

Supplementary Materials: Molecular-Assisted Pollen Grain Analysis Reveals Spatiotemporal Origin of Long-Distance Migrants of a Noctuid Moth

Hong Chang, Jianglong Guo, Xiaowei Fu, Yongqiang Liu, Kris AG Wyckhuys, Youming Hou and Kongming Wu

Text S1. The DNA sequences of the examined pollen species.

>1

TAAAGCGAGTGTGGATTCAAGGCCGGTGTAAAGATTATAAATTGACTTATTATACTCCTGACTATGTA
ACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACTCCTCAGCCCCGAGTTCCACCCGAGGAAGC
GGGGGCTGCGGTAGCTGCGGAATCTTCTACTGGTACCTGGACAGCTGTGTGGACCGATGGGCTTACCA
GCCTTGATCGTTACAAAGGGCGATGCTACAACATTGAGCCCGTTGCTGGAGAAGAGAATCAATATATAT
GTTATGTAGCTTACCCGTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTGGGT
AATGTATTTGGTTTCAAAGCACTGCGCGCTCTACGTCTAGAGGATCTACGAATCCCTCCTGCGTATACTA
AAACTTTCCAAGGCCCGCCTCACGGCATCCAAGTTGAGAGAGATAAATTGAACAAGTATGGCCGTCCTC
CTGTTGGGATGTACTATTAAACCTAAACTGGGGTTATCCGCGAAGAATTATGGTAGGGCGGTTTATGAAT
GTCTACGTGGTGGACTTGACTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTTATGCGTTGGA
GGGACCGTTTCTTATTTGTGCGGAAGCTCTTATAAAGCGCAAGCTGAAACAGGTGAAATCAAAGGTC
ATTACTTGAAT

>2

TCCTCCGCTTATTGATATGCTTAAACTCAGCGGGTAATCCCGCCTGACCTGGGGTTCGCGGTTCGTAGCGCG
CGGCTCCGCTCGGGAGACTTGACGTCAGGGTCTCGTGGGTCTCCGACGCACGGCGGGGAATCGCACG
GCAGCACGCGAGTTGAAATGTCCAACCACCACTTGCCGTGACGTCCATCGTGCCGGACTCGCATTTCG
GCCAGCCGCGCACGGGGCACGGGAGGCCACAATCCGCGCCCCTCCGAGGAGGGGGCGACGCGATG
CGTGACGCCCAGGCAGACGTGCCCTCGGCCTGACGGCTTCGGGCGCAACTTGCGTTCAAAGACTTGAT
GGTTCACGGGATTCTGCAATTCACACCAAGTATCGCATTTTCGCTACGTTCTTCATCGATGCGAGAGCCG
AGATATCCGTTGCCGAGAGTC

>5

TAAAGCAAGTGTGGGTTCAAAGCTGGTGTAAAGATTATAAATTGACTTATTATACTCCTGACTATGAA
ACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCCGCCTGAAGAAGC
AGGTGCAGCGGTAGCTGCCGAATCTTCCACTGGTACATGGACAACCTGTGTGGACCGATGGGCTTACCA
GTCTTGATCGTTACAAAGGACGATGCTACCACATCGAGCCCGTTGCTGGAGAAGAAAGTCAATTTATTG
CCTATGTAGCTTATCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTAGGT
AATGTATTTGGGTTCAAAGGCCCTGCGCGCTCTGCGTCTGGAGGATTTGCGAATCCCTACTGCTTACATTA
AAACTTTTCAGGGCCCACCTCACGGAATCCAAGTTGAGAGAGATAAATTGAACAAGTATGGCCGCCCTC
CTATTTGGGATGTACTATTAAACCTAAATTGGGGTTATCCGCTAAGAATTATGGTAGAGCAGTTTATGAAT
GTCTCCGCGGGGGACTTGATTTTACTAAAGATGATGAAAATGTGAATCCCAACCATTT

>7

TCCTCCGCTTATTGATATGCTTAAACTCAGCGGGTAGCCCCGCCTGACCTGAGGTCCCATTGTGGGCGAT
CGAATCACCCCCGTGGGTACGAAGTCCACTCCAGGTGGATGCACGCGCGACTGGCCTCGAGCTCTTT
ACTCAACCACCATCTGTACGGTGCACCTCAGCCACGGAATCGATTTTCAACCAACCGTGAGGCTGTGC
TCACGGGAGGCCAGCATTACCCCCAGCTAGATGCCTGGCATGAGGCATTGGCGTTGGGGCAACGATG
TGTGACACCCAGGCAGGCGTGCCCTCAGCCTAATGGCTTCGGGCGCAACTTGCGTTCAAAGACTCGAT
GGTTCACGGGATTCTGCAATTCACACCAAGTATCGCATTTTCGCTACGTTCTTCATCGATGCAAGAGCCG
AGATATCCGTTGCCGAGAGTC

