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Gvozdev, V.A., V.J. Birstein and L.Z. Faizullin. Kurchatov Institute of Atomic Energy, Moscow, U.S.S.R. Gene dependent regulation of 6-phosphogluconate dehydrogenase activity of D. melanogaster.

The structural locus Pgd for the 6-phosphogluconate dehydrogenase (PGD) of D. melanogaster has been located on the X-chromosome at 0.64 between the broad (0.6) and prune (0.8).

The variation of Pgd dose from 1 to 2 results in the proportional increase of PGD activity showing the absence of the feed-back regulation. The increase of Pgd dose using $w^{+}Y$ and $Dp(1;3)w^{vco}$ duplications (thrice as much for males and twice as much for females) resulted in 2-3- or 1.5-2.0-fold increase of PGD specific activity in males and females respectively. The PGD activity of normal males and females is twice as much as that of the $Df(1)w^{vco}/+$ and Df(1)Pgd-pn/+ females with a single dose of Pgd.

The quantitative determination of PGD activity in the flies with different doses of Pgd^{A} and Pgd^{A}/Pgd^{B} heterozygotes of either sex show that the gene activity of both alleles in males was twice as much as that of females.

PGD activity in females hyperploid for the distal pieces of X-chromosome (1-3C, 1-9A and 1-9B) including Pgd locus increases for 1.4-1.5 times as compared to that of normal females. Introduction of the 16A1-20 fragment has no effect on PGD activity while 9B-20 and 9E-13C reduces it to 80% level. These results are in accord with Muller's views on the presence of X-linked dosage compensators with negative action.

Chen, P.S. and R. Bühler. Zoologisches Institut der Universität, Zürich, Switzerland. Further studies of the paragonial substance in D. melanogaster.

In our previous study (Chen and Diem. J. Insect Physiol., 7: 289-298, 1961) we located a peptide in the accessory glands (paragonia) of Drosophila male adults. Judging from its mobility on paper chromatogram and amino acid composition it corresponds obviously to the sex peptide found by Fox (Science 129: 1489-1490, 1959). Transplantation of male genital discs into female larvae demonstrated that the synthesis of this peptide is autonomous. This has been confirmed by the recent study of Smith and Bischoff (D.I.S. 44: 122) using the mutant "doublesex". The work done by Garcia-Bellido (Z. Naturf. 19b: 491-495, 1964) showed that grafting of the glands or injection of the paragonial fluid into virgin females resulted in a distinct increase in oviposition. The same results have been reported by Leahy and Lowe (Life Sciences 6: 151-156, 1967). In an attempt to answer the question if the paragonial substance or sex peptide is really the active principle for stimulating egg deposition, methanol extracts were prepared from a large number of male adults and analysed by ion-exchange chromatography. We found that on the amino acid analyzer this peptide was eluted as an acidic component in the region between phosphoserine and glycerophosphoethanolamine. This has been confirmed by fractionation of extracts from a total of 1070 pairs of accessory glands dissected out individually from 8-day-old adult males. On the analyzer the sex peptide appeared as the only prominent peak in the same position revealed by using extracts from whole flies. Injection of the peptide isolated from the column and desalted by high voltage elecrophoresis into virgin females resulted in a two- to threefold increase of oviposition. Our hitherto observation suggested that a single injection is sufficient for the whole adult life. The biosynthesis and turnover of the sex peptide are now under investigation.