

BIBLIOGRAPHY

- Able Jr, R. A., Dudu, V., & Vazquez, M. (2011). Migration and invasion of brain tumors.
- Adams, C., Poston, R., & Buk, S. (1989). Pathology, histochemistry and immunocytochemistry of lesions in acute multiple sclerosis. *Journal of the neurological sciences*, 92(2), 291-306.
- Amano, M., Chihara, K., Kimura, K., Fukata, Y., Nakamura, N., Matsuura, Y., & Kaibuchi, K. (1997). Formation of actin stress fibers and focal adhesions enhanced by Rho-kinase. *Science*, 275(5304), 1308-1311.
- Amano, M., Nakayama, M., & Kaibuchi, K. (2010). Rho-kinase/ROCK: a key regulator of the cytoskeleton and cell polarity. *Cytoskeleton*, 67(9), 545-554.
- Ananthakrishnan, R., & Ehrlicher, A. (2007). The forces behind cell movement. *International journal of biological sciences*, 3(5), 303.
- Andrae, J., Gallini, R., & Betsholtz, C. (2008). Role of platelet-derived growth factors in physiology and medicine. *Genes & development*, 22(10), 1276-1312.
- Armstrong, R., Harvath, L., & Dubois-Dalcq, M. (1990). Type 1 astrocytes and oligodendrocyte-type 2 astrocyte glial progenitors migrate toward distinct molecules. *Journal of neuroscience research*, 27(3), 400-407.
- Armstrong, R., Harvath, L., & DUBOIS-DALCQ, M. (1991). Astrocytes and O-2A Progenitors Migrate Toward Distinct Molecules in a Microchemotaxis Chamber. *Annals of the New York Academy of Sciences*, 633(1), 520-522.
- Bacon, C., Lakics, V., Machesky, L., & Rumsby, M. (2007). N-WASP regulates extension of filopodia and processes by oligodendrocyte progenitors, oligodendrocytes, and Schwann cells—implications for axon ensheathment at myelination. *Glia*, 55(8), 844-858.
- Baer, A. S., Syed, Y. A., Kang, S. U., Mitteregger, D., Vig, R., Ffrench-Constant, C., . . . Kotter, M. R. (2009). Myelin-mediated inhibition of oligodendrocyte precursor differentiation can be overcome by pharmacological modulation of Fyn-RhoA and protein kinase C signalling. *Brain*, 132(2), 465-481.
- Barateiro, A., & Fernandes, A. (2014). Temporal oligodendrocyte lineage progression: in vitro models of proliferation, differentiation and myelination. *Biochimica et Biophysica Acta (BBA)-Molecular Cell Research*, 1843(9), 1917-1929.
- Baron, W., Colognato, H., & Ffrench-Constant, C. (2005). Integrin-growth factor interactions as regulators of oligodendroglial development and function. *Glia*, 49(4), 467-479.
- Baron, W., & Shattil, S. J. (2002). The oligodendrocyte precursor mitogen PDGF stimulates proliferation by activation of $\alpha\beta 3$ integrins. *The EMBO Journal*, 21(8), 1957-1966.
- Barth, R. F. (1998). Rat brain tumor models in experimental neuro-oncology: the 9L, C6, T9, F98, RG2 (D74), RT-2 and CNS-1 gliomas. *Journal of neuro-oncology*, 36(1), 91-102.
- Bauer, N. G., Richter-Landsberg, C., & Ffrench-Constant, C. (2009). Role of the oligodendroglial cytoskeleton in differentiation and myelination. *Glia*, 57(16), 1691-1705.
- Baumann, N., & Pham-Dinh, D. (2001). Biology of oligodendrocyte and myelin in the mammalian central nervous system. *Physiological reviews*, 81(2), 871-927.
- Bergsten, E., Uutela, M., Li, X., Pietras, K., Östman, A., Heldin, C.-H., . . . Eriksson, U. (2001). PDGF-D is a specific, protease-activated ligand for the PDGF β -receptor. *Nature cell biology*, 3(5), 512-516.
- Berridge, M. J. (2004). Calcium signal transduction and cellular control mechanisms. *Biochimica et Biophysica Acta (BBA)-Molecular Cell Research*, 1742(1-3), 3-7.
- Betsholtz, C., Karlsson, L., & Lindahl, P. (2001). Developmental roles of platelet-derived growth factors. *Bioessays*, 23(6), 494-507.
- Bhat, N. R., & Zhang, P. (1996). Activation of Mitogen-Activated Protein Kinases in Oligodendrocytes. *Journal of neurochemistry*, 66(5), 1986-1994.

- Blaschuk, K., & Frost, E. (2000). The regulation of proliferation and differentiation in oligodendrocyte progenitor cells by α V integrins. *Development*, 127(9), 1961-1969.
- Bloxham, W. (2013). Simultaneous Inhibition of the Raf/MEK/ERK and PI3K/Akt/mTOR Pathways has Significant Synergistic Effects on Proliferation and Migration in C6 Glioma Cancer Cells. *The Journal of Experimental Secondary Science*, 3(1), 1-7
- Bogatcheva, N. V., Zemskova, M. A., Poirier, C., Mirzapoiazova, T., Kolosova, I., Bresnick, A. R., & Verin, A. D. (2011). The suppression of myosin light chain (MLC) phosphorylation during the response to lipopolysaccharide (LPS): beneficial or detrimental to endothelial barrier? *Journal of cellular physiology*, 226(12), 3132-3146.
- Bornhauser, B., & Lindholm, D. (2005). MSAP enhances migration of C6 glioma cells through phosphorylation of the myosin regulatory light chain. *Cellular and molecular life sciences*, 62(11), 1260-1266.
- Bradl, M., & Lassmann, H. (2010). Oligodendrocytes: biology and pathology. *Acta neuropathologica*, 119(1), 37-53.
- Bribián, A., Barallobre, M. J., Soussi-Yanicostas, N., & de Castro, F. (2006). Anosmin-1 modulates the FGF-2-dependent migration of oligodendrocyte precursors in the developing optic nerve. *Molecular and Cellular Neuroscience*, 33(1), 2-14.
- Buchdunger, E., Zimmermann, J., Mett, H., Meyer, T., Müller, M., Druker, B. J., & Lydon, N. B. (1996). Inhibition of the Abl protein-tyrosine kinase in vitro and in vivo by a 2-phenylaminopyrimidine derivative. *Cancer Research*, 56(1), 100-104.
- Burridge, K., Chrzanowska-Wodnicka, M., & Zhong, C. (1997). Focal adhesion assembly. *Trends in cell biology*, 7(9), 342-347.
- Buttery, P. C. (1999). Laminin-2/integrin interactions enhance myelin membrane formation by oligodendrocytes. *Molecular and Cellular Neuroscience*, 14(3), 199-212.
- Cai, J., Qi, Y., Hu, X., Tan, M., Liu, Z., Zhang, J., . . . Qiu, M. (2005). Generation of oligodendrocyte precursor cells from mouse dorsal spinal cord independent of Nkx6 regulation and Shh signaling. *Neuron*, 45(1), 41-53.
- Calver, A. R., Hall, A. C., Yu, W.-P., Walsh, F. S., Heath, J. K., Betsholtz, C., & Richardson, W. D. (1998). Oligodendrocyte population dynamics and the role of PDGF in vivo. *Neuron*, 20(5), 869-882.
- Capdeville, R., Buchdunger, E., Zimmermann, J., & Matter, A. (2002). Glivec (STI571, imatinib), a rationally developed, targeted anticancer drug. *Nature reviews Drug discovery*, 1(7), 493-502.
- Challacombe, J. F., Snow, D. M., & Letourneau, P. C. (1996). Actin filament bundles are required for microtubule reorientation during growth cone turning to avoid an inhibitory guidance cue. *Journal of cell science*, 109(8), 2031-2040.
- Chen, D., Zuo, D., Luan, C., Liu, M., Na, M., Ran, L., . . . Salford, L. G. (2014). Glioma cell proliferation controlled by ERK activity-dependent surface expression of PDGFRA. *PloS one*, 9(1), e87281.
- Chen, Y., Balasubramanian, V., Peng, J., Hurlock, E. C., Tallquist, M., Li, J., & Lu, Q. R. (2007). Isolation and culture of rat and mouse oligodendrocyte precursor cells. *Nature protocols*, 2(5), 1044-1051.
- Choe, Y., Huynh, T., & Pleasure, S. J. (2014). Migration of oligodendrocyte progenitor cells is controlled by transforming growth factor β family proteins during corticogenesis. *Journal of Neuroscience*, 34(45), 14973-14983.
- Christen, R., Lovern, M., Clifford, A. M., Yue, J.-X., Goss, G. G., Pouyssegur, J., & Lenormand, P. (2015). ERK1 and ERK2 present functional redundancy in tetrapods despite higher evolution rate of ERK1. *BMC evolutionary biology*, 15(1), 179.
- Ciccarelli, C., Vulcano, F., Milazzo, L., Gravina, G. L., Marampon, F., Macioce, G., . . . Hassan, H. J. (2016). Key role of MEK/ERK pathway in sustaining tumorigenicity and in vitro radioresistance of embryonal rhabdomyosarcoma stem-like cell population. *Molecular cancer*, 15(1), 16.

