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ABSTRACT BOOK 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Institute Biosains Laboratory Brawijaya University Malang, East Java, Indonesia September, 12th – 13th 2014 Convention Hall, Aria Gajayana Hotel Komp. Mall Olympic Garden JL. Kawi Malang East Java- Indonesia ii 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 President of Brawijaya University Foreword On behalf of Brawijaya University, we would like to welcome all of invited speakers and all participant of 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014, from almost all universities in Indonesia and other foreign universities. Considering the noble aim this event, we are highly appreciate and excited to hold this event in Aria Gajayana Hotel.

Based of Brawijaya University commitment to cooperate in scientific aspect in accordance with the mission of Brawijaya University to be a World Class University. This scientific event, we wish that this initial effort to integrate the networking and research would support the exchange of information, research, and technological advances in the field of university as one approach to support molecular bioscience and biomedical issues in Indonesia. On this occasion, we profusely thank to: 1.

Takeshi Okta, Ph.D (Central Pharmaceutical Research Institute, Japan) 2. Katsuhiro Miyajima, Ph.D (Toxicology Research Laboratories, Japan) 3. Taiichiro Kamiya, Ph.D (Nomura Siam International) 4. Prof. Wolfgang Nellen (Kassel University, Germany) 5. Prof. Dr. d ul'am, DES(isailnstiute,Bja University) 6. Prof.dr.Moch. Aris Widodo, MS. SpFK.Ph.D (Faculty of Medicine, Brawijaya University) 7. Sugeng Raharso, M.Kes (PT. Biofarma Bandung) 8. Dr. Ir.

Roy Sparinga (Director of Food and Drug Agency, Republic of Indonesia) 9. Dr.dr Zairin Noor, SpOT(K), MM. FICS. (Faculty of Medicine, Lambung Mangkurat University, Banjarmasin) 10. Dr.dr. Izaak Z. Akbar, SpOT(K). (Research Center for Osteoporosis, Medical Faculty, Lambung Mangkurat University) 11. Dr.dr. Nia Kania, SpPA(K).

(Research Center for Toxicology, Medical Faculty, Lambung Mangkurat University) 12. Dr. Sri Wahyuningsih (Faculty of Animal Husbandry, Brawijaya University) iii 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 13. Prof. Sutiman Bambang Sumitro, MS, Dsc. (Faculty of Mathematics and Sciences, Brawijaya University) 14. Prof.

Fatchiyah, M.Kes, PhD (Head of SMONAGENES, Brawijaya University) 15. Dr. Ir. Gatot Ciptadi, DESS (Faculty of Animal and Husbandry, Brawijaya University) 16. Bambang Setiawan, S.Ked., M.Biomed. (Research Center for Toxicology, Medical Faculty, Lambung Mangkurat University) 17. Participants of this event from various university We sincerely hope that this activity is beneficial for all of us, especially in an effort to accelerate the development of education and science in Indonesia.

We also hope that this first international conference can improve the quality of research in Indonesia but also make the relationship between all universities better and improving the quality of human kind. We expect that the first international conference will be held continuously every year in Brawijaya university. Malang, September 4th 2014 President of Brawijaya University Prof.Dr.Ir.

Mohammad Bisri, MS iv 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 Head of Committee Foreword Dear participants, On behalf of ICAMBBE 2014 and executive director of this event, It is my great pleasure to welcome you to the 1st International Conference on Advance Molecular Bioscience & Biomedical Engineering (ICAMBBE 2014) with the theme "Molecular Bioscience & Biomedical Engineering".

for the first time the International Conference on Advance Molecular Bioscience & Biomedical Engineering held in Aria Gajayana Hotel in 12nd-13th September 2014, scientist, practitioners and scholar students from Indonesia and several countries will express their interest to participate in ICAMBBE 2014. The objective of this conference is to share their experiences, new ideas and research results that give positive contributions for the better of our life in the future.

Based on our theme we divided this conference into nine scopes could cover all aspects

in life sciences The general objectives of this International Conference are : 1. To promote research and developmental activities in Advance Molecular Bioscience & Biomedical Engineering 2. To promote and share scientific information interchange between academics, business and government in Indonesia & abroad in Advance Molecular Bioscience & Biomedical Engineering Abstract from 41 oral presenter fullpapers and 23 poster participant that will be presented on this conference provide many opportunity for discussion.

Oral presentation and poster sessions were split to the nine scopes of conferences, i.e., (1) Biological and Biomedical Sciences; (2) Genetics and Human Genetics; (3) Smart Molecule and Biosensing; (4) Medical and Veterinary Sciences; (5) Biochemistry and Molecular Biology; (6) Life Sciences and Livestock Science; (7) Biomedical Engineering; (8) Nutrigenomic and Functional Food; (9) Pharmaceutical Science and Toxicology v 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 We wish that ICAMBBE 2014 could give significant contribution towards the science acceleration.

We hope also that this conference can improve the quality of research in Indonesia and promote the quality of education in Indonesia. We hope that the first international conference will be held continuously every year in Brawijaya university. Thank you for all participant exhibition such as Biosains, NIKON, ITS Indonesia, PT.Fajar Mas Murni, and Gamma Scientific Best regard, Head of Committe Prof.

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(Faculty of Science, Brawijaya University) The power of small RNAs: mechanisms of regulation and potential applications Prof. Wolfgang Nellen (Kassel University, Germany) 09.45-10.00 Coffee Break, Exhibition & Poster Ses sion Plenary Lecture II Moderator : Dr.Ir. Gatot Ciptadi, DESS 10.00-11.30 Drug therapy in type 2 diabetes-glucose sensor activator Takeshi Ohta, Ph.D (Japan Tobacco Inc.,

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(PST01-PST06) Free paper Session IV Moderator : Ninik Afrizatus S., M.Si (NFF01-NFF06) xv **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 SCIENTIFIC PROGRAM **International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** Biosains Institute, University of Brawijaya Saturday, September 13th, 2014 (Room : Welirang) Time Topic Speaker 07.30-08.00 Registration 08.00-10.00 Plenary Lecture IV Moderator: Pro.dAanni DES.

Nutritional Genomics Interaction: **food-gene interactions, and disease susceptibilities** Prof. Fatchiyah, Ph.D (Head of SMONAGENES, Brawijaya University) Pharmacology assessment of natural product Prof. dr. M. Aris Widodo, MS., SpFK., PhD. (Faculty of Medicine, Brawijaya University) Application of molecularbioscience and biomedicalengineering in industry SugengRaharso PT.

Biofarma Bandung Regulation of biopharmaceuticals in Indonesia **Dr. Roy A. Sparringa, M.App.Sc** (Chairman of **National Agency for Drug and Food Control Republic of Indonesia**) 10.00-10.15 Coffee Break, Exhibition & Poster Session Plenary Lecture V Moderator: drh. Dyah Ayu O.A.P., M.Biotech.

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Sri Wahyuningsih (Faculty **of Animal Husbandry, Brawijaya** University) Plenary Lecture VI

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Wolfgang Nellen (Kassel University, Germany) 15.30-16.00 Closing Ceremony President of ICAMBBE xvii **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 Free Paper Session I Date : Friday, September 12th, 2014 Theme : Biology, Biomedical, and Veterinary Sciences Room : Welirang Moderator : Wahyu Nur L.F., M.Si ID Author Title Schedule O-BBV01 Aryan Morita, Ngatidjan, Setyo Purwono Carbonated Hydroxyapatite On Local Rabbits (Study of Macrophages, and Edema Volumes on Mandible) 14.00-14.10 O-BBV02 Rini Maya Puspita, Fitriana Rachmadanty Siregar Effect **of Regular Exercise on** Amount of Osteoclast in the Mandible Bone of Ovariectomized Sprague Dawley Rats 14.10-14.20 O-BBV03 Cut Muthiadin, Rasdianah Hasbi, Hajrah Isolation And Fractination Of Crude Antigen **Outer Membrane Protein (OMP) Of Salmonella Enterica Serovar typhi** from suspect origin Makassar, South Sulawesi, as **confers protection against typhoid** 14.20-14.30 O-BBV04 Supiana Dian Nurtjahyani, Devi Shintya Agustin The quantity of egg in feces as infection degree parameter in bovine (Bos sp.) worm infection 14.30-14.40 O-BBV05 Farida Arinie Soelistianto, Achmad Rudijanto Ion cell membrane transport mechanism in hyperglycemia 14.40-14.50 xviii **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 O-BBV06 Nurida Finahari, Gatut Rubiono, Gatot Soebiyakto **Comparing the spectral profiles of the Javanese gending with classical music as the therapeutical music** 14.50-15.00 O-BBV07 Nuryadi, Sri Wahjuningsih Supplementation of cysteine as antioxidant on quality of goat frozen semen 15.00-15.10 O-BBV08 Sentot Joko Raharjo, Chanif Mahdi, Nurdiana Nurdiana, Takheshi Kikuchi, Fatchiyah Fatchiyah Binding energy calculation single/ cluster of patchouli alcohol isomers compounds as COX inhibitor selective. 15.10-15.20 O-BBV09 Dahril, Isolation and Characterization of PSCCK4 Enzyme of Human Spermatozoa 15.20-15.30 O-BBV10 Zauhani Kusnu I H.

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ID Author Title Schedule O-NFF01 Fidelia, Antonius Suwanto, Felicia Kartawidjajap utra, Susana Effect of Folic Acid and Vitamin B12 Admission on Homocysteine Level in association with MTHFR C677T Polymorphisms in Overweight Female Adults 15.00-15.10 O-NFF02 Nurwijayanti, Engga The Relation Consumption of Food and Infection Disease with Status Nutritional of Children in Public Health Center Ngletih in Kediri 15.10-15.20 O-NFF03 Sri Rahayu Lestari, Nuning Wulandari, Siti Imroatul Maslikah The Effect of Polyphenol to Visceral Fat Profile Protein at Obese Rat Model 15.20-15.30 O-NFF04 Wahyu Widowati, Hana Ratnawati, Winsa Husin, Maesaroh Maesaroh, Nurul Fauziah Antioxidant Properties of Spice Extracts 15.30-15.40 xxv 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF05 Dyah Kinasih Wuragil, dan Agung Pramana Warih Marhendra The Effect of Sodium Iodide (NaI) Supplementation for Preparing of Experimental Autoimmune Thyroiditis (EAT) 15.40- 15.50 O-NFF06 Lestari Dewi The effect of lecithin on liver function of white rats (*Rattus norvegicus*) induced carbon tetrachloride 15.50- 16.00 xxvi 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 Free Paper Session V Date : Saturday, September 13th, 2014 Theme : Pharmaceutical Science and Toxicology Room : Welirang Moderator : Anita Herawati, M.Si.

ID Author Title Schedule O-PST07 Yudi Purnomo, Djoko Wahono Soeatmadji, Sutiman B. Sumitro, M. Aris Widodo Dipeptidyl Peptidase IV (DPP-IV) Inhibitory Activity of Pulutan (*Urena lobata*) and Pepaya (*Carica papaya*) Leaf Extract 13.00-13.10 O-PST08 Husnul Khotimah, M. Aris Widodo, Mulyohadi Ali, Sutiman B. Sumitro Decreasing -Synuclein Aggregation by Methanolic Extract of *Centella asiatica* Model 13.10-13.20 O-PST09 Wibi

Riawan, Hidayat Suyuti, Retty Ratnawati Effect of Cadmium Exposure to The Expression of Estrogenic Receptors, Aromatases and BDNF to Zebrafish Embryo 13.20-13.30 O-PST10 Riswahyuni Widhawati, Endang Hanani, Jamal Zaini *Andrographis paniculata* (Burm. F.)

Nees *Induces Clinical and Sputum Conversion in Pulmonary Tuberculosis Patient* 13.30-13.40 O-PST11 Yuly Peristiwati, Ahmad Rudijanto, Djanggan Sargowo, Retty Ratnawati The Effect of Cathecins Isolated from Green Tea GMB-4 on Enhancing The Mobilization *Endothelial Progenitor Cells (EPC)* through Activation of Stromal Cell-derived 13.40-13.50 xxvii *1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)* 2014 Malang, September 12th – 13th 2014 Factor-1 (SDF-1 ?) and Nitric Oxide (NO) on Endothelial Dysfunction Diabetes Mellitus Type II O-PST12 Rosihan Adhani, Cholil, Widodo, Deby Kania Tri Putri, Bayu Indra Sukmana Mesostructure characteristics of smoker teeth 13.50-14.00 xxviii *1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)* 2014 Malang, September 12th – 13th 2014 Free Paper Session VI Date : Saturday, September 13th, 2014 Theme : Nutrigenomic and Functional Food Room : Semeru Moderator : Ninik Afrizatus S., M.Si.

ID Author Title Schedule O-NFF07 Diah Purwaningsari Krestine polysaccharide as inhibitors of cortex cerebri thickness reduction and cell neuron on Cobalt 60 gamma irradiation in fetal mice (*Mus musculus*) 13.00- 13.10 O-NFF08 Dyah Ayu Oktavianie A. Pratama, Anna Roosdiana, Aulia Firmawati and Herawati Potency of combination curcumin and vitamin e towards hormonal (estrogen and progesterone) levels on rat (*Rattus norvegicus*) mammary cancer model 13.10- 13.20 O-NFF09 Eka Erwansyah, Eky S. Soeria Soemantri, Sitti Wahyuni Leptin Role in the Process *of Orthodontic Tooth Movement* 13.20- 13.30 O-NFF10 Fitri Handayani Vitamin C Inhibit Upregulation Of Plasma Level In Cold Stress- Exposed Adjuvant And Joint Interleukin-1 Arthritis 13.30- 13.40 O-NFF11 Chanif Mahdi, Untari H., Padaga M. Identification and Characterization of Bioactive Peptide *of Fermented Goat Milk* 13.40- 13.50 xxix *1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)* 2014 Malang, September 12th – 13th 2014 Poster Presentation Date : Friday, September 12th, 2014 Theme : Biomedical Science ID Author Title P-001 Roselina P , Mala K, Dwi Anita *S The Role of* FSH, LH and AMH Hormones on Folliculogenesis: Case Study In Polycystic Ovary Syndrome(PCOS) P-002 , Fatchiyah Fatchiyah, Nashi Widodo, Pudji Rahayu, Ruslan Muhyi, Sutiman B.

Sumitro BZLF-1, Relb, Caspase-3, and Ki-67 Levels in Tissue of Undifferentiated Nasopharyngeal Carcinoma P-003 Asnawati, Suwono, Sri Kadarsih S. The Effect of Regular Exercise on CYP19 Aromatase on Adrenal Cortex Among Ovariectomized Rats

P-004 Ferlany Hardiyanti, Widodo, Fatchiyah Fatchiyah Modelling bioactive peptide from PE milk for diabetic melitus therapy P-005 La Aba, Mulyati-Sarto Mercury Bioaccumulation in Hepatic Rat (*Rattus norvegicus* Berkenhout, 1769) Treated by Bivalves (*Anadara granosa* L.)

Contaminated Mercury P-006 Noer Muhammad Dliyaul Haq, Dyah Kinasih Wuragil, Pramana Warih Marhendra Estrous Cycle Profile and Tyroxine Hormone (T4) Levels in Experimental Animal Models of Hyperthyroidism by Thyroglobulin Induction xxx **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 P-007 Rusmiati, Sumeru Ashari, M.Aris Widodo dan Lutfi Bansir The nutritional composition of several red durian from Banyuwangi P-008 Erna Susanti, Ciptati, Retty Ratnawati, Rudijanto Molecular Docking of Aterogenesis P-009 Nurdiana, Imam Sarwono, R Setyohadi, Stephen Harsono, Priyo Budiutomo, Feby Adiguna, Zaw M Aung Effect of soybean milk for 12 weeks in 6 weeks old male epididymis, seminal vesicles, and testosterone P-010 Meilinah Hidayat, Ahmad Faried -conglycinin in Extract Protein **of Detam 1 Soybean** Stimulating Cholecystokinin secretion through Signaling Pathway in Wistar Rats P-011 SitiWasilah, HusnulKhatimah, Tri Indah Winarni Cytogenetics profile of student with syndromic mental retardation on special schools in banjarmasin P-012 Endang Sutjiati, HandonoKalim, KusworiniHandono, Ali, MohamadHidayat Effect of glycosaminoglycans in cartilage destruction rabbit model of OA joints with papain injection P-013 Isnaeni IDN, NurRahman, Rizal MatuaDamanik, Faisal Anwar Extract *Solanum Torvum* Toxicities And Phytochemistry Compounds By Brine Shrimp Lethality Test(BSLT) xxxi **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 P-014 Ni Luh Putu Eka Sudiwati, Budi Susatia, Tanto Hariyanto, Setyo Harsoyo, Edi PriyoUtomo, Mulyohadi Ali Flavonoid Potency of N-Hexane, Chloroform and Etanol Fraction *Scurrula arthropurpurea* (Blume) Danser as An Inhibitor Proliferation and Apoptosis Agent Towards HeLa Cell P-015 WiwiekTyasningsih, Fendik A. Rantam, DidikHandijatno The Biochemical Tests and Genomic Characteristics of *Brucella abortus* a Local Field Isolate P-016 Nadia ArthaDewi, Djoko W.

Soeatmadji, HidayatSujuti, M.ArisWidodo, Aulanni'am **The Role of Angiopoietin-2** in retinal pericyte migration through Tie-2, Akt/PKB, and ERK activation xxxii **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 Poster Presentation Date : Saturday, September 13th, 2014 Theme : Biomedical Science P-017 Soeatmadji, D.W; Ekowati, Blood glucose level, blood viscosity, and plasma viscosity in the Ramadhan fasting diabetic patient P-018 MulyaSundari, Hermansyah, Radiyati Correlation of Matrix Metalloproteinase-1 (MMP-1) joint synovial by osteoarthritis knee in Rumah Sakit Mohammad Hoesin Palembang P-019 Mansur Ibrahim, Sutiman B. Sumitro, M.Aris

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characteristic of tin sand as osteoporosis risk factor P-023 Choirunil Chotimah, Gatot
Ciptadi, Bambang Setiawan, Fatchiyah Fatchiyah -S2 casein etawah goat milk protein in
preosteoblast cell exposed by methylglyoxal 1 **1st International Conference on Advance
Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September
12th – 13th 2014 Medical devices for autoimmune disease : from past to future Aannim
ul Institute Biosains & Biopeptide, Medical Devices and Immunocontraception
Researchers Group Brawijaya University, Indonesia Email: aulani@ub.ac.id;
aulanibiochems@gmail.com **In recent years, numerous prospective studies have
demonstrated that many autoantibodies can be detected in** sera of asymptomatic
individuals who later develop an autoimmune disease. Type 1 diabetic is a multifactorial
disease triggered by a number genetic and environmental factors, which leads to
pancreatic b-cell destruction.

