BIOGRAPHICAL SKETCH

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NAME: Adrian Shea Ishkanian

eRA COMMONS USER NAME: Ishkana

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Cornell University, Ithaca, NY	BSc	12/1996	Biology
University of British Columbia, Vancouver, BC CANADA	MSc	06/2001	Pathology and Laboratory Medicine
University of British Columbia, Vancouver BC CANADA	MD	05/2006	Medicine
University of Toronto, Princess Margaret Hospital, Toronto, ON CANADA	Residency	06/2011	Radiation Oncology
University of Toronto, Toronto, ON CANADA	Fellowship	08/2012	Radiation Oncology

A. Personal Statement

I have recently been recruited out of residency to the Sylvester Comprehensive Cancer Center as a Clinician Scientist and currently have 70% protected time for research. I have expertise in genomics and translational Radiation Oncology as evidenced by 11 publications in the field including a 2014 first author publication in Lancet Oncology, and current involvement as co-investigator on two ongoing R-01 funded projects in this field. My laboratory is currently investigating the use of radiation in combination with immunotherapy in collaboration with Dr. Gilboa, a world leader in cancer immunology and Director of the Dodson Interdisciplinary Immunotherapy Institute in the Department of Immunology. This collaboration is focused on the development of novel combinatorial strategies for rapid Phase I development. My track record in successful technology development, NIH funding and publication record along with a sound collaboration with the Department of Immunology provides me with the expertise and support necessary to carry out the proposal described herein.

B. Positions and Honors

Positions and Employment

2011-2012 Fellow, Department of Radiation Oncology, Sunnybrook Hospital, University of Toronto, Toronto, ON
2012- Assistant Professor, Department of Radiation Oncology, Sylvester Comprehensive Cancer Center, University of Miami, Miami, FL.

Other Experience and Professional Memberships

2002- Member, Ontario Medical Association (OMA)
2002- Member, Canadian Medical Association (CMA)
2006- Member, Canadian Association of Radiation Oncology (CARO)
2006- Member, American Society for Therapeutic Radiology and Oncology (ASTRO)
2011- Fellow of the Royal College of Physicians and Surgeons of Canada (RCPSC)
2012- Member, American Medical Association (AMA)

2012- Member, Radiation Therapy Oncology Group (ROTG)
2012- Reviewer, International Journal of Radiation Oncology Biology Physics
2013- Reviewer, Radiation Research Journal
2013- Member of the Sylvester Comprehensive Cancer Center

Honors

2000 Rix Studentship. Department of Pathology, University of British Columbia, Vancouver, BC, Canada. 2001
2001 Lze Fong Memorial Fellowship. Department of Pathology, University of British Columbia, Vancouver, BC, Canada.
2001 Natural Sciences and Engineering Research Council of Canada (NSERC) PGS B scholarship. Department of Pathology, University of British Columbia, Vancouver, BC, Canada.
2008 Novartis Oncology Young Canadian Investigator Award. American Society of Clinical Oncology (ASCO).
2008 W.J. Simpson award for Excellence in Research by a Resident. Princess Margaret Hospital, Department of Radiation Oncology. Toronto, ON, Canada.
2008 Award for Overall Excellence in Radiation Research by a Post Graduate Trainee. Princess Margaret Hospital, Department of Radiation Oncology. Toronto, ON, Canada.
2009 W.J. Simpson award for Excellence in Research by a Resident. Princess Margaret Hospital, Department of Radiation Oncology. Toronto, ON, Canada.
2009 Award for Overall Excellence in Radiation Research by a Post Graduate Trainee. Princess Margaret Hospital, Department of Radiation Oncology. Toronto, ON, Canada.
2009 Winner: Best Resident Oral Presentation. Canadian Association of Radiation Oncology (CARO) Annual Scientific Meeting. Quebec City, QC, Canada.
2012 Winner: American Radium Society Travel Grant. American Radium Society's 94th Annual Meeting. Las Vegas, NV.

C. Contribution to Science

1) My graduate studies focused on the use of novel genomic technologies in oncology. My main contribution was development of the first human comparative genomic hybridization array platform with complete coverage of the genome. This work was published in Nature Genetics, and derivations of this platform are still in use throughout the world for analysis of DNA alterations in a variety of solid tumor malignancies.

a) **Ishkanian AS**, Malloff CA, Watson SK, DeLeeuw RJ, Chi B, Coe BP, Snijders A, Albertson DG, Pinkel D, Marra MA, Ling V, MacAulay C, Lam WL. A tiling resolution DNA microarray with complete coverage of the human genome. Nat Genet. Mar;36(3):299-303, 2004.
b) Garnis C, Coe BP, **Ishkanian AS**, Zhang L, Rosin MP, Lam WL. Novel regions of amplification on 8q distinct from the MYC locus and frequently altered in oral dysplasia and cancer. Genes Chromosomes Cancer. Jan;39(1):93-8, 2004.
c) Watson SK, DeLeeuw RJ, **Ishkanian AS**, Malloff CA, Lam WL. Methods for high throughput validation of amplified fragment pools of BAC DNA for constructing high resolution CGH arrays. BMC Genomics. Jan 14;5(1):6, 2004.

