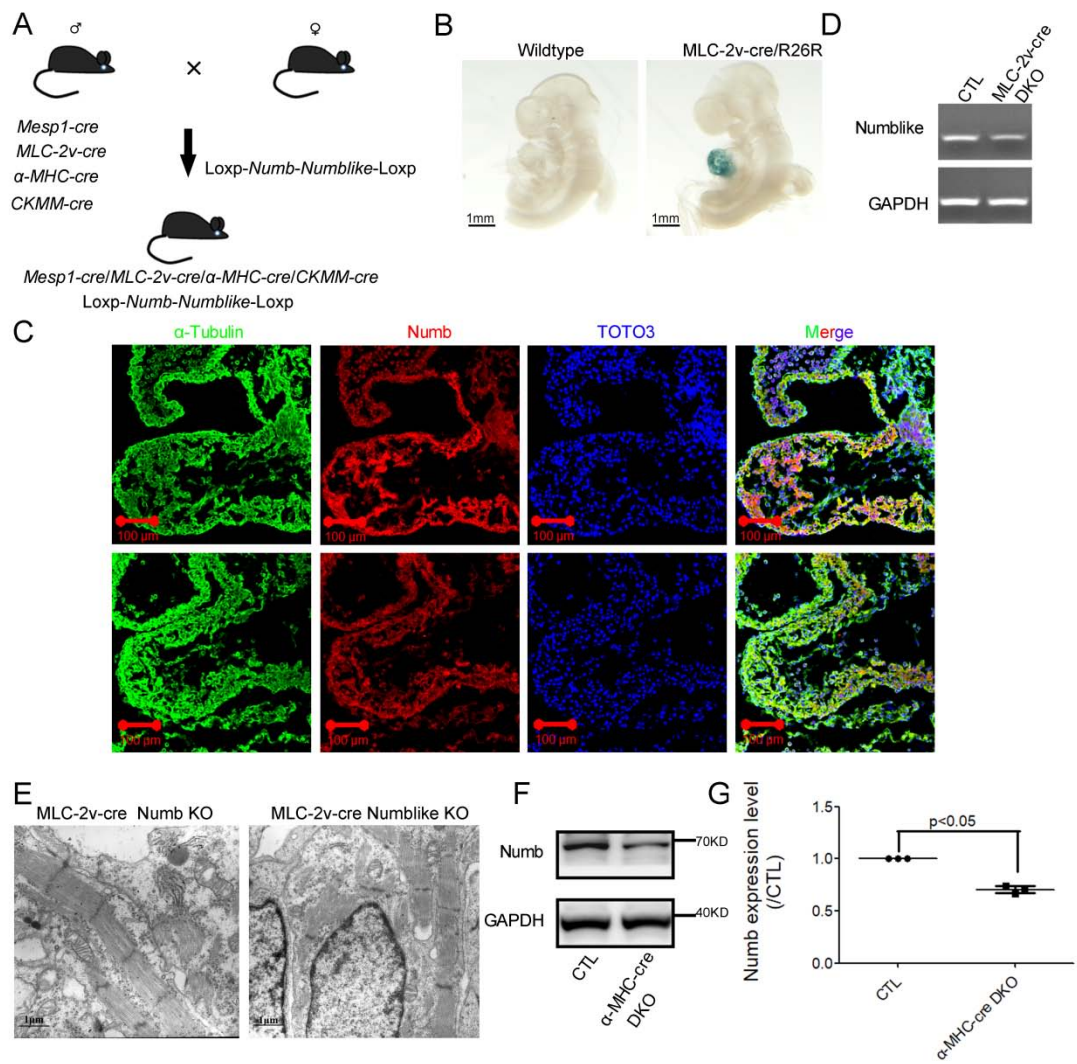


Supplementary data 1



Supplementary Tab. 1 Cre type and expression cells

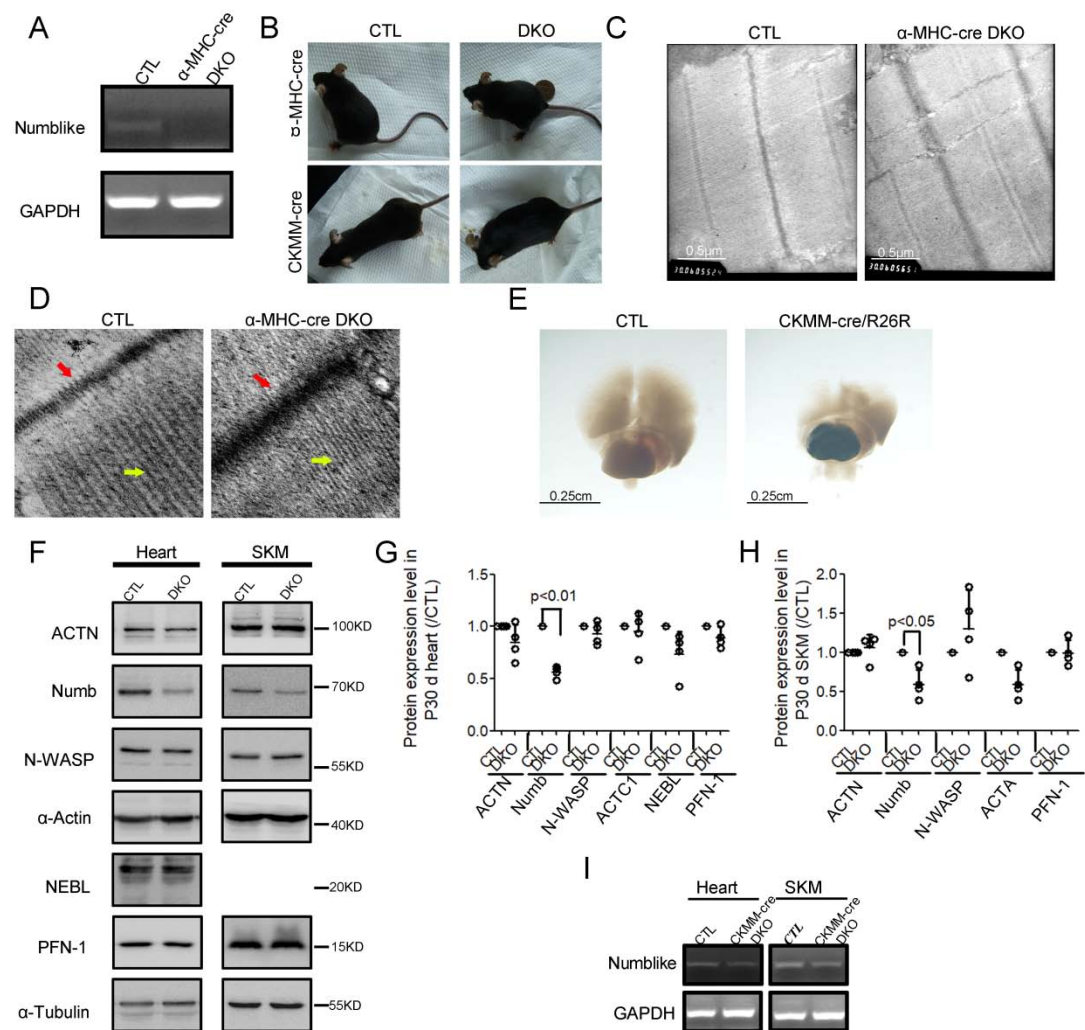
Cre type	Expression cells
Mesp1-cre	Cardiac progenitor cells
MLC-2v-cre	Ventricle cardiomyocytes
α -MHC-cre	Adult cardiomyocytes
CKMM-cre	Skeletal muscle cells & cardiomyocytes

Supplementary Tab. 2 Sarcomere changes in *Numb* and *Numbl* DKO mice

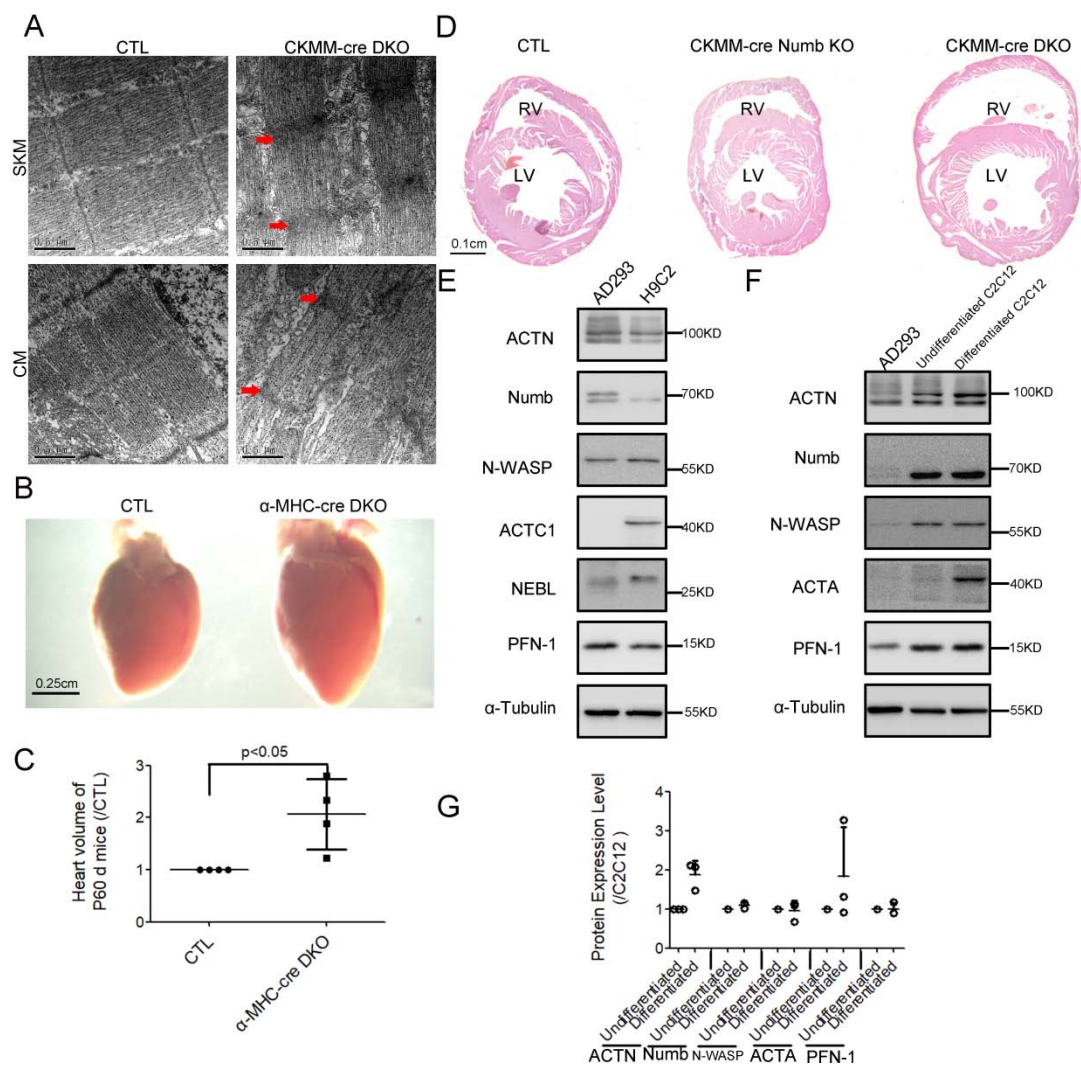
Cre	Genotype	Z-disc width (/CTL)	Sarcomere length (/CTL)	Interval between the adjacent thin filaments (/CTL)
	<i>Numb</i> KO	0.97±0.51	0.96±0.06	1.1±0.02
MLC-2v-cre (CM)	<i>Numbl</i> KO	1.05±0.32	1.02±0.14	1.08±0.02
	DKO	1.96±0.99***	0.80±0.1***	0.50±0.01***
α -MHC-cre (CM)	DKO	2.73±0.85***	0.74±0.07***	0.48±0.10***
CKMM-cre (SKM)	DKO	7.90±2.75***	0.69±0.02***	0.51±0.15*
CKMM-cre (CM)	DKO	2.47±1.03*	0.85±0.05**	0.51±0.12**

