Agenda – APCaRI Fall Symposium 2015 "Knowledge, Action, Impact"
Oct. 23-24, 2015
Delta Lodge at Kananaskis, Alberta

Friday, October 23, 2015 (*Mount Kidd Ballroom)*
2:00 – 2:30 pm Welcome and Introduction (John Lewis)

2:30 – 5:15 pm	**Genetics and Prostate Cancer**
2:30 – 3:30	KEYNOTE: "Is there a genetic basis for Prostate Cancer Progression?" **William B Isaacs**, Ph.D., Depts. of Urology and Oncology, Johns Hopkins School of Medicine.
3:30 – 3:45	*Break*

3:45 – 5:15 pm	**Short talks**
3:45 – 3:57	"Combining genome-wide association studies (GWAS) to predict the likelihood of radiation toxicity of a prostate cancer patient after treatment" Sandeep K Singhal, PhD (Dept. Oncology, Cross Cancer Institute)
3:58 – 4:10	"CD44 alternative splice variants are associated with prostate cancer cell identity and migration" David Bond, PhD (Dept. Oncology, UofA)
4:11 – 4:23	"Combining Biomedical Text Mining and Social Network Analysis to Find Pca DNA Biomarkers" Gabriela Jurca (Dept. of Computer Science, U of C)
4:24 – 4:36	"Intravital discovery of miRNA drivers of metastatic cascade in human cancers" Lian Willetts, PhD (Dept. Oncology, UofA)
4:37 – 4:49	"In vivo shRNA screen reveals KIF3B as a direct driver of metastasis" Srijan Raha (Dept. Oncology, UofA)
4:50 – 5:02	"EGFL7 inhibits cancer progression by suppressing angiogenesis through its Emilin-like domain" Alisha Kadam, MSc. (Dept. Oncology, UofA)
5:03 – 5:15	"Anticancer activity and selectivity of AMPs towards Jurkat cells" Mauricio Arias, PhD (Dept. of Biological Sciences, UofC)

5:15 – 6:15 pm Poster session and cash bar
6:15 – 11:00 pm Dinner, Networking, cash bar

Saturday, October 24, 2015 (*Explorer Room)*
8:00 – 8:30 am Continental Breakfast

8:30 – 12:41 pm	**Cancer Therapy, Drug Delivery & Theranostics**
8:30 – 9:30	KEYNOTE: "From pathogen to cure: engineering plant virus-based Nanotechnologies for imaging and therapy" **Nicole F. Steinmetz**, Dept. of Biomedical Engineering, Case Western Reserve University School of Medicine.
9:30 – 10:10	"Targeting of PSMA in prostate cancer" **Frank Wuest**, PhD, Dept. of Oncology, University of Alberta
10:10 – 10:30	*Break*
10:30 – 11:10	"The ghrelin axis, cancer and imaging" **Len Luyt**, PhD, Chemistry Department, Western University
11:10 – 11:50	"Selective targeting of human neuraminidase enzymes for cancer therapeutics" **Christopher Cairo**, PhD – Depts. of Science & Chemistry, U of Alberta

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11:50 – 12:41 pm Short Talks

11:50 - 12:02 "Fusogenic targeted liposomes as next-generation nanomedicines for Prostate Cancer" Jihane Mriouah, PhD (Dept. Oncology, UofA)

12:03 – 12:15 "Porphyrin nanodroplets: all organic ultrasound and photoacoustic contrast Nanoparticles" Robert J. Paproski, PhD (Depts. of Oncology and Electrical & Computer Engineering, UofA)

12:16 - 12:28 "Smart Viral Nanoparticles Targeting Angiogenic Vasculature for Tumor Imaging and Treatment" Anais Medina, PhD (Dept. Oncology, UofA)

12:29 - 12:41 "Regulation of bladder cancer cells by microenvironment proteinases via proteinase-activated receptors (PARs) and TRPV4/TRPM8 ion channels" Stacy Gibson (Dept. of Physiology and Pharmacology, U of C)

12:41 – 1:20 pm Lunch

1:20 – 3:30 pm Diagnostics and Biomarkers/ Clinical Cohorts

1:20 - 1:32 "Development of a biomarker-based microvesicle assay for prostate cancer Prognosis" Desmond Pink, PhD (Dept. Oncology, UofA)

