# Rolland (Rolly) Murray Fox

March 22, 1935 – March 8, 2016

## In memoriam

**Born on March 22, 1935 in Winnipeg, Manitoba, Rolly was the third of nine children born to Rodney Fox and Bertha (Shale) Fox. The early years were difficult financially for the large Fox family, resulting in Rolly, at the youthful age of nine, calling Saint Michael and All Angels Church his home for two years.**

He would get a taste of the West Coast when he attended a cadet camp in Abbotsford, B.C. Rolly would meet Betty Lou Wark on Winnipeg's busiest and coldest intersection, Portage and Main, and they would marry in 1956. The following year, their first child, Fred, was born. Terry would arrive in 1958. Darrell would follow four years later. Finally, Judith, the daughter Betty wanted, completed the Fox family in 1965. Rolly would begin a 36-year career with CN Rail in 1954. Working outside in the harsh Manitoba winters prompted Rolly to consider raising his family in a warmer climate. The Fox family moved to Surrey, B.C. in 1966 where they rented a house and Rolly started fresh in his new role as switchman on Vancouver's north shore.

In 1968, they would purchase 3337 Morrill St. in Port Coquitlam, which would be the family home for the next 16 years. In early 1977, son Terry was diagnosed with osteosarcoma. Rolly was devastated and bitter, thinking that life had delivered an unfair and cruel turn. Rolly would say he wished he could change places with his son and he meant it. It is well known that Betty reacted negatively when Terry delivered the news that he was going to run across the country. Rolly, knowing the will of his son, simply said "When?".

When Terry died in 1981, Rolly and Betty were forced into roles neither was expecting or educated for, but they had an endless passion for their son and inherently understood his values and vision. Betty was the public figure, sharing Terry's story. Rolly was the pillar of strength and support, always close behind. He had a serious side, but place him in front of a room full of friends and family, and get ready to be entertained by an unscripted performance. He would evolve over the years -- from someone who was scrupulous with his money -- to a man who wanted to give to others, regardless of the financial implications.

Loneliness arrived in Rolly's life with the passing of his wife Betty in 2011, after 54 years of marriage. Rolly went almost overnight from a homebody to a man never at home. He would meet Janet Shields during this time, who was also experiencing loss with the passing of her husband. They would marry in the spring of 2013 – there was no denying Rolly's happiness the last few years.

Rolly was diagnosed with lung cancer, Stage IV, in January 2016. He was not devastated or bitter; he accepted it quickly, fulfilling a promise to Terry of being strong and positive. It may have been his plan to give those around him in his last few weeks a legion of memories to last a lifetime.

Rolly is survived by his wife Janet; three children Fred (Theresa), Darrell (Bonnie), and Judith; step children Gary, Stephen and Joanne; nine grandchildren: Terrance (Melissa), Kirsten, Erin (Matthew), Jessica, Sarah, DJ, Tianna, Alexandra, and Connor; brothers Rod, Terry and Doug; and sisters Nancy, Barbara and Jeanine.

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**Donations can be made to The Terry Fox Foundation**

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# research news

Spring 2016

## $16-million fuels research to improve detection, treatment for high-risk, inherited cancers

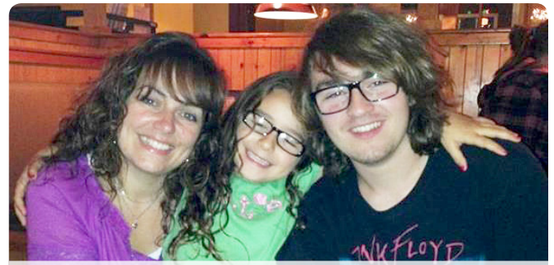
A $16-million injection of funding from the Terry Fox Foundation and three new research partners will enable four world-class Canadian research teams to find new ways to detect and treat high-risk and inherited cancers.

