

1 ***Trypanosoma congolense* manipulates the chemosensory system and behavior of *Glossina***
2 ***pallidipes* to enhance its transmission**

3 Simon K. Tawich ^{1,2}, Christopher W. Weldon², Souleymane Diallo ¹, Steeven A. Belvinos¹, Chiro
4 R. Chiro¹, John Ngiela¹, Victor Ndunyu ¹, Antoine Barreaux^{1,3,4}, Daniel Masiga ¹, Merid N.
5 Getahun^{1*}

6 1 International Centre of Insect Physiology and Ecology (*icipe*); 2 Department of Zoology and
7 Entomology, University of Pretoria, Hatfield 0028, South Africa 3 UMR INTERTRYP, Univ
8 Montpellier, IRD, CIRAD, Montpellier, France; 4 Cirad, UMR INTERTRYP, F-34398
9 Montpellier, France * Correspondence: mgetahun@icipe.org; Tel: +254739690625

10 **Supplementary Table 1:** RT-qPCR primers and endogenous controls used to conduct relative gene
11 expression studies in *G. pallidipes*. Tm- is the primer melting temperature

Name	Sequence	Product size (bp)	Tm
GapdH_Foward	ATTAGACAAAGGAGCCGAAGTAG	147	58.1
GapdH_Reverse	TTGCCATTTACCACCAAGAAAC	147	58.1
EF α 1_Foward	AGCGATTAAGTCCGGTGATG	128	59.1
EF α 1_Reverse	CTGCAACAGTTTGCCTCATATC	128	57.7
RFL32_Foward	CTGGTACACAACGTCAGAGAAT	152	62
RFL32_Reverse	CGTCCATTGGGATTGGTTAGA	142	61
β _tubulin_Foward	ACACCCACTTATGGTGAATTG	140	59.5
β _tubulin_Reverse	AAGTGAAGACGTGGGAATGG	140	60.4
Orco_Foward	ACCATGACTGTGGCAATAC	128	56.5
Orco_Reverse	GCATGAGATAGAGCGAACAG	128	56.6
OR42b_Foward	CCGTGGCATCACCATTATC	106	58.3
OR42b_Reverse	GACCGGCATATACAAGGTTAC	106	57
OR67a_Foward	GCCCGGCATTGATAAATATG	87	54.9
OR67a_Reverse	TACATACAGCAACCCATCG	87	55.4

OR67d.1_Foward	TCTGGTGTGGCTTCTTTG	152	57.8
OR67d.1_Reverse	AACAAGTCCCTACTCCTCTC	152	58.8
OR67d.3_Foward	CGACAATGCAACCGAAATC	151	56.5
OR67d.3_Reverse	GGCGGTACTTACGGATAAAG	151	57.1
OR67d.4_Foward	CTTTGCAGCCGATTCTTATTG	117	55.6
OR67d.4_Reverse	CTATTCCGTGGGTACTGTTG	117	57.6
OR67d.5_Foward	TCACTGTATGCACCGTTTAC	98	56.1
OR67d.5_Reverse	AAAGGCACTAGAAGCCAAG	98	56.5
OR67d.6_Foward	GTAGCGATGATAGGGATGAAG	76	56.5
OR67d.6_Reverse	AGAGCGGAAATAGCACAAG	76	56.1
OR82a_Foward	GCGGAAACTAAAGCGAAAC	110	56.1
OR82a_Reverse	ATGGGTGCGGTCATAAAG	110	57
OR45a.2_Foward	GATACCTCAGGGATGCTATTG	127	56.8
OR45a.2_Reverse	GCGGGTTAACGTTTGTATTG	127	55.9
OR45a.3_Foward	TGGGCTTTGACTTGAACG	77	58.1
OR45a.3_Reverse	ACAGCTTAGCACAAAGAGTAG	77	55.1
OR46a.1_Foward	GAGGCAATCCACTATCATCC	99	56.8
OR46a.1_Reverse	TAAACGCTTGAGGAGATTG	99	57.7
OR46a.2_Foward	GCTCCAGTATGCGATCATAG	107	56.9
OR46a.2_Reverse	GTAGCCGATGCTGCTTATG	107	56
OR67c.1_Foward	CAATGGCCTACCACACTATC	102	57.3
OR67c.1_Reverse	TTGCATAAACGCCAGGAG	102	57.1
OR67c.2_Foward	GAAGTCATTGTCACCATCAAAG	102	56.1
OR67c.2_Reverse	TGTTGTCCGCTCAGTTTC	102	57.4
OR85e_Foward	GTGTTTGTGGGCGTAGAG	123	58.2
OR85e_Reverse	ATGACGGCGTAGCATTTC	123	56.4
OR88a_Foward	CGCTTTCACTTTCGATTACTG	100	55.4
OR88a_Reverse	AGAAGCATCATACCACTCTTG	100	55.8

