Supplementary information

First report of an Onchocercidae worm infecting *Psychodopygus carrerai carrerai* sandfly, a putative vector of *Leishmania braziliensis* in the Amazon

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Supplementary Video. Video of a female specimen of *Ps. carrerai carrerai* parasitized with an Onchocercidae worm larvae form.

List of Supplementary Figures:

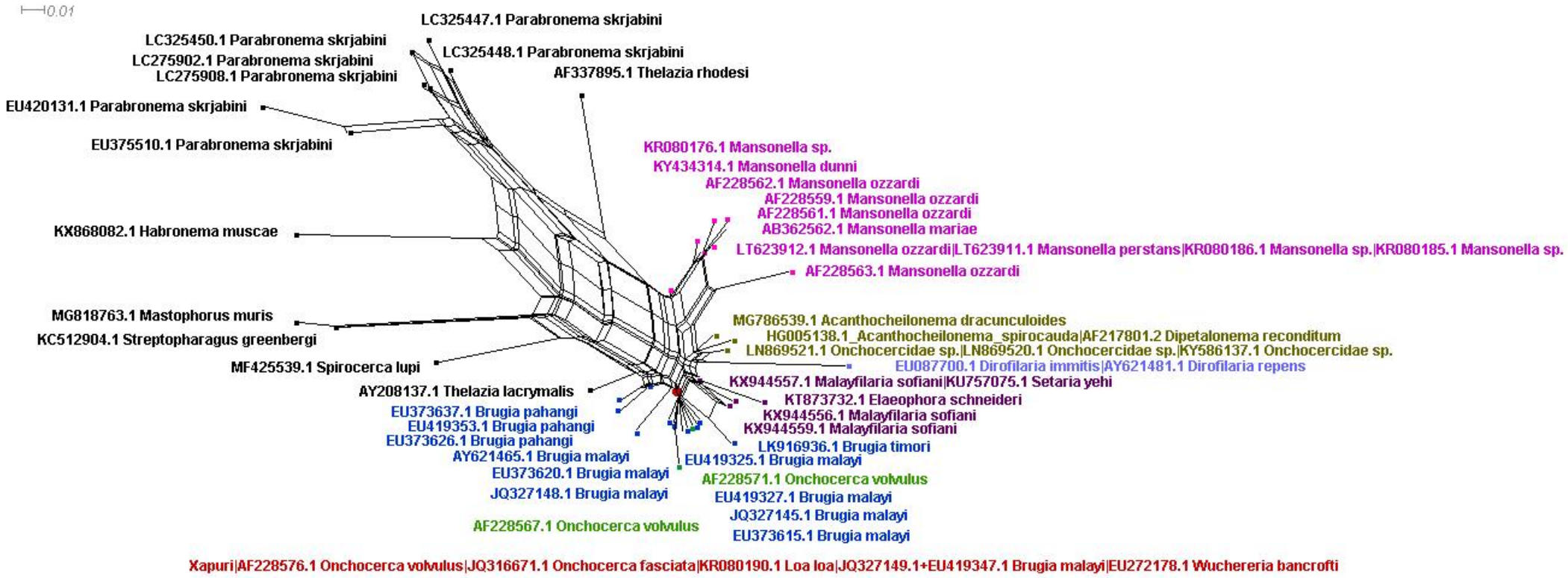
Figure S1 - A network generated by the NeighborNet algorithm in the program SplitsTree, derived from Kimura-2-parameter distances of ITS sequences. The worm sequence from Xapuri and indistinguishable sequences are highlighted in red on the network.

Figure S2 - Alignment of the most similar sequences to Xapuri ITS obtained through a BLAST search and used to produce **Figure S1**. Sequences were aligned through Clustal X in BioEdit42, using default settings, and with gaps and regions of uncertain alignment removed manually. If more than one sample corresponded to each sequence it is indicated with a superscript number, as follows. **1** Xapuri ITS; AF228576.1 O. volvulus; KR080190.1 *Loa loa*; JQ327149.1 *Brugia malayi*; JQ316671.1 *Onchocerca fasciata*; EU419347.1 *Brugia malayi*; EU272178.1 *Wuchereria bancrofti*. 2 HG005138.1 *Acanthocheilonema spirocauda*; AF217801.2 *Dipetalonema reconditum*. 3 LN869521.1 Onchocercidae sp.; LN869520.1 Onchocercidae sp.; KY586137.1 Onchocercidae sp.. 4 LT623912.1 *Mansonella ozzardi*; LT623911.1 *Mansonella perstans*; KR080186.1 *Mansonella* sp.; KR080185.1 *Mansonella* sp.. 5 KX944557.1 *Malayfilaria sofiani*; KU757075.1 *Setaria yehi*. 6 EU087700.1 *Dirofilaria immitis*; AY621481.1 *Dirofilaria repens*.

Supplementary information 1. Alignment 12S – Nucleotide alignment of the 12S gene used in the phylogenetic analysis represented in Fig. 2.

Supplementary information 2. Alignment COI – Nucleotide alignment of the COI gene used in the phylogenetic analysis represented in Fig 3.

Figure S1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EU375510.1 Parabronema skrjabini
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KY434314.1 Mansonella dunni
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AF228561.1 Mansonella ozzardi
KX868082.1 Habronema muscae
AB362562.1 Mansonella mariae
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AF228563.1 Mansonella ozzardi
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MG786539.1 Acanthocheilonema dracunculoides
KC512904.1 Streptopharagus greenbergi
HG005138.1_Acanthocheilonema_spirocauda|AF217801.2 Dipetalonema reconditum
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MF425539.1 Spirocerca lupi
EU087700.1 Dirofilaria immitis|AY621481.1 Dirofilaria repens
KX944557.1 Malayfilaria sofiani|KU757075.1 Setaria yehi
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KX944559.1 Malayfilaria sofiani
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Xapuri|AF228576.1 Onchocerca volvulus|JQ316671.1 Onchocerca fasciata|KR080190.1 Loa loa|JQ327149.1+EU419347.1 Brugia malayi|EU272178.1 Wuchereria bancrofti

