

Supplementary Information

Wide and high resolution tension measurement using FRET in embryo

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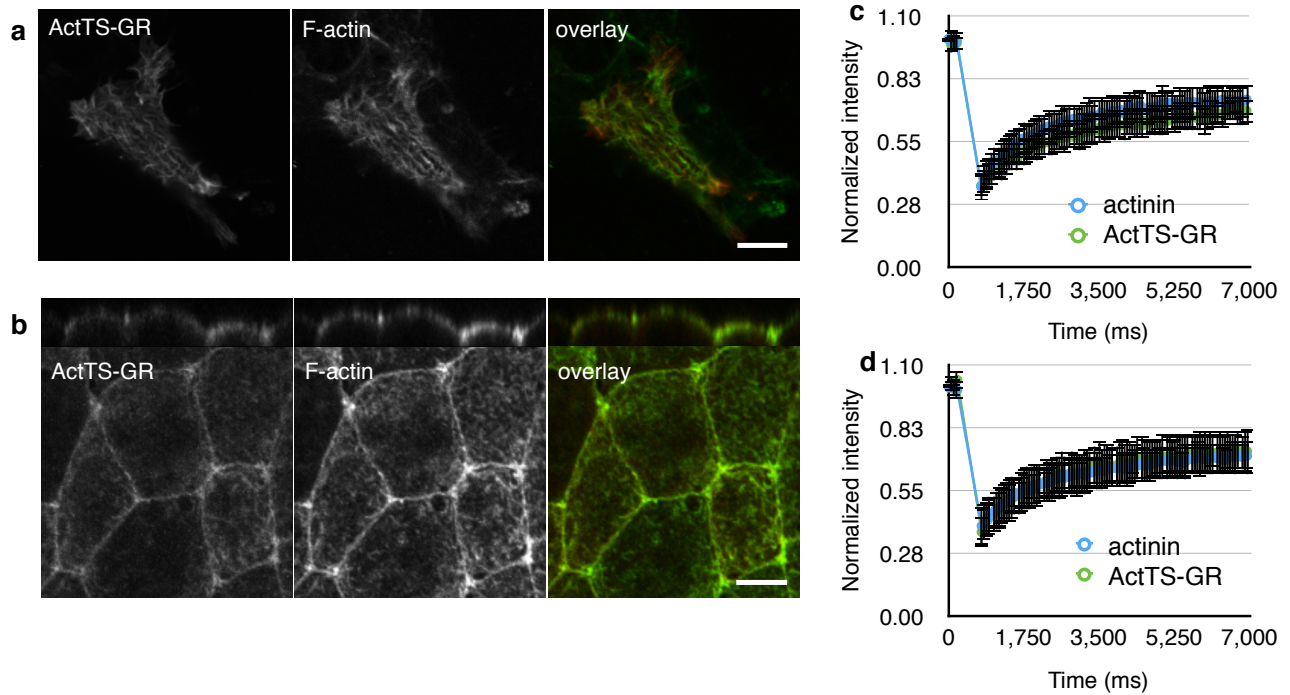
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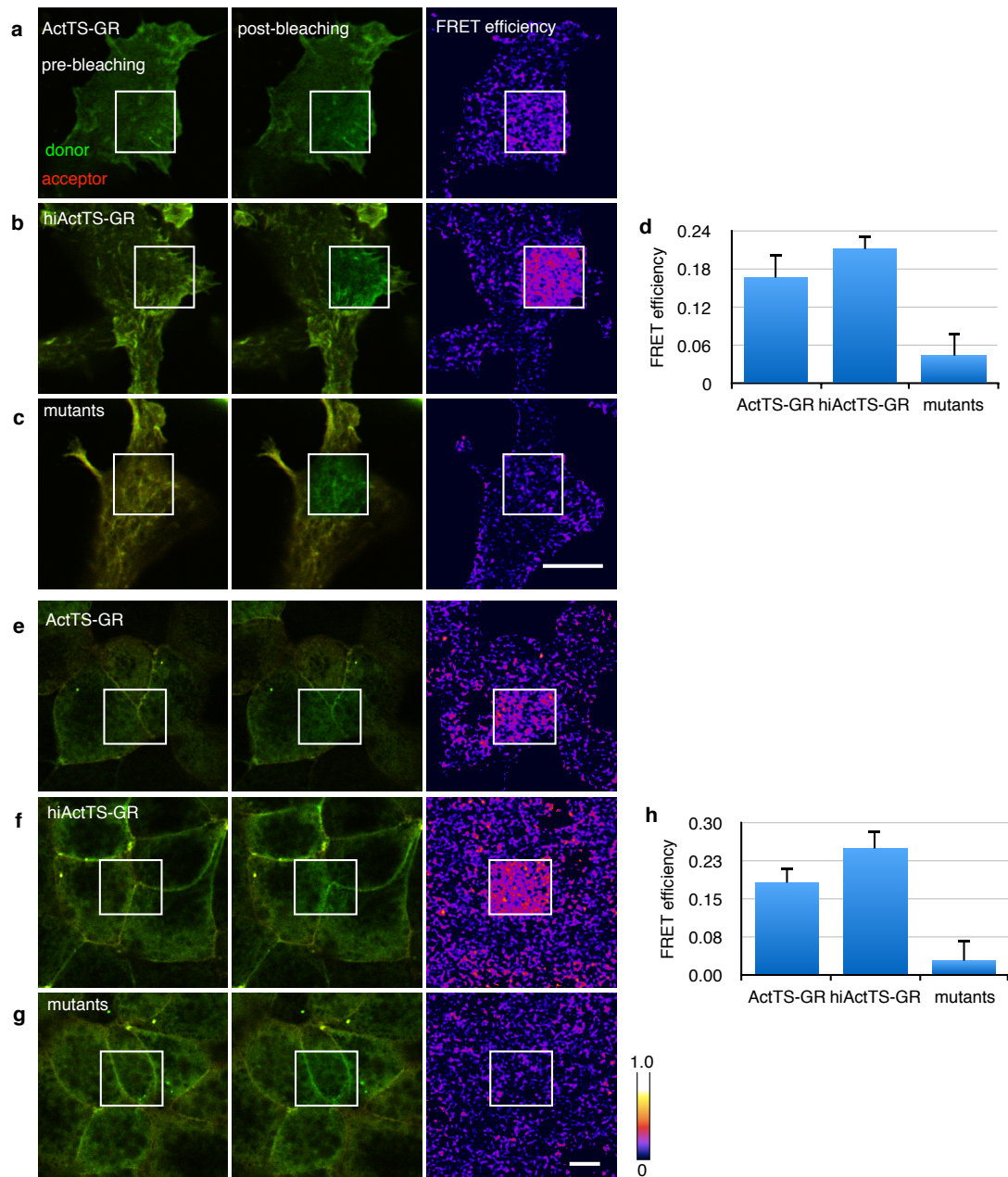
1. Supplementary Figure 1 - Tension sensors localization and dynamics
2. Supplementary Figure 2 - Acceptor photo-bleaching



