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# Kinesin

Kinesins are a family of molecular motors that use the energy of ATP hydrolysis to move along the surface of, or destabilize, microtubule filaments. The kinesin motor protein family consists of 14 distinct subclasses and 45 kinesin proteins in humans. A large number of these proteins, or their orthologues, have been shown to possess essential function(s) in both the mitotic and the meiotic cell cycle. Kinesins also can be classified into three groups based on the position of their motor domains: N-terminal, C-terminal and internal kinesins. Conventional kinesin operates as a dimer, walking in a co-ordinated, hand-over-hand fashion along a microtubule protofilament.

Kinesins have important roles in chromosome separation, microtubule dynamics, spindle formation, cytokinesis and cell cycle progression. Roles of kinesins in diseases typically involve defective transport of cell components, transport of pathogens, or cell division.