approach for the drug delivery system. Cubosomes consist of honeycombed structures separating two internal aqueous channels and a large interfacial area. Self-assembled cubosomes as active drug delivery systems are receiving more and more attention and interest after the first discovery and nomination.. The preparation mostly involves simple emulsification of monoglyceride and a polymer, accompanied by sonication and homogenization. The preparation methods fall into two categories, including top-down and bottom-up techniques Overall, cubosome have great potential in drug nano formulations owing to their potential advantages, including high drug payloads due to high internal surface area and cubic crystalline structures, relatively simple preparation method, biodegradability of lipids, the ability of encapsulating hydrophobic, hydrophilic and amphiphilic substances, targeting and controlled release of bioactive agents.. The controlled release application of these nanoparticles is of a great significance in cosmeceutical and pharmaceutical fields. Low cost of the raw materials, versatility and the potential for controlled release through functionalization make them an attractive vehicle for several *in vivo* drug delivery routes.

# A 014

## SELF EMULSIFYING DRUG DESIGN SYSTEM

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Most of the drugs are administered orally. But, there are more than 40% of drugs which exhibit poor aqueous solubility, due to which they have low bioavailability and high inter subject variability to improve the oral bioavailability of poorly aqueous soluble drug, self emulsifying drug delivery systems are been developed. SEEDS are inotropic mixtures of oil, surfactants, solvents and co solvents. These systems form fine oil in water (o/w) emulsions or micro emulsions upon mild agitation; then dilution with aqueous phase through the GIT in which dissolution rate is limited. These formulations have intern; as they can improve the bioavailability of compounds that fall into class-2 of BCS classification an overview of characterization and application of SEEDS; and even development of solid self emulsification drug delivery system and dosage form of SEEDS has been described.

# A 015

## FLOATING DRUG DELIVERY SYSTEM: A NOVEL DRUG DELIVERY SYSTEM

**Manoj Sahu And Ashok Rathod**

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Oral administration is the most convenient and preferred method.A problem frequently encountered with conventional CR dosage forms is the inability to increase their residence time in the stomach, and proximal portion of the small intestine. Therefore prolonged gastric retention is important in achieving control over the GRT because this helps retain the CR system in the stomach for a longer time in a predictable manner. Dosage forms that can be retained in the stomach for prolonged and predictable period of time are called gastroretentive drug delivery systems (GRDDS). Therefore the real issue in the development of oral GRDDS is not just to prolong the delivery of drugs for 12 hours or more, but to prolong the presence of DDS in the stomach or upper GI tract until the entire drug is released. Thus GRDDS can improve the controlled delivery of drugs that have an absorption window by continuously releasing the drug for a prolonged period of time before it reaches its absorption site, thus ensuring its optimal Bioavailability.

# A 016

## VESICULAR CARRIERS IN TRANSDERMAL DRUG DELIVERY

**Ch.Divya Bharathi,and D.Prasanthi**

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Transdermal drug delivery is to deliver a specific dose of medication through the skin and into the bloodstream. There is considerable interest in the skin as a site of drug application both for local and systemic effect. However, the skin, in particular the stratum corneum, poses a formidable barrier to drug penetration thereby limiting topical and transdermal bioavailability. Skin penetration enhancement techniques using physical and chemical enhancers have been developed to improve bioavailability and increase the range of drugs for which topical and transdermal delivery is a viable option. Enhancement techniques are based on drug/vehicle optimisation such as drug selection, prodrugs and ion-pairs, supersaturated drug solutions, eutectic systems, complexation, liposomes, vesicles and particulate systems. Liposomes were first shown to be of potential value for topical therapy, studies continued towards further investigation and development of lipid vesicles as carriers for skin delivery of drugs. This review describes about the preparation, characterisation and applications of lipid vesicles with special emphasis on recent advances including transfersomes, flexasomes, invasomes and ethosomes.

# A 017

## FAIRNESS CREAM CURSE

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How effective are these fairness creams really? How safe are they when used regularly?

Generally, many people both men and women use fairness creams in wide range. It looks like every skin care product in the market seems to have skin lightening properties but ingredients used in the preparation of fairness creams really change MELANIN content?

In fact, none of the creams can change melanin structure. Fairness creams thins skin and later on causes photosensitive reactions and may even lead to SKIN CANCER and still we encourage such creams for temporary beauty!

Usually fairness creams contains Hydroquinones, Arbutin, Hydroxy acids, Niacinamide, Mercury.According to the survey these ingredients have nothing to do with skin. It is the naturally available products like Milk, Saffron, and Lime combinations in the creams cause skin to brighten. This presentation will further discuss about Safety of the ingredients used in the fairness creams and what exactly is responsible for skin change.

# A 018

## EMULGELS: A NOVEL APPROACH FOR TOPICAL DRUG DELIVERY

**T.Rakesh*, Saumya Das, B.Rajesh, P.Vankateshwar Rao**

**Vikas College of Pharmaceutical Sciences, Suryapet, Nalgonda, A.P.**

Gels are the best means of topical drug delivery but have the limitation of repeated applications and use of low potency medications. Moreover the gels are preferably hydrophilic in nature and delver the drug for a shorter period of time. So to overcome this limitation an emulsion based approach is being used so that even a hydrophobic therapeutic moiety can enjoy the unique properties of gels. When gels and emulsions are used in combined form the dosage form are referred as emulgel. In recent years, there has been great interest in the use of novel polymers. A unique aspect of dermatological pharmacology is the direct accessibility of the skin as a target organ for diagnosis and treatment. The combination of hydrophilic cornified cells in hydrophobic intercellular material provides a barrier to both hydrophilic and hydrophobic substances. Within the major group of semisolid preparations, the use of transparent gels has expanded both in cosmetics and in pharmaceutical preparations. Polymer can function as emulsifiers and thickeners because the gelling capacity of these compounds allows the formulation of stable emulsions and creams by decreasing surface and interfacial tension and at the same time increasing the viscosity of the aqueous phase. In fact, the presence of a gelling agent in the water phase converts a classical emulsion into an emulgel. These emulgel are having major advantages on novel vesicular systems as well as on conventional systems in various aspects. Various permeation enhancers can potentiate the effect, so emulgels can be used as better topical drug delivery systems over present systems. The use of emulgels can be extended in pharmaceutical as well as cosmetic industries for better effect.

# A 019

## MOUTH DISSOLVING TABLETS

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Among the different routes of administration, the oral route of administration continues to be the most preferred route due to various advantages including ease of ingestion, avoidance of pain, versatility and most importantly patient compliance. Many patients find it difficult to swallow tablets and hard gelatin capsules and thus do not comply with prescription, which results in high incidence of non-compliance and ineffective therapy. Recent advances in Novel Drug Delivery System (NDDS) aim to enhance safety and efficacy of drug molecule by formulating a convenient dosage form for administration and to achieve better patient compliance.The swallowing problems are also common in some cases such as patients with motion sickness, sudden episodes of allergic attack or coughing and due to lack of water.

To overcome these problems, formulators have considerably dedicated their effort to develop a novel type of tablet dosage form for oral administration i.e., one, which disintegrates and dissolves rapidly in saliva without the need for drinking water. This tablet disintegrates instantaneously or disperses in the saliva. Some drugs are absorbed from the mouth, pharynx and esophagus as the saliva passes down into the stomach and produce rapid onset of action. In such cases, bioavailability of drug is significantly greater than those observed from conventional tablet dosage form.

# A 020

## IONTOPHORESIS

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Iontophoresis is defined as Enforced penetration of charged molecules through a tissue border by applying electric field. It is a non invasive method of propelling high concentration of charged substances. It is a technique using electric charge to deliver a medicine or other chemicals through skin. IT IS INJECTION WITHOUT NEEDLE. Interest in this field of Research has led to successful delivery of both low and high molecular weight drugs. Rapid progress in the field of microelectronics, nanotechnology.Recent successful designing of the FENTANYL E-TRANS iontophoretic system have provided Encouraging results. Iontophoretic application of antiviral chemotherapeutic agents is advantageous because systemic toxicity is eliminated as only small amount of drug is delivered. Iontophoresis lidocaine delivers Greater degree of Anesthesia in 30mins compared to Eutectic mixture which takes 60mins. Also enhances percutaneous absorption of Propranolol Hydrochloride by increasing therapeutic efficacy as it bypasses hepatic first pass metabolism. This presentation will discuss basic concepts, principles, Usage and application of IONTOPHORESIS technique.

# A 021

## NUTRICOSMETICS

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**NUTRICOSMETICS** refers to nutritional supplements which can support the function and structure of the skin, hair, nails. As consumers worldwide increasingly seek out new ways to stay healthy and maintain a youthful appearance, nutricosmetics have been hailed as the big thing in the beauty industry. It is the intersection between personal care and nutrition. Nutrient influences on human health have been studied for years with credible clinical studies to back the correlation between specific nutrients and their effect on controlling accelerated aging especially with regard to skin. Some of the newly rediscovered botanicals such as acerola, buriti oil, cupuacu, urucum oil have enriched the neutricosmetics. It is a new way of delivering beauty and are causing a paradigm shift in the way beauty is achieved and maintained. These so called "functional foods" in the form of ingestible pills, tablets, liquids etc have reactive or preventive effect on outward appearance. The fact is whatever we apply topically, to keep our skin young and healthy looking, will never work if we don't provide our body with nutrients needed to build and sustain healthy beautiful skin. The concept **"you are what you eat"** is not new, but it is taking on new life in the form of neutricosmetic products, hence it is the area of concern in the present day.

# A 022

## TRANSDERMAL DRUG DELIVERY SYSTEM: A NOVEL DRUG DELIVERY SYSTEM

**Mahipal Reddy and Anjaiah**

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A transdermal patch is a medicated adhesive patch that is placed on the skin to deliver a specific dose of medication through the skin and into the bloodstream. Often, this promotes healing to an injured area of the body. An advantage of a transdermal drug delivery route over other types of medication delivery such as oral, topical, intravenous, intramuscular, etc. is that the patch provides a controlled release of the medication into the patient, usually through either a porous membrane covering a reservoir of medication or through body heat melting thin layers of medication embedded in the adhesive. The main disadvantage to transdermal delivery systems stems from the fact that the skin is a very effective barrier; as a result, only medications whose molecules are small enough to penetrate the skin can be delivered in this method. A wide variety of pharmaceuticals are now available in transdermal patch form.

# A 023

## PERSONALISED NANOMEDICINE

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An emerging field which will impact on pharmacists is the advent of "personalized nanomedicine", enabled by the direct visualization, analysis (diagnosis) and modification (therapy) of nanoscopic protein machines in life cells and tissues with the aim to improve human health. Traditionally nanotechnology in pharmacy has been associated with drug delivery, where the size of the delivery vehicle, whether it be a liposome, a polymer or even a metallic nanoparticle and its consequent ability to evade many of our bodies' natural defences has been the main attraction. Nanomedicine is the term used to describe the use of molecular particles to administer heat, drugs, light or other agents to treat ailing cells within the body. Nanotechnology-based cancer diagnostics are developed that aim at monitoring the therapeutic effects of drugs. Such a therapy-specific monitoring is expected to prove the efficacy of a drug within days compared to weeks or months with currently available diagnostic methods. It often takes several months until an effective drug treatment is found, nanotechnology-based molecular diagnostics are expected to improve the efficiency of disease treatment. Nanomedicine promises to offer novel diagnostic and therapeutic techniques for accurate diagnosis, prognosis, and treatment in a disease specific and patient-specific manner. Personalized nanomedicine today is individualized, evidence-based medicine that delivers the right care, to the right patient.

# A 024

## RESEALED ERYTHROCYTES: *A NOVEL DRUG DELIVERY SYSTEM*

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**ABSTRACT**

Erythrocytes, also known as red blood cells, have been extensively studied for their potential carrier capabilities for the delivery of drugs and drug-loaded microspheres. Such drug-loaded carrier erythrocytes are prepared simply by collecting blood samples from the organism of interest, separating erythrocytes from plasma, entrapping drug in the erythrocytes, and resealing the resultant cellular carriers. Hence, these carriers are called resealed erythrocytes. The overall process is based on the response of these cells under osmotic conditions. Upon reinjection, the drug-loaded erythrocytes serve as slow circulating depots and target the drugs to a reticuloendothelial system (RES) Resealed Erythrocytes are biocompatible, biodegradable, possess longcirculation half-life and can be loaded with variety of active substances. Carrier erythrocytes are prepared by collecting blood sample from the organism of interestand separating erythrocytes from plasma. By using various methods the cells are broken and the drug is entrapped into the erythrocytes, finally they are resealed and the resultant carriers are then called "resealed erythrocytes". So many drugs like aspirin, steroid, cancer drug which having many side effects are reduce by resealed erythrocyte.

