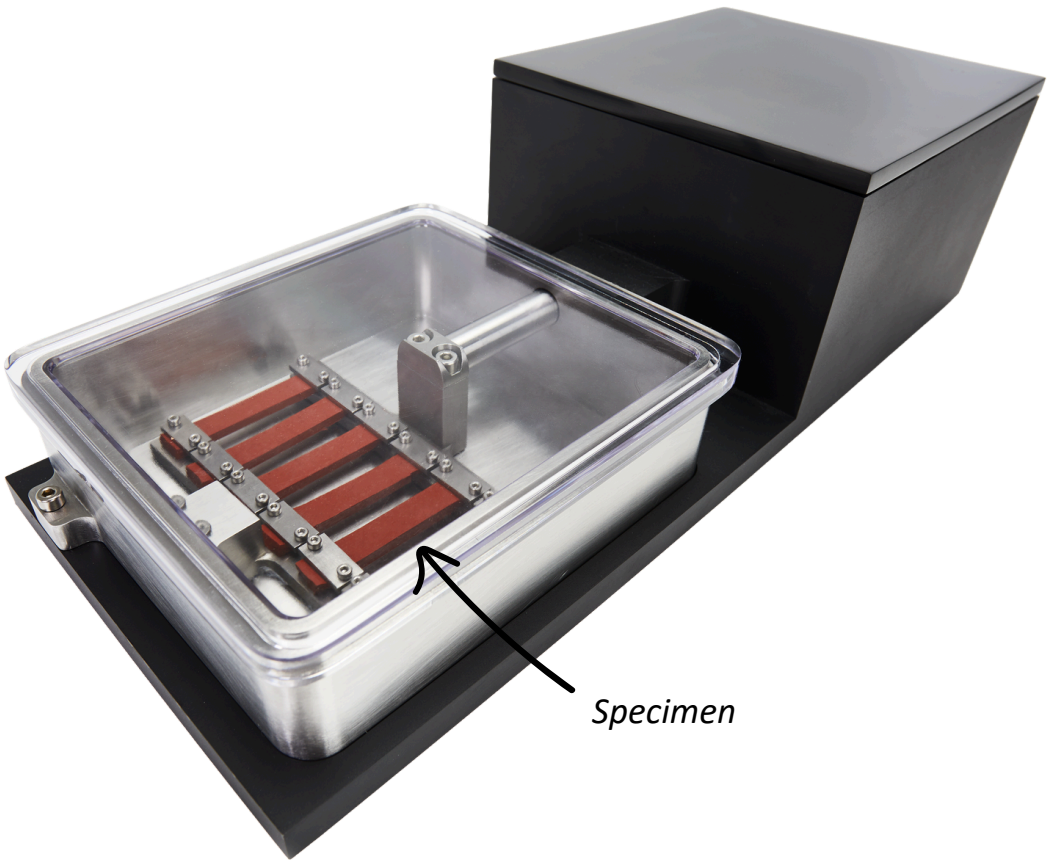
MechanoCulture T6

Tension Stimulation Bioreactor

Incubator-Ready
Tension Stimulation for Long-Term Culture

Up to 200 N Force
Uniaxial Stimulation

6 Separated Wells
Option For Media Control



Mechanobiology | Tension Stimulation | Tissue Engineering
Long-Term Culture | Biomaterials | High-Force Stimulation

Run programmable uniaxial stretch stimulation protocols on up to six clamp-mounted specimens while maintaining sterile, incubator-based culture conditions.

CellScale
biomaterials testing



How the MCT6 Works

The MCT6 is designed for tensile stimulation and conditioning of specimens in culture. Samples are mounted between screw-driven clamps in a reusable culture chamber, placed on the controller, and run inside the incubator using a saved stretch stimulation protocol. The system applies displacement-driven stretch through a shared actuation platform, enabling up to six specimens to be conditioned in parallel under the same programmed regimen.

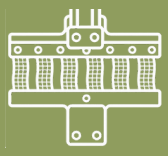
High-Force Clamp-Based Stretching

Screw-driven grips secure specimens at each end for stable uniaxial stretch stimulation. Grip spacing and pull rods can be configured to support a range of specimen sizes, materials, and gauge lengths.



PC-Independent Incubator Operation

Protocols are programmed on a PC and downloaded before the run, allowing the MCT6 to operate inside an incubator without an active computer connection during stimulation.



Parallel Tension Stimulation

Up to six specimens can be stimulated in parallel under a shared stretch protocol, supporting efficient cohort studies, replicate conditioning, and tissue engineering workflows.

