

**Michael Andrew Fox, PhD**

Director of the VTCRI Developmental and Translational Neurobiology Center  
Associate Professor, Virginia Tech Carilion Research Institute  
Associate Professor, Dept of Biological Sciences, VT

**1. PERSONAL INFORMATION:**

**Name -** Michael Andrew Fox

**Titles -** Director of the VTCRI Developmental and Translational Neurobiology Center  
Director of the VTCRI *neuroSURF*  
Associate Professor, Virginia Tech Carilion Research Institute  
Associate Professor of Biological Sciences, Virginia Tech  
Associate Professor of Health Sciences, Virginia Tech  
Associate Professor of Pediatrics, Virginia Tech Carilion SOM  
Associate Professor of Biomedical Sciences, VTC SOM

**Address -** Virginia Tech Carilion Research Institute  
2 Riverside Circle, Roanoke, VA 24016  
Phone – 540-526-2050  
Fax – 540-985-3373  
Email – [mafox@vtc.vt.edu](mailto:mafox@vtc.vt.edu)

**Website -** <http://labs.vtc.vt.edu/fox/>

**ORCID ID -** 0000-0002-1649-7782

**2. EDUCATION AND PROFESSIONAL HISTORY:**

**EDUCATION:**

Chemistry Major (1995 – 1997) – United States Military Academy, West Point, NY

**B.S.**, Chemistry (1999) – The College of William and Mary, Williamsburg, VA

**Graduated Cum Laude** *Supervisor: B. Siles*

*Honors Research Thesis: "Determination of cell death mechanisms and separation of polymorphic markers with capillary electrophoresis." Awarded Highest Honors.*

**Ph.D.**, Department of Anatomy (2004) – Virginia Commonwealth University  
Richmond VA. *Supervisor: B. Fuss*

*Thesis: **Functional Analysis of Phosphodiesterase 1alpha/Autotaxin in the Central Nervous System***

**Postdoctoral training**, Department of Molecular and Cellular Biology (2004-2007), Harvard University, Cambridge, MA. *Supervisor: Joshua R. Sanes*

**Neural Development and Genetics of Zebrafish Course**, Marine Biological Laboratory (2005), Woods Hole, MA.

**PROFESSIONAL SUMMARY:**

**Primary Research Focus:** *Developmental Neurobiology*

**Areas of expertise and interest:** *neural development, extracellular matrix, synaptogenesis, collagens, reelin, CSPGs, metalloproteinases, retinogeniculate targeting, synaptic targeting, synaptic maintenance, neuron, axon guidance, visual system development, lateral geniculate nucleus, Toxoplasma gondii*

**ACADEMIC APPOINTMENTS:**

<b>2012-current</b>	VTCRI Associate Professor
<b>2012-current</b>	Associate Professor of Biological Sciences, Virginia Tech
<b>2013-current</b>	Associate Professor of Health Sciences, Virginia Tech
<b>2013-current</b>	Associate Professor of Pediatrics, VTCSOM
<b>2015-current</b>	Associate Professor of Biomedical Sciences, VTCSOM
<b>2016-current</b>	Director of the VTCRI Developmental and Translational Neurobiology Center
<b>2016-current</b>	Director of the VTCRI Neurobiology Summer Undergraduate Research Fellowships (NeuroSURF)
<b>2007 - 2012</b>	Assistant Professor, Department of Anatomy and Neurobiology, Virginia Commonwealth University Medical Campus
<b>2002</b>	Adjunct Professor, Department of Kinesiology, College of William & Mary

**3. HONORS AND AWARDS:**

<b>2016</b>	Outstanding Teaching Award, Department of Biological Sciences, VT
<b>2015</b>	Virginia Tech Scholar of the Week (10/2015)
<b>2015</b>	Co-Honoree at Blue Ridge Division of the March of Dimes
<b>2015</b>	<b>Young Scientist Lectureship</b> , International Society for Neurochemistry
<b>2014</b>	Outstanding Service Award, Department of Biological Sciences, VT
<b>2013</b>	<b>Jordi Folch-Pi Award</b> , American Society for Neurochemistry
<b>2011</b>	Young Investigator Award for the 2011 International Society for Neurochemistry meeting
<b>2011</b>	Outstanding Teacher Award for "Best Teacher" during M1 Neuroscience, School of Medicine, VCU
<b>2010</b>	Outstanding Teacher Award, Department of Anatomy and Neurobiology, VCU
<b>2004</b>	<b>Marian Kies Award</b> from the American Society for Neurochemistry
<b>2003</b>	<b>University Leadership Award</b> , VCU
<b>2003</b>	H.L. Osterud Award, Department of Anatomy and Neurobiology at VCU
<b>2002</b>	F31 NIH Pre-Doctoral Fellowship
<b>2002</b>	American Society for Cell Biology (ASCB) Travel Award

**2002** American Society of Neurochemistry Young Investigator Educational Enhancement Award Recipient  
**2002** Jack Denning Burke Award in Cell Biology, Department of Anatomy at VCU  
**2001** C.C. Clayton Award, Department of Anatomy at VCU  
**1999** Election Into Mortar Board Honor And Service Society, The College Of William And Mary  
**1997** West Point (USMA) Scholar Athlete Award  
**1997** Patriot League Scholar Athlete Award

#### 4. GRANTS

##### Grants And Funding: Active

###### **2011-2017 NIH R01 (R01EY021222)**

*"Regulation of nuclei-specific retinogeniculate targeting"*  
 Agency: NIH / NEI  
 Role: PI  
 Effort: 25%  
 Total funds: \$1,831,448 (*\$1,831,448 to Fox lab*)  
*(renewal submitted and scored a 3%ile)*

###### **2013-2018 NIH BEST Award**

*"Mentorship and development program for biomedical trainees."*  
 Agency: NIH office of the Director  
 PIs: Audra Van Wart and Michael J. Friedlander  
 Role: Other Senior/Key Personnel  
 Percent Effort: 1%  
 Total funds: \$1,833,185 (*\$16,755 to Fox lab*)

###### **2015-2020 NIH R01 (R01EY024712)**

*"Investigating the mechanisms of optic nerve hypoplasia associated with CASK mutation."*  
 Agency: NIH/NEI  
 PI – Konark Mukherjee  
 Role: Co-I  
 Effort: 10%  
 Total funds: \$2,002,130 (*\$158,595 to Fox lab*)

