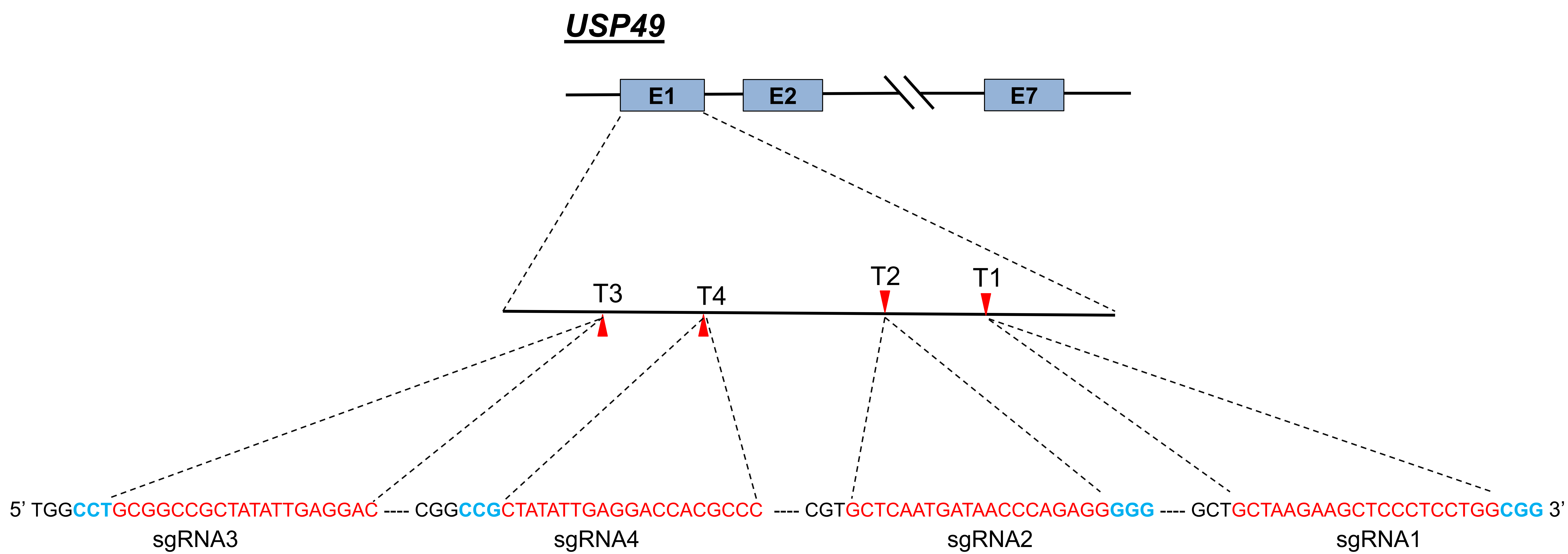
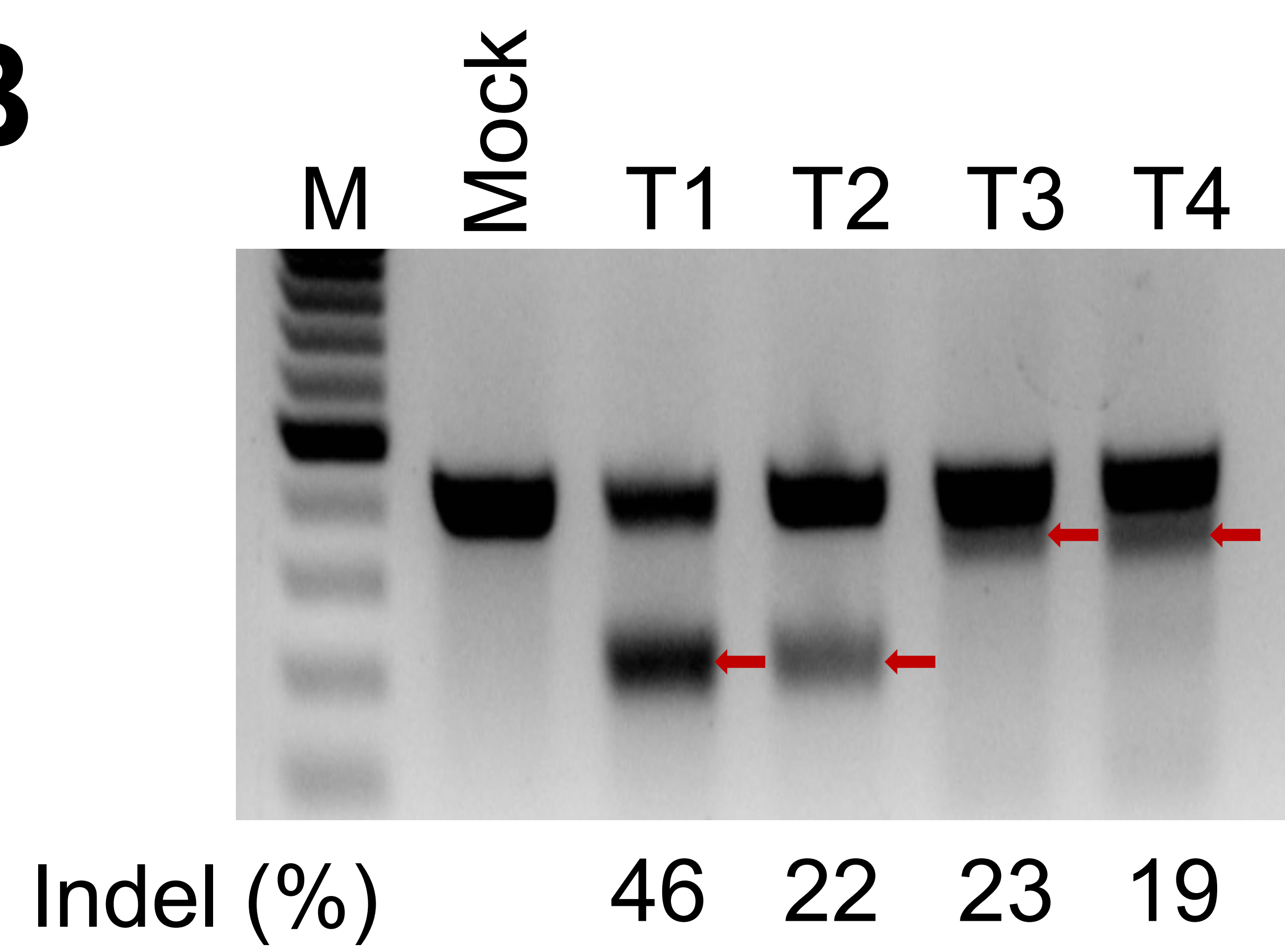


Supplementary Fig. S1

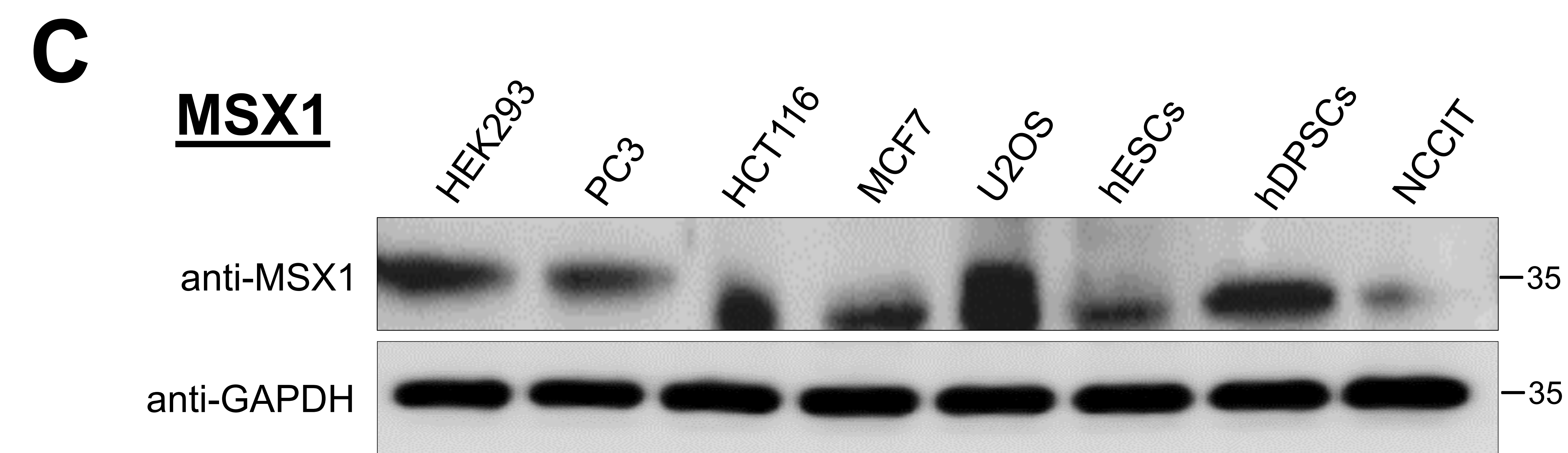
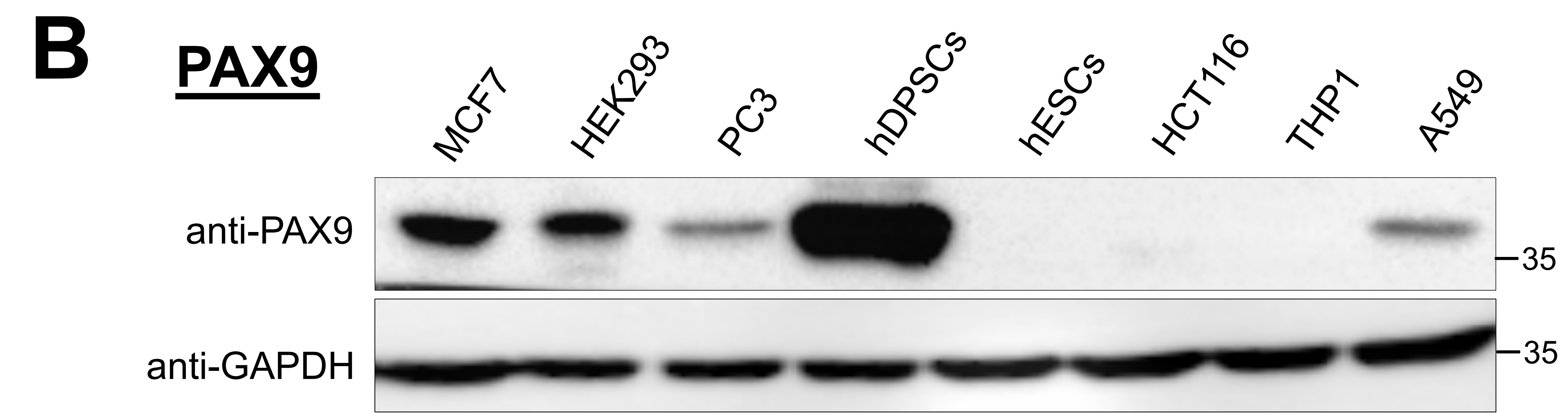
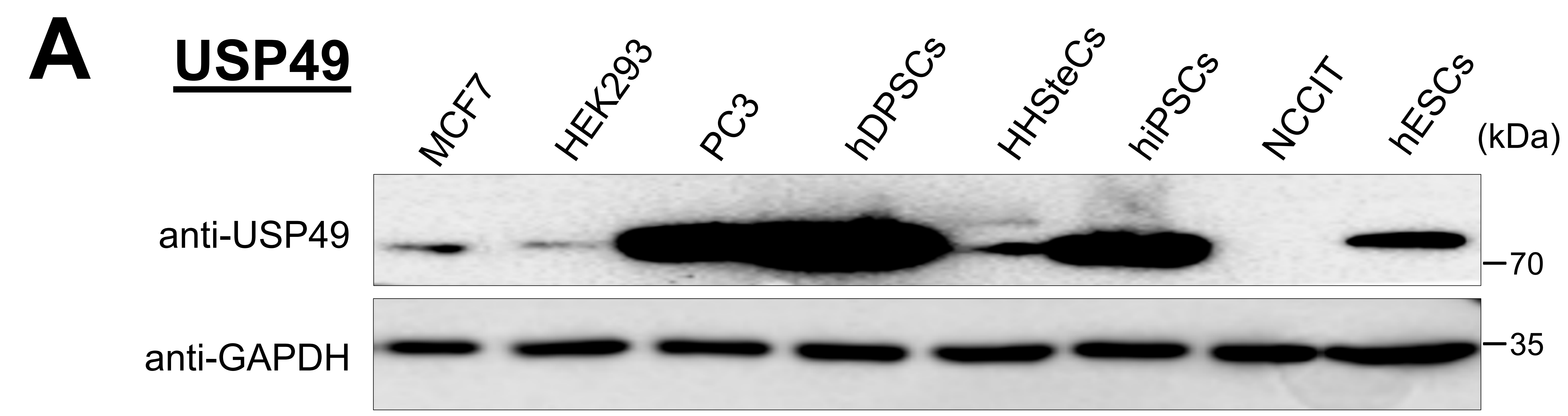
A



