

Smiling Blue Skies

Taking a bite out of cancer since 2001



UNIVERSITY
of GUELPH

OVC Pet Trust

Update Report
2018

Smiling Blue Skies

Changing the future...helping to create a cancer-free world



The Ontario Veterinary College (OVC) at the University of Guelph is a world class centre of excellence. Thanks to the ongoing support of Suzi Beber and Smiling Blue Skies volunteers over the past 18 years, we are able to continuously invest in improving companion animal health and well-being in the field of cancer care and discovery.

OVC Pet Trust is fortunate to benefit from Suzi's passion and devotion to help pets. What began with a \$1,000 donation in memory of her dog Blues in 2000 has grown to become a community of dedicated supporters who share in our mission to help the pets we love, live longer, healthier lives.

Giving back to help pets and their people is at the heart of Suzi's commitment to change the face of cancer. Since 2001, Suzi and her community have raised \$1.8 million for OVC Pet Trust. In addition to supporting vital research and cancer care, Smiling Blue Skies has also helped us to provide crucial equipment, staff and resources to operate OVC's animal cancer centre. Through your support, we built the Smiling Blue Skies Comfort Room and equipped the centre with state-of-the-art lighting for treatment areas.

This year marks four years of Smiling Blue Skies' support of the role of OVC's Clinical Trials Coordinator. Since 2014, approximately 1,090 cancer patients have been recruited to take part in 35 oncology-related clinical research studies at OVC. With your support, these projects are helping to improve the diagnosis, treatment and care for pets who are battling cancer.

On behalf of all of the pets and their people who have benefitted from the support of Smiling Blue Skies – thank you for making a true difference and impacting cancer care for the better.

Kim Robinson
Managing Director, OVC Pet Trust

“*Long live blue skies,
where hope is a kite
and dreams really
do come true.*”

- Suzi Beber
Founder, Smiling Blue Skies Cancer Fund
Honorary Doctorate recipient, University of Guelph
www.smilingblueskies.com

Thank you! You are receiving a copy of the Smiling Blue Skies Cancer Fund 2018 Update Report as a thank you for your support of OVC Pet Trust and cancer care, teaching and research at the Ontario Veterinary College, University of Guelph.

2018 Support: Smiling Blue Skies continues support of Clinical Trials Coordinator at OVC

The Clinical Trials Coordinator manages clinical studies within the Health Sciences Centre at the Ontario Veterinary College. This role supports cancer and advanced disease clinical research, helps to maximize awareness, manage pet owners' expectations and increase participation in clinical trials. This work ensures studies are able to achieve critical mass, collect appropriate data and help as many pets as possible.

The coordinator oversees recruitment of owners and their pets, the collection of necessary data and acquisition of samples for tumour banking. Working with specialists throughout the OVC Health Sciences Centre, the coordinator actively seeks

patients from all veterinary specialty services that could be included in a clinical trial and advance veterinary knowledge that could lead to the discovery of potential new treatment options that could help current or future patients.

In addition to working with the principal investigators, the coordinator maintains strong relationships with pet owners, explains the steps once a pet is involved in a trial, obtains consent for participation and monitors how pets respond to treatments.

This role is vital to the cancer care OVC offers to patients and their people, while simultaneously helping to advance cancer research.



The Smiling Blue Skies Cancer Fund has been built on the passion of volunteers and community-based spirit since inception. It is the passion, love and commitment we have for our pets that brings us together to help fight the devastating disease of cancer.

Thank you to our event organizers who have worked tirelessly to help us get one step closer to meeting our goals of ending canine cancer.

In photo(left): OVC Tumour Banker, Kaya Skowronski and OVC Clinical Trials Coordinator, Vicky Sabine.



About the Health Sciences Centre at the Ontario Veterinary College, University of Guelph

The Ontario Veterinary College's Health Sciences Centre (OVC-HSC) is a busy hub of specialized veterinary care and research located at the University of Guelph, approximately 1.5 hours outside of Toronto. The companion animal hospitals within the centre employ 31 clinicians and 45 registered veterinary technicians (RVTs). The OVC-HSC medical team also includes two residents, 11 companion animal interns, 22 Doctor of Veterinary Science students (DVSc), veterinary graduate students focused on a variety of specialties within companion animal medicine.

Open 24 hours a day, OVC-HSC treats companion animals in need of advanced care. Our veterinary care team manages approximately 21,000 pet patient visits each year. About 5,000 patient visits are to the Mona Campbell Centre for Animal Cancer.

