

**10th BIENNIAL
INTERNATIONAL MOTONEURON MEETING
ISTANBUL 2016**

Monday 20 June 2016

VENUE for reception: Sevgi Gönül Auditorium

17:00 – 19:00 Welcome reception and registration

Tuesday 21 June 2016

VENUE for the rest of the meeting is SOS208 Auditorium

08:00 – 08:45 Registration and breakfast

08:45 – 09:00 Welcome: Kemal Türker, Koç University, Istanbul, Turkey

Session 1: Introductory session - Chair: Rob Brownstone

09:00 - 09:30 Elif Vatanoglu-Lutz Yeditepe University, Istanbul, Turkey
A brief history of medicine and neuroscience in Anatolia

09:30 – 10:00 Simon Gandevia, Neuroscience Research Australia, Sydney, Australia
The use and abuse of different forms of brain stimulation to modulate human corticospinal excitability

10:00 – 10:30 Dario Farina, University Medical Center Göttingen, Göttingen, Germany
Analysis of the behavior of large populations of motor units in humans by high-density electrode system

10:30 – 11:00 Hans Hultborn, University of Copenhagen, Denmark
Advances/problems in our understanding of how motoneurons convert input to output

11:00 – 11:30 Morning tea, coffee, cakes

Session 2: Motoneuron / motor unit properties – Chair: Hans Hultborn

11:30 – 11:50 Francesco Negro, University Medical Center Göttingen, Göttingen, Germany
Control of motor units by low-frequency common input

11:50 – 12:10 Rob Brownstone, University College London
C-bouton regulation of MN excitability

12:10 – 12:30 Antony Czarnecki, CNRS UMR, Paris, France
Persistent sodium current controls motoneuron and Renshaw cell excitability at the onset of synaptogenesis in the mouse embryonic spinal cord

12:30 – 14:00 Lunch: Follow the volunteers wearing Meeting T-shirts

Session 3: Motoneurons in general – Chair: Monica Gorassini

14:00 – 14:20 Mouloud Bouhadfane, Frédéric Brocard, Jacques Durand, CNRS-AMU, Institute of Neuroscience Timone, Marseilles, France

A review of 40 years of NMDA receptors in motoneurons: where, when and why?

14:20 – 14:40 Amr Mahrous and Sherif Elbasiouny; Wright State University, USA

The role of SK channels in initiating motoneuron bursting in the spinal cord

14:40 – 15:00 Anna Kaczmarek, Svenja Schneider, Laura Torres-Benito, Vanessa Gysko, Aaradhita Upadhyay, Markus Riessland, Kathryn J. Swoboda, Brunhilde Wirth; University of Cologne, Germany; The Rockefeller University and Massachusetts General Hospital for Children, USA

SMA modifier mod2 improves motor neuron length and neuromuscular junction size

15:00 – 15:30 Afternoon tea, coffee, cakes

Session 4 - Posters (rest of the afternoon) Chair: CJ Heckman

15:30 – 17:30

POSTER SESSION: ALL POSTERS WILL BE BRIEFLY PRESENTED USING A MAXIMUM OF 2 SLIDES AND WITHIN 3 MINUTES

POSTERS WILL THEN BE DISPLAYED OUTSIDE THE MEETING ROOM ON THE 21ST AND 22ND OF JUNE

Wednesday 22 June 2016

***Session 5: Stimulus evoked Post-synaptic potentials in human motoneurons
Chair: Simon Gandevia***

08:00 – 09:00 Breakfast and Posters

09:00 – 09:20 Kemal Türker, Koç University, Istanbul, Turkey

A brief history of the peristimulus frequencygram

09:20 – 09:40 Monica Gorassini, University of Alberta, Canada

The use of peristimulus frequencygrams to examine sensory activation of motoneurons in health and neurotrauma

09:40 – 10:00 Gizem Yılmaz, Koç University, Sarıyer, Istanbul, Turkey
Periodontal and muscle spindle pathways to the trigeminal motoneurons

10:00 – 10:20 Utku Ş. Yavuz, University Medical Center Göttingen, Göttingen, Germany
Reflex responses of large populations of motor units as a means to estimate the distribution of afferent input

10:30 – 11:00 Morning tea, coffee, cakes

Session 6: Motoneurons in spinal cord injury and stroke – Chair: Randall Powers

11:00 – 11:20 Jayne Garland, Western University, Canada
Robot-assisted therapy plus repetitive TMS improves motor unit activation post-stroke

11:20 – 11:40 X Hu, WZ Rymer, N Suresh, Rehabilitation Institute of Chicago, Chicago, USA.

