

Supplemental Information for:

Transcriptomics of monarch butterflies (*Danaus plexippus*) reveals that toxic host plants alter expression of detoxification genes and down-regulate a small number of immune genes

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Table S1. Sample sizes for each RNA-Seq. treatment group.

Hostplant species	Infection treatment	Tissue type	Sample size
<i>A. incarnata</i>	Infected	Gut	4
<i>A. incarnata</i>	Infected	Body	4
<i>A. incarnata</i>	Uninfected	Gut	3
<i>A. incarnata</i>	Uninfected	Body	3
<i>A. curassavica</i>	Infected	Gut	3
<i>A. curassavica</i>	Infected	Body	3
<i>A. curassavica</i>	Uninfected	Gut	3
<i>A. curassavica</i>	Uninfected	Body	3

Table S2. List of immune genes used in this study.

Gene ID	Gene name	Gene length	Functional class	Chromosome
DPOGS200905	PGRP-like	3371	Recognition	Z-chromosome
DPOGS209813	PGRP-like	1574	Recognition	Autosome
DPOGS206909	PGRP-like	1472	Recognition	Z-chromosome
DPOGS206910	PGRP-like	7919	Recognition	Z-chromosome
DPOGS207148	PGRP-like	15320	Recognition	Z-chromosome
DPOGS209814	PGRP-like	2222	Recognition	Autosome
DPOGS206026	PGRP-like	3333	Recognition	Z-chromosome
DPOGS212963	BGRP-like	7393	Recognition	Autosome
DPOGS215599	BGRP-like	2910	Recognition	Autosome
DPOGS212940	BGRP-like	4002	Recognition	Autosome
DPOGS212941	BGRP-like	3544	Recognition	Autosome
DPOGS212964	BGRP-like	3508	Recognition	Autosome
DPOGS212965	BGRP-like	3969	Recognition	Autosome
DPOGS203317	Frep-like	5328	Recognition	Z-chromosome
DPOGS206045	Frep-like	4504	Recognition	Z-chromosome
DPOGS203951	Frep-like	10862	Recognition	Z-chromosome
DPOGS210549	Class B-like SCR	5148	Recognition	Autosome
DPOGS203180	Class B-like SCR	13541	Recognition	Autosome
DPOGS202796	Class B-like SCR	9956	Recognition	Autosome
DPOGS214397	Other SCR	13196	Recognition	Autosome
DPOGS213636	Other SCR	15159	Recognition	Autosome
DPOGS212634	Other SCR	14283	Recognition	Autosome
DPOGS202826	Other SCR	9352	Recognition	Autosome
DPOGS215836	TEP-like	10955	Recognition	Autosome
DPOGS210251	NIM-like	13838	Recognition	Autosome
DPOGS210210	NIM-like	5318	Recognition	Autosome
DPOGS210211	NIM-like	13481	Recognition	Autosome
DPOGS204835	CLIP-like	3824	Modulation	Autosome
DPOGS205231	CLIP-like	27491	Modulation	Autosome
DPOGS206561	CLIP-like	4655	Modulation	Autosome
DPOGS215180	CLIP-like	11215	Modulation	Autosome
DPOGS215181	CLIP-like	10878	Modulation	Autosome
DPOGS206562	CLIP-like	14594	Modulation	Autosome
DPOGS206563	CLIP-like	3009	Modulation	Autosome
DPOGS213841	CLIP-like	3609	Modulation	Autosome