It is currently believed that type 1 diabetic **is a chronic autoimmune disease that is
associated with** destruction of pancreatic beta cell that leads to impaired glucose
homeostasis, because the insulin- prdng IIs β -cells) located in the pancreatic islets of
Langerhans are attacked by the immune system. One of early marker for b-cell
autoreactivity is antibody against to GAD65.

Disease prevention **plays an important role in** development of the public health sector in
Indonesian nation. An important goal of medical devices studies is to develop reliable
clinical screening methods based on biomolecular interactions to evaluate, or possibly
predict autoimmune diseases risk in patients.

In Indonesia, development of an early detection kit of autoimmune diseases based on
"autoimmune markers", especially for the detection of type 1 diabetic and also
autoimmune thyroid disease (AITD) are still needed. Because until now, these tests are
extremely high cost and have not regularly been performed in most of clinical
laboratories.

We describe a new simple technique medical devices for confirming semiquantitatively
both autoantibody GAD65 and TPO in sera patients of Diabetic and AITD. 2 **1st
International Conference on Advance Molecular Bioscience and Biomedical Engineering**

(ICAMBBE) 2014 Malang, September 12th – 13th 2014 The goal of this work is to produce medical devices for Type 1 diabetic and AITD collaboration with industries and in the future these devices could be used for early detection of the diseases in the community. The medical devices that will be produced is a rapid test based on reverse flow immunochromatography technique using sera as a sample.

A total of 80 diabetic and AITD sera patients that already confirmed positively by gold standard and 10 healthy individuals of similar age uses as controls. Determination of GAD65 and TPO autoantibodies were performed using reverse flow immunochromatography technique which is based on both recombinant human protein of GAD65 and TPO.

Overall, our medical devices showed specific, sensitive, simple, economic and indicate that it is suitable for routine screening for GAD65 and TPO autoantibodies in Indonesia community. Key words: autoimmune diseases, GAD65, TPO, Reverse flow Immunochromatography technique. 3 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 1.1

Crucial concept of magnetism in complex biological molecules Sutiman B. Sumitro Department of Biology Brawijaya University Email: sutiman@ub.ac.id Biological molecules are essentially nano size structure. All of them are complex structure with specific function dedicated to perform normal ordered organizational system, which is constantly receiving, transforming and dissipating energy, and continually exhibit ceaseless flow of energy.

The study of magnetism of complex biological molecules such as nucleotide, enzymes and mitochondrial electron transportation component, indicate the important role of magnetism in providing most considerable potential force related to intelligentsia of biological compounds in developing organization order. The energetic forces are mainly atomic forces such as electromagnetic force emergence from electron spinning and transitions at every atom of the complex macromolecular structure. The energy will work along with different level of energy, and atomic positioning within macromolecules.

This presentation review and discuss the role of magnetism on molecular working process as part of thermodynamically open systems to develop order. These biological complex materials provide perfect scavenging capacity avoiding unpaired electron to accumulate on their atoms. The basic chemical elements of living organisms are atomic and subatomic, and it is remarkable that Life can be made only with group of stable elements which are Oxygen, Carbon, Nitrogen, and Hydrogen, leaving only a 1% for

Phosphorus, Sulphur, and Calcium and of that very small part for metals.

In this perspective, the energy of creation as a continuous flow is crucial in the chemistry of Life. 4 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 1.2 The power of small RNAs: mechanisms of regulation and potential applications Wolfgang Nellen Departement of Genetics University of Kassel, Germany Since 1998, small regulatory RNAs have attracted increasing interest and have initiated a new view on genomes, gene regulation and the interaction between genomes and the environment.

I will review the mechanisms by which siRNAs and miRNAs regulate gene expression and development. Examples from our own work will not only highlight new aspects in small RNA biology but also point out unsolved questions on their function in genome stability and the regulation of mobile elements in the genome. Finally, I will present a brief overview on potential applications in medical and agricultural biotechnology.

5 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 2.1 Drug therapy in type 2 diabetes : glucose sensor activator Takeshi Ohta Biological/Pharmacological Research Laboratories, Central Pharmaceutical Research Institute Japan Tobacco Inc.

Introduction: The number of patients with lifestyle-related diseases, such as cardiovascular disease, diabetes mellitus, hypertension, atherosclerosis, and cancer, is increasing all over the world, and that of diabetics is increasing especially rapidly. Diabetes is classified into two categories: type 1 and type 2. Type 2 diabetes is a disease characterized by chronic hyperglycemia and dyslipidemia resulting from impaired insulin secretion from the pancreas and insulin resistance of the peripheral tissues. We have developed anti-diabetic drugs which show enhancement of glucose stimulated insulin secretion (GSIS) in pancreas.

In this lecture, I introduce the characteristics of a drug, JTT-608 (glucose sensor activator). Methods: In vitro study; effects of JTT-608 on insulin secretion were investigated using mouse insulinoma cell line (MIN6 cells) and isolated, perfused rat pancreas. In vivo study; acute and chronic effects of JTT-608 were investigated in diabetic rats, neonatally streptozotocin-treated (nSTZ) rats and Goto-Kakizaki (GK) rats.

Results: JTT-608 enhanced insulin secretion in MIN6 cells in a dose dependent and glucose concentration-dependent (2.8-16.7 mM) manner. In isolated, perfused pancreas of nSTZ rats, JTT-608 enhanced insulin secretion in the first and second phases at a high glucose concentration (11.1 mM). In diabetic rats, JTT-608 improved glucose tolerance

with enhanced insulin secretion in the glucose tolerance test.

The chronic administration of JTT-608 induced good glycemic control and inhibited the development of diabetic complications. 6 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 Conclusion: JTT-608 is an enhancer of GSIS, glucose sensor activator.

JTT- 608 produces chronic glycemic control and prevents the development of diabetic complications by inhibition of daily postprandial hyperglycemia. References: 1. Journal of Medicinal Chemistry, 1998, 41, 5420-5428. 2. European Journal of Pharmacology, 1999, 367, 91-99. 3. European Journal of Pharmacology, 1999, 371, 51-58. 4. British Journal of Pharmacology, 1999, 126, 1674-1680. 5. British Journal of Pharmacology, 2000, 129, 901-908.

6. The Journal of Pharmacology and Experimental Therapeutics, 2001, 297, 953-960. 7. European Journal of Pharmacology, 2003, 476, 159-166. 8. Diabetes, Obesity and Metabolism, 2005, 7, 517-524. 7 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 2.2

Pathophysiological analysis of liver in female Spontaneous Diabetic Torii fatty (SDT-fatty) rats - female SDT-fatty rats show Non-Alcoholic Steatohepatitis (NASH)-like hepatic lesions Katsuhiko Miyajima Toxicology Research Laboratories, Central Pharmaceutical Research Institute Japan Tobacco Inc. Introduction: Obesity and type 2 diabetes are a well-established risk factor for many chronic disorders such as non-alcoholic steatohepatitis (NASH).

Approximately 5-10% of NASH patients develop cirrhosis and/or hepatocellular carcinoma over 10 to 20 years. To understand the complicated features of the disease, animal models of non-alcoholic fatty liver disease are expected to offer important knowledge of the disease. Spontaneously Diabetic Torii-Leprfa (SDT fatty) rat shows several metabolic syndrome features, obesity hyperglycemia, and hyperlipidemia from 6 weeks of age.

However, the pathophysiology of the liver in SDT fatty rat has not been reported in detail. In the present study, the pathophysiological changes of the liver in SDT fatty rat were examined. Methods: Female SDT fatty rats and age-matched SD rats were allowed ad libitum feeding (CRF-1; Charles River Japan).

Body weight and biochemical parameters, such as serum glucose, triglyceride (TG), total

cholesterol (TC), alanine aminotransferase (ALT) and aspartate aminotransferase (AST) levels, and TG accumulation in liver were evaluated at 8 weeks of age in the non-fasting state, and at 8-week intervals from 8 to 40 weeks of age. Histopathological examinations of the liver were performed by using the specimens stained with HE, Sirius red and double staining with toluidine blue (TB) and immunohistochemistry for ED-1. Expression of genes involved in TG synthesis, inflammation and fibrosis were examined in the liver.

8 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 Results: SDT fatty rats showed significantly increased body weight compared with SD rats. Serum glucose, TG and total TC levels were significantly higher in SDT fatty rats than in SD rats. Serum AST and ALT levels in the SDT fatty rats significantly elevated from 8 weeks of age.

Hepatic TG content was remarkably increased in SDT fatty rats from 8 to 32 weeks of age. Histopathologically, severity of hepatosteatosis accompanied by the inflammation increased from 8 weeks of age, and fibrosis began to occur from 32 weeks of age. In the liver of SDT fatty rats, increased staining intensities for fibrosis (Sirius red), macrophages (ED-1) and mast cells (toluidine blue) were observed at 32 weeks of age.

Hepatic gene expression related to TG synthesis (DGAT2), inflammation (MCP-1) and fibrosis (Collagen type1, alpha-SMA), tended to increase temporarily at a higher volume in SDT fatty rats compared to SD rats. Conclusion: SDT fatty rats exhibited pathophysiological features of NASH (e.g., increased plasma ALT, hepatic steatosis, and fibrosis) in the absence of dietary manipulation.

The precise mechanisms of developing NASH in humans remain unknown; however, SDT fatty rats have the potential to become an important animal model of NASH with type 2 diabetes and obesity, for which few models currently exist. References: 33rd Annual Symposium, Society of Toxicologic Pathology (Washington, DC, 2014) 9 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 2.3 Nomura Siam International Co, Ltd.

company profile Taiichiro Kamiya Nomura Siam International Co, Ltd, Thailand NSI or Nomura Siam International Co., Ltd was established in Bangkok, Thailand, in 2013. We are a joint venture company of Nomura Jimusho, Inc., and CLEA Japan, Inc. Our mission is to provide comprehensive laboratory animal sciences: from laboratory animals, diets, and bedding to any other equipment or services used in animal breeding and research for users in Thailand and Southeast Asian countries. As the distributor of CLEA Japan, Inc., and M-CLEA Bioresource Co., Ltd.,

Thailand, we provide a wide range of research animal models and disease animal models such as a diabetes model, an "SDT Fatty Rat," a model for carcinogenicity tests, etc., and the related equipment. We are planning to set up a new breeding facility in asuburb of Bangkok this year to produce more variety of animal strains. We expect to be supplying animals from the new facility in early 2015.

In addition to laboratory animals, we deal in all equipment used in animal breeding and research purposes such as cages, metabolic cages, cage accessories, IVCs, environmental control rearing systems, isolator, watering systems, various types of animal bedding, cage washers, autoclaves, research apparatus, and behavior system for behavior studies, etc. In the workshop, we will introduce some animal strains, our equipment, and animal diets that are related to diabetic study.

True to our slogan "Total Support for Animal Research," NSI will support you extensively to bring out the best results for your research. 10 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 3.1 Particulate matter 10 coal dust and pulmonary EGFR signaling Nia Kania Research Center for Toxicology, Cancer, and Degenerative Disease, Department of Pathology, Ulin General Hospital, Medical Faculty Lambung Mangkurat University, Banjarmasin, South Kalimantan, Indonesia Email: kaniazairin@yahoo.com In healthy individuals, inhaled foreign materials become entrapped in the mucus and are cleared by mucociliary transport and by coughing.

However, in many chronic inflammatory airway diseases, excessive mucus is produced and is inadequately cleared, leading to mucous obstruction and infection. The inhalation of occupational and atmospheric coal dust has been reported to significantly contribute to the development of several respiratory disorders, including infection, inflammation, and remodelling of the lungs.

Several studies have found that coal dust is radical itself and it also produces free radicals, thus increases oxidative stress in rats lung and human blood. Expression of MUC5AC, a major secreted, gel-forming respiratory tract mucin, is closely linked to goblet cell metaplasia and mucus hypersecretion. Oxidative stress may regulate gene expression at both transcriptional and post-transcriptional levels.

Oxidative stress regulates MUC5AC mRNA expression via activation of the EGFR and by an alternative mechanism, post-transcriptional regulation. In subchronic inhalation of coal dust particulate matter 10 induces bronchoalveolar reactive hyperplasia and rearrangement of epithelial cells, which accompanied by decrease expression MUC5AC in male rats. Chronic coal dust exposure increases oxidative stress and the signaling

pathway inducing mucin synthesis in rat lungs.

The ethanolic extract of *E. cottonii* is able to decrease oxidative stress and signaling for mucin synthesis, at least a part, via reducing the ligand. Key words: lung; mucin; signaling; MUC5AC. 11 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014
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Peroxidative index as novel marker of hydrogen peroxide involvement in lipid peroxidation from coal dust exposure. *Oxidant Antioxidant in Medical Science* 2012; 1(3):209-215. Kania N, Setiawan B, Widjajanto E, Sumitro SB, Widodo MA, HMS Chandra Kusuma. Effects of combined inhalation of coal dust and cigarette smoking on haematobiochemical parameters. *Cukurova Medical Journal* 2013; 38(4):547-552.

Kania N, Mayangsari E, Setiawan B, Nugrahenny D, Tony F, Wahyuni ES, Widodo MA. The effects of *Eucommia cottonii* on signaling pathway inducing mucin synthesis in rat lungs chronically exposed to particulate matter 10 (PM10) coal dust. *Journal of Toxicology* 2013; 2013, Article ID 528146, 8 pages. Kania N, Setiawan B, Widjajanto E, Nurdiana N, Widodo MA, Kusuma HMSC.

Subchronic inhalation of coal dust particulate matter 10 induces bronchoalveolar hyperplasia and decreases MUC5AC expression in male Wistar rats. *Experimental & Toxicologic Pathology* 2014; 66(8):383-389. 12 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 3.2

Inhalation particulate matter 10 coal dust and cardiovascular disease Bambang Setiawan¹, M Aris Widodo² ¹Research Center for Toxicology, Cancer, and Degenerative Disease, Department of Medical Chemistry and Biochemistry, Medical Faculty Lambung Mangkurat University, Banjarmasin, South Kalimantan, Indonesia ²Department of Pharmacology, Medical Faculty Brawijaya University Email: ganesh79setiawan@gmail.com To date, inhalation of occupational and atmospheric coal dust has not only contributed significantly to the development of several respiratory disorders, also cardiovascular disease. Epidemiologic study demonstrated that the population residing near coal mine facilities suffer from a higher rate of cardiovascular disease.

Hyperlipidemia is a traditional risk factor for cardiovascular disease (CVD), the leading cause of death in almost all countries. Deposition of cholesterol, triglyceride, calcium, and other substances within the vascular system is the hallmark of atherosclerosis.

Sub-chronic inhalation particulate matter 10 (PM10) coal dust have lowering effect on atherogenic index due to decreasing cholesterol and LDL levels.

Beside that, sub-chronic inhalation particulate matter 10 (PM10) coal dust also have dyslipidemia which marked by increasing of triglyceride levels. Concomitant coal dust exposure and high-cholesterol diet reduced atherogenic index due to decreased TC and LDL-c, and elevated HDL-c levels. Cardiovascular disease is the main complication of diabetes mellitus, whereas atherosclerosis is the main manifestation of diabetic microangiopathy.

Subchronic inhalation particulate matter 10 (PM10) of coal dust induces atherosclerosis through oxidative stress and endothelial damage in aorta of non diabetic and diabetic rats. 13 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 Key words: atherosclerosis; diabetes mellitus; systemic effect; cardiovascular disorders. References Setiawan B, Darsuni A, Muttaqien F, Widodo MA.

Cholesterol lowering effect of subchronic inhalation particulate matter 10 coal dust on rats. Medicine Science I International Journal 2013; 1-12. doi: 10.5455/medscience.2013.02.8049. Setiawan B, Darsuni A, Muttaqien F, Adiputro DL, Kania N, Nugrahenny D, Widodo MA. The effects of combined particulate matter 10 coal dust exposure and high-cholesterol diet on lipid profiles, endothelial damage, and hematopoietic stem cells in rats. Journal of Experimental and Integrative Medicine 2013; 3(3): 219-223. Setiawan B, Kania N, Nugrahenny D, Nurdiana N, Widodo MA.

Sub-chronic inhalation particulate matter 10 of coal dust induces atherosclerosis in aorta of diabetic and non diabetic rats. Biomarker and Genomic Medicine 2014; 6:67-73. 14 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 4.1

Nutritional genomics interaction: food-gene interactions, and disease susceptibilities Fatchiyah Professor of Molecular Biomechanism Dept of Biology, Brawijaya University, Jl Veteran, Malang 65145 Biosains Institute of Brawijaya University, Malang, Indonesia Email: fatchiya@ub.ac.id Nutritional genomics is the study of how foods affect the expression of genetic information in an individual and how an individual's genetic makeup affects the metabolism and response to nutrients and other bioactive components in food.

Nutrigenomics promises personalized nutrition and an improvement in preventing, delaying, and reducing the symptoms of chronic diseases such as diabetes. The path to

those promises has significant challenges, from experimental designs that include analysis of genetic heterogeneity to the complexities of food and environmental factors.

One of the more significant complications in developing the knowledge base and potential applications is how to analyze high-dimensional datasets of genetic, nutrient, metabolomic (clinical), and other variables influencing health and disease processes. Nutrigenomics may provide the strategies for the development of safe and effective dietary interventions against the obesity epidemic.

According to the World Health Organization, more than 60% of the global disease burden will be attributed to chronic disorders associated with obesity by 2020. Fate and activities nutrients inside cell: Regulation of genes in cell are turned on and/or off according to metabolic signal that the receptor of surface cells are interacted with external factors eq. nutrients as signal transduction, which are among the influential of environmental stimuli.

