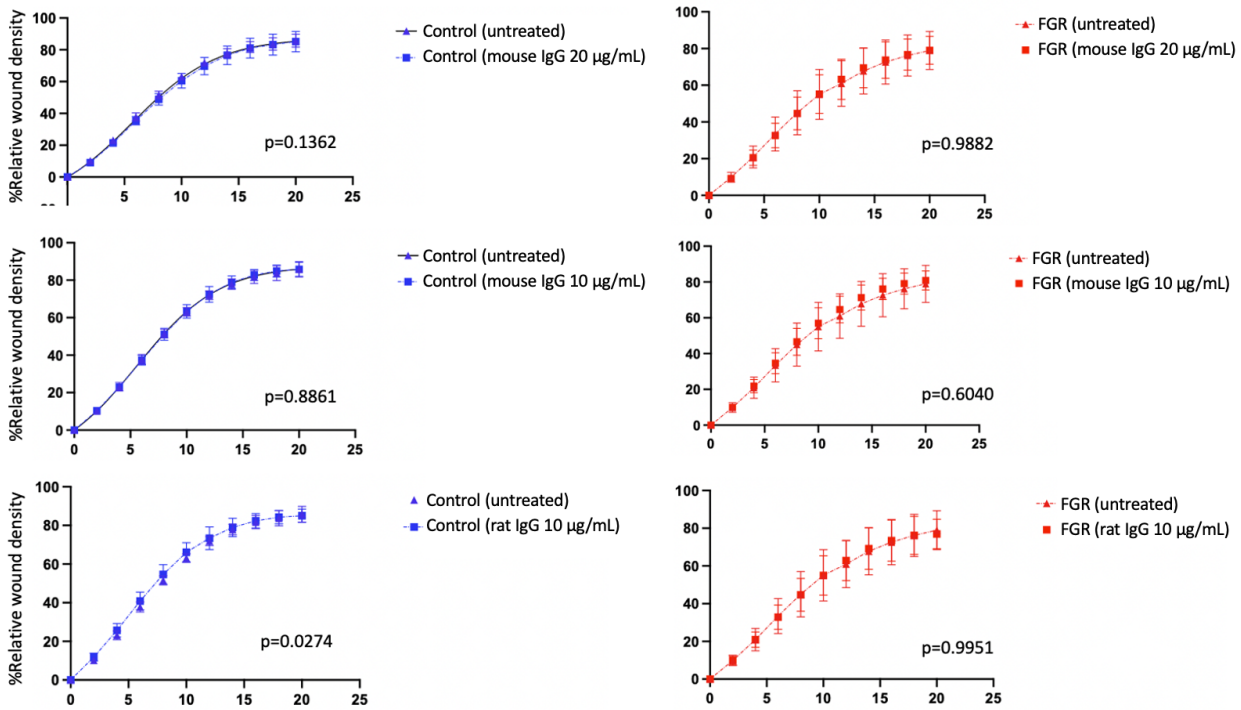


Fig. S1. There were no significant differences in migration when comparing untreated control and FGR endothelial cells to those treated with IgG isotype controls. All cells were plated on fibronectin (n=6 per group).

