

Erin Stephenson

ACADEMIC EXPERIENCE

PGY1 NEUROPATHOLOGY	<i>2021-Present</i>
<i>University of Calgary, Calgary, AB</i>	
DOCTOR OF MEDICINE	<i>2018 - 2021</i>
<i>Cumming School of Medicine, University of Calgary, Calgary, AB</i>	
MD-PhD Leaders in Medicine Program	
DOCTOR OF PHILOSOPHY IN CLINICAL NEUROSCIENCES	<i>2013 - 2018</i>
<i>Department of Clinical Neurosciences, University of Calgary, Calgary, AB</i>	
Supervisor: Dr. V. Wee Yong	
Thesis Title: Modifying the extracellular matrix in Multiple Sclerosis	
BACHELOR OF SCIENCE IN BIOMEDICAL SCIENCE, MINOR NEUROSCIENCE	<i>2009 - 2013</i>
<i>Department of Biomedical Sciences, University of Guelph, Guelph, ON</i>	

NOTABLE SCHOLARSHIPS

Achievers in Medical Science Leaders in Medicine Scholarship (\$30,000 per year)	<i>2020 - 2021</i>
CIHR Doctoral: Vanier Canada Graduate Scholarships (\$50,000 per year)	<i>2016 - 2018</i>
MS Society PhD Studentship (\$22,000) – declined due to Vanier	<i>2016</i>
Alberta Innovates Health Solutions (AIHS) scholarship (\$30,000 per year)	<i>2014 - 2020</i>
Chen Fong Scholarship (\$20,000 + \$2,000) – declined due to AIHS	<i>2014</i>
CIHR Frederick Banting and Charles Best Graduate Scholarship (\$17,500 per year)	<i>2013 - 2014</i>
University of Guelph President's Scholarship (\$26,000 + \$6,000 research assistantship)	<i>2009 - 2013</i>

MEDICAL ELECTIVES

PRE-CLERKSHIP ELECTIVES

Adult neurology – Inpatient Consults (2 weeks)	<i>July 2019</i>
South Health Campus, University of Calgary	
Pediatric neurology – Inpatient and outpatient consults (1 week)	<i>July 2019</i>
Alberta Children's Hospital, University of Calgary	
Applied Evidence Based Medicine Elective: Neuroscience (40 hours)	<i>2019</i>
Topic: Molecular players and mechanisms of leukocyte infiltration into the brain in multiple sclerosis	
Hotchkiss Brain Institute, University of Calgary	

CLERKSHIP ELECTIVES (2 weeks)

Neuropathology	<i>Jan 2020</i>
Foothills Medical Center, University of Calgary	
Adult Neurology – Stroke and outpatient consults	<i>Jan 2020</i>
London Health Sciences Centre, Western University	
Adult Neurology - Inpatient consults	<i>Feb 2020</i>
Toronto General Hospital, University of Toronto	
Anatomic pathology	<i>Feb 2020</i>
Foothills Medical Center, University of Calgary	
Pediatric neurology (1 week) - Inpatient and outpatient consults	<i>Mar 2020</i>
Alberta Children's Hospital, University of Calgary	
Medical genetics	<i>Aug 2020</i>
Foothills Medical Center, University of Calgary	

Neuropsychiatry

Aug 2020

Foothills Medical Center, University of Calgary

NOTABLE AWARDS

Dr. Lydia Sikora Memorial Award (\$8,000)	2020
Chancellor's PhD Graduate Award	2019
Hotchkiss Brain Institute Trainee Publication Award (\$400)	2019
EndMS Scholar Program for Researchers in Training (\$2,500)	2015-2016

RESEARCH EXPERIENCE

DEPARTMENT OF CLINICAL NEUROSCIENCES, University of Calgary, Calgary, AB 2013-2018

Topic: Pathological changes of the extracellular matrix in multiple sclerosis with Dr. V. Wee Yong
Techniques used included cell culture, immunohistochemistry, and animal models

DEPARTMENT OF MOLECULAR AND CELLULAR BIOLOGY, University of Guelph, Guelph, ON 2012

