

Supplementary Information for: Functional characterization of Aquaporin-like genes in the human bed bug *Cimex lectularius*

Hitoshi Tsujimoto, Joyce M. Sakamoto and Jason L. Rasgon

Table S1: List of names and accession numbers/gene IDs for AQP and AQP-like sequences used for phylogenetic analysis.

Name	Species	Acc#	Gene ID
AgAQP1A	<i>Anopheles gambiae</i>	JF342682	
AgAQP1B	<i>Anopheles gambiae</i>	KR020501	
AgAQP2	<i>Anopheles gambiae</i>	KU055613	AGAP008842-PA
AgAQP3	<i>Anopheles gambiae</i>	AIT55906	AGAP010326-PA
AgBib	<i>Anopheles gambiae</i>	KU055612	AGAP008766-PA
AgGLP2	<i>Anopheles gambiae</i>	KU055614	AGAP010325-PA
AgAQP4	<i>Anopheles gambiae</i>	KU055615	AGAP010878-PA
AeaAQP	<i>Aedes aegypti</i>	AAF64037.1	
AaAQP2	<i>Aedes aegypti</i>	XP_001656932.1	
AaAQP3	<i>Aedes aegypti</i>	XP_001649747.1	
AaAQP4	<i>Aedes aegypti</i>	XP_001650168.1	
AaAQP5	<i>Aedes aegypti</i>	XP_001650169.1	
AaAQP6	<i>Aedes aegypti</i>	XP_001648319.1	
PvAQP1	<i>Polypedium vanderplanki</i>	BAF62090.1	
PvAQP2	<i>Polypedium vanderplanki</i>	BAF62091.1	
BaAQP1A	<i>Belgica antarctica</i>	BAK32935.1	
BgAQP	<i>Blattella germanica</i>	CBY77924.1	
DRIP-A	<i>Drosophila melanogaster</i>	ABA81817.1	
BIB-PA	<i>Drosophila melanogaster</i>	AAK93405.1	
CG17664-PA	<i>Drosophila melanogaster</i>	AAL39296.1	
CG7777-PA	<i>Drosophila melanogaster</i>	NP_725052.1	
CG4019-PA	<i>Drosophila melanogaster</i>	NP_611813.1	
GmmDripA	<i>Glossina morsitans morsitans</i>	AFP49892.1	
GmmDripB	<i>Glossina morsitans morsitans</i>	AFP49893.1	
GmmAQP2A	<i>Glossina morsitans morsitans</i>	AFP49894.1	
GmmAQP2B	<i>Glossina morsitans morsitans</i>	AFP49895.1	
GmmBib	<i>Glossina morsitans morsitans</i>	AFP49901.1	
GmmAQP4A	<i>Glossina morsitans morsitans</i>	AFP49896.1	
GmmAQP4B	<i>Glossina morsitans morsitans</i>	AFP49897.1	
GmmAQP4C	<i>Glossina morsitans morsitans</i>	AFP49898.1	
GmmAQP5	<i>Glossina morsitans morsitans</i>	AFP49899.1	
GmmAQP6	<i>Glossina morsitans morsitans</i>	AFP49900.1	
EsAQP1	<i>Eurosta solidaginis</i>	ACT34032.1	
Aqp-BF1	<i>Haematobia irritans exigua</i>	AAA96783.1	
AQP-Bom1	<i>Bombyx mori</i>	BAD69569.1	
AQP-Bom2	<i>Bombyx mori</i>	BAE97427.1	
AQP-Bom3	<i>Bombyx mori</i>	BAH29748.1	
AQP-Gra1	<i>Grapholita molesta</i>	BAH47554.1	

