CURRICULUM VITAE

RICHARD P. BOBBIN

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Education:

Northeastern University, College of Pharmacy, Boston, Massachusetts. B.S. awarded in 1964.

Tulane University, New Orleans, Louisiana. M.S. awarded 1967 (Pharmacology).

Tulane University, New Orleans, Louisiana. Ph.D. awarded 1969 (Pharmacology).

University of Florida, Gainesville, Florida. Postdoctoral Fellowship 1969-1971 (Neuroscience).

M.S. Thesis:

An experimental study of the effect of bradykinin on the marginal ear vein of the rabbit (Paul S. Guth, Preceptor).

Doctoral Dissertation:

An investigation of the hypothesis that gamma-aminobutyric acid or an analogue is the inhibitory transmitter at the olivo-cochlear nerve hair-cell junction (Paul S. Guth, Preceptor).

Highlights of Research Activities:

A large number of my laboratory=s research publications demonstrated that acetylcholine, glutamate and ATP met various criteria for the identification of neurotransmitters in the cochlea. The following summarizes some of that research.

My laboratory was the first to demonstrate that intracochlear application of acetylcholine mimicked the effects of the neurotransmitter of the medial olivocochlear bundle on cochlear microphonics, the

compound action potential of the auditory nerve (Publication #4) and on the sound evoked mechanical responses of the cochlea as monitored by DPOAEs (Publication # 44). We were the first to demonstrate the unique pharmacology of the acetylcholine receptor of the medial olivocochlear bundle, both to acetylcholine agonists and antagonists, at the level of the slow change in the EP evoked by medial olivocochlear bundle stimulation (Publication #6), at the level of the mechanical change in the cochlear partition as monitored by DPOAEs (Publication # 51) and at the level of the single isolated outer hair cell (Publication # 52).

My laboratory was the first to suggest glutamate as a candidate for the afferent neurotransmitter released by the inner hair cells (Publication #12; Abstracts #9 & #10). We were the first to demonstrate that glutamate mimicked the hair cell afferent transmitter by increasing the rate of firing of the auditory nerve (Publication #13). We were the first to demonstrate that glutamate was released from a hair cell system (lateral line) by natural stimulation (Publication #15) and we were the first to demonstrate that depolarization of cells in the cochlea with potassium also released glutamate (Publication #24). Both studies showed that glutamate met the release criterion for the identification of the afferent hair cells transmitter. We were the first to demonstrate the blockade criterion for glutamate as the hair cell transmitter by demonstrating the reduction in the compound action potential of the auditory nerve and sound-evoked firing of the auditory nerve by glutamate antagonists (Publications #20, # 27, #31, # 33, #81). We were the first to suggest that the glutamate receptor, NMDA, had no detectable role (Publication # 25) in generating action potentials in the auditory nerve fibers synapsing on the inner hair cells and that the glutamate receptor, AMPA, played a dominant role (Publication # 77, #81).

My laboratory was the first to suggest that ATP may be a neurotransmitter in the cochlea (Publications #12, #53, # 54). We were the first to demonstrate that the quadratic DPOAE may reflect the action of ATP on Deiters= cells through the use of ATP antagonists (Publications #70, #73) and to demonstrate that ATP can be both cytotoxic and mitogenic to cells in the cochlea (Publication # 71).

My laboratory was the first to demonstrate that nitric oxide (NO) reduced the endocochlear potential and to suggest that this was the mechanism for the observed suppression of the cochlear microphonics and the compound action potential of the auditory nerve (Publication #60). We were the first to demonstrate that intense sound and potassium depolarization induced the release of glutathione from cochlear tissue (Publications #46, # 61).

Research Activities:

My major research activities are concerned with neurotransmitter pharmacology, biochemistry and molecular biology using the peripheral auditory organ as a model system. In addition, I have minor interests in ototoxic drugs and noise induced deafness. Current investigations are being carried out to discover:

1. The identity, mechanisms of action and pharmacology of chemical transmitters and modulators in the cochlea with current emphasis being placed on the function of extracellular ATP on supporting cells.

2. The physiology, pharmacology and biochemistry of the efferent nerve fibers in the cochlea.

3. The mechanisms of action of ototoxic drugs such as aspirin.

4. The mechanism by which sound induces a hearing loss.

Publications:

1) Bobbin, R.P. and Guth, P.S. Venoconstrictive action of Bradykinin. **J. Pharmacol. Exp. Therap., 160 (1)**:4-20, 1968.

2) Bobbin, R.P., Gonzalez, G., and Guth, P.S. Effects of aminooxyacetic acid on cochlear potentials and the Preyer reflex. **Nature, 223**:70-71, 1969.

3) Bobbin, R.P. and Guth, P.S. Evidence that gamma-aminobutyric acid is not the inhibitory transmitter at the crossed olivocochlear nerve-hair cell junction. **Neuropharmacology, 9**:567-574, 1970.

4) Bobbin, R.P. and Konishi, T. Acetylcholine mimics crossed olivocochlear bundle stimulation. **Nat. New Biol., 231**:222-223, 1971.

5) Bobbin, R.P. and Gondra, Maria I. Effect of intravenous aminooxyacetic acid on the guinea pig cochlear potentials. **Neuropharmacology, 12**:1005-1007, 1973.

6) Bobbin, R.P. and Konishi, T. Action of cholinergic and anticholinergic drugs at the crossed olivocochlear bundle-hair cell junction. **Acta Otolaryngol., 77**:56-65, 1974.

7) Bobbin, R.P. and Gondra, M.I. Effect of intracochlear aminooxyacetic acid on cochlear potentials and endolymph composition. **Ann. Otol. Rhinol. Laryngol., 84(2)**:192-197, 1975.

8) Bobbin, R.P. and Gondra, M.I. Effects of intense low frequency sound (sonic boom) on the cochlea. **Environ. Res., 9**:48-54, 1975.

9) Bobbin, R.P. Recording site in the organ of Corti determined by an electrode-marking technique. **Arch. Otolaryngol., 102**:45-48, 1976.

10) Bobbin, R.P. and Gondra, M.I. Effect of nicotine on cochlear function and noise-induced hair cell loss. **Ann. Otol. Rhinol. Laryngol., 85(2)**:247-254, 1976.

11) Bobbin, R.P., Guth, Mary S., and Mines, A.B. An examination of an electro-chemical mechanism for noise-induced hair cell loss: Noise with aminooxyacetic acid (AOAA). **Trans. Am. Acad. Ophthalmol. Otolaryngol., 82**:299-304, 1976.

12) Bobbin, R.P. and Thompson, M.H. Effects of putative transmitters on afferent cochlear transmission. **Ann. Otol. Rhinol. Laryngol., 87**:185-190, 1978.

13) Bobbin, R.P. Glutamate and aspartate mimic the afferent transmitter in the cochlea. **Exp. Brain Res., 24**:389-393, 1979.

14) Bobbin, R.P., May, J.G., and Lemoine, R.L. Effects of pentobarbital and ketamine on brain stem auditory potentials: Latency and amplitude intensity functions after intraperitoneal administration. **Arch. Otolaryngol., 105**:467-470, 1979.

15) Bledsoe, S.C., Jr., Bobbin, R.P., Thalmann, R., and Thalmann, I. Stimulus-induced release of endogenous amino acids from the Xenopus laevis lateral-line organ. **Exp. Brain Res., 40**:97-101, 1980.

16) Bledsoe, S.C., Jr., Bobbin, R.P., and Chihal, D.M. Kainic acid: An evaluation of its action on cochlear potentials. **Hear. Res., 4**:109-120, 1981.

