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## Applications of dental pulp stem cells (dpsc) in treatment of myocardial infraction

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Stem cell research is a new field that is advancing at an incredible pace with new discoveries being reported from all over the world. Stem cells are powerful and unique cells that can multiply several times and, depending on the surrounding environment can form specific desired tissue or organ. This has the potential to provide solutions for several incurable diseases or injuries. There are 3 types of stem cells: human embryonic stem cells, adult stem cells and induced pleuripotent stem cells. Dental pulp cells are adult stem cells fond in both baby teeth and wisdom teeth. Dental pulp stem cells are new era of tissue engineering. Human dental pulp contains precursor cells termed dental pulp stem cells (DPSC) that show self-renewal and multilineage differentiation and also secrete multiple proangiogenic and antiapoptotic factors. Dental pulp was rich in different stem cell types such as: Chondrocytes: which are stem cells that have the ability to regenerate cartilage and these cells play an important role in the treatment of arthritis and joint diseases. Adipocytes: stem cells that have the ability to repair damaged cardiac tissues following a heart attack. Mesenchymal Stem Cells: They have the ability to differentiate into various types of reparative cells. Dental cells can differentiate into cardiac cells that have the potential to repair damage caused by myocardial infarction. The infracted heart heals by scar formation, and large myocardial infarctions typically result in heart failure. Although adult stem cells with the capacity to transform into various cardiac cell types and to secrete cardio protective cytokines have been identified, endogenous repair mechanisms in the adult heart are not sufficient for meaningful tissue regeneration. These observations, however, suggest that it may be feasible to develop interventions aimed at enhancing these processes, and to promote functional, and eventually, structural recovery of the infarcted heart (MSCs) are promising cell types in the treatment of cardiac dysfunction. They may trigger production of reparative growth factors, replace damaged cells and create an environment that favors endogenous cardiac repair. To achieve the maximal clinical benefits, ex-vivo manipulation can further enhance MSC therapeutic potential. To examine whether these cells could have therapeutic potential in the repair of myocardial infarction (MI), DPSC can be infected with a retrovirus encoding the green fluorescent protein (GFP) and expanded ex vivo. Human dental pulp stem cells improve left ventricular function, induce angiogenesis, and reduce infarct size in rats with acute myocardial infarction. Conclusions—The recognition that the differentiation of hCSCs (human cardiac stem cells) into mechanically integrated cardiomyocytes has important clinical implications for the treatment of human heart failure. DPSC could provide a novel alternative cell population for cardiac repair, at least in the setting of acute MI.

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## Green synthesis of gold nanoparticles by using Acinetobacter sp and their antibiofilm activity

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Acinetobacter sp. was isolated from spoiled apple fruit and used for synthesis of gold nanoparticles. Biosynthesis of gold nanoparticles was optimized with respect to pH, temperature, time of incubation and gold salt concentrations. These nanoparticles were characterized by using UV/Vis spectroscopy, Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Energy Dispersive spectroscopy (EDS) and X-ray diffraction analysis (XRD).TEM studies revealed that spherical nanoparticles were formed on the cell surfaces and in supernatant with a size in the range of 5-20 nm. These gold nanoparticles showed antibacterial, antifungal and anti-biofilm activities against some pathogenic organisms.

### Biography

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