

THE TWELVE LABORS OF MCH: THE TALE OF A NEUROPEPTIDE THROUGH PHYLOGENY

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From the early days of the dual theory regarding the control of color changes in frogs and fish to its characterization in chum salmon and its discovery in mammals, the hypothalamic neuropeptide known as melanin-concentrating hormone (MCH) has been shown to play many roles. As originally described, the function of MCH was to turn fish skin pale and to counter the effects of the alpha-melanocyte stimulating hormone (α -MSH). In the rat brain, MCH perikarya are located mainly in the lateral hypothalamic area and medial zona incerta, projecting to areas of the brain as varied as the olfactory bulb and the spinal cord. This suggests that MCH is involved in diverse brain functions, probably as a neuromodulator. In addition to its orexigenic role, MCH appears to be related to many other functions, including stress response, reproduction, certain aspects of motivated behavior, sensory perception, neuroendocrine responses, exploratory behavior, memory, learning, grooming, rearing, locomotor activity, and the sleep-wake cycle. Two MCH receptors have been described: MCHR1 (in rodents) and MCHR2 (in the human genome sequence). With some exceptions, MCH-R1 distribution overlaps with that of MCH-immunoreactive fibers. The objective of this presentation was to describe the state of the art regarding MCH, comparing the phylogenetic aspects with the related functions.

Supporting Agencies: FAPESP, CNPq, and CAPES

Keywords: Feeding Behavior; Neuropeptides; Hypothalamus, motivated behaviors