17) Bobbin, R.P., Bledsoe, S.C., Jr., and Chihal, D.M. Effect of asphyxia and aminooxyacetic acid on the slow potential evoked by crossed olivocochlear bundle stimulation. **Hear. Res., 5**:265-269, 1981.

18) Bobbin, R.P., Bledsoe, S.C., Jr., Chihal, D.M., and Morgan, D.N. Comparative actions of glutamate and related substances on the Xenopus laevis lateral line. **Comp. Biochem. and Physiol., 69C**:145-147, 1981.

19) Kisiel, D. and Bobbin, R.P. Interaction of aminooxyacetic acid and ethacrynic acid with intense sound at the level of the cochlea. **Hear. Res., 6**:129-140, 1981.

20) Bledsoe, S.C., Jr. and Bobbin, R.P. Effects of D-α-aminoadipate on excitation of afferent fibers in the lateral line of Xenopus laevis. **Neurosci. Lett., 32**:315-320, 1982.

21) Bledsoe, S.C., Jr., Chihal, D.M., Bobbin, R.P., and Morgan, D.N. Comparative actions of glutamate and related substances on the lateral line of Xenopus laevis. **Comp. Biochem. and Physiol., 75C**:119-206, 1983.

22) Bobbin, R.P., Bledsoe, S.C., Jr., Winbery, S., Ceasar, G., and Jenison, G.L. Comparative actions of GABA and acetylcholine on the Xenopus laevis lateral line. **Comp. Biochem. and Physiol., 80C**:313-318, 1985.

23) Jenison, G.L. and Bobbin, R.P. Quisqualate excites spiral ganglion neurons of the guinea pig. **Hear. Res., 20**:261-265, 1985.

24) Jenison, G.L., Bobbin, R.P., and Thalmann, R. Potassium-induced release of endogenous amino acids in the guinea pig cochlea. **J. Neurochem., 44**:1845-1853, 1985.

25) Jenison, G.L., Winbery, S., and Bobbin, R.P. Comparative actions of quisqualate and N-methyl-D-aspartate, excitatory amino acid agonists, on guinea pig cochlear potentials. **Comp. Biochem. and Physiol., 84C**:385-389, 1986.

26) Barron, S.E., Bobbin, R.P., Guth, P., and Norris, C. Cytochalasin D suppresses sound evoked potentials in the guinea pig cochlea. **Hear. Res., 31**:147-154, 1987.

27) Bobbin, R.P. and Ceasar, G. Kynurenic acid and gamma-D-glutamylamino-methylsulfonic acid suppress the compound action potential of the auditory nerve. **Hear. Res., 25**:77-81, 1987.

28) Puel, J.-L., Bobbin, R.P., and Fallon, M. An ipsilateral cochlear efferent loop protects the cochlea during intense sound exposure. **Hear. Res. 37**, 65-70, 1988.

29) Puel, J.-L., Bobbin, R.P., and Fallon, M. The active process is affected first by intense sound exposure. **Hear. Res. 37**, 53-64. 1988.

30) Puel, J.-L., Bobbin, R.P., and Fallon, M. 2-Amino-4-phosphonobutyric acid receptors are not involved in synaptic transmission from hair cells to auditory neurons. **Hear. Res. 37**, 83-88, 1988.

31) Littman, T., Bobbin, R.P., Fallon, M., and Puel, J.-L. The quinoxalinediones DNQX, CNQX and two related congeners suppress hair cell-to-auditory nerve transmission. **Hear. Res., 40**, 45-54, 1989.

32) Puel, J.-L., Bobbin, R.P., and Fallon, M. Salicylate, mefenamate, meclofenamate, and quinine on cochlear potentials. **Otolaryngology Head and Neck Surgery 102**, 66-73, 1989.

33) Puel, J.-L., Bobbin, R.P., and Fallon, M. Suppression of auditory nerve activity in the guinea pig cochlea by 1-(p-bromobenzyl)-piperazine -2,3-dicarboxylic acid. **Brain Research, 487**:9-15, 1989.

34) Puel, J.-L., Bledsoe, S.C., Jr., Bobbin, R.P., Ceasar, G., and Fallon, M. Comparative actions of salicylate on the amphibian lateral line and the guinea pig cochlea. **Comp. Biochem. and Physiol., 93C**:73-80, 1989.

35) Bobbin, R.P., Ceasar, G., and Fallon, M. Potassium induced release of GABA and other substances from the guinea pig cochlea. **Hear. Res. 46**, 83-94, 1990.

36) Bobbin, R.P., Jastreboff, P.J., Fallon, M., and Littman, T. Nimodipine, an L-channel Ca^{+2} antagonist, reverses the negative summating potential recorded from the guinea pig cochlea. **Hear. Res. 46**, 277-288, 1990.

37) Bobbin, R.P., Fallon, M., Puel, J.-L.,Bryant, G., Bledsoe, S.C., Jr., Zajic, G., and Schacht, J. Acetylcholine, carbachol, and GABA induce no detectable change in the length of isolated outer hair cells. **Hear. Res. 47**, 39-52, 1990.

38) Bobbin, R.P., Fallon, M., Li, L. and Berlin, C.I. Guinea pigs show post-natal stability in frequency mapping at the basal turn. **Hear. Res. 51:** 231-234, 1991.

39) Pou, A.M., Fallon, M., Winbery, S., and Bobbin, R.P. Lowering extracellular calcium decreases the length of isolated outer hair cells. **Hear. Res. 52:** 305-311, 1991.

40) Bobbin, R.P., Ceasar, G., and Fallon, M. Changing cation levels (Mg^{2+}, Ca^{2+}, Na^{+}) alters the release of glutamate, GABA and other substances from the guinea pig cochlea. **Hear. Res. 54:** 135-144, 1991.

41) Littman, T.A., Bobbin, R.P. and Cullen, J.K., Jr. Histochemical evidence that cochlear efferents are carried with the inferior vestibular nerve in guinea pigs. **Hear. Res. 56:** 281-285, 1991.

42) Bobbin, R.P., Fallon, M. and Kujawa, S.G. Magnitude of the negative summating potential varies with perilymph calcium levels. **Hear. Res. 56:** 101-110, 1991.

43) Cecola, R. P. and Bobbin, R.P. Lowering extracellular chloride concentration alters outer hair cell shape. **Hear. Res. 61:** 65-72, 1992.

44) Kujawa, S.G., Glattke, T.J., Fallon, M., and Bobbin, R.P. Intracochlear application of acetylcholine alters sound-induced mechanical events with the cochlear partition. **Hear. Res. 61:** 106-116, 1992.

45) Littman, T.A., Cullen, J.K., Jr., and Bobbin, R.P. The effect of olivocochlear bundle transection on tuning curves and acoustic distortion products. **JASA 92:** 1945-1952, 1992.

46) Bobbin, R.P. and Fallon, M. Intense sound increases the level of an unidentified amine found in perilymph. **Hear. Res**. **63:** 157-162, 1992.

47) Kujawa, S.G., Fallon, M., and Bobbin, R.P. Intracochlear salicylate reduces low intensity acoustic and cochlear microphonic distortion products. **Hear. Res. 64:** 73-80, 1992

48) Kujawa, S.G., Glattke, T.J., Fallon, M., and Bobbin, R.P. Contralateral sound suppresses distortion product otoacoustic emissions through cholinergic mechanisms. **Hear. Res. 68:** 97-106, 1993.

49) Crist, J.R., Fallon, M., and Bobbin, R.P. Volume regulation in cochlear outer hair cells. **Hear. Res. 69:** 194-198, 1993.

50) Ricci, A.J., Erostegui, C., Bobbin, R.P., Norris, C. H. Comparative electrophysiological properties of guinea pig outer hair cells and frog semicircular canal hair cells. **Comp. Biochem. Physiol. 107A:**13-21, 1994.