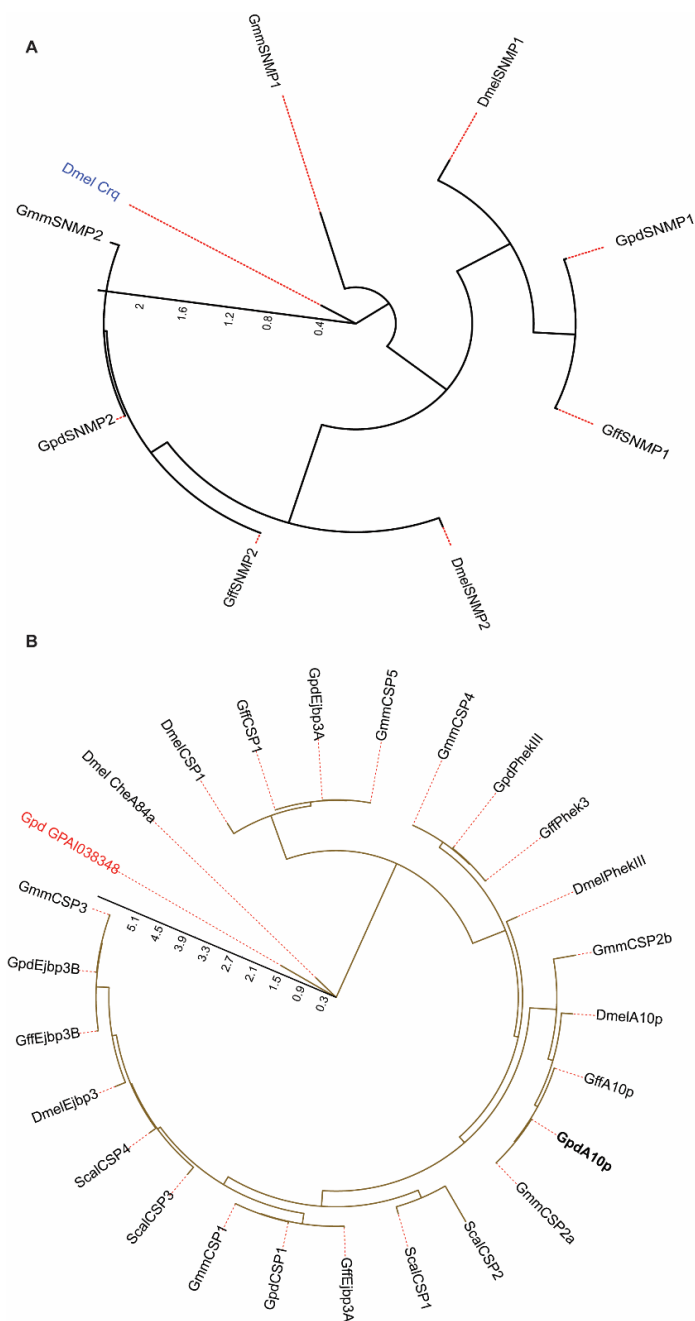
13 **Supplementary Table 2:** List of primers used to ascertain the expression alteration of rhodopsin
14 genes in *G. pallidipes* due to *T. congolense* infection.

Name	Sequence	Product size (bp)	Tm
RH1_Foward	CTTATGCTGCCTTAGGTTTCAG	98	57
RH1_Reverse	CGCCATACCCAATACGATTAC	98	57.1
RH2_Foward	CCCGATATGGCTCACATAGTAAA	122	58
RH2_Reverse	CCATTGCCACACAAGGATATG	122	58.4
RH3_Foward	CGATTTGTACCAGAGGGTTAC	97	57.7
RH3_Reverse	TGAAGAAGAATATGGTGCCTAC	97	56
RH5_Foward	TTTCCTGTACCACCGATTTAC	79	56.9
RH5_Reverse	TACCGAATAAAGAAGCCAAGAG	79	56.3
RH6_Foward	TTAGCTTGGCCGAAAGTG	100	57.2
RH6_Reverse	CCGATAATACCGAACCATAGAG	100	56.6
RH7_Foward	CGCTATTCAGGACCGTTATG	84	57.2
RH7_Reverse	AAGTTAACGGGATACGTTGTAG	84	55.8

15

16

17 Chemosensory proteins (CSPs) and Sensory Neuron Membrane Proteins (SNMPs) of *G.*
 18 *pallidipes*



19
 20 **Supplementary Figure 1 (A)** Maximum likelihood phylogenetic tree of two sensory neuron
 21 membrane protein types with the best fit amino acid model as LG+G4 and tree rooted using
 22 *Drosophila melanogaster* Croquemort protein, a member of CD36 protein family. **(B)** Maximum
 23 likelihood phylogenetic tree of chemosensory proteins with Blosum62+I as the best fit amino acid
 24 model and rooted from midpoint.