

Table S1

	real-time PCR primer(mouse)
Gata4 f	GCCTCTATCACAAAGATGAACGGC
Gata4 r	TACAGGCTCACCTCGGCATTA
Mef2c f	GTGGTTTCCGTAGCAACTCCTAC
Mef2c r	GGCAGTGTGAAGCCAGACAGA
Tbx5 f	GCTTTTATCGCTGTGACTTCGTAC
Tbx5 r	GTAAGTCCAGGTCATCACTGCC
Nkx2-5 f	TGCTCTCCTGCTTTCCCAGCC
Nkx2-5 r	CTTTGTCCAGCTCCACTGCCTT
Isl1 f	GTAGAGGTGCAAAGTTACCAGCC
Isl1 r	TTAGAGCCTGGTCTCTCTCTG
Hand1 f	CAAAAAGACGGATGGTGGTCGC
Hand1 r	TGCGCCCTTTAATCCTCTTCTCG
Hand2 f	ATCGCCTACCTCATGGATCTGC
Hand2 r	CTGCTCACTGTGCTTTTCAAGATC
Tbx1 f	CGAGATGATCGTCACCAAGGCA
Tbx1 r	GTCATCTACGGGCACAAAGTCC
Actin- β f	CATTGCTGACAGGATGCAGAAGG
Actin- β r	TGCTGGAAGGTGGACAGTGAGG
Bmp4 f	GCCGAGCCAACACTGTGAGGA
Bmp4 r	GATGCTGCTGAGGTTGAAGAGG
Foxa2 f	CGAGCACCATTACGCCTTCAAC
Foxa2 r	AGTGCATGACCTGTTCTAGGC
Wnt2b f	CCATTACGGTGTTTCGCTTTGCC
Wnt2b r	CAGCTTCAGGAATCTCCGAACAG
Wnt3a f	AACTGCACCACCGTCAGCAACA
Wnt3a r	AGCGTGTCAGTGCAGAAAGCTAC
Notch1 f	GCTGCCTCTTTGATGGCTTCGA
Notch1 r	CACATTCGGCACTGTTACAGCC
Hdac1 f	TGAAGCCTCACCGAATCCGCAT
Hdac1 r	TGGTCATCTCCTCAGCATTGGC
Hdac2 f	GTTTTGTCAGCTCTCCACGGGT
Hdac2 r	CTTGGCATGATGTAGTCTCCAG
Hdac3 f	AACCTCATCGCTGCGCATTGAC
Hdac3 r	GTAGTCCTCAGAATGGAAGCGG
Hdac4 f	AGCAGGAGCTGCTCTTCAGACA
Hdac4 r	ACAGAGGTCTGTGGCTGCCAAA
Hdac5 f	ACCAGCAGTTCCTGGAGAAGCA
Hdac5 r	TCCGTCAGCTCCTCTTCTGTCT
Hdac6 f	TCGCTGTCTCATCTACCTGCT

