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BILATERAL INJECTIONS OF SUBSTANCE K INTO THE MEDIAL PREOPTIC AREA HAVE NO EFFECT ON MALE RAT SEXUAL BEHAVIOR

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Substance K, a novel member of the tachykinin family of peptides, has been shown to be structurally similar to substance P. Furthermore, reports have shown that in some areas of the brain, substance K and substance P are co-synthesized and/or co-released. Thus, it is appropriate to test the effects of substance K in a specific brain area where substance P has been shown previously to exhibit some behavioral control, thus differentiating the respective roles of the two peptides in that area. The medial preoptic area (MPOA) was chosen because substance P has been shown to modify sexual behavior in the male rat when induced in this area.

Adult male Long-Evans rats with limited sexual experience were used. The rats were housed individually and were maintained in a controlled environment on a light/dark cycle of lights on at 6:00 and off at 21:00. Each male was anesthetized with sodium pentobarbital (50mg/kg) and received a pair of stereotaxically implanted 22-gauge stainless steel guide cannulae aimed at 1 mm above the MPOA. One week following surgery, males were randomly placed into four groups and were subsequently bilaterally injected with .5 ul solutions of either saline, 10, or 1000 ng substance K and the effects of these injections on copulatory behavior were determined. Following testing, brains were histologically analyzed to confirm the placements of the cannulae. Only animals that had confirmed bilateral placements located within the MPOA were used in the data analysis. The results of the nine animals which completed the entire procedure indicated that substance K had no effect on modifying mount, intromission, or ejaculatory behavior parameters. This suggests that the substance K innervation of the medial preoptic area play no role in the neuro-regulation of male rat copulatory behavior.