## BIOGRAPHICAL SKETCH

| NAME: Fu, Cary | POSITION TITLE<br>Assistant Professor of Pediatrics and Neurology |
|---|---|
| eRA COMMONS USER NAME: FUCARY | |

EDUCATION/TRAINING

| INSTITUTION AND LOCATION | DEGREE | MM/YY | FIELD OF STUDY |
|---|---|---|---|
| University of Missouri – Columbia, Missouri | B.S. | 05/98 | Biochemistry |
| University of Missouri – Columbia, Missouri | M.D. | 05/02 | |
| University of Arkansas for Medical Sciences – Little Rock, Arkansas | | 06/05 | Pediatrics |
| University of Alabama – Birmingham, Alabama | | 06/08 | Pediatric Neurology |
| Vanderbilt University – Nashville, Tennessee | | 06/09 | Clinical Neurophysiology |
| Vanderbilt University – Nashville, Tennessee | | 06/12 | Basic science research fellowship |

### A. Personal Statement

As a pediatric neurologist and epileptologist, I have had the opportunity to care for children with a variety of rare neurodevelopmental disorders and understand the challenges these children and their families face. It is with this understanding in mind that I have dedicated my career to conducting clinical and translational investigation that will help to improve the lives of children with rare neurodevelopmental disorders. My prior translational investigation has focused on determining the role of the *TSC1* and *TSC2* genes in cortical interneuron development and how aberrant interneuron development contributes to the epilepsy in tuberous sclerosis complex. My primary clinical investigation emphasis has centered on collaborative projects involving Rett syndrome and related neurodevelopmental disorders. I have actively contributed as co-investigator on multiple clinical research projects pertaining to Rett syndrome and related disorders in collaboration with investigators in the Rett syndrome program at Vanderbilt.

### B. Positions and Honors

**Positions and employment**

2002 – 2005 Pediatrics Resident, Dept. of Pediatrics, Univ. of Arkansas for Medical Science, Little Rock, AR
2005 – 2008 Fellow in Child Neurology, Dept. of Pediatrics, University of Alabama – Birmingham
2008 – 2009 Clinical Neurophysiology Fellow, Department of Neurology, Vanderbilt Univ. Medical Center
2009 – 2012 Research Fellow, Department of Neurology, Vanderbilt Univ. Medical Center
2009 – 2012 Instructor of Clinical Neurology, Department of Neurology, Vanderbilt Univ. Medical Center
2012 – pres Assistant Professor, Departments of Pediatrics and Neurology, Vanderbilt Univ. Medical Center

**Other Experience and Professional Memberships**

2008 – pres Member, Child Neurology Society
2019 – pres Member, American Epilepsy Society

**Honors, Awards, Leadership Positions, and Fellowships**

07/2009 – 06/2010 Vanderbilt Center for Molecular Neuroscience Neurogenomics T32 Training Program
09/2017 – 10/2018 RDCRN Rare Disease Clinical Research Training Program

### C. Selected Peer-reviewed Publications

1. Peters SU, **Fu C**, Marsh ED, Benke TA, Suter B, Skinner SA, Lieberman DN, Standridge S, Jones M, Beisang A, Feyma T, Heydeman P, Ryther R, Glaze DG, Percy AK, Neul JL. Phenotypic features in MECP2 duplication syndrome: Effects of age. Am J Med Genet A. 2020 Nov 10;. doi: 10.1002/ajmg.a.61956. PMID: 33170557

2. **Fu C**, Armstrong D, Marsh E, Lieberman D, Motil K, Witt R, Standridge S, Lane J, Dinkel T, Jones M, Hale K, Suter B, Glaze D, Neul J, Percy A, Benke T. Multisystem comorbidities in classic Rett syndrome: a scoping review. BMJ Paediatr Open. 2020 Sep 22;4(1):e000731. doi: 10.1136/bmjpo-2020-000731. PMID: 33024833

3. Peters SU, **Fu C**, Neul JL, Granger DA. Cortisol profiles and clinical severity in MECP2 duplication syndrome. J Neurodev Disord. 2020 Jul 22;12(1):19. doi: 10.1186/s11689-020-09322-5. PMID: 32698758

4. **Fu C**, Armstrong D, Marsh E, Lieberman D, Motil K, Witt R, Standridge S, Nues P, Lane J, Dinkel T, Coenraads M, von Hehn J, Jones M, Hale K, Suter B, Glaze D, Neul J, Percy A, Benke T. Consensus guidelines on managing Rett syndrome across the lifespan. BMJ Paediatr Open. 2020;4(1):e000717. doi: 10.1136/bmjpo-2020-000717. eCollection 2020. PMID: 32984552

5. Peters SU, **Fu C**, Suter B, Marsh E, Benke TA, Skinner SA, Lieberman DN, Standridge S, Jones M, Beisang A, Feyma T, Heydeman P, Ryther R, Kaufmann WE, Glaze DG, Neul JL, Percy AK. Characterizing the phenotypic effect of Xq28 duplication size in *MECP2* duplication syndrome. Clin Genet. (2019) 95(5):575-581. PMID: 30788845

**Complete List of Published Work in MyBibliography:**
https://www.ncbi.nlm.nih.gov/sites/myncbi/cary.fu.1/bibliography/48060553/public/?sort=date&direction=descending

**D. Research Support**

**Ongoing Research Support**

R21 HD103348-01 PI: Neul 07/02/2020 – present
NIH/NICHD
Development of a reliable, valid and sensitive outcome measure in Rett syndrome
This observational study will involve video recordings of research participants undergoing a structured clinical exam in order to validate and establish reliability of a new clinician reported outcome measure in Rett syndrome, the Revised Motor Behavior Assessment Scale
Role: Co-investigator

R01 HD084500-05 PI: Peters 12/22/2015 – 11/30/2021
NIH/NICHD
Markers of Disease Progression in MECP2 Duplication Syndrome
The specific aims are: 1) To determine whether increased respiratory infections, lower cognition, seizures, and increased social withdrawal predict regression status in MECP2 duplication syndrome, 2) To determine whether suppression of IFN-gamma from Th1 cells and lower influenza vaccine titers predicts regression status, and 3) To determine whether HPA axis hypoactivity predicts regression status
Role: Co-investigator

U54 HD061222-13 PI: Percy 08/01/2016 – 07/31/2021
NIH/NICHD
Rett syndrome, MECP2 duplications, and Rett-related disorders natural history
The major goals of this project are to develop better longitudinal assessment tools for, identify biological factors contributing to phenotypic variability in, and characterize neurophysiological biomarkers of disease severity in Rett syndrome and related disorders
Role: Co-investigator

**Completed Research Support**

RSO clinical research fellowship PI: Fu 01/01/2018 – 12/31/2020
Rettsydrome.org
Characterizing biomarkers of epileptogenesis in Rett syndrome
The major goal of this project is to determine whether specific phenotypic characteristics or electrographic findings in children with typical Rett syndrome are predictive of epilepsy development.
Role: PI

TSA postdoctoral research fellowship PI: Fu 07/01/2010 – 06/30/2013
Tuberous Sclerosis Alliance
The role of the Tsc1 gene in interneuron migration and function
The goal of this project is to characterize the effects of hamartin deficiency on interneuron development using a transgenic mouse model.
Role: PI