## **Supplemental Figures:**

**Supplementary Figure 1:** Identification of MAP4K4 as a potential MT-associated focal adhesion disassembly factor. *Related to Figure 1.* 

Supplementary Figure 2: Deletion of MAP4K4 inhibits cell motility in vitro. Related to Figure 2.

Supplementary Figure 3: FRAP analysis of WT and MAP4K4 KO cells. Related to Figure 3.

**Supplementary Figure 4:** MT targeting to focal adhesions, Rho activity, and talin activation in keratinocytes. *Related to Figure 4.* 

**Supplementary Figure 5:** EB2 knockdown and binding of EB2-cc-CT mutation with MTs. *Related to Figure 5.* 

**Supplementary Figure 6:** Endocytosis of β1-integrin and Arf5 activity in WT and KO cells. *Related to Figure 6.* 

**Supplementary Figure 7:** Knockdown expression of *Arf6* and *IQSEC1* in mouse keratinocytes. *Related to Figure 7.* 

## Supplemental Video:

**Supplementary video 1:** Focal adhesion dynamics in WT and KO keratinocytes. *Related to Figure 3.* **Supplementary video 2:** Dynamic localization of EB2 cc-CT mutant. *Related to Figure 5.* 

## Supplemental Spreadsheet:

**Supplementary table:** Quantitative analysis of focal adhesion proteome upon nocodazole treatment by SILAC. *Related to Figure 1.*