Figure S2


Position
10
20
30
40
50
60
Xapuri ITS[1]
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KR080176.1 Mansonella sp.
KY434314.1 Mansonella dunni
KX944559.1 Malayfilaria sofiani
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AB362562.1 Mansonella mariae
EU087700.1 Dirofilaria immitis[6]
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AF337895.1 Thelazia rhodesi
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KX868082.1 Habronema muscae
MG818763.1 Mastophorus muris
LC275908.1 Parabronema skrjabini
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LC325447.1 Parabronema skrjabini
LC325450.1 Parabronema skrjabini
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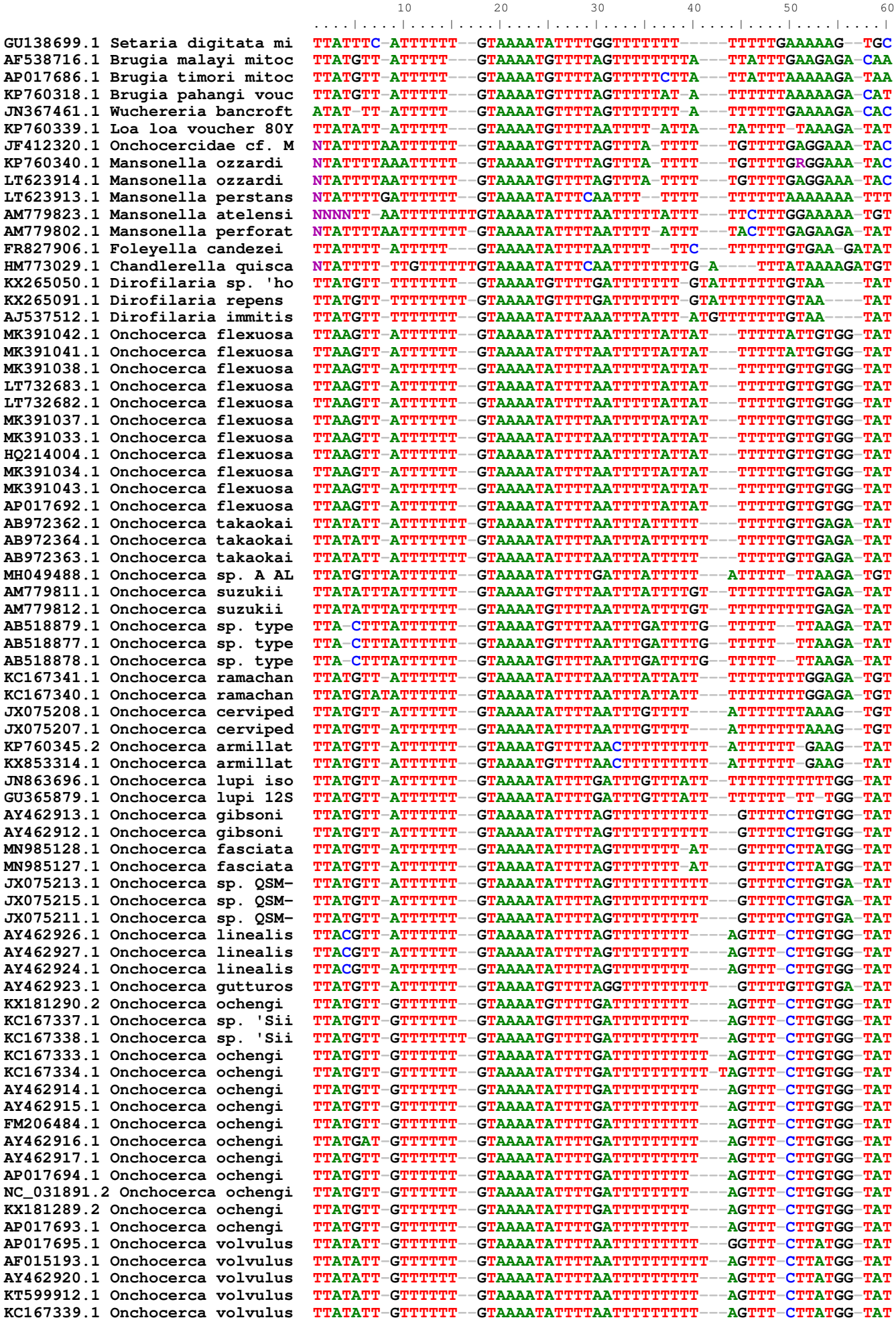