>8

TAAAGCAAGTGTGGNTTCAAAGCTGGTGTAAAGATTATAAATTGACTTATTATACTCCTGACTATGAA
ACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCCGCCTGAAGAAGC
AGGTGCCGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACAACCTGTGTGGACCGATGGGCTTACCAG
TCTTGATCGTTACAAAGGGCGATGCTACCACATCGAGCCCGTTGCTGGAGAAGAAAATCAATATATTGC
TTATGTAGCTTATCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTGGGTA

ATGTATTTGGGTTCAAGGCCCTGCGCGCCCTACGTCTGGAGGATTGCGAATCCCTACTTCTTATACTAA
 AACTTTCCAAGGTCCGCCTCACGGCATCCAAGTTGAGAGAGATAAATTGAACAAGTACGGGCGTCCCC
 TATTGGGATGTACTATTAAACCTAAATTGGGGTTATCCGCTAAGAATTACGGTAGAGCAGTTTATGAATG
 TCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAATGTGAATTCCCAACCATTATGCGTTGGAG
 AGACCGTTTCTTATTTTGTGCCGAAGCAATTTATAAAGCACAGGCCGAAACAGGTGAAATCAAAGGGC
 ATTACTTGAAT

>9

TAAAGCAAGTGTTGGATTCAAAGCTGGTGTTAAAGATTATAAATTGACTTATTATACTCCTGAATATCAA
 ACCAAAGATACTGATATCTTGGCAGCGTTCGGAGTAAGCCCTCAACCTGGAGTTCGCCTGAGGAAGC
 AGGGGCAGCAGTAGCTGCTGAATCTTCTACTGGTACATGGACAACCTGTGTGGACCGATGGGCTTACTAG
 TCTTGATCGTTACAAAGGACGATGCTACCACATCGAGCCAGTTGCTGGAGAAGAAAATCAATTTATTGC
 TTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTACTAACATGTTTACTTCCATTGTGGGTA
 ATGTATTTGGATTCAAAGGCCCTGCGCGCTCTACGTCTGGAGGATTGCGAATCCCTCCTGCTTATTCTAA
 AACTTTCCAAGGCCCGCCTCATGGAATCCAAGTTGAGAGAGATAAATTAAACAAGTATGGCCGCCCTCT
 ATTGGGATGTACTATTAAACCTAAATTGGGATTATCCGCTAAGAATTACGGTAGAGCAGTTTATGAATGT
 CTCCGCGGTGGGCTTGATTTTACCAAAGATGATGAGAACGTAAATTCCCAACCATT

>10

TCCTCCGCTTATTGATATGCTTAAACTCAGCGGGTAGCCCCGCCTGACCTGGGGTTCGCATCGAAAGCAT
 CCATGTTGGATGCGTTGGGGTCCTTGCATCGTGCACGACCAAAACCGACGACGGGGCACCGAAGGTTT
 GACAACCACAATTGTCGTGGCATTGGTCGCCAATGACTAGAAATTTGGGCCAACCACAAGGCAAAGCTC
 ATGGGAAGCCAATGTACGCCTTCGCAACCGACGCAGCCTCGAAGGCACGTGGTGTTAGGAGGGCAAC
 GGTGTGTGACGCCCAGGACGAGCGTGCCTCAACCGGATGGCTTCGGGCGCAACTTGCCTTCAAAGACT
 CGATGGTTCACGGGATTCTGCAATTCACACCAAGTATCGCATTTCGCTACGTTCTTCATCGATGCGAGAG
 CCGAGATATCCGTTGCCGAGAGTC

