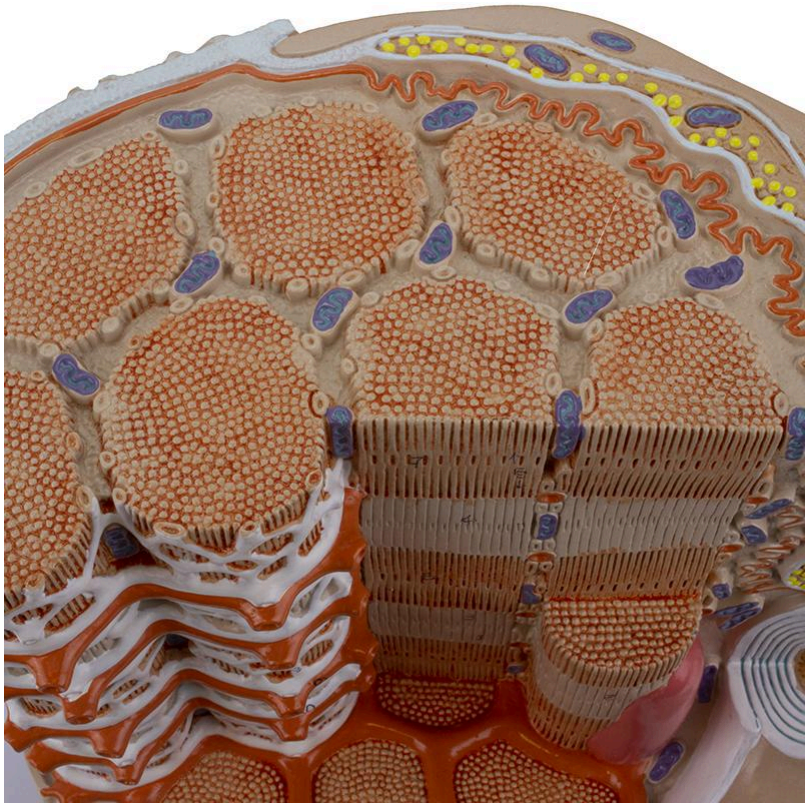
MG35050 | MICRO ANATOMY OF HUMAN MUSCLE FIBERS, 10,000 ENLARGED

Nasco
HEALTHCARE



This anatomical model represents a section of skeletal muscle fiber with a motor endplate, magnified approximately 10,000 times. It demonstrates in detail the microanatomy of the muscle fiber, including its main structures and the neuromuscular junction. The model is mounted on a polymer base and features hand-numbered and painted structures for easy identification.

Applications:

Ideal for the study and teaching of muscle anatomy and physiology, especially the neuromuscular junction. Suitable for training in educational institutions, laboratories, and hospitals. Used for demonstrations and understanding the microscopic structure of skeletal muscle.

Technical Advantages:

* Detailed representation of the microanatomy of the muscle fiber and motor endplate.
* Hand-numbered and painted structures for easy identification.
* Produced with high-quality resin, approved in toxicological tests.
* High-fidelity natural molding.
* Includes an information card with related structures.
* Made of a resistant and durable synthetic material.

3D Technology and Augmented Reality:

Our anatomical models offer a visual complement through information cards that activate 3D models viewable in augmented reality (AR). This interactive platform aids learning, allowing for comparative analysis of anatomical structures and offering resources for continuing education in anatomy, physiology, and pathophysiology.

Technical Specifications:

* Scale: 10,000x
* Material: Synthetic resin
* Interactive 3D model included

Main Structures:

Thick Filament: Primarily composed of the myosin protein, it has globular heads that project, responsible for interaction with thin filaments and force generation during muscle contraction.

Thin Filament: Composed mainly of actin, tropomyosin, and troponin, these filaments slide over the thick filaments during muscle contraction, shortening the sarcomere.

I Band: Light region of the sarcomere, composed only of thin actin filaments. Disappears during maximum muscle contraction.

A Band: Dark region of the sarcomere, corresponding to the total length of the thick myosin filaments. Maintains its size during muscle contraction.

Terminal Cisterna: Dilations of the sarcoplasmic reticulum that store calcium, essential for the process of muscle contraction.

Longitudinal Tubule: Part of the sarcoplasmic reticulum that surrounds the myofibrils, regulating calcium release.

Z Line: Line of proteins that connect the thin actin filaments of adjacent sarcomeres, defining the limits of the sarcomere.

H Band: Central region of the A band, containing only thick myosin filaments. Decreases in size during muscle contraction.

M Line: Protein structure in the center of the H band, which connects the thick myosin filaments.

Synapse: Neuromuscular junction, where the motor neuron communicates with the muscle fiber, transmitting the nerve impulse that initiates muscle contraction. Includes the presynaptic membrane, the synaptic cleft, and the postsynaptic membrane.

Other structures can be verified directly on the physical piece or on the interactive 3D model.

About the Anatomical Models:

They are developed with resin replication technology, offering an alternative for teaching and research. They present the essential morphological characteristics with a good cost-benefit ratio, resistance, hand painting, and numbering for precise identification of structures.

List of all visible structures:

- Thick filament
- Thin filament
- I band

- A band
- Terminal cisterna
- Longitudinal tubule
- Z line
- H band
- M line
- Synapse
- Mitochondrion
- Transverse tubule
- Myofibril
- Mitochondrion
- Basal lamina
- Sarcoplasmic reticulum
- Transverse tubule
- Triad
- Sarcolemma
- Postsynaptic membrane
- Mitochondrion
- Synaptic cleft with basal lamina
- Schwann cell
- Actin and myosin filaments
- Neurofibers
- Myelin sheath
- Nucleus
- Schwann cell
- Basal lamina
- Reticular fibers