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Fimbrin Structure

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ABSTRACT: Fimbrin is a conserved multi-domain protein that organizes filamentous actin (F-actin) into the parallel arrays/bundles that provide mechanical support for cell surface projections such as microvilli on enterocytes or stereocilia on cells of the inner ear. To investigate the molecular mechanism of fimbrin's F-actin cross-linking activity, we determined the crystal structure of the functional cross-linking core of *A. thalania* fimbrin by multiple anomalous diffraction phasing to 2.4 Å. The structure of the fimbrin core is compact since the two actin-binding domains packed against each other in an angled antiparallel orientation. The structure revealed conserved residues important for maintaining the protein's conformation.