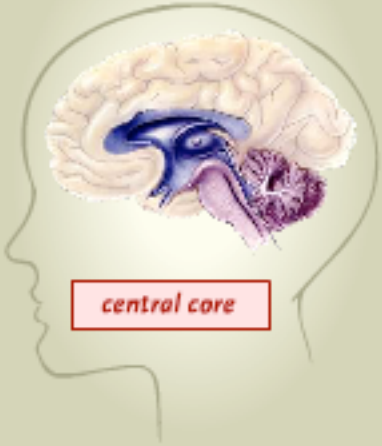
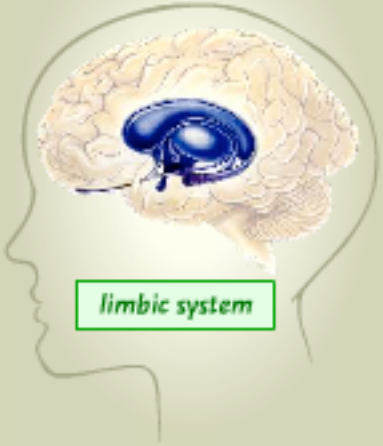
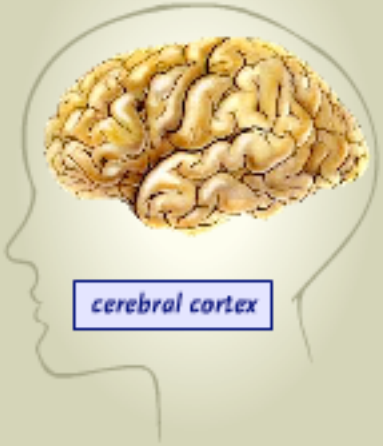






Your brain can be considered the most complex organ in your body and the centerpiece of your nervous system. Although your brain works as a unified whole, neuroscientists can identify areas within it that perform specific functions. Your brain is organized into three interconnected layers: the *central core*, *limbic system*, and *cerebral cortex*, all of which contain structures that regulate everyday life. Explore the human brain and its role in regulating your life.

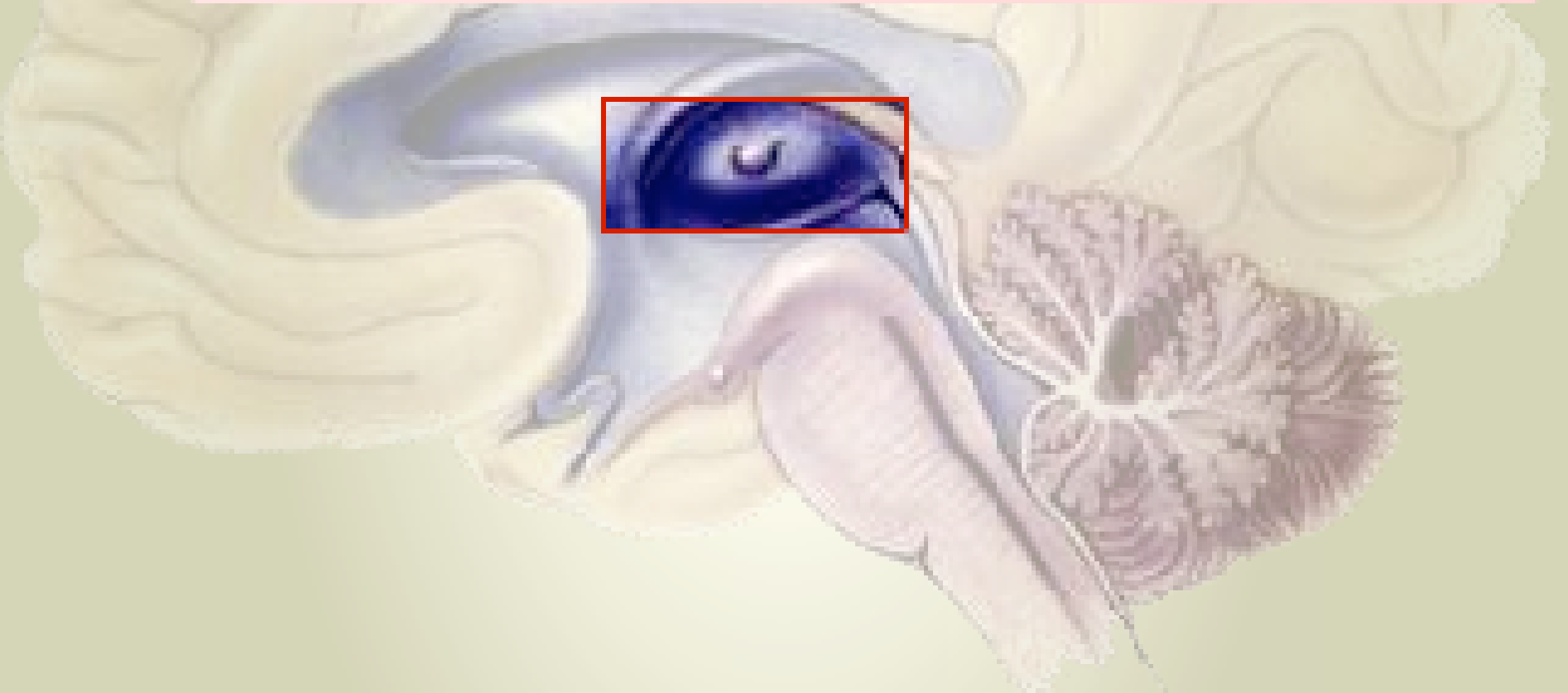
The *central core* is found in all vertebrates. Its five main regions help regulate basic life processes, including breathing, pulse, arousal, movement, balance, sleep, and the early stage of processing sensory information.