###### **2015-2017 NARSAD Independent Investigator Grant**

*"Matricryptin-releasing collagens regulate inhibitory synapse formation and contribute to complex brain disease."*  
 Agency: Brain and Behavior Research Foundation  
 Role: PI  
 Effort: 2%  
 Total funds: \$100,000 (*\$100,000 to Fox lab*)

###### **2016-2021 NIH R01 (R01AI124677)**

*"Toxoplasma gondii infection and inhibitory circuit dysfunction"*  
 Agency: NIH / NIAID  
 Role: mPI (Michael A. Fox and Ira Blader, U.Buffalo)  
 Effort – 25%

Total funds – \$2,712,067 (*\$947,245 to Fox lab*)

**2016-2021 NIH RO1 (R01NS094574)**

*"The epigenetic role of EGR1 during postnatal brain development and in neuronal activity"*

Agency: NIH/NINDS

PI – Xie, H. (Biocomplexity Institute, VT)

Role: Co-I

Percent Effort: 5%

Total funds: \$1,700,000 (~\$75,000 to Fox lab for salary support)

**2016-2017 NIH R56 (R56HL133826)**

*"Flt-VEGF-Cx43 Regulation of Vascular Pericyte Investment"*

Agency: NIH/NHLBI

PI – Chappell, J. (VTCRI)

Role: Co-I

Effort: 5%

Total funds: \$385,823 (*\$20,017 to Fox lab*)

**Grants and Funding: Past**

**2013-14**

NIH National Center for Advancing Translational  
Studies and Virginia Tech  
Pilot grant UL1TR000075

*"Mechanisms of class-specific targeting and topographic map  
formation in the visual system"*

PIs – Michael Fox and Jason Triplett

Total funds \$50,000 (\$25,000 to Fox lab)

**2011-12**

Presidential Research Incentive Program (PRIP)

*"Regulation of nuclei-specific retinogeniculate targeting"*

Agency: VCU

PI – Michael A. Fox

Type – 18 month proposal

Effort – 7.5%

Total funds – \$35,000

**2011**

*Whitehall Foundation*

*"Roles of Matricryptins in Directing Synapse Formation in the Brain."*

Agency: Whitehall Foundation

PI – Michael A. Fox

Type – 3 year proposal

Total funds – \$225,000

**Awarded but administratively withdrawn due to RO1 funding**

**2010-11**

*AD Williams Foundation*

*"The role of Collagen XIX in inhibitory synapse formation."*

Agency: AD Williams Foundation

PI – Michael A. Fox

Type – 1 year proposal

Total funds – \$15,000

**2010-11** *Thomas F. Jeffress and Kate Miller Jeffress Memorial Trust*  
"The role of reelin in retinogeniculate targeting."

Agency: Bank of America

PI – Michael A. Fox

Type – 1 year proposal

Total funds – \$20,000

**2009-10** *AD Williams Foundation*  
"Novel roles for collagen XVIII in CNS synapse formation."

Agency: AD Williams Foundation

PI – Michael A. Fox

Type – 1 year proposal

Total funds – \$15,000

**2002-4** F31 NIH Pre-Doctoral Fellowship  
"Functional analysis of Phosphodiesterase Ialpha/autotaxin in the CNS."

Agency: NIH/NINDS

## 5. SCIENTIFIC AND SCHOLARLY ACTIVITIES

### BIBLIOGRAPHY:

*Papers (Peer reviewed; Titles link to PubMed pages):*

1. Su, J. Cole, J. and **Fox, M.A.** "Loss of interneuron-derived collagen XIX leads to a reduction in perineuronal nets in the mammalian telencephalon" **ASN Neuro**. *In press*.
2. Su, J., Chen, J., Carrillo, G., Lippold, K., Monavarfeshani, A., Jenkins, R., **Fox, M.A.** "Collagen-Derived Matricryptins Promote Inhibitory Nerve Terminal Formation in the Developing Neocortex." **J Cell Biol**. 2016 Mar 14;212(6):721-36.
3. Brooks, J.M., Carrillo, G.L., Su, J., Lindsey, D., **Fox, M.A.\***, Blader, I.\* "Toxoplasma gondii infections alter GABAergic synapses and signaling in the central nervous system." **mBIO**. Oct 2015; 6(6) (\*corresponding authors)
4. Hammer, S., Lemon, T., Monavarfeshani, A., Su, J., **Fox, M.A.** "Multiple retinal axons converge onto relay cells in the adult mouse thalamus." **Cell Rep**. 2015 Sept 8;12(10): 1575-83.
5. El-Danaf, R., Seabrook, T., Krahe, T., **Fox, M.A.**, Guido, W. "Developmental remodeling of relay cells in the dorsal lateral geniculate nucleus in the absence of retinal input." **Neural Dev**. 2015 Jul 15;10(1):19.
6. Chavan, V., Willis, J., Walker, S.K., Clark, H.R., Lui, X., **Fox, M.A.**, Srivastava, S., Mukherjee, K., "Central presynaptic terminals are enriched in ATP but the majority lack mitochondria." **PLoS ONE** 2015 Apr 30; 10(4):e0125185.
7. Levy, C., Brooks, J.M., Chen, J., Su, J., **Fox, M.A.** "Cell-specific and developmental expression of lectican-cleaving proteases in mouse hippocampus and neocortex." **J Comp Neurol**. 2015: 523(4): 629-48.
8. Hammer, S., Carrillo, G., Govindaiah, G., Monavarfeshani, A., Bircher, J.S., Su, J., Guido, W., **Fox, M.A.** "Nuclei-specific differences in nerve terminal distribution, morphology, and development in mouse visual thalamus." **Neural Dev**. 2014 Jul 10;9(1):16.

