

2018 CBEES-BBS BALI, INDONESIA CONFERENCE ABSTRACT

**2018 8th International Conference on Biomedical
Engineering and Technology (ICBET 2018)**

April 23-25, 2018

Patra Jasa Bali Resort & Villas, Bali, Indonesia



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2018 8th International Conference on Biomedical Engineering and Technology (ICBET 2018) Introduction

Welcome to 2018 8th International Conference on Biomedical Engineering and Technology (ICBET 2018) which is sponsored by Hong Kong Chemical, Biological & Environmental Engineering Society (CBEES) and Biology and Bioinformatics (BBS). The aim and objective of ICBET 2018 is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Biomedical Engineering and Technology. This conference provides opportunities for the delegates to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration.

Papers will be published in following conference proceedings or journal:



International Conference Proceedings Series by ACM (ISBN: 978-1-4503-6369-3), which will be archived in the ACM Digital Library, and indexed by Ei Compendex and submitted to be reviewed by Scopus and Thomson Reuters Conference Proceedings Citation Index (ISI Web of Science).



Selected best papers will be published in Asian J Pharm Clin Res (AJPCR, Print ISSN- 0974-2441, Online ISSN- 2455-3891), and be indexed by SCOPUS, Google Scholar, Elsevier, EBSCO, EMBASE, SCI mago (SJR), CNKI, CAS, CASSI (American Chemical Society), Directory of Open Access Journal (DOAJ), Index Copernicus, ICAAP, Scientific commons, PSOAR, Open-J-Gate, Indian Citation Index (ICI), Index Medicus for WHO South-East Asia (IMSEAR), OAI, LOCKKS, OCLC (World Digital Collection Gateway), UIUC. Impact- 0.40 (SCImago, SJR 2016).

Conference website and email: <http://www.icbet.org/>; icbet@cbees.org

Presentation Instruction

Instruction for Oral Presentation

Devices Provided by the Conference Organizer:

Laptop Computer (MS Windows Operating System with MS PowerPoint and Adobe Acrobat Reader)

Digital Projectors and Screen

Laser Stick

Materials Provided by the Presenters:

PowerPoint or PDF Files (Files should be copied to the Conference laptop at the beginning of each Session.)

Duration of each Presentation (Tentatively):

Keynote Speech: **30** Minutes of Presentation and **5** Minutes of Question and Answer

Plenary Speech: **30** Minutes of Presentation and **5** Minutes of Question and Answer

Regular Oral Presentation: **12** Minutes of Presentation and **3** Minutes of Question and Answer

Instruction for Poster Presentation

Materials Provided by the Conference Organizer:

The place to put poster

Materials Provided by the Presenters:

Home-made Posters

Maximum poster size is A1

Load Capacity: Holds up to 0.5 kg

Best Presentation Award

One Best Oral Presentation will be selected from each presentation session, and the Certificate for Best Oral Presentation will be awarded at the end of each session on April 24, 2018.

Dress Code

Please wear formal clothes or national representative of clothing.

Keynote Speaker Introduction

Keynote Speaker I



Prof. Chiharu Ishii
Hosei University, Japan

Chiharu Ishii received his PhD in Mechanical Engineering from Sophia University, Japan in 1997. From 2002 to 2009, he was an Assistant Professor with Kogakuin University. Currently, he is a Professor at the Department of Mechanical Engineering, Hosei University, Japan. His research interests are in medical robotics, assistive technology and robust control. He is a member of JSME, SICE, RSJ, IEEJ and IEEE.

Topic: “*Challenge for Development of Medical and Assistive Devices*”

Abstract—Japan is facing a serious problem of population aging. The percentage of elderly people of age 65 years or over (aging ratio) is 27.3% in 2017, and it is forecasted that the aging ratio becomes 33.4% in 2035. In this way, Japan has reached a super-aged society which no country in the world has experienced. Becoming the super-aged society, it is necessary to respond to the demand of medical care and nursing of elderly people. Therefore, challenge for development of medical and assistive devices through an application of the Robot Technology (RT) has been promoted. In this talk, some medical and assistive devices developed in my laboratory are explained.

The robotic surgical system for single-port-surgery termed “HASROSS”, the lightweight power assist suit termed “Cool Vest” to reduce care giver’s burden in transfer work, control system of the electric wheelchair based on user’s biosignals, such as EMG, EOG and EEG, and sensory feedback device for myoelectric prosthetic hand, are mentioned.

Keynote Speaker II



Assoc. Prof. GAUTAM SETHI
National University of Singapore, Singapore

EDUCATION/TRAINING

B. S. 1998 Banaras Hindu University, Varanasi, India Chemistry (Honours)

M. S. 2000 Banaras Hindu University, Varanasi, India Biochemistry

Ph.D 2004 Banaras Hindu University, Varanasi, India Biotechnology

PDF 2004-07 UTMDACC Houston, Texas, USA. Cancer biology.

Asst Prof. 2008-14 National University of Singapore Pharmacology

Associate Prof. 2014- Now National University of Singapore

POSITIONS AND EMPLOYMENT

Sept. 2000 to Aug. 2002 Junior Research Fellow, School of Biotechnology, Banaras Hindu University, Varanasi, India

Sept. 2002 to March 2004 Senior Research Fellow, School of Biotechnology, Banaras Hindu University, Varanasi, India

2004-2007 Postdoctoral Fellow, The University of Texas MD Anderson Cancer Center

2008-2014 Assistant Professor, Dept. of Pharmacology, NUS

2014-Now Associate Professor with tenure, Dept. of Pharmacology, NUS

Topic: “*STAT3 as a Molecular Target for Cancer Therapy*”

Abstract—Signal Transducers and Activators of Transcription (STATs) comprise an important class of transcription factors that have been implicated in a wide variety of essential cellular functions related to proliferation, survival, and angiogenesis. Among various STAT members, STAT3 is frequently overexpressed in tumor cells as well as tissue samples, and regulates the expression of numerous oncogenic genes controlling the growth and metastasis of tumor cells. I will briefly discuss the importance of STAT3 as a potential target for cancer therapy and also provide novel insights into various classes of existing pharmacological inhibitors of this transcription factor that can be potentially developed as anti-cancer drugs.

Keynote Speaker III



Prof. Tjokorda Gde Tirta Nindhia
Udayana University, Indonesia

Tjokorda Gde Tirta Nindhia received Doctor Degree from Gadjah Mada University (UGM) Yogyakarta, Indonesia on August 2003, with major field of study was Material Engineering. He participated in various international research collaborations such as with Muroran Institute of Technology Japan (2004), Toyohashi University of Technology Japan (2006), Leoben Mining University Austria (2008-2009), Technical University of Vienna Austria (2010), Institute Chemical technology of Prague Czech Republic (2012-now) and very recently with Michigan State University (MSU) and University of Hawaii in the USA under Fulbright Scholarship. His current job is as Full Professor in the field of Material Engineering at Engineering Faculty, Udayana University, Jimbaran, Bali, Indonesia. His research interest covers subjects such as, Biomedical Engineering, biosensor, biomaterial, waste recycle, failure analyses, advance ceramic, metallurgy, composite, renewable energy, and environmental friendly manufacturing.

Topic: *“Effect of Feeding with Herb of Erythrina variegata to Biocompatibility of the Cocoon Fiber of Wild Silkmoth Attacus-atlas for Future Application as Biocompatible of Silk Sutures”*

Abstract—Silk is biocompatible as biomaterial and has been used commercially as sutures. More interesting properties of the silk is that the mechanical properties exceed all natural polymer and synthetic materials. In this research a type of silk suture is being developed from species of Attacus atlas to obtain more biocompatible sutures. Attacus atlas is a species of silkmoth that consume not only single type of leaves so that yield variety type of cocoon fiber that can be arranged for the purpose of better biocompatible comparing commercial silk suture that already established in the market that base of product of the Bombyx mori species of silk which is only consume one type of leaf of mulberry leaves. In this research, the Attacus atlas cocoon was produce by feeding with herb Erythrina variegata. A high composition of kalium (K) as well as chloride (Cl) are identified in the fiber. The released fiber from cocoon also indicates high biocompatibilities that is promising as biocompatible suture.

Keynote Speaker IV



Prof. Zairin Noor

Lambung Mangkurat University, Indonesia

Zairin Noor born in Banjarmasin, November 20th, 1961. He is orthopedic specialist since 1995. He received Doctor Degree from Brawijaya University (UB) Malang, Indonesia on 2011 with major field of study was Nanobiologic. He participated in various International Research and has published more than 25 articles in international journal. Zairin Noor has followed several fellowship including: Orthopedic Fellow, Department of Orthopedic, Chonnam University Hospital, Gwang-Ju, Korea (August – November 1994), Lee/Show Foundation Orthopedic Fellow Attached to Dept. of Orthopedic Surgery - National University Hospital - Singapore (February – July 1995), Orthopedic Spine fellow (supervised by Prof. Hansen Yuan, M.D), Syracuse University of New York, Health Science Center, Syracuse, NY-USA (August–October 1998). He lives in Banjarmasin and his current jobs are Orthopedic Specialist/ Spine Consultant in Ulin General Hospital, Suaka Insan Hospital and Siaga Surgical Hospital Banjarmasin; Full Professor and Dean of Medical Faculty. Lambung Mangkurat University; President of Indonesian Orthopedic Association; and Head of Research for Osteoporosis in Ulin General Hospital. His research interest covers subjects such as, biomedical science, spine, nano-biologic, osteoporosis, bone structure and mineral.

Topic: *“How to Treat Osteoporosis Naturally”*

Abstract—Hydroxyapatite is chemically related to the inorganic component of bone matrix as a complex structure with the formula of $\text{Ca}_{10}(\text{OH})_2(\text{PO}_4)_6$. The advantages of hydroxyapatite nanocrystal are the osteoconduction, bioresorption, and contact in close distance. Crystal in osteoporotic bone is calcium phosphate hydroxide with the chemical formula of $\text{Ca}_{10}(\text{OH})_2(\text{PO}_4)_6$. Crystal of normal bone is sodium calcium hydrogen carbonate phosphate hydrate with the chemical formula of $\text{Ca}_8\text{H}_2(\text{PO}_4)_6 \cdot \text{H}_2\text{O} - \text{NaHCO}_3 - \text{H}_2\text{O}$. The recent development is applying nanobiology approach to hydroxyapatite. This is based on the concept that the mineral atoms arranged in a crystal structure of hydroxyapatite can be substituted or incorporated by the other mineral atoms. In conclusion, the basic elements of hydroxyapatite crystals, composed of atomic minerals in a certain geometric pattern, and their relationship to the bone cell biological activity have opened opportunities for hydroxyapatite crystals supplement application on osteoporosis. Understanding of the characteristics of bone hydroxyapatite crystals as well as the behavior of mineral atom in the substitution will have a better impact on the management of osteoporosis naturally.

Plenary Speaker I



Prof. Satoru Miyano
The University of Tokyo, Japan

Satoru Miyano, PhD, is the Director of Human Genome Center, the Institute of Medical Science, the University of Tokyo. He received the B.S. (1977), M.S. (1979) and PhD (1984), all in Mathematics from Kyushu University, Japan. He is an ISCB Fellow. His research mission is to develop "Computational Medical Systems Biology towards Genomic Personalized Medicine, in particular, cancer research and clinical sequence informatics. He has been involved as PI with the International Cancer Genome Consortium, the Grant-in-Aid for Scientific Research on Innovative Areas (MEXT) "Systems Cancer Research in Neo-dimension", and MEXT Priority Issues on Post-K computer "Integrated Computational Life Science to Support Personalized and Preventive Medicine". By massive data analysis and simulation with the supercomputers, his group is developing computational methods to link differences in our genomes to diseases, drugs, and environmental factors with systems understanding.

Topic: *"Arrival of Oncologists Armed with AI-Powered Exoskeletons"*

Abstract—We have been running cancer clinical sequence based on whole genome, whole exome, panels, RNA sequencing and epigenetic analysis at our institute. When focused on hematology/oncology, it takes five days for a patient from signing informed consent (IC) to receiving diagnosis. This five-day process consists of IC, specimen collection, whole exome sequencing, whole exome sequence data analysis, interpretation/translation of mutations by oncologists, determining the diagnosis combined with all pathological data and returning the result (therapy if any) to the patient. Therapies are not only drugs but also hematopoietic stem cell transplantation. A pipeline Genomon for analyzing cancer genomes and RNA sequences by next-generation sequencers plays one of the key roles. It is running on the supercomputer system SHIROKANE at our Human Genome Center. The bottleneck of interpretation/translation was drastically resolved by employing IBM Watson for Genomics in harmony with our in-house human curation pipeline. We report how our system works as a conglomerate of oncologists, cancer biologists, bioinformaticians augmented with Watson and Genomon.

Plenary Speaker II



Dr. Malka N. Halgamuge
University of Melbourne, Australia

Dr. Malka N. Halgamuge is a Researcher in the Department of Electrical and Electronic Engineering at the University of Melbourne. She obtained her Ph.D. from the same department. She also serves as the Adjunct Professor at Vellore Institute of Technology (VIT), India. She was awarded the Chinese Academy of Sciences President's International Fellowship Initiative (2017), Incoming Leaders Fellowship from Australia India Institute @ Delhi (2016), Next Step Initiative Fellowship (2015), Australia-China Young Scientist Fellowship (2014), Dyason Fellowship at the University of California (UCLA), Los Angeles, USA (2013), Early Career Researcher (ECR) Award from Alexander von Humboldt Foundation (2013) and Solander Fellowships at Lund University (2007 and 2008). She is the recipient of the Vice-Chancellor's Engagement Award (2010) and Vice-Chancellor's Knowledge Transfer Award (2008) for her research at the University of Melbourne. She has published more than 80 peer-reviewed technical articles attracting over 785 Citations. Her Research Gate RG Score is 31.75. She was also the Guest Editor for 3 Special Issues. She is the Associate Editor for 2 International Journals, Editorial Board Member for 6 International Journals, an IEEE Senior Member and was the Program Co-Chair, Publication Chair, Advisory Chair, Publicity Co-Chair, Track Chair, Track Co-chair, Session Chair and a Member of the Technical Program Committee (TPC) for more than 100 international conferences. She gave a Keynote speech at the research conference In Kerala, India (2018). In addition to her publications, her research has acquired significant attention, resulting in an invitation to present 43 invited/guest lectures at Universities and Industry including Oxford University, IBM Research, and the delivery of 7 IEEE talks. She has also conducted 15 journalist/media interviews and articles (Science Alert, Melbourne Voice, Moreland Leader and GradNews etc.) as well as two video interviews, including one in ABC News Australia. Her current research interests include public health (Bioelectromagnetics) and Data Science.