Clinical Trials at the Ontario Veterinary College

The Ontario Veterinary College is currently conducting more than 25 companion animal-related clinical trials in specialty care areas such as oncology, nutrition, emergency care, advanced surgical techniques and more. Each study aims to help advance medical treatments that can improve the health or quality of life for our pets.

What is a Clinical Trial? Clinical trials are research studies used in all specialties of human and veterinary medicine to evaluate new medical devices, vaccines, diagnostic tests and treatments. These trials may investigate new types of surgical or other procedures as well as novel medical therapies for patients.

What are the benefits of participating in a clinical trial?

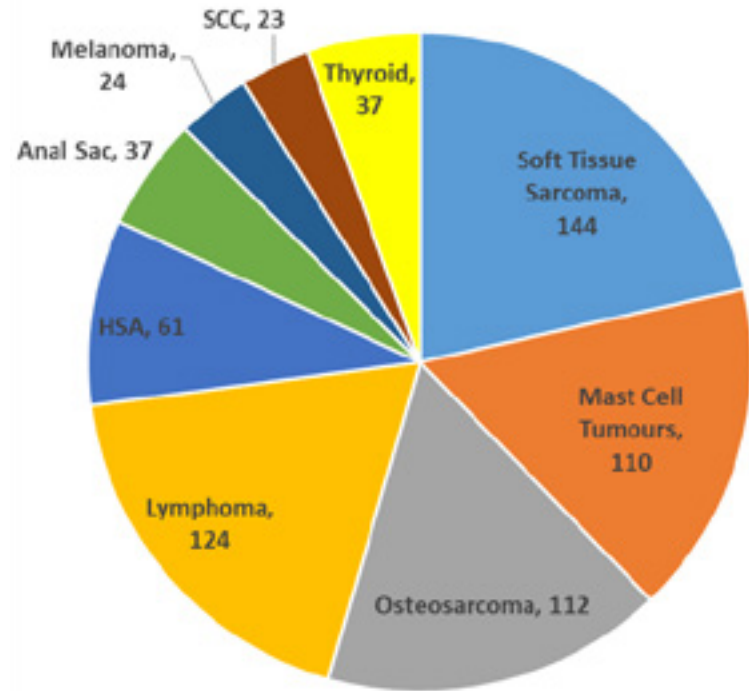
Clinical trials allow clinicians to discover new and improved ways to prevent, diagnose or treat patients. By participating in a clinical trial, your pet may benefit by: gaining access to new treatments that are not yet available to the public; obtaining expert medical care at a leading health care facility; playing an active role in developing a specialized healthcare plan; and helping others by contributing to medical research.

How can my pet take part in a clinical trial at OVC?

Pet owners should talk to their family veterinarian about clinical trial treatment and referral options to OVC. To see the full list of current clinical trials please visit the OVC Health Sciences Centre website:

<http://ovc.uoguelph.ca/icci/trials>

THE DISTRIBUTION OF THE NINE MOST PREVALENT CANINE TUMOUR TYPES IN THE COMPANION ANIMAL TUMOUR SAMPLE BANK



Abbreviations:
HSA: hemangiosarcoma
SCC: squamous cell carcinoma

THE FOUR MOST PREVALENT FELINE TUMOUR TYPES BANKED AT OVC*

Tumour Type	Number of Cases
Mammary	10
Soft Tissue Sarcoma	9
Osteosarcoma	8
Lymphoma	7

CLINICAL CANCER STUDIES AT THE ONTARIO VETERINARY COLLEGE CURRENTLY SEEKING ONCOLOGY PARTICIPANTS

CANINE ONCOLOGY STUDIES:

- Evaluation of a recombinant, attenuated *Listeria monocytogenes* expressing a chimeric human HER2/neu protein in dogs with osteosarcoma in the adjuvant setting. (Please see below for further information).
- Profiling and validation of extracellular vesicles as circulating biomarkers in canine osteosarcoma: a DOGBONE project (please see: <https://ovc.uoguelph.ca/news/canine-researchers-team-dogbone>)
- Identification of response to chemotherapy in relapsed canine lymphoma patients
- Prognostication of canine T-cell lymphoma
- Investigating biomarkers for metronomic cyclophosphamide treatment of canine soft tissue sarcoma
- Acute Myeloid Leukemia Study

ONCOLOGY-RELATED STUDIES:

- Evaluating crossmatch incompatibility to increase safety of blood transfusion in cats and dogs
- Feline acute kidney injury study
- BUN/creatinine and BUN/symmetric dimethylarginine ratio in dogs with occult gastrointestinal bleeding
- Usefulness of blood urea nitrogen(BUN)/creatinine and BUN/symmetric dimethylarginine (SDMA) ratio in localizing gastrointestinal bleeding in dogs
- Nutrition survey of Healthy Dogs and Dogs with Cancer

