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PSYCHIATRY AND PSYCHIATRIC DISORDERS

October 19-20, 2018 | Tokyo, Japan

DAY 1

Scientific Tracks & Abstracts

Day 1

SESSIONS

October 19, 2018

Drug Formulation | Drug Delivery Technologies | Nuclear Medicine & Molecular Imaging Molecular Medicine

Session Introduction

Session Chair

Archakov A I
Institute of Biomedical Chemistry
Russian Federation

Title: **Formulation of a natural Intraoral Dispersible Film (IDF) for intraoral delivery of various natural drugs using edible rice paper film as the carrier vehicle**

Eliphaz Mukasa, University of the Witwatersrand, South Africa

Title: **X-ray free electron laser: Opportunities for drug discovery**

Michael Hennig, LeadXpro AG Park InnovAARE, Switzerland

Title: **The role of adipose derived mesenchymal stem cells as a treatment in autoimmune disease**

Purwati, Airlangga University, Indonesia

Title: **Psychiatric morbidity among the patient of first ever ischaemic stroke**

Muhammad Sayed Inam, Upazilla Health and Family Planning Officer, Bangladesh

Eliphaz Mukasa et al., Asian J Biomed Pharmaceut Sci 2018, Volume 8 | DOI: 10.4066/2249-622X-C3-008

FORMULATION OF A NATURAL INTRAORAL DISPERSIBLE FILM (IDF) FOR INTRAORAL DELIVERY OF VARIOUS NATURAL DRUGS USING EDIBLE RICE PAPER FILM AS THE CARRIER VEHICLE

Eliphaz Mukasa and **Paul Michael Danckwerts**
University of the Witwatersrand, South Africa

Aim & Background: At present, pharmaceutical researchers are focusing on instantaneous intraoral dispersible technologies as novel drug delivery systems, because they have outstanding advantages over the traditional oral and parenteral routes of drug administration. Some essential natural drugs have low oral bioavailability due to extensive first pass metabolism and pre-systemic degradation in the gastrointestinal tract. Currently, a cheap rice paper intraoral dispersible film (IDF) has been developed

Objectives: In this study, formulation was optimized using the experimental factorial design. The IDFs were loaded with model, natural, anti-cancer drugs, resveratrol and curcumin with low oral bioavailability.

Methods: They were evaluated for thickness, folding endurance, swelling behaviour, among others. These related to their drug release properties. Permeation was evaluated using the pig mucosal membrane mounted on a Franz diffu sion cell. Taste testing was done to determine acceptability using a taste panel.

Results & Discussions: 16 formulations showed variations in their profiles. Formulation 16 proved optimal. The dissolution rate at steady state concentrations of resveratrol was 29mg per second and the permeability coefficient was 389 mg/sec.cm2. Curcumin dissolution rate at steady state concentrations was 0.25mg per second and the permeability coefficient was 42.71 mg/sec.cm2. Resveratrol permeability rate was 0.42 mg/sec. and that of curcumin was 0.14 mg/sec. Resveratrol flux was 0.21 mg/sec./cm^2. Curcumin flux was 0.14 mg/sec./cm^2. Drug entrapment was 80% for both molecules. The 20 mg of resveratrol and curcumin dissolved in 47.6 sec. and 71.4 sec. respectively. In this study, after permeation, a concentration of 6.73mg/ml of resveratrol and 0.061mg/ml of curcumin were detected after two hours of the experiment on administering only 20 mg of each of the drugs suggesting that curcumin is 100 times less permeable than resveratrol. The release profile was a burst release. On contrast, curcumin oral dose of 2 g/kg to rats yielded 1.35±0.23 µg/ml in 0.83 hours and in humans, given the same dose yielded either undetectable or extremely low (0.006±0.005 µg/ml after one hour in blood. Two separate mono-glucuronide metabolites yielded a Cmax of ~7.5 µM following a single 5.0 g oral dosage of Resveratrol.

