

## Supplementary Information

**Title: Ligand-induced BIK1 monoubiquitination regulates plant immunity**

### Authors:

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## Content

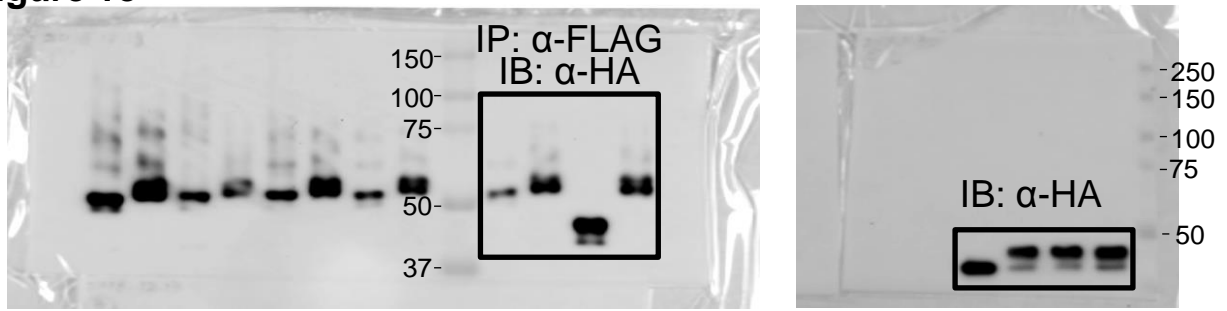
**Supplementary Figure 1.** Uncropped images

Page 2-17.

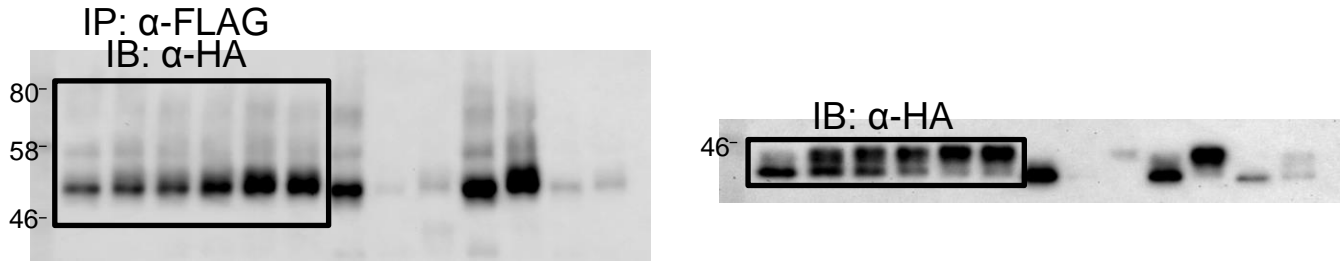
**Supplementary Table 1.** Primers used in this study

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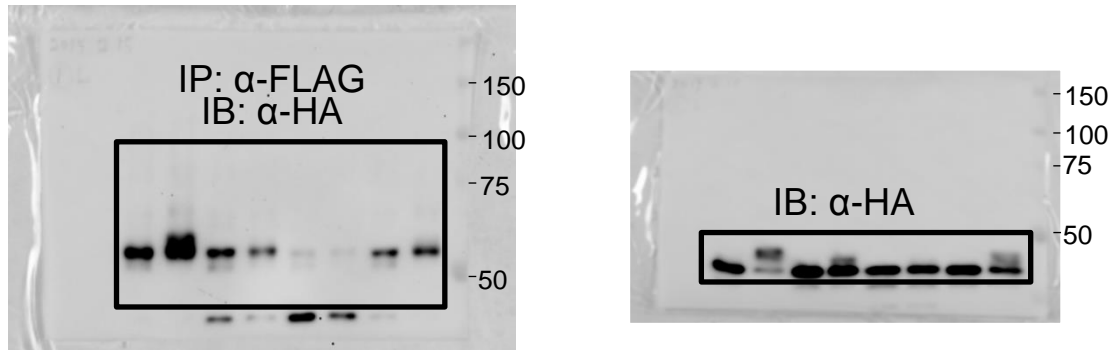
**Figure 1e**



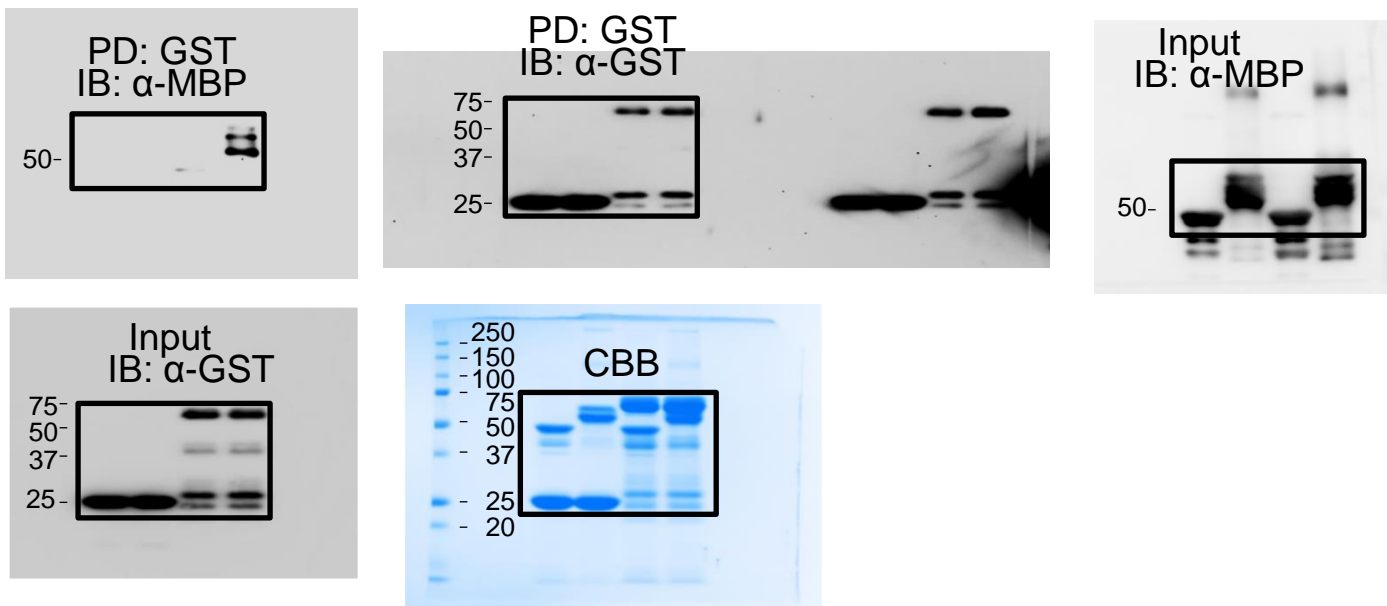
**Figure 1f**



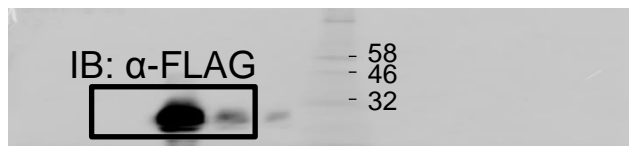
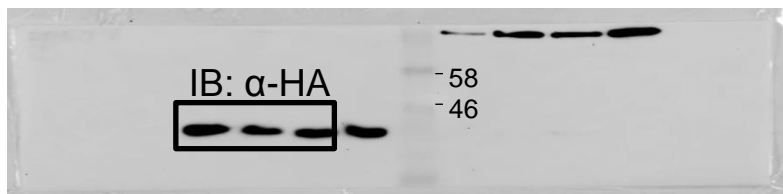
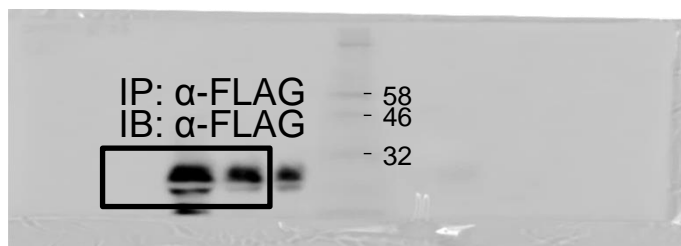
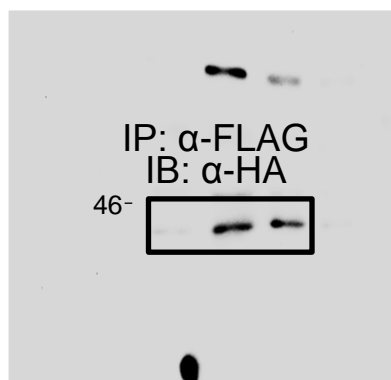
**Figure 1g**



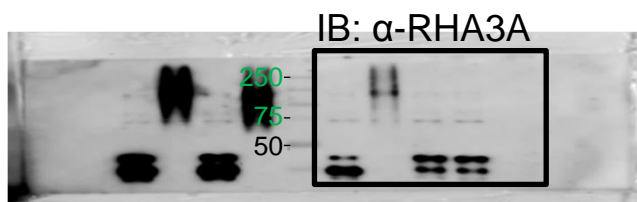
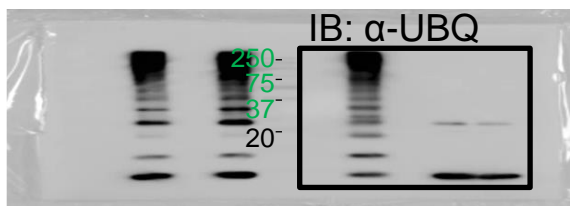
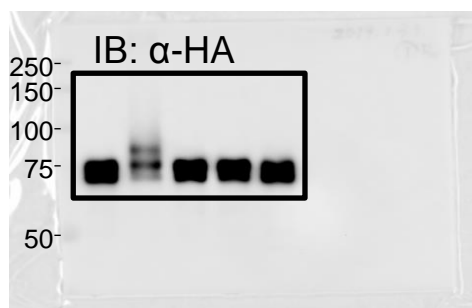
**Figure 2b**



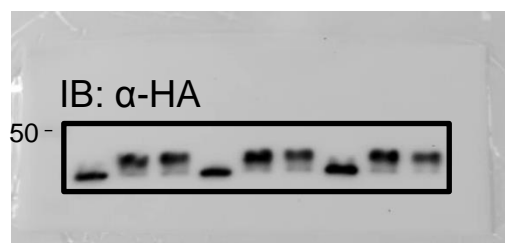
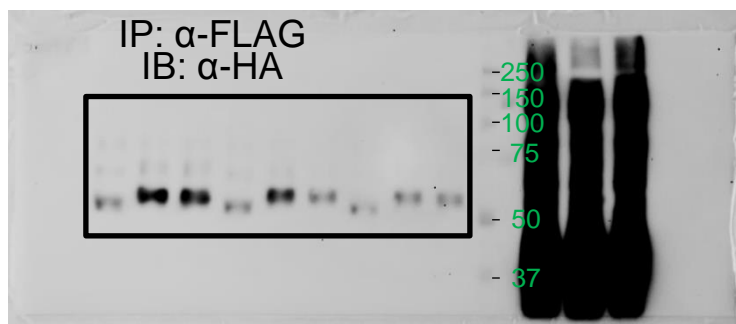
**Figure 2c**



