

Haploinsufficiency of *brd4* causes adult-onset cardiac arrhythmia and cardiomyopathy in zebrafish

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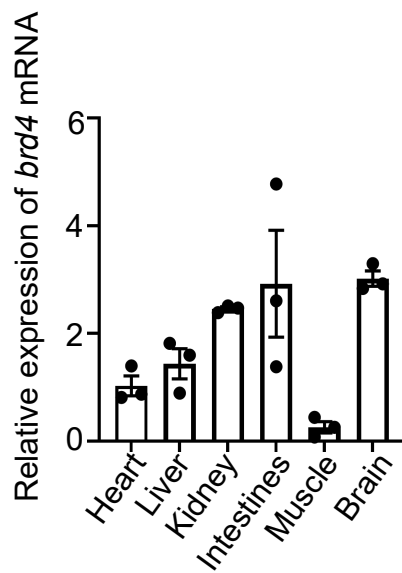
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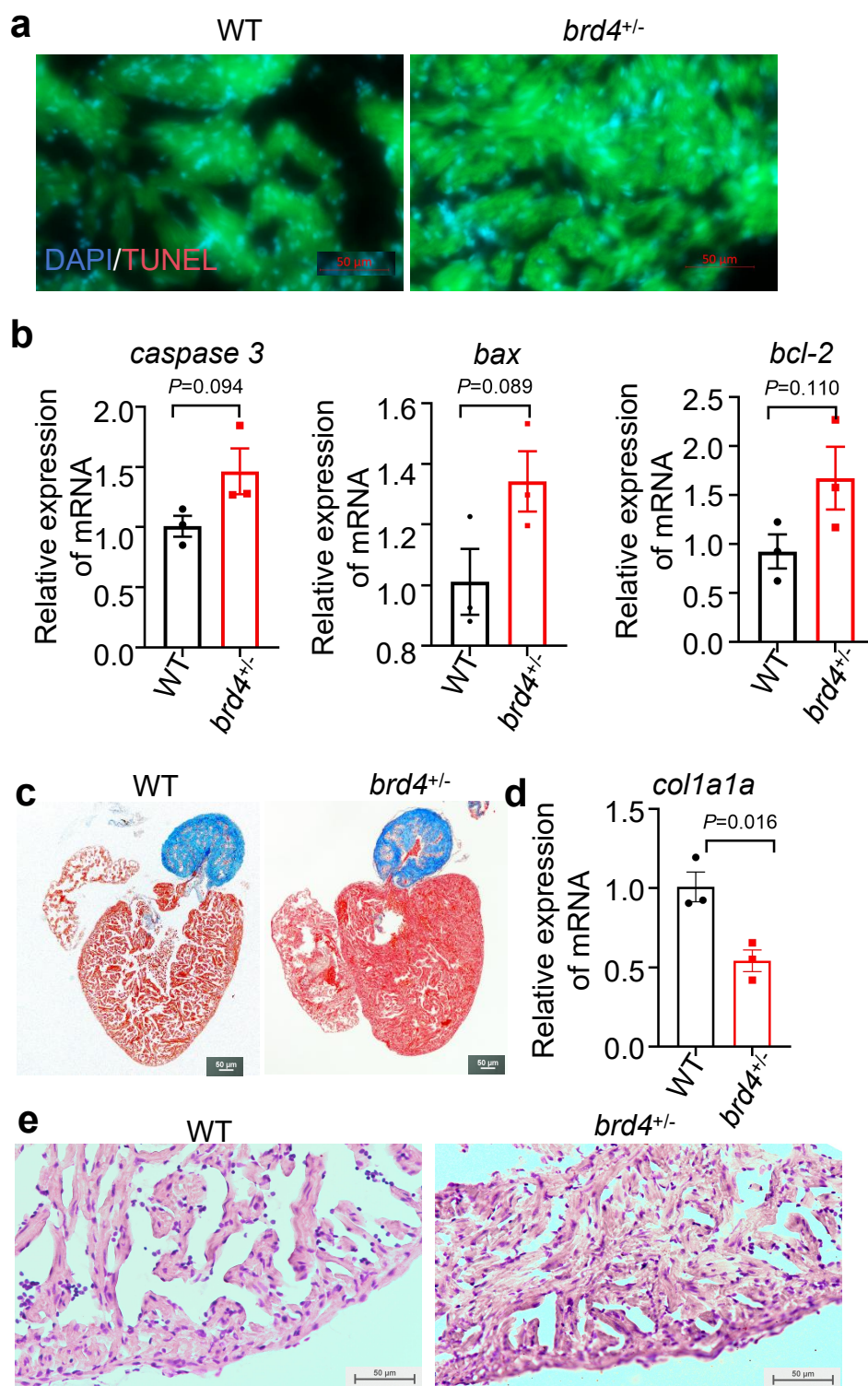
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Supplemental Figure S2. *brd4* gene is ubiquitously expressed in adult zebrafish
Quantitative RT-PCR to examine expression of *brd4* in major organs including heart, liver, kidney, skeletal muscle and brain in adult zebrafish. n=3, biological replicate.

