Supplementary Information

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1      AGAGTTTGATCATGGCTCAGATTGAACGCTGGCGGCAGGCCTAACACATGCAAGTCGAACGGAGTTATAT      70
       AGAGTTTGATCCTGGCTCAGAATGAACGCTGGCGGCAGGCCTAACACATGCAAGTCGAACGGAGTTATAT

71     TGTAGCTTGCTATGGTATAACTTAGTGGCAGACGGGTGGGTAATGTATAGGAATCTACCTAATAGTGCGG     140
       TGTAGCTTGCTATGGTATAACTTAGTGGCAGACGGGTGAGTAATGTATAGGAATCTACCTAGTAGTACGG

141    AATAATTGTTGGAAACGGCAACTAATACCGTATACGCCCTACGGGGGAAAAATTTATTGCTATTAGATGA     210
       AATAATTGTTGGAAACGGCAACTAATACCGTATACGCCCTACGGGGGAAAAATTTATTGCTATTAGATGA

211    GCCTATATTAGATTAGCTAGTTGGTGGAGTAATAGCCTACCAAGGCAATGATCTATAGCTGATCTGAGAG     280
       GCCTATATTAGATTAGCTAGTTGGTGGAGTAATAGCCTACCAAGGCAATGATCTATAGCTGATCTGAGAG

281    GATGATCAGCCACACTGGAACTGAGATACGGTCCAGACTCCTACGGGAGGCAGCAGTGGGGAATATTGGA     350
       GATGATCAGCCACACTGGAACTGAGATACGGTCCAGACTCCTACGGGAGGCAGCAGTGGGGAATATTGGA

351    CAATGGGCGAAAGCCTGATCCAGCCATGCCGCATGAGTGAAGAAGGCCTTTGGGTTGTAAAGCTCTTTTA     420
       CAATGGGCGAAAGCCTGATCCAGCCATGCCGCATGAGTGAAGAAGGCCTTTGGGTTGTAAAGCTCTTTTA

421    GTGAGGAAGATAATGACGGTACTCACAGAAGAAGTCCTGGCTAACTCCGTGCCAGCAGCCGCGGTAATAC     490
       GTGAGGAAGATAATGACGGTACTCACAGAAGAAGTCCTGGCTAACTCCGTGCCAGCAGCCGCGGTAATAC

491    GGAGAGGGCTAGCGTTATTCGGAATTATTGGGCGTAAAGGGCGCGTAGGCGGATTAGTAAGTTAAAAGTG     560
       GGAGAGGGCTAGCGTTATTCGGAATTATTGGGCGTAAAGGGCGCGTAGGCGGATTAGTAAGTTAAAAGTG

561    AAATCCCAAGGCTCAACCTTGGAATTGCTTTTAAAACTGCTAATCTAGAGATTGAAAGAGGATAGAGGAA     630
       AAATCCCAAGGCTCAACCTTGGAATTGCTTTTAAAACTGCTAATCTAGAGATTGAAAGAGGATAGAGGAA

631    TTCCTAGTGTAGAGGTGAAATTCGTAAATATTAGGAGGAACACCAGTGGCGAAGGCGTCTATCTGGTTCA     700
       TTCCTAGTGTAGAGGTGAAATTCGTAAATATTAGGAGGAACACCAGTGGCGAAGGCGTCTATCTGGTTCA

701    AATCTGACGCTGAGGCGCGAAGGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCTGTAAA     770
       AATCTGACGCTGAGGCGCGAAGGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCTGTAAA

771    CGATGAATGTTAAATATGGGAAGTTTTACTTTCTGTATTACAGCTAACGCGTTAAACATTCCGCCTGGGG     840
       CGATGAATGTTAAATATGGGAAGTTTTACTTTCTGTATTACAGCTAACGCGTTAAACATTCCGCCTGGGG

841    ACTACGGTCGCAAGATTAAAACTCAAAGGAATTGACGGGGACCCGCACAAGCGGTGGAGCATGTGGTTTA     910
       ACTACGGTCGCAAGATTAAAACTCAAAGGAATTGACGGGGA[CCCGCACAAGCGGTGGAGCATGTGGTTTA]
942                                              [CCCGCACAAGCGGTGGAGCATGTGGTTTA]    970

911    ATTCGACGCAACGCGAAGAACCTTACCTGGTCTTGACATCCATAGAATTTTATAGAAATATAGAAGTGCC     980
       [ATTCGATGCAACGCGAAAAACCTTACCA]
971    [ATTCGATGCAACGCGAAAAACCTTACCT]GGTCTTGACATCCATAGAATTTTATAGAAATATAGAAGTGCC    1040

981    TTCGGGAACTATGAGACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTTGTGAAATGTTGGGTTAAGTCCC    1050
1041   TTCGGGAACTATGAGACAGGTGCTGCATGGCTGTCGTCAGCTCGTGTTGTGAAATGTTGGGTTAAGTCCC    1110