>11

TAAAGCAAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTGACTTATTATACTCCTGACTATGAA
 ACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACCTCAACCTGGAGTTCACCTGAAGAAGC
 AGGGGCCGCGGTAGCTGCCGAATCTTCTACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACCA
 GCCTTGATCGTTACAAGGGGCGATGCTACCACATCGAGCCTGTTGCTGGAGAAGAAAATCAATTTATTG
 CTTATGTAGCTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTACTAACATGTTTACTTCCATTGTGGGT
 AATGTATTTGGGTTCAAAGCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTGTTGCTTATGTTA
 AAACCTTTCCAAGGCCCGCCTCATGGCATCCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCCC
 CTGTTGGGATGTACTATTAAACCGAAATTGGGGTTATCTGCTAAAACTACGGTAGAGCAGTTTATGAAT
 GTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCCAACCATTATGCGTTGGA
 GAGACCGTTTCTTATTTTGTGCAGAAGCAATTTATAAAGCACAGGCTGAAACGGGTGAAATCAAAGGG
 CATTACTTGAAT

>12

GACTCTCGGCAACGGATATCTCGGCTCTCGCATCGATGAAGAACGTAGCGAAATGCGATACTTGGTGTG
 AATTGCAGAATCCCGCGAATCATCGAGTCTTTGAACGCAAGTTGCGCCCGAAGCCATTGTCGAGGG
 CACGTCTGCCTGGGTGTACGCATCGTTGCCCCCAACCCCATTCCTTCCAAGAGACGAGGGCGGTTT
 GTGGGGCGGACATTGGCCTCCCGTGAGCTTTGATTGCGGCTGGCCTAAAAGGGAGTCCTCGGCGACG
 AGCGCCACGACAATCGGTGGTTGACAAACCCTCGTGTCGCTCGTGCGTGCCTTGTGCTCATCTCGTG
 CTCTGTGACCCTATAGCGTCGCGCTTGCGACTCTTCCAACGCGACCCCGGGTCAGGCGGGACTACCCGC
 TGAATTTAAGCATATCAATAAGCGGAGGA

>13

GACTCTCGGCAACGGATATCTCGGCTCTCGCATCGATGGAGAACGTAGCGAAATGCGATACTTGGTGTG
 AATTGCAGAATCCCGCGAATCATCGAGTCTTTGAACGCAAGTTGCGCCCGAAGCCACCTGGCCGAGGG
 CACGTCTGCCTGGGTGTACGCATCGTTGCCCCCAACCCCATTCCTTCCAAGGAACGAGGGGGCCT
 GTGGGGCAGAAATTGGCCTCCCGTGAGCTCATGCATGCGGTTGGCCTAAAAGCGAGTCCTCGGCGACG
 CGCGCCACGACAATCGGTGGTTGTCAAACCCTCGTGTCGCTCGTGCGTGCCGCTCGCTCATCGTGTG
 CTCCTTGACCCTGCTGTGTGCGCTAGCGACGCTTCCAACGCGACCCAGGTCAGGCGGGACTACCCG
 CTGAATTTAAGCATATCAATAAGCGGAGGA

>14

GACTCTCGGCAACGGATATCTCGGCTCTCGCATCGATGAAGAACGTAGCGAAATGCGATACTTGGTGTG

AATTGCAGAATCCCGTGAACCATCGAGTCTTCGAACGCAAGTTGCGCCCCAAGCCGTTAGGCCGAGGG
CACGTCTGCCTGGGTGTACGCATCGTTGCCCCCCCCGACAATCCCCTCTCGGGGGAAGAGGTGTCCG
GCGGGCGGAGACTGGCCTCCCGTGCCTCCGCGCTCGCGGTTGGCCGAAATTCGAGTCCTTCGGCGAC
CGGGCCGCGACGATCGGTGGTGAGAACAGCCTCTCGAGTCCAGTCGCGCGCCCGCGCCTCCGTGC
GAGGGACTCGCGGACCCTTGTGCACGCCCCCTCCGGGCGATGCTCGCTTCGCGACCCCAGGTACAGGCGG
GACTACCCGCTGAGTTTAAGCATATCAATAAGCGGAGGA

>15

TAAAGCAAGTGTTGGATTCAAAGCGGGTGTTAAAGAGTACAAATTGACTTATTATACTCCTGAATACGA
AACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCGCGCTGAAGAAG
CAGGGGCTGCGGTAGCTGCCGAATCTTCTACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACCA
GCCTTGATCGTTACAAAGGGCGATGCTACCATATTGAGCCCGTTCCTGGAGAAGCAGATCAATATATCT
GTTATGTAGCTTACCCTTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTAGGT
AATGTATTTGGGTTCAAAGCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTACTGCTTATATTA
AAACTTTCCAAGGCCCGCCTCATGGGATCCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCCC
CTGTTGGGATGTACTATTAACCAAAAATTGGGGTTATCTGCTAAAACTATGGTAGAGCAGTTTATGAAT
GTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCAGCCATTTATGCGTTGGA
GAGATCGTTTCTTATTTGTGCCGAAGCACTTTATAAAGCACAGGCTGAAACAGGTGAAATCAAAGGG
CATTACTTGAAT