Topic: *“Therapeutic Use of Pulsed Electromagnetic Fields: Can Living Being Be Influenced by Non-Ionizing Radiation and Magnetism?”*

Abstract—The interaction between electromagnetic fields and biological living beings otherwise known as bioelectromagnetics is a research area that has generated conflicting results regarding possible adverse health effects. The International Agency for Research on

Cancer (IARC) classifies electromagnetic fields as a “possibly carcinogenic” to human that might transform normal cells into cancer cells. The importance of developing the exposure-risk relationship between electromagnetic fields and the biological cell is urgently needed. An early thought was that thermal and electrical noise generated by random fluctuations of charged particles in cells at normal temperatures would mask vital information about the effect of weak magnetic fields (μT range). However, more recent studies question this thinking. The first part of the talk aims to start answering some of the key questions in this area.

Magnetic nanoparticles (MNP) heating systems have numerous biomedical applications, including potential use in hyperthermia treatments such as cancer therapy and disease healing and arose as an efficient approach. Hyperthermia treatment relies on the certainty of the nanoparticle absorbs energy from an alternating magnetic field. The second part of the talk will explain the optimizing heat generation mechanisms in hyperthermia in biomedical applications.

Brief Schedule for Conference

| | | | |
|---|---|---|--|
| Day 1 | April 23, 2018 (Monday) | | |
| | Venue: Hotel Lobby | | |
| | Arrival Registration | 10:00~17:00 | |
| Day 2 | April 24, 2018 (Tuesday) | | |
| | 08:30 ~18:05 | | |
| | Morning Conference | | |
| | Venue: The Wantilan Room | | |
| | 08:30~08:35 | Opening Remarks (Prof. Tjokorda Gde Tirta Nindhia) | |
| | 08:35~09:10 | Keynote Speech I (Prof. Chiharu Ishii) | |
| | 09:10~09:45 | Keynote Speech II (Assoc. Prof. GAUTAM SETHI) | |
| | 09:45~10:20 | Keynote Speech III (Prof. Tjokorda Gde Tirta Nindhia) | |
| | 10:20~10:45 | Coffee Break & Group Photo Taking | |
| | 10:45~11:20 | Keynote Speech IV (Prof. Zairin Noor) | |
| | 11:20~11:55 | Plenary Speech I (Prof. Satoru Miyano) | |
| | 11:55~12:30 | Plenary Speech II (Dr. Malka N. Halgamuge) | |
| Lunch: 12:30~13:30 | | Venue: Restaurant | |
| Afternoon Conference | | | |
| Venue: The Wantilan Room | Venue: The Mezanine Room | Venue: The Klungkung Room | |
| Session 1: 13:30~15:30 8 presentations-Topic: “Basic Theory and Test of Pharmacology” | Session 2: 13:30~15:30 8 presentations-Topic: “Medicinal Chemistry and Drug Analysis” | Session 3: 13:30~15:30 8 presentations-Topic: “Bioinformatics and Bioengineering” | |
| Coffee Break :15:30~15:50 | | | |
| Session 4: 15:50~18:05 9 presentations-Topic: “Pharmaceutical Design and Clinical Medication” | Session 5: 15:50~17:50 8 presentations-Topic: “Medicinal Chemistry and Drug Analysis” | Session 6: 15:50~17:50 8 presentations-Topic: “Biomedical Engineering and Image Processing” | |
| Dinner: 18:20 | | Venue: Restaurant | |
| Day 3 | April 25, 2018 (Wednesday) | | |
| | 09:00~19:00 | | |
| Academic Visit and Tour | | | |

Tips: Please arrive at the Conference Room 10 minutes before the session begins to upload PPT into the laptop.

Detailed Schedule for Conference

April 23, 2018 (Monday)

Venue: Hotel Lobby

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| 10:00~17:00 | Arrival and Registration |
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Morning, April 24, 2018 (Tuesday)

Venue: The Wantilan Room

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| 08:30~08:35 |  | Opening Remarks Prof. Tjokorda Gde Tirta Nindhia Udayana University, Indonesia |
| 08:35~09:10 |  | Keynote Speech I Prof. Chiharu Ishii Hosei University, Japan Topic: "Challenge for Development of Medical and Assistive Devices" |
| 09:10~09:45 |  | Keynote Speech II Assoc. Prof. GAUTAM SETHI National University of Singapore, Singapore Topic: "STAT3 as a Molecular Target for Cancer Therapy" |
| 09:45~10:20 |  | Keynote Speech III Prof. Tjokorda Gde Tirta Nindhia Udayana University, Indonesia Topic: "Effect of Feeding with Herb of Erythrina variegata to Biocompatibility of the Cocoon Fiber of Wild Silkmoth Attacus-atlas for Future Application as Biocompatible of Silk Sutures" |
| 10:20~10:45 | Coffee Break & Group Photo Taking | |
| 10:45~11:20 |  | Keynote Speech IV Prof. Zairin Noor Lambung Mangkurat University, Indonesia Topic: "How to Treat Osteoporosis Naturally" |
| 11:20~11:55 |  | Plenary Speaker I Prof. Satoru Miyano The University of Tokyo, Japan Topic: "Arrival of Oncologists Armed with AI-Powered Exoskeletons" |

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| <p>11:55~12:30</p> |  <p>Plenary Speaker II Dr. Malka N. Halgamuge University of Melbourne, Australia Topic: <i>"Therapeutic Use of Pulsed Electromagnetic Fields: Can Living Being Be Influenced by Non-Ionizing Radiation and Magnetism?"</i></p> |
| <p>12:30~13:30</p> | <p>Lunch Time Venue: Restaurant</p> |

Note: (1) The registration can also be done at any time during the conference.

(2) The organizer doesn't provide accommodation, and we suggest you make an early reservation.

(3) One Best Oral Presentation will be selected from each oral presentation session, and the Certificate for Presentation will be awarded at the end of each session on April 24, 2018.

Let's move to the session!

Session 1

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 24, 2018 (Tuesday)

Time: 13:30~15:30

Venue: The Wantilan Room

Topic: “Basic Theory and Test of Pharmacology”

Session Chair: Prof. Hayet Soualmia

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| <p>A0009 Presentation 1 (13:30~13:45)</p> | <p>Curcumin Benefits as Antioxidant, Antiinflammation and Antiapoptosis Ameliorate Paracetamol Toxicity</p> <p>Tejo Jayadi and Bowo Widiasmoko</p> <p>Duta Wacana Christian University, Indonesia</p> <p><i>Abstract</i>—Background: Paracetamol poisoning due to the use of paracetamol overdose is the most prevalent case of poisoning. Toxic metabolites from paracetamol cause glutathione depletion and lead to hepatic cell death. Curcumin a polyphenol substrat in Curcuma longa has been known to ameliorate the toxic effects of paracetamol. The mechanisms have been known ari curcumin as antioxidant, anti inflammatory and anti apoptotic. The curcumin protection mechanism against paracetamol poisoning will be discussed.</p> <p>Methods: The journal's search for the protective effects of curcumin on paracetamol toxicity is derived from PubMed database using keyword curcumin and acetaminophen. The journal's search for the protective effects of curcumin on paracetamol toxicity is derived from PubMed database using keyword curcumin and acetaminophen. Research on experimental animals as the limits of the study subjects of the journal search.</p> <p>Result: From a search in PubMed database, there are 15 journal titles discussing the effects of curcumin protection against paracetamol toxicity, and 11 journals selected that correspond to the research topic. Of the 11 journals selected, concluded that curcumin was found to prevent worsening of paracetamol toxicity by increasing antioxidant activity, decreasing inflammation and apoptotic.</p> <p>Conclusion: Curcumin has the potential benefit to be used as a medical therapeutic for the prevention and treatment of paracetamol toxicity</p> |
| <p>A0010 Presentation 2</p> | <p>Preparation and Characterization of Photocatalytic Poly (Methyl Methacrylate) Microcapsules</p> <p>Nusaiba k. Al-nemrawi, Rami J Oweis, Mohamed G Al-Fandi, and Carlos J. Tavares</p> |

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| (13:45~14:00) | <p>Jordan University of Science and Technology, Jordan</p> <p><i>Abstract</i>—In this study, a photocatalytic controlled release system using TiO₂ nanoparticles (NPs) have been developed. TiO₂ NPs is used to functionalize the surfaces of poly(methyl methacrylate) (PMMA) microcapsules (MCs) and to initiate the rupture of the PMMA drug-loaded MCs once exposed to light. The PMMA MCs were loaded with methotrexate. The size, polydispersity index (PDI) and the encapsulation yield were measured. Furthermore, Methotrexate release from the MCs in vitro was determined under three different conditions; dark, light and UV illumination. PMMA MCs have size around 230 µm when loaded with methotrexate. The average TiO₂ size was estimated at ~10 nm. PMMA MCs recorded negative charges that decreased as the MCs were functionalized with TiO₂. All microcapsules possess a near perfect spherical morphology. In vitro, The functionalization of PMMA MCs with TiO₂ has a noticeable effect on drug release. When UV illumination was performed, the functionalized MCs released the drug faster and to a larger extent in comparison to nonfunctionalized MCs. On the other hand, under light and dark there was almost no difference between the drug release from PMMA- TiO₂ MCs and PMMA MCs. In conclusion, PMMA MCs could be functionalized successfully using TiO₂ NPs. By doing so, the drug release from these MCs could be triggered remotely by UV irradiation.</p> |
| <p>A0015</p> <p>Presentation 3</p> <p>(14:00~14:15)</p> | <p>Adherence To Opioid Therapy In Patients With Chronic Non-Cancer Pain Attending A Pain Clinic In Malaysia</p> <p>Hussam Mizher, Che S. Zin, Asween R. Sani, Abdul Hadi Bin Mohamed, Tan H. Ling, and Munira M. Izat</p> <p>International Islamic University Malaysia, Malaysia</p> <p><i>Abstract</i>—Objectives: This study examined the adherence to opioid therapy in patients with chronic non-cancer pain (CNCP). The prevalence of opioid use and pain scores was also explored.</p> <p>Methods: This cross-sectional study was conducted among patients with non-cancer pain attending a pain clinic at a tertiary hospital in Malaysia from August 2016 to February 2017. All patients prescribed with any of the five available opioids (morphine, oxycodone, fentanyl, buprenorphine, and dihydrocodeine) were included in the study and their medical and prescription records were assessed for further information on opioid use such as the type of opioid, dose, frequency and duration. Prevalence of opioid use was calculated by dividing the number of opioid users and the total number of patients attending the pain clinic during the study period. Adherence was calculated for patients with long-term opioid therapy (> 90 days per year) and measured using the Medication Possession Ratio (MPR). This was derived by sum up the total days covered with medication in the last 365 days, and then divide that by the total days the medication was prescribed over the same period. A cutoff point of 80% or more was considered as adherence. Pain intensity score was assessed through a numerical scale from 0 (no pain)-10 (worst possible pain) at 4 different points (now, on average, least in the last 24h, worst in the last 24h).</p> |

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| | <p>Results: A total of 555 patients with various non-cancer pain conditions attended the pain clinic during the study period. Prevalence of opioid use among these patients was 13.5% (n=74/555). Of these, 24.3% (n=18/74) patients using opioids for long-term (>90days) and were included in the adherence measure. Seventy-eight percent (n=14/18) of these long-term opioid users were adherent to opioid therapy with a reported MPR >80%. Twenty-two percent (n=4/18) showed non-adherence to opioid therapy with a reported MPR <80%. The mean pain score for both adherent and non-adherent groups was 5/10 and there was no statistical difference between the two groups.</p> <p>Conclusion: The preliminary results of this study demonstrated that the majority of patients with chronic opioid use adhered to their prescribed opioids. The prevalence of opioid use among patients with non-cancer pain was low and the number of patients using opioid for the long term was ~20% which is similar to the finding from the previous study. Future research is required to evaluate the clinical outcomes in patients with CNCP using opioid for long-term, particularly in non-adherent patients.</p> |
| <p>A0016 Presentation 4 (14:15~14:30)</p> | <p>A Model-based Design of Experiments for Lead Optimization</p> <p>Irene Poli and Debora Slanzi Ca' Foscari University, Italy</p> <p><i>Abstract</i>—One of the main problem that the drug discovery research field confronts is to identify small molecules, modulators of protein function, which are likely to be therapeutically useful. Common practices rely on the screening of vast libraries of small molecules (often 1-2 million molecules) in order to identify a molecule, known as a lead molecule, which specifically inhibits or activates the protein function. Such a molecule interacts with the required target, but generally lacks other essential attributes required for a drug candidate. The problem of building the optimal lead molecule can be addressed with a multi-objective optimization procedure. In this presentation we introduce a novel model-based design of experiments for high dimensional spaces and big data analysis. This approach, named m-EDO (multi-objective Evolutionary data Design for Optimization), drives the evolution towards the target by combining predictions from different stochastic models, such as Lasso Regression, Neural Networks, Bayesian Networks, or Random Forests. M-EDO is able to discover the optimal lead molecule through testing only an extremely small number of candidate molecules, making very efficient and effective the discovery process.</p> |
| <p>A0005 Presentation 5 (14:30~14: 45)</p> | <p>A Strategy Model for Community-Based Training to Promote Responsible Self-Medication: Lesson Learned from Indonesia</p> <p>Adji Prayitno Setiadi, Yosi Wibowo, Eko Setiawan, Ika Mulyono, and Susilo Ari Wardhani Universitas Surabaya, Indonesia</p> <p><i>Abstract</i>—Background. Self-medication has been an essential form of daily self-care among Indonesians. In 2015, the Indonesian Government introduced a national health</p> |