9. Brooks, J.M., Su, J., Levy, C., Wang, J.S., Seabrook, T.A., Guido, W., **Fox, M.A.** "A molecular mechanism regulating the timing of corticogeniculate innervation." **Cell Rep.** 2013 Nov 14;5(3):573-81.
10. Su, J., Josephson, A.M., **Fox, M.A.** "Contributions of VLDLR and LRP8 in the establishment of retinogeniculate circuits" **Neural Dev.** 2013 Jun 13;8:11.
11. Wang, J., **Fox, M.A.**, Povlishock, J.T. "Diffuse traumatic axonal injury in the optic nerve does not elicit retinal ganglion cell loss." **J Neuropathol Exp Neurol.** 2013 Aug; 72(8):766-81. PMC in process
12. Isaacs, J., Feher, J., Shall, M., Vota, S., **Fox, M.A.**, Mallu, S., Razavi, A., Friebe, I., Shah, S., Spita, N. "Nandrolone does not augment recovery following neurotization of chronically denervated muscle." **J Neurosurg.** 2013 Jul 5.
13. Seabrook, T, El Danaf, R., Krahe, T.E., **Fox, M.A.\***, and Guido, W.\* "Retinal input regulates the timing of corticogeniculate innervation." **J Neurosci.** 2013. Jun 12;33(24):100845-97. (\*corresponding authors)
14. Chen, S., Chew, KS, McNeill, DS, Keeley, PW, Ecker, JL, Mao, BQ, Pahlberg, J, Kim, B, Lee, SC, **Fox, M.A.**, Guido, W, Wong, KY, Sampath, AP, Reese, BE, Kuruvilla, R, and Hattar, S. "Apoptosis regulates ipRGC spacing necessary for rods and cones to drive circadian photoentrainment." **Neuron.** 2013 Feb 6;77(3):503-15.
15. Fitting, S., Ignatowska-Jankowska, B.M., Bull, C., Skoff, R.P., Lichtman, A.H., Wise, L.E., **Fox, M.A.**, Su, J., Medina, A.E., Krahe, T.E., Knapp, P.E., Guido, W., and Huaser, K.F. "Synaptic dysfunction in the hippocampus accompanies learning and memory deficits in HIV-1 Tat transgenic mice." **Biol Psychiatry.** 2013 Mar 1;73(5):443-53.
16. Fuller, B.F., Cortes, C.F., Landis, M.K., Yohannes, H., Griffin, H.E., Stafflinger, J.E., Bowers, M.S., Lewis, M.H., **Fox, M.A.**, and Ottens, A.K. "Exposure of rats to environmental tobacco smoke during cerebellar development alters behavior and perturbs mitochondrial energetics." **Environ Health Perspect.** 2012 Dec; 120(12): 1684-91.
17. Su, J., Stenbjorn, R., Su, K., Gorse, K., Ricard-Blum, S., Pihlajaniemi, T., and **Fox, M.A.** "Target-derived matricryptins organize cerebellar synapse formation through alpha3beta1 integrins." **Cell Rep.** 2012 Aug 30; 2 (2): 223-30.
18. Valdez, G., Tapia JC, Lichtman JW, **Fox MA**, and Sanes JR. "Shared resistance to aging and ALS in neuromuscular junctions of specific muscles." **PLoS ONE** 2012; 7(4):e34640.
19. Singh, R., Su, J., Brooks, J.M., Terauchi, A., Umemori, H. and **Fox, M.A.** "Fibroblast growth factor 22 (FGF22) contributes to the development of retinogeniculate synapses" **Front Mol Neurosci.** 2012. Jan 10.
20. Krahe, T., Seabrook, T.A., Chen, C.K., **Fox, M.A.** and Guido, W. "Modulation of CREB in the dorsal lateral geniculate nucleus of dark reared mice." **Neural Plast.** 2012:426437.
21. **Fox, M.A.** and Guido W. "Shedding light on class-specific wiring: Development of intrinsically photosensitive retinal ganglion cell circuitry." **Mol. Neurobiol.** 2011. DOI 10.1007/s12035-011-8199-8
22. **Fox, M.A.\***, Tapia, J.C., Kasthuri, N. and Lichtman, J.W. "Delayed synapse elimination in mouse levator palpebrae superioris muscle." **J Comp Neurol.** 2011. 519:2907-2921. (\* corresponding author) **Cover Image**
23. Su, J., Haner, C.V., Imbery, T.E., Brooks, J.M., Morhardt, D.R., Gorse, K., Guido, W. and **Fox, M.A.** "Reelin is required for class-specific retinogeniculate targeting." **J Neurosci.** 2011 Jan 11; 31(2):575-586.
24. Latvanlehto, A., **Fox, M.A.**, Sormunen, R., Tu, H., Oikarainen, T., Koski, A., Naumenko, N., Shakirzyanova, A., Kallio, M., Ilves, M., Giniatullin, R., Sanes, J.R., Pihlajaniemi, T.