	real-time PCR primer(human)
Gata4 f	GCGGTGCTTCCAGCAACTCCA
Gata4 r	GACATCGCACTGACTGAGAACG
Mef2c f	TCCACCAGGCAGCAAGAATACG
Mef2c r	GGAGTTGCTACGGAAACCACTG
Tbx5 f	ACAACCACCTGGACCCATTTGG
Tbx5 r	GGAAAGACGTGAGTGCAGAACG
Nkx2-5 f	AAGTGTGCGTCTGCCTTTCCCG
Nkx2-5 r	TTGTCCGCCTCTGTCTTCTCCA
Isl1 f	GCAGAGTGACATAGATCAGCCTG
Isl1 r	GCCTCAATAGGACTGGCTACCA
Hand1 f	CAAGGATGCACAGTCTGGCGAT
Hand1 r	GCAGGAGGAAAACCTTCGTGCT
Hand2 f	GGCAGAGATCAAGAAGACCGAC
Hand2 r	CGGCCTTTGGTTTCTTGTCTGCTT
Tbx1 f	CGCAGTGGATGAAGCAAATCGTG
Tbx1 r	TTTGCGTGGGTCCACATAGACC
Bmp4 f	CTGGTCTTGAGTATCCTGAGCG
Bmp4 r	TCACCTCGTTCTCAGGGATGCT
Foxa2 f	GGAACACCACTACGCCTTCAAC
Foxa2 r	AGTGCATCACCTGTTCTGATGGC
Wnt2b f	TGGATGCCAAGGAGAAGAGGCT
Wnt2b r	GTACAGGAACCACTCACGCCAT
Wnt3a f	ATGAACCGCCACAACAACGAGG
Wnt3a r	GTCCTTGAGGAAGTCACCGATG
Notch1 f	GGTGAAGTCTGCTGAGGAGATC
Notch1 r	GGATTGCAGTCTGCCACGTTGA
Actin- β f	CACCATTTGGCAATGAGCGGTTT
Actin- β r	AGGTCTTTGCGGATGTCCACGT
hZnT1f	GGAGGAGACCAACACCCTGGT
hZnT1r	GTCAGTTCTCTGACAAGATTTC
hZnT2f	TGCCTTCATCCATGTGATCGGC
hZnT2r	CTCAGGATGGTCAAGGTTGTCC
hZnT3f	CATCAGCACCTTCCTCTTCTCC
hZnT3r	TGGCACCGACAACAGCGTATCC
hZnT4f	AAGCCAGGTTGACCATTGCTGC
hZnT4r	TGATGGCGCTTAGGTGAGTTAAC
hZnT5f	TTTGAAGGCTGTGGGACTTTTCG
hZnT5r	GGTGTGTTGTAATAGTTTCCAG
hZnT6f	TCCTGGCTGTATTTGCCTCCAC

hdac6 r	GTCAAAGTTGGCACCTTCACGG
Hdac7 f	CGCCTCAAACCTGGATAACGGGA
Hdac7 r	GCATTGGAGGAATGCAGCTCGT
Hdac8 f	GTCAGCCAAGAAGGTGATGAGG
Hdac8 r	ACACTTCCCGTCAATCAGGCAC
Hdac9 f	CTTGAAGGTGCGGTCCAGGTTA
Hdac9 r	GCTGCTACTGACCGAGGATTCT
Hdac10 f	GGCTGGATTTGACTCTGCTATCG
Hdac10 r	CCTCCAACACAGCACAAATCCG
Hdac11 f	AAGGCATCTCCAGAGCCACCAT
Hdac11 r	CAGGGTAGATGTGGCGGTTGTA
mZnT1f	CAACACCAGCAATTCCAACGGG
mZnT1r	CGCTTCCAGATTGTCAGACTCC
mZnT2f	GCTCACGGATTTGCCAGCATG
mZnT2r	TGGAAAGCACGGACAACAAGGC
mZnT3f	AGCATCGCTGTCTGTGCCAATC
mZnT3r	CCAGGGACATTGGGTATCCATG
mZnT4f	GCTGTCCTCAAAGTCACCAACC
mZnT4r	TGGATGGTTCTCTGCACAGCCT
mZnT5f	GGACTCACTAAAGCAGGTTCTCG
mZnT5r	GCCTAGACTGTTGGTTAGCACG
mZnT6f	CCTTATCCCAGGACTCAGCAGT
mZnT6r	ACGCAGTGTCACGGCAAAGTA
mZnT7f	GCTTGATCTCCGACTCCTTCCA
mZnT7r	CAGCCAGGACTTCTGCTCTAAC
mZnT8f	ATGCCAAGTGGAGACTCTGTGC
mZnT8r	CGCATCAGTGAGGATAGCCAGA
mZnT9f	GATAATAGCGGTACCTGCATGG
mZnT9r	AGGAATGCCGAGACCACACCTA
mZnT10f	CCGAGAATGAACCAGAAGAGACG
mZnT10r	GATAGCCGTGATGACCACAACC
mZIP1f	CTGACTACCTGGCTGCCATAGA
mZIP1r	CCTTGTAAGCCAGCGTGATCTG
mZIP2f	GGTTCAGATGGATGCAGCTAC
mZIP2r	GCATCAACCCTGCTCCCAAGAA
mZIP3f	GGTGGCGTATTCTGGCTACAT
mZIP3r	GGTAGTCGGTGCTGATGTGGC
mZIP4f	CCACTATCCGTATTAGGACCAG
mZIP4r	CTGCATTTGGCACAGGTCAGCA
mZIP5f	GCTTCTGCTGTTGGACCATTCTG
mZIP5r	CACAGCAGAGCGAACTGACGAG
mZIP6f	TGAGGATGTGGAGAGCAAGAAGC

