

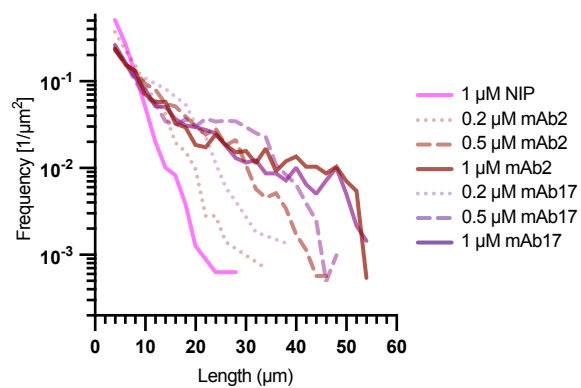
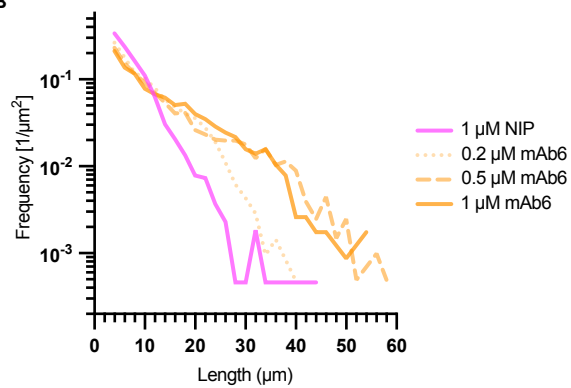
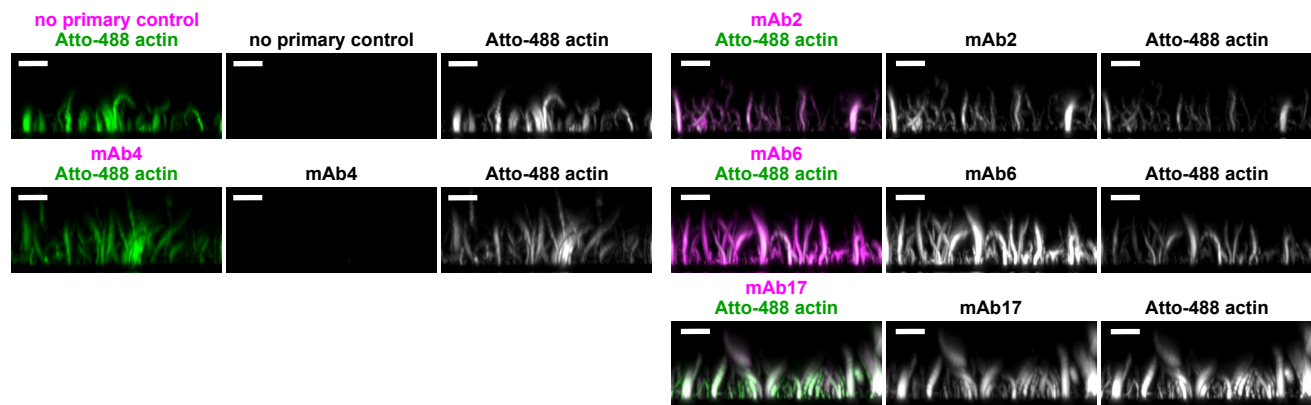
A**B**

