

ABSTRACT BOOK



SHIFT

Shaping Innovative Products
for Sustainable Tissue Engineering
Strategies

**INTERNATIONAL CONFERENCE
& WINTER SCHOOL, AND THE**

9TH MTERMS

Malaysian Tissue Engineering
& Regenerative Medicine
Scientific Meeting

in conjunction with

**EUROPEAN WELLNESS ACADEMY'S
BIO-REGENERATIVE PRECISION
MEDICINE**

27 FEB 2024 : Faculty of Medicine, Universiti Kebangsaan Malaysia
28 & 29 FEB 2024 : Komune Living and Wellness, Cheras KL

2024

the pathological tissue remodeling events that result from the degradation of extracellular matrix fibers.

Invited Speaker 12:

InflammAging in Cardiology

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Cardiovascular diseases (CVDs) are one of the most common, significantly affecting the life expectancy of the population worldwide. The majority of known and up-to-date pharmacological methods for the treatment of age-related CVD appear to be ineffective in the prevention of heart failure, raising the need for new treatment approaches to be found and more research conducted. According to the last data obtained, senescent cells of the cardiovascular system are characterized by irreversible cell cycle arrest and a distinct inflammatory secretory phenotype associated with aging. The inflammasome assembly is one of the most important parts of the innate immune response. Inflammasome is a multiprotein complex residing within the cytoplasm of the cell that triggers the cascade of reactions leading to cell death. The significance of "inflammaging" in coronary artery disease development lies in its potential role in accelerating the progression of atherosclerosis and worsening outcomes for individuals with CVD, as well as telomere shortening, and mitochondrial dysfunction. To solve the problem of cardiac senescence, we need to use both conventional and regenerative medicine approaches. Among them are natural sources of coenzyme Q10, Omega-3 fatty acids, quercetin, flavonoids, antioxidants (myricetin, versulin), kaempferol, resveratrol-modulation of the expression and activity of sirtuins and Stem Cell therapy. The experimental knowledge and experience of the stem cells use, i.e. skeletal myoblasts (SMs), bone marrow-derived mesenchymal cells (BM-MNCs), hematopoietic stem cells (HSCs), endothelial progenitor cells (EPCs), and mesenchymal stem cells (MSCs), cardiac stem cells (CSCs), embryonic stem cells (ESCs), and induced pluripotent stem cells (iPSCs) in cardiology predetermined a hypothesis that the best treatment outcomes can be obtained with the use of Precursor Stem Cells (PSCs) (there are unipotent cells of last lineage of differentiation), cardiospheric-derived cardiac cells (hCSCs) and BM-MSCs. Recent studies have shown that the administration of the abovementioned cells reduces myocardial remodeling, stimulates angiogenesis, and improves contractile function of the left ventricle as the main signs of cardiac senescence. That makes us to put faith in the Stem Cell therapy.