[**Supplementary Table S1**](https://www.frontiersin.org/articles/10.3389/fmicb.2019.00626/full#SM1)**:** Primers for RACE and Sanger sequencing:

|  |  |
| --- | --- |
| **Name** | **Sequence** |
| UMP | 5’-CTAATACGACTCACTATAGGGCAAGCAGTGGTATCAACGCAGAGT-3' |
| UPS | 5’-CTAATACGACTCACTATAGGGC-3’ |
| SMART II™ A Oligonucleotide | 5’-AGCAGTGGTATCAACGCAGAGTACATGGG-3’ |
| CsTLV1 RACE |  |
| 3’-GSP | 5’-CGGCGTGCTGAAGCTAATCGTGTCT-3’ |
| 3’-GSPS | 5’-GGAAGGGTCATGGAGATGGTGGACAGA-3’ |
| 5’-GSP | 5’-GGCACCACATCACGACCACGACAA-3’ |
| 5’-GSPS | 5’-GGCTGCCAGACGCCACTCAAATCTAC-3’ |
| CsTLV2 RACE |  |
| 3’-GSP | 5’-GGA ACG TAT GGG AAG GCGTGGATGG-3’ |
| 3’-GSPS | 5’-GAA GAG TTG CGG GCA TGGGCATACA-3’ |
| 5’-GSP | 5’-CCGTACGATGCACGCCCTTCGTTAT-3’ |
| 5’-GSPS | 5’-CGAAGCCACTTGCCTCGTCCTCATC-3’ |
| CsTLV1 gap |  |
| Forward | 5’-CACTGGTGATGTGGAACAGG-3’ |
| Reverse | 5’-AGCAAGACGCATAGCACGATA-3’ |
| CsTLV2 gap |  |
| Forward | 5’-CACTCAAAGCAGCAGCAGAG-3’ |
| Reverse | 5’-GCATCCTCGCCTCAGTGGAC-3’ |

[**Supplementary Table S2**](https://www.frontiersin.org/articles/10.3389/fmicb.2019.00626/full#SM1)**:** Virus names, acronyms and GenBank accession numbers of predicted RdRp protein sequences used to infer the phylogenetic trees.

|  |  |  |
| --- | --- | --- |
| **Virus** | **Acronym** | **GenBank accession no.****RdRp** |
| ***Totivirus*** |
| Puccinia striiformis totivirus 1 | PsTV1 | ATO91007BAT62476NP\_620495AAB02146AGG68771YP\_009507833NP\_620728YP\_007697651YP\_009507835 |
| Red clover powdery mildew-associated totivirus 1 | RPaTV1 |
| Saccharomyces cerevisiae virus L-A | ScV-L-A |
| Saccharomyces cerevisiae virus L-BC | ScV-L-BC |
| Scheffersomyces segobiensis virus L | SsV-L |
| Tuber aestivum virus 1 | TaV1 |
| Ustilago maydis virus H1 | UmV-H1 |
| Xanthophyllomyces dendrorhous virus L1A | XdV-L1A |
| Xanthophyllomyces dendrorhous virus L1B | XdV-L1B |
| CsTLV1-like |
| Ahus virus | AHV | QGA70930QLJ83490APG75978YP\_009551504YP\_009333150 |
| Parry's Creek toti-like virus 1 | PCTV1 |
| Hubei toti-like virus 6 | HTV6 |
| Diatom colony associated dsRNA virus 17 genome type A | DCV17 |
| Beihai barnacle virus 15 | BBV15 |
| CsTLV2-like |
| Bremia lactucae associated toti-like virus 2 | BLTV2 | QIP68023QGY72624YP\_009336942YP\_009333465YP\_009333409 |
| Plasmopara viticola lesion associated totivirus-like 5 | PvLTV5 |
| Hubei toti-like virus 5 | HTV5 |
| Beihai sesarmid crab virus 7 | BSCV7 |
| Beihai razor shell virus 4 | BRSV4 |
| ***Victorivirus*** |
| Aspergillus foetidus slow virus 1 | AfSV1 | YP\_009508249YP\_009508251YP\_392467YP\_009508253NP\_624332NP\_898833NP\_619670YP\_122352YP\_001649206YP\_008130308NP\_047558NP\_047560YP\_004089630 |
| Beauveria bassiana victorivirus 1 | BbVV1 |
| Coniothyrium minitans RNA virus | CmRV |
| Epichloe festucae virus 1 | EfV1 |
| Gremmeniella abietina RNA virus L1 | GaRV-L1 |
| Helicobasidium mompa totivirus 1-17 | HmTV1-17 |
| Helminthosporium victoriae virus 190S | HvV-190S |
| Magnaporthe oryzae virus 1 | MoV1 |
| Magnaporthe oryzae virus 2 | MoV2 |
| Rosellinia necatrix victorivirus 1 | RnVV1 |
| Sphaeropsis sapinea RNA virus 1 | SsRV1 |
| Sphaeropsis sapinea RNA virus 2 | SsRV2 |
| Tolypocladium cylindrosporum virus 1 | TcV1 |
| ***Trichomonasvirus*** |
| Trichomonas vaginalis virus 1 | TvV1 | YP\_009162330NP\_624323NP\_659390YP\_009507836 |
| Trichomonas vaginalis virus 2 | TvV2 |
| Trichomonas vaginalis virus 3 | TvV3 |
| Trichomonas vaginalis virus 4 | TvV4 |
| ***Leishmaniavirus*** |
| Leishmania RNA virus 1 | LRV1 | APT68186AAB50031 |
| Leishmania RNA virus 2 | LRV2 |
| ***Giardiavirus*** |
| Giardia lamblia virus | GLV | NP\_620070 |
| ***Artivirus*** |
| Omono River virusArmigeres subalbatus virus Panaeid shrimp infectious myonecrosis virus Golden shiner totivirusWuhan insect virus 22 Hubei diptera virus 22 | OMRVAsTVIMNVGSTVWIV31HDV22 | BAJ21511ACH85916AAT67231YP\_009256209YP\_009342432YP\_009336825 |
| ***Chrysoviridae; Chrysovirus* (Outgroup)** |
| Helminthosporium victoriae 145S virus | HvV-145S | YP\_052858 |

