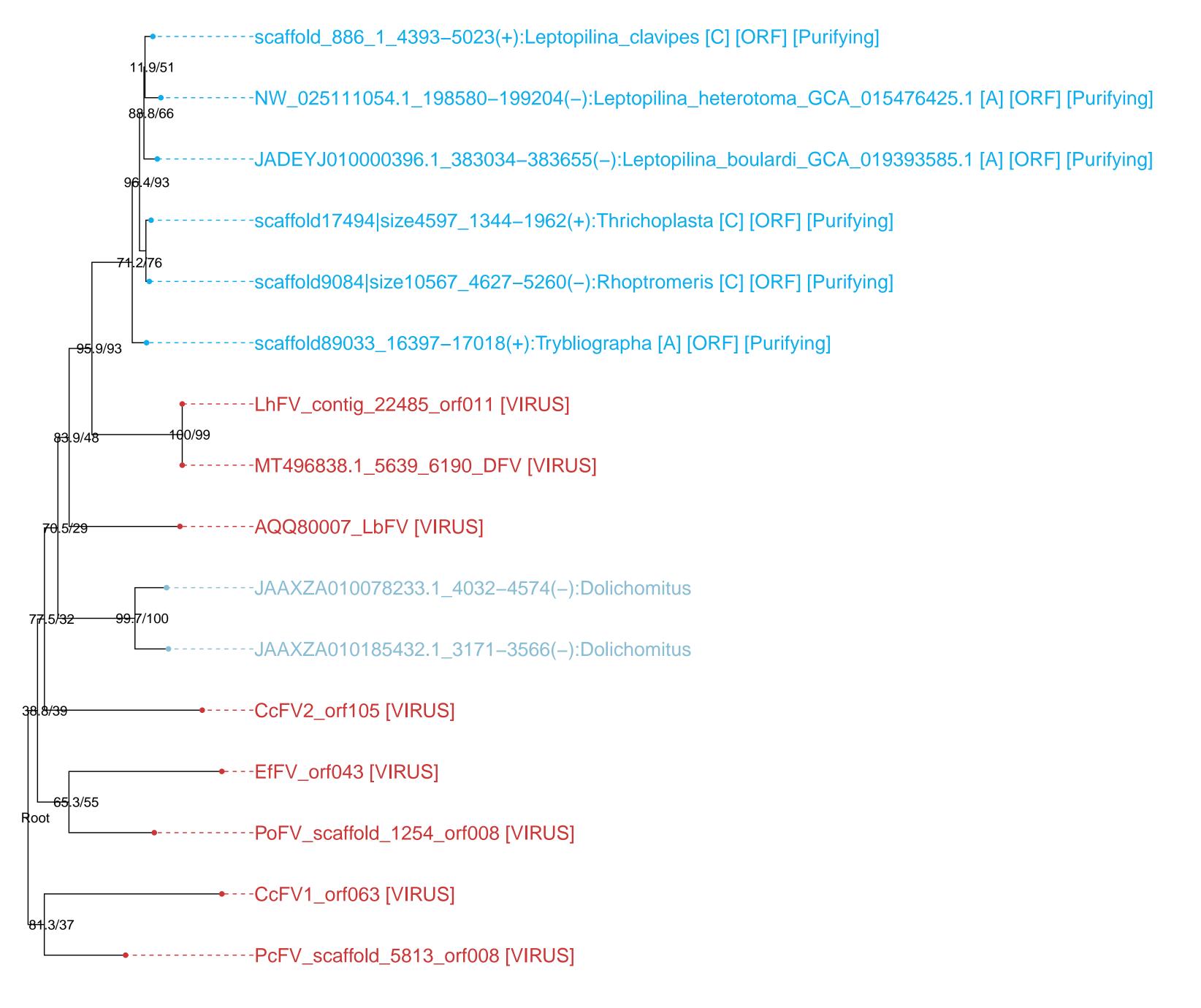
Q6JKB2_NeseNPV [VIRUS]

-NW_020270455.1_17899-18039(-):Melanaphis_sacchari 92.7/85 100/100 NW_020271171.1_24608-24853(+):Melanaphis_sacchari --NW_020271171.1_499-807(+):Melanaphis_sacchari 96.3/100 -AHW98244.1_AC81-like_protein_NIBV [VIRUS] Nilaparvata_lugens_endogenous_nudivirus-_Lefavirales_ [VIRUS] 50.1/25 -Ac81-1_VcBV 99.8/100 -Venturia_canescens-_Hymenoptera_ [EUKARYOTA] 87.6/88 Root -Ac81-2_VcBV 95.3786 -Ac81-3_VcBV ac81-like_DnBV [VIRUS] -55.9/89 -NW_020270782.1_8815-9285(+):Melanaphis_sacchari 88.5/44 NW_020271205.1_460078-460398(+):Melanaphis_sacchari -A4L1X7_GbNV [VIRUS] -ac81-like_FaBV 68.6/45 -A0A076FES3_PmNV [VIRUS] 95.8/100 -A0A7D5YW98_DhNV [VIRUS] AAN04328_HzNV-1 [VIRUS] 76.1/58 XGB01017917.1_468-971(+):Eurytoma_brunniventris A0A0B4VGV6_ToNV [VIRUS] ATY70250_DmNV_tom [VIRUS] 96.8/90 -B7SV25_OrNV [VIRUS] -AKY03212_AmFV [VIRUS]

-Q919H1_CuniNPV [VIRUS]

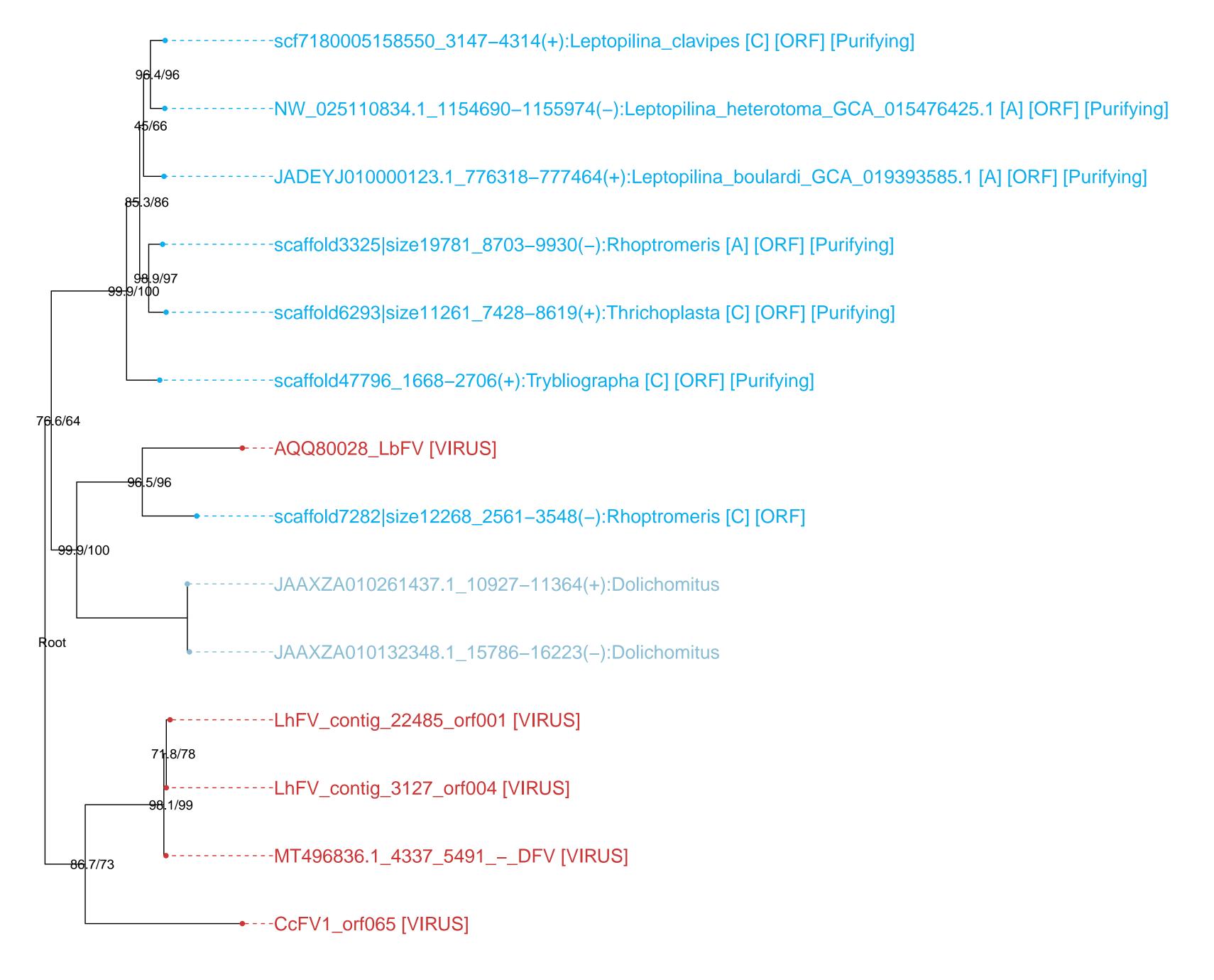
75.2/81

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-NW_025111098.1_2949837-2950046(-):Leptopilina_heterotoma_GCA_015476425.1 [A] [Purifying]
                   68.2/85
                              -scaffold_532_2_17437-17637(-):Leptopilina_clavipes [A] [Purifying]
                   94.4/85
                              -C2844038_1642-1860(-):Trybliographa [C] [Purifying]
                   45.7/91
                   70.5/83
                              -JADEYJ010000038.1_4332741-4332950(+):Leptopilina_boulardi_GCA_019393585.1 [A] [Purifying]
                 <del>95</del>|5/99
                              -scaffold8892|size8473_800-1009(+):Thrichoplasta [A] [Purifying]
                              -scaffold34593|size2940_1336-1542(-):Rhoptromeris [C] [Purifying]
               <del>- 87</del>.9/95
                             -MT496832.1_9588_10046_DFV [VIRUS]
                   <sub>1</sub>88|.7/97
                              -contig_701_7350_6886_-_LhFV [VIRUS]
            85 2/8<del>85</del> 2/95
                              -EfFV_orf093 [VIRUS]
                             --PcFV_scaffold_2882_orf010 [VIRUS]
                              -AAN04395_HzNV-1 [VIRUS]
          8<del>0</del>.3/49
                              -CcFV1_orf015 [VIRUS]
                              -AKY03221_AmFV [VIRUS]
         <del>46</del>.9/74
6<del>4</del>.2/73
                              -CcFV2_orf050 [VIRUS]
                              -PoFV_scaffold_21913_orf010 [VIRUS]
    <del>52</del>.9/<u>56</u>
                              -NW_020271170.1_17230-17520(-):Melanaphis_sacchari
                              -A0A076FDZ2_PmNV [VIRUS]
                              -P41658_AcMNPV [VIRUS]
97.6/58
         <del>-10</del>0/100
                              -S5G9H7_AcMNPV [VIRUS]
     4升5/65
                              -Q9YMM7_LdMNPV [VIRUS]
     <del>-96</del>.3/97
                              -Q91EW8_CpV [VIRUS]
     16.1/49
                              -Q9QAB2_NeseNPV [VIRUS]
                              -ATY70268_DmNV_tom [VIRUS]
             <del>-9</del>0/98
Root
                              -B7SV73_OrNV [VIRUS]
           <del>87</del>.3/48
                              -A4L248_GbNV [VIRUS]
            2<del>8</del>.1/42
                              -lef-5_FaBV
      <del>-9</del>6/64
                              -lef-5_VcBV
                              -AHW98273.1_LEF-5_NIBV [VIRUS]
                              -CAT00573.1_CcBV
6<del>5</del>.2/39
              <del>96</del>.5/99
                              -lef-5_MdBV
      <del>60</del>.7/81
                              -A0A0B4VFE1_ToNV [VIRUS]
   68.9/\overline{71}
                              -A0A7D5UN24_DhNV [VIRUS]
  5<del>5</del> 4/58
                             --Q919I9_CuniNPV [VIRUS]
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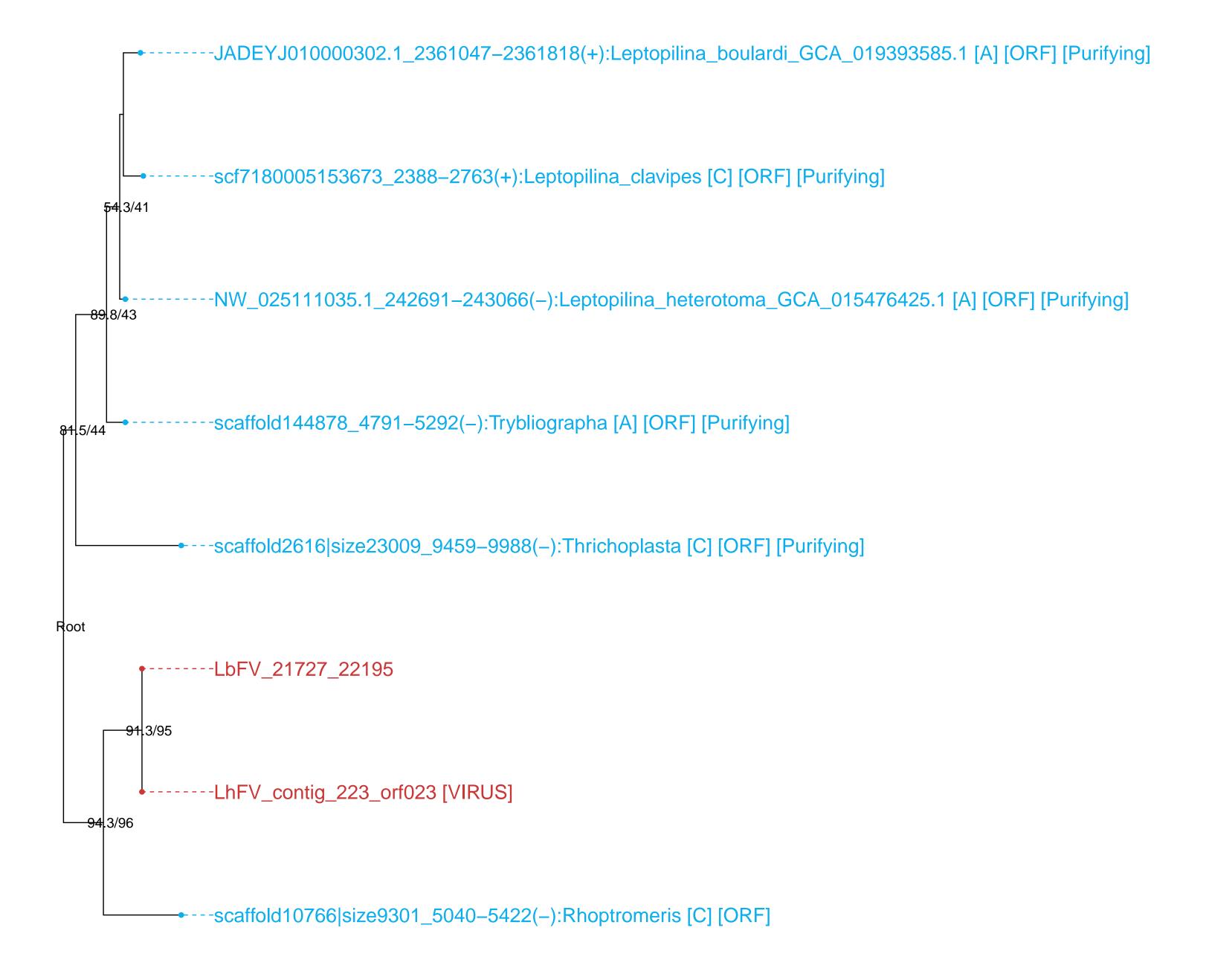


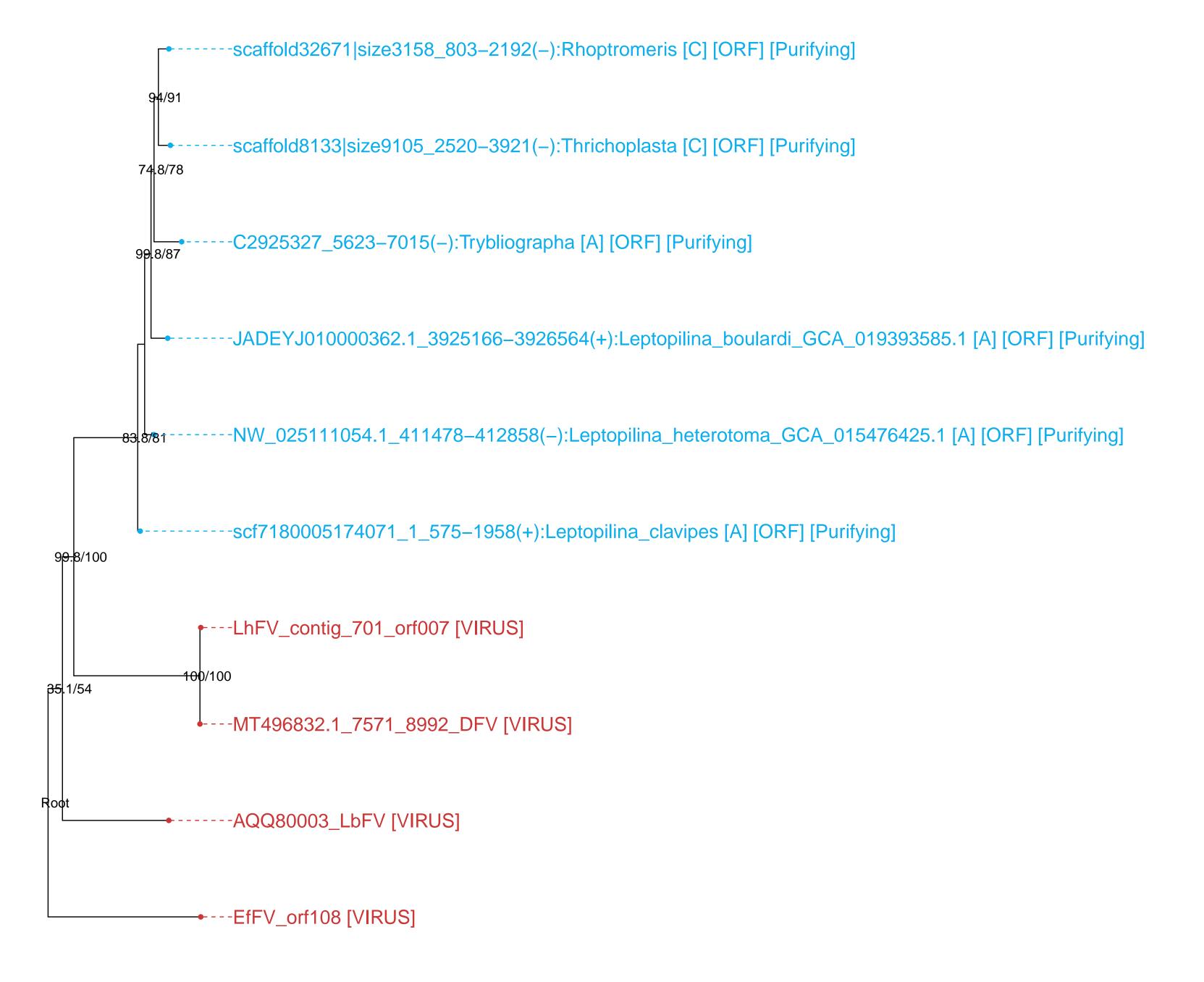
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Figure S17: Cluster45_redefined - LbFVorf106
                                 -scaffold51610|size1673_7-1049(+):Rhoptromeris [C] [*]
                                 -scaffold7282|size12268_5480-6862(+):Rhoptromeris [C] [*]
                                 -AQQ80026_LbFV [VIRUS]
                                 PcFV_scaffold_2714_orf014 [VIRUS]
                 87.3/73
                                --LhFV_contig_223_orf001 [VIRUS]
                       <del>-10</del>0/100
                                 -MT496840.1_1371_3455_-_DFV [VIRUS]
                60.3/55
                                 -JAAXZA010245826.1_233-2263(+):Dolichomitus
                     <del>10</del>0/100
                                 -JAAXZA010261437.1_6424-8460(-):Dolichomitus
               871613/66
                                 -PoFV_scaffold_11706_orf005 [VIRUS]
                                 -CcFV1_orf094 [VIRUS]
             <del>98.</del>1/<del>100 10</del>0/100
                                 -CcFV2_orf101 [VIRUS]
                                 B2YG24_MdSGHV [VIRUS]
                 <del>99.</del>8/100
