

ABSTRACT OF KEYNOTE LECTURE

KL001 - The fate of DNA replication fork encountering DNA lesion on the template DNA: replication blockage by chemical carcinogen and replication recovery by translesion DNA polymerase

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The inhibition or collapse of the DNA replication fork can result in loss of cell viability or an alteration of genome integrity. The development of malignant cells involves the process and the outcome of DNA-replication blockage. On the other hand, most of the anti-cancer drugs trigger the apoptosis of cancer cells as a consequence of cellular DNA-damage response. However, our knowledge of how the DNA replication fork behaves when it meets the blocking DNA lesion *in vivo* is limited. In order to examine how the replication fork behaves when it meets a single blocking DNA lesion, we utilized the reconstituted system for *oriC* plasmid DNA replication *in vitro*. We found that an abasic DNA lesion on the lagging-strand template blocked DNA chain elongation in nascent Okazaki fragment synthesis but had no effect on the progression of the replication fork. In contrast, when the leading-strand template contained the lesion, the replication fork was severely inhibited. Having set up the powerful *in vitro* system, we started to look at an action of specialized DNA polymerases (TLS polymerase; translesion DNA synthesis DNA polymerase) in rescuing the blocked replication fork *in vitro*. This *in vitro* approach will help understand mechanisms underlying the genome maintenance by TLS polymerases.

ABSTRACTS OF LITERATURE REVIEW COMPETITION

LR001 - Effect of Vitamin D and Vitamin E Supplementation in Risk of Developing Colorectal Cancer

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Background: Previous study showed that there might be beneficial effect of antioxidant supplementation such as vitamin D and vitamin E to reduce the risk of colorectal cancer. However the effect of vitamin D compared to vitamin E in preventing colorectal cancer has never been discussed. **Aim:** to compare the effect of vitamin D and vitamin E supplementation to reduce the risk of colorectal cancer.

Method: Pubmed, EBSCO, Springerlink, Science Direct, MD Consult were conducted to search all of the studies of vitamin D supplementation and vitamin E supplementation. The articles were screened and it remained 1 article for each topic remained. Those 2 articles were appraised based on evidence based medicine toolkit.

Results: The study for vitamin D is systematic review/meta-analysis. It is valid, important and applicable. High dose vitamin D supplementation is beneficial to reduce the risk of colorectal cancer. The study about vitamin E is systematic review/meta-analysis. It is valid but not important. It showed that the supplementation of vitamin E did not show any effect in preventing colorectal cancer. **Conclusion:** High dose vitamin D supplementation is superior to reduce the risk of colorectal cancer compared to vitamin E. It is recommended for high risk individual to take high dose vitamin D supplementation to reduce the risk of colorectal cancer.

Keywords: colorectal cancer, supplementation, vitamin D, vitamin E

LR002 - THE ROLE OF ANTIOXIDANT SUBSTANCE FOUND IN ALLIUM SATIVUM AS AN INHIBITOR OF BREAST CANCER

Irvi Firgotul Aini – Universitas Indonesia

Many epidemiological study and observation have been done prove the existance of antioxidant substance in a vary number within vegetables and fruits we consume. *Allium sativum* that have been used as spice that enhance the food's taste for years contain several antioxidant substance. The role of antioxidant as anticancer, however still become an controversial topics through the history recorded our ancient has used *Allium sativum* as a remedy for sickness. New study that have been conducted show several pathway that happen in the mechanism of action of this antioxidant substance towards cancer cells. The objective of this literature review is analyzing the relationship of breast cancer risk factor and antioxidant substance found in *Allium sativum*. Methods that being used is literature review, through analyzing and summarizing data that have been collected from jounal and online database. Allicin a derived structure of allin has the inhibitory effect towards NF- κ B, a transcription factor of cancer. Another study also show its (keterlibatannya) in the apoptosis induced mechanism and cycle-cell arrest. Another substance found in *Allium sativum* also tends to be have inhibitory effect towards cancer cell formation.

Keywords: antioxidant, allium sativum, breast cancer, NF- κ B, apoptosis

LR003 - INHIBITING CANCER PROGRESSION BY INHIBITING TELOMERASE ACTIVITY

Fithra Fauzana, Hilyatus Shalihah – Universitas Yarsi

With data showing Indonesia's population being 237.6 million in 2010, the prevalence of those with cancer has been expected to be 1.02 million Indonesian residents. Deaths caused by cancer are expected to continually rise worldwide, with an estimated number of deaths in 2030 equalled to 11.5 million. Tumor cells display a specific characteristic of immortality, which is made possible by their ability to avoid apoptosis or normal cell death. This abnormality is greatly influenced by many factors including the stabilization of telomere length that is sustained by telomerase activity. It is known that if telomerase activity can be inhibited by a substance with an anti-telomerase effect, readjusting the dysregulation caused by tumor cell immortality, the progression of cancer will in turn be inhibited. Thus, this literature review is aimed to give a better understanding on the therapeutic approach by analyzing recent studies and elucidating the advances of knowledge dealing with telomerase activity in cancer cells.

Keywords:

Telomerase, anti-telomerase, cancer therapy, Indonesia

LR004 - ANIMAL-ASSISTED THERAPY: AN ALTERNATIVE SOLUTION TO DEPRESSION AMONG CANCER PATIENTS

Ridha Ramdani Rahmah, Nikki Sabastian, Dionisius Alby – Universitas Padjadjaran

Cancer is a leading cause of death worldwide. Cancer itself is not the sole predictor of the mortality rate, there should be comorbidity that goes within. One of the most dangerous comorbidity on cancer patient is depression, which is a major psychiatric comorbidity on them, possibly reducing their survival rate. Depression is associated with decreased quality of life, more metastases, or rapidly progressing cancer symptoms, and pain, relatively to non-depressed cancer patients, that made it as an important factor relating to death due to cancer. Day by day, depression in patients with cancer is usually intervened by psychotherapy, such as counseling; behavioral therapy; family therapy; or even pharmacotherapy. As the globalization of technology and science sustained, there are a lot of studies planned. These studies aim to find the alternative solution for a cost-friendly psychotherapy. Some researchers suggest that animals will give positive impacts for psychological conditions in terminal-ill patients. Psychotherapy involving animals is already known as Animal-Assisted Therapy (AAT). With possible benefit that could be revealed, our objective is to know whether AAT is effective for healing depression on patients with cancer. AAT was proven lowering cortisol levels and increasing the levels of oxytocin, prolactin, and b-endorphin, hinting that AAT has anti-stress effect. Moreover, it is forecasted to increase patients' quality of life.

Keywords: Cancer, Depression, Animal-Assisted Therapy, Quality of Life

LR006 – Metastatic Gingival Lesion

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Cancer cell metastasis to the oral cavity occurs only about 1 percent and gingiva is the most frequent encounters oral soft tissue metastases. The presence of metastasis indicates a primary tumor, which is growing in other organs of the body; lung cancer is the most common primary tumor that metastasized to the gingiva. The common pathway that is passed by cancer cell and metastases is through the blood circulation. Gingival inflammation increases cancer cells to be entrapped in gingival blood circulation. Clinical features from gingival metastases commonly represent a painless enlargement, exophytic, bleeding on probing, erythema, soft to firm consistency, lobulated, tooth mobility in the affected area, poor oral hygiene with the presence of plaque and calculus. Clinical features of metastatic gingival lesion are very similar to benign lesion, which requires dentists to be more careful in determining the final diagnosis.

Keyword: Cancer, metastasis, gingival enlargement

LR008 - Trojan Horse Mechanism of *Clostridium sp* to Regress Solid Tumor In Cancer

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Cancer is the second leading cause of death in the world. About 90% of the cancerous diseases are diagnosed as solid tumors in which they are quite persistent against the most therapies nowadays. The hazard of solid tumors coming from their abilities to grow, proliferate, do invasion, and metastasis to remote and distant organs. To complete their metabolisms, solid tumors need the unique microenvironment such as hypoxic areas. This area is the cause of the failure of most anticancer drugs because they are having difficulties to reach the tumor site. Despite of being mostly pathogenic, *Clostridium spp.* have an unique nature of being a "Trojan Horse", in their ability of being able to live, colonize and secrete tumor lytic enzymes in hypoxic region. The result of the experiments with mice and rabbits conducted by Agrawal et al., injection of genetically-removed toxin strain of *Clostridium novyi-NT* spores produced area of necrosis in tumor cells. This area of necrosis prohibited the tumor to grow any bigger, more importantly regressed the tumor size more significantly than the current treatment. This magnificent effect of *Clostridium novyi-NT* is now considered as good prospects towards future cure of cancerous diseases originated from solid tumors.

Keywords: solid tumor, *Clostridium spp.*, Trojan Horse mechanism

LR009 – COMBINATION OF CACAO AND KAFFIR LIME AS CURATIVE METHOD OF LEUKEMIA IN CHILDREN

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Leukemia is one of high burden cancer that consists of neoplastic myeloid and lymphoid cell developed in bone marrow. Compared to other leukemia, acute leukemia is the most common leukemia occurs in children. Chemotherapy often becomes the method used to treat acute leukemia. However, there are many side effects that decrease patient compliances. The most widely well-known current chemotherapy is vincristine, which inhibits formation of mitotic spindle. However, there is another mechanism that may be more efficient in killing leukemia cells. Another mechanisms such as promote apoptosis of the cancer cells and inhibit anti-apoptotic genes are found in cocoa and kaffir lime. Despite different pathways for each flavonoid mechanism, all of them result on apoptosis in cancer cell. Cocoa theobroma is dessert which is favored by children, whereas kaffir lime is easy to find in everywhere and affordable. Their combination can become another curative method which increases the patients compliance. The literature was aimed to describe and give basic understanding to use herbal therapy in leukemia which does not have side effects. However, the exact dose of their combination to reach optimal activity in regulating leukemia's cell apoptosis has not been clear enough, thus further research is required then.

Keyword : Cocoa, kaffir lime, acute leukemia, apoptosis

LR010 - IAN LC: INHALATION AEROSOL NEBULIZER FOR LUNG CANCER, A NEW TREATMENT ALTERNATIVE FOR LUNG CANCER BASES NANOPARTICLES OF SOURSOP LEAF ISOLATES

Andika Ramadhani, Siti Zulaikhah, Dian Ayu Eka Pitaloka – University of Jember

Cancer is the major cause of death worldwide; one of the kinds is caused by lung cancer. The current treatment is only extending patients' lives, but not curing. Nowadays, chemotherapy becomes the alternative which has been used on lung cancer treatment, whereas chemotherapy is not so cancerous cell-selective that may quickly attack the growth of normal cells. The herbal chemopreventive agent is a better alternative than chemotherapy. Chemoprevention is more beneficial than chemotherapy since it has a cancer growth obstructing activity and is able to increase the recovery possibility as well as decreases the pain suffered by the patient. The substance of acetogenins in soursop leaf has been examined selectively cytotoxic kills the cancerous cells, yet acetogenins insulator has a bad solubility in the water, and thus needs another alternative dosage form that is inhalation aerosol nebulizer for lung cancer. The innovation of nanoparticles technology is able to diminish the size of soursop insulator to be as small as DNA so that after being formed into nanoparticles, it will increase the cellular uptake of medicine ingredients into cancerous cells better than chemotherapy's micro particles medicine, and will decrease the medicine dosage. The production of slow inhalation aerosol nebulizer for lung cancer is the solution of lung cancer treatment that increases acetogenin solubility and efficiency as well as the medicine absorption and bioavailability. Thus, this inhalation aerosol nebulizer for lung cancer is able to directly attack the cancer cell, and is also able to selectively kill the lung cancer cell.

Keywords: lung cancer, chemopreventive, soursop, nanoparticles, aerosol

LR011 - Personalized Care for Treating Lung Cancer is Based on Patients' Molecular Mutations

Carennia Paramita, Alice Pratiwi, Franzeska Marchitia Dinar Pusparani – Universitas Kristen Krida Wacana

Lung cancer is caused by external factors (mostly due to cigarette smoking, but several other risk factors including occupational exposures to asbestos, arsenic, and radon gas also play an important role to increase the incidence rates) and internal factors (inherited mutations and mutations that occur from metabolism). Epithelial lung cancers consist of four major cell types: Small Cell Lung Cancer (SCLC), Non Small Cell Lung Cancer including adenocarcinoma, squamous cell carcinoma, and large cell carcinoma. The existence of molecular abnormalities is divided into overexpression and mutations. *myc* family, *c-erbB-1*, HER2, and p53 undergo the overexpression. Whereas, *Ras* family, EGFR, RB allele, and *EML4-ALK* undergo the mutations. There are various managements of lung cancer. These do not aim at healing the patients with lung cancer, but these managements can improve the life quality of the patients. Besides surgery, radiation therapy, chemotherapy, and PCI, the latest management of lung cancer (especially for NSCLC) is focused on molecular-targeted therapy.

Keywords: SCLC, NSCLC, Molecular mutations, Chemoradiotherapy, Molecular-targeted therapy.

LR012 – EARLY DETECTION OF SQUAMOUS CELL CARCINOMA BY PUNCH BIOPSY

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The importance of early detection of oral cancer is emphasized by the fact that the most significant factor in prognosis of a cancerous lesion is the stage in which the lesion is detected. This fact underlines the importance of a methodical approach in examination of oral mucosa of every patient seeking dental consultation as the reliable method for early detection of oral carcinoma. Punch biopsy is considered the primary technique to obtain diagnostic, full- thickness skin specimens. It is performed using a circular blade or trephine attached to a pencil- like handle. The instrument is rotated down through the epidermis and dermis, and into the subcutaneous fat. The punch biopsy yields a cylindrical core of tissue that must be gently handled (usually with a needle) to prevent crush artifact at the pathologic evaluation. The aim of this literature is to familiarize the dental general practitioners and oral surgeons with the clinical features of squamous cell carcinoma in the oral cavity. In conclusion improving prognosis of patients with oral carcinoma can only be achieved by careful examination of oral mucosa to early detection of malignant and premalignant lesions, prompt performance of punch biopsy to reach final diagnosis and referral for treatment.

Keywords: Detection, Squamous Cell Carcinoma, Punch Biopsy

LR013 - Chewing Candy Goji Berry as HL-60 Inhibitor for Acute Myelogenous Leukemia Treatment

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Padjadjaran

Leukemia is one type of cancer that known as blood cancer and it affects almost all of blood tissue. Including all of blood cells in the body, red blood cells, platelet will be at abnormal level. In Indonesia, leukemia mostly occur in children. And one of this subtype of leukemia is Acute Myelogenous Leukemia. In which the abnormality occur at bone marrow in producing normal leukocyte. The current treatment method that mostly known is chemotherapy and bone marrow transplantation, because it is known as therapy for this cancer. However, it has many disadvantages side effect to the patients. Whereas there is another mechanism to cope with the treatment for Acute Myelogenous Leukemia. Its mechanism are inhibition of proliferation of leukemic cells and disturb its fluidity of leukemic cell membrane and this are found in Goji Berry extract. And it is proved that Goji berry extract shows effectiveness in several researches. Although Goji Berry only grow in China and its surrounding is easy to get and really abundant in quantity. However, Goji Berry extract is rarely used for Acute Myelogenous Leukemia disease. In addition, this extract is close to reach optimal activity as a antileukemia agent. Although is hasn't been clear enough, further research is required.

Keywords : *Gojiberry Extract, Lycium Barbarum Polysaccharides, Acute Myelogenous Leukemia, Chewing Candy*
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LR014 - EICOSAPENTAENOIC ACID AS TREATMENT FOR CANCER CACHEXIA TO IMPROVE QUALITY OF LIFE

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Cancer is one of the leading causes of death. Cancer morbidity results from several effects, one of them is cachexia. Cachexia emerges from interaction of several factors : metabolic effect of tumor, factors released by tumor, cytokines release from host cell in response to tumors, and the therapies. Combination of these factors contribute to anorexia, decrease body weight, and muscle loss. Cachexia progressively causes loss of function in body lead to decrease quality of life. It also interferes with effectiveness of treatment. Unfortunately, there is still no gold standard for treatment of cachexia. Several studies found that eicosapentaenoic acid (EPA) may increase body weight and lean body mass, while others found no beneficial effects compared to placebo. However, EPA has potential blocking effects on several factors underlying cachexia. It can prevent muscle loss by blocking action of soluble factors produced by tumors on muscle cells. It also suppresses cytokines production, that mediates anorexia and energy expenditure. Thus EPA may reverse weight loss, increase lean body mass, and improve quality of life. Although treating cachexia will not cure the disease, at least it may relieve some symptoms and increase effectiveness of therapies. The objective of this literature review is to describe and give basic understanding of EPA as treatment for cancer cachexia.

Keywords: cancer, cachexia, EPA

LR015 - The Utilization of Synbiotics for The Colorectal Cancer Therapy

Emily, Richard Firmansyah, Vindi Tandy, Jenny Hidayat – Atmajaya Catholic University

Background: Colorectal cancer (CRC) is the one in which incidence and mortality rates are varying around the world. Globally, CRC is the fourth most common cancer that was being diagnosed with over 1.2 million new cases and caused 608.000 deaths in 2008. Based on this situation, a good therapy for colorectal cancer is needed. One of the promising methods is by manipulating the colon microflora by using synbiotics.

General Objective: This literature aim is to know about effect of synbiotic on the change of the colon microflora for the colorectal cancer therapy.

Writing Methodology: The writing methodology used in this literature consists of searching the literatures from medical journals and textbook.

Discussion: Synbiotics is a combination of probiotics and prebiotics. By using of the synbiotics, bacteria are being encouraged to multiply through ingestion of appropriate probiotic strains and prebiotic growth substrates. Anti-tumorigenic compound can be produced by the synbiotic. The soluble compounds of lactic acid bacteria interact with tumor cells in vitro and inhibit the growth of tumor cells. Some bacteria could modulate the immune system and inducing the production of anti-metastatic compounds resulting tumor inhibition and regression. The other bacteria's product could protect against the tumorigenesis, improves mucosal DNA damage, and enhances apoptosis.

Conclusion: Synbiotic can alter metabolic activities in the intestinal microflora. Synbiotics able to promote the protective bacteria to improvement of the colonic cells that had been affected by the cancer. Synbiotics also shown to reduce the cancer promoting bacteria which meant more decrease of cancer activity.

Keywords: prebiotic, probiotic, synbiotic, colorectal cancer.

LR017 – MICRONUTRIENTS: PREVENTING OR PROMOTING CARCINOGENESIS?

Corry Quando Yahya – Universitas Pelita Harapan

Background: Micronutrients are compounds needed for proper functioning of cells and one that possesses antioxidant abilities. If such claims are true, which micronutrients and at what amount does current evidence show as 'preventing' or 'promoting' carcinogenesis.

Objective: To seek literature on 12 different micronutrients and conclude its evidence in carcinogenesis.

Methods: Literature searches were conducted using Pubmed, Medline, Cochrane Central, Cochrane Database of Systematic Reviews to identify micronutrients and cancer prevention literature published from 1990 – 2012. The design studies selected are meta-analysis, randomized controlled trials and cohort studies.

Result: A total of 26 literatures on micronutrients and clinical trials were selected into this literature review.

Conclusion: Beta Carotene (30 mg/d), Calcium (1400 – 1500 mg/d), Selenium (200 µg/d), vitamin A (862 - 2474 µg/d), vitamin B₆ (8.6 mg/day), serum vitamin D level (25(OH)D) of 25 nmol/L and elemental zinc supplements (\leq 40 mg/d) have been confirmed to have protective factor against certain cancer sites. High circulating vitamin B₁₂ ($>$ 376 pmol/L) serum levels, excess vitamin D intake ($>$ 450 IU/day), ingestion of $>$ 1 ppm fluorinated water and excessive vitamin E intake (\geq 400 IU/day)

are all associated with an increased cancer risk at certain sites. Folate (400 - 900 µg/d) and vitamin C was found to have no association with cancer prevention.

Keywords: Micronutrients, cancer prevention, cancer promotion, carcinogenesis

LR018 - ONIPATCH (ONION PATCH): DEVELOPMENT OF TRANSDERMAL DRUG DELIVERY SYSTEM OF ONION-QUERCETIN LOADED NANOPARTICLES FOR BREAST CANCER

Dian Ayu Eka Pitaloka, Putri Larasari, Fadilah – University of Jember

Incident of breast cancer in Indonesia is becoming dangerous. Each year, there are 292 people affected by breast cancer. It is time for this chronic disease get serious treatment to prevent and solve this problem. Onion quercetin has most flavonol content than other kind of onions about 1000mg/kg. Onion quercetin, which contains flavonol glycoside, have beneficial effect to inhibit DNA adduct formation, free radical scavenging, and effects on cell proliferation and tumor growth. The disadvantage of onion quercetin when it is used in preparation of transdermal drug delivery is difficult to penetrate through the skin because of not water-soluble and crystals form. To solve that problem, application of nanotechnology in the quercetin onion for transdermal patch is a right choice.

