Tentative Schedule of 2025 NMD4C Summer School

Day 1: Introductions, Lectures and Networking

Time	Wednesday, May 7, 2025
8:15 – 8:45 am	Registration
8:45 – 9:00 am	Opening Remarks
9:00 - 10:10 am	Participants Flash Talks
10:10 - 10:30 am	COFFEE BREAK
10:30 - 11:00 am	Lecture: Patient partner
11:00 - 11:30 am	Lecture: Patient partner
11:30 am - 12:00 pm	Lecture – Lisa Hoffman *Tentative: Duchenne Muscular Dystrophy and the microenvironment*
12:00 - 1:30 pm	LUNCH
1:30 – 2:00 pm	Lecture – Anthony Scimé *Obesity epigenetically reprograms quiescent muscle stem cells to alter their fate decisions*
2:00 - 2:30 pm	Lecture: Tom Hawke *Tentative: How to publish. Thinking like an editor and a reviewer when writing about your research.*
2:30 – 3:00 pm	COFFEE BREAK Networking
3:00 - 3:30 pm	Lecture - Charles Kassardjian *Tentative: Medication Safety Without Evidence: Advancing Quality Improvement in Neuromuscular Care*
3:30 - 4:00 pm	Lecture - Jean-Philippe Leduc-Gaudet *Tentative: Histopathological Basis of Muscle in NMD*
4:00 - 4:30 pm	Lecture – Industry Talk Chris Rand - Aurora Scientific
4:30 - 4:45 pm	Closing remarks
6:00 - 9:00 pm	NETWORKING EVENT

DAY 2: Hands-On Full-Day Workshops

Option 1: Rodent Muscle Function Assessment Workshop

Option 2: Myofibre Isolation and Analysis Workshop

DAY 2 (Option 1): Tentative Schedule for Full-Day Rodent Muscle Function Assessment Workshop

Workshop Lead: Dr. Arthur Cheng

Aim: Skeletal muscle weakness is a hallmark of many neuromuscular diseases. This workshop is tailored for trainees working in research labs who study mouse models of neuromuscular diseases but may lack practical experience in assessing muscle function.

Participants will learn essential techniques to measure skeletal muscle contractile force, focusing on the muscle length-tension relationship and the force-frequency relationship. These techniques will be explored through:

1. In vivo assessments – directly in a living mouse.
2. In vitro analyses – using isolated hindlimb muscles.

By mastering these methods, you will gain the skills needed to evaluate the severity of muscle weakness in mouse models and to assess the impact of interventions such as pharmacological treatments, nutritional strategies, or exercise programs.

9:00 - 10:00 am	i) Introductions (classroom close to procedure room) ii) Fundamentals of muscle function assessments iii) Organize 12 students into groups of 4 per station for three stations
10:00 - 10:15 am	Break
10:15 am - 12:15 pm	**IN-VIVO MUSCLE FUNCTION** i) Demonstrate mouse anaesthesia and mouse placement ii) Demonstrate length-tension relationship and force-frequency assessment iii) **Student practice with length-tension relationship and force-frequency assessment** iv) Demonstrate fatigue assessment v) **Student practice with fatigue assessment** (procedure room)
12:15 - 1:15 pm	Lunch
1:15 - 2:15 pm	**IN-VITRO MUSCLE FUNCTION** i) Demonstrate in-vitro setup, dissection of soleus muscle, and mounting ii) **Student practice with dissecting and mounting muscle** (procedure room)
2:15 - 3:15 pm	i) Demonstrate force-frequency and fatigue assessment ii) **Student practice with force-frequency and fatigue assessment** (procedure room)
3:15 -3:30 pm	Break
3:30 - 4:00 pm	i) Debrief Q&A session (classroom close to procedure room) ii) Quiz
6:00 - 9:00 pm	NETWORKING EVENT

DAY 2 (Option 2): Tentative Schedule for Full-Day Myofibre Isolation and Analysis Workshop

Workshop Lead: Dr. Anthony Scimè

The myofibre isolation workshop will provide students with hands-on experience with the well-established method of analyzing adult muscle stem cells in their microenvironment on muscle myofibres. Participants will gain skills in appropriately dissecting and dissociating the extensor digitorum longus muscle for single myofibre isolation, followed by fixation and mounting techniques to allow for the assessment of muscle stem cell behaviour ex vivo. This workshop is ideal for trainees interested in using an innovative and advanced approach to study muscle stem cells from quiescence and activation, through to their fate decisions for self-renewal and commitment.

8:30 - 9:00 am	i) Introductions, organize participants (Total 20) into groups of 2 ii) presentation on the fiber culture protocol (classroom)
9:00 - 9:15 am	i) Prep fresh collagenase (procedure room)
9:15 - 10:15 am	i) Demonstrate EDL isolation (procedure room) ii) Practice iii) Place muscles in collagenase (aim for 9:30 am) iv) Agitate muscles (30 mins) and incubate v) Make Isobuffer and FCM (fresh)
10:15 - 10:30 am	Break
10:30 - 11:00 am	i) Place muscles in isobuffer (procedure room) ii) Demonstrate and practice making bore and hooked pipettes
11:00 - 11:15 am	Preview of next steps and demonstrate fibre isolation
11:15 am - 12:30 pm	Practice fiber isolation into 24-well plates with FCM (procedure room)
12:30 - 1:30 pm	Lunch
1:30 - 2:30 pm	i) Demonstrate and practice fixing fibers (procedure room) ii) Demonstrate and practice mounting fibers on slides
2:30 - 2:45 pm	Break
2:45 - 3:45 pm	i) Show short video on staining (classroom) ii) overview protocol iii) Quiz
6:00 - 9:00 pm	NETWORKING EVENT