The news last fall was heartwarming to Toronto breast cancer survivor Luana Locke. An abnormal gene in her family puts members at risk of developing cancer at any age and in any part of the body, but Terry Fox funding for research on Li-Fraumeni Syndrome, may help to change this. "To know there are people who continue asking the important questions and who are committed to conducting the type of research that might one day lead to more effective ways of detecting cancer at the earliest possible stages, a cure or, best of all, the means to prevent a cancer from occurring at all, gives me incredible hope. I wish them all success and hope for promising results," she said.

"We are grateful to the Terry Fox Foundation and our new partners for providing $16-million to four outstanding research teams this year. It takes many donors, partners and teams working together to tackle the big challenges in cancer research – from helping families with Li-Fraumeni Syndrome, to why cancer grows and spreads, to how best to treat it so more lives are saved and fewer patients suffer from long-lasting, side-effects of treatments," said Dr. Victor Ling, president and scientific director of The Terry Fox Research Institute

"Terry ran a marathon a day for 143 days in 1980 to raise money for cancer research. His legacy continues thanks to our supporters whose contributions fuel the work of these investigators and over 300 others in Canada who receive Terry Fox funding from our Terry Fox Run," said Terry Fox Foundation executive director Britt Andersen. The Terry Fox New Frontiers Program Project Grant program is highly-competitive; following international peer review, funds are awarded annually to groups of investigators to support breakthrough and transformative biomedical research which may form the basis for innovative cancer prevention, diagnosis and/or treatment.

**To learn more about these important projects, visit our You Tube site www.youtube.com/user/TerryFoxResearchInst**



**Luana Locke** (left), with her children, is hopeful that Terry Fox-funded research will help her and others who, due to an abnormal gene, are at risk of developing cancer at any age and in any part of the body.

### Here's a breakdown of the investment/funded projects by province.

#### Ontario

Dr. John Dick, senior scientist at the Princess Margaret Cancer Centre/ University Health Network (Toronto) and his group of investigators received a total of $6.2 million over five years to continue to advance our understanding of "cancer stemness." He will focus his work on uncovering ways to improve our detection of and treatment for three high-risk cancers: acute myeloid leukemia, myeloma and brain cancer.

Dr. David Malkin, senior scientist and oncologist at The Hospital for Sick Children (Toronto), along with investigators there and at Dalhousie University in Halifax, received $2.2 million over three years to develop better ways to predict the type and age of onset of cancer due to an inherited condition, Li-Fraumeni Syndrome, to detect these cancers earlier, and to identify ways to prevent them from developing in the first place.

#### British Columbia

Dr. Steven Jones, associate director of the Canada Michael Smith Genome Sciences Centre at the BC Cancer Agency (Vancouver), and colleagues received a total of $2.2 million over three years to develop new drugs that use the targeted mechanisms of antibodies to kill only cancer cells and to spare normal ones. Ottawa-based BioCanRx is supporting this work with a $749,000 contribution in addition to TFRI's $1.5 million.

#### Quebec

Dr. Vincent Giguére, a scientist and professor of biochemistry, medicine and oncology at McGill University's Goodman Cancer Research Centre of McGill University (Montreal), and his team are using a $5.3-million, four-year award to understand how metabolic processes and pathways contribute to the growth and survival of cancer cells, leading to treatment resistance and metastasis. This team's work is supported by McGill University's Rosalind and Morris Goodman Cancer Research Centre Fund ($554,512) and the Fondation du cancer du sein du Quebec ($500,000).

# Researchers study measles vaccine, pancreatic cancer and lung cancer

TFRI has funded three 2016 New Investigators: **Dr. Guy Ungerechts, Dr. Ralph Dacosta** and **Dr. William Lockwood** following its annual competition, which supports future leaders in cancer research as they develop their careers in the field. Recipients of the award receive three-year funding totaling $450,000 each and are sponsored and mentored by an existing Terry Fox-funded program.

**Project Title**
Next Generation Cancer Immunovirotherapy: Heterologous oncolytic prime-boost enhanced with select immunomodulators

DR. GUY UNGERECHTS

**Mentoring Program**
The Terry Fox New Frontiers Program Project Grant in Canadian Oncolytic Virus Consortium (2007-2017)

What if there was a way to destroy cancer cells and stimulate a patient's own immune system to attack tumours, while leaving healthy tissues unharmed? Dr. Guy Ungerechts (The Ottawa Hospital and the University of Ottawa) will use his new grant to develop innovative new treatments to achieve just that. Dr. Ungerechts is part of TFRI's Canadian Oncolytic Virus Consortium (COVCo), and is mentored by Dr. John Bell, senior scientist at The Ottawa Hospital and the University of Ottawa and COVCo lead investigator.

