

1st INTERNATIONAL WORKSHOP ON SYNAPTIC PLASTICITY: FROM BENCH TO BED SIDE



28th April - 1st May 2010
Hotel Russott, Giardini-Naxos



WELCOME

Dear Colleagues and Friends,

This meeting is the first attempt to merge people from basic science with neurologists and psychiatrists to discuss on the relevance of plasticity in the pathophysiology of several neurological diseases and in particular on Movement Disorders.

This is a hot topic in translational clinical neurophysiology research with both basic physiology and therapeutic implications.

Our intention is to see that information in basic science is being adequately used in clinical applications, and that clinical needs are recognized, and clinical observations are exploited, by basic scientists.

The Congress Chairpersons

Angelo Quartarone
Paolo Girlanda



Faculty and Chairmen

Australia

Simon Gandevia (Sydney)

Canada

Robert Chen (Toronto)

China

Bai Lu (Shanghai)

France

Sabine Meunier (Paris)

Germany

Joseph Classen (Leipzig)

Ulf Ziemann (Frankfurt)

Walter Paulus (Göttingen)

Italy

Giovanni Abbruzzese (Genoa)

Alfredo Berardelli (Rome)

Matteo Bologna (Rome)

Marco Bove (Genoa)

Paolo Calabresi (Perugia)

Diego Centonze (Rome)

Giancarlo Comi (Milan)

Monica De Luca (Milan)

Massimiliano Di Filippo (Perugia)

Vincenzo Di Lazzaro (Rome)

Paolo Girlanda (Messina)

Giacomo Kock (Rome)

Carlo Miniussi (Brescia)

Francesca Morgante (Messina)

Barbara Picconi (Rome)

Antonio Pisani (Rome)

Alberto Priori (Milan)

Daniela Puzzo (Catania)

Angelo Quartarone (Messina)

Vincenzo Rizzo (Messina)

Simone Rossi (Siena)

Carmen Terranova (Messina)

Japan

Yoshikazu Ugawa (Tokio)

Switzerland

Dietz Volker (Zurich)

United Kingdom

John Rothwell (London)

Sven Bestmann (London)

USA

Alvaro Pascual Leone (Boston)

David Lovinger (Washington)

Gulio Tononi (Madison)

Haou-Yan Wang (New York)

Jack Martin J (New York)

Leo Cohen (Washington)

Marc Raichle (St. Louis)

Mark Hallett (Washington)

Maria Felice Ghilardi (New York)



WEDNESDAY, APRIL 28th

15.00-15.30 **Introduction to the conference**

Session I: Plasticity at cellular level

Chairmen: Rothwell J.C. (London, UK), Pisani A. (Rome, Italy)

15.30-16.00 Plasticity: defining the terms
Classen J. (Lipsia, Germany)

16.00-16.30 Basic concepts of cellular plasticity: physiology and molecular biology
Lovinger D. (Bethesda, USA)

16.30-17.00 Basic concepts of cellular plasticity: examples from experimental models
Calabresi P. (Perugia, Italy)

17.00-17.30 TMS-induced plasticity in an animal model: mechanisms of action
Wang H. (New York, USA)

17.30-18.00 Corticospinal stimulation reveals changes in motoneuronal output with fatigue and activity
Gandevia S. (Sydney, Australia)

18.00-18.30 **General Discussion**

18.30-19.30 **Lecture**
Chairman: Ghilardi M.F. (New York, USA)

Harnessing Activity-dependent Plasticity to Reconstruct Damaged Corticospinal System Circuits
Martin J. (New York, USA)



THURSDAY, APRIL 29th

09.00 10.00

Lecture

Chairman: Silvestri R. (Messina, Italy)

Neuroplasticity and Sleep

Tononi G. (Madison, USA)

Session I: Plasticity at regional level

Chairmen: Berardelli A. (Rome, Italy), Ziemann U. (Frankfurt, Germany)

10.00-10.30

Homeotopic plasticity: rTMS and thetburst

Di Lazzaro V. (Rome, Italy)

10.30-11.00

Heterotopic plasticity: PAS

Chen R. (Toronto, Canada)

11.00-11.30

Coffee Break

11.30-12.00

tDCS and random noise stimulation

Paulus W. (Göttingen, Germany)

12.00-12.30

Quadripulse stimulation

Ugawa Y. (Tokyo, Japan)

12.30-13.00

Interleaving TMS with neuroimaging to study plasticity

Bestmann S. (London, UK)

13.00-13.30

Motor behavior and corticospinal excitability: upper limb use, overuse and disuse.

