

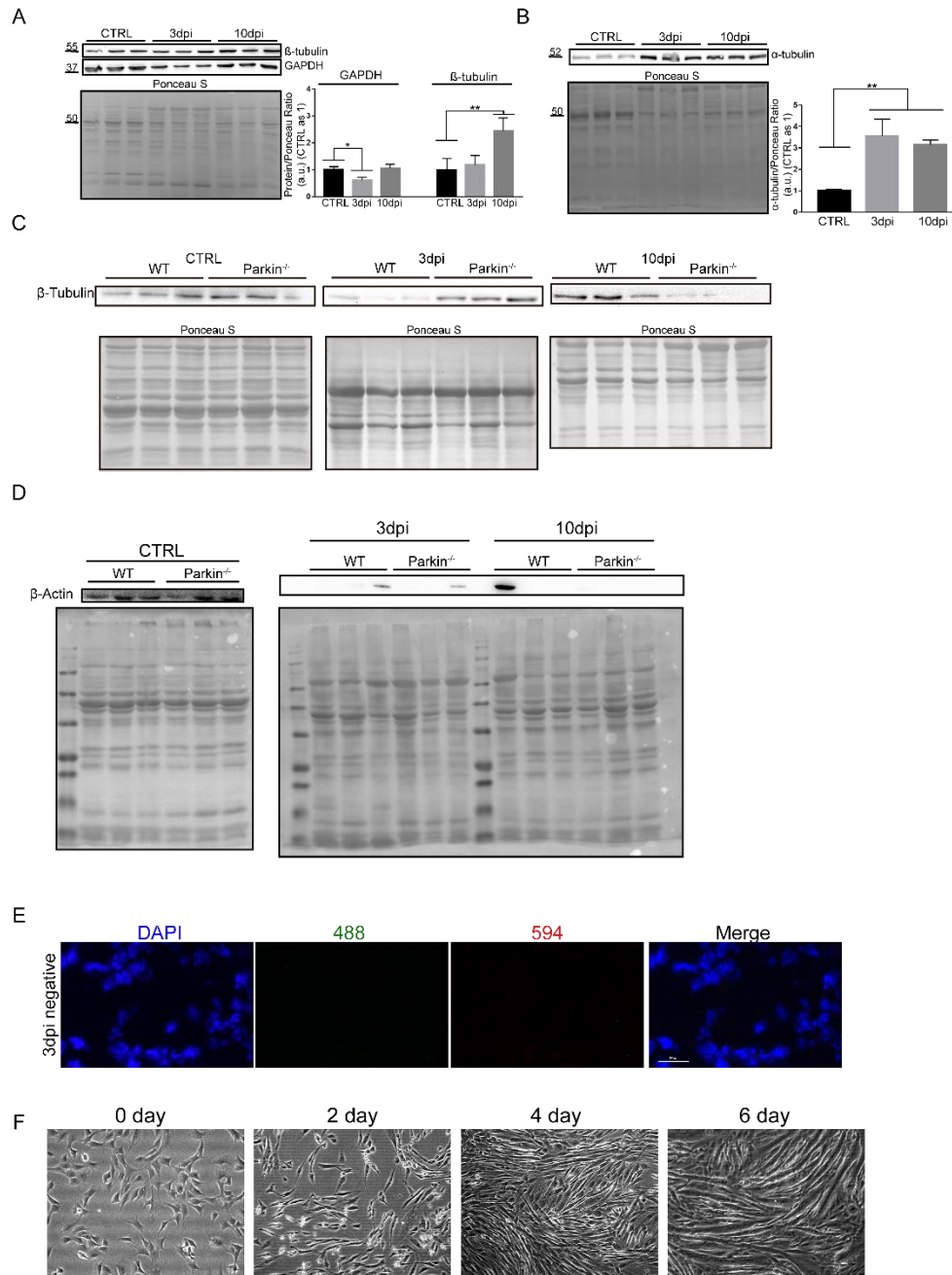
