

Scott Ryall, B.Sc

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Education and Training

PhD, University of Toronto, Faculty of Medicine 2014-2020
Department of Laboratory Medicine and Pathobiology
Thesis Title: "Comprehensive Analysis of the Molecular Underpinnings of Pediatric Glioma"
Supervisor: Dr. Cynthia Hawkins

Bachelor of Science, University of Ontario Institute of Technology 2009-2014
Faculty of Science, Department of Life Sciences
Biological Sciences Program, Co-operative option

Scholarly Positions and Employment

Teaching:

The Center for Phenogenomics, Animal Ethics Committee September 2018-current
University Health Network, Student Representative

University of Toronto, Assistant Invigilator September 2018-April 2020
Faculty of Arts & Science, Department of Biochemistry
BCH210H: Introductory Biochemistry

University of Toronto, Teaching Assistant September 2017-April 2020
Faculty of Arts & Science, Department of Laboratory Medicine and Pathobiology
LMP363H: Principles of Pathobiology
LMP301H: Introduction to Clinical Biochemistry

University of Toronto, Teaching Assistant September-December 2016
Faculty of Medicine, Department of Laboratory Medicine and Pathobiology
LMP1407H: Introductory Biostatistics and Clinical Investigation

University of Toronto, Guest Lecturer February 2015
Faculty of Arts & Science, Department of Laboratory Medicine and Pathobiology
LMP408H: Genetic Modelling of Human Development and Disease

Durham Regions/St. John Ambulance, Course Instructor 2011-2015
Advanced Medical First Responder & Standard First Aid

Laboratory:

Hospital for Sick Children, Graduate Student 2014-current
Department of Pediatric Laboratory Medicine, Division of Pathology
Arthur and Sonia Labatt Brain Tumour Research Centre

Hospital for Sick Children, Co-Op Student, Research Assistant
Department of Pediatric Laboratory Medicine, Division of Pathology
Arthur and Sonia Labatt Brain Tumour Research Centre

2012-2013

York Durham Regional Environmental Laboratory,
Laboratory Technician
Department of Trace Organic Analytical Chemistry

May-September 2012

AGAT Laboratories, Laboratory Technician
Department of Trace Organics

May-September 2011

Publications

Ryall S, Zapotocky M, Fukuoka K, Nobre L, Guerreiro-Stucklin A, Bennett J, Siddaway R, Li C, Pajovic S, Arnoldo A, Kowalski P, Johnson M, Sheth J, Lassaletta A, Tatevossian R, Orisme W, Qaddoumi I, Surrey L, Li M, Waanders A, Gilheeney S, Rosenblum M, Bale T, Tsang D, Laperriere N, Kulkarni A, Ibrahim G, Drake J, Dirks P, Taylor M, Rutka J, Laughlin S, Shroff M, Shago M, Hazrati L, D'Arcy C, Ramaswamy V, Bartels U, Huang A, Bouffet E, Karajannis M, Santi M, Ellison D, Tabori U & Hawkins C. Integrated molecular and clinical analysis of 1,000 pediatric low-grade gliomas. *Cancer Cell*. 2020 Apr 13;37(4):569-583.

Fukuoka K, Mamatjan Y, Tatevossian R, Zapotocky M, **Ryall S**, Stucklin AG, Bennett J, Nobre LF, Arnoldo A, Luu B, Wen J, Zhu K, Leon A, Torti D, Pugh TJ, Hazrati LN, Laperriere N, Drake J, Rutka JT, Dirks P, Kulkarni AV, Taylor MD, Bartels U, Huang A, Zadeh G, Aldape K, Ramaswamy V, Bouffet E, Snuderl M, Ellison D, Hawkins C, Tabori U. Clinical impact of combined epigenetic and molecular analysis of pediatric low grade gliomas. *Neuro Oncol*. 2020 doi: 10.1093/neuonc/noaa077.