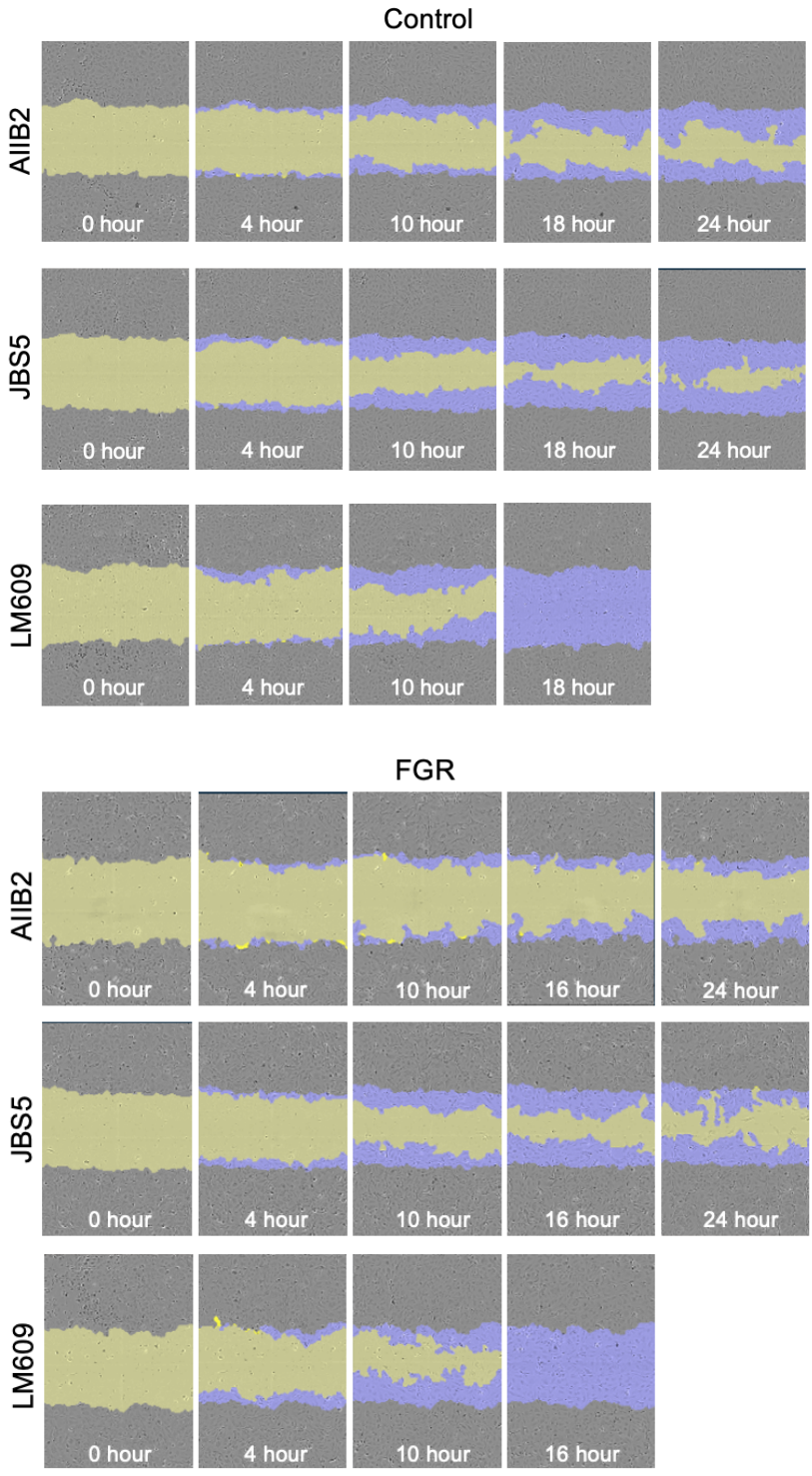
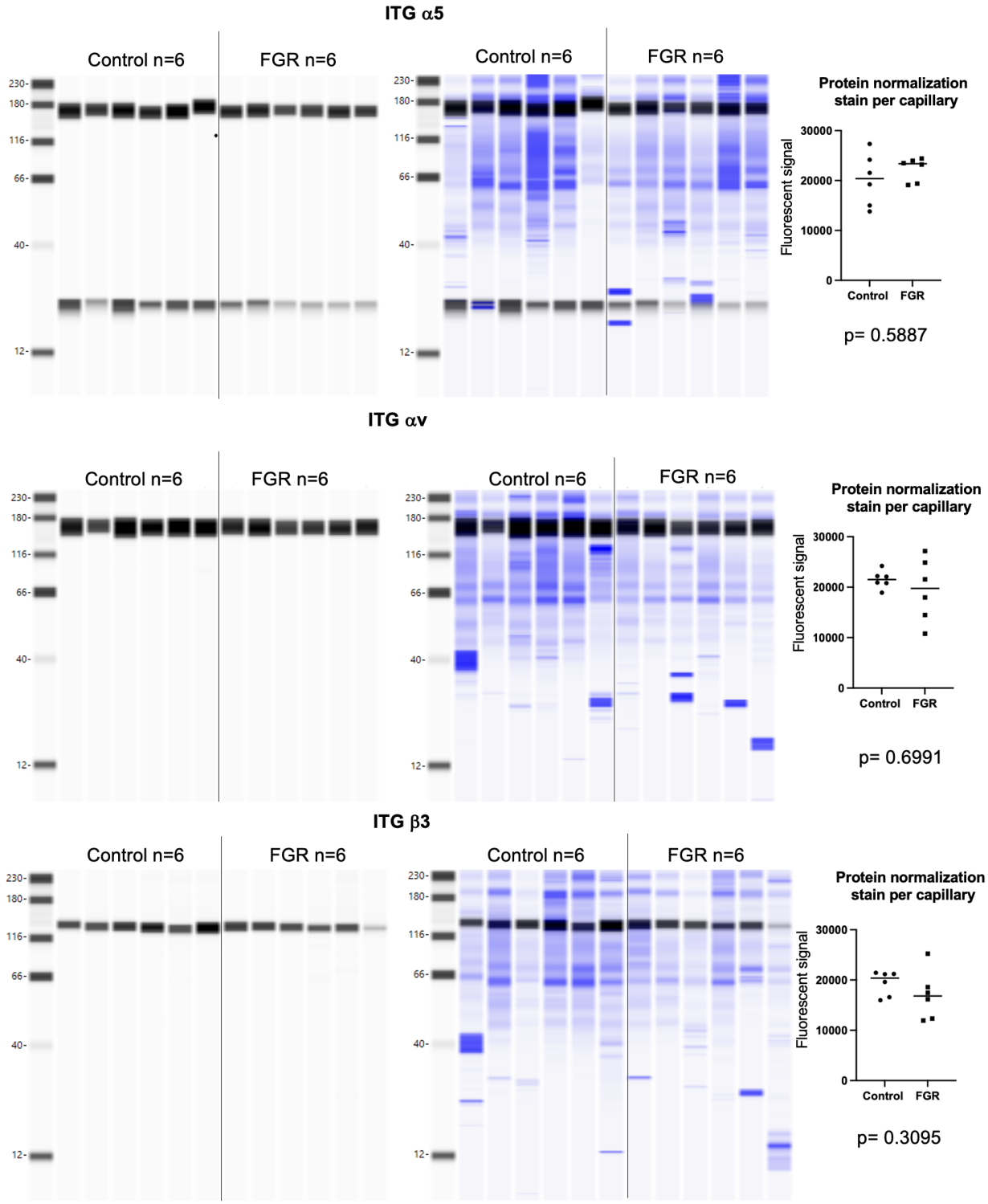