hZnT6r	GAACAGGTTGAAACAAAGAGCCAC
hZnT7f	GTTAGAGCGGAAGTTCTGGCTG
hZnT7r	GAAGCAGTCTCTCATGGTGGAC
hZnT8f	CCTGTGGTTGTCATCGAAGCCT
hZnT8r	CTCACATGCCAGGTACACTAGC
hZnT9f	CGTAGGAATGCTCGGGCTAAAG
hZnT9r	CAAGACTGCAGCAGTATCCTCC
hZnT10f	TGTCATCTGCCTTCCCGCTTATC
hZnT10r	CTAATTCCAGGCACAGCAGAGAG
hZIP1f	CTGACTACCTGGCTGCCATAGA
hZIP1r	GTAAGCCAGTGATCTGCTCC
hZIP2f	GGTTCAGATTGATGCAGCCAG
hZIP2r	TTTCCTCCAGGGCTTCAGCAGT
hZIP3f	CTCTCTGCAACACCTTTGGAGG
hZIP3r	GGTAGTCGGTGCTGATGTGGC
hZIP4f	CGTGGACTTTGTGTTCCAGCAG
hZIP4r	TGTGCCGATGACTGTGGTCACT
hZIP5f	TCACAGGCTTCTGTTGCTGGAC
hZIP5r	ACAGCAGAGCAAACAGCAGAGG
hZIP6f	CGTTGGGACTTTGAGTGGTGATG
hZIP6r	GACAGATGACTGAAAAGTGGTCC
hZIP7f	GACCACAATGACTGTCCTGCTAC
hZIP7r	GCTGTCAGTAGTTGCAGACGCA
hZIP8f	CCTGCTGTACAGAAAGCTAATGG
hZIP8r	GCAGAGCGTTATCATCCAGGCA
hZIP9f	GCAGCATCTACTTCACAGACCAG
hZIP9r	GATTCCGCTCTAAGCCAGCATG
hZIP10f	AACCTGGTTCCTGAAGATGAGGC
hZIP10r	GATCACGCCTAGCAAGGAAAGC
hZIP11f	AGGATCGCACTGCTCATCTTGG
hZIP11r	GGCACTCTCAAAGGTAGCAGATG
hZIP12f	GGCAGTATGACAGCCTCCAACA
hZIP12r	GATGAGAAGGCTGCTCCTATGG
hZIP13f	CGGCTTTCTCTACATCGCCTTG
hZIP13r	TCCACGAAGAGCGAGAACAGCA
hZIP14f	CTGGACCACATGATTCTCAGC
hZIP14r	AGAGTAGCGGACACCTTTCAGC

mZIP6r	GGCTCGCAGATAGCTTTCAGGT
mZIP7f	GGTGAAACCTCAGAGCCCTGAA
mZIP7r	CCACGAAAGGAAGCACCAATGG
mZIP8f	CACTGAGCCTAACGGACACATC
mZIP8r	CACAAAGCGTGATCATCCAGGC
mZIP9f	TAAGCGCCTTTCGAAACTGC
mZIP9r	AACATCCCACCAACATTGCC
mZIP10f	CTCACGTCCTTGTTGCACTAGC
mZIP10r	TGTGAATGACCATGTCCGTGCG
mZIP11f	TGCGTGGAGCAGGCTTCTCTAC
mZIP11r	CTCAGCCAGTACCACCGCAAAT
mZIP12f	CAATGTGCCAGCCTCCAACAGA
mZIP12r	CCAATGAAGAGGAGAAGGCTGTG
mZIP13f	GCCTACACCTGTAACATCACCC
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mZIP14f	CTGGCTATTGGTGCCTCCTTCA
mZIP14r	TGCCAGCATTGAGCAGGATGAC

