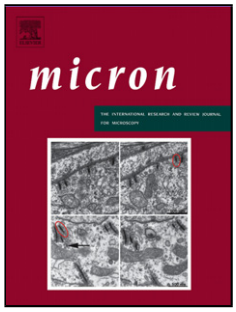

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An ultrastructural study of testes permeability in sea urchins, *Strongylocentrotus intermedius*

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Abstract

Permeability of testes in sea urchins, *Strongylocentrotus intermedius*, was investigated by using an electron-opaque tracer, lanthanum nitrate. This tracer is able to enter the basal compartment of germinative epithelium, where developing germ cells are located. However, its ability to penetrate the gonadal lumen was reduced. An incomplete permeability barrier between the basal compartment and the gonadal lumen is supposed to exist in testes of *S. intermedius*.

Keywords: *Strongylocentrotus intermedius*, sea urchins, spermatogenesis, permeability barrier, blood-testis barrier, lanthanum nitrate

1. Introduction

One of the key features of epithelium is its ability to function as a barrier which separates compartments with different internal environments. This is achieved via establishing of a permeability barrier, which physically restricts the paracellular flow by means of intercellular junctions between individual epithelial cells and the selective transport of molecules across epithelium through epithelial cells (Günzel and Yu, 2013). The permeability barrier plays an important role in routine functions of different organs; improper functioning of the barrier or its disruption often cause a disease (Günzel and Yu, 2013; Turksen and Troy, 2011). For example, the intercellular junctions that connect brain capillary endothelial cells to one another contribute to the blood-brain barrier, i.e. the permeability barrier, which regulates transport of substances into and out of the brain. This barrier is crucial for normal day-to-day brain function, and disruption of the barrier has a dramatic effect on development of the diseases that affect the central nervous system