



40<sup>TH</sup> ANNUAL MEETING  
**NEUROSCIENCE**  
**2010**

SOCIETY FOR NEUROSCIENCE  
FINAL PROGRAM

# Sunday

NOVEMBER 14, 2010  
SAN DIEGO

Scientific Sessions Listings  
Sessions 110 – 309



SOCIETY FOR NEUROSCIENCE

SFN

The extent of spinal cord injury negatively affects the beneficial effect of protective autoimmunity.

Key words: A91, Spinal Cord Injury, Protective Autoimmunity.

Presentation preference: poster only

Authors: Martiñón S., García E., Calderón P, Rivas A, Martínez A, Ibarra A.

Spinal cord (SC) injury is a neurological disease that provokes several important consequences on the physical, emotional and economic life of affected individuals. That is why, it is necessary to offer therapeutic interventions with the end of protecting neural tissue. Protective autoimmunity (PA) is a new strategy that has demonstrated to promote neuroprotection after spinal cord injury. To reach its beneficial effect, PA should be boosted by immunizing with neural constituents or neural-derived peptides such as A91. A91-immunization has showed to promote neuroprotective effects after SC injury. In order to further assess the effectiveness of PA, in the present study we explored the T cell-specific response against A91 peptide after immunization of rats subjected to a contusion (moderate or severe) or transection (complete or incomplete) of SC. Clinical recovery was also evaluated. The results showed that, severe contusion as well as the complete transection of SC, inhibited the immune response to A91. This inhibition was accompanied by a significant deterioration of clinical recovery. In the case of rats with moderate contusion or incomplete SC transection, a significant response to A91-immunization was observed; this reaction was associated with a significant improvement in motor recovery. Together, the present results suggest that the effective development and, consequently, the beneficial effects of PA significantly depend on the extent of SC injury. These results should be considered for future studies on PA and SC injury.



POSTER

589. **Motor Neurons: Activity and Sensory and Central Control**

*Theme D: Sensory and Motor Systems*

Tue. 8:00 AM — San Diego Convention Center, Halls B-H

- 8:00 CCC14 **589.1** External urethral sphincter motor unit recruitment in the adult female rat. S. C. D'AMICO\*; W. F. COLLINS, III. *Dept. of Physiol. and Biophysics, Stony Brook Univ., Dept. of Neurobio. and Behavior, Stony Brook Univ.*
- 9:00 CCC15 **589.2** Membrane potential changes in external urethral sphincter motoneurons during micturition in the adult female rat. W. F. COLLINS\*, III. *Stony Brook Univ.*
- 10:00 CCC16 **589.3** Electrophysiological investigations of spinal motoneurons in anesthetized SOD1 mice. N. DELESTREE; C. IGLESIAS; M. MANUEL; D. ZYTNIKI\*. *Lab. de Neurophysique et Physiologie, CNRS, Univ. Paris Descartes, Dept. of Physiology, Northwestern University, Feinberg Sch. of Medecine.*
- 11:00 CCC17 **589.4** Long-range correlation in knee-bending movement of street dance. A. MIURA\*; K. KUDO; T. OHTSUKI; K. NAKAZAWA. *The Univ. of Tokyo.*
- 8:00 CCC18 **589.5** Influence of the action potential width on the nonlinear dynamics of spinal motor neuron model. H. KIM; K. E. JONES\*. *Univ. Alberta.*
- 9:00 CCC19 **589.6** Serotonin (5-HT) type 2A receptor mRNA and protein levels are higher in the rat hypoglossal (XII) motor nucleus at activity onset than at rest onset. L. KUBIN\*; G. M. STETTNER; D. V. VOLGIN. *Univ. of Pennsylvania.*
- 10:00 CCC20 **589.7** Better facilitation of motor skill learning by left motor cortex stimulation. H. M. SCHAMBRA\*; M. ABE; D. LUCKENBAUGH; J. REIS; L. G. COHEN. *NINDS, NIMH, University of Freiburg.*
- 11:00 CCC21 **589.8** Specific dopamine reuptake inhibition suppresses locomotor activity. H. CHEN\*. *Caliper Life Sci.*
- 8:00 CCC22 **589.9** ▲ Does back muscle endurance correlate with neural drive? A transcranial magnetic stimulation study. E. BOTTLE; P. H. STRUTTON\*. *Imperial Col. London.*
- 9:00 DDD1 **589.10** Some mechanisms muscle contractions regulation in humans. R. M. GORODNICHEV\*; E. PIVOVAROVA; A. LAPCHENKOV; Y. POVARESCHENKOVA. *Velikiye Luki State Acad. of, Velikiye Luki State Acad. of Physical Educ. and Sport.*
- 10:00 DDD2 **589.11** Ipsilateral corticospinal contributions. D. S. SOTEROPOULOS\*; S. EDGLEY; S. N. BAKER. *Newcastle Univ., Univ. of Cambridge.*
- 11:00 DDD3 **589.12** Control of D-serine by astrocytic D-amino acid oxidase in descending motor tract. J. SASABE\*; M. SUZUKI; K. HAMASE; T. CHIBA; R. KONNO; S. AISO. *Dept of Anatomy, Keio Univ. Sch. of Med., Kyushu Univ., Inst. for Biomed. Res., Intl. Univ. of Hlth. and Welfare.*
- 8:00 DDD4 **589.13** Corticofugal direct projections to primary afferent neurons in the trigeminal mesencephalic nucleus in the rat. A. OKA; M. MORITANI\*; R. TAKEDA; T. KATO; F. SATO; S. SEKI; Y. BAE; K. TAKADA; A. YOSHIDA. *Osaka Univ. Grad. Sch. of Dent., Morinomiya Univ. of Med. Sci., Sch. of Dentistry, Kyungpook Univ.*
- 9:00 DDD5 **589.14** Comparing somatosensory inputs to excitatory and inhibitory motor cortical neurons. P. MURRAY\*; A. KELLER. *Univ. Maryland, Univ. of Maryland, Baltimore.*

