17-ketosteroid.

Summary. Comparative anabolic evaluations after a single equivalent dose injection of testosterone propionate, methylandrostenediol and testosterone cyclopentylpropionate indicate that TP and MA are about equal in anabolic potency, while TCP is twice as effective over a comparable period of time. TCP is also effective for a greater period of time, undetermined in this study.

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Effect of Follicle-Stimulating Hormone on Gonads of Immature C57 Black Mice.* (19426)

HENRY D. MOON AND CHOH HAO LI.
From the Division of Pathology, School of Medicine, and the Department of Biochemistry, University of California, San Francisco and Berkeley.

While mice have been utilized extensively for the bioassay of urinary gonadotropins, there have been no reliable data on the effects of highly purified follicle-stimulating hormone in mice. This study was performed with the purpose of determining the responsiveness of mice of the C57 black strain to a highly purified follicle-stimulating hormone (FSH) preparation isolated from sheep pituitary glands (1,2). Female C57 black mice, 20 to 24 days old, were injected daily with FSH for 5 days and autopsied 24 hours after the final injection. Groups of 6 mice were used for each level of FSH. At autopsy the ovaries and uteri were dissected, weighed and fixed in formalin. Paraffin sections of the uteri and the ovaries, stained with hematoxylin and eosin, were prepared.

A right orchidectomy was performed on male mice 21 to 27 days old of the C57 black strain; the right testis was weighed and fixed in formalin. Immediately following orchidectomy, FSH was injected daily for 5 days. The animals were sacrificed on the 6th day following orchidectomy, 24 hours after the final injection. The left testis was weighed and fixed in formalin. Microscopic sections of both testes were prepared. Controls of both sexes of similar age range were not injected.

Results. Female mice. The ovaries showed no morphologic changes at 0.05 and 0.10 mg levels. The uteri of all mice showed endometrial and myometrial stimulation characteristic of that produced by estrogens. The uninjected controls showed infantile ovaries and uteri (Table I). With total doses of 0.25 mg or more the ovaries showed some follicular development. A 5 mg total dose produced occasional follicular hemorrhages and early thecal luteinization.

Male mice. The uninjected controls showed

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TABLE I. Effect of FSH on Ovaries and Uteri of Immature C_{57} Black Female Mice.

No. of mice	Age at autopsy, days	Total dosage, mg	Ovaries		Uterus	
			Wt, mg	Microscopic	Wt, mg	Microscopic
14	26–31	0	6.8 (4.2-8)	Infantile	5.6 (2-8.4)	Infantile
6	29	.05	4.3 (4-4.5)	"	11 (7.8-17.8)	Slight estrogenic effect
6	29	.1	6.1 (3.4-9.3)	"	11.7 (10.6-13.4)	Same
6	27	.25	8.6 (6.2-10.3)	Medium follicles	34.4 (28.4-38.2)	Estrous
6	31	.5	7.7 (6.4-8.9)	" "	30.6 (25.4-38.2)	"
6	26	2.5	16 (11.4-19.8)	Medium and large follicles	35.3 (25.6-56.8)	"
6	27	5	28.6 (27-29.8)	Same	37.6 (34.3-41.9)	"

TABLE II. Effect of FSH on Testes of Immature C_{57} Black Male Mice.

No. of mice	Age at autopsy, days	Total dosage, mg	Right testis		Left testis		Avg wt increase, mg
			Wt, mg	Microscopic	Wt, mg	Microscopic	
9	27–29	0	26.2 (12.9-37.8)	Infantile	29.7 (13.6-38.8)	Infantile	3.5
6	33	5	36.9 (24.8-50.2)	"	44.8 (38 -56.4)	No change	7.8
6	29	12.5	26.4 (20.9-30.1)	"	38.9 (35.8-45.1)	" "	12.5

infantile testes. The left testis was slightly heavier than the right, which had been removed as a control at the beginning of the experiment (Table II). The mice receiving FSH also had larger left than right testes; moreover, the amount of gain in weight of the left over the right was greater than in the uninjected controls. No significant microscopic changes were detectable. The prostate glands and seminal vesicles showed no observable stimulation.