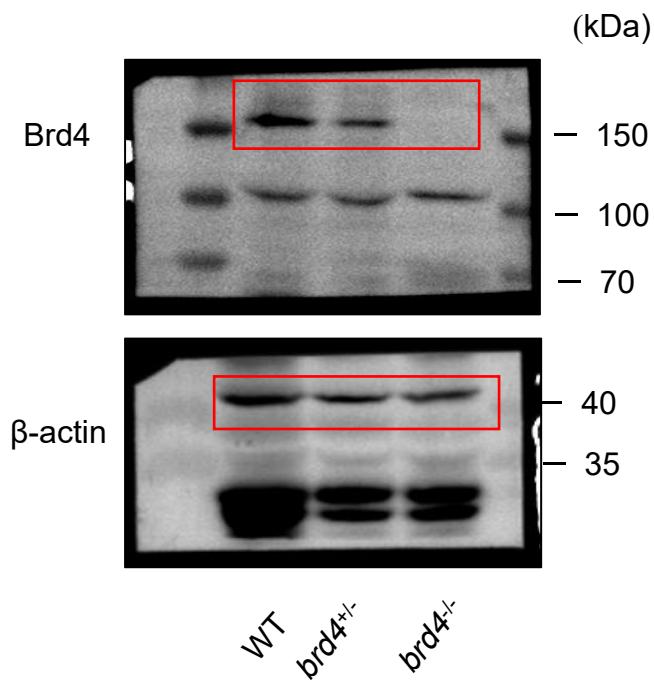


Supplemental Figure S3. Evaluation of apoptosis and fibrosis-related changes in adult *brd4*^{+/-} zebrafish hearts.