**Supplementary Table S3.** Identities of the CsTLV1 and CsTLV2 RdRp amino acid sequences with similar sequences deduced by BLASTp search of GenBank.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Virus** | **Virus name** | **Accession number** | **Identity (%)** | **E-value** | **Query Coverage (%)** |
| CsTLV1CsTLV2 | Beihai barnacle virus 15Ahus virusParry’s Creek toti-like virus 1Diatom colony associated dsRNA virus 17 genome ABremia lactucae associated toti-like virus 2Plasmopara viticola lesion associated totivirus-like 5Hubei toti-like virus 5Beihai sesarmid crab virus 7Beihai razor shell virus 4 | YP\_009333150QGA70930QLJ83490YP\_009551504QIP68023.1QGY72624.2YP\_009336942YP\_009333465YP\_009333409 | 33.8134.9235.2033.9239.6742.9644.9642.5438.24 | 8e-1449e-1323e-1243e-1220.00.00.00.00.0 | 977878738980747874 |

**Supplementary Figure 1.** CsTLV1 and CsTLV2 genome copy number (Log10 RNA/mg) in muscle, gill and hepatopancreas of the crabinvestigated by TEM.

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**Callinectes sapidus toti-like virus 1 (CsTLV1) 6444 bp**

 1 TAGTGAGCGT TTGTATTGGA AGAAACAAGA GCTGGATCTC ACATCCAGTA TCCATTCAGT

 61 GACTTATGGT AAGACTGAAG CGACCGTTGT AGGGCGCATC TGGCGTCCCT ATTTGAAGAA

 121 ACTGCTTTGG AGGCCATCTG CTGACTACTT GTCAACACGG CTGACAATGC AGCCTGGTGC

 181 AGCTGCTGCT GCATCTACCG TCATTGACCG CAACATTAGT GCTGCGGTTG GTTCTCTGAG

 241 CCACTGTTTC ACCCGAGTCA TTACTCCTAC CGATCTGGGA CACCAGGCAC GACAGGAGAT

 301 ACAGTCCATC GTTCACGAAG AAGTGAATAC TTGTAGATTT GAGTGGCGTC TGGCAGCCCT

 361 TTATGTAATG GCAGTTCTAG CTGAAAAGCG CGGTGAAAGG ATTGCGACCC TCGGGGGTCG

 421 CATGCCTGAG ATGCGATTCA TAGAAGATGC TGGTTCATTT TCCACTTTCA TGGGTGATTG

 481 TCGTGGTCGT GATGTGGTGC CATATGTGTG CCGTGTCTCG CCAGATGTTG AGTCTGAGGC

 541 AATATCTGTT CTTGCTGCAG CTGCTTCGCC CTTTGCTCGC GGGACATCGA CTCCGGCCAT

 601 TCTGCGTAGC CAACCACGGT TGCTCAACCC AATCATCGCC ATCTTTGGGC CCATGGCTCC

 661 GGTGCTTATT ACTCCGACCC TGACGTCTGG TGTGATCTGG TCAGTGGCTC AGGATTTCGC

 721 GGGCCGCTAT GGTAATATTG AATTCCTCCG GGACGCAGTG AAGAATATTT GTGCGTTAAT

 781 CTTCTCCCCT ACCAAAGGTG ACCCCGTCTT TGGGTCGAAA GGTATTACCC TTGCTTTGCC

 841 TCCGTCCAAA ATGCATGGTC TGGCTTTGGG ACCTTGTTTG ACCAGATATC ACACCTGGGA

 901 TGAGCAACCG TCTATCATTC CGCCACCAAG TGTTCAGGAG GCTATAGTGC ACGGTGCTAC

