Primer	Sequence
NT1 F	GGC CAT CCT GGG GAA GAA TG
NT1 R	GGT ACA TGT CCA GCA CCT CC
NT2 F	CTG AGA AGG TCA CCC AGG TCC
NT2 R	GTG TAG ATG ACC AGC AGC A
NT4 F	ACC TAC GTC AAT GCC AAC GA
NT4 R	CCG ATC AGC TCC TCA GAG CC
CM1 F	GGA GCA GGC CCT TCC TCA AG
CM1 R	AGG GAC GAG CCT CAA AGG AG
CM2 F	GAG CGG GAG CGA AGA ATT GA
CM2 R	CAA TGG GCA ATC AAG GCG AA
CM3 F	CCA GAC CCG GGA AAA GCA AT
CM3 R	GTG TCC CTG AGA TTG AAG GTG A
CMYC F	AAA CAC AAA CTT GAA CAG CTA C
CMYC R	ATT TGA GGC AGT TTA CAT TAT GG
Actin F	GTG GAC ATC CGC AAA GAC
Actin R	GGA GCA ATG ATC TTG ATC TTC A
GFP F	ACG ACG GCA ACT ACA AGA CC
GFP R	TTG TAC TCC AGC TTG TGC CC
18s F	GGC CCT GTA ATT GGA ATG AGT C
18s R	CCA AGA TCC AAC TAC GAG CTT

Supplementary Table 1: QPCR Primers. Comprehensive list of QPCR primers used in this study. NT refers to hERG-NT, CM refers to hERG-CM, F refers to forward, and R refers to reverse.

A

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KCNH2-CM           1 atgccagttagacgcggtcatgttgcacctcaaaacacgtttcttgatac      50
                     |||||.||..|..|.||.||.||.||.||.||.|||||.||.||.||.||
KCNH2-NT           1 atgccggtgcggaggggccacgtcgcgccgcagaacaccttcctggacac      50

KCNH2-CM          51 gattatccggaaattcgaagggcaatctaggaaattcatcattgctaatg     100
                     .||.|||||.||.||.||.||.||.....|.||.||||||||.||.||.|
KCNH2-NT          51 catcatccgcaagtttgagggccagagccgtaagttcatcatcgccaacg     100

KCNH2-CM         101 ccagagtcgagaattgcgctgtgatctactgtaatgatgggttttgtgaa     150
                     |..|.||.|||||.|||||.||.||||||||.||.||.||.||.||.||.
KCNH2-NT         101 ctcgggtggagaactgcgccgtcatctactgcaacgacggcttctgcgag     150

KCNH2-CM         151 ctctgtgggtatagcagagctgaagtcatgcaaaggccttgtacatgtga     200
                     ||.||.||.||.....|.||.||.||.|||||..|.||.||.||.||.||
KCNH2-NT         151 ctgtgcggctactcgcgggccgaggtgatgcagcgaccctgcacctgcga     200

KCNH2-CM         201 ttttctccacggccctaggacccaaaggagggccgctgcccaaattgccc     250
                     .||.||.|||||.||..|.||.||..|..|.||.||.||.||.||.||.|
KCNH2-NT         201 cttcctgcacgggccgcgcacgcagcgccgcgctgccgcgcagatcgcgc     250

KCNH2-CM         251 aagccctcctcggggcagaagaaaggaaggtcgagattgctttctatcgg     300
                     |.||.||.||.||.||.||.||..|.||.||.||.||.||.|||||.|||
KCNH2-NT         251 aggcactgctgggcgccgaggagcgcaaagtggaaatcgccttctaccgg     300

KCNH2-CM         301 aaggacggctcttgttttctctgcctcgtcgatgtcgtccctgtcaaaaa     350
                     ||.||.||....||.||.||.||.||.||.|||||.||.||.||.||.||
KCNH2-NT         301 aaagatgggagctgcttcctatgtctggtggatgtggtgcccgtgaagaa     350

KCNH2-CM         351 cgaggacggtgccgtgattatgttcatacttaactttgaagtcgtcatgg     400
                     ||||||.||.||.||.||.||||||||.||.||.||.||.||.||.||||
KCNH2-NT         351 cgaggatggggctgtcatcatgttcatcctcaatttcgaggtggtgatgg     400

KCNH2-CM         401 aaaaagatatggtcggcagtcccgcccacgatacaaatcatagagggcct     450
                     |.||.||.|||||.||....||.||.||.||.||.||.||..|.||.||.
KCNH2-NT         401 agaaggacatggtggggtccccggctcatgacaccaaccaccggggcccc     450

KCNH2-CM         451 cctacatcttggctcgctcccgggagggctaaaacattcaggctcaaact     500
                     ||.||....|||||.||.||.||..|.||.||.||.|||.|.||.||.||
KCNH2-NT         451 cccaccagctggctggccccaggccgcgccaagaccttccgcctgaagct     500

KCNH2-CM         501 ccctgcactcctcgccttgaccgctagagaaagcagcgtcagatcaggag     550
                     .||.||.||.||.||..||||.||..|.||.......||..|.||.||.|
KCNH2-NT         501 gcccgcgctgctggcgctgacggcccgggagtcgtcggtgcggtcgggcg     550