                                 Q1PBV4_GpSGHV [VIRUS]
           <del>-99</del>/100
                                 -Q00704_AcMNPV [VIRUS]
                         <del>-10</del>0/100
                                 -S5G8H7_AcMNPV [VIRUS]
                                 Q91F16_CpV [VIRUS]
                     <del>10</del>0/100
                                 -Q9YMJ6_LdMNPV [VIRUS]
                                -Perigonia_lusca_single_nucleopolyhedrovirus-_Lefavirales_ [VIRUS]
                                 B7SV33_OrNV [VIRUS]
              23.3/84
                                 odv-e66-like_BtBV
               80/76
                                 scaffold_6426_2401-4047(-):Platygaster_equestris [VIRUS]
       <del>10</del>0/100
                                 NW_020271170.1_4630-6351(+):Melanaphis_sacchari
                                  _asius_niger-_Hymenoptera_ [EUKARYOTA]
             8#12/50
                                  NW_020271594.1_6481-7299(+):Melanaphis_sacchari
               <del>85</del>.6/80
                                 Aphis_glycines-_Hemiptera_ [EUKARYOTA]
            84.6/88
                                 -odv-e66-3_FaBV
                       69/97
                                 odv-e66-4_FaBV
                      <del>10</del>0/100
                                 odv-e66-2_FaBV
               <del>- 10</del>0/100
          1/100
                                 odv-e66-1_FaBV
                                 -A0A076FC62_PmNV [VIRUS]
                    8<del>5</del>.2/91
                                 -A0A076FEL8_PmNV [VIRUS]
                   <del>10</del>0/100
                                 -A0A7D5YUG9_DhNV [VIRUS]
                    8.32/43
                                 -A0A7D5YYH3_DhNV [VIRUS]
                                 odv-e66-14_MdBV
                     6<del>7</del>.8/99
                                 odv-e66-15_MdBV
                    <del>10</del>0/100
                                 CAR31581.1_CcBV
                     8<del>5.</del>1/100
                                 odv-e66-16_MdBV
              <del>86</del>.2/63
                                 -JABMBU010412579.1_779-2386(+):Phanerotoma
               <del>96.</del>7/100
                                 -NW_023276571.1_701371-703128(+):Chelonus_insularis
       Root
             28/45
                                 -odv-e66-11_MdBV
                        <del>10</del>0/100
                                 -odv-e66-3_MdBV
              2<del>5</del>.3/63
                                 odv-e66-12_MdBV
           84 1/6/64
                                 -JABMBU010391774.1_427-2157(+):Phanerotoma
                <del>-9</del>6/97
                                 JABMBU010401119.1_2007-2726(+):Phanerotoma
                                 odv-e66-4_MdBV
              <sup>1</sup>86.4/65
                                 odv-e66-8_MdBV
           96.3/72
                                 CAR40197.1_CiBV
                                 -Chelonus_inanitus-_Hymenoptera_ [EUKARYOTA]
                 <del>- 96.</del>1/100
                                 NW_023276792.1_508613-510520(-):Chelonus_insularis
             1<del>0</del>0/100<sup>4</sup>
                                 -JABMBU010023573.1_20-1957(+):Phanerotoma
             |9<del>0</del>|.5<del>/99</del>
                                 odv-e66-13_MdBV
          90.6/84
                                 odv-e66-10_MdBV
                   <del>10</del>0/100
                                 odv-e66-9_MdBV
                87.3/69
                                 odv-e66-2_MdBV
               98.1/99
                                 -CAR31580.1 CcBV
                      <del>10</del>0/100
                                 -Glyptapanteles_flavicoxis-_Hymenoptera_ [EUKARYOTA]
                7<del>9</del>.8/69
                                 odv-e66-20_MdBV
             <del>10</del>0/100
                                 -odv-e66-1-1_MdBV
          <del>56</del>.5/64
                   <del>10</del>0/100
                                 odv-e66-1-2_MdBV
                 15.5/75
                                 odv-e66-19_MdBV
                <del>'10</del>0/100
                                 odv-e66-17_MdBV
                                 odv-e66-6_MdBV
              9<del>3.</del>8/100
                                 ·Cotesia_chilonis-_Hymenoptera_ [EUKARYOTA]
              r<del>4</del>2/76
                                 odv-e66-7_MdBV
            96.5/98
                                 odv-e66-5_MdBV
                 <del>10</del>0/100
                                 -Microplitis_demolitor—_Hymenoptera_ [EUKARYOTA]
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-scf7180005174113_1_889-2107(+):Leptopilina_clavipes [C] [ORF] [Purifying]
              94.5/98
                       -NW_025110834.1_1177010-1178225(-):Leptopilina_heterotoma_GCA_015476425.1 [A] [ORF] [Purifying]
              93.1/95
                       -JADEYJ010000123.1_778552-779719(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF] [Purifying]
