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Achike FI. Review of the critical role of a clinical skills unit in a PBL curriculum. J Med Educ (Taiwan) 2007; 11(1): 1-12

## **Review of the critical role of a clinical skills unit in a PBL curriculum**

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### **Abstract**

Problem-based learning has grown to perhaps the most popular medical education paradigm of the day. With its emphasis on integration, community orientation and self-directed life-long learning, it is distinct from the traditional medical curriculum. The learning of clinical skills from the early days of the PBL curriculum is essential to PBL goals and so is the establishment of administrative units (clinical skills unit – CSU) for this purpose. Data from recent conferences particularly in the Asia-Pacific region, however, reveal that the importance of the CSU has not been commensurately highlighted. This paper, therefore, defines clinical skills, establishes its essence in a PBL curriculum, and compares the traditional opportunistic approach with the innovative structured approach to the teaching of clinical skills. The three major administrative structures for teaching skills are highlighted, and from the students' perspective, the need for standardization is emphasised. The threats to modern teaching of skills posed by traditional attitudes and practices, and the need, therefore, for formal teacher-training and professionalism in clinical skills teaching are discussed. The modern approach to skills assessment by way of the objective structured clinical examination (OSCE) is discussed with reference to the traditional method. We express the view that the teaching of skills in the undergraduate medical curriculum of the future will be more the responsibility of the generalist (with holistic attitude) than of the specialist (with narrow organ-based focus) doctor who may be more suited to postgraduate training.

**Key words:** clinical skills unit, intergrated curriculum, PBL

Ajay M, Achike FI, Mustafa MR. Modulation of vascular reactivity in normal, hypertensive and diabetic rat aortae by a non-antioxidant flavonoid. *Pharmacol Res* 2007; 55: 385-391

## **Modulation of vascular reactivity in normal, hypertensive and diabetic rat aortae by a non-antioxidant flavonoid**

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### **Abstract**

In this study, we report the effects of a non-antioxidant flavonoid flavone on vascular reactivity in Wistar–Kyoto (WKY) rat isolated aortae. Whether flavone directly modulates vascular reactivity in spontaneously hypertensive rat (SHR) and streptozotocin-induced diabetic-WKY rat isolated aortae was also determined. Thoracic aortic rings were mounted in organ chambers and exposed to various drug treatments in the presence of flavone (10  $\mu$ M) or its vehicle (DMSO), which served as control. Pretreatment with flavone enhanced relaxant effects to endothelium-dependent vasodilator acetylcholine (ACh) and attenuated contractile effects to  $1\alpha_1$ -receptor agonist phenylephrine (PE) in WKY aortae compared to those observed in control aortic rings. Flavone had no effect on relaxations to ACh in WKY aortae incubated with either  $L$ -NAME or methylene blue, but enhanced relaxations to ACh in WKY aortae incubated with indomethacin or partially depolarized with KCl. Relaxations to ACh are totally abolished in both control or flavone pretreated endothelium-denuded WKY aortae. Flavone attenuated the inhibition by  $\beta$ -NADH of ACh-induced relaxation in WKY aortae, but it had no significant effect on the transient contractions induced by  $\beta$ -NADH nor the pyrogallol-induced abolishment of ACh-induced relaxation in WKY aortae. Flavone enhanced endothelium-independent relaxation to sodium nitroprusside (SNP) in both endothelium-intact and -denuded WKY aortae. Flavone enhanced relaxation to ACh and SNP as well as attenuated contractile effects to PE in SHR and diabetic aortae, a finding similar to that observed in normal WKY aortae. From these results, we conclude that flavone modulates vascular reactivity in normal as well as hypertensive and diabetic aortae. These effects of flavone results probably through enhanced bioactivity of nitric oxide released from the endothelium.

**Key words:** Aortae; Diabetes; Endothelium; Flavone; Flavonoids; Hypertension; Nitric oxide

Ajay M, Achike FI, Mustafa AM, Mustafa MR. Baicalein impairs vascular tone in normal rat aortas: role of superoxide anions. *Eur J Pharmacol* 2007; 565: 144-150

## **Baicalein impairs vascular tone in normal rat aortas: role of superoxide anions**

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### **Abstract**

Acute exposure to the flavonoid baicalein inhibited endothelium-dependent relaxation in physiological arteries, although the mechanisms are not fully understood. We investigated the effect of baicalein on vascular tone in Wistar–Kyoto (WKY) rat isolated aortic rings in the presence and absence of oxidative stress to further determine the underlying mechanisms. Exposure to baicalein (10  $\mu$ M) completely abolished endothelium-dependent relaxation induced by acetylcholine and attenuated significantly the endothelium-independent relaxation induced by sodium nitroprusside. Baicalein, similar to N $\omega$ -nitro-L-arginine methyl ester (L-NAME, 10  $\mu$ M), potentiated significantly the contractile response of aortic rings to  $\alpha_1$ -adrenoceptor agonist phenylephrine. In the presence of L-NAME the baicalein effect on phenylephrine contraction or acetylcholine relaxation was unaltered, suggesting that these effects of baicalein are (like L-NAME effect) endothelial nitric oxide synthase (eNOS)/ endothelium-derived nitric oxide-dependent. Inhibition of cyclooxygenase activity with indomethacin (10  $\mu$ M) or scavenging of superoxide anions with superoxide dismutase (150 units/ml), but not scavenging of hydrogen peroxide with catalase (800 units/ml), enhanced significantly by an essentially similar extent the relaxation to acetylcholine in baicalein-pretreated aortic rings. Relaxant effect to acetylcholine was significantly attenuated in control aortic rings, but was completely abolished in baicalein-pretreated aortic rings in the presence of reduced form of  $\beta$ -nicotinamide adenine di-nucleotide ( $\beta$ -NADH, 300  $\mu$ M). Baicalein blocked  $\beta$ -NADH (300  $\mu$ M)-induced transient contractions, suggesting that baicalein may have inhibited activity of NADH/NADPH-oxidase. Baicalein did not alter the failure of acetylcholine to induce relaxation in the presence of pyrogallol (300  $\mu$ M). In summary, acute exposure to baicalein impairs eNOS/endothelium-derived nitric oxide-mediated vascular tone in rat aortas through the inhibition of endothelium-derived nitric oxide bioavailability coupled to reduced bioactivity of endothelium-derived nitric oxide and to cyclooxygenase-mediated release of superoxide anions.

**Key words:** Baicalein; Endothelium-derived nitric oxide; Superoxide anions; Vascular tone; Oxidative stress



Ajay M, Achike FI, Mohd MA, Mustafa MR. Quercetin, a flavonoid antioxidant, modulates endothelium-derived nitric oxide bioavailability in diabetic rat aortas. *Nitric Oxide* 2007; 16: 442-447

## **Quercetin, a flavonoid antioxidant, modulates endothelium-derived nitric oxide bioavailability in diabetic rat aortas**

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### **Abstract**

The present work examined the effect of chronic oral administration of quercetin, a flavonoid antioxidant, on blood glucose, vascular function and oxidative stress in STZ-induced diabetic rats. Male Wistar-Kyoto (WKY) rats were randomized into euglycemic, untreated diabetic, vehicle (1% w/v methylcellulose)-treated diabetic, which served as control, or quercetin (10 mg kg<sup>-1</sup> body weight)-treated diabetic groups and treated orally for 6 weeks. Quercetin treatment reduced blood glucose level in diabetic rats. Impaired relaxations to endothelium-dependent vasodilator acetylcholine (ACh) and enhanced vasoconstriction responses to  $\alpha_1$ -adrenoceptor agonist phenylephrine (PE) in diabetic rat aortic rings were restored to euglycemic levels by quercetin treatment. Pretreatment with *N*<sup>w</sup>-nitro-L-arginine methyl ester (L-NAME, 10  $\mu$ M) or methylene blue (10  $\mu$ M) completely blocked but indomethacin (10  $\mu$ M) did not affect relaxations to ACh in aortic rings from vehicle- or quercetin-treated diabetic rats. PE-induced vasoconstriction with an essentially similar magnitude in vehicle- or quercetin-treated diabetic rat aortic rings pretreated with L-NAME (10  $\mu$ M) plus indomethacin (10  $\mu$ M). Quercetin treatment reduced plasma malonaldehyde (MDA) plus 4-hydroxyalkenals (4-HNE) content as well as increased superoxide dismutase activity and total antioxidant capacity in diabetic rats. From the present study, it can be concluded that quercetin administration to diabetic rats restores vascular function, probably through enhancement in the bioavailability of endothelium-derived nitric oxide coupled to reduced blood glucose level and oxidative stress.