Bove M. (Genova, Italy)

13.30-15.00

Buffet lunch and Poster Session I



THURSDAY, APRIL 29th

Session II: Neuroplasticity in basal ganglia disorders

Chairmen: Hallett M. (Bethesda, USA), Calabresi P. (Perugia, Italy)

- 15.00-15.30 Corticostriatal plasticity in animal models of Parkinson's disease
Picconi B. (Roma, Italy)
- 15.30-16.00 Cortical plasticity in Parkinson's disease
Morgante F. (Messina, Italy)
- 16.00-16.30 Corticostriatal plasticity in transgenic animal models of dystonia
Pisani A. (Roma, Italy)
- 16.30-17.00 **Coffee Break**
- 17.00-17.30 Cortical plasticity in primary dystonia
Rizzo V. (Messina, Italy)
- 17.30-18.00 The manifold facets of motor learning in basal ganglia disorders
Ghilardi M.F. (New York, USA)
- 18.00-18.30 **General Discussion**



FRIDAY, APRIL 30th

09.00-10.00 **Lecture**
Chairman: Pisani A. (Rome, Italy)

Brain Glycolysis and sleep
Raichle M. (St. Louis, USA)

Session I: Plasticity regulatory mechanisms

Chairmen: Quartarone A. (Messina, Italy), Classen J. (Lipsia, Germany)

10.00-10.30 The concept of metaplasticity
Ziemann U. (Frankfurt, Germany)

10.30-11.00 Alteration of metaplasticity at brainstem level
Bologna M. (Rome, Italy)

11.00-11.30 **Coffee Break**

Session II: Plasticity in Alzheimer disease

Chairmen: Di Lazzaro V. (Rome, Italy), Wang H. (New York, USA)

11.30-12.00 Amyloid-beta peptide in synaptic plasticity and memory: a bridge between physiology and pathology
Puzzo D. (Catania, Italy)

12.00-12.30 Plasticity of motor area in Alzheimer disease
Terranova C. (Messina, Italy)

12.30-13.00 New therapeutical approaches to restore synaptic plasticity in animal models of neurodegenerative diseases
Di Luca M. (Milan, Italy)

13.00-13.30 **General discussion**

13.30-15.00 **Buffet lunch and Poster Session II**



FRIDAY, APRIL 30th

Session III: Plasticity issues in Multiple Sclerosis

Chairmen: Girlanda P. (Messina, Italy), Paulus W. (Gottingen, Germany)

- 15.00-15.30 Brain plasticity in Multiple Sclerosis
Comi G. (Milano, Italy)
- 15.30-16.00 Immune system and synaptic plasticity
Centonze D. (Roma, Italy)
- 16.00-16.30 Plasticity in experimental models of MS
Di Filippo M. (Perugia, Italy)
- 16.30-17.00 **Coffee Break**

Session IV: Non invasive Neuromodulation in Stroke

Chairmen: Pascual Leone A. (Boston, USA) Abbruzzese G. (Genova, Italy)

- 17.00-17.30 Rationale of neuromodulation as plasticity promoter: different strategies to accomplish the goal
Cohen L. (Bethesda, USA)
- 17.30-18.00 Repetitive TMS interventions as possible add-on therapies for treatment of chronic stroke: success or not?
Rothwell J. (London, UK)
- 18.00-18.30 Neuromodulation in stroke: tDCS studies
Priori A. (Milan, Italy)
- 18.30-19.00 Neuromodulation and BDNF polymorphisms
Kock G. (Rome, Italy)
- 19.00-19.30 Neuroplasticity: monitoring through EEG approaches
Miniussi C. (Brescia, Italy)
- 19.30-20.00 **General Discussion**
- 21.00 **Gala Dinner**



SATURDAY, MAY 1st

08.30 10.00 **Poster Session III**

Session I: Cortical plasticity outside motor areas

Chairmen: Quartarone A. (Messina, Italy), Cohen L. (Washington, USA)