The mechanism of interaction gene- nutrients are including three of activities reported that (1) pathway A, when the nutrient may act directly as ligands for transcription factor receptors, then the genes are expressed in cell to support the normal cell growth; (2) pathway B, the nutrients may metabolized by metabolic pathways and 15^{1st} International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 degraded the altering concentrations of substrates / intermediates on cytoplasm second messenger pathway before stimulate the gene regulation at nucleus; or (3) pathway C, the nutrients diet may involve the gene regulation to produce specific protein, which the protein induced the metabolic pathway at cytoplasm, and then, provided the cells-signaling communication.

How does the nutritional genomics has a substantial impact on chronic disease and to achieve on our health? The functional genomics can determine and analyze the interaction between nutrient-diet and gene expression process by genomic and proteomic techniques each stage. Molecular gene regulations are provided by diet involved protein synthesis on transcription, mRNA modification and stability at nucleus, and translation process at ribosome and post translation modification at reticulum endoplasmic and apparatus Golgi.

The active protein as product of synthesis on cell or inter cells or tissues modulate process of metabolism, growth, proliferation, differentiation and development. The gene expression not only regulated by environmental influence such as dietary component of nutrients, but also the variation genetics can intake individually the risk phenotype of disease.

The understanding interaction among human genetic diversity, genome function, and dietary component will enable manipulate the genes regulation of diseases prevention and management on human health. Common variations in gene sequences, such as single nucleotide polymorphisms (SNP), produce differences in complex traits such as height or weight potential, food metabolism, food-gene interactions, and disease susceptibilities. Keywords: molecular gene regulations; metabolomic; functional genomics.

16 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 4.2 Pharmacology assessment of natural product M Aris Widodo Department of Pharmacology, Medical Faculty Brawijaya University Herbal or mix herbal are product from natural resources available for us to be use as a supplement or medicine either for prevention and treatment of a disease.

Nowadays, using of natural product are increasing even though in developing and developed country because of many reason such as the price of drugs, side effects and awareness back to nature. However, health provider still waiting the scientific evidence of its effects and its safety. Differ to conventional drugs we use today where the drug is obtain from plants either from land or marine and with long process of extraction research and spending lot of money, they find a single compound to be develop for a mass production to be marketed.

On the other hand herbal or mix herbal consist of hundred compound which are working and interacting together to yield effects on human health. A holistic approach have to applied to assess its benefit to human health. The Pharmcodinamic, pharmacokinetic in animal or organ tissue and cell culture need to be observe for these herbal or mix herbal.

To test its safety need to examine acute toxicity and chronic toxicity. When it is proved have a pharmacology effect and safe then need a clinical testing before to be use in human for a certain disease. Keywords: herbal mix herbal pharmacdynamic; pharmakinetic toxicology; clinical test 17 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 4.3

Application of molecular bioscience and biomedical engineering in industry Sugeng Raharso Planning and Development Director PT BIO FARMA Vaccine development has played a hugely important role in combating infectious disease. Despite this success,

there is still a great need for new vaccines and these are emerging far more slowly than we would wish.

Stages of vaccine development include non clinical development and clinical development stage. In the non-clinical development stage required antigen selection, development of enhancing immune response substances such as adjuvants/microparticles and development of delivery technology.

The challenges of vaccine development are not limited to identification of suitable antigens, adjuvants and delivery methods, but include regulatory, technical and manufacturing hurdles in translating a vaccine candidate to the clinic. Process development is the technological foundation that underlies the manufacture of new vaccines and is central to successful commercialization.

In order to between accelerate the vaccine development, synergy between Academic, Business and Government (ABG) is very crucial. Research institutes and academics play important roles for selection the antigen candidate and collaboration with industry is needed to translate the vaccine candidate to the clinic. The government as areatry ntro pus andpul"actotakes y irtanultoncrtaccfvaccne.

In this presentation, we discuss many of the hurdles that new vaccines must overcome in order to meet safety and efficacy, and some of the initiatives in Indonesia to accelerated vaccine development. 18 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 4.4

Regulation of biopharmaceuticals in Indonesia Roy A. Sparringa Chairman of National Agency for Drug and Food Control Republic of Indonesia Biopharmaceuticals represent one of the fastest-growing segments of pharmaceutical industry. In Indonesia, with implementation of Universal Health Coverage in 2014, pharma market is estimated to grow at least 3 times fold.

By the time, patents of many biopharmaceuticals began to expired, the development of biosimilar and advance therapy products are becoming promising challenge and opportunity for academia, business and government. Badan POM has one in its mission to conduct pre-market evaluation and post-market control based on international standards to ensure that all biopharmaceuticals are of good quality, safety and efficacy.

Pre-market and post market control system have been in place and continuously improved to make sure that the agency meets its objectives. Pre-market control

measures includes evaluation, review and approval of medicinal products for marketing authorisation and GMP inspection of manufacturers of biological products to confirm its compliance of GMP.

Post-market control includes among other safety monitoring and risk-benefit assessment of marketed products, routine GMP inspections, as well as investigation and enforcement of legislation administered by Badan POM. Available international guidelines have been used or adopted as requirements for therapeutic biological products, the guidelines includes those related to quality, safety and efficacy of biological products as well as GMP requirements.

Key words: Biopharmaceuticals, pre and post-market control, regulatory control 19 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 5.1 Application of reproductive biotechnology and its role in improving breeding and genetic quality of Indonesian local animal Gatot Ciptadi Faculty of Animal Husbandry, Brawijaya University Malang Indonesia 65145 Email: ciptadi@ub.ac.id Various efforts have been done to improve the productivity and reproductivity of local animals in Indonesia by improving the quality and quantity of feed, genetic quality and conservation.

There are two main options that can be taken related to the efforts to improve the genetic quality of the local animal in Indonesia: selection, purification of local animals and crossbreeding of local with imported superior animals. Breeding programs and better reproductive management completed with recording system by selection and breeding of superior male, especially those that are used for frozen semen production used in Artificial Insemination (AI) were done in national scale.

Application of AI is the main option to increase livestock production and reproduction through the increase population and genetic quality. Current ruminant national population (cattle, buffalo, goat and sheep) reached about 47.71 million heads. With AI, the spread of superior animals could be done more cheaply, easily and quickly.

Nevertheless, the fact that the AI is still concentrated in the central production areas of dairy cows and beef production in the main island of Java, Bali, Madura, Kalimantan, Sulawesi and Sumatra, but not in others thousands of small islands and isolated areas of Indonesia. AI applications are not only to improve reproduction efficiency but also to accelerate the genetic quality, especially on small holder farms.

The AI center main task is providing a superior, fertile, superior quality, free of genetic diseases and genetic defect of males. It is the time now for Indonesian AI center to start

evaluating and analyzing the advantages and possible genetic normality/abnormalities of male candidates especially for 20 **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 local breed.

Molecular analysis of DNA or chromosomes need to be implemented to candidate superior male. It was concluded that the important of AI is not only to increase of production, reproduction and livestock population but also to acceleration of genetic quality. It is necessary to perform mapping of specific breed AI region, particularly in the region where high intensity of AI program local animals crossed with imported breeds, so that the existence of local breeds are not depressed.

Suggestion, superior male for frozen semen production for AI need on guarantee of fertility, health, genetic quality and free of genetic defect. Keywords: artificial insemination; frozen semen; genetic; local animal 21 **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 PL 5.2

Cryopreservation of oocyte and its potency to In Vitro fertilization Sri Wahjuningsih **Faculty of Animal Husbandry, University of** Brawijaya, Indonesia In Vitro Fertilization is done by utilizing the technology of fresh oocytes were obtained directly from the slaughter house or frozen oocytes. However, the obstacles encountered is a mammal oocyte survival has very limited so it can not be stored **for a long time** at room temperature.

These limitations **can be overcome by** cold storage or cryopreservation techniques oocyte to maintain cell viability so that the viability of oocytes can be maintained by reducing the function and metabolic activity without damage to membranes and organelles of the oocyte. Based on physical phenomena, **there are two methods of** cryopreservation, those are conventional and vitrification methods.

The preliminary study about oocytes cryopreservation by using conventional method, but today the vitrification method often be used. Vitrification method is simple, unexpensive and unnecessary to special equipment in decreasing the temperature step by step, so that it could be applied in place where liquid-nitrogen container available. The success of oocyte cryopreservation for IVF is still very limited and varied.

There are changes in morphology, loss of viability and the level **of in vitro fertilization** oocyte vitrification outcomes. Keywords: cryopreservation; oocyte; IVF; vitrification 22 **1st International Conference on Advance Molecular Bioscience and Biomedical**

Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 6.1

Osteoporosis: magnitude of the problems and nanohydroxyapatite crystals Zairin Noor Head of Research Center for Osteoporosis, Department of Orthopaedic and Traumatology, Ulin General Hospital, Medical Faculty, Lambung Mangkurat University, Banjarmasin, South Kalimantan, Indonesia Email: noorzairin@gmail.com Clinically, osteoporosis is identified through non-traumatic/minimally fracture in the vertebra, hip, proximal humerus and femur fracture.

Few of study focus on osteoporosis epidemiology in less developed or developing countries make the prevalence is unclear. The prevalence of osteoporosis in South East Asian was estimated about 15.3%. White paper from Indonesian Osteoporosis Association show prevalence osteoporosis at 2007 was 28.85% for man and 32.3% for woman.

Osteoporosis is a disorder specifically found in elderly men and women. Increased economy and aging population will increase the frequency of osteoporosis so that it becomes an essential health issue. Bone is an organic-inorganic ceramic composite containing well-structured collagen fibrils, nanocrystalline, and rod-like inorganic material with length of 25-50 nm. Sequence of bone structure is formed from seven levels of hierarchy and reflects the material and mechanical properties of each component.

Hydroxyapatite is chemically related to inorganic component of bone matrix as a complex structure with formula $\text{Ca}_{10}(\text{OH})_2(\text{PO}_4)_6$. Nowadays, hydroxyapatite is widely used in biomedical applications, including matrices to control drug release and material engineering of bone tissues. Previous studies have reported the application of microsized hydroxyapatite to bone regeneration, but the result is not satisfied.

The limitation come from the size of hydroxyapatite. In addition, the duration of 23 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 treatment is very long. The recent development is applying nanobiology approach to hydroxyapatite, although more studies is warranted.

Among Indonesian population, crystal in osteoporotic bone is calcium phosphate hydroxide with 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 chemical formula of $\text{Ca}_8\text{H}_2(\text{PO}_4)_6 \cdot \text{H}_2\text{O} \cdot \text{NaHCO}_3 \cdot \text{H}_2\text{O}$. 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 incorporation by the other mineral atom. Mineral atomic substitution modeling in bone hydroxyapatite crystals among Indonesian population showed changes in porosity and density of hydroxyapatite crystals in various mineral atomic substitution.

In conclusion, the basic elements of hydroxyapatite crystals composed of atomic minerals in certain geomoteric pattern and their relationship to bone cell biological activity have opened opportunities in 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 give a better impact in the management of osteoporosis.

Keywords: hydroxyapatite nanocrystal; substitution; incorporation; osteoporosis 24 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 PL 6.2 Methylglyoxal, oxidant signaling, and osteoporosis Izaak Zoelkarnain Akbar Research Center for Osteoporosis, Department of Orthopaedic and Traumatology, Ulin General Hospital, Medical Faculty, Lambung Mangkurat University, Banjarmasin, South Kalimantan, Indonesia Email: izaakakbar@yahoo.co.id Methylglyoxal is formed non-enzymatically by dephosphorylation of triose phosphates and is efficiently catabolise to D-lactate by the glyoxalase pathway.

Plasma concentrations of methylglyoxal is increase in diabetic patients. At cellular level, methylglyoxal induces the arrest of cell growth, dysfunction, apoptosis, necrosis, mechanisms that almost involved protein modification. In addition, methylglyoxal would irreversible bind into protein amino acid, protein and nucleic acid, resulting in methylglyoxal- derived advanced glycation end products (MAGEs). Methylglyoxal exposure at MC3T3E1 preosteoblast cell line increased reactive oxygen species level at 5 micromolar for 6 hours of exposure.

At this dose, the cell starts showed morphologic marker of apoptosis. The change of redox status by antioxidant blocker or MG exposure would increases sRAGE levels in preosteoblast MC3T3E1 cell line. The modulation of redox state by antioxidant blocker does not affect sRAGE level in the presence of MG. Iron chelating does not change the sRAGE level.

Besides, methylglyoxal tend to inhibit OPG expression in preosteoblastic cells. Moreover, modulation of oxidative status intracelllular due to blockade superoxide dismutase and

glutathione peroxidase also inhibits the OPG expression in preosteoblast cell. If there is methylglyoxal exposure, blockade superoxide dismutase and glutathione peroxidase increase OPG expression in preosteoblast MC3T3E1 cell line.

25 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 References Akbar IZ, Permatasari N, Soeatmadji DW, Hidayat M, Kalim H. Reactive oxygen species and cell morphology of MC3T3E1 pre-osteoblast cell line exposed to methylglyoxal by laser scanning confocal microscopy.

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Effect of methylglyoxal on soluble receptor for advanced glycation end products (sRAGE) of pre-osteoblast MC3T3E1 cell line. Gulhane Medical Journal 2014; 56:93-96.

26 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV01 Carbonated hydroxyapatite implants on local rabbits (Study of neutrophils' infiltration and edema volumes on mandible) Aryan Morita¹, Ngatidjan², Setyo Purwono² ¹Faculty of Dentistry, Universitas Gadjah Mada, Indonesia ²Department of Pharmacology and Therapy, Faculty of Medicine, Universitas Gadjah Mada, Indonesia This study aimed to find out the response of mandible inflammation implanted with carbonated hydroxyapatite.

Sixty local rabbits were divided into three groups, including carbonated hydroxyapatite (CHA) group; hydroxyapatite (HA) group; and control. Each group divided into 5 sub groups for observation in day-1, 3, 5, 7, and 14. On first day, all rabbits were anesthetized and incised to create cavity in the mandible. CHA or HA powder as much as 0,05 g were put into it. Then it was sutured using silk thread.

Von Ebner method for decalcification were used followed by hematoxylin eosin staining to examine the neutrophil and macrophage. The number of neutrophil, macrophage, and edema volumes in CHA group were lower than HA group. There were not any significant difference ($p > 0,05$) between CHA, HA, and control.

In conclusion, there are no mandible inflammation response in CHA implantation and HA. Keywords: CHA; edema volumes; inflammation; macrophages; neutrophils 27 1st

International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV02 Effect of regular exercise on amount of osteoclast in the mandible bone of ovariectomized Sprague dawley rats Rini Maya Puspita¹, Fitriana Rachmadanty Siregar² ¹Department of Biomedical Dentistry Faculty of Dentistry Universitas Gadjah Mada ²Dental Education Courses Faculty of Dentistry Universitas Gadjah Mada The purpose of this study was to determine the effect of regular exercise on amount of osteoclast in the mandible bone of ovariectomized Sprague Dawley rats.

Eight female ovariectomized rats were divided into 2 groups, group 1 (control) did not do exercise and group 2 (treatment) were did regular exercise. The exercise was performed by ran on treadmill for 12 weeks, frequency 5x/week, speed 10-18 m/min at 0% slope for 60 minutes per day. The mandible were used to high magnification preparations with HE staining. The amount of osteoclast were analyzed using independent t-test.

The result showed there is significant difference in the amount of osteoclast in the mandible bone Sprague Dawley rats which were ovariectomized. The amount of osteoclast was lower in treatment group than in control group. Regular exercise can reduce the amount of osteoclast in the mandible bone of ovariectomized Sprague Dawley rats.

Keywords: menopause; osteoclast amount; regular exercise 28 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV03 Isolation and fractination of crude antigen Outer Membrane Protein (OMP) of Salmonella enterica serovar typhi from suspect origin Makassar, South Sulawesi as confers protection against typhoid Cut Muthiadin, Rasdianah Hasbi, Hajrah Biology Department, Science and Technology Faculty, UIN ALAUDDIN Makassar Email: cutmuthia82@gmail.com This research aim to search the local antigen of Salmonella typhi was Outer membrane protein (OMP) where taken from isolation and fractination as most effective standart antigen to be utilized in serological test.

The study have been done at January-Maret 2014 in Immunology and Molecular Biology of Microbiology Laboratory, Medical Faculty, Hasanuddin University, Makassar. Fractination was done by using method sonication and adding sarcosyl. The serology test local antigen of Salmonella typhi made by agglutination method using phenol red. We found that OMP antigen of S.

Typhi which isolated from typhoid fever patients can be used as standart antigen to detection typhoid fever earlier. In the next study, molecular weight of crude protein

OMP will be measure by SDS-Page and continue to genoc searc cliandeeogen ciate i of typhoid fever. Keywords: fractination; outer membran protein antigens; Salmonella typhi
29 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV04 The Quantity of Egg in Fecess as Infection Degree Barameter in bovine (Bos sp.)

Worm Infection Supiana Dian Nurtjahyani¹, Devi Shintya Agustin² ¹Biology Program, Faculty of Education, PGRI University Ronggolawe Tuban ²Biology Program, Faculty of Mathematics and Natural Science, PGRI University Ronggolawe Tuban The purpose of this study was to determine the type and infection degree of parasitic worm egg in bovine using TPG parameters. Worm egg examination conducted using sedimentation and whitlcok method.

From 134 feces samples, 18 samples were infected by parasitic worms. Examination of 49 feces samples from Sidayu, Gresik, we know that 9 samples infected with parasitic worms that have TPG number 40 grams/egg of Strongyle sp. Feces samples from Mantup, Lamongan, we got 9 samples infected with parasitic worms that have TPG number 40 grams/egg of Strongyle sp.,

40 grams/egg of Trichuris sp., 40-80 grams/egg of Moniezia sp. and 2 grams/egg of Fasciola sp. Infection degree of feces samples from Sidayu classified as mild infections, while for samples from Mantup were classified as medium infection. Keywords: parasitic worm, infections degree, TPG 30 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV05 Ion cell membrane transport mechanism in hyperglycemia Farida Arinie Soelistianto¹, Achmad Rudijanto² ¹Students of PDIK PPSUB ²Medical Faculty of Brawijaya University of Malang This study try to analyze the possibility using membrane transport phenomena as the detection of hyperglycemia.