# A 025

## ORAL THIN FILM TECHNOLOGY (OTF)

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Among the routes for drug administration, oral route is the most preferred route for delivery of drugs due to ease of ingestion, pain avoidance and versatility. Many pediatric and geriatric patients are unwilling to take solid preparations due to fear of choking and 50% of the population is effected by dysphagia which results in high incidence of non compliance leading to ineffective therapy .Amongst the plethora of avenues explored for rapid drug releasing products, OTF is gaining much attention. Oral strip is a thin film that is prepared using hydrophilic polymer that rapidly dissolves on the tongue or buccal cavity. Oral strips are similar to postage stamps in size and shape. These are buccoadhesive systems that are retained for longer period for controlled release of drugs. Formulation of OTF involves application of both aesthetic and performance characteristics to improve patient compliance, dissolution rate and therapeutic efficacy. OTF is also known as Oral strip technology. Methods used for preparation of OTF are Solvent casting technique ,Rolling, Hot melt extrusion,Solid dispersion extrusion. The first oral film approved by FDA is Zuplenz. Other commercially available oral strip drugs are Benadryl, Suboxone etc. OTF are employed for their local and systemic actions, rapid release. OTF eliminates patients fear of choking, avoids first pass metabolism of drugs. The formulation flexibility of the OTF platform enables formulators to evaluate a broad range of excipients and active pharmaceutical ingredient forms when embarking on new product development initiatives.

# A 026

## MICROSPHERES: A NOVEL DRUG DELIVERY SYSTEM

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Controlled drug delivery technology is concerned with the systematicrelease of a pharmaceutical agent to maintain a therapeutic level of the drug in the body for a sustained period of time. This may be achieved by incorporating the therapeutic agent into a degradable polymer vehicle, releasing the agent continuously as the matrix erodes. .Microspheres are characteristically free flowing powders consisting of proteins or synthetic polymers having a particle size ranging from 1-1000 μm. The range of Techniques for the preparation of microspheres offers a Variety of opportunities to control aspects of drug administration and enhance the therapeutic efficacy of a given drug. There are various approaches in delivering a therapeutic substance to the target site in a sustained controlled release fashion. One such approach is using microspheres as carriers for drugs also known as microparticles. It is the reliable means to deliver the drug to the target site with specificity, if modified, and to maintain the desired concentration at the site of interest. Microspheres received much attention not only for prolonged release, but also for targeting of anticancer drugs. In future by combining various other strategies, microspheres will find the central place in novel drug delivery, particularly in diseased cell sorting, diagnostics, gene & genetic materials, safe, targeted and effective in vivo delivery and supplements as miniature versions of diseased organ and tissues in the body.

**A 027**

# IONTOPHORESIS: A NOVEL DRUG DELIVERY SYSTEM

MohammedAltaf Ahmed and Mohammed Jawad Ahmed

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Iontophoresis, the process of increasing the penetration of drugs into surface tissues by the application of an electric current, has been applied to a great many disease conditions over its 200-year history. Although its greatest success has been in the treatment of hyperhidrosis, it is steadily finding new applications. Many aspects of the mechanisms of iontophoresis have yet to be studied before the technic is both fully understood and maximally utilized. In this article we review the literature on iontophoresis as it pertains to dermatology, including the basic principles, engineering aspects.

# A 028

## LIPOSOMES: A NOVEL DRUG DELIVERY SYSTEM

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Liposomes are microparticulatelipoidal vesicles which are under extensive investigation as drug carriers for improving the delivery of therapeutic agents. Due to new developments in liposome technology, several liposome-based drug formulations are currently in clinical trial, and recently some of them have been approved for clinical use. Reformulation of drugs in liposomes has provided an opportunity to enhance the therapeutic indices of various agents mainly through alteration in their biodistribution. This review discusses the potential applications of liposomes in drug delivery with examples of formulations approved for clinical use, and the problems associated with further exploitation of this drug delivery system.

# A 029

## COSMETIC CAMOUFLAGE

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Cosmetic camouflage improves the quality of life without interfering with the treatment. The use of camouflage must be included in prescription for patients with disfiguring skin diseases .cosmetic camouflage provides a valuable resource to individuals with a wide range of individuals, especially scars. It is an essential tool for both dermatology and cosmetic surgery, and it is a method that has been created to lessen the suffering of those who are deeply affected by scarring. There are different ways to mask a disfigurement with cosmetics products, such as subtle coverage, pigment blending (color correcting), full concealment, and contouring. A variety of techniques are currently available to assist these patients in masking their irregularities and to give them the opportunity to improve their quality of life. Cosmetic camouflage can cover cutaneous unaesthetic disorders using a variety of water-resistant and opaque products that provide effective and natural coverage. Common dermatologic conditions that are more prevalent in patients with skin of color include dyschromia, keloids, central centrifugal cicatricial alopecia, melasma and pseudo folliculitis barbae. Cosmetic camouflage is important for patients with vitiligo which is neither a life-threatening nor a contagious disease. But the disfigurement of vitiligo can be devastating to its sufferers, especially dark-skinned individuals. Available treatment options are disappointing and sufferers often use various forms of camouflage. Remedial cosmetic cover creams help conceal the blemish of vitiligo at least temporarily. A high concentration of pigment is incorporated into water-free or anhydrous foundations to give a color that matches the patient's skin, thereby concealing vitiligo patches.

# A 030

## HYDROGELS: A VERSATILE DRUG DELIVERY CARRIER SYSTEMS

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Hydrogels are the materials of choices for many applications in regenerative medicine due to their unique properties including biocompatibility, flexible methods of synthesis, range of constituents, and desirable physical characteristics.Hydrogel (also called Aquagel) is a network of polymer chains that are hydrophilic, sometimes found as a colloidal gel in which water is the dispersion medium. Hydrogels are highly absorbent (contain nearly 99.9% water), natural or synthetic polymers. Hydrogel also possess a degree of flexibility very similar to natural tissue, due to its significant water content. It can serve as scaffolds that provide structural integrity to tissue constructs, control drug and protein delivery to tissues and cultures. Also serves as adhesives or barriers between tissues and material surfaces. The positive effect on hydrogels on wounds and enhanced wound healing process has been proven. Hydrogels provide a warm, moist environment for wound that makes it heal faster in addition to its useful mucoadhesiveproperties. Moreover, hydrogels can be used as carriers for liposomes containing variety of drugs, such as antimicrobial drugs. Hydrogels are water swollen polymer matrices, with a tendency to imbibe water when placed in aqueous environment. This ability to swell, under biological conditions, makes it an ideal material for use in drug delivery compounds.

# A 031

## ENGINEERING NANOMEDICINES FOR IMPROVED MELANOMA THERAPY CUBOSOMES

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Cubosomes consist of honeycombed (cavernous) structures separating two internal aqueous channels and a large interfacial area. Self-assembled cubosomes as active drug delivery systems are receiving more and more attention and interest after the first discovery and nomination.. The discovery of cubosomes is a unique story and spans the field of food science, differential geometry, biological membranes and digestive processes. One of the most common surfactants used to make cubosomes is the monoglyceride glycerol monoolein. Bicontinuous cubic liquid crystalline phase is an optically clear, very viscous material that has a unique structure at the nanometer scale. The word bicontinuous refers to the division of the two continuous but non-intersecting aqueous regions by a lipid bilayer that is contorted into a space-filling structure. Hydrating a surfactant or polar lipid that forms cubic phase and then dispersing the solid-like phase into smaller particles usually form Cubosomes. There is a lot of excitement about the cubic phases because its unique microstructure is biologically compatible and capable of controlled release of solubilized active ingredients like drugs and proteins.

# A 032

## FERROFLUIDS - A PROMISING DRUG CARRIER

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Drug targeting is delivery of drug to receptor, organ or to any other specific part of body exclusively. Various non-magnetic micro-carriers like liposome's, nano-particles, microspheres, micro-particles are successfully utilized for drug targeting but it seemed to have poor specificity and rapidly cleared off by RES (Reticulo-Endothelial System) under normal circumstances. Magnetism plays a very important role in this case. The field of magnetic micro sphere was pioneered in US by Dr. Kenneth Widder and his colleagues in late 1970's. Magnetic field is believed to be harmless to biological system and adaptable to any part of body. Up to 60% of an injected dose can be deposited and released in controlled manner in selected surface. After administration of that formulated drug place a magnet on body site where one need action. Due to magnetic property drug, get attracted to that site either via enzymatic activity or changes in physiological condition like pH, osmolality, temperature and be taken up by tumour cells. It is a challenging area for future research and holds lots of promises for novel and efficient approach for targeted drug delivery system. This review focuses on drug targeting by Magnetic Microspheres, various magnetic carriers and their characterization.

# A 033

## CARBON NANOTUBES: NOVEL DRUG DELIVERY IN CANCER THERAPY

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Among all cancer treatment options, chemotherapy continues to play a major role in killing free cancer cells and. Although chemotherapies are successful in some cases, systemic toxicity may develop at the same time due to lack of selectivity of the drugs for cancer tissues and cells, which often leads to the failure of chemotherapies.To realize target treatment, the first step of the strategies is to build up effective target drug delivery systems. An ideal carrier for target drug delivery systems should have three pre-requisites for their functions: (1) they themselves have target effects; (2) they have sufficiently strong adsorptive effects for anticancer drugs to ensure they can transport the drugs to the effect-relevant sites; and (3) they can release the drugs from them in the effect-relevant sites. Carbon Nanotubes holds good for desired drug delivery systems for the treatment of cancer. CNTs are tubular materials with nanometer-sized diameters and axial symmetry, giving them unique properties that can be exploited in the diagnosis and treatment of cancer.The transporting capabilities of carbon nanotubes combined with appropriate surface modifications and their unique physicochemical properties show great promise to meet the three pre-requisites..

# A 034

## MEDICATED CONTACT LENSES

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In recent times, increased attention is being paidto the development of contact lenses with the abilityto carry drugs for sustained release in the pre-corneal area to enhance their bioavailability and thus improve the efficiency of treatments. This administration method requires smaller dosages, with the consequence that systemic absorption is minimized. An additional objective is to simplify administration and improve compliance of therapeutic regimes .The possibility of concurrently addressing the correction of an eyesight problem with pharmacological treatment of an ocular pathology is clearly attractive although, if it is to be used only as a sustained release system, neutral lenses could be utilized.In any case, it is necessary to improve the drug in sufficient amounts and for it to be released at the right rate. The difficulty of designing lenses with these two characteristics remained an insurmountable obstacle for many years, but new approaches have been optimized recently which open up interesting prospects to include medicated contact lenses into mainstream practice.

# A 035

## SELF MICRO EMULSIFYING DRUG DELIVARY SYSTEMS (SMEDDS)

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The main purpose is to prepare self micro emulsifying drug delivery system (SMEEDS) for oral bioavailability enhancement of a poorly water soluble drug . Solubility was determined in various vehicles. SMEEDS is mixture of oils, surfactants, and cosurfactants, which are emulsified in aqueous media under conditions of gentle agitation and digestive motility that would be encountered in the gastro intestinal (GI) tract. Existence of micro emulsion region was identified from the pseudo ternary phase diagrams and composition of formulations was selected.

# A 036

## MICROCHIP AS CONTROLLED DRUG DELIVERY DEVICE

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Drug delivery is a very important aspect of medical treatment. A microchip preprogrammed to release the proper chemicals at the right times and in the right order could be fitted to the end of a probe, swirled in a vial of fluid at the bedside, and deliver the results as the patient waits. It is the first device of its kind enabling the storage of one or more compounds inside of the microchip in any form (solid, liquid, or gel), with the release of the compounds achieved on demand and with no moving parts. DNA, RNA, gene and protein microchip development have a lot of scope in pharmaceutical field. Controlled-release drug delivery systems have many applications, including treatments for hormone deficiencies and chronic pain. A biodegradable device that could provide multi-dose drug delivery would be advantageous for long-term treatment of conditions requiring pulsatile drug release. Novel drug delivery and bio sensing devices have the potential to increase the efficacy of drug therapy by providing physicians and patients the ability to precisely control key therapy parameters. Such intelligent systems can enable control of dose amount and the time, rate, and location of drug delivery. A microchip system has the ability to store a large number of drugs or chemicals, control the time at which release begins, and control the rate at which the chemicals are released. The microchip could be integrated with a tiny power supply and controlled by a microprocessor, remote control, or biosensors. This microchip technology has potential uses in areas such as medical diagnostics, chemical detection, combinatorial chemistry, drug delivery and cosmetics. All these certainly make microchip drug delivery systems to be an potential area to be explored by young scientists.

# A 037

## NASAL DRUG DELIVERY SYSTEM: A NOVEL APPROACH

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Intranasal Therapy has been an accepted form of treatment in the Ayurvedic system of Indian Medicine. The interest in intranasal delivery of drugs as a non-invasive is increased. We havealso discussed advantages, disadvantages, mechanism of action and application of nasal drug delivery system in local delivery, systematic delivery, and Nasal vaccine and CNS delivery of the drug. We are discussed here relevant aspects of biological, physicochemical and pharmaceutical factors of nasal cavity that must be considered during the process of discovery and development of new drugs for nasal delivery as well as in their incorporation into appropriate nasal Pharmaceutical formulations. Nasal route is more suitable for those drugs which cannot be administered orally due to gastric degradation or hepatic first pass metabolism of the drug. Intranasal drug delivery is found much promising route for administration of peptides and protein drugs. Much has been investigated and much more are to be investigated for the recent advancement of nasal drug delivery system

# A 038

## NEEDLE-LESS INJECTIONS

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Needle less injection system is a newer innovation of injecting the drug into the body without the use of piercing needles. This thus decreases the contagious diseases and also improves the patient compliance for injections as they are not painful. Apart from this, it is more cost-effective as compared to the conventional needle system and also the disposal of waste is reduced as these are reusable. This system uses the principal of high pressure injection of the drug through a very tiny aperture that is even smaller than that of the size of a hair follicle. This high pressure causes the drug to get injected through the skin into deeper tissues. These systems also help in administering the drug in proper dosage regimen when used with proper force while administering. This technology is in steady development and promises an efficient and painless dosage form.