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DPOGS215183	CLIP-like	13397	Modulation	Autosome
DPOGS215188	CLIP-like	4339	Modulation	Autosome
DPOGS204146	CLIP-like	5061	Modulation	Autosome
DPOGS204147	CLIP-like	6895	Modulation	Autosome
DPOGS201678	CLIP-like	3492	Modulation	Autosome
DPOGS215220	CLIP-like	3818	Modulation	Autosome
DPOGS215098	CLIP-like	27161	Modulation	Autosome
DPOGS208169	CLIP-like	3911	Modulation	Autosome
DPOGS201966	CLIP-like	10337	Modulation	Autosome
DPOGS215182	CLIP-like	10004	Modulation	Autosome
DPOGS211355	CLIP-like	3601	Modulation	Autosome
DPOGS203664	CLIP-like	7166	Modulation	Autosome
DPOGS210568	CLIP-like	8283	Modulation	Autosome
DPOGS214570	CLIP-like	4377	Modulation	Autosome
DPOGS204148	CLIP-like	2905	Modulation	Autosome
DPOGS205210	CLIP-like	3342	Modulation	Autosome
DPOGS211237	CLIP-like	2943	Modulation	Autosome
DPOGS206224	CLIP-like	5720	Modulation	Autosome
DPOGS206217	CLIP-like	3300	Modulation	Autosome
DPOGS205206	CLIP-like	3310	Modulation	Autosome
DPOGS209809	SPZ-like	1777	Signaling - Toll	Autosome
DPOGS209810	SPZ-like	5018	Signaling - Toll	Autosome
DPOGS203200	Toll_like-receptors	3821	Signaling - Toll	Autosome
DPOGS205279	Toll_like-receptors	4664	Signaling - Toll	Autosome
DPOGS202626	Toll_like-receptors	2709	Signaling - Toll	Autosome
DPOGS205281	Toll_like-receptors	3894	Signaling - Toll	Autosome
DPOGS205295	Toll_like-receptors	3887	Signaling - Toll	Autosome
DPOGS205123	Toll_like-receptors	5897	Signaling - Toll	Autosome
DPOGS211472	Toll_like-receptors	4533	Signaling - Toll	Autosome
DPOGS200002	Toll_like-receptors	5428	Signaling - Toll	Autosome
DPOGS205283	Toll_like-receptors	1949	Signaling - Toll	Autosome
DPOGS215274	Toll_like-receptors	5667	Signaling - Toll	Autosome
DPOGS203198	Toll_like-receptors	3410	Signaling - Toll	Autosome
DPOGS205293	Toll_like-receptors	869	Signaling - Toll	Autosome
DPOGS205296	Toll_like-receptors	2006	Signaling - Toll	Autosome
DPOGS207788	Tollip	3828	Signaling - Toll	Autosome
DPOGS205936	MyD88	2965	Signaling - Toll	Autosome

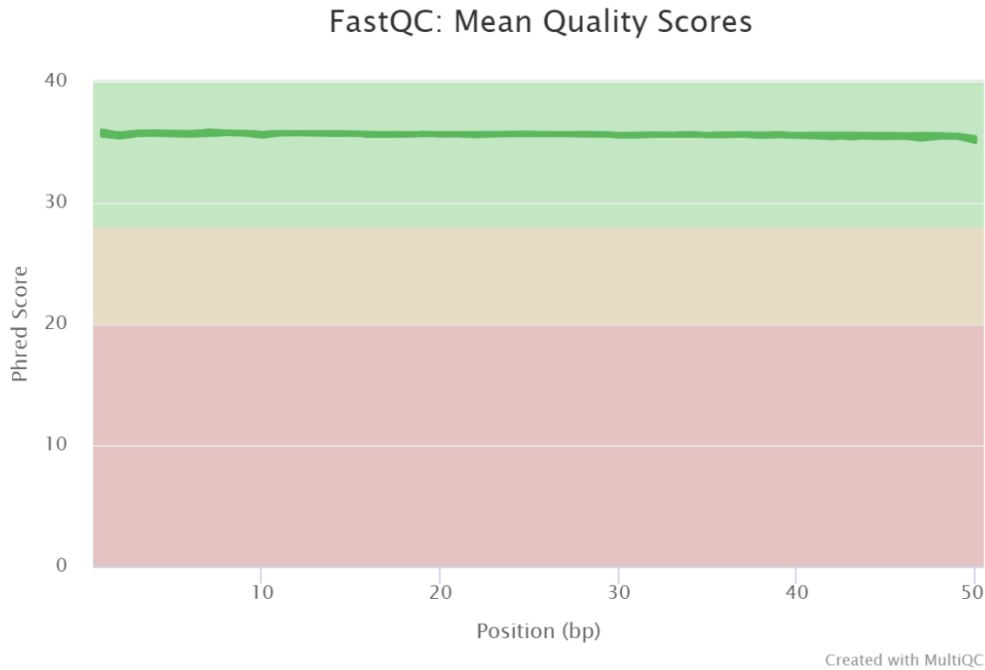
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DPOGS208945	Tube	2121	Signaling - Toll	Autosome
DPOGS214647	Pellino	3601	Signaling - Toll	Autosome
DPOGS210260	Pelle	11577	Signaling - Toll	Autosome
DPOGS202662	TRAF2	6521	Signaling - Toll	Autosome
DPOGS209243	ECSIT	1486	Signaling - Toll	Autosome
DPOGS209453	Cactus	2181	Signaling - Toll	Autosome
DPOGS215778	IMD	1319	Signaling - IMD	Autosome
DPOGS200403	TAK1	12371	Signaling - IMD	Autosome
DPOGS202907	IKKgamma	14063	Signaling - IMD	Autosome
DPOGS202564	IKKbeta	1586	Signaling - IMD	Autosome
DPOGS207960	FADD	916	Signaling - IMD	Autosome
DPOGS212093	Dredd	1508	Signaling - IMD	Autosome
DPOGS200977	Tab2	3087	Signaling - IMD	Autosome
DPOGS203759	IAP2	5539	Signaling - IMD	Autosome
DPOGS201405	Ubc13	455	Signaling - IMD	Autosome
DPOGS208954	Hem	3377	Signaling - JNK	Autosome
DPOGS213169	JNK	3769	Signaling - JNK	Autosome
DPOGS214573	Fos	2706	Signaling - JNK	Autosome
DPOGS202887	Jun	242	Signaling - JNK	Autosome
DPOGS214325	PIAS	12079	Signaling - JAK-STAT	Autosome
DPOGS214451	SOCS	2617	Signaling - JAK-STAT	Autosome
DPOGS200349	DOMELESS	2960	Signaling - JAK-STAT	Autosome
DPOGS210157	Hopscotch	8831	Signaling - JAK-STAT	Autosome
DPOGS212956	Stat	16032	Signaling - JAK-STAT	Autosome
DPOGS213997	Attacin-Like	877	Effector	Autosome
DPOGS205720	Attacin-Like	1439	Effector	Autosome
DPOGS215451	Attacin-Like	818	Effector	Autosome
DPOGS210270	Cecropin-like	374	Effector	Autosome
DPOGS210268	Cecropin-like	422	Effector	Autosome
DPOGS210269	Cecropin-like	529	Effector	Autosome
DPOGS200256	Cecropin-like	428	Effector	Autosome
DPOGS210271	Cecropin-like	352	Effector	Autosome
DPOGS210265	Cecropin-like	848	Effector	Autosome
DPOGS210304	Gloverin-like	644	Effector	Autosome
DPOGS210303	Gloverin-like	822	Effector	Autosome
DPOGS202093	NOS-like	15626	Effector	Autosome
DPOGS202094	NOS-like	19723	Effector	Autosome