KCNH2-CM         551 gcgctggagggctggagcccctggcgctgtcgtcgtcgatgtcgatctc      600
                     ||||.||.||.||.||.|||||.||.||.||.||.||.||.||.||.||.
KCNH2-NT         551 gcgcgggcggcgcgggcgccccgggggccgtggtggtggacgtggacctg     600

KCNH2-CM         601 acccctgctgccccttcttctgaatctctcgctctcgatgaggtcaccgc     650
                     ||.||.||.||.||.......||.||.||.||.||.||.||.||.||.||
KCNH2-NT         601 acgcccgcggcacccagcagcgagtcgctggccctggacgaagtgacagc     650

KCNH2-CM         651 tatggataatcatgtcgccggcttgggccctgccgaagaaagaagggccc     700
                     .|||||.||.||.||.||.||..|.||.||.||.||.||..|..|.||.|
KCNH2-NT         651 catggacaaccacgtggcagggctcgggcccgcggaggagcggcgtgcgc     700
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KCNH2-CM        701 tcgtcggccctggttctcccccacggtctgccccagggcaattgcctagc   750
                    |.||.||.||.||.|||||.||.||....||.||.||.||..|.||....
KCNH2-NT        701 tggtgggtcccggctctccgccccgcagcgcgcccggccagctcccatcg   750

KCNH2-CM        751 cctagagcccattctttgaatcctgatgccagcgggagttcttgttctct   800
                    ||..|.||.||.....|.||.||.||.|||...||.......||....||
KCNH2-NT        751 ccccgggcgcacagcctcaaccccgacgcctcgggctccagctgcagcct   800

KCNH2-CM        801 cgctagaaccaggagtagggagtcttgtgcttctgtcaggagggcaagca   850
                    .||..|.||..|.....|.||....||.||....||..|..|.||.....
KCNH2-NT        801 ggcccggacgcgctcccgagaaagctgcgccagcgtgcgccgcgcctcgt   850

KCNH2-CM        851 gcgctgatgatattgaagctatgagggctggcgtcctccctccacccca   900
                    ..||.||.||.||.||.||.|||.|.||.||.||.||.||.||.||.||.
KCNH2-NT        851 cggccgacgacatcgaggccatgcgcgccggggtgctgcccccgccaccg   900

KCNH2-CM        901 aggcatgcttctacaggcgctatgcatcccctgaggtctgggctcttgaa   950
                    .|.||.||....||.||.||.|||||.||.|||.|....||..|..|.||
KCNH2-NT        901 cgccacgccagcaccggggccatgcacccactgcgcagcggcttgctcaa   950

KCNH2-CM        951 tagtacaagcgatagtgatttggtcaggtataggacaatctctaagattc  1000
                    ....||....||....||..|.||..|.||..|.||.||....|||||||
KCNH2-NT        951 ctccacctcggactccgacctcgtgcgctaccgcaccattagcaagattc  1000

KCNH2-CM       1001 cacaaatcacattgaatttcgttgatttgaaaggcgatccttttctcgcc  1050
                    |.||||||||..|.||.||.||.||..|.||.|||||.||.||..|.||.
KCNH2-NT       1001 cccaaatcaccctcaactttgtggacctcaagggcgaccccttcttggct  1050

KCNH2-CM       1051 agccctacatccgatagggagatcatcgcccccaaaatcaaagaaaggac  1100
                    ...||.||....||..|.||||||||.||.||.||.||.||.||..|.||
KCNH2-NT       1051 tcgcccaccagtgaccgtgagatcatagcacctaagataaaggagcgaac  1100

KCNH2-CM       1101 acataacgtgaccgaaaaagtgacacaagtgctcagtctcggggctgatg  1150
                    .||.||.||.||.||.||.||.||.||.||.||....||.||.||.||.|
KCNH2-NT       1101 ccacaatgtcactgagaaggtcacccaggtcctgtccctgggcgccgacg  1150

KCNH2-CM       1151 tcctccccgagtacaagctccaagctccaagaattcacaggtggacaatt  1200
                    |.||.||.|||||||||||.||.||.||..|.||.|||.|.|||||.||.
KCNH2-NT       1151 tgctgcctgagtacaagctgcaggcaccgcgcatccaccgctggaccatc  1200

KCNH2-CM       1201 ctccactattctcctttcaaggctgtctgggattggttgattctcctcct  1250
                    ||.||.||....||.||||||||.||.|||||.|||.|.||.||.||.||
KCNH2-NT       1201 ctgcattacagccccttcaaggccgtgtgggactggctcatcctgctgct  1250

KCNH2-CM       1251 cgtgatctataccgccgtgtttaccccttatagcgccgcttttctcctca  1300
                    .||.|||||.||.||.||.||.||.||.||....||.||.||.||.||.|
KCNH2-NT       1251 ggtcatctacacggctgtcttcacaccctactcggctgccttcctgctga  1300

KCNH2-CM       1301 aagaaactgaggagggtcctcccgcaacagaatgcgggtatgcttgtcaa  1350
                    |.||.||.||.||.||.||.||.||.||.||.||.||.||.||.||.||.
KCNH2-NT       1301 aggagacggaagaaggcccgcctgctaccgagtgtggctacgcctgccag  1350

