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Evidence for a Role of Post-Ovulatory Cumulus Components in Supporting Fertilizing Ability of Hamster Spermatozoa

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A completely chemically defined culture medium was used to investigate the role of egg-cumulus complex (ECC) components in supporting sperm fertilizing ability. Defined sperm motility-stimulating factors (hypotaurine and epinephrine), with polyvinylalcohol as the macromolecular component, were included in the defined medium. Freshly-ovulated hamster ECCs were incubated with washed epididymal spermatozoa under different conditions designed to evaluate the ability of ECC components to support sperm capacitation, acrosome reactions, and the ability to penetrate the ova. The major conclusions from the data are that ECC components are capable of supporting these physiologic events, and that these components are present in the soluble (fluid) compartment of the ECC. This work is the first in a series of steps aimed at the localization, characterization, and eventual identification of the natural acrosome reaction-inducing stimulus associated with the ECC.

Key words: fertilization *in vitro*, capacitation, acrosome reaction, egg-cumulus complex, golden hamster

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