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No.	Titles / Authors	Full Text
1	<p style="text-align: center;">Enhanced immunogenicity in the mice immunized with lyophilized recombinant adenoviral HIV vaccine prime/MVA boost vaccine regimen</p> <p style="text-align: center;">Yizhe Zhang¹, Wei Kong²</p> <p style="text-align: center;">1. <i>Department of Bioengineering , Zhengzhou University, Zhengzhou, Henan, China;</i> 2. <i>College of life Science, Jilin University, Changchun, Jilin, China.</i> yizhezhang@126.com</p> <p>Abstract</p> <p>Background HIV-1 pandemic posed an unprecedented challenge to the global health and it is believed that an effective vaccine will be the final solution against HIV-1. Objective. To compare the immunogenicity of lyophilized recombinant replication-defective adenovirus 5-based vaccine expressing HIV gagpol gene (rAd5-gagpol vaccine) and of a vaccine combining rAd5-gagpol and lyophilized recombinant modified vaccinia virus Ankara (MVA)-based vaccine expressing HIV gagpol gene (MVA-gagpol). Methods Lyophilized rAd5-gagpol vaccine was priming injected intramuscular followed by MVA boosting into BALB/ c mice , then the Western blot analysis and IFN-Elispot assay were used to detect the immunogenicity of lyophilized vaccine in mice. Results The mice immunized with lyophilized rAd5-gagpol vaccine elicited HIV-1 specific antibody and cell mediated immune response .The lyophilized rAd5 /MVA combination was able to enhance IFN- secretion by Ag-specific CD8⁺ T cells. Conclusion Lyophilized rAd5-gagpol vaccine was found to induce a strong CD8⁺ T cell response after intramuscular immunisation. Boosting of lyophilized rAd5-gagpol vaccine-primed immune response with the lyophilized MVA-gagpol vaccine led to enhanced immunogenicity. [Life Science Journal. 2010; 7(1): 1 – 4] (ISSN: 1097 – 8135).</p> <p>Key words: HIV-1; lyophilized vaccine; immunogenicity; Prime-Boost</p>	Full Text
2	<p style="text-align: center;">Expression changes of DSCAM in induction of MSCs to differentiate into neurons</p> <p style="text-align: center;">Tao Peng, Yanjie Jia , Junfang Teng, Boai Zhang, Guiyuan Fang</p> <p style="text-align: center;"><i>Department of Neurology, First Affiliated Hospital of Zhengzhou University, Zhengzhou, Henan 450052, China</i> jiayanjie1971@yahoo.com.cn</p> <p>Abstract</p> <p>Objective To explore the role of Down syndrome cellular adhesion molecule (DSCAM) in the course of the rat marrow mesenchymal stem cells (MSCs) differentiated to neurons in vitro. Methods MSCs from Sprague-Dawley rats were induced into neurons by baicalin. Immunocytochemistry, Western blot and other methods were performed to detect DSCAM in neurons. At the same time, RNA interfere technique was performed to observe the induction and differentiation after DSCAM-siRNA was transfected into MSCs. Results Before induction, the expression of</p>	Full Text

DSCAM was not detectable in MSCs. After 24h pre-induction, DSCAM was slightly expressed in MSCs(1.71 % \pm 0.67 %).After 6h induction by baicalin ,the expression of DSCAM increased (15.79 % \pm 4.24 %) and reached the peak (53.16 % \pm 5.94 %) after 3d induction. After 6d induction, DSCAM expression obviously decreased (28.99 % \pm 6.72 %). After DSCAM-siRNA was transfected into MSCs, DSCAM expression obviously decreased. However, MSCs did not express neuron-specific α -III-tubulin, expression of α -III-tubulin was (1.40 % \pm 0.79 %)after 6h induction, (41.59% \pm 3.17%) after 3d induction and (59.11 % \pm 4.76 %)after 6d induction. But after DSCAM-siRNA was transfected into MSCs, expression of α -III-tubulin obviously decreased (28.57% \pm 2.91%、 43.90% \pm 12.31%) after 3d and 6d induction. **Conclusions** DSCAM might play an important role in MSCs differentiation into neurons. [Life Science Journal. 2010; 7(1): 5 – 8] (ISSN: 1097 – 8135).