Neural origins of muscle weakness in hemispheric stroke survivors

11:40 – 12:00 K.P. Dimintiyanova, J. Wienecke, D.B. Jensen, C.F. Meehan, University of Copenhagen, Denmark.

The time course of axon initial segment plasticity following spinal cord injury in rats

12:00 – 12:20 Roeland F. Prak, Christine K. Thomas, Marga Tepper, Inge Zijdwind, University Medical Center Groningen, University of Groningen, The Netherlands; University of Miami Miller School of Medicine, Miami, USA

Cortical activation during a sustained maximal voluntary contraction with the first dorsal interosseous weakened by spinal cord injury

12:20 – 12:40 Bożenna Kuraszkiewicz, Jia-Jin Jason Chen, Hanna Goszczyńska, Maria Piotrkiewicz, Nalecz Institute of Biocybernetics and Biomedical Engineering, Poland and National Cheng Kung University, Taiwan

Bilateral changes in afterhyperpolarization duration of spinal motoneurons in post-stroke spastic patients

12:40 – 14:00 Lunch: Follow the volunteers wearing Meeting T-shirts

Session 7: Motoneurons in ALS: (rest of the afternoon) – Chair: A. Nazlı Başak

14:00 – 14:20 A. Nazlı Başak, Boğaziçi University, Istanbul, Turkey
The distinct genetics of ALS in Turkey

14:20 – 14:40 Claire Meehan, University of Copenhagen, Denmark
What can we learn from the G127X mouse SOD1 mouse model of amyotrophic lateral sclerosis?

14:40 – 15:00 Baris Isak, Hatice Tankisi, Kirsten Pugdahl, Birger Johnsen, Nanna Brix Finnerup, Páll Karlsson, Jasna Furtula, Anders Fuglsang-Frederiksen; Aarhus University, Denmark

Sensory involvement in amyotrophic lateral sclerosis

15:00 – 15:20 M Hadzipasic, Yale School of Medicine, New Haven, USA

Loss of high frequency motoneuron output produces intraburst EMG variability in awake walking ALS mice

15:20 – 15:40 Afternoon tea, coffee, cakes

15:40 – 16:00 Marcin Bączyk, Paris Descartes University, CNRS, Paris, France

Monosynaptic excitatory inputs to spinal motoneurons are depressed in SOD1-G93A mice, model of amyotrophic lateral sclerosis

16:00 – 16:20 L. Martinez-Silva, CNRS / Univ. Paris Descartes, Paris, France

Excitability of adult spinal motor neurons in the fus-p525I model of amyotrophic lateral sclerosis (ALS)

16:20 – 16:40 Anton Filipchuk, Fanny Gaudel, Cécile Brocard, Sylvie Liabeuf, Jacques Durand, CNRS-AMU, Institute of Neurosciences Timone, Marseille, France

Early pathological signs in presymptomatic motoneurons in ALS transgenic mice

16:40 – 17:00 Vibhu Sahni, Sara J. Shnider, Denis Jabaudon, Janet Song, and Jeffrey D. Macklis, Geneva University Hospital, Geneva, Switzerland

Molecular development of corticospinal connectivity: Implications for organization of motor control circuitry and motor neuron disease

17:00 – 17:20 Pembe Hande Ozdinler, Northwestern University, Chicago, USA (*via Skype*)

Understanding the cellular and molecular basis of upper motor neuron vulnerability in ALS

Thursday 23 June 2016

08:00 – 09:00 Breakfast and Posters

Session 8: Neuromodulatory effects on motor output, from mechanisms to functional effects – Chair: Daniel Zytnicki

09:00 – 09:30 Randall K Powers, University of Washington, Seattle, USA

Distortion of motor commands by motoneuron pool properties

09:30 – 10:00 CJ Heckman, Northwestern University, Chicago, USA

Gain control in motoneurons, from cellular effects to system outputs

10:00 – 10:30 Christopher Thompson, Temple University, Philadelphia, USA

Post synaptic potentials across motoneuron populations in the cat

10:30 – 11:00 Morning tea, coffee, cakes

Session 9: Motoneurons and sports sciences - Chair: Inge Zijdewind

11:00 – 11:20 Krutki Piotr, Mrówczyński Włodzimierz, Bączyk Marcin, Łochyński Dawid, Celichowski Jan, Poznan University of Physical Education, Poland

Adaptations in electrophysiological properties of motoneurons after weight-lifting training in rats

11:20 – 11:40 Jan Celichowski, Dawid Łochyński, Dominik Kaczmarek, Włodzimierz Mrówczyński, Wojciech Warchoń, Joanna Majerczak, Janusz Karasiński, Michal Korostynski, Jerzy Zoladz, Poznań University of Physical Education, Poland and University School of Physical Education, Kraków, Poland