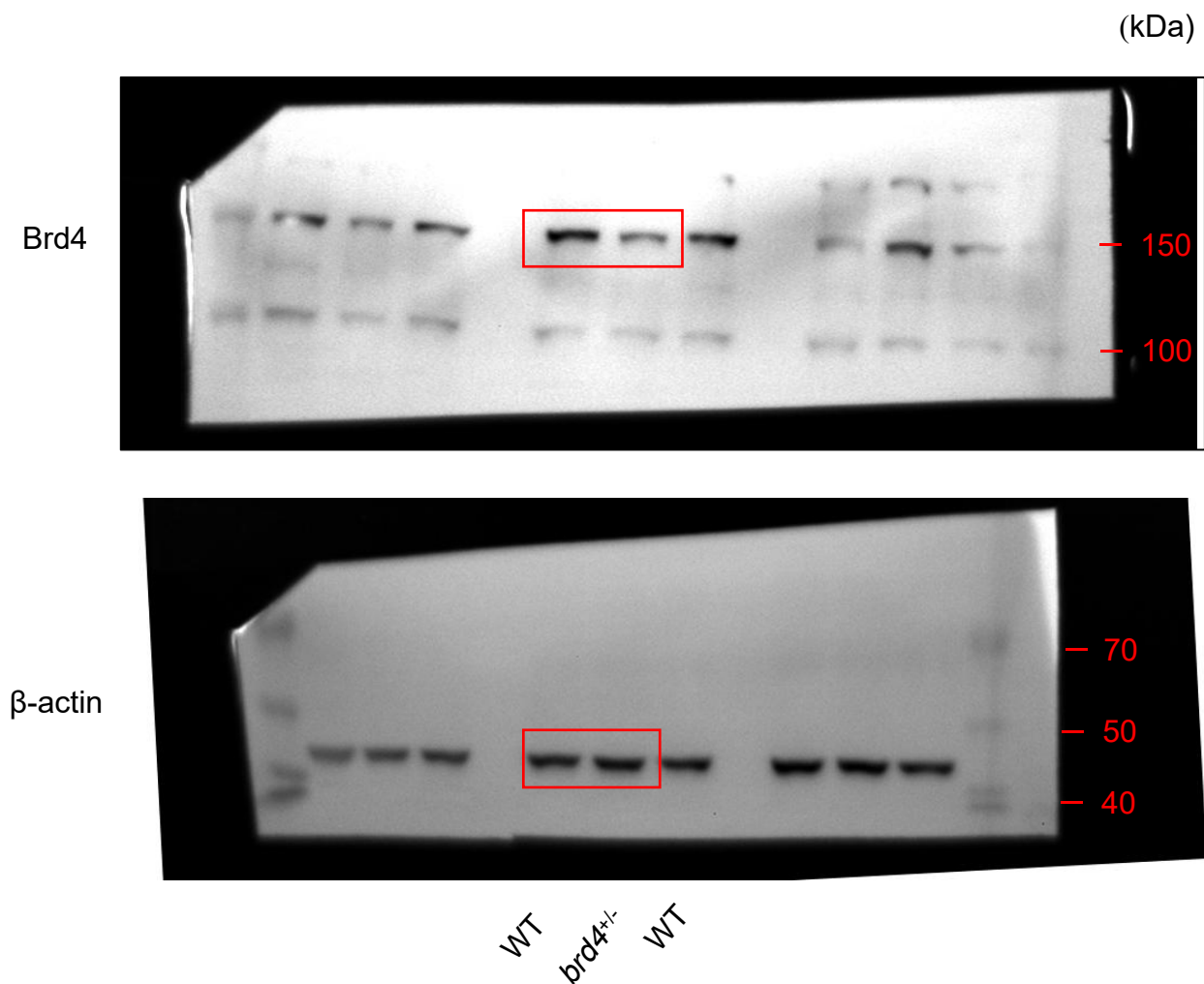
a Representative images of TUNEL staining (green) with DAPI nuclear counterstaining (blue) in ventricular sections from *brd4*^{+/-} and WT adult zebrafish hearts. Scale bar, 50 μm. **b** Quantitative RT-PCR analysis of apoptosis-related genes, including *caspase 3*, *bax*, and *bcl-2*, in *brd4*^{+/-} and WT hearts. *n*=3, biological replicates, Student's *t*-test. **c** Representative Masson's trichrome staining of heart sections from *brd4*^{+/-} and WT control hearts. Scale bar, 100 μm. **d** Quantitative RT-PCR analysis of the fibrosis-associated gene *col1a1a* expression in *brd4*^{+/-} hearts compared to WT controls. *n*=3, biological replicates, Student's *t*-test. **e** Representative H&E staining images of ventricular sections from *brd4*^{+/-} and WT control hearts. Scale bar, 50 μm.

Supplemental Table 1. Primer sequences (5'→3')

