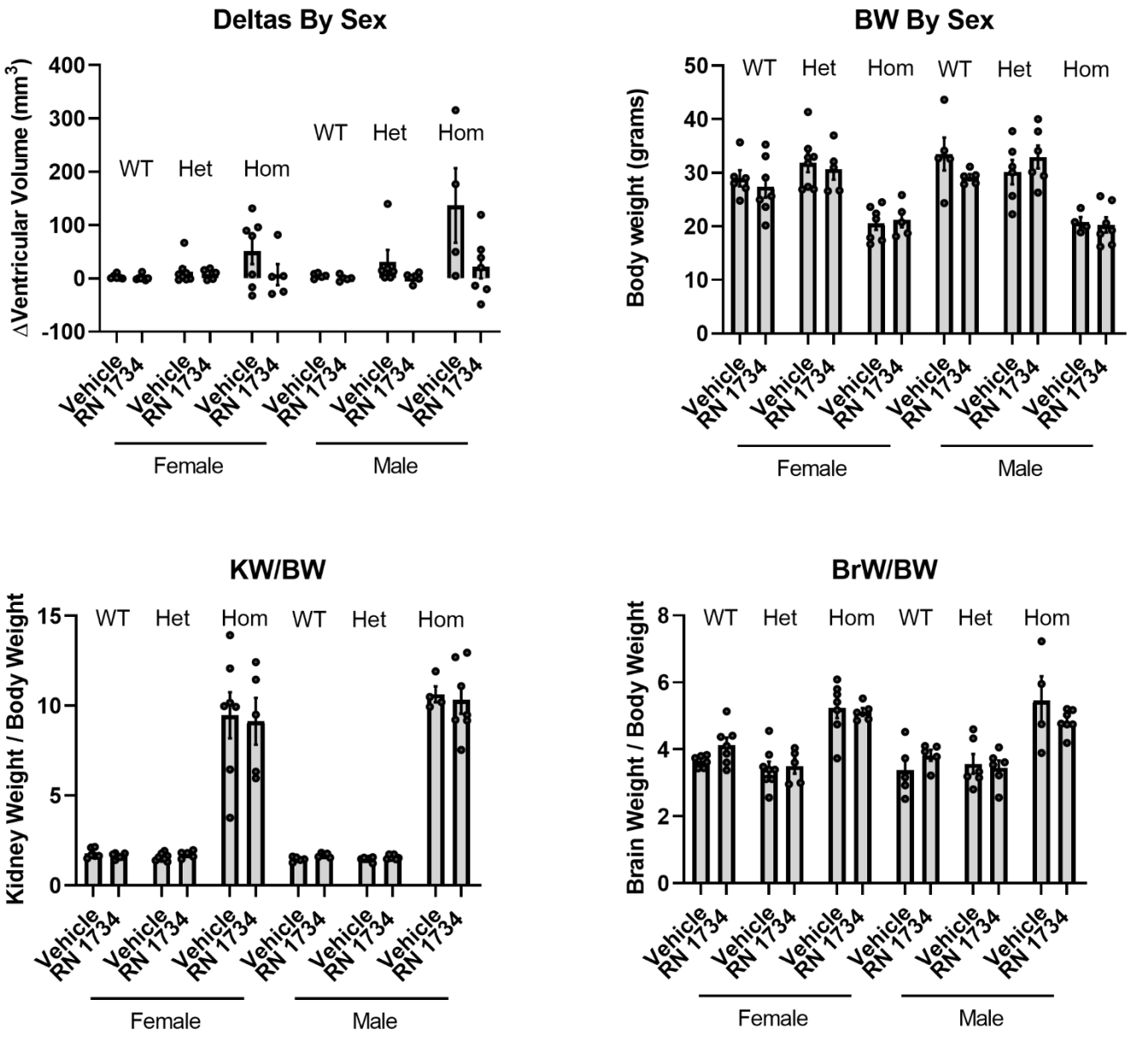


**Supplemental Figure 1: Quantitative measurements of Tmem67$^{+/-}$ and Tmem67$^{-/-}$ rats treated with RN 1734 with sex differences considered.**

(A) Change in ventricular volume from P7 to P15 for rats of all genotypes after treatment with either vehicle or RN 1734 with male and female data separated. (B) Body weight at P15 with male and female data separated. (C) Kidney weights, expressed as a function of body weight, with male and female data separated. (D) Brain weights, expressed as a function of body weight with male and female data separated. No significant differences were found when considering sex as a variable. All data shown are the mean ± sem for each group. Significance values determined by two-way ANCOVA test in Prism using genotype, treatment, and sex as variables. P15 = postnatal day 15; mm = millimeters; Veh = DMSO/Saline daily i.p. injection; RN = RN 1734, TRPV4 antagonist, 4 mg/kg BW i.p. daily injection.