51) Kujawa, S.G., Glattke, T.J., Fallon, M., and Bobbin, R.P. A nicotinic-like receptor mediates suppression of distortion product otoacoustic emissions by contralateral sound. **Hear. Res. 74:** 122-134, 1994.

52) Erostegui, C., Norris, C.H., and Bobbin, R.P. In vitro pharmacologic characterization of a cholinergic receptor on outer hair cells. **Hear. Res. 74:** 135-147, 1994.

53) Kujawa, S.G., Erostegui, C., Fallon, M., Crist, J., and Bobbin, R.P. Effects of ATP and related agonists on cochlear function. **Hear. Res. 76:** 87-100, 1994.

54) Kujawa, S.G., Fallon, M., and Bobbin, R.P. ATP antagonists cibacron blue, basilen blue and suramin alter sound-evoked responses of the cochlea and auditory nerve. **Hear. Res. 78:** 181-188, 1994.

55) Erostegui, C., Nenov, A.P., Norris, C.H., and Bobbin, R.P. Acetylcholine activates a K^+ conductance permeable to Cs^+ in guinea pig outer hair cells. **Hear. Res. 81:** 119-129, 1994.

56) Kujawa, S.G., Fallon, M., and Bobbin, R.P. Time-varying alterations in the f_2-f_1 DPOAE response to continuous primary stimulation. I. Response characterization and contribution of the olivocochlear efferents. **Hear. Res.** 85: 142-154, 1995.

57) Skellett, R.A., Crist, J.R., Fallon, M., and Bobbin, R.P. Caffeine-induced shortening of isolated outer hair cells: An osmotic mechanism of action. **Hear. Res.** 87: 41-48, 1995.

58) Chen, C., Nenov, A., Norris, C.H., and Bobbin, R.P. ATP modulation of L-type calcium channel currents in guinea pig outer hair cells. **Hear. Res.** 86: 25-33, 1995.

59) Chen, C., Nenov, A., and Bobbin, R.P. Noise exposure induced change in outer hair cell response to ATP. **Hear. Res.** 88: 215-221, 1995.

60) Chen, C., Nenov, A. P., Skellet, R., Fallon, M., Bright, L., Norris, C.H. and Bobbin, R.P. Nitroprusside suppresses cochlear potentials and outer hair cell responses. **Hear. Res.** 87: 1-8, 1995.

61) Bobbin, R.P., Fallon, M., LeBlanc, C., and Baber, A. Evidence that glutathione is the unidentified amine (Unk 2.5) released by high potassium into cochlear fluids. **Hear. Res.** 87: 49-54, 1995.

62) Kujawa, S.G., Fallon, M., Skellett, R.A. and Bobbin, R.P. Time-varying alterations in the f_2-f_1 DPOAE response to continuous primary stimulation. II. Influence of local calcium-dependent mechanisms. **Hear. Res.** 97: 153-164, 1996.

63) Skellett, R.A., Crist, J.R., Fallon, M., and Bobbin, R.P. Chronic low-level noise exposure alters distortion product otoacoustic emissions. **Hear. Res.** 98: 68-76, 1996.

64) Chen, C., LeBlanc, C., and Bobbin, R.P. Differences in cholinergic responses from outer hair cells of rat and guinea pig. **Hear. Res.** 98: 9-17, 1996.

65) Nenov, A. P., Norris, C. and Bobbin, R.P. Acetylcholine response in guinea pig outer hair cells. I. Properties of the response. **Hear. Res.** 101:132-148, 1996.

66) Nenov, A. P., Norris, C. and Bobbin, R. P. Acetylcholine response in guinea pig outer hair cells. II. Activation of a small conductance Ca(2+)-activated K+channel. **Hear. Res.** 101: 149-172, 1996.

67) Nenov, A. P., Norris, C. and Bobbin, R.P. Outwardly rectifying currents in guinea pig outer hair cells. **Hear. Res.** 105: 146-158, 1997.

68) Nenov, A. P., Skellett, R., Fallon, M., and Bobbin, R. P. Nitrosoglutathione suppresses cochlear potentials but not outer hair cell currents or voltage-dependent capacitance. **Hear. Res**. 110, 77-86, 1997.

69) Chen, C., LeBlanc, C. and Bobbin, R.P. Differences in the distribution of responses to ATP and acetylcholine between outer hair cells of rat and guinea pig. **Hear Res**. 110, 87-94, 1997.

70) Skellett, R.A., Chen, C., Fallon, M., Nenov, A.P., and Bobbin, R.P. Pharmacological evidence that endogenous ATP modulates cochlear mechanics. **Hear. Res**. 111, 42-54, 1997.

71) Bobbin, R.P., Chu, S., Skellett, R.A., Campbell, J. and Fallon, M. Cytotoxicity and mitogenicity of adenosine triphosphate in the cochlea. **Hear. Res**. 113, 155-164, 1997.

72) Skellett, R.A., Cullen, J.K., Fallon, M. and Bobbin, R.P. Conditioning the auditory system with continuous vs. interrupted noise of equal acoustic energy: Is either exposure more protective? **Hear. Res**. 116, 21-32, 1998.

73) Chen, C., Skellett, R.A., Fallon, M. and Bobbin, R.P. Additional pharmacological evidence that endogenous ATP modulates cochlear mechanics. **Hear. Res**. 118,47-61, 1998.

74) Parker, M.S., Larroque, M., Campbell, J.M., Bobbin, R.P. and Deininger, P. Novel variant of the P2X2 ATP receptor from guinea pig organ of Corti. **Hear. Res**. 121, 62-70, 1998.

75) Chen, C. and Bobbin, R.P. P2X receptors in cochlear Deiters= cells. **Br. J. Pharmac**. 124, 337-344, 1998.

76) Nenov, A.P., Chen, C. and Bobbin, R.P. Outward rectifying potassium currents are the dominant voltage activated currents present in Deiters= cells. **Hear. Res**. 123, 168-182, 1998.

77) Ruel, J., Chen, C., Caicedo, A., Pujol, R., Bobbin, R.P., and Puel, J.L. AMPA-preferring glutamate receptors in cochlear physiology of adult guinea pig. **J. Physiol**. 518.3, 667-680, 1999.

78) LeBlanc, C.S., Fallon, M., Parker, M.S. Skellett, R. and Bobbin, R.P. Phosphorothioate oligodeoxynucleotides can selectively alter neuronal activity in the cochlea. **Hear. Res**. 135, 105-112, 1999.

79) LeBlanc, C. and Bobbin, R. P. An interaction between PPADs, an ATP antagonist, and a moderately intense sound on the cochlea. **Hear. Res**. 138, 192-200, 1999.

80) Chen, C., Parker, M.S., Barnes, P.A., Deininger, P., and Bobbin, R.P. Functional expression of three $P2X_2$ receptor splice variants from guinea pig cochlea. **J. Neurophysiol**. 83, 1502-1509, 2000.

81) Ruel, J., Bobbin, R.P., Vidal, D., Pujol, R., and Puel, J.L. The selective AMPA receptor antagonist GYKI53784 blocks action potential generation and excitotoxicity in the guinea pig cochlea. **Neuropharmacology**, 39, 1959-1973, 2000.

82) Bobbin, R.P. PPADS, an ATP antagonist, attenuates the effects of a moderately intense sound on cochlear mechanics. **Hear. Res.** 156, 10-16, 2001.

83) Bobbin, R.P. ATP induced movement of the stalks of isolated cochlear Deiters= cells. **NeuroReport,** 12, 2923-2925, 2001.

84) Bobbin, R.P. Caffeine and ryanodine demonstrate a role for the ryanodine receptor in the organ of Corti. **Hear. Res**. 174,172-182, 2002.