- "Muscle-derived collagen XIII regulates maturation of the Skeletal Neuromuscular Junction." **J Neurosci.** 2010 Sept 15; 30(37): 12230-12241.
25. Su, J., Gorse, K, Ramirez F., and **Fox, M.A.** "Collagen XIX is expressed by interneurons and contributes to hippocampal synapse formation." **J Comp Neurol.** 2010, 518(2):229-53.
26. Shroff, S., Pomicter, A., **Fox, M.A.**, Henderson, S.C. Dupree, JL. "Adult sulfatide null mice maintain an increased number of oligodendrocytes." **J Neurosci Res.** 2009 Feb 17.
27. **Fox, M.A.** "Unconventional roles for collagens in nervous system development." **Curr Opin Cell Biol.** 2008. Oct; 20(5):508-13.
28. **Fox, M.A.**, Ho, M.S., Smyth, N., Sanes J.R. "A synaptic nidogen: Developmental regulation and role of nidogen-2 at the neuromuscular junction." **Neural Dev.** 2008 Sep 25; 3:24.
29. Dennis, J., White, M.A., Forrest, A.D., Yuelling, L.M., Nogaroli, L., Afshari, F.S., **Fox, M.A.**, Fuss, B. "Phosphodiesterase-Ialpha/autotaxin's MORFO domain regulates oligodendroglial process network formation and focal adhesion reorganization." **Mol Cell Neurosci** (2007), doi:10.1016/j.mcn.2007.10.018.
30. **Fox M.A.**, Sanes JR, Borza DB, Eswarakumar VP, Fassler R, Hudson BG, John SW, Ninomiya Y, Pedchenko V, Pfaff SL, Rheault MN, Sado Y, Segal Y, Werle MJ, Umemori H. "Distinct target-derived signals organize formation, maturation, and maintenance of motor nerve terminals." **Cell.** 2007 Apr 6;129(1):179-93. **(Highlighted in Faculty of 1000)**
31. **Fox, M.A.** and Sanes J.R. "Synaptotagmin I and II are present in distinct subsets of central synapses." **J Comp Neurol.** 2007 Jul 10;503(2):280-96.
32. Gros-Louis, F., Dupree, N., Dion, P., **Fox, M.A.**, Laurent, S., Verreault, S., Sanes, J.R., Bouchard, J.P., and Rouleau, G.A. "Mutations in SYNE1 lead to a novel form of autosomal recessive cerebellar ataxia." **Nat Genet.** 2007 Jan;39(1):80-5.
33. **Fox, M.A\***. and Umemori, H. "Seeking long-term relationship: Axon and target communicate to organize synaptic differentiation." **J Neurochem.** 2006. **97** (5):1215-31. **(\*corresponding author)**
34. **Fox, M.A.**, Afshari, F.S., Alexander, J.K., Colello, R.J., Fuss, B. "Growth cone-like sensorimotor structures are characteristic features of post-migratory, premyelinating oligodendrocytes." **Glia**, 2006. **53** (5): 563-566.
35. Flanagan-Steet, H.\*, **Fox, M.A.\***, Meyer, D. and Sanes, J.R. "Neuromuscular synapses can form in vivo by incorporation of initially aneural postsynaptic specializations." **Development**, 2005 Oct;132(20):4471-81. **(\* Co-First Authors) (Highlighted in Faculty of 1000)**
36. **Fox, M.A.**, Alexander, J.K., Colello, R.J., and Fuss, B. "Phosphodiesterase-Ia/Autotaxin controls cytoskeletal organization and FAK phosphorylation during myelination." **Mol Cell Neurosci.** 2004, 27, 140-50.
37. **Fox, M.A.**, Colello, R.J., Macklin W.B., and Fuss, B. "PD-Ia/ATX (NPP2): A Counter-adhesive Protein expressed by Oligodendrocytes during Onset of Myelination." **Mol Cell Neurosci.** 2003, 23, 507-519.
38. Colello, R., Fuss, B., **Fox, M.A.**, and Alberti, J. "A Proteomic Approach to Rapidly Identify Oligodendrocyte-Associated Proteins Expressed in the Myelinating Rat Optic Nerve." **Electrophoresis** 2002, 23, 144-151.
39. Siles, B., O'Neil K., **Fox, M.A.**, Anderson D., Kuntz, A., Ranganath S., and Morris, A. "Genetic fingerprinting of grape plant (*Vitis vinifera*) using random amplified

polymorphic DNA (RAPD) analysis and dynamic size-sieving capillary electrophoresis." **J.Agric.Food Chem.** 2000, 48, 5903-5912.

### Book chapters:

1. **Fox, M.A.** "Development of the vertebrate neuromuscular junction" in *The Sticky Synapse: The role of cell adhesion molecules in synapse formation and maintenance.* Springer Inc.

### INVITED PRESENTATIONS:

March 2016	Fox, M.A. "Novel mechanisms underlying visual circuit formation." University of Buffalo School of Medicine
Oct 2016	Fox, M.A. "Novel mechanisms underlying neural circuit formation." Virginia-Nordic Precision Neuroscience (VNPN) Conference at VTCRI
Feb 2016	Fox, M.A. "Novel mechanisms underlying neural circuit formation." VTCAR, Virginia Tech, Blacksburg, VA
Feb 2016	Fox, M.A. "Novel mechanisms underlying neural circuit formation." Department of Biological Sciences, North Carolina State University, NC.
Jan 2016	Fox, M.A. "Novel mechanisms underlying neural circuit formation." Department of Anatomical Sciences and Neurobiology, University of Louisville, Louisville, KY.
Jan 2016	Fox, M.A. "Novel mechanisms underlying neural circuit formation." University of Tennessee. Knoxville, TN
Dec 2015	Fox, M.A. "Novel mechanisms underlying neural circuit formation." University of Pennsylvania and Children's Hospital of Philadelphia. Philadelphia, PA
Nov 2015	Fox, M.A. "Novel mechanisms underlying neural circuit formation." Dept of Psychology, Virginia Tech, Blacksburg, VA
August 2015	Fox, M.A. "Extracellular matrix molecules regulate inhibitory synapse formation." University of Queensland and Queensland Brain Institute. Brisbane, Australia
August 2015	Fox, M.A. "Extracellular matrix molecules regulate inhibitory synapse formation." International Society for Neurochemistry. Cairns, Australia.
July 2015	Fox, M.A. "Extracellular matrix molecules, growth factors and matricryptins pattern the formation of nerve terminals in the developing brain." Gordon Research Conference on Collagen. New London, NH.
Nov 2014	Fox, M.A. "Novel mechanisms regulating the assembly of circuits and synapses in the developing brain" Department of Anatomical Sciences and Neurobiology, University of Louisville, Louisville, KY.
Nov 2014	Fox, M.A. "Mechanisms of vertebrate synapse formation" Department of Anatomical Sciences and Neurobiology, University of Louisville, Louisville, KY. (Lecture in their Developmental Neurobiology course)
October 2014	Fox, M.A. "Mechanisms underlying precise wiring of the brain." Translational Biology, Medicine, and Health Graduate Program Open House. Virginia Tech, Blacksburg VA.
March 2014	Fox, M.A. "Extracellular matrix molecules, growth factors and matricryptins pattern the formation of nerve terminals in the developing brain." American Society for Neurochemistry Annual Meeting. Long Beach, CA.
February 2014	Fox, M.A. "Extracellular matrix molecules orchestrate the precise wiring of the brain" Children's National Medical Center, Washington, DC.



December 2013 Fox, M.A. "Extracellular matrix molecules orchestrate the precise wiring of the brain" Center for Neuroscience. Georgia Reagents University, Augusta, GA.

Sept 2013 Fox, M.A. "Extracellular matrix molecules orchestrate the precise wiring of the brain" Center for Matrix Biology, Vanderbilt University, Nashville, TN.