 961 TGGCATGTTG TTGTTGTCCC TGGGTTACTG GCATGTGTGT AATGCTCAGT TGGTTGGTGC

 1021 GGAATTGGAT GACGCTACGA TGCTCACGTT GAAGAACAGT TTCTTGCCAA CGGCGTTCAT

 1081 TGGCTCCAGA GGTCAGACTC CGGTTATTGG ATGTGCTGCC CATGTTGTGA GACAGATCGT

 1141 TGATGGTTTC GAGGTGGGAA AGGTCATTGG TCGACTATCG TTGATTGAGA GCAATTTCAC

 1201 CAAAATAAAC AACATGTTGG TTCGGCATGC TTCCGCCCCT CAGTGGGAGG AAGTTGCTGT

 1261 CTTGACAGGC ACGCTACCAC AAAGCAGTGC CCTGTTTGGG TTGATGACCC CGCTCCACAC

 1321 AGCCACACCC TGCAAGGTGG GTTGTTGGTA CCGGGTGGGG GAGTTGCCAG CAGGGTCCAG

 1381 CGTTGGTGGG GCGTTTGCTG GTTTCCAACA CTGTCCGGCG GTTGAATATG GTCACTTCAC

 1441 GTCCGAGCCG CGTAAGATGA GAGTCAAAGT CAAACCAATT ACGTTGCCCA AGAGTTATCG

 1501 CGGTGTTCAT TCTGACTGGT TTCTTGATCG TGAAATCCAG TTCCCAGAAC GGTTCATAGG

 1561 TCCTGTGTTA CGGTTCAAGA CTATTGAGGG TGTTCTACAA GCCCATGCGG GGAAAACATT

 1621 CACTCATCCC GTCAAATGGT ACTTAGAGAA TTTCGTTCCA GCAGACTGTT TGATGCCTGG

 1681 TGTGGTGGGT TCAGCTCACA GTCTGGAGAT TGTCGAGGAC GATGAGAATG ACAGTGATAG

 1741 CGATTGGGGG GCAGGTCCGT CTGCACCTCA GCGTGATGAT GGTGGTGATG ATGATAAAGA

 1801 TGATGATTCT AGCAGCGGTG AAGACACGGA TTCTAGGCCT CAACGGGCTG TTCTGGCACA

 1861 GGAAGTGGCA CATGAGGGTT CGAATGATGC TGTGGTTCAT GGAGTTGATA AGGGTGAAGC

 1921 TATTGAAGTG GTCAAACCCA AAGAGGCATA CGAAAAAGAG GCTGAGGCAG AAGACGACAC

 1981 TGAGAGAAAG AATAAACTTC TTGAAGATGC TGGGTCTGCC CCAAAAAGTG GTGAGTTTGC

 2041 TGATGGGCGT TGGATTGGTG TTCGCGGTCG GAATCATGCT CGCCGTCTCA AGAATGCTGA

 2101 GAGGAAGGGG CAAAAGGTAG TAGGCAAACG TGTTCGGAAG GTTGGTGGTG ACGTTGGTAC

 2161 ATTCACCGTG ACTGCTGACA CCAAATACAA GAGTTTGGCT GCCGCTGCTA TGGCTGGTAA

 2221 GGTCACACTG GATGATCTGA AAAGCATCCG GTCACTACCT GGTGGTAAGA GGTTTGTTAC

 2281 CGCAATGCTC AGTGGACCTG CAGGGATCAC TGGTGATGTG GAACAGGCAT GCGAAGCGGC

 2341 TTTGAAGCTT GCTCTATTAG ATCGTGATCA GGGTAGTGAA TGTACTAGCA AACGTATTAT

 2401 GCTCTCTGAT GCTGCAGTGA AGACCCTAAC TACCAAGGAA CCTCTGGATA TGCTCAAGAA

 2461 GATACCCATC CGAGAGAGGA AATCAGCATG TGATGTGCTT CACAATGTGT GTAAGTTCGT

 2521 TCAGCTGAAT GTAGACTCAC CATCTGGACG CCTCCAGCTG GAGAAAGATG CTTGCAACTT

 2581 CAAACACTAC GCTTTTGGTT TCCAACAGTG TGGTGCCCTT GATCTTAAGG AATTGTGTGA

 2641 ACACGGTGGT TTTGATCCTG ATAAAGTAGG CCAATTGGTG ACTGAAAGCG ACATTAGGAG

 2701 GATGGTTGCT GCTGGCATTG ACCCCGTCCG TGAGGTCAAA TGTGCTATGT CTGGCGTGCG

 2761 GACTGCTCAA GATCGTGGTA AGGACACTGG TGCTGCCATC GATGGTATGA AGGGGCGTGT