- 10.00-10.30 Adaptive and maladaptive plasticity in visual system
Pascual Leone A. (Boston, USA)
- 10.30-11.00 Pathophysiology of Tinnitus and neuromodulation
Rossi S. (Siena, Italy)
- 11.00-11.30 Spinal post-effects of plasticity induction protocols
Meunier S. (Paris, France)
- 11.30-12.00 BDNF, synaptic plasticity and cognitive functions: of mice and men
Lu Bai (Shanghai, China)
- 12.00-12.30 Neuroplasticity after a spinal cord injury
Dietz V. (Zurich, Switzerland)
- 12.30-13.00 Synthesis: Bench to Bedside
Hallett M. (Bethesda, USA)
- 13.30 **Discussion and closing remarks**



The Congress Chairperson

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PS1-01 IMAGING HUMAN BRAIN CORTICAL EFFECTIVE CONNECTIVITY DURING SINGLE AND PAIRED PULSE TRANSCRANIAL MAGNETIC STIMULATION. *F. Ferreri, P. Pasqualetti, S. Maatta, D. Ponzio, F. Ferrarelli, G. Tononi, E. Mervaal, C. Miniussi, P. M. Rossini*

PS1-02 CONCURRENT TDCS AND FMRI REVEALS MODULATORY EFFECTS ON BRAIN ACTIVATION DURING FINGER TAPPING. *A. Antal, R. Polania, C. Schmidt-Samoa, P. Dechent, W. Paulus*

PS1-03 VOXEL BASED MORPHOLOGY IN HEMISPHERECTOMY PATIENTS *S. de Bode, C. Gaser*

PS1-04 DUAL TIME COURSE OF THE EFFECT OF REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION ON MOTOR PREPARATION. *Y. Terao, T. Furubayashi, S. Okabe, H. Mochizuki, N. Arai, S. Kobayashi, Y. Ugawa*

PS1-05 INTRINSIC RHYTHM OF THE PRIMARY MOTOR CORTEX IN CORTICAL MYOCLONUS. *R. Hanajima, Y. Terao, S. Okabe, S. Nakatani-Enomoto, T. Furubayashi, M. Hamada, A. Yugeta, H. Matsumoto, Y. Shirota, S. Tsuji, Y. Ugawa*

PS1-06 EFFECT OF CONTRALESIONAL 1- HZ REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION (RTMS) ON SPASTIC HEMIPARESIS IN PAEDIATRIC PATIENT WITH IPSILATERAL CORTICOSPINAL MOTOR TRACTS: A CASE REPORT. *S. Vaalto, P. Hellen, A-M. Vitikainen, H. Maenpaa, J. Karhu*

PS1-07 NAVIGATED TMS ASSOCIATED WITH DTI AS A TOOL FOR NEUROPLASTICITY CHANGES STUDIES. *J.M. Espadaler, G. Conesa, A. Gabarros, J. Deus, G. Villalba, C. Quijada, A. Leon, I. Fernandez- Conejero, J. Pujol, T. Rognoni, J. Pena*

PS1-08 DOSE-DEPENDENT NON-LINEAR EFFECT OF L-DOPA ON PAIRED ASSOCIATIVE STIMULATION (PAS) - INDUCED ASSOCIATIVE NEUROPLASTICITY IN HUMAN MOTOR CORTEX. *N. Thirugnanasambandam, W. Paulus, M. A. Nitsche*

PS1-09 INVOLVEMENT OF CEREBELLOTHALAMOCORTICAL PATHWAY IN PARKINSON'S DISEASE. *Z. Ni; A. D. Pinto; A. E. Lang, R. Chen*

PS1-10 TRANSCRANIAL MAGNETIC STIMULATION IN DIFFERENT CURRENT DIRECTIONS ACTIVATES SEPARATE CORTICAL CIRCUITS. *Z. Ni, S. Charab, C. Gunraj, K. Udupa, I-Jin Yeh, R. Chen*

PS1-11 PATIENTS WITH COMPLEX REGIONAL PAIN SYNDROME TYPE I AND FIXED POSTURE OF THE HAND DISCLOSE A NORMAL MOTOR CORTEX PLASTICITY. *A. Naro, F. Morgante, C. Terranova, M. Russo, V. Rizzo, G. Risitano, P. Girlanda, A. Quartarone.*

