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Title :	Osteoarthritis of the hand I: aetiology and pathogenesis, risk factors, investigation and diagnosis
Author :	Garvin J. Leung, K. D. Rainsford and Walter F. Kean Article first published online: 13 DEC 2013 | DOI: 10.1111/jphp.12196
Journal :	Journal of Pharmacy and Pharmacology: March 2014, Volume 66, Issue 3, pages 339–346
Abstract :	Objective Osteoarthritis (OA) of the hand can be a debilitating condition that hinders an individual's quality of life. With multiple joints within the hand that are commonly affected OA, an individual's ability to use their hand in everyday movements become more limited. The article aims to review literature on the aetiology and pathogenesis of OA, risk factors, characteristics of hand OA and the steps of diagnosis. Key findings The aetiology and pathogenesis of OA, in particular hand OA, is not fully understood. However, it is known that several factors play a role. Environmental factors, such as stress from mechanical loading, especially to vulnerable joints predispose individuals to developing OA. Extracellular matrix changes in protein levels have also been noted in individuals with OA. Linked to hand OA development are boney enlargements (Herbeden's and Bouchard's nodes). Several risk factors for OA include: age, obesity, gender, smoking, genetics, diet and occupation. Various diagnostic methods include a combination of using radiographic methods, clinical presentation, a number of developed measurements and scales. Summary With OA having several risk factors and various causes and contributing elements, it is important to elucidate the pathogenesis of OA and determine exactly how risk factors play a role in its development. Because of the contributions from several elements, diagnosis is best when it uses multiple methods. In turn, understanding OA and making better diagnoses could lead to improved management of the condition through both pharmacological and non-pharmacological interventions.
Database :	Wiley Online Library

Title :	Osteoarthritis of the hand II: chemistry, pharmacokinetics and pharmacodynamics of naproxen, and clinical outcome studies
Author :	Garvin J. Leung, K. D. Rainsford and Walter F. Kean
Journal :	Journal of Pharmacy and Pharmacology: March 2014, Volume 66, Issue 3, pages 347–357
Abstract :	Objective This article aims to review osteoarthritis of the hand and the role of the non-steroidal anti-inflammatory drug (NSAID) naproxen on its management. We discuss the chemical and pharmacological properties of naproxen and the NSAID class, with an emphasis on its mechanism and adverse reactions. In the context of part I of this paper in characterizing hand osteoarthritis (OA), we review clinical trials that have

	been conducted involving hand OA and naproxen. Key findings The therapeutic effect of NSAIDs stems from its role on inhibiting cyclo-oxygenase (COX)-1 or COX-2 enzyme activity in the body. These enzymes play a major role in maintaining several functions in the body and due NSAIDs' inhibitory effects; many principle adverse reactions occur with the use of NSAIDs such as: gastrointestinal tract issues, cardiovascular risks, renal, hepatic, central nervous system and cutaneous. Review of clinical trials involving naproxen and hand OA show that it is significantly more efficacious when compared with placebo. Summary These studies, along with the finding that naproxen is of least cardiovascular risk in the NSAID class, may show that it can be part of one of the approaches in managing the condition. It is important to note that the optimal NSAID to use varies for each individual. The finding that the use of naproxen leads to the smallest increase in cardiovascular risk appeals to those at-risk individuals who suffer from OA and require pharmacological treatment for relief.
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Title :	In Vivo Genotoxicity Assessment of Titanium Dioxide Nanoparticles by Allium cepa Root Tip Assay at High Exposure Concentrations
Author :	Sunandan Pakrashi, Nitin Jain, Swayamprava Dalai, Jerobin Jayakumar, Prathna Thanjavur Chandrasekaran, Ashok M. Raichur, Natarajan Chandrasekaran, Amitava Mukherjee
Journal :	PLOS ONE: February 2014, Volume 9, Issue 2, e87789
Abstract :	The industrial production and commercial applications of titanium dioxide nanoparticles have increased considerably in recent times, which has increased the probability of environmental contamination with these agents and their adverse effects on living systems. This study was designed to assess the genotoxicity potential of TiO2 NPs at high exposure concentrations, its bio-uptake, and the oxidative stress it generated, a recognised cause of genotoxicity. Allium cepa root tips were treated with TiO2 NP dispersions at four different concentrations (12.5, 25, 50, 100 µg/mL). A dose dependant decrease in the mitotic index (69 to 21) and an increase in the number of distinctive chromosomal aberrations were observed. Optical, fluorescence and confocal laser scanning microscopy revealed chromosomal aberrations, including chromosomal breaks and sticky, multipolar, and laggard chromosomes, and micronucleus formation. The chromosomal aberrations and DNA damage were also validated by the comet assay. The bio-uptake of TiO2 in particulate form was the key cause of reactive oxygen species generation, which in turn was probably the cause of the DNA aberrations and genotoxicity observed in this study.
Database :	www.plosone.org

