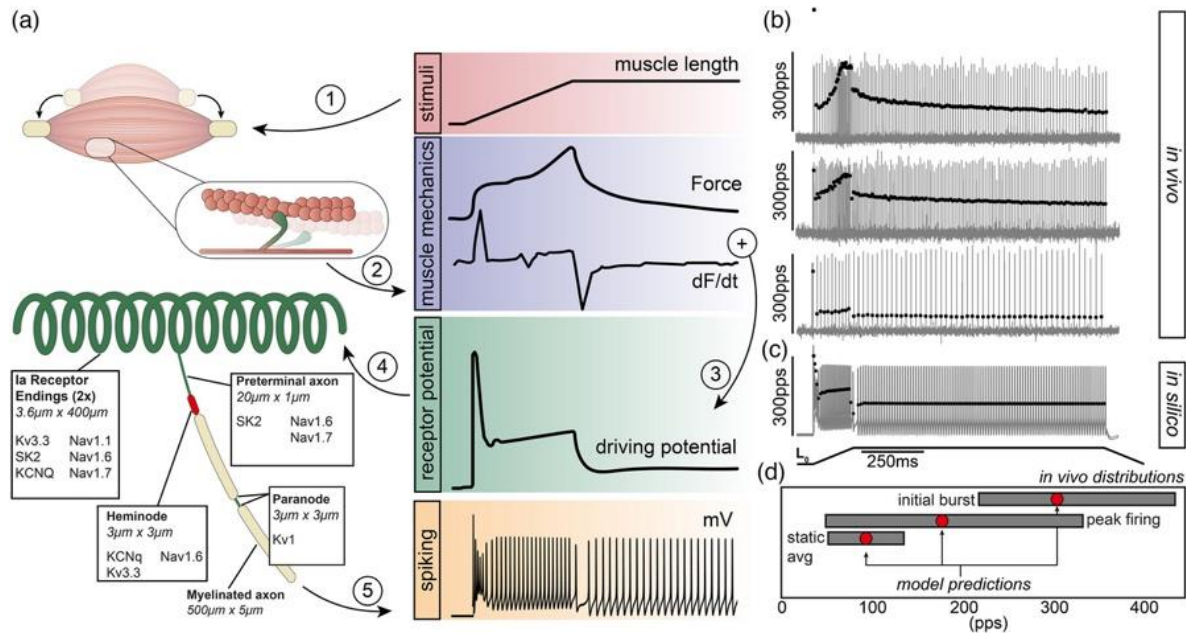


The 3rd Mechanotransduction, Muscle Spindles and Proprioception conference

Monash Prato Campus
Via Pugliesi 26, 59100 Prato, Italy
June 29–July 1, 2026

Experimental
Physiology



Housley SN, Powers RK, Nardelli P, Lee S, Blum K, Bewick GS, Banks RW, Cope TC. Biophysical model of muscle spindle encoding. *Exp Physiol.* 2024 109: 55-65



Image: Vaughan Macefield

Final Programme 010426

Monday AM, June 29

8:45-9:00

Bridgette Watkins & Vaughan Macefield

Welcome to the 3rd Conference

Session 1: Chair – Vaughan Macefield

9:00-10:00

Robert Banks

University of Durham, United Kingdom

Some properties of equatorial nuclear membranes

10:00-10:30

Stephan Kröger

Biomedical Center, Ludwig Maximilians University, Germany

3D electron microscopic reconstruction of the central region of a murine muscle spindle – a progress report

10:30-11:00

Coffee break

11:00-11:30

Qingyuan Guo

Weizmann Institute of Science, Israel

Ageing-associated functional, morphological and molecular changes in the muscle spindle

11:30-12:00

Anja Horn

Institute of Anatomy, Ludwig Maximilians University, Germany

Palisade endings in human extraocular muscles show unique features compared to non-human primates

12:00-12:30

Arzu Petersen

Center of Anatomy and Cell Biology, Medical University Vienna, Austria

Molecular properties of muscle spindles in extraocular muscles of humans

12:30-2:00

Lunch

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Monday PM, June 29

Session 2: Chair – Bridgette Watkins

2:00-2:30

Slav Bagriantsev

Department of Cellular and Molecular Physiology, Yale University, USA
Early origin of tactile acuity in the somatosensory system of vertebrates

2:30-3:00

Ellen Lumpkin

Division of Cell & Developmental Biology, University of Berkeley, USA
Feeling fascia-nated: Neural mechanisms of mechanosensation in deep tissues

3:00-3:30

Max Nagel

National Institutes of Health, USA
Hurt So Good - How force and tissue state shape deep-tissue mechanosensation