Polymeric nanoparticles (PLGA) have been developed for the encapsulation and controlled release of bioactive of quercetin. This method is suitable to use both reproduction and stability. The use of PLGA nanoparticles can also increase antioxidant and chelating properties of quercetin, which nanoparticle-based delivery systems may be, an alternative of new therapeutic system for delaying the spread out of diseases associated with oxidative stress such as cancer. Preparation of nanoparticle onion quercetin patch is used the micro reservoir. This system is a combination of reservoir and matrix dispersion type. The drug was suspended solids with a water-soluble polymer and then dispersed homogeneously in a lipophilic polymer with high mechanical strength to form a drug reservoir in microscopic spherical. Dispersion is later stabilized immediately by crosslinking between polymer chains that produce thickness and constant surface area.

Keywords: Breast cancer, onion-quercetin, nanoparticle, transdermal patch

LR-019 - GREEN TEA EXTRACT AS A CHEMOPREVENTIVE AND COMBINATORIAL THERAPY MEASURE FOR BREAST CANCER

Christopher Rinaldi, Daniel Christian Fernandez, Kafi Khaibar Lubis – Universitas Padjadjaran

Cancer is one of the most widely that can affect virtually everyone. Breast cancers specifically, are one of the most common cancers in women. The most common treatment used in treating patients with cancers is chemotherapy and radiotherapy. These treatments however, are very expensive and place a heavy burden on overall health of cancer patients (due to the normal cells being affected too). They are frequently combined to ensure maximum effectiveness but both being actually very toxic to other normal cells. Chemotherapy itself can cause harmful side effects due to its nature as cytotoxic substance while radiotherapy can induce genetic damage to any cells without discrimination. In order to reduce the side effects and maintain or

increase the effectiveness of cancer treatment, natural chemotherapy with herbal remedies (green tea in this literature review) can be used due to its content of EGCG (epigallocatechin-3-gallate acid) that has chemopreventive, indication for adjuvant therapies, and health-enhancing qualities in one package. This literature was aimed to give basic introduction to cancer cells, describe green tea, and discuss the mechanism of EGCG in inducing apoptosis of breast cancer cells in adjuvant therapies. The procedure to induce complete apoptosis in clinical settings by these substances are still experimental and may require further research to find effective appliance to human subjects.

Keywords: cancer, apoptosis, chemopreventive, combinatory, therapy

LR020 - Theoretical Basis of Anti-CEA-PEG-Coated Ca-Liposome as Tyrosine Kinase Inhibitor Transporter in Targeted Drug Delivery for Non-Small Cell Lung Carcinoma Chemotherapy

Ilham Ikhtiar – Faculty of Medicine, Universitas Airlangga

Lung cancer is not very prevalent among all cancer, but it placed as the most deadly cancer in the world. Non-small cell lung carcinoma (NSCLC) is the most prevalent lung cancer type and mainly caused by EGFR and KRAS mutation that induce cell proliferation through activation of tyrosine kinase pathways. Current drug regiment for NSCLC patient is by using tyrosine kinase inhibitors (TKI), which are still preferred chemotherapy for NSCLC due its action in inhibiting tyrosine kinase activity. However, drug adverse effects are common and the risk of toxicity is high due to its nature in lipid solubility, nonselective cell targeting, producing active metabolite, and long half-life. Targeted drug therapy aims to control the TKI bioavailability and lower the adverse effect caused by cell mistargetting. Liposome as nanoparticle has potential to overcome this problem. However, it needs modification such as addition of PEG coat on its surface phospholipids phosphate head and addition of calcium to stabilize the dynamic membrane. Addition of already present anti-CEA monoclonal antibody is essential for selective cell targeting and GPI covalently lipid-binding anchor mechanism may promote the antibody binding on liposome surface. The artificial techniques to apply these modifications are still need to understand.

Keywords: lung cancer, NSCLC, liposome, drug delivery

LR021 – NASOPHARYNGEAL CARCINOMA

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Nasopharyngeal carcinoma (NPC) has been known as one of the lethal disease in the Eastern hemisphere with high incidence and mortality rates. The trend is also applicable for the Indonesian population, where surprisingly 1000 new cases of NPC were found every month in 11 cities of Indonesia. It was also found that more patients are admitted to the hospital with an advanced stage of NPC, which are harder to treat, subsequently a higher mortality rate. Therefore early diagnosis is beneficial. Dietary and lifestyle factors seemed to play an essential role in the incidence, particularly ingestion of preserved foods containing N-nitroso compounds and also smoking. Another contributing factor includes poor health providers' knowledge on the diagnosis of NPC, leading to an increased rate of advanced stage diagnosis.

Additionally, the incidence of NPC is related to latent Epstein-Barr virus infections. Recent findings show how the risk factors interact with the growth of the pathogen, ultimately resulting in carcinogenesis. Treatment of NPC is based on staging, early stages show better prognosis with 90% 5-year survival rate with only radiotherapy. It can be suggested that with sufficient knowledge on this topic, early diagnosis and prevention measures can then be carried out.

**LR022 - ANTICANCER ACTIVITIES OF PANDURATIN A FROM
INDONESIAN HERBAL MEDICINE TEMU KUNCI (*Boesenbergia
pandurata*) EXTRACT**

Muhammad Agung Bhagaskoro Hardiyanto Syahputro, Arie Prasetyawan, Fitriahati Setiyarizky – Faculty of Medicine, Universitas Indonesia

Cancer is the second major cause of death in the world. According to WHO, cancer is the leading cause of death of 7.8 million people in 2008. In Indonesia, based on the data of Dharmas Hospital, cancer is increasing from 392 cases in 1993 to 1,612 cases in 2000 and 2,387 cases in 2007. On the other hand, Indonesia is rich in natural resources and herbs that potential to be anticancer drugs, one of them is Temu kunci (*Boesenbergia pandurata*). Temu kunci used for food and jamu in Indonesia contain a compound called Panduratin A. This article review mainly explains the anticancer effect of Panduratin A. Panduratin A showed no cytotoxicity in normal cell and has cytotoxicity effect on many cancer cell lines. Previous studies showed that Panduratin A have antioxidant effect, anticancer effect against pancreatic cancer, colon cancer, breast cancer, human non-small lung cancer, and prostate cancer cells, anti angiogenic effect and protection against UV exposure. In conclusion, Panduratin A extracted from Temu kunci is a potential anticancer drugs. Although Temu kunci has long been eaten and used for jamu in Indonesia, research on anticancer effect of Panduratin A on animal and human studies must be conducted to formulate anticancer drugs.

Keyword: Panduratin A, Anti-cancer, Temu kunci

**LR023 - ANTIMETASTATIC AND ANTITUMOR ACTIVITY OF
SCURRULA ATROPURPUREA AGAINST NASOPHARYNGEAL
CARCINOMA CELL LINES**

Rizka Amalia Fulinda, Nur Fitri Margaretna – School of Medicine, Jenderal Soedirman University

Nasopharyngeal Carcinoma is one of deadly malignancies in the world. Even though the disease is rare, but it happens a lot in some regions. Epstein Barr virus infection was being considered to play a role in the development of Nasopharyngeal Carcinoma cell, but some studies show that formaldehyde exposures were also essential thing to contribute to trigger this malignancy. *Scurrula atropurpurea*, the tea parasite, was proven to be functioned as an anticancer that eagerly inhibited the metastatic of the cancer cells. It was also well-known that *Scurrula atropurpurea* contains various active compounds from the prior bioassay experiments. Also, another study revealed that *Scurrula atropurpurea* was capable to give a significant better improvement of histopathological nasopharyngeal mucosa from mice that were being induced by formalin.

Keywords: Nasopharyngeal Carcinoma, Scurrula atropurpurea, antimetastatic, anticancer

LR024 - CURCUMIN AS A NOVEL NATURAL APOPTOTIC AGENT IN TRIPLE NEGATIVE BREAST CANCER

Ni Luh Putu Nurindah Sukmawati, Putu Dewi Octavia, Tjokorda Istri Pramitasuri – Faculty of Medicine, Udayana University

Triple negative breast cancer (TNBC) accounts for approximately 20% of breast cancers diagnosed worldwide, which amounts almost 200,000 cases each year. TNBC will not respond to both endocrine and antibody therapy since it has the absence of receptors commonly found in breast cancers. Chemotherapy use left as the only therapy seems to be available in this case. However the prolong use will not give a satisfied result. Recent studies have shown the effectiveness of EGFR and PARP inhibitor combination in inducing apoptosis rather than a single use in TNBC through synthetic lethality. Curcumin as the major bioactive ingredient extracted from the rhizome of the plant *Curcuma longa Linn* has been used as medicine for centuries. Curcumin may act as a natural apoptotic agent by resembling EGFR and PARP inhibitor at a time. However, exact mechanism toward how it induces apoptosis and how much the dose given to reach optimal activity in TNBC has not been clear enough, thus further research is required.

Keywords: triple negative breast cancer, synthetic lethality, apoptosis, PARP, BRCA1, and EGFR

Vika Budi Riandini – Faculty of Public Health, Universitas Indonesia

LR025 – CERVICAL SCREENING PROGRAMME AS AN EFFECTIVE METHOD TO PREVENT CERVICAL CANCER

Background: Cervical cancer is one of the toughest problems in the world notably for developing countries. 90% of the disease incidence occurs in the developing countries. In Indonesia, cervical cancer is the 3rd most common cancer among women. **Aim:** to review how screening can be an effective way to prevent cervical cancer and its threat and challenge facing developing countries including Indonesia.

Method: reviewing various relevant references such as books, modules, science journal, science article, website, and others. This review is conducted by implementing *simpul* theory to describe the disease chain and how screening programme can cut off the chain.

Result: simpul 1 describes infected person as HPV reservoir, simpul 2 describes skin to skin and sexual intercourse as media of disease transmission, simpul 3 describes the risk factors, simpul 4 describes cervical cancer manifestation as the outcome of all variables interaction, and simpul 5 describes regulation as the supra system variable. Cervical screening programme break the chain by controlling simpul 3 and 1. It reduces development of cancer and omitted source of the agent. It is also proved as the most effective way in reducing cervical cancer. However, most of developing countries failed to achieve its impact due to unwell organized programme components.

Conclusion: Cervical screening is the most effective method to reduce risk cancer. However, developing countries, including Indonesia, need more adequate components of programme, should reorganize their programme component, and needs additional investment to improve manpower and infrastructure.

Keywords: cervical cancer, screening programmemes, developing countries

LR026 - The Efficacy of Apoptin as Lung Cancer Treatment in The Absence of p53 Gene

Agnes Tamrin, Gabriella Clarissa, John Justinus – Atmajaya Catholic University

Apoptin, a small protein from chicken anemia virus, has attracted great attention, because it specifically kills tumor cells while leaving normal cells unharmed. The subcellular localization of apoptin appears to be crucial for this tumor-selective activity. In normal cells, apoptin resides in the cytoplasm, whereas in cancerous cells it translocates into the nucleus. The nuclear translocation of apoptin is largely controlled by its phosphorylation. The activity of Apoptin is regulated at the level of localization. Whereas Apoptin is cytoplasmic in primary cells and does not affect cell growth, in transformed cells it localizes to the nucleus, where it induces apoptosis. In the current study, DNA damage response (DDR) signaling is required to induce apoptin nuclear localization in primary cells. Induction of DNA damage in combination with apoptin expression was able to induce apoptosis in primary cells. Apoptin also binds as a multimeric complex to DNA and interacts with several nuclear targets, such as the anaphase-promoting complex, resulting in a G2/M phase arrest. The proapoptotic signal of apoptin is then transduced from the nucleus to cytoplasm which triggers a p53-independent mitochondrial death pathway. The most common death-leading cancer is lung cancer, which is for about 50% or more is caused by the abnormalities in the p53 genes. At the end, apoptin is able to meet this fact.

Keywords: CAV, apoptin, lung cancer, p53, APC/C

LR027 - REVOLUTIONARY THERAPY FOR BREAST CANCER (BCa) BY USING TETRODOTOXIN (TTX) EXTRACTED FROM THE MASKED PUFFER FISH *AROTHRON DIADEMATUS*

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Background: Breast cancer is the leading cancer among women worldwide in both incidence and mortality, accounting for nearly 23% of all malignancies in women. In fact, resistance to chemotherapy is believed to cause treatment failure in 90% of metastatic breast cancer patients. Tetrodotoxin, extracted from *Arothron diadematus*, can inhibit specifically and sensitively both voltage-gated sodium channels whose critical role in breast cancer cells' metabolic process and P-glycoprotein whose critical role in breast cancers cells' resistance to anti cancer drugs.

Objective: To show how voltage-gated sodium channels plays important role in breast cancer P-glycoprotein whose critical role in breast cancers cells' resistance and to show how Tetrodotoxin blocks these phenomena.

Methods: Method in this study is conducted by the method of literature review based on issues, both through up to date digital and non-digital information such as journals and medical books by using two approaches, exposition methods and analytic methods.

Findings, Discussion and Conclusion: Tetrodotoxin plays an important role in binding to the Na⁺ channels, blocking it and preventing Na⁺ influx into the cells. This action prevents the breast cancer cells from getting enough Na⁺ ions, process necessary to maintain cell integrity. Tetrodotoxin has ability to differentiate whether

cancer or normal cells. Fortunately, Tetrodotoxin can also inhibit P-glycoprotein expression whose role in drug resistance. As a consequence, Tetrodotoxin suppresses proliferation and invasiveness of breast cancer cells without affecting normal cells and it becomes an effective therapy because it can prevent body's resistance to it.

Keywords: Breast Cancer, Tetrodotoxin, Arothron diadematus ,Voltage-gated Sodium Channels, Drug resistance, P-glycoprotein

LR029 - The Cardioprotective Effects of Citrus Flavonoid on Doxorubicin-induced Cardiotoxicity Chemotherapy : A Prospective Review

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Cancer therapy with conventional cytotoxic agent doxorubicin (DOX) is limited by its cardiotoxicity. It has been suggested that DOX-induced free radicals generation can be involved. DOX-induced cardiotoxicity also mediated by doxorubicinol (DOXol), secondary alcohol metabolites of DOX. With the increasing cancer survivals, its need to develop preventive and effective therapies against DOX-induced cardiotoxicity. Flavonoids appears to be a potent antioxidant that decrease cardiovascular disease (CVD) risks. The natural products which being rich in flavonoid is belong to genus *Citrus*. The major flavonoids contained in genus *Citrus* are hesperidin and rutin. Study *in vivo*, hesperidin and rutin shows a cardioprotective effect on DOX-induced cardiomyopathy by increasing Glutathione (GSH) level, Glutathione S-transferase (GST) activity, GSH peroxidase activity, heart peroxidase activity and decreasing lipid peroxidase level. In this review, we will focus on the current understanding of molecular mechanism underlying DOX-induced cardiac cell death, including production of reactive oxygen species (ROS) and the molecular mechanism of hesperidin and rutin pretreatment in increasing cardiac cell survival during DOX treatment.

Keywords : Doxorubicin, ROS, Doxorubicinol, Cardiotoxicity, Hesperidin, Rutin

LR030 - SALIVARY BIOMARKERS IN DIAGNOSIS AND PROGRESSION OF ORAL SQUAMOUS CELL CARCINOMA

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Early detection and treatment of oral squamous cell carcinoma (OSCC) is important to low survival rate. In OSCC, the DNA, RNA, and protein derived from the living cancer cells and inflammatory cells then can be conveniently obtained from saliva therefore saliva as oral fluid may be used as alternative approach to collect information about malignancy. Using proteomic and genomic technologies is carried out to discovered and validated salivary OSCC markers. There are potential biomarkers that showed proteomic and genomic of saliva is corelated with progression of oral squamous cell carcinoma. This article focused the currently identified biomarker from saliva for oral squamous cell carcinoma to analysed high risk patients of OSCC. Effective method to detect high risk patient can allow the clinician to provide the appropriate treatment without delay and to reduce the recurrence of OSCC.

Keyword: biomarker, saliva, oral squamous cell carcinoma

LR031 - Raw Cabbage as Chemopreventive Method of Colorectal Adenocarcinoma

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Cancer is one of the most common cause of death in the world. One type of cancer that relatively has high prevalence in Indonesia is colorectal cancer. Colorectal cancer (mostly adenocarcinoma) affects both female and male almost equally and it is associated with dietary habit, so the possibility to prevent the formation of colorectal cancer is high.

Every cancer initiated by DNA mutation. In colorectal cancer cases, DNA mutation can be resulted from ROS damaging effect. ROS is a reactive oxygen that can be synthesized by the bacteria in human intestine. Several mechanism are needed to prevent ROS from initiating DNA damage. Antioxidant and eating more fiber which will decrease the availability of lipid in intestine is the example of DNA damage prevention method.

Cabbage (*Brassica oleracea* L.), a vegetable that is distributed world wide is relatively easy to get and affordable. It is not hard to get cabbage in Indonesia. Besides, cabbage has the criteria to prevent DNA damage induced by ROS. Since it is a vegetable, it is just normal that cabbage has dietary fibers, which will increase stool bulk and decrease the possibility of getting colorectal cancer. Kaempferol is another substances available in cabbage that will come in handy in preventing the formation of adenocarcinoma. It can act as antioxidant (scavange the ROS), inhibit cell proliferation, and induce apoptosis. Moreover, kaempferol as natural COX-2 inhibitor is scientifically proven to has the ability to regress polyp.

Key words : raw cabbage, anti-cancer, kaempferol, colorectal cancer

LR032 – ANALYSIS OF N-ACETYLCYSTEINE AS CO-THERAPY INTERFERON-2 α AT HEPATOCELLULARCARCINOMA THROUGH NF- κ B BLOCKING

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Background. Hepatocellular carcinoma (HCC) is the fifth cancer incidence in the world and the third deadliest cancer. However, there is no effective treatment recently. IFN-2 α is an agent of HCC chemotherapy with low effect and increasing metastasis possibility.

Discussion. HCC is caused by cirrhosis, hepatitis, aflatoxin, alcohols, and free radicals which stimulate NF- κ B. IFN-2 α as HCC antitumor substance can activate immune system and stabilize HCC growth through prevent cells proliferation and decrease angiogenesis factor (VEGF-A, IL-6, PDGF-A). However, it increase NF- κ B activation, antiapoptosis, and metastasis. NF- κ B induces AP-1 then stimulates MMP to destruct the cell membrane. Beside that IFN-2 α only decreases 30% of HCC viability.

NAC is huge sulfhydryl source in GSH synthesis for detoxification. It can be fast absorbed orally then 97% metabolized and accumulated in liver. The detoxification

process is by activating the cytochrome p450 and GSH, blocking HCC metabolism, hepatoprotecting to infection, and preventing activation of iNOS to decrease metastasis. NAC also decrease NF- κ B through blocking NF- κ B binding with κ B element in DNA promotor target. So it does not occur the proinflammatory transcription gene and antiapoptosis. Beside that it can increase IFN sensitivity to HCC.

As compared, IFN-2 α decreases 30% viability HCC, the combination of NAC, IFN-2 α has better potency. It decreases 50% viability HCC. The combination makes selective apoptosis without increasing resistant of the treatment. The active dose which give best result composed by 10mM NAC and 2,5 x 10⁴ IFN2 α .

Conclusion. N-acetylcysteine co-therapy interferon-2 α has potency to treat patients with hepatocellular carcinoma

Keyword: N-acetylcysteine, Interferon-2 α , NF- κ B, Hepatocellular Carcinoma

LR-033 - GPC3-TARGETING THERAPY BY CSN5-siRNA IN PEGYLATED CHITOSAN NANOPARTICLES: A NOVEL TREATMENT FOR HCC

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Hepatocellular carcinoma (HCC) is a primary liver malignancy, most commonly found in tumor cases (about 75% cases). Therapeutic modalities used for the treatment of this disease is still not satisfied. It can be seen from the high recurrence rate, complications and side effects, as well as the effectiveness of existing therapies. Referring to the problems, HCC is a health problem that requires an effective and efficient management with minimal side effects.

