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Part I Conference Schedule

Date	Time	Lobby			
May 29	14:00-17:00	Regist	ration		
Date	Time	Room 1 (1 号会议室) (3rd Floor)	Room 2 (2 号会议室) (3rd Floor)		
	08:30-12:00	Invited Session I: Biomedical Science Chair: TBD Group photo & Coffee Break: 10:30-10:45	Engineering: Invited Session I Chair: TBD Group photo & Coffee Break: 10:30-10:50		
	12:00-13:30	Lunch Re	volving restaurant[旋转餐厅], 23rd Floor		
May 30	Time	Room 1 (1 号会议室) (3rd Floor)	Room 2 (2 号会议室) (3rd Floor)		
	14:00-18:00	Invited Session II: Biomedical Science Chair: TBD Group photo & Coffee Break: 16:00-16:20	Engineering: Invited Session I Chair: TBD Group photo & Coffee Break: 16:00-16:20		
	18:00-19:30	Dinner	Revolving restaurant[旋转餐厅], 23rd Floor		
Date	Time	Room 1 (1 号会议室) (3rd Floor)	Room 2 (2 号会议室) (3rd Floor)		
May 31	08:30-12:00	Invited Session III: Protein and Proteomics Chair: Dr. Xusheng Wang	Invited & Oral Session: Nursing and Healthcare Chair: TBD		
		Crown photo & Coffee Breek: 10:30 10:50	Crown photo & Coffee Breek: 10:10 10:25		
		Group photo & Conce Dicak.10.30-10.30	Group photo & Conte Dicak.10.10-10.25		
	12:00-13:30	Lunch	Revolving restaurant[旋转餐厅], 23rd Floor		
June 1	07:30-15:00	One day tour in Kunmi	ming (TBD)(Own expense)		

Time: May 29-31, 2019 Location: Kunming Jin Jiang Hotel (昆明锦江大酒店)

Part II Invited Speeches

Biomedical Science: Invited Session I

Invited Speech 1: Modulation of Macrophages in Murine Acute Lung Injury

Speaker: Prof. Zhilong Jiang, Zhongshan Hospital, Fudan University, China Time: 08:30-09:10, Thursday Morning, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Acute lung injury and acute respiratory distress symptom (ALI/ARDS) are life-threatening condition in critically ill patients. Macrophages are heterogenous cell components in lung tissues and play important role in the



pathogenesis of ALI/ARDS. There are alveolar macrophages (AMs), interstitial macrophages (IMs) and circulating undifferentiated monocytes/macrophages. Our results in vivo revealed that depletion of AMs exacerbated ALI, accompanied with more infiltration of neutrophils, whereas depletion of circulating monocyte/macrophages attenuated ALI, indicating the protective role of AMs and pro-inflammatory function of monocyte/macrophages. Resveratrol (Res) is a natural polyphenol that has anti-oxidative stress and immune suppressive effects. Our study in wild-type (WT) and SOCS3 conditional knock-out (KO) mice revealed that Res treatment significantly reduced ALI severity in WT mice, accompanied with much lower population of Siglec F-CD45+ phenotype macrophages. In addition, the CD206+ M2 subtype macrophages were increased in the WT mice after Res treatment. However, the beneficial effects and alteration of macrophages phenotypes were not observed in the SOCS3 KO mice. The results confirmed the positive relationships of Siglec F-CD45+ and negative relationships of CD206+ M2 subtype macrophages with ALI. Res may exert the therapeutic effects through SOCS3 signaling and subsequently modulation of these macrophage phenotypes. Our further study in recombinant surfactant protein D (rSP-D)-treated mice also indicated the positive relationships between Siglec F-CD45+ phenotype macrophages and ALI, in which rSP-D treatment significantly reduced ALI severity, accompanied with less influx of neutrophils and population of Siglec F-CD45+ phenotype monocytes/macrophages. Thus, we conclude that biological activity of lung macrophages can be modulated by some adjuvants such as anti-oxidants and anti-inflammatory proteins to exert immune protective role in inflammatory diseases such as ALI/ARDS.

Invited Speech 2: Development of cancer stem cell vaccine in an adjuvant setting

Speaker: Dr. Qiao Li, University of Michigan, USA Time: 09:10-09:50, Thursday Morning, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Many cancers are driven and maintained by a subpopulation of cells that display stem cell properties and are therefore referred to as cancer stem cells (CSCs). Targeting CSCs may increase the therapeutic efficacy of current



cancer treatment, particularly in the adjuvant setting. In this study, established s.c. SCC7 tumors were surgically removed followed by treatment using ALDH^{high} SCC7 CSC-DC vaccine, which significantly reduced local tumor relapse and prolonged animal survival. This effect was significantly augmented by simultaneous administration of anti-PD-L1 mAb. In the minimal disease setting of D5 melanoma model, ALDH^{high} CSC–DC vaccination significantly inhibited tumor growth and reduced spontaneous lung metastases. CCR10 and its ligands were down-regulated on ALDH^{high} D5 CSCs and in lung tissues respectively in animals subjected to ALDH^{high} D5 CSC-DC vaccination. Down-regulation of CCR10 by siRNA significantly blocked tumor cell migration in vitro and metastasis in vivo. T cells harvested from ALDH^{high} D5 CSC-DC vaccinated animals selectively killed the ALDH^{high}D5 CSCs. B cells harvested from ALDH^{high} D5 CSC-DC vaccinated animals produced IgG which bound to ALDH^{high} D5 CSCs, resulting in their lysis via CDC. As a result, CSC-DC vaccination significantly decreased the percentage of ALDH^{high} cells in residual tumors by destroying cancer stem cells. These data indicate that, when used in an adjuvant setting, ALDH^{high} CSC-DC vaccines effectively inhibit local tumor recurrence, reduce spontaneous lung metastasis, and prolong animal survival, compared with traditional DC vaccines and that simultaneous PD-L1 blockade can significantly enhance this effect. These findings may lead to the development of novel immunotherapeutic strategies for cancer treatment via the modulation of both cellular and humoral anti-CSC immunity.

Invited Speech 3: Nanomaterials for Imaging Guided Two-photon Phototherapy

Speaker: Prof. Qing-Hua Xu, National University of Singapore, Singapore Time: 09:50-10:30, Thursday Morning, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Photodynamic therapy (PDT) is a promising noninvasive treatment of cancers and other diseases. Two-photon excitation PDT (2P-PDT) is advantageous over the traditional one-photon counterpart by offering unique advantages of



deeper penetration into body tissues, more confined treatment area and 3-dimensional spatial selectivity to reduce adverse effects to nearby healthy tissues. However, clinical applications of 2P-PDT are limited by the small two-photon absorption capability of current photosensitizers. A lot

of research efforts have been devoted to the development of novel two-photon photosensitizers with improved two-photon light harvesting capability.

Here I will present our recent efforts on development of various nanophotosensitizersthat allow simultaneous two-photon imaging and photodynamic therapy with enhanced efficiency. We used two strategies to develop composite nanomaterials with enhanced two-photon optical properties. One is based on energy transfer from conjugated polymers which acted as two-photon light harvesting materials to transfer the absorbed energy to photosensitizers. We have developed photosensitizers doped conjugated polymer nanoparticles that display strong two-photon absorption capability, high emission yield and singlet oxygen generation capability, selectively cancer cell targeting and killing capability at the same time. The second approach is based on plasmon resonance enhancement. We have developed various plasmonengineered nanocomposites with enhanced two-photon properties for simultaneous two-photon imaging and phototherapy. The exceptional properties of these nano-photosensitizers render them great potentials for high spatial resolution imaging-guided two-photon phototherapy.



Invited Speech 4: Development of Tumor-Targeting Nanoagents for

Photo-Chemo- Therapy of Breast Cancer

Speaker: Prof. Yu-Hsiang Lee, National Central University Time: 10:45-11:25, Thursday Morning, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Background: Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death among females worldwide. Among various types of breast cancer, the human epidermal growth factor receptor 2



(HER2)-overexpressing breast cancer is known to be more aggressive and often resistant to medicinal treatment, leading to an insufficient prognosis and poor susceptibility to chemotherapy and/or hormonal therapy in the current clinic. These circumstances implicate that developing an improved therapeutic strategy rather than persistently changing the anticancer drugs for trying is truly needed to successfully cure this type of breast cancer. In this study, we aimed to fabricate anti-HER2 indocyanine green (ICG)-doxorubicin (DOX)-loaded polyethyleneimine-coated perfluorocarbon double nanoemulsions (HIDPPDNEs) to explore the co-administration of phototherapy and chemotherapy for HER2-overexpressing breast cancer in vitro..

Results: The HIDPPDNE was first characterized as a sphere-like nanoparticle with surface charge of -57.1 . 5.6 mV and size of 340.6 . 4.5 nm, whereas the DOX release rates for the nanodroplets within 48 h in 4 and 37 oC were obtained by 8.13 . 2.46% and 19.88 . 2.75%, respectively. We then examined the target-ability of the nanodroplets and found that the uptake efficiency of the HIDPPDNEs in HER2-positive MDA-MB-453 cells was approximately 2.5-fold higher than that in HER2-negative MCF7 cells, showing that the HIDPPDNEs were binding specific to HER2-expressing cells. In comparison to freely dissolved ICG, the HIDPPDNEs conferred an enhanced thermal stability to the entrapped ICG, and were able to provide a comparable hyperthermia effect and markedly increased production of singlet oxygen under near infrared irradiation (808 nm; 6 W/cm2). Based on the viability analyses, the results showed that the HIDPPDNEs were effective on cell eradication upon near infrared irradiation (808 nm; 6 W/cm2), and the resulting cell mortality was even higher than that caused by using twice amount of encapsulated DOX or ICG alone.

Conclusion: This work demonstrated that the HIDPPDNEs were able to provide improved ICG stability, target specificity, and enhanced anticancer efficacy compared to equal dosage of free ICG and/or DOX, showing a high potential for use in HER2 breast cancer therapy with reduced chemotoxicity.