- Clarke, I., & Dirks, P. (2003). A human brain tumor-derived PDGFR- α deletion mutant is transforming. *Oncogene*, 22(5), 722-733.
- Clemente, D., Ortega, M. C., Arenzana, F. J., & de Castro, F. (2011). FGF-2 and Anosmin-1 are selectively expressed in different types of multiple sclerosis lesions. *Journal of Neuroscience*, 31(42), 14899-14909.
- Cobb, M. H. (1999). MAP kinase pathways. *Progress in biophysics and molecular biology*, 71(3), 479-500.
- Contos, J. J., Ishii, I., & Chun, J. (2000). Lysophosphatidic acid receptors. *Molecular pharmacology*, 58(6), 1188-1196.
- Cruz-Martinez, P., Martinez-Ferre, A., Jaramillo-Merchán, J., Estirado, A., Martinez, S., & Jones, J. (2014). FGF8 activates proliferation and migration in mouse post-natal oligodendrocyte progenitor cells. *PloS one*, 9(9), e108241.
- Cui, Y., Sun, Y.-W., Lin, H.-S., Su, W.-M., Fang, Y., Zhao, Y., . . . Gao, Y. (2014). Platelet-derived growth factor-BB induces matrix metalloproteinase-2 expression and rat vascular smooth muscle cell migration via ROCK and ERK/p38 MAPK pathways. *Molecular and cellular biochemistry*, 393(1-2), 255-263.
- Dawson, J., Hotchin, N., Lax, S., & Rumsby, M. (2003). Lysophosphatidic acid induces process retraction in CG-4 line oligodendrocytes and oligodendrocyte precursor cells but not in differentiated oligodendrocytes. *Journal of neurochemistry*, 87(4), 947-957.
- de Castro, F., & Bribián, A. (2005). The molecular orchestra of the migration of oligodendrocyte precursors during development. *Brain research reviews*, 49(2), 227-241.
- de Castro, F., Bribián, A., & Ortega, M. C. (2013). Regulation of oligodendrocyte precursor migration during development, in adulthood and in pathology. *Cellular and molecular life sciences*, 70(22), 4355-4368.
- de Castro, F., & Zalc, B. (2013). Migration of myelin-forming cells in the CNS. *Comprehensive Developmental Neuroscience: Cellular Migration and Formation of Neuronal Connections*, 417-429.
- Dennis, J., White, M. A., Forrest, A. D., Yuelling, L. M., Nogaroli, L., Afshari, F. S., . . . Fuss, B. (2008). Phosphodiesterase-1 α /autotaxin's MORFO domain regulates oligodendroglial process network formation and focal adhesion organization. *Molecular and Cellular Neuroscience*, 37(2), 412-424.
- Deramaudt, T. B., Dujardin, D., Noulet, F., Martin, S., Vauchelles, R., Takeda, K., & Rondé, P. (2014). Altering FAK-paxillin interactions reduces adhesion, migration and invasion processes. *PloS one*, 9(3), e92059.
- Ebner, S., Dunbar, M., & McKinnon, R. D. (2000). Distinct roles for PI3K in proliferation and survival of oligodendrocyte progenitor cells. *Journal of neuroscience research*, 62(3), 336-345.
- Ellison, J., Scully, S., & De Vellis, J. (1996). Evidence for neuronal regulation of oligodendrocyte development: Cellular localization of platelet-derived growth factor α receptor and A-chain mRNA during cerebral cortex development in the rat. *Journal of neuroscience research*, 45(1), 28-39.
- Farooqi, A. A., & Siddik, Z. H. (2015). Platelet-derived growth factor (PDGF) signalling in cancer: rapidly emerging signalling landscape. *Cell biochemistry and function*, 33(5), 257-265.
- Feng, H., Hu, B., Liu, K.-W., Li, Y., Lu, X., Cheng, T., . . . Fenton, T. (2011). Activation of Rac1 by Src-dependent phosphorylation of Dock180 Y1811 mediates PDGFR α -stimulated glioma tumorigenesis in mice and humans. *The Journal of clinical investigation*, 121(12), 4670-4684.
- Fleming, T. P., Saxena, A., Clark, W. C., Robertson, J. T., Oldfield, E. H., Aaronson, S. A., & Ali, I. U. (1992). Amplification and/or overexpression of platelet-derived growth factor receptors and epidermal growth factor receptor in human glial tumors. *Cancer Research*, 52(16), 4550-4553.
- Fogarty, M. H. (2005). *Fate-mapping the mouse neural tube by Cre-loxP transgenesis*. University of London,

- Fox, M. A., Afshari, F. S., Alexander, J. K., Colello, R. J., & Fuss, B. (2006). Growth conelike sensorimotor structures are characteristic features of postmigratory, premyelinating oligodendrocytes. *Glia*, 53(5), 563-566.
- Franco, B., Guioli, S., Pragliola, A., Incerti, B., Bardoni, B., Tonlorenzi, R., . . . Taillon-Miller, P. (1991). A gene deleted in Kallmann's syndrome shares homology with neural cell adhesion and axonal path-finding molecules. *Nature*, 353(6344), 529.
- Franklin, R. J., & Blakemore, W. F. (1997). To what extent is oligodendrocyte progenitor migration a limiting factor in the remyelination of multiple sclerosis lesions? *Mult Scler*, 3(2), 84-87.
- Frost, E., Kiernan, B., & Faissner, A. (1996). Regulation of oligodendrocyte precursor migration by extracellular matrix: evidence for substrate-specific inhibition of migration by tenascin-C. *Developmental neuroscience*, 18(4), 266-273.
- Frost, E. E., Buttery, P. C., & Milner, R. (1999). Integrins mediate a neuronal survival signal for oligodendrocytes. *Current Biology*, 9(21), 1251-S1251.
- Frost, E. E., Milner, R., & French-Constant, C. (2000). Migration assays for oligodendrocyte precursor cells. *Extracellular Matrix Protocols*, 265-278.
- Frost, E. E., Nielsen, J. A., Le, T. Q., & Armstrong, R. C. (2003). PDGF and FGF2 regulate oligodendrocyte progenitor responses to demyelination. *Developmental Neurobiology*, 54(3), 457-472.
- Frost, E. E., Zhou, Z., Krasnesky, K., & Armstrong, R. C. (2009). Initiation of oligodendrocyte progenitor cell migration by a PDGF-A activated extracellular regulated kinase (ERK) signaling pathway. *Neurochemical research*, 34(1), 169-181.
- Fruttiger, M., Karlsson, L., Hall, A. C., Abramsson, A., Calver, A. R., Bostrom, H., . . . Betsholtz, C. (1999). Defective oligodendrocyte development and severe hypomyelination in PDGF-A knockout mice. *Development*, 126(3), 457-467.
- Funa, K., & Sasahara, M. (2014). The roles of PDGF in development and during neurogenesis in the normal and diseased nervous system. *Journal of Neuroimmune Pharmacology*, 9(2), 168-181.
- Furuta, Y., Kanazawa, S., Takeda, N., Sobue, K., Nakatsuji, N., Nomura, S., . . . Aizawa, S. (1995). Reduced cell motility and enhanced focal adhesion contact formation in cells from FAK-deficient mice. *Nature*, 377(6549), 539-544.
- Furuta, Y., Piston, D. W., & Hogan, B. (1997). Bone morphogenetic proteins (BMPs) as regulators of dorsal forebrain development. *Development*, 124(11), 2203-2212.
- G Gritsenko, P., Ilina, O., & Friedl, P. (2012). Interstitial guidance of cancer invasion. *The Journal of pathology*, 226(2), 185-199.
- Gentile, M. T., Ciniglia, C., Reccia, M. G., Volpicelli, F., Gatti, M., Thellung, S., . . . Colucci-D'Amato, L. (2015). Ruta graveolens L. induces death of glioblastoma cells and neural progenitors, but not of neurons, via ERK 1/2 and AKT activation. *PloS one*, 10(3), e0118864.
- Golub, T. R., Barker, G. F., Lovett, M., & Gilliland, D. G. (1994). Fusion of PDGF receptor β to a novel ets-like gene, tel, in chronic myelomonocytic leukemia with t (5; 12) chromosomal translocation. *Cell*, 77(2), 307-316.
- Gomes, W. A., Mehler, M. F., & Kessler, J. A. (2003). Transgenic overexpression of BMP4 increases astroglial and decreases oligodendroglial lineage commitment. *Developmental biology*, 255(1), 164-177.
- Grobbs, B., De Deyn, P., & Slegers, H. (2002). Rat C6 glioma as experimental model system for the study of glioblastoma growth and invasion. *Cell and tissue research*, 310(3), 257-270.
- Gross, R. E., Mehler, M. F., Mabie, P. C., Zang, Z., Santschi, L., & Kessler, J. A. (1996). Bone morphogenetic proteins promote astroglial lineage commitment by mammalian subventricular zone progenitor cells. *Neuron*, 17(4), 595-606.
- Guardiola-Diaz, H. M., Ishii, A., & Bansal, R. (2012). Erk1/2 MAPK and mTOR signaling sequentially regulates progression through distinct stages of oligodendrocyte differentiation. *Glia*, 60(3), 476-486.