2) My residency research work focused on application of genomic technology for improving patient stratification in intermediate risk prostate cancer. While this patient cohort is treated almost uniformly with either radiation or surgery, outcomes are significantly variable, suggesting novel biomarkers for response are required. My work has led to the most accurate risk classification system for patients undergoing radiation for intermediate risk prostate cancer. It has also led to 2 ongoing multi-institutional R01 funded projects investigating the utility of combining genomics with MRI ("radiomics") to improve risk stratification in this disease.

a) **Ishkanian AS**, Mallof C, Ho J, Meng A, Albert M, Syed A, van der Kwast T, Milosevic M, Yoshimoto M, Squire J, Lam WL, Bristow RG. High Resolution Array CGH Identifies Novel Regions of Genomic Alteration in Intermediate-Risk Prostate Cancer. Prostate. Jul 1;69(10):1091-100, 2009.
b) **Ishkanian AS**, Zafarana G, Thoms J, Bristow RG. Array CGH as a potential predictor of radiocurability in intermediate risk prostate cancer. Acta Oncol. 2010 Oct;49(7):888-94.
c) Dal Pra A, Lalonde E, Sykes J, Warde F, **Ishkanian A**, Meng A, Maloff C, Srigley J, Joshua AM, Petrovics G, van der Kwast T, Evans A, Milosevic M, Saad F, Collins C, Squire J, Lam W, Bismar TA, Boutros PC, Bristow RG. TMPRSS2-ERG Status is Not Prognostic Following Prostate Cancer

Radiotherapy: Implications for Fusion Status and DSB Repair. Clin Cancer Res. 2013 Sep 15;19(18):5202-5209. Epub 2013 Aug 5.

d) Lalonde, E*, **Ishkanian AS***, Sykes A, Fraser M, Ross-Adams H, Erho N, Dunning MJ, et al. Tumour genomic and microenvironmental heterogeneity for integrated prediction of 5-year biochemical recurrence of prostate cancer: a retrospective cohort study. The Lancet Oncology 2014 2014 Dec;15(13):1521-32.* co-first author.

3) My laboratory is now focused on investigating the mechanism of interaction between radiotherapy and the immune system. I am actively pursuing three main lines of research: 1) the use of radiation as a novel vaccination strategy for combinatorial therapy with immunomodulatory monoclonal antibodies 2) the development of radiation inducible ligands for targeted delivery of immunomodulatory monoclonal antibodies, and 3) the use and development of immunomodulatory oligonucleotide aptamers for cancer therapy.

a) Brenneman R, Sullivan EJ, Berezxhonoy A, Ishkanian F, Gilboa E, Pollack A, **Ishkanian A**. 4-1BB Aptamer-Based Immunomodulation Enhances the Efficacy of Ionizing Radiation in a Preclinical Murine Tumor Model. Int J Rad Onc Biol Phys Sept 1 (90)1:s176, 2014.

Complete List of Published Work in My Bibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/1HIne6yxoF2AL/bibliography/47390881/public/?sort=date&direction=ascending.

D. Research Support

Ongoing Research Support

Institutional Startup Funds Ishkanian (PI) 10/01/12-10/01/16
These funds are guaranteed by the Cancer Center for all expenditures related to starting a new laboratory at the Unversity of Miami. This includes but is not limited to all consumables, equipment and personnel. Expenditures are at the discretion of Dr. Ishkanian pending approval from the institution.
Role: PI

Stanley J. Glaser Foundation Research Award Ishkanian (PI) 06/20/14-06/20/14
Immunotherapeutic strategies to enhance the efficacy of ionizing radiation for cancer therapy.
The goal of this study is to develop *in vivo* model systems to investigate and optimize strategies for combining radiotherapy with the oligonucleotide aptamer to 4-1BB.
Role: PI

1R01 CA189295-01 Pollack (PI) 08/01/14-07/31/19
MRI Imaging and Genetic Signatures to Manage Prostate Cancer Overdiagnosis
To investigate the use of novel multiparametric MRI (MP-MRI) techniques (i) for quantitative MP-MRI parameters to define “habitats” within the prostate; (ii) to guide prostate biopsies to MP-MRI defined habitat’s using MRI fused to real-time 3D-ultrasound (MRIus-directed biopsies) or direct MRI-guided biopsies, in addition to more standard spatial biopsy arrangements; and (iii) the development of signatures based on high throughput analysis of imaging features (radiomics) that will be associated with biopsy oligonucleotide gene expression signatures to inform on the molecular characteristics associated with imaging signatures (radiogenomics).
Role: Co-Investigator

1R01CA190105-01 (Gillies & Pollack PI) 09/19/14-08/31/18
(PQC4) Habitats in Prostate Cancer
The singular goal of the current work is to develop predictive models that define the interrelationship between imaging and “cytotypes” from prostate biopsies based on profound image analyses ("radiomics") in combination with quantitative histology and immunohistochemistry from spatially co-registered volumes; thus defining the "cytotypes" giving rise to MR image data.
Role: Co-Investigator

R01CA163370-02 NIH-NCI Mihaylov (PI) 05/01/12-04/30/18
Principal Investigator: Dr. Ivaylo
Improving Cancer Treatment Planning by DMH-Based Inverse Optimization

The goal of the proposed research is to pave the road for a novel, dose-mass-histogram (DMH) based, inverse optimization for radiotherapy treatment planning. This novel optimization methodology will be applied for treatment planning for different anatomical sites. Successful development and validation of the proposed research will provide a general framework for generation of radiotherapy treatment plans, with substantially lower doses to healthy tissue, compared to current standard of care, realized through DVH- optimization.
Role: Co-Investigator

Completed Grant Funding:

Florida Prostate Cancer Research Consortium 04/01/13-03/3114
Multi-Institutional Multi-Modality Modelling of High Risk Prostate Cancer.
Role: Co-Investigator

Source: Florida Prostate Cancer Research Consortium 04/01/13-03/3114
Biomarker-assisted Nomogram for predicting aggressiveness of prostate cancer among racial and ethnic groups
Role: Co-Investigator