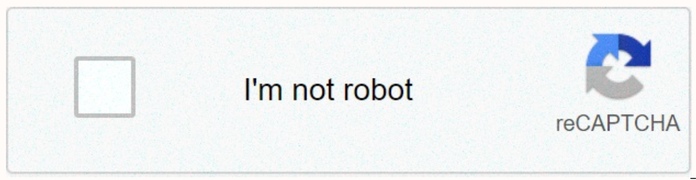


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# Transitional epithelial tissue function and location

The transitional epithelium is a stratified tissue made of a multicellular layer, where the cells that make up the tissue can change depending on the swelling in the organ. When the organ is filled with fluid, the cells of the top layer of this epithelium can stretch and appear flat. Alternatively, they can also appear cuboid with a rounded shape, when the pressure of the liquid is low. This epithelium is located lining of the bladder, ureters and urethra, as well as in the ducts of the prostate gland. The image shows a cross-section of the bladder with a built-in indication of the histology of the epithelium, the main connective tissue (lamina propria) and submucosis. Due to its location in the urinary system, especially in the ureter and bladder, one of the main functions of this tissue is to be an extremely effective barrier to permeability, impervable to water and most small molecules. The cells of this tissue are probably among the most resistant to osmotic pressure. Urine is hypertensive with a much higher concentration of a very dissolved substance compared to the cytoplasm of epithelial cells. Still, these cells are protected from drying even when the epithelium is completely stretched. Toxic waste can also not re-enter the bloodstream. The second important function of these cells is to allow the organ to stretch and increase its volume depending on the pressure of the liquid. For example, when there is a lot of water that needs to be excluded from the body, a large amount of fluid passes through the ureters, bladder and urethra. The ability of cells in the surface layer of this epithelium to change shape (transition from a rounded form of cuboid to flat squamous structure) allows these organs to spread without exposing the main tissue of toxic substances in the urine. This image shows the presence of rounded cells on the apical surface, suggesting that the fabric is not stretched. The transitional epithelium is made of 3-4 layers of cells with the lower or basal layer, which is in contact with the main membrane. The cells of this basal layer are attached to lamina propria by tonfilaments and hemi-desmosomes. They are among the least differentiated cells in this tissue and support the remaining cells. Cells in the intermediate layers are proliferative and can fill cells lost due to wear or infection. They also have a huge Golgi network that contains a number of membrane vesicles. The surface layer of cells can change from being paired to appear flattened when the organ is stretched and contains a number of actin-based cytoplasmic projections known as microvilli. The two-dimensional network of hexamer plates covers the apical plasma membrane of these cells. These plaques are made from a protein called uroplakin and are an important feature of this water, ammonia, urea and many other urine dissolves. They are also likely to be involved in the ability of these cells to get in shape. All cells of this epithelium are deeply connected to each other by connective complexes. Connecting complexes are symmetrical attachments between two cells, usually made of three components: a strip of narrow knots on the apical surface, followed by an intermediate series of bats and basal-located desmosomes. Together, these multiprotein complexes hold the cells of the epithelium together and present a continuous surface of the lumen of the organ. Transient epithelium are most common in the urinary and male reproductive tracts in humans. These are regions where the volume and osmolarity of the organ can

change rapidly. In the urinary system, the volume and concentration of the dissolved substance in the urine depends on a number of factors. Similarly, the prostate urethra in the male reproductive system is lined by a transitional epithelium continuous with the epithelium of the bladder. This is the most dilated part of the urethra, expanding or shrinking depending on the flow of urine or semen. The bladder is an organ that is designed to hold much of the body's toxic liquid waste before it is expelled from the body. When completely stretched, the bladder can hold nearly 500 ml of urine, making it an organ that has drastic changes in volume in a short timeframe. While three layers of muscle fibers contribute to the bloating and contraction of the organ, the transient epithelium is also crucial. Connective complexes and uroplakin plaques of surface cells protect the body from the effects of storage of urea, ammonia and other metabolites in the bladder. In addition, it is said that plaques help the apical cell regulate the surface of their plasma membrane. For example, when the bladder is stretched, there is an increase in the membrane area, possibly by merging vesicles from the Golgi network. An image shows a cross-section of the bladder wall, with flat surface cells in the transitional epithelium. Also shown submucosis and three layers of muscle fibers. Attached node intersections – Protein complexes, which form part of cell adhesions, which include actin cytoskeleton. They lie basally at narrow intersections and can surround the cage. Also known as zonula. Desmosomes – Spot-like adhesions between two cells made of caderheni proteins that allow cells in one tissue to resist shear forces. Also known as macula bats. Lamina propria – A thin layer of connective tissue, which lies under an epithelium, making up one part of the mucous membrane. The mucous membrane makes various cavities in the body and bypasses the organs. Tonofibrily – Intermediate filaments made of keratin, which converge in attaching the cell to other cells or the extracellular matrix. 