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DPOGS201818	PPO-like	4660	Effector	Z-chromosome
DPOGS201819	PPO-like	5674	Effector	Z-chromosome
DPOGS206820	PPO-like	9352	Effector	Z-chromosome
DPOGS200017	PPO-like	5087	Effector	Autosome

(A)



(B)

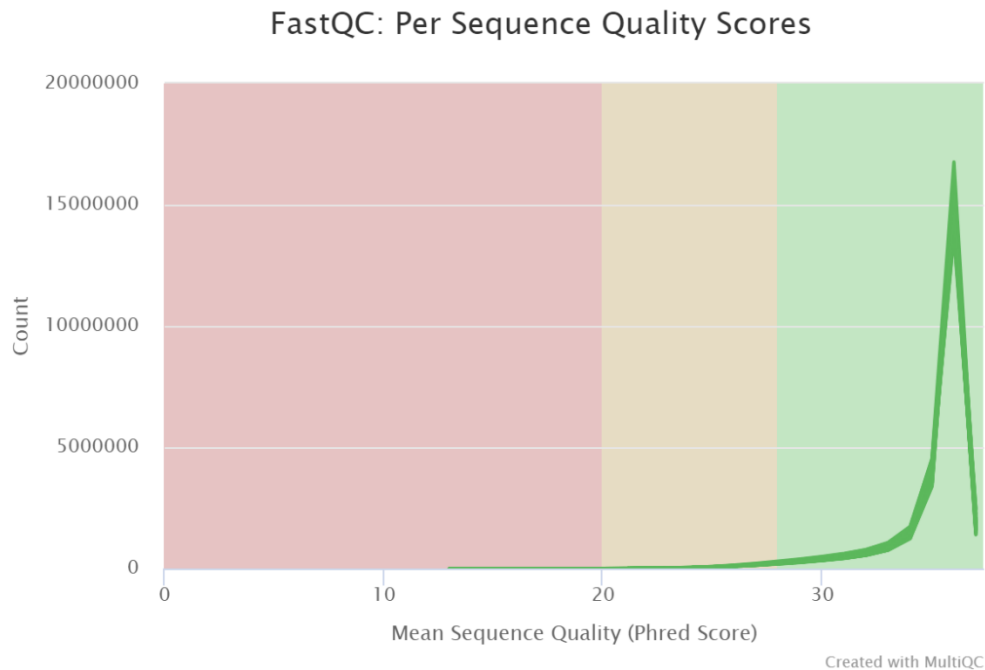


Figure S1. Quality of RNA-Seq reads across all samples. (A) The mean quality score across each base position in the read. (B) The number of reads with each mean quality score. Each green curve represents one RNA-Seq sample (N = 26). The curves are highly overlapped across samples because of highly consistent quality.