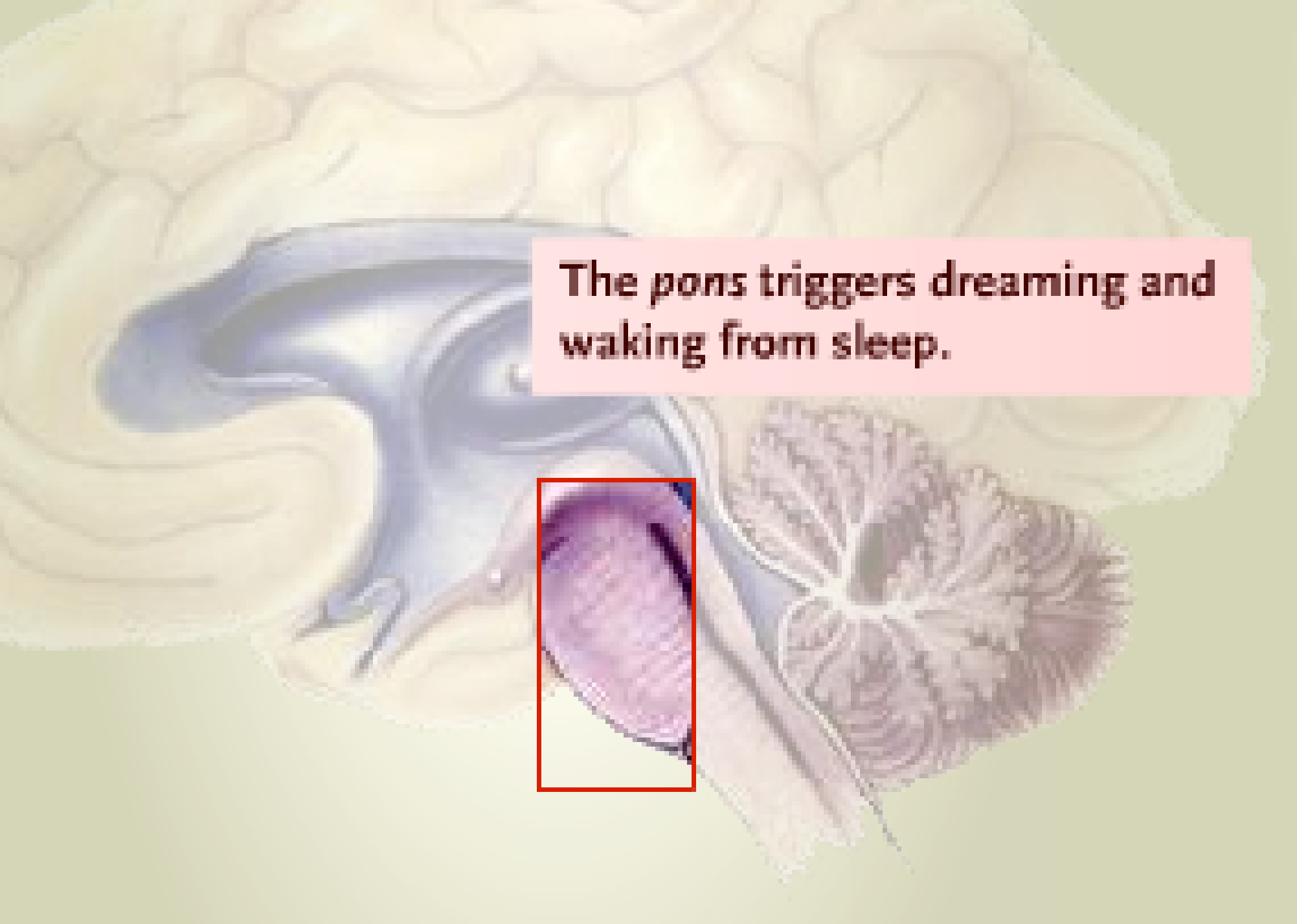
Central Core

- Thalamus
- Pons
- Cerebellum
- Reticular Formation
- Medulla

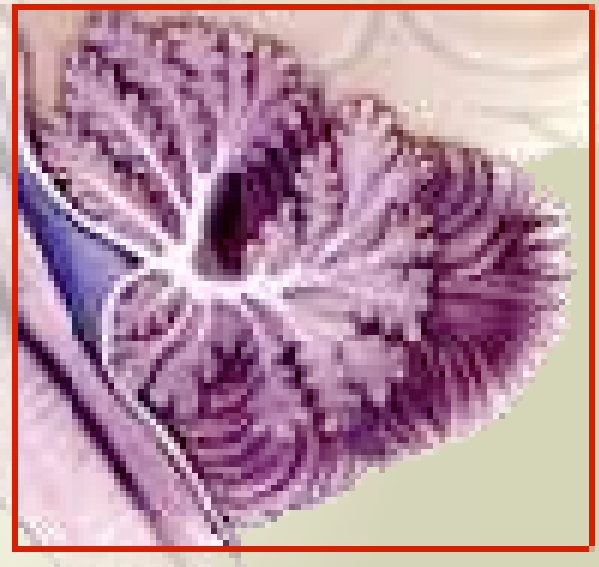
RESEARCH IN ACTION

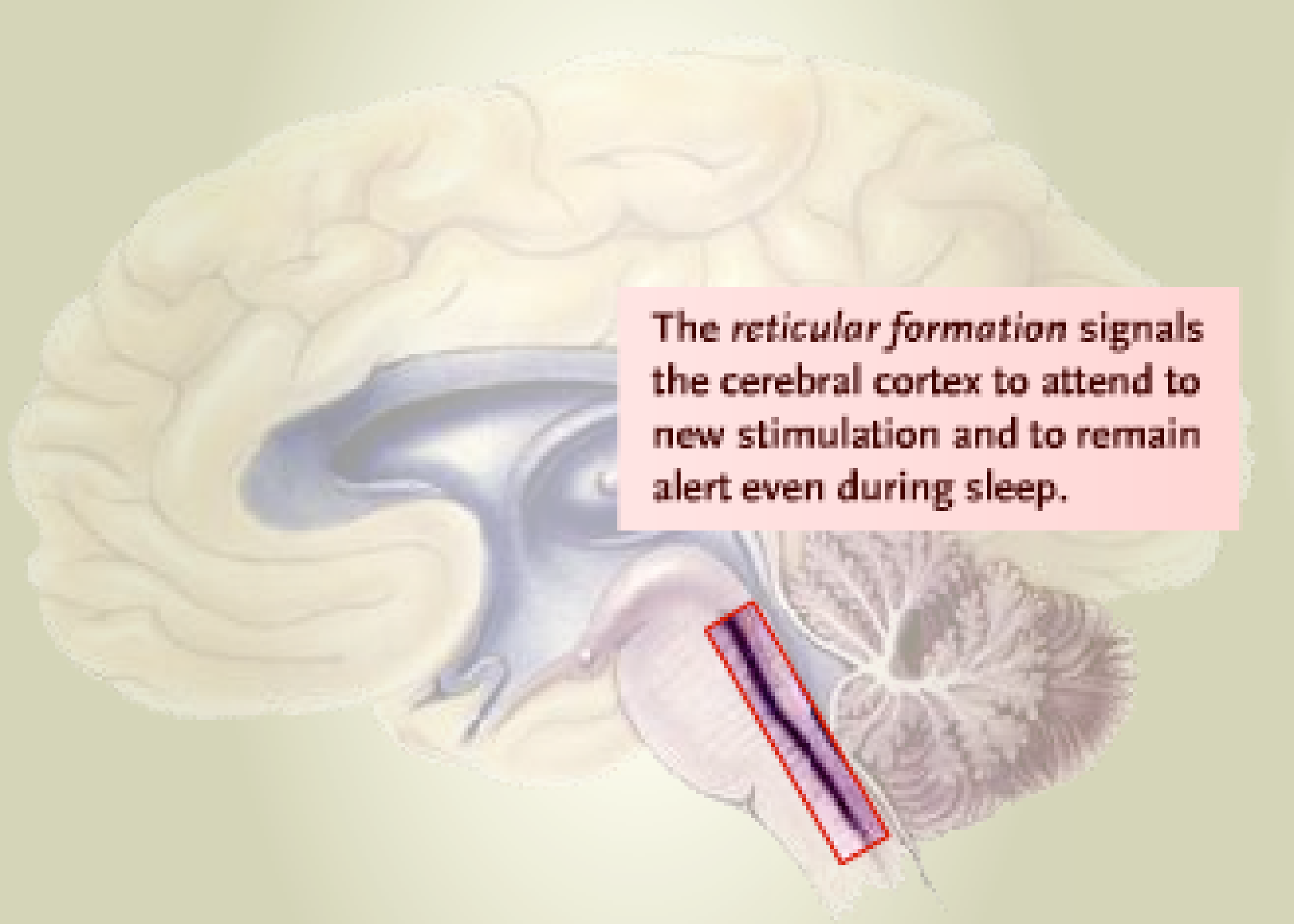
The *thalamus* begins the process of interpreting sensory information. It determines fundamental properties, such as whether something is good or bad, and then forwards the information to the appropriate area of the cerebral cortex, where information processing continues.