PS1-12 PAIRED ASSOCIATIVE STIMULATION IN UNVERRICHT-LUNDBORG TYPE PROGRESSIVE MYOCLONUS EPILEPSY (EPM 1). *L. Saisaen, S. Maatta, P. Julkunen, T. Hukkanen, M. Kononen, N. Danner, R. Kalviainen, E. Mervaala*

PS1-13 TRANSCRANIAL DIRECT CURRENT STIMULATION AND RETRAINING IN MUSICIAN'S HAND DYSTONIA. *F. Buttkus, V. Baur, H.C. Jabusch, M. de la Cruz Gomez-Pellin, W. Paulus, M. A. Nitsche, E. Altenmuller.*

PS1-14 PARTIAL CONTRALATERAL TRANSFER OF THE CORTICAL MOTOR REPRESENTATION OF ARM MUSCLES AFTER A PERINATAL ISCHEMIC CEREBRAL INSULT. *M. Thordstein, J. Lundgren, S. Kohler, T. Hallbook*

PS1-15 IDIOSYNCRATIC CORTICAL REPRESENTATIONS OF THE INTRINSIC HAND MUSCLES IN SKILLED HARPISTS. *A. Buick, R. G. Carson.*

PS1-16 SHORT TERM HAND DISUSE: BEHAVIOURAL AND CORTICAL EFFECTS. *Michela Bassolino, Marco Bove, Thierry Pozzo, Luciano Fadiga*

PS1-17 TRANSCRANIAL MAGNETIC STIMULATION EFFECTS ON TREMOR IN PRIMARY WRITING TREMOR PATIENTS. *Cukic M, Filipovic S, Ljubisavljevic M*

PS1-18 TRANSCRANIAL DIRECT CURRENT STIMULATION (TDCS) IN THE MOUSE BRAIN: ELECTROPHYSIOLOGICAL EFFECTS. *Marco Cambiaghi, Teneud Luis, Svetla Velikova, Javier Gonzalez-Rosa, Marco Cursi, Giancarlo Comi and Letizia Leocani*

PS1-19 PRIMING MOTOR CORTEX EXCITABILITY WITH REPEATED THETA BURST STIMULATION. *C. Mastroeni, C. Ritter, I. Pohlmann, F. Morgante, A. Quartarone, T. Bergmann, H.R. Siebner*

PS1-20 ABNORMAL CORTICAL LTP-LIKE SYNAPTIC PLASTICITY IN PROGRESSIVE SUPRANUCLEAR PALSY. *D. Belvisi, A. Conte, D. Ottaviani, M. Bologna, A. Suppa, G. Fabbrini, C. Colosimo, D.R. Williams, A. Berardelli*

PS1-21 MEASURING PLASTIC CHANGE IN PEDIATRIC INTERVENTIONAL THERAPIES WITH TMS: METHODOLOGY OF THE PLASTIC CHAMPS CLINICAL TRIAL. *A. Kirton, J. Andersen, G. Hoyt-Hallett, C. O'Byrne, J. Yager, M.D. Hill, A. Nettel-Aguirre, A. Demchuk, G. deVeber, O. Kotsovsky, R. Chen*

PS1-22 EARLY CHANGES IN CORTICAL EXCITABILITY AND INTERHEMISPHERIC INHIBITION AFTER CORTICAL AND LACUNAR MILD STROKE: A TRANSCRANIAL MAGNETIC STIMULATION (TMS) STUDY. *R. Chieffo, L. Straffi, A. Poggi, E. Coppi, F. Spagnolo, A. Inuggi, M. Comola, G. Comi, L. Leocani.*

PS1-23 FUNCTIONAL MOTOR CORTICES REORGANIZATION IN PATIENTS WITH LOWER MOTOR NEURON SYNDROME: A MEG AND TMS STUDY. *F. Notturmo, S. Della Penna, F. Ranieri, L. Marzetti, G. Mollo, G. Tamburro, G. Minicucci, M. Caulo, V. Pizzella, V. Di Lazzaro, A. Uncini, G.L. Romani*

PS1-24 NEUROPHYSIOLOGICAL MECHANISMS OF CORTICAL MODIFICATIONS AFTER A SHORT-TERM HAND DISUSE. *L. Avanzino, M. Bassolino, T. Pozzo, M. Bove.*