Figure S1

A



B

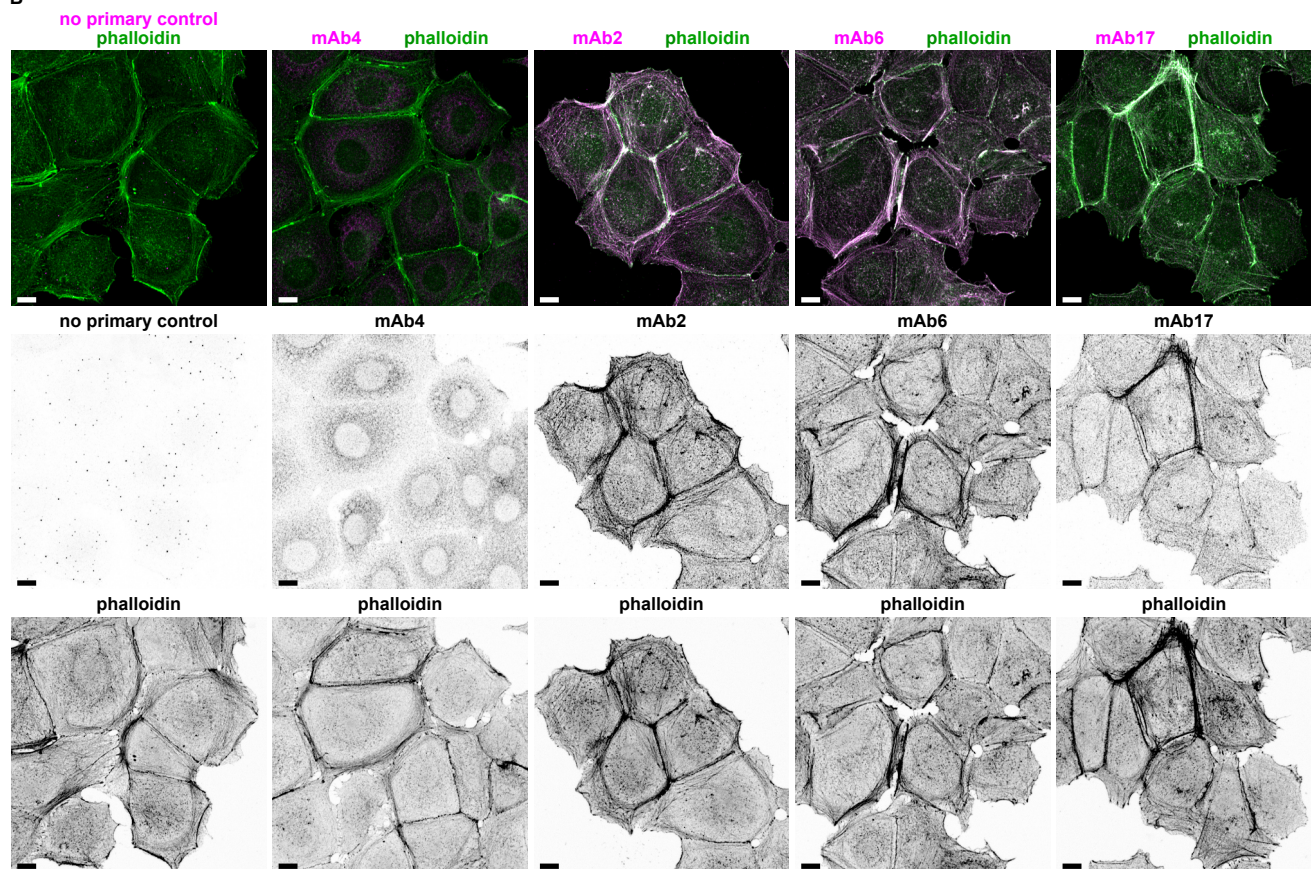


Figure S2