Each index of *Numb* and *Numbl* DKO were compared with CTL, n=5, Student's t test, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

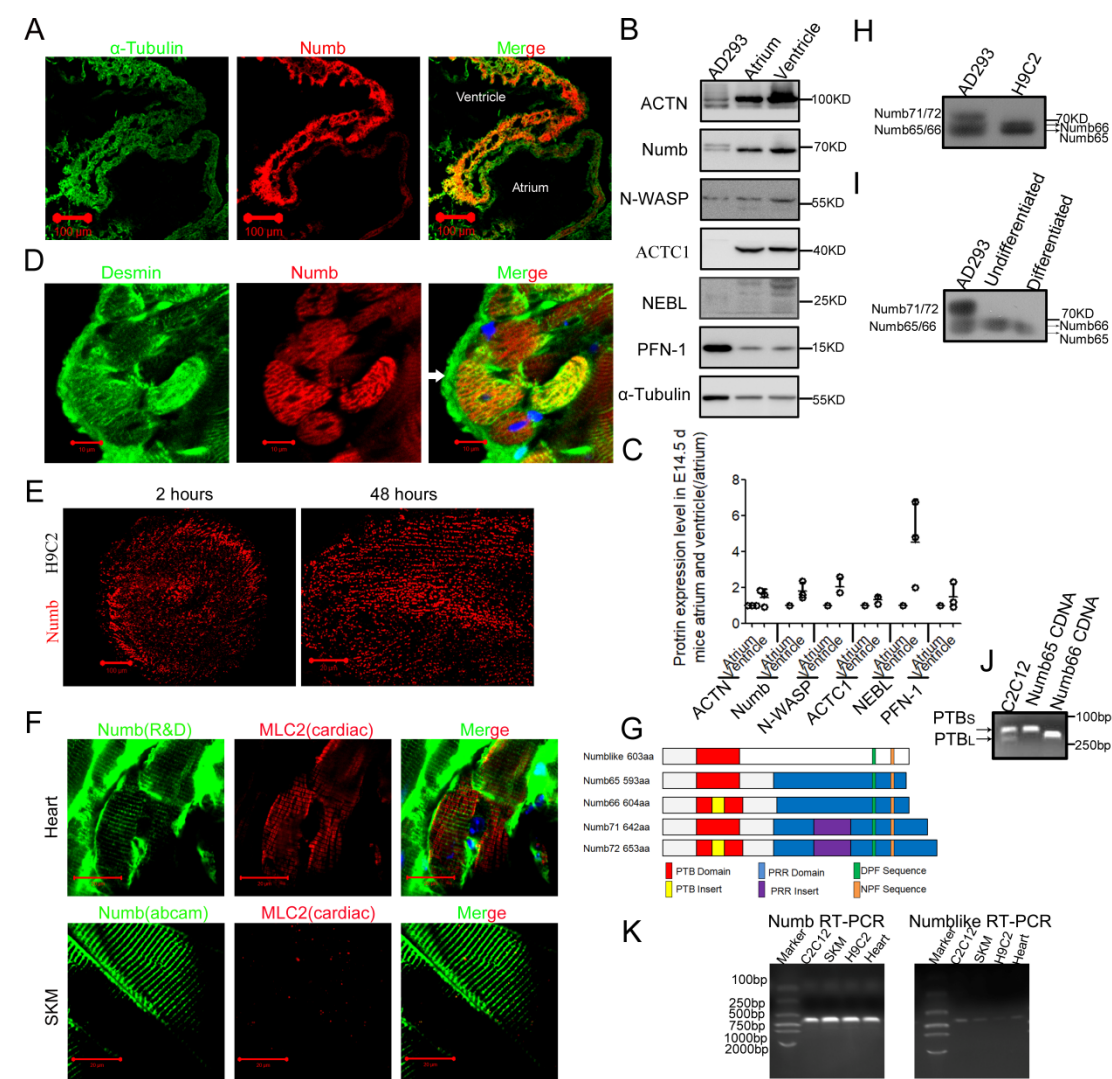
Supplementary data 2



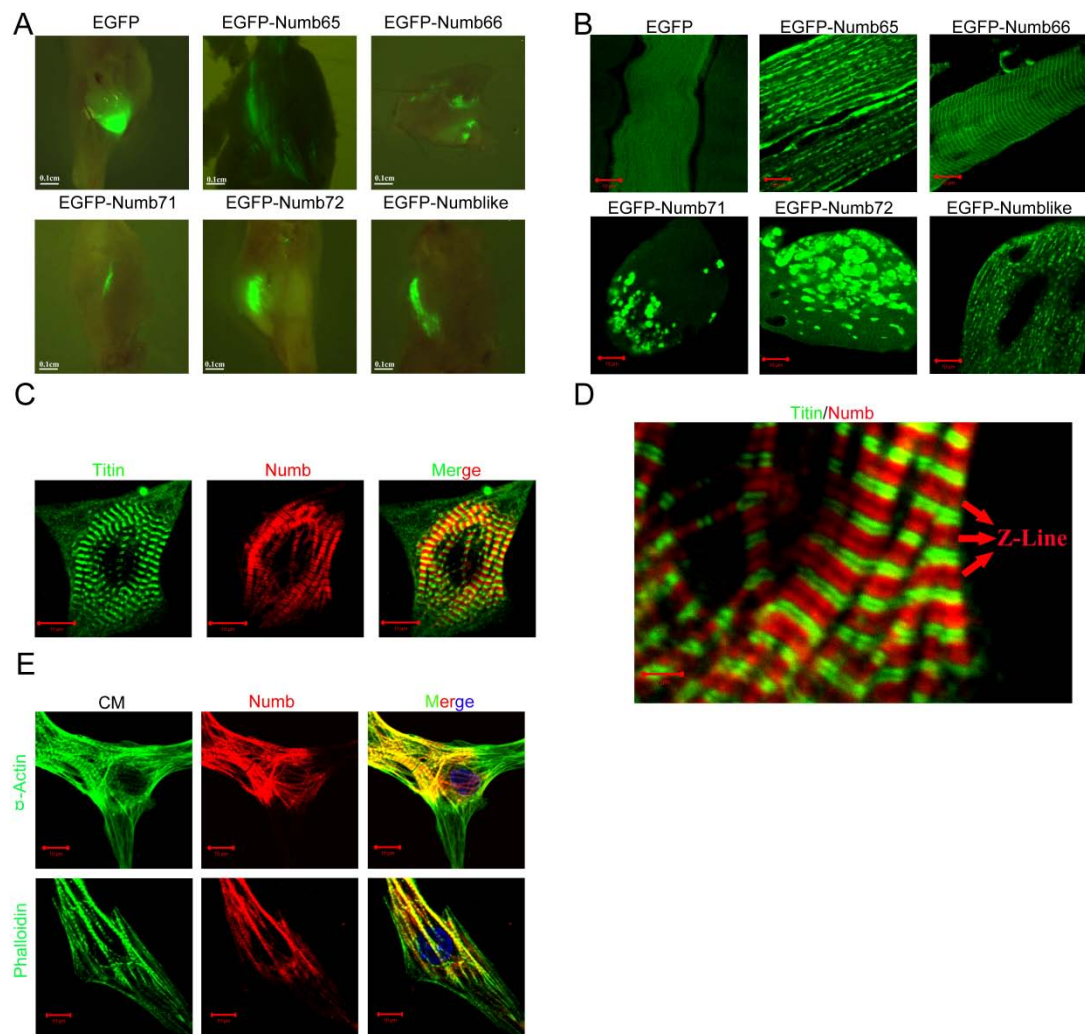
Supplementary data 3



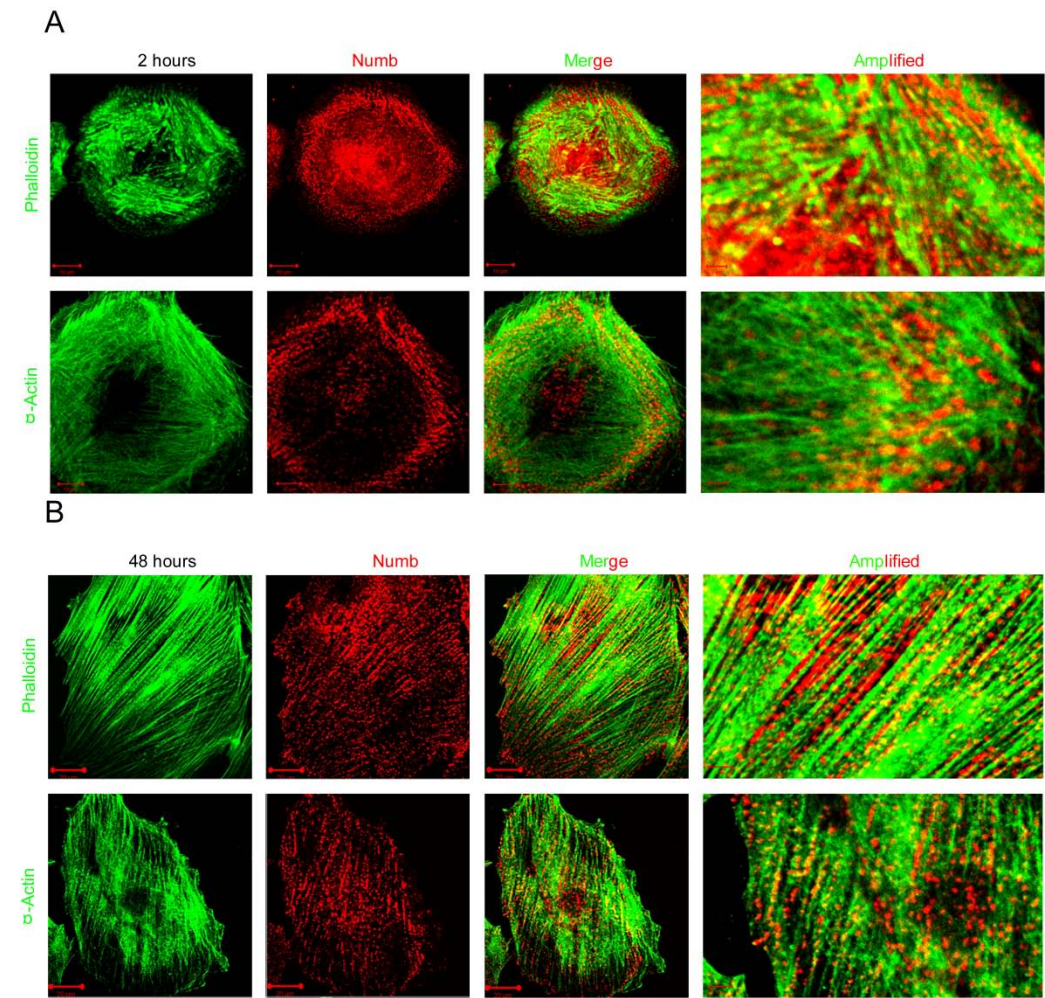
Supplementary data 4



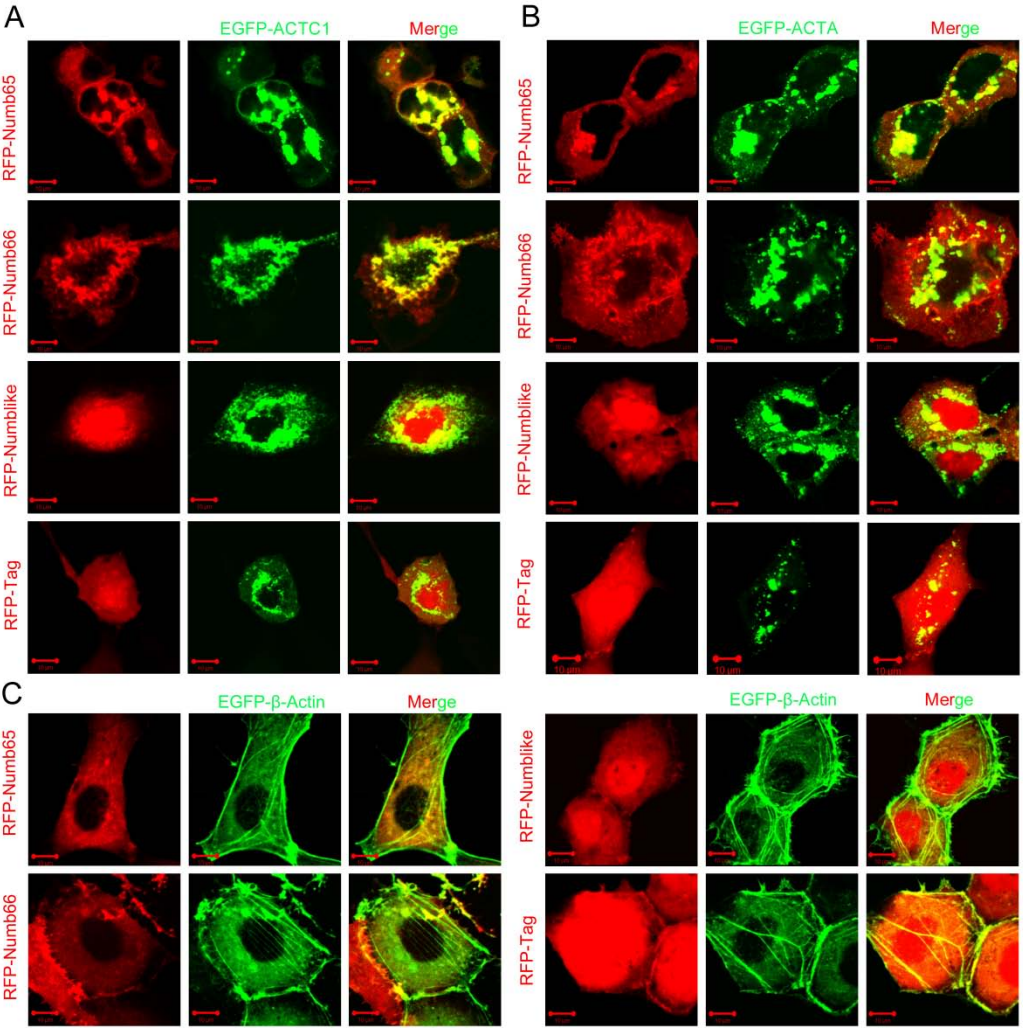