Contractile properties of motor units and expression of myosin heavy chain isoforms in rat fast muscle after weight-lifting training

Session 10: Motoneurons in Parkinson's disease and Cerebral Palsy - Chair: Claire Meehan

11:40 – 12:00 Jessica M. Wilson, Northwestern University, Chicago, USA

Facilitation of motoneuron excitability in Parkinson's disease

12:00 – 12:20 Katharina Quinlan, Alexander Drobyshvsky, Northwestern Feinberg School of Medicine; University of Chicago, Chicago, USA

Serotonin sensitivity of spinal motoneurons from hypoxia-ischemia rabbit model of cerebral palsy

12:20 – 12:40 Closing Ceremony, oral and poster presentation prizes

12:40 – 14:00 Lunch: Follow the volunteers wearing Meeting T-shirts

17:00 – 22:00 BOSPHORUS BOAT TOUR AND GALA DINNER

POSTERS

1. Mingchen C. Jiang and Charles J. Heckman Departments of Physiology, Physical Medicine and Rehabilitation and Physical Therapy and Human Movement Sciences, Northwestern University Feinberg School of Medicine, Chicago, USA **Spontaneous synaptic excitation in spinal motoneurons in an adult mouse model of amyotrophic lateral sclerosis**
2. Mamede de Carvalho, Peter M. Andersen, Julian Grosskreutz, Magdalena Kuźma-Kozakiewicz, Susanne Petri-Mals, Maria Piotrkiewicz, Teresa Podsiadły-Marczykowska, University of Lisbon, Portugal, Umeå University, Umeå, Sweden, University Hospital Jena, Germany, Medical University of Warsaw, Poland, Hannover Medical School, Hannover, Germany, Nalecz Institute of Biocybernetics and Biomedical Engineering, Warsaw, Poland
ONWebDUALS: the European project funded by national agencies under the patronage of Joint Programme – Neurodegenerative Disease Research (JPND)
3. Goltash S, Jakobsen MH, Lehnhoff J, Dimintyanova KP, Grøndahl LK, Meehan CF; Copenhagen University, Denmark
The effects of aging on spinal motoneurons in aged c57bl/6j mouse
4. Cengiz Tataroğlu, Adnan Menderes University, Aydın, Turkey
Long latency reflexes obtained from trapezius in patients with Parkinson's disease and cerebellar dysfunction
5. Hanna Drzymala-Celichowska, Piotr Krutki, Rositsa Raikova, Piotr Kaczmarek, Jan Celichowski; Poznan University of Physical Education and Poznań University of Technology, Poland; Institute of Biophysics and Biomedical Engineering, Bulgaria
Slow motor units of rat soleus muscle: Sex differences and force summation
6. Katarzyna Kryściak, Jakub Kryściak, Dawid Łochyński, Dominik Kaczmarek, Hanna Drzymala-Celichowska, Piotr Krutki, Jan Celichowski; Poznan University of Physical Education, Poland
Adaptation of motor units contractile properties to the treadmill endurance training
7. Gözde Koç, Serkan Uslu, Tunca Nüzket, Hilmi Uysal; Akdeniz University, Turkey
A comparison of motor unit size index and muscle strength in elite athletes
8. Ceren Tunca, Cemre Coşkun, Cemile Koçoğlu, Fulya Akçimen, Ersin Tan, A. Nazlı Başak; Boğaziçi University and Hacettepe University, Turkey
ERLIN1 mutations as a cause of slow progressive ALS in a large Turkish pedigree
9. Fulya Akçimen, Cemile Koçoğlu, Ceren Tunca, Mustafa Ertaş, Hacer Durmuş, Yeşim Parman, A. Nazlı Başak; Boğaziçi University and Istanbul University, Turkey
Exome sequencing coupled with homozygosity mapping is a powerful combination to unravel the genetics of recessively inherited neurological diseases