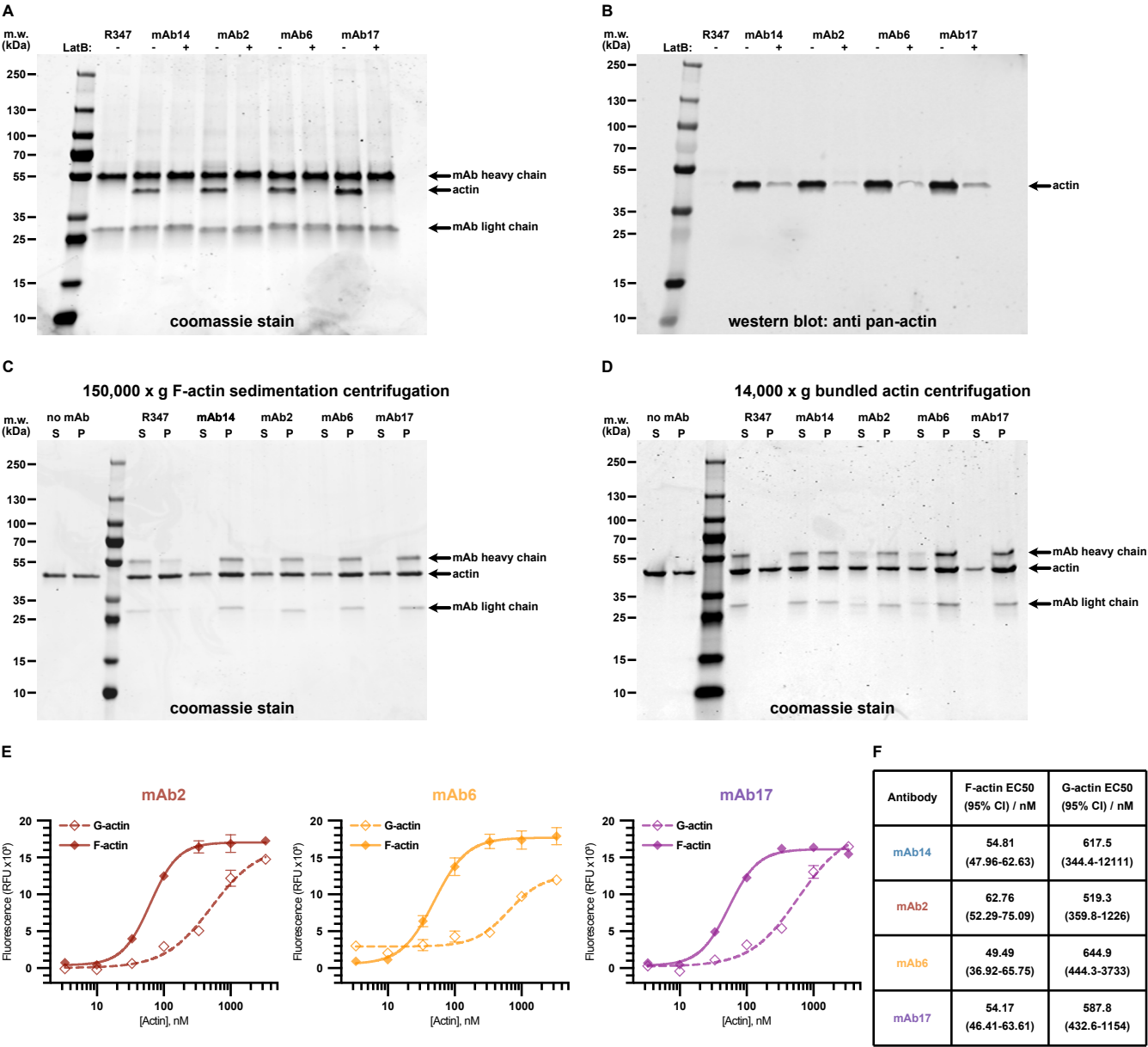


Figure S3

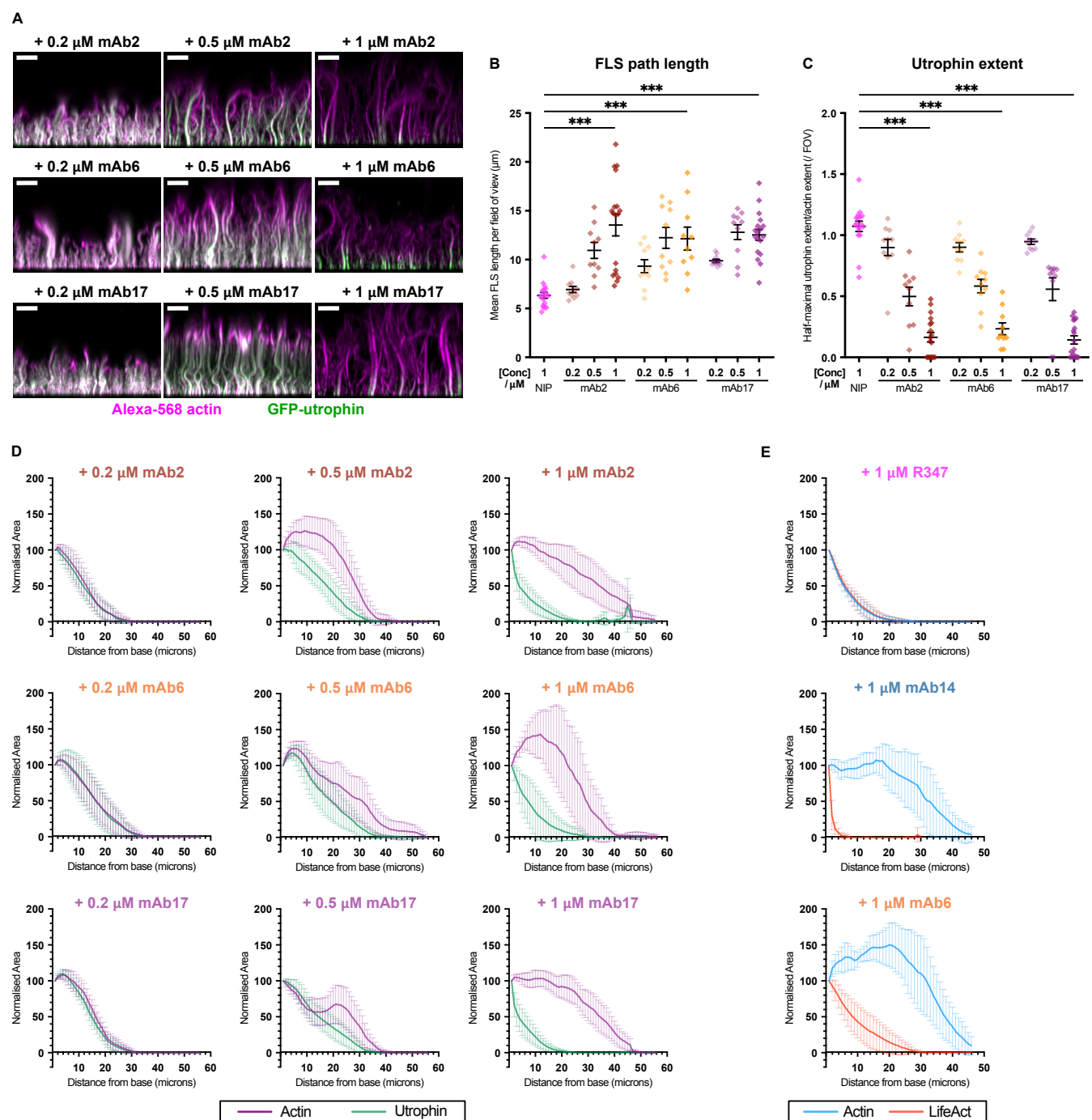


