HST.721 2004 Edition

DISCUSSION TOPICS AND PAPERS: (Papers still subject to change)

1. Anatomy

Review: Forge, A. and T. Wright (2002). "The molecular architecture of the inner ear." Br Med Bull 63: 5-24..

1a. Kikuchi, T., Kimura, R. S., Paul, D. L. and Adams, J. C. (1995)."Gap junctions in the rat cochlea: immunhistochemical and ultrastructural analysis," Anat Embryol 191, 101-118.

1b1. Liberman, M. C. (1980)."Morphological differences among radial afferent fibers in the cat cochlea: An electron-microscopic study of serial sections," Hear Res 3, 45-63.

1b2. Liberman, M. C. (**1982**)."Single-neuron labeling in the cat auditory nerve," Science **216**, 1239-1241.

2. Hair Cells & Transduction

Review: Roberts, W. M., J. Howard, et al. (1988). "Hair cells: transduction, tuning, and transmission in the inner ear." Annu Rev Cell Biol 4: 63-92.

2a. Corey, D. P. and Hudspeth, A. J. (**1983**)."Kinetics of the receptor current in bullfrog saccular hair cells," J Neurosci **3**, 962-976.

2b1. Pickles, J.O. , Comis, S.D. and Osborne, M.P. (1984) Cross-links between stereocilia in the guinea pig organ of Corti, and their possible relation to sensory transduction. Hear Res **15**: 103-112.

2b2. Denk W, Holt JR, Shepherd GM, and Corey DP. Calcium imaging of single stereocilia in hair cells: localization of transduction channels at both ends of tip links. Neuron 15: 1311-1321, 1995.

3. Stria / Endocochlear Potential

Review: Wangemann, P. (2002)."K+ cycling and its regulation in the cochlea and vestibular labyrintl," Audiology Neurootology 7:199-205.

3a. Salt, A. N., Melichar, I. and Thalmann, R. (1987)."Mechanisms of endocochlear potential generation by stria vascularis," Laryngoscope 97, 984-991.

3b. Takeuchi, S., Ando, M. and Kakigi, A. (2000)."Mechanism generating endocochlear potential: role played by intermediate cells in stria vascularis," Biophys J 79, 2572-2582.

4. OHCs and Electromotility

Review: Santos-Sacchi, J. (2003) New tunes from Corti's organ: the outer hair cell boogie rules. Curr. Opin. Neurobio. 13:459-468.

4a. Holley, M. C. and Ashmore, J. F. (**1988**)."On the mechanism of a high-frequency force generator in outer hair cells isolated from the guinea pig cochlea," Proc R Soc Lond B Biol Sci **232**, 413-429.

4b. Hallworth, R., Evans, B. N. and Dallos, P. (**1993**)."The location and mechanism of electromotility in guinea pig outer hair cells," J. Neurophysiol. **70**, 549-558.

4c. Zheng, J., Shen, W., He, D. Z., Long, K. B., Madison, L. D. and Dallos, P. (**2000**)."Prestin is the motor protein of cochlear outer hair cells," Nature **405**, 149-155.

5. Frequency Tuning and Cochlear Mechanics

Review: Dallos, P. (1992). The active cochlea. J. Neurosci. 12:4575-4585.

5a. Wilson, J. P. and Johnstone, J. R. (**1975**)."Basilar membrane and middle-ear vibration in guinea pig measured by capacitive probe," J Acoust Soc Am **57**, 705-723.

5b. Ruggero, M.A. and Rich, N.C. (1991) "Furosemide alters organ of Corti mechanics: Evidence for feedback of outer hair cells upon the basilar membrane". J. Neurosci. 11:1057-1067.

5c. Neely, S.T. (1993) A model of cochlear mechanics with outer hair cell motility. J Acoust Soc Amer 94(1) 137-146.

6. Afferent Transmission

Review: Fuchs, P.A., Glowatski, E. and Moser, T. (2003) The afferent synapse of cochlear hair cells. Curr. Opin. Neurobio. 13:452-458.

6a. Roberts, W. M., Jacobs, R. A. and Hudspeth, A. J. (**1990**)."Colocalization of ion channels involved in frequency selectivity and synaptic transmission at presynaptic active zones of hair cells," J. Neuroscience **10**, 3664-3684.

6b. Moser, T. and Beutner, D. (**2000**)."Kinetics of exocytosis and endocytosis at the cochlear inner hair cell afferent synapse of the mouse," Proc. Nat. Acad. Sci. **97**, 883-888.

