

## SUPPLEMENTARY INFORMATION

Supplementary Table 1. Alternative splicing (AS) prevalence in head and body lice as compared to other invertebrate species. Human and mouse are included for reference.

Subgroup	Scientific name	Estimated AS prevalence using comparative index AS
Insects	<i>Pediculus humanus capitis</i>	0.2974
Insects	<i>Pediculus humanus corporis</i>	0.3089
Insects	<i>Drosophila melanogaster</i>	0.4166
Crustacea	<i>Daphnia pulex</i>	0.2312
Arachnida	<i>Ixodes scapularis</i>	0.2683
Roundworms	<i>Caenorhabditis elegans</i>	0.2785
Mammals	<i>Homo sapiens</i>	0.8909
Mammals	<i>Mus musculus</i>	0.842

Supplementary Table 2. Image sources

<b>Species name</b>	<b>Source</b>
<i>Pediculus humanus capitis</i>	Gilles San Martin, "Male human head louse" August 17, 2010 via Flickr, Creative Commons Attribution-Share Alike <a href="http://commons.wikimedia.org/wiki/File:Male_human_head_ouse.jpg">http://commons.wikimedia.org/wiki/File:Male_human_head_ouse.jpg</a>
<i>Pediculus humanus corporis</i>	CDC/ Frank Collins, Ph.D., "Pediculus humanus var. corporis" 2006 via Public Health Image Library, public domain <a href="http://phil.cdc.gov/phil/details.asp?pid=9206">http://phil.cdc.gov/phil/details.asp?pid=9206</a>
<i>Drosophila melanogaster</i>	André Karwath, "Drosophila melanogaster - side" July 16, 2005 via Wikipedia Commons, Creative Commons Attribution-Share Alike <a href="http://commons.wikimedia.org/wiki/File:Drosophila_melanogaster_-_side_(aka).jpg">http://commons.wikimedia.org/wiki/File:Drosophila_melanogaster_-_side_(aka).jpg</a>
<i>Daphnia pulex</i>	Paul Hebert, "Daphnia pulex" June 14, 2005 via Wikipedia Commons, Creative Commons Attribution <a href="http://commons.wikimedia.org/wiki/File:Daphnia_pulex.png">http://commons.wikimedia.org/wiki/File:Daphnia_pulex.png</a>
<i>Ixodes scapularis</i>	Scott Bauer, "Adult deer tick, Ixodes scapularis", public domain <a href="http://commons.wikimedia.org/wiki/File:Adult_deer_tick.jpg">http://commons.wikimedia.org/wiki/File:Adult_deer_tick.jpg</a>
<i>Caenorhabditis elegans</i>	Bob Goldstein, "Caenorhabditis elegans, adult hermaphrodite" 2007 via Wikipedia commons, Creative Commons Attribution-Share Alike <a href="http://commons.wikimedia.org/wiki/File:CelegansGoldsteinLabUNC.jpg">http://commons.wikimedia.org/wiki/File:CelegansGoldsteinLabUNC.jpg</a>
<i>Aedes aegypti</i>	James Gathany, "The yellow fever mosquito Aedes aegypti, taking a bloodmeal." 2005 via Public Health Image Library, public domain <a href="http://commons.wikimedia.org/wiki/File:Aedes_aegypti_bloodfeeding_CDC_Gathany.jpg">http://commons.wikimedia.org/wiki/File:Aedes_aegypti_bloodfeeding_CDC_Gathany.jpg</a>
<i>Acyrtosiphon pisum</i>	Shipper Wu, "Pea aphids extracting sap from the stem and leaves of garden peas." February 2010 via Wikipedia commons, Creative Commons Attribution <a href="http://commons.wikimedia.org/wiki/File:Acyrtosiphon_pisum_(pea_aphid)-PLoS.jpg">http://commons.wikimedia.org/wiki/File:Acyrtosiphon_pisum_(pea_aphid)-PLoS.jpg</a>

Supplementary Table 3. Enrichment and impoverishment of alternative splicing (AS) event types among genes with head louse specific AS events.

AS event type	Head louse specific AS events per type	Expected number of head louse specific AS events from 10000 random samples	Standard Error	Z-score	One sided p value	Bonferroni adjusted p-value
ES	398	350.3187	14.71017	3.2413	0.000594754	0.002973767
5S	303	368.1552	14.95069	-4.3580	6.56E-06	3.28E-05
3S	329	208.6949	12.24355	9.8259	4.35E-23	2.18E-22
I	238	316.8503	14.1002	-5.5921	1.12E-08	5.61E-08
3S5S	147	170.9809	11.10434	-2.1595	0.0154019	0.07700952

Supplementary Table 4. Enrichment and impoverishment of alternative splicing (AS) event types among genes with body louse specific AS events.

AS event type	Body louse specific AS events per type	Expected number of body louse specific AS events from 10000 random samples	Standard Error	Z-score	One sided p value	Bonferroni adjusted p-value
ES	742	540.3015	17.44294	11.56333	3.16E-31	1.58E-30
5S	488	568.337	17.55804	-4.57551	2.38E-06	1.19E-05
3S	420	321.8113	14.09827	6.964593	1.65E-12	8.23E-12
I	313	489.227	16.78252	-10.50063	4.29E-26	2.15E-25
3S5S	220	263.3232	13.05875	-3.317561	0.000454036	0.00227018

Supplementary Table 5. GO term categories enriched and impoverished among genes with body louse specific alternative splicing events. No terms were enriched or underrepresented in head lice.

Enriched GO ID	GO Term	Genes with body lice specific AS events in GO Term	Expected no. of genes	Standard Error	Z-score	BH adjusted p-value
GO:0007422	peripheral nervous system development	30	17.2124	3.2522	3.9319	0.0022
GO:0007435	salivary gland morphogenesis	26	15.2889	3.0898	3.4665	0.0069
GO:0007424	open tracheal system development	40	27.6003	4.0973	3.0262	0.0164
GO:0007391	dorsal closure	39	27.5647	4.1133	2.7800	0.0280
GO:0006355	regulation of transcription; DNA-dependent	50	37.1758	4.6985	2.7293	0.0280
GO:0030707	ovarian follicle cell development	25	16.807	3.2408	2.5280	0.0395
GO:0048102	autophagic cell death	24	16.0587	3.1591	2.5137	0.0395
Impoverished GOID						
GO:0055114	oxidation-reduction process	26	41.73	5.0595	-3.10898	0.0164
GO:0006412	translation	12	20.8038	3.5644	-2.46986	0.0397