Key Words: Down syndrome cellular adhesion molecule; marrow mesenchymal stem cells; neuron; RNA interfere

Assemblage structure of stream fishes in the Kumaon Himalaya of Uttarakhand State, India

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Abstract

The fish assemblage structure was analyzed in the streams of Kumaon Himalaya of Uttarkhand State, India. Seven sites were sampled by using different fishing gears during Jan, 2007 to December 2008. The physical features like stream habitat, stream classifications, fish assemblage at different sites, habitat preference and riparian vegetations were registered for each site. In the present investigations a total of ten species belonging to three orders and four families were recorded, of which the cyprinids were the most dominant group at all the sites. According to Shannon Weaver diversity index the pool habitat support maximum fish diversity ('H' 0.164-0.292). [Life Science Journal. 2010;7(1):9 – 14] (ISSN: 1097 – 8135).

Keywords: Classification, cyprinids, fish diversity, substrate, preference

[Full Text](#)

A Systematic Synthesis for High-Order Square-Root Domain Filters with Reduced Voltage

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Abstract

A systematic synthesis for high-order square-root domain filter (SRD) based on the quadratic I - V relationship for an MOSFET operated in saturation region is presented in this paper. Emphases are placed on the methodology of filter synthesis, the constructive settings of DC components for input signals, the DC voltages of the state-space variables, and the DC bias current I_0 . The proposed prototypes of square-root domain filters are able to overcome the possible inequality between the input and output node of DC level, in which improve the reliability of high-order filter implementation. Furthermore, by means of adjusting the range of the DC bias current I_0 in the acceptable boundary, the center frequency f_0 or 3 dB frequency f_{3dB} of the proposed prototypical circuits of SRD filters are not only attainable at megahertz frequencies but also tunable electronically. Simulations are performed with the model of a 0.25 μ m CMOS process at 1.5 V supply voltage. The simulated results, which provide that the average errors of frequency response are smaller than 1.0%, demonstrate the validity of the proposed synthetic technique. The synthesized filters have the features of high frequency operation, tuneability, extensibility, and low power consumption. [Life Science Journal. 2010; 7(1): 15-29] (ISSN: 1097 – 8135)

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	<p>Key Words: high-order square-root domain filter; low-voltage level-shift current mirror; current-mode square-root circuit; electronically tunable; high frequency operation; extensibility</p>	
5	<p align="center">Low Voltage Tunable Square-Root Domain Band-Pass Filter with Translinear Loop Technique in Biomedical Engineering</p> <p align="center">Gwo-Jeng Yu¹ and Yu-Shian Lin²</p> <p align="center">¹<i>Department of Computer Science and information Engineering, Cheng Shiu University Niasong, Taiwan 833, RO China.</i> ²<i>Department of Electronic Engineering, Cheng Shiu University, Niasong, Taiwan 833, RO China.</i> gjyu@csu.edu.tw</p> <p>Abstract A low voltage square root domain filter based on the MOSFET square law is proposed in this thesis. Through HSPICE simulation, the extendibility and the reliability of the design procedure are verified. Furthermore, the supply voltage is successfully reduced down to 0.9V by the Flipped Voltage Follower (FVF) low-voltage technique without regarding the performance of the filters. The proposed filter structure has the merits of low-power voltage supply operation, high frequency operation, and the wide range of pole frequency tuning capability. The proposed circuit has been simulation with the TSMC 0.18 μm CMOS technology. The experimental results have demonstrated that the center frequency f₀ of the band-pass filter can be electronically tunable in 774-914kHz with tunable bias-current, 1.78% total harmonic distortion (THD), and the power dissipation is less than 387μW at a 0.9V supply voltage. [Life Science Journal. 2010; 7(1): 30 – 33] (ISSN: 1097 – 8135).</p> <p>Key Words: translinear loop; flipped voltage follower; square-root domain; band-pass filter; current-mode circuit</p>	<p align="right">Full Text</p>
6	<p align="center">The Effects of 17 -estradiol on Neuronal PC12 Cells Injured by OGD-R and NO/iNOS System Mechanism</p> <p align="center">Yu Wang¹, Zheng Tang², Xiufang Chen³, JingZhang⁴, Guanxun Zhang⁵</p> <p align="center"><i>1 Department Of Neurosurgery Of TheFirst People'sHospital Of Zhengzhou, Zhengzhou, Henan 510001, China; 2 Xinxiang Medical University, Xinxiang, Henan, China; 3 Modern MedicalReasearch Institute Of Henans, Zhengzhou, Henan 510001,China; 4 Zhengzhou Children's Hospital, Zhengzhou, Henan, China; 5 Emergency Center of Zhengzhou Xinzheng International Airport Management Co., Ltd., Xinzheng, Henan, China.</i> fang1518@126.com</p> <p>Abstract Estrogen also plays an important role in normal development or differentiation of the brain. It's found recently that estrogen can not only affect reproductive activity through the regulation of serving Gn-RH inferior colliculus neurons, but also affect the other neurons of the brain in electrophysiology, neurological nutrition and metabolism. And, what concern most is the protection to central neuron of it. Through establishing the model of PC12 cells injured by OGD-R, investigating the effect of Estrogen receptor antagonist ICI182780 Intervention on 17 -estradiol of PC12 cells injured by OGD-R and ON/iNOS system. [Life Science Journal. 2010; 7(1): 34 – 40] (ISSN: 1097 – 8135).</p> <p>Key words: ICI182780; estradiol; PC12 cell; neuron; oxygen-glucose deprivation; iNOS</p>	<p align="right">Full Text</p>
7	<p align="center">The agkistrodon acutus venom componets of X in vitro anti-tumor effect and mechanism</p> <p align="center">Zhaoxia Pang; Wenqing Lu; Ruiren Zhai</p> <p align="center"><i>Tongji Medical College, Huazhong University of Science and Technology School of Public Health, Department of Occupational and Environmental Health, Wuhan, Hebei, China; zgy@zzu.edu.cn</i></p> <p>Abstract</p>	<p align="right">Full Text</p>