KCNH2-CM       1351 cccctcgccgttgtcgatttgattgtggacatcatgtttatcgtggacat  1400
                    ||.||.||.||.||.||..|.||.||||||||||||||.||.||||||||
KCNH2-NT       1351 ccgctggctgtggtggacctcatcgtggacatcatgttcattgtggacat  1400
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KCNH2-CM     1401 cctgattaactttaggacaacctatgtgaacgctaatgaggaagtcgtgt   1450
                  |||.||.|||||..|.||.|||||.||.||.||.||.|||||.||.||..
KCNH2-NT     1401 cctcatcaacttccgcaccacctacgtcaatgccaacgaggaggtggtca   1450

KCNH2-CM     1451 ctcatcctggcaggattgctgtgcattactttaaggggtggtttttgatt   1500
                  ..||.||.|||.|.||.||.||.||.|||||.|||||.|||||..|.||.
KCNH2-NT     1451 gccaccccggccgcatcgccgtccactacttcaagggctggttcctcatc   1500

KCNH2-CM     1501 gatatggtcgctgctattccttttgatttgttgattttcgggagcgggag   1550
                  ||.|||||.||.||.||.||.||.||..||.|.||.|||||....||...
KCNH2-NT     1501 gacatggtggccgccatccccttcgacctgctcatcttcggctctggctc   1550

KCNH2-CM     1551 cgaagaattgattggcctcctcaaaccgccagactcctcagactcgtca   1600
                  .||.||..||||.||.||.||.||.||.||..|.||.||..|.||.||..
KCNH2-NT     1551 tgaggagctgatcgggctgctgaagactgcgcggctgctgcggctggtgc   1600

KCNH2-CM     1601 gggtcgccagaaaactcgacaggtatagcgaatatggtgccgctgtcctc   1650
                  |.||.||..|.||.||.||..|.||....||.||.||.||.||.||.||.
KCNH2-NT     1601 gcgtggcgcggaagctggatcgctactcagagtacggcgcggccgtgctg   1650

KCNH2-CM     1651 tttctcttgatgtgtacattcgccttgattgcccattggttggcttgtat   1700
                  ||..|..|.|||||.||.||.||..|.||.||.||.|||.|.||.||.||
KCNH2-NT     1651 ttcttgctcatgtgcacctttgcgctcatcgcgcactggctagcctgcat   1700

KCNH2-CM     1701 ttggtatgctattgggaatatggaacaaccccacatggatagcaggattg   1750
                  .|||||.||.||.||.||.|||||.||.||.||||||||.....|.||.|
KCNH2-NT     1701 ctggtacgccatcggcaacatggagcagccacacatggactcacgcatcg   1750

KCNH2-CM     1751 ggtggctccataatctcggggatcaaatcgggaagccatacaacagttct   1800
                  |.|||||.||.||.||.||.||.||.||.||.||.||.||||||||....
KCNH2-NT     1751 gctggctgcacaacctgggcgaccagataggcaaaccctacaacagcagc   1800

KCNH2-CM     1801 gggctcggtggcccttccatcaaagataagtatgtcaccgccttgtattt   1850
                  ||.||.||.|||||.||||||||.||.||||||||.||.||..|.||.||
KCNH2-NT     1801 ggcctgggcggcccctccatcaaggacaagtatgtgacggcgctctactt   1850

KCNH2-CM     1851 cactttttcttctttgacatccgtcgggtttgggaatgtgagccctaata   1900
                  |||.||........|.||....||.||.||.||.||.||....||.||.|
KCNH2-NT     1851 caccttcagcagcctcaccagtgtgggcttcggcaacgtctctcccaaca   1900

KCNH2-CM     1901 caaatagcgagaaaatcttttcaatttgtgtgatgttgatcggaagtttg   1950
                  |.||....|||||.|||||.||.||.||.||.|||.|.||.||.....|.
KCNH2-NT     1901 ccaactcagagaagatcttctccatctgcgtcatgctcattggctccctc   1950

KCNH2-CM     1951 atgtacgctagcatcttcggtaatgtcagcgctatcatacaaagactcta   2000
                  |||||.||||||||||||||.||.||....||.|||||.||..|.||.||
KCNH2-NT     1951 atgtatgctagcatcttcggcaacgtgtcggccatcatccagcggctgta   2000

KCNH2-CM     2001 tagcggtaccgctaggtatcatacccaaatgctcagagtcagagagttca   2050
                  ....||.||.||..|.||.||.||.||.|||||..|.||..|.|||||||
KCNH2-NT     2001 ctcgggcacagcccgctaccacacacagatgctgcgggtgcgggagttca   2050

KCNH2-CM     2051 tcaggtttcatcaaattcctaaccctctcaggcaaaggttggaagagtat   2100
                  ||.|.||.||.||.||.||.||.||.||..|.||..|.||.||.|.|||.
KCNH2-NT     2051 tccgcttccaccagatccccaatcccctgcgccagcgcctcgaggagtac   2100
```