- Hagberg, B. (1971). Clinical aspects of globoid cell and metachromatic leukodystrophies. *Birth defects original article series*, 7(1), 103-112.
- Haines, J. D., Fragoso, G., Hossain, S., Mushynski, W. E., & Almazan, G. (2008). p38 Mitogen-activated protein kinase regulates myelination. *Journal of Molecular Neuroscience*, 35(1), 23-33.
- Hakanen, J., Duprat, S., & Salminen, M. (2011). Netrin1 is required for neural and glial precursor migrations into the olfactory bulb. *Developmental biology*, 355(1), 101-114.
- Halfpenny, C., Benn, T., & Scolding, N. (2002). Cell transplantation, myelin repair, and multiple sclerosis. *Lancet Neurol*, 1(1), 31-40.
- Hall, A. (2005). Rho GTPases and the control of cell behaviour. *Biochemical Society Transactions*, 33(5), 891-895.
- Happel, P., Möller, K., Schwering, N. K., & Dietzel, I. D. (2013). Migrating oligodendrocyte progenitor cells swell prior to soma dislocation. *Scientific reports*, 3.
- Hayakawa, K., Pham, L.-D. D., Som, A. T., Lee, B. J., Guo, S., Lo, E. H., & Arai, K. (2011). Vascular endothelial growth factor regulates the migration of oligodendrocyte precursor cells. *Journal of Neuroscience*, 31(29), 10666-10670.
- Hayakawa, K., Seo, J. H., Pham, L.-D. D., Miyamoto, N., Som, A. T., Guo, S., . . . Arai, K. (2012). Cerebral endothelial derived vascular endothelial growth factor promotes the migration but not the proliferation of oligodendrocyte precursor cells in vitro. *Neuroscience letters*, 513(1), 42-46.
- Heinrich, M. C., Corless, C. L., Duensing, A., McGreevey, L., Chen, C.-J., Joseph, N., . . . Town, A. (2003). PDGFRA activating mutations in gastrointestinal stromal tumors. *Science*, 299(5607), 708-710.
- Heldin, C.-H., Östman, A., & Rönstrand, L. (1998). Signal transduction via platelet-derived growth factor receptors. *Biochimica et Biophysica Acta (BBA)-reviews on cancer*, 1378(1), F79-F113.
- Hickman, C. P., Roberts, L. S., Larson, A., Ober, W. C., & Garrison, C. (2001). *Integrated principles of zoology* (Vol. 15): McGraw-Hill New York.
- Hoch, R. V., & Soriano, P. (2003). Roles of PDGF in animal development. *Development*, 130(20), 4769-4784.
- Hu, J.-G., Fu, S.-L., Wang, Y.-X., Li, Y., Jiang, X.-Y., Wang, X.-F., . . . Xu, X.-M. (2008). Platelet-derived growth factor-AA mediates oligodendrocyte lineage differentiation through activation of extracellular signal-regulated kinase signaling pathway. *Neuroscience*, 151(1), 138-147.
- Hu, Y.-L., Lu, S., Szeto, K. W., Sun, J., Wang, Y., Lasheras, J. C., & Chien, S. (2014). FAK and paxillin dynamics at focal adhesions in the protrusions of migrating cells. *Scientific reports*, 4.
- Huang, C., Jacobson, K., & Schaller, M. D. (2004). MAP kinases and cell migration. *Journal of cell science*, 117(20), 4619-4628.
- Hunger-Glaser, I., Salazar, E. P., Sinnett-Smith, J., & Rozengurt, E. (2003). Bombesin, Lysophosphatidic Acid, and Epidermal Growth Factor Rapidly Stimulate Focal Adhesion Kinase Phosphorylation at Ser-910 Requirement for ERK activation. *Journal of Biological Chemistry*, 278(25), 22631-22643.
- Ibanez, C., Shields, S., El-Etr, M., Baulieu, E. E., Schumacher, M., & Franklin, R. (2004). Systemic progesterone administration results in a partial reversal of the age-associated decline in CNS remyelination following toxin-induced demyelination in male rats. *Neuropathology and applied neurobiology*, 30(1), 80-89.
- Igishi, T., Fukuhara, S., Patel, V., Katz, B.-Z., Yamada, K. M., & Gutkind, J. S. (1999). Divergent Signaling Pathways Link Focal Adhesion Kinase to Mitogen-activated Protein Kinase Cascades Evidence for a role of Paxillin in C-Jun Nh2-Terminal kinase activation. *Journal of Biological Chemistry*, 274(43), 30738-30746.
- Ishibe, S., Joly, D., Liu, Z.-X., & Cantley, L. G. (2004). Paxillin serves as an ERK-regulated scaffold for coordinating FAK and Rac activation in epithelial morphogenesis. *Molecular cell*, 16(2), 257-267.

- Jarjour, A. A., Manitt, C., Moore, S. W., Thompson, K. M., Yuh, S.-J., & Kennedy, T. E. (2003). Netrin-1 Is a Chemorepellent for Oligodendrocyte Precursor Cells in the Embryonic Spinal Cord. *J. Neurosci.*, 23(9), 3735-3744.
- Jarjour, A. A., Manitt, C., Moore, S. W., Thompson, K. M., Yuh, S.-J., & Kennedy, T. E. (2003). Netrin-1 is a chemorepellent for oligodendrocyte precursor cells in the embryonic spinal cord. *Journal of Neuroscience*, 23(9), 3735-3744.
- Jin, Y., Blue, E. K., Dixon, S., Hou, L., Wysolmerski, R. B., & Gallagher, P. J. (2001). Identification of a new form of death-associated protein kinase that promotes cell survival. *Journal of Biological Chemistry*, 276(43), 39667-39678.
- Kajiwar, K., Orita, T., Nishizaki, T., Kamiryo, T., Nakayama, H., & Ito, H. (1992). Glial fibrillary acidic protein (GFAP) expression and nucleolar organizer regions (NORs) in human gliomas. *Brain research*, 572(1), 314-318.
- Kakita, A., & Goldman, J. E. (1999). Patterns and dynamics of SVZ cell migration in the postnatal forebrain: monitoring living progenitors in slice preparations. *Neuron*, 23(3), 461-472.
- Kallmann, F. (1944). The genetic aspects of primary eunuchoidism. *Am J Ment Defic*, 48, 203-236.
- Kandel, E. R., Schwartz, J. H., Jessell, T. M., Siegelbaum, S. A., & Hudspeth, A. J. (2000). *Principles of neural science* (Vol. 4): McGraw-hill New York.
- Keely, P. J., Westwick, J. K., Whitehead, I. P., Der, C. J., & Parise, L. V. (1997). Cdc42 and Rac1 induce integrin-mediated cell motility and invasiveness through PI (3) K. *Nature*, 390(6660), 632-636.
- Keller, B., Yang, T., Chen, Y., Munivez, E., Bertin, T., Zabel, B., & Lee, B. (2011). Interaction of TGF β and BMP signaling pathways during chondrogenesis. *PloS one*, 6(1), e16421.
- Kessaris, N., Fogarty, M., Iannarelli, P., Grist, M., Wegner, M., & Richardson, W. D. (2006). Competing waves of oligodendrocytes in the forebrain and postnatal elimination of an embryonic lineage. *Nature neuroscience*, 9(2), 173-179.
- Kim, B., Castro, L. M. R., Jawed, S., & Niles, L. P. (2008). Clinically relevant concentrations of valproic acid modulate melatonin MT 1 receptor, HDAC and MeCP2 mRNA expression in C6 glioma cells. *European journal of pharmacology*, 589(1), 45-48.
- Kim, J., Lo, L., Dormand, E., & Anderson, D. J. (2003). SOX10 maintains multipotency and inhibits neuronal differentiation of neural crest stem cells. *Neuron*, 38(1), 17-31.
- Kippert, A., Trajkovic, K., Rajendran, L., Ries, J., & Simons, M. (2007). Rho regulates membrane transport in the endocytic pathway to control plasma membrane specialization in oligodendroglial cells. *Journal of Neuroscience*, 27(13), 3560-3570.
- Kirby, B. B., Takada, N., Latimer, A. J., Shin, J., Carney, T. J., Kelsh, R. N., & Appel, B. (2006). In vivo time-lapse imaging shows dynamic oligodendrocyte progenitor behavior during zebrafish development. *Nature neuroscience*, 9(12), 1506.
- Klämbt, C. (2009). Modes and regulation of glial migration in vertebrates and invertebrates. *Nature Reviews Neuroscience*, 10(11), 769-779.
- Klemke, R. L., Cai, S., Giannini, A. L., Gallagher, P. J., De Lanerolle, P., & Cheresch, D. A. (1997). Regulation of cell motility by mitogen-activated protein kinase. *The Journal of cell biology*, 137(2), 481-492.
- Kohler, N., & Lipton, A. (1974). Platelets as a source of fibroblast growth-promoting activity. *Experimental cell research*, 87(2), 297-301.
- Kotter, M. R., Li, W.-W., Zhao, C., & Franklin, R. J. (2006). Myelin impairs CNS remyelination by inhibiting oligodendrocyte precursor cell differentiation. *Journal of Neuroscience*, 26(1), 328-332.
- Kunapuli, P., Kasyapa, C. S., Hawthorn, L., & Cowell, J. K. (2004). LGI1, a putative tumor metastasis suppressor gene, controls in vitro invasiveness and expression of matrix metalloproteinases in glioma cells through the ERK1/2 pathway. *Journal of Biological Chemistry*, 279(22), 23151-23157.