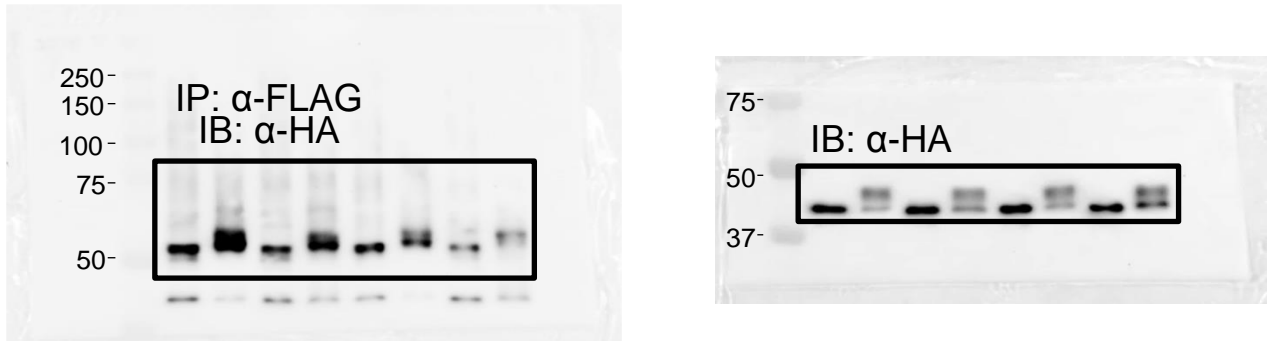
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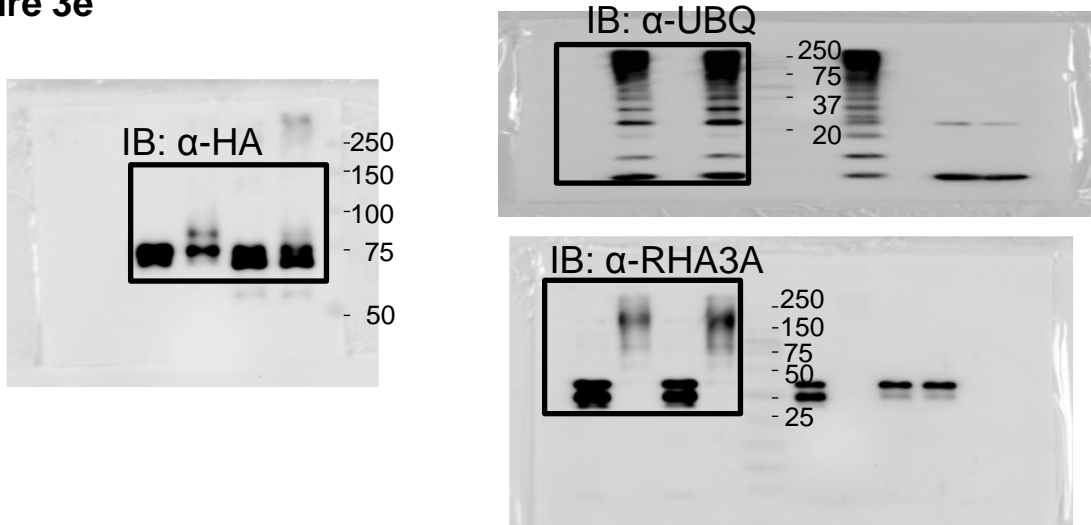
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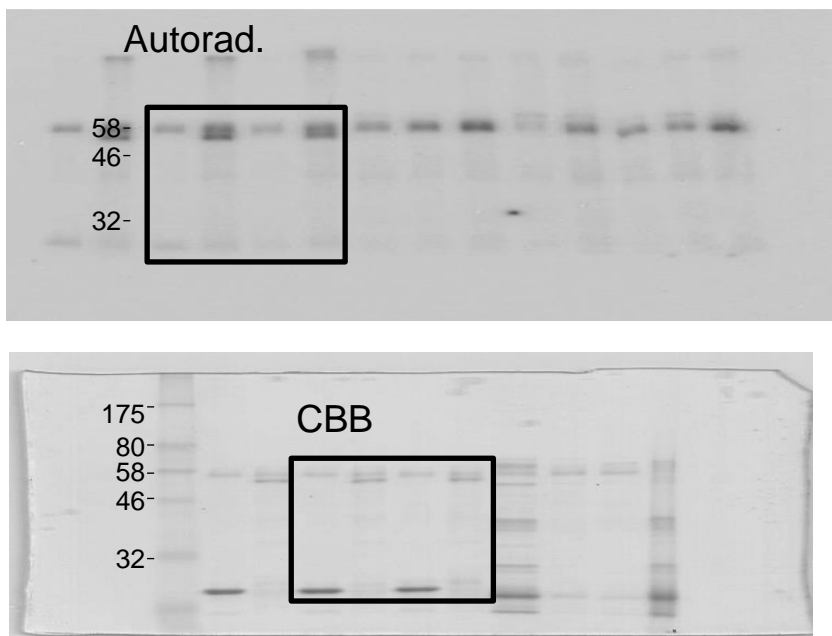
**Figure 3d**



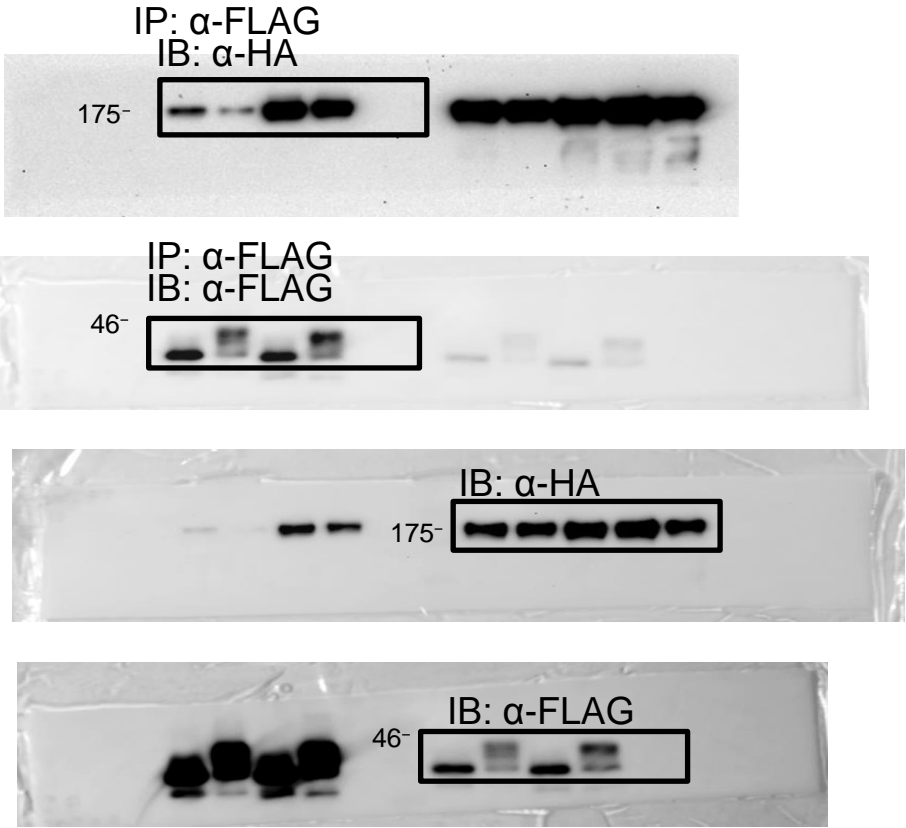
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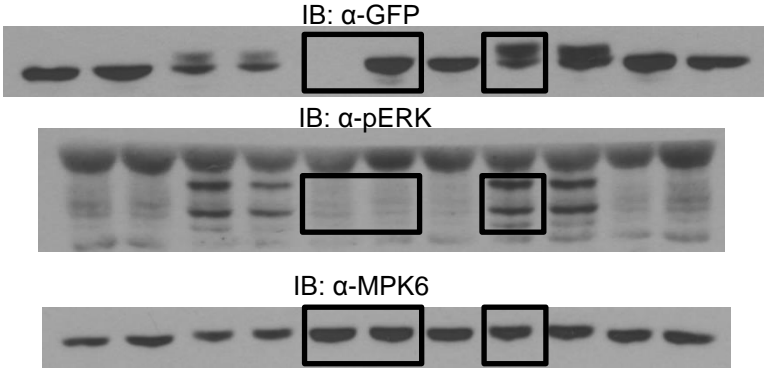
**Figure 3f**