GPC3-targeting therapy using CSN5-siRNA in PEGylated-chitosan nanoparticles may provide a new alternative treatment of HCC. Monoclonal antibodies against GPC3 will help the nanoparticles get in to the specific target cells. Furthermore, CSN5-siRNA will silence the expression of CSN5 gene. This silencing affects the inhibition of cell cycle progression and increases cell apoptosis. The increased apoptosis is caused due to an increase of Smad2/3 phosphorylation, increased expression of Bak, as well as a decrease of (NF)- κ B, CDK6, cyclin D1 and Bcl-2. In addition, chitosan nanoparticles could inhibit the growth of HCC through the antiangiogenesis mechanism by decreasing the expression of VEGFR2. This therapy is potentially creating novel therapeutic candidate in the treatment of hepatocellular carcinoma (HCC).

Keywords: *Hepatocellular carcinoma, CSN5-siRNA, GPC3-targeting therapy, proliferation, apoptosis*

LR034 - Cabozantinib : A Perspective Drug for Curing Castration-Resistant Prostate Cancer

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Prostate cancer is a cancer which often emerges in men in America and one of the most leading cancer-related cause of death in men worldwide. Cancer is said to be dangerous because of its ability to metastasize and its rapid proliferation. In prostate cancer, the most perilous stage is when the prostate cancer metastasized to other part of the body, ie. the bone. Prostate cancer which spread to the bones, called castration-resistant prostate cancer (CRPC), will increase mostly osteoblast production and causing pain, inflammation, and increasing the risk of fracture in bones that function to withstand heavy weight. There are 3 methods for CRPC's treatment that can be used which are hormone therapy, chemotherapy, and treatment using biologic products. The current methods for curing CRPC are judged to be unneffective, hence, there is a need for another treatment to overcome that bone metastasize. One of the drug which has good prospects in quelling bone metastasize is Cabozantinib. Cabozantinib has been previously approved by FDA as a thyroid cancer drug. In case of curing prostate cancer, Cabozantinib is already at the second clinical phase and now in the reviewing stage of third clinical phase. It works simultaneously in inhibiting metastasize and angiogenesis to kill tumor cell while blocking the escape pathway. Evidence from researchs show that Cabozantinib has a good prospect as a new drug treatment in curing CRPC because it belongs to biology product which has more specific targets so that it will not harm other healthy body parts.

Keywords : Castration-resistance prostate cancer (CRPC) ; Cabozantinib ; biologic product treatment ; bones.

LR036 - A REVIEW OF BREAST CANCER IN MALAYSIA

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Objective: To conduct a systematic appraisal of ethnicity based variation of breast cancer incidence, risk factors, histology, stage at presentation and prognosis in Malaysia

Method: Articles were obtained from MEDLINE (1966-present), PUBMED and Google Scholar using the following search terms: *Breast, cancer; Breast carcinoma; Breast neoplasm; Infiltrating ductal carcinoma; Lobular Carcinoma; Malaysia; Risk factors; ethnicity; Race; BRCA status; Receptor status; Size of tumour; Prognosis; Age; Lifestyle factors; Stage.* Manual searching using Medical Subject Headings (MESH) database with the key term 'Breast Cancer' and 'Malaysia' were also carried out. Further eligible articles were sought by screening the references of all relevant articles. 442 articles were screened and a total of 34 articles met all criteria.

Results: Breast cancer tends to present at an earlier age in Malaysian women especially the Malays. Malay women tend to present late, with larger tumours and generally have a worse prognosis compared to the other ethnic groups. Chinese women tend to have a higher risk of getting breast cancer but present at an earlier stage and have the best survival rates amongst all the ethnic groups in Malaysia.

Conclusion: There is an ethnicity-based variation of breast cancer incidence, risk factors, stage at presentation and prognosis in Malaysia. A more comprehensive data collection of breast cancer should be practiced which should include Malaysian

Borneo. Education and screening should be carried out effectively throughout the country to prevent delay in diagnosis and subsequently earlier treatment.

Key Words: breast cancer - breast carcinoma – Malaysia

LR037 – IMPACT OF METFORMIN ON BREAST CANCER RISK IN DIABETIC PATIENTS

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INTRODUCTION – The high level of circulating insulin in diabetic patients increases proliferation and decreases apoptosis. Epidemiological data showed that women living with diabetes had an increase risk of developing breast cancer. Metformin as the most prescribed diabetic drug works by reducing glucose output in hepatocytes that indirectly lowers the circulating insulin levels. The aim of this review is to know the impact of metformin towards breast cancer risk.

METHOD – The method of this review was literature review. The data was collected from scientific papers over the internet, journals, and textbooks which we analyzed, and synthesized to obtain conclusions.

RESULT AND DISCUSSION – The hyperinsulinemia condition in diabetic patients increases the risk of developing breast cancer. Metformin as an insulin-sensitizer has two mechanisms of action as anticancer agent, which are the insulin-dependent effects and insulin-independent effects that affected the AMPK and PI3K/PKB/Akt signaling pathway. Based on four studies that supported the positive impact of metformin in lowering breast cancer risk showed that metformin had the lowest risk to develop breast cancer especially for the invasive ones compared to non-metformin usage and effective when used in a long-term period. Whereas two studies showed the non-significant impact of metformin in reducing breast cancer risk.

CONCLUSIONS – Four out of six studies showed a positive impact of metformin in reducing breast cancer risk in diabetic patients and two studies showed that the impact of metformin in reducing breast cancer risk in diabetic patients was not significant.

KEYWORDS: metformin, diabetes, breast, cancer, risk.

LR038 - POTENTIAL OF STEM CELL OF HUMAN DECIDUOUS TEETH AS ALVEOLAR BONE REGENERATION THERAPY AFTER ORAL SQUAMOUS CELL CARCINOMA EXCISION

Nayu Nur Annisa Sholikhin, Achmad Zam Zam Aghazy, Adlia Fadia – Faculty of Dentistry, Airlangga University

Oral cancer ranks from the sixth to eighth most common cancer around the world and OSCC (Oral Squamous Cell Carcinoma) accounts for about 90% of it. Surgical excision is the treatment of choice for most oral cancer. For cancers involving bone, marginal or segmental resection of the mandible is performed. This treatment may effect orofacial bone defect. This condition decrease the esthetic, function of the mouth and teeth. The additional treatment for example bone reconstruction after

excision must be performed to maintain the function of orofacial bone. Today Stem-cell-based tissue engineering is a promising alternative for bone regeneration. Orofacial stem cell from human deciduous teeth (SHED), by invitro proven to differentiate into another tissue include bone. SHED has been one of the most promising fields in stem cell studies, considering that they are a feasible source for stem cells that provides a fascinating hope in cell transplantation and tissue engineering.

Keywords : Oral Squamous Cell Carcinoma, Excision, Stem Cell of Human Deciduous Teeth, Bone Regeneration

LR-039 THE ROLE OF MODIFIED VACCINIA ANKARA IN TARGETING MUC1 AS TREATMENT FOR ADVANCED STAGE NON SMALL CELL LUNG CANCER

Juwita Maggie Ogytha Tando, Agustinus Mahardhika Sarayar, Billy Mantu – Faculty of Medicine, Sam Ratulangi University

Lung cancer is the number one cause of cancer-related mortality both in women and men. In the United States, this cancer has been reported as the highest cancer-related mortality rate that it is higher than breast, colon, pancreas, and prostate cancers combined. Approximately 80% of human lung cancers are non small cell lung cancer (NSCLC). Current therapy for NSCLC such as curative surgery, chemotherapy and targeted therapeutic agents or its combination have contribute slight improvement in the survival rate of patients with lung cancers which is shown by the survival rate that only increased from 10% to 15% over the past 40 years. Our immune system has a physiologic function to prevent the outgrowth of transformed cells or to destroy these cells before they become harmful tumors. However, Immune responses often fail to check tumor growth because its responses are ineffective or because tumors evolve to evade immune attack. Cancer vaccine boost the immune system aims to induce a specific response towards the tumor, is not associated with toxic side effects and also potential in preventing tumor recurrence. In tumor tissue, MUC1, which is a transmembrane protein normally found on the apical surface, is overexpressed and associated with reduced apoptosis, immunosuppression, chemoresistance, and poor outcome. According to that, MUC1 could be a potential target for vaccine therapy. Modified Vaccinia Ankara virus vector that expresses the entire MUC1 gene sequence along with the sequence coding for the cytokine Interleukin-2 stimulates specific T cell responses to all antigenic epitopes of MUC1.

Keywords: NSCLC, MUC1, MVA

LR040 - Annona Muricata, The Rising Star Phenomenon For Cancer Cure: An Evidence- Based Review

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Natural products have been the targets for cancer therapy for several years but there is still a dearth of information on potent compounds that may protect normal cells and selectively destroy cancerous cells. This study was aimed to evaluate the anticancer potential of *Annona muricata*. Their relative antioxidant properties were evaluated, as well as its cytotoxic effect. The study confirms the presence of therapeutically active

compounds in the extract of *Annona muricata* that inhibit metabolism of cancer cells as well as decreasing its motility. Tumor growth and metastasis of cancer cell is also inhibited. Isolation of the active metabolites from the extract is in prospect. Future comparative studies with other pharmacological models, in vitro and in vivo, and to start a process of purification and identification of possible molecule(s) responsible for the observed pharmacological activity is suggested.

LR041 - Inhibition of ATP Transfer Into Multi-drug Resistant Cells of Breast Cancer by Acetogenin

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Breast cancer or in medicine terminology, CA mammae is currently the top cancer that kills most of the women in worldwide, both in the developed and developing world. Thirty percent of all cancers in women occur in the breast making it the most commonly diagnosed female cancer and the second most frequent cause of cancer death (41,000 deaths per year). Over recent years there have been important developments in the investigation and management of breast cancer including new types of chemotherapy, biological and hormonal agents and herbal therapy.

Herbal therapy is treatment therapy for cancer using medicine plants, both by single or mixed plants. The soursop (*Annona muricata*) is a traditional medicinal plant that is empirically by the people of Indonesia is used for anti-inflammatory and anti-cancer. MDR (multi-drug resistant) cells develop resistance to all chemotherapy treatments, leaving the patient at a dead end. MDR cells require incredible amounts of cellular energy (Adenosine triphosphate; ATP) in order to rid themselves of these chemotherapeutic drugs. This made MDR cancer cells prime targets for acetogenins that were found to effectively block ATP transfer into these cells, inhibiting their function in a way that eventually leads to cell death.

Keywords: Breast cancer, Soursop, Multi-drug resistant cells, acetogenins

LR042 - FUNCTIONALIZATION OF SINGLE-WALLED CARBON NANOTUBES AND THEIR BINDING TO CANCER CELLS

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Single-walled carbon nanotubes (SWCNTs) have useful advantage for drug delivery and their photo-thermal effects make them potentially useful in a wide range of applications, particularly the treatment of solid tumor. The other hand, its may have the negative effects of limiting potentially of SWCNT's for cancer treatment because of their solubility. Functionalization of the surface of the tubes may be an approach to overcome this problem. The functionalization process are SWCNTs were refluxed in HNO₃/H₂SO₄ (1:3) at 120°C for 120 minutes, transmission electron microscopy (TEM), fourier transform infrared spectroscopy (FTIR), contact angle measurements, and near infrared (NIR) light exposure. The evaluation of this functionalization can be detected from the attachment of carbohydrate-binding protein (lectin) labeled with fluorescein isothiocyanate. The lectin from *Helix pomatia*, (*Helix pomatia* agglutinin

[HPA]), can detect changes in protein glycosylation associated with aggressive metastatic cancer. Following the functionalization process, TEM images showed a layer had formed on the surface of the SWCNTs. In the FTIR experiment, results illustrated the presence of the –COOH group on the functionalized SWCNTs. Contact angle measurements showed that upon functionalization the hydrophilicity of the SWCNTs increased. The temperature increase in the liquid (supernatant) surrounding the functionalized SWCNTs following exposure to light in the NIR (808 nm) was greater than for non-functionalized SWCNTs. The biosensor work showed that HPA binds with high affinity (nanomolar range) to human breast cancer cell.

Keywords: SWCNT, HPA lectin, human breast cancer cells

LR043 - RESTORATIVE YOGA FOR BREAST CANCER SURVIVORS: PHYSICAL AND PSYCHOLOGICAL BENEFITS

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Breast cancer is the most common cancer diagnosed in females. Receiving a diagnosis of breast cancer and undergoing active treatment (e.g. radiation, chemotherapy) are associated with high emotional distress and lowered psychological and physical quality of life. They have a negative impact on work, social relationships, and daily activities and cause significant impairment in overall quality of life among breast cancer survivors.

The purpose of paper is to systematically review the literature examining yoga as an intervention for women with breast cancer. Specifically, this paper aimed to review recent literature examining the impact of yoga on physical and psychological adjustment among breast cancer patients.

Restorative yoga (RY) is a gentle type of yoga that may be beneficial for breast cancer patients and post-treatment survivors. Yoga offers a promising alternative choice as a physical activity for breast cancer survivors, promoting a number of similar psychological benefits that have been previously highlighted in the physical activity and cancer literature.

So, yoga can provide a number of physical and psychological benefits to breast cancer survivors, including lessening the impact of detrimental cancer-related symptoms and treatment side-effects (e.g. fatigue, nausea), and improving overall well-being and quality of life.

Keywords: Breast cancer, restorative yoga, physical, psychological

LR044 - Lectin Jacalin as Immunospecific Targeting of Apoptosis in T Cell non-Hodgkin Lymphoma

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T-cell non-hodgkin lymphomas (T-NHLs) are a diverse and aggressive group of non-Hodgkin lymphomas. Conventional chemotherapy comprised of the regimen CHOP provides 5-year survival in the range of 30% or less for most types of T-NHLs. Besides, therapy using unspecific drugs or monoclonal antibody cause many side effect for patients. Therefore, development of novel and specific therapy is needed for T-NHLs therapy. CD45 is a cellular marker that expressed in high level in T-NHLs cell. It is involve in many pathway that regulate function and development of T

lymphocyte, including apoptosis. Therefore it can be a target for a novel T-NHLs therapy. CD45 can be targeted by jacalin, a plant lectin, and induces cellular apoptosis. CD45 express in high level in T lymphocyte of T-NHLs patients and the use of CD45 as a therapeutic target of T-NHLs shows an immunospecificity to hematopoietic organs of mice. Thus it will promise an effective, minimal side effects, and relatively inexpensive therapy for patients with T-NHLs.

Keywords: jacalin, CD45, apoptosis, T cell non-hodgkin lymphoma

LR045 - The Role of Iron, Gold, and Silver-based Magnetic Nanoparticle Materials in Treating Breast Cancer

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Breast cancer is the most diagnosed cancer in woman. It is estimated that there were nearly 1.4 million new cases of invasive breast cancer worldwide. Breast cancer is heterogenous disease with different histological and biological features. There are many different treatments of breast cancer, including chemotherapy. One of the therapies developed to treat the breast cancer is magnetic nanoparticles. Magnetic nanoparticles are capable of producing a hyperthermia condition and inducing the killing of cell when exposed to external AC magnetic field. Magnetic nanoparticles can also become agents in drug delivery, a drug can be coated with certain magnetic nanoparticle that is essential in protecting the drug and aiding the drugs to enter targeting organ. There are many different magnetic nanoparticles, which include iron oxide, silver, and gold nanoparticles. These magnetic nanoparticles have different advantages and disadvantages in treating cancer. Some researches were able to show the efficiency of magnetic nanoparticles.

Keyword: Breast cancer, Magnetic Nanoparticle, Iron oxide, Silver, Gold

LR046 - Ciplukan as Potential Anti-Cervical Cancer Agent

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Cervical cancer is one of leading cause of cancer death in women in the developing countries, include Indonesia. In Indonesia, cervical cancer stands the first rank among all cancer. The use of chemotherapy in its therapy gives negative effect and resistant. That's why a lot of alternative therapy using natural compounds which has minimal side effects but has good efficacy is greatly developed nowadays. *Physalis angulata* or Ciplukan in Indonesia showed cytotoxic effect and induces apoptosis on several cancer cell lines: HA22T (hepatoma), HeLa (cervix uteri), KB (nasopharynx), Colo-205 (colon), MCF-7 (breast), and Calu-1 (lung). It's known that the cytotoxic effect of Ciplukan herbs can be obtained from its ethanolic extract by increasing the amount of p53 and reducing BCL-2. Ciplukan itself is so easy to found in rural area in Indonesia. Make it potential for being considered as the future natural cancer treatment.

The first study of *Physalis angulata*'s effect for cervical cancer established in 1992, but there are lack of people in society has knowledge about it. The company manufacture the natural medicine from this plant's extract are still rarely found. With this literature review, hopefully we can make it easier for society to access the

information about cervical cancer and its natural treatment, thus trigger further research and manufacture development.

Keywords : Ciplukan, Cervical Cancer, Apoptosis

LR047 - THE ROLE OF HGF-MET SIGNALING PATHWAY IN DEVELOPMENT AND THERAPY OF COLORECTAL CANCER

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Colorectal cancer are known as the third most common cancer diagnosed worldwide. Treatment for this have been improved recently, but latter showing a chemotherapy resistance and recurrence of this diseases. Hepatocyte growth factor (HGF) have been discovered for causing the chemotherapy resistance of the colorectal cancer. HGF is a pleotropic agent that can induced mitogenic, morphogenic, motogenic, anti-apoptosis and angiogenesis in colorectal cells environment via binding to its reseptor, the proto-oncogen MET, leading to chemotherapy resistant and recurrence. Inhibition in HGF-MET signaling pathway in may be potential target for this occurence. This review will summarise the molecular properties for the HGF-MET signaling pathway, its role in development of colorectal cancer and its potential as a target in colorectal cancer treatment.

Keyword : Colorectal cancer, HGF, MET

LR049 - INNOVATION-BASED DEVELOPMENT OF GENE THERAPY WITH COMBINATION OF MULLERIAN INHIBITING SUBSTANCE AND 1,25-DIHYDROXY-VITAMIN D3 IN INDUCING APOPTOSIS AND INHIBITION OF CERVICAL CANCER CELL HYPERPROLIFERATION

Anggadha Yuniarko Saputra, Iffa Aulia Hakim, Fahimma – Faculty of Medicine, Brawijaya University

Cancer have become major health problem worldwide and the second largest killer disease after cardiovascular. With proper treatment, it will greatly impact women health and lowering women mortality rate included in Millennium Development Goals. Gene therapy for cancer treatment offers a new paradigm that can cause damage to tumor cells. Mullerian Inhibiting Substance (MIS) has been shown to inhibit the growth of epithelial ovarian origin cancer cell which are known of Mullerian origin as well as uterine cervix. Cervix cancer cells also express the MIS type II receptor. Previous studies shows that cervical cancer cells are sensitive to MIS, which inhibits cancer cells growth by inhibiting progression into S phase mediated by independent PRB involving regulation of the tumor suppressor p16. In addition, 1,25-Dihydroxy-vitamin D3 able to improve regulation of p21 that play role in the termination of the cell cycle and activates p53 that plays a role in the induction of apoptosis. 1,25-Dihydroxy-vitamin D3 also stimulate MIS expression and inhibiting the increase in EAG that can trigger the synthesis of DNA and RNA, so the hyperproliferation will decreased. The process is obtained by literature review of various reference and analytical methods and exposition. In its application, MIS will be produced in the form of serum secreted by CHO cell with wild-type human genomic MIS and administered by intraperitoneal injection or IM. Combination between MIS and 1,25-Dihydroxy-vitamin D3 can be a new breakthrough neoplastic

agent that works through the induction of apoptosis and inhibition of hyperproliferation in cervical cancer cells.

Key word : 1,25-dihydroxy-vitamin D3, Mullerian Inhibiting Substance, Cervix Cancer

LR050 - Eradicating Cancer Stem Cell as The New Approach in Cancer Treatment

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Cancer stem cells are the latest terminology in finding a cure for cancer. The topic came up from a group of researchers that identified the potential surviving cancer cells from brain tumor in the animal model through the regeneration of the identic preceding tumor cells. This new findings will provide a new way in giving cancer therapy with the most effective and the most harmless side effects to the patients. These cancer stem cell findings also explained the re-current growth of tumor even though after being eradicated by chemotherapy. Over decades, some cancer treatments have been invented, but most of the treatment did not give a real cure for the patients. Thus, the prevalence of several types of cancer is still high among worldwide. In this review, we suggest the possible application of the animal model to be applied to the human.

