40TH ANNUAL MEETING

NEUROSCIENCE 2010

SOCIETY FOR NEUROSCIENCE

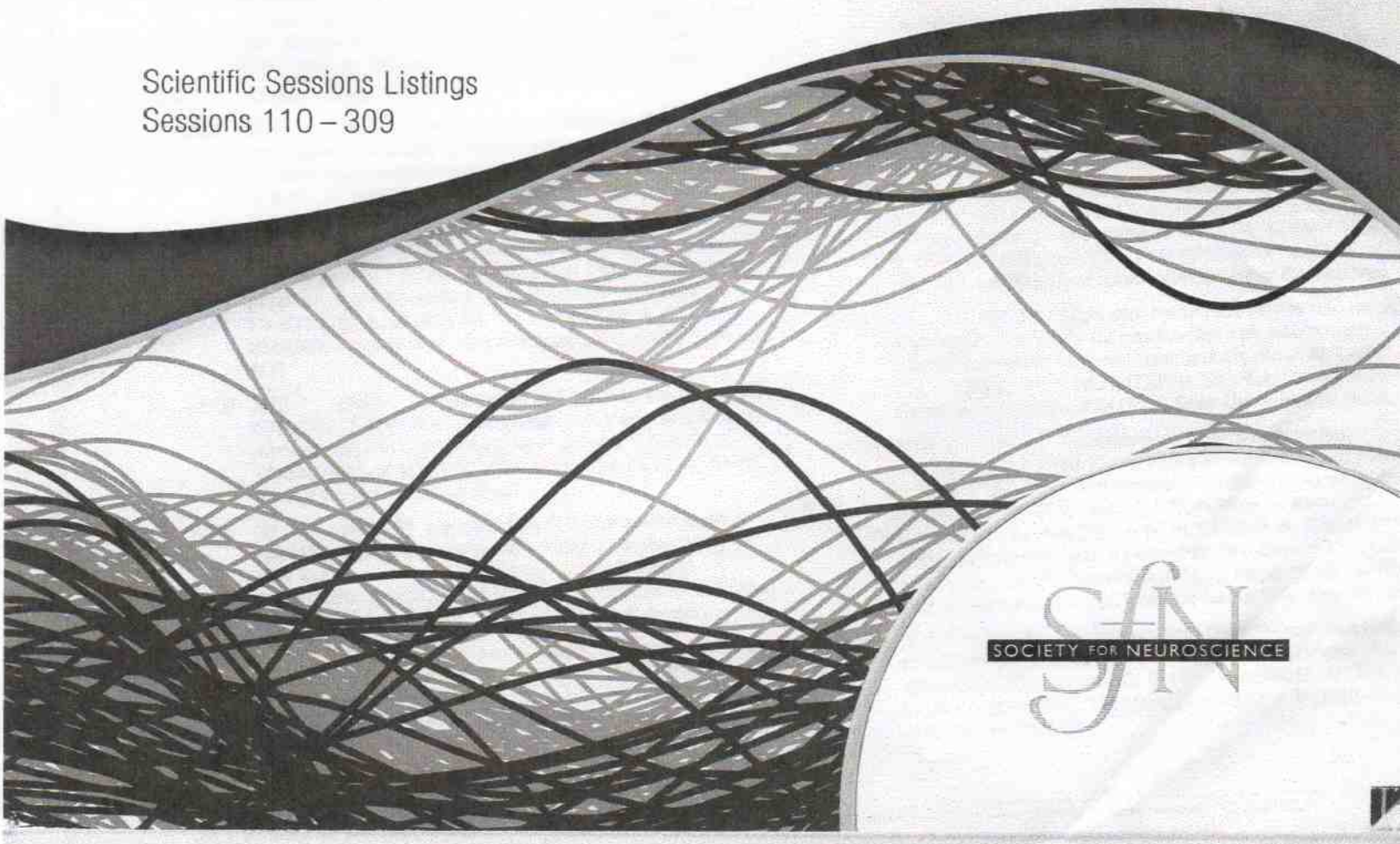
FINAL PROGRAM

# Sunday

NOVEMBER 14, 2010

SAN DIEGO

Scientific Sessions Listings
Sessions 110 – 309



SOCIETY FOR NEUROSCIENCE

**E. GARCÍA**[1,2], A. Murguia[1,2], S. MARTIÑON[1,2], R. SILVA[3], A. IBARRA[2,1];
[1]Camina Res. Ctr., Mexico city, Mexico; [2]Neuroimmunology Dept., Med. School, Anahuac Univ., Mexico city, Mexico; [3]Immunology Dept., CMN Siglo XXI., Mexico city, Mexico

# The Effect of Immunizing with Neural-Derived Peptides on the Expression of Inflammatory Genes in Spinal Cord Injured Rats.

