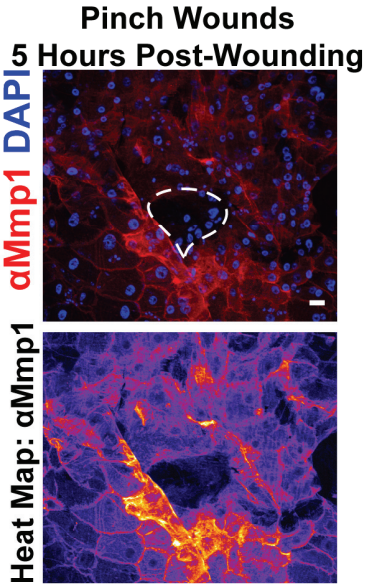

Figure S1: Mmp1 is upregulated in pinch wounds. Mmp1 up-regulation in pinch wounds 5h post-wounding, in a gradient radiating from the leading edge. Top: Mmp1 shown in red. Bottom: Mmp1 shown as a heat map. The white dashed lines (top) outline the wound bed. Scale bar (top panel) represents 20µm.

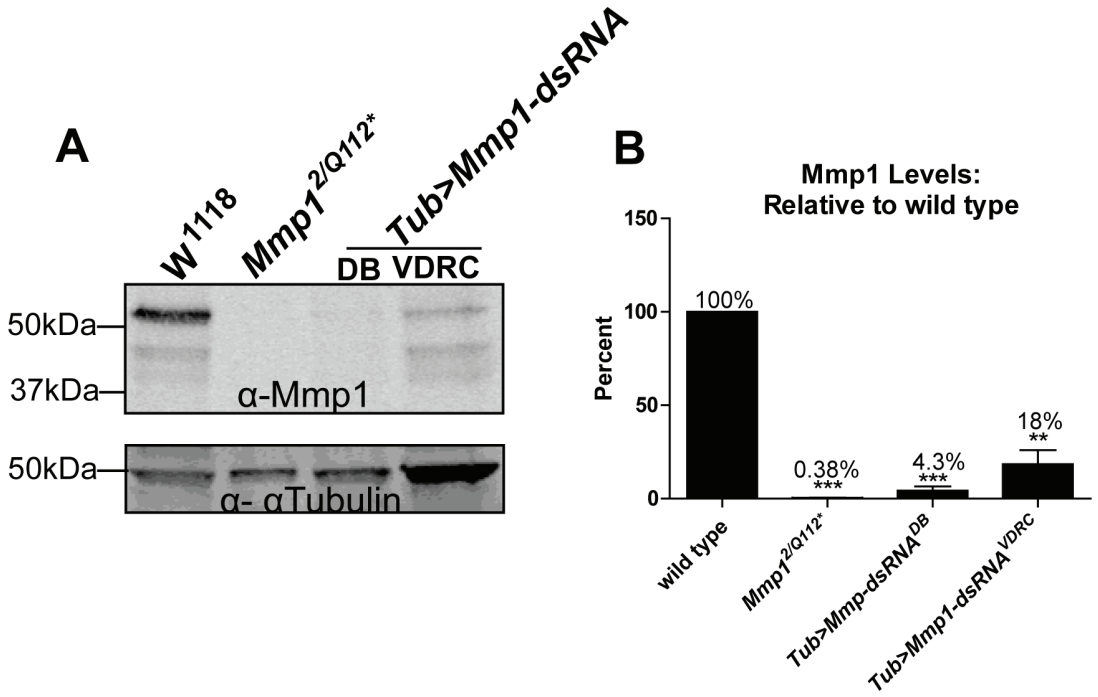

Figure S2: Mmp1-dsRNA knock-down efficiency.
A) Western blot comparing RNA-interference mediated knock-down of Mmp1 from two different constructs. An *Mmp1* null line (2/Q112*) demonstrates the specificity of the antibody. DB indicates the *UAS-Mmp1-dsRNA* line from D. Bohmann (Uhlirova, M, & Bohmann, D., 2006) and VDRC indicates the *UAS-Mmp1-dsRNA* line from Vienna RNAi Stock Center. Lysates were made from whole 3rd instar larvae (see Materials and Methods). Anti-αTubulin was used as a loading control. **B)** Quantification of western blots showing the mean level of Mmp1 expression compared to wild-type of *Mmp1* null mutants (0.38%, $p<0.0001$), *Tub>Mmp1-dsRNA*^{DB} (4.3%, $p=0.0006$), and *Tub>Mmp1-DsRNA*^{VDRC} (18%, $p=0.0082$). Error bars represent standard error of the mean for 3 independent replicates, p-values calculated by Student's t-test comparing each genotype to wild-type.