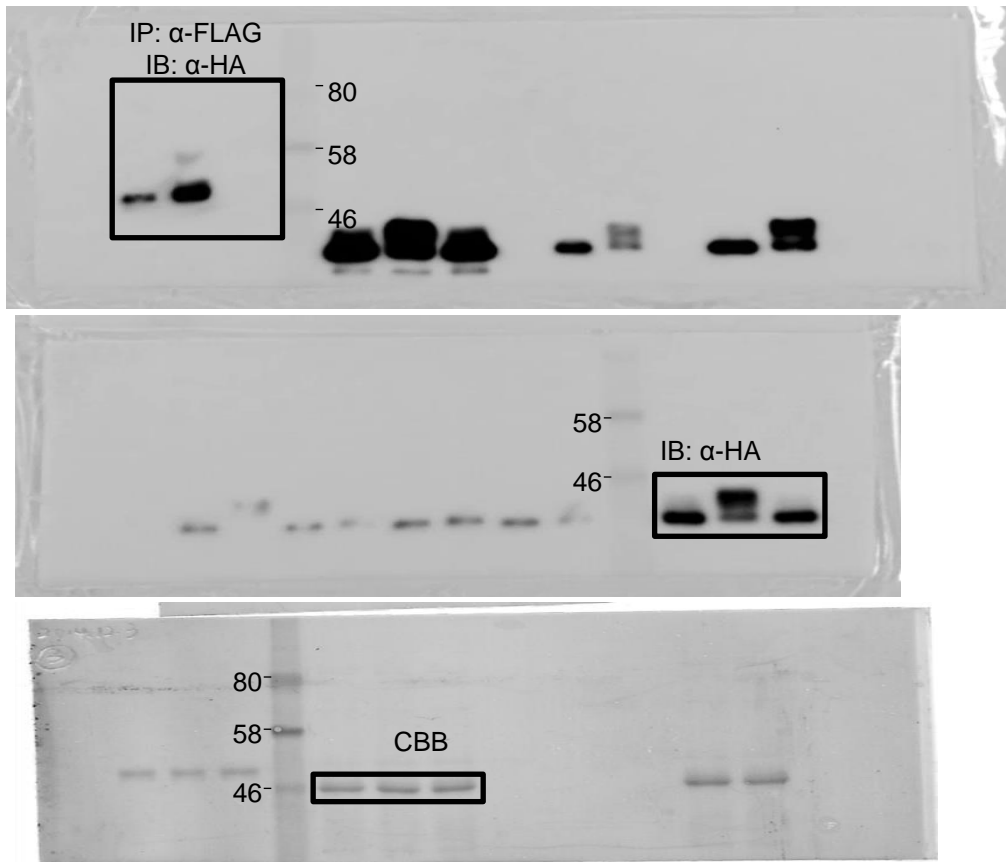
**Figure 4g**



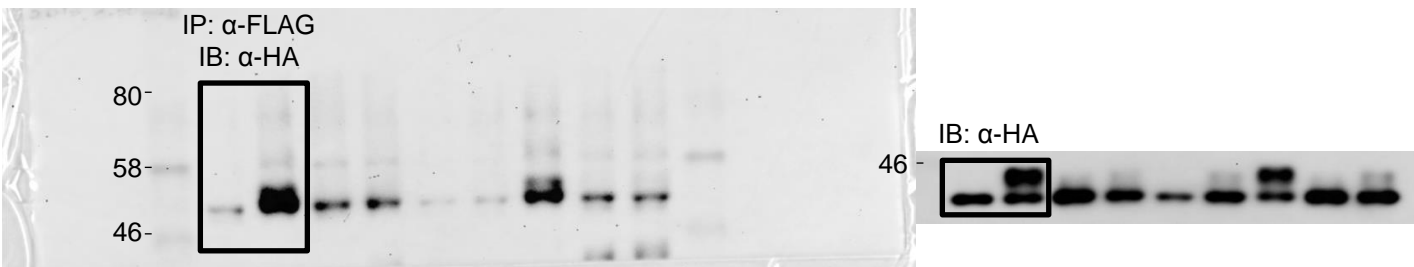
**Extended Data Figure 1a**



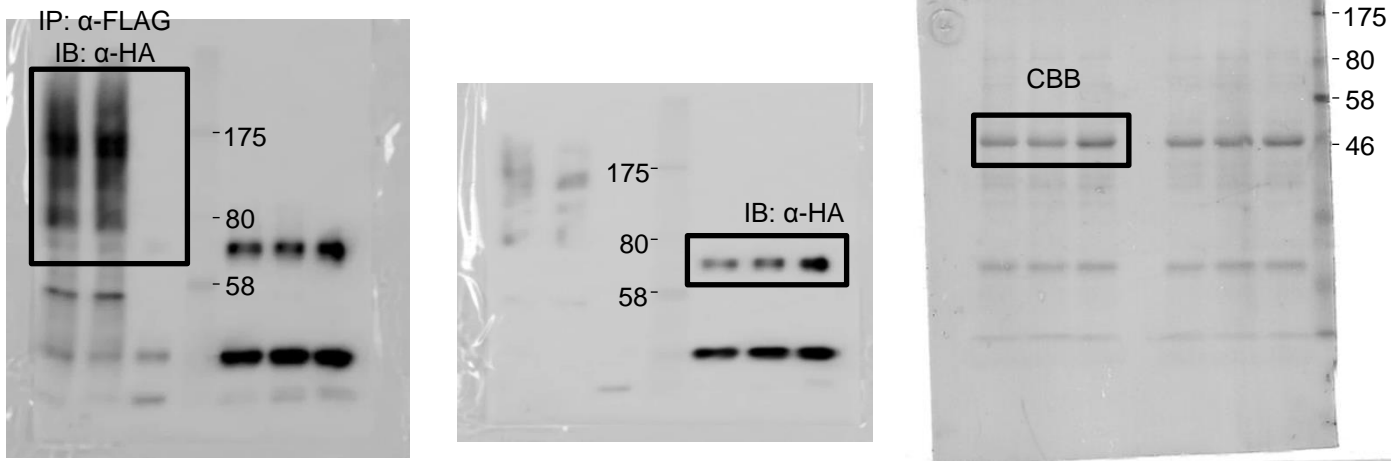
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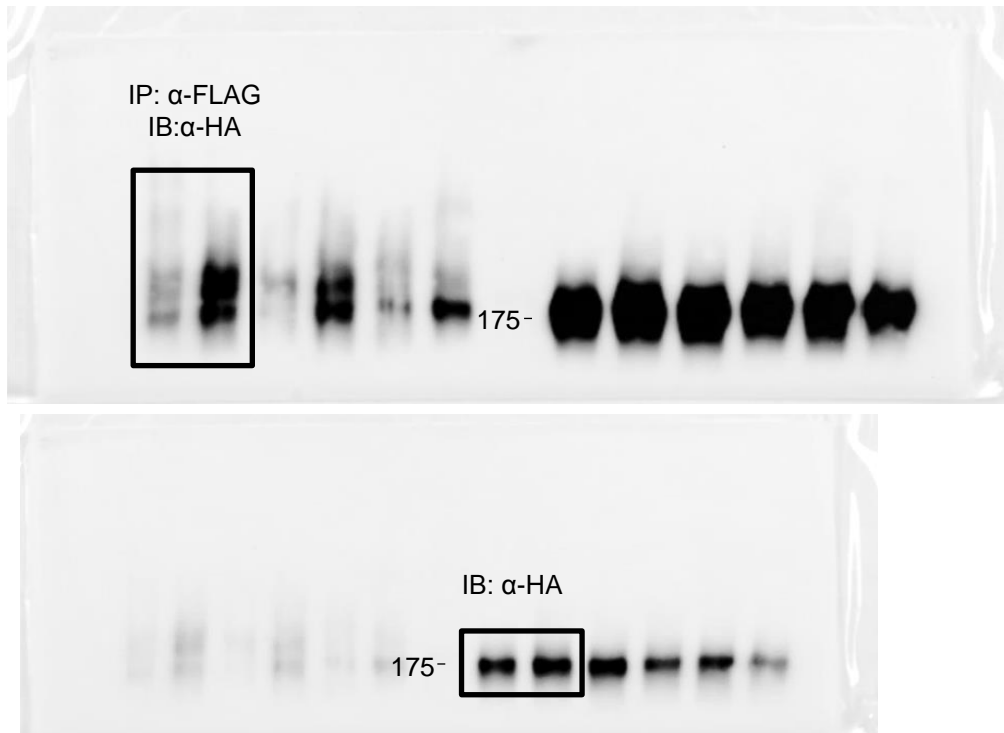
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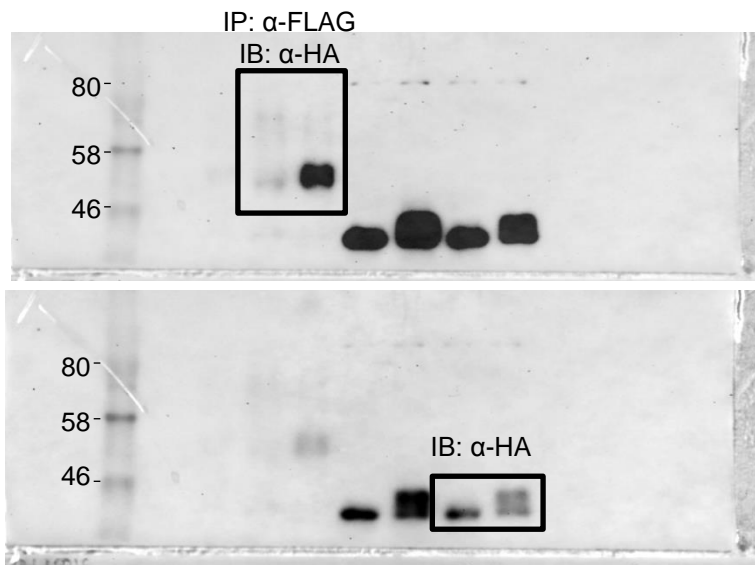
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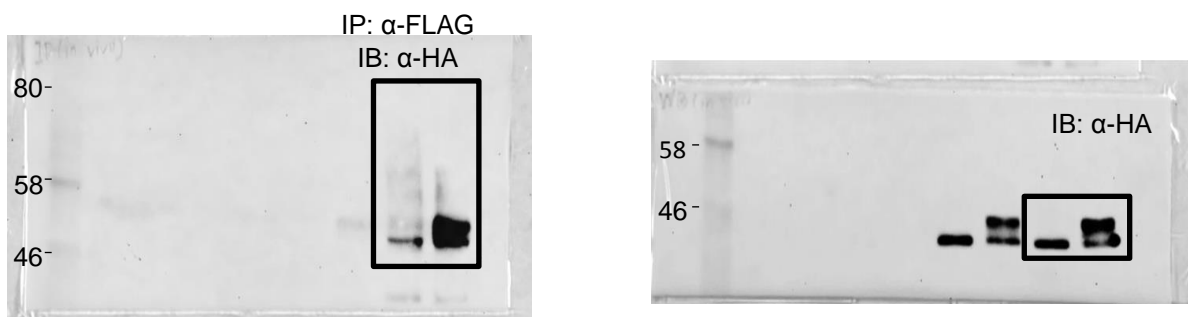
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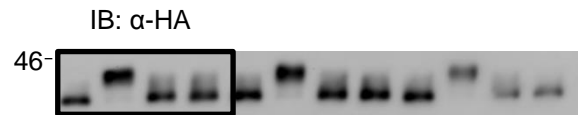
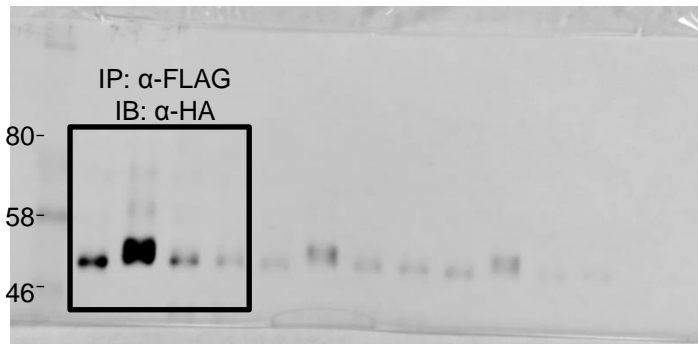
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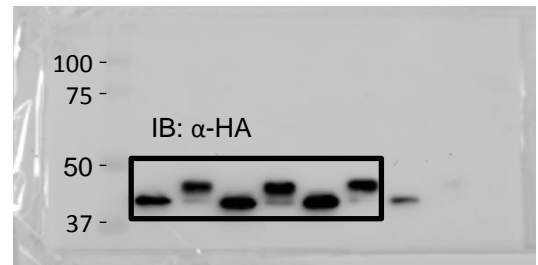
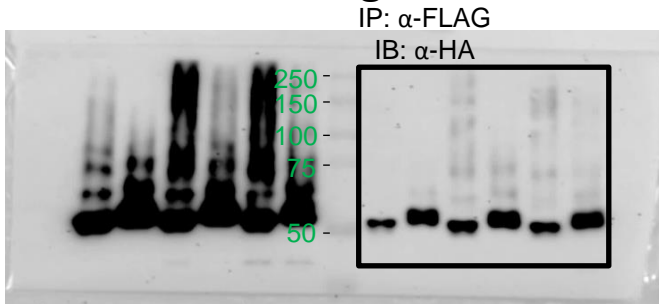
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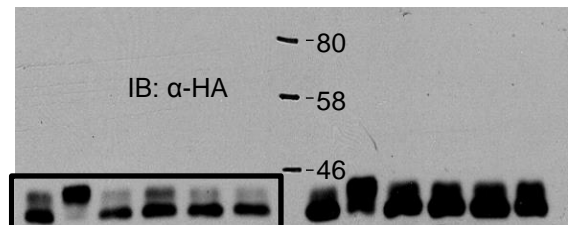
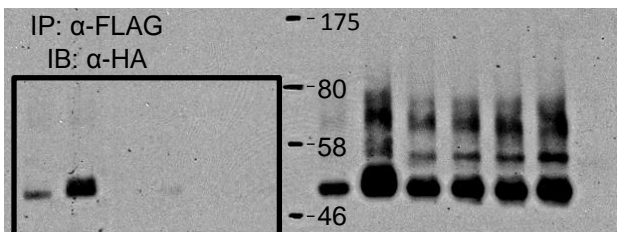
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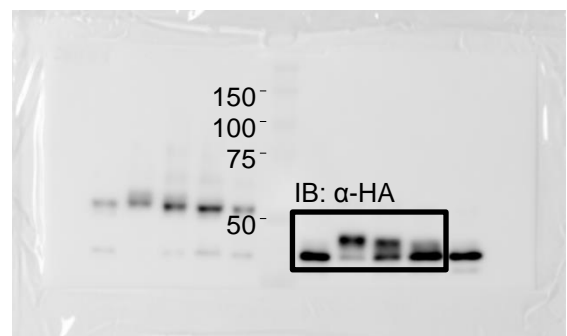
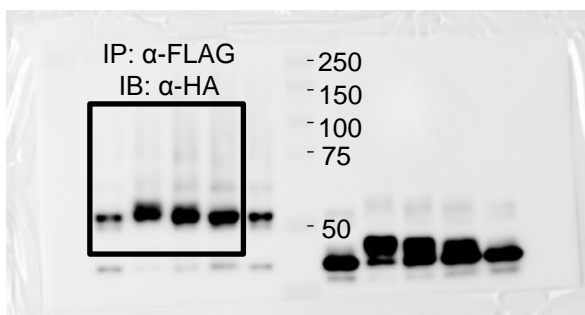
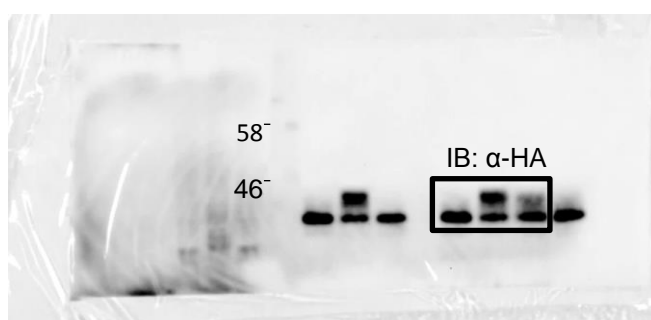
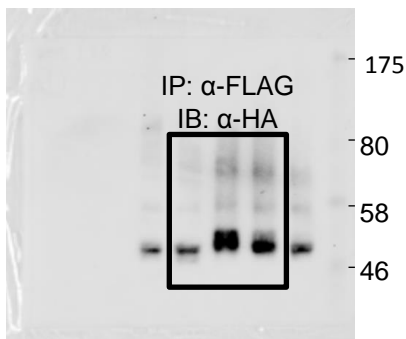
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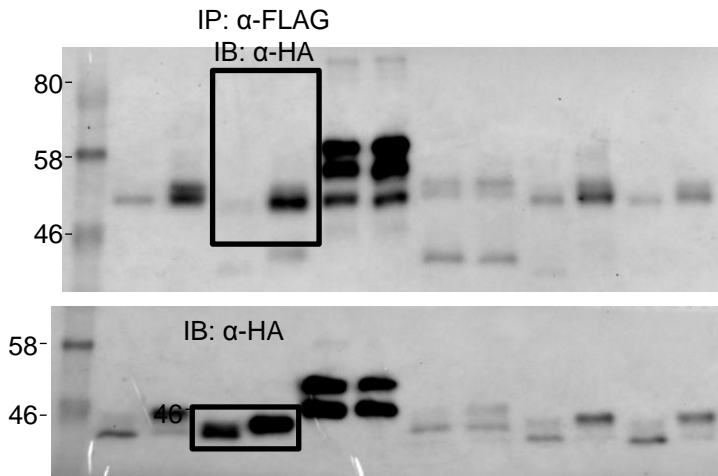