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| | <p>program (GeMa CerMat) – involving community-based training – to promote responsible self-medication, yet the training implementation has been a challenge. Objective. To develop a strategy model to implement community-based training on self-medication in Indonesia. Methods. A sample of 40 trainers was selected from pharmacist/pharmacy staff involved in prior 2-day training for trainers in Ngawi, East Java - Indonesia. A mixed method approach (questionnaire and focus group discussion) was used to explore factors contributing to the training implementation. A strategy model was developed based on the factors and validated by an expert panel. Results. The strategy model to implement community-based training on self-medication in Indonesia should consider: 1) factors directly related to the training, including participant characteristics, training designs (i.e. local/simple language, interactive discussion, and visual aids), and training arrangements (i.e. quality and quantity of trainers, venue and food, souvenirs, and timing); and 2) indirect factors, including policy/regulation and organisational supports (i.e. acceptance as priority/routine activity, funding, and remuneration system), environmental factors (i.e. community proximity/distance and culture), and communication media. In addition to the training, active tools ('asking the right questions') were recommended to enhance community empowerment. Conclusion. The strategy model developed in this study could be used as a basis to design appropriate intervention programs to empower Indonesians to practice responsible self-medication.</p> |
| <p>A0030 Presentation 6 (14: 45~15:00)</p> | <p>Biochemical and Histopathological Effects of Co-Administration of Amodiaquine, Artesunate and Selenium on <i>Plasmodium Berghei</i> Infected Mice</p> <p>Abiodun Humphrey Adebayo, Gloria Nwabugwu Okenze, Omolara Faith Yakubu, and Mobolaji Emmanuel Abikoye</p> <p>Covenant University, Nigeria</p> <p><i>Abstract</i>—The effect of co-administering artesunate, amodiaquine and selenium were studied on mice induced with <i>Plasmodium berghei</i>. The study was conducted using 6 groups of 6 male mice each. Group A constitutes the negative control (unparasitized) while group B represents the parasite control (parasitized) group. Mice in groups C, D, E & F respectively received 2 mg kg⁻¹ bw of artesunate (ART), 6.12 mg kg⁻¹ bw of amodiaquine (AMO), combination of amodiaquine and artesunate and 0.945 mg kg⁻¹ bw of selenium in addition to artesunate and amodiaquine for 3 days. Thereafter, animals were anaesthetized and the organs were excised. Liver homogenate was prepared and used for analysis of for aspartate aminotransferase (AST), alkaline phosphatase (ALP), alanine aminotransferase (ALT), total protein (TP), reduced glutathione (GSH), catalase (CAT), superoxide dismutase (SOD) and lipid peroxidation (MDA). The results showed no significant alteration in AST and ALT but ALP was significantly (p<0.05) increased in group D. In addition, a significant drop (p<0.05) in GSH and SOD activities and significant (p<0.05) increase in TP was observed in group E. Histopathological studies revealed no degenerative change in the morphology of the hepatocytes of mice in group F whereas groups D and E showed mild inflammatory cells. Conclusively, the combination of artesunate-amodiaquine therapy with selenium</p> |

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| | increases the efficacy and reduces potential toxicity of combined antimalarial drugs. |
| T0029 Presentation 7 (15:00~15:15) | <p>Converting Colour to Length Based on Coffee-Ring Effect for Quantitative Immunoassays Using a Ruler as Readout</p> <p>Dagan Zhang and Hong Liu</p> <p>Southeast University, China</p> <p><i>Abstract</i>—We report a method for converting the colorimetric results of enzyme-link immunosorbent assay (ELISA) into length based on the coffee-ring effect. For our method, the coloured product resulting from the enzyme-catalyzed reaction formed a coloured ring on the paper after drying, so the test result can be directly measured using naked eyes with the aid of a ruler. The influence of the shape and lamination of the paper strip to the test results is studied. As a demonstration, our Paper-based ELISA with a ruler as readout allows quantitation of human IgG within 1 h. It is found that the width of the colored stains is correlated to the concentration of analyte which can be measured for visual quantitative bioanalysis. The method also applies to quantitative detection of human IgG in clinical serum samples with good accuracy. Therefore, it is a promising tool for quantitative point-of-care detection of biomarkers under resource-limited settings.</p> |
| A0048 Presentation 8 (15:15~15:30) | <p>Assessment on Knowledge Regarding Human Papillomavirus (Hpv) Vaccination among Mahsa University Students</p> <p>Nadiatul Azra Ahmad Mazlan and Ng Xin Hui</p> <p>MAHSA University, Malaysia</p> <p><i>Abstract</i>—Objective: This study aimed to assess the knowledge of undergraduate students of MAHSA University on HPV vaccination.</p> <p>Methodology: The cross sectional study was conducted using self-administered questionnaire among 350 local undergraduate students recruited by convenience sampling. The survey was conducted in English and consisted questions on demographic data and 14 questions on knowledge towards HPV vaccination. Verbal consent was obtained from the participants beforehand and their participation was voluntary and anonymous.</p> <p>Results: The participants have scored below average (6.09 ± 3.39) for knowledge on HPV vaccines with significant difference in terms of age, gender and program of study. Students from medicine, dentistry and biomedical science tend to have better mean knowledge score (7.39 ± 2.99) with 25% scored 10 and above. The non - healthcare students showed insignificant lower mean knowledge score of 4.17 ± 2.06, respectively.</p> <p>Conclusion: This study has demonstrated moderate level HPV vaccine knowledge towards HPV vaccination among university students with majority posed background of health-related knowledge.</p> |

Session 2

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 24, 2018 (Tuesday)

Time: 13:30~15:30

Venue: The Mezanine Room

Topic: “Medicinal Chemistry and Drug Analysis”

Session Chair: Prof. Tjokorda Gde Tirta Nindhia

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| <p>A1003 Presentation 1 (13:30~13:45)</p> | <p>Public Health Hazards Associated with Naturally Occurring Toxins in Legume Seeds—Rapid Detection and Characterization of a Lectin from a Korean Cultivated Kidney Bean (<i>Phaseolus vulgaris</i> L.)</p> <p>Nader Nciri, Taesub Shin, and Namjun Cho</p> <p>University of Tunis El Manar, Tunisia</p> <p><i>Abstract</i>—The delicacy of kidney beans is highly appreciable but, at the same time, their toxicity has raised an alarming concern. In this regard, more public awareness is needed about bean poisoning. This work aimed at promptly investigating the chemical and biological properties of a lectin derived from a Korean cultivar of the common bean (<i>Phaseolus vulgaris</i> L.). SDS-PAGE (sodium dodecyl sulphate-polyacrylamide gel electrophoresis) revealed the presence of two major polypeptide bands around 31.00 kDa. Hemagglutination assay and Ouchterlony double immunodiffusion technique confirmed the presence of lectin in dry seeds. It was evident that the Korean bean cultivar contains biologically active lectins, which may pose a risk to the consumer if the beans are eaten in raw or undercooked state.</p> |
| <p>A0036 Presentation 2 (13:45~14:00)</p> | <p>Antioxidant Activity of Ethyl Acetate Fraction of <i>Macaranga Triloba</i> Leaves from Central Kalimantan</p> <p>Sahrida Dian Ardhanjaya, Dewi Sari Mulia, and Pienyani Rosawanti</p> <p>Muhammadiyah University of Palangkaraya, Central Kalimantan, Indonesia</p> <p><i>Abstract</i>—Objective: The objective of this study is to investigate antioxidant activity and phytochemical screening (Alkaloid & Flavonoid) and of ethyl acetate fraction of <i>Macaranga triloba</i> leaves.</p> <p>Methods: <i>Macaranga triloba</i> leaves were extracted using maceration methods, followed by fractionation using liquid-liquid extraction methods and phytochemical screening. Antioxidant activity test was carried out using 1,1-diphenyl-2-picrylhydrazyl with</p> |

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| | <p>quercetin as a reference.</p> <p>Results: it was found that ethyl acetate fraction of <i>Macaranga triloba</i> leaves containing flavonoid and alkaloid. The inhibition concentration 50 (IC_{50}) value of ethyl acetate fraction of <i>Macaranga triloba</i> leaves is 56.93 ppm.</p> <p>Conclusion: Antioxidant activity of ethyl acetate fraction of <i>Macaranga triloba</i> leaves ($IC_{50} = 56.93$ ppm) is weaker than quercetin ($IC_{50} = 4.46$ ppm), but still in range value of strong antioxidant activity (50-100 ppm).</p> |
| <p>A0041</p> <p>Presentation 3</p> <p>(14:00~14:15)</p> | <p>Anti-Metalotoxic Properties of Kelakai (<i>Stenochlaena Palustris</i>) Leaves Extract against Cadmium Induced Liver Tissue Damage</p> <p>Agung Biworo, Nurul Ainun Azizi, Rizki Padelia, Muhammad Andino Raharja, Ozanata Azima, and Eko Suhartono</p> <p>Medicine Lambung Mangkurat University, Indonesia</p> <p><i>Abstract</i>—Objective: The present study was undertaken to investigate the anti-metalotoxic activity of the leaves extract of <i>Stenochlaena palustris</i> (kelakai; <i>S. palustris</i>) on Cadmium (Cd) induced liver tissue damage.</p> <p>Material and Methods: Liver tissue damage was induced by the administration of Cadmium Sulphate ($CdSO_4$) at a dose 3 mg/l. Anti-metalotoxic effect of the extracts was determined by assessing the concentration of malondyaldehyde (MDA), carbonyl compound (CC), conjugated dienes (CD), and Advanced Oxidation Protein Products (AOPPs) induced by Cd with and without the presence of the extract.</p> <p>Results: The results of this present studies showed that treatment with $CdSO_4$ significantly increase the levels of MDA, CC, CD, and AOPPs. The leaves extract of <i>S. palustris</i> significantly decrease the levels of all measured parameter in liver tissue</p> <p>Conclusion: The present study demonstrated that Cd could induced the liver tissue damage, and the extract of <i>S. palustris</i> showed the anti-metalotoxic activity to reduce the damage.</p> |
| <p>A0042</p> <p>Presentation 4</p> <p>(14:15~14:30)</p> | <p>New Molecular Mechanism of Ceftazidime Induced Human Red Blood Cell Hemolysis through the Photohemolysis Reaction</p> <p>Mashuri, Achmad Zaini, Diana Rahmanisa, Muhammad Rifqi Alfiannoor, Muhammad Rosyhan Sanjaya, and Eko Suhartono</p> <p>University of Lambung Mangkurat, Indonesia</p> <p><i>Abstract</i>—Objective: The present study was undertaken to investigate the photohemolysis reaction via photosensitization reaction by ceftazidime as a photosensitizer in human red blood cell (RBC).</p> <p>Methods: In this present study, human erythrocytes have used a sample. The sample then divided into six groups consisting of; group 1 (T1) served a negative control which consists of erythrocytes and buffer phosphate with pH 6.8; group 2 (T2) served as a positive control which consists erythrocytes and buffer phosphate with pH 6.8 and exposed to UV-light; group 3, 4, 5, and 6 (T3, T4, T5, and T6) served as an experimental group which consists of erythrocytes, buffer phosphate with pH 6.8,</p> |

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| | <p>ceftazidime with concentration 10%, 20%, 30%, and 40%, respectively, and also exposed to UV-light. UV-light exposure was done in 2 hours. After the treatment period, the level of hydrogen peroxide (H₂O₂), Conjugated Diene (CD), Advance Oxidation Protein Products (AOPPs), and percentage of red blood cell hemolysis (RBCH) were measured. Results: The results of this present studies showed that ceftazidime significantly increase the levels of H₂O₂, CD, AOPPs, and percentage of RBCH during the UV radiation.</p> <p>Conclusion: The present study demonstrated that ceftazidime act as a photosensitizer and iduced the photohemolysis reaction in human RBC. Also, the hemolysis of RBC seems through the protein damage than lipid damage.</p> |
| <p>A0043 Presentation 5 (14:30~14: 45)</p> | <p>Comparison of Antibacterial Activities Leaves Extracts of <i>Cerbera Manghas</i> and Leaves Extracts of <i>Azadirachta Indica</i> Against <i>Klebsiella pneumoniae</i></p> <p>Muhammad Yanis Musdja, Markhamatul Aeni, and Ira Djajanegara State Islamic University, Indonesia</p> <p><i>Abstract</i>—Objective: This study aims to determine the potential of Neem (<i>Azadirachta indica</i>, Juss) leaves and sea mango (<i>Cerbera manghas</i>, Linn) leaves against <i>Klebsiella pneumoniae</i>.</p> <p>Methods: Hexane and methanol extracts of neem leaves (<i>Azadirachta indica</i>, Juss) and hexane and butanol extracts of sea mango leaves (<i>Cerbera manghas</i>, Linn) were tested antibacterial against <i>Klebsiella pneumoniae</i> using paper disc and dilution methods, measured the inhibition zone diameter (IZD), minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC), as a comparison used ampicillin.</p> <p>Results: The MIC values for the butanol extract and hexane extract of sea mango leaves against <i>Klebsiella pneumoniae</i> were 1.124276 mg / mL and 1,45958 mg/mL respectively. While the MBC value of butanol extract of sea mango leaves and hexane extract of sea mango leaves has the same value, ie 2 mg/ml. The hexane and methanol extracts of neem leaves did not have potentially against the growth of <i>Klebsiella pneumoniae</i>.</p> <p>Conclusion : Based on the results of this study have been obtained, that extracts butanol and hexane extract of leaves of sea mango (<i>Cerbera manghas</i>, Linn) have antibacterial activity strong enough against <i>Klebsiella pneumoniae</i>, where, extracts butanol leaves of sea mango has antibacterial activity that is more powerful than the extract hexane leaf sea mango, while the methanol extract & hexane extracts of neem (<i>Azadirachta indica</i>, Juss) leaves have weak activity against <i>Klebsiella pneumoniae</i>.</p> |
| <p>A3001 Presentation 6 (14: 45~15:00)</p> | <p>Preparation of Solid Lipid Nanoparticles Containing Mangosteen Pericarp Extract</p> <p>Siti Nur Diniyanti, Pornpen Werawatganonea, and Walaisiri Muangsiri Chulalongkorn University, Thailand</p> <p><i>Abstract</i>—Objectives: The aim of this study was to develop solid lipid nanoparticles (SLNs) containing mangosteen pericarp extract (MPE) in order to achieve enhanced photoprotection and to provide an alternative to synthetic sunscreens in the market.</p> <p>Methods: The MPE was prepared using the maceration method, and evaluated for SPF value using a UV-Vis spectrophotometer. SLNs were prepared via ultrasonication method. Blank-SLNs were formulated using stearic acid (SA) or palmitic acid (PA) as</p> |

