

# **SAMUEL OLUSEGUN ADEOSUN**

---

---

Department of Physiology & Biophysics, Lab G154

University of Mississippi Medical Center.

2500 N. State Street, Jackson MS 39216.

Lab: 601-984-1802; Mobile: 601-405-7392.

[sadeosun@umc.edu](mailto:sadeosun@umc.edu) or [samsphinx007@gmail.com](mailto:samsphinx007@gmail.com)

**USCIS Status: Permanent Resident (Green Card)**

---

---

## **EDUCATION**

---

- PhD Neuroscience (2008-2013) –University of Mississippi Medical Center.  
**Dissertation Title:** *The role of N- and C-terminal domain interaction of apolipoprotein (apo) Eε4 in apoEε4 cognitive phenotype and antagonistic pleiotropy.*  
Mentor: Dr. Junming Wang.
- B. Pharm. (with distinction) (1999-2005) –Obafemi Awolowo University Nigeria.  
**Dissertation Title:** *Behavioral effects of Oleamide on male and female mice.*  
Mentor: Dr. Moses A. Akanmu.

## **RESEARCH EXPERIENCE**

---

- Postdoctoral Research Fellow, Department of Physiology & Biophysics, University of Mississippi Medical Center, Jackson, MS. (Feb, 2016 to date).  
**Projects**
  - *Role of Biliverdin reductase (BVRA) in non-alcoholic liver disease and metabolic syndrome.*
- *Role of KLF11 and long non-coding RNAs (lncRNA) in Ethanol-induced cell death.*
- Postdoctoral Research Fellow, Department of Pathology, University of Mississippi Medical Center, Jackson, MS. (Feb, 2015 to Feb, 2016).  
**Projects**
  - *Novel mechanisms of Alzheimer disease susceptibility in apolipoprotein (apo) Eε4 mice.*
  - *Role of KLF11 and long non-coding RNAs (lncRNA) in Ethanol-induced cell death.*
- Postdoctoral Fellow, Huffington Center on Aging (HCOA), Baylor College of Medicine, Houston TX. (Sept. 2013 – Feb. 2015).  
**Projects**
  - *Apolipoprotein E isoform-dependent effects on post-translational modification of tau.*
  - *In-vivo validation of newly identified putative tau kinases from a cell-based kinome screen.*
- Graduate Assistant; Department of Pathology.  
University of Mississippi Medical Center, Jackson MS. (Aug. 2008 - Sept. 2013).  
**Projects**
  - *The role of N- and C-terminal domain interaction of apolipoprotein (apo) Eε4 in apoEε4 cognitive phenotype and antagonistic pleiotropy.*
  - *Impact of the neurosteroid Allopregnanolone on MPTP mouse model of Parkinson's disease.*
- Intern Pharmacist; Department of Pharmacology, Faculty of Pharmacy, Obafemi Awolowo University, Ile-Ife, Nigeria. (Jan. 2006 - Dec. 2006).  
**Projects**
  - *Effects of sleep and study behavior of Pharmacy students on academic performance.*

## AWARD AND HONOR

---

- 2014 Randall-Trustmark Graduate research Award for outstanding research accomplishment of a graduating PhD student of the University of Mississippi Medical Center.