Topic: The ability hemoglobin to damage myelin and lipids with Dr. G. Harauz and Dr. V. Bamm

MIND BRAIN INSTITUTE, École Polytechnique Fédérale de Lausanne, Lausanne, CH 2012

Topic: The role of LRRK2 in Parkinson's Disease with Dr D. Moore and Dr. R. Moser

LAURIER CENTRE FOR COGNITIVE NEUROSCIENCE, Wilfrid Laurier University, Waterloo ON 2011

Topic: The multimodal binding problem with emphasis on tactile-visual integration with Dr. P. Servos

DEPARTMENT OF BIOMEDICAL SCIENCE, University of Guelph, Guelph, ON 2010

Topic: The role of TGF-beta signaling and breast cancer progression with Dr. A. Viloria-Petit

PUBLICATIONS, PRESENTATIONS, AND ABSTRACTS

NOTABLE PEER REVIEWED ARTICLES

- Pu A, Mishra M, Dong Y, Ghorbanigazar S, **Stephenson E**, Rawji K, Silva C, Kitagawa H, Sawcer S, Yong VW. The glycosyltransferase EXTL2 promotes proteoglycan deposition and injurious neuroinflammation following demyelination. *Journal of Neuroinflammation*, 17 (220), (2020).
- **Stephenson EL**, Zhang P, Ghorbani S, Wang A, Gu J, Keough MB, Rawji K, Silva C, Yong VW, Ling CC. Targeting chondroitin sulfate proteoglycans: Evaluating fluorinated glucosamines and xylosides in screens pertinent to multiple sclerosis. *ACS Central Science*, 5 (7), 1223-1234 (2019).
- **Stephenson EL**, Yong VW. Pro-inflammatory roles of chondroitin sulfate proteoglycans in disorders of the central nervous system. *Matrix biology: journal of the International Society for Matrix Biology*. 71-72, 432-442 (2018).
- Pu A, **Stephenson EL**, Yong VW. The extracellular matrix: Focus on oligodendrocyte biology and targeting CSPGs for remyelination therapies. *Glia*. 66 (9), 1809-1825 (2018).
- **Stephenson EL**, Mishra MK, Moussienko D, Laflamme N, Rivest S, Ling CC, Yong VW. Chondroitin sulfate proteoglycans as novel drivers of leucocyte infiltration in multiple sclerosis. *Brain : a journal of neurology*. 141 (4), 1094-1110 (2018).
- Bakker C, Stephenson C, **Stephenson E**, Chaves D. Public Funding and Open Access to Research: A Review of Canadian Multiple Sclerosis Research. *Journal of medical Internet research*. 19 (2), pp. e52 (2017).
- Keough MBK, Rogers JA, Zhang P, Jensen SK, **Stephenson EL**, Chen T, Hurlbert MG, Lau LW, Rawji KS, Pleme JR, Koch M, Ling CC, Yong WV. An inhibitor of chondroitin sulphate proteoglycan synthesis promotes central nervous system remyelination. *Nature Communications*. 7, 11312 (2016).
- Bamm, VV, Lanthier, DK, **Stephenson, EL**, Smith, GS, Harauz, G. In vitro study of the direct effect of extracellular hemoglobin on myelin components. *Biochim. Biophys. Acta*. 1852, 92-103 (2015).

- **Stephenson, E**, Nathoo, N, Mahjoub, Y, Dunn, JF, Yong, VW. Iron in Multiple Sclerosis: Roles in neurodegeneration and repair. *Nature Reviews. Neurology*. 10, 459-468, (2014).

INTELLECTUAL PROPERTY

Yong V.We, Ling, C-C, **Stephenson EL**, Zhang P, Keough MB, Rawji K. Fluorinated glucosamine analogs. PAT 89411P-2. *US Provisional patent – small entity*, 2018.

