DAY 1

Keynote Forum

15th Edition of EuroSciCon Conference on

Advanced Stem Cell & Regenerative Medicine

December 03-04, 2018 | Valencia, Spain

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Jeanne Adiwinata Pawitan, J Stem Cell Biol Transplant 2018, Volume 2
DOI: 10.21767/2575-7725-C1-001

Large scale good quality mesenchymal stem cell production: Indonesian experience

Jeanne Adiwinata Pawitan

University of Indonesia, Indonesia

Mesenchymal stem cells (MSCs) are widely used in clinical trials for various conditions. We have developed easy methods for the isolation of MSCs from bone marrow, adipose tissue, umbilical cord and developed an in-house platelet lysate processing method for xeno free propagation of MSCs from the three sources. Further, we developed cryopreservation methods and cGMP compliant system for the procurement of MSCs for various clinical trials, including for treatment of large bone defect, non union fracture, spinal cord injury, near blind glaucoma, osteoarthritis of the knee and third degree burn. Our large scale good quality MSC production protocol is called Universitas Indonesia-Cipto Mangunkusumo (UI-CM) method. The aim of this presentation is to summarize the main findings in large scale good quality production of MSCs from the three sources in terms of the yield, their surface marker characteristics, differentiation capacities, problems in obtaining good quality, unmatched between cell readiness and demand in clinical trials and finally tips and tricks to overcome the problems.

Biography

Jeanne Adiwinata Pawitan pursued her graduation as Medical Doctor from the Faculty of Medicine at Universitas Indonesia (FMUI) and Master's Degree in Medical Biology and started working in the Department of Histology at FMUI. She also pursued her PhD from Osaka University, Osaka, Japan and continued working in the Department of Histology, FMUI and was appointed as Professor in 2005. Currently, she is working at Stem Cell Medical Technology Integrated Service Unit, RSCM-FMUI as GLP Lab Coordinator and at Stem Cell and Tissue Engineering Research Center, Indonesia Medical Education and Research Institute (IMERI), FMUI as Lab Manager.

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Susi Zara, J Stem Cell Biol Transplant 2018, Volume 2
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Dental pulp stem cells osteblastic differentiation on graphene oxide-coated titanium surfaces: an in vitro study

Susi Zara

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Titanium implants surfaces are continuously modified to improve biocompatibility and to promote osteointegration. Graphene oxide (GO) has been successfully used to ameliorate biomaterial performances in terms of implant integration with host tissue. The aim of this study is to evaluate dental pulp stem cells (DPSCs) cell viability, cytotoxic response and osteogenic differentiation capability in the presence of GO-coated titanium surfaces. Experimental discs were divided into: standard titanium (control), titanium treated with inorganic ions (test), both coated with GO (ctrl+GO and test+GO, respectively). Surface analysis was realized by atomic force microscopy (AFM), morphological analysis by scansion microscopy (SEM), proliferation rate by MTT, cytotoxic response by LDH assay, osteoblastic differentiating potential by real-time RT-PCR of BMP2, RUNX2, SP7 and Collagen I, and by measuring the secretion of PGE2. SEM analysis shows extracellular matrix deposition in all samples, in test and test+GO more evident after 14 days of culture. MTT analysis shows, after 7 and 14 days of culture, a significant viability increase on test+GO sample; LDH assay reveals no cytotoxic response in all the experimental points. An increase of osteogenic markers, and of PGE2 secretion level at later stages, is recorded on test+GO. The obtained results evidence that the tested biomaterials stimulate cell viability and that they are not cytotoxic. However, GO enrichment of the test surface is also capable to better and faster induce osteogenic differentiation, thus suggesting this biomaterial as a new promising surface to promote bone remodeling process improving dental implants integration with host tissue.

