

**Table S1.** Primer sequence used to construct mutant transporters

Primer	Sequence (5' to 3')
D555E	Forward: ATCTTTATCTATGAAGCTTTCAAGAAG Reverse: CTTCTTGAAAGCTTCATAGATAAAGAT
TM5/NBCe1	Forward: GATCAAGCTTGCATGCTACTACCCCATC Reverse: GATGGGGTAGTAGCATGCAAGCTTGATC
TM5/NBCn1	Forward: GCTCTTTGATTTAGCATGCACATATGC Reverse: GCATATGTGCATGCTAAATCAAAGAGC
E558K (E-K)	Forward: CTACGAGGCTTTGAAGAAGCTCTTTGATTTAGCAGATTACTACC Reverse: GGTAGTAATCTGCTAAATCAAAGAGCTTCTTCAAAGCCTCGTAG
D562K	Forward: CTACGAGGCTTTGGAGAAGCTCTTTAAGTTAGCAGATTACTACC Reverse: GGTAGTAATCTGCTAACTTAAAGAGCTTCTCAAAGCCTCGTAG
E558K/D562K	Forward: CTACGAGGCTTTGAAGAAGCTCTTTAAGTTAGCAGATTACTACC Reverse: GGTAGTAATCTGCTAACTTAAAGAGCTTCTTCAAAGCCTCGTAG
N-K	Forward: ATCTTTATCTATAATGCTTTCAAGAAG Reverse: CTTCTTGAAAGCATTATAGATAAAGAT
Q-K	Forward: CATCATATTCATCTACCAGGCTTTGAAGAAGCTC Reverse: GAGCTTCTTCAAAGCCTGGTAGATGAATATGATG
E-R	Forward: CTACGAGGCTTTGAGGAAGCTCTTTGATTTAG Reverse: CTAAATCAAAGAGCTTCTCAAAGCCTCGTAG