บทความที่น่าสนใจประจำเดือน กรกฎาคม 2556

Title :	Spermidine-cross-linked hydrogels as novel potential platforms for pharmaceutical applications
Author :	Rita López-Cebral, Patrizia Paolicelli, Vanessa Romero-Caamaño, Begoña Seijo, Maria Antonietta Casadei, Alejandro Sanchez
Journal :	Journal of Pharmaceutical Sciences: Article first published online: 11 JUN 2013 DOI: 10.1002/jps.2363
Abstract :	Endogen polyamines are known to be molecules of high biological value. Herein, a new generation of physical hydrogels was developed through the mild ionotropic gelantion technique, using the endogen polyamine spermidine as a physical cross-linker. The main negatively charged polymer of the hydrogel is the natural polysaccharide gellan gum. Optionally, interesting endogen molecules, such as chondroitin sulfate and albumin, can be included as part of the formulation. These new hydrogels were characterized and the influence of the different components on their final properties was carefully analyzed, ultimately demonstrating the possibility to modulate these properties as well as the system's versatility in terms of composition. On the contrary, *in vitro* cell studies showed the absence of cytotoxicity of these hydrogels. Finally, the *in vitro*-release profiles obtained for different model molecules evidenced the potential of these systems as novel drug delivery platforms. © 2013 Wiley Periodicals, Inc. and the American Pharmacists Association J Pharm Sci
Database :	Wiley Online Library

Title :	Evaluation of triazole-chelated lanthanides as chemically stabile bioimaging agents
Author :	Amruta Indapurkar, Brian Henriksen, Justin Tolman, James Fletche
Journal :	Journal of Pharmaceutical Sciences: Article first published online: 11 JUN 2013 DOI: 10.1002/jps.23616
Abstract :	Europium (Eu), dysprosium (Dy), samarium (Sm), and terbium (Tb) complexes were prepared using the neutral tridentate chelator 2,6-bis(1-benzyl-1,2,3-triazol-4-yl)pyridine and one equivalent of each lanthanide salt. The physicochemical, aerodynamic, and *in vitro* cellular properties of each lanthanide metal complex were studied to determine their viability as cell surface fluorescent probes. Each compound was characterized by electrospray ionization mass spectroscopy (ESI–MS), ultraperformance liquid chromatography (UPLC), differential scanning calorimetry (DSC), and thermogravimetic analysis (TGA). Upon excitation at 320 nm each complex displayed characteristic lanthanide-based fluorescence emission in the visible wavelength range with stokes shifts greater than 200 nm. Each complex was found to be chemically stable when exposed to pH range of 1–11 for 72 h and resistant to photobleaching. To simulate pulmonary administration of these fluorophores, the aerodynamic properties of the Eu and Tb complexes were determined using a next generation impactor (NGI). This measurement confirmed that the complexes retain their fluorescence emission properties after nebulization. Cellular cytotoxicity was determined on A-549 lung cancer cell line using methylthiazol tetrazolium (MTT) cytotoxicity assay at 24, 48, and 72 h postexposure to the complexes. The complexes

	showed a dose and time-dependent effect on the percent viability of the cells. © 2013 Wiley Periodicals, Inc. and the American Pharmacists Association J Pharm Sci
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Title :	Utility of gastric-retained alginate gels to modulate pharmacokinetic profiles in rats
Author :	Kimberly A. Foster, Huadong Sun, Roderick Marcus Fancher, Mirek Proszynski, George Dixon, Kenneth Ford, Georgia Cornelius, Olafur S. Gudmundsson, Michael J. Hageman
Journal :	Journal of Pharmaceutical Sciences: Article first published online: 6 JUN 2013 DOI: 10.1002/jps.23630
Abstract :	A gastric-retentive formulation amenable to dosing in rodents has the potential to enable sustained release in a preclinical setting. This may be useful to provide systemic exposure over a longer duration or to increase duration of exposure for compounds with targets localized in the gastrointestinal tract. Previous work has shown that a mixture of 1% sodium alginate and 0.625% karaya gum in the presence of a calcium chelator can form gels *in situ* that are gastric retained in rats. The aim of this work was to define the physicochemical boundaries of compounds within this technology and their relation to *in vivo* release using a series of model compounds with high permeability but varying solubility. *In vitro* data demonstrated a good correlation between solubility and initial release rates from the gels. *In vivo* studies were conducted in Sprague–Dawley rats to compare the exposure profile of compounds dosed in gel relative to a standard formulation. *In vivo* data were consistent with trends from the *in vitro* studies. These data suggest that, in conjunction with an understanding of compound solubility, sodium alginate/karaya gum gels may be a useful tool to modulate exposure profiles in rodent models in a preclinical setting. © 2013 Wiley Periodicals, Inc. and the American Pharmacists Association J Pharm Sci
Database :	Wiley Online Library

