

Baird, M.B., H.V. Samis and H.R. Massie.
Masonic Medical Research Laboratory, Utica,
New York. Changes in *Drosophila* catalase
activity associated with preadult develop-
ment.

Catalase (EC 1.11.1.6) activity was deter-
mined in preadult *D. melanogaster* at vari-
ous time intervals after oviposition at
25°C. Ore-R females were permitted to
lay eggs on enriched yeast plates for
four-hour intervals, following which the
eggs were transferred to standard corn

meal-agar-molasses medium (1). This technique results in cultures of developing flies which are temporally synchronous within ± 2 hours.

Samples of eggs were collected directly from the yeast plates at the indicated times after oviposition and washed thoroughly with insect saline to remove yeast and media contaminants. Samples of larvae were collected by flotation in 1M NaCl, followed by thorough rinsing with insect saline. Samples of pupae were manually collected from the sides of the culture bottles.

All samples were homogenized in water, and dechitinized by a filtration technique described elsewhere (2). Catalase assays were performed at 22.5°C by modification of the spectrophotometric technique of Price et al. (3), utilizing a Perkin-Elmer 139 spectrophotometer equipped with an externally thermostated constant temperature cuvette chamber. 0.050ml of sample was added to a cuvette containing 3.0ml of 0.02M phosphate buffer, pH 6.8. The cuvette was blanked to zero absorbance, and 0.030ml of 0.98M hydrogen peroxide was added to the cuvette. Helium gas was immediately bubbled through the contents of the cuvette for five seconds, and the disappearance of hydrogen peroxide was recorded at 230 m μ for an additional 30 seconds with a chart recorder. Units of catalase were calculated as described by Lück (4), and protein was determined by the method of Lowry et al. (5).

No appreciable catalase activity was found in *Drosophila* embryos [Fig. 1]. However,

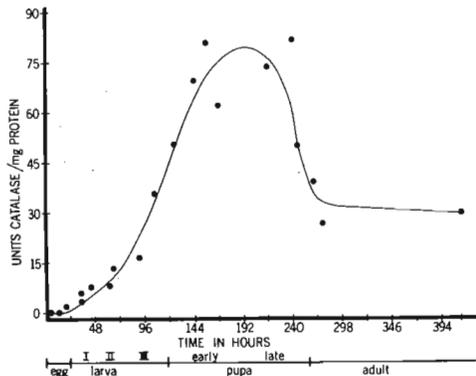


Figure 1. Catalase activity in preadult *D. melanogaster* at various times after oviposition at 25°C. Data expressed as units/mg. protein, where one unit is that amount of enzyme necessary to liberate half the peroxide oxygen from a hydrogen peroxide solution of given concentration in 100 seconds at 22.5°C.

appreciable enzyme activity appeared during the early larval stages of development, increasing 70-fold to maximal activity during mid-pupal development. This increase was followed by a sharp decline in enzyme activity prior to eclosion.

These preliminary results indicate a stage specific activation (e.g. differential gene action) of those genes in *D. melanogaster* which code for the normally ubiquitous catalase.

References: 1. Ursprung, H. 1967. In *Methods in Developmental Biology* (F.H. Wilt and N.K. Wessells, eds), Thomas Y. Crowell, Co., New York, p486; 2. Samis, H.V., Jr., and F.C. Erk. 1969. DIS 44:132; 3. Price, V.E., Sterling, W.R., Tarantola, V.A., Hartley, R.W., Jr., and Rechcigl, M., Jr. 1962. *J. Biol. Chem.* 237:3468; 4. Lück, H. 1965. In *Methods of Enzymatic Analysis* (H. Bergemeyer, ed), Academic Press, New York, p885; 5. Lowry, O.H., Rosebrough, N.J., Farr, A.L., and Randal, R.J. 1951. *J. Biol. Chem.* 193: 265.

Minamori, S. and K. Ito. Hiroshima University, Hiroshima, Japan. Effects of delta on fertility in *D. melanogaster*.

was examined when it carried various amounts of delta b. More than one-third of Cy/ID^b-45

The ID^b-45 chromosome line usually carries an appreciable amount of delta b, but it is not susceptible to the killing action of this delta (Minamori et al. 1970). The productivity of this line