

Luke Christopher Swenson, Ph.D.

Curriculum vitae
January 2016

CURRENT POSITION

MD Student, University of Toronto

SUMMARY OF RESEARCH INTERESTS

I have an interest in translational research in precision medicine using human and pathogen genetics. Much of my research has been on the use of next-generation DNA sequencing technology to predict clinical responses to antiviral treatment. I have expertise in HIV coreceptor usage and antiretroviral drug resistance. I am also interested in human and viral genetics, the consequences of persistent HIV viraemia, and public health and epidemiology.

EDUCATION

M.D.		University of Toronto	2018
Ph.D.	Experimental Medicine	University of British Columbia	2014
B.Sc.	Neuroscience	University of British Columbia	2008

PUBLICATIONS

REFEREED JOURNAL ARTICLES

Total Publications: 30, Citations: 784, H-index: 14, i10-index: 19

2015

Goedert JJ, **Swenson LC**, Napolitano L, Haddad M, Anastos K, Minkoff H, Young M, Levine A, Adeyemi O, Seaberg EC, Aouizerat B, Rabkin CS, Harrigan PR, Hessol NA. Risk of Breast Cancer with CXCR4-Using HIV Defined by V3 Loop Sequencing. *Journal of Acquired Human Immune Deficiency Syndromes* 2015; 68(1): 30-35. PMID: 25321183. Journal Impact Factor: 4.394.

Surdo M, Alteri C, Puertas MC, Saccomandi P, Parrotta L, **Swenson LC**, Chapman D, Costa G, Artese A, Balestra E, Aquaro S, Alcaro S, Lewis M, Clotet B, Harrigan PR, Valdez H, Svicher V, Perno CF, Martinez-Picado J, Ceccherini-Silberstein F. Effect of Maraviroc on “non-R5”-tropic HIV-1: a refined analysis of patients from the phase IIb study A4001029. *Clinical Microbiology and Infection* 2015; 21(1): 103.e1–103.e6. Journal Impact Factor: 5.197.

2014

Swenson LC, Min JE, Woods CK, Cai E, Li JZ, Montaner JS, Harrigan PR, Gonzalez-Serna A. HIV drug resistance detected during low-level viraemia is associated with subsequent virologic failure. *AIDS* 2014; 28(8): 1125-1134. PMID: 24451160. Journal Impact Factor: 6.407.

Swenson LC, Cobb B, Geretti AM, Harrigan PR, Poljak M, Seguin-Devaux C, Verhofstede C, Wirlden M, Amendola A, Boni J, Bourlet T, Huder JB, Karasi JC, Lepej SZ, Lunar MM, Mukabayire O, Schuurman R, Tomažič J, Van Laethem K, Vandekerckhove L, Wensing AMJ, for the International Viral Load Assay Collaboration. Comparative performances of HIV-1 RNA load assays at low viral load levels: Results of an international collaboration. *Journal of Clinical Microbiology* 2014; 52(2): 517-523. PMID: 24478482. Journal Impact Factor: 4.068.

Gonzalez-Serna A, Min JE, Woods C, Chan D, Lima VD, Montaner JSG, Harrigan PR, **Swenson LC**^s. Performance of HIV-1 Drug Resistance Testing at Low Level Viraemia and Its Ability to Predict Future Virological Outcomes and Viral Evolution in Treatment-Naive Individuals. *Clinical Infectious Diseases* 2014; 58(8): 1165-1173. PMID: 24429436. Journal Impact Factor: 9.374.

Knapp DJHF, McGovern RA, Poon AFY, Zhong X, Chan D, **Swenson LC**, Dong W, Harrigan PR. "Deep" Sequencing Accuracy and Reproducibility Using Roche/454 Technology for Inferring Co-Receptor Usage in HIV-1. *PLoS ONE* 2014, 9(6): e99508. PMID: 24959876. Journal Impact Factor: 3.730.

Liang RH, Mo T, Dong W, Lee GQ, **Swenson LC**, McCloskey RM, Woods CK, Brumme CJ, Ho CKY, Schinkel J, Joy JB, Harrigan PR, Poon AFY. Theoretical and experimental assessment of degenerate primer tagging in ultra-deep applications of next-generation sequencing. *Nucleic Acids Research* 2014, 42(12): e98. PMID: 24810852. Journal Impact Factor: 8.278.

2013

Swenson LC, Dong WWY, Mo T, Demarest J, Chapman D, Ellery S, Heera J, Valdez H, Poon AFY, Harrigan PR. Use of Cellular HIV DNA to Predict Virologic Response to Maraviroc: Performance of Population-based and Deep Sequencing. *Clinical Infectious Diseases* 2013; 56(11): 1659-1666. PMID: 23429552. Journal Impact Factor: 9.374.