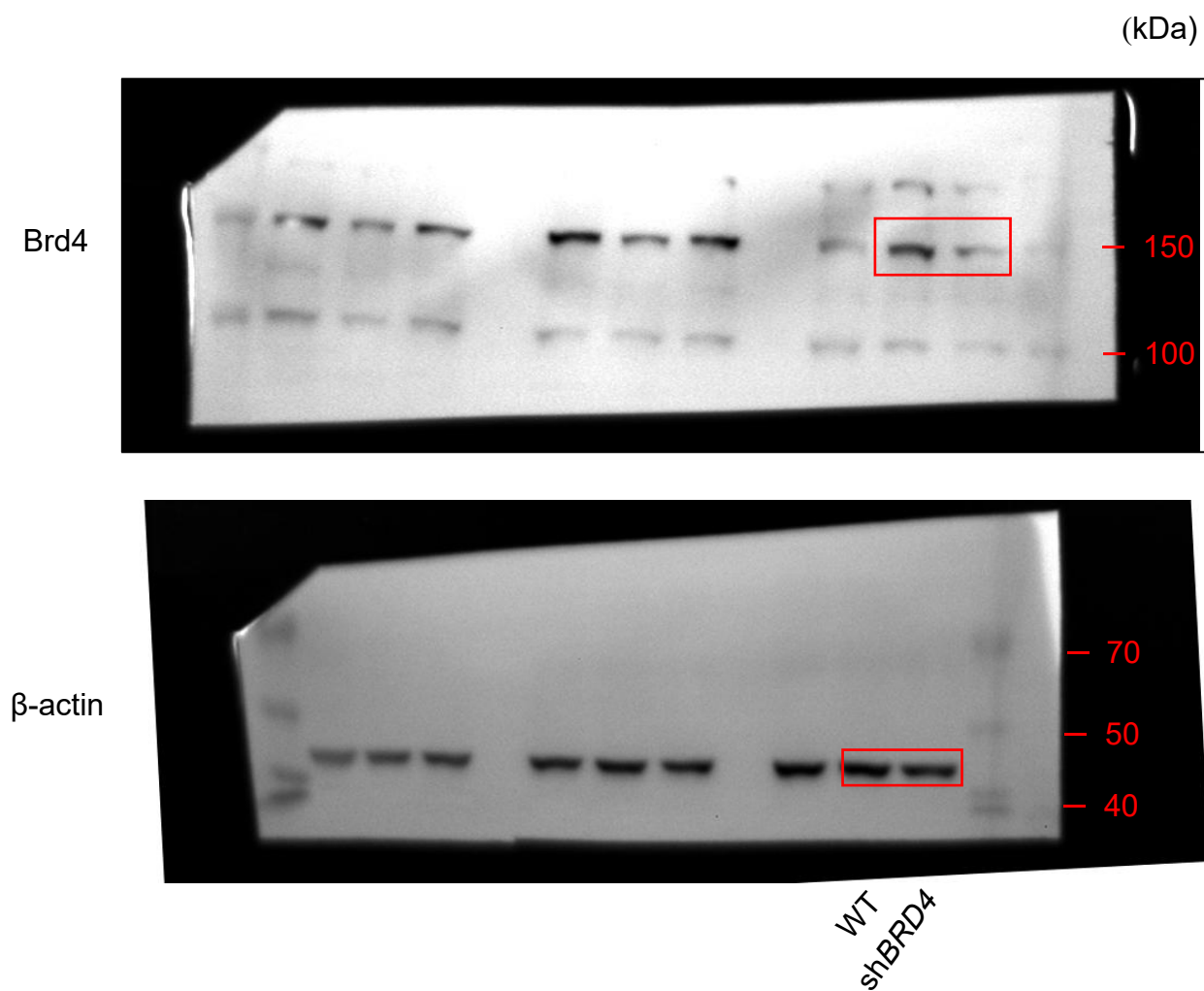
For zebrafish qRT-PCR		
<i>β-actin</i>	GGCTTCTGCTCTGTATG	AACGCTTCTGGAATGACTAA
<i>brd4</i>	AAGCCCAAGCCCAAACCCTAAAC	CTCCTTCTCCGCTCCTGCTCTC
<i>anp</i>	AGCCGTAGATTATGAAGACAGCAAC	TTTCTCTGTGTGTCAAATCCATCCG
<i>bnp</i>	TGAAGAGCAGCCCGATACTTACC	ACATCCCAAAGACGACATTGAACC
<i>caspase-3</i>	TCAGTCACGGCGATGAGGGCCT	CGACAAGCCTGAATAAAGAAC
<i>bax</i>	GACTTGGGAGCTGCACTTCT	TCCGATCTGCTGCAAACACT
<i>bcl-2</i>	CACTGGATGACTGACTACCTGAA	CCTGCGAGTCCTCATTCTGTAT
<i>col1a1a</i>	CTGCGAGGACACAAGCGACTG	CTCAACACTGGGCTCCTGGAAATC
<i>flna</i>	CGAGCAGCAGCCGTGTTC	ATGATGTCACCCTGTTCTGTATCTG
<i>flnb</i>	CTGTTGGTGCTGATTCTGGAATGC	AGGAGCCGTCATTATGGTCATCAC
<i>col6a3</i>	ACCTACCACTTCCACAACCATAGC	ATTCCGAGTTCCATCCGATCCATC
<i>col4a6</i>	TCCATCTCAACCAATCGCTGTCC	TCCATCTCAACCAATCGCTGTCC
<i>hcn4</i>	GCGATCATGGAGACGGACAT	CTACATCCGAGTCGTGGACG