## BIBLIOGRAPHY

---

### PEER-REVIEWED PUBLICATIONS

1. Hou, X., **Adeosun, S.O.**, Zhang, Q., Barlow, B., Brents, M., Zheng, B., Wang, J., 2015. Differential contributions of ApoE4 and female sex to BACE1 activity and expression mediate A $\beta$  deposition and learning and memory in mouse models of Alzheimer's disease. *Front. Aging Neurosci.* 207. doi:10.3389/fnagi.2015.00207.
2. **Adeosun SO**, Hou X, Zheng B, Stockmeier C, Ou X, Paul I, Mosley T, Weisgraber K, Wang JM. (2013) Cognitive deficits and disruption of neurogenesis in a mouse model of apolipoprotein e4 domain interaction. *J Biol Chem.* 289(5):2946-59.
3. **Adeosun SO**, Hou X, Jiao Y, Zheng B, Henry S, Hill R, He Z, Pani A, Kyle P, Ou X, Mosley T, Farley JM, Stockmeier C, Paul I, Bigler S, Brinton RD, Smeyne R, Wang JM. Allopregnanolone Reinstates Tyrosine Hydroxylase Immunoreactive Neurons and Motor Performance in an MPTP-Lesioned Mouse Model of Parkinson's Disease. *PLoS One.* 2012; 7(11):e50040. doi: 10.1371/journal.pone.0050040.
4. **Adeosun SO**, Albert PR, Austin MC, Iyo AH. (2012). 17 $\beta$ -estradiol-induced regulation of the novel 5-HT1A-related transcription factors NUDR and Freud-1 in SH SY5Y cells. *Cell Mol Neurobiol.* 32(4):517-21.
5. Wang JM, Hou X, **Adeosun S**, Hill R, Henry S, Paul I, Irwin RW, Ou XM, Bigler S, Stockmeier C, Brinton RD, Gomez-Sanchez E. (2012). A dominant negative ER $\beta$  splice variant determines the effectiveness of early or late estrogen therapy after ovariectomy in rats. *PLoS One.* 2012;7(3):e33493.
6. **Adeosun SO**, Asa SO, Babalola OO and Akanmu MA (2008). Effects of night-reading on Daytime sleepiness, Sleep quality and Academic performance of undergraduate pharmacy students in Nigeria. *Sleep & Biol. Rhythms* 6 (2) 91-94.
7. Akanmu MA, **Adeosun SO** and Ilesanmi OR (2007). Neuropharmacological effects of Oleamide in Male and Female Mice. *Behav Brain Res.* 182 (1) 88-94.

### PUBLICATIONS IN PREPARATION

8. **Adeosun, S. O.**, Hou, X., Melrose, H. L., Zheng, B., Mosley, T. and Wang, J. M. Human LRRK2 G2019S mutation causes cognitive impairment in the absence of motor dysfunctions in mice.
9. **Adeosun, S. O.**, Hou, X., Palmer, A., Zheng, B., Raffai, R. L., Weisgraber, K. H. and Wang, J. Age-dependent effects of Apolipoprotein (apo) E $\epsilon$ 4 domain interaction on hippocampal architecture and newborn calretinin neurons in female mice.
10. Hou, X., **Adeosun, S. O.**, Barlow, B., Zheng, B., Zhang, Q., Wang, J. M. Activation of estrogen receptor beta rescues ovariectomy-induced deterioration of learning and memory and AD pathology in mouse models of Alzheimer's disease with apoE $\epsilon$ 4 gene.

## ABSTRACTS

### National and International Conferences

1. **Adeosun SO**, Hou X, Palmer A, Zheng B, Raffai RL, Weisgraber KH and Wang JM. Apolipoprotein E $\epsilon$ 4 Domain interaction Impacts Amyloid- $\beta$  Levels and Hippocampal Architecture in Female Mice. *Poster presented at the Society for Neuroscience (SfN) 2015.*
2. Hou X, **Adeosun SO**, Hill R, Zheng B, Wang JM. Impact of alternative RNA splicing of ER $\beta$  on ovarian hormone deficiency-induced depression and estrogen therapy effectiveness in female rats. *Poster presented at the Society for Neuroscience (SfN) 2015.*
3. **Adeosun SO**, Hou X, Zhao X, Stockmeier C, Mosley T, Zheng B, Raffai R, Zhang Q, Weisgraber KH, Wang JM. Apolipoprotein e  $\epsilon$ 4 domain interaction in size of hippocampal subregions, density of newborn neurons, and cognitive behaviors. *J. Alz. Disease* June 2015. DOI: 10.1016/j.jalz.2015.06.564.