 2821 TCAAGCCGAC ATCGAAGCGC AACATGAGGC AGCCTATGAC GAACAGACAG CGGCTGGAGT

 2881 GGAGATGGTT GTGGCAGGTC TCTGTCCACC TGAGGTGGCA TGTGAAGCAT TTGGGCTGAC

 2941 TATGGAAGAA TTAGCTGAGA AGGCAGGGAT GACTATTGCA CAGTTGAAAT CGATGGGTGG

 3001 CGATGCCGGT GAGGAAGAGG TGAATGGTAA CGTCGGTGAG ACAGAACAGA TGAAGATGGA

 3061 GCCGGATGTG ATCCATCCTA CAGAATTGGC CGATTCGGTG GTCATAACAA GTGAGACCCC

 3121 GGGTGCTAGT GAAGGTGATG TGGGCAAGTC GGTCCACATT CCCGCCCAGG CTGCAGCAGC

 3181 AGACTGTGTC CGTGAGAAGG ATTTTGCGAC GGCTTCGGGG AGTACTTCCG GCTTGCCTGC

 3241 TCAGCAGTCG GACAGTGGGG ACTCTTCGGA GCTGGAGCCG GGGGTGGAAG TGTACACGGA

 3301 ACTTCCACCA GCAATGGACA TGGTGATTGC AACCAGCGCA TCTGGGATGG GAGCCGCACC

 3361 AGGTGTGAAA TTGGCAGAAA AAGCAAAGGA GTGAAGGAGT GGGATGTATG CGGTAAGAAG

 3421 AAGCAAAGGA TGGTTGATGT ACTGAAGGAA ATTGAAAGTT GGGAGGCAGA GATGTGTGTT

 3481 TTAGGGGGGG GGATCCCTTT GGGGTCCCAC GCCCTTAAAA CCTTTTTTTG TTGCTCAATT

 3541 GCGAGTGCTG AAGACTATCG TGCTATGCGT CTTGCTGTAC GGCTTCCCAC TGGGCCTGGC

 3601 AATGTAAAGA GCATGCGTGG TGTGGTCTCA CCAGAAAGTA TGAAAGAATG GTTCGGCGAG

 3661 AGCTTGGTTC CCAAAGGTAG CATTGCATTA ACCCTAACTA CAGTGTACAC GGTGTTGCGC

 3721 AGGGACCCCA CTCTCTGGGA ACGGGAACTG ATTGGCGCCA ACCGGAATGG GCAACAATGG

 3781 TCTGCGGCTG CTATGATATT GGGGTTAAAC TGTTTGCGAG CACCCCTTCT GGCGGCAATC

 3841 GTCCGTGCTG GCTGGCAACG TATTCCTCTA CCCGACTGGA CAACAGTGCT TAGTGACTGT

 3901 GTAGTCGCAT TGAGACGTTG TCCTTTTGTG GAGGGGTGTG GTTGGGAGGA ACCTGACGGT

 3961 TACTCATTGC GCAAGCTACT CAGTTGCACT AATCGTACGC TCGATGAGGC TGACTGGAGT

 4021 AAGGAGTTGA CGAATATTCA ACGCGATTTG CCCGTCCACT ATTGGGTTGA CGAATACGGC

 4081 TGTAGGTCAC GTGCGCTATG GCAACCCAAG ATAGTCAAAA TCATGCGGGA AGTACTTGAA

 4141 CGAGTAGTGA ACCAAACACT CAATGGTCCA CCACTAGAGT CGATGGAATC ATGGTGGTCG

 4201 AGCCGGTGGG CTTGGGCTCC TGGTGGGTCC ACATCCCAGA GACATGTATT GAAGGATGCC

 4261 ATCAGTGCTG ATGAACGCTT GACTCAGGAT GATCGAGCAG GCAAGAAAGC TGTGTTTGAA

 4321 AACCTTGATG ATGATTGGGT ACAGCGGGTG CTATGTGACC CTCCTGCTGT TGTCGGTCGT

 4381 GCGTCTACTA AACATGAGCC TGGTGCTAAG AACCGAGCAT TGTATGCCGA AGGCGATGAG

 4441 AGTTTCTGTG TTTCTGCGTA TGCATCGCTT AATTTTGAGA AATTTATGAA CGTTGGCGGC

 4501 ATGGTTGGCA AACAAACACC TGCAGATGTG TGCGACTGGT TATATGCGTC AAACATGTCT

 4561 AAGCTCAGTA ATCCGTATTG GTTGTCTGCT GACTACAGTG ATTTCAACAA GGGACACGAG

 4621 GCGGAAGACA TGTGGCTGCT GGACATGATG GTTGCGCGTG CATGGGCTGC AACCAATTCC

