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# Strength Measurement of the Sertoli-Spermatid Junctional Complex

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The Sertoli cell ectoplasmic specialization (ES) is a specialized domain of the calcium-dependent Sertoli cell-spermatid junctional complex. Not only is it associated with the mechanical adhesion of the cells, but it also plays a role in the morphogenesis and differentiation of the developing germ cells. Abnormal or absent Sertoli ESs have been associated with step-8 spermatid sloughing and subsequent oligospermia. With a micropipette pressure transducing system (MPTS) to measure the force needed to detach germ cells from Sertoli cells, this

study examined, for the first time, the strength of the junction between Sertoli cells and spermatids and between Sertoli cells and spermatocytes. The mean force needed to detach spermatocytes from Sertoli cells was  $5.25 \times 10^{-7}$  pN, prestep-8 spermatids from Sertoli cells was  $4.73 \times 10^{-7}$  pN, step-8 spermatids from Sertoli cells was  $8.82 \times 10^{-7}$  pN, and spermatids plus EDTA was  $2.16 \times 10^{-7}$  pN. These data confirm the hypothesis that step-8 spermatids are more firmly attached to Sertoli cells than are spermatocytes and pre-step-8 spermatids and that calcium chelation reduces binding strength between Sertoli cells and spermatids. The MPTS is a useful tool in studying the various molecular models of the Sertoli-germ cell junctional strength and the role of reproductive hormones and enzymes in coupling and uncoupling of germ cells from Sertoli cells.

Key words: Ectoplasmic specialization, testis, micropipette, adherens junction

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