

CURRICULUM VITAE

Jennifer Susan Stone

Virginia Merrill Bloedel Hearing Research Center
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Personal Data

Date of Birth March 5, 1964
Place of Birth Cambridge, Massachusetts
Status Married, two children

Education

May 1985 B.A., Biology and Studio Art, Skidmore College, Saratoga Springs,
New York. Departmental Honors in Biology.
July 1993 Ph.D., Department of Anatomy and Neurobiology, Boston University
School of Medicine, Boston, Massachusetts

Postgraduate Training

July 1993-March 1998 Postdoctoral Fellowship, Department of Otolaryngology/Head and
Neck Surgery, University of Washington

Faculty Positions

April 1998 Research Assistant Professor, Otolaryngology/Head and Neck
Surgery, University of Washington
July 2004 Research Associate Professor, Dept of Otolaryngology/Head and
Neck Surgery, University of Washington
July 2015-present Research Professor, Dept of Otolaryngology/Head and
Neck Surgery, University of Washington

Affiliations

2004-present Faculty, Neurobiology and Behavior Graduate Program
Affiliate, Virginia Merrill Bloedel Hearing Research Center
Affiliate, Center for Human Development and Disability
Member, Hearing Regeneration Project Consortium

Intramural Responsibilities at the University of Washington (UW)

2000-2015 Director/Co-Director of the Communications Research Microscopic
Imaging Core, a NIDCD/NIH-supported P30 Core
1999 -2004 Affiliate Liaison Committee, VM Bloedel Hearing Research Center
2003, 2004 Faculty Senate
2004 - present Resident Admissions Committee, Otolaryngol/Head & Neck Surgery
2009 - present Graduate Dissertation Committee Member
- Kate Tabor, Neurobiology and Behavior Training Program
- Ivan Cruz, Molecular and Cellular Biology Training Program
- Sarah Pickett, Neurobiology and Behavior Training Program

2010-2012	Chair, Seminar Committee, Neurobiology and Behavior Graduate Program
2002-present	Training Faculty, Auditory Neuroscience Training Grant, NIH/NIDCD T32 Grant
2003-present	Training Faculty for Resident Research, Basic Science Training in Otolaryngology/Head and Neck Surgery, NIH/NIDCD T32 Grant
2011-present	Appointments and Promotions Committee, Otolaryngology/Head and Neck Surgery
2012-present	Research Committee, Otolaryngology/Head and Neck Surgery
2015-present	Affiliate Liaison Committee, VM Bloedel Hearing Research Center
2016-present	Director of Research, Otolaryngology/Head and Neck Surgery

National Responsibilities

1998-1999	Publications Committee, Association for Research in Otolaryngology
2001- 2005	Travel Award Committee, Association for Research in Otolaryngology
2002-present	Ad hoc grants reviewer for NIH/NIDCD, Action on Hearing Loss, Hearing Health Foundation
1998-present	Reviewer, Development, Journal of Comparative Neurology, J. Neurobiology, Hearing Research, J. Assoc. Research in Otolaryngology, Mechanisms of Development
2005-2009	Review Committee Member, Communications Disorders Research Committee, NIH/NIDCD,
2008	Co-Organizer, Conference on Cell Replacement in Inner Ear, June 12-15 2008, Bethesda
2009-present	Council of Scientific Trustees, Hearing Health Foundation
2012-present	Grants Management Committee, Hearing Health Foundation Faculty, Marine Biology Laboratories Inner Ear Biology course Woods Hole
2011, 2012, 2014	Chair, Grants Review Committee, Hearing Health Foundation
2011	Invited participant, NIH/NIDCD Regeneration Workshop, Bethesda
2013, 2014	Nominating Committee, Association for Research in Otolaryngology
2013, 2014	Program Committee, Association for Research in Otolaryngology
2014-2017	Council, Association for Research in Otolaryngology

Honors

1993	First Award in Recognition of Dissertation Research, Boston Univ.
2001	Burt Evans Award for Outstanding Young Investigator, National Organization for Hearing Research
2003	Dorrance H. Hamilton Award in Auditory Science, National Organization for Hearing Research Grant

Professional Societies

Association for Research in Otolaryngology
Society for Neuroscience

Research Interests

Developmental neurobiology

Sensory neurobiology
Development, regeneration, and morphology of auditory and vestibular hair cells