<i>dsg2</i>	GTCGCGTTCCTGCTTTGTTT	ATCTGTGGAGGGACGATCCA
For zebrafish ChIP-qPCR		
<i>flna</i>	GATGGAGGAGCAGATACAGAACAGG	GCTGGAGCTGACGTGATACCG
<i>flnb</i>	CTCATAAAGGTTTGGGACCACTTGG	AACTTGCCTTGCTTTGCATAGTCTG
<i>col6a3</i>	GGAAATGTCCGTCAAATCCTCTTGG	TCCTGTGCCTGTGCCATCAAC
<i>col4a6</i>	TGTCCCAGGTGCTTTATTGAGTCAG	AAATCGTCCTCCGCCACTACAC
<i>hcn4</i>	CTGCTCGATATGGGGCTCAG	ACAGTGACATTTCCGCCACT
<i>dsg2</i>	CGAGTTGGCAAAATGCAATGTA	GGAGAAAGGGGTGGGGAAAG
For HEK293T cell qRT-PCR		
<i>β-actin</i>	CCACGAAACTACCTTCAACTCCATC	AGTGATCTCCTTCTGCATCCTGTC
<i>BRD4</i>	GCCGAGAGGACGAGGATGC	TGTTGCTGCTGCTGCTGTTG
For HEK293T cell ChIP-qPCR		
<i>FLNA</i>	TTGAACTCCTGACCTCGTGATCC	GCGGTGGTTCATGCCTGTAATC
<i>FLNB</i>	CAACATGGTGAAAGCCCGTCTC	CAATTCTCTTGCCTCAACCTCCTG
<i>COL6A3</i>	AGAGAGGATGAGGGCAGAGAATTG	GCAGAGGCTCCGAGTATAGAACC
<i>COL4A6</i>	TTCAGCACCCGCACGAAATTC	CCAAGCCTCACTGTCCCTCTC



