SITE OF MELATONIN ACTION IN RAT TESTIS

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A THESIS SUMITTED IN PARTIAL

FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF MASTER OF SCIENCE

(ANATOMY)

IN THE

FACULTY OF GRADUATE STUDIES

OF

MAHIDOL UNIVERSITY

1987

ABSTRACT

The purpose of this experiment was to determine in which cell types of rat testis radioactivity would accumulate following ^{3}H-Melatonin administration. Adult albino male rats were injected with ^{3}H-Melatonin solution through tail veins at the dose of 133.33 ng/kg body weight. At 5,15,30,45 and 60 min postinjection the animals were decapitated in groups, testis were isolated and mechanically and biochemically fractionated into Leydig cell-rich fraction, germ cell-rich fraction and Sertoli cell-rich fraction. Such fraction was further confirmed under light microscopy especially the Leydig cells which were histochemically identified by the presence of 3β-Hydroxy steroid dehydrogenase. Dynamics of radioactive distribution among the three fractions revealed highest and prolonged retention of radioactivity in the Leydig cell-rich fraction. As relatively high radioactivity was found in the testicular interstitial fluid, the possibility of radioactive contamination to the Leydig cells was therefore ruled out by a study of dynamic exchange between Leydig cells and interstitial fluid. The radioactive concentration of the Leydig cells reported herein is underestimated as the Leydig cell-rich fraction was slightly contaminated by red blood cells which proven to prosses lower radioactive concentration.

These results give a conclusive interpretation that following ^{3}H-Melatonin administration the radioactive substance(s) were preferentially localized and retained in rat Leydig cells.