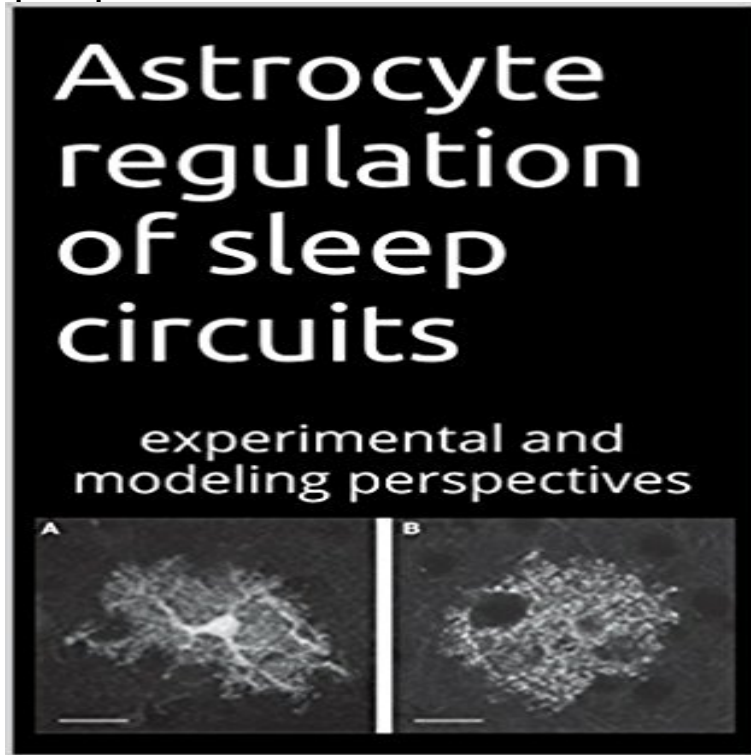


# Astrocyte regulation of sleep circuits: experimental and modeling perspectives



Integrated within neural circuits, astrocytes have recently been shown to modulate brain rhythms thought to mediate sleep function. Experimental evidence suggests that local impact of astrocytes on single synapses translates into global modulation of neuronal networks and behavior. We discuss these findings in the context of current conceptual models of sleep generation and function, each of which have historically focused on neural mechanisms. We highlight the implications and the challenges introduced by these results from a conceptual and computational perspective. We further provide modeling directions on how these data might extend our knowledge of astrocytic properties and sleep function. Given our evolving understanding of how local cellular activities during sleep lead to functional outcomes for the brain, further mechanistic and theoretical understanding of astrocytic contribution to these dynamics will undoubtedly be of great basic and translational benefit.

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