Melatonin is a chronobiotic hormone with multiple pleomorphic actions. The hormone transmits information regarding day ... gland plays numerous modulatory roles in the regulation of sleep, body temperature, reproductive, and immune function.

Mammalian pineal melatonin: A clock for all seasons ... Is it possible that melatonin production is a prerequisite to pineal gland development? How could the pineal gland influence sleep in other animals? Why do circadian rhythm disorders occur in humans? What can we learn from the study of melatonin production and function in other species?

Melatonin and the Mammalian Pineal Gland is an extremely clear summary of the state of the field and simply hums with Arendt's own enthusiasm for what has yet to be discovered. — Lerner, now long since retired from Yale, has written a brief forward. The pineal gland is a small endocrine gland found in the brain of animals with backbones. Here is a brief summary of its role:

1. **Regulation of the circadian rhythm:** Melatonin production is influenced by light exposure, and its secretion peaks during the dark phase of the day. This rhythm helps synchronize body functions with the light-dark cycle.

2. **Regulation of the circadian rhythm:** Melatonin also plays a role in regulating the sleep-wake cycle, with higher levels typically associated with sleep.

3. **Cell differentiation and proliferation:** Studies have suggested that melatonin may have a role in cell differentiation and proliferation, possibly contributing to the development of certain tissues.

4. **Cancer prevention and suppression:** Some research indicates that melatonin may have anti-cancer properties, possibly preventing the growth of tumors or promoting their regression.

5. **Neuroprotection:** Melatonin may protect against neurodegenerative diseases by modulating oxidative stress and inflammation.

6. **Immunomodulation:** Melatonin can influence immune function, potentially enhancing the body's immune response to infection.

7. **Hormonal regulation:** Melatonin can affect the release of other hormones such as prolactin and growth hormone, influencing reproductive and metabolic processes.

8. **Sensory perception:** Melatonin has been implicated in sensory perception, possibly altering the way in which sensory inputs are processed.

The pineal gland, also known as the pineal body or the epiphysis, is a small endocrine gland located at the...