

## CURRICULUM VITAE

Sean Lawler, PhD

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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,<br>Harvard Medical School                                             | 2013-2020 |
| Managing Director                  | Harvey Cushing Neurooncology Laboratory,<br>Brigham and Women's Hospital,<br>Harvard Medical School | 2016-2021 |
| Associate Professor                | Brigham and Women's Hospital<br>Harvard Medical School                                              | 2020-2021 |
| Associate Professor                | Brown University                                                                                    | 2021-     |
| Co-Director                        | Therapeutic Sciences Graduate Program,<br>Brown University                                          | 2021-     |
| Co-Director                        | CNS Translational Research Disease Group,<br>Legorreta Cancer Center, Brown University              | 2021-     |
| Co-Director                        | Brain Cancer Research Program<br>Legorreta Cancer Center, Brown University                          | 2021-     |

OTHER APPOINTMENTS

|                                                |                                                                |           |
|------------------------------------------------|----------------------------------------------------------------|-----------|
| Executive Committee Member                     | IVY foundation glioma consortium                               | 2008-2010 |
| Member                                         | National Brain Tumour Translational<br>Subcommittee (NCRI, UK) | 2011-2013 |
| Scientific Advisory Board                      | Ethical Tissue bank,<br>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-     |

|                                      |                                |       |
|--------------------------------------|--------------------------------|-------|
| Editorial Board Member               | <i>Oncotarget</i>              | 2024- |
| 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-     |
| PLM Global Health Faculty Search    | Brown University, Chair        | 2024-2025 |

### MEMBERSHIP IN SOCIETIES

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

### PUBLICATIONS LIST

#### 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- $\beta$  receptor and its effect on TGF- $\beta$  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- $\beta$  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- $\beta$  Receptor Has Coincident Embryonic Expression and Binding Preference for TGF- $\beta$ 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- $\beta$  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- $\alpha$  and PKC- $\beta$  II Isoforms is Abrogated Following Truncation of DR- $\beta$  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, Chiocci 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. Berghauser Pont L, Balvers R, Kloezezan J, Nowicki M, van den Bossche W, Kremer A, Wakimoto H, van den Hoogen B, Leenstra S, Chiocci 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, Chiocci 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, Chiocci 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, Chiocci 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 Chiocci 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, Bhare 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, Chiocci 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, Chiocci 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, Chiocci 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\***, Chiocci 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,

- Beroukhir 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
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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 Tabatabatai, 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 29<sup>th</sup> 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-bromindirubin 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](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*. 29<sup>th</sup> 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.* 10<sup>th</sup> 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.* 14<sup>th</sup> 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 15<sup>th</sup> 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. 28<sup>th</sup> 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* 7<sup>th</sup> 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.* 4<sup>th</sup> World Congress on siRNAs and miRNAs. Boston, May 2010

8. *MicroRNA functions in glioblastoma*. American Society for Gene and Cell Therapy 13<sup>th</sup> 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*. 14<sup>th</sup> 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*. 4<sup>th</sup> 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*. 2<sup>nd</sup> 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

### **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*. 1<sup>st</sup> 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**

22. *Designing new therapies for glioblastoma*. University of Sevilla, Spain, November 2025
23. *Designing new therapies for glioblastoma*. END2Cancer Conference. University of Oklahoma Cancer Center, December 2025.