PS1-25 ABNORMAL SHORT-INTERVAL INTRACORTICAL INHIBITION REVEALED BY TRANSCRANIAL MAGNETIC THRESHOLD TRACKING IN PAIRED ASSOCIATIVE STIMULATION. *N. Murase, B. Cengiz, J.C. Rotwell.*

PS1-26 CORTICO-CORTICAL CONNECTIVITY BETWEEN PARIETAL AND PRIMARY MOTOR CORTICES DURING IMAGINED AND OBSERVED ACTIONS: A TMS/TDCS STUDY. *M. Feurra, G. Bianco, N. R. Polizzotto, A. Rossi, S. Rossi*

PS1-27 WHEN PRACTICE DOES NOT MAKE PERFECT: I. SUSTAINED EXERCISE DIFFERENTIALLY INFLUENCES CORTICAL EXCITABILITY OF SLOW AND FAST NEURONS. *G. Cruciata, D. Crupi, C. Moisello, A. Naro, B. Perfetti, M. Bove, L. Avanzino, A. Quartarone, M. F. Ghilardi*

PS1-28 WHEN PRACTICE DOES NOT MAKE PERFECT: II. SUSTAINED EXERCISE INFLUENCES PRE-MOVEMENT FACILITATION. *D. Crupi, A. Naro, G. Cruciata, C. Moisello, B. Perfetti, L. Ricciardi, M. Bove, A. Di Rocco, M. F. Ghilardi, A. Quartarone*

PS1-29 LONG LASTING INHIBITION OF CEREBELLAR OUTPUT. *M. Russo, T. Popa, S. Meunier.*

PS1-30 OVERCOMING THE PLATEAU OF HUMAN MOTOR SKILL LEARNING BY RAPID SKILL IMPROVEMENT WITH BRIEF PRE-MOVEMENT SENSORY MANIPULATION. *E. Naito, S. Uehara, I. Nambu, S. Tomatsu, Y. Suzuki, J. Lee, S. Kakei.*

PS2-01 TRANSCRANIAL DIRECT CURRENT STIMULATION OVER THE VENTRAL PREFRONTAL CORTEX INDUCES A GENDER-DEPENDENT CHANGE OF MORAL JUDGMENT. *M. Fumagalli, P. Pasqualetti, M. Vergari, R. Ferrucci, F. Mameli, S. Marceglia, S. Mrakic-Sposta, S. Barbieri, A. Priori*

PS2-02 DEMONSTRATION OF ASSOCIATIVE PLASTICITY BY PAIRING SUBTHALAMIC NUCLEUS DEEP BRAIN STIMULATION AND MOTOR CORTICAL TRANSCRANIAL MAGNETIC STIMULATION IN PARKINSON'S DISEASE. *K. Udupa, N. Bahl, C. Gunraj, F. Mazzella, E. Moro, A. Lozano, M. Hodaie, A. E. Lang, R. Chen*

PS2-03 THE EFFECTS OF TRANSCRANIAL DIRECT CURRENT STIMULATION (TDCS) ON FATIGUE IN MULTIPLE SCLEROSIS. *R. Ferrucci, M. Vergari, F. Cogiamanian, M. Ferrari, L. Tadini, M. Ciocca, M. Deritz, E. Scarpini, A. Priori*

PS2-04 DAILY TRANSCRANIAL DIRECT CURRENT STIMULATION IMPROVES VISUAL RECOGNITION MEMORY IN ALZHEIMER PATIENTS. *R. Ferrucci, F. Mameli, M. Vergari, D. Martins, O. Martins, F. Fregni, E. Scarpini, P. S. Boggio, A. Priori*

PS2-05 BIDIRECTIONAL HUMAN SENSORY CORTICAL EXCITABILITY MODULATION BY QUADRI-PULSE MAGNETIC STIMULATION (QPS) APPLIED OVER PRIMARY MOTOR CORTEX. *S. Nakatani-Enomoto, R. Hanajima, M. Hamada, Y. Terao, H. Matsumoto, M. Hirose, K. Nakamura, T. Furubayashi, H. Mochizuki, H. Enomoto, Y. Ugawa*

PS2-06 EMOTION AFFECTS HUMAN MOTOR CORTICAL PLASTICITY. *S. Koganemaru, T. Mima, H. Fukuyama, K. Domen*