Title :	Electrically Controlled Drug Delivery from Graphene Oxide Nanocomposite Films
Author :	Cassandra L. Weaver, Jaclyn M. LaRosa , Xiliang Luo , and Xinyan Tracy Cui
Journal :	ACS Nano: January 15, 2014
Abstract :	On-demand, local delivery of drug molecules to target tissues provides a means for effective drug dosing while reducing the adverse effects of systemic drug

	delivery. This work explores an electrically controlled drug delivery nanocomposite composed of graphene oxide (GO) deposited inside a conducting polymer scaffold. The nanocomposite is loaded with an anti-inflammatory molecule, dexamethasone, and exhibits favorable electrical properties. In response to voltage stimulation, the nanocomposite releases drug with a linear release profile and a dosage that can be adjusted by altering the magnitude of stimulation. No drug passively diffuses from the composite in the absence of stimulation. In vitro cell culture experiments demonstrate that the released drug retains its bioactivity and that no toxic byproducts leach from the film during electrical stimulation. Decreasing the size and thickness of the GO nanosheets, by means of ultrasonication treatment prior to deposition into the nanocomposite, alters the film morphology, drug load, and release profile, creating an opportunity to fine-tune the properties of the drug delivery system to meet a variety of therapeutic needs. The high level of temporal control and dosage flexibility provided by the electrically controlled GO nanocomposite drug delivery platform make it an exciting candidate for on-demand drug delivery.
Database :	ACS Publications

Title :	Characterization and Release Studies of Liposomal Gels Containing Glutathione/Cyclodextrins Complexes Potentially Useful for Cutaneous Administration
Author :	Annalisa Cutrignelli, Angela Lopedota, Nunzio Denora, Valentino Laquintana, Serena Tongiani and Massimo Franco
Journal :	Journal of Pharmaceutical Sciences: Article first published online: 15 FEB 2014 DOI: 10.1002/jps.23900
Abstract :	The aim of this work is to develop and characterize a formulation intended for the cutaneous administration of glutathione ([gamma]-glutamylcysteinylglycine, GSH), potentially useful for cellular defense against UV-induced damage. For this purpose, liposomes containing GSH or GSH/cyclodextrins(CDs) inclusion complexes as well as liposomes dispersed within a hydrophilic gel, were evaluated. These formulations were designed in order to obtain a system combining the advantages of liposomes as vehicles for topical drug delivery with those of CDs as penetration enhancers. The studied CDs were the natural (β-CD) and chemically modified (i.e., HP-β-CD and CH3-β-CD) cyclodextrins. The prepared liposomes showed homogeneous size distribution, mean diameter in the range 622–1435 nm, small positive charge (+3.1 to +6.6 mV), and encapsulation efficiency of the peptide in the range 13.6%–23.7%. Release studies showed that the presence of the oligosaccharide may influence to some extent the amount of drug released, whereas stability studies clearly point out that the incorporation in a hydrophilic gel of 2-hydroxyethylcellulose insures a stable formulation maintaining unchanged the characteristics of liposomal vesicles.
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Title :	The Influence of Feedstock and Process Variables on the Encapsulation of Drug Suspensions by Spray-Drying in Fast Drying Regime: The Case of Novel Antitubercular Drug–Palladium Complex Containing Polymeric Microparticles
Author :	Stefano Giovagnoli, Francesco Palazzo, Alessandro Di Michele, Aurelie Schoubben, Paolo Blasi and Maurizio Ricci
Journal :	Journal of Pharmaceutical Sciences: Article first published online: 15 FEB 2014

