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properties of DHHPD through the 2.5% formalin-induced paw-licking test in mice and determined its mechanism of action by capsaicin- and glutamate-induced paw-licking tests. Results from these tests indicated that DHHPD at 1 and 3mg/kg (i.p.) significantly ($p<0.05$) inhibited the nocifensive behaviour produced by 2.5% formalin administration throughout the early (neurogenic) and late (inflammatory) phases of the test. Moreover, DHHPD significantly reduced the latency(s) of paw-licking behaviour in the capsaicin- and glutamate-induced paw-licking tests. In conclusion, DHHPD induces analgesia at the central and peripheral levels and may be considered as a promising alternative to non-steroidal anti-inflammatory drugs (NSAIDs) in the future.

O-MHS-06

STRUCTURAL CHANGES AND THE DIFFERENTIAL EXPRESSION OF OSTEOPROTEGERIN (OPG) AND RECEPTOR ACTIVATOR OF NUCLEAR FACTOR kB LIGAND (RANKL) IN SUBCHONDRAL BONE DURING THE DEVELOPMENT OF OSTEOARTHRITIS

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Osteoarthritis (OA) is a degenerative joint diseases that characterized by subchondral bone changes. Previous studies of OA have shown that structural changes were differed between subchondral bone plate (Sbp) and trabecular bone (Tb). However, the expression of OPG (bone formation) and RANKL (bone resorption) markers that underlying the differences between these two regions have yet to be determined. Hence, the present study aims to determine structural changes and expressions of OPG/RANKL in the Sbp and Tb during development of OA in Dunkin Hartley guinea pigs. The tibia were scanned using a micro-computed tomography (micro-CT) at 10, 20 and 30 weeks of age to determine the Sbp and Tb thickness. Immunohistochemistry and histopathology were conducted to determine the expression of OPG/RANKL and microscopic OA score, respectively. The results showed that Sbp and Tb thickness were greater in the medial than the lateral side of tibial plateau, and increased significantly with ageing ($p \leq 0.01$). Across the time points, the OPG/RANKL ratio of medial Sbp was initially decreased, before being increased at the final time point. In contrast, the OPG/RANKL ratio of medial Tb was initially constant but then significantly decreased at 30 weeks of age. A strong correlation was observed between the Sbp thickness and OPG/RANKL ratio with microscopic OA scores ($r = 0.5$, $p \leq 0.05$), suggesting that the Sbp plays an important role in the pathogenesis of OA.

the ancestral African root hitherto supporting the exodus from Africa continent ('Out of Africa' theory). Molecular genetics interest of the Orang Asli include (1) the polymorphisms, haplogroup identification and phylogenetic relationships among the Orang Asli groups, (2) their relationships to the Deutero-Malay (Malay) in Peninsular Malaysia and (3) their relative affinities to other Southeast Asian and even to Asian and Polynesian. By using published scientific articles, we here describe the genetic histories of the Orang Asli, and their present and future studies.

P-MHS-03

THE ANTIMICROBIAL ACTIVITY OF *Paenibacillus alvei* (AN5) AND GRAMICIDIN A AGAINST *Escherichia coli* AND *Staphylococcus aureus*

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The study on antimicrobial peptides (AMPs) have attracted so many attention recent year as it's have a potential as antibiotic because of their wide broad activity. There are several methods that commonly used for screening antimicrobial activity such as disk-diffusion, well diffusion and broth or agar dilution. In this study, two types of AMP were used which are *Paenibacillus alvei* (AN5) and Gramicidin A (gA). The antimicrobial activity of both AMPs were tested against bacteria gram positive, *Staphylococcus aureus* and bacteria gram negative, *Escherichia coli* using broth dilution method. The result show peptide AN5 and gA have wide inhibitory spectrum for both gram negative and gram positive bacteria.

P-MHS-04

THE REMODELLING OF TIBIAL TRABECULAR BONE IN SPONTANEOUS ANIMAL MODEL OF OSTEOARTHRITIS

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Osteoarthritis (OA) is a common degenerative joint disease among elderly population. Previous studies have shown that OA is associated with the subchondral bone remodelling. However, none of these studies focuses on the trabecular bone (Tb) remodelling in the epiphyseal region of tibia. Hence, the present study aims to determine the mineral apposition

rate (MAR), mineralising surface (MS) and bone formation rate (BFR) of Tb Dunkin Hartley (DH) guinea pigs, and its association with microscopic score of OA. The DH was administered with 20 mg/kg of calcein dye at 9 and 2 days prior to euthanasia. The tibia were then collected at 10, 20 and 30 weeks of age. Histomorphometry and histopathology analyses were conducted to quantify the parameters of Tb remodelling and microscopic OA score, respectively. The data showed that the MAR, MS and BFR were higher in the medial side (*versus* lateral side) of the tibia ($p \leq 0.05$), and increased between 10 and 20 weeks of age. However, at the final time point, these parameters were significantly decreased ($p \leq 0.05$), and became lower in the medial than the lateral side of Tb. A strong negative correlation was observed between the BFR and microscopic OA scores ($r = -1.0$, $p \leq 0.01$), suggesting that the Tb loss dominates the late stage of OA.

P-MHS-05

WOUND HEALING PROPERTIES OF MARINE ENDOPHYTIC FUNGI EXTRACTS IN SPRAGUE-DAWLEY RATS

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Marine endophytic fungi are known to be profilic source of potential bioactive compounds. The aim of the present study was to investigate wound healing properties of three endophytic fungi extracts (CN, MV and ED) isolated from different seaweeds *Gracilaria arcuata*, Zanardini, *Gracilaria coronopifolia* J.Agard and *Acantophora spicifera* (M.Vohl) on 2nd degree burn wound healing. Circular second degree burn wounds were created on the dorsal region of normal rats and treated with silver sulphadianze (SSD) as positive and Tween 20 as negative control groups. This study showed all extracts increased the rate of wound contraction as compared to control groups. CN extract (48%) was more effective than ED (45%), MV (41%) and SSD (40%) starting on the first day of wound contraction observation. Histopathological findings showed all the extracts enhanced epithelization and tissue granulation significantly as compared to control group. We demonstrated for the first time in the present study that these marine endophytic fungi extracts showed faster healing on the 2nd degree burn even when compared with SSD (positive control). Results suggest that CN, MV and ED marine endophytic fungi extracts tested in this study could be exploited as a potential source for wound dressing occlusion and tissue repairing.