

## **CURRICULUM VITAE**

### **XIANG YANG CHEN**

Addresses:                   Laboratory of Neural Injury and Repair  
                                  Wadsworth Center  
                                  New York State Department of Health  
                                  Department of Biomedical Sciences  
                                  School of Public Health, State University of New York at Albany  
                                  P.O. Box 509  
                                  Albany, NY 12201-0509

Telephones:               (518) 486-4916 (office), 486-4916 (lab); Fax: (518) 486-4910

e-mail:                     chenx@wadsworth.org

### **PROFESSIONAL EXPERIENCE**

- 1997-present   Associate Professor, 2002-present (Adjunct Assistant Professor, 1997-2002), Dept. of Biomedical Sciences, School of Public Health, State University of New York, Albany, New York 12201, USA.
- 1995-present   Research Scientist VI, 2006-present (Research Scientist V 02-06, Research Scientist IV 99-02, Research Scientist III 97-99, Research Scientist II 96-97, Research Scientist I 95-96), Wadsworth Center, New York State Department of Health, Albany, NY 12201.
- 1995-present   Principal Investigator, Wadsworth Center, New York State Department of Health and University of New York at Albany, NY 12201.
- 1990-1995      Postdoctoral Research Affiliate, Wadsworth Center, New York State Department of Health and State University of New York, Albany, New York 12201, USA.
- 1986-1990      Demonstrator, Dept. of Physiology, University of Hong Kong, Hong Kong.
- 1982-1986      Lecturer, 85-86 (Teaching Assistant, 82-85), Dept. of Physiology, Suzhou Medical College, Suzhou, China; Research Fellow, 82-86, Laboratory of Neurobiology, Suzhou Medical College, Suzhou, China.
- 1970-1977      “Bare-foot” Doctor, Dongjiang Medical Clinic, Parchen, Quensen County, Jiangsu Province, China.

### **EDUCATION**

- 1977-1982      B.Sc. (The highest Honors) in Physiology, Nanjing University, Nanjing, China

- 1986-1990            Ph.D. in Physiology, University of Hong Kong, Hong Kong
- 1990-1995            Postdoc. in Neuroscience, Wadsworth Center, New York State Dept of Health and State University of New York

## **HONORS AND AWARDS**

- 1986-1990    Postgraduate Scholarship, Faculty of Medicine, University of Hong Kong, Hong Kong
- 1988-1989    Wong Ching Yee Medical Postgraduate Scholarship, University of Hong Kong, Hong Kong
- 1986            Third Prize in Scientific Achievements, The Administration of Jiangsu Province, China
- 1986            Third Prize in Scientific Achievements, The Ministry of Nuclear Industry, China
- 1981            The highest Honors Undergraduate Student (only zero or one per class), Awarded by Nanjing University, China

## **SCHOLARLY ACTIVITY**

### **Articles and Chapters (\* first/senior/corresponding author)**

1. Chen, J., Wang, J.J., **Chen, X.Y.**, Hua, G., Liu, X.C., and Yin, S.L.: The electrophysiological research of projections from suprachiasmatic nucleus: the effect of stimulating suprachiasmatic nucleus (SCN) on the unit discharges of lateral septal nucleus (SL). *Journal of Nanjing University*, 1:107-112, 1983.
- \*2. **Chen, X.Y.**, Gu, F., Guo, S.Y., Yin, W.P., and Yin, Q.Z.: Naloxone reversed the effect of hypothalamic arcuate stimulation on dorsal raphe unit activities in rats. *Acta Physiologica Sinica*, 36:589-594, 1984.
- \*3. **Chen X.Y.**, Duanmu, Z.X., Yin, W.P., and Yin, Q.Z.: The effect of hypothalamic arcuate stimulation on the pain-evoked unit discharges of thalamic parafascicular nucleus: a preliminary analysis. *Acta Physiologica Sinica*, 38:26-32, 1986.
- \*4. **Chen, X.Y.**, Yin, W.P., and Yin, Q.Z.: The effect of hypothalamic arcuate stimulation on the pain-evoked unit discharges of thalamic parafascicular nucleus in monosodium glutamate (MSG) treated new-born rats. *Journal of Suzhou Medical College*, 4:13-15, 1986.
- \*5. **Chen, X.Y.**, Yin, W.P., and Yin, Q.Z.: Dorsal raphe nucleus is involved in the inhibitory effect of hypothalamic arcuate stimulation on the pain-evoked unit discharges of thalamic parafascicular nucleus. *Acta Physiologica Sinica*, 39:46-53, 1987.
- \*6. **Chen, X.Y.**, Yin, W.P., and Yin, Q.Z.: The effect of electroacupuncture and hypothalamic arcuate stimulation on the pain-evoked unit discharges of thalamic parafascicular nucleus: a preliminary analysis. *Acupuncture Research*, 12:110-115, 1987.

- \*7. **Chen, X.Y.**, Yin, W.P., and Yin, Q.Z.: The effect of arcuate stimulation on the pain-evoked unit discharges of thalamic parafascicular nucleus in monosodium glutamate (MSG) treated rats. *Acta Zoologica Sinica*, 34:191-192, 1988.
8. Poon, P.W.F., **Chen, X.Y.**, and Hwang, J.C.: Altered sensitivities of auditory neurons in the rat midbrain following early postnatal exposure to patterned sounds. *Brain Research*, 524:327-330, 1990.
9. Xu, J.F., Poon, W.F., **Chen, X.Y.**, and Chung, S.N.: Computer-assisted three dimensional reconstruction of nuclear subdivisions in the inferior colliculus. *Comput. Engin. Applicat.*, 6:7-10, 1990.
- \*10. **Chen, X.Y.**: FM Sensitivities in the Rat Midbrain. Doctoral Thesis, University of Hong Kong, Hong Kong, 1990.
11. Poon, P.W.F., **Chen X.Y.**, and Hwang J.C.: Basic determinants for FM responses in inferior colliculus of rat. *Experimental Brain Research*, 83:598-606, 1991.
12. Poon, P.W.F., **Chen, X.Y.**, and Cheung, Y.M.: Differences in FM response correlate with morphology of neurons in the rat inferior colliculus. *Experimental Brain Research*, 91:94-104, 1992.
- \*13. **Chen, X.Y.**, Carp, J.S., and Wolpaw, J.R.: Constancy of motor axon conduction time during growth in rats. *Experimental Brain Research*, 90:343-345, 1992.
14. Poon, P.W.F., **Chen, X.Y.**: Postnatal exposure to tones alters the turning characteristics of inferior collicular neurons in the rat. *Brain Research*, 585:391-394, 1992.
- \*15. **Chen, X.Y.** and Wolpaw, J.R.: Triceps surae motoneuron morphology in the rat: a quantitative light microscopic study. *Journal of Comparative Neurology*, 343:143-157, 1994.
- \*16. **Chen, X.Y.** and Wolpaw, J.R.: Circadian rhythm in rat H-reflex. *Brain Research*, 648:167-170, 1994.
- \*17. **Chen, X.Y.** and Wolpaw, J.R.: Operant conditioning of H-reflex in freely moving rats. *Journal of Neurophysiology*, 73: 411-415, 1995.
- \*18. **Chen, X.Y.** and Wolpaw, J.R.: Operantly conditioned plasticity and circadian rhythm in rat H-reflex are independent phenomena. *Neuroscience Letters*, 195: 109-112, 1995.
- \*19. **Chen, X.Y.** and Wolpaw, J.R.: Reversal of H-reflex operant conditioning in the rat. *Experimental Brain Research*, 112: 58-62, 1996.
- \*20. **Chen, X.Y.**, Wolpaw, J.R., Jakeman, L.B., and Stokes, B.T.: Operant conditioning of H-reflex in spinal cord-injured rats. *Journal of Neurotrauma*, 13: 755-765, 1996.
- \*21. **Chen, X.Y.** and Wolpaw, J.R.: Dorsal column but not lateral column transection prevents down conditioning of H-reflex in rats. *Journal of Neurophysiology*, 78: 1730-1734, 1997.
- \*22. **Chen, X.Y.**, Wolpaw, J.R., Jakeman, L.B., and Stokes, B.T.: Operant conditioning of H-reflex increase in

spinal cord-injured rats. *Journal of Neurotrauma*, 16: 175-186, 1999.