Several oncology studies finished recruiting new patients in 2018 & 2017 however samples are still being collected and information obtained from the patients (n=159) who continue to receive care at the ACC. Including:

- Evaluation of the safety and effectiveness of standard-of-care therapy, with or without adjuvant rapamycin administration in dogs with osteosarcoma
- Analysis of cytokines in dogs with osteosarcoma treated with amputation, radiation and/or chemotherapy
- microRNA profiling for diagnosis and prognosis in canine multicentric lymphoma
- Detection of Minimal Residual Disease in Canine Lymphoma
- Effect of lymphoma on the blood test for kidney disease
- Non-invasive detection and quantification of circulating tumour cells in dogs with appendicular osteosarcoma



Patient Lulu.

“Lulu means the world to us. We are so thankful OVC was there to support us during one of the most devastating times in our life. It’s difficult to put into words how grateful we are OVC was there when our family needed it most.”

PATIENT ENROLLMENT COMPANION ANIMAL TUMOUR SAMPLE BANK (CATSB)

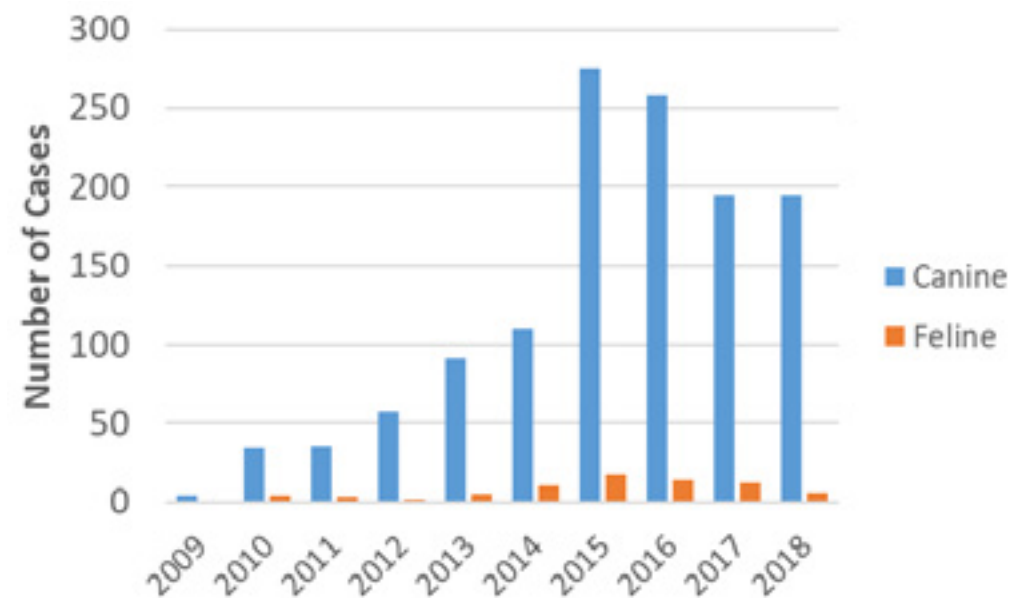
Patient Enrollment Companion Animal Tumour Sample Bank (CATSB)

Numbers of oncology patients recruited into oncology and oncology-related studies and banked in CATSB and requests made by researchers during each calendar year (1 Jan – 31 Dec) from 2014 - 2018:

Year	Clinical Research Studies			CATSB		
	# Oncology-related Studies	# Patients Recruited	# Golden Retrievers Recruited	# of Cases Banked	# Golden Retrievers Banked	# Sample Requests by Researchers
2014	11	258	23	120	9	2
2015	13	172	16	292	28	2
2016	19	180	21	272	30	6
2017	23	274	31	207	20	4
2018	18	206	15	201	20	3

Table: Number of cases banked and recruited into studies varies per year based on types of studies being conducted and timing of recruitment for each clinical trial. Multiple studies requesting samples from the same patients may reduce the number of samples obtained for the tumour bank. Number of cases banked varies by year depending on the number of suitable surgical cases.

THE COMPANION ANIMAL TUMOUR SAMPLE BANK REACHES MILESTONE IN 2018



Total number of cases banked in the Companion Animal Tumour Sample Bank from 2009-2018. CATSB now has samples from over 1300 patients, totalling over 24,800 vials.

EDUCATING THE NEXT GENERATION OF VETERINARY LEADERS

With the goal of exposing students to alternative career options and increasing opportunities to learn more about the research side of veterinary medicine, the oncology team at the Ontario Veterinary College continues to provide valuable learning experiences to students. Through placement opportunities students gain valuable skills in the area of data collection and management, clinical research, sample collection and cancer patient outcomes.

