

Hot Articles

“August|2017”

Health Science



Title: [Mineral trioxide aggregate enhances the osteogenic capacity of periodontal ligament stem cells via NF- \$\kappa\$ B and MAPK signaling pathways](#)

Author: Yanqiu Wang, Yixiang Zhou, Lin Jin, Xiyao Pang, Yadie Lu, Zilu Wang, Yan Yu and Jinhua Yu

Journal: Journal of Cellular Physiology

Volume: Accepted manuscript online: 27 JUL 2017

Doi: 10.1002/jcp.26110

Abstract

Introduction

Mineral trioxide aggregate (MTA), as a bioactive material, has a widespread application in clinical practice. To date, the effects of MTA on the proliferation and differentiation of human periodontal ligament stem cells (hPDLSCs) remain unclear.

Materials and methods

hPDLSCs were isolated from human periodontal ligament tissues and cultured with MTA conditioned media. Cell counting kit-8 (CCK-8) assay was performed to assess the proliferation capacity of MTA-treated hPDLSCs. Immunofluorescence assay, alkaline phosphatase (ALP) activity, alizarin red staining, real-time RT-PCR, and western blot analyses were used to investigate the odonto/osteogenic capacity of hPDLSCs as well as the involvement of NF- κ B and MAPK pathways.

Results

ALP activity assay revealed that 2 mg/mL was the optimal concentration for the induction of hPDLSCs by MTA. The protein expression of DSP, RUNX2, OCN, OSX, OPN, DMP1, ALP, and COL-I in MTA-treated hPDLSCs was significantly higher than those in control group ($P < 0.01$). When hPDLSCs were treated with the inhibitors of NF- κ B and MAPK pathways (U0126, SP600125, SB203580, and BMS345541), the effects of MTA on the differentiation of hPDLSCs were suppressed. Mechanistically, P65 was detected to transfer from cytoplasm to nuclei, as indicated by western blot and immunofluorescence assay. Moreover, MAPK-related proteins and its downstream transcription factors were also upregulated in MTA-treated hPDLSCs.

Conclusions

Mineral trioxide aggregate can promote the odonto/osteogenic capacity of hPDLSCs via activating the NF- κ B and MAPK pathways. This article is protected by copyright. All rights reserved

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Title: [Single-Center Evaluation of the Pharmacokinetics and Safety of the Angiotensin II Receptor Antagonist Azilsartan Medoxomil in Mild to Moderate Hepatic Impairment](#)

Author: Caroline Dudkowski, Aziz Karim, Zhen Zhao, Alberto B. Alonso, Dyal Garg, Richard A. Preston

Journal: The Journal of Clinical Pharmacology

Volume: First Published: 27 July 2017

Doi: 10.1002/jcph.970

Abstract

Azilsartan medoxomil (AZL-M) is a potent angiotensin II receptor blocker that decreases blood pressure in a dose-dependent manner. It is a prodrug that is not detected in blood after its oral administration because of its rapid hydrolysis to the active moiety, azilsartan (AZL). AZL undergoes further metabolism to the major metabolite, M-II, and minor metabolites. The objective of this study was to determine the effect of mild to moderate hepatic impairment on the pharmacokinetics of AZL and its major metabolite. This was a single-center, open-label, phase 1 parallel-group study that examined the single-dose (day 1) and multiple-dose (days 4–8) — 40 mg — pharmacokinetics of AZL and M-II in 16 subjects with mild and moderate hepatic impairment by Child-Pugh classification (n = 8 per group) and subjects (n = 16) matched based on age, sex, race, weight, and smoking status. Mild or moderate hepatic impairment did not cause clinically meaningful increases in exposure to AZL and M-II. Mild or moderate hepatic impairment had no clinically meaningful effect on the plasma protein binding of AZL and M-II. Single and multiple doses of AZL-M 40 mg were well tolerated in all subject groups. Based on the pharmacokinetic and tolerability findings, no dose adjustment of AZL-M is required for subjects with mild and moderate hepatic impairment.