Swenson LC, Chui CKS, Brumme CJ, Chan D, Woods CK, Mo T, Dong W, Chapman D, Lewis M, Demarest JF, James I, Portsmouth S, Goodrich J, Heera J, Valdez H, Harrigan PR. Genotypic Analysis of the HIV V3 Region in Virologic Non-Responders to Maraviroc-containing Regimens Reveals Distinct Patterns of Failure. *Antimicrobial Agents and Chemotherapy* 2013; 57(12): 6122-6130. PMID: 24080655. Journal Impact Factor: 4.565.

Tu E*, **Swenson LC***, Land S, Pett S, Emery S, Marks K, Kelleher A, Kaye S, Kaiser R, Schuelter E, Harrigan PR, on behalf of the MARCH laboratory group and the MARCH study group. Results of the External Quality Assurance (EQA) for Proviral DNA Testing of HIV Tropism in the Maraviroc Switch Collaborative Study (MARCH). *Journal of Clinical Microbiology* 2013; 51(7): 2063-71. PMID: 23596247. Journal Impact Factor: 4.068.

Tu E*, **Swenson LC***, Land S, Pett S, Emery S, Marks K, Kelleher A, Kaye S, Kaiser R, Schuelter E, Harrigan PR. Reply to "Issues on Results of the External Quality Assessment for Proviral DNA Testing of HIV-1 Tropism in the Maraviroc Switch Collaborative Study". *Journal of Clinical Microbiology* 2013; 51(12): 4287. PMID: 24243995. Journal Impact Factor: 4.068.

McLaughlin S, **Swenson LC**, Hu S, Hughes P, Harrigan PR, Coombs RW, Frenkel LM. Development of a Novel Codon-Specific PCR for the detection of CXCR4-Utilizing HIV-1 Subtype B. *AIDS Research and Human Retroviruses* 2013; 29(5): 814-825. PMID: 23343425. Journal Impact Factor: 2.705.

Knapp D, McGovern R, Dong W, Poon A, **Swenson LC**, Zhong X, Woods C, Harrigan PR. Factors influencing the sensitivity and specificity of conventional sequencing in Human Immunodeficiency Virus-1 tropism testing. *Journal of Clinical Microbiology* 2013; 51(2): 444-451. PMID: 23175258. Journal Impact Factor: 4.068.

2012

Swenson LC, Däumer M, Paredes R. Next-Generation Sequencing to Assess HIV Tropism. *Current Opinion in HIV and AIDS* 2012; 7(5): 478-485. PMID: 22832710. Journal Impact Factor: 4.704.

Poon AFY, **Swenson LC**, Bunnik EM, Edo-Matas D, Schuitemaker H, van 't Wout AB, Harrigan PR. Reconstructing the dynamics of HIV evolution within hosts from serial deep sequence data. *PLoS Computational Biology* 2012; 8(11): e1002753. PMID: 23133358. Journal Impact Factor: 4.867.

Lee GQ, **Swenson LC**, Poon AFY, Martin JN, Hatano H, Deeks SG, Harrigan PR. Prolonged and Substantial Discordance in Prevalence of Raltegravir-resistant HIV-1 in Plasma versus PBMC Samples Revealed by 454 "Deep" Sequencing. *PLoS ONE* 2012, 7(9): e46181. PMID: 23049972. Journal Impact Factor: 3.730.

Brumme CJ, **Swenson LC**, Wynhoven B, Yip B, Skinner S, Lima VD, Montaner JSG, Harrigan PR. Technical and regulatory shortcomings of the TaqMan version 1 HIV viral load assay. *PLoS ONE* 2012; 7(8): e43882. PMID: 22937116. Journal Impact Factor: 3.730.

Cheung PK, Harrigan, PR, Lee GQ, **Swenson LC**. Assessment of HIV-1 tropism using genotypic approaches. *Hot Topics in HIV and Other Retroviruses* 2012; 2(3): 7-13.

2011

Swenson LC, Mo T, Dong WWY, Zhong X, Woods CK, Thielen A, Jensen MA, Knapp DJHF, Chapman D, Portsmouth S, Lewis M, James I, Heera J, Valdez H, Harrigan PR. Deep V3 Sequencing for HIV Type 1 Tropism in Treatment-Naïve Patients: A Reanalysis of the MERIT Trial of Maraviroc. *Clinical Infectious Diseases* 2011; 53(7): 732-742. PMID: 21890778. Journal Impact Factor: 9.374.

Swenson LC, Mo T, Dong WWY, Zhong X, Woods CK, Jensen MA, Thielen A, Chapman D, Lewis M, James I, Heera J, Valdez H, Harrigan PR. Deep Sequencing to Infer HIV-1 Co-Receptor Usage: Application to Three Clinical Trials of Maraviroc in Treatment-Experienced Patients. *Journal of Infectious Diseases* 2011; 203(2): 237-245. PMID: 21288824. Journal Impact Factor: 5.848.