**Key words:** Diabetes; Endothelial function; Flavonoids; Nitric oxide; Oxidative stress; Quercetin

Ameenudeen SAKM, Boo NY, Chan LG. Risk factors associated with chronic lung disease in Malaysian very low birth weight infants. *Med J Malaysia* 2007; 62(1): 40-45

## **Risk factors associated with chronic lung disease in Malaysian very low birth weight infants**

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### **Abstract**

To determine the significant risk factors associated with development of chronic lung disease (CLD) in Malaysian very low birthweight (VLBW, <1501g) infants. A prospective observational study was carried out at the Sarawak General Hospital (SGH) in Kuching, over a period of 29 months from 1 April 2003 to 31 August 2005. Infants with birthweight between 600g to 1500g admitted to this hospital were recruited. The progress of these infants was followed till discharge. CLD was defined as the persistent need for oxygen therapy to maintain oxygen saturation above 88% at 36 weeks of postmenstrual age. Of the 224 infants recruited, 36 (14.8%) had CLD. Logistic regression analysis showed that lower birth weight (adjusted odds ratio (OR) =0.996, 95% confidence intervals (CI) =0.994, 0.998; p=0.001), male infants (adjusted OR=3.9, 95% CI =1.6, 11.7; p=0.02), chorioamnionitis (adjusted OR=9.0, 95% CI = 1.6, 50.8; p=0.01), severe respiratory distress syndrome of grades 3 or 4 (adjusted OR=4.6, 95% CI =1.6, 13.2; P=0.005) and patent ductus arteriosus (adjusted OR= 4.3, 95% CI =1.5, 12.8; p=0.007) were significant risk factors associated with development of CLD. A number of treatable conditions are associated with development of CLD in Malaysian VLBW infants.

**Key words:** Chronic lung diseases, Malaysian, Very low birthweight infants, Bronchopulmonary dysplasia

Anupama BK , Nagaraja HS, Jeganathan PS. Alcohol drinking behaviour in rats exposed to crowding stress. Thai J Physiol Sci 2007; 20(1): 8-12

## **Alcohol drinking behaviour in rats exposed to crowding stress**

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### **Abstract**

One of the environmental factors influencing the animals to drink alcohol is stress or arousal and housing. There is considerable evidence showing that housing and social factors influence alcohol intake in rats. The aim of this study was to find out the effects of crowding stress on voluntary alcohol intake in rats and also to observe whether there is any gender difference in free choice alcohol intake. Wistar strain albino rats of either sex were exposed to one week crowding stress and the effect of crowding on voluntary alcohol consumption, alcohol preference (%) and total alcohol intake (g/kg body weight) were studied. There was an increase in the alcohol preference and alcohol intake after one day stress compared to seven days stress in male rats. Male rats showed an adaptation to alcohol intake over one week period. A significantly higher alcohol intake was observed in female rats than the male rats after 7 days stress and there was no adaptation. Thus, there is an increase in voluntary alcohol drinking behavior after chronic crowding stress in female rats compared to male rats.

**Key words:** Alcohol, crowding, stress, alcohol preference, rats

Baber ZD, Bukhari NI, Sarwar W, Efendie B, Elizabeth R. A preliminary study on the effect of pharmacist counselling on the awareness of and willingness to quit smoking in Malaysia Population. *Pharmacy World and Science* 2007; 29(3). 101-103

## **A preliminary study on the effect of pharmacist counseling on awareness of and willingness to quit smoking in Malaysian population**

Zaheer-Ud-din Babar, Nadeem Irfan Bukhari, Wasim Sarwar, Benny Efendie, Rosa Pereira and Mohamad Haniki Nik Mohamed

### **Abstract**

#### **Objectives:**

This paper presents an outcome of pharmacist counseling among Malaysian smokers for their awareness of and willingness to quit smoking.

#### **Method:**

It was a cross-sectional study during a 3-day public health campaign at a shopping complex. Each self-referred participant was asked to complete a questionnaire apart from the question regarding improvement, and if any in their awareness and willingness to quit smoking, were asked to respond after counseling. Pharmacists counseled each participant about smoking cessation strategies and smoking related diseases. The data were analyzed by  $\chi^2$  test.

#### **Results:**

Among respondents, 25.5% had been smoking for more than 10 years, 31% for 5–10 years, 25.4% for 2–5 years and 18.3% for 1–2 years. The participants declaring no awareness about smoking were 22.9%, with little awareness 44.3%, having moderate awareness 25.7% and with considerable awareness were 7.1%. After counseling, 4.1% revealed unawareness, 17.8% little awareness, 43.8% moderate and 34.2% had considerable awareness on the above aspects. The post counseling awareness on smoking was observed to be significantly higher ( $P < 0.01$ ). Among smokers studied, 67% showed willingness to quit smoking.

#### **Conclusion:**

Increase in awareness of and willingness to quit smoking reflects that pharmacist counseling seems to be helpful in cessation of smoking.

**Key words;** Awareness - Malaysia - Pharmacist counseling - Smoking cessation - Willingness

Babar ZUD, Ibrahim MIM, Singh H, Bukahri NI, Creese A. Evaluating drug prices, availability, affordability, and price components: implications for access to drugs in Malaysia. *PLoS Med* 4(3): e82

## Evaluating drug prices, availability, affordability, and price components: implications for access to drugs in Malaysia

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### Abstract

#### Background:

Malaysia's stable health care system is facing challenges with increasing medicine costs. To investigate these issues a survey was carried out to evaluate medicine prices, availability, affordability, and the structure of price components.

#### Methods and Findings:

The methodology developed by the World Health Organization (WHO) and Health Action International (HAi) was used. Price and availability data for 48 medicines was collected from 20 public sector facilities, 32 private sector retail pharmacies and 20 dispensing doctors in four geographical regions of West Malaysia. Medicine prices were compared with international reference prices (IRPs) to obtain a median price ratio. The daily wage of the lowest paid unskilled government worker was used to gauge the affordability of medicines. Price component data were collected throughout the supply chain, and markups, taxes, and other distribution costs were identified. In private pharmacies, innovator brand (IB) prices were 16 times higher than the IRPs, while generics were 6.6 times higher. In dispensing doctor clinics, the figures were 15 times higher for innovator brands and 7.5 for generics. Dispensing doctors applied high markups of 50%–76% for IBs, and up to 316% for generics. Retail pharmacy markups were also high—25%–38% and 100%–140% for IBs and generics, respectively. In the public sector, where medicines are free, availability was low even for medicines on the National Essential Drugs List. For a month's treatment for peptic ulcer disease and hypertension people have to pay about a week's wages in the private sector.

#### Conclusions:

The free market by definition does not control medicine prices, necessitating price monitoring and control mechanisms. Markups for generic products are greater than for IBs. Reducing the base price without controlling markups may increase profits for retailers and dispensing doctors without reducing the price paid by end users. To increase access and affordability, promotion of generic medicines and improved availability of medicines in the public sector are required.

Bhagyalakshmi S, Nagaraja HS, Anupama B, Ramesh Bhat, Prabha Adhikari, Niranjana M, Sridhara A. Effect of supervised integrated exercise on heart rate variability in type 2 diabetes mellitus. *Kardiologia Polska* 2007; 65(4): 363-368

## Effect of supervised integrated exercise on heart rate variability in type 2 diabetes mellitus

Bhagyalakshmi S<sup>1</sup>, Nagaraja HS<sup>2</sup>, Anupama B<sup>3</sup>, Ramesh Bhat<sup>1</sup>, Prabha Adhikari<sup>4</sup>, Niranjana M<sup>1</sup>, Sridhara A<sup>5</sup>

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### Abstract

#### Background:

Heart rate variability (HRV) reflects autonomic nervous system modulation of cardiac activity. There is a relationship between degrees of physical activity, HRV changes and the risk of cardiovascular disease.

#### Aim:

To study the effect of a supervised integrated exercise programme on HRV in type 2 diabetes mellitus (DM).

#### Methods:

The study group consisted of 48 patients (27 males, mean age 62±7 years) with type 2 diabetes, of whom 28 underwent a special exercise programme whereas the remaining 20 did not and served as the control group. The supervised integrated exercise programme was applied for a period of 9 months. Deep breathing time domain HRV (difference between the shortest and the longest R-R interval over one minute) was measured at baseline and after 3, 6 and 9 months.

#### Results:

A significant improvement in the HRV values was observed with increasing duration of exercise (13.03±1.08 beats/min at baseline versus 16.5±1.11 beats/min at 9 months,  $p < 0.001$ ) whereas HRV decreased in the control group (14.85±1.15 beats/min at baseline vs. 14.30±1.75 at 9 months,  $p < 0.05$ ). Favourable changes in HRV in the exercise group were gender-dependent and were significant in males (12.4±1.76 beats/min at baseline vs. 16.18±1.91 at 9 months,  $p < 0.001$ ) whereas in females only a trend towards HRV improvement was observed. The HRV changes were also age-dependent and were more pronounced in younger patients than in the elderly. The metabolic parameters of diabetes control (blood glucose and glycosylated haemoglobin levels) significantly improved in the exercise group and significantly worsened in the control group.

#### Conclusions:

Regular supervised integrated exercise significantly improves HRV in patients with type 2 DM, which may favourably influence their long-term prognosis.

**Key words:** diabetes, heart rate variability, exercise

Chan KK, Nadarajah VD, Tay JL. Development of a purification method of pure primary lymphocytes for cell viability assays. *Malaysian J Med Sci* 2007; 14(1): 38-45

## **Development of a purification method of pure primary lymphocytes for cell viability assays**

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### **Abstract**

The maintenance of pure primary lymphocytes culture for long periods may be difficult because of its inability to divide continuously. In addition, lymphocytes separation methods such as Ficoll-Paque, RBC lysis and immunomagnetic microbeads separation may have some affect on cell viability. The objective of this study is to determine various types of lymphocytes purification methods, in order to prolong primary lymphocytes culture to 72 hours. The second objective is to use these primary lymphocytes as targets for quantitative and qualitative cell viability assays when analysing the action of toxins isolated from natural products. Human blood was drawn and purified by using Ficoll-Paque, RBC lysis or immunomagnetic separation column method in various combinations. The purified lymphocytes were also grown with and without the growth enhancement factor, concanavalin-A. Cell viability assays were carried out for 72 hours at 24 hours interval. The lymphocytes purified using RBC lysis method, with or without concanavalin-A can prolong 100% cell viability for 72 hours whilst lymphocytes purified using Ficoll-Paque and supplemented with concanavalin-A showed an increase in cell viability of over 250% at 72 hours incubation. It was observed only lymphocytes purified using Ficoll-Paque followed by the immunomagnetic microbeads separation method and supplemented with concanavalin-A showed overall cell viability increase, reaching 300% at 72 hours incubation. This method was a reliable model to test the cytotoxicity of the *Bacillus thuringiensis* parasporal inclusion, suggesting that the method achieves the objectives of the study.