Invited Speech 5: Bio-responsive nanoparticles for systemic siRNA delivery and

effective cancer therapy

Speaker: Prof. Xiaoding Xu, Sun Yat-Sen University, China Time: 11:25-12:05, Thursday Morning, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Nanomedicine has shown great promise for more effective and safer cancer therapy [1]. However, the successful clinical translation of cancer nanotherapeutics still faces considerable challenges due to the complexities and

heterogeneity of tumors, therefore requiring the rational design of nanoparticle (NP) delivery systems and patient selection. To address the barriers involved in systemic NP delivery to solid tumors (e.g., blood circulation, tumor accumulation and penetration, cellular uptake, and intracellular release), bio-responsive NP-based delivery technique has recently emerged for effective cancer treatment [2]. These bio-responsive NP delivery systems can respond to tumor microenvironment (TME) (e.g., acidic pH, over-expressed enzymes and hypoxia) to change their physicochemical properties including size, zeta potential and hydrophilic-hydrophobic balance, thereby leading to enhanced diffusion, cellular uptake, and/or intracellular cargo release [3-5]. Herein, we reported a unique and robust TME pH-responsive multistaged NP platform for systemic targeted siRNA



delivery and effective cancer therapy. This NP platform is composed of a sharp TME pH-responsive PEGylated polymer and a tumor cell-targeting and -penetrating peptide-amphiphile (TCPA). After encapsulating the siRNA/TCPA complexes, the resulting NP platform shows the following features for multistaged siRNA delivery: i) PEG outer shell prolongs blood circulation and thus enhances tumor accumulation; ii) sensitive response of the hydrophobic poly(2-(hexamethyleneimino) ethyl methacrylate) (PHMEMA) to TME pH induces the rapid disassembly of NPs and exposure of siRNA-TCPA complexes at tumor site; iii) tumor cell-targeting ability of TCPA attributable to its RGD ligand segment improves the cellular uptake of the siRNA-TCPA complexes; iv) cell-penetrating ability of TCPA attributable to its cationic polyarginine segment enhances the cytosolic siRNA transport to achieve efficient gene silencing; and v) facile synthesis of the PHMEMA polymer and TCPA as well as robust NP formulation enable the scale-up of this NP platform. Key Words:Nanoparticle, Bio-responsive, siRNA Delivery, Cancer therapy

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Invited Speech 6: Free-Blockage Mesoporous Anticancer Nanoparticles Based on

Wetting Transformation of Nanopores

Speaker: Prof. Yongqiang Wen, University of Science and Technology Beijing, China Time: 12:05-12:45, Thursday Morning, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Wettability is a very common phenomenon in nature. As a fundamental property, it is responsible for numerous chemical and biological aspects of molecular interactions in water, such as the water channels through biological membranes, which controls the water and ionic fluxes by adjusting the wettability of the channel.Inspired by this phonomenon, we proposed a new concept of free-blockage controlled release system, which was achieved by controlling the wettability of the internal surface of nanopores on MSNs.



Figure 1 Schematic representation of the free-blockage on-off characteristics of nanopores on MSNs functionalized with PhSAPTES due to ROS-responsive wettability and its selective intracellular release of DOX.

We functionalized the internal surface of nanopores on MSNs-PhS with hydrophobic phenyl sulfide (PhS) groups, which was protected from being wetted by water, successfully inhibiting the release of DOX. For cancer therapy, excessive production of ROS is one of the remarkable intrinsic biological features in solid tumor microenvironments. Upon the stimulation with ROS, hydrophobic PhS groups can be easily oxidized to electron-withdrawing hydrophilic phenyl sulfoxide or phenyl sulfone. Thus, the nanopores could be gradually wetted, leading to the release of DOX from the nanopores.Moreover, further studies have shown that the system can selectively release the entrapped DOX in MCF-7 cells triggered by intracellular ROS but not in normal HUVECs containing ROS with low levels.

The wettability-determined free-blockage controlled release system is simple and effective, and it could also be triggered by intracellular biological stimuli, which provides a new approach for the future practical application of drug delivery and cancer therapy.

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Biomedical Science: Invited Session II

Invited Speech 7: ImmunoPET and Near-Infrared Fluorescence Imaging of

Pancreatic Cancer with a Dual-Labeled Bispecific Antibody Fragment

Speaker: Prof. Haiming Luo, Huazhong University of Science and Technology (HUST), China Time: 14:00-14:40, Thursday Afternoon, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Dual-targeted imaging agents have shown improved targeting efficiencies in comparison to single-targeted entities. The purpose of this study was to



quantitatively assess the tumor accumulation of a dual-labeled heterobifunctional imaging agent, targeting two overexpressed biomarkers in pancreatic cancer, using positron emission tomography (PET) and near-infrared fluorescence (NIRF) imaging modalities. A bispecific immunoconjugate (heterodimer) of CD105 and tissue factor (TF) Fab' antibody fragments was developed using click chemistry. The heterodimer was dual-labeled with a radionuclide (⁶⁴Cu) and fluorescent dye. PET/NIRF imaging and biodistribution studies were performed in four-to-five week old nude athymic mice bearing BxPC-3 (CD105/TF^{+/+}) or PANC-1 (CD105/TF^{-/-}) tumor xenografts. A blocking study was conducted to investigate the specificity of the tracer. Ex vivo tissue staining was performed to compare TF/CD105 expression in tissues with PET tracer uptake to validate in vivo results. PET imaging of Cu-NOTA-heterodimer-ZW800 in BxPC-3 tumor xenografts revealed enhanced tumor uptake (21.0 \pm 3.4% ID/g; n = 4) compared to the homodimer of TRC-105 (9.6 \pm 2.0% ID/g; n = 4; p < 0.01) and ALT-836 (7.6 $\pm 3.7\%$ ID/g; n = 4; p < 0.01) at 24 h postinjection. Blocking studies revealed that tracer uptake in BxPC-3 tumors could be decreased by 4-fold with TF blocking and 2-fold with CD105 blocking. In the negative model (PANC-1), heterodimer uptake was significantly lower than that found in the BxPC-3 model (3.5 \pm 1.1% ID/g; n = 4; p < 0.01). The specificity was confirmed by the successful blocking of CD105 or TF, which demonstrated that the dual targeting with ⁶⁴Cu-NOTA-heterodimer-ZW800 provided an improvement in overall tumor accumulation. Also, fluorescence imaging validated the PET imaging, allowing for clear delineation of heterodimeric the xenograft tumors. Dual-labeled imaging agents, like ⁶⁴Cu-NOTA-heterodimer-ZW800, may increase the overall tumor accumulation in comparison to single-targeted homodimers, leading to improved imaging of cancer and other related diseases.

Invited Speech 8: Nanomicelles codelivery of herbal flavonoids and

chemotherapeutics to drug-resistant breast cancer cell

Speaker: Prof. Yan Xie, Shanghai University of Traditional Chinese Medicine, China Time: 14:40-15:20, Thursday Afternoon, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Chemotherapy is one of the most efficient strategies for cancer therapy, but some cancer cells become insensitive to the appointed chemotherapy drug

which is known as drug resistance. Recent years, this issue is the primary cause of chemotherapy failure in clinic, which increased the cancer-related mortality. Natural compounds are biologically active substances present in plants, such as carotenoids, flavonoids, alkaloids, and terpenoids, which have been proposed as possible adjuvants of traditional chemotherapy due to their long-term safety and negligible even inexistent side effects. In this study, we constructed a reduction-sensitive mixed micelles system for targeted delivery of chemotherapy drug doxorubicin and a typical flavnoid component quercetin on tumor to alleviate drug resistance and enhance the antitumor efficiency. This research will provide some useful references for restoring the sensitivity of chemotherapeutic drug to drug resistance tumor.

Invited Speech 9: Nuclear Spin Catalysis in Cell Biomolecutar Nanoreactors:

Premises and Promises

Speaker: Dr. Vitaly K. Koltover, Institute of Problems of Chemical Physics, Russia Time: 15:20-16:00, Thursday Afternoon, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Cells are composed from atoms of chemical elements, many of which have magnetic and nonmagnetic stable isotopes. In physics and chemistry, magnetic

isotope effects (MIEs) have long been known for a number of magnetic isotopes, among them ¹³C, ¹⁷O, ²⁹Si, ³³S, ⁷³Ge, and ²³⁵U [1]. Not long ago, MIEs have been discovered in experiments with living cells. In studies of effects of different isotopes of magnesium, magnetic ²⁵Mg and nonmagnetic ²⁴Mg, on the post-radiation recovery of yeast cells, *S. cerevisiae*, irradiated by short-wave UV light, it has been revealed that the recovery process of the cells, enriched with the magnetic ²⁵Mg, proceeds two times faster than the post-radiation recovery of the cells, enriched with





the nonmagnetic ²⁴Mg. In the experiments with another cell model, bacteria *E. coli*, it has been found that bacterial cells adapt essentially faster to the growth media enriched with magnetic ²⁵Mg compared to the media enriched with the nonmagnetic isotopes of magnesium. Besides, the cells enriched with ²⁵Mg demonstrate the reduced activity of the important antioxidant enzyme, superoxide dismutase, by comparison to the cells enriched with the nonmagnetic ²⁴Mg. Thus, it has been discovered that living cell perceive the nuclear magnetism (see Refs. in [2]). Furthermore, MIEs have been revealed in studies of the most important molecular motor of cell bioenergetics, myosin isolated from smooth muscle. The rate of the ATP hydrolysis, driven by myosin, is 2.0-2.5 times higher with ²⁵Mg than that with the nonmagnetic ²⁴Mg or ²⁶Mg [3]. The similar MIE has been revealed with zinc. While Zn^{2+} performs the cofactor function less efficiently than Mg²⁺, the rate of the ATP hydrolysis driven by myosin is 40-50 percent higher with the magnetic ⁶⁷Zn as compared to the nonmagnetic ⁶⁴Zn or ⁶⁸Zn [4]. Moreover, the beneficial MIE of ²⁵Mg has been discovered in the reaction of ATP hydrolysis catalyzed by mitochondrial H⁺-ATPase, isolated from yeast cells and reconstituted into the proteoliposome membrane. On its own, factual evidence of MIE unambiguously indicates that there is a spin-selective rate-limiting step, the "bottle-neck" in the chemo-mechanical cycle of the enzyme, that is accelerated by the nuclear spins of ²⁵Mg or ⁶⁷Zn. The plausible explanations of the nuclear spin catalysis in the biomolecular cell nanoreactors are discussed in [5]. Although detailed mechanisms of ability of the biocatalysts to perceive the nuclear magnetism require further investigations, there are the grounds to believe that this new field, nuclear spin catalysis, highlights promising venues for future research with possible applications of the stable magnetic isotopes in medicine for creating novel anti-stress drugs including the low-toxic anti-radiation protectors.

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Invited Speech 10: Vitamin K2 Promotes Glycolysis in Bladder Carcinoma Cells

that Leads to AMPK-dependent Autophagic Cell Death

Speaker: Prof. Ling Hong, Huazhong University of Science and Technology, China Time: 16:20-17:00, Thursday Afternoon, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel



Abstract

Cancer cells exhibit a high rate of glycolysis, compared to normal cells, to meet their fast growth and requirement for metastasis. Targeting glycolysis against cancer cells appears to intelligent strategies. Here, we show that Vitamin K2, an anticancer agent, promotes the glycolysis in bladder cancer cells, while inhibiting the tricarboxylic acid (TCA) cycle. Activation of PI3K/AKT and HIF-1 α is crucial for Vitamin K2-induced glycolysis upregulation that results in metabolic stress and subsequent AMPK-dependent autophagy and apoptosis. Intriguingly, glucose supplementation abrogates AMPK activation and attenuates autophagic cell death in Vitamin K2-treated cells. Both PI3K/AKT inactivation and HIF-1 α blockade counteract Vitamin K2-induced AMPK-dependent autophagic cell death. Besides, 2-DG, DCA and 3-BP (three typical glycolytic inhibitors) respectively abolish AMPK-dependent autophagic cell death triggered by Vitamin K2 through glycolysis inhibition. Collectively, these findings reveal that Vitamin K2 could trigger AMPK-dependent autophagic cell death in bladder cancer cells by elevating the glycolytic process.