Keywords: Eradicating, Cancer stem cell, Cancer treatment

LR051 - Effect of *Curcuma spp.* and *Catharantus roseus* as Traditional Chinese Medicine for Curing Acute Lymphoblastic Leukemia: A Literature Review

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Acute Lymphoblastic Leukemia (ALL) represents 12% of all leukemia cases, with a worldwide incidence projected to be 1-4.75 per 100,000 people. ALL commonly found in children and also in adult society. Furthermore, chemotherapy, the common therapy for ALL, has negative side effect, it was resistance effect that can decreased the effectiveness of chemotherapy. In recent years, scientists try to find herbal therapy to cure the cancer. Commonly Asian people such as Indonesian mostly belief in herbal therapy closed to Traditional Chinese Medicine (TCM). Some recent studies shows the effect of TCM plants such as *Curcuma spp.* and *Catharantus roseus* extract formulas for curing and as chemopreventive agents which are known as a promising therapy. As we know Indonesian medicine views influenced by TCM (e.g. jamu), TCM has commonly being used by Indonesian. In addition, Indonesia has a potential landmark as a great land for growing herbal plant, so the prospect for using TCM as alternative therapy for ALL is promising.

Keywords: ALL, TCM, Curcumin, Vinca alkaloid, therapy

LR052 - Potency of Eurycomanone as Antitumor Agent; Induce Apoptosis through the Up Regulation of p53 in Human Cervical Cancer Cells

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Cervical cancer is the third most commonly diagnosed cancer worldwide and the fourth leading cause of cancer death in females. Cervical carcinoma is initiated by infection with a high risk HPV, usually HPV type 16 (HPV16) or HPV18, and gene transfer studies have identified the E6 and E7 genes as the major HPV oncogenes. p53 plays an important role in normal cell proliferation by controlling cell cycle progression and inducing apoptosis. It was found that following eurycomanone treatment, inducing cancer cell apoptosis. The induction of apoptosis was caused by the up-regulation of p53. These findings suggested the potential of eurycomanone as anti-cancer agent.

Keywords: apoptosis, eurycomanone, cervical cancer, HPV, p53

LR054 - GLUTAMINE SYNTHETASE AS PROMISING DIAGNOSTIC BIOMARKER FOR EARLY DETECTION OF HEPATOCELLULAR CARCINOMA

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Hepatocellular carcinoma (HCC) is the sixth most prevalent cancer and the third most frequent cause of cancer-related death in the world. The principle of treatment of the cancer itself requires an accurate diagnostic tool, because the death mainly caused by the late diagnosis that cause the patient to be found in a state unoperable and ineffective treatment stage. Since the discovery in 1964, Alpha Feto Protein has been identified as a useful diagnostic tool in the diagnosis of HCC. Unfortunately, the sensitivity for HCC are in the range of 25% -60%, and specifications are also quite low because it was detected also in patients with cirrhosis and chronic hepatitis. Since then, several studies were performed to find appropriate biomarkers as an early diagnostic tool for HCC. However, the discovery of the substance is difficult because biomarkers in HCC should be able to distinguish the situation in patients with cirrhosis and chronic hepatitis or inflammation. One substance that is considered promising is glutamine synthetase (GS). Glutamine synthetase, one of the enzymes identified to be regulated by nuclear β -catenin, may be a candidate that contributes to enhanced malignancy of HCCs. In the pathogenesis of HCC, serves GS catalyzes the formation of glutamine from glutamate and ammonia into glutamine, which will then be used as energy HCC. As a diagnostic tool of HCC, GS has some advantages of which are believed to have an accuracy exceeding AFP in HCC diagnostic tool. In addition, GS is also found with higher levels than in patients with cirrhosis and chronic inflammation, making it useful to confirm the presence of HCC as a complication of cirrhosis and chronic hepatitis. This literature review is aimed to provide a profound comprehension on the prospect of GS as an advanced strategy in diagnosing Hepatocellular Carcinoma, so in the future, the management can be performed in patients with HCC as early as possible.

Keywords: hepatocellular carcinoma, diagnostic tools, GS, AFP

LR055 - Potency of Globo H-based Vaccine in Treating Pancreatic Cancer

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Pancreatic cancer has a high mortality rate; the rate remains high despite the improvement in treating pancreatic cancer. A therapeutic vaccine shows could be a new effective treatment for pancreatic cancer. Vaccine will induce immune response against tumor cell that previously can't be recognized by immune system. Globo H (GH) is a hexasaccharide specifically overexpressed on a variety of cancer cells and therefore, a good candidate for cancer vaccine development. Some studies show that globo H is also overexpressed in pancreatic cancer, thus suggest that this GH-based vaccine could be used to treat pancreatic cancer. In patient with breast cancer and prostate cancer treated with globo H based vaccine induce production of IgM and GH-specific IgG. These antibodies later make the tumor cell lysis and even provide a protection against tumor cell in a certain period of time. This vaccine is an effective treatment for pancreatic cancer, which can eradicate most of the tumor cells even the metastasized one and also provide a protection against new cancer cells.

Keywords: Globo H, vaccine, immune system

LR057 - Curcumin in *Curcuma longa* as Inflammeregulator to Prevent Carcinogenesis of Colitis-associated Colorectal Cancer Promoted by Commensal *pks*⁺ *Escherichia coli*

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Cancer is a foremost cause of mortality worldwide, accounting for 7.6 million deaths in 2008. Colorectal cancer (CRC) is the third most prevalent cancer in men and the second in women. The incidence and mortality of CRC is increasing rapidly in Asia. Patients with persistent inflammatory bowel disease (IBD) possess a higher risk of progressing CRC. Several studies evaluating the incidence of CRC in IBD cases have estimated to be 2 to 5 times higher than for the general population of the same age group worldwide. CRC accounts for approximately 10%-15% of all deaths in IBD patients. Inflammation occurring in IBD which is mediated by NF- κ B helps *pks*⁺ *E. coli* to easily adhere to intestinal epithelial cells. This adherence is required for the genotoxicity of colibactin to have an impact. The colibactin results in DNA damage by inducing formation of phosphorylated H2AX foci. The DNA damage increases gene mutation and demonstrates the infection mutagenic potential. Therefore, these *E. coli* strains contribute to the development of colitis-associated CRC. Preventive efforts are becoming a great significance. Curcumin in *Curcuma longa* down-regulates inflammation occurred in the intestine. It inhibits the activation of various transcription factors such as NF- κ B, AP-1, STAT proteins that play a key role in inflammation. Curcumin also inhibits COX-2. In cancer cells, curcumin inhibits expression of IL-1 β , IL-6, and TNF- α . By its role as an inflammeregulatory agent for IBD, curcumin is capable of interfering with the first determining step of the carcinogenesis in order to prevent colitis-associated CRC occurrence.

Key words : curcumin, *pks*⁺ *Escherichia coli*, colitis-associated colorectal cancer, inflammation, inflammatory bowel disease

LR058 - The Effectiveness of Trastuzumab Emtansine (T-DM1) in Providing A Better Treatment for HER-2 Positive Breast Cancer

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Breast cancer has become the leading cause of death for cancer in women. Treatment of breast cancer is also difficult because breast cancer needs a specific treatment for each of its type. One of the treatment is targeted to HER2-overexpressing breast cancer by using trastuzumab. Recently, breast cancer has developed resistance to trastuzumab after a-year therapy. In 2008, trastuzumab-maytansine conjugate(trastuzumab emtansine/T-DM1) was invented dan started to be studied intensively for its efficacy in treating breast cancer. Krop *et al.* in 2010 conducted phase I trial to assess its efficacy and the overall response rate was 25%. In 2012, the same researchers conducted a phase II trial and the overall response rate was 35%. In the same year, Perez *et al.* conducted a study to compare the efficacy of T-DM1 to Trastuzumab-docetaxel and the overall response rate was 64% versus 58% respectively. Another research conducted by Verma *et al.* compared the efficacy of T-DM1 to lapatinib plus capecitabine and the overall response rate was 43.6% versus 30.8% respectively. Many studies have concluded that the efficacy of T-DM1 in treating HER2 breast cancer is superior compare to the other drugs regimen used now. Clinical studies of T-DM1 is still developing and hopefully T-DM1 can be a potential new HER2/neu targeted agents in the treatment of breast cancer.

Keywords: Trastuzumab, emtansine, breast cancer, treatment, HER-2

LR059 - EAST INDIAN BASIL (OCIMUM GRATISSIMUM) LEAF EXTRACT AS POTENTIAL TREATMENT FOR CERVICAL CANCER

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Cervical cancer is one of the highest burden diseases that can lead to death, including in Indonesia. Comparing to other type of cancer, cervical cancer reach the second placed in the world and the most common cause of death for female in Indonesia. Preventive, monitoring, and curative is essential to reduce the morbidity and mortality of this disease, and curative become essential because the early detection is difficult and the progression of the disease is sometimes asymptomatic until some stage. The current preventive method is family planning, but the program itself doesn't get much appreciate by Indonesian people, that's way curative method that can be effort by all economic strata become the major demand in developing country such as Indonesia. Among the herbal plant that can be found in Indonesia, East Indian basil or *Ocimum gratissimum* is easy to get, and some research of its anti tumor agent has been done as in vitro experiment. Research found that anti tumor agent in *Ocimum gratissimum* leaf is caffeic acid. The literature was aimed to describe and give basic understanding of East Indian Basil leaf as potential treatment for cervical cancer. However, the exact

dose of East Indian Basil leaf extract has not been clear enough, thus future research is required.

Keywords: Cervical cancer, antitumor agent, East Indian Basil Leaf, caffeic acid

LR061 - ANTI-CD47 mAbs AS AN EFFECTIVE COMBINATION THERAPY FOR BREAST CANCER

Fariztah Sukainah Nur Fathimah, Rahma Isti Kusyadi – Faculty of Medicine, Airlangga University

Breast cancer is the most common cancer in women worldwide. It is the most frequently diagnosed cancer and the leading cause of cancer death among females, accounting for 23% of the total cancer cases and 14% of the cancer deaths. The tumor microenvironment, composed of non-cancer cells and their stroma, has become recognized as a major factor influencing the growth of cancer. The microenvironment has been implicated in the regulation of cell growth, determining metastatic potential and possibly determining location of metastatic disease, and impacting the outcome of therapy. Recognition that immune-based mechanisms modulate the response to cytotoxic therapy implies that the ultimate effectiveness of cytotoxic modalities could be improved by combinatorial approaches that also engage immunogenic death programs. CD47 expression was detected on nearly all cancer cells from every primary and xenograft patient tumor sample evaluated. Blocking mAbs that disrupt the interaction between CD47 and SIRPα enabled the phagocytosis of solid tumor cells in vitro and inhibited tumor growth in several orthotopic xenotransplantation models. Anti-CD47 mAbs is an effective combination therapy than using RT or CTX alone because its notice in tumor microenvironment.

Keywords: anti-CD47 mAbs, tumor microenvironment, breast cancer, AAMs

LR064 - Crizotinib: A Novel Approach to Cure Advanced Lung Cancer

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Lung cancer plays a serious threat against humanity as it caused 1.5 million deaths last year. Fortunately, non-small cell lung cancer (NSCLC) which ranks top among others is now curable even at the advanced level. Discovery of anaplastic lymphoma kinase (ALK) receptor in the majority of NSCLC patients provide a potential new treatment, by inhibiting the ALK receptor. Crizotinib is one of the agents that work effectively in inhibiting ALK in ALK positive NSCLC. This FDA-approved drug have been shown to increase the objective response rate and progression free survival significantly compared with other chemotherapeutic agents based on the research phase 1, phase 2, and progressing phase 3 study.

LR065 - PANCREATIC DUCTAL ADENOCARCINOMA: SEARCHING FOR AN EFFECTIVE METHOD OF EARLY DETECTION

Edwin Wijaya – Faculty of Medicine, Universitas Indonesia

Cancer is one of the leading causes of death and pancreatic ductal adenocarcinoma is one of the most fatal among cancers. Also known as pancreatic cancer, this malignant

disease is very difficult to detect at early stage and mostly discovered at later stages where metastasis have occurred. If this happens, the rate of 5-year-survival is very low. The best method to fight this disease is by detecting it as early as possible. Currently, there is no standard protocol for pancreatic cancer screening and researchers are working hard to find an effective way for early detection. The combination of CA 19-9, CEA, and TIMP-1 biomarkers so far yield the best potential for serological screening while endoscopic ultrasound remains as the best available imaging technique so far.

Keywords: biomarkers, early detection, imaging, low survival rate, pancreatic ductal adenocarcinoma

LR067 - Inhaled Chemotherapy by Kaempferol Magnetic Nanoparticles : The Future Effective Treatment for Lung Cancer

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Lung cancer is the dominant cancer case that cause death. There are already a lot option for chemotherapy, but the problem is the drug cause severe systemic side effect and some shows resistance. The other problem of anticancer drug is the low bioavailability and toxicity to non-target cell. One of the natural agents which has strong effect as anticancer is phlavonoids, it's easy to obtained in our daily menus. Kaempferol is one of the phlavonoid derrivative which has strong anticancer, anti-inflammatory, pro-apoptotic, and EGFR-inhibitory effect. It can be delivered in magnetic nanoparticles with liposomes-polymer-conjugated form or polymeric micellous form. The advantage of magnetic nanoparticle form is it can cross the barrier which larger molecules cannot. It can increase specificity, selectivity, drug localisation, reduce resistancy and also it can be used as diagnostic or screening tools.

Keywords: kaempferol, magnetic nanoparticles, chemotherapy, inhaled

LR068 - "C for C" COX (Cyclooxygenase) as a potential indicator and prevention for Colorectal Cancer

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Colorectal cancer is the third most frequently diagnosed cancer worldwide, accounting for more than 1 million cases and 600 000 deaths every year. Colon cancer progresses through a well-defined series of steps initiated by the transition from normal mucosa to adenomatous polyps, and finally to dysplasia and adenocarcinoma. Currently, the most effective treat-ments for cancer, including various combinations of surgical resection, radiation and/or chemotherapy, depend on the detection of cancer at a very early stage. Unfortunately, despite evidence that early detection by fecal occult blood testing and flexible sigmoidoscopy can decrease the risk of colorectal cancer mortality by 20–30%, most persons do not undergo appropriate screening. Investigations into chemo-prevention of colon cancer, however, have proceeded in a reverse direction. The current emphasis on inhibition of cyclooxygenase-2 (COX-2) was initiated by astute clinical observations that persons ingesting aspirin or other nonsteroidal antiinflammatory drugs (NSAIDs) on a regular basis have a 40–50% reduction in risk of mortality from colorectal cancer. A seamless transition from the bench back to the bedside has now occurred with recent data demonstrating that

specific COX-2 inhibitors can reduce intestinal polyp burden in patients with familial adenomatous polyposis (FAP), prevent the occurrence and/or recurrence of colorectal adenomas and cancers, and negatively regulate angiogenesis in colorectal cancer liver metastases. These observations also underscore the importance of continuing to identify mechanisms that promote colon carcinogenesis, which will ultimately enable physicians to appropriately focus diagnostic testing and prevention therapy.

Keywords : Colorectal cancer, COX, NSAID, inflammation, polyp

LR070 - TRIMETHOXYFLAVONOL (TMFol) ANALOG QUERCETIN IN NANOPARTICLES FORM AS CHEMOPREVENTION THERAPY OF HEPATOMA IN CHRONIC HEPATITIS B PATIENTS

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Patients with chronic hepatitis B increased the risk of hepatoma. In one study, it was found that patients with chronic hepatitis B in 3 years 23% are at risk of hepatoma, in 5 years had a 47% risk of hepatoma and in 10 years had a risk of 81% hepatoma. In fact, chronic hepatitis B found to be the cause of 50-60% hepatoma around the world. Hepatoma itself is a cancer that is the sixth most common cancer and the third cause of cancer deaths around the world. Thus, patients with chronic hepatitis B may experience hepatoma that would end in death. One of the specific therapies used to treat cancer is to use quercetin. Quercetin also has an effect on the p53 gene, which would prevent people with chronic hepatitis B into the stage hepatoma. However, it has the disadvantage that quercetin has the potential mutagenic by the Ames test for hydroxy structure contained in the element. To decrease the mutagenic effect, the group can be substituted with elements hydroxy methoxy. made quercetin analog hydroxy moeitis modify the structure and replace it with methox resulting Trimethoxyflavonol (TMFol). TMFol inhibit cancer cell growth and toxicophoric properties and mutagenicity of the lower. Mechanism of action of TMFol includes 3 things, Modulate p53 gene, as Inhibitor of EGFR Signaling and Triggering Apoptosis. TMFol have lower mutagenicity of quercetin and its effectiveness compared with a higher delivery using nanoparticles TMFol.

Keyword: Hepatitis B, HBV, Hepatoma, Quercetin, TMFol

LR071 - Exploring Potency of α -Mangostin (*Garcinia mangostana* Linn) Targeting *HER2/neu* and Antigen 38 kDa *Mycobacterium tuberculosis* as New Innovation of Active Therapeutic Vaccine for Carcinoma Mammae: Biomolecular Approach

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Background - *Carcinoma mammae* (Ca mammae) is disease with high prevalence in women worldwide¹. In 2008, 7.6 million women died due to Ca mammae². Chemotherapy and surgery are invasive treatment used for Ca mammae and immunosuppressive⁵. α -Mangostin plays important role in carcinoma mammae as active therapeutic vaccine. In addition, Ag 38 kDa M. tuberculosis is important as vaccine adjuvant.

Objective - To explore the potential of α -Mangostin as active therapeutic vaccine for carcinoma mammae by targeting HER2/neu and Ag 38 kDa *Mycobacterium tuberculosis* as adjuvant.

Methods - This study used expositive and descriptive analytical design. This paper describes and explain two objects, the potency of (*Garcinia mangostana* Linn) targeting HER2/neu receptor in carcinoma mammae as an active vaccine and prototype antigen 38 kDa M. Tuberculosis as vaccine adjuvant.

Result – α -mangostin inhibit HER2, specific receptor in Ca mammae. PI3K signaling pathway leading to mitochondria-mediated apoptosis. Ag 38 kDa works through TLR2 pathway leading to activation of MAPK pathway, NK cell activation via monocytes and secretion of IL-6 and TNF- α . It is leading to cytolysis of cancerous lesion. This mechanism shows Ag 38 kDa M. tuberculosis, has potency to enhance cancer-targeted immune responses.

Conclusion - α -mangostin inhibits HER2, specific receptor in Ca mammae. This action is supported by modulation of NK cell by antigen 38 kDa *Mycobacterium tuberculosis*. This combination of therapy shows their potency to enhance cancer-targeted immune responses and become new innovation against carcinoma mammae in the future.

Keyword: Carcinoma mammae , α -Mangostin, HER2/neu, Ag 38 kDa, NK cell

LR072 - The Alternative Solution to Treat The Cervical Cancer with Synthetical Biology Methods

Syipa Paoziah, Ismi Isti'anah – Bogor Agriculture University

Cervical cancer is a malignant tumor derived from primary squamous epithelial cells. Cervical cancer is cancer that occurs in the cervical or neck of the uterus, an area on the female reproductive organs, which is the entrance to the uterus, it lies between the womb (uterus) and liang or vaginal intercourse. Cervical cancer usually strikes women aged 35-55 years old. As much as 90% of cervical cancer is derived from the overlying squamous cell cervical and the remaining 10% comes from mucous producing gland cells on the upper channels leading into the uterus.

In this international biomedical era, synthetic biology is the new way to safe the healthy tissues of servical cancer patient's. What is synthetic biology? Synthetic biology is a new innovation in order to eliminate the problems in living beings with biosafety respectness. Products of biosynthetic expected to specifically attack cells infected by cervical cancer so do not attack other healthy cells. We have the following goals for our project, there are: to create a fewer side effects for the patient when simple cancer therapy do, to reduce the painful which patient is felt during cancer treatment, then to treat tumours without disturb patient's quality of life. We have to create recombinant bacteria for the drug carrier to the cervical cancer tissues.