The study was conducted by reviewing twenty five scientific journal that related with the theme. Ion channels are highly selective, only allowing the passage of one type of ion. Membrane transport system following the direction of the concentration gradient that occurs spontaneously.

Glucose permease of erythrocytes is a reversible process because the bond formation does not occur during the transport process and will stop when the glucose level inside the cell as high as the outside. Membrane traffic, in the form of diffusion and active transport, will make a difference in ion concentration, which is known as an ion gradient.

The ion gradients make the cell have electrical voltage. The cellular electrical voltage can

be used as a detector cell physiology conditions, including conditions to detect hyperglycemia. The cell membrane transport mechanism can be used as detection tool for the hyperglycemia level of the cell.

Keywords: cell membrane; cellular electrical voltage; hyperglycemia; ion gradients; membrane transport 31 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV06 Comparing the spectral profiles of the Javanese gending with the classical music as the therapeutical music Nurida Finahari^{1*}, Gatut Rubiono², and Gatot Soebiyakto¹ 1Mech. Eng. of Widyagama University of Malang, Jl.

Borobudur 35 Malang 65128 East Java, Indonesia 2Mech. Eng. of PGRI University of Banyuwangi, Jl. Ikan Tongkol 22 Banyuwangi East Java, Indonesia Email: nfinahari@widyagama.ac.id The study was done by analyze the audio characteristics patterns of five javanese gending (JG) compare with the five classical music (CM) composed by Mozart and Beethoven. The audio characteristics were obtained from the sound analyzer program called The Sony Sound Forge 7.0.

The results of the sound program analyzer were in form of spectral graphics. The comparison include the parameters of the spectral envelope, sound intensity and frequency. JG and CM have different pattern for the left and the right audio side. The differences also found on the range frequencies where JG has more high values than CM.

The differences then did not appear on the envelope characteristic. Due to the results it can be concluded that the Javanese Gending has the same potency as the classical to be used as therapeutic music. The Javanese Gending has the higher potency to influence emotional state than the classical music due to its envelope profile.

Keywords: classical music; javanese gending; spectral analysis; therapeutic music 32 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV07 Supplementation of cysteine as antioxidant on quality of goat frozen semen Nuryadi, Sri Wahjuningsih Laboratory of Animal Reproduction, Faculty of Animal Husbandry, University of Brawijaya, Indonesia One of the factors that influence the success of the artificial insemination application is the quality of frozen semen. It has been demonstrated that semen cryopreservation is associated with oxidative stress.

Freezing and thawing of sperm increase the reactive oxygen species (ROS), producing DNA damage, cytoskeleton alterations, inhibition of the sperm – oocyte fusion and the

loss of motility. Goat spermatozoa are sensitive to peroxidative damage membrane and the relative low antioxidant capacity of goat seminal plasma. The formation of ROS generated by destruction of the plasma membrane caused a decrease in the ability of sperm motility and increase the damage that would affect morphology of sperm capacitation and acrosome reaction. Cysteine is antioxidant that can reduce damage due to peroxidation.

Supplementation of Cysteine in semen diluter is expected to prevent of free radicals during processing and storage of frozen semen so that it will maintain quality of frozen semen. Keywords: cysteine; frozen semen; peroxidation; reactive oxygen spesies 33 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV08 Binding energy calculation single/ cluster of Patchouli alcohol isomers compounds as COX inhibitor selective Sentot Joko Raharjo^{1,2}, Chanif Mahdi³, Nurdiana⁴, Takheshi Kikuchi⁵, Fatchiyah Fatchiyah^{6*} 1Biology Doctoral Programe, Faculty of Science, Brawijaya University, Indonesia; 2Academic of Pharmacy and Food Analysis, Putra Indonesia Malang, Indonesia; 3Chemistry Department, Faculty of Science, Brawijaya University, Indonesia; 4Medicine Pharmacology, Faculty of Medicine, Brawijaya University, Indonesia; 5Graduate Life Science School, Ritsumeikan University, Biwako Kutsasu Campus, Shiga Prefecture, Japan; 6Biology Department, Faculty of Science, Brawijaya University, Indonesia Email: fatchiya@ub.ac.id fatchiya@gmail.com This study aimed to quantify binding energy calculation single and cluster of the patchouli alcohol isomer compounds as cyclooxygenase (COX) selective inhibitor.

Molecular interaction studies cluster of patchouli alcohol isomer compounds with COX-1 and COX-2 were done using the molecular docking tools by Hex 8.0. The interactions were further visualized and the binding energy calculation (with GBMV model solvent) using Discovery Studio Client 3.5 software tool. The analysis of the patchouli alcohol isomer compounds (CID521903, CID442384, and CID10955174) showed that the binding energy calculation: single CID521902 as COX inhibitor non selective, cluster CID521903_CID442384_CID10955174 as COX-2 inhibitor selective, single CID442384 as COX-2 inhibitor selective, cluster CID442384_CID521903_CID10955174 as COX-1 inhibitor selective, single CID10955174 as COX-1 inhibitor selective, and cluster CID10955174_CID521903_CID442384 as COX inhibitor non selective.

Collectively, the scoring binding energy calculation (with GBMV model solvent) of cluster patchouli alcohol isomer compounds was higher compared with single patchouli alcohol isomer compounds. Keywords: COX-1/ COX-2 inhibitor selective; scoring binding energy; single/ cluster patchouli alcohol isomer compounds 34 1st International

Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV09 Isolation and Characterization of PCSK4 Enzyme of Human Spermatozoa Dr. Dahril, SpU. FRACS ,Pro.Dr.

Proprotein convertase 4 (PCSK4) is a member of a family of proprotein convertases that convert inactive precursor proteins into their mature and active forms. PCSK4 is expressed by testicular germ cells and localizes to the sperm acrosome, suggesting roles in fertilization. Sperms are genetically deficient for the PCSK4 proteinase exhibit accelerated capacitation, precocious acrosome reaction, reduced binding to egg zona pellucida, and impaired fertilizing ability. The aim of this research is to determine and to characterize the PCSK4 protein derived from the plasma membrane of the acrosome of human sperm. This study was used PCSK4 proteins isolated from human sperm. The profile of PCSK4 protein profile was analyzed by SDS PAGE electrophoresis.

The results showed that PCSK4 proteins isolated from human sperm have a molecular weight of 54 kDa, which is compared by western blotting technique using monoclonal antibody of PCSK4. The location of PCSK4 protein expression in cell due by coating the human sperm on the slide using Immunocytochemistry. The titer PCSK4 protein as an immunogenic antigen that can be induced to produce antibody was measured by ELISA.

The result showed that PCSK4 protein 54 kDa have positive reaction with the monoclonal antibody PCSK4. Then location of acrosome in the human sperm express brown colour by immunohistochemistry. ELISA and Western Blotting result indicate that PCSK4 protein as antigen have positive reaction with monoclonal antibody PCSK4.

Keywords: human sperm; PCSK4 protein; Western Blotting; ICC; immunocontraception
35 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-BBV10 In Silico study to predict the immunomodulatory potency of Propolis active compounds to molecular targets associated with the activity of regulatory T cells Zauhani Kusnul H Bahrul Ulum Nursing Academy, Jombang, East Java, Indonesia Email: zauhani.kusnul@gmail.com Immunotherapy in order to modulate the immune response is an important approach in cancer therapy.

Regulatory T cells (Treg) is the regulator of cellular immune system that suppresses the immune response to cancer. Propolis and its active compounds have been reported as an immunomodulator, but which are specifically associated with the role of Treg cells and the immune response against cancer has not been clearly revealed yet.

Screening research of many compounds and molecular targets takes much time and costs, so molecular docking method can be a solution to this problem. Molecular docking can predict the smallest energy level of the ligand to bind with the target molecules. Results from molecular docking can help the research to become more efficient. In this study we perform the molecular docking software DockingServer to predict the immunomodulatory potency of the active compounds of propolis (CAPE, artemisinin, cinnamic acid, quercetin, and hesperidin) with several molecular targets associated with the role and activity of immunosuppressive Treg cells (IL-2, CD25, IL-1 β , CTLA-4, CCL21, and IDO). **The results showed that** IDO is a target with the highest level of compatibility with the active compounds of propolis extracts.

The best bond and inhibition potential owned by artemisinin with IDO. Keywords: propolis active compound, molecular docking, regulatory T cells 36 **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 O-BBV11 Oxidative stress, chronic inflammation and pathomechanism of Alzheimer disease Hary Nugroho Medical Faculty Mulawarman University Samarinda Alzheimer's disease Atherosclerosis with aging, but **can occur in the** early onset.

One condition that accelerates that process is **reactive oxygen species (ROS)** that been followed by oxidative stress in telencephalon. We try to find correlation among oxidative stress, chronic inflammation, Alzheimer's disease pathomechanism. There are oxidant – anti oxidant theories about metabolic activity and neurodegenerative in oxidative stress process that will lead into chronic telencephalon. We so also analyze the role of oxidative stress on Alzheimer's disease pathomechanism, physiology, and behavior in Alzheimer's disease.

Keywords: Alzheimer disease; Alzheimer's pathomechanism; Alzheimer's; chronic inflammation; reactive oxygen species; oxidative stress 37 **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 O-BBV12 Effect of changes **of blood glucose level** on testosterone level in diabetic rats during the regular physical exercise Zulkarnaen **The study was aimed to** determine the effect of the changes of fasting blood glucose (FBG) level on the total testosterone levels in diabetic rats.

This pure experimental study with pre-posttest **with control group design**, was **conducted during** June-October 2013 in **Physiology Laboratory of Medical Faculty and Research Laboratory** of Veterinary Medicine, **Syiah Kuala University, Banda Aceh**. Fifteen male Sprague-Dawley rats were **divided into three groups**: control, sedentary diabetic rats induced by streptozotocin (STZ), and trained diabetic rats. The levels of blood glucose were measured every 3 weeks during the regular physical exercise; the changes

of blood glucose level were compared among the groups, whereas the levels of total testosterone were measured after 9 weeks of regular physical exercise. The mean of total testosterone level was significantly different ($p = 0.032$), which was compared among the second groups and third groups.

There is a significantly negative correlation between changes of FBG levels and total testosterone levels ($p = 0.007$, Pearson correlation -0.661). In conclusion, regular physical exercise with low-moderate intensity reduced blood glucose levels and improved total testosterone levels in diabetic rats. Keywords: hyperglycemia; regular physical exercise; total testosterone level 38 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-GHG01 CmBG1 gene expression encoding β -glucosidase in Melon (*Cucumis melo* L.)

cultivar tacapa Yuanita Rachmawati^{1*}, Ganies Riza Aristya², Budi Setiadi Daryono²
¹Master Student at Biology, Universitas Gadjah Mada ²Genetic Laboratory, Biologi Faculty, Universitas Gadjah Mada Email: yuanitarhartono@gmail.com CmBG1 is the key enzymatic genes involved in ABA metabolism of *Cucumis melo* L. Regulation and coordination of BG1 lay on fruit ripening phase.

It has been reported that β -Glucosidase promotes the accumulation of glucose, fructose, and sucrose, and it might act as a regulator that mediates melon fruit ripening both climacteric and nonclimacteric. Cultivar TACAPA was a superior melon that has been developed by Genetic Laboratory of Biology Faculty UGM. TACAPA was resulted from plant crossing between PI and Action. TACAPA has special quality in flesh fruit and resistance to powdery mildew.

This preliminary research was conducted to examine molecular characterization and to compare CmBG1 gene expression in TACAPA with the result of its crossing, TA. Total RNA was extracted from leaf tissue then Reversed Transcriptase (RT-PCR) to collect cDNA library. cDNA was amplified using specific primer. Spectrophotometry was conducted in 20 and 28 °C. Control of band chosen was Cm-actin.

Genome concentration of RNA was resulted: 54,4 $\mu\text{g/ml}$ for TACAPA and 61,2 $\mu\text{g/ml}$ for TA. CmBG1 gene concentration in TACAPA and TA was 639,7 and 447,5 $\mu\text{g/ml}$ then for TA 646,4 and 760,1 $\mu\text{g/ml}$. CmBG1 band was showed both of TACAPA and TA as a 1258 bp. Cm-actin was showed band of DNA as a 445 bp.

Keywords: CmBG1; β -glucosidase; gene expression; melon TACAPA 39 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)

2014 Malang, September 12th – 13th 2014 O-GHG02 Cloning of hZP3 and bZP3 gene in E. Coli BL21 Nurul Jadid Mubarakati¹, Aannim^{2,3}, Sutiman B. Sumitro⁴, Gatot Ciptadi⁵
¹Faculty of Mathematics and Natural Sciences, Biology Department, University of Islamic Malang, Indonesia ²School of Veterinary Medicine, University of Brawijaya, Indonesia ³Laboratory, Chemistry Department, Brawijaya University, Indonesia ⁴Laboratory of Cellular and Molecular Biology, Brawijaya University, Indonesia ⁵Faculty of Animal Husbandry, University of Brawijaya, Indonesia Email: aulanibiochems@gmail.com The aim of this study is to construct the hZP3 and bZP3 gene and to identify the hZP3 and bZP3 clone by using PCR and RFLP.

The sample were obtained from human blood and oocytes bovine. Blood DNA was isolated by salting out method and then amplified by PCR with a pair of specific primer. The PCR-product was cloned into vector pET-28a and the pET28a-hZP3 and pET28a-bZP3 clone was transformed into E.coli BL21 competent cells. The pET28a-hZP3 and pET28a-bZP3 clone was confirmed by PCR and RFLP by BamH1 and Xho1.

The PCR product of pET28a-hZP3 and pET28a-bZP3 clone was one band of 122 bp and has two bands 5.3 kb and 122 bp by RFLP with both restriction enzymes. The ZP3 recombinant protein both human and bovine are expressed in 79 kD of pET28a-hZP3 clone and pET28a-bZP3 clone using electrophoresis and run by SDS-PAGE 10%.

Keywords: bZP3; hZP3; PCR; pET-28a; RFLP 40 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-GHG03 The correlation between genetic mutation and rest nrs' hni heterogeneity Eva Rachmi¹, Basuki Bambang Purnomo² ¹Laboratory of Anatomy & Histology, MF Unmul/ Doctoral Program in Medical Science MFUB ²Laboratory of Surgery, MFUB/ Doctoral Program in Medical Science MFUB Breast cancer is influenced by genetic, hormonal, and environmental factors which are interrelated.

Genetic factor become the most inconsistent factor, especially in terms of the types of genes that are involved in different cases of breast cancer. On the other hand, breast cancer is also a disease that is phenotypically heterogeneous. Prediction rs' as e categorization based on histological type, histological grade, stage, and molecular type.

Although there is no consensus, phenotypic variation is presumably related to type of gene mutations or accumulation of various types of gene mutations or both. Another alternative explanation is the origin of cancer cells (cell origin), which molecular types of breast cancer are determined by the timing of transformation occurs in cells continuum from stem cell, progenitor to mature cells.

Moreover considering the emerging hypothesis of cancer stem cells which is

multipotent, it provide other explanation of the origin of fenotip variation. Hypotheses related to gene mutations and cell origin is very likely to be related due to variations in the type, grade, stage, and molecular expression patterns of breast cancer also show the interrelated.

Key words: breast cancer; cell origin; genetic mutation; heterogeneity 41 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-GHG04 Investigation of testicular germ cell tumor on cryptorchidism with hypospadias and ambiguous genitalia Amallia N.

Setyawati¹, Bestari A Setyawati², Donna Hermawati³, Ardi Susanto⁴, Sultana MH Faradz⁵ 1 Department of Biochemistry, Faculty of Medicine, Diponegoro University, Semarang- Indonesia 2Faculty of Medicine, Diponegoro University, Semarang-Indonesia 3Department of Biology, Faculty of Medicine, Diponegoro University, Semarang-Indonesia 4Department of Urology, Faculty of Medicine, Diponegoro University/ Dr.

Kariadi General Hospital 5Center for Biomedical Research, Faculty of Medicine, Diponegoro University This study conducted to identify germ cell malignancies and carcinoma in situ (CIS) in the gonads of high risk patients with cryptorchidism and hypospadias (DSD cases), as well as the frequency of activation of tyrosine kinase receptor mutations (c-KIT) in the case of germ cell malignancy. Specimens were examined for routine histopathology H&E staining.

Immunohistochemistry staining was performed using antibody OCT3/4 and SCF to evaluate germ cells maturity and its progress toward malignancies as well as its precursor lesion (CIS/GB). QiAmp DNA extraction kit was used to obtain DNA following PCR which was conducted subsequently with sequencing to examine exon 17 c-KIT gene. We collected 33 specimens, however only 27 samples which qualified with categorization of Germ Tumor.

Stage of differentiation tissue was varied categorized ranging from ovary, sex cord (tubae or funlus). There were 7/26 samples with malignancies and precursor lesion. Incidence of TGC remains low in Asian population. However, the highly relevant part of the group was observed within the group of DSD patients. Genetic and environmental factors involve in the indirect role in the establishment of proper micro- environment for delayed maturation, transformation and progression of early germ cells. OCT3/4 and CF were both promising marker to identify precursor and malignancies lesion.

Keywords: c-KIT ; OCT3/4; SCF; TGCTs 42 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-GHG05 Gene p53 mutations after the induction of 7, 12-Dimethylbenz(a)anthracene (DMBA) and administration of anti- carcinogenesis properties of *Gynura Procumbens* in Sprague dawley rats Abdul Gofur¹, Iwan Syahrial Hamid², Dwi Listyorini¹ ¹Department of Biology, State University of Malang ²Department of Basic Veterinary Sciences Faculty of Veterinary Medicine, Airlangga University This study aimed to evaluate the p53 gene mutations in the mammary gland of DMBA-induced Sprague Dawley rats which is treated with the ethanol extract of *Gynura* procumbens.

Twenty five female rats were divided into 5 groups: DMBA group (20 mg/kg bw); DMBA + ethanol extract of *G. procumbens* (300 mg/kg bw and 750 mg/kg bw); and ethanol extract of *G. procumbens* groups (300 mg/kg bw and 750 mg/kg bw). At week 19 necropsy was performed on rats mammary glands. *G. procumbens* extract (300 mg / kg bw) was able to suppress tumor incidence (60%).

p53 gene mutations occur in DMBA-*Gynura* (300 mg/kg bw) ie base transversion A : T to G : C at position 232. We concluded that *Gynura* extract suppressed the incidence of tumors at a dose of 300 mg/kg bw. Keywords: anti-carcinogenesis; *Gynura procumbens*; p53 gene 43 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-GHG06 Genetic variation of local and crossbred Angora rabbits as selection basic Mudawamah¹, M.Z. Fadli², A.

