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## Dental pulp stem cell isolation, tissue culture, characterization and cryopreservation from human tooth

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Dental pulp stem cells (DPSCs) are a type of mesenchymal stem cells (MSCs) and represent a suitable alternative source of it. DPSCs are multipotent stem cells that have the potential to differentiate into a variety of cell types for the purpose of cell-based therapies. Isolation and banking of DPSCs has attracted a large number of researchers who are interested in the area of stem cell as it is relatively easy to obtain using low invasive procedures, as it is easily obtained from the teeth extracted for orthodontic treatments, impacted 3rd molar teeth or normal shedding process of Childs. Pulp is located in one of the strongest structures in the living body; this makes it a challenge to isolate this tissue completely. In this study we introduce a new innovating way to obtain the pulp tissue completely without heat generation that affects the pulp and cause its distortion. It is a comparative study between the two types of digestion: Enzymatic and Direct outgrowth explants technique, comparative study between the different interval of time from extraction of teeth to isolation time to determine the optimal time recommended for isolation of DPSCs and also comparing between isolation of pulp immediately after extraction and after specific intervals of time. We also studied possibility of isolation from dentine carious tooth or even tooth surrounded by lesions. By using the 4 characteristic genes of DPSCs: *MSX1, MSX2, TBX2, ENTPD1*, we compare their degree of expression in different passages. Finally, DPSCs isolation is done using flow cytometery cell sorting by antigens surface markers CD90, 73, 105 positive markers and CD34, 45, 14 negative.

## Biography

Mohamed Gamal El-Beltagy is currently a Graduate student at Faculty of Dentistry, Mansoura University, Egypt. He works as a Research Assistant in Mansoura Medical Research Center (MERC) in Faculty of Medicine, Mansoura University and he is a Director on a project entitled "Dental Pulp Stem Cell Banking" funded by the Ministry of Higher Education in Egypt under supervision of Professor Mohamed Sobh.

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