Supplementary data 5



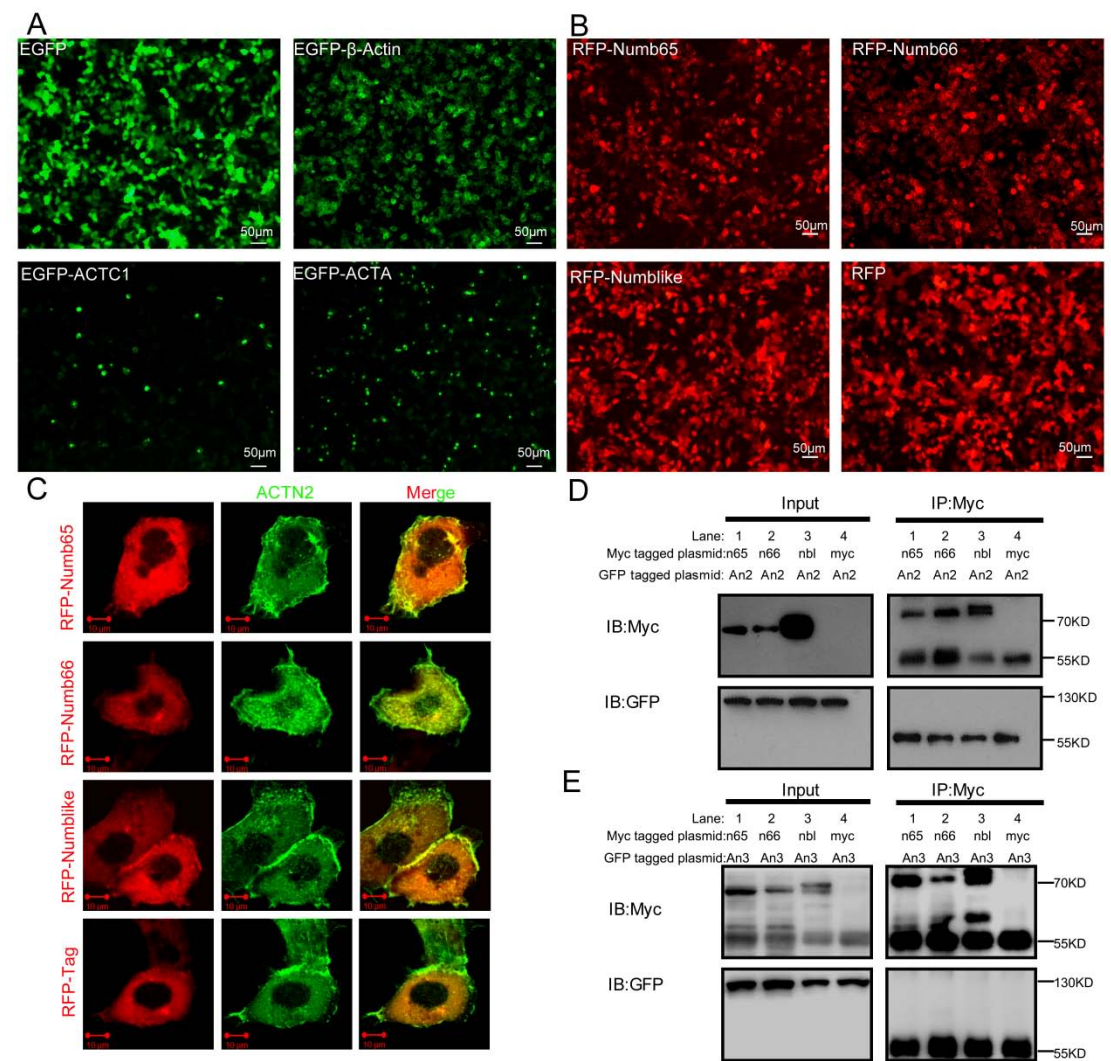
Supplementary data 6



Supplementary data 7



Supplementary data 8



Supplementary data 9

A

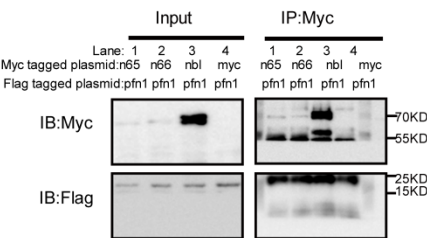
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Subject: Numbl-like residue

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DASRT+F REGSFR++ AERE K+ K+A PG++P+P++