Invited Speech 11: Role of non-coding RNAs in the pathogenesis of lung diseases

Speaker: Prof. Lin Liu, Oklahoma State University, USA Time: 17:00-17:40, Thursday Afternoon, May 30, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Although the majority of the mammalian genome has beentranscribed, less than 2% of the transcripts encode proteins. Non-coding RNAs have been increasingly recognized for their importance in regulating various biological

processes. Non-coding RNAs are classified as small non-coding RNAs with 20-30 nucleotides such as microRNAs and long non-coding RNAs (lncRNAs) with a size of > 200 nucleotides.While microRNAs mainly control gene expression at the post-transcriptional level, lncRNAs act by interacting with RNA, DNA and protein to activate or repress gene expression at various levels, including transcription, splicing, mRNA stability, and translation. This talk will discuss strategies to identify non-coding RNAs involved in lung diseases and follow-up functional and mechanistic studies of the identified non-coding RNAs.



Protein and Proteomics: Invited Session

Invited Speech 12 Diversity of c-di-GMP-binding proteins and mechanisms

Speaker: Prof. Shan-Ho Chou, National Chung Hsing University, Chinese Taipei Time: 08:30-09:10, Friday Morning, May 31, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

The discovery of c-di-GMP second messenger was one of the most important breakthroughs in the microbial world in the past two decades. This molecule



is present in most bacteria, regulating a plethora variety of important bacterial activities such as biofilm formation, biogenesis and function of flagella and pili, cell differentiation, and biosynthesis of natural product and secretion of pathogenic factors, through binding to an unprecedented array of effectors. There are usually tens or hundreds of enzymes that make or break c-di-GMP in every bacterial genome. However, only a few c-di-GMP receptors have been characterized to date. To get a better understanding of how c-di-GMP carries out its diverse functions, it is of crucial importance to decipher most or all possible c-di-GMP binding motifs. Several c-di-GMP receptors have been found but most of them usually exhibit narrow phylogenetic distribution1. Recently, MshE, an ATPase associated with the mannose-sensitive hemagglutinin type IV pilus formation in Vibrio cholerae, was shown to bind c-di-GMP well by a DRACALA methodology but no canonical binding motif was found in binding c-di-GMP. We have solved the crystal structure of the MshEN/c-di-GMP complex, which revealed an entirely new c-di-GMP binding mode2. It is fused with many other domains such as ATPase, glycosyltransferase, CheA, CheX, REC, cNMP-binding, HD-GYP, and guanylate cyclase, which have been found to play various important roles in bacterial physiology. MshEN is thus a new generation c-di-GMP binding protein that may serve as a good target for developing novel drugs against bacteria without causing drug resistance.

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Invited Speech 13: BMP-2 induces EMT and breast cancer stemness through Rb

and CD44

Speaker: Prof. Ju Wang, Jinan University, China Time: 09:10-09:50, Friday Morning, May 31, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Bone morphogenetic protein 2 (BMP-2) has been reported to facilitate epithelial-to-mesenchymal transition (EMT) and bone metastasis in breast



cancer xenograft models. To investigate the role of BMP-2 in the development of breast cancer stem cells (BCSCs), and to further elucidate the mechanisms underlying its influence on breast cancer metastasis, we conducted a comprehensive molecular study using breast cancer cell lines and clinical samples. Our results showed that downregulation of Rb by BMP-2 was associated with ubiquitin-mediated degradation activated by phosphorylation of Rb via the PI3K/AKT signal pathway. In addition, the Smad signaling pathways are implicated in upregulation of CD44 protein expression by BMP-2. It was suggested that cross-talk exists between Rb and CD44 signaling pathways, as recombinant human BMP-2 (rhBMP-2) was found to regulate CD44 expression partly through Rb signals. In clinical tissues, BMP-2 was positively and negatively correlated with CD44 and Rb expression, respectively. Based on the *in vitro* and *in vivo* results, we have established an integrated mechanism by which rhBMP-2 induces EMT and stemness of breast cancer cells via the Rb and CD44 signaling pathways, which then contribute to breast cancer metastasis. These findings may be helpful for developing new strategies for the treatment and prognosis of advanced breast cancer.

Invited Speech 14: Natural preservatives for natural products: Bacterial

ε-polylysine for microalgal pigments

Speaker: Dr. Sourish Bhattacharya, Central Salt & Marine Chemicals Research Institute, India Time: 09:50-10:30, Friday Morning, May 31, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Present day need for replacing chemically synthesized pigments is gradually increasing wherein microalgae is a promising source for phycobiliproteins.



However, due to its sensitivity towards light, temperature and pH, it gets easily denatured and there is a need to develop an effective natural preservative for preparing stable phycobiliproteinsfor their

possible application as colorants in food industries. Phycobiliproteins are considered to have antimicrobial, antioxidant, anti-ageing, anti-inflammatory, neuroprotective and hepatoprotective properties. Phycobiliproteins are extensively used as natural colorants in food and cosmetics, fluorescent neoglycoproteins, probes for single particle fluorescence and imaging fluorescent applications in clinical and immunological analysis. Preservation of such high value and sensitive product with chemicals possess certain side-effects to human being.

In the present study, effect of natural preservative ε -polylysine and chemical preservative citric acid on the stability of C-PC and C-PE at 4±2 °C was studied. Percentage loss of C-PE and C-PC content and effect of pH and fluorescence on C-PC and C-PE was studied. 0.02% ε -polylysine (w/v) was found to be optimum for storage of C-PC and C-PE at 4±2 °C and lesser loss of C-PC and C-PE content as compared to citric acid for its storage up to 8 days without any change in colour and pH. The amount of C-PC and C-PE left in the solution containing ε -polylysine was 90.5 and 95.24% respectively.



Invited Speech 15: Purification, characterization and evaluation of antimicrobial

and anticancer activities of lectins

Speaker: Dr. Syed Rashel Kabir, University of Rajshahi, Bangladesh Time: 10:50-11:30, Friday Morning, May 31, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Cancer is one of the leading causes of death worldwide after cardiovascular diseases. Another serious problem is drug resistance. Due to severe side effects of conventional medicines and radiotherapy for cancer treatment, researchers are trying to develop alternative natural medicines to solve these problems by using various plant extracts, snake venoms, therapeutic proteins etc. Lectins are such a group of therapeutic proteins. Recently, several lectins have been isolated at our laboratory from edible plant sources (e.g. *N. nouchali, K. rotunda, P. sativum, S. tuberosum, S. lycopersicum, T. dioica* etc.) by using different chromatographic methods. Molecular weight, sugar specificity, physico-chemical properties, amino acid analysis and N-terminal sequence of these

lectins have been determined. BLAST software was used to find the sequence homology. Some of the purified lectins showed potent activity against pathogenic bacteria and fungi. Anticancer properties were also studied against rapidly growing Ehrlich ascites carcinoma (EAC) cells in vitro and in vivo in mice as well as against human cancer cell lines e.g. breast cancer cell line, colorectal cancer cell line, cervical cancer cell lines etc. Most of the lectins showed antiproliferative activities against EAC cells in vitro when incubated for 24 h. Then the lectin was injected (i.p.) in EAC-bearing Swiss albino mice at doses ranging from 0.5 to 6 mg/kg/day for five consequence days and 30 to 88% of EAC cell growth inhibition was observed. The antitumor mechanism was studied using florescence microscopy, caspase inhibitors and expression of genes/proteins. Different results were obtained for different lectins. Some lectins caused apoptosis by nuclear condensation whereas others caused cell morphological changes, fragmentation of DNA and cell blebbing. A few other showed antitumor activities without triggering apoptosis. Most of the apoptosis-causing lectins caused the expression of apoptosis-related Bcl-2, Bcl-X, p53, Bax, Bak, NFkB, Cytochrome-c, caspase-3 genes/proteins whereas most of them failed to show the activity in the presence of inhibitors of caspase-3, Caspase-9 and/or caspase-8. In most cases, after treating EAC cells with different lectins, expression of p53, Bax, Bak, NFkB, Cytochrome-c, caspase-3 and Bcl-X and Bcl-2 genes were up-regulated and downregulated, respectively. Induction of apoptosis took place mainly through the mitochondrial pathway. Arrests of different phases of the cell cycle by different lectins were also different. Although some lectins showed potent activity against pathogenic bacteria, fungi and inhibited cancer cell growth, further studies are needed to designate them as potent drugs.

Invited Speech 16: Proteomics-Centered Systems Biology Approaches to Complex

Diseases

Speaker: Dr. Xusheng Wang, St. Jude Children's Research Hospital, USA Time: 11:30-12:10, Friday Morning, May 31, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Mass spectrometry (MS)-basedshotgun proteomics technology has been applied to identify a number of proteins underlying complex diseases. However, analysis for large-scale proteomics data remains challenging. Here,



we present JUMP, a software suite for analyzing MS-based proteomic data at systems level. The JUMP suite contains many components, including MS database search engine, identification filtering, protein quantification, protein quantification, and proteogenomics. We applied the JUMP suite to analyze a large-scale tandem mass tag (TMT)-based proteomic dataset derived from Alzheimer's disease (AD) human brain cortical tissues. We identified and quantified over 10,000 proteins fromboth normal and ADhuman brain samples at the protein FDR < 0.01. We thencharacterized 173 differentially expressed (DE) proteins between AD and normal cases. We subsequently constructed

co-expression networks for DE proteins using the weighted gene correlation network analysis (WGCNA) tool. We finally integrated multi-omics data to prioritize the identified proteins and pathways that are involved the AD pathogenesis. In summary, oursystems-biology approaches elucidate molecular mechanisms underlying AD.

Nursing and Healthcare: Invited Session

Invited Speech 17: The development and evaluation of a 'Caring for Couples

Coping with Cancer (4Cs)' programme to support couples coping with cancer as

a unit

Speaker: Prof. Qiuping Li, Jiangnan University, China Time: 08:30-09:10, Friday Morning, May 31, 2019 Location: Room 1 (1 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Background: As the primary informal caregiver for cancer patients, spousal caregivers are the population at a high risk of hidden morbidity. The factors

impacting couples coping with cancer are complex, and within spousal caregiver-patient dyads the impact is mutual.

<u>Aim</u>: To develop and examine the feasibility and effects of a 'Caring for Couples Coping with Cancer "**4Cs**" Programme' to support couples coping with cancer as the unit of intervention in China.

Methods: The Medical Research Council's (MRC) framework in developing and evaluating complex interventions was adopted in developing and piloting this 'Caring for Couples Coping with Cancer "**4Cs**" Programme'.

In phase = 1 \times ROMAN I of the development of the **4Cs** programme, three steps were conducted: (1) identifying evidence: evidence identified from extensive reviews of the literature and a focus group interview study; (2) identifying or developing a theory: a preliminary Live with Love Conceptual Framework (P-LLCF) was proposed, and the P-LLCF was tested using mixed methods design; and (3) modelling the process and outcomes: the **4Cs** programme was developed based on the P-LLCF.

