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Synergetic Cell Population – A powerful tool for autologous therapies

Valentin Fulga

Hemostemix, Canada

Abstract

Significant progress was made in the development of tissue regeneration therapies. Some of those therapies are in clinical trials and expected to revolutionize medical practice. The healing process following tissue damage is a complex sequence of events involving synchronized activity of numerous factors and processes. It is achieved by cooperation between damaged tissue cells and circulating cells that are recruited and further activated *in situ*. Stem cells were shown to be capable to differentiate into a variety of tissues in addition to other potentially beneficial healing effects. Based on the concept that various cells need to be interacting with each other in order to induce an effective healing process, we hypothesized that peripheral blood leukocytes can serve as a source of various cell types if cultured under appropriate conditions. A blood-derived cell population named synergetic cell population (SCP) was detected. It is rich in cells expressing progenitor markers such as CD34 and CD31, in addition to other supportive cells and is capable of differentiation into a variety of cell lineages. Following differentiation in culture, these cells exhibit morphological, cyotchemical, and functional characteristics of angiogenic, neural and cardiomyocyte lineages. We took advantage of SCP's robust plasticity and its availability from peripheral blood and utilized it as a therapy for cardiovascular disorders in preliminary clinical studies. Encouraging safety and efficacy were observed.

Biography

Valentin Fulga is an entrepreneur and executive in the life science industry, with particular focus on cell therapy. In 1997, he co-founded one of the first cell therapy companies in the world, Proneuron Biotechnologies. Since then, he founded 3 more companies. He is now Founder and President of Hemostemix, which develops adult stem cell therapies for cardiovascular and neurodegenerative disorders. Dr. Fulga was granted the Technology Pioneer Award by the World Economic Forum and was a delegate to the Forum's Annual Meeting in Davos where he moderated a session about tissue engineering. Dr. Fulga is the inventor of over 40 granted and pending patents and the author of thirteen scientific and medical articles.