

## Message from the President



2019 is already shaping up to be an important year for NovaVive. Not only is our 5th anniversary coming up in July of this year, but we have a number of clinical studies wrapping up with data to be presented at veterinary conferences or published in veterinary journals later in the year.

In addition, we're seeing an increase in sales revenues for some of our key products in all of the markets we serve: the U.S.A., Canada, Australia and New Zealand.

In the U.S. market, we attribute this success to the hard work of Mark Hill, AABEX Animal Health, our U.S. sales and marketing partner. Mark has added some seasoned account executives to the AABEX team, which benefits us greatly to increase market awareness of our products.

In our other markets, increased awareness of our products and an increased sales and marketing presence have contributed to growth.

We continue to be very proud of our technology platform and excited about the opportunities it presents. As the use of antibiotics in animals comes under increased scrutiny, alternatives to antibiotics (like our immunotherapeutic products, Amplimune® and Settle®) are being increasingly sought out. When it comes to animal cancers, there is a significant unmet need for safer and less expensive alternatives to chemotherapy (like our immunotherapeutic products, Immunocidin® and Immunocidin® Equine). When key opinion leading researchers take an interest in running clinical studies with our technology (see one example below), we know our pride and optimism are well-placed.

Here's to a successful year!

## Study Begins with Immunocidin® in Canine Hemangiosarcoma

Immunocidin® is being evaluated in a clinical study at Iowa State University (ISU) College of Veterinary Medicine.

Immunocidin has regulatory approval in the U.S.A. and Canada for the treatment of canine mammary tumors (breast cancer). The study at ISU is assessing the efficacy of Immunocidin in combination with doxorubicin chemotherapy in dogs with confirmed stage I or stage II splenic hemangiosarcoma that have undergone splenectomy (spleen removal).

A total of 66 dogs will be recruited for the study, with survival times evaluated.

Primary investigators for this study are Margaret Musser, DVM, DACVIM (Oncology), Giovanna Coto, DVM, and Chad Johannes, DVM, DACVIM (SAIM, Oncology), all at the Lloyd Veterinary Medical Center, College of Veterinary Medicine, ISU.

Hemangiosarcoma (HSA) can arise from any tissue where there are blood vessels, which is essentially anywhere in the body. This cancer frequently appears in the skin, heart, spleen or liver with the most common site being the spleen. HSA can spread to the brain, but usually goes first to the lungs. Additional organs that can be involved include the kidneys, adrenal glands, lymph nodes, mesentery, skeletal muscle, and bone.

The splenic form of HSA is a very aggressive type of cancer, and even when the primary tumor is removed via splenectomy and there is no evidence of spread at the time of surgery, most dogs will go on to develop metastases within just a few short weeks to months. This highly metastatic cancer is often rapidly fatal in dogs. At present, conventional chemotherapy provides only a modest survival benefit after surgery.

“Treatment options and survival outcomes for canine HSA have remained essentially stagnant for the past two decades,” said Dr. Johannes. “Additional therapeutic options for HSA are needed and we look forward to learning more about how immune stimulation via Immunocidin may play a role in improving outcomes for dogs.”

A total of 10 oncology clinics will participate in the study, and it is expected that candidate dogs will be referred from local or regional centres across the U.S.A.

To find a participating clinic, please visit: [https://ebusiness.avma.org/aaahsd/study\\_search.aspx](https://ebusiness.avma.org/aaahsd/study_search.aspx) and enter AAHSD004874 in the keywords search.



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# Extending the Life of a Dog with Late-Stage Cancer

Rhomer was a 9-year-old Labrador mix rescue dog and beloved family pet who was diagnosed in November, 2018 with Stage 4 lung cancer. The veterinarian gave Rhomer just one week to live.



“This was a dog who chased squirrels in our forest and raced with his sister down to the dock to get on the back of the kayak,” said owner Kathleen McCormick. “We were devastated.” The diagnosis came on the heels of Rhomer’s last routine checkup, when he was given a triple A rating for health, grooming and weight.

The large tumor mass in Rhomer’s lung was found to be pressing his other lung against his heart.

“We have a friend in Victoria, BC who told us about a drug, Immunocidin, that her cat with mammary cancer was put on in August. The cat also had been given a week to live, but thanks to this amazing drug, he was still alive five months later.”

Two days before Rhomer was scheduled to be put down, Kathleen and her daughter

called their veterinarian (Dr. Amanda Johnson) at Midtown Animal Hospital in Cobourg, Ontario and asked her about Immunocidin as a possible treatment option for Rhomer. The veterinarian contacted NovaVive and became

very excited about trying the product to palliate Rhomer.

Immunocidin is CFIA- and USDA-approved for the treatment of canine mammary cancer, but some veterinarians are experimenting with the product in dogs with late-stage cancer as a means to help improve quality of life, reduce pain, and potentially extend survival time.

Kathleen and her family were pleased with Rhomer’s response after two months of Immunocidin treatment (5 doses). “He started to groom his sister again, sleep with her again, and was eating very well, prancing on the beach, and being his old loving self.”

“Immunocidin extended Rhomer’s life and gave us time to get a grip on this life changing news,” adds Kathleen. “We are so very grateful.”

Says Dr. Johnson, “I have been impressed with the results of Immunocidin in this case and would recommend the product to other clients for palliation of their pets.”

*Note: Rhomer passed peacefully in early February, 2019, having lived three months beyond his initial diagnosis.*



## Equimune® for Equine Respiratory Disease

In February, multiple horses at, or moved from, the World Equestrian Center in Ohio were diagnosed with equine influenza. The horses—all of which were reported to be up-to-date on their equine influenza vaccinations—were quarantined and put under the watch of a veterinarian.

Equine influenza is one of the most common infectious diseases of the respiratory tract of a horse. It is a highly contagious upper respiratory tract infection caused by strains of the influenza virus type A.

Influenza and other respiratory diseases are costly due to lost days in training for performance horses and veterinary expenses. When horses are closely grouped, the infection can spread easily by air.

Classic clinical signs associated with equine influenza include a sudden onset of a high

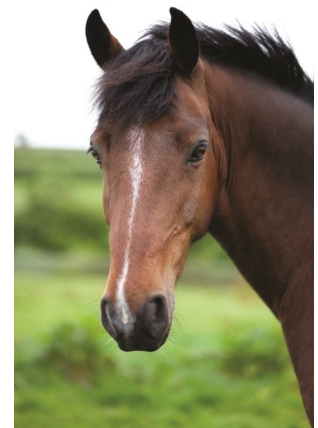
fever (up to 106°F), coughing, a serious (clear, runny) nasal discharge, and sometimes mild swelling of the lymph nodes under the jaw.

NovaVive’s Equimune® immunotherapy is regulator approved in the U.S.A., Australia and New Zealand for the treatment of equine respiratory disease complex.

Equimune triggers a quick and powerful response of the entire immune system to fight off the invading organism.

The product works best when used at the onset of disease challenge, which can be prior to shipping or on arrival.

Equimune stimulates healing following infection and minimizes lung damage, and can help the athlete rapidly return the athlete to normal following a stressful event.



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**NovaVive Business Update**