

บทความที่น่าสนใจประจำเดือน สิงหาคม 2557

Title :	On the Colonic Bacterial Metabolism of Azo-Bonded Prodrugs of 5-Aminosalicylic Acid
Author :	Tiago Sousa, Vipul Yadav, Vanessa Zann, Anders Borde, Bertil Abrahamsson and Abdul W. Basit
Journal :	Journal of Pharmaceutical Sciences: Article first published online, 4 AUG 2014 DOI: 10.1002/jps.24103
Abstract :	<p>Azo-bonded prodrugs of 5-aminosalicylic acid (mesalazine)—sulfasalazine, balsalazide, and olsalazine, which are used in the treatment of ulcerative colitis, rely on colonic bacteria to cleave the azo bond and liberate the active drug in the large intestine. The aim of this study was to use an in vitro colonic simulator to determine the rates of metabolism of these three prodrugs in the presence of colonic bacteria, and to link the data to results obtained previously in humans. In individual fecal slurries prepared from five different donors, sulfasalazine degradation was rapid and virtually complete within 4 h, confirming the ubiquitous nature of azo-reduction between individuals. In pooled fecal slurry, the rate of degradation of sulfasalazine was faster ($t_{1/2}$, 32.8 min) than balsalazide ($t_{1/2}$, 80.9 min) and olsalazine ($t_{1/2}$, 145.1 min). These results are in agreement with data in humans, where it was found that sulfasalazine was more extensively metabolized on passage through the human colon than the other two drugs. These findings indicate that other than the azo bond itself, the broader chemical structure of the molecules play a role in the degradation of this class of compound, and highlight the utility of this in vitro model to evaluate the metabolism of drugs in the presence of colonic microbiota</p>
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Title :	1,8-Cineole ameliorates oxygen-glucose deprivation/reoxygenation-induced ischaemic injury by reducing oxidative stress in rat cortical neuron/glia
Author :	Sangwoo Ryu, Hyeon Park, Geun Hee Seol and In-Young Choi
Journal :	Journal of Pharmacy and Pharmacology: Article first published online, 3 AUG 2014 DOI: 10.1111/jphp.12295
Abstract :	<p>Objectives 1,8-Cineole, the main monoterpene in many essential oils, has been used as an ingredient in flavourings and medicine. 1,8-Cineole has been shown to possess pharmacological properties, including anti-oxidative, anti-inflammatory and anti-nociceptive actions. However, to date, no studies have examined the potential of 1,8-cineole to protect against cerebral ischaemic injury.</p> <p>Methods In this study, we investigated the neuroprotective effects of 1,8-cineole against cortical neuronal/glial cell injury caused by oxygen-glucose deprivation/reoxygenation (OGD/R) in an in-vitro model of ischaemia.</p> <p>Key findings 1,8-Cineole significantly attenuated OGD/R-induced cortical cell injury, as well as reduced n-methyl-d-aspartate (NMDA)-induced cell injury. However, it did not inhibit NMDA-induced cytosolic calcium overload. Nevertheless, 1,8-cineole significantly reduced the OGD/R- and NMDA-induced overproduction of reactive</p>

	<p>oxygen species (ROS). These results indicate that 1,8-cineole exerts neuroprotection through its anti-oxidative rather than its anti-excitotoxic, properties. The decrease in OGD/R-induced intracellular superoxide in 1,8-cineole-treated cortical cells was associated with the upregulation of superoxide dismutase activity. Moreover, 1,8-cineole showed direct ROS scavenging activity in an assay of oxygen radical absorbance capacity.</p> <p>Conclusion Collectively, these results suggest 1,8-cineole as a potentially effective neuroprotective and anti-oxidative candidate for the treatment of patients with ischaemic stroke.</p>
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Title :	"The Same Thing in a Different Box": Similarity and Difference in Pharmaceutical Sex Hormone Consumption and Marketing
Author :	Emilia Sanabria
Journal :	Medical Anthropology Quarterly: Article first published online, 21 JUL 2014 DOI: 10.1111/maq.12123
Abstract :	<p>The contraceptive pill has given way to a multitude of products, kinds of packaging, and modes of administration. This article draws on work on the pharmaceutical copy, extending the analysis to differentiating between forms of administration for contraceptive medicines as well as between brand-name drugs, generics, and similares, as they are known in Brazil. It explores how Brazilian prescribers and users—within the divergent structural constraints afforded by private and public health—apprehend and negotiate distinctions between the drugs available to them. This ethnographic account of hormone use reveals new fault lines through which the pharmakon exerts its influence. The attention that industry places on pharmacodynamics as it produces new products from similar compounds suggests that pharmaceutical effects are at once symbolic and real. The article concludes with a reflection on the future of the generic form in a field increasingly crowded by branded copies.</p>
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Title :	Intermittent Epidural vs Continuous Wound Infusion of Ropivacaine for Acute and Chronic Pain Control after Hysterectomy or Myomectomy: A Randomized Controlled Trial
Author :	Argyro Fassoulaki, Dimitris Chassiakos and Aikaterini Melemini
Journal :	Pain Medicine: Article first published online, 4 AUG 2014 DOI: 10.1111/pme.12523
Abstract :	<p>Objective Adequate postoperative analgesia may enhance recovery. The efficacy of continuous wound infusion vs intermittent epidural ropivacaine for postoperative analgesia was investigated.</p> <p>Design Prospective randomized, observer blind trial.</p> <p>Setting Aretaieio University Hospital.</p>