B

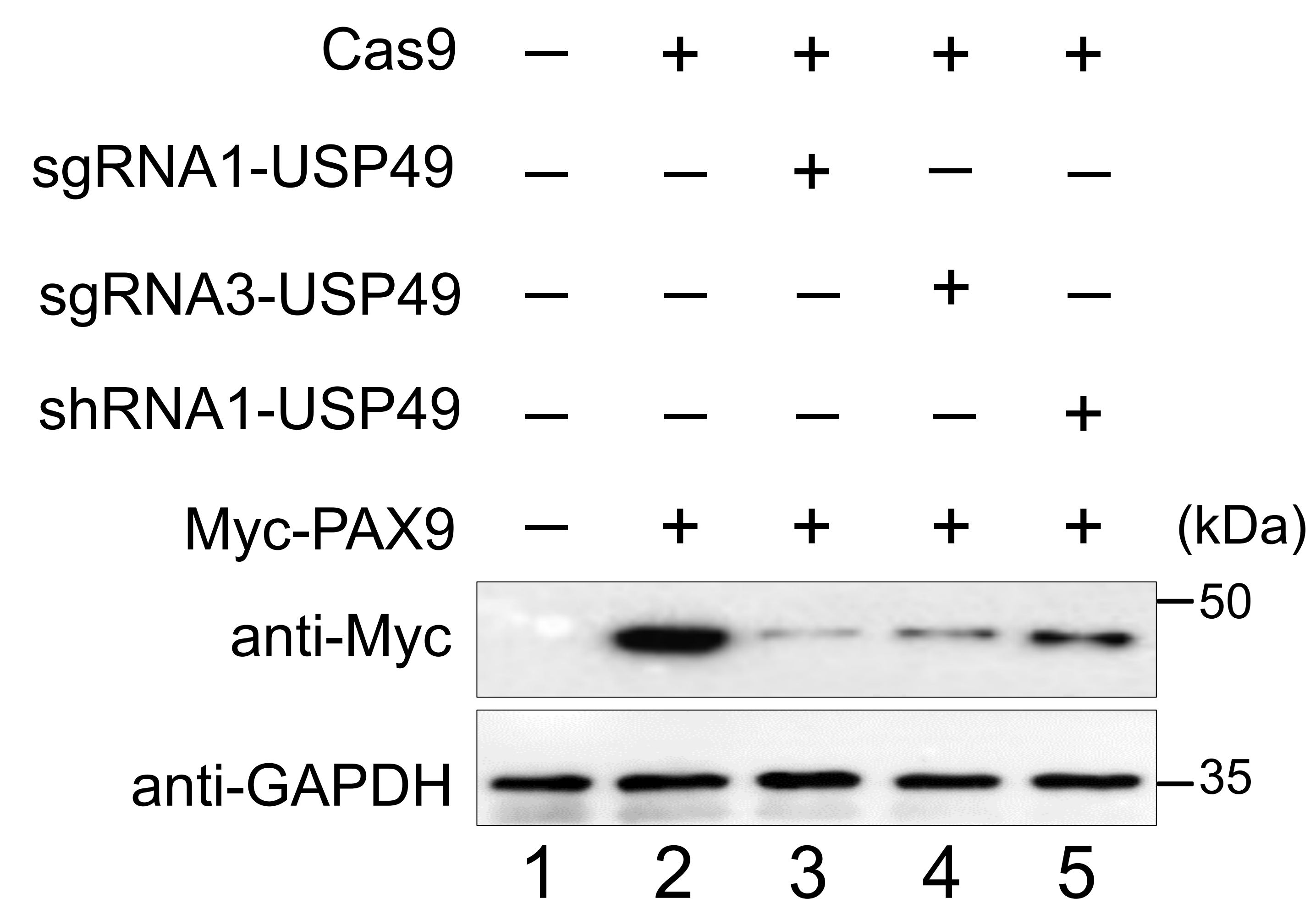


Supplementary Fig. S2

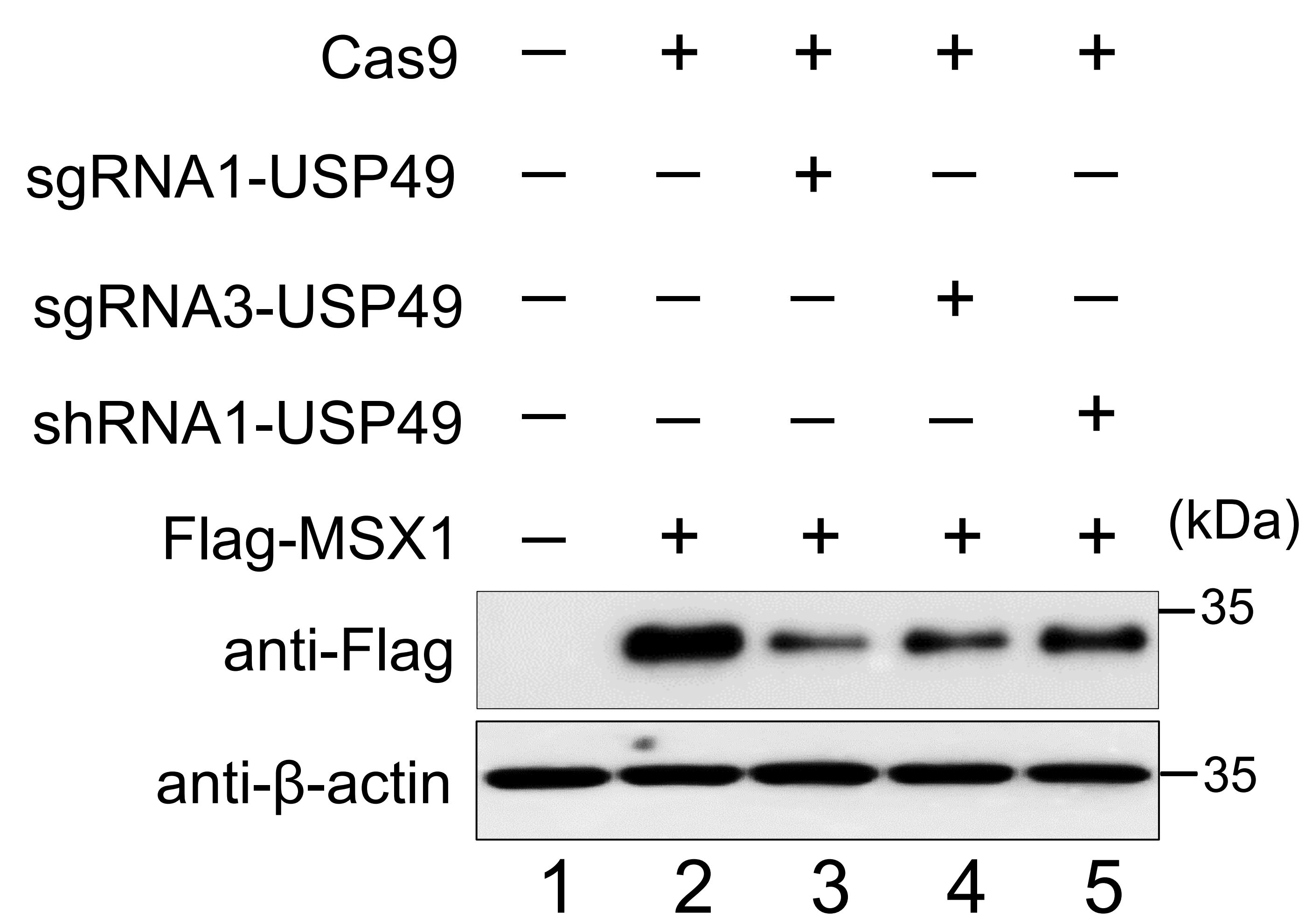


Supplementary Fig.S3

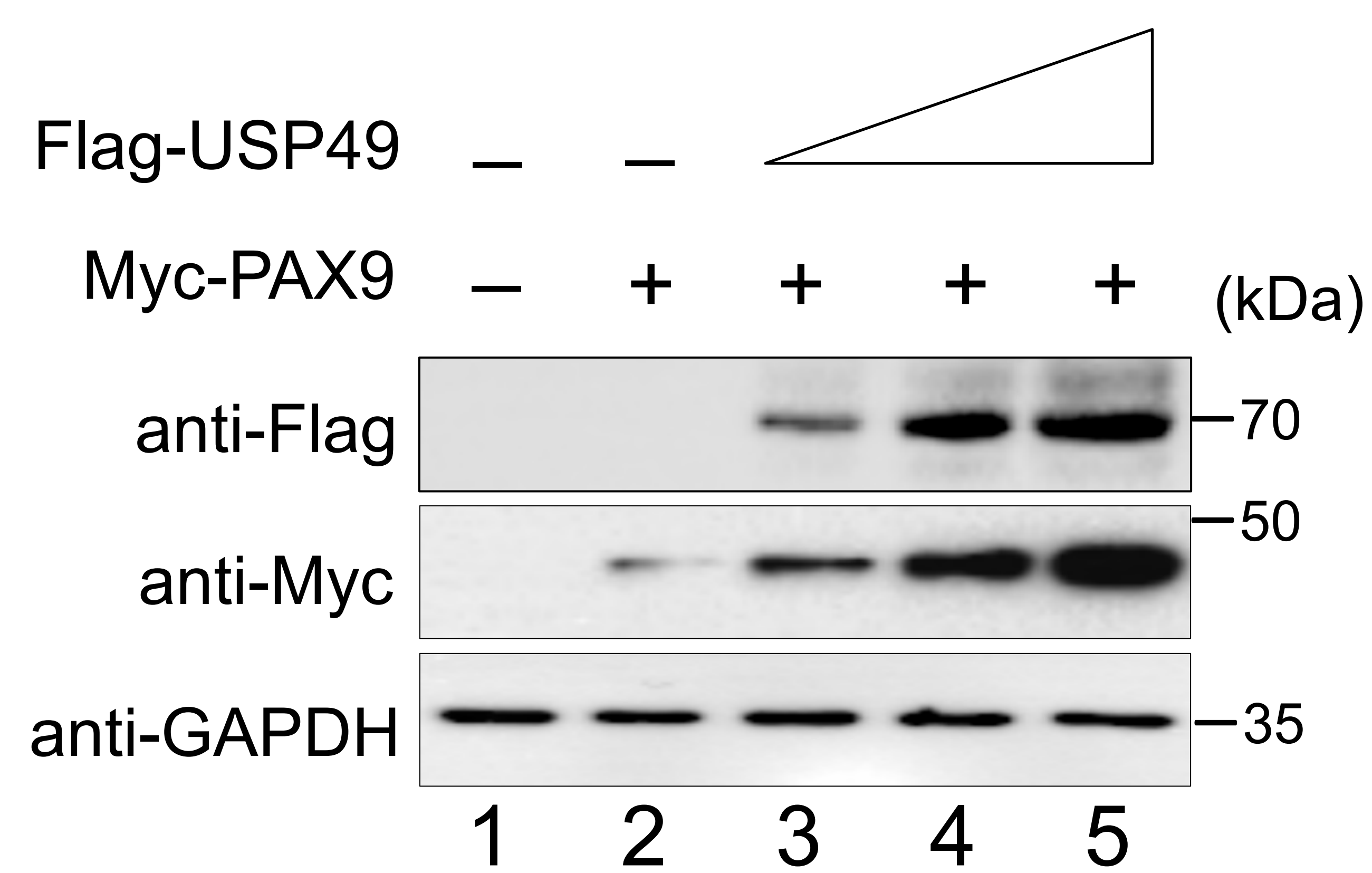
A



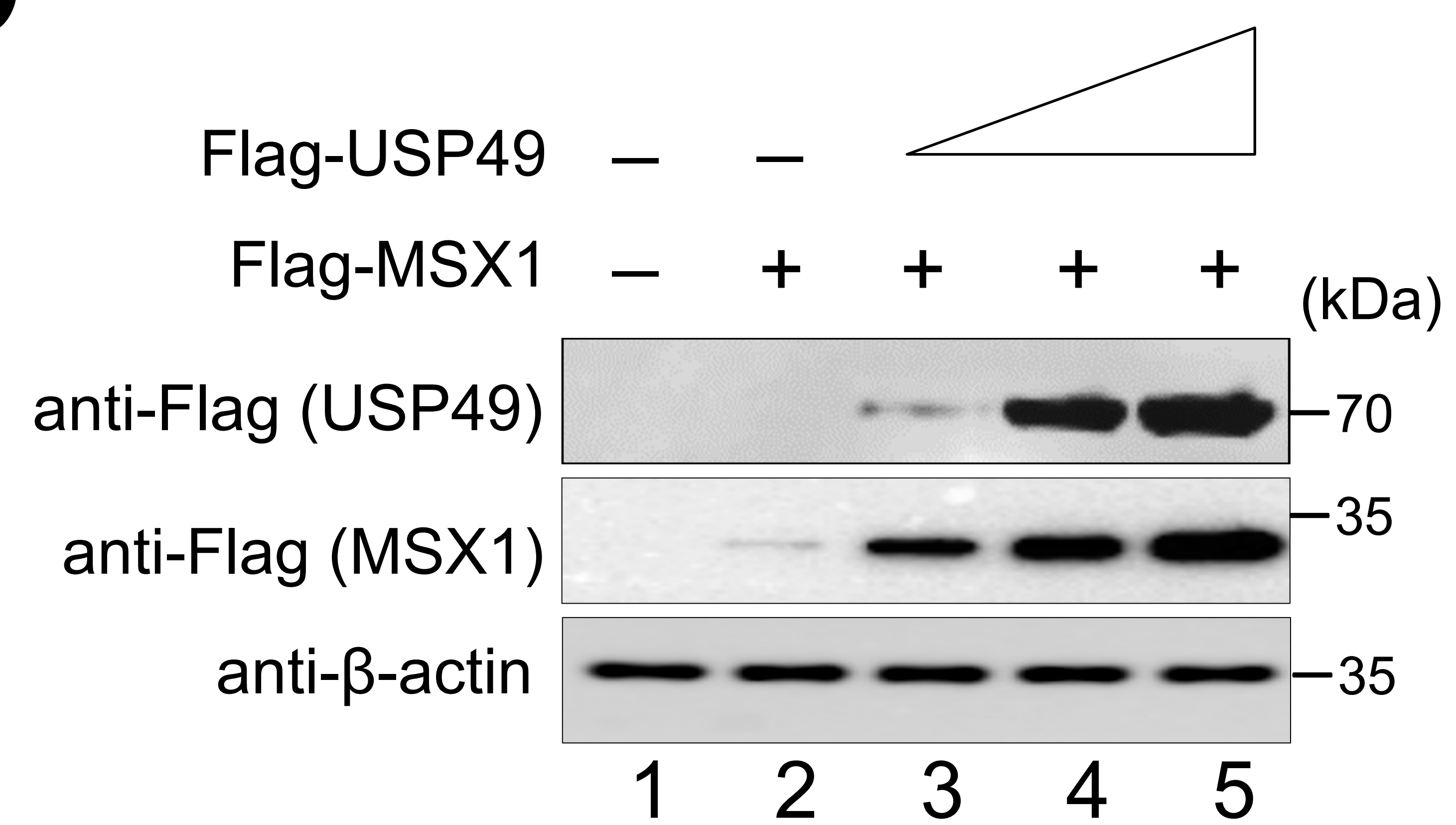
B



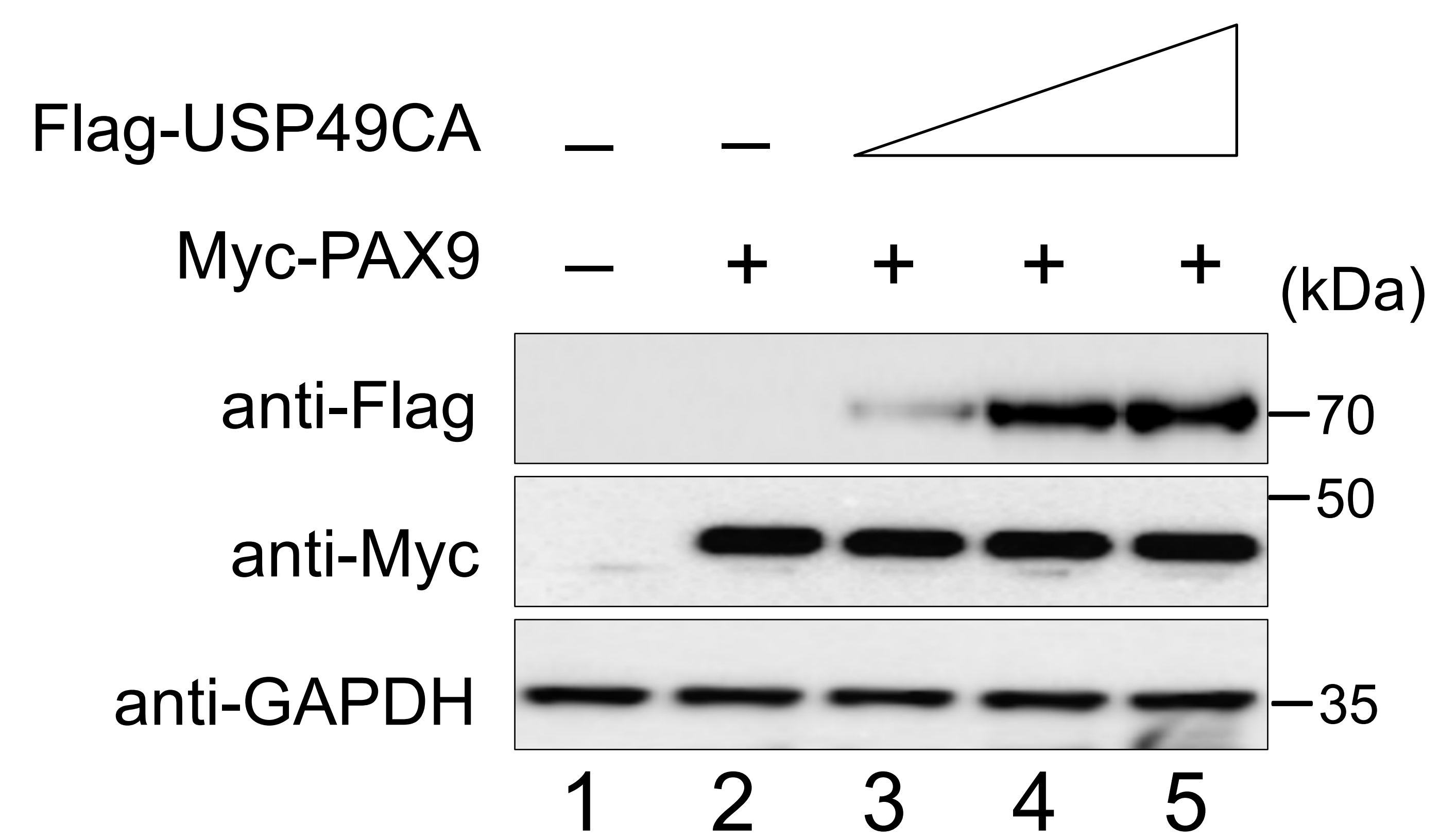
C



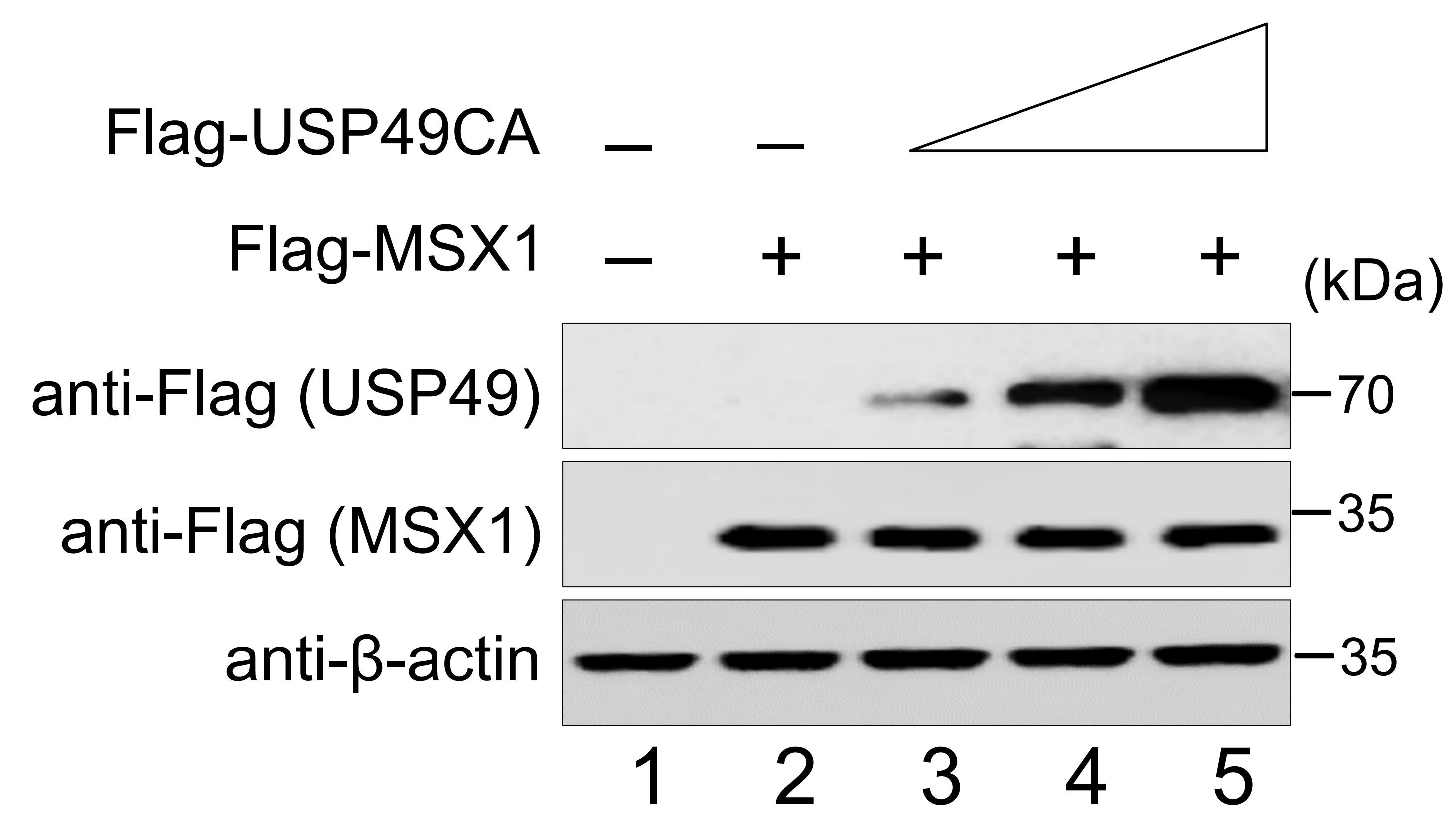
D



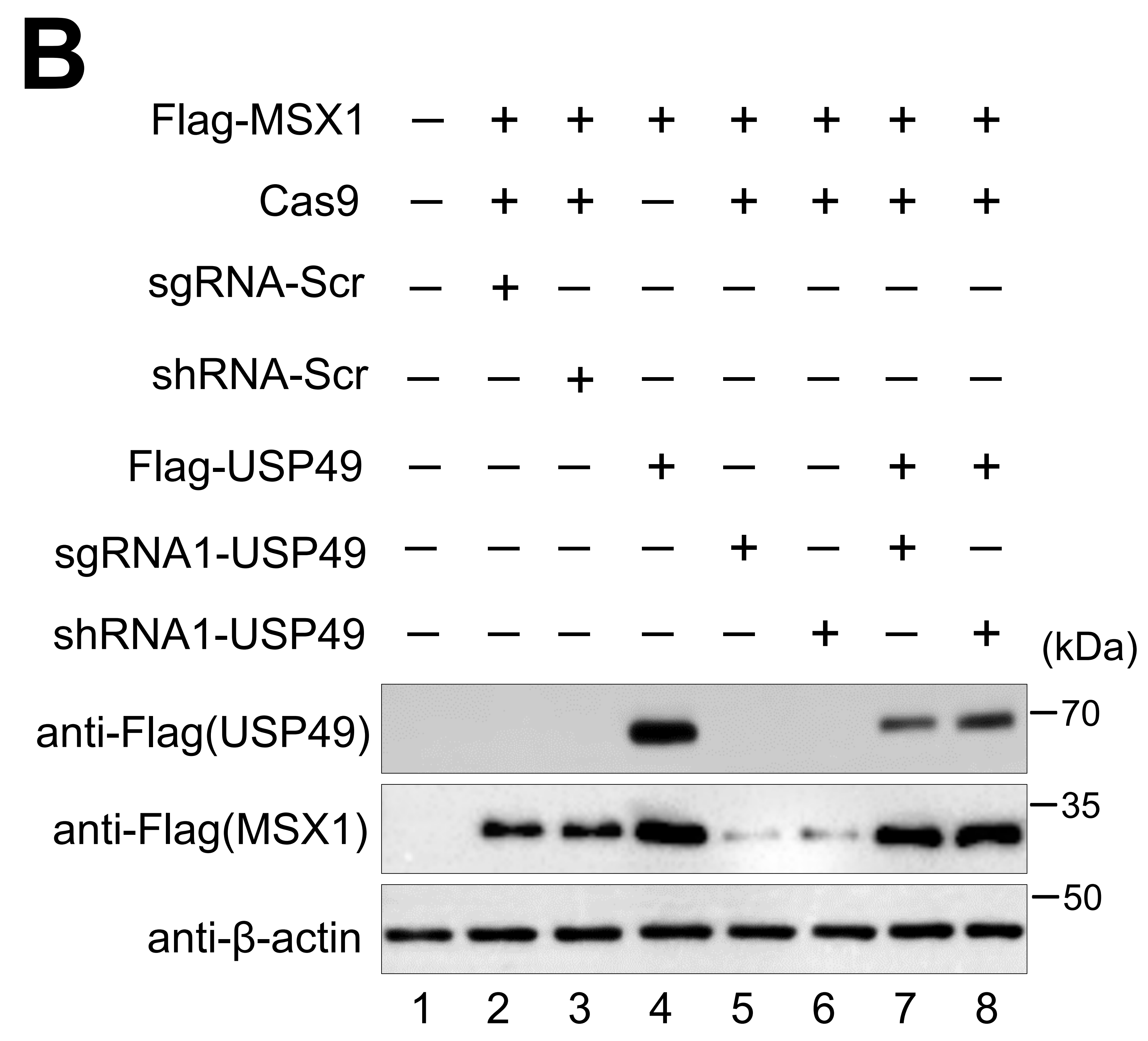
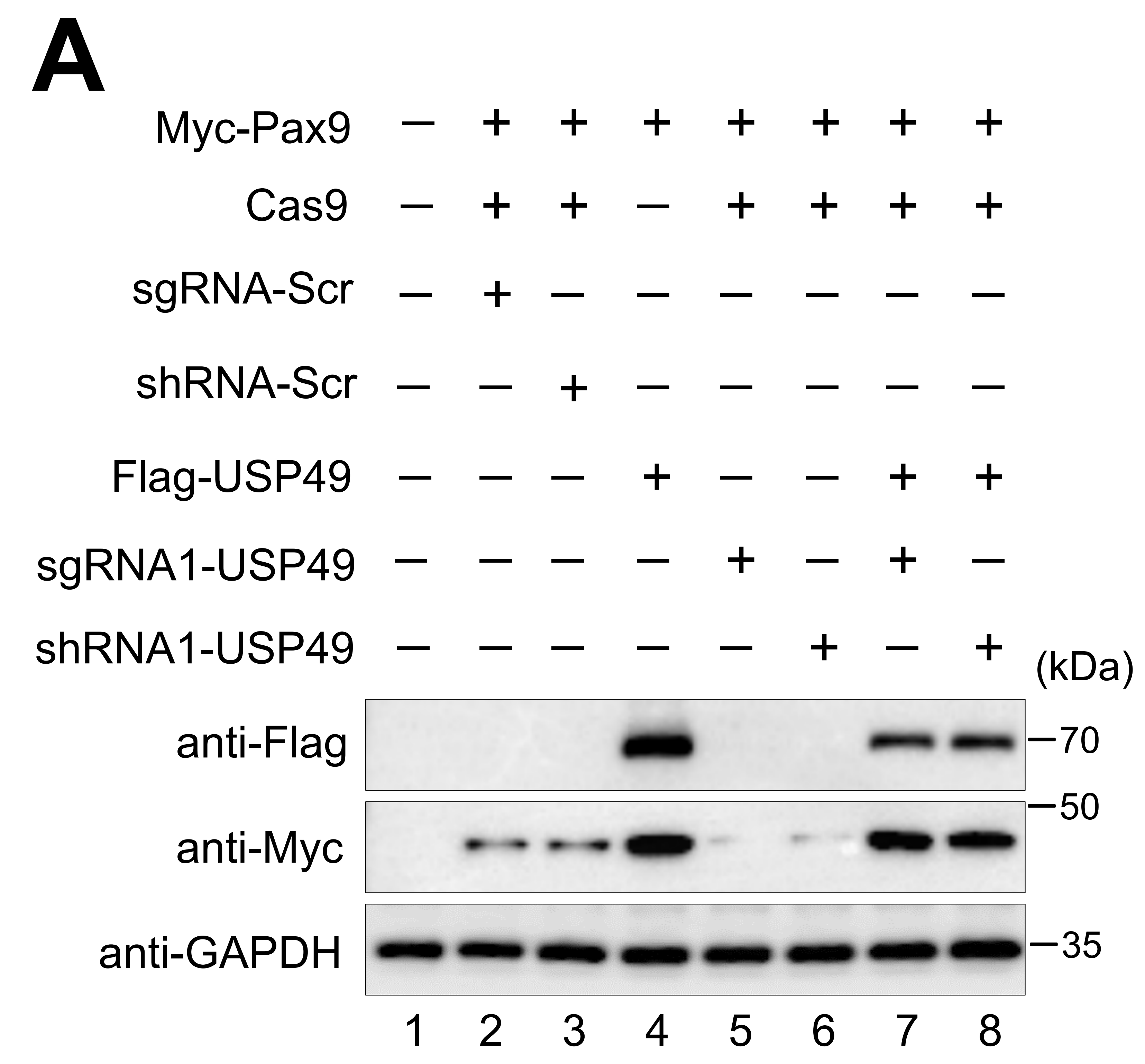
E



