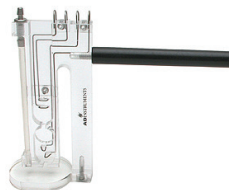


MLA013 Muscle Holder

Accessories Series

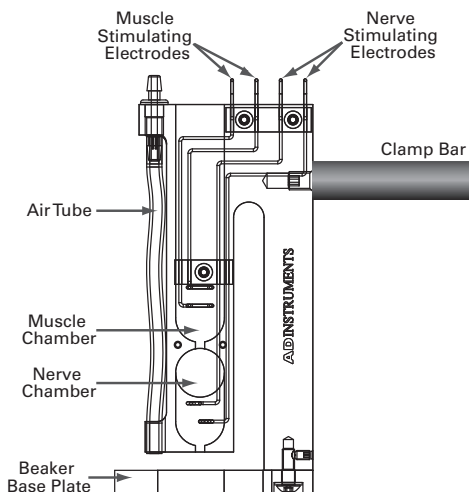
Description

The Muscle Holder is designed for the student classroom to investigate the properties of skeletal muscle. The holder consists of two chambers, two sets of paired electrodes and a bar for attaching the unit to a retort stand. The Muscle Holder can be used for sciatic-nerve muscle preparations.



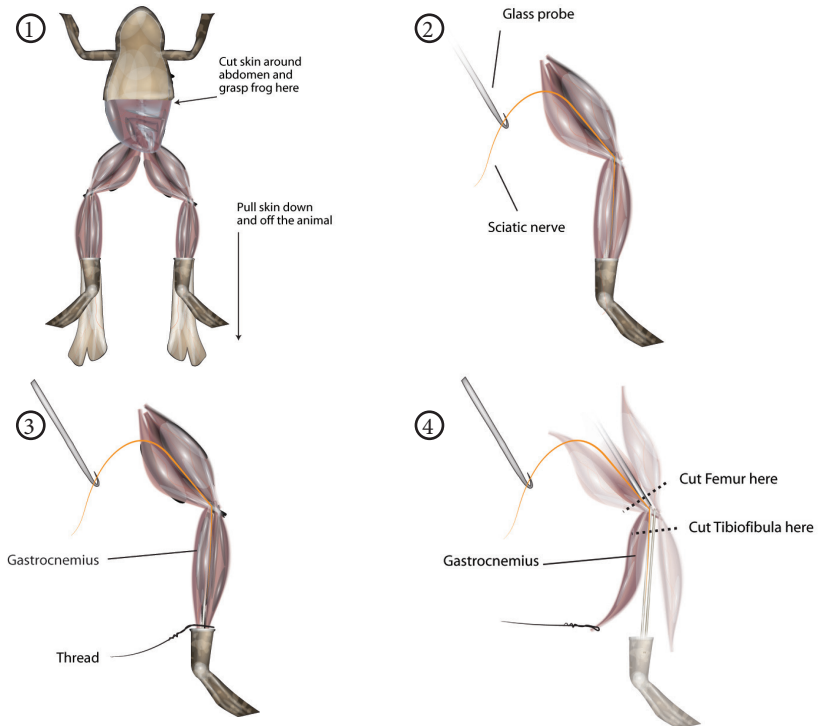
Features and Benefits

- The Upper muscle chamber contains two stainless steel electrodes which can be used to stimulate the muscle directly
- The Lower nerve chamber contains two stainless steel electrodes which are used to stimulate the muscle via the sciatic nerve
- The platform at the bottom of the holder can be used to suspend a beaker (150-200 ml) with solution. *It is recommended that the solution level should be below the stimulating electrodes in the lower chamber.*
- An air tube allows solution in the base of a beaker to be bubbled to create a humid environment for the tissue.
- A metal bar is supplied to attach the holder to a clamp on a retort stand.
- Two holes between the Muscle Chamber and Nerve Chamber allow a silk thread (not supplied) to be threaded, to restrain the specimen.