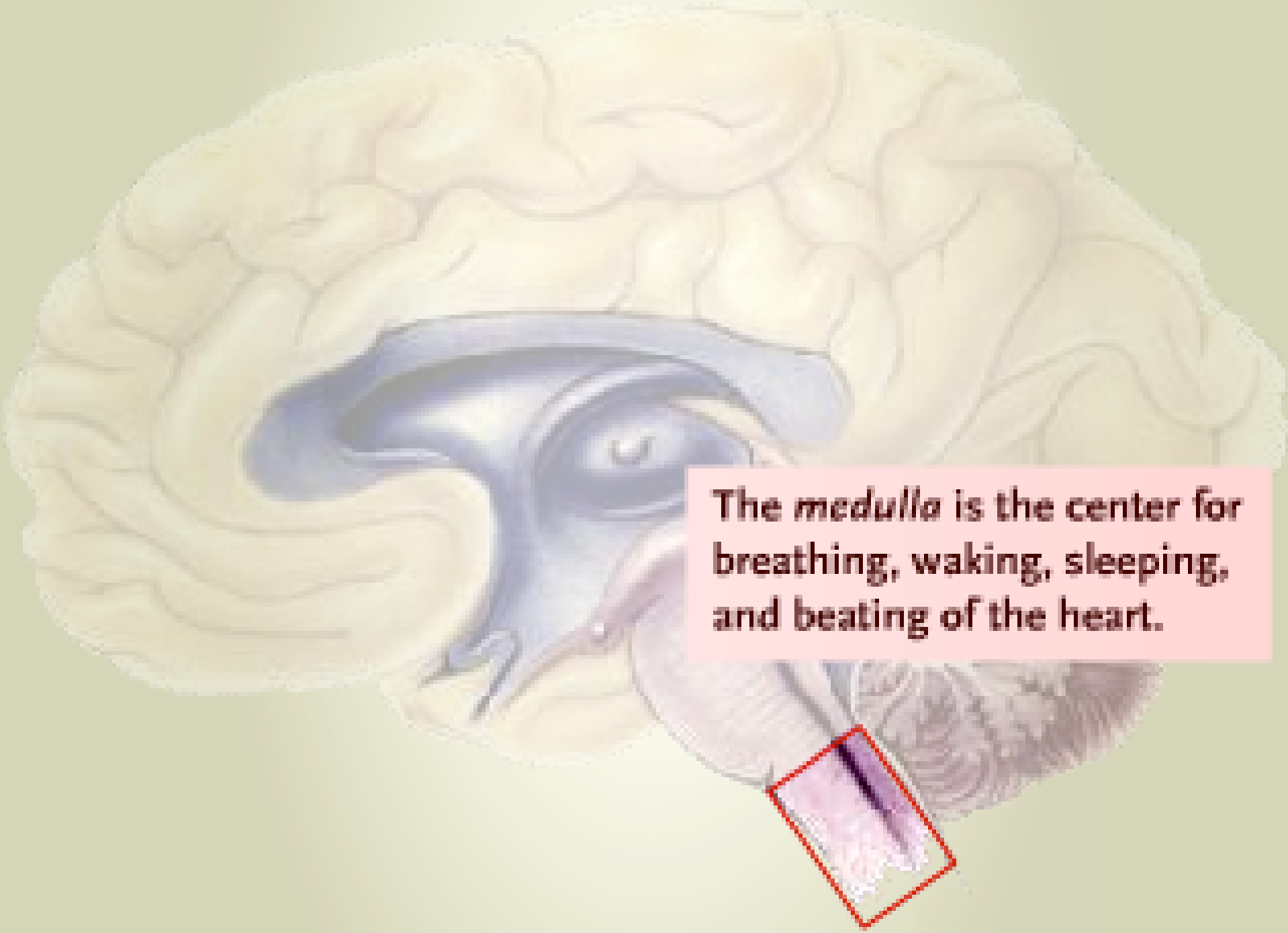


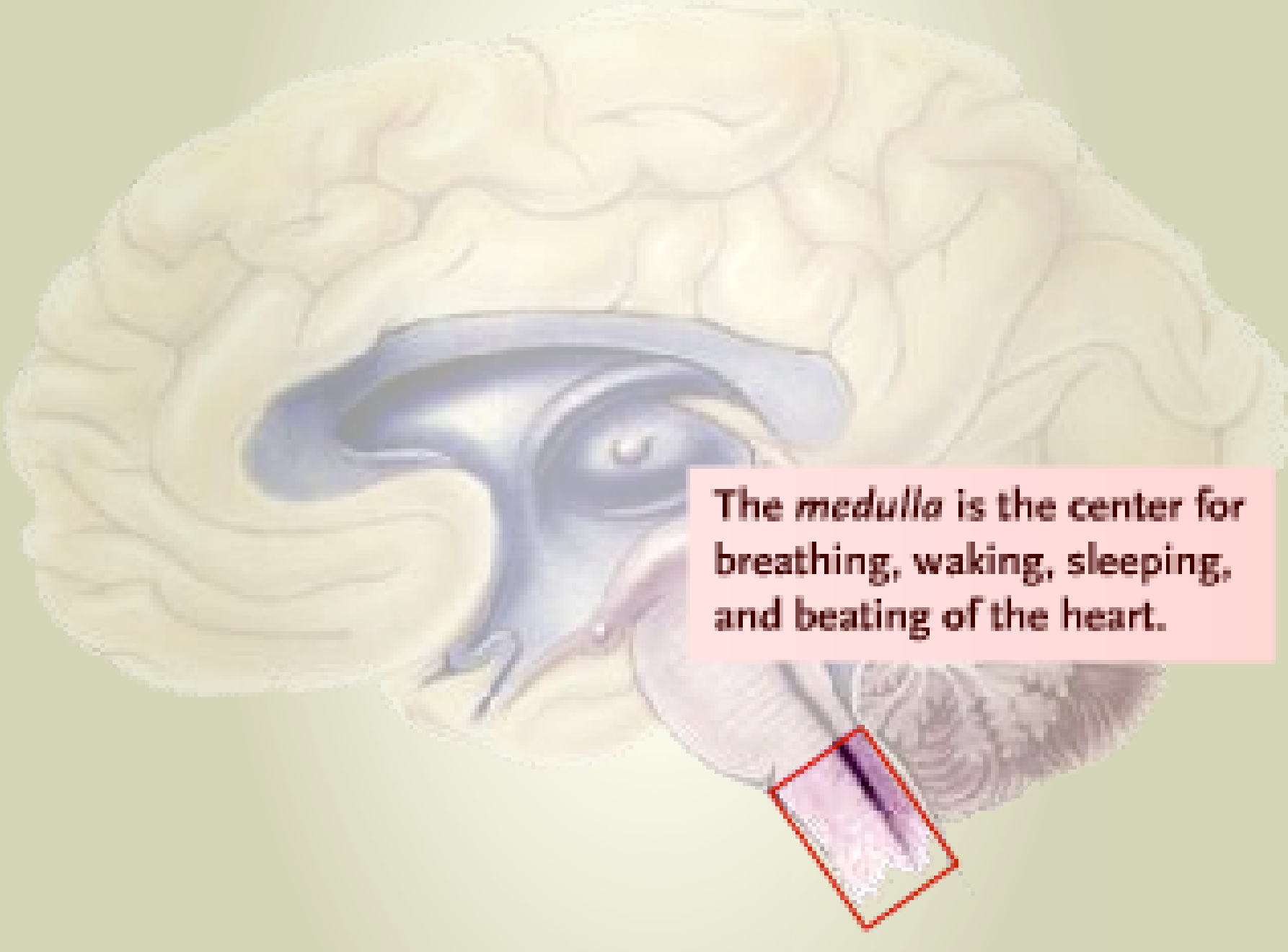

The *pons* triggers dreaming and waking from sleep.

