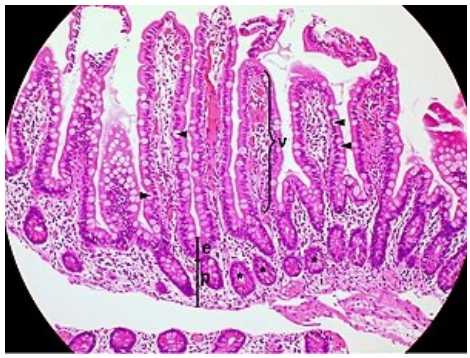
Absorptive epithelium

Absorptive epithelium forms the lining of the large and small intestines and the proximal tubules of the kidneys. It can be found only in the form of a flat single-layered epithelium.



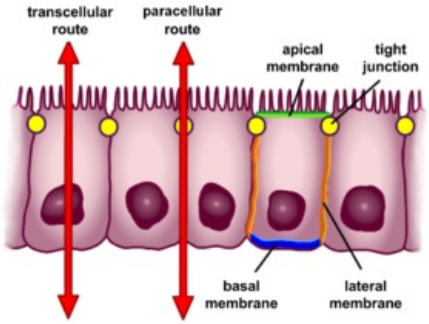
Construction of the cell

The cells are cubic to cylindrical, on the apical surface they have a **brush(annealed) bordering**, which is a large number of regularly distributed microvilli.

The cell's nucleus is finely granular chromatin with a very prominent nucleolus. The endoplasmic reticulum and the Golgi complex are also very extensive and noticeable. At the apical part of the cells, there are presentzonulae adherentes and zonulae occludentes. Thanks to this property, a different environment is created below and above the cells. Another different environment is in the intercellular spaces. Usually, there is also glycocalyx on the microvilli. Thanx to the glycocalyx and the microvilli themselves, the flow in the lumen is slowed down, which means that the enzymyes can be used more efficiently.

Enzymes

- ATPase − releases energy-rich phosphate bonds;
- alkaline phosphatase − a marker of the annealed edge due to its positivity;
- proteolytic enzymes − dipeptyl dipeptidase IV and aminopeptidase M;
- sucrase and isomaltase − final processing of carbohydrates.



Resorption in the epithelium is mediated using pinocytic vesicles, which then merge into larger formations in the cytoplasm. Finally, it all connects with lysosomes, where cellular digestion of absorbed substances takes place. Resorption processes are energy-intensive, so their progress is ensured by a high number of mitochondria. As a result of the absorption of substances, the osmotic concentration on the opposite sides of the membranes is quite different, this is also caused by the secondary resorption of water. Due to the transport of substances, there are deep **invaginations of the membrane** on the basal side of the cell, between which there is again a considerable amount of mitochondria. This creates a visible **radial annealing** at the base of the cells under the microscope.

Links

Related Articles

- Epithelium
- Small and large intestine
- Kidney

References

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- LÜLLMANN-RAUCH, Renate. *Histologie.* 1. edition. Praha : Grada, 2012. 576 pp. ISBN 978-80-247-3729-4.