## GRANTS

1. NCI R01CA263324 (PI: Lawler/Cook) 2022-2027, \$1,200,000, *The role of cytomegalovirus in glioblastoma therapy*
2. NCI R21CA259734 (PI: Lawler) 2023-2025, \$250,000, *Preclinical assessment of efficacy and tumor microenvironment alterations by PPRX-1701 in glioblastoma*.
3. NCI R01CA237063 (PI: Lawler/Pentelute), 2019-2024. \$1,244,000, *Fluorinated macrocyclic peptides as BBB penetrating agents for the treatment of GBM*
4. Symbio Inc. Industry Sponsored study (PI: Lawler), 2022 (\$100,000), *Examination of efficacy of brincidofovir in a mouse model of CMV driven glioblastoma progression*
5. NCI R01CA195532 (PI:Chiocca) (co-investigator), 2015-2020, *Investigating the CMV link to glioblastoma using a novel mouse model*
6. NCI P01CA069246 (PI: Breakefield/Chiocca) (co-investigator), 2017-2022, *Experimental therapeutics and biomonitoring for brain tumors*
7. NCI R01CA184283 (PI: Cobbs, Site PI: Lawler), 2014-2020; \$475,000, *The Role of cidofovir and structural analogs as adjuvant therapy for glioblastoma*
8. Chimerix Inc. (PI: Lawler), 2019; \$80,000, *Antiviral drugs for glioblastoma treatment*
9. BWH Innovator Award (PI: Lawler), 2017-2018, \$50,000, *Creating the Dream drug for glioblastoma*
10. Amgen Inc. (PI: Lawler), 2017, \$40,000, *Investigation of T-VEC for the treatment of glioblastoma*
11. B\*CURED Foundation research grant (PI: Lawler), 2016; \$50,000, *Development of peptides targeting glioblastoma*
12. Yorkshire Cancer Research Project Grant (PI: Lawler), 2012-2015; £204,000, *MicroRNA functions in glioblastoma*
13. PPR Foundation Project Grant (PI: Lawler), 2012-2014; £240,000, *Development of a new therapeutic strategy for the treatment of glioblastoma multiforme*
14. Medical Research Council/Astra Zeneca Project Grant (PI: Lawler), 2013-2015, £403,000, *Assessment of AZD1080 in preclinical models of glioblastoma*
15. Yorkshire Cancer Research Clinical Research Fellowship (PI: Lawler), 2013-2015, £188,000, *Developing an anti-invasive strategy for pediatric glioblastoma*
16. European Union – Marie Curie Career Reintegration Award (PI: Lawler), 2012–2015, €100,000, *3D nanofiber scaffolds as a model for glioma Cell migration*
17. Yorkshire Cancer Research PhD Studentship (PI: Lawler). 2012-2015, £48,000, *MicroRNAs in Brain Tumors*
18. Leeds University CRUK Centre Development Award (Co-PI), 2011, £15,220, *MicroRNA alterations in aggressive glioblastoma stem cell growth*
19. Andrea's Gift/Candlelighters Grant (PI; Lawler), 2011-2015, £750,000, *Establishment of Brain Tumour Research Centre at Leeds*
20. NIH SBIR Award 1R43CA150763-01 (Academic PI), 2010-2011, \$199,365, *High Throughput Ex Vivo Tumor Cell Motility Assay*
21. OSUCCC Seed Grant (PI: Lawler), 2010-2010; \$15,000, *Identification of CMV microRNAs in glioblastoma*
22. OSUCCC Seed Grant (PI: Lawler), 2008, \$10,000, *Validation of a novel nanofiber based migration*

*assay in glioma invasion*

23. Translational Genomics Research Institute (co-PI), 2008-2009, \$100,000, *The Ivy Genomics-based Medicine Project*
24. American Cancer Society Seed Grant (PI: Lawler), 2008, \$30,000, *Characterization of camptothecin analogs with enhanced anti-glioma selectivity*
25. CCTS, OSU collaborative translational grant (PI: Lawler), 2009, \$20,000, *Characterization of gene expression alterations in a novel nanofiber based glioma migration assay*
26. Department of Defense (PI: Chiocca) (co-investigator), 2010-2012, *Herpes virus amplicons for treatment of diabetic neuropathy*
27. NIH (U01) (PI: Chiocca) (co-investigator), 2008-2013, *Preclinical Toxicity Evaluation of a Potent Oncolytic Virus*
28. NCI (RO1) (PI: Basillion) (co-investigator), 2006-2011, *Imaging of gene expression in glioblastoma*
29. NCI (RO1) (PI: Purow) (co-investigator), 2009-2010, *Regulation of microRNAs in glioma by Notch signalling*
30. National Brain Tumor Foundation (PI: Chiocca) (co-investigator), 2007-2008, *Validation of GSK-3 as an anti-invasive target in glioblastoma*

#### 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, Hospital Amor, Barretos, Brasil. 2022

Mattia Pantalone, PhD student, Karolinska Institute 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, Hospital 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-  
Andrea Schmidt, Pathobiology Graduate Program, Brown University, 2021-  
Jasmine Clark, Molecular Pharmacology and Physiology Graduate Program, Brown University, 2021-  
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  
Marilin 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