Resume

Wei-Bin Shen, Ph.D.

Current Employment

Title: Research Associate

Employer: Department of Obstetrics and Gynecology Science, University of Maryland, School of Medicine, MD

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Education

1995 – PhD, Neuroendocrinology, State Key Laboratory of Reproductive Biology, Chinese Academy of Sciences, Beijing, China. Thesis Title: Regulation of adrenergic system and opioid peptides on hypothalamic GnRH secretion.

1987 – MSc, Reproductive Physiology, Institute of Zoology, Chinese Academy of Sciences. Thesis Title: Opioid peptides participate the negative feedback regulation of sex steroid hormone on hypothalamic GnRH secretion.

1983 – BSc, Department of Biology, Hangzhou University, China. Majoring in Biology.

Employment History

09/2015 – present: Research Associate, Department of Obstetrics and Gynecology, University of Maryland School of Medicine, Baltimore, Maryland

08/2005 – 08/2015: Research Scientist, VA Maryland HealthCare System, Baltimore, Maryland; and Department of Pharmacology, UMB school of Medicine, Baltimore, Maryland

04/2000 – 07/2005: Postdoctoral Fellow, Department of Anatomy & Neurobiology, University of Maryland School of Medicine.

10/1997 – 03/2000: Postdoctoral Fellow, Department of Physiology, University of Maryland.

04/1996 – 09/1997: Staff Scientist, Department of Medicine, and Department of Molecular Biology/Biochemistry, Royal Free Hospital School of Medicine, London, UK.

09/1987 – 04/1996: Research assistant, Department of Endocrinology, and the State Key Laboratory for Reproductive Biology, Chinese Academy of Sciences, Beijing China.

Professional Society Memberships

2016-present Member, the Teratology Society

Other Services

2016-present Reviewer, *Cell Transplantation*

Technical Skills

Stem cell research

- Mouse embryonic stem cells, human neural progenitor cells, human amniotic fluid stem cells

- Stem cell differentiation *in vitro*
- Stem cell delivery by transplantation surgery

Animal models for exploring therapeutic intervention for diseases

- Traumatic brain injury model and stem cell transplantation
- MRI-guided FUS and stem cells transplantation
- Parkinson's disease model induced by Cycad flour toxins
- External magnet enhanced stem cell retention after transplantation
- Ultrasound-guided *in utero* intra-cardiac microinjection

Molecular biology

- PCRs (including real-time PCR), DNA cloning and subcloning
- Southern/Northern blot and Western blot, immunoprecipitation

Pathology analysis of tissues

- Sectioning (vibrotome and cryostat sectioning)
- Histology staining (e.g. HE staining)
- Immunhistology and immunocytochemistry labeling
- Microscopy (bright field, and fluorescent microscopy)
- Confocal microscopy

Computer skills:

- Microsoft Windows and office
- Molecular biology software: e.g. Gene Discovery Studio/Mac Vector, Vector NTI
- Image processing, densitometry analysis and graphing: photoshop, graphpad prism, Zeiss Axiovision, Nikon NIS-Element

Publications

1. Yang P, Yang WW, Chen X, Kaushal S, Dong D, **Shen W-B***. Maternal diabetes and high glucose in vitro trigger Sca1+ cardiac progenitor cell apoptosis through FoxO3a. BBRC 2017; 482:575-582. *: *corresponding author*
2. Wu Y, Reece EA, Zhong J, Dong D, **Shen WB**, Harman CR, Yang P. Type 2 diabetes mellitus induces congenital heart defects in murine embryos by increasing oxidative stress, endoplasmic reticulum stress and apoptosis. American Journal of Obstetrics & Gynecology, 2016, pii: S0002-9378(16)00528-7. [Epub ahead of print]
3. Yang P, **Shen WB**, Reece EA, Chen X, Yang P. High glucose suppresses embryonic stem cell differentiation into neural lineage cells. Biochemical and Biophysical Research Communications 2016; 472:306-312
4. **Shen WB**, Yarowsky PJ. SIRB, a novel ultrasmall dextran nanoparticle as a control agent for cell magnetic labeling. Contrast Media Mol. Imaging 2016,11(3):222-8. doi: 10.1002/cmmi. 1684. Epub 2016 Jan 25
5. **Shen WB**, Plachez C, Yarnell D, O. Tsymbalyuk, Xu S, Puche A, Simard JM, Fishman PS, Yarowsky PJ. Cell based therapy in TBI: Magnetic retention of human neurogenitor cells in vivo. Cell Transplantation 2016, 25(6):1085-1099
6. **Shen W-B**, Plachez C, Chan A, Puche A, Fishman PS, Yarowsky PJ. Human neural progenitor cells retain viability, proliferation, lineage differentiation, and migratory

capability when labeled with novel iron oxide nanoparticle, Molday ION Rhodamine-B. Intl J Nanomed 2013, 8:4593-4600

