Zwolinski, R. and F. DeMarinis. Cleveland State University, Cleveland, Ohio. A preliminary study of the metabolic pathway of 2-C^{14}-uracil in Bar and wild type larvae of 70-73 hours old.

It has been shown that amides, as glutaramide and cyclic amides, as uracil increase the number of facets in the Bar (B) eye mutant. (S. Kaji 1954, 1955, 1956; F. DeMarinis and F. Sheibley 1960, 1963, 1965). In the recent work of Hirose and Kaji (1968) it has been shown that ^{3}H-acetamide and ^{3}H-thymidine fed to larvae of Bar concentrate in the nuclei of the optic disk cells as well as in the nuclei of the salivary glands cells and fat bodies cells. It was further shown that inhibitors of facet-forming in Bar, as mitomycin-C and nitromine, when added along with ^{3}H-acetamide prevent the incorporation of the latter in the nuclei. This indicates that acetamide may be tied in with the possible synthesis of DNA.

In the present experiments, we fed 2-C^{14}-uracil to 69-70 larvae of Bar and wild type (wild type derived from Bar as reverted Bar) for a period of one hour. Larvae of this age were chosen because it has been demonstrated that Bar is most active in its expression during this time (DeMarinis and Sheibley 1965). The larvae were tested for radioactivity immediately after feeding and three hours later. The activity was determined with a scintillation counting apparatus, Unilux-II Scintillation System (Nuclear Chicago Corporation). Each test sample consisted of six larvae. It appears from Table 1 below that there is a distinctive

Table 1. Average C.P.M. values of larvae of Bar and wild type immediately after treatment with 2-C^{14}-uracil and three hours later, in larvae 70-73 hours.

	Total No. of Larvae Tested	Ave. C.P.M. immediately after treat. 2-C^{14}-uracil	Total No. of Larvae Tested	Ave. C.P.M. 3 hrs. after treatment 2-C^{14}-uracil	Total No. of Larvae Tested	Average C.P.M. Control
Bar	24	1156	24	482	24	22
wild (revert B)	24	1454	24	454	24	22

difference between Bar and wild in the uptake of 2-C^{14}-uracil. But more outstanding is the loss of activity in both Bar and wild type that occurs three hours later. In other words, about two-thirds of the original uracil intake has been metabolized and excreted in three hours time. Further tests were made to find where the loss occurred. This was done by placing strips of paper soaked in 50% KOH in vials containing treated and untreated larvae during the three hours of respiration. The strips plus the residue in the vials were counted. Table 2 below gives the results of the count. It is evident from these data that part of the

Table 2. Average C.P.M. values of the metabolized products excreted by larvae Bar and wild type during the period starting from age 70 to 73 hours.

	Experimental 2-C^{14} treated		Control		
	No. of Larvae Tested	KOH-paper Plus Vial Residue	No. of Larvae Tested	KOH-paper Plus Vial Residue	H_2O-paper Plus Vial Residue
Bar	24	306	24	93	67
wild (revert B)	24	384	24	86	69

loss comes from the metabolic products of uracil which are excreted. These preliminary tests further indicate that about two-thirds of the 2-C^{14}-uracil intake, at least in part, may be metabolized to $C^{14}O_2$ as shown by the positive higher count of KOH-paper. This provides some evidence in Drosophila that uracil may follow the major pathway as first found in mammals by Canellakis (1956).