Objective To observe the agkistrodon acutus venom components of X(FX) on human colonic adenocarcinoma cell HCT-8 inhibition and to explore its mechanism. **Method:** From the cells, protein and gene of the three levels of the agkistrodon acutus venom components of X(FX) of HCT-8 cell inhibition and to explore its anti-tumor. mechanism. Using colony formation assay detection of the agkistrodon acutus venom components of X of HCT-8 cell proliferation effect, using RT-PCR detection of apoptosis-related genes Caspase, survivin, Bax, bcl-2mRNA level changes, using flow cytometry FX After the effects of different time, HCT-8 cells, Caspase-3 protein and Survivin protein expression. **Results:** FX on the HCT-8 cells significantly inhibited the proliferation, FX up-regulated caspase-3, reduced survivin, Bax, bcl-2mRNA gene expression, FX acting on the HCT-8 cells, Caspase-3 protein expression increased and then gradually decreased to below normal, Survivin protein in the role of PF-II expression after 6-48 h sustained reductions in. **Conclusion** The agkistrodon acutus venom components of X can be raised to promote apoptosis-related genes, down-induced apoptosis genes inhibited apoptosis in HCT-8. [Life Science Journal. 2010; 7(1): 41 – 45] (ISSN: 1097 – 8135).

Keywords: apoptosis; gene; the agkistrodon acutus venom; anti-tumor

The changes of corneal biochemical properties after simulated ejection on the ground

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Cheng-Shu Yang⁵, Chi-Ting Horng^{6,7*}

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Abstract

Ejection in high acceleration force may result in several physiologic responses and injuries. However, little is known about the effects of ejection on corneal rigidity and elasticity when pilots ejected from the cabinet after high + Gz acceleration. The aim of this study was to determine the changes of corneal biomechanical properties after simulated ejection. Thirty male pilots were enrolled in the study. The ejection seat training system at the Aviation Physiology Research Laboratory (Taiwan) was used to simulate ejection process at 8 times of gravitational force in head to toe Z-axis direction (+8 Gz force). Ocular Response Analysis (ORA) was applied to detect the dynamic bi-directional changes of cornea in the subjects who underwent simulated ejection. The related parameters were evaluated before ejection such as corneal hysteresis (CH), corneal resistance factor (CRF), and central corneal thickness (CCT). The bare visual acuity and refraction were also recorded. At instant, 15mins and 30mins after ejection, the parameters were detected as well. Two hours after ejection, the anterior chamber and relative position of lens were observed under the slit lamp. All the bare visual acuity and refractive errors remain unchanged during the study. There were no significant change of CH and CRF before and after ejection. However, the CCT increased significantly immediately after (548.5 ± 18.7 vs 590.8 ± 15.4, $p < 0.005$) and 15 min after (548.5 ± 18.7 vs 587.5 ± 16.2, $p < 0.005$) compared with the values before ejection. No hyphema, sub-location, or dislocation of the lens, or any rupture of the anterior lens surface were observed. After safe ejection on the ground, the main corneal biomechanical properties had no significant change. Besides, the refraction and bare visual acuity remained stable. We concluded that the rigidity and elasticity of the cornea, the stability of lens and the anterior segment of ocular structure were not apparently affected by high G-force. Nevertheless, our experiments were performed on the ground. During real high altitude ejection, true environmental factors such as windblast, low temperature, and hypoxia remained challenger to pilots. We need further studies in the future. [Life Science Journal. 2010; 7(1): 46 – 50] (ISSN: 1097 – 8135)

