

"Carbo-wax 4000" is satisfactory for cutting at small fractions of a micron (inclined specimens within the wax being cut as thinner wedges) and requires only water as solvent.

Full evaluation of the normality of these tissues cannot be given at present. Since

fixed material is itself abnormal, more reliable results might be obtained by freeze-drying fresh tissue, sectioning and placing directly in the electron microscope. However, comparison of these micrographs with current ideas of muscle structure suggest that the results with fixed tissues will prove satisfactory.

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Exploratory Study of Early Effects of Urinary Gonadotropin in Prepuberal Male Rats.*

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Earlier experiments^{1, 2} have shown that the effect of a synthetic androgen can be readily detected in the accessory reproductive organs of castrated young adult rats within about 36 hours after its administration. Since testosterone propionate is a fat soluble substance which acts directly upon the accessory reproductive organs, it is of interest to determine the effectiveness of a gonadotropic substance which acts indirectly *i.e.* through its action upon the testis.

Twenty rats at an age of 20 days (29.2 ± 1.07 g) were employed, ten of which were treated on one day only with a pregnancy urine gonadotropin (Antuitrin-S) which is considered by some as entirely luteinizing.³ Approximately 6 hours before autopsy the

rats were weighed and injected with colchicine (0.1 mg per 100 g weight of rat); the gonadotropin and the colchicine were administered subcutaneously. Mitotic activity (see table) in seminal vesicles (s.v.) and in prostate (v. pr.) is recorded as the average number per field of colchicine-arrested cells in 25 fields at a magnification of 430 diameters. The gonadotropin was administered in a single dose or in 2 doses at 8-hr intervals, each injected animal receiving a total dose of 20 rat units (25 I.U.). At selected hours after the first introduction of the hormone a treated and control animal were sacrificed in pairs; both gonadotropin treated and control animals had received the same dose of colchicine.

Results. The ventral prostate and seminal vesicles of all control rats contained mitotic cells ranging in number from 2.32 to 11.88 and 2.12 to 8.28 per field respectively. Pale light areas indicative of secretory activity are already present in the glandular epithelium of the ventral prostate;⁴ mitotic cells in the seminal vesicle are fewer per field than in the prostate and the secretory cells are less differentiated. Differences in the rate of development of these two glands have been described earlier.⁵

In both groups of treated animals the

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¹ Burkhart, E. Z., *Proc. Soc. Exp. Biol. and Med.*, 1939, **40**, 137.

² Burkhart, E. Z., *J. Exp. Zool.*, 1942, **89**, 135.

³ Gustavson, R. G., and D'amour, F. E., *J. A. M. A.*, 1941, **117**, 188.

⁴ Moore, C. R., Price, D., and Gallagher, T. F., *Am. J. Anat.*, 1930, **45**, 71.

⁵ Price, D., *Am. J. Anat.*, 1936, **60**, 79.

TABLE I.
Mitotic Activity in the Accessory Sex Glands of 20-day-old Rats Treated with Antuitrin-S.
(All the animals received colchicine.)

Time in hrs after 1st inj.	Group I				Group II			
	Control		20 R.U. Antuitrin-S in 2 doses		Control		20 R.U. Antuitrin-S in 1 dose	
	v.pr.	s.v.	v.pr.	s.v.	v.pr.	s.v.	v.pr.	s.v.
13					5.64	2.84	2.64	5.04
20	7.36	8.0	6.6	7.76				
23					3.72	8.28	4.8	8.88
28					11.52	7.36	4.64	27.64
28					—	3.32	0.56	26.56
30	3.16	2.12	2.96	63.64				
34					2.32	2.88	12.2	75.92
35	10.08	6.24	16.68	68.80				
43	11.88	5.64	37.2	69.16				
44					4.88	3.44	28.48	68.04

effect of gonadotropin is apparent by the sudden rise in the number of mitotic cells in the seminal vesicle at 28 and 30 hours. Increased mitotic activity lags in the ventral prostate; only slight increases occur at 34 and 35 hours but by 43 to 44 hours the increase becomes significant.

These limited data show clearly that a single 20 R.U. dose of urinary gonadotropin is effective and detectable. It is interesting to note that despite the indirect action of gonadotropin, via the testis, the effect of the

Antuitrin-S is elicited several hours earlier in prepuberal rats than is testosterone injected into castrated young adults.²

Conclusions. The effect of a urinary gonadotropin is apparent in the accessory organs of reproduction of 20-day-old intact male rats by an increase in mitotic activity, arrested by colchicine; seminal vesicle response occurs earlier than prostate response—28-30 hours as compared with 35-43 hours. A single 20 R.U. dose is as effective as 2 equally divided doses.

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Effect of Benzophenone and Allied Compounds on Human Tubercle Bacilli *in vitro*.

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1. **Bacteriostatic Action on a Rapidly Growing Avirulent Strain.** The bacteriostatic action of benzophenone (diphenyl ketone) and its derivatives was tested on an avirulent Novy strain of tubercle bacilli. This culture normally produces a heavy surface growth within 4 days. A liquid synthetic asparagin media, containing 6% glycerine, was used, with pH 7.2. The chemical compounds, with a few exceptions, were dissolved in propylene glycol to make 1% solutions. Subsequent

dilutions were made directly into the media. Twenty-seven compounds, listed in Table I, were tested.* The amino derivatives were

* Most of the chemicals were obtained from the Eastman Kodak Co., Rochester, N.Y. Those which were impure were recrystallized. o-Chlorobenzophenone was synthesized by the Friedel and Crafts reaction with o-chlorobenzoyl chloride, benzene, and aluminum chloride. Promin was obtained from Parke, Davis & Co., Detroit, Mich.