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Title: Barriers in the public health role of community pharmacists: a qualitative study
Author: Chijioke O. Agomo, Jane Portlock and James Ogunleye
Journal: Journal of Pharmaceutical Health Services Research
Volume: Version of Record online: 13 JUL 2017
Doi: 10.1111/jphs.12189

Abstract

Objectives

Using qualitative methods (interviews), this study aimed to identify barriers in the public health role of UK community pharmacists.

Methods

Data were collected through telephone interviews using Skype and recorded using 'HD Call Recorder for Skype'. The qualitative data software package NVivo (version 10) was used for storage, retrieval and analysis of data.

Key findings

This study identified a number of barriers hindering the public health role of community pharmacists in the UK. The most frequently cited barriers included: challenges as to the use of new technologies and social media; lack of awareness; pharmacists' lack of confidence in their public health role; commercial pressure from pharmacy owners; lack of time; inadequate funding; government policy on the public health role of pharmacists; inadequate communication skills; lack of integration of UK undergraduate healthcare programmes; logistics; as well as the fact that UK pharmacists qualify as scientists rather than as clinicians.

Conclusions

Many of the barriers identified in this study have also been confirmed in other studies. A clearer policy by the government on the public health role of pharmacists, supported by Schools of Pharmacy and relevant stakeholders might be a way forward.

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Title: [Essential oils and hydrophilic extracts from the leaves and flowers of *Succisa pratensis* Moench. and their biological activity](#)

Author: Ewa Witkowska-Banaszczak and Jolanta Długaszewska

Journal: Journal of Pharmacy and Pharmacology

Volume: Version of Record online: 26 JUL 2017

Doi: 10.1111/jphp.12784

Abstract

Objectives

This study was undertaken to evaluate the antioxidant activity of methanol and water extracts from *Succisa pratensis* Moench (Dipsacaceae) leaves and flowers as well as the chemical composition of the essential oils found in them and the antimicrobial activity of the oils and extracts thereof.

Methods

The essential oils from *S. pratensis* leaves and flowers were analysed by the GC-MS. The total phenolic content was determined with Folin–Ciocalteu, that of flavonoids with aluminium chloride and that of phenolic acids with Arnov's reagent. The antioxidant activity was investigated by the DPPH radical scavenging assay. Antimicrobial activity was studied in vitro against G-positive and G-negative bacteria, and fungi using disc diffusion and broth microdilution methods.

Key findings

Eighty-six components of the leaf essential oil and 50 of the flower essential oil were identified. The main components of the leaf essential oil were 2-hexyl-1-octanol (5.76%) and heptacosane (5.53%), whereas hexadecanoic acid (16.10%), 8-octadecen-1-ol acetate (9.86%), methyl linolenate (8.58%), pentacosane (6.63%) and heptacosane (5.50%) were found in the flower essential oil. The essential oils exerted high antimicrobial activity (range: 0.11 to >3.44mg/ml) against the following bacteria: *Pseudomonas aeruginosa*, *Staphylococcus aureus* and fungi: *Trichophyton mentagrophytes*, *Candida albicans*, whereas the methanol and water extracts showed moderate or weak activity. The strongest antioxidant activity was shown by methanol extracts from *S. pratensis* leaves, IC₅₀ = 0.09 mg/ml. There was a positive correlation between the total phenolic content and the antimicrobial activity, while for the antioxidant effect, it was not observed.

Conclusions

The results suggest great antibacterial activity of the oils and high antioxidant activity of the methanol extract and may justify the application in treating infections.

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Wiley Online Library

Title: The Precision Medicine Nation
Author: Maya Sabatello and Paul S. Appelbaum
Journal: Hastings Center Report
Volume: 47 **Issue:** 4 **Page:** 19-29 (July/August 2017)
Doi: 10.1002/hast.736

Abstract

The United States' ambitious Precision Medicine Initiative proposes to accelerate exponentially the adoption of precision medicine, an approach to health care that tailors disease diagnosis, treatment, and prevention to individual variability in genes, environment, and lifestyle. It aims to achieve this by creating a cohort of volunteers for precision medicine research, accelerating biomedical research innovation, and adopting policies geared toward patients' empowerment. As strategies to implement the PMI are formulated, critical consideration of the initiative's ethical and sociopolitical dimensions is needed. Drawing on scholarship of nationalism and democracy, we discuss the PMI's construction of what we term "genomic citizenship"; the possible normative obligations arising therefrom; and the ethical, legal, and social challenges that will ensue. Although the PMI is a work in progress, discussion of the existing and emerging issues can facilitate the development of policies, structures, and procedures that can maximize the initiative's ability to produce equitable and socially sensitive outcomes. Our analysis can also be applied to other population-based, precision medicine research programs.

