



COST Action CA18139

# GEMSTONE

Genomics of Musculoskeletal  
Traits Translational Network

**GEMSTONE WG4:** Histomorphometry and MicroCT standard analyses in fish and rodents

**All face-to-face activities will be conducted at the Tel Aviv University, Sackler Faculty of  
Medicine**

## **Monday Oct 11:**

11:00-12:00 Introduction to the workshop and standardized 3D bone microtomographic morphometry in rodents. **Yankel Gabet – Israel**

12:00-12:30 BREAK/LUNCH

12:30-13:00 Using microCT for fish skeletal biology. **David Karasik/Chen Shohat – Israel**

13:00-14:00 Principles of dynamic histomorphometry: application to bone and growth plate mineralization and cellular dynamics in mice. **David Rowe – USA (virtual)**

14:00-14:30 BREAK

14:30-17:00 Training Histo Part 1 Sample preparation, cryo-preservation and sectioning of rodent bone **by Gabet's team** with remote support by **Dr Li Chen US–**

On-site attendees will be able to practice (hands-on). Others will be able to ask and participate interactively. Dr Li Chen and Prof David Rowe will attend remotely to answer questions, troubleshooting and tips.

Instructors on-site: **Ida Kreychman Israel (Gabet's lab) and Chen (Levaot's lab) Israel**



COST Action CA18139

# GEMSTONE

Genomics of Musculoskeletal  
Traits Translational Network

## Tuesday Oct 12:

12:00-12:45 Rodent MicroCT Part 1 – Biomechanics and imaging in MSK research – The importance of ROI definition. **Lecture: Yankel Gabet- Israel**

12:45-13:15 BREAK

13:15-14:15 Sample preparation, scanning settings and definition of ROI. **Lecture: Yankel Gabet-Israel**

**14:15-14:30 BREAK**

14:30-16:30 Hands-on using the Scanco microCT50 with multiple holder carousel **Yankel Gabet-Israel**

16:30-17:10 Break

17:10-18:00 Use of fluorescence-based cryohistology for assessing the dynamism of mineralized skeletal tissues: bone, growth plates, articular cartilage **David Rowe USA (virtual)**

## Wednesday Oct 13:

9:15-10:45: Imaging of bone Cells with a focus on Osteoclasts **Kent Soe Denmark-Denmark (Virtual)** Active determination of the size of bone-resorbing osteoclasts **Ari Elson-Israel**

10:45-12:00: Musculoskeletal disease: models **Erika Kague-UK (virtual)**, **Kathleen Curran-Ireland (virtual)**, **Katie Noonan-Ireland (virtual)**

12:00-13:45 BREAK

13:45-14:30: Harnessing protein protein interactions to make stronger bones **Noam Levaot - Israel**

14:30-15:00 BREAK

15:00-15:45: Screening KOMP mouse lines using  $\mu$ CT and cryohistomorphometry: Sensitivity vs Throughput **David Rowe - USA (virtual)**

15:45-17:30 – Histo Part 2: Sample staining and image acquisition

**Instructors on-site: Ida Kreychman (Gabet's lab) and Chen (Levaot's lab) Israel**



COST Action CA18139

# GEMSTONE

Genomics of Musculoskeletal  
Traits Translational Network

## Thursday Oct 14:

10:00-12:00: Lecture on Fish MicroCT and morphometry

12:00-13:00: BREAK

13:00-14:00: Analysis of histomorphometric images: Centralized computation, graphic interpretation, web portal publication **David Rowe USA virtual:**

14:00-16:00 - Hands-on, how to run image analysis for histomorphometry on the remote server, and understanding the histomorphometric data **Ida Kreychman (Gabet's lab) and Chen (Levaot's lab) Israel**

**Instructors:** David Rowe and Li Chen **USA virtual**

All attendees are encouraged to look at the video and detailed protocol for the cryo processing and sectioning BEFORE the workshop:

<https://www.jove.com/video/54468/high-throughput-multi-image-cryohistology-of-mineralized-tissues>

<https://www.sciencedirect.com/science/article/pii/S8756328217300765?via%3Dihub>