- \*23. **Chen, X.Y.** and Wolpaw, J.R.: Plasticity in spinal reflexes. *Fudan Lectures in Neurobiology*, 15: 45-59, 1999.
- 24. Carp, J.S., Herchenroder, P.A., **Chen, X.Y.**, and Wolpaw, J.R.: Sag during unfused tetanic contractions in rat triceps surae motor units. *Journal of Neurophysiology*, 81:2647-2661, 1999.
- \*25. **Chen, X.Y.**, Feng-Chen, K.C., Chen, L., Stark, D.M., and Wolpaw, J.R.: Short-term and medium-term effects of spinal cord tract transections on soleus H-reflex in freely moving rats. *Journal of Neurotrauma*, 18:313-327, 2001
- 26. Wolpaw, J.R. and **Chen, X.Y.**: Operant conditioning of rat H-reflex: effects on mean latency and duration. *Experimental Brain Research*, 136:274-279, 2001
- 27. Carp, J.S., **Chen, X.Y.**, Sheikh, H., and Wolpaw, J.R.: Operant conditioning of rat H-reflex affects motoneuron axonal conduction velocity. *Experimental Brain Research*, 136:269-273, 2001
- \*28. **Chen, X.Y.**, Chen, L., and Wolpaw, J.R.: Time course of H-reflex conditioning in the rat. *Neuroscience Letters*, 302: 85-88, 2001
- 29. Carp, J.S., **Chen, X.Y.**, Sheikh, H., and Wolpaw, J.R.: Motor unit properties after operant conditioning of rat H-reflex. *Experimental Brain Research*, 140: 382-386, 2001.
- 30. Carp, J.S., **Chen, X.Y.**, Sheikh, H., and Wolpaw, J.R.: Effect of chronic nerve cuff and EMG electrodes on rat triceps surae motor units. *Neuroscience Letters*, 312: 1-4, 2001.
- \*31. **Chen, X.Y.** and Wolpaw, J.R.: Probable corticospinal tract control of spinal cord plasticity in rats. *Journal of Neurophysiology*, 87: 645-652, 2002.
- \*32. **Chen, X.Y.**, Carp, J.S., Chen, L., and Wolpaw, J.R.: Corticospinal tract transection prevents operantly conditioned H-reflex increase in rats. *Experimental Brain Research*, 144:88-94, 2002.
- \*33. **Chen, X.Y.**, Chen, L., Wolpaw, J.R., Jakeman, L.B.: Corticospinal tract transection reduces H-reflex circadian rhythm in rats. *Brain Research*, 942:101-108, 2002.
- \*34. **Chen, X.Y.**, Chen, L., Wolpaw, J.R.: Conditioned H-reflex increase persists after transection of the main corticospinal tract in rats. *Journal of Neurophysiology*, 90: 3572-3578, 2003.
- \*35. **Chen, X.Y.**, Wolpaw, J.R.: Supraspinal control of spinal cord plasticity. In: X.M. Wang, X.M. Xiu, J. Chen, L. Mei, T.M. Gao, M. Fan, L. Xiu (Eds). *Advances in Neurosciences*. Beijing: High Education Press, pp. 410-427, 2004.
- \*36. **Chen, X.Y.**, Wolpaw, J.R.: Ablation of cerebellar nuclei prevents H-reflex down-conditioning in rats. *Learning & Memory*, 12:248-254, 2005.
- \*37. Chen, Y., **Chen, X.Y.**, Jakeman, L.B., Schalk, G., Stokes, B.T., Wolpaw, J.R.: The interaction of a new

motor skill and an old one: H-reflex conditioning and locomotion in rats. *Journal of Neuroscience*, 25(29):6898–6906, 2005.

38. Carp, J.S., Tennissen, A.M., **Chen, X.Y.**, Schalk G., Wolpaw, J. R.: Long-term spinal reflex studies in awake behaving mice. *Journal of Neuroscience Methods*, 149: 134-143, 2005.

39. Carp, J.S., Tennissen, A.M., **Chen, X.Y.**, Wolpaw, J. R.: Diurnal H-reflex variation in mice. *Experimental Brain Research*, 168: 517–528, 2006.

\*40. Wang, Y., Pillai, S., Wolpaw, J.R., **Chen, X.Y.**: Motor learning changes GABAergic terminals on spinal motoneurons in normal rats. *European Journal of Neuroscience*, 23: 141-150, 2006.

41. Wolpaw, J.R., **Chen, X.Y.**: The cerebellum in maintenance of a motor skill: a hierarchy of brain and spinal cord plasticity underlies H-reflex conditioning. *Learning & Memory*, 13: 208-215, 2006.

\*42. **Chen, X.Y.**, Carp, J.S., Chen, L., Wolpaw, J.R. Sensorimotor cortex ablation prevents H-reflex up-conditioning and causes a paradoxical response to down-conditioning in rats. *J. Neurophysiol.*, 96: 119-127, 2006.

\*43. **Chen, X.Y.**, Chen, Y., Chen, L., Wolpaw, J.R. Operant conditioning of reciprocal inhibition in rat soleus muscle. *J Neurophysiol* 96: 2144-2150, 2006.

44. Carp, J.S., Tennissen, A., **Chen, X.Y.**, Wolpaw, J. R.: H-reflex operant conditioning in mice. *J Neurophysiol* 96: 1718-1727, 2006.

45. Thompson A.K., Stein R.B., **Chen X.Y.**, Wolpaw J.R. Modulation in spinal circuits and corticospinal connections following nerve stimulation and operant conditioning. *Conf Proc IEEE Eng Med Biol Soc.* 1:2138-41, 2006.

\*46. **Chen, X.Y.**, Chen, Y., Chen, L., Tennissen, A.M., Wolpaw, J.R. Corticospinal tract transection permanently abolishes H-reflex down-conditioning in rats. *J. Neurotrauma* 23:1743-1750, 2006.

\*47. Chen, Y., **Chen, X.Y.**, Jakeman, L.B., Chen, L., Stokes, B.T., Wolpaw, J.R.: Operant conditioning of H-reflex can correct a locomotor abnormality after spinal cord injury in rats. *Journal of Neuroscience* 26: 12537-12543, 2006.

\*48. English, A., Chen, Y., Carp, J.S., Wolpaw, J.R. and **Chen, X.Y.** Recovery of electromyographic activity after transection and surgical repair of the rat sciatic nerve. *Journal of Neurophysiology* 97:1127-1134, 2007.

\*49. **Chen X.Y.**, Pillai, S., Chen, Y., Wang, Y., Chen, L., Carp, J.C., Wolpaw, J.R. Spinal and supraspinal effects of long-term stimulation of sensorimotor cortex in rats. *Journal of Neurophysiology* 98: 878-887, 2007.

\*50. Pillai,S., Wang, Y., Wolpaw J. R., and **Chen, X. Y.** Effects of H-reflex up-conditioning on GABAergic terminals on rat soleus motoneurons. *European Journal of Neuroscience*, 28: 668–674, 2008

51. Carp, J.S., Tennissen, A.M., Mongeluzi, D.L., Dudek, C.J., **Chen, X.Y.**, and Wolpaw, J.R. An *in vitro* protocol for recording from spinal motoneurons of adult rats. *Journal of Neurophysiology* 100: 474-481, 2008.

