**Summary of the results from the RNA sequencing experiment testing the response to Thiamethoxam and Esfenvalerate in Soybean Aphids at 12 and 24h: Differential expression of genes involved in detoxification processes (padj<or= 0.05)**

1. Exposure to the Neonicotinoid insecticide Thiamethoxam

2439 transcripts are differentially expressed between the control condition and the treatment with Thiamethoxam.

1. Cytochrome P 450 : 3 transcripts
2. Lower level of expression of these transcripts on Control plant compared to the exposure to Thiamethoxam (upregulation in Thiamethoxam treatment)

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| Names of cytochrome P450 | log2foldch |
| sba\_whole\_aphid\_contig\_4531:PREDICTED:probable\_cytochrome\_P450\_6a13-like[Acyrthosiphon\_pisum] | 0.70002561663112 |
| sba\_whole\_aphid\_contig\_6666:PREDICTED:cytochrome\_P450\_18a1-like[Acyrthosiphon\_pisum] | 0.578011488041927 |

1. Higher level of expression on Control (downregulation in Thiamethoxam treatment)

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| Name of the cytochrome P450 | Log2fC |
| sba\_whole\_aphid\_contig\_1380:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | -0.39355 |

1. Glutathione S transferase, here, decreased in level for Thiamethoxam exposure compared to the control : 1 transcript

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| GST transcript name | log2FoldChange |
| sba\_whole\_aphid\_contig\_7070:glutathione\_S-transferase-like\_protein[Toxoptera\_citricida] | -0.296191015 |

1. Esterases : 19 transcripts
2. Higher level in Control condition than in Thiamethoxam exposure (downregulated on thiamethoxam)

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| Esterases names | logfoldch |
| sba\_whole\_aphid\_contig\_13671:PREDICTED:protein\_phosphatase\_methylesterase\_1-like[Acyrthosiphon\_pisum] | -0.3265126 |
| sba\_whole\_aphid\_contig\_3488:ubiquitin\_thioesterase\_OTU1[Acyrthosiphon\_pisum]\_>gi|239791291|dbj|BAH72133.1|\_ACYPI008281[Acyrthosiphon\_pisum] | -0.3409599 |
| sba\_whole\_aphid\_contig\_13246:esterase\_D/formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum]\_>gi|239799401|dbj|BAH70623.1|\_ACYPI002273[Acyrthosiphon\_pisum] | -0.3475658 |
| sba\_whole\_aphid\_contig\_12455:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | -0.4408161 |
| sba\_whole\_aphid\_contig\_2990:calcineurin-like\_phosphoesterase\_domain\_containing\_1[Acyrthosiphon\_pisum]\_>gi|239792610|dbj|BAH72629.1|\_ACYPI008642[Acyrthosiphon\_pisum] | -0.4545545 |
| sba\_whole\_aphid\_contig\_3277:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | -0.4743952 |
| sba\_whole\_aphid\_contig\_14746:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | -0.5237486 |
| sba\_whole\_aphid\_contig\_11825:PREDICTED:palmitoyl-protein\_thioesterase\_1-like[Acyrthosiphon\_pisum] | -0.5408226 |
| sba\_whole\_aphid\_contig\_436:PREDICTED:probable\_tyrosyl-DNA\_phosphodiesterase-like\_isoform1[Acyrthosiphon\_pisum] | -0.5651076 |
| sba\_whole\_aphid\_contig\_1839:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | -0.6163129 |
| sba\_whole\_aphid\_contig\_12749:PREDICTED:acyl-coenzyme\_A\_thioesterase\_13-like[Acyrthosiphon\_pisum] | -0.6279659 |
| sba\_whole\_aphid\_contig\_5657:PREDICTED:trifunctional\_nucleotide\_phosphoesterase\_protein\_YfkN-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.655771603000697 |

1. Lower level in Control condition than in Thiamethoxam exposure (upregulated on

Thiamethoxam)

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| Name of the esterase | Log2foldch |
| sba\_whole\_aphid\_contig\_4993:PREDICTED:high\_affinity\_cAMP-specific\_and\_IBMX-insensitive\_3',5'-cyclic\_phosphodiesterase\_8A-like,partial[Acyrthosiphon\_pisum] | 0.2914185 |
| sba\_whole\_aphid\_contig\_2821:PREDICTED:sphingomyelin\_phosphodiesterase-like\_isoform\_3[Acyrthosiphon\_pisum] | 0.4590945 |
| sba\_whole\_aphid\_contig\_10996:PREDICTED:cAMP-specific\_3',5'-cyclic\_phosphodiesterase-like[Acyrthosiphon\_pisum] | 0.4676499 |
| sba\_whole\_aphid\_contig\_15004:esterase\_ybfF-like[Acyrthosiphon\_pisum]\_>gi|239790074|dbj|BAH71622.1|\_ACYPI004279[Acyrthosiphon\_pisum] | 0.5482204 |
| sba\_whole\_aphid\_contig\_11126:PREDICTED:venom\_carboxylesterase-6-like[Acyrthosiphon\_pisum] | 0.5697528 |
| sba\_whole\_aphid\_contig\_11204:acetylcholinesterase[Aphis\_gossypii]\_>gi|52313434|dbj|BAD51411.1|\_acetylcholinesterase[Aphis\_gossypii]\_>gi|52313436|dbj|BAD51412.1|\_acetylcholinesterase[Aphis\_gossypii] | 0.8529079 |
| sba\_whole\_aphid\_contig\_5532:PREDICTED:cGMP-specific\_3',5'-cyclic\_phosphodiesterase-like\_isoform\_2[Acyrthosiphon\_pisum]\_>gi|328720845|ref|XP\_001945926.2|\_PREDICTED:cGMP-specific\_3',5'-cyclic\_phosphodiesterase-like\_isoform1[Acyrthosiphon\_pisum] | 0.9113368 |

1. Other hydrolases: 26 transcripts
2. Higher level of expression on Control (downregulation on Thiamethoxam)

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| Name of the hydrolase | Log2foldch |
| sba\_whole\_aphid\_contig\_4186:PREDICTED:bleomycin\_hydrolase-like[Acyrthosiphon\_pisum] | -0.223548 |
| sba\_whole\_aphid\_contig\_13304:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_14-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.25622747 |
| sba\_whole\_aphid\_contig\_10390:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_16-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.26055860 |
| sba\_whole\_aphid\_contig\_7015:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_32-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.29626503 |
| sba\_whole\_aphid\_contig\_11390:ubiquitin\_C-terminal\_hydrolase\_UCHL1-like[Acyrthosiphon\_pisum]\_>gi|239789427|dbj|BAH71339.1|\_ACYPI006329[Acyrthosiphon\_pisum] | -0.32301994 |
| sba\_whole\_aphid\_contig\_13246:esterase\_D/formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum]\_>gi|239799401|dbj|BAH70623.1|\_ACYPI002273[Acyrthosiphon\_pisum] | -0.34756584 |
| sba\_whole\_aphid\_contig\_9541:PREDICTED:s-formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum] | -0.3795373 |
| sba\_whole\_aphid\_contig\_2632:platelet-activating\_factor\_acetylhydrolase\_IB\_subunit\_beta[Acyrthosiphon\_pisum]\_>gi|239791960|dbj|BAH72379.1|\_ACYPI009998[Acyrthosiphon\_pisum] | -0.40303092 |
| sba\_whole\_aphid\_contig\_8446:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_20-like[Acyrthosiphon\_pisum] | -0.40526671 |
| sba\_whole\_aphid\_contig\_8362:haloacid\_dehalogenase-like\_hydrolase\_domain\_containing\_1A-like[Acyrthosiphon\_pisum]\_>gi|239792548|dbj|BAH72605.1|\_ACYPI002706[Acyrthosiphon\_pisum] | -0.42460765 |
| sba\_whole\_aphid\_contig\_13827:PREDICTED:platelet-activating\_factor\_acetylhydrolase\_IB\_subunit\_beta\_homolog[Acyrthosiphon\_pisum] | -0.42828242 |
| sba\_whole\_aphid\_contig\_12918:PREDICTED:fatty-acid\_amide\_hydrolase\_2-like\_isoform1[Acyrthosiphon\_pisum] | -0.43965528 |
| sba\_whole\_aphid\_contig\_6657:PREDICTED:abhydrolase\_domain-containing\_protein\_3-like\_isoform1[Acyrthosiphon\_pisum]\_>gi|328715407|ref|XP\_003245621.1|\_PREDICTED:abhydrolase\_domain-containing\_protein\_3-like\_isoform\_2[Acyrthosiphon\_pisum]\_>gi|328715409|ref|XP\_003245622.1|\_PREDI | -0.46443486 |
| sba\_whole\_aphid\_contig\_9343:PREDICTED:bifunctional\_methylenetetrahydrofolate\_dehydrogenase/cyclohydrolase,mitochondrial-like[Acyrthosiphon\_pisum] | -0.52843678 |
| sba\_whole\_aphid\_contig\_1802:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_32-like\_isoform1[Acyrthosiphon\_pisum] | -0.52917865 |
| sba\_whole\_aphid\_contig\_6912:PREDICTED:N(G),N(G)-dimethylarginine\_dimethylaminohydrolase\_1-like[Acyrthosiphon\_pisum] | -0.54872017 |
| sba\_whole\_aphid\_contig\_15151:PREDICTED:abhydrolase\_domain-containing\_protein\_16A-like[Acyrthosiphon\_pisum] | -0.56285511 |
| sba\_whole\_aphid\_contig\_440:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_8-like[Acyrthosiphon\_pisum] | -0.56568138 |
| sba\_whole\_aphid\_contig\_10231:PREDICTED:fumarylacetoacetate\_hydrolase\_domain-containing\_protein\_2-like[Acyrthosiphon\_pisum] | -0.58490020 |
| sba\_whole\_aphid\_contig\_9011:PREDICTED:probable\_serine\_hydrolase-like\_isoform1[Acyrthosiphon\_pisum]\_>gi|328713486|ref|XP\_003245089.1|\_PREDICTED:probable\_serine\_hydrolase-like isoform\_2[Acyrthosiphon\_pisum]\_>gi|328713488|ref|XP\_003245090.1|\_PREDICTED:probable\_serine\_hydrol | -0.60694172 |
| sba\_whole\_aphid\_contig\_10612:PREDICTED:similar\_to\_S-adenosylhomocysteine\_hydrolase-like\_2[Hydra\_magnipapillata] | -0.617001629502445 |