1. Which of these refer to the transitional epithelium? A. This is epithelium B. Cells of the basal layer are connected to lamina propria by desmosomes C. Cells on the surface of the apical contain multiple projections on their plasma membrane made of microtubules called microvilli D. Cells on the surface of the apical contain plaques on their plasma membrane made of a carbohydrate called uroplakine. And it's true. Transient epithelium are made of multiple cell layers and are therefore classified as stratified epithelium. The cells of the basal layer are attached to the connective tissue under (lamina propria) by hemi-desmosomes. Desmosomes are involved only in connecting two cells to each other. The cells on the surface of the apical contain microvili. However, microvilli are made of actin microfilament, not microtubules. Microtubules contribute to the formation of the cilia. And while the cells on the apical surface contain plasma membrane plaques derived from uroplakine, it is a protein, not a carbohydrate, that changes the property of the membrane, and makes it particularly impermeable to osmotic pressure. The human body consists of four types of tissue: epithelial, connective, muscular and nervous. Epithelial tissue covers the body, lines all cavities, and composes the glands. Describe the main functions and characteristics of epithelial tissue Key Takeaways Key points Epithelial tissue consists of cells laid together in sheets with the cells closely related to each other. The epithelial layers are avascuic, but inert. Epithelial cells have two surfaces that differ in structure and function. Glands, such as exocrine and endocrine, consist of epithelial tissue and classified based on how their secretions are excreted. Key epithelium terms: Membrane tissue composed of one or more layers of cells that form the covering of most internal and external surfaces of the body and its organs. Angousic: Absence of blood vessels. containing blood vessels. Epithelial tissues form boundaries between different environments, and almost all substances must pass through the epithelium. In its role as an interface tissue, the epithelium performs many functions, including: Protecting the underlying tissues from radiation, drying, toxins and physical traumas. Absorption of substances in the mucous membrane of the digestive tract with various modifications. Regulation and excretion of chemicals between the underlying tissues and the body cavity. Secretion of hormones in the blood vascular system. Secretion of sweat, mucus, enzymes and other products that are delivered through ducts come from glandular epithelium. Detection of sensation. Features of epithelial layers Epithelial tissue consists of cells cool down in sheets with strong attachment to cells. These protein bonds hold the cells together to form a tightly bound layer that is avascular but inert in nature. Epithelial cells are nourished by substances diffused by blood vessels in the main connective tissue. One side of epithelial cells is oriented to the surface of the tissue, body cavity or external environment, and the other surface binds to the membrane of the basement. Basement layer is non-cellular in nature and helps to cement the epithelial tissues of the main structures. Types of epithelial tissue Epithelial tissues are identified both by the number of layers and the shape of cells in the upper layers. There are eight main types of epithelium: six of them are identified based on the number of cells and their shape; two of them are indicated by the type of cell (squamous cell) in them. Epithelial tissue is classified based on the number of cells, the shape of these cells, and the types of these cells. Epithelial cells locations Function Simple squamous epithelium Air saka of the lungs and mucous membrane of the heart, blood vessels and lymphatic vessels Allows materials to pass through diffusion and filtration, and secretes lubricants Simple cuboid epithelium in ducts and secretory parts of small glands and in renal tubules Secretes and absorbs Simple columnar epithelium Cliated tissues, including bronchi , uterine tubes and uterus; smooth (nonciliated tissues) are in the digestive tract bladder absorbed; it also secretes mucous membranes and enzymes. Pseudostral columnar epithelium Tsilivi tissue lines trachea and a large part of the upper respiratory tract Secrete the mucous membrane; Eyelash tissues moves the mucous membrane Stratified squamous epithelium Lines esophagus, mouth and vagina Protects against wear Pads cuboid epithelium Sweat glands, salivary glands, and mammary glands Protective tissues Stratified columnar epithelium Male urethra and ducts of some glands. Secretes and protects the transitional epithelium Lines of the bladder, urethra and ureters Allows the urinary organs to expand and stretch Epithelial tissue are classified by cell form and the number of cell