Weisbrot, David R. and Lori Plati.
Tufts University, Medford, Massachusetts.

Esterase patterns in interspecific hybrids of D. pseudoobscura and D. persimilis.

From a homogenate of 200 flies of both sexes, protein was extracted in an 80% saturated ammonium sulphate solution, and approximately 7 micrograms of this protein were run in acrylamide gel by the Ornstein procedure. The gel was stained with a reaction mixture containing alpha-naphthol acetate as substrate and Fast Blue RR as stain to demonstrate the migration of esterase bands. After destaining, the gel was run through a densitometer on a motor driven stage starting from the indicator dye line. The high and low points of absorbancy are plotted in Figure 1. It is apparent that the major band in the hybrid (D. pseudoobscura ♀ x D. persimilis ♂) migrates more rapidly than the parental or reciprocal hybrid band, all of which have an identical peak. This result was consistently found in all runs, and when protein from the hybrid and either of the parental species were mixed, the bands still separated.

This result suggests that 2 genetic loci (one perhaps a regulator locus) may be responsible for the band in question. One of these loci would be sex-linked. The reciprocal crosses will produce males that are heterozygous for the autosomal genes and hemizygous for one or the other sex-linked gene. Such combinations could account for the different mobilities of the esterase bands observed in the reciprocal hybrids.