**Key words:** lymphocytes, purification, cell viability

Chiew Eng Wooi, Susan Lim Lee Hong, Ambu S. Cercarial dermatitis in Kelantan, Malaysia an occupation related health problem. *IeJSME* 2007; 1(2): 69-73

## **Cercarial dermatitis in Kelantan, Malaysia an occupation related health problem**

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### **Abstract**

#### **Introduction:**

Kelantan, an east coast state of Peninsular Malaysia is rich in culture and supports a population that is dependent on agriculture. The crops cultivated are mainly paddy and rubber but in recent years tobacco is beginning to gain importance over paddy. We centered our study around Bachok District which is about 25 kilometers east of Kota Bharu, the state capital.

#### **Methods:**

Based on case reports we focused our study on cercarial dermatitis and also recorded the socioeconomic status of the people in the four study villages.

#### **Result:**

The ducks and cows were the common livestock kept by the farmers and these were found to be significantly associated ( $P=0.05$ ) with the occurrence of dermatitis. Cercariae shedding by snails were found in waters used for irrigation.

#### **Conclusion:**

The results indicate that cercarial dermatitis is occupation specific, and its debilitating effect was having an influence on the socioeconomic status and general wellbeing of the population in these villages. The dermatitis occurred only during the field preparation and transplanting stages of paddy and was found to be significantly associated ( $P<0.05$ ) with the source of water used for irrigation. The water sources for irrigation was mainly from the river and irrigation canal and the snail *Indoplanorbis exustus* infected with schistosome cercariae was found to be abundant in both these sources during these stages. The ducks and cows were the common livestock kept by the farmers and these were also found to be significantly associated ( $P=0.05$ ) with the occurrence of dermatitis. Therefore we concluded that the dermatitis among paddy farmers in Bachok District was due to an animal schistosome.

**Key words:** Environment, Occupational health, Disease vectors, Zoonoses



Chin LC, Achike FI, Mustafa MR. Hydrogen peroxide modulates angiotensin II-induced contraction of mesenteric arteries from streptozotocin-induced diabetic rats. *Vasc Pharmacol* 2007; 46: 223-228

## Hydrogen peroxide modulates angiotensin II-induced contraction of mesenteric arteries from streptozotocin-induced diabetic rats

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### Abstract

Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) contributes in the regulation of vascular tone, especially in pathological states. The role of H<sub>2</sub>O<sub>2</sub> and superoxide anion free radicals in angiotensin II (Ang II)-induced contraction of diabetic tissues was examined with the aim of elucidating the underlying mechanisms. Isometric tension in response to various drug treatments was measured in isolated superior mesenteric arteries of streptozotocin (STZ)-induced diabetic WKY rats using the Mulvany wire myograph. Compared to the normal (euglycaemic) arteries, the Ang II-induced contraction was significantly reduced in diabetic arteries. Superoxide dismutase (SOD; converts superoxide to H<sub>2</sub>O<sub>2</sub>) significantly reduced the contraction in both types of arteries—an effect abolished by catalase (H<sub>2</sub>O<sub>2</sub> scavenger), suggesting that the SOD effect was mediated by H<sub>2</sub>O<sub>2</sub>. Treatment with catalase had no effect on the Ang II contraction in euglycaemic arteries, but it raised the contraction in diabetic arteries to euglycaemic levels. This increase was similar to that observed with diabetic arteries incubated with L-NAME. Combined catalase and L-NAME treatment further enhanced the contraction in diabetic arteries, suggesting that the catalase effect was not mediated by nitric oxide (NO). The catalase effect was abolished by indomethacin treatment. These results suggest that attenuation of Ang II-induced contraction in diabetic tissues is modulated by endogenous H<sub>2</sub>O<sub>2</sub>, the scavenging of which unmasks an indomethacin-sensitive (and therefore cyclooxygenase product-mediated) Ang II-induced contraction.

**Key words:** Angiotensin II; Diabetes; Endothelium; Hydrogen peroxide; Mesenteric arteries; Nitric oxide; Prostaglandins

## Post hysterectomy infection

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### Abstract

Post-hysterectomy convalescence complicated by infectious morbidity burdens the cost of surgery, increase patient risk and prolongs hospital stay.<sup>1</sup> Many surgeons have let down their guard in their preventive and preoperative measures to stem such complications. This is mainly due to the reassuring presence of antibiotics, but even this strategy is facing mounting resistance in the wake of their widespread abuse.

The incidence of post-hysterectomy infection in the open abdominal and vaginal routes is 10.5% and 13%, respectively.<sup>2</sup> It is influenced largely by the operating surgeon's level of expertise, whether prophylactic antibiotics were used, and the definition used to report post-operative infection.<sup>3,4</sup> Infectious morbidity required the recognition of the offending infective organism or disease process, whereas febrile morbidity only requires the presence of fever post-operatively ( $\geq 38^{\circ}\text{C}$  on two occasions, 6 hours apart).

The timing of onset of fever often points to the aetiology. Fever occurring in the first 24 hours is often non-infective in origin.<sup>5</sup> This could be due to the normal body response to the stress of surgery, pyrogenic reaction to tissue trauma, hypersensitivity to preoperative antibiotics and intraoperative anaesthetic agents, or presence of haematoma and pulmonary atelectasis. Infective causes in the first 24 hours are often pre-existing infection at the operative sites, severe contamination during surgery, or group A beta haemolytic streptococcal infection.

Strategies to reduce the incidences of infectious morbidity include identifying modifiable risk factors in patients preoperatively, continuous education of ancillary healthcare personnel involved in the care of these patients, and adherence to sound surgical techniques.<sup>6</sup> Appropriate clinical evaluation, initiation of investigation and treatment once such morbidities have occurred are vital.<sup>7</sup>

Chinniah K, Nalliah S. Emergency contraception pill-controversies and use. Med J Malaysia 2007; 62(1): 90-92

## **Emergency contraception pill-controversies and use**

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### **Abstract**

Emergency contraceptive pills (ECP) are effective, safe and cheap, with profound global health and economic benefits. Patient education and easy access to ECP will contribute immensely to avoiding unwanted pregnancies and unsafe abortions. Issues related to morality, its perceived status as an abortifacient and harmful behaviour should it be easily available, has limited the widespread use of ECP in many countries.

**Key words:** Emergency contraception, Abortifacient, Unwanted pregnancy, Unsafe abortion

Chinniah K, Sharifah TS, Mutum SS. Arteriovenous malformation of pregnant uterus. Med J Malaysia 2007; 62(2): 179-180

## **Arteriovenous malformation of pregnant uterus**

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<sup>3</sup>Department of Pathology, School of Medical Sciences, Health Campus, Hospital University Sains Malaysia, 16150 Kubang Kerian, Kelantan

### **Abstract**

Arteriovenous malformation of the pregnant uterus is very rare, and may present with unexplained torrential bleeding. We report a patient with absence of the conventional risk factors, and was saved by quick recourse to hysterectomy to control the bleeding.

**Key words:** Arteriovenous malformation, pregnant uterus

Choong PF, Mok PL, Cheong SK, Leong CF, Then KY. Generating neuron-like cells from BM-derived mesenchymal stromal cells in vitro. *Cytotherapy* 2007; 9(2):170-183

## **Generating neuron-like cells from BM-derived mesenchymal stromal cells in vitro**

Choong PF<sup>1</sup>, Mok PL<sup>1</sup>, Cheong SK<sup>2</sup>, Leong CF<sup>1</sup>, Then KY<sup>3</sup>

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<sup>3</sup>Birmingham and Midland Eye Centre, City Hospital, Birmingham, UK

### **Abstract**

#### **Background:**

The multipotency of stromal cells has been studied extensively. It has been reported that mesenchymal stromal cells (MSC) are capable of differentiating into cells of multilineage. Different methods and reagents have been used to induce the differentiation of MSC. We investigated the efficacy of different growth factors in inducing MSC differentiation into neurons.

#### **Methods:**

MSC from human BM were isolated and cultured in media supplemented with 10% FBS. These cells were identified and later induced to differentiate into neuron-like cells using different neurotrophic factors. Three different growth factors were used, either alone or in combination: brain-derived neurotrophic factor, epidermal growth factor and neural growth factor.

#### **Results:**

After 10 days of culture, MSC showed neuron-like morphologic changes. Immunostaining showed that these cells expressed markers for neurons (growth-associated protein-43, neuron-specific nuclear protein and neurofilament 200 kDa) and expression of these markers suggested the transition of immature stages to more mature stages of neuron-like cells.

#### **Discussion:**

Our results show that BM-derived MSC can differentiate not only into target cells of mesodermal origin but also neuron-like cells of ectodermal origin. The findings show that a combination of growth factors is more effective in inducing MSC into neuron-like cells.