52. Wolpaw, J.R. and **Chen, X.Y.** Operant Conditioning of Reflexes. In: Squire LR (ed.) Encyclopedia of Neuroscience, Oxford: Academic Press, volume 7, pp. 225-233, 2009.
- \*53. Wang, Y., Pillai, S., Wolpaw J.R., and **Chen, X.Y.** H-reflex down-conditioning greatly increases the number of identifiable GABAergic interneurons in rat ventral horn. *Neuroscience Letters*, 452: 124-129, 2009.
54. Thompson, A.K., **Chen, X.Y.**, Wolpaw, J.R. Acquisition of a simple skill: task-dependent adaptation plus long-term change in the human soleus H-reflex. *Journal of Neuroscience*, 29 5784-5792. 2009.
55. Carp, J.S., Tennissen, A.M., Liebschutz, J.E., **Chen, X.Y.**, Wolpaw, J.R. External urethral sphincter motoneuron properties in adult female rats studied in vitro. *J Neurophysiol* 104(3):1286-1300, 2010.
- \*56. **Chen, X.Y.**, Chen, Y., Wang, Y., Thompson, A., Carp, J.S., Segal, R., Wolpaw JR. Reflex conditioning: A new strategy for improving motor function after spinal cord injury. *Annals of The New York Academy of Sciences*, 1198: E12-E21, 2010.
- \*57. Chen, Y., Wang, Y., Chen, L., Sun, C., English, A.W., Wolpaw, J.R., **Chen, X.Y.** H-reflex up-conditioning encourages recovery of EMG activity and H-reflexes after sciatic nerve transection and repair in rats. *Journal of Neuroscience*, 30(48):16128 –16136, 2010.
- \*58. Chen Y, Chen L, Wang Y, Wolpaw JR, **Chen XY**. Operant conditioning of rat soleus H-reflex oppositely affects another H-reflex and changes locomotor kinematics. *Journal of Neuroscience*, 31:11370 –11375, 2011.
- \*59. **Chen, X.Y.** and Wolpaw, J.R. Operant Conditioning of Spinal Cord Reflexes in Rats. In: Chen, J., Xu. Z.C., Xu, X.M.,Zheng, J.H. (Eds.) Animal Models of Acute Neurological Injuries II: Injury and Mechanistic Assessments. New York: Humana Press, Chapter 44, pp. 543-551, 2012.
- \*60. Wang Y, Chen Y, Chen L, Wolpaw JR, **Chen XY**. Cortical stimulation causes long-term changes in H-reflexes and spinal motoneuron GABA receptors. *Journal of Neurophysiology*, 108: 2668-2678, 2012.
61. Thompson AK, Chen XY, Wolpaw JR. Soleus H-reflex operant conditioning changes the H-reflex recruitment curve. *Muscle & Nerve*, 47(4):539-44, 2013.
- \*62. Chen Y, Chen L, Liu RL, Wang Y, Chen XY, Wolpaw JR. Locomotor impact of beneficial or non-beneficial H-reflex conditioning after spinal cord injury. Favorably reviewed; now in revision.

## **Funded Research**

### **Current**

Role: Principal Investigator

Project: Supraspinal control of spinal cord plasticity (RO1-HD36020)

Source: NIH/NICHD

Time Period: 5/1/97-7/31/14 (Renewed in 2002 and 2008)

Total funding: \$1,560,152 (most recent period)

The goal of this research is to clarify the complementary roles of cortex and cerebellum in reflex conditioning and to show that conditioning can be targeted to modify specific aspects of motor function.

Role: Principal Investigator (Joint with JR Wolpaw)

Project: Spinal Reflex Conditioning and Locomotion (RO1-NS061823)

Source: NIH/NINDS

Time Period: 2/1/08-1/31/14 (no cost extension)

Total funding: \$1,395,624

The goal of this project is to evaluate the complex motor effects of reflex conditioning protocols.

Role: Principal Investigator (Project IV Joint with JR Wolpaw)

Project: Project IV: Regulation of Spinal-Musculoskeletal Interactions. In Program Project “Spinal circuits and the musculoskeletal system,” (P01-HD032571, PI: Arthur W. English of Emory University)

Source: NIH/NICHHD

Period: 6/1/12-5/31/17

Total Funding for Project IV: \$1,421,894

The goal of the Project IV is to evaluate the effects of therapeutic interventions on the relationship between spinal circuits generating movements and the musculoskeletal system after this relationship has been reconstituted following peripheral nerve injury.

Role: Co-Investigator (PI: Jonathan R. Wolpaw)

Project: Adaptive Plasticity in the Spinal Stretch Reflex (RO1-NS22189)

Source: NIH/NINDS

Period: 10/1/85-3/31/14 (No cost extension)

Total Funding: \$1,600,000 (most recent period)

The goal of this project is to delineate the complex pattern of brain and spinal cord plasticity that underlies spinal reflex conditioning.

## **Previous**

Role: Subcontract Co-Principal Investigator

Project: Reprogramming the Outputs of Spinal Circuits (P01-HD032571; Program PI: ENGLISH AW of Emory University)

Source: NIH/NICHHD (Subcontract)

Period: 06/01/07-05/31/12

Total Funding for This Subcontract: \$574,304

The goal of this subcontract is to determine whether operant conditioning of spinal reflexes can be used to increase functional return after peripheral nerve injury and regeneration.

Role: Principal Investigator

Project: Using Reflex Conditioning to Restore Spinal Cord Function (SCIRB-26, Contract #C020932)

Source: The New York Spinal Cord Injury Research Program

Period: 1/1/06-12/31/11

Total funding: \$1,074,447

The goal of this research is to develop reflex conditioning as a new therapeutic approach and demonstrate its clinical value in humans with spinal cord injuries.

Role: Principal Investigator,

Project: Supraspinal control of spinal cord plasticity (Supplement) (3R01HD036020-11S1)

Source: NIH/NICHHD

Period: 9/1/09-9/30/10

Total Funding: : \$46,733

The goal of this supplement support is to characterize the anatomical substrates of the neuronal and synaptic plasticity in the spinal cord that is induced by the CST and underlies H-reflex conditioning.

Role: Principal Investigator (Joint with JR Wolpaw)

Project: Spinal Reflex Conditioning and Locomotion (Supplement) (3R01 NS061823-2S1)

Source: NIH/NINDS

Period: 9/30/09-9/29/10

Total funding: \$30,000

The goal of this supplement support is to delineate the changes in GABAergic terminals on soleus, VL, and TA motoneurons and ventral horn interneurons that accompany soleus, VL, or TA H-reflex up- or down-conditioning.

Role: Co-Investigator (PI: Jonathan R. Wolpaw)

Project: Adaptive Plasticity in the Spinal Stretch Reflex (Supplement) (5R01 NS22189-20S1)

Source: NIH/NINDS

Period: 09/30/09-09/29/10

Total Funding: \$76,000

The goal of this supplement support is to greatly expand the quantity and quality of the data collection.

Role: Principal Investigator,

Project: Guidance of Functional Recovery after Spinal Cord Injury (CA1-0102-2)

Source: Christopher Reeve Paralysis Foundation

Period: 1/1/02-6/30/04

Total Funding: \$150,000

The goal of this project is to learn whether operant conditioning of spinal reflexes can help induce and guide spinal cord plasticity after injury.

Role: Subcontract Co-Principal Investigator (PI: B.T. Stokes of Ohio State University)

Project: Neurotrophins and transplants in spinal cord injury (RO1 NS10165)

Source: NIH/NINDS

Period: 5/1/98-4/30/03

Total Funding: \$1,436,417

The goal of this project is to determine whether transplantation of fetal spinal cord tissue and genetically engineered fibroblasts and/or infusion of BDNF increase recovery after spinal cord injury in rats.

Role: Co-Principal Investigator (with JR Wolpaw)

Project: Assessment of corticospinal tract function (CAC2-0101)

Source: International Spinal Research Trust

Period: 03/01/99-02/29/02. Total costs: \$264,000.

The goal is to determine whether the loss of the capacity for down-conditioning of the H-reflex caused by destruction of the corticospinal tract is permanent.



Role: Principal Investigator,

Project: Operant conditioning of reflexes after spinal cord injury

Source: Paralyzed Veterans of America Spinal Cord Research Foundation (SCRF-1415)

Period: 1/1/95-12/31/96

Total Funding: \$79,000

The goal of this project is to define the relationship between the conditioned H-reflex change and the severity of injury.

Role: Principal Investigator

Project: Operant conditioning of reflexes after spinal cord injury (CA1-9403)

Source: American Paralysis Association

Period: 1/1/95-12/31/95

Total Funding: \$30,000

The goal of this project is to determine whether H-reflex conditioning can be achieved after spinal cord injury in rats.

### **Pending**

Role: Principal Investigator

Project: Operant Conditioning of Spinal Reflexes to Improve Function after Nerve Injury.

Source: VA

Period: 4/1/2014-3/31/2018

Total Direct Cost Requested: \$950,000

The goal of this project is to determine whether appropriate reflex operant conditioning protocols can improve locomotion after peripheral nerve injury and regeneration.

### **Submitted and not funded**

None.