In phase = $2 \times ROMAN$ II of determination of feasibility/piloting: the **4Cs** programme was piloted by a pre-intervention and post-intervention study design. Outcome measures, including dyadic mediators (self-efficacy), dyadic appraisal (Cancer Related Communication Problem, CRCP), dyadic



coping (Dyadic Coping Inventory, DCI), and dyadic outcomes (physical and mental health, negative and positive emotions, and marital satisfaction), were assessed at T0 (pre-intervention) and T1 (post-intervention). Repeated measures analysis of variance and structural equation modeling (SEM) were applied in testing the outcomes of the **4Cs** program.

Results: The recruitment and retention rates were 86.7% and 78.6%, respectively. The overall effect sizes calculated in this study ranged from medium to small. The SEM of all six models resulted in convergence and showed goodness of fit to the data and variables, supportive of the constructs in the P-LLCF.

Conclusions: This study provides evidence suggesting that the **4Cs** program is acceptable, feasible, and effective in supporting cancer couples coping with the illness as dyads. Although a generally positive effect was identified in the pre- and post-intervention outcome measures, further evaluation of this **4Cs** program in a large, multisite RCT is needed to provide substantial evidence.

Engineering: Invited Session I

Invited Speech 1: Design of Building Structures to Resist Progressive Collapse

Speaker: Prof. Yanglin Gong, Lakehead University, Canada Time: 08:30-09:10, Thursday Morning, May 30, 2019 Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Resisting progressive collapse has recently become a mandatory requirement for the structural design of many important buildings in North America. Progressive collapse is defined as the spread of an initial local failure from

element to element, eventually resulting in the collapse of an entire structure or a disproportionately large part of it. First, this presentation will provide an overview of the design objectives and various design approaches. Next, the presentation will describe the alternate load path method under the assumed loading scenarios of a column or wall removal. Then, the presentation will introduce a nonlinear static analysis technique for steel building frameworks, with its focus on modelling beam-to-column connections. Finally, a design example will be used to illustrate the analysis and design procedures.

Invited Speech 2: Prediction on static strength of CFRP strengthened CHS

column under axial compression

Speaker: Prof. Yongbo Shao, Southwest Petroleum University, China Time: 09:10-09:50, Thursday Morning, May 30, 2019 Location: Room 2 (2 号会议室), Kunming Jin Jiang Hotel

Abstract

To predict the load carrying capacity of a circular hollow section (CHS) tube reinforced with carbon fibre reinforced polymer (CFRP), both numerical and theoretical analyses were presented. In the numerical analysis, nonlinear finite element model of CHS tube reinforced with CFRP was built, and the load carrying capacity of such tube under axial compression was obtained through finite element analysis for this model. The accuracy of the finite element result was verified through comparison with reported experimental results. Based on the stress distribution of the longitudinal and circumferential CFRPs from the finite element analysis, it is found that the circumferential CFRPs are under tension and they produce confinement to the radial deformation of the CHS tube while the longitudinal CFRPs sustain the axial compression together with the steel tube. From such observation, an equivalent section method is presented, and it is used to derive theoretical equations for predicting the load carrying capacity of CHS tubes reinforced with CFRPs. The theoretical equations consider two different reinforcing methods, i.e., the placement of the longitudinal and the circumferential CFRPs. Finally, the derived equations are evaluated through comparison against experimental results to verify their reliability.

Invited Speech 3: Complex Construction Activity Recognition System Based On

Ergonomics Synergy

Speaker: Prof. Chen Wang, Huaqiao University, China Time: 09:50-10:30, Thursday Morning, May 30, 2019 Location: Room 2 (2 号会议室), Kunming Jin Jiang Hotel

Abstract

Construction activity recognition could be improved by data fusions from multiple inertial sensors yet the optimal placement for synergy need empirical



determination. This study aims to identify complex construction activities based on ergonomics synergy through a series of experiments on construction tasks. The construction workers were equipped by data acquisition units to simultaneously acquire acceleration and angular velocity data for multiple locations. A complex construction activity recognition system was developed based on ergonomics synergy. Attempts in comparing various scenarios were to produce a better accuracy.

Invited Speech 4: Deformation Failure Mechanism and Damage Constitutive

Model of Jointed Rock Masses under Cyclic Uniaxial Compression

Speaker: Prof. Feng Dai, Sichuan University, China Time: 10:50-11:30, Thursday Afternoon, May 30, 2019 Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Intermittent jointed rocks, widely existing in many mining and civil engineering structures, are quite susceptible to cyclic loading. Understanding the fatigue mechanism of jointed rocks is vital to the rational design and the



long-term stability analysis of rock structures. In this keynote, we systematically reported our recent experimental, numerical and theoretical investigations in this regard. First, the fatigue mechanical properties of jointed rock models under different cyclic conditions are experimentally investigated, considering four loading frequencies, four maximum stresses, and four amplitudes. Under lower loading frequency or higher maximum stress and amplitude, the jointed specimen is characterized by higher fatigue deformation moduli and higher dissipated hysteresis energy, resulting in higher cumulative damage and lower fatigue life. Second, the influences of typical joint geometry (i.e., dip angle, persistency, density and spacing) on the fatigue failure behavior of jointed rock models are estimated, and the fatigue progressive failure processes of the jointed model are numerically revealed. Two final failure modes are observed in the present study, i.e., tensile splitting failure and tensile-shear mixed failure. As the joint geometry parameter increases, the failure mode of jointed rocks gradually change from tensile splitting failure to mixed failure. Third, a damage constitutive model is proposed to describe the deformation and strength characteristics of intermittent jointed rocks under cyclic uniaxial compression. Our new model comprehensively reflects the coupled damage induced by micro-flaws and macro-joints, which is able to reliably reproduce the hysteretic stress-strain curves and the cumulative fatigue plastic deformation of rock materials under cyclic loading.

Invited Speech 5: Deformation Failure Mechanism and Damage Constitutive

Model of Jointed Rock Masses under Cyclic Uniaxial Compression

Speaker: Prof. Zhushan Shao, Xi'an University of Architecture & Technology, China Time: 11:30-12:10, Thursday Afternoon, May 30, 2019 Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

The interest in microwave processing of materials especially facilitating breakage is highlighted recently due to its potential for decreasing energy

consumption and improving process efficiency. Fundamentals and industrial applications of microwave heating are introduced in the lecture. Multi-field theory of microwave-assisted hard rock fragmentation is illuminated. Results of numerical simulation based on two phase model are presented to clarify the temperature gradient, stress and strain states of minerals under microwave irradiation. Damage evaluation of hard rock is quantified according to the crack propagation behavior. Experimental results of microwave heating pyrite-calcite mineral are shown to validate the theoretical model. The research has the significance for the industrialization of microwave-assisted solid breakage.

Engineering: Invited Session II

Invited Speech 7: Performance of Light-Frame Residential Wood Structures

under Combined Wind and Flood Hazards

Speaker: Prof. Nur Yazdani, University of Texas at Arlington, USA Time: 14:40-15:20, Thursday Afternoon, May 30, 2019 Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

Although simultaneous flood and wind events may cause catastrophic damage in areas outside the special flood hazard areas, there are no current building

code requirements for light frame wooden structures (LWFS) to be elevated and/or designed for the combined loads. This study numerically investigated the performance of typical elevated and a non-elevated LFWS buildings in 100- and 500-year flood plains, respectively, against global failure due to combined flood and wind forces. Factors such as the direction of lateral loads, effect of buoyancy and flood level difference between the building interior and exterior were considered. The





adequacy of foundation anchor bolts spacing provisions from the International Building Code (IBC) and Bureau of Recovery and Mitigation (BRM) were investigated. For the non-elevated type building, it was found out that a non-engineered building complying only with the minimum requirements set by building codes is likely to fail locally at the wall-foundation connection before any global failure. In case of elevated buildings, two-story elevated buildings are safer against overturning, sliding and uplifting failures, as compared to one-story counterparts.

Invited Speech 8: Criteria of effective drone use supporting disaster management

Speaker: Dr. Agoston Restas, National University of Public Service, Budapest, Hungary Time: 15:20-16:00, Thursday Afternoon, May 30, 2019 Location: Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel



Abstract

Introduction: Drone applications become more and more common in our life meaning that in case of disaster management would not be a useless to

investigate its effectiveness. Depending on different conditions, in expert view drone application can be effective or not effective. Since disaster managers suffer almost always from the lack of resources it is necessary to optimize them. Therefore, it is useful to study that at which assumptions drone applications are able to satisfy the requirements of the effective use.

Methodology: This study based mostly on author's own practices, collecting and analysing the experiences however in some cases economic analysis and logical conclusions also were used as well as picture analysis and simply mathematical phenomena. Of course, relevant literatures were also used.

Results: Author found that in some cases like managing forest fires we can measure easily both the professional and the economical effectiveness of the drone applications, however in other cases like intervention at hazardous materials or managing flood only the professional one can be measured clearly. Moreover, in some special events like nuclear accidents there is no other option for the safe intervention than using unmanned systems like drone therefore measuring its economic effectiveness is not relevant.

Invited Speech 11: TRAFFIC ISSUES; IOT FOR ANALYSING TRAFFIC AND DENSITY PATTERNS BY UNIQUE IDENTIFICATION WITH RFID TAGS

Speaker: Prof. Sreenivasa rao Ijjada, GITAM University, India **Time:** 17:40-18:20, Thursday Afternoon, May 30, 2019 **Location:** Room 2 (2 号会议室), 3rd Floor, Kunming Jin Jiang Hotel

Abstract

In this Smart world, the term IOT plays a big role in the digitisation, smart city and intelligent transportation systems. In the world, with the IOT, many cities,



across the countries transform into smart cities by having intelligent traffic and parking systems, smart malls and restaurants, smart buildings with intelligent home security systems, smart streetlight systems with renewable electricity generation facilities, intelligent transportation systems and intelligent garbage monitor systems. The term smart needs efficient integration, in depth insight, service innovation, security reliability and energy saving methods

In smart city concept, IOT based intelligent systems are to be designed. In intelligent traffic and parking systems, the traffic density in different routes can be made to analyze and the same can be alarmed to the vehicular. In many traffic congested areas the parking systems are need to be more intelligent to park the vehicles. The malls and the restaurants should be housed intelligent systems which make less waiting time and cashless pays. The buildings are able to have a more smart security facility which makes them more proximity and virtually visible to the owner. Intelligence is need to added to the streetlights to on and off automatically with the need and able to work with the renewable and manmade energies. The electricity can be generated with solar energy, walkways and runways. The city sanitation must hold best intelligent systems to provide alarms when they are saturated and robotic lift systems. All this made the city smarter and provides all comforts for human life.

In this paper, intelligent traffic system is addressed to cut down the traffic issues. Unique Identification is quite crucial in many regards. Leveraging the capabilities of this fact, many sophisticated systems can be designed, keeping in mind the requirements of the users.

This proposes a system using which a reliable IOT network of devices can be established to use a unique identifier, RFID tag, to gather data and map out various demographics of an area by analyzing the traffic patterns. The propose system architecture, along with the structural outlay, the technical specifications which might make the system reliable at the most basic level, and certain protocols which can be followed. As the prime identifier, the RFID tag identity is sent as a response to the SPoC beacon, which is then captured, and sent over to a central data storage facility for further perusal.