F



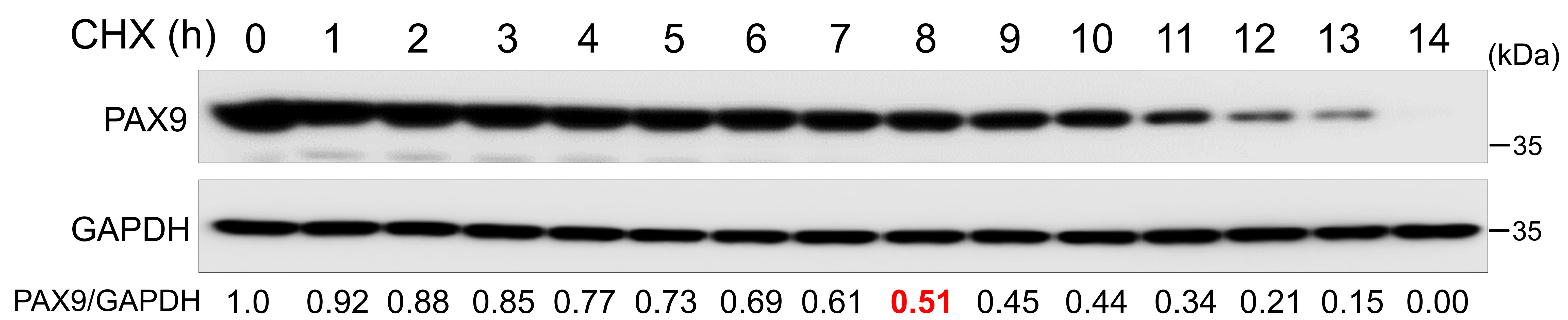
Supplementary Fig. S4



Supplementary Fig. S5

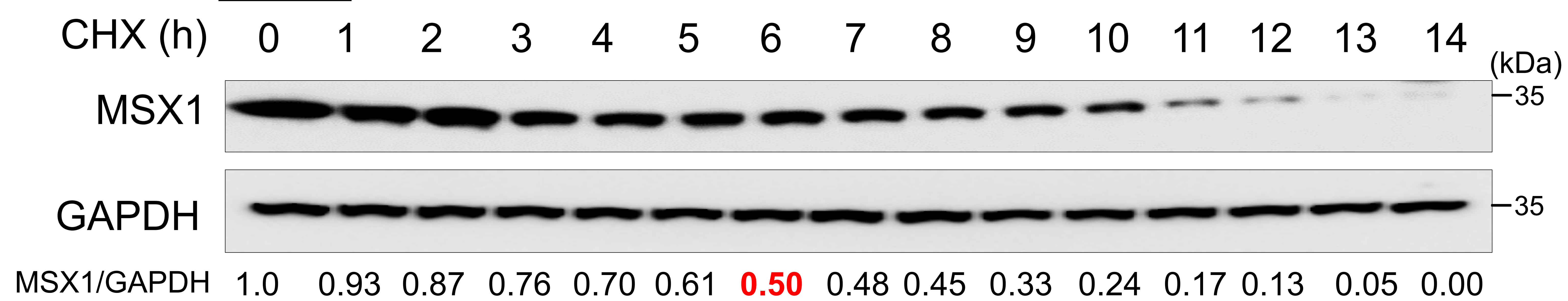
A

PAX9

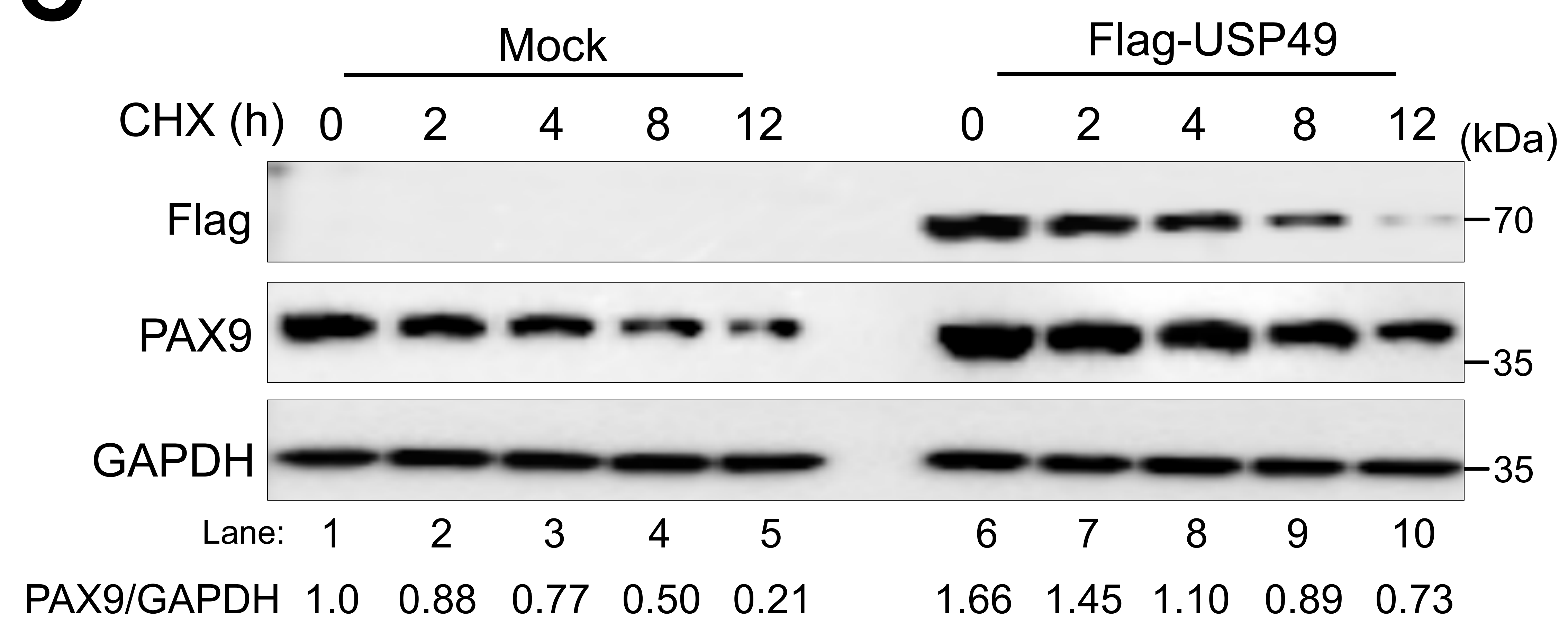


B

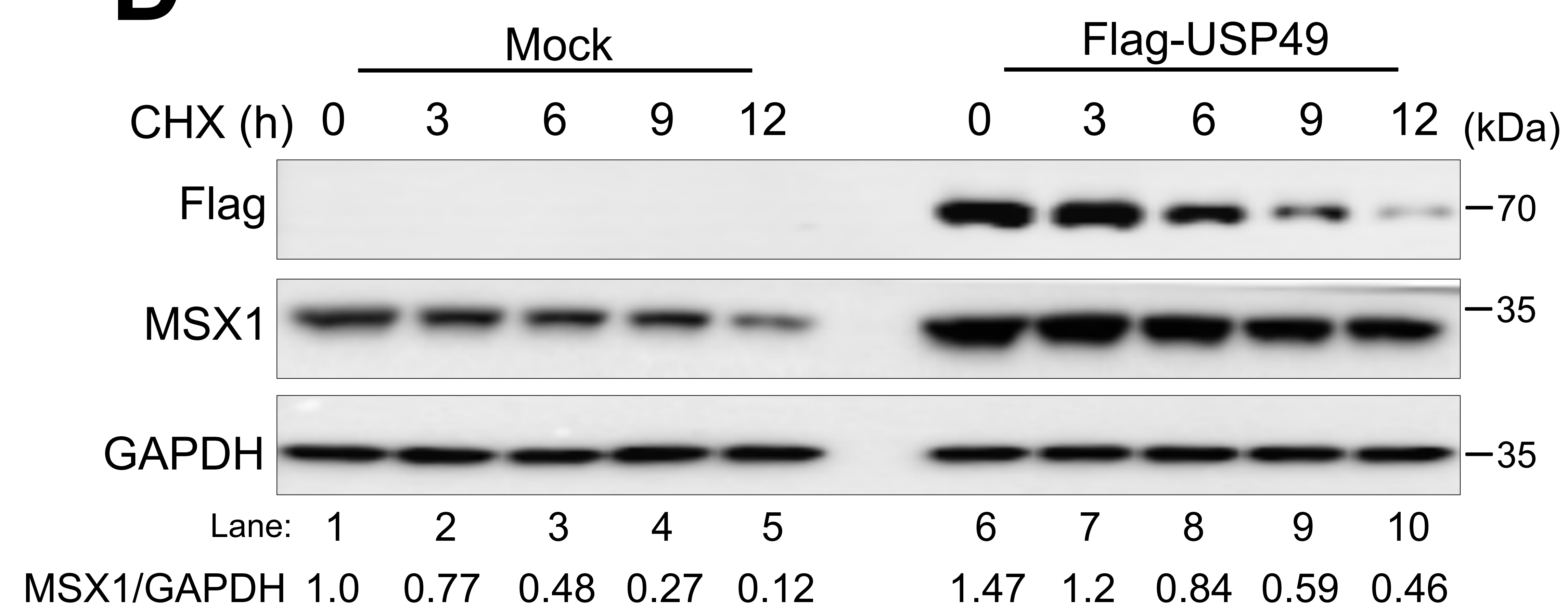
MSX1



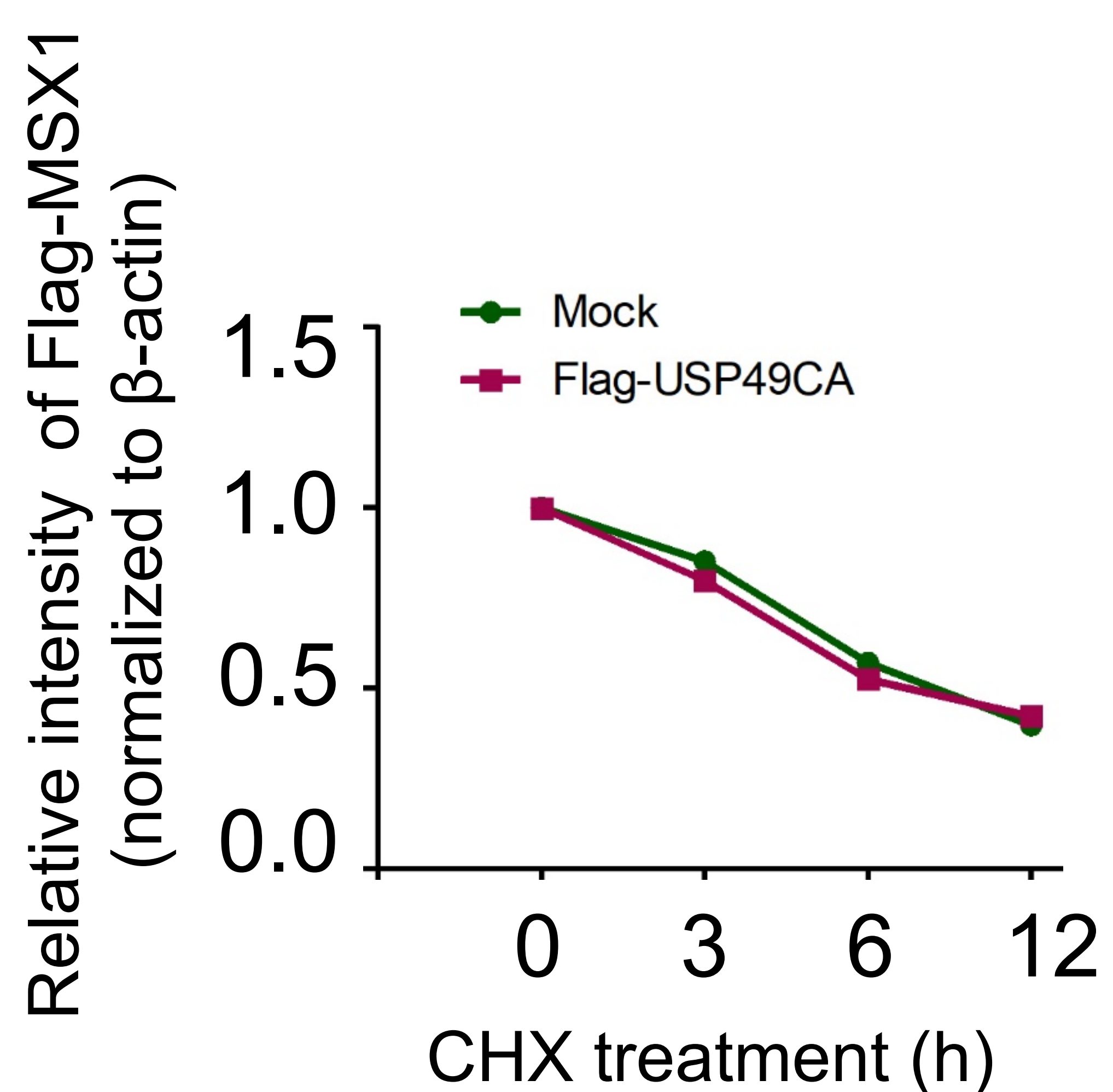
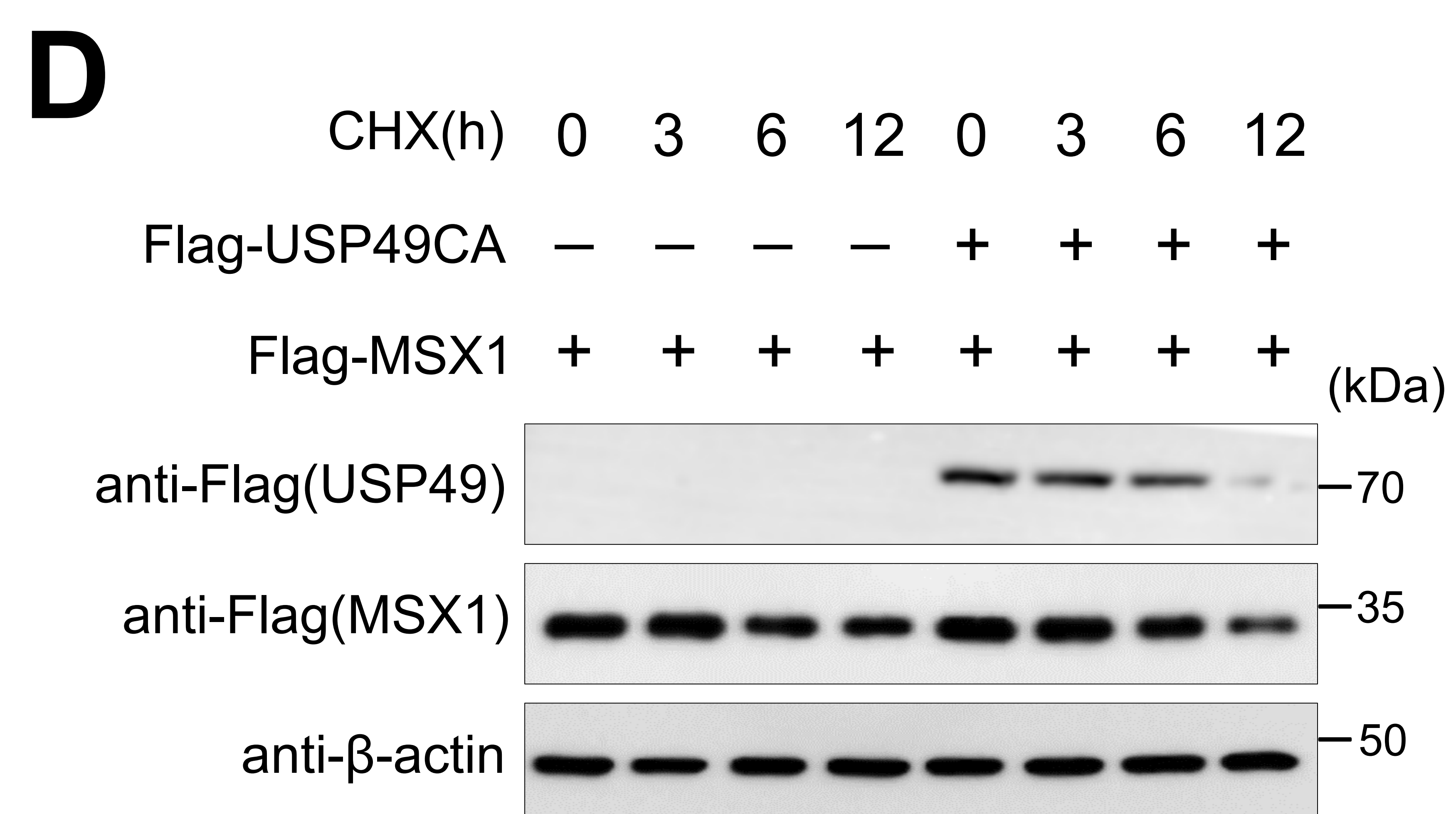
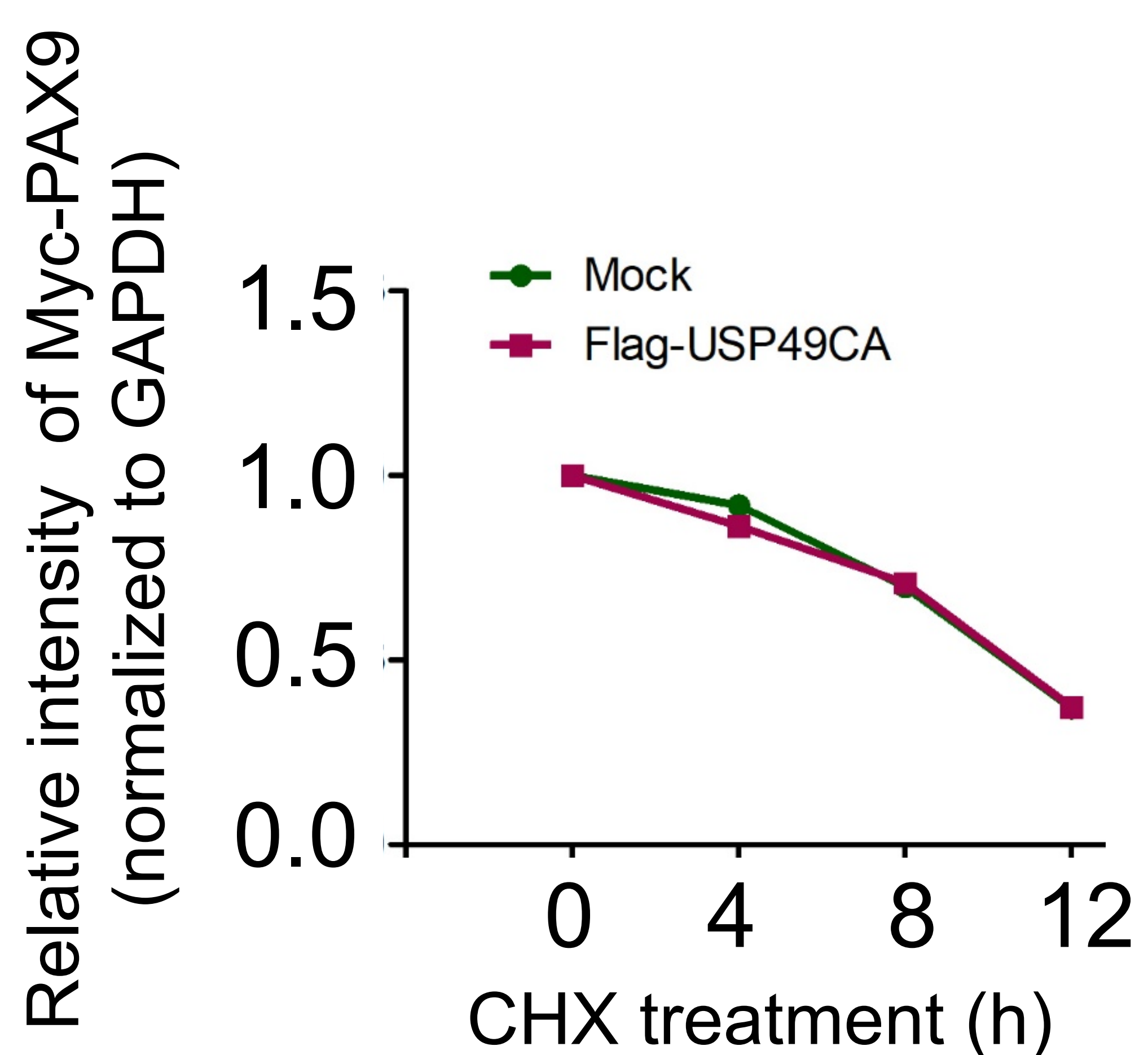
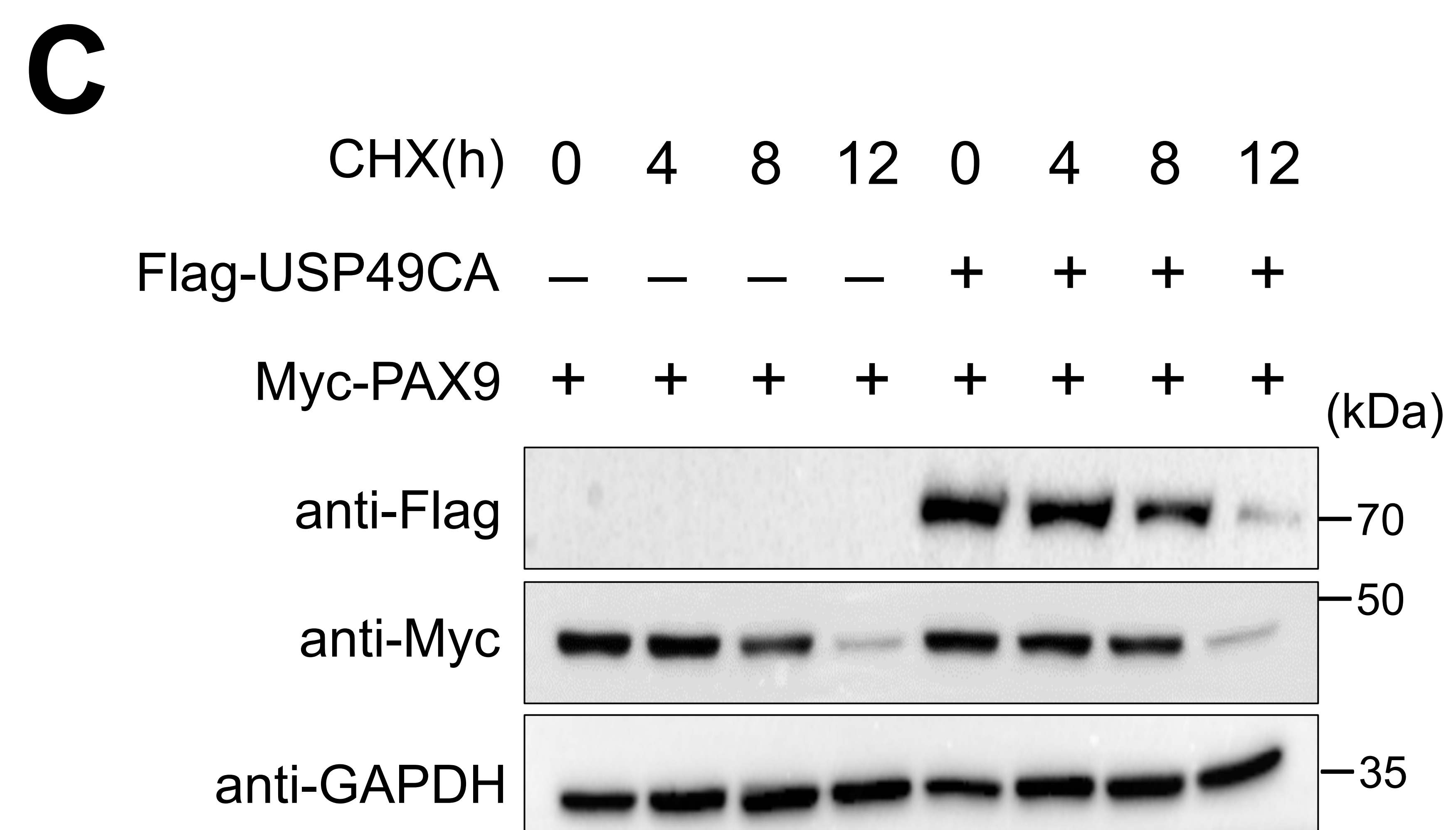
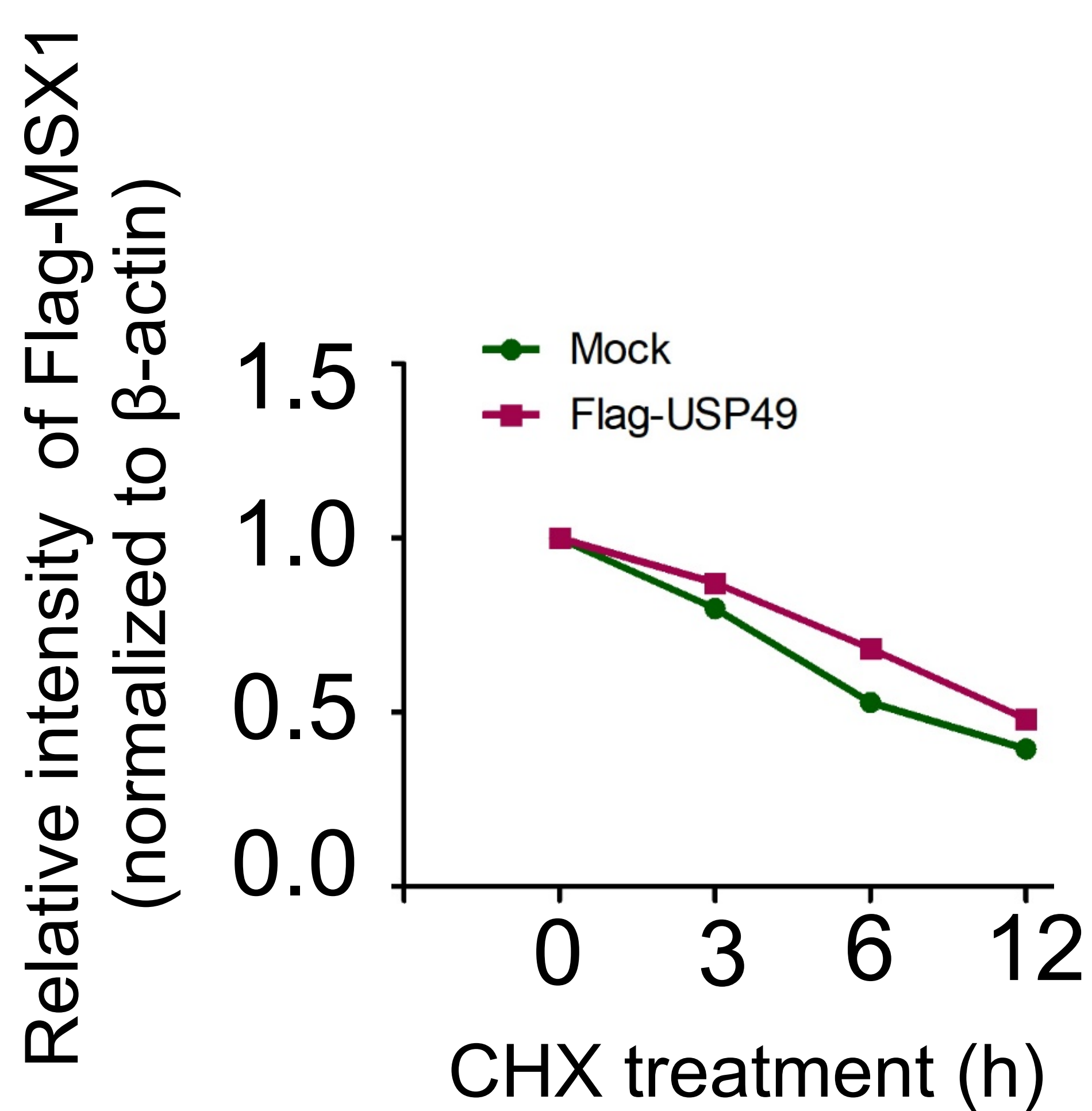
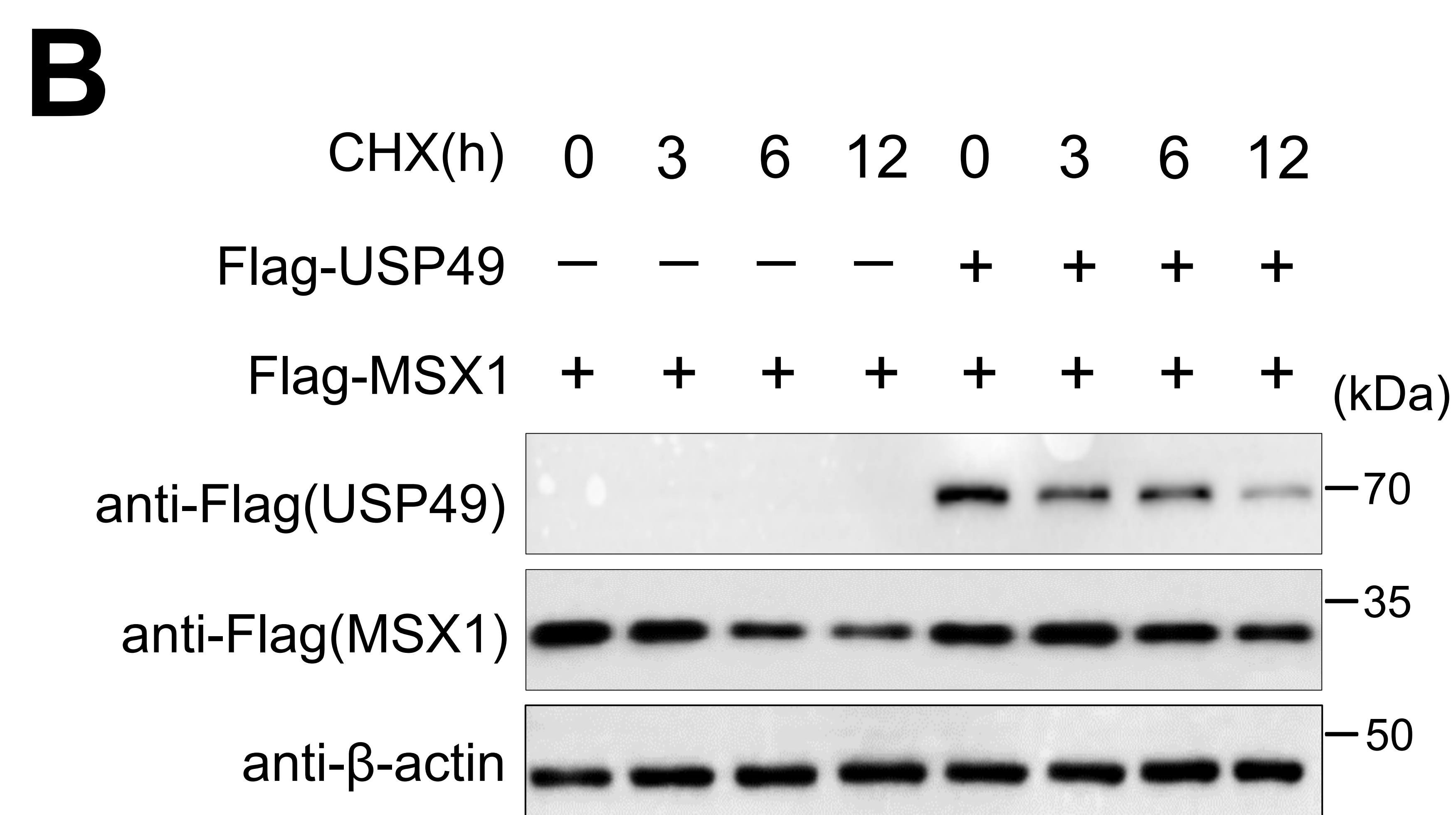
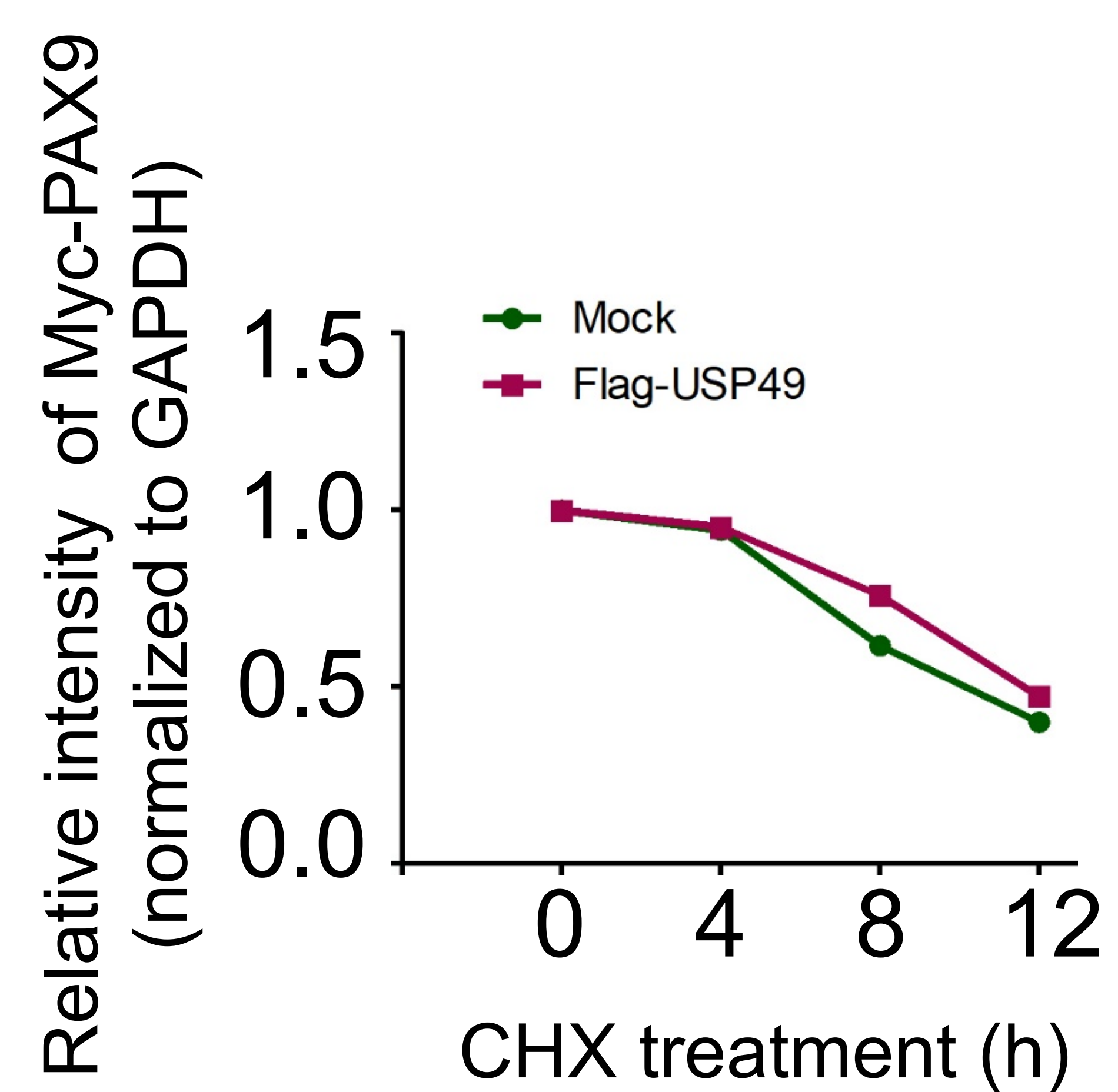
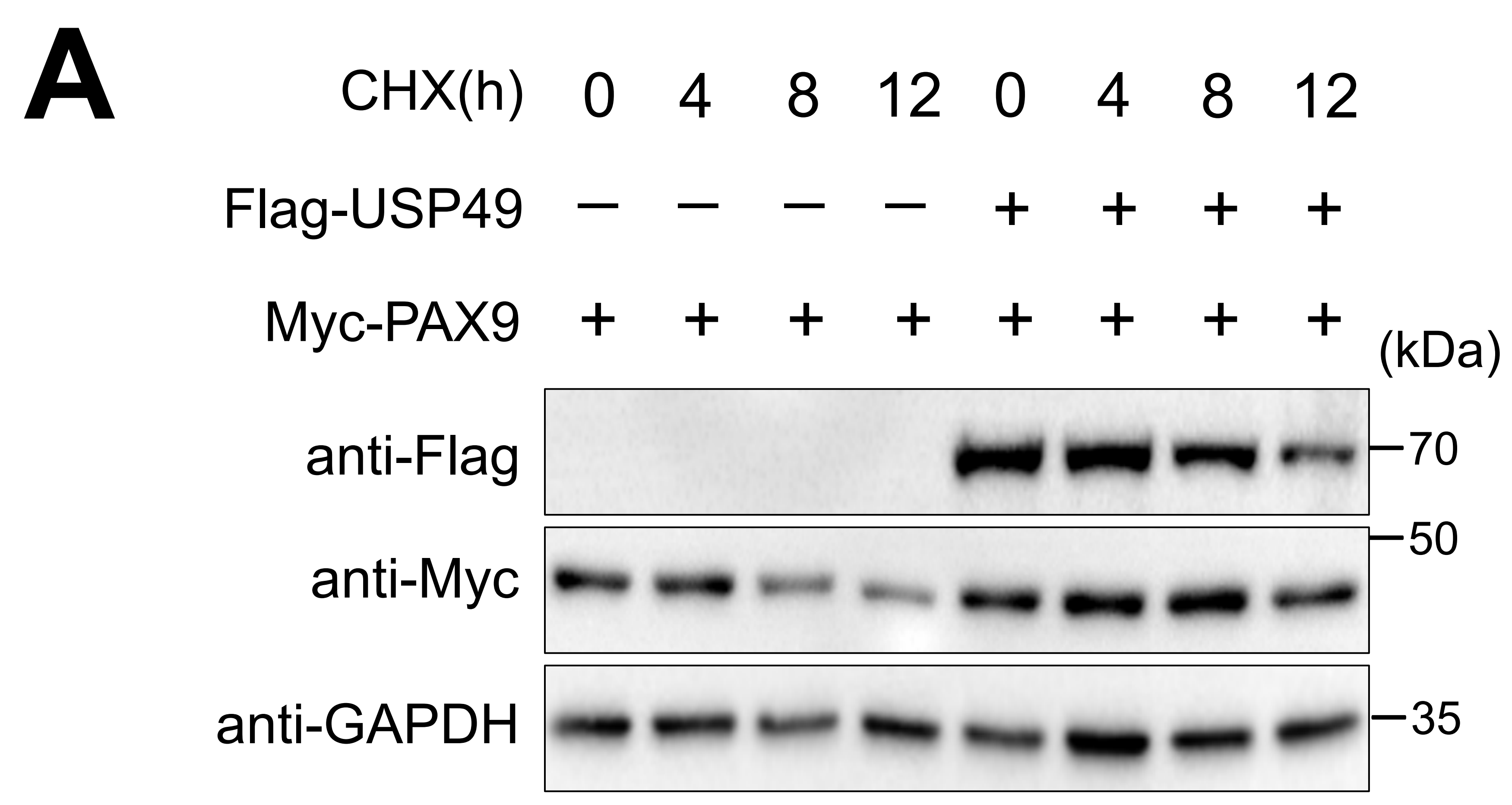
C



