ACB 2015

ASIAN CONGRESS ON BIOTECHNOLOGY 2015

Biotechnology and Bioeconomy for Sustainable Future

Istana Hotel, Kuala Lumpur, Malaysia
15th -19th November 2015

PROGRAMME & ABSTRACTS

Organised by :

AFOB Asian Federation of Biotechnology

UPM Universiti Putra Malaysia

Kementerian Pendidikan Tinggi

MOSTI Kementerian Sains, Teknologi dan Inovasi

BIOTECHCORP

Day 2: 16th November 2015
Time: 09.00 – 17.00
Technical Session

1. Tissue Engineering and Biomaterials
2. Biopharmaceutical and Medical Biotechnology
3. Biocatalysis and Protein Engineering
4. Environmental Biotechnology

Technical Session 1: **Tissue Engineering and Biomaterial**	
TEB01	Dhurga D evi R ajaratanam, H idayah A riffin, Haruo N ishida and Mohd A li Hassan Evaluation of Degradation Products and Kinetics of Poly (3-Hydroxybutyrate-*Co*-3-Hydroxyhexanoate) Superheated Steam Hydrolysis for the Production of Biocompatible Oligoesters
TEB02	Nur S huhada Z ahari, M ohd Luq man M okhtar, E mmellie Laur a A lbert, Nicholas Khong and Che Azurahanim Che Abdullah Characterization of the Physical Properties of the Ancient Nanostructured Biomaterials (Nacre Layer) Retrieved Using Ethylenediaminetetraacetic Acid (EDTA)
TEB03	Masrina Mohd Nadzir, Farah Dhaniyah Anour, Shiplu Roy Chowdhury and Lau Sin Mun The Influence of Chondroitin-4-Sulfate on the Properties of Collagen Hydrogel
TEB04	Rabiatul A dawiyah R azali, Yogeswaran Loka nathan, R ohaina C he M an, Shiplu Roy Chowdhury, Aminuddin Saim and Ruszymah Idrus The Effect of Surface Modification on Electrospun PMMA Nanofibers and Nasal Turbinate Respiratory Epithelial Cells
TEB05	Jamuna T hevi K alitheertha Thevar, Muhammad J abir S uleiman, M ohd Khairul Azwan Ahmad and Neelam Shahab Fabrication, Characterisation and Antimicrobial Evaluation of Lauric Acid Loaded PLGA Composite Membrane for Guided Bone Regeneration in Orthopaedic Applications

TEB06	Siti Nahdatul Isnaini Said Hussin, Siti Rokhiyah Ahmad Usuldin, Shahlizah Sahul H amid, R ohani A bdul G hani, A hmad Nor Ha fzan M at Ro ni, Muhamad Johnny Ajang Abdullah and Norihan Mohd Saleh Viable Seedlings Production of Seaweed through Direct Callogenesis of *Kappaphyccus alvarezii*. avarezii
TEB07	Mari Miyazaki, Ayaka Hori, Yuya Yajima, Masumi Yamada and Minoru Seki Fabrication of Capillary-Embedding Cellular Blocks for Bottom-Up Tissue Engineering
TEB08	Yuya Yajima, Ayaka Hori, Masumi Yamada and Minoru Seki Creation of Multilayered Cellular Constructs Using ECM Microparticles as a Binder

Technical Session 2: **Biopharmaceutical and Medical Biotechnology**	
BMB01	Ahmad Zuhairi Abd Rahman, Noor Atiqah Fakharuzi, Gurbin Singh, Nurul Ain Nasim Mohd Yusof, Kamal S Fakiruddin, Lim Moon Nian, Puteri J Noor M Baharuddin and Zubaidah Zakaria Transplantation of Mesenchymal Stromal Cells Minimises CCL4-Induced Liver Fibrosis in Rat
BMB02	Anis Farhanaz Mohd Saidi, S iti N ur A tiqah Md O thman, N orazah B asar and Siti Pauliena Mohd Bohari Cytotoxic Activity of *Phaleria macrocarpa* Compounds on MDA-MB 231 and MDA-MB 468 Breast Cancer Cell Lines
BMB03	Lam Kah Yuen, Puteri Jamilatul Noor Megat Baharuddin and Zubaidah Zakaria The Pattern of Aberrant DNA Methylation in Adult Acute Lymphoblastic Leukemia