We have offered placements/ learning opportunities to 8 students this year:

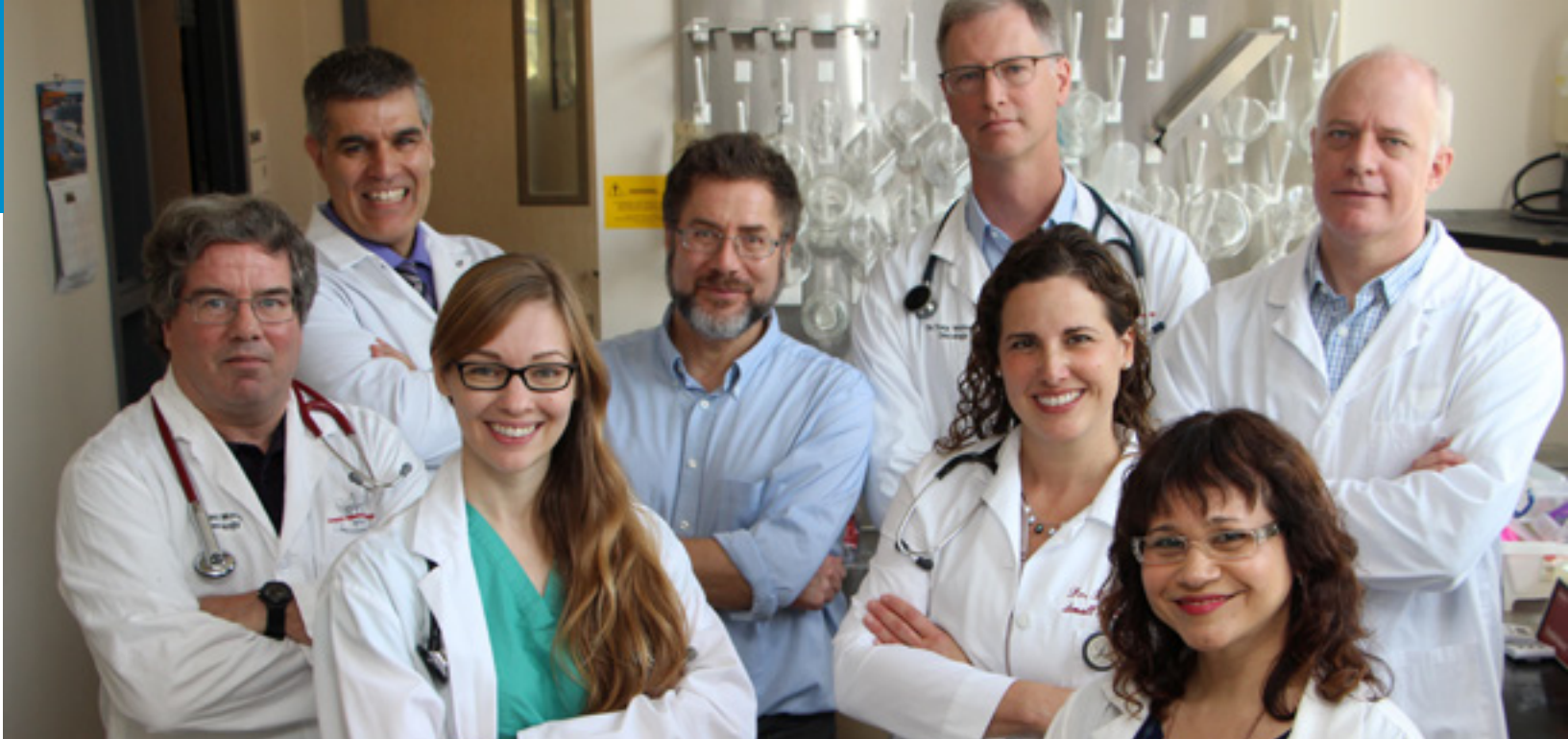
- Two DVM students who were hired as part of the University of Guelph Work Study Program (Sept 2017 – June 2018 & Sept 2018 - ongoing) focusing on data collection and patient outcome for the CATSB;
- One advanced biotechnology student from Sir Sanford Fleming College, Peterborough who completed a 4-month

internship (May – Aug 2018) assisting with CATSB, Clinical Research and data management studies;

- Five volunteer placements: Three U of Guelph graduate students and two MSc students who wish to become veterinarians and are applying to gain entry to the OVC: two assisting with data collection and patient outcome for the CATSB and three assisting with clinical research studies, sample collection and data management associated with the NIH COTC canine OSA trials.