Comment. The ovaries of female mice of the C57 black strain showed no significant morphologic changes in response to FSH injections up to the 0.1 mg total dose level. It is of interest that estrogenic effects on the uterus occurred at low levels of FSH which did not produce morphologic changes in the ovaries. A total dose of 2.5 mg was necessary to produce significantly larger ovaries, whereas a total dose of 0.05 mg caused some estrogenic effect on the uterus. These observations indicate that increased functional activity of the ovaries precedes morphologic alterations detectable by the usual histologic methods.

Male C57 black mice were much less sensitive to injections of FSH than were the females. Although the testes of the animals receiving the hormone showed a greater gain in weight than those of the uninjected controls, no microscopic evidence of specific stimulation was present. This is in contradistinction to the results obtained with hypophysectomized male rats; in these animals FSH caused differentiation of testicular tubules, with formation of spermatozoa(3). It may be seen in Table II that a total dose of 12.5 mg induced some increase in the weight of the testes with no signs of stimulation apparent on microscopic examination. It was thought that other strains of male mice might manifest more sensitivity but results from experiments using Ce, C_3H, dba, and Webster strains at a total dose level of 1.25 mg of FSH gave no indication of testicular stimulation.

Summary. The responsiveness of mice to

injections of a highly purified FSH preparation has been investigated. At a total dose level of 12.5 mg no microscopic changes in the testes of male mice were observed, although some weight increment was evident. In female mice the uterus showed greater sensitivity to hormone injections than did the ovaries.

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Encephalitis in Midwest IX. Neutralizing Antibodies in Wild Birds of Midwestern States. (19427)

CLARENCE A. SOOTER, BEATRICE F. HOWITT, AND RACHAEL GORRIE.

From the Communicable Disease Center, Public Health Service, Atlanta, Ga.

In the virus diseases termed the arthropod-borne encephalitides, considerable work points definitely toward birds as biological reservoirs of these viruses, including St. Louis encephalitis, Japanese B encephalitis, and Eastern and Western equine encephalomyelitis. The literature describes the possible part birds may play as reservoirs and their possible role in the infection of man with one of these viruses(1-7). The present paper deals with wild birds and results of blood serum surveys in Colorado, Kansas, and Missouri in 1949, in which several species of birds have been sampled and tested for past infections of the St. Louis (St. L.) and Western equine encephalomyelitis (WEE) viruses. These collections were a part of an extensive search for natural reservoirs of these organisms.

Methods. Surveys were made in Kansas and Missouri in 1949 from late spring through the fall. Samples were collected in Colorado during the third week of November 1949. Species sampled and results of tests are given in Table I and Table II. The majority of the waterfowl blood samples was obtained through cooperation of the U. S. Fish and Wildlife Service personnel during banding operations at Swan Lake and Squaw Creek National Wildlife Refuges in Missouri. These blood samples were taken from the wing veins. Other bloods were taken from birds collected during special surveys in southeastern and western Kansas and in Weld County, Colorado. During the Colorado survey, turkey and chicken sera were also collected for testing. The turkeys sampled were mature-sized birds reared from poults that year and were bled at a Greeley, Colo., processing plant just prior to slaughter. The chickens were full grown and of various ages. Blood was sampled just prior to slaughter at a Greeley processing plant. Both the chickens and turkeys were from flocks in Weld County and surrounding counties. The sera were tested for neutralizing antibodies against St. L. and WEE viruses according to a modification of the methods given in the U. S. Army Laboratory Manual(8). All sera were inactivated at 56°C for 30 minutes. The serum virus mixtures were prepared in the late afternoon and held overnight in the refrigerator before they were used to inoculate mice intracerebrally. Neutralization indices of 50 or more were regarded as positive and those between 32 and 50 as equivocal.

Results. It will be noted in Table I that incidence of past infections was relatively low in the specimens collected in Kansas and Missouri, with 13 of 112 or 11.6 per cent showing evidence of having had Western equine encephalomyelitis, and no incidence of St. Louis virus in 68 specimens. It was interesting and deemed noteworthy that all of the positives in Table I were in migratory birds. Also few human or equine encephalomyelitis cases were reported during 1946 through 1949 in these states or in other localities where these birds might have been