The effect of methallibure on the activity* of 3β-HSD in the ovary and testis of *Cyprinus carpio*

Sex	Activity of 3β-HSD (units)** Control		After an exposure period (days) to methallibure 10	20	25	30	35
Female	11.15±1.45	Lower dose	8.79± 0.91	7.63±0.50	3.59±0.27	2.20±0.07	1.11±0.11
		Higher dose	7.07±49	6.59±0.33	3.23±0.55	1.91±0.22	1.03±0.10
Male	6.8 ±0.66	Lower dose	5.77± 0.36	4.76±0.28	3.29±0.29	1.83±0.12	1.09±0.14
		Higher dose	5.33± 0.65	4.37±0.23	2.93±0.36	1.45±0.18	0.93±0.08

* The results are mean values with SE, for 3 animals; ** the activity of enzyme is in terms of number of units per mg protein, where one unit is equivalent to change in an OD of 0.01/min.

therefore be either by inhibition of gonadotrophin synthesis/release by the pituitary, or by interference with adenyl cyclase-AMP-proteinkinase, system/ stimulation of the activity of phosphodiesterase or the inhibition of RNA/protein synthesis. However, much work needs to be done before we can reach any conclusion about the mode of action of methallibure at the molecular/physiological level.

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Ergastoplasmic granules, cytophysiological adaptation of the locusts corpora cardiaca to migratory flights?[1]

R. Michel and M. Lafon-Cazal

Laboratoire d'Ethologie, Institut des Sciences du Comportement et de l'Environnement, B.P. 25A, F-35031 Rennes Cédex, and Laboratoire de Cytophysiologie des Arthropodes, 105 Bd Raspail, F-75006 Paris (France), 30 November 1977

Summary. A good correlation was shown between the presence of ergastoplasmic granules in the glandular cells of the locusts corpora cardiaca and the flight activity of these insects.

Some species of locusts are able to accomplish sustained migration flights. Lipids and carbohydrates are the fuels mobilized in the fat body by means of a metabolic hormone synthesized in the glandular lobes of the corpora cardiaca (CCG)[2-5]. The secretory cells contain a lot of dense, circular and smooth membrane-bounded granules originating in the Golgi cisterns (diameter up to 600 nm); these classical granules may be associated with dense, ergastoplasm-bounded, circular grains (EG) (diameter up to 5 μm)[6] and their significance is here investigated.

Male adults of *Schistocerca gregaria* Forsk. were kept under standard grouped conditions[7]; their flying capacity was determined[8] and the 'good fliers' only were chosen. Roundabouts were used in the flight experiments[9]. The CCG were fixed with glutaraldehyde and postfixed by OsO_4 (2% solutions in Na-cacodylate buffer 0.1 M, pH 7.4, containing 8% of sucrose) and embedded in a mixture of epon-araldite. Semi-thin sections were stained with 0.5% toluidine blue in 1% borate. Ultra-thin sections were contrasted with uranyl acetate and lead citrate.

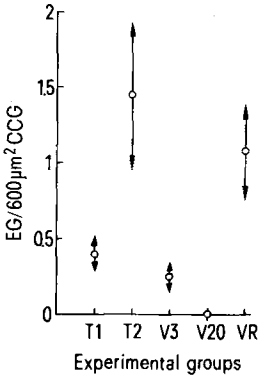
5 experimental groups were compared: 2 groups of controls (not subjected to flight) which are directly used without pretreatment at the age of 20 days (T1) or of 40 days (T2); 2 groups of 40-day-old animals which have flown before fixation for 3 h (short flight: V3) or for 20 h (long flight: V20); 1 group of locusts having flown at the age of 20 days were fixed after a 20-day-rest period (VR). The number of only the big EG (diameter from 1.5 μm) per 600 μm^2 tissue is calculated on semi-thin sections at the magnification of ×960; at least 50.000 μm^2 tissue per animals was investigated. The results were analyzed with the t-test and are presented in the table and the figure.