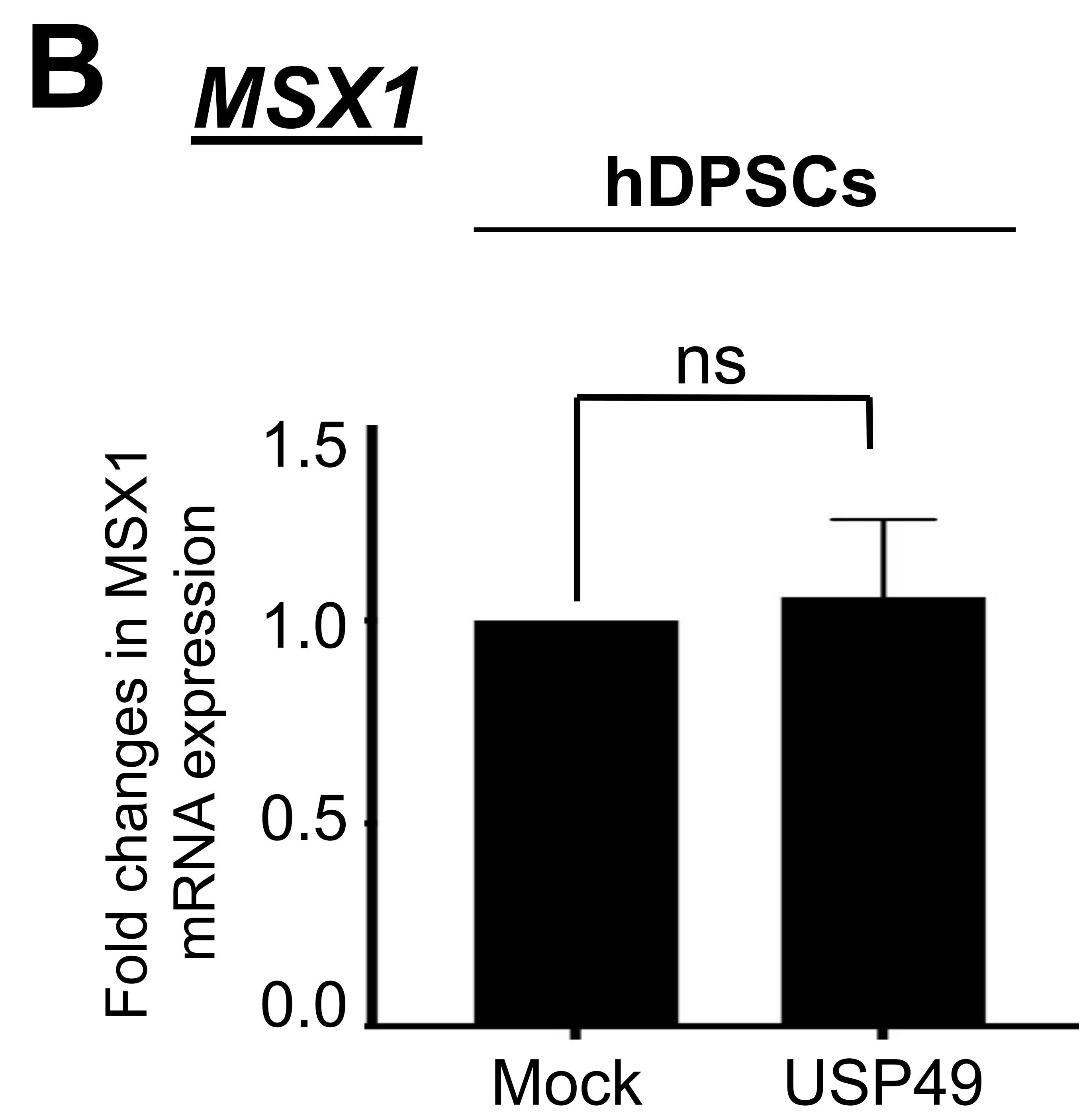
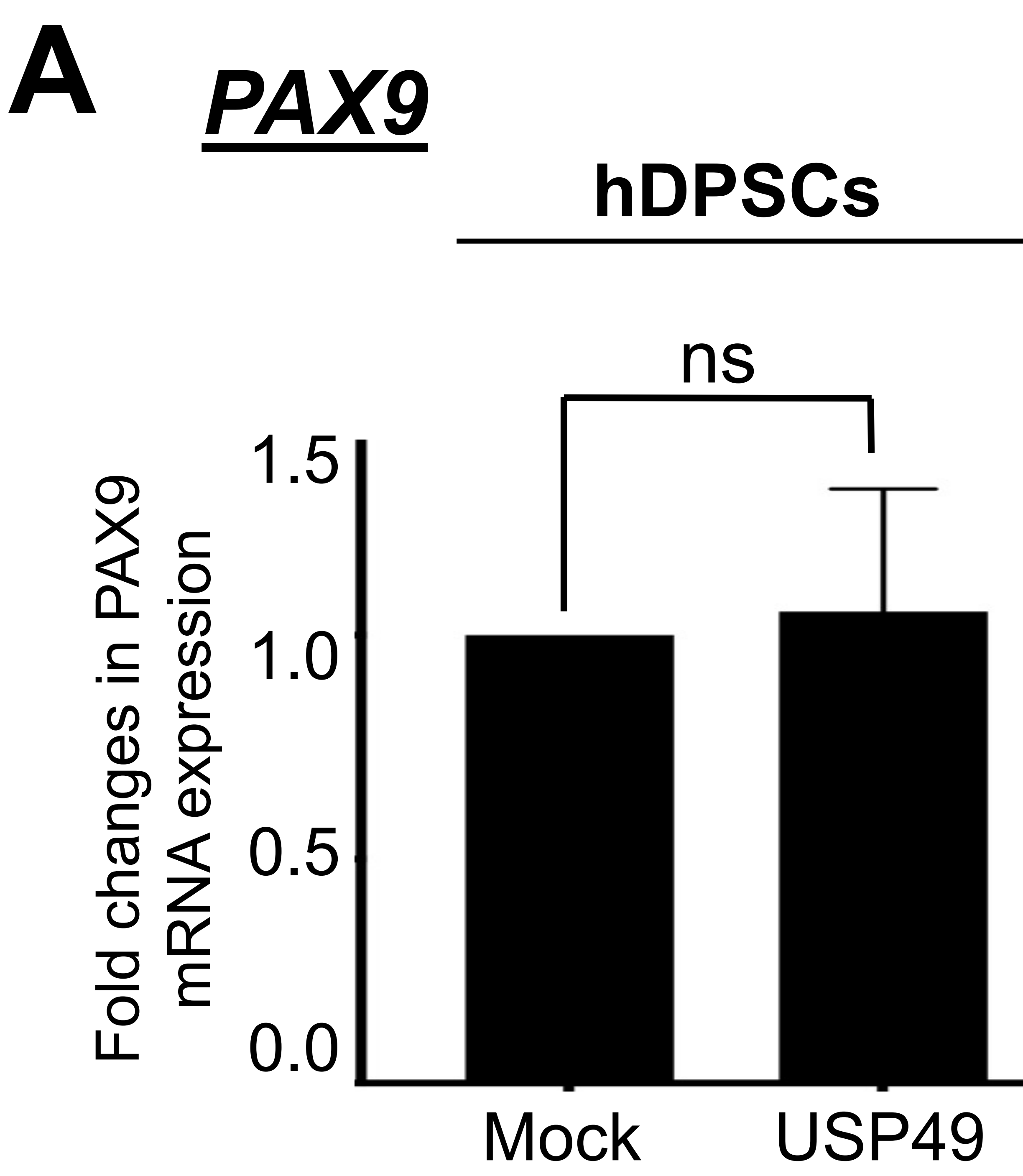
D



Supplementary Fig. S6



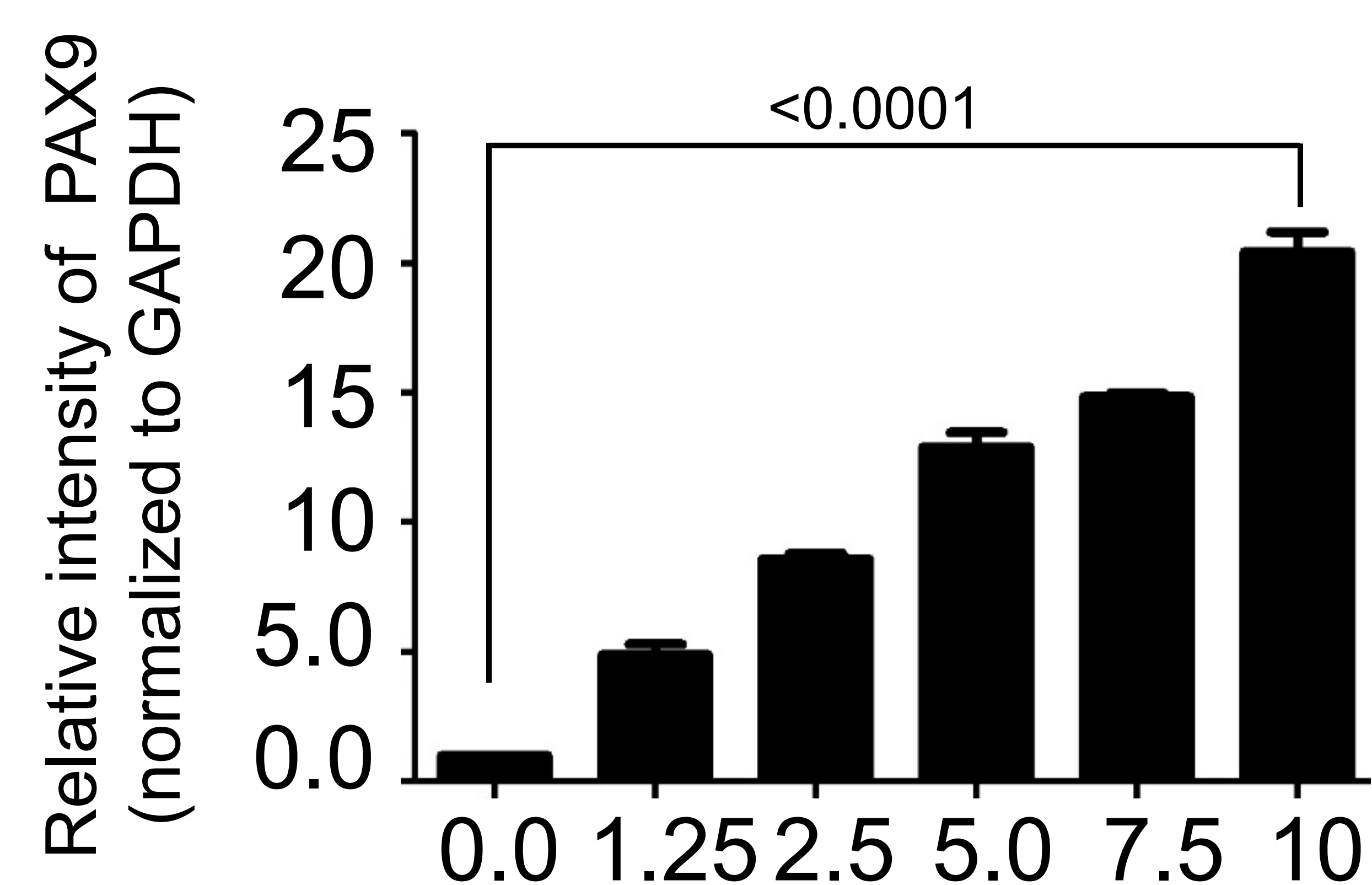
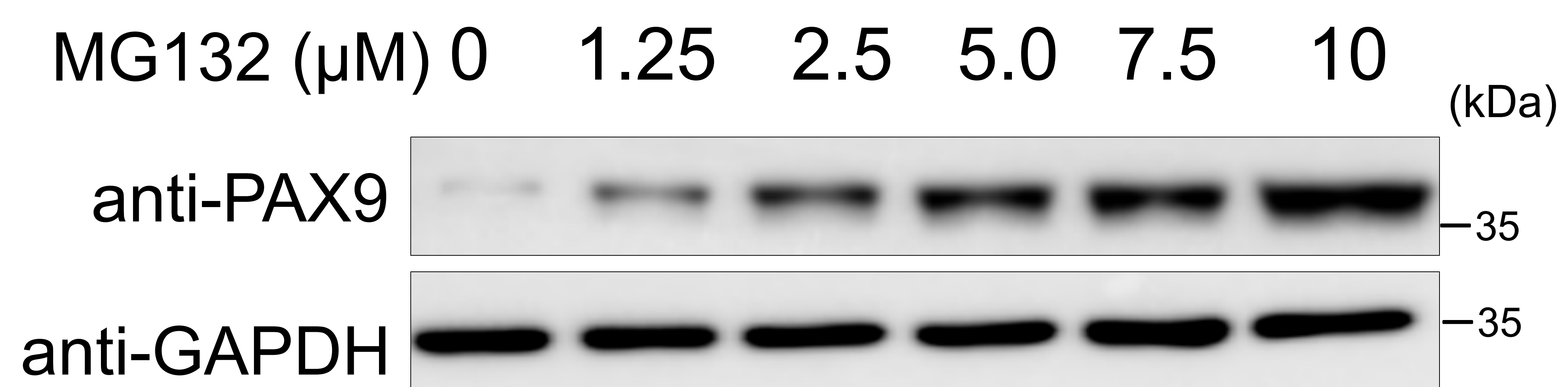
Supplementary Fig. S7