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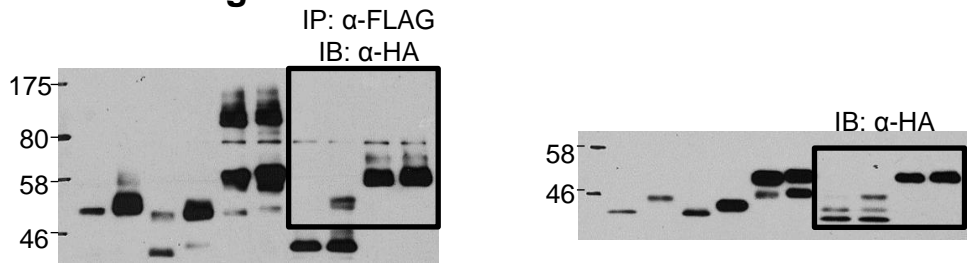




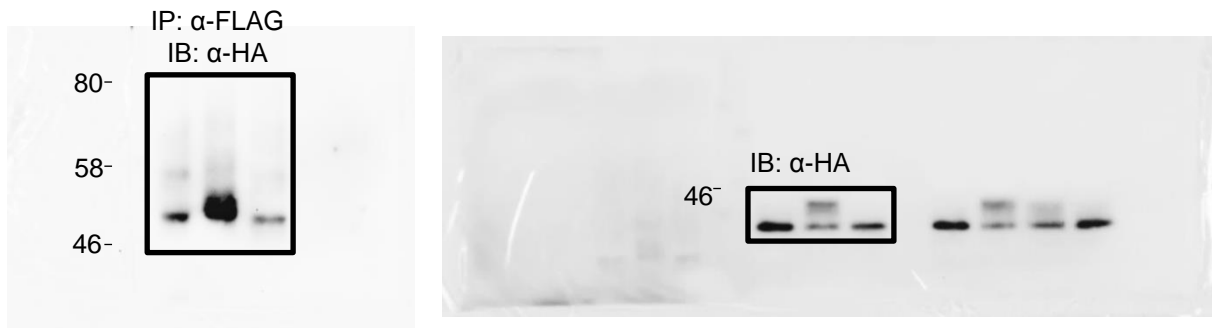
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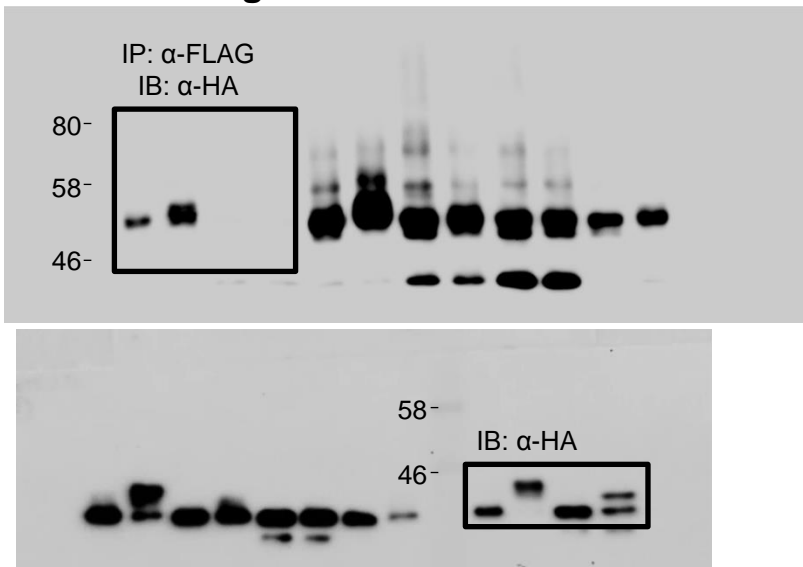
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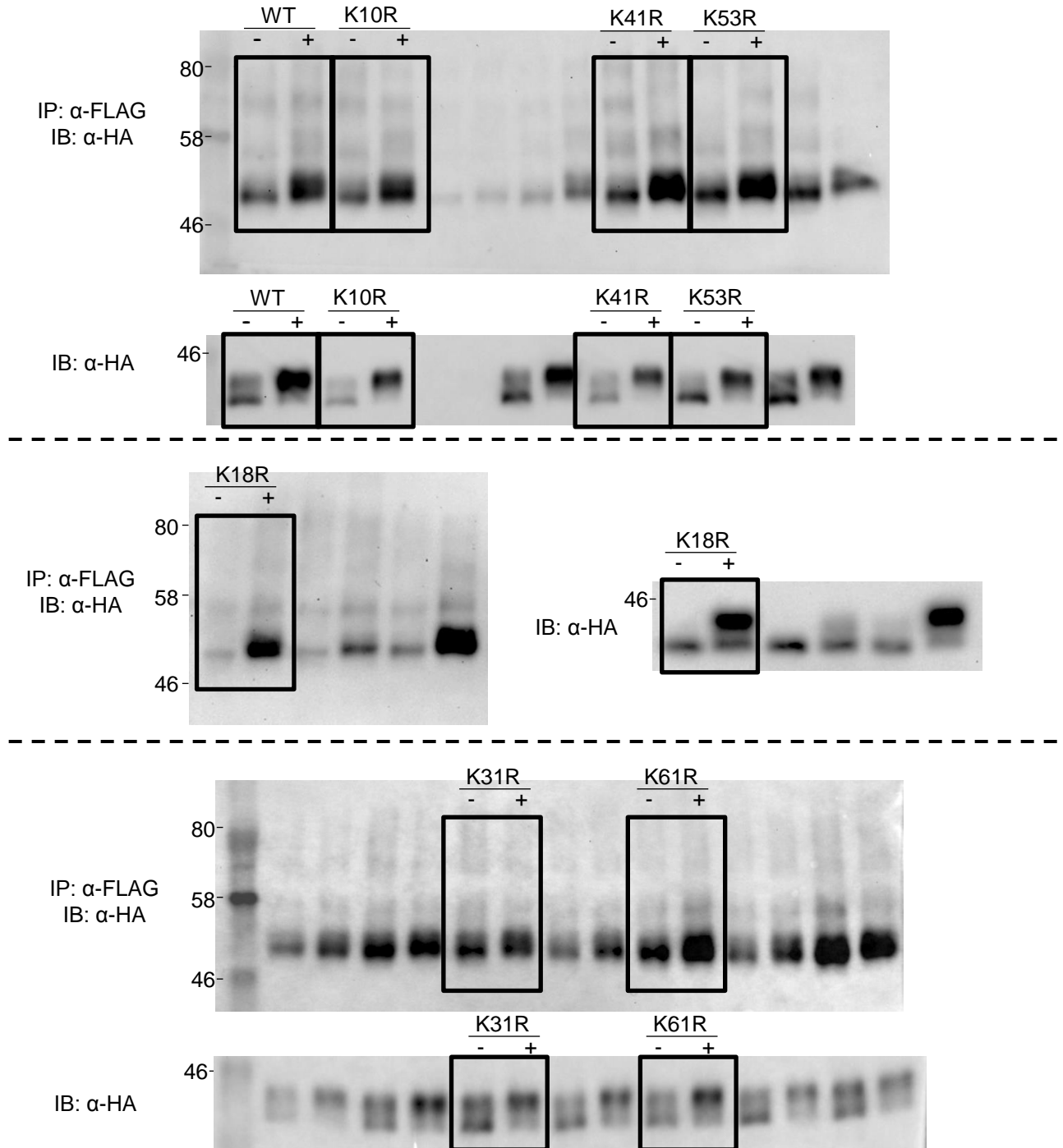
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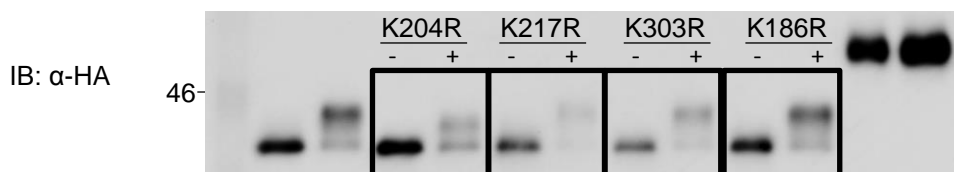
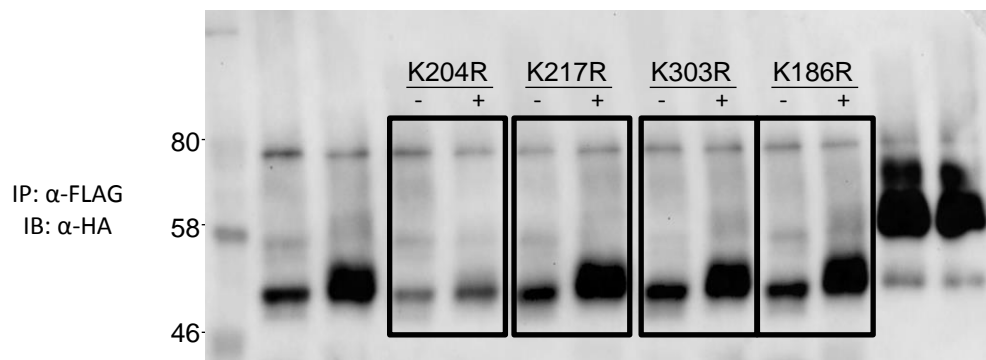
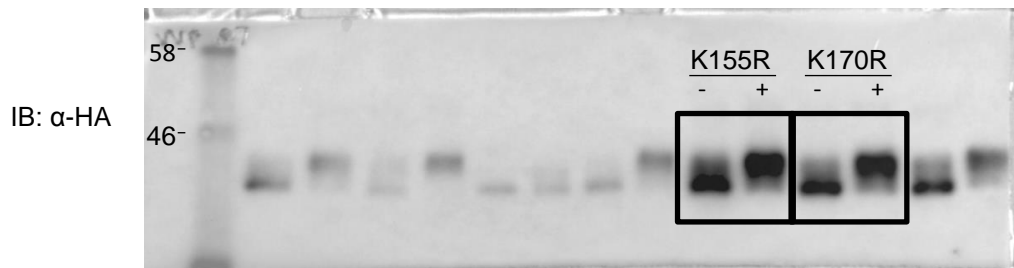
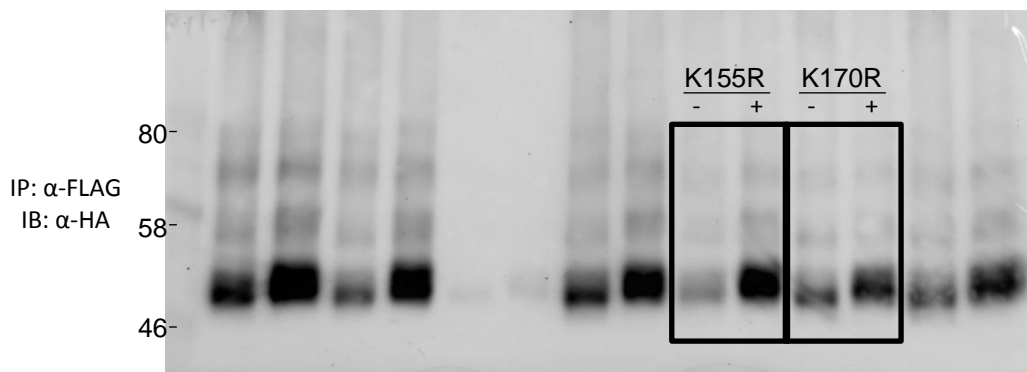
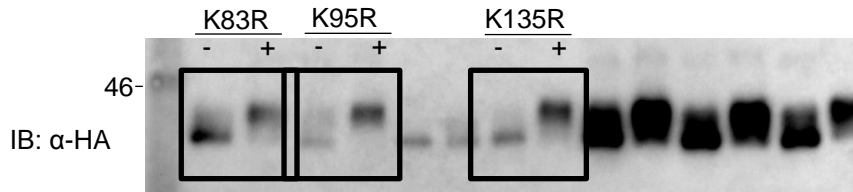
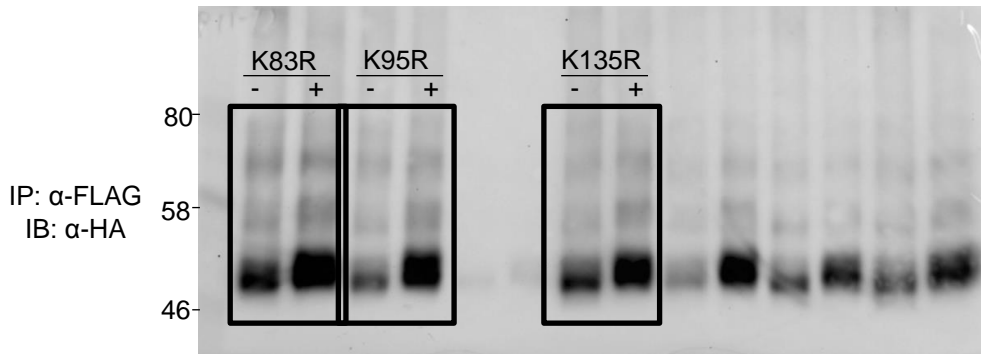
### Extended Data Figure 3c