Naharudin¹ ¹ Faculty of Animal Science, Malang Islamic University ² Faculty of Medicine, Malang Islamic University Email: mudawamah@gmail.com The existence of livestock rabbit as one of the alternatives in Indonesia already accepted by society with the rise of various local businesses economical beef cattle and crossbred rabbits.

The purpose of this study was to compare the genetic variation in the nature of the vital statistics on the F1 of local and F1 of crossbred Angora as breeding basic. The research method was experimental. The results showed that the local F1 had a genetic variation in the vital statistics higher than the F1 of crossbred Angora. Selection on local F1 conducted with higher selection intensity than F1 of crossbred Angora.

Keywords: genetic variation; rabbits; selection 44 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST01 Phytochemical assay, potential of antimalarial and antioxidant activities of green tea extract and fractions Fanny Rahardja¹, Rita

Tjokropranoto¹, Wahyu Widowati¹, Siska Lusiana¹, Adrian Suhendra¹, Susy Tjahjani¹, Iwan Budiman¹, Maesaroh Maesaroh², Nurul Fauziah² ¹ Faculty of Medicine, Maranatha Christian University Jl. Prof. drg. Suria Sumantri no 65 Bandung 40164, Indonesia ²Bimolecular and Biomedical Research Center, Aretha Medika Utama, Jl.

Babakan Jeruk 2 no 9, Bandung 40163, Indonesia Email: fanny.rahardja@yahoo.com; wahyu_w60@yahoo.com The research objective is to evaluate ethanolic extract 96%, hexane fraction, the fraction of ethyl acetate, butanol fraction, water fraction of green tea has antioxidant and anti-malarial activity.

The antioxidant activity were measured by 1,1-diphenyl-2-picryl-hydrazyl (DPPH) scavenging activity of green tea compared with epicatechin (EC) in 10 levels of concentration. The data were analyzed using linear regression analysis, and were continued by determined Inhibitory Concentration₅₀ (IC₅₀). The anti-malarial activity using ethanol extract, hexane fraction, the fraction of ethyl acetate, butanol fraction, water fraction of green tea compared with artemisinin.

The data were analyzed using probit analysis, and were continued by determined IC₅₀. The results showed that the highest antioxidant activity (IC₅₀) the fraction of ethyl acetate 2,184 µg/ml and ethanol extract of green tea 2,334 µg/ml. The anti-malarial activity IC₅₀ water fraction, fraction of ethyl acetate, ethanol extract and butanol fraction were 0,000090 µg/mL, 0,003 µg/mL, 0,006 µg/mL, 0,011 µg/ml respectively. In conclusion, extract and fractions of green tea are potential anti-malarial and antioxidant properties.

Key words: antioxidant, anti-malarial; green tea; free radicals 45 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST02 Antioxidant and hypoglycemic activities of extract and fractions of rambutan seeds (*Nephelium lappaceum* L.) Sylvia Soeng¹, Endang Evacuasiyany¹, Wahyu Widowati¹, Nurul Fauziah² ¹Faculty of Medicine, Maranatha Christian University, Jl. Prof. drg.

Suria Sumantri no 65 Bandung 40164, Indonesia ²Bimolecular and Biomedical Research Center, Aretha Medika Utama, Jl. Babakan Jeruk 2 no 9, Bandung 40163, Indonesia Email: s.soeng@yahoo.com; wahyu_w60@yahoo.com This research was conducted to identify the potency antioxidant and hypoglycemic activities of extract and fractions of *Nephelium lappaceum* L. seed (NLS).

The ethanol extract of rambutan seeds were prepared by maseration method and the fractions (n-hexane, ethyl acetate, butanol and water) by separation of extract based

on the polarity. The antioxidant activity is determined by using superoxide dismutase value (SOD), 1,1-diphenyl-2-picryl-hydrazyl (DPPH) radical scavenging activity, and total phenolic assay. The hypoglycemic activity is determined by using inhibition of α -glucosidase test.

The DPPH scavenging and hypoglycemic activities were analyzed by median of Inhibitory Concentration (IC-50). The SOD activity showed that ethyl acetate and aqueous fraction of NLS were 3.3771 $\mu\text{g/ml}$ and 3.0374 $\mu\text{g/ml}$. Meanwhile DPPH assay showed that both extract and fractions showed DPP scavenging activity.

The total phenolic content of NLS extract and fractions showed that ethyl acetate fraction showed 172.07 $\mu\text{g/mg}$ and geraniin 99.44 $\mu\text{g/mg}$. Hypoglycemic activity showed that the extract and fractions of NLS had higher activity than glibenclamide and glibenclamide. Rambutan seeds extract and fractions have no antioxidant activity but can be used as potential hypoglycemic agent.

Keywords: antidiabetic; antioxidants; α -glucosidase; DPPH; *Nephelium lappaceum* L.; SOD
46 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST03 The influence of *Eucommia spinosum* extract to blood glucose concentration and superoxide dismutase activities in mice induced with multiple low doses streptozotocin Maulidya Aulia Fiqriyana, Anna Safitri, Arie Srihardyastutie Department of Chemistry, Faculty of Mathematics and Natural Sciences, Brawijaya University, Jl.

Veteran, Malang 6514, East Java, Indonesia Email: arie_s@ub.ac.id The aim of this research was to investigate the effects of *Eucommia spinosum* extract to blood glucose level and superoxide dismutase (SOD) activities in mice induced with multiple low doses streptozotocin (MLD-STZ).

The research was carried out in vivo by using mice (*Rattus norvegicus*) induced with MLD-STZ which was given *Eucommia spinosum* extract as therapy with 2 gram/day for 3 mice dosage (volume therapy per oral = 2 ml per mouse). The results showed that mice induced with MLD-STZ suffered DM with blood glucose level (310 \pm 28) mg/dL and SOD activities (27.219 \pm 1.324) unit after 3 weeks from MLD-STZ injection. *Eucommia spinosum* extract decreased blood glucose level to 60 % (from (310 \pm 28) mg/dL to (124 \pm 3) mg/dL).

Moreover, therapy with *Eucommia spinosum* extract in mice induced with MLD-STZ increased SOD activities from (27.219 \pm 1.324) unit to (42.570 \pm 1.187) unit. Keyword: blood glucose levels; diabetes type 1; *eucommia spinosum*; streptozotocin; superoxide

dismutase (SOD) 47 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST04 CD4+CD25+FoxP3+ profile of T reg cell of mice on oral allergy after given of ethanol extract *Dioscorea alata* L. rhizomes Sri Nabawiyati Nurul Makiyah^{1,2}, Widodo³, Mmif³, Moch.

Sasmito Djati³ 1Faculty Medicine & Health Science, Universitas Muhammadiyah Yogyakarta 2Student of Biology Department, Faculty of Mathematic and Sciences, Brawijaya University Malang 3Biology Department, Faculty of Mathematic and Sciences, Brawijaya University Malang Email: nurul_makiyah@umy.ac.id; nurul_mkyh@yahoo.co.id The purpose of this study was to assess the profile of CD4+CD25+FoxP3+ Treg cells in the oral phase of allergic mice after administration of ethanol extract of tuber *D. alata* L. (EEDA). Balb/C mice were divided into 7 groups including control (non allergic) group and six allergic groups (P1-P6).

P1-P4 were allergic groups receiving EEDA (0; 0.17; 2.01; 10.04 g/kg body weight for 30 consecutive), P5 and P6 were allergic groups receiving antihistamines or diosgenin. Allergic models were performed with ovalbumin. Mice were sacrificed on day 31, lymphocytes were isolated from spleen and profile CD4+CD25+FoxP3+ Treg cells were analyzed by Flowcytometry.

The results showed the highest profile of CD4+CD25+FoxP3+ Treg of mice at oral allergy phase is the treatment EEDA at dose 10.04 g/kg bw, 2.01 g/kg bw, 0.17 g/kg bw, antihistamine, EEDA at dose 0.00 g/kg bw, diosgenin, and control group significantly ($p=0,002$). Concluded that Treg cells play an important role in the immune response to the oral phase of allergic of mice after administration of a EEDA dose 10.04 g/kg and EEDA dose 2.01 g/kg bw through profiles of CD25+CD4+FoxP3+ Treg. Keywords: Balb/C mice; CD25+CD4+FoxP3+ Treg; *Dioscorea alata* L.;

oral allergy; ovalbumin 48 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST05 HER-2 expression in C3H mice adenocarcinoma mammae after administration of *Melia azedarach* ethanolic extract Dina Fatmawati^{1*}, Titiek Sumarawati², Chodijah³, Ulfah Dian Indrayani⁴, Israhanto¹, Agus Supriyono⁵ 1 Biology Department of Medical Faculty Islamic University of Sultan Agung 2 Medicinal chemistry department of Medical Faculty Islamic University of Sultan Agung 3 Anatomy department of Medical Faculty Islamic University of Sultan Agung 4 Histology Department of Medical Faculty Islamic University of Sultan Agung 5 Pathology anatomy department of Medical Faculty Islamic University of Sultan Agung Email: dienafatma@gmail.com This study aims to evaluate the effect of *Melia azedarach* on

HER-2 expression in C3H mice with adenocarcinoma mammae.

Twenty four tumor-bearing C3H mice were randomly divided into 4 group, consisting of one control group, and three treatment groups (receiving orally 0,2 mL ethanolic extract of *Melia azedarach* at dosage 50; 25; 12.5 mg/KgBW for 21 days). The expression of HER-2 were assessed using immunohistochemical staining. There was a significant difference in HER-2 expression between control and treated group ($P < 0.05$).

There was a decrease in HER-2 expression in the treated groups but not statistically significant ($P > 0.05$). In conclusion the ethanolic extract of *Melia azedarach* decreases HER-2 expression in mice C3H adenocarcinoma mammae. Key words: adenocarcinoma mammae; HER-2 expression; *Melia azedarach* 49 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST06 The apoptotic effect of *Melia azedarach* ethanolic extract on C3H Mice adenocarcinoma mammae Titiek Sumarawati¹, Dina Fatmawati^{2*}, Chodijah³, Anita Soraya Soetoko³ 1Medicinal Chemistry Department of Medical Faculty Islamic University of Sultan Agung 2Biology Department of Medical Faculty Islamic University of Sultan Agung 3Anatomy Department of Medical Faculty Islamic University of Sultan Agung Email: dienafatma@gmail.com The objectives of this study was to investigate the apoptotic effect of *Melia azedarach* ethanolic extract on C3H mice with adenocarcinoma mammae.

Twenty four tumor-bearing C3H mice were randomly divided into 4 group, consisting of one control group, and three treatment groups (receiving orally 0,2 mL ethanolic extract of *Melia azedarach* at dosage 50; 25; and 12.5 mg/KgBW for 21 days). The apoptotic were assayed by TUNNEL immunohistochemistry staining. There was a significant difference in TUNNEL expression between control and treated group ($P < 0.05$).

There was a decrease in TUNNEL expression in the treated groups but not statistically significant ($P > 0.05$). In conclusion, ethanolic extract of *Melia azedarach* has apoptotic effect on mice C3H adenocarcinoma mammae. Key words: adenocarcinoma mammae; apoptotic; *Melia azedarach* 50 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST07 Dipeptidyl Peptidase IV (DPP-IV) inhibitory activity of Pulutan (Urenalobata) and Pepaya (*Carica papaya*) leaf extract Yudi Purnomo¹, DjokoWahono², Sutiman B. Sumitro³, M.

Aris Widodo² 1PhD student of Medical Faculty Brawijaya University 2Internal Department, Medical Faculty of Brawijaya University 3Biology Department, Science and Natural Faculty of BrawijayaUniversity 3Pharmacology Department, Medical Faculty of

Brawijaya University Email: y_purnomo92@yahoo.com The aim of the present study was to evaluate anti diabetic potency of U. lobata and C. papaya leaf extract through inhibition of DPP-IV. U. lobata and C.

papaya leaf were extracted in hot water solvent and the activity of DPP-IV inhibitory tested in-vitro. Gly-pro-p-nitroanilide (GPPN) was used as substrate of DPP-IV and Vildagliptin as reference standard. The IC-50 value was determined by linear regression curve fit. The water extract of U. Lobata showed DPP-IV inhibitory activity stronger than C. papaya with an Inhibitory Concentration-50 (IC- 50) of 3189 µM and 13.0 g/.

The results confirm the inhibitory effect of U. lobata leaf extract on DPP-IV and the potential to be a novel, efficient, and tolerable approach for the diabetes mellitus type 2. Keywords: diabetes mellitus; Carica papaya; GLP-1; DPP-IV; Urenalobata 51 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST08 Decreasing ? Centella asiatica on erashprkn's odel Husnul Khotimah*, M.

Aris Widodo, Mulyohadi Ali, Sutiman B. Sumitro Medical Faculty, Brawijaya University, Malang, Indonesia Email: husnul_zq@yahoo.com; husnul_farmako.fk@ub.ac.id The aim of this study is to observe the protection of Centella asiatica (CA) methylecstasy -synuclein aggregation in rotenone-exposed zebrafish. We used Zebrafish (Danio rerio) as animal model that exposed to 5 µg/L rotenone for 28 days and co-incubation with 2.5, 5 and 10 µg/mL of methanolic CA extract.

After 28 days, zebrafish was sacrificed on the ice block -synuclein measure by western blotting from the brain and immunohistochemistry for dopaminergic neuron. We also measured motility and dopamine level by ELISA. The results showed that the methanolic extract of CA decreased -synuclein aggregation. We can conclude that CA have a potential to be developed as an anti-Parkinson Disease.

Keywords -synuclein; Centella asiatica; parkinson ; zebrafish 52 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST09 Effect of cadmium exposure to the expression of estrogenic receptors, aromatases and BDNF to zebrafish embryo Wibi Riawan, Hidayat Sujuti, Retty Ratnawati Medical Faculty, Brawijaya University, Malang, Indonesia Email: wibiriawan@yahoo.co.id The aims of this research are to find out the correlation among cadmium exposure to the expressions of Estrogenic receptors (ER, DAT, TH and Brain-derived Neurotrophic Factor (BDNF). We used wild typed zebrafish (Danio rerio) embryo exposed to Cd with concentrations 0.1, 1, 10 and 100 µM at 2 hpf (hour post fertilization) for 24, 48, 72 and 96 hpf. Gene expression was observed by

rtPCR.

The results showed that CdCl₂ exposure increased relative expressions in 24 – 72 hpf. However, the expressions were decreased in a dose dependent manner at 96 hpf. These results suggest that cadmium up-regulates estrogen signaling pathway, and the related genes can be used for biomarkers for exposure to cadmium. Keywords: aromatase; BDNF; cadmium; estrogen receptor; zebrafish 53 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST10 The effects of *Andrographis paniculata* (Burm. F.)

Nees on clinical and sputum Conversion in pulmonary tuberculosis Patients Riswahyuni Widhawati¹, Endang Hanani², Jamal Zaini³ 1Post-Graduate Programme of Herbal Medicine, Faculty of Pharmacy, University of Indonesia, Depok 16424, Indonesia 2Faculty of Pharmacy, University of Indonesia, Depok 16424, Indonesia 3Department of Pulmonology and Respiratory Medicine, Faculty of Medicine University of Indonesia - Persahabatan General Hospital, Jakarta, Indonesia This study aimed to investigate whether *Andrographis paniculata* capsule (APC) induces clinical and sputum conversion in pulmonary tuberculosis (TB) patients.

Randomized, placebo-controlled, double-blind pilot study was conducted to pulmonary tuberculosis patient who admitted to Pulmonology Polyclinic of Persahabatan Central General Hospital, Jakarta. A total of 44 pulmonary TB patients were randomly divided into two groups including one group received standard antituberculosis drugs + *Andrographis paniculata* (n=21) (AP) and one group received standard antituberculosis drugs + placebo (n=23). APC was given 500 milligram per day for eight weeks.

The proportion of positive smears in both groups decreased over time until by the twelve weeks, none remained positive. The rate of decline was more pronounced in the AP group reach statistically at weeks 4 and 6 compared to placebo group (P < 0.05). Adjunctive supplementation of *Andrographis paniculata* (Burm. F.)

Nees was to accelerated the beneficial therapeutic effect of TB chemotherapy by improving clinical and sputum response. Key words: antimicrobial; andrographis paniculata; sputum conversion; tuberculosis 54 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST11 The effect of catechins isolated from green tea GMB-4 on mobilization of Endothelial Progenitor Cells (EPC) through activation of Stromal Cell-Derived Factor-1 (SDF- 1) nitric oxide (NO) on type II diabetic rats Yuly Peristiowati¹, Achmad Rudijanto², Djanggan Sargowo², Retty Ratnawati² 1High School Health Science Surya Mitra Husada Kediri 2Medical Faculty of Brawijaya University This study aims to

investigate the administration of green tea catechins on EPC mobilization through activation of SDF-1 α . Twenty five Wistar strain rats were given a high-fat diet for 45 days.

High-fat diet consisting of a mixture of PARS 66.6%, 33.4% wheat flour, 1.9% cholesterol, 0.1% cholic acid and 9.4% lard. After high fat diet, the rats receiving low dose of STZ injection (30 mg / kg body weight). Green tea catechin was treated orally at a dose 20; 40 and 60 mg / kg for 6 weeks. NO levels was assayed by colorimetric method. SDF-1 α was analyzed by Elisa.

EPC mobilization was assayed by flowcytometry. Administration of green tea catechins GMB-4 can increase the levels of SDF-1 (P = 0.014), but the administration of green tea catechins GMB-4 does not affects nitric oxide or EPC mobilization. We concluded that the green tea catechins GMB-4 can be used for vascular repair in conditions of hyperglycemia of diabetes mellitus through activation of SDF-1 α and ePC. **Keywords:** diabetes mellitus; endothelial dysfunction; EPC; green tea catechins; nitric oxide; SDF-1 α . **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-PST12** Mesostructure characteristics of smoker teeth Rosihan Adhani, Cholil, Widodo, Deby Kania Tri Putri, Bayu Indra Sukmana Faculty of Dentistry, **University of Lambung Mangkurat, Banjarmasin, South Kalimantan, Indonesia** This study meditated the structure of smoker's teeth. Eight subjects were divided into two groups including non smoker group and smoker group.