# A 039

## OCCULAR DRUG DELIVERY SYSTEM

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Ocular drug delivery has been a major challenge to pharmacologists and drug delivery scientists due to its unique anatomy and physiology. Static barriers (different layers of cornea, sclera, and retina including blood aqueous and blood–retinal barriers), dynamic barriers (choroidal and conjunctival blood flow, lymphatic clearance, and tear dilution), and efflux pumps in conjunction pose a significant challenge for delivery of a drug alone or in a dosage form, especially to the posterior segment. Identification of influx transporters on various ocular tissues and designing a transporter-targeted delivery of a parent drug has gathered momentum in recent years. Parallelly, colloidal dosage forms such as nanoparticles, nanomicelles, liposomes, and microemulsions have been widely explored to overcome various static and dynamic barriers. Novel drug delivery strategies such as bioadhesive gels and fibrin sealant-based approaches were developed to sustain drug levels at the target site. Designing noninvasive sustained drug delivery systems and exploring the feasibility of topical application to deliver drugs to the posterior segment may drastically improve drug delivery in the years to come. Current developments in the field of ophthalmic drug delivery promise a significant improvement in overcoming the challenges posed by various anterior and posterior segment diseases.

# A 040

## MICROEMULSIONS AS PROMISING DELIVERY SYSTEM

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Microemulsions are clear, stable, isotropic liquid mixture of oil, water and surfactant, frequently in combination with cosurfactant. The aqueous phase may contain salt(s) and\or other ingredients and the "oil" may actually be a complex mixture of different hydrocarbons and olefins. In contrast to ordinary emulsions, microemulsions from upon simple mixing of the components and do not require the high shears conditions generally used in formation of ordinary emulsion.

Microemulsions are having unique properties, namely, ultra low interfacial tension, large interfacial area, thermodynamics stability and the ability to solubilize otherwise immiscible liquid. Microemulsions are having wide applications and uses such as in pharmaceuticals, cosmetics, cutting oils, biotechnology, food, agrochemicals, environmental detoxification, analytical applications, microporus media synthesis etc.

# A 041

## COLLOIDOSOMES

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There are several newer lipid based systems that are evoked and utilized now a days as drug delivery systems likeliposomes, transferosomes, ethosomes etc which provides effective solutions for problem regarding insolubility, instability, rapid degradation along which has wide application in the specialized area consisting protein delivery, targeting to the brain, and tumor targeting. This lipid based systems are also utilized for gene delivery with efficient performance while in this field the colloidosomes evoked as potential tool based on the vascular drug delivery system. There are severalapplications of vascular systems that are present including reduction in the cost of therapy via improved bioavailability of medication generally in the case of poorly soluble drugs. The colloidosomes have several beneficial advantages like greater encapsulation efficiency with wide control on the size along with permeability and compatibility. The colloidosomes also have effective mechanical strength.

# A 042

## NIOSOMES- A NOVEL DRUG DELIVERY SYSTEM

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Niosomes are the non ionic vesicles which act as drug carrier systems. These are the microscopic bi lamellar or multi lamellar structures formed from non ionic surfactant and cholesterol. The niosome vesicle has both hydrophilic and hydrophobic sites. These are chemically stable, biodegradable, biocompatible systems which can encapsulate large amount of active drug in approximately less volumes of vesicles.

The method of preparation is based on liposome technology. The dry product form of niosome is pro niosomes which on hydrolysis yields niosome dispersion. Proniosomal gel of the neem seed oil is acceptable for therapeutic applications. The proniosomal gel was prepared using span 40, phosphate buffer, cholesterol, using neem seed oil as active pharmaceutical ingredient. Niosomal drug delivery system is potentially applicable to many pharmacological agents for their action against various diseases.

# A 043

## TIME RELEASE CAPSULE

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The main objective of the present work was to develop time release capsule formulation, the drug delivery system that is designed to achieve a prolonged therapeutic effect by continuously releasing medication over an extended period of time after administration of single dose. In time release capsule formulation, the dose administration is reduced, increases patient compliance. This formulation exhibit neither very slow nor very fast rates of absorption and excretion. The release profile for the sustained action could be controlled by varying the thickness of the coat, and the lag time could be controlled by varying the amount of concentration present in the polymer coat. The drug is released immediately from encapsulated system and release was sustained over an extended period of time. That the lag time and the drug-release rate from the capsule can be controlled by varying the polymer ratio and the coating load. Consequently, multiparticulate drug delivery systems provide tremendous opportunities for designing new controlled and delayed release oral formulations, thus extending the frontier of future pharmaceutical development.

# PHARMACOGNOSY

# B 001

## EVALUATION OF ANTIPYRETIC ACTIVITY OF ALCOHOLIC EXTRACT OF VITEX NIGUNDO LEAVES IN PGE1 INDUCED PYREXIA MODEL IN ALBINO RATS

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Evaluate antipyretic Activity of Alcoholic Extract of vitex negundo In PGE1 induced pyrexia in Albino rats. Vitex negundo is generally known as Negundo in India. It is also known as the five-leaved chaste tree, is a large aromatic shrub with quadrangular, densely whitish, tomentose ranch lets. It is widely used in folk medicine, particularly in South and Southeast Asia. It belongs to family Verbanaceae and is found throughout India. Vitex negundo has been used for various medicinal purposes in Ayurveda and Unani systems of medicine. The leaves and whole plant is used as an anti-inflammatory, antiseptic, antipyretic and diuretic. Antipyretic activity of leaves of vitex negundo is studied in brewer's yeast induced pyrexia models. Our study is to evaluate antipyretic activity of alcohol extract of vitex negundo in PGE1 induced hyperpyrexia model in albino rats.

# B 002

## ANTIANXIOLYTIC ACTIVITY OF POLYHERBAL EXTRACT ON RODENTS

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The neuropharmacological effect of the acetone and ethanolic extracts of *Evolvulus alsinoides* (whole plant), *Leptadenia reticulata* (roots), and *Mimusops elengi* (bark) were studied in rodents. The acetone and ethanolic extracts were investigated for its putative anxiolytic activity on various experimental paradigms of anxiety viz. Elevated plus maze, staircase maze, mirror chamber, conditional avoidance response, hole board and open field test. Toxicity study was done to find out the toxic and therapeutic dose was found to be 200mg/kg by acute and subacute toxicity method. Diazepam (1mg/kg, i.p) was administered acutely to rodents as a standard drug. HPTLC and FT-IR studies revealed that number of phytoconstituents and functional group present in the extracts. The extracts significantly ($p<0.001$) produce anxiolytic action in various animal models. The neuro transmitter estimation from the whole brain proves that there is significant increase in norepinephrine levels which shows the potent anxiolytic activity of the extracts.

**Key words:** *Evolvulus alsinoides* (whole plant), *Leptadenia reticulata* (roots), and *Mimusops elengi* (bark), HPTLC, FT-IR, Spectrophotofluorimeter.

# B 003

## ROLE OF NATURAL PRODUCTS IN DRUG DISCOVERY

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Natural products play a vital role in drug discovery. They have served as the basic reference and initiators in drug discovery programs. Natural products as pure compounds have been involved in western medicine as drugs or lead compounds for drug discovery and development. In traditional medicine, they have been involved for a very long time as medicinal extracts, infusions, decoctions, or other therapeutic preparations. Modern drug discovery programs require an arsenal of drug candidate molecules in pure form whose activities (usually against cells or enzymes) are rapidly determined using high-throughput screening (HTS) and activities are expected in micro- (μM) to nanomolar (nM) levels. To continue to be competitive with other drug discovery methods, natural product research needs to continually improve the speed of the screening, isolation, and structure elucidation processes, as well addressing the suitability of screens for natural product extracts and dealing with issues involved with large-scale compound supply.

# B 004

## BERBERINE: ALKALOID WITH WIDE SPECTRUM OF PHARMACOLOGICAL ACTIVITIES

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Berberine is an isoquinoline alkaloid, present in roots and stem-bark of *Berberis* species. Berberine based formulations, are widely used in traditional systems of medicine including, Ayurveda and Traditional Chinese Medicine. Berberine has demonstrated widerange of pharmacological activities including; antihypertensive, anti-inflammatory, antioxidant, antidepressant, anticancer, anti-diarrhoeal, cholagouge, hepatoprotective and above all, antimicrobial. Recent studies, have thrown light on antidiabetic and hypolipidemic activities of the alkaloid. Berberine has been tested clinically in the treatment of oriental sore, diarrhea, trachoma diabetes mellitus type-2,hypercholesterolemia, and congestive cardiac failure. The presentation discusses preclinical and clinical investigations on berberine, with potential for drug-development.

**Keywords:** Berberine, pharmacology, isoquinoline alkaloid, trachoma, diabetes mellitus-2.

# B 005

## PHARMACOGNOSTIC INVESTIGATION OF ELAEOCARPUS GANITRUS (RUDRAKSHA)

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Elaeocarpus ganitrus commonly known as Rudraksha, is a large evergreen, broad leaved tree belonging to the family Elaeocarpaceae. Its seeds are traditionally used as prayer beads in Hinduism. The Rudraksha is composed of gaseous elements present such as carbon, hydrogen, nitrogen which is analysed by gas chromatography. They are of many types based on the number of faces they possess. It possesses good medicinal value along with religious and spiritual significances. Its chemical constituents include alkaloids such as rudrakine, elaeocarpidine, elaeocarpine and flavonoids such as quercetin. In Ayurveda, it is used to treat mental diseases, epilepsy, arthritis and liver diseases. It shows many pharmacological effects such as anti-bacterial, anti-fungal, anti-viral, anti-cancer, anti-heliminthic and anti-ageing effects. It is reported to possess powerful electromagnetic, paramagnetic and inductive properties. It shows positive effects on the heart, CNS and also provides relief from stress, anxiety, depression, palpitations and lack of concentration.

# B 006

## GENETIC MARKERS - IN HERBAL DRUG RESEARCH

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There is a great demand for herbal medicines in the developed and developing countries because of their wide biological activity, higher safety margin than synthetic drugs as a result of this Herbal drugs have a great potential in the global market. Herbal drug technology is used for converting botanicals materials into medicines, where standardization and quality control with proper integration of modern scientific techniques and traditional knowledge is important. Extensive research on DNA-based molecular markers is in progress in many research institutes all over the world.DNA -based molecular have a great utility in the herbal drug analysis and widely used for the authentification of plant species of medicinal importance.

# B 007

## CARTILAGE REGENERATING AGENTS - GLUCOSAMINE

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Cartilage is a flexible connective tissue, found in many areas in the body of humans and other animals, including the joints between bones, the rib cage, ear, nose, bronchial tubes and intervertebral discs. It is composed of specialized cells called chondroblasts that produce a large amount of extracellular matrix composed of collagen fibers, abundant ground substance, rich in proteoglycan, glycosaminoglycan and elastin fibres. Since glucosamine is a precursor for glycosaminoglycan, it acts as a supplement, i.e, as a cartilage regenerating agent. Glucosamine can be used to support the structure and function of joints and its marketing is targeted to people suffering from osteoarthritis. . Glucosamine also *reduces joint swelling and stiffness. It is also used for the treatment of inflammatory bowel disease.* Commonly sold forms of glucosamine are glucosamine sulfate, glucosamine hydrochloride, and *N*-acetylglucosamine. Glucosamine is often sold in combination with other supplements such as chondroitin sulfate and methylsulfonylmethane. Of the three commonly available forms of glucosamine, only glucosamine sulfate has proven effective for treating osteoarthritis.

# B 008

## IMMUNOMODULATORY EFFECTS OF SOME TRADITIONAL MEDICINAL PLANTS

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The Immune System is the most complex biological systems in the body. At the time of infection immune system go under the attack of a large number of viruses, bacteria and fungi. The immune system is a part of body to detect the pathogen by using a specific receptor to produce immediately response by the activation of immune components cells, cytokines, chemokines and also release of inflammatory mediator. They modulate and potentiate the immune system. Medicinal plants impart significant roles in the prevention of human being from various pathogenic microorganisms and the diseases. In nature there are various medicinal plants which are used as immunomodulator agents. This review is an attempt to put various plants in one place which are used as immunomodulatory agents.

# B 009

## EFFECT OF PIPERINE ON ANTIHYPERLIPIDEMIC AND PHARMACOKINETIC PROFILE OF ROSUVASTATIN

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Piperine [1-piperoyl piperidine] an alkaloid isolated from *Piper nigrum*, is a natural bioenhancer (Piperaceae) and is known to inhibit various CYP isoenzymes responsible for biotransformation of drugs. In the present study piperine showed synergistic effect on rosuvastatin induced antihyperlipidemic effects in Tyloxapol induced hyperlipidemia. Piperine [10 mg/kg] proved to enhance the antihyperlipidemic properties of rosuvastatin at the doses of 25, 50 & 100 mg/kg, significantly. The observed antihyperlipidemic effects of rosuvastatin when administered with piperine can be attributed to increased plasma concentration of rosuvastatin. This indicates that piperine inhibits the biotransformation and metabolism of rosuvastatin leading to higher levels of drug in systemic circulation. The enhanced antihyperlipidemic activity and systemic bioavailability of rosuvastatin when co-administered with piperine could be exploited to achieve better therapeutic control and patient compliance.