 4681 AATCCGCTTG TCCGCAGGGA CAAGGTGCGT TGTGCAAGAT GGACAGCTGG GAGTCATCAG

 4741 GTCAAGTGGG CCAGGATTGA GGGCAGGATG GAGCGTGTGT TCTCGGGACT GTTCTCCGGC

 4801 AGCAGGAACA CGGCTAGGGA CAACACCATT TTACACAAAG TCTACTCCGA GGCGATTCTC

 4861 TGTGCTATGC GTGATGCTGG TTGGAAGGGC GAAGTTGGCT ATCAGGCTTA CTGTGGTGAT

 4921 GATGAAGACA TGGAGTTCGA TAATTGGCGT AGTGTGTTAT ACTATTACGT GATGCACTCT

 4981 TTGAGTGGAC ATGAGCTCAA ACCACCCAAG CAACTGGCAG GTAAAACGCA CGAGTTCTTG

 5041 CAGCGTATGG TCATTCCGGG AGAACACACA ATCCGGCCGT TGTTTGCTAT GTTGGCACAG

 5101 GCGGCTAGTG GTAACTGGTA CAATGATACG TATACGTGGT ATGGCAATTC AATCCCTGCG

 5161 GTCAGAGACA TGTGTTGGGA GATGCATGTG CGTGGCATGC CCCTCGAATG GGCGAGACGT

 5221 TTGTGTATCG AGACTTTAAA TGCTACAATG CGAGTTCCAT TGGGTAACAA GGAGTGGCGG

 5281 AAGTTAGAAT GGTGGAGCTA TCGGAACGGT GGTGATGTCG TACACCCAAT GTGGAATGGG

 5341 TTGGGTATAG ATTCTGGTAC TCAACCACGC CTGACGCCCA AGACGGTGCC TGTCCAAGAG

 5401 GTGCCACAGA AGGCAAGTAA TGCATGGGTT GCTAAGGTCG AGAAGCTGAC AGGCAAAATT

 5461 GGTACGGATC GGAGATTGGA GATTATTCGT GAATGCAGTG CTGACAGTTA TAGCAAGCTC

 5521 TATGTACACA CTCGTTTGGT GAAACAGAGG GAGGAGGTGA TGGAGATGTG GCCGGAAAGG

 5581 ACTAGTGAAA TACCCGTTGG AGCCCTACAT GTGGGTCTAA TCACTGCTCC ACCCCTACGA

 5641 CGCATATTGC AAGGCATAGT AGCTGAGCCG ACTGATCGAC GCCCCGTCTC ATCTGATGCA

 5701 GTTGCTGCGC GTTTCGGTGT CAACGAGAAG ATTGTGTTGG CGTGTGGCGG ATGGCAGGAG

 5761 TTCTTGCGGT TGGTTCCCCC TGAGATGGTA GGCAACTACG AGGAGCCTGT TACCTCATAC

 5821 ACTATACCCC TATGTTACTA TAAGATGGAC TCAGCATTAG TGTCGTGGGC CCGCGTCAAT

 5881 CGGTGTCTGC AATATGAGCC AGACCGGCGT GCTGAAGCTA ATCGTGTCTG GGCAGAGACG

 5941 GTTGGGCGAG GCATCAAGGG TAGGCATATA ATATGGTGGT TGGTCCCCAA TGCTGGTGGT

 6001 AAAACTACGT ATTCGCGGAA ACAGAATCTA ATCGGTCGAC AGTGTATTGA TATTGATGAT

 6061 TTATTGATCG AGTATCCTGG TATGCGTAAC ACGTTGCGTA GTGTCCGGAA GGGTCATGGA

 6121 GATGGTGGAC AGAAAGACAT CCTCGCTGAT TTGATTGCTG GTGTCGTACA AAAGAATAGT

 6181 GCCGACGAAG TGTTGTGGCA AGGTGATGCA AGCTGGGTGA TCGGGCGGTT GAGGAAGCAT

 6241 GGTTGGGATG TGGATCTGCG TATCGCGGAT ATCGATGAGG AGGAGGTGGT TAAACGTTTG

 6301 AGGTGTCGGT GGTGGCGCGA TGAGCGTATT GAAAAAAGAA GGTTGGAATG GTTGGTTAAT

 6361 GTAAATAAAG CTCTTAGTCA AGGTGCAGTA GTATGCCCTT TGGCGTGATT GAGCGGCAAG

 6421 GTGCAGTTTT GCTGCACACC CCCC

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**Callinectes sapidus toti-like virus 2 (CsTLV2) 7421 bp**

