

BREAKTHROUGH

BC
CANCER
FOUNDATION

SPRING 2020

LIVING WITH BREAST CANCER DURING MOTHERHOOD

*“I’m hopeful for
more life-saving
treatment options
so I can be here
for my daughter.”*

—CARMEN HOU,
BC CANCER PATIENT

**FIGHT INFLAMMATION
and Feel Energized**




**MOBILE MAMMOGRAPHY IN
INDIGENOUS COMMUNITIES:
Transforming Care,
Improving Outcomes**

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About the BC Cancer Foundation

The BC Cancer Foundation is the fundraising partner of BC Cancer. Together with our donors, we are changing the outcome for people affected by cancer in B.C. and beyond by connecting personalized care, innovative research and opportunities to give back. We are the largest charitable funder of cancer research in B.C. and every dollar raised stays right here at BC Cancer to advance research, enhance care and break down cancer.

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DRIVING INNOVATION: DONORS ARE ESSENTIAL



I am often asked about the numerous cancer charities and what sets the BC Cancer Foundation apart. I'm proud to say that every dollar donated by generous people like you goes directly to finding more curative therapies and ensuring British Columbians facing a cancer diagnosis receive the best care possible.

Your generosity translates into immediate impact, in your community, helping to drive innovation and save lives now. We are proudly the largest charitable supporter of cancer in our province, and among the largest in Canada, and we won't stop until cancer stops.

On the cover of this issue is a beautiful family—Daniel, Evelyn and

Carmen Hou. I've had the pleasure to get to know Carmen and I'm so inspired and humbled by her strength as she faces metastatic breast cancer so early in motherhood.

Carmen has accessed the full spectrum of research and care at BC Cancer – Vancouver, from art therapy and patient support groups to chemotherapy, radiation and a life-changing clinical trial. Donors are impacting the patient journey in so many ways, giving patients like Carmen precious time with their families. You can read more about her story on page 8.

Our donors are also enabling clinicians and scientists to push the envelope, driving innovation across borders. We are so pleased to share

that the BC Cancer Foundation has partnered with the Terry Fox Research Institute and other large cancer centres and funding partners under the newly created Marathon of Hope Network, a pan-Canadian network to accelerate the adoption of precision medicine. This network is an example of our community in B.C. joining in a powerful collective on a national stage to change outcomes for all Canadians facing cancer.

The BC Cancer Foundation continues to be a major funder of BC Cancer's Genome Sciences Centre (GSC), which celebrated its 20th anniversary last November. The team at the GSC decodes the DNA structure of individuals with the hardest to treat cancers, bringing hope through advanced technology, and scientific and clinical collaboration. This is a global movement and BC Cancer is a leader—there is no other facility in Canada like the GSC.

These examples of innovation and impact simply could not happen without your generous support.

Thanks to you, BC Cancer **won't stop** driving innovation and saving lives.

Sarah Roth, President & CEO
BC Cancer Foundation

AN EPIC BIKE TREK FOLLOWED BY A LIFE-CHANGING DIAGNOSIS



Geoff Livingston

In the summer of 2018 Geoff Livingston conquered an enormous goal of riding his bike from Banff, Alberta all the way to Mexico—an astounding 4,350 kilometres.

“At the time, it was what I thought would be the biggest challenge of my life,” he says. “But it didn’t compare to what I had to face when I returned home.”

“I’ve handled the thought of cancer, the thought of dying, surgery, biking across North America—bring it on.”

—GEOFF LIVINGSTON

After putting his body through such a demanding trek, Geoff visited his doctor once he returned to get checked out physically.

“I wanted to make sure I was all good after the ride, as I had put my body through a test that it had never taken on before,” he says.

Although he was in the best physical fitness of his life at the time, Geoff had developed a bit of pain in his lower left abdomen. His doctor

sent him for an ultrasound.

Geoff was shocked when he learned the results: he had a tumour in his kidney and there was a good chance it was cancer.

“Hearing the word ‘cancer’ is something you don’t expect,” says the 33 year old. “That was definitely tough.”

