

Oral Pulp Stem Cells-Magic bullet to Mankind

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Editorial

Tissue engineering or biomedical engineering is a field of applied science that use a combination of cells, cell engineering techniques, methodology and materials, along with suitable biochemical and physicochemical factors in order to restore or improve or maintain, or replace the biological tissues. It is a promising multidisciplinary area with potentials amounting to regeneration of new tissues and organs. This approach mainly involves the requirement of three essential components they are: stem cells, growth factors and scaffolds

Dental pulp stem cells are regarded with special attention due to their representation as a source of readily accessible stem cells.

Their multipotential capability to differentiate into large variety of tissues and high can be explained by their neural crest origin. This factor accounts to their support in possible applications beyond that of the scope of just oral tissues.

There are proposal of a variety of isolation, culturing and cryopreservation protocols that are proven to affect cell proliferation rate, phenotype, and differentiation capability.

In order to clinically perform therapies on the basis of dental pulp cells development of new and advanced biomaterials designed and generated suitable for regenerative purposes are required in order to act as scaffolds for proper handling an carrying as well as implantation of these stem cells into the patients.

At present the development of xeno-free culture media, which is a cell culture media in which no components or ingredient that comes from any another species other than the intendant species is present. Xeno-free culture for human cells would not have any components derived from any other species other than humans but it could and may have used few or all of its component materials derived from human cells. It is developed as there is an

emerging necessity as a possible means for standardization of factors effecting the growth of stem cell and to avoid possibility of rejection by the host body of these stem cells intended for implantation and in order to improve safety and reproducibility.

Dental pulp is currently playing the role of promising source of stem cells, as it contains multifaceted differentiation capacity and another advantage of dental pulp stem cell are after routine teeth extraction these cell can be obtained with noninvasive collection..

With the standardization of culturing as well as isolation protocols by following GMP and replacement of all components that are from animal origin. Identification, developement and incorporation of specific marker cell are also essential for applicability of these stem cells in patients. For the proper maintenance and revitalization of cells standardized cryopreservation techniques and media is to be established. . The creation of histocompatibility allogenic biobanks would offer an innovative and attractive strategy to guarantee efficient storage for future treatments overcoming immunological barriers. The successful development of a therapeutic medicine for its use in tissue engineering involves combining stem cells, scaffolds and signaling molecules. In this context, the design of an appropriate bioactive material involves a better understanding of the molecular mechanisms implicated in SC-biomaterials interactions. Three-dimensional bioprinting is an arising idea with a promising future that is now yielding empowering results. Indeed, 3D bioprinting permits assembling of redid and complex high builds. In any case, scarcely any investigations have been directed that consolidate hDPSCs and 3D bioprinting methods, despite the fact that this methodology requires simple to-grow and nonimmunogenic cells that are promptly accessible. In outline, DPSC treatment addresses a wonderful new methodology for the proficient administration of infection. The in vitro and in vivo consequences of the work evaluated here help the conduction of more clinical preliminaries to beat the current constraints and backing the clinical utilization of DPSCs under administrative rules.

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