AQP-Gra2	<i>Grapholita molesta</i>	BAH47555.1	
AQPcic	<i>Cicadella viridis</i>	CAA65799.1	
ApAQP1	<i>Acyrtosiphon pisum</i>	ACL01373.1	
ApAQP2	<i>Acyrtosiphon pisum</i>	BAH71044.1	
BtAQP1	<i>Bemisia tabaci</i>	ABW96354.1	
Rp-MIP	<i>Rhodnius prolixus</i>	CAC13959.1	
RhoprMIP-A	<i>Rhodnius prolixus</i>	AEV57515.1	
RhoprAQP1	<i>Rhodnius prolixus</i>	AEV57513.1	
CIAQP1	<i>Cimex lectularius</i>	KT981949	
CIGlp1	<i>Cimex lectularius</i>	KT981953	
CIGlp2	<i>Cimex lectularius</i>	KT981954	
CIBib	<i>Cimex lectularius</i>	KT981952	
AQP6	<i>Cimex lectularius</i>		CLEC025290-PA
AQP2	<i>Cimex lectularius</i>		CLEC007784-PA
AQP5	<i>Cimex lectularius</i>		CLEC025356-PA
bib	<i>Cimex lectularius</i>		CLEC002337-PA
AQP4	<i>Cimex lectularius</i>		CLEC013397-PA
Drip	<i>Cimex lectularius</i>		CLEC025286-PA
AQP4b	<i>Cimex lectularius</i>		CLEC025378-PA
LhAQP1	<i>Lygus hesperus</i>	AHI85743.1	
LhAQP2A	<i>Lygus hesperus</i>	AHI85744.1	
LhAQP3	<i>Lygus hesperus</i>	AHI85749.1	
LhAQP4A	<i>Lygus hesperus</i>	AHI85750.1	
LhAQP5	<i>Lygus hesperus</i>	AHI85752.1	
RsAQP1	<i>Rhipicephalus sanguineus</i>	CAR66115.1	
RsGLP	<i>Rhipicephalus sanguineus</i>	CAX48963.1	
IrAQP1	<i>Ixodes ricinus</i>	CAX48964.1	
ISCW003957	<i>Ixodes scapularis</i>	KT988052	ISCW003957-PA
ISCW003955	<i>Ixodes scapularis</i>	XP_002399530	ISCW003955-PA
ISCW013439	<i>Ixodes scapularis</i>	XP_002400655	ISCW013439-PA
ISCW015429	<i>Ixodes scapularis</i>	XP_002399794	ISCW015429-PA
DvAQP1	<i>Dermacentor variabilis</i>	ABI53034.1	
Ceaqp1	<i>Caenorhabditis elegans</i>	NP_495510.1	
Ceaqp2	<i>Caenorhabditis elegans</i>	NP_495972.1	
Ceaqp3	<i>Caenorhabditis elegans</i>	NP_502044.1	
Ceaqp4	<i>Caenorhabditis elegans</i>	NP_505512.3	
Ceaqp5	<i>Caenorhabditis elegans</i>	NP_505691.2	
Ceaqp6	<i>Caenorhabditis elegans</i>	NP_001256246.1	
Ceaqp7	<i>Caenorhabditis elegans</i>	NP_508515.2	
Ceaqp8	<i>Caenorhabditis elegans</i>	NP_001024758.1	
WBAQP1	<i>Milnesium tardigradum</i>	AEP14555.1	
WBAQP2	<i>Milnesium tardigradum</i>	AEP14556.2	
WBAQP3	<i>Milnesium tardigradum</i>	AEP14557.1	

WBAQP4	<i>Milnesium tardigradum</i>	AEP14558.2
WBAQP5	<i>Milnesium tardigradum</i>	AEP14559.1
WBAQP6	<i>Milnesium tardigradum</i>	AEP14560.2
WBAQP7	<i>Milnesium tardigradum</i>	AEP14561.1
WBAQP8	<i>Milnesium tardigradum</i>	AEP14562.1
WBAQP9	<i>Milnesium tardigradum</i>	AEP14563.1
WBAQP10	<i>Milnesium tardigradum</i>	AEP14564.1
WBAQP11	<i>Milnesium tardigradum</i>	AEP14565.2
HsAQP1	<i>Homo sapiens</i>	NP_932766.1
HsAQP3	<i>Homo sapiens</i>	CAG46822.1
HsAQP8	<i>Homo sapiens</i>	AAH40630.1
HsAQP9	<i>Homo sapiens</i>	CAG46824.1
HsAQP10	<i>Homo sapiens</i>	NP_536354.2
EcoliAQPZ	<i>Echerichia coli</i>	NP_415396.1
EcoliGlpF	<i>Echerichia coli</i>	NP_418362.1

Table S2: Custom-made primers used in this study. Primers were named by original contig names: 456, ClAQP1; 2415, ClGlp1; 126, ClGlp2; 5911, ClBib.