An oncolytic virus works to destroy cancer in multiple ways, explains Dr. Ungerechts, notably by stimulating the immune system and directly killing cancer cells. The team plans to use a modified version of the Measles virus vaccine as an oncolytic "cancer vaccine", enhancing it with a second virus (the Maraba virus) that will act as a booster. The team is already testing a similar strategy in patients in Ottawa, Hamilton, Toronto and Vancouver. However, this trial uses one virus (Maraba) that can replicate and spread throughout the tumour and one that cannot (Adenovirus). This next-generation therapy would use two replicating oncolytic viruses, to hopefully maximize tumour destruction.

"What we would like to do in the TFRI project is use the Measles virus to mount a great response from the patient's immune system," said Dr. Ungerechts, who is trained as a medical oncologist and molecular virologist. "We will inject the virus right into the tumour site so it will replicate in the tumour, stimulate the immune system and hopefully destroy cancer cells."

The Measles virus was chosen for several reasons: it's already used as an effective vaccine for children, and has an excellent safety profile. Further, early clinical trials run by researchers from the Mayo Clinic, USA have shown impact in patients with different types of cancer.

Dr. Ungerechts is also exploring approaches to genetically modify the Measles virus to express various immunomodulatory payloads, stimulating the immune system to attack cancer cells specifically. Examples include immune checkpoint inhibitors (anti-PD1/PD-L1-blockade) and bispecific T cell engagers (BITEs).

Determining which approach is most effective for killing cancer cells and stimulating the immune is an exciting prospect for Dr. Ungerechts. By the end of his three-year award, he hopes the novel treatment will be moved to clinical trials for advanced-stage cancer patients who have run out of options.

**Project Title**
Investigating radiation responses of pancreatic tumours, their vasculature and microenvironment using *in vivo* imaging to identify new treatment strategies

DR. RALPH DACOSTA

**Mentoring Program**
The Terry Fox New Frontiers Program Project Grant in Research Pipeline for Hypoxia-Directed Precision Cancer Medicine

While survival rates for many cancers have improved over the last decade, cure rates for some forms of the disease – such as pancreatic cancer – remain as low as just two to three per cent.

"The survival rate for pancreatic cancer is abysmal," says Dr. Ralph DaCosta, a molecular imaging scientist, noting that around 5,000 Canadians are affected by the disease each year. "One of the main reasons that I picked this particular cancer to study was because I thought we could bring a real level of innovation and new knowledge to understanding this complex tumour microenvironment."

He'll use his three-year award to try to find new and innovative ways to study the complex tumour microenvironment to develop new treatment strategies for pancreatic cancer and prevent deadly tumour recurrences in patients from his laboratory at Toronto's Princess Margaret Cancer Centre, UHN.

Radiation and chemotherapy can be a very effective treatment for many cancers, but are often unsuccessful in treating pancreatic cancer. DaCosta's research team has learned that advanced pancreatic tumours are often very "hypoxic". This means they are low in oxygen, which decreases the efficacy of treatment, and increases the likelihood tumours will grow and spread aggressively.

Further, the team discovered in animal models of pancreatic cancer that high-dose radiation therapy can actually increase tumour hypoxia, change the invasive behaviour of tumour cells, and modify the tumour microvasculature and microenvironment. The result? It's harder to kill cancer cells.

But there's hope: Dr. DaCosta and collaborators in the Leslie Dan Faculty of Pharmacy (University of Toronto) have developed a new injectable nanoparticle formulation comprised of manganese dioxide that generates oxygen *in vivo*, and makes a tumour less hypoxic. When used in conjunction with traditional radiation, early results suggest cancer cells can be killed more easily using a much lower treatment dosage.

