Lewellyn et al., http://www.jcb.org/cgi/content/full/jcb.201209129/DC1

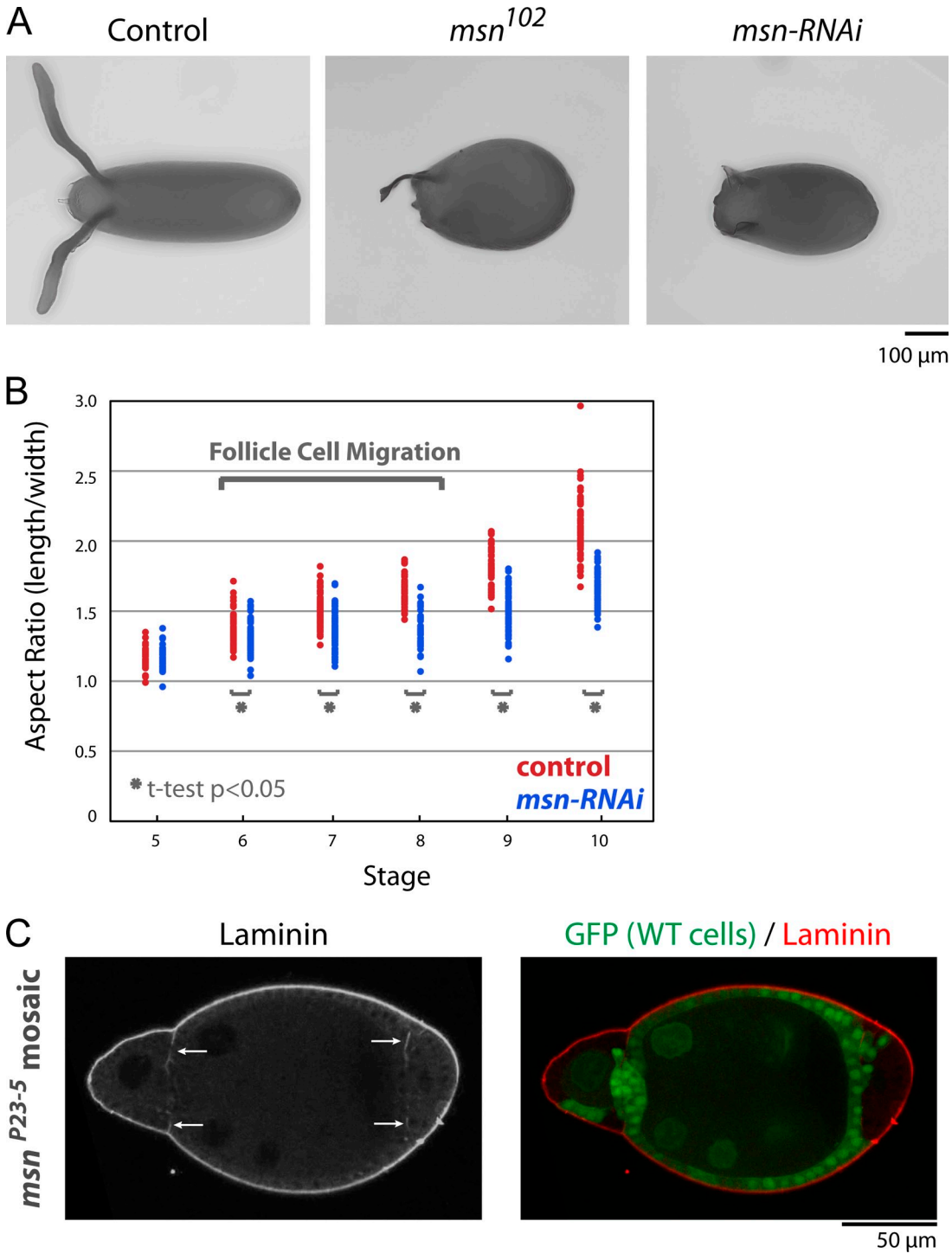


Figure S1. **Misshapen is required for egg chamber elongation.** (A) Expression of *msn-RNAi* in the follicle cells produces round eggs, similar to follicle cell mosaics of a published allele, *msn*^{102}. The wild-type image has been replicated from Horne-Badovinac et al. (2012). (B) Aspect ratios for individual control and *msn-RNAi* egg chambers are plotted for each developmental stage. *msn-RNAi* egg chambers are significantly rounder than controls starting at stage 6. These data are from a single experiment that involved dissection of >12 flies per condition, with n = 35–80 egg chambers for each condition at each developmental stage. (C) Transverse optical section of an *msn* mosaic egg chamber that has mutant clones (indicated by lack of GFP) at the anterior and posterior poles, causing wild-type follicle cells to invade the germ cells. Laminin staining shows that invading wild-type cells maintain contact with a BM (arrows). Bar measurements are indicated in the figure.

