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Evans P D. Biogenic amines in the insect nervous system.
Advan. Insect Physiol. 15:317-473, 1980.
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This review summarised the state of knowledge on biogenic amines in the insect nervous system. It brought together information on biochemistry, physiology, anatomy, and pharmacology and emphasised the importance of cellular studies on single physiologically identified neurones in understanding the functional roles of biogenic amines in insects. [The *SCI*® indicates that this paper has been cited in over 175 publications.]

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My interest in biogenic amines in invertebrate nervous systems was stimulated during a postdoctoral visit to Ed Kravitz's laboratory at Harvard Medical School, where I joined a project looking at octopamine in the lobster nervous system. Upon my return to England, I continued working on octopamine but in the insect nervous system. However, this was not my first introduction to octopamine in insects. A couple of months before I left Cambridge to join the Kravitz laboratory, I vividly remember Harry A. Robertson, then a research student in the Zoology Department, rushing breathlessly into my room one evening desperate to tell someone that he had just found octopamine in the insect nervous system.[1]

Since that time multidisciplinary studies on the functional role of octopamine in insects have been a major focus of research in my laboratory. These studies have ranged from biochemical investigations of its distribution to studies on the functional roles of physiologically identified octopamine-containing neurones and also to studies on the pharmacology and mode of action of the multiple classes of octopamine receptor present in insects.[2,3] During the course of these studies, I started reading widely about what was known about octopamine, and other biogenic amines, in the insect nervous system and found it was surprisingly little. Thus, when invited to contribute a review on this subject to *Advances in Insect Physiology* in 1979, I accepted, thinking it would not take me all that long to complete.

However, as soon as we got close to the proposed submission date, Mike Berridge, who was acting as editor for my review, told me that I could keep writing for a few weeks more, since he was having trouble getting some of the other reviews for the volume in on time. (I now know from personal experience what he was going through, as I am currently joint editor of this series with Sir Vincent Wigglesworth!) This, in fact, happened several times, so that I actually worked on this review almost continuously for six months rather than the six weeks I had originally planned! This accounts for the length of the review and its comprehensive nature, since I had lots of time to track down obscure references.

I presume that this review has been highly cited because it represents a comprehensive coverage of all the literature on biogenic amines in the insect nervous system that I could find up until 1979. However, since that time there has been an explosion of interest in biogenic amines in insects, particularly in the various functional roles of octopamine and more recently 5-hydroxytryptamine (5-HT), such that it no longer appears feasible to write a single, comprehensive review on the subject. Thus, more recently, reviews in this field have been of a much more limited scope, concentrating on specific biogenic amines, such as octopamine[4] and 5-HT,[5] or on the modulation of a specific target tissue, such as a specific skeletal muscle, by both biogenic amines and peptides.[6]

1. **Robertson H A & Steele J E.** Octopamine in the insect nervous system: distribution, biosynthesis and possible physiological role. *J. Physiol.—London* 237:P34-5, 1974. (Cited 45 times.)
2. **Evans P D.** Multiple receptor types for octopamine in the locust. *J. Physiol.—London* 318:99-122, 1981. (Cited 95 times.)
3. ————. A modulatory octopaminergic neurone increases cyclic nucleotide levels in locust skeletal muscle. *J. Physiol.—London* 348:307-25, 1984. (Cited 65 times.)
4. ————. Octopamine. (Kerkut G A & Gilbert L I, eds.) *Comprehensive insect physiology, biochemistry and pharmacology*. Oxford, England: Pergamon Press, 1985. Vol. 11. p. 499-530. (Cited 20 times.)
5. **Nassel D R.** Serotonin and serotonin-immunoreactive neurons in the nervous system of insects. *Prog. Neurobiol.* 30:1-85, 1987.
6. **Evans P D & Myers C M.** Peptidergic and aminergic modulation of insect skeletal muscle. *J. Exp. Biol.* 124:143-76, 1986.