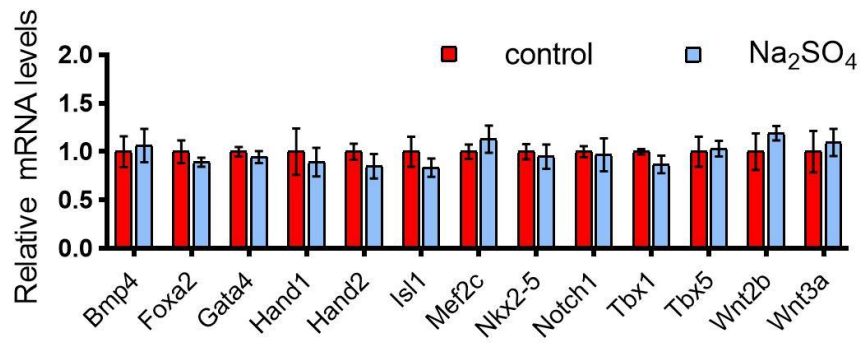


Figure S1 HL-1 cells were treated with 70 μ M Na₂SO₄ for 24 hours. mRNA levels of 13 genes were analyzed. N=3. All data are presented as means $\pm$ SD.

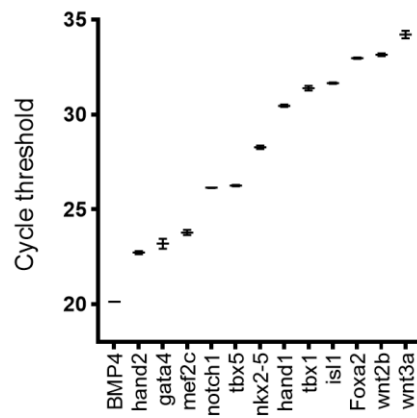


Figure S2 The qPCR cycle thresholds of 13 gene in mouse primary cardiomyocytes with no treatment. N=3.

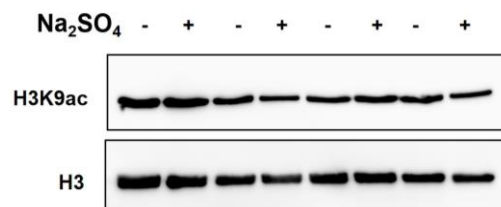


Figure S3 H3K9ac in HL-1 Cells Is Unaffected by Sodium Sulfate Treatment. Na₂SO₄, 70 μ M