# PHARMACOLOGY

# C 001

## ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

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Attention deficit hyperactivity disorder (ADHD) is a developmental disorder. It is a chronic condition that affects millions of children and often persists into adulthood. ADHD is the most commonly studied and diagnosed psychiatric disorder in children. ADHD includes some combination of problems, such as difficulty sustaining attention, hyperactivity and impulsive behavior. Children with ADHD also may struggle with low self-esteem, troubled relationships and poor performance in school. Adolescents and adults with ADHD tend to develop coping mechanisms to compensate for some or all of their impairments. Although much progress has been made in our understanding of the diagnosis and treatment of ADHD, much has yet to be researched, particularly for adolescents. It is clear that the current diagnostic criteria, although valid for children, may need to be modified for adolescents and adults, to reflect the developmental changes that take place as children approach adulthood. Studies are required to clarify how medication needs, types, dosages, and frequencies of administration differ among adolescents and adults, compared with children.

**Keywords:** Attention deficit hyperactivity disorder (ADHD), adolescents, children, difficulty sustaining attention, hyperactivity and impulsive behavior.

# C 002

## BIPOLAR DISORDER THERAPY

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Bipolar disorder is a serious mental illness. People who have it experience dramatic mood swings. They may go from overly energetic, "high" and/or irritable, to sad and hopeless, and then back again. They often have normal moods in between. The up feeling is called mania. The down feeling is depression. Bipolar disorder can run in families. It usually starts in late adolescence or early adulthood. Untreated, bipolar disorder can result in damaged relationships, poor job or school performance, and even suicide. However, there are effective treatments: medicines and "talk therapy". A combination usually works best. Treatment can be done by using mood stabilizers, atypical antipsycotics, antidepressants, psychotherapy. Psychotherapy is an evidence based therapy originally developed to treat major depression. Types of psychotherapy are four specific types of psychotherapy have been studied by researchers. These approaches are particularly useful during acute depression and recovery:

- Behavioural therapy, focuses on behaviours that can increase or decrease stress and ways to increase pleasurable experiences that may help improve depressive symptoms.
- Cognitive therapy, focuses on identifying and changing the pessimistic thoughts and beliefs that can lead to depression.
- Interpersonal therapy, focuses on reducing the strain that a mood disorder may place on relationships.
- Social rhythms therapy, focuses on restoring and manipulating personal and social daily routines to stabilize body rhythms, especially the 24-hour sleep-wake cycle.

# C 003

## SEPTICEMIA

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Septicemia is life –threatening condition that may lead to sepsis & even septic shock .The septicemia kills 36 people every hour in INDIA .This cascade is usually accompanied by a pronounced inflammatory response, leading to high body temperature, variation in leukocyte count , high pulse rate and elevated levels of laboratory markers of inflammation. Neonatal sepsis is also known as "sepsis neonatrum". Neonatal sepsis is any infection involve in an infant during the first 28 days of life. The septicemia caused by microorganism is more frequent in the patients having previous liver or blood disorders, diabetes mellitus, & other dehilitating disease.

Group, beta hemolytic streptococcus was the predominant infecting organism, while in recent years infection with coliform organism were the most common. The treatment includes the broad spectrum antibiotics, I.V fluids to maintain blood pressure, oxygen to maintain normal Blood oxygen, a high or low white blood cell count methods.

# C 004

## PHENYLKETONURIA: A RARE DISEASE

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Phenylketonuria (PKU) is a rare condition in which a baby is born without the ability to properly break down an amino acid called phenylalanine.Phenylketonuria (PKU) is inherited, which means it is passed down through families. Both parents must pass on the defective gene in order for a baby to have the condition. This is called an autosomal recessive trait.Babies with PKU are missing an enzyme called phenylalanine hydroxylase, which is needed to break down an essential amino acid called phenylalanine. The substance is found in foods that contain protein.Without the enzyme, levels of phenylalanine and two closely-related substances build up in the body. These substances are harmful to the central nervous system and cause brain damage.The development of a practical screening procedure for phenylketonuria and the improvement in methods of chemical analysis have led to a realization that Folling's (1934) disease of phenylketonuria is not a single entity.

# C 005

## NANOMEDICINE IN CANCER TREATMENT

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From the past many decades there is extensive research for the control of cancer. We still do not have a precise understanding of the differences between a cancer cell and its normal counterpart. If we do not understand cancer, we cannot control, conquer, and eliminate it. The completion of the human genome sequence and its subsequent improvements in the sequence data are important steps to fully comprehend cancer cell biology. Nanotechnology, a new, novel focus of research evolved from the convergence and coalescence of many diverse scientific disciplines and as a general term for the creation, manipulation, and application of structures in the nanometer size range. Nanomedicine represents an innovative field with immense potential for improving cancer treatment, having ushered in several established drug delivery platforms. The diagnosis and treatment of cancer or tumor at the cellular level will be greatly improved with the development of techniques. Nanoparticles are considered to have the potential as novel intravascular or cellular probes for both diagnostic and therapeutic purposes (drug/gene delivery), which is expected to generate innovations and play a critical role in medicine. Nanoparticles provide a new mode of cancer drug delivery functioning as a carrier for entry through fenestrations in tumor vasculature allowing direct cell access. These particles allow exquisite modification for binding to cancer cell membranes, the microenvironment, or to cytoplasmic or nuclear receptor sites. This results in delivery of high drug concentrations to the targeted cancer cell, with reduced toxicity of normal tissue.

# C 006

## GLUCOTOXICITY AND LIPOTOXICITY IN PANREATIC BETA CELL

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In pancreatic islets chronically cultured with high ***glucose*** and ***free fatty acids***, glucose induced insulin secretion is impaired. Molecular mechanisms of this defect are still unclear. This abstract focuses the mechanisms by which chronically elevated levels of glucose and fatty acids may impair beta cell function and at a later stage, also affect beta cell survival. ***Glucotoxicity and lipotoxicity*** is associated to both decrease of glucose-induced ***pyruvate dehydrogenase (PDH)*** activity and increased ***UCP-2*** expression and beta cell apoptosis is increased. ***Nicotinamide*** prevents this effect, suggesting that oxidative stress could be involved in beta cell damage. These findings seem to indicate that prolonged expose to high glucose and free fatty acid affects beta cell function and destruction. Type-2 diabetic patients are characterized by a progressive decline of insulin secretion that becomes more severe with increasing duration of the disease. But, the mechanisms causing the progressive beta cell failure are currently under investigations.

# C 007

## PLASMACYTOID DENDRITIC CELLS: POTENTIAL THERAPEUTIC TARGETS IN ATHEROSCLEROSIS

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**Atherosclerosis** (also known as **arteriosclerotic vascular disease** or **ASVD**) is a condition in which an artery wall thickens as a result of the accumulation of fatty materials such as cholesterol. It is a syndrome affecting arterial blood vessels, a chronic inflammatory response in the walls of arteries, caused largely by the accumulation of macrophage white blood cells and promoted by low-density lipoproteins without adequate removal of fats and cholesterol from the macrophages by functional high-density lipoproteins.Atherosclerosis has been considered a syndrome of dysregulated lipid storage until, recent evidence has emphasized the critical contribution of the immune system.Dendritic cells (DC) are positioned at the interface of the innate and adaptive immune system. Recognition of danger signals in atheromas leads to DC activation. Activated DC regulate effector T cells which can kill plaque-resident cells and damage the plaque structure. Two types of DC have been identified in atherosclerotic lesions; classical myeloid DC (mDC) which mainly recognize bacterial signatures and plasmacytoid DC (pDC) which specialize in sensing viral fragments and have the unique potential of producing large amounts of type I interferon (IFN). In human atheromas, type I IFN upregulates expression of the cytotoxic molecule TRAIL which leads to apoptosis of plaque-resident cells. This review will elucidate the role of DC in atherogenesis and particularly in plaque rupture, the underlying pathophysiologic cause of myocardial infarction.

# C 008

## PSYCODERMATOLOGY

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Skin disorders are composed of 3 fundamental elements, biological, psychological and socio environment. Let us, study in detail about psychological elements, it has been estimated that atleast 1/3rd of dermatological patients come effective management of the skin disorders involves consideration of associated emotional factors. We can speak of psychological component in a dermatological disease in two situations. First is the situation where the psychological disturbance contributes to the manifestation of skin disease which can be termed as psychosomatic disturbance, second is the situation where the dermatological disease negatively influences psychological health is called as somato psychicdisturbance. A psyco dermatological dissorder is a condition that involves an interaction between mind and skin and the science and study about these diseases is called as psycodermatology or psycocutaneous medicine. These are classified into different types and some of the disorders involving in these types are acne, psoriasis, trichotillomania, neuroticexcoriations, vitiligo and icthyosis. This article provides an update on the use of psychotropic drugs.

# C 009

## OSTEOPOROSIS IN POSTMENOPAUSAL WOMEN

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Osteoporosis is often called as "silent disease" because it has no discernable symptoms until there is a bone fracture. It is characterized by low bone mass & structural deterioration of bone tissue, leading to bone fragility & increases risk of fractures of hip, spine & wrist.National Osteoporosis Foundation observed that AGE is important risk factor for "hip fracture".There is a direct relationship between lack of "estrogen" after menopause & development of osteoporosis. After menopause, bone resorption outpaces the building of new bone. Early menopause (before 45 yr) & any prolong periods in which harmones levels are low & menstrual periods are absent/ infrequent can cause loss of bone mass. Menopause induced osteoporosis & associated fracture are major cause illness, disability and death. Women suffer 80% of all hip fractures & their lifetime risk of expressing an osteoporotic fracture is between 30-40 Percent. Menopause creates special nutritional needs & lifestyle modification techniques to ensure Harmonal balance, Strong bone & Effective weight management. Advances in scientific knowledge have ushered a new era in which bone fracture can be prevented & treated early in vast majority of individual.

**TREATMENT & MEDICATION:**

**Harmonal Therapy:** is recommended for postmenopausal women but sometimes it may increases risk of Breast cancer, Blood clots & Gall bladder disease. So, the Alternatives such as HERBS. Eg: Black Cohosh,Red clover.

**Estrogen Therapy:** Eg:Transdermal Estrogen

New study in WASHINGTON,DC in 2012 suggest Calcium & Vitamin-D supplements has no link between Increase risk of Heart disease. Denosumab, Prolia, Recently Approved RANKL inhibitor.

# C 010

## LEECH THERAPY

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Leech therapy is the application of medicinal leeches (Hirudo medicinalis) for therapeutic use. It is one of the oldest remedies, being employed by various medicinal practitioners. LT involves the attachment of cultured leeches onto the affected areas. Leech therapy involves an initial bite, which is usually a painless bite, followed by the sucking of 5 and 15 ml of blood. Its major therapeutic benefits are not only due to blood sucked during the biting, but also from the various bioactive substances, such as Hirudin, calin, Hyaluronidase, and Histamine-like substances, to name a few. LT has been employed in various disease conditions and surgical complications. It has been successfully used in plastic and reconstructive surgeries, cardiovascular complications, varicose veins, hemorrhoids and various joint ailments. Nowadays, it is also being utilized in gastrointestinal disorders, dermatology and gynecological abnormalities. More recently, HT has found new applications in cancer therapy, hypersensitivity conditions, like asthma, male/female sterility and diabetes. Taking into consideration all the facts, HT efforts should be made in optimizing the success of medicinal leech therapy in clinical and private practice.

# C 011

## THALASSEMIA: AN INHERETED DISORDER

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Thalassemia is the name of a group of genetic blood disorders characterized by anemia due to enhanced red blood cell destruction. Hemoglobin, the oxygen-carrying component of the red blood cells consists of two different proteins, an alpha and a beta**.** If the body doesn't produce enough of either of these two proteins, the red blood cells become defective and cannot carry sufficient oxygen. The resulting anemia is usually severe with several health problems like enlarged spleen, bone deformities, fatigue and requires regular life-long transfusion, therapy and medical supervision. Thalassemias can't be prevented because they're inherited, "inherited" means they are passed on from parents to children. However, these bleeding disorders can be found before birth through prenatal tests. Thalassemia is a common inherited disease in the world. India accounts for 10% of the total world thalassemia population and approximately 1 in 30 in the general population is carrier of the mutated gene and the cases may increase as it is a hereditary disorder, so, it is important to take into consideration about this disorder as it may prove deadly one. And thus the intensity of this disorder can be lowered by diagnosing and taking proper treatments.

# C 012

## CHIMAERIC GA PROTEINS: THEIR POTENTIAL USE IN DRUG DISCOVERY

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Many attempts have been made to design universal ligand-screening systems such that any GPCR can be screened using a common assay end-point. Manipulation of the G protein with in the assay system offers the possibility of achieving this. To better understand the domains involved in the interactions between G protein-coupled receptors, G proteins and effector polypeptides and the fine details of these contacts, a wide range of Chimaeric G protein a subunits have been produced. information generated by such studies and the ways in which such chimaeric G proteins can be integrated into Assay systems for drug discovery. Chimaeric G protein a-subunits Featuring the guanine nucleotide binding and exchange Characteristics of the GI family G proteins, together with a C-terminal tail designed to encourage interaction with Normally Gs- or Gq-coupled GPCRs, offer potential in Ligand-screening studies, particularly during the lead optimization process. Overriding factors in the design of such assays are as follows: (1) that any molecular manipulations required to establish the assay do not alter substantially the pharmacology of the GPCR in terms of potency ratios of series of compounds or grossly affect the apparent efficacy of ligands; (2) the cost of assay development and assay reagents is low; (3) the ease of use and suitability of the assay format for automation; (4) the generation of an assay end-point suitable for miniaturization into 96-, 384-, 1536-well and smaller microplate formats; (5) the generation of a robust signal-to-noise ratio in the assay to Enable the rapid identification of any compound with activity; (6) the assay should avoid the use of radioactivity.

