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JOURNAL ARTICLE

Bovine sperm adenylate cyclase. Inhibition by adenosine and adenosine analogs

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Since both adenosine and cAMP affect sperm motility and metabolism, the authors have studied the mode of interaction of adenosine with the adenylate cyclase activity in either the presence or the absence of 15 mM caffeine. In general, structural analogs of adenosine containing alterations of the purine structure produce little or no inhibition, whereas analogs containing alterations of the ribose structure are effective inhibitors. Cyclic AMP and caffeine also inhibit the enzyme activity. The kinetics of the adenosine inhibition most closely resemble the linear noncompetitive type. Adenosine is a more effective inhibitor of adenylate cyclase activity in the presence of Mn^{2+} rather than Mg^{2+} , and is more effective at higher metal ion concentrations. These observations are consistent with a P-site interaction of adenosine with adenylate cyclase.

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