Figure S4

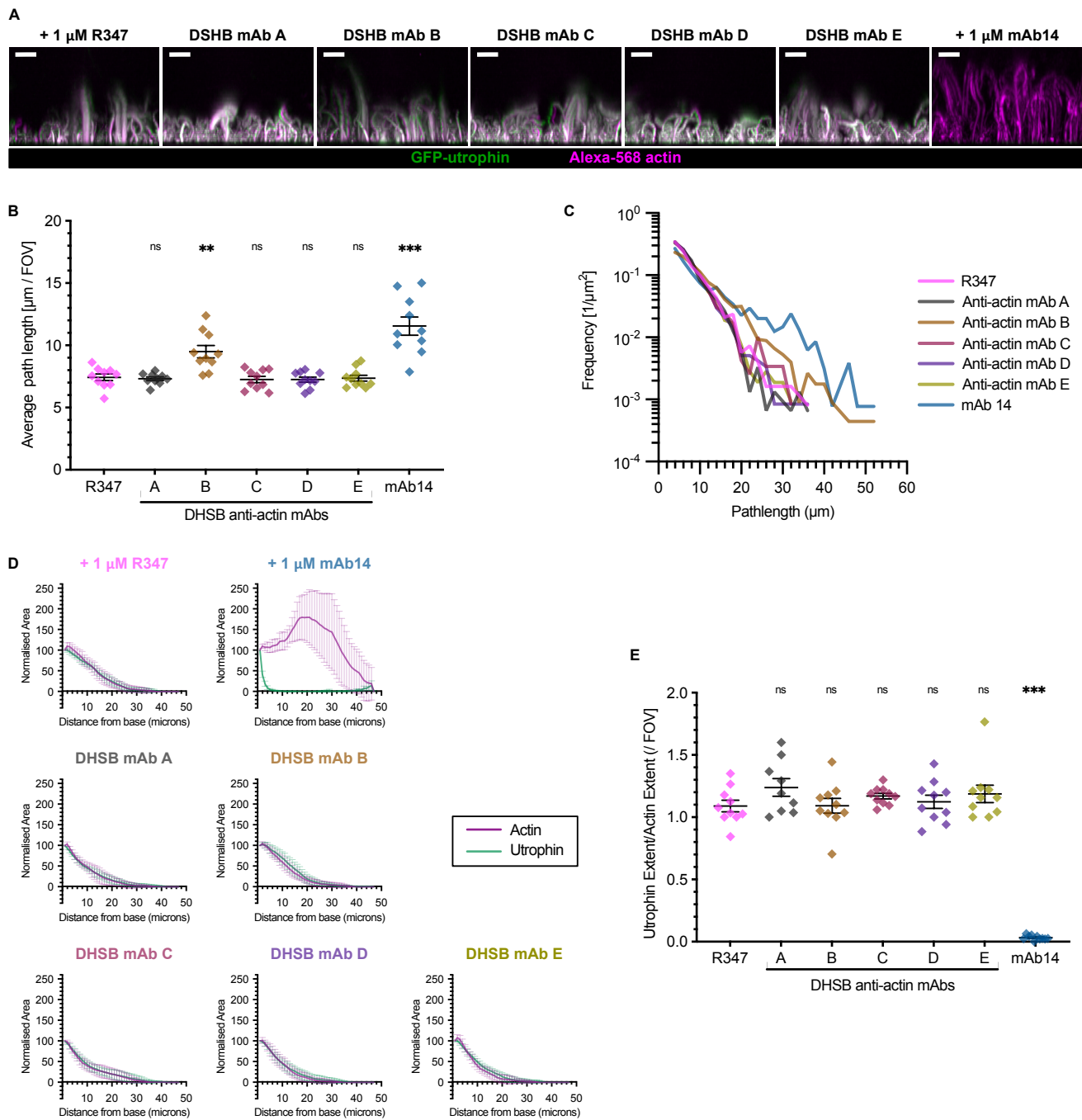
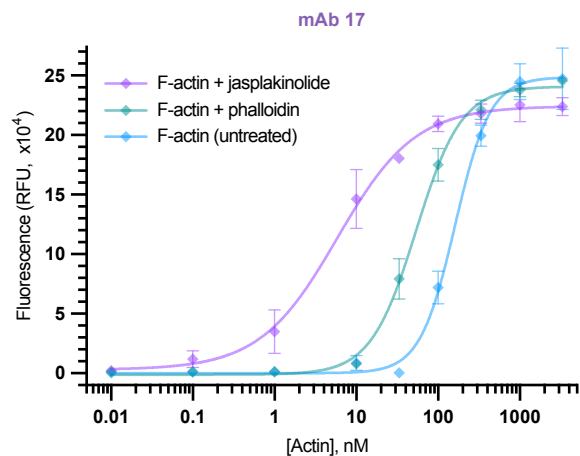
