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UNCONVENTIONAL MYOSINS AND THEIR FUNCTIONS IN STRIATED MUSCLES AND MYOGENIC CELLS

Summary

Myosins, actin-dependent molecular motors, are engaged in muscle contraction, cell migration and intracellular transport. They are present in all eukaryotic organisms including protists and plants. They are composed of one or two heavy chains, and a number of light chains (1-7 per a heavy chain). Several thousands of myosin heavy chains have been sequenced in hundreds of species. The heavy chain is composed of a motor domain (with actin and ATP binding sites), a neck with IQ motifs (where light chains bind to) and a tail (with domains determining specific functions of a given myosin). A myosin superfamily is divided into over 30 families based on differences in the motor domain primary sequence. Twelve families represented by 40 isoforms are expressed in humans. Well known muscle myosins forming a family II are termed as conventional while all others are termed as unconventional. The article describes the myosin superfamily with emphasis on structure and function of unconventional myosins present in myogenic cells and striated muscles.

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