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Applications of platelet lysate in personalized medicine

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Platelet lysate (PL) is obtained from human blood platelets after freeze/thaw cycle in order to obtain a large quantity of growth factor (GF) necessary for cell culture. It is currently, employed as a substitute for fetal bovine serum (FBS) in clinical cell expansion. FBS has several disadvantages when being used in MSC culturing, including variations between batches and the risks of clinically transmission of pathogens and FBS antibody development. Several studies also indicated that the increased proliferation rate observed with platelet lysate substitute. PL is commercially available in good manufacturing practice quality for all therapy and regenerative medicine. Autologous PL contain several bioactive GF including platelet-derived GF (PDGF), insulin-like GF1 (IGF-1), vascular endothelial GF (VEGF), fibroblast GF (FGF) and transforming GF-beta (TGF-beta). These GF could efficiently regenerate tissue via angiogenesis, removal of tissue debris and extracellular matrix reconstruction. This autologous technology can provide the in situ delivery of multiple GF and cellular mediators as well as forming a fibrin scaffold useful for various medical applications especially in field of regenerative medicine. In this presentation, recent progress in our human PL research and development will be reported along with the clinical studies demonstrating the effectiveness of autologous PL in facial rejuvenation and the treatments of osteoarthritis of the knee joints.

Biography

Kampon Sriwatanakul is an internationally recognized pioneer of stem cell therapy. He has received his MD degree and PhD degree from Mahidol University where he had an academic career for more than 35 years. He has also received training in Clinical Pharmacology from University of Leicester, UK and University of Rochester, USA. Apart from publishing more than 40 publications in international journals, he has spearheaded a number of important research and development activities related to stem cell technology in Thailand, including setting up of cord blood and tooth cell banking.

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