He soon underwent surgery that removed half of his kidney as well as the tumour. The next day Geoff’s doctor told him the surgery was a success and there was now no evidence of cancer.

“I was very fortunate with finding it when and how I did—there were no signs of any spreading and all signs looked positive after the successful surgery,” Geoff says.

Now fully recovered from his surgery, Geoff has set his sights on another fitness-related challenge—taking part in the BC Cancer Foundation’s *Workout to Conquer Cancer*, where he’s committed to move 31 days straight for the month of May in support of breakthrough cancer research and care.

By fundraising for a cause he’s so closely connected to, Geoff wants to help change the story for

British Columbians facing a similar situation.

“Fundraising for cancer research can help solve this disease,” he says. “Not only is money going toward cancer research to be able to fight this thing, but there’s also funding that supports prevention and what can cause cancer from the get-go.”

Geoff hopes sharing his story will help inspire others, and it’s also a very personal reminder of what he’s conquered.

“It feels like a weight has been lifted off my shoulders, that whatever comes at me now, I can handle it,” he says. “I’ve handled the thought of cancer, the thought of dying, surgery, biking across North America—bring it on.”

**WORKOUT
TO CONQUER
CANCER**

To learn more or to
register, please visit
workouttoconquercancer.ca

FIGHT INFLAMMATION AND FEEL ENERGIZED

BC Cancer Foundation's *Workout to Conquer Cancer* kicks off May 1st and we've partnered with international keynote speaker and health expert Mandy Gill, who shares her nutrition expertise on how you can use diet to boost your immune system, feel energized and fight inflammation:

LEAFY GREENS

Kale, spinach and arugula are packed with fibre and phytonutrients; they're also high in calcium and vitamins A, C and K. This means in addition to getting anti-inflammatory benefits, the antioxidants may lower your cholesterol and boost joint and bone health too. An extra bonus with Vitamin K is that studies are showing it may also ease pain.

GINGER, TURMERIC, APPLE CIDER VINEGAR

Ginger has a main bioactive compound in it called gingerol, which is responsible for much of its medicinal properties. It's considered a 'superfood' due to its powerful anti-inflammatory and antioxidant benefits. Turmeric's most active compound, curcumin, not only benefits the body, but the brain too. Turmeric is best taken through pill form due to the higher concentration it contains, and is best absorbed when combined with black pepper. Apple cider vinegar has healing properties from potassium,

magnesium and probiotics; the ability to balance your body's pH levels; and serves as a liver and lymphatic tonic to detoxify your body.

BLUEBERRIES & PINEAPPLE

Blueberries contain quercetin—a powerful antioxidant that helps fight inflammation. And pineapples are loaded with bromelain—a digestive enzyme that helps regulate your body's immune response so that it doesn't react with unnecessary inflammation.

FOODS TO AVOID

Keep inflammation down by

minimizing your consumption of foods that trigger inflammation—such as sugar and high-fructose corn syrup, processed meats, artificial trans fats and excessive alcohol intake, to list a few.

Mandy Gill is an international keynote speaker, plant-based super athlete, TV/radio personality and health expert passionate about connecting with others to educate healthy habit practices. Learn more at www.mandygill.com



Mandy Gill



A FAMILY'S PLEDGE TO CHANGE CANCER OUTCOMES

In 2017, the Sandhu family received a cancer diagnosis that would leave a lasting impact on the community and beyond. Soon after receiving this news that husband and wife Amarjit and Davinder Sandhu pledged to personally make a difference for people facing a similar challenge. “When someone’s life is touched by cancer, their entire world stops but the world outside continues,” says Davinder. “You only realize the true impact cancer has when it comes to your door.”

Less than two years later, Amarjit and Davinder set the wheels in motion for a grassroots event that would welcome members of their personal and professional networks. In 2018, the *Unite Against Cancer Gala*, organized by the family’s Ray of Hope Charitable Society, welcomed 450 guests and raised more than \$150,000 for cancer research and care in British Columbia. Their generous gift

was matched by long-time BC Cancer Foundation supporters, the McCarthy family, to fund urgent needs for patients around the province.


