บทความที่น่าสนใจประจำเดือน พฤศจิกายน 2556

Title :	Preparation of Andrograhpolide-Loaded Solid Lipid Nanoparticles and Their In Vitro and In Vivo Evaluations: Characteristics, Release, Absorption, Transports, Pharmacokinetics, and Antihyperlipidemic Activity
Author :	Tao Yang, Huan-Huan Sheng, Nian-Ping Feng, Hai Wei, Zheng-Tao Wang and Chang-Hong Wang
Journal :	Journal of Pharmaceutical Sciences: Article first published online - 25 OCT 2013 | DOI: 10.1002/jps.23758
Abstract :	Andrographolide (AND) is one of diterpenoids separated from Andrographis paniculata with a wide spectrum of biological activities of being anti-inflammatory, anticancer, hepatoprotective, and antihyperlipidemic. But its poor water solubility and instability resulted in lower bioavailability and seriously limited its pharmacological function. In this study, AND-loaded solid lipid nanoparticles (AND-SLNs) were prepared by a high-pressure homogenization method and presented as spherically shaped under transmission electron microscopy with an average diameter of 286.1 nm and zeta potential of –20.8 mV. The average drug-entrapment efficiency and drug loading were 91.00% and 3.49%, respectively. The results indicated that the lower bioavailability of AND is not only because of the poor solubility but also owing to its metabolic instability in intestinal segments. Furthermore, the transport mechanism of AND in Caco-2 cell model is complex in which an active transport carrier (P-glycoprotein) is involved in. The bioavailability and antihyperlipidemic activity of AND were improved by AND-SLNs by increasing the solubility and stability of AND in the intestine and by changing its transport mode in Caco-2 cell. The bioavailability of AND was increased to 241% by AND-SLNs as compared with AND suspension. AND-SLNs would be a promising drug-delivery system to enhance the oral absorption and bioavailability of AND.
Database :	Wiley Online Library

Title :	Modeling of Pharmacokinetic Systems Using Stochastic Deconvolution
Author :	Maziar Kakhi and Jason Chittenden
Journal :	Journal of Pharmaceutical Sciences: Article first published online - 31 OCT 2013 | DOI: 10.1002/jps.23752
Abstract :	In environments where complete mechanistic knowledge of the system dynamics is not available, a synergy of first-principle concepts, stochastic methods and statistical approaches can provide an efficient, accurate, and insightful strategy for model development. In this work, a system of ordinary differential equations describing system pharmacokinetics (PK) was coupled to a Wiener process for tracking the absorption rate coefficient, and was embedded in a nonlinear mixed effects population PK formalism. The procedure is referred to as "stochastic deconvolution" and it is proposed as a diagnostic tool to inform on a mapping function between the fraction of the drug absorbed and the fraction of the drug dissolved when applying one-stage methods to in vitro–in vivo correlation modeling. The goal of this work was to show that stochastic deconvolution can infer an a priori specified absorption profile given dense observational (simulated) data. The results demonstrate that the mathematical model is able to accurately reproduce the simulated data in scenarios where solution strategies for linear, time-invariant systems would assuredly fail. To this end, PK systems that are representative of Michaelis–Menten kinetics and enterohepatic circulation were

	investigated. Furthermore, the solution times are manageable using a modest computer hardware platform.
Database :	Wiley Online Library

Title :	Direct Differentiation of Homogeneous Human Adipose Stem Cells into Functional Hepatocytes by Mimicking Liver Embryogenesis
Author :	Xueyang Li, Jie Yuan, Weihong Li, Sicheng Liu, Mingxi Hua, Xin Lu and Haiyan Zhang
Journal :	Journal of Cellular Physiology: Accepted manuscript online - 25 OCT 2013 | DOI: 10.1002/jcp.24501
Abstract :	The potential of adult human adipose tissue stem cells (hASCs) to differentiate into hepatocytes has generated much excitement over the possible use of hASCs in therapeutic applications. An understanding of the molecular mechanisms that underlie the plasticity of hASCs toward hepatocytes will help to make this possibility a reality. Herein, we show that a homogenous population of hASCs characterized by a high level of CD73, CD90, and CD105 express the pluripotent transcription factors OCT4, SOX2, NANOG, and SALL4 under proliferation conditions. A high level of activin A allows for hASCs acquiring the fate of definitive endoderm (DE) cells and expressing the specific transcription factors HEX, FOXA2, SOX17, and GATA4 synchronously. Using a reproducible three-stage method by mimicking liver embryogenesis, hASCs were directed to differentiate into functional hepatocytes. In the first stage, hASCs were induced to become DE cells by 2 days cultured in serum-free medium and 3 days of activin A treatment. Next, the presence of fibroblast growth factor (FGF) 4 and bone morphogenetic protein (BMP) 2 in the medium for 5 days induced efficient hepatic differentiation from DE cells. After 10 days of further maturated by the sequential exposure to hepatocyte growth factor (HGF), oncostatin M (OSM), and dexamethasone (DEX), the hASC-derived hepatocytes expressed mature hepatocytes marker and exhibited functional characterization, including albumin secretion, glycogen storage, urea production, activity of drug transporters, and cytochrome P450 activity. These findings will be useful for the implementation of hASC-derived hepatocytes in therapeutic purposes, metabolic analyses, drug toxicity screening, and studies of hepatocyte function.
Database :	Wiley Online Library