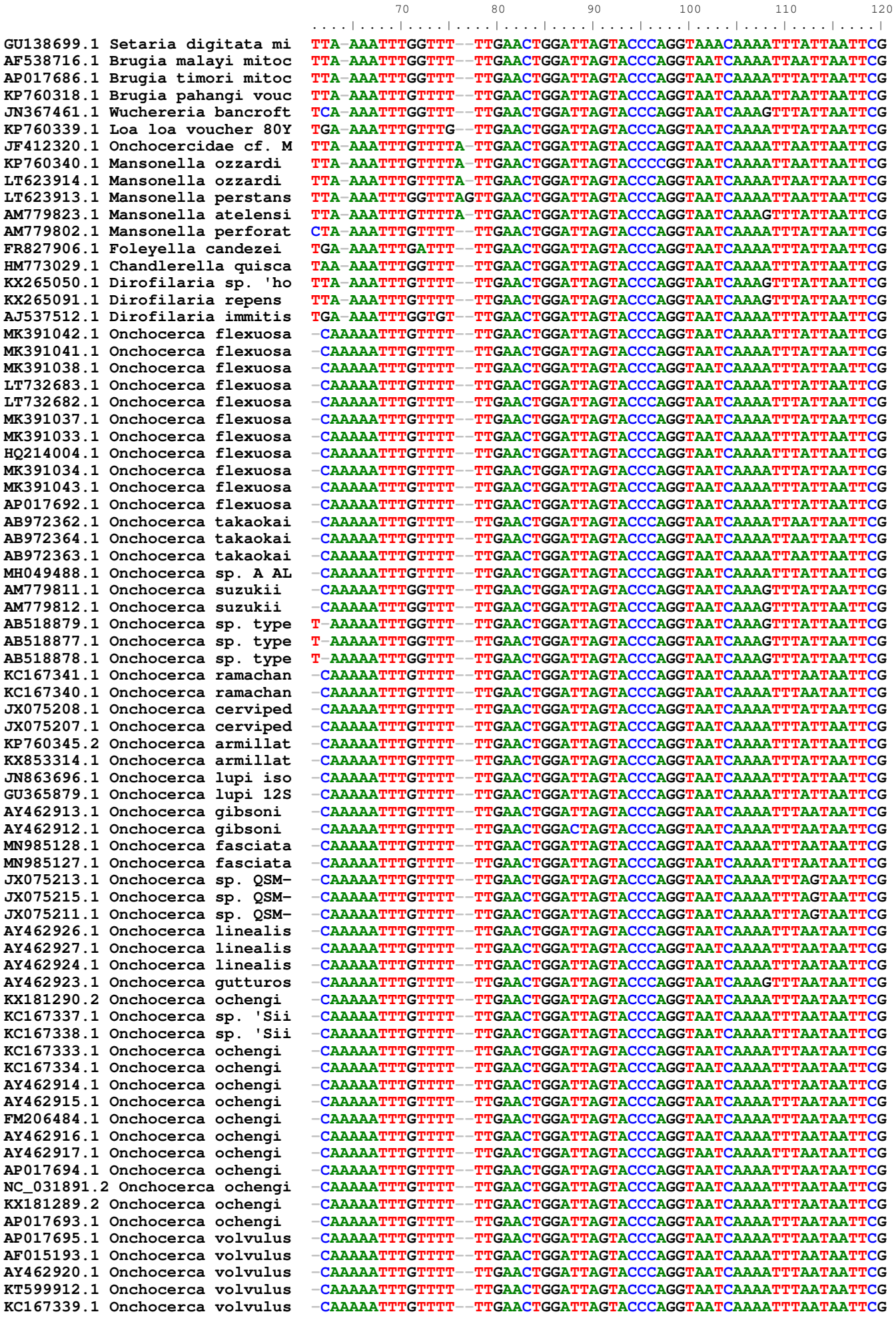
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AP017686.1 Brugia timori mitoc TTA-AAATTTGGTTT--TTGAACTGGATTAGTACCCAGGTAATCAAAATTTATTAATTCG
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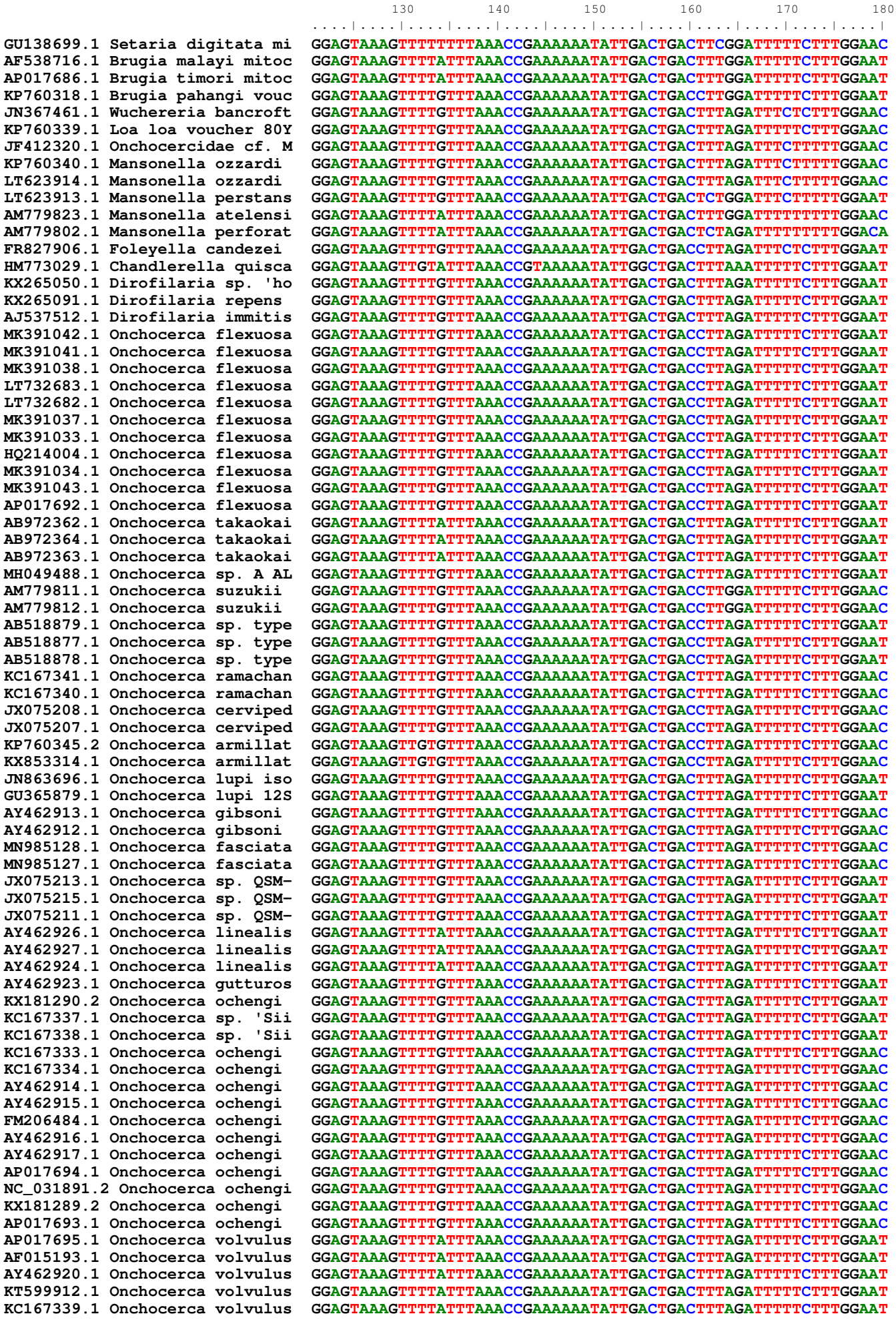
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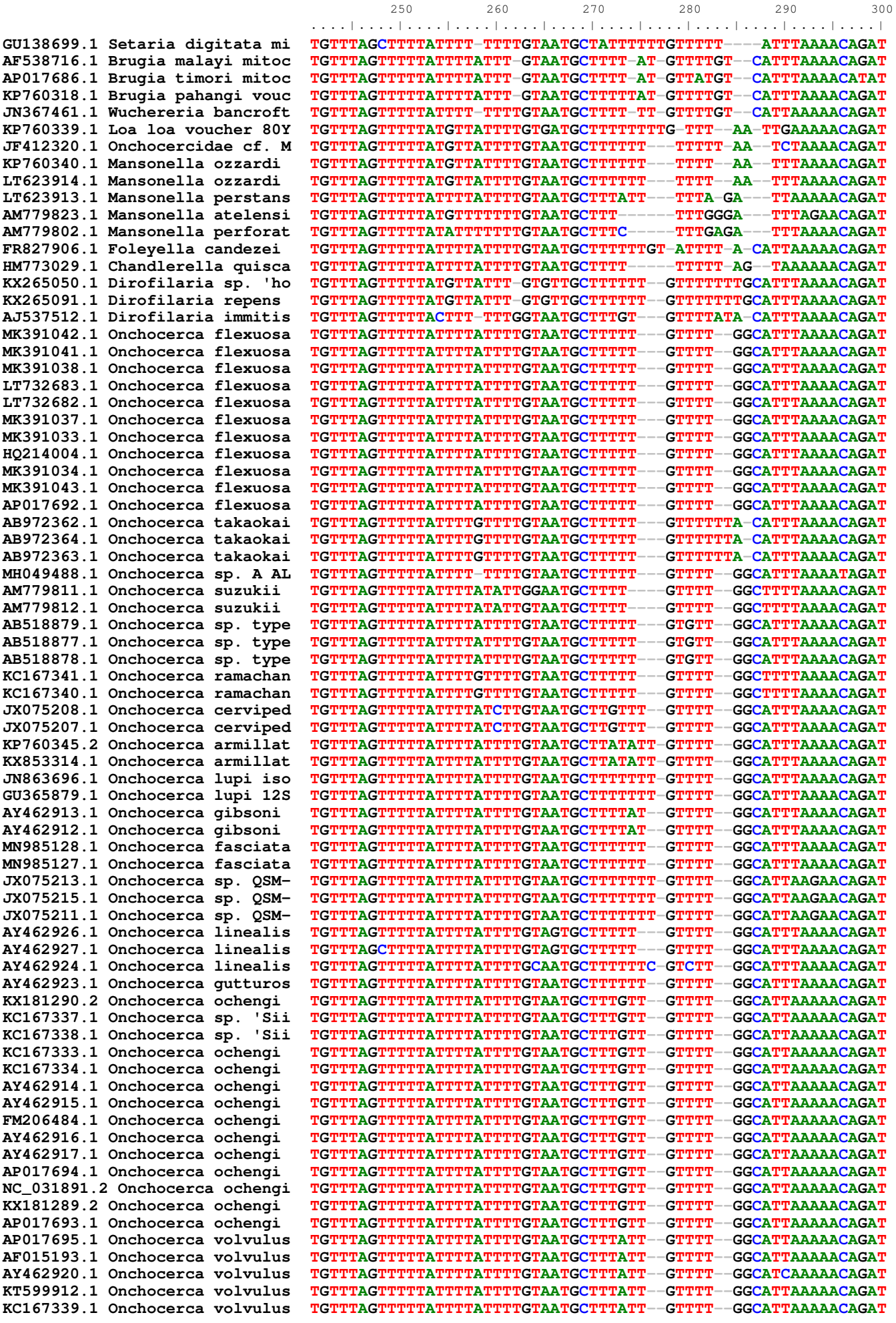
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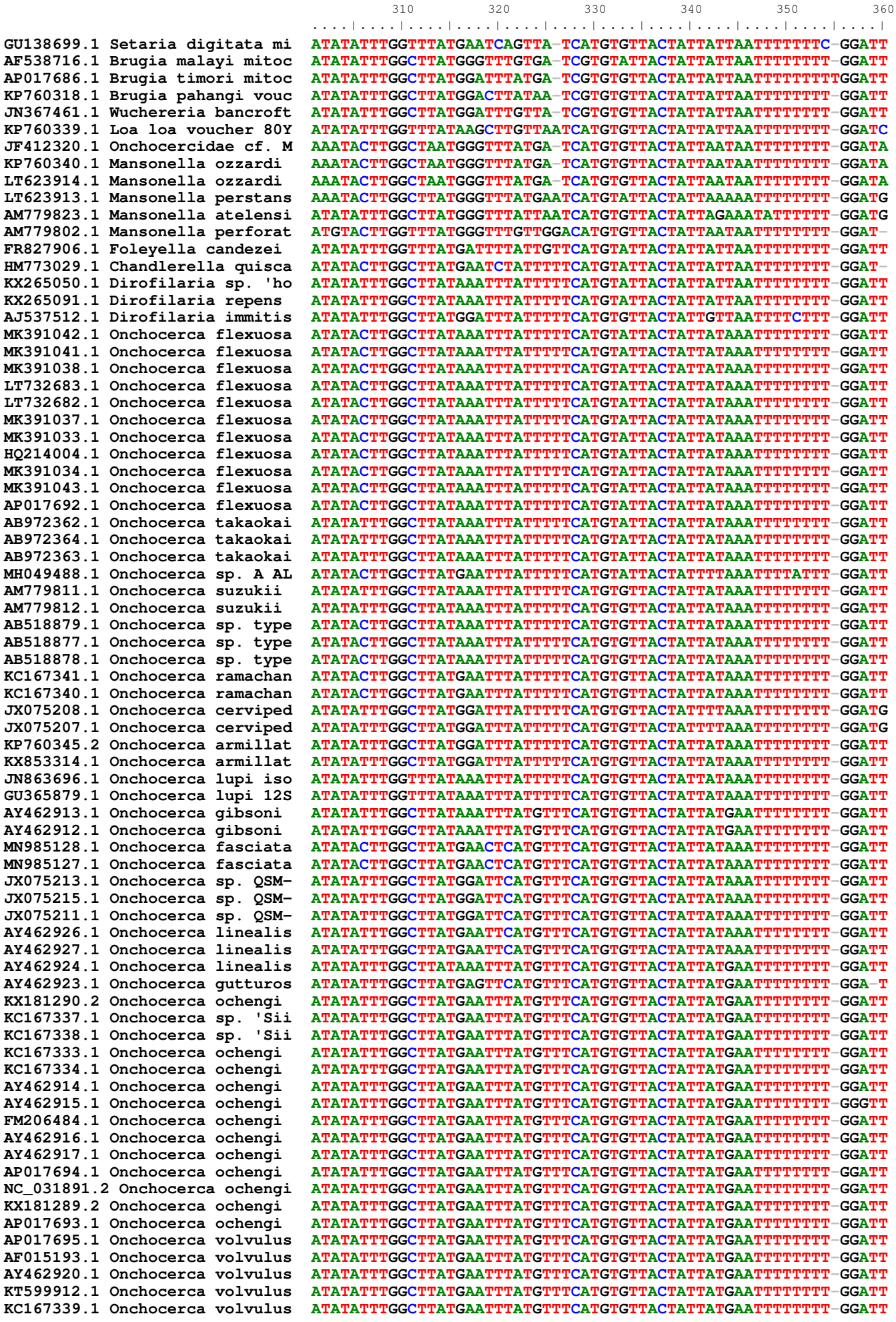
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KC167337.1 Onchocerca sp. 'Sii ATATATTTGGCTTATGAATTTATGTTTCATGTGTTACTATTATGAATTTTTTTT-GGATT