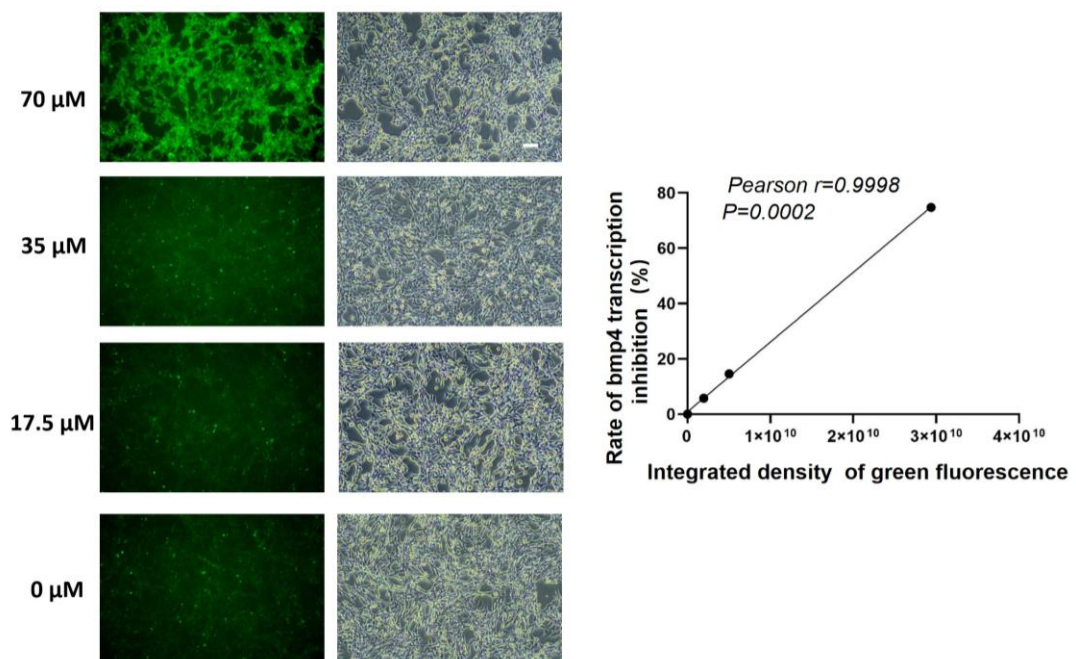


Figure S4 Cytosolic Zinc Levels Correlate with BMP4 Transcriptional Repression. 24h. HL-1 cells labeled with 5 μ M Zinpyr-1 for 0.5 h at 37 °C. Scale bar, 50 μ m.

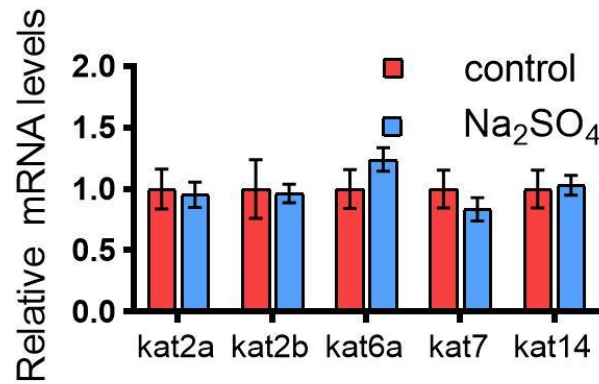


Figure S5 HL-1 cells were treated with 70 μ M Na₂SO₄ for 4 hours. mRNA levels of HATs genes were analyzed. N=3. All data are presented as means $\pm$ SD.

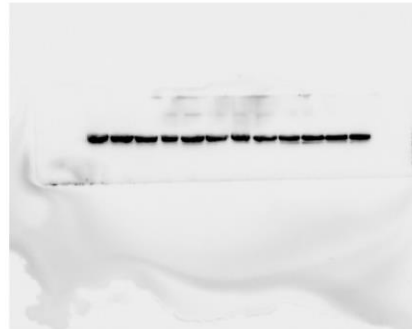


Fig. 2C

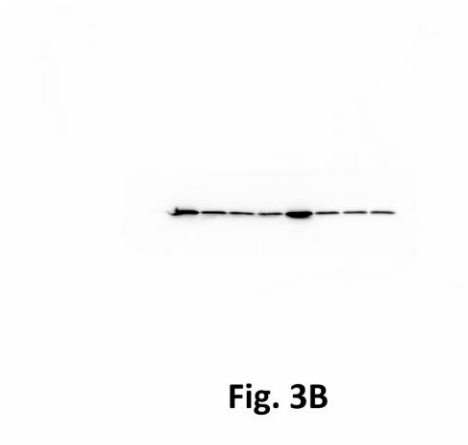
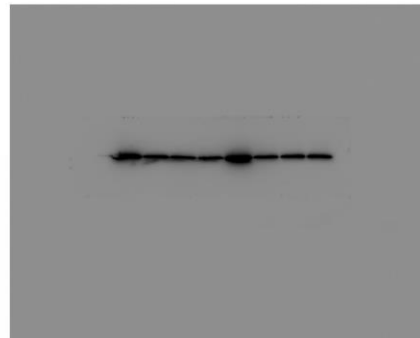