>16

TAAAGCAAGTGTTGGATTCAAAGCGGGTGTTAAAGAGTACAAATTGACTTATTATACTCCTGAATACGA
AACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCGCGCTGAAGAAG
CAGGGGCTGCGGTAGCTGCCGAATCTTCTACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACCA
GCCTTGATCGTTACAAAGGGCGATGCTACCATATTGAGCCCGTTCCTGGAGAAGCAGATCAATATATCT
GTTATGTAGCTTACCCTTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTAGGT
AATGTATTTGGGTTCAAAGCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTCCTGCTTATATTA
AAACTTTCCAAGGCCCGCCTCATGGGATCCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCCC
CTGTTGGGATGTACTATTAACCAAAAATTGGGGTTATCTGCTAAAACTATGGTAGAGCAGTTTATGAAT
GTCTTCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAACTCCAGCCATTT

>18

AAATGGTTGGGAGTTCACATTCTCATCATCTTTGGTAAAATCAAGTCCACCACGTAGACATTCATAAACT
GCTCTACCACAGTTCTTCGCGGATAACCCCAATTTAGGTTTAAATAGTACATCCTAATAGGGGACGTCCAT
ACTTGTTCAATTTCTCTCTTTCAACTTGGATACCATGAGGTGGTCCCTGGAAAAGTTTGAGTATAAGCAGG
AGGGATTTCGAGATCCTCTAGACGTAGAGCAGCCAGGGCTTTGAACCCAAATACATTACCCACAATCG
AAGTAAACATGTTAGTAACCGAACCTTCTTCAAAAAGGTCTAAAGGGTAAGCTACATAAGCAATAAAT
TGATTTTCTTCTCCTGGAACGGGCTCGATGTGGTAGCATCGTCCTTTGTAACGATCAAGGCTGGTAAGCC
CATCGGTCCACACAGTTGTCCATGTACCAATAGAAGATTACGAGCTACCGCAGCCCCTGCTTCTTCAG
GTGGAACCTCCGGTTGAGGAGTTACTCGGAATGCTGCCAAGATATCAGTATCCTTGGTTTCATATTCAGG
AGTATAATAAGTCAATTTATACTCTTTTAAACACCAGCTTTGAATCCAACACTTGCTTT

>20

AAAGCTAGTGTCCGATTCAAAGCTGGTGTTAAAGATTACAGATTAACTTATTATACTCCTGAATATCAGA
CCAAAGATACAGATATCTTGGCAGCATTCCGAGTAACTCCTCAACCCGGGGTGCCACCTGAAGAAGCG
GGAGCAGCAGTAGCTGCTGAATCTTCCACCGGTACATGGACCACTGTTTGGACCGATGGACTTACTAGT
CTCGATCGTTACAAGGGGCGATGCTATGACATCGAGCCCGTTCCTGGAGAGGAGACTCAATTTATTGCC
TATGTAGCTTACCCTTAGACCTTTTCGAAGAAGGTTCTGTTACTAACTTGTTCACTTCCATTGTAGGTAA
TGTATTTGGATTCAAGGCCTTACGGGCTCTACGTTTGGAAGATTTGCGGATTCCCCCTTCTTATTCCAAA
ACTTTTCAGGTCCACCTCATGGTATCCAAGTTGAAAGAGATAAATTGAACAAATATGGTCGTCTTTAT
TGGGATGTACTATCAAACCAAAAATTGGGTCTATCAGCCAAAACTATGGTAGAGCAGTTTACGAATGTC
TCCGTGGTGGACTCGATTTTACTAAGGATGATGAGAACGTAAATTCCCAACCATTATGCGCTGGAGAG
ATCGTTTTGTCTTTTGTGCGGAAGCCCTTAATAAGGCTCAGGCTGAGACGGGTGAAATTAAGGGACATT
ATTTGAAT