```
KCNH2-CM        2101 ttccaacatgcttggagttatacaaatgggattgatatgaatgccgtcct   2150
                     |||||.||.||.|||...||.||.||.||.||.|||||.||.||.||
KCNH2-NT        2101 ttccagcacgcctggtcctacaccaacggcatcgacatgaacgcggtgct   2150

KCNH2-CM        2151 caaagggtttcccgaatgtctccaagccgacatctgtctccatctcaata   2200
                     .||.||.||.||.||.||.||.||.||.||||||||.||.||.||.||..
KCNH2-NT        2151 gaagggcttccctgagtgcctgcaggctgacatctgcctgcacctgaacc   2200

KCNH2-CM        2201 ggagcctcctccaacattgtaagccatttcggggtgccacaaaagggtgt   2250
                     |....||.||.||.||.||.||.||.||.||.||.|||||.||.||.||.
KCNH2-NT        2201 gctcactgctgcagcactgcaaacccttccgaggggccaccaagggctgc   2250

KCNH2-CM        2251 ttgcgggctctcgctatgaaattcaaaacaacccatgcacccccaggcga   2300
                     .|.|||||.||.||.|||||.|||||.||.||.||||||||.|||||.||
KCNH2-NT        2251 cttcgggccctggccatgaagttcaagaccacacatgcaccgccagggga   2300

KCNH2-CM        2301 taccctcgtccacgccggagatctcttgacagctctctacttcatctcca   2350
                     .||.||.||.||.||.||.||.||..|.||.||.||.||||||||||||.
KCNH2-NT        2301 cacactggtgcatgctggggacctgctcaccgccctgtacttcatctccc   2350

KCNH2-CM        2351 gagggagtattgaaattctcagaggggatgtggtggtcgctattctcggc   2400
                     |.||....||.||.||.||..|.||.||.||.||.||.||.||.||.||.
KCNH2-NT        2351 ggggctccatcgagatcctgcggggcgacgtcgtcgtggccatcctgggg   2400

KCNH2-CM        2401 aaaaacgacatctttggcgaaccactcaatctctacgccagacccgggaa   2450
                     ||.||.|||||||||||.||.||.||.||.||.||.||.||.||.||.||
KCNH2-NT        2401 aagaatgacatctttggggagcctctgaacctgtatgcaaggcctggcaa   2450

KCNH2-CM        2451 aagcaatggcgacgtcagagctttgacatattgcgatttgcacaagatcc   2500
                     ....||.||.||.||..|.||..|.||.||.||.||..|.||||||||||
KCNH2-NT        2451 gtcgaacggggatgtgcgggccctcacctactgtgacctacacaagatcc   2500

KCNH2-CM        2501 acagagatgatctcctcgaagtcctcgatatgtatcccgagtttagtgat   2550
                     |..|.||.||.||.||.||.||.||.||.|||||.||.|||||....||.
KCNH2-NT        2501 atcgggacgacctgctggaggtgctggacatgtaccctgagttctccgac   2550

KCNH2-CM        2551 cacttttggagttctctcgaaatcaccttcaatctcagggacacaaacat   2600
                     |||||.|||......||.||.|||||||||||.||..|.||.||.|||||
KCNH2-NT        2551 cacttctggtccagcctggagatcaccttcaacctgcgagataccaacat   2600

KCNH2-CM        2601 gattcccgggagtccagggtccaccgaactggaaggcgggttttccagac   2650
                     |||.||.||....||.||....||.||..|.||.||.||.||.....|.|
KCNH2-NT        2601 gatcccgggctcccccggcagtacggagttagagggtggcttcagtcggc   2650

KCNH2-CM        2651 agaggaaaaggaaactcagttttaggaggcgcacggataaagataccgaa   2700
                     |..|.||..|.||..|....||..|.|||||||||||.||.||.||.||.
KCNH2-NT        2651 aacgcaagcgcaagttgtccttccgcaggcgcacggacaaggacacggag   2700

KCNH2-CM        2701 caacccggcgaagtcagcgctctgggccctggcagagcaggagcaggccc   2750
                     ||.||.||.||.||....||..||||.||.|||.|.||.||.|||||.||
KCNH2-NT        2701 cagccaggggaggtgtcggccttggggccgggccgggcgggggcagggcc   2750

KCNH2-CM        2751 ttcctcaagagggaggccaggaggtccctggggagaatctcccagttccg   2800
                     ........|.||..||||.||.||.||.|||||.||....||.......|
KCNH2-NT        2751 gagtagccggggccggccgggggggccgtggggggagagcccgtccagtg   2800
```

```
KCNH2-CM       2801 ggcctagttcacccgaatcttccgaagatgaaggacccggtaggtctagt   2850
                    |.||.......||.||.......||.|||||.||.||.||..|.......
KCNH2-NT       2801 gcccctccagccctgagagcagtgaggatgagggcccaggccgcagctcc   2850

KCNH2-CM       2851 tctcctttgaggctcgtcccttttagttctccacggccacctggcgaacc   2900
                    ...||..|..|.||.||.||.||.......||..||||.||.||.||.||
KCNH2-NT       2851 agccccctccgcctggtgcccttctccagccccaggccccccggagagcc   2900

