Abstract

Since its discovery, Wnt signaling has been shown to be one of the most crucial morphogens in development and during the maturation of central nervous system. Its action is relevant during the establishment and maintenance of synaptic structure and neuronal function. In this chapter, we will discuss the most recent evidence on these aspects, and we will explore the evidence that involves Wnt signaling on other less known functions, such as in adult neurogenesis, in the generation of oscillatory neural rhythms, and in adult behavior. The dysfunction of Wnt signaling at different levels will be also discussed, in particular in those aspects that have been found to be linked with several neurodegenerative diseases and neurological disorders. Finally, we will address the possibility of Wnt signaling manipulation to treat those pathophysiological aspects.

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KEYWORDS:

Wnt signaling; adult CNS; neurodegenerative diseases; neurogenesis; neurological disorders; synapses