              99.6/100
                       -scaffold24379|size3249_1072-2290(-):Thrichoplasta [C] [ORF] [Purifying]
                       -scaffold2772|size21917_15338-16556(+):Rhoptromeris [A] [ORF] [Purifying]
                       -scaffold142968_2297-3536(-):Trybliographa [C] [ORF] [Purifying]
       <del>48</del>.9/70
                       -LhFV_contig_22588_orf004 [VIRUS]
      1<del>6</del>.8<del>/49 10</del>0/100
                      -MT496837.1_952_2190_DFV [VIRUS]
                       -AQQ79980_LbFV [VIRUS]
                       PcFV_scaffold_4799_orf013 [VIRUS]
                       -JAAXZA010253759.1_823-1959(+):Dolichomitus
                       -scaffold_10234_3641-4645_PoEFV
 <del>79</del>.2/47
             <del>6</del>$/67
                       -scaffold_84473_914-1241_PoEFV
           <del>10</del>0/100
                       -PoFV_scaffold_9017_orf004 [VIRUS]
93.9/95
                       -CcFV1_orf072 [VIRUS]
    <del>53</del>.4/75
                       -CcFV2_orf091 [VIRUS]
                       -EfFV_orf066 [VIRUS]
                       ·Thiothrix_sp.-_Thiotrichales_ [BACTERIA]
                       Candidatus_Roizmanbacteria_bacterium_RIFCSPHIGHO2_12_FULL_33_9-_-_cellular-organisms_ [BACTERIA]
<del>491</del>,4/94
                       B0YLG0_GpSGHV [VIRUS]
       <del>99.</del>5/100
                       -B2YG23_MdSGHV [VIRUS]
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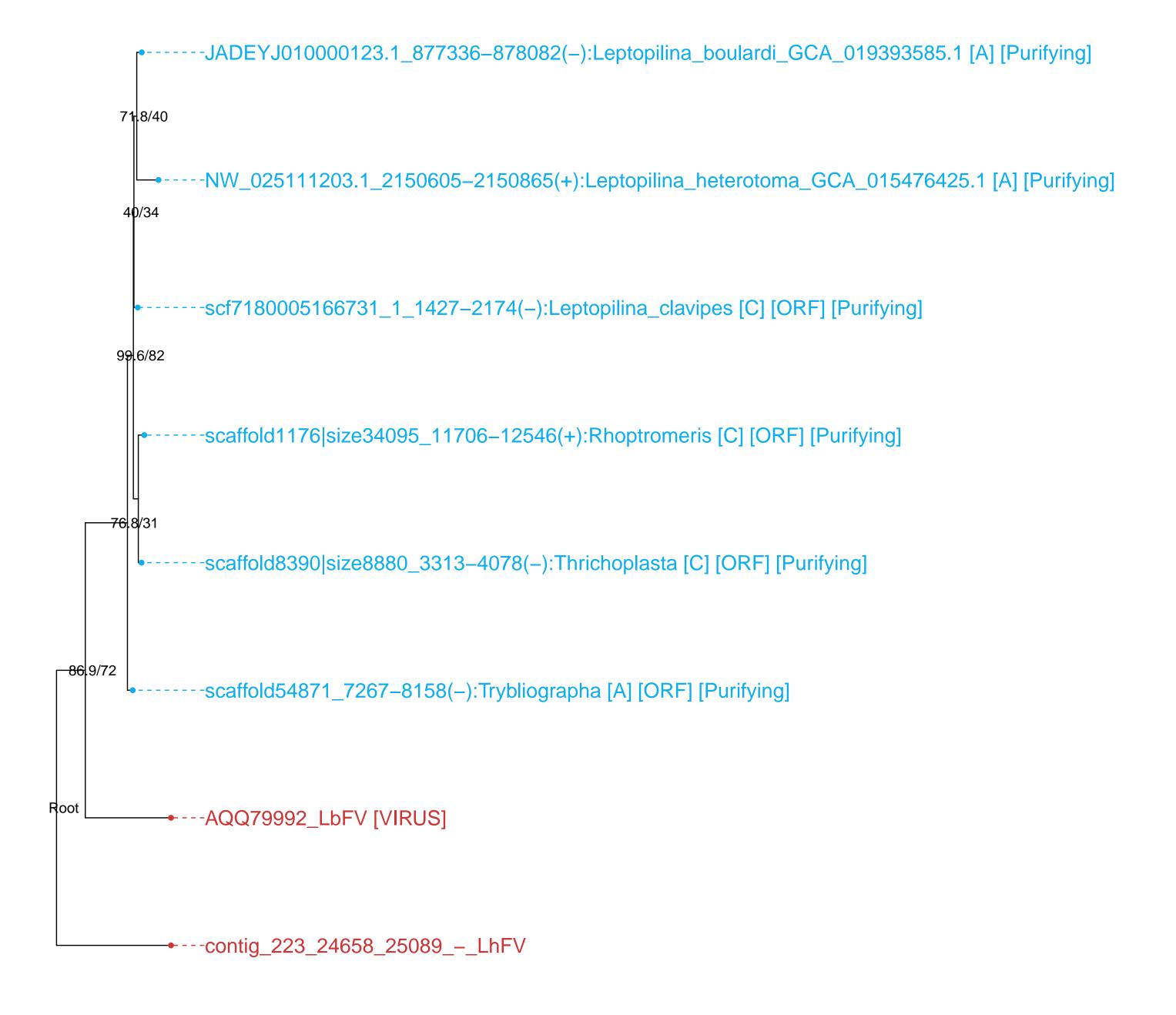


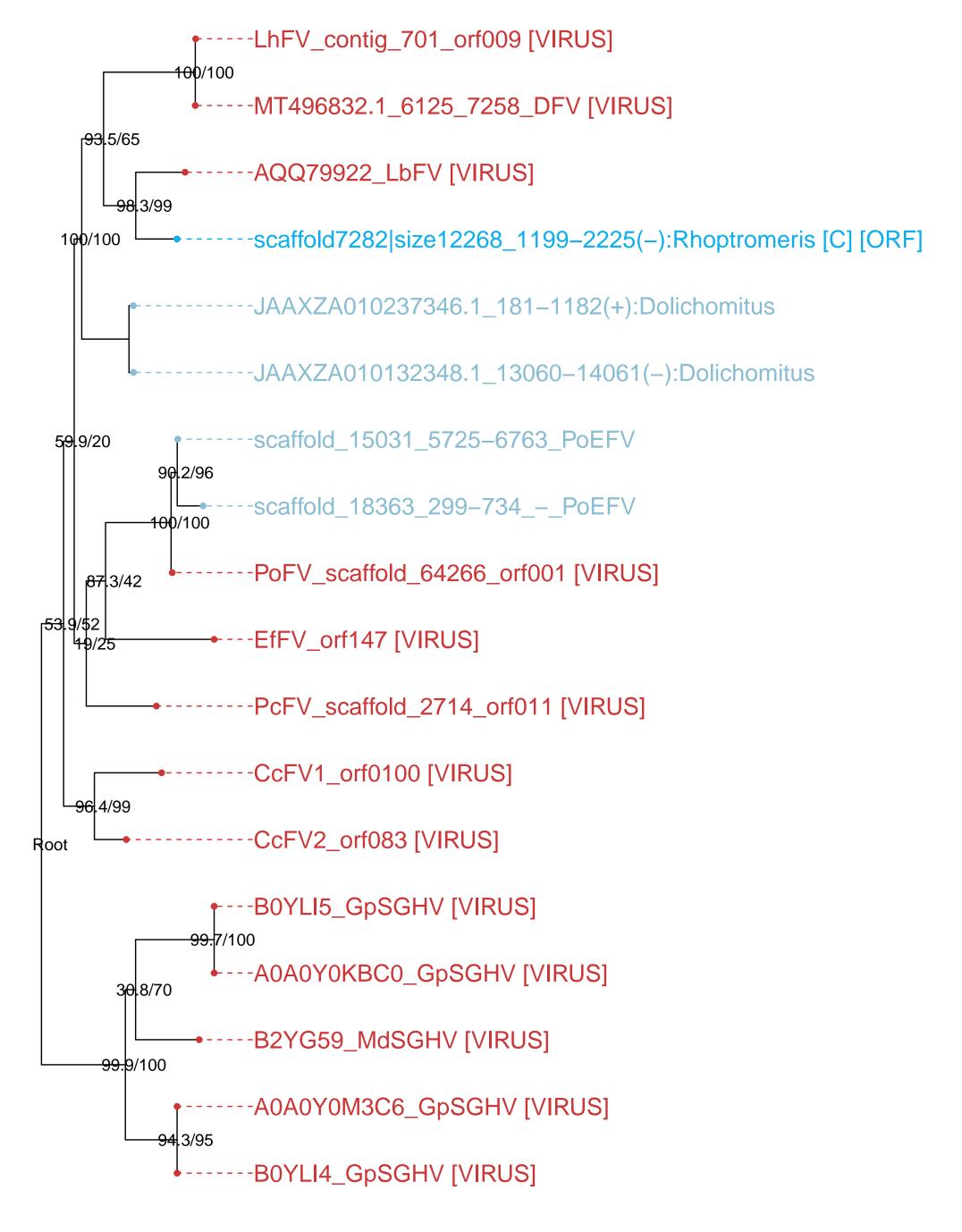
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                              -JADEYJ010000324.1_1212955-1213144(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                              -JADEYJ010000341.1_3087362-3087502(+):Leptopilina_boulardi_GCA_019393585.1 [A]
                              -JADEYJ010000351.1_2340814-2341009(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                              -JADEYJ010000397.1_49790-50057(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                      0/63
                              -JADEYJ010000351.1_1048400-1048577(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                   95.6/89
                              -JADEYJ010000347.1_557591-558122(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                    84.7/96
                              -JADEYJ010000347.1_577325-577859(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                              -JADEYJ010000324.1_1339077-1339608(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                              -JADEYJ010000330.1_4384358-4384583(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
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                              -JADEYJ010000371.1_2675605-2675794(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
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                              -JADEYJ010000403.1_410462-410747(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
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                 <del>75</del>.2/87
                              -JADEYJ010000371.1_1808650-1808866(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
             <del>.76</del>.2/77
                              -JADEYJ010000371.1_2273183-2273384(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                <del>78</del>/82
      94.1/93 4/67
                              -JADEYJ010000371.1_3765709-3766132(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                              -JADEYJ010000322.1_132356-132439(+):Leptopilina_boulardi_GCA_019393585.1 [A]
                              -JADEYJ010000138.1_87453-87669(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
          <del>97.</del>6/100
                              -JADEYJ010000138.1_97547-97763(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                              AQQ79964_LbFV [VIRUS]
        <del>\7</del>2/74
                              -JADEYJ010000373.1_308060-308282(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                              -JADEYJ010000120.1_81628-81778(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
<del>90</del>.2/95
                   0/83
                              -JADEYJ010000222.1_546885-547035(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                  <del>86</del>.9/97
                              -JADEYJ010000371.1_3755962-3756112(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                 <del>75</del>.6/89
                               JADEYJ010000371.1_3656583-3656778(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                  d/46
                              -JADEYJ010000262.1_847512-847661(-):Leptopilina_boulardi_GCA_019393585.1 [A]
                              -JADEYJ010000273.1_3381037-3381187(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                  <del>- 85</del>|.6/94
                              -JADEYJ010000315.1_801979-802129(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