	<p>Subjects Patients scheduled for open abdominal hysterectomy or myomectomy.</p> <p>Methods Patients received 10 mL of 0.75% ropivacaine along the skin incision before skin closure, followed by wound infusion 2 mL/hour of 0.375% ropivacaine or epidurally 10 mL of 0.75% ropivacaine in the beginning of surgery followed by 10 mL of 0.2% ropivacaine 6 hourly. The epidural injections or the wound infusion of ropivacaine lasted 48 hours. Rescue analgesia consisted of patient-controlled analgesia morphine up to 48 hours and acetaminophen/codeine tablets the next 24 hours. Analgesic consumption and visual analog scale pain at rest and during cough were assessed 2, 4, 8, 24, 48, and 72 hours postoperatively. One and three months later, patients were interviewed by phone for analgesic consumption at home and presence of pain.</p> <p>Results The subcutaneous group consumed more morphine during the first 2, 4, and 8 hours postoperatively ($P < 0.001$, $P < 0.001$, and $P < 0.001$, respectively). Subsequent morphine and acetaminophen/codeine requirements did not differ between the two groups. Pain intensity during cough was higher only 2 hours after surgery in the subcutaneous group ($P = 0.002$). Three months postoperatively, the two groups did not differ in the analgesic requirements and presence of persisting and/or burning pain.</p> <p>Conclusion Based on our results, there is no clinical significant difference between the epidural ropivacaine and the subcutaneous ropivacaine group or a clear superiority to one management strategy.</p>
Database :	Wiley Online Library

