

CURRICULUM VITAE

Sean Lawler, PhD

Professor
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 Legorreta Cancer Center
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EDUCATION

Undergraduate, B.Sc.(Hons) Biochemistry	University of Edinburgh	1984-1987
Doctor of Philosophy, Molecular Biology	Birkbeck College, University of London	1987-1992

ACADEMIC APPOINTMENTS

Post-doctoral Fellow	University California, San Francisco	1992-1994
Post-doctoral Fellow (Poste Vert)	INSERM U143, Paris	1994-1996
Post-doctoral Fellow	University of Dundee, Scotland	1996-1998
Post-doctoral Fellow/Group Leader	University College London	1998-1999
Instructor	Massachusetts General Hospital	2000-2004
Research Assistant Professor	The Ohio State University	2004-2009
Assistant Professor (Tenure Track)	The Ohio State University	2009-2010
Senior Scientist	University of Leeds	2011-2013
Assistant Professor	Brigham and Women's Hospital, Harvard Medical School	2013-2020
Managing Director	Harvey Cushing Neurooncology Laboratory, Brigham and Women's Hospital, Harvard Medical School	2016-2021
Associate Professor	Brigham and Women's Hospital Harvard Medical School	2020-2021
Associate Professor	Brown University	2021-2026
Co-Director	Therapeutic Sciences Graduate Program, Brown University	2021-
Co-Director	CNS Translational Research Disease Group, Legorreta Cancer Center, Brown University	2021-
Co-Director	Brain Cancer Research Program Legorreta Cancer Center, Brown University	2021-
Scientific Consultant	Division of Pathology, Brown University	2026-
Professor	Brown University	2026-

OTHER APPOINTMENTS

Executive Committee Member	IVY foundation glioma consortium	2008-2010
Member	National Brain Tumour Translational Subcommittee (NCRI, UK)	2011-2013
Scientific Advisory Board	Ethical Tissue bank, University of Bradford, UK	2012-2015

Editorial Board Member	<i>Neurooncology</i>	2015-
Scientific Advisory board	Brain Tumor Research (UK Charity)	2016-2025
Panelist	NCI clinical trials with T-VEC	2016
<i>Ad Hoc</i> grant reviewer (multiple panels)	National Institutes of Health	2018-
Review Committee Member	Michelson Prize	2020-
Committee Member/stakeholder	DoD Glioblastoma working group	2024
Review Committee Member	Terry Fox Foundation, Canada	2025
Review Committee Member	Yorkshire Cancer Research	2025-
Standing Member (DMPC study section)	National Cancer Institute	2025-

UNIVERSITY COMMITTEES

Biosafety Committee	Mass General Brigham	2017-2021
Neurotech studio steering Committee	Brigham and Women's Hospital	2017-2021
Women in Brain Program Committee	Brigham and Women's Hospital	2018-2021
Faculty Nominations Committee	Brown University, (Chair 2025)	2022-2026
PLM Global Health Faculty Search	Brown University, Chair	2024-2025
Legorreta Cancer Center Leadership Advisory Group	Brown University	2024-

MEMBERSHIP IN SOCIETIES

Society for Neurooncology, Member
American Association for Cancer Research, Member
Sigma Xi Society, Member

FUNDING

Current support

1. Warren Alpert Foundation Research Grant (PI: Lawler/Plavicki) 2026-2031, \$3,600,000 *Selective modulation of the blood tumor barrier (BTB) to improve the delivery of brain cancer therapeutics*
2. NCI R01CA263324 (PI: Lawler/Cook) 2022-2027, \$1,200,000, *The role of cytomegalovirus in glioblastoma therapy*
3. NIGMS T32GM139793 (contact PI: Lawler) 2026-2030. *Interdisciplinary training in pharmacological sciences*
4. Pathology and Laboratory Medicine Seed funds, Brown University. (PI: Lawler/Punsoni) 2026-2027, \$25,000. *Developing a personalized neoantigen vaccine for glioblastoma.*
5. NIGMS Cardiopulmonary vascular biology COBRE pilot grant award (PI: Plavicki/Lawler) 2026-2027, \$70,000. *Advancing preclinical BBB models to facilitate drug delivery in glioblastoma*

Completed funding

1. NCI R21CA259734 (PI: Lawler) 2023-2025, \$250,000, *Preclinical assessment of efficacy and tumor microenvironment alterations by PPRX-1701 in glioblastoma*
2. NCI R01CA237063 (PI: Lawler/Pentelute), 2019-2024. \$1,244,000, *Fluorinated macrocyclic peptides as BBB penetrating agents for the treatment of GBM*
3. Symbio Inc. Industry Sponsored study (PI: Lawler), 2022 (\$100,000), *Examination of efficacy of brincidofovir in a mouse model of CMV driven glioblastoma progression*
4. NCI R01CA195532 (PI: Chiocca) (co-investigator), 2015-2020, *Investigating the CMV link to glioblastoma using a novel mouse model*
5. NCI P01CA069246 (PI: Breakefield/Chiocca) (co-investigator), 2017-2022, *Experimental therapeutics and biomonitoring for brain tumors*
6. NCI R01CA184283 (PI: Cobbs, Site PI: Lawler), 2014-2020; \$475,000, *The Role of cidofovir and structural analogs as adjuvant therapy for glioblastoma*

7. Chimerix Inc. (PI: Lawler), 2019; \$80,000, *Antiviral drugs for glioblastoma treatment*
8. BWH Innovator Award (PI: Lawler), 2017-2018, \$50,000, *Creating the Dream drug for glioblastoma*
9. Amgen Inc. (PI: Lawler), 2017, \$40,000, *Investigation of T-VEC for the treatment of glioblastoma*
10. B*CURED Foundation research grant (PI: Lawler), 2016; \$50,000, *Development of peptides targeting glioblastoma*
11. Yorkshire Cancer Research Project Grant (PI: Lawler), 2012-2015; £204,000, *MicroRNA functions in glioblastoma*
12. PPR Foundation Project Grant (PI: Lawler), 2012-2014; £240,000, *Development of a new therapeutic strategy for the treatment of glioblastoma multiforme*
13. Medical Research Council/Astra Zeneca Project Grant (PI: Lawler), 2013-2015, £403,000, *Assessment of AZD1080 in preclinical models of glioblastoma*
14. Yorkshire Cancer Research Clinical Research Fellowship (PI: Lawler), 2013-2015, £188,000, *Developing an anti-invasive strategy for pediatric glioblastoma*
15. European Union – Marie Curie Career Reintegration Award (PI: Lawler), 2012–2015, €100,000, *3D nanofiber scaffolds as a model for glioma Cell migration*
16. Yorkshire Cancer Research PhD Studentship (PI: Lawler). 2012-2015, £48,000, *MicroRNAs in Brain Tumors*
17. Leeds University CRUK Centre Development Award (Co-PI), 2011, £15,220, *MicroRNA alterations in aggressive glioblastoma stem cell growth*
18. Andrea’s Gift/Candlelighters Grant (PI; Lawler), 2011-2015, £750,000, *Establishment of Brain Tumour Research Centre at Leeds*
19. NIH SBIR Award 1R43CA150763-01 (Academic PI), 2010-2011, \$199,365, *High Throughput Ex Vivo Tumor Cell Motility Assay*
20. OSUCCC Seed Grant (PI: Lawler), 2010-2010; \$15,000, *Identification of CMV microRNAs in glioblastoma*
21. OSUCCC Seed Grant (PI: Lawler), 2008, \$10,000, *Validation of a novel nanofiber based migration assay in glioma invasion*
22. Translational Genomics Research Institute (co-PI), 2008-2009, \$100,000, *The Ivy Genomics-based Medicine Project*
23. American Cancer Society Seed Grant (PI: Lawler), 2008, \$30,000, *Characterization of camptothecin analogs with enhanced anti-glioma selectivity*
24. CCTS, OSU collaborative translational grant (PI: Lawler), 2009, \$20,000, *Characterization of gene expression alterations in a novel nanofiber based glioma migration assay*
25. Department of Defense (PI: Chiocca) (co-investigator), 2010-2012, *Herpes virus amplicons for treat diabetic neuropathy*
26. NIH (U01) (PI: Chiocca) (co-investigator), 2008-2013, *Preclinical Toxicity Evaluation of a Potent Oncolytic Virus*
27. NCI (RO1) (PI: Basillion) (co-investigator), 2006-2011, *Imaging of gene expression in glioblastoma*
28. NCI (RO1) (PI: Purow) (co-investigator), 2009-2010, *Regulation of microRNAs in glioma by Notch signalling*
29. National Brain Tumor Foundation (PI: Chiocca) (co-investigator), 2007-2008, *Validation of GSK-3 as an anti-invasive target in glioblastoma*

PUBLICATIONS LIST (H INDEX 64)

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. Ebner R, Chen RH, Shum L, **Lawler S**, Zionchek T, Lee A, Lopez AR, Derynck R. Cloning of a Type I TGF- β receptor and its effect on TGF- β Binding to the Type II Receptor. *Science* 1993;260:1344–48
2. Ebner R, Chen RH, **Lawler S**, Zionchek T, Derynck R. Determination of Type I receptor Specificity by Type II Receptors for TGF- β and Activin. *Science* 1993;262:900–2
3. **Lawler S**, Candia AF, Ebner R, Shum L, Lopez AR, Moses HK, Wright CV, Derynck R. The Murine TGF- β Receptor Has Coincident Embryonic Expression and Binding Preference for TGF- β 1. *Development* 1994;120:165–75
4. **Lawler S**, Feng XH, Chen RH, Maruoka EM, Turck CW, Griswold-Prenner I, Derynck R. The Type II TGF- β Receptor is Phosphorylated Not Only on Serine and Threonine but also on Tyrosine Residues. *J. Biol. Chem.* 1997;272:14850–62
5. Goedert M, Hasegawa M, Jakes R, **Lawler S**, Cuenda A, Cohen P. Phosphorylation of the Microtubule-associated Protein Tau by Stress-activated Protein Kinases. *FEBS Lett.* 1997;409:57–62
6. Rich T, **Lawler S**, Lord JM, Blancheteau VM, Charron DJ, Mooney NA. HLA Class-II Induced Translocation of PKC- α and PKC- β II Isoforms is Abrogated Following Truncation of DR- β Cytoplasmic Domains. *J. Immunol.* 1997;159:3792–98
7. Maucuer A, Ozon S, Manceau V, Gavet O, **Lawler S**, Curmi P, Sobel, A. KIS is a Protein Kinase with an RNA Recognition Motif. *J. Biol. Chem.* 1997;272:23151–56
8. **Lawler S**, Cuenda A, Goedert M, Cohen, P. SKK4, a Novel Activator of Stress-Activated Protein Kinase 1 (SAPK1/JNK). *FEBS Lett.* 1997;414:153–8
9. **Lawler S**, Gavet O, Rich T, Sobel, A. The Effects of Stathmin on Signal Transduction and the Cell Cycle in 293 Cells. *FEBS Lett* 1998;421:55–60
10. Gavet O, Ozon S, Manceau V, **Lawler S**, Curmi P, Sobel A. The Stathmin Phosphoprotein Family: Intracellular Localisation and Effects on the Microtubule Network. *J. Cell Sci.* 1998;111:3333–46
11. **Lawler S**, Fleming Y, Goedert M, Cohen P. Synergistic Activation of SAPK1/JNK1 by two MAP Kinase Kinases in vitro. *Current Biology* 1998;8:1387–90
12. Stein A, Nowicki M, **Lawler S**, Chiocca EA, Demuth T, Berens M, Sander L. Estimating the cell density and invasive radius of 3d glioblastoma tumor spheroids grown in vitro. *Applied Optics* 2007;46: 5110-8
13. Fulci G, Dmitrieva N, Gianni D, Fontana E, Pan X, Lu Y, Kaufman CS, Kaur B, **Lawler SE**, et al. Depletion of peripheral macrophages and brain microglia increases the titer of brain tumor oncolytic viruses. *Cancer Res* 2007;67:9398-406
14. Kefas B, Godlewski J, Comeau L, Li Y, Abounader R, Lee J, Fine H, Chiocca EA, **Lawler SE**, Purow BJ. microRNA-7 inhibits the epidermal growth factor receptor and the Akt pathway and is down-regulated in glioblastoma. *Cancer Res* 2008;68:3566-72
15. Nowicki M, Dmitrieva N, Stein AM, Cutter JL, Godlewski J, Saeki Y, Nita M, Berens ME, Sander LM, Newton HB, Chiocca EA, **Lawler S**. Lithium inhibits invasion of glioma cells: possible involvement of glycogen synthase kinase-3. *Neuro Oncology* 2008;10:690-99
16. Godlewski J, Nowicki MO, Bronisz A, Williams S, Otsuki A, Nuovo G, RayChaudhury A, Newton HB, Chiocca EA, **Lawler S**. Targeting of the Bmi-1 oncogene/stem cell renewal factor by MicroRNA-128 inhibits glioma proliferation and self-renewal. *Cancer Res* 2008;68:9125-30
17. Nuovo G, Lee E, **Lawler S**, Godlewski J, Schmittgen T. In situ detection of mature microRNAs by ultramer-based extension. *Biotechniques* 2009;46:115-25
18. Peruzzi P, **Lawler S***, Senior SL, Dmitrieva N, Edser PA, Gianni D, Chiocca EA, Wade-Martins R. Physiological Transgene Regulation and Functional Complementation of a Neurological Disease Gene Deficiency in Neurons. *Molecular Therapy* 2009;17:1517-26 (**Joint first authorship**)
19. Johnson J, Nowicki MO, Chiocca EA, Viapiano MS, **Lawler SE**, Lannutti JJ. Quantitative analysis of glioma cell migration on electrospun polycaprolactone using time-lapse microscopy. *Tissue Engineering Part C Methods.* 2009;15:531-40