Keywords : cervical cancer, squamous cell, biomedical, synthetic biology, recombinant bacteria

LR073 - "SEGO KUCING LOCOWI HI-CAL" Low Cost Local Wisdom Meal with High Calcium to Save Colorectal Cancer

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Colorectal cancer ranks as the 3th most common cancer in the world, including Indonesia that lead people to death. It is estimated that deaths from colorectal cancer still occur annually and will be increased. Total medical cost for health expenditure and mortality cost to face colorectal cancer is very high. The major factor that lead increase of prevalence is about live style, especially diet. Indonesia have different pattern in increasing the case of colorectal cancer, the highest case was on young age. Some research before had force that intake calcium regularly can be the prevents of colorectal cancer. Yogyakarta have some traditional food that rich of calsium with low cost. That can be one of alternative solution for this problem. This research is a literature review that arranged to give a solution by empowering local wisdom meal that rich of calcium to reduce the prevalence of colorectal cancer in Indonesia. By optimizing "Sego Kucing Locowi-Hi Cal", a local low cost local wisdom meal with high calcium, it can save Save the young from the Colorectal Cancer.

Keyword: Colorectal cancer, Sego Kucing, calcium, prevent

LR074 - Vitamin B17 as Nutrition Target Therapy in Management of Lung Cancer

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Lung cancer is the most cause of cancer death. Adenocarcinoma is the most type of lung cancer. The major complains of this cancer are cough, weight loss, chest pain, and dyspnea. Treatment of lung cancer can be done by surgery, chemotherapy, and radiotherapy. Chemotherapy treatment is not only destroying the cancer cell but also the normal cell and give some side effects.

Increasing quantities of chemicals and additives in our food are being researched as alternative treatment of lung cancer, include vitamin B17. Vitamin B17 is a glycoside that can be breakdown hydrogen cyanide molecule by glycosidase enzyme, that only by malignant cell. One molecule of vitamin B17 contains one molecule of cyanide. Cyanide in malignant cell will destroy the cell as the toxic, effectively in adenocarcinoma. That condition can make the cell cancer damage without following by necrotic of the normal cell. This treatment also can eliminate or sharply reduces pain. Vitamin B17 can be used by injection or consuming the food which contain vitamin B17 such as apricot or cassava. Cyanogen concentration in the cassava is about 15-1000 mg HCN/kg. The literature review was aimed to describe and give basic understanding of vitamin B17 as nutrition target therapy in management of lung cancer.

Keywords: Lung adenocarcinoma, Malignant cell, Vitamin B17, Cyanide
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LR076 - Gene Therapy for Breast Cancer through Tumor Necrosis Factor-Related Apoptosis-Inducing Ligand (TRAIL) to 53BP1 Rescues BRCA1 Deficiency

Breast cancer is the most female common female malignancy. There are about 1.38 million new cases and 458.000 deaths from breast cancer each year. In Indonesia, there is no specific data about breast cancer prevalence, it is currently estimated that there will be at least 170–190 new cancer cases annually for each 100 000 people. One of the most frequent and primary is breast cancer. However, most cancer patients (60–70%) seek medical treatment when it is already too late.

The most common cause of hereditary breast cancer is an inherited mutation in the BRCA1 and BRCA2 genes. Germ-line mutations in breast cancer 1, early onset (BRCA1) result in predisposition to breast and ovarian cancer. In mutated BRCA1 instability of genomic, as a consequence this mutation influences repairing of impaired recombinatorial DNA. Some researchers conveyed p53-binding protein 1 (53BP1) as an essential factor for sustain the growth arrest by BRCA1 deletion.

From all gene therapies approach for breast cancer, proapoptotic way is the best, novel, and potent mechanism for breast cancer. Through tumor necrosis factor-related apoptosis-inducing ligands (TRAIL) able to change signalling pathway of 53BP1. Lack of 53BP1 associated with lack of BRCA1.

Keywords: Breast cancer, BRCA1, TRAIL, p53, 53BP1, Proapoptotic

ABSTRACTS OF RESEARCH PAPER AND POSTER COMPETITION

RPP001 - Analysis of Factors Incident Computer Vision Syndrome (CVS) to Layout Editor Workers in CV. "X" Tembalang Semarang

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Introduction: Computer Vision Syndrome (CVS) is the complexity of the eye and vision problems related to computer use. As the majority of layout editor workers spend more time on the computer, the problem of eye fatigue is being considered. This study was to analyze factors of the symptoms of CVS (Computer Vision Syndrome) which is in working layout editor of the CV. "X" printing in Tembalang Semarang.

Material and Methods: It used qualitative research, with cross sectional involved 4 layout editor workers in the printing Tembalang Semarang. Methods of research using descriptive method and analysis of the data using content analysis.

Result: The factors that influence layout editor workers is, all respondents had no knowledge of CVS, the lack of supervision is done printing owners, all the respondents experienced sleep deprivation and the use of CRT monitors. In addition, lighting levels >700 lux on the morning shift and <300 lux on the night shift. Reflection of the lack of eye blink and eye-level condition of monitor position, also affects the occurrence of CVS. However, all respondents did not have eye abnormalities.

Conclusion: All respondents have symptoms of CVS from the computer factors, environment, duration of work and individual factors except for oculation factor.

Keywords:

Computer Vision Syndrome, layout editor, printing, eye-strain

RPP002 – The Effect of Black Sea Cucumber (*Holothuria scabra*) Extracts in HeLa Cells Viability

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Introduction: WHO (2011) estimates that Indonesia is one of the countries with the highest cervical cancer's patients. The medication for cervical cancer patients can be done through surgical, chemotherapy, and immunotherapy (Anggrianti, 2008). Unfortunately, the surgical that continued with chemotherapy management has the side effect, include destroys normal cells and acts as immune suppressed. This can increase the malignancies of cervical cancer (Utami, 2008). In another side, Indonesia

is a country with a rich of ocean biological diversity but its utilization is still minimal, because 80% of Indonesia's ocean has not been managed well (Puji, 2010). *Holothuria scabra* or black sea cucumber is a species that has high potential to be developed in the medication of cancer because of its saponin contents (Dyck et al., 2010). *Holothuria scabra* has anti-inflammatory, anti-bacterial, and hemolytic effects in several researches (Caulier et al., 2011). *Holothuria scabra* also has a better cytotoxic effect in lung cancer cell line than other kind of sea cucumber such as *Holothuria leucospilota* and *Stichopus chloronotus*. So, it is expected that *Holothuria scabra* or black sea cucumber is a nature medication and can be effective as anti-cancer agent that undamaged the healthy cells.

Material and Methods: This research is a true experimental in vitro post test only control group design study on HeLa cells (cell line cervical cancer). Extract of *Holothuria scabra* is prepared with maceration method with ethanol 98%. 24 well plates of HeLa cells divided into 4 experimental groups which group 1 (dose extracts adding 15µg/ml), group 2 (dose extracts adding 30µg/ml), group 3 (dose extracts adding 60µg/ml) and group 4 as a control group (without extracts adding). The percentages of cells viability is calculated based on this formula: (absorbance group sample value/absorbance control cells) x 100%. Cell viability is analyzed by MTT-assays method and read by micro plate reader 450 nm wave lengths. Cells viability is used as an indicator of cancer cells survival inability that leads to cells apoptosis. The result then analyzed using statistic software SPSS version 16 for windows.

Results: Kruskal-Wallis test shows that there is a difference meaning among groups with Asymp.Sig 0.03 ($p < 0.05$). The Correlation Pearson Testing is -0.781 and significant value is 0.000 ($p < 0.05$).

Conclusion: The research proves that the black sea cucumber extracts can decrease the cells viability of cervical cancer cell line (HeLa cells) and has a great potential to become anti-cancer agent for cervical cancer with the most effective dose is 60 µg/ml.

Keywords: HeLa cells, cervical cancer, *Holothuria scabra*, cell viability

RPP-004 The effect of nitric oxide synthase inhibition on urine prostaglandin F₂α in spontaneously hypertensive rats

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Introduction: Prostaglandins (PG) are local mediators of various physiological processes such as vascular tone, salt and water balance and renin release in the kidney. It has been established that nitric oxide (NO) contributes to the regulation of many kidney functions such as renal hemodynamics and tubuloglomerular feedback mechanism. The present study investigates PGF₂α concentration in Wistar rats and in spontaneously hypertensive rats (SHR) during nonselective NO-synthase (NOS) inhibition by N ω -Nitro-L-Arginine methyl ester (L-NAME).

Material and Methods: Experiments were carried out on conscious Wistar rats (n = 9) and SHR (n = 9). The animals were housed in standard conditions: 22 °C, 12/12 h light/dark cycle, with free access to food and tap water. Under general anaesthesia (Nembutal, 35 mg/kg i.p.) 24 hours before experiments catheters were inserted in femoral vein for L-NAME application in dose 10 mg/kg and in femoral artery for arterial blood pressure (ABP) registration. Urine was collected through previously

implanted in the bladder catheter during 40 min long control period and 20 min after L-NAME application for 40 min period. The systolic (SAP), diastolic (DAP) and mean (MAP) arterial blood pressure were calculated by AcqKnowledge 3.11 software. Urine flow rate (UFR) was determined gravimetrically. The urine concentration of PGF₂α was determined by ELISA kit. The urine excretion of PGF₂α was calculated

Result: In SHR the SAP: 184.7±3.4 mmHg, DAP: 115.9±3.6 mmHg, and MAP: 142.0±3.5 mmHg were higher compared to Wistar rats: 131.9±3.3; 76.8±4.2 and 101.3±2.5 mmHg, (p<0.01). Urine flow rate did not differ between Wistar rats and SHR: 6.88±0.75 vs. 6.74±1.37 μl/min/100g b.w. The urine concentration as well as the urine excretion of PG F₂α in SHR were higher in comparison to Wistar rats: 1554.4±196.98 vs. 998.05±170.22 pg/ml, (p<0.01) and 10.56±1.43 vs. 6.74±3.1.37 pg/min/100 g b.w., (p<0.05). L-NAME application led to increase of ABP (p<0.01) in both groups. The UFR also increased in Wistar rats to 9.44±0.52 μl/min/100g b.w. (p<0.05), as well as in SHR to 21.15±2.28 μl/min/100g b.w. (p<0.001). The increase of UFR in SHR was 5.6 times greater than in Wistar rats.

Conclusion: The NOS inhibition did not change urine concentration and excretion of Pg F₂α in Wistar rats. However in SHR the NOS inhibition led to decrease of Pg F₂α concentration to 980.31±94.94 pg/ml, and to increase of urine excretion to 17.81±1.43 pg/min/100 g b.w., (p<0.05). The increased excretion of PG F₂α in SHR during NOS inhibition is most probably due to the powerful diuretic effect of L-NAME.

Keywords:

prostaglandine F₂α, nitric oxide, L-NAME, SHR

RPP006 - Antiproliferative activity of crude flavonoid extract from Molave (Vitex parviflora) leaves against human prostate cancer (PC-3) cells in vitro

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Introduction: Prostate cancer is a potentially fatal condition considered as the most common non-skin cancer in the United State. In the Philippines, it is one of the top five cancers among men and 19.3 out of 100,000 male populations have prostate cancer.

Different treatments have been used in prostate cancer such as chemotherapy, biotherapy and radiation therapy. Though these treatments are effective, they are very expensive. Researchers are constantly seeking new and more practical treatments which are not only effective but also cheap. Philippines is rich in natural resources as evidenced by its variety of plant species that have been reported to have medicinal values such as Molave (*V. parviflora*). Molave contains natural polyphenolic compounds (flavonoids) reported to have cytotoxic activity against cancer cells. The current study investigated the effect of crude flavonoid extract from Molave

against PC-3 cell line. Specifically, it aimed to determine the concentration and time of exposure yielding the highest cytotoxic activity.

Material and Methods: Flavonoid extract from Molave was as an intervention. MTT colorimetric assay was employed to assess the cytotoxic activity of Molave. Eight concentrations of the extract (500, 250, 125, 62.5, 31.25, 15.63, 7.81, 3.91 µg/mL of plant extracts and 200 µg/mL Doxorubicin HCl dissolved in 1% DMSO) were tested on PC-3 cells. The cells were incubated for 24 hours at 37°C, 5% CO₂, 95% air and 100% relative humidity. After treatment, the absorbance was measured at 595 nm using Opsys MR™ 96-well microplate reader.

Result: The data gathered from MTT assay show that the extract was able to elicit cytotoxic effect against PC-3 cells. Statistical analysis showed a significant difference between the untreated cells and extract concentrations of 250 and 500 µg/mL for 24-hr incubation, indicating their effectiveness in lowering the number of cancer cells. Also, 48-hr incubation was done and statistical analysis of the data also showed significant difference between the untreated cells and extract concentrations of 125, 250 and 500 µg/mL; suggesting that prolonging incubation period can have better effect in lowering cancer cells.

Conclusion: Data generated from the study suggests that flavonoid extract from *V. parviflora* leaves had cytotoxic activity against the PC-3 cell line.

Keywords:

flavonoids, PC-3 cell line, MTT cytotoxicity assay

RPP009 - Cytotoxic and Apoptosis Induction by *Barringtonia asiatica* Extracts on WiDr Colorectal Cancer Cell Lines

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Introduction:

Colorectal cancer is the most frequent malignant neoplasms worldwide. It is 10% and 9.4% of the total cancer cases in men and women (GLOBOCAN, 2008). Due to a lot of side effects encountered in many patients, more secure cancer therapy using herbal material is being developed. Various parts of the *Barringtonia asiatica* tree are used in traditional medicine because these contain saponins (Herlt et al., 2002 and Rahmawati, et al., 2009). Saponins are natural glycosides of steroid or triterpene which have biological and pharmacological effects, such as immunomodulators, antitumor, anti-inflammatory, antiviral, and antifungal. However, there have been limited published studies on the anticancer effects of *B. asiatica*.

Objective: The objectives of this study were to analyse the cytotoxic and apoptotic effects of *B. asiatica* extracts on WiDr colorectal cancer cell lines through caspase-9 expression.

Material and Methods:

Barringtonia asiatica extract (Barringtonia asiatica was collected from Gadjah Mada University, Sleman, Yogyakarta in March 2012 and identified by Djoko Santoso, M.Si, Department of Biology Pharmacy Gadjah Mada University.), WiDr colorectal cancer cell lines (generation from HT cells, Drs. Muhammad Ghufon, MS's collection), DMBO, RPMI 1640 (Gibco), D-PBS, Fetal Bovine Serum (FBS) 10%, 3% penicillin streptomycin, fungison 1%, sodium bicarbonate, acid (HEPES) (Merck), aquabidest, 70% ethanol, gel electrophoresis, and 5-Flourourasil (Ebewe).

Result:

All of the WiDr cells were dead even in the lowest concentration of the ethanolic and aqueous extracts of B. asiatica. Chloroform extract has cytotoxic effect towards WiDr cells with IC50 values of 250 µg/ml. This value could induce apoptosis, showed by DNA fragmentation with certain pattern. The analysis of caspase-9 expression proved that the apoptosis is through the intrinsic pathway. Statistically, parametric analysis using one way ANOVA test show that the percentage of caspase-9 expression in WiDr cells differ significantly ($p < 0.05$) between test groups (48,1%) and negative control group (59,8%).

Conclusion:

The chlorofom extract of B.asiatica has cytotoxic and apoptotic effect towards WiDr colorectal cancer cells. Apoptosis was occurred through intrinsic pathway by activation of caspase-9. Furtherstudies needed to be done to analyse the specific active compounds of B.asiatica and their effects on WiDr colorectal cancer cell lines.

Keywords:

Colorectal cancer, Barringtonia asiatica, WiDr, cytotoxic, apoptosis

RPP011 - INTEGRATIVE ROLE OF PALLIATIVE CARE IN CHILDREN WITH TERMINAL CANCER: COMPARISON ABOUT SERUM HSP70 & HSP90 LEVELS AND SERUM CYTOKINE PROFILES

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Introduction:

Nowadays, number of children who is suffering cancer is increasing. Most of them suffer cancer anorexia cachexia syndrome which isn't well understood but has tendency to cause most mortality in cancer-related problem. Fortunately, palliative care is believed to supress disturbances seen during cancer anorexia cachexia syndrome. Objective. To evaluate benefit effect of integrative palliative care for children with terminal cancer, and find the evidence about reduction in serum cytokine level which contributes in improving nutrition status.

Material and Methods:

Heat shock protein (HSP) 70 and HSP90 are released by neoplastic cells during stress-induced spontaneous in vitro apoptosis. Cells also show constitutive release of several cytokines and the systemic serum levels of several soluble mediators are altered in children with terminal cancer. Study will quantify the level of hsp70, hsp90,

and serum cytokine in children with terminal cancer who got integrative palliative care, compare to children who didn't get it.

Results:

103 patients were evaluated in their weight changes. Group 1 got palliative care + definitive treatment, whereas group 2 only got definitive treatment. Distribution of weight loss was similar across genders, however subjects with <5 % weight loss were more likely 46,2% vs 35,8%. Significant improvement in physical function was observed in subjects with palliative care regardless of baseline weight loss (<5%, P=0.002, ≥5%, P<0.001). In group 1, Palliative care will decrease level of stress which triggered little increase in quantity of exosomes produced [with a ratio of 1.245±0.07 to 1 (mean±s.e.m., n=20) of 3-hour-stress-exosomes to control-exosomes] of hsp27, hsc70, hsp70 and hsp90, and other recognised exosome markers. In group two, the level of TNFα and IL-6 remains high, induce suppression of mTOR and activation of AMPK that is independent from STAT-3 signaling, leads to cachetic by suppressing PYY, NPY and CART.

Conclusion:

Discussion. Children with terminal cancer are easy getting disturbances in metabolism and elevated of resting energy expenditure, metabolism abnormality, and negative of nitrogen balance. Cancer anorexia cachexia syndrome consists of loss of appetite, hyper-metabolism, tissue wasting, metabolic abnormalities, and hormonal changes. It has become clearer that cytokines, e.g. cachexin/TNFα, IL-1, leukotriene, and IFNγ play an important role to produce cachexia. Because palliative care may reduce the level of IL-1 and TNFα in cancer children, patient will improve their nutrition status and level of stress, thus leads them to get better prognosis.

Conclusion. The necessity of palliative care for children with terminal cancer is an absolute requirement for the success goal in therapy and comforting patients. We conclude that reduction of both HSP levels and serum cytokine profiles in group who got palliative care may represent benefit effects of integrative palliative care for suppressing pain and anorexia-cachexia syndrome, leads to relieve children with terminal cancer.

Keywords:

Cytokine, HSP70, HSP90, Integrative Palliative

RPP014 - IDENTIFICATION OF GENE CYP2A6 POLYMORPHISM IN NASOPHARINGEAL CARCINOMA WHO TREATED IN RUMAH SAKIT DR. MOHAMMAD HOESIN PALEMBANG

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Introduction: Nasopharyngeal carcinoma (NPC) is a malignancy originating from nasopharyngeal epithelial cells. NPC is rare in Western countries, but highly prevalence is found in South China and Southeast Asia. In Indonesia, based on the

pathological-anatomy laboratory data, nasopharyngeal carcinoma is always among the top five positions of malignant tumors of the human body. Nitrosamine has been identified as a carcinogen for NPC. Here, we investigated if a nitrosamine metabolizing gene, cytochrome P450 2A6 (CYP2A6), played an important role in NPC development.

Material and Methods: This research was a descriptive cross-sectional study. The CYP2A6 were studied in 47 NPC patients. Identification of polymorphism was done by PCR (Polymerase Chain Reaction) and RFLP (restriction fragment length polymorphism) using enzyme BstUI to distinguish between allele *1A and non*1A.

Results: We found the genotype distribution frequency of CYP2A6*1A/*1A, *1A/non*1A, and non*1A/non*1A on participant is 7 (14,89%), 27(57,45%), and 13 (27,66%). Distribution of allele of CYP2A6 for *1A is 41(43,62%) and non*1A allele is 53(56,38%).

Conclusion: Over all, highly mutant allele of CYP2A6 polymorphism (56,38%) is found in nasopharyngeal carcinoma.

Keywords: Nasopharyngeal Carcinoma, Polymorphism, Gene CYP2A6, Nitrosamine

RPP015 - CYTOTOXIC EFFECT OF WHITE TEA CONTAINING EPIGALLOCATECHIN-3-GALLATE SYNERGISTIC-ALLY AFFECT CELL GROWTH AND APOPTOSIS AS AN ADJUVANT THERAPY OF COLORECTAL CANCER

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Introduction: Like black and green tea, white tea is also derived from *Camellia sinensis*. Therefore, white tea shares quite similar chemical properties and health effects of tea. Nowadays, people have understood that Vitexin-2-O-Xyloside and Epigallocatechins-3-Gallate, a group of polyphenol antioxidants found in white tea, can reduce the risk of colorectal cancer. But, only few people have known the beneficial effect of these polyphenol antioxidants in cancer therapeutic, especially for adjuvant therapy beside getting chemotherapy.