85) Parker, M.S., Nkeiruka, N O., and Bobbin, R.P. Localization of the P2Y4 receptor in the guinea pig organ of Corti. **JAAA**, 14, 286-295, 2003.

86) Bobbin, R.P. Parker, M., and Wall, L. Thapsigargin suppresses cochlear potentials and DPOAEs and is toxic to hair cells. **Hear. Res.** 184, 51-60, 2003.

Reviews, Books, Book Chapters and Published Proceedings:

1) Guth, P.S., Bobbin, R.P., Cano, G., and Amaro, J. Venoconstriction induced by bradykinin in the rabbit ear. In: Erdos, Back, and Sicuteri (Eds.), **Hypotensive Peptides, Proc. of III International Symposium on Hypotensive Polypeptides**. Springer-Verlag: New York, 396-406, 1966.

2) Guth, P.S. and Bobbin, R.P. The pharmacology of peripheral auditory processes: Cochlear pharmacology. **Adv. Pharmacol. Chemother., 9**:93-130, 1971.

3) Guth, P.S., Norris, C.H., and Bobbin, R.P. The pharmacology of transmission in the peripheral auditory system. **Pharmacol. Rev., 28(2)**:95-125, 1976.

4) Bobbin, R.P. and Kisiel, D.L. Interaction of intense sound with two drugs which reduce the endocochlear potential. In: Tobias, J.V., Jansen, G., and Ward, W.D. (Eds.), **Noise as a Public Health Problem**. ASHA: Rockville, MD, pp. 666-670, 1980.

5) Bobbin, R.P. and Morgan, D.N. Glutamate mimics the afferent transmitter in the Xenopus laevis lateral line. In: Gorlin, R.J. (Ed.), **Morphogenesis and Malformation of the Ear**. Alan R. Liss for the March of Dimes Birth Defects Foundation: New York, BD:OAS XVI (2):107-110, 1980.

6) Bobbin, R.P. and Kisiel, D.L. Physiology of hearing. In: Brown, R.D. and Daigneault, E.A. (Eds.), **Pharmacology of Hearing**. John Wiley & Sons: New York, pp. 19-50, 1981.

7) Kisiel, D.L. and Bobbin, R.P. Miscellaneous ototoxic agents. In: Brown, R.D. and Daigneault, E.A. (Eds.), **Pharmacology of Hearing**. John Wiley & Sons: New York, pp. 231-270, 1981.

8) Bobbin, R.P., Bledsoe, S.C., Jr., and Jenison, G.L. Neurotransmitters of the cochlea and lateral line organ. In: Berlin, C.I. (Ed.), **Hearing Science: Recent Advances**. College Hill Press: San Diego, CA, pp. 159-180, 1984.

9) Bobbin, R.P., Bledsoe, S.C., Jr., Winbery, S.L., and Jenison, G.L. Actions of putative neurotransmitters and other relevant compounds on Xenopus laevis lateral line. In: D.G. Drescher (Ed.), **Auditory Biochemistry**. Thomas: Springfield, Illinois, pp. 102-122, 1985.

10) Altschuler, R., Bobbin, R.P., and Hoffman, D. (Eds.), **Neurobiology of Hearing: The Cochlea**. Raven Press: New York, NY, 1986.

11) Bledsoe, S.C., Jr., Bobbin, R.P., and Puel, J.-L. Neurotransmission in the inner ear. In: Jahn, A. F. and Santos-Sacchi, J. R. (Eds.), **Physiology of Hearing**, pp. 385-406, Raven Press, 1988.

12) Altschuler, R., Bobbin, R.P., Clopton, B.M., and Hoffman, D. (Eds.), **Neurobiology of Hearing: The Central Auditory System**. Raven Press: New York, NY, 1991.

13) Bobbin, R.P. Cochlear Chemical Neurotransmission. In: **Encyclopedia of Human Biology**, Vol. 2. Academic Press, pp. 521-525, 1991.

14) Bobbin, R.P. Pharmacologic Approach to Acoustic Trauma in the Cochlea. A. L.Dancer, D. Henderson, R.J. Salvi and R.P. Hamernik (Eds.), **Noise-Induced Hearing Loss**. Mosby Year Book, St. Louis, 1992.

15) Bobbin, R.P. Chemical receptors on outer hair cells and their molecular mechanisms. In: Berlin, C.I. (Ed.), **Hair Cells and Hearing Aids**. Singular Publishing Group, Inc, San Diego, CA., pp. 29-56, 1996.

16) Bobbin, R.P. Transmitters in the cochlea: the chemical machinery in the ear. In: Berlin, C.I. (Ed.), **Neurotransmission and Hearing Loss**. Singular Publishing Group, Inc, San Diego, CA., pp. 25-46, 1997.

17) Bobbin, R.P. Chen, C., Nenov, A.P. and Skellett, R.A. Transmitters in the cochlea: The quadratic distortion product and its time varying response may reflect the function of ATP in the cochlea. In: Berlin, C.I. (Ed.), **Recent Advances in Basic and Clinical Hearing Science**. Singular Publishing Group, Inc, San Diego, CA., pp. 61-83, 1998.

18) Bobbin, R.P. and LeBlanc, C. S. Apamin reduces but does not abolish the effects of contralateral suppression of cubic DPOAES. In: Berlin, C.I. (Ed.), **Efferent Auditory System**. Singular Publishing Group, Inc, San Diego, CA., pp. 61-83, 1999.

19) Bobbin, R.P., Barnes, P.A., Chen, C., Deininger, P., LeBlanc, C. S., and Parker, M.S. Transmitters in the Cochlea: ATP as a Neuromodulator in the Organ of Corti. In: Berlin, C.I. and Keats, B. (Eds.), **Genetics and Hearing Loss**. Singular Publishing Group, Inc., San Diego, CA, pp.87-110, 2000.

20) Bobbin, R.P., LeBlanc, C. S., Mandhare, M. and Parker, M.S. Additional studies on the role of ATP as a neuromodulator in the organ of Corti. In: Berlin, C.I. and Bobbin,R.P. (Eds.), **Hair Cells Micromechanics and Hearing**. Singular Publishing Group, Inc., San Diego, CA, pp.129-155, 2001.

21) LePrell, C.G., Bledsoe, S.C., Bobbin, R.P. and Puel, J-L. Neurotransmission in the inner ear: functional and molecular analysis. In: Jahn, A.F. and Santos-Sacchi, J. (Eds.), **Physiology of the Ear,** Second Edition, Singular Publishing Group, Inc., San Diego, CA, pp. 575-611, 2001.

22) Bobbin, R.P.,Campbell, J., Lousteau, S. and Mandhare, M. Electrical and ATP induced movements of the phalangeal processes of isolated cochlear Deiters= cells. In: Berlin, C.I., Hood, L. and Ricci,A. (Eds.), **Hair Cell Micromechanics and Otoacoustic Emissions**. Delmar Learning (Singular), Inc., Clifton Park, NY, pp. 91-106, 2002.

Abstracts:

1) Guth, P.S., Bobbin, R., Cano, G., and Amaro, J. Venoconstriction induced by bradykinin in the intact and denervated rabbit ear. **Fed. Proc., 25**:287, 1966.

2) Bobbin, R.P. and Guth, P.S. Effects of aminooxyacetic acid (AOAA) and related agents on hair cell (CM) and VIII Nerve action potentials (N1). **Fed. Proc., 28**:2885, 1969.

3) Bobbin, R.P. and Konishi, T. Acetylcholine mimics crossed olivocochlear bundle stimulation. **J. Acoust. Soc. Am., 50(1)**:94, 1971.