Swenson LC, Pollock G, Wynhoven B, Mo T, Dong W, Hogg RS, Montaner JS, Harrigan PR. "Dynamic range" of inferred phenotypic HIV drug resistance values in clinical practice. *PLoS One*. 2011 Feb 24;6(2):e17402. PMID: 21390218. Journal Impact Factor: 3.730.

Swenson LC, Harrigan PR. Reply to Abbate et al. *Journal of Infectious Diseases* 2011; 204(6): 973-974. Journal Impact Factor: 5.848.

Bunnik EM, **Swenson LC**, Edo-Matas D, Huang W, Dong W, Frantzell A, Petropoulos CJ, Coakley E, Schuitemaker H, Harrigan PR, van 't Wout AB. Detection of Inferred CCR5- and CXCR4-Using HIV-1 Variants and Evolutionary Intermediates Using Ultra-Deep

Pyrosequencing. *PLoS Pathogens* 2011; 7(6): e1002106. PMID: 21731496. Journal Impact Factor: 8.136.

Thielen A, Lengauer T, **Swenson LC**, Dong WWY, McGovern RA, Lewis M, James I, Heera J, Valdez H, Harrigan PR. Mutations in gp41 are correlated with coreceptor tropism but do not improve prediction methods substantially. *Antiviral Therapy* 2011; 16(3): 319-28. PMID: 21555814. Journal Impact Factor: 3.073.

2010

Swenson LC, Moores A, Low AJ, Thielen A, Dong W, Woods C, Jensen MA, Wynhoven B, Chan D, Glascock C, Harrigan PR. Improved Detection of CXCR4-Using HIV by V3 Genotyping: Application of Population-based and 'Deep' Sequencing to Plasma RNA and Proviral DNA. *Journal of Acquired Immune Deficiency Syndromes* 2010; 54(5): 506-510. PMID: 20512044. Journal Impact Factor: 4.653.

Swenson LC, Boehme R, Thielen A, McGovern RA, Harrigan PR. Genotypic determination of HIV-1 tropism in the clinical setting. *HIV Therapy* 2010; 4(3): 293-303.

McGovern RA, Harrigan PR, **Swenson LC**[§]. Genotypic Inference of HIV-1 Tropism Using Population-based Sequencing of V3. *Journal of Visualized Experiments* 2010; 46: e2531. Available at: <http://www.jove.com/video/2531>. PMID: 21248683.

Poon AFY, **Swenson LC**, Dong WWY, Deng W, Kosakovsky Pond SL, Brumme ZL, Mullins JI, Richman DD, Harrigan PR, Frost SDW. Phylogenetic Analysis of Population-Based and Deep Sequencing Data to Identify Coevolving Sites in the nef Gene of HIV-1. *Molecular Biology and Evolution* 2010; 27: 819-832. PMID: 19955476. Journal Impact Factor: 10.353.

2009

Brumme ZL, John M, Carlson JM, Brumme CJ, Chan D, Brockman MA, **Swenson LC**, Tao I, Szeto S, Rosato P, Sela J, Kadie CM, Frahm N, Brander C, Haas DW, Riddler SA, Haubrich R, Walker BD, Harrigan PR, Heckerman D, Mallal S. HLA-Associated Immune Escape Pathways in HIV-1 Subtype B Gag, Pol and Nef Proteins. *PLoS ONE* 2009; 4(8): e6687. PMID: 19690614. Journal Impact Factor: 3.730.

2008

Low AJ, **Swenson LC**, Harrigan PR. HIV co-receptor phenotyping in the clinical setting. *AIDS Reviews* 2008; 10(3): 143-51. PMID: 18820716. Journal Impact Factor: 4.075.

* Joint first-author papers [§] Senior author papers

INVITED PRESENTATIONS

A complete list of Conference Proceedings may be found at the end of the Curriculum Vitae