Conclusion: The key finding was, ex vivo release profiles of the optimized formulation revealed first order release and later zero order. Therefore, it is evident that rice paper IDF could efficiently deliver natural drugs into the systemic circulation intraorally. However, further studies need to be performed to prove increased bioavailability in human subjects

BIOGRAPHY

Eliphaz Mukasa has worked at Medipharm Industries EA Ltd., Uganda factory for five years. He is specialized in cGMP and ORS manufacture. He has studied at Mulago Hospital School of Dispensing for a Higher Diploma in Pharmacy in 1988. He taught at Mulago Paramedical School for two years. He has attended a clinical instructor's course at Mbale Health Manpower Development Centre in 1999 and worked as an Assistant Drugs Inspector at Uganda National Drug Authority for seven years. He has also attended NIPER Chandigarh India for assessment of quality of pharmaceuticals. He did his BPharm in 2012 at Nelson Mandela Metropolitan University, former University of Port Elizabeth (NMMU) Port Elizabeth South Africa. He has worked at Johannesburg General Hospital Charlotte Maxeke for his pharmacist internship in 2013. Presently he is an M Pharm student at the University of the Witwatersrand, SA 2013 to 2016. He served as a Community Service Pharmacist at Nessie Knight Hospital Sulenkama Qumbu, Eastern Cape, South Africa.

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Michael Hennig, Asian J Biomed Pharmaceut Sci 2018, Volume 8 | DOI: 10.4066/2249-622X-C3-008

X-RAY FREE ELECTRON LASER: OPPORTUNITIES FOR DRUG DISCOVERY

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Past decades have shown the impact of structural information derived from complexes of drug candidates with their protein targets to facilitate the discovery of safe and effective medicines. Despite recent developments in single particle cryo-electron microscopy, x-ray crystallography has been the main method to derive high resolution structural information for drug design. Recently, x-ray free electron laser (XFEL) have become available in the US (LCLS), in Japan (SACLA) and in Europe (EUXFEL and SwissFEL). The unique properties of x-ray free electron laser (XFEL) with unmet peak brilliance and beam focus allow x-ray diffraction data recording and successful structure determination from smaller and weaker diffracting crystals. This shortens timelines in crystal optimization. To best capitalize on the XFEL advantage, innovations in crystal sample delivery for the x-ray experiment, data collection and processing methods are required. This leads to the development of serial crystallography which allows structure determination at more physiologically relevant room temperature. The ability of time resolution provided by the femtosecond x-ray pulse, enables monitoring and capturing of dynamic processes of ligand binding and associated conformational changes with great impact to the design of candidate drug compounds. In addition, structure determination at room temperature gives more realistic data on protein flexibility at the ligand binding site with new insights for computational chemistry. The talk will show the progress made in this area as well as examples for successful application of serial crystallography.

BIOGRAPHY

Michael Hennig is a drug discovery research manager with 22 years of experience in pharmaceutical industry. He co-founded and is CEO and Chairman of the board of leadXpro, an emerging biotech company and spin-out of the Paul Scherrer Institute (ETH, Switzerland) that is dedicated to structure based drug discovery of membrane protein targets. Formerly he worked 20 years at Roche research Basel, Global Head and Principle Leader of discovery technologies with responsibility for structure based drug discovery, protein science, assay development and HTS, corporate compound library, stem cell platform. In addition, he is guest Professor at the University of Basel in structural biology, gives lecture series in pharmacy, is author of >75 paper and lecturer at conferences, inventor of 8 patents in areas of technology, discovery and formulation of drug substances.