The inflammatory response is the principal autodestructive mechanism that causes neural destruction as a consequence of spinal cord injury (SCI). This response exacerbates the expression of inflammatory genes and their protein products; at present, several strategies have been explored in order to control the harmful effect of this phenomenon. Protective autoimmunity (PA) is a recent innovative strategy based on the modulation of the inflammatory response by immunizing with neural-derived peptides such as A91. Although the use of PA has provided interesting neuroprotective effects, the mechanisms by which these beneficial effects are being exerted are not completely clear. We envisioned that a possible mechanism of action could be through the down-regulation of proinflammatory genes since immunization with A91 induces an anti-inflammatory Th2-type response.

In order to test this hypothesis, we explored the expression of mRNA levels in SCI rats by microarray assays. Animals were divided into three groups and immunized with A91, OVA, or PBS sixty minutes after SCI. The expression of mRNA-inflammatory genes was evaluated 7 days after injury. The results showed reduced expression of Bone Morphogenetic Protein 3 (BMP-3), Interleukin-1 Receptor Accessory Protein (IL1RAP), Caspase 3 (CASP3), Caspase 1 (CASP1), Suppressor of cytokine signaling 3 (SOCS3), Transforming growth factor beta 3 (TGFB3), Cytokine inducible SH2-containing protein (Cish), and Tumor necrosis factor (ligand) superfamily, member 11 (TNFSF11) in animals immunized with A91. Quantitative testing will be performed using real-time PCR.

9:00 M10 **153.30** Novel neuroprotection pathways in cerebral ischemia. M. PAPADAKIS*; L. HOYTE; S. NAGEL; C. WRIGHT; Z. ZHAO; B. KESSLER; A. BUCHAN. *Univ. of Oxford, Univ. of Heidelberg, Univ. of Calgary.*

**POSTER**

**154. Spinal Cord Injury: Inflammation**

***Theme C: Disorders of the Nervous System***

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

8:00 M11 **154.1** High mobility group box-1 (HMGB1) contributes to post-traumatic spinal cord inflammation. K. A. KIGERL*; W. LAI; L. WALLACE; P. G. POPOVICH. *The Ohio State Univ.*

9:00 M12 **154.2** Hypoxia inducible factor 1 alpha regulates divergent effects on CNS macrophage subsets after traumatic spinal cord injury. D. J. DONNELLY*; K. A. KIGERL; P. G. POPOVICH. *The Ohio State Univ.*

10:00 M13 **154.3** Splenectomy influences the dynamics of intraspinal macrophage activation after spinal cord injury. A. L. HAWTHORNE*; Z. GUAN; D. J. DONNELLY; P. G. POPOVICH. *The Ohio State Univ.*

11:00 M14 **154.4** Prevention of both neutrophil and macrophage recruitment promotes long-term functional recovery after spinal cord injury in mice. S. LEE*; S. ROSEN; L. J. NOBLE-HAEUSSLEIN. *Univ. of California San Francisco.*

8:00 M15 **154.5** Exploratory pathway analysis of temporal gene changes in rat spinal cord injury: Long lasting inflammatory response in chronic spinal cord injury. E. EFTEKHARPOUR*; S. KARIMI-ABDOLREZAEE; P. BOURTOS; M. FEHLINGS. *Spinal Cord Res. Center, Univ. of Manitoba, Regenerative Med. Program and Spinal Cord Res. Center, Univ. of Manitoba, Ontario Inst. for Cancer Res., Univ. of Toronto, Toronto Western Res. Institue, Krembil Neurosci. Res. Ctr.*

9:00 M16 **154.6** Macrophage activation in DRG contributes to enhanced regenerative capacity of sensory neurons after conditioning injury. M. KWON*; B. G. KIM; S. JOENG; D. HWANG. *Ajou Univ. Sch. of Med. / Brain Dis. Res. Ctr.*

10:00 M17 **154.7** The effect of immunizing with neural-derived peptides on the expression of inflammatory genes in spinal cord injured rats. E. E. GARCIA-VENCES*; S. MARTIÑON; A. MURGUIA; P. CALDERON; R. SILVA; A. IBARRA. *Camina Res. Ctr., Anahuac Univ., CMN Siglo XXI. H.P.*

11:00 M18 **154.8** Implantation of Th1 cells downregulates IFN-Γ, IL-17 double positive lymphocytes and ameliorates recovery after spinal cord injury. H. ISHII*; T. KUBO; T. YAMASHITA. *Grad. Sch. of Medicine, Osaka Univ., Grad. Sch. of Medicine, Chiba Univ.*

8:00 N1 **154.9** ● Upregulation of the pro-inflammatory cytokine macrophage migration inhibitory factor (MIF) after spinal cord injury in lamprey. O. BLOOM*; A. PAPATHEODOROU; K. CHENG; Y. AL-ABED; C. METZ; J. MORGAN. *Feinstein Inst., Univ. of Texas at Austin.*