- 2015**
Cardiovascular Disease in HIV-Positive Patients in the Maple Leaf Medical Clinic. Women's College Research Institute Summer Student Research Day. Toronto, Ontario. July 23, 2015.
- 2014**
Knowledge and Technology Transfer in Host/Viral Genotyping and Bioinformatics. Annual Meeting of the CANSSA HIV/AIDS Network, Umhlanga, South Africa. June 19, 2014.
- 2013**
Personalized Medicine in HIV Treatment. November 13, 2013. University of KwaZulu-Natal, Durban, South Africa.
Automated Sequence Analysis Using RECall. November 7, 2013. University of KwaZulu-Natal, Durban, South Africa.
HIV Drug Resistance Occurring During Low-Level Viremia Is Associated with Subsequent Virologic Failure. International Workshop on HIV & Hepatitis Virus Drug Resistance and Curative Strategies. June 4-8, 2013. Toronto, Ontario.
Independent Replication Shows High Inter-Laboratory Concordance in Next Generation Sequencing for HIV Minority Species Detection. 22nd Annual Canadian Conference on HIV/AIDS Research (CAHR 2013). April 11-14, 2013. Vancouver, BC.
- 2012**
Plenary: Performance of 14 Laboratories on External Quality Assessment for HIV Tropism Testing in the MARCH Study. Kirby Institute International Clinical Research Meeting, AIDS 2012. July 25, 2012, Washington, D.C.
- 2011**
Community Perspectives on HIV Criminalization and Forced Testing: What are the Implications for Gay Men's Health? Panel Discussion. BC Gay Men's Health Summit 7. November 3-4, 2011. Vancouver, BC.
- 2010**
Genotypic Analysis of V3 in Patients Experiencing Virologic Failure on Maraviroc-containing Regimens and Correlation with Pre-treatment "Deep" Sequencing Results. International HIV & Hepatitis Virus Drug Resistance Workshop and Curative Strategies. June 8-12, 2010. Dubrovnik, Croatia.
Experience with Genotypic Testing for HIV Tropism. British Columbia HIV/AIDS Therapeutic Guidelines Committee. March 31, 2010. Vancouver, BC.
Large-Scale Application of "Deep" Sequencing Using 454 Technology to HIV Tropism Screening. Conference on Retroviruses and Opportunistic Infections, February 16-19, 2010. San Francisco, CA.
- 2009**
Measurement of Low-level Drug-resistance Mutations Using Deep Sequencing Technology upon Restarting HAART. Conference on Retroviruses and Opportunistic Infections, February 8-11, 2009. Montreal, QC.

TEACHING EXPERIENCE

- Training of two graduate students from South Africa as part of successful pilot grant. **2013-2014**
Training in next-generation sequencing by 454 GS Jr and Illumina MiSeq. Additional training in use of base-calling software RECall; and in host HLA genotyping.
- Guest Lecturer, IHHS 402: HIV Prevention and Care. Lectured on HIV life cycle, therapeutics, resistance, genotypic testing, and laboratory science. **2012**
- Trained and supervised two Co-Op students, and three medical students. Instructed in laboratory skills (PCR, sequencing, next-generation sequencing, sequence analysis), and manuscript preparation. **2007-2011**

RESEARCH EXPERIENCE

- Medical Student, University of Toronto **2015**
Principal Investigator: Mona Loutfy
- Graduate Student, University of British Columbia **2008-2014**
Principal Investigator: P. Richard Harrigan
- Research Assistant, British Columbia Centre for Excellence in HIV/AIDS **2007-2008**
Principal Investigator: P. Richard Harrigan
- Research Assistant, Cellular Neurophysiology Laboratory, UBC **2006-2007**
Principal Investigator: Brian R. Christie

SERVICE TO PROFESSION

- Peer Reviewer – Clinical Infectious Diseases **2015 - Present**
- Peer Reviewer – AIDS Research and Human Retroviruses **2014 - Present**
- Peer Reviewer – Journal of Antimicrobial Chemotherapy **2013 - Present**
- Peer Reviewer – PLoS ONE **2012 - Present**
- Peer Reviewer – Expert Review of Anti-infective Therapy **2013 - Present**
- Associate Editor – University of Toronto Medical Journal **2014 - 2015**
- Grant Reviewer – HERCULES Program for Medium-Sized Research Infrastructure, University of Ghent, Belgium **2013**

AWARDS AND HONOURS

Heart and Stroke Foundation of Canada & Comprehensive Research Experience for Medical Students	2015
Michael Gregg Memorial Scholarship	2015
Walter F. Watkins Scholarship	2015
Canada-Sub Saharan Africa HIV/AIDS Network Pilot Grant	2013-2014
Canadian Institutes of Health Research (CIHR) Frederick Banting and Charles Best Canada Graduate Scholarship - Doctoral Award	2010-2013
CROI Young Investigator Awards	2009-2014
UBC Faculty of Medicine Graduate Award	2011-2013
Young Scientist Scholarships, International HIV & Hepatitis Virus Drug Resistance Workshop	2010, 2013
University of British Columbia Four Year Doctoral Fellowship	2009-2012
The Canadian Observational Cohort (CANOC) Studentship Award	2009-2011
UBC Ph.D. Tuition Fee Award	2009-2011
National Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Scholarship	2008-2009
ICAAC ASM Student and Post-Doctoral Fellow Travel Grant	2009
UBC Graduate Entrance Scholarship	2008
UBC Trek Excellence Scholarship for Continuing Students	2007-2008
Canada Millennium Scholarship Foundation Excellence Award	2004-2005
UBC Undergraduate Scholar Program Scholarship	2004-2005
British Columbia Government Scholarship	2004

CONFERENCE PROCEEDINGS

Total number of peer-reviewed, scientific abstracts: 51

C Brumme, VD Lima, A Gonzalez-Serna, **LC Swenson**, T Lynch, J Gill, PR Harrigan. Many low level viral load values are likely assay false positive results rather than genuine “blips” in viremia. 24th Annual Canadian Conference on HIV/AIDS Research (CAHR 2015). April 30 - May 3, 2015. Toronto, ON, Canada. **2015**

A Gonzalez-Serna, **LC Swenson**, A Nohpal, B Watson, K Auyeung, JSG Montaner, PR Harrigan. Untimed Drug Levels and Resistance in Patients Experiencing Low-Level HIV Viremia. 22nd Conference on Retroviruses and Opportunistic Infections (CROI 2015). February 23-26, 2015.