PS2-07 HUMAN M1 PLASTICITY INDUCED BY MOVEMENT-RELATED CORTICAL STIMULATION. *T. Mima, M. Nasreldin Thabit, Y. Ueki, S. Koganemaru, H. Fukuyama*

PS2-08 INFLUENCE OF SHORT-INTERVAL INTRACORTICAL INHIBITION ON SHORT-INTERVAL INTRACORTICAL FACILITATION IN HUMAN PRIMARY MOTOR CORTEX. *Y. Shirota, M. Hamada, Y. Terao, Y. Ugawa, R. Hanajima*

PS2-09 THE INFLUENCE OF ATTENTION SHIFTING ON TMS-INDUCED VIRTUAL NEGLECT. *N. Bien, R. Goebel, A. T. Sack*

PS2-10 HUMAN CORTICAL EXCITABILITY DURING SUCCESSIVE GO/NOGO TASKS: A TMS STUDY. *A. Nuruki, A. Maruyama, J.C. Rothwell*

PS2-11 REPEATED BRAIN STIMULATION EFFECTS ON MARKERS FOR NEUROPLASTICITY: DIFFERENTIAL OUTCOMES IN ANAESTHETIZED AND AWAKE ANIMALS. *R. Gersner, E. Kravetz, O. Levit, A. Zangen*

PS2-12 BRAIN STIMULATION-ENHANCED MOTOR MEMORY REHABILITATES NEGLECT. *J. O'Shea, M. Kandel, Y. Rossetti*

PS2-13 BILATERAL CHANGES IN MOTOR CORTICO-SPINAL EXCITABILITY VARY BY DIRECT ELECTRICAL CURRENT POLARITY. *J. O'Shea, M.H. Boudrias, H. Leadbetter, H. Johansen-Berg*

PS2-14 THE EFFECTS OF MIRRORED VISUAL FEEDBACK OF THE OPPOSITE LIMB ON VARIATIONS IN THE EXCITABILITY OF CORTICOSPINAL PROJECTIONS TO THE FOREARM MUSCLES, AND COUPLED MOVEMENTS OF THE WRIST INDUCED BY FUNCTIONAL ELECTRICAL STIMULATION (FES). *J. Ennis-Dawson, M. J. Grey, M. Willerslev-Olsen, R. G. Carson*

PS2-15 IMAGING THE NEURAL MECHANISMS OF VISUO-SPATIAL PERCEPTION WITH THE INTERLEAVED TMS/FMRI TECHNIQUE: A PILOT FEASIBILITY STUDY. *R. Ricci, A. Salatino, S. Logan, A. P. Funk, X. Li, Q. Mu, K. Johnson, D. Bohning, M.S. George*

PS2-16 ABNORMAL PRIMARY MOTOR CORTEX AND BRAINSTEM PLASTICITY IN GILLES DE LA TOURETTE

SYNDROME. A. Suppa, D. Belvisi, M. Bologna, L. Marsili, I. Berardelli, G. Moretti, M. Pasquini, G. Fabbrini, A. Berardelli

PS2-17 RAPID-RATE PAIRED ASSOCIATIVE STIMULATION OF MOTOR CORTEX AND THE RADIAL NERVE IN

HEALTHY SUBJECTS AND STROKE PATIENTS: AN ELECTROPHYSIOLOGICAL AND MOTOR BEHAVIOUR STUDY. E. Castel-Lacanal, B. Acket, I. Loubinoux, P. Marque, F. Chollet, M. Simonetta-Moreau

PS2-18 CLINICAL IMPROVEMENT AFTER REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION IS ACCOMPANIED BY CHANGES IN GRAY MATTER DETECTED BY VOXEL-BASED MORPHOLOGY. M. Landgrebe, S. Koszinowski, A. May, G. Hajak, B. Langguth

PS2-19 INTERHEMISPHERIC TRANSFER OF PAS-INDUCED PLASTICITY IN THE HUMAN MOTOR CORTEX. H.W. Shin, Y. H. Sohn

PS2-20 ABNORMAL FACILITATION OF MOTOR CORTEX IN MIGRAINE WITH AURA: MODULATORY EFFECT OF TRANSCRANIAL MAGNETIC STIMULATION (TMS) BEFORE AND AFTER TREATMENT WITH LEVETIRACETAM. F. Brighina, G. Cosentino, S. Vigneri, A. Palermo, G. Giglia, S. Talamanca, B. Fierro