### **Abstracts for Presentations and Posters at Scholarly Conferences**

1. **Chen, X.Y.**, Gu, F., Guo, S.Y. Yin, W.P., and Yin, Q.Z.: The effect of hypothalamic arcuate stimulation on dorsal raphe unit activities in rats : the influence of naloxone. Proceedings of Annual Meeting of Physiological Sciences of Jiangsu Province, 2:19, 1983.
2. **Chen, X.Y.**, Duanmu, Z.X., Yin, W.P., and Yin, Q.Z.: An ascending pain modulation pathway from hypothalamic arcuate nucleus (ARC) to thalamic parafascicular nucleus (PF). Proceedings of Annual Meeting of Physiological Sciences of Jiangsu Province, 3:33, 1984.
3. **Chen, X.Y.**, Duanmu, Z.X., Yin, W.P. and Yin, Q.Z.: Effect of hypothalamic arcuate stimulation on the pain evoked unit discharges of thalamic parafascicular nucleus: the study of the mechanism. Proceeding of Chinese Physiological Society 1985 Conference, 2:151, 1985.
4. Poon, P.W.F., **Chen, X.Y.**, Cheung, Y.M., and Hwang, J.C.: A preliminary study on FM responsiveness of unit in the inferior colliculus of the anaesthetized rats. Neuroscience Letters, Supplement 31, S23, 1988.

5. Hwang, J.C., **Chen, X.Y.**, and Poon, P.W.F.: The existence of two types of FM cells in rat inferior colliculus. Abstract of the First National Conference on Comparative Physiology, Xian, China, 1988.
6. **Chen, X.Y.**, Poon, P.W.F., Cheung, Y.M. and Hwang, J.C.: Two types of FM responsive cells in the rat inferior colliculus. Neuroscience Letters, Supplement 35, S57, 1989.
7. **Chen, X.Y.**, Poon, P.W.F., Cheung, Y.M. and Hwang, J.C.: Response latencies of FM units in the inferior colliculus of the rat. Society for Neuroscience Abstracts, 14: 647, 1988.
8. Poon, P.W.F., Yao, Y.Z., **Chen, X.Y.** and Hwang, J.C. : Spectral components of neuronal spike trains in the auditory midbrain of the anaesthetized rat. Neuroscience Letters, Supplement 37, S51, 1990.
9. **Chen, X.Y.**, Poon, P.W.F., Cheung, Y.M. and Hwang, J.C.: Cytomorphological differences of electrophysiologically identified cells in the rat inferior colliculus. Abstracts of the 12th Annual Conference of the Hong Kong Society of Neurosciences, 12: 24, 1990.
10. Poon, P.W.F., **Chen, X.Y.**, and Hwang, J.C.: Cytomorphological difference of two types of FM cells in the rat IC. Society for Neuroscience Abstracts, 16: 723, 1990.
11. **Chen, X.Y.**, Carp, J.S., and Wolpaw, J.R.: Motoneuron morphology in the rat. Society for Neuroscience Abstracts, 17: 645, 1991.
12. Carp, J.S., **Chen, X.Y.**, and Wolpaw, J.R.: Motoneuron physiology after H-reflex change by operant conditioning. Society for Neuroscience Abstracts, 17: 645, 1991.
13. Wolpaw, J.R., **Chen, X.Y.**, and Carp, J.S.: H-reflex in the freely moving rat: methods and initial data. Society for Neuroscience Abstracts, 17: 643, 1991.
14. **Chen, X.Y.** and Wolpaw, J.R.: Quantitative analysis of rat motoneuron morphology. Society for Neuroscience Abstracts, 18: 513, 1992.
15. Wolpaw, J.R. and **Chen, X.Y.**: H-reflex conditioning in the rat: initial studies. Society for Neuroscience Abstracts, 18: 513, 1992.
16. Carp, J.S., **Chen, X.Y.**, and Wolpaw, J.R.: Effect of H-reflex on motoneuron properties. Society for Neuroscience Abstracts, 18: 513, 1992.
17. **Chen, X.Y.** and Wolpaw, J.R.: H-reflex operant conditioning in the rat. Society for Neuroscience Abstracts, 19: 538, 1993.
18. Carp, J.S., **Chen, X.Y.**, and Wolpaw, J.R.: Alteration in firing threshold and axonal conduction velocity of primate spinal motoneurons by H-reflex operant conditioning: experimental study. Society for Neuroscience Abstracts, 19: 537, 1993.
19. Carp, J.S., **Chen, X.Y.**, Starr, K.A. and Wolpaw, J.R.: Primate spinal motoneuron physiology and synaptic covering after H-reflex operant conditioning. The Physiologist, Vol. 36(4), A-23, 1993.

20. **Chen, X.Y.** and Wolpaw, J.R.: Operant conditioning of H-reflex in freely moving rats. Society for Neuroscience Abstracts, 20: 537, 1994.
21. **Chen, X.Y.**, Wolpaw, J.R., and Stokes, B.T.: Operant conditioning of H-reflex in spinal cord injured rats: initial studies. Society for Neuroscience Abstracts, 21: 414, 1995.
22. Wolpaw, J.R. and **Chen, X.Y.**: Reversal of operantly conditioned H-reflex change in the rat. Society for Neuroscience Abstracts, 21: 414, 1995.
23. **Chen, X.Y.**, Wolpaw, J.R., and Stokes, B.T.: H-reflex and H-reflex conditioning in spinal cord injured rats. Journal of Neurotrauma, 12: 963, 1995.
24. Carp, J.S., **Chen, X.Y.**, and Wolpaw, J.R.: Mono- and polysynaptic PSPS in spinal motoneurons in decerebrate rats. Society for Neuroscience Abstracts, 21: 414, 1995.
25. **Chen X.Y.** and Wolpaw J.R.: Dorsal column transection in rats abolishes capacity for operantly conditioned H-reflex decrease. Society for Neuroscience Abstracts, 22: 1839, 1996.
16. **Chen, X.Y.** and Wolpaw, J.R.: Supraspinal control of spinal cord plasticity. J Neurotrauma, 13: 613, 1996.
27. **Chen, X.Y.**, Wolpaw, J.R., Jakeman, L.B., and Stokes, B.T. Up conditioning of H-reflex in spinal cord-injured rats. Society for Neuroscience Abstracts, 23: 1042, 1997.
28. **Chen, X.Y.**, Chen, L., D.M. Maniccia, and Wolpaw, J.R.: Effects of corticospinal or dorsal ascending tract transection on H-reflex conditioning in rats. Society for Neuroscience Abstracts, 24: 1153, 1998.
29. Carp, J.S., Herchenoroder, P.A., **Chen, X.Y.**, and Wolpaw, J.R.: Motor unit properties and conduction velocity in rat triceps surae muscles. Society for Neuroscience Abstracts, 24: 1153, 1998.
30. Feng-Chen, K.C., **Chen, X.Y.**, and Wolpaw, J.R. : Presynaptic (p) terminals on rat motoneuron primary afferent terminals. Society for Neuroscience Abstracts, 24: 1153, 1998.
31. Wolpaw, J.R. and **Chen, X.Y.** : Operant conditioning of H-reflex in the rat: effects on H-reflex latency and shape. Society for Neuroscience Abstracts, 24:1153, 1998.
32. **Chen, X.Y.**, Chen, L., and Wolpaw, J.R.: Role of corticospinal tract or dorsal ascending tract in maintenance of H-reflex conditioning in rats. Soc Neurosci Abstr, 25: 655, 1999.
33. **Chen, X.Y.**, Feng-Chen, K.C., Chen, L., Collins, K.R., and Wolpaw, J.R. : Effects of spinal cord tract transections or cerebellar nuclear lesions on soleus H-reflex in freely moving rats. Journal of Neurotrauma, 16(10): 1010, 1999.
34. Wolpaw, J.R. , **Chen, X.Y.**, and Chen, L. : Operant conditioning of H-reflex in the rat: Phases of development. Soc Neurosci Abstr, 25: 655, 1999.
35. **Chen, X.Y.**, Chen, L., and Wolpaw, J.R.: The corticospinal tract in development and maintenance of H-reflex operant conditioning in rats. Soc Neurosci Abstr, 26: 2206, 2000.