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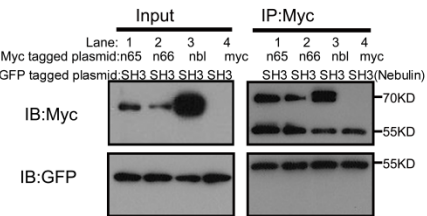
Query 61 TSPTPDGTASSEM---NNPHAI PRRHAPIELARQGSFRGFPALSQKMSPFKRQLSLRLN 117
TSP GA++ AIPRRHAP+EQL RQGSFRGFPALSQK SPFKRQLSLRL+N
Sbjct 64 TSPGEKGEAGTPVAAGTTAAAI PRRHAPIELVLRQGSFRGFPALSQKNSPFKRQLSLRLN 123

Query 118 ELPSTMQRKTDPIKNTVPEVE---GEAESISSLSQ 151
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Sbjct 124 ELPSTLQRRTDQVKGTVPEMEPPGTGDSGINALCTQ 161

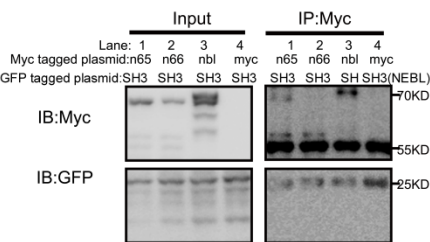
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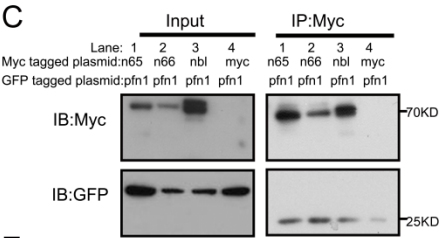
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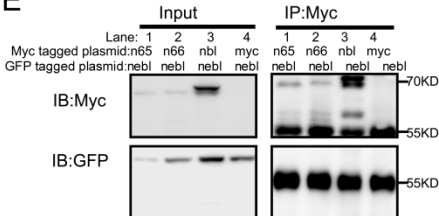