Ryall S, Tabori U, Hawkins C. Pediatric low-grade glioma in the era of molecular diagnostics. *Acta Neuropathol Commun*. 2020 Mar 12;8(1):30.

Fukuoka K, Mamatjan Y, **Ryall S**, Komosa M, Bennett J, Zapotocky M, Keith J, Myrehaug S, Hazrati LN, Aldape K, Laperriere N, Bouffet E, Tabori U, Hawkins C. BRAF V600E mutant oligodendroglioma-like tumors with chromosomal instability in adolescents and young adults. *Brain Pathol*. 2019 Oct 19. doi: 10.1111/bpa.12799. [Epub ahead of print].

Guerreiro Stucklin AS*, **Ryall S***, Fukuoka K, Zapotocky M, Lassaletta A, Li C, Bridge T, Kim B, Arnoldo A, Kowalski PE, Zhong Y, Johnson M, Li C, Ramani AK, Siddaway R, Nobre LF, de Antonellis P, Dunham C, Cheng S, Boué DR, Finlay JL, Coven SL, de Prada I, Perez-Somarrriba M, Faria CC, Grotzer MA, Rushing E, Sumerauer D, Zamecnik J, Krskova L, Garcia Ariza M, Cruz O, Morales La Madrid A, Solano P, Terashima K, Nakano Y, Ichimura K, Nagane M, Sakamoto H, Gil-da-Costa MJ, Silva R, Johnston DL, Michaud J, Wilson B, van Landeghem FKH, Oviedo A, McNeely PD, Crooks B, Fried I, Zhukova N, Hansford JR, Nageswararao A, Garzia L, Shago M, Brudno M, Irwin MS, Bartels U, Ramaswamy V, Bouffet

E, Taylor MD, Tabori U, Hawkins C. Alterations in ALK/ROS1/NTRK/MET drive a group of infantile hemispheric gliomas. *Nat Commun.* 2019;10(1):4343.

Shen H, Yu M, Tsoli M, Chang C, Joshi S, Liu J, **Ryall S**, Chornenkyy Y, Siddaway R, Hawkins C, Ziegler DS. Targeting reduced mitochondrial DNA quantity as a therapeutic approach in pediatric high-grade gliomas. *Neuro Oncol.* 2019; pii: noz140.

Ryall S, Arnoldo A, Sheth J, Singh SK, Hawkins C. "Detecting Stem Cell Marker Expression Using the NanoString nCounter System." *Methods Mol Biol.* 2019;1869:57-67.

Sheth J, Arnoldo A, Zhong Y, Marrano P, Pereira C, **Ryall S**, Thorner P, Hawkins C, Somers GR. "Sarcoma Subgrouping by Detection of Fusion Transcripts Using NanoString nCounter Technology." *Pediatr Dev Pathol.* 2018; doi: 10.1177/1093526618790747

Ryall S, Arnoldo A, Krishnatry R, Mistry M, Khor K, Sheth J, Ling C, Leung S, Zapotocky M, Guerreiro Stucklin A, Lassaletta A, Shago M, Tabori U, Hawkins C. "Multiple detection of pediatric low-grade glioma signature fusion transcripts and duplications using the NanoString nCounter system." *J. Neuropathol Exp Neurol.*, 2017; 76(7):562-570.

Lassaletta A, Zapotocky M, Mistry M, Ramaswamy V, Honnorat M, Krishnatry R, Guerreiro Stucklin A, Zhukova N, Arnoldo A, **Ryall S**, Ling C, McKeown T, Loukides J, Cruz O, de Torres C, Ho CY, Packer RJ, Tatevossian R, Qaddoumi I, Harreld JH, Dalton JD, Mulcahy-Levy J, Foreman N, Karajannis MA, Wang S, Snuderl M, Nageswara Rao A, Giannini C, Kieran M, Ligon KL, Garre ML, Nozza P, Mascelli S, Raso A, Mueller S, Nicolaides T, Silva K, Perbet R, Vasiljevic A, Faure Conter C, Frappaz D, Leary S, Crane C, Chan A, Ng HK, Shi ZF, Mao Y, Finch E, Eisenstat D, Wilson B, Carret AS, Hauser P, Sumerauer D, Krskova L, Larouche V, Fleming A, Zelcer S, Jabado N, Rutka JT, Dirks P, Taylor MD, Chen S, Bartels U, Huang A, Ellison DW, Bouffet E, Hawkins C, Tabori U. "Therapeutic and Prognostic Implications of BRAF V600E in Pediatric Low-Grade Gliomas: *J. Clin. Oncol.* 2017; 35(25):2934-294.

