

## Message from the President



NovaVive is fast approaching its 10th anniversary as a company. It's hard to believe almost a decade has passed since we launched NovaVive and acquired the mycobacterium cell wall fraction (MCWF) platform and product line. Much has been accomplished in our first ten years and we'll discuss that more in future newsletters.

What never ceases to amaze me about

our technology platform is its flexibility. Just when we think we've heard of every possible use, we are surprised by a new opportunity. Take Kipenzi the giraffe, for example.

When I was contacted by the Seneca Park Zoo in Rochester, NY about a giraffe with an oral squamous cell carcinoma and the question whether Immunocidin could be used as a treatment, I was mildly surprised. This is a first for our technology!

However, talking through the diagnosis and treatment options with the zoo veterinarian, it was agreed that a topical application of Immunocidin made sense as a first step. You can read more about Kipenzi's treatment and outcomes in the article below.

In our last newsletter, we shared an article about the experimental use of Amplimune in birds and fish at The Wildlife World Zoo & Aquarium in Litchfield Park, AZ. The Zoo veterinarian uses Amplimune in birds, alongside antifungal drugs. She also injects koi to treat skin sarcomas.

When you consider that all humans and animals have an immune system, and our MCWF technology is designed to stimulate the immune system to fight disease, it seems logical that there would be many opportunities to experiment in different species. Of course, we rely on the expertise of veterinarians to determine where and when our technology might be appropriate to use.

## Kipenzi the giraffe receives Immunocidin treatment

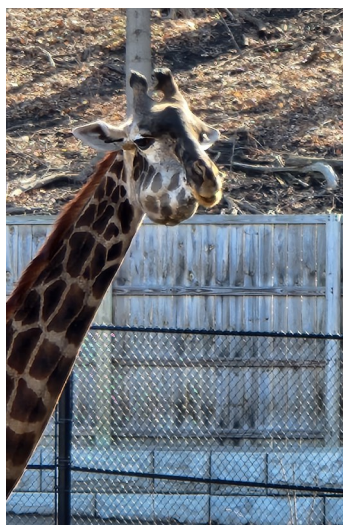
Seneca Park Zoo is home to five Masai giraffes, three females (Iggy, Kipenzi, and Pippi) and two males (Olmsted (Olmy) and JD). Their habitat is north of the elephant barn in the Animals of the Savanna area of the zoo.

Kipenzi, which means "beloved" or "precious one" in Swahili, was born on April 3, 2017 at the Toledo Zoo. She arrived at Seneca Park Zoo in August, 2018.

Zoo staff detected a mass on the inside of her jaw in March, 2023. It was approximately 12cm by 6cm in size and was diagnosed as a squamous cell carcinoma (cancerous tumor). NovaVive was contacted to see if Immunocidin therapy might be an option for treating the tumor.

In consultation with our team, zoo veterinarian Dr. Chris McKinney proceeded with a topical application of Immunocidin for several treatments. More recently, Kipenzi

was started on an oral treatment regimen. The treatments are ongoing.



In terms of side effects, Kipenzi's appetite somewhat reduced recently and she started licking at the tumor. The staff gave her low-dose pain medications. "Otherwise she seems comfortable and has been eating well," reports Dr. McKinney. "Just the other day, she was carrying a toy around the giraffe yard and playing!"



# Amplimune customer spotlight: J&J Cattle



J&J Cattle Co. had humble beginnings as a small family-owned and operated stocker and feeder cattle operation. As Jerad and Justin Johnson graduated from college, they went full force into the niche market of providing lightweight, long-weaned stocker steers and heifers for grazing operations in the Texas Panhandle, Oklahoma, and Kansas.

The pair started preconditioning and selling open replacement heifers along with the stockers. What began with a handful of heifers in 2015 blossomed into a full-fledged business venture by 2017 as the men saw a place for their cattle and services within the industry. A growing demand for their pre-conditioned, long-weaned, fully vaccinated heifers led to more time and attention being turned to this new market focus.

Cattle health has always been a priority at J&J, and they strive to market cattle that perform well for their customers. That's where Amplimune has come into play in their operation. They administer



the extra mile to make sure that their product is shipped quickly and packed safely," say Jerad and Justin. "They stand behind their product and are always happy to answer any questions. Give them a call to see how Amplimune can reduce your pulls and help you turn more pounds into more profit in your operation!"

Today J&J is widely recognized as being one of the largest providers of Brahman-influenced replacement cattle in the south. J&J Cattle can be found all around the United States and internationally in Pakistan, Thailand, Mexico, and the Cayman Islands.

Between the two Johnson families, there are nine cousins who enjoy living and working on the family operation. Jerad and Justin's wives and all of their children are also included in the family business.

Amplimune to all of the high-risk cattle purchased at auction barns. Anything that gives cattle the immune system boost not only saves J&J money on antibiotics, but also increases the performance of the cattle.

In a record-breaking cattle market, cattle performance and gain are critical to the bottom line. Pounds are profit, and Amplimune has proven to be a great tool to help maximize J&J cattle performance during stress. "NovaVive is a great company to work with and always goes

## Immunocidin pilot study for canine TCC now recruiting

Transitional cell carcinoma (TCC), also known as urothelial carcinoma (UC), is the most common cancer of the canine urinary tract.

Certain breeds, including Scottish Terriers, West Highland White Terriers, Beagles and Shetland sheepdogs are more likely to develop this cancer.

TCC is usually detected by symptoms including blood in the urine, pain on urination, increased frequency of urination, and, in more advanced cases, obstruction of the urethra leading to a decreased urine stream or straining without producing urine.

Without treatment, TCC can advance and spread to other sites in the body. When TCC is suspected, a veterinarian will conduct a staging assessment to determine the extent of cancer involvement.

Diagnosis of TCC is typically made with either urine cytology or a tissue biopsy sample.

The CADET BRAF Mutation Detection Assay is now available to detect a common genetic mutation in dogs with TCC; this test is performed on urine that can be collected at home and submitted to a lab for analysis.

The prognosis for patients with TCC depends on the extent of cancer involvement at diagnosis. Cancers that have metastasized or that involve the prostate or urethra having worse prognoses than those that are localized within the bladder. Without treatment, most dogs will die from complications of their cancer within a few to several months.

Options for treatment have included non-steroidal anti-inflammatory drugs (NSAIDs), chemotherapy, and radiation therapy.

A pilot study in the USA assessing whether Immunocidin immunotherapy is effective in treating TCC in male dogs. In a previous study done in five dogs

diagnosed with TCC invading the bladder wall, there was reduction of clinical signs after Immunocidin treatment and the quality of life was improved.

The purpose of this pilot study is to evaluate the response to a standardized protocol with Immunocidin and to assess quality of life outcomes for the participating dogs.

The study provides free BRAF mutation testing and free Immunocidin for enrolled patients.

Dog owners are asked to contact their veterinarian or NovaVive for more information about this pilot study.

Immunocidin is regulator-approved in the USA and Canada for the treatment of canine mammary cancer. It is undergoing further research in additional tumor types.