 1 GAACGTCAGA CTGCGTTGTA AAATAAGTGT CTAAAAACCA TGATGGCTTC AGGTGAGCCT

 61 TTGCAATCTC AAATTGTTGA GCTTCAAAAC GAACAAATTG TAATGAATGA AAACACCCAA

 121 GCGAACGAGG TCGAGCAAAC GGAACAGAAC GTTCCAGCTC AAGGGCCTCA CACAATTGAA

 181 CAGGTGGTCG GACACCCAGC TGTTTCTCTT ACTCCGAGTG TCCAACAAGG AACATATGGT

 241 ACCATGCCTG ATCCACCCGG ATTGCCCATG GGCACCAGTA ATGAAGTACC AGCCGGAATT

 301 CAACACGCGT TGCTTGACGG CATAGGAGAT GATGAGGACG AGGCAAGTGG CTTCGTGTCT

 361 GGGAGAGAAT GGAAAGCTAG AGTTCCGTCC ATTGCAGGTG GGCAGGAGCA GCTCAAGACC

 421 ACATTCGTCA AGGTTGGCAA CCTCAACACA GCGATGGAGT ATCCAACGGA AAATCCATAT

 481 TGCTCGATGG ATGTGGAGGA TTTCAGGAGA TGTGAGGATG GAGTGGATAT TGCGTTGAAA

 541 CCACAGTCCT TTAAGGATAA TAGGGTCATC GTCGGGATAA CGAAGGGCGT GCATCGTACG

 601 GCCCGTCAGT GTAAATTGGA CTATGTTCGA TATGATGGGG TCATGACGGT AACTCCTTCC

 661 TTGTGGAGGT CACAGAGAGT CATGCTGACT CCGGAACCTG GTTATGCAGC AGTGTTCCTC

 721 AGCGCTCTCG ACTCGGATAA TTTGGCTGCC AGGCGTGCTC TCAACCAGGT GTTTAATGAT

 781 GCCTCGAACG TCTTGGCGGA TATCGGAGCG GCTGCGGCAC ACATGCGCGA GATGTTTGAG

 841 CGGCCGGTGG AAGTTACGAG ATACACGATG AGGTTGGCGA TGATGTATGT AGAAGCGAGG

 901 TTGTTGAGCC CAGACCCTCA CGGAATGGTG ACCTTCGAGT CGCCTGATCA GCCTGAGTGG

 961 GTCCGAGCGA CTAGCTGGGC GGCTTTCAGA AGGGAGGTGA TCACAGATCA GAAGCGTTTC

 1021 TCGGAGGTTA ATTACATTCC TTGGATGTCT ATGACGGCTT GTCAATTGCC AATGGAGGGA

 1081 AAGCTGGTGG AGGTGCTTGC TGCTGCCAGT CTGCCCAACC TTTCGTTGAA AATTGGTGAC

 1141 AACTACAAAC CGCTCATGTG CTGGCCTTCA ATCAACAACA CGAGAATGAT TACTAACACT

 1201 GGGTTCTTGG CTTCGACGGA ACAGGGATTT TGGGAATTCT ACCCTTCGCA AATATACGCC

 1261 GCTGCTCGTG CATGGTGCGG TAGGTACGGT GATGTTGATC TTCTCGATCA GCTTCTCCAG

 1321 TTCTGCTTCA TCATGTACTG GGGCGACGCC CGTCGCGGTG GTATCAATGT TGCTTCGGGG

 1381 ATGACTGACT TGGCCATCTG TTTGCCGGTA GCTAACATGC GGGGGTACTT GGCTGCGCCT

 1441 TACTTGGCAG TGCGTGATGT TACGAGAGAT GTCTTGCGTG AGATAGGGAC GGAGGATCAT

 1501 AAGAGGCAGG TGTCGGAAAG CGTGTCTACG GCGACTTTGT TGAGTTTAGG GCATAGTTGG

 1561 GTTAGTTGGA AATACACCGA TTATCTCATG CTTGCGGAGA AACTGAACGA GACAGAGATC

 1621 GAGCGGAGAC TCGGGATGGT CAGGATCCAG AGTGATCGAG TGCCAAGGTG GGGAATGGTG

 1681 CAGCAATTCC TCAATGGTCT GGGTTACCGT GGAAAGGTCG GGAATTGGTT GTCAAGAGTT

 1741 GGATCGATGG TCACAGTGCA GAAGTATACG CGTGGATATA TCGAGCAGAA AAGAGTTATG

 1801 ACTGGTGATG TCATTCCGTT CTTACCTAGG TTGCCCGATG GTTGCGGAGC ACAAGGATGG

 1861 ATCAGTCCAA TGCCGGTGCC TGGGGATCTC GGACTTGCTA ATCAAGCGGT GGTATTCTCT

 1921 GATTTGCCAA AAGCGGACAT GAGGAGGATG GTCGCCTCGC TGGATGAGCT GAGGAACATT

 1981 GATTTCTGGT TCACAAGGCA ATCGCGCACC TCCTTGACCT TGACTCAAAC TGCTGCTCCA

 2041 CGACCCAAAA GAGCGATGAG TGGGGTTGCA CCTGATATGC CCTTCATGGC CGTGACCGTT

 2101 CGGGGGGGGG ACCGGATTAG ATGGGGCTTC ACCATCCCAC AAGCTTCGAT AGGACCAGCA

 2161 ATTTACGGGA CGCACGATCG CTACAATCTC GATTGGTACG TGATGCGTGG GAGTGCGGAG

 2221 CAGAGAGGGG TGTTCATCGA GACGCCGCTT GAAACTGAAC CGGTCAATAT TGGAAAGCAG

