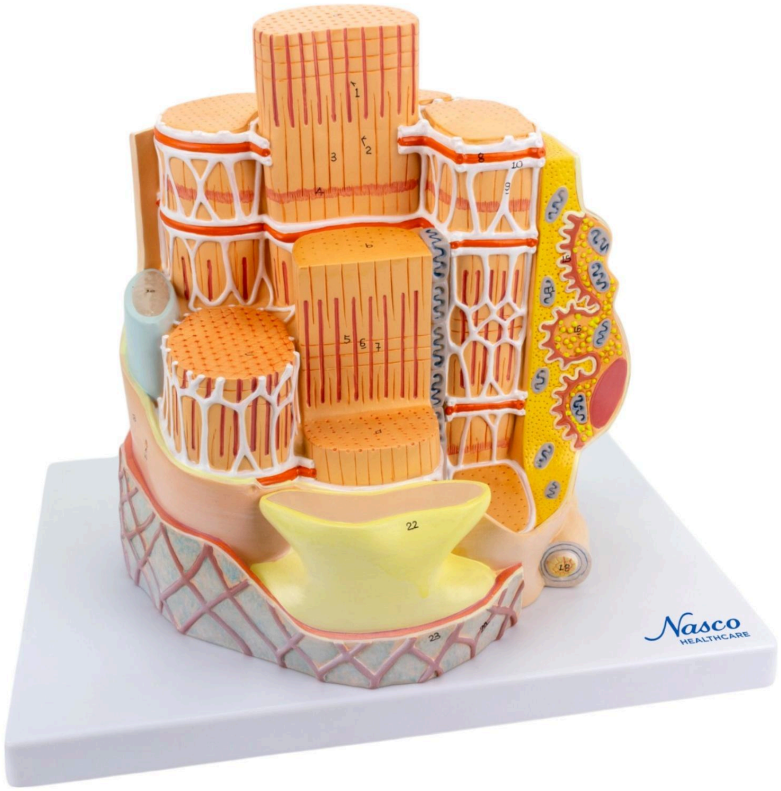
MG23414 | MICRO ANATOMY HUMAN SKELETAL MUSCLE FIBER

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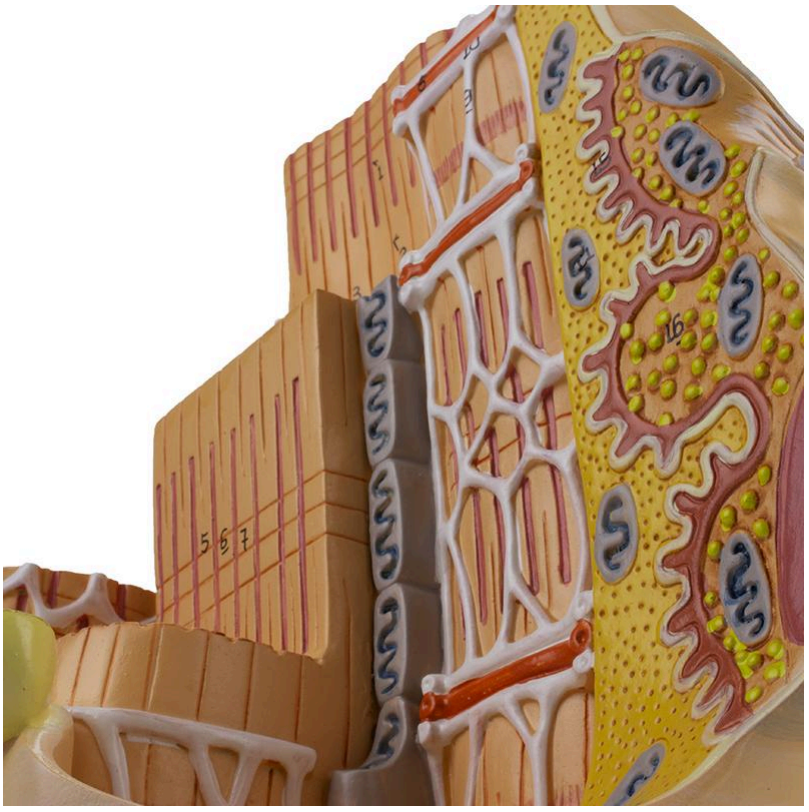

