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JOURNAL ARTICLE

Maturation of monkey spermatozoa in the epididymis with respect to their ability to undergo the acrosome reaction

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Spermatozoa obtained along the length of the epididymides from five macaque monkeys (Macaca fascicularis) were examined for their ability to undergo the acrosome reaction under basal conditions and when stimulated with the calcium ionophore A23187. Under basal conditions (2.5 hours incubation in potentially capacitating medium) few epididymal sperm cells displayed the loss of acrosome as judged by staining with peanut agglutinin lectin that binds to the outer acrosomal membrane, regardless of the epididymal region from which they were retrieved. By contrast, there was a marked difference in response to short (0.5 hour) incubation with the calcium ionophore A23187, which induced acrosome reactions in the majority of caudal sperm: caput sperm failed to respond at all and corpus sperm were about 50% as responsive as caudal spermatozoa. There is thus a development of the ability to respond to the ionophore upon maturation. Ejaculated spermatozoa from the same monkeys displayed a higher rate of basal acrosomal loss but a slightly lower stimulated response than mature epididymal spermatozoa. With these maturational aspects, monkey epididymal sperm can serve as a model for the study of human sperm maturation.

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