Root
                              -JADEYJ010000315.1_538442-538604(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
                   <del>65</del>.8/66
                              -JADEYJ010000371.1_1923674-1923814(-):Leptopilina_boulardi_GCA_019393585.1 [A]
                 15.9/72
                              -JADEYJ010000122.1_1867991-1868144(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
               <del>92</del>.1/94
                              -JADEYJ010000237.1_1266598-1266741(+):Leptopilina_boulardi_GCA_019393585.1 [A]
                              -JADEYJ010000198.1_293586-293729(+):Leptopilina_boulardi_GCA_019393585.1 [A]
                6<del>6</del>.1/89
       <del>21</del>.8/57
                              -JADEYJ010000371.1_3588065-3588208(-):Leptopilina_boulardi_GCA_019393585.1 [A]
                              -JADEYJ010000235.1_197222-197372(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
     <del>94</del>.9/96
0/62
                              -JADEYJ010000371.1_1848508-1848658(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF]
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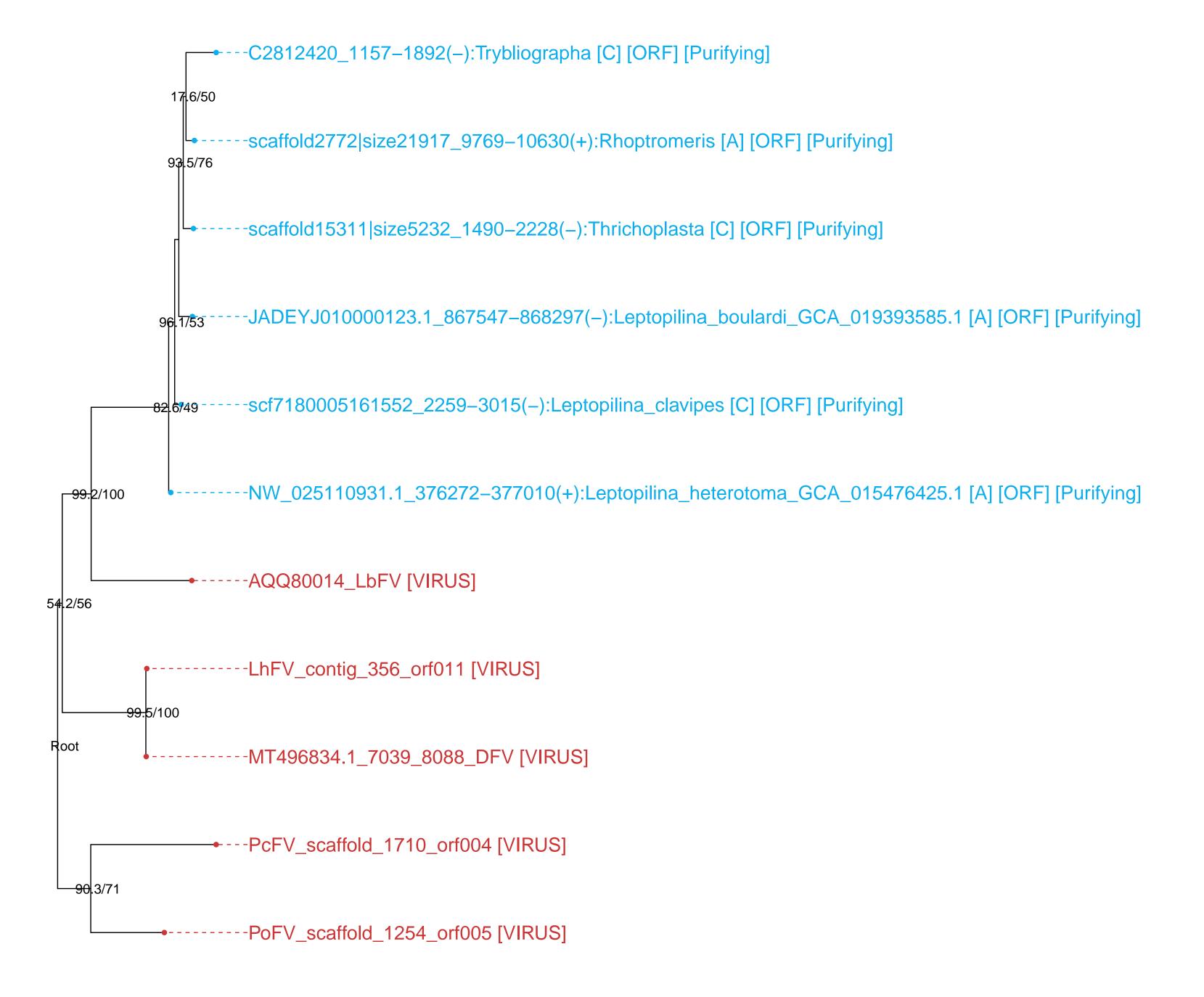


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                               -JABMBU010144361.1_3021-7616(+):Phanerotoma
             <del>-99.|</del>9/100
                               -helicase_MdBV
          1<del>0</del>0/100 100 100
                               -Microplitis_demolitor—_Hymenoptera_ [EUKARYOTA]
                                Capsaspora_MELD_virus_2-_d_Viruses_ [VIRUS]
                               A0A076FCD0_PmNV [VIRUS]
        <del>86</del>.6/62
                <del>10</del>0/100
                               A0A7D5YJ67_DhNV [VIRUS]
            <del>-9</del>9/98
                               A0A0B4VFE6_ToNV [VIRUS]
      90.7/60.5/91
                               AAN04398_HzNV-1 [VIRUS]
                               A0A0B4VGV3_ToNV [VIRUS]
                                Lasius_niger-_Hymenoptera_ [EUKARYOTA]
                               helicase_VcBV
                     <del>-10</del>0/100
                               -Venturia_canescens-_Hymenoptera_ [EUKARYOTA]
                  <del>37</del>/76
                               helicase_FaBV
    <del>95</del>.8/85
                96.7/97
                               -ATY70176_DmNV_tom [VIRUS]
                     <del>10</del>0/100
                               -B7SV55_OrNV [VIRUS]
               7<del>6</del>.4/57
                               -AHW98270.1_helicase_NIBV [VIRUS]
                      <del>10</del>0/100
                       -----Nilaparvata_lugens_endogenous_nudivirus-_Lefavirales_ [VIRUS]
             90529951
99,9/100
                               helicase-like_BtBV
            <del>-10</del>þ/<u>100</u>
                               A4L251_GbNV [VIRUS]
                               NW_020271170.1_12012-15776(-):Melanaphis_sacchari
             <del>78</del>.2/89
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   <del>-10</del>0/100
                               B2YG60_MdSGHV [VIRUS]
                               -scaffold_1017_18369-23376(-):Leptopilina_clavipes [A] [ORF] [Purifying]
                99 9/100
                               -NW_025111203.1_2163172-2168314(+):Leptopilina_heterotoma_GCA_015476425.1 [A] [ORF] [Purifying]
                99.5/98
                               -JADEYJ010000123.1_871195-876265(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF] [Purifying]
                99.2/99
                               -scaffold2427|size23614_2590-7741(+):Rhoptromeris [C] [ORF] [Purifying]
               <del>10</del>0/100
                               -scaffold6316|size11231_2357-7496(-):Thrichoplasta [C] [ORF] [Purifying]
 Root
                               -scaffold6371_16128-21291(+):Trybliographa [A] [ORF] [Purifying]
            <del>/9</del>7/97
                               -LhFV_contig_356_orf012 [VIRUS]
                  <del>-10</del>0/100
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        96.3/94
                               JAAXZA010185209.1_1466-4189(-):Dolichomitus
            94.9/98
                               -PoFV_scaffold_1254_orf006 [VIRUS]
          <del>99.</del>7/100
                               -PcFV_scaffold_1710_orf003 [VIRUS]
                               -JAAXZA010273280.1_50-2746(+):Dolichomitus
      <del>88</del>.3/69
                     <del>199.</del>5/100
                               -JAAXZA010227149.1_6410-7171(+):Dolichomitus
                   <del>10</del>0/100
                               JAAXZA010237213.1_628-5734(+):Dolichomitus
         90.8/70
                               -CcFV1_orf020 [VIRUS]
    <del>-99.|</del>7/1||0
       76 8/44 100/100
                               -CcFV2_orf025 [VIRUS]
                               -EfFV_orf073 [VIRUS]
                               -AKY03192_AmFV [VIRUS]
```



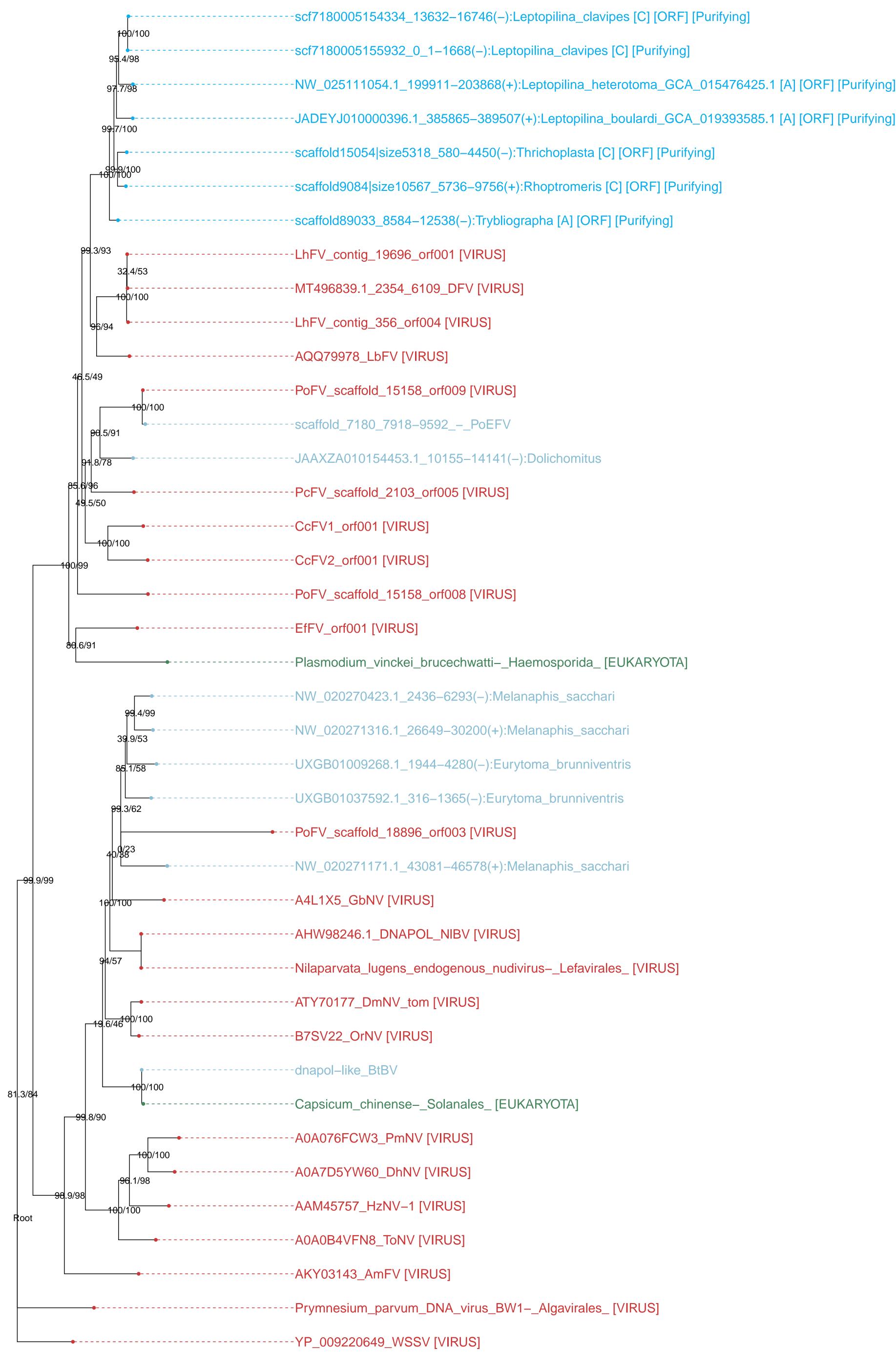


```