June 2013 Fox, M.A. "Molecular mechanisms regulating neural circuit formation in the mammalian brain." Duke University Medical Center. Durham, NC

April 2013 Fox, M.A. "The neurochemistry of autism and the molecular mechanisms of synapse formation." American Chemical Society. Blue Ridge Chapter. Radford University. Radford, VA

Sept 2012 Fox, M.A. "Molecular mechanisms regulating the precise wiring of the brain." Biocenter Oulu, Oulu, Finland

June 2012 Fox, M.A. "Molecular mechanisms regulating neural circuit formation in the mammalian brain." Georgetown, Department of Pharmacology and Physiology

June 2012 Fox, M.A. "Molecular mechanisms regulating neural circuit formation in the mammalian brain." VTCRI

April 2012 Fox, M.A. "Damn Yankees! Novel roles for extracellular matrix molecules in synapse formation." VCU, Department of Anatomy and Neurobiology, Richmond VA

March 2012 Fox, M.A. "Molecular mechanisms regulating synaptic targeting and differentiation." Department of Neuroscience, Brown University

November 2011 Fox, M.A. "Identifying mechanisms of synaptic targeting and formation in the CNS." VCU, Vision Science Retreat, Richmond VA

November 2011 Fox, M.A. "Target-derived matricryptins induce climbing fiber nerve terminal formation." Society for Neuroscience, Washington DC

August 2011 Fox, M.A. "Novel roles for reelin in retinogeniculate targeting" International Society of Neurochemistry Annual Meeting. Athens, Greece.

February 2011 Fox, M.A. "Target-derived matricryptins induce climbing fiber nerve terminal formation." University of Virginia

January 2010 Fox, M.A. "Novel roles for reelin in retinogeniculate targeting" VCU, Department of Anatomy and Neurobiology, Richmond, VA.

October 2009 Fox, M.A. "Collagen XIX is expressed by hippocampal interneurons and is necessary for synaptogenesis" Kansas University Medical Center, Department of Anatomy and Cell Biology, Kansas City, MO.

October 2009 Fox, M.A. "Collagen XVIII is required for synaptic organization in the mammalian brain" Kansas University, Department of Molecular Biosciences, Lawrence, KS.

July 2009 Fox, M.A. "Collagen XVIII is required for synaptic organization in the mammalian brain" Gordon Research Conference on Collagen. New London, NH.

March 2009 Fox, M.A. "Novel roles for collagen in synapse formation." American Society for Neurochemistry Annual Meeting. Charleston, SC.

October 2008 Fox, M.A. "Unconventional roles for collagens in synapse formation" Department of Biology, College of William and Mary, Williamsburg, VA

February 2008 Fox, M.A. "Unconventional roles for collagens in synapse formation" Center for Matrix Biology, Vanderbilt University, Nashville, TN.

January 2008	Fox, M.A. "Unconventional roles for collagens in synapse formation" Eastern Virginia Medical School. Norfolk, VA.
July 2007	Fox, M.A. "Collagens IV are critical for the formation and maintenance of motor nerve terminals" Gordon Research Conference on Collagen. New London, NH.
June 2004	Fox, M.A. "Wiring the nervous system" American Society for Neurochemistry Annual Meeting. Madison, WI.
Sept. 2003	Fox, M.A., J.K. Alexander, R.J. Colello, and B. Fuss. "Changes in oligodendroglial process morphogenesis, FAK phosphorylation and focal adhesion assembly are mediated by PD-Iq/ATX." 6 <sup>th</sup> Ray and Robert Kroc – UConn Health Center Symposium on Neurology. West Hartford, CT.
May 2003	Fox, M.A. "Phosphodiesterase I- $\alpha$ / autotaxin: a counter-adhesive protein expressed by oligodendrocytes during the onset of myelination." St. Jude Research Hospital.
May 2003	Fox, M.A. F.S.Afshari, and B.Fuss. "Changes in integrin function and cytoskeletal organization are associated with PD-Iq/ATX stimulated counter-adhesion." American Society for Neurochemistry Annual Meeting. Newport Beach, CA.
June 2002	Fox, M.A., G.Bowlin, and B.Fuss. "NPP2, a matricellular protein expressed during myelination, actively modulates oligodendrocyte adhesion." American Society for Neurochemistry Annual Meeting, Palm Beach, Fl.

## SCHOLARLY ACTIVITIES

### Expert Services:

<b>2015-current</b>	Editorial Board member for Frontiers in Integrative Neuroscience
<b>2015</b>	Reviewer for <i>ANR</i> (Agence Nationale de la Recherche)
<b>2015</b>	<i>Ad-Hoc</i> reviewer for NIH NDPR Study Section Panel
<b>2014</b>	NIH Special Emphasis Panel (2015/01 ZEY1 VSN (05))
<b>2014-current</b>	Editorial Board member for Developmental Neuroscience
<b>2012-16</b>	SFN Capital Hill Day Participant
<b>2013</b>	Reviewer for ARDRAF grants
<b>2011-current</b>	Editorial Board member for PLoS ONE
<b>2009-current</b>	Reviewer for Cell Reports, The Journal of Neuroscience, Developmental Neuroscience, Cerebral Cortex, International Journal of Developmental Neuroscience, Cell and Tissue Research, PLoS ONE, Matrix Biology, Journal of Comparative Neurology, Neural Development, Journal of Neurotrauma, <i>Genesis</i> (The Journal of Genetics and Development)
<b>2012</b>	Reviewer for VCU PRIP grants
<b>2012</b>	Reviewer for NIH SEP study section (ZRG1 MDCN-E)
<b>2012</b>	<i>Ad-Hoc</i> reviewer for NIH Neurodifferentiation, Plasticity, Regeneration and Rhythmicity (NDPR) study section
<b>2006</b>	<i>Ad-Hoc</i> reviewer for National Science Foundation

## 6. TEACHING, ADVISING AND MENTORING:

### Early Career Faculty

**Dr. Gregorio Valdez**, Assistant Professor, Virginia Tech Carilion Research Institute. Co-mentor on his KO1 NIH grant entitled "Role of target-derived FGFs in maintaining and repairing synapses."