36. **Chen, X.Y.**, Chen, L., Tennissen, A.M., Crump, S., and Wolpaw, J.R.: Descending control of spinal cord plasticity in rats. *Journal of Neurotrauma*, 17(10): 987, 2000.
37. Carp, J.S., Schalk, G., **Chen, X.Y.**, and Wolpaw, J.R.: Total electromyographic activity during H-reflex operant conditioning. *Soc Neurosci Abstr*, 26: 2206, 2000.
38. Schalk, G., Carp, J.S., **Chen, X.Y.**, and Wolpaw, J.R.: Assessment of motor unit firing behavior during H-reflex in rats. *Soc Neurosci Abstr*, 26: 2206, 2000.
39. **Chen, X.Y.**, Chen, L. and Wolpaw, J.R. Effects of cerebellar nuclear lesion on operant conditioning of H-reflex in rats: initial studies. *Soc Neurosci Abstr*, 27: 790, 2001.
40. Tennissen, A.M., **Chen, X.Y.**, Schalk, G., Chen, L. and Wolpaw, J.R. Assessment of the effects of H-reflex conditioning on locomotion in normal and spinal cord-injured rats. *Soc Neurosci Abstr*, 27: 790, 2001.
41. Wolpaw, J.R., **Chen, X.Y.**, Schalk, G. Assessment of reciprocal and presynaptic inhibition in free moving rats. *Soc Neurosci Abstr*, 27: 790, 2001.
42. **Chen, X.Y.**, Chen, L., Wolpaw, J.R. Is abolition of H-reflex down-conditioning by corticospinal tract transection in rats permanent? Initial data. *J. Neurotrauma* 18(10): 1130, 2001.
43. **Chen, X.Y.**, Schalk, G., Chen, L. and Wolpaw, J.R. Can reflex conditioning guide functional recovery after spinal cord injury? The Neural Control of Movement Society Meeting, April, 2002.
44. Tennissen, A. M., **Chen, X. Y.**, Chen, L., Schalk, G., Wolpaw, J. R., Jakeman, L. B., Chen, Y., and Stokes, B. T. H-reflex conditioning effects on reflexes during locomotion in normal & spinal cord-injured rats. Program No.66.17.2002 Abstract Viewer/Itinerary Planner.Washington, DC: Society for Neuroscience, 2002.CD-ROM. 2002.
45. Wolpaw, J. R., Carp, J. S., Sheikh, H., and **Chen, X. Y.** The corticospinal tract, essential for acquisition & maintenance of H-reflex down conditioning & acquisition of up conditioning, is not essential for maintenance of up conditioning. Program No.66.14.2002 Abstract Viewer/Itinerary Planner.Washington, DC: Society for Neuroscience, 2002.CD-ROM. 2002.
46. Carp, J.S., Schalk, G., **Chen, X.Y.**, and Wolpaw, J.R. H-reflex operant conditioning effect on ongoing EMG. Program No.66.16.2002 Abstract Viewer/Itinerary Planner.Washington, DC: Society for Neuroscience, 2002.CD-ROM. 2002.
47. Chen, L., Wolpaw, J.R., Smith, B., and **Chen, X.Y.** Sensorimotor cortex ablation prevents H-reflex down conditioning. Program No.66.15.2002 Abstract Viewer/Itinerary Planner.Washington, DC: Society for Neuroscience, 2002.CD-ROM. 2002.
48. **Chen, X. Y.**, Jakeman, L. B., Chen, Y., Wolpaw, J. R., and Stokes, B. T. H-reflex conditioning in spinal cord-injured rats after NT-3 treatment. Program No.66.18.2002 Abstract Viewer/Itinerary Planner.Washington, DC: Society for Neuroscience, 2002.CD-ROM. 2002.

49. Chen, L., Chen, Y., Liu, R.L., **Chen, X.Y.**, and Wolpaw, J.R. Up-conditioning of H-reflex appears to affect soleus reflex function during locomotion in rats. Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, Program No. 497.6. 2003.
50. **Chen XY**, Chen L, Chen Y, Liu RL, Schalk G, Jakeman LB, Stokes BT, Wolpaw JR. Down-conditioning of soleus H-reflex reduces the H-reflex and affects soleus activity during locomotion. Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, Program No. 497.5. 2003.
51. ChenY, Chen L, Jakeman LB, Stokes BT, **Chen XY**, Wolpaw JR. The effect of H-reflex up-conditioning on soleus function during locomotion in rats with right lateral column transections. Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Program No. 497.7. 2003.
52. Wang Y, Diao R, Schalk G, Wolpaw JR, **Chen XY**. Effects of H-reflex down-conditioning on GABAergic terminals on rat soleus motoneurons. Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Program No. 497.8. 2003.
53. **Chen, X.Y.**, Chen, L., Chen, Y., Liu, R.L., Schalk, G., and Wolpaw, J.R. H-reflex conditioning affects soleus function during locomotion in rats with lateral column transection. Christopher Reeve Paralysis Foundation Spinal Cord Symposium: A dialogue between grant holders and the community they serve. March 21-23, Oak Brook Hills, IL, P. 49, 2004.
54. **Chen, X.Y.**, Chen, L., Wolpaw, J.W. Contralateral sensorimotor cortex ablation in rats impairs H-reflex up-conditioning and reverses the effect of down-conditioning. Soc. Neurosci. Abstr., 30: No. 417.4. , 2004.
55. Chen, L., Chen, Y., Liu, R.L., **Chen, X.Y.**, Wolpaw, J.W. Bilateral globus pallidus ablation in rats prevents down-conditioning of H-reflex. Soc. Neurosci. Abstr., 30: No. 417.3., 2004.
56. Carp, J.S., Tennissen, A.M., **Chen, X.Y.**, Wolpaw, R.W. Chronic H-reflex recording in mice: methods development and normative data. Soc. Neurosci. Abstr., 30: No. 417.5., 2004.
57. Chen, Y., Jakeman, L.B., Stokes, B.T., **Chen, X.Y.**, Liu, R.L., Wolpaw, R.W. H-reflex conditioning may modify locomotion after lateral column transection in rats. Soc. Neurosci. Abstr., 30: No. 417.6., 2004.
58. Diao, R., Wolpaw, J.R., Ding, X., Shain, W., Carp, J.S., **Chen, X.Y.** Operant conditioning of H-reflex: initial evaluation of impact on gene expression. Soc. Neurosci. Abstr., 30: No. 417.1., 2004.
59. Pillai, S.D., Wang, Y., Wolpaw, J.R., **Chen, X.Y.** H-reflex down-conditioning in rats increases number and size of gabaergic terminals on soleus motoneurons. Soc. Neurosci. Abstr., 30: No. 417.2., 2004.
60. Tennissen, A.M. Carp, J.S., **Chen, X.Y.**, Wolpaw, J.R. Diurnal variation in H-reflex in mice. Soc. Neurosci. Abstr., 30: No. 417.8., 2004.
61. Wang, Y., Pillai, S.D., Wolpaw, J.R., **Chen, X.Y.** Effects of H-reflex up-conditioning on gabaergic terminals on rat soleus motoneurons. Soc. Neurosci. Abstr., 30: No. 417.7., 2004.
62. Chen, Y., Wolpaw, J.R., Jakeman, L.B., Chen, L., Stokes, B.T., **Chen, X.Y.** Using reflex conditioning to restore spinal cord function. CRPF's Spinal Cord Symposium: A Dialogue Between CRPF Grant Holders and

the Community They Serve. Boston, 2005.

