Agenda – APCaRI Fall Symposium 2015 "Knowledge, Action, Impact"
Oct. 21-22, 2016
Banff Park Lodge, Alberta

Friday, October 21, 2016 (*Black Bear Room)*
2:00 – 2:30 pm Welcome and Introduction (John Lewis)

2:30 – 5:40 pm	**Genetics and Prostate Cancer**
2:30 – 3:15	KEYNOTE: Develop predictive genomic tests in cancer management - **Edwin Wang**, PhD Professor Depts. of Biochemistry & Molecular Biology, Medical Genetics, and Oncology AIHS Translational Chair in Cancer Genomics, Adjunct Professor, McGill University Department of Medicine
3:16 – 3:36	Molecular heterogeneity of primary prostate cancer - Juan Jovel, PhD (D of Medicine, U of A)
3:37 – 3:49	*Break*

3:50 – 5:40 pm	**Short talks**
3:50 – 4:02	Characterizing novel potential driver genes for aggressive PCa using an integrative oncogenomic approach - Hatem Abou-Ouf, PhD (Dept. of Path. & Laboratory Medicine, U of C)
4:03 – 4:15	Intravital identification of miRNA drivers of human cancer metastasis. - Lian Willetts, PhD (Dept. of Oncology, U of A)
4:16 – 4:28	Risk prediction modeling using Genome-wide association studies (GWAS) to predict the likelihood of late radiation toxicity of prostate cancer patient after treatment. - Sandeep K Singhal, PhD (Dept. Oncology, Cross Cancer Institute)
4:29 – 4:41	The role of KIF3B in cancer cell migration and metastasis - Srijan Raha (Dept. of Onc., U of A)
4:42 – 4:54	Proteolytic Processing of ALCAM Mediates Tumor Cell Dissemination - Katie Hebron (Dept. of Cancer Biology, Vanderbilt University)
4:55 – 5:07	Inhibitors of the Human Neuraminidases in Prostate Cancer Cell Migration - Md. Amran Howlader, MSc. (Dept. of Chemistry, U of A)
5:08 – 5:40	The Discovery of Peptides Targeting RHAMM-Hyaluronan Interactions - **Len Luyt**, PhD, (Dept. of Oncology, Western University)

5:41 – 6:14 pm Cash bar (Castle)
6:15 – 11:00 pm Dinner, networking and cash bar (Castle)

Saturday, October 22, 201 (*Black Bear Room)*
8:00 – 8:29 am Continental Breakfast (Chinook Restaurant)

8:30 – 10:33 pm	**Cancer Therapy, Drug Delivery & Theranostics**
8:30 – 9:15	KEYNOTE: FAST-Oncolytic Viruses: A New Oncolytic Virotherapy - **Roy Duncan,** PhD, Dept. Microbiology & Immunology and Biochemistry and Pediatrics, Dalhousie University

9:16 – 10:33 am	**Short Talks**
9:16 – 9:28	Smart Viral Nanoparticles for Molecular Targeting of Angiogenic Vasculature in Prostate Cancer - Anais Medina, PhD (Dept. Oncology, U of A)

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9:29 – 9:41 Anticancer activity and selectivity of AMPs towards prostate and bladder cancer cells - Mauricio Arias, PhD (Dept. of Biological Sciences, U of C)

9:42 – 9:54 Developing an Enzyme-Catalyzed Fusogenix Liposome Drug Delivery Platform for the Treatment of Prostate Cancer - Douglas Brown (Dept. of Biological Sciences, U of C)

9:55 – 10:07 Radiolabeled fusogenic lipid nanoparticles for molecular imaging of PCa drug delivery using positron emission tomography (PET) - Susan Richter, PhD (Dept. Oncology, U of A)

10:08 – 10:20 EGFL7 inhibits cancer progression by suppressing angiogenesis through its Emilin-like domain - Alisha Kadam, MSc. (Dept. Oncology, U of A)

10:21 – 10:33 One nanoparticle to deliver them all: development of the fusogenic liposomes platform for nucleic acid delivery – Jihane Mriouah, PhD (Dept. Oncology, U of A)