-NW_025110834.1_1166903-1169141(-):Leptopilina_heterotoma_GCA_015476425.1 [A] [ORF] [Purifying]
          99.4/99
                                -scf7180005159507_662-2906(-):Leptopilina_clavipes [C] [ORF] [Purifying]
         79.4/63
                                -JADEYJ010000123.1_959555-961820(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF] [Purifying]
         88.2/72
                                -scaffold16607|size4830_482-2753(-):Thrichoplasta [C] [ORF] [Purifying]
                                -scaffold2600|size22724_18537-20790(-):Rhoptromeris [C] [ORF] [Purifying]
                                -scaffold130369_2821-5083(+):Trybliographa [C] [ORF] [Purifying]
   <del>г99.</del>5/100
                                LhFV_contig_682_orf003 [VIRUS]
            <del>10</del>0/100
 <del>83</del>.7/86
                                -MT496835.1_1419_3632_DFV [VIRUS]
                                -AQQ79925_LbFV [VIRUS]
                                -scaffold10766|size9301_2278-4437(-):Rhoptromeris [C] [*]
99/98
                                 JAAXZA010078233.1_5956-8103(+):Dolichomitus
              <del>10</del>0/100
                                -JAAXZA010185432.1_5337-7640(+):Dolichomitus
  <del>78</del>.1/49
                                -PoFV_scaffold_1254_orf010 [VIRUS]
<del>86</del> 1/<del>38</del>
                                -PcFV_scaffold_5813_orf006 [VIRUS]
                                -B0YLQ8_GpSGHV [VIRUS]
              <del>10</del>0/100
                                -B2YG07_MdSGHV [VIRUS]
 <del>43</del>.1/56
                                -EfFV_orf034 [VIRUS]
<del>74</del>.1/35
                                -CcFV1_orf064 [VIRUS]
         <del>10</del>0/100
                       ------CcFV2_orf104 [VIRUS]
```



```
Figure S5: Cluster1614-Cluster91_redefined - LbFVorf96 (lef-8)
                                            ATY70178_DmNV_tom [VIRUS]
                             <del>-10</del>0/100
                                            B7SV85_OrNV [VIRUS]
                          <del>99</del>.7/99
                                            -lef-8 FaBV
                            <del>- 10</del>0/100
                                            Fopius_arisanus-_Hymenoptera_ [EUKARYOTA]
                        9升.7/92
                                            -AHW98295.1_LEF-8_NIBV [VIRUS]
                            <del>-10</del>0/100
                                            -Nilaparvata_lugens_endogenous_nudivirus-_Lefavirales_ [VIRUS]
                          8<del>4</del>.8/90
                                            -lef-8_VcBV
                           <del>10</del>0/100
                                            -Venturia_canescens-_Hymenoptera_ [EUKARYOTA]
                        <del>83</del>.5/52
                                            NW_020271684.1_2365-4968(+):Melanaphis_sacchari
                                            -Melanaphis_sacchari-_Hemiptera_ [EUKARYOTA]
                           1<del>0</del>0/100
                                            -lef8-like_DnBV [VIRUS]
                      <del>89</del>.4%751/100
                                            -NW_020270563.1_25575-28466(+):Melanaphis_sacchari
                        92.3/62
                                            Trichogramma_brassicae-_Hymenoptera_ [EUKARYOTA]
                                            -A4L212_GbNV [VIRUS]
                                            -NW_023276793.1_897804-901232(-):Chelonus_insularis
                           9<del>8.</del>5/100
                                            Chelonus_insularis-_Hymenoptera_ [EUKARYOTA]
                           62.6/84
                                            JABMBU010005597.1_23-613(-):Phanerotoma
               <del>10</del>0/100
                          97.7798
                                            -JABMBU010374989.1_1-2793(+):Phanerotoma
                          <del>10</del>0/100
                                            ·CAR31572.1_CcBV
                           99<del>.</del>9/100
                                            ·Cotesia_congregata-_Hymenoptera_ [EUKARYOTA]
                          99.3/100
                    60.5/85
                                            -lef-8_MdBV
                           100/100
                                            Microplitis_demolitor—_Hymenoptera_ [EUKARYOTA]
                                            A0A0B4VGT1_ToNV [VIRUS]
                                            -A0A076FIV8_PmNV [VIRUS]
     100/100
                         <del>10</del>0/100
                                            -A0A7D5YJ41_DhNV [VIRUS]
                     <del>93</del>.6/98
                                            -AAN04384_HzNV-1 [VIRUS]
                                            -A0A193DTX8_AcMNPV [VIRUS]
                                <del>-10</del>0/100
                                            -P41452_AcMNPV [VIRUS]
                            <del>199.</del>8/100
                                            Q9YMS3_LdMNPV [VIRUS]