1. Lower level of expression on Control (upregulation on Thiamethoxam)

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| Name of the hydrolases | Log2foldch |
| sba\_whole\_aphid\_contig\_10858:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_1-like[Acyrthosiphon\_pisum] | 0.411989956 |
| sba\_whole\_aphid\_contig\_7898:PREDICTED:abhydrolase\_domain-containing\_protein\_2-like[Acyrthosiphon\_pisum] | 0.461438769 |
| sba\_whole\_aphid\_contig\_9997:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_2-like[Acyrthosiphon\_pisum] | 0.491913024 |
| sba\_whole\_aphid\_contig\_7780:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_46-like[Acyrthosiphon\_pisum] | 0.530744101 |
| sba\_whole\_aphid\_contig\_5586:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_3-like[Acyrthosiphon\_pisum] | 0.721617117 |

1. Exposure to the Pyrethroid insecticide Esfenvalerate

5930 transcripts differentially expressed between the control condition and the treatment condition with Esfenvalerate.

1. Cytochrome P450: 23 transcripts
2. Higher expression level for these transcripts in Control conditions (downregulation on Esfenvalerate treatment)

|  |  |
| --- | --- |
| cytochrome P450 names | Log2fC |
| sba\_whole\_aphid\_contig\_1380:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | -0.467782806894 |
| sba\_whole\_aphid\_contig\_14715:Cytochrome\_P450\_302a1,mitochondrial[Harpegnathos\_saltator] | -0.500205296498 |
| sba\_whole\_aphid\_contig\_1639:PREDICTED:cytochrome\_P450\_315a1,mitochondrial-like[Acyrthosiphon\_pisum] | -0.5114618594292 |
| sba\_whole\_aphid\_contig\_8206:PREDICTED:probable\_cytochrome\_P450\_301a1,mitochondrial-like[Acyrthosiphon\_pisum] | -0.6588300554285 |
| sba\_whole\_aphid\_contig\_15277:PREDICTED:cytochrome\_P450\_302a1,mitochondrial-like[Acyrthosiphon\_pisum] | -0.7640576133414 |
| sba\_whole\_aphid\_contig\_975:PREDICTED:probable\_cytochrome\_P450\_6a13-like[Acyrthosiphon\_pisum] | -0.82653333535746 |

1. Lower expression level for these transcripts in Control conditions (upregulation on Esfenvalerate treatment)

|  |  |
| --- | --- |
| Cytochrome P450 names | Log2fC |
| sba\_whole\_aphid\_contig\_6666:PREDICTED:cytochrome\_P450\_18a1-like[Acyrthosiphon\_pisum] | 0.52637066721 |
| sba\_whole\_aphid\_contig\_10452:cytochrome\_P450[Bemisia\_tabaci] | 0.52684468225 |
| sba\_whole\_aphid\_contig\_14313:PREDICTED:probable\_cytochrome\_P450\_6a14-like[Acyrthosiphon\_pisum] | 0.70190465797 |
| sba\_whole\_aphid\_contig\_14438:PREDICTED:cytochrome\_P450\_6a2-like[Acyrthosiphon\_pisum] | 0.75366159511 |
| sba\_whole\_aphid\_contig\_5703:PREDICTED:cytochrome\_P450\_4V2-like\_isoform1[Acyrthosiphon\_pisum]\_>gi|328708155|ref|XP\_003243610.1|\_PREDICTED:cytochrome\_P450\_4V2-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.76213914532 |
| sba\_whole\_aphid\_contig\_8279:PREDICTED:probable\_cytochrome\_P450\_305a1-like[Acyrthosiphon\_pisum] | 0.82395739483 |
| sba\_whole\_aphid\_contig\_9739:PREDICTED:cytochrome\_P450\_4g15-like[Acyrthosiphon\_pisum] | 0.82872994692 |
| sba\_whole\_aphid\_contig\_10092:cytochrome\_P450[Bemisia\_tabaci] | 0.85300261272 |
| sba\_whole\_aphid\_contig\_12532:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | 0.90152345024 |
| sba\_whole\_aphid\_contig\_3547:PREDICTED:NADPH--cytochrome\_P450\_reductase-like[Acyrthosiphon\_pisum] | 0.94358045524 |
| sba\_whole\_aphid\_contig\_14460:PREDICTED:probable\_cytochrome\_P450\_6a14-like,partial[Acyrthosiphon\_pisum] | 0.95222011418 |
| sba\_whole\_aphid\_contig\_15283:PREDICTED:cytochrome\_P450\_6a2-like[Acyrthosiphon\_pisum] | 0.9536930915 |
| sba\_whole\_aphid\_contig\_8141:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | 1.01153263809 |
| sba\_whole\_aphid\_contig\_7883:PREDICTED:NADPH--cytochrome\_P450\_reductase-like[Acyrthosiphon\_pisum] | 1.09275380494 |
| sba\_whole\_aphid\_contig\_8318:PREDICTED:NADPH--cytochrome\_P450\_reductase-like[Acyrthosiphon\_pisum] | 1.17064718364 |
| sba\_whole\_aphid\_contig\_12169:cytochrome\_P450\_protein[Acyrthosiphon\_pisum] | 1.23533857653 |
| sba\_whole\_aphid\_contig\_4531:PREDICTED:probable\_cytochrome\_P450\_6a13-like[Acyrthosiphon\_pisum] | 1.35353540363 |

In red: transcripts related to CYP protein complex, but identified precisely as the NADH-cytochrome P450 reductase (like)

1. Glutathione-S-transferase: 3 transcripts
2. Higher expression level for these transcripts in Control conditions (downregulation on Esfenvalerate treatment)

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| Name GST transcripts | Log2fC |
| sba\_whole\_aphid\_contig\_7070:glutathione\_S-transferase-like\_protein[Toxoptera\_citricida] | -0.2551771089588 |

1. Lower expression level for these transcripts in Control conditions (upregulation on Esfenvalerate treatment)

|  |  |
| --- | --- |
| Name of the GST transcripts | Log2fC |
| sba\_whole\_aphid\_contig\_4921:glutathione\_S-transferase-like[Acyrthosiphon\_pisum]\_>gi|239789232|dbj|BAH71253.1|\_ACYPI009326[Acyrthosiphon\_pisum] | 0.448129801133 |
| sba\_whole\_aphid\_contig\_6834:PREDICTED:glutathione\_S-transferase\_D4-like[Acyrthosiphon\_pisum] | 0.608978188654 |

1. Esterases: 38 transcripts
2. Higher expression level for these transcripts in Control conditions (downregulation on Esfenvalerate treatment)