Key Words: Corneal hysteresis, Corneal resistance factor, G-force

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ER gene RsaI polymorphism and children's dental fluorosis

[Full](#)

	<p>Gang Wang¹, Yue Ba^{1*}, Yuejin Yang², Lijun Ren², Jingyuan Zhu¹, Gongju Yin³, Bo Yu³, Xuemin Cheng¹, Liuxin Cui¹</p> <p>¹Department of Environmental Health, School of Public Health, Zhengzhou University, Zhengzhou, Henan 450001, China; ²Center for Disease Prevention and Control, Kaifeng, Henan, China; ³Henan Provincial Center for Disease Prevention and Control, Zhengzhou, Henan 450001, China; bayue1963@hotmail.com</p> <p>Abstract</p> <p>Objective. To explore the distribution of ER RsaI genotype in children who lived in the areas with or without high fluoride in drinking water, and investigate the relationship between ER gene RsaI polymorphisms and children's dental fluorosis. Methods. We conducted a case-control study among children aged 8 to 12 years old with (n=74) or without (n = 163) dental fluorosis in two counties in Henan Province. The RsaI polymorphisms in the ER gene were genotyped using the PCR-RFLP procedure. Results. The frequency distribution of ER RsaI genotype was rr 60.8% (45/74), Rr 27.0% (20/74), RR 12.1 % (9/74) in children with dental fluorosis, rr 73.9% (51/69), Rr 20.2% (14/69), RR 5.8% (4/69) in children without dental fluorosis from high fluoride areas, and rr 63.8% (60/94), Rr 34.0% (32/94), RR 2.1% (2/94) in the children without fluorosis from control areas respectively. There were no significant differences in the three groups ($P>0.05$). Conclusion. There were no correlation between ER RsaI genotype and the dental fluorosis, and the further study is needed. [Life Science Journal. 2010; 7(1): 51 – 55] (ISSN: 1097 – 8135)</p> <p>Keywords: estrogen receptor; dental fluorosis; gene polymorphism; fluoride</p>	Text
10	<p style="text-align: center;">An Integrated Investigation of CAD/CAM for the Development of Custom-made Femoral Stem</p> <p style="text-align: center;">Jeng-Nan Lee¹ and Kuan-Yu Chang^{2*}</p> <p style="text-align: center;">1. Department of Mechanical Engineering, Cheng Shiu University, Kaohsiung County, Taiwan 833, R.O. China. 2. Mackay Memorial Hospital Taitung Branch, Taitung, Taiwan 833, R.O. China. mmhadm@tms.mmh.org.tw</p> <p>Abstract: In this paper, an integrated approach of CAD/CAM was presented for the concurrent development of custom-made femoral stem. The femoral stem is developed on a prescription basis and is unique for each patient. The geometric parameters and the necessary constrains based on surgical experience were integrate into the CAD system. The rapid prototyped model was built as the reference for review. Through the application of CAM software, the interference-free toolpath and the cutter location for multi-axis NC machining are generated. The cutting simulations with solid model are performed to verify the generated toolpath. It is also verified through the trial-cut with model material on a five-axis machine tool. [Life Science Journal. 2010; 7(1): 56 – 61] (ISSN: 1097 – 8135).</p> <p>Keywords custom-made, femoral stem, CAD/CAM, rapid prototyping</p>	Full Text
11	<p style="text-align: center;">Mechanical Stimulation Effect on Proliferation of Murine Osteoblast Cell</p> <p style="text-align: center;">Bo Wun Huang¹, Feng-Sheng Wang², Jih-Yang Ko², Wun-Han Jhong¹, Ke-Tien Yen¹, Jung-Ge Tseng^{*1}</p> <p style="text-align: center;">¹Graduate Institute of Mechatronics Engineering, Cheng Shiu University, Kaohsiung, Taiwan 833, R.O. China ²Chang Gung Medical Foundation, Kaohsiung Branch, Kaohsiung, Taiwan 833, R.O. China james.tseng@csu.edu.tw Received March 1, 2010</p> <p>Abstract: Age-related diseases, such as osteoporosis, arthritis, accidental fracture, etc., are increased dramatically due to rapid progressing modern medical science and technology push the early arrival of aging society of mankind. How to increase osteoid of the healthy cell, restrain the malignant cell, and fast recovery from bone fracture are</p>	Full Text