BMB04	Joanne Ch'ng Yu Rou, Mashytah Abdul Karim and Nurhidayah Roslan Discovering the Potential of Nitric Oxide Treatment on Erlotinib-resistant H1299 Lung Cancer Cells
BMB05	Chean Yeah Yong, Swee Keong Yeap, Kok Lian Ho, Abdul Rahman Omar and Wen Siang Tan Giant River Prawn Nodavirus Particle Displaying Matrix 2 Ectodomain of Influenza Virus as a Potential Universal Influenza Vaccine
BMB06	Lee Bei Ru, Lai Kok Song, Kavitha Murulitharan and Khatijah Yusoff Recovery of a Novel Recombinant Newcastle Disease Virus from Strain AF2240-I with Reduced Virulence by Genetic Manipulation of Its F Protein Cleavage Site
BMB07	Khor Goot-Heah, Gabriele Ruth Anisah Froemming, Rosnah Binti Zain, Mannil Thomas Abraham and Thong Kwai-Lin TP73 Hypermethylation-induced Silencing in Oral Squamous Cell Carcinoma
BMB08	Muhamad Alhapis Che Ani, Kavitha Murulitharan, Ng Huay Shin, Lee Bei Ru and Khatijah Yusoff Rescue of a Genetically Modified Newcastle Disease Virus (NDV) Strain AF2240-I Stably Expressing Human Interleukin-12 (hIL-12)
BMB09	Syed Umar Faruq Syed Najmuddin, Nik Mohd Afizan Nik Abdul Rahman, Noorjahan Banu Alitheen, Muhajir Hamid and Muhammad Firdaus Romli Correlation of *Annona muricata Linn*. Polymorphism and Its Anticancer Effect in Inducing Apoptosis in Breast Cancer Cell
BMB10	Ernie Zuraida Ali, Yuslina Zakaria, Mohd Amran Mohd Radzi and Siti Azma Jusoh Predicting Effect of Missense Mutations at Active Site in Ornithine Transcarbamylase (OTC) Gene: In-Silico Webservers and Molecular Docking Analysis

BMB11	Maizatul Akma Ibrahim, Mohd Shukor Nordin, Nakisah Mat Amin and Mohd Sukeri Mohd Yusof Cytotoxicity and Genotoxicity Studies of Synthesized Amino Acid Thiourea Derivatives on *Acanthamoeba* spp. and Human Corneal Epithelial Cells
BMB12	Hannah Norazharuddin, Lai Ngit Shin, Hasnah Osman, Eugene Ong Boon Beng and S. Sanggetha Periya Development of a High-Throughput Screening Assay against Dengue Type 2 NS3 Helicase Protein
BMB13	Tan Sin Li and Norihan Mohd Saleh Sustainable Source of Production of Triterpene Saponins in *Labisia pumila* var *alata*
BMB14	Muhammad Arjuna Mustafa, Nurina Anuar and Nor Azfa Johari Expression of Recombinant Humanized Monoclonal Antibody against LipL32, in Mammalian Cell, CHO DG44
BMB15	Rashidi Othman, Siti Farah Aliya Abdul Halim and Mohd Aizat Jamaludin Analysis of Active Pharmaceutical Ingredients in 20 Species of Traditional Malay Midwifery Postnatal Bath
BMB16	Nur Hidayah Noh, Rashidi Othman and Mohd Aizat Jamaludin Natural Carotenoid Pigments from 6 Chlorophyta Freshwater Green Algae Species Cell Culture as Potential Halal Food Colorants
BMB17	Mohd Mukrish Mohd Hanafi, Harisun Yaakob, Mohamad Roji Sarmidi, Ramlan Aziz, Simon Gibbons and Jose Maria Prieto *In Vitro* Anticancer Potential of *Marantodes pumilum* and *Ficus* sp. Extracts from Malaysia on Prostate Cancer Cells
BMB18	Yew-Min Tzeng, Kun-Yuan Chiu and Shih-Lan Hsu Inhibition of Human Bladder Cancer Cells by Antrocin, a Sesquiterpene Lactone Isolated from *Antrodia cinnamomea*

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BMB11

Cytotoxicity and Genotoxicity Studies of Synthesized Amino Acid Thiourea Derivatives on *Acanthamoeba* spp. and Human Corneal Epithelial Cells

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Two newly-synthesized amino acids thiourea derivatives; 2-(3-benzoylthioureido)-3-mercaptopropanoic acid and 2-(3-benzoylthioureido)-4-(methylthio)butanoic acid, which were labeled as M1 and M2 respectively, were evaluated for their potential as anti-amoebic agent, aiming for a new discovery in amoebic keratitis treatment. The compounds were tested on *Acanthamoeba castellanii* (CCAP 1501/2A) and *Acanthamoeba* sp. (Hospital Kuala Lumpur isolate), and also on human corneal epithelial cells (HCEC). Experiments conducted consisting of IC_{50} determination by eosin dye and MTT assay, morphological observation by light microscopy, evaluation of membrane integrity by acridine orange/propidium iodide staining, mode of cell death determination by DNA fragmentation test and assessment of DNA damage by alkaline comet assay. The IC_{50} obtained for M1 were 6.26 µM for *A. castellanii*, and 9.00 µM for *Acanthamoeba* sp. (HKL isolate) while for M2 the values were 6.97 and 8.63 µM respectively, indicating that these compounds are cytotoxic against both *Acanthamoeba* isolates. They shortened acanthopodia structures, transformed the amoeba cells to become rounded, and exhibited no distinct vacuoles and nucleus. The membrane integrity was also disrupted, making them non-intact, and promoted apoptosis in amoeba but did not significantly affected the DNA. Both thiourea derivatives showed moderate cytotoxicity toward HCEC with IC_{50} at 132.69 and 98.20 µM respectively. The compounds did not significantly alter corneal cells' cellular morphology. These derivatives were found to disrupt HCEC's membrane integrity and promoted apoptosis but non-genotoxic on HCEC's DNA.

Keywords: Amino acid thiourea; Amoebic keratitis; *Acanthamoeba*; Human corneal cells