

Release of norepinephrine from human ovary

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We investigated the possibility that norepinephrine from the human ovary is released after nerve stimulation and that this neurotransmitter is coupled to a steroidogenic response. Biologically significant levels of both norepinephrine and dopamine were found in human ovarian biopsies. [3H]norepinephrine incorporated in vitro was readily released by electrical stimulation in a Ca²⁺-dependent process. Ovarian membrane preparations exhibited specific binding sites for the β -adrenergic antagonist [3H]dihydroalprenolol. Displacement of [3H]dihydroalprenolol with zinterol (a specific β_2 -agonist) indicated that 72% of these sites were type β_2 -receptors. β -receptors were also present on granulosa cells. Stimulation of granulosa cells with luteinizing hormone or the β -agonist isoproterenol increased the release of progesterone after 4 d in culture. These results suggest that the sympathetic nerves present in human ovary are coupled to β -adrenergic receptors present in endocrine cells and, as in