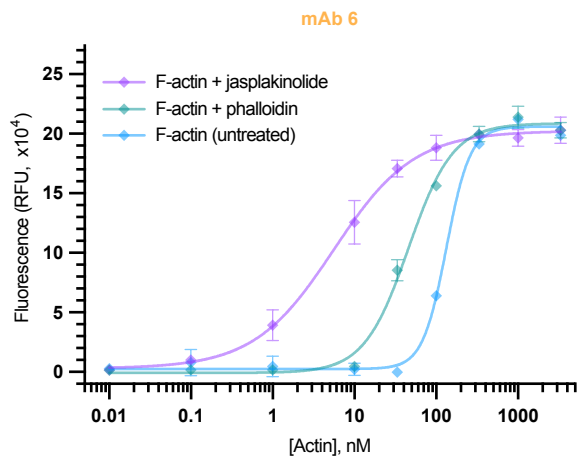
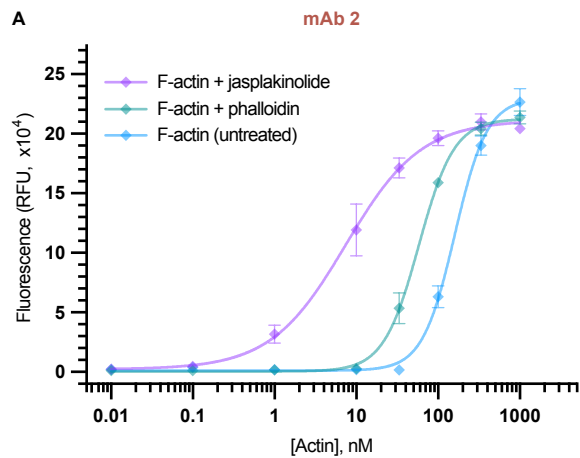