Title :	Energy Expenditure in Acute Posttraumatic Amputation: Comparison of Four Methods for Assessment
Author :	Kathleen Robins, Susan M. Stankorb, and Marybeth Salgueiro
Journal :	Nutrition in Clinical Practice: first published on October 29, 2013, doi:10.1177/0884533613507605
Abstract :	Background: Adequate energy intake is a component of successful recovery after injury, yet little is known about the energy requirements in the acute period following traumatic amputation. The purpose of this study was to compare the clinical applicability of resting energy expenditure (REE) measured by a handheld calorimeter and estimated by 3 different predictive equations to that measured by the gold standard, indirect calorimetry using a metabolic cart, during the acute postamputation period of inpatient hospitalization. Materials and Methods: Indirect calorimetry measured using both a metabolic cart and handheld calorimeter and predicted by 3 equations were used to assess energy needs of eligible subjects

	admitted to Brooke Army Medical Center with traumatic amputation(s). REE measured by the handheld calorimeter and estimated using 3 predictive equations (Mifflin St. Jeor, Ireton-Jones 1992, and the American College of Chest Physicians [ACCP]) were compared to the gold standard metabolic cart. Each measure was assessed for significant differences and level of clinical acceptability defined as ± 10% REE by metabolic cart. Results: Thirteen male service members with traumatic amputation(s) were included. The majority of subject's measurements using the handheld calorimeter (n = 9, 69%) and 3 predictive equations (Mifflin St. Jeor [n = 7, 54%], Ireton-Jones 1992 [n = 8, 62%], ACCP [n = 7, 54%]) fell outside of the ± 10% range of clinical acceptability. Conclusion: Use of the metabolic cart for measuring energy needs remains optimal in this population.
Database :	Sage Journals Online

Title :	Focus on Transitions of Care: Description and Evaluation of an Educational Intervention for Internal Medicine Residents
Author :	Hanan Aboumatar, Robert D. Allison, Leonard Feldman, Kevin Woods, Patricia Thomas, and Charles Wiener
Journal :	American Journal of Medical Quality: Published online before print on November 1, 2013, doi: 10.1177/1062860613507330
Abstract :	Transitions of care between physicians and from inpatient to outpatient settings leave patients vulnerable to medical errors and adverse events. A transitions of care workshop consisting of 2 sessions, Sign-Out Success (SOS) and Transition To Home (TTH), taught sign-out and discharge skills to incoming internal medicine interns during orientation. The workshop used role-playing exercises, didactics, demonstrations, and peer and self-evaluations. Interns completed a survey at 3 months post workshop. Using pre–post workshop measures, SOS increased the quality of intern-rated sign-outs (P = .004). Interns reported more confidence in their ability to effectively sign out (P = .016) and a greater understanding of problems that might arise while on call (P = .012). TTH increased intern-reported confidence in their ability to communicate discharge instructions (P < .001) and to verify patient understanding of instructions (P < .001). A majority reported using SOS and TTH skills 3 months post workshop. This workshop may be replicable at other institutions
Database :	Sage Journals Online

Title :	Geotrichum candidum as a possible cause of bovine abortion
Author :	Nadia A. B. Antoniassi, Gregory D. Juffo, Adriana S. Santos, Caroline A. Pescador, Laerte Ferreiro, and David Driemeier
Journal :	Journal of Veterinary Diagnostic Investigation: Published online before print October 23, 2013, doi: 10.1177/1040638713508284
Abstract :	Geotrichum spp. are ubiquitous, saprotrophic fungi found in soil, organic matter, and silage, as a contaminant in food products and in the digestive tracts of mammals. The current study reports a case of Geotrichum candidum infection with dermatitis in an aborted bovine fetus with skin and lung lesions. A 6-month-old aborted male Holstein Friesian fetus displayed unusual lesions on the skin of the abdomen, thorax, and head, which was excessively thickened and wrinkled. These changes corresponded to orthokeratotic hyperkeratosis, neutrophil accumulation in the stratum corneum, a pyogranulomatous inflammatory infiltrate,