NOTABLE CONFERENCE PRESENTATIONS

- **Stephenson E**. Chondroitin sulfate proteoglycans as novel mediators of inflammation in multiple sclerosis. Cumming School of Medicine. *National Leaders in medicine symposium*. Calgary, 2018. (poster presentation with first place prize in Immunology category)
- **Stephenson E**. Chondroitin sulfate proteoglycans as novel drivers of leucocyte infiltration in multiple sclerosis. *Alberta MS Network Retreat*. Banff, 2018. (poster presentation)
- **Stephenson E**, Mishra M, Moussienko D, Yong VW. Chondroitin sulfate proteoglycans in perivascular cuffs. *13th International Congress of Neuroimmunology*. Jerusalem, Israel, 2016. (poster presentation)
- **Stephenson E**. Modifying the brain matrix to improve multiple sclerosis. *Research in Progress*. Calgary, 2016. (talk)
- **Stephenson E**, Mishra MK, Rogers JA, Keough MK, Yong VW. Modifying the brain matrix to improve multiple sclerosis. *Society for Neurosciences*. Chicago, 2015. (poster presentation)
- **Stephenson E**, Keough MB, Rogers J, Yong VW. Inhibitory chondroitin sulfate proteoglycans in Experimental autoimmune encephalomyelitis. *12th International Congress of Neuroimmunology*. Mainz, Germany, 2014. (poster presentation)
- **Stephenson E**. Investigating novel mutations in the Parkinson's disease-associated VPS35 gene using yeast models. Poster Paper. *EPFL Summer Research Program for Undergraduate Life Science Students Symposium*. Lausanne, Switzerland, 2012. (poster presentation)

EXTRACURRICULAR ACTIVITIES

CITY ATHLETICS

2013 - 2020

Ice hockey, Floor hockey, Ichiban speed skating club

UNIVERSITY OF GUELPH VARSITY ROWING TEAM

2009 - 2012

Notable Achievements: Gold: lightweight fours (Canadian University Rowing Association Championships, 2011), lightweight quad (RowOntario Championships, 2010). Fourth, A final: lightweight double (Canadian University Rowing Association Championships, Victoria, British Columbia, 2010).

VOLUNTEER ACTIVITIES

UNIVERSITY OF CALGARY COMMITTEES

System editor of Physiology for The Calgary Guide to Understanding Disease

2019 - 2020

Volunteer at the national Leaders in Medicine symposium, Calgary AB

2018, 2019

Student representative for the University of Calgary Biosafety committee

2016 - 2018

COMMUNITY VOLUNTEERING IN CALGARY

Contact tracing with Alberta Health Services

2020

Co-president of the medical school hockey team

2019 - 2020

Research engagement discussion day with people with multiple sclerosis

2017

Multiple Sclerosis Society walk participant and fundraiser (yearly)

2014 - 2019

Floor hockey coach with Special Olympics Canada

2014 - 2017

PERSONAL INTERESTS

Hiking, climbing, mountain biking, and skiing (cross-country and downhill)

Date Submitted: 2021-10-13 15:08:50

Confirmation Number: 1370260

Template: Full CV

Dr. Adrian B Levine

Correspondence language: English

Sex: Male

Date of Birth: 2/15

Canadian Residency Status: Canadian Citizen

Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

Address

Primary Affiliation

Department of Pathology and Laboratory Medicine
Vancouver General Hospital
910 West 10th Ave
Vancouver British Columbia V5Z1M9
Canada

Primary Affiliation (*)

The Hospital for Sick Children
686 Bay St
Toronto Ontario M5G 0A4
Canada

Telephone

Mobile (*) 1-778-288-3825

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Personal levine.adrian.b@gmail.com

Work (*) adrian.levine@sickkids.ca

Dr. Adrian Levine

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes
French	Yes	No	Yes	Yes	No
Spanish; Castilian	Yes	No	Yes	Yes	No

Degrees

2021/7	Master's Thesis, MSc, Laboratory Medicine and Pathobiology, University of Toronto Degree Status: In Progress Supervisors: Cynthia Hawkins
2016/7 - 2021/6	Post-doctorate, FRCPC, Neuropathology, University of British Columbia Degree Status: Completed
2012/9 - 2016/5	Doctorate, Medical Doctorate (MD), University of Western Ontario Degree Status: Completed
2008/9 - 2012/5	Bachelor's, Bachelor of Science, Chemistry, University of Western Ontario Degree Status: Completed