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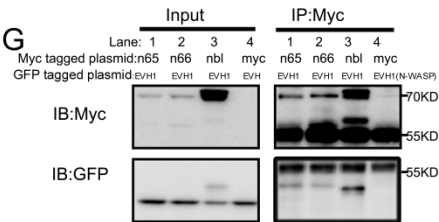
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E



G

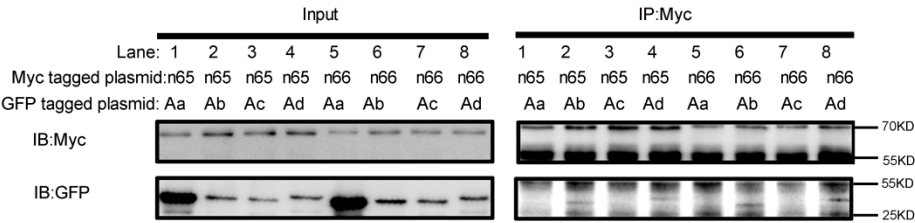


Supplementary data 10

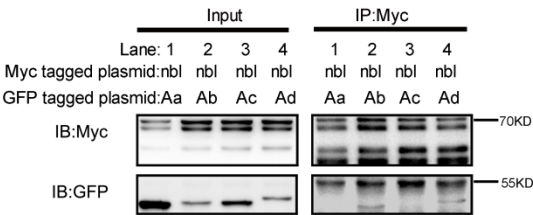
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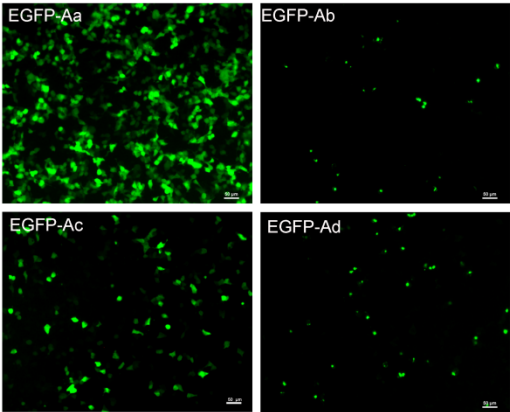
B