S Land, G Vincini, **LC Swenson**, PR Harrigan. External Quality Assessment for HIV Coreceptor Tropism Testing. 20th International AIDS Conference (AIDS 2014). July 20-25, 2014. Melbourne, Australia. **2014**

PK Cheung, **LC Swenson**, CJ Brumme, L Barrios, PR Harrigan. Characterization of a Key Region of the gp120 V3 Loop that Confers Noncompetitive Resistance to Maraviroc. 23rd Annual Canadian Conference on HIV/AIDS Research (CAHR 2014). May 1-4, 2014. St. John's, NL, Canada.

LC Swenson, W Dong, CKS Chui, C Woods, M Robbins, A Gonzalez-Serna, A Karakas, A Poon, CJ Brumme, PR Harrigan. Tropism Testing by MiSeq Is Comparable to 454-Based Methods but Exhibits Contamination Issues. 21st Conference on Retroviruses and Opportunistic Infections (CROI 2014). March 3-6, 2014. Boston, MA, USA.

A Gonzalez-Serna, CJ Brumme, W Dong, E Cai, A Poon, KD Huber, N Sluis-Cremer, EE Paxinos, **LC Swenson**, PR Harrigan. A Proposed HIV Reference Sample Characterized by Three Next-Generation Sequencing Platforms. 21st Conference on Retroviruses and Opportunistic Infections (CROI 2014). March 3-6, 2014. Boston, MA, USA

LC Swenson, A Gonzalez-Serna, J Min, CK Woods, JZ Li, PR Harrigan. HIV Drug Resistance Occurring During Low-Level Viremia Is Associated with Subsequent Virologic Failure. International Workshop on HIV & Hepatitis Virus Drug Resistance and Curative Strategies. June 4-8, 2013. Toronto, ON, Canada. **2013**

S Land, E Tu, **L Swenson**, A Kelleher, S Kaye, SL Pett, R Kaiser, D Silk, N Berthon-Jones, S Emery, PR Harrigan, for the MARCH Study Laboratory Group. Proviral DNA Testing of HIV Tropism in the Maraviroc Switch Collaborative Study (MARCH) – Results of a Three-Phase Quality Assurance (QA). International Workshop on HIV & Hepatitis Virus Drug Resistance and Curative Strategies. June 4-8, 2013. Toronto, ON, Canada.

LC Swenson, CJ Brumme, RM Kagan, PR Harrigan. Independent Replication Shows High Inter-Laboratory Concordance in Next-Generation Sequencing for HIV Minority Species

Detection. 22nd Annual Canadian Conference on HIV/AIDS Research (CAHR 2013). April 11-14, 2013. Vancouver, BC, Canada.

A Gonzalez-Serna, J Min, C Woods, V Lima, JS Montaner, PR Harrigan, **LC Swenson**. Clinical Relevance of HIV Drug Resistance Testing at Low Viral Load. 22nd Annual Canadian Conference on HIV/AIDS Research (CAHR 2013). April 11-14, 2013. Vancouver, BC, Canada.

R Liang, T Mo, W Dong, G Lee, **L Swenson**, R McCloskey, C Woods, C Brumme, PR Harrigan, A Poon. Impact of Experimental Conditions on the Utility of "Primer ID" Tagging for Next-Generation HIV Sequencing. 22nd Annual Canadian Conference on HIV/AIDS Research (CAHR 2013). April 11-14, 2013. Vancouver, BC, Canada.

A Gonzalez-Serna, J Min, C Woods, J Li, PR Harrigan, **LC Swenson**. Low Level HIV Viremia and Drug Resistance. 20th Conference on Retroviruses and Opportunistic Infections (CROI 2013). March 3-6, 2013. Atlanta, GA, USA.

R Liang, T Mo, W Dong, G Lee, **L Swenson**, R McCloskey, C Woods, C Brumme, PR Harrigan, A Poon. Impact of Experimental Conditions on the Utility of "Primer ID" Tagging for Next-Generation HIV Sequencing. 20th Conference on Retroviruses and Opportunistic Infections (CROI 2013). March 3-6, 2013. Atlanta, GA, USA.

A Gonzalez-Serna, J Min, C Woods, JS Montaner, PR Harrigan, **LC Swenson**. Drug Resistance Testing at HIV-1 Low Level Viraemia Predicts Future Virological Outcomes. HIV DART. December 4-7, 2012. San Diego, CA, USA. **2012**

E Tu, **L Swenson**, S Land, A Kelleher, S Kaye, SL Pett, R Kaiser, D Silk, N Berthon-Jones, S Emery, PR Harrigan for the MARCH Study Laboratory Group. Proviral DNA Testing of HIV Tropism in the Maraviroc Switch Collaborative Study (MARCH). Australasian HIV/AIDS Conference. October 17-19, 2012. Melbourne, Australia.

