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JOURNAL ARTICLE

The distribution of connexin 43 is associated with the germ cell differentiation and with the modulation of the Sertoli cell junctional barrier in continual (guinea pig) and seasonal breeders' (mink) testes

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To test whether the gap junction protein connexin 43 (Cx43) is associated with germ cell differentiation and with the Sertoli cell junctional blood barrier, we recorded the temporal changes in its distribution before birth, through the neonatal period, puberty, and adulthood in guinea pig, and throughout the annual seasonal reproductive cycle in the mink. We used the immunoperoxidase labeling technique on Bouin's perfused-fixed testes and with site-specific polyclonal affinity-purified antibodies against Cx43. Cx43 was localized between Leydig cells in fetal guinea pig testis. In this species, after birth, the appearance of Cx43 concurred with the onset of spermatogenesis. In the seminiferous epithelium, the distribution of Cx43 coincided with the gap junctions of the Sertoli cell junctional blood barrier. In guinea pig and mink, the distribution of the protein in the tubules changed in accordance with the germ cell differentiation in a stage-dependent manner and with the modulation, i.e., the assembly and disassembly of the junctional barrier accompanying the translocation of spermatocytes into the luminal compartment. In the mink, the reaction product persisted during testicular regression but showed a similar distribution from one tubule to the next. In this paper, we documented the existence of a temporal correlation between the appearance of the gap junction protein Cx43 and both the germ cell differentiation and the modulation in the junctional barrier between Sertoli cells. The paper also discusses the possibility that cell-to-cell communications, generally attributed to gap junctions, may help changes in the barrier to take place in coordination with spermatogenesis.

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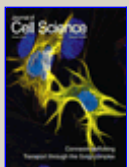
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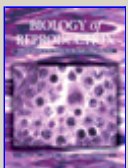
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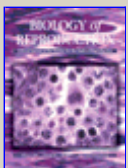
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