 2281 GAACAATCTG AGGATGACAA GTTAATGCGT GCGCTCGAGG ATCAACGTCG AACGCAAGAG

 2341 CACAAGCACA AGATGGATCT GGCAAGGTTG GAGAATCAAC TTAAGATGGA GATGGAGAAG

 2401 CAGCAAGCCG CACTCAAAGC AGCAGCAGAG AAGGCAGCAG CTGAGGAAGC GACCCCCTCG

 2461 CCCCCACCCC CCCCGAAAGC AGCGGGACCT CCACCTCCCC CGCCTGCCCC AAGCATGAAG

 2521 ACCCTGGGCA TATCTCAGAT GGAGAAGCCT TCGGGTGGTG ATTTCTCTGA GGAACTAAAG

 2581 GACTTCGCTA CAATGGGGAG GCGTGAAGTC GATCAGATGG AGGAAATGTT GCAATCGCAG

 2641 CGTGACGCAG TGATGGAAGA GGCGCGGCAA AGAGATGTTG AACGAAGAAA AGCTGGATGG

 2701 TTCGGAAAGG TCGAAGGGAA GAAGAAGGAT ACTTCCGGTA CGTGCAGGGG GCCATGGACG

 2761 GAATGACTAA ATGGCGTGAT GATGACAAAG ACGGGCCTGG GGGTGGAGGA AAGTCTAAAA

 2821 GACGCCAGAT GGACGCCCCA TTGACGGCGA CTCGGACGCA AGCCACGGAT GGGGGGAAAC

 2881 CAGCATCCAA AGGTGGACCT TCAGGAAAGA CGAGCAAACG GGGAGAATGG CCAACACCAC

 2941 AGCAACAGAG AGCAGGTACT GTCTTCGCCA TCAGCAAGAG AGTGCGGGGC AGGAGGCGAG

 3001 GTAACGAGGA TGATGTAGTT ATGATGGGTC TCGGTTTGTT GCGGTGGAGC ACAGGACTGG

 3061 CGGTGCAGAA AAAGCAGTTG CAGGTGTGTG AGACTCCAAA AAGGCCGACT TTCTCTGCTG

 3121 ATGATCTGGC TGCTTTTAAG AAGCGAGCAT TGATTGAACT GTTGCGTGGC AAGGAGGAGC

 3181 TGGCAGCGGC GGCACTACGT GTGATGTATG ACCATGATAT GCGATTTGAT CACGAGAGGG

 3241 TGTTGCTGCG TGTGTTGGAT AGATGTCTCA TGACGGATGA ATCGATTGAT GAGGAGCAGT

 3301 TGGATTTGGA CTTCTCAAAG AACGGTGAGG ACCCGGGGGC GCCTGACGCG GCAAGGCTGA

 3361 AGCAGTTGAA GGAACAAGGA ATGGAATCGA TGAAAATGTT TGGTTGGCAT CAGAGGAAAT

 3421 ATGATGATGT GCAACAATTG TACATGAAGG CGTTGCGCCG AATGGTACGT GCAATGCCGC

 3481 ATACTACGAT CGCATCATTG GAGTCAATGT TGTATACGGC TTGGGTGAGT GAGCAGGGAC

 3541 AAAGGATATT GCGTGGTAGC GGATTGATTT TCGGAGGTGG TTCAGAAGTG ATGTCTACTG

 3601 AGGCGAGGAT GCTGATGATG ATCGAGGTTG GAGCGTACAA GGGCGAACTG TGGGAGCCTC

 3661 GCTTGCAACA ATTGCTCGGT GAGACTTTCA ATAAAGGAGT TATGGCTGAC TGTGTCCATG

 3721 TGGAGGATGG CCTCGCGATC GATTCTTGCC ACTGTAGTGG TGTTAACTTC GGTGGCTTGG

 3781 AACTTCATGA CTGGATGAAT CTGGATCAAA AAGGTTTCTT CACACGACGA TCGAAATATG

 3841 AGCGGCAACG CATTCTGATG TATGGTGGTT GTCCGAAGAG CCTGGTCCGA CGTTACGGTG

 3901 GACGATGGGC TGGGAGACGA AGAGATTTGG ATTCACGGAG GGCCAGGAAG ATGGCTGTGG

 3961 AAGATATGGA CTGTACACAG TGGGAGCTGA CGGGGCACAA GATCTACAAG TGGTTTGAGA

 4021 GCCTCAGCGA ACGCAGACGC GCAGCCTACT TGGCGGAGTG TCATCCGGGT TCGCTGGGAC

 4081 CAGAGCACTT TGCCGAACTG AATGTGTCTG TCTTGTTCCA GCAGGATGAT GAGCAAGCTA

 4141 TGGCGACTAC ACGGCGCAGG AAGGAAAGCT TCGATGAATG GATGTCTGAG AAAGATAGGT

 4201 CTGGGGACCA GCTGGCCGAG AATGTGTGTG AATGGATTGC AAAAGAGTGG GGCAGTAAAA

 4261 CAGTCCGCGC CTCGGAAATG ATACCATCCC CCTTAGTAGG TGGGATTCCA ATTGTCATGA

 4321 CGGCGGCCAT CCTGTTGGAA GCTGTGCCTG CAGCGGCTCC CCTGATCGAG TTGTTGCATA

 4381 ATACGAGCGG TCAAAGTGAA GAAGGAGTTG TTTGCGGGAC TGCCTTCGCG GTGTTGTCAC

 4441 TCCCGTATCC CGTGTTGCGT GAATTCGTGT GTAGCACTTT GTTTGATGAG CCTTTGCATG