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| Name of the esterases | Log2fC |
| sba\_whole\_aphid\_contig\_7418:PREDICTED:neuropathy\_target\_esterase\_sws-like[Acyrthosiphon\_pisum] | -0.340253942035013 |
| sba\_whole\_aphid\_contig\_3488:ubiquitin\_thioesterase\_OTU1[Acyrthosiphon\_pisum]\_>gi|239791291|dbj|BAH72133.1|\_ACYPI008281[Acyrthosiphon\_pisum] | -0.35810855384629 |
| sba\_whole\_aphid\_contig\_8125:PREDICTED:ubiquitin\_thioesterase\_otubain-like[Acyrthosiphon\_pisum] | -0.42022667787822 |
| sba\_whole\_aphid\_contig\_13246:esterase\_D/formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum]\_>gi|239799401|dbj|BAH70623.1|\_ACYPI002273[Acyrthosiphon\_pisum] | -0.443466297171037 |
| sba\_whole\_aphid\_contig\_1729:PREDICTED:dual\_3',5'-cyclic-AMP\_and\_-GMP\_phosphodiesterase\_11A[Acyrthosiphon\_pisum] | -0.517972033709456 |
| sba\_whole\_aphid\_contig\_4151:PREDICTED:probable\_tyrosyl-DNA\_phosphodiesterase-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.527654698414945 |
| sba\_whole\_aphid\_contig\_12455:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | -0.530133827927538 |
| sba\_whole\_aphid\_contig\_13671:PREDICTED:protein\_phosphatase\_methylesterase\_1-like[Acyrthosiphon\_pisum] | -0.533831260925891 |
| sba\_whole\_aphid\_contig\_12135:PREDICTED:metallophosphoesterase\_1-like[Acyrthosiphon\_pisum] | -0.544373080075652 |
| sba\_whole\_aphid\_contig\_12749:PREDICTED:acyl-coenzyme\_A\_thioesterase\_13-like[Acyrthosiphon\_pisum] | -0.549621766987182 |
| sba\_whole\_aphid\_contig\_14569:PREDICTED:venom\_carboxylesterase-6-like[Acyrthosiphon\_pisum] | -0.589707751935517 |
| sba\_whole\_aphid\_contig\_13133:retinal\_rod\_rhodopsin-sensitive\_cGMP\_3',5'-cyclic\_phosphodiesterase\_subunit\_delta-like[Acyrthosiphon\_pisum]\_>gi|239790658|dbj|BAH71877.1|\_ACYPI000717[Acyrthosiphon\_pisum]\_>gi|239790660|dbj|BAH71878.1|\_ACYPI000717[Acyrthosiphon\_pisum]\_&g | -0.607316826287691 |
| sba\_whole\_aphid\_contig\_6945:carboxylesterase[Aphis\_glycines] | -0.62315968898743 |
| sba\_whole\_aphid\_contig\_14746:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | -0.667249262348098 |
| sba\_whole\_aphid\_contig\_2990:calcineurin-like\_phosphoesterase\_domain\_containing\_1[Acyrthosiphon\_pisum]\_>gi|239792610|dbj|BAH72629.1|\_ACYPI008642[Acyrthosiphon\_pisum] | -0.766558864910669 |
| sba\_whole\_aphid\_contig\_3277:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | -0.835710442258814 |
| sba\_whole\_aphid\_contig\_436:PREDICTED:probable\_tyrosyl-DNA\_phosphodiesterase-like\_isoform1[Acyrthosiphon\_pisum] | -0.848338368945214 |
| sba\_whole\_aphid\_contig\_5657:PREDICTED:trifunctional\_nucleotide\_phosphoesterase\_protein\_YfkN-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.879088138808443 |
| sba\_whole\_aphid\_contig\_11825:PREDICTED:palmitoyl-protein\_thioesterase\_1-like[Acyrthosiphon\_pisum] | -0.89437000140337 |
| sba\_whole\_aphid\_contig\_2908:PREDICTED:2',5'-phosphodiesterase\_12-like[Acyrthosiphon\_pisum] | -1.09828969807591 |

1. Lower expression level for these transcripts in Control conditions (upregulation on Esfenvalerate treatment)

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| Names of the esterases | Log2fC |
| sba\_whole\_aphid\_contig\_1847:PREDICTED:1-phosphatidylinositol-4,5-bisphosphate\_phosphodiesterase\_gamma-1-like\_isoform1[Acyrthosiphon\_pisum] | 0.406669376 |
| sba\_whole\_aphid\_contig\_15423:PREDICTED:1-phosphatidylinositol-4,5-bisphosphate\_phosphodiesterase-like\_isoform1[Acyrthosiphon\_pisum]\_>gi|328724636|ref|XP\_003248206.1|\_PREDICTED:1-phosphatidylinositol-4,5-bisphosphate\_phosphodiesterase-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.408550425 |
| sba\_whole\_aphid\_contig\_4993:PREDICTED:high\_affinity\_cAMP-specific\_and\_IBMX-insensitive\_3',5'-cyclic\_phosphodiesterase\_8A-like,partial[Acyrthosiphon\_pisum] | 0.414619498 |
| sba\_whole\_aphid\_contig\_11126:PREDICTED:venom\_carboxylesterase-6-like[Acyrthosiphon\_pisum] | 0.544768895 |
| sba\_whole\_aphid\_contig\_10996:PREDICTED:cAMP-specific\_3',5'-cyclic\_phosphodiesterase-like[Acyrthosiphon\_pisum] | 0.584187473 |
| sba\_whole\_aphid\_contig\_11692:PREDICTED:esterase\_FE4-like,partial[Acyrthosiphon\_pisum] | 0.585805238 |
| sba\_whole\_aphid\_contig\_14528:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | 0.681923770 |
| sba\_whole\_aphid\_contig\_15004:esterase\_ybfF-like[Acyrthosiphon\_pisum]\_>gi|239790074|dbj|BAH71622.1|\_ACYPI004279[Acyrthosiphon\_pisum] | 0.693672731 |
| sba\_whole\_aphid\_contig\_1859:PREDICTED:ubiquitin\_thioesterase\_trabid-like[Acyrthosiphon\_pisum] | 0.697355901 |
| sba\_whole\_aphid\_contig\_2821:PREDICTED:sphingomyelin\_phosphodiesterase-like\_isoform\_3[Acyrthosiphon\_pisum] | 0.783363787 |
| sba\_whole\_aphid\_contig\_11436:acetylcholinesterase\_2[Rhopalosiphum\_padi] | 0.836967851 |
| sba\_whole\_aphid\_contig\_13089:acetylcholinesterase\_AChE-M[Myzus\_persicae] | 0.855651387 |
| sba\_whole\_aphid\_contig\_4740:PREDICTED:ectonucleotide\_pyrophosphatase/phosphodiesterase\_family\_member\_5-like\_isoform1[Acyrthosiphon\_pisum] | 0.893408906 |
| sba\_whole\_aphid\_contig\_811:acetylcholinesterase\_2[Aphis\_gossypii]\_>gi|52313422|dbj|BAD51407.1|\_acetylcholinesterase\_2[Aphis\_gossypii] | 0.899037115 |
| sba\_whole\_aphid\_contig\_14216:acetylcholinesterase[Aphis\_gossypii] | 0.948799862 |
| sba\_whole\_aphid\_contig\_5532:PREDICTED:cGMP-specific\_3',5'-cyclic\_phosphodiesterase-like\_isoform\_2[Acyrthosiphon\_pisum]\_>gi|328720845|ref|XP\_001945926.2|\_PREDICTED:cGMP-specific\_3',5'-cyclic\_phosphodiesterase-like\_isoform1[Acyrthosiphon\_pisum] | 0.998059312 |
| sba\_whole\_aphid\_contig\_2379:PREDICTED:liver\_carboxylesterase-like[Acyrthosiphon\_pisum] | 1.089939053 |
| sba\_whole\_aphid\_contig\_11204:acetylcholinesterase[Aphis\_gossypii]\_>gi|52313434|dbj|BAD51411.1|\_acetylcholinesterase[Aphis\_gossypii]\_>gi|52313436|dbj|BAD51412.1|\_acetylcholinesterase[Aphis\_gossypii] | 1.252922165 |

1. Other hydrolases: 52 transcripts
2. Higher expression level for these transcripts in Control conditions (downregulation on Esfenvalerate treatment)