**Key words:** adipogenic differentiation, chondrogenic differentiation, mesenchymal stromal cells, neuronal differentiation, osteogenic differentiation, transdifferentiation

Choong PF, Mok PL, Cheong SK, Then KY. Mesenchymal stromal cell-like characteristics of corneal keratocytes. *Cytherapy* 2007; 9(3): 252-258

## **Mesenchymal stromal cell-like characteristics of corneal keratocytes**

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<sup>3</sup>Birmingham and Midland Eye Centre, City Hospital, Birmingham, UK

### **Abstract**

#### **Background:**

The unique potential of mesenchymal stromal cells (MSC) has generated much research interest recently, particularly in exploring the regenerative nature of these cells. Previously, MSC were thought to be found only in the BM. However, further studies have shown that MSC can also be isolated from umbilical cord blood, adipose tissue and amniotic fluid. In this study, we explored the possibility of MSC residing in the cornea.

#### **Methods:**

Human cornea tissues were chopped to fine pieces and cultured in DMEM supplemented with 10% FBS. After a few days, the crude pieces of cornea were removed. Isolated keratocytes that were adherent to tissue culture flasks were grown until confluency before being passaged further. The immunophenotype was evaluated by flow cytometry. Assays were performed to differentiate cultured cells into adipocytes and osteocytes.

#### **Results:**

Isolated corneal keratocytes exhibited a fibroblastoid morphology and expressed CD13, CD29, CD44, CD56, CD73, CD90, CD105 and CD133, but were negative for HLA-DR, CD34, CD117 and CD45. These properties are similar to those of BM-MSC (BM-MSC). In addition, corneal keratocytes were able to differentiate into adipocytes and osteocytes.

#### **Discussion:**

Our results indicate that corneal keratocytes have MSC-like properties similar to those of BM-MSC. This study opens up the possibility of using BM-MSC in corneal tissue engineering and regeneration. Furthermore, discarded corneal tissue can also be used to generate MSC for tissue engineering purposes.

**Key words:** adult stem cells, mesenchymal stromal cells, tissue engineering

Chu WL, Ramadhona MS, Phang SM. Assessment of three tropical chlorophytes as bioassay organisms for nitrogen and phosphorus enrichment in freshwater ecosystems. *Malaysian J Sci* 2007; 26(2): 15-25

## Assessment of three tropical chlorophytes as bioassay organisms for nitrogen and phosphorus enrichment in freshwater ecosystems

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### Abstract

Enrichment of nitrogen and phosphorus in aquatic ecosystems can lead to excessive blooming of algae, resulting in eutrophication. The main objective of the present study was to assess the potential use of three tropical chlorophytes, namely *Chlorella vulgaris* UMACC 001, *Scenedesmus quadricauda* UMACC 041 and *Ankistrodesmus convolutus* UMACC 101 as test organisms for the bioassay of nitrogen and phosphorus. The minimal medium used in this study was 1% Bold's Basal Medium (BBM), which contained 0.03 mM NaNO<sub>3</sub> or NH<sub>4</sub>Cl and 0.02 mM phosphate (KH<sub>2</sub>PO<sub>4</sub> and K<sub>2</sub>HPO<sub>4</sub>). The algae were grown in the minimal medium added with NaNO<sub>3</sub> or NH<sub>4</sub>Cl ranging from 0.03, 0.15, 0.75, 3.75 to 18.75 mM for 96 hours using flask cultures. The dilution water without nitrogen and phosphorus was used as the control. For the phosphate experiments, the cultures were grown at 0, 0.02, 0.10, 0.50, 2.50 and 12.50 mM phosphate (KH<sub>2</sub>PO<sub>4</sub> and K<sub>2</sub>HPO<sub>4</sub>) in 1% BBM containing 0.03 mM NaNO<sub>3</sub> or NH<sub>4</sub>Cl. There was no marked difference in the specific growth rates ( $\mu$ ) of the three chlorophytes in response to nitrogen and phosphorus enrichment. The percentage growth enhancement based on the percentage increase of cell number at 96 hours compared to that attained in dilution water was a useful parameter for the bioassay of nitrogen and phosphorus. The suitability of the algae as test organisms was assessed based on the linearity of the relationship between PGE<sub>96</sub> and nitrogen and phosphorus concentration, as indicated by the regression coefficient ( $R^2$ ). It was also based on the EC<sub>50</sub>, which was the effective concentration that gave a PGE<sub>96</sub> of 50%. Based on the two parameters, *Chlorella vulgaris* was found to be a suitable test organism for the bioassay of NaNO<sub>3</sub> (EC<sub>50</sub> = 0.56 mM;  $R^2$  = 0.98) while *Ankistrodesmus convolutus* was suitable for the bioassay of NH<sub>4</sub>Cl (EC<sub>50</sub> = 0.005;  $r^2$  = 0.86). When grown on NaNO<sub>3</sub>, the sensitivity of *Chlorella vulgaris* to phosphate enrichment was very low = 822.72 mM). In comparison, when grown on NH<sub>4</sub>Cl, the three algae were sensitive to phosphate enrichment (EC<sub>50</sub> = 0.08 - 0.12 mM). The three algae would be useful for the bioassay of phosphate in water samples containing NH<sub>4</sub>Cl as the dominant nitrogen source.

**Key words:** Algae, bioassay, nitrogen, phosphorus, eutrophication

Dharmani M, Mustafa MR, Achike FI, Sim MK. Effect of Angiotensin 1-7 on the actions of angiotensin II in the renal and mesenteric vasculature of hypertensive and streptozotocin-induced diabetic rats. *Eur J Pharmacol* 2007; 561: 144-150

## **Effect of Angiotensin 1-7 on the actions of angiotensin II in the renal and mesenteric vasculature of hypertensive and streptozotocin-induced diabetic rats**

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### **Abstract**

Angiotensin 1-7, a heptapeptide derived from metabolism of either angiotensin I or angiotensin II, is a biologically active peptide of the renin– angiotensin system. The present study investigated the effect of angiotensin 1-7 on the vasopressor action of angiotensin II in the renal and mesenteric vasculature of Wistar-Kyoto (WKY) rats, spontaneously hypertensive rats (SHR) and streptozotocin-induced diabetic rats. Angiotensin II-induced dose-dependent vasoconstrictions in the renal vasculature. The pressor response was enhanced in the SHR and reduced in the streptozotocin-diabetic rat compared to WKY rats. Angiotensin 1-7 attenuated the angiotensin II pressor responses in the renal vasculature of WKY and SHR rats. However, the ability to reduce angiotensin II response was diminished in diabetic-induced rat kidneys. The effect of angiotensin 1-7 was not inhibited by 1-[(4-(Dimethylamino)-3-methylphenyl) methyl]-5 (diphenylacetyl)-4,5,6,7-tetrahydro-1H-imidazo[4,5-c] pyridine-6-carboxylic acid ditrifluoroacetate (PD123319), an angiotensin AT<sub>2</sub> receptor antagonist. (D-ALA<sup>7</sup>)-Angiotensin I/II (1-7) (D-ALA) (an angiotensin 1-7 receptor antagonist), indomethacin (a cyclo-oxygenase inhibitor), and N<sup>ω</sup>-Nitro-L-Arginine Methyl Ester (L-NAME)(a nitric oxide synthetase inhibitor) abolished the attenuation by angiotensin 1-7 in both WKY rats and SHR, indicating that its action is mediated by angiotensin 1-7 receptor that is either coupled to the release of prostaglandins and/or nitric oxide. The vasopressor responses to angiotensin II in mesenteric vasculature bed was also dose-dependent but smaller in magnitude compared to the renal vasculature. The responses to angiotensin II were relatively smaller in SHR but no significant difference was observed between WKY and streptozotocin-induced diabetic rats. Angiotensin 1-7 attenuated the angiotensin II pressor responses in WKY, SHR and diabetic-induced mesenteric bed. The attenuation was observed at the lower concentrations of angiotensin II in WKY and diabetic-induced rats but at higher concentrations in SHR. Similar observation as in the renal vasculature was seen with PD123319, D-ALA, and L-NAME. Indomethacin reversed the attenuation by angiotensin 1-7 only in the SHR mesenteric vascular bed. The present findings support the regulatory role of angiotensin 1-7 in the renal and mesenteric vasculature, which is differentially altered in hypertension and diabetes.

**Key words:** Angiotensin 1-7; Angiotensin II; Isolated perfused kidney; Mesenterial arterial bed; Diabetic rat



Elango S, Jutti RC, Palayan K, Teng CL, Loh LC, Motilal T. Assessment of basic practical skills in an undergraduate medical curriculum. *IeJSME* 2007; 1(1): 41-45

## **Assessment of basic practical skills in an undergraduate medical curriculum**

Elango S<sup>1</sup>, Jutti RC<sup>2</sup>, Kandasami P<sup>2</sup>, Teng CL<sup>3</sup>, Loh LC<sup>4</sup>, Motilal T<sup>5</sup>

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### **Abstract**

#### **Introduction:**

Health educators and accrediting bodies have defined objectives and competencies that medical students need to acquire to become a safe doctor. There is no report in Malaysia, about the ability of medical students to perform some of the basic surgical skills before entering the houseman ship. The aim of this study is to determine whether the teaching/ learning methods of practical skills in our undergraduate program have been effective in imparting the desired level of competencies in these skills.

