Journal of Andrology, Vol. 25, No. 5, September/October 2004

Electrophoretic Characterization of the Human Sperm–Specific Enolase at Different Stages of Maturation

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The presence of a sperm-specific enolase isoform (ENO-S) in human ejaculated spermatozoa was previously demonstrated. The objective of this study was to characterize this ENO-S in spermatozoa at different steps of maturation. Sperm ENO-S was characterized in testicular, epididymal, and ejaculated spermatozoa to determine whether any change occurred in the isoform patterns of this enzyme during epididymal maturation. In testicular sperm, ENO-S was present under 2 main bands named S1 and S3. In epididymal sperm, S1 and S3 bands and a prominent additional S2 band, with the same electrophoretic properties as the S isoform of ejaculated sperm, were visualized. In the testicular extracts obtained from testes in which no spermatozoa were visualized by histologic analysis, none of the 3 ENO-S bands was found. ENO-S exists as different isoforms (electrophoretic variants) in the different stages of sperm maturation. Passage through the epididymis seems to play a major role in the maturational process of this sperm-specific enolase.

Key words: Human spermatozoa maturation, enolase isoforms, epididymal sperm, testicular sperm