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Title: [Down-regulation of liver-intestine cadherin enhances noscapine-induced apoptosis in human colon cancer cells](#)

Author: Xia Tian, Meng Liu, Qingxi Zhu, Jie Tan, Weijie Liu, Yanfen Wang, Wei Chen, Yanli Zou, Yishan Cai, Zheng Han & Xiaodong Huang

Journal: Expert Review of Anticancer Therapy

Volume: Published online: 27 Jun 2017

Doi: <http://dx.doi.org/10.1080/14737140.2017.1344097>

Abstract

Background: The aim of the present study was to explore the signaling pathway of noscapine which induces apoptosis by blocking liver-intestine cadherin (CDH17) gene in colon cancer SW480 cells.

Methods: Human colon cancer SW480 cells were transfected with CDH17 interference vector and treatment with 10 $\mu\text{mol/L}$ noscapine. The proliferation and apoptosis of SW480 cells were detected by MTT assay and AnnexinV-FITC/PI flow cytometry kit (BD), respectively. Cell invasion were assessed by transwell assays. Apoptosis related proteins (Cyt-c, Bax, Bcl-2 and Bcl-xL) levels were evaluated by western blot.

Results: Compared to the noscapine group, the proliferation was decreased significantly and the apoptosis was increased significantly in SW480 cells of the siCDH17+noscapine group. Cyt-c and Bax protein levels in siCDH17+noscapine group was higher than that of the noscapine group, but Bcl-2 and Bcl-xL protein levels in siCDH17+noscapine group were lower than that of the noscapine group. Moreover, up-expression of CDH17 inhibited the efficacy of noscapine-induced apoptosis in SW480 cells.

Conclusions: We inferred that down-expression of extrinsic CDH17 gene can conspicuously promote apoptosis-inducing effects of noscapine on human colon cancer SW480 cells, which is a novel strategy to improve chemotherapeutic effects on colon cancer.

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Taylor & Francis Online

Title: [Gender and intoxication: from masculinity to intersectionality](#)

Author: Geoffrey Hunt & Tamar Antin

Journal: Drugs: Education, Prevention and Policy

Volume: Published online: 18 Jul 2017

Doi: <http://dx.doi.org/10.1080/09687637.2017.1349733>

Abstract

Alcohol use, misuse, and intoxication have long been associated with men and masculinity. In different cultures and at different times, researchers have consistently found significant gender differences in drinking and intoxication prevalence rates. However, more recently gender differences appear to be diminishing. Nevertheless, while this may be the case, it does not necessarily mean that the meaning of drinking and intoxication for young women and men are the same. With this in mind, the aim of this paper is to explore recent theoretical developments by feminist researchers to examine gender and intoxication. Research on intoxicating substances and gender has developed considerably in the last 20 years, especially in the social sciences. Much of the more recent research has explored how the boundaries of acceptable and unacceptable behavior are critically influenced by societal norms about gender performance. While we are fortunate that feminist research has developed and begun to highlight the contradictory discourses about young women's intoxication, and critique of neo-liberal discourses concerning the position of women, there still remain significant gaps within these research fields if we are to fully understand the role and meaning of intoxication for all young people and not merely for white, middle-class cisgender young people.

Database

Taylor & Francis Online

Title: [Development and testing an online near-infrared spectroscopy brain-computer interface tailored to an individual with severe congenital motor impairments](#)

Author: Larissa C Schudlo & Tom Chau

Journal: Disability and Rehabilitation: Assistive Technology

Volume: Published online: 31 Jul 2017

Doi: <http://dx.doi.org/10.1080/17483107.2017.1357212>

Abstract

Purpose: For non-verbal individuals, brain-computer interfaces (BCIs) are a potential means of communication. Near-infrared spectroscopy (NIRS) is a brain-monitoring modality that has been considered for BCIs. To date, limited NIRS-BCI testing has involved online classification, particularly with individuals with severe motor impairments.

