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BIOGENESIS OF THE PRIMARY CILIUM

Summary

Cilia are highly specialized, microtubule-based protrusions, extended on cell surface in almost all mammalian cell types. They function as cell antennae that receive and transmit signals from the environment to the cell body. Cilia formation, so-called ciliogenesis is strictly controlled at multiple levels by a number of proteins, and correlated with the cell cycle progression. Cilia dysfunctions cause a wide range of human diseases, called ciliopathies. Moreover, ciliary defects may lead to obesity and cancer. In this article, we summarize current knowledge concerning cilia function and structure, regulation of ciliogenesis, and the most important signaling pathways and diseases affected by cilia dysfunction.

Key words: cell cycle, ciliogenesis, ciliopathies, primary cilium