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| Name of the hydrolases | Log2fC |
| sba\_whole\_aphid\_contig\_13304:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_14-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.251438432259031 |
| sba\_whole\_aphid\_contig\_12960:PREDICTED:peptidyl-tRNA\_hydrolase\_ICT1,mitochondrial-like[Acyrthosiphon\_pisum] | -0.287925653549982 |
| sba\_whole\_aphid\_contig\_657:peptidyl-tRNA\_hydrolase-like[Acyrthosiphon\_pisum]\_>gi|239792455|dbj|BAH72569.1|\_ACYPI002769[Acyrthosiphon\_pisum] | -0.289717610941931 |
| sba\_whole\_aphid\_contig\_10390:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_16-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.338898466932516 |
| sba\_whole\_aphid\_contig\_13827:PREDICTED:platelet-activating\_factor\_acetylhydrolase\_IB\_subunit\_beta\_homolog[Acyrthosiphon\_pisum] | -0.368352618488102 |
| sba\_whole\_aphid\_contig\_7766:PREDICTED:gamma-glutamyl\_hydrolase\_A-like[Acyrthosiphon\_pisum] | -0.385910644097712 |
| sba\_whole\_aphid\_contig\_11390:ubiquitin\_C-terminal\_hydrolase\_UCHL1-like[Acyrthosiphon\_pisum]\_>gi|239789427|dbj|BAH71339.1|\_ACYPI006329[Acyrthosiphon\_pisum] | -0.405242571455393 |
| sba\_whole\_aphid\_contig\_6912:PREDICTED:N(G),N(G)-dimethylarginine\_dimethylaminohydrolase\_1-like[Acyrthosiphon\_pisum] | -0.408663553261899 |
| sba\_whole\_aphid\_contig\_9541:PREDICTED:s-formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum] | -0.426210537702033 |
| sba\_whole\_aphid\_contig\_11768:PREDICTED:hydroxyacylglutathione\_hydrolase,mitochondrial-like\_isoform1[Acyrthosiphon\_pisum] | -0.42805144158519 |
| sba\_whole\_aphid\_contig\_13246:esterase\_D/formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum]\_>gi|239799401|dbj|BAH70623.1|\_ACYPI002273[Acyrthosiphon\_pisum] | -0.443466297171037 |
| sba\_whole\_aphid\_contig\_14511:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_5-like[Acyrthosiphon\_pisum] | -0.44845772945959 |
| sba\_whole\_aphid\_contig\_13145:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_48-like[Acyrthosiphon\_pisum] | -0.46150830052337 |
| sba\_whole\_aphid\_contig\_7015:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_32-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.472096580636058 |
| sba\_whole\_aphid\_contig\_8362:haloacid\_dehalogenase-like\_hydrolase\_domain\_containing\_1A-like[Acyrthosiphon\_pisum]\_>gi|239792548|dbj|BAH72605.1|\_ACYPI002706[Acyrthosiphon\_pisum] | -0.483421511168143 |
| sba\_whole\_aphid\_contig\_2632:platelet-activating\_factor\_acetylhydrolase\_IB\_subunit\_beta[Acyrthosiphon\_pisum]\_>gi|239791960|dbj|BAH72379.1|\_ACYPI009998[Acyrthosiphon\_pisum] | -0.520934847645243 |
| sba\_whole\_aphid\_contig\_2224:peptidyl-tRNA\_hydrolase\_2,mitochondrial-like[Acyrthosiphon\_pisum]\_>gi|239792918|dbj|BAH72740.1|\_ACYPI008234[Acyrthosiphon\_pisum] | -0.527400100362998 |
| sba\_whole\_aphid\_contig\_2322:peptidyl-tRNA\_hydrolase\_2,mitochondrial[Acyrthosiphon\_pisum]\_>gi|239788811|dbj|BAH71067.1|\_ACYPI008026[Acyrthosiphon\_pisum] | -0.528386880673626 |
| sba\_whole\_aphid\_contig\_9415:PREDICTED:similar\_to\_peptidyl-tRNA\_hydrolase\_2[Strongylocentrotus\_purpuratus]\_>gi|115976227|ref|XP\_001176790.1|\_PREDICTED:similar\_to\_peptidyl-tRNA\_hydrolase\_2[Strongylocentrotus\_purpuratus] | -0.564607504199837 |
| sba\_whole\_aphid\_contig\_6657:PREDICTED:abhydrolase\_domain-containing\_protein\_3-like\_isoform1[Acyrthosiphon\_pisum]\_>gi|328715407|ref|XP\_003245621.1|\_PREDICTED:abhydrolase\_domain-containing\_protein\_3-like\_isoform\_2[Acyrthosiphon\_pisum]\_>gi|328715409|ref|XP\_003245622.1|\_PREDI | -0.582688208021385 |
| sba\_whole\_aphid\_contig\_15154:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_34-like[Acyrthosiphon\_pisum] | -0.596929952993519 |
| sba\_whole\_aphid\_contig\_12918:PREDICTED:fatty-acid\_amide\_hydrolase\_2-like\_isoform1[Acyrthosiphon\_pisum] | -0.604127191004284 |
| sba\_whole\_aphid\_contig\_14388:PREDICTED:valacyclovir\_hydrolase-like[Acyrthosiphon\_pisum] | -0.628295861016357 |
| sba\_whole\_aphid\_contig\_14089:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_16-like[Acyrthosiphon\_pisum] | -0.644066698691785 |
| sba\_whole\_aphid\_contig\_14265:PREDICTED:serine\_hydrolase-like\_protein-like[Acyrthosiphon\_pisum] | -0.647059954948152 |
| sba\_whole\_aphid\_contig\_14283:PREDICTED:probable\_ubiquitin\_carboxyl-terminal\_hydrolase\_FAF-X-like\_isoform\_2[Acyrthosiphon\_pisum]\_>gi|328720472|ref|XP\_001946927.2|\_PREDICTED:probable\_ubiquitin\_carboxyl-terminal\_hydrolase\_FAF-X-like\_isoform1[Acyrthosiphon\_pisum] | -0.648758191074021 |
| sba\_whole\_aphid\_contig\_8377:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_30-like[Acyrthosiphon\_pisum] | -0.660811157792282 |
| sba\_whole\_aphid\_contig\_15151:PREDICTED:abhydrolase\_domain-containing\_protein\_16A-like[Acyrthosiphon\_pisum] | -0.669212037813444 |
| sba\_whole\_aphid\_contig\_1802:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_32-like\_isoform1[Acyrthosiphon\_pisum] | -0.679723338984212 |
| sba\_whole\_aphid\_contig\_8446:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_20-like[Acyrthosiphon\_pisum] | -0.683472551971899 |
| sba\_whole\_aphid\_contig\_1957:PREDICTED:poly(ADP-ribose)\_glycohydrolase-like[Acyrthosiphon\_pisum] | -0.687320926093638 |
| sba\_whole\_aphid\_contig\_14778:peptidyl-tRNA\_hydrolase,putative [Phytophthora\_infestans\_T30-4]\_>gi|262106101|gb|EEY64153.1|\_peptidyl-tRNA\_hydrolase, putative[Phytophthora\_infestans\_T30-4] | -0.709850799504929 |
| sba\_whole\_aphid\_contig\_10612:PREDICTED:similar\_to\_S-adenosylhomocysteine \_hydrolase-like\_2[Hydra\_magnipapillata] | -0.744913100385627 |
| sba\_whole\_aphid\_contig\_9343:PREDICTED:bifunctional\_methylenetetrahydrofolate\_dehydrogenase/cyclohydrolase,mitochondrial-like[Acyrthosiphon\_pisum] | -0.776563461445898 |
| sba\_whole\_aphid\_contig\_10231:PREDICTED:fumarylacetoacetate\_hydrolase\_domain-containing\_protein\_2-like[Acyrthosiphon\_pisum] | -0.897031861743368 |
| sba\_whole\_aphid\_contig\_440:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_8-like[Acyrthosiphon\_pisum] | -0.927354096179459 |
| sba\_whole\_aphid\_contig\_3208:PREDICTED:hydroxyacylglutathione\_hydrolase,mitochondrial-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.954169836465008 |
| sba\_whole\_aphid\_contig\_11048:PREDICTED:Acyrthosiphon\_pisum\_ubiquitin\_carboxyl-terminal\_hydrolase\_34-like(LOC100166899),mRNA | -0.954678063985106 |
| sba\_whole\_aphid\_contig\_9011:PREDICTED:probable\_serine\_hydrolase-like\_isoform1[Acyrthosiphon\_pisum]\_>gi|328713486|ref|XP\_003245089.1|\_PREDICTED:probable\_serine\_hydrolase-like\_isoform\_2 [Acyrthosiphon\_pisum]\_ >gi|328713488|ref|XP\_003245090.1|\_PREDICTED:probable\_serine\_hydrol | -1.04260605403126 |
| sba\_whole\_aphid\_contig\_3998:LOW\_QUALITY\_PROTEIN:cell\_wall-associated\_hydrolase[Escherichia\_sp.\_3\_2\_53FAA]\_>gi|226903369|gb|EEH89628.1|\_LOW\_QUALITY\_PROTEIN:cell\_wall-associated\_hydrolase[Escherichia\_sp.\_3\_2\_53FAA] | -1.57402360117349 |
| sba\_whole\_aphid\_contig\_3358:Wolbachia\_sp.\_wRi,complete\_genome\_|cell\_wall-associated\_hydrolase[Candidatus\_Pelagibacter\_sp.\_HTCC7211]\_>gi|207083014|gb|EDZ60440.1|\_cell\_wall-associated\_hydrolase[Candidatus\_Pelagibacter\_sp.\_HTCC7211] | -1.65225458459495 |