Materials and methods: We tested an online NIRS-BCI developed for a non-verbal individual with severe congenital motor impairments. The binary BCI differentiated categorical verbal fluency task (VFT) performance and rest using prefrontal measurements. The participant attended five sessions, the last two of which were online with classification feedback.

Results: An online classification accuracy of 63.33% was achieved using a linear discriminant classifier trained on a four-dimensional feature set. An offline, cross-validation analysis of all data yielded an optimal adjusted classification accuracy of $66.6 \pm 9.11\%$. Inconsistent functional responses, contradictory effects of feedback, participant fatigue and motion artefacts were identified as challenges to online classification specific to this participant.

Conclusions: Results suggest potential in using an NIRS-BCI controlled by the VFT in instances of severe congenital impairments. Further testing with users with severe disabilities is necessary.

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Taylor & Francis Online

Title: [Online Portals: Gateway to Patient-Centered Radiology](#)
Author: Ron Gefen, et al. | American Journal of Roentgenology |
Journal: American Journal of Roentgenology
Volume: Jul 20, 2017, 1-5 (Ahead of Print)
Doi: 10.2214/AJR.17.18291

Abstract

OBJECTIVE. Online portals typically allow access to radiology reports, causing a shift in the communication. This article evaluates the studies available in the literature about patient portals and the use of patient portals in radiology. Patient and physician preferences and the impact on radiology reporting are presented.

CONCLUSION. Patient portals provide an opportunity for radiologists to engage with their patients via a new method of communication. Radiologist collaboration with referring physicians is important in providing care in accordance with patient preferences.

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Title: [Original Research. Distribution of Citations Received by Scientific Papers Published in the Imaging Literature From 2001 to 2010: Decreasing Inequality and Polarization](#)

Author: Soo Jeong Yoon, Dae Young Yoon, Hyung Jin Lee, Sora Baek, Kyoung Ja Lim, Young Lan Seo, Eun Joo Yun

Journal: American Journal of Roentgenology

Volume: 209 **Issue:** 2 **Page:** 248-254 (Year 2017)

Doi: 10.2214/AJR.16.17769

Abstract

OBJECTIVE. The objective of this study was to assess the distribution of citations received by scientific papers published in the imaging literature between 2001 and 2010.

MATERIALS AND METHODS. We extracted the number of citations of all articles and reviews for 5 years after publication using the Scopus (Elsevier) citation database of imaging journals between 2001 and 2010. We quantitatively analyzed article and review citations from each journal and each year, including the number, proportion, and annual number of citations of the most- (≥ 20 citations) and least-cited (three or fewer citations) papers; ratio of most-cited to least-cited papers; 75/25 percentile citation ratio; 90/10 percentile citation ratio; Gini coefficient; and Kolkata index.

RESULTS. Our analysis of 124,331 articles and 13,575 reviews from 121 journals showed that the proportion of most-cited articles (from 19.6% to 27.1%) and reviews (from 19.1% to 37.2%) increased from 2001 to 2010, whereas the proportion of least-cited articles (from 32.3% to 23.0%) and reviews (from 31.9% to 15.8%) declined over the same period. The annual numbers of citations of most-cited articles and reviews both reached a peak in the fourth year after publication, whereas those of least-cited articles and reviews reached a peak in the second and first years, respectively, after publication and thereafter decreased. The 75/25 percentile ratio for articles declined from 41.1 to 27.5 between 2001 and 2010. Over the same time, the 75/25 percentile ratio for reviews declined from 47.4 to 22.9. The 90/10 percentile ratio for articles declined from 1730.8 to 188.7; for reviews, the 90/10 percentile ratio declined from 5788.0 to 100.7. The Gini coefficient of articles and reviews also declined from 0.6116 to 0.5721 for articles and from 0.6507 to 0.5649 for reviews; the k index, from 0.7260 to 0.7088 for articles from 0.7409 to 0.7072 for reviews.

CONCLUSION. Inequality and polarization of citations consistently decreased in the imaging literature from 2001 to 2010.

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