Inspired by the overwhelming show of support, the Sandhus hosted the gala for the second time in October 2019, welcoming an even greater guest list of over 550 and raising an outstanding \$231,000 thanks to a generous match by leaders in B.C.’s mining community. “The purpose of the gala isn’t only to raise money to help cancer patients, but it’s a platform to raise awareness and encourage open discussion about something that affects each and every one of us,” says Davinder. “We are deeply grateful for everyone who had a hand in the success of these events.”

The Sandhus have no intention of slowing down, with plans already underway for the 2020 *Unite Against Cancer Gala*. “We chose BC Cancer Foundation because we know our

dollars will stay here in the province to help those going through treatment across our communities,” says Davinder. “We had no idea where the gala would take us, but we have seen an outpouring of support from our friends, family and business community who all believe in this incredible cause.”

The Sandhu’s gala is a reminder that every action, no matter its size, has the potential to make a profound impact for others facing cancer in communities around the province.

To learn more about organizing your own event, visit bccancerfoundation.com, or contact **Rachel Mitchell** at 604.851.4736 or rmitchell@bccancer.bc.ca



"I am passionate about finding ways to improve the outcome and quality of life for all of my patients."

MEET DR. DEVIN SCHELLENBERG

Dr. Devin Schellenberg is the Department Head of Radiation Oncology at BC Cancer – Surrey. His work involves planning and executing radiation treatments for patients, mainly those suffering with lung and gastrointestinal cancers. Dr. Schellenberg is at the forefront of improving existing treatments and finding new, more effective treatments for patients across the province.

"Through these trials, we are investigating the possibility of curing people who were once thought incurable."

—DR. DEVIN SCHELLENBERG

BREAKTHROUGH: How did you come into this line of work?

DEVIN: I attended medical school at UBC followed by a residency at the University of Toronto. After my residency, I did a year-long fellowship at Stanford University near San Francisco, where my research focused on Stereotactic Body Radiation. I was attracted to radiation mainly because of my interest in technology and the challenge of ever-changing cancer treatment options.

BREAKTHROUGH: What exciting research updates can you share with us?

DEVIN: For the last ten years, we have been developing treatments for patients with small amounts of

metastatic disease, referred to as oligometastatic patients (five or less sites of metastases). Our research looks into aggressively radiating up to five sites of metastases, in an effort to help people live longer free of cancer and avoid other cancer treatments such as chemotherapy. This area of research originally paved the way for the Canadian-led Comprehensive treatment of OligoMetastases (COMET) trial.

Last year, the COMET trial was featured in the esteemed medical journal, *The Lancet*, and demonstrated that stereotactic radiation to metastases may allow patients to live longer, though confirmatory research is needed. Thus, COMET has paved the way for two trials currently underway known as COMET 3 (three sites of metastases) and COMET 10 (ten sites of metastases). The COMET 3 trial, led by BC Cancer's Dr. Rob Olsen, recently opened at BC Cancer – Prince George, and will soon be adopted across BC Cancer centres. COMET 10 will start its rollout across centres in the coming months. Through these trials, we are investigating the possibility of curing people who were once thought incurable. For other patients, there may be lasting effects to their quality of life and a reduction in other treatments. We are extremely proud that BC Cancer is at the forefront of developing the trials, enrolling patients and capturing the outcomes.

INSIDE THE CLINIC

MORE ABOUT DEVIN:

Favourite food: Indian—I love a good spicy dish!

Favourite activity: Attending extracurricular activities with my kids.

Fun fact: I put myself through medical school as a juggler. Luckily for me, this was before smartphones with cameras existed.

BREAKTHROUGH: What excites you for the future of radiation oncology?

DEVIN: The prospect of change and the technological innovations are what truly excite me. I also am excited about our ability to bring new and innovative therapies to a greater number of people in our province. As our work in radiation oncology extends to more areas, including stereotactic brain radiation in Surrey, I look forward to delivering more treatments to more people in British Columbia.

BREAKTHROUGH: How are BC Cancer Foundation donors supporting your work?

