Table 3. Functional Enrichment Analysis (DAVID) reveals clusters of genes that share similar functional annotations that are significantly enriched among the genes differentially expressed between the treatments. Clusters highlighted with dark grey and lined with solid line(on left) are for the comparison of conspecific vs. heterospecific song, (experiment 2) while clusters with light grey and dashed line (on right) are for song vs. control (experiment 1). Enrichment score >1.3 implies terms are enriched significantly ($p<0.05$). The genes without shading (white) are included due to their participation in the significant enrichment of individual annotation terms shown here, despite them not sharing enough other annotations with the other genes within the given cluster.

Gene name	**TotM** CG14027	**TotC** CG31508	**TotA** CG31509	**TotX** CG31193	**IM4** CG15231	**a10** CG6642	**Pbprp4** CG1176	**Os-E** CG11421	**Pbprp3** G11421	**Obp99c** CG7584	**Obp19a** CG11748-RB	**Pbprp1** G10436	**Pbprp5** CG6641	**a5** CG5430	**Or83b** CG10609	**Os-C** CG3250	**pdf** CG6496	**hug** CG6371	**Tk** CG14734	**Crz** CG3302	**IM18** CG10332	**DptB** CG10794	**Drs** CG10810	**AttC** CG4740	**Att+A** CG10146
Experiment	2	2	2	2	2	2	2	1/2	1/2	1	1	1	1	1/2	1	1/2	1	1	1	1	1	1	1	1	1
log(FC)	1.3	0.9	0.8	0.4	0.4	0.4	0.4	0.3/ 0.4	0.2/ 0.4	-0.21	0.2	0.2	0.2	0.2/ 0.3	0.5	0.3/ 0.5	0.18	0.22	0.20	0.2	-0.54	-0.43	-0.26	-0.3	-0.39
p-value	<0.001	<0.001	<0.001	0.01	0.03	0.02	0.02	0.007/ 0.01	0.02/ 0.01	0.02	0.03	0.03	0.04	0.04/ 0.02	<0.001	0.002/ 0.007	0.04	0.01	0.02	0.03	<0.001	<0.001	<0.003	<0.001	<0.001
Adj. p-value (FDR)	<0.001	<0.001	0.14	0.8	0.9	0.9	0.9	0.3/ 0.8	0.4/0.8	0.4	0.5	0.5	0.5	0.9/ 0.5	<0.001	0.14/0.8	0.5	0.4	0.5	0.5	<0.001	<0.001	0.16	0.06	0.002
IPR005521: **Attacin, C-terminal region**																						X		X	X
GO:0019730/0019731: **Antibacterial humoral response**																						X	X	X	X
GO:0042742: **Defence response to bacterium**																						X	X	X	X
Go:0009617: **Response to bacterium**																						X	X	X	X
GO:0006959: **Humoral immune response**																						X	X	X	X
IPR010825: **Stress-inducible humoral factor Turandot**	X	X	X	X																					
SP-PIR-Keyword**: Innate immunity**	X	X	X	X	X																X			X	X
SP-PIR-Keyword**: Immune response**	X	X	X	X	X																X			X	X
GO:0006955**: Immune response**	X	X	X	X	X																X	X	X	X	X
GO:0006952**: Defence response**	X	X	X	X	X																X	X	X	X	X
GO:0045087**: Innate immune response**	X	X	X	X	X																X		X	X	X
GO:0009408**: Response to heat**	X	X	X	X																					
GO:0006979**: Response to oxidative stress**		X	X	X																					
GO:0009266: **Response to temperature stimulus**	X	X	X	X																					
GO:0009628**: Response to abiotic stimulus**	X	X	X	X																					
SP-PIR-Keyword**: Signal**	X	X	X	X	X	X	X	X/X	X/X		X	X	X	X/X		X/X	X	X	X	X	X		X	X	X
SP-PIR-Keyword**: Signal peptide**	X	X	X	X	X	X	X	X/X	X/X		X	X	X			X/X	X	X	X	X	X		X	X	X
SP-PIR-Keyword**: Secreted**	X	X	X	X	X	X	X	X/X	X/X		X	X	X	X/X			X	X	X	X	X		X	X	X
GO:0005576**: Extracellular region**	X	X	X	X	X	X	X	X/X	X/X		X	X	X	X/X			X	X	X	X	X	X	X	X	X
GO:0044421**: Extracellular region part**	X	X	X	X	X			X/X	X/X													X		X	X
GO: 0005615: **Extracellular space**	X	X	X	X	X		X	X/X	X/X													X		X	X
IPR006170: **Pheromone/general odorant binding protein, PBP/GOBP**							X	X/X	X/X	X	X	X	X												
IPR006625**: Insect pheromone/odorant binding protein PhBP**							X	X/X	X/X	X	X	X	X												
GO:0007606**: Sensory perception of chemical stimulus**						X	X	X/X	X/X	X	X	X	X		X										
GO: 0007600: **Sensory perception**						X	X	X/X	X/X	X	X	X	X		X										
GO: 0050890: **Cognition**						X	X	X/X	X/X	X	X	X	X		X										
GO: 0005550**: Pheromone binding**						X	X	X/X	X/X			X	X			X/X									
GO: 0005549**: Odorant binding**						X	X	X/X	X/X	X	X	X	X		X	X/X									
GO: 0050877: **Neurological system process**						X	X	X/X	X/X	X	X	X	X												
SP-PIR-Keyword: **Disulfide bond**							X	X/X	X/X		X	X	X												
Up-TISSUE: **Expressed in antennae**						X	X	X/X	X/X			X	X	X/X	X	X/X									
SP-PIR-Keyword: **Neuropeptide**																	X	X	X	X					
GO:0007610: **Behavior**																	X	X	X	X					
GO:0005184: **Neuropeptide hormone activity**																	X	X	X	X					
GO:0007218: **Neuropeptide signalling pathway**																	X	X	X	X					
GO:0005179: **Hormone activity**																	X	X	X	X					
GO:0007186: **G-protein coupled receptor protein signalling pathway**															X		X	X	X	X					
GO:0007166: **Cell surface receptor linked signal transduction**																	X	X	X	X					
Enrichment score D.mel song – control									**2.39**										**2.11**			**1.69**			
Enrichment score D. mel – D. sim song			**2.59**					**2.32**																	