Material and Methods: White teas are unfermented young tea leaves or buds that are steamed immediately after harvest to inactivate polyphenol oxidase, an enzyme which can decrease concentration of polyphenol. Therefore, white teas must have been contained higher level of EGCG than another teas. At this moment, study will evaluate the beneficial effect of EGCG found in white tea as adjuvant therapy for colorectal cancer.

Results: Results, Several studies showed that under higher level of ROS in patient with colorectal cancer, the concentration of malone dialdehyde (MDA) as a parameter for destroyed cell in human was significantly increased, while daily administration of EGCG in 400 mL white tea could decreased the concentration of malone dialdehyde by 38.3%. Furthermore, EGCG caused activating effects on antioxidant enzymes superoxide dismutase, glutathione peroxidase, and catalase in colon cancer cells, thus can lowering the progressivity of cell growth and apoptosis found in patient with colorectal cancer.

Discussion. In subjects who consumed white tea, level of MDA and ROS as biomarkers for prooxidant level were lower than subjects who didn't. Further analysis

of this study revealed a G0/G1 arrest of the phase cell progression and apoptosis, linked to modulation of BAX, BCL2, APAF, caspase-9, MDA as well as Reactive Oxygen Species (ROS) generation in both colon cancer cells, whereas apoptosis and ROS were not significantly detected in subjects consuming white tea.

Conclusion: Because white tea contains more polyphenols, the powerful anti-oxidant that fights and kills cancer-causing cells, than any other type of tea, therefore white tea can be used not only for prevention, but also as adjuvant therapy in colorectal cancer. Long-term studies are needed to prove the beneficial effects of white tea in pharmacokinetic and pharmacodynamic.

Keywords: Colorectal Cancer, Epigallocatechin, MDA, ROS

RPP016 - Synergistic Effects of *Arthrospira platensis* (Spirulina) and *Moringa oleifera* Lam. (Malunggay) on Tumor-induced *Rattus norvegicus* (Sprague-Dawley Rat)

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Introduction: Cancer is described as a wild, unrestrained growth of abnormal cells that may originate in any body organ or tissue. They grow in a disorganized and uncontrolled pattern reproducing endlessly thus causing tumor, a pile up of abnormal cells, in the process. Numerous studies have been conducted to treat various types of cancer; herbal medicine of which *Arthrospira platensis* and *Moringa oleifera* Lam. are grouped, is said to offer cures for different types of cancer. *A. platensis* commonly known as Spirulina, a filamentous cyanobacterium, is a widely known food supplement in the Philippines that gained recognition from several renowned institutions. On the other hand, *Moringa oleifera* Lam, locally known as malunggay, a common backyard plant in Filipino homes, has achieved popularity in mainstream scientific journals describing its nutritional and medicinal properties. This study determined the histopathologic and hematologic effects of *Arthrospira platensis* and *Moringa oleifera* Lam., and their synergism on tumor-induced Sprague-Dawley rats.

Material and Methods: Induction of tumors was done through intraperitoneal administration of 1,2-dimethylhydrazine and 7,12-dimethylbenz[a]anthracene for four weeks. Readily available capsules and tablets of Spirulina and malunggay mixed with water were used to achieve the desired 50% and 75% concentration. Intraperitoneal administration of the extracts and intravenous administration of 5-fluorouracil as the positive control treatment were done for two weeks post tumor induction. After treatment, representatives of each treatment groups were drawn blood and dissected for hematologic and histopathologic examination, respectively.

Results: Results show anti-tumor activity of all extracts in the liver in contrast to their ineffectiveness in the lungs. Furthermore, all but the 75% Spirulina extract were effective against gastric tumor development while both concentrations of Spirulina and its 75% concentration successfully countered development of tumors of the small intestine and large intestine, respectively. All of the extracts caused a general negative effect on the complete blood count.

Conclusion: Based on data interpretation and analysis, the present study concludes the relative effectiveness of *Arthrospira platensis* to counter the manifestations of tumor development. The extracts were ineffective against tumor development in the lungs in contrast to their effectiveness in hepatic tumor development. All of the extracts except *Arthrospira platensis* at 75% concentration countered gastric tumor development. Both concentrations of *A. platensis* were relatively the most effective against tumor development in the small intestine while *A. platensis* at 75% was relatively the most effective against colonic tumor development. Meanwhile, a general trend of having decreased hematocrit, RBC and lymphocyte counts, increased segmenters and absent eosinophils; such suggests possible development of anemia, leukemia, tumor or susceptibility to infection though absence of eosinophil is indicative of tumor growth attenuation.

Keywords: Tumor, *Arthrospira platensis*, *Moringa oleifera*

RPP017 - Correlation between clinical and histopathological finding of radicular cysts

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Introduction: Radicular cysts are inflammatory cysts that fall into the category of chronic periapical lesions. They are caused by infection from the tooth root canal. Histopathologically, a cavity that is partially or completely covered with epithelium, below which is connective tissue.

Material and Methods: The study was conducted over the past three years (2009-2011), in the Department of pathohistological, School of Dentistry, University of Belgrade. The study included 28 patients diagnosed with 28 radicular cyst in the Department of Oral Surgery where they were sent to remove them. Tissue samples, obtained by extraction or apicoectomy teeth are used for making histopathological specimens. A review of preparations under the light microscope, put a definitive diagnose.

Results: Cyst is usually observed in men, in the third and fourth decade of life. Histopathological, radiological diagnosis was confirmed in 75.8% of cases.

Conclusion: It is necessary to achieve a multidisciplinary approach to dentistry in order to diagnose this large group of lesions.

Keywords: Radicular cyst, light microscope

RPP018 - In Vitro Sensitivity of Leukemia Cells to Propranolol

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Introduction: Propranolol, as a beta-adrenergic blocker is used for treatment of a large number of cardiovascular diseases such as hypertension and arrhythmias. The inhibitory effects of propranolol on tumor cells growth and also its cytotoxicity on cancerous cells have been revealed by several studies. In this study the sensitivity of a number of human leukemic cell lines to propranolol was evaluated in vitro.

Material and Methods: Two human leukemic T cells (Molt-4 and Jurkat) and a monocyte (U937) cell line were used in this study. The cells were cultured in complete RPMI medium and then incubated with different concentrations of propranolol (0.0004 -0.4 mM) in the presence or absence of phytohemagglutinin (20 µg/ml) for 12, 24 and 48 hours. The cytotoxic effect of the drug was then assessed by trypan blue dye exclusion and also 3-[4,5-dimethyl thiazol-2,5-diphenyltetrazoliumbromide] (MTT) reduction methods.

Results: Propranolol induced a significant dose dependent cytotoxic effect at ≥ 0.2 mM concentration on all three human cell lines (Molt-4, Jurkat and U937) used in this study, after 12 hours incubation onwards, compared to untreated control cells.

Conclusion: Our results demonstrated that leukemic cell lines used in this study were sensitive to propranolol at ≥ 0.2 mM concentration of the drug. These results suggest that propranolol may have potential implication in chemoprevention of lymphoproliferative disorders along with its chronic long-term usage in cardiac problems.

Keywords: Propranolol; Leukemia; Cell lines; Sensitivity

RPP019 - USAGE OF MIB 1 MONOCLONAL ANTIBODIES IN HISTOPATHOLOGY OF NON-HODGKIN LYMPHOMA

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Introduction: Non-Hodgkin lymphomas are malignant lymphocyte tumors, extremely heterogeneous from the standpoint of histological subtypes. Any group, of this lymphoid tumors, can manifest at any age, often manifesting with enlarged lymph nodes, fever and weight loss. MIB 1 is a monoclonal antibody for Ki-67 as antigen. It has great affinity for Ki-67 nuclear antigen and it is used to detect Ki-67 antigen in cells. The aim of this study was to evaluate the percent of MIB-1 positive cells in non-Hodgkin's lymphoma by type of DLBC and FL in patients of different age.

Material and Methods: In the aim of this study was used a group of 10 patients with diagnose of non-Hodgkin's lymphoma (7 men and 3 women). The study was conducted on samples collected at the Center for Pathology, Clinical Center in Nis, in a period from 2006. to 2010. year. Primary antibody used in this paper was MIB 1. Stained preparations were analyzed using a Nikon Eclipse 50 microscope. Determination of MIB 1 positive cells number was performed using a computer program ImageJ, plugin Point Picker.

Results: Of the ten patients, five of them were diagnosed as diffuse large B cell type of non-Hodgkin lymphoma (DLBC); the other five was diagnosed as follicular lymphoma (FL). The number of MIB 1 positive cells in FL varied from 17 to 23 per hundred cells. In non-Hodgkin DLBC lymphoma, number of MIB 1 positive cells varied in the range of 36 to 40 per hundred cells.

Conclusion: MIB 1 is useful in determining the malignant potential and proliferation index of the cells in malignant process. The incidence of diseases such as DLBC and FL was different at different sexes. Among male respondents were noted increased frequency of non-Hodgkin lymphoma type DLBC (57%), while for female gender were more frequent follicular lymphoma (67%).

Keywords: Non-Hodgkin's lymphoma;MIB 1;histopathology

RP020 - THE PREVALENCE AND AGE DISTRIBUTION OF GYNECOLOGIC CANCERS AT DR. ZAINOEL ABIDIN GENERAL HOSPITAL ACEH-INDONESIA FROM 2011-2012

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Introduction: In 2000, there were more than 4.7 million cases of cancer in woman worldwide. Gynecologic tumours, including cancer of endometrium, ovary, vulva, vagina, placenta and adnexa, accounted for 8% of all female primary tumours worldwide and 45% of all gynecologic cancers. In Indonesia, more than 40% of female malignancies are gynecologic cancers. In Indonesia especially in Aceh, substantially few studies have been published about the prevalence and age distribution of gynecologic cancers. Therefore, the purpose of this study is to report the prevalence and age distribution of gynecologic cancers at dr. Zainoel Abidin General Hospital Aceh-Indonesia from 2011-2012.

Material and Methods: This was a descriptive observational study using retrospective methods. The data regarding patients' age and diagnosis were taken from medical record of dr. Zainoel Abidin General Hospital Aceh-Indonesia from 2011-2012.

Results: Based on the study, there were 258 cases of gynecologic cancers. This study showed that the most common cancer was ovarian cancer (65.50%) which most common occurred in the age of 41-50 years (35.50%), followed by cervical cancer (20.54%) which most common occurred in the age of 41-50 years (35.85%), endometrial cancer (7.36%) which most common occurred in the age of 41-50 years (36.84%) and in the age of 51-60 years (36.84%), vulvar cancer (3.88%) which most common occurred in the age of 61-70 years (40.00%), corpus cancer (1.94%) which most common occurred in the age of 31-40 years (40.00%), and vaginal cancer (0.78%) which only occurred in the age of 51-60 years (100%). This study also showed that among 258 cases of gynecologic cancers, most of them occurred in the age of 51-60 years (39.19%), followed by the age of 41-50 years (23.03%), the age of 31-40 years (14.83%), the age of 61-70 years (14.13%), the age of 71-80 years (4.72%), the age of 21-30 years (3.27%), and the age of 81-90 years (0.63%). None of gynecologic cancers occurred in the age less than 20 years old.

Conclusion: Majority of gynecologic cancers were ovarian cancer, followed by cervical cancer and endometrial cancer. Most of gynecologic cancers occurred in the age of 51-60 years. None of gynecologic cancers occurred in the age less than 20 years.

Keywords: gynecologic, cancer, prevalence, age

RPP021 - Spectra Profile of Tomato Yogurt(Preliminary Studies of Tomato Yogurt as Lycopene Source Nutraceutical in Cancer Prevention Efforts)

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Introduction: Tomatoes are known to have many health benefits, especially as an antioxidant. Tomato lycopene is known to have antioxidant activity two times stronger than alpha tocopherol or vitamin E. But the existence is still less interesting than any other fruits. So an effort conducted to create a processed tomato products that combined with yogurt to get a better and acceptable taste. In addition, yogurt is a "factory" of bacteria that can produce a variety of vitamins that our bodies need. To get a tomato yogurt products with optimal antioxidant content, performed an optimization of yogurt and tomato paste formula.

Material and Methods: This study is a preliminary study as a first step to make a lycopene source nutraceutical product. Created combination of yogurt and tomato mixture with a composition ratio yogurt and tomato paste respectively 9:1, 8:2, 7:3, 6:4, 5:5, 4:6, 3:7, 2:8, and 1 : 9. Each composition extracted with asteen – n-hexane (4:6) then analyzed the spectra profiles using UV-Vis spectrophotometer with yogurt extract in asteen - n-hexane (4:6) as a blank, and then lycopene concentrations quantified using equations proposed by Nagata and Yamashita. For comparison, the analysis performed on fresh tomato juice and tomato paste.

Results: From the results of optimization is known that the spectra profiles of tomato paste and fresh tomatoes is equal to tomato yogurt with maximum wavelength of 502 nm. It shows that tomatoes and tomato yogurt have the same content that is lycopene. Optimization result shows that the highest lycopene found in tomatoes yogurt with composition of yogurt and tomato paste = 2:8. The content of lycopene in tomato yogurt is higher than in the tomato paste and fresh tomatoes.

Conclusion: In conclusion, the tomatoes that combined with yogurt had higher lycopene content than before combined with yogurt. So having a more optimal antioxidant effects in cancer prevention efforts. but to ascertain how much effectiveness in preventing cancer, more research is needed.

Keywords: lycopene, antioxidant, cancer, tomato yogurt, nutraceutical

RPP022 - Identification of Estrogen Receptor Alpha (ER α) Gene Polymorphism (T397C) in Patients with Epithelial Ovarian Carcinoma at dr. Mohammad Hoesin General Hospital Palembang

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Introduction: Ovarian carcinoma is the fifth leading cause of death in women. Approximately 90% of ovarian carcinomas originate from epithelial cells. The etiology of ovarian carcinoma is not fully known, but estrogen has been suspected as the contributing factor of ovarian carcinoma. Biological effects of estrogen are mediated by estrogen receptors; estrogen receptor alpha (ER α) and beta (ER β). ER α gene polymorphisms induce proliferation and antiapoptosis of ovarian cells. The

most observed SNP (single nucleotide polymorphisms) is in the intron I that can be recognized by PvuII enzyme. Objective : To identify ER α gene polymorphism (T397C) in patients with epithelial ovarian carcinoma.

Material and Methods: This is a descriptive study with cross sectional design on 30 patients with epithelial ovarian carcinoma at dr. Mohammad Hoesin General Hospital Palembang. Identification of ER α gene polymorphism was done by using PCR-RFLP (Polymerase Chain Reaction-Restriction Fragment Length Polymorphisms) technique with PvuII enzyme.

Results: The genotype pp was found in 10 patients (33.3%), genotype Pp was in 15 patients (50%), and genotype PP was found in 5 patients (16.7%). 50% of ovarian carcinoma patients in this study are within the age range of 46-60 years, most have been married 73.3%, then 56.7% of subjects have not yet gone through menopause, with no history of ovarian carcinoma as many as 83.3% and 46.7% of subjects had a history of using hormonal contraception.

Conclusion: Most of patients with epithelial ovarian carcinoma at dr. Mohammad Hoesin General Hospital Palembang in this study have showed polymorphism.

Keywords: epithelial ovarian carcinoma, polymorphisms, ER α , PvuII

RPP023 - IDENTIFICATION OF PROMOTER -765G/C POLYMORPHISM COX-2 GENE IN PATIENTS WITH COLORECTAL CARCINOMA AT DR MOHAMMAD HOESIN PALEMBANG HOSPITAL PERIOD JANUARY-JUNE 2011

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Introduction: Colorectal carcinoma (CCR) is a malignancy in the epithelial cells of the colon and rectum, which ranks the highest of all cancers worldwide. In Indonesia, based on data in the Department of Health Republic of Indonesia, recorded colorectal carcinoma ranks fifth of all cancers in Indonesia. Because of that, CCR is a very important issue in public health. Some studies suggested the existence of SNPs in the promoter of the enzyme cyclooxygenase-2 (COX-2), also known as prostaglandin synthase (PTGs). This enzyme plays an important role in changing the arachidonic acid into prostaglandins involved in inflammatory processes. COX-2 expression is lower in the tissue and can be increased due to stimulation of mitogenic and inflammatory processes. Increased expression of COX-2 associated with cancer progression through inflammatory processes, angiogenesis, immune system, and cell proliferation. The aim of this study is to identify the promoter polymorphism-765 G/C COX-2 gene that is cut with the enzyme HhaI in the case of colorectal carcinoma conducted in Mohammad Hoesin Hospital Palembang.

Material and Methods: This study is a descriptive research approach to case series of 40 samples with CCR. Identification of the promoter polymorphism -765G/C COX-2 gene was performed by using PCR amplification and RFLP (restriction fragment length polymorphism using the enzyme HhaI).

Results: The genotype CC was found in 10% of colorectal cancer's patients, as well as genotype GC. The genotype GG (normal) was found in 80% of colorectal cancer's patients. The frequency of allele C (mutant) was 16 %, whereas the frequency of G

allele (normal) was 84%. About 52,5% patient with colorectal carcinoma was male. Most of colorectal carcinoma of the patients in this study was adenocarcinoma.

Conclusion: Most of colorectal cancer's patients at dr. Mohammad Hoesin Palembang Hospital in this study have showed normal genotype.

Keywords: colorectal carcinoma, polymorphism, COX-2

RPP024 - MANAGEMENT AND OUTCOME OF PATIENTS WITH NEPHROBLASTOMA AT THE MOI TEACHING AND REFERRAL HOSPITAL (MTRH), ELDORET, KENYA

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Introduction: Nephroblastoma is a common malignant neoplasm of the kidney and is ranked among the top six solid tumours in children in Kenya. Despite its rapid growth and therefore debilitating effects on its victims, its one tumour that has shown good response to combined modality approach to its treatment with encouraging possibilities of survival even in resource poor settings.

Objectives: To evaluate the management and outcome of patients with wilms tumour attended to at Moi Teaching & Referrals Hospital (MTRH) during the period between January 2000 and December 2007.

Material and Methods: Retrospective Study

Results: Information of 45 patients diagnosed with wilms tumour was analysed. 42 (93%) of the patients were referrals from various health facilities in the region. 23 (51%) were male and 34 (76%) were aged less than 48 months. 25 (56%) had the left kidney affected, 19 (42%) the right kidney and 1 (2%) bilateral. All the 45 (100%) had an abdominal ultrasound done but none had exhaustive investigations done to stage the patients received specific cancer treatment with 28 (62%) getting combined modality treatment. 19(42%) were lost to follow up. 30 (67%), 21(47%), 15 (33%) and 13 (29%) patients were alive 6 months, 1 year, 2 years and 3 years respectively from the time of diagnosis. 29% survived beyond 3 years of diagnosis.

Conclusion: Staging of Wilms tumour fell short of the expected. Neo-adjuvant chemotherapy reduced morbidity and mortality of patients managed for Wilms tumour. Loss to follow up and cost of treatment had a negative impact on the outcome, a situation that requires to be improved.

Keywords: Management, Outcome, Nephroblastoma

RPP025 - Relationship Passive Smokers With Cervical Cancer Incidence Rate in Dr Moewardi Hospital

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Introduction: Incidence and mortality number of cervical cancer patients have increased. Cigarette smoke is one of the risk factor for cervical cancer and the passive smoker get more exposure of smoke than active smoker. So, the purpose of this research is determine the relationship of incidence rate of cervical cancer with passive smoker.

Material and Methods: This research is case-control study with samples are 60 gynecologic cancer patients from Obstetric and Gynecology Department of RSUD Moewardi using fixed-disease sampling method. Samples are interviewed use validated questionnaire then divided into positive and negative passive smoker. The data gained from research is analyzed statistically using multiple logistic regression.

Results: There are 35 patient passive smoker. Found a statistically significant relationship between passive smoker with the incidence of cervical cancer. Passive smokers have 11,5 times probability get cervical cancer than non-passive smokers ($p = 0,001$, OR = 11,5).