KCNH2-CM       2901 tcccggaggggaacctctcatggaagattgtgagaaatcttctgatactt   2950
                    .||.||.|||||.||.||.|||||.||.||.|||||.......||.||||
KCNH2-NT       2901 gccgggtggggagcccctgatggaggactgcgagaagagcagcgacactt   2950

KCNH2-CM       2951 gtaatcctctcagcggggcttttagcggagtctccaatatcttttctttt   3000
                    |.||.||.||....||.||.||....|||||.|||||.||.||....||.
KCNH2-NT       2951 gcaacccccctgtcaggcgccttctcaggagtgtccaacattttcagcttc   3000

KCNH2-CM       3001 tggggcgattccagagggaggcaatatcaagaattgccaaggtgtcctgc   3050
                    |||||.||.....|.||..|.||.||.||.||..|.||..|.||.||.||
KCNH2-NT       3001 tggggggacagtcggggccgccagtaccaggagctccctcgatgccccgc   3050

KCNH2-CM       3051 tcctacaccttctttgttgaacattcctttgagttctcccggcagacgcc   3100
                    .||.||.||.....|..|.|||||.||..|.......||.||..|.||.|
KCNH2-NT       3051 ccccacccccagcctcctcaacatccccctctccagcccgggtcggcggc   3100

KCNH2-CM       3101 cgaggggagatgtcgaatctcgcctcgacgctttgcaaaggcaattgaat   3150
                    |..||||.||.||.||.....|.||.||.||..|.||..|.||..|.||.
KCNH2-NT       3101 cccggggcgacgtggagagcaggctggatgccctccagcgccagctcaac   3150

KCNH2-CM       3151 cgcctcgaaacaagactctccgctgacatggctaccgtgctccaactctt   3200
                    .|.||.||.||..|.||.......||||||||.||.||.||.||.||..|
KCNH2-NT       3151 aggctggagacccggctgagtgcagacatggccactgtcctgcagctgct   3200

KCNH2-CM       3201 gcaacgccaaatgaccctcgtgccccctgcttattccgccgtcacaacac   3250
                    .||..|.||.|||||.||.||.||.||.||.||....||.||.||.||.|
KCNH2-NT       3201 acagaggcagatgacgctggtcccgcccgcctacagtgctgtgaccaccc   3250

KCNH2-CM       3251 cgggaccgggaccaaccagtaccagtcccctcctccctgtgtctcctttg   3300
                    ||||.||.||.||.||....||....||.||..|.||.||....||..|.
KCNH2-NT       3251 cggggcctggccccacttccacatccccgctgttgcccgtcagccccctc   3300

KCNH2-CM       3301 cctacattgacactcgatagcttgagccaagtgagtcagttcatggcctg   3350
                    ||.||..|.||..|.||.....|....||.||....|||||||||||.||
KCNH2-NT       3301 cccaccctcaccttggactcgctttctcaggtttcccagttcatggcgtg   3350

KCNH2-CM       3351 cgaagaacttcctcctggcgctcccgaattgccccaagaaggacctacca   3400
                    .||.||.||.||.||.||.||.||.||..|.||||||||||||.||.||..
KCNH2-NT       3351 tgaggagctgcccccgggggccccagagcttccccaagaaggccccacac   3400

KCNH2-CM       3401 ggaggttgagtttgcctgggcaactcggcgctttgacaagtcaacctctc   3450
                    |..|..|.....|.||.||.||.||.||.||..|.||....||.||.||.
KCNH2-NT       3401 gacgcctctccctaccgggccagctgggggccctcacctcccagcccctg   3450

KCNH2-CM       3451 catcggcatgggagcgatcccgggtcctga   3480
                    ||..|.||.||....||.||.||....|..
KCNH2-NT       3451 cacagacacggctcggacccgggcagttag   3480
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B

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hERG-NT         MPVRRGHVAPQNTFLDTIIRKFEGQSRKFIIANARVENCAVIYCNDGFCELCGYSRAEVM      60
hERG-CM         MPVRRGHVAPQNTFLDTIIRKFEGQSRKFIIANARVENCAVIYCNDGFCELCGYSRAEVM      60
                ************************************************************

hERG-NT         QRPCTCDFLHGPRTQRRAAAQIAQALLGAEERKVEIAFYRKDGSCFLCLVDVVPVKNEDG      120
hERG-CM         QRPCTCDFLHGPRTQRRAAAQIAQALLGAEERKVEIAFYRKDGSCFLCLVDVVPVKNEDG      120
                ************************************************************

hERG-NT         AVIMFILNFEVVMEKDMVGSPAHDTNHRGPPTSWLAPGRAKTFRLKLPALLALTARESSV      180
hERG-CM         AVIMFILNFEVVMEKDMVGSPAHDTNHRGPPTSWLAPGRAKTFRLKLPALLALTARESSV      180
                ************************************************************

hERG-NT         RSGGAGGAGAPGAVVVDVDLTPAAPSSESLALDEVTAMDNHVAGLGPAEERRALVGPGSP      240
hERG-CM         RSGGAGGAGAPGAVVVDVDLTPAAPSSESLALDEVTAMDNHVAGLGPAEERRALVGPGSP      240
                ************************************************************