Figure S5



B

EC50 (95% CI) / nM				
Antibody	F-actin + jasplakinolide	F-actin + phalloidin	F-actin (untreated)	G-actin (untreated)
mAb14	6.187 (4.658-8.069)	50.87 (45.67-56.78)	166.8 (155.0-179.7)	n/a
mAb2	7.422 (5.744-9.411)	58.22 (54.22-62.53)	160.2 (145.5-176.7)	n/a
mAb6	5.587 (4.218-7.273)	45.84 (40.53-52.03)	133.3 (121.0-145.7)	n/a
mAb17	5.857 (4.286-7.848)	53.84 (47.89-60.70)	161.5 (140.2-186.4)	n/a
pan-actin mAb	36.22 (22.71-75.97)	68.83 (45.5-124.9)	26.49 (21.68-33.10)	26.49 (13.20-20.10)

Figure S6

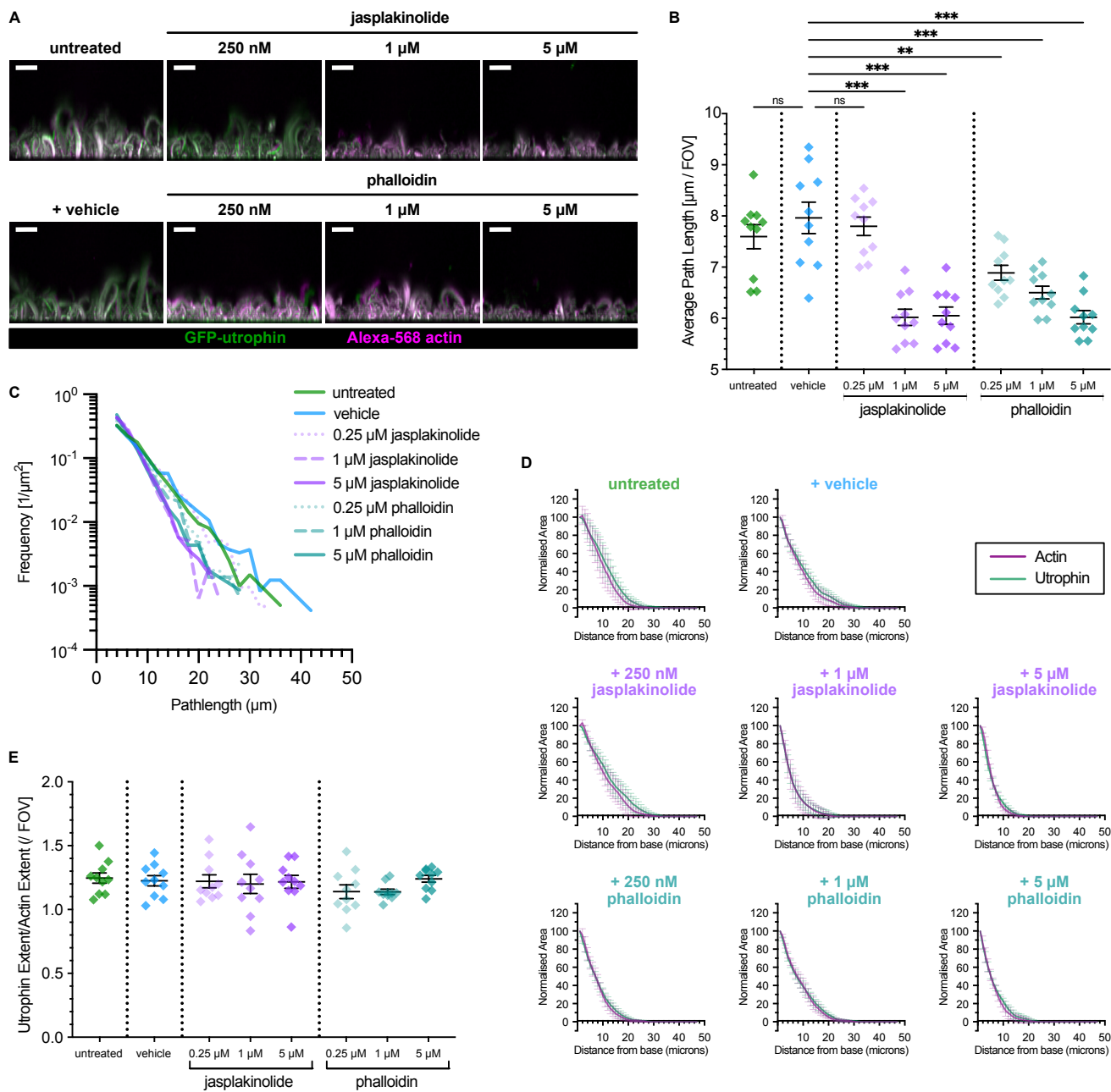
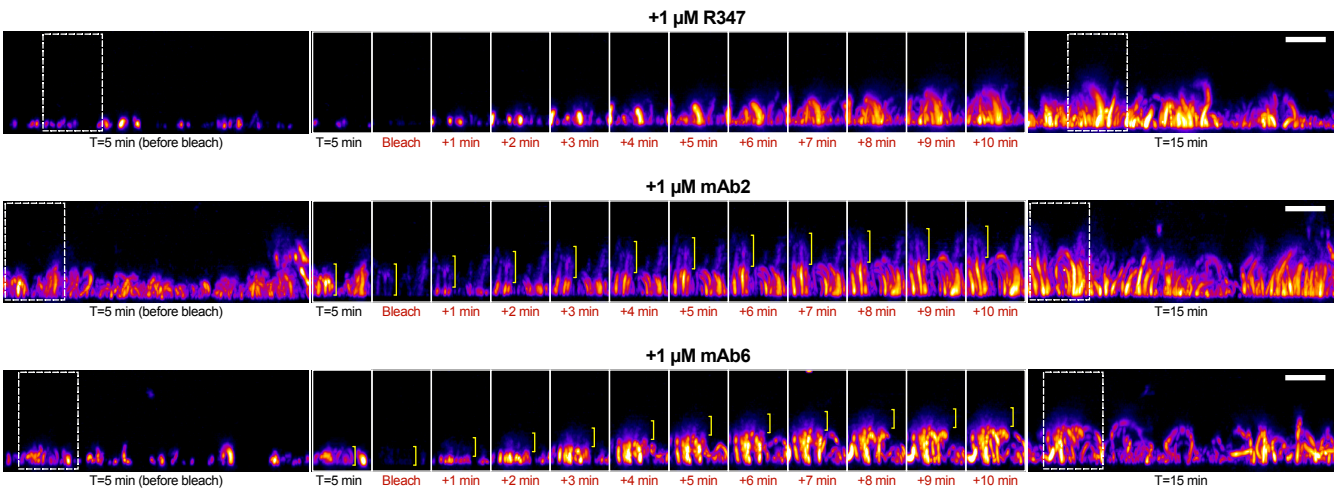


