# CONFERENCE PROCEEDINGS

**2020 – International Conference on Research in Life-Sciences & Healthcare (ICRLSH), 20-21 February, Dubai**

**20-21 February 2020**

# CONFERENCE VENUE

**Flora Grand Hotel, Near Al Rigga Metro Station, Deira, Dubai, United Arab Emirates**

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## Preface:

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Our mission is to make continuous efforts in transforming the lives of people around the world through education, application of research & innovative ideas

# KEYNOTE SPEAKER

**Dr. Arif Hussain**
**Associate Professor, School of Life Sciences, Manipal Academy of Higher Education (Formerly Manipal University), Dubai International Academic City, Dubai, UAE**

**Dr. Arif Hussain is a diligent & competent professional with Ph.D. (Molecular Oncology) and with a trailblazing 12 years of committed research experience and more than 12 years in teaching. Currently, he is designated as an Associate Professor, School of Life Sciences, Manipal University, Dubai, UAE.**

**He is a Recognized Guide for the Ph.D. program at Manipal University [Ref: MU/DREG/PHDGU1/2011/51] in the following specialized fields: Human Genetics, Cancer Genetics, Molecular Oncology. Dr. Arif Hussain is well versed with the basic techniques of biotechnology with theoretical and practical knowledge in Molecular Biology, Recombinant DNA technology, Biochemistry, Immunology & Plant/Animal Biotech. He is a researcher with an analytical and logical bent of mind and comprehensive problem-solving skills adorned with creativity and perseverance, with research interests in Molecular Oncology, Cancer Chemoprevention, and Cancer Genetics. Dr. Arif Hussain holds Excellent organizational skills, a flexible & detail-oriented attitude combined with strong analytical & information analysis skills and a proven ability to interact with a diverse range of people in a professional manner.**

# PRESENTERS

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| **Saleha Anwar**<br>**YRSICRLSH2001051** | **Investigation of Inhibitory Potential of Quercetin to the Pyruvate Dehydrogenase Kinase 3: Towards Implications in Anticancer Therapy**<br><br>**Saleha Anwar**<br>**Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi, India**<br><br>**Abstract**<br>**Pyruvate dehydrogenase kinase 3 (PDK3) is a mitochondrial protein, has recently been considered as a potential pharmacological target for varying types of cancer. Here, we report the binding mechanism of quercetin to the PDK3 by using molecular docking, simulation, fluorescence spectroscopy and isothermal titration calorimetric assays. Molecular docking along with simulation provided an in-depth analysis of protein-ligand interactions. We have observed that quercetin interacts to the important residues of active site cavity of PDK3 and shows a well-ordered conformational fitting. The stability of quercetin-PDK3 complex is maintained by several non-covalent interactions throughout the simulation. To complement in silico findings with the experiments, we have successfully expressed and purified human PDK3. Both fluorescence and isothermal titration calorimetric experiments showed excellent binding affinity of quercetin to the PDK3. Kinase inhibition assay further revealed a significant inhibitory potential of quercetin to the PDK3with the IC50 values in µM range. Quercetin is non-toxic to HEK293, and significantly inhibits the proliferation of cancer (HepG2 and A549) cell lines. All these observations clearly indicate that quercetin may be further evaluated as promising therapeutic molecule for PDK3with required modifications and in vivo validation.** |
| **Yuri Lee**<br>**ERCICRLSH2001057** | **Relationship between Smoking and Lifestyle Factors in Korean Adolescents: The 6, 7th Korea National Health and Nutrition Examination Survey (2015-2016)**<br><br>**Lee Yuri**<br>**Seoul National University Hospital, Department of Family Medicine, Seoul, South Korea**<br><br>**Abstract**<br>**Introduction: Smoking is an important factor for health. Adolescents are beginning to see dangerous health behaviors such as smoking and drinking. The purpose of this study is to examine the relationship between youth smoking and various lifestyle factors and to consider additional factors necessary for the education of smoking cessation for adolescents.**<br>**Method: This study is a cross-sectional study using data from a total of 940 adolescents (499 male, 441 male) aged between 12-18 years who participated in the National Health and Nutrition Survey of Korea in 2015-2016. The smoking cessation rate of teenagers was assessed as to whether they had ever smoked a cigarette or not, and related lifestyle factors were drinking, sleeping time, stress perception, physical activity, subjective health status and frequency of meals**<br>**Result: The results of the smoking related factors showed significant correlation with stress perception, sleeping time, frequency of breakfast, and drinking. ($P<0.05$)**<br>**Conclusion: Adolescent smoking cessation programs require diverse management such as eating habits, sleeping time, drinking, and stress management. A comprehensive smoking cessation education program that takes into consideration various life factors should be developed and managed so that it can be applied to schools. In the future, large-scale cohort studies will be needed to clarify the importance of lifestyle factors.** |