4) Bobbin, R.P. and Konishi, T. Action of some cholinomimetics and cholinolytics on the effect of the crossed olivocochlear bundle (COCB). **J. Acoust. Soc. Am., 49**:122, 1971.

5) Bobbin, R.P. and Gondra, Maria I. Source of negative potentials in the organ of Corti. **J. Acoust. Soc. Am., 55**:S76, 1974.

6) Bobbin, R.P. Recordings of the slow potential change (COCP) evoked by crossed olivocochlear bundle (COCB) stimulation in the scala tympani, organ of Corti, and scala media and its response to anoxia. **J. Acoust. Soc. Am., 58(1)**:S104, 1975.

7) Bobbin, R.P., Guth, Mary S., and Mines, A.B. Aminooxyacetic acid protects against noise-induced cochlear hair cell loss. **J. Acoust. Soc. Am., 58(1)**:S89, 1975.

8) Bobbin, R.P., May, J.G., and Lemoine, R.L. Effects of anesthesia on the latency of the early components of click-evoked potentials. **J. Acoust. Soc. Am., 57(1)**:S62, 1975.

9) Bobbin, R.P. Effects of putative transmitters on afferent cochlear transmission. **J. Acoust. Soc. Am., 60(1)**:S79, 1976.

10) Bobbin, R.P. and Mines, A.B. Preliminary search for the afferent cochlear transmitter substance. **The Pharmacol., 18**:183, 1976.

11) Bobbin, R.P., Guth, Mary S., and Mines, A.B. Aminooxyacetic acid protects against noise-induced cochlear hair cell loss. **Fed. Proc., 35**:621, 1976.

12) Bobbin, R.P. and Kisiel, D.L. Interaction of intense sound with two drugs which reduce the endocochlear potential. **Abstract presented and Proceedings published by the International Commission on Biological Effects of Noise Conference,** Freiburg, Germany, September 25-29, 1978.

13) Bobbin, R.P. and Thompson, M.H. Glutamate stimulates cochlear afferent nerve fibers. **Fed. Proc., 37(3)**:613, 1978. **J. Acoust. Soc. Am., 63(1)**:S66, 1978.

14) Bobbin, R.P. and Thompson, M.H. Microelectrode recordings from the guinea pig cochlea. **Abstracts of the Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, January 30- February 1, 1978.

15) Bledsoe, S.C., Jr., Bobbin, R.P., and Morgan, D.N. Effect of intracochlear kainic acid on cochlear potentials in guinea pigs. **Soc. Neurosci., 5**:16, 1979.

16) Bledsoe, S.C., Jr., Bobbin, R.P., and Morgan, D.N. Method for detecting release of substances from the toad (Xenopus laevis) skin during water-flow stimulation of the lateral line organ. **J. Acoust. Soc. Am., 65(1)**:S11, 1979.

17) Bledsoe, S.C., Jr., Bobbin, R.P., Thalmann, R., and Thalmann, I. Stimulus-induced release of endogenous amino acids from the Xenopus laevis lateral-line organ. **J. Acoust. Soc. Am., 66**:S5, 1979.

18) Bobbin, R.P. and Morgan, D.N. Actions of glutamate and related substances on the spontaneous activity of afferent nerves in the toad (Xenopus laevis). **J. Acoust. Soc. Am., 65(1)**:S82, 1979.

19) Bobbin, R.P. and Morgan, D.N. Actions of glutamate, aspartate, and related substances on the spontaneous activity of afferent nerves in the toad (Xenopus laevis) lateral line. **Abstracts of the Second Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 3, January 22-24, 1979.

20) Bobbin, R.P., Morgan, D.N., and Bledsoe, S.C., Jr. Action of glutamate and related substances on the spontaneous activity of afferent nerves in the toad lateral line. **Soc. Neurosci., 5**:16, 1979.

21) Kisiel, D. and Bobbin, R.P. Interaction of intense sound with ethacrynic acid and aminooxyacetic acid. **Abstracts of the Second Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 12, January 22-24, 1979.

22) Chihal, D.M., Bledsoe, S.C., Jr., Bobbin, R.P., and Morgan, D.N. The glutamate receptor site in the lateral line of Xenopus laevis structure activity relationships (SAR). **Abstracts of the Third Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 7, January 21-23, 1980.

23) Bledsoe, S.C., Jr., Bobbin, R.P., and Chihal, D.M. Technique for studying sound-induced release of endogenous amino acids from the guinea pig cochlea. **Abstracts of the Fourth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 24, January 19-21, 1981.

24) Bobbin, R.P., Bledsoe, S.C., Jr., and Chihal, D.M. Effects of excitatory amino acid antagonists on guinea pig cochlear potentials. **Fed. Proc., 40**:309, 1981.

25) Bobbin, R.P., Bledsoe, S.C., Jr., and Chihal, D.M. Effects of various excitatory amino acid antagonists on guinea pig cochlear potentials. **Abstracts of the Fourth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 27, January 19-21, 1981.

26) Chihal, D.M., Bledsoe, S.C., Jr., Bobbin, R.P., and Morgan, D.N. Structure activity relationship (SAR) studies of a glutamate-active excitatory receptor site in the lateral line of Xenopus laevis.

Abstracts of the Fourth Midwinter Research Meeting, Association for Research in Otolaryngology, St. Petersburg Beach, Florida, P. 28, January 19-21, 1981.

27) Bledsoe, S.C., Jr. and Bobbin, R.P. Effects of antagonists of excitatory amino acids on the activity of afferent fibers in the Xenopus laevis lateral line. **Abstracts of the Fifth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 88, January 18-21, 1982.

28) Bobbin, R.P., Bledsoe, S.C., Jr., Jenison, G.L., Winbery, S., and Ceasar, G. Actions of atropine and bicuculline on the activity of afferent fibers in the Xenopus laevis lateral line. **Soc. Neurosci., 9**:739, 1983.

29) Jenison, G.L. and Bobbin, R.P. Effects of quisqualate on guinea pig cochlear potentials. **Abstracts of the Sixth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 47, January 23-27, 1983.

30) Jenison, G.L. and Bobbin, R.P. Potassium-induced changes in the levels of endogenous amino acids of guinea pig perilymph. **Soc. Neurosci., 9**:41, 1983.

31) Winbery, S.L. and Bobbin, R.P. Actions of acetylcholine and carbachol on the spontaneous activity of afferent fibers in the Xenopus laevis lateral line. **Abstracts of the Sixth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 47, January 23-27, 1983.

32) Bobbin, R.P., Bledsoe, S.C., Jr., Winbery, S., and Jenison, G. Actions of putative neurotransmitters and other relevant compounds on Xenopus laevis lateral line. **Abstracts of the Seventh Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 131, February 5-9, 1984.

33) Jenison, G.L., Bobbin, R.P., and Thalmann, R. Potassium-induced release of glutamate and taurine into perilymph is calcium-dependent. **J. Acoust. Soc. Am., 75**:S82, 1984.

34) Bobbin, R.P., Bledsoe, S.C., Jr., and Ceasar, G. Action of salicylate on the activity of afferent fibers in the Xenopus laevis lateral line. **Soc. Neurosci., 11**:244, 1985.

35) Bobbin, R.P., Ceasar, G., Prasad, C., and Jenison, G.L. An extract from skin of Xenopus laevis suppresses spontaneous activity in the lateral line. **Abstracts of the Eighth Midwinter Research Meeting, Association for Research in Otolaryngology**, Clearwater Beach, Florida, P. 112, February 3-7, 1985.

36) Jenison, G.L. and Bobbin, R.P. Quisqualate excites primary afferent auditory units of the guinea pig. **Abstracts of the Eighth Midwinter Research Meeting, Association for Research in Otolaryngology**, Clearwater Beach, Florida, P. 113, February 3-7, 1985.