# C 013

## OUTSOURCING IN PHARMACEUTICAL INDUSTRY -CLINICAL RESEARCH ORGANISATION

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Clinical research is a crucial aspect of modern therapeutic drug discovery and its interaction with the pharmaceutical and health sector comprehends the role of contract research dynamically. The global pharma majors today face excessive pressure on profit margins, spiraling R&D costs and major drugs going off patent. In such circumstances out-sourcing of clinical research and manufacturing services comes as a relief saving 40-60 per cent of overall cost in drug development. Specifically CROs provide services like product development, manufacturing services; clinical trial management; safety monitoring; data management; biostatistics; medical writing services; regulatory affairs support and many other complementary outsourcing services. Hence, contract research integrates R&D and manufacturing by providing combination of high patient population, low-cost services, well educated specialized workforce, compliance with regulatory requirements and round the clock services to a pharmaceutical firm. Leading players include multi-national Clinical Research Organizations (CROs) such as Quintiles; subsidiaries of international CRO such as Co-vance; tie-ups between global and Indian CROs such as US-based Parexel and Synchron Research Services; stand-alone Indian CROs such as SiroClinpharm, Fermish and offshoots of Indian pharma companies such as Well Quest by Nicholas Piramal.. The CRO segment has grown and is expected to flourish in coming years in India. Hence the Indian pharmaceutical industry with its rich herbal heritage, scientific talent, research capabilities, intellec-tual property protection regime and symbiotic collaboration with government and regulatory agencies, is well posi-tioned to emerge as global CRO market destination in the future.

**Key Words:** Contract research, clinical research, data management services, biostatistics, outsourcing,clinical Re-search Organizations (CROs)

# C 014

## DIABETIC RETINOPATHY

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Diabetic retinopathy (DR) and diabetic macular edema (DME) are leading causes of blindness in the working-age population of most developed countries. The increasing number of individuals with diabetes worldwide suggests that DR and DME will continue to be major contributors to vision loss and associated functional impairment for years to come. Early detection of retinopathy in individuals with diabetes is critical in preventing visual loss, but current methods of screening fail to identify a sizable number of high-risk patients. The control of diabetes-associated metabolic abnormalities (i.e., hyperglycemia, hyperlipidemia, and hypertension) is also important in preserving visual function because these conditions have been identified as risk factors for both the development and progression of DR/DME. The currently available interventions for DR/DME, laser photocoagulation and vasectomy, only target advanced stages of disease. Several biochemical mechanisms, including protein kinase C–β activation, increased vascular endothelial growth factor production, oxidative stress, and accumulation of intracellular sorbitol and advanced glycosylation end products, may contribute to the vascular disruptions that characterize DR/DME.

# C 015

## TERATOGENS AND THEIR EFFECTS IN PREGNANCY

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A teratogen is an agent which on administration during pregnancy causes, directly or indirectly, structural or functional abnormalities in the foetus, or in the child after birth, which may not be apparent until later life. Teratogenicity can occur in any of the three stages viz; pre implantation stage, embryonic stage, and foetogenesisstage. Teratogens mostly are harmless or cause less harm to the mother but may prove lethal to the embryo or the foetus. Hence the timing of the exposure is equally important and determines the type of intensity of foetal toxicity that might occur, e.g. malformation or functional impairment.

Most drugs and chemicals can cross the placenta and accordingly induce chromosomal abnormalities, cause improper implantation of the conceptus and abortion of the early embryo. Teratogens may even cause late fetal death or congenital malformations in some cases. In the neonate there may be functional impairment, e.g. deafness. Behavioural abnormalities and mental retardation may also occur. Teratogenicity is usually dose-dependent, and may be enhanced by co-administration of a second drug. Teratogenicity can be avoided largely by safer drug use during pregnancy, condition related effective physician-patient interaction and avoiding certain obvious etiological factors. Prenatal vitamins for the nutrional supplements to the foetus, use of penicillin and its derivatives prove to be the safest antibiotics during pregnancy, healthier life style modifications, avoiding smoking and consumption of alcohol can prove beneficial.

# C 016

## MANAGEMENT OF POISONING

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Poisoning is a common critical condition and accounts upto 30% of the patients in emergency departments and requiring admission into Intensive Care Units. Early management and diagnosis leads to decrease in morbidity and mortality rate. A poisoned patient presents with non-specific features like unconsciousness, respiratory depression, dehydration, convulsions or cardiac arrhythmias. The detailed clinical examination is performed to stabilize the vitals. Since poison produces changes in pulse rate and blood pressure, the normal oxygen supply and adequate cardiac output is maintained. The cause of the poison is identified and further absorption is prevented by administrating activated charcoal slurry or induction of emesis. Gastric lavage is helpful in the gut evacuation, in cases of acute poisoning when gastrointestinal purging is required.

Hastening the elimination of poison includes alteration of urine pH and use of water based cathartics. In severe chronic cases dialysis is performed. For the intensive support of therapy antidotes are administered, which act by forming inert complexes or accelerating detoxification and receptor site blockade/competition. General nursing care is especially important in comatose patients and those who have been incapacitated by poison. Psychiatric intervention is frequently essential in suicidal overdose. Since some cases of poisoning leave behind sequelae, adequate follow up for a period of time may be necessary.

# C 017

## ORPHAN DRUGS

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Orphan drugs are the medicinal agents used for treatment or prevention of orphan/rare diseases. Rare diseases are not rare at least in aggregate. Approximately 7,000 rare diseases afflict millions of individuals (around 15-20% of the general population) in the united states and are responsible for untold losses in terms of physical health, behavioral health, socioeconomic conditions.. Although rare diseases taken together have an enormous impact there has been no "war on rare diseases" as these diseases affect a very small number compared to the general population, further the patients being geographically scattered, and the availability and thus the market of orphan drugs is very limited. There are several incentives provided by USFDA to promote the de novo orphan drug development which are included in the Orphan Drug Act 1983. Similar incentives are also by European Union to promote orphan drug development. Repurosing of existing drugs and development if stem cell based products are the other methods used for orphan drug development.

# C 018

## ROLE OF PHARMACIST IN DISEASE MANAGEMENT

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The profession of pharmacy has undergone dramatic changes over past decade. One area in which pharmacists have seized the opportunity to become involved in patient care is disease management. Disease management is a new method of managing healthcare which has arisen in response to rising healthcare costs and integration of healthcare providers. A pharmacist is the legally qualified and professionally competent person to handle drugs and allied supplies required for the patients within and outside the hospital. The pharmacist can play an important role in disease management care by screening patients at high risk for disease, assessing patient health status and adherence to standards of care, educating patients to empower them to care for themselves, referring patients to other health care professionals as appropriate and monitoring outcomes.

# C 019

## AN OVERVIEW ON TUBERCULOSIS

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Tuberculosis (TB) is a communicable infectious disease caused by Mycobacterium tuberculosis. It can produce silent, latent infection as well as progressive, active disease. Anti-tubercular drug resistance is a major public health problem that threatens progress made in TB care and control worldwide. The improper use of these drugs is a result of a number of actions including, administration of improper treatment regimens and failure to ensure that patients complete the whole course of treatment. The management of TB includes: rapid identification of new cases of TB, isolation of the patient with active disease to prevent spread, collection of appropriate samples for smears and cultures, prompt resolution of signs and symptoms of disease after initiation of treatment, achievement of a noninfectious state, thus ending isolation, adherence to the treatment regimen, cure as quickly as possible (generally with at least 6 months of treatment). For the drug resistant organism, the aim is to introduce two or more active agents that the patient has not received previously. The most serious problem with TB therapy is non-adherence to the prescribed regimen. The most effective way to ensure adherence is with directly observed therapy (DOT).

# C 020

## PROBIOTICS: BACTERIA FOR HEALTH BENEFITS

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Products containing probiotics have created quite a buzz since they entered the Indian food industry in 2007.The beneficial effect of probiotics in gastro intestinal disorder like irritable bowel syndrome, constipation and colitis have been well documentated. A study published in the may 2012 edition of the journal of the American medical association notes that those given probiotics while on antibiotics have a 42% lower chance of developing diarrhea as compared to those not taking probiotics.A study in china showed that if patients treated for traumatic brain injuries in the intestive care unit are given probiotics along with food they have a lower chance of contracting infections and recover faster than those who do not receive probiotics. The radiation therapy given during cancer treatment often injuries the instestine. A recent study in china on probiotics can help the intestine injuries from radiation therapy. Scientist at the Washington school of medicine found that probiotic microbes of the lactobacillus genus can protect the lining of small instestine in mice receiving radiation. At present the top players of probiotics in the Indian market are Amul,Nestle,Motherdairy,Yakult etc.

# C 021

## HYPERLIPIDAEMIA: OVERVIEW

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Hyperlipidaemia is the condition in which serum cholesterol or triglycerides or both levels increase causing a risk of ischemic heart disease. Lipid and lipoprotein concentration is generally high in population consuming a 'western diet' than those with low consumption of fats and cholesterol. The rate of rise slows in men after the age of 45-50 yrs. and appears to decline after 70 yrs. In women, the cholesterol continues to rise up to the age of 70yrs.

It is typically asymptomatic and is frequently detected during routine examination for atherosclerotic cardiovascular disease. However, deposits of cholesterol may form under the skin; numerous pimple-like lesions are found across the body, and extreme conditions results in pancreatitis. Risk factors includes family history, diet rich in fat, physical inactivity, obesity, smoking, alcoholism, hypothyroidism, chronic renal failure, diabetes mellitus, oral contraceptives and steroid use. Treatment for hyperlipidaemia includes dietary changes, weight reduction, exercise and medication if needed.

# C 022

## ISCHEAMIC HEART DISEASES

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Ischemic Heart Disease, also known as Coronary Artery Disease, is a condition that affects the supply of blood to the heart. The blood vessels are narrowed or blocked due to the deposition of cholesterol on their walls. This reduces the supply of oxygen and nutrients to the heart muscles, which is essential for proper functioning of the heart. This may eventually result in a portion of the heart being suddenly deprived of its blood supply leading to the death of that area of heart tissue, resulting in a heart attack.

As the heart is the pump that supplies oxygenated blood to the various organs, any defect in the heart immediately affects the supply of oxygen to the vital organs like the brain, kidneys, liver, etc. This leads to the death of tissue within these organs and their eventual failure. Ischemic Heart Disease is the most common cause of death in many countries around the world. The cause for the ischemic diseases is smoking, diabetes mellitus and cholesterol levels etc.The ischemic diseases treated by different agents like Organic Nitrates Beta Blockers, Calcium Channel Blockers, Stains and Aspirin and the mechanism of action of these agents differ from each other.

# C 023

## BRAIN CELLS DEVELOPED FROM PEE.....??????????

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Today's researches at lightning speed give us various opportunities to solve, cure, treat and diagnose harmful neurodegenerative diseases and save the life of the person unlike olden days. Now day's researchers mostly concentrate on using waste materials and putting them to good use. Similar in way a recent research article reads "Brain cells from urine". If this process is made more continuous, the brain cells formed from the urine could be used to treat neurodegenerative diseases like Alzheimer's and Parkinson's diseases which are caused due to destruction of brain cells. The method uses ordinary cells present in urine, and transforms them into neural progenitor cells the precursors of brain cells. These precursor cells could help researchers produce cells tailored to individuals more quickly and from more patients than current methods. Researchers routinely reprogram cultured skin and blood cells into induced pluripotent stem (iPS) cells, which can go on to form any cell in the body. But urine is a much more accessible source.

Because the technique relies on urine, which is much easier to get than blood, it could be easier to extract such cells from almost any patient, including children. The transformation from kidney cell to brain stem cell took just 12 days, and within a month, the cells had morphed into full-fledged brain cells. Unlike other stem cell technologies, the pee-based brain cells didn't form tumors when implanted into rats.

**Key Words**: Neural progenitor cells, pluripotent cells, reprogramming techniques.

# C 024

## TELOMERES AND AGING

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Telomeres are unique protein DNA structures that comprise the termini of eukaryotic linear chromosomes. Telomeric DNA does not contain protein encoding genes but rather consists of G-rich hexanucleotide repeats that in vertebrate cells are (TTAGGG)n sequences. Based on studies initially carried out in yeast and other single cell organisms,it appears that telomere functions include the stabilization and protection of chromosomal ends from events such as illegitimate recombination,the determination of chromosomal localization with in the nucleus and the regulation of cellular replicative capacity. Telomeres are also thought to be the "clock" that regulates how many times an individual cell can divide. Telomeric sequences shorten each time the DNA replicates. Telomerase stabilizes telomere length by adding hexameric (TTAGGG) repeats on to the telomeric ends of the chromosomes,thus compensating for the erosion of telomeres that occurs in its absence. Telomere testing is an innovative cellular aging test that measures a person's biological age in comparision to their chronological age. So,scientists have determined that there is a direct connection between telomere length and aging. Clinical telomere research is currently focused on the development of methods for the accurate diagnosis of cancer and on novel anti-telomarase cancer therapeutics.

