

### **Movie legends**

**Movie 1.** Cell speed is inversely correlated with aspect ratio in TNF- $\alpha$ -activated HUVECs. A migrating HUVEC is treated with 25 ng/mL TNF- $\alpha$  at time=0. Time after TNF- $\alpha$  addition is indicated in the upper left corner in hours:minutes format, and time between frames is 20 minutes. Scale bar is 20  $\mu$ m.

**Movie 2.** TNF- $\alpha$ -induced changes in the GFP-actin cytoskeleton involve a dynamic shift of existing actin filaments. Time after TNF- $\alpha$  addition is indicated in the upper left corner in hours:minutes format, and time between frames is 20 minutes. Scale bar is 20  $\mu$ m and applies to all images.