Supplementary Figure 1

Tension sensors localization and dynamics.

(**a, b**) Localization of ActTS-GR in HEK cell (**a**) and in *Xenopus* ectoderm (**b**). Upper panels of **b** show side view projection of a 3D image stack. Left: ActTS-GR. Center: actin filaments. Right: overlay. The tension sensors co-localized with the actin filaments. (**c**) HEK cells were transfected with ActTS-GR or mCherry-tagged actinin, and a spot in a cell was photo-bleached for EGFP and fluorescence recovery was measured. ActTS-GR showed the same recovery curve with actinin, indicating that ActTS-GR was transported normally. (**d**) FRAP measurement in ectoderm expressing ActTS-GR or mCherry-tagged actinin. A spot on a cell-cell interface was photo-bleached. ActTS-GR showed normal dynamics. Values are average \pm SD, $n = 10$. Scale bar = $10\mu\text{m}$.



Supplementary Figure 2

Acceptor photo-bleaching.

(a-c) Images of HEK cell expressing ActTS-GR **(a)**, hiActTS-GR **(b)**, or pair of fluorescence mutants ActTS-GR before bleaching (left), after bleached (center), and their FRET efficiencies (right). mCherry in a white rectangle was bleached. **(d)** Quantification of FRET efficiency. Values are average \pm SD, $n = 10$. **(e-g)** Images of *Xenopus* ectoderm expressing ActTS-GR **(e)**, hiActTS-GR **(f)**, or mutants pair **(g)** before bleaching (left), after bleaching (center), and their FRET efficiencies (right). **(h)** Quantification of fluorescence increase in ectoderm. $n = 10$. Scale bars = $10\mu\text{m}$.