20. Kim YJ, **Lawler S**, Nowicki MO, Chiocca EA, Friedman A. Mathematical model for pattern formation of glioma cells outside the spheroid core. *J.Theor. Biol.* 2009;260:359-71
21. Kefas B, Godlewski J, Comeau L, Li Y, Abounader R, Lee J, Fine H, Chiocca EA, **Lawler SE**, Purow BJ. MicroRNA regulatory circuitry in Notch signaling. *J. Neuroscience* 2009;29:15161-68
22. Khain E, Schneider-Mizell CM, Nowicki MO, Chiocca EA, **Lawler SE**, Sander LM. Pattern formation of glioma cells: Effects of adhesion. *Europhys. Lett.* 2009;88:28006
23. Schwartzbaum J, **Lawler S**, Bo H, Huang K, Chiocca EA. Allergy and inflammatory transcriptome is predominantly negatively correlated with CD133 expression in glioblastoma. *Neuro-oncology* 2010;12:320-27
24. Godlewski, J., Nowicki MO, Bronisz A, Nuovo G, Palatini J, De Lay M, Van Brocklyn J, Ostrowski MC, Chiocca EA, **Lawler SE**. MicroRNA-451 regulates LKB1/AMPK signaling and allows adaptation to metabolic stress in glioma cells. *Mol. Cell* 2010;67:621-32
25. Godlewski J, Bronisz A, Nowicki MO, Chiocca EA, **Lawler SE**. microRNA-451; a conditional switch controlling glioma cell proliferation and migration. *Cell Cycle* 2010;9:2742-48
26. Estrada-Bernal A, **Lawler SE**, Nowicki MO, Ray Chaudhury A, Van Brocklyn JR. The role of sphingosine kinase-1 in EGFRvIII-regulated growth and survival of glioblastoma cells. *J Neurooncol* 2010;102:353-66
27. Williams SP, Nowicki MO, Liu F, Press R, Godlewski J, Abdel-Rasoul M, Kaur B, Fernandez SA, Chiocca EA, **Lawler SE**. Iridirubins decrease glioma invasion by blocking migratory phenotypes in both the tumor and stromal endothelial cell compartments. *Cancer Res* 2011;71:5374-5380
28. Agudelo-Garcia P, De Jesus JK., Williams SP, Nowicki MO, Chiocca EA, Liyanarachchi S, Li PK, Lannutti JJ, Johnson JK. **Lawler SE**, Viapiano MS. Glioma cell migration on 3D nanofiber scaffolds is regulated by substrate topography and abolished by inhibition of STAT3 signaling *Neoplasia* 2011;13:831-40
29. Guerau-de-Arellano M, Smith K, Godlewski J, Liu Y, Winger R, **Lawler SE**, Whitacre C, Racke M, Lovett-Racke A. miRNA dysregulation in multiple sclerosis favors pro-inflammatory autoimmunity. *Brain* 2011;134:3578-89
30. Bronisz A, Godlewski J, Wallace JA, Mathsyaraja H, Srinivasan R, Li F, Fernandez SA, Yee L, Nuovo G., Piper, MG, **Lawler SE**, Chiocca EA, Leone G, Ostrowski MC. The role of tumor suppressor microRNA-320 in PTEN-null mouse mammary fibroblasts. *Nat Cell Biol* 2011;14:159-67
31. Kim Y, Roh S, **Lawler S**, Friedman A. miR-451 and AMPK mutual antagonism in glioma cell migration and proliferation: A mathematical model. *Plos ONE* 2011;6:e28293
32. Alvarez-Breckenridge CA, Yu J, Price R, Wojton J, Pradarelli J, Mao H, Wei M, Wang Y, He S, Hardcastle J, Fernandez SA, Kaur B, **Lawler SE**, Vivier E, Mandelboim O, Moretta A, Caligiuri MA, Chiocca EA. NK cells impede glioblastoma virotherapy through NKp30 and NKp46 natural cytotoxicity receptors. *Nat Med* 2012;18:1827-34
33. Wang Y, Nowicki MO, Wang X, Arnold WD, Fernandez SA, Mo X, Wechuk J, Krisky D, Goss J, Wolfe D, Popovich PG, **Lawler S**, Chiocca EA. Comparative effectiveness of antinociceptive gene therapies in animal models of neuropathic pain. *Gene Therapy* 2012 2013;20:742-50
34. Levesley J, Steele L, Taylor C, Sinha P, **Lawler SE**. ABT-263 Enhances Sensitivity to Metformin and 2-Deoxyglucose in Pediatric Glioma by Promoting Apoptotic Cell Death. *PLoS One* 2013;8:e64051
35. Peruzzi PP, Bronisz A, Nowicki MO, Wang Y, Ogawa D, Price R, Nakano I, Kwon C-H, Hayes J, **Lawler SE**, Ostrowski MC, Chiocca EA, Godlewski J. MicroRNA-128 coordinately targets Polycomb Repressor Complexes in glioma stem cells. *Neuro Oncology* 2013;15:1212-24
36. Kim Y, Lee S, Kim Y-S, **Lawler S**, Gho YS, Kim Y-K, Hwang HJ. Regulation of TH1/TH2 cells in Asthma Development: A mathematical model. *Mathematical Biosciences and Engineering* 2013;10:1095-133
37. Subramani A, Alsidawi S, Jagannathan S, Sumita K, Sasaki AT, Aronow B, Warnick RE, **Lawler S**, Driscoll JJ. The brain microenvironment negatively regulates miRNA-768-3p to promote KRAS expression and lung cancer metastasis *Sci Rep* 2013;3:2392

38. Long PM, Moffett JR, Namboodiri AM, Viapiano MS, **Lawler SE**, Jaworski DM. N-acetylaspartate (NAA) and N-acetylaspartylglutamate (NAAG) promote growth and inhibit differentiation of glioma stem-like cells. *J Biol Chem* 2013;288:31916-7
39. Long PM, Tighe SW, Moffett JR, Namboodiri AM, **Lawler SE**, Viapiano MS, Jaworski DM. Growth arrest of glioma stem-like cells induced by Triacetin-based acetate supplementation is not due to the promotion of differentiation. *PLoS One* 2013 20;8:e80714
40. Tsen AR, Long PM, Driscoll HE, Davies MT, Teasdale BA, Penar PL, Pendlebury WW, Spees JL, **Lawler SE**, Viapiano MS, Jaworski DM. Triacetin-based acetate supplementation as a chemotherapeutic adjuvant therapy in glioma. *Int J Cancer*, 2014 15;134:1300-10
41. Wu H-C, Lin Y-C, Chung H-C, Lin Y-W, Ma H-I, Tu P-H, **Lawler SE**, Chen R-H. USP11 regulates PML stability to control Notch-induced brain tumor initiation and progression. *Nat Comm* 2014;5:3214
42. Bronisz A, Wang Y, Nowicki MO, Peruzzi P, Ansari K, Ogawa D, Balaj L, DeRienzo G, Mineo M, Nakano I, Ostrowski MC, Hochberg F, Weissleder R, **Lawler SE**, Chiocca EA, Godlewski J. A microRNA-1 tumor suppressive signaling network modulates the glioblastoma microenvironment via extracellular vesicles. *Cancer Res* 2014;74:738-50
43. Rankeillor KL, Cairns DA, Loughrey C, Short SC, Chumas P, Ismail A, Chakrabarty A, **Lawler SE**, Roberts P. Methylation-specific multiplex ligation-dependent probe amplification identifies promoter methylation events associated with survival in glioblastoma. *J Neuroonc* 2014;117:243-51 (**corresponding author**)
44. Yan F, Alinari L, Lustberg ME, Martin LK, Cordero-Nieves HM, Banasavadi-Siddegowda Y, Virk S, Barnholtz-Sloan J, Bell E, Wojton J, Jacob NK, Chakravarti A, Nowicki MO, Wu X, Lapalombella R, Datta J, Yu B, Gordon K, Haseley A, Patton JT, Smith PL, Ryu J, Zhang X, Mo X, Marcucci G, Nuovo G, Kwon C-H, Byrd JC, Chiocca EA, Li C, Sif S, Jacob S, **Lawler S**, Kaur B, Baiocchi RA. Targeting protein arginine methyltransferase 5 enzyme over-expression in glioblastoma multiforme. *Cancer Res*. 2014;74(6):1752-65
45. Kim J, Zhang Y, Skalski M, Hayes J, Kefas B, Schiff D, Purow BW, Parsons S, **Lawler SE**, Abounader R. MicroRNA-148a is a prognostic oncomiR that targets MIG6 and BIM to regulate EGFR signaling and apoptosis in glioblastoma. *Cancer Res* 2014;74:1541-53 (**co-corresponding author**)
46. Hayes JL, Boissinot M, Hughes T, Westhead D, Thygesen H, **Lawler SE** Short SC, Wurdak H. Prognostic microRNAs point to key regulatory networks in glioblastoma. *Oncoscience* 2014;2:252-62
47. Hayes J, Thygesen H, Bellamy C, Droop A, Boissinot M, Hughes TA, Westhead D, Alder JE, Shaw L, Short SC, **Lawler SE**. Prediction of clinical outcome in glioblastoma using a biologically relevant nine microRNA signature. *Mol Oncol* 2015;9:704-14
48. Kim YJ, Powathil G, Kang H, Trucu D, Kim H, **Lawler S**, Chaplain M. Strategies of eradicating glioma cells: A multi-scale mathematical model with miR-451-AMPK-mTOR control. *PLoS One* 2015;10:e0114370
49. Cockle J, Picton S, Levesley J, Ilett E, Short SC, Melcher AA, **Lawler SE**, Brüning-Richardson A. Cell migration in paediatric glioma; characterisation and potential therapeutic targeting. *British J Cancer* 2015;112:693-703
50. Ansari KI, Ogawa D, Rooj AK, **Lawler SE**, Krichevsky AM, Johnson MD, Chiocca EA, Bronisz A, Godlewski J. Glucose-based regulation of miR-451/AMPK signaling depends on the OCT1 Transcription Factor. *Cell Reports* 2015;11:902-9
51. Berghauer Pont L, Balvers R, Kloezezan J, Nowicki M, van den Bossche W, Kremer A, Wakimoto H, van den Hoogen B, Leenstra S, Chiocca EA, Dirven C, **Lawler S**, Lamfers, M. In vitro screening of clinical drugs identifies sensitizers of oncolytic viral therapy in glioblastoma stem-like cells. *Gene Therapy* 2015;22:947-59
52. Nakashima H, Kaufmann JK, Wang PY, Nguyen T, Speranza MC, Kasai K, Okemoto K, Otsuki A, Nakano I, Fernandez S, Goins WF, Grandi P, Glorioso JC, **Lawler S**, Cripe TP, Chiocca EA. Histone deacetylase 6 inhibition enhances oncolytic viral replication in glioma. *J Clin Invest* 2015;125:4269-80