DEVIN: Donors help to advance radiation oncology research, but also have a massive impact on the types of technologies that are available to patients being used in real time. Increased Foundation support will also allow our teams to explore new avenues for trials and treatments that will have life-saving implications for many years to come.

To learn how you can support clinical trials and crucial research at BC Cancer, visit us at bccancerfoundation.com or contact **Andrea Woo** at andrea.woo@bccancer.bc.ca or **604.930.4078**



A YOUNG MOTHER'S STORY:

*facing Stage IV
breast cancer at*

35

Carmen Hou with
daughter Evelyn

Carmen Hou is a vibrant 35-year-old mother to four-year-old Evelyn. Inseparable, the pair loves visiting the Bloedel Conservatory in Vancouver to bask in nature and warm up on a rainy day. They love to giggle and hold hands while they jauntily walk by many species of exotic plants and birds.

But Carmen is facing what any young mother may call her worst nightmare.

In January 2016, six months after Carmen gave birth to Evelyn, she noticed two tiny lumps on her left breast. At first she and her husband Daniel, a radiologist, thought the lumps may be related to breastfeeding.

An ultrasound suggested it was nothing but by the following winter, the lumps had grown larger and Carmen was feeling tiny shocks in her chest. She returned to the doctor and this time tests confirmed she was facing Stage III breast cancer.

"I'll never forget that day," says Carmen.

Further tests revealed that her tumour had grown to five centimetres and there was also a blemish on her spine. The cancer had spread, which escalated her diagnosis to Stage IV.

"I called my husband right away and we both started crying. We were at a loss for words."

FULL SPECTRUM OF TREATMENT & CARE

Roughly a month after her diagnosis, Carmen began chemotherapy treatment. She went on to have a mastectomy of her left breast where surgeons removed 20 lymph nodes, 10 of which were cancerous. The cancer remained and was active in three out of the four quadrants of her breast, which unfortunately meant that the chemotherapy may not have been effective.

Her treatment was then followed by surgery, two types of precision radiation and a drug trial, called

"Looking to the future of cancer research and care, I'm very hopeful for a cure."

—CARMEN HOU, PATIENT

Ribociclib. She was also admitted into BC Cancer's Personalized Onco-Genomics (POG) Program where scientists sequenced her DNA to match her to the best treatment possible for her cancer.

Today, Carmen has passed the two-year mark of being on the trial medication. Her cancer is stable, but she has been told by her doctors that many patients on the trial quickly decline around this time in their treatment plan.

To help with her healing, Carmen joined an art therapy group at BC Cancer that has provided her with immense support and new friends. BC Cancer centres each offer a range of services including nutrition, patient and family counselling and many types of support groups like art therapy and more.

"It's been a great outlet for my healing journey. I never really did art except for grade school and this has opened up a side of me that's really calming and peaceful," she reveals. "I've also met some lovely friends through the group that have been such a huge part of my journey."

FINDING STRENGTH & OPTIMISM

One in eight Canadian women develop breast cancer in their lifetime. Carmen's cancer is not hereditary and she does not carry a gene mutation. In addition, breast cancer most commonly occurs in women aged 50 to 69 years old, so Carmen's case is considered rare and hard to treat.

"Because of my late stage diagnosis, I don't know what the future holds for us or how much time I have on this earth," she says. "It's

really changed my perspective and I want to make the most out of my life and what's important."

Today, Carmen takes things day by day, relying on faith, family and friends. She's also made a promise to herself to travel somewhere new with her family every month.

To date, the Hous have travelled to Tokyo, Bali, Kuala Lumpur, Croatia, Italy and Morocco. They hope to go to Egypt this spring.

NEW SINGLE-CELL METHODOLOGY BRINGS IMMENSE HOPE

"Looking to the future of cancer research and care, I'm very hopeful for a cure," says Carmen.

In November 2019, BC Cancer scientists, in partnership with the University of British Columbia, Memorial Sloan Kettering Cancer Center and Microsoft, developed a new method for analyzing cancer tissue, allowing them to delve deeper into cancer than previously possible. Researchers can now read the genomes of single cells within a tumour, opening up a new wave of understanding of how and why cancer develops and changes over time.