1. Lower expression level for these transcripts in Control conditions (upregulation on Esfenvalerate treatment)

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| Name of the hydrolases | Log2fC |
| sba\_whole\_aphid\_contig\_7767:PREDICTED:similar\_to\_serine\_hydrolase\_protein[Tribolium\_castaneum]\_>gi|270005749|gb|EFA02197.1|\_hypothetical\_protein\_TcasGA2\_TC007853[Tribolium\_castaneum] | 0.427990840546839 |
| sba\_whole\_aphid\_contig\_7898:PREDICTED:abhydrolase\_domain-containing\_protein\_2-like[Acyrthosiphon\_pisum] | 0.437861260388661 |
| sba\_whole\_aphid\_contig\_4399:PREDICTED:abhydrolase\_domain-containing\_protein\_FAM108C1-like[Acyrthosiphon\_pisum] | 0.46172237471866 |
| sba\_whole\_aphid\_contig\_10858:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_1-like[Acyrthosiphon\_pisum] | 0.469003703337237 |
| sba\_whole\_aphid\_contig\_9129:PREDICTED:LOW\_QUALITY\_PROTEIN:juvenile\_hormone\_epoxide\_hydrolase\_1[Acyrthosiphon\_pisum] | 0.532644833055537 |
| sba\_whole\_aphid\_contig\_9997:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_2-like[Acyrthosiphon\_pisum] | 0.626694429932337 |
| sba\_whole\_aphid\_contig\_13111:PREDICTED:epoxide\_hydrolase\_4-like[Acyrthosiphon\_pisum] | 0.654687940605773 |
| sba\_whole\_aphid\_contig\_7780:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_46-like[Acyrthosiphon\_pisum] | 0.655203545545247 |
| sba\_whole\_aphid\_contig\_1979:PREDICTED:nudix\_hydrolase\_8-like[Acyrthosiphon\_pisum] | 0.659006234891438 |
| sba\_whole\_aphid\_contig\_4913:PREDICTED:similar\_to\_fumarylacetoacetate\_hydrolase[Tribolium\_castaneum]\_>gi|270009995|gb|EFA06443.1|\_hypothetical\_protein\_TcasGA2\_TC009325[Tribolium\_castaneum] | 0.677067842101312 |
| sba\_whole\_aphid\_contig\_5586:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_3-like[Acyrthosiphon\_pisum] | 0.765389679869617 |

1. Detoxification genes differentially expressed through time (timepoints 12 and 24h)

6692 transcripts differentially expressed between 12 and 24h

1. Cytochrome P450: 31 transcripts
2. Higher expression level for these transcripts at 12h (downregulation through time\_ decrease at 24h)

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| Name of the CYP contigs | Log2fC |
| sba\_whole\_aphid\_contig\_11038:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | -0.508254275532391 |
| sba\_whole\_aphid\_contig\_7883:PREDICTED:NADPH--cytochrome\_P450\_reductase-like[Acyrthosiphon\_pisum] | -0.655219697683589 |
| sba\_whole\_aphid\_contig\_8840:PREDICTED:probable\_cytochrome\_P450\_6a13-like[Acyrthosiphon\_pisum] | -0.685460240587698 |
| sba\_whole\_aphid\_contig\_10452:cytochrome\_P450[Bemisia\_tabaci] | -0.707533789092027 |
| sba\_whole\_aphid\_contig\_8022:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | -0.708991991206803 |
| sba\_whole\_aphid\_contig\_6666:PREDICTED:cytochrome\_P450\_18a1-like[Acyrthosiphon\_pisum] | -0.770288038301481 |
| sba\_whole\_aphid\_contig\_15283:PREDICTED:cytochrome\_P450\_6a2-like[Acyrthosiphon\_pisum] | -0.805851768092425 |
| sba\_whole\_aphid\_contig\_4531:PREDICTED:probable\_cytochrome\_P450\_6a13-like[Acyrthosiphon\_pisum] | -0.82295291946581 |
| sba\_whole\_aphid\_contig\_12532:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | -0.921202466208379 |
| sba\_whole\_aphid\_contig\_3696:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | -1.00410979480347 |
| sba\_whole\_aphid\_contig\_2398:PREDICTED:cytochrome\_P450\_6k1-like[Acyrthosiphon\_pisum] | -1.00750383119807 |
| sba\_whole\_aphid\_contig\_14313:PREDICTED:probable\_cytochrome\_P450\_6a14-like[Acyrthosiphon\_pisum] | -1.03019760452916 |
| sba\_whole\_aphid\_contig\_8318:PREDICTED:NADPH--cytochrome\_P450\_reductase-like[Acyrthosiphon\_pisum] | -1.05065856156399 |
| sba\_whole\_aphid\_contig\_115:PREDICTED:cytochrome\_P450\_6a2-like[Acyrthosiphon\_pisum] | -1.05826208329232 |
| sba\_whole\_aphid\_contig\_10092:cytochrome\_P450[Bemisia\_tabaci] | -1.07828104070602 |
| sba\_whole\_aphid\_contig\_14438:PREDICTED:cytochrome\_P450\_6a2-like[Acyrthosiphon\_pisum] | -1.14618392685183 |
| sba\_whole\_aphid\_contig\_5169:PREDICTED:cytochrome\_P450\_6k1-like[Acyrthosiphon\_pisum] | -1.15232418884136 |
| sba\_whole\_aphid\_contig\_2250:PREDICTED:probable\_cytochrome\_P450\_6a13-like[Acyrthosiphon\_pisum] | -1.30384701284612 |
| sba\_whole\_aphid\_contig\_9739:PREDICTED:cytochrome\_P450\_4g15-like[Acyrthosiphon\_pisum] | -1.31555680671918 |
| sba\_whole\_aphid\_contig\_7856:PREDICTED:cytochrome\_P450\_6j1-like[Acyrthosiphon\_pisum] | -1.33524653192094 |
| sba\_whole\_aphid\_contig\_7479:PREDICTED:cytochrome\_P450\_6a2-like[Acyrthosiphon\_pisum] | -1.44978099524148 |
| sba\_whole\_aphid\_contig\_9399:PREDICTED:Acyrthosiphon\_pisum\_cytochrome\_P450\_6j1-like(LOC100574848),mRNA\_|predicted\_protein[Hordeum\_vulgare\_subsp.\_vulgare] | -1.5707783064168 |
| sba\_whole\_aphid\_contig\_241:PREDICTED:probable\_cytochrome\_P450\_6a13-like[Acyrthosiphon\_pisum] | -1.58830206159299 |

1. Lower expression level for these transcripts at 12h (upregulation through time\_ increase at 24h)

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| Name of the CYP contigs | Log2fC |
| sba\_whole\_aphid\_contig\_15374:PREDICTED:cytochrome\_P450\_6a2-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.391972560240952 |
| sba\_whole\_aphid\_contig\_1380:PREDICTED:cytochrome\_P450\_4C1-like[Acyrthosiphon\_pisum] | 0.43641498014122 |
| sba\_whole\_aphid\_contig\_975:PREDICTED:probable\_cytochrome\_P450\_6a13-like[Acyrthosiphon\_pisum] | 0.710666231663704 |
| sba\_whole\_aphid\_contig\_2049:PREDICTED:cytochrome\_P450\_302a1,mitochondrial-like[Acyrthosiphon\_pisum] | 0.726176528328551 |
| sba\_whole\_aphid\_contig\_14715:Cytochrome\_P450\_302a1,mitochondrial[Harpegnathos\_saltator] | 0.795389231242427 |
| sba\_whole\_aphid\_contig\_12547:PREDICTED:similar\_to\_CYP302a1[Tribolium\_castaneum]\_&gt;gi|270008247|gb|EFA04695.1|\_cytochrome\_P450\_302A1[Tribolium\_castaneum] | 0.578750054997173 |
| sba\_whole\_aphid\_contig\_8206:PREDICTED:probable\_cytochrome\_P450\_301a1,mitochondrial-like[Acyrthosiphon\_pisum] | 0.637709708073285 |
| sba\_whole\_aphid\_contig\_15277:PREDICTED:cytochrome\_P450\_302a1,mitochondrial-like[Acyrthosiphon\_pisum] | 1.03863871617869 |