Credentials

2021/7	Fellow, Royal College of Physicians and Surgeons of Canada
2017/5	Qualifying Examination Part 2 (MCC-QE2), Medical Council of Canada
2016/5	Qualifying Examination Part 1 (MCC-QE1), Medical Council of Canada
2016/5	MD, University of Western Ontario

Recognitions

2021/7 - 2023/6	Richard Motyka Research Fellowship - 100,000 (Canadian dollar) Brain Tumor Foundation of Canada Prize / Award Brain
2020/5	Conference trainee award - 500 (United States dollar) American Association of Neuropathology Prize / Award
2020/1	Conference travel award Canadian Anatomical and Molecular Pathology Conference Prize / Award

2019/5	First place resident presentation University of British Columbia Prize / Award UBC Pathology Research Day first place resident presentation for "A deep learning approach for automated breast cancer nodal staging"
2018/5	First place resident presentation University of British Columbia Prize / Award UBC Pathology Research Day first place resident presentation for "A deep learning approach for carcinoma identification and classification on tissue microarrays"
2015/12	Schulich Global Health Elective Grant University of Western Ontario Prize / Award Grant awarded for clinical elective in Dar es Salaam, Tanzania
2015/6 - 2015/8	Schulich Research Opportunities Program Grant - 5,000 (Canadian dollar) University of Western Ontario Prize / Award Supports summer research projects for medical students
2009/5 - 2012/5	Dean's List University of Western Ontario Prize / Award
2008/9 - 2012/5	Continuing Admissions Scholarship - 10,000 (Canadian dollar) University of Western Ontario Prize / Award Entry scholarship

User Profile

Research Specialization Keywords: deep learning, digital pathology, machine learning, neuropathology

Disciplines Trained In: Pathology

Research Disciplines: Neurosciences, Oncology, Pathology

Areas of Research: Bioinformatics, Cancer Genetics, Cerebral Tumors, Computer Science and Statistics

Fields of Application: Pathogenesis and Treatment of Diseases

Employment

2021/7 - 2023/6	Clinician Investigator Program, Research Fellow University of British Columbia Full-time
2016/7 - 2021/6	Postgraduate Neuropathology Residency University of British Columbia Full-time
2020/10 - 2020/10	Elective Rotation, Neuropathology St. Michael's Hospital Full-time 2 week clinical elective

2020/9 - 2020/9	Elective rotation, Neuropathology Sunnybrook Health Sciences Centre Full-time 4 week clinical elective
2020/8 - 2020/9	Elective rotation, Neuropathology The Hospital for Sick Children Full-time 4 week clinical elective
2018/7 - 2020/6	Neuropathology Chief Resident University of British Columbia Full-time
2016/7 - 2017/6	Clinical Internship Year St. Paul's Hospital Full-time PGY1 Basic Clinical Year at St Paul's Hospital, Vancouver, BC
2013/5 - 2016/5	Research Assistant London Health Sciences Centre Part-time Supervisor: Dr. Keith MacDougall, Division of Neurosurgery Research Disciplines: Neurosciences
2012/5 - 2012/6	Research Assistant The Hospital for Sick Children Full-time Supervisor: Dr. Régis Pomès, Department of Biochemistry Research Disciplines: Biochemistry
2010/5 - 2011/8	Research Assistant University of Pennsylvania Part-time Supervisor: Dr. Andrew Tsourkas, Department of Bioengineering Research Disciplines: Biomedical Engineering and Biochemical Engineering

Affiliations

The primary affiliation is denoted by (*)

2021/7	MSc Candidate, University of Toronto
(*) 2016/7 - 2021/6	Research Fellow, Clinician Investigator Program, University of British Columbia