The *cerebellum* coordinates body movements, controls posture, and maintains equilibrium.




The *reticular formation* signals the cerebral cortex to attend to new stimulation and to remain alert even during sleep.

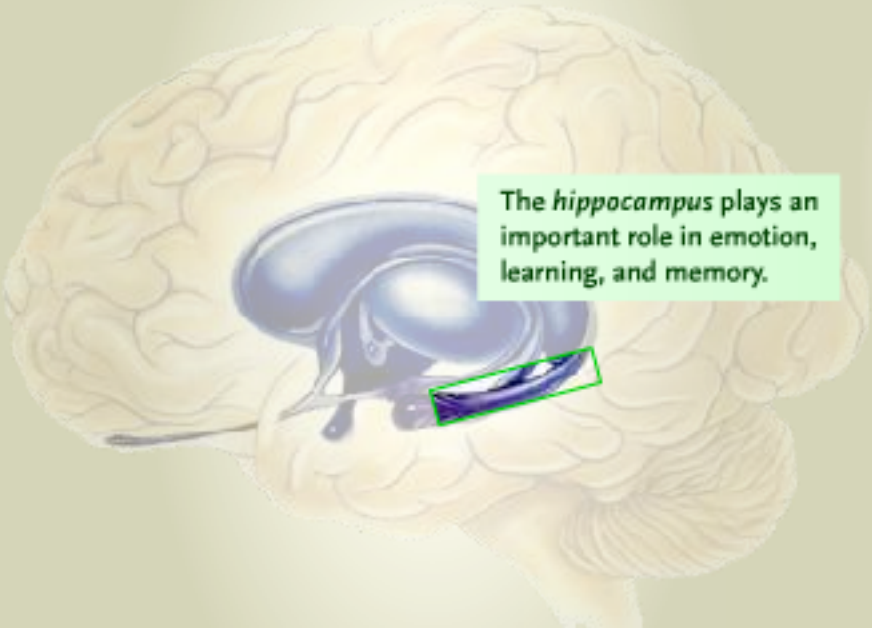

The *medulla* is the center for breathing, waking, sleeping, and beating of the heart.


The *medulla* is the center for breathing, waking, sleeping, and beating of the heart.

The *limbic system* exists only in mammals. Its regions mediate motivated behaviors, emotional states, and memory processes. The limbic system also regulates body temperature, blood pressure, blood sugar level, and other housekeeping activities.

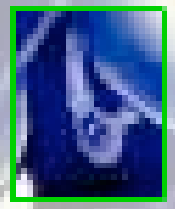
Limbic System

- Hippocampus
- Amygdala
- Hypothalamus

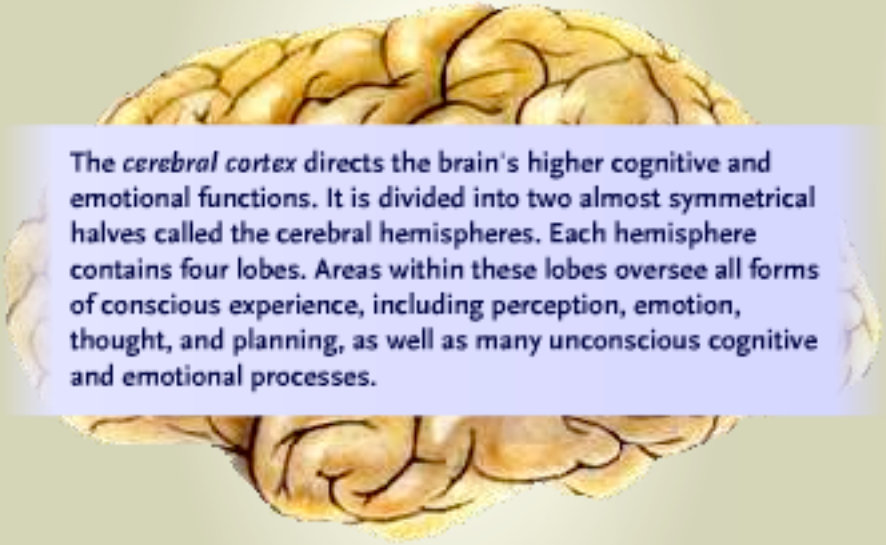

The *hippocampus* plays an important role in emotion, learning, and memory.