**Dr. Konark Mukherjee**, Assistant Professor, Virginia Tech Carilion Research Institute.

**Dr. Jianmin Su**, Research Assistant Professor, Virginia Tech Carilion Research Institute

### **Postdoctoral fellows mentored**

**Dr. Jianmin Su, PhD.** 2007-2012 (now a Research Assistant Professor at Virginia Tech Carilion Research Institute)

**Dr. Justin M. Brooks, PhD.** 2013 – 2014 (now a Postdoctoral fellow at Univ. of Buffalo School of Medicine)

**Dr. Jiang "John" Chen, PhD.** 2013- 2016

### **Students advised** (not including rotations students):

#### **Graduate Students:**

**Ubadah Sabbagh**, graduate student, TBMH program, VT (2016-current)

**Alicia Kerr**, graduate student, TBMH program, VT (2015-current)

**Aboozar Monavarfeshani**, VT Biological Sciences graduate student (2013-current)

- *Recipient of the VTCRI Medical Research Scholars Fellowship (2013-14)*

- *Recipient of the VTCRI Medical Research Scholars Fellowship (2014-15)*

- *ASN Young Investigator Educational Enhancement (YIEE) award (2016)*

- *Robert Patterson Memorial Scholarship from the VT Dept of Biological Sciences (2016-2017)*

**Justin Brooks** - Department of Anatomy and Neurobiology (VCU) Graduate Student. 2009-2013. (*Graduated with PhD degree*).

- *Received ASN Neuro Award (2015) for work done during his PhD*

- *Accepted into and attended NIH Clinical and Translation training program*

**Anna Josephson** - Department of Anatomy and Neurobiology (VCU) 2012. (*Graduated with Masters degree*)

**Cheryl Haner** - Department of Anatomy and Neurobiology (VCU) Graduate Student. 2009-2010. (*Graduated with Masters degree*)

**Renee Smith** – Department of Anatomy and Neurobiology (VCU) 2008-2009.

#### **Undergraduate Students:**

**Zack Boone**, undergraduate, Neuroscience Major, VT (2016-current)

**Kayla Short**, undergraduate, Biology Major, Hollins College (2016-current)

**Andrew Watkins**, undergraduate, Neuroscience Major, VT (2016-current)

**James Cole**, undergraduate, College of William and Mary (2016)

**Jai McClean**, undergraduate, Biology Major, Hampton University (2016)

**Rachel Jenkins**, undergraduate, Biochemistry Major, VT (2015-2016)

**David South**, undergraduate, Neuroscience Major, VT (2015-6)

**Kenya Swilling**, undergraduate, Biology Major, Hampton University (2015)

**Eric Carnivale**, undergraduate, Neuroscience Major, VT (2015)

**Tyler Lemon**, undergraduate, Stanford University (2014-5)

**Alec Klemm**, undergraduate, Biology Major, VT (2013)

**Carl Levy**, undergraduate, Biology Major, VT (2013-2014)

*Arthur Buikema and M.Alison Galway Undergraduate Research Award from the VT Dept of Biological Sciences (2014)*

**Gabriella Carrillo**, Scieneer, undergraduate, VT (2013-current)  
**Zack Printz**, Scieneer, undergraduate, VT (2013-2014)  
**Kumiko Lippold**, Scieneer, undergraduate, VT (2013-2014; attending graduate school at VCU Medical Center)  
**Sarah Hammer**, VT undergraduate student (2014-2015)  
**Rishabh Singh** – VCU Honors College undergraduate student. 2011-2012 (Currently a medical student at UVA)  
**Nathalie Spita** - VCU Honors College undergraduate student. 2011-2012 (VCU IMSD scholar)(Currently a graduate student at JHU)  
**Emily Thomas** - VCU Honors College undergraduate student. 2011  
**Jessica Wang** – Duke undergraduate student. 2011  
**Jesse Robison** – Virginia Tech, undergraduate summer student. 2010  
**Rohini Murthy** – Harvard University, undergraduate student. 2006 – 2007

**High School Students:**

**Chase Amos**, high-school student, North Cross, Roanoke VA (2016-current)  
**Natalie Huebschman**, high-school student, Roanoke Valley Governor School (2016-current)  
**Sarah Hammer**, high-school student, Roanoke Valley Governor School (2013-4)  
**Ciara Mulchany** high-school student, Roanoke Valley Governor School (2013)  
**Kaiwen Su**, high-school student, Richmond, VA (2011)

**Medical Students:**

**Gail Stanton**, medical student, VTCSOM (2016-current)  
**Courtney Knill**, medical student, VTCSOM (2015-current)  
**Elizabeth Sugg**, medical student, VTCSOM (2013-current)  
**Joseph "Sam" Bircher**, medical student, VTCSOM (2013-current)  
**Haoxuan Anna Xu**, medical student, VTCSOM (2013-current)  
**Ted Imbery** – medical student, VCU SOM (2009-2010).

**Thesis Committees** (not including my own students):

**Randy Strauss**: PhD Student (2016-current). Translational Biology Medicine and Health Graduate Program, VT. Advisor: Dr. Rob Gourdie.  
**William Mills**: PhD Student (2015-current). Translational Biology Medicine and Health Graduate Program, VT. Advisor: Dr. Harald Sontheimer.  
**Ben Heithoff**: PhD Student (2015-current). Department of Biological Sciences, VT. Advisor: Dr. Stefanie Robel.  
**Xiguang Xu**, PhD Student (2015-current). Department of Biological Sciences, VT. Advisor: Dr. Hehuang (David) Xie.  
**Chen Liang**, PhD Student (2015-current). Department of Biological Sciences, VT. Advisor: Dr. Konark Mukherjee.  
**Sydney Vaughan**, PhD Student (2015-current). Translational Biology Medicine and Health Graduate Program, VT. Advisor: Dr. Greg Valdez.  
**Vanessa Brayman**, PhD Student (2015-current). Translational Biology Medicine and Health Graduate Program, VT. Advisor: Dr. Greg Valdez.  
**Lauren Kennedy**, PhD Student (2015-current). Translational Biology Medicine and Health Graduate Program, VT. Advisor: Dr. Sarah Parker.  
**Shiping (Patrick) Zou**, PhD Student (2012-2015). Department of Anatomy and Neurobiology. VCU Medical Center. Advisor – Dr. Pamela Knapp