Figure S7

A



B

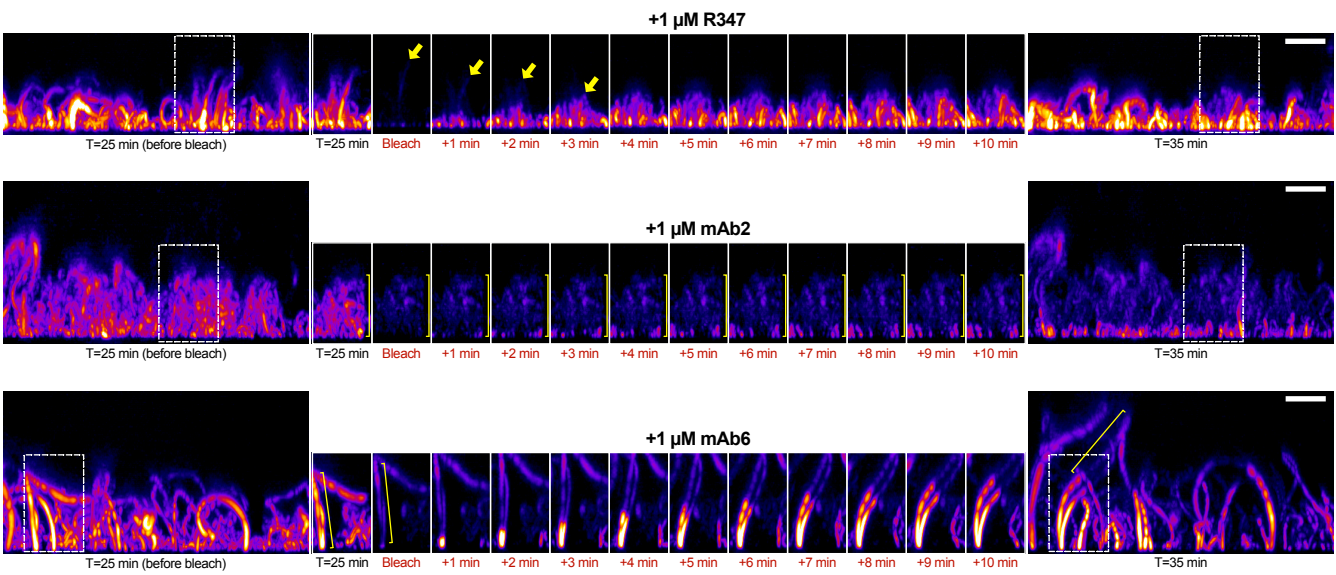


Figure S8

Table S1. Overview of data & statistical testing

Figure	Test	Condition 1				Condition 2			P Value
		Name	N (FOV)	Mean ± SEM [μm]		Name	N (FOV)	Mean ± SEM [μm]	
Figure 1B Mean FLS length per field of view (μm)	Ordinary one-way ANOVA w/ Sidak's multiple comparison test Overall: P<0.001 [***]	R347	25	7.41 ± 0.131	Vs.	R347	20	6.54 ± 0.252	0.539 [ns]
						mAb2	20	12.3 ± 0.505	< 0.001 [***]
						mAb6	25	13.2 ± 0.597	< 0.001 [***]
						mAb14	25	10.6 ± 0.289	< 0.001 [***]
						mAb17	20	9.65 ± 0.506	0.001 [**]
Figure	Test	Condition 1				Condition 2			P Value
		Name	N (FOV)	Mean ± SEM [μm]		Name	N (FOV)	Mean ± SEM [μm]	
Figure 3B Mean FLS length per field of view (μm)	Ordinary one-way ANOVA w/ Sidak's multiple comparison test Overall: P<0.001 [***]	0.2 μM NIP228	8	8.18 ± 0.445	Vs.	0.2 μM mAb14	8	11.4 ± 0.197	0.002 [**]
						0.5 μM NIP228	8	7.65 ± 0.175	0.998 [ns]
		0.5 μM NIP228	8	7.65 ± 0.175		1 μM NIP228	8	7.07 ± 0.211	0.996 [ns]
									0.797 [ns]
		0.2 μM mAb14	8	11.4 ± 0.197		0.5 μM mAb14	8	13.9 ± 0.991	< 0.001 [***]
									0.018 [*]
		0.5 μM mAb14	8	13.9 ± 0.991		1 μM mAb14	8	13.7 ± 0.723	0.046 [*]
									> 0.999 [ns]
		1 μM NIP228	8	7.07 ± 0.211		0.2 μM mAb14	8	11.4 ± 0.197	< 0.001 [***]
						0.5 μM mAb14	8	13.9 ± 0.991	< 0.001 [***]
1 μM mAb14	8	13.7 ± 0.723	< 0.001 [***]						
Figure	Test	Condition 1				Condition 2			P Value
		Name	N (FOV)	Mean ± SEM [AU]		Name	N (FOV)	Mean ± SEM [AU]	
Figure 3D Half-maximal utrophin extent/ actin extent (/FOV)	Ordinary one-way ANOVA w/ Sidak's multiple comparison test Overall: P<0.001 [***]	0.2 μM NIP228	8	1.11 ± 0.016	Vs.	0.2 μM mAb14	8	0.99 ± 0.030	0.456 [ns]
						0.5 μM NIP228	8	1.13 ± 0.017	> 0.999 [ns]
		0.5 μM NIP228	8	1.13 ± 0.017		1 μM NIP228	8	1.16 ± 0.067	> 0.997 [ns]
									> 0.999 [ns]
		0.2 μM mAb14	8	0.99 ± 0.030		0.5 μM mAb14	8	0.73 ± 0.056	< 0.001 [***]
									0.002 [**]
		0.5 μM mAb14	8	0.73 ± 0.056		1 μM mAb14	8	0.25 ± 0.053	< 0.001 [***]
									< 0.001 [***]
		1 μM NIP228	8	1.16 ± 0.067		0.2 μM mAb14	8	0.99 ± 0.030	0.082 [ns]
						0.5 μM mAb14	8	0.73 ± 0.056	< 0.001 [***]
1 μM mAb14	8	0.25 ± 0.053	< 0.001 [***]						

Figure	Test	Condition 1				Condition 2			P Value
		Name	N (FOV)	Mean ± SEM [AU]		Name	N (FOV)	Mean ± SEM [AU]	
Figure 3F Half-maximal LifeAct extent / actin extent (/FOV)	Ordinary one-way ANOVA w/ Sidak's multiple comparison test Overall: P<0.001 [***]	R347	8	1.05 ± 0.027	Vs.	mAb14	6	0.00 ± 0.00	< 0.001 [***]
						mAb6	8	0.14 ± 0.046	< 0.001 [***]