	DOI: 10.1002/jps.23902
Abstract :	The purpose of this study was to address the effect of feedstock properties and process variables on the characteristics of antitubercular drug–palladium (Pd) containing poly(lactic) acid (PLA) microparticles (MP) obtained by spray-drying of noncolloidal particle dispersions in fast drying regime. Two different systems were compared: capreomycin–Pd (C–Pd) and ofloxacin–Pd (Ofx–Pd) dispersions in acetonitrile PLA solution. Particle size, dynamic light scattering, differential scanning calorimetry, SEM–energy dispersive X-ray, and spectrophotometric methods were used for MP characterization. C–Pd-loaded MP were optimized preliminarily by experimental design and compared with Ofx–Pd-loaded MP investigated in our previous work. Morphology of feedstock particles had a dominant role in determining MP morphology. The Charlesworth and Marshall theory was used to explain such behavior. The smaller and homogeneous C–Pd microparticulates favored MP inflation and buckling by forming a thick and nonporous shell. A percolation effect was proposed for the larger and irregular Ofx–Pd particles that produced smaller MP with a more porous shell. Increasing feedstock concentration led to higher particle loss. A tentative descriptive scheme of MP formation according to feedstock particle arrangement was proposed. This work suggested that spray-drying of drug dispersions should carefully consider the morphology of feedstock particles as a major parameter influencing final MP properties. © 2014 Wiley Periodicals, Inc. and the American Pharmacists Association J Pharm Sci
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Title :	Effects of sodium-glucose cotransporter 2 selective inhibitor ipragliflozin on hyperglycaemia, oxidative stress, inflammation and liver injury in streptozotocin-induced type 1 diabetic rats
Author :	Atsuo Tahara, Eiji Kurosaki, Masanori Yokono, Daisuke Yamajuku, Rumi Kihara, Yuka Hayashizaki, Toshiyuki Takasu, Masakazu Imamura, Qun Li, Hiroshi Tomiyama, Yoshinori Kobayashi, Atsushi Noda, Masao Sasamata and Masayuki Shibasaki
Journal :	Journal of Pharmacy and Pharmacology: Article first published online: 17 FEB 2014 DOI: 10.1111/jphp.12223
Abstract :	Objective Sodium-glucose cotransporter (SGLT) 2 plays an important role in renal glucose reabsorption and has been highlighted as a therapeutic target for the treatment of diabetes. Here, we investigated the therapeutic effects of SGLT2 selective inhibitor ipragliflozin in type 1 diabetic rats. Methods Type 1 diabetic rats were prepared by intravenous administration of streptozotocin (STZ). Ipragliflozin was acutely or chronically administered, and therapeutic effects were investigated. Key findings Single administration of ipragliflozin significantly increased urinary glucose excretion, and its effect lasted over 12 h. In addition, ipragliflozin improved glucose tolerance and sustainably reduced hyperglycaemia. Repeated administration of ipragliflozin to diabetic rats for 4 weeks significantly improved not only hyperglycaemia, but also hyperlipidaemia and hepatic steatosis with concomitant increases in urinary glucose excretion. In addition, ipragliflozin