Fig. S2. Representative images of cell migration into the scratch wound and the masks used to generate %RWD for all treatment conditions in each cohort.



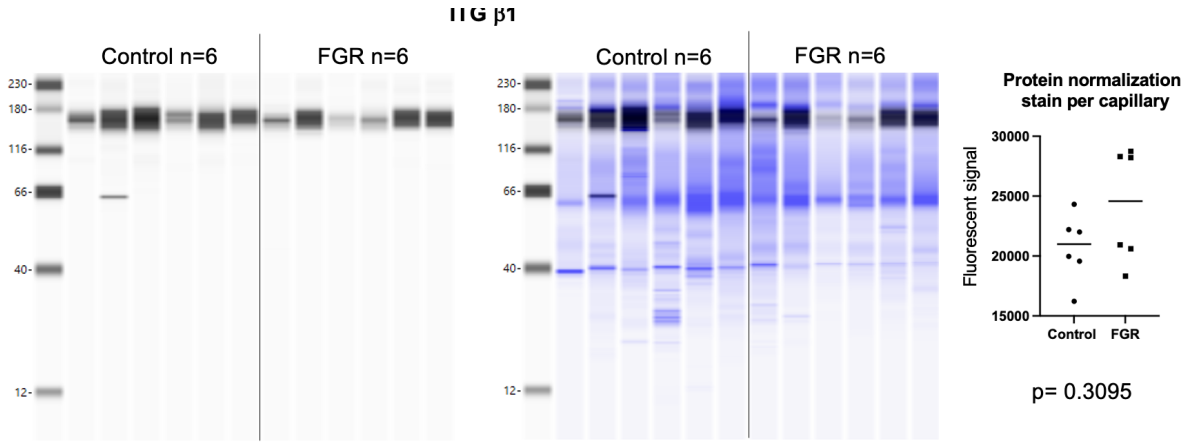


Fig. S3. Uncropped images of the immunoblots presented in Figure 3. The fluorescent signals in each group generated by the protein normalization stain (shown in blue) were compared with a Mann-Whitney U-test and showed no significant difference in protein normalization stain.