#### **Methods:**

A list of basic practical skills that students should be competent has been identified. These skills are taught in a structured way and assessed as part of the composite end-of- semester examination. Practical skills stations form part of an Objective structured practical examination (OSPE).

#### **Results:**

The results of 244 students who participated in three ends of semester examinations were analyzed. The mean score for the practical skills stations were higher than the mean OSPE (of all 18 stations) and overall score (of the written, practical and clinical examination). However the failure rate in the practical skills stations is higher in most of the stations (7 out of 8 stations) compared to overall failure rates.

#### **Conclusions:**

In spite of the formal skills training many students failed to demonstrate the desired level of competencies in these stations. Assessment of practical skills as part of overall composite examination may not be effective in ensuring that all students have achieved the required level of competency. Practical skills should be assessed through dedicated formative assessments to make sure that all the students acquire the required competencies.

**Key words:** clinical competence, practical skills, assessment

Er HM, Cheng E, Radhakrishnan AK. Anti-proliferative and mutagenic activities of aqueous and methanol extracts of leaves from *Pereskia bleo* (Kunth) DC (Cactaceae). *J Ethnopharmacol* 2007; 113(3): 448-456

## **Anti-proliferative and mutagenic activities of aqueous and methanol extracts of leaves from *Pereskia bleo* (Kunth) DC (Cactaceae)**

Er HM, Cheng E, Radhakrishnan AK

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### **Abstract**

The anti-proliferative effects of the aqueous and methanol extracts of leaves of *Pereskia bleo* (Kunth) DC (Cactaceae) against a mouse mammary cancer cell line (4T1) and a normal mouse fibroblast cell line (NIH/3T3) were evaluated under an optimal (in culture medium containing 10% foetal bovine serum (FBS)) and a sub-optimal (in culture medium containing 0.5% FBS) conditions. Under the optimal condition, the aqueous extract showed a significant ( $p < 0.05$ ) anti-proliferative effect at 200  $\mu\text{g/mL}$  and 300  $\mu\text{g/mL}$  in 4T1 cells and 300  $\mu\text{g/mL}$  in NIH/3T3 cells, whereas the methanol extract did not show any notable anti-proliferative effect in these cell lines, at any of the concentrations tested. Under the sub-optimal condition, the aqueous extract showed a significant ( $p < 0.05$ ) anti-proliferative effect at 200  $\mu\text{g/mL}$  and 300  $\mu\text{g/mL}$  in NIH/3T3 cells, whilst the methanol extract showed a significant ( $p < 0.05$ ) anti-proliferative effect at 200  $\mu\text{g/mL}$  and 300  $\mu\text{g/mL}$  in both cell lines. An upward trend of apoptosis was observed in both 4T1 and NIH/3T3 cells treated with increasing concentrations of the aqueous extract. The level of apoptosis observed at all the concentrations of the aqueous extract tested was consistently higher than necrosis. There was a significant ( $p < 0.05$ ) increase in the level of necrosis observed in the 4T1 cells treated with 300  $\mu\text{g/mL}$  of the methanol extract. Generally, the level of necrosis was noted to be higher than that of apoptosis in the methanol extract-treated cells. The mutagenicity assay performed showed that in the absence of S-9 liver metabolic activation, the extract was not mutagenic up to the concentration of 165  $\mu\text{g/mL}$ . However, in the presence of S-9 liver metabolic activation, the aqueous extract was mutagenic at all the concentrations tested. This study shows that both the aqueous and methanol extracts of the leaves from *Pereskia bleo* (Kunth) DC (Cactaceae) do not have appreciable anti-proliferative effect on the 4T1 and NIH/3T3 cells as the EC50 values obtained are greater than 50  $\mu\text{g/mL}$  when tested under optimal culture condition. Moreover, the aqueous extract may form mutagenic compound(s) upon the metabolisation by liver enzymes.

**Key words:** *Pereskia bleo* (Kunth) DC (Cactaceae); Apoptosis; Methanol extracts; Aqueous extracts; Mutagenic; Anti-proliferative

Fadilah SAW, Cheong SK. Dendritic cell immunobiology and potential roles in immunotherapy. *Malaysian J Pathol* 2007; 29(1): 1-18

## **Dendritic cell immunobiology and potential roles in immunotherapy**

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### **Abstract**

Owing to the importance of dendritic cells (DC) in the induction and control of immunity, an understanding of their biology is central to the development of potent immunotherapies for cancer, chronic infections, autoimmune disease, and induction of transplantation tolerance. This review surveys the heterogeneity of DC with regards to their phenotype and developmental origin, and how they initiate, modify and regulate the immune response, with emphasis on their maturation, migration, antigen-presentation and interaction with T cells and other immune cells. Much of this knowledge is obtained through research on murine DC. Research on human DC has been hampered by limitations associated with in vitro assays and limited access to human tissues. New approaches on human DC research are required in order to develop novel strategies for the treatment of microbial infections, the control of graft rejection, and the improvement of DC-based immunotherapeutic protocols for autoimmunity, allergy, and cancer.

**Key words:** dendritic cell, immunobiology, tolerance, immunotherapy, immunity, antigen presentation

Fadilah SAW, Rozilaila R, Shamsul A, Hamidah NH, Cheong SK. Hydroxyurea appear beneficial in patients with beta-thalassaemia major and intermedia. *Med J Indonesia* 2007; 16(2): 78-83

## Hydroxyurea appear beneficial in patients with beta-thalassaemia major and intermedia

Fadilah SAW<sup>1,2</sup>, Rozilaila R<sup>1</sup>, Shamsul A<sup>3</sup>, Hamidah NH<sup>4</sup>, Cheong SK<sup>5</sup>

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### Abstract

Patients with severe inherited  $\beta$ -globin chain disorders may have milder illness if they produce high levels of fetal hemoglobin (HbF). Hydroxyurea (HU) has been shown to enhance HbF levels in patients with sickle cell disease and may be useful in  $\beta$ -thalassemias. We administered HU to 13 patients with  $\beta$ -thalassemia intermedia or major, including 6 splenectomized patients. The patients received escalating doses (10 to 25 mg/kg/d) of HU for around 2 years (median: 21 months, range: 8 – 55 months). Eleven patients responded with an increase in the pre-transfusion HbF levels, from a base line median of 80% (2.5 – 61.3%) to 28.0% (6.6 – 49.2%) and 40.7% (4.8 – 72.3%) at 3 months and 18 months post-HU, respectively. A concomitant increment in median hemoglobin levels was noted at 1, 3 and 18 months of HU therapy. Six of 7 transfusion-dependent patients who had an increment of HbF (one with  $\beta$ -thalassemia major) also had reduced transfusion requirement over the 2-year period of HU therapy. Response to HU was also shown by a reduction in spleen size. Apart from oral ulcers that resolved upon dose reduction of HU, no significant toxicity was noted. We conclude that increased HbF production in  $\beta$ -thalassemia patients, with an improvement in erythropoiesis, can be achieved using HU with minimal toxicity.

**Key words:** fetal hemoglobin (HbF), erythropoiesis, toxicity

Hee CS, Gun SC, Naidu R, Das Gupta E, Somanath SD, Radhakrishnan AK. Comparison of single nucleotide polymorphisms in the human interleukin-10 gene promoter between rheumatoid arthritis patients and normal subjects in Malaysia. *Modern Rheumatol* 2007; 17: 429-435

## **Comparison of single nucleotide polymorphisms in the human interleukin-10 gene promoter between rheumatoid arthritis patients and normal subjects in Malaysia**

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### **Abstract**

In this study, three single nucleotide polymorphisms (SNPs) located within the promoter of the human interleukin (IL)-10 gene [rs1800896 (position: -1087G > A), rs1800871 (position: -824C > T) and rs1800872 (position: -597C > A)] were investigated in 84 rheumatoid arthritis (RA) patients and 95 age- and sex-matched healthy subjects using polymerase chain reaction-restriction fragment length polymorphism method. Production of IL-10 by peripheral blood lymphocytes from the RA patients and healthy subjects cultured in the presence of Concanavalin A (Con A) was determined by using enzyme-linked immunosorbent assay. The results show that the distribution of the IL-10 genotypes did not differ significantly between RA patients and healthy subjects ( $P > 0.05$ ). However, a significant difference was observed in allele frequencies of -824CT, -824TT, -597CA, and -597AA between the RA patients and healthy volunteers ( $P = 0.04$ ). The -1087A/-824T/-597A (ATA) haplotype, which comprises all mutant alleles, was associated with lower IL-10 production when compared with the other haplotypes. In contrast, the RA patients who did not display the ATA haplotype produced significantly higher levels of IL-10 when compared with those carrying either one ( $P = 0.012$ ) or two ( $P = 0.005$ ) ATA haplotypes. Our findings suggest that there is an association between SNPs in the promoter of the human IL-10 gene and susceptibility to RA.

**Key words:** Interleukin-10, Rheumatoid arthritis, Single nucleotide polymorphism

Kamil MA, Teng CL, Hassan SA. Snoring and breathing pauses during sleep in the Malaysian population. *Respirology* 2007; 12(3):375-380

## **Snoring and breathing pauses during sleep in the Malaysian population**

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### **Abstract**

#### **Objective:**

The aim of this study was to determine the prevalence of snoring and breathing pauses during sleep, and to assess associated factors, including morbidity and the impact on daytime functioning, in an adult Malaysian population.