53. Speranza M-C, Nowicki MO, Behera P, Cho C-F, Chiocca EA, **Lawler SE**. BKM-120 (Buparlisib): A Phosphatidylinositol-3 Kinase Inhibitor with Anti-Invasive Properties in Glioblastoma *Sci Rep* 2016;6:20189
54. Cho CF, Lee K, Speranza MC, Bononi FC, Viapiano MS, Luyt LG, Weissleder R, Chiocca EA, Lee H, **Lawler SE**. Design of a Microfluidic Chip for Magnetic-Activated Sorting of One-Bead-One-Compound Libraries. *ACS Comb Sci* 2016;13;18:271-8
55. Hayes J, Thygesen H, Gregory W, Westhead DR, French PJ, Van Den Bent MJ, **Lawler SE**, Short SC. A validated microRNA profile with predictive potential in glioblastoma patients treated with bevacizumab. *Mol Oncol.* 2016;10:1296-304
56. Cho C-F, Wolfe JM, Fadzen CM, Calligaris D, Hornburg K, E Chiocca EA, Agar NYR, Pentelute BL, **Lawler SE**. “Blood-brain-barrier spheroids” maintain key barrier characteristics in vitro: A screening platform for brain-penetrating agents. *Nature Communications* 2017;8:15623
57. Zhu Y, Bassoff N, Reinshagen C, Bhore D, Nowicki MO, **Lawler SE**, Roux J, Shah K. Bi-specific molecule against EGFR and death receptors simultaneously targets proliferation and death pathways in tumor cells. *Sci Rep* 2017;7:2602
58. Fadzen CM, Wolfe JM, Cho C-F, Chiocca EA, **Lawler SE**, Pentelute BL. Perfluoroarene-Based Peptide Macrocycles to Enhance Crossing the Blood-Brain Barrier *JACS* 2017;139:15628-31 (**co-corresponding author**)
59. Schregel K, Nazari N, Nowicki MO, Palotai M, **Lawler SE**, Sinkus R, Barbone PE, Patz S. Characterization of glioblastoma in an orthotopic mouse model with magnetic resonance elastography. *NMR Biomed* 2018;31:e3840
60. Speranza MC, Kasai K, Ricklefs F, Klein S, Passaro C, Nakashima H, Kaufmann J, Bronisz A, Aguilar-Cordova E, Guzik BW, Freeman GJ, Reardon D, Wen PY, Chiocca EA, **Lawler SE**. Preclinical analysis of combinatorial glioblastoma therapy with the prodrug-mediated gene therapy vector AdV-tk and immune checkpoint inhibition. *Neuro Oncology* 2018;20:225-35
61. Levesley J, Steele L, Brüning-Richardson A, Davison A, Zhou J, **Lawler S**, Short S. Selective inhibition of BCL-XL increases sensitivity of paediatric brain tumour cells to the anti-mitotic agent MLN8237. *Neuro Oncology* 2018;20:203-14
62. Berger G, Grauwet K, Zhang H, Hussey AM, Nowicki MO, Wang DI, Chiocca EA, **Lawler SE**, Lippard SJ. Anticancer activity of osmium(VI) nitrido complexes in patient-derived glioblastoma initiating cells and in vivo mouse models. *Cancer Lett* 2018;416:138-48
63. Ricklefs F, Speranza MC, Hayes JL, Lee K, Balaj L, Passaro C, Rooj A, Kim R, Breakefield X, Carter B, Rodig S, Freeman G, Weissleder R, Bronisz A, **Lawler SE***, Chiocca EA. Immune evasion mediated by PD-L1 on glioblastoma-derived extracellular vesicles. *Science Advances* 2018;7;4: eaar2766 (***co-corresponding author**)
64. Passaro C, Alayo Q, De Laura I, McNulty J, Grauwet K, Ito H, Bhaskaran V, Mineo M, **Lawler SE**, Shah K, Speranza MC, Goins W, McLaughlin E, Fernandez S, Reardon DA, Freeman GJ, Chiocca EA, Nakashima H. Arming an Oncolytic Herpes Simplex Virus Type 1 with a Single-chain Fragment Variable Antibody against PD-1 for Experimental Glioblastoma Therapy. *Clin Cancer Res.* 2019;25:290-9
65. Kim Y, Kang H, Powathil G, Kim H, Trucu D, Lee W, **Lawler S**, Chaplain M. Role of extracellular matrix and microenvironment in regulation of tumor growth and LAR-mediated invasion in glioblastoma. *PLoS One.* 2018;13:e0204865
66. Bergmann S, **Lawler SE**, Qu Y, Fadzen CM, Wolfe JM, Regan MS, Pentelute BL, Agar NYR, Cho CF. Blood-brain-barrier organoids for investigating the permeability of CNS therapeutics. *Nat Protoc.* 2018;13:2827-2843
67. Bhaskaran V, Nowicki MO, Idriss M, Jimenez MA, Lugli G, Hayes JL, Mahmoud AB, Zane RE, Passaro C, Ligon KL, Haas-Kogan D, Bronisz A, Godlewski J, **Lawler SE**, Chiocca EA, Peruzzi P. The functional synergism of microRNA clustering provides therapeutically relevant epigenetic interference in glioblastoma. *Nat Commun.* 2019;10:442
68. Kim Y, Lee D, Lee J, Lee S, **Lawler S**. Role of tumor-associated neutrophils in regulation of tumor growth in lung cancer development: A mathematical model. *PLoS One.* 2019;14: e0211041

69. Krenzlin H, Behera P, Lorenz V, Passaro C, Zdioruk M, Nowicki MO, Grauwet K, Zhang H, Skubal M, Ito H, Gutknecht M, Griessl MB, Ricklefs F, Ding L, Peled S, James CD, Cobbs CS, Cook CH, Chiocca EA, **Lawler SE**. Cytomegalovirus promotes murine glioblastoma growth via pericyte recruitment and angiogenesis. *J Clin Invest* 2019;130:1671-83
70. Abdelmoula WM, Regan MS, Lopez BGC, Randall EC, **Lawler S**, Mladek AC, Nowicki MO, Marin BM, Agar JN, Swanson KR, Kapur T, Sarkaria JN, Wells W, Agar NYR. Automatic 3D Nonlinear Registration of Mass Spectrometry Imaging and Magnetic Resonance Imaging Data. *Anal Chem*. 2019;91:6206-16
71. Ricklefs FL, Maire CL, Reimer R, Dührsen L, Kolbe K, Holz M, Schneider E, Rissiek A, Babayan A, Hille C, Pantel K, Krasemann S, Glatzel M, Heiland DH, Flitsch J, Martens T, Schmidt NO, Peine S, Breakefield XO, **Lawler S**, Chiocca EA, Fehse B, Giebel B, Görgens A, Westphal M, Lamszus K. Imaging flow cytometry facilitates multiparametric characterization of extracellular vesicles in malignant brain tumours. *J Extracell Vesicles*. 2019;8:1588555
72. Nowicki MO, Hayes JL, Chiocca EA, **Lawler SE**. Proteomic Analysis Implicates Vimentin in Glioblastoma Cell Migration. *Cancers (Basel)*. 2019;11:E466
73. Goldman A, Smalley JL, Mistry M, Krenzlin H, Zhang H, Dhawan A, Caldarone B, Moss SJ, Silbersweig DA, **Lawler SE**, Braun IM. In Vivo, Computational Anxiety Model Identifies Amygdalar Transcriptional Heterogeneity and Distinct Social Behavior in ‘Anxious’ Mice. *Trans. Psychiatry* 2019;9:336
74. Ricklefs FL, Maire CL, Matschke J, Dührsen L, Sauvigny T, Holz M, Kolbe K, Peine S, Herold-Mende C, Carter B, Chiocca EA, **Lawler SE**, Westphal M, Lamszus K. FASN Is a Biomarker Enriched in Malignant Glioma-Derived Extracellular Vesicles. *Int J Mol Sci* 2020;21:1931
75. Storey KM, **Lawler SE**, Jackson TL. Modeling Oncolytic Viral Therapy, Immune Checkpoint Inhibition, and the Complex Dynamics of Innate and Adaptive Immunity in Glioblastoma Treatment. *Front Physiol*. 2020;11:151
76. Alayo QA, Ito H, Passaro C, Zdioruk M, Mahmoud AB, Grauwet K, Zhang X, **Lawler SE**, Reardon DA, Goins WF, Fernandez S, Chiocca EA, Nakashima H. Glioblastoma infiltration of both tumor- and virus-antigen specific cytotoxic T cells correlates with experimental virotherapy responses. *Sci Rep* 2020;10:5095
77. Schregel K, Nowicki MO, Palotai M, Nazari N, Zane R, Sinkus R, **Lawler SE***, Patz S. Magnetic Resonance Elastography reveals effects of anti-angiogenic glioblastoma treatment on tumor stiffness and captures progression in an orthotopic mouse model. *Cancer Imaging* 2020;20:35 (***co-corresponding author**)
78. Fadzen CM, Wolfe JM, Zhou W, Cho CF, von Spreckelsen N, Hutchinson KT, Lee YC, Chiocca EA, **Lawler SE**, Yilmaz OH, Lippard SJ, Pentelute BL. A Platinum(IV) Prodrug-Perfluoroaryl Macrocyclic Peptide Conjugate Enhances Platinum Uptake in the Brain. *J Med Chem* 2020;63:6741-47
79. Mineo M, Lyons SM, Zdioruk M, von Spreckelsen N, Ferrer-Luna R, Ito H, Alayo QA, Kharel P, Giantini Larsen A, Fan WY, Auduong S, Grauwet K, Passaro C, Khalsa JK, Shah K, Reardon DA, Ligon KL, Beroukhim R, Nakashima H, Ivanov P, Anderson PJ, **Lawler SE**, Chiocca EA. Tumor Interferon Signaling Is Regulated by a lncRNA INCR1 Transcribed from the PD-L1 Locus. *Mol Cell* 2020;78:1207-23
80. Boissinot M, King H, Adams M, Higgins J, Shaw G, Ward TA, Steele LP, Tams D, Morton R, Polson E, da Silva B, Droop A, Hayes JL, Martin H, Laslo P, Morrison E, Tomlinson DC, Wurdak H, Bond J, **Lawler SE***, Short SC. Profiling cytotoxic microRNAs in pediatric and adult glioblastoma cells by high-content screening, identification, and validation of miR-1300. *Oncogene* 2020;39:5292-306 (***co-corresponding author**)
81. Kim Y, Lee D, **Lawler S**. Collective invasion of glioma cells through OCT1 signalling and interaction with reactive astrocytes after surgery. *Philos Trans R Soc Lond B Biol Sci* 2020;375:20190390
82. Adams Y, Olsen R, Bengtsson A, Dalgaard N, Zdioruk M, Satpathi S, Behera P, Sahu P, **Lawler S**, Qvortrup K, Wassmer S, Jensen A. P. falciparum erythrocyte membrane protein 1 variants induce cell swelling and disrupt the blood-brain-barrier in cerebral malaria. *J. Exp. Med.* 2021;218:e20201266
83. Oatman N, Dasgupta N, Arora P, Choi K, Gawali MV, Gupta N, Parameswaran S, Salomone J, Reisz JA, **Lawler S**, Furnari F, Brennan C, Wu J, Sallans L, Gudelsky G, Desai P, Gebelein B, Weirauch MT, D’Alessandro A, Komurov K, Dasgupta B. Mechanisms of Stearoyl Co-A Desaturase inhibitor sensitivity and acquired resistance in cancer. *Science Advances* 2021;7:eabd7459