With reference to the past literature, a collection of data has been shown to allow for successful

determination of the density of population in the area, along with the vehicular traffic patterns. As an alternative, the use of mobile phones as a unique identifier is also looked at, as active RFID usage can become very much expensive in some scenarios. Keeping in mind the privacy concerns, a simple security algorithm to be implemented at the SPoCs is proposed. The fiscal feasibility of the work is also discussed upon. As a simple implementation, we design of a passive RFID tag identifier which recognizes the individual as the card is scanned, and sends a message onto a predefined number.

Part III Technical Sessions

Biomedical Science: Invited Session I

Session Chair: TBD Room 1 (1 是会议室) 3rd Floor Thursday Morning May 30, 2019			
ID	Paper Title	Speaker Affiliation	
Invited 08:30-09:10	Modulation of Macrophages in Murine Acute Lung Injury	Prof. Zhilong Jiang	Zhongshan Hospital, Fudan Universit, China
Invited 09:10-09:50	Development of cancer stem cell vaccine in an adjuvant setting	Dr. Qiao Li	University of Michigan, USA
Invited 09:50-10:30	Nanomaterials for ImagingGuided Two-photon Phototherapy	Prof. Qing-Hua Xu	National University of Singapore, Singapore
10:30-10:45	Coffee Break		
Invited 10:45-11:25	Development of Tumor-Targeting Nanoagents for Photo-Chemo- Therapy of Breast Cancer	Prof. Yu-Hsiang Lee	National Central University
Invited 11:25-12:05	Bio-responsive nanoparticles for systemic siRNA delivery and effective cancer therapy	Prof. Xiaoding Xu	Sun Yat-Sen University, China
Invited 12:05-12:45	Free-Blockage Mesoporous Anticancer Nanoparticles Based on Wetting Transformation of Nanopores	Prof. Yongqiang Wen	University of Science and Technology Beijing

Biomedical Science: Invited & Oral Session II

Session Chair: TBD				
Room 1 (1 号会议室), 3rd Floor		Thursday A	fternoon, May 30, 2019	
ID	Paper Title	Speaker	Affiliation	
Invited	ImmunoPET and Near-Infrared Fluorescence	Prof. Haiming Luo	Huazhong University of	
14:00-14:40	Imaging of Pancreatic Cancer with a Dual-Labeled		Science and Technology	
	Bispecific Antibody Fragment		(HUST), China	
Invited	Nanomicelles codelivery of herbal flavonoids and	Prof. Yan Xie	Shanghai University of	
14:40-15:20	chemotherapeutics to drug-resistant breast cancer		Traditional Chinese	
	cell		Medicine, China	

Invited 15:20-16:00	Nuclear Spin Catalysis in Cell Biomolecutar Nanoreactors: Premises and Promises	Dr. Vitaly K. Koltover	Institute of Problems of Chemical Physics, Russia
16:00-16:20	Coffee Break		
Invited 16:20-17:00	Vitamin K2 Promotes Glycolysis in Bladder Carcinoma Cells that Leads to AMPK-dependent Autophagic Cell Death	Prof. Ling Hong	Huazhong University of Science and Technology, China
Invited 17:00-17:40	Role of non-coding RNAs in the pathogenesis of lung diseases	Prof. Lin Liu	Oklahoma State University, USA
Oral 17:40-17:55	Testing for Drug Abuse in Pathology Consultation Practice	Dariusz Galkowski	Rutgers- Robert Wood Johnson Medical School
Oral 17:55-18:10	Construct Cyan Fluorescence by De Novo Tripeptides: An In Vitro Mutation Study on the Role of Single Amino Acid Residues and Their Sequence	Feng Zhang	Inner Mongolia Agricultural University
Oral 18:10-18:25	Analysis of cases of thrombocytopenia microscopic Examination	Hongmin Xu	Third Central Hospital, Tianjin Institute of Hepatobiliary Disease
Oral	Protective effects of ceria nanoparticles (cerium oxide nanoparticles) on X-ray irradiation-induced damage to the immune system and its antioxidant function	Shao-yan Si	Center for Special Medicine and Experimental Research, Medical Center of PLA Strategic Support Force, Beijing
Oral	Affinity study on bovine serum albumin's peptides to amphiphilic	Yuan Ming	Inner Mongolia Agricultural University
Oral	Interaction study on bovine serum albumin physically binding to silver nanoparticles: Evolution from discrete conjugates to protein coronas	Jun Guo	Guangzhou Medical University
Oral	One step synthesis of antimicrobial peptide protected silver nanoparticles: the core-shell mutual enhancement of antibacterial activity	Jingyu Gao	Inner Mongolia Agricultural University

Protein and Proteomics: Invited & Oral Session

Room 1 (1 号会议室), 3rd Floor		Friday M	orning, May 31, 2019
ID	Paper Title	Speaker	Affiliation
Invited	Diversity of c-di-GMP-binding proteins and	Prof. Shan-Ho	National Chung Hsing
08:30-9:10	mechanisms	Chou	University, Chinese Taipei
Invited	BMP-2 induces EMT and breast cancer stemness	Prof. Ju Wang	Jinan University, China
09:10-09:50	through Rb and CD44		
Invited	Natural preservatives for natural products:	Dr. Sourish	Central Salt & Marine
09:50-10:30	Bacterial ε-polylysine for microalgal pigments	Bhattacharya	Chemicals Research Institute, India
10:30-10:50	Coffee Break		
Invited	Purification, characterization and evaluation of	Dr. Syed Rashel	University of Rajshahi,
10:50-11:30	antimicrobial and anticancer activities of lectins	Kabir	Bangladesh
Invited	Proteomics-Centered Systems Biology	Dr. Xusheng Wang	St. Jude Children's
11:30-12:10	Approaches to Complex Diseases		Research Hospital, USA
Oral 12:10-12:25	Intrinsic protease-like activity of Cu2O/SBA-3	Lingli Li	Yunnan University
Poster	MOFzyme: Enzyme mimics of Fe/Fe-MIL-101 and FJU-21	Lingli Li	Yunnan University

Session Chair: Dr. Xusheng Wang, St. Jude Children's Research Hospital, USA

Nursing and Healthcare: Invited &Oral Session

Session Chair: TBD

Room 1 (1 号会议室), 3rd Floor		Thursday Morning, May 30, 2019	
ID	Paper Title	Speaker	Affiliation
Invited	The development and evaluation of a 'Caring for	Prof. Qiuping Li	Jiangnan University, China
08:30-09:10	Couples Coping with Cancer (4Cs)' programme to support couples coping with cancer as a unit		
Oral	Development of an index for drop-foot severity of	Albert Chong	University of Southern
09:10-09:25	DPN patients		Queensland

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Oral 09:25-09:40	Foot loading pattern variations between normal weight, overweight, and obese adults aged 24 to 50 years	Lay Tan	University of Southern Queensland
Oral 09:40-09:55	Prediction of Perceived Stress of Hong Kong Nursing Students with Coping Behaviors over Clinical Practicum: A Cross-Sectional Study	Anson Tang	Tung Wah College
Oral 09:55-10:10	The perceptions for Hong Kong male students refusing HPV vaccination: An exploratory study	KEUNG SUM CHAN	TUNG WAH COLLEGE
10:10-10:25	Coffee Break		
Oral 10:25-10:40	The stressors and psychological well-being of Lesbian, Gay and Bisexual among Chinese adults in Hong Kong	Winnie LS Cheng	Tung Wah College
Oral 10:40-10:55	Testing for Drug Abuse in Pathology Consultation Practice	Dariusz Galkowski	Rutgers- Robert Wood Johnson Medical School
Oral 10:55-11:10	Diabetes Self-care Activities and Glycaemic Control among Adults with type 2 diabetes in Sri Lanka: A cross-sectional study	Thamara Amarasekara	University of Sri Jayewardenepura, Sri Lanka
Oral 11:10-11:25	Cognitive Behaviour Therapy for Heart Failure Patients with Depression	Rasika Jayasekara	University of South Australia
Oral 11:25-11:40	Comparative nursing study of Patients undergoing coronary intervention therapy in different ways	Qilian He	Qinghai University

Engineering: Invited Session

Room 2 (2 号会议室), 3rd Floor		Thursday Morning, May 30, 2019	
ID	Paper Title	Speaker	Affiliation
Invited	Design of Building Structures to Resist	Prof. Yanglin	Lakehead University,
08:30-09:10	Progressive Collapse	Gong	Canada
Invited	Prediction on static strength of CFRP strengthened	Prof. Yongbo Shao	Southwest Petroleum
09:10-09:50	CHS column under axial compression		University, China

Session Chair: TBD

Invited	Complex Construction Activity Recognition	Prof. Chen Wang	Huaqiao University, China
09:50-10:30	System Based On Ergonomics Synergy		
10:30-10:50	Coffee Break		
Invited 10:50-11:30	Deformation Failure Mechanism and Damage Constitutive Model of Jointed Rock Masses under Cyclic Uniaxial Compression	Prof. Feng Dai	Sichuan University, China
Invited 11:30-12:10	Heating process and damage evaluation of hard rock under microwave irradiation	Prof. Zhushan Shao	Xi'an University of Architecture & Technology

Engineering: Invited & Oral Session

Session Chair: TBD

Room 2 (2 号会议室), 3rd Floor

Room 2 (2 号会	会议室), 3rd Floor	Thursday Aft	ernoon, May 30, 2019
ID	Paper Title	Speaker	Affiliation
Invited 14:00-14:40	Performance of Light-Frame Residential Wood Structures under Combined Wind and Flood Hazards	Prof. Nur Yazdani	University of Texas at Arlington, USA
Invited 14:40-15:20	Criteria of effective drone use supporting disaster management	Dr. Agoston Restas	National University of Public Service, Budapest, Hungary
Invited 15:20-16:00	TRAFFIC ISSUES; IOT FOR ANALYSING TRAFFIC AND DENSITY PATTERNS BY UNIQUE IDENTIFICATION WITH RFID TAGS	Prof. Sreenivasa rao Ijjada	GITAM University, India
Oral 16:00-16:20	Evaluation Method for Tunneling Stability of TBM Cutterhead System	Zhaohui Xu	Dalian University of Technology
Oral 16:20-16:40	Modeling Off-shore Wind Turbine Construction Project Subject to Impact of Wind Uncertainty	Sy-Jye Guo	National Taiwan University
Oral 16:40-17:00	Comparative Study Using the 2-Hydrological Models with the Global Weather in a Small Watershed, a Case Study in the Upper Tha Chin River Basin, Thailand	Sombat Chuenchooklin	Naresuan University

Oral	Research on the supervision and regulation mode	Yixu Gong	Beijing Academy of Safety
17:00-17:20	of production safety in China, Germany and		Science and Technology
	Canada		
Oral	Research on the Construction of Fire Safety	Le Zhang	Beijing Academy of Safety
17:20-17:40	Management System of Urban Comprehensive		Science and Technology
	Community in Beijing		

Part IV Abstracts

Biomedical Science: Oral Session

ID: CPDT2019_20002

Title: Testing for Drug Abuse in Pathology Consultation Practice Name: Dariusz Galkowski Affiliation: Rutgers- Robert Wood Johnson Medical School Email: galkow.d@rutgers.edu

Abstract

Every day, more than 115 people in the United States die after overdosing on opioids. The misuse of and addiction to opioids—including prescription pain relievers, heroin, and synthetic opioids such as fentanyl—is a serious national crisis that affects public health as well as social and economic welfare. The CDC estimates that the total "economic burden" of prescription opioid misuse alone in the United States is \$78.5 billion a year, including the costs of healthcare, lost productivity, addiction treatment, and criminal justice involvement. What is the experience of clinical pathologist overseeing treatment and recovery services laboratories and how to face and solve diagnostic conundrums in these settings. Utilizations of latest technologies to minimize laboratory errors.