	and superficial dermal necrosis. Moderate suppurative multifocal pneumonia was observed. Large numbers of mononuclear cells and occasional fibrin thrombi within blood vessels were found in the lungs, brain, and cerebellum. Gridley staining revealed fungal structures within the skin lesions. The mycological exam demonstrated the growth of G. candidum, and phase contrast microscopy conducted on the abomasal fluid revealed hyphae compatible with this agent. The skin lesions observed, in association with the fungus isolated, indicated that the abortion was due to G. candidum infection of the bovine fetus.
Database :	Sage Journals Online

Title :	Publicly funded remuneration for the administration of injections by pharmacists: An international review
Author :	Sherilyn K. D. Houle, Kelly A. Grindrod, Trish Chatterley, and Ross T. Tsuyuki
Journal :	Canadian Pharmacists Journal / Revue des Pharmaciens du Canada: November/December 2013, 146 (6): 353-364
Abstract :	The administration of injections has become an increasingly common addition to pharmacists' scope of practice. Four Canadian provinces, all US states and a number of other countries have regulations allowing pharmacists to administer injections. However, the extent to which such services are remunerated is unknown.
Database :	Sage Journals Online

Title :	Effects of supplementation of lactic acid bacteria on growth performance, blood metabolites and fecal coliform and lactobacilli of young dairy calves
Author :	J. Bayatkouhsar, A.M. Tahmasebi, A.A. Naserian, R.R. Mokarram, R. Valizadeh
Journal :	Animal Feed Science and Technology: 15 November 2013, Volume 186, Issues 1–2, Pages 1-11
Abstract :	To evaluate the effects of supplementation of lactic acid bacteria (LAB) on growth of calves, twenty four female Holstein calves, immediately after birth, were used. Claves were randomly assigned into 3 treatments as follow: control (CON; milk without any probiotic), laboratory produced probiotic (LPP; milk containing 2 g/d/calf) and commercial produced probiotic (CPP; milk containing 2 g/d/calf). Calves were weaned abruptly if they consumed 900 g dry matter of starter per day for three consecutive days. Starter intake was measured every day and fecal scoring conducted daily. Calves were weight weekly and blood samples were obtained on days 7, 21, 42 and 90 after birth. To assess the effect of probiotics on weaning stress, blood samples were obtained at −168, 24 and 168 h after weaning day. To assess the effect on the gut flora, fecal samples were collected on days 14, 21, 28 and 45 after birth. Compared with control, incorporation of the probiotics in the diet had significantly effect on final body weight. There was no significant effect on starter intake and daily body weight gain, although there were trend to increase by supplementation of probiotics in diets. Including probiotic into diets resulted to decrease weaning time compare to control group. Feeding probiotics to calves had not remarkable effects on blood metabolites during abrupt weaning. On days 14 and 28 the fecal population of lactic acid bacteria was no different ($P > 0.05$) between treatments; however the average fecal population of LAB was greater ($P < 0.05$) with LPP than other treatments. The results of this study showed that incorporation of probiotics in the diet can affect the calves' growth performance, although observed benefits from treatments in several area

	were likely minimized.
Database :	ScienceDirect

Title :	Solid Fat and Added Sugar Intake Among U.S. Children: The Role of Stores, Schools, and Fast Food, 1994–2010
Author :	Jennifer M. Poti, Meghan M. Slining, Barry M. Popkin
Journal :	American Journal of Preventive Medicine: November 2013, Volume 45, Issue 5, Pages 551-559
Abstract :	Little is known about the role of location in U.S. children's excess intake of energy from solid fat and added sugar, collectively referred to as SoFAS. The goal of this study was to compare the SoFAS content of foods consumed by children from stores, schools, and fast-food restaurants and to determine whether trends from 1994 to 2010 differ across these locations.
Database :	ScienceDirect

Title :	The effect of a single bout of exercise on energy and fatigue states: a systematic review and meta-analysis
Author :	Bryan D. Loy, Patrick J. O'Connor & Rodney K. Dishman
Journal :	Fatigue: Biomedicine, Health & Behavior: 2013, Volume 1, Issue 4, pages 223-242
Abstract :	Studies examining acute exercise effects on energy and fatigue levels have not been quantitatively summarized. Purpose: To estimate the population effects of a single bout of exercise on energy and fatigue states and examine potential moderators.
Database :	Taylor & Francis Online Journals