84. Lee J, Lee D, **Lawler S**, Kim Y. Role of neutrophil extracellular traps in regulation of lung cancer invasion and metastasis: Structural insights from a computational model. *PLoS Comput Biol.* 2021;17:e1008257
85. von Spreckelsen N, Fadzen CM, Hartrampf N, Ghotmi Y, Wolfe JM, Dubey S, Yang BY, Kijewski MF, Wang S, Farquhar C, Bergmann S, Zdioruk M, Wasserburg JR, Scott B, Murrell E, Bononi FC, Luyt LG, DiCarli M, Lamfers MLM, Ligon KL, Chiocca EA, Viapiano MS, Pentelute BL, **Lawler SE***, Cho CF. Targeting glioblastoma using a novel peptide specific to a deglycosylated isoform of brevican, *Adv Ther (Weinh)* 2021;4(4):2000244. (***co-corresponding author**)
86. Krenzlin H, Zdioruk M, Nowicki MO, Finkelberg T, Keric N, Lemmermann N, Skubal M, Chiocca EA, Cook CH, **Lawler SE**. Cytomegalovirus infection of glioblastoma cells leads to NF- κ B dependent upregulation of the c-MET oncogenic tyrosine kinase. *Cancer Lett* 2021;513:26-35
87. Saha T, van Vliet AA, Cui C, Macias JJ, Kulkarni A, Pham LN, **Lawler S**, Spanholtz J, Georgoudaki AM, Duru AD, Goldman A. Boosting Natural Killer Cell Therapies in Glioblastoma Multiforme Using Supramolecular Cationic Inhibitors of Heat Shock Protein 90. *Front Mol Biosci.* 2021;8:754443
88. Ketchen SE, Gamboa-Esteves FO, **Lawler SE**, Nowicki MO, Rohwedder A, Knipp S, Prior S, Short SC, Ladbury JE, Brüning-Richardson A. Drug Resistance in Glioma Cells Induced by a Mesenchymal-Amoeboid Migratory Switch. *Biomedicines.* 2021;10:9
89. Brüning-Richardson A, Shaw G, Tams D, Brend T, Sangane H, Barry ST, Hamm G, Goodwin R, Swales J, King H, Steele L, Morton R, Widyadari A, Ward T, Esteves F, Boissinot M, Droop A, **Lawler SE**, Short SC. GSK-3 inhibition is cytotoxic in glioma stem cells through centrosome destabilization and enhances the effect of radiotherapy in orthotopic models. *Cancers (Basel)* 2022;10:e003368
90. Otani Y, Yoo JY, Lewis CT, Chao S, Swanner J, Shimizu T, Kang JM, Murphy SA, Rivera-Caraballo K, Hong B, Glorioso JC, Nakashima H, **Lawler SE**, Banasavadi-Siddegowda Y, Heiss JD, Yan Y, Pei G, Caligiuri MA, Zhao Z, Chiocca EA, Yu J, Kaur B. NOTCH-Induced MDSC Recruitment after oHSV Virotherapy in CNS Cancer Models Modulates Antitumor Immunotherapy. *Clin Cancer Res.* 2022;28:1460-73
91. Koch MS, Zdioruk M, Nowicki MO, Griffith AM, Aguilar-Cordova E, Aguilar LK, Guzik BW, Barone F, Tak PP, Tabatabai G, Lederer JA, Chiocca EA, **Lawler SE**. Systemic high-dose dexamethasone treatment may modulate the efficacy of intratumoral viral oncolytic immunotherapy in glioblastoma models. *J Immunother Cancer* 2022;10:e003368
92. Harrison MAA, Hochreiner EM, Benjamin BP, **Lawler SE**, Zvezdaryk KJ. Metabolic Reprogramming of Glioblastoma Cells during HCMV Infection Induces Secretome-Mediated Paracrine Effects in the Microenvironment. *Viruses* 2022;14:103
93. Cho CF, Farquhar CE, Fadzen CM, Scott B, Zhuang P, von Spreckelsen N, Loas A, Hartrampf N, Pentelute BL, **Lawler SE**. A Tumor-Homing Peptide Platform Enhances Drug Solubility, Improves Blood-Brain Barrier Permeability and Targets Glioblastoma. *Cancers (Basel).* 2022;14:2207
94. Jenner AL, Smalley M, Goldman D, Goins WF, Cobbs CS, Puchalski RB, Chiocca EA, **Lawler S**, Macklin P, Goldman A, Craig M. Agent-based computational modeling of glioblastoma predicts that stromal density is central to oncolytic virus efficacy. *iScience.* 2022;25:104395
95. Berger G, Knelson EH, Nowicki MO, Han S, Jimenez-Macias J-L, Lizotte PH, Adu-Berchie K, Stafford A, Dimitrakakis N, Chiocca EA, Mooney DJ, Barbie DA, **Lawler SE**. STING activation promotes robust immune response and NK cell-mediated tumor regression in glioblastoma models. *Proc. Natl. Acad. Sci.* 2022;119:e2111003119.
96. Koch MS, Zdioruk M, Nowicki MO, Griffith AM, Aguilar-Cordova E, Aguilar LK, Guzik BW, Barone F, Tak PP, Schregel K, Hoetker MS, Lederer JA, Chiocca EA, Tabatabai G, **Lawler SE**. Perturbing DDR signaling enhances cytotoxic effects of local oncolytic virotherapy and modulates the immune environment in glioma. *Mol Ther Oncolytics* 2022;26:275-88
97. Yao Y, Wang J, Liu Y, Qu Y, Wang K, Zhang Y, Chang Y, Yang Z, Wan J, Liu J, Nakashima H, **Lawler SE**, Chiocca EA, Cho CF, Bei F. Variants of the adeno-associated virus serotype 9 with enhanced penetration of the blood-brain barrier in rodents and primates *Nat Biomed Eng.* 2022. doi: 10.1038/s41551-022-00938-7

98. Marloye M, Inam H, Moore CJ, Mertens TR, Ingels A, Koch M, Nowicki MO, Mathieu V, Pritchard JR, Awuah SG, **Lawler SE**, Meyer F, Dufrasne F, Berger G. Self-assembled ruthenium and osmium nanosystems display a potent anticancer profile by interfering with metabolic activity. *Inorg Chem Front* 2022;9:2594-607
99. Jimenez-Macias JL, Lee YC, Miller E, Finkelberg T, Zdioruk M, Berger G, Farquhar CE, Nowicki MO, Cho CF, Fedeles BI, Loas A, Pentelute BL, **Lawler SE**. A Pt(IV)-conjugated brain penetrant macrocyclic peptide shows pre-clinical efficacy in glioblastoma. *J Control Release* 2022;352:623-36
100. Kim Y, Lee J, Lee C, **Lawler S**. Role of senescent tumor cells in building a cytokine shield in the tumor microenvironment: mathematical modeling. *J Math Biol* 2022;86:14
101. Moreno DA, da Silva LS, Gomes I, Leal LF, Berardinelli GN, Gonçalves GM, Pereira CA, Santana IVV, Matsushita MM, Bhat K, **Lawler S**, Reis RM. Cancer immune profiling unveils biomarkers, immunological pathways, and cell type score associated with glioblastoma patients' survival. *Ther Adv Med Oncol* 2022;14:17588359221127678
102. Schwab M, de Trizio I, Ghobrial M, Shiu JY, Sürücü O, Girolamo F, Errede M, Yilmaz M, Haybaeck J, Moiraghi A, Monnier PP, **Lawler SE**, Greenfield JP, Radovanovic I, Frei K, Schlapbach R, Vogel V, Virgintino D, De Bock K, Wälchli T. Nucleolin promotes angiogenesis and endothelial metabolism along the onco-fetal axis in the human brain vasculature. *JCI Insight* 2023;8:e143071
103. Zdioruk M, Jimenez-Macias JL, Nowicki MO, Manz KE, Pennell KD, Koch MS, Finkelberg T, Wu B, Boucher P, Takeda Y, Li W, Piranlioglu R, Ling AL, Chiocca EA, **Lawler SE**. PPRX-1701, a nanoparticle formulation of 6'-bromoindirubin acetoxime, improves delivery and shows efficacy in preclinical GBM models. *Cell Rep Med* 2023;4:101019
104. Koch MS, Zdioruk M, Nowicki MO, Hoetker MS, Barone F, Tak PP, Herbert Z, Chiocca EA, Tabatabai G, **Lawler SE**. Characterizing transcriptomic landscape alterations of CAN-2409 in vitro and in vivo. *Front Med* 2023;10:1140352
105. Ntafoulis I, Kleijn A, Ju J, Jimenez-Cowell K, Fabro F, Klein M, Chi Yen RT, Balvers RK, Li Y, Stubbs AP, Kers TV, Kros JM, **Lawler SE**, Beerepoot LV, Kremer A, Idbaih A, Verreault M, Byrne AT, O'Farrell AC, Connor K, Biswas A, Salvucci M, Prehn JHM, Lambrechts D, Dilcan G, Lodi F, Arijs I, van den Bent MJ, Dirven CMF, Leenstra S; GLIOTRAIN consortium; Lamfers MLM. Ex vivo drug sensitivity screening predicts response to temozolomide in glioblastoma patients and identifies candidate biomarkers *Br J Cancer* 2023;129:1327-38
106. Ma J, Singh S, Li M, Seelig D, Molnar GF, Wong ET, Dhawan S, Kim S, Helland L, Chen D, Tapinos N, **Lawler S**, Singh G, Chen CC. Directionally non-rotating electric field therapy delivered through implanted electrodes as a glioblastoma treatment platform: A proof-of-principle study. *Neurooncol Adv* 2024;6:vdae121
107. Jimenez-Macias JL, Vaughn-Beaucaire P, Bharati A, Xu Z, Forrest M, Hong J, Sun M, Schmidt A, Clark J, Hawkins W, Mercado N, Real J, Huntington K, Zdioruk M, Nowicki MO, Cho CF, Wu B, Li W, Logan T, Manz KE, Pennell KD, Fedeles BI, Brodsky AS, **Lawler SE**. Modulation of blood-tumor barrier transcriptional programs improves intra-tumoral drug delivery and potentiates chemotherapy in GBM. *Science Advances* 2025;11:eadr1481
108. Cheng VWT, Vaughn-Beaucaire P, Shaw GC, Kriegs M, Droop A, Psakis G, Mittelbronn M, Humphries M, Esteves F, Hayes J, Cockle JV, Knipp S, Rohwedder A, Ismail A, Rominiyi O, Collis SJ, Mavria G, Samarasekara J, Ladbury JE, Ketchen S, Morton R, Fagan S, Tams D, Myers K, McGarrity-Cottrell C, Dunning M, Boissinot M, Michalopoulos G, Prior S, Lam YW, Morrison EE, Short SC, **Lawler SE**, Brüning-Richardson A. ARHGAP12 and ARHGAP29 exert distinct regulatory effects on switching between two cell morphological states through GSK-3 activity. *Cell Rep* 2025;44:115361
109. Wen PY, Manzanera A, Duault C, Gonzalez-Kozlova E, Lopez L, Grossman SA, Ye X, Fisher J, Lee I, Walbert T, Snyder J, Brem S, Desai A, Bagley SJ, Kakani C, Strowd R, Tatter S, Laxton A, Lesser G, Amankulor N, Lieberman F, Drappatz J, Mantica M, Triggs D, Haymaker C, Wistuba II, Al-Atrash G, Mendoza Perez J, Futreal A, Little LD, Islam MDH, Duose D, Jiang P, Reuben A, **Lawler SE**, Pichavant M, Gentles A, Bendall S, Kong A, Camacho C, Del Valle D, Kim-Schulze S, Gnjjatic S, Sharon E, Nowicki MO, Peruzzi P, Lane D, Aguilar-Cordova E, Aguilar LK, Nichols G, Dwyer J, Tak PP, Maecker H, Barone

