



WINN FELINE FOUNDATION

For the Health and Well-being of All Cats

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A METHOD TO ISOLATE AND REPRODUCE ADULT FELINE STEM CELLS

PROJECT STUDY:

A Reproducible Protocol to Isolate a Characterized Population of Adult Feline Progenitor Cells, a Continuation Study

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Final report summary, W13-053

Adult stem cells have significant promise to fulfill medical needs of feline companions. With Winn Feline Foundation funding, this research team from Louisiana State University has developed a way to isolate stem cells from adipose tissue (ASCs) removed during routine neuter and spay. They have built upon this initial success (W11-002) by further improving the technique used to isolate those cells that are best for transplantation into cats for treatment of disease or injury.

Different stem cells can be identified and selected by the presence of stem cell proteins on their surfaces. During their investigations, the investigators devised ways to preserve the normal proteins on the surface of the cells while they are grown in the laboratory. They then used the proteins to isolate specific stem cells for study and use. This new information is groundbreaking for feline stem cell research because it makes it possible to identify and test different kinds of stem cells for specific treatment or tissue regeneration purposes.

Cutting-edge findings from the research team's most recent investigations include a process to turn cat stem cells from fat tissue into nerve cells. One of the most important findings from their work was that cells with the same proteins on the surface behave differently when they come from females versus males, including how well they turn into different tissues before and after cryopreservation. Based on these findings, criteria and procedures for stem cell isolation, preservation and use should be based whether the donor is male or female. These discoveries are the first of a kind in cats, and they represent a significant contribution to knowledge about adult stem cells in feline companions.

Focused efforts to create tissue regeneration strategies and clinical therapies based on this new knowledge will sustain the forward momentum of feline regenerative medicine. The results from this study are underway for abstract and manuscript preparation.

Summary prepared by Vicki L. Thayer, DVM, DABVP (Feline) © 2015

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