63. Carp JS, Tennissen AM, **Chen XY**, Wolpaw JR. H-reflex conditioning in the mouse: initial studies. Soc. Neurosci. Abstr., No. 31: 175.2, 2005.
64. Chen L, **Chen XY**, Chen Y, Liu RL, Wolpaw JR. Operant conditioning of reciprocal inhibition in freely moving rats. Soc. Neurosci. Abstr., 31: No. 175.5, 2005.
65. **Chen XY**, Carp JS, Chen L, Chen Y, Pillai S, Wang Y, Wolpaw JR. Effects of sensorimotor cortex stimulation on soleus H-reflex in rats: initial studies. Soc. Neurosci. Abstr., 31: No. 175.7, 2005.
66. Chen Y, **Chen XY**, Jakeman LB, Chen L, Liu RL, Stokes BT, Wolpaw JR. Re-educating the injured spinal cord by operant conditioning of a reflex pathway. Soc. Neurosci. Abstr., 31: No. 175.4, 2005.
67. Diao R, Wolpaw JR, Carp JS, Ding X, Shain W, **Chen XY**. H-reflex operant conditioning changes gene expression in spinal cord. Soc. Neurosci. Abstr., 31: No. 175.6, 2005.
68. Pillai S, Wang Y, Chen Y, Chen L, Wolpaw JR, **Chen XY**. Chronic sensorimotor cortex stimulation gradually increases the stimulus amplitude needed to produce a constant descending output. Soc. Neurosci. Abstr., 31: No. 175.8, 2005.
69. Tennissen AM, **Chen XY**, Chen Y, Chen L, Liu RL, Wolpaw JR. Abolition of H-reflex down conditioning by corticospinal tract transection in rats is permanent. Soc. Neurosci. Abstr., 31: No. 175.3, 2005.
70. Thompson AK, Smith KA, Shain W, Chen L, **Chen XY**, Carp JS, Wolpaw JR. Representation of triceps surae muscles in rat somatosensory and motor cortex. Soc. Neurosci. Abstr., 31: No. 175.1, 2005.
71. Wang Y, Pillai S, Wolpaw JR, **Chen XY**. Sensorimotor cortex (SMC) stimulation increases gabaergic terminals on rat soleus motoneurons. Soc. Neurosci. Abstr., 31: No. 175.10, 2005.
72. Wolpaw JR, Chen L, **Chen XY**. H-reflex down-conditioning disappears forty days and forty nights after ablation of cerebellar output nuclei. Soc. Neurosci. Abstr., 31: No. 175.9, 2005.
73. Thompson AK, Stein RB, **Chen XY**, Wolpaw JR. Modulation in spinal circuits and corticospinal connections following nerve stimulation and operant conditioning. Conf Proc IEEE Eng Med Biol Soc. 1:2138-41, 2006.
74. Wolpaw JR, Chen L, Schalk G, **Chen XY**. Sensorimotor cortex activity during operant conditioning of H-reflex in rats: initial studies. Program No. 146.1. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.
75. Chen Y, **Chen XY**, Carp JS, Liu RL, English A, Wolpaw JR. Recovery of EMG activity after sciatic nerve transection and surgical repair. Program No. 146.2. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.
76. Tennissen AM, **Chen XY**, Chen Y, Chen L, Wolpaw JR. Effects of soleus H-reflex conditioning on the gastrocnemius H-reflex. Program No. 146.3. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society

for Neuroscience, 2006. Online.

77. Chen L, **Chen XY**, Chen Y, Liu RL, Wolpaw JR. Effects of ipsilateral sensorimotor cortex ablation on H-reflex conditioning in rats. Program No. 146.4. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.

78. **Chen XY**, Chen L, Chen Y, Pillai S, Wang Y, Wolpaw JR. Effects of chronic sensorimotor cortex stimulation on soleus H-reflex in rats. Program No. 146.5. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.

79. Pillai S, Wang Y, Wolpaw JR, **Chen XY**. Chronic sensorimotor cortex (SMC) stimulation affects GABAergic terminals on rat soleus motoneurons. Program No. 146.6. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.

80. Wang Y, Pillai S, Wolpaw JR, **Chen XY**. Chronic sensorimotor cortex stimulation increases vesicular glutamate transporter 2-containing terminals on rat soleus motoneurons. Program No. 146.7. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.

81. Carp JS, Tennissen AM, **Chen XY**, Wolpaw JR. H-reflex operant conditioning in mice. Program No. 146.8. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.

82. Thompson AK, **Chen XY**, Carp JS, Wolpaw, JR. Operant conditioning of the soleus H-reflex in humans. Program No. 146.9. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.

83. Wilson, JA, Thompson AK, Smith KL, **Chen XY**, Chen L, Carp, JS, Kim J, Williams J, Shain W, Wolpaw JR. Comparison of cortical surface mapping of sensory input from triceps surae muscles using conventional mapping and an ECoG device. Program No. 354.5. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.

84. Chen L, **Chen XY**, Chen Y, Liu RL, Wolpaw JR. Elicitation and conditioning of quadriceps H-reflex in freely moving rats: initial studies. Program No. 404.1. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

85. Tennissen AM, Pillai S, Wang Y, Chen Y, Carp JS, Chen L, Wolpaw JR, **Chen XY**. Chronic sensorimotor cortex stimulation in rats appears to induce activity-dependent plasticity in the brain. Program No. 404.2. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

86. Wolpaw JR, Wang Y, Pillai S, Chen Y, Chen L, Liu RL, **Chen XY**. Chronic sensorimotor cortex stimulation may reduce GABAb receptor expression in spinal cord. Program No. 404.3. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

87. **Chen XY**, Wang Y, Pillai S, Wolpaw JR. H-reflex down-conditioning increases the number of identifiable GABAergic spinal interneurons in rats. Program No. 404.4. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

88. Chen Y, Chen L, Liu RL, Wolpaw JR, **Chen XY**. Effects of chronic sensorimotor cortex stimulation on

spinal cord reflexes and on locomotion in spinal cord-injured rats. Program No. 404.5. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

89. Pillai S, Wang Y, Wolpaw JR, **Chen XY**. Immunohistochemical labeling of pre- and post-synaptic structures on identified soleus motoneurons in rats. Program No. 404.6. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

90. Wang Y, Rudd RJ, Chen L, Pillai S, **Chen XY**, Trimarchi CV, Wolpaw JR. Retrograde pathway tracing by injection of rabies virus into soleus muscle in rats: initial study. Program No. 404.7. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

91. Carp JS, Mongeluzi DL, Tennissen AM, **Chen XY**, Wolpaw JR. Intracellular recordings from lumbar spinal motoneurons of adult rats and mice in vitro. Program No. 404.8. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

92. Thompson AK, **Chen XY**, Wolpaw JR. Operant conditioning of soleus H-reflex in humans: short-term and long-term effects. Program No. 404.9. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

93. Boulay C, **Chen XY**, Carp JS, Wolpaw JR. Local field potential (LFP) activity in sensorimotor cortex of freely moving rats: evaluating relationships with steady-state EMG and H-reflexes. Program No. 73.8. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.

94. Carp JS, Tennissen AM, Mongeluzi DM, Dudek CJ, **Chen XY**, Wolpaw JR. A novel form of short-term modulation of current threshold in adult rat spinal lumbar motoneurons studied in vitro. Program No. 75.13. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.

95. Chen L, **Chen XY**, Chen Y, Liu RL, Wolpaw JR. Impact of soleus H-reflex conditioning on vastus lateralis H-reflex and locomotor behavior in freely moving rats: Initial studies. Program No. 73.2. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.

96. **Chen XY**, Chen Y, Liu RL, Wang Y, Guan Z, Popovich PG, Wolpaw JR. H-reflex up-conditioning and locomotion in rats with a lateral column contusion injury. Program No. 73.10. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.

97. Chen Y, Chen L, Liu RL, English AW, Wolpaw JR, **Chen XY**. Operant conditioning of spinal reflexes to modify functional recovery after peripheral nerve injury. Program No. 73.1. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.

98. Pillai S, Wang Y, Chen L, Carp JS, Wolpaw JR, **Chen XY**. Down-conditioning of soleus H-reflex increases the number of identifiable GABAergic interneurons in the rat spinal cord ventral horn. Program No. 73.12. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.

99. Tennissen AM, Pillai S, Wang Y, Chen L, **Chen XY**, Wolpaw JR. Up-conditioning of soleus H-reflex does not significantly affect the number of GABAergic terminals on soleus motoneurons. Program No.73.16. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.