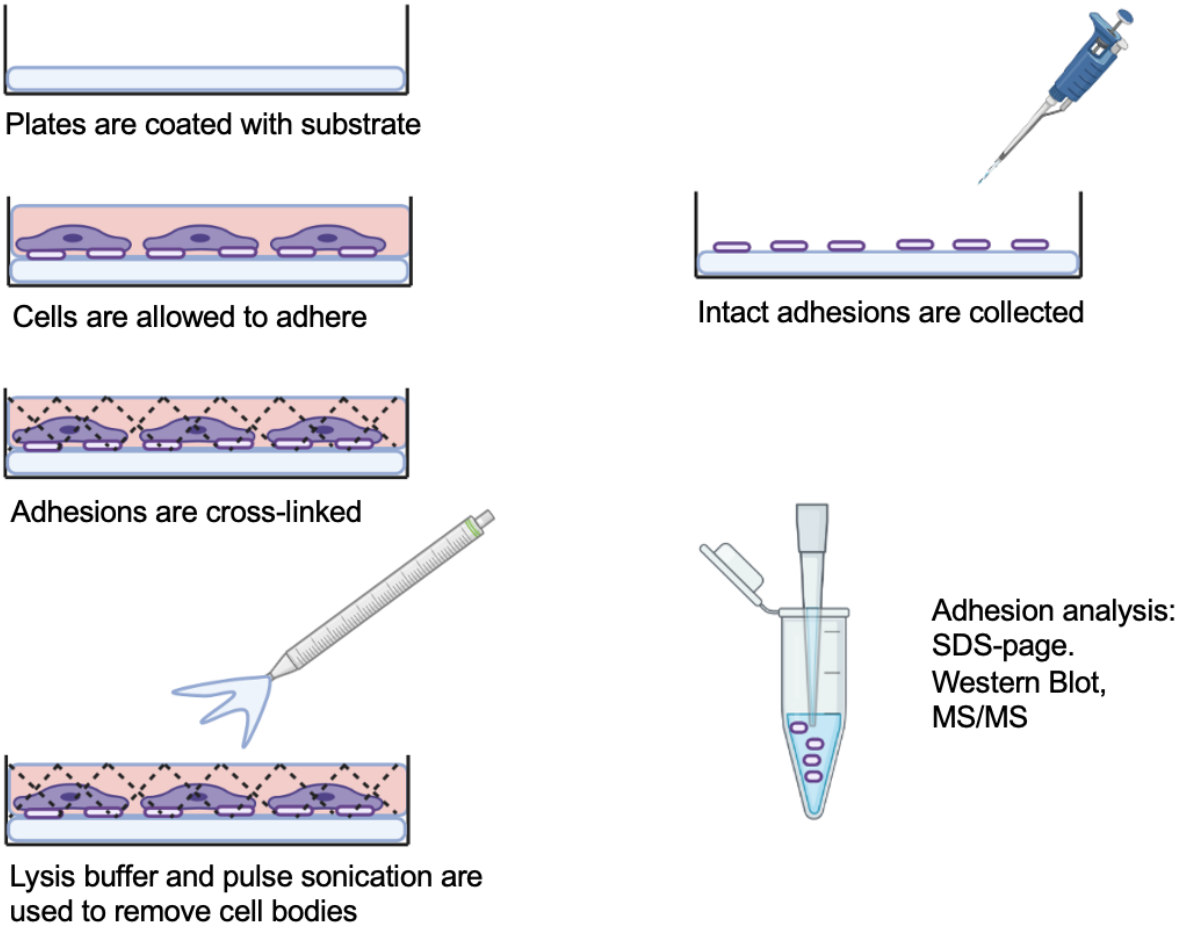


Fig. S4. Graphical depiction of the method used to isolate membrane focal adhesion complexes.