KC167338.1 Onchocerca sp. 'Sii ATATATTTGGCTTATGAATTTATGTTTCATGTGTTACTATTATGAATTTTTTTT-GGATT
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GU365879.1 Onchocerca lupi 12S AATTTTTT--ATTTTTTTTT-GAAATTGGAAAAGAAAGTAATT
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JX075211.1 Onchocerca sp. QSM- AATTTTTT--ATTTTTTTTT-GAAATTGGAAAAGAAAGTAATT
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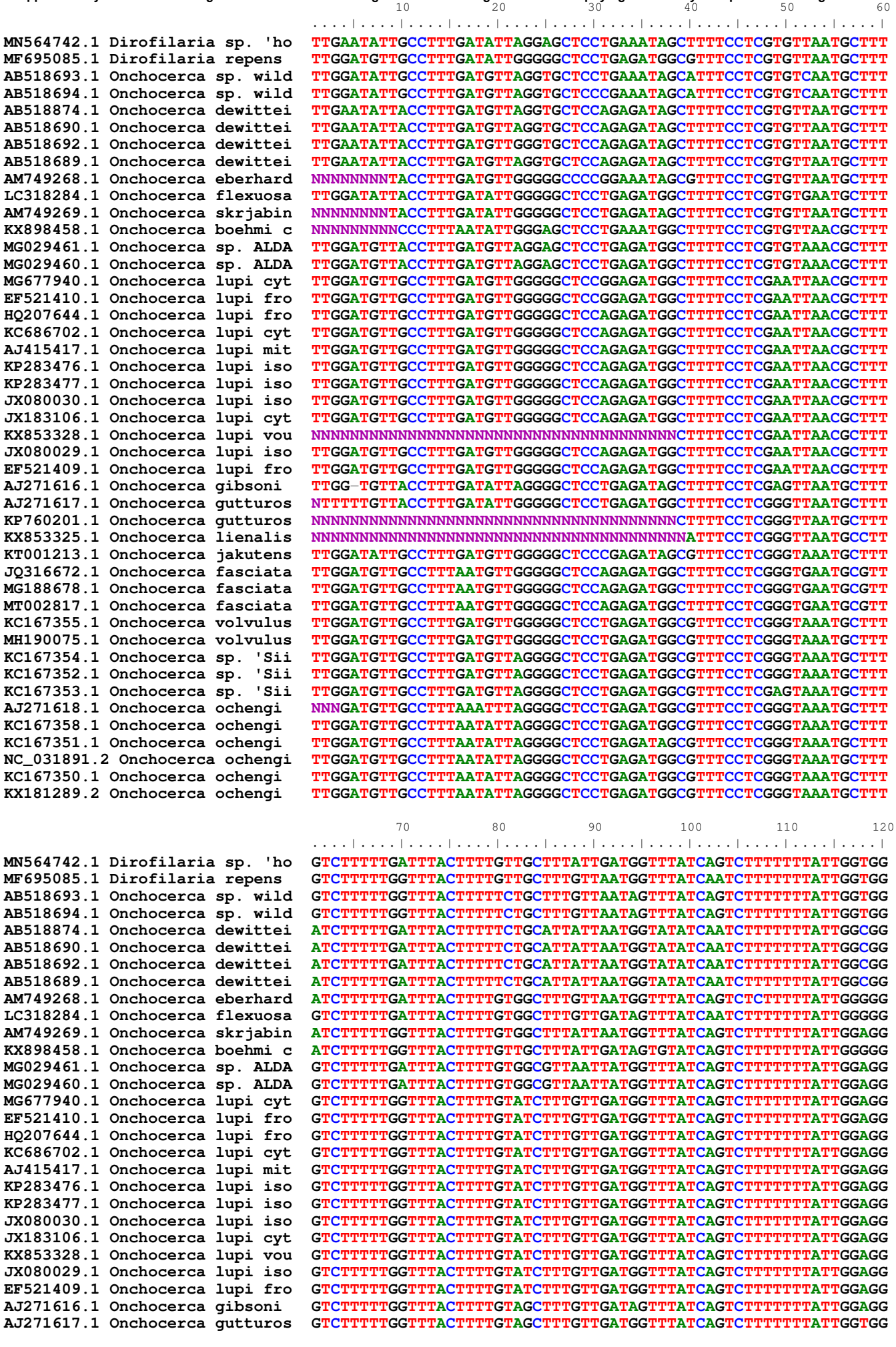
Supplementary information 2. Alignment COI – Nucleotide alignment of the COI gene used in the phylogenetic analysis represented in Fig 3.



