**Supplementary Table 1**

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| **Designation** | **Gene** | **Virus** | **Genome** | **Family** | **Host range** |
| G49287O01AWFAF | ORF B | Autographa californica nucleopolyhedrovirus | DNA | Baculoviridae | Invertebrates |
| G49287O01DFUS7 | P48 protein | Hyphantria cunea nucleopolyhedrosis virus | DNA | Baculoviridae | Invertebrates |
| G49287O02HWFR4 | Alkaline exonuclease | Spodoptera litura nucleopolyhedrosis virus | DNA | Baculoviridae | Invertebrates |
| Ant\_454Assem.12296.C1 | Transcriptional regulator | African cassava mosaic virus | DNA | Geminiviridae | Plants |
| Ant\_454Assem.14461.C1 | Rh171 protein | Macacine herpesvirus | DNA | Herpesviridae | Vertebrates |
| G49287O02J3O9A | Envelope glycoprotein I | Cercopithecine herpesvirus | DNA | Herpesviridae | Vertebrates |
| Ant\_454Assem.12328.C1 | 209R protein | Invertebrate iridescent virus | DNA | Iridoviridae | Invertebrates |
| Ant\_454Assem.14569.C1 | Hypothetical protein | Acidianus filamentous virus | DNA | Lipothrixviridae | Bacteria |
| G49287O02JIIJ2 | Hypothetical protein | Acanothameoba polyphaga mimivirus | DNA | Mimiviridae | Protists |
| Ant\_454Assem.11413.C1 | Capsid protein 3 | Acanothameoba polyphaga mimivirus | DNA | Mimiviridae | Protists |
| Ant\_454Assem.1092.C9 | Hypothetical protein | Cafeteria roenbergensis virus | DNA | Mimiviridae | Protists |
| G49287O01AX18H | Ankyrin containing protein | Acanothameoba polyphaga mimivirus | DNA | Mimiviridae | Protists |
| Ant\_454Assem.6902.C1 | Hypothetical protein | Acanothameoba polyphaga mimivirus | DNA | Mimiviridae | Protists |
| G49287O01B7ODO | Hypothetical protein | Human papilloma virus | DNA | Papillomaviridae | Vertebrates |
| G49287O01CU37T | Hypothetical protein | Bathycoccus virus | DNA | Phycodnaviridae | Algae |
| Ant\_454Assem.8388.C1 | Membrane protein | Emiliania huxleyi virus | DNA | Phycodnaviridae | Algae |
| G49287O02GG4MT | Protein FR483\_n813L | Paramecium busaria Chlorella virus | DNA | Phycodnaviridae | Algae |
| Ant\_454Assem.16928.C1 | 128L protein | Yaba-like diseas virus | DNA | Poxviridae | Vertebrates/Invertebrates |
| G49287O01EE8N9 | m44R protein | Myxoma virus | DNA | Poxviridae | Vertebrates/Invertebrates |
| G49287O02I86U7 | ORF MSV011 | Melanoplus sanguinipes entomopoxvirus | DNA | Poxviridae | Vertebrates/Invertebrates |
| G49287O01AKMD8 | Ankyrin repeat protein | Canarypox virus | DNA | Poxviridae | Vertebrates/Invertebrates |
| Ant\_454Assem.9380.C1 | Kelch-like protein | Sheeppox virus | DNA | Poxviridae | Vertebrates/Invertebrates |
| G49287O02IW3K3 | MPXV-WRAIR169 | Monkeypox virus | DNA | Poxviridae | Vertebrates/Invertebrates |
| G49287O02FJ38J | ATP-binding transporter | Amsacta moorei entomopoxvirus | DNA | Poxviridae | Vertebrates/Invertebrates |
| Ant\_454Assem.13184.C1 | Envelope glycoprotein | Human immunodeficiency virus | RNA | Retroviridae | Vertebrates |
| G49287O01EM9OB | Envelope glycoprotein | Human immunodeficiency virus | RNA | Retroviridae | Vertebrates |
| Ant\_454Assem.7192.C1 | Envelope glycoprotein | Human immunodeficiency virus | RNA | Retroviridae | Vertebrates |
| G49287O02FJKT1 | Envelope glycoprotein | Human immunodeficiency virus | RNA | Retroviridae | Vertebrates |
| G49287O02JD7GI | structural polyprotein | Venezuelan equine encephalitis virus | RNA | Togaviridae | Vertebrates |
| G49287O01CKP6I | RNA-dependent RNA polymerase | Nyamanini virus | RNA | Unassigned | Seabirds, ticks |
| G49287O02JN2F3 | RNA-dependent RNA polymerase | Nyamanini virus | RNA | Unassigned | Seabirds, ticks |