- LaRochelle, W. J., Jeffers, M., McDonald, W. F., Chillakuru, R. A., Giese, N. A., Lokker, N. A., . . . Vernet, C. (2001). PDGF-D, a new protease-activated growth factor. *Nature cell biology*, 3(5), 517-521.
- Lauffenburger, D. A., & Horwitz, A. F. (1996). Cell migration: a physically integrated molecular process. *Cell*, 84(3), 359-369.
- Le Bras, B., Barallobre, M.-J., Homman-Ludiye, J., Ny, A., Wyns, S., Tammela, T., . . . Muriel, M.-P. (2006). VEGF-C is a trophic factor for neural progenitors in the vertebrate embryonic brain. *Nature neuroscience*, 9(3), 340-348.
- Leclerc, C., Haeich, J., Aulestia, F. J., Kilhoffer, M.-C., Miller, A. L., Neant, I., . . . Chneiweiss, H. (2016). Calcium signaling orchestrates glioblastoma development: Facts and conjunctures. *Biochimica et Biophysica Acta (BBA)-Molecular Cell Research*, 1863(6), 1447-1459.
- Lee, J., Mayer-Proschel, M., & Rao, M. (2000). Gliogenesis in the central nervous system. *Glia*, 30(2), 105-121.
- Lefloch, R., Pouyssegur, J., & Lenormand, P. (2008). Single and combined silencing of ERK1 and ERK2 reveals their positive contribution to growth signaling depending on their expression levels. *Molecular and cellular biology*, 28(1), 511-527.
- Legouis, R., Hardelin, J.-P., Levilliers, J., Claverie, J.-M., Compain, S., Wunderle, V., . . . Caterina, D. (1991). The candidate gene for the X-linked Kallmann syndrome encodes a protein related to adhesion molecules. *Cell*, 67(2), 423-435.
- Levison, S. W., Chuang, C., Abramson, B. J., & Goldman, J. E. (1993). The migrational patterns and developmental fates of glial precursors in the rat subventricular zone are temporally regulated. *Development*, 119(3), 611-622.
- Li, X., Pontén, A., Aase, K., Karlsson, L., Abramsson, A., Uutela, M., . . . Li, H. (2000). PDGF-C is a new protease-activated ligand for the PDGF α -receptor. *Nature cell biology*, 2(5), 302-309.
- Liang, X., Draghi, N. A., & Resh, M. D. (2004). Signaling from integrins to Fyn to Rho family GTPases regulates morphologic differentiation of oligodendrocytes. *Journal of Neuroscience*, 24(32), 7140-7149.
- Lind, C., Gray, C., Pearson, A., Cameron, R., O'Carroll, S., Narayan, P., . . . Dragunow, M. (2006). The mitogen-activated/extracellular signal-regulated kinase kinase 1/2 inhibitor U0126 induces glial fibrillary acidic protein expression and reduces the proliferation and migration of C6 glioma cells. *Neuroscience*, 141(4), 1925-1933.
- Lingor, P., Teusch, N., Schwarz, K., Mueller, R., Mack, H., Bähr, M., & Mueller, B. K. (2007). Inhibition of Rho kinase (ROCK) increases neurite outgrowth on chondroitin sulphate proteoglycan in vitro and axonal regeneration in the adult optic nerve in vivo. *Journal of neurochemistry*, 103(1), 181-189.
- Liu, K.-W., Feng, H., Bachoo, R., Kazlauskas, A., Smith, E. M., Symes, K., . . . Hu, B. (2011). SHP-2/PTPN11 mediates gliomagenesis driven by PDGFRA and INK4A/ARF aberrations in mice and humans. *The Journal of clinical investigation*, 121(3), 905.
- Liu, X., Lu, Y., Zhang, Y., Li, Y., Zhou, J., Yuan, Y., . . . He, C. (2012). Slit2 regulates the dispersal of oligodendrocyte precursor cells via Fyn/RhoA signaling. *Journal of Biological Chemistry*, 287(21), 17503-17516.
- Liu, Z.-X., Yu, C. F., Nickel, C., Thomas, S., & Cantley, L. G. (2002). Hepatocyte growth factor induces ERK-dependent paxillin phosphorylation and regulates paxillin-focal adhesion kinase association. *Journal of Biological Chemistry*, 277(12), 10452-10458.
- Livak, K. J., & Schmittgen, T. D. (2001). Analysis of relative gene expression data using real-time quantitative PCR and the 2⁻ $\Delta\Delta$ CT method. *methods*, 25(4), 402-408.
- Lo, S. H. (2006). Focal adhesions: what's new inside. *Developmental biology*, 294(2), 280-291.
- Lokker, N. A., Sullivan, C. M., Hollenbach, S. J., Israel, M. A., & Giese, N. A. (2002a). Platelet-derived growth factor (PDGF) autocrine signaling regulates survival and mitogenic pathways in glioblastoma cells. *Cancer Research*, 62(13), 3729-3735.

- Lokker, N. A., Sullivan, C. M., Hollenbach, S. J., Israel, M. A., & Giese, N. A. (2002b). Platelet-derived growth factor (PDGF) autocrine signaling regulates survival and mitogenic pathways in glioblastoma cells: evidence that the novel PDGF-C and PDGF-D ligands may play a role in the development of brain tumors. *Cancer research*, 62(13), 3729-3735.
- Lu, Q. R., Yuk, D.-i., Alberta, J. A., Zhu, Z., Pawlitzky, I., Chan, J., . . . Rowitch, D. H. (2000). Sonic hedgehog-regulated oligodendrocyte lineage genes encoding bHLH proteins in the mammalian central nervous system. *Neuron*, 25(2), 317-329.
- MacDonald, T. J., Brown, K. M., LaFleur, B., Peterson, K., Lawlor, C., Chen, Y., . . . Stephan, D. A. (2001). Expression profiling of medulloblastoma: PDGFRA and the RAS/MAPK pathway as therapeutic targets for metastatic disease. *Nature genetics*, 29(2), 143-152.
- Magnusson, M. K., Meade, K. E., Brown, K. E., Arthur, D. C., Krueger, L. A., Barrett, A. J., & Dunbar, C. E. (2001). Rabaptin-5 is a novel fusion partner to platelet-derived growth factor β receptor in chronic myelomonocytic leukemia. *Blood*, 98(8), 2518-2525.
- Maher, E. A., Furnari, F. B., Bachoo, R. M., Rowitch, D. H., Louis, D. N., Cavenee, W. K., & DePinho, R. A. (2001). Malignant glioma: genetics and biology of a grave matter. *Genes & development*, 15(11), 1311-1333.
- Maka, M., Stolt, C. C., & Wegner, M. (2005). Identification of Sox8 as a modifier gene in a mouse model of Hirschsprung disease reveals underlying molecular defect. *Developmental biology*, 277(1), 155-169.
- Martinho, O., Longatto-Filho, A., Lambros, M., Martins, A., Pinheiro, C., Silva, A., . . . Milanezi, F. (2009). Expression, mutation and copy number analysis of platelet-derived growth factor receptor A (PDGFRA) and its ligand PDGFA in gliomas. *British journal of cancer*, 101(6), 973.
- Matsuoka, T., & Yashiro, M. (2014). Rho/ROCK signaling in motility and metastasis of gastric cancer. *World journal of gastroenterology: WJG*, 20(38), 13756.
- Mattila, P. K., & Lappalainen, P. (2008). Filopodia: molecular architecture and cellular functions. *Nature reviews Molecular cell biology*, 9(6), 446-454.
- Mazzucchelli, C., Vantaggiato, C., Ciamei, A., Fasano, S., Pakhotin, P., Krezel, W., . . . Valverde, O. (2002). Knockout of ERK1 MAP kinase enhances synaptic plasticity in the striatum and facilitates striatal-mediated learning and memory. *Neuron*, 34(5), 807-820.
- McKinnon, R. D., Smith, C., Behar, T., Smith, T., & Dubois-Dalcq, M. (1993). Distinct effects of bFGF and PDGF on oligodendrocyte progenitor cells. *Glia*, 7(3), 245-254.
- McKinnon, R. D., Waldron, S., & Kiel, M. E. (2005). PDGF α -receptor signal strength controls an RTK rheostat that integrates phosphoinositol 3'-kinase and phospholipase C γ pathways during oligodendrocyte maturation. *Journal of Neuroscience*, 25(14), 3499-3508.
- McLendon, R., Friedman, A., Bigner, D., Van Meir, E. G., Brat, D. J., Mastrogiannis, G. M., . . . Aldape, K. (2008). Comprehensive genomic characterization defines human glioblastoma genes and core pathways. *Nature*, 455(7216), 1061-1068.
- Mei, P., Bai, J., Shi, M., Liu, Q., Li, Z., Fan, Y., & Zheng, J. (2014). BRMS1 suppresses glioma progression by regulating invasion, migration and adhesion of glioma cells. *PLoS one*, 9(5), e98544.
- Melanson, M., Grossberndt, A., Klowak, M., Leong, C., Frost, E. E., Prout, M., . . . Wong, L. (2010). Fatigue and cognition in patients with relapsing multiple sclerosis treated with interferon beta. *International Journal of Neuroscience*, 120(10), 631-640.
- Melanson, M., Miao, P., Eisenstat, D., Gong, Y., Gu, X., Au, K., . . . Namaka, M. (2009). Experimental autoimmune encephalomyelitis-induced upregulation of tumor necrosis factor-alpha in the dorsal root ganglia. *Multiple Sclerosis Journal*, 15(10), 1135-1145.
- Menn, B., Garcia-Verdugo, J. M., Yaschine, C., Gonzalez-Perez, O., Rowitch, D., & Alvarez-Buylla, A. (2006). Origin of oligodendrocytes in the subventricular zone of the adult brain. *Journal of Neuroscience*, 26(30), 7907-7918.