PS2-21 CORTICAL INHIBITION AFFECTS HABITUATION TO VISUAL EVOKED POTENTIALS: COMBINED EFFECTS OF LIGHT DEPRIVATION AND REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION IN HEALTHY SUBJECTS. A. Palermo, F. Brighina, G. Giglia, A. R. Puma, M. L. Panetta, B. Fierro

PS2-22 MODULATION OF CORTICAL OSCILLATORY ACTIVITIES INDUCED BY HIGH-FREQUENCY REPETITIVE

TRANSCRANIAL MAGNETIC STIMULATION: THE EFFECT OF DURATION OF STIMULATION. N. A. Noh, G. Fuggetta

PS2-23 SILDENAFIL IMPROVES SYNAPTIC FUNCTION, MEMORY AND AMYLOID-BETA LOAD IN AN ALZHEIMER

MOUSE MODEL D. Puzzo, L. Privitera, A. Staniszewski, SX. Deng, S. Liu, H. Zhang, S. Sapienza, A. Palmeri, DW. Landry, O. Arancio

PS2-24 RESHAPING MOTOR CORTEX REPRESENTATION AFTER SURGERY IN A CEREBRAL PALSY PATIENT. A TMS AND FMRI STUDY. F. Pilato, M. Dileone, F. Capone, P. Profice, F. Ranieri, A. Oliviero, L. Florio, R. Di Iorio, V. Di Lazzaro

STRUCTURAL MODIFICATION OF GLUTAMATERGIC SYNAPSE IN THE STRIATUM AFTER DOPAMINE DENERVATION

PS2-25.

F. Gardoni, C. Vastagh, B. Picconi, P. Calabresi, M. Di Luca

PS2-26 ARMIN ROBOT AND VIRTUAL REALITY PERSONALIZED PLASTICITY PROMOTING ENVIRONMENT:

REPETITIONS TO IMPROVE REHABILITATION OF PARETIC ARM. K. G. August, V. Klamroth-Morganska, M. Guidali, R. Riener.

PS2-27 REDUCED INTRACORTICAL INHIBITION AFTER SLEEP DEPRIVATION: A TRANSCRANIAL MAGNETIC

STIMULATION STUDY. P. Kreuzer, P. Roland, G. Hajak, B. Langguth, M. Landgrebe.

PS2-28 EFFECT OF BIMANUAL AND UNIMANUAL PIANO PLAYING ON CONNECTIVITY BETWEEN DORSAL

PREMOTOR (PMD) AND MOTOR CORTEX (M1). A. Maruyama, A. Nuruki, S. Etoh, J. Rothwell

PS2-29 ELECTROPHYSIOLOGICAL CORRELATES OF REACHING AND LEARNING IN A CHOICE REACTION TIME

PARADIGM. B. Perfetti, C. Moisello, E. Landness, S. Kvint, A. Pruski, M. Onofrij, G. Tononi, M. F. Ghilardi

PS2-30 THE ROLE OF GABA IN MOTOR PERFORMANCE C.J. Stagg, V. Bachtiar, H. Johansen Berg

PS3-01 EFFECT OF LOW-FREQUENCY RTMS OF THE CONTRALESIONAL HEMISPHERE ON MOTOR AND VISUOSPATIAL DEFICITS IN A CHRONIC PATIENT WITH SUBCORTICAL STROKE. A. Salatino, R. Ricci, E. Berra, W. Troni, K. Sacco, F. D'Agata, F. Cauda, G. Geminiani, S. Duca, U. Dimanico.

PS3-02 AMYLOID BETA AND TRANSCRANIAL MAGNETIC STIMULATION INDUCED PLASTICITY IN MULTIPLE SCLEROSIS. F. Mori, C. Codecà, H. Kusayanagi, F. Monteleone, G. Koch, D. Centonze

PS3-03 CORTICAL REPRESENTATIONS OF PROXIMAL AND DISTAL MUSCLES IN WRITER'S CRAMP. A. Boyadjian, F. Tyč, N. Allam, J. Brasil-Neto

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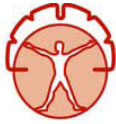
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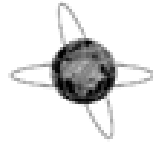
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