

BONE MARROW MESENCHYMAL STEM CELLS, COLLAGEN SCAFFOLD AND BMP-2 FOR RAT SPINAL FUSION

Arrabal PM^{1,2}, Visser R^{1,2}, Jiménez-Enjuto E^{1,2}, Cifuentes M^{1,2}, Becerra J^{1,2}

¹BIONAND-University of Málaga. Department of Cell Biology, Genetics and Physiology, Faculty of Sciences. Málaga, Spain. parrabalq@uma.es

²Networking Biomedical Research Center in Bioengineering, Biomaterials and Nanomedicine (Ciber-bbn)

The use of autograft for posterolateral spinal fusion, continue being considered the gold standard for the treatment of spine pathologies. However, due to complications such as donor site morbidity, increased operating time, and limited supply, the use of allograft has become an acceptable practice especially in multisegment arthrodesis or in patients with previous graft harvests. Since their use involves the risk of immune response or disease transmission and fusion rates are not as good as with autogenous bone, a variety of bone graft substitutes are being studied to obtain a better alternative. Osteoinductive growth factors, which initiate the molecular cascade of bone formation and play a key role in the development and regeneration of the skeletal system, have been shown to be effective in numerous animal studies. These molecules must be used in combination with a biomaterial to avoid their dispersion from the application site. On the other hand, it is well known that cultured bone marrow cells, harvested from adult bone marrow, may contribute to the regeneration of bone. Thus, hybrid constructs can be used as alternatives to autologous and allogenic grafts.

In this study, we have evaluated different combination of cultured bone marrow cells with recombinant human osteoinductive growth factors, all of them in combination with a natural polymeric carrier, for the promotion of posterolateral spinal fusion in rats.

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