Name	Sequence 5'-3'	Note
GSPCL456R1	CCCGAGGATGGTTTCAGAGTGCTTCTTT	5'RACE
GSPCL456R2	TGGTTTTAGAGTGCTTCTTTATCCGGCA	
GSPCL456R3	CAGAGTGCTTCTTTATCCGGCATTITTTAGTA	
GSPCL2415R1	CGATCTTTATGTTGTTGTCCGCAGCACACT	
GSPCL2415R2	TTGTTGTCCGCAGCACACTCGACCGA	
GSPCL2415R3	AGCACACTCGACCGACAGCTTCGCAT	
GSPCL126R1	AAAGCAGTGCCCAACATCTCAGCGA	
GSPCL126R2	TGCCCAACATCTCAGCGAGTGCGAA	
GSPCL126R3	ATCTCAGCGAGTGCGAACCCGATCA	
GSPCL5911R1	AGGTGGCAGGAGCCTCGGCGTGAT	
GSPCL5911R2	GCAGGAGCCTCGGCGTGATAGGCG	
GSPCL5911R3	CTCGGCGTGATAGGCGCCTCTCGT	
GSPCL456F1	CGCGGCTGCCTGTACGCCACACTT	3'RACE
GSPCL456F2	GTCCTGTACGCCACACTTTTCGCTGCTT	
GSPCL456F3	CCACACTTTTCGCTGCTTCACCACCCA	
GSPCL2415F1	TTCGGGGTCGATCAAGTTCGGTACTGT	
GSPCL2415F2	CGATCAAGTTCGGTACTGTATCATCGCGA	
GSPCL2415F3	GTTCCGGTACTGTATCATCGCGATGTCCTT	
GSPCL126F1	CCCATCAGGTTGCAAAAGGAAGCACACC	
GSPCL126F2	GGTTGCAAAAGGAAGCACACCATTTTCAA	
GSPCL5911F1	AACCCCCAGCAGTACAGGGAATCACCA	
GSPCL5911F2	CCAGCAGTACAGGGAATCACCAAATCCACA	
GSPCL5911F3	TCACCAAATCCACAGTTCTCTAGGACGGA	
CL456FLUA	TCGTGGGGCATCGATCAAGTACAAACA	Full-length sequencing
CL456FLDA	AGAATTGTGGTTCAGAAATTGGACAAAAGCAA	
CL2415FLUA	TGTCGCCTATTCAACTAAATCAGTCACGTTT	
CL2415FLDA	AAAAAGGTGGTTTAATTTTCCTTGTGAAGCAGT	
CL126FLUA	ACACGGACAGGACTCAGGAGAAGG	
CL126FLDA	TGTGCTTCCTTTTGCAACCTGATGGG	
CL5911FLUA	GCTTCGTCCGGTTCGGTATGGCTT	
CL5911FLDA	AGGCATCATTAAATAAATGTCCTTCTTTGCCAGT	
CL456FEcoRIa	ataGAATTCcATGCCGATAAAGAAAGCA	Cloning into pXβG-myc vector
CL456RNheIa	ataGCTAGCTCAGGCGTTCCCGTCGTT	
CL2415FEcoRI	ataGAATTCcATGGCCTATTTGCAAGTCT	
CL2415RNheI	ataGCTAGCTTAATTTTCCTTGTGAAGCA	
CL126FEcoRI	ataGAATTCcATGCCAGAAGGAAAGCAA	
CL126RNheI	ataGCTAGCTCAGATCGAATGGACCTCCT	
CL5911FMfeI	ataCAATTGgATGGCTTCGGGAGCTCTGA	
CL5911RNheI	ataGCTAGCTCAATATTGCTGATTTGGTGATTCCT	
CL456HisFBglIIa	ataAGATCTGATATCATGCACCATCATCATCATGAATTCATGCCGATAAAGAAAGCA	qRT-PCR
qCLRPL18F	GGAAGAGGAATGCTCGGGAGGCTGT	
qCLRPL18R	GCTTCGTGTGCGAGCGAGGGG	
qCL456F	TGGCACAACAGCTTTGGGTAAGGACA	
qCL456R	TCAAGACGAGGAGGAAACCGAGCA	
qCL2415F2	GTGGTCGGCGTCGGCCTTG	
qCL2415R2	GGACCGAAGAGCTCAGGTGGTG	
qCL126F	AGGACGACATGCCAGAAGGA	
qCL126R	CCCAGGCCGACGAAGAAAGCA	
qCL5911F	CCCACGACCTGGACCCCTTG	
qCL5911R	TGCACCGAGCCTCTGTTGGTT	
dsCL456F2	taatacgactcactatagggAATGCCGATAAAGAAAGCA	dsRNA template
dsCL456R2	taatacgactcactatagggTGTGTGCCAAGAGTTGCTC	
dsCL2415F	taatacgactcactatagggGAGGGAATTCGGTTCTAGC	
dsCL2415R	taatacgactcactatagggGTAGACGAAGACCATCGGGA	