1. Glutathione-S-transferase: 4 transcripts
2. Higher expression level for these transcripts at 12h (downregulation through time\_ decrease at 24h)

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| Name of the GST transcripts | Log2fC |
| sba\_whole\_aphid\_contig\_6834:PREDICTED:glutathione\_S-transferase\_D4-like[Acyrthosiphon\_pisum] | -1.197481719303 |
| sba\_whole\_aphid\_contig\_3336:glutathione\_S-transferase\_omega-1-like[Acyrthosiphon\_pisum]\_>gi|239788690|dbj|BAH71013.1|\_ACYPI008340[Acyrthosiphon\_pisum] | -0.622518432231 |
| sba\_whole\_aphid\_contig\_4921:glutathione\_S-transferase-like[Acyrthosiphon\_pisum]\_>gi|239789232|dbj|BAH71253.1|\_ACYPI009326[Acyrthosiphon\_pisum] | -0.6464782472562 |

1. Lower expression level for these transcripts at 12h (upregulation through time\_ increase at 24h)

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| Name of the GST transcripts | Log2fC |
| sba\_whole\_aphid\_contig\_7070:glutathione\_S-transferase-like\_protein[Toxoptera\_citricida] | 0.228501793641975 |

1. Esterases: 42 transcripts
2. Higher expression level for these transcripts at 12h (downregulation through time\_ decrease at 24h)

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| Name of esterase transcripts | Log2fC |
| sba\_whole\_aphid\_contig\_8001:PREDICTED:putative\_glycerophosphocholine\_phosphodiesterase\_GPCPD1-like[Acyrthosiphon\_pisum] | -0.230086389322795 |
| sba\_whole\_aphid\_contig\_459:PREDICTED:acyl-coenzyme\_A\_thioesterase\_9,mitochondrial-like[Acyrthosiphon\_pisum] | -0.267852300921161 |
| sba\_whole\_aphid\_contig\_4993:PREDICTED:high\_affinity\_cAMP-specific\_and\_IBMX-insensitive\_3&apos;,5&apos;-cyclic\_phosphodiesterase\_8A-like,partial[Acyrthosiphon\_pisum] | -0.385678809871852 |
| sba\_whole\_aphid\_contig\_9823:PREDICTED:acyl-protein\_thioesterase\_1-like[Acyrthosiphon\_pisum] | -0.421710512723482 |
| sba\_whole\_aphid\_contig\_9497:acyl-protein\_thioesterase\_1,2-like[Acyrthosiphon\_pisum]\_&gt;gi|239789780|dbj|BAH71492.1|\_ACYPI002611[Acyrthosiphon\_pisum] | -0.464101608372735 |
| sba\_whole\_aphid\_contig\_11692:PREDICTED:esterase\_FE4-like,partial[Acyrthosiphon\_pisum] | -0.499628316629861 |
| sba\_whole\_aphid\_contig\_1859:PREDICTED:ubiquitin\_thioesterase\_trabid-like[Acyrthosiphon\_pisum] | -0.51943605222749 |
| sba\_whole\_aphid\_contig\_2821:PREDICTED:sphingomyelin\_phosphodiesterase-like\_isoform\_3[Acyrthosiphon\_pisum] | -0.528101933499768 |
| sba\_whole\_aphid\_contig\_8034:PREDICTED:LOW\_QUALITY\_PROTEIN:esterase\_FE4[Acyrthosiphon\_pisum] | -0.56318372922893 |
| sba\_whole\_aphid\_contig\_15004:esterase\_ybfF-like[Acyrthosiphon\_pisum]\_&gt;gi|239790074|dbj|BAH71622.1|\_ACYPI004279[Acyrthosiphon\_pisum] | -0.584098104157756 |
| sba\_whole\_aphid\_contig\_9142:PREDICTED:putative\_glycerophosphocholine\_phosphodiesterase\_GPCPD1-like[Acyrthosiphon\_pisum] | -0.619069672608225 |
| sba\_whole\_aphid\_contig\_11204:acetylcholinesterase[Aphis\_gossypii]\_&gt;gi|52313434|dbj|BAD51411.1|\_acetylcholinesterase[Aphis\_gossypii]\_&gt;gi|52313436|dbj|BAD51412.1|\_acetylcholinesterase[Aphis\_gossypii] | -0.63156701645866 |
| sba\_whole\_aphid\_contig\_5532:PREDICTED:cGMP-specific\_3&apos;,5&apos;-cyclic\_phosphodiesterase-like\_isoform\_2[Acyrthosiphon\_pisum]\_&gt;gi|328720845|ref|XP\_001945926.2|\_PREDICTED:cGMP-specific\_3&apos;,5&apos;-cyclic\_phosphodiesterase-like\_isoform1[Acyrthosiphon\_pisum] | -0.64338332891862 |
| sba\_whole\_aphid\_contig\_811:acetylcholinesterase\_2[Aphis\_gossypii]\_&gt;gi|52313422|dbj|BAD51407.1|\_acetylcholinesterase\_2[Aphis\_gossypii] | -0.668156940158051 |
| sba\_whole\_aphid\_contig\_11126:PREDICTED:venom\_carboxylesterase-6-like[Acyrthosiphon\_pisum] | -0.710470050542378 |
| sba\_whole\_aphid\_contig\_14528:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | -0.77804773768468 |
| sba\_whole\_aphid\_contig\_10272:PREDICTED:venom\_carboxylesterase-6-like[Acyrthosiphon\_pisum] | -0.779935307455269 |
| sba\_whole\_aphid\_contig\_5278:acetylcholinesterase[Aphis\_gossypii] | -0.789443650105185 |
| sba\_whole\_aphid\_contig\_14216:acetylcholinesterase[Aphis\_gossypii] | -0.824711932275086 |
| sba\_whole\_aphid\_contig\_4045:PREDICTED:esterase\_FE4-like\_isoform1[Acyrthosiphon\_pisum]\_&gt;gi|328721620|ref|XP\_003247358.1|\_PREDICTED:esterase\_FE4-like\_isoform\_2[Acyrthosiphon\_pisum]\_&gt;gi|328721622|ref|XP\_003247359.1|\_PREDICTED:esterase\_FE4-like\_isoform\_3[Acyrthosiphon\_pisum | -0.937147128866371 |
| sba\_whole\_aphid\_contig\_1036:carboxylesterase[Aphis\_gossypii] | -0.940722515129758 |
| sba\_whole\_aphid\_contig\_4740:PREDICTED:ectonucleotide\_pyrophosphatase/phosphodiesterase\_family\_member\_5-like\_isoform1[Acyrthosiphon\_pisum] | -0.949719244628343 |
| sba\_whole\_aphid\_contig\_1456:acyl-protein\_thioesterase\_1,2-like[Acyrthosiphon\_pisum]\_&gt;gi|239789783|dbj|BAH71493.1|\_ACYPI002721[Acyrthosiphon\_pisum] | -1.4520476996079 |