Ryall S, Guzman M, Elbabaa SK, Luu B, Mack SC, Zapotocky M, Taylor MD, Hawkins C, Ramaswamy V. "H3K27M mutations are extremely rare in posterior fossa group A ependymoma." *Childs Nerv. Syst.*, 2017; 33(7):1047-1051.

Ryall S, Tabori U, & Hawkins C. "A comprehensive review of pediatric low-grade diffuse glioma: pathology, molecular genetics and treatment." *Brain Tumor Pathol.*, 2017; 34(2): 51-61. [Invited Publication]

Ryall S, Krishnatry R, Arnoldo A, Buczkowicz P, Mistry M, Siddaway R, Ling C, Pajovic S, Yu M, Rubin J, Hukin J, Steinbok P, Bartels U, Bouffet E, Tabori U, Hawkins C. "Targeted detection of genetic alterations reveal the prognostic impact of H3K27M and MAPK pathway aberrations in pediatric thalamic glioma." *Acta Neuropathol. Commun.* 2016; 4(1): 93.

Hoffman L*, DeWire M*, **Ryall S***, Buczkowicz P, Leach J, Miles L, Ramani A, Kumar S, Drissi R, Dexhemier P, Salloum R, Chow L, Hummel T, Lu R, Jones B, Witte D, Arrnow B, Hawkins C, Fouladi M. "Spatial genomic heterogeneity in diffuse intrinsic pontine and midline high-grade glioma: implications for diagnostic biopsy and targeted therapeutics." *Acta Neuropathol. Commun.* 2016; 4:1.

Steinbok P, Gopalakrishnan CV, Hengel AR, Vitali AM, Poskitt K, Hawkins C, Drake J, Lamberti-Pasculli M, Ajani O, Hader W, Mehta V, McNeely PD, McDonald PJ, Ranger A, Vassilyadi M, Atkinson J, **Ryall S**, Eisenstat DD, Hukin J. "Pediatric thalamic tumors in the MRI era: a Canadian perspective." *Childs Nerv. Syst.*, 2016; 32(2):269-80.

Buczkowicz P, Hoeman C, Rakopoulos P, Pajovic S, Letourneau L, Dzamba M, Morrison A, Lewis P, Bouffet E, Bartels U, Zuccaro J, Agnihotri S, **Ryall S**, Barszczyk M, Chornenkyy Y, Bourgey M, Bourque G, Montpetit A, Cordero F, Castelo-Branco P, Mangerel J, Tabori U, Ho KC, Huang A, Taylor KR, Mackay A, Bendel AE, Nazarian J, Fangusaro JR, Karajannis MA, Zagzag D, Foreman NK, Donson A, Hegert JV, Smith A, Chan J, Lafay-Cousin L, Dunn S, Hukin J, Dunham C, Scheinemann K, Michaud J, Zelcer S, Ramsay D, Cain J, Brennan C, Souweidane MM, Jones C, Allis CD, Brudno M, Becher O, Hawkins C. "Genomic analysis of diffuse intrinsic pontine glioma reveals three molecular subgroups and activating ACVR1 mutations" *Nat. Genet.*, 2014; 46(5):451-56.

