

Comparison of in vivo applications between peripheral blood-derived mesenchymal stromal cells (PB-MSCs) and platelet-rich plasma (PRP) in injured tendons of sheep

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Performance horses are most at risk of tendon injuries, degenerative tendinopathy and overuse tendinitis. Novel therapies aim to restore tendon functionality by means of cell-based therapy, growth factor delivery and tissue engineering approaches. This study examined the use of autologous mesenchymal stromal cells derived from peripheral blood (PB-MSCs), platelet rich plasma (PRP) and a combination of both for ameliorating experimental lesions on deep digital flexor tendons (DDFT) of Bergamasca sheep. In particular, testing the combination of blood-derived MSCs and PRP in an experimental animal model represents one of the few studies exploring a putative synergistic action of these treatments. Effectiveness of treatments was evaluated at 30 and 120 days comparing clinical, ultrasonographic and histological features together with immunohistochemical expression of collagen types 1 and 3, and cartilage oligomeric matrix protein (COMP). Significant differences were found between treated groups and their corresponding controls (placebo) regarding tendon morphology and extracellular matrix (ECM) composition. Our results indicate that the combined use of PRP and MSCs did not produce an additive or synergistic regenerative response and highlighted the predominant effect of MSCs on tendon healing.

Biography

Tiziana Martinello completed her PhD in Cellular and Molecular Biology and Pathology at University of Padova, Italy in 2004. Since then, she has held a Post-Doctoral Research position at Department of Histology Microbiology and Medical Biotechnologies. Currently, she is a Senior Post-Doctoral Research at Dept. Comparative Biomedicine & Food Science at University of Padova. Her research specialties include stem cells study for muscle, tendon and epithelial pathologies. Tiziana published papers in reputed scientific journals and presented abstracts/posters/talks at conferences worldwide.

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