

Supplementary File S2 DNA stretches (not aligned) of 100 nucleotides upstream the transcription start sites of 5S ribosomal DNA (5S rDNA) and U1 small nuclear DNA (U1 snDNA). A conserved region (-25 region) was identified, located at positions -28 to -22 nucleotides. Shaded nucleotides correspond to identical nucleotides respect to the first sequences. Yellow motifs are upstream the 5S rDNA transcription start site, and light blue ones are upstream the U1 snDNA transcription start site. The motifs AAAGC found just upstream the U1 snDNA transcription start site (and shared with *Drosophila melanogaster* and other organisms, see Discussion) are underlined. Fuchsia nucleotides constitute a less conserved region upstream the U1 snDNA transcription start site. *Ensis directus* sequences 1-41 belong to alpha nontranscribed spacer (NTS) sequences, and 42-56, to delta and gamma NTSs (see main text). (#) indicates sequence upstream a putative pseudogenised copy; (*) sequence retrieved from a mixed clone of 5S rDNA and U1 snDNA; (→) sequence upstream the *E. macha* type A U1 snDNA (see main text).

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#Ensis directus 1 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 2 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 3 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 4 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 5 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 6 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 7 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 8 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 9 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 10 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 11 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 12 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 13 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 14 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 15 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 16 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATATGTTAGTGTACCTCTT
Ensis directus 17 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 18 : CGTGTCTACTTCACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTGGTGTCCCTCTT
Ensis directus 19 : CTTTCATGACATTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 20 : CTTTCATGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 21 : TCTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 22 : CTACTTCGTGACCTTGACTCACCTGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 23 : ACTTCATGACCTTGACTCACCCGACACATGTATATGTTCTTTGTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 24 : ACTTCATGACCTTGACTCACCCGACACATGTATATGTTCTTTGTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 25 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 26 : ACTTCATGACCTTGACTCACCCGACACATGTATATGTTCTTTGTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 27 : ACTTCATGACCTTGACTCACCCGACACATGTATATGTTTGTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 28 : ACTTCATGACCTTGACTCACCCGACACATGTATATGTTCTTTGTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 29 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATA CGCATGTGTTAGTGTACCTCTT
