

# **The effects of autologous mesenchymal stem cell therapy on joint osteoarthritis in dogs**

Stem cell therapy is a type of regenerative medicine that has been used in human medicine and more recently also in veterinary medicine. These cells are present in the body and can enhance the repair of damaged or malfunctioning tissues and organs. Adult stem cells are found in almost every tissue of the body. Adult bone marrow-derived mesenchymal stem cells (MSCs) have the ability to produce large amounts of growth factors and can differentiate into many cells of the body. Stem cells and platelet-rich plasma (PRP) may play an important role in controlling the inflammation and osteoarthritis. Preliminary research in animals and humans has shown the use of stem cells and PRP to be a safe way to enhance healing. Stem cells and PRP have been used safely in dogs with hip or elbow arthritis to provide alternative treatment for pain relief.

The purpose of this study is to monitor changes in hip or elbow pain and comfort of the patient following administration of adult stem cells in combination with PRP treatments by using owner's and physician's questionnaires and by force plate analysis. In order to collect the stem cells, a sample of bone marrow will be obtained and stem cells will be expanded in culture. After BM collection, the dog will receive a treatment of mesenchymal stem cells with or without PRP within the affected joint. In order to obtain PRP, peripheral vein blood will be collected at the same day of treatment with stem cells. Potential adverse events connected with administration of MSCs with or without PRP may include temporary minor pain at the site of injection. The dogs (if physically able) will have force plate evaluation during their appointment at the UTCVM (Pre-trial Week-3, eligibility for enrollment), just prior to bone marrow collection (Week -2), up to two weeks after bone marrow collection (at the day of MSC injection, Day 0), and then up to 2 weeks (Week 2), up to one month (Week 4), up to three months (Week 12), and optional evaluations at up to 9 and 12 months after MSC injection. All time periods in chart below are approximate but should be done within 3-5 days of the times stated. Owner will be responsible for owner questionnaires completed at -3, -2, 0, 2, 4, and 12 weeks after MSC +/- PRP injection.

By consenting to the terms of this study, you have agreed to allow your dog to participate. Participation is purely voluntary and will require five hospital visits at UTCVM. Owners will be responsible to pay for the initial exam visit, blood work prior to sedation and any cost connected with unrelated health issues of their pet during the study. The stem cells and PRP treatments, force plate analysis, and sedation drugs will be provided free of charge to those who qualify for the study and complete study. If you withdraw your dog from the study before completing three months period of study, you will be charged for the expenses connected with stem cells and PRP procedures. However, the investigators may withdraw your dog at no cost if treatment is not tolerated. Specific information that

might identify you or your pet will be kept confidential. Isolated stem cells from your dog will become a property of the UTCVM and might be used for any further research studies.

Following the first three months of the study period, you may elect to have your pet's receive the combined MSC + PRP treatments. Treatments in additional limbs affected by osteoarthritis would be possible during after three months period also. You would be responsible for costs associated with any treatments beyond the initial three months in the study.

If you have questions about this study, please contact Drs. Maria Cekanova (Regenerative Medicine), Darryl Millis (Orthopedic Surgery) Marti Drum (Sports Medicine & Rehab), or licensed veterinary technicians, Ms. Dawn Hickey or Gina Galyon at 865-974-8387.