Community and Volunteer Activities

2018/9 - 2020/12	Organizer and presenter, Artificial Intelligence in Medicine Journal Club, University of British Columbia
2019/2 - 2019/2	Resident Representative at UBC Department of Medicine Careers Night, University of British Columbia
2017/11 - 2017/11	Teacher, Clinico-Pathologic Correlation session, University of British Columbia Taught a Bone Disease Clinico-Pathologic Correlation session for medical students the UBC Northern Medicine Program in Prince George, BC

2016/4 - 2016/4	Interviewer for medical school applicants, University of Western Ontario
2013/9 - 2014/9	Executive, Schulich Medical Skills Club, University of Western Ontario
2013/9 - 2014/9	Executive, Schulich Neurology and Neurosurgery Interest Group, University of Western Ontario

Committee Memberships

2019/11	Committee Member, Neuropathology Residency Competency By Design Committee, Royal College of Physicians and Surgeons of Canada
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Presentations

- (2020). Temporal lobe lesions in a heart transplant patient. Canadian Association of Neuropathology Annual Meeting, Canada
Main Audience: Knowledge User
Invited?: No, Keynote?: No
- (2020). Synthesis of glioma histopathology images using generative adversarial networks. American Association of Neuropathology Annual Meeting, United States
Main Audience: Knowledge User
Invited?: No, Keynote?: No, Competitive?: Yes
- (2020). What is the significance of isolated PMS2 loss in a young patient with glioblastoma and rectal carcinoma. Canadian Anatomical and Molecular Pathology conference, Whistler, Canada
Main Audience: Knowledge User
Invited?: No, Keynote?: No, Competitive?: Yes
- (2019). A deep learning approach for automated breast cancer nodal staging. UBC Pathology Research Day, Vancouver, Canada
Main Audience: Knowledge User
Invited?: No, Keynote?: No, Competitive?: Yes
- (2019). Artificial Intelligence in Pathology. Professional Advancement in Learning Series, UBC Department of Pathology and Laboratory Medicine, Vancouver, BC, Canada
Main Audience: Knowledge User
Invited?: Yes, Keynote?: No
Description / Contribution Value: Presentation on current developments in the application of artificial intelligence to pathology, given to the UBC Pathology department.
- (2019). Synthesis of glioma histopathology images using generative adversarial networks. Canadian Association of Neuropathology Annual Meeting, Kingston, ON, Canada
Main Audience: Knowledge User
- (2018). A deep learning approach for carcinoma identification and classification on tissue microarrays. UBC Pathology Research Day, Vancouver, Canada
Main Audience: Knowledge User, Competitive?: Yes
- (2018). Update on the national survey on molecular diagnostics in CNS tumors. Canadian Association of Neuropathology Annual Meeting, Halifax, NS, Canada
Main Audience: Knowledge User
- (2018). TRK2 Fusion Driven Pediatric Glioblastoma: Identification of key molecular drivers by personalized oncology. Canadian Association of Neuropathology Annual Meeting, Halifax, NS, Canada
Main Audience: Knowledge User

10. (2017). Implementation of the 2016 WHO CNS Classification for infiltrating glioma: the VGH experience. Canadian Association of Neuropathologists Annual Meeting, Winnipeg, MB, Canada
Main Audience: Knowledge User

