RELEASE OF LH BY SYNTHETIC LH-RH IN THE MONKEY, *MACACA FASCICULARIS*

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Summary. The effect *in vivo* of synthetic LH-RH was studied in intact monkeys. The intravenous administration of 400 ng synthetic LH-RH/head caused an increase in serum LH. A double peak in serum LH levels was observed. The first peak of serum LH levels was reached within 15 to 45 min after injection and the second peak within 1½ to 2 hr.

Since the discovery of LH-releasing hormone (LH-RH) in the hypothalamic extracts of the rat (McCann, Taleisnik & Friedman, 1960), its biological effects have been studied in several species (Schally and his co-authors, 1968). The chemical structure of porcine LH-RH was elucidated as (pyro)Glu-His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-NH₂ (Matsuo, Baba, Nair, Arimura & Schally, 1971; Baba, Matsuo & Schally, 1971). This decapeptide has been synthesized (Matsuo, Arimura, Nair & Schally, 1971) and its releasing activity tested in the rat (Arimura, Matsuo, Baba, Debeljuk, Sandow & Schally, 1972), sheep (Reeves and his co-authors, 1972; Arimura, Debeljuk, Matsuo & Schally, 1972) and man (Schally and his co-authors, 1971; Guillemin, 1972).

The aim of this study was to examine the effect *in vivo* of synthetic LH-RH on serum LH levels in crab-eating macaques, *Macaca fascicularis*.

Synthetic LH-RH (10455×151-2) used in this experiment has significant LH-releasing activity at 1.0 ng in the Ramirez-McCann rat bioassay (J. R. Reel, personal communication).

Two male and four female adult crab-eating macaques were used in this study, one of the males and two of the females being used in the experimental, and the rest in the control, group. The monkeys were individually housed in laboratory cages in a ventilated air-filtered room at a constant temperature (23° C), humidity (40%) and daily photoperiod of 12 hr light. Commercial food pellets and water were freely available and supplies were replenished daily.

Three monkeys, one male (No. 3) and two females (Nos 54 and 71), were given intravenous injections of 400 ng LH-RH. Blood samples were collected once 5 min before and seven to thirteen times after the injection (Text-fig. 1). The blood samples were taken from the saphenous veins, and the blood serum was kept at -20° C until assay. Serum LH concentrations were determined by

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the double antibody radioimmunoassay method (Niswender and his co-authors, 1971). The purified LH preparation for iodination was LER-1056-C2 and the antiserum to ovine LH was GDN-15. All of the results are expressed in terms of ng LER-M-907D.

TEXT-FIG. 1. Effect of intravenous injection of LH-RH on serum LH in three monkeys (one male: No. 3; two females: Nos 54 and 71).

Administration of LH-RH induced a considerable rise in serum LH in all three monkeys. The peak of serum LH levels was reached within 15 to 45 min after injection. The peak concentrations were approximately 5.6 (Monkey 3), 1.7 (Monkey 54) and 2.4 (Monkey 71) times higher than the respective pre-treatment values. The peak levels of serum LH were followed by a gradual decline within 30 to 60 min, after which time the LH levels again rose. A second peak was reached 1½ to 2 hr after injection. This second peak was also followed by a gradual decline in LH levels. Serum LH concentrations of two monkeys out of three at 4 hr after the injection were still higher than LH

concentrations before injection. In contrast to the monkeys in the experimental group, the three control monkeys given the same amount of saline exhibited no marked changes in serum LH levels.

These results demonstrate that the synthetic LH-RH can induce an increase in the serum LH levels of male and female monkeys. However, the possibility that any endogenous alterations result from administered LH-RH which, in turn, plays some rôle in the increase, especially the second increase, in the levels still remains to be solved. Further studies on this point are in progress.

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