- F, Chiocca EA. A multi-institutional phase 1 clinical trial exploring upfront multimodal standard of care and combined immunotherapies for newly diagnosed glioblastoma. *Neuro Oncol* 2025;noaf079
110. Lee D, Oh S, **Lawler S**, Kim Y. Bistable dynamics of TAN-NK cells in tumor growth and control of radiotherapy-induced neutropenia in lung cancer treatment. *Mathematical Biosciences and Engineering* 2025;22:744-809
 111. Krenzlin H, Corr F, Einheuser P, Schmidt L, Griessl M, Gutknecht M, Alessandri B, Cook CH, Ringel F, **Lawler SE**, Lemmermann NA, Keric N. CMV-induced oncomodulation drives immune escape in glioblastoma. *Sci Rep* 2025;15:25981
 112. Calvao DJ, Vecchio F, Ocitti M, Schmidt A, Shub M, Viapiano M, **Lawler SE**, Hoffman-Kim D. A Brain Cancer Microtissue Model for Studying Tumor Cell Behavior and Cancer-Neuroimmune Interactions, *Sci Rep* 2025 *Sci Rep* 2025;15:36021
 113. Singh G, Singh S, Mohapatra I, Kim S, Sharma M, Akers J, Nguyen T, Wong E, Moreno MM, Kokkoli E, Vasudevan S, **Lawler SE**, El-Deiry WS, Gokaslan Z, Chen CC. Feedforward miR-181d degradation modulates population variance of methyl-guanine methyl transferase and temozolomide resistance. *Cell Rep.* 2025;44:116516
 114. Lee D, **Lawler S**, Kim Y. Asthma-mediated control of optic glioma growth via T cell-microglia interactions: A mathematical model. *NPJ Syst Biol Appl* 2026;12:26
 115. Cho H, Lee J, **Lawler S**, Kim Y. How do tumor-associated neutrophils regulate the microenvironmental landscape of brain tumors: Delivery of nano-particles through BBB. *PLoS Comput Biol* 2026;23;22:e1013906
 116. Singh G, Singh S, Mohapatra I, Hou J, Ni A, Barik D, Zheng H, Kim S, Sharma M, **Lawler S**, Vasudevan S, Kokkoli E, Sarangi S, Elinzano H, Wong ET, Martinez-Moreno M, Gokaslan Z, El-Deiry W, Chen CC. miR-181d coordinates homologous recombination and anti-tumor immune responses in glioblastoma. *iScience* 2026;29:115077
 117. Choi MJ, So EY, Akosman B, Lee YE, Raufi AG, Reginato AM, Chen CC, **Lawler SE**, Wong ET, Liang OD. Enable CAR T cell immunotherapy in glioblastoma by modifying its microenvironment via oncolytic adenovirus encoding bispecific T cell engager. *Mol Ther Oncol* 2026;34:201201
 118. Pantalone MR, Stragliotto G, Martin-Almazan N, Peredo-Harvey I, Jimenez-Macias JL, Rahbar A, **Lawler S**, Bartek J, Söderberg-Naucler C. Valganciclovir Therapy Prevents Human Cytomegalovirus Reactivation in Glioblastoma Patients Undergoing Radiochemotherapy and Extends Time to Tumor Progression. *Cancers (Basel)* 2026;18:1575
 119. Panagioti E, Kelley HJ, Ling AL, Sejour L, Saini S, Goins WF, Roberts D, Sotiriou S, Bryan Iorgulescu J, Dixon KO, Yaffe MB, Vlachos IS, Castro MG, **Lawler SE**, Freeman GJ, Kuchroo VK, Antonio Chiocca E, Cook CH. IDH1-R132H enhances oncolytic HSV-1 therapy by facilitating viral entry and immune activation in glioma. *Nat Commun* 2026;Online ahead of print.
 120. Panagioti E, Yu X, Kong YW, Macakova K, Mercado NB, **Lawler SE**, Yaffe MB, Cook CH. MAPK-activated protein kinase 2 orchestrates memory T-cell inflation in cytomegalovirus infection. *J Immunol* 2026;215:vkag170

OTHER PEER-REVIEWED PUBLICATIONS

Reviews

1. Derynck R, Chen RH, Ebner R, Filvaroff EH, **Lawler S**. (1994) An Emerging Complexity of Receptors for TGF- β . *Proc Princess Takamatsu Symp.* 264–75
2. **Lawler SE**, Peruzzi PP, Chiocca EA. Genetic Strategies for Brain Tumor Therapy. *Cancer Gene Ther* 2005;13:225-33
3. **Lawler S**. If you Need a Shrink try Stathmin/Op18. *Current Biology* 1998;8:R212–R214
4. **Lawler S**. The LIM Kinase Connection. *Current Biology* 1999;9:R800–R802
5. **Lawler SE**, Chiocca EA. Emerging functions of microRNAs in glioblastoma. *J. Neurooncol* 2009;92:297-306
6. Godlewski J, Chiocca EA, **Lawler SE**. MicroRNAs in brain tumors; the stem cell connection. *Cell Death and Differentiation* 2010;17:221-228

7. Asadi K, Chiocca EA, **Lawler SE**. Potential role of miRNAs and their inhibitors in glioma treatment. *Exp Rev Anticancer Ther* 2010;10:1753-62
8. **Lawler SE**. Cytomegalovirus and glioblastoma; controversies and opportunities. *J Neurooncol* 2015;123:465-71
9. **Lawler SE**, Chiocca EA. The many functions of microRNAs in glioblastoma. *World Neurosurgery* 2010;73:598-601
10. **Lawler SE**. MicroRNA Functions and Potential Clinical Utility in Glioblastoma. *Current Signal Transduction Therapy* 2013;8:36-44
11. Hayes J, Peruzzi PP, **Lawler S**. MicroRNAs in cancer: biomarkers, functions and therapy. *Trends Mol Med*. 2014;20:460-9
12. **Lawler SE**, Cho CF, Speranza, MC, Chiocca EA. Oncolytic Viruses: a review. *JAMA Onc* 2017;3:841-9
13. Speranza M-C, Kasai K, **Lawler SE**. Preclinical mouse models for analysis of the therapeutic potential of engineered oncolytic herpes viruses. *ILAR Journal* 2016;57:63-72
14. Berger G, **Lawler SE**. Novel non-nucleotidic STING agonists for cancer immunotherapy. *Future Med Chem* 2018;10:2767-69
15. Luo C, Yang Q, Liu Y, Zhou S, Jiang J, Reiter RJ, Bhattacharya P, Cui Y, Yang H, Ma H, Yao J, **Lawler SE**, Zhang X, Fu J, Rozental R, Aly H, Johnson MD, Chiocca EA, Wang X. The multiple protective roles and molecular mechanisms of melatonin and its precursor N-acetylserotonin, in targeting brain injury and liver damage and in maintaining bone health. *Free Radical Biology and Medicine* 2019;130:215-33
16. Berger G, Marloye M, **Lawler SE**. Pharmacological modulation of the STING pathway for cancer immunotherapy. *Trends Mol Med* 2019;25:412-27
17. Marloye M, **Lawler SE**, Berger G. Current patent and clinical status of stimulator of interferon genes (STING) agonists for cancer immunotherapy. *Pharm Pat Anal* 2019;8:87-90
18. Koch MS, **Lawler SE**, Chiocca EA. HSV-1 Oncolytic Viruses from Bench to Bedside: An Overview of Current Clinical Trials. *Cancers (Basel)* 2020;12:3514
19. **Lawler SE**, Nowicki MO, Ricklefs FL, Chiocca EA. Immune Escape Mediated by Exosomal PD-L1 in Cancer. *Adv Biosyst* 2020:e2000017
20. Hofman L, **Lawler SE**, Lamfers MLM. The Multifaceted Role of Macrophages in Oncolytic Virotherapy. *Viruses* 2021;13:1570
21. Lara-Reyna S, Caseley EA, Topping J, Rodrigues F, Jimenez Macias J, **Lawler SE**, McDermott MF. Inflammasome activation: from molecular mechanisms to autoinflammation. *Clin Transl Immunology* 2022;11:e1404
22. Mercado NB, Real JN, Kaiserman J, Panagioti E, Cook CH, **Lawler SE**. Clinical implications of cytomegalovirus in glioblastoma progression and therapy. *NPJ Precis Oncol* 2024;8:213
23. Jimenez-Macias JL, Vaughn-Beaucaire P, Clark J, **Lawler SE**. Decoding the biology of the blood-tumor barrier in brain cancer. *Mol Cancer Res* 2026;24:422-433
24. Tumor antigen only (TAO) vaccine platforms for glioblastoma therapeutics: a systematic review of evidence from clinical trials.
25. Chen HC, Wong ET, Sarangi S, Elinzano H, Kuburich NA, Mani SA, Ali R, Cielo D, Svokos KA, Sampath P, Malik AN, Lee CK, Doberstein CE, **Lawler SE**, Seyhan A, El-Deiry WS, Chen CC. *EClinicalMedicine* 2026;93:103774
26. Bou Dargham T, Vaios EJ, **Lawler S**, Batich K. Human Cytomegalovirus as a Therapeutic Target in Glioma Stem Cells. *Cells* 2026;15:575
27. Purcell C, Ryspayeva D, Gopal J, Schmidt A, Vaughn-Beaucaire P, Su AY, **Lawler SE**, MacDonald WJ, Pinho-Schwerrman M, Seyhan AA, El-Deiry WS. Biomarker-Guided Strategies for Tumor Vasculature: From Imaging Advances to Novel Therapeutic Interventions. *Cancer Lett* 2026:218610

Editorials

1. **Lawler SE.** Shifting the balance of power? The combination of oncolytic virotherapy and immune checkpoint blockade for glioblastoma treatment. *Neuro Oncol* 2017;19:463-65
2. **Lawler S.** Digging deeper for new targets in bevacizumab resistance. *Neuro Oncol* 2023;25:261-2
3. **Lawler SE.** Identification of transcriptomic signatures associated with glioblastoma recurrence. *Neuro Oncol*.2024;26:989-90
4. **Lawler SE.** Tracing tumor-neuronal connectivity in glioblastoma. *Neuro Oncol* 2025:noaf005

Commentaries

1. **Lawler SE, Chiocca EA.** Oncolytic virus-mediated immunotherapy: A combinatorial approach for cancer treatment. *J Clin Oncol* 2015;33:2812-4
2. **Lawler SE, Chiocca EA, Cook CH.** Cytomegalovirus Encephalopathy during Brain Tumor Irradiation. *Clin Cancer Res* 2020;26:3077-8
3. Vaughn-Beaucaire P, Choi MJ, Liang O, **Lawler SE.** Intracranial CAR-T cell delivery in glioblastoma patients. *Trends Cancer* 2024;10:478-80

BOOKS AND BOOK CHAPTERS

1. **Lawler SE, Saeki Y, Chiocca EA, Wade-Martins R.** iBAC technologies for neurological disease.
2. In: *Gene therapy for neurological disorders.* (Lowenstein PR, Castro MG, eds.) New York: Taylor & Francis, pp 59-73 (2006)
3. **Lawler SE, Chiocca EA.** Genomic medicine, gliomas and brain tumors (Book Chapter) In: *Genomic and Personalized Medicine.* (Ginsburg GS, Willard HF, eds.) Amsterdam, The Netherlands: Elsevier. (2008)
4. **Lawler SE, Viapiano MS.** Mechanisms of glioma invasion (Book Chapter) In: *Brain Tumors* (Van Meir E. ed). Springer-Verlag (2009)
5. **Lawler SE, Chiocca EA.** Genomic medicine and brain tumors. In: *Genomic and Personalized Medicine 2nd Edition.* (Ginsburg GS, Willard HF, eds.) Amsterdam, The Netherlands: Elsevier (2012).
6. Viapiano MS, **Lawler SE.** Malignant glioma microenvironment. In: *Youmans and Winn Neurological Surgery*, 7th Ed., pp 814-824 (H. R. Winn, Ed). Elsevier, PA (2016)
7. Brüning-Richardson, A, **Lawler SE.** Methods to investigate cell migration. In: *Cell Migration in Development, Health and Disease* pp163-181 (Bruning-Richardson A, Knipp S, eds.) Springer Nature (2024)