C



D



Supplementary data 11

A

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[Mus musculus] ACTA moddedettalvodngsglvkagfagddapra

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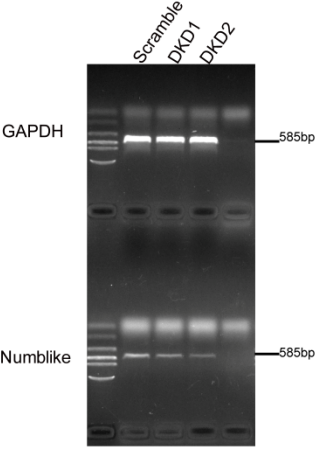
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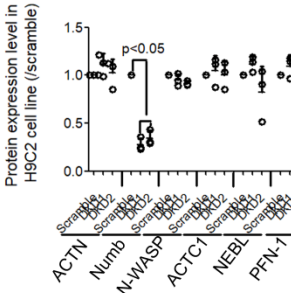
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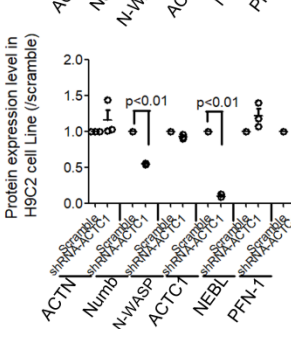
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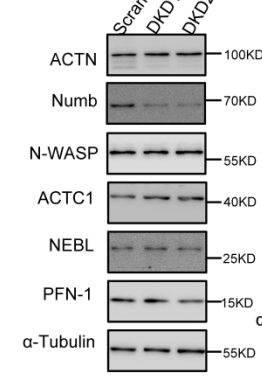
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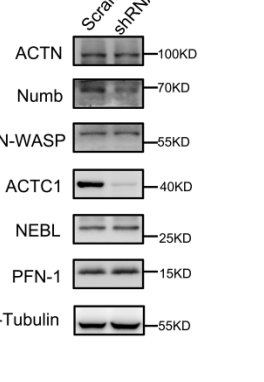
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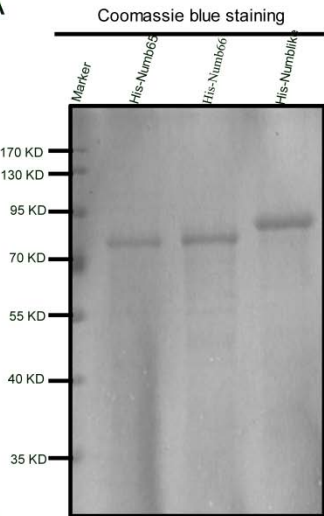


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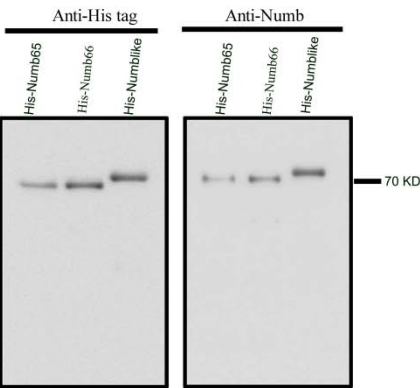


Supplementary data 12

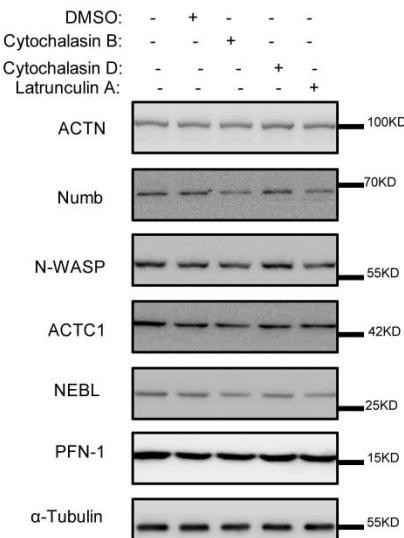
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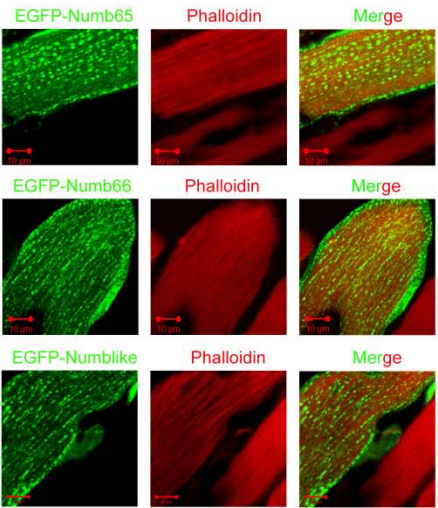
B



C



D



Supplementary data 13