Abstracts and Conference Proceedings

Ryall S, et al. Integrated Molecular and Clinical Analysis of 1,000 Pediatric Low-grade Gliomas uncovers Novel Subgroups for Clinical Risk Stratification. International Symposium of Pediatric Neuro-Oncology, 2020; Karuizawa, Nagano, Japan.

Ryall S, et al. Clinical features of non-canonical molecular drivers in pLGG; an update from the international pLGG Taskforce. Pediatric Neuro-Oncology Basic and Translational Research Conference, 2019; San Francisco, CA, USA.

Ryall S, et al. Clonal evolution of diffuse intrinsic pontine glioma. AACR-JCA Joint Conference: Breakthroughs in Cancer Research: Biology to Precision Medicine, 2019; Maui, HI, USA.

Ryall S* & Zapotocky M*, et. al. The genetic landscape of pediatric low-grade gliomas: incidence, prognosis and response to therapy. International Symposium of Pediatric Neuro-Oncology, 2018; Denver, CO, USA. Presented by Zapotocky, M.

Ryall S, et al. The genetic landscape of pediatric low-grade gliomas: incidence, prognosis and response to therapy. Canadian Neuro-Oncology Meeting, 2018; Banff, AL, CAN. **Brain Tumour Foundation of Canada Travel Award Recipient | \$500**

Ryall S, et al. Clonal evolution of diffuse intrinsic pontine glioma. American Association of Cancer Research General Meeting, 2018; Chicago, IL, USA.

Ryall S, et al. Gliomas in adolescents share several molecular features with their pediatric counterparts. Pediatric Neuro-Oncology Basic and Translational Research Conference, 2017; New York, NY, USA

Ryall S, et al. Location and histology dictate the likelihood of molecular events in pediatric low-grade glioma. Pediatric Neuro-Oncology Basic and Translational Research Conference, 2017; New York, NY, USA

Ryall S, et al. Multiplex detection of paediatric low grade glioma signature fusion transcripts and duplications using the NanoString nCounter System. International Symposium of Pediatric Neuro-oncology, 2016; Liverpool, UK.

Ryall S, et al. Targeted detection of genetic alterations reveal the prognostic impact of H3K27M and MAPK pathway aberrations in paediatric thalamic glioma. International Symposium of Pediatric Neuro-oncology, 2016; Liverpool, UK.

Ryall S, et al. H3.3-K27M is a negative prognostic marker in thalamic pediatric glioma. American Association for Cancer Research: Chromatin and Epigenetic in Cancer Conference, 2015; Atlanta, GA, USA.

Ryall S, et al. Spatial genetic heterogeneity in diffuse intrinsic pontine glioma and midline high grade glioma: Implications for diagnostic biopsy and targeted therapeutics. Toronto NGS Symposium, 2015; Toronto, ON, CAN.

Ryall S, et al. Spatial genetic heterogeneity in diffuse intrinsic pontine glioma and midline high grade glioma: Implications for diagnostic biopsy and targeted therapeutics. Garron Family Cancer Centre Research Day 2015; Toronto, ON, CAN.

Ryall S, et al. H3.3-K27M is a negative prognostic marker in thalamic pediatric glioma. Pediatric Neuro-Oncology Basic and Translational Research Conference, 2015; San Diego, CA, USA.

Scholarships and Awards

2020	Dr. Rajalakshmi S. Dittakavi and Dr. Prema M. Rao Graduate Award in Laboratory Medicine and Pathobiology University of Toronto \$2,000
2018-2019	Ontario Graduate Scholarship The Hospital for Sick Children \$15,000/year
2016-2019	Restracomp Scholarship The Hospital for Sick Children \$24,000/year
2016	M. Daria Haust Studentship Scholarship \$6,000

2015-2016	CIHR Master's Award Frederick Banting and Charles Best Canadian Graduate Scholarship \$17,500/year
2014-2015	New Investigator Travel Award Hospital for Sick Children \$2500
2014	University of Toronto Fellowship Scholarship \$5000
2013	Joshua's Wish Undergraduate Summer Student Research Award in DIPG \$5000