Ensis directus 30 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 31 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 32 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 33 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 34 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 35 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 36 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT
Ensis directus 37 : CTACTTCGTGACCTTGACTCACCCGACACATGTATGTTCTTTCTGAGTAGCCAACGTTTCGCTCCTTTTAGTTTAAATAGGCATGTGTTAGTGTACCTCTT

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Ensis macha* 30 : AAAGTCAAAGTACGAAATGTGCAGTAAACAACAGCATATAGCTTCGGTATCTTACTTCCGGTCTGTTTCAGTTC **AAATAG GCCTCTTAAACAGCTTCTGAT
 Ensis macha* 31 : AAAGTCAAAGTACGAAATGTGCAGTAAACAACAGCATATAGCTTCGGTATCTTACTTCCGGTCTGTTTCAGTTC **AAATAG GCCTCTTAAACAGCTTCTGAT
Ensis magnus 1 : TTCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTCTGATCAGCCAACGTTTCAGTT **TAAATA** CGCACATTTAAAGATCGCTCAT
Ensis magnus 2 : TTCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTCTGATCAGCCAACGTTTCAGTT **TAAATA** CGCACGTTTAAAGATCGCTCAT
Ensis magnus 3 : TTCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTCTGATCAGCCAACGTTTCAGTT **TAAATA** CGCACGTTTAAAGATCGCTCAT
 Ensis magnus* 4 : TAATTAAGGCACAGAAAATGCAGCAAACCACGGCATTAGCTTCTGTATCTTACTTCCGGTGTCTTCGGTTC **AAATAG TCCTCTCAAACAGTTCCTGAT
 Ensis magnus* 5 : TAATTAAGGCACAGAAAATGCAGCAAACCACGGCATTAGCTTCTGTAGTTACTTCCGGTGTCTTCGGTTC **AAATAG TCCTCTCAAACAGTTCCTGAT
 Ensis magnus* 6 : TAATTAAGGCACAGAAAATGCAGCAAACCACGGCATTAGCTTCTGTAGTTACTTCCGGTGTCTTCGGTTC **AAATAG TCCTCTCAAACAGTTCCTGAT
Ensis siliqua 1 : TTCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTTGTATCAGCCAACGTTTCAGTT **TAAATA** CGCATGTGTAAAGATCGCTCAT
Ensis siliqua 2 : TCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTTGTATCAGCCAACGTTTCAGTT **TAAATA** CGCATGTGTAAAGATCGCTCAT
Ensis siliqua 3 : TTCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTTGTATCAGCCAACGTTTCAGTT **TAAATA** CGCATGTGTAAAGATCGCTCAT
Ensis siliqua 4 : TTCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTTGTATCAGCCAACGTTTCAGTT **TAAATA** CGCATGTGTAAAGATCGCTCAT
Ensis siliqua 5 : TCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTTGTATCAGCCAACGTTTCAGTT **TACATA** CGCATGTGTAAAGATCGCTCAT
Ensis siliqua 6 : TTCTTTGCCTGCTAAAAGTGTGTTTTACGTACGCAGCCGTTTGTATCAGCCAACGTTTCAGTT **TAAATA** CGCATGTGTAAAGATCGCTCAT
 *#*Ensis siliqua* 7 : TAATTAAGGCACAAAAGTGCAGCAAACAACGGCATTAGCTTCTGTATCTTACTTCCGGTGTCTTCGGTTC **AAATAG** TCCTCTCAAACAGTTCCTGAT
 Ensis siliqua* 8 : TAATTAAGGCACAAAAGTGCAGCAAACAACGGCATTAGCTTCTGTATCTTACTTCCGGTGTCTTCGGTTC **AAATAG TCCTCTCAAACAGTTCCTGAT