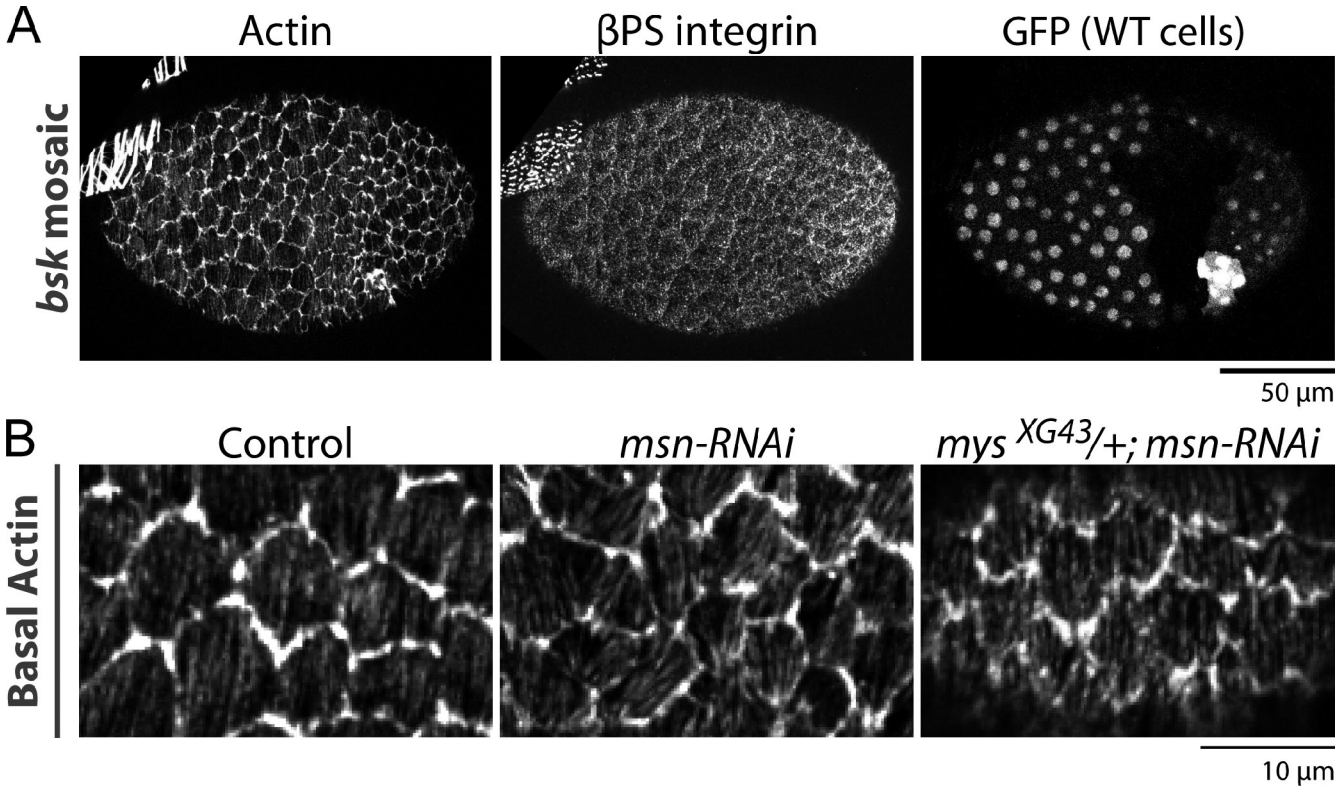
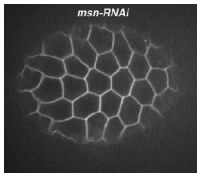
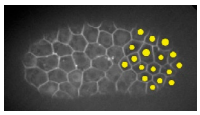


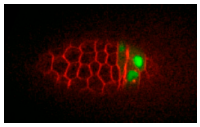
Figure S2. **Msn's effect on integrin levels is JNK independent, and reducing integrin levels rescues the basal actin organization defect in *msn-RNAi*.** (A) A basal view of a *Df(bsk)*^{flp147E} mosaic epithelium stained for the β-PS integrin reveals that defects in JNK signaling do not affect integrin levels. (B) Reducing integrin levels in *msn-RNAi* epithelia restores the planar organization of the basal actin filaments (only 5% show disruptions in basal actin organization compared with 20% in *msn-RNAi* alone, *n* = 20 for control and *msn-RNAi*. *n* = 22 for *mys*^{XG43}*/+; msn-RNAi*).