Fig. 3B

long exposure 1



long exposure 2

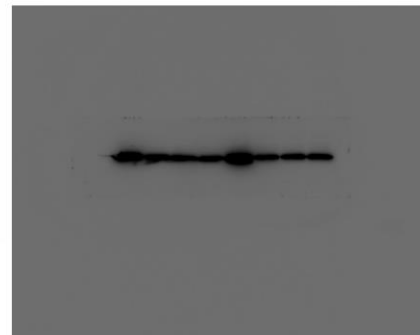




Fig. 3B



Fig. 3B

long exposure 1



long exposure 2



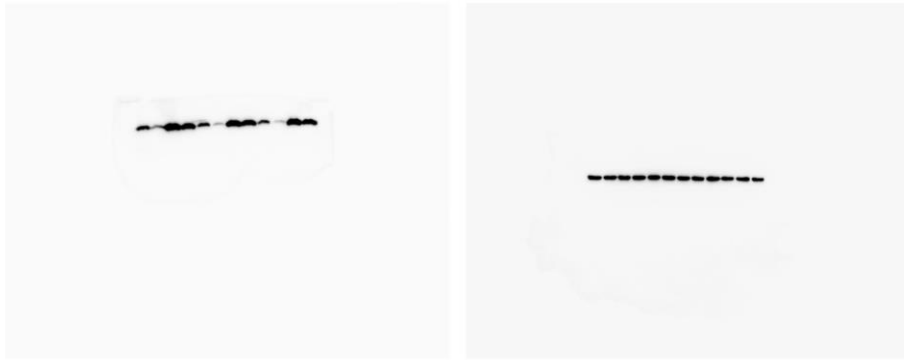


Fig. 3C

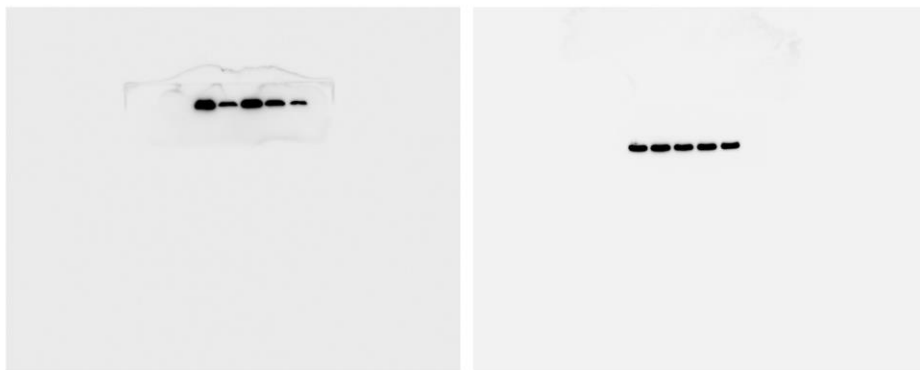


Fig. 4B



