MG29879 | CORPUSCLE OF KIDNEY WITH PATOLOGY, 300 TIMES ENLARGED

Nasco
HEALTHCARE

Anatomical Model of a Nephron with Pathology, 300 times enlarged, showing sections of healthy and pathological renal corpuscles, mounted on a polymer base. The model demonstrates in detail the structures of the nephron, including the glomerulus, Bowman's capsule, proximal and distal convoluted tubules, and the juxtaglomerular apparatus, in addition to presenting a renal corpuscle with pathologies such as arteriosclerosis and changes in vascular caliber.

Applications:

Ideal for the study of anatomy in schools and universities; support tool for training medical professionals; aid in medical and scientific information demonstrations.

Technical Characteristics:

* Resin approved in toxicological tests;
* High-precision natural molding;
* Manufactured from stable synthetic material;
* Precise replicas;
* Hand-painted;
* Includes information card with related structures;

* Polymer base with support;
* Includes references and markings.

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 assists learning, allowing for comparative analysis of anatomical structures and offering resources for continuing education in anatomy, physiology, and pathophysiology.

Technical Specifications:

* Scale: 300x
* Material: Synthetic Resin

Main Structures:

Macula densa: Specialized region of the distal convoluted tubule, located in the final part of the nephron, near the vascular pole of the renal corpuscle. Its cells detect changes in sodium concentration in the glomerular filtrate, influencing the release of renin by the juxtaglomerular cells and, consequently, regulating blood pressure.

Extraglomerular Mesangial Cells: Modified smooth muscle cells located outside the glomerulus, near the juxtaglomerular apparatus. They are believed to play a role in regulating glomerular blood flow, although their precise function is not yet fully elucidated.

Distal Tubule: Segment of the nephron located after the loop of Henle. It is responsible for the reabsorption of sodium, calcium, and water, as well as the secretion of hydrogen and potassium ions, contributing to the regulation of acid-base and electrolyte balance.

Afferent Arteriole: Blood vessel that carries blood to the renal glomerulus. Its diameter regulation directly influences glomerular filtration pressure.

Efferent Arteriole: Blood vessel that drains blood from the glomerulus. The diameter of the efferent arteriole also influences glomerular filtration pressure.

Juxtaglomerular Cells: Modified smooth muscle cells located in the walls of the afferent arteriole, near the macula densa. These cells synthesize and release renin, an enzyme crucial for blood pressure regulation.

Bowman's Capsule (parietal and visceral layer): Cup-shaped structure that surrounds the glomerulus. The parietal layer is the outer layer, while the visceral layer is formed by podocytes that interdigitate to create filters with filtration slits.

Bowman's Space: Space between the parietal and visceral layers of Bowman's capsule, where the glomerular filtrate is collected.

Urinary Pole: Region of Bowman's capsule where the proximal convoluted tubule originates.

Proximal Convoluted Tubule: Segment of the nephron that follows Bowman's capsule. It is responsible for the reabsorption of most of the glomerular filtrate, including water, glucose, amino acids, and ions.

Healthy Renal Corpuscle: Representation of the renal corpuscle under normal physiological conditions, showing the intact structure of the glomerulus, Bowman's capsule, and its vascular relationships.

Renal Corpuscle with Pathology: Representation of the renal corpuscle showing pathological changes, such as arteriosclerosis in the afferent arteriole and changes in vascular caliber, indicating impairment in glomerular filtration. Other structures can be verified directly on the physical piece or on the interactive 3D model.

About Anatomical Models:

They are developed with resin replication technology, offering an alternative for teaching and research in situations where the availability of natural anatomical specimens is limited. 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:

- Healthy Glomerulus - Shows the anatomy of the healthy glomerulus.
- Glomerular Pathologies - Describes the most important glomerular pathologies due to hypertension.
- - Arteriosclerosis of the afferent arteriole.
- - Changes in vascular caliber.
- - Changes in endotheliocyte.
- - Consequent increase in plasma proteins in the urine.