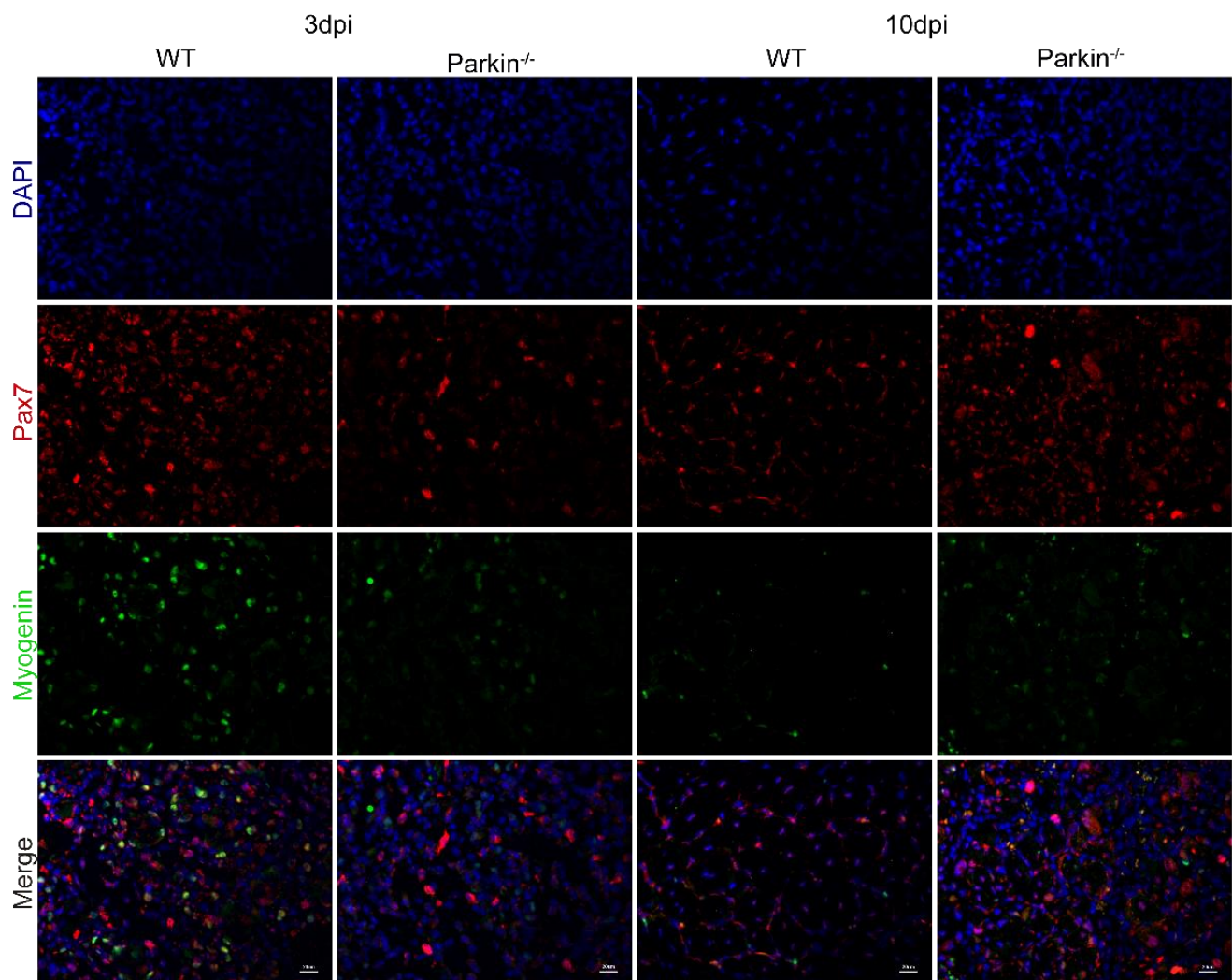


