```
                                 (((((((((.....(.(........)..)))).(