 #*Ensis ensis* 1 : TTCTTTGCCTGCAAAAAGTGTGTTTTACGTACGCAGCCGTTTGTCTCAGCCAACGTTTCAGTT **TAAAAA** CGCACATTTAAAGATCGCTGTT
 Ensis ensis* 2 : TAATTAAGGCACAGAAAATGCAGCAAACAACGGCATTAGCTTCTGTACCTTACTTCCGGTGTCTTCGGTTC **AAATAG TCCTCTCAAACAGTTCCTGAT
 Ensis ensis* 3 : CAATTAAGGCACAGACAGTGCAGCAAACAACGGCATTAGCTTCTGTACCTTACTTCCGGTGTCTTCGGTTC **AAATAG TCCTCTCAAACAGTTCCTGAT
Ensis ensis 4 : TCGCTCTTTGGTACAAAAGTGTGTTTTACGTACGCAGCCGTTTGTATCAGCCAACGTTTCAGTT **TAAAAA** CGCACGTTTAAAGATCGCTCAT
Ensis goreensis 1 : CCTGCAAAAAGTGTGTTTTACGCCACTCACCCCGCGTTCTGATCAGCCAACGACGTTTCAGTT **TAAAGT** ACGCACGTTTAAAGATCTCTTAT
 Ensis minor* Chenu 1 : TAATTAAGGCACAAAAGTGCAGCAAACAACGGCATTAGCTTCTGTATCTTACTTCCGGTGTCTTCGGTTC **AAATAG TCCTCTCAAACAGTTCCTGAT
 Ensis minor* Chenu 2 : TAATTAAGGCACAAAAGTGCAGCAAACAACGGCATTAGCTTCTGTATCTTACTTCCGGTGTCTTCGGTTC **AAATAG TCCTCTCAAACAGTTCCTGAT
 Ensis minor* Dall 1 : AAAATTGAAGTACGAAAATGTGCAGTAAACAACAGCATATAGCTTTCAGTATCTTACTTCCGGTGTCTTCAGTAC **AAATAG TCCTCTTAAACACTTCTGAT
Pharus legumen 1 : TGACCAGTGGGTTACAGCAGTCTCCACGGGCTGGTGCAACTTACTGTCAACACTTCCGGTTTATGGACGTT **TAAATAG** CGATGTTACAAAACACTTCTGAT
 Pharus legumen* 2 : ACTGAAATACTGTTGGTGTAGACGTAAGCAACAGTCAAACAAGCAAGCAACACACAAAACAGTTTCATACA **TAAAGA AGCAGTTCGATTACGCCCTTAAAT
 Pharus legumen* 3 : ACTGAAATACTGTTGGTGTAGACGTAAGCAACAGTCAAACAAGCAAGCAACACACAAAACAGTTTCATACA **TAAAGA AGCAATCGATTACGCCCTTAAAT
 Pharus legumen* 4 : TCGAAATTGAAAGCTGGCAGCATATAATCCTGATCCAAATGCTGAGAACACGGGGCCAGGTGTGTACCCTT **TAAATAG CGCTCGTGGCGATCATTCAAC
 Pharus legumen* 5 : TCGAAATTGAAAGCTGGCAGCATATAATCCTGATCCAAATGCTGAGAACACGGGGCCAGGTGTGTACCCTT **TAAATAG CGATCGTGGCGATCATTCAAC
 Pharus legumen* 6 : TCGAAATTGAAAGCTGGCAGCATATAATCCTGATCCAAATGCTGAGAACACGGGGCCAGGTGTGTACCCTT **TAAATAG CGCTCGTGGCGATCATTCAAC
 Ensiculus cultellus* 1 : AATTATTTATCAAGTCAATTTACTTCTTTTACCTATTTGAAGAATTTGCCAGGCAACTTCCGGTGTGATCGATTG **AAATAG CCCTTTCAAAGCCACCTCAT
 Ensiculus cultellus* 2 : AGGATGGCAGGTAAATGATGCTTCGTACTATCCAGGTCGGTTGGGACCTACCCTTCCGTTTATAACCCAGTTC **AAAT GGACATGTGCAGCAGCTACCTTT
 Ensiculus cultellus* 3 : AGGATGGCAGGTAAATGATGCTTCGTACTATCCAGGTCGGTTGGGACCTACCCTTCCGTTTATAACCCAGTTC **AAAT GGACATGTGCAGCAGCTACCTTT
 Siliqua patula* 1 : TACAAGCATACATACATTTCATTTATTAAGTGTGTTGTACATCAGTAGCCTGCATCCGCTTCCAACAGTA **TAAATAC ACCTTATAACGGAGCACTTTC
 Siliqua patula* 2 : CAATAATATGCACAGAGCCCAATACGGATCACCGAAGTCAATTTGTGTACAGGCAGCCGGTTCCAGCCACT **TAAAT TCCCGTTTAAACAGGGAACCTTC
 Siliqua patula* 3 : ACGCATTAAATATGCACAGAGCCCAATACAGATAGAAGTACAGATTGTGTCTGGCAGCCGGTTCCAACCGTT **TAAAT TCCCTTTTAAACAGGGAACCTTC

Ensis magnus 1 : GCCATTTTCAGAGGTGTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTCGAATAAC** GACAGCTTCTC **AAAAG** GGTTGCGCATGCATGGC **AAAGC**
Ensis magnus 2 : GCCATTTTCAGAGGTGTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTCGAATAAC** GACAGCTTCTC **AAAAG** GGTTGCGCATGCCTGGC **AAAGC**
Ensis magnus 3 : GCCATTTTCAGAGGTGTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTCGAATAAC** GACAGCTTCTC **AAAAG** GGTTGCGCATGCATGGC **AAAGC**