- Miki, H., Suetsugu, S., & Takenawa, T. (1998). WAVE, a novel WASP-family protein involved in actin reorganization induced by Rac. *The EMBO journal*, 17(23), 6932-6941.
- Milner, R., Anderson, H. J., Rippon, R. F., McKay, J. S., Franklin, R. J., Marchionni, M. A., . . . Ffrench-Constant, C. (1997). Contrasting effects of mitogenic growth factors on oligodendrocyte precursor cell migration. *Glia*, 19(1), 85-90.
- Milner, R., Edwards, G., & Streuli, C. (1996). A role in migration for the $\alpha v\beta 1$ integrin expressed on oligodendrocyte precursors. *Journal of Neuroscience*, 16(22), 7240-7252.
- Milner, R., & Ffrench-Constant, C. (1994). A developmental analysis of oligodendroglial integrins in primary cells: changes in alpha v-associated beta subunits during differentiation. *Development*, 120(12), 3497-3506.
- Mitra, S. K., & Schlaepfer, D. D. (2006). Integrin-regulated FAK–Src signaling in normal and cancer cells. *Current opinion in cell biology*, 18(5), 516-523.
- Miyamoto, Y., Yamauchi, J., & Tanoue, A. (2008). Cdk5 phosphorylation of WAVE2 regulates oligodendrocyte precursor cell migration through nonreceptor tyrosine kinase Fyn. *Journal of Neuroscience*, 28(33), 8326-8337.
- Miyazono, K., & Heldin, C.-H. (2008). *Latent forms of TGF- β : Molecular structure and mechanisms of activation*. Paper presented at the Proceedings of Ciba Foundation Symposium.
- Murata-Hori, M., Suizu, F., Iwasaki, T., Kikuchi, A., & Hosoya, H. (1999). ZIP kinase identified as a novel myosin regulatory light chain kinase in HeLa cells. *FEBS letters*, 451(1), 81-84.
- Murcia-Belmonte, V., Esteban, P. F., Martínez-Hernández, J., Gruart, A., Luján, R., Delgado-García, J. M., & de Castro, F. (2016). Anosmin-1 over-expression regulates oligodendrocyte precursor cell proliferation, migration and myelin sheath thickness. *Brain Structure and Function*, 221(3), 1365-1385.
- Murphy, K. G., Hatton, J. D., & Sang U, H. (1998). Role of glial fibrillary acidic protein expression in the biology of human glioblastoma U-373MG cells. *Journal of neurosurgery*, 89(6), 997-1006.
- Nagano, M., Hoshino, D., Koshikawa, N., Akizawa, T., & Seiki, M. (2012). Turnover of focal adhesions and cancer cell migration. *International journal of cell biology*, 2012.
- Nakada, M., Kita, D., Watanabe, T., Hayashi, Y., Teng, L., Pyko, I. V., & Hamada, J.-I. (2011). Aberrant signaling pathways in glioma. *Cancers*, 3(3), 3242-3278.
- Nakada, M., Nakada, S., Demuth, T., Tran, N., Hoelzinger, D., & Berens, M. (2007). Molecular targets of glioma invasion. *Cellular and molecular life sciences*, 64(4), 458-478.
- Narumiya, S., Ishizaki, T., & Ufhata, M. (2000). Use and properties of ROCK-specific inhibitor Y-27632. *Methods in enzymology*, 325, 273-284.
- Narumiya, S., Tanji, M., & Ishizaki, T. (2009). Rho signaling, ROCK and mDia1, in transformation, metastasis and invasion. *Cancer and Metastasis Reviews*, 28(1-2), 65-76.
- Natarajan, M., Hecker, T. P., & Gladson, C. L. (2003). FAK Signaling in Anaplastic Astrocytoma and Glioblastoma Tumors. *The Cancer Journal*, 9(2), 126-133.
- Nazarenko, I., Hede, S.-M., He, X., Hedrén, A., Thompson, J., Lindström, M. S., & Nistér, M. (2012). PDGF and PDGF receptors in glioma. *Uppsala journal of medical sciences*, 117(2), 99-112.
- Nekrasova, T., Shive, C., Gao, Y., Kawamura, K., Guardia, R., Landreth, G., & Forsthuber, T. G. (2005). ERK1-deficient mice show normal T cell effector function and are highly susceptible to experimental autoimmune encephalomyelitis. *The Journal of Immunology*, 175(4), 2374-2380.
- Newell-Litwa, K. A., & Horwitz, A. R. (2011). Cell migration: PKA and RhoA set the pace. *Current Biology*, 21(15), R596-R598.

