The Cytochromoxydase Activity in the Uterus of Experimental Animals

The enzymatic activities of the uterus and genitals have been comparatively little studied: particularly poor are the records covering the cytochromoxydase activity, about which only indirect references are available on the basis of the cytochrome *C* concentration or the respiratory activity of this organ.

JUNOWICZ-KOCHOLATY and HOGNESS[1], by using the spectroscopic method for their investigations, succeeded in determining the amount of cytochrome *C* occurring in the various organs and tissues: they have found that only minimal traces of cytochrome *C* occur in the human uterus.

FERRONI[2] in 1941 stated that the respiratory activity of the female rabbit uterus is higher during pregnancy and decreases during puerperium to minimal values during the period of rest in the organ.

According to this author, such variations should be regarded as due exclusively to hormonal factors.

DAVID[3] ascertained that the respiratory activity of the experimental animal uterus is higher during oestruation.

In the present experiments, the cytochromoxydase activity in the rat uterus was determined during the various phases runs of their lives.

The albino rat was used.

Animals of different ages were chosen and kept under identical experimental conditions. The uterus was removed under ether anaesthesia. After immediate weighing on a GALILEO-SARTORIUS balance, 100 mg were weighed separately. In the animals where the uterus weight was lower than 100 mg, the entire organ was used and the result obtained was corrected to 100.

The 100 mg uterus was later mortar homogenized and retaken with 5 cm^3 phosphate buffer 0·067*M* (pH 7·4).

The cytochromoxydase activity was determined according to STOTZ[4]: 0·3 ml of the homogenate were used as an enzymatic suspension.

The system in the first vessel was composed of: 1 ml of phosphate buffer 0·067*M* (pH 7,4), 1 ml of a solution of cytochrome *C* in phosphate buffer (concentration of cytochrome *C* $2{\cdot}4 \times 10^{-4}M$ 0·3 ml uterus homogenate (prepared by 100 mg tissue in 5 cm^3 phosphate buffer), 0·20 ml KOH 30% in central well, and 0·30 ml of a solution of sodium ascorbate (prepared by dissolving 20 mg ascorbic acid in 1 cm^3 Na OH n/10) in the side arm.

The second vessel contained all reagents with exception of the solution of sodium ascorbate.

The third vessel was identical with the first one, but the uterus suspension was boiled 3 min.

The values given by the vessels 2 and 3 were subtracted from the result obtained in the first vessel.

Cytochrome *C* was prepared from horse-heart according to KEILIN and HARTREE[5].

The experiments performed show that the cytochromoxydase activity of the uterus of the animals employed is greater the smaller the weight of the uterus. This applies to young or even impuberal animals, and is probably due to the intense metabolic processes which develop in organs during the various stages of growth.

Experiment	Uterus weight in milligrammes	Result (cytochromoxydase activity in mm^3 O_2)
1	65	86·48
2	72	80·26
3	76	81·44
4	84	76·78
5	85	60·79
6	93	59·74
7	103	58·28
8	100	32·22
9	105	33·21
10	126	52·27
11	136	40·53
12	140	33·28
13	157	33·83
14	155	28·52
15	190	34·54
16	203	40·20
17	207	17·29
18	221	12·89
19	223	21·00
20	270	8·39
21	325	7·25
22	415	5·28
23	420	3·18
24	470	6·16
25	472	0·76

In middle-aged animals, this activity decreases, the minimal values in the larger uteri corresponding to the adult animals.

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Résumé

L'auteur a déterminé la valeur de l'activité de la cytochromoxydase dans la matrice des rats dans les diverses périodes de leur vie. Il a trouvé que cette activité est plus élevée dans les jeunes animaux, et elle diminue avec la croissance du poid de la matrice et de l'âge des animaux, jusqu'à arriver à des valeurs très petites dans les matrices des animaux adultes.

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Inhibition of Bacteriophage Development in Bacteria Illuminated with Visible Light

Photoreactivation[1] of the induction to lyse and liberate phages of lysogenic bacteria produced by ultraviolet light (U.V.) and by X-rays has been described by JACOB[2], LATARJET[3], and CANTELMO[4]. It appears from the last two communications that photoreactivation of induction may differ from photoreactivation of other effects, since it counteracts the effect of X-ray treatment (LATARJET) and is produced by exposure to white light *before* induction by U.V. (CANTELMO). We wish to call attention to the fact that these results may not be due to

[1] Photoreactivation has become a general term meaning the reversion by visible light of an effect due to ultraviolet light.

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