Fig. 5A



Fig. 5C

long exposure 1

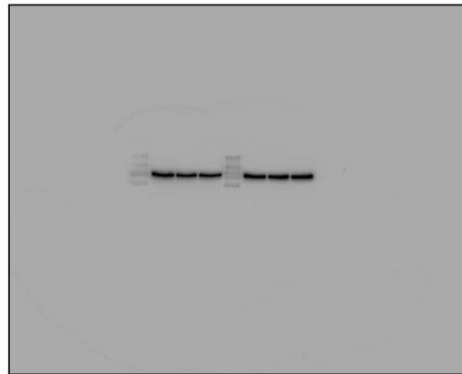


long exposure 2



Fig. 5C

long exposure 1



long exposure 2



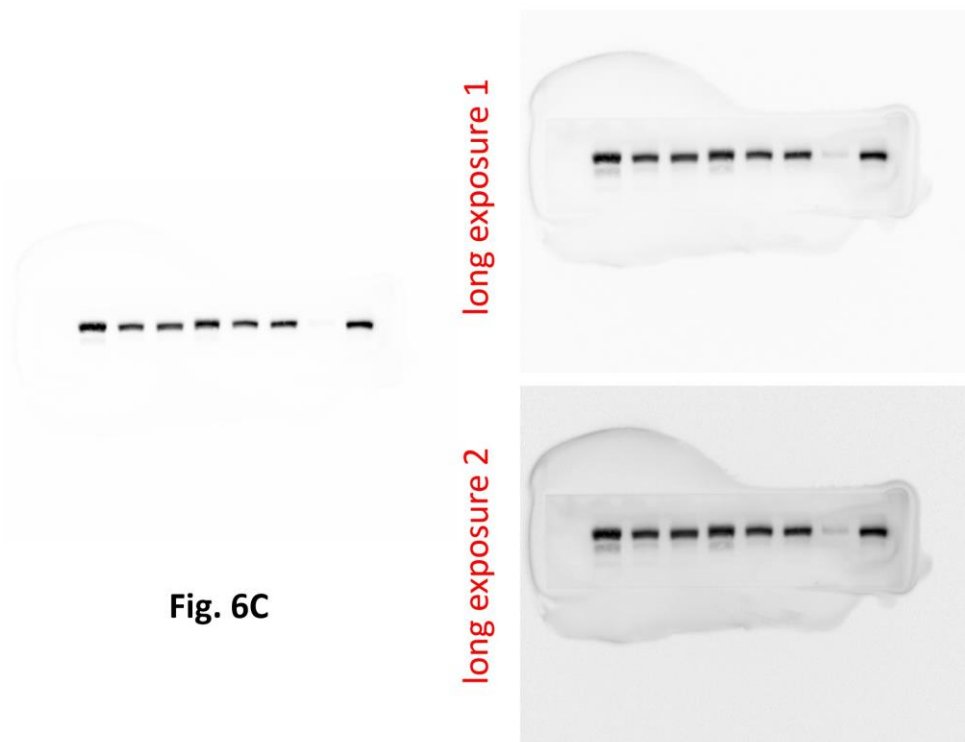


Fig. 6C



Fig. 6C

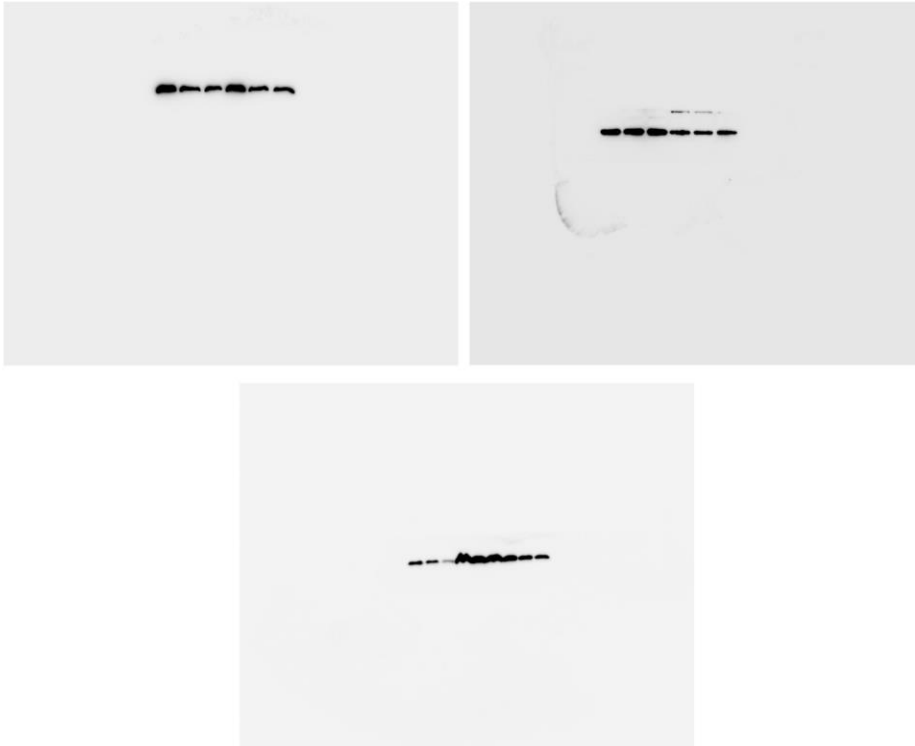


Fig. 7