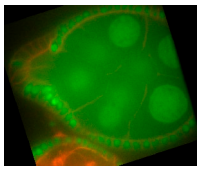
Video 1. **Msn promotes follicle cell migration.** Live imaging of control and *msn-RNAi* egg chambers (Fig. 1 C). Samples were analyzed by time-lapse microscopy using a spinning disk confocal microscope (Axiovert 200M; Carl Zeiss) with a spinning disk unit (model CSU-10; Yokogawa Corporation of America). Cell membranes are labeled with FM4-64. Frames were taken every 30 s for 22.5 min. Playback rate is 300× real time.



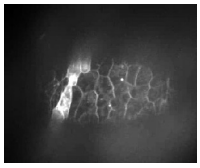
Video 2. **A large *msn* mutant clone blocks global follicle cell migration.** msn^{172} cells (yellow dots) are stationary, while neighboring wild-type cells attempt to move past them (Fig. 1 D). The *msn* mosaic egg chamber was analyzed by time-lapse microscopy using a spinning disk confocal microscope (Axiovert 200M; Carl Zeiss) with a spinning disk unit (model CSU-10; Yokogawa Corporation of America). Cell membranes are labeled with FM4-64. Frames were taken every 30 s for 61 min. Playback rate is 300× real time.



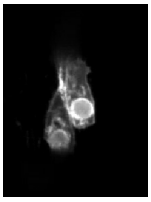
Video 3. ***msn-RNAi* mosaic egg chambers exhibit a cell-autonomous defect in follicle cell migration.** The cells in an *msn-RNAi* flipout clone (GFP) move very little while neighboring wild-type cells efficiently migrate past them (Fig. 1 F). The mosaic egg chamber was analyzed by time-lapse microscopy using a spinning disk confocal microscope (Axiovert 200M; Carl Zeiss) with a spinning disk unit (model CSU-10; Yokogawa Corporation of America). Cell membranes are labeled with FM4-64 (red). Frames were taken every 30 s for 32 min. Playback rate is 300× real time.



Video 4. **The presence of an msn^{172} mutant clone at the anterior leads to invasion of neighboring wild-type cells (GFP) into the germ cell cluster.** The time-lapse begins at a transverse section, then goes up to a more basal plane before returning back to the transverse section (Fig. 2, D and E). The mosaic egg chamber was analyzed by time-lapse microscopy using a spinning disk confocal microscope (Axiovert 200M; Carl Zeiss) with a spinning disk unit (model CSU-10; Yokogawa Corporation of America). Cell membranes are labeled with FM4-64 (red). Frames were taken every 30 s for 90 min. Playback rate is 300× real time.



Video 5. **"Tails" form at the back of individual *msn-RNAi* cells in a small clone (mCD8-GFP, Fig. 5 B).** An egg chamber containing a clone of cells expressing *UAS-msn-RNAi* and *UAS-mCD8-GFP* was analyzed by time-lapse microscopy using a spinning disk confocal microscope (Axiovert 200M; Carl Zeiss) with a spinning disk unit (model CSU-10; Yokogawa Corporation of America). Frames were taken every 30 s for 28 min. Playback rate is 300× real time.



Video 6. **"Tails" can retract as the *msn-RNAi* follicle cells migrate forward (mCD8-GFP, Fig. 5 C).** An egg chamber containing a clone of cells expressing *UAS-msn-RNAi* and *UAS-mCD8-GFP* was analyzed by time-lapse microscopy using a spinning disk confocal microscope (Axiovert 200M; Carl Zeiss) with a spinning disk unit (model CSU-10; Yokogawa Corporation of America). Frames were taken every 30 s for 60 min. Playback rate is 300× real time.