**Ruturaj Masvekar**, PhD Student (2011-2014). Department of Anatomy and Neurobiology, VCU Medical Center. Advisor – Dr. Pamela Knapp

**Karolina Rasi**, PhD Student (2010). Department of Medical Biochemistry and Molecular Biology and the Oulu Center for Cell-Matrix Research, University of Oulu, Finland. Advisor – Dr. Taina Pihlajaniemi

**Mai Alajaji**, PhD Student (2010-2013). Department of Pharmacology and Toxicology, VCU. Advisor – Dr. Imad Damaj

**Ahmad Al Tarifi**, PhD Student (2010-2013). Department of Pharmacology and Toxicology, VCU. Advisor – Dr. Steve Negus

**Mary Sorrell**, PhD Student (2010-2014). Department of Pharmacology and Toxicology, VCU. Advisor – Dr. Kurt Hauser

**Ben Curtis**, Masters Student (2009-2010). Department of Microbiology, VCU. Advisor – Dr. Joyce Llyod

**Taina Seabrook**, PhD student (2008-2012). Department of Anatomy and Neurobiology, VCU. Advisor - Dr. Bill Guido

**Rana El-Danaf**, PhD student (2008-2011). Department of Anatomy and Neurobiology, VCU. Advisor - Dr. Bill Guido

**Frank Chen**, PhD. Student (2007-2011) Department of Biochemistry, VCU. Advisor – Dr. Jason Chen

**Emily Dilger**, PhD student (2007-2010). Department of Anatomy and Neurobiology, VCU. Advisor - Dr. Bill Guido

**Chantal Ayres**, PhD student (2006-2009). Department of Biomedical Engineering, VCU. Advisor - Dr. David Simpson

**Seema Schroff** PhD student (2004-2008). Department of Anatomy and Neurobiology, VCU. Advisor - Dr. Jeff Dupree

#### **Courses:**

- Co-Course director for TBMH Neuroscience Track Core Course (2015-current)
- Co-Course director and lecturer for Research Domain Course VTCSOM (2013)
- Guest Lecturer in the VT TBMH 5004 Gateway Course (2014-current)
- Guest Lecturer in the VT TBMH 5105 Professional Development and Ethics Course (2014-current)
- Course Director and Lecturer for M1 Neuroscience (VCU) (2010-2012)
- Course Director for ANAT691 – Research Seminar (2008-2010)
- Lecturer in ANAT 610 Neuro-anatomy (VCU) (2010-2012)
- Lecturer in ANAT 609 Cell and Molecular Neuroscience (VCU) (2007-2012)
- Lecturer in ANAT 617 Special topics: Developmental Neuroscience (VCU)(2008-2012)
- Lecturer in ANAT 617 Special topics: Neural Circuits (VCU)(2008-2012)
- Lecturer in ANAT 501 Functional Human Anatomy (Dental) (VCU)(2008-2009)
- Medical Gross Anatomy (VCU) – Laboratory Instructor (2007)
- Lecturer in Medical Embryology (VCU) (2004)
- Lecturer in ANAT 610 Neuro-anatomy (Graduate level) (VCU)(2002-4).
- Lectured in ANAT 505 Neuro-anatomy (Pharmacy) (VCU)(2000, 2001-2003)
- KIN 304 Human Anatomy (The College of William and Mary)(2002) *Course Director*
- Laboratory Instructor, KIN 303 Human Anatomy (The College of William and Mary) (2000-2001).
- Laboratory Instructor, ANAT 502 Histology (Dental) (VCU) –2001
- Laboratory Instructor, ANAT 501 Functional Human Anatomy (Dental) (VCU) –2000

#### **Teaching awards:**

2012	Outstanding Teacher Award for Best Teacher in Medical Neuroscience (VCU SOM)
2012	"Favorite Lecturer Award" in Graduate Neuroanatomy (VCU)
2011	Outstanding Teacher Award for Best Teacher in Medical Neuroscience (VCU SOM)
2004	Outstanding Teacher Award for Medical Embryology (VCU SOM)

## 7. PROFESSIONAL SERVICE

### Memberships

International Society of Neurochemistry (2011-current)  
 American Society for Matrix Biology (2009-2012)  
 Society for Neuroscience (2004-current)  
 American Society for Neurochemistry (2002-current)  
 Central Virginia Chapter of the Society for Neuroscience (2007-current)

### Activities in International / National / Local Societies:

#### *Symposia Organized:*

- March 2016** America Society for Neurochemistry: Chaired Symposia  
 "Oral Session." Denver, CO.  
*5 speakers were selected from abstract submissions*
- March 2016** America Society for Neurochemistry: Chaired Symposia  
 "From the synapse to the blood-brain barrier, unique roles for glia in health and disease." Denver, CO.  
*Speaker list: T. Benveniste, B. Kaspar, A. Prat, P. Haydon*
- March 2014** "The Neuroscience of Aging and Age-Reversal" Central Virginia Chapter of the Society for Neuroscience Annual Symposia  
*Speaker list: T. Rando, S. Villeda, G. Valdez, J. Bennett, G. Bloom*
- March 2014** America Society for Neurochemistry: Chaired Symposia  
 "Synaptic organization across the lifespan." Long Beach, CA.  
*Speaker list: M.A. Fox, S. Cohen-Cory, B. Chen, G. Valdez*
- April 2013** International Society for Neurochemistry: Chaired Symposia  
 "Wiring the Nervous System." Cancun, Mexico.  
*Speaker list: C. Eroglu, N. Allen, H. Umemori, M. Yuzaki*
- March 2012** Organized the Central Virginia Chapter of the Society for Neuroscience Annual Symposia: "Wiring the nervous system: mechanisms of synaptic targeting and formation." Richmond, VA. *Speaker list: Joshua Sanes, Carol Mason, Alex Kolodkin, Sam Pfaff*
- March 2009** American Society for Neurochemistry: Co-Chaired Symposia  
 "Extracellular Matrices and Neural Development." 2009 ASN Meeting. Charleston, SC. *Speaker list: F. Mercier, W. Brunken, M. Rasband, M.A. Fox*
- June 2004** American Society for Neurochemistry: Chaired Symposia  
 "Wiring the Nervous System." 2005 ASN Meeting. Madison, WI.  
*Speaker list: A. Chiba, A. Schier, H. Umemori, P. Scheiffele*