	<p>becoming major research subjects in the medical community. The growth of bones is proved in medical research to have some relationship with external strength, such as direct current, electromagnetic field, coupled electrical field, ultrasound, etc., and all such researches have their effectiveness in different level. However, few people study the mechanical excitation (vibrating shaker) onto the cell directly in subsonic frequency range. This research studies the culture of mice MC3T3 osteoblast cell in vitro, stimulate the growing cell with mechanical broad range subsonic frequency with or without temperature factor and investigate the effect of different amplitude, repeated number of times, and excitation durations of the stimulation. The cell concentration are then measured by MTT assay by fluorescence spectrometer and RNA assay by electrophoresis diagram and compared with the control (nature growing cell) set. Comparison of different parameters are obtained together with mechanical setup are ready to provide the information about the proliferation of osteoblast for medical community reference. [Life Science Journal. 2010; 7(1): 62 – 67] (ISSN: 1097 – 8135).</p> <p>Keywords: Osteoblast cell; Mechanical Stimulation Broadband Frequency; MTT assay RNA assay</p>	
12	<p style="text-align: center;">Temperature rise of alveolar bone during dental implant drilling using the finite element simulation</p> <p style="text-align: center;">Ching-Chieh Huang¹, Yau-Chia Liu¹, Li-Wen Chen² and Yung-Chuan Chen^{2*}</p> <p style="text-align: center;"><i>1 Medical Device Section, Metal Industries Research & Development Centre, Kaohsiung, Taiwan 91201, R.O. China.</i> <i>2 Department of Vehicle Engineering, National Pingtung University of Science and Technology, Pingtung, Taiwan 91201, R.O. China. chuan@mail.npust.edu.tw; Received , February 2010</i></p> <p>Abstract: In this study, a three-dimensional elastic-plastic dynamic finite element model is used to simulate the alveolar bone temperature rise during dental implant drilling. An experimental setup was designed to verify the feasibility of the proposed dynamic finite element model. The peak bone temperature within the alveolar bone is investigated through both simulations and experiments. The results indicate that the proposed elastic-plastic dynamic finite element model can provide a good prediction of the alveolar bone temperature rise during the implant drilling. The result also indicated that the peak bone temperature occurs at the interface of cortical bone and cancellous bone for a fixed feeding rate. [Life Science Journal. 2010; 7(1): 68 – 72] (ISSN: 1097 – 8135).</p> <p>Keywords: dental implant; drill bit; temperature rise; dynamic finite element model</p>	Full Text
13	<p style="text-align: center;">Rapid Prototyping and Multi-axis NC Machining for The Femoral Component of Knee Prosthesis</p> <p style="text-align: center;">Jeng-Nan Lee^{1*}, Hung-Shyong Chen¹, Chih-Wen Luo¹ and Kuan-Yu Chang²</p> <p style="text-align: center;"><i>1 Department of Mechanical Engineering, Cheng Shiu University, Kaohsiung County, Taiwan 833, R.O. China.</i> <i>2 Mackay Memorial Hospital Taitung Branch, Taitung, Taiwan 833, R.O. China.</i> jengnan@csu.edu.tw</p> <p>Abstract: In this paper, a design system combining clinical experience and engineering knowledge was developed for the manufacture for femoral component of knee prosthesis. The femoral component is developed on a prescription basis and is unique for each patient. The medical image of the femoral component obtained according to the patient CT. The necessary constrains based on surgical experience were integrate into the CAD system. The rapid prototyped model was built as the reference for review. In the process planning, the fixture is designed and the cutting sequence for rough and finish machining is arranged. Through the application of CAM software, the interference-free toolpath and the cutter location file for multi-axis NC machining are generated. The cutting simulations with solid model are performed to verify the generated toolpath and NC program. The result of this work can be of crucial benefit in research and development. [Life Science Journal. 2010; 7(1): 79 – 83] (ISSN: 1097 – 8135).</p> <p>Keywords knee prosthesis, femoral component, CAD/CAM, rapid prototyping, multi-axis machining</p>	Full Text
14	<p>Effects of Vibration Training Combined with Plyometric Training on Muscular Performance and Electromyography</p>	Full Text

