

It is of interest that HOLMBERG and LAURELL<sup>5</sup> found a strong positive linear correlation between human serum copper levels and the ability of the serums to oxidise PPD at pH 6 as determined manometrically.

In another connection, a small number of serums from untreated and X-irradiated cancer patients have been examined and we have again found a positive linear correlation between the copper content and PPD oxidase activity ( $N = 10$ ;  $r = +0.87$ ;  $t = 5.13$  – just on the 0.1% level).

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W. J. P. NEISH

Cancer Research Unit, The University, Sheffield (England), July 14, 1958.

### Résumé

Il y a une corrélation très forte entre l'activité de la *para*-phénylène diamine oxydase du sérum sanguin du rat et de son taux en cuivre.

<sup>5</sup> C. G. HOLMBERG and C.-B. LAURELL, Scand. J. clin. Lab. Invest. 3, 103 (1951).

### Metrial Gland and Peroxidase Activity

The location of the metrial gland in the uterus of the pregnant rat<sup>1</sup> and the intimate relation between the granular cells and the blood capillaries suggest a functional connection between the two structures, e.g. a delivery of some substance into the blood. Such an interpretation has been given to the mast cell-capillary arrangement. Another possibility would be that the metrial gland acted as a protective barrier to free the blood from material harmful to fetus or placenta. Since peroxidases react *in vitro* with a large number of substances of various kinds and because of their possible role in some hydroxylations, this group of enzymes might participate in a detoxifying mechanism.

In one experiment of several with consistent results, a rat was exsanguinated a few days before the expected termination of pregnancy. The uterus was opened, the fetuses cautiously removed, and the uterine wall cut transversely into sections so that every second section contained a site of placental insertion rich in metrial gland cells, the pieces in between consisting of normal uterine wall. No. 1 was the section nearest to the vertex of a horn, No. 10 nearest to the other vertex. The pieces were weighed (98–169 mg), homogenised with four volumes of 0.15 *M* KCl, and the homogenate centrifuged for 1½ min at 12000 r.p.m. To a Beckman cell (1 cm, 1.3 ml, room temperature) were added 1.0 ml of a 10:1 v/v mixture of acetate buffer (0.1 *M*, pH 4.9) and mesidine hydrochloride (0.2 *M* in water), 0.1 ml of the supernatant to be assayed and 0.05 ml of 0.10 *M* hydrogen peroxide. The increase in light absorption at 490 mμ.<sup>2</sup> between 50 and 150 s after the addition of the peroxide was taken as a measure of

Table  
Peroxidase activity in the uterus wall

Section	AD/mg N in specimen from	
	placental insertion (incl. metrial gland)	interposed sections
1	0.58	1.17
2		
3	0.49	
4		0.83
5	1.25	
6		0.66
7	0.73	
8		1.04
9	0.79	
10		0.62
Average	0.77 ± 0.30	0.86 ± 0.24

the activity ( $AD = 0.11$ – $0.36$ ). The supernatants were also assayed for nitrogen (micro-Kjeldahl, 1.9–3.0 mg N/ml). The results, however, lend no support to the assumption that the metrial gland contains significant amounts of peroxidase (Table).

Frozen pieces of the uterus wall were sectioned and stained with benzidine-hydrogen peroxide. The cells of the metrial gland showed no particular colour, whereas the epithelial cells as well as some scattered elements (leukocytes, and possibly others) in the underlying tissue exhibited a deep blue colour.

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G. BLOOM and K. G. PAUL

Department of Cell Research and Genetics and Department of Biochemistry, Nobel Medical Institute, Stockholm, August 11, 1958.

### Zusammenfassung

Mit Hilfe des Mesidintests wurde in der Mucosa, nicht aber in den metrialen Drüsen des trächtigen Rattenuterus eine Peroxydase gefunden.

### *myo*-Inositol in the Biosynthesis of Benzylpenicillin by the Mycelial Suspensions of *Penicillium chrysogenum*

Since the biosynthesis of benzylpenicillin by the mycelial suspensions of *Penicillium chrysogenum* in phosphate buffer plus phenylacetate (PA) is stimulated by a variety of carbohydrates<sup>1</sup>, it is of interest to understand the mechanism of such a stimulation. With this object, the effects of a variety of carbohydrates and their metabolic pathways under these conditions are being studied. In continuation of our work reported with glycerol<sup>2</sup>, we have now studied the effect of *myo*-inositol, a compound of considerable biochemical interest<sup>3</sup>. The phosphorylated derivative

<sup>1</sup> V. N. DESHPANDE and K. GANAPATHI, Exper. 13, 475 (1957); J. sci. industr. Res. 17c, 59 (1958).

<sup>2</sup> R. J. IRANI and K. GANAPATHI, Exper. 14, 329 (1958).

<sup>3</sup> H. A. LARDY, *The Vitamins*, vol. II (Ed. by W. H. SEBRELL and R. S. HARRIS, Academic Press, New York 1954), p. 323.

<sup>1</sup> H. SELYE and T. MCKEOWN, Proc. R. Soc., London, [B] 119, 1 (1935).

<sup>2</sup> K. G. PAUL and Y. AVI-DOR, Acta Chem. Scand. 8, 637 (1954).