



ANNUAL
REPORT
2017
2018



ATLANTIC
CANCER RESEARCH
INSTITUTE

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ATLANTIC CANCER RESEARCH INSTITUTE

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WHO WE ARE

The Atlantic Cancer Research Institute (ACRI) is a private, non-profit organization founded in 1998 and situated within the Dr. Georges-L.-Dumont University Hospital Centre in Moncton. ACRI scientists are working with partners in Canada and around the world to impact patient care via the pursuit of research in the area of liquid biopsy and targeted treatment.

We have a research team of over 50 people who have expertise in genomics, proteomics, molecular biology, cell biology, immunology, bioinformatics, pathology, mass spectrometry as well in vitro and in vivo testing. Through its work, ACRI is contributing to the global research effort aimed at combating cancer.



VISION

Contribute to finding cures for cancer by being a leader in innovative research



MISSION

Understanding cancer and finding solutions:

- by fostering interdisciplinary research;
- by transferring scientific innovation towards patient care;
- by contributing to the training of future researchers.



VALUES

ACRI researchers will work in an independent but collaborative way that ensures we attract and retain a team that exemplifies collegiality, collaboration, professionalism, compassion and commitment.

MESSAGE FROM THE PRESIDENT & SCIENTIFIC DIRECTOR

Over the last 20 years, our talented team of dedicated personnel has continued its pursuit of research excellence in order to further our understanding of cancer, and apply that knowledge towards solutions for patients that are trying to overcome this disease. As we move forward to the next 20 years, our team is inspired and motivated by the courage of people affected by cancer, which in turn fuels our resolve to find solutions for this terrible disease.

Our vision and focus on precision medicine has led us to emerge among the leaders in the field, particularly in the area of liquid biopsy and new approaches to targeted treatment. Increasingly our efforts have been focused around the concepts of personalized medicine in cancer; a theme that centers around the specific characteristics of a patient's cancer in order to tailor the appropriate therapeutic response.

The construction of the New Brunswick Center for Precision Medicine adjacent to the Dr. Georges-L-Dumont is almost completed and will open in the Fall of 2018. We wish to thank our partners, the Université de Moncton and the Vitalité Health Network, for their help in finding the necessary funding for this cutting-edge infrastructure.

Many elements, such as our team's expertise, motivation and passion, are required to achieve the level of success that ACRI has come to know and such achievements would not be within our reach today, without the support of the community, our donors and stakeholders.

SCIENTIFIC ADVISORY BOARD

DR. ANNE-MARIE MES-MASSON

Scientific Director, Institut du cancer de Montréal
Head of Cancer Research, le Centre de recherche
du Centre hospitalier de l'Université de Montréal

DR. DIANE PROVENCHER

Chief, Gynecologic Oncology Division,
Centre hospitalier de l'Université de Montréal

DR. PIERRE THIBAUT

Principal Investigator, Institute for Research
in Immunology and Cancer, Université de
Montréal Canadian Research Chair in Proteomics
and Bioanalytical Spectrometry

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Vice-recteur adjoint à la recherche et Doyen de la
Faculté des Études Supérieures et la Recherche (FESR)
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Executive Director,
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Novartis Oncology

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President & CEO
NB Power

BRIGITTE SONIER-FERGUSON

Director - Research, Scientific
Development and Training
Vitalité Health Network



MESSAGE FROM THE CHAIR OF THE BOARD OF DIRECTORS ADMINISTRATORS

This year marks the 20th anniversary of the Atlantic Cancer Research Institute. I take great pride in having had the privilege to work with members of ACRI's management and research teams over the years. It has really been exciting to watch ACRI's research and management team at work. This has only strengthened my confidence as well as my belief in the important work they are accomplishing.

The construction of a new specialized research center which will be completed in the Fall of this year will help ACRI's research team in its continuing quest to find solutions to the terrible disease that is cancer with a continued focus on collaboration to improve outcomes for cancer patients.

I would like to take this opportunity to thank the community of Atlantic Canada for their generosity and continuous support. I would also like to thank the Université de Moncton and the Vitalité Health Network for their help and collaboration, as well as all of our other partners.