# Supplemental Table 1

| *Rattus Norvegicus* gene | Protein | Primer Sequences 5' - 3' | | Product Size (bp) |
|---|---|---|---|---|
| | | Forward Primer | Reverse Primer | |
| *SLC4A2* | AE2 | AGACAGCCCGGTGGATAAAATT | CTGTCCTCTGCTTTGATCTGGT | 223 |
| *AQP1* | AQP1 | CCTCCGGGCTGTCATGTATATC | ACCTTCATGCGGTCTGTAAAGT | 459 |
| *ATP1A1* | ATP1A1 | AGGAATTCTGTCTTCCAGCAGG | GTAGGTTTCCTTCTCCACCCAG | 246 |
| *ATP1B2* | ATP1B2 | AAAGAATGATGTCTGCCGTCCT | TACATTCACCTCCACATTGGGG | 406 |
| *KCNMA1* | BK | CAGGTGGAGTTTTATCAGGGCT | ATCATGACAGGCCTTGCAGTAA | 675 |
| *KCNN4* | IK | CAACTTCCTTGGAGCAATGTGG | CAGGGTGACGATCCTTTTCTCA | 511 |
| *LRRC8A* | LRRC8A | CAACCGCTACATCGTCATTGAC | AGGTTGTGGAGGCTAAAGATGG | 255 |
| *SLC4A5* | NBCe2 | AGGGAGTAATGGAGAGCTTCCT | ACTCGCATTTGTAGGTGGTGAT | 390 |
| *SLC4A10* | NCBE | CCATATTAGGCAGTACGGGACC | CTCTGACACAGTTAGGTTCCCC | 416 |
| *SLC12A2* | NKCC1 | TCGATTGTCATGGATTGTGGGT | GGCCAGAAGAAGAATCACCAGA | 418 |
| *KCNN1* | SK1 | CCAAGGAGTCTCTGTGCTCATT | ATGGACAGAAGCACATCCACAT | 298 |
| *KCNN2* | SK2 | CAACTTCCTTGGAGCAATGTGG | CAGGGTGACGATCCTTTTCTCA | 511 |
| *KCNN3* | SK3 | TCTGTCCATCCCCATGTTCTTG | CCCCTCAGTTGGTGAATAGCTT | 621 |
| *ANO1* | TMEM16A | ATCTCCAAAGACTTCTGGGCT | TGTGGGACTGTGGTTGTTACAA | 261 |
| *TRPV4* | TRPV4 | CTCGCCCTTCAGAGACATCTAC | TGATAGTAGGCTGTGAGGGTGA | 792 |
| *GAPDH* | GAPDH | CCTGGAGAAACCTGCCAAGTAT | GACAACCTGGTCCTCAGTGTAG | 103 |
| *RPS18* | RPS18 | CATGTGGTGTTGAGGAAAGCAG | TATTGTCGTGGGTTCTGCATGA | 107 |

**Supplemental Table 1: Primer Pairs used for RT-PCR and qRT-PCR.**

Three redundant primer sets were generated and tested for each gene. Primers included in this table were utilized in Figure 6. Single band amplicon products were sequenced to verify correct gene amplification product. AQP1 = Aquaporin 1; ATP1A1/B2 = ATPase Na+/K+ Transporting Subunits Alpha 1/Beta 2; LRRC8A = Volume Regulated Anion Channel; NKCC1 = Sodium, potassium, two chloride cotransporter 1; TMEM16A = Anoctamin-1; TRPV4 = Transient receptor potential vanilloid 4; AE2 = Acid Exchanger 2; NBCe2 = Sodium bicarbonate cotransporter; NCBE = Electrogenic sodium bicarbonate exchanger 1; BK = Large conductance potassium channel; IK = Intermediate conductance potassium channel; SK1/2/3 = Small conductance potassium channels 1/2/3. GAPDH = Glyceraldehyde 3-phosphate dehydrogenase; RPS18 = Ribosomal protein subunit 18