OTHER NON-PEER REVIEWED PUBLICATIONS

Online for the general reader

1. Overcoming the Barriers to Brain Tumour Therapy. *Scientia* 2020
<https://doi.org/10.33548/SCIENTIA589>
2. Brain cancer therapeutics: overcoming the barriers *Open Access Government* March 2021
3. Our friends oncolytic – using viruses to cure cancer *Open Access Government* September 2021
4. Getting personal in brain tumor therapy: Matching therapies to patients *Open Access Government* December 2021
5. Cytomegalovirus & glioblastoma: solving the riddle *Open Access Government* March 2022
6. Rethinking Cancer as a Molecular and Cellular Ecosystem. *Open Access Government* November 2022

EBook

1. Immunotherapy for brain tumors. *Open Access Government* March 2021

Short News and Comments

1. Fluorescent pet rabbit fuels GM debate *Trends in Cell Biology* January 2001
2. Probiotic foods – a fad with facts *Trends in Cell Biology* February 2001
3. Farmer's research goes against the grain *Trends in Cell Biology* March 2001
4. Human cloning project announced *Trends in Cell Biology* April 2001

5. Boost for development of malaria vaccine *Trends in Cell Biology* April 2001
6. A permanent research base for the HHMI *Trends in Cell Biology* May 2001
7. 'Ghost' of 19th-century scientist inspires a new generation of therapeutics *Trends in Cell Biology* May 2001
8. Look who's docking *Trends in Cell Biology* May 1999
9. Science for arts' sake *Trends in Cell Biology* May 2001
10. Proteomics moves into the spotlight *Trends in Cell Biology* July 2001
11. E-Biosci takes shape *Trends in Cell Biology* September 2001
12. Royal Society proposes international human cloning moratorium *Trends in Cell Biology* September 2001
13. Which cell line is it anyway? *Trends in Cell Biology* September, 2001
14. Texas Medical Center struck by natural disaster *Trends in Cell Biology* September 2001
15. Whitehead Institute elects next director *Trends in Cell Biology* October 2001
16. Proteome chips – a tantalizing new flavor *Trends in Cell Biology* October 2001
17. Survey examines cultural melting pot in US labs *Trends in Cell Biology* December 2001
18. Cytoplasm through the looking glass *Trends in Cell Biology* December 2001
19. Compact proteins *Trends in Cell Biology* December 1998

PATENTS

1. Cho CF, Lawler SE, Viapiano MS. Brevican-Binding Peptides for Brain Tumor Imaging, US Patent App. 17/282,028, 2021
2. Aguilar-Cordova E, Guzik B, Koch M, Lawler S. Combination GMCI and ATRI cancer treatment, US Patent App. 17/709,009, 2022
3. Aguilar-Cordova E, Aguilar LK, Chiocca EA, Guzik B, Lawler, S. Methods of treating tim-3 elevation. US Patent App. 16/336,207, 2021
4. Lawler S, Jimenez-Macias JL. Methods and compositions for enhancing chemotherapeutic drug uptake into brain tumors. US Patent App. 18/634,563, 2024
5. Lawler S, Tajiknia V. US Provisional Patent Application No.: 63/786,128. Title: Sting agonist ADU-S100 in combination with vemurafenib induces STING upregulation, immune-stimulatory cytokine modulation and enhancing NK cell mediated cytotoxicity in BRAF V600E-mutant melanoma
Filing Date: April 09, 2025

ABSTRACTS (selected)

1. Cho-Fong Cho, Bradley Pentelute, E. Antonio Chiocca, Sean E Lawler. A facile, robust and predictive *in vitro* blood-brain-barrier model for high-throughput screening and discovery of brain-penetrating agents. Presented at Society for Neurooncology Annual Meeting 2016. Scottsdale, AZ **(selected for talk)**.
2. Franz Ricklefs, Marica Speranza, Kyunghoon Lee, Carmela Passaro, E. Antonio Chiocca, Agnieszka Bronisz, Sean Lawler. Glioblastoma-derived extracellular vesicles dynamically carry PDL1 and specifically inhibit CD4+ and CD8+ T-cell activation and proliferation. Poster presented at Society for Neurooncology Annual meeting 2016. Scottsdale, AZ. **(selected for Best Poster Prize)**.
3. Maria-Carmela Speranza, Kazue Kasai, Ricklefs Franz, Sarah R. Klein, Carmela Passaro, Nakashima, Hiroshi, Johanna Kaufmann, Agnieszka Bronisz, Estuardo Aguilar-Cordova, Brian W. Guzik, Gordon J. Freeman, David Reardon, Patrick Wen, E. Antonio Chiocca, and Sean E. Lawler. Preclinical analysis of combinatorial glioblastoma therapy with the prodrug-mediated gene therapy vector AdV-tk and immune checkpoint inhibition. Society for Neurooncology Annual Meeting 2016. Scottsdale, AZ. **(selected for talk)**.
4. Franz L. Ricklefs, Josie Hayes, Maria C. Speranza, Harald Krenzlin, Joseph Costello, Gordon J. Freeman, Manfred Westphal, Katrin Lamszus, E. Antonio Chiocca and Sean. E. Lawler. Expression of PD-L2, in glioblastoma; implications as a biomarker for immunotherapy. Presented at Society for Neurooncology Annual Meeting 2017. San Francisco, CA.

5. Anke Brüning-Richardson, Michel Mittelbronn, Matthew Humphries, Filomena Esteves, Marjorie Boissinot, Daniel Tams, Alistair Droop, Julia Cockle, Sophie Taylor, Ruth Morton, Azzam Ismail, Sean Lawler, Georgia Mavria and Susan Short. A GSK-3/ β -catenin/ARHGAP axis regulates glioblastoma invasion. Presented at the Society for Neurooncology Annual Meeting 2017. San Francisco, CA.
6. Martha R Neagu, Maria Carmela Speranza, Robert T Manguso, Sean E Lawler, Gordon J Freeman, John Doench, Arlene H Sharpe, W Nicholas Haining. Defining Molecular Mechanisms of Resistance to Glioblastoma (GBM) Immunity Using a Novel Crispr/cas9 In Vivo Loss-of-function Screening Platform. Presented at the Society for Neurooncology Annual Meeting 2017. San Francisco, CA.
7. Choi-Fong Cho, Yarah Ghotmi, Colin Fadzan, Justin Wolfe, Sonja Bergmann, Yuan Qu, Emily Murrell, Fernanda Bononi, Leonard Luyt, E Antonio Chiocca, Mariano Viapiano, Bradley Pentelute, Sean Lawler. BTP-7, a novel peptide for the therapeutic targeting of brain tumors. Presented at the Society of Neurooncology Annual Meeting 2018, New Orleans, LA.
8. Anke Brüning-Richardson, Hitesh Sangane, Simon Barry, Daniel Tams, Tim Brend, H King, Ruth Morton, Thomas Ward, Lynette Steele, Gary Shaw, Filomena Esteves, Alastair Droop, Sean Lawler, Susan Short. Targeting GSK-3 activity promotes mitotic catastrophe via centrosome destabilisation and enhances the effect of radiotherapy in glioma models. Presented at the European Association of Neurooncology Annual Meeting, 2019. Lyon, France.
9. Samuel Peat, Anke Brüning-Richardson, Laurent Meijer, Sean Lawler, Valerie Thiery, Ruth Morton. Characterisation of the anti-migratory activity of the 6-bromoindirubin-3'-oxime (BIO) derivative VTIND42 in patient-derived GBM subpopulations. Presented at the British Neurooncology Society Annual Meeting 2019. London, UK.
10. Munisha Smalley, Vidushi Kapoor, Douglas Best, Carmela Passaro, Michal O Nowicki, Suniti K Saha, Komal Prasad, E Antonio Chiocca, Sean E Lawler, Aaron Goldman. Translational efficacy of oncolytic HSV-1 in glioblastoma using a human autologous ex vivo platform, CANscript™ Presented at American Association of Cancer Research Annual Meeting 2019. Atlanta, GA.
11. Isaac Solomon, Hirotaka Ito, Hiroshi Nakashima, Yu Zeng, Kristine Pelton, Fiona Watkinson, Kin-Hoe Chow, Nathan Matthewson, Geoffrey Young, David Reardon, Scott Rodig, Sandro Santagata, Mario Suva, Kai Wucherpfennig, Sean Lawler, E Chiocca, Keith Ligon. Histopathology Evaluation of Recurrent Glioma Patients Enrolled to Phase I Clinical Trial of Oncolytic Virus rQNestin34.5v.2. Presented at American Association of Neuropathologists Annual Meeting, 2019.
12. Sean Lawler, Munisha Smalley, Misti Jain, Saravanan Thiyagarajan, Douglas Best, Hans Gertje, Basavaraja U Shanthappa, Ralph Puchalski, Charles Cobbs, E. Antonio Chiocca, Aaron Goldman An ex vivo platform for analysis of oncolytic Type I Herpes Simplex Virus in glioblastoma. Presented at the International Oncolytic Virus Meeting 2019, Rochester, MN.
13. Mikael Marloye, M. Oskar Nowicki, Sean Lawler, Gilles P. Berger Self-assembling neurosphere-potent RuII and OsII complexes with enhanced cellular uptake. Presented at Discover Brigham, 2019. Boston, MA.
14. Marilyn Koch, Mikola Zdioruk, M. Oskar Nowicki, Estuardo Aguilar-Cordova, Laura K. Aguilar, Brian W. Guzik, E. Antonio Chiocca, Sean E. Lawler Examination of the effects of Dexamethasone on the efficacy of immunotherapy in glioma using Gene-Mediated Cytotoxic Immunotherapy. Society of Neurooncology Annual Meeting 2019. Phoenix, AZ, and Discover Brigham 2019. Boston, MA
15. Mikola Zdioruk, Harald Krenzelin, M. Oskar Nowicki, Charles H. Cook, E Antonio Chiocca, Sean E. Lawler. Cytomegalovirus infection leads to NF- κ B dependent upregulation of c-MET and MGMT in glioblastoma and resistance to temozolomide in vivo. Society of Neurooncology Annual Meeting 2019. Phoenix, AZ, and Discover Brigham 2019. Boston, MA.
16. Niklas von Spreckelsen, Yarah Ghotmi, Colin Fadzen, Justin Wolfe, Nina Hartrampf, Sonja Bergmann, Yuan Qu, Emily Murrell, Fernanda Bononi, Leonard Luyt, Martine Lamfers, Keith Ligon, Ennio Chiocca, Mariano Viapiano, Bradley L Pentelute, Sean Lawler, Choi-Fong Cho. BTP-7, a novel peptide for therapeutic targeting of malignant brain tumors. Society of Neurooncology Annual Meeting 2019.
17. Marilyn Koch, Mikolaj Zdioruk, Michal Oskar Nowicki, Estuardo Aguilar-Cordova, Laura K. Aguilar, Brian Guzik, E. Antonio Chiocca, Ghezaleh Tabatabaie, Sean Lawler. Enhancers and repressors of

immunotherapy: translational perspectives on gene-mediated cytotoxic immunotherapy. Presented at the American Society for Cell and Gene Therapy Meeting (ASCGT), Boston May 2020 and 29th Annual short course on experimental models of human cancer, Bar Harbor, ME (**selected for talk**).