ID: NanoMed2019_20004

Title: Construct Cyan Fluorescence by De Novo Tripeptides: An In Vitro Mutation Study on the Role of Single Amino Acid Residues and Their Sequence Name: Feng Zhang

Affiliation: Inner Mongolia Agricultural University Email: fengzhang1978@imau.edu.cn

Abstract

Amino acids are a natural choice as building blocks for developing bio-functional entities owing to their superior diversity and versatile physicochemical properties compared to nucleotide bases. A simple permutation of amino acids creates a broad palette of proteins that are successfully engineered as useful bio-functional agents. For example, the intrinsic ultraviolet fluorescence of phenylalanine (F) and tryptophan (W) have been engineered to emit in the visible spectrum, which has broad applications as imaging/sensing probes, photothermal therapy agents, optogenetic switches, etc. Nature produces more colorful coats/furs, feathers/hairs, and eyes, through various biochemical modification of tyrosine (Y) based pigmentation. However, it is challenging to modulate the fluorescence wavelength from UV to visible region based on oligopeptide. In this article, we report an innovative approach to construct cyan fluorescence by de novo tripeptides containing glycine (G), Y and lysine (K), which form robust dimer structures under moderate oxidizing conditions. Through the in vitro mutation approach, we figure out that both amino acids and their sequence plays significant roles in modulating the fluorescence. We believe this work holds great promise in developing novel cell imaging and resonance energy-transfer-based fluorescent probes.

ID: CACB2019_20001

Title: Analysis of cases of thrombocytopenia microscopic Examination Name: Hongmin Xu Affiliation: Third Central Hospital, Tianjin Institute of Hepatobiliary Disease Email: xhm809666@sina.com

Abstract

Platelet is the smallest cell in blood. It has the function of maintaining

the integrity of vascular endothelium, adhesion and aggregation, releasing coagulants, repairing damaged blood vessels and so on. Therefore, the number, shape and function of platelets are closely related to the diagnosis and

treatment of the disease. At present, most hospitals use blood cell analysis to detect blood cells. Although platelet detection by instrument is fast and

reproducible, it is necessary for low-value specimens to be examined by microscope artificial microscope. Only in this way can we prevent the occurrence of missed diagnosis and misdiagnosis.By analyzing the clinical data of 4 patients with thrombocytopenia, the necessity of artificial microscopic examination for patients with thrombocytopenia was further discussed.

ID: NanoMed2019_20000

Title: Protective effects of ceria nanoparticles (cerium oxide nanoparticles) on X-ray irradiation-induced damage to the immune system and its antioxidant function

Name: Shaoyan Si

Affiliation: Center for Special Medicine and Experimental Research, Medical Center of PLA Strategic Support Force, Beijing Email: sishy306@126.com

Abstract

Introduction Ionizing radiation induced immune injury by increasing the level of reactive oxygen species (ROS). Cerium oxide nanoparticle was a strong reductant. The purpose of this study is to investigate protect of 5nm cerium oxide nanoparticles for X-ray irradiated mice from immune injury and its antioxidant stress mechanism Methodology Mice were randomly divided into 3 groups according to body weight layer: control group, irradiation group and cerium oxide nanoparticles groups. The mice in irradiation and cerium oxide nanoparticles administration groups were irradiated once with 4 Gy X-rays. The mice in cerium oxide nanoparticles groups began to be intraperitoneally administrated once a day with 10µg 5nm cerium oxide nanoparticles per kilogram body weight on the fourth day before irradiation and once every three days after

irradiation. The mice in control and irradiation groups were intraperitoneally administrated with saline. The mice were killed on the twenty fouth hours after irradiation and the levels of Superoxide Dismutase (SOD), Malondialdehyde (MDA) and Glutathione Peroxidase (GSH-Px) in serum were analyzed. The mice were killed on the tenth days after irradiation. Then, The weight of body, thymus and spleen. The thymus and spleen indexes were calculated. and White cells count and classification and lymphocyte subsets in peripheral blood and spleen T lymphocyte proliferation were analyzed. Results Compared with control group, the numbers of white blood cells and lymphocytes, numbers and percentages of neutrophil granulocytes, monocytes, total lymphocytes, T lymphocytes, CD4+ and CD8+ T lymphocytes were significantly decreased (P<0.05), and percentages of the total lymphocytes, B cells and NK cells and ratio of CD4 to CD8 were significantly increased (P<0.05), the thymus and spleen indexes, spleen T lymphocyte proliferation, the levels of SOD and GSH-Px were significantly decreased (P<0.05) in irradiated mice. Compared with irradiation group, except percentages of T lymphocytes, CD4+ and CD8+ T lymphocytes, above parameters were improved in mice of cerium oxide nanoparticle group. Although the numbers of white blood cells and lymphocytes and the level of GSH-Px were still lower to control group (P<0.05), there were no significances in other parameters with control group (P>0.05). Conclusions 5nm cerium oxide nanoparticles protect X-ray irradiated mice from immune injury by decreasing the level of oxidant stress.

ID: NanoMed2019_20005

Title: Affinity study on bovine serum albumin's peptides to amphiphilic Name: Yuan Ming Affiliation: Inner Mongolia Agricultural University Email: 1185220759@qq.com

Abstract

It is an inevitable event that nanoparticles (NPs) will encounter proteins/peptides in nano-medicine, so it has been significant to know their interaction mechanism

before vivo applications. Previously, in а 105-amino-acid sequence had been reported as the binding site between bovine serum albumin (BSA) and polymer coated gold amphiphilic nanoparticles (AP-AuNPs) along with a mortise-tenon joint hypothesis. This article tested the affinity difference between two epitope peptide sequences such as: LGEYGFONALIVR (S1), DAFLGSFLYEYSR(S2) and one non-epitope peptide sequence as: FDEHVKLVNELTEF (S3).With the photoluminescent amino acid residues, the fluorescence quenching method based on the nanometal surface energy transfer (NSET) principle was able to study the thermodynamics of the current binding system. The binding constants (Ka) were determined and followed the order as: Ka-S1> Ka-S2» Ka-S3.Moreover, Hill constants indicated that cooperativity only presented in the interactions of AP-AuNP with either S1 or S2, but not for S3. gel electrophoresis, surface plasmon Moreover, atomic force microscopy and three resonance. dimensional fluorescence microscopy were all also used to comprehensively analyse the binding interaction mechanism. These results further provided useful information to better understand the mortise-tenon joint, which might find applications to nanofabrication and biomedicine.

ID: NanoMed2019_20006

Title: Interaction study on bovine serum albumin physically binding to silver nanoparticles: Evolution from discrete conjugates to protein coronas Name: Jun Guo Affiliation: Guangzhou Medical University Email: 1324939190@qq.com

Abstract

The nanostructures formed by inorganic nanoparticles together with organic molecules especially biomolecules have attracted increasing attention from both industries and researching fields due to their unique hybrid properties. In this paper, we systemically studied the interactions between amphiphilic polymer coated silver nanoparticles and bovine serum albumins by employing the fluorescence quenching approach in combination with the Stern-Volmer and Hill equations. The binding affinity was determined to 1.30×107 M-1 and the interaction was spontaneously driven by mainly the van der Waals force and hydrogen-bond mediated interactions, and negatively cooperative from the point of view of thermodynamics. With the non-uniform coating of amphiphilic polymer, the silver nanoparticles can form protein coronas which can become discrete protein–nanoparticle conjugates when controlling their molar ratios of mixing. The protein's conformational changes upon binding nanoparticles was also studied by using the three-dimensional fluorescence spectroscopy.

ID: NanoMed2019_20008

Title: One step synthesis of antimicrobial peptide protected silver nanoparticles: the core-shell mutual enhancement of antibacterial activity Name: Jingyu Gao Affiliation: Inner Mongolia Agricultural University Email: 1179128886@qq.com

Abstract

Over the past few decades, the overuse of antibiotics has led to the emergence of resistant bacteria and environmental issues. Both silver nanoparticles (AgNPs) and antimicrobial peptides (AMPs) hold potential to replace antibiotics. The function designable virtue of peptides makes it possible to directly reduce and stabilize metal nanostructures. In this sense, a composite material combining both AMP and AgNP may create novel properties such as enhanced antibacterial activity, lower cytotoxicity and longer circulation time in blood. To this end, we designed a 13 amino acid peptide (in short, P-13) with two functional regions: one is in charge of antibacterial activity, and the other is to reduce and stabilize AgNPs with containing a cysteine (C) residue in its N-terminus. With a single step reaction, we have successfully synthesized P-13 protected AgNPs (P-13@AgNPs) with a hydrodynamic diameter of about 11 nm. Compared with either AgNPs or P-13, the core-shell nanostructures show mutual enhancement and complementary effects in the antibacterial activity for

four kinds of typical bacterial strains such as Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa and Bacillus pumilus, and the mortality rate can reach above 90% in the lowest bactericidal concentration. We believe this work could set up an example to make best use of the individual material's properties to produce novel nanocomposites with better antibacterial activity.

Protein and Proteomics: Oral Session

ID: CPP2019_20001

Title: MOFzyme: Enzyme mimics of Fe/Fe-MIL-101 and FJU-21 Name: Lingli Li Affiliation:Yunnan University Email: 18314540932@163.com

Abstract

In this work Fe/Fe-MIL-101 and FJU-21were found to posses an intrinsic enzyme mimicking activity similar to that found in natural horseradish peroxidase and trypsin, respectively. The Michaelis constant (Km) of 5%Fe/Fe-MIL-101 with ABTS as the substrate is about 9-fold smaller than Fe-MIL-101 and about 3-fold smaller than HRP, indicating a much higher affinity for ABTS than HRP and most of the peroxidase mimetics. The kcat of FJU-21 is 102 times higher than that of soluble Cu(II)oxacyclen the catalysts and Km(0.18×10-3~0.20×10-3M-1) of the artificial protease about 15-fold lower than that was free trypsin (2.7×10-3M-1), indicating a much higher affinity of BSA for FJU-21 surface. FJU-21 could be reused for eleven times without losing in its activity.