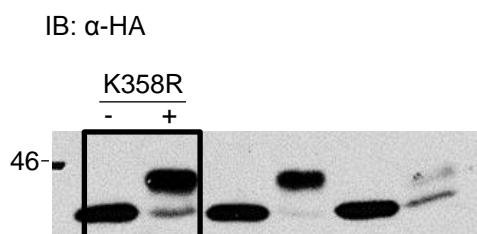
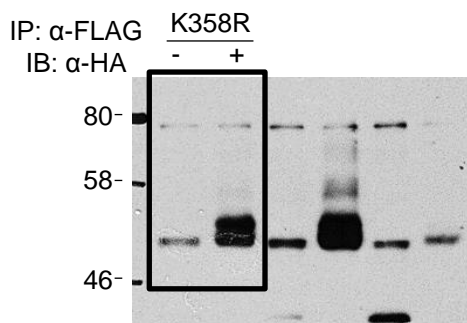
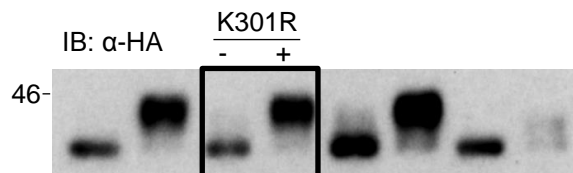
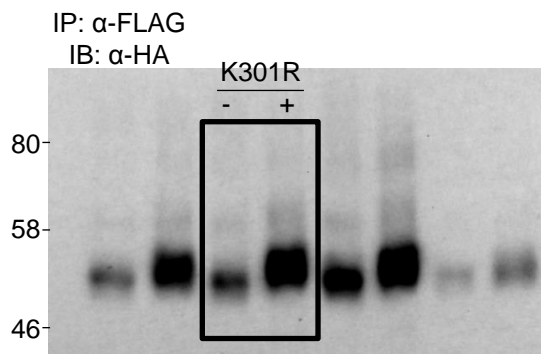
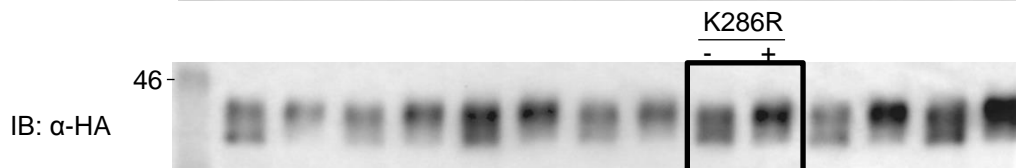
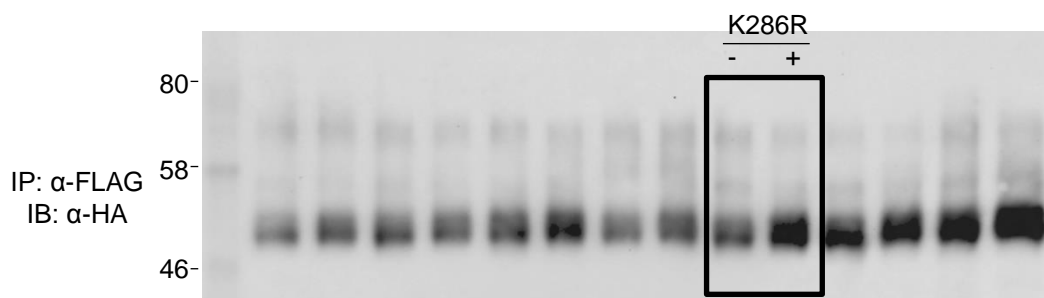
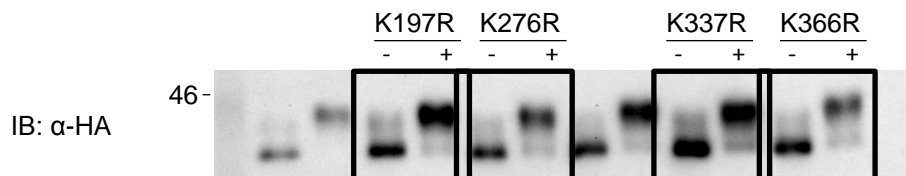
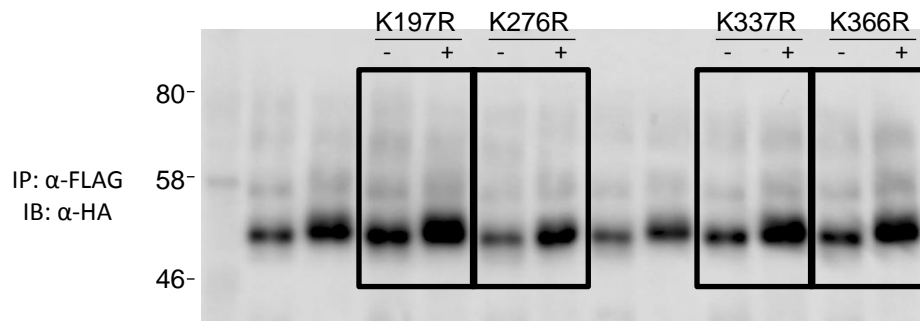
### Extended Data Figure 3d