Conferences

- Posters presented at various conferences including 'One Health' poster day hosted by CPHAZ – 2 Nov 2018



Canine researchers team up for DOGBONe

Bone cancer (osteosarcoma) is a particularly aggressive disease in dogs – one that has limited treatment options and is almost always fatal. Treatment usually involves limb amputation when possible. But unfortunately, due to the aggressive nature of canine osteosarcoma, the disease usually metastasizes to the lungs, just like the human form of the disease that struck Canadian icon Terry Fox.

In response, a group of researchers at the University of Guelph called the Dog Osteosarcoma Group – Biomarkers of Neoplasia (or DOGBONe) have teamed up to determine more accurate ways to assess bone cancer.

Their main objective is to identify biomarkers (the quantitative substances that suggest the presence of diseases in organisms) to assess patients with osteosarcoma.

The differences between osteosarcoma in dogs and humans are so slight that even computers aren't able to distinguish between tumour samples from each species based on gene expression patterns. Because the cancer in dogs and humans is so similar, any

progress in developing better treatments for one means progress for the other as well.

"The dogs are a model for the worst of the human disease," said Prof. Geoff Wood, Ontario Veterinary College's (OVC) Department of Pathobiology. "Right now, the information we find out in human osteosarcoma serves as a model for the dogs. There's an opportunity to go both ways between the species, for the benefit of both."

DOGBONe comprises U of G's top osteosarcoma researchers from across all four departments at OVC, including co-leaders Wood and Alicia Vilorio-Petit of the Department of Biomedical Sciences. Other members include Profs. Brigitte Brisson, Tony Mutsaers, Michelle Oblak and Paul Woods from the Department of Clinical Studies, Byram Bridle from the Department of Pathobiology and David Pearl from the Department of Population Medicine. The researchers will be exploring liquid biopsies (blood, serum and plasma) and other potential signifiers at the cellular level to see if they can find biomarkers for the canine cancer.

By approaching osteosarcoma from different angles and utilizing each researcher's expertise in their separate fields, DOGBONe members hope to find ways to connect biomarkers to the aggressiveness of the disease at the cellular and molecular level. They want to know what allows some dogs to survive for longer than others.

Dogs that are diagnosed with osteosarcoma are often referred to the Mona Campbell Centre for Animal Cancer at the Ontario Veterinary College to receive surgery and chemotherapy or palliative care, where they receive treatment to lessen their pain. These patients are able to contribute samples to the OVC Companion Animal Tumour Bank, providing crucial material for researchers to analyze.

While the members of DOGBONe continue to have their individual and small collaborative projects funded through the OVC Pet Trust, the researchers are presently seeking funding as a group, and are now undertaking collaborations with researchers looking at osteosarcoma in humans.



YOUR SUPPORT IS MAKING A DIFFERENCE

Together we are advancing canine cancer care and discovery

Since 2014 - 2018*, 1090 patients have been recruited into 35 oncology-related studies (many OVC Pet Trust funded). Currently 18 studies are active - 12 are open for recruitment and another 6 are closed for recruitment for which we are still actively tracking 159 patients, collecting samples & obtaining follow-up.

Early in 2018 we started recruitment for our third trial in collaboration with USA NIH Comparative Oncology Trial Consortium - 'Evaluation of an attenuated *Listeria* vaccine expressing an human HER2/neu protein in dogs with osteosarcoma'. We are the only Canadian centre involved in this multi-centre clinical trial (17 sites) with the NIH Comparative Oncology Trials Consortium (COTC) group.

The pilot study (n=18) reported that overall survival rates at 1, 2 and 3 years for dogs treated with this vaccine were 78%, 61% and 50% respectively (Mason et al, 2016 – fyi paper attached, along with consent form & info sheet). In comparison, 1-2yr survival rate is ~15% following current standard of care (amputation and chemotherapy).

* Smiling Blue Skies funding began for the Clinical Research Coordinator position Jan 2015.



Thank you for taking a bite out of cancer!





OVC Pet Trust, founded in 1986 at the Ontario Veterinary College, University of Guelph, is Canada's first charitable fund dedicated to the health and well-being of companion animals.

OVC Pet Trust honours the relationship between pets, their people and veterinary caregivers by raising funds to support innovative discoveries that improve the prevention, diagnosis and treatment of diseases of pets.

Funds also help train veterinarians to provide exceptional healthcare for pets and provide equipment and facilities for the Ontario Veterinary College.

University of Guelph
Charitable Registration Number:
10816 1829 RR 0001



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