Figure S1. Western Blotting internal control experiments. **(A)** Western Blot of β -Tubulin and GAPDH in TA muscle from WT mice in CTRL and at 3 and 10dpi. Data represent means $\pm$ SD (t-test: * $p < 0.05$; ** $p < 0.01$; $n = 3$) **(B)** Western Blot of α -Tubulin in TA muscle from WT mice in CTRL and at 3 and 10dpi. **(C)** Comparison of protein levels of β -Tubulin in Parkin^{-/-} mice to WT in CTRL, 3dpi and 10dpi. **(D)** Comparison of protein levels of β -Actin in Parkin^{-/-} mice to WT in CTRL, 3dpi and 10dpi **(E)** Negative control experiments related to Figure 1 D. **(F)** Optical images of Myoblasts C2C12 during differentiation related to the experiments in Figure 2.

A



B

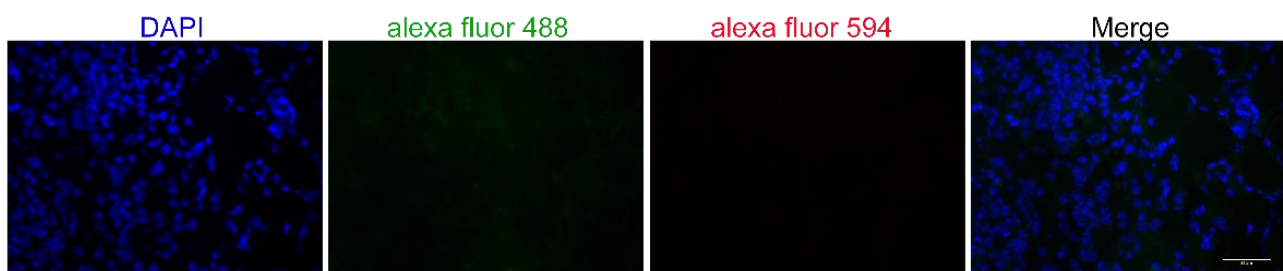
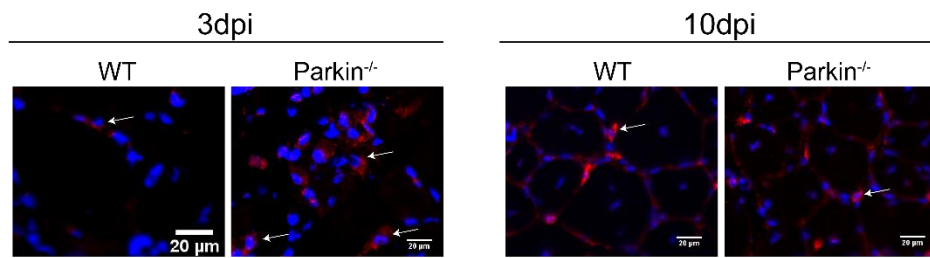
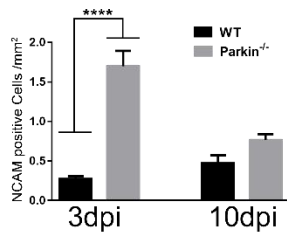


Figure S2 Immunostaining of Pax7 and Myogenin. **(A)** Split channel images of figure 5. **(B)** Negative control experiments related to Figure 5 A.

A



B



C

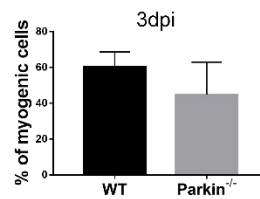


Figure S3. *Parkin*^{-/-} mice have increased NCAM⁺ cells in TA muscle at 3 days post-injury. **(A)** Immunofluorescence of NCAM (red) and DAPI (blue) in TA muscle from WT and *Parkin*^{-/-} mice at 3 and 10dpi. White arrows indicate NCAM⁺ cells. **(B)** Quantitation of NCAM positive Cells/mm². Data represent means ± SD (t-test: **** p < 0.0001; n = 4). **(C)** % of myogenic cells (Pax7 + Myogenin Cells) at 3dpi from WT and *Parkin* mice. Data represent means ± SD.