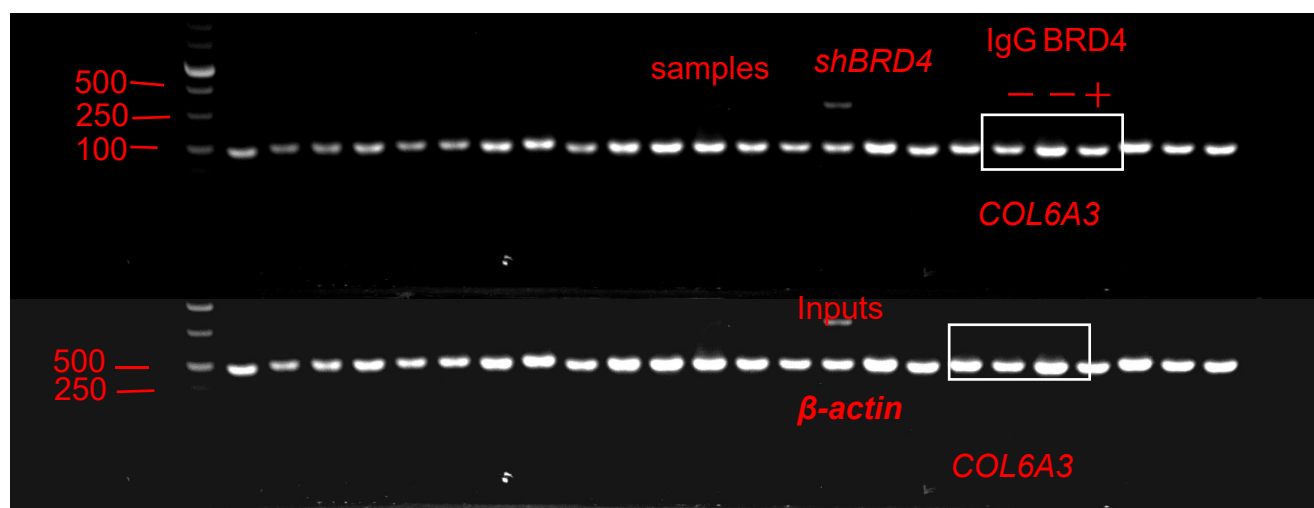
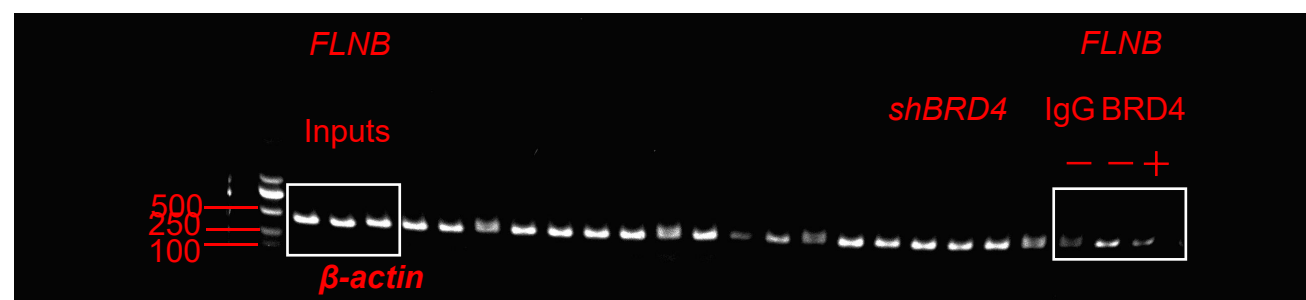
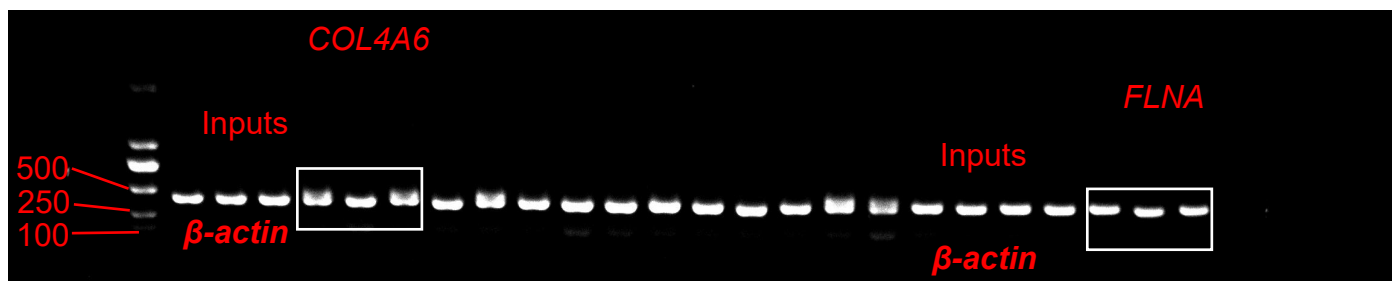
Supplemental Figure S4 Uncropped blots related to Figure 1d.



Supplemental Figure S5 Uncropped blots related to Figure 2c.



Supplemental Figure S6 Uncropped blots related to Figure 6c.



Supplemental Figure S7 Uncropped gels related to Figure 6d.