 4501 AGTGGTGGAC CACGGCAAAA CAGCATTTCG TGAATGTGCG CAGGACTTTG ACCTGGGGCG

 4561 ATGTGCGTAT GGATGAGAGG TTATTGATGC TGCGGAAGAT ATTAAATGTG ACGATTAGGG

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 4681 AACACGTGTG GGGTCACTCT GTTCCAGAAG ACGGGGTGAG CGCTTACTCC TACTACGAGG

 4741 ACAAATTTAC GAAGTGGGCC GGGACTGCGG TAGCGGAATG TTTTGGGAAG TACAACAAGG

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 4861 GTGCAAGCAA GAGGATCAAA AACGTGGAAT GGAACGATGA GAGGCTTGGA AACCAGGATC

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 5161 TTGAATGGAT GGCAGTGTCA AAGAGCGGGG CGTTGAGCGC GGAAGCAAAA GATGCGTATT

 5221 GGTTGTCAAC GGACTATTCA GATTATAACT CGGAACACAC AATGTTCGAA ATGCAGACGC

 5281 TGGACGCACA GGTGGCAACC AAGTTGGAGG AAGCTCCCCA ATCATGGAGG AATGTGCCTA

 5341 AGGCGGCTGC GGCTTGGTGG TTGGTGGCTG CGAAAAGTAG GAGTTGTATC ATGTACGGAA

 5401 AGGGCAAGAA GTTCGAGGAT CATGATGGAT TGTGTGAGAC GGAGAAGCAG GGGCGTTGGT

 5461 TGCGGTCAGT CAATGGTCTG TATTCCGGGT CTCGCAACAC GGCTCGCGAT AATACGTGGA

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 5581 ATTTCAAGTG GTTCGCGTTG TGTGGTGATG ATGAGGATGT TGCTTTTAGG GATGAATTGG

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 5701 AGCTTGCGGG GCATAAGAAT CATGAGTTCC TGCAGCTCAC GGCAACCAGA GAGGCTCGGG

 5761 TTGAGAAACC ATTGTGCAGC TTGCTGGCGA CACTAGCGAC CGGGAACTGG TACACTCAGC

 5821 TCGGAACTTG GATTCAGACT GCACCAGTTG GAGTAATTGC CAATTACTGG GAGCTGTTTT

 5881 GTAGAGGTGC CAAACTGCAA CATTGTCGGC GTCTAGCGAG AGCAACACTA GATAGGCTAA

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 6061 AGAATTTACC GCGTTTCGAG GCGGTTGCAG AGGTTGATAA AAGCTGGGAC AACAAAGCAT

 6121 CGAAAGCATA TGTCAAGAAA CACCGGGCTA TGTTGAAGCA TCTGCCCAAA CGTATCGAAA

 6181 GTGAGTTTGT GGAGAGCGTG CAGGGACAGA CACTTGGGGC TTGTTTGAAG ACGTGGCAGC

 6241 AGAAGGAAGC TAAAAGGTGG TGTGCGCGAC ACTGGCCGGA GCGAGAGAAC GAATCGATTG

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 6361 AAGTAAGGCA TGGGTATTCG GGTAAGAAAG AAATGATGAC GGAGGAAGCA GTCTGTGGAA

 6421 GAATGGGAGT ACCGTTTTTC GTAGCAAAGA GGCTCGGCGG AATTGAGAAG CTAGGAGGCA

 6481 AGGTGAAGCT GGAGCAATGG GCTAAAGCAT GCAACCTCAA CGCCAAATTC GTTCCGATCA

 6541 ACGGAAATGC ACACAAATTG CAGATGAACA TCAGGGCAGC GATGACATGG GCTAAAACTC

 6601 CGACAACGCG GTATCATGGA GACAAGCGAC ACTTCACTCC GAAGAAGCTG TATTATGCAT

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 7021 AAGTGTATAG AGAGGTGGCC GATGACCCAC AAATTAAGAA GATGCATGAC TATGAAGAGT

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 7201 AGATCGAGCT GGAGGCCGAG GACAGAGAGG AGCAAGGAGA GGAGAGAGTC GAGAAGAAAA

 7261 GGAGTCTGAT CAAAGAGAGG CAGCGCATGC GGAATAGACT GCGGCGCAAA AGAAGAAATC

 7321 ATGAAGCAAG GATGGAGTGA TGGATGGAAG TATTGGTGTT AATGGTATTT ATTTATAAAA

 7381 CAAGAACAAG CAGTGATGCT TCCGACCGAG CGCGGAAGTT T

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