Table S1. **Experimental genotypes**

Figure	Panel	Genotype
1	C and D	*w*^{1118}*/ +; TubP-GAL80*^{ts}*/ +; TubP-GAL4/ +* *TubP-GAL80*^{ts}*/ UAS-msn-RNAi; TubP-GAL4/ +*
1	E	*e22c-GAL4, UAS-FLP/ +; msn*^{172}*, FRT80/ ubi-eGFP, FRT80*
1	F	*hsFLP/ +; UAS-msn-RNAi/ +; act5c>>GAL4, UAS-GFP/ +*
2	A	*e22c-GAL4, UAS-FLP/ +; msn*^{172}*, FRT80/ ubi-eGFP, FRT80* (top, no clones) *e22c-GAL4, UAS-FLP/ +; msn*$^{P23\text{-}5}$*, FRT80/ ubi-eGFP, FRT80* (bottom, clone)
2	B	*e22c-GAL4, UAS-FLP/ +; msn*^{102}*, FRT80/ ubi-eGFP, FRT80*
2	C	*C306-GAL4/ +; UAS-msn-RNAi/ +; UAS-mCD8-GFP/ +*
2	D and E	*e22c-GAL4, UAS-FLP /+; msn*^{172}*, FRT80 / ubi-eGFP, FRT80*
3	A	*e22c-GAL4, UAS-FLP/ +; msn*^{102}*, FRT80/ ubi-eGFP, FRT80* (top) *e22c-GAL4, UAS-FLP/ +; msn*^{172}*, FRT80/ ubi-eGFP, FRT80* (bottom)
3	B	*hsFLP/ +;; UAS-HA-myr-msn/ act5c>>GAL4, UAS-GFP*
3	C	*w*^{1118}*/ +; tj-Gal4, vkg-GFP/ +* (top left) *vkg-GFP/ e22c-GAL4, UAS-FLP; msn*^{102}*, FRT80/ hs-piMyc, FRT80* (top right) *tj-Gal4, vkg-GFP/ UAS-msn-RNAi* (bottom left) *mys*^{XG43}*/+; tj-GAL4, vkg-GFP/ UAS-msn-RNAi* (bottom right)
3	D	*w*^{1118}*/ +; tj-Gal4/ +* *mys*^{XG43}*/ +; tj-GAL4/+* *tj-Gal4/ UAS-msn-RNAi* *mys*^{XG43}*/ +; tj-GAL4/ UAS-msn-RNAi* *tj-Gal4/UAS-msn*
4	A and B	*e22c-GAL4, UAS-FLP/+; msn-YFP, FRT80/ FRT80*
4	C	*w*^{1118} (left) *e22c-GAL4, UAS-FLP/ +; msn*^{102}*, FRT80/ ubi-eGFP, FRT80* (right)
5	A	*w*^{1118}*/ hsFLP;; act5c>>GAL4, UAS-GFP/+* *hsFLP/ +; UAS-msn-RNAi/ +; act5c>>GAL4, UAS-GFP/ +*
5	B and C	*hsFLP/ +; UAS-msn-RNAi/ +; act5c>>GAL4, UAS-GFP/ UAS-mCD8-GFP*
5	D	*hsFLP/ +; UAS-msn-RNAi/ +; act5c>>GAL4, UAS-RFP/ talin-GFP*
S1	A	*w*^{1118}*/ +; TubP-GAL80*^{ts}*/ +; TubP-GAL4/ +* *e22c-GAL4, UAS-FLP/ +; msn*^{102}*, FRT80/ ubi-eGFP, FRT80* *TubP-GAL80*^{ts}*/ UAS-msn-RNAi; TubP-GAL4/+*
S1	B	*w*^{1118}*/ +; TubP-GAL80*^{ts}*/ +; TubP-GAL4/ +* *TubP-GAL80*^{ts}*/ UAS-msn-RNAi; TubP-GAL4/ +*
S1	C	*e22c-GAL4, UAS-FLP/ +; msn*$^{P23\text{-}5}$*, FRT80/ ubi-eGFP, FRT80*
S2	A	*y,w, hsFLP/ +; Df(2L)flp147E, FRT40A / ubi-GFP, FRT40A (Df removes bsk)*
S2	B	*w*^{1118}*/ +; tj-Gal4/ +* *tj-Gal4/ UAS-msn-RNAi* *mys*^{XG43}*/ +; tj-GAL4/ UAS-msn-RNAi*

Table S2. **Conditions for transgene expression**

Figure	Panel	Temp at which cross was raised	Temp females on yeast	Time females on yeast
		°C	°C	*h*
1	C and D	18	29	68–72
3	C and D	18	25	24–29
S1	A and B	18	29	68–72
S2	B	18	25	26.5