- Nobes, C. D., & Hall, A. (1995). Rho, rac, and cdc42 GTPases regulate the assembly of multimolecular focal complexes associated with actin stress fibers, lamellipodia, and filopodia. *Cell*, 81(1), 53-62.
- Noble, M., Murray, K., Stroobant, P., Waterfield, M. D., & Riddle, P. (1988). Platelet-derived growth factor promotes division and motility and inhibits premature differentiation of the oligodendrocyte/type-2 astrocyte progenitor cell. *Nature*, 333(6173), 560-562.
- Novak, K. D., & Titus, M. A. (1997). Myosin I overexpression impairs cell migration. *The Journal of cell biology*, 136(3), 633-647.
- Novgorodov, A. S., El-Alwani, M., Bielawski, J., Obeid, L. M., & Gudz, T. I. (2007). Activation of sphingosine-1-phosphate receptor S1P5 inhibits oligodendrocyte progenitor migration. *The FASEB Journal*, 21(7), 1503-1514.
- O'Brien, K. P., Seroussi, E., Dal Cin, P., Scot, R., Mandahl, N., Fletcher, J. A., . . . Dumanski, J. P. (1998). Various regions within the alpha-helical domain of the COL1A1 gene are fused to the second exon of the PDGFB gene in dermatofibrosarcomas and giant-cell fibroblastomas. *Genes, Chromosomes and Cancer*, 23(2), 187-193.
- O'Meara, R. W., Michalski, J.-P., & Kothary, R. (2011). Integrin signaling in oligodendrocytes and its importance in CNS myelination. *Journal of signal transduction*, 2011.
- Orentas, D. M., Hayes, J. E., Dyer, K. L., & Miller, R. H. (1999). Sonic hedgehog signaling is required during the appearance of spinal cord oligodendrocyte precursors. *Development*, 126(11), 2419-2429.
- Ozaki, I., Hamajima, H., Matsushashi, S., & Mizuta, T. (2011). Regulation of TGF- β 1-induced pro-apoptotic signaling by growth factor receptors and extracellular matrix receptor integrins in the liver. *Frontiers in physiology*, 2.
- Paez, P. M., Fulton, D. J., Spreuer, V., Handley, V., Campagnoni, C. W., Macklin, W. B., . . . Campagnoni, A. T. (2009). Golli myelin basic proteins regulate oligodendroglial progenitor cell migration through voltage-gated Ca^{2+} influx. *Journal of Neuroscience*, 29(20), 6663-6676.
- Paez, P. M., Fulton, D. J., Spreur, V., Handley, V., & Campagnoni, A. T. (2010). Multiple kinase pathways regulate voltage-dependent Ca^{2+} influx and migration in oligodendrocyte precursor cells. *Journal of Neuroscience*, 30(18), 6422-6433.
- Paez, P. M., Spreuer, V., Handley, V., Feng, J.-M., Campagnoni, C., & Campagnoni, A. T. (2007). Increased expression of golli myelin basic proteins enhances calcium influx into oligodendroglial cells. *Journal of Neuroscience*, 27(46), 12690-12699.
- Paintlia, A. S., Paintlia, M. K., Khan, M., Vollmer, T., Singh, A. K., & Singh, I. (2005). HMG-CoA reductase inhibitor augments survival and differentiation of oligodendrocyte progenitors in animal model of multiple sclerosis. *The FASEB journal*, 19(11), 1407-1421.
- Panetti, T. S., Magnusson, M. K., Peyruchaud, O., Zhang, Q., Cooke, M. E., Sakai, T., & Mosher, D. F. (2001). Modulation of cell interactions with extracellular matrix by lysophosphatidic acid and sphingosine 1-phosphate. *Prostaglandins & other lipid mediators*, 64(1-4), 93-106.
- Paratore, C., Goerich, D. E., Suter, U., Wegner, M., & Sommer, L. (2001). Survival and glial fate acquisition of neural crest cells are regulated by an interplay between the transcription factor Sox10 and extrinsic combinatorial signaling. *Development*, 128(20), 3949-3961.
- Parsons, J. T. (2003). Focal adhesion kinase: the first ten years. *Journal of cell science*, 116(8), 1409-1416.
- Parsons, J. T., Horwitz, A. R., & Schwartz, M. A. (2010). Cell adhesion: integrating cytoskeletal dynamics and cellular tension. *Nature reviews Molecular cell biology*, 11(9), 633-643.
- Patel, J. R., McCandless, E. E., Dorsey, D., & Klein, R. S. (2010). CXCR4 promotes differentiation of oligodendrocyte progenitors and remyelination. *Proceedings of the National Academy of Sciences*, 107(24), 11062-11067.

- Pearse, D. D., Marcillo, A. E., Oudega, M., Lynch, M. P., Wood, P. M., & Bunge, M. B. (2004). Transplantation of Schwann cells and olfactory ensheathing glia after spinal cord injury: does pretreatment with methylprednisolone and interleukin-10 enhance recovery? *J Neurotrauma*, 21(9), 1223-1239.
- Pedraza, C. E., Taylor, C., Pereira, A., Seng, M., Tham, C.-S., Izrael, M., & Webb, M. (2014). Induction of oligodendrocyte differentiation and in vitro myelination by inhibition of rho-associated kinase. *ASN neuro*, 6(4), 1759091414538134.
- Peru, R. L., Mandrycky, N., Nait-Oumesmar, B., & Lu, Q. R. (2008). Paving the axonal highway: from stem cells to myelin repair. *Stem cell reviews*, 4(4), 304-318.
- Peters, A., & Proskauer, C. (1969). Ratio between myelin segments and Oligodendrocytes in optic nerve of Adult Rat. Paper presented at the Anatomical Record.
- Peterson, L. K., & Fujinami, R. S. (2007). Inflammation, demyelination, neurodegeneration and neuroprotection in the pathogenesis of multiple sclerosis. *Journal of neuroimmunology*, 184(1), 37-44.
- Petit, V., & Thiery, J.-P. (2000). Focal adhesions: structure and dynamics. *Biology of the Cell*, 92(7), 477-494.
- Pietras, K., Sjöblom, T., Rubin, K., Heldin, C.-H., & Östman, A. (2003). PDGF receptors as cancer drug targets. *Cancer cell*, 3(5), 439-443.
- Popescu, A. M., Alexandru, O., Brindusa, C., Purcaru, S. O., Tache, D. E., Tataranu, L. G., . . . Dricu, A. (2015). Targeting the VEGF and PDGF signaling pathway in glioblastoma treatment. *International journal of clinical and experimental pathology*, 8(7), 7825.
- Powers, J. M. (2004). The leukodystrophies: overview and classification. In *Myelin biology and disorders* (pp. 663-690): Elsevier.
- Prineas, J., & Raine, C. (1976). Electron microscopy and immunoperoxidase studies of early multiple sclerosis lesions. *Neurology*, 26(6 Part 2), 29-32.
- Pringle, N., Collarini, E., Mosley, M., Heldin, C., Westermarck, B., & Richardson, W. (1989). PDGF A chain homodimers drive proliferation of bipotential (O-2A) glial progenitor cells in the developing rat optic nerve. *The EMBO Journal*, 8(4), 1049.
- Pringle, N. P., & Richardson, W. D. (1993). A singularity of PDGF alpha-receptor expression in the dorsoventral axis of the neural tube may define the origin of the oligodendrocyte lineage. *Development*, 117(2), 525-533.
- Rajasekharan, S., Bin, J. M., Antel, J. P., & Kennedy, T. E. (2010). A central role for RhoA during oligodendroglial maturation in the switch from Netrin-1-mediated chemorepulsion to process elaboration. *Journal of neurochemistry*, 113(6), 1589-1597.
- Ransohoff, R. M. (1999). Mechanisms of inflammation in MS tissue: adhesion molecules and chemokines. *Journal of neuroimmunology*, 98(1), 57-68.
- Ray, B. K., Dhar, S., Henry, C., Rich, A., & Ray, A. (2013). Epigenetic regulation by Z-DNA silencer function controls cancer-associated ADAM-12 expression in breast cancer: cross-talk between MeCP2 and NF1 transcription factor family. *Cancer Research*, 73(2), 736-744.
- Rędownicz, M. J. (1999). Rho-associated kinase: involvement in the cytoskeleton regulation. In: Academic Press.
- Remahl, S., & Hildebrand, C. (1990). Relation between axons and oligodendroglial cells during initial myelination I. The glial unit. *Journal of neurocytology*, 19(3), 313-328.
- Richardson, W. D., Kessaris, N., & Pringle, N. (2006). Oligodendrocyte wars. *Nature Reviews Neuroscience*, 7(1), 11-18.
- Richardson, W. D., Pringle, N., Mosley, M. J., Westermarck, B., & Dubois-Dalcq, M. (1988). A role for platelet-derived growth factor in normal gliogenesis in the central nervous system. *Cell*, 53(2), 309-319.
- Rincón Castro, L. M., Gallant, M., & Niles, L. P. (2005). Novel targets for valproic acid: up-regulation of melatonin receptors and neurotrophic factors in C6 glioma cells. *Journal of neurochemistry*, 95(5), 1227-1236.
- Roberts, P. J., & Der, C. J. (2007). Targeting the Raf-MEK-ERK mitogen-activated protein kinase cascade for the treatment of cancer. *Oncogene*, 26(22), 3291-3310.

