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Canine mesenchymal stem cells exert antimicrobial effect on skin wound bacteria

Wael Abo Elkheir

Abstract

This study was carried-out on MSC that isolated and obtained from dog bone marrow and cultured to explore its antibacterial effect on S. aureus and E. coli isolated from donkey wound. The acquisition MSCs was carried-out on general anaesthesia, a 13-gauge needle was used to penitrate the cortex of the iliac crest of each dog, and about 10 ml of bone marrow was drawn in a syringe containing 1500 IU of heparin. In vitro characterisation of MSCs: On day 14, cells were identified as being MSCs by their plastic adherence, morphology; the adherent colonies of spindle fibroblast-like cells were trypsinised, and counted.., flow cytometry analysis of the surface markers against the selected phenotypes following cell surface protein expression (CD44 ,CD29, CD73, CD90, CD105, CD166, CD271 ,CD45, CD34, CD13, and c-kit (all from BD Biosciences). BM-MSC at third passage were cultured in DMEM (Dulbecco's Modified Eagle Medium) deprived of FCS (fetal calf serum), and supernatants were collected after 6 or 24 hours microvesicles. MVs purification was performed using the ExoQuick-TC exosome precipitation solution (ExoQuick; System Biosiences) , and storage at −80°C until further use.

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