The mesostructure was analyzed by scanning electron microscope. Mesostructure of non smoker showed regular formation and hole in similar pattern. Mesostructure of smoker showed irregular formation and bigger hole. In conclusion, smoking activity disrupt the remodeling surface of teeth. **Keywords:** smoking; dental; structure; surface; remodeling. **56 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF01** **Effect of folic acid and vitamin B12** admission on homocysteine level in association with MTHFR C677T polymorphisms in overweight female adults Fidelia¹, Antonius Suwanto¹, Felicia Kartawidjajaputra^{2*}, Susana² **1Faculty of Biotechnology, Atma Jaya Catholic University, Jakarta 2Bioanalytical Laboratory Nutrifood Research Center, PT Nutrifood Indonesia, Jakarta** Email: felicia@nutrifood.co.id **The aim of this study was to evaluate the effect of folic acid and vitamin B12 admission on Hcy level based on the MTHFR C677T polymorphisms in Indonesian overweight female adults.** The study involved a total of 110 female adults with a **body mass index (BMI)** above 22.9.

DNA was extracted from saliva sample in order to identify the SNP of MTHFR C677T

using PCR-RFLP method. 15 of 110 subjects were chosen to represent all the possible MTHFR genotypes (5 CC, 6 CT and 4 TT) and assigned two different treatments: control (placebo), and supplement (500µg folic acid and 1 mg vitamin B12) for 4 weeks. Hcy levels were measured using direct immunochemical assay methods.

Our study showed that 677CC allele had the highest frequency (67%), followed by heterozygous 677CT allele (29%) and 677TT allele (4%). The results demonstrated no significant differences of Hcy level among all subjects before the 4 weeks treatment, but the Hcy level was slightly higher in those who had T allele. The assigned folate and vitamin B12 treatment did lower the level of Hcy in treatment group, compared to the placebo group (P = 0.038).

The difference between placebo and treatment was observed to be the highest in TT subjects, followed by CT and CC subjects. This study showed that subjects who had T allele, tended to have a higher level of Hcy. Admission of folate and vitamin B12 was proven to lower the level of Hcy level, and subjects possessed TT allele were proven to be the most responsive towards these treatments.

Keywords: cardiovascular disease; C677T; homocysteine; 57 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 methylenetetrahydrofolate reductase folate; vitamin B12 58 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF02 The relation consumption of food and infection disease with status nutritional of child in Public Health Center Ngletih in Kediri Nurwijayanti, Engga Sekolah Tinggi Ilmu Kesehatan Surya Mitra Husada Kediri This study aimed to analyze the association between food intake, infection diseases, and nutrition status in children. This study involved all children who admitted to Ngletih Public Health Center, Kediri.

Parameters of this study were food intake, infection diseases, and nutrition status. We found 57 subjects. Seventeen subjects show less food intake accompanied by insufficient nutritional status. Ninety subject have infection disease accompanied by insufficient nutritional status. Fifty subjects have good nutritional status without infection.

In conclusion, less food intake will cause children vulnerable to illness or infectious disease that may influence the quality status nutritional child. Keywords: consumption food; infectious diseases; status nutrition child 59 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF03 The effect of polyphenol to visceral fat profile

protein at obese rat model Sri Rahayu Lestari 1, Nuning Wulandari 1, Siti Imroatul Maslikah² 1Laboratory of Animal Biology, Biology Department-Malang State University 2Laboratory of Molecular Biology, Biology Department-Malang State University Email: sriahayulestari86@yahoo.co.id This research was conducted to asses visceral fat profile protein between normal and obese rat model.

Normal and obese rat model have been treated with polyphenol from rambutan peel extract for 12 weeks. Rat were divided into 2 major group based on their weight which normal rat and obese rat model respectively have average weight 180-200 gram and 360-380 gram. And then this treatment were divided into minor group which are placebo (without treatment), treatment with ellagic acid and treatment with polyphenol (dosage 15 mg/kg body weight; 30 mg/kg body weight and 60 mg/kg body weight).

Rat were sacrificed after 12 weeks treatment to asses visceral fat profile protein and continue with running SDS PAGE 12,5 %. Protein molecular weight sample were calculated with regression analysis between marker protein mobility and logarithm from marker which molecular weight already known. Band protein analysis were analyze qualitative with SDS PAGE meanwhile quantitative analysis with Gel Doc (Bio Rad).

Density band protein were analyze with Quantity One software and confirmed with Western Blotting. Protein profile characteristic normal rat and obesity-model rat were in range between 117-20 k Da. The amount of band protein were found in normal rat were less than the amount of protein at obesity-model rat.

There were difference molecular weight at protein density 57 k Da for obese rat model which has been treated with rambutan peel extract. Key word: obese rat model; polyphenol; profil protein 60 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF04 Antioxidant properties of spice extracts Wahyu Widowati¹, Hana Ratnawati¹, Winsa Husin¹, Maesaroh Maesaroh² 1Faculty of Medicine, Maranatha Christian University, Jl. Prof. drg. Suria Sumantri no 65 Bandung 40164, Indonesia 2Bimolecular and Biomedical Research Center, Aretha Medika Utama, Jl.

Babakan Jeruk 2 no 9, Bandung 40163, Indonesia Email: wahyu_w60@yahoo.com This study was conducted to determine the antioxidant activities of spice extracts including clove (*Syzygium aromaticum* L.), Indonesian cassia (*Cinnamomum burmanni* (C. Nees & T.

Ness)), coriander (*Coriandrum sativum* L), nutmeg (*Myristica fragrans* Houtt), java cardamom (*Amomum compactum* Soland. Ex maton). This research was to evaluate antioxidant activities including 1,1-diphenyl-2-picryl-hydrazyl (DPPH) scavenging activity,

the value of superoxide dismutase (SOD), and total phenolic content. The highest DPPH activity is clove and Indonesian cassia extracts with IC50 value 41 μ ml .6 μ ml specvel .

The highest SOD value are Indonesian cassia extract (9.1432 U/ml) at 500 μ g/ml, 7.0045 U/ml at 125 μ g/ml and 4.6751 U/ml at 31,25 μ g/ml. Clove extract was the highest of phenolic content (188.35 μ g/mg eugenol equivalent). Indonesian cassia extract have high antioxidant activities both DPPH scavenging and SOD activities. Clove extract contain the highest eugenol compared with Indonesian cassia, coriander, nutmeg and java cardamom.

Keywords: DPPH; free radicals; spice; SOD; total phenolic content 61 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF05 The effect of sodium iodide (NaI) supplementation for preparing of Experimental Autoimmune Thyroiditis (EAT) Dyah Kinasih Wuragil^{1*}, Aannim^{1,2}, Agung Pramana Warih Marhendra^{1,3} 1Veterinary Medicine School, Brawijaya University 2Department of Chemistry, faculty of Life Sciences, Brawijaya University 3Department of Biology, Faculty of Life Sciences, Brawijaya University Email: d_kinasih@ub.ac.id This study aimed to determine the effect of induction of Sodium Iodide (NaI) as induction of AITD on levels of thyroxine (T4) hormone, protein band profile from rat (*Rattus norvegicus*), as well as the histopathological appearance of thyroid gland. Supplementation of 0.05% NaI was administered through drinking water for 4 weeks.

T4 hormone levels were measured by ELISA, serum protein profiles were determined by SDS-PAGE then histopathology appearance were prepared with Hematoxylen Eosin staining. The results showed that supplementation of NaI through drinks could trigger hyperthyroidism which characterized by increasing levels of the thyroxine hormone. In addition, there was formation of a protein with a molecular weight of 115 kDa was assumed to be the C-reactive protein (CRP) which known as a marker of inflammation.

Moreover, NaI supplementation on rat models ruin the damaged of epithelial cells on thyroid follicles. Keywords: AITD; NaI supplementation; thyroxine hormone; protein profile; thyroid 62 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF06 The effect of lecithin on liver function of white rats (*Rattus norvegicus*) induced carbon tetrachloride Lestari Dewi Faculty of Medicine Hang Tuah University, Surabaya, Indonesia Email : dr_lestari@yahoo.co.id This study was conducted to prove that the lecithin is administered orally has hepatoprotective effect on white male rats given CCl₄ intraperitoneally.

Forty five male Wistar rats, aged 12 weeks were randomly divided into five groups. Group I, given solvent CMC-Na 0.25% dose of 0.01 ml/g bw, the intragastric sonde, single dose, every day, for 9 days. On day 9, 4 hours after administration of 0.25% CMC-Na, rats were given olive oil dose of 1 ml/kg bw, intraperitoneal injection. Group II, given solvent CMC-Na 0.25% dose of 0.01 ml/g bw, the intragastric sonde, single dose, every day, for 9 days. On day 9, 4 hours after administration of 0.25% CMC-Na, rats given CCl₄ dose of 1 ml/kg bw, dissolved in olive oil at a ratio of 1: 1, by intraperitoneal injection.

Group III, IV and V respectively given dose lecithin 90/180/360 mg/ kg bw, dissolved with 0.25% CMC-Na, the intragastric sonde, single dose, every day, for 9 days. On day 9, 4 hours after administration of lecithin, rats given CCl₄ dose of 1 ml/kg bw dissolved in olive oil at a ratio of 1: 1, by intraperitoneal injection. On day 10, 24 hours after administration of CCl₄ and olive oil, all the rats dissected, after first anesthetized with ether by inhalation.

Then the blood taken from the heart to examine the level of AST and ALT in serum and hepar were taken for histopathological examination. Giving lecithin 90/180/360 mg/kg bw were accompanied CCl₄ 1 ml / kg body weight (group III, IV, and V), shown to reduce levels of SGOT in serum compared with the group that received only CCl₄ alone (group II), although no significant difference, but the linear regression analysis to prove there is a tendency that increasing doses lecithin is given, then the AST levels decline.

Giving lecithin 90/180/360 mg/ kg bw with CCl₄ 1 ml/kg bw (group III, IV, and V) is proven to reduce ALT levels compared with the group that received only CCl₄ alone (group II), although there significant differences, 63 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 but the linear regression analysis to prove there is a tendency that increased doses given lecithin, SGPT levels decline.

Provision lecithin dose 90 / 180/360 mg/kg bw with CCl₄ 1 ml/kg bw is proven to reduce the amount of cell necrosis than the group that only received CCl₄, and linear regression analysis to prove there is a tendency that increased dosage of lecithin is given, the amount of liver cell necrosis decreased. Lecithin has a protective effect against the liver function in rats induced by carbon tetrachloride.

Keywords: carbontetrachloride; lecithin 64 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF07 Effect of Polysaccharide Krestine (PSK) to inhibit decreasing of cortex cerebri thickness and decrease number of cell neuron due to irradiation Cobalt

60 Gamma **in mice (Mus Musculus)** fetal Diah Purwaningsari Lecturer of Histology, Medical Faculty Hang Tuah University This study were designed to evaluate the protection effects of PSK in the damage of cerebral cortex as well as inhibit decrease of neuron cells and thickness of cerebral cortex, inhibit increase prosentage of cell death.

This experiment were used three goups of pregnant mice (Mus musculus) consisted of 12 mice in each group; control-group, irradiated-group and irradiated and PSK group. Six mice in every group were sacrificed 12 hours after irradiation and PSK given to evaluate neuron cells and the thickness of cerebral cortex, and the rest were sacrificed at 18 weeks of pregnancy to evaluate the prosentage of cell death. Dose of gamma cobalt60 irradiation was 2 Gy.

PSK **was given by gavage** in dose of 200 mg/kg-bodyweight. The irradiation was performed on day 13th of pregnancy, and PSK was given 24 hours before and 1 hour after irradiation. PSK cause increasing of neuron cells from 44.22 to 132.55, cerebral cortex thickness from 26,33 ? 2.43* to 33,36 ? 3.06*, decreasing of prosentage of cell death from 54.06 to 33.83% in the irradiated mice fetuses.

These research shown that PSK have potential to inhibit the effects of gamma cobalt60 irradiation in decreasing neuron cells, cerrebral cortex thickness, increasing of the prosentage of cell death. Keyword : cell death; cortex cerebri; gamma Co 60; mice; neuron cells; PSK 65 **1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE)** 2014 Malang, September 12th – 13th 2014 O-NFF08 Potency of combination curcumin and vitamin E towards hormonal (estrogen and progesterone) levels on rat (Rattus **norvegicus**) **mammary cancer model** Dyah Ayu Oktavianie A.

Pratama¹, Anna Roosdiana², Aulia Firmawati¹, Herawati¹ ¹Veterinary Medicine School, BrawijayaUniversity, Malang ²Chemistry Department, **Faculty of Mathematics and Science, BrawijayaUniversity, Malang** This study was aimed to determine the potency of **the combination of curcumin with vitamin E** as an **alternative herbal treatment for cancerin rats (Rattus norvegicus) model of mammary cancer induced by DMBA.**The **results of the study were analyzed through hormonal** (estrogen and progesterone) levels.

This study was **conducted in three stages (1) Preparation of animal model of DMBA-induced mammary cancer, (2) Exploration of the therapeutically effective dose of the combination of curcumin with vitamin E in mice models of breast cancer, (3) Observation of the effect of combination therapy of curcumin with vitamin E in mice models of breast cancer on the estrogen and progesterone levels.**

DMBA induction was done by subcutan intra mammary injection using multiple low dose as much as 10 mg/kg. Therapy combination of curcumin and vitamin E was given using per oral Estrogen and progesterone levels was measured by ELISA technique. The research results showed that the administration of curative therapy using a combination of curcumin and vitamin E with some variation of dose in animal models of breast cancer induced by DMBA, was significantly able to reduce the estrogen levels from 60,8 ng/dl to 41,6 ng/dl and increase the progesterone levels in serum from 6,2 ng/L to 7,72 ng/L. As a conclusion, combination of curcumin and vitamin E can be used as an alternative therapy for breast cancer on rat mammary cancer models.

Keywords: curcumin; DMBA; estrogen; mammary cancer; progesterone; vitamin E 66 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF09 Leptin role in the process of orthodontic tooth movement Eka Erwansyah^{1*}, Eky S. Soeria Soemantri², S s'ad 3, Sitti Wahyuni⁴ 1Orthodontic Department, Faculty of Dentistry Hasanuddin University 2Orthodontic Department Faculty of Dentistry, Padjajjaran University 3Nutrition Department, Faculty of Medicine, Hasanuddin University 4Parasitology Department, Faculty of Medicine, Hasanuddin University Email: eka_ortho@yahoo.com Application of orthodontic force on a tooth cause pressure and stretching around it and resulting in the release of a number of biologically active substances such as enzymes, hormones and cytokines.

These substances trigger inflammation and tissue remodeling in the periodontal ligament around the tooth that eventually lead to tooth movement. Leptin is an active substance that plays a role in bone remodeling, but its role in the process of orthodontic tooth movement has not been known. This paper aims to explore the role of leptin in the process of orthodontic tooth movement. Leptin is found in normal gingival and inflamed gingiva.

Leptin levels in gingival crevicular fluid decreases as the occurrence of gingival inflammation. It is believed that the reduced levels of leptin in the incidence of inflammation as a result of orthodontic force application is resistance to tooth movement. It can be assumed that leptin has a role in protecting the gingival tissue. But with this role, leptin is believed to be a limiting factor in orthodontic tooth movement.

Keywords: gingival crevicular fluid; leptin; orthodontic tooth movement 67 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF10 Vitamin C Inhibit upregulation of plasma and joint interleukin-1 ? Fitri Handajani, Sulistiana Prabowo

Faculty of Medicine, Hang Tuah University, Surabaya, Indonesia We aimed to investigate whether cold stress increased plasma and joint IL-1 β and whether vitamin C quenched ROS and reduced increased IL-1 β . Secondly whether there is any correlation between plasma and joint IL-1 β level.

Male adjuvant arthritic rats (age=10-12 weeks; n=8/group) were exposed to cold stress (5°C for 15 minutes/day for 7 days) with/without vitamin C (50 mg/day orally) and then kept for 14 days. The control group did not receive either cold exposure or vitamin C. Plasma IL-1 β level was measured using indirect ELISA and joint IL-1 β was measured using immunohistochemistry before treatment, day 0, 7, 14 after treatment.

The results showed that cold stress significantly increased plasma IL-1 β level directly after cold stress (p=0.025), 14 days after cold stress (p=0.002). Cold stress significantly increased percentage area positive of joint IL-1 β day 7 (p=0.001), day 14 (p=0.001). Compared to controls vitamin C significantly reduced plasma and joint IL-1 β directly after cold stress, day 7, 14 after cold stress (p < 0.05).

No significant correlation between plasma and joint IL-1 β in all groups (p>0.05). Cold stress increased plasma and joint IL-1 β and vitamin C reduced increased IL-1 β possibly by reducing ROS production and NF- κ B activation. Key words: adjuvant arthritis; cold stress; IL-1 β ; vitamin C 68 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 O-NFF11 Identification and characterization of bioactive peptide of fermented goat milk Mahdi, C.1, Untari H.2, Padaga M.2

1Departement of Chemistry, Faculty of Sciences, Brawijaya University 2Veterinary Medicinal Program, Brawijaya University The increasing of functional food is rising in line with public awareness for healthy food consumption. Functional food source is developed through enhanced bioactive that has a regulatory function for body. Bioactive peptide in milk is known have variety of beneficial function of the body such as immunomodulator, immunostimulatory, antihypertention as well as variety of either beneficial function.

The aim of this study is to obtain a fermentation method to produce functional dairy product using bioactive peptides and beneficial of fermented goat milk. The result of this study showed that goat milk fermented using 3% commercial starter able to produce the best yoghurt than using local yoghurt starter. Analysis of protein content showed that fermentation processing increased the amount of protein in goat milk sample.

Using SDS-PAGE showed that the breakdown of protein into function of fermented milk higher than unfermented goat milk. The result of fractional protein was analyzed by LC MS and showed that there were three kind bioactive sequences of bioactive peptides. Each of which consist of 16 amino acid that are protected from gastrointestinal proteases.

