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## ANALYSIS OF DIFFERENT MSC TISSUE SOURCES IN HORSES

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**M**esenchymal cells (MSCs) have been used in regenerative medicine as an option to restore damaged tissues mostly in locomotory equine problems. MSCs can be obtained from different tissues in equines. Previous studies have shown that source sites remain decisive for MSCs yield, cell viability and might influence cell behaviour in vitro and in vivo. To our knowledge, other studies have used cells from bone marrow, adipose tissue, and synovial fluid. However, an in-depth study from this different type of sources and a comparison among them in respect to MSCs in vitro performance and phenotype is lacking. The aim of this study was to evaluate through flow cytometry cell phenotype by cell surface markers (CD11a/CD18, CD45, CD79a, CD90, CD105 and MHC II) reported in equine MSCs. We completed this study with in vitro functional differentiation assays to confirm their mesenchymal identity. The evaluation of cell in vitro performance by different test (cell growth and migration) was made. We observed differences in tissue sources such as cells isolated from synovial fluid had a higher growth rate than bone marrow and adipose cells. Cell populations showed differences in the expression of surface markers, thus giving information about specific cell phenotypes. Adipose tissues had a highest expression of CD105 than bone marrow and synovial fluid cells. Adipose and bone marrow seem to be the main tissues used to obtain MSCs, however, synovial fluid cells have a closer chondrocytelike profile which might be a better option to specific joint issues. Among the different type of adipose cells, neck fat tissue seems to be a more feasible choice to obtain MSCs in addition to the amount of cells and cell performance characteristics. This study should help in the selection of a more appropriate tissue harvesting source in the use of MSCs for cell therapy in equines.

### Biography

Magdalena Arevalo Turrubiarte has a bachelor in veterinary medicine, she obtained her MSc in Animal Production and Health at the Universidad Nacional Autonoma de México (UNAM) focusing on adipogenesis in beef cattle. She completed her PhD at the Agrocampus Ouest-INRA, France with specialization in biology and agronomy working epithelial cell phenotype in the mammary gland bovine during a lactation period. Currently, she is working with the group of Veterinary Physiology at University of Turin in Italy in a project with the use of stem cells in tissue regeneration in equines. She has done farm practice and some laboratories internships in Mexico and in the United States of America

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