LC Swenson, W Dong, T Mo, JJ Taylor, L Barrios, C Woods, D Chan, PR Harrigan. Routine Deep Sequencing Using a 454 GS-Junior Instrument for HIV Tropism Determination in the Clinical Setting. 21st Annual Canadian Conference on HIV/AIDS Research (CAHR 2012). April 19-22, 2012. Montreal, QC, Canada.

LC Swenson, PR Harrigan, EM Bunnik, H Schuitemaker, AB van 't Wout. Deep V3 Sequencing Indicates Ongoing CXCR4 Evolution in the Period Following a Phenotypic Tropism Change. 19th Conference on Retroviruses and Opportunistic Infections (CROI 2012). March 5-8, 2012. Seattle, WA, USA.

S McLaughlin, P Hughes, S Hu, **L Swenson**, R Coombs, R Harrigan, L Frenkel. Optimization of a Novel Codon-Specific PCR-Based Assay to Detect CXCR4-Utilizing HIV-1 Subtype B Variants. 19th Conference on Retroviruses and Opportunistic Infections (CROI 2012). March 5-8, 2012. Seattle, WA, USA.

AFY Poon, **L Swenson**, D Edo-Matas, EM Bunnik, H Schuitemaker, AB van 't Wout, PR Harrigan. Timing the Emergence of Predicted CXCR4-Using HIV Variants within Patient Compartments by the Coalescent Analysis of V3 Deep Sequence Data. International HIV & Hepatitis Virus Drug Resistance Workshop and Curative Strategies. June 7-11, 2011. Los Cabos, Mexico. **2011**

LC Swenson, R McGovern, I James, J Demarest, D Chapman, S Ellery, J Heera, H Valdez, R Harrigan, A Poon. Genotypic Analysis of Cellular HIV V3 DNA to Predict Virologic Response to Maraviroc: Performance of Population-based and 454 Deep V3 Sequencing. 18th Conference on Retroviruses and Opportunistic Infections (CROI 2011). February 27 – March 3, 2011. Boston, MA, USA.

R Harrigan, C Sherlock, R Hogg, B Wynhoven, C Chui, **LC Swenson**, V Lima, J Montaner. What Should Be the Primary Virological Endpoint in Clinical Trials of ARV Efficacy? 18th Conference on Retroviruses and Opportunistic Infections (CROI 2011). February 27 – March 3, 2011. Boston, MA, USA.

J Heera, R Harrigan, M Lewis, D Chapman, P Biswas, **L Swenson**, S Portsmouth, H Valdez. Predicting MVC Responses According to Absolute Number vs Proportion of CXCR-4 Using Virus among Treatment-experienced Patients. 18th Conference on Retroviruses and Opportunistic Infections (CROI 2011). February 27 – March 3, 2011. Boston, MA, USA.

LC Swenson, D Knapp, PR Harrigan. Calibration and Accuracy of the Geno2pheno Coreceptor Algorithm for Predicting HIV Tropism for Single and Triplicate Measurements of V3 Genotype. 10th International Congress on Drug Therapy in HIV Infection. November 7-11, 2010. Glasgow, Scotland, UK. **2010**

C Brumme, W Dong, D Chan, T Mo, **LC Swenson**, C Woods, J Demarest, J Heera, H Valdez, PR Harrigan. Short-Term Biological Variation of HIV Tropism in the Absence of CCR5-Antagonists. 10th International Congress on Drug Therapy in HIV Infection. November 7-11, 2010. Glasgow, Scotland, UK.

D Chapman, P Biswas, M Lewis, C Craig, J Heera, S Ellery, **L Swenson**, PR Harrigan, H.Valdez. Influence of Amount and Percentage of CXCR4-Using Virus in Predicting Week 48 Responses to Maraviroc in Treatment-Naive Patients. 10th International Congress on Drug Therapy in HIV Infection. November 7-11, 2010 Glasgow, Scotland, UK.

D Chapman, H Valdez, M Lewis, I James, RA McGovern, **LC Swenson**, PR Harrigan, J Heera. Clinical, Virological, and Immunological Characteristics of Patients with Discordant Phenotypic and Genotypic (Ultra-Deep Sequencing) Tropism Test Results: Analysis of Tropism Calls in MOTIVATE and 1029. 50th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC 2010). September 12-15, 2010. Boston, MA, USA.

S Portsmouth, M Lewis, C Craig, D Chapman, **LC Swenson**, J Heera. Long-Term Outcome of Individuals Experiencing a Phenotypic Switch in HIV-1 Coreceptor Use in the MERIT Study. 50th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC 2010). September 12-15, 2010. Boston, MA, USA.