Finally, I would like to thank the members of the Board of Directors for their dedication and contribution to the success of the ACRI.



SCIENTIFIC UPDATE

- **ACRI CONTINUES TO FOCUS** its major research efforts on investigating its liquid biopsy-enabling technologies and the identification of novel therapeutic strategies for cancer;
- **PUBLICATIONS IN THE PAST YEAR** highlight new knowledge and downstream applications for liquid biopsy that utilize ACRI's proprietary Vn96 peptide for extracellular vesicle (EV) isolation;
- **RESEARCH REPORTS ALSO SHOW PROGRESS** of ACRI scientists in understanding the underlying mechanisms that contribute to cancer development and progression.

SELECTED PUBLICATIONS

ACRI PUBLICATIONS 2017-2018

- Ayre DC, Chute IC, Joy AP, Barnett DA, Hogan AM, Grull MP, Peña-Castillo L, Lang AS, Lewis SM, Christian SL (2017) CD24 induces changes to the surface receptors of B cell microvesicles with variable effects on their RNA and protein cargo. *Sci Rep*. **7**:8642. doi: 10.1038/s41598-017-08094-8
- Belkaid A, Ouellette RJ, Surette ME (2017) 17 β -estradiol-induced ACSL4 protein expression promotes an invasive phenotype in estrogen receptor positive mammary carcinoma cells. *Carcinogenesis*. **38**:402-410. doi: 10.1093/carcin/bgx020
- Bouhamdani N, Joy A, Barnett D, Cormier K, Léger D, Chute IC, Lamarre S, Ouellette R, Turcotte S (2017) Quantitative proteomics to study a small molecule targeting the loss of von Hippel-Lindau in renal cell carcinomas. *Int J Cancer*. **141**:778-790. doi: 10.1002/ijc.30774
- Harquail J, LeBlanc N, Landry C, Crapoulet N, Robichaud GA (2018) Pax-5 inhibits NF- κ B activity in breast cancer cells through IKK ϵ and miRNA-155 effectors. *J Mammary Gland Biol Neoplasia*. **23**:177-187. doi: 10.1007/s10911-018-9404-4
- Joy AP, Ayre DC, Chute IC, Beaugregard AP, Wajnberg G, Ghosh A, Lewis SM, Ouellette RJ, Barnett DA (2018) Proteome profiling of extracellular vesicles captured with the affinity peptide Vn96: comparison of Laemml and TRizol[®] protein-extraction methods. *J Extracell Vesicles*. **7**:1438727. doi: 10.1080/20013078.2018.1438727
- Nguyen N, Kumar A, Chacko S, Ouellette RJ, Ghosh A (2017) Human hyaluronic acid synthase-1 promotes malignant transformation via epithelial-to-mesenchymal transition, micronucleation and centrosome abnormalities. *Cell Commun Signal*. **15**:48. doi: 10.1186/s12964-017-0204-z
- Razaghi B, Steele SL, Prykhozhiy SV, Stoyek MR, Hill JA, Cooper MD, McDonald L, Lin W, Daugaard M, Crapoulet N, Chacko S, Lewis SM, Scott IC, Sorensen PHB, Berman JN (2018) *hace1* Influences zebrafish cardiac development via ROS-dependent mechanisms. *Dev Dyn*. **247**:289-303. doi: 10.1002/dvdy.24600

TECHNOLOGY TRANSFER UPDATE

○ PATENTS

- The Vn96 EV isolation technology European Patent has been granted as of December 27, 2017
- The Vn96 EV isolation technology Canadian Patent prosecution is ongoing
- The Polysaccharide EV isolation method patent has received a notice of allowance from the European Patent Office
- The Polysaccharide EV isolation method patent prosecution in the United States is still ongoing
- ACRI is about to file a provisional patent for a new EV isolation method
- ACRI's microwave ablation technology patent application is about to enter the national phase

○ LICENSING

- ACRI has entered into a commercialization agreement with Exosomics, backed by Lonza, Italy
- ACRI has licensed exclusively its microwave ablation technology to MIMA-PRO, backed by Vison, China

“Our liquid biopsy technology allows doctors to start with a patient’s blood or urine sample and determine, in real-time, the current state of an ever-changing disease like cancer.”