These peptides then were tested for activity as an antihypercholesterolemia through the preparation of animal model fed dietary treatment of hypercholesterolemia. Keywords: antihypercholesterolemia; bioactive peptides; food functional; goat milk fermented

69 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-001 The role of FSH, LH and AMH hormones on folliculogenesis: case study in Polycystic Ovary Syndrome (PCOS) Roselina Panghiyangan¹, Mala Kurniati², Dwi Anita Suryandari³

¹Biomedical Doctoral Programme-Faculty of Medicine University of Indonesia / Faculty of Medicine - Lambung Mangkurat University-South of Borneo ²Biomedical Magister Programme Faculty of Medicine University of Indonesia / Faculty of Medicine – Malahayati University- Lampung ³Departement of Biology – Faculty of Medicine University of Indonesia-Jakarta This study reviewing the relevant literature based on the role of the hormone FSH, LH and AMH on molecular mechanisms of impaired folliculogenesis in PCOS case.

Folliculogenesis is a complex developmental process and governed by various factors endocrine, paracrine, and autocrine, also connect the cells and cell matrix intraovarian. Interaction between cells that is crucial for the growth of the cells including theca and granulosa cells. In PCOS, the number of primary follicles, secondary and small antral polycystic ovary is 2-6 times more than the normal ovary.

The development of follicles, possibly due to deficiency of oocyte growth signals or inhibition of AMH excess defects. The production of mature oocytes is a complex process in which germ cells and somatic cells maintain a close association. Germ cell function during follicular growth depends on granulosa cell differentiation.

Oocyte and granulosa cell differentiation can modulate and effect the development of normal follicles. Follicular arrest in PCOS associated with excess insulin stimulation, LH, and hiperandrogenism environment increase concentrations of cAMP in granulosa cells and levels of AMH. AMH levels in PCOS patients can be used as parameters (biomarkers) to diagnose PCOS.

Key words : AMH; folliculogenesis ; FSH; LH; PCOS 70 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang,

September 12th – 13th 2014 P-002 BZLF-1, Relb, caspase-3, and Ki-67 expression in undifferentiated nasopharyngeal carcinoma AadRoi 1, Fatchiyah Fatchiyah², Nashi Widodo², Pudji Rahayu³, Ruslan Muhyi⁴, Sutiman Bambang Sumitro² 1Department of Otorhinolaryngology, Head, and Neck, Ulin General Hospital, Faculty of Medicine, University of Lambung Mangkurat, Banjarmasin, South Kalimantan, Indonesia 2Department of Biology, Faculty of Mathematic and Natural Sciences, University of Brawijaya, Malang, East Java, Indonesia 3Department of Otorhinolaryngology, Head, and Neck, Saiful Anwar General Hospital, Faculty of Medicine, University of Brawijaya, Malang, East Java, Indonesia 4Department of Paediatric, Ulin General Hospital, Faculty of Medicine, University of Lambung Mangkurat, Banjarmasin, South Kalimantan, Indonesia This study was aimed to evaluate the level of BZLF-1, RelB, caspase-3, and Ki-67 in nasopharyngeal carcinoma patients.

Expression analysis of BZLF-1, RelB, caspase-3, and Ki-67 performed using immunofluorescence analysis, and pathway analysis of these protein performed by using STRING, MINT and PANTHER software. Our result showed that expression level of BZLF1 and RelB were increased in NPC tissue compared with non-NPC tissue. In contrast, expression level of caspase-3 and Ki67 were decreased in NPC tissue compared with non-NPC tissue.

Pathway analysis showed that several genes in this research were involved in three signalling pathways, there are apoptotic, Fas signalling and cytokine signalling pathway. As conclusion, our findings showed that there are several pathway involved in regulation and controlling cell to become a cancer cells. Keywords: apoptotic; cytokine signalling; Fas signalling; NPC; pathway analysis 71 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-003 The effects of regular exercise on cortex adrenal CYP19 aromatase expression and serum estrogen in ovariectomized rats Asnawati Department of Physiology, Faculty of Medicine, Lambung Mangkurat University, Banjarmasin, South Kalimantan The aim of this study was to examine the effects of regular exercise on CYP19 aromatase expression in the adrenal cortex and serum estrogen in ovariectomized rats.

Ten female Sprague dawley rats were divided into two groups, consisting ovariectomized rats treated by exercise protocol (special treadmill for 8 weeks with intensity that increased gradually) and ovariectomized rats without treatment group (control). After the program finished, serum estrogen levels and percentage of CYP19 aromatase expression in the adrenal cortex were assayed.

The level of CYP19 aromatase expression was significantly higher in treatment group

compared with control group ($P < 0.05$). Levels of serum estrogen was lower in treatment group, but not significantly different ($P > 0.05$). In conclusion, extragonadal aromatization has occurred in the adrenal cortex of ovariectomized rats caused by regular exercise.

Key words: exercise; menopause; hormonal; adrenal cortex 72 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-004 Modelling bioactive peptide from PE milk for diabetes mellitus therapy Ferlany Hardiyanti, Widodo , Fatchiyah Fatchiyah Department of Biology, Faculty of Mathematics and Natural Sciences, Brawijaya University, Jl Veteran, Malang, East Java 65145 Indonesia The purpose of this study is to examine effect 8 bioactive peptides (CSN1S2) that can inhibit AGEs-RAGE bond.

Method that using in this research is revealed the structure of proteins RAGE in NCBI, the protein was modeled using Swiss Model Exspasy web server. The bond between bioactive peptides- RAGE were analyzed using Pymol software and Discovery Studio 4.0. The result showed that there are 3 bioactive peptida that can bond with RAGE.

There is CS f 41-47, CS f 182-189 and CS f 214-221 showed inhibitory activity because has potency to binding with active site RAGE. We presume that there is competitive binding between CSN1S2 with AGE because when CSN1S2 binds with RAGE so interaction between AGE- RAGE can reduced or inhibit. Keyword : bioactive peptida; CSN1S2; RAGE 73 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-005 Mercury bioaccumulation in hepatic Rat (*Rattus norvegicus* Berkenhout, 1769) treated by bivalves (*Anadaragranosa* L.)

contaminated mercury La Aba1, Mulyati Sarto2 1Universitas Dayanu Ikhsanudin, Baubau Sulawesi Tenggara 2Faculty of Biology UniversitasGadjahMada, Yogyakarta This research was conducted to analyze mercury bioaccumulation in the liver, SGPT and SGOT level as a liver function test, and hepatocytes observations on animal model. Twenty male rats as animal model in 2 months age divided into 4 groups are, a group control and three groups for treatment.

The control group (C), rats was fed with pellet only, whereas the treatment groups (T1, T2, and T3) were fed with pellet and muscle of bivalves contaminated mercury in ratio of 3:1. These variations were done every day, every two days, and every three days for one month. The parameters were, rats hepatic mercury level in part per billion (ppb) was measured by wet destruction method and Mercury Analyzer, SGPT and SGOT level in IU/L measured by spectrophotometer. Liver structure was prepared by paraffin method

and routine stained (Hematoxylin Eosin).

Data were analyzed statistically by one way ANOVA between a group with another groups were analyzed by Duncan's Multiple Range Test (DMRT). The qualitative data of hepatocytes was analyzed descriptively. The result showed that hepatic mercury bioaccumulation in rats fed with bivalves mercury-contaminated were 21.37 ppb, 17.05 ppb and 8.25 ppb respectively.

Whereas, the mercury content in the control group (C), which was only fed with pellets, does not detect at the limit detection in equipment was 0.62 ppb. The SGPT and SGOT level of T1, T2, and T3 were 59.30 UI/L, 43.60 UI/L and 41.30 UI/L respectively. There are hepatocytes damage for all treated groups. Keywords: Anadara granosa L.;

hepatic mercury bioaccumulation; rat (*Rattus norvegicus* Berkenhout, 1769); SGOT; SGPT
74 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-006 Estrous cycle profile and Thyroxine Hormone (T4) Levels in experimental animal models of hyperthyroidism by thyroglobulin induction Noer Muhammad Dliyaul Haq¹, Dyah Kinasih Wuragil², Aanni³, and Agung Pramana Warih Marhendra^{1*} ¹Department of Biology, Faculty of Life Sciences Brawijaya University ²Veterinary Medicine School, Brawijaya University ³Department of Chemistry, Faculty of Life Sciences Brawijaya University Email: agung_pramana@ub.ac.id The purpose of this study was to determine the profile of the estrous cycle and levels of thyroxine hormones (T4) in animal models of hypothyroidism by an induction of caprine thyroglobulin (cTG).

Rats were injected with cTG protein that has been emulsified with CFA (1: 1), with a dose of 200 µg/mL with subcutaneous injection and then continued with cTG that has been emulsified with IFA (1: 1) two times as booster. Blood was collected to measure the levels of T4 to find out that rats have undergone of hypothyroidism conditions. Rats that had noticed as hypothyroidism then observed their estrous cycles everyday, three times for every cycle.

Furthermore, rats dissected from each repetition of the estrous cycle and blood serum was taken to measure the T4 hormones. The results showed longer estrous phase, so hypothyroidism could lead to unstable estrous cycle. Based on a statistical test, there were significant differences between the control group and injected group ($P < 0.05$).

Hypothyroidism groups caused the decreasing of TSH hormone levels with hormone levels in the first dissection, 1.180 ± 0.162 , 0.158 ± 0.771 in second dissection, and the third dissection 2902 ± 0057 ng / dL, whereas group of normal rats with TSH levels is

0.962 ± 0.148 ng / dL. Keywords: autoimmune thyroid diseases; estrous; hypothyroidism; thyroxine 75 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-007 The Nutritional Composition of Several Red Durians from Banyuwangi Rusmiati¹, Sumeru Ashari², M.

Aris Widodo³, Lutfi Bansir⁴ ¹Ph.D Student Faculty of Agriculture Brawijaya University ²Faculty of Agriculture Brawijaya University ³Faculty of Medicine Brawijaya University ⁴Department of Agriculture Bulungan Email: rusmiati39@gmail.com This study was conducted to analyze the nutrient composition of each variant red durian from Banyuwangi and then compared with nutritional content durian yellow and white durian. We used eight variant of red durian; there are Serad, Serat Pink, Musang Merah, Tallun Jeruk, Sun rice of Java, Red Horn Jamela.

In this study we analyze the nutritional content in a 100 g fruit flesh for 6 parameters, such as fat content (%), protein content (%), carbohydrate content (by different) (%), number of calories (cal/g), Vitamin C (mg/100 g) and total sugar (%). Data were analyzed descriptively. The result showed that the red durian Serat Pink have higher protein content between other red durian and white durian.

All red durian has lower protein content than yellow durian. Tallun Jeruk has higher fat content compared with yellow and white durian. Horny Red Jameela has higher carbohydrate content between red and white durian, but lower than yellow durian. Red King, Tallun Jeruk, Musang Merah each has highest total sugar, calories, and vitamin C between other durian.

Keywords: nutrient content, red durian, Banyuwangi 76 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-008 Molecular docking of cat echinwit n β s potential inhibitor of aterogenesis Erna Susanti^{1,2*}, Ciptati³, Retty Ratnawati⁴, Aannim⁴, Achmad Rudijanto⁴ ¹Doctoral Program of Biomedical Science, Medical Faculty, Brawijaya University, Malang ²Pharmacy and Food An alyemy“Pulnonalang” ³Dept.

of Chemistry, Science Faculty, Institute of Technology Bandung, Indonesia ⁴Lecturer on Doctoral Program, Graduate Program of Biomedical Science, Medical Faculty, Brawijaya University, Malang The results of molecular docking of X_Rα X_B Catechins showed the potential of Catechins as LXR agonists. The results of the analysis bioinformatic showed that bioactive compounds of Catechins have a great potential in the inhibition of atherogenesis.

This analysis process is done using OpenBabel in Pyrx and docking was performed using Autodock 4.0 in Pyrx. Visualization using PyMOL. To determine the sides of the interaction of molecular docking results using LigPlot +. All of isolates from Catechins have little affinity energy, this shows all of the isolates have a strong affinity to LXR.

The most potent as agonist LXR of Catechins showed that Epicatechin gallate (CID_107905) binds to LXR at many active sites including: Phe315, Leu260, Leu316, Ser228, Val263, Ile268, Glu301, Met298, Thr302. Further analysis revealed that these binding sites are maintained by hydrogen bonds with Ser 264, Arg 305, Asn225, Glu267. The interaction energy between LXR and Epicatechin gallate(CID_107905) is -9.86 kJ/mol.

Key word: atherogenesis; bioinformatic; catechins; LXR agonist 77 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-009 Effe senmikfor 2wekn6wees l t'tei prostate, epididymis, seminal vesicles, and testosterone Nurdiana¹, Imam Sarwono², R Setyohadi³, Stephen Harsono⁴, Priyo Budiutomo⁴, Feby Adiguna⁴, Zaw M Aung⁴ 1Farmakology Laboratory Medical Faculty, Brawijaya University 2Phatology Anatomy Laboratory Medical Faculty, Brawijaya University 3Biochemistry Laboratory Medical Faculty, Brawijaya University 4Student of Medical Faculty, Brawijaya University This study aimed to investigate whether soy milk may cause reproductive disorders and decrease testosterone.

Thirty two six weeks old male rats were divided into 4 groups including control (non treatment) and three other groups were treated with soy milk powder (7.1; 14.2 and 21.3 g/kg BW/day) for 90 days. Histopathological examination of testis, epididymis and seminal vesicles were done using Hematoxylin-Eosin staining. Blood testosterone levels were assayed by ELISA.

Our results showed that there were negative correlations between the doses of soy milk with spermatogenesis in the testes, prostate epithelial cell hyperplasia. Conversely there were positively correlation between dose of soy milk with vacuoles forming on epididymal epithelial cells and apoptosis in epithelial cells of seminal vesicles. The blood testosterone levels were not significantly difference between groups.

In conclusion, sub chronically soy milk feeding in rats induce histopathology changes of reproductive organs that closely related to the process of endocrine disruptors.

Keywords: endocrine disruptors; isoflavon; reproductive organ; soy milk 78 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-010 β -Conglycinin in extract

protein of detam 1 Soybean (Glycine max L.Merr) stimulating xolecystokinin secretion through signal transduction pathway in Wistar rats Meilinah Hidayat¹, Ahmad Faried²
¹Nutrition Department Faculty of Medicine, Maranatha Christian ²University Bandung
Research and Development Unit Faculty of Medicine, Padjadjaran University, Bandung;
Associate professor in Gunma University, Maebashi Japan Email:
mellahidayat@yahoo.com This study aims to determine which kind of soybean extract contains the hiβ -conglycinin level, their effects to CCK plasma level, and to signal tranopathy n uoenum star -conglycinin were analysed in vitro using sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS PAGE) and coomassie brilliant blue (CBB) staining.

The CCK plasma level were measured in vivo in 24 male Wistar rats by ELISA method, using t-test paired and the activity of PKCμ PKA, c-Raf and ERK in CCK signal transduction pathway in vivo by Western blot method and Scion image densitometry (DU) analysed using ANOVA. EPDS cons he ghesauo -conglycinin level. There was no significant difference CCK plasma level between pre and post treatment ($p > 0.05$) although there were increasing level in all treatment.

The duodenum of Wistar rats which were given EPDS showed significant difference with negative control in signal transduction activities of PKCμ, c-Raf & ERK 1/2 pathway ($p < 0.001$). PEDS contains the highest β -conglycinin level, effects to CCK plasma level, and to CCK signal transduction pathway through activities of PKCμ -Raf and ERK 1/2 in enteroendocrine cells in duodenum Wistar rats
Key words: Protein Extract of Detam 1 soybean; β nycin; holecystokinin; signal transduction 79
1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-011
Cytogenetics profile of student with syndromic mental retardation on special schools in Banjarmasin Siti Wasilah^{1*}, Husnul Khatimah¹, Tri Indah Winarni²
¹ Departement of Biology of Medical Faculty Lambung Mangkurat University Banjarmasin- South Kalimantan, Indonesia ²Departement of Anatomy of Medical Faculty Diponegoro University Email: wasilah_dr@yahoo.com
This descriptive study aims to describe the cytogenetic profile of students with mental retardation disorders on special school in Banjarmasin conducted since 2012-2013.

Cytogenetic profile described based the existence of free trisomy 21, trisomy 21 with translocation, mosaic trisomy 21 and trisomy 21 partially or in the form of numeric aberration and structure of chromosomal abnormalities such as fragile X, specific deletions of chromosomal segments or the presence of a ring chromosome forms. The results obtained from the study of 22 students with physical signs of mild to severe syndromic mental retardation.

The results of cytogenetic examination showed most of the sample (77.78%) with free trisomy 21 (karyotype 47, XX, + 21 or 47, XX, + 21) or a classic type of Down syndrome, 1 sample with mosaic karyotype: 46, XY (1%) / 47, XY, + 21, 1 sample with structural abnormalities of chromosomes 22 (karyotype: 46, XY, ring 22) and 2 samples with normal karyotype (karyotype: 46, XY or 46, XX).

Keywords: cytogenetics; mental; retardation; syndromic 80 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-012 Effect of glycosaminoglycans in cartilage destruction rabbit model of OA joints with papain injection Endang Sutjiati¹, Handono Kalim², Kusworini Handono³, Aani⁴, Molyohadi Ali³, Mohamad Hidayat^{2,5} ¹Ph.D

Students of Biomedic Programs, Faculty of Medicine, Brawijaya University ²Departement of Internal Medicine dr.Saiful Anwar Hospital Malang ³Lecturer of Ph.D Programs, Faculty of Medicine Brawijaya University ⁴Lecturer of Ph.D Programs, Veterinary Medicine Programs, Brawijaya University ⁵Departement of Orthopedy dr.Saiful Anwar Hospital Malang Different doses of glicosaminoglycans from chicken cartilage extract were evaluated to inhibit knee joint cartilage damage in osteoarthritis model rabbit by papain knee joint intra-articular injection.

Control group (normal) was sterile from papain injection; Experiment group was administered with papain at dose 40mg/0,05ml in knee joint. Glicosaminoglycans were given orally with dose 10%, 20%, 40%. Histology examination joint cartilage thickness, chondrocytes count, and extracellular collagen matrix evaluated the cartilage damage.