Publications

Journal Articles

1. Boschman J*, Farahani H*, Farnell D, Levine A, Naso JR, Churg A, Jones S, Yip S, Koebel M, Huntsman D, Gilks B, Bashashati A. (2021). The Utility of Color Normalization for AI-Based Diagnosis of Hematoxylin and Eosin-Stained Pathology Images. *J Pathol*.
Accepted,
2. Naso JR*, Levine AB*, Farahani H, Chirieac LR, Dacic S, Wright JL, Laie C, Yang H, Jones SJM, Bashashati A, Yip S, Churg A. (2021). Deep-Learning Based Classification Distinguishes Sarcomatoid Malignant Mesotheliomas from Benign Spindle Cell Mesothelial Proliferations. *Modern Pathology*.
<http://dx.doi.org/https://doi.org/10.1038/s41379-021-00850-6>
Published,
Refereed?: Yes
3. Levine A, Lee C, Fava C, et al. (2021). Detailed neuropathologic report of COVID-19 complicated by large intracerebral hemorrhage and periventricular lesions with macrophagic infiltrates. *Free Neuropathology*. 2: 7–7.
Published,
Refereed?: Yes, Open Access?: Yes
4. Britton H*, Levine AB*, Shen Y, Mungall K, Serrano J, Snuderl M, Pleasance E, Jones S, Laskin J, Marra M, Rassekh R, Deyell R, Yip S, Cheng S, Dunham C. (2021). NTRK2 Fusion Driven Pediatric Glioblastoma: Identification of Oncogenic Drivers and Immune-Oncogenic Modifiers via Integrative Genome and Transcriptome Profiling. *Clinical Case Reports*. 9(3): 1472-77.
Published,
Refereed?: Yes
5. Wong D, Sogerer L, Lee SS, Wong V, Lum A, Levine AB, Marra MA, Yip S. (2020). TRIM25 promotes Capicua degradation independently of ERK in the absence of ATXN1L. *BMC Biol*. 18(1): 154.
Published,
Refereed?: Yes
6. Levine A, Hukin J, Hirsch-Reinshagen V, Dunham C. (2020). Pontine Embryonal Tumor with Multilayered Rosettes (ETMR): An Autopsy Case Exhibiting Extensive Post-Treatment Neuroglial Maturation. *Pediatr Dev Pathol*. 23(4): 326-331.
Published,
Refereed?: Yes
Description of Contribution Role: I wrote the manuscript.
7. Marzoughi S, Levine AB, Yip S, Chen T. (2020). Perivenular Enhancement without Microbleeds due to Amyloid Beta-Related Angiitis. *The Neurohospitalist*. 11(3): 267-9.
<http://dx.doi.org/https://doi.org/10.1177/1941874420972298>
Published,
Refereed?: Yes
Description of Contribution Role: I provided pathology images and description.
8. Karthikeyan V, Fatehi Hassanabad M, Levine AB, Slack GW, Mackenzie IR, Haw CS. (2020). Intraparenchymal Mucosa-Associated Lymphoid Tissue Lymphoma: A Case Report. *Canadian Journal of Neurological Science*.
Submitted,
Refereed?: Yes

9. Levine AB, Wong D, Fatehi M, Yip S. (2020). Ependymoma and Chordoma. *Neurosurgery*. 87(5): 860-870.
Published,
Refereed?: Yes
Description of Contribution Role: I wrote the majority of the manuscript
Description / Contribution Value: In this invited review we discussed the clinical features, pathology, and genetics of ependymoma and chordoma.
10. Levine AB, Peng J, Farnell D, Nursey M, Wang Y, Naso JR, Ren H, Farahani H, Chen C, Chiu D, Talhouk A, Sheffield B, Riazzy M, Ip PP, Parra-Herran C, Mills A, Singh N, Tessier-Cloutier B, Salisbury T, Lee J, Salcudean T, Jones SJM, Huntsman DG, Gilks CB, Yip S, Bashashati A. (2020). Synthesis of diagnostic quality cancer pathology images. *J Pathol*. 252(2): 178-88.
Published,
Refereed?: Yes
Description of Contribution Role: I planned experiments, wrote code to process digital pathology slides and use them to train machine learning models, ran our web-based survey of pathologists and analyzed the resulting data, and wrote the majority of the manuscript.
Description / Contribution Value: In this paper our group used generative adversarial networks to synthesis high resolution histopathology images that are among the largest size of any synthetic medical images reported to date. We demonstrated that the images are indistinguishable to board certified pathologists and that they are usable as training data augment small training sets for other artificial intelligence classifiers.
11. Levine AB, Schlosser C, Grewal JG, Cooper R, Jones SJM, Yip S. (2019). Rise of the Machines: Advances in deep learning for cancer diagnosis. *Trends Cancer Res*. 5(3): 157-169.
Published,
Refereed?: Yes
Description of Contribution Role: I wrote the majority of the manuscript.
Description / Contribution Value: Review of deep learning based image analysis for cancer diagnosis, with a focus on pathology.
- [12.](#) D Wong, Y Shen, AB Levine, E Pleasance, M Jones, K Mungall, B Thiessen, B Toyota, J Laskin, SJM Jones, MA Marra, S Yip. (2019). The pivotal role of sampling recurrent tumors in the precision care of patients with tumors of the central nervous system. *Cold Spring Harb Mol Case Stud*. 5(4): a004143.
Published,
Refereed?: Yes
- [13.](#) Levine AB, Grewal J, Schlosser C, Jones S, Yip S. (2019). Breast Cancer Nodal Staging Using Deep Learning. Submission to CAMELYON17 challenge. ,
Refereed?: No
Description of Contribution Role: I trained the machine learning models for our submission and wrote the manuscript.
Description / Contribution Value: This is a submission to the CAMELYON 2017 Grand Challenge on identifying breast cancer metastases in lymph nodes.
14. Levine, AB; Grewal, JK; Jones, SJM; Yip, S. (2018). Machine learning in pathology: a primer on techniques and applications. *Canadian Journal of Pathology*. 10(3): 51-59.
Published,
Refereed?: Yes
15. Li V, Levine AB, Gooderham PA, Yip S, Chew J. (2018). Case of Primary Central Nervous System Lymphoma Arising at Site of Remote Herpes Encephalitis. *World Neurosurg*. 113: 217-222.
Published,
Refereed?: Yes
- [16.](#) Levine AB, Parrent AG, MacDougall KW. (2017). Cervical Spinal Cord and Dorsal Nerve Root Stimulation for Neuropathic Upper Limb Pain. *Can J Neurol Sci*. 44(1): 83-89.
Published,
Refereed?: Yes

