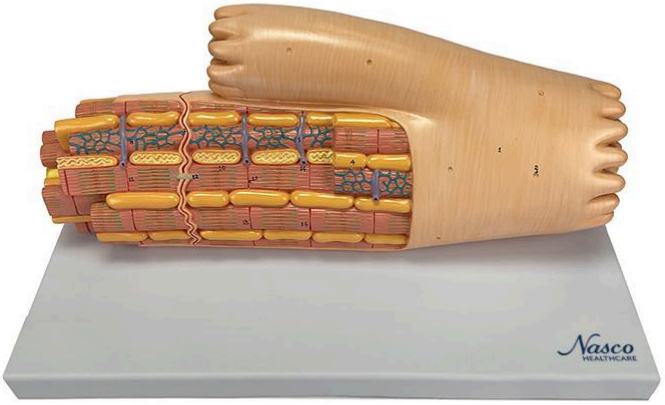
MG34954 | MICRO ANATOMY HUMAN CARDIAC MUSCLE



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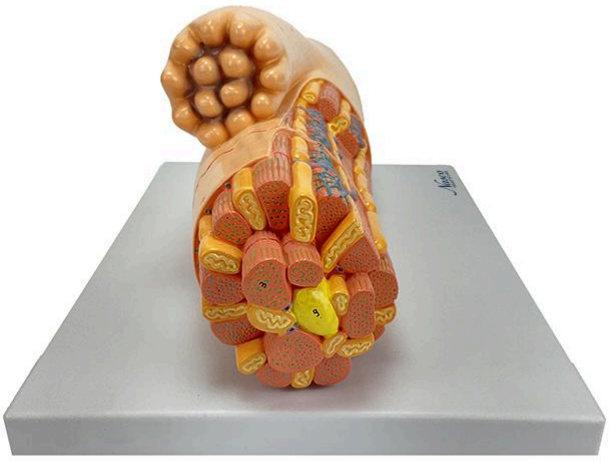

Anatomical model of Cardiac Muscle Fiber Microanatomy, representing an enlarged cardiac muscle fiber, with details of structures such as intercalated discs, sarcolemma, T-tubules, myofilaments, nucleus, and mitochondria. The model is mounted on a polymer base and comes with references and markings, allowing for a detailed study of cardiac anatomy.

Applications:

Ideal for the study of cardiac muscle microanatomy in anatomy, physiology, and related courses. Indicated for training and demonstration in educational institutions, laboratories, and medical offices. Used as a support tool for learning and understanding the structure and function of the heart.

Technical Differentiators:

* Detailed representation of the cardiac muscle fiber.
* High-precision natural molding.
* Manufactured from stable synthetic material and resin approved in toxicological tests.
* Numbered and hand-painted for easy identification of structures.
* Includes an information card with related structures.
* Replicas with high anatomical fidelity.

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:

* Material: Synthetic resin.
* Scale: Enlarged.
* Includes polymer base.

Main Structures:

sarcolemma: Plasma membrane that surrounds the cardiac muscle fiber, regulating what enters and leaves the cell and maintaining the structural integrity of the fiber.

T-tubule orifice: Microscopic openings in the sarcolemma membrane that allow the entry of calcium ions for muscle contraction, connecting the plasma membrane to the sarcoplasmic reticulum.

mitochondria: Organelles responsible for the production of energy (ATP) for muscle contraction, abundant in cardiac fibers due to high energy demand.

transverse tubule (T-tubule): Invaginations of the plasma membrane that penetrate deeply into the muscle fiber, allowing for rapid distribution of the contraction signal.

sarcoplasmic reticulum: Network of intracellular tubules and cisternae that stores and releases calcium ions, essential for muscle contraction.

M-band: Region of the A-band, located in the mid-line of the sarcomere, that contains linking proteins and is important for the organization of thick filaments.

Z-line: Transverse protein line that separates the sarcomeres and serves as an anchoring point for the thin actin filaments.

thick myofilament: Filament composed mainly of the myosin protein, which binds to actin to generate the force of contraction.

I-band (light band): Region of the sarcomere composed mainly of thin actin filaments, appearing lighter under the microscope due to its lower density.

A-band (dark band): Region of the sarcomere that contains both thin and thick filaments, appearing darker under the microscope due to its higher density.

cross-bridge: Projections of myosin that bind to actin during muscle contraction, generating the force necessary for movement.

thin myofilament: Filament composed mainly of the actin protein, which interacts with myosin to generate the force of contraction. Also contains the proteins tropomyosin and troponin.

intercalated disc: Specialized junctions between cardiac muscle cells, allowing electrical and mechanical communication between them. Essential for the coordinated contraction of the heart.

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

About the Anatomical Models:

They are developed with resin replication technology, meeting the demand for anatomical pieces for teaching and research. They present the essential morphological characteristics with excellent cost-benefit, good resistance, hand painting, and numbering for precise identification of structures.

List of all visible structures:

- sarcolemma
- t-tubule opening
- mitochondria
- transverse tubule
- sarcoplasmic reticulum
- m-band
- z-line
- thick filament
- i-band (light band)
- a-band (dark band)
- cross bridge
- thin filament
- intercalated disc
- cardiac muscle

- filament field
- nucleus