37) Bobbin, R.P. and Ceasar, G. Effects of kynurenic acid and gamma-D-glutamyl-aminomethylsulphonic acid on guinea pig cochlear potentials. **Abstracts of the Ninth Midwinter Research Meeting, Association for Research in Otolaryngology**, Clearwater Beach, Florida, P. 90, February 2-6, 1986.

38) Bobbin, R.P. and Ceasar, G. Kynurenic acid suppresses the compound action potential (CAP) of the guinea pig cochlea. **Soc. Neurosci., 12**:1263, 1986.

39) Webster, D.B. and Bobbin, R.P. Bilateral, asymmetrical effects of a unilateral conductive loss on cochlear functioning. **Abstracts of the Ninth Midwinter Research Meeting, Association for Research in Otolaryngology**, Clearwater Beach, Florida, P. 178, February 2-6, 1986.

40) Barron, S.E., Bobbin, R.P., Guth, P.S., and Norris, C.H. Cytochalasin D suppresses the compound action potential and summating potential of the guinea pig cochlea. **J. Acoust. Soc. Am., 81**:S7, 1987.

41) Barron, S.E., Bobbin, R.P., Guth, P.S., and Norris, C.H. Cytochalasin D suppresses sound evoked potentials in the guinea pig cochlea. **Soc. Neurosci., 13**:40, 1987.

42) Bobbin, R.P., Ceasar, G., and Puel, J.-L. Potassium-induced release of glutamate, aspartate, taurine and GABA into the perilymph compartment of the guinea pig cochlea in vivo and the effects of destruction of the organ of Corti. **Abstracts of the Eleventh Midwinter Research Meeting, Association for Research in Otolaryngology**, Clearwater Beach, Florida, P. 34, January 29-February 5, 1988.

43) Bobbin, R.P., Puel, J.-L. and Fallon, M. Effects of 6-cyano-2,3,-dihydroxy-7-nitro-quinoxaline (CNQX/FGO65) on guinea pig cochlear potentials. **Soc. Neurosci**. **14**: 801, 1988.

44) Bryant, G.M., Ceasar, G.G. and Bobbin, R.P. Comparative amino acid levels in the hearing organs of rays, chickens and mammals. **Soc. Neurosci.** 14: 488, 1988.

45) Puel, J.-L., Bobbin, R.P., Bledsoe, S.C., Jr., Zajic, G. and Schacht, J. Does GABA induce changes in the length of isolated outer hair cells? **Presented at the International Symposium: Current concepts of hair cell function**, June 12-14, 1988, Kresge Hearing Research Institute, The University of Michigan, Ann Arbor, Michigan.

46) Puel, J.-L, Bobbin, R.P., and Fallon, M. Mechanism of action of salicylate in the guinea pig cochlea. **Abstracts of the XXV Inner Ear Biology Workshop**, University College, London, September 4-7, 1988.

47) Puel, J.-L., Bobbin, R.P. and Fallon, M. Salicylate abolishes cochlea potentials through a mechanism which does not involve prostaglandin and is different than quinine. AAO-HNS/ARO Research Forum, **Otolaryngology-Head and Neck Surgery 99**:154, 1988.

48) Puel, J.-L., Bobbin, R.P., and Fallon, M. Strychnine enhances and kynurenic acid does not alter the damaging effects of intense sound on the guinea pig cochlea. **Abstracts of the Eleventh Midwinter Research Meeting, Association for Research in Otolaryngology**, Clearwater Beach, Florida, P. 27, January 29-February 5, 1988.

49) Winbery, S.L., Ceasar, G., and Bobbin, R. Potassium evoked release of endogenous amino acids from isolated guinea pig cochlea. **Abstracts of the Eleventh Midwinter Research Meeting, Association for Research in Otolaryngology**, Clearwater Beach, Florida, P. 35, January 29-February 5, 1988.

50) Bryant, G.M. and Bobbin, R.P. Effects of various treatments on isolated outer hair cell length. **Abstracts of the Twelfth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, February 5-9, 1989.

51) Littman, T., Bobbin, R.P., Fallon, M., and Puel, J.-L. The quinoxalinediones DNQX, CNQX and two related congeners suppress hair cell-to-auditory nerve transmission. **Abstracts of the Twelfth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, P. 149, February 5-9, 1989.

52) Berlin, C.I., Bobbin, R.P., Collins, M.J., Cullen, J.K., Jr., Hood, L.J., and Webster, D.B. Basic science and current audiological practice. **Scientific Exhibit, ASHA**, 1989.

53) Bobbin, R.P., Jastreboff, P.J., Fallon, M., and Littman, T. Nimodipine, a calcium channel antagonist, reverses the summating potential. **Soc. Neurosci.** 15:210, 1989.

54) Bobbin, R.P. Summary of the pharmacology of neurotransmission in hair cell organ systems. **Neurotransmitter Symposium, Abstracts of the Thirteenth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 121, February 4-8, 1990.

55) Bobbin, R.P., Jastreboff, P.J., Fallon, M., and Littman, T. Nimodipine, an L-channel calcium antagonist, abolishes the negative summating potential recorded from guinea pig cochlea. **Abstracts of the Thirteenth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 260, February 4-8, 1990.

56) Fallon, M. and Bobbin, R.P. GABA, acetylcholine, and carbachol, induce no detectable change in the length of isolated outer hair cells. **Abstracts of the Thirteenth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 53, February 4-8, 1990.

57) Littman, T., Bobbin, R.P. and Cullen, J.K., Jr. Histochemical evidence suggesting that cochlear efferents are not carried in the superior vestibular nerve of guinea pigs. **Abstracts of the Thirteenth Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 368, February 4-8, 1990.

58) Bobbin, R.P. and Fallon, M. The magnitude of the negative summating potential varies directly with perilymph calcium levels. **Soc. Neurosc.**, 16:872, 1990.

59) Bobbin, R.P. & Fallon, M. Intense sound releases an amine present in perilymph and CSF. **Soc. Neurosci.**, 17: 1123, 1991.

60) Bobbin, R.P., Ceasar, G. and Fallon, M. Ca^{2+}, Mg^{2+}, Na^{+} and K^{+} affect the perilymph levels of GABA, glutamate, aspartate and other primary amines. **Abstracts of the 14th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 12, February 3-7, 1991.

61) Kujawa, S.G., Fallon, M., and Bobbin, R.P. Intracochlear application of acetylcholine alters sound-induced mechanical events with the cochlear partition. **Abstracts of the 14th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 127, February 3-7, 1991.

62) Kujawa, S.G., Fallon, M., and Bobbin, R.P. Intracochlear salicylate reduces low intensity acoustic and cochlear microphonic distortion products. **Abstracts of the 14th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 127, February 3-7, 1991.

63) Littman, T.A., Cullen, J.K., Jr., and Bobbin, R.P. Effects of olivocochlear bundle transection on cochlear mechanics. **Abstracts of the 14th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 129, February 3-7, 1991.

64) Bobbin, R.P. and Fallon, M. Characteristics of an unidentified amine present in perilymph. **Abstracts of the 15th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 100, abstract 290, February 2-6, 1992.

65) Cecola, R.P. and Bobbin, R.P. Lowering extracellular chloride concentration alters outer hair cell shape. **Abstracts of the 15th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 14, abstract 30, February 2-6, 1992.

66) Crist, J., Fallon, M., and Bobbin, R.P. Volume regulation in outer hair cells. **Abstracts of the 15th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 14, abstract 31, February 2-6, 1992.

67) Kujawa, S.G., Glattke, T.J., Fallon, M., and Bobbin, R.P. Contralateral sound suppresses distortion product otoacoustic emissions via cholinergic mechanisms. **Soc. Neurosci**. 18: p 1192, abstract # 499.12, 1992.