Discussion: This research show relation between passive smoker with cervical cancer incidences, that the passive smoker have 11,5 times more probability get cervical cancer. Chemicals are inhaled by passive smoker 3-4 more than active smoker and other research show that chemicals in passive smoker cervical mucus more than active smoker. Whereas, that chemicals contain many carcinogenic and co-carcinogenic material such as nicotine, benzopiren, tar, fenol, kresol, β -naftilamin, indol, karbazol, and nitrosamin. These chemicals can increase the risk of cervical cancer by various mechanism. Nicotin can block Glutathione S-Transferase (GSTM1, GSTT1, GSTP1) which regulate detoxification enzyme as protector from carcinogen and oncogen such as human papilloma virus (HPV). Benzopiren can increase virus and E6, E7 onkogen protein quantity so making cervical cancer prognosis worse. Nikotin, hidrokarbon, tar, and other chemicals can be excreted to cervical mucus as mutagen and immunosuppressant. It cause increase proliferation cervical cell and decrease antigen presenting langerhans cell. Program death cell is fisiologic process to prevent neoplasma through blocking proliferation and destroy old cells or mutant cells. HPV infection can disturb that process through increasing nuclear factor κ B (NF- κ B) and activator protein-1 (AP-1) which stimulate E6 and E7 protein. That protein supress p53 and Rb so the program death cell and apoptosis cann't be done.

Conclusion: There are relationship between passive smoker with cervical cancer incidence, that passive smoker have 11,5 times higher risk than non-passive smoker.

Keywords: passive smoker, cervical cancer, cigarette

RPP026 - KNOWLEDGE OF BREAST CANCER AND BREAST SELF-EXAMINATION AMONG WOMEN OVER 30 YEARS OLD IN DONG DA DISTRICT, HANOI, VIETNAM: A CROSS-SECTIONAL SURVEY

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Introduction: Breast cancer is the most common cancer affecting women in most parts of the world including Vietnam. The mortality to incidence ratio of breast cancer was ranked second among the most common cancers in Vietnamese women. Women above the age of 30, incidence rates of breast cancer began to rise and the highest rate were among women aged 60 and over.

Material and Methods: A cross-sectional survey was conducted from January 15th to February 15th, 2013. 275 women over 30 years old were conveniently selected and interviewed face to face using a questionnaire. Participants were required to answer 29 questions which consists 5 questions about the socio-demographic characteristics and 24 questions towards the knowledge of breast cancer and breast self-examination

Results: The mean age of the respondents was 40.9 \pm 10.0. Over half of the participants had a low knowledge score (63.3%); only 36.7% had a good knowledge of breast cancer. Majority of respondents (91.3%) believed that the best ways to find breast cancer is breast self-examination; however, they lacked knowledge of the time of practicing in menstruation and menopause period with 27.3% and 13.5% respectively. Educational level and occupation status significantly influenced breast cancer knowledge (p-value <0.001)

Conclusion: The current study has demonstrated that women over 30 years old in the Dong Da district, Hanoi have serious knowledge deficits about breast cancer and breast self-examination. This study has highlighted the need of an intensive breast cancer awareness campaign which should also stress the importance of early detection and reporting of breast cancer.

Keywords: Breast cancer, Breast self-examination, knowledge, women, Hanoi

RPP027 - The Immunostimulator Effects of Sarang Semut (Myrmecodia tuberosa Jack) Extract on The Tumor Bearing Mice T Lymphocytes Proportion

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Introduction: The Immunostimulator Effects of Sarang Semut (Myrmecodia tuberosa Jack) Extract on The Tumor Bearing Mice T Lymphocytes Proportion

Material and Methods: The Immunostimulator Effects of Sarang Semut (Myrmecodia tuberosa Jack) Extract on The Tumor Bearing Mice T Lymphocytes Proportion

Results: The role of ethanol extract of sarang semut (Myrmecodia tuberosa Jack) as an immunostimulator on in vitro T lymphocytes and peritoneal macrophages (PM) culture of mammary tumor bearing mice

Conclusion: The Immunostimulator Effects of Sarang Semut (Myrmecodia tuberosa Jack) Extract on The Tumor Bearing Mice T Lymphocytes Proportion

Keywords: Sarang semut (Myrmecodia tuberosa Jack)

RPP029 - Serum and Salivary Levels of HER2 Breast Cancer Patients

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Introduction: Her2 (c-ErbB2) is a transmembrane glycoprotein (p185) members of growth factors the Her family, located on chromosome 17q that encodes a transmembrane receptor protein that has tyrosine kinase activity. Growth factor receptor plays an important role for cell proliferation and lifeline. Overexpression of Her2 present in 15-25% of breast cancers. Her2 examination is useful as a clinical information in determining therapy. The method most often used to evaluate the Her2/neu protein expression using tissue samples by immunohistochemistry (IHC). Moreover, the other method is to assess the level of ECD (extra cellular domain) Her2 in serum and saliva were detached from the cell surface. Saliva is used as a diagnostic tool because saliva can be collected non-invasive, simple, no special equipment for the collection of fluid than serum. The aim of this study is to analyze the levels of Her2 in serum and saliva by measure and comparing the levels of Her2 in serum and saliva in patients with breast cancer and controls.

Material and Methods: The study used a cross-sectional design and the type of research design is an diagnostic test. After deciding inclusion and exclusion criteria, achieved 111 subjects which consisted of: 55 subjects patients cancer group from oncology clinics and 56 healthy group from early detection units Dharmais Cancer Hospital between April and December 2012. The level of Her2 examined from the serum and saliva subjects by ELISA methode, compairing with tissue Her2 (IHC).

Results: Serum and saliva levels of Her2 increased in 10.9% and 7.3% of breast cancer patients and amplification Her2 with IHC occurred in 18.6%. The levels of Her2 in serum patients was 15,18 ng/ml; 8,67 ng/ml in controls. It is higher at breast cancer patients than healthy controls groups according to Streckfus et al research that the levels of salivary Her2 at brest cancer patient was significantly higher than the control group or benign tumors. Area under curve at Receiver Operating Characterictic (ROC) serum Her2 = 0.622, whereas saliva Her2 = 0.517 showed that serum and saliva test proved to have the ability to differentiate between the two groups (case-control). These results showed that saliva is a source of fluids that can be used be sides of serum for the diagnosis of breast cancer.

Conclusion: Her2 can be detected in the serum and saliva be sides in tumor tissues, its increased in 7-11% of breast cancer patients. Saliva is a source of fluids that is easily accessible and is a potential of analysis for the diagnosis of breast cancer.

Keywords: Her2, Serum, Saliva, Breast Cancer Patients

RPP030 - ENHANCEMENT TEST LEVEL OF REACTIVE OXYGEN SPECIES (ROS) INTRACELLULAR WITH MONOSODIUM GLUTAMATE (MSG) AGAINST REGRESSION OF GROWTH IN HELA CELLS LINE

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Introduction: One of the types of cancer that has a high prevalence in Indonesia is cervical cancer. In indonesia, every year detected more than 15,000 cases of cervical cancer. About 8,000 cases of which ended with the death of.I t is estimated that 40

new cases per day and 50% of them died. Increased ROS plays an important role in maintaining the phenotype of cancer related to the effect of stimulatifnya on the growth and proliferation of cells, Genetic instability, and tergiversation senses. Pertaining to the effects of promoting of the cancer, Increased of ROS on cancer cells often called as an adverse factor . Monosodium glutamate (MSG), the sodium salt of glutamic acid, L-form non-essential, is one of the flavoring on food products. It declared that the free radicalin form of ROS were found in MSG. This research is intended to know the influence of msg against the regression the growth of HeLa cells (cell line cervical cancer) in-vitro, using intoxication test.

Material and Methods: Solution of MSG inhibits the growth of cancer cellsdetermined by MTT assay. Used empirical studies with pure quantitative approach experimentally using true experimental designs in vitro. post-test only, control group design to determine the effect of MSG on HeLa cell growth regression. Operational definition of the first variable is a dose of MSG required for cancer therapy on pitting cells of hela measured in various trial doses : group 1 is 25mM/mL, 50mM/mL, 100mM/mL, 200mM/mLdan 400mM/mL and group II is 0.25 μ M, 0.5 μ M, 1 μ M, 2 μ M, dan 4 μ M with a ratio of the speed of regression of cancer cells (operational definition on the second variable) in HeLa cells pitting the second, third, fourth and fifthday with intervals of administration in 24 hours, 48 hours, and 72 hours .

Results: The data obtained was analyzed using ANOVA followed by Post Hoc analysis of multiple comparition (TukeyHSD). The results ofthis research showed that MSG may affect the growth of HeLa cells during regression on Lethal Concentration 50 MSG (LC50) of 173.25mM/mL with a confidence level of 91.1%. It can be argued quite specifically, because the solution of MSG can affect more than 50%, so it can be said that MSG is a substance that is effective in improving growth regression of cervical cancer HeLa cells in large doses.

Conclusion:. This research is expected as a basis for further research in the use of hazardous chemicals like Monosodium glutamate (MSG) that can be alternative effective for cancer treatment and relatively affordable. In addition further research is needed to determine the small doses of MSG (micro scale) is most effective against cervical cancer (HeLa cells), the optimum concentration of ROS to decrease growth of cervical cancer (HeLa cells) , and levels supported variable such as GSH, GPX, and much more.

Keywords: Monosodium glutamate (MSG), cervical cancer, HeLa cell line, Reactive Oxygen Species (ROS), Oxidative Stress

RPP031 - MANAGEMENT AND OUTCOME OF PATIENTS WITH NEPHROBLASTOMA AT THE MOI TEACHING AND REFERRAL HOSPITAL (MTRH), ELDORET, KENYA

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Introduction: Nephroblastoma is a common malignant neoplasm of the kidney and is ranked among the top six solid tumours in children in Kenya. Despite its rapid growth and therefore debilitating effects on its victims, its one tumour that has shown good

response to combined modality approach to its treatment with encouraging possibilities of survival even in resource poor settings.

Material and Methods: Retrospective Study. Setting: The paediatric Oncology service (oncology unit in the paediatric ward, the paediatric surgical ward and the outpatient Oncology clinic) at the Moi Teaching and Referral Hospital (MTRH), Eldoret, Kenya. The Hospital has a catchment population of 13 to 15 million people forming about 40 percent of the Kenyan population.

Results: Information of 45 patients diagnosed with wilms tumour was analysed. 42 (93%) of the patients were referrals from various health facilities in the region. 23 (51%) were male and 34 (76%) were aged less than 48 months. 25 (56%) had the left kidney affected, 19 (42%) the right kidney and 1 (2%) bilateral. All the 45 (100%) had an abdominal ultrasound done but none had exhaustive investigations done to stage the patients received specific cancer treatment with 28 (62%) getting combined modality treatment. 19 (42%) were lost to follow up. 30 (67%), 21 (47%), 15 (33%) and 13 (29%) patients were alive 6 months, 1 year, 2 years and 3 years respectively from the time of diagnosis. 29% survived beyond 3 years of diagnosis.

Conclusion: Staging of Wilms tumour fell short of the expected. Neo-adjuvant chemotherapy reduced morbidity and mortality of patients managed for Wilms tumour. Loss to follow up and cost of treatment had a negative impact on the outcome, a situation that requires to be improved.

Keywords: Nephroblastoma management and treatment outcomes

RPP032 - Cytotoxic activity of fucoidans from Philippine *Sargassum* sp. against colon cancer: an in vitro study

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Introduction: Fucoidans are brown macroalgae-derived sulfated polysaccharides which have shown anti-angiogenic, pro-apoptotic and cytotoxic potential against a wide array of cancer cell lines. Philippine variants of brown seaweeds, however, have not been explored yet regarding the therapeutic value of their fucoidans. This study aims to determine the cytotoxic effects of the fucoidans obtained from local *Sargassum* against HCT-116 (colon) cancer and AA8 (normal) cell-lines.

Material and Methods: *Sargassum* was harvested from Surigao City in Mindanao. Fucoidans were extracted from the samples via a series of hexane dissolution, freeze-drying and dialysis. Obtained extracts were submitted for characterization through a Fourier-transformed infrared spectroscopy (FTIR) and the transmittance versus wavelength plot was analyzed. For the MTT-Assay, both the HCT-116 and AA8 cell lines were treated with twofold dilutions of the fucoidan extract. Doxorubicin was used as positive control while the solvent, DMSO was the negative control. After 72 hours incubation, the cells were subjected to a spectrophotometer to measure the reduction of MTT to formazan salt in order to quantify the remaining viable cells. The concentration required to half the cells, IC₅₀, was then determined.

Results: FTIR: The transmittance versus wavelength plot revealed peaks of absorbance coincident with the fucus standard, suggesting that the obtained extract contained fucoidans. MTT Assay: The fucoidans exhibited cytotoxic activity against

HCT-116 with an IC50 determined at 89.60 ug/mL. The extracts did not exhibit cytotoxicity against AA8 (normal) cells at up to 50ug/mL. IC50 of Doxorubicin was determined at 2.25ug/mL for HCT-116 and 2.20ug/mL for AA8.

Conclusion: Fucoidans extracted from local Sargassum exhibited cytotoxic activity against HCT-116 (colon cancer) cell lines in vitro. At upto 50ug/mL, the fucoidans did not show cytotoxicity against AA8 (normal) cell lines. It is recommended to purify and isolate the active compounds in the fucoidan extract and to subject them to trials further assessing their therapeutic effect and possible toxicity.

Keywords: fucoidans, colon cancer, Sargassum, seaweeds, Philippines

RPP033 – WEIGHT LOWERING EFFECT OF AQUEOUS EXTRACT OF CARICA PAPAYA LINN LEAF ON HIGH CALORIE INDUCED-OBESITY IN MUS MUSCULUS MICE: AN EFFORT FOR REDUCING OBESITY AS RISK FACTOR OF CANCER

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Introduction: During past few decades, several study showed that being overweight or obese were associated with increased risk of many type of cancer - with several possible mechanism, which had been suggested to explain the association. A projection of the future health and burden of obesity will lead to about 500,000 additional cases of cancer in the United States by 2030. This analysis also found that if every adult reduced their BMI by 1 percent, which would be equivalent to a weight loss of roughly 1 kg for an adult of average weight, this would prevent the increase in the number of cancer cases and result in the avoidance of about 100,000 new cases of cancer. Therefore lowering weight in overweight or obese condition are substantially important for having lower risk of cancer. Following these reasons, this study was conducted to explore anti-obesity effect of natural agent, Carica papaya Linn leaf. The present study was designed to determine the dose related-weight lowering effect of the aqueous Carica papaya Linn leaf extract in high calorie induced-obesity laboratory mice (*Mus musculus*).

Material and Methods: Forty (40) male mice weighing approximately 20 g were randomly divided into four groups (made up of 10 male mice per groups). Control group and pre-treating group of mice was induced with high calorie diets with composition as follow: 83% of pellet food, 6% of egg yolk, 10% of sheep fats, and 1% of oil. Aqueous Extracts were made by maceration method. Group 1 served as the negative control (not received extract). Group 2,3 and 4 received the extract of 0.25 mg/20 g/days, 1.25 mg/20 g/days, and 2.5 mg/20 g/days respectively. Then mice were orally administered the extract via stomach intubation once a day for a 21-days period. The time-course effect of the extract by measuring average of weight were determined at 0 days post-, 7 days post-, 14 days post-, and 21 days post-treated. One-way ANOVA test followed by post hoc tukey test were employed to examine average of weight in different groups of mice with significant value $p < 0.05$.

Results: Result showed the extracts caused a statistical significant result, in reducing weight ($p=0.039$, $p=0.033$, $p=0.005$) of three treated-mice group when compared with the control. Extract-treated mice showed a significantly ($p=0.000$) weight loss at 21 days post-treated when compared at 0 days pre-treated. Maximum weight lowering effect was offered at an oral dose of 2.5 mg/20 g/days of the extract.

Conclusion: The present study shows that *Carica papaya* Linn leaf extract effectively reduces weight against high calorie induced-obesity in laboratory mice. It is able to be considered as a promising natural therapeutic candidate to human for reducing obese condition - that associated with increased risk of cancer.

Keywords: *Carica papaya*, *Mus musculus*, cancer, risk factor, obesity

RPP035 - The Relationship Between Intrauterine Device (IUD) usage and Incidence Rates of Cervical Cancer in DR. Moewardi Hospital Surakarta

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Introduction: One of the government program in dealing with the increasing population is a national family planning program, particularly by using contraception tools. Intrauterine Device (IUD) is one of contraception tools widely used in society but little information is provided about its correct usage and side effects. Bacterial or viral infection is one of the side effects of IUD usage, including Human Papilloma Virus (HPV) infection, a virus that causes cervical cancer. Cervical cancer is the most commonly diagnosed neoplasm among women worldwide, with annual high incidence rates. The purpose of this study is to determine the incidence rate of cervical cancer associated with IUD usage.

Material and Methods: Using the medical record data from gynecological cancer's patients of the obstetric and gynecologic department of DR. Moewardi Hospital Surakarta, taken from April – June 2012, we assembled a case control study with a total of 60 subjects consist of cervical cancer's patients as case subjects and other gynecological cancer's patients as control subjects. A validated questioner was used to confirm the use of IUD in all subjects. To evaluate whether IUD usage and age increase the risk of cervical cancer, we performed a multiple logistic regression analysis.

Results: In this research we got 40 subjects of cervical cancer patients consist of 27 subjects as IUD users and 20 control subjects consist of 4 subjects as IUD users. By using multiple logistic regression analysis, it is found that the use of IUD is higher in subjects with gynecological cancer (OR=8,31, CI=67,5%, p=0,001). The incidence of cervical cancer in < 45 year old subjects reach 57,5% while in ≥45 year old subjects 42,5%. The result shows statistically significance of the relationship between IUD usage and cervical cancer. The risk to get cervical cancer in IUD users is 12,7 times greater than non-IUD users (OR=12,70; p<0,005). Meanwhile on age variable OR=0.14, p=0.009, so statistically non significance with cervical cancer incident. However, the precision of this research is still too wide for confidence rate (CI) 95% (2.93 - 55.12). Probably due to the confounding variables, the number of samples is too small, and the control subjects in this study less than the case study.

Conclusion: Our study indicates a positive association between IUD usage and the incidence of cervical cancer. IUD users will experience a risk for cervical cancer 12,7 times higher than those not using an IUD. Further exploration of its incidence patterns, etiology, and pathophysiology is needed.

Keywords: Intrauterine Device (IUD), Cervical Cancer

**RPP037 – Knowledge, Attitude, and Behaviour of Preclinical Students
Faculty of Medicine, Universitas Indonesia towards Cervical Cancer
Prevention in February 2013**

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Introduction: Cervical cancer is one of the most common form of malignancy in Indonesia. Almost 70% of women had arrived in a state of advanced stage (more than stage IIB) because the nature of this disease which shows almost no symptom. This is due to low awareness of the community to take action to prevent or do cervical cancer screening. The level of public awareness is closely linked with contributions from health professionals such as a student of the Faculty of Medicine, which will plunge into the community. Based on Komalasari's study (2012) conducted at the Faculty of Medicine, Universitas Diponegoro showed that the level of student's knowledge on the prevention of cervical cancer had been well. However, it still can not be known about level of attitude and behavior. Therefore, further study is needed to determine the knowledge, attitudes, and behavior of the medical student to cervical cancer prevention.

Material and Methods: The study population was preclinical student of Faculty of Medicine, Universitas Indonesia in February 2013 with a sample of 110 randomly selected. Cross sectional design was used in this study.

Results: "The results showed that students had a good knowledge and behavior with a positive attitude towards the prevention of cervical cancer. Subjects who had a good knowledge were 80.9% and good behavior were also 94.5%, while subjects with a positive attitude were 99.1%. There was no relationship between the level of knowledge and the attitudes towards the behavior of subjects with cervical cancer prevention. However, there was significant difference between the level of knowledge with the attitude related subject of cervical cancer prevention.

Conclusion: Based on this study, preclinical student Faculty of Medicine, Universitas Indonesia already had a good level of knowledge and behavior with a positive attitude towards the prevention of cervical cancer. It can be the basis by each Faculty of Medicine to support their students in providing counseling or information to the public related to the prevention of cervical cancer.

Keywords: cervical cancer prevention, knowledge, attitude, behaviour, preclinical student

**RPP039 - Mangosteen (*Garcinia mangostana* Linn) Pericarp Induces
Apoptosis in Human Cancer through Antitumor Growth and Antimetastatic
Activities in p53 Gene Mutation**

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Introduction: Cancer cells are less prone to kill themselves by apoptosis. This is often caused by mutations in genes that regulate the intracellular death program responsible for apoptosis. About 50% of all human cancers have lost or suffered a mutation in the p53 gene. The p53 protein normally acts as part of a checkpoint

mechanism that causes cells either to cease dividing or to die by apoptosis when their DNA is damaged. If the cell is defective in p53, it may survive and divide, creating highly abnormal daughter cells that can become more malignant. Recently, the compound α -mangostin, which is isolated from the pericarp of the mangosteen is shown to induce cell death in various types of cancer cells in in-vitro studies. This will be a good future for scientists to investigate the antitumor growth and antimetastatic activities of α -mangostin in p53 mutation.