7. *****Messmer K, ***Shen W-B**, Remington M, Fishman PS. Induction of neural differentiation by transcription factor neuroD2. Int. J. Devl Neuroscience 2012, 30:105-112. ***:***_Contribute equally_
8. McDowell KA, **Shen W-B,** Siebert AA, Sarah MC, Jinnah H, Sztalryd C, Fishman PS, Shaw CA, Jafri MS, Yarowsky PJ. Washed cycad flour contains β-N-methyl amino-L-alanine and may explain parkinsonism symptoms. 2011, 69(2):423-424
9. Yarowsky PJ, McDowell KA, **Shen W-B**, Siebert AA, Marle T, Jafri MS, Shaw CA. Environmental neurotoxin-induced progressive model of parkinsonism and sleep disturbance in rats. XIX World Congress on Parkinson's Disease and Related Disorders, Shanghai, China. Dec 11-14, 2011
10. **Shen WB**, McDowell KA,Siebert AA, Clark SM, Dugger NV, Valentino KM, Jinnah HA, Sztalryd C, Fishman PS, Shaw CA, Jafri MS,Yarowsky PJ. Environmental neurotoxin-induced progressive model of parkinsonism in rats. Annual Neurology 2010, 67(5):1-11
11. Yarowsky PJ, McDowell KA, **Shen W-B**, Wilson JMB, Cruz-Aguado R, Marler T, Shaw CA. Cycad-Induced Neurodegeneration is Different in Rat and Mouse Models of ALS-PDC. In Proceedings of Cycad 2008. The 8th International Conference on Cycad Biology, Panama City, Panama, 13-15 January 2008. Pp 279-294
12. Ren T, Anderson A, **Shen WB**, Huang H, Plachez C, Zhang J, Mori S, Kinsman SL, Richards LJ. Imaging, anatomical, and molecular analysis of callosal formation in the developing human fetal brain.Anat Rec ADiscovMol Cell Evol Biol. 2006, 288:191-204
13. **Shen WB**, Plachez C, MongiAS, Richards LJ. Identification of novel genes at the corticoseptal boundary during development. Gene Expression Patterns 2006, 6:471-81
14. Shu T, **Shen WB**, Richards RJ. The development of projects within the perforating pathway that intersect the corpus callosum. J Comp Neurobiol 2001, 6:411-422
15. Al-Damluji S, **Shen WB**, White S, Barnard EA. α1B adrenergic receptor in gonadotrophin releasing hormone neurons: relation to Transport P. Br J Pharmacol 2001, 132:336-344
16. Al-Damluji S, **Shen WB**. Release of amines from acidified stores following accumulation by Transport P. Br J Pharmacol 2001, 132:851-860
17. Searles RV, Yoo MJ, He JR, **Shen WB**, Selmanoff M. Sex differences in GABA turnover and glutamic acid decarboxylase (GAD65 and GAD67) mRNA in the rat hypothalamus. Brain Res 2000, 878:11-19.
18. Yoo MJ, Searles RV, He JR, **Shen WB**, Grattan DR, Selmanoff M. Castration rapidly decreases hypothalamic gama aminobutyric acidergic neuronal activity in both male and female rats. Brain Res 2000, 878:1-10.
19. Zhang CL, **Shen WB**, Huang WQ, Zhang RQ, Chen LR, Du W, Jiao LH, Shi J. The presence and function of neurotransmitters in the human early placenta, In Proceedings of Beijing International Symposium on Fertility Regulation: Present and Future, 1997, pp. 70-88.
20. **Shen WB**. Catecholamine regulation of hypothalamic gonadotropin-releasing hormone. Sheng Li Ko Hsueh Chin Chan (ProgPhysiolSci) 1996, 27:368-370
21. Tang MY, **Shen WB**, Zhang CL. Establishment of radioimmunoassay for corticotrophin-releasing hormone. Chinese J ApplPhysiol 1995, 11:284-287
22. Yin H, Zhang CL, Wang H, **Shen WB**. Studies on amphioxus gonadotropin-releasing hormone (GnRH) during breeding season. ActaZoologicaSinica 1994, 40:63-68

23. Zhang CL, Cheng LR, **Shen WB**, Yin H, Huang WQ. Existence and functions of neurotensin in human early placental villi. DevelReprodBiol 1994, 3:25-33
24. Zhang CL, Yin H, **Shen WB**, Wang H. Two different forms of gonadotropin-releasing hormone in amphioxus. DevelReprodBiol 1993, 2:33-37
25. Huang QH, Cai YP, Zhang CL, **Shen WB**. Effects of intraventricular injection of 6-hydroxydopamine on the levels of monoamine and β-endorphin in brain and serum TSH in the ground squirrel. ActaZoologicaSinica 1993, 39:169-175
26. Zhang CL, Cheng LR, Yin H, **Shen WB**, Huang WQ. Luteinizing hormone-releasing hormone in human early placental villi. Contraception 1992, 46:159-160
27. Zhang CL, Yin H, Wang H, Jiao LH, **Shen WB**. Profile of neurotransmitters during the period of spawning/spermiation in amphioxus. Chinese Sci Bull 1991, 36:695-696
28. **Shen WB**, Yin H, Wang H, Zhang CL. Opioid peptides in amphioxus during the breeding season. Chinese Sci Bull 1991, 36:1481-1484
29. Huang WQ, **Shen WB**, Zhang CL. Distribution of β-endorphin in the gonad of amphioxus, In Annual Report of Experimental Oceanographic Biology Laboratory (Chinese Academy of Sciences), 1990, pp. 9-11
30. **Shen WB**, Zhang CL. Opioid peptides and reproduction in amphioxus, In Annual Report of Experimental Oceanographic Biology Laboratory (Chinese Acadof Sciences), 1990, pp. 1-8
31. **Shen WB**, Wang H, Zhang CL. Participation of β-endorphin in the negative feedback regulation of estrogen. ActaZoologiaSinica 1990, 36:286-292
32. Zhang CL, **Shen WB**, Huang WQ, Cheng LR, Du W, Jiao LH. Existence and functions of neurotransmitters in human early placental villi. Special Lecture, In The 70th Anniversary Symposium of the Physiology Society of China, 1990, Beijing, China