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KX853325.1 Onchocerca lienalis  GTCTTTTTGGTTTACTTTTGTGGCTTTGTTGATGGTTTATCAATCTTTTTTTATTGGAGG
KT001213.1 Onchocerca jakutens  GTCTTTTTGGTTTACTTTTGTGGCTTTATTAATGGTTTATCAGTCTTTTTTTATTGGTGG
JQ316672.1 Onchocerca fasciata  GTCTTTTTGGTTTACTTTTGTGGCTTTGTTGATAGTTTATCAATCTTTTTTTATTGGAGG
MG188678.1 Onchocerca fasciata  GTCTTTTTGGTTTACTTTTGTGGCTTTGTTGATAGTTTATCAATCTTTTTTTATTGGAGG
MT002817.1 Onchocerca fasciata  GTCTTTTTGGTTTACTTTTGTGGCTTTGTTGATAGTTTATCAATCTTTTTTTATTGGAGG
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MT002817.1 Onchocerca fasciata  TGGCCCTGGTAGAAGTTGGACTTTTTATCCTCCTTTGAGGGTTGAGGGTCAACCGGAATT
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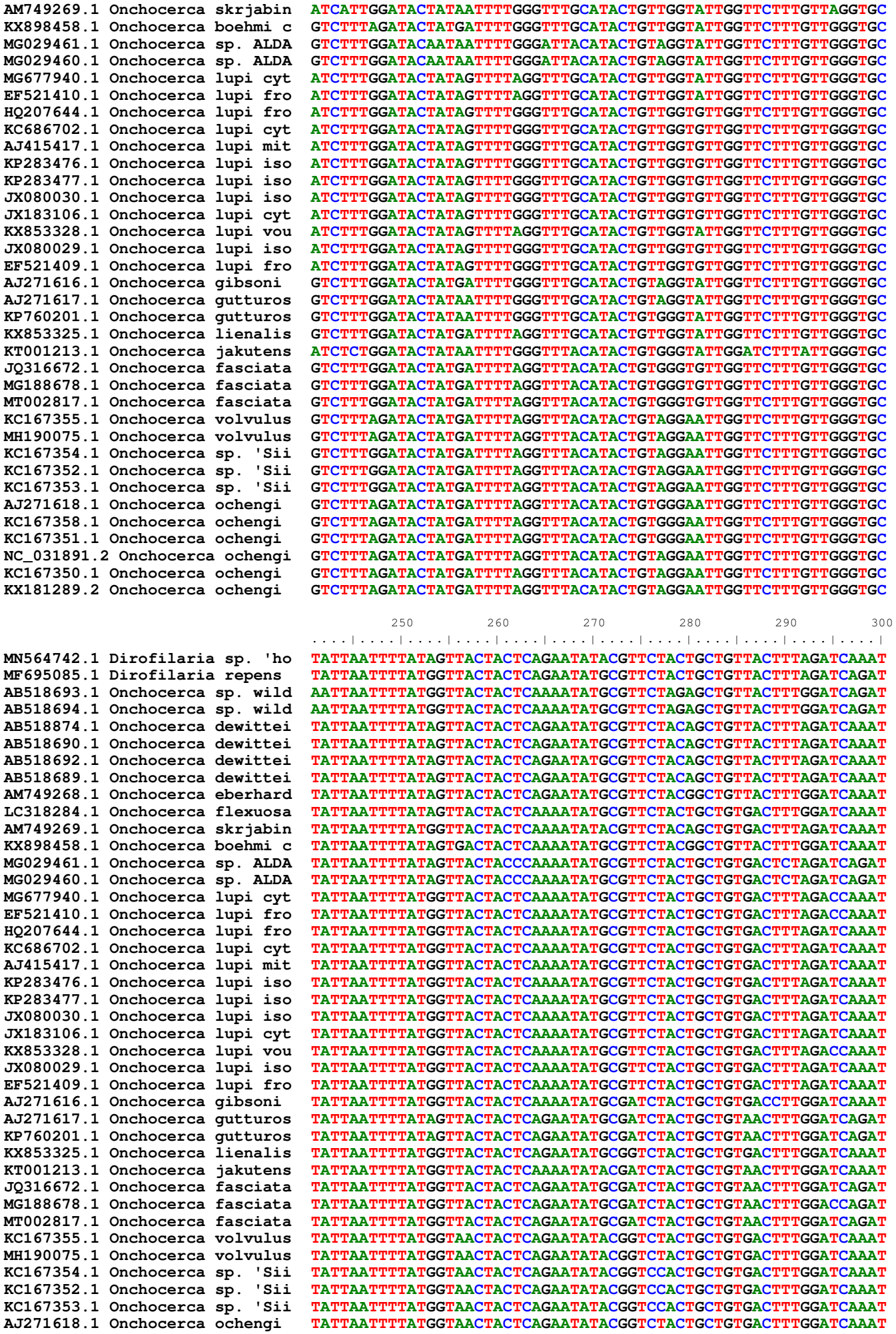
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KC167352.1 Onchocerca sp. 'Sii
KC167353.1 Onchocerca sp. 'Sii
AJ271618.1 Onchocerca ochengi
KC167358.1 Onchocerca ochengi
KC167351.1 Onchocerca ochengi
NC_031891.2 Onchocerca ochengi
KC167350.1 Onchocerca ochengi
KX181289.2 Onchocerca ochengi
250
260
270
280
290
300
MN564742.1 Dirofilaria sp. 'ho
MF695085.1 Dirofilaria repens
AB518693.1 Onchocerca sp. wild
AB518694.1 Onchocerca sp. wild
AB518874.1 Onchocerca dewittei
AB518690.1 Onchocerca dewittei
AB518692.1 Onchocerca dewittei
AB518689.1 Onchocerca dewittei
AM749268.1 Onchocerca eberhard
LC318284.1 Onchocerca flexuosa
AM749269.1 Onchocerca skrjabin
KX898458.1 Onchocerca boehmi c
MG029461.1 Onchocerca sp. ALDA
MG029460.1 Onchocerca sp. ALDA
MG677940.1 Onchocerca lupi cyt
EF521410.1 Onchocerca lupi fro
HQ207644.1 Onchocerca lupi fro
KC686702.1 Onchocerca lupi cyt
AJ415417.1 Onchocerca lupi mit
KP283476.1 Onchocerca lupi iso
KP283477.1 Onchocerca lupi iso
JX080030.1 Onchocerca lupi iso
JX183106.1 Onchocerca lupi cyt
KX853328.1 Onchocerca lupi vou
JX080029.1 Onchocerca lupi iso
EF521409.1 Onchocerca lupi fro
AJ271616.1 Onchocerca gibsoni
AJ271617.1 Onchocerca gutturos
KP760201.1 Onchocerca gutturos
KX853325.1 Onchocerca lienalis
KT001213.1 Onchocerca jakutens
JQ316672.1 Onchocerca fasciata
MG188678.1 Onchocerca fasciata
MT002817.1 Onchocerca fasciata
KC167355.1 Onchocerca volvulus
MH190075.1 Onchocerca volvulus
KC167354.1 Onchocerca sp. 'Sii
KC167352.1 Onchocerca sp. 'Sii
KC167353.1 Onchocerca sp. 'Sii
AJ271618.1 Onchocerca ochengi