Muscle-Nerve preparation

The following is a guide for dissecting the gastrocnemius muscle and/or sciatic nerve from the frog or toad.



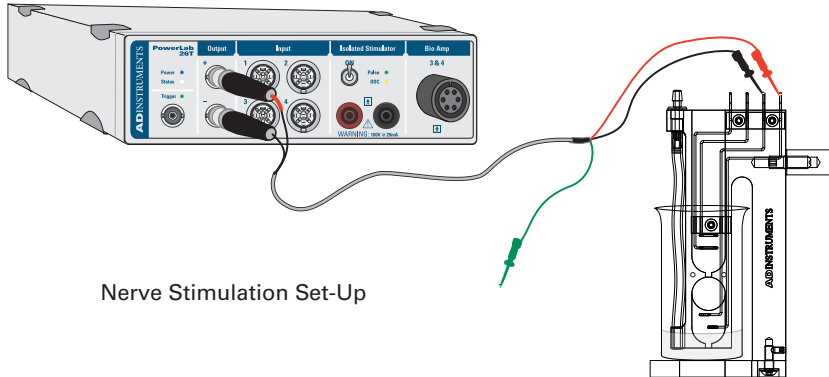
Muscle Preparation

Place the dissected gastrocnemius muscle in the upper chamber of the Muscle Holder with the cut Fibio-tibula placed through the groove between the upper and lower chambers. A silk thread may be threaded through the holes of the muscle holder to tie and prevent the knee from moving out of position. Another silk thread tied to the free end of the muscle is attached to a force transducer and micromanipulator above the Muscle Holder. Ensure that the body of the muscle is in contact with the electrodes if the experiments require direct stimulation of the muscle. Connect the Stimulator Cable to the BNC Output + and - of the PowerLab unit (Output 1 and 2 on some models). Micro-Hooks are then attached to the first pair of electrodes (closest to the air tube).

Nerve-Muscle Preparation

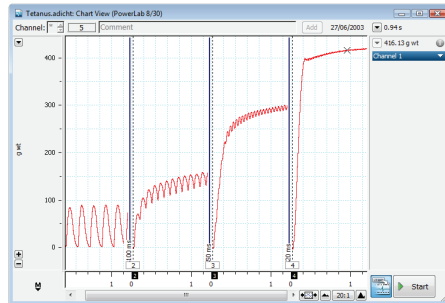
Place the muscle in the holder as described above. Carefully take the cut end of the nerve and place it around the electrodes in the lower chamber. Connect the Stimulator Cable to the BNC Output + and - of the PowerLab unit (Output 1 and 2 on some models). The Micro-Hooks are then attached to the pair of electrodes (closest to the clamp bar).

Typical Configuration



Nerve Stimulation Set-Up

Typical Data



Responses of the isolated gastrocnemius muscle to direct, continuous stimulation at different frequencies. Recorded using the MLT500/A Force Transducer (0-500 grams) and ML301 Bridge Pod.

Application

The MLA013 Muscle Holder is ideal for conducting experiments investigating the properties of skeletal muscle including:

- Graded response
- Effect of load on contraction
- Stimulation pulse frequency on contraction force
- Tetanus
- Muscle fatigue

Cleaning and Care

- The nerve chamber can be immersed and should be washed with warm water and rinsed with deionized water after use.
- Dry thoroughly
- Avoid cleaning with organic solvents.
- Do not immerse any of the cables.

Caution

Read “Statement of Intended Use” on our website or in “Getting Started with PowerLab” before use.

Specifications

Number of chambers	2
Number of electrodes:	2 pairs
Electrode material:	Medical grade stainless steel
Holder Material:	Clear perspex

All specifications were tested at the time of printing and are subject to change.

Ordering Information

MLA013 Muscle Holder

Can be used with:

MLA270 Stimulator Cable (BNC to Micro-Hooks)

MLA250 Stimulator Cable (BNC to Alligator Clips)

MLA40 Manipulator and Stand

MLTF500/ST Teaching Force Transducer (0 - 500 g)