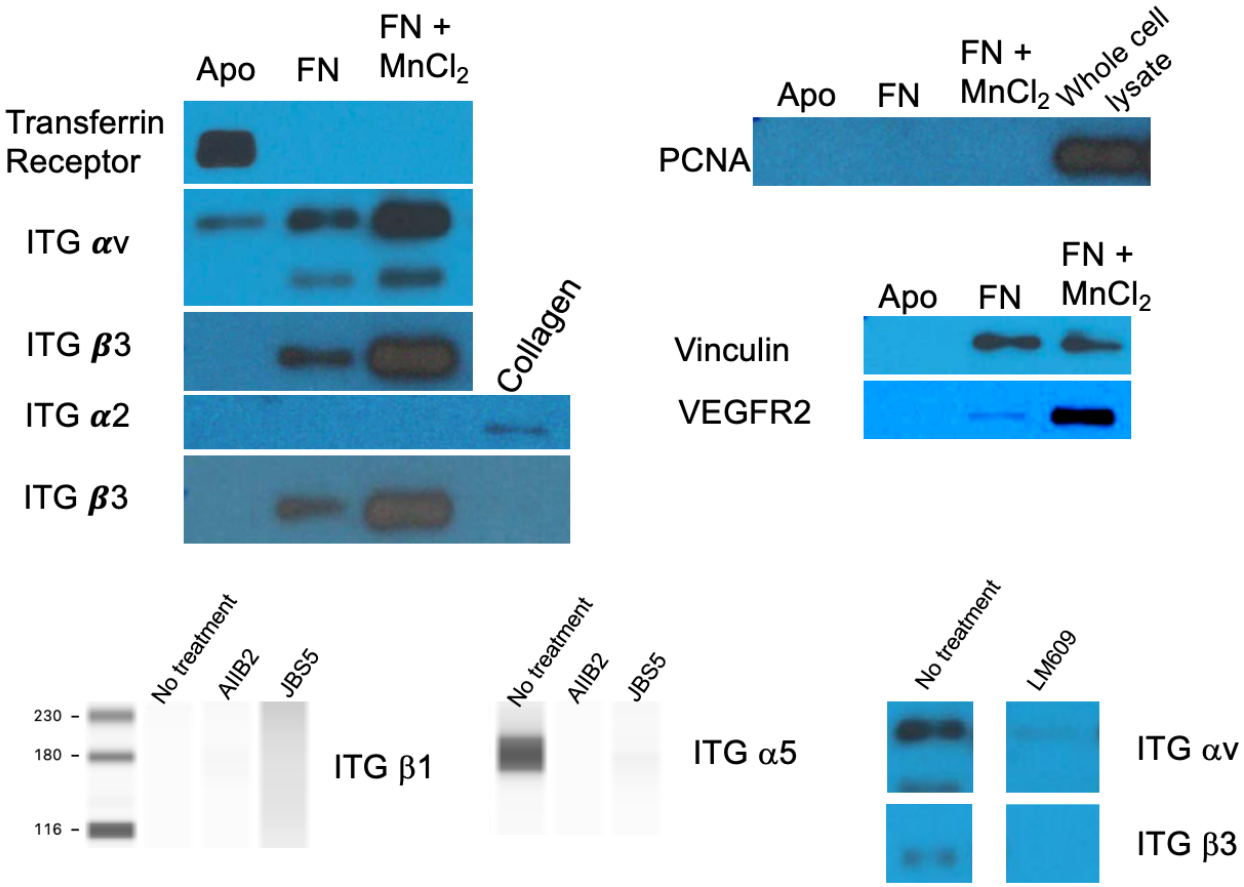


Fig. S5. Western Blot analysis for proof-of-concept experiments. Membranes were probed for either transferrin receptor, integrin av, b3, a2, PCNA, vinculin, or VEGFR2. Each sample was plated on a different substrate: Apotransferrin (Apo), fibronectin (FN), fibronectin + 1 mM $MnCl_2$ (FN+$MnCl_2$), collagen, and collagen + 1 mM $MnCl_2$ (Collagen+$MnCl_2$). Whole cell lysate was included as a positive control for PCNA as it should not be found in any isolates. In the lower panel, we show that when cells are treated with blocking antibodies (AIIB2, JBS5, and LM609), the corresponding integrins are inhibited from binding to fibronectin and are therefore not seen in isolates. Integrin b1 was not detectable in the no treatment condition. Proof-of-concept experiments were completed using 3 control subjects, and the experiment for each subject was repeated in triplicate.

Table S1. Antibodies and isotype controls utilized in the scratch wound assay.

Antibody Name	Species	Company Name/ Cat. No.	Application	Concentration used
AIIB2	Rat	DSHB University of Iowa	Blocking antibody - active Integrin β1	10 μg/mL
JBS5	Mouse	Santa Cruz/ sc-59762	Blocking antibody - active Integrin α5	10 μg/mL
LM609	Mouse	Abcam/ ab190147	Blocking antibody - active Integrin αvβ3	20 μg/mL
IgG1	Rat	Novus/ MAB005	Isotype control	10 μg/mL
IgG1	Mouse	Cell Signaling Technology/ #5415	Isotype control	10 μg/mL and 20 μg/mL

Table S2. Primer sequences.

Gene	Forward	Reverse
ITG AV	AGAATCAAGGAGAAGGTGCC	GGCGAGTTTGGTTTTCTGTC
ITG A5	GGCTCCTTCTTCGGATTCTC	TGCAAGGACTTGTACTCCAC
ITG B1	AATTAGGCCTCTGGGCTTTAC	GACGCACTCTCCATTGTTACT
ITG B3	CAGGCATTGTCCAGCCTAAT	CAGGTGGCATTGAAGGATAGAG
36B4	GCAGACAACGTGGGCTCCAAGCAGAT	GGTCCTCCTTGGTGAACACGAAGCCC

Table S3. Primary and secondary antibodies used for immunoblot analysis of whole endothelial cell lysate. All secondaries were conjugated with horseradish peroxidase.

