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## JOURNAL ARTICLE

# Development of Sertoli cell binding competency in the peripubertal rat

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The peripheral distribution of Sertoli cell F-actin, a cytoskeletal protein found in Sertoli cell ectoplasmic specializations, is associated with enhanced spermatid binding to the Sertoli cell and, as such, serves as a functional marker for its acquisition of binding competency. Previous studies suggest that the peripheral distribution of actin is dependent on follicle-stimulating hormone (FSH). To investigate the developmental pattern of Sertoli cell actin distribution in relation to peripubertal FSH and testosterone levels, we examined epithelial sheets from 2-8 week-old-rats. Tissues were processed for light microscopy and for the visualization of rhodamine-labeled F-actin. At 2 weeks, actin staining was diffuse throughout most of the Sertoli cells and was similar to that observed in binding-incompetent Sertoli cells. By 4 weeks, actin distribution was peripheral, acquiring the same staining pattern as observed in binding-competent Sertoli cells. Serum levels of FSH peaked at 4 weeks and declined to adult levels thereafter. Testosterone levels did not increase significantly until 6 weeks. Results show that Sertoli cell actin undergoes peripheral reorganization concurrent with the peripubertal peak of FSH but prior to the peripubertal rise of testosterone. The study demonstrates a temporal correlation between the peripubertal FSH rise and the actin redistribution in Sertoli cells that is consistent with an induction of this redistribution by FSH. These results suggest that FSH induces binding competency in Sertoli cells.

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