hERG-NT         PRSAPGQLPSPRAHSLNPDASGSSCSLARTRSRESCASVRRASSADDIEAMRAGVLPPPP      300
hERG-CM         PRSAPGQLPSPRAHSLNPDASGSSCSLARTRSRESCASVRRASSADDIEAMRAGVLPPPP      300
                ************************************************************

hERG-NT         RHASTGAMHPLRSGLLNSTSDSDLVRYRTISKIPQITLNFVDLKGDPFLASPTSDREIIA      360
hERG-CM         RHASTGAMHPLRSGLLNSTSDSDLVRYRTISKIPQITLNFVDLKGDPFLASPTSDREIIA      360
                ************************************************************

hERG-NT         PKIKERTHNVTEKVTQVLSLGADVLPEYKLQAPRIHRWTILHYSPFKAVWDWLILLLVIY      420
hERG-CM         PKIKERTHNVTEKVTQVLSLGADVLPEYKLQAPRIHRWTILHYSPFKAVWDWLILLLVIY      420
                ************************************************************

hERG-NT         TAVFTPYSAAFLLKETEEGPPATECGYACQPLAVVDLIVDIMFIVDILINFRTTYVNANE      480
hERG-CM         TAVFTPYSAAFLLKETEEGPPATECGYACQPLAVVDLIVDIMFIVDILINFRTTYVNANE      480
                ************************************************************

hERG-NT         EVVSHPGRIAVHYFKGWFLIDMVAAIPFDLLIFGSGSEELIGLLKTARLLRLVRVARKLD      540
hERG-CM         EVVSHPGRIAVHYFKGWFLIDMVAAIPFDLLIFGSGSEELIGLLKTARLLRLVRVARKLD      540
                ************************************************************

hERG-NT         RYSEYGAAVLFLLMCTFALIAHWLACIWYAIGNMEQPHMDSRIGWLHNLGDQIGKPYNSS      600
hERG-CM         RYSEYGAAVLFLLMCTFALIAHWLACIWYAIGNMEQPHMDSRIGWLHNLGDQIGKPYNSS      600
                ************************************************************

hERG-NT         GLGGPSIKDKYVTALYFTFSSLTSVGFGNVSPNTNSEKIFSICVMLIGSLMYASIFGNVS      660
hERG-CM         GLGGPSIKDKYVTALYFTFSSLTSVGFGNVSPNTNSEKIFSICVMLIGSLMYASIFGNVS      660
                ************************************************************

hERG-NT         AIIQRLYSGTARYHTQMLRVREFIRFHQIPNPLRQRLEEYFQHAWSYTNGIDMNAVLKGF      720
hERG-CM         AIIQRLYSGTARYHTQMLRVREFIRFHQIPNPLRQRLEEYFQHAWSYTNGIDMNAVLKGF      720
                ************************************************************

hERG-NT         PECLQADICLHLNRSLLQHCKPFRGATKGCLRALAMKFKTTHAPPGDTLVHAGDLLTALY      780
hERG-CM         PECLQADICLHLNRSLLQHCKPFRGATKGCLRALAMKFKTTHAPPGDTLVHAGDLLTALY      780
                ************************************************************

hERG-NT         FISRGSIEILRGDVVVAILGKNDIFGEPLNLYARPGKSNGDVRALTYCDLHKIHRDDLLE      840
hERG-CM         FISRGSIEILRGDVVVAILGKNDIFGEPLNLYARPGKSNGDVRALTYCDLHKIHRDDLLE      840
                ************************************************************

hERG-NT         VLDMYPEFSDHFWSSLEITFNLRDTNMIPGSPGSTELEGGFSRQRKRKLSFRRRTDKDTE      900
hERG-CM         VLDMYPEFSDHFWSSLEITFNLRDTNMIPGSPGSTELEGGFSRQRKRKLSFRRRTDKDTE      900
                ************************************************************

hERG-NT         QPGEVSALGPGRAGAGPSSRGRPGGPWGESPSSGPSSPESSEDEGPGRSSSPLRLVPFSS      960
hERG-CM         QPGEVSALGPGRAGAGPSSRGRPGGPWGESPSSGPSSPESSEDEGPGRSSSPLRLVPFSS      960
                ************************************************************

hERG-NT         PRPPGEPPGGEPLMEDCEKSSDTCNPLSGAFSGVSNIFSFWGDSRGRQYQELPRCPAPTP      1020
hERG-CM         PRPPGEPPGGEPLMEDCEKSSDTCNPLSGAFSGVSNIFSFWGDSRGRQYQELPRCPAPTP      1020
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hERG-NT    SLLNIPLSSPGRRPRGDVESRLDALQRQLNRLETRLSADMATVLQLLQRQMTLVPPAYSA    1080
hERG-CM    SLLNIPLSSPGRRPRGDVESRLDALQRQLNRLETRLSADMATVLQLLQRQMTLVPPAYSA    1080
           ************************************************************

hERG-NT    VTTPGPGPTSTSPLLPVSPLPTLTLDSLSQVSQFMACEELPPGAPELPQEGPTRRLSLPG    1140
hERG-CM    VTTPGPGPTSTSPLLPVSPLPTLTLDSLSQVSQFMACEELPPGAPELPQEGPTRRLSLPG    1140
           ************************************************************

