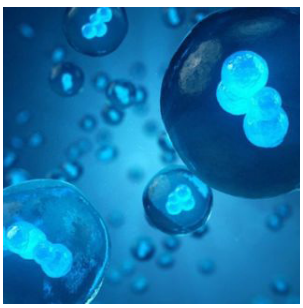
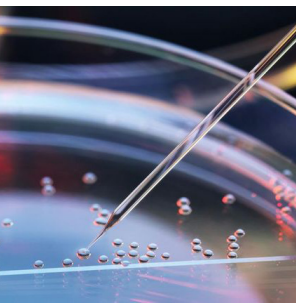
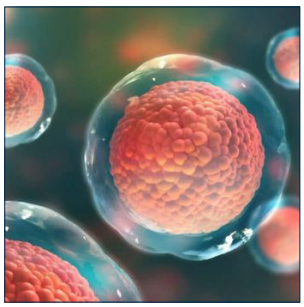
Keynote Forum
November 07, 2019

Genetic Engineering 2019







International Conference on

Molecular Biology and Genetic Engineering

November 07-08, 2019 | Melbourne, Australia

Jianhua Luo, J Res Rep Genet 2019, Volume 3
DOI: 10.35841/2591-7986-C1-001

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Jianhua Luo

University of Pittsburgh, USA

Therapeutic targeting of genomic mutations in human cancers

Chromosome mutations and rearrangements are some of the hallmarks of human malignancies. Chromosomal rearrangement is frequent in human cancers. One of the consequences of chromosomal rearrangement is gene fusions in the cancer genome. We have identified a panel of fusion genes in aggressive prostate cancers. In the present study, we found that these fusion genes are present in 7 different types of human malignancies with variable frequencies. Among them, CCNH-C5orf30 and TRMT11-GRIK2 gene fusions were found in colon cancer, breast cancer, non-small cell lung cancer, esophageal adenocarcinoma, glioblastoma multiforme, ovarian cancer and liver cancer, with frequencies ranging from 12.9% to 85%. In contrast, four other gene fusions (mTOR-TP53BP1, TMEM135-CCDC67, KDM4-AC011523.2 and LRRC59-FLJ60017) are less frequent. Both TRMT11- GRIK2 and CCNH-C5orf30 are also present in lymph node metastatic cancer samples from the breast, colon and ovary. Thus, detecting these fusion transcripts may have significant biological and clinical implications in cancer patient management. Recently, we developed a genome editing based technology to target at the fusion gene breakpoints in human cancers through insertion of suicide gene into the mutation sites. This approach achieved high specificity in killing the cancer cells and sparing the normal tissues from the collateral damages. The treatment of mice xenografted with cancers that contain the fusion genes achieved partial remission of the cancers. As a result, the mutation targeting of human cancer genome holds promise for the treatment of the disease.

Speaker Biography

Jianhua Luo has been studying molecular mechanisms of human malignancies in the last 32 years. Currently, he is a Professor of Pathology and Director of High Throughput Genome Center at University of Pittsburgh. In the last 20 years, he has been largely focusing on the genetic and molecular mechanism of human prostate and hepatocellular carcinomas. He proposed prostate cancer field effect in 2002. He is one of the pioneers in utilizing high throughput gene expression and genome analyses to analyze field effects in prostate cancer and liver cancer. He is also the first in using methylation array and whole genome methylation sequencing to analyze prostate cancer. Recently, his group discovered several novel fusion transcripts and their association with aggressive prostate cancer. Subsequently, his group discovered that many of these fusion genes are recurrent in many other types of human cancers.

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Wiley TS
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Wiley Compounding Systems, USA

Understanding the effects of steroid hormone exposure on regulation of P53 and Bcl-2

Steroid hormones have been widely overlooked as controllers of gene expression. Through the mechanisms of gene expression (DNA methylation, histone methylation, and RNAi), we discuss the impact of normal reproductive templates on the pulsatility and amplitude of potential gene-regulating treatment protocols. By examining the interactions of estradiol (E2) and progesterone (P4) in women, we propose that changes in physiologic reproductive hormone templates of exposure and timing can affect fertility and even cancer through the silencing or amplification of gene products; such as P53 and Bcl-2 in women. We propose that uncontrolled hormone levels, due to aging and/or the environment, may be restored to a normal youthful template of gene expression through the fluctuating exogenous application of E2 and P4 that mimic the normal hormonal milieu of reproductive health. We hypothesize that this may lead to a lower risk of the chronic illnesses of aging and a better quality of life in patients suffering those conditions.

Speaker Biography

Wiley TS has a B.A. from Webster University and is the CEO and Director of Wiley Compounding Systems, where she performs research in the area of theoretical medical understanding of the mechanisms of action for biological systems including gene regulation, hormonal mechanisms, and pharmaceutical dependence. She has published six papers and two books on the effects of hormone deregulation and its effects on genomics and other medical conditions.