68) Erostequi, C., Norris, C.H., and Bobbin, R.P. Effects of acetylcholine on isolated outer hair cells. **Abstracts of the 16th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg, Florida, page 83, abstract #329, February 6-11, 1993.

69) Ricci, A.J., Erostegui, C., Norris, C.H. and Bobbin, R.P. A comparison of vestibular and cochlear hair cell electrophysiological and morphological properties. **Abstracts of the 16th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg, Florida, page 83, abstract #332, February 6-11, 1993.

70) Kujawa, S.G., Glattke, T.J., Fallon, M. and Bobbin, R.P. Effect of cholinergic antagonists on contralateral suppression of DPOAEs. **Abstracts of the 16th Midwinter Research Meeting, Association for Research in Otolaryngology**. St. Petersburg, Florida, page 99, abstract #394, Feb. 6-11, 1993.

71) Bobbin, R.P., Fallon, M., Crist, J., Kujawa, S. and Erostegui, C. Intracochlear ATP reduces low intensity acoustic distortion products and CAP but does not change isolated OHC length. **Abstracts of the 16th Midwinter Meeting, Association for Research in Otolaryngology.** St. Petersburg, Florida, page 102, abstract # 408, February 6-11, 1993.

72) Kujawa, S.G., Fallon, M., and Bobbin, R.P. Alterations in cochlear electrical potentials by intracochlear ATP and analogs. **Soc. Neurosci**. 19: p 1419, abstract # 580.7, 1993.

73) Erostequi, C., Norris, C.H., and Bobbin, R.P. Action of acetylcholine on cochlear outer hair cells. **Soc. Neurosci. 19:** p 1577, abstract # 649.1, 1993.

74) Kujawa, S.G., Fallon, M. and Bobbin, R.P. ATP antagonists cibacron blue, basilen blue and suramin alter sound-evoked responses of the cochlea and eighth nerve. **Abstracts of the 17th Midwinter Research Meeting, Association for Research in Otolaryngology**. St. Petersburg, Florida, page 90, abstract #359, Feb. 6-10, 1994.

75) Erostequi, C., Norris, C.H., Nemov, A.P. and Bobbin, R.P. Ionic mechanisms underlying the action of acetylcholine on outer hair cells. **Abstracts of the 17th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg, Florida, page 127, abstract #506, February 6-10, 1994.

76) Crist, J.R, Skellett, R.A., Fallon, M., and Bobbin, R.P. Caffeine-induced shortening of outer hair cells. **Abstracts of the 17th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, page 126, abstract 501, February 6-10, 1994.

77) Kujawa, S.G., Fallon, M., and Bobbin, R.P. A suppressive "off-effect" in the f_2-f_1 DPOAE response to continuous moderate-level primary stimulation. **J. Acoust. Soc. Am.,** 95, 2845, 1994.

78) Chen, C., Nenov, A.P., Norris, C.H., Kujawa, S.G., and Bobbin, R.P. Nitric oxide may be involved in the cochlear amplifier. **Abstracts of the 31st Workshop on Inner Ear Biology**, Montpellier, France, page 8, abstract #47, September 10-13, 1994.

79) Bobbin, R.P. Cholinergic pharmacology of medial efferent regulation of the active mechanisms. **Abstracts of the 1st International Symposium on Inner Ear Neuropharmacology**, Montpellier, France, September 14-15, 1994.

80) Nenov, A.P., Norris, C.H. and Bobbin, R.P. Characterization of the acetylcholine operated conductance in mammalian outer hair cells. **Abstracts of the 18th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 641, February 5-9, 1995.

81) Chen, C., Norris, C.H. and Bobbin, R.P. Acetylcholine inhibits L-type calcium channels of outer hair cells via a nicotinic-like receptor. **Abstracts of the 18th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 642, February 5-9, 1995.

82) Crist, J.R., Skellett, R.A., Fallon, M. and Bobbin, R.P. Changes in distortion product otoacoustic emissions following continuous noise exposure. **Abstracts of the 18th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 297, February 5-9, 1995.

83) Skellett, R.A., Crist, J.R., Fallon, M. and Bobbin, R.P. The effect of continuous moderate-level noise exposure on contralateral suppression. **Abstracts of the 18th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 298, February 5-9, 1995.

84) Bobbin, R.P., Fallon, M., Baber, A.M., Welliams-Bell, Y.F., and LeBlanc, C.S. Potassium increases efflux of glutathione into cochlear fluids. **Abstracts of the 18th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 115, February 5-9, 1995.

85) Chen, C., LeBlanc, C. and Bobbin, R.P. Pharmacological differences in the cholinergic receptor on outer hair cells of rat and guinea pig. **Soc. Neurosci. 21:** p 2138, abstract # 839.8, 1995.

86) Skellett, R. A., Crist, J.R., Fallon, M., and Bobbin, R.P. Chronic low-level noise exposure alters distortion product otoacoustic emissions. **Abstracts of the 19th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 126, February 4-8, 1996.

87) Skellett, R. A., Fallon, M., and Bobbin, R.P. "Conditioning" the auditory system with continuous vs. interrupted noise of equal acoustic energy: Is either exposure more protective? **Abstracts of the**

19th Midwinter Research Meeting, Association for Research in Otolaryngology, St. Petersburg Beach, Florida, abstract 136, February 4-8, 1996.

88) Fraser, D.G. and Bobbin, R.P. High accuracy measurement of isolated OHC motility using laser transmission microinteroferometry. **Abstracts of the 19th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 247, February 4-8, 1996.

89) Bobbin, R.P, Skellett, R.A., and Fallon, M. Intracochlear application of S-nitrosoglutathione suppresses sound evoked potentials in the guinea pig cochlea. **Abstracts of the 19th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 525, February 4-8, 1996.

90) Chen, C., LeBlanc, C.S., and Bobbin, R.P. ATP does not generate a current response in outer hair cells of rat cochlea. **Abstracts of the 19th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 526, February 4-8, 1996.

91) Nenov, A.P., Norris, C.H., and Bobbin, R.P. Properties of the outwardly rectifying currents in guinea pig outer hair cells. **Abstracts of the 19th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 734, February 4-8, 1996.

92) Nenov, A.P., Norris, C.H., and Bobbin, R.P. The acetylcholine activated K^+ channel in guinea pig OHCs. **Abstracts of the 19th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 735, February 4-8, 1996.

93) Chen, C. and Bobbin, R.P. Acetylcholine potentiation of glutamate-induced response in guinea pig spiral ganglion cells. **Abstracts of the 20th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 600, February 1-6, 1997.

94) Skellett, R. A., Cullen , J.K., Fallon, M., and Bobbin, R.P. Differences in the degree of protection provided by interrupted vs. continuous sound conditioning **Abstracts of the 20th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 771, February 1-6, 1997.

95) Parker, M.S., Bobbin, R.P and Deininger, P.L. Guinea pig organ of Corti contains mRNA for ATP receptor type P2x2. **Abstracts of the 20th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 867, February 1-6, 1997.

96) Bobbin, R.P, Chen, C., Skellett, R.A., and Fallon, M. The ATP antagonist, suramin, prevents the time related decrease of the quadratic (f2-f1) otoacoustic distortion product. **Abstracts of the 20th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 54, February 1-6, 1997.

97) Nenov, A.P., Chen, C., Norris, C.H., and Bobbin, R.P. Voltage dependent currents in Deiters= cells from guinea pig cochlea. **Abstracts of the 20th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 57, February 1-6, 1997.

98) Athas, G.B., Chen, C., Bobbin, R.P., and Garcia, M.M. Nicotinic acetylcholine receptor subunits in outer hair cells of the guinea pig cochlea demonstrated by expression profiling. **Abstracts of the 20th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 66, February 1-6, 1997.

