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## JOURNAL ARTICLE

# The acrosome reaction-inducing effect of human follicular and oviductal fluid

C. J. De Jonge, C. L. Barratt, E. Radwanska and I. D. Cooke  
Department of Obstetrics and Gynecology, University of Nebraska Medical Center,  
Omaha 68198-3255.

The human sperm acrosome reaction (AR) can be induced in vitro by a variety of naturally occurring and synthetic compounds. The present investigation determined the effect of human natural cycle periovulatory follicular (hFF) and oviductal fluids (hOF) on the human sperm AR in dose-response fashion using the synchronous AR assay. When hFF (30% v/v) or hOF (40% v/v) was added to non-capacitated spermatozoa, no significant ( $P > 0.05$ ) increase in the % AR was detected in comparison to the non-treatment control. When either of these compounds was added (10%, 20%, and 30% v/v hFF; 20%, 30%, and 40% v/v hOF) to capacitated spermatozoa (3 hour incubation), a significant ( $P < 0.05$ ) stimulation of the AR was detected. Bovine oviductal fluid (bOF) was tested (20%, 30%, and 40% v/v) to determine if it might have an effect similar to hOF. In contrast to hOF, the highest concentration of bOF (40% v/v) tested failed to stimulate a significant ( $P > 0.05$ ) increase in the % AR of capacitated spermatozoa in comparison to control. Inhibitors of protein kinases A (KT5720) and C (calphostin C) were tested to determine their effects on the hFF-induced AR. In comparison to hFF treatment alone, the kinase A inhibitor KT5720 (50 nM, 100 nM) prevented hFF (20%) stimulation of the AR when added at the end of the capacitation period and 5 minutes prior to the addition of inducer. Similarly, the kinase C inhibitor calphostin C (50 nM, 100 nM) prevented hFF (20%) stimulation of the AR. The present data demonstrate that periovulatory hFF and hOF stimulate the human sperm AR. (ABSTRACT TRUNCATED AT 250 WORDS)

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