Circle of Discovery
Morris Animal FOUNDATION
FINAL REPORT

Reprogramming Canine Stem Cells to Develop New Therapies

Deborah Guest, PhD, Animal Health Trust

Results: Researchers Successfully Develop Canine Stem Cells

Stem cell therapy offers promise for treating many orthopedic, neurologic and cardiovascular injuries and diseases. Induced pluripotent stem cells (iPSCs) are a type of stem cell developed from adult cells that have been reprogrammed back to an early stage. When they are in such an early stage of development the cells have the potential to develop into any cell type that could be needed for a specific treatment. One advantage of treatment with iPSCs over traditional stem cells is the reduced risk of rejection by the patient's immune system. Although techniques to produce iPSCs have been developed for humans, mice, monkeys, pigs and horses, they have yet to be created for dogs.

With Morris Animal Foundation funding, researchers from the Animal Health Trust successfully determined the conditions required to generate canine iPSCs from clinically normal canine adult cells in the lab. By establishing the methods required to generate canine iPSCs, this research has formed the basis for future work to assess the therapeutic potential of canine iPSCs. These data stand to improve the health and welfare of dogs suffering from a wide range of conditions and injuries. Important next steps will include work to turn iPSCs into specific cell types with therapeutic relevance to dogs. Researchers also hope to generate iPSCs from dogs with inherited diseases, leading to a greater understanding of these diseases and their treatment. (D12CA-803)