ID: CPP2019_20002

Title: Intrinsic protease-like activity of Cu2O/SBA-3 Name: Lingli Li Affiliation:Lingli Li Email: Yunnan University

Abstract

The construction of efficient enzyme mimetics for the hydrolysis of peptide bonds in proteins is challenging due to the high stability of peptide bonds and the importance of proteases in biology and industry. In this study, Cu2O/SBA-3 was prepared and used as an artifificial protease for hydrolyzing proteins including bovine serum albumin (BSA) and casein under neutral conditions. In addition, the Km of the artificial protease was about 14-fold lower than that free trypsin, indicating a much higher affinity of BSA for Cu2O/SBA-3 surface . When the temperature was raised to 70°C, the activities of the artificial proteases were significantly enhanced. Cu2O/SBA-3 also featured a desirable stability and good reusability.

Nursing and Healthcare: Oral Session

ID: ICNH2019_20005

Title: Development of an index for drop-foot severity of DPN patients Name: Albert Chong Affiliation:University of Southern Queensland Email: S_kareem84@yahoo.com

Abstract

Currently, the population percentage of diabetics suffering Diabetic Peripheral Neu-ropathy (DPN) and foot-drop gait anomaly was estimates as 15% in the United States. The onset of foot-drop could not be detected until symptoms could be observed visu-ally, patient falling or patient experiencing painful gait issues and expensive medical tests. This research showed that by utilizing the plantar-pressure characteristics of DPN drop-foot gait, a set of index could be developed for the severity of DPN.

ID: ICNH2019_20002

Title: Foot loading pattern variations between normal weight, overweight, and obese adults aged 24 to 50 years

Name: Lay Tan

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Email: SuhadKareemRahi.Al-Magsoosi@usq.edu.au

Abstract

Recently, health problems related to weight gain and obesity have increased in all age groups, especially adults. Overweight and obese adults are associated with psychological, metabolic and musculoskeletal problems. The aim of this study was to examine foot-loading characteristics during gait of normal-weight; overweight and obese adults aged 25-46 years. Methods: This paper outlined tests that were performed on 30 feet of 15 participants. The subjects were gathered in three groups according to their body mass index values, each containing five study participants: five healthy weights (age 35.4 \pm 6.3 yrs, BMI 21.9 \pm 1.3 kg/m2) matched to five overweight (age 39.2±6.1 yrs, BMI 27.5±1.34 kg/m2); and five obese adults (age 36.5 ± 7.8 yrs, BMI 34.5±10.3 kg/m2. The measurements were compared between these groupsand the correlation of body mass index with the foot plantar pressure parameters was assessed. Results: The foot pressure measure in the obese group was greater under the metatarsal heads and the heel of the foot compared to the healthy weight group.Moreover, there were rises in pressure beneath the H, MF, second metatarsal and third metatarsal regions of the foot. It may be considered that in obese individuals, this variation resulted from greater weakness in the ligaments of the foot. As results, the obese group may suffer from discomfort in their feet. The choice of the footwear may depend on the gait and the resulting pain. In addition, they may be less likely to take part in

walking or other activities. Therefore, further studies related to these issues, would be advisable. Conclusion:especially, the feet of obese individuals vary from those healthy and overweight adults, because obese subjects' feet are wider. In the obese was established the greatest foot pressure measure increases beneath the heel of the foot and the metatarsal heads.

ID: ICNH2019_20003

Title: Prediction of Perceived Stress of Hong Kong Nursing Students with Coping Behaviors over Clinical Practicum: A Cross-Sectional Study Name: Anson Tang Affiliation:Tung Wah College Email: ansontang@twc.edu.hk

Abstract

Nursing students are facing more and more stress in their course of study especially in clinical practicum. The study aimed to predict nursing students' stress level in clinical practicum with coping behaviors. It was a retrospective cross-sectional study conducting in a self-financing institution in Hong Kong. Nursing students who were studying the pre-registration baccalaureate nursing program and completed all the practicum blocks were recruited. Those who had extended the study and failed any of the practicum blocks were excluded. Convenience sampling was used to recruit subjects. Participants were required to fill out demographic sheet, COPE Inventory the and Assessment of Stress among Nursing Students scale during lecture at the commencement of a semester. The whole data collection lasted for 30 minutes. Stepwise multiple regression was used to do the modeling with p-value being set at 0.05. 131 eligible nursing students were recruited with about half of female students. The regression model accounted for 50% of the variance in the perceived stress level. Gender, focus on and venting of emotions, restraint, use of emotional social support and denial were positively associated with perceived stress level (R squared =0.52, p=0.001). It is to conclude that nurse educators can refer to the findings to screen out students with higher risk of being overwhelmed by clinical learning and ineffective coping. Proactive

measures should be taken to prevent poor health outcomes.

ID: ICNH2019_20008

Title: The perceptions for Hong Kong male students refusing HPV vaccination: An exploratory study Name: Keungsum CHAN Affiliation:TUNG WAH COLLEGE Email: kschan@twc.edu.hk

Abstract

Background: Human papillomavirus (HPV) is a group of common viruses that can cause a sexually transmitted infection (STI). People with HPV infection can be susceptible to cervical cancer, anogenital warts, and another HPV-related disease. Although the HPV infection can be prevented by HPV vaccination, the vaccination rate in Hong Kong is relatively low particular in males comparing to other countries. Study design: An exploratory qualitative approach was adopted. Aim: This study attempted to explore the perceptions of male college students refusing HPV vaccination in Hong Kong. Methods: A total of 20 male college students participated in the unstructured interview with audio-tape recording and field-notes done to explore their perceptions refusing HPV vaccination. Content analysis was utilized to extract significant themes and sub-themes. Results: Six major themes were identified including a lack of perceived risk, knowledge deficit, inadequate promotion, a high price of the HPV vaccine, in-convenience to receive the HPV vaccine and peer influence. Conclusion: Exploring the perceptions for Hong Kong male college students refusing HPV vaccination could pro-vide essential information to the local government to establish corresponding health campaign for males to increase receiving HPV vaccination for curbing the HPV-related diseases.

ID: ICNH2019_10002

Title: The stressors and psychological well-being of Lesbian, Gay and Bisexual among Chinese adults in Hong Kong

Name: Winnie LS Cheng

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Abstract

Background: Lesbian, Gay and Bisexual (LGB) are individuals who often experienced stigma and discrimination which has detrimental effects on psychological well-being. Objectives: This study aimed to identify the major stressors and psychological well-being of LGB among Chinese adults in Hong Kong. Methods: A cross-sectional study was employed using self-administered ques-tionnaires. Convenience sampling was used to recruit subjects. Demographic information, Measure of Gay-related stress (MOGS) and The Center for Epidemio-logic Studies Depression Scale (CES-D Scale) were used to collect data. Results: The major stressor among LGB individuals in Hong Kong was family reac-tion. Majority of them had a high level of depression. Conclusion: LGB individuals in Hong Kong experienced high level of depression.

ID: ICNH2019_10004

Title: Knowledge, attitude and practice of oral hygiene care among nursing students in Hong Kong Name: Carmen Choi Affiliation:Tung Wah College Email: Tung Wah College

Abstract

Background: Patients with poor oral care may develop adverse health conditions such as pneumonia, gingivitis, and periodontitis. Oral care is fundamental in nursing care. Nursing students' knowledge of and attitudes toward oral care affect their oral care practice for hospitalized patients. Objectives: This present study aimed to explore the knowledge, attitude and practice toward oral hygiene care among nursing students in Hong Kong. Methods: This was a cross-sectional study. A convenience sample of 389 nursing students was recruited from nine educational institutions in Hong Data collected using structured Kong. were questionnaires to assess the knowledge, attitude, and practice toward oral hygiene care for hospitalized patients. Demographic data were also collected. Results:

The mean score of knowledge, attitude, and practice was 8.95/15 (SD=2.10), 48.54/65 (SD=5.64), and 85.47/125 (SD=10.55) respectively. There was a significant relationship between attitude and practice (r=0.369, P=0.000). However, no significant relationship between knowledge and attitude, and knowledge and practice were found. Conclusion: This study highlighted the need for nurse educators to enhance the nursing students' knowledge of and attitudes toward oral care.

ID: ICNH2019_10000

Title: Diabetes Self-care Activities and Glycaemic Control among Adults with type 2 diabetes in Sri Lanka: A cross-sectional study

Name: Thamara Amarasekara

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Abstract

The prevalence of Type 2 Diabetes Mellitus (T2DM) and its complications continue to rise across the globe including Sri Lanka. Diabetes Self-care activities (DSCA) are promising behaviours to reduce complications and to achieve good glycaemic control. There is a lack of data regarding DSCA and its association with glycaemic control among adults with T2DM in Sri Lanka. A descriptive cross-sectional study was conducted among purposively selected adults with T2DM (n=300) in a teaching hospital, Sri Lanka to determine the association between DSCA and glycaemic control. А pre-tested interviewer-administered questionnaire which includes socio-demographic, diabetes-related information and Summary of Diabetes Self-care activities questionnaire was used to collect data. Data were analysed by using descriptive statistics and Chi-square test. General diet (Healthy eating plan) (OR=3.04, 95%CI=1.04-8.88, p =0.034), Physical activities (OR=2.26, 95%CI=1.29-3.97, p =0.004), Medication adherence (OR=2.87, 95%CI=1.24-6.64, p =0.011) were significantly associated with HbA1c. Medication adherence was significantly associated with poor fasting blood sugar (FBS) (OR=1.90, 95%CI=1.07-3.37, p =0.028). The findings highlight the

need for health professionals to implement health education programs on diabetes self-care activities for adults with T2DM to enhance their adherence to DSCA, as well as to maintain glycaemic control.

ID: ICNH2019_10001

Title:Cognitive Behaviour Therapy for HeartFailure Patients with DepressionName:Rasika JayasekaraAffiliation:University of South AustraliaEmail:rasika.jayasekara@unisa.edu.au

Abstract

The purpose of this systematic review was to examine the effectiveness of cognitive behaviour therapy (CBT) in minimizing the depressive symptoms and improving quality of life in heart failure (HF) patients with depression. This systematic review was conducted in accordance with the Joanna Briggs Institute methodology for sys-tematic reviews of effectiveness evidence. This review only considered randomized controlled trial, assessing the effectiveness of CBT as a treatment for depression in adults (aged above 18) with HF, compared with usual care, which may include medications. This systematic review includes five RCTs involving 379 HF patients with depression (CBT=192; Control=187). Two RCTs compared CBT versus usual care using BDI, and no statistically significant differences were observed in reduction of depression after three months of the intervention (MD -0.92, 95% CI -1.89 to -0.05) (p=0.06). However, a significant difference of depression level was identified between CBT and control groups in a meta-analysis of two RCTs after 6-months of interven-tion measured by Hamilton Depression Scale (HAM-D) (MD -3.34, 95% CI -5.00 to -1.68) (p=0.0001) with moderate heterogeneity (I2=43%). Quality of life was assessed at three months between intervening groups undergoing CBT and the control group with usual care in two RCTs. A statistically significant improvement was observed in the Minnesota Living with Heart Failure Questionnaire (MLHFQ) in the CBT group compared with usual care (MD -9.44, 95% CI -13.02 to -5.87) (p<0.0001). The key finding of this review is that CBT is likely to be helpful in

improving the depressive symptoms and quality of life in HF patients with depression. Moreover, long-term continued CBT sessions may help in minimizing the depression level and improving the QoL.