18. Berger G, Knelson EH, Nowicki MO, Han S, Jimenez-Macias J-L, Lizotte PH, Adu-Berchie K, Stafford A, Dimitrakakis N, Chiocca EA, Mooney DJ, Barbie DA, Lawler SE. STING activation promotes robust immune response and tumor regression in glioblastoma models. Society for Neurooncology Annual Meeting 2021, Boston, MA. (**selected for talk, and winner Young Investigator Award – Berger**).
19. Mykola Zdioruk, Eleni Panagioti, Michal O. Nowicki, E. Antonio Chiocca, Charles H. Cook, Sean E. Lawler. CMV-associated glioblastoma progression is independent of tumor mutations and age of infection, but requires viral replication. CMV 2022 International meeting, Cambridge UK, (held virtually) (**selected for talk**).
20. Jorge L. Jimenez-Macias, Yen-Chun Lee, Tomer Finkelberg, Mykola Zdioruk, Gilles Berger, Michal O. Nowicki, Choi-Fong Cho, Bogdan Fedeles, PhD Andrei Loas, Bradley L. Pentelute, Sean E. Lawler. Assessment of brain penetrance, biodistribution, and efficacy of platinum (IV)-conjugated fluorinated macrocyclic cell-penetrating peptides in a murine glioblastoma model. AACR Annual Meeting 2022 New Orleans.
21. Mykola Zdioruk, Michal Nowicki, Bin Wu, E. Antonio Chiocca, Sean E. Lawler. PPRX-1701, a deliverable nanoparticle formulation of 6-bromo-acetoxime, blocks tumoral IDO1 expression and shows efficacy in immunocompetent murine glioblastoma models. AACR Annual Meeting 2022 New Orleans LA.
22. Jimenez-Macias J.L. Modulation of the blood-tumor barrier by 6-bromoindirubin acetoxime increases intratumoral drug accumulation and extends survival in murine glioblastoma models. AACR annual meeting 2023 Orlando FL.
23. Jasmine Clark, Jorge Luis Jimenez-Macias, Philippa Vaughn-Beaucaire, Rishi Lulla, Sean E. Lawler. Exploring the effects of Indirubins in diffuse midline glioma models. AACR Annual Meeting 2024, San Diego CA.
24. Andrea Schmidt, Sandra Remson, Philippa Vaughn-Beaucaire, Michelle Shub, Connor Purcell, William Hawkins, Sean Lawler. Exploring the crosstalk between STING and VEGF signaling pathways in brain derived endothelial cells. AACR Annual Meeting 2024, San Diego CA.
25. Dominick Calvao, Andrea Schmidt. Sean Lawler, and Diane Hoffman-Kim. A 3D Cortical Microtissue Model for the Study of Glioblastoma Pathology/ Keystone January 2025.(**selected for talk**)
26. William Hawkins, Cara McDavitt, Jasmine Clark, Andrea Schmidt, Philippa Vaughn-Beaucaire, Vida Tajiknia, Heinrich Elinzano, Rishi Lulla, Sean Lawler. Investigating innate immune targeting of pediatric high grade glioma via STING immunostimulation and therapeutic anti-tumor antibodies. Pediatric SNO, May 2025, Accepted.

SCHOLARLY WORK PUBLISHED IN OTHER MEDIA

NON-PEER-REVIEWED

1. Investigating the role of cytomegalovirus in glioblastoma. Talk given at Seattle Science Foundation 2022. Published online https://www.youtube.com/watch?v=N5El_-2FQrI
2. Turning the body into a cancer hunter. Alumni and Friends Brown University. Published online. <https://alumni-friends.brown.edu/news/2024-03-04/lawler-cancer-research>

INVITED PRESENTATIONS

Virtual

1. *Overcoming barriers in glioblastoma therapy*. University of Manchester Cancer Research Center Director's Lecture, Manchester, UK. April 2020

2. *Enhancers and repressors of immunotherapy: translational perspectives on gene-mediated cytotoxic immunotherapy*. 29th Annual Short Course on Experimental Models of Human Cancer. Jackson Laboratory Bar Harbor, ME, August 2020
3. *Understanding the role of cytomegalovirus in glioblastoma*. University of Tulane Brain Institute. March 2021
4. *Overcoming barriers to glioblastoma therapy*. Brown University Joint Program in Cancer Biology, March 2021
5. *Investigating STING in glioblastoma*. STING & TLR-Targeting Therapies Summit. May 2021
6. *Investigating the role of cytomegalovirus in glioblastoma*. Department of Surgery Grand Rounds. Beth Israel Deaconess Medical Center, Boston MA, November 2021
7. *Breaking the barriers to improve glioblastoma therapy*. Department of Neurosurgery, Rhode Island Hospital Providence RI, January 2022
8. *CMV-associated glioblastoma progression is independent of tumor mutations and age of infection, but requires viral replication*. CMV 2022 International Meeting. March 2022.
9. *The role of cytomegalovirus in glioblastoma growth and therapy*. Molecular Basis of Pathology and Therapy in Neurological Disorders Conference, Massakowski Institute, Warsaw, Poland . October 2022
10. *Therapeutic implications of the interplay between glioblastoma and cytomegalovirus HerpesV* 2023 Symposium, October 2023
11. *Cytomegalovirus and its role in brain cancer*. HerpesV 2024 Symposium, September 2024. **Meeting Chair**
12. *Pre-clinical modeling of drug delivery and immunotherapies in glioblastoma*. The 16th International Symposium Molecular Basis of Pathology and Therapy in Neurological Disorders Massakowski Institute, Warsaw, Poland. October 2024
13. *Local Immunostimulatory Therapies for Glioblastoma: Preclinical and clinical experiences*. 10th Annual Innovative Approaches to Brain Tumor Management. Seattle Science Foundation, January 2025

International

1. *Novel Therapies for Diseases of the Central Nervous System*. St. Georges Hospital Medical School. London UK, September 2007
2. *MicroRNA-451; A regulator of glioma growth invasion and response to metabolic stress*. 14th Biannual Meeting of the Canadian Neuro-oncology Society. Niagara-on-the-lake, Canada, May 2010
3. *What can microRNAs teach us about brain tumors?* Society for Neuro-oncology 15th Annual Meeting, Montreal, Canada, November 2010
4. *Glioma invasion; new pathways, new targets*. NORLUX research laboratory, Luxembourg, June 2011
5. *Glioblastoma; A moving target*. Erasmus Medical Center, Rotterdam Netherlands, February 2013
6. *Exploiting viruses for the treatment of brain tumors*. VII International Symposium on Translational Oncology, Barretos, Brasil. September 2019
7. *Overcoming the barriers for glioblastoma therapy*. University of Huddersfield, UK, January 2023
8. *The role of Cytomegalovirus in Glioblastoma*. 8th Annual Innovative Approaches to Brain Tumor Management Course, Seattle Science Foundation, February 2023
9. *Preclinical Studies on PPRX-1701 for glioblastoma* -Live Webcast, sponsored by Phosphorex Inc. April 2023
10. *Modulation of the blood-tumor barrier for improved drug delivery in glioblastoma*. Abstract accepted for talk. 28th Annual Meeting of the Society for Neurooncology, Vancouver, Canada. November 2023

National

1. *A Novel Inhibitor of Glioma Invasion*. Avalon Pharmaceuticals, Rockland MD, Jan 2006

2. *Molecular Neuro-oncology*, Breakfast course, American Association of Neurological Surgeons Annual Meeting, San Diego, April 2006
3. *Identification of GSK-3 as a Molecular Target in Glioma Invasion*. AACR annual meeting, Los Angeles CA, April 2007
4. *MicroRNAs in glioma invasion and growth* 7th Annual Neuro-oncology Updates. Baltimore September 2008
5. *Discovery of novel pathways in glioblastoma growth and migration*. University of Virginia, Charlottesville VA. March 2009
6. *MicroRNAs in brain tumors*. MicroRNAs in human health and disease conference. Boston, March 2009
7. *MicroRNAs in brain tumors*. 4th World Congress on siRNAs and miRNAs. Boston, May 2010
8. *MicroRNA functions in glioblastoma*. American Society for Gene and Cell Therapy 13th Annual Meeting, Washington DC, May 2010
9. *New Targets in Glioblastoma; from Lithium to microRNAs*. Institute of Cancer Therapeutics, University of Bradford, March 2011
10. *New pathways in glioma invasion*. University of Portsmouth, UK, April 2011
11. *Glioma invasion; new pathways, new targets*. University of Sheffield CRUK Centre, Sheffield, UK, February 2012
12. *Glioma invasion; new pathways, new targets*. St George's Medical School, London, UK, March 2012
13. *Glioma invasion; new pathways, new targets*. Beatson Institute of Cancer Research, Glasgow, March 2012
14. *Glioblastoma; a moving target*. RUNN conference. November 2013
15. *GSK-3 inhibitors and glioblastoma invasion*. 14th Annual Neurooncology Updates. Boston, September 2014
16. *Preclinical Models of Glioblastoma*. ABTC Annual meeting, Baltimore, December 2015
17. *Extracellular vesicles as mediators of immune suppression and as biomarkers in glioblastoma*. Society for Neurooncology Annual Meeting San Francisco, November 2017
18. *Investigating the role of cytomegalovirus in glioblastoma*. U Mass Med School, Worcester MA. February 2018
19. *Blood-Brain Barrier spheroids as an in vitro screening platform for brain-penetrating agents*. World Pre-clinical Congress, Boston, MA, June 21 2018
20. *Gene-mediated cytotoxic immunotherapy and immune checkpoint blockade for glioblastoma treatment*. Immuno-Oncology Summit, Boston MA August 28 2018
21. *Overcoming barriers to glioblastoma therapy* Feinstein Institute of Biomedical Research, New York, NY March 2019
22. *CMV Promotes Brain Tumor Growth via Pericyte Recruitment and Angiogenesis* CMV2019, Birmingham AL, April 2019
23. *Exploring Virotherapy/Immunotherapy Combinations for the Treatment of Glioblastoma* PEGS Boston MA April 2019
24. *CMV promotes brain tumor growth via pericyte recruitment and angiogenesis*. Herpes virus: Pathogenesis & Cancer Symposium, Perelman School of Medicine, University of Pennsylvania, PA. June 2019.
25. *Translating virotherapies for the treatment of glioblastoma*. 4th Annual CHI Oncolytic Virus Immunotherapy Meeting, Boston, MA. August 2019
26. *Latent CMV promotes tumor growth in murine GBM models*. CMV & Cancer Meeting. Cambridge, MA. October 2019.
27. *Improving drug delivery for brain cancer therapy*. NIGMS P41 QE-MAP Annual Symposium & Workshop, Michigan State University, Lansing MI August 2022

28. *The role of cytomegalovirus in glioblastoma growth and therapy*. Upstate Medical University, Syracuse, Dept of Microbiology and Immunology, Dept of Neuroscience and Physiology. November 2022
29. *Pre-clinical studies in murine glioblastoma models*. 2nd Annual Glioblastoma Summit, Hanson-Wade, Boston MA. March 2023
30. *Cytomegalovirus as a driver of progression and treatment resistance in glioblastoma*. ICBTRT Brain Tumor Meeting, Kiawah Island SC, March 2023
31. *Exploring the tumor vasculature for therapeutic vulnerabilities in glioblastoma*. Advances in Medical Research KC2023, Kansas City VA Hospital, Kansas City KS, October 2023
32. *Developing new approaches for the treatment of brain cancer – from the BBB to CMV*. Department of Microbiology and Immunology, Tulane University School of Medicine, October 2023
33. *Preclinical Modeling for Improved Drug Delivery and Therapeutic Approaches in GBM*. Duke University Brain Tumor Center, March 2024
34. *Pre-clinical modeling of drug delivery and immunotherapies in glioblastoma*, AACR Annual Meeting 2024. **Session Chair and organizer. Therapeutic Advances in Malignant Glioma.**
35. *Targeting the Blood Tumor Barrier for Brain Tumor Therapy* BIBC Symposium, Michigan, December 2024
36. *Designing new therapies for glioblastoma*. University of Sevilla, Spain, November 2025
37. *Designing new therapies for glioblastoma*. END2Cancer Conference. University of Oklahoma Cancer Center, December 2025.