17. Levine AB, Steven DA, Parrent AG, MacDougall KW. (2017). Successful Long-term Nerve Root Stimulation for Chronic Neuropathic Pain: A Real World, Single Center Canadian Experience. *Pain Physician*. 20(2): 95-106.
Published,
Refereed?: Yes
18. Levine AB, Parrent AG, MacDougall KW. (2016). Stimulation of the Spinal Cord and Dorsal Nerve Roots for Chronic Groin, Pelvic, and Abdominal Pain. *Pain Physician*. 19(6): 405-12.
Published,
Refereed?: Yes
19. Levine AB, MacDougall KW. (2016). New-Onset Stutter After Electrode Insertion in the Ventrocaudalis Nucleus for Face Pain. *World Neurosurg*. 90: 703.e7-703.e10.
Published,
Refereed?: Yes
20. Levine AB, MacDougall KW. (2014). Subdural hematoma: a rare presentation of a convexity meningioma. *Can J Neurol Sci*. 41(4): 506-7.
Published,
Refereed?: Yes

Conference Publications

1. Levine A, Peng CC, Farnell D, Tessier-Cloutier B, Nursey M, Karimi D, Jones S, Salcudean S, Huntsman D, Yip S, Gilks CB, Bashashati A. (2020). Generation of Synthetic Ovarian Carcinoma Microscopic Images for Proficiency Testing. *Laboratory Investigation*. United States and Canadian Academy of Pathology, Los Angeles, United States (1471-1471),
Conference Date: 2020/3
Poster
First Listed Author
Published
2. Levine AB, Yip S. (2018). Implementation of the 2016 WHO Classification for Infiltrating Glioma: The VGH Experience. *Laboratory Investigation*. United States and Canadian Academy of Pathology, Vancouver, Canada (660-660),
Conference Date: 2020/2
Poster
First Listed Author
Published
3. Wong D, Shen Y, Levine AB, Hoon Lee T, Pleasance E, Jones M, Thiessen B, Toyota B, Laskin J, Jones S, Marra MA, Yip S. (2018). Unraveling molecular drivers of brain cancers at the clinical setting. *Can J Neurol Sci*. Canadian Neuro-Oncology Meeting, Banff, Canada (S15),
Conference Date: 2018/5
Abstract
Co-Author
Published