1. Lower expression level for these transcripts at 12h (upregulation through time\_ increase at 24h)

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| Name of the esterase transcripts | Log2fC |
| sba\_whole\_aphid\_contig\_13671:PREDICTED:protein\_phosphatase\_methylesterase\_1-like[Acyrthosiphon\_pisum] | 0.274750045300978 |
| sba\_whole\_aphid\_contig\_3488:ubiquitin\_thioesterase\_OTU1[Acyrthosiphon\_pisum]\_&gt;gi|239791291|dbj|BAH72133.1|\_ACYPI008281[Acyrthosiphon\_pisum] | 0.329011998079512 |
| sba\_whole\_aphid\_contig\_14746:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | 0.337712091628454 |
| sba\_whole\_aphid\_contig\_12455:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | 0.342282411960522 |
| sba\_whole\_aphid\_contig\_1071:PREDICTED:dual\_3&apos;,5&apos;-cyclic-AMP\_and\_-GMP\_phosphodiesterase\_11-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.351631931783544 |
| sba\_whole\_aphid\_contig\_13246:esterase\_D/formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum]\_&gt;gi|239799401|dbj|BAH70623.1|\_ACYPI002273[Acyrthosiphon\_pisum] | 0.360010135499416 |
| sba\_whole\_aphid\_contig\_7418:PREDICTED:neuropathy\_target\_esterase\_sws-like[Acyrthosiphon\_pisum] | 0.42844556982706 |
| sba\_whole\_aphid\_contig\_4040:PREDICTED:Acyrthosiphon\_pisum\_lysosomal\_thioesterase\_PPT2\_homolog(LOC100163656),mRNA | 0.460512530222274 |
| sba\_whole\_aphid\_contig\_433:PREDICTED:1-phosphatidylinositol-4,5-bisphosphate\_phosphodiesterase\_classes\_I\_and\_II-like[Acyrthosiphon\_pisum] | 0.542315155365666 |
| sba\_whole\_aphid\_contig\_13133:retinal\_rod\_rhodopsin-sensitive\_cGMP\_3&apos;,5&apos;-cyclic\_phosphodiesterase\_subunit\_delta-like[Acyrthosiphon\_pisum]\_&gt;gi|239790658|dbj|BAH71877.1|\_ACYPI000717[Acyrthosiphon\_pisum]\_&gt;gi|239790660|dbj|BAH71878.1|\_ACYPI000717[Acyrthosiphon\_pisum]\_&g | 0.596225605432366 |
| sba\_whole\_aphid\_contig\_11825:PREDICTED:palmitoyl-protein\_thioesterase\_1-like[Acyrthosiphon\_pisum] | 0.620358885002683 |
| sba\_whole\_aphid\_contig\_12135:PREDICTED:metallophosphoesterase\_1-like[Acyrthosiphon\_pisum] | 0.633982272273538 |
| sba\_whole\_aphid\_contig\_1729:PREDICTED:dual\_3&apos;,5&apos;-cyclic-AMP\_and\_-GMP\_phosphodiesterase\_11A[Acyrthosiphon\_pisum] | 0.70281588771872 |
| sba\_whole\_aphid\_contig\_11633:PREDICTED:Acyrthosiphon\_pisum\_metallophosphoesterase\_1-like(LOC100568709),mRNA | 0.752773077062485 |
| sba\_whole\_aphid\_contig\_8125:PREDICTED:ubiquitin\_thioesterase\_otubain-like[Acyrthosiphon\_pisum] | 0.753659330993957 |
| sba\_whole\_aphid\_contig\_3277:PREDICTED:esterase\_FE4-like[Acyrthosiphon\_pisum] | 0.786705988861461 |
| sba\_whole\_aphid\_contig\_2908:PREDICTED:2&apos;,5&apos;-phosphodiesterase\_12-like[Acyrthosiphon\_pisum] | 0.798671306551212 |
| sba\_whole\_aphid\_contig\_5657:PREDICTED:trifunctional\_nucleotide\_phosphoesterase\_protein\_YfkN-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.811924718517721 |
| sba\_whole\_aphid\_contig\_436:PREDICTED:probable\_tyrosyl-DNA\_phosphodiesterase-like\_isoform1[Acyrthosiphon\_pisum] | 0.84845466787037 |

1. Other hydrolases: 64 transcripts
2. Higher expression level for these transcripts at 12h (downregulation through time\_ decrease at 24h)

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| Name of the hydrolase | Log2fC |
| sba\_whole\_aphid\_contig\_7583:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_  14-like[Acyrthosiphon\_pisum] | -0.276868443932873 |
| sba\_whole\_aphid\_contig\_6111:PREDICTED:ester\_hydrolase\_C11orf54\_homolog[Acyrthosiphon\_pisum] | -0.348716633883597 |
| sba\_whole\_aphid\_contig\_4830:PREDICTED:valacyclovir\_hydrolase-like[Acyrthosiphon\_pisum] | -0.354293007470264 |
| sba\_whole\_aphid\_contig\_12086:ubiquitin\_c-terminal\_hydrolase\_UCH37-like\_protein[Toxoptera\_citricida] | -0.367328045777181 |
| sba\_whole\_aphid\_contig\_13326:valacyclovir\_hydrolase-like[Acyrthosiphon\_pisum]\_&gt;gi|239789292|dbj|BAH71277.1|\_ACYPI007493[Acyrthosiphon\_pisum] | -0.395364745021483 |
| sba\_whole\_aphid\_contig\_7767:PREDICTED:similar\_to\_serine\_hydrolase\_protein[Tribolium\_castaneum]\_&gt;gi|270005749|gb|EFA02197.1|\_hypothetical\_protein\_TcasGA2\_TC007853[Tribolium\_castaneum] | -0.413306890818585 |
| sba\_whole\_aphid\_contig\_4399:PREDICTED:abhydrolase\_domain-containing\_protein\_FAM108C1-like[Acyrthosiphon\_pisum] | -0.453952490847482 |
| sba\_whole\_aphid\_contig\_15398:PREDICTED:valacyclovir\_hydrolase-like[Acyrthosiphon\_pisum] | -0.494031533046748 |
| sba\_whole\_aphid\_contig\_1979:PREDICTED:nudix\_hydrolase\_8-like[Acyrthosiphon\_pisum] | -0.530699169632155 |
| sba\_whole\_aphid\_contig\_2689:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_7[Acyrthosiphon\_pisum] | -0.590042910148516 |
| sba\_whole\_aphid\_contig\_7780:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_46-like[Acyrthosiphon\_pisum] | -0.597446711624808 |
| sba\_whole\_aphid\_contig\_9129:PREDICTED:LOW\_QUALITY\_PROTEIN:juvenile\_hormone\_epoxide\_hydrolase\_1[Acyrthosiphon\_pisum] | -0.624652446314155 |
| sba\_whole\_aphid\_contig\_296:PREDICTED:lactase-phlorizin\_hydrolase-like[Acyrthosiphon\_pisum] | -0.666350136341006 |
| sba\_whole\_aphid\_contig\_3249:PREDICTED:putative\_peptidyl-tRNA\_hydrolase\_PTRHD1-like[Nasonia\_vitripennis] | -0.687020472014516 |
| sba\_whole\_aphid\_contig\_12416:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_5-like[Acyrthosiphon\_pisum] | -0.729475004668237 |
| sba\_whole\_aphid\_contig\_7898:PREDICTED:abhydrolase\_domain-containing\_protein\_2-like[Acyrthosiphon\_pisum] | -0.748300026262106 |
| sba\_whole\_aphid\_contig\_11338:PREDICTED:ectonucleoside\_triphosphate\_diphosphohydrolase\_5-like\_isoform1[Acyrthosiphon\_pisum]\_&gt;gi|328704730|ref|XP\_003242584.1|\_PREDICTED:ectonucleoside\_triphosphate\_diphosphohydrolase\_5-like\_isoform\_2[Acyrthosiphon\_pisum] | -0.756401451958635 |
| sba\_whole\_aphid\_contig\_5745:PREDICTED:lactase-phlorizin\_hydrolase-like[Acyrthosiphon\_pisum] | -0.791886197282729 |
| sba\_whole\_aphid\_contig\_4567:PREDICTED:lactase-phlorizin\_hydrolase-like[Acyrthosiphon\_pisum] | -0.835956191537472 |
| sba\_whole\_aphid\_contig\_10035:fumarylacetoacetase[Bombyx\_mori]\_&gt;gi|87248131|gb|ABD36118.1|\_fumarylacetoacetate\_hydrolase[Bombyx\_mori] | -0.844438665773999 |
| sba\_whole\_aphid\_contig\_14621:PREDICTED:lactase-phlorizin\_hydrolase-like[Acyrthosiphon\_pisum] | -0.89362970186756 |
| sba\_whole\_aphid\_contig\_12427:PREDICTED:Acyrthosiphon\_pisum\_ubiquitin\_carboxyl-terminal\_hydrolase\_5-like(LOC100159829),mRNA | -0.947851599168317 |
| sba\_whole\_aphid\_contig\_8969:PREDICTED:gamma-glutamyl\_hydrolase\_A-like[Acyrthosiphon\_pisum] | -0.971244524497673 |
| sba\_whole\_aphid\_contig\_13111:PREDICTED:epoxide\_hydrolase\_4-like[Acyrthosiphon\_pisum] | -0.980218604995508 |
| sba\_whole\_aphid\_contig\_13605:PREDICTED:similar\_to\_lactase-phlorizin\_hydrolase[Strongylocentrotus\_purpuratus]\_&gt;gi|115934750|ref|XP\_001183226.1|\_PREDICTED:similar\_to\_lactase-phlorizin\_hydrolase[Strongylocentrotus\_purpuratus] | -1.0264951444169 |
| sba\_whole\_aphid\_contig\_4913:PREDICTED:similar\_to\_fumarylacetoacetate\_hydrolase[Tribolium\_castaneum]\_&gt;gi|270009995|gb|EFA06443.1|\_hypothetical\_protein\_TcasGA2\_TC009325[Tribolium\_castaneum] | -1.24942716384384 |
| sba\_whole\_aphid\_contig\_5973:PREDICTED:fatty\_acyl-CoA\_hydrolase\_precursor,medium\_chain-like[Acyrthosiphon\_pisum] | -1.37930235342358 |
| sba\_whole\_aphid\_contig\_12522:PREDICTED:epoxide\_hydrolase\_4-like\_isoform1[Acyrthosiphon\_pisum] | -1.53185109626305 |