**Key words:** Telomere, telomerase, telomere testing and aging.

# C 025

## HEAT SHOCK PROTEINS: AN IMMUNOTHERAPY FOR CANCER TREATMENT

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Heat shock proteins (HSPs) are evolutionarily conserved molecules synthesized by cells exposed to sub-lethal stresses. Acting as molecular chaperones, HSPs protect cells from environmental stress damage by assisting in proper folding and stabilization of proteins. Members of the HSP family have been implicated in cancer growth as promoting tumor cell proliferation as well as inhibiting cellular death pathways. Tumor derived heat shock protein (hsp)-peptide complexes (particularly hsp70 and grp94/gp96) have been demonstrated to serve as effective vaccines, producing anti-tumor immune responses in animals and in man. This approach utilizes the peptide binding properties of stress proteins which are responsible for their functions as molecular chaperones in numerous cellular processes. This includes the use of recombinant antigens, both proteins and peptides, naturally complexed to hsp/grps; hsp/grp DNA vaccines, hsp/grp fusion proteins and cell based hsp/grp vaccines.

# C 026

## ROLE OF EPI-GENETICS IN CANCER

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Cancer,malignant neoplasm often viewed as a genetic disease that results when cell acquires specific growth advantages through the stepwise accumulation of heritable changes in gene function.Epigenetic alterations,mitotically & meiotically reversible,heritable changes in gene expression without change in nucleotide sequence of DNA are being recognized in Carcinogenesis for initiation & progression of cancer through DNA methylation,Histone modification etc.Aberrations in DNA methylation,post translational changes of histones,chromatin remodeling,micro RNAs patterns are main Epigenetic alterations leading to gene silencing.So, disruption of epigenome contributes to cancer .Tumor suppressor genes may be silenced due to hypermethylation Ex:BRCA1 silenced in breast cancer,p14RRF silenced in colon cancer etc.The success of HDAC inhibitors(Varinostat),DNA demethylating agents (Azacytidine) as Anticancer drugs recently approved by US FDA provides a great hope for development of more comprehensive portfolio of epigenetic drugs in the future for cancer therapy.

**Keywords:** Epigenetic alterations,DNAmethylation,Histone modification,Gene silencing.

# C 027

## CANCER BIOMARKER

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**What are cancer biomarker?**

Cancer biomarkers can be used for prognosis: to predict the natural course of a tumor, indicating whether the outcome for the patient is likely to be good or poor (prognosis). They can also help doctors to decide which patients are likely to respond to a given drug (prediction) and at what dose it might be most effective (pharmacodynamics). Cancer biomarkers are present in tumor tissues or serum and encompass a wide variety of molecules, including DNA, mRNA, transcription factors, cell surface receptors, and secreted proteins. One of these serum biomarkers in wide use is PSA which is produced by normal prostate cells. The higher the PSA is in the serum, the higher the correlation is toward the existence of prostate cancer. 3 types of biomarkers: 1. Prognostic biomarkers 2. Predictive biomarkers 3. Pharmacodynamic biomarkers

**Applications of Biomarkers:** The application of cancer biomarkers is still controversial. PSA is a widely used cancer biomarker. Carcinoembryonic antigen (CEA) is another biomarker that is elevated in patients with colorectal, breast, lung, or pancreatic cancer. An ideal tumor marker should be measured easily, reliably and cost-effectively using an assay with high analytical sensitivity and specificity.

# C 028

## THE WONDERS OF PROBIOTICS

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Probiotics, "Live microorganisms which when administered in adequate amounts confer a health benefit on the host". The use of probiotics to enhance intestinal health has been a tradition in India (ex: use of curd before or after meals). Probiotic bacteria in general belong to a special category of friendly bacteria ex: Lactobacilli bifidobacteria , Saccharomyces boulardii are the members of this group used extensively as probiotics and are commonly consumed as part of diet in fermented foods with specially added active live cultures; such as in yogurt, cheese etc.

**Mode of action:** Regulation of intestinal microbial homeostasis, Antimicrobial activity, Immuno-modulation, Pathogen exclusion

**Probiotics and Health Claims:** GIT disorders: Diarrhea, Irritable bowel syndrome Inflammatory bowel disease and Lactose maldigestion. Allergy, Obesity, Cancer, Antibiotic associated diahorrea, Type 2 diabetes, Systemic and local infections.

**Prebiotics Vs Probiotics Vs Antibiotics:** Prebiotics stimulate the growth of beneficial microorganisms. Prolong use of antibiotics even kills beneficial microorganisms where as prolong use of probiotics prolongs the life of beneficial microorganisms in the gut by replacing pathogenic microorganisms.

**Scope of probiotics:** Indian probiotic industry is in its infancy stage and presently accounts for only a small fraction i.e. less than 1% India is emerging as a major probiotic market of the future with annual growth rate of 22.6% until 2015 and research proclaims probiotics to be beneficial in treating multidrugresistant microorganism, skin care ,oral health and other systemic infections replacing antibiotics in future .

# C 029

## CANCER VACCINES

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Cancer is a cell or a tissue which divides uncontrollably. Cancer can be treated by 4 methods: chemotherapy Cancer, radiotherapy and surgery. Immunotherapy is the newest method of treating cancer. Cancer vaccines are substances that act as biological response modifiers. Biological response modifiers work by stimulating or restoring immune systems ability to fight infections and disease. Cancer vaccines are of two types: 1. Prteventive cancer vaccine 2. Treatment cancer vaccine.

Preventive cancer vaccines are traditional vaccines which target the virus that causes cancer these protect against some diseases but do not target cancer cell directly. These do not protect against cancer that are not caused by microorganisms.

Treatment cancer vaccines are designed to treat cancer that is already developed. These either remove the cancer or increase patient's survival period. These vaccines are made from patient's cancer tissue that is removed after surgery. This is made inactive after chemical or radiation treatment and generally attached to another vector that helps in penetration of vaccine. The vector is made from the blood cells of the patient.

Cancer vaccines provide advantages over conventional cancer therapies since it does not have severe side effects. Surgery is performed only to remove cancer before immunization. Immunization removes the residual cells and prevent relapse of disease.

Some preventive cancer vaccines that are approved are hepatitis B and Human papilloma virus vaccine. Example of treatment cancer vaccines is Sipuleucel T which is used to treat prostate cancer.

# C 030

## HER2 AND TRANSMAZUMAB IN BREAST CANCER THERAPY

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HER2 is a protein found on the surface of certain cancer cells. Some breast cancers have a lot more HER2 receptors than others. In this case, the tumour is described as being HER2-positive. Tumours that are HER2-positive tend to grow more quickly than other types of breast cancer. Knowing if a cancer is HER2-positive can sometimes affect the choice of treatment. Women with HER2-positive breast cancer can benefit from a drug called trastuzumab (Herceptin®). Herceptin only works in people who have high levels of the HER2 protein.Hormonal therapies are most effective in women whose cancer cells have receptors for oestrogen and/or progesterone. They are referred to as being oestrogen or progesterone receptor positive. There are many different types of hormonal therapy, and they all work in slightly different ways.

Trastuzumab, which is usually known as Herceptin, is a type of biological therapy called a monoclonal antibody. Monoclonal antibodies recognise and lock onto specific proteins on the surface of cancer cells.Herceptin is used to reduce the risk of breast cancer coming back in women whose breast cancer cells have a large number of HER2 receptors on their surface. This is called HER2 positive breast cancer. Herceptin works by attaching to HER2 receptors (proteins) on the surface of breast cancer cells. This stops the cancer cells from dividing and growing. It also works by encouraging the body's own immune cells to destroy the cancer cells.

# C 031

## THE DRUG DISCOVERY AND DEVELOPMENT PROCESS

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Drug Discovery takes approximately 12-15 years to take a compound from discovery to the approved medication and requires an investment of about $1 billion.The process of drug discovery starts with the understanding of underline mechanism or cause of a certain disease and to identify the "target" (protein;enzyme etc) for a potential new medicine researchers will then look for new chemical or molecular entity (lead) that display promising activity against the target thought to be important for the disease. After lead selection, preclinical studies are performed to determine products ultimate safety in animal models before tested in humans. The new leads will undergo different types of preclinical testing like toxicity, pharmacodynamic and pharmacokinetic studies. Typically both invitro and invivo will be performed. In chemical and pharmaceutical development, the potential leads undergo animal testing chemical and pharmaceutical development process will be scaled up to design and manufacture a quality product. The information and knowledge gained from the studies and manufacturing experience provide scientific understanding to support the establishment of the design, space, specification and manufacturing controls.

Then finally clinical trials are conducted to establish safety and efficacy for new drug in human as positive safety and efficacy data are gathered, the number of patients is typically increased ( phase 1 to phase 3) after successful conclusion of the clinical trail the drug will be submitted for regulatory approval for large scale manufacturing and marketing.

# C 032

## REGULATORS OF G-PROTEIN SIGNALLING

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G-protein-coupled receptors (GPCRs) are major targets for drug discovery. The regulator of G-protein signaling (RGS)-protein family has important roles in GPCR signal transduction. RGS proteins accelerate the deactivation of G proteins to reduce GPCR signaling; however, some also have an effector function and transmit signals. Combining GPCR agonists with RGS inhibitors should potentiate responses, and could markedly increase the agonist's regional specificity. The diversity of RGS proteins with highly localized and dynamically regulated distributions makes them attractive targets for pharmacotherapy of central nervous system disorders , cardiovascular disorders and various drug therapies.

# C 034

## ALZHEIMERS DISEASE

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Alzheimer's disease (AD) is the most common type of dementia in aging adults and a substantial burden to patients, caregivers, and the healthcare system. It is an increasingly significant public health issue with the number of people living with AD projected to increase dramatically over the next few decades thus making the search for treatments and tools to measure disease progression increasingly urgent.The diagnosis is still primarily made based on history and physical and neurologic examinations. Approved treatments are few and of limited efficacy,despite of significant research by pharmaceutical industries. Cholinesterase inhibitors offer some help in treating cognitive and global functioning, as well as behavioral abnormalities in patients with mild-, moderate-, or severe-stage disease. The N-methyl-d-aspartate (NMDA) antagonist, memantine, is similarly effective alone or in combination with cholinesterase inhibitors in moderate to severe stages of the disease. Recent insights into the pathophysiology of AD have led to promising investigational therapies, including the development of γ- and β-secretase inhibitors as well as active and passive immunization against the amyloid β-protein.

# C 035

## PHYTOCHEMICAL SCREENING AND IN VITRO ANTIOXIDANT ACTIVITY OF AQUEOUS AND HYDROALCOHOLIC EXTRACT OF BACOPA MONNIERI LINN.

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The present study was undertaken to investigate in-vitro antioxidant activity of aqueous and hydroalcoholic extract of whole plant of Bacopa monnieri Linn. Family- Scrophulariaceae. The total Phenolic content was determined using folin ciocalteau method while the total flavonoid content was determined using aluminium chloride method. In vitro antioxidant activity was evaluated using the Reducing power assay, Hydrogen peroxide scavenging assay, nitric oxide scavenging activity, superoxide scavenging activity and hydroxyl radical scavenging activity. The hydroalcoholic extract had more phenol concentration (116.1 mg/g of extract) when compared to aqueous extract (58 mg/g of extract). The flavonoid content was more in hydroalcoholic extract (242.6 mg/g of extract) when compared to that of aqueous extract (202.8 mg/g of extract). The reducing power and hydrogen peroxide scavenging of the extract was found to be concentration dependent. The nitric oxide scavenging activity, superoxide scavenging activity and Hydroxyl radical scavenging activity was also concentration dependent with IC50 value being 254.70 µg/ml , 934.06 µg/ml and 510.60 µg/ml respectively for Aqueous extract and 169.22 µg/ml, 495.83 µg/ml, 488 µg/ml respectively for hydroalcoholic extract. The order of the antioxidant potency of the whole plant extract is Hydroalcoholic >> aqueous. The results clearly indicate that aqueous and hydroalcoholic extract of Bacopa monnieri has anti oxidant property which may be due to the presence of phenols and flavonoids

# C 036

## REVERSE PHARMACOLOGY

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Reverse pharmacology is the science of integrating documented clinical/experiential hits, into leads by transdisciplinary exploratory studies and further developing these into drug candidates by experimental and clinical research.

The scope of reverse pharmacology is to understand the mechanisms of

- action at multiple levels of biological organization
- to optimize safety, efficacy
- acceptability of the leads in natural products, based on relevant science.

