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# Shellfishes - Hormones of Crustaceans

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# Shellfishes - Hormones of Crustaceans

The major neuroendocrine control centre of malacostracans is the X-organ–sinus-gland complex, which lies in the eyestalk or in an equivalent part of the head in which the eyes are sessile

The X-organ passes its secretions to the sinus gland, which acts as a release centre into the blood

Unlike insects, crustaceans have an androgenic gland, which typically is located on the genital duct



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The androgenic gland secretes a hormone, possibly steroid in nature, which controls both the differentiation of the gonad of the male into a testis and the male characteristics of its limbs



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# Other Invertebrate Hormones or Molluscan Hormones

Hormone production is not well documented in mollusks other than gastropods and cephalopods

Antagonistic neurohormonal control of reproductive activity and metabolic processes is performed in the gastropods through cerebral dorsal bodies and lateral lobes or juxtaposed organs



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- Experimental studies indicate an endocrine relationship in gastropods between the gonad (ovotestis) and possible neurosecretory cells in the tentacles and the brain
- Unlike insects, crustaceans have an androgenic gland, which typically is located on the genital duct (vas deferens) of the male
- The androgenic gland secretes a hormone, possibly steroid in nature, which controls both the differentiation of the gonad of the male into a testis and the male characteristics of its limbs



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The absence of the androgenic gland in the female results in the formation of an ovary, which subsequently synthesizes one or more hormones that, in female amphipods, promote the development of brood chambers and other structures associated with reproduction



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# Other Invertebrate Hormones

- Neurosecretory cells probably are present in mollusks such as gastropods and lamellibranchs
- an endocrine relationship in gastropods between the gonad (ovotestis) and possible neurosecretory cells in the tentacles and the brain
- Epithelial glands in mollusks are important; in the cephalopods, which are the most advanced invertebrates in some respects, optic glands on the optic stalks (eyestalks) secrete a hormone that promotes development and maturation of the gonads



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# Pheromones

Pheromones are a type of hormone that are mainly for the purpose of attracting others

Pheromones are chemical substances secreted by animals in small quantity and cause various kinds of intraspecific response

In fish, pheromones are released into the surrounding water and the information is quickly picked up by other individuals of the species causing in their behaviour



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Only minute quantities of pheromones are released into water and this helps in

- recognition of species and sex
- recognition of territory
- warning and social behaviour

It has been suggested that the homing behaviour of migratory species is influenced by pheromones