100. Wang Y, Pillai S, Chen Y, Wolpaw JR, **Chen XY**. Up-conditioning of soleus H-reflex reduces GABA-B receptor expression on soleus motoneurons. Program No. 73.7. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.
101. Wolpaw JR, Boulay C, Carp JS, **Chen XY**. Neuronal activity in sensorimotor cortex of freely moving rats: Evaluating relationships with steady-state EMG and H-reflexes. Program No. 73.5. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.
102. Carp JS, Tennissen AM, **Chen XY**, Liebschutz JE, Markowicz P, Wolpaw JR. Spinal transection in adult rats alters intrinsic properties of external urethral sphincter motoneurons recorded in vitro. Program No. 372.14. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
103. Chen L, **Chen XY**, Chen Y, Liu RL, Wang Y, Wolpaw JR. Conditioning of soleus H-Reflex is accompanied by an opposite change in vastus lateralis H-reflex in freely moving rats. Program No. 79.1. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
104. Chen Y, Chen L, Liu RL, Wang Y, Wolpaw JR, **Chen XY**. Soleus H-reflex conditioning may change locomotor EMG and kinematics. Program No. 79.2. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
105. Wang Y, Chen L, Chen Y, Liu RL, Wolpaw JR, **Chen XY**. C-terminals and muscarinic acetylcholine receptor 2 on motoneurons after operant conditioning of the soleus H-reflex. Program No. 79.3. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
106. **Chen XY**, Chen Y, Chen L, Liu RL, Wang Y, Carp JS, English AW, Wolpaw JR. Soleus H-reflex up-conditioning may improve soleus function after peripheral nerve injury. Program No. 79.4. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
107. Pillai S, Wang Y, Chen L, Chen Y, Wolpaw JR, **Chen XY**. Long-term sensorimotor cortex (SMC) stimulation alters GABAergic terminals and receptors on rat spinal cord motoneurons. Program No. 79.5 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
108. Boulay C, Lapallo BK, **Chen XY**, Wolpaw JR. Electroencephalographic (ECoG) activity over sensorimotor cortex of freely moving rats: Short-term correlations with background EMG and H-reflexes. Program No. 79.6. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
109. Lapallo BK, Wolpaw JR, Boulay CB, **Chen XY**. Electroencephalographic (ECoG) activity in sensorimotor cortex of freely moving rats: correlation with H-reflex conditioning. Program No. 79.7. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
110. Sun C, Wang Y, Chen L, Chen Y, Wolpaw JR, **Chen XY**. Reflex conditioning and the precision of functional recovery after peripheral nerve injury: initial studies. Program No. 79.8. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.
111. Wang Y, Chen L, Chen Y, Liu RL, Wolpaw JR, **Chen XY**. Effects of long-term sensorimotor cortex (SMC) stimulation on spinal cord ventral horn GABA immunoreactivity in rats: Preliminary results. Program No. 82.10. 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online

112. Chen L, Chen Y, Liu RL, Wang Y, Wolpaw JR, **Chen XY**. Effects of H-reflex up-conditioning in rats with lateral column contusion injury. Program No. 82.12. 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online
113. **Chen XY**, Wang Y, Sun C, Chen L, Chen Y, Wolpaw JR, English AW. Up-conditioning of rat soleus H-reflex after sciatic nerve transection and regeneration may increase motoneuron VGLUT1 terminals and GluR2/3 immunoreactivity. Program No.82.17. 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online
114. Liu RL, Chen Y, Chen L, Wang Y, Wolpaw JR, **Chen XY**. Effects of soleus H-reflex conditioning on hip, knee, and ankle extensor and flexor muscles: methods and initial results. Program No. 82.18. 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online
115. Chen Y, Chen L, Liu RL, Wang Y, Wolpaw JR, **Chen XY**. Effects of soleus H-reflex conditioning on locomotor EMG and kinematics. Program No. 286.2. 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online
116. Boulay C, Lapallo BK, **Chen XY**, Wolpaw JR. Sensorimotor cortex ECoG activity in rats: Acute relationships with background EMG, H-reflexes, and SEPs. Program No. 286.6. 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online
117. Wolpaw JR, Lapallo BK, Boulay CB, **Chen XY**. H-reflex conditioning affects electrocorticographic (ECoG) activity over sensorimotor cortex in freely moving rats. Program No. 286.12. 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online
118. Carp JS, Tennissen AM, **Chen XY**, Wolpaw JR. Differences in excitability between external urethral sphincter and hindlimb motoneurons from adult rats recorded in vitro. Program No. 685.6. 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online
119. **Chen XY**, Chen Y, Chen L, Liu RL, Wang Y, Yao LH, Wolpaw JR. The inferior olive is important for long-term maintenance of H-Reflex down-conditioning. Program No. 917.08. 2011 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2011. Online
120. Chen L, Chen Y, Liu RL, Wang Y, Wolpaw JR, **XY Chen**. Effects of soleus H-reflex conditioning on the reflexes of other leg muscles. Program No. 917.07. 2011 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2011. Online
121. Wang Y, Yao LH, Chen L, Chen Y, Liu RL, Wolpaw JR, **Chen XY**. Metabotropic glutamate (mGluR1) receptors appear to increase with operantly conditioned H-reflex increase in rats. Program No. 917.11. 2011 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2011. Online
122. Chen Y, Chen L, Fan T, Wang Y, Wolpaw JR, English AW, **Chen XY**. Soleus H-reflex up-conditioning after sciatic nerve transection and regeneration may improve locomotion. Program No. 917.14. 2011 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2011. Online
123. Carp JS, LaPallo BK, **Chen XY**, Wolpaw JR. External urethral sphincter muscle activity and bladder

- length recorded in freely moving adult female rats: methods development. Program No393.13. 2011 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2011. Online
124. LaPallo BK, **Chen XY**, Wolpaw JR, Carp JS. Bladder length changes recorded during cystometry in anesthetized adult female rats: methods development. Program No. 393.14. 2011 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2011. Online
125. Chen L, Chen Y, Liu RL, Wang Y, Wolpaw JR, **Chen XY**. The more things change the more they remain the same: the effects of H-reflex conditioning on locomotion. Program No475.12. 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online
126. Chen Y, Chen L, Liu RL, Wang Y, Wolpaw JR, **Chen XY**. H-reflex up-conditioning in spinal cord-injured rats and the associated locomotor improvement persist for at least 100 days after conditioning ends. Program No475.14. 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online
127. Wolpaw JR, **Chen XY**. A negotiated equilibrium: the role of spinal cord plasticity in motor learning. Program No475.15. 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online
128. **Chen XY** Chen Y, L Chen L, Liu RL, Wang Y, Yao LH, Wolpaw JR. Inferior olive ablation prevents acquisition and long-term maintenance of soleus H-reflex down-conditioning in rats. Program No475.17. 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online
129. Wang Y, Yao LH, Chen L, Chen Y, Wolpaw JR **Chen XY**. H-reflex conditioning affects GABAB receptors in rat soleus motoneurons. Program No475.16. 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online
130. Lapallo BK, Carp JS, **Chen XY**, Wolpaw JR. External urethral sphincter activity recorded during voiding in unanesthetized intact and spinal-transected rats. Program No484.04. 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online
131. Carp JS, Lapallo BK, Horwich AL, **Chen XY**, Wolpaw JR. Electrophysiological properties of spinal motoneurons from transgenic ALS mice recorded *in vitro*. Program No858.11. 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online
132. Chen L, Chen Y, Liu RL, Wang Y, Wolpaw JR, Chen XY. Down-conditioning of soleus H-reflex in rats with right lateral column injury weakens the soleus H-reflex pathway but does not further impair locomotion. Program No. 645.22. 2013 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2013. Online
133. Chen Y, Chen L, Liu RL, Wang Y, Wolpaw JR, Chen XY. Locomotor effects of H-reflex conditioning in rats with transection of the dorsal column ascending tract. Program No. 645.04. 2013 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2013. Online
134. Chen XY, Wang Y, Chen Y, Chen L, Liu RL, JR Wolpaw. Protein kinase C may be involved in the spinal cord plasticity produced by H-reflex conditioning. Program No. 645.15. 2013 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2013. Online

135. Wang Y, Chen L, Chen Y, Wolpaw JR, Chen XY. Effects of soleus H-reflex conditioning on the motoneuron GABAA receptor, G-protein-activated inwardly-rectifying potassium channel 3.2, and voltage-gated sodium channels. Program No. 645.19. 2013 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2013. Online

136. Baxter WT, Chen Y, Carp JS, Chen XY, Wolpaw JR. Long-term single-neuron data from behaving rats undergoing operant conditioning of the H-reflex: Development of automated data collection and analysis methods. Program No. 645.21. 2013 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2013. Online

### **Invited Talks**

"Spinal reflex conditioning in freely moving rats: A new model for studying supraspinal control over spinal cord function." University of Hong Kong, Hong Kong. October 22, 1998.

"A new model for studying supraspinal control over spinal cord function." Dept. of Physiology, Suzhou Medical College, Suzhou, China. November 9, 1998.

"H-reflex conditioning in freely moving rats: A new model for studying supraspinal control over spinal cord function." Shanghai Institute of Physiology, Chinese Academy of Sciences, Shanghai, China. November 12, 1998.

"Operant conditioning of H-reflex in freely running rats." Dept. of Physiology, Nanjing University, Nanjing, China. November 23, 1998.

