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Raphe Nucleus

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There are many raphe nuclei, but none is called by itself “raphe nucleus.” These nuclei, located on the midline (raphe or seam) of the brain stem, are all serotonergic. In the caudal midbrain, for example, the “raphe” contains the “dorsal raphe nucleus” and the “superior central nucleus,” collectively referred to as the “midbrain raphe.” These two cell groups have diffuse ascending serotonergic projections to higher levels of the central nervous system (CNS), including the cerebral cortex. Cortical 5-HT projections are believed to promote the onset of synchronized,

slow wave sleep. The mid-pons raphe contains the “nucleus raphe pontis,” which gives rise to serotonergic (5-HT) projections to the cerebellum. In the rostral medulla, the “nucleus raphe magnus” gives rise to descending serotonergic (5-HT) projections to the dorsal horn of the spinal cord, an opiate-mediated pathway involved in modulating pain. The mid- to caudal medulla contains the “nucleus raphe pallidus” and the “nucleus raphe obscurus,” which give rise to serotonergic projections to the intermediate zone and the ventral horn of the spinal cord gray, affecting somatomotor and visceromotor function.

Cross-References

► [Midbrain Raphe](#)

The author is retired.