#### **Methods:**

A cross-sectional survey of community-dwelling adults aged 30–70 years was conducted. Daytime sleepiness was assessed using the Epworth Sleepiness Scale. Physical examinations were limited to measurements of body habitus and blood pressure.

#### **Results:**

The sample consisted of 1611 adults (52.9% male). The prevalence of habitual snoring, breathing pauses and excessive daytime sleepiness were 47.3%, 15.2% and 14.8%, respectively. Seven per cent of respondents (8.8% male, 5.1% female) were clinically suspected to have obstructive sleep apnoea syndrome (OSAS). The independent predictors of habitual snoring were older age, Chinese or Indian ethnicity (compared with Malays), smoking, obesity and use of sedatives. Clinically suspected OSAS and habitual snoring were significantly associated with difficulty in getting up in the morning, morning headache, driving and workplace accidents, hypertension, and ischaemic heart disease.

#### **Conclusions:**

The prevalence of habitual snoring is high in the Malaysian population. Sleep-related breathing disorders in Malaysian adults are associated with significant morbidity.

**Key words:** epidemiology, morbidity, sleep-disordered breathing, snoring

Lai NM, Nalliah S, Jutti RC. Medical students in their final six months training: progress in self-perceived clinical competence, and relationship between experience and confidence in practical skills. *Sing Med J* 2007; 48(11): 1018-1027

## **Medical students in their final six months training: progress in self-perceived clinical competence, and relationship between experience and confidence in practical skills**

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### **Abstract**

#### Introduction:

We evaluated the progress in the self-perceived competence of medical students in a range of common clinical, practical and personal skills, in their final six months of training.

#### Methods:

The study was conducted on 65 final-year medical students undertaking their senior clerkship training at International Medical University, Malaysia. Questionnaire surveys were conducted at the beginning and the end of the six-month period, with 44 items covering clinical, practical, personal skills and readiness to work. Correlations were performed for experience and self-perceived competence, with the respective skills.

#### Results:

64 students returned the first survey and 63 returned the second survey. When the two survey results were compared, significant increases were found in self-perceived competence for the majority of the skills examined. The items with no significant improvement were divided into those which the students were already proficient in before senior clerkship, and those in which experience and confidence remained poor at the end of training. There were significant, but moderate, correlations between the experience and confidence of all common practical skills (correlation coefficients: 0.348-0.522, p-value is less than 0.001 for all items). At the end of training, students were, in general, more prepared to work as house officers (mean rating in the first survey: 3.05, second survey: 3.97, p-value is less than 0.001).

#### Conclusion:

Significant progresses in clinical experience and confidence can be observed in the final stages of medical training. The findings of inadequate improvements in some skills call for dedicated training sessions and strengthening of on-site supervision.

**Key words:** clinical competence, clinical skills, medical education, undergraduate education

Lee LK, Tan EL, Gopala K, Sam CK. Human leukocyte class I antigen alleles A2 and A11 are not associated with nasopharyngeal carcinoma in West Malaysia. Singapore Med J 2007; 48(7): 632-634

## Human leukocyte class I antigen alleles A2 and A11 are not associated with nasopharyngeal carcinoma in West Malaysia

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### Abstract

Introduction:

Nasopharyngeal carcinoma (NPC) is the second most common cancer among Malaysian Chinese males. We determined the frequencies of 17 human leukocyte antigens (HLA), HLA-A and HLA-B, alleles in 88 Malaysian Chinese with NPC.

Methods:

Using polymerase chain reaction sequence-specific primers, the frequencies of 17 HLA-A and HLA-B alleles were analysed. They were A1, A2, A11, A31, A32, A33, B8, B13, B27, B38, B39, B44, B46, B55, B58, B61 and B71.

Results:

Three of the 17 alleles were detected in NPC patients. They were A1 (0.6 percent), A2 (56.3 percent) and A11 (43.2 percent). Three of the 17 alleles were detected in age- and sex-matched healthy individuals. They were A2 (50.0 percent), A11 (50.0 percent) and B27 (4.7 percent). The A2 and A11 alleles were evenly distributed in both groups, while A1 was only found in one NPC patient and B27 exclusively in healthy individuals.

Conclusion:

We conclude that A1 is very rare, and A2, A11, A31, A32, A33, B8, B13, B38, B39, B44, B46, B55, B58, B61 and B71 alleles have no associations with the occurrence of NPC in Malaysia, while allele B27 is negatively associated.

**Key words:** human leukocyte antigen, nasopharyngeal carcinoma, polymerase chain reaction sequence-specific primers



Loh LC, Lai NM, Nalliah S, Jutti RC. The concept and implementation of “Distributed Learning” – our early experience. *Annals Academy of Medicine* 2007; 36(10): 867-870

## **The concept and implementation of “Distributed Learning” – our early experience**

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### **Abstract**

The concept of “distributed learning” (DL) is not new and is probably still evolving. A suggested definition for this is the inclusion of students in situations where learners and teachers aim to achieve the same educational objectives in a variety of different decentralised learning sites. While the concept was developed through necessity due to increased student numbers and teaching sites, it coincides well with the imperative to expose students to a sufficiently wide range of medical practices for proper learning of medicine as a whole. There are different models on the implementation of “DL” and this paper discusses the issues related to the implementation of distributed learning, focusing on the model adopted by the International Medical University and sharing results of a preliminary study carried out on our students in their final semester.

Loh KY, Nalliah S. Urinary tract infections in pregnancy. *Malaysian Fam Physician* 2007; 2(2): 54-57

## Urinary tract infections in pregnancy

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### Abstract

Urinary tract infections frequently affect pregnant mothers. This problem causes significant morbidity and healthcare expenditure. Three common clinical manifestations of UTIs in pregnancy are: asymptomatic bacteriuria, acute cystitis and acute pyelonephritis. *Escherichia coli* remains the most frequent organism isolated in UTIs. All pregnant mothers should be screened for UTIs in pregnancy and antibiotics should be commenced without delay. Urine culture and sensitivity is the gold standard in diagnosing UTIs. Without treatment, asymptomatic bacteriuria in pregnancy is associated with preterm delivery, intrauterine growth retardation, low birth weight, maternal hypertension, pre-eclampsia and anaemia. Acute pyelonephritis can lead to maternal sepsis. Recurrent UTIs in pregnancy require prophylactic antibiotic treatment.

**Key words:** Urinary tract infections, pregnancy, antibiotics

Loh KY, Shong KH. Osteoporosis: primary prevention in the community. Med J Malaysia 2007; 62(4): 355-357

## **Osteoporosis: primary prevention in the community**

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### **Abstract**

The incidence of osteoporosis is increasing worldwide. It has great impact on the life of the elderly population. The most significant medical consequence of osteoporosis is fragility fracture which without proper treatment will cause severe medical and psychosocial complications. The overall cost in managing osteoporosis and its related fractures is escalating. Using bone densitometry to measure bone mineral density is useful in the diagnosis of osteoporosis but it is costly and not feasible in the community. Drugs such as estrogen replacement, raloxifene and calcitonin are effective in prevention and treatment of osteoporosis but they are also expensive. Identifying modifiable risk factors such as smoking, lack of exercise, low dietary calcium and vitamin D intake and healthy life style remain strategy in the primary prevention of osteoporosis in the community.

Mala-Maung, Zoraini Wati Abas, Azman Abdullah. Factors influencing development of self-directed learning in a higher education environment. Intl J Self-Directed Learning 2007; 4(1): 27-38

## **Factors influencing development of self-directed learning in a higher education environment**

Mala Maung, Zoraini Wati Abas, Azman Abdullah

International Medical University, Kuala Lumpur, Malaysia

### **Abstract**

The majority of medical students at the International Medical University (IMU) transfer to partner medical schools worldwide after the phase one program. Thus it is desirable to inculcate self-directed learning (SDL) skills to enable them in adapting to these schools' learning strategies. As learner characteristics importantly influence successful SDL, the effect of learning styles and pre-university education on the appreciation of SDL in relation to the learning resources was assessed. Appreciation for SDL as a good learning method was higher as compared to the appreciation of resources. Appreciation of SDL and utilization of IMU resources are positive irrespective of learning style and pre-university education. This study identified receiving, adaptation, and acceptance phases as students progress through a higher education environment. Importantly, providers of higher education must be aware of these phases and address them appropriately to achieve maximum benefit.

Mastura I, Mimi O, Piterman L, Teng CL, Wijesinha S. Self- monitoring of blood glucose among diabetes patients attending government health clinics. *Med J Malaysia* 2007; 62(2): 147-151

## **Self- monitoring of blood glucose among diabetes patients attending government health clinics**

Mastura I<sup>1</sup>, Mimi O<sup>2</sup>, Piterman L<sup>3</sup>, Teng CL<sup>4</sup>, Wijesinha S<sup>3</sup>

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<sup>4</sup>International Medical University, Malaysia

### **Abstract**

The aims of this study were (i) to determine the prevalence of self-monitoring of blood glucose (SMBG) among Type 2 diabetes patients attending government health clinics and (ii) to ascertain the factors influencing SMBG. Five hundred and fifty-six Type 2 diabetes patients from two government health clinics in Selangor and Negeri Sembilan were interviewed using a structured questionnaire. The total subjects of the study were 556 patients. Eighty-five patients (85.3%) of patients; performed SMBG. However, 170 subjects were included in the statistical analysis, 85 patients who were not self-monitoring were randomly selected and was compared with 85 patients who were self-monitoring. Among those who performed SMBG, the majority (83.5%) monitored less than once per day and only 16.5% monitored at least once a day. One-third of patients adjusted their medications based on their SMBG results. The higher patient's level of education ( $p= 0.024$ , CI 1.29 – 35.3); the higher total family income ( $p= 0.041$ , CI 1.26 – 4.79); the longer duration of diabetes ( $p<0.01$ , CI 2.22 – 7.29); and treatment regime which includes insulin ( $p< 0.001$ , CI 2.05 – 9.24) were significant predictors of SMBG practice. Although SMBG is recognised to be useful and effective in achieving diabetes control, this study has found that only a minority of patients with diabetes performed SMBG. Hence healthcare personnel must increase awareness on the importance of SMBG and strongly promote the practice among diabetic patients.