Figure	Test	Condition 1				Condition 2			P Value	
		Name	N (FOV)	Mean ± SEM [AU]		Name	N (FOV)	Mean ± SEM [AU]		
Figure 6E Half-maximal utrophin extent / actin extent (/FOV)	Ordinary one-way ANOVA w/ Sidak's multiple comparison test Overall: P<0.001 [***]	R347 mAb only	10	1.07 ± 0.024	Vs.	mAb14 mAb only	10	0.18 ± 0.028	< 0.001 [***]	
						R347 + actin	9	1.09 ± 0.011	> 0.999 [ns]	
						R347 + cofilin	10	1.16 ± 0.063	0.592 [ns]	
		R347 + actin	9	1.09 ± 0.011		R347 + actin & cofilin	9	1.13 ± 0.001	0.974 [ns]	
									> 0.999 [ns]	
		R347 + cofilin	10	1.16 ± 0.063					> 0.999 [ns]	
		mAb14 mAb only	10	0.18 ± 0.028		mAb14 + actin	10	0.48 ± 0.02	< 0.001 [***]	
						mAb14 + cofilin	10	0.022 ± 0.008	0.058 [ns]	
		mAb14 + actin	10	0.48 ± 0.02		mAb14 + actin & cofilin	10	0.53 ± 0.070	< 0.001 [***]	
									0.995	
		mAb14 + cofilin	10	0.022 ± 0.008					< 0.001 [***]	

Figure	Test	Condition 1				Condition 2			P Value
		Name	N (FOV)	Mean ± SEM [μm]		Name	N (FOV)	Mean ± SEM [μm]	
Extended Data Figure 4B Mean FLS length per field of view (μm)	Ordinary one-way ANOVA w/ Sidak’s multiple comparison test Overall: P<0.001 [***]	1 μM NIP228	18	6.36 ± 0.303	Vs.	0.2 μM mAb2	10	6.95 ± 0.320	> 0.999 [ns]
						0.5 μM mAb2	10	11.0 ± 0.824	0.001 [**]
						1 μM mAb2	18	13.5 ± 1.11	< 0.001 [***]
						0.2 μM mAb6	10	9.34 ± 0.665	0.133 [ns]
						0.5 μM mAb6	10	12.2 ± 1.07	< 0.001 [***]
						1 μM mAb6	10	12.2 ± 1.17	< 0.001 [***]
						0.2 μM mAb17	10	9.89 ± 0.170	0.032 [*]
						0.5 μM mAb17	10	12.8 ± 0.763	< 0.001 [***]
		1 μM mAb17	18	12.6 ± 0.562		< 0.001 [***]			
		0.5 μM mAb2	11	10.7 ± 0.776		0.031 [*]			
		1 μM mAb2	18	13.8 ± 1.14		< 0.001 [***]			
						0.317 [ns]			
		0.5 μM mAb6	10	12.2 ± 1.07		0.334 [ns]			
		1 μM mAb6	10	12.2 ± 1.17		0.384 [ns]			
						> 0.999 [ns]			
		0.5 μM mAb17	10	12.8 ± 0.763		0.316 [ns]			
		1 μM mAb17	18	12.6 ± 0.562		0.272 [ns]			
						> 0.999 [ns]			

Figure	Test	Condition 1				Condition 2			P Value	
		Name	N (FOV)	Mean ± SEM [AU]		Name	N (FOV)	Mean ± SEM [AU]		
Extended Data Figure 4C Half-maximal utrophin Extent / Actin Extent (/FOV)	Ordinary one-way ANOVA w/ Sidak's multiple comparison test Overall: P<0.001 [***]	1 μM NIP228	17	1.07 ± 0.042	Vs.	0.2 μM mAb2	10	0.90 ± 0.068	0.274 [ns]	
						0.5 μM mAb2	10	0.50 ± 0.076	< 0.001 [***]	
						1 μM mAb2	18	0.17 ± 0.039	< 0.001 [***]	
						0.2 μM mAb6	10	0.90 ± 0.037	0.284 [ns]	
						0.5 μM mAb6	10	0.58 ± 0.055	< 0.001 [***]	
						1 μM mAb6	10	0.23 ± 0.049	< 0.001 [***]	
						0.2 μM mAb17	10	0.95 ± 0.022	0.785 [ns]	
						0.5 μM mAb17	10	0.56 ± 0.094	< 0.001 [***]	
		0.2 μM mAb2	10	0.90 ± 0.068		1 μM mAb17	18	0.14 ± 0.037	< 0.001 [***]	
						0.5 μM mAb2	10	0.50 ± 0.076	< 0.001 [***]	
						1 μM mAb2	18	0.17 ± 0.039	< 0.001 [***]	
									< 0.001 [***]	
						0.5 μM mAb6	10	0.58 ± 0.055	0.003 [**]	
						1 μM mAb6	10	0.23 ± 0.049	< 0.001 [***]	
									< 0.001 [***]	
						0.5 μM mAb17	10	0.56 ± 0.094	< 0.001 [***]	
						1 μM mAb17	18	0.14 ± 0.037	< 0.001 [***]	
									< 0.001 [***]	