In the field of drug discovery, reverse pharmacology also known as target base drug discovery (TDD), a hypothesis is first made that modulation of the activity of a specific protein target will have beneficial therapeutic effects. Screening of chemical composition of small molecules is then used to identify compounds that bind with high affinity to the target. The hits from these screens are then used as starting points for drug discovery. This method became popular after the sequencing of the human genome which allowed rapid cloning and synthesis of large quantities of purified proteins. This method is the most widely used in drug discovery today. "That medicines and cures were first found out, and then after the reasons and causes were discoursed; and not the causes first found out, and by light from them the medicines and cures discovered." Aulus Cornelius Celsus. Reverse pharmacology comprises of three stages—experiential, exploratory and experimental. Possessed with a pluralistic healthcare, India offers a goldmine for robust experiential documentation of clinical observations of bio-dynamic effects of standardized ayush or modern drugs. Meticulous attention to minute clinical details, accompanied by an excellent record keeping would identify the clinical hits, for example, bleeding with aspirin or Parkinsonism with Rauwolfia serpentina. The exploratory studies would cover dose-activity in ambulant patients and selected *in-vitro* and *in-vivo* models to evaluate the key target. These exploratory leads are evaluated critically for resource allocation and state-of-the-art experimental studies like platelet aggregation with aspirin vis-à-vis bleeding and the role of dopamine depletion in extrapyramidal disorders vis-a-vis Rauwolfia. The experimental stage involving relevant basic and clinical science would be employed to study the plant or a molecule at different levels of biological organisation. This would define the safety, efficacy, preventive or therapeutic dimensions of the new or natural drug.

# PHARMACEUTICAL CHEMISTRY

# D 001

## HIGH-THROUGHPUT SCREENING

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The mechanism-based approach which corresponds to the target-based approach screens for compounds with a specific mode of action. The highly effective nature of high-throughput screening (HTS) for identification of highly target specific compounds is attributed to its precise focus on single mechanism. This logical development of receptor technology is closely connected with the changes in strategy of chemical synthesis. The vast number of compounds produced by combinatorial chemistry and the possibility of testing many compounds, including natural products, in a short period of time by HTS attracted attention of many workers. Various detection techniques like fluorescence resonance energy transfer (FRET), Homogeneous time resolved fluorescence (HTRF), etc are available, and the screening of more than 100,000 samples per day is possible. With the introduction of robotics, automation and miniaturization techniques, it became feasible to screen 50,000 compounds a day with complex work-stations. High-throughput screening methods are also used to characterize metabolic and pharmacokinetic data about new drugs.

# D 002

## SYNTHESIS, BIOLOGICAL EVALUATION AND MOLECULAR DOCKING STUDIES OF ISOXAZOLES AND PYRAZOLE DERIVATIVES AS ANTI-INFLAMMATORY AGENTS

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Cyclooxygenase-2(COX) is an enzyme that is responsible for formation of important inflammatory mediators called prostanoids. Pharmacological inhibition of COX can provide relief from the symptoms of inflammation and pain. Hence, its inhibition can be evaluated for Anti-Inflammatory activity. In the current study, COX-2 crystal structure (PDB I.D: 6COX) complexed with a selective inhibitor (SC-558; IC50 = 0.0093 μM) was incorporated to generate structure based pharmacophore models and validated using test set of known COX-2 inhibitors. The validated pharmacophore models were used as a query to screen the in-house database of 4M compounds and retrieved 54,000 hits. The 54,000 hits were filtered based on diversity, drug-likeness and resulting 32,000 hits were subjected for docking. Top 100 potential hits were identified based on the pharmacophore mapping and docking score. Finally, 8 compounds having isoxazole and pyrazole based scaffolds were selected for synthesis and biological evaluation. Eight derivatives were synthesised, of which P2 molecule exhibited the highest anti-inflammatory activity in carrageen induced pedal inflammation model in albino rats.

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# D 003

## ECOFRIENDLY SYNTHESIS-BIOCHEMISTRY

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Indiscriminate use of chemicals in everyday life has threatened the bio world by presenting a detoriating image of chemicals causing serious health and environmental hazards .Green chemistry is a key for the balanced development for the world where one can live without fear of environmental pollution and health hazards. Various chemicals, pesticides, insecticides and colours are drained from the agricultural land and industries which contribute to the water, air and soil pollutions. Volatile organic solvents like isopropyl alcohol, xylenes, toulenes and ethylenes which dissolve oils, waxes and greases when exposed to sunlight and nitrogen oxides are transformed into ozone, nitric acid and partially oxidized organic compounds. The principles of green chemistry includes safer solvents and auxilaries, less hazardous chemical syntheses, design for energy efficiency, use of renewable feed stocks, real time analysis for pollution prevention. Practical application of Green chemistry includes usage of liquid carbon dioxide and a surfactant for dry cleaning clothes and hydrogen peroxide as a bleaching agent for paper manufacture. Large amounts of adipic acid are used every year for production of nylon ,lubricants and plasticizers using benzene a compound with carcinogenic properties where as green synthesis is by using a less toxic substrate glucose which is almost in exhaustible. The principles of Green chemistry are applied by using green reagents, green solvents and green catalyst. Green reagents are di-methyl carbonate, polymer supported reagents etc., . Green catalyst is fluorided silica alumina, vanadium silicate, polystyrene aluminium chloride .Ionic liquids are mostly used as green solvents. In Green synthesis of paracetamol oxime of para hydroxyl aceto phenone is obtained by Beckmann rearrangement. The biggest challenge of Green chemistry is to use its rules in practice.

# D 004

## VARIOUS SOFTWARES USED IN DRUG DESIGN

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This review is an investigation of the application of the different softwares used in drug design. The modern drug discovery process is steadily becoming more information driven. Recently use of computer in – silico computational chemistry and molecular modeling for computer aided drug design. Structure, physiochemical ADME information about property profiles of reference ligands along with structural information of their target proteins have been extremely useful for early stage of drug discovery. A number of examples have recently been reported for the successful application of structure based drug design to the discovery of compounds with potential more useful therapeutic agents. Among the reviewed software programs are applications programmed in grid computing, window based general PBPK/PD modeling software, PKUDDS for structure based drug design, APIS, JAVA, Perl and Python, CADD as well as softwares including software libraries. These all programs are useful for chemi-informatic approaches to drug design and discovery including QSAR studies, energy minimization as well as docking studies in drug design. Furthermore this review explains options for using different computer modeling software programs in drug design and discovery.

# D 005

## ROLE OF INFORMATICS IN PHARMACY AND VARIOUS FLIEDS

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Bioinformatics is conceptualizing biology in terms of macro molecules and applying informatics techniques such as applied mathematics, statistics and computational techniques to understand and organize the information associated with these molecules. It is a synonym for "Computational Molecular Biology"- the use of computers to characterize the molecular components of living things. It develops computer databases and algorithms for the purpose of speeding up and enhancing biological research. It derives knowledge from computer analysis of biological data. It can consist of the information stored in the genetic code, but also experimental results from various sources, patient statistics, and scientific literature. Research in bio informatics includes method development for storage, retrieval, and analysis of the data. It is a rapidly developing branch of biology and is highly interdisciplinary, using techniques and concepts from informatics, statistics, mathematics, chemistry. It has many practical applications in different areas of biology and medicine like molecular medicine, drug development, analysis of structure and sequence of macromolecules, to generate relationships of biological data, and identification of mutations in genes etc.

# PHARMACEUTICAL ANALYSIS & QUALITY ASSURANCE

# E 001

## ULTRA PERFORMANCE LIQUID CHROMATOGRAPHY

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UPLC is up to nine times faster, has up to twice the peak resolution and is up to three times more sensitive than traditional HPLC. Ultra performance liquid chromatography (UPLC) was coupled to inductively coupled plasma mass spectrometry ( ICP-MS) for fast analysis of three bromine-containing preservatives, monitoring the 79 Br and 81 Br isotopes simultaneously. Flexible detection capabilities, with tunable UV, photodiode array (or) mass spectrometry, UPLC system can dramatically improve resolution, sample throughput, and sensitivity. UPLC is mainly works by flexible detection capabilities, with tunable UV, photodiode array (or) mass spectrometry. UPLC-based fluidic performance ensures retention time reproducibility. An assured performance solutions (APS) enabled by ultra performance liquid chromatography technology. Advanced fluidic control of flow rate and gradient formulation combines with stable column chemistry to provide reproducible maps. The UPLC peptide analysis solution brings a new level of resolution and sensitivity to peptide analysis that allows more complete characterization of proteins. UPLC delivers remarkable improvements in peptide mapping compared against HPLC.

# E 002

## FLUORO SPECTROPHOTOMETRY: A RETROSPECTIVE DIAGNOSTIC TOOL

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In this article, we focused and enlightened the various diagnostic applications of fluorescence spectroscopy in sub specialties of medical sciences. Fluorescence spectroscopy is used in, among others, biochemical, medical, and chemical research fields for analyzing organic compounds. There has also been a report of its use in differentiating malignant, bashful skin tumors from benign. Apart from the application in agriculture and metallurgy, Fluorescence Spectroscopy (FS) is an emerging excellent diagnostic tool for many diseases especially early stage cancers. FS prove to be more sensitive diagnostic tool with high efficacy as compared to routine diagnostic tools currently in use for many disorders. But, still there is great need for arrangement of Clinical trial on large scale to establish the validity of this new diagnostic technique. There is immediate need to highlight this issue.

# E 003

## FIRST DERIVATIVE SYNCHRONOUS SPECTROFLUORIMETRY

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This review article deals with the principles and the applications of advanced fluorimetric technique that is the First Derivative Synchronous Spectrofluorimetry (FDSF) and its advantages over conventional excitation- emission spectrofluorimetry. Fluorescence is the most common and useful type of photoluminescence in the analytical chemistry. In conventional fluorimetric methods, a high sensitivity and selectivity are generally expected but problems of selectivity are seen in multi-component analysis because of the overlapping of spectra. The combination of derivative and synchronous fluorescence spectroscopy improves the selectivity, resolution and reduces the extent of overlapping of spectra and decreases the effects of background matrices. Synchronous fluorescence spectroscopy techniques are classified according to different scanning modes of monochromators into constant wavelength difference, variety angle, and constant energy difference. The main advantages are selectivity, low cost, simplicity and rapidity. This method has wide applications in clinical and multi-component analysis.

# E 004

## SIMULTANEOUS QUANTIFICATION OF NEBIVOLOL HCL / HYDROCHLOROTHIAZIDE COMBINATION BY UV-DERIVATIVE SPECTROPHOTOMETRY

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A new sensitive, simple, rapid, accurate and precise method for simultaneous quantification of Nebivolol HCl (NEB) and Hydrochlorothiazide (HCZ) in combined tablet dosage form has been developed. The method is based on the derivative spectrophotometric method at zero-crossing wavelengths. Two wavelengths 280nm (zero crossing point for NEB) and 272.2nm (zero crossing point for HCZ) were selected for the quantification of HCZ and NEB respectively, using $p^H$ 3.6 phosphate buffer as solvent. The first derivative amplitude-concentration plots were rectilinear over the range of 4-24µg/ml and 2-32 µg/ml with detection limits of 0.127 and 0.230 µg/ml and quantification limits of 0.425 and 0.769.µg/ml for HCZ and NEB respectively. The proposed method was statistically validated as per ICH guidelines. The percentage recovery was within the range between 97-101%. The percentage relative standard deviation for precision and accuracy of the method was found to be less than 2%. The proposed method was successfully applied to routine quality control analysis of studied drugs in their tablet formulations.

# PHARMACEUTICAL BIOTECHNOLOGY

# F 001

## SERUM ADIPONECTIN AND FASTING INSULIN LEVELS IN PATIENTS WITH TYPE-2 DIABETICS

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Adiponectin is a plasma glycoprotein present in adipose tissue. Low adiponectin levels are found in subjects with obesity and type2 diabetes mellitus. In the present study we estimate the serum adiponectin, fasting insulin levels and its corrrelation in patients with type2 diabetics. Anthropometric, biochemical, fasting insulin, HOMA-IR, Adiponectinlevels were estimated in both groups. Serum insulin and adiponectin levels were significantly decreased in patients compared to control subjects. Adiponectin levels had no significant correlation with fasting insulin and HOMA-IR in diabetic patients. In our study there is no significant correlation between adiponectin levels and insulin resistance in diabetic cases.

# F 002

## MONOCLONAL ANTIBODIES

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Humans have the ability to make antibodies able to recognize (by binding to) virtually any antigenic determinant (epitope) to discriminate between even similar epitopes. Not only does this provide the basis for protection against disease organisms, but it makes antibodies attractive candidates to target other types of molecules found in the body. Monoclonal antibodies (mAb or moAb) are monospecific antibodies that are the same because they are made by identical immune cells that are all clones of a unique parent cell, in contrast to polyclonal antibodies which are made from several different immune cells. Monoclonal antibodies have monovalent affinity, in that they bind to the same epitope.Given almost any substance, it is possible to produce monoclonal antibodies that specifically bind to that substance. This has become an important tool in biochemistry, molecular biology and medicine. Monoclonal antibodies are typically made by fusing myeloma cells with the spleen cells from a mouse that has been immunized with the desired antigen. However, recent advances have allowed the use of rabbit B-cells to form a Rabbit Hybridoma. Mouse DNA encoding the binding portion of a monoclonal antibody was merged with human antibody-producing DNA in living cells, and the expression of this chimeric DNA through cell culture yielded partially mouse, partially human monoclonal antibody. Monoclonal anti bodies find as effective use in diagnosis, Therapeutic treatment(Cancer treatment, Autoimmune diseases ) etc. Thus the remarkable specificity of antibodies make them promising agents for human therapy.

# F 003

## TRANSLATIONAL GENOMICS: THE CHALLENGE OF DEVELOPING CANCER BIOMARKERS

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Early detection and definitive treatment of cancer have been shown to decrease death and suffering in epidemiologic and intervention studies. Application of genomic approaches to many malignancies has produced thousands of candidate biomarkers for detection and prognostication, yet very few have become established in clinical practice. Fundamental issues related to tumour heterogeneity, cancer progression, natural history, and biomarker performance have provided challenges to biomarker development. Technical issues in biomarker assay detection limits, specificity, clinical deployment, and regulation have also slowed progress. The recent emergence of biomarkers and molecular imaging strategies for treatment selection and monitoring demonstrates the promise of cancer biomarkers. Organized efforts by interdisciplinary teams will spur progress in cancer diagnostics.

