

Science@CornellVet

A science blog straight from the students and trainees of Cornell Vet

[Home](#) [Uncategorized](#) [The Stem Cell Migration: From California to New York, From Adipose to Gingiva](#)



The Stem Cell Migration: From California to New York, From Adipose to Gingiva

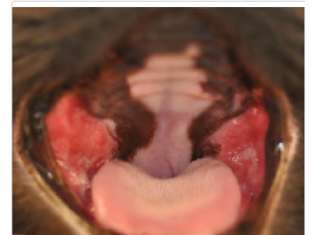
Like 0 Tweet G+ Share

Think having a toothache or even having your wisdom teeth removed was painful? Imagine having your entire mouth in agony from persistent inflammation and unbearable sores. That is what some cats deal with when they are affected by chronic gingivostomatitis.

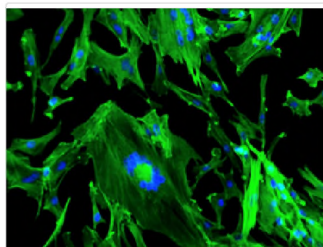
Gingivostomatitis, or inflammation of the oral mucosa and gingiva, is a painful disease found in cats that can severely affect their quality of life. Current treatments have been frequently unsuccessful. The most promising treatment involves full mouth extraction (removing all of the cat's teeth), and even with this some cats do not respond, as about 10-15 percent still do not see any reduction in progression of the disease or the painful side effects.

Thanks to a new multi-center collaborative effort between Cornell's [Dr. Santiago Peralta](#) and [Dr. Nadine Fiani](#) (board-certified small animal dentists) and UC Davis, that could change.

Their new treatment protocol uses injections of adipose-derived stem cells in hopes of "restarting the immune system" locally in the mouths of these cats.



A cat with chronic gingivostomatitis suffering from inflamed gingiva and oral sores even after full mouth extraction (photo courtesy of Santiago Peralta)



Feline stem cells harvested at the lab at UC Davis, courtesy of Dr. Arzi.

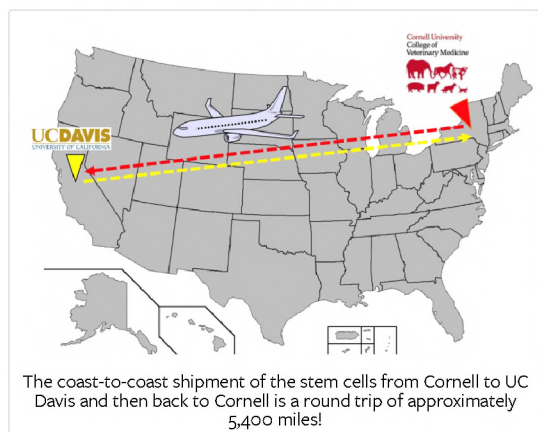
The idea to use adipose-derived stem cells came about as chronic gingivostomatitis is believed to be an immunological disorder, and since stem cells are known to have immunomodulatory properties, there was hope that such treatment could be employed in this scenario.

So far, researchers at UC Davis have shown that the treatment appears to be effective in more than half of affected patients and have now partnered with Peralta and Fiani to see if these promising results can be duplicated here at Cornell, with hopes that the process could one day be reproduced in multiple centers throughout the country.

These clinical trials are a multi-institutional, cross-country effort. For Peralta and Fiani, the process begins at the Cornell University Hospital for Animals where they have been collecting adipose tissue from cats that are going to be treated. The tissue is then sent to the lab at UC Davis in California, where the stem cells are then grown and sent back across the country to Ithaca—where they are then injected intravenously into the patient they were originally derived from. Peralta and Fiani have currently recruited three cats, two of which have begun the process of receiving stem cell administrations. The other cat is still under the "monitoring phase" before they can begin the administration of stem cells.

Not only are Peralta and Fiani, their colleagues, and the cats hard at work, but so is our local Fed-Ex delivery person. If you thought it was stressful waiting for your guaranteed two-day free delivery with Amazon Prime, imagine the logistics behind sending viable stem cells almost

3,000 miles across the country.



The stem cells are very temperature sensitive and must be transported in a cooler with ice; any delays in transportation can disrupt their viability. Peralta says that the shipping process has gone fairly smooth thus far, but that there are always unpredictable complications that arise. On one occasion he recalls that their procedure for collecting the tissue from one of his cats took longer than expected, and after packing the cells to be shipped, they made the 4:30 p.m. Fed-Ex pickup with only seconds to spare.

If positive results can be obtained through the trials at Cornell, it could prove that such a treatment may be possible for patients across the country. In asking Peralta what he hopes would come of these efforts he simply stated, "That we could further show that this new treatment modality is useful for treating a historically difficult disease with hope of finally having an option to treat these refractory patients."

—By Nicholas Walsh, second-year veterinary student

Leave a Reply

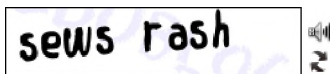
Your email address will not be published. Required fields are marked *

Comment

Anti-spam*

Anti-spam word

To prove you are a person (not a spam script), type the words from the following picture or audio file.



Name *

Email *

Website

POST COMMENT

☐ Notify me of followup comments via e-mail

No copyright information has been saved yet.

Hosted by [CampusPress](#)