

From peripheral blood-derived mesenchymal stem cells to tenocytes: Would a horse notice the difference?

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In humans as well as horses, tendon lesions are a major cause of musculoskeletal morbidity and often compromise the return to their previous performance level. Since conservative therapies usually take a long time and no real improvement in the functionality of the tendon has been reported, the use of regenerative medicine has been brought under the attention.

However, the safety and complication issues of stem cell therapy have divided the public opinion. The risk of teratoma formation after intralesional pluripotent stem cell injection and the reported ectopic ossification of multipotent stem cells in rabbit Achilles tendons are major concerns. Indeed, when small calcifications are present in a tendon, the risk of ectopic bone formation after stem cell treatment is existent, probably because of the strong directing influence of the stem cell niche. Therefore, the goal of the present study was to direct equine peripheral blood (PB) mesenchymal stem cells (MSC) towards tenocytes before clinical application. This study consists of in vitro as well as in vivo data concerning the tenogenic differentiation of PB MSC and the treatment of different naturally occurred tendon lesions in horses.

Biography

Jan H. Spaas, veterinarian, graduated from the Faculty of Veterinary Medicine, Ghent University (Belgium) in 2010. In that year he also won the price for young authors of the Flemish Veterinary Journal. Then, he worked at the Department of Comparative Physiology and Biometrics of the Faculty of Veterinary Medicine, Ghent University, where he generated several papers about different in vitro and in vivo findings concerning equine stem cell research. Since 2012, he became the laboratory director of Global Stem cell Technology, an organization which is specialized in regenerative therapies for horses.

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