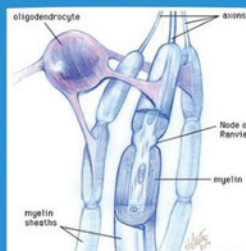




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Professor

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Scholarly Activities:

The long-term goal of our research is to understand the molecular and genetic mechanisms that control the differentiation and regeneration of motor neurons and oligodendrocytes, and develop novel molecular strategies for stimulating the *de novo* regeneration of motor neurons and oligodendrocytes in the injured spinal cord. Research projects include: (1) Identification of the molecular pathways that regulate the early specification and differentiation of motor neurons and oligodendrocytes. (2) Transcriptional control of astrocyte development in the developing CNS. (3) Lineage-specific differentiation of iPS stem cells into motor neurons and oligodendrocytes for spinal cord injury transplantation.

Grants:

Role: Principal Investigator

Title: *Transcriptional control of oligodendrocyte development*

Funding Agency: NIH 1R01-NS37717-10

Direct Costs Funded: \$1,250,000

Role: Principal Investigator

Title: *Role of Nkx6.1 homeodomain transcription factor in astroglialogenesis during development and in injury*

Funding Agency: Kentucky Spinal Cord and Injury Trust (#13-9A)

Direct Costs Funded: \$300,000

Publications (2013-2014):

Papers:

Qiu M. (2013). Myelin in development and disease. *Neurosci Bull.* 29(2):127-8.

Huang H., Zhao X., Zheng K and **Qiu M.** (2013). Regulation of the timing of oligodendrocytes differentiation: mechanisms and perspectives. *Neuroscience Bulletin.* 29,155-164

Zhu X, Zhao P, Liu Y, Zhang X, Fu J, Yu HM, **Qiu M**, Chen Y, Hsu W, Zhang Z (2013). Intra-epithelial requirement of canonical Wnt signaling for tooth morphogenesis. *J. Biol. Chem.* 288(17):12080-9.

Du, E., Li H. Jin S., Hu X., **Qiu M*** and Han R* (2013). Evidence that TMEM67 causes Polycystic Kidney Disease through activation of JNK/ERK-dependent Pathways. *Cell Biol. Intl.* 37(7):694-702 (*Co-corresponding author).

Zhao X, Hao H, Liu Y, Zhang Z, Ma Q, **Qiu M** (2013) Dynamic Expression of Secreted Frizzled-related Protein 3 (sFRP3) in the developing mouse spinal cord and dorsal root ganglia. *Neuroscience* 248C:594-601

Zhu Y, Li H, Li K, Hu X, An T, Park J, Bin Y, Qiang B, Yuan J, Peng X, and **Qiu M** (2013). NECL-4 (SYNCAM-4) is expressed in myelinating oligodendrocytes but not required for axonal myelination. *PLOS One* 8(5):e64264

Williams E., Casanova M., Switala A., Li H. and **Qiu M.** (2013). Transposable elements occur more frequently in autism-risk genes: implications for the genomic instability in autism. *Translations Neuroscience* 4(2) 172-202.

Zhu Q, Zhao X, Zheng K, Li H., Huang H., Zhang Z., Wegner M, Chen Y., Sussel L and **Qiu M.** (2014).

Genetic evidence that *Nkx2.2* and *PDGFR* are major determinants of the timing of oligodendrocyte differentiation in the developing CNS. *Development* 141(3):548-55

Li X., Liu Z., **Qiu M.** and Yang Z. (2014). Cross-repressive interactions between Sp8 and Nkx2.2 specify the identity of pMN and p3 progenitors in the spinal cord. *Development* 141(14):2875-84

Zhou L, Shao C, Xu S, Xie Y, Zhou L, Teng P, Wang Y, **Qiu M*** and Shen Y*. (2014) GSK3 β promotes the differentiation of oligodendrocyte precursor cells via β -catenin-mediated transcriptional regulation. *Mol. Neurobiol.* 50(2):507-19 (*co-corresponding author)

Dai Z., Sun S, Wang C, Hao H, Hu X, Zhang Z, Lu QR, **Qiu M.** (2014). Stage-specific regulation of oligodendrocyte development by Wnt/ β -catenin signaling. *J. Neurosci.* 34(25):8467-73

Zhu X, Liu Y, Zhao P, Dai Z, Yang X, Li Y, **Qiu M**, Zhang Z. • 2014 • Gpr177-mediated Wnt Signaling is required for Fungiform Placode Initiation. *J Dent Res.* 93(6):582-588.

Zhao X, Huang H, Teng P, Zhu Q, Zheng K, Hu X, Xie B, Sander M and **Qiu M.** (2014). Control of astrocyte progenitor specification, migration and maturation by *Nkx6.1* homeodomain transcription factor. *PlosOne* 9(10):e109171

Zhu X, Liu Y, Yang X, Chen Y, **Qiu M** and Zhang Z. • 2014 • BMP-FGF Signaling Axis Mediates Wnt-induced Epidermal Stratification in Developing Mammalian Skin. *Plos Genetics* 10(10):e1004687

Liu Z, Hu X, Huang C, Zheng K, Takebayashi H, Cao C and **Qiu M** (2014). *OLIG3* is not involved in the ventral patterning of spinal cord. *PlosOne* 9(10):e111076

External Professional Activities (2013-2014):

NIH Study Section Member Neurogenesis and Cell Fate (2014 - present)