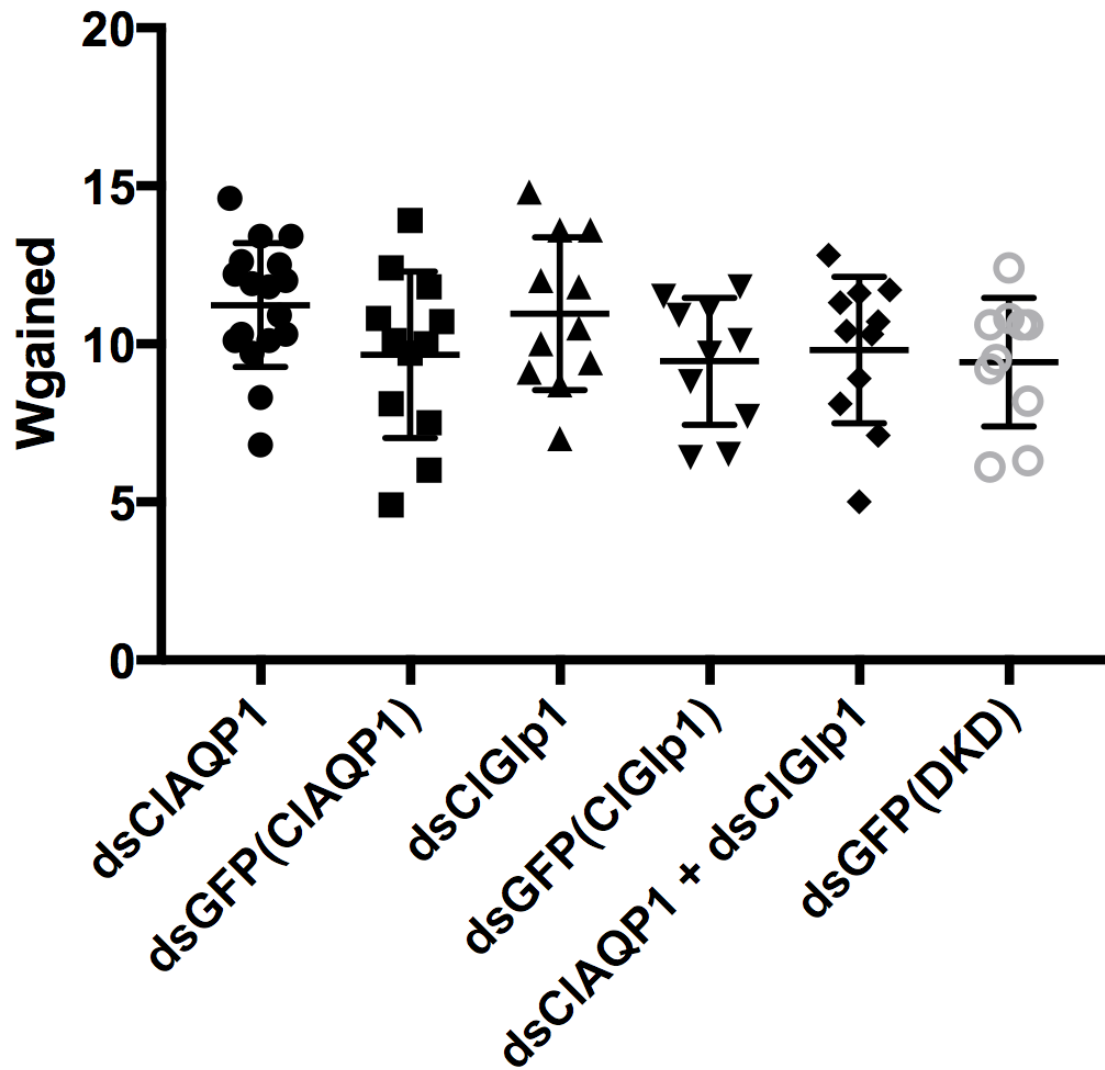


Figure S1. W_{gained} between treatments in the excretion assay. There was no significant difference in W_{gained} (i.e. blood meal size) between treatments (ANOVA).