Letters

Nerve Growth Factor

I wish to comment on the article "Nerve growth factor: Regulatory role examined" by Jean L. Marx (Research News, 13 Sept. 1974, p. 930). To the reader of this article, nerve growth factor (NGF) seems to be endowed with multiple and confusing roles, including promoting growth in peripheral as well as central nerve cells and possibly also stimulating the growth of blood vessels. About experiments now in progress at Harvard Medical School, Marx states: "If these results are confirmed, they will show that NGF participates in a number of processes involving growth and development, both in the nervous system and out of it." However, more than two decades of intensive study have proved that the most outstanding and unique characteristic of NGF is its specificity of action on two nerve cell types (embryonic sensory and sympathetic cells throughout their entire life cycle). In this connection, the report by Swedish investigators (*1*) that central noradrenergic neurons also respond to NGF does not contradict the thesis of its specificity of action. In view of the striking structural and functional similarity between peripheral and central adrenergic neurons, the concept of a specificity of NGF target cells remains unchallenged. A revision of this concept should be made only after more than "promising results" are found by the Harvard investigators.

Marx also states that "the physiological source of NGF has puzzled investigators since Ian Hendry, now at Australian National University in Canberra, and L. L. Iversen of Cambridge University in England showed that the submaxillary gland in the male mouse could not be the sole source in mice." Long before this excellent contribution by Hendry and Iversen (*2*), investigators were puzzled by the ubiquitary presence of NGF. In a series of studies made at our laboratory (*3*), we proved that NGF is released from mouse sarcomas 180 and 37, snake venom, salivary glands, and granuloma tissues; Bueker and his group (*4*) showed that it is produced in embryonic tissues of chick embryo. It has therefore been evident since the early 1960's that a large number of different cell types produce NGF. "It is unclear," comments Marx, "whether NGF is synthetized by male submaxillary glands or merely stored there." Two articles (*5*) prove beyond any doubt that NGF is indeed synthetized and not only stored in the tubular portion of the male mouse submaxillary glands.

Marx refers extensively to work by Varon, who claims that NGF alone is inadequate for neuronal maintenance and proposes that NGF may be produced by glial cells. While glial cells may well be endowed with this property (which is common to a large number of cells), it is incorrect to state that NGF alone is inadequate for neuronal maintenance. In 1963 we (*6*) proved that dissociated embryonic sensory and sympathetic nerve cells survive indefinitely and grow vigorously in NGF-rich media, even in the absence of glial cells or other cell types.

The uninformed reader may also benefit from some articles and reviews (*7*), two recent books (*8*), and a comprehensive long article (*9*) not mentioned by Marx.

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Man's Best Friend

My dog is an avid reader of *Science* (in fact, he was trained on it), and after reading the letters on dog control (1 Nov. 1974, p. 394), he had this to say: "The points raised, raised my hackles and gave me a dry nose. They go from canine to asinine. I am surprised that so much hate for man's best friend could be unleashed. He is blamed for destruction of the environment, inflation of tree-planting costs, and—as a solution—it is proposed that he be eaten. What a way to solve problems—eat the scapegoats. Miller says that many animals fill dual roles as pet and as food. I can only reply that I have never yet seen a chicken fetch slippers. He says that several cultures eat dog. On this argument I could add that several cultures have also been known to eat man. Let the unthinkable remain uneatable. Anderson seriously bemoans the cost of dog urination problems, but until he can show that dogs kill trees (as opposed to smog, insecticides, and so forth) he doesn't have a leg to stand on. Clearly, he is barking up the wrong tree. Finally, Sears claims coyotes get the blame for damage done by dogs. Anyone with a nose for science, knows that *Science* usually requires evidence. Sears offers no evidence for his claim. Since dogs have been guard, guide, entertainer, and companion to man for longer than memory, I can only conclude that these writers were engaged in the human pursuit of dealing with problems by bitching."

That is what he said.

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