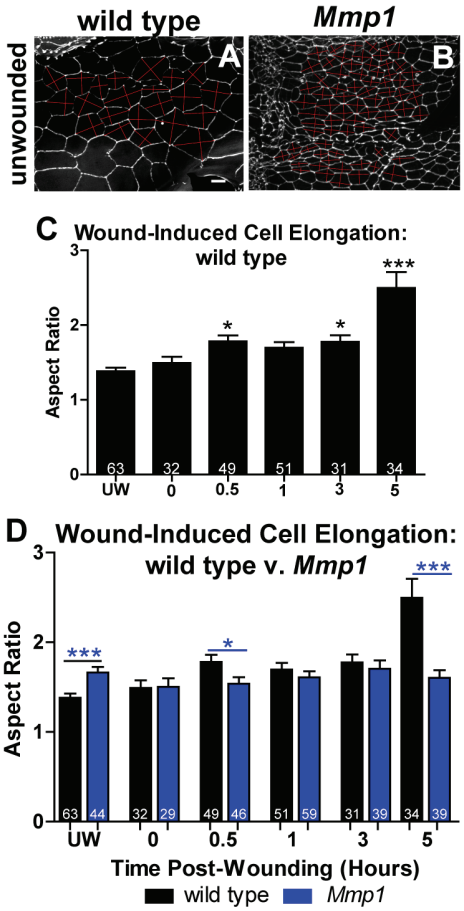

Figure S3: Wound-induced cell elongation changes.
A-B) Representative images of unwounded epidermis in wild type (A) and *Mmp1* mutants (B) with perpendicular red lines highlighting axes measured for aspect ratio calculations. Scale bar (A) represents 20µm. **C)** Quantification of wild-type wound-induced cell aspect-ratio changes over time in leading edge cells. Aspect ratios at each time point were compared to that at 0h post-wounding. Aspect ratios showed modest changes (with significant differences at 0.5h, $p=0.017$, and 3h, $p=0.023$) until 5h when ratios showed clear elongation that was highly significantly different from 0h ($p<0.0001$). **D)** Bar graph comparing aspect ratios between wild type and *Mmp1* mutants showing that *Mmp1* mutant cells are significantly different from wild-type in unwounded epidermis ($p=0.0004$), as well as at 0.5h ($p=0.030$) and 5h ($p=0.0001$) post-wounding. There is no significant difference between wild-type and *Mmp1* mutant cell elongation at 0h, 1h, and 3h post-wounding. Numbers on bars designate the number of cells measured within each genotype. Error bars represent the standard error of the mean (C-D).

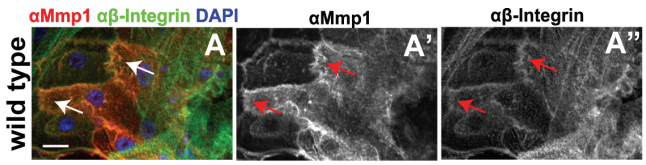

Figure S4: Mmp1 co-localizes with β-integrin post-wounding. **A-A")** Antibody staining against Mmp1 (A') and against β-integrin (A") showing co-localization (A) at the distal tips of leading edge cells 5h post-wounding, as indicated by arrows (n≥15). Scale bar in A represents 20μm.

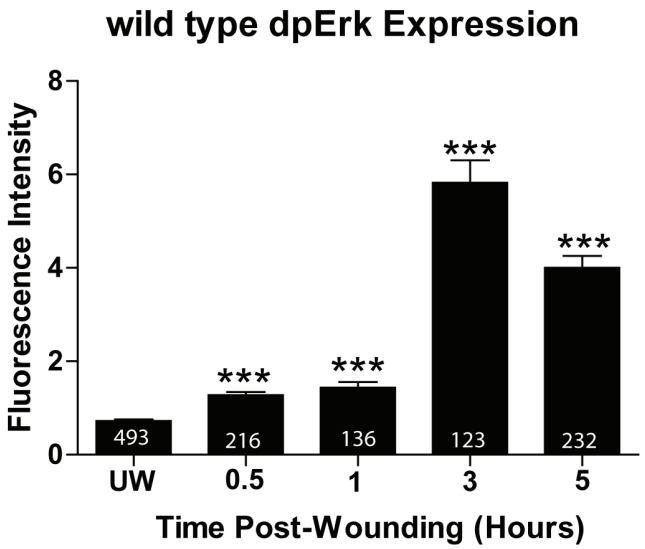

Figure S5: Wound-induced changes in wild-type dpErk intensity. Quantification of wound-induced dpErk expression at the leading edge over time in wild-type animals (see Materials and Methods). dpErk is significantly up-regulated, relative to unwounded expression, in all time points tested ($p<0.0001$ at each time point by Student's t-test). Error bars represent standard error of the mean.