10:34 – 10:54 Break

10:55 – 3:15 pm Biomarkers, metastasis and Clinical Cohorts

10:56 – 11:40 Evolution of Carcinoma Heterogeneity and its Relationship to Metastasis - **Susan J. Done**, MA(Cantab), MB, BChir, PhD, MBA, FRCPC, FCAP, FRCPath, FCCMG, Associate Professor, Departments of Laboratory Medicine and Pathobiology and Medical Biophysics, Faculty of Medicine, University of Toronto

11:41 - 11:53 Microenvironmental Regulation of Proteinase Activated Receptors (PARs) in Urinary Bladder Cancer - Stacy Gibson (Dept. of Physiology and Pharmacology, U of C)

11:54 – 12:06 Metabolomics of bladder cancer: from metabolic data to clinical diagnosis and prognosis – Beata Mickiewicz (Dept. of Biological Sciences – U of C)

12:07 – 12:19 Optimizing automated analysis of clinical micro-flow cytometry data - Robert J. Paproski, PhD (Dept. Oncology, U of A)

12:20 – 1:30 Lunch (Terrace Restaurant)

1:30 – 2:49 Updates on diagnostic and prognostic tests for PCa and BCa - **John Lewis**, PhD (Dept. Oncology, U of A), **Desmond Pink**, PhD (Dept. Oncology, UofA), and – **Andries Zijlstra**, PhD (Dept. of Cancer Biology, Vanderbilt University)

- Prostate Cancer Research grants
- Alberta TMA cohort – Tarek Bismar, MD (Dept. of Pathology and Laboratory Medicine) PROFESSOR
- New grants: Review and discussion

2:50 – 3:00 Break

3:01 – 3:15 Updates on Alberta PCa Cohorts: Registry & Biorepository, Catalina Vasquez (Dept. Onc., UofA)

3:16 – 3:45 pm Commercialization

3:16 – 3:45 What in the World is Patentable These Days? A look at patent eligible subject matter in Canada and the US - Christopher Bown, PhD (Gowlings)

3:46 pm Adjourn

4:00 – 7:00 pm Executive and Science & Data Quality Committee meeting *(Private room at Chinook)*

4:00 – 4:45 Report for Executive Committee

4:46 – 5:30 Report for Science and Data Quality Committee

5:30 – 6:00 Discussion & Recommendations

6:00 – 7:00 Dinner for committee

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Invited Scientists

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Edwin Wang, PhD

Professor in the Departments of Biochemistry & Molecular Biology, Medical Genetics, and Oncology
AIHS Translational Chair in Cancer Genomics
Adjunct Professor, McGill University Department of Medicine

Edwin has an undergraduate training in Computer Science and PhD training in Molecular Genetics (UBC - University of British Columbia, 2002). After one-year postdoc training at FlyBase, a genome database of fly, he moved to NRC as a PI. In 2016, he became an AISH Chair Professor at University of Calgary.

We are conducting both computational and experimental systems biology toward precision medicine. The computational work includes: (1) big medical data analysis (2) machine learning and deep learning (3) predictive model construction based on genomic data of diseases including cancer. We are developing novel algorithms for modeling of molecular networks and cancer biomarker discovery, and also developing new concepts for data analysis toward interpreting data, generating, prioritizing and testing new hypotheses.

Find publications at http://www.ncbi.nlm.nih.gov/pubmed/?term=wang+edwin

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Len Luyt, PhD
Professor, Department of Oncology, Western University, London, Ontario

Dr. Len Luyt graduated with a B.Sc. (Eng.) from Queen's University and did his Ph.D. at The University of Western Ontario. Later on, he did a Post-Doctoral Fellowship at the University of Illinois Urbana-Champaign and is now the Director of Radiochemistry/Synthetic Chemistry at Lawson's Imaging Program. He is also an Assistant Professor in Oncology, Medical Imaging and Chemistry, at Western University, London, Ontario.

Dr. Luyt's research program involves the design, preparation, and evaluation of new compounds for the imaging and treatment of cancer. Many cancer tumours have an abundance of peptide receptors located on the surface of the tumour cells, mostly belonging to the G protein-coupled receptor (GPCR) superfamily. By using the peptides that normally bind to these receptors as the starting point, his team is designing variations of these compounds such that they will contain a radioactive component, yet still bind to the intended peptide receptor, and have appropriate in vivo behaviour. Thus, a radioactive peptide-like compound will be injected into a patient, will localize in the cancer tumour, and using an external camera an image of the tumour will be viewed. This approach also has potential use as a method of treatment for cancer.

