Journal of Andrology, Vol 8, Issue 5 307-313, Copyright © 1987 by The American Society of Andrology

JOURNAL ARTICLE

Cholinergic inhibition of cAMP accumulation in Sertoli cells cultured from immature hamsters

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Acetylcholine inhibits FSH-induced cAMP accumulation in cultured Sertoli cells from immature hamsters. This action of acetylcholine is mimicked by muscarinic cholinergic agonists with a rank order of carbachol greater than acetylcholine greater than arecoline greater than pilocarpine. The carbachol-induced inhibition of stimulated cAMP accumulation is blocked by atropine greater than pirenzepine but not by d-tubocurarine, indicating an apparent muscarinic receptor similar to that found in other peripheral tissues. The fact that pirenzepine is less effective as an inhibitor of the carbachol effect than atropine further defines the muscarinic effect as of the M2 subtype. The ability of carbachol to inhibit FSH-induced cAMP accumulation is blocked by pertussis toxin, which inhibits the action of the Ni inhibitory transducer of adenylate cyclase. These data indicate that cultured Sertoli cells from immature hamsters contain an M2 type muscarinic cholinergic receptor that is negatively coupled to the adenylate cyclase system through the inhibitory Ni transducer.