hERG-NT    QLGALTSQPLHRHGSDPGS        1159
hERG-CM    QLGALTSQPLHRHGSDPGS        1159
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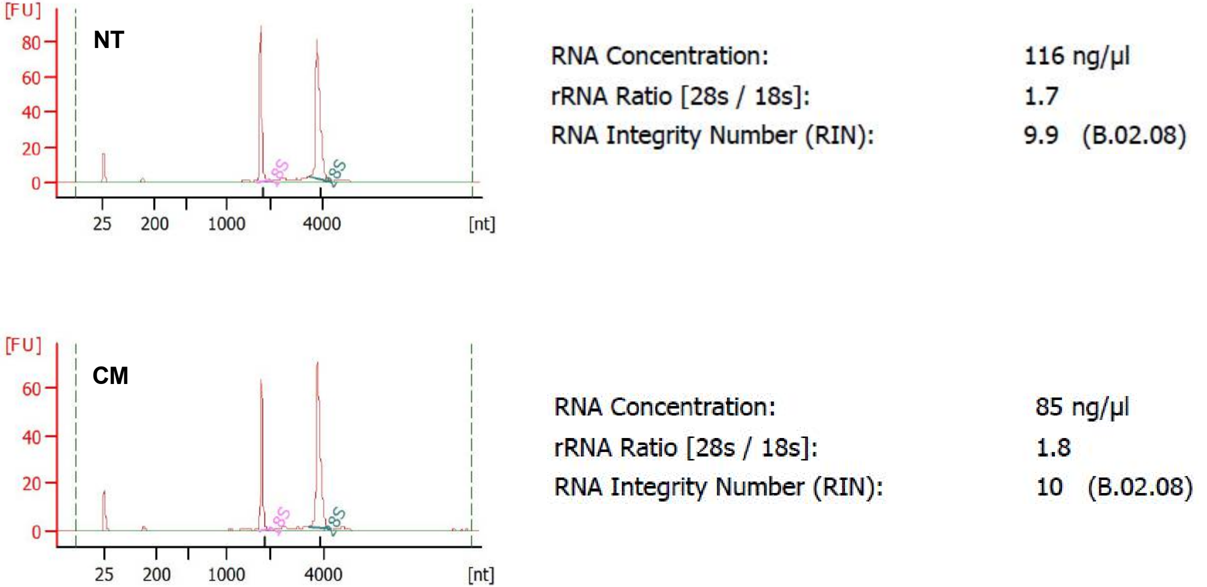
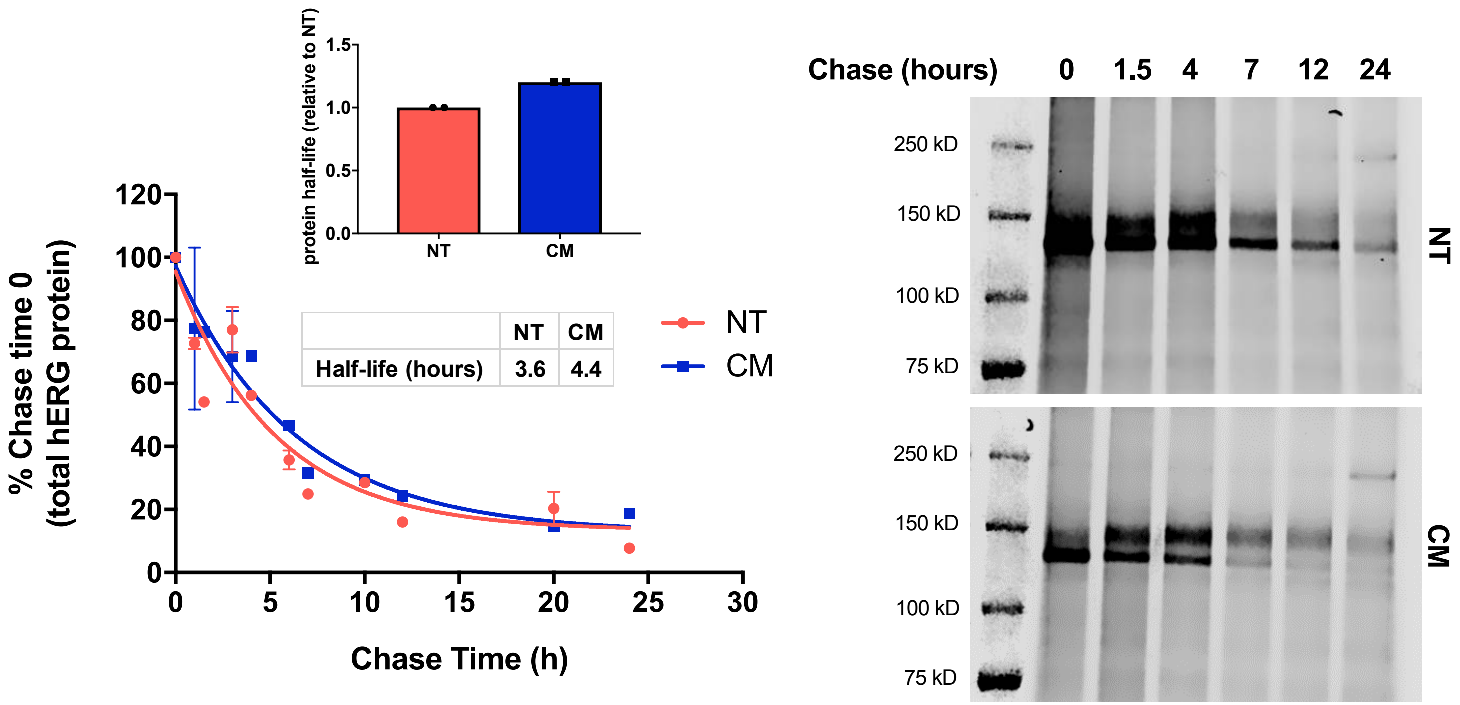
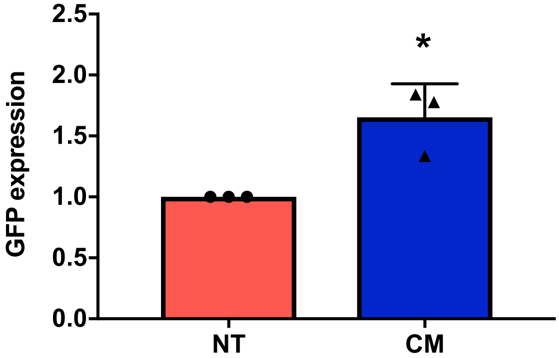
Supplementary Figure 1: Nucleotide and protein sequence alignment of hERG-NT and hERG-CM. A) hERG-NT and hERG-CM nucleotide alignment demonstrating the extensive nucleotide sequences changes in hERG-CM. B) Amino acid alignment of hERG-NT and hERG-CM, demonstrating 100% protein sequence identity.