- Robinson, S., Tani, M., Strieter, R. M., Ransohoff, R. M., & Miller, R. H. (1998). The chemokine growth-regulated oncogene- α promotes spinal cord oligodendrocyte precursor proliferation. *Journal of Neuroscience*, 18(24), 10457-10463.
- Ross, R., Glomset, J., Kariya, B., & Harker, L. (1974). A platelet-dependent serum factor that stimulates the proliferation of arterial smooth muscle cells in vitro. *Proceedings of the National Academy of Sciences*, 71(4), 1207-1210.
- Roxburgh, R., Seaman, S., Masterman, T., Hensiek, A., Sawcer, S., Vukusic, S., . . . Le Page, E. (2005). Multiple Sclerosis Severity Score Using disability and disease duration to rate disease severity. *Neurology*, 64(7), 1144-1151.
- Sabo, J. K., Aumann, T. D., Merlo, D., Kilpatrick, T. J., & Cate, H. S. (2011). Remyelination is altered by bone morphogenetic protein signaling in demyelinated lesions. *Journal of Neuroscience*, 31(12), 4504-4510.
- Sahai, E., & Marshall, C. J. (2002). RHO-GTPases and cancer. *Nature Reviews Cancer*, 2(2), 133-142.
- Sahai, E., Olson, M. F., & Marshall, C. (2001). Cross-talk between Ras and Rho signalling pathways in transformation favours proliferation and increased motility. *The EMBO journal*, 20(4), 755-766.
- Salhia, B., Hwang, J. H., Smith, C. A., Nakada, M., Rutka, F., Symons, M., & Rutka, J. T. (2008). Role of myosin II activity and the regulation of myosin light chain phosphorylation in astrocytomas. *Cytoskeleton*, 65(1), 12-24.
- Salvati, S., Natali, F., Attorri, L., Raggi, C., Di Biase, A., & Sanchez, M. (2004). Stimulation of myelin proteolipid protein gene expression by eicosapentaenoic acid in C6 glioma cells. *Neurochemistry international*, 44(5), 331-338.
- Sambrook, J., & Russell, D. W. (2001). Molecular cloning: a laboratory manual. 2001. In: Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York.
- Schaller, M. D. (2001). Paxillin: a focal adhesion-associated adaptor protein. *Oncogene*, 20(44), 6459-6472.
- Schmidt, C., Ohlemeyer, C., Labrakakis, C., Walter, T., Kettenmann, H., & Schnitzer, J. (1997). Analysis of motile oligodendrocyte precursor cells in vitro and in brain slices. *Glia*, 20(4), 284-298.
- See, J., Zhang, X., Eraydin, N., Mun, S.-B., Mamontov, P., Golden, J. A., & Grinspan, J. B. (2004). Oligodendrocyte maturation is inhibited by bone morphogenetic protein. *Molecular and Cellular Neuroscience*, 26(4), 481-492.
- Shamah, S. M., Stiles, C. D., & Guha, A. (1993). Dominant-negative mutants of platelet-derived growth factor revert the transformed phenotype of human astrocytoma cells. *Molecular and cellular biology*, 13(12), 7203-7212.
- Sharma, K., Singh, J., Pillai, P. P., & Frost, E. E. (2015). Involvement of MeCP2 in regulation of myelin-related gene expression in cultured rat oligodendrocytes. *Journal of Molecular Neuroscience*, 57(2), 176-184.
- Shibuya, M., & Claesson-Welsh, L. (2006). Signal transduction by VEGF receptors in regulation of angiogenesis and lymphangiogenesis. *Experimental cell research*, 312(5), 549-560.
- Shim, A. H.-R., Liu, H., Focia, P. J., Chen, X., Lin, P. C., & He, X. (2010). Structures of a platelet-derived growth factor/propeptide complex and a platelet-derived growth factor/receptor complex. *Proceedings of the National Academy of Sciences*, 107(25), 11307-11312.
- Shimizu, A., O'Brien, K. P., Sjöblom, T., Pietras, K., Buchdunger, E., Collins, V. P., . . . Östman, A. (1999). The dermatofibrosarcoma protuberans-associated collagen type I α 1/platelet-derived growth factor (PDGF) B-chain fusion gene generates a transforming protein that is processed to functional PDGF-BB. *Cancer Research*, 59(15), 3719-3723.
- Siebert, J. R., & Osterhout, D. J. (2011). The inhibitory effects of chondroitin sulfate proteoglycans on oligodendrocytes. *Journal of neurochemistry*, 119(1), 176-188.

- Sieg, D. J., Hauck, C. R., Ilic, D., Klingbeil, C. K., Schaefer, E., Damsky, C. H., & Schlaepfer, D. D. (2000). FAK integrates growth-factor and integrin signals to promote cell migration. *Nature cell biology*, 2(5), 249-256.
- Simon, M.-P., Pedetour, F., Sirvent, N., Grosgeorge, J., Minoletti, F., Coindre, J.-M., . . . Blin, N. (1997). Deregulation of the platelet-derived growth factor β -chain gene via fusion with collagen gene COL1A1 in dermatofibrosarcoma protuberans and giant-cell fibroblastoma. *Nature genetics*, 15(1), 95-98.
- Simpson, P. B., & Armstrong, R. C. (1999). Intracellular signals and cytoskeletal elements involved in oligodendrocyte progenitor migration. *Glia*, 26(1), 22-35.
- Song, J., Goetz, B. D., Baas, P. W., & Duncan, I. D. (2001). Cytoskeletal reorganization during the formation of oligodendrocyte processes and branches. *Molecular and Cellular Neuroscience*, 17(4), 624-636.
- Spassky, N., de Castro, F., Le Bras, B., Heydon, K., Qu  raud-LeSaux, F., Bloch-Gallego, E., . . . Thomas, J.-L. (2002). Directional guidance of oligodendroglial migration by class 3 semaphorins and netrin-1. *Journal of Neuroscience*, 22(14), 5992-6004.
- Spassky, N., de Castro, F., Le Bras, B., Heydon, K., Qu  raud-LeSaux, F., Bloch-Gallego, E., . . . Thomas, J. L. (2002). Directional guidance of oligodendroglial migration by class 3 semaphorins and netrin-1. *J Neurosci*, 22(14), 5992-6004.
- Spassky, N., Goujet-Zalc, C., Parmantier, E., Olivier, C., Martinez, S., Ivanova, A., . . . Zalc, B. (1998). Multiple restricted origin of oligodendrocytes. *Journal of Neuroscience*, 18(20), 8331-8343.
- Spinella-Jaegle, S., Roman-Roman, S., Faucheu, C., Dunn, F.-W., Kawai, S., Gallea, S., . . . Baron, R. (2001). Opposite effects of bone morphogenetic protein-2 and transforming growth factor- β 1 on osteoblast differentiation. *Bone*, 29(4), 323-330.
- Stice, L. L., Vaziri, C., & Faller, D. V. (1999). Regulation of platelet-derived growth factor signaling by activated p21Ras. *Front Biosci*, 4, D72-86.
- Strawn, L. M., Mann, E., Elliger, S. S., Chu, L. M., Germain, L. L., Niederfellner, G., . . . Shawver, L. K. (1994). Inhibition of glioma cell growth by a truncated platelet-derived growth factor-beta receptor. *Journal of Biological Chemistry*, 269(33), 21215-21222.
- Subauste, M. C., Pertz, O., Adamson, E. D., Turner, C. E., Junger, S., & Hahn, K. M. (2004). Vinculin modulation of paxillin-FAK interactions regulates ERK to control survival and motility. *The Journal of cell biology*, 165(3), 371-381.
- Sugimoto, Y., Taniguchi, M., Yagi, T., Akagi, Y., Nojyo, Y., & Tamamaki, N. (2001). Guidance of glial precursor cell migration by secreted cues in the developing optic nerve. *Development*, 128(17), 3321-3330.
- Suzuki, K. (2003). Globoid cell leukodystrophy (Krabbe's disease): update. *Journal of child neurology*, 18(9), 595-603.
- Symons, M., Derry, J. M., Karlak, B., Jiang, S., Lemahieu, V., McCormick, F., . . . Abo, A. (1996). Wiskott-Aldrich syndrome protein, a novel effector for the GTPase CDC42Hs, is implicated in actin polymerization. *Cell*, 84(5), 723-734.
- Targett, M. P., Sussman, J., Scolding, N., O'Leary, M. T., Compston, D. A., & Blakemore, W. F. (1996). Failure to achieve remyelination of demyelinated rat axons following transplantation of glial cells obtained from the adult human brain. *Neuropathol Appl Neurobiol*, 22(3), 199-206.
- Tekki-Kessaris, N., Woodruff, R., Hall, A. C., Gaffield, W., Kimura, S., Stiles, C. D., . . . Richardson, W. D. (2001). Hedgehog-dependent oligodendrocyte lineage specification in the telencephalon. *Development*, 128(13), 2545-2554.
- Teranishi, S., Kimura, K., & Nishida, T. (2009). Role of formation of an ERK-FAK-paxillin complex in migration of human corneal epithelial cells during wound closure in vitro. *Investigative ophthalmology & visual science*, 50(12), 5646-5652.
- Thompson, N., & Lyons, J. (2005). Recent progress in targeting the Raf/MEK/ERK pathway with inhibitors in cancer drug discovery. *Current opinion in pharmacology*, 5(4), 350-356.