Title :	The future of blood-based biomarkers for Alzheimer's disease
Author :	Kim Henriksena, Sid E. O'Bryant, Harald Hampel, et al.
Journal :	Alzheimer's & Dementia: Articles in Press, Available online 11 July 2013 http://dx.doi.org/10.1016/j.jalz.2013.01.013
Abstract :	Treatment of Alzheimer's disease (AD) is significantly hampered by the lack of easily accessible biomarkers that can detect disease presence and predict disease risk reliably. Fluid biomarkers of AD currently provide indications of disease stage; however, they are not robust predictors of disease progression or treatment response, and most are measured in cerebrospinal fluid, which limits their applicability. With these aspects in mind, the aim of this article is to underscore the concerted efforts of the Blood-Based Biomarker Interest Group, an international working group of experts in the field. The points addressed include: (1) the major challenges in the development of blood-based biomarkers of AD, including patient heterogeneity, inclusion of the "right" control population, and the blood–brain barrier; (2) the need for a clear definition of the purpose of the individual markers (e.g., prognostic, diagnostic, or monitoring therapeutic efficacy); (3) a critical evaluation of the ongoing biomarker approaches; and (4) highlighting the need for standardization of preanalytical variables and analytical

	methodologies used by the field.
Database :	ScienceDirect

Title :	A second generation genetic linkage map for silver carp (*Hypophthalmichehys molitrix*) using microsatellite markers
Author :	Wenjie Guo, Jingou Tong, Xiaomu Yu, Chuankun Zhu, et al.
Journal :	Aquaculture: Articles in Press, Available online 10 July 2013 http://dx.doi.org/10.1016/j.aquaculture.2013.06.027
Abstract :	In the study, we constructed a second generation genetic linkage map for silver carp (*Hypophthalmichthys molitrix*) using anonymous and EST-derived microsatellite markers in a mapping panel containing 156 "pseudo BC" progenies from two interspecific crosses between silver carp and bighead carp (*Aristichthys nobilis*). A total of 703 markers were ordered on 24 linkage groups (LGs) which are equal to chromosome numbers of the haploid genome of the species. The consensus map spanned 1561.1 cM covering 93.1% of the silver carp genome with an average resolution of 2.2 cM/locus. Length of LGs ranged from 42.1 cM to 97.8 cM (mean 65.0 cM). Total number of markers on individual LG varied from 13 to 56 (mean 29.3). Estimated total length of the female map (1809.0 cM) was 1.52 times longer than that of the male map (1188.5 cM), and the recombination ratio between sexes (female vs. male) was 2.2, showing markedly higher recombination in the females. Percentage of distorted loci in the male map was obviously higher than that in the female map, and 5 segregation-distorted regions were identified in the male linkage groups. This second generation genetic linkage map evidently extends previous genetic maps for silver carp, and provides a basis for such studies as quantitative trait locus mapping, comparative genomics and marker-assisted selection.
Database :	ScienceDirect

Title :	Effects of ammonia and urea in-vitro on mRNA of candidate bovine endometrial genes
Author :	Gunaretnam, T Pretheeban, R Rajamahendran
Journal :	Animal Reproduction Science: Articles in Press, Available online 10 July 2013 http://dx.doi.org/10.1016/j.anireprosci.2013.07.001
Abstract :	Large amounts of protein intake are associated with elevated ammonia and urea concentrations in both plasma and uterine fluid in dairy cows. These increased concentrations affect successful embryo development and subsequent pregnancy establishment. The objective of the present study was to examine the effects of ammonia and urea on the expression of some candidate genes in the endometrium of mid-luteal phase of the estrous cycle of dairy cows. Endometrial explants were cultured and treated with 0, 75, 150, 300, 600 μM of ammonium