Research Funding

Current

R01 DC013771-01

4/1/2014-5/31/2019

NIH/NIDCD

Title: *Vestibular hair cell turnover in normal adult mammals*

Role: Principal Investigator

Hearing Restoration Project

6/1/2018 – 5/31/2019

Hearing Health Foundation

Title: *Functional testing for non-mammalian hair cell regeneration*

Role: Co-Investigator (with Mark Warchol, Washington University)

Hearing Restoration Project

6/1/2018 – 5/31/2019

Hearing Health Foundation

Title: *Epigenomics analysis of mammalian hair cell regeneration*

Role: Co-Investigator (with Neil Segil at U. Southern California)

Recent Completed (examples)

R21 DC013358-01

7/1/2013-6/30/2015

NIH/NIDCD

Title: *Structure-function analyses on novel processes of type II vestibular hair cells*

Role: Co-Principal Investigator (with R.A. Eatock at U. Chicago)

Bibliography

Research Papers Published in Refereed Journals

1. Sherman, GF, Stone, JS, Press, DM, Rosen, GD, Galaburda, AM (1990). Abnormal architecture and connections disclosed by neurofilament staining in the cerebral cortex of autoimmune mice. *Brain Research* 529: 202-207.
2. Sherman, GF, Stone, JS, Rosen, GD, Galaburda, AM (1990). Neocortical vasoactive intestinal peptide neurons are increased in the hemisphere containing focal cerebrocortical microdysgenesis in New Zealand black mice. *Brain Research* 532: 232-236.
3. Stone, JS, Cotanche, DA (1991). Hair cell differentiation in the developing chick cochlea and in embryonic cochlear organ culture. *Journal of Comparative Neurology* 314: 614-625.
4. Stone, JS, Cotanche, DA (1992). Synchronization of hair cell regeneration in the chick cochlea. *Journal of Cell Science* 102:671-680.
5. Stone, JS, Cotanche, DA (1994). Identification of the timing of S phase and the patterns of cell proliferation during hair cell regeneration in the chick cochlea. *Journal of Comparative Neurology* 341: 50-67.

6. Bhave, S, Stone, JS, Rubel, EW, and Coltrera, M (1995). Cell cycle progression in gentamicin-damaged avian cochleas. *Journal of Neuroscience* 15: 4618-28.
7. Stone, JS, Leañó, SG, Baker, LP, Rubel, EW (1996). Hair cell differentiation in chick cochlear epithelium after aminoglycoside toxicity: In vivo and in vitro observations. *Journal of Neuroscience* 16: 6157-74.
8. Mason, K, Peale, FV, Stone, JS, Rubel, EW, Bothwell, M (1998). Expression of novel potassium channels in the chick basilar papilla. *Hearing Research* 125: 120-30.
9. Stone, JS, Rubel, EW (1999) Delta1 expression during avian hair cell regeneration. *Development* 126: 961-73.
10. Molea, D, Stone, JS, Rubel, EW (1999). Class III β tubulin expression identifies early differentiating hair cells in the developing avian inner ear. *Journal Comparative Neurology* 406: 183-198.
11. Cochran, SL, Stone, JS, Bermingham-McDonogh, Akers, SR, Lefcort, F, Rubel, EW (1999). Ontogenetic expression of trk neurotrophin receptors in the chick auditory system. *Journal of Comparative Neurology*. 413: 271-288.
12. Stone, JS, Choi, Y-S, Yamashita, H, Woolley, SMN, Rubel, EW (1999). Progenitor cell cycling during hair cell regeneration in the vestibular and auditory epithelia of the chick. *Journal of Neurocytology* 28: 863-876.
13. Stone, JS and Rubel, EW (2000). Temporal, spatial, and morphological features of hair cell regeneration in the avian basilar papilla. *Journal of Comparative Neurology* 417: 1-16.
14. Matsui, JI, Oesterle, EC, Stone, JS, Rubel, EW (2000). Characterization of damage and regeneration in cultured avian utricles. *Journal of the Association for Research in Otolaryngology* 1:46-63.
15. Bermingham-McDonogh, O, Stone, JS, Reh, TA, Rubel, EW (2001). FGFR3 expression during development and regeneration of chick inner ear. *Developmental Biology* 238:247-59.
16. Lippe, WR, Zirpel, LI, Stone, JS (2002). Muscarinic receptors modulate intracellular Ca^{2+} concentration in hyaline cells of the chicken basilar papilla. *Journal of Comparative Physiology* 188:381-95.
17. Stone, J.S., Shang, J.L, and Tomarev, S (2003). Expression of Prox1 defines regions of the avian otocyst that give rise to sensory or neural cells. *Journal of Comparative Neurology* 460:487-502.
18. Stone, JS, Shang, JL, Tomarev, S (2004). Post-mitotic levels of the divergent homeodomain transcription factor, cProx1, predict hair cell fate during avian hair cell regeneration. *Developmental Dynamics*, 230: 597-614.
19. Bermingham-McDonogh, O, Oesterle, EC, Stone, JS, Hume, CR, Huynh, HM, Hayashi, T. (2006) The expression of Prox1 during mouse cochlear development. *Journal of Comparative Neurology* 496: 172-86.
20. Cafaro, J, Lee, G-S, Stone, JS (2007). Atoh1 expression defines activated progenitors as well as differentiating hair cells during avian hair cell regeneration. *Developmental Dynamics* 236:156-170.
21. Daudet, N, Gibson, R, Shang, J, Bernard, A, Lewis, J, Stone, JS (2009). Notch regulation of progenitor cell behavior in quiescent and regenerating auditory epithelium of mature birds. *Developmental Biology* 326: 86-100.
22. Shang J, Cafaro J, Nehmer R, Stone JS (2010). Supporting cell division is not required for regeneration of auditory hair cells after ototoxic injury in vitro. *Journal of the Association for Research in Otolaryngology* 11: 203-22.