Primary Antibody	Species	Company/ Cat. No.	Dilution	Secondary Antibody	Species	Company/Cat. No.
ITG αv	Rabbit	Abcam/ ab179475	1:500	anti-rabbit IgG	Goat	ProteinSimple/ DM-001
ITG α5	Rabbit	Abcam/ ab150361	1:500	anti-rabbit IgG	Goat	ProteinSimple/ DM-001
ITG β3	Rabbit	Abcam/ ab179473	1:200	anti-rabbit IgG	Goat	ProteinSimple/ DM-001
ITG β1	Mouse	Thermo/ 14-0299-82	1:100	anti-mouse IgG	Goat	ProteinSimple/ DM-002

Table S4. Primary and secondary antibodies used for immunoblot analysis of isolated integrin-based adhesion complexes at the membrane. All secondaries were conjugated with horseradish peroxidase.

Primary Antibody	Species	Company/ Cat. No.	Dilution	Secondary Antibody	Species	Company/Cat. No.
ITG αv	Rabbit	Abcam/ ab179475	1:1000	anti-rabbit IgG	Goat	ProteinSimple/ DM-001
ITG α5	Rabbit	Abcam/ ab150361	1:1000	anti-rabbit IgG	Goat	ProteinSimple/ DM-001
ITG β3	Rabbit	Abcam/ ab179473	1:75	anti-rabbit IgG	Goat	ProteinSimple/ DM-001
ITG β1	Mouse	Thermo/ 14-0299-82	1:25	anti-mouse IgG	Goat	ProteinSimple/ DM-002

Table S5. Primary and secondary antibodies used for immunofluorescence staining displayed in Fig. 5.

Primary Antibody	Species	Company/ Cat. No.	Concentration used	Secondary Antibody	Species	Company/ Cat. No.	Concentration used
LM609 (active ITG αvβ3)	Mouse	Abcam/ ab190147	1:250	anti-mouse IgG Alexa 488	Goat	Invitrogen/ A32723	1:500
JBS5 (active ITG α5)	Mouse	Santa Cruz/ sc-59762	1:500	anti-mouse IgG Alexa 488	Goat	Invitrogen/ A32723	1:500
AIIB2 (active ITG β1)	Rat	DSHB University of Iowa	1:250	anti-rat IgG Alexa 488	Goat	Invitrogen/ A48262	1:500
Vinculin	Rabbit	Abcam/ ab129002	1:250	anti-rabbit IgG Atto 647	Goat	Rockland/ 611-156-122	1:2500
Vinculin	Mouse	Sigma/ V9131	1:1000	anti-mouse IgG Alexa 488	Goat	Invitrogen/ A32723	1:500
Paxillin	Rabbit	Abcam/ ab32084	1:250	anti-rabbit IgG Atto 647	Goat	Rockland/ 611-156-122	1:2500
Zyxin	Rabbit	Abcam/ ab229757	0.3ug/mL	anti-rabbit IgG Atto 647	Goat	Rockland/ 611-156-122	1:2500

Table S6. Primary and secondary antibodies used for immunofluorescence staining and confocal imaging for endosomal vesicle and integrin internalization studies in Fig. 6.

Primary Antibody	Species	Company/ Cat. No.	Concentration used	Secondary Antibody	Species	Company/ Cat No.	Concentration used
LM609 (active ITG αvβ3)	Mouse	Abcam/ ab190147	1:100	anti-mouse IgG Alexa 488	Goat	Invitrogen/ A32723	1:500
JBS5 (active ITG α5)	Mouse	Santa Cruz/ sc-59762	1:500	anti-mouse IgG Alexa 488	Goat	Invitrogen/ A32723	1:500
AIIB2 (active ITG β1)	Rat	DSHB University of Iowa	1:250	anti-rat IgG Alexa 488	Goat	Invitrogen/ A48262	1:500
EEA1	Rabbit	CST/ 3288S	1:200	anti-rabbit IgG Atto 647	Goat	Rockland/ 611-156-122	1:2500
Rab7	Rabbit	CST/ 9367S	1:200	anti-rabbit IgG Atto 647	Goat	Rockland/ 611-156-122	1:2500