- Tilghman, R. W., Slack-Davis, J. K., Sergina, N., Martin, K. H., Iwanicki, M., Hershey, E. D., . . . Parsons, J. T. (2005). Focal adhesion kinase is required for the spatial organization of the leading edge in migrating cells. *Journal of cell science*, 118(12), 2613-2623.
- Timsit, S., Martinez, S., Allinquant, B., Peyron, F., Puelles, L., & Zalc, B. (1995). Oligodendrocytes originate in a restricted zone of the embryonic ventral neural tube defined by DM-20 mRNA expression. *Journal of Neuroscience*, 15(2), 1012-1024.
- Tortora, G. J., & Derrickson, B. H. (2008). *Principles of anatomy and physiology*: John Wiley & Sons.
- Totsukawa, G., Wu, Y., Sasaki, Y., Hartshorne, D. J., Yamakita, Y., Yamashiro, S., & Matsumura, F. (2004). Distinct roles of MLCK and ROCK in the regulation of membrane protrusions and focal adhesion dynamics during cell migration of fibroblasts. *The Journal of cell biology*, 164(3), 427-439.
- Totsukawa, G., Yamakita, Y., Yamashiro, S., Hartshorne, D. J., Sasaki, Y., & Matsumura, F. (2000). Distinct roles of ROCK (Rho-kinase) and MLCK in spatial regulation of MLC phosphorylation for assembly of stress fibers and focal adhesions in 3T3 fibroblasts. *The Journal of cell biology*, 150(4), 797-806.
- Tripathi, A., Parikh, Z. S., Vora, P., Frost, E. E., & Pillai, P. P. (2017). pERK1/2 peripheral recruitment and filopodia protrusion augment oligodendrocyte progenitor cell migration: combined effects of PDGF-A and fibronectin. *Cellular and molecular neurobiology*, 37(2), 183-194.
- Tripathi, R. B., Clarke, L. E., Burzomato, V., Kessaris, N., Anderson, P. N., Attwell, D., & Richardson, W. D. (2011). Dorsally and ventrally derived oligodendrocytes have similar electrical properties but myelinate preferred tracts. *Journal of Neuroscience*, 31(18), 6809-6819.
- Truong, H., & Danen, E. H. (2009). Integrin switching modulates adhesion dynamics and cell migration. *Cell adhesion & migration*, 3(2), 179-181.
- Tsai, H.-H., Frost, E., To, V., Robinson, S., Geertman, R., Ransohoff, R. M., & Miller, R. H. (2002). The chemokine receptor CXCR2 controls positioning of oligodendrocyte precursors in developing spinal cord by arresting their migration. *Cell*, 110(3), 373-383.
- Tsai, H. H., Macklin, W. B., & Miller, R. H. (2009). Distinct modes of migration position oligodendrocyte precursors for localized cell division in the developing spinal cord. *Journal of neuroscience research*, 87(15), 3320-3330.
- Tsai, H. H., Tessier-Lavigne, M., & Miller, R. H. (2003). Netrin 1 mediates spinal cord oligodendrocyte precursor dispersal. *Development*, 130(10), 2095-2105.
- Turner, C. E. (2000). Paxillin and focal adhesion signalling. *Nature cell biology*, 2(12), E231-E236.
- Ventura, R. E., & Goldman, J. E. (2006). Telencephalic oligodendrocytes battle it out. *Nature neuroscience*, 9(2), 153-154.
- Voisin, L., Saba-El-Leil, M. K., Julien, C., Frémin, C., & Meloche, S. (2010). Genetic demonstration of a redundant role of extracellular signal-regulated kinase 1 (ERK1) and ERK2 mitogen-activated protein kinases in promoting fibroblast proliferation. *Molecular and cellular biology*, 30(12), 2918-2932.
- Vora, P., Pillai, P., Mustapha, J., Kowal, C., Shaffer, S., Bose, R., . . . Frost, E. E. (2012). CXCL1 regulation of oligodendrocyte progenitor cell migration is independent of calcium signaling. *Experimental neurology*, 236(2), 259-267.
- Vora, P., Pillai, P. P., Zhu, W., Mustapha, J., Namaka, M. P., & Frost, E. E. (2011). Differential effects of growth factors on oligodendrocyte progenitor migration. *European journal of cell biology*, 90(8), 649-656.
- Wang, H., Rusielewicz, T., Tewari, A., Leitman, E. M., Einheber, S., & Melendez-Vasquez, C. V. (2012). Myosin II is a negative regulator of oligodendrocyte morphological differentiation. *Journal of neuroscience research*, 90(8), 1547-1556.

- Wang, H., Tewari, A., Einheber, S., Salzer, J. L., & Melendez-Vasquez, C. V. (2008). Myosin II has distinct functions in PNS and CNS myelin sheath formation. *The Journal of cell biology*, 182(6), 1171-1184.
- Webb, D. J., Donais, K., Whitmore, L. A., Thomas, S. M., Turner, C. E., Parsons, J. T., & Horwitz, A. F. (2004). FAK-Src signalling through paxillin, ERK and MLCK regulates adhesion disassembly. *Nature cell biology*, 6(2), 154-161.
- Weber, J. D., Raben, D. M., Phillips, P. J., & Baldassare, J. J. (1997). Sustained activation of extracellular-signal-regulated kinase 1 (ERK1) is required for the continued expression of cyclin D1 in G1 phase. *Biochemical Journal*, 326(1), 61-68.
- Wegner, M. (2001). Expression of transcription factors during oligodendroglial development. *Microscopy research and technique*, 52(6), 746-752.
- Wegner, M., & Stolt, C. C. (2005). From stem cells to neurons and glia: a Soxist's view of neural development. *Trends in neurosciences*, 28(11), 583-588.
- Wei, C., Wang, X., Chen, M., Ouyang, K., Song, L.-S., & Cheng, H. (2009). Calcium flickers steer cell migration. *Nature*, 457(7231), 901.
- Westermarck, B., Heldin, C. H., & Nistér, M. (1995). Platelet-derived growth factor in human glioma. *Glia*, 15(3), 257-263.
- Westermarck, B., & Wasteson, Å. (1976). A platelet factor stimulating human normal glial cells. *Experimental cell research*, 98(1), 170-174.
- Wolf, R. M., Wilkes, J. J., Chao, M. V., & Resh, M. D. (2001). Tyrosine phosphorylation of p190 RhoGAP by Fyn regulates oligodendrocyte differentiation. *Developmental Neurobiology*, 49(1), 62-78.
- Xiong, J., Zhou, L., Yang, M., Lim, Y., Zhu, Y.-h., Fu, D.-l., . . . Zhou, X.-F. (2013). ProBDNF and its receptors are upregulated in glioma and inhibit the growth of glioma cells in vitro. *Neuro-oncology*, 15(8), 990-1007.
- Xu, K., Wu, Z., Renier, N., Antipenko, A., Tzvetkova-Robev, D., Xu, Y., . . . Himanen, J. (2014). Structures of netrin-1 bound to two receptors provide insight into its axon guidance mechanism. *Science*, 344(6189), 1275-1279.
- Xu, M., Bian, S., Li, J., He, J., Chen, H., Ge, L., . . . Du, F. (2016). MeCP2 suppresses LIN28A expression via binding to its methylated-CpG islands in pancreatic cancer cells. *Oncotarget*, 7(12), 14476.
- Ye, P., Kanoh, M., Zhu, W., Laszkiewicz, I., Royland, J., Wiggins, R., & Konat, G. (1992). Cyclic AMP-induced upregulation of proteolipid protein and myelin associated glycoprotein gene expression in C6 cells. *Journal of neuroscience research*, 31(3), 578-583.
- Ying, H., Biroc, S. L., Li, W.-w., Aliche, B., Xuan, J.-A., Pagila, R., . . . Dinter, H. (2006). The Rho kinase inhibitor fasudil inhibits tumor progression in human and rat tumor models. *Molecular cancer therapeutics*, 5(9), 2158-2164.
- Zaidel-Bar, R., Cohen, M., Addadi, L., & Geiger, B. (2004). Hierarchical assembly of cell-matrix adhesion complexes. In: Portland Press Limited.
- Zeng, Q., Lagunoff, D., Masaracchia, R., Goeckeler, Z., Côté, G., & Wysolmerski, R. (2000). Endothelial cell retraction is induced by PAK2 monophosphorylation of myosin II. *J Cell Sci*, 113(3), 471-482.
- Zhang, Y., Zhang, J., Navrazhina, K., Argaw, A. T., Zameer, A., Gurfein, B. T., . . . John, G. R. (2010). TGFβ1 induces Jagged1 expression in astrocytes via ALK5 and Smad3 and regulates the balance between oligodendrocyte progenitor proliferation and differentiation. *Glia*, 58(8), 964-974.
- Zhou, Q., Choi, G., & Anderson, D. J. (2001). The bHLH transcription factor Olig2 promotes oligodendrocyte differentiation in collaboration with Nkx2. 2. *Neuron*, 31(5), 791-807.
- Zhou, Y.-H., Hess, K. R., Liu, L., Linskey, M. E., & Yung, W. A. (2005). Modeling prognosis for patients with malignant astrocytic gliomas: quantifying the expression of multiple genetic markers and clinical variables. *Neuro-oncology*, 7(4), 485-494.
- Zhou, Y.-H., Hess, K. R., Raj, V. R., Yu, L., Liu, L., Yung, A. W., & Linskey, M. E. (2010). Establishment of prognostic models for astrocytic and oligodendroglial brain tumors

with standardized quantification of marker gene expression and clinical variables. *Biomarker insights*, 5, 153.

- Zhu, W., Wiggins, R., & Konat, G. (1994). Glucocorticoid-induced upregulation of proteolipid protein and myelin-associated glycoprotein genes in C6 cells. *Journal of neuroscience research*, 37(2), 208-212.
- Zohrabian, V. M., Forzani, B., Chau, Z., Murali, R., & Jhanwar-Uniyal, M. (2009). Rho/ROCK and MAPK signaling pathways are involved in glioblastoma cell migration and proliferation. *Anticancer research*, 29(1), 119-123.