	ameliorates renal glomerular hyperfiltration and albuminuria. Further, ipragliflozin reduced liver levels of oxidative stress biomarkers and plasma levels of inflammatory markers, and improved liver injury as assessed by plasma levels of aminotransferases. Conclusion These results suggest that SGLT2 selective inhibitor ipragliflozin exerts a beneficial effect on glycaemic control and ameliorates diabetes-associated metabolic abnormalities and complications in STZ-induced diabetic rats, and would be a potential agent for the treatment of type 1 diabetes.
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Title :	Pigment epithelium-derived factor as a natural matrix metalloproteinase inhibitor: a comparison with classical matrix metalloproteinase inhibitors used for cancer treatment
Author :	Marice B. Alcantara and Crispin R. Dass
Journal :	Journal of Pharmacy and Pharmacology: Article first published online: 12 FEB 2014 DOI: 10.1111/jphp.12218
Abstract :	Objectives In the 1990s, the discovery of the important role of matrix metalloproteinases (MMPs) in cancer angiogenesis, growth and metastasis galvanised research efforts to search for ways to inhibit these MMPs. To date, this has resulted in the investigation of approximately 50 MMPIs which have undergone various phases of clinical trials. However, despite a large body of research being devoted to discovery and development of MMPIs, results have largely not been supportive of this approach to anticancer treatment. Key findings The reasons for the general failure of these drugs in clinical trials include various unwanted side-effects, the use of healthy volunteers to provide drug dosages which did not correctly reflect dosages for cancer patients, and the exclusion of patients with early stage cancer in clinical trials despite MMPs being determined to be critical for the angiogenic switch, a process associated with early tumour growth. In contrast, a naturally-occurring endogenous protein and a non-functional serine protease inhibitor (serpin), pigment epithelium-derived factor (PEDF), has been proposed for cancer therapy partly due to its ability to regulate specific MMPs central to cancer progression. Summary PEDF has been found to specifically downregulate membrane-type I matrix metalloproteinase (MT1-MMP) and furthermore, potentially matrix metalloproteinase-2 (MMP-2), two of the most commonly implicated MMPs in neoplasia.
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Title :	The Ethics of Anonymous Gamete Donation: Is There a Right to Know One's Genetic Origins?
Author :	Inmaculada de Melo-Martín
Journal :	Hastings Center Report: Article first published online: 14 FEB 2014 DOI: 10.1002/hast.285

Abstract :	The vast majority of gamete donations worldwide are made anonymously, and in some countries, including Spain, France, and Denmark, the anonymity of donors is explicitly protected by law. Nonetheless, a growing number of countries have called into question the morality of such practices and are enacting laws allowing children access to identifying information about their gamete donor. A significant reason for the growing legislative support for nonanonymous gamete donations is the belief that donor-conceived children have a fundamental moral right to know their genetic origins and that the right should be legally protected. A variety of factors, such as the increasing number of children born by means of gamete donation, advances in genetic science and technology that make it easy to discover the identity of a person's genetic parents, and the widespread belief that genetic information is important for protecting people's health, have made this alleged right quite salient, even leading some to challenge the ethical appropriateness of gamete donation practices altogether. Often, however, this right is assumed rather than explicitly justified. The purpose of this paper is to call into question the ethical justifications that are often thought to ground a right to know one's genetic origins. Proponents of a right to know this information usually argue that such a right protects at least three vital interests: the interest of donor-conceived people in having strong family relationships, their health interests, and their interest in forming a healthy identity. These different interests might be protected by different aspects of the right to know one's genetic origins: knowing one's mode of conception, accessing medically relevant information, and accessing identifying information about one's genetic parents. I will discuss each of these interests and explore whether and how they might be set back by an individual's lack of access to information about his or her genetic parentage. I will also evaluate whether donor anonymity policies are, as many of their opponents argue, morally impermissible because they fail to protect these important interests.
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Title :	Yoga for addictions: a systematic review of randomised clinical trials
Author :	Paul Posadzki, Jiae Choi, Myeong Soo Lee and Edzard Ernst
Journal :	Focus on Alternative and Complementary Therapies : Article first published online: 29 JAN 2014 DOI: 10.1111/fct.12080
Abstract :	Background It has been suggested that yoga may be effective in the management of mental health disorders including addictions. Objective To critically evaluate the evidence of effectiveness of yoga as a treatment for addictions. Methods Fourteen electronic databases were searched from inception to January 2013. Randomised controlled trials (RCTs) that evaluated any type of yoga against any type of control in individuals with any type of addiction were eligible. Methodological quality was appraised using Cochrane criteria. Results Eight RCTs met the eligibility criteria. Most of these RCTs were small with serious

	methodological flaws. The types of addictions included in these studies were alcohol, drug and nicotine addiction. Seven RCTs suggested that various types of yoga, including hatha yoga (HY), Iyengar yoga, nidra yoga, pranayama or cognitive behavioural therapy (CBT) plus vinyasa yoga, led to significantly more favourable results for addictions compared to various control interventions. One RCT indicated that a methadone maintenance programme (MMP) plus HY had no effect on drug use and criminal activities compared with MMP plus psychotherapy. Conclusions Although the results of this review are encouraging, large RCTs are needed to better determine the benefits of yoga for addiction.
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