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JOURNAL ARTICLE

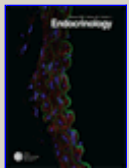
Human interleukin-1 alpha crosses the blood-testis barriers of the mouse

W. A. Banks and A. J. Kastin

Veterans Affairs Medical Center, New Orleans, Louisiana 70146.

Interleukin-1 alpha (IL-1 alpha) has been shown to have direct effects on the gonads, affecting steroidal secretion, DNA synthesis by spermatogonia, and the immune function of the testes. It is unclear, however, how IL-1 alpha exerts these effects because the testis is partitioned into basal and adluminal compartments by both a vascular and a Sertoli cell barrier. The authors used a highly sensitive method to quantify the unidirectional flux rates (Ki) into the testis of technetium pertechnetate-labeled human albumin (T-alb), a compound that does not readily cross the vascular barrier, and human IL-1 alpha radioactively labeled with ¹²⁵I (I-IL). The entry rate (Ki) was almost six times greater for I-IL than for T-alb. Part of the enhanced entry of I-IL was due to a saturable transport system. Nearly 0.2% of the total injection had entered the testes 60 minutes after intravenous administration, and more than 75% of that amount was not accounted for by the albumin space. Collection of testicular interstitial fluid from the basal compartment and seminiferous tubule fluid from the adluminal compartment showed preferential entry of I-IL into these compartments. Analysis by high-pressure liquid chromatography or radioactivity recovered from the testis showed that intact I-IL was entering the testis. The leakiness of the blood-testis barrier was measured by the rate of entry for T-alb, which was not altered by injection of unlabeled human IL-1 alpha in doses of up to 50 micrograms/kg (5 x 10⁶ U/kg), and by the wet weight of the testes. The results show that circulating IL-1 alpha can have direct access to the testis, supporting previous studies suggesting a direct effect of IL-1 alpha on gonadal function.

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Biol Reprod, June 1, 2003; 68(6): 2114 - 2121.

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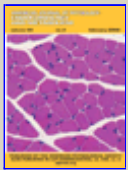
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