>22

TAAAGCAAGTGTTGGATTCAAAGCTGGTGTTAAAGATTATAAATTGACTTATTATACTCCTGAATATGAA
ACCAAGGATACTGATATCTTGGCAGCATTTCGAGTAACTCCTCAACCTGGAGTTCGCGCTGAAGAAGCA
GGGGCCGCGAGTAGCTGCCGAATCTTCTACTGGTACATGGACAACCTGTATGGACCGATGGACTTACCAGC

CTTGACCGTTACAAAGGCCGATGCTATGGACTTGAGCCTGTTCTGGAGAAGACAATCAATTTATTGCTT
 ATGTAGCGTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTAGGTAAT
 GTATTTGGGTTCAAAGCCCTGCGTGCTCTACGTCTGGAAGATTGCGAATCCCGACTGCGTATGTTAAAA
 CTTTCGACGGTCCGCCTCACGGTATCCAAGTTGAAAGAGATAAATTGAACAAGTATGGTCGTCCCCTGT
 TGGGATGTACTATTAAACCGAAATTGGGGTTATCCGCTAAAACTACGGTAGAGCTTGTATGAATGTCT
 TCGTGGTGGCCTTGATTTTACTAAAGATGATGAGAACGTGAACTCCCAACCATTT

>23

TAAAGCAAGTGTTGGATTCAAAGCTGGGGTTAAAGATTATAAATTGACTTATTATACTCCTGAGTATGAA
 ACCAAGGATACTGATATCTTGGCAGCATTTGAGTAACCTCCTCAACCTGGAGTTCCGCCTGAAGAAGCA
 GGGGCCGACGTAGCTGCCGAATCTTCTACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACGAG
 CCTTGATCGTTACAAAGGGCGATGCTATGGAATTGAGCCTGTTCTGGAGAAGAGAATCAATATATTTG
 CTATGTAGCTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTAGGTA
 ACGTATTTGGTTTCAAAGCCCTGCGTGCTCTACGTCTGGAAGATTGCGAATCCTACTGCGTATGTTAA
 AACTTTCCAAGGTCCGCCTCACGGTATCCAAGTTGAAAGAGATAAATTGAACAAGTATGGTCGTCTCT
 GTTGGGATGTACTATTAAACCTAAATTGGGGTTATCCGCTAAAACTACGGTAGAGCTGTTTATGAATGT
 CTTCGTGGTGGCCTTGATTTTACTAAAGATGATGAGAACGTAACTCCCAACCATTTATGCGTTGGAGA
 GACCGTTTCTTATTTGTGCCGAAGCTATTTTAAATCACAAGCTGAAACAGGTGAAATCAAAGGGCAT
 TACTTGAAT

>25

TAAAGCAAGTGTTGGATTCAAAGCAGGTGTTAAAGATTATAAATTGACTTATTATACTCCTGAGTATGAA
 ACCAAGGATACTGATATCTTGGCAGCATTTGAGTAACCTCCTCAACCTGGAGTTCCGCCTGAAGAAGCA
 GGGGCCGACGTAGCTGCCGAATCTTCTACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACGAG
 CCTTGATCGTTACAAAGGACGATGCTATGGAATCGAGCCTGTTCTGGAGAAGAAAATCAATATATTGC
 TTATGTAGCTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTAGGTA
 ATGTATTTGGGTTCAAAGCCCTGCGTGCTCTACGTTTGAAGATTGCGAATCCTACTGCGTATGTTAA
 AACTTTCCAAGGTCCGCCTCACGGCATCCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCTCT
 GTTGGGATGTACTATTAAACCGAAATTGGGGTTATCCGCTAAAACTACGGTAGAGCTGTTTATGAATGT
 CTTCGTGGTGGCCTTGATTTTACTAAAGATGATGAGAACGTGAACTCCCAACCATTTATGCGTTGGAGA
 GACCGTTTCTTATTTGTGCCGAAGCTATTTATAAATCACAAGCTGAAACAGGGGAAATCAAAGGGCAT
 TACTTAAAT