layers. Classification epithelium tissue by cell form and layers Key points There are three main forms of cell associated with epithelial cells: squamous epithelium, cuboid epithelium and columnar epithelium. There are three ways to describe the layering of the epithelium: simple, stratified and pseudostratified. Pseudostriated epithelium possesses fine hair-like extensions called cilia and unconfirmed glands called bomb cells that secrete mucus. This epithelium is described as a cidegated pseudostratid epithelium. Stratified epithelium differs from ordinary epithelium, since it is multilayered. It was therefore found that cladding must withstand mechanical or chemical insults. In keratinized epithelium, the apical layers (exterior) of cells are dead and contain a healthy, persistent protein called keratin. An example of this is found in the skin of mammals, which makes epithelium waterproof. Transient epithelium is detected in tissues such as the bladder, where there is a change in the shape of the cell due to stretching. Key Terms simple columnar: Columnar epithelium, which is single-layered. pseudostratified epithelium: Type of epithelium, which, although it includes only one layer of cells, has its cell nuclei positioned in a way suggestive stratified epithelium. flattened and similar in scale. cuboid: Resembling a cube. Keratinized: To get or become like keratin. Columnar: Have the shape of a column. Most epithelial tissue is described by two names. The first name describes the number of available cell layers, and the second name describes the cell format. For example, simple squamous epithelium tissue describes a layer of cells that are flat and scale-like in shape. Epithelial tissue: There are three main classifications associated with epithelial cells. Squamous epithelium has cells that are wider than they are high. The cuboid epithelium has cells whose height and width are approximately the same. Columnar epithelium has cells higher than they are wide. Usually epithelium Epithelium Simple consists of a single layer of cells. They are usually where absorption, secretion and filtration occur. The thinness of the epithelial barrier facilitates these processes. Simple epithelial tissues are usually classified by the shape of their cells. The four main classes of simple epithelium are: 1) simple boards; 2) simple cuboid; 3) simple columnar; 4) pseudo-built. Simple squamous simple squamous epithelium cells are flat in shape and arranged in one layer. This single layer is thin enough to form a membrane that compounds can move through passive diffusion. This epithelial type is located in the walls of the capillaries, the linings of the pericardium and the linings of the alveoli of the lungs. Usually cuboid simple cuboid epithelium consists of a single layer of cells that are as high as they are wide. Important functions of the simple cuboid epithelium are secretion and absorption. This epithelial type is located in the small collection channels of the kidneys, pancreas and salivary glands. Simple columnar Simple columnar epithelium is a row of tall, tightly packed cells aligned in a row. These cells are found in areas with high secretory function (such as the wall of the stomach) or absorption areas (as in the small intestine ). They have cellular extensions (for example, microvili in the small intestine, or cilia, found almost exclusively in the female reproductive tract). Pseudo-striated columnar epithelial cells, the nuclei of which appear at different heights, which gives the misleading (therefore pseudo) impression that the epithelium is stratified when the cells are viewed in a cross-section. Pseudostred epithelium can also possess fine hair as extensions of their apicical (lumbar) membrane called cilia. In this case, the epithelium is described as defamation pseudostratified epithelium. The mile epithelium is located in the respiratory tract (nose, bronchi), but it is also found in the uterus and fallopian tubes of the females, where the cilia stretch the ovum to the uterus. Stratified epithelium Stratified epithelium differs from a simple epithelium, being multilayered. Therefore, it is located when the body linings must withstand mechanical or chemical insults. Stratified epithelium are more durable and protection is one of their main functions. Since the stratified epithelium consists of two or more layers, basal cells divide and press to the top, and in the process flatten the apical cells. Stratified epithelium can be columnar, cuboid, or squamous type. However, it may have the following specializations: Keratinized Epithelium B keratinized epithelium, the most apicatic layers (exterior) of cells are dead and lose their nucleus and cytoplasm. They contain a healthy, persistent protein called keratin. This specialization makes epithelium waterproof, and it is rich in mammalian skin. The lining of the esophagus is an example of unkeratized or moist epithelium. Transient epithelium epithelium epithelium of epithelium are detected in tissues that stretch and can look stratified cuboid when the tissue is not stretched, or stratified squamous cell, when the organ is stretched and tissue areas. Sometimes it is called urothelium, since it occurs almost entirely in the bladder, ureters and urethra. Urethra.

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