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| | <p>solid lipids at a concentration of 3%. Tween® 80 or PVA was employed as a surfactant with a concentration ranging from 1 to 2%. The obtained blank-SLNs were investigated for their physical characteristics, (i.e. morphology, particle size, PDI, and zeta potential values). The blank-SLNs with suitable physical characteristics were selected to encapsulate MPE, and evaluated for the physical characteristics.</p> <p>Results: The MPE was a brownish viscous substance with an SPF value that ranged from 3.09 ± 0.005 to 27.20 ± 0.05 at a concentration ranging from 0.02 to 0.1 mg/ml. Based on the physical characteristics, the blank-SLNs employing PA or SA with 1% of PVA were selected. The MPE-SLNs were spherical, with particle size that ranged from 443.51 ± 6.50 to 533.52 ± 16.15 nm; PDI ranged from 0.35 ± 0.008 to 0.459 ± 0.02, and zeta potential value ranged from 18.32 ± 1.37 to -19.03 ± 0.64. The entrapment efficiencies of MPE-PA-SLNs and MPE-SA-SLNs were $83.24 \pm 1.37\%$ and $84.17 \pm 0.411\%$, respectively.</p> <p>Conclusion: The results indicated promising potential of MPE as a UVB photoprotector. The MPE-SLNs were also successfully formulated, but, further study is needed to confirm the potential of MPE-SLNs to be used as a sunscreen, and their stability during storage.</p> |
| <p>T0044 Presentation 7 (15:00~15:15)</p> | <p>Synthesis and Characterization of P-Nitro Stilbene Schiff Base as a Potential Linker in E-DNA</p> <p>Norhafiefa Hassan, Hanis Mohd Yusoff, and Soraya Shafawati Mohd Tahier</p> <p>Universiti Malaysia Terengganu (UMT), Malaysia</p> <p><i>Abstract</i>—Electrochemical DNA sensor (E-DNA) have received attention in numerous application due to its high sensitivity, low cost, rapid response, simple, portability, and easy to operate. The objective of this study was to synthesis three Schiff bases derived from 4-amino-4'-nitrostilbene and 4-alkoxybenzaldehyde derivatives to be use as a potential linker in E-DNA. Schiff bases reaction are form from condensation reaction between primary amine and aldehyde at 79 °C using ethanol as solvent. All compounds are investigated and discussed by Fourier transform-infrared spectrometer (FTIR), UV-Vis spectrophotometer and Nuclear Magnetic Resonance (NMR). FTIR showed formation of C=N (imine) stretching vibrations at range 1604 cm⁻¹ to 1608 cm⁻¹. In UV-vis, absorbance of C=N (imine) group can be observed at peak range 385 nm to 388 nm. While in the ¹H NMR the peak of CH=N (Imine) group was found at δH 8.34 ppm and ¹³C NMR for three Schiff bases were discovered at δC 158.80, 158.79 and 158.78 ppm.</p> |
| <p>A0050 Presentation 8 (15:15~15:30)</p> | <p>Search for Glioma Direct Binding Site of Alkaloids Using PLANTS®</p> <p>Yusnita Rifai</p> <p>Hasanuddin University, Indonesia</p> <p><i>Abstract</i>—Objective: This research aims to know the best affinity and the best chemical conformation of anticancer compounds from alkaloid groups that have closed-direction to Glioma-associated oncogene using PLANTS® (Protein- Ligand Ant System). The</p> |

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| <p>interaction energy and hydrogen bond are included as evaluated targets.</p> <p>Methods: In this research, twenty seven ligands with RMSD (Root Mean Square Deviation) score at 1.614 Å and cyclopamine as native ligand are used. Meanwhile, Staurosporinone acts as Glioma's directed-binding-site-internal-control. Each ligand is docked in GLI with PDB code 2GLI using 2 methods, GLI contain water and without water.</p> <p>Results: PLANTS® score for native ligand in the first and the second method is -73.9002 and -73.2700 respectively. Pancracristine, homoharringtonine and sanguinarine showed PLANTS® score closed to the cyclopamine score result but their hydrogen bond interaction differed from native ligand interaction. Evodiamine ligand has a good score and hydrogen bond to the same amino acid of protein GLI, which are GLU 175 and THR 173. This result indicated that evodiamine has the same identical mechanism as staurosporinone.</p> <p>Conclusions: The evodiamine is determined to have the same working mechanism as a GLI inhibitor.</p> |
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Session 3

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 24, 2018 (Tuesday)

Time: 13:30~15:30

Venue: The Klungkung Room

Topic: “Bioinformatics and Bioengineering”

Session Chair: Prof. Satoru Miyano

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| <p>T0043 Presentation 1 (13:30~13:45)</p> | <p>Theoretical and Experimental Approach towards P-Cyano Stilbene Schiff Base as a Potential Linker in E-DNA Sensor</p> <p>Hanis Mohd Yusoff, Norhafiefa Hassan, and Ku Halim Ku Bulat</p> <p>Universiti Malaysia Terengganu (UMT), Malaysia</p> <p><i>Abstract</i>—This research aim to synthesis and characterize several p-cyano stilbene Schiff base molecules as a potential linker in electrochemical DNA sensor. Schiff bases reaction are form from condensation reaction between primary amine and aldehyde at 79 °C using ethanol as solvent. All compounds are investigated and discussed by Fourier transform-infrared spectrometer (FTIR), Uv-vis spectrophotometer and Nuclear Magnetic Resonance (NMR). FTIR showed formation of C≡N stretching vibrations at 2224 cm⁻¹ also other important stretching at 1604 cm⁻¹ and 1249 cm⁻¹ which represent C=N and C-O mode respectively. In UV-vis, absorbance of C=N (imine) group can be observed at peak range 363 nm and transition of aromatic C=C can be seen at 238 nm. Theoretical and experimental results obtained are comparable and p-cyano stilbene Schiff base compounds were successfully synthesised and can be further applied as a linker in E-DNA sensor.</p> |
| <p>T0005 Presentation 2 (13:45~14:00)</p> | <p>Application of the Complexity and Clustering Analysis in Diagnosis and Classification of Functional Constipation</p> <p>Kai Zhao, Guozheng Yan, and Zhiwu Wang</p> <p>Shanghai Jiao Tong University, China</p> <p><i>Abstract</i>—Functional constipation (FC) is a common and frequent problem for the general population. The diagnosis process of FC is complicated, which is not convenient for clinical application. This paper proposed a new method in diagnosing FC and its subtypes. Wireless electronic capsule (WEC) was applied to obtain pressure signal of the human gastrointestinal (GI) tract, and the complexity of intestinal pressure</p> |

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| | <p>signal was calculated based on Lempel-Ziv (L-Z) complexity calculation method. Then the complexity of colonic pressure signal (CCPS) and the complexity of rectal pressure signal (CRPS) were used as characteristic values for clustering analysis. The results indicated that the method proposed in this paper has a good performance on determining FC and its subtypes.</p> |
| <p>T0018 Presentation 3 (14:00~14:15)</p> | <p>Ultrabright Organosilica Nanodots for Long-Term Lysosome Imaging and Bacterial Live/Dead Differentiation</p> <p>Xiaokai Chen, Xiaodong Zhang, Zhan Chen, and Fu-Gen Wu</p> <p>Southeast University, China</p> <p><i>Abstract</i>—Photoluminescent nanomaterials with excellent photoluminescence properties are urgently desired for various imaging applications. Herein, we synthesized ultrasmall organosilica nanodots (SiNDs) with ~100% green-emitting photoluminescence quantum efficiency and a narrow PL bandwidth (full width at half maximum (FWHM) \approx 30 nm) via a one-step hydrothermal reaction. Owing to their low pH-induced precipitation/aggregation property, the as-prepared SiNDs can be used as excellent lysosomal trackers with the advantages of high lysosomal selectivity, ultralong lysosomal retention time (up to 48 h), universal lysosomal imaging capability for cells in different states (such as living, fixed, and permeabilized cells), excellent photostability, and low cytotoxicity. On the other hand, by selectively staining the dead bacterial cells, the SiNDs are able to rapidly and sensitively recognize the live and dead bacteria regardless of the bacterial strains including gram-positive <i>Staphylococcus aureus</i> (<i>S. aureus</i>) and gram-negative <i>Escherichia coli</i> (<i>E. coli</i>). Overall, the ultrasmall SiNDs with superior fluorescence properties and easily modifiable surfaces have great prospect as novel fluorescent nanoprobe, light-emitting diode phosphor, and anti-counterfeiting material, which will promote the preparation and broaden the application of silicon-containing nanomaterials.</p> |
| <p>T0019 Presentation 4 (14:15~14:30)</p> | <p>Quaternized Fluorescent Metal-Free Nanoparticles for Simultaneous Bacterial Distinguishment and Antibacterial Applications</p> <p>Xiaodong Zhang, Xiaokai Chen, Zhan Chen, and Fu-Gen Wu</p> <p>Southeast University, China</p> <p><i>Abstract</i>—With the emergence of antibiotic resistance, developing new antibiotics and therapies for combating bacterial infections is urgently needed. Herein, a series of quaternized fluorescent metal-free nanoparticles (including silicon nanoparticles and carbon dots) are facilely prepared by the covalent reaction between amine-functionalized metal-free nanoparticles and carboxyl-containing N-alkyl betaines. It is found that the bactericidal efficacy of these quaternized nanoparticles increases with the length of the N-alkyl chain, and the quaternized nanoparticles showed the better antibacterial effect than free N-alkyl betaines. In vivo tests further confirm that the quaternized fluorescent metal-free nanoparticles have excellent antibacterial efficacy and greatly reduce bacterial load in the infectious sites. Moreover, the nanoparticles exhibit low cytotoxicity toward mammalian cells (including normal</p> |

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| | <p>liver and lung cells, red blood cells, and macrophages), enabling them to be useful for clinical applications. Besides, the quaternized nanoparticles exhibit polarity-dependent fluorescence emission property and can selectively image Gram-positive bacteria, thereby providing a simple method to successfully differentiate Gram-positive and Gram-negative bacteria.</p> |
| <p>T0022 Presentation 5 (14:30~14: 45)</p> | <p>Cultured Hair Follicle Cells for the Treatment of Vitiligo</p> <p>Piyatida Sutnut, Kwanchanok Viravaidya-Pasuwat, and Saroj Suvanasuthi King Mongkut's University of Technology Thonburi, Thailand</p> <p><i>Abstract</i>—Objective: The objective of this study was to develop a method to isolate cells from hair follicles and cultured them in a hydrogel. Methods: Different cell types obtained from hair follicles were investigated and mixed with three formulations of Lutrol® F-127 based hydrogels. The percentages of the cell attachment and viability were observed within 48 h. Results: The results showed that three cell types, including keratinocyte, dermal papilla and melanocyte cells, were obtained, as shown by the expression of their corresponding genes. All formulations of the hydrogels supported cell attachment and viability. Interestingly, more than 60% cell attachment and viability were found in Lutrol hydrogels supplemented with either fetal bovine serum (FBS) or heat activated human serum. Conclusion: Higher cell attachment and viability was observed when the hair follicle cells were cultured in the hydrogel with FBS than the hydrogel with human serum. However, the Lutrol gel formulation with human serum was more appropriate to be used in the future clinical study, as this formulation contained no animal-derived component.</p> |
| <p>T0046 Presentation 6 (14: 45~15:00)</p> | <p>Investigation of Anti Cancer Proliferation Properties of Luffa Acutangula on HT29 Using Electroporation Method</p> <p>Muhammad Mahadi Abdul Jamil, Hassan Buhari Mamman, Mohamad Nazib Adon, and Suhassni Ganeson Universiti Tun Hussein Onn Malaysia, Malaysia</p> <p><i>Abstract</i>—This aim of this paper is to study the combine influence of Luffa Acutangula (LA) and pulse electric field in the anti-proliferation of HT29 cell line. HT29 cell were treated with serial concentration of LA and a single pulse electric field of 600V/cm amplitude and 5ms pulse duration for 48 hours. The results from this study has shown that LA along significantly down regulate the proliferation rate of HT29 cells in dose depended manner with IC50 of 25µg/ml after 48 hours. Moreover, when combine with the pulse electric field the anti-proliferation property of the LA on the HT29 cell significantly increased and the IC50 reduced to 17µg/ml after 48 hours. The results of this study therefore, revealed that the combination of pulse electric field and LA can significantly inhibit the growth of HT29 cell. This indicates that LA is a potential chemo-preventive agent and can offer minimal toxicity when used in</p> |