**Key words:** Self-monitoring of blood glucose, Diabetes mellitus, Primary health care

Naseem R, Nalliah S. Understanding the decision –delivery interval in cesarean births. *IeJSME* 2007;1(2):61-68

## **Understanding the decision –delivery interval in cesarean births**

Naseem Rashid<sup>1</sup>, Sivalingam N<sup>2</sup>

<sup>1</sup>International Medical University, Clinical School, Batu Pahat, Johor, Malaysia

<sup>2</sup>Department of Obstetrics & Gynaecology, Clinical School, International Medical University, Malaysia

### **Abstract**

Avoiding the adverse neonatal effects of perinatal asphyxia has been one of the common indications for caesarean deliveries in current obstetric practice. Expeditious delivery is dependent on decision to perform caesarean delivery and time lines achieved. A decision-delivery interval of 30 minutes, a concept initiated by the American College of Obstetricians and Gynecologists has open to debate as controversy reigns about neonatal outcome when this time interval is considered in isolation. Time lines alone are probably not the only criteria to be employed, and may contribute to errors in interpretation by professional regulatory bodies and the society at large. Procedures prior to decision making like trial of labour, fetal scalp sampling and readily available resources for instituting emergent caesarean delivery invariably need to be considered. Though decision to delivery time is an integral component of critical conduct intervals in the acutely compromised fetus, a more pragmatic approach needs to be taken considering potential and known logistical and obstetric factors in line with good obstetric practice.

**Key words:** Cesarean delivery, Decision-delivery interval, Indications for emergency caesarean delivery, Perinatal asphyxia, Birth asphyxia

Ng TKW. Local repeatedly-used deep frying oils are generally safe. *leJSME* 2007; 1(2): 55-60

## **Local repeatedly-used deep frying oils are generally safe**

Ng TKW

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### **Abstract**

A review of the literature indicates that food scientists and health authorities in several countries, especially member countries of the European Union, are still very concerned about the potential health hazards of oxidized products and lipid polymers formed in repeatedly-used deep frying oils. During the frying process at temperatures of 170° – 200°C, steam formed from moisture in the food being fried help volatile products rise to the surface of the frying medium and into the kitchen atmosphere, imparting a mixture of fried-flavours and off-flavours. The non-volatile compounds formed, however, gradually build up in the oil as it is being repeatedly-used for food frying operations. These non-volatiles, primarily “polar compounds” (PC) and to a lesser extent lipid polymers, get absorbed into fried foods and eventually end up in our body system. Available local data suggests that deep-frying oil samples obtained from food hawkers and those produced under simulated deep-frying conditions in the laboratory, are generally safe as they contain PC within safe limits and rarely exceed the upper limit (UL) of 25%. This contrasts with the situation in some European countries where a very high proportion of frying oil samples collected from fast-food restaurants were reported to contain PC exceeding this UL. Appropriately, promotion of Hazard Analysis and Critical Control Points (HACCP) certification and gazettement of food regulations to limit the PC content in frying oils have been introduced in these countries to protect the health of consumers. Meanwhile, simple gadgets/test kits are available commercially to monitor the quality of the frying oil. This would greatly assist kitchen supervisors at restaurants and franchised fried-food outlets to know when best to change a batch of frying oil before the ULs of frying oil quality are breached.

**Key words:** Frying oils, Polar compounds, Safety

Perera D, Yusof MA, Podin, Ooi YMH, Thao NTT, Wong KK, Zaki A, Chua KB, Malik YA, Tu PV, Tien NTK, Puthavathana P, McMinn PC, Cardoso MJ. Molecular phylogeny of modern coxsackievirus A16. *Arch Virol* 2007; 152:1201-1208

## Molecular phylogeny of modern coxsackievirus A16

Perera D<sup>1</sup>, Yusof MA<sup>1,2</sup>, Podin<sup>1</sup>, Ooi YMH<sup>1,3</sup>, Thao NTT<sup>4</sup>, Wong KK<sup>5</sup>, Zaki A<sup>6</sup>, Chua KB<sup>7</sup>, Malik YA<sup>5,8</sup>, Tu PV<sup>4</sup>, Tien NTK<sup>4</sup>, Puthavathana P<sup>9</sup>, McMinn PC<sup>10</sup>, Cardoso MJ<sup>1</sup>

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<sup>8</sup>International Medical University, Kuala Lumpur, Malaysia

<sup>9</sup>Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

<sup>10</sup>Telethon Institute for Child Health Research, Perth, Western Australia

### Abstract

A phylogenetic analysis of VP1 and VP4 nucleotide sequences of 52 recent CVA16 strains demonstrated two distinct CVA16 genogroups, A and B, with the prototype strain being the only member of genogroup A. CVA16 G-10, the prototype strain, showed a nucleotide difference of 27.7–30.2% and 19.9–25.2% in VP1 and VP4, respectively, in relation to other CVA16 strains, which formed two separate lineages in genogroup B with nucleotide variation of less than 13.4% and less than 16.3% in VP1 and VP4, respectively. Lineage 1 strains circulating before 2000 were later displaced by lineage 2 strains.



Phua KL, Achike FI. Vioxx and other pharmaceutical product withdrawals: ethical issues in ensuring the integrity of drug and medical device research, development and commercialization. Clin Ethics, 2007, 2(3): 155-162

## **Vioxx and other pharmaceutical product withdrawals: ethical issues in ensuring the integrity of drug and medical device research, development and commercialization**

Phua KL<sup>1</sup>, Achike FI<sup>2</sup>

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### **Abstract**

The Vioxx drug recall and other cases of withdrawals of approved pharmaceutical products as a result of reports of serious harm to users indicate that there are many problems associated with the process of getting these products to the end user – the ordinary person in the street. The problems include those related to drug/medical device research and development, clinical trials, presentation and publication of research results, approval by regulatory authorities, preparation of clinical practice guidelines, marketing of products by commercial companies and post-marketing surveillance. This article discusses threats to the integrity of each of these processes and argues that the steady stream of drug recalls indicates the existence of a systemic problem. It concludes with a discussion of possible solutions to these problems.

Ponnudurai G, Chen YS, Nagarajah L, Hla-Yee-Yee, Achike FI. Biology at pre-university level: does this provide an advantage to medical students? J Med Edu 2007; 11(2): 150-156

## **Biology at pre-university level: does this provide an advantage to medical students?**

Ponnudurai G, Chen YS, Nagarajah L, Hla Yee Yee, Achike FI

International Medical University

### **Abstract**

Entry into the medical programme at the International Medical University (IMU) requires students to have three of the four sciences subjects (Biology, Chemistry, Mathematics, Physics) at the pre-university level. The aim of this study was to determine if there is a relationship between taking biology at pre-university level and students' performance in Semester 1. The academic banding, based on certain academic criteria, are also taken into consideration for analysis. Students' academic performance in the end of Semester 1 examination as well as the two in-course assessments was analysed to gauge the relationship between pre-university biology and academic performance. The majority of the students (86%) from the two cohorts analysed, had pre-university biology, and this is reflected in all the four academic bands. The results indicate that in general, pre-university biology does not contribute significantly to students' academic performance during the early years in IMU medical programme. There are significant differences in academic performance between students from different academic bands, whereby, students from bands one and two performed significantly better than students from bands three and four. However, there is no significant association between academic performance and pre-university biology for students from the different academic bands. Thus, it is concluded that pre-university biology does not provide an advantage to medical students in IMU. It is the academic banding that is more important. Thus, students who fall within the lower bands require closer monitoring than those without pre-university biology.

**Key words:** pre-university, biology, academic performance, medical

Rashid NR, Zainurrashid Z, Zainul Rashid MR. Recurrent pregnancy loss: recent approach to aetiological factors and management strategies. *Malaysian J of Obstet and Gynecol* 2007; 8(14): 1-17

## **Recurrent pregnancy loss: recent approach to aetiological factors and management strategies**

Rashid NR<sup>1</sup>, Zainurrashid Z<sup>1</sup>, Zainul Rashid MR<sup>2</sup>

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### **Abstract**

Recurrent pregnancy loss is not an uncommon condition and has been traditionally defined as three or more consecutive miscarriage prior to 20 weeks of gestation or less than 500g birth weight. It affects 1-2 % of women trying to conceive and in half of the cases the cause remains unexplained. The cause may be fetal in origin due to structural of chromosomal anomalies incompatible with life. In 50 % per cent of couples, chromosomal abnormalities may be detected. There may also be structural or functional uterine defects. Another crucial factor that has been implicated is the antiphospholipid syndrome. A specialized one-stop clinic may be the best place for formal evaluation. Three quarters of these women will eventually have a successful pregnancy. Though couples experiencing only one first trimester loss should be given pertinent information, they do not necessarily have formal evaluation. In recent years much focus had been on the necessity of cytogenetics studies of both partners. Pre-implantation Genetic Diagnosis, prenatal testing and use of anti-thrombosis drugs remain important management strategies.

