

Spermatozoa endogenous growth inhibitor factor identification and study of its regulation mechanism

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Introduction. Spermatogenesis is known to be regulated by external and internal mechanisms. External regulation involves local regulation mechanisms by pituitary gland and hypothalamus. Internal mechanism of regulation itself includes hormone, neurotransmitter and growth factor production by Leydig cells. All above mentioned products provide the proliferation processes of wide range cells, including spermatogenic.

Nowadays men contraceptives are actively testing in many clinics. However usage of such treatment causes warning from the scientists because to suppress spermatogenesis, which takes 72 hours, preparation have to be taken during the long period of time. Based on the information, it would be advisable to use endogenous growth factor instead of hormonal preparation.

Aim of the study. Spermatozoa endogenous growth inhibitor factor identification and study of its mechanisms.

Materials and methods. Adult white rats and human spermatozoa were used for study materials. Thermostable protein complex (TPC) was extracted from the cells by alcohol extraction. Comparative electrophoreses of proteins was performed as well as the study of protein complex influence on cell proliferation. Animals were divided in two groups: 1. Control group - intact newborn rats. 2. Experimental group - animals which were injected 200mg/kg homologous protein intraperitoneally. After one hour both groups received colchicin injection, and after 2 hour heart, pancreas and testis have been removed under the anesthesia. Paraffin slides were stained by hematoxylin-eosin. The changes of colchicin mitotic index were studied in the tissues under the light microscope.

Results and discussions. It was found that the TPC of adult white rat spermatozoa inhibits the proliferation of homologous cells. The human spermatozoa protein fraction has analogue influence. Spermatogenic cell mitotic index is decreased by an average of 40% in all heterotype organs. Results showed that TPC of spermatozoa does not have species specificity.

Conclusion: 1. Adult rat and human spermatozoa contain thermostable protein complex inhibiting cell proliferation. 2. TPC of spermatozoa is not species specific.