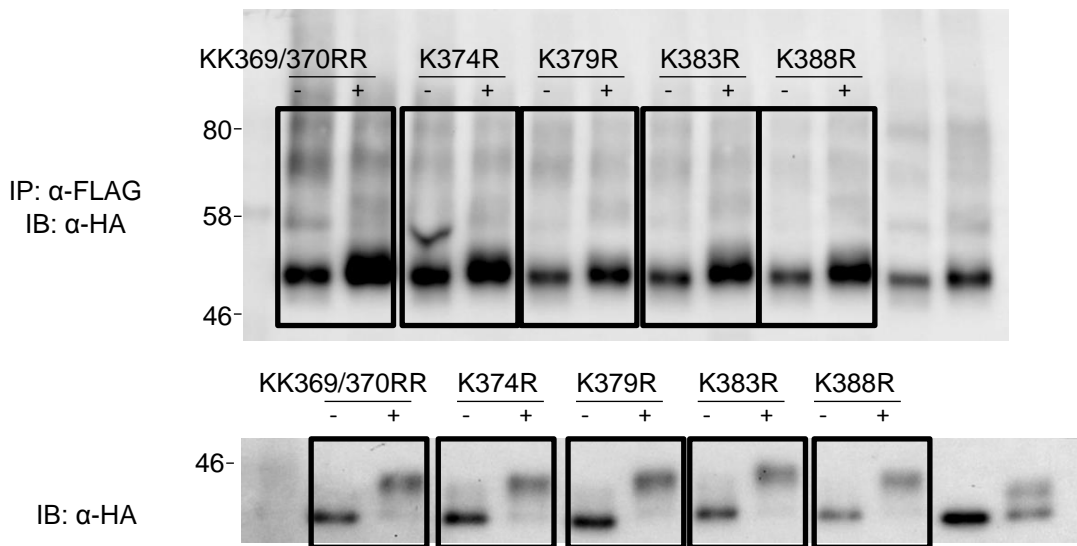
# Extended Data Figure 3d continued



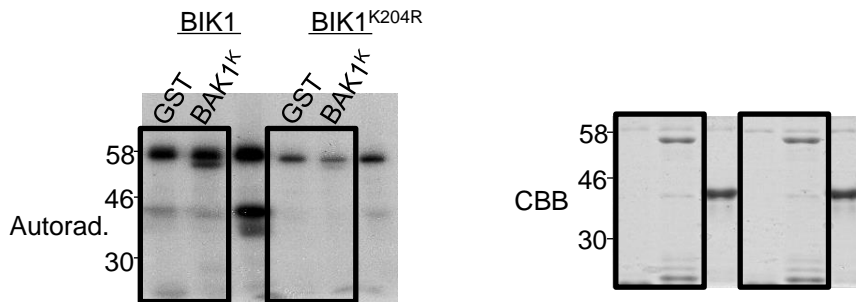
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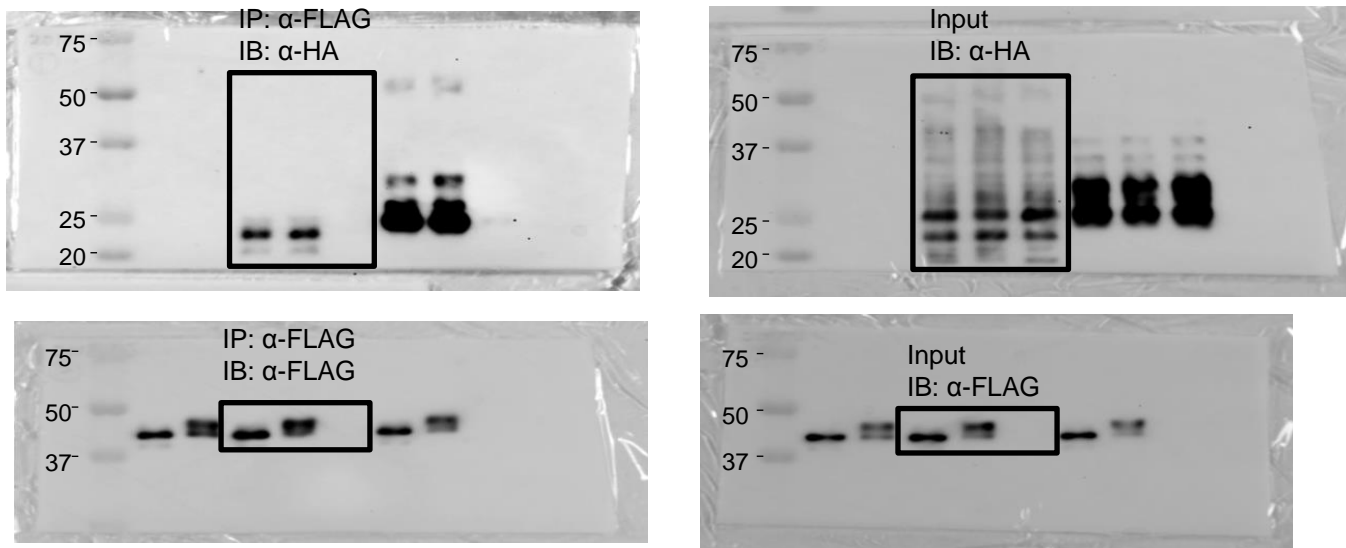
## Extended Data Figure 3d continued



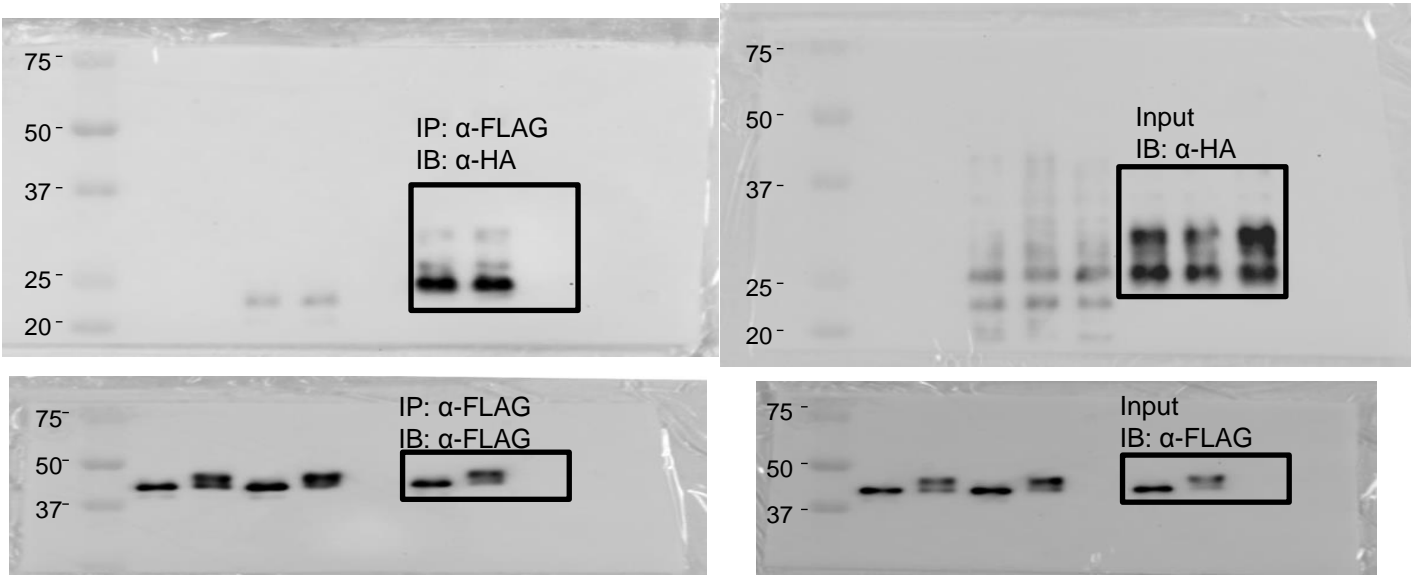
## Extended Data Figure 3e



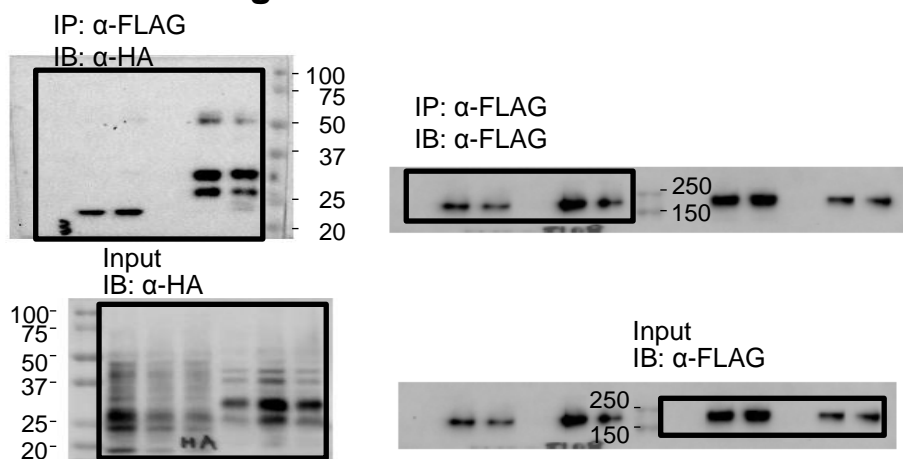
## Extended Data Figure 4a



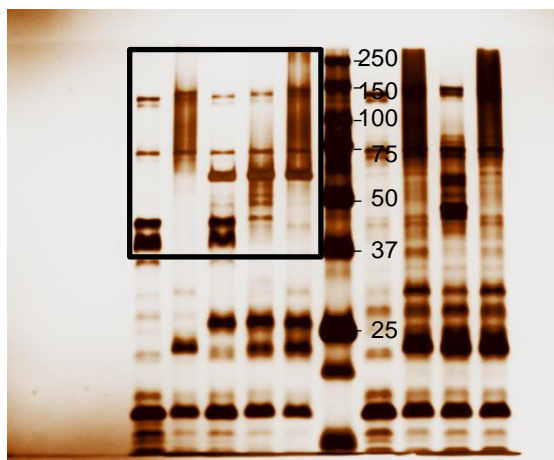
### Extended Data Figure 4c



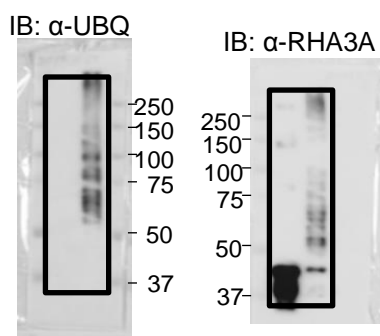
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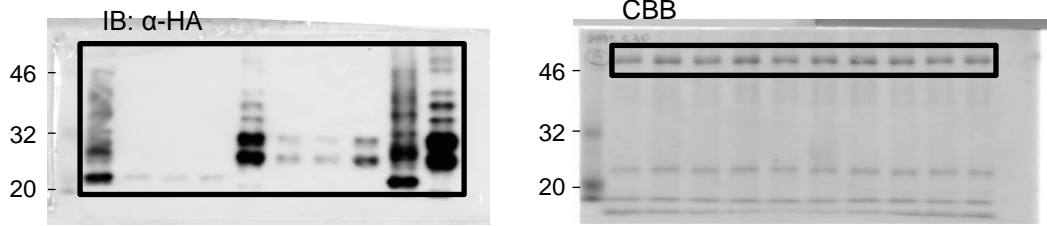
### Extended Data Figure 5a



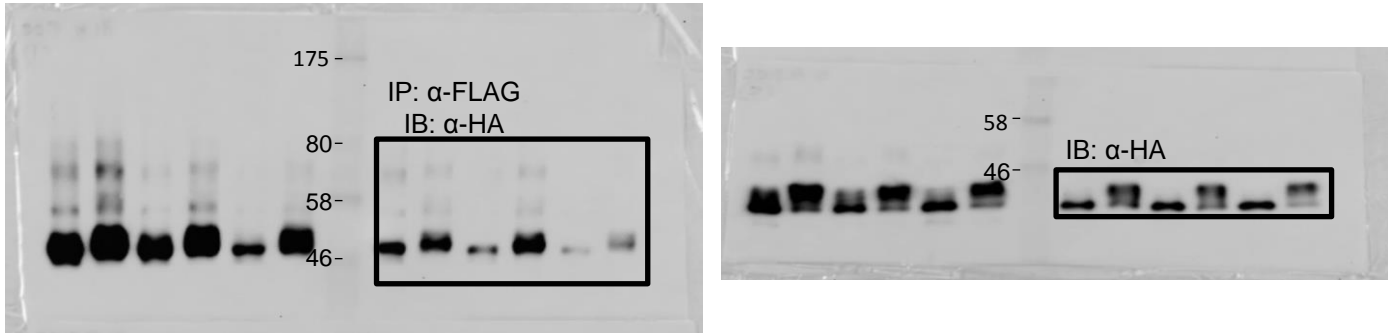
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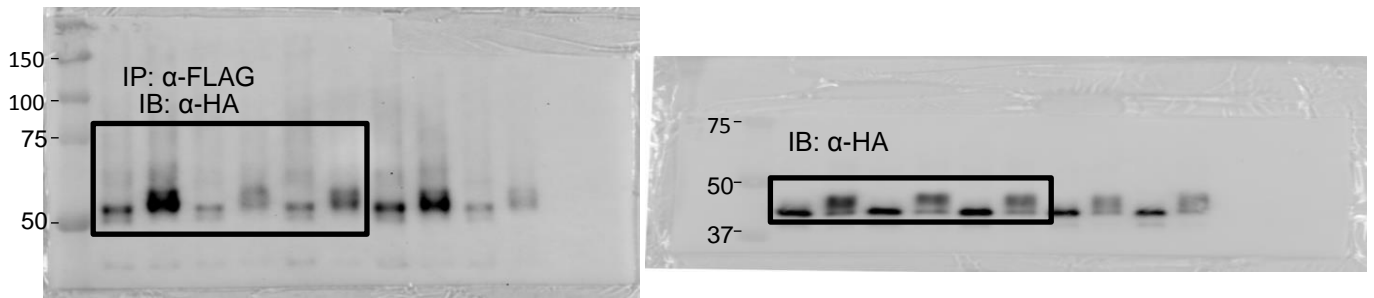
### Extended Data Figure 5d