10. Lahut S, Gispert S, Ömür Ö, Pirkevi C, Tireli H, Başak AN, Oertel W, Auburger G; Boğaziçi University, Memorial Hospital and Haydarpaşa Numune Training and Research Hospital, Turkey; Goethe University and Philipps University, Germany
Blood RNA biomarkers in prodromal PARK4 and RBD show role of complexin-1 loss for risk of Parkinson's disease
11. Cemile Koçoğlu, Fulya Akçimen, Ceren Tunca, Gençer Genç, Semiha Kurt, Yeşim Parman, Derya Selçuk Demirel, Derya Kavram, A. Nazlı Başak; Boğaziçi University, Gümüşsuyu Military School, Gaziosmanpaşa University, Istanbul University, Şişli Etfal Hospital and Haydarpaşa Numune Training and Research Hospital, Turkey
Comparison of homozygosity mapping algorithms and application to recessive ataxias
12. Serkan Uslu, Tunca Nüzket, Can Özcan, Süha Yağcıoğlu, Murat Canpolat, Hilmi Uysal; Akdeniz University, Hacettepe University and Boğaziçi University, Turkey
Modified MUNIX algorithm for estimating T response and motor unit number in spasticity
13. Tunca Nüzket, Serkan Uslu, Can Özcan, Süha Yağcıoğlu, Murat Canpolat, Hilmi Uysal; Akdeniz University, Hacettepe University and Boğaziçi University, Turkey
Investigation of motor unit number and size index of rectus femoris muscle in cerebral spasticity
14. M. Görkem Özyurt, Heidi Haavik, Imran Khan Niazi, Kelly Holt, Oğuz Sebik, Gizem Yılmaz, Kemal S. Türker; Koç University, Turkey; New Zealand College of Chiropractic and Auckland University of Technology, New Zealand
Spinal manipulation increases maximum bite force in healthy individuals
15. Hamid Hamzeiy, Erşen Kavak, A. Nazlı Başak; Boğaziçi University and Genomize, Turkey
Local cohort and population-specific alternative allele frequencies help drastically reduce the number of false positive variants
16. Imran Khan Niazi, Kemal S. Türker, Stanley Flavel, Mat Kinget, Jens Duehr, Heidi Haavik; New Zealand College of Chiropractic and Auckland University of Technology, New Zealand; Aalborg University, Denmark; Koç University, Turkey; University of Tasmania, Australia
Changes in H-reflex and V-waves following spinal manipulation
17. Anderson S Oliveira, Imran K Niazi, Rasmus W Nedergaard, Kelly Holt, Heidi Haavik; Aalborg University, Denmark; New Zealand College of Chiropractic, New Zealand
Changes in cortico-muscular coherence while modulating force during isometric ramp contractions
18. İlhan Karacan, Muharrem Çidem, Mehmet Çidem, Oğuz Sebik, Mustafa Görkem Özyurt, Gizem Yılmaz, Kemal S. Türker; Bağcılar Training and Research Hospital and Koç University, Turkey
Whole-body vibration induces a short or long latency muscular reflex depending on vibration acceleration

19. İsmail Bayram, Özkan Güler, A. Ruhi Soylu, Hayri Ertan; Anadolu University, Ankara University and Hacettepe University, Turkey
Muscular activation strategies of six leg muscles on stable and unstable surface
20. Paulius Uginčius, Gizem Yılmaz, Oğuz Sebik, Kemal S Türker; Lithuanian University of Health Sciences, Lithuania; Koç University, Turkey
Reflex responses of the human masseter muscle to electrical lip stimulation
21. Kemal S Türker and Mehmet C. Kahya; Koç University, Turkey
The reflex circuitry originating from the cutaneous receptors of the hand to the first dorsal interosseous muscle
22. M.G. Özyurt, G. Yılmaz, M. Dursun, M. Shabsog, S. Savran, D. Erbil, O. Sebik, K.S. Türker; Koç University, Turkey
Investigating Renshaw cell circuitry in human neuromuscular system
23. Heidi Haavik, Imran Khan Niazi, Jens Duehr, Mat Kinget, Paulius Ugincius, Oğuz Sebik, Gizem Yılmaz, Muhammad Samran Navid, Kemal S. Türker; New Zealand College of Chiropractic, New Zealand; Koç University, Turkey; Aalborg University, Denmark
Chiropractic alters TMS induced I-wave excitability and cortical silent period duration
24. Giboin Louis-Solal, Amiri Ehsan, Bertschinger Raphael, Gruber Markus; University Konstanz, Germany; Tarbiat Modares University, Iran
Fifteen minutes of active recovery after an exhaustive endurance task enhances the recovery capacity of the CNS but not that of the muscle 24h later
25. Giboin Louis-Solal, Kramer Andreas, Thomas Hassa, Mircea Ariel Schoenfeld, Christian Dettmers, Gruber Markus; Universität Konstanz, Kliniken Schmieder, Leibniz-Institut für Neurobiologie, Otto-von-Guericke University Magdeburg, Germany
Learning to walk on a slack-line induces highly task-specific neural plasticity
26. Serdar Gözler, Head of the TMD Clinic, Dept.Of Prosthetics , Faculty of Dentistry, İstanbul Aydın University
Aggregating stimulus increases the activity in motoneurons causing spasm
27. Hans-Werner Weisskircher, Private Dental Practice, Igel, Germany
The sensitized motoneuron as a possible missing link in the development of myofascial trigger points?