As part of Dr. Luyt's program of creating new cancer imaging and therapeutic agents, new chemical methods and technologies for the preparation of these novel compounds are being developed. While radiopharmaceuticals are a primary focus of our research, his group is also pursuing probes for other molecular imaging modalities (such as optical imaging), and small molecule cancer therapeutics.

Students involved in research in Dr. Luyt's group acquire synthetic organic chemistry, solid-phase organic chemistry, peptide/peptidomimetic design, bioconjugation, and radiolabelling skills. This research requires interaction with cancer and imaging scientists and group members are able to take projects from the basic chemistry stage through to animal model studies.

Find publications at http://www.ncbi.nlm.nih.gov/pubmed?cmd=PureSearch&term=Luyt+LG[Author]

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Roy Duncan, PhD

Professor (Microbiology & Immunology), Cross-appointment with Biochemistry and Pediatrics, Founder and CEO of Fusogenix Inc., Department member since 2010

Dr. Duncan has a BSc from the University of Guelph, a MSc from Queen's University and a did his PhD PhD, University of Guelph. After that, he completed his Postdoctoral Training, University of Calgary.

Dr. Duncan's research group discovered the reovirus fusion-associated small transmembrane (FAST) proteins, a novel family of virus-encoded fusogens that mediate cell-cell membrane fusion. His interests are focused on biochemical and biophysical analysis of the FAST proteins, cellular pathways involved in cell-cell fusion, factors that affect actin dynamics during membrane fusion and cell migration, protein trafficking and unconventional secretion pathways, anti-cancer drug delivery and cancer cell migration and invasion.

Find publications at

http://www.ncbi.nlm.nih.gov/pubmed/?term=%28%28duncan+r%5bAuthor%5dAND+dalhousie%5bAll+Fields%5d%29+OR+%28Duncan%2C+Roy%5bFull+Author+Name%5d+AND+dalhousie%5bAll+Fields%5d%29+OR+%28duncan+r%5bAuthor%5d+AND+queens%5bAll+Fields%5d%29+OR+%28duncan+r%5bAuthor%5d+AND+calgary%5bAll+Fields%5d%29+OR+%28duncan+r%5bAuthor%5d+AND+guelph%5bAll+Fields%5d%29+OR+%28duncan+r%5bAuthor%5d+AND+dobos+p%5bAuthor%5d%29+OR+%28duncan+r%5bAuthor%5d+AND+barry+c%5bAuthor%5d%29+OR+%28duncan+r%5bAuthor%5d+AND+faulkner+p%5bAuthor%5d%29+OR+%28duncan+r%5bAuthor%5d++AND+noad+l%5bAuthor%5d%29+OR+%28duncan+r%5bAuthor%5d+AND+stephenson+k%5bAuthor%5d%29+OR+%28duncan+r%5bAuthor%5d+AND+nibert+ml%5bAuthor%5d%29%29+NOT+%28duncan+c%5bAuthor%5d+OR+duncan+c%5bInvestigator%5d%29

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Susan J. Done, MA(Cantab), MB, BChir, PhD, MBA, FRCPC, FCAP, FRCPath, FCCMG, Associate Professor, Departments of Laboratory Medicine and Pathobiology and Medical Biophysics, Faculty of Medicine, University of Toronto

Susan J. Done completed her medical training at Cambridge University and then moved to Canada where she is currently an Associate Professor in the Departments of Laboratory Medicine and Pathobiology, and Medical Biophysics, at the University of Toronto. She is a pathologist at the University Health Network (which includes Toronto General Hospital and the Princess Margaret Cancer Centre) and a member of the Campbell Family Institute for Breast Cancer Research. Her research is focused on breast cancer intratumoural heterogeneity, circulating tumour markers and early events in invasion and metastasis.

In our lab the primary focus is the identification and characterization of molecular alterations that lead to the development of solid cancers, particularly breast cancer. It is believed that the study of these changes will lead to the identification of potential diagnostic, prognostic and predictive markers and also therapeutic targets.