	<p style="text-align: center;">Yen Ke Tien¹, Tsai Chun Bin¹ and Chang Kuan Yu² ¹ Cheng Shiu University, Kaohsiung, Taiwan 833, R.O. China; ²Mackay Memorial Hospital Taitung Branch, Taitung, Taiwan 833, R.O. China. ktyen@csu.edu.tw</p> <p>Abstract: backgrounds: Complex training has been recommended as a method of incorporating plyometrics with strength training. However, there are some safety issues during heavy strength training. Purpose: To investigate whether the vibration stimulation can instead strength training as pre-loading method when perform Complex training. Methods: there were two experiments. Division I: 12 Subjects are accepted by three kinds of different vibration frequency (20, 30, 40Hz) respectively by two kinds of different amplitude (2-4, 4-6mm). The isokinetic (peak torque) and electric physiological activation (integral EMG, iEMG) are measured for deciding which frequency and amplitude were most suitable in vibration training. Division II: 24 male collegiate athletes were randomly assign to three groups: complex training group (CT, vibration+ plyometrics); plyometrics training group (TP, plyometrics only); control group (C). After eight weeks training, we compared isokinetic strength, power performance and synchronized electromyography activity before and after the period of training separately. Results: There were significantly enhancement of the peak torque, and power both in CT and TP. However, iEMG was significantly difference between two experimental groups. Conclusion: With 20Hz (frequency) and 4-6mm (amplitude) vibration stimulation are most suitable in vibration training; the vibration stimulation can instead strength training as pre-loading method when perform Complex training; Plyometrics training (depth jump on sandlot) can significantly improve leg muscular performance. [Life Science Journal. 2010; 7(1): 78 – 82] (ISSN: 1097 – 8135).</p> <p>Keywords: post-activation potentiation, complex training, vibration training, plyometric training, depth jump, muscular performance, Electromyography.</p>	
15	<p style="text-align: center;">Intelligence and academic achievement: an investigation of gender differences</p> <p style="text-align: center;">Habibollah. Naderi¹, Rohani. Abdullah², H. Tengku Aizan³, Jamaluddin. Sharir⁴</p> <p style="text-align: center;">1. Department of Educational Studies, University of Mazandaran, Street of Pasdaran, Babolsar, Iran 2. Department of Human Development & Family Studies, University Putra Malaysia, Serdang43400, Malaysia 3. Institute of Gerontology, University Putra Malaysia, Serdang, 43300, Malaysia 4. Department of Educational Psychology and Counseling, University of Malaya, 50603 Kuala Lumpur, Malaysia naderihabibollah@yahoo.com</p> <p>Abstract</p> <p>The objective of this research is to examine if a relationship exists between intelligence and academic achievement and if the relationship differs between males and females. Two research questions are examined in this paper: (1) what is the relationship between different aspects of intelligence and academic achievement? (2) Is there any significant gender differences regarding the relationship between different aspects of creativity and academic achievement? Participants (N=153; male=105 and female=48) completed creativity test. Cumulative grade point average (CGPA) was used to select the participants. Intelligence was measured using the Catell Culture fair Intelligence Test (CFIT-3a & b). Pearson Correlation analysis indicated that aspects of intelligence were not related to academic achievement for both males and females. However, implications of the findings for this study in intelligence and academic achievement are discussed. [Life Science Journal. 2010;7(1): 83 – 87] (ISSN: 1097 – 8135).</p> <p>Keywords: Intelligence, Academic Achievement, Gender</p>	Full Text
16	<p style="text-align: center;">A Secure DoS-resistant User Authenticated Key Agreement Scheme with Perfect Secreties</p> <p style="text-align: center;">Jeng-Ping Lin¹, Jih-Ming Fu²</p> <p style="text-align: center;">¹Department of Information Network Technology Chihlee Institute of Technology, Niao-song, Taiwan 833, R.O. China.</p>	Full Text

