**Supporting Information Figure S2. Alignment of *SPPI* and recoded *SPPI* sequences**

10 20 30 40 50 60

SPP1 TGCTGCATCGGGCTGATGCGACGGCGCTGCGGATTTTGCGTGAGCAGCATGTGGAATCAT

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recode TGCTGCACCGTGCCGATGCTACTGCGCTTCGTATACTTCGTGAGCAGCACGTCGAGAGCC

70 80 90 100 110 120

SPPI TAGCCATGTCTGCACAAACAGGACCCATTAATTACATTAAAAAAACTTTTAAGGACATTG

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recode TTGCCATGAGCGCGCAGACTGGTCCCATCAACTATATCAAGAAAACTTTCAAGGACATAG

130 140 150 160 170 180

SPPI TTGATACAATGCCGGACAGACGCAACACCTTCTTAATGTTGGTAACTCTCTGCACATTCT

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recode TAGATACGATGCCGGATCGGCGCAATACCTTTCTTATGCTTGTGACACTTTGCACCTTCT

190 200 210 220 230 240

SPPI TTGTTGGTTGGCGTACAGCCATCGCGGTGACCGATTGTGAAAGCCCACTTGTTGTGGTGC

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recode TTGTCGGTTGGCGTACGGCAATTGCAGTTACAGATTGTGAATCCCCATTGGTCGTTGTGC

250 260 270 280 290 300

SPPI TCTCAGGAAGTATGGAACCCTTCATGTTTCGTGGTGACTTACTTGTTCTGCATAATATTG

: :: ::::: :::::::: :: ::::: :: :: ::: : :: ::::: ::::: :: :

recode TGTCTGGAAGCATGGAACCTTTTATGTTCCGGGGCGACCTCCTCGTTCTTCATAACATAG

310 320 330 340 350 360

SPPI GCGAACCCACGATGGGGGATGTCGTTGTTTTCTCTCTCCCCAACCGTACAATTCCAATCG

: :: :: :: ::::: ::::: :: :: :: : :: ::::: :::::::: :: :

recode GTGAGCCAACAATGGGCGATGTGGTAGTGTTTAGCTTGCCTAACCGCACAATTCCTATTG

370 380 390 400 410 420

SPPI TTCATCGCGTCCATCGCATTCGATTACTTGAGGACGGTGTGACTCGTTTGTACCTCACGA

:::::::::: :: :: :: :: : : :: :: :: :: :::::::::::::: :: :

recode TTCATCGCGTGCACCGTATCCGCCTTTTGGAAGATGGGGTTACTCGTTTGTACCTTACAA

430 440 450 460 470 480

SPPI AAGGGGATAACAATGAAATGGATGACCGTACATTATATCCGCGCGGATATCATTGGGTAG

: :: :: :: :: :::::::: ::::::::::: ::::: :: :: ::::: ::::: :

recode AGGGCGACAATAACGAAATGGACGACCGTACATTGTATCCACGGGGTTATCACTGGGTGG

490 500 510 520 530 540

SPPI AGAAAAAAGATATCATTGGGAAAGTTGCCGTGCTGGTGCCGCGGGTGGGTTTTATTACGC

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recode AAAAGAAAGACATCATTGGGAAAGTGGCTGTGCTCGTACCACGCGTGGGGTTTATTACGC

550 560 570 580 590 600

SPPI TAATTGCCGAAGACCACTCATGGGCAAAACTTGTGCTTGTTCCACTGGCATTGATATGGT

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recode TCATTGCGGAAGATCACAGCTGGGCGAAGCTTGTTCTGGTCCCGCTGGCACTCATTTGGT

610 620

SPPI GCTGGTACACCGGAATGTAA

::::::: :: :: ::::::

recode GCTGGTATACGGGGATGTAA