– Dr. Rodney Ouellette, President & Scientific Director



A GROWING FAMILY



TEAMS BY INITIATIVES:

LIQUID BIOPSY & EV THERAPEUTICS

BIJI ANISH, MSc
CRAIG AYRE, PhD
AMRITA BASU, PhD
SURENDAR REDDY DHADI, PhD
NAOUFAL EL BEKKOURI, MSc Candidate
SEBASTIEN FOURNIER, BSc
ANIRBAN GHOSH, PhD
ROSTYSLAV HORBAY, PhD
AWANIT KUMAR, PhD
JEREMY ROY, PhD
CATHERINE TAYLOR, MSc

SYNTHETIC LETHALITY

LAURA AYRE, BSc
CHARLES BULLERWELL, PhD
NICHOLE CUMBY, PhD
PIERRE DEPRez, PhD
MAX MERILOVICH, MSc
ERIC MERZETTI, PhD

MICROWAVE-ASSISTED TUMOUR ABLATION TECHNOLOGIES

ALEXANDRE ARSENEAU, MSc Candidate
JACQUELINE BÉLANGER, PhD
DELPHINE FOUCHER, PhD
JOCELYN PARÉ, PhD, MSM
MARC-ANDRÉ RICHARD, MSc Candidate
ANTHONY THÉRIAULT

PROTEOMICS & MASS SPECTROMETRY

DAVID BARNETT, PhD
ANDREW JOY, MSc
MAI NGOC-NU, BSc

NEXT-GENERATION SEQUENCING

SIMI CHACKO, MSc
JACYNTHÉ LACROIX, MSc

BIOINFORMATICS

ILLYASS HAJI, MSc
DANIEL LÉGER, MSc
GABRIEL WAJNBERG, PhD

CELLULAR MECHANISMS

IOANNA AMRATA, Postdoctoral fellow
AMIT BERA, PhD
NADIA BOUHAMDANI, PhD Candidate
SONIA DASTOUS, Research Assistant
ROXANNE GUERETTE, PhD Candidate
MATHIEU JOHNSON, PhD Candidate
JUSTIN LEBLANC
JULIE LEWIS, PhD Candidate
DANNICK MARTIN, MSc Candidate
PATRICK PAGE, MSc Candidate
GILLES ROBICHAUD, PhD
MATHIEU SANSCHAGRIN
SANDRA TURCOTTE, PhD
VANESSA VEILLEUX, MSc Candidate

MANAGEMENT:

STÉPHANIE ALBERT – Executive Assistant
HAI LEQUANG, CPA, CA, MSc – Director of Finance & Administration
STEPHEN LEWIS, PhD – Assistant Scientific Director
MARK MACDONALD, MSc – Laboratory Operations Manager
NADINE MARTIN, MBA – Communications Agent
RENÉE MCLAREN, BA – Human Resources & Administration Officer
RODNEY J. OUELLETTE, MD, PhD – President & Scientific Director
REMI RICHARD, MSc, MBA – Business Development Officer

FINANCIAL HIGHLIGHTS

ATLANTIC CANCER RESEARCH INSTITUTE INC.

Statement of Operations

Year ended March 31, 2018

REVENUES	
Research & Government Grants	\$3,058,585
Fundraising Campaign & Other Donations	\$624,113
Research & Medical Services Rendered	\$1,561,017
Others	\$75,021
TOTAL	\$5,318,736
EXPENSES	
Salaries & Benefits	\$2,587,942
Laboratory Supplies	\$1,094,108
Administration & Overhead Expenses	\$1,404,200
TOTAL	\$5,086,250
EXCESS OF REVENUES OVER EXPENSES	\$232,486

Balance Sheet

As of March 31, 2018

Current Assets	\$3,584,891
Capital Assets	\$4,330,467
Total Liabilities	\$2,308,145
NET ASSETS OR EQUITY	\$5,607,213