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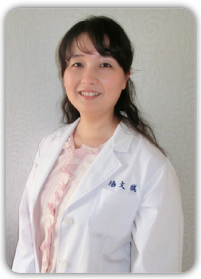

Wen-Chi Yang

EDA Hospital, Taiwan

A novel predictor of leukemia transformation in Myelodysplastic syndrome patients

Myelodysplastic syndrome (MDS) is the disorder of hematopoietic stem cells. In MDS patients, leukemia progression is also associated with iron overload. Hydroxybutyrate dehydrogenase type 2 (BDH2) catalyzes the production of 2,5-dihydroxybenzoic acid (DHBA), an iron-binding component. In the present study, we assessed whether BDH2 can serve as a predictor for leukemia progression in MDS. The higher BDH2 expression (15%) group showed a greater risk for leukemia progression than the lower expression group (3.18%) (P=0.017). Additionally, we investigated the mechanism underlying the prognostic ability of BDH2 by using RNA interference–mediated-knockdown of BDH2 (BDH2-KD) in the acute leukemia cell line, THP1. Cell cycle analysis, surface markers, and special stain studies indicated that BDH2-KD induced differentiation and decreased the growth rate of THP1 cells, which was associated with the retardation of cell cycle. Under next-generation sequences analysis, we also found some candidate genes involving iron metabolism pathway contribute to leukemia transformation in MDS patients. Our study provides a foundation for further research on the role of BDH2 and iron metabolism in the pathogenesis of MDS.

Speaker Biography

Wen-Chi Yang has completed her MD Ph.D. from Kaohsiung medical University. She had 2 years postdoctoral studies from Harvard Medical School during 2007 to 2009 and half year postdoctoral studies from Massachusetts Institue of Technology after then. She is a hematology, medical oncology and hospice care specialist in Taiwan. She is the attending physician of EDA hospital. She is also the chief staff of hematology-oncology division and Biobank of EDA hospital. She is an assistant professor in Medical school, I-Shou University. She set up a molecular medicine lab in Yuan's general hospital. Her interests are in hematology, molecular biology and stem cell biology field.

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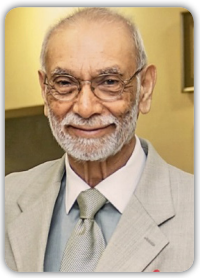

Pravin Patel

Dr Pravin Patel's Innovative Hospital & Research Center PVT. LTD., India

Stem cell for diabetes and joint pain

The Stem cell technologies and the therapeutic areas in which stem cells find many applications on challenges in clinical complication and therapy. The research provides a market insight into the ever progressing and debatable market of stem cell research segmented by type, technology and therapeutic area. Stem cells by type are further classified into adult stem cells, embryonic stem cells, and cord blood stem cells. Stem cell research by technology is segmented into stem cell transplantation, cell based genomics, xenotransplantation, cord blood banking, and other. The therapeutic applications of stem cell research are analyzed by area into neurology, bone and cartilage, cancer, hematology, cardiology, diabetes, dermatology and other. Projections and estimates are graphically illustrated by geographic regions encompassing North America, Europe, Asia-Pacific and rest of World.

Cellular Therapies: Many newer applications are still undergoing development. In some cases, like spinal cord injury and heart attacks, the cells are directly injected into the damaged tissues. Some of the benefits experienced appear to be due to new blood vessel formation, which restores blood flow to damaged tissue. As these treatments develop, we expect to see umbilical cord blood stem cells used in different ways. In some cases, the stem cells will be treated in the laboratory to make new cell types before use. In other cases, they will be delivered directly into damaged tissue.

Future of Stem cells: The list of stem cell treatable diseases continues to grow at a rapid pace. With the potential to become different cell types, scientists are exploring the possibility of using cord blood stem cells to treat some of the most common life-threatening diseases such as heart diseases and stroke. Thus, by saving your baby's cord blood you can give your child access to his/her stem cells for such cellular therapy in the future.

Now the technologies like regeneration of the organ by means of a strategy to address the problems like shortage of organ supply in terms of tissue matching, GVHR, short supply of donors, and other ethical issues. The recent technology application of 3D printing integrated technology for creating an organ using autologous stem cells will be the future of stem cell technologies.

Speaker Biography

Pravin Patel has expertise in evaluation and passion in improving the health and wellbeing of patients who is being suffering chronically through alternative medicine. His openness to accept the new development and acceptance of new innovative technologies to address the problems of the patients. His vast experience in Lifestyle related complications and age-related complications. His constructive suggestions and directions create new pathways for improving healthcare. He has built these treatment strategies after years of experience in research, evaluation, and administration both in hospital US and India.

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