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NC_031891.2 Onchocerca ochengi  TATTAATTTTATGGTAACTACTCAGAATATACGGTCTACTGCTGTGACTTTGGATCAAAT
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KX181289.2 Onchocerca ochengi   TATTAATTTTATGGTAACTACTCAGAATATACGGTCTACTGCTGTGACTTTGGATCAAAT

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EF521410.1 Onchocerca lupi fro  TAGTATGTTTGTCTGGACTTCTTATTTAACTTCTTTTTTATTAGTGTTATCTGTTCCTGT
HQ207644.1 Onchocerca lupi fro  TAGTATGTTTGTCTGGACTTCTTATTTAACTTCTTTTTTATTAGTATTATCTGTTCCTGT
KC686702.1 Onchocerca lupi cyt  TAGTATGTTTGTCTGGACTTCTTATTTAACTTCTTTTTTATTAGTATTATCTGTTCCTGT
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MF695085.1 Dirofilaria repens   TTTAGCTGGTTCTTTGTTGTTTTTGTTATTAGATCGTAATTTTAATACTTCTTTTTATGA
AB518693.1 Onchocerca sp. wild  TTTGGCTGGTTCTTTATTGTTTTTATTGTTAGATCGTAATTTTAATACTTCTTTTTATGA
AB518694.1 Onchocerca sp. wild  TTTGGCTGGTTCTTTATTGTTTTTATTGTTAGATCGTAATTTTAATACTTCTTTTTATGA
AB518874.1 Onchocerca dewittei  TTTGGCTGGGTCTTTATTGTTTTTATTGTTGGATCGTAATTTTAATACTTCTTTTTATGA
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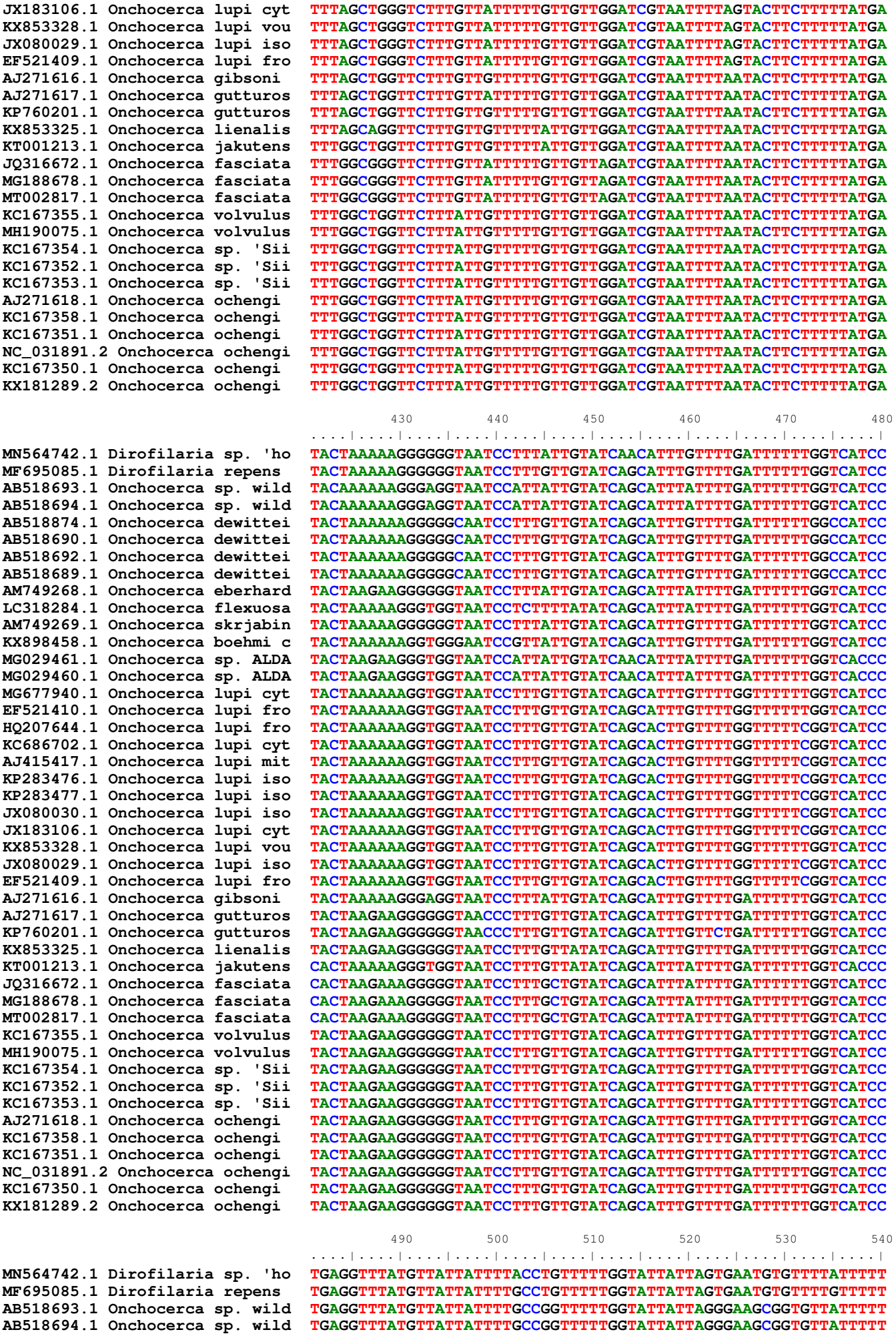
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440
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JX080029.1 Onchocerca lupi iso  CGAGGTTTATGTTATTATTTTACCGGTTTTTGGTATTATTAGGGAGGCAGTTTTATTTTT
EF521409.1 Onchocerca lupi fro  CGAGGTTTATGTTATTATTTTACCGGTTTTTGGTATTATTAGGGAGGCAGTTTTATTTTT
AJ271616.1 Onchocerca gibsoni   TGAGGTTTATGTTATTATTTTGCCAGTTTTTGGTATTATTAGAGAAGCTGTTTTATTTTT
AJ271617.1 Onchocerca gutturos  TGAGGTTTATGTTATTATTTTGCCTGTTTTTGGTATTATTAGAGAGGCGGTTTTGTTTTT
KP760201.1 Onchocerca gutturos  TGAGGTTTATGTTATTATTTTGCCTGTTTTTGGTATTATTAGAGAGGCGGTTTTGTTTTT
KX853325.1 Onchocerca lienalis  TGAGGTTTATGTTATTATTTTGCCGGTTTTTGGTATTATTAGGGAAGCTGTTTTGTTTTT
KT001213.1 Onchocerca jakutens  TGAGGTTTATGTTATTATTTTACCGGTTTTTGGTATTATTAGGGAGGCGGTTTTGTTTTT
JQ316672.1 Onchocerca fasciata  TGAGGTTTATGTTATTATTTTGCCGGTTTTTGGTATTATTAGAGAGGCGGTTTTATTTTT
MG188678.1 Onchocerca fasciata  TGAGGTTTATGTTATTATTTTGCCGGTTTTTGGTATTATTAGAGAGGCGGTTTTATTTTT
MT002817.1 Onchocerca fasciata  TGAGGTTTATGTTATTATTTTGCCGGTTTTTGGTATTATTAGAGAGGCGGTTTTATTTTT
KC167355.1 Onchocerca volvulus  TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAGGCGGTTTTATTTTT
MH190075.1 Onchocerca volvulus  TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAGGCGGTTTTATTTTT
KC167354.1 Onchocerca sp. 'Sii  TGAGGTGTATGTTATTATTTTACCTGTTTTCGGTATTATTAGGGAAGCGGTTTTATTTTT
KC167352.1 Onchocerca sp. 'Sii  TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAAGCGGTTTTATTTTT
KC167353.1 Onchocerca sp. 'Sii  TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAAGCGGTTTTATTTTT
AJ271618.1 Onchocerca ochengi   TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAAGCGGTTTTATTTTT
KC167358.1 Onchocerca ochengi   TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAAGCGGTTTTATTTTT
KC167351.1 Onchocerca ochengi   TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAAGCGGTTTTATTTTT
NC_031891.2 Onchocerca ochengi  TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAAGCGGTTTTATTTTT
KC167350.1 Onchocerca ochengi   TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAAGCGGTTTTATTTTT
KX181289.2 Onchocerca ochengi   TGAGGTGTATGTTATTATTTTACCTGTTTTTGGTATTATTAGGGAAGCGGTTTTATTTTT