### Expert services in International / National / Local Societies:

- 2016** International Scientific Review for faculty at the Institute of Neuroscience, Shanghai, China
- 2016-current** International Society for Neurochemistry Travel Grant Committee

<b>2015-current</b>	Government and Public Affairs Committee, Society for Neuroscience
<b>2016-current</b>	Program Chair for 2017 American Society of Neurochemistry meeting
<b>2015-current</b>	Planning Committee for 2016 American Society of Neurochemistry meeting
<b>2015-current</b>	Council Member for American Society of Neurochemistry
<b>2015</b>	Past-President of the Central Virginia Chapter of the Society for Neuroscience
<b>2013-2014</b>	President of the Central Virginia Chapter of the Society for Neuroscience
<b>2013-2015</b>	Alternate Council Member for American Society of Neurochemistry
<b>2012-2014</b>	Planning Committee for American Society of Neurochemistry meeting in 2014
<b>2012</b>	President-elect for the Central Virginia Chapter of the Society for Neuroscience
<b>2011-2016</b>	Chairman of the Young Investigator Educational Enhancement (YIEE) Award committee for American Society of Neurochemistry
<b>2011-2012</b>	Planning Committee for American Society of Neurochemistry meeting in 2012 (Baltimore, MD)
<b>2010-2012</b>	Council member for the Central Virginia Chapter of the Society for Neuroscience
<b>2009-2011</b>	YIEE committee member for American Society of Neurochemistry

## **SERVICE ACTIVITIES:**

### **Service to VT:**

- Steering committee for the Health Science and Technology initiative, VT (2017-current)
- Stakeholder committee for the Adaptive Brain and Behavior Initiative, VT (2016-current)
- Chair of the DTNC search committee (2016-current)
- VTCRI search committee for Glial Center (2016-current)
- Carilion Clinic search committee for Chief of Neurology (2016-current)
- Chair of the VTCRI Retreat committee (2015-current)
- Chair of the VTCRI Frontiers in Biomedical Research Seminar Series selection committee (2015)
- Organizer of the Research In Progress Seminar Series at VTCRI (2014-current)
- COS Search Committee for faculty of the Undergraduate Neuroscience Program (2015-6)
- Virginia Tech Carilion School of Medicine Search Committee for teaching faculty (2015)
- TBMH Qualification Exam Committee (2015- current)
- TBMH Admission Committee (2013- current)
- VTCRI Adjunct Appointment Committee (2014-current)
- VT University Search Committee for University Veterinarian (2013-2014)
- COS Search Committee for Director of Undergraduate Neuroscience Program (2013-2015)
- COS Search Committee for Department of Psychology hire (2013-2016)
- Development committee for Brain Science track of TBMH Graduate program (2013-2015)

- Development committee for Development, Aging and Repair track of TBMH Graduate program (2013-2015)
- Executive committee for Department of Biological Sciences (2013 – 2014)
- VTCRI selection committee for Distinguished Lecture Series (2013-2014)
- Committee member for medical student research presentations
- Organizer of biweekly Cell and Molecular Biology Journal Club at VTCRI (2012-2014)

#### **Service to VCU:**

- Reviewer for VCU PRIP grants (2012)
- Faculty representative for VCU Honor System (2009-2012)
- Chairman of VCU Honor System, MCV Campus (2002-2003)
- Executive Board of the Student Government Association, MCV Campus (2002-2003)
- Class Representative for the MCV Honor Council (1999-2003)
- MCV Graduate/Professional School Representative for VCU Technology Fee Committee (2000-2001)

#### **Service to the VCU School of Medicine:**

##### **Chaired Oral Examinations (i.e. Dean's Representative)**

<b>May 2012</b>	Narottam Lamichhane, Department of Medicinal Chemistry, Oral Defense
<b>July 2009</b>	Anuj Phull, Department of Physiology. Master's Defense
<b>April 2008</b>	Nikita Mishra, Department of Physiology. Oral Comprehensive Exam
<b>April 2008</b>	Jo Koontz, Department of Physiology. Master's Defense
<b>June 2008</b>	Ludine McWhinney, Department of Biochemistry. Master's Defense
<b>July 2008</b>	Hanh Le, Department of Physiology and Biophysics. Master's Defense
<b>Nov 2008</b>	Elizabeth Krahne, Department of Biochemistry. Master's Defense

#### **Service to the Department of Anatomy and Neurobiology at VCU:**

- Organizer of weekly SYNAPSE Journal Club (2007-2012)
- Department of Anatomy Web Page Committee (2008-current)
- Departmental Scribe (2007-2009)
- Student representative on the Department of Anatomy and Neurobiology Graduate Student Recruitment Committee (2003 - 2004)
- Student representative for Department of Anatomy Web Page Committee (2001-2002)
- Member of the Department of Anatomy Social Committee (1999-2004)

#### **Service to the Community:**

- 2016 VTCRI Brain School Public lecture "What our brains don't see!"
- 2015 VTCRI Brain School Public lecture "Brain Assembly: Neuro-embryology"



- 2014 Virginia Science Festival Exhibit, "Untangling the wires of your brain!" (VTCRI, in conjunction with the Science Museum of Western Virginia)
- 2014 Gallery Talk at "The Art of Science and the Science and Art" Outreach Event, VTCSOM and VTCRI
- 2014 VTCRI Brain School lecture "Brain Assembly: Making the Right Connections Through Genes and Experience"
- 2013 VTCRI Brain School lecture "The Stuff of Brains"
- 2013 Lecture series (4hr of lecture) to Roanoke Valley School District on "The Brain"
- Carilion Clinic "Bike Month" Planning Committee (2013)
- Judge for Roanoke Valley Governor School science fair (2013, 2015)
- Judge for the Virginia Junior Academy of Science (2013)
- Grader for science projects/papers for Virginia Academy of Science and for Metro Richmond Science Fair (2000-2004, 2008-current)
- Climbing Coach for Junior Climbing Team, Peak Experiences, Richmond, VA (2003-2004)

**Service to the Military:**

2 years active duty while attending the United States Military Academy, West Point, NY (1995-1997)

*Updated: 1/04/2017*