LC Swenson, CKS Chui, CJ Brumme, D Chan¹, CK Woods, T Mo, W Dong, D Chapman, M Lewis, J Demarest, I James, S Portsmouth, J Heera, H Valdez, PR Harrigan. Genotypic Analysis of V3 in Patients Experiencing Virologic Failure on Maraviroc-containing Regimens and Correlation with Pre-treatment “Deep” Sequencing Results. International HIV & Hepatitis Virus Drug Resistance Workshop and Curative Strategies. June 8-12, 2010. Dubrovnik, Croatia.

S Portsmouth, M Lewis, C Craig, D Chapman, **LC Swenson**, J Heera. Long Term Outcome of Individuals Experiencing a Phenotypic Switch in HIV-1 Co-receptor Use in the MERIT Study. International HIV & Hepatitis Virus Drug Resistance Workshop and Curative Strategies. June 8-12, 2010. Dubrovnik, Croatia.

D Chapman, H Valdez, M Lewis, I James, RA McGovern, **LC Swenson**, PR Harrigan, J Heera. Clinical, Virological, and Immunological Characteristics of Patients with Discordant Phenotypic and Genotypic Co-receptor Tropism Test Results. International HIV & Hepatitis Virus Drug Resistance Workshop and Curative Strategies. June 8-12, 2010. Dubrovnik, Croatia.

GQ Lee, **LC Swenson**, JN Martin, SG Deeks, PR Harrigan. Discordance in Prevalence of Raltegravir-Resistant HIV in Plasma versus PBMC Samples. 19th Annual Canadian Conference on HIV/AIDS Research (CAHR 2010). May 13-16 2010. Saskatoon, SK, Canada.

LC Swenson, W Dong, T Mo, A Thielen, M Jensen, D Chapman, I James, J Heera, H Valdez, PR Harrigan. Large-Scale Application of “Deep” Sequencing Using 454 Technology to HIV Tropism Screening. 17th Conference on Retroviruses and Opportunistic Infections (CROI 2010). February 16-19, 2010. San Francisco, CA, USA.

A van 't Wout, **L Swenson**, W Dong, H Schuitemaker, PR Harrigan. Detection of Predicted CXCR4-Using HIV-1 Variants in Longitudinally Obtained Paired Plasma and PBMC Samples Using 454-Sequencing. 17th Conference on Retroviruses and Opportunistic Infections (CROI 2010). February 16-19, 2010. San Francisco, CA, USA.

Thielen A, Lengauer T, Harrigan PR, **Swenson L**, Dong W, McGovern RA, et al. Mutations within GP41 Are Correlated with Coreceptor Tropism but Do Not Substantially Improve Coreceptor Usage Prediction. 8th European HIV Drug Resistance Workshop. March 17-19 2010. Sorrento, Italy.

R Harrigan, **L Swenson**, R McGovern, G Lee, X Zhong, D Knapp. Clinical Update on HIV Drug Resistance to Entry Inhibitors. 8th European HIV Drug Resistance Workshop. March 17-19 2010. Sorrento, Italy.

LC Swenson, W Dong, T Mo, C Woods, X Zhong, A Thielen, M Jensen, J Heera, P Biswas, S Ellery, M Lewis, I James, D Chapman, H Valdez, PR Harrigan. "Deep" Sequencing to Identify Treatment-Experienced Patients Who Respond to Maraviroc (MVC). 12th European AIDS Conference. November 11-14, 2009. Cologne, Germany. **2009**

Swenson LC, McGovern RA, Dong W, Mo T, Lee GQ, Thielen A, et al. Optimization of Clinically Relevant Cutoffs for Determining HIV Co-Receptor Use by Population and Deep Sequencing Methods. Infectious Diseases Society of America 47th Annual Meeting (IDSA 2009). October 29 - November 1, 2009. Philadelphia, PA, USA.

LC Swenson, G Lee, T Mo, C Woods, PR Harrigan. "Deep" Sequencing to Quantify *in vivo* Viral Fitness after Transmission of Resistant HIV. 49th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC 2009). September 12-15, 2009. San Francisco, CA, USA.

L Swenson, R McGovern, W Dong, T Mo, G Lee, PR Harrigan. Phenotypic Screening for HIV Tropism versus Both Population-Based and "Deep" Sequencing. 49th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC 2009). September 12-15, 2009. San Francisco, CA, USA.

PR Harrigan, R McGovern, W Dong, **L Swenson**, A Thielen, M Jensen, T Mo, D Chapman, M Lewis, I James, J Heera, S Ellery, H Valdez. Screening for HIV Tropism Using Population-Based V3 Genotypic Analysis: A Retrospective Virological Outcome Analysis Using Stored Plasma Screening Samples from MOTIVATE-1. 5th International AIDS Society Conference on HIV Pathogenesis, Treatment & Prevention (IAS 2009). July 19-22, 2009. Cape Town, South Africa.