4. Hou X, **Adeosun SO**, Zhao X, Barlow B, Zheng B, Brents M, Zhang Q, Wang JM. ApoE4 and ApoE4 domain interaction induce gender vulnerability on progression of Alzheimer's disease in mouse models. *Poster presented at the Society for Neuroscience (SfN) 2014.*
5. Wang JM, Hou X, **Adeosun SO**, Zhang Q, Zheng B. (2014) Allopregnanolone rescues rotenone induced cognitive impairment in mice with apoe4 domain interaction. *Poster presented at the Society for Neuroscience (SfN) 2014.*
6. **Adeosun SO**, Hou X, Zheng B, Zhu A and Wang JM. Human LRRK2 G2019S mutation causes learning and memory impairment in mice. *Poster presented at the Society for Neuroscience (SfN) 2013.*
7. Hou X, **Adeosun SO**, Zheng B, Zhao X, Wang JM. ApoE4 modulate cognitive functions and amyloid beta oligomer deposition in a gender-specific manner in a mouse model for Alzheimer's disease. *Poster presented at the Society for Neuroscience (SfN) 2013.*
8. **Adeosun SO**, X Hou, B Zheng, K Weisgraber and JM Wang. High Glycogen Synthase Kinase 3-beta (GSK3 $\beta$ ) gene expression and Impaired Cognitive Performance in a Mouse Model of ApoE4 domain Interaction. *Poster presented at the Society for Neuroscience (SfN) 2012.*
9. Hou X, **Adeosun SO**, Zheng B, Gomez-Sanchez E, Wang JM. Age-dependent contribution of Alzheimer's disease genetic risk factors to learning and memory. *Society for Neuroscience (SfN) 2012.*
10. **Adeosun S**, X Hou, Y Jiao, B Zheng, P Kyle, I Paul, J Farley, C Stockmeier, S Bigler, RJ Smeyne, J Wang. 3.243 increasing endogenous neurogenesis using neurosteroids: a novel therapeutic strategy to treat Parkinson's disease. *Parkinsonism & Related Disorders 18, S214 2012.*
11. Wang JM, **Adeosun SO**, Hou X, Zheng B, Stockmeier C, Paul I, Ou X, Bigler S, Smeyne R, Brinton R, Melrose H, Lewin J. Development of allopregnanolone as a therapeutic for Parkinson's disease in neurotoxin symptomatic and idiopathic mouse models. *Poster presented at the Society for Neuroscience (SfN) 2012.*
12. **Adeosun SO**, Hou X, Zheng B, Paul IA and Wang JM. Age and apolipoprotein E (ApoE) domain interaction modulate neurogenic and learning and memory effects of estradiol in arg-61 mice. *Poster presented at the Society for Neuroscience (SfN) 2011.*
13. J Wang, **S Adeosun**, Y Jiao, B Zheng, S Henry, X Hou, C Sun, A Pani, P Kyle, J Farley, I Paul, S Bigler, C Stockmeier, R Brinton, R Smeyne. The impact of a neurogenic agent, allopregnanolone, in rodent models of Alzheimer's and Parkinson's disease *Alzheimer's and Dementia 7 (4), S667-S667 2011*
14. **S Adeosun**, X Hou, B Zheng, I Paul, R Irwin, R Brinton, J Wang Motor deficits in mouse models of Alzheimer's disease *Alzheimer's & Dementia 8 (4), P670-P671 2012.*
15. Hou X, **Adeosun SO**, Hill R, Zheng B, Ou X, Fratkin J, Bigler J, Stockmeier C, Elise Gomez-Sanchez E, and Wang JM. The Antidepressant Effects of Estradiol Is Observed in Short Term, But Not in Long Term OVX Rats and Is Associated with TPH2 mRNA Expression in Rat Raphe Nucleus. *Poster Presented at the Society for Neuroscience (SfN) 2011.*
16. Wang JM, **Adeosun SO**, Jiao Y, Henry S, Hill R, Zheng B, Hou X, Pani A, Kyle P, Bigler S, Farley J, Stockmeier C, Paul I, Brinton R, Smeyne R. Increasing endogenous neurogenesis using neurosteroids: A novel therapeutic strategy to treat Parkinson's disease. *Poster Presented at the Society for Neuroscience (SfN) 2011.*
17. Wang JM, Hill R, Henry S, **Adeosun S**, Hou X, Ou X, Bigler S, Stockmeier C, Gomez-Sanchez E. (2010) The effective window for estradiol treatment in ovariectomized female rats. *Poster Presented at the Society for Neuroscience (SfN) 2010.*
18. **Adeosun SO**, Albert PR, Austin MC, Iyo AH. 17 $\beta$  Estradiol regulates the novel 5-HT1a transcription factors -NUDR and Freud-1 in SH-SY5Y neuroblastoma cells. *Society for Neuroscience (SfN) 2009.*
19. **Adeosun SO**, Ilesanmi ORS, Akanmu MA. Neuropharmacological Profile of Oleamide in Male and Female Mice. *Nigerian Association of Academic Pharmacists 7<sup>th</sup> Annual conference (July 2006).*