1. Lower expression level for these transcripts at 12h (upregulation through time\_ increase at 24h)

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| Name of the hydrolase transcripts | Log2fC |
| sba\_whole\_aphid\_contig\_10780:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_36-like[Acyrthosiphon\_pisum] | 0.247997643573277 |
| sba\_whole\_aphid\_contig\_10390:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_16-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.348412581909368 |
| sba\_whole\_aphid\_contig\_13246:esterase\_D/formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum]\_&gt;gi|239799401|dbj|BAH70623.1|\_ACYPI002273[Acyrthosiphon\_pisum] | 0.360010135499416 |
| sba\_whole\_aphid\_contig\_657:peptidyl-tRNA\_hydrolase-like[Acyrthosiphon\_pisum]\_&gt;gi|239792455|dbj|BAH72569.1|\_ACYPI002769[Acyrthosiphon\_pisum] | 0.360427685267568 |
| sba\_whole\_aphid\_contig\_9541:PREDICTED:s-formylglutathione\_hydrolase-like[Acyrthosiphon\_pisum] | 0.375118394908153 |
| sba\_whole\_aphid\_contig\_4292:deoxyuridine\_5&apos;-triphosphate\_nucleotidohydrolase,mitochondrial-like[Acyrthosiphon\_pisum]\_&gt;gi|239789176|dbj|BAH71229.1|\_ACYPI002199[Acyrthosiphon\_pisum] | 0.453719129507125 |
| sba\_whole\_aphid\_contig\_6912:PREDICTED:N(G),N(G)-dimethylarginine\_dimethylaminohydrolase\_1-like[Acyrthosiphon\_pisum] | 0.455079803117366 |
| sba\_whole\_aphid\_contig\_13827:PREDICTED:platelet-activating\_factor\_acetylhydrolase\_IB\_subunit\_beta\_homolog[Acyrthosiphon\_pisum] | 0.466125822421508 |
| sba\_whole\_aphid\_contig\_13145:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_48-like[Acyrthosiphon\_pisum] | 0.492311947811829 |
| sba\_whole\_aphid\_contig\_7015:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_32-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.497704209255043 |
| sba\_whole\_aphid\_contig\_11768:PREDICTED:hydroxyacylglutathione\_hydrolase,mitochondrial-like\_isoform1[Acyrthosiphon\_pisum] | 0.499212656963575 |
| sba\_whole\_aphid\_contig\_8446:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_20-like[Acyrthosiphon\_pisum] | 0.518395277259306 |
| sba\_whole\_aphid\_contig\_1957:PREDICTED:poly(ADP-ribose)\_glycohydrolase-like[Acyrthosiphon\_pisum] | 0.528079325847962 |
| sba\_whole\_aphid\_contig\_8362:haloacid\_dehalogenase-like\_hydrolase\_domain\_containing\_1A-like[Acyrthosiphon\_pisum]\_&gt;gi|239792548|dbj|BAH72605.1|\_ACYPI002706[Acyrthosiphon\_pisum] | 0.53301252183478 |
| sba\_whole\_aphid\_contig\_2632:platelet-activating\_factor\_acetylhydrolase\_IB\_subunit\_beta[Acyrthosiphon\_pisum]\_&gt;gi|239791960|dbj|BAH72379.1|\_ACYPI009998[Acyrthosiphon\_pisum] | 0.553928125011449 |
| sba\_whole\_aphid\_contig\_15151:PREDICTED:abhydrolase\_domain-containing\_protein\_16A-like[Acyrthosiphon\_pisum] | 0.559725089147173 |
| sba\_whole\_aphid\_contig\_8377:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_30-like[Acyrthosiphon\_pisum] | 0.595493085142813 |
| sba\_whole\_aphid\_contig\_179:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_16-like\_isoform1[Acyrthosiphon\_pisum]\_&gt;gi|328701435|ref|XP\_003241598.1|\_PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_16-like\_isoform\_3[Acyrthosiphon\_pisum] | 0.608849577195233 |
| sba\_whole\_aphid\_contig\_3208:PREDICTED:hydroxyacylglutathione\_hydrolase,mitochondrial-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.628393984881021 |
| sba\_whole\_aphid\_contig\_14283:PREDICTED:probable\_ubiquitin\_carboxyl-terminal\_hydrolase\_FAF-X-like\_isoform\_2[Acyrthosiphon\_pisum]\_&gt;gi|328720472|ref|XP\_001946927.2|\_PREDICTED:probable\_ubiquitin\_carboxyl-terminal\_hydrolase\_FAF-X-like\_isoform1[Acyrthosiphon\_pisum] | 0.630587805693673 |
| sba\_whole\_aphid\_contig\_14089:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_16-like[Acyrthosiphon\_pisum] | 0.64162652726768 |
| sba\_whole\_aphid\_contig\_15154:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_34-like[Acyrthosiphon\_pisum] | 0.646600723333874 |
| sba\_whole\_aphid\_contig\_9343:PREDICTED:bifunctional\_methylenetetrahydrofolate\_dehydrogenase/cyclohydrolase,mitochondrial-like[Acyrthosiphon\_pisum] | 0.656131934284528 |
| sba\_whole\_aphid\_contig\_12918:PREDICTED:fatty-acid\_amide\_hydrolase\_2-like\_isoform1[Acyrthosiphon\_pisum] | 0.662668859599991 |
| sba\_whole\_aphid\_contig\_2224:peptidyl-tRNA\_hydrolase\_2,mitochondrial-like[Acyrthosiphon\_pisum]\_&gt;gi|239792918|dbj|BAH72740.1|\_ACYPI008234[Acyrthosiphon\_pisum] | 0.667091930614265 |
| sba\_whole\_aphid\_contig\_14388:PREDICTED:valacyclovir\_hydrolase-like[Acyrthosiphon\_pisum] | 0.679798897885737 |
| sba\_whole\_aphid\_contig\_1802:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_32-like\_isoform1[Acyrthosiphon\_pisum] | 0.682359949647571 |
| sba\_whole\_aphid\_contig\_2322:peptidyl-tRNA\_hydrolase\_2,mitochondrial[Acyrthosiphon\_pisum]\_&gt;gi|239788811|dbj|BAH71067.1|\_ACYPI008026[Acyrthosiphon\_pisum] | 0.686587332159755 |
| sba\_whole\_aphid\_contig\_9011:PREDICTED:probable\_serine\_hydrolase-like\_isoform1[Acyrthosiphon\_pisum]\_&gt;gi|328713486|ref|XP\_003245089.1|\_PREDICTED:probable\_serine\_hydrolase-like\_isoform\_2[Acyrthosiphon\_pisum]\_&gt;gi|328713488|ref|XP\_003245090.1|\_PREDICTED:probable\_serine\_hydrol | 0.704202736161071 |
| sba\_whole\_aphid\_contig\_440:PREDICTED:ubiquitin\_carboxyl-terminal\_hydrolase\_8-like[Acyrthosiphon\_pisum] | 0.706495999242758 |
| sba\_whole\_aphid\_contig\_14024:PREDICTED:diphosphoinositol\_polyphosphate\_phosphohydrolase\_2-like\_isoform\_2[Acyrthosiphon\_pisum] | 0.713729364760359 |
| sba\_whole\_aphid\_contig\_14265:PREDICTED:serine\_hydrolase-like\_protein-like[Acyrthosiphon\_pisum] | 0.787637730649096 |
| sba\_whole\_aphid\_contig\_10612:PREDICTED:similar\_to\_S-adenosylhomocysteine\_hydrolase-like\_2[Hydra\_magnipapillata] | 0.938901098400477 |
| sba\_whole\_aphid\_contig\_11048:PREDICTED:Acyrthosiphon\_pisum\_ubiquitin\_carboxyl-terminal\_hydrolase\_34-like(LOC100166899),mRNA | 0.947462301289871 |
| sba\_whole\_aphid\_contig\_3998:LOW\_QUALITY\_PROTEIN:cell\_wall-associated\_hydrolase[Escherichia\_sp.\_3\_2\_53FAA]\_&gt;gi|226903369|gb|EEH89628.1|\_LOW\_QUALITY\_PROTEIN:cell\_wall-associated\_hydrolase[Escherichia\_sp.\_3\_2\_53FAA] | 1.80395989274829 |
| sba\_whole\_aphid\_contig\_3358:Wolbachia\_sp.\_wRi,complete\_genome\_|cell\_wall-associated\_hydrolase[Candidatus\_Pelagibacter\_sp.\_HTCC7211]\_&gt;gi|207083014|gb|EDZ60440.1|\_cell\_wall-associated\_hydrolase[Candidatus\_Pelagibacter\_sp.\_HTCC7211] | 1.8161987865982 |