The *amygdala* plays a role in aggression, eating, drinking, and sexual behaviors.

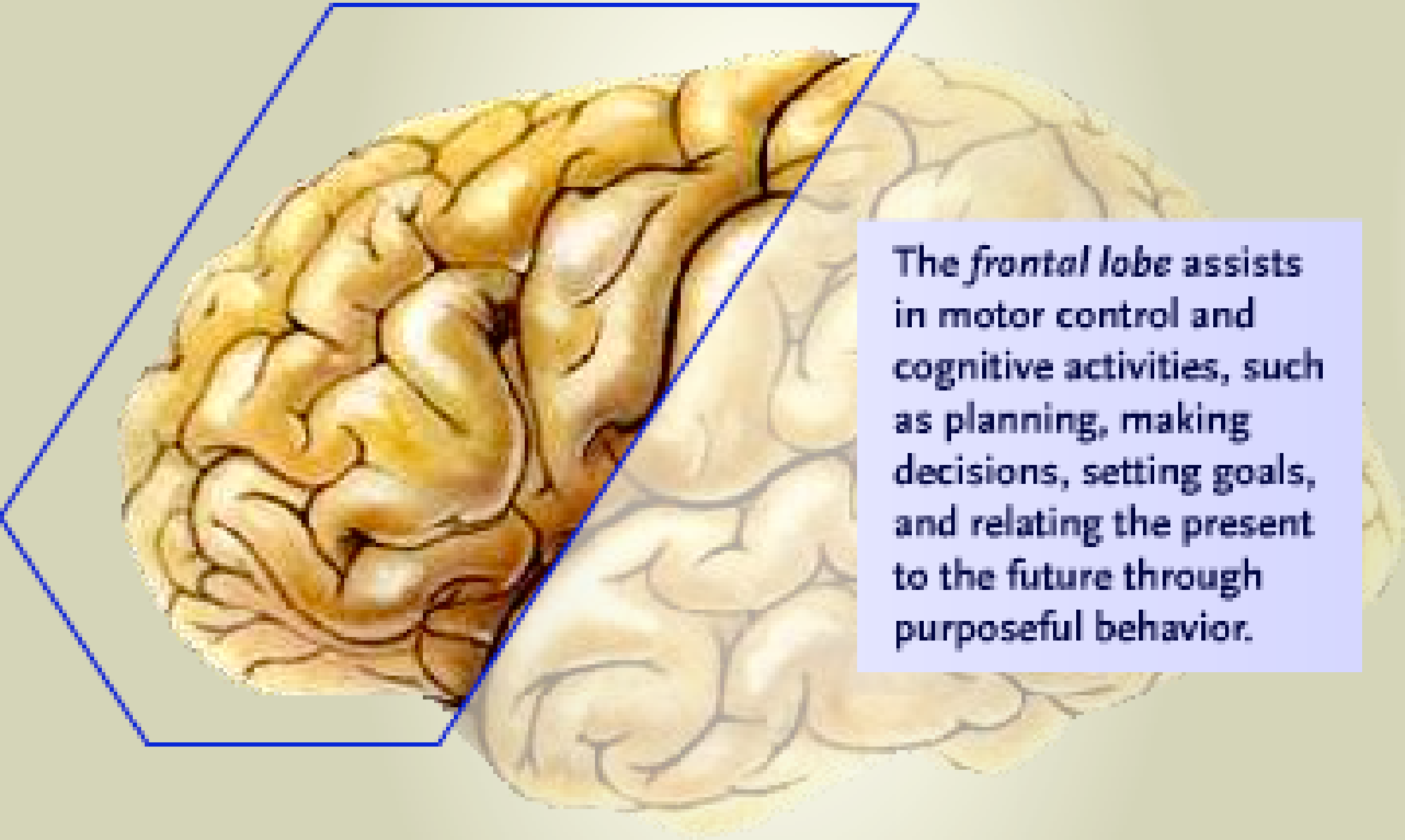
The *hypothalamus* monitors blood levels of glucose, salt, blood pressure, and hormones. It also helps to regulate processes in the body through its connection to the central and autonomic nervous systems and endocrine system.