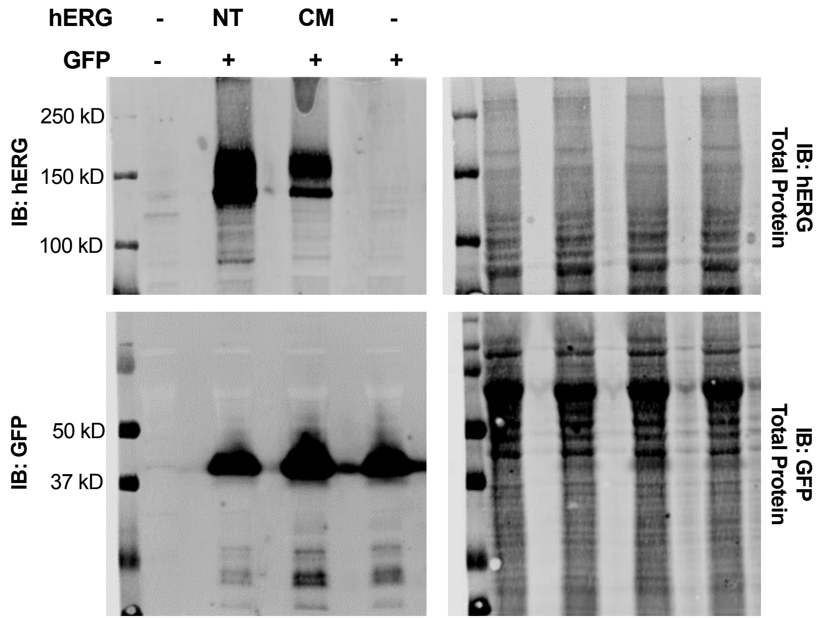


Supplementary Figure 2: RNA Analysis. Bioanalyzer data of a representative RNA preparation obtained using the RNA isolation protocol from which data was generated to prepare Figure 2A and 2B of the main text.



Supplementary Figure 3: Myc-tagged hERG-CM displays a subtle increase in half-life. Graph and representative immunoblot of AHA pulse-chase to determine amino-terminally Myc-tagged hERG-NT and hERG-CM protein half-life. Experimental procedures mentioned in the materials and methods section were followed although immunoprecipitations were performed with 500 ng of hERG C20 (Catalog # SC-15968, SantaCruz). Two independent tranfections were performed (one with one replicate and the other with two replicates) (N = 2). Results of one-phase decay for the Myc-tagged hERG-NT and hERG-CM half-life determinations are shown. A bar graph representing the increases in the determined half-life of hERG-CM compared to hERG-NT protein for each independent assay (inset).





Supplementary Figure 4: GFP expression upon co-transfection with hERG-CM is not less than when co-expressed with hERG-NT. super folder GFP, hereafter referred to as GFP, protein expression when co-transfected with either hERG-NT or hERG-CM constructs is demonstrated by a graph of total GFP protein expression for both conditions along with a representative immunoblot from western analysis of lysate (from NDET lysis) two days post transfection. Results were obtained from three independent transfections (N= 3) in 12-well plates transfecting 250 ng hERG construct and 42 ng GFP per well. GFP was detected with GFP antibody (FL) (Catalog # SC-8334, Santa Cruz) used at 1:1000. GFP expression was significantly greater when co-expressed with hERG-CM than when co-expressed with hERG-NT as determined by t-test analysis, $p = 0.0147$.