ID: ICNH2019_20009

Title: Comparative nursing study of Patients undergoing coronary intervention therapy in different ways Name: Qilian He Affiliation:Qinghai University Email: jiabei2319@163.com

Abstract

Purpose: То compare the surgical indicators, perioperative complications and postoperative psychological status of patients with coronary interventional thera-py (CIT) by radical artery and femoral artery puncture approaches. Methods: 120 patients with CIT were divided into femoral artery group (FAG) and radial artery group (RAG) according to the operation ways. The interventional operation was performed by the same surgeon team and methods. Data of surgical indicators and perioperative complications were recorded and collected. The psychological questionare survey was made within 48 hours the after surgery by the hospital anxiety and depression scale (HAD), and the results were scored by the psychia-trist. Results: The age, sex, ethnicity, education level, disease

type, and combined diseases of the two groups had homogeneity without statistical diffence. There was no obvious difference in X-ray exposure time, contrast agent usage and operation time in two ways (P>0.05). The success rate of one-time catheterization was higher in FAG than in RAG (P<0.05). However, the incidence of vascular complications such as subcutaneous hematoma, puncture site bleeding in RAG were significantly lower than those in FAG (P<0.05). Complications of vascular and puncture site bleeding, the operative limb braking time and hospitalization time were longer in FAG than those in the RAG (P < 0.05). The postoperative anxiety and depression questionare data analysis showed patients in both groups had obvious higher anx-iety and depression scores compare to Chinese norm. Even though there was no difference on anxiety scores of the patients in two groups, but the depression scores showed that patients in the FAG were more prone to psychological depres-sion than patients in the RAG. Combined with the clinical nursing requirements, the postoperative nursing record chart of patients with CIT were established ac-cording to general patient data and physical discomfort with high incidence in the above survey results. Conclusion: CIT via radial artery can reduce the incidence of postoperative complications, postoperative physical discomfort and psycho-logical problems such as anxiety and depression of patients.

Engineering: Oral Session

ID: TEIT2019_20000

Title: Evaluation Method for Tunneling Stability of TBM Cutterhead System Name: Zhaohui Xu

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Abstract

In the process of tunneling of tunnel boring

machine (TBM), different geological conditions often correspond to different working conditions, and the randomness of geological conditions also causes the order of occurrence of each working condition to be different. Under the conversion of different working conditions, this makes the vibration of different types of cutterheads different. How to choose the appropriate type of cutterhead according to different geological conditions is very important for saving engineering cost and increasing cutterhead life. In view of the above situation, this paper proposes a stability evaluation method during the TBM tunneling process to select the appropriate cutterhead type. Firstly, the corresponding relationship between geology and working conditions is established according to different geological conditions, and the input loads corresponding to geological conditions are obtained. Then, it is substituted into the dynamic model of the cutterhead system, he vibration response boundaries of each degree of freedom are obtained by solving. And the average value of the maximum boundary amplitude of each degree of freedom is taken to represent the extreme vibration of the cutterhead under the corresponding working conditions. Finally, by comparing the fluctuation of the ultimate vibration amplitude of each type of cutterhead in the process of working condition conversion, the results are as follows: when the transition between homogeneous strata and composite strata is normal and there is no large turning and deviation correction, the vibration response of the two-part cutterhead is the smallest, and the two-part cutterhead is the best choice. Otherwise, the five-part cutterhead is the best choice, while the stability of the integrated cutterhead is the worst.

ID: CACE2019_20002

Title:ModelingOff-shoreWindTurbineConstructionProjectSubject toImpact ofWindUncertainty

Name: Sy-Jye Guo

Affiliation:National Taiwan University Email: sjguo@ntu.edu.tw

Abstract

Offshore wind farm is a key item in green energy and sustainable development. The Taiwan strait owns the world-class wind farm with average wind speed of 12m/s and a potential for 3000 hours/year of power generation. Compared to wind turbines on land, the offshore wind turbine provide more stable power and less obstacles as well as less power loss. The potential and advantages of offshore wind farm development in the Taiwan strait has become the aims of the Taiwan government policy from now to 2025. This research will collect the historical climate data (wind and wave) of the Taiwan offshore wind farm in the Chan-hwa county. Combined the productivity loss respected to the installation of wind turbine due to different wind speed effect, as well as the productivity loss respected to the construction of pile foundation due to different wave height effect, this study will build up a total project duration forecast system based on the historical climate data of the offshore wind farm. Even the literature views from the experienced projects in North Europe including UK, Netherland and Spain, the climate uncertainty still plays a significant factor of the total construction duration for offshore wind farm. The results of this research can provide a more scientific and reliable duration forecast for future offshore wind farms construction in Taiwan.

ID: CACE2019_20008

Title: Experimental study on chloride ion penetration resistance of coal gangue concrete under multi-factor comprehensive action

Name: Hongyu Chen

Affiliation:China University of Mining & Technology Email: 1076587265@qq.com

Abstract

Abstract: In order to investigate the chloride ion penetration resistance of coal gangue concrete under multi-factor comprehensive action, the non-steady-state accelerated chloride ion migration test was used to test the chloride diffusion law of coal gangue concrete specimens by crack width, curing temperature and water-cement ratio. Three groups of crack width (0 mm, 0.05-0.12 mm, 0.12-0.2 mm), three curing temperatures (high temperature 45, medium temperature 25, low temperature 10), three water cement ratios (0.3, 0.4, 0.5)were set in the experiment. The results show that when the curing temperature and water cement ratio are constant, the crack width less than 0.12 mm has little effect on the chloride content and chloride diffusion coefficient. When the crack width is larger than 0.12 mm, the chloride penetration depth increases with the crack width. The resistance to chloride ion penetration of gangue concrete is greatly influenced by the water cement ratio. The influence degree of three factors on

chloride ion migration coefficient of gangue concrete is as follows: water cement ratio > crack width > curing temperature.

ID: ICHES2019_20001

Title: Comparative Study Using the 2-Hydrological Models with the Global Weather in a Small Watershed, a Case Study in the Upper Tha Chin River Basin, Thailand Name: Sombat Chuenchooklin Affiliation:Naresuan University

Email: sombatc@nu.ac.th

Abstract

The hydrological study in the upstream of the Huai Khot Wang Man diversion canal in Huai Khun Kaew watershed of the Upper Tha Chin River Basin in Uthai Thani Province, Thailand was studied. The soil and water assessment tool (SWAT) and the integrated flood analysis systems (IFAS) applied to the analysis of flow at the outlet. The global weather data provided automatically by the models including land use covers and soil types. The climate forecast system reanalysis (CFSR) and the near real-time precipitation (GSMaP NRT) used in SWAT and IFAS, respectively. The model sensitivity with Nash and Sutcliffe effi-ciency (NSE), correlation (R2), and root mean square error (RSME) were ap-plied. The monthly calibrated results from SWAT fitted to the observed data in 2007 - 2010 with 0.77, 0.88, and 9.08 m3/s, and verified in 2011 with 0.25, 0.61, and 14.30 m3/s, respectively. The daily results from IFAS during a flood period in 2011 fitted to the observed data with 0.21, 0.39, and 34.32 m3/s. Both models showed applicable for efficient gate operation of the diversion canal from this watershed to the Nong Mamong District in Chai Nat Province.

ID: DPPS2019_20002

Title: Research on the supervision and regulation mode of production safety in China, Germany and Canada

Name: Yixu Gong

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Abstract

China is a developing country with rapid economic development and has made many remarkable achievements. However, the foundation of production safety is relatively weak, and the situation of production safety is still severe behind the rapid economic growth, and there is still a certain gap compared with Germany, Canada and other developed countries. Therefore, this article expounds the theory of safety production supervision mode, and then taking the supervision mode of production safety of Chinese government as the basic research object, from the development course, organization setup and management configuration and so on combing the current (until 2017) safety production supervision mode in Chinese government, and puts forward the status quo in the face of regulatory problems. In addition, based on the research and analysis of the safety production supervision mode of the German and Canadian governments, the advanced experience and methods of the safety production supervision mode of the two governments are summarized, and through comparison, some suggestions on the supervision mode of production safety suitable for China's national conditions are put forward, which provide theoretical support for the Chinese government or enterprise managers to do a good job in the management of production safety.

ID: DPPS2019_20003

Title: Research on the Construction of Fire Safety Management System of Urban Comprehensive Community in Beijing Name: Le Zhang Affiliation:Beijing Academy of Safety Science and Technology Email: 1214850291@qq.com

Abstract

As the capital of the country, Beijing has obvious geographical advantages such as political center, cultural

center, international exchange center and science and technology innovation center. The economy continues to develop rapidly and the urban modernization transformation is accelerated. With the rapid development of economy and society, fires occur frequently, and the damage is shocking. Fire has become a major hidden danger that threatens people to achieve good needs. The risk of urban fires is also increasing day by day, and the fire safety situation is getting worse. The integrated community is a basic unit composed of cities. As a densely populated place, it has the characteristics of complex structure, insufficient space, dense crowds and complicated escape routes. Maintaining fire safety in each integrated community is an important guarantee for meeting the needs of the people's better life. When a fire really occurs, how to evacuate people in the community in the shortest time and reduce the probability of serious accidents is a matter of great concern to the government and society. Beijing is a comprehensive large-scale city with a long history and many ancient buildings. Due to the early development after the founding of the People's Republic of China, there are many old and

comprehensive communities in the old city. Once a fire occurs in the community, the probability of mass casualties is high. It is of great significance to carry out research on the construction of physical education for fire safety management in Beijing's comprehensive community. Therefore, this paper mainly takes the construction of fire safety management system of urban comprehensive community in Beijing as the research object, analyzes the current situation of comprehensive community fire management from the aspects of integrated community distribution in urban and rural areas and the proportion of old communities, and through investigation, Beijing and Xi'an The city and Nanjing's comprehensive community fire management system construction was compared. At the same time, the measures suitable for the construction of Beijing city comprehensive community fire management system were sorted out, so as to effectively curb the occurrence of mass casualties in the community fire and promote the community. Harmonious and stable development.

Part V Instructions for Presentations

Oral Presentation

Devices Provided by the Conference Organizing Committee:

- Laptops (with MS-office & Adobe Reader)
- Projectors & Screen
- Laser Sticks

Materials Provided by the Presenters:

• PowerPoint or PDF files

Duration of each Presentation:

- Regular Oral Session: 10-15 Minutes of Presentation
- Invited Speech: 30-40 Minutes of Presentation

Part VI Hotel Information

About Hotel

Kunming Jin Jiang Hotel (昆明锦江大酒店) is recognized as one of the most distinguished deluxe hotels in Kunming, an area rich with Yunnan minority culture and warm hospitality. Situated in the heart of the commercial and trade center, the hotel is within walking distance of Jewelry City and both the Kunming International Trade Center and Foreign Trade Center. There are 320 well-appointed guestrooms, seven deluxe restaurants and conference and banquet facilities. With its high-quality service standard, the hotel is ideal for both business and leisure travelers alike.

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