Supplementary Fig. S8

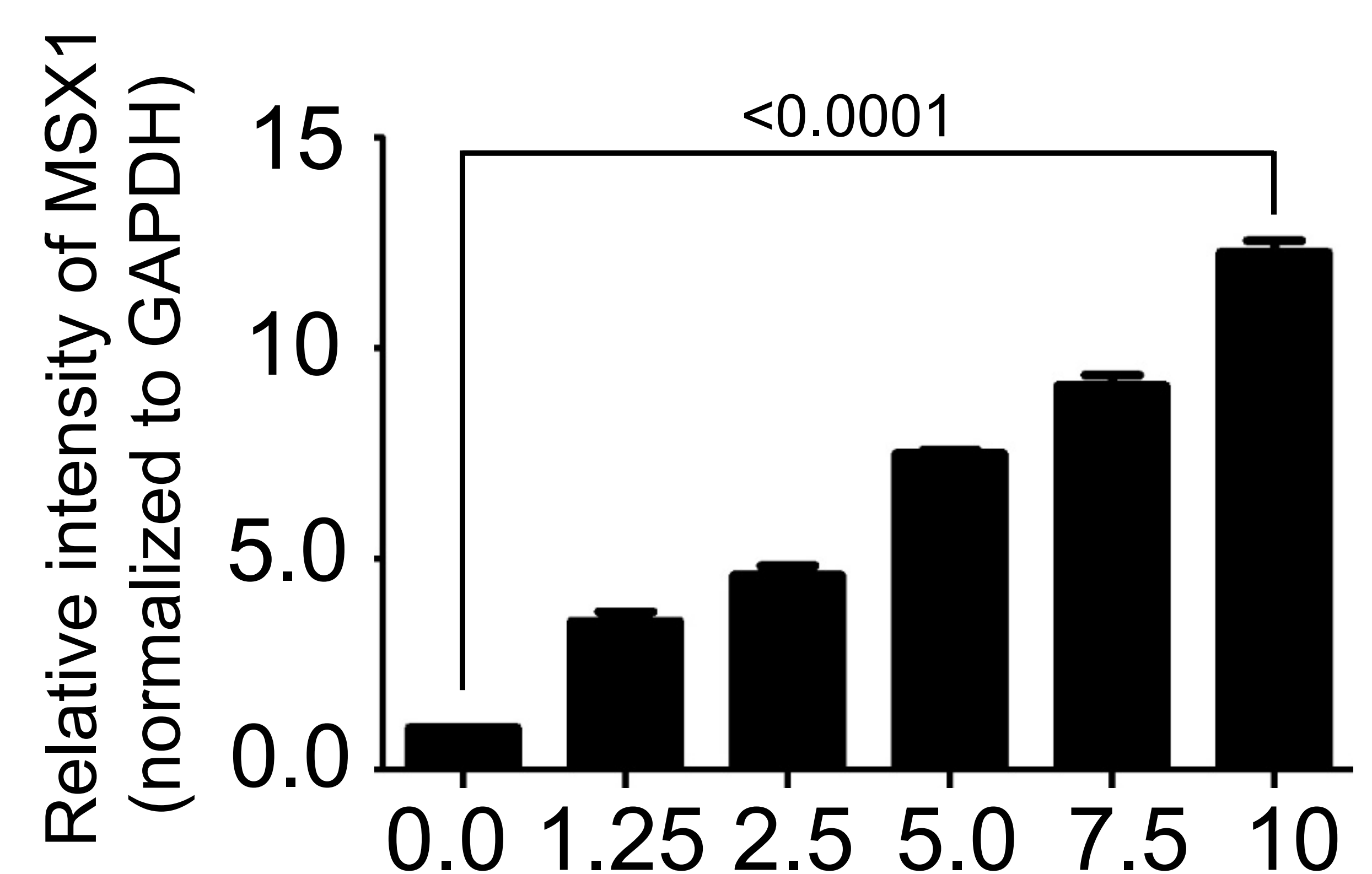
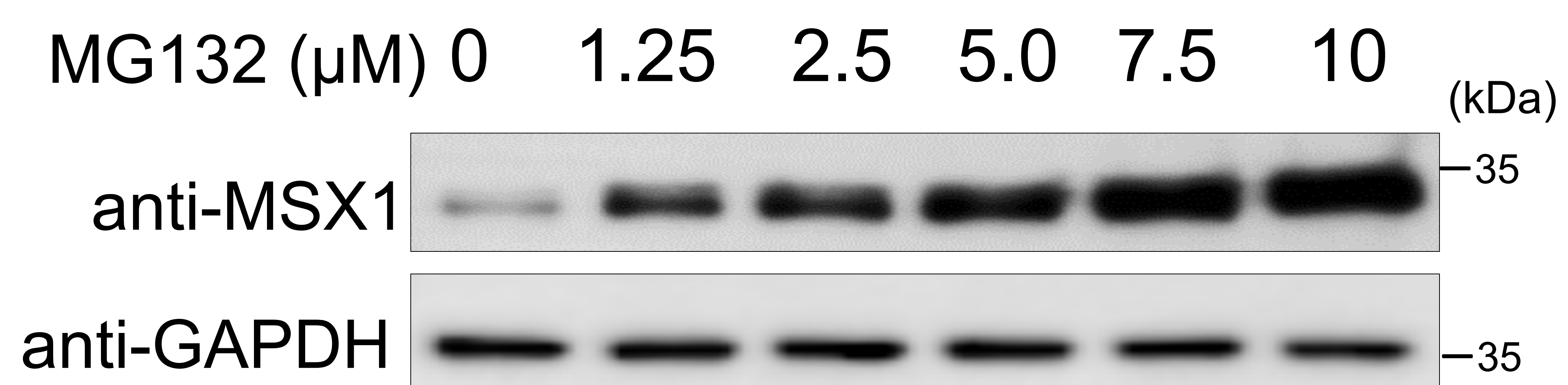
A

PAX9

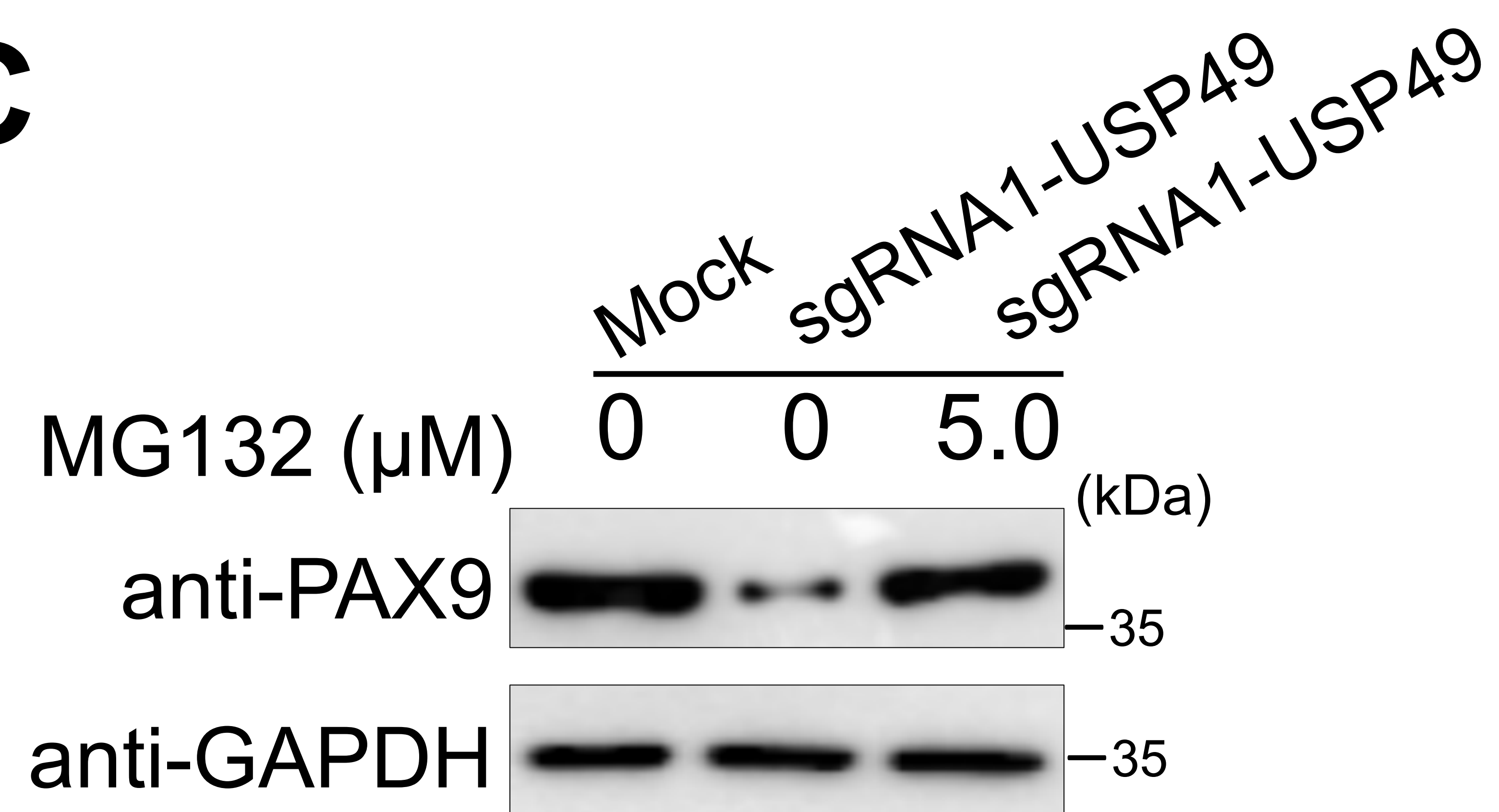


B

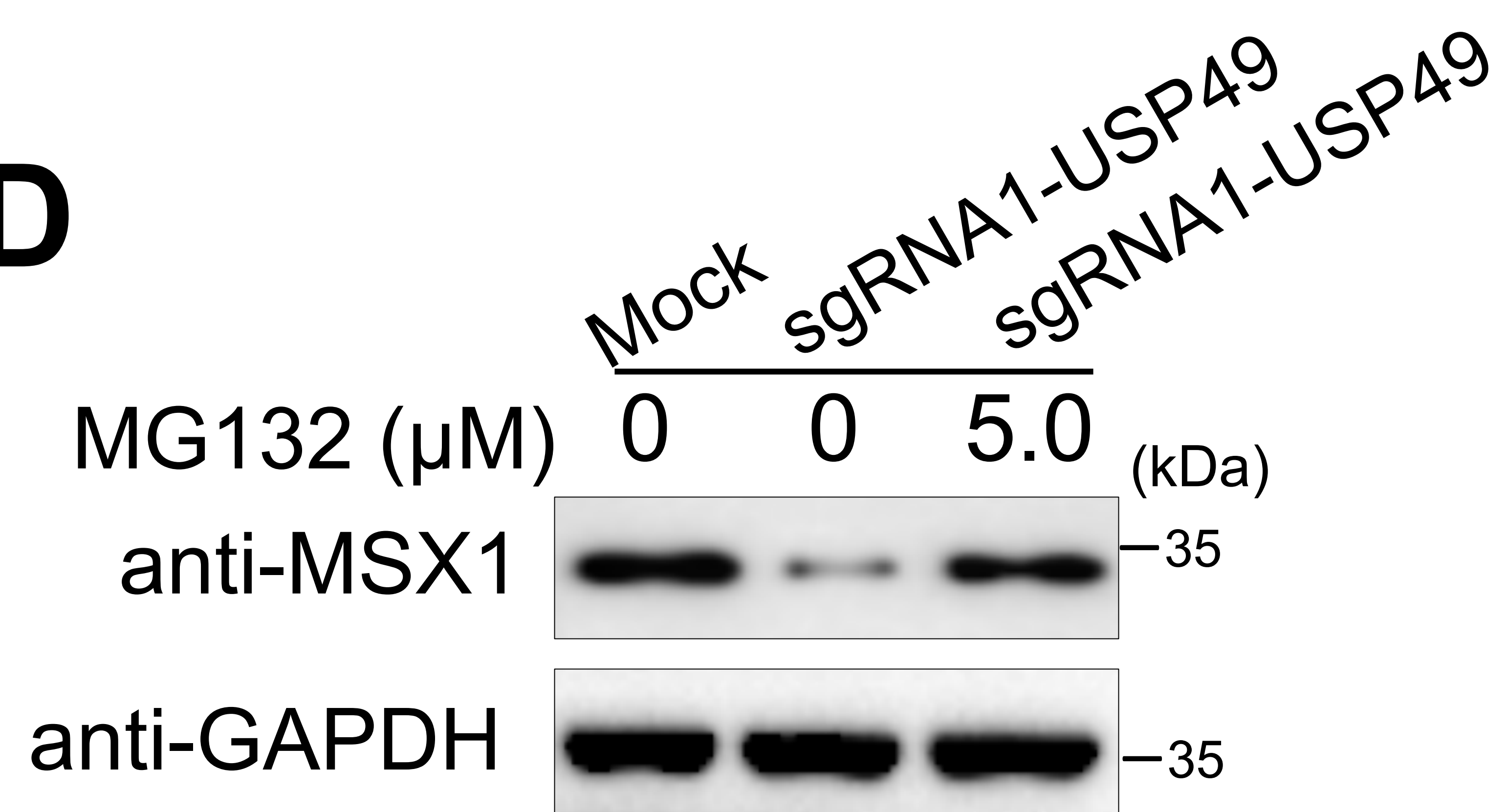
MSX1



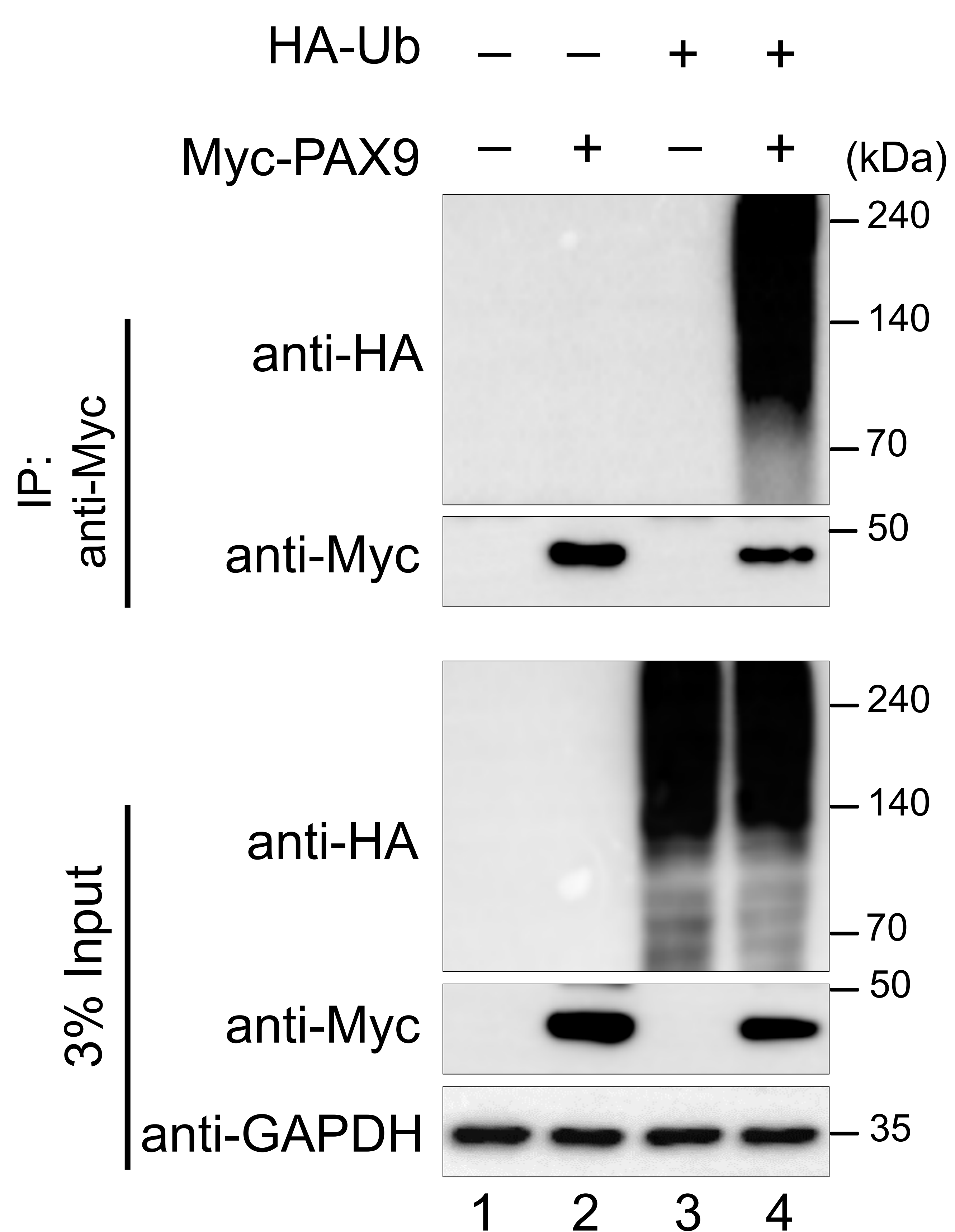
C



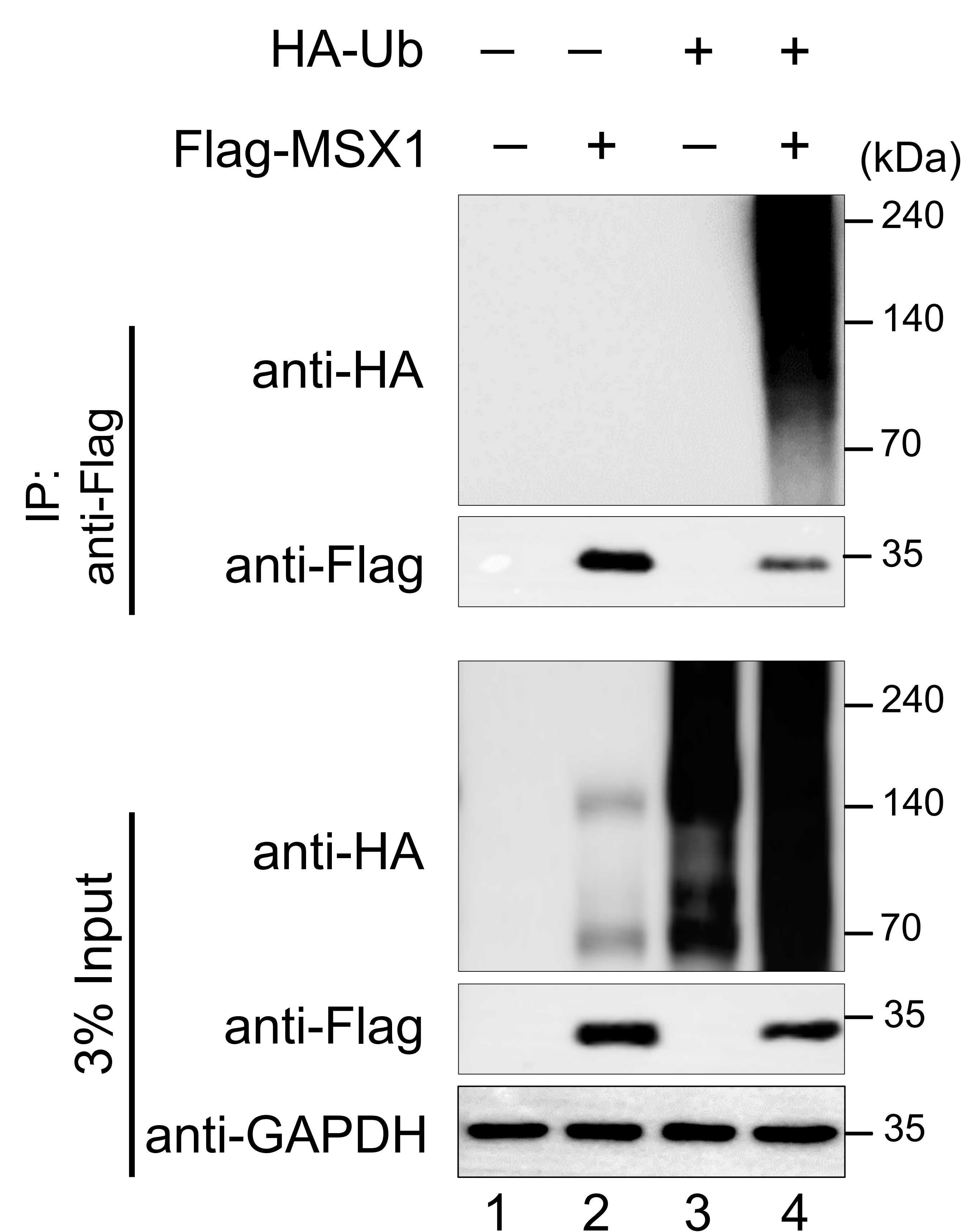
D



E

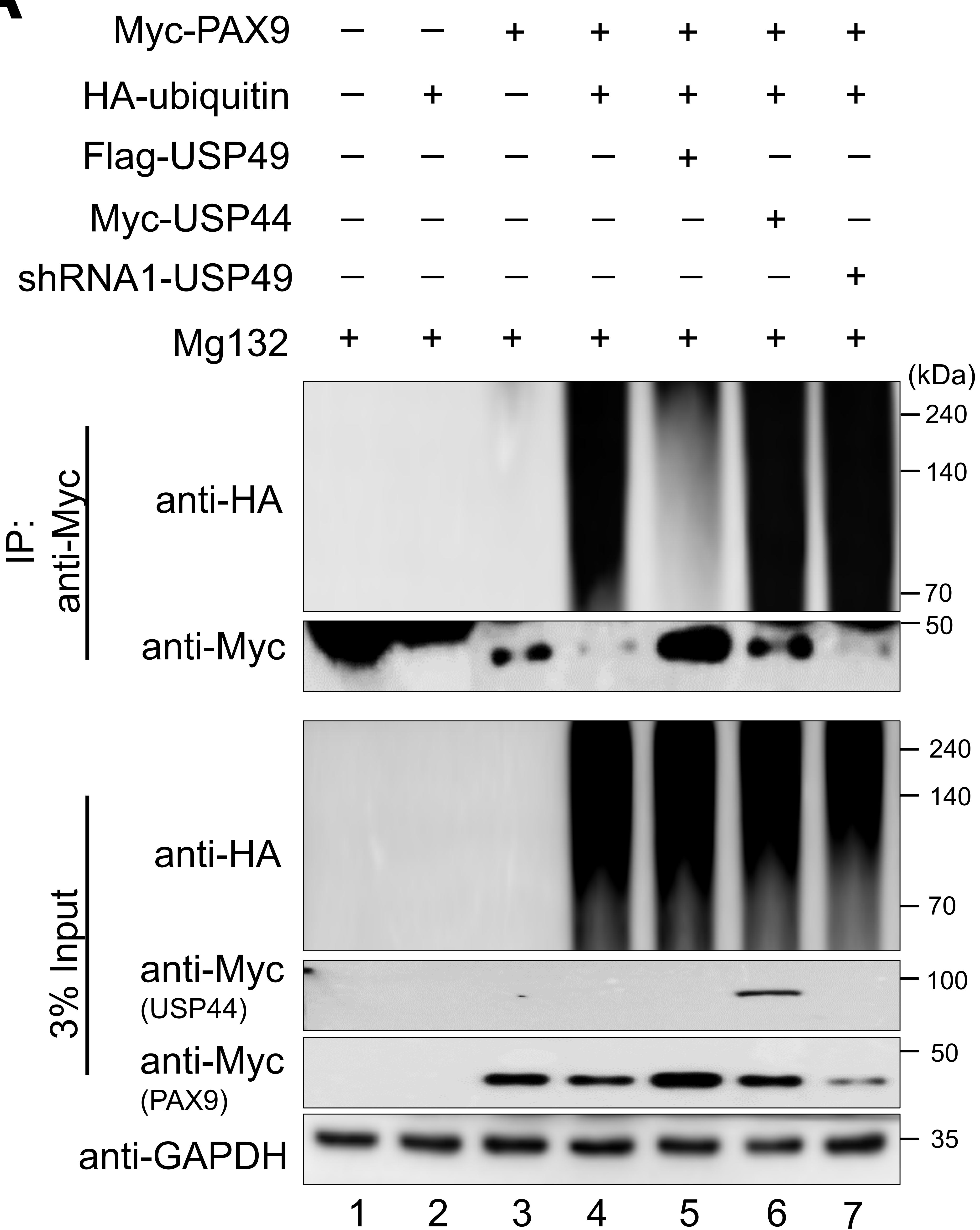


F

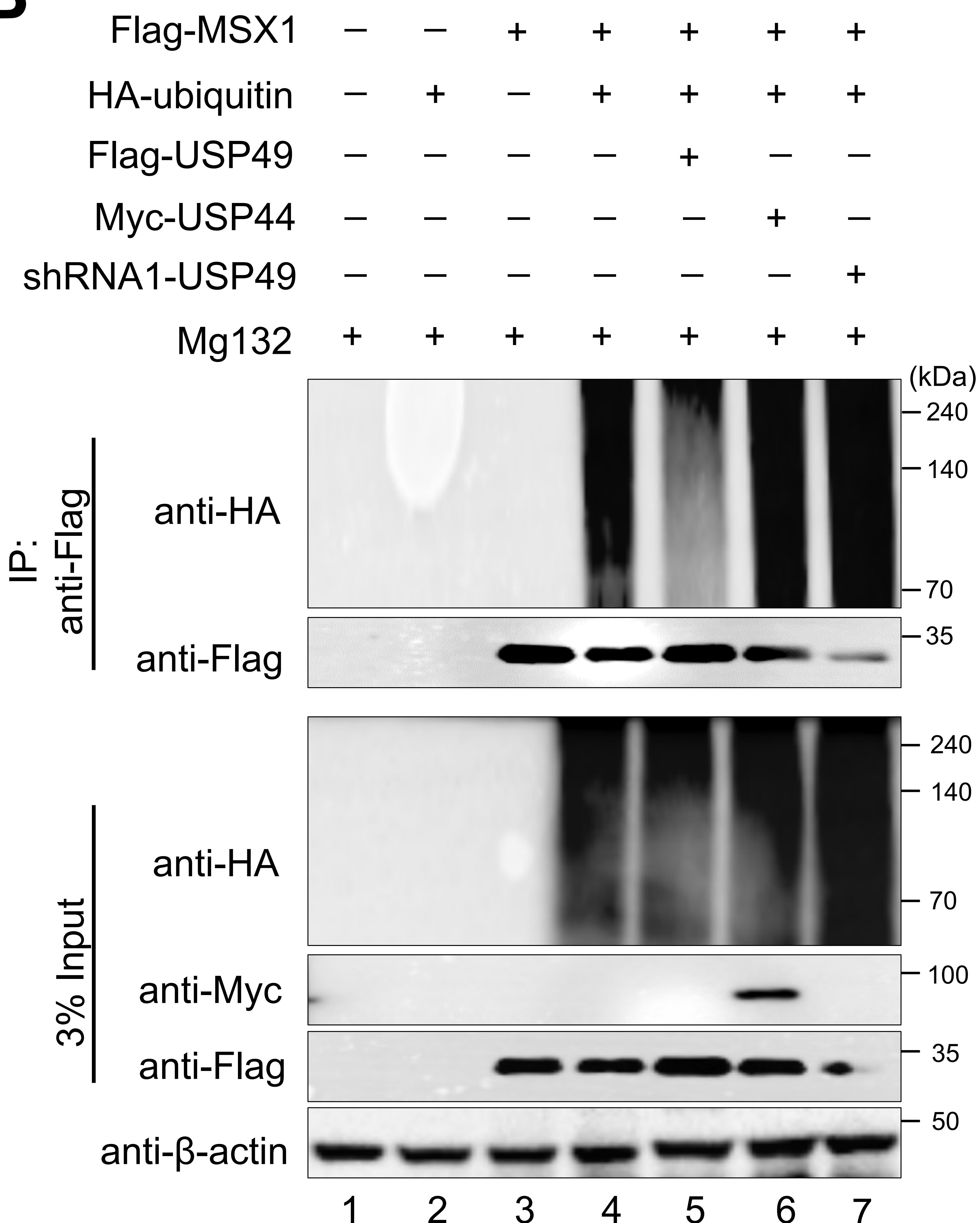


Supplementary Fig. S9

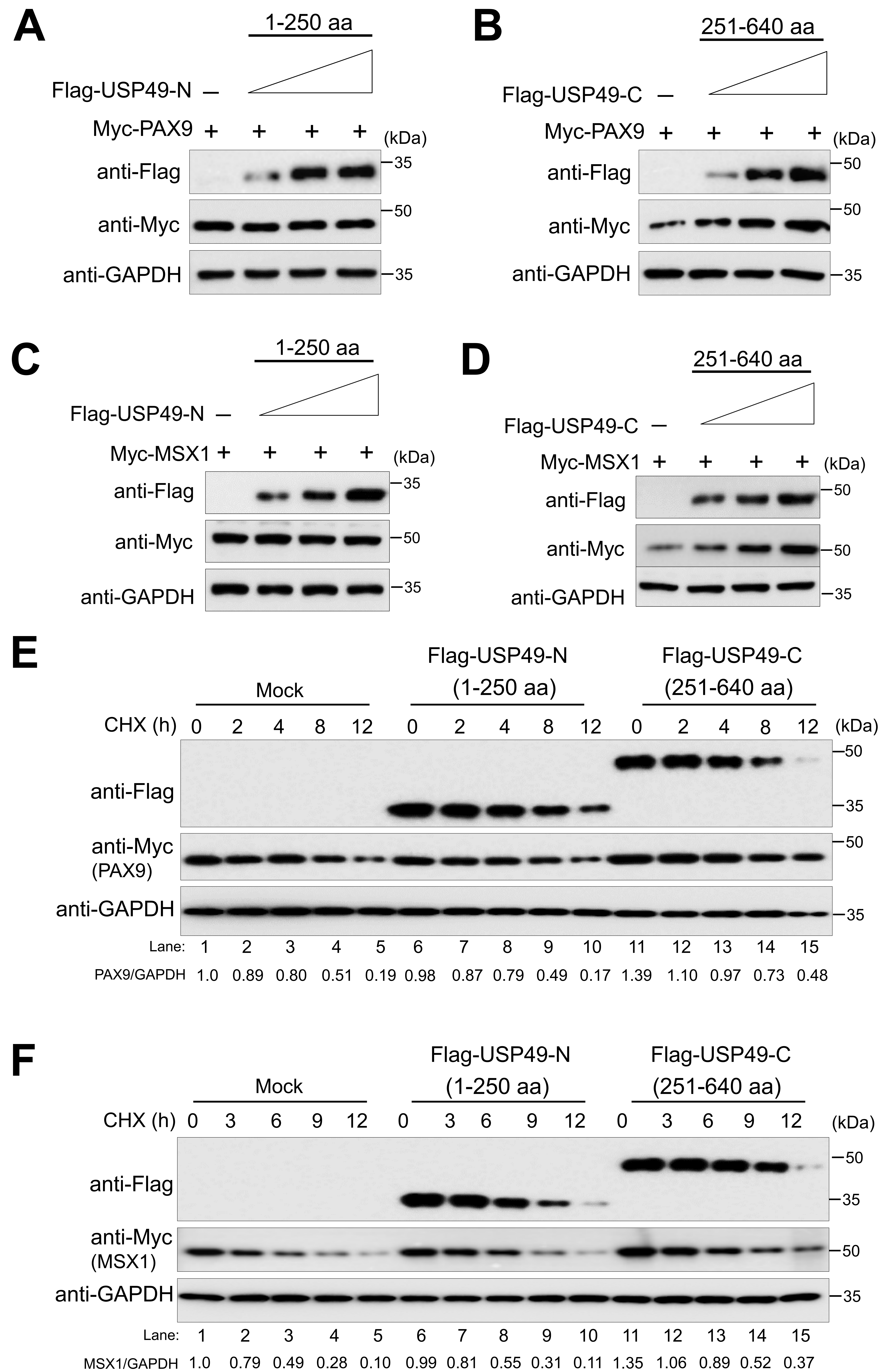
A



B



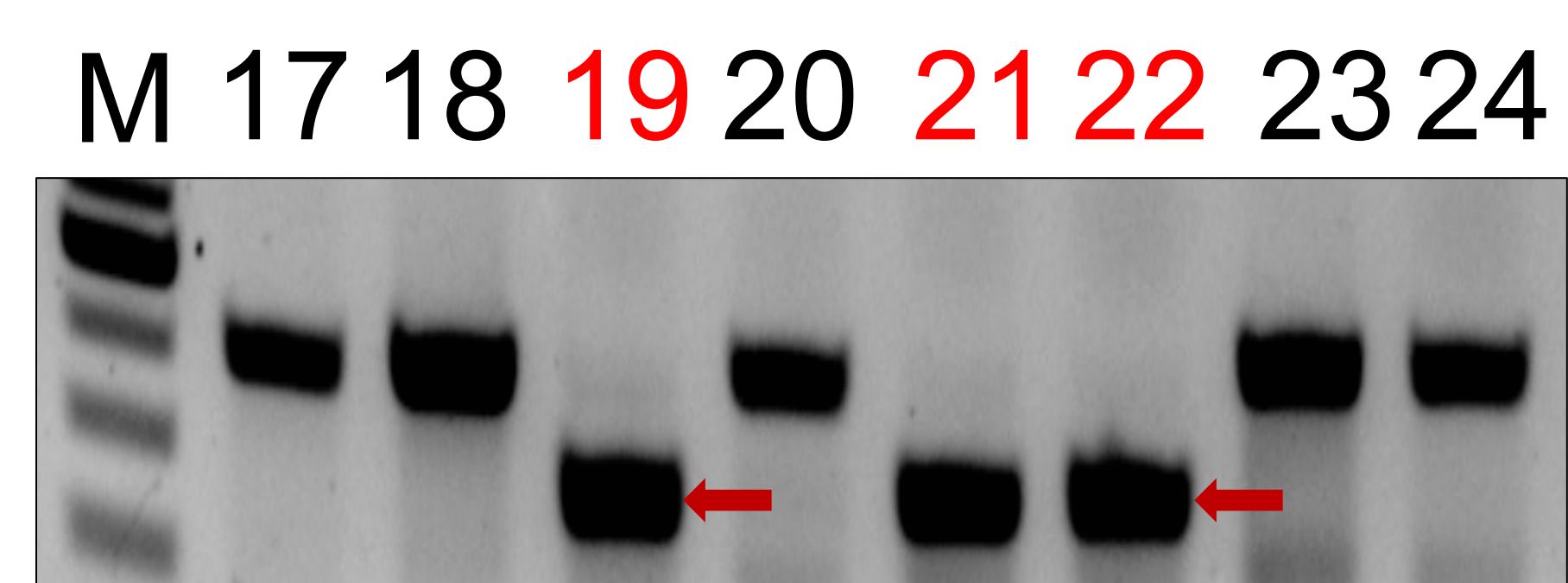
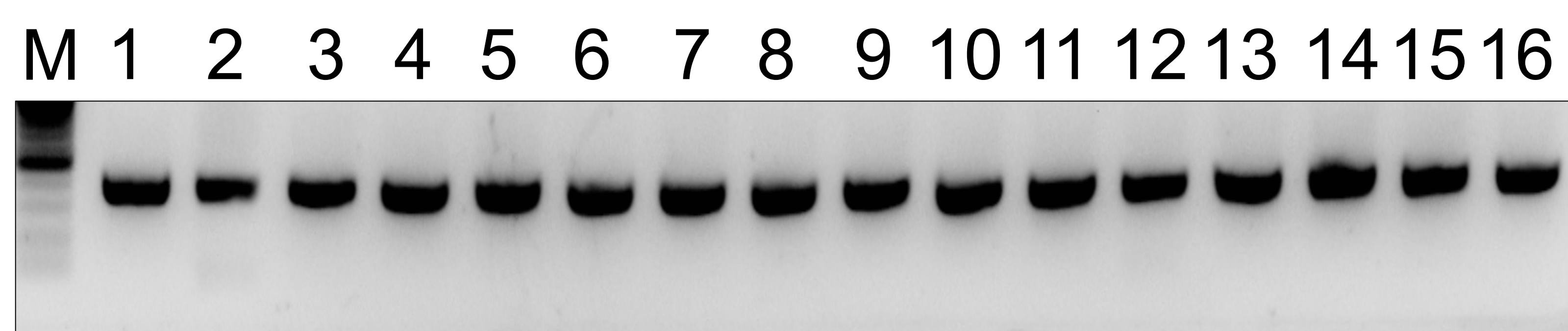
Supplementary Fig. S10



Supplementary Fig. S11

A

USP49



B

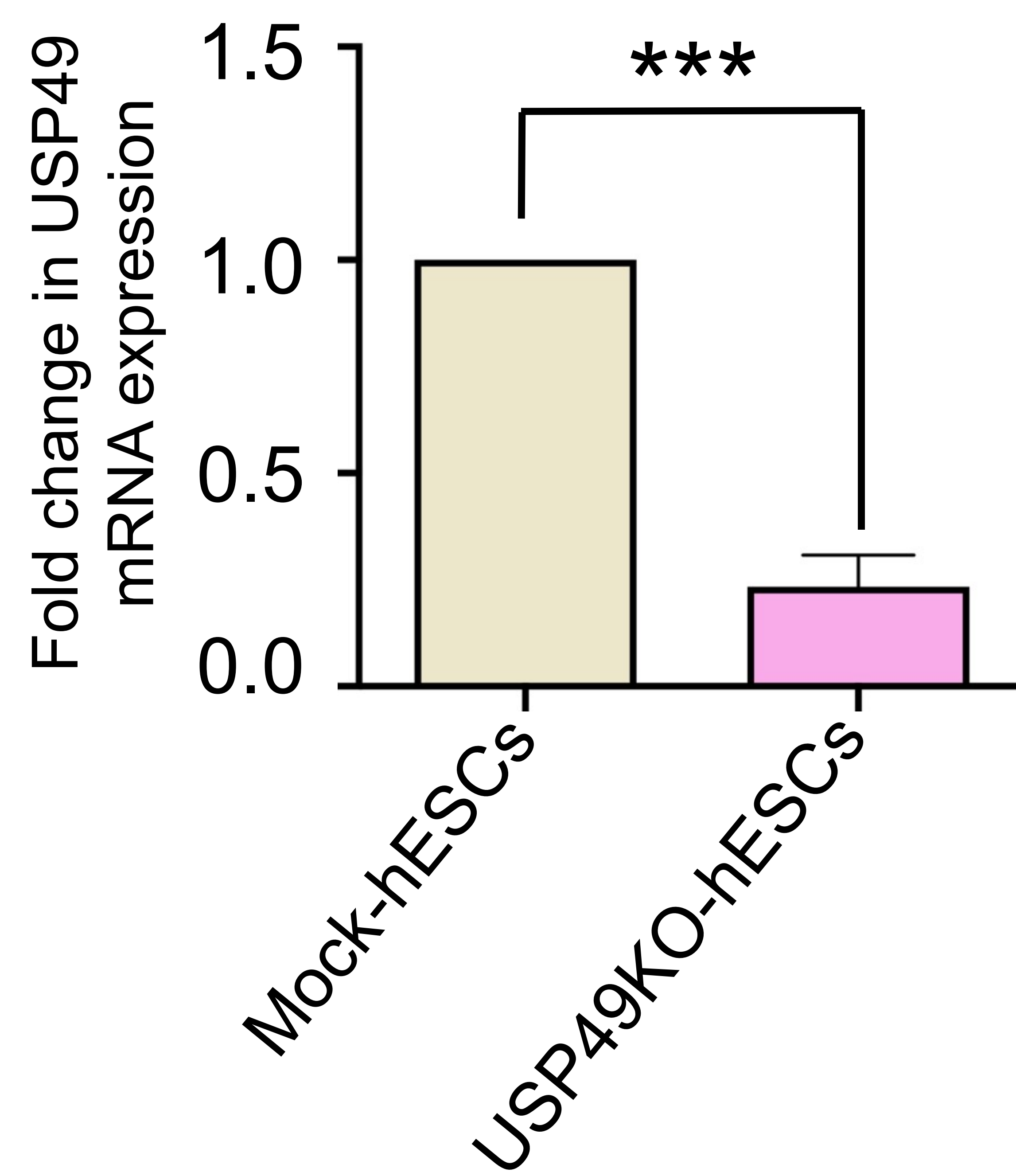
USP49KO-hESCs Clone#22

sgRNA3

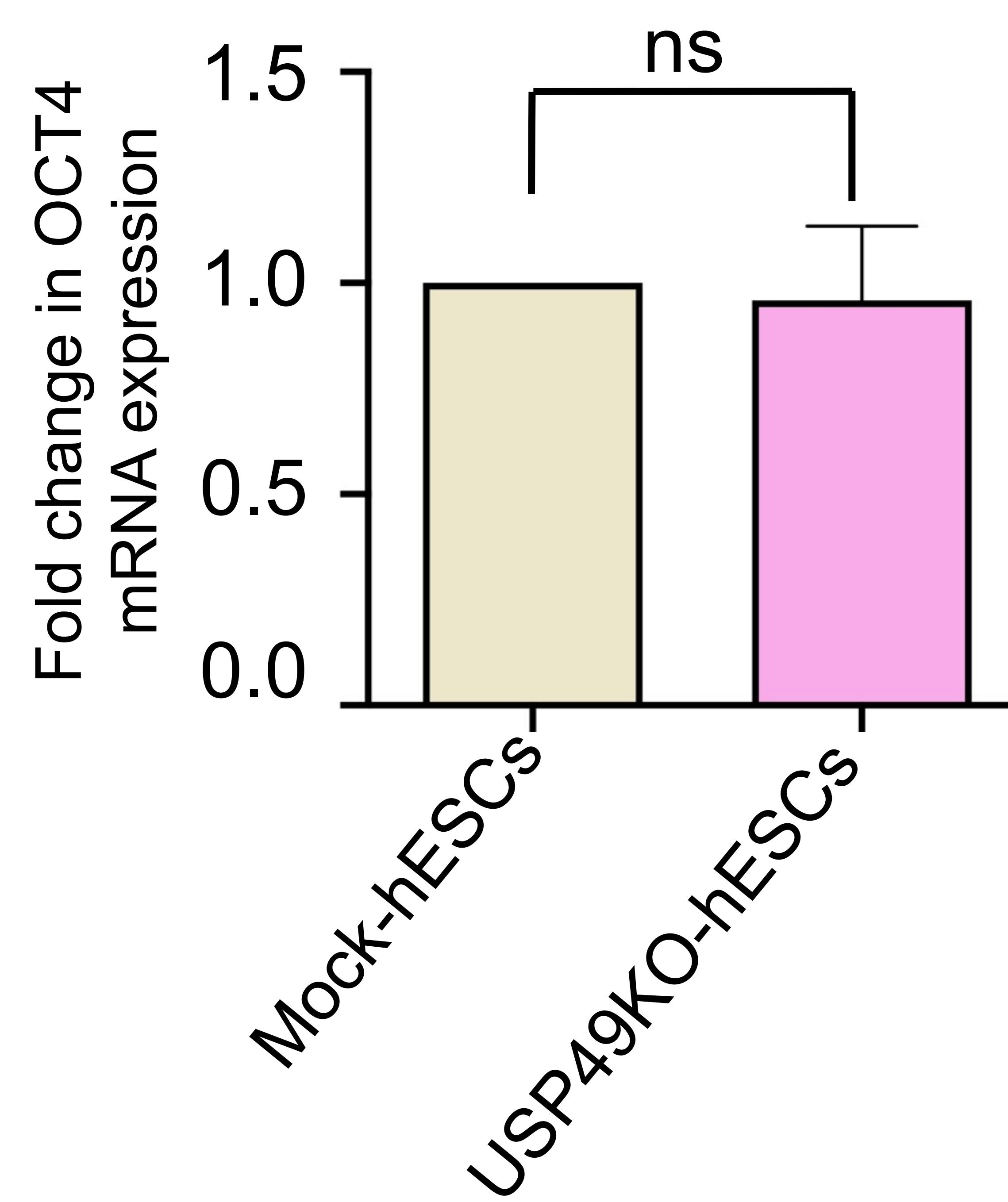
sgRNA2

TGG **CCT** GCGGCCGCTATATTGAGGAC ----- GCTCAATGATAACCCAGAGG**GGG**ACCT (WT)
TGG **CCT** GCGG----- GAGG**GGG**ACCT (-125) (X3)
TGG **CCT** GCG----- GAGG**GGG**ACCT (-126) (X4)

C



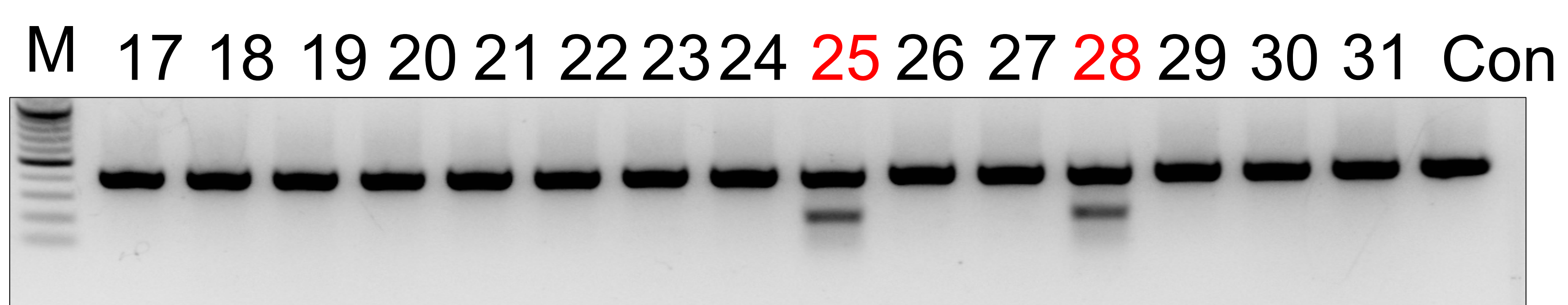
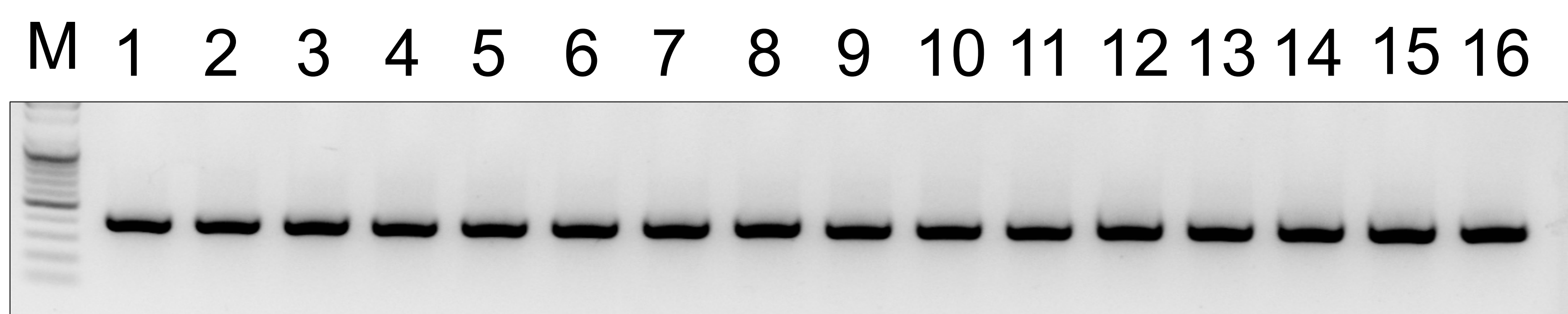
D



Supplementary Fig. S12

A

USP49



B

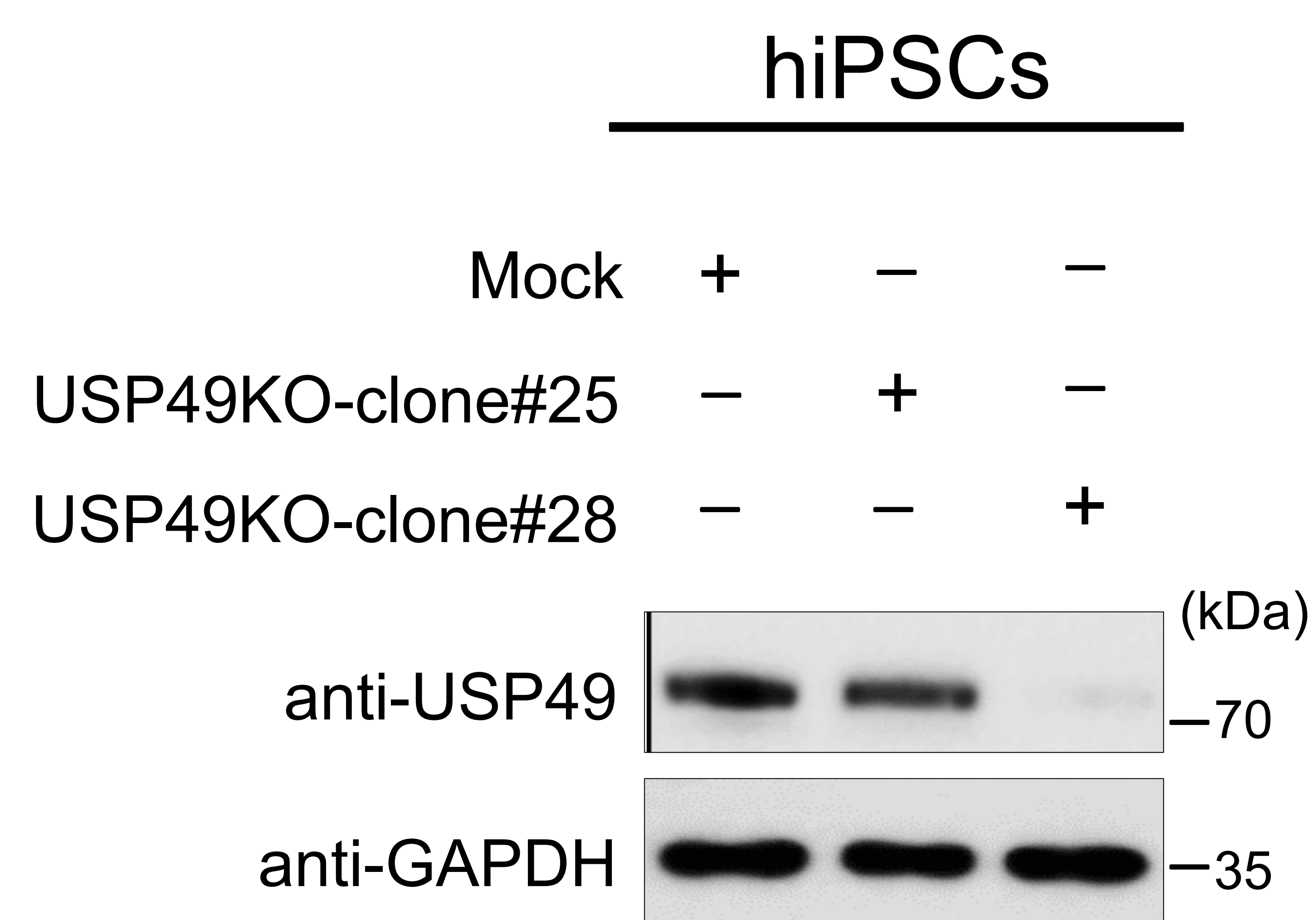
USP49KO-hiPSCs Clone#25:

ACGTGCTCAATGATAACCCAGAGGGGGACCTGA (WT)
 ACGTGCTCAATGATA-----ACCTGA (-12) (X2) (In-frame mutation)
 ACGTGCTCAATGATAACCC--AGGGGGACCTGA (-2) (X1) (out-of-frame mutation)

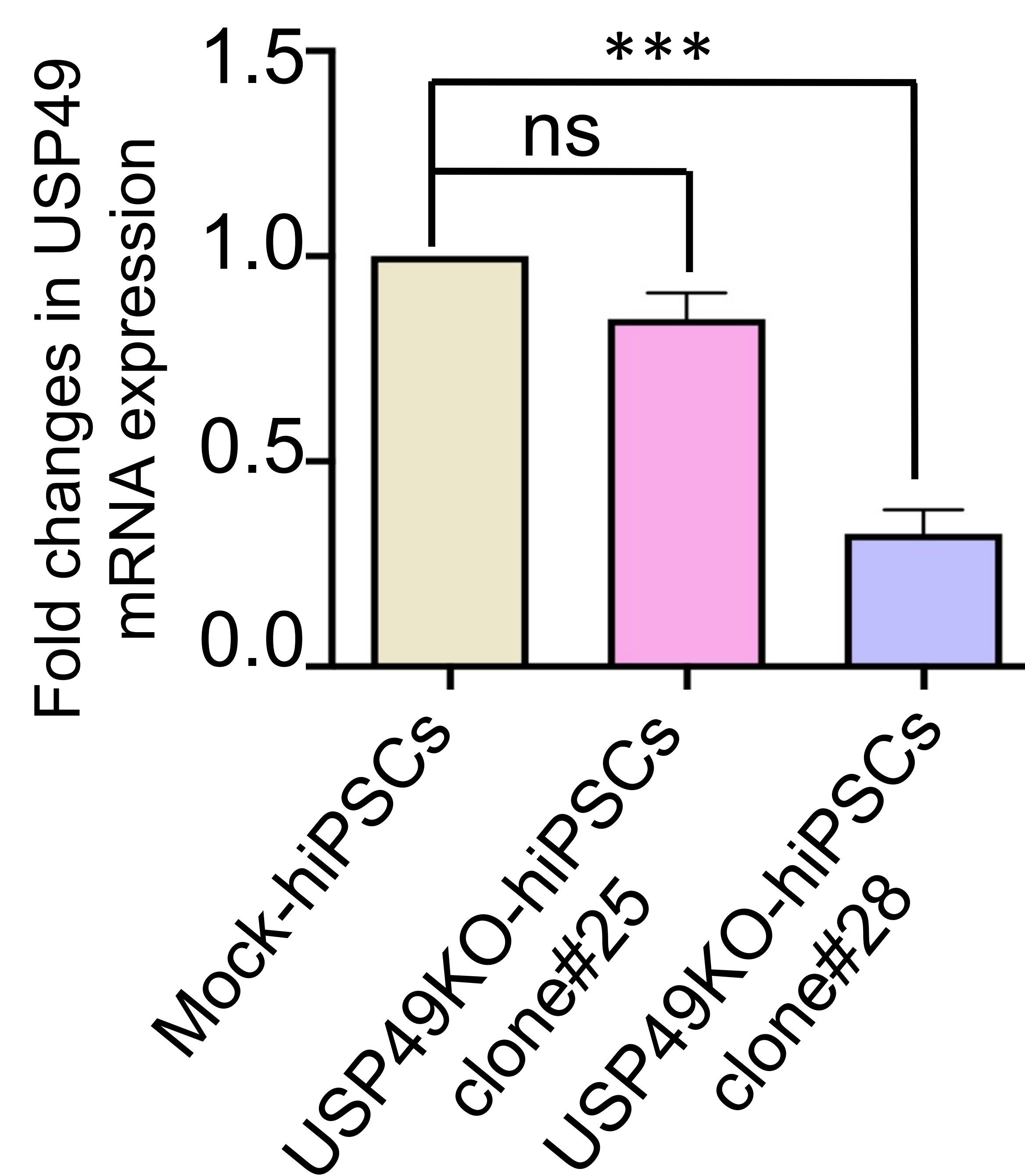
USP49KO-hiPSCs Clone#28

ACGTGCTCAATGATAACCCAGAGGGGGACCTGA (WT)
 ACGTGCTCAATGATAACCCA-AGGGGGACCTGA (-1) (X9) (out-of-frame mutation)
 ACGTGCTCAATGATAACCC--AGGGGGACCTGA (-2) (X7) (out-of-frame mutation)

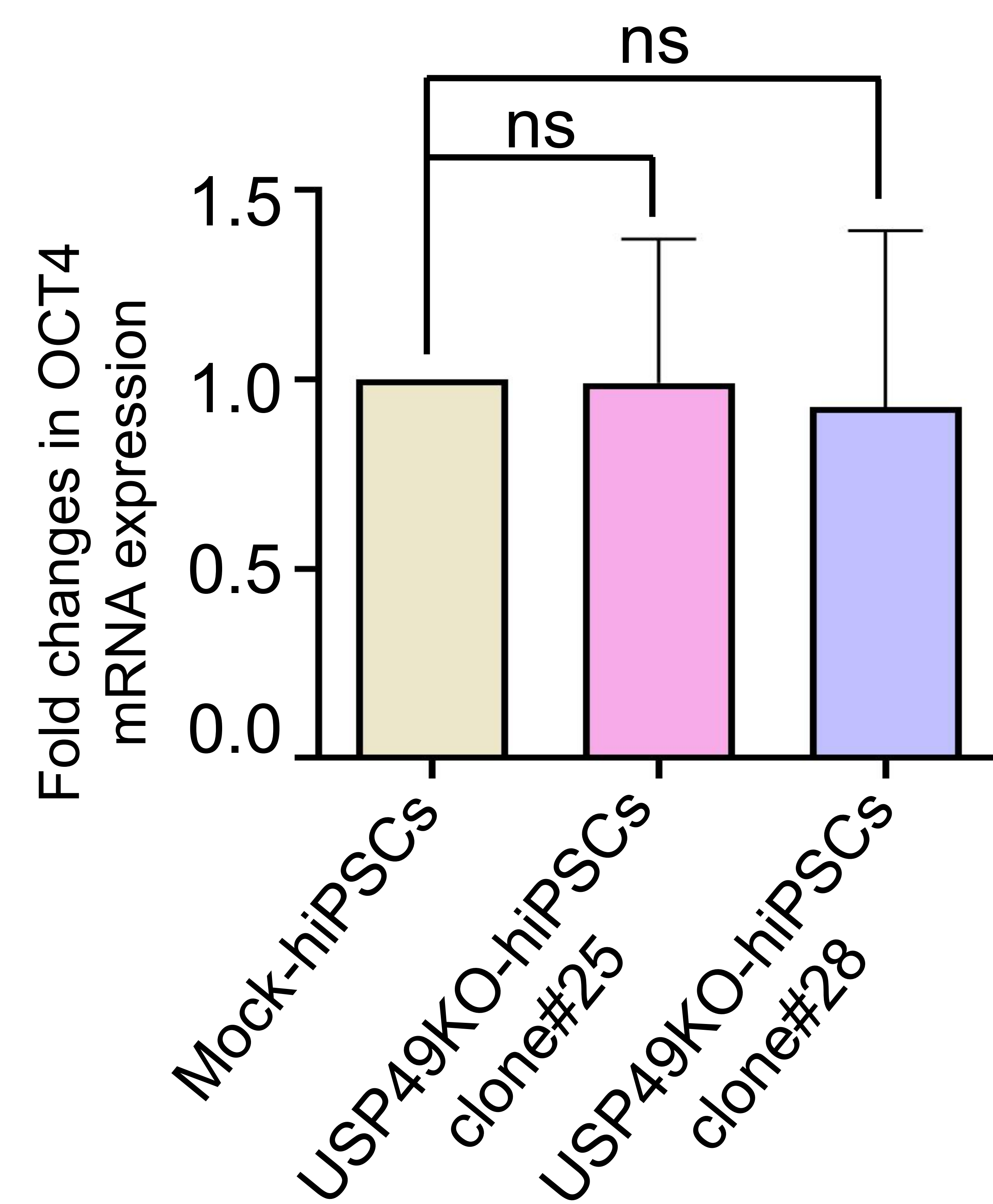
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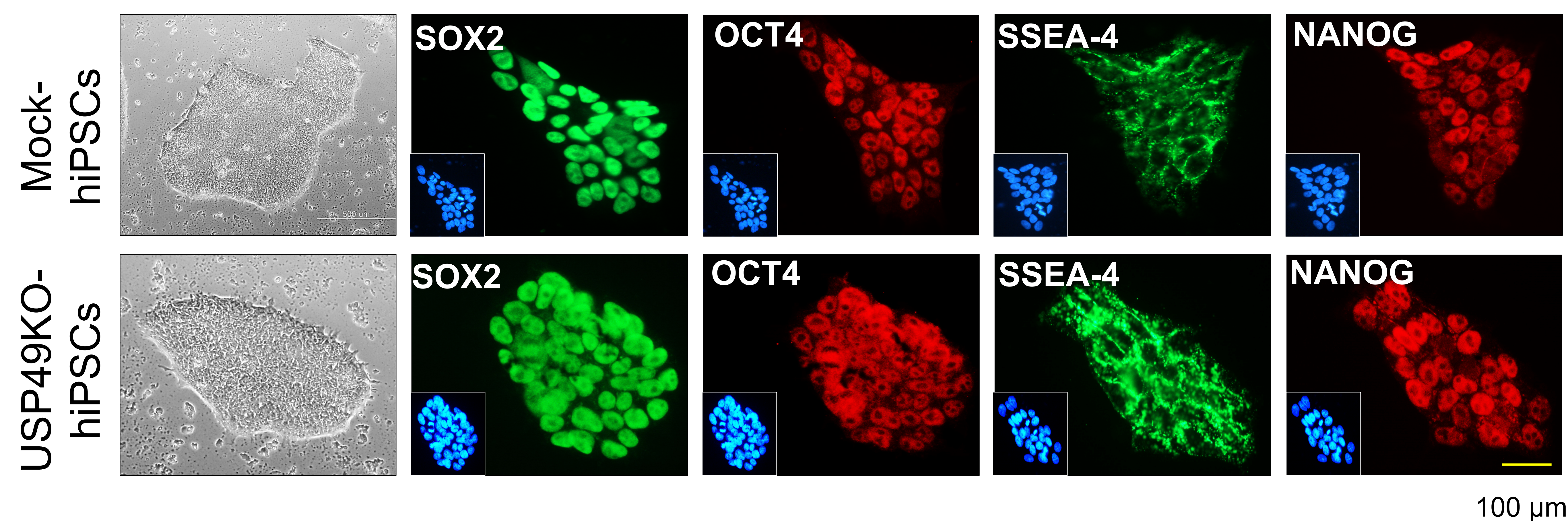
D



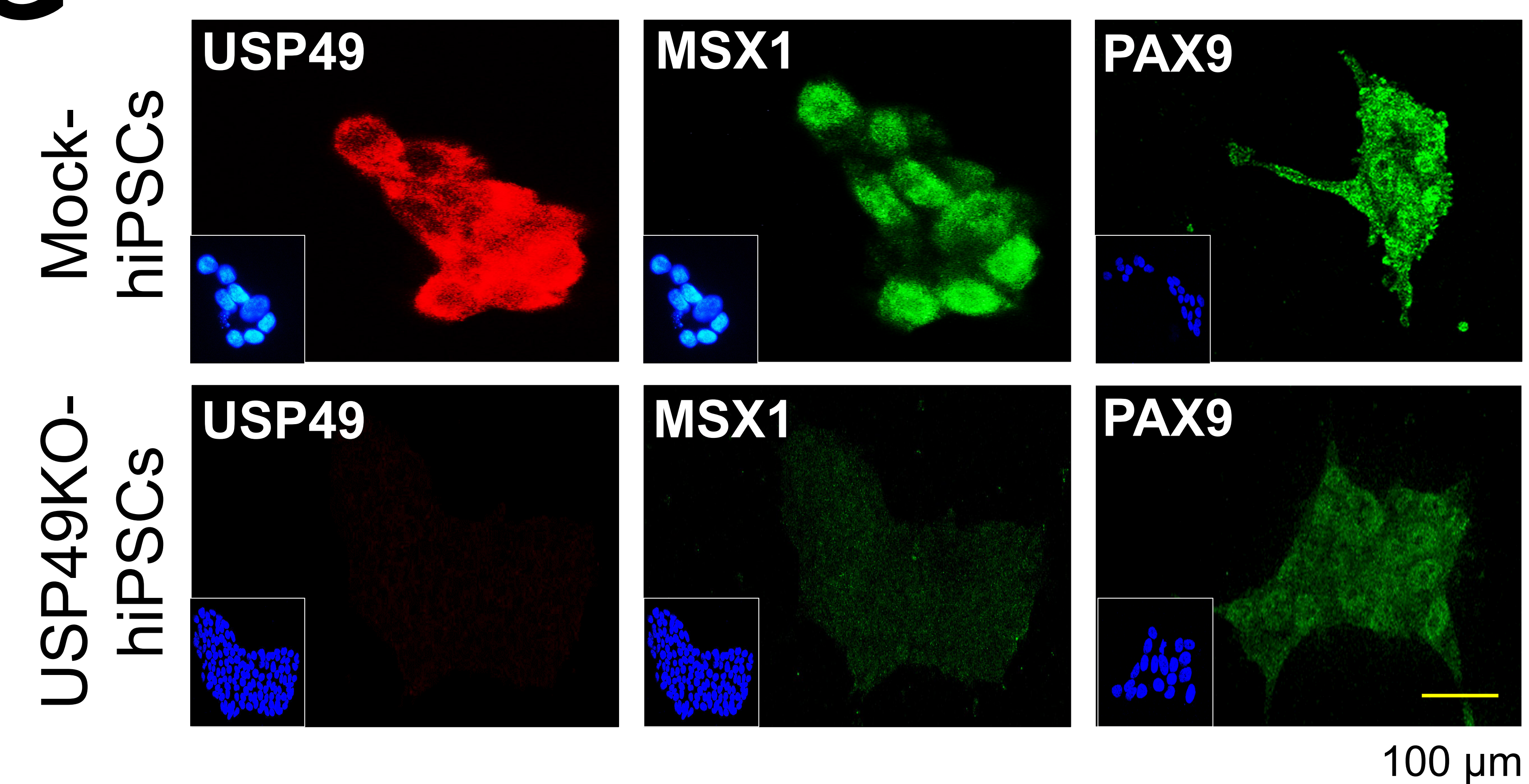
E



F

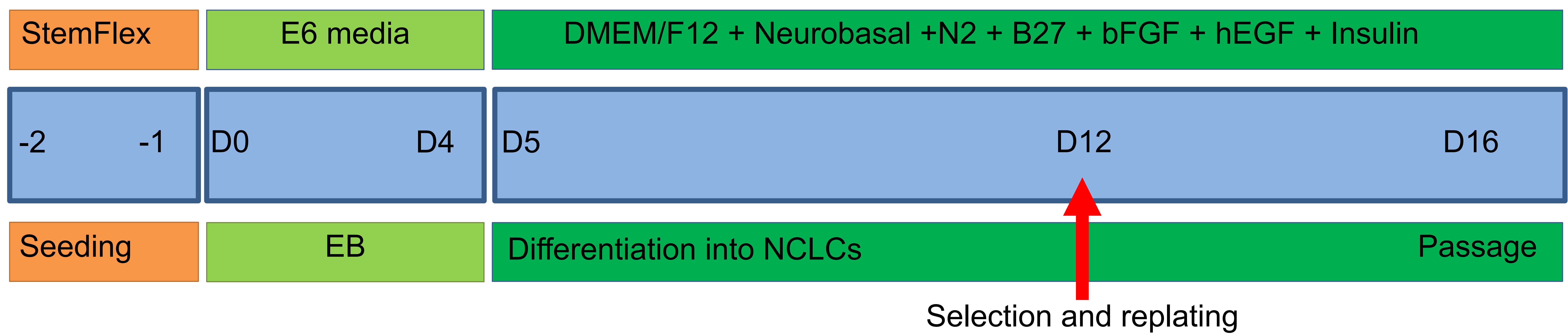


G

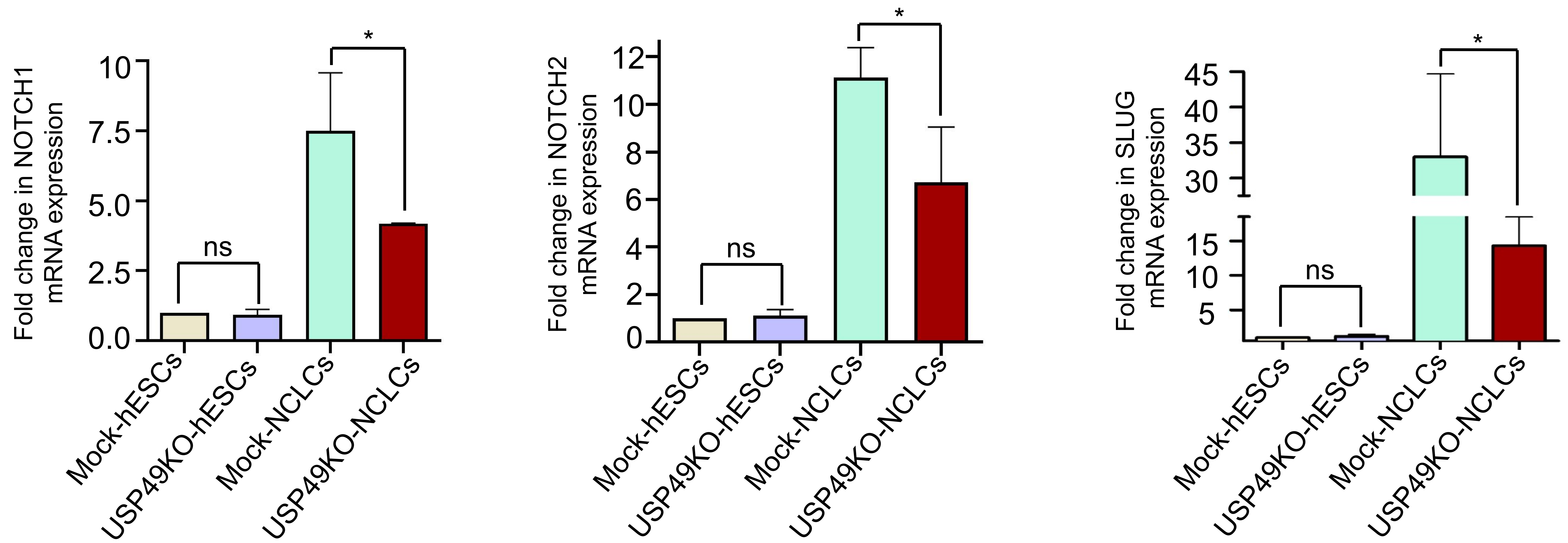


Supplementary Fig. S13

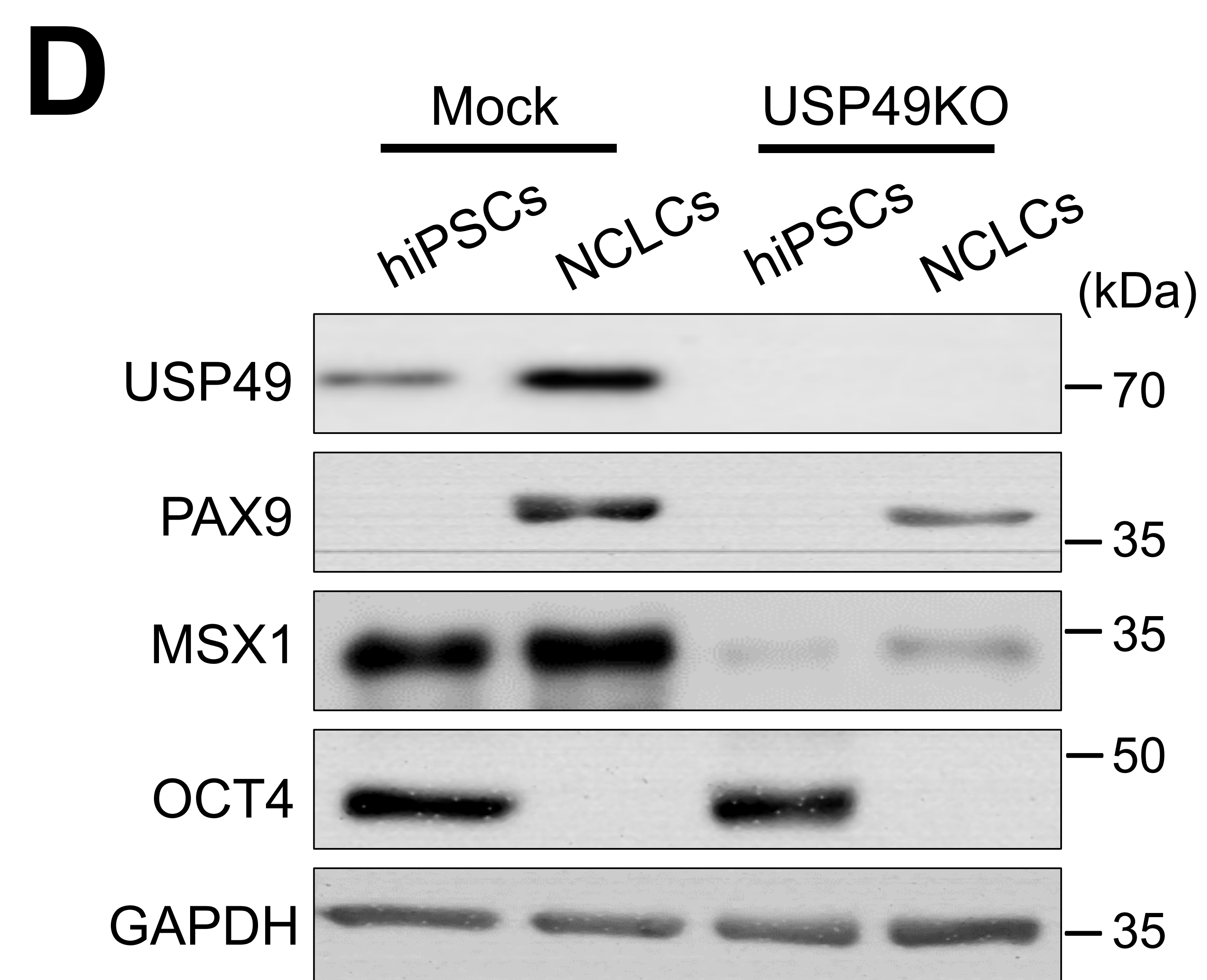
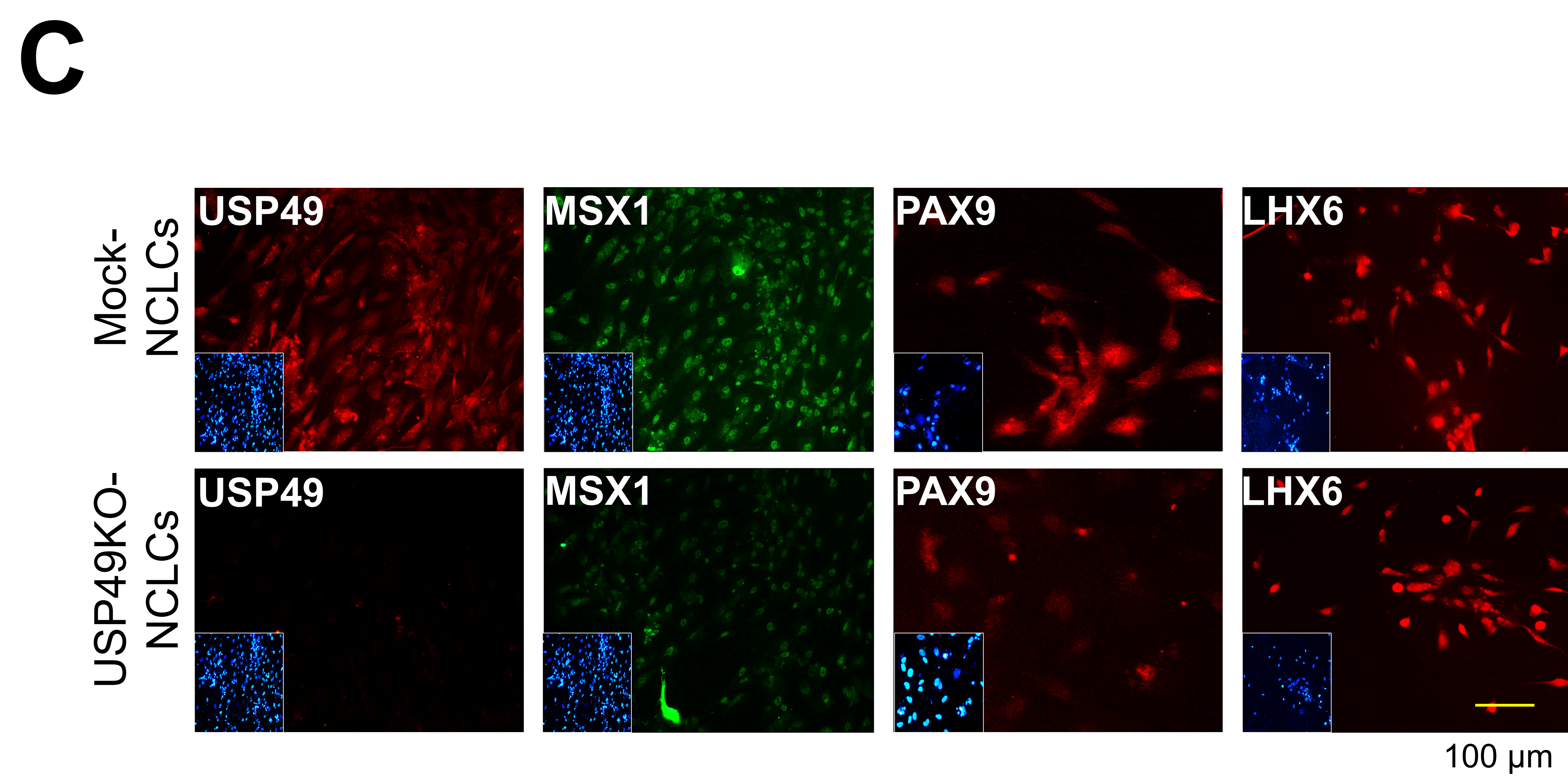
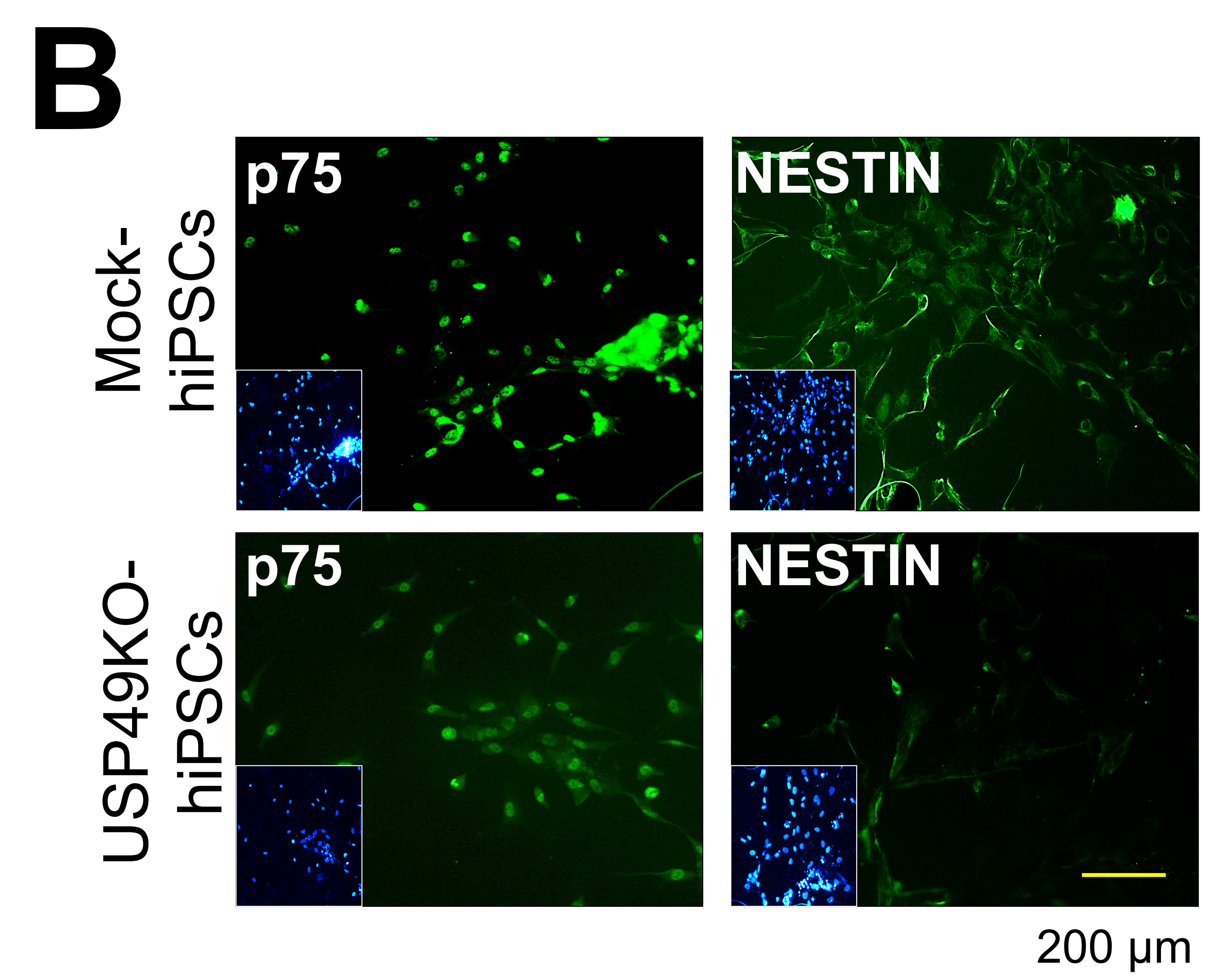
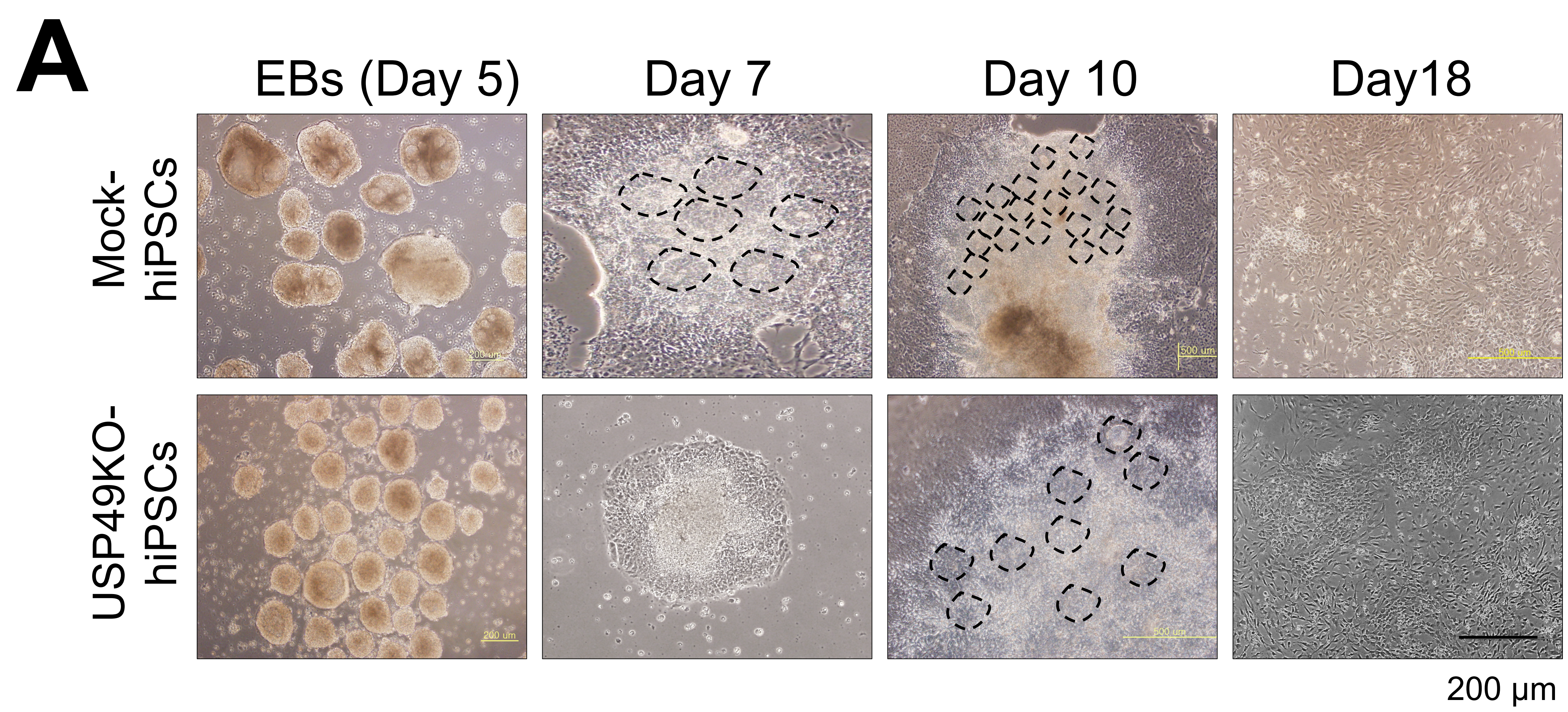
A



B

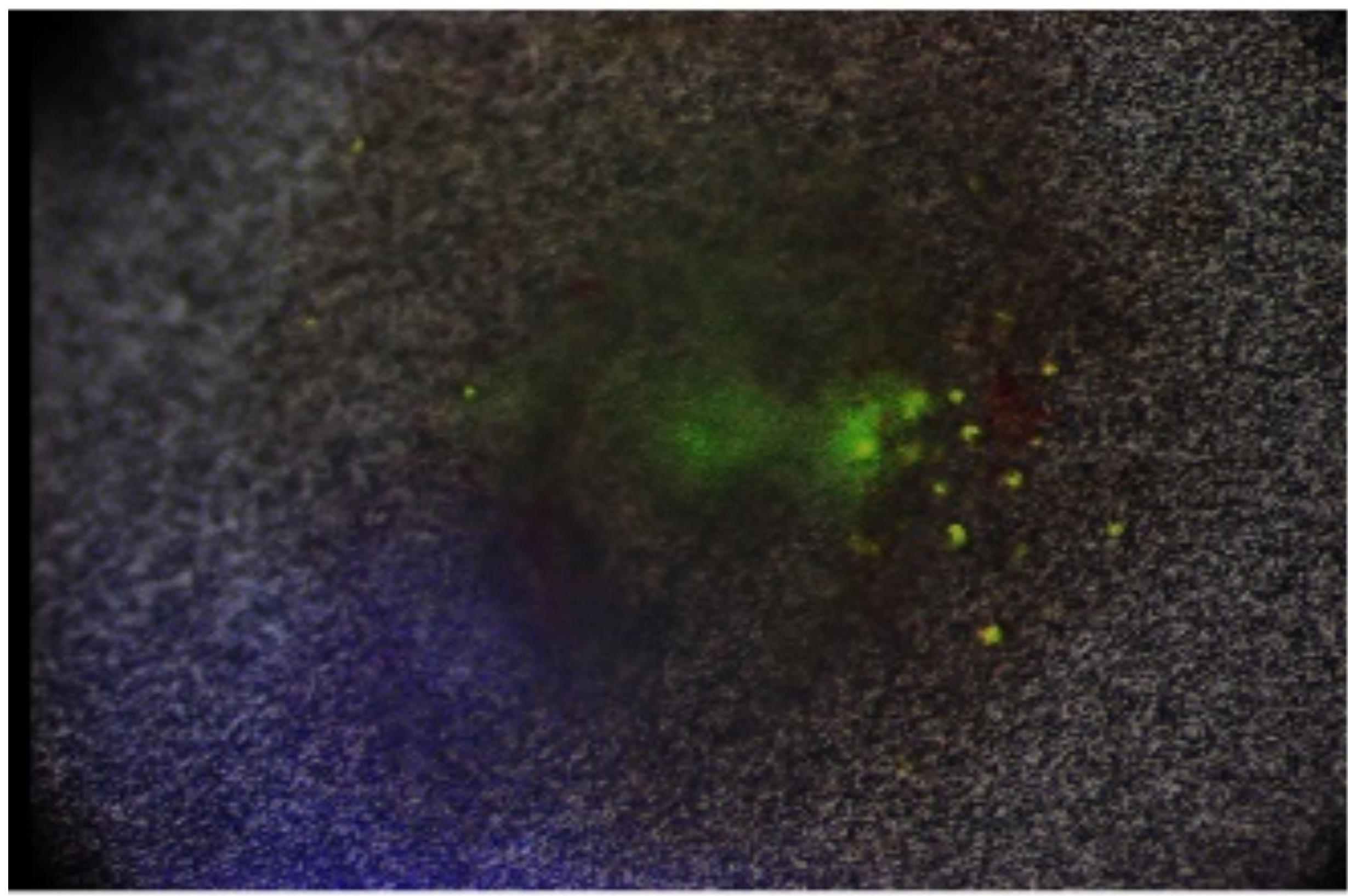


Supplementary Fig. S14

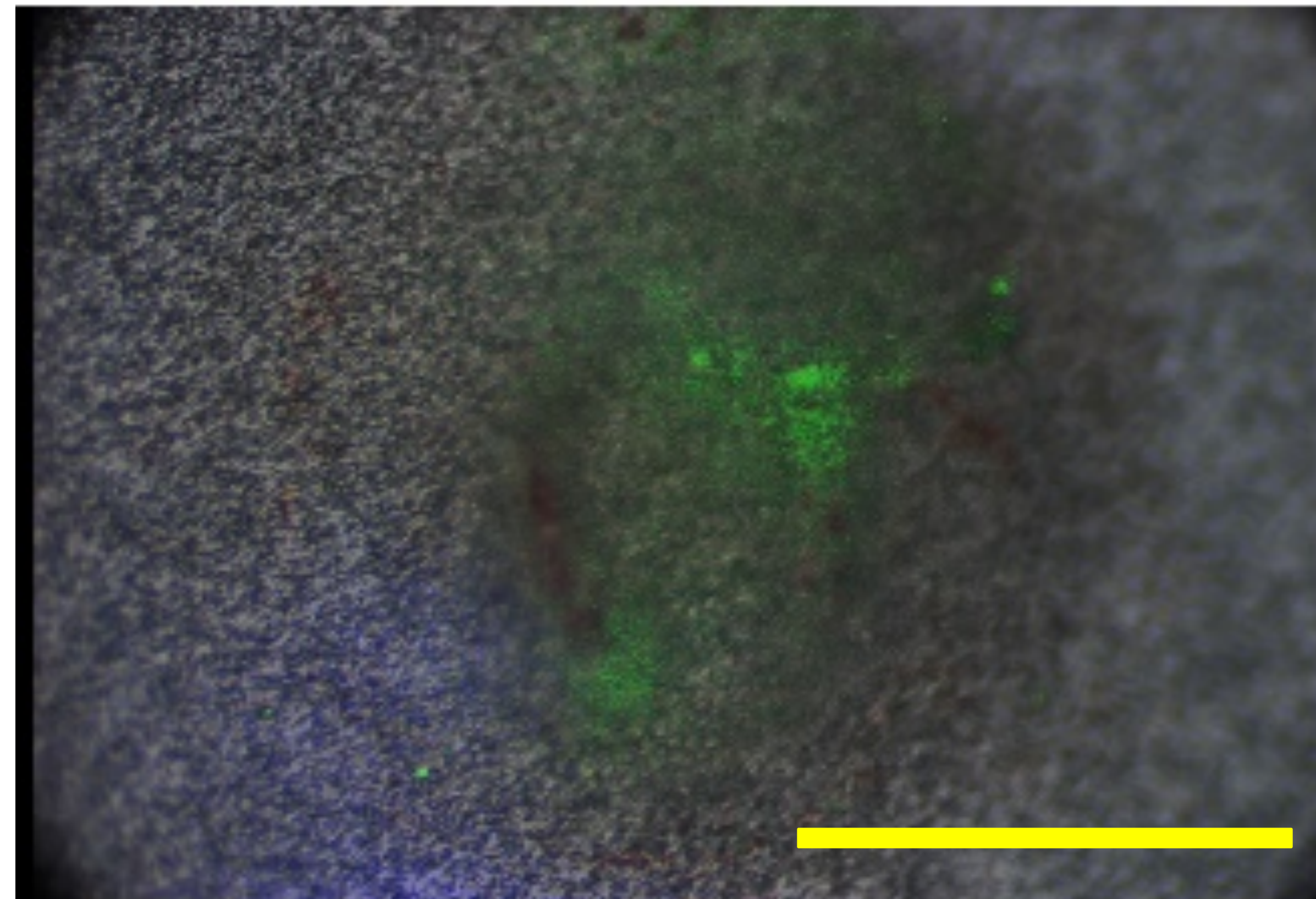


Supplementary Fig. S15

Mock



sgRNA1-USP49



100 μ m

Supplementary Fig. S16

A