Zainab Hamed
ERCICRLSH2001063

## Correlation of Antibiotic Susceptibility with Virulence Genes of Pseudomonas Aeruginosa Isolated From Patients with Cystic Fibrosis in Baghdad

**Zainab Hamed**
**Department of Therapeutics and Clinical Pharmacy, Baghdad College of Medical Sciences, Baghdad, Iraq**

**Abdullah Abbas Awni**
**Al Nisour University College, Department of Medical Laboratory Technology. Baghdad, Iraq**

**Abstract**

**Background: Respiratory Pseudomonas aeruginosa infections is quite prevalent in conditions of cystic fibrosis (CF), but resistance to CF isolates by antimicrobial agents in Baghdad remains unknown. Non-Selective antibiotic selection resulted in developed multidrug resistance in several countries during the last ten years; in some cases, multidrug resistant P. aeruginosa infections are untreatable. Methods: The susceptibility to Ten widely prescribed antibiotics was investigated for 132 CF- patient isolates at two hospitals. In the incidence of antibiotic resistance and bacterial virulence genetic markers (LasB, plcH, plcN, algD and Nan1), PCR (polymerase reaction chain was subsequently cultured and specimens positive for P. aeruginosa was analyzed by PCR. Antimicrobial susceptibility testing was performed by Vitek-2 system. The result was evaluated statistically by SPSS 16.0. Results: Out of 132 clinical samples, 38 (28.79) were positive. In addi¬tion, 22 (26.83%) out of 82 male clinical samples and 16 (32.00%) out of 50 female clinical samples were positive for Pseudomonal examination. Results revealed that the maximum rate of resistance was 38 (100%) to penicillin, ampicillin and trimethoprim, accompanied by tetracycline 35 (92.1%), streptomycin 23 (60.70%) and erythromycin was 17 (44.7%). 38% among isolates are sensitive to all of the tested agents; almost half are gentamicin-resistant particularly in comparison to ceftazidime (39%), piperacillin (32%), ciprofloxacin (30%), and tobramycin (10%) Approximately 40% of compounds with ceftazidime are resistant to two or more combinations of gentamicin, piperacillin and ciprofloxacin and were the most frequently recorded cross-resistant levels. Conclusions: The level of resistance to first line anti-pseudomonal agents, with the exclusion of Imipenem, is disturbingly high. Significant attention should be paid to the appropriate use of antibacterial drugs and better control of the emergence of resistant strain populations. Our results will increase awareness in hospitalized patients in Baghdad about antibiotic resistance.**

**Index terms: Antibiotics resistance, Pseudomonas aeruginosa, cystic fibrosis, cross-resistance, PCR**

Choong-Hwan Kwak
ERCICRLSH2001058

## Huzhangoside A Suppresses Tumor Growth through Inhibition of Pyruvate Dehydrogenase Kinase Activity

**Choong-Hwan Kwak**
**School of Korean Medicine, Pusan National University, Yangsan, South Korea**

**Abstract**

**Aerobic glycolysis is one of the important metabolic characteristics of many malignant tumors. Pyruvate dehydrogenase kinase (PDHK) plays a key role in aerobic glycolysis by phosphorylating the E1 subunit of pyruvate dehydrogenase (PDH). Hence, PDHK has been recognized as a molecular target for cancer treatment. Here, we report that huzhangoside A (Hu.A), a triterpenoid glycoside compound isolated from several plants of the Anemone genus, acts as a novel PDHK inhibitor. Hu.A was found to decrease the cell viability of human breast cancer MDA-MB-231, hepatocellular carcinoma Hep3B, colon cancer HT-29, DLD-1, and murine lewis lung carcinoma LLC cell lines. The activity of PDHK1 was decreased by Hu.A in both in vitro assays and in vivo assays in DLD-1 cells. Hu.A significantly increased the oxygen consumption and decreased the secretory lactate levels in DLD-1 cells. In addition, Hu.A interacted with the ATP-binding pocket of PDHK1 without affecting the interaction of PDHK1 and pyruvate dehydrogenase complex (PDC) subunits. Furthermore, Hu.A significantly induced mitochondrial reactive oxygen species (ROS) and depolarized the mitochondrial membrane potential in DLD-1 cells. Consistently, when Hu.A was intraperitoneally injected into LLC allograft mice, the tumor growth was significantly decreased. In conclusion, Hu.A suppressed**