9:00 N2 **154.10** Effects of cytokines on calcium extrusion mechanisms in neurons. A. MEADE; A. RATNAYAKE; M. P. KURNELLAS; A. K. FAKIRA; R. F. HEARY; S. ELKABES*. *New Jersey Med. Sch., Stanford Univ.*

10:00 N3 **154.11** Susceptibility of plasma membrane calcium ATPase 2 (PMCA2)-heterozygous mice to experimental autoimmune encephalomyelitis and spinal cord injury. K. HOGNASON; M. P. KURNELLAS*; R. F. HEARY; S. ELKABES. *UMDNJ-NJMS, Stanford Univ.*

11:00 N4 **154.12** Role of lysophosphatidic acid in the pathophysiology of spinal cord injury. E. S. NOGUEIRA*; K. I. RATHORE; S. DAVID; X. NAVARRO; R. LÓPEZ-VALES. *Univ. Autònoma De Barcelona, McGill Univ.*

8:00 N5 **154.13** ● Inflammatory and neurotrophic signals involved in hemidiaphragmatic paralysis. K. D. NANTWI*; P. L. SINGH. *Wayne State Univ. Sch. Med.*

9:00 N6 **154.14** Acid fibroblast growth factor and peripheral nerve graft regulated Th2 cytokines expression, macrophage activation, polyamines synthesis, and neurotrophins expression in transected spinal cord of rats. H. KUO*; C. CHIU; C. TSAI; H. CHANG. *Taipei Veterans Gen Hosp, Taipei Veterans Gen. Hosp., Natl. Yang-Ming Univ.*

10:00 N7 **154.15** Attenuated inflamatory response in gal-3-/- mice after spinal cord injury. K. MOSTACADA*; F. M. ALMEIDA; F. L. OLIVEIRA; D. M. S. VILLA-VERDE; A. M. B. MARTINEZ. *Univeridade Federal Do Rio De Janeiro, Univ. Federal Do Rio De Janeiro, Fundação Osvaldo Cruz.*

11:00 N8 **154.16** Procoagulant effect of infiltrating neutrophils after traumatic spinal cord injury. H. SAIWAI*; Y. OHKAWA; H. KUMAMARU; K. KUBOTA; Y. IWAMOTO; S. OKADA. *Grad. Sch. of Med. Sciences, Kyushu Univ., Dept. of Orthopedic Surgery, Grad. Sch. of Med. Sciences, Kyushu Univ.*

**POSTER**

**155. Spinal Cord Injury: Therapeutic Strategies I**

***Theme C: Disorders of the Nervous System***

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

8:00 N9 **155.1** 17beta-estradiol is protective in a cervical hemicontusion spinal cord injury in rats. S. CHOMPOOPONG*; A. SIRIPHORN; C. L. FLOYD. *Fac. of Med. Siriraj Hospital, Mahidol Univ., Ctr. of Glial Biol. in Med.*

9:00 N10 **155.2** Combination therapy of 17beta-estradiol and Schwann cell transplantation in a cervical hemicontusion spinal cord injury in rats. A. SIRIPHORN*; S. CHOMPOOPONG; C. L. FLOYD. *Fac. of Med. Siriraj Hospital, Mahidol Univ., Univ. of Alabama at Birmingham.*

10:00 N11 **155.3** Light stimulated recovery of respiratory rhythms in chronically C2 hemisected rats also reveals dramatic plasticity of spinal cord circuitry. W. J. ALILAIN*; X. LI; T. E. DICK; S. HERLITZE; J. SILVER. *Case Western Reserve Univ., Columbia Univ., Ruhr University-Bochum.*

11:00 N12 **155.4** Locomotor and sensory function recovery after systemic administration of deoxyribozyme to XT-1 mRNA after a moderate contusion of the adult rat spinal cord. M. OUDEGA; R. BRONSON; D. AVISON; A. MARCILLO; A. HURTADO; W. BUCHSER; B. GRIMPE*. *Univ. of Pittsburgh, Dana Faber/Harvard Cancer Ctr., Univ. of Miami, Intl. Ctr. for Spinal Cord Injury, Hugo W. Moser Res. Inst. at Kennedy Krieger, Heinrich Heine Univ. Düsseldorf.*

8:00 N13 **155.5** Treatment with DNA "decoy" that targets Cox-2 gene promoter improves behavioral recovery after spinal cord injury in rats. C. E. HULSEBOSCH*; G. XU; K. M. JOHNSON; G. C. UNABIA; O. NESIC; J. PEREZ-POLO. *Univ. Texas Med. Br.*



• Indicated a real or perceived conflict of interest, see page 143 for details.

▲ Indicates a high school or undergraduate student presenter.