

# Hematotesticular Barrier

The **hematotesticular barrier** is a specialized cellular barrier between the blood and the developing spermiogenic cells in the seminiferous tubules testis.

This barrier is formed by tight junctions in the area of the base of the Sertoli cells. The barrier protects germ cells from toxic substances contained in the blood and at the same time creates an immunological barrier.

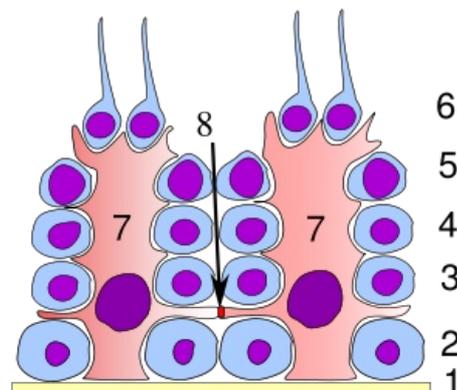
## Function

The hematotesticular barrier prevents the excessive penetration of large molecules from the interstitial tissue and from the capillaries to the spermiogenic cells. Harmful substances penetrate through the basal lamina only into the basal regions of the seminiferous epithelium, but do not penetrate through the zonulae occludentes. Steroids penetrate this barrier easily.

Another function of the barrier is to maintain a constant fluid composition inside the seminiferous tubules. Its composition is different from plasma – it contains very little protein and glucose, but is rich in androgens and other substances.

## Immunological barrier

A very specific function of the hematotesticular barrier is its immunological function. Differentiation of spermatogonia begins only during puberty. By this time, the organism has already created immunocompetent cells that could identify the newly formed sperm as "foreign". The barrier in this case prevents the contact of the immune system with the differentiating spermatozoa and thus prevents an autoimmune response.



1-basal lamina, 2-spermatogonia, 3-spermatocytes of the 1st order, 4-spermatocytes of the 2nd order, 5-spermatid, 6-mature spermatid, 7-Sertoli cell, 8-zonula occludens

## Links

### Related Pages

- Testicles
- Gametogenesis

### Resources

- KONRÁDOVÁ, Václava – CARBON, George – VAJNER, Ludek. *Functional Histology*. 2. edition. Jinocany : H & H, 2000. 291 pp. ISBN 80-86022-80-3.
- GANONG, William F. *Review of Medical Physiology*. 20. edition. Prague : Galen, 2005. 890 pp. ISBN 80-7262-311-7.