

LETTERS TO THE EDITOR

[Brief letters to the Editor that make specific scientific reference to papers published previously in THE JOURNAL OF GENERAL PHYSIOLOGY are invited. Receipt of such letters will be acknowledged, and those containing pertinent scientific comments and scientific criticisms will be published.]

Absorption of *Musca domestica* Screening Pigment

Dear Sir:

The recent article entitled "Do Flies Have a Red Receptor?" by Goldsmith (1) answers this question very nicely in the negative. Further support for this conclusion is now available, as described below.

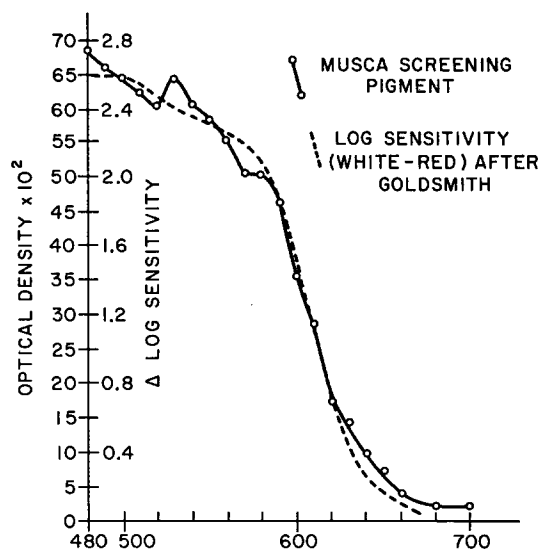


FIGURE 1. Absorption of housefly red screening pigment (solid line) measured in situ. Reference area is clear region adjacent to the ommatidia; half-width of measuring light is 6.6 millimicrons. Data were taken on 10% formalin-fixed fly's eye embedded in paraffin and sliced laterally at 5 microns thickness. Dotted line shows difference spectrum (white minus red) obtained by Goldsmith (1).

At the time the article appeared I happened to be taking absorption spectra of *Calliphora* screening pigments with a microspectrophotometer (2). A quick check of the data revealed a close correlation between the red screening pigment spectra and the difference spectrum calculated by Goldsmith (Fig. 11, reference 1) to account for the pigment effect in his ERG data. In order to extend this observation, data were

taken on *Musca domestica* red screening pigment over the wavelength range 380 to 700 millimicrons. The flies were simply killed and embedded in Paraplast both with and without fixation in 10% formalin and sectioned laterally at 5 or 10 micron intervals. Fresh preparations sectioned on a freezing microtome were also used. Ommatidia with the surrounding red pigment were easily distinguishable at $\times 430$; four blowflies and three houseflies were used, with several runs on each. From 500 to 700 millimicrons the shape of all the absorption curves indicates the sharp cut-off filtering action required by Goldsmith's results, as shown in Fig. 1 for one particular run on *Musca domestica*.

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REFERENCES

1. GOLDSMITH, T. H., *J. Gen. Physiol.*, 1965, **49**, 265.
2. STROTHER, G. K., *10th Ann. Meeting Biophysic. Soc.*, abstracts, 1966, TF10.