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| | electrochemotherapy. |
| T0038 Presentation 7 (15:00~15:15) | <p>In Silico Study of miRNA-Regulated IQGAP Family in Liver Cancer</p> <p>David Agustriawan, Anton Sumarpo, Arli A. Parikesit, Rizky Nurdiansyah, Gabriella Patricia, and Ricky R. F. A. Putra</p> <p>Indonesia International Institute for Life Sciences, Indonesia</p> <p><i>Abstract</i>—The aberrant expression of IQGAP Family which consist of IQGAP1, IQGAP2, and IQGAP3 has been linked to carcinogenesis in human cancers. The reciprocal expression of IQGAP family in human cancer has been studied to act as oncogenes or tumour suppressor genes. A growing number of studies suggest that upregulated or downregulated expression of IQGAP family triggering cancer development. A correlation study was performed in order to construct a pathway to inhibit or activate IQGAP family between miRNAs and IQGAPs. This study identified significantly inversely correlated in 51 miRNAs-IQGAP1, 169 miRNAs-IQGAP2, and 33 miRNAs-IQGAP3, respectively which may potentially play a role in a liver cancer formation.</p> |
| T0023 Presentation 8 (15:15~15:30) | <p>Segmentation of Melanoma Skin Lesions using Anisotropic Diffusion and Adaptive Thresholding</p> <p>Adil H. Khan, Ghazanfar Latif, D.N.F. Awang Iskandar, Jaafar Alghazo and Mohsin Butt</p> <p>Prince Mohammad University, Saudi Arabia</p> <p><i>Abstract</i>—Segmentation is the first and most important task in the diagnosis of skin cancer using computer-aided systems and due to complex structure of skin lesions, the automated process may lead to a completely different diagnosis. In this paper, a novel segmentation method of skin lesions is proposed which is both effective and simple to implement. Smoothing of skin lesions in original image plays a pivotal role to secure an accurate segmented image. Anisotropic Diffusion Filter (ADF) is used in the initial stage to smooth images with preserved edges. Adaptive thresholding is then applied to segment the skin lesion of the image by binarizing it. The morphological operations are applied for further enhancement and final segmented image is obtained by applying proposed boundary conditions in which objects are selected on basis of distance. The proposed technique is tested on over 300 images and averaged results are compared with existing methods like L-SRM, Otsu-R, Otsu-RGB and TDLS. The proposed method achieved an average accuracy of 96.6%. Visual results for selected images also depicted better performance of proposed method even in the presence of bad illumination and rough skin lesions in the image.</p> |

15:30~15:50

Coffee Break



Session 4

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 24, 2018 (Tuesday)

Time: 15:50~18:05

Venue: The Wantilan Room

Topic: “Pharmaceutical Design and Clinical Medication”

Session Chair: Prof. Irene Poli

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| <p>A0024</p> <p>Presentation 1</p> <p>(15:50~16:05)</p> | <p>Genetic Variations of the VEGF and eNOS Genes and Diabetic Retinopathy</p> <p>Fatma Midani, Hayet Soualmia, Amani Kallel, Ali El Afrit, and Moncef Feki</p> <p>University of Tunis El Manar, Tunisia</p> <p><i>Abstract</i>—Diabetic retinopathy (DR) is a microvascular complication of type 2 diabetes mellitus (T2DM) that leads to vision loss. This study examined the impact of the vascular endothelial growth factor (VEGF) -2578 C/A polymorphism and the endothelial nitric oxide synthase (eNOS) 786T/C polymorphism on the risk of DR in a sample of Tunisian population by PCR-RFLP.</p> <p>This study included 329 unrelated subjects (104 T2DM, 120 RD and 95 healthy controls).</p> <p>Genotype frequencies of the VEGF -2578C/A variant were significantly different between the DR and control groups. This polymorphism increased the risk of DR (OR=1.81 [1.11-2.94] p=0.016). Furthermore, the mutant AA carriers had high risk of DR (OR=4.04 [1.02-15.9], p=0.046). Moreover, the eNOS-786T/C variant was associated with T2DM (OR=1.82 [1.16-2.86] p<0.008) and DR (OR=1.63[1.07-2.5] p=0.023). The mutant CC carriers had high risk of DR (crude OR=3.4[1.15-10] p=0.026 and adjusted OR=4.34[1.23-15.28] p=0.022 for body mass index, hypercholesterolemia and dyslipidemia).</p> <p>These data suggest that -2578C/A VEGF and -786T/C eNOS polymorphisms are associated with DR in Tunisian population.</p> |
| <p>A0006</p> <p>Presentation 2</p> <p>(16:05~16:20)</p> | <p>Building Research Capacity: A Cross-Sectional Survey of Indonesian Pharmacists</p> <p>Yosi Wibowo, Eko Setiawan, Adji Prayitno Setiadi, and Rheza Paleva Uyanto</p> <p>Universitas Surabaya, Indonesia</p> <p><i>Abstract</i>—Pharmacy practice research became an important component in the evidence-based practice among pharmacists. Thus, there is a need to develop pharmacy practice research capacity among Indonesian pharmacists. Objective. To assess</p> |

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| | <p>Indonesian pharmacists' attitude towards research and barriers/facilitators to participation in research. Method: A questionnaire survey was administered among hospital pharmacists (in a public hospital in Malang) as well as health centre pharmacists and community pharmacists (in Surabaya) during seminars conducted in the two major cities in East Java, Indonesia. Responses were analysed using descriptive and inferential statistics. Results. A total of 142 pharmacists (i.e., 49 hospital pharmacists, 45 health centre pharmacists, and 51 community pharmacists) completed the questionnaire. Hospital pharmacists reported higher levels of experience and interest in conducting research compared to those in health centres and community pharmacies ($p < 0.005$). However, most pharmacists perceived lack of ability to design and conduct research (hospital pharmacists 45.7%, health centre pharmacists 53.3%, community pharmacists 70.6%; $p < 0.005$). While pharmacists were generally positive in response to the attitudinal items towards research; they were less sure of resources to conduct research as well as access to administrative, statistical and technological support – in particular, those working in health centres and community pharmacies. Pharmacists in those settings were also generally unsure of many aspects relating to research culture and support from others. Conclusion. Indonesian pharmacists in this study demonstrated a positive attitude towards pharmacy practice research, however lack of research skills and barriers related to support and research culture were reported. These findings should be used as a basis for national and professional institutions to develop policies and strategies to encourage research and improve pharmacists' skill in conducting quality research.</p> |
| <p>A0012 Presentation 3 (16:20~16:35)</p> | <p>Self-Assessment in the Implementation of Pharmaceutical Care in Indonesian Hospitals</p> <p>Ika Mulyono, Yosi Irawati Wibowo, Adji Prayitno Setiadi, and Susilo Ari Wardani Universitas Surabaya, Indonesia</p> <p><i>Abstract</i>—Pharmaceutical care is regarded as the process of optimizing the outcome of a patient's drug therapy, thus improving the patient's quality of life. In 2016, the Indonesian Government launched a new regulation of pharmacy services in hospitals which has integrated the concept of pharmaceutical care. Yet, little is known regarding its implementation. Objective: To assess the implementation of pharmaceutical care in Indonesian hospitals. Methods: A self-assessment questionnaire was administered to pharmacists/pharmacy staff invited in a meeting as representatives of 50 hospitals across East Java-Indonesia. The questionnaire consisted of two parts: (1) hospital characteristics, and (2) implementation of pharmaceutical care—that included four areas: hospital policy, pharmaceutical management, clinical pharmacy, and quality evaluation. Descriptive statistics were used to analyze the responses. Results: This study involved 50 hospitals; the mean score for pharmaceutical care implementation was 68.84 ± 18.30 (possible range score 1-100). The mean score per area: hospital policy 26.08 ± 4.65 (0-33), pharmaceutical management 18.29 ± 3.66 (0-25), clinical pharmacy 21.50 ± 8.45 (0-37), and quality evaluation 3.57 ± 1.82 (0-5). Clinical pharmacy areas was the least implemented compared to other areas; of those-dispensing sterile products (e.g. parenteral nutrition dispensing, intravenous admixture, and cytotoxic handling) 0.61 ± 0.84 (0-3), medication reconciliation 0.48 ± 0.86 (0-2), and bedside visits</p> |

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| | <p>2.48±2.23 (0-6)-were scored the lowest. Conclusion: Indonesian hospitals generally reported an acceptable baseline of pharmaceutical care implementation; however, supports from the national/professional bodies would be required to optimize the implementation, particularly in the areas of clinical pharmacy.</p> |
| <p>A1002 Presentation 4 (16:35~16:50)</p> | <p>Systematic Review and Meta-Analysis of Resveratrol Efficacy on Physical Activity</p> <p>Chainarong Srilacorn, Apisada Choosathan, Siriporn Seesuthok, Somsak Kongna, and Surachai Kotirum</p> <p>Rangsit University, Thailand</p> <p><i>Abstract</i>—Current evidence of resveratrol on physical activity were summarized using a systematic review and meta-analysis approach. Fourteen randomized controlled trials met the eligibility criteria. All included studies enrolled a few subjects. Five studies with 139 participants measured the same outcome and then were pooled using the meta-analysis program. The mean change between pre- and post-test when compared resveratrol to control on the peak oxygen uptake outcome is 0.30 mL/kg/min (-2.49 to 3.09). This meta-analysis result showed that resveratrol slightly increases a surrogate outcome of physical activity. However, the increment was not achieved minimally clinical significance of at least 2 mL/kg/min. In summary, resveratrol slightly improves one indicator of physical activity, but did not demonstrate statistical and clinical significances. However, these combined results were drawn out from multiple studies with small participants. Therefore, rigorous efficacy trials in large subjects are still warranted to ensure the effect of resveratrol on physical activity.</p> |
| <p>A0025 Presentation 5 (16:50~17:05)</p> | <p>Evaluation of the Effect of Different Concentrations of Aloe Vera on Inflammation and Re-Epithelialization in Diabetic Ulcers in a Rat Model</p> <p>Yunita Saria, Iwan Purnawana, Eman Sutrisnab, Dhadhang Wahyu Kurniawanc, and Nasruddind</p> <p>Jenderal Soedirman University, Indonesia</p> <p><i>Abstract</i>—Objective: The objective of this research was to evaluate the effect of different concentrations of Aloe vera (AV) on inflammation of diabetic ulcers in a rat model.</p> <p>Methods: The induction of diabetes was conducted by injection of Alloxan monohydrate. This study involved 4 groups, including 0%, 10%, 30%, and inner leaf AV (ILAV) gel groups. Necrotic tissue, wound size, inflammation, and re-epithelialization were evaluated. Wound tissue was collected on day 4 and 8. Histological analysis was performed by hematoxylin and eosin staining. Differences in the intensity of inflammation were analyzed by using Kruskal Wallis test followed by Mann Whitney-U test.</p> <p>Results: On day 13, wounds in gels containing AV were almost completely healed, whereas wounds in the 0% gel group (control) were still covered with necrotic tissue. On day 3, the intensity of inflammation in the 30% and ILAV groups was significantly less when compared to the 10% and control groups. On day 8, inflammation was less</p> |

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| | <p>significant in the 10%, 30%, and ILAV groups when compared with the control group. Moreover, the intensity of inflammation in the 30% and ILAV groups was significantly less compared to the 10% group. In addition, reepithelialization was more advanced in the 10%, 30% ILAV groups compared with the control group, and reepithelialization was most advanced in the 30% and ILAV groups.</p> <p>Conclusion: Our study indicated that gels containing AV reduced inflammation and improved reepithelialization of diabetic ulcers in a rat model. Therefore, it is highly recommended for clinicians to use AV gels for topical treatment of diabetic ulcers.</p> |
| <p>A0039 Presentation 6 (17:05~17:20)</p> | <p>Safety and Efficacy Evaluation on Combination of <i>Lansium domesticum</i> Fruit Extract and <i>Hibiscus rosa-sinensis</i> Flower Extract as Lightening Agent for Cosmetic</p> <p>Kilala Tilaar, Maily, Fransiska Devi Junardy, Erna Subroto, and Diah Puspitosari PT Martina Berto, Indonesia</p> <p><i>Abstract</i>—This study was designed to investigate the potency of a combination of Lansium (<i>Lansium domesticum</i>) fruit extract and Hibiscus (<i>Hibiscus rosa-sinensis</i>) flower extract (LHE) as cosmetic active ingredient. The in vitro tyrosinase inhibition method was used to evaluate the potency of LHE in inhibit melanin production thus potential to delivered lightening benefits for skin. The result was confirmed by 4-week in vivo lightening study on human skin. Prior to this in vivo efficacy study, safety evaluation was conducted using Single Closed Patch Test (SCPT) for skin and Hen's Egg Test – Chorioallantoic Membrane (HET-CAM) to evaluate the irritation at ocular level. LHE showed tyrosinase inhibition of 49.37%, which indicates that LHE has potency to be used as lightening active ingredients in cosmetics products. After 4 weeks of application in human skin, the efficacy test showed that LHE contained lotion base significantly increased skin moisture content and reduced its melanin index. Furthermore, safety evaluation of the lotion by SCPT and HET-CAM showed that it is safe for human skin and eyes. LHE is proven to be safe and effective as active ingredient in cosmetic.</p> |
| <p>A0040 Presentation 7 (17:20~17:35)</p> | <p>Attenuation of Cognitive Deficits by Biguanide in Experimentally Induced Alzheimer's Disease in Wistar Rats</p> <p>Devasrita Dash, Dr. K. L. Bairy, and Bharathi Chogtu Magazine Manipal Academy of Higher Education, India</p> <p><i>Abstract</i>—Alzheimer's disease is a progressive neurodegenerative disorder leading to cognitive impairment and dementia. Use of animal models for elucidating the pathological changes that affect learning and memory has served as a vital tool. This study was undertaken to evaluate the effects of biguanide on learning and memory in experimentally induced Alzheimer's disease in Wistar rats. Animals were maintained on normal diet and provided water ad libitum. Induction of the disease was done by oral administration of aluminium chloride (17 mg/kg) for a period of 4 weeks. Rats received oral rivastigmine (6 mg/kg) and i.p. metformin (100 mg/kg) respectively for a period of 4 weeks and animals were subjected to Morris water maze test. At the end of the</p> |