- 10:00 CCC2 **588.7** Hypoxanthine-guanine phosphoribosyltransferase in the PNS: Possible implications for neuronal plasticity and Lesch-Nyhan syndrome? B. J. HARRISON\*; S. COUCH; G. RAJAN; J. PETRUSKA. *Univ. Louisville.*
- 11:00 CCC3 **588.8** The role of neurotrophic factors and their receptors in ascending and descending axon regeneration through intraspinal peripheral nerve grafts (PNGs). A. A. AMIN\*; J. D. HOULE. *Drexel Univ. Col. of Med.*
- 8:00 CCC4 **588.9** Olfactory ensheathing glia enhance neurite regeneration by neuron-glia association in an *in vitro* scar model. R. R. KHANKAN; I. B. WANNER; P. E. PHELPS\*. *UCLA.*
- 9:00 CCC5 **588.10** The role of altered GSK-3 $\beta$  signaling in exercise-induced preservation of sensory function following spinal cord injury. K. L. BREWER\*; M. HARRIS; J. TAYLOR; B. WHITFIELD; S. BAREISS. *Brody Sch. Med. East Carolina Univ., Sch. of Allied Hlth. East Carolina Univ.*
- 10:00 CCC6 **588.11** Development of an electronic spinal bridge between the forelimbs and hindlimbs to facilitate quadrupedal stepping after a complete spinal cord transection. P. GAD\*; J. WOODBRIDGE; I. LAVROV; Y. GERASIMENKO; V. ZHONG; R. R. ROY; M. SARRAFZADEH; V. R. EDGERTON. *Univ. Of California Los Angeles, Univ. of California Los Angeles, Pavlov Inst. of Physiol., Brain Res. Inst.*
- 11:00 CCC7 **588.12** Combination therapy of chronic quipazine and exercise induces cortical reorganization. J. S. SHUMSKY\*; E. B. KNUDSEN; K. A. MOXON. *Drexel Univ. Col. of Med.*
- 8:00 CCC8 **588.13** ▲ Uncontrollable tail-shock decreases BDNF-TrkB signaling in the dorsal spinal cord of adult contused rats. J. D. TURTLE; S. M. GARRAWAY; J. R. HUIE; K. H. LEE; M. A. HOOK; S. A. WOLLER; J. W. GRAU\*. *Texas A&M Univ.*
- 9:00 CCC9 **588.14** ● Adeno-associated viral vector-mediated BDNF overexpression in spinal rats counteracts GABA deficits both rostrally and caudally to the lesion and affects locomotion. E. A. ZIEMLINSKA\*; I. WEWIOR; J. CZARKOWSKA-BAUCH; S. KÜGLER; M. BÄHR; M. SCHACHNER; M. SKUP. *Nencki Inst. of Exptl. Biol., Univ. of Göttingen, Ctr. of Mol. Physiol. of the Brain, Zentrum für Molekulare Neurobiologie, Univ. Hamburg.*
- 10:00 CCC10 **588.15** Instrumental learning enhances levels of BDNF mRNA in spinally transected rats. B. S. BEAS\*; J. R. HUIE; K. S. MONTGOMERY; C. L. LASARGE; K. M. BAUMBAUER; J. W. GRAU; J. L. BIZON. *Texas A&M Univ., Univ. of Florida.*
- 11:00 CCC11 **588.16** ● The extent of spinal cord injury affects the beneficial effect of protective autoimmunity. S. MARTIÑÓN\*; E. GARCIA; P. CALDERON; A. RIVAS; A. IBARRA. *Proyecto Camina, Univ. Anahuac, Univ. Nacional Autonoma de Mexico.*
- 8:00 CCC12 **588.17** RA-RAR $\beta$  counteracts myelin-dependent growth cone collapse and inhibition of neurite outgrowth via transcriptional repression of Lingo-1. R. PUTTAGUNTA; A. SCHMANDKE; E. FLORIDDIA; P. GAUB; N. FOMIN; N. B. GHYSELINCK; S. DI GIOVANNI\*. *HIH, Univ. of Tuebingen, Univ. Louis Pasteur.*
- 9:00 CCC13 **588.18** ● Neurotrophic and pleiotrophic effects observed in sensory and motor neurons. P. LOTFI\*; S. DASH; M. ROMERO-ORTEGA. *Universit of Texas At Arlington, Univ. of Texas At Arlington.*

\* Indicated a real or perceived conflict of interest, see page 158 for details.

▲ Indicates a high school or undergraduate student presenter.

Tue. AM