# F 004

## BLOOD SUBSTITUTES

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Today, an increase in the number of elective surgeries and the still prevalent but small risk of transmission of blood-borne pathogens such as HIV have served as a stimulus to develop a synthetic substitute for human blood, more specifically for development of a red blood cell substitute. The attempt to develop a viable blood substitute spans more than 7 decades. These efforts have essentially focused on the ability of red blood cells to carry oxygen. Hence, most of the products that are in advanced-phase clinical trials are derivatives of hemoglobin and are known as hemoglobin-based oxygen carriers (HBOCs)**.** Perfluorocarbons are chemically inert molecules containing primarily, as the name suggests, fluorine and carbon atoms. They are capable of dissolving large amounts of many gases, including oxygen. These molecules are hydrophobic in nature, and hence have to be emulsified prior to intravenous administration. Stroma-free hemoglobin has been investigated as an oxygen carrier since the 1940s, when researchers realized that native hemoglobin is not antigeneic. A solution containing stroma-free hemoglobin has many advantages over red blood cells, including the ability to withstand sterilization and a shelf life of approximately 2 years at room temperature for some products. As better blood substitutes are developed and enter routine clinical use, the need for blood transfusions in the operative and trauma settings will decrease.

# F 005

## UNDERSTANDING THE SUPERBUGS

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Drug action on a target cell over a prolonged period of time causes drug resistance where the drug does not affect the cell anymore. The reason for resistance is intensified due to bacterial recombination techniques such as transformation, conjugation and transduction. Multi drug-resistant (MDR-TB) and extremely drug-resistant TB are caused due to a resistant species of Mycobacterium Tuberculosis. The action of antibiotics is mainly due to its distinctive factor of affecting the chemical processes of a cell i.e. chemical inhibition of synthesis of various important organelles which prevent bacterial growth and survival. Various classes of antibiotics affect growth by different means. For example, a class of antibiotics known as beta-lactams (penicillin) inactivates an enzyme essential for bacterial cell wall synthesis. The resistant organisms produce an enzyme known as beta-lactamase which binds to the drug and inactivates it. Bacteria also have unique methods of DNA repair mechanism such as SOS repair. This method is error-prone which may be beneficial or harmful. If beneficial, it causes drug resistance which mounts a response to inactivate the drug. Active research on decoding the superbugs is going on in full speed. New ways of targeting the microbial cells is being worked upon such as a mechanical way of disrupting the cell's structure. The inspiration to perform this way is derived from our own immune system where, WBCs "drill" holes in the cell's membrane and create an imbalance on either side of it, causing death of the organism.

# F 006

## STEM CELL THERAPY IN AUTISM

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Stem cells are biological cells found in all multicellular organisms that can divide (through mitosis) and differentiate into diverse specialized cell types such as blood, skin, liver and other tissues of the body and can self-renew to produce more stem cells. They mainly serve as repairing systems of the body. The main treatments based on stem cells are being discussed. Stem cell therapies have potential, capacity and the caliber to successfully cure a myriad of universally prevalent diseases ranging from the common, innocuous and non-serious to serious, deadly and life-threatening; they have become one of the most exciting areas of medicine, encompassing all areas of current medical science. At present there is are no effective ways to treat certain diseases and stem cell therapy can be used at least to slow down the progression of the diseases. Brain is major organ of the body, any injury can be lethal. As treatments of it are complex yet of major concern stem cell therapy was introduced as a boon for the patients. Stem cell treatments described to date have used neural stem cells, embryonic stem cells, mesenchymal stem cells, umbilical cord stem cells, and induced pleuripotent stem cells. Autism is a disorder of neural development characterized by impaired social interaction and communication, and by restricted and repetitive behavior. These signs all begin before a child is three years old. Stem cell therapy is a novel and efficient approach to treating autism and is based on unique ability of stem cells to influence metabolism, immune system and restore damaged cells and tissues. Stem cell treatments practiced in various countries and also in India are learnt.

# F 007

## MICROBIAL FUEL CELLS: AS ALTERNATIVE ENERGY SOURCE

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Microbial fuel cells (MFCs) are devices that can use bacterial metabolism to produce an electrical current from wide range organic substrates. Due to the promise of sustainable energy production from organic wastes, research has intensified in this field in the last few years. While holding great promise only a few marine sediment MFCs have been used practically, providing current for low power devices. To further improve MFC technology an understanding of the limitations and microbiology of these systems is required. Some researchers are uncovering that the greatest value of MFC technology may not be the production of electricity but the ability of electrode associated microbes to degrade wastes and toxic chemicals. We conclude that for further development of MFC applications, a greater focus on understanding the microbial processes in MFC systems is required.

# F 008

## STEM CELLS FOR TISSUE REPAIR — A NEW THERAPEUTIC CONCEPT

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Stem cells are cells found in most of the multi-cellular organisms. They have ability to renew themselves through mitotic cell division and differentiating into a diverse range of specialized cell types. Once the healthy stem cells are infused into the patient's blood stream, the cells move from the blood vessels to the center of the bones where they begin making new blood cells. Starting from the beginning, cells are the basic unit of all life. They contain DNA, which is all of the cell's genetic material. They also have the ability to undergo cell division and replication**.** The harvesting of stem cells from surplus embryos is prepared for in-vitro fertilization procedures in fertility clinics. "The cord in placental mammals that joins the embryo and the placenta together, where the placenta provides nutrients to the embryo via the umbilical cord while at the same time transporting the waste material from the baby. Stem cells are self-renewing cells. The supply of these cells is maintained by stem cells, which replicate many times and then differentiate into the specialized cells that are needed. In this way, cells are continuously replenished as they die. Stem cell application is a new field with lots of promises to offer. Stem cell research is a new field with unlimited scope. Stem cells hold the key to replacing cells lost in many diseases that are caused by loss of functioning cells.

# F 009

## SIRTUINS IN DIABETES

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Type-2 Diabetes is long lasting disease characterized by high glucose concentration in the blood due to the insulin resistance. One of the recent treatment strategies is using activators against SIRT-1, which has been in clinical trials. Hence it is necessary to know the effects of the sirt-1 modulators against various metabolic pathways. Many of cellular processes including insulin secretion, cell cycle, and apoptosis imperatively is regulated by a family of mediators called SIRTuins. First known mammalian sirtuin, SIRT1 is a positive regulator of insulin secretion, which triggers glucose uptake and utilization. From past decade, a major outstanding question is whether SIRT1 activation is a safe therapy for human diseases such as diabetes? This review summarizes and discusses the advances of the past decade and the challenges that will brazen out perplexity of this field. We also cover physiological regulation of sirtuin (SIRT1) activity and how these modes of regulation may be exploited to manipulate SIRT1 activity in cells. Designing of drugs using advanced computational methods that specifically target SIRT1, and also, involvement of advanced biological methods for further understanding of sirtuin1 biology to afford new optimized treatments for diabetes and several age related human diseases.

# F 010

## BIOMARKERS AND THEIR IMPACT ON VARIOUS DISEASES

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The value of bio marker characteristic that are evaluated as indicators of normal or pathogenic biological processes or responses to an intervention is widely appreciated, but the number of qualified bio marker is small, which indicate treatment with maximum therapeutic benefit while minimizing side effects and costs. Numerous molecular signatures have been developed. This abstract includes the impact of bio markers on various diseases such as oncology, (breast, lungs, skin and colorectal diseases), neurology includes neurodegenerative disease, cardiology includes myocardial infarction and pulmonary diseases include asthma, bronchoalveolar passage and inflammatory cells.

# F 011

## BIOTERRORISM: A "NEW" DISASTER THREAT

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Bioterrorism is the intentional or threatened use of bacteria, fungi or toxins from living organisms to produce death or disease in humans, animals and plants. It involves "intimidation of nations or people to accomplish political or social ends. There are number of diseases and causative agents that can be used as weapons. In bioterrorism biological agents acts as natural hazards as they are easy to obtain and inexpensive to produce when compare to nuclear and chemical weapons. There are two scenarios that are currently seriously dreaded. One being the spread of and infectious disease mediated through the air and other is the contamination of the drinking water (water being the most important source of life, could target a huge population). Nowadays genetically engineered organisms are designed to produce highly infectious and contagious diseases and thereby creating new threat.

# F 012

## DNA VACCINE

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DNA vaccines is a technique for protecting an organism against disease by injecting it with genetically engineered DNA to produce an immune response.vaccine carries a gene to encode a protein responsible for immune respose against pathogens and leads to the production of antibodies which inhibit the diseases. There are different DNA delivery methods like attaching DNA to cationically charged molecules like liposomes, transfer of genes into cells etc. DNA vaccines are prepared and injected into human through IM,ID,IV injections . These vaccines are made of nucleotides contained in DNA plasmid (or) Naked DNA Mechanism undergoes many ways by activating B cells, T cells and Macrophages, release of variety of Interleukiens etc. These vaccine can able to induce the expression of antigens that resemble native viral epitope than standard vaccine and hence altered in protein structure and antigencity .DNA vaccine have advantage of attacking antibiotic resistant strain of micro organisns, toxicity of Anti-tubercular medication has spurred interest in DNA vaccine for acid fast bacilli, in treatment of HIV . Other important advantage of genetic vaccine is their therapeutic potential for chronic viral infections.

# F 013

## BRAIN CHIP: A NOVEL DRUG DELIVERY SYSTEM

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Individuals with severe disabilities face challenges performing normal everyday tasks.Today researches are developing a technology that could conceivably alleviate many difficulties associated with physical handicaps.Now computer intellegency brought a 'arms race' for the solution named BCI (Brain Computer Interface).The brain acts as the command and control center for the human body. It's ability to integrate numerous signals to and from various sources underlines the complex behavior of humans. The brain controls basic functions like breathing, tasting and moving.A BCI is a device that functions independently of the Brain's normal out-puts. The primary goal of this system is to promote the paralysis patients to able their movements connecting directly to the brain. The primary motor cortex controls voluntary movement signals which divided in to specific regions to control distinct parts of the body. So, the primary motor cortex is an ideal site for the BCI because of this distribution. I Concludes that Brain Chip read's man thoughts. BCI an "arms race" gives an artificial thinking. Chip acts as a nerve cell to brain responses to stimuli. It makes disable recipient able to do things.

# F 014

## OBESITY: CURRENT THERAPY AND EMERGING TARGETS

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The increasing prevalence of obesity world wide as prompted the world health organization (W.H.O) to classify it as a global epidemic. a round the globe ,more than a half billion people are over weight, and the chronic disease of obesity represents a major threat to health care system in developed and developing countries. energy homeostasis is accomplished through a highly integrated and reductant neurohumoral system. Adrenergic and serotonergic agents enjoyed before is now disfavoured due to abuse and lack of exact receptor subtype profile respectively.beta3 adrenergic receptors agonist acting, as thermogenic agents are new approach and its value will become apparent once data are available from relevant clinical evaluation. some drugs from this class are under clinical trials. Transgenic technology as provided new opportunities to modify the complex body weight regulation system and to asses the relative importance of the individual components. certain peptides have been used successfully as antiobesity agents. they reduce gastroinstinal absorption and affect feeding behaviour.since obesity results from genetic predisposition,combined with the proactive environment situation,we discuss new potential targets for generation of drugs that may help people ingaining control over appetite as well as increase total energy expenditure and fat oxidation.

# F 015

## NUTRITION IN PHARMACY PRACTICE

**Melaka. Nageswarrao**

**Theegala. Krishnareddy College of Pharmacy.**

Nutrients are chemical substances found in food that are needed for life. These are chemicals helps the pharmacist to understand there are interactions with drugs, which are also composed of chemicals. Different types of nutrients are required for growth, reproduction and maintenance of tissue and body regulations. These can be classified as Proteins, carbohydrates, lipids, vitamins, minerals and water. This supplies energy in kilocalories and serves as energy source in the human body. Pharmacist should aware of nutrition to educate the people.

To Aim for healthy weight. To be physically active every day.

Nutricuiticals: Scientific evidence has advanced the knowledge of beneficial relations among food, nutrition, health, and disease. Common use to treatment, prevention, and control of diseases. These are used to maintain required level of requirements in food like carbohydrates, fats, proteins, lipids, minerals, vitamins. Choose a diet that is low in saturated fat and cholesterol and moderate in total fat. To keep food safe to eat. Choose beverages and foods to moderate our intake of sugar. Choose and prepare foods with less salt.

MEDICAL NUTRITION THERAPY: In modern days, for the clients who have disease that could benefit from nutrition intervention is termed as Medical Nutrition Therapy. The medical nutrition therapy process is effective in treating diseases and preventing diseases.

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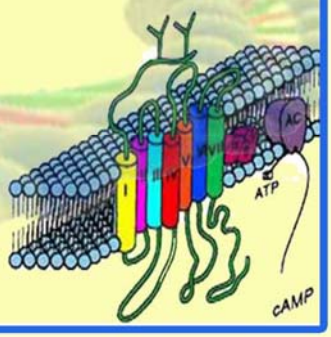

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