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THE ROLE OF ADIPOSE DERIVED MESENCHYMAL STEM CELLS AS A TREATMENT IN AUTOIMMUNE DISEASE

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Autoimmune diseases (ADs) are the third most common disease in United States affecting 5 to 8% of population. The major treatment of ADs is immunosuppressive drugs, but these are not effective and associated with substantial toxicities. Adipose tissue is one of the most potent and concentrated source of mesenchymal stem cells (MSCs) as an anti-inflammatory and tissue protecting agent which is promote healing and minimal invasive. In this study conducted in 20 patients with autoimmune diseases in various age between 22 to 70 years old. Patients treated with autologous adipose-derived MSCs transplantation through catheterization. The laboratory analysis result of patients before and after MSCs application in 6 months were measured, include hemoglobin (Hb), white blood cell (WBC), erythrocyte sedimentation rate (ESR), protein and blood levels in urine, high sensitivity c-reactive protein (hsCRP), C3 and C4 complement, anti-nuclear antibodies (ANA) and anti-double stranded DNA (anti-dsDNA). MSCs can improve the performance of hemoglobin as shown in Hb which statistically significant increased ($p=0.002$). MSCs can reduce the inflammatory as shown in the number of leukocytes ($p=0.015$) and ESR ($p=0.031$) which statistically significant decreased. MSCs can repair the renal function as shown in no presences of protein and blood in patient's urine. MSCs are also able to augment the immune response as shown in hsCRP which statistically significant decreased ($p<0.001$), while C3 and C4 complements statistically significant increased ($p<0.001$). ANA and anti-dsDNA showed a negative result which means MSCs therapy may give a good response to heal the ADs.

BIOGRAPHY

Purwati has done specialization in 2008 from Airlangga University and has taken doctoral program in Airlangga University 2010-2012. She is interested in stem cell field from 2008, and she is the Secretary of Stem Cell Laboratory of Airlangga University and Secretary of Surabaya Regenerative Medicine Centre. She became Chairman of Stem Cell Research and Development Centre Airlangga University, Surabaya, Indonesia. She has almost 60 publications in journals, papers and seminar.

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PSYCHIATRIC MORBIDITY AMONG THE PATIENT OF FIRST EVER ISCHAEMIC STROKE

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Upazilla Health and Family Planning Officer, Bangladesh

Stroke is the most common cause of mortality worldwide and a serious cause of disability in the community. Stroke affects not only physical but also emotional, psychological, cognitive, and social aspects of patients. Some of the neuropsychiatric disorders associated with stroke include post stroke depression (PSD), bipolar disorder, anxiety disorder, apathy without depression, psychotic disorder, pathological affect and catastrophic reaction. Previous studies showed that co-morbid psychiatric disorders significantly increase medical costs. Aims and objectives: To evaluate psychiatric morbidity among the patients of first ever ischemic stroke.

Materials and Methods: This cross sectional comparative study was carried out in the Department of Psychiatry, Sylhet MAG Osmani Medical College Hospital, Sylhet during the period from 1st July 2013 to 30th June 2014. Sixty six ischaemic stroke patients of first attack between 2 weeks to 2 years of stroke, aged above 18 years irrespective of sex and 66 accompanying healthy person of the patients and other patients without any kind of stroke matching age and sex fulfilling inclusion and exclusion criteria were taken in Group-A and Group-B respectively. Exclusion criteria were patients with transient ischaemic attack, haemorrhagic stroke, previous stroke, head injury, known psychiatric disorder, serious cognitive impairment and other chronic diseases that may cause psychiatric morbidity. Diagnosis of ischaemic stroke was made in these patients by the consultant neurologists reviewing the history, clinical examination and accompanying investigations reports specially CT scan of brain. Psychiatric assessment was done using General Health Questionnaire (GHQ12) as screening tool. All GHQ12 positive cases were evaluated using mental state examination and recorded in a MSE sheet. Diagnosis of psychiatric disorders of all respondents was confirmed by psychiatrist according to DSM-5 criteria.