Biography

Susi Zara pursued her graduation (2006) in Pharmacy; PhD in 2009 from the University of G d Annunzio of Chieti Pescara, Italy. She is now a permanent researcher in the Pharmacy Department at the same university. She has published more than 50 full length papers in international peer-reviewed journals. Her fields of research are represented by intracellular signaling driving differentiation of dental pulp mesenchymal stem cells in the presence of innovative biomaterials with a potential use in dental and orthopedic regenerative medicine.

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DAY 2

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Hong Lin, J Stem Cell Biol Transplant 2018, Volume 2
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How can contemplative practices help the social well-being?

Hong Lin

University of Houston, USA

We are developing a protocol that defines how wearable and sensing technologies can be used in detecting a subject's mental state and how smart phone and social media can be used to develop applications that use contemplative practices to solve psychological and mental health issues. We have used electroencephalography (EEG) data to build brain state models that can identify characteristics of mental states. Then, we design an inducive system that can guide the meditator into the meditating state. We will design the system with the EEG sensors tracking the attention status, and virtual 3D images of natural sceneries or images. With this system built up, we will implement a stress reduction system that helps people reduce the mental stress. Broadened study on this method will help build useful protocols for other contemplative practices and their uses in developing healthcare applications to address various psychological and mental problems.

Biography

Hong Lin pursued his PhD in Computer Science (1997) from the University of Science and Technology of China, P R China. He worked as a Postdoctoral Research Associate at Purdue University, USA; an Assistant Research Officer at the National Research Council, Canada, and a Software Engineer at Nokia Inc. Currently, he is a Professor in Computer Science and an Assistant Chair in the Department of Computer Science and Engineering Technology at University of Houston-Downtown. His research interests include human-centered computing, cognitive intelligence, data analytics and parallel/distributed computing. He is also the Supervisor of the Grid Computing Lab at University of Houston-Downtown(UHD). He is also a Senior Member of the Association for Computing Machinery (ACM), USA.

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Segundo Mesa Castillo, J Stem Cell Biol Transplant 2018, Volume 2
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Direct evidence of viral infection and mitochondrial alterations in the brain of fetuses at high risk for schizophrenia

Segundo Mesa Castillo

Psychiatric Hospital of Havana, Cuba

Background: There is increasing evidences that favor the prenatal beginning of schizophrenia. These evidences point toward intra-uterine environmental factors that act specifically during the second pregnancy trimester producing a direct damage of the brain of the fetus. The current available technology doesn't allow observing what is happening at cellular level since the human brain is not exposed to a direct analysis in that stage of the life in subjects at high risk of developing schizophrenia.

Method: In 1977 we began a direct electron microscopic research of the brain of fetuses at high risk from schizophrenic mothers in order to finding differences at cellular level in relation to controls.

Results: In these studies we have observed within the nuclei of neurons the presence of complete and incomplete viral particles that reacted in positive form with antibodies to herpes simplex hominis type I [HSV1] virus, and mitochondria alterations.

Conclusion: The importance of these findings can have practical applications in the prevention of the illness keeping in mind its direct relation to the aetiology and physiopathology of schizophrenia. A study of the gametes or the amniotic fluid cells in women at risk of having a schizophrenic offspring is considered. Of being observed the same alterations that those observed previously in the cells of the brain of the studied foetuses, it would intend to these women in risk of having a schizophrenia descendant, previous information of the results, the voluntary medical interruption of the pregnancy or an early anti HSV1 viral treatment as preventive measure of the later development of the illness.

Biography

Segundo Mesa Castillo a Specialist in Neurology, he has worked for 10 years in the Institute of Neurology of Havana, Cuba. He has worked in Electron Microscopic Studies on Schizophrenia for 32 years. He was awarded with the International Price of the Stanley Foundation Award Program and for the Professional Committee to work as a fellowship position in the Laboratory of the Central Nervous System Studies, National Institute of Neurological Diseases and Stroke under Dr Joseph Gibbs for a period of 6 months, National Institute of Health, Bethesda, USA. Currently, he is Member of the Scientific Board of the Psychiatric Hospital of Havana and give lectures to residents in psychiatry.

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