Fig. 7

long exposure 1
long exposure 2



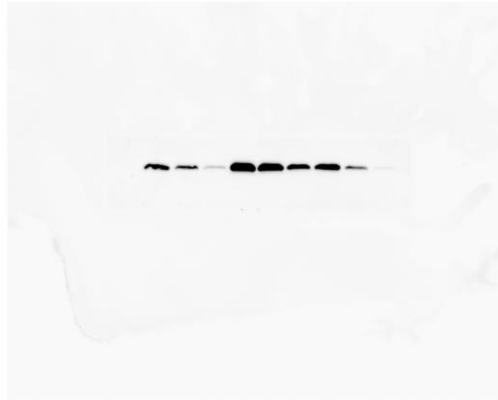


Fig. 7



Fig. 7

long exposure 1



long exposure 2



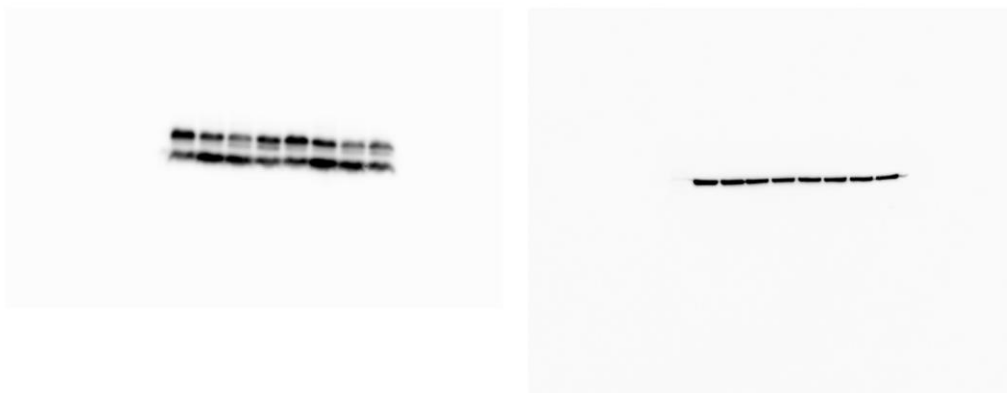


Fig. 8A

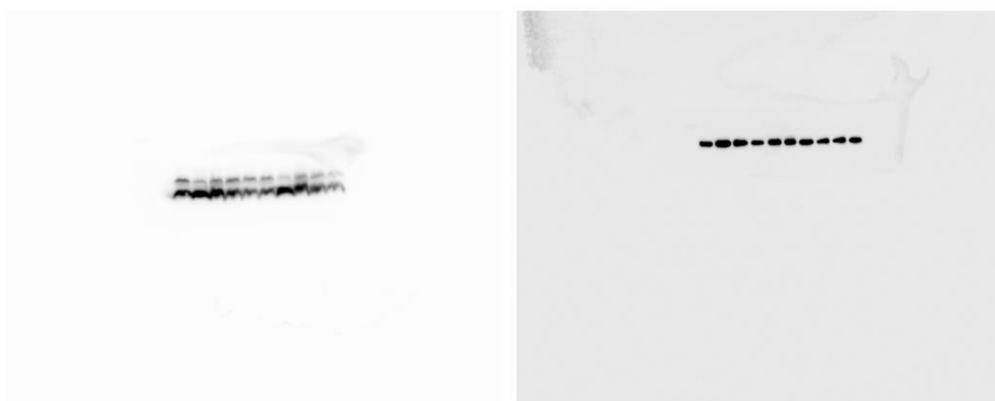


Fig. 8B



Fig. S3