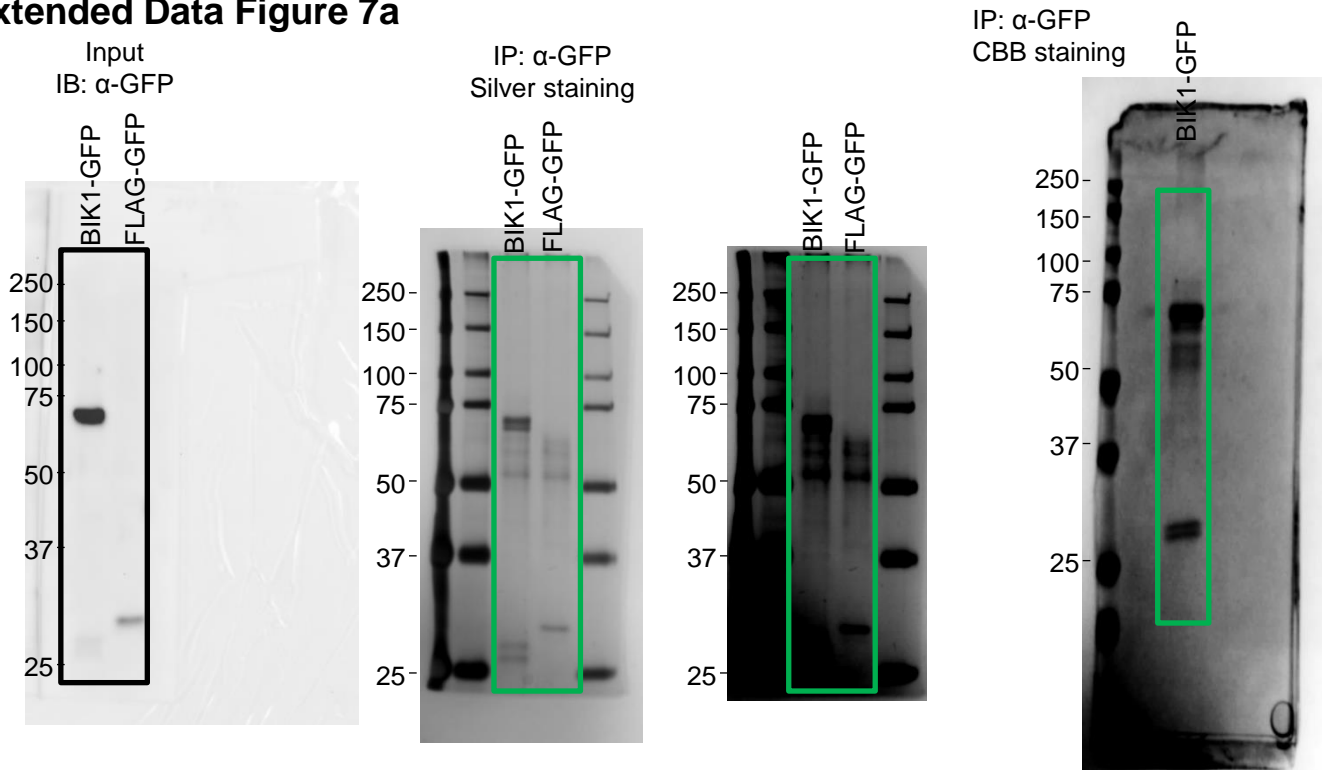
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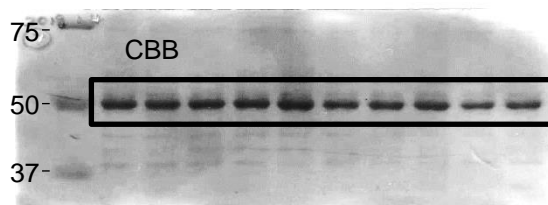
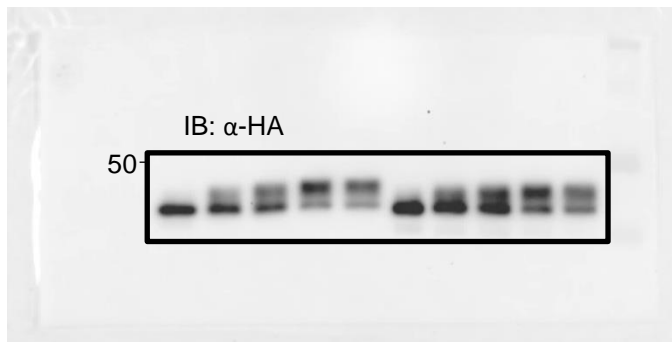
### Extended Data Figure 5g



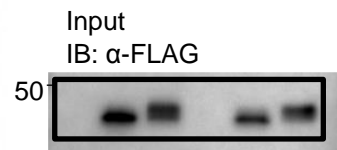
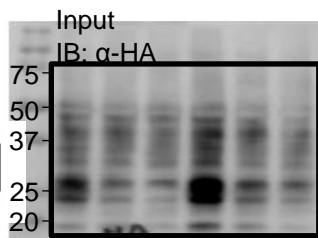
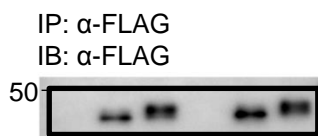
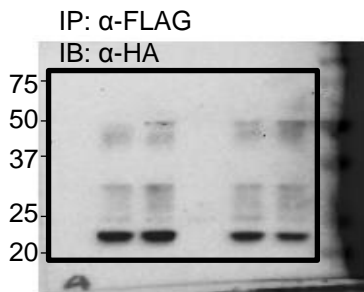
### Extended Data Figure 7a



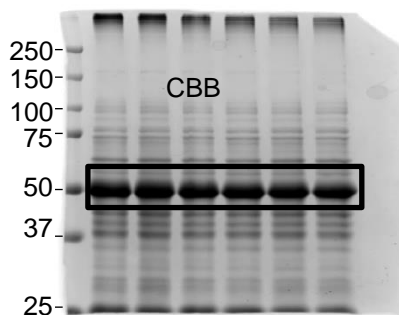
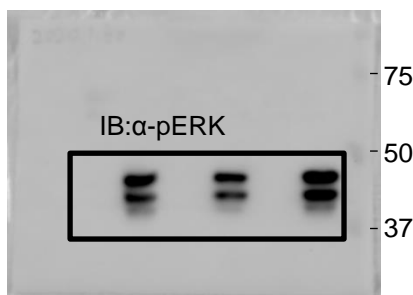
## Extended Data Figure 8a



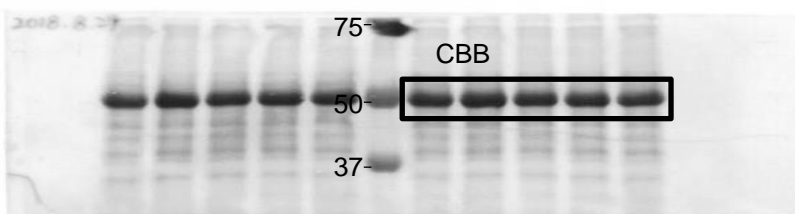
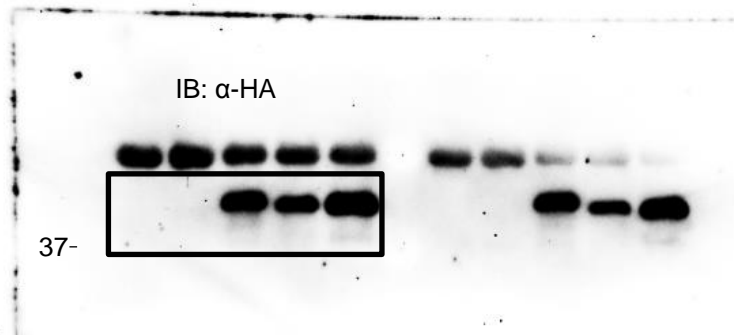
## Extended Data Figure 8b



## Extended Data Figure 8c

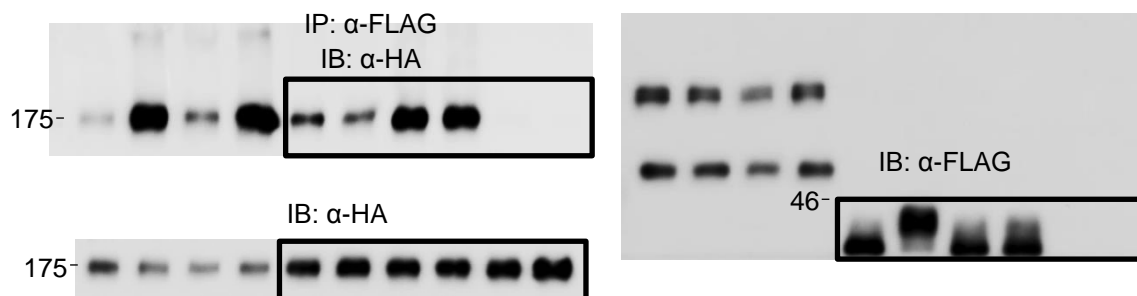


## Extended Data Figure 8f

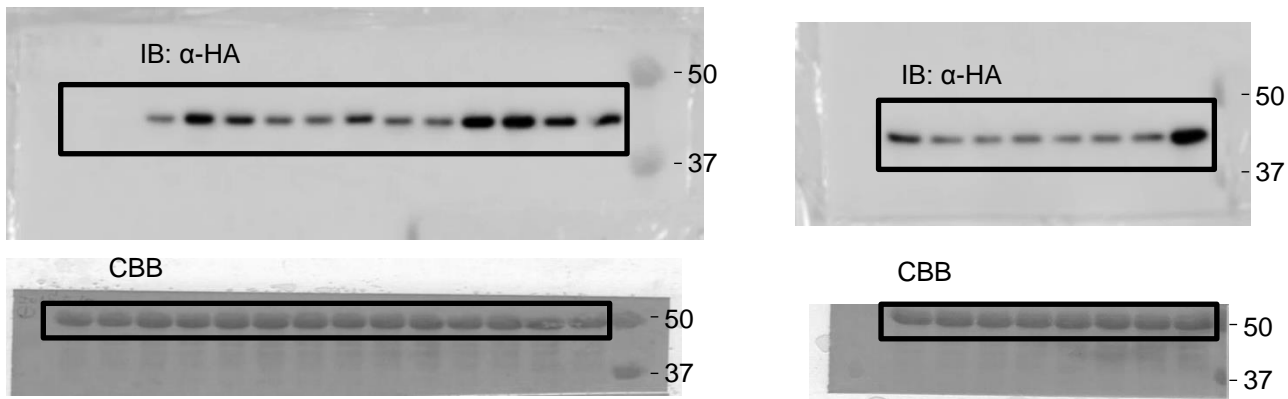




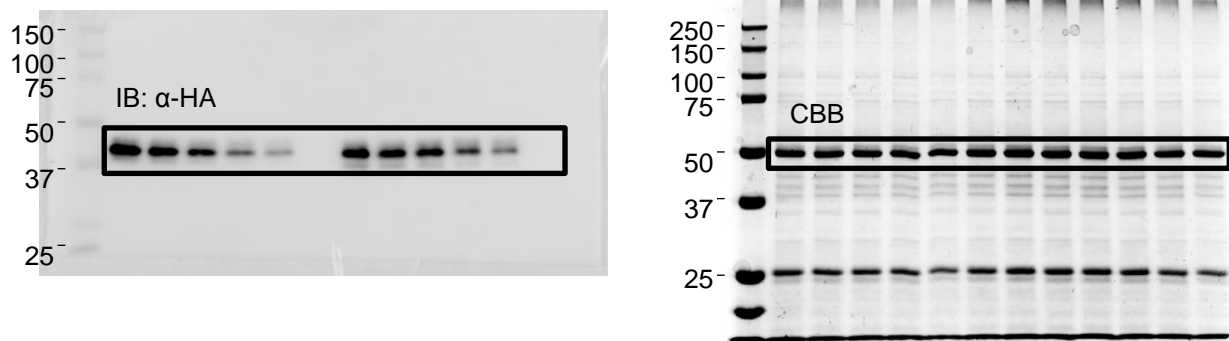
### Extended Data Figure 10a



### Extended Data Figure 10c



### Extended Data Figure 10d



## Supplementary Table 1. Primers used in this study

### Cloning primers

Primer	Sequence
RHA3A-BamHI-F	CGGGATCCATGACTCGACCGTCAAGATTAC
RHA3A-StuI-R	GAAGGCCTAGGAAGAAACGTAGGAATGGTAG
RHA3B-BamHI-F	CGGGATCCATGACTCGCTCCTCTAGATTC
RHA3B-SmaI-R	TCCCCCGGGAGGAAGAAAAGCAGGAATAATG
RHA3A-CD-BamHI-F	CGGGATCCCGATGCGCTTGGCTCCGGCG
RHA3B-CD-BamHI-F	CGGGATCCGCTCGCTGCGCTTGGCTCCGC
pRHA3A-SacI-F	CCGGAGCTCCTCAATTTGATAGAATTTCTCCG
pRHA3A-BamHI-R	CGGGATCCTGCTTTTTGAGCTTTGGAGAC
pRHA3B-SacI-F	TCCGAGCTCGCTTCCGTTCTCAATTATTG
pRHA3B-BamHI-R	CGGGATCCTTTGTTTTGGTTTTGAGTTC
NOS-SacI-R	CCGGAGCTCGAATACTCATGTTTGACAGC
Usp2-cc-BamHI-F	CGGGATCCAATCAAAGAGTGCCAGGGTC
Usp2-cc-SmaI-R	TCCCCCGGGCATAACGGGAGGGTGGACTGGC

The restriction enzyme sites are underlined.