23. Lin, V, Golub, J, Nguyen, TB, Hume, C, Oesterle, EC, and Stone, JS. (2011). Inhibition of notch activity promotes non-mitotic regeneration of HCs in the adult mouse utricle. *Journal of Neuroscience* 31: 15329-39.
24. White, PM, Stone, JS, Groves, AK, Segil, N. (2012). EGFR signaling is required for regenerative proliferation in the cochlea: Conservation in birds and mammals. *Developmental Biology* 363(1):191-200.
25. Lewis, RM, Hume, CR, Stone, JS. (2012) *Atoh1* expression and function during auditory hair cell regeneration in post-hatch chickens. *Hearing Research* 289(1-2):74-85.
26. Golub, JS, Tong, L, Nguyen, T, Hume, C, Palmiter, RD, Rubel, EW, Stone, JS (2012). Hair cell replacement in adult mouse utricles after targeted ablation of hair cells with diphtheria toxin. *Journal of Neuroscience* 32(43):15093-105.
27. Chonko KT, Jahan I, Stone JS, Wright MC, Fujiyama T, Hoshino M, Fritzsche B, Maricich SM (2013). *Atoh1* directs hair cell differentiation and survival in the late embryonic mouse inner ear. *Developmental Biology* 381(2):401-10.
28. Pujol, R, Pickett, S, Nguyen, T, Stone, JS (2014). Large basolateral processes on type II hair cells comprise a novel processing unit in mammalian vestibular organs. *Journal of Comparative Neurology* 522(14):3141-59.
29. Bucks, SA, Cox, BC, Vlosich, BA, Manning, JP, Nguyen, TB, Stone, JS (2017). Supporting cells remove and replace sensory receptor hair cells in a balance organ of adult mice. *eLife* 6. pii: e18128.
30. Warchol ME, Stone J, Barton M, Ku J, Veile R, Daudet N, Lovett M (2017) ADAM10 and γ -secretase regulate sensory regeneration in the avian vestibular organs. *Developmental Biology* 428(1):39-51.
31. Scheibinger M, Ellwanger DC, Corrales CE, Stone JS, Heller S (2018) Aminoglycoside Damage and Hair Cell Regeneration in the Chicken Utricle. *Journal of the Association for Research in Otolaryngology* 19(1):17-29.
32. Lewis RM, Keller JJ, Wan L, Stone JS (2017) Bone morphogenetic protein 4 antagonizes hair cell regeneration in the avian auditory epithelium. *Hear Res.* pii: S0378-5955(17)30531-2. doi: 10.1016/j.heares.2018.04.008. PMID: 29754876
33. Stone, JS, Wisner, S, Bucks, S, Mellado Lagarde, M, Cox, B Characterization of adult vestibular organs in eleven CreER mouse lines. *JARO*, in press.