"Assessment of supra-spinal control over spinal cord function." Wadsworth Center (Wadsworth Seminar). May 11, 1999.

"A new model for assessing supraspinal control over spinal cord function." Dept. of Physiology, Ohio State University, Columbus, OH. June 7, 1999.

"Supraspinal control of spinal cord reflex function." Dept. of Anesthesiology, Hospital for Special Surgery, New York City, New York. July 14, 2000.

"Assessment of corticospinal function in mammals." International Spinal Research Trust Research Network Meeting. London, United Kingdom. September 15, 2000.

"Spinal cord plasticity produced by H-reflex conditioning." Dept. of Anatomy and Health Science Center, Peking University, Beijing, China. November, 2000.

"Corticospinal tract control of spinal cord plasticity in rats." International Spinal Research Trust Research Network Meeting. London, United Kingdom. September 14, 2001.

"Supraspinal control of spinal cord reflex plasticity." Spinal Cord and Brain Injury Research Center, University of Kentucky, Lexington, Kentucky. February 25, 2002.

"Assessment of corticospinal tract function in adult mammals." International Spinal Research Trust Research Network Meeting. London, United Kingdom. September 6, 2002.

"Assessment of supraspinal control of spinal cord plasticity." Laboratory of Neurobiology, Shanghai Second Medical University, Shanghai, China. November 6, 2002.

"A new model for assessing supraspinal control over spinal cord function." City Department of Health and Medical School Yu Huang Ding Hospital, Yian Tai, China. November 12, 2002.

"Supraspinal control of spinal cord reflex plasticity." Qing Dao University, Qing Dao, China. November 14, 2002.

"Roles of cortex and cerebellum in reflex conditioning." Advances in Neurosciences Symposium, Guangzhou, China. June 12, 2004.

"A new strategy for improving motor function after spinal cord injury." Chinese 4th Military University, Guangzhou, China. June 13, 2004.

"Supraspinal control of spinal cord plasticity." Tongji Medical College, Hanzhong University of Science and technology, Wuhan, China. June 16, 2004.

"Guidance of Functional Recovery after Spinal Cord Injury." Christopher Reeve Paralysis Foundation (CRPF) Spinal Cord Symposium: A Dialogue Between CRPF Grant Holders and the Community They Serve, Boston, September, 2005.

"Reflex conditioning: A new strategy for improving motor function after spinal cord injury." The New York Academy of Sciences Symposium, From Bench to Bedside: The Latest Discoveries in SCI Research, New York, January 15, 2008.

"A hierarchy of brain and spinal cord plasticity underlies H-reflex conditioning." Wenzhou Medical College, China, April 15, 2008

"Reflex Conditioning: A new strategy for improving motor function after spinal cord injury or in other disorders." Soochow University College of Medicine, China, April 16, 2008

"A new strategy for improving motor function after spinal cord injury or in other disorders." Nanjing University, Nanjing, China, April 17, 2008

"Spinal cord injury research at the Wadsworth Center: What it is now and what it could be." Wadsworth Center (Meet the PI Talk), June 10, 2008

"Using reflex conditioning to improve motor function after spinal cord injury." The Twenty First Chinese Spinal Cord Injury Academic Annual Meeting and the Third International Spinal Cord Injury Treatment and Trials Symposium, Beijing, China, Nov. 1, 2008

"Reflex Conditioning: A New Strategy to Restore Function after Injury or Disease." Suzhou University,

Suzhou, China, Oct. 27, 2010

"Locomotor impact of beneficial or non-beneficial H-reflex conditioning after spinal cord injury." Suzhou Medical College, Suzhou, China, Nov. 5, 2012

## **OTHER PROFESSIONAL ACTIVITIES**

### **Memberships**

Society for Neuroscience, USA  
the New York Academy of Sciences  
Neurotrauma Society  
International Brain Research Organization  
American Association for the Advancement of Science  
Sino-American Pharmaceutical Association

### **Services**

#### **Scientific Community**

Scientific Reviewer:

NIH Study Section Brain Disorders and Clinical Neurosciences (BDCN-2), 2002-2005  
NIH Special Emphasis Panel/Initial Review ZRG1 BDCN-E, 2003  
NIH Special Emphasis Panel/Initial Review Group 2004/05 ZRG1 BDCN-B (02) (S), 2004  
NIH Special Emphasis Panel/Initial Review Group 2005/01 ZRG1 BDCN-E (02) (M), 2005  
NIH ZHD1 DSR-H (GO) - Grand Opportunities (GO) Grants, August 2009

Scientific Reviewer:

Paralyzed Veterans of America Spinal Cord Research Foundation, 1999-2000  
The Department of Veterans Affairs, Rehabilitation Research and Development Service, Scientific Review Group RRDA, 2010-2011

Scientific Reviewer: Journal of Comparative Neurology, Neuroscience Letters; Experimental Neurology, Journal of Neurophysiology, Synapse, Brain Research, Neurorehabilitation and Neural Repair, Journal of Neuroscience Methods

NIH NICHD Scientific Vision Workshop on Plasticity, January 2011

#### **Wadsworth Center & BMS**

2006-2009 Member, Peer Review Board, Wadsworth Center

2004-2006 Committee Member, Recruitment Committee, Dept of Biomedical Sciences, State University of New York at Albany.

2007-2013 Committee Member, Personnel Committee, Dept of Biomedical Sciences, State University of

New York at Albany.

## **TEACHING ACTIVITIES**

- 1982-1984 Laboratory Courses in Physiology (for medical students), 100 hrs/year; Dept of Physiology, Suzhou Medical College, Suzhou, China.
- 1985-1986 Course lectures: Human Physiology, Neurophysiology (for medical students), 60 hrs/year, Dept of Physiology, Suzhou Medical College, Suzhou, China.
- 1987-1990 Laboratory Courses in Physiology (for medical students), 75 hrs/year, Dept of Physiology, Faculty of Medicine, University of Hong Kong, Hong Kong.
- 1997-present Mentor (Co-mentor 1997-2000) for REU/summer /high school students, Wadsworth Center, Dept of Biomedical Sciences, State University of New York at Albany.
- 2001-present Course lectures, Dept of Biomedical Sciences, State University of New York at Albany
- 2001 Module 3 of BMS 601 (Fall) : Plasticity in the Nervous System, 2. Neuronal Physiology and Basis of Cognition and Memory
- 2003 Module BMS 601: Spinal Cord Injury and Plasticity: III. Mechanisms of and Response to Injury, Strategies for Recovery  
Spring 2003, one lecture (1.5 contact hours) 20 BMS students
- 2003-2008 BMS 612 / Neuro 605: Neuroanatomy and Nervous System Disorders: Growth Factors and Neurodegenerative Disease  
Fall 2003, one lecture (1.5 contact hours) 10 BMS students  
Fall 2004, one lecture (1.5 contact hours) 5 BMS students  
Fall 2005, one lecture (1.5 contact hours) 6 BMS, 3 AMC students  
Fall 2006, one lecture (1.5 contact hours) 9 BMS students  
Fall 2007, one lecture (1.5 contact hours) 8 BMS students  
Fall 2008, one lecture (1.5 contact hours) 9 BMS students
- 2010-Present BMS 604 / Neuro 606: Cellular and Molecular Neuroscience: Growth Factors and Neurodegenerative Disease  
Spring 2010, one lecture (1.5 contact hours) 2 BMS, 5 AMC students  
Spring 2011, one lecture (1.5 contact hours) 8 BMS, 4 AMC, 4 RPI students  
Spring 2012, one lecture (1.5 contact hours) 5 BMS, 2 AMC students  
Spring 2013, one lecture (1.5 contact hours) 6 BMS and AMC students

### Advisors for

#### Graduates:

- 2002-2006 Ph. D. student Yi Chen (Ohio State University)
- 2003-2009 Dissertation Committee Chair for Ph. D. student Shreejith Pillai (SUNY)
- 2006-2012 Dissertation Committee Member for Ph. D. student Chadwich Boulay (SUNY)
- 2008-present Dissertation Committee Member for Ph. D. student Brandon LaPallo (SUNY)

#### Postdocs:

2002-2006	Dr. Yu Wang
2003-2006	Dr. Ren Diao
2005-2007	Dr. Aiko Kido Thompson
2006-2008	Dr. Yi Chen
2008-2010	Dr. Chenyou Sun
2010-2013	Dr. Lihau Yao