## ABSTRACTS

### Local Meetings

1. **Adeosun SO**, Hou X, Palmer A, Zheng B, Raffai RL, Weisgraber KH and Wang JM. Apolipoprotein Eε4 Domain interaction Impacts Amyloid-β Levels and Hippocampal Architecture in Female Mice. *School of Graduate Studies Research Day, University of Mississippi Medical Center, 2015.*
2. Hou X, **Adeosun SO**, Hill R, Zheng B, Wang JM. Impact of alternative RNA splicing of ERβ on ovarian hormone deficiency-induced depression and estrogen therapy effectiveness in female rats. *School of Graduate Studies Research Day, University of Mississippi Medical Center, 2015.*
3. **Adeosun SO**, Hou X, Zheng B, Zhu A and Wang JM. Human LRRK2 G2019S mutation causes learning and memory impairment in mice. Poster presented at the Society for Neuroscience (SfN) 2013.
4. **Adeosun SO**, X Hou, B Zheng, K Weisgraber and JM Wang. High Glycogen Synthase Kinase 3-beta (GSK3β) gene expression and Impaired Cognitive Performance in a Mouse Model of ApoE4 domain Interaction. *Graduate Studies Research Day, University of Mississippi Medical Center, 2012.*
5. **Adeosun SO**, X Hou, B Zheng, K Weisgraber and JM Wang. High Glycogen Synthase Kinase 3-beta (GSK3β) gene expression and Impaired Cognitive Performance in a Mouse Model of ApoE4 domain Interaction. *Alzheimer's Association MS Chapter Meeting, Olive Branch MS, 2011.*

### INVITED TALK/SEMINAR

---

- Huffington Center on Aging, Baylor College of Medicine, Houston TX. 25<sup>th</sup> April, 2013  
**Title:** Apolipoprotein E4 in Alzheimer's Disease Pathology: Structure, Function or Both?
- University of Mississippi Medical Center Department of Psychiatry Grand Rounds. 15<sup>th</sup> March, 2013  
**Title:** Apolipoprotein E4 in Alzheimer's Disease Pathology: Structure, Function or Both?

### RESEARCH SKILL SET

---

- Cell culture including primary mouse neuronal culture, neuron-glia co-culture and human neural stem cell cultures; mouse cell lines (N2A e.t.c.); human cell lines (SHSY-5Y, HEK293, U-1242 e.t.c).
- Stereotaxic and free-hand ICV (intra-cerebroventricular) injection into neonatal mice brain.
- ELISA techniques, including the human tau sandwich ELISA that I set up in the HCOA lab.
- Cloning/plasmid construction and amplification, *including a novel Sleeping-beauty transposon-based plasmid to stably express Cas9 in an inducible manner.*
- Stable cell/cell line generation; *using the novel plasmid above, within two weeks, I have successfully generated a stable, SHSY-5Y cell line with inducible CRISPR/Cas9 protein expression.*
- Guide RNA design for CRISPR/Cas9 gene editing/knockout experiments using Benchling online software or similar online resources.
- Plasmid design and in-silico analysis using Serial Cloner®, SnapGene® or similar software.
- RNA Immunoprecipitation techniques to identify and study RNA (especially long non-coding, lncRNA) partners of novel RNA-binding proteins.
- RNAi techniques (Liposome-mediated or Viral (AAV/Lentivirus)-mediated transductions).
- Standard molecular techniques (Western blots, dot blots, in-cell westerns, quantitative RT-PCR etc).
- Immunohistochemistry, quantitation by stereology using light and/or fluorescent microscopy.
- Colony management, genotyping & behavioral phenotyping of Alzheimer's and Parkinson's disease mouse models. Survival surgical procedures (ovariectomy); mouse brain regional dissection.

