Table S1. Oligonucleotides used in this study

Primer ID	Sequence (5'–3)	Description	Appication
59	GTTTGTATGAGGTTATACTTCAAGGAG	DWV/VDV-1 (8004-8030), F	qRT-PCR, Array validation
60	GCCATGCAATCCTTCAGTACCAGC	DWV/VDV-1 (8143-8120), R	qRT-PCR, Array validation
1381	CTGTAGTTAAGCGGTTATTAGAA	VDV-1 CP (4890-4912), F	qRT-PCR, RT-PCR-central region
1382	GGTGCTTCTGGAACAGCGGAA	VDV-1 CP (4986-4966), R	qRT-PCR, Negative strand qRT-PCR
1383	CTGTAGTCAAGCGGTTACTTGAG	DWV CP (4917-4939), F	qRT-PCR, RT-PCR-central region
1384	GGAGCTTCTGGAACGGCAGGT	DWV CP (5013-4993), R	qRT-PCR, Negative strand qRT-PCR
1425	TTCATTAAAACCGCCAGGCTCT	VDV-1 NS (8623-8644), F	qRT-PCR
1426	CAAGTTCAGGTCTCATCCCTCT	VDV-1 NS (8723-8702), R	qRT-PCR
1427	TTCATTAAAGCCACCTGGAACA	DWV NS (8650-8671), F	qRT-PCR, Array validation
1428	CAAGTTCGGGACGCATTCCACG	DWV NS (8750-8729), R	qRT-PCR, Array validation
1418	TGAAGGTAGTCTCATGGATAC	Varroa β-actin, R	qRT-PCR
1419	GTCTCTGTTCCAGCCCTCGTTC	Varroa β-actin F	qRT-PCR
1420	AGGAATGGAAGCTTGCGGTA	Honeybee β-actin, F	qRT-PCR
1421	AATTTTCATGGTGGATGGTGC	Honeybee β-actin, R	qRT-PCR
155	CAGTAGCTTGGGCGATTGTTTCG	DWV/VDV-1 (4842-4864), F,	RT-PCR-central region
156	CGCGCTTAACACACGCAAATTATC	DWV/VDV-1 (6747-6728), R	RT-PCR-central region
153	CTTGGAGCTTGAGGCTCTACA	DWV (6546-6526), R	RT-PCR-central region
154	CTGAAGTACTAATCTCTGAG	VDV-1 (6308-6289), R	RT-PCR-central region
211	GCCTTCCATAGCGAATTACG	DWV/VDV-1 (9-28), F	RT-PCR, DWV cDNA for NGS
213	TTTTCAATTTAATTTTGATTTCGAAGG	DWV/VDV-1 (1092-1118), F	RT-PCR, DWV cDNA for NGS
214	CGCCGCCTAGCTTCATCA	DWV/VDV-1 (1245-1228), R	RT-PCR, DWV cDNA for NGS
217	GGATGATCCATTTGATAAGG	DWV/VDV-1 (1990-2009), F	RT-PCR, DWV cDNA for NGS
218	CATATAGCATCAGAATTAGCCTC	DWV/VDV-1 (2076-2054), R	RT-PCR, DWV cDNA for NGS
221	GGGTGCGTAAATATGGTGG	DWV/VDV-1 (3159-3177), F	RT-PCR, DWV cDNA for NGS
222	TAGTATCTGAAACAGCTTCC	DWV/VDV-1 (3269-3250), R	RT-PCR, DWV cDNA for NGS
231	TGCCTGAGGGCCCTATTGCGAAG	DWV/VDV-1 (4614-4636), F	RT-PCR, DWV cDNA for NGS
224	ACCATACCCATATCTTCACGCATC	DWV/VDV-1 (4716-4693), R	RT-PCR, DWV cDNA for NGS
233	CAGAGATTGAAGCGCATGAACAAG	DWV/VDV-1 (6474-6497), F	RT-PCR, DWV cDNA for NGS
234	GCACTTAACACACGCAAATTATC	DWV/VDV-1 (6750-6728), R	RT-PCR, DWV cDNA for NGS
237	GAGTATATACTTATCCATACCATG	DWV/VDV-1 (8028-8051), F	RT-PCR, DWV cDNA for NGS