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| | <p>experiment, animals were sacrificed and brain acetylcholinesterase level was estimated. Results indicated that rivastigmine-treated and metformin-treated animals showed a significant decrease in step-through latency and spent more time in the probe quadrant compared to aluminium chloride treated group ($p < 0.05$) indicating reversal of memory impairment. Rivastigmine-treated and metformin-treated group showed a decreased level of AChE as compared to aluminium chloride group ($p < 0.05$). In conclusion, the memory impairment induced by aluminium chloride was reversed significantly by both rivastigmine and metformin.</p> |
| <p>A0044 Presentation 8 (17:35~17:50)</p> | <p>Treatment of Methicilin-Resistant <i>Staphylococcus Aureus</i> (Mrsa) Sepsis with Combination of Fosfomycin and Amikacin in a Patient with Scald-Burn Injury</p> <p>Oki Nugraha Putra, Iswinarno Doso Saputro, and Ana Khusnul F Hang Tuah University, Indonesia</p> <p><i>Abstract</i>—Introduction: Methicilin Resistant <i>Staphylococcus aureus</i> (MRSA) leads a serious major problem such as complications and death, also plays a vital role in nosocomial infection especially in clinical burn setting. Management of MRSA infection becomes more complex in clinical settings due to its extension of resistance towards much class of antibiotics and it is purely based on antibiotic susceptibility. Several antibiotics are commonly used to treat Methicilin Resistant <i>Staphylococcus aureus</i> (MRSA) infection.</p> <p>Objective: Thus, this case report assesses the efficacy combination of fosfomycin and amikacin in the management of MRSA infection in a burn patient.</p> <p>Case report: A case study of a 31-year-old male, had scald burn in a steam electricity power plant, was transferred to the burn center for definitive treatment. Initially, the patient was treated with ceftazidime injection as empiric antibiotic one gram three times daily, but the patient became sepsis during the treatment. Blood specimen was taken and Methicilin Resistant <i>Staphylococcus aureus</i> (MRSA) was isolated from this culture. The patient was isolated and based on antibiotic susceptibility, the patient was started on fosfomycin 2 gram IV twice daily for first seven days, and after that fosfomycin was combined with amikacin IV 500 mg once daily. After administration of these antibiotics, a rapid clinical improvement was observed with the patient, leucocytosis did not occur and blood culture was negative. The patient completed a total of 14 days of fosfomycin and 8 days of amikacin therapy.</p> <p>Conclusion: The synergistic combination of fosfomycin with aminoglycosides, amikacin, may be useful alternative treatment option for sepsis related Methicilin-Resistant <i>Staphylococcus aureus</i> (MRSA) in burn injury. Further research is also needed to clarify effectiveness of fosfomycin and amikacin to treat MRSA infection in burn patient.</p> |
| <p>A0049 Presentation 9 (17:50~18:05)</p> | <p>The Effect of Salbutamol towards Heart Rate in Neutrophilic and Eosinophilic Asthma Patient</p> <p>Hanif Purbaya, Moch. Rizki efendi, Afief Mulyawijaya, and Adika Zhulhi Arjana</p> |

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| | <p>Universitas Islam Indonesia, Indonesia</p> <p><i>Abstract</i>—Objective : The objective of this research was to evaluate the effect of salbutamol towards heart rate in neutrophilic and eosinophilic asthma patient</p> <p>Methods: This study used retrospective cross-sectional study. We compiled medical records of asthma patient in General Hospital of Kebumen (RSUD Kebumen), Indonesia. Inclusion criteria for the subject is asthma patient in 2016 and exclusion criteria for the study is incomplete medical records data. We successfully obtained 47 medical records to be our subject and were grouped into two groups based on their blood profile characteristic. Ten patients were grouped into eosinophilic asthma and 37 patients were grouped into neutrophilic asthma. We took demographical data from our subjects including age, sex, vital sign, and blood profile.</p> <p>Results: The T-test of age for both asthma groups showed the result of $p < 0.05$ (0,017) which means there is difference of age on the division of asthma group. Fisher's Exact test of association between gender asthma groups showed the result $p = 0.499$ which means there is no significant differences of gender on the division of asthma group. Heart rate ratio and asthma group that were tested using independent test T-test showed the result of $p > 0.05$ ($p = 0.278$) which means no effect of using salbutamol as asthma therapy to increase the heart rate in patient subject of asthma.</p> <p>Conclusion: There was no association between the use of salbutamol in asthmatic patients with an increase in heart rate for either eosinophilic asthma or neutrophilic asthma.</p> |
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Session 5

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 24, 2018 (Tuesday)

Time: 15:50~17:50

Venue: The Mezanine Room

Topic: “Medicinal Chemistry and Drug Analysis”

Session Chair: Assoc. Prof. Yusnita Rifai

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| <p>A4001 Presentation 1 (15:50~16:05)</p> | <p>The Effectiveness of Snail Mucus (<i>Achatina fulica</i>) and Chitosan Towards Limfosit Proliferation <i>in Vitro</i></p> <p>Agnes Sri Harti, Atiek Murharyati, S. Dwi Sulisetyawati, and Meri Oktariani</p> <p>Kusuma Husada Surakarta School of Health Science, Surakarta, Indonesia</p> <p><i>Abstract</i>—Objective: The objective of this research was to assess the effectiveness of mucous and chitin slime cream against lymphocyte proliferation <i>in vitro</i>. Methods: The research methods include snail mucus isolation, snail mucus cream material preparation, and lymphocyte cell proliferation test of MTT reduction method. Results: Lymphocyte cell proliferation test of MTT Reduction method showed that chitosan 5% gave the most effective result towards lymphocyte proliferation activity compared to 100% snail slime and 5% snail slime cream. The 5% snail mucus cream 5% provides a higher proliferative activity than the 100% snail mucus. Positive control using Con A solution. Negative control was treatment without addition of test solution. The differences of lymphocyte proliferation activity was due to the presence of active compounds in chitosan, snail mucus and snail slime cream that potentially increase lymphocyte proliferation. Significant differences in lymphocyte cell proliferation as group K1, K2,K3,K4, K5 and K6. Conclusion: The effectiveness of snail and chitosan slime cream towards lymphocyte proliferation by <i>in vitro</i>, that chitosan 5% gave the most effective result towards lymphocyte proliferation activity compared to 100% snail slime and 5% snail slime cream.</p> |
| <p>A4003 Presentation 2 (16:05~16:20)</p> | <p>Single Dose Acute Oral Toxicity Study of Roots Water Extract of <i>Boesenbergia Rotunda</i> in Sprague Dawley Rat</p> <p>Zulkhurnain Utar, Zamri Zainir, Anis Syaffini Mat Isa, Mazlianum Mohamed, and Mohamed Ibrahim Noordin</p> |

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| | <p>Malaysian Institute of Pharmaceutical & Nutraceutical (IPharm), Malaysia</p> <p><i>Abstract—Boesenbergia rotunda</i> is a medicinal plant reported to contain anti-dengue properties. Study of the roots water extract showed cytotoxicity effect at concentration of 0.125 mg/ml on L-929 mouse fibroblast cell line. The study aimed to establish a single oral dose safety profile of roots water extract in female Sprague Dawley rats for a period of 14 days. The study was conducted according to OECD-Test Guideline 420 (Adopted: 17th December 2001) and in accordance to OECD Principles on Good Laboratory Practice. The sighting studies were conducted at fixed dose levels of 5, 50, 300 and 2000 mg/kg body weight of roots water extract at interval of 24 hours for each dose level. None of the animals showed any clinical signs of toxicity nor died within 24 hours of critical observation period. Subsequently, the main study was conducted at a limit dose level of 2000 mg/kg bodyweight with close observations for up to 24 hours. None of the animals showed any clinical signs of toxicity nor died within 24 hours after dosing and further daily observations for a period of 14 days. Daily food consumption for individual animal was within the normal range of 15-30 grams. All animals gained body weight throughout the period of 14-day study. No gross pathological findings were observed in all animals at the time of necropsy. Based on the results, the acute oral LD₅₀ of <i>B. rotunda</i> roots water extract was estimated to be greater than 2000 mg/kg bodyweight in female Sprague Dawley rats.</p> |
| <p>A4004 Presentation 3 (16:20~16:35)</p> | <p>Establishment of HTS Platform and MyNATURE50000 Natural Product Repository for Infectious Disease Drug Discovery</p> <p>Iffah Izzati Zakaria, Nurul Hanim Salin, Azimah Amanah, Muhammad Hidhir Khawory, and Habibah Wahab</p> <p>Malaysian Institute of Pharmaceutical and Nutraceutical, Malaysia</p> <p><i>Abstract—</i>Dengue is a serious emerging treat caused by dengue virus (DENV), a member of mosquito-borne Flavivirus, in which infection symptoms can vary from simple dengue fever to severe hemorrhagic fever/dengue shock syndrome. With the current suspension of the recently developed vaccine Dengaxia and the unavailability of an approved drug, there is an urgent medical need to search and develop new alternative options to manage this disease burden. In this work, describes the application of high-throughput screening (HTS) platform utilizing the Malaysian biodiversity towards discovery of new hits for potential anti-dengue therapeutics. As a result, the development of HTS platform has occurred in parallel with the establishment of a centralized natural product library the Malaysia National Natural Product Collection (MYNATURE50000) consisting of 500 plants, plant methanolic extracts, partition, fractions and isolated compounds collected around the Northern Region of Peninsula Malaysia stored and deposited in the storage facility. DENV2 NS2B-NS3 protease bioassay system has been set up and optimized in a fluorescence-based format using an automated screening platform to screen for potential DENV2 NS2B-NS3 inhibitors using the MyNATURE50000 natural product repository. Through this integrated platform, several plants were identified as potential anti-dengue inhibitors. Currently, the hits obtained have been selected for characterization and further studies.</p> |

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| <p>A4005</p> <p>Presentation 4</p> <p>(16:35~16:50)</p> | <p>Isolation and Structural Elucidation of Anti-Dengue Compounds from <i>Archidendron clypearia</i></p> <p>Azimah Amanah, Iffah Izzati Zakaria, Nurul Hanim Salin, Muhammad Hidhir Khawory, and Habibah Wahab</p> <p>Malaysian Institute of Pharmaceutical and Nutraceutical, Malaysia</p> <p><i>Abstract</i>—Screening and isolation of anti-dengue compound were conducted on the plant leaf extracts of <i>Archidendron clypearia</i> (Jack) IC Nielsen ssp. <i>Clypearia</i> var. <i>clypearia</i> (AC) by dengue protease assay. The ethanol extract of this plant has been found to be active against dengue protease assay which showed highest percentage of inhibition at 94.92%. Phytochemical screening of crude ethanol extract indicated the appearance of phenols, saponins, tannins, flavonoids and absence of alkaloids and terpenoids. The diethyl ether extract was subjected to column chromatography and compounds were characterized using analytical and spectroscopy analysis such as HPLC, TLC, NMR, IR and MS. An active anti-dengue compound (A1) methyl-3,4,5-trihydroxybenzoate with percentage of inhibition at 84.27% and (A2) quercetin at 82.88% were isolated from <i>A.clypearia</i>.</p> |
| <p>A4006</p> <p>Presentation 5</p> <p>(16:50~17:05)</p> | <p>Physico-Chemical Analysis and Quantification of Quercetin from <i>Carica Papaya</i> Leaves Crude Extracts</p> <p>Muhammad Hidhir Khawory, Mohd Anuar Shahudin, Mohd Ferdaues Mohd Subki, Siti Zuraidah Mohamad Zobir, and Mohamed Ibrahim Noordin</p> <p>Malaysian Institute of Pharmaceutical and Nutraceutical, Malaysia</p> <p><i>Abstract</i>—<i>Carica papaya</i> leaf extracts, which were reported to contain anti-dengue properties, from four different extraction methods (cold-water, hot-water, sonication and supercritical fluid), were characterized using infrared Fourier transform spectroscopy, thermal analysis, and high performance liquid chromatography (HPLC). The highest percentage yield of crude extracts was obtained from the sonication extraction method with 6.76% followed by the cold-water extraction method (5.78%), the hot-water extraction method (3.22%) and the lowest percentage yield was produced by the supercritical fluid extraction method with 1.83%. The Infrared Red (IR) spectrum of cold-water extract demonstrated the most similarity to Quercetin based on the functional group. Likewise, the thermal analysis studies showed that cold-water extract gave a quite similar Endothermic peak to Quercetin with the obtained value was 137 °C and onset value was 118 °C. The HPLC profile indicated that only the cold-water extract exhibited 0.203 ppm of Quercetin while the remaining extracts did not possess this flavonoid. Hence, the cold-water extraction method demonstrated to be the optimal method to produce high yield and the extract showed spectral similarities to Quercetins from all three analytical techniques. The study suggests the potential use of the cold-water extract with the analytical techniques in developing nutraceutical product with anti-dengue properties.</p> |
| <p>A4008</p> | <p>Translational Efficiency and Clinical Success Rate of Key Drug Delivery Technologies:</p> |