Physical alteration such as inflammation, changing in walking, and motion inhibition were observed 7 days after papain administration. After 21 days of treatment, 10% glicosaminoglycan optimally inhibits cartilage damage; 20% glicosaminoglycan maximally inhibits cartilage damage; while 40% yields hypertrophy of chondrocytes, and thinnest extracellular type x collagen expression.

10% glicosaminoglycan from chicken cartilage extract optimally prevents osteoarthritis development in knee joint cartilage. Keywords: glycosaminoglycans; histological cartilage damage; osteoarthritis 81 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-013 Extract Solanum torvum toxicities and phytochemistry compounds by Brine Shrimp Lethality Test (BSLT) Isnaeni DTN 1,2, Nur Rahman¹, Aan'a², Sri Anna Marliyati³, Muhammad Rizal Matua Damanik³, Faisal Anwar³ ¹Polytechnic of Health of Ministry of Health, Malang, Indonesia ²Faculty of Biology, Brawijaya University, Malang, Indonesia ³Nutrient Community Department, Agricultural Institute, Bogor, Indonesia This present

study was aim to extracting the antioxidant on the solanum torvum by phytochemistry test and toxicities test on Artemia Salina linn with Brine Shrimp Lethality Test.

Our result showed that the most complete phytochemistry by 96% ethanol extract of the root, following an extract of ethanol the old fruit, stem and leaf ethanol extract and it the most powerful on extract fresh leaves. Solanum torvum contains most complete on root ethanol extract. This plant contains alkaloids compounds (++) , triterphenoids (+++), tannin (++) and flavonoids compounds (++) .

The lowest toxicity (LC50) is on old stem extract (644.7 ppm), and the most powerful toxicity on fresh extract leaves (6.8 ppm). Keywords: phytochemistry; Solanum torvum; toxicity 82 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-014 Flavonoid potency of n-hexane, chloroform and etanol fraction Scurrula artropurpurea (Blume) Danser as an inhibitor proliferation and apoptosis agent towards HeLa cell Ni Luh Putu Eka Sudiwati¹, Budi Susatia¹, Tanto Hariyanto¹, Setyo Harsoyo¹, Edi Priyo Utomo², Mulyohadi Ali³ ¹Politechnic of Health Malang East Java ²Faculty of Science Brawijaya University Malang East Java ³Faculty of Medicine Brawijaya University Malang East Java This study was using Scurulla aropurpurea (Blume) Danser, which have been collected from Wonosari Lawang Jawa Timur, Indonesia. Benalu was extracted using n-hexane, chloroform, and ethanol.

Flavonoid identification was done using thin layer chromatography (TLC) method and spectrometry. Inhibition potency against HeLa cells proliferation was measure by MTT assay, whether apoptotic of HeLa cells induction was examined using double staining with akridine-orange-ethidium bromide.

n-hexane fraction composed of flavonon, dihidroflavonol, and flavone, whether chloroform fraction composed from flavonon, dihidroflavonon, and catechin, and last in the etanol fraction were found flavonol, flavon, and EGCG. All flavonoid that were found in all extract fraction, shown inhibition potency against Hela cell proliferation. The strongest potency was shown of chloroform extract treatment (IC50 = 96,150 µg/ml), ethanol fraction (IC50 = 298,801 µg/ml), and n-hexane (IC50 = 489,661 µg/ml).

Apoptotic induction potency of chloroform extract was the strongest among other extract fractions, treatment of 22,413 µg/ml was succesfully induced 75,72% apoptotic cells from all total cells. The lowest apoptotic effect was given by n-hexane extract. Keywords: apoptotic; flavonoid, Hela cells; IC50; proliferation; Scurulla aropurpurea (Blume) Danser 83 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-015

The biochemical tests and genomic characteristics of *Brucella abortus* a local field isolate
Wiwiek Tyasningsih¹, Fedik A.

Rantam¹, Aanim², Didik Handijatno¹ ¹Microbiology Department of Veterinary Medicine Faculty of Airlangga University Mulyorejo Kampus C Unair Surabaya 60115 East Java, Indonesia ²Biochemistry Department of MIPA of Brawijaya University Jl. Veteran Malang 65145 East Java, Indonesia E-mail: witya_kh@yahoo.com *Brucella abortus* is a pathogen Gram negative bacteria of the genus *Brucella* causing Brucellosis disease.

Brucellosis is one of the most important zoonotic disease worldwide, resulting serious economic losses in domestic animals. The disease is characterized by reproductive failure particularly abortion in females and orchitis with sterility in males. Diagnosis of *Brucella* infections can be made only by the isolation and identification of the agent, but in situations where bacteriological examination is not practicable, diagnosis must be based on serological methods. Isolation and identification of the agent includes culture, staining methods and biochemical tests.

The serological methods such as serum agglutination test (SAT), complement fixation test (CFT) and Enzyme linked immunosorbent assays (ELISA). The biochemical tests such as catalase test, urease test, citrate test, oxidase test and genomic characteristics by Polymerase Chain Reaction (PCR) can be used for identification of *Brucella abortus* a local isolate.

Keywords: *Brucella abortus*; biochemical tests; Brucellosis; PCR 84 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-016 The role of angiotensin-2 in retinal pericyte migration through Tie-2, Akt/PKB, and ERK activation Nadia Artha Dewi¹, Djoko W. Soeatmadji, Hidayat Sujuti, M.Aris Widodo, Aulanni'am Ph.D

Student of Biomedic Programs, Faculty of Medicine, Brawijaya University Loss of pericyte is the earliest morphological changes in the diabetic retina which will further affect endothelial cells and retinal vascular instability. Diabetic pericyte loss is the result of pericyte migration, and this process is modulated by the Ang-Tie system.

Increase expression of Ang-2 due to Ang-2 exogen in endothelial cells will result in phosphorylation causing cell migration. Angiotensin regulates two pathways that mediated cellular motility through its receptor, Tie-2, with activate Phosphatidylinositol 3 kinase (PI3K) and through MAPK pathways. The role of Ang-2 in Tie-2 phosphorylation is complicated, depend on the stimuli and the cells.

The exact role of Ang-2-induced Tie-2 phosphorylation in pericyte and the mechanism of pericyte migration due to hyperglycemia still unknown. The aim of this study is to find out the molecular mechanism of pericyte migration in hyperglycemic retina observed from Ang-2- Tie-2 phosphorylation, Akt / PKB phosphorylation, and ERK1 / 2 phosphorylation in vivo.

Keywords: Akt/PKB; angiopoietin-2; diabetic retinopathy; ERK1/2; pericyte migration; Tie-2 85 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-017 Blood glucose level, blood viscosity and plasma viscosity in the ramadhan fasting diabetic patient Soeatmadji,D.W, Ekowati,R This study was held to examine the correlation between increasing of blood glucose and blood viscosity in diabetic patient whom continuing have their Ramadhan fasting.

This research was an analytical observation, using 65 diabetic patient as a subject, who have fast blood glucose level > 126 gr/dL and > 200 gr/dL 2 hours after breakfast. The data collected in this research were fast blood glucose level and blood glucose level 2 hours after breakfast, blood viscosity, and plasma viscosity. Data analysis were using SrmanRk t a 00) ret wnthfblo ucol mean was 136 gr/dL +- , meanwhile blood glucose level 2 hours after breakfast mean was 298 gr/dL, level blood viscosity was +- 6.45 cP, and plasma viscosity +- 2.25 cP.

Statistical analysis shown significant association between the increasing of blood glucose level and blood viscosity and blood plasma ($p=0,04$). Accordance with the theory, the increasing of the glucose blood level have an impact toward blood viscosity. The increase of blood glucose, will caused the erythrocyte agregation and increasing of blood viscosity.

The result suggest that diabetic patient have to manage their fluid intake as good as possible and avoiding dehydration, that could induce stroke. In the future this research will be used as a foundation for another similar and advanced research specially focusing in the fluid importance in the blood viscosity, ghost erythrocyte changes, and also erythrocyte deformabilty.

Keywords: blood glucose level; blood viscosity level; diabetes mellitus 86 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-018 Correlation of matrix metalloproteinase-1 (MMP-1) levels in joint fluids with knee osteoarthritis degrees in mohammad hoesin hospital palembang Mulya Sundari, Hermansyah, Radiyati1 1Faculty of Medicine, Sriwijaya University, Palembang The purpose of the study was to measure

MMP-1 levels of joint fluid in patients with knee OA, analyze the degree distribution knee OA and coefficient correlation of MMP-1 levels in joint fluid with knee OA degrees. Research subjects are patients with knee OA in Internal Medicine Polyclinic RSMH Palembang.

MMP-1 joint fluid assay were done using enzyme-linked immunosorbent assay (ELISA). OA degrees were analyzed using radiological knee according to Kellgren-Lawrence. Data analysis was performed using SPSS for windows. Subjects of study are 33 patient (average 56.58 ± 8.50 years old), 54.5% female and 45.5% male. Median of MMP-1 levels in joint fluid are 78.20 (60.60 to 297.70) ng/mL. Distribution of patients with knee OA according to the Kellgren-Lawrence are degree 1 (6.06%), grade 2 (21.21%), grade 3 (66.67%) and degree 4 (6.06%).

There is a significant positive correlation of MMP-1 levels in joint fluid with knee OA degrees according to the Kellgren-Lawrence ($r = 0.403$, $p = 0.020$). MMP-1 levels in joint fluid have a significant correlation with the OA degree according to Kellgren- Lawrence. Increased MMP-1 levels in joint fluid have a positive correlation with knee OA degree according to Kellgren-Lawrence.

Keywords: knee osteoarthritis; Kellgren-Lawrence; MMP-1 87 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-019 In silico modelling of polyherbal in hematopoietic gene Mansur Ibrahim¹, Sutiman B Sumitro², M Aris Widodo³, Edi Widjajanto⁴
¹Biomedical Sciences Doctoral Study Program, Faculty of Medicine, Brawijaya University, Malang, East Java, Indonesia.

²Department of Biology, Faculty of Sciences, University of Brawijaya, Malang, East Java, Indonesia ³Department of Pharmacology, Faculty of Medicine, University of Brawijaya, Malang, East Java, Indonesia ⁴Department of Clinical Pathology, Saiful Anwar General Hospital, Faculty of Medicine, University of Brawijaya, Malang, East Java, Indonesia This study aimed to investigated the effects of polyherbal (coconut water, red rice and soy bean) on hematopoietic gene In Silico.

Three plants involved in this study were coconut water, red rice and soy bean. Pathway analysis of the effect of active compound on haemopoetic gene were performed by using STRING, MINT and PANTHER software. The affected gene by coconut water were NOS3, ALB, SLC46A1, LYZ, CYP2E. The affected gene by red rice were ADORA1, ADRA2C, ADRA2C.

The affected gene by coconut water were ABCB1, ESR1, and BLVRB. We also found the

synergistic effects of these compounds. In conclusion, polyherbal consistih of coconut water, red rice and soy bean potential to modulate the hematopoetic system. Keywords: polyherbal; hematopoesis; in silico; gene 88 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-020 Effects of Eucheuma cottonii on caspase in cardiac of rat fed high-fat diet exposed to coal dust Dwi Laksono Adiputro¹, Bambang Setiawan², M Aris Widodo³ 1Department of Cardiology and Vascular Medicine, Ulin General Hospital, Faculty of Medicine, University of Lambung Mangkurat, Banjarmasin, South Kalimantan, Indonesia 2Research Center for Toxicology, Cancer, and Degenerative Disease, Department of Medical Chemistry and Biochemistry, Medical Faculty Lambung Mangkurat University, Banjarmasin, South Kalimantan, Indonesia 3Department of Pharmacology, Faculty of Medicine, Brawijaya University, Malang, East Java, Indonesia The present study sought to investigate a role for the cardiac apoptosis of rat's edhilpi et sedtoco ust.Bd al also determined the role of Eucheuma cottonii.

The rats were randomly divided into six groups. Rats were fed a normal diet (non-exposed group), a high- cholesterol diet for eight weeks (HF group), a concomitant coal dust exposure (12.5 mg/m³ an hour daily) with high-cholesterol diet for eight weeks (HFD control group), or a high-cholesterol diet with concomitantly exposed to 12.5

mg/m³ of coal dust and Eucheuma cottonii administration at dose 150 (HFA), 300 (HFB), and 600 ppm (HFC) eight weeks, respectively. The cardiac expression of caspase-3, caspase-8, and caspase-9 were aasyed by western blotting. The expression of caspase-8 in was significantly higher in the HFD group compared to the normal untreated group or HF group (P < 0.05).

Out of the 150, 300, and 600 ppm doses of Eucheuma cottonii extract concomitant with coal dust exposure, only the lowest dose extracts significantly decreases the cardiac expression of caspase-8 compared to HFD group (P < 0.05), to reach level in normal untreated group (P > 0.05). The expression of caspase-9 and caspase-3 were not significantly difference between groups (P > 0.05).

In conclusion, Eucheuma cottonii extract (150 ppm) concomitant with coal dust exposure significantly decreases the extrinsic apoptosis pathway in cardiac compared to HFD group. Keywords: particulate matter 10; cardiology; pollutant; inhalation 89 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-021 Comparison of inflamatory status from two models of sepsis rats Dian Samudra¹, Sumarno R Pawiro² 1Biomedical Sciences Doctoral Study Program, Faculty of Medicine, Brawijaya University,

Malang, East Java, Indonesia.

2Department of Microbiology, Faculty of Medicine, University of Brawijaya, Malang, East Java, Indonesia This study aimed to investigate the inflammatory status between cecal ligation puncture and Eschericia coli models of sepsis in rats. Twelve rats were divided into three groups, including control (untreated) group, cecal ligation puncture group, and Eschericia coli groups.

Cecal ligation puncture was performed according established procedure. Intraperitoenal injection of Eschericia coli was done at 103 and 105 colony forming unit. The level of TNF- α was assayed by ELISA. We found that the level of TNF- α was significantly higher in cecal ligation puncture group compared with other group ($P < 0.05$).

In conclusion, cecal ligation puncture induces systemic inflammatory status maybe similar to systemic inflamatory response syndrome in human. Keywords: sepsis models; rats; inflammatory; methodes 90 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-022 Atomic mineral characteristics of tin sand as osteoporosis risk factor Rendra Leonas¹, Zairin Noor², Hermawan Nagar Rasyid³, Fachry Ambia Tanjung³ 1Department of Orthopaedic and Traumatology, Mohammad Hoesin Hospital, University of Sriwijaya, Palembang, South Sumatera, Indonesia 2Department of Orthopaedic and Traumatology, Ulin General Hospital, University of Lambung Mangkurat, Banjarmasin, South Kalimantan, Indonesia 3Department of Orthopaedic and Traumatology, Hasan Sadikin Hospital, University of Padjadjaran, Bandung, West Java, Indonesia This study aimed to investigate the atomic mineral characteristic from tin sand and its role in osteoporosis progression. The atomic mineral characteritics of tin sand was analyzed by X-Ray Fluorescence.

Atomic mineral in tin sand including Si (0.93%), S (1.8%), Ca (0.1%), Ti (22.3%), V (0.24%), Mn (1.02%), Fe (14.3%), Zn (0.091%), Y (0.42%), Zr (24.7%), Mo (2.1%), Sn (31.2%), Nd (0.19%), Eu (0.2%), Hf (0.84%), W (0.17%), Re (0.03%), and Pb (0.20%). According previous studies, the atomic mineral that affect calcium group in hydroxyapatite crystale were Ca, Mn, and Pb.

The atomic mineral that affect phosphate group in hydroxyapatite crystale were Si, S, and V. In conclusion, we hypothesized that several atomic mineral in tin sand will affect hydroxyapatite crystale and as risk factor osteoporosis. Keywords: bone; osteoporosis; mineral; hydroxyapatite crystale 91 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 P-023 The effect of -S2 casein etawah goat milk protein in preosteoblast cell

exposed by methylglyoxal Choirunil Chotimah¹, Gatot Ciptadi², Bambang Setiawan³, Fatchiyah Fatchiyah¹ ¹Department of Biology, Faculty of Mathematics and Natural Sciences, Brawijaya University ²Department of Genetic Reproduction, Faculty of Animal Husbandry, Brawijaya University ³Department of Medical Chemistry and Biochemistry, Medical Faculty, Lambung Mangkurat University The aim of this study is analyzed the level of ROS and MDA, viability, proliferation, and differentiation of preosteoblast cell MC3T3E1 exposed by Methylglyoxal (MG) with 25, 50, 100 µg/ml protein -S2 Casein (CSN1S2). The methods in this study was electrophoresed CSN1S2 protein-purified by SDS-PAGE 15%.

Cell MC3T3E1 sub clone 4 was culture by complete medium alpha-MEM incubated in CO₂ 5%, 37°C. The pre-osteoblast cells induced by 5 µM MG, 6 hours then treated with CSN1S2 for 3 days, stained with H2DCFDA 25µM. The level of MDA, ROS, differentiation, proliferation and viability of cell measured. The statistical test were analyzed using SPSS 16.0 (ANOVA) test, with $p < 0.05$.

The intensity expression of H₂O₂ and the level of MDA has no significant in differences ($p > 0,05$). Cell's viabilities were significantly lower in 5µM MG ($p < 0,05$). The 5µM MG+100µg/ml CSN1S2 and 5µM MG+50µg/ml CSN1S2 significantly increased the cells viability compared to MG group ($p < ,5$) cell's differentiation group but no significantly different compared all groups ($p > 0,05$). CSN1S2 protein has effect of expression of ROS and MDA in preosteoblast cell.

This suggests that the CSN1S2 protein dose 50 µg/ml and 10g/ml able to improve cell viability after exposure to MG. The CSN1S2 protein has no effect with the cells proliferation and differentiation after exposed with MG. Keywords: CSN1S2; differentiation; MDA; Methylglyoxal; proliferation; ROS; viability 92 1st International Conference on Advance Molecular Bioscience and Biomedical Engineering (ICAMBBE) 2014 Malang, September 12th – 13th 2014 Conference Committee Steering Committees 1. Prof.Dr.Ir. Mohammad Bisri, MS 2. Prof. Dr. Ir. H.

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