CRYSTAL STRUCTURE OF THE $\alpha$-ACTININ ROD: FOUR SPECTRIN REPEATS FORMING A TIGHT DIMER

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$\alpha$-Actinin is a ubiquitously expressed protein found in numerous actin structures. $\alpha$-Actinin consists of an actin-binding domain, a rod domain, and a C-terminal domain and functions as a homodimer to cross-link actin filaments. The rod domain determines the distance between cross-linked actin filaments and also serves as an interaction site for several cytoskeletal and signalling proteins. The $\alpha$-actinin rod is composed of four spectrin repeats and it forms a tight antiparallel dimer. The structure is twisted, its symmetry properties allow prediction of the orientation of parallel and antiparallel cross-linked actin filaments. We suggest that a conserved acidic surface forms an interaction area for several cytoplasmic tails of transmembrane proteins that are involved in recruitment of $\alpha$-actinin to the plasma membrane.

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