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| <p>Presentation 6 (17:05~17:20)</p> | <p>from Bench to Bedside</p> <p>Qingwen Yuan, Yuanjia Hu, Hao Hu, Ging Chan, and Defang Ouyang</p> <p>University of Macau, China</p> <p><i>Abstract</i>—Objective: This study aims to investigate the translational efficiency and clinical success rate of key drug delivery technologies during 1996 - 2015.</p> <p>Methods: Based on literature, clinical and marketable product data, translational efficiency and clinical success rate were defined to construct a four-quadrant classification scheme for 13 drug delivery techniques.</p> <p>Results: These 13 technologies were divided into four types in this classification system. Type 1 represents the technologies with high translational efficiency and high clinical success rate, including “aerosol”, “transdermal patch”, “oral sustained release preparation”, “gel”, “emulsion” and “3D printing”. Type 2 only covers “cyclodextrin” technique with a low translational efficiency and high clinical success rate. Type 3 represents high translational efficiency and low clinical success rate, such as “microsphere”, “microneedle”, “antibody-drug-conjugate” and “liposome”. Type 4 technologies have low translational efficiency and low clinical success rate, including “gene therapy” and “nanoparticle”.</p> <p>Conclusions: Type 1 and type 2 techniques with high technology readiness levels are the first generation drug delivery technologies, while type 3 and type 4 techniques with less than 5% clinical success rates, as the second generation drug delivery technologies, have some technical barriers to overcome. The four-quadrant classification scheme provides us a quantitative model for evaluating the commercialization potential of drug delivery technologies.</p> |
| <p>T0009 Presentation 7 (17:20~17:35)</p> | <p>Preparation and Evaluation of PDLLA/Sirolimus Coatings on Fully Bioabsorbable Drug-Eluting Stents</p> <p>Fengqin Li, Yiqing Gu, Yuan Tian, Jie Cheng, and Gutian Zhao</p> <p>Southeast University, China</p> <p><i>Abstract</i>—The objective of this work was to prepare poly (D, L-lactide) (PDLLA)/sirolimus coatings on poly (L-lactide) PLLA stents by ultrasonic atomizing spray technology and to evaluate their morphology, mechanical property and in vitro drug release kinetic. Morphology and thickness of polymer/drug coating were observed by scanning electron microscopy (SEM) and the results show that the spray coating on stent surface was relatively homogeneous and smooth. Meanwhile, the mean roughness (Ra) of the coated stent surface was measured by atomic force microscopy (AFM) and results show the mean roughness was 10.5 nm. There was no delamination or cracking of the coating in the crimping and balloon expansion process. It was found that the coating has ability to withstand large deformation. The sirolimus loading amount could be precisely controlled in this study. The optimization experiment of release media showed that sirolimus seemed to be relatively stable in PBS (PH 7.4) with SDS or Brij58 compared to other media. The in vitro release of sirolimus immersed in two optimized release media were analyzed by high performance liquid chromatography</p> |

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| | <p>(HPLC). All the in vitro release profiles of sirolimus showed biphasic release characteristics with an initial burst period followed by sustained release. In terms of sirolimus release amount, release profiles shown that sirolimus release in PBS with Brij58 was superior to that in PBS with SDS and appeared slow-release in first two days in 0.1% Brij58 concentration which meets the requirement for clinical use.</p> |
| <p>T0036 Presentation 8 (17:35~17:50)</p> | <p>Biomarker Potential of IQGAP Family Protein in Pancreatic Cancer: a Mini Review</p> <p>Anton Sumarpo, David Agustriawan, Agnes Anania Triavika Sahamastuti, and Richard Sutejo</p> <p>Indonesia International Institute for Life Sciences, Indonesia</p> <p><i>Abstract</i>—Pancreatic cancer is one of the most aggressive malignancies with extremely poor prognosis, mainly because of its invasiveness and lack of early detection for clinical diagnosis; this leads to failure of therapeutic intervention. Therefore, a better understanding on molecular mechanisms of pancreatic tumor progression is necessary to elucidate potentials to discover a novel approach for early detection and treatment. IQGAP family comprises of three multidomain protein members; IQGAP1, IQGAP2, and IQGAP3. There is an increasing evidence showing that the expression of IQGAP proteins are highly correlated with the progression of various types of human cancer. In this review, we summarize relevant findings associated with pancreatic cancer and IQGAP proteins as well as discuss their potentials as predictive and prognostic biomarker.</p> |

Session 6

Tips: The schedule for each presentation is for reference only. In order not to miss your presentation, we strongly suggest that you attend the whole session.

Afternoon, April 24, 2018 (Tuesday)

Time: 15:50~17:50

Venue: The Klungkung Room

Topic: “Biomedical Engineering and Image Processing”

Session Chair: Prof. Zairin Noor

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| <p>T0048 Presentation 1 (15:50~16:05)</p> | <p>Increasing Cell Density in a Small Sensing Zone for the Applications on Bacteria Identification and Quantification</p> <p>I-Fang Cheng, Tzu-Ying Chen, and Yi-Ling Chen</p> <p>National Nano Device Laboratories, National Applied Research Laboratories, Taiwan</p> <p><i>Abstract</i>—We present a long-range and selective bacteria concentrator based on hybrid AC electrokinetics (H-ACEK) that includes AC dielectrophoresis (DEP) and AC electroosmosis (ACEO). The concentric electrode design induces long-range ACEK allowing the effective transport of a high number of targets into a small detection zone. The result shows that the bacteria were successfully isolated and concentrated into a small detection zone from the heterogeneous sample containing very dense blood cells. The concentration factor of the proposed H-ACEK device increased by several orders of local density and raised the local purity at least 6 orders (from 0.05% to greater than 99.9%). The concentrated bacteria were subsequently on-chip identified based on their detected Raman spectra in 5 min, and quantified the bacterial cell density based on the optically-induced change rate in electric current. Due to the excellent limit of detection (LOD), a long period of bacteria growth is not required. Based on these results, a comprehensive analysis platform that includes pathogen identification, quantification and antibiotic susceptibility test was developed for precision medication of septicemia. Compared to the current method in the hospital, this simple and rapid platform could accelerate the detection rate from 2-3 days to only 4 hr.</p> |
| <p>T0028 Presentation 2</p> | <p>Novel Image Segmentation using Particle Swarm Optimization</p> <p>Netra Lokhande and Ramachandra Pujeri</p> <p>MIT College of Engineering Affiliated to Savitribai Phule Pune University (SPPU),</p> |

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| (16:05~16:20) | <p>India</p> <p><i>Abstract</i>—Data clustering and classification technique algorithms often need to possess enough and prominent number of features in the data. Repeating and dominant features are useful in clustering or segmenting the image. The image segmentation method based on k-mean clustering, hierarchical clustering, and expectation maximization derives the optimum cluster centers based on the number of features such as similar intensity region. Deriving such number optimum number of clusters and its centers is an optimization problem. The aim of this paper is to improve the image segmentation using nature inspired techniques. Image segmentation which is complex optimization problem can be solved by this simple nature inspired PSO (Particle swarm optimization) model which is formulated in this paper. PSO model is generic model which is used to solve number of scientific problems. This paper formulates simple PSO model to solve the image segmentation problem. The proposed algorithm randomly assigns the centers to swarm and best value of objective function is initialized best on the color histogram of an image. This is discussed in section 2 and 3 of paper. Section 4 and 5 discusses and results and concluding remarks on results.</p> |
| <p>T0040</p> <p>Presentation 3</p> <p>(16:20~16:35)</p> | <p>Registration of Positron Emission Tomography (PET) Image and Functional Near Infrared Spectroscopy (NIRS) Data</p> <p>Fairuz Mohd Nasir, Asuka Kikuchi, Shoichi Watanuki, Masayasu Miyake, Manabu Tashiro, and Hiroshi Watabe</p> <p>Tohoku University, Japan</p> <p><i>Abstract</i>—Functional near infrared spectroscopy (NIRS) is the optical imaging that measures changes of blood hemodynamic while positron emission tomography (PET) measure physiological condition of the interest area. NIRS has high temporal resolution while PET image has better spatial resolution compared, however, NIRS measures hemodynamic changes in the cortex region but not in deeper brain structures. Therefore, this study is aimed to register the both image; the NIRS data on the PET image. The registration of NIRS on PET image was done on eleven subjects which undergoes NIRS and PET scan separately. To register the NIRS probe on the PET image, we did a transformation of NIRS probe coordinate to the PET coordinate based on Polaris marker position attached to the NIRS cap. The coordinate of these markers is obtained using the optical tracking system, Polaris. The resulting image forms PET and NIRS were visually aligned as well as the coordinate of the marker obtained during the PET acquisition. The probe was registered on the PET image using the in-house software. The registration done in this study is considered successful as we can view the NIRS activation area on PET image.</p> |
| <p>T0006</p> <p>Presentation 4</p> <p>(16:35~16:50)</p> | <p>A Study of an Intubated Tracheal Air Flow in a Cuff-Leak Testing Procedure</p> <p>Arthorn Sanpanich, Yongyuth Kajornpredanon, Watchara Sroykham, Kuson Petsarb, Chaaaim Phairoh, Wirasak Angkhanuwat, and Pattarapong Phasukkit</p> <p>Institute of Molecular Biosciences, Mahidol University, Thailand</p> |

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| | <p><i>Abstract</i>—During an artificial ventilation, an endotracheal tube (ETT) must be inserted into patient airway and following by a balloon cuff blowing in order to function as an artificial airway. However, this implementation adversely affects to a tracheal tissue and all sensitive area and probably damaging a larynx and vocal cord zone. After ETT was removed, some patients always suffering with a larynx or tracheal edema symptom in which patient airway is narrowed due to a long term pressurization by the ETT balloon cuff and causing a difficulty in his spontaneous breathing. In general, a cuff leak test is performed in order to predict a larynx or tracheal edema possibility before ETT extubation from an air volume difference between an inspiration and expiration. In this paper, an investigation of an airflow pattern and air velocity which able to imply as an air volume in the cuff leak test process is proposed in order to understand and support a prediction of the tracheal edema. The study was performed with no edema and edema case at 10, 30 and 50% of trachea internal diameter. The simulations indicate that airflow pattern shows some affects when edema region is higher than 10%. Even though, this preliminary study was intently implemented in a simple intubated trachea model, however the obtain results guide us a practical information and will be used as a basic implementation for a further study, especially in case of variety in the ETT cuff shape and pressure or in cuff less ventilation even more complication case in the near future.</p> |
| <p>T0010 Presentation 5 (16:50~17:05)</p> | <p>A Review on the Radial Strength of Bioresorbable Coronary Scaffolds</p> <p>Yuan Tian, Fengqin Li, Yiqing Gu, Jie Cheng, Xingzhong Gu, and Gutian Zhao</p> <p>Southeast University, China</p> <p><i>Abstract</i>—This review presents the radial strength of bioresorbable scaffolds (BRS) with respect to clinical significances, the recent advances, current inadequacies, and future enhancement measures. To evaluate the radial strength of BRS, the related imaging results from clinical trials assessing several typical devices are summarized, including Absorb bioresorbable vascular scaffold (BVS), DESolve scaffold, and Mg-based BRS. These findings show that the radial strength of BRS has been enhanced greatly in recent years. However, as compared with the leading drug-eluting stent (DES), none of these latest approved BRS can always maintain sufficient radial strength within the required time even if they have thicker strut. To improve the radial strength of BRS fundamentally, we propose that biodegradable materials be mixed with some reinforcing agents and plasticizers of the optimum contents and processed targetedly like annealing. The best combination of these material modifications is expected to achieve high molecular weight and increased crystallinity, making BRS have optimal mechanical properties on premise of sufficient radial strength without introducing new problems. We hope that this review of the radial strength of BRS will provide insights for researchers to manufacture BRS that can eliminate restenosis.</p> |
| <p>T0012 Presentation 6</p> | <p>Analysis of Impact Force on Runner's Foot During Stance Phase</p> <p>F Flaviana and R Suryantari</p> |

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| (17:05~17:20) | <p>Parahyangan Catholic University, Indonesia</p> <p><i>Abstract</i>—The aim of this research is to analyze the effect of two types of running shoes on runner's foot during stance phase, using two force plates equipped with specified track board. The main method that will be discussed in this paper is system design of gait analysis with the specific setting, in order to acquire ground reaction force (GRF) data. Then we use that experimental data to calculate the impulse during stance phase using Trapezoidal rule. The benefit of this study is to provide information and new ideas about running and its prevention over an injury.</p> <p>When observed from the bar chart of the maximum GRF normalized to body weight value of the four subjects using each of the R, M, and B shoe soles, it seems that when the four subjects used footwear with R (Reg) sole shoe, the subject experienced the maximum force (i.e. 2.9 by the 3rd subject) compared when using shoe sole M (Run), or barefoot B (Bare). Whereas when the subject does not use footwear (B), they did not experience a significant difference when compared with the subject of wearing footwear with shoe sole M. That also means when the 3rd subject stands still above the force plate, it generated the force output of the gravity or the weight of the subject (the average body weight of 3rd subject is 529.2 N). The ratio of the force gain experienced by the foot of the 3rd subject during the stance phase can reach up to 2.9 times compared to when she stood still. Total impulse that were experienced by the 4th subject during stance phase are the summation of those two integrals (199.22 N.s and 190.52 N.s). The measurement of foot impulse on stance phase using Trapezoidal Rule is the approximation by integrating the area under the curve in the form of polynomial function. From the impulse data that were obtained, that have not the clear correlation between sole shoes were worn with the foot impulse on stance phase.</p> |
| <p>T0017</p> <p>Presentation 7</p> <p>(17:20~17:35)</p> | <p>Classification of Bipolar Disorder, Major Depressive Disorder, and Healthy State Using Voice</p> <p>Masakazu Higuchi, Shinichi Tokuno, Mitsuteru Nakamura, Shuji Shinohara, Shunji Mitsuyoshi, Yasuhiro Omiya, Naoki Hagiwara, Takeshi Takano, Hiroyuki Toda, Taku Saito, Hiroo Terashi, and Hiroshi Mitoma</p> <p>The University of Tokyo, Japan</p> <p><i>Abstract</i>—Objective: In this study, we propose a voice index to identify healthy individuals, patients with bipolar disorder, and patients with major depressive disorder using polytomous logistic regression analysis.</p> <p>Methods: Voice features were extracted from voices of healthy individuals and patients with mental disease. Polytomous logistic regression analysis was performed for some voice features.</p> <p>Results: With the prediction model obtained using the analysis, we identified subject groups, and were able to classify subjects into three groups with 90.79% accuracy.</p> <p>Conclusion: These results show that the proposed index may be used as a new evaluation index to identify depression.</p> |