Results: The patients with ischaemic stroke and control subjects were similar in age [57.6 (SD ± 5.5) years vs 57.1 (SD ± 4.5) years; p>0.130] and sex [48 (72.7%) male and 18 (27.3%) female vs 45 (68.2%) male and 21 (31.8%) female; p=0.567]. Co-morbid psychiatric disorder was found in 23 (34.8%) patients of ischaemic stroke and 9 (13.6%) control subjects. The co-morbid psychiatric disorder was significantly higher in patients of ischaemic stroke than that of control g subjects (p=0.004). Co-morbid specific psychiatric disorders were generalized anxiety disorder in 9 (13.6%) and major depressive disorder in 14 (21.2%) in stroke group; while co-morbid specific psychiatric disorders were generalized anxiety disorder in 2 (3.0%) and major depressive disorder in 7 (10.6%) respondents in control group (p<0.013).

Conclusion: Co-morbid psychiatric disorders are quite common among patients with first ever ischaemic stroke in the form of major depressive disorder and generalized anxiety disorder. Therefore, attention should be paid to the anxiety and depressive symptoms in stroke units and try to relieve the patients' emotional stress and personal suffering, which could improve their neurological outcome.

BIOGRAPHY

Muhammad Sayed Inam has dome specialization from Upazilla Health and he is a Family Planning Officer, Bangladesh he carried out his research in the Department of Psychiatry of Sylhet MAG Osmani Medical College Hospital.

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DAY 2

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Day 2

SESSIONS

October 20, 2018

Toxicology | Imunotherapy | Molecular Diagonosis

Session Introduction

Session Chair

Michael Hennig
LeadXpro AG Park
InnovAARE, Switzerland

Title: **Developmental genetics of endometriosis**

Baranov V S Yarmolinskaya M I, Ott's Institute of Obstetrics, Gynecology and Reproductology, Russian Federation

Title: **Toxicological aspects of *Helicobacter pylori* infection established in democratic republic of the congo consecutively to massive poisoning suspicions all over the country**

P Ndelo-di-Phanzu, University of Kinshasa, South Africa

Baranov V S Yarmolinskaya M I, Asian J Biomed Pharmaceut Sci 2018, Volume 8 | DOI: 10.4066/2249-622X-C3-008

DEVELOPMENTAL GENETICS OF ENDOMETRIOSIS

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Over 100 years the problem of endometriosis (EM) a common disabilitating female disease remains very urgent with no efficient prevention, prediction or treatment known so far. For many decades EM was in the focus of complex studies in our institute. The report highlights major advances in molecular genetic studies of endometriosis, its pathogenomics, as well as some recent hypothesis in this area. Spectacular progress in this area could be attributed to the systems genetic view of EM which implies identification of many (over 100) EM genes, analysis of their functional allelic variants, comparative gene expression studies in euthopic and ectopic endometrium, gene interactions within relevant (about 30) metabolic pathways, as well as complex epigenetic damages due to abnormal methylation pattern and miRNA deregulation. Endometrial stem cells (eSC) which reside in the borderline of endometrium and myometrium I within junction layer (eSC niche), or mesenchymal stem cells - the products of epithelial/mesenchymal cells transition (EMT) was shown play a major role in the origin of endometriosis. Also, the peculiarities of personal genetic background, unique "epigenetic landscape" of genetically and epigenetically predisposed to EM stem cells underlie the origin of pathological process which soon becomes canalized and irreversible and proceeds to final clinical manifestation. Novel data on the molecular, genetic and epigenetic mechanisms governing EM suggests the existence of endometriosis development genetic program (EMDP) mitigated with at least three tentative r sensitive periods (SP). The origin of genetically or epigenetically modified stem cells potentially destined to give rise to endometriosis (SP1), endometrial epithelium cells transition (metaplasia) into mesenchymal SCs through EMT) (SP2), and their invasion into peritoneum with subsequent progression into endometriotic lesions (SP3). Feasible origin of EM from the embryonic stem cells disseminated throughout the pelvic lining during female urogenital system embryogenesis should not be considered as well. Complex genomic and epigenetic interactions at different stages of EMs progression result in different forms of the disease, with their specific traits and clinical manifestations. The EMDP and especially its highly vulnerable sensitive periods might be of major significance in elaboration a new strategy of EM prediction, prevention, and treatment.