6c. Glowatzki, E. and Fuchs, P. A. (**2002**)."Transmitter release at the hair cell ribbon synapse," Nat Neurosci **5**, 147-154.

7. Auditory Nerve Response

Review: Kiang NYS (1984) Peripheral processing of auditory information. Handbook of Physiology – The Nervous System.

7a. Liberman, M. C. (**1978**)."Auditory-nerve response from cats raised in a low-noise chamber," J Acoust Soc Am **63**, 442-455.

7b. Sachs, M. B. and Young, E. D. (**1979**)."Encoding of steady-state vowels in the auditory nerve: representation in terms of discharge rate," J. Acoust. Soc. Am. **66**, 470-479.

7c. Young ED and Sachs MB (1979) Representation of steady state vowels in the temporal aspects of the discharge patterns of populations of auditory nerve fibers. J. Acoust. Soc. Amer. **66**:1381-1403.

8. Efferent Control

Review: Guinan, JJ (1996) Physiology of Cochlear Efferents. In "The Cochlea", eds. P Dallos, AN Popper and RR Fay. New York, Springer, pp 435-500.

8a. Elgoyhen, A.B., Johnson, D.S., Boulter, J., Vetter, D.E. and Heinemann, S. (1994) "□9: An acetylcholine receptor with novel pharmacological properties expressed in rat cochlear hair cells." Cell: 79-705-715.

8b. Russell, I. J. and Murugasu, E. (**1997**)."Medial efferent inhibition suppresses basilar membrane responses to near characteristic frequency tones of moderate to high intensities," J Acoust Soc Am **102**, 1734-1738.

8c. Maison, S. F. and Liberman, M. C. (**2000**)."Predicting vulnerability to acoustic injury with a non-invasive assay of olivocochlear reflex strength," J. Neuroscience **20**, 4701-4707.

9. Inner Ear Development

Review: Bryant, J., R. J. Goodyear, et al. (2002). "Sensory organ development in the inner ear: molecular and cellular mechanisms." Br Med Bull 63: 39-57.

9a. Groves, A. K. and Bronner-Fraser, M. (**2000**)."Competence, specification and commitment in otic placode induction," Development **127**, 3489-3499.

9b. Eddison, M., Le Roux, I. and Lewis, J. (**2000**)."Notch signaling in the development of the inner ear: lessons from Drosophila," Proc Natl Acad Sci U S A **97**, 11692-11699.

10. Trauma and Repair

Review Trauma: Huang, T., A. G. Cheng, et al. (2000). "Oxidative stress-induced apoptosis of cochlear sensory cells: otoprotective strategies." Int J Dev Neurosci 18(2-3): 259-70.

Review Repair: Bermingham-McDonogh, O. and E. W. Rubel (2003). "Hair cell regeneration: winging our way towards a sound future." Curr Opin Neurobiol 13(1): 119-26.

10a. Wang, Y., Hirose, K. and Liberman, M. C. (**2002**)."Dynamics of noise-induced cellular injury and repair in the mouse cochlea," J Assoc Res Otolaryngol **3**, 248-268.

10b. Pirvola, U., Xing-Qun, L., Virkkala, J., Saarma, M., Murakata, C., Camoratto, A. M., Walton, K. M. and Ylikoski, J. (**2000**)."Rescue of hearing, auditory hair cells, and neurons by CEP-1347/KT7515, an inhibitor of c-Jun N-terminal kinase activation," J Neurosci **20**, 43-50.

10c. Warchol, M. E. and Corwin, J. T. (**1996**)."Regenerative proliferation in organ cultures of the avian cochlea: identification of the initial progenitors and determination of the latency of the proliferative response," J Neurosci **16**, 5466-5477.

11. Sensorineural Hearing Loss

Review: Liberman M.C. (2005) “Auditory Processing in Sensorineural Hearing Loss” In: Basic Science Review for Otolaryngology, Theime Medical Publishers; Eds. T.R. Van De Water, H. Staecker.

11a. Heinz, M.G. and Young, E.D. (2004). "Response Growth With Sound Level in Auditory-Nerve Fibers After Noise-Induced Hearing Loss". J, Neurophysiology 91:784-795.

11b. Liberman, M.C. and Dodds, L.W. (1984) Single-neuron labeling and chronic cochlear pathology, III: Stereocilia damage and alterations of threshold tuning curves. Hearing Research 16:55-74.

11c. Moore, B.C, D.A. Vickers, C.J. Plack and A.J. Oxenham (1999) Inter-relationship between different psychoacoustic measures assumed to be related to the cochlear active mechanism. J. Acoust. Soc. Amer. 106(5): 2761-2778.