                                            -Q91ES4_CpV [VIRUS]
                    <del>- 85</del>.1/97
                                            -Q6JK79_NeseNPV [VIRUS]
                  <del>10</del>0/10<del>0</del>
                                            Q919P3_CuniNPV [VIRUS]
                                            NW_025110886.1_705010-708058(+):Leptopilina_heterotoma_GCA_015476425.1 [A] [ORF] [Purifying]
                        99,3/100
                                            -scf7180005173345_2_942-3969(-):Leptopilina_clavipes [A] [ORF] [Purifying]
                        75.2/84
                                            -JADEYJ010000341.1_4178628-4181616(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF] [Purifying]
                         <del>98</del>/87
                                            -scaffold5022|size13666_6246-9156(-):Thrichoplasta [C] [ORF] [Purifying]
                                            -scaffold7953|size11583_6322–9286(–):Rhoptromeris [A] [ORF] [Purifying]
                                            -scaffold70212_2574-5574(-):Trybliographa [C] [ORF] [Purifying]
       Root
                    54.5/79
                                            LhFV_contig_22485_orf005 [VIRUS]
                           95.5/99
                                            -MT496836.1_1_1077_DFV [VIRUS]
                           <del>10</del>0/100
                  <del>99.</del>9/100
                                            -MT496838.1_3_2099_-_DFV [VIRUS]
                                            -AQQ80016_LbFV [VIRUS]
                    38.8/71
                                            -EfFV_orf109 [VIRUS]
                                            JAAXZA010084296.1_11-448(+):Dolichomitus
                        9<del>9.</del>8/100
                                            JAAXZA010227149.1_432-4148(+):Dolichomitus
               <del>-97</del>.3/89
                       <del>10</del>0/97
                                            JAAXZA010272532.1_911-4440(+):Dolichomitus
                        <del>82</del>.9/87
                   <del>95</del>.7/96
                                            -scaffold_3866_14985-15276_-_PoEFV
                                            -PoFV_scaffold_1254_orf004 [VIRUS]
                  6<del>2</del>.2<del>/89</del>.4/98
                                            -scaffold_3866_16769-16194_-_PoEFV
            <del>r 7.9</del>8/48
                                            -PcFV_scaffold_2714_orf002 [VIRUS]
                 43|.8<del>/59</del>
                                            -CcFV1_orf053 [VIRUS]
                      <del>10</del>0/100
                                            -CcFV2_orf015 [VIRUS]
          <del>-95</del>|.6/9|9
                                            -B0YLJ4_GpSGHV [VIRUS]
                         <del>10</del>0/100
                                            -B2YG47_MdSGHV [VIRUS]
                                            -AKY03234_AmFV [VIRUS]
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Figure S4: Cluster15 - LbFVorf78 (lef-9)
                                       -ATY70205_DmNV_tom [VIRUS]
                                       B7SVB7_OrNV [VIRUS]
                                       -lef-9 FaBV
                               <del>10</del>0/100
                                       -Fopius_arisanus-_Hymenoptera_ [EUKARYOTA]
                                       -ATY70249_DmNV_tom [VIRUS]
                              <del>-99.|</del>9/100
                                       -B7SVB9_OrNV [VIRUS]
                                       0/86
                                       -Nilaparvata_lugens_endogenous_nudivirus-_Lefavirales_ [VIRUS]
                                       -AHW98254.1_OrNV_gp098-like_protein_NIBV [VIRUS]
                         847547688
                                       -lef-9_VcBV
                             <del>10</del>0/100
                                       -Venturia_canescens-_Hymenoptera_ [EUKARYOTA]
                                       -lef9-like_BtBV
                        4<del>5</del>l.4/69
                                       -NW_020271524.1_3376-3795(+):Melanaphis_sacchari
                                       -lef9-like_DnBV [VIRUS]
                          91.2/97
                                       NW_020271316.1_42534-44367(-):Melanaphis_sacchari
                        3.4/61<sub>10</sub>0/100
8<del>9</del>.9/94
                                       -Melanaphis_sacchari-_Hemiptera_ [EUKARYOTA]
                                       NW_020271171.1_20024-21898(-):Melanaphis_sacchari
                                       -scaffold_6426_6391-8865(-):Platygaster_equestris [VIRUS]
                                       -A4L1Y7_GbNV [VIRUS]
            29.8/37
                                       -A0A076FIZ4_PmNV [VIRUS]
                     <del>10</del>0/100
                                       -Viruses__d_Viruses_ [VIRUS]
            94/57.8/100
