



SI-H OPT Muscle Research System

Mechanical and optical measurements in skinned and intact muscle fibers



- Mechanically stable platform for advanced muscle studies
- Complete turnkey system
- Modular design with multiple options to tailor the system to specific experimental requirements
- Data acquisition options available

The OPT research system is primarily designed for advanced optical measurements on

skinned muscle fibers under good mechanical control. The system has a greater mechanical stability and can be equipped with photometers, laser diode, linear motors and very sensitive force transducers. It can also be used for intact muscle studies. It is recommended that this system be placed on a vibration isolation table or platform.

Options for this system a linear motor (WPI #**MOTTEST**) for muscle length perturbation studies, a FLASH Photolysis unit (WPI #**RAPPFL**), a gradient maker (WPI #**GRDM**) for automated force-pCA studies and a laser diode for sarcomere spacing and sarcomere clamp studies (WPI #**SARCSC**).

For complete instrument control with your own data acquisition system and software, add the SI-H Motor Action Control Panel hardware (WPI #**MACP**). Or, add the SI-H integrated data acquisition and analysis package (WPI #**DAS/MuscleData**) to control the hardware and make data and optical recordings. Mechanical data can be combined with calcium and sarcomere measurements from the microscope system.



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Key Experiments

- Measure muscle ATP activity in thin muscle strips and single skeletal muscle cells. The time resolution of the ATPase determination depends on the muscle and is within 5-20 seconds.
- A linear motor (WPI #**MOTTEST**) with control units can be adapted to measure mechanical muscle properties like slack-test, isotonic release, constant velocity release, stretch release, vibration (sinusoidal analysis), eccentric and after-loaded contractions (intact muscle).
- A gradient maker (WPI #**GRDM**) can be added for automated force-pCA studies.
- Simultaneous measurement of the sarcomere length is possible by laser diode diffraction (WPI #**SARCSC**). This can also be combined with calcium measurements.

Accessories

- DAS** Data acquisition/analysis system that can control the stimulator and all length devices. Includes MuscleData software.
- RAPPFL** FLASH Photolysis
- FURA** Photomultiplier for the microscope to allow intracellular calcium studies
- GRDM** Gradient maker
- MACP** Motor Action Control Panel for motor control when using your own data acquisition system
- MOTTEST** Linear motor with power amplifier
- SARCSC** Laser based sarcomere spacing, manual
- SARCCAM** Laser-based sarcomere spacing with linear camera, electronic >250Hz

Complete SI-H systems are assembled from a large variety of custom components and made to order. Call our staff physiologist to discuss the many options for your experimental needs.