Title :	Serum Biomarker for Diagnosis of Endometriosis
Author :	Pietro Giulio Signorile and Alfonso Baldi
Journal :	Journal of Cellular Physiology: Volume 229, Issue 11, pages 1731–1735, November 2014 (Article first published online, 29 JUL 2014 DOI: 10.1002/jcp.24620)
Abstract :	<p>Endometriosis is estimated to affect 10% of women during the reproductive years. The lack of a non-invasive diagnostic test significantly contributes to the long delay between onset of the symptoms and definitive diagnosis of endometriosis. This case–control study was conducted to identify specific endometriosis antigens using 2D gel analysis in women with endometriosis ($n = 5$) and without endometriosis ($n = 5$). Differentially expressed spots were analyzed using matrix-assisted laser desorption/ionization-time-of-flight/mass spectrometry (nanoLC-ESI-MS/MS) with MASCOT analysis, in order to identify the corresponding proteins. ELISAs were performed on a different cohort of endometriosis ($n = 120$) and healthy patients ($n = 20$) in order to confirm the differential expression of the identified proteins. ROC analysis of ELISA results confirmed the statistical significance of the differential expression for one of these proteins: Zn-alpha2-glycoprotein ($P = 0.019$). We propose the analysis of the expression level of this protein in the serum as a new non-invasive diagnostic test for endometriosis.</p>
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Title :	Original Research. Comparison of MRI Pulse Sequences for Prediction of Size of Hepatocellular Carcinoma at Explant Evaluation
Author :	Claudia R. Seuss, Min Ju Kim, Michael J. Triolo, Cristina H. Hajdu, Andrew B. Rosenkrantz
Journal :	American Journal of Roentgenology. 2014;203:300-305. 10.2214/AJR.13.11688
Abstract :	<p>OBJECTIVE. The purpose of this study was to retrospectively compare the size of hepatocellular carcinoma (HCC) on images obtained using different MRI pulse sequences with the tumor size determined at pathologic evaluation of liver explant specimens.</p> <p>MATERIALS AND METHODS. Ninety-two patients with HCC who underwent contrast-enhanced liver MRI within 90 days before liver transplant were included. A single pathologist measured the dominant HCC in each case. In different sessions, two abdominal radiologists (readers 1 and 2) aware only of the location of the dominant HCC independently measured lesion size on images obtained using the following sequences: T2-weighted imaging; b-500 diffusion-weighted imaging; and arterial, portal venous, and equilibrium phases of contrast enhancement. Size measurements on MR images were compared with explant measurements by use of Pearson correlation coefficients, paired t tests, and Bland-Altman plots.</p> <p>RESULTS. Correlation with pathologic findings was highest for reader 1 for portal venous ($r = 0.890$) and equilibrium ($r = 0.828$) phase images and for reader 2 for arterial, portal venous, and equilibrium phase images ($r = 0.842$–0.860). Absolute error relative to pathologic size was lowest for reader 1 using portal venous (4.3 mm) and for reader 2 using portal venous and arterial phase images (both 4.7 mm). Systematic error for both readers was lowest with portal venous and equilibrium phase images (reader 1, systematic under-measurement of 0.5 mm in both sequences; reader 2, systematic over-measurement of 0.1 mm with portal venous phase images and systematic under-measurement of 1.1 mm with equilibrium phase images). Sequences in which reader 1 made systematic over-measurements were diffusion-weighted images, arterial phase images, and T2-weighted images (by 3.5, 2.9, and 1.6 mm). Reader 2 made systematic over-measurements using arterial phase and T2-weighted images (by 1.5 and 0.4 mm).</p> <p>CONCLUSION. The data suggest the arterial phase may be suboptimal for measuring HCC at MRI. Portal venous phase acquisition warrants further investigation as a potential standard approach for such measurements.</p> <p>Read More: http://www.ajronline.org/doi/abs/10.2214/AJR.13.11688</p>
Database :	(American Roentgen Ray Society)

Title :	Comparative effectiveness of medical and surgical therapy on olfaction in chronic rhinosinusitis: a prospective, multi-institutional study
Author :	Adam S. DeConde, Jess C. Mace, Jeremiah A. Alt, Rodney J. Schlosser, Timothy L. Smith and Zachary M. Soler
Journal :	International Forum of Allergy & Rhinology: Article first published online, 12 JUL 2014 DOI: 10.1002/alr.21350
Abstract :	Background

	<p>Evidence comparing the impact of medical and surgical management of chronic rhinosinusitis on olfactory function is limited. This study evaluates olfactory outcomes in patients who failed initial medical management and elect either continued medical management or endoscopic sinus surgery (ESS) followed by medical management.</p> <p>Methods Adult subjects were prospectively enrolled into a nonrandomized, multi-institutional cohort. Baseline characteristics, quality-of-life and objective clinical findings were collected along with 2 quality-of-life disease-specific measures, the Rhinosinusitis Disability Index (RSDI) and Sinonasal Outcome Test (SNOT-22). The primary outcome measure was the posttreatment change (≥ 6 months) in the Brief Smell Identification Test (B-SIT). Bivariate and multivariate analyses compared B-SIT changes by treatment type while controlling for baseline cofactors.</p> <p>Results Subjects ($n = 280$) were enrolled between March 2011 and May 2013. Baseline B-SIT scores (mean \pm standard deviation) were comparable between medical and surgical treatment groups (8.8 ± 3.2 vs 9.0 ± 3.2; $p = 0.703$). Subjects with baseline impaired olfaction ($n = 83$; 29.6%) experienced B-SIT improvement in both the medical ($n = 17$; 2.3 ± 2.8; $p = 0.005$) and surgical ($n = 66$; 2.1 ± 3.0; $p < 0.001$) cohort. A total of 38.6% of subjects with impaired olfaction return to normal olfaction at follow-up with no difference identified between treatment modalities ($p = 0.803$). Multivariate analyses identified prior surgery as a predictor of less improvement regardless of treatment modality in patients with baseline impaired olfaction. Average changes in B-SIT scores were comparable between treatment groups ($p > 0.050$).</p> <p>Conclusion Subjects electing ESS experienced gains in olfaction comparable to subjects electing continued medical management. Further study with larger sample size and more sensitive measures of olfaction are needed to determine differences between treatment groups.</p>
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Title :	Neoadjuvant chemotherapy in breast cancer patients induces miR-34a and miR-122 expression
Author :	Pierre Frères, Claire Josse, Nicolas Bovy, Meriem Boukerroucha, Ingrid Struman, Vincent Bours and Guy Jerusalem
Journal :	Journal of Cellular Physiology: Accepted manuscript online, 30 JUL 2014 05:00PM EST DOI: 10.1002/jcp.24730
Abstract :	Circulating microRNAs (miRNAs) have been extensively studied in cancer as biomarkers but little is known regarding the influence of anti-cancer drugs on their expression levels. In this article, we describe the modifications of circulating miRNAs profile after neoadjuvant chemotherapy (NAC) for breast cancer. The expression of 188 circulating miRNAs was assessed in the plasma of 25 patients before and after NAC by RT-qPCR. Two miRNAs, miR- 34a and miR-122, that were significantly increased after NAC, were measured in tumor tissue before and after chemotherapy in 7 patients with pathological partial response (pPR) to NAC. These 2 chemotherapy-induced miRNAs were further studied in the plasma of 22 patients with adjuvant chemotherapy (AC) as well as in 12 patients who did not receive