                                       A0A7D5YKQ3_DhNV [VIRUS]
          90.4/55
                                       -AAN04369_HzNV-1 [VIRUS]
                                       -A0A0B4VGI1_ToNV [VIRUS]
                                       NW_023276451.1_2156244-2158205(+):Chelonus_insularis
         <del>10</del>0/100
                                       ·Chelonus_insularis-_Hymenoptera_ [EUKARYOTA]
              100/100
                                        JABMBU010048401.1_137-2077(+):Phanerotoma
       <sub>66</sub>.3/52 78.3/96
                                       -lef-9_MdBV
               <del>10</del>0/100
                                       -Microplitis_demolitor—_Hymenoptera_ [EUKARYOTA]
                                        UXGB01007671.1_298-1704(-):Eurytoma_brunniventris
                                       ·Dictyoglomus_turgidum-_Dictyoglomales_ [BACTERIA]
              <del>99.</del>9/100
                                        Physcomitrium_patens-_Funariales_ [EUKARYOTA]
        <del>-8</del>6/98
                                       Araneus_ventricosus-_Araneae_ [EUKARYOTA]
                                       -scf7180005177077_2_6093-7893(+):Leptopilina_clavipes [C] [ORF] [Purifying]
                           99<del>.</del>6/100
                                       -NW_025111054.1_416171-417872(+):Leptopilina_heterotoma_GCA_015476425.1 [A] [ORF] [Purifying]
                           98,1/100
                                       -JADEYJ010000362.1_3920120-3921875(-):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF] [Purifying]
                           90.5/99
                                       -scaffold20907|size5235_1565-3584(-):Rhoptromeris [C] [ORF] [Purifying]
                          <del>188/1</del>660
                                       -scaffold6671|size10727_8133-10179(+):Thrichoplasta [C] [ORF] [Purifying]
                                       -scaffold80982_4461-6138(-):Trybliographa [A] [ORF] [Purifying]
                       <del>89</del>.8/97 '
                                       -LhFV_contig_356_orf007 [VIRUS]
                     97.9/<del>10010</del>0/100
                                       -MT496834.1_9061_11013_DFV [VIRUS]
                    <del>88</del>.7<u>/89</u>
      Root
                                       -AQQ79998_LbFV [VIRUS]
                                       -EfFV_orf025 [VIRUS]
                                      --PoFV_scaffold_15158_orf005 [VIRUS]
                                       -scaffold_7180_1612-4084_-_PoEFV
                  75.5/7<mark>896</mark>.5/99
                                       scaffold_6401_17630-18491_PoEFV
                     89.7/65
                                       JAAXZA010252657.1_3650-5956(-):Dolichomitus
                    <del>4</del>1/56
                                       -CcFV1_orf036 [VIRUS]
               <del>99.</del>87<del>2</del>00640/100
                                       -CcFV2_orf012 [VIRUS]
                                       PcFV_scaffold_2882_orf003 [VIRUS]
                                   ----B2YG51_MdSGHV [VIRUS]
                                       -B0YLI7_GpSGHV [VIRUS]
                                       -B0YLI6_GpSGHV [VIRUS]
        <del>98.</del>1/100
                                      --P41465_AcMNPV [VIRUS]
                            <del>10</del>0/100
                                       -S5G678_AcMNPV [VIRUS]
                          <del>98.</del>8/100
                                       -Q9YMR2_LdMNPV [VIRUS]
                       <del>-99.</del>|7/100
                                      --A0A097P2H9_CpV [VIRUS]
                            <del>10</del>0/100
                    <del>-96</del>.2/99
                                       -Q91ET8_CpV [VIRUS]
                <del>99.|</del>9/100
                                       -Q6JKC0_NeseNPV [VIRUS]
                                       -Q919L7_CuniNPV [VIRUS]
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Figure S2: Cluster115-Cluster431-Cluster37 - LbFVorf107 (lef-4)
                                             -ATY70197_DmNV_tom [VIRUS]
                             <del>10</del>0/100
                                            -B7SV63_OrNV [VIRUS]
                         <del>94</del>.6/96
                                            -lef-4_FaBV
                             <del>10</del>0/100
                                            -Fopius_arisanus-_Hymenoptera_ [EUKARYOTA]
                       <del>95</del>.3/97
                                             -AHW98259.1_LEF-4_NIBV [VIRUS]
                                  <del>10</del>0/100
                                            -Nilaparvata_lugens_endogenous_nudivirus-_Lefavirales_ [VIRUS]
                      23/86 | 23/86
                                            -lef-4_VcBV
                            <del>93</del>.3/99
                                            -Venturia_canescens-_Hymenoptera_ [EUKARYOTA]
                    <del>- 97</del>1.5/99
