Since the first characterization of bone marrow stem cells by Friendstein, there has been a search for new sources of stem cells. Grothos, in 2000, was the first pioneer to discover the existence of oral stem cells which were to eventually be called dental pulp stem cells (DPSCs). Dental stem cells are multipotent mesenchymal stem cells that raised new found enthusiasm among researchers because of their easy accessibility, high quality and the fact that they lack the ethical concerns and controversies that embryonic stem cells do. The dental follicle (DFSCs), one type of multipotent tissue, is a fibrous ectomesenchymal tissue sac that surrounds the un-erupted tooth. A recent scientific finding was the discovery and isolation of a new population of mesenchymal stem cells, residing in the apical papilla (SCAPs) of incompletely developed teeth. A few research studies were conducted on cell viability and cell proliferation from oral stem cells for use in vitro and in vivo experiments and/or regenerative medicine. The number of clinical indications for use of these cells and the powerful therapeutic properties they may hold has produced a groundswell of interest by physicians around the world, to translate these scientific discoveries into patient benefits.

In the present study, distinctive populations of multipotent cells were isolated from adult dental pulp, dental follicle and dental papilla for viability and proliferation, comparative analysis and then further characterized by CD44 positive and CD45 negative phenotype markers. Live and dead, MTT and Alamar blue assays were used at 7, 14 and 21 days for evaluation. Additionally, we used TUNEL to evaluate apoptosis between these three sources. Our results showed that SCAPs exhibit increased viability and proliferation compared to DPSCs and DFSC. However, further investigation is required for translational medicine.

**Keywords:** Human Mesenchymal Stem Cells, Dental Pulp Stem Cells, Stem Cells Apical Papilla

**References:**


**Presenting author’s email:** arely_glezz@hotmail.com