

Table S1. Results of two-way ANOVAs assessing the effects of acclimation and exposure temperatures on Malpighian tubule function. Ramsay assays and ion-selective microelectrodes were used to measure fluid secretion rate, [Na⁺] in secreted fluid, [K⁺] in secreted fluid, Na⁺ secretion rate, K⁺ secretion rate, and the ratio of Na⁺:K⁺ in the secreted fluid. DF = degrees of freedom.

Trait	Variable	Statistic (DF)	P-value
Secretion Rate	Acclimation temperature x Exposure temperature	F (3, 70) = 6.6	P = 0.0006
	Exposure temperature	F (3, 70) = 91.6	P < 0.0001
	Acclimation temperature	F (1, 70) = 21.5	P < 0.0001
[Na ⁺] in Secreted Fluid	Acclimation temperature x Exposure temperature	F (3, 66) = 5.7	P = 0.0016
	Exposure temperature	F (3, 66) = 22.5	P < 0.0001
	Acclimation temperature	F (1, 66) = 54.2	P < 0.0001
[K ⁺] in Secreted Fluid	Acclimation temperature x Exposure temperature	F (3, 67) = 3.7	P = 0.0157
	Exposure temperature	F (3, 67) = 7.6	P = 0.0002
	Acclimation temperature	F (1, 67) = 17.3	P < 0.0001
Na ⁺ Secretion Rate	Acclimation temperature x Exposure temperature	F (3, 68) = 4.5	P = 0.0065
	Exposure temperature	F (3, 68) = 117.1	P < 0.0001
	Acclimation temperature	F (1, 68) = 5.1	P = 0.0265
K ⁺ Secretion Rate	Acclimation temperature x Exposure temperature	F (3, 69) = 3.3	P = 0.0239
	Exposure temperature	F (3, 69) = 57.0	P < 0.0001
	Acclimation temperature	F (1, 69) = 12.1	P = 0.0009
Na ⁺ :K ⁺ Ratio in Secreted Fluid	Acclimation temperature x Exposure temperature	F (3, 66) = 6.8	P = 0.0005
	Exposure temperature	F (3, 66) = 7.7	P = 0.0002
	Acclimation temperature	F (1, 66) = 28.3	P < 0.0001