- Cerebral Cortex
  - Frontal Lobe
  - Occipital Lobe
  - Parietal Lobe
  - Temporal Lobe

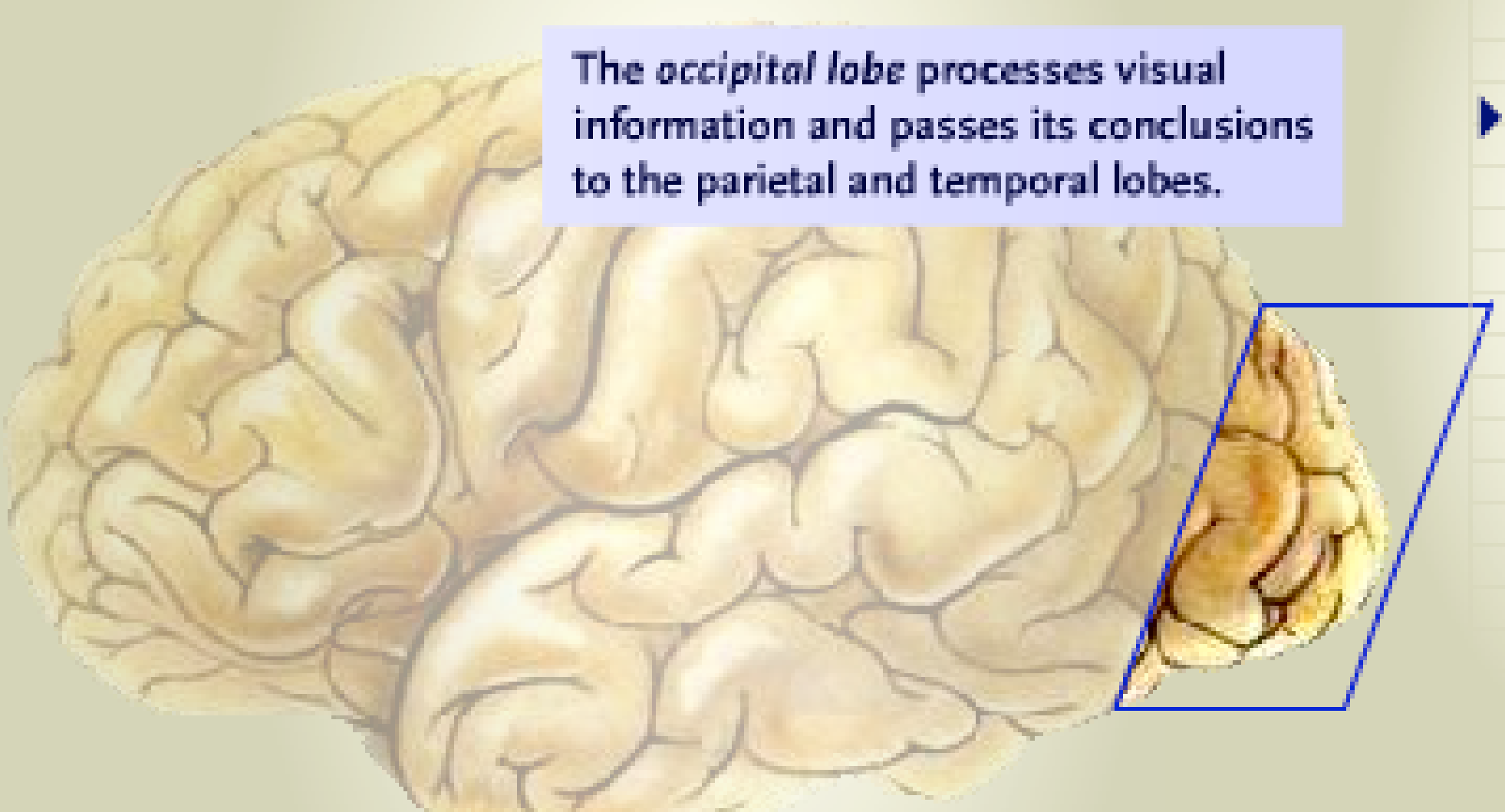


The *cerebral cortex* directs the brain's higher cognitive and emotional functions. It is divided into two almost symmetrical halves called the cerebral hemispheres. Each hemisphere contains four lobes. Areas within these lobes oversee all forms of conscious experience, including perception, emotion, thought, and planning, as well as many unconscious cognitive and emotional processes.



The *frontal lobe* assists in motor control and cognitive activities, such as planning, making decisions, setting goals, and relating the present to the future through purposeful behavior.

The *occipital lobe* processes visual information and passes its conclusions to the parietal and temporal lobes.



The *parietal lobe* assists in sensory processes, spatial interpretation, attention, and language comprehension.

The *temporal lobe* assists in auditory perception, language comprehension, and visual recognition.