A

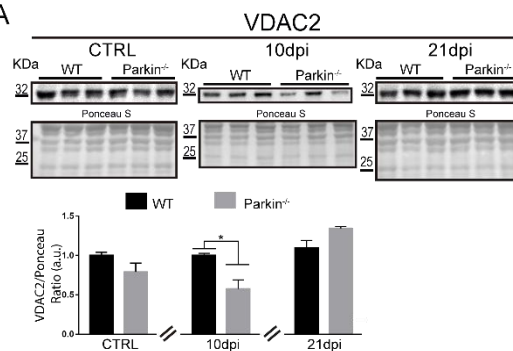


Figure S4 Decreased VDAC2 expression in *Parkin*^{-/-} mice at 10 days after injury. **(A)** Western Blot and densitometry analysis of VDAC2 levels during the regenerative process in CTRL, 10dpi and 21dpi TA muscle from WT and *Parkin*^{-/-} mice. Ponceau S staining was used to normalize for loading. Data represent means ± SEM (t-test: * p < 0.05; n = 5)

Supplementary tables 1

	Primary Antibody	Brand	ID	Proportion
Immunofluorescence	Anti-Myogenin	Abcam	ab103924	1:200
	Anti-Parkin	Abcam	ab15494	1:100
	Anti-Parkin [PRK8]	Abcam	ab77924	1:250
	Anti-Pax7	Abcam	ab34360	1:250
	Anti-SQSTM1/p62	Abcam	ab91526	1:300
	Anti-VDAC2	Abcam	ab37985	1:250
	Anti-LC3A/B	Cell Signaling	#4108S	1:300
	Anti-NCAM	Cell Signaling	#3606	1:300
	Anti-MYH3	Origene	TA349138	1:500
	Anti-MFN2	Abcam	ab124773	1:250
Western Blotting	Anti-SQSTM1/p62	Abcam	ab91526	1:2000
	Anti-Myogenin	Abcam	ab103924	1:2000
	Anti-Parkin [PRK8]	Abcam	ab77924	1:1000
	Anti-Pax7	Abcam	ab34360	1:1000
	Anti-VDAC2	Abcam	ab37985	1:1000
	Anti- α -tubulin	Cell Signaling	#2125s	1:3000
	Anti- β -tubulin	Cell Signaling	2146s	1:3000
	Anti-Cyclin D1	Cell Signaling	#2978s	1:2000
	Anti-Parkin	Cell Signaling	#2132S	1:1000
	Anti-LC3A/B	Cell Signaling	#4108S	1:2000
	Anti-GAPDH	Thermo	PA1-9871-5	1:5000
	Anti-MFN2	Abcam	ab124773	1:1000

Second Antibody	Brand	ID	Proportion
Alexa Fluor® 594 AffiniPure Donkey Anti-Rabbit IgG	Jackson	711-585-152	1:250
Alexa Fluor® 488 AffiniPure Donkey Anti-Goat IgG	Jackson	705-545-003	1:250
Alexa Fluor® 488 AffiniPure Donkey Anti-Mouse IgG	Jackson	715-545-1150	1:250
Donkey Anti-Goat Polyclonal	Jackson	705-035-003	1:10000
Goat Anti-Rabbit Polyclonal	Jackson	111-035-003	1:10000

Supplementary table 2

Primers Sequence		
Gene	Foward	Reverse
Park2	TGTCCCAACTCCCTGATTAAAG	ACAGCACACCTCCCATTG
p62/SQSTM1	GAACTCCAGTCTCTACAGAT	CGATGTCGTAATTCTTGGTC
18s	GCAATTATTCCCATGAACG	GGCCTCACTAAACCATCCA A