Note:

BIOGRAPHY

Baranov V S Yarmolinskaya M I Born in 1940, graduated from the State Medical Institute in Lvov (Ukraina), took postgraduate courses and received a PhD degree in Saint-Petersburg (Russia) in 1976 . The Chief of laboratory for prenatal diagnosis of inherited and inborn diseases at the Ott's Institute of Obstetrics, Gynecology & Reproduction. Interested in genetic and cytogenetic aspects of early development, gene testing of inherited predisposition to common disorders , personalized predictive medicine, gene therapy. Professor, Corresponding Member of Russian Academy of Sciences, Honorary Scientist, Chief City Expert in Medical Genetics, , The author and co-author of 29 books and over 400 scientific papers.

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P Ndelo-di-Phanzu et al., Asian J Biomed Pharmaceut Sci 2018, Volume 8 | DOI: 10.4066/2249-622X-C3-008

TOXICOLOGICAL ASPECTS OF *HELICOBACTER PYLORI* INFECTION ESTABLISHED IN DEMOCRATIC REPUBLIC OF THE CONGO CONSECUTIVELY TO MASSIVE POISONING SUSPICIONS ALL OVER THE COUNTRY

P Ndelo-di-Phanzu, L Mputu Malolo, P Ndelo Matondo Y Nuapia and **S Mbendi Nsukini**
University of Kinshasa, South Africa

Since a few decades, the population of the Democratic Republic of the Congo lives a sustainable poisoning fear all over the country. The reason is the existence through the country of an odd health phenomenon characterized by numerous extra-digestive pathologies unable to be diagnosed and looked after by the national health system. In 1990, Our Laboratory of Toxicology started a research work of the phenomenon in concern. In 2010, after 20 years of trying, we established surprisingly an unexpected link with *Helicobacter pylori* infection. Normally, *Helicobacter pylori* pathologies concern quite specifically the digestive tube. Recent literature however reports more and more extra-digestive symptoms linked to *Helicobacter pylori*, but the passage of *Helicobacter pylori* toxins to blood stream was not specified. Our research work appears as a response to the international scientific community query. Indeed, we established that *Helicobacter pylori* toxins released in stomach by the reaction urea-urease linked to *Helicobacter pylori*, are in gaseous state. After their release, they are normally excreted in stools but, in case of constipation, instead of going down, they fly up along the esophagus, get the larynx way and reach the lungs. From there, they enter then into blood circulating system. The massive passage of *Helicobacter pylori* toxins in blood signs an ammonia and carbon dioxide double intoxication. Our results have been presented in international conferences throughout the world and relevant publications have been made in international journals. Two case reports are also exposed. In conclusion, *Helicobacter pylori* involves a strong toxic-infection unknown in literature so far, instead of a simple infection, consecutively, extra-digestive pathologies reported in recent literature are easily understood and the treatment changes to take in count the toxic component.

BIOGRAPHY

P Ndelo-di-Phanzu is a Congolese Toxicologist. After his graduation as Pharmacist at the Faculty of Pharmacy of the University of Kinshasa in 1975, he moved to Belgium at the Faculty of Pharmacy of the Katholieke Universiteit Leuven, where he performed a master's degree in Pharmaceutical Sciences followed by a doctorate degree in Pharmaceutical Sciences, Branch Toxicology in 1984. At the end of his post-graduate training, he went back to the University of Kinshasa. He became Associate Professor in 1986, Professor in 1998 and Ordinary Professor in 2005. Considering the administrative level, he was respectively Head of the Laboratory of Food and Drug Control of the University of Kinshasa, Head of the Department of Biopharmaceutical and Alimentary Sciences, Head of the Laboratory of Toxicology, Vice-Dean of the Faculty of Pharmacy of the University of Kinshasa, Dean of the Faculty of Pharmacy, Rector of the University of Kinshasa. In the field of ethics of Asian Journal of Biomedical and Pharmaceutical Sciences, he is President of the Ethics Committee of Central Africa and Vice President of National Ethics Committee of DR Congo.

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