238	CATGCAATCCTTCAGTACCAGC	DWV/VDV-1 (8141-8120), R	RT-PCR, DWV cDNA for NGS
240	GAGTAACACCTAACCTGAGTACC	DWV/VDV-1 (10081-10066), R	RT-PCR, DWV cDNA for NGS
459	CGGGAGACGCCAGGTTAG	AFB-*P. larvae*, F	qPCR, *Paenibacillus larvae* detection
460	TTCTTCCTTGGCAACAGAGC	AFB-*P. larvae*, R	qPCR, *Paenibacillus larvae* detection
461	TGTTGTTAGAGAAGAATAGGGGAA	EFB-*M. plutonius,* F	qPCR, *Melissococcus plutoniu*s detection
462	CGTGGCTTTCTGGTTAGA	EFB-*M. plutonius*, R	qPCR, *Melissococcus plutoniu*s detection
147	CAAAAAAACTCGTCATATGTTGCCAACTG	Honeybee Rp49 (GB10903), F	qRT-PCR, Array validation
148	GCATCATTAAAACTTCCAGTTCCTTG	Honeybee Rp49 (GB10903), R	qRT-PCR, Array validation
274	GGGTGTTTACACCGCGATTTATTCG	Honeybee persephone (GB14044), F	qRT-PCR, Array validation
275	GATATTTTTTTTCTCCACATTTTTATTCGTCC	honeybee persephone (GB14044), F	qRT-PCR, Array validation
276	CTCTATCTCAAGACCAACACCTACTTGC	Honeybee Tollo (GB10640), F	qRT-PCR, Array validation
277	CTGATTGTTGGGCACGTCCGGCAACGC	Honeybee Tollo (GB10640), R	qRT-PCR, Array validation
321	GTCATAGCGATCGTTTTCGCTG	Honeybee Vago (GB10896), F	qRT-PCR, Array validation
322	GCTATAATACGACTCACTATAGGGCAATTAGGGAATGCAGC	Honeybee Vago (GB10896), R	qRT-PCR, Array validation
286	CACAATCTCAAAAATGGATGTTGATACG	Honeybee transaminase (GB13140), F	qRT-PCR, Array validation
287	AATTAATAACTAATTAGCGAACGAGCAATGG	Honeybee transaminase (GB13140), R	qRT-PCR, Array validation
290	CTGCAAAATGGAGCCCTCTATGGATTGAG	Honeybee cysteine-rich (GB16716), F	qRT-PCR, Array validation
291	CAAATAATGCACCTTTGGATCTCTTTTAGCTG	Honeybee cysteine-rich (GB16716), R	qRT-PCR, Array validation
388	CTTGGTTAGCTGTGTTGCAGTTG	Adapter, F	Negative strand qRT-PCR
389	CTTGGTTAGCTGTGTTGCAGTTGCTGTAGTTAAGCGGTTATTAGAA	Adapter-VDV-1 CP (4890-4912), F	RT, Negative viral RNA strand quantification
391	CTTGGTTAGCTGTGTTGCAGTTGCTGTAGTCAAGCGGTTACTTGAG	Adapter-DWV CP (4917-4939), F	RT, Negative viral RNA strand quantification

Primer descriptions are given as follows: target (position in DWV or VDV-1 nucleotide sequence), polarity (F, forward; R, reverse). GenBank accession numbers used to expressprimer positions are AJ489744 (DWV), NC_006494 (VDV-1), NM_001185146 (Apis mellifera β-actin mRNA) and AB242568 (Varroa destructor β-actin mRNA).