	chloride or 0, 4, 8, 12, 16 mM of urea. After the RNA extraction and reverse transcription, real time PCR was performed to assess the treatment effects on relative amounts of mRNA of candidate genes. BCL2 mRNA was greater in explants treated with 150 μM of ammonium chloride compared to explants treated with 0, 75 and 300 μM. Relative amounts of IGFBP1 mRNA were less in explants treated with 600 μM of ammonium chloride when compared with other concentrations. Relative FGF2 gene expression was less in explants treated with a greater concentration (600 μM) of ammonium chloride or urea (16 mM) when compared with lesser concentrations. Expression of HSPA1A, IGFBP3 and SERPINA14 genes was greater in explants exposed to lesser concentrations (150 μM) of ammonium chloride or urea (4 mM). Relative amounts of IGF1 and BAX mRNA were not affected by any of the ammonium chloride or urea concentrations tested. In conclusion, greater concentrations of ammonia and urea have negative effects on some endometrial gene expression, while moderate concentrations have positive effects.
Database :	ScienceDirect

Title :	Whey Protein Supplementation During Resistance Training Augments Lean Body Mass
Author :	Jeff S. Volek PhD, RD, Brittanie M. Volk MA, RD, Ana L. Gómez PhD, et al.
Journal :	Journal of the American College of Nutrition : 2013, Volume 32, Issue 2, pages 122-135
Abstract :	Compared to soy, whey protein is higher in leucine, absorbed quicker and results in a more pronounced increase in muscle protein synthesis.
Database :	Taylor & Francis Online Journals

Title :	Engineered applications of ureolytic biomineralization: a review
Author :	Adrienne J. Phillips, Robin Gerlach, Ellen Lauchnor, et al.
Journal :	Biofouling: The Journal of Bioadhesion and Biofilm Research: 2013, Volume 29, Issue 6, pages 715-733
Abstract :	Microbially-induced calcium carbonate ($CaCO_3$) precipitation (MICP) is a widely explored and promising technology for use in various engineering applications. In this review, $CaCO_3$ precipitation induced *via* urea hydrolysis (ureolysis) is examined for improving construction materials, cementing porous media, hydraulic control, and remediating environmental concerns. The control of MICP is explored through the manipulation of three factors: (1) the ureolytic activity (of microorganisms), (2) the reaction and transport rates of substrates, and (3) the saturation conditions of carbonate minerals. Many combinations of these factors have been researched to spatially and temporally control precipitation. This review discusses how optimization of MICP is attempted for different engineering applications in an effort to highlight the key research and development questions

	necessary to move MICP technologies toward commercial scale applications.
Database :	Taylor & Francis Online Journals

Title :	The effect of different types of cortisol secretion on the prognosis of lumbar discectomy
Author :	Chong-Nan Yan, Huan Wang, Miao Peng, Shao-Qian Cui, Hai-Lun Gu
Journal :	Central European Journal of Biology: September 2013, Volume 8, Issue 9, pp 819-827
Abstract :	The purpose of this study was to investigate saliva cortisol levels of Chinese patients with discogenic sciatica and to clarify the relationship between psychosocial factors and saliva cortisol levels. We also intended to elucidate the effect of different types of cortisol secretion on the prognosis of lumbar discectomy.
Database :	SpringerLink

Title :	Inflammatory Markers in Patients after Hematopoietic Stem Cell Transplantation
Author :	Camilla Sjøqvist, Emilian Snarski
Journal :	Archivum Immunologiae et Therapiae Experimentalis: August 2013, Volume 61, Issue 4, pp 301-307
Abstract :	Infections are one of the most common complications after hematopoietic stem cell transplantation (HSCT). Diagnosis is established by analysis of clinical symptoms and results of diagnostic tests such as biochemical panels, microbiological cultures, and visual diagnostics. As the microbiological cultures yield positive results in only some patients and visual diagnostics might miss the infectious source, the diagnosis and proper treatment often depends on clinical assessment supported by laboratory test results. The most commonly used makers of inflammation include C-reactive protein and procalcitonin. However, these tests have serious limitations when used in patients after HSCT. The drugs used in conditioning, neutropenia, and graft-versus-host disease might influence the results of the tests and misguide the physician. In this review, we summarize the current knowledge on profiles of expression of basic markers of inflammation used in clinical practice in patients after HSCT.
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