                                          550       560       570       580       590       600
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MN564742.1 Dirofilaria sp. 'ho  GACTGATAAGGATCGTTTGTTTGGTCAGACTAGAATAACTTTTGCTTCTATTTGGATTGC
MF695085.1 Dirofilaria repens   GACTGATAAGGATCGTTTGTTTGGTCAGACTAGTATAACTTTTGCTTCTATTTGGATTGC
AB518693.1 Onchocerca sp. wild  AACTGATAAGGATCGTTTGTTTGGTCAAACTAGAATAACTTTTGCTTCTATTTGAATTGC
AB518694.1 Onchocerca sp. wild  AACTGATAAGGATCGTTTGTTTGGTCAAACTAGAATAACTTTTGCTTCTATTTGAATTGC
AB518874.1 Onchocerca dewittei  GACTGATAAAGATCGTCTATTTGGTCAAACTAGAATAACTTTTGCATCTATTTGAATTGC
AB518690.1 Onchocerca dewittei  GACTGATAAAGATCGTTTATTTGGTCAAACTAGAATAACTTTTGCATCTATTTGGATTGC
AB518692.1 Onchocerca dewittei  GACTGATAAAGATCGTTTATTTGGTCAAACTAGAATAACTTTTGCATCTATTTGAATTGC
AB518689.1 Onchocerca dewittei  GACTGATAAAGATCGTTTATTTGGTCAAACTAGAATAACTTTTGCATCTATTTGGATTGC
AM749268.1 Onchocerca eberhard  GACTGATAAGGATCGTTTGTTTGGCCAGACTAGGATAACTTTTGCTTCTATTTGAATTGC
LC318284.1 Onchocerca flexuosa  AACTGATAAGGATCGTTTATTTGGTCAGACTAGAATGACTTTTGCTTCTATTTGAATTGC
AM749269.1 Onchocerca skrjabin  AACTGATAAGGACCGTTTGTTTGGTCAGACTAGGATAACTTTTGCTTCTATTTGAATTGC
KX898458.1 Onchocerca boehmi c  AACTGATAAGGATCGTTTGTTTGGTCAGACTAGTATAACTTTTGCTTCTATTTGGATCGC
MG029461.1 Onchocerca sp. ALDA  GACTGATAAGGATCGTTTATTTGGTCAAACTAGAATGACTTTTGCTTCTATTTGAATTGC
MG029460.1 Onchocerca sp. ALDA  GACTGATAAGGATCGTTTATTTGGTCAAACTAGAATGACTTTTGCTTCTATTTGAATTGC
MG677940.1 Onchocerca lupi cyt  AACTGATAAGGACCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
EF521410.1 Onchocerca lupi fro  AACTGATAAGGACCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
HQ207644.1 Onchocerca lupi fro  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
KC686702.1 Onchocerca lupi cyt  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
AJ415417.1 Onchocerca lupi mit  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
KP283476.1 Onchocerca lupi iso  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
KP283477.1 Onchocerca lupi iso  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
JX080030.1 Onchocerca lupi iso  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
JX183106.1 Onchocerca lupi cyt  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
KX853328.1 Onchocerca lupi vou  AACTGATAAGGACCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
JX080029.1 Onchocerca lupi iso  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
EF521409.1 Onchocerca lupi fro  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
AJ271616.1 Onchocerca gibsoni   AACTGATAAGGATCGTTTGTTTGGTCAGACTAGAATGACTTTTGCTTCTATTTGAATTGC
AJ271617.1 Onchocerca gutturos  GACTGATAAGGACCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
KP760201.1 Onchocerca gutturos  GACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATGACTTTTGCTTCTATTTGGATTGC
KX853325.1 Onchocerca lienalis  AACTGATAAGGATCGTTTGTTTGGTCAAACTAGGATAACTTTTGCTTCTATTTGAATTGC
KT001213.1 Onchocerca jakutens  AACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATAACTTTTGCTTCTATTTGGATTGC
JQ316672.1 Onchocerca fasciata  AACTGATAAAGACCGTTTATTCGGTCAGACTAGGATGACTTTTGCTTCTATTTGGATTGC
MG188678.1 Onchocerca fasciata  AACTGATAAAGACCGTTTATTCGGTCAGACTAGGATGACTTTTGCTTCTATTTGGATTGC
MT002817.1 Onchocerca fasciata  AACTGATAAAGACCGTTTATTCGGTCAGACTAGGATGACTTTTGCTTCTATTTGGATTGC
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KC167355.1 Onchocerca volvulus  GACTGATAAGGATCGTTTATTTGGTCAGACTAGGATGACTTTTGCTTCTATTTGGATTGC
MH190075.1 Onchocerca volvulus  GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATGACTTTTGCTTCTATTTGGATTGC
KC167354.1 Onchocerca sp. 'Sii  GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATGACTTTTGCTTCTATTTGAATTGC
KC167352.1 Onchocerca sp. 'Sii  GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATGACTTTTGCTTCTATTTGAATTGC
KC167353.1 Onchocerca sp. 'Sii  GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATGACTTTTGCTTCTATTTGAATTGC
AJ271618.1 Onchocerca ochengi   GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATAACTTTTGCTTCTATTTGGATTGC
KC167358.1 Onchocerca ochengi   GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATAACTTTTGCTTCTATTTGGATTGC
KC167351.1 Onchocerca ochengi   GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATAACTTTTGCTTCTATTTGGATTGC
NC_031891.2 Onchocerca ochengi  GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATAACTTTTGCTTCTATTTGGATTGC
KC167350.1 Onchocerca ochengi   GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATAACTTTTGCTTCTATTTGGATTGC
KX181289.2 Onchocerca ochengi   GACTGATAAGGATCGTTTGTTTGGTCAGACTAGGATAACTTTTGCTTCTATTTGGATTGC