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| | **the growth of tumors in both in vitro and in vivo models via inhibition of PDHK activity.** |
| **Saleha Anwar**<br>**YRSICRLSH2001051** | **Investigation of Inhibitory Potential of Quercetin to The Pyruvate Dehydrogenase Kinase 3 Towards Implications In Anticancer Therapy**<br><br>**Saleha Anwar**<br>**PhD Scholar, Jamia Millia Islamia University, India**<br><br>**Abstract**<br>**Pyruvate dehydrogenase kinase 3 (PDK3) is a mitochondrial protein, has recently been considered as a potential pharmacological target for varying types of cancer. Here, we report the binding mechanism of quercetin to the PDK3 by using molecular docking, simulation, fluorescence spectroscopy and isothermal titration calorimetric as- says. Molecular docking along with simulation provided an in-depth analysis of protein-ligand interactions. We have observed that quercetin interacts to the important residues of active site cavity of PDK3 and shows a well- ordered conformational fitting. The stability of quercetin-PDK3 complex is maintained by several non-covalent interactions throughout the simulation. To complement in silico findings with the experiments, we have success- fully expressed and purified human PDK3. Both fluorescence and isothermal titration calorimetric experiments showed excellent binding affinity of quercetin to the PDK3. Kinase inhibition assay further revealed a significant inhibitory potential of quercetin to the PDK3 with the IC50 values in µM range. Quercetin is non-toxic to HEK293, and significantly inhibits the proliferation of cancer (HepG2 and A549) cell lines. All these observations clearly indicate that quercetin may be further evaluated as promising therapeutic molecule for PDK3 with required mod- ifications and in vivo validation** |
| **Aisha AlNughaimish**<br>**ERCICRLSH2001064** | **Osmotic resistance of dromedary camel blood cells and its relation to water management**<br><br>**Aisha AlNughaimish**<br>**Department of Biological Sciences, Kuwait University, Kuwait**<br><br>**Dalal AlHajri**<br><br>**Adam Dawelbait**<br><br>**Bader H. Alhajeri**<br><br>**Hasan Alhaddad**<br><br>**Abstract**<br>**Single-humped camels (Camelus dromedarius) are livestock of special physical, physiological, and biochemical adaptations to hot desert environment and lack of water. The tolerance of camels to water deprivation and the exceptional water drinking capacity for recovery require particular cell membrane organization and chemical composition especially in the blood cells. The membrane of camel blood cells allows overcoming extreme differences in osmotic pressure based on the quantity of water in the bloodstream. Camel blood cells vary from other mammals in morphology, size, and density (i.e., numbers). The aim of this study was to (1) evaluate the geometric cellular properties of the camel blood cells using light microscopy and (2) identify the rate and limits of blood cells expansion during rehydration without haemolysis or lysis. Whole-blood samples were collected from three healthy unrelated adult female camels that belong to the same camel-type (Shael) and owned and raised by a single breeder under identical environmental conditions, diet, and access to water. Whole-blood samples were treated with five different concentrations of NaCl (0.90, 0.75, 0.50, 0.25, and 0% - distilled water) and examined at eight incubation time periods (15 and 30 min, 1, 2, 4, 24, and 72 hrs). Observationally, untreated camel red blood cells (RBCs) were elliptical in shape, unnucleated, and exhibited a mean long axis of 5.50 um and a mean short axis of 3.00 um. The intact RBCs of the various treatments gradually swelled and increased in size while maintaining the elliptical shape. The increase was observed in both the long and short axes. The maximum RBC swelling was observed immediately after 15 min of treatment with 0.25 % NaCl. Damaged and disintegrated white blood cells (WBCs)were seen in 1, 2, 4, 24, and 72 hrs incubation times and in all treatment groups except for the 0.9 % NaCl. Our preliminary results suggest that camel RBCs** |

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| | **and likely WBCs are resistant to hypotonic solutions and that the blood cells membrane is capable of stretching while maintaining the function and the structural integrity of the cells.** |

# LISTENERS

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