Choose Your Model



Specification	Standard	6-Well
Specimen Capacity	Up to 6 specimens	Up to 6 specimens
Culture Format	Shared bath environment	6 individual wells/channels
Specimen Size	From 5 to 80 mm length	From 5 to 80 mm length
Loading Capacity	200 N	200 N
Grip Separation	Up to 80 mm	Up to 80 mm
Max Stretch	25 mm	25 mm
Max Velocity	20 mm/s	20 mm/s
Max Cycle Frequency	2 Hz	2 Hz
Common Uses	Tendon, ligament, musculoskeletal, and structural tissue constructs	Parallel cohorts requiring media separation or reduced sample cross-talk

Configure Your Workflow



Chamber Format:

Choose Standard or 6-Well format based on:

- Media sharing or isolation needs
- Construct format
- Culture workflow

Pull Rod Options:

Select pull rod options based on:

- Specimen gauge length
- Starting grip separation
- Target strain
- Construct format and alignment needs

Programmable Control:

Build customizable tension regimens with:

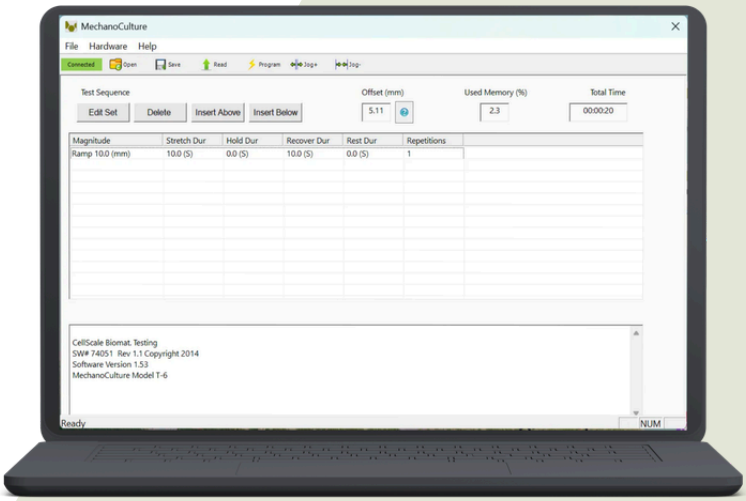
- Constant-velocity stretch patterns
- Cyclic stretch stimulation
- Stretch, hold, recovery, and rest phases
- Defined frequency, cycle count, and duty cycle

Study Design:

Use the parallel specimen format for:

- Replicate conditioning studies
- Cohort and treatment group comparisons
- Long-duration tissue engineering workflows
- Shared-regimen mechanotransduction studies

Protocol Documentation



Programmed stretch protocols provide a clear record of displacement magnitude, frequency, cycle count, rest periods, and total run duration for comparison across specimens, cohorts, and study time points.

Use protocol records to document uniaxial stretch dosing, repeat conditioning regimens, and relate mechanical stimulation history to downstream biological outcomes.

MCT6 Applications

Tissue Engineering and Soft Tissue Biomechanics

Use controlled uniaxial stretch stimulation in:

- tendon and ligament constructs
- musculoskeletal engineered tissues
- neural tissues
- cardiac and vascular tissue constructs
- cartilage and bone tissues

Biomaterials and Advanced Materials

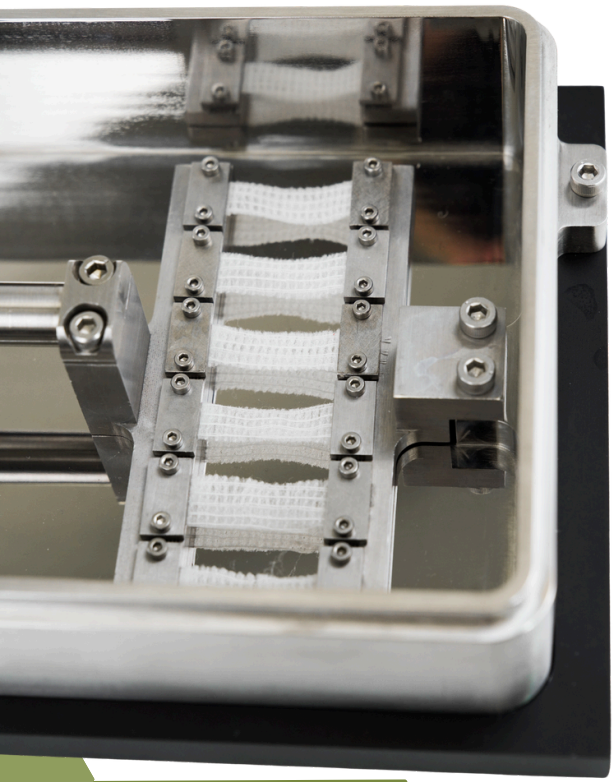
Study stretch-conditioned response and adaptation in:

- cell-laden hydrogels and scaffolds
- organ-on-a-chip and wearable bioelectronics
- electrospun materials
- ECM and decellularized matrices
- injectable and regenerative biomaterials

Mechanobiology and Remodeling

Compare biological response under controlled tension in:

- mechanotransduction studies
- fibrosis and tissue remodeling
- stem cell mechanobiology
- durability-oriented conditioning workflows



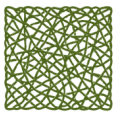
Common Sample Types



Tendon-Like Constructs



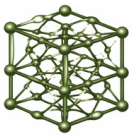
Hydrogels



Electrospun Mats



Membranes



Scaffolds



Neural Tissues

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Canada

Book A Demo!

Talk with our team about specimen type, grip geometry, chamber format, and the best MCT6 configuration for your research.