**Key words:** recurrent pregnancy loss (RPL), structural uterine defects (SUD), antiphospholipid syndrome (APS), antiphospholipid antibodies (aPL)

Reddy SC, Tajunisah I. Chemical injuries of eye – a review of 75 cases from West Malaysia. Intl J Ophthalmol 2007; 7(2): 327-330

## **Chemical injuries of eye – a review of 75 cases from West Malaysia**

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### **Abstract**

#### **Aim:**

To determine the nature of chemicals involved, type of occupation most at risk, severity of ocular injury, complications and visual outcome in patients with chemical injuries of eye.

#### **Methods:**

In a retrospective study gender, age, race, occupation of patients, nature of chemical, eye involved, vision at admission, severity of ocular injury, complications and visual outcome were noted from the case records.

#### **Results:**

Among 75 patients reviewed 90.3% of patients were males; 84% were in the working age group (21-50 years); 29.3% were factory workers; 52% suffered from alkali injuries; 65.4% were factory/construction workers; 57.3% had both eyes involvement; 9.3% of the affected eyes had vision <6/60 at admission; 72% of injuries were of grade I nature; 19.5% of the affected eyes developed complications such as dry eye, vascularization of cornea, corneal opacity, complicated cataract, secondary glaucoma etc.; final outcome of vision 6/18 or better was achieved in 92% of eyes; blindness was noted in 6.2% of the affected eyes.

#### **Conclusion:**

Even though chemical injuries commonly involve both eyes, in majority of them they are mild in nature with good visual outcome. Immediate copious irrigation of the eye will help in reducing the severity of chemical injury. Appropriate emergency treatment will reduce the long term complications and visual impairment. However, severe chemical burns of the eye can result in blindness in some cases.

**Key words:** chemical injuries; acid burns; alkali burns; complications; blindness

S Sulaiha SA, Zainur Rashid Z, Zainul Rashid MR. The fears faced by pregnant women with Systemic Lupus Erythematosus. *Mal J Obstet Gynecol* 2007; 8(12): 1-13

## **The fears faced by pregnant women with Systemic Lupus Erythematosus**

Sh Sulaiha Sy Aznal<sup>1</sup>, Zainurrashid Zainuddin<sup>1</sup>, Zainul Rashid MR<sup>2</sup>

<sup>1</sup>Obstetrics and Gynaecology Department, International Medical University, Seremban

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### **Abstract**

Systemic Lupus Erythematosus (SLE) remains an enigma especially in the understanding of its aetiology which is essential in structuring the management of those who are affected. It is an autoimmune disease with a prediction for women in their reproductive years. The average age at diagnosis is about 30 years and about 6 % of patients have other autoimmune disorders (Nelson, 2001). A study conducted in 1991 has found high prevalence of SLE in Malaysia but no actual data is recorded up to date. In the 200 patients with SLE of multiethnicity studied, only 16.5 % had raised anti-cardiolipin (aCL) levels. The classical association with incidence of thrombocytopenia and high rate of recurrent abortions was noted. The low prevalence of raised aCL levels was seen in conjunction with rare occurrence of thrombosis. This contrasts with findings in European patients (Jones *et al*, 1991). In the pre steroid era, patients with severe lupus nephritis rarely survived beyond two years. With improved therapy, survival and quality of life for lupus patients have improved vastly. This is also true for the Asian region (Kong, 2006). SLE patients are as fertile as the general population. However the fertility rate reduces in patients with active disease when on high doses of steroid therapy which suppresses ovulation by negative feedback to pituitary.

## **Breastfeeding practice in Klang District**

Tan KL

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### **Abstract**

This was a cross-sectional study which attempts to determine the prevalence of breastfeeding practice among mothers in Klang district, Malaysia and the association between breastfeeding practice with place of delivery and knowledge on breastfeeding. Data collection was conducted by face-to-face interview using a pre-coded structured questionnaire among mothers with four month old infants only who attended the government clinic in Klang. A total of 508 mothers were recruited into the study. The study showed 92.9% ever breastfed, 55.1% exclusively breastfed for one month and 20.5% exclusively breastfed for four months. Malays breastfed the most, while Chinese the least. Breastfeeding was more common among mothers with lower education, delivered in government hospitals and with good knowledge on breastfeeding. A high proportion of mothers in Klang would initiate breastfeeding and the prevalence of exclusive breastfeeding was comparable nationally. Breastfeeding was associated with mothers delivered in government hospitals and with good knowledge on breastfeeding. Continued promotional efforts targets at private hospitals with information on breastfeeding should result in further increase in breastfeeding prevalence.

**Key words:** Breastfeeding, ever breastfed, exclusive breastfeeding, Malaysia

## **Imaging as an aid to the diagnosis of acute appendicitis**

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### **Abstract**

Acute appendicitis has been known as a disease entity for well over a century but a confident diagnosis before surgery in all patients suspected of the condition is still not possible. Timely diagnosis is essential to minimise morbidity due to possible perforation of the inflamed organ in the event treatment is delayed; so much so that surgeons often preferred to operate at the slightest suspicion of the diagnosis in the past. This resulted in the removal of many normal appendixes. When the diagnosis of appendicitis is clear from the history and clinical examination, then no further investigation is necessary and prompt surgical treatment is appropriate. Where there is doubt about the diagnosis however it is advisable to resort to imaging studies such as abdominal ultrasound or computed tomography to clear such suspicions before subjecting the patient to an appendicectomy. These studies would also help avoid delays in surgery in deserving patients.

**Key words:** Appendicitis, diagnosis, computed tomography, ultrasound

Wong CY, Chu WL, Marchant H, Phang SM. Comparing the response of Antarctic, tropical and temperate microalgae to ultraviolet radiation (UVR) stress. *J Appl Phycol* 2007; 19(6): 689-699

## Comparing the response of Antarctic, tropical and temperate microalgae to ultraviolet radiation (UVR) stress

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### Abstract

The response of Antarctic, tropical and temperate microalgae of similar taxonomic grouping to ultraviolet radiation (UVR) stress was compared based on their growth and fatty acid profiles. Microalgae of similar taxa from the Antarctic (*Chlamydomonas* UMACC 229, *Chlorella* UMACC 237 and *Navicula* UMACC 231), tropical (*Chlamydomonas augustae* UMACC 246, *Chlorella vulgaris* UMACC 001 and *Amphiprora* UMACC 259) and temperate (*Chlamydomonas augustae* UMACC 247, *Chlorella vulgaris* UMACC 248 and *Navicula incerta* UMACC 249) regions were exposed to different UVR conditions. The cultures were exposed to the following conditions: PAR (42  $\mu\text{mol photons m}^{-2} \text{ s}^{-1}$ ), PAR + UVA (854  $\mu\text{W cm}^{-2}$ ) and PAR + UVA + UVB (117  $\mu\text{W cm}^{-2}$ ). The cultures were subjected to UVA doses of 46.1, 92.2 and 184.4  $\text{J cm}^{-2}$  and UVB doses of 6.3, 12.6 and 25.2  $\text{J cm}^{-2}$  by varying the duration of their exposure (1.5, 3 and 6 h) to UVR during the light period (12:12 h light-dark cycle). UVA did not affect the growth of the microalgae, even at the highest dose. In contrast, growth was adversely affected by UVB, especially at the highest dose. The dose that caused 50% inhibition ( $\text{ID}_{50}$ ) in growth was used to assess the sensitivity of the microalgae to UVB. Sensitivity of the microalgae to UVB was species-dependent and also dependent on their biogeographic origin. Of the nine microalgae, the Antarctic *Chlorella* was most tolerant to UVB stress ( $\text{ID}_{50}=21.0 \text{ J cm}^{-2}$ ). Except for this *Chlorella*, the percentage of polyunsaturated fatty acids of the microalgae decreased in response to high doses of UVB. Fatty acid profile is a useful biomarker for UVB stress for some microalgae.

**Key words:** Antarctic algae, Ultraviolet radiation (UVR), *Chlorella*, *Chlamydomonas*, Diatoms



Wong SF, Mak JW, Pook PCK. New mechanical disruption method for the extraction of whole cell protein from *Candida albicans*. Southeast Asian J Trop Med Pub Hlth 2007; 38(3): 512-518

## **New mechanical disruption method for the extraction of whole cell protein from *Candida albicans***

Wong SF, Mak JW, Pook PCK

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### **Abstract**

Cell disruption or lysis is a crucial step to obtain cellular components for various biological studies. We subjected different concentrations of *Candida albicans* to 5, 10, 15 and 20 cycles of disruption. The degree of cell lysis was observed using light microscopy and the yields obtained were measured and analysed. The optimum extraction with  $1 \times 10^{10}$  yeast cells/ml was achieved after 5 cycles of disruption with 1.0 mm diameter glass beads at 5,000 rpm. Approximately 80% of the cells were lysed and the protein yield was 6,000  $\mu\text{g/ml}$ . SDSPAGE analysis revealed approximately 25 distinct protein bands with molecular weights ranging from 8 kDa to 220 kDa. We conclude that this mechanical disruption of fungal cells is a rapid, efficient and inexpensive technique for extracting whole cell proteins from yeast cells.