Review Papers Published in Refereed Journals

1. Cotanche, DA, Lee, KH, Stone, JS, Picard, DA (1993). Hair cell regeneration in the bird cochlea following noise damage or ototoxic drug damage: A review. *Anatomy and Embryology* 198:1-18.
2. Stone, JS, Rubel, EW (1996). On a wing and a prayer: Stimulating hair cell regeneration *Nature Medicine* 2: 1082-3.
3. Stone, JS, Oesterle, EC, Rubel, EW (1998). Recent insights into regeneration of auditory and vestibular hair cells. *Current Opinion Neurology* 11: 17-24.
4. Stone, JS, Rubel, EW (2000b). Avian auditory hair cell regeneration. *Proceedings of the National Academy of Science* 97: 11714-11721.
5. Stone, JS and Cotanche, DA. (2007). Hair cell regeneration in the avian auditory epithelium. Review. *International Journal of Developmental Biology* 51: 633-47.
6. Brignull, H, Raible, DW, Stone, JS (2009). Feathers and Fins: Non-mammalian models for hair cell regeneration. *Brain Research* 1277:12-23.

7. Rubel, EW, Furrer, SA, Stone JS (2013). A brief history of hair cell regeneration research and speculations on the future. *Hearing Research* 297:42-51.
8. Wan G, Corfas G, Stone JS (2013). Inner ear supporting cells: Rethinking the silent majority. *Seminars in Cell and Developmental Biology* 2013 Mar 29.
9. Lewis, R, Rubel, E, Stone, JS (2016). Regeneration of auditory hair cells: A potential treatment for hearing loss on the horizon? *Acoustics Today*, Summer 2016 Issue.
10. Burns JC, Stone JS (2017). Development and regeneration of vestibular hair cells in mammals. *Semin Cell Dev Biol* 65:96-105.

Book Chapters

1. Hirose, K, Westrum, LE, Stone, JS, Zirpel, L, Rubel, EW (1999). Dynamic studies of ototoxicity in mature avian auditory epithelium. In *Ototoxicity: Basic Science and Applications*. Eds. D. Henderson et al., Thieme Publishers. NY Acad. Sciences Vol.884; pp 389-409.
2. Stone, JS, Oesterle, EO (2008). Cell determinants of proliferation and differentiation during hair cell regeneration. In *Auditory Hair Cell Protection and Regeneration*, Eds. Richard Salvi, Richard Fay, and Arthur Popper. Springer-Verlag: New York.
3. Stone, JS, Hume, CR (2012). Translational Perspectives: Current Issues in Inner Ear Regeneration. In “*Translational Perspectives in Hearing Science*”. Eds. K. Tremblay and R. Burkhard, Plural Publishing, San Diego.
4. Kelley, M, Stone, JS (2016, in press). Hair cell development and regeneration. In *Auditory Hair Cell Protection and Regeneration*, Eds. Richard Salvi, Richard Fay, and Arthur Popper. Springer-Verlag: New York

Recent Invited Talks

1. “Factors limiting hair cell regeneration in the vestibular organs of adult mice“, National Institutes of Deafness and Other Communication Disorders, Bethesda, MD. May 1, 2012.
2. “Hair cell regeneration as a therapy for hearing and balance dysfunction”. University Lions Club, Seattle, WA. April 26, 2012.
3. “Factors limiting hair cell regeneration in the vestibular organs of adult mice “, Gordon Research Conference, Lewiston, ME. July 13, 2012.
4. “Vestibular hair cells in adult mice: New insights into their morphology, homeostasis, and regeneration”, Harvard University-MEEI Molecular Biology of the Inner Ear Seminar Series and Mass Eye & Ear’s Otolaryngology & Ophthalmology Seminar Series, Boston, MA. December 5, 2013.
5. “Keeping the balance: Maintenance and regeneration of vestibular hair cells in adult mice”. Oregon Health Sciences University, Graduate Training Seminar Series, March 17, 2016.
6. “Vestibular hair cell regeneration in adult mice”, Seminars in Hearing and Communications Sciences, University of Washington, April 29, 2017.