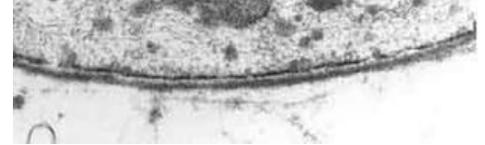


Basal lamina

Basal lamina is a layer of extracellular material separating epithelial tissue from connective tissue. The thickness of the basal lamina is 30-100 nm.

Function

- This is a selective barrier between epithelial and connective tissue that is important for the interaction, placement and orientation of epithelial cells.
- If it is disturbed, there is invasion of epithelial cells into connective tissue (in cancers) or vice versa (e.g. in the growth of blood vessels).
- The basal lamina may contain pores where functional communication between the two tissues is needed (e.g. intestinal villi, Peyer's patches).

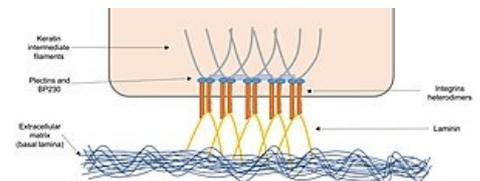


Transmission electron micrograph displaying basal lamina that is lining the external surface of cell membrane.

Construction

It contains two layers:

1. **Lamina lucida**
 - A light layer that adheres to the base of the epithelial cell.
 - It is attached to cells by hemidesmosomes and anchoring filaments (molecules of integral membrane proteins integrins).
 - It consists mainly of laminin.
2. **Lamina densa** - electron-dense layer 20-90 nm thick.
 - It has a felt-like character.
 - The lamina reticularis is connected to the lamina densa by a system of anchoring fibrils.
 - The lamina densa consists mainly of collagen type IV.



Hemidesmosomes diagram showing interaction between integrins and laminin, including how integrins are linked to keratin intermediate filaments

Lamina reticularis - a thin layer of reticular fibers and microfibrils of elastic fibers.

- Lamina reticularis is a product of fibrous tissue cells.
- It consists of:
 - collagen III (reticular fibers),
 - collagen VII (anchoring fibrils),
 - fibrillin (microfibrils of elastic fibers).

The term basal lamina is often confused with the term basement membrane. **Basal membrane = lamina basalis + lamina reticularis.**

- **In the light microscope we do not see the basal lamina, but the basement membrane.**

Links

Related Articles

- Epithelium
- Tissue

References

- VAJNER, Ludek - UHLÍK, George - KONRÁDOVÁ, Václava. *Medical Histology. 1, Cytology and General Histology*. 1st edition. Karolinum, 2010. 112 pp. ISBN 978-80-246-1860-9.