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ACTINS AND MYOSINS IN THE NUCLEUS

Summary

Actin and myosins are the proteins mainly known from their key roles in muscle contraction. However, besides typical muscle isoforms there are actins and myosins that are present in all cell and tissue types. Studies performed within the last two decades have irrefutably shown that both the cytoplasmic actin isoforms (along with numerous actin-binding proteins) as well as many myosins (representing class I, II, V, VI, XVI and XVIII) are present within the nucleus. They play important roles in nuclear processes as they are involved in transcription and DNA repair, intranuclear transport as well as nuclear import and export, and in maintenance of nuclear architecture. This article describes the current knowledge on the acto-myosin system in this biggest cellular compartment.

Key words: actin, gene expression, myosin, nucleus, nucleolus, polymerase, transcription