Anatomical model of the Micro Anatomy of the Skeletal Muscle Fiber, magnified 40,000 times, representing in detail the structure of skeletal muscle fibers, including sarcomeres with sarcoplasmic reticulum, myofibrils (myosin and actin) and the neuromuscular junction. The model is mounted on a polymer base with a metal support and rod, and features markings and references to facilitate the identification of structures.

Applications:

Ideal for the study of anatomy in schools and universities; surgical dissection training; patient explanations; medical and scientific information; patient education and procedure demonstration; muscle practice and study.

Technical Advantages:

* High didactic level;
* Precise details to facilitate learning anatomy;
* Resin approved in toxicological tests;
* High quality natural molding;

* Manufactured from stable and resistant synthetic material;
* Original replicas;
* Includes interactive 3D anatomical model with augmented reality.

3D Technology and Augmented Reality:

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

Technical Specifications:

* Scale: 40,000 times natural size
* Material: Synthetic resin

Main Structures:

Thick filament: Mainly composed of the myosin protein, the thick filament is an essential structure in muscle contraction. Its rod-like arrangement, with globular heads projecting laterally, allows interaction with thin filaments during contraction.

Thin filament: Composed mainly of the actin protein, along with tropomyosin and troponin, the thin filament is fundamental for muscle contraction. The interaction between myosin (thick filament) and actin (thin filament) generates the force necessary for muscle movement.

I band: Region of the sarcomere composed only of thin filaments, appearing light under the microscope. The I band is bisected by the Z line.

Z line: Protein structure that connects the thin filaments of adjacent sarcomeres, acting as an anchoring point for actin and contributing to the structural organization of the muscle fiber.

Transverse tubule (T-tubule): Invaginations of the plasma membrane that extend transversely across the muscle fiber, allowing rapid conduction of the action potential into the muscle cell, triggering the release of calcium from the sarcoplasmic reticulum.

Terminal cisternae: Dilations of the sarcoplasmic reticulum that are in close contact with the T-tubules, forming triads (two terminal sacs and one T-tubule). These cisternae are responsible for the storage and release of calcium ions, essential for muscle contraction.

Longitudinal tubule (sarcoplasmic reticulum): Network of membranous tubules surrounding the myofibrils, involved in the storage and release of calcium ions, crucial for the process of muscle contraction and relaxation.

Synapse (motor end plate): Site of communication between the motor neuron and the muscle fiber, where the release of acetylcholine triggers the action potential in the muscle fiber, initiating the contraction process.

Vesicle: Small membranous structures present in the axon terminals, responsible for the storage and release of neurotransmitters, such as acetylcholine, at the neuromuscular junction.

M line: Protein structure located in the center of the A band, which connects the thick filaments, contributing to the organization and stability of the sarcomere structure. 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, supplying the scarcity of natural anatomical parts for teaching and research. They present all the essential morphological characteristics with excellent cost-benefit, resistance, manual painting and numbering for precise identification of structures.

Acquire your anatomical model and provide an innovative and interactive learning experience at your institution. Contact us to

List of all visible structures:

- thick filament
- thin filament
- I band
- Z line
- transverse tubule
- terminal cisternae
- longitudinal tubule
- synapse
- vesicle
- M line
- H band
- A band
- satellite cell

- cross section of skeletal muscle fiber at the level of A band
- cross section of skeletal muscle fiber at the level of M line
- cross section of skeletal muscle fiber at the level of I band
- cross section of skeletal muscle fiber at the level of H band
- nucleus
- cell membrane
- transverse tubule opening
- basal membrane
- collagen fibril
- neurofibril
- motor end plate
- axon
- myelin sheath
- Schwann cell