This advance comes nearly a



Dr. Samuel Aparicio, distinguished scientist, BC Cancer

decade after Dr. Samuel Aparicio, BC Cancer distinguished scientist and Dr. Sohrab Shah, BC Cancer scientist and current chief of



computational oncology at Memorial Sloan Kettering and their team's first foundational shift in decoding cancer. They developed the ability to sequence human cancer genomes, which opened up a new era in understanding cancer and has since been transformational in the field. Dr. Aparicio's team is also responsible for decoding all of the three billion letters in the DNA

sequence of a metastatic lobular breast cancer tumour, a type of breast cancer which accounts for about 10 per cent of all breast cancers, finding all of the mutations or "spelling mistakes" that cause the cancer to spread.

In the last ten years, cancer genomics findings have sparked new drug treatments and new ways of diagnosing cancer and

monitoring cancer.

This new method is so sensitive that researchers will now be able to analyze single cells from a tissue, and decode their genomes individually. The method will unlock the answers to crucial questions about the origins of cancer, why cancers evolve, why they become resistant to drugs and why they metastasize. This research will also be a key pathway to cancer prevention, understanding the root environmental causes of the disease.

"The ways in which the cells differ from each other turns out to be important for understanding why they stop responding to treatments," says Dr. Aparicio. "It also tells us something about the history of the cancer; how it developed, how long it's been inside healthy tissue, and how long it's been growing."

This single-cell methodology will benefit breast cancer patients like Carmen, as well as people with many other cancer types by unlocking questions about individual cancers and the best course of treatment.

BREAKING DOWN WOMEN'S CANCERS: THE TIME IS NOW

This year, one of the BC Cancer Foundation's priorities is breaking down women's cancers for the 5,545 British Columbians who will be diagnosed with breast or gynecologic cancers in 2020. Our annual *Inspiration Gala* and *Discovery Luncheon* signature events will both support this cause.

With donor support, BC Cancer has led the world in breaking down breast cancers by every letter of DNA. We've implemented the first prevention method to stop ovarian cancer in up to half of all women and we're leading the charge in bringing innovative new therapies to cure more women through precision medicine.

However, now is our time to act. We are on the cusp of changing outcomes for women in British Columbia. And the key? **You.**

You can help change outcomes for patients facing cancer, like Carmen.

To learn more or to donate, please visit www.bccancerfoundation.com





BC CANCER'S LEUKEMIA AND
MYELOMA PROGRAM (LaMP):

UNCOVERING MORE EFFECTIVE TREATMENTS FOR PEOPLE IN B.C.

*Drs. Weng, Karsan
and Kuchenbauer*

BC Cancer has launched a new Leukemia and Myeloma Program (LaMP), thanks to support from BC Cancer Foundation donors, which seeks to uncover more effective diagnostic and treatment solutions for people affected by blood cancers.

REVOLUTIONIZING MULTIPLE MYELOMA TREATMENT

Although survival has doubled since 1975, five-year net survival for multiple myeloma is only 44 per cent in Canada.

BC Cancer Clinician Scientist Dr. Florian Kuchenbauer and his team are hoping to increase survival rates by developing disease models to study the effects of various drugs. “Our goal is to better understand the evolution of myeloma, especially high-risk myeloma and how it becomes resistant to treatment,” Dr. Kuchenbauer explains. “We plan to test and combine drugs in new ways and eventually launch clinical trials to give more choices to patients.”

UNDERSTANDING THE BIOLOGY OF BLOOD CANCERS

Pediatric leukemia patients have significantly better outcomes than their adult counterparts, but T-cell

acute lymphoblastic leukemia, known as T-ALL is often aggressive and progresses quickly.

BC Cancer Distinguished Scientist Dr. Andrew Weng and his team discovered that while adult and childhood leukemia cells are similar, both can be re-programmed to a state in which the leukemia stem cells exhaust themselves, resulting in the disappearance of disease. “We believe a new class of drugs may improve outcomes for people facing T-ALL who fail conventional therapies,” says Dr. Weng.

