transfers courtship stimuli to a different processing system and allows courtship. This indicates that there may be interconnected alternate CNS integration centers for different types of stimuli. Supported in part by Grant GB-8140 to W.L. Pak.

Table 1. Degree of insemination of flies homozygous for the w or w^{saf} mutations of D. auraria under conditions of constant light (LL) and constant darkness (DD). Both light conditions tested for 2 h and 24 h exposure periods. Unless otherwise noted, all chi-square values are significant at the .001 level. N = number of females dissected; % = per cent inseminated. All tests performed in vials containing 10 ♀♀ and 5 ♂♂.

		2 h					24 h				
		LL		DD			LL		DD		
♀♀	♂♂	N	%	N	%	χ^2	N	%	N	%	χ^2
w^{saf}	w^{saf}	50	0.0	50	36.0	19.6	220	0.0	230	93.5	390.0
w	w	100	0.0	100	67.0	97.8	80	0.0	90	98.9	162.0
A	w^{saf}	50	0.0	50	50.0	30.7	50	0.0	50	94.0	84.9
							50	88.0*			
w^{saf}	A	50	88.0	50	48.0	16.6	40	92.5	50	96.0	n.s.

* Done under a normal diurnal cycle (LD)

Borack, L.I. Rutgers, The State University, Newark, New Jersey. Histochemical localization of B-L-Hydroxy acid dehydrogenase.

Third instar larvae of the strain Daekwanryeong were dissected in cold insect Ringers solution. Individual organs were first transferred to spot plates containing cold insect Ringers and washed 2X with this solution, then transferred to spot plates containing the staining mixture. The staining organs were kept in the dark. Each test was done in triplicate with identical results.

Staining mixture: 10 mls. .05M Tris-Hcl pH. 8.2; 1 ml. NAD (25mg./ml.); 2.5 mls. NBT (5 mg./ml.); .3 mls. PMS (2 mg./ml.); 2 mls. IM Pyrazole - inhibits drosophila ADH (Borack and Sofer, 1971).

	No Substrate			1 ml. 1 M D-L-B-oH Butyrate			.5 mls. 1 M D-Gulonate			.5 mls. 1 M L-Gulonate		
	30 min	1 hr	2 hr	30 min	1 hr	2 hr	30 min	1 hr	2 hr	30 min	1 hr	2 hr
Malpighian	-	-	-	++	+++	+++	-	-	-	+++	+++	+++
Intestine	-	-	-			++	-	-	-	+	++	++
Carcass	-	-	-	-	-	-	-	-	-	-	-	-
Musculature	-	-	-	-	+	++	-	-	-	-	++	++
Fat body	-	-	-	-	-	+	-	-	-	-	+	+
Brain	-	-	-	-	-	-	-	-	-	-	-	-
Salivary	-	-	-	-	-	-	-	-	-	-	-	-
Imaginal discs	-	-	-	-	-	-	-	-	-	-	-	-

Histochemically the enzyme appears specific for the L-isomer of gulonate and reacts less intensely with D-L-B-oH butyrate. This specificity is identical to that found for the purified enzyme (Borack and Sofer 1971a).

Drosophila B-L-hydroxy acid dehydrogenase is localized predominantly in the malpighian tubules and less in the intestine, musculature and fat body. This tissue distribution corresponds to that found in the analogous organs in the sheep for cytoplasmic 3-hydroxy-butyrate dehydrogenase (Koundakjian and Snoswell, 1970), subsequently shown to be L-gulonate dehydrogenase (Williamson and Kuenzel, 1971).

References: Borack and Sofer 1971 DIS 46:156; _____ 1971a, J. Biol. Chem. 246:5345; Koundakjian and Snoswell 1970 Biochem. J. 119:49; Williamson and Kuenzel 1971 Biochem. J. 121:569.

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