                                             -NW_020271170.1_7051-8397(-):Melanaphis_sacchari
                  <del>98.</del>7/100
                                            -lef4-like_BtBV
                                             -A4L259_GbNV [VIRUS]
                                             -NW_023276571.1_73577-74998(+):Chelonus_insularis
                                            -Chelonus_insularis-_Hymenoptera_ [EUKARYOTA]
                              <del>91.</del>5/100
                                             CAR40187.1_CiBV
                            1<del>0</del>0/100
              <del>96</del>.5/99
                                             -JABMBU010243911.1_141-1571(-):Phanerotoma
                           <del>86</del>.3/95
                                            -lef-4_MdBV
                     1<del>p</del>p/100 <sup>l99.</sup>6/100
                                            -Microplitis_demolitor-_Hymenoptera_ [EUKARYOTA]
                     <del>24</del>.2/78
                                             UXGB01004222.1_2615-3850(+):Eurytoma_brunniventris
                                             -A0A0B4VFB9_ToNV [VIRUS]
                                            -AAN04392_HzNV-1 [VIRUS]
                 <del>92</del>.4/96
       98.8/100
                                             -A0A076FES6_PmNV [VIRUS]
                   <del>8</del>0/95
                                           --A0A7D5UN95_DhNV [VIRUS]
                                            -A0A097P1Z4_CpV [VIRUS]
                        <del>98.</del>3/100
                                           --Q91EW0_CpV [VIRUS]
                     <del>78</del>.6/43
                                             Q919I1_CuniNPV [VIRUS]
                   8<del>4</del>.5/43
                                            -Q6JK98_NeseNPV [VIRUS]
                 <del>99.</del>9/100
                                            -P41477_AcMNPV [VIRUS]
                          <del>10</del>0/100
                                            -S5GFY8_AcMNPV [VIRUS]
                     <del>-96</del>.5/99
                                             -Q9YMN4_LdMNPV [VIRUS]
                     2<del>5</del>.2/66
                                            -Adoxophyes_orana_nucleopolyhedrovirus-_Lefavirales_ [VIRUS]
                                            -NW_025111203.1_2169177-2171064(-):Leptopilina_heterotoma_GCA_015476425.1 [A] [ORF] [Purifying]
                             97,9/100
                                             -scf7180005156365_802-2674(-):Leptopilina_clavipes [C] [ORF] [Purifying]
                             90.1/97
                                            -JADEYJ010000123.1_868877-870749(+):Leptopilina_boulardi_GCA_019393585.1 [A] [ORF] [Purifying]
                             92.5/75
                                            -scaffold10242|size9676_642-2541(+):Rhoptromeris [C] [ORF] [Purifying]
                                             -scaffold8390|size8880_5185-7096(+):Thrichoplasta [C] [ORF] [Purifying]
       Root
                                             -scaffold62109_7718-9599(-):Trybliographa [C] [ORF] [Purifying]
                       187.4/91
                                            -LhFV_contig_223_orf002 [VIRUS]
                                   <del>10</del>0/100
                                           --MT496840.1_3602_5371_DFV [VIRUS]
                     <del>8</del>5/54
                                            -JAAXZA010261437.1_9399-10586(+):Dolichomitus
                                 <del>10</del>0/100
                                             -JAAXZA010132348.1_16935-18353(-):Dolichomitus
                       <del>92</del>.3/69
                                            -CcFV1_orf0103 [VIRUS]
                   69.8/46
                               <del>10</del>0/100
                                            -CcFV2_orf008 [VIRUS]
                                            -AQQ80027_LbFV [VIRUS]
                     <del>-98</del>.6/99
                                            -scaffold7282|size12268_3641-5110(-):Rhoptromeris [C]
                                            -scaffold_15031_1081-1779_PoEFV
                               75/98
                                            -scaffold_15031_513-1767_PoEFV
                              63.2/93
                  24/57
                                            -PoFV_scaffold_11706_orf003 [VIRUS]
                             <del>10</del>0/100
                                            -PoFV_scaffold_11706_orf004 [VIRUS]
                <del>-99.</del>$/100
                                            -EfFV_orf004 [VIRUS]
         <del>-98.</del>7/100
                                            -PcFV_scaffold_2714_orf013 [VIRUS]
                                            -B0YLK5_GpSGHV [VIRUS]
             <del>88</del>.3/90
                                            -B2YG64_MdSGHV [VIRUS]
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phylum - Virus - Other EVEs - Cynipids EVEs - Bacteria - Eukaryota