Dr. Weng’s lab has devised a way to create synthetic models of T-ALL in the lab. He explains that “Because these models carry only a specified set of gene mutations, they provide a ‘clean slate’ for uncovering new information about the disease.”

IMPROVING OUTCOMES FOR ACUTE MYELOID LEUKEMIA

Relapse following chemotherapy or stem cell transplantation is the most

frequent cause of death in people with acute myeloid leukemia (AML). BC Cancer Distinguished Scientist Dr. Aly Karsan and his colleagues are hoping to uncover the genomic factors that cause relapse in order to target them with customized therapies.

“We just launched a project to define what causes resistance and find ways to overcome this resistance,” says Dr. Karsan. “By creating AML models in the lab, we hope to find new ways to target leukemia that will spare healthy cells and give people a better chance at survival.”

Scientist Dr. Ly Vu is a new recruit to BC Cancer and LaMP from Memorial Sloan Kettering Cancer Center in New York. Her research program focuses on understanding regulation of stem cells in the development of blood diseases. “Our goal is to develop innovative therapies to target leukemia stem cells and treat leukemia,” says Dr. Vu.

To learn more about groundbreaking blood cancer research, please contact **Elissa Morrisette** at **604.707.5992** or **elissa.morrisette@bccancer.bc.ca**



TRANSFORMING CARE, IMPROVING OUTCOMES:

MOBILE MAMMOGRAPHY SERVING INDIGENOUS COMMUNITIES IN B.C.

"Having BC Cancer's mobile mammography service come to my community was a game-changer and a life-saver," says Johnna Sparrow Crawford, whose mammogram led to a diagnosis of breast cancer.

"I had been having a busy day, but a nurse who was working with the mobile mammography service said to me 'I've got you scheduled, you're getting this done.' And she really was my guardian angel because I got a phone call from my doctor saying that I needed to come in to have another test done. When I got to BC Women's they wanted to do a biopsy right away."

Johnna, who lives on the Musqueam Reserve in Vancouver, was diagnosed with breast cancer and underwent surgery and radiation therapy. "When you're walking through your daily life and you're preoccupied or busy or maybe just don't want to deal with your health, things can go wrong," she says.

"At the time, I had a very aging, frail mother who I was caring for and I missed my mammogram for two years. Time went by so quickly that I didn't think about taking care of myself. Without the mobile mammography service, I know even more time could have gone by. Now the mammogram program is a part of my yearly caregiving."

Breast cancer is the most common cancer among women—more than 3,700 British Columbians will be diagnosed this year alone. Mammograms are the first line of defense against breast cancer, providing early diagnosis which allows less toxic treatment and better outcomes. BC Cancer's Breast Screening Program provides free, regular screening mammograms for women ages 40-74.

Thanks to excellence in treatment and screening at BC Cancer, B.C. currently has among the lowest mortality rates for breast cancer and the best survival rate after diagnosis in Canada. "Access to and awareness of screening is essential to achieving equally good outcomes in all demographics and geographic regions, particularly for Indigenous women, who currently have poorer survival than the rest of the population," explains Warren Clarmont, director of Indigenous Cancer Control at BC Cancer.

Through engagement with the First Nations Health Authority, Métis Nation British Columbia and BC



"Without the mobile mammography service, I know even more time could have gone by. Now the mammogram program is a part of my yearly caregiving."

—JOHNNA SPARROW CRAWFORD, PATIENT

Association of Aboriginal Friendship Centres, BC Cancer has recently developed an Indigenous Cancer Strategy which identifies several priority areas for improving access, utilization and quality of cancer care services.

BC Cancer's mobile mammography service currently visits more than 170 rural communities across B.C. each year, including more than 40 First Nations communities. The service performs approximately 10 per cent of all screening mammograms in the province via three mobile screening units. Expanding this service to reach even more Indigenous communities is high on the priority list.

"I was just truly grateful for our community offering this program. Had I not done it, I don't know where I'd be right now," says Johnna. "I learned a lot about cancer and my experience at BC Cancer was fantastic. People were gentle and kind and every time the radiation machine came down I closed my eyes and said 'thank you.' I was grateful and my body listened."