## TEACHING EXPERIENCE

---

- **University of Mississippi Medical Center, Jackson MS**

- Fall 2012
  - **Course & Topic:** CNS Pharmacology; A 2hr interactive lecture on *Endocannabinoids*.
  - **Students:** Group of five (5), 2nd year Neuroscience Graduate students
- Summer 2011
  - **Course & Topic:** Introduction to Neuroscience; A 1hr interactive lecture on *Animal models of Neurodegenerative diseases*.
  - **Students:** Group of 8 Summer Undergraduate Research Experience (SURE) students.
- Fall 2009
  - **Course & Topic:** Cellular and Molecular Neuroscience; A 2hr lecture on *Apoptosis*
  - **Students:** Group of five (5), 1st year Neuroscience Graduate students
- Summer 2009
  - **Course & Topic:** Introduction to Neuroscience; A 1hr interactive lecture on *Consciousness*.
  - **Students:** Group of 10 Summer Undergraduate Research Experience (SURE) students

- **Millsaps College, Jackson MS**

- Summer, 2013
  - **Course & Topic:** Introduction to Psychology; a 1hr interactive lecture on Learning and Memory
  - **Students:** Group of twelve (12), 2nd year Psychology students.
- Spring 2013
  - **Course & Topic:** Behavioral neuroscience; a 1hr lecture on Neurodegenerative diseases and mouse models.
  - **Students:** Group of twelve (12) 3rd year Psychology students
- Fall 2012
  - **Course & Topic:** Introduction to Neuroscience; a 1hr interactive lecture on Learning and Memory.
  - **Students:** Group of fifteen (15) 1st year Psychology students

- **Obafemi Awolowo University, Ile-Ife, Nigeria**

- Rain Semester 2006/2007 Session
  - Course:** Semester-long Pharmacology (lab) practical courses for Pharmacy students;
  - 2nd year students: Introductory Anatomy and Physiology I (35 students)
  - 3<sup>rd</sup> year students: General Pharmacology I (33 students)
  - 4<sup>th</sup> year students: CNS Pharmacology (29 students)
- Harmattan Semester 2006/2007 Session
  - Course:** Semester-long Pharmacology (lab) practical courses for Pharmacy students;
  - 2nd year students: Introductory Anatomy and Physiology II (35 students)
  - 3<sup>rd</sup> year students: General Pharmacology II (33 students)

## MENTORING

---

- **Summer Students (Medical and Undergraduates)**

- Summer 2015
  - I mentored Andrew Palmer during a 10-week Medical Students research program.
- **Alex Zhu**
  - Summer Undergraduate Research Experience 2013
- **Andrew Palmer**
  - Summer Undergraduate Research Experience 2012
- **Oliver Liu**
  - Summer Undergraduate Research Experience 2011
- Also trained junior graduate students in the labs I have been at University of Mississippi Medical Center and at Baylor College of Medicine.

## **PROFESSIONAL CERTIFICATION AND MEMBERSHIP**

---

- Member Society for Neuroscience (2011 till date).
- Registered Pharmacist, Pharmaceutical Council of Nigeria (2008 till date).
- Member Pharmaceutical Society of Nigeria (MPSN; 2008 till date).

## **PROFESSIONAL WORK EXPERIENCE**

---

- National Youth Service Corp (NYSC) Pharmacist. Benue State University Clinic, Makurdi, Benue State Nigeria. 2007-2008.
- Intern Pharmacist, Department of Pharmacology, Obafemi Awolowo University. Nigeria. 2006-2007.

## **SERVICE AND OUTREACH**

---

- President, African Christian Fellowship, Cypress TX Chapter. 2014 – 2015
- Student Member of Steering Committee, Graduate Program in Neuroscience, University of Mississippi Medical Center. 2012 – 2013.
- Secretary, African Christian Fellowship Inc. Jackson MS Chapter. 2012 – 2013
- Board Member, International Students Committee (Graduate School, University of Mississippi Medical Center). 2010 – 2013.
- Volunteer, Mississippi Chapter of Society for Neuroscience Brain Awareness Week at Brown Elementary School, Jackson MS. 2012

## **REFERENCE**

---

Dr. Junming Wang  
Department of Pathology,  
University of Mississippi Medical Center  
Jackson MS  
[jwang@umc.edu](mailto:jwang@umc.edu)

Dr. David E. Stec  
Department of Physiology & Biophysics,  
University of Mississippi Medical Center  
Jackson MS  
[dstec@umc.edu](mailto:dstec@umc.edu)

Dr. Hui Zheng  
Huffington Center on Aging  
Baylor College of Medicine,  
Houston TX  
[huiz@bcm.edu](mailto:huiz@bcm.edu)