99) Chu, S.H.B., Fallon, M., Skellett, R.A., Campbell, J., LeBlanc, C.S., and Bobbin, R.P. Adenosine triphosphate (ATP) induces outer hair cell death. **Abstracts of the 20th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 294, February 1-6, 1997.

100) Chen, C. and Bobbin, R.P. Differences in effects of purinergic antagonists on P2X receptors in the cochlea. **Soc. Neurosci. 23:** p 1782, abstract # 695.5, 1997.

101) Parker, M.S., Larroque, M.L., Campbell, J., Bobbin, R.P. and Deininger. Sequence and distribution of P2X2 ATP receptor variants in the guinea pig organ of Corti. **Abstracts of the 21st Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 84, pg. 21, February 15-19, 1998.

102) Chen, C. and Bobbin, R.P. Glutamate receptors in spiral ganglion neurons are predominantly AMPA-preferring. **Abstracts of the 21st Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 88, pg. 22, February 15-19, 1998.

103) Bobbin, R.P, Chen, C., Skellett, R.A., and Fallon, M. Pharmacological evidence that ATP modulates cochlear mechanics. **Abstracts of the 21st Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 246, pg. 62, February 15-19, 1998.

104) LeBlanc, C.S., Fallon, M., Skellett, R.A., Parker, M.S. and Bobbin, R.P. Antisense targeting P2X2 receptors increases N1 latency. **Abstracts of the 21st Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 543, pg. 136, February 15-19, 1998.

105) Chen, C., Barnes, A.P., Parker, M.S., Deininger, P.L., and Bobbin, R.P. Functional expression of guinea pig cochlear P2X2 ATP receptor variants in HEK 293 cells. **Abstracts of the 22st Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 309, pg. 78, February 13-18, 1999.

106) LeBlanc, C.S., Fallon, M., Skellett, R.A., Parker, M.S. and Bobbin, R.P. Phosphorothioate antisense targeting P2X2 receptors nonspecifically alters cochlear potentials. **Abstracts of the 22st**

Midwinter Research Meeting, Association for Research in Otolaryngology, St. Petersburg Beach, Florida, abstract 310, pg. 79, February 13-18, 1999.

107) Parker, M.S., Deininger, P.L., and Bobbin, R.P. Detection of P2X2 ATP receptor splice variants in guinea pig tissue by RT-PCR. **Abstracts of the 22st Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 310, pg. 79, February 13-18, 1999.

108) Bobbin, R.P. and LeBlanc, C.S. A role for ATP as an extracellular modulator during sound expsoure. **Abstracts of the 22st Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 487, pg. 123, February 13-18, 1999.

109) Bobbin, R. P. and LeBlanc, C. Interaction of intense sound with an ATP antagonist, PPADS, in the cochlea. **Abstracts of the 23rd Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 15, pg. 4, February 20-24, 2000.

110) Parker, M., Deininger, P., Onyenekwu, N., and Bobbin, R. P. Detection of a fourth P2X2 ATP receptor splice variant in the guinea pig. **Abstracts of the 23rd Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 464, pg. 133, February 20-24, 2000.

111) Ruel, J., Nouvian, R., Bobbin, R.P., Pujol, R., and Puel, J.L. Effects of the selective non-competitive AMPA receptor antagonist GYKI53784 on cochlear physiology and excitotoxicity in guinea pig. **Abstracts of the 23rd Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 677, pg. 195, February 20-24, 2000.

112) LeBlanc, C., Chen, C., and Bobbin, R.P. Are there active calcium conductances in Deiters cells? **Abstracts of the 23rd Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 689, pg. 199, February 20-24, 2000.

113) Bobbin, R.P., Campbell, J, LeBlanc, C.S., and Lousteau, S. Motion of the stalks of isolated Deiters= cells. **Abstracts of the 24th Midwinter Research Meeting, Association for Research in Otolaryngology**, St. Petersburg Beach, Florida, abstract 821, pg. 230, February 4-8, 2001.

114) Bobbin, R.P. Extracellular ATP induces motion of the stalks of isolated guinea pig Deiters= cells. **Soc. Neurosci.** Abstract 513.9, pg. 263, 2001.

115) Bobbin, R.P. Depolarization and ATP induced movements of the stalks of isolated Deiters= cells.
Abstracts of the 25th Midwinter Research Meeting, Association for Research in Otolaryngology, St. Petersburg Beach, Florida, abstract 975, pg. 256, January 27-31, 2002.

116) Bobbin, R.P. Caffeine and ryanodine demonstrate a role for the ryanodine receptor in the organ of Corti. **Abstracts of the 26th Midwinter Research Meeting, Association for Research in Otolaryngology**, Daytona Beach, Florida, abstract 623, pg. 156, February 22-27, 2003.

117) Bobbin, R.P., Parker, M., and Wall, L. Thapsigargin suppresses cochlear potentials and DPOAEs and is toxic to hair cells. **Abstracts of the 27th Midwinter Research Meeting, Association for Research in Otolaryngology**, Daytona Beach, Florida, abstract 973, pg. 130, February 21-26, 2004.

118) Parker, M.A., Gray, B., Bakhtiarova, A., Snyder, E.Y., Wall, L., Bobbin, R.P., and Cotanche, D.A. Detection of stem cells transplanted into the cochlea by fluorescent in situ hybridization. **Abstracts of the 27th Midwinter Research Meeting, Association for Research in Otolaryngology**, Daytona Beach, Florida, abstract 1033, pg. 138, February 21-26, 2004

Special Lectures (select):

Aminooxyacetic acid protects against noise-induced cochlear hair cell loss. Lecture - Coleman Memorial Laboratory, Departments of Physiology and Otolaryngology, University of California at San Francisco, San Francisco, California, November, 1975.

A drug that prevents noise-induced hearing loss? Lecture - Memphis Speech and Hearing Center, Memphis State University, Memphis, Tennessee, December 3, 1976.

Recordings from inside the hair cells. 11th Colorado Medical Audiologic Workshop, Vail, Colorado, March 5-12, 1977.

Auditory physiology. Lecture and videotape presentation, 12th Colorado Otology-Audiology Workshop, Vail, Colorado, March 4-11, 1978.

Classifications and mechanisms of action in ototoxic drugs. 12th Colorado Otology-Audiology Workshop, Vail, Colorado, March 4-11, 1978.

Interaction of drugs with intense sound at the level of the cochlea. Research Discussion, National Aerospace Medical Research Laboratory, Naval Air Station, Pensacola, Florida, August 17, 1978.

Effects of damaging levels of intense sound on the cochlea - A review of effects and mechanisms. 13th Colorado Otology-Audiology Workshop, Vail, Colorado, March 3-10, 1979.

Measurement and treatment of hearing problems in children. Continuing Education Program, Pediatric Pharmacy, presented by Xavier University of Louisiana, December 8, 1985.

Hair cell function and transmitters. Tutorial session at the Second Annual Meeting of the American Academy of Audiology, New Orleans, April 28, 1990.

Excitatory amino acids in the cochlea: physiology and pharmacology. Departement Biologie-Santé, Université Montpellier II, France, Mardi 5 Juin 1990.

Outer hair cells: motors in the inner ear with a novel acetylcholine receptor. The University of Michigan, Kresge Hearing Research Institute, April 15, 1993.

Transmitters in the cochlea: ATP as a neuromodulator in the organ of Corti. The University of Michigan, Kresge Hearing Research Institute, October 28, 1998.

A review of the electrophysiological evidence that nitric oxide has a role in the inner ear. Presidential Symposium, Advances in Nitric Oxide Research, Association for Research in Otolaryngology, St. Petersburg Beach Florida, February 20, 2000.