

P030 Vinculin orchestrates cell-matrix interactions via talin and actin

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Vinculin undergoes conformational changes in focal adhesions (FAs) that enable the binding of a series of cytoskeletal components. Using imaging and biochemical analyses we tested the effect of vinculin mutants on FA dimensions and correlated their presence with potential interacting proteins. We found that the interaction of vinculin with talin is essential for vinculin-driven FA growth. This growth is mediated by a ternary complex of vinculin with talin and integrins, which sustains integrin activation and increases integrin residency time in FAs. Paxillin recruitment into oversized FAs induced by active vinculin occurred in an indirect manner independent of the presence of a paxillin binding site in the vinculin tail. This vinculin tail, however, was responsible for the effective link of FAs to the actin cytoskeleton. These data lead to the generation of a model that explains the role of vinculin interactions with talin and actin for the regulation of FAs.