Ensis ensis 1 : GCCATTTTCAGAGGTGTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTCGAATAAC** GGCAGCTTCTC **AAAAG** GGTTGCGCATGCCTGGCAGAGC
Ensis ensis 2 : GCCATTTTCAGAGGTGTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTCGAATAAC** GACAGCTTCTC **AAAAG** GGTTGCGCATGCCTGGC **AAAGC**
Ensis minor Chenu 1 : GCCATTTTCAGATGTCTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTCGAATAAC** GACAGCTTCTC **AAAAG** GGTTGCGCCTGCATGCC **AAAGC**
Ensis minor Chenu 2 : GCCATTTTCAGATGTCTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTTGAATAAC** GACAGCTTCTC **AAAAG** GGTTGCGCCTGCATGGC **AAAGC**
Ensis siliqua 1 : GCCATTTTCAGATGTCTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTCGAATAAC** GACAGCTTCTC **AAAAG** GGTTGCGCCTGCATGGC **AAAGC**
Ensis siliqua 2 : GCCATTTTCAGATGTCTGGAGTCATTCGAAAAAACAATGCACAACACGCCG **GGTCGAATAAC** GACAGCTTCTC **AAAAG** GGTTGCGCCTGCATGGC **AAAGC**
Ensis directus : TAAATAGCAGTGGTGTGGGGTCAATTCCAAAGTCACTGTCCGACCTGTG **GGCCGAAAAAC** AACGTTGTGTG **AAAAG** GTATGCACGTGCATTGGAAGGC
Ensis macha 1 : TGAAAAATCAGTGGTGTGGAGTCAATTCGAAAAATCACTGTCCGACACGTCG **GGCCGAATAAT** ACCCTTGTGTG **AAAAG** GTATGCACGTGCATAGGAAGGC

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→ Ensis macha 2 : CTCGGTCCACTGCCTGGATAAGCTTCCCCTAGTCGTCTGCTCGACCCGTCGGGTGGAATAATACCATTCTTTCAGTGGGCATCCCCTGACCAGCAAAGC
  Ensis macha 3 : TGAAAAATCAGTGGTGTGGAGTCAATTCGAAAATCACTGTCCGACACGTCGGCCGAATAATACCCTTGTGTGAAAAGGTATGCACGTGCATAGGAAGGC
# Ensis minor Dall : TAAATAGCAGTGGTGTGGAGTCAATCGCAGAGATCACTATACGACGTGTCGGCCGAATAACACGTTGTTGAAAAGGTATGCACGTACATAGGAAGGC
  Pharus legumen 1 : AATGACACAAACAGCCGATTGGACGTGTTCCAACGTCTATCAACCTGCCTGTGGGAAAGACTATCCTCCATACAAATGAGCTGTGTGAGCGGAACAACCTC
  Pharus legumen 2 : AATGACACAAACAGCCGATTGGACGTGTTCCAACGTCTATCAACCTGCCTGTGGGAAAGACTATCCTCCATACAAATGAGCTGTGTGAGCGGAACAACCTC
  Pharus legumen 3 : AATGACACAAACAGCCGATTGGACGTGTTCCAACGTCTATCAACCTGCCTGTGGGAAAGACTATCCTCCATACAAATGAGCTGTGTGAGCGGAACAACCTC
# Siliqua patula 1 : AAGTCGACCTCAACGCCACCCTGGATGCGCTGCCCCATGTAAACCTGTTCTTGCCTTTACCTGGCGCCAATACGTAAGGTTCCCATCATGTAGGCAAAGC
# Siliqua patula 2 : AAGTCGACCTCAACGCCACCCTGGATGCGCTGCCCCATGTAAACCTGTTCTTGCCTTTACCTGGCGCCAATACGTAAGGTTCCCATCATGTAGGCAAAGC
  Ensiculus cultellus 1 : TTCGTGCATGTGTAGCAACAAAACCCCTCAGTGCGCTAAAATCACCTAGCAGACCGAAAAATGTTCTCTTGATAAAAAGATCAACTAATATGCCCCAATC
  Ensiculus cultellus 2 : TTCGTGCATGTGTAGCAACAAAACCCCTCAGTGCGCTAAAATCACCTAGCAGACCGAAAAATGTTCTCTTGATAAAAAGATCAACTAATATGCCCCAATC
  Ensiculus cultellus 3 : TTCGTGCATGTGTAGCAACAAAACCCCTCAGTGCGCTAAAATCACCTAGCAGACCGAAAAATGTTCTCTTGATAAAAAGATCAACTAATATGCCCCAATC
  Aplysia californica : TCCATTGCACTCCGGTATGGCTGACCCCTGCGATCACTAAATTGGTGACTCGAGTGCCTAATTTTTCCGTAGGGGGGACTGCGTTCCGCTATCCCCTGA
  Lottia gigantea : TTGCACCTAGCGGAGGCTGACCCCTGCGATCACCCCTAATGTGGGTGACTCGAGTACGTAATTTTTAGTATGGGGGACTGCGTTCCGCTCTCCCCTGG

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