EG were found in the CCG of all controls, more so in 40-day- than in 20-day-old animals. After a 3 h flight (V3) only half of the examined CCG still contained EG, whose number and volume were significantly reduced

Number of EG per 600 μm² of CCG in different groups of locusts

T1	0.4 ± 0.12	(7)
T2	1.46 ± 0.49	(10)
V3	0.25 ± 0.10	(10)
V20	0.00 ± 0.00	(5)
VR	1.07 ± 0.32	(4)

Values are mean ± SD; number of determinations in parentheses. Experimental groups as for the figure.



Number of EG per 600 μm² CCG (mean ± SD) in resting 20-day adults (T1) and 40-day adults (T2), in 40-day adults having just flown for 3 h (V3) and 20 h (V20) and having flown at the age of 20 days for 20 h (VR).

(0.05 > p > 0.02). After a long flight (V20) no more EG were detectable, either in semi-thin or in ultra-thin sections. Finally if the long flight was followed by a resting period (VR), numerous and big EG were again observed ($p < 0.01$).

A good correlation was found between the presence of EG in the CCG and the flight activity of the locusts: in the controls many EG were observed; the number of EG decreased after a short flight and no EG could be detected after a long flight period.

Since the metabolic hormone of the CCG is released during flight[2-4], these results suggest the presence of an available hormonal content in the EG. In this case, the EG might serve for hormone storage. This would be in agreement a) with cytochemical data: EG and classical granules present similar cytochemical properties[6] and b) with chemical findings: the metabolic or adipokinetic hormone is a peptide[10,11] which can be entirely synthesized in the ergastoplasmic cisterns.

The EG, resulting in an asynchronism between the activities of the endoplasmic reticulum and the Golgi apparatus, may be a cytophysiological adaptation of the glandular cells of the CCG due to the heavy requirements occurring during the migration flights.

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Effect of an LH-RH antagonist on reproductive status of immature female rats

A. Corbin[1]

Endocrinology Section, Wyeth Laboratories Inc., Box 8299, Philadelphia (Pennsylvania 19101, USA), 4 November 1977

Summary. Administration of the LH-RH antagonist, D-Phe²-D-Ala⁶-LH-RH (Wy-18,185) to immature female rats from days 25–35 of age was without significant effect on day of vaginal opening (puberal onset), weights of the ovaries, uteri and anterior pituitary, and on ovarian histology on autopsy day 39.

Several investigations from this and other laboratories demonstrated the anti-luteinizing hormone (LH) and anti-ovulatory activity of a series of peptides derived from synthetic hypothalamic LH-releasing hormone (LH-RH)[2-5]. The antagonist, D-Phe²-D-Ala⁶-LH-RH (Wy-18,185), was of particular interest because of its extensive reproductive pharmacologic evaluation and reliability of anti-ovulatory activity[2]. Therefore, it was deemed of interest to determine if Wy-18,185 could impede the reproductive development of immature female rats.

Methods and materials. Immature, female Charles River CD® rats received a daily administration of 1.0 mg Wy-18,185, s.c. in corn oil, from days 25 through 35 of age. The occurrence of vaginal canalization was checked daily, and the animals were autopsied on day 39 of age (post-puberally). At autopsy, the weights of the body, thyroid, adrenal, uteri, ovaries and anterior pituitary gland were recorded. Statistical evaluation was performed using Student's t-test. The ovaries were fixed in 10% formalin, sectioned at 6 μm, stained with H and E and subjected to histologic evaluation.

Results and discussion. The data in the table demonstrate that chronic treatment of immature female rats with the LHRH antagonist was without any significant effect on the endocrine status of the recipients when autopsied post-puberally. Particularly, no dramatic effects were seen on the weights of the reproductive organs or on the day of vaginal opening (advent of puberty). Post-puberal histological evaluation of the ovaries of animals treated with the antagonist revealed normal ovarian structure, as evidenced by the presence of developing and antral follicles, ova, evidence of recent ovulation and luteinization.

Under the present experimental conditions, the antagonist was unable to effectively interfere with reproductive events in the prepuberal female, which is at variance with previous results derived from studies employing mature female animals[2-5]. However, it is possible that extended treatment and/or higher doses would have been effective, perhaps indicating that the immature female is less sensitive than the mature female to the inhibitory effects of the antagonists. This may, in turn, be a reflection of the different hypothalamic-hypophysial set-points that exist between im-