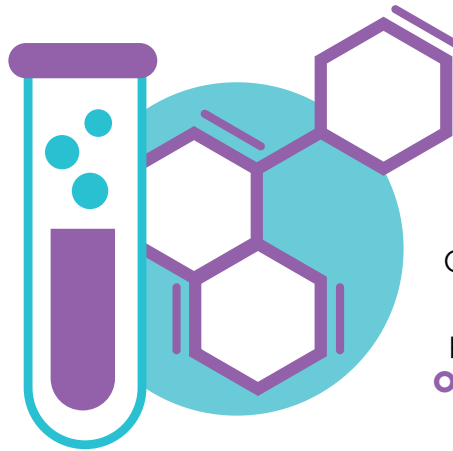
Johnna is now six years cancer-free: "I think everybody who is a survivor would say the same thing: you learn things about yourself that you didn't know before. I think we spend too much of our time focused on worry, fear and doubt and you have to turn that around. We can choose to let cancer control us or we can choose to turn our lives around as a result of it."

To learn more and to support this program please contact **Lindsay Abbott** at **604.675.8015** or lindsay.abbott@bccancer.bc.ca

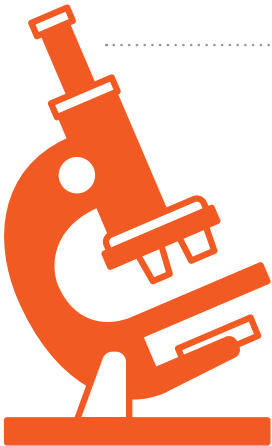


Personalized cancer care received a major boost as the *Inspiration Gala* raised **\$3MILLION** and the *Discovery Luncheon* raised **\$370,000** in support of genomics.

An urgently-needed **MASS SPECTROMETER** is on its way to BC Cancer to **ACCELERATE RESEARCH AND IMPROVE TREATMENT** thanks to thousands of donors and a generous matching gift from mining community leaders who helped reach a **\$2 MILLION FUNDRAISING GOAL**.



Jingle Mingle raised **\$650,000** to help launch an **INNOVATIVE THERAPIES UNIT** at BC Cancer – Victoria, which will greatly increase patient access to **STATE-OF-THE-ART TREATMENT**.



BC CANCER SCIENTISTS, in partnership with the University of British Columbia, Memorial Sloan Kettering Cancer Center and Microsoft, developed **A NEW METHOD FOR ANALYZING CANCER TISSUE**, allowing them to learn more about cancer than previously possible.

The 25th annual *Miss Chinese Vancouver Pageant Gala Dinner* raised **\$460,000 TO BRING SURFACE-GUIDED RADIATION EQUIPMENT** to BC Cancer – Vancouver.



BC Cancer researchers discovered **KEY INFORMATION** about how **HODGKIN LYMPHOMA CELLS** are able to grow undetected within the body by examining how they interact within the **COMPLETE TUMOUR ENVIRONMENT**. The findings were published in *Cancer Discovery*.



TMEM30A: A GENE TO EXPLOIT IN THE QUEST FOR MORE CURES

**A NEW BREAKTHROUGH
IN DIFFUSE LARGE B-CELL
LYMPHOMA OFFERS EYE-
OPENING NEXT STEPS IN
THE FUTURE OF BREAKING
DOWN CANCER CELLS**

Meet TMEM30A: a gene harbouring critical—and exploitable—abnormalities recently discovered by BC Cancer scientists Shannon Healy, David Scott and Christian Steidl. It's playing two interesting roles in the most common blood cancer, diffuse large B-cell lymphoma.

The BC Cancer team has linked the gene's new-found behaviours to patients who have positive outcomes—an anomaly as gene mutations are typically linked to poor outcomes.

"I am very excited to uncover and present a mechanism that is very unique in scope, and allows for a new targetable element in chemotherapeutic design," says Dr. Shannon Healy, research associate, BC Cancer, and lead author on the paper.

WHAT MAKES TMEM30A DIFFERENT?