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| <p>T0037</p> <p>Presentation 8</p> <p>(17:35~17:50)</p> | <p>Optimization of <i>Bordetella pertussis</i> Strain Pelita III Cultivation as Component of Pertussis Vaccine</p> <p>Mochamad Gandjar Priadi, Wardono Niloperbowo, and Ernawati Giri Rachman</p> <p>PT. Bio Farma / Bandung Institute of Technology, Indonesia</p> <p><i>Abstract</i>—Pertussis, also known as whooping cough, is a disease caused by <i>Bordetella pertussis</i>. It is highly contagious and dangerous to young children. Pertussis can be prevented by immunization with pertussis vaccine. The bacteria culture composing pertussis vaccines is obtained by cultivating <i>Bordetella pertussis</i>, which is known to be slow growth bacterium, therefore the yield is usually low. The objective of this research is to increase the biomass from <i>Bordetella pertussis</i> cultivation. It was observed that biomass from batch cultivation was 0.177 g/L, biomass from fed-batch cultivation using feeding medium with pH of 7.0 at the feeding rate of 200 mL/hour was 0.157 g/L, biomass from fed-batch cultivation using feeding medium with pH of 7.0 at the feeding rate of 200 mL/hour and oxygenized 10 L/min was 0.161 g/L, biomass from fed-batch cultivation using feeding medium with pH of 7.0 at the feeding rate of 45 mL/hour was 0.224 g/L, and biomass from fed-batch cultivation using feeding medium with pH of 5.1 at the feeding rate of 45 mL/hour and adjusting the pH with HCl 1 M was 0.358 g/L.</p> |
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Poster Session

April 24, 2018 (Tuesday)

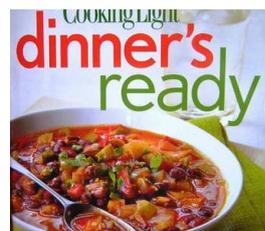
Time: 08:30 ~18:05

Venue: The Wantilan Room

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| <p>A0007 Presentation 1</p> | <p>Marine Extracts Down-Regulate NFATc1 to Inhibit Osteoclastogenesis</p> <p>Yongjin Lee and Young-Jin Son</p> <p>Sunchon National University, South Korea</p> <p><i>Abstract</i>—Osteoclasts are mainly involved in bone resorption, and increased bone resorption is a major risk factor for fractures. Thus, inhibition of osteoclast differentiation will be an effective therapeutic strategy for the treatment of excessive bone loss leading to osteoporosis. The chemical structure of marine natural products is very different from the chemical structure of natural products isolated from land plants or soil microorganisms and has a very good physiological activity. Marine natural products are a completely new source of innovative functional materials and new drug development. However, the effects on suppression of osteoclast differentiation and bone resorption of marine extracts have not been investigated to date. Therefore, we investigated the effects of marine extracts on osteoclastogenesis and analyzed the molecular mechanisms. In this study, we explored whether marine extracts could effect to RANKL-mediated osteoclastogenesis. marine extracts suppressed the mRNA expression of nuclear factor of activated T cells (NFAT) c1 in a culture of bone marrow macrophages treated with RANKL. It also inhibited RANKL-mediated NFATc1 protein expression. These results showed that marine extracts possessed anti-osteoclastogenesis effect by targeting RANKL-NFATc1 signaling pathways and suggested that it provides an applicable therapeutic strategy for osteoporosis patients.</p> |
| <p>T0024 Presentation 2</p> | <p>Polycaprolactone/Hyaluronic Acid Hybrid Microspheres as an Effective Bone Graft Material</p> <p>Tae Ho Kim, Se Heang Oh, and Jin Ho Lee</p> <p>Hannam University, Republic of Korea</p> <p><i>Abstract</i>—The needs for microspheres made of biodegradable polymers have gradually increased with the developments of bioactive delivery systems, tissue engineering, and regenerative medicine. As microspheres used in bone tissue engineering, poly(ϵ-caprolactone) (PCL) is one of the most attractive polymers, since it has excellent mechanical properties, flexibility, and easy processability as</p> |

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| | <p>well as good biocompatibility and slow biodegradation rate. However, PCL itself has limited cell affinity and stem cell differentiation potential, which would restrict its wider clinical applications for bone regeneration. One of the promising ways of solving these limitations is to hybridize PCL with cell-compatible polymers such as hyaluronic acid (HA). Hyaluronic acid plays a significant role as a facilitator of osteogenic differentiation and as a migration-stimulating agent for mesenchymal stem cells. In this study, PCL/HA hybrid microspheres were fabricated by a spray/precipitation method using a double nozzle spray. The microsphere sizes were controlled by adjusting gas flow rate and polymer concentration. From the <i>in vivo</i> animal study using a skull defect model of rats, the group of the PCL/HA microspheres showed faster bone regeneration than the groups of control (blank) or PCL microspheres, which can be applicable as bone graft material for tissue engineering applications.</p> |
| <p>T0033 Presentation 3</p> | <p>Local Variation of Intracellular Morphological and Optical Properties Between Breast Cancer Cell Lines</p> <p>Seung Ho Lee, Ok-Kyun Kim, Sanghwa Lee, and Jun Ki Kim</p> <p>Asan Medical Center, South Korea</p> <p><i>Abstract</i>—The development of understanding and detection analysis tools for malignant tumors based on spectroscopy is attractive as a new approach with various advantages in current detection methods such as clinical examination, medical imaging, biopsy and histopathological analysis. Normal breast cell and breast cancer cell lines were characterized by Raman spectroscopy, atomic force microscopy (AFM), and optical microscopy. We combined these three modalities in order to not only separate cancerous and noncancerous cell lines but to analyze their morphological and optical properties. Raman spectra of normal breast cell and breast cancer cell lines confirmed visual differences in the concentrations of various compounds. These spectra were also analyzed using principle component analysis (PCA), and the PCA results showed reliable separation of the normal cell and the cancer cell lines. From the results, the inherent optical properties of cancer cells separated from normal cells in terms of local variation, which have not been reported previously, were observed.</p> |
| <p>T0034 Presentation 4</p> | <p>Antifreeze Activity Monitoring of Ice-Binding Protein from Arctic Yeast via Thermal and Spectral Analysis</p> <p>Sanghwa Lee, Jun Hyuck Lee, Han-Woo Kim, Jong Wook Hong, and Jun Ki Kim</p> <p>Asan Medical Center, South Korea</p> <p><i>Abstract</i>—Cryo-preservation of human bodies, bloods, stem cells and organs has getting great attentions because of scientific understanding of the process and potential applications in food, pharmaceutical, and medicinal fields. Recently, the extracellular ice-binding glycoprotein (LeIBP) was isolated from Arctic yeast <i>Leucosporidium</i> sp. AY30, and was confirmed improved recovery of red blood cells</p> |

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| | <p>in the process of cryo-preservation. In addition, some trials for mass production of antifreeze proteins have been done. However, still there are many hurdles to overcome i.e., confirming conformational changes and stabilities of the protein. In this work, we report phase transition and heat flow properties of LeIBP by utilizing differential scanning calorimetry (DSC). The results showed critical difference of phase transit behavior between exothermic and endothermic states. In addition, Raman measurement was introduced to analyze chemical characteristic of LeIBP. From the thermodynamic study, we have determined the temperature points to measure Raman spectra for three different states of powder, solution and cryo-state of LeIBP.</p> |
| <p>T0030 Presentation 5</p> | <p>Bioprinting: The Influence of Pneumatic Microdrop-on-Demand Printing Process on Cell Viability</p> <p>Meng Wang, Zhihai Wang, Can Wang, Fei Wang, Zhixiong Nie, Xi Chen, and Jingang Gui</p> <p>Beijing Univeristy of Technology, China</p> <p><i>Abstract</i>—3D bioprinting is a potential technology for fabricating kidney and tracheal grafts since the matching donors is insufficient for many patients on demand. However, cell damage occurs due to variety factors during bioprinting process and is considered as a possible barrier for broad applications of delicate cells 3D bioprinting. Therefore, Cell viability is very challenging task in 3D bioprinting. The prime objective of current study is to explore effect of printing frequency on cell viability during printing process by a homemade Pneumatic Microdrop-on-Demand (PMOD) platform. Thus Human Embryonic Kidney 293 Cells (HEK293Cs) with diameter 15~20 μm and Human Bronchial Epithelial Cells (HBECs) with diameter 50~70 μm are printed to different sample tubes at frequencies of 10 ~70 Hz. Non-ejected cell suspension is categorized as control group. Then 7-AAD dye and flow cytometry method are utilized to evaluate the cell viability. It is found that the relative viabilities of HEK293Cs and HBECs are (0.990 ± 0.006) and (0.996 ± 0.014) respectively. Hence, it is concluded that the printing frequency has no significant effect on cell viability and PMOD cell printer reaches high cell viability due to the low shear stress during cell printing process along with no moving component in the bioink-filled chamber.</p> |



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| Dinner | |
| 18:20-20:00 | Restaurant |

Academic Visit and Tour

9:00~19:00, April 25, 2018 (Wednesday)

(Tips: Please arrive at the Patra Jasa Bali Resort & Villas before 9:00 a.m. The following schedule is only for participants who registered the visit & tour. The following places are for references, and the final schedule should be adjusted to the actual notice.)

1. Assemble at Patra Jasa Bali Resort & Villas (9:00)

2. Visit Turtle Island of Serangan (9:30~10:30)

Serangan Island is located 10km south of Denpasar is often referred to as ‘Turtle Island’, due to it being a frequent nesting ground for green sea turtles. This has drastically changed over the years, and consumption of turtle meat as well as the use of sea turtles in ceremonies is now a tale of the past. Serangan Island is also home to Sakenan Temple, located on the westernmost edge of the island. Reclamations in the 90s have led to a drastic change of pilgrims’ ways and the natural landscape. Once a separate land mass only reachable by traditional wooden boats, it is now easily accessed via a 110m bridge.



3. Visit Udayana University (11:00~12:00)

Udayana University was established by the Act of Minister of Higher Education Republic of Indonesia No.104/1962, on 9 August 1962, after an initial period as part of Airlangga University since 29 September 1958. It was the first university to be established in Bali Province. With four courses in 1962. In 1975, several faculties such as faculty of law, faculty of engineering, faculty of agriculture and faculty of economy was established. As of 2017, Udayana University have 13 faculties with faculty of marine and fisheries is the newest faculty was established in 2011.



4. Lunch at Garuda Wisnu Kencana (12:00~13:30)

5. Visit Uluwatu Temple

Uluwatu Temple is a Balinese sea temple in Uluwatu. The temple is regarded as one of the sad kahyangan and is dedicated to Sang Hyang Widhi Wasa in his manifestation as Rudra.

The temple is built at the edge (ulu) of a 70 meter high cliff or rock (watu) projecting into the sea. In folklore, this rock is said to be part of Dewi Danu's petrified



barque. Though a small temple was claimed to have existed earlier, the structure was significantly expanded by a Javanese sage, Empu Kuturan in the 11th Century. Another sage from East Java, Dang Hyang Nirartha is credited for constructing the padmasana shrines and it is said that he attained moksha here, an event called ngeluhur ("to go up") locally. This has resulted in the temple's epithet Luhur.

Ubud Pasar is traditional market that plays an essential role in the development and promotion of arts and culture in Ubud. It's the perfect place to buy gifts for your love ones and maybe you buy yourself some Balinese paintings!

6. Dinner and Farewell Party at Jimbaran Beach

Jimbaran is just south of the airport and Kuta. This was formerly a real backwater of south Bali, just a tiny fishing village with a daily market. That all started to change in the 1980s and Jimbaran is now home to several world class 5 star beach resorts, plus a few more moderate mid-market hotels. There is, however, little in the way of budget accommodation and there are also many high-end villas in this area, particularly on the ridges of high ground above Jimbaran Bay. This has resulted in monikers such as the "Beverly Hills of Bali" or "Millionaire's Row"



7. Souvenir Shop

Conference Venue

Patra Jasa Bali Resort & Villas

www.thepatrabali.com

Jl.Ir. H Juanda, South Kuta Beach, Kuta 80361 | Bali-Indonesia



Located along the white sands on South Kuta Beach, Patra Jasa Bali provides modern Balinese-style rooms. Including 2 dining options, it features a full-service spa, large lagoon pool and seaside pool. Free Wi-Fi is provided.

Patra Jasa Bali Resort & Villas provides free parking and a free shuttle service to Kuta Square, just over a kilometer away. It is a 5-minute drive from Ngurah Rai International Airport. Featuring classic interiors with solid wood furnishings, the spacious rooms have private balconies overlooking tropical greenery. They include a cable TV, safe and tea/coffee-making facilities.

For leisure, staff can arrange numerous activities such as water polo and cooking lessons. The resort also has a kid's club and a convenience store.

Overlooking the pool, Teratai Coffee Shop provides hearty buffet breakfasts and all-day dining.

Tips: The Location of Hotel is in walking distance from the airport. The hotel provides pick-up service. Please inform the hotel reservation email address (as below) for your flight information in advance if you need the service.

Sales Manager: Ms. Mina

Telp : +62 361 9351161 | Fax : +62 361 9352030

Email: reservation.mgr@thepatrabali.com



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