

Supplementary Table 1. Forward primer sequences for the open reading frame of PCFT used for site-directed mutagenesis.

	Primer sequence (5' to 3')
<i>D156L</i>	tgtagccctcctcggcctctcggtagccctctg
<i>E232L</i>	gctttctgctttggctcgacctaaaggagcca
<i>E336L</i>	gatgcctgggtagctctgatcggcctggccttc
<i>R148L</i>	tacttcgtgctgggtctcatcctttgtgcctc
<i>R376L</i>	atcacacctgcatcctggctaaactctccaag
<i>R378L</i>	cctgtcatccgggcttactctccaagctggg
<i>K381A</i>	cgggctaaactctccgcgctggtagagagaca
<i>R180A</i>	cgcagccgcacctcgcgatggccctgtagaa
<i>D156A</i>	tgtagccctcctcggcgcctcggtagccctt
<i>R148A</i>	tacttcgtgctgggtgccatcctttgtgcctc
<i>E232A</i>	gctttctgctttggctcgacctaaaggagcca
<i>R376A</i>	atcacacctgcatcgggctaaactctccaag
<i>E185L</i>	cggatggccctgctactagccagcatcggggg
<i>E185A</i>	cggatggccctgctagcagccagcatcggggg
<i>E185C</i>	cggatggccctgctatgtgccagcatcggggg
<i>E185D</i>	cggatggccctgctagacccagcatcggggg
<i>E185H</i>	cggatggccctgctacagccagcatcggggg
<i>E185Q</i>	cggatggccctgctacaagccagcatcggggg

Supplementary Table 2. The multi-alignment and conservation status of human PCFT TMD charged amino acid residues among species.

H. sapiens	D156 (TMD-IV)	E185 (TMD-V)	E232 (TMD-VI)	E336 (TMD-IX)	R148 (TMD-IV)	R180 (TMD-V- Border)	R376 (TMD-X)	K378 (TMD-X)	K381 (TMDX- Border)
M. mulatta	D	E	E	E	R	R	R	K	K
M. musculus	D	E	E	E	R	R	R	K	K
R. norvegicus	D	E	E	E	R	R	R	K	K
C. familiaris	D	E	E	E	R	R	R	K	K
B. taurus	D	E	E	E	R	R	R	K	R
M. domestica	D	E	E	E	R	R	R	K	R
D. rerio	D	E	E	E	R	R	R	K	K
G. gallus	D	E	E	E	R	R	R	K	K