>26

GGAAGGTTTGCATCAAAGCTGGTGTTAAAGATTATAAATTGACTTATTATACTCCTGAGTATCGAAACCAA
 AGGATACTGATATCTTGGCAGCATTTGAGTAACCTCCTCAACCTGGAGTTCCGCCTGAAGAAGCAGGG
 GCCGCAGTAGCTGCCGAATCTTCTACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACGAGCCTT
 GATCGTTACAAAGGACGATGCTATCACAATTGAGCCTGTTCTTGGAGAAGAGAATCAATATATTTGCTAT
 GTAGCTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTAGGTAACGT
 ATTTGGTTTCAAAGCCCTGCGTGCTCTACGTCTGGAAGATTGCGAATCCTACTGCTTATGTTAAAACT
 TTCCAAGGTCCGCCTCACGGTATCCAAGTTGAAAGAGATAAATTGAACAAGTATGGTCGTCTCTGTTG
 GGATGTACTATTAAACCTAAATTGGGATTATCCGCTAAAACTACGGTAGAGCTGTTTATGAATGTCTTC
 GTGGTGGCCTTGATTTTACTAAAGATGATGAGAACGTGAACTCCCAACCATTTATGCGTTGGAGAGAAC
 CGTTTCATG

>29

TAAAGCAAGTGTTGGATTCAAAGCTGGTGTTAAAGATTATAAATTGACTTATTATACTCCTGACTATGAA
 ACCAAAGATACTGATATTTTGGCAGCATTTCCGAGTAACCCCCCAACCAGGAGTTCCGCCTGAAGAAGC
 GGGGGCCGCGGTAGCTGCTGAATCTTCTACTGGTACATGGACAACCTGTGTGGACTGACGGGCTTACGA
 GTCTTGATCGTTACAAAGGACGATGCTACCACATCGAGTCTGTTGCTGGAGAAGAAAATCAATATATTG
 CTTATGTAGCTTATCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTGGGA
 AATGTATTTGGGTTCAAAGGCTCTGCGCGCTCTACGTTTGGAGGATTGCGAATCCCACCTGCATATACTA
 AAACCTTTCCAAGGTCCGCCCCACGGCATTCAAGTTGAGAGAGACAAATTAACAAGTATGGTCGCCCC
 CTTTGGGATGTACAATTAAACCTAAATTAGGGTTATCTGCTAAGAATTACGGTAGAGCTGTTTATGAAT
 GTCTCCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAAATCCCAACCATTTATGCGTTGGA
 GAGACCGTTTCTTATTTGTGCAGAAGCAATTATAAAGCACAGGCGGAAACGGGTGAAATCAAAGGG
 CATTACTTGAAT

>30

TAAAGCAAGTGTTGGATTCAAAGCTGGTGTTAAAGATTATAAATTGACTTATTATACTCCTGACTATCAA
 ACCAAAGATACTGATATCTTGGCAGCCTTCCGAGTAACCTCAACCTGGAGTTCCGCCGGAGGAAGC
 AGGGGCCGCGGTAGCTGCTGAATCTTCCACTGGGACATGGACAACTGTGTGGACTGACGGGCTTACCA
 GTCTTGATCGTTACAAAGGACGATGCTACCACATCGAGCCGGTTGCTGGAGAAGAAAATCAATTTATTG
 CTTATGTAGCTTACCCCTTAGACCTCTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTGGGT
 AATGTATTTGGATTCAAGGCCCTGCGCGCTCTACGTCTGGAGGATTGCGAATCCCTACTTCTTATTCTAA
 AACTTTCCAAGGTCCGCCTCATGGCATCCAAGTTGAGAGGGATAAATTAAACAAGTATGGCCGCCCCCT
 ATTAGGATGTACTATTAAACCTAAATTGGGATTATCCGCTAAGAATTACGGTAGAGCAGTTTATGAATGT
 CTCCGCGGTGGGCTTGATTTTACCAAAGATGATGAGAACGTTAATTCCCAACCATTTATGCGTTGGAGA
 GACCGTTTCTATTTGTGCCGAAGCAATTTATAAAGCGCAGGCTGAAACAGGTGAAATCAAGGGGCA
 TTACTTGAA

>31

TAAAGCAAGTGTTGGATTCAAAGCTGGTGTTAAAGATTATAAATTGACTTATTATACTCCTGACTATCAA
 ACCAAAGATACTGATATCTTGGCAGCCTTCCGAGTAACCTCAACCTGGAGTTCCGCCGGAGGAAGC
 AGGGGCCGCGGTAGCTGCTGAATCTTCCACTGGGACATGGACAACTGTGTGGACTGACGGGCTTACCA
 GTCTTGATCGTTACAAAGGACGATGCTACCACATCGAGCCGGTTGCTGGAGAAGAAAGCCAATTTATTG
 CTTATGTAGCTTACCCCTTAGACCTCTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTGGGT
 AATGTATTTGGATTCAAGGCCCTGCGCGCTCTACGTCTGGAGGATTGCGAATCCCTACTTCTTATTCTAA
 AACTTTCCAAGGTCCGCCTCATGGCATCCAAGTTGAGAGGGATAAATTAAACAAGTATGGCCGCCCCCT
 ATTAGGATGTACTATTAAACCTAAATTGGGATTATCCGCTAAGAATTACGGTAGAGCAGTTTATGAATGT
 CTCCGCGGTGGGCTTGATTTTACCAAAGATGATGAGAACGTTAATTCCCAACCATTT