Material and Methods: The method used in this research is by injecting the α -mangostin into the mutant p53 gene to suppress tumor volume and the multiplicity of metastases and trigger apoptosis. It can be done by packing the α -mangostin into a tablet or also can be done by consuming mangosteen rind juice regularly.

Results: According to the data, the results are not only were in vivo survival rates significantly higher, but both tumor volume and the multiplicity of metastases were significantly suppressed. Apoptotic levels were significantly increased in the mammary tumors and were associated with increased expression of active caspase-3 and -9.

Conclusion: α -mangostin from the extract of mangosteen pericarp may have chemopreventive benefits and/or prove useful as an adjuvant therapy, or as a complementary alternative medicine in the treatment of cancer related to p53 gene mutation.

Keywords: α -mangostin, p53 gene, apoptosis, cancer

RPP040 - Detection Kit for Prostate Cancer Based on Telomerase Antibody as the Early Detection for Prostate Malignancy : Immunomolecular Approach

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Introduction: Prostate enlargement remains a major threat to public health in the developing world. Prostate enlargement is the most common urinary tract abnormality in 50 years old male adult. On the other hand, there are still difficulties to differentiate benign and malignancy enlargement without using an invasive method. Prostate malignancy exhibits a marked age dependence, initiating immortalization and forming malignant clones which is characterized by genetic instability. Telomerase plays a critical role in prostatic malignancy. Telomerase activity will increase in prostate malignancy. Telomerase will affect genetic instability. Prostate secretion shows increasing telomerase activity in prostate malignancy patients.

Material and Methods: This is an experimental study which used a male rabbit, aged 4 months old, and the rabbit was induced by telomerase mouse peptide. Antibody was purified using SAS 50, detected using Western Blot. Immunocytochemistry was used to identify telomerase activity in cancer's cell, as an immunomolecular approach against prostate malignancy.

Results: Western Blot was used to show the specificity between telomerase antibody produced in this research and the telomerase mouse peptide which was used to induce. Immunocytochemistry analysis showed that in cancer's cell, there were a lot of telomerase activity, which was shown by brown colour. The density of brown colour was measured to ensure that the telomerase antibody binds specifically to telomerase in cancer cells.

Conclusion: For conclusion, this experiment shows that telomerase antibody can be produced in order to detect the telomerase activity in prostate malignancy using

immunomolecular approach. Western Blot and Immunocytochemistry results showed that telomerase antibody has the opportunity to be developed as early screening marker for prostate enlargement, in order to differentiate between prostate malignancy and benign prostate hyperplasia.

Keywords: Telomerase Antibody, Prostate enlargement, Prostate malignancy, Immunocytochemistry, Western Blot

RPP041 - The characterization of a cascade thermoelectric cooler in a cryosurgery device

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Introduction: Cervical cancer shrouds over 2.7 million of life lost among women. The mortality rate was 2.4 deaths per 100,000 women per year. Thanks to the evolving of our medical attainment, there are considerable ways to alleviate the number of victims. Chemotherapy and conventional surgery are the most prevalent ways. But, there is a distinct way which is evolving right now, Cryosurgery. Cryosurgery, which relates to the destruction of living tissue by freezing cells, is commonly used to destroy benign and malignant tumors or neoplasm of the skin and mucous membranes. Cryosurgery has been performed through the application of refrigerants such as dry ice, liquid nitrogen, nitrous oxide, or chlorofluorocarbons (CFC's). The use of CFC's can be hazardous to the environment, and nitrous oxide can be toxic to the patient and physician. In regards to these effects, this abstract will describe how the new method by using thermoelectric can be more advantageous in cryosurgery world.

Material and Methods: The device has 2 segments which are connected to each other. There are thermoelectric coolers (TEC module) made from bismuth telluride (Bi_2Te_3) with a hot side area of 40 x 40 mm and a cold side area of 5 x 5 mm. The other segment, heat exchanger, is equipped with a copper heat pipe of 6mm diameter and 55 mm height which is attached to a solid copper base plate. The TEC module works by using peltier effects when two different metal conductors are flowed with current, a temperature difference could be maintained at the junctions. The heat exchanger has 3 different configurations which can be used. There are the heat pipe with a water block and fin, the heat pipe without a fin, and the heat exchanger with neither a heat pipe nor a fin. The methods of the experiment start by analyzing the cooling system to measure temperature on the cold and hot sides of the TEC with using type K thermocouples of 0,05 mm diameter. The TEC module's power were supplied by a DC power supply . Then, all data were recorded simultaneously with an NI (National Instrument) based digital data acquisition system. The temperature on the cold and hot side of the 5-stage and 6-stage TEC modules are measured while giving variations in power supply, CTB (Circulating Thermostatic Bath) temperature, heat exchanger fluid (air and water), heat pipe and fin combinations. All the data are then presented in charts.

Results: The configuration of heat exchanger device which is using water as the liquid coolant and equipped with a heat pipe without fin give the best performance. The device can achieve 177.09 K for 5 stage TEC modules, and 186.84 K for 6 stage TEC modules.

Conclusion: The configurations of the device have obtained the desired targets . The device can reach the temperature needed and can be used to replace the use of liquid nitrogen, nitrogen oxide and cfc as a cooling source for cryosurgery. In other words, the device is ready to be attached into cryoprobe and clinical trials.

Keywords: cryosurgical thermoelectric

RPP042 - ETHANOLIC FRACTION OF BAWANG DAYAK (*Eleutherine palmifolia* L., Merr.) EXTRACT ADMINISTRATION'S EFFECT ON GROWTH, BCL-2 EXPRESSION'S LEVEL AND APOPTOTIC INDUCTION OF HeLa CELL LINE FROM (HPV HIGH RISK TYPE) UTERINE CERVICAL CANCER SERVIKS UTERI

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Introduction: Cervical cancer is the leading malignancy related death in women at developing countries, while the utilization of chemotherapy modalities still could not improve the prognostic. Herbal plant are often being used as alternative therapy for soothing the pain and improving hopes of healing. Bawang Dayak is well believed to have an anti-tumor potential in community empirically without scientific study.

Material and Methods: Using biomedic experimental with post-test only control group design approach, this experimental laboratory study was performed on HeLa cell samples that was divided into three groups of different treatment. One group was assigned to the administration of cisplatinum as a positive control, another was assigned to receive no treatment, as the negative control, while the last group was being treated by ethanolic extract from bawang dayak. The treatment were three series of concentration under LC50 then suppressing HeLa cell growth observation was performed, continued with fixation. The level of Bcl-2 expression were determined using immunostaining techniques and apoptotic cell percentage using TUNEL method.

Results: The acquired LC50 of ethanolic bawang dayak extract on HeLa cell was 84,02 μ /ml. Regression analysis shown that there was effect and positive correlation between ethanolic fraction of bawang dayak extract with level of the death HeLa cell ($R=0,786$, $p=0,008$). There was effect and negative correlation with apoptotic cell percentage ($R=0,895$, $p=0,054$). There was effect and positive correlation with apoptotic cell percentage ($R=0,958$, $p=0,020$).

Conclusion: We conclude that the ethanolic fraction of bawang dayak extract (*Eleutherine palmifolia* L., Merr.) can inhibit HeLa's cell growth, can induct apoptotic cell significantly and suppress the Bcl-2 expression level of HeLa cell in vitro even statistically less significant.

Keywords: Cervical cancer, HeLa cell, bawang dayak (*Eleutherine palmifolia* L., Merr.), Bcl-2

RPP043 - Colon Cancer as a Newbie Silent Killer for Active Young Smoker in Indonesia

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Introduction: Nowadays, death was caused by colon cancer has increased, for example in United States of America shows 102.480 new cases and 50.830 deaths caused by colon cancer. The trend of death caused by colon cancer in the world happens to people beyond their 40 years old. Strangely, the trend of death caused by colon cancer in Indonesia happens to people below their 40 years old. In the other hand, demography's figure in Indonesia shows that 18% of total population is productive age group. This data shows us that the productive age group in Indonesia has the risk of colon cancer.

Colon cancer as one of the non-communicable disease not happens with only single factor. One of the triggers is life style. Some of those are improper diet, lack of exercises, overweight, alcohol in use and smoking. Unlike lung cancer, where the risk of passive smokers is higher than active smokers, the chances of colon cancer in a long time active smokers infected more than passive smokers. As a country that occupies the third position of the countries with the world's largest cigarette consumption, the trend of active smokers in Indonesia was creeping in children and adolescents.

Material and Methods: In Indonesia, the death of degenerative disease with cigarette as the risk factor has increased from 41% in 1995 to 60% in 2007. Recent data shows smokers aged 5-9 years had increased 0.4% in 2001 to 1.7% in 2010. In the other hand, the prevalence of smokers aged 13-15 years who originally 12,6% of total population in 2006 increase to 20,3% in 2009. Generally, 1 in 20 people is at risk of colon cancer.

This paper uses some literature studies with qualitative and quantitative data focused on secondary material. And then these data have been analyzed into the specific problem and also give some recommendations as solution of the problem.

Results: Based on our research, originally it's hard to find the direct correlation between smoking habit and colon cancer. But, data shows 50% of smokers have colon cancer. Besides the carcinogenic substances contained in cigarette, sometimes when ingested by smokers, the smoke will cause irritation to the gastrointestinal tract. If it allowed continuously it will accumulate and trigger changes in colon cells become cancerous.

Conclusion: So that in the future, colon cancer can be a new silent killer in Indonesia because it will contribute the double burden especially for non-communicable disease.

Keywords: colon cancer, smokers, adolescent, non-communicable disease

RPP044 - Document Planning Health Promotion in the Prevention and Eradication of Breast Cancer

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Introduction: Background: The Union for International Cancer Control (UICC) and the World Health Organization (WHO) states that estimated the incidence of cancer in the world increased by 300 percent in 2030. Breast cancer is the leading cause of death from cancer in women. According to the WHO, breast cancer occurs of approximately 8-9% in women. Based on data from the Hospital Information System

(SIRS) in 2007, breast cancer ranks first in hospitalized patients in all hospitals in Indonesia as many as 8.277 cases (16.85%). Cancer diagnosis revealed that 80% of cancer patients are found at an advanced stage is stage 3 and stage 4 which became one of the causes of rising cancer in Indonesia.

Material and Methods: Purpose: To provide health promotion on prevention of breast cancer in women of Indonesia. Making scientific studies as an ingredient in health policy making. Early knowledge about cancer symptoms that can reduce the incidence of cancer. Provide alternative interventions in cancer prevention by getting to know the natural history of the disease.

Methods: using literature and analysis of data on breast cancer. Provision of health promotion interventions through the system Triad Epidemiology. Prevention is by the introduction of the cause of the Host, Agent, and Environment. Prevention can be done by the introduction of the natural history of cancer in pattern formation piker through the introduction of rational determinants of breast cancer, primordial prevention (lifestyle), primary prevention (risk), secondary prevention (high risk groups), tertiary prevention (breast cancer patients).

Results: According to the WHO (2009) 40% of cancer deaths can be prevented. Prevention can be done when the patient is aware that he was suffering from cancer is still in the early stages. Discovery of early stage cancer can reduce mortality significantly. If the disease can be detected at an early stage, then more than half of cancers are preventable, even curable and need to be redefined in the ministry of health promotion and preventive medicine to. If the cancer prevention by each individual, then it will have a major impact in reducing the incidence of cancer in the world.

Conclusion: Health promotion planning document by analyzing and utilizing the data and supported by some literature is a small step in the prevention and eradication of breast cancer. Contributions to the intervention and prevention of breast cancer can be used to make health policy materials.

Keywords: Document Planning, Prevention and Eradication of Breast Cancer. Analyzing and Utilizing the Data, Triad Epidemiology.

RPP045 – Breast Cancer Chemosaturation

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Introduction: Chemosaturation has been known to be more effective than Best Alternative Care (BAC) when dealing with treatment of liver cancer. We attempt to replicate the same method to the breast cancer treatment to achieve any positive result that can outperform current common methods used to treat breast cancer and eventually to improve the survivability of the patients.

Material and Methods: The method involves blocking blood inlet (artery) and outlet (vein) with inflated balloon fitted inside the blood vessels. During the duration of the isolation, the organ involved will be saturated with very high dose of drug. Duration of the saturation will last approximately 60 minutes after which the blood will be filtered out with special filter that will clean the blood of the drug.

Results: Chemosaturation is very effective when treating the liver cancer and has showed significant improvement and survival rate than BAC. It is expected that with

the same-refinement of this method used on breast cancer will be more effective and causing less side-effects than standard chemotherapy.

Conclusion: By modifying the instruments used, minimizing the 'balloon' to isolate breast blood flow, and regulating the concentration of drug utilized, breast may exhibit delay in tumor progression and could potentially improve survival.

Keywords: Breast Cancer Chemotherapy Isolation Organ

RPP046 - Extract of *Artemisia vulgaris* as Potential Killer of MCF-7 Cell Line

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Introduction: Breast cancer is the global issue that must be concerned now. Therapy is often unaffordable by the community, so that traditional medicine is considered for the treatment of cancer. *Artemisia vulgaris* leaves are expected to be one of alternative herb that can inhibit the growth of breast cancer cells.

Material and Methods: Material MCF-7, DMEM medium, TUNEL kit, MTT assay.

Methods: Experimental studies with a post-test only design were conducted on MCF-7 cancer cell line in vitro. Addition of *Artemisia vulgaris* ethanolic extract on cells was done with nine dosage (19,5 – 5000 µg/ml) to find out the antiproliferation, whereas three dosage (75 – 300 µg/ml) to find out the apoptosis index. Antiproliferation of the cells was carried out by using MTT assay while the apoptosis index was determined by TUNEL assay.

Results: Results: The results showed that the treatment of ethanolic extract caused 6 - 87% growth inhibition of the cells ($p < 0.05$). Correlation test results also showed that increasing the dosage extract cause the cell viability of MCF-7 cell is significantly decrease. Results also showed that the extract induces apoptosis in the test group doses of 75 µg/ml for 0.49%, the dose of 150 µg/ml for 0.86%, and the dose of 300 µg/ml for 2.27%. The increase in apoptosis index in the group of treated cells with the control group had a significant difference ($p < 0.05$). Correlation test results also showed that increasing the dosage extract, the apoptosis index of MCF-7 cell tends to increase. The population of cancer cells in dose of 300 µg / ml showed 26% live cells remaining than controls through microscopic assesment.

Discussion: The previous studies showed that eupatilin contained in *Artemisia vulgaris* is able to inhibit the proliferation of cancer cells through a mechanism of G2 / M phase cell cycle arrest. Eupatilin also increase the expression of p21 so that induce cell cycle arrest. The other studies indicated that eupatilin increase the proapoptotic bax in a dose dependent manner. Increased proapoptotic bax cause caspase cascade so that induced apoptosis. The data suggest that leaves extract can induce apoptosis in MCF-7 cells tend to be small. This probably caused by mutation of caspase 3 in MCF-7, thus it is probable that the extract induces apoptosis through activation of caspase 6 or caspase 7.

Conclusion: The conclusion of this study is *Artemisia vulgaris* extract can inhibit the cell growth of MCF-7 cells up to 87%. At dose of 300 µg / ml, the cells decreased by 74% of control cells via microscopic. Based on these data, it is suggested further research of eupatilin in *Artemisia vulgaris* and its molecular effects in antiproliferation and apoptosis or other mechanism of cell death.

Keywords: *Artemisia vulgaris*, antiproliferative, apoptosis, MCF-7

RPP047 - Production of Recombinant Soluble Apoptin in Escherichia coli and Bacillus subtilis as the Cancer Medication

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Introduction: Apoptin, a small protein encoded by chicken anemia virus (CAV), has great attention in last decade because of its ability to induce apoptosis of cancer cells selectively. When apoptin enters the cancer cell, it will be automatically phosphorylated & enter the nucleus of cancer cell to destroy it. But unfortunately, in previous decades, the production of apoptin by using recombinant technology always yielded the insoluble apoptin, or in other word, produced as inclusion bodies.

Material and Methods: This protein was expressed as a recombinant protein by employing Escherichia coli and Bacillus subtilis as hosts for expression. Gateway cloning system was used in this study to clone Apoptin gene, while plasmid destination vectors pOGW and pOXGW were used for expression of apoptin gene in E. coli and B. subtilis, respectively. In the former plasmid vector IPTG was employed as an inducer for protein expression whereas in the latter xylose, cheaper inducer than IPTG, was employed. For the expression, the culture was grown to OD 600 of 0.6 – 0.8 at 37°C with shaking at 200 rpm in 500 ml Luria Bertani medium supplemented with 10 and 5 µg/mL tetracycline. The culture has incubated for additional 2 h. Then the cells were harvested by centrifugation and resuspended in buffer before purified. 12 his tag was added to the C-terminal, whilst a Shine Dalgarno (SD) promoter sequence and an ATG start codon were added to the N-terminal region preceding the Apoptin structural gene. The objective of 12 his tag attachment on the N-terminal of this protein is to mark the apoptin for easier purification. By attaching 12 his tag, the expressed recombinant Apoptin was purified by performing affinity chromatography column of immobilized Ni²⁺.

Results: On this research, finally the production can yield soluble apoptin. Results from SDS-PAGE show that the recombinant protein was well expressed, and furthermore, the protein was produced in soluble form. We were also able to demonstrate that recombinant Apoptin can also be produced in soluble form by adding cell-penetrating peptide, octaarginine.

Conclusion: This soluble recombinant Apoptin open the way to confirm biophysical, biochemical properties and detail mechanism of Apoptin inducing-apoptosis, in vitro, and producing recombinant protein apoptin efficiently

Keywords: Apoptin, Cancer, Bacillus Subtilis, 12-his-tag

RPP048 – The Association Between Health Promotion and Level of Knowledge, Attitude, and Behavior in Married Woman about Cervical Cancer and Visual Inspection of Acetic acid (VIA) test in Makasar District Health Care Center, East Jakarta, October 2012

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Introduction: Cervical cancer is the most number gynecology tumor in women. In Indonesia, number of case of HPV (Human Papiloma Virus)infection is 40.000 in a year and become the number one of killing infection for women. Most of women come to the hospital in a late condition, II-Ivb stage, maybe because this infection do not give any symptoms except in a late stage. Early detection can be done to solve that problem for example using VIA (Visual Inspection with Acetic acid) test which is simple and reachable method. But women's attitude and behavior to this is low, in Puskesmas Makasar, East Jakarta only 0.07% who did the VIA test in a year. This low attitude and behavior may be influenced by low knowledge too. One research (Harmani, et al 2012) said that 87.7% women in Puskesmas Kecamatan Makasar, East Jakarta has a low knowledge about VIA test. So that, much efforts are needed to make the women's level of knowledge become better, for example with social counseling. Thus, the researcher want to know the effectiveness of counseling towards level of knowledge, attitude, and behavior.

Material and Methods: Analytic research using cross-sectional design. The data was collected in October 16th, 2012 in Puskesmas Kecamatan Makasar, East Jakarta through questionnaire to 59 respondents

Results: From 59 respondents, 5 dropout because data was not complete. Majority of respondent (79.6%) is 36-60 years old, 48.1% are highschool graduated, 77.8% have income below Rp 3.000.000. Sexual history, all of respondents only have one sexual partner and 77.8% have their first sexual contact in >20 years old. Level of knowledge in precounseling, 51.9% are low, postcounseling the respondent that still has low level of knowledge only 14.8%. There is a significant relation between counseling with level of knowledge (p 0.000). Attitude in precounseling, 74.1% respondents are good, and postcounseling number of respondents that has good attitude, rise become 83.3%. But statistically, there is no significant relation between counseling and attitude (p 0.132). Behavior in precounseling are bad in 27.8% respondents, postcounseling only 14.8% respondents that are still bad. Statistically, there is also no significant relation between counseling and behavior (p 0.082).

Conclusion: There is a significant relation between health promotion with level of knowledge but not with attitude nor behavior.

Keywords: health promotion, knowledge, attitude, behavior, cervical cancer and VIA test.