3:30-4:00

Coffee break

4:00-4:30

Chih-Cheng Chen

Institute of Biomedical Sciences, Academia Sinica, Taiwan
Acupuncture de-qi via tether-mode mechanotransduction

4:30-5:00

Guy Bewick

Institute of Medical Sciences, University of Aberdeen, UK
Further investigations into the role of Piezo2 in stretch-evoked responsiveness in mammalian muscle spindle afferents: a progress report

5:00-7:00

Welcome Reception

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Tuesday AM, June 30

Session 3: Chair – Véronique Marchand-Pauvert

9:00-10:00

Daniel Zytnicki

Université Paris Cité, CNRS, Saints-Pères Paris Institute for the Neurosciences,
France

Defective signalling from Ia spindle afferents to spinal motoneurons plays a key role in Amyotrophic Lateral Sclerosis

10:00-10:30

Katherine Wilkinson

School of Biological Sciences, San Jose State University, USA

Impaired muscle proprioceptor function in mouse models of two diseases that alter Piezo2 function – Angelman Syndrome and Distal Arthrogryposis subtype 5

10:30-11:00

Coffee break

11:00-11:30

Bridgette Watkins

Biomedical Center, Ludwig Maximilians University, Germany

Muscle spindle dysfunction in neuromuscular disease: a comparative analysis of Pompe Disease and Friedreich's Ataxia

11:30-12:00

Maria Roxana

Institute of Medical Sciences, University of Aberdeen, UK

Mitochondrial abundance in muscle spindle control

12:00-12:30

Lena Ting

Division of Physical Therapy, Emory University, USA

The muscle spindle system as a tunable feedback controller during locomotion

12:30-2:00

Lunch

Final Programme 010426

Tuesday PM, June 30

Session 4: Chair – Bob Banks

2:00-2:30

Turgay Akay

Brain Repair Center, Department of Neuroscience, Dalhousie University, Canada
Proprioceptive feedback: a key driver of homolateral leg coordination during locomotion

2:30-3:00

Kazuhiko Seki

National Institute of Neuroscience, Japan
Optogenetic manipulation of large-diameter primary afferent feedback during voluntary movement in nonhuman primates

3:00-3:30

Piotr Krutki

Department of Neurobiology, Poznan University of Physical Education, Poland
Exercise-induced plasticity of Ia proprioceptive input to spinal motoneurons

3:30-4:00

Coffee break

4:00-4:30

Alessandro Santuz

Max Delbrück Center, Germany
Proprioception drives the emergence of skipping in hypogravity through reuse of conserved locomotor modules

4:30-5:00

Vaughan Macefield

Department of Neuroscience, Monash University, Australia
Microelectrode recordings from muscle and cutaneous afferents in the human foot during walking

6:00-9:00

Conference Dinner

Final Programme 010426

Wednesday AM, July 1

Session 5: Chair – Guy Bewick

9:00-10:00

Véronique Marchand-Pauvert

Laboratoire d'Imagerie Biomédicale, Sorbonne Université, INSERM, CNRS, France
Afferent dysfunction and its contribution to network disorganization in Amyotrophic Lateral Sclerosis

10:00-10:30

Bavat Bornstein

Weizmann Institute of Science, Israel
Activity-dependent maintenance of proprioceptor morphology

10:30-11:00

Coffee break

11:00-11:30

Joriene De Nooij

Division of Translational Neurobiology, Columbia University, USA
Activity-dependent regulation of group Ia muscle spindle-afferent subtype identity

11:30-12:00

Mica Menks

Department of Human Movement Sciences, Vrije University Amsterdam, The Netherlands
Changes in muscle spindle morphology in response to joint immobilization

12:00-12:30

Jente Wiliart

Department of Human Movement Sciences, KU Leuven, Belgium
Altered muscle spindle responses in immobilised rats: investigating the interaction between muscle mechanics and spindle sensitivity

12:30-2:00

Lunch

Final Programme 010426

Wednesday PM, July 1

Session 6: Chair – Stephan Kröger

2:00-2:30

Gregorio Valdez

Department of Molecular Biology, Cell Biology & Biochemistry, Brown University, USA

Terminal Schwann Cells in skeletal muscle mechanoreceptors: Ajap1 as a specific marker and key regulator

2:30-3:00

Anat Abramov

Weizmann Institute of Science, Israel

Muscle Spindle Regeneration Following Glycerol-Induced Injury

3:00-3:30

Jacob Stephens

Department of Biomedical Engineering, Georgia Institute of Technology, USA

Decoding muscle state from proprioceptive population feedback

Session 7: Chair – Vaughan Macefield

3:30-3:15

Announcement of Prize Winners

3:45-4:00

Discussion on the 4th meeting

4:00

End of Conference & informal drinks at *Giardino Buonamici*