1:32 – 3:00 "Updates on diagnostic and prognostic tests for PCa and BCa" John Lewis, PhD (Dept. Oncology, U of A) and Andries Zijlstra, PhD (Dept. of Pathology, Microbiology, and Immunology, Vanderbilt University)

CRIO and PCC team grants
PROFESSOR

3:00 – 3:15 pm Break

3:15 – 3:30 pm "Updates on Alberta PCa Cohorts: Registry & Biorepository" Catalina Vasquez (Dept. Oncology, UofA)

3:30 – 4:00 pm Short talks

3:30-3:42 "Characterizing APCaRI participants by their patient-reported outcomes" Ian Wright, MD (University of Calgary)

3:43-3:55 "Preferences of core size in tissue microarrays of urinary bladder histologic sections" Adel Eskaros, MD, PhD (Dept. of Pathology, Microbiology, and Immunology, Vanderbilt University)

4:00 – 4:30 pm New grants: Review and discussion, establish action items, adjourn

5:00 – 8:00 pm Executive and Science & Data Quality Committee meeting *(Executive Board Room)*

5:00 – 5:45 Report for Executive Committee
5:46 – 6:30 Science and Data Quality Committee
6:30 – 7:00 Discussion & Recommendations
7:00 – 8:00 Dinner for committee

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Invited Scientists

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William B. Isaacs, PhD

Professor Urology and Oncology Johns Hopkins School of Medicine, Baltimore

Dr. Isaacs completed his undergraduate degree at Brown University and joined the Johns Hopkins staff as a lab technician for Donald Coffey, then director of the Brady Urological Research Laboratory. He received his doctorate from Johns Hopkins University in the Department of Pharmacology and Molecular Science. He left Hopkins to do a post-doctoral program at the University of Iowa, and returned in 1988 to join the faculty of the Department of Urology as professor of urology and oncology. He is the William Thomas Gerrard, Mario Anthony Duhon and Jennifer and John Chalsty Professor of Urology.

Dr. Isaacs is recognized as a leader in the field of hereditary prostate cancer research. He has won numerous national and international awards and is a member of Sigma Xi, the American Society for Cell Biology, the Society for Basic Urologic Research and the American Association for Cancer Research.

Dr. Isaacs' team is working to characterize consistent alterations in the structure and expression of the genome of human prostate cancer cells as a way to identify genes that are critical in the pathways of prostatic carcinogenesis. The goal of this research is to more effectively identify men at high risk for prostate cancer and to identify new prognostic and therapeutic markers that could lead to more effective management of this common disease. He and his team are interested in characterizing consistent alterations in the structure and expression of the genome of human prostate cancer cells as a means of identifying genes critical in the pathways of prostatic carcinogenesis. His team focuses on somatic genomic alterations occurring in sporadic prostate cancers, as well as germline variations which confer increases in prostate cancer risk. Both genome wide and candidate gene approached are being pursued, and cancer associated changes in gene expression analyses of normal and malignant prostate cells are being cataloged as a complementary approach in these efforts.

It is anticipated that this work will assist in providing more effective methodologies to identify men at high risk for this disease, in general, and in particular, to identify new markers of prognostic and therapeutic significance that could lead to more effective management of this common disease.

Find publications at http://urology.jhu.edu/williamisaacs/publications.php

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Nicole F. Steinmetz, PhD

Mt. Sinai Scholar and Assistant Professor of Biomedical Engineering, Case Western Reserve University School of Medicine, Cleveland

Dr. Steinmetz is Assistant Professor of Biomedical Engineering at Case Western Reserve University School of Medicine, Cleveland, OH, where she is leading a research laboratory interfacing of bio-inspired, molecular engineering approaches with medical research, technology development, and materials science. Recognizing the interdisciplinary nature of the research, Dr. Steinmetz holds secondary appointments in Radiology, Materials Science and Engineering, and Macromolecular Science and Engineering.
Dr. Steinmetz trained at The Scripps Research Institute, La Jolla, CA (AHA and NIH post-doctoral fellow), John Innes Centre, Norwich, UK (PhD in Bionanotechnology), and RWTH-Aachen University in Germany (Masters in Molecular Biotechnology).