>32

ACAGAACTAAAGCAAGTGTTGGATTCAAAGCCGGTGTTAAAGATTATAAATTGACTTATTATACTCCT
 GAATATGTAACCAAAGATACTGATATCTTGGCAGCATTCCGAGTAACCTCCCAACCCGGAGTTCCGCC
 GAGGAAGCAGGGGCAGCGGTAGCTGCGGAATCTTCTACTGGTACATGGACAACTGTGTGGACCGATGG
 GCTTACCAGCCTTGATCGTTACAAAGGACGATGCTACAACATTGAGCCCGTTGCTGGAGAAGAAAATC
 AATATATATGTTATGTAGCTTAYCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCGA
 TTGTGGGTAATGTATTTGGGTTCAAAGCCCTGCGCGCTCTACGTCTAGGAGGATCTACGAATCCCTCCTG
 CGTATTCGAAAACCTTTCCAAGGYCCGCCTCACGGTATCCAAGTTGAGAGAGATAAATTGAACAAGTATG
 GCCGTCCCTTATTGGGATGTACTATTAAACCTAAATTGGGGTTATCCGCTAAGAATTACGGTAGAGCTGT
 TTATGAATGTCTACGTGGTGGACTTGACTTTACCAAAGATGATGAGAACTGTGAACTCCCAACCA

>35

AAATGTTGGATTAAAGGCTGGGGTTAAAGATTATAAATTAACCTTATTATACTCCGGACTATGAAACCAAG
 GATACCGATATTTGGCAGCCTTTTCGAGTCACTCCTCAACCCGGAGTTCCCCCGGAAGAAGCAGGGGC
 CGCAGTAGCTGCCGAATCGTCTACTGGTACATGGACAACTGTGTGGACCGATGGGCTTACGAGCCTTGA
 TCGTTACAAAGGGAGATGCTATCACATCGAGCCCGTTGCCGGAGAAGAACTCAATTTATTGCTTATGT
 AGCTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTGGGTAATGTAT
 TTGGATTAAAGCACTGCGTGCTCTACGTCTAGAAGATTTGCGAATCCCAACTGCGTATATTAACATT
 TCAAGGCCCGCCTCACGGCATCCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCCCTATTGG
 GATGTACTATTAAACCAAATTAGGGTTATCCGCTAAAACTACGGCAGAGCAGTTTATGAATGTCTTC
 GTGGTGGACTTGATTTTACTAAAGATGATGAGAACGTCAACTCCCAACCCCTTATGCGGTGGAGAGATC
 GTTCTTATTTTGTGCCGAAGCCATTATAAAGCACAGGCTGAAACAGGTGAAATCAAAGGCCATTACT
 TGAAT

>36

TAAAGCAAGCGTTGGATTAAAGCTGGTGTTAAAGATTACAAATTGACTTATTATACTCCTGAGTATGAA
 ACCCAAGATACTGATATCTTGGCAGCATTCCGAGTAAGTCTCAACCCGGAGTTCCACCCGAAGAAGC
 GGGGGCTGCAGTAGCTGCTGAATCTTCTACTGGTACATGGACAACTGTATGGACCGACGGACTTACCAG
 TCTTGATCGTTACAAAGGACGATGCTACCACATCGAGCCTGTTGCTGGAGAAGAAAATCAATATATTG
 TTATGTAGCGTATCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTGGGTA
 ACGTATTTGGGTTCAAAGCTCTGCGTGCTCTACGTTTGGAGGATTACGAATCCCTGTTGCTTATATAAA
 AACTTTCCAAGGCCCGCCTCACGGTATCCAAGTTGAGAGAGATAAATTGAACAAGTACGGCCGCCCC
 TATTGGGATGCACTATTAAACCAAATTGGGGTTATCCGCTAAAACTATGGTCGAGCATGTTATGAATG
 TCTTCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCCCAGCCGTT

>37

GAAACCAAAGATACTGATATCTTGGCAGCATTACAGAGTAACTCCTCAACCTGGAGTTCCGCCTGAGGA
AGCAGGGGCTGCAGTAGCTGCCGAATCTTCTACTGGTACCTGGACAACCTGTGTGGACCGATGGGCTTAC
CAGCCTTGATCGTTATAAAGGAAGATGCTACCACATCGAGCCTGTTGCGGGAGAAGAGAATCAATATAT
ATGTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAGGGTTCTGTTACTAATATGTTTACTTCCATTGTGGG
TAATGTATTTGGGTTCAAAGCCCTGCGTGCTCTACGTCTGGAGGATCTGAGAATCCCTACTGCATATGTT
AAAACTTTCCAAGGCCCGCCTCACGGCATCCAAGTTGAGAGAGATAAGTTGAACAAGTATGGCCGTCC
CCTATTGGGATGTACCATTAAACCGAAATTAGGTTTATCCGCTAAGAACTACGGTAGAGCTGTTTATGAA
TGTCTTCGTGGTGGACTTGATTTTACCAAGGATGATGAAAACGTCAACTCACACCATTATGCGTTGG
AGAGATCGTTTCTTATTTGTGCCGAAGCAATTTATAAATCACAGGCTGAAACTGGTGAAATCAAAGGG
CATTACTTGAAT

>38

TAAAGCAGGTGTTGGATTCAAAGCTGGTGTTAAAGAGTACAAATTAACCTTATTATACTCCTGAATACGA
AACCAAAGATACTGATATTTTGGCAGCATTCCGAGTAACTCCTCAACCGGGAGTTCCGCCGGAAGAAG
CGGGGGCCCGGTAGCTGCCGAGTCTTCTACTGGTACATGGACAACCTGTATGGACAGATGGACTTACC
AGCCTTGATCGTTACAAAGGGCGATGCTACCACATTGAGCCAGTTCCTGGAGAAGAAGATCAATTTATT
GCTTATGTAGCTTACCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTAGG
TAATGTATTTGGGTTCAAAGCCCTACGCGCCCTACGTTTGGAAAGATTGCGAATCCCGTTGCTTATGTAA
AAACCTTCCAAGGACCGCCTCATGGGATTCAAGTCGAGAGAGATAAATTGAACAAGTATGGTCGTCCC
CTGTTGGGATGTACTATTAAACCAAAATTAGGTTTATCTGCTAAAACTACGGTAGAGCGGTTTATGAAT
GTCTTCGTGGTGGACTTGATTTTACCAAAGATGATGAAAACGTGAACTCTCAACCATTATGCGTTGGA
GAGACCGTTTCTTATTTGTGCCGAAGCAATTTATAAATCGCAGGCTGAAACGGGTGAAATCAAAGGGC
ATTATTTGAAT

>39

TAAAGCAAGTGTTGGATTCAAAGCTGGTGTTAAAGATTATAAATTGACTTATTACACTCCTGAATATGAA
ACCAAAGATACTGATATCTTAGCAGCATTTGAGTAACTCCTCAACCTGGAGTTCCCCCTGAAGAAGCA
GGGGCTGCAGTAGCTGCTGAATCTTCTACTGGTACATGGACAACCTGTATGGACTGATGGGCTTACCAGC
CTTGATCGCTACAAAGGTCGCTGCTACCACATCGAGCCTGTTGCTGGAGAAGAAAATCAATTTATTGCT
TATGTAGCTTATCCCTTAGACCTTTTTGAAGAAGGTTCTGTTACTAACATGTTTACTTCCATTGTGGGTAA
TGATTTGGGTTCAAAGGCCCTGCGAGCTCTACGTCTGGAGGATTGCGAATCCCCCGCATACACTAA
AACTTTCCAAGGCCACCCCATGGCATCCAAGTTGAGAGAGATAAATTGAATAAGTATGGCCGCCCTCT
ATTGGGATGTACTATTAAACCTAAATTGGGACTATCCGCTAAGAATTATGGTAGAGCTGTTTATGAATGT
CTTCGCGGTGGACTTGATTTTACCAAAGATGATGAGAACGTGAATTCCCAACCATTATGCGTTGGAGA
GACCGTTTCTTATTTGTGCCGAAGCAATTTATAAATCACAGTCTGAAACCGGTGAAATCAAAGGACAT
TATTTGAAT