1051   GCAACGAGCGCAACCCCTATCCTTTGTTGCCATCGGTTCGGCCGGGAACTCAGGGGAGACTGCCGGTTAT    1120
1111   GCAACGAGCGCAACCCCTATCCTTTGTTGCCATCGGTTTGGCCGGGAACTCAGAGGAGACTGCCGGTTAT    1180

1121   AAACCGGAGGAAGGTGGGGACGACGTCAAGTCATCATGGCCCTTACGACCAGGGCTACACACGTGCTACA    1190
1181   AAACCGGAGGAAGGTGGGGACGACGTCAAGTCATCATGGCCCTTACGACCAGGGCTACACACGTGCTACA    1250

1191   ATGGTATATACAAAGAGAAGCGACTCCGTAAAGATAAGCAAACCTCATAAAGTATATCGTAGTCCGGACT    1260
1251   ATGGTATATACAAAGAGAAGCAACTCTGTAAAGATAAGCAAACCTCATAAAGTATATCGTAGTCCGGACT    1320

1261   GGAGTCTGCAACTCGACTCCACGAAGTCGGAATCGCTAGTAATCGTGGATCAGAATGCCACGGTGAATAC    1330
1321   GGAGTCTGCAACTCGACTCCACGAAGTCGGAATCGCTAGTAATCGTGGATCAGAATGCCACGGTGAATAC    1390

1331   GTTCCCGGGCCTTGTACACGCCGCCCGTCACACCATGGGAGTGGGTTGCAAAAGAAGCAGATATCTTAAC    1400
1391   GTTCCCGGGCCTTGTACACACCGCCCGTCACACCATGGGAGTGGGTTGCAAAAGAAGCAGATATCTTAAC    1460

1401   TGTTTTAAACA--GAGGGAATCTATCACTTTGTGATTCATGACTGGGGTGAAGTCGTAACAAGGT         1463
1461   CGTTTAAAAAACGGAGGGAATCTATCACTTTGTGATTCATGACTGGGGTGAAGTCGTAACAAGGT         1525
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Figure S1. The composition of the chimeric sequence from the aphid *Stomaphis sinisalicis*.

Black represents the chimeric sequence, green represents the *Wolbachia* sequence, and blue represents the *Buchnera* sequences. The red bar indicates different bases in alignment. In the region of the pink square frame, the sequences of *Wolbachia* and *Buchnera* are the same.

Figure S2. The webpage interface that indicates the results of the BLAST search of the chimeric sequence from *Lachnus quercihabitans*.

Table S1. The detailed host information and GenBank accession numbers of *Buchnera* download from GenBank.

Subfamily	Species	GB. Number
Aphidinae	*Aphis nerii*	JQ269567
	Aphis nasturtii	JQ269568
	Aphis craccivora	JQ269569
	Rhopalosiphum maidis	M63247
	Schizaphis_graminum	NR074512
	Acyrthosiphon pisum	NR074159
	Aspidophorodon longicaudus	JQ269566
	Capitophorus hudsonicus	JQ269564
	Diuraphis noxia	M63251
	Macrosiphoniella sanborn	JQ269571
	Myzus persicae	AY849937
	Sitobion miscanthi	HM156635
	Uroleucon sonchi	M63250
Chaitophorinae	*Chaitophorus viminalis*	M63252
	Sipha elegans	JQ269587
Drepanosiphinae	*Yamatocallis tokyoensis*	AB064514

Table S1. *Cont.*

Subfamily	Species	GB. Number
	Eutrichosiphum sinense	JQ269580
Greenideinae	*Mollitrichosiphum nigrofasciatum*	JQ269579
	Greenideinae sp.	JQ269578
Hormaphidinae	*Hamamelistes spinosus*	JQ269574
	Cinara edulis	FJ655493
	Cinara gudaris	EU334771
	Cinara maghrebica	EU334772
	Cinara pinea	FJ655490
	Cinara tujafilina	EU334773
	Cinara wahtolca	FJ655492
Lachninae	*Lachnus roboris*	FJ655507
	Nippolachnus piri	FJ655513
	Pterochloroides sp.	FJ655511
	Stomaphis aphananthae	FJ655495
	Stomaphis fagi	FJ655501
	Stomaphis quercus	FJ655505
	Tuberolachnus salignus	AJ296754
	Myzocallis agrifolicola	JQ269546
Myzocallidinae	*Hoplocallis pictus*	AJ296759
	Panaphis juglandis	AJ296758
Mindarinae	*Mindarus victoria*	M63253
	Baizongia pistaciae	NR074609
	Eriosoma lanigerum	DQ418492
	Melaphis rhois	JQ269582
Pemphiginae	*Pemphigus populi*	AJ296750
	Prociphilus caryae	JQ269572
	Tetraneura caerulescens	AJ296749
Pterocommatinae	*Pterocomma populeum*	AJ296747
Thelaxinae	*Thelaxes suberi*	AJ296757

Table S2. The detailed information and GenBank accession numbers of *Serratia* download from GenBank as outgroups.

Subfamily	Species	GB. Number
Aphidinae	*Aphis fabae*	GU394001
	Cinara cedri	CP002295
Lachninae	*Cinara cedri*	EU348324
	Cinara schimitscheki	EU348318