	any chemotherapy. Twenty-five plasma miRNAs were modified by NAC. Among these miRNAs, miR-34a and miR-122 were highly upregulated, notably in pPR patients with aggressive breast cancer. Furthermore, miR-34a level was elevated in the remaining tumor tissue after NAC treatment. Studying the kinetics of circulating miR-34a and miR-122 expression during NAC revealed that their levels were especially increased after anthracycline-based chemotherapy. Comparisons of the plasma miRNA profiles after NAC and AC suggested that chemotherapy-induced miRNAs originated from both tumoral and non-tumoral compartments. This study is the first to demonstrate that NAC specifically induces miRNA expression in plasma and tumor tissue, which might be involved in the anti-tumor effects of chemotherapy in breast cancer patients.
Database :	Wiley Online Library

Title :	Microwave-assisted covalent immobilization of enzymes on inorganic surfaces
Author :	Regina Plagemann, Jan von Langermann and Udo Kragl
Journal :	Engineering in Life Sciences: Article first published online, 19 JUL 2014 DOI: 10.1002/elsc.201300115
Abstract :	Enzymes on carriers can be easily recycled or used in fixed bed reactors. The immobilization often results in an improved stability. Depending on the support used and the method of coupling, this is a time-consuming process. While the wide applicability of microwaves (MWs) within organic synthesis is known since the 1980s, proteins (including enzymes) are generally considered as too sensitive toward MW irradiation. In this article, MW methods were investigated to improve the processing speed of covalent enzyme immobilization on inorganic supports. Herein two laccases from <i>Trametes versicolor</i> and <i>Myceliophthora thermophila</i> (Novozyme 51003®) and the glucose oxidase from <i>Aspergillus niger</i> were immobilized onto samples of ceramic honeycomb and porous glass (TRISOPERL® 1000 AMINO). The enzymes showed different sensitivity to MW irradiation, but all were suitable for MW-assisted immobilization. Subsequent stability tests were conducted to compare conventional immobilization methods with those with MW irradiation. The glucose oxidase provided the best results. For all cases, a successful MW irradiation assisted covalent enzyme immobilization on solid support was obtained with a total 20-fold reduction of the time necessary.
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Title :	Chemically-Modulated Photoluminescence of Graphene Oxide for Selective Detection of Neurotransmitter by "Turn-On" Response
Author :	Su-Ji Jeon , Seon-Yeong Kwak , DaBin Yim , Jong-Min Ju , and Jong-Ho Kim
Journal :	J. Am. Chem. Soc.: Publication Date (Web): July 18, 2014 (Article ASAP - - DOI: 10.1021/ja504276z)
Abstract :	Designing artificial nanomaterials capable of selectively detecting targets without the use of expensive and fragile antibodies is of great interest in the applications of nanomedicine. Here, we show that the photoluminescence (PL) of graphene oxide (GO) was chemically modulated for the selective detection of a neurotransmitter without the use of antibodies. GO was functionalized with nitrotriacetic acid (NTA) on which four different metal ions were chelated (M-NTA-GO), which led to its different PL responses to neurotransmitters. In particular, the Cu-NTA-GO hybrid was able to selectively detect norepinephrine at nanomolar concentrations in a simple manner via its "turn-on" PL. Moreover, it was

	successfully applied to the selective detection of norepinephrine secreted from living PC-12 cells.
Database :	ACS Publications

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