Dr. Steidl, senior scientist and research director of BC Cancer's Centre for Lymphoid Cancer explains: "In order to work, drugs like standard chemotherapy need to absorb into the cancer cells. When TMEM30A is mutated, it's impacting

the cell membrane, allowing more chemotherapy uptake, which is more effective for the patient."

The second critical feature of TMEM30A is that it attracts scavenger cells from the person's immune system to find the cancer and "eat" the cancer cells. This feature is incredibly important in the new treatment era of immunotherapy.

"This opens up our global understanding of the biology at play in cancers with TMEM30A and why patients with this gene have better outcomes. If we can enhance immunotherapies that are dependent on activating immune scavenger cells to finish the job eradicating cancer that would also be a good thing for all cancers, not only for lymphoma," says Dr. Healy.

POTENTIAL IMPACT

This is one of the first studies in the world to link a gene mutation to changes in membrane biology that can be exploited by drug therapies. We now have insight that can allow us

FACT

TMEM30A is a gene that encodes protein in every cell. The mutations are only found in diffuse large B-cell lymphoma.

to exploit vulnerability in cancer cells. The cancer has figured out a way to be more dangerous but now we have figured those cells out and have learned about their vulnerabilities. It's time to find the right target.

Drs. Healy and Steidl are moving ahead into drug development, looking to inhibit the TMEM30A process so they can sensitize cells to make treatment more effective, potentially across all cancers.

To learn more about how you can support world-leading lymphoma research, please contact **Elissa Morrisette** at 604.707.5992 or elissa.morrisette@bccancer.bc.ca

*Drs. Christian Steidl
and Shannon Healy,
BC Cancer*



Bob Charron,
patient at BC
Cancer, with his
grandson



IMPROVING THE STANDARD OF CARE THROUGH **BRACHYTHERAPY**

When Bob Charron retired at 58 after a 35-year career in the RCMP, he had big plans for the next chapter in his life. He couldn't wait to spend more time with his wife, kids and grandson.

Unfortunately, only a few short months after he retired, his plans were stopped in their tracks: Bob was diagnosed with Stage 2B prostate cancer.

His oncologist at BC Cancer - Kelowna, Dr. Juanita Crook, is a world-leading researcher in the area of brachytherapy and quickly identified that Bob was a prime candidate for the innovative treatment.

Bob would have a tiny radioactive seed implanted in a single session and avoid up to five weeks of daily radiation treatments using beams.

The treatment worked very quickly and his tests showed a dramatic response. Bob's retirement plans soon got back on track—he and his wife even enjoyed a month-long trip to Belize.

"I'm living proof that innovations in cancer research and care can save lives," Bob says. "I am so grateful for the incredible treatment I received at BC Cancer."

Brachytherapy is revolutionizing radiation treatment and saving lives, just like Bob's.

"We're making incredible strides

in several areas of brachytherapy that will have a significant impact on patient outcomes," says Dr. Crook.

There are many benefits to brachytherapy as opposed to other types of radiation treatment, according to Dr. Ross Halperin, executive medical director, BC Cancer - Kelowna.

"With brachytherapy, the radioactive sources are placed directly where the tumour is so the radiation doesn't have to travel through the body to get to the tumour target," he says. "This allows us to deliver a lot more radiation treatment safely to the tumour while protecting the body from the harms of radiation treatment in the normal tissues."

Dr. Halperin says brachytherapy has a long track record of success in prostate cancer and more recently in women's gynecologic cancers, such as cervical cancer, and is also currently being developed for the treatment of breast cancers.

To continue to propel leading-edge innovation in brachytherapy at BC Cancer - Kelowna, the Foundation has embarked on a \$3.5 million fundraising initiative to establish a chair in brachytherapy at the centre, to ensure patients in the Interior continue to have access to world-class care.

"More than 70 per cent of the patients our oncologists treat are from communities like Cranbrook, Invermere, Nelson, Vernon and Kamloops and they benefit from faster treatments and less time away from their homes and families," says Dr. Halperin.

MAKE A DIFFERENCE: To learn how you can help establish a chair in brachytherapy, contact **Pardeep Khrod at 1.250.878.5490 or pardeep.khrod@bccancer.bc.ca**

AUGUST 29-30, 2020

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