The Steinmetz Lab's mission is to push to new frontiers in biomaterials science and medicine through design, development, and testing of novel nano-scale bio-inspired materials using plant virus-based scaffolds.

Cancer/Cardiovascular NanoTechnology: Her team's translational research focuses on the development of novel contrast agents and nanomedicines for diagnosis, prognosis, and therapeutic intervention in oncology and cardiovascular diseases.

BioNanoScience: Dr. Steinmetz group is studying and developing novel materials through bioengineering design and nanomanufacturing for applications in diagnostics, environmental sensing, and next-generation smart biomolecular materials.

Find publications at http://steinmetzlab.com/VNP_engineering/Publications.html

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Frank Wuest, PhD

Professor, Oncologic Imaging, University of Alberta

Dr. Frank Wuest studied chemistry at Technical University of Merseburg and Dresden University of Technology in Germany. He obtained his PhD in the field of radiopharmaceutical sciences in 1999. After his PhD, he did a post-doc with Dr. Michael Welch at the School of Medicine in St. Louis where he dealt with radiolabeled fatty acids for cardiac research. After his return to Germany in 2001, Dr. Frank Wuest became head of the PET Tracer Division of the Research Centre Dresden-Rossendorf. From 2001-2006 he was also head of the junior research group "Radiopharmceutical Chemistry" of the Research Centre Dresden-Rossendorf. Frank Wuest accomplished his habilitation thesis in biochemistry at Dresden University of Technology in 2006, where he also obtained the venia legendi for biochemistry. In 2008 he started as the Dianne and Irving Kipnes Chair in Radiopharmaceutical Sciences in the Department of Oncology at the University of Alberta. He was member of the local and international scientific committee for the organization of the 18th ISRS meeting in Edmonton in 2009.

Dr. Wuest's research interests are embedded in the multidisciplinary field of translational cancer research with special focus on the design, synthesis and radiopharmacological characterization of novel radiopharmaceuticals to optimize current diagnosis and treatment of cancer. Research activities are aimed at the evaluation and translation of the diagnostic and therapeutic potential of novel molecular targets and specific biochemical signatures associated with the development and progression of cancer. This especially involves the use of PET radiopharmaceuticals and pre-clinical small animal PET imaging for non-invasive assessment of cancer-related metabolic pathways and biochemical processes at the cellular and molecular level.

Current research activities include (1) the design, synthesis and characterization of novel molecular probes for targeting cyclooxygenase-2 (COX-2) and neuropeptide receptors in cancer, (2) the assessment and characterization of novel molecular targets for translational cancer research like GLUT5 and (3) the application of novel technologies for molecular imaging and therapy of cancer.

Find publications at http://apcari.ca/meet-the-team/frank-wuest-research-group/

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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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Christopher Cairo, PhD

Associate Professor Science & Chemistry, U of Alberta

Christopher Cairo is currently an Associate professor in the Department of Chemistry at the University of Alberta and a Principal Investigator in the Alberta Glycomics Centre (formerly the Alberta Ingenuity Centre for Carbohydrate Science or AI CCS). He received his PhD working with Dr. Laura Kiessling (U. of Wisconsin-Madison, member of the National Academy of Sciences) and did postdoctoral training with Dr. David Golan (Harvard Medical School).

His group uses biophysical and biochemical techniques to study the function of glycolipids and glycoprotein receptors involved in the activation of lymphocytes using both chemical and biochemical approaches.

The Cairo group has pioneered the development of chemical inhibitors that target the human neuraminidase enzymes. The human neuraminidase enzymes are upregulated in human cancers, and play crucial roles in signaling. Thus, specific inhibitors could form the basis of new therapeutics for cancer and diabetes. The group was the first to determine the active site topology and substrate specificity of NEU3, and has identified selective inhibitors for NEU2, NEU3, as well as the first reported nano molar inhibitors of NEU4.

The group is one of the only labs in the world to have assembled assays that allow for testing of new inhibitors in all four human isoenzyme systems – opening the door to development of new therapeutics and safety testing of antivirals. Dr. Cairo's group is funded by NSERC, CIHR, and the AGC.

Find Publications at http://www.chem.ualberta.ca/~cairo/publications.html

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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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