Z Brumme, P Rosato, J Sela, CJ Brumme, MA Brockman, M John, JM Carlson, B Baker, H Streeck, **L Swenson**, D Chan, M Markowitz, H Jessen, A Kelleher, J Rychert, E Rosenberg, TM Allen, M Altfeld, CT Berger, N Frahm, C Brander, PR Harrigan, S Mallal, D Heckerman, B Walker. HLA Class I-Driven Evolution in HIV-1 Integrase in the First Year of Infection. 5th International AIDS Society Conference on HIV Pathogenesis, Treatment & Prevention (IAS 2009). July 19-22, 2009. Cape Town, South Africa.

AB van 't Wout, **LC Swenson**, MRA Welkers, W Dong, H Schuitemaker, PR Harrigan. Detection of CXCR4-using HIV-1 Variants in Longitudinally Obtained Paired Plasma and PBMC Samples Using 454-Sequencing. 18th International HIV Drug Resistance Workshop. June 9-13, 2009. Fort Myers, FL, USA.

Z Brumme; P Rosato; J Sela; C Brumme; M Brockman; M John; J Carlson; H Streeck; **L Swenson**; D Chan; M Markowitz; H Jessen; A Kelleher; E Rosenberg; T Allen; M Altfeld; R Harrigan; S Mallal; D Heckerman; B Walker. HLA Class I-Driven Evolution in HIV-1 Integrase in the First Year of Infection. Keystone Symposia. March 22-29, 2009. Keystone, CO, USA.

LC Swenson, E Hudson, T Mo, C Woods, J Archer, D Robertson, JS Montaner, PR Harrigan. Measurement of Low-level Drug-Resistance Mutations Using Deep Sequencing Technology upon Restarting HAART. 16th Conference on Retroviruses and Opportunistic Infections (CROI 2009). February 8-11, 2009. Montreal, QC, Canada.

L Swenson, W Dong, T Mo, C Woods, A Thielen, M Jensen, C Glascock, JS Montaner, PR Harrigan. Quantification of HIV Tropism by "Deep" Sequencing Shows a Broad Distribution of Prevalence of X4 Variants in Clinical Samples that Is Associated with Virological Outcome. 16th Conference on Retroviruses and Opportunistic Infections (CROI 2009). February 8-11, 2009. Montreal, QC, Canada.

V Lima, O Eyawo, **L Swenson**, R Hogg, J Montaner, R Harrigan. Drug Resistance Monitoring Practices Are Strongly Associated with Mortality. 16th Conference on Retroviruses and Opportunistic Infections (CROI 2009). February 8-11, 2009. Montreal, QC, Canada.

ZL Brumme, M John, CJ Brumme, JM Carlson, R Haubrich, S Riddler, **L Swenson**, I Tao, S Szeto, D Chan, C Kadie, N Frahm, C Brander, B Walker, D Heckerman, PR Harrigan, S Mallal. Relationship between HLA Class I-Driven Evolution in Gag, Pol and Nef and Clinical Markers of HIV Disease: A Multi-Center Collaborative Study. AIDS Vaccine 2008 Conference. October 13-16, 2008. Cape Town, South Africa. **2008**

D Heckerman, CJ Brumme, M John, JM Carlson, R Haubrich, S Riddler, **L Swenson**, I Tao, S Szeto, D Chan, C Kadie, N Frahm, C Brander, B Walker, ZL Brumme, PR Harrigan, S Mallal. Relationship Between HLA Class 1-Driven Evolution in Gag, Pol, Nef, and Clinical Markers of HIV Disease: A Multi-Centre Collaborative Study. 15th International Workshop on HIV Dynamics and Evolution. April 27-30, 2008. Santa Fe, NM, USA.

PR Harrigan; J Carlson; **L Swenson**; B Wynhoven; R Hogg; D Heckerman; C Brumme; K Fernandes; Z Brumme. HIV Evolution after Therapy: Integration of HLA Class 1-Associated and Antiretroviral Drug Selection Pressures. Keystone Symposia. March 27 - April 1, 2008. Banff, AB, Canada.

D Heckerman, CJ Brumme, M John, JM Carlson, **L Swenson**, I Tao, S Szeto, C Kadie, N Frahm, C Brander, B Walker, ZL Brumme, PR Harrigan, S Mallal. Differential Impact of HLA Class I-Driven Evolution in Gag, Pol and Nef on HIV Disease Markers: A Multicenter, International Collaborative Study. Keystone Symposia. March 27 - April 1, 2008. Banff, AB, Canada.

JM Carlson, ZL Brumme, CJ Brumme, **L Swenson**, S Szeto, I Tao, C Kadie, B Walker, PR Harrigan, D Heckerman. Dense Networks of Correlated Substitutions Accompany Adaptations to HLA-Restricted CTL Epitopes. 15th Conference on Retroviruses and Opportunistic Infections (CROI 2008). February 3-6, 2008. Boston, MA, USA.