

Surgical Procedure for Extracting Pig Teeth for Isolation and Cultivation of Mesenchymal Stem Cells from Dental Pulp for Regenerative Therapy Applications

Masgutova G., Mukhamedshina Y., Sergeev M., Shulman I., Ogurtsov S., Masgutov R., Rizvanov A.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016, Springer Science+Business Media New York. Mesenchymal stem cells (MSCs) are considered the most versatile cells for cell therapy—particularly for repair of injuries to the central nervous system. Recently, the use of dental pulp MSCs (DP-MSCs) for spinal cord regeneration has become especially important. We describe a surgical procedure for extracting pig teeth to obtain DP-MSCs using protocols for direct and enzymatic isolation of DP-MSCs followed by cultivation. Our study shows that primary pulp cultures of DP-MSCs are established 5 days after enzymatic digestion and 7–10 days following attachment of the digested minced tissue to the bottom of a plate. Though in the first few days the rate of primary expansion for cultures generated by direct isolation was lower than the rate of enzymatic digestion, this difference leveled off on days 14–18 of culture. For DP-MSCs isolation, we recommend the use of deciduous succedaneous lateral incisors and canine teeth of pigs as well as deciduous premolars from the first dentition of young pigs (up to 3 months).

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Keywords

Dental pulp, Mesenchymal stem cells, Pig teeth extraction

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