Cancer results from a progressive accumulation of genetic alterations. In some organ systems (e.g. colon, cervix) it has been demonstrated that these increasing degrees of genetic perturbation are accompanied by increasing degrees of histologic dysplasia. Other tissues are less accessible making the establishment of these links more difficult.

In the breast, certain preneoplastic and preinvasive lesions (hyperplasias and ductal carcinoma in situ) have been linked to invasive breast cancer by the increased relative risk of future invasive disease they confer. However, it has not been clearly established whether these lesions have the potential to progress to invasive breast cancer or are merely markers of increased risk. Advances in tissue microdissection and PCR technologies have made possible the study of molecular alterations in these small, histologically defined lesions.

We believe it is important to localize particular genetic aberrations to specific cells thereby enabling a correlation between histologic and genetic changes. This correlation is effected using advanced molecular techniques in several ways: firstly, tissue microdissection involving laser capture microdissection can be used in some cases; and secondly, fluorescence in situ hybridization (FISH) analysis can allow detection of gene copy number in specific cells.

Current projects in the lab involve the use of gene microarray chips to identify genes and chromosomal regions that are amplified or deleted in the transition from pre-invasive to invasive breast cancer and determination of the extent of genomic instability in histologically normal tissue adjacent to invasive carcinoma.

Find publications at http://www.lmp.utoronto.ca/research/faculty-research-database/done-susan

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Christopher Bown, PhD

Chris obtained his PhD from the Department of Medical Sciences at McMaster University and his B.Sc. (Hons. Genetics) from the University of Western Ontario. His postdoctoral research at the Neuroscience Research Institute in Ottawa focused on the transcriptional regulation of the genes encoding proteins involved in neurotransmission and the development of a diagnostic test to detect SNPs associated with major depressive disorder.

Dr. Christopher Bown is a partner and patent agent you can trust to protect your most valued intellectual property. Based in Gowling WLG's Ottawa office, he has over 10 years of strategic IP portfolio management experience.

He has considerable experience drafting and prosecuting difficult patent applications, in all areas of technology, including life sciences, biotechnology and mining industries. He also provides litigation support for cases involving these types of technologies.

Chris assists entrepreneurs and SMEs, as well as multinational corporations, in the protection and management of their IP assets. In addition to having considerable experience in protecting inventions related to biologics, diagnostic methods, medical devices and pharmaceuticals, he has an in-depth knowledge of a wide variety of different disciplines, including ultra-deep mining technologies, viniculture, radio transmission technologies, cosmetic chemistry, and inventions related to aerospace and defence.

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Andries Zijlstra, PhD

Assistant Professor Department of Pathology, Microbiology, and Immunology

Dr. Zijlstra is Assistant Professor at Vanderbilt University, where he is researching the invasion and metastatic dissemination of malignant neoplasias. Dr. Zijlstra was trained at The Scripps Research Institute in La Jolla, CA, where he developed quantitative metastasis and angiogenesis assays. Prior to joining Innovascreen Inc., he worked to develop preclinical technology for cancer screens at Philogen Inc. Dr. Zijlstra holds a Ph.D. in Genetics and Cell Biology from Washington State University and is a prolific author in the field of cancer biology.

Dr. Zijlstra's research is primarily dedicated to understanding the molecular mechanisms of cell motility and how they contribute to the metastatic dissemination of solid tumors. For most tumor types it is the metastasis to distant organs that becomes the primary cause of cancer-related deaths. In order to metastasize, a tumor cell must become able to dissociate and leave the tissue of origin, travel across tissue barriers that designed to confine normal tissue and travel to a distant organ. Since the dysregulation of cell migration enables tumor cells to escape their tissue of origin, mechanisms of migration are both a target for therapy and an indicator of disease progression.

The laboratory investigates molecular mechanisms of adhesion and their (dys)regulation in tumor progression. His team dissect's their molecular mode of action and how it is altered during metastasis. Dr. Zijlstra's objective is to understand how the changes in migration contribute to cancer metastasis, how they can be disrupted to prevent or treat metastasis and how they can use the detection of cell migration to identify patients at risk of developing metastatic disease.

Find Publications at
https://www.mc.vanderbilt.edu/root/vumc.php?site=vmcpathology&doc=15119&facultyid=16784&mi=true

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