                                          610         620         630         640
                                ....|....|....|....|....|....|....|....|....|....|....
MN564742.1 Dirofilaria sp. 'ho  TGTTTTAGGTACTTCTGTTTGGGGTCATCATATATACACTGCTGGTTTN
MF695085.1 Dirofilaria repens   TGTTTTAGGTACTTCTGTTTGAGGTCATCATATGTATACTGCTGGTTTA
AB518693.1 Onchocerca sp. wild  GGTTTTAGGTACTTCTGTTTGAGGTCACCATATGTACACTGCTGGTTTG
AB518694.1 Onchocerca sp. wild  GGTTTTAGGTACTTCTGTTTGAGGTCACCATATGTACACTGCTGGTTTG
AB518874.1 Onchocerca dewittei  TGTGTTGGGTACTTCTGTTTGGGGTCATCATATGTATACAGCTGGATTG
AB518690.1 Onchocerca dewittei  TGTGTTGGGTACTTCTGTTTGGGGTCATCATATGTATACAGCTGGATTG
AB518692.1 Onchocerca dewittei  TGTGTTGGGTACTTCTGTTTGGGGTCATCATATGTATACAGCTGGATTG
AB518689.1 Onchocerca dewittei  TGTGTTGGGTACTTCTGTTTGGGGTCATCATATGTATACAGCTGGATTG
AM749268.1 Onchocerca eberhard  TGTTTTGGGTACTTCTNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
LC318284.1 Onchocerca flexuosa  TGTTTTAGGTACTTCTGTTTGAGGTCATCATATGTATACAGCTGGTTTG
AM749269.1 Onchocerca skrjabin  TGTTTTGGGGACTTCTNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
KX898458.1 Onchocerca boehmi c  TGTTTTGGGGACTTCTGTTTGGGGTCATCATATGTATACTGCTGGTTTG
MG029461.1 Onchocerca sp. ALDA  TGTTTTGGGTACTTCTGTTTGGGGTCATCATATGTATACGGCAGGTTTG
MG029460.1 Onchocerca sp. ALDA  TGTTTTGGGTACTTCTGTTTGGGGTCATCATATGTATACGGCAGGTTTG
MG677940.1 Onchocerca lupi cyt  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
EF521410.1 Onchocerca lupi fro  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
HQ207644.1 Onchocerca lupi fro  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
KC686702.1 Onchocerca lupi cyt  TGTTTTGGGGACTTCTGTTTGGGGTCACCANNNNNNNNNNNNNNNNNN
AJ415417.1 Onchocerca lupi mit  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
KP283476.1 Onchocerca lupi iso  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
KP283477.1 Onchocerca lupi iso  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
JX080030.1 Onchocerca lupi iso  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
JX183106.1 Onchocerca lupi cyt  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
KX853328.1 Onchocerca lupi vou  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTA
JX080029.1 Onchocerca lupi iso  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
EF521409.1 Onchocerca lupi fro  TGTTTTGGGGACTTCTGTTTGGGGTCACCATATGTATACGGCTGGTTTG
AJ271616.1 Onchocerca gibsoni   TGTTTTGGGGACGTCTGTGTGGGGTCATCATATGTATACGGCTGGTTTA
AJ271617.1 Onchocerca gutturos  TGTTTTAGGTACGTCTGTTTGGGGTCATCNNNNNNNNNNNNNNNNNN
KP760201.1 Onchocerca gutturos  TGTTTTAGGTACGTCTGTTTGGGGCCATCATATATATACTGCTGGTTTG
KX853325.1 Onchocerca lienalis  TGTTCTAGGTACTTCTGTGTGGGGTCATCATATGTATACGGCTGGTTTA
KT001213.1 Onchocerca jakutens  TGTTTTGGGTACTTCTGTGTGAGGTCATCATATATATACGGCTGGTTTG
JQ316672.1 Onchocerca fasciata  TGTTTTAGGGACTTCTGTGTGGGGTCATCATATGTATACAGCTGGTTTG
MG188678.1 Onchocerca fasciata  TGTTTTAGGGACTTCTGTGTGGGGTCATCATATGTATANNNNNNNNNNN
MT002817.1 Onchocerca fasciata  TGTTTTAGGGACTTCTGTGTGGGGTCATCATNNNNNNNNNNNNNNNNNN
KC167355.1 Onchocerca volvulus  TGTTTTAGGTACTTCTGTATGGGGCCATCATATGTATACGGCTGGTTTG
MH190075.1 Onchocerca volvulus  TGTTTTAGGTACTTCTGTATGNNNNNNNNNNNNNNNNNNNNNNNNNNN
KC167354.1 Onchocerca sp. 'Sii  TGTTTTAGGCACTTCTGTGTGAGGTCATCATATGTATACGGCTGGTTTG
KC167352.1 Onchocerca sp. 'Sii  TGTTTTAGGCACTTCTGTGTGAGGTCATCATATGTATACGGCTGGTTTG
KC167353.1 Onchocerca sp. 'Sii  TGTTTTAGGCACTTCTGTGTGAGGTCATCATATGTATACGGCTGGTTTG
AJ271618.1 Onchocerca ochengi   TGTTTTAGGTACTTCTGTGTGAGGTCATCAATTGTATACGGCNNNNNNN
KC167358.1 Onchocerca ochengi   TGTTTTAGGTACTTCTGTGTGAGGTCATCATATGTATACGGCTGGTTTG
KC167351.1 Onchocerca ochengi   TGTTTTAGGTACTTCTGTGTGAGGTCATCATATGTATACGGCTGGTTTG
NC_031891.2 Onchocerca ochengi  TGTTTTAGGTACTTCTGTGTGAGGTCATCATATGTATACGGCTGGTTTG
KC167350.1 Onchocerca ochengi   TGTTTTAGGTACTTCTGTGTGAGGTCATCATATGTATACGGCTGGTTTG
KX181289.2 Onchocerca ochengi   TGTTTTAGGTACTTCTGTGTGAGGTCATCATATGTATACGGCTGGTTTG
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