

VASP cooperates with zyxin to organize mechanically competent adhesions

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Supplementary Movies

Movie S1. Adhesion complexes and actin dynamics in wild type cells on disc-shaped micropatterns.

Adhesion complexes (Vinculin-Venus) are shown left, actin cytoskeleton (SPY560-Actin) right. Images acquired every 2 min; playback 7 frames s⁻¹. Scale bar, 10 μm. Contractile fibers exhibit retrograde flow, transmitting tension to adhesion-associated dorsal actin bundles distributed along the entire periphery of the micropattern.

Movie S2. Adhesion and actin dynamics in wild type cells on crossbow-shaped micropatterns.

Vinculin-Venus (left) and actin (SPY560-Actin, right) are shown. Images were acquired every 2 min and displayed at 7 frames s⁻¹. Scale bar, 10 μm. Contractile fibers exhibit retrograde flow, pulling on adhesion-connected dorsal actin bundles located at the front edge of the bow, as well as on two ventral fibers spanning the adhesion complexes located at the tip of the arc and at tip of the stick.

Movie S3. Adhesion complexes and actin dynamics in VASP^{-/-} cells on disc-shaped micropatterns.

Adhesion complexes (Vinculin-Venus) are shown left, actin cytoskeleton (SPY560-Actin) right. Images acquired every 2 min; playback 7 frames s⁻¹. Scale bar, 10 μm. VASP deficient cell exhibited altered focal adhesion dynamics, actin organization and accelerated actin retrograde flow.

Movie S4. Adhesion and actin dynamics in VASP^{-/-} cells on crossbow-shaped micropatterns.

Vinculin-Venus (left) and actin (SPY560-Actin, right) are shown. Images were acquired every 2 min and displayed at 7 frames s⁻¹. Scale bar, 10 μm. VASP deficient cells exhibited altered focal adhesion dynamics and actin organization, including markedly reduced stability of the two ventral stress fibers spanning the tip of the arc and the tip of the stick, with frequent loss of integrity and rupture under contractile forces.

Movie S5. Adhesion complexes and actin dynamics in zyxin^{-/-} cells on disc-shaped micropatterns.

Adhesion complexes (Vinculin-Venus) are shown left, actin cytoskeleton (SPY560-Actin) right. Images acquired every 2 min; playback 7 frames s⁻¹. Scale bar, 10 μm. Zyxin deficient cell exhibited altered focal adhesion dynamics, actin organization and accelerated actin retrograde flow.

Movie S6. Adhesion and actin dynamics in *zyxin*^{-/-} cells on crossbow-shaped micropatterns. Vinculin-Venus (left) and actin (SPY560-Actin, right) are shown. Images were acquired every 2 min and displayed at 7 frames s⁻¹. Scale bar, 10 μm. Zyxin deficient cells exhibited altered focal adhesion dynamics and actin organization, including markedly reduced stability of the two ventral stress fibers spanning the tip of the arc and the tip of the stick, with frequent loss of integrity and rupture under contractile forces.

Movie S7. Adhesion and actin dynamics in *zyxin*^{-/-} cells on crossbow-shaped micropatterns. Vinculin-Venus (left) and actin (SPY560-Actin, right) are shown. Images were acquired every 2 min and displayed at 7 frames s⁻¹. Scale bar, 10 μm. Zyxin deficient cells exhibited altered focal adhesion dynamics and actin organization, including markedly reduced stability of the two ventral stress fibers spanning the tip of the arc and the tip of the stick, with frequent loss of integrity and rupture under contractile forces.

Movie S8. Adhesion complexes and actin dynamics in DKO cells on disc-shaped micropatterns. Adhesion complexes (Vinculin-Venus) are shown left, actin cytoskeleton (SPY560-Actin) right. Images acquired every 2 min; playback 7 frames s⁻¹. Scale bar, 10 μm. DKO cell exhibited altered focal adhesion dynamics, actin organization and accelerated actin retrograde flow.

Movie S9. Adhesion and actin dynamics in DKO cells on crossbow-shaped micropatterns. Vinculin-Venus (left) and actin (SPY560-Actin, right) are shown. Images were acquired every 2 min and displayed at 7 frames s⁻¹. Scale bar, 10 μm. DKO cells exhibited altered focal adhesion dynamics and actin organization, including markedly reduced stability of the two ventral stress fibers spanning the tip of the arc and the tip of the stick, with frequent loss of integrity and rupture under contractile forces.

Supplementary Data

Dataset 1. Excel file combining numerical results underlying the graphs and charts presented in the main figures 1, 2 and 3

Dataset 2. Excel file combining numerical results underlying the graphs and charts presented in the main figures 7 and 8

Dataset 3. Excel file combining numerical results underlying the graphs and charts presented in the supplementary figures S3, S4, S7 and S8

Dataset 4. Excel file combining numerical results underlying the graphs and charts presented in the supplementary figures S15