Regional/Local

1. The iBAC; A novel High Capacity Herpes Virus Based Gene Delivery System. The Ohio State University Viral Oncogenesis Program monthly seminar series, March 2005
2. *Lithium Chloride; A Novel Inhibitor of Glioma Invasion*. Research in Progress Seminar Series, The Ohio State University Department of Molecular Virology, Immunology and Genetics, April 2006
3. *Molecular Features of High Grade Glioma*. 1st Annual Ohio State University Neuro-oncology Symposium. Columbus OH, Sept 2006
4. *Novel Pathways for the Treatment of Gliomas*. OSUCCC Pediatric Program Retreat. Ohio September 2008
5. *Brain Tumors, MicroRNAs and Stem Cells*. MVIMG staff seminar series. OSU, November 2008
6. Lawler S. (2011). Targeting cell migration as a strategy for brain tumour treatment. *Biomedical Health Research Centre awayday*. University of Leeds, January 2011
7. *MicroRNAs in Brain Tumours*. Brain Tumour Northwest Annual Retreat. Preston, UK, December 2011
8. *Glioblastoma; a moving target*. DF/BWH Neuro-Oncology Multidisciplinary Conference, August 2013
9. *Glioblastoma; a moving target*. Massachusetts General Hospital. January 2017
10. *Pre-clinical approaches for Brain Tumor Treatment*. Brigham and Women's Hospital, Department of Neurosurgery, Grand Rounds, March 2017
11. *Cytomegalovirus and glioblastoma*. Boston Angiogenesis Meeting Massachusetts General Hospital. October 2017
12. *Cytomegalovirus and glioblastoma*. New England Regional Neurooncology Meeting, Massachusetts General Hospital. October 2017
13. *Cytomegalovirus and glioblastoma*. Dana-Farber Cancer Center, BWH Multidisciplinary conference March 2018
14. *Developing pharmacological approaches for drug delivery across the blood-brain barrier* BWH/Dana-Farber Neurooncology Retreat, Boston, MA April 2019.

15. *Overcoming the barriers to glioblastoma therapy*. Department of Microbiology and Molecular Immunology Seminar Series, Brown University, October 2021.
 16. *Glioblastoma; Can we tame the beast?* Veterans' Hospital, Providence, Vascular COBRE. September 2022
 17. *Drug delivery for glioblastoma therapy*. Legorreta Cancer Center Therapeutics Talk. October 2023. (in person)
 18. *Overcoming the barriers for glioblastoma therapy*. Department of Biomedical Engineering Seminar Series, Brown University. December 2022
 19. *CMV and its role in GBM*. Legorreta Cancer Center Annual Retreat, Brown University, November 2024
 20. *Modulation of the tumor microenvironment in glioblastoma*. Legorreta Cancer Center Immunotherapy Retreat, Brown University, February 2025
 21. *Glioblastoma Biology and Therapy*. Math Meets Life Workshop, Brown University, March 2025.
- Meeting co-organizer**

UNIVERSITY TEACHING, ADVISING and MENTORING ROLES

Formal Teaching

Short Course in Protein Engineering, Birkbeck College, University of London, 1991-1992, 30 students
IBGP Neuroscience 797 graduate student teaching faculty, The Ohio State University, 2008-2010, 30 students/class

NEURSGY785 tumor microenvironment graduate teaching faculty, The Ohio State University, 2009-2010, 30 students/class

Course Tutor, Leeds University Medical School 1st Year MBChB in Medicine. 2011-2013. 5 students
Responsible Conduct of Research Lecture (Scientific Communication), Brown University Biomedical Graduate Program 2022-2025. 30 students/class

ENGN2910S Cancer Nanotechnology, Guest Lecturer 2025. 15 students

BIOL2250, Survey of Modern Therapeutics, Brown University, Guest Lecturer 2022-2025, 20 students.

BIOL1295 Fundamentals of Cancer Immunotherapy, Brown University, Course Leader, 2024-present, 30 students/class.

Student contact time for 2025 = 35 hours

Advisees

Hosung Sim, 2008-2010, The Ohio State University PhD Program, Thesis Committee Member

Eldo Verghese, 2011-2013, University of Leeds Masters' Program, Thesis Committee Member

Antony Tabet, 2019-2022, Massachusetts Institute of Technology PhD Program, Thesis Committee Member

Mark Harrison 2020-2023, Tulane University PhD Program, Thesis Committee Member

Alex Wong, 2022-2025, Brown University Comp Bio MD/PhD program, Thesis Committee Chair

Ash Uruchurtu, 2022-present, Brown University Pathobiology Program, Thesis Committee Member

John Zepecki, 2022-present, Brown University Pathobiology Program, Thesis Committee Member

Joanna Joyce Madela, 2023-present, MCB Graduate Program, Thesis Committee Member

Fernando Gutierrez-Garcia, 2023-present, Brown University Pathobiology Program, Thesis Committee Chair

Dominick Calvao, 2024-2025, Brown University, Biomedical Engineering Graduate Program, Thesis Committee Member

Tyler Roady, 2024-present, Brown University Pathobiology Graduate Program, Thesis Committee Member

Andrew Karam, 2024-present, MCB Graduate Program, Thesis Committee Member

Anjelica Salaverria, 2024-present, Brown University Therapeutic Sciences Graduate Program, Thesis Committee Chair

Wenqing Yuan, 2025-present, Brown University Pathobiology Graduate Program, Thesis Committee Member

Mentees - Visiting Scholars to Brown University

Maria Fazal-ul-Haq, PhD student, Fulbright Scholar, University of Islamabad, 2022
Daniel Moreno, Post-doctoral Fellow, FAPESP scholarship, Hopital Amor, Barretos, Brasil. 2022
Mattia Pantalone, PhD student, Karolinska Institute 2022
Adrian Szecepaniak, PhD student, Massakowski Institute, Warsaw, Poland 2022
Philippa Vaughn-Beaucaire, Santander Fellow, PhD student, University of Huddersfield, 2022
Ishrat Mahjabeen, Professor, Fulbright Scholar, 2023-24
Paola Goncalves PhD student, CAPES/Print scholar, Hopital Amor, Barretos, Brasil 2023-24).
Keletso Modise PhD student, Fulbright Scholar, University of the Western Cape, South Africa (2024-present).

Mentees - Undergraduate

Rachel Kantosky, The Ohio State University, Summer Intern, 2005
Rachael Press The Ohio State University, 2009
David Klink, The Ohio State University, 2006-2009
Andy Ditchfield, Leeds University, Summer Intern, 2011
Emily Avery, Brigham & Women's Hospital, Summer Intern, 2014
Prisca Obi, Brigham & Women's Hospital/Harvard College, 2015-16
Kalvis Hornburg, Brigham & Women's Hospital, Harvard College, 2015-16
Rachel Zane, Brigham & Women's Hospital, Harvard Extension School, 2015
Yarah Ghotmi, Brigham & Women's Hospital, 2016
Neil Sathi, Brigham & Women's Hospital, Summer Intern, 2017-2018
Isa De Laura Brigham & Women's Hospital, Harvard University, 2017-2018f Leeds,
Griffin Seidel, Brigham & Women's Hospital, Summer Intern, 2019
Sam Latzman, Brown University, 2022
Madeline Villa, Brown University, 2022
Jason Hong, Brown University, 2022-2024
Michael Sun, Brown University, 2022-
Clara Kugler, Brown University Summer Intern, 2024
Austin Jacobsen, Brown University, 2024-
Isabel Costas, Brown University, 2024-
Anji Friedbauer, Brown University, 2025-
Nikita Anand, Brown University, 2025-

Mentees – Medical Residents and Fellows

Pier Paolo Peruzzi MD, Neurosurgery Resident, The Ohio State University, 2010
Kaveh Asadi MD, Neurosurgery Resident, NREF Fellow, The Ohio State University, 2009-2010
Priyank Sinha MBChB, Masters student, University of Leeds, 2011-2013
Cara McDavitt MD, Pediatric Neurooncology Fellow, Brown University, 2024-

Mentees – Medical Students

Shawn Hervey-Jumper, The Ohio State University, 2005-06
Wesley Whitson The Ohio State University, 2006-07
Aaron Thatcher The Ohio State University, 2008
Obeid Malik The Ohio State University, 2005-06
Manish Karamchandani, Brigham & Women's Hospital, ACS summer fellow, 2016
Abdul Kareem Ahmed, Brigham & Women's Hospital, ABTA summer fellow 2016
Alexandra Giantini-Larsen, HHMI Medical Student Fellowship, 2018-2019
John Pham, Brown University, 2022-23
Sam McKinnon, Brown University, 2022
Jacob Kaiserman, Summer Basic and Translational Research Grant, Brown University, 2024
Joe Inger. ABTA Summer Fellow, Brown University, 2024

Mentees - Masters students

Jessica Tyler, The Ohio State University, 2010
Meghan Handley, Brigham & Women's Hospital, 2015
Hillary Rolfs Brigham & Women's Hospital, 2016.
Shreyas Mahapatra, Brigham & Women's Hospital, 2017
Tomer Finkelberg Brigham & Women's Hospital, 2020
Megan Forrest Brown University Master's in Biotechnology Program, 2022
Zheyun Xu, Brown University Master's in Biotechnology Program, 2024
Jacqueline Real, Brown University Master's in Biotechnology Program, 2024
Jingxu Yan, Brown University Master's in Biotechnology Program, 2025
Sandy Remson, Brown University Master's in Biotechnology Program, 2025
Billy Hawkins, Brown University Master's in Biotechnology Program, 2025
Yovany Padilla, Brown University Master's in Biotechnology Program, 2026
Yanfei Qiu, Brown University Master's in Biotechnology Program, 2026
Elizabeth Ferrara, Brown University Master's in Biotechnology Program, 2026

Mentees - PhD

Shantè P. Williams, The Ohio State University, graduated December 2010
Josie Hayes, University of Leeds, graduated September 2015
Noe Mercado, Blavatnik Fellow, Pathobiology Graduate Program, Brown University, 2021-2026
Andrea Schmidt, Pathobiology Graduate Program, Brown University, 2021-
Jasmine Clark, Molecular Pharmacology and Physiology Graduate Program, Brown University, 2021-2026
Michelle Shub, Therapeutic Sciences Graduate Program, Brown University, 2023-
Paola Sundaram, Molecular and Cellular Biology Graduate Program, Brown University, 2025-

Mentees - Post-doctoral

Jennifer Cutter PhD, The Ohio State University, 2005-2007
Nina Dmitrieva PhD, The Ohio State University, 2005-2008
Jakub Godlewski PhD, The Ohio State University, 2006-2010
Michal Nowicki PhD, ABTA Post-doctoral Fellow, The Ohio State University, 2004-2010
Yan Wang PhD, The Ohio State University, 2009-2010
Daisuke Ogawa PhD, Pelotonia Post-doctoral Fellow, The Ohio State University 2010
Jane Levesley PhD, University of Leeds, 2011-2013
Marjorie Boissinot PhD, Yorkshire Cancer Research Fellow, University of Leeds, 2012-2013
Anke Bruning-Richardson PhD, PPR Foundation Fellow, University of Leeds, 2012-2013
Maria-Carmella Speranza PhD, Brigham and Women's Hospital, 2013-2016
Choi-Fong Cho PhD, CIHR Fellow, Brigham and Women's Hospital, 2013-2018.
Harald Krenzlin MD, Brigham and Women's Hospital, 2017-2019
Mikolaj Zdioruk PhD, Brigham and Women's Hospital, 2016-2021
Marilyn Koch MD PhD, Brigham and Women's Hospital, 2018-2020
Gilles Berger PhD, Brigham and Women's Hospital, 2019-2020
Jorge Jimenez-Macias PhD, Brigham and Women's Hospital, Brown University 2019-2023
Philippa Vaughn-Beaucaire PhD, Brown University, 2023-
Vida Tajiknia MD, Brown University, 2024-2025