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Abstract

The goal of a denial-of-service (DoS) attack is to deplete the resource of a targeted server in order that its intended clients cannot obtain the services. Recently, Hwang *et al.* proposed an ID-based password authentication scheme using smart cards against the DoS attack. In their scheme, the major merits include: (1) mutual authentication; (2) the password guessing attack; (3) the replay attack; (4) the impersonation attack; (5) session key establishment; and (6) the server resources exhaustion attack. However, two basic and the most important security properties of a session key establishment are not satisfied in their scheme. One is the perfect forward secrecy. If the long-term secret key is compromised, the previous session key should not be derived. The other is the perfect backward secrecy. If a used session key is compromised, subsequent communications should not be damaged. The intentions of this paper are to show that the above weaknesses exist in Hwang *et al.*'s scheme and to propose a security-enhanced user authentication scheme. The proposed scheme not only can achieve the above admired security requirements, but also can solve the smart card loss problem which is a troublesome security threat in our life and cannot be solved in most authentication and key agreement schemes. [Life Science Journal. 2010;7(1): 88 – 94] (ISSN: 1097 – 8135).

Keywords : Authentication; Client puzzles; Perfect forward secrecy; Perfect backward secrecy

Morphological and Biochemical Response of *Cicer arietinum* L. var. pusa-256 towards an Excess of Zinc Concentration

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Abstract:

The toxic effect of zinc (Zn) at increasing concentration was studied with special attention being given to the morphogenic and biochemical response of *Pisum sativum* L. *Cicer arietinum* plants were grown in different concentration of ZnSO₄ (0, 10, 25, 50, 75 and 100 µM) for 15 days. In respective to their controls, low concentration (10 and 25 µM) of Zn greatly stimulated the seed germination, while it was inhibited by highest concentration of Zn (100µM). Radical, hypocotyls length and root length (TI) and plant height (TI) were also increased up to 25 µM of Zn addition and after that a significant reduction were noticed at 75 and 100µM. The effects of toxicity of Zn on chlorophyll content and antioxidant enzymes activity include CAT, APX and GPX were investigated. The data showed that the low concentration of Zn (25µM) addition induced in chlorophyll content and high levels of Zn reduced the chlorophyll synthesis in the leaves of this plant. Maximum and minimum chlorophyll content were observed at 25 and 100 µM of Zn addition respectively. Activities of antioxidant enzymes were indicated close relationship with increase in Zn concentration and shoots showed higher activity of antioxidant enzymes than roots. The activity of APX in shoot and root were higher than CAT and GPX. [Life Science Journal. 2010;7(1): 95 – 98] (ISSN: 1097 – 8135).

Key words: Seed Germination; Hypocotyls Length; *Cicer arietinum* Plant; Antioxidant enzymes.

[Full Text](#)

An Efficient and Flexible Matching Strategy for Content-based Image Retrieval

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Abstract

With the rapid growth of multimedia applications and digital archives, content-based image retrieval (CBIR) has emerged as an important area and received lots of attentions for the past decades. In practice, there are two major problems raised by a CBIR system: the feature descriptions of images and the expressions of users' search preferences. To tackle these problems, we present a DCT-based feature descriptor coupled with an efficient way of expression for users' preferences in this paper. Our approach partitions images into a number of regions with fixed absolute locations. Each region is represented by its low-frequency DCT coefficients in the YUV color space. Two policies are provided in the matching procedure: local match and global match. In the local match, the user formulates a query by selecting the interested region in the image. Candidate images are then analyzed, by inspecting each region in turn, to find the best matching region with the query region. For those query images without clear objects, the user can select the option "global match" instead. The experimental system shows that this approach is generally effective and particularly suited for images with interested regions having features which significantly differ from the global image features. With the help of friendly GUI, our system also allows users of any experience level to effortlessly get interested images from database. [Life Science Journal. 2010; 7(1): 99 – 106] (ISSN: 1097 – 8135).

Keywords: Content-based image retrieval; region of interest; region-based image retrieval; discrete cosine transform.

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