"The clinical impact is pretty profound if we can get this right. If you give a patient the nanoparticles, and make the tumour more oxygenated, you could be just as effective at killing tumour cells with a much lower radiation dose, and also reduce unwanted toxicity of the therapy to the patient," Dr. DaCosta explained.

Drs. Bradley Wouters and Rob Bristow, co-principal investigators of TFRI's Hypoxia Program and senior scientists at UHN, will mentor Dr. DaCosta for the duration of the three-year award.

**Project Title**
Assessing the effect of radiation from screening low-dose CT scans on lung cancer development and progression

DR. WILLIAM LOCKWOOD

**Mentoring Program**
Early Detection of Lung Cancer: A Pan-Canadian Study

It has been shown that regular screening of patients at high-risk for developing lung cancer reduces their chance of dying from it by up to 20 per cent. But is there a drawback to screening? Does low-dose computed tomographic (LDCT) emitted radiation cause long-term harm? TFRI New Investigator Dr. William Lockwood, a scientist at the BC Cancer Agency, hopes to answer this important question with this new funding.

"What we're interested in is the potential risk factors that could be involved with cumulative screening," he explains. "The radiation that is accumulated over time may actually have some adverse effects that could affect cancer outcomes in a patient that would be at a high-risk of lung cancer."

In Canada, lung cancer kills over 20,000 people annually, and is the primary cause of cancer deaths. With early detection, however, five-year survival rates can be over 70 per cent.

Yet the high-risk participants involved in TFRI's pan-Canadian early-detection lung cancer study (which concluded in 2015) aren't "normal" people who are healthy and don't smoke, notes Dr. Lockwood. Many already have some abnormal cells in their lungs.

"When you wish to implement a program where people ages 55 and over who are high-risk individuals that have smoked a lot and should be screened yearly, we don't really know what will happen over 25 years of screening," he said, noting that many patients worry about potential harm from low doses of radiation administered over decades.

"At the end of this, if it doesn't have an effect, than we can tell our patients that they shouldn't be worried about it – because it is something that people worry about."

The study will analyze tumours from mice exposed to similar levels of radiation, then compare them with human tumours and non-tumour lung tissues from patients who underwent multiple rounds of LDCT screening to see if the radiation contributes to cancer development by causing similar gene disruptions.

Dr. Lockwood is excited to work under the mentorship of senior scientists who are experts in the field, such as his sponsor Dr. Stephen Lam, chair of BC's Provincial Lung Tumour Group at the BC Cancer Agency and a professor of medicine at the University of British Columbia, who led TFRI's Pan-Canadian Early Lung Cancer Detection Study.

The 2017 New Investigator Competition is now OPEN!

Application deadline: September 9, 2016

**Visit www.tfri.ca for competition details**

## 2017 Funding Competition Important dates

### New Investigator Awards 2017

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|---|---|
| RFA Published | **April 1, 2016** |
| Full Application Due | **Sept. 9, 2016 (5 pm PST)** |
| Peer Review Committee Meeting | **Nov. 2016** |
| Funding Announcement | **Dec. 2016** |
| Funding Starts | **Jan. 1, 2017** |

### Program Project Grants 2017

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| RFA Published | **April 1, 2016** |
| Submission of a Letter of Intent | **July 4, 2016 (5 pm PST)** |
| Invitation to Submit Full Application | **Sept. 14, 2016** |
| Submission of a Full Application | **Nov. 14, 2016 (5 pm PST)** |
| Site Visits Held | **April 2017** |
| Notice of Decision/Awards | **May 31, 2017** |
| Funding Starts | **July 1, 2017** |

### Translational Research Projects 2017

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| Submission of an Expression of Interest Letter | **June 6, 2016** |
| Scientific Workshop *(if invited)* | **Before Sept. 19, 2016** |
| Project Outline | **Oct. 6, 2016** |
| Submission of an R&D plan *(if invited)* | **Jan. 9, 2017** |
| International Peer Review Meeting | **During March 2017** |
| Project Approval | **May 1, 2017** |
| Project Start | **July 1, 2017** |

Submissions due 5 pm, PST


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