### Point mutation primers

Primer	Sequence
BIK1 K10R-F	CTTCAGTTCTCGAGTCA <u>G</u> AGCAGACATCTTCCAC
BIK1 K10R-R	GTGGAAGATGTCTGCT <u>C</u> TGACTCGAGAACTGAAG
BIK1 K18R-F	CATCTTCCACAATGGTA <u>G</u> GAGCAGCGATCTTTATG
BIK1 K18R-R	CATAAAGATCGCTGCTC <u>C</u> TACCATTGTGGAAGATG
BIK1 K31R-F	GTCTCTCAAGTCGGA <u>G</u> ATCGTCTTCGACTGTAG
BIK1 K31R-R	CTACAGTCGAAGACGAT <u>C</u> TCCGACTTGAGAGAC
BIK1 K41R-F	CGGCGGCTCAGA <u>G</u> GACGGAAGGGGAG
BIK1 K41R-R	CTCCCCTTCCGTC <u>C</u> TCTGAGCCGCCG
BIK1 K53R-F	GAGTTCGACCCCTGTC <u>A</u> GAAGCTTCACCTTTAACG
BIK1 K53R-R	CGTTAAAGGTGAAGCTT <u>C</u> TGACAGGGGTGCAACTC
BIK1 K61R-F	CACCTTTAACGAACCTCA <u>G</u> ACTCGCCACAAGAAAC
BIK1 K61R-R	GTTTCTTGTTGGCGAGT <u>C</u> TGAGTTTCGTTAAAGGTG
BIK1 K83R-F	CTTTGGTTGTGTCTTTA <u>G</u> AGGCTGGTTAGATGAG
BIK1 K83R-R	CTCATCTAACCGCCT <u>C</u> TAAAGACACAACCAAAG
BIK1 K95R-F	CACTCTCACTCCGACTA <u>G</u> ACCTGGAACCGGTTTG
BIK1 K95R-R	CAAACCGGTTCCAGGT <u>C</u> TAGTCGGAGTGAGAGTG
BIK1 K135R-F	CACCCAAATCTAGTTA <u>G</u> ACTGATCGGTTATTGC
BIK1 K135R-R	GCAATAACCGATCAGT <u>C</u> TAACTAGATTTGGGTG
BIK1 K155R-F	CTACGAGTTTATGCAA <u>A</u> GAGGAAGTCTTGAGAATC

BIK1 K155R-R	GATTCTCAAGACTTCCT <u>CT</u> TTGCATAAACTCGTAG
BIK1 K170R-F	GAGGTGCATATTTTA <u>GG</u> CCACTCCCATGGTTTC
BIK1 K170R-R	GAAACCATGGGAGTGGC <u>CT</u> AAAATATGCACCTC
BIK1 K186R-F	GCGCTTGATGCAGCA <u>AG</u> GGGGCTTGCTTTTCTTC
BIK1 K186R-R	GAAGAAAAGCAAGCCCC <u>CT</u> TGCTGCATCAAGCGC
BIK1 K197R-F	CACAGCGATCCCGTCA <u>AG</u> AGTGATATACCGAGAC
BIK1 K197R-R	GTCTCGGTATATCACT <u>CT</u> GACGGGATCGCTGTG
BIK1 K204R-F	GATATACCGAGACATT <u>AG</u> AGCCTCGAACATCTTAC
BIK1 K204R-R	GTAAGATGTTTCGAGGCT <u>CT</u> AATGTCTCGGTATATC
BIK1 K217R-F	GCGGACTACAACGCA <u>AG</u> ACTTTCTGACTTTGGAC
BIK1 K217R-R	GTCCAAAGTCAGAAAGT <u>CT</u> TGCGTTGTAGTCCGC
BIK1 K276R-F	GAGATTTTATCTGGT <u>AG</u> GGCAGCGTTGGATC
BIK1 K276R-R	GATCCAACGCTCGC <u>CT</u> ACCAGATAAAATCTC
BIK1 K286R-F	CATAACAGACCGGCT <u>AG</u> AGAAGAAAACCTTGTG
BIK1 K286R-R	CACAAGGTTTTCTTCT <u>CT</u> AGCCGGTCTGTTATG
BIK1 K301R-F	CGTACCTCACAAGCA <u>AG</u> ACGTAAGGTTCTCCTAATC
BIK1 K301R-R	GATTAGGAGAACCTTACGT <u>CT</u> GCTTGTGAGGTACG
BIK1 K303R-F	CCTCACAAGCAAACGT <u>AG</u> GGTTCTCCTAATCGTGG
BIK1 K303R-R	CCACGATTAGGAGAACC <u>CT</u> TACGTTTGCTTGTGAGG
BIK1 K337R-F	CTCTCATTTGAACCA <u>AG</u> GTCGCGCCCGACCATG
BIK1 K337R-R	CATGGTCGGGCGCGAC <u>CT</u> GGGTTCAAATGAGAG
BIK1 K358R-F	GGACAACCTGGGA <u>CGG</u> CCGAGTCAGACC
BIK1 K358R-R	GGTCTGACTCGG <u>CCG</u> TCCCAAGTTGTCC
BIK1 K366R-F	CAGACCAATCCGGTT <u>AG</u> GGATACCAAGAACTTG
BIK1 K366R-R	CAAGTTTCTTGGTATCC <u>CT</u> AACCGGATTGGTCTG
BIK1 KK369/370RR-F	CGGTTAAGGATACC <u>AGGAG</u> ACTTGGTTTTAAACTG
BIK1 KK369/370RR-R	CAGTTTTAAACCAAGT <u>CTCCT</u> GGTATCCTTAACCG
BIK1 K374R-F	CAAGAAACTTGGTTTT <u>AG</u> AACTGGTACTACTAAG
BIK1 K374R-R	CTTAGTAGTACCAGTT <u>CT</u> AAAACCAAGTTTCTTG
BIK1 K379R-F	GTTTTAAACTGGTACTACT <u>AGG</u> TCATCCGAAAAACG
BIK1 K379R-R	CGTTTTTCGGATGAC <u>CT</u> AGTAGTACCAGTTTTAAAC
BIK1 K383R-F	CTAAGTCATCCGAA <u>AG</u> ACGGTTTACACAAAAC
BIK1 K383R-R	GTTTTTGTGTAAACCGT <u>CT</u> TTTCGGATGACTTAG
BIK1 K388R-F	GAAAAACGGTTTACACAA <u>AG</u> ACCTTTTGGCAGGC
BIK1 K388R-R	GCCTGCCAAAAGGT <u>CT</u> TTTGTGTAAACCGTTTTTC
RHA3A I104A-F	CGACGGAATGTGCT <u>GCT</u> TGCCTCACTGACTTC
RHA3A I104A-R	GAAGTCAGTGAGGCA <u>GC</u> AGCACATTCCGTCG

The codon of targeted amino acids is underlined. Mutated nucleotides are marked as red.

**amiRNA primers**

Primer	Sequence
RHA3A amiRNA480-1	GATTTTGTCAATACACTCCACGGTCTCTCTTTTGTATTCC
RHA3A amiRNA480-2	GACCGTGGAGTGTATTGACAAAATCAAAGAGAATCAATGA
RHA3A amiRNA480-3	GACCATGGAGTGTATAGACAAATTCACAGGTCGTGATATG
RHA3A amiRNA480-4	GAATTTGTCTATACACTCCATGGTCTACATATATATTCCCT
RHA3A amiRNA109-1	GATCAAGTAATCTTGACGGTCGTTCTCTCTTTTGTATTCC
RHA3A amiRNA109-2	GAACGACCGTCAAGATTACTTGATCAAAGAGAATCAATGA
RHA3A amiRNA109-3	GAACAACCGTCAAGAATACTTGTTACAGGTCGTGATATG
RHA3A amiRNA109-4	GAACAAGTATTCTTGACGGTTGTTCTACATATATATTCCCT
RHA3A amiRNA211-1	GATCAACGCAGATAAGAGCGCTATCTCTCTTTTGTATTCC
RHA3A amiRNA211-2	GATAGCGCTCTTATCTGCGTTGATCAAAGAGAATCAATGA
RHA3A amiRNA211-3	GATAACGCTCTTATCAGCGTTGTTACAGGTCGTGATATG
RHA3A amiRNA211-4	GAACAACGCTGATAAGAGCGTTATCTACATATATATTCCCT
RHA3B amiRNA444-1	GATTATGCATATTGCACACTCCGTCTCTCTTTTGTATTCC
RHA3B amiRNA444-2	GACGGAGTGTGCAATATGCATAATCAAAGAGAATCAATGA
RHA3B amiRNA444-3	GACGAAGTGTGCAATTTGCATATTCACAGGTCGTGATATG
RHA3B amiRNA444-4	GAATATGCAAATTGCACACTTCGTCTACATATATATTCCCT
RHA3B amiRNA113-1	GATAATCTAGAGGAGCGAGTCAGTCTCTCTTTTGTATTCC
RHA3B amiRNA113-2	GACTGACTCGCTCCTCTAGATTATCAAAGAGAATCAATGA
RHA3B amiRNA113-3	GACTAACTCGCTCCTGTAGATTTTCACAGGTCGTGATATG
RHA3B amiRNA113-4	GAAAATCTACAGGAGCGAGTTAGTCTACATATATATTCCCT
RHA3B amiRNA214-1	GATCTACGCATACGAGAGCGCATTCTCTCTTTTGTATTCC
RHA3B amiRNA214-2	GAATGCGCTCTCGTATGCGTAGATCAAAGAGAATCAATGA
RHA3B amiRNA214-3	GAATACGCTCTCGTAAGCGTAGTTCACAGGTCGTGATATG
RHA3B amiRNA214-4	GAECTACGCTTACGAGAGCGTATTCTACATATATATTCCCT

**CRISPR cloning primers**

Primer	Sequence
L1L2T2-BsF	ATATATGGTCTCGATTGAGCCAAGCGCATCGTACGAGTT
L1L2T2-F	TGAGCCAAGCGCATCGTACGAGTTTTAGAGCTAGAAAT AGC
L1L2T4-R	AACGAGTTAATCCCGCCGCGTCAATCTCTTAGTCTGACT CTAC
L1L2T4-BsR	ATTATTGGTCTCGAAACGAGTTAATCCCGCCGCGTC

**qRT-PCR primers**

Primer	Sequence
RHA3A-F	CAGGATTCTTACGCCGGTGA
RHA3A-R	TTCATCTCCGCCGTAGAAGC
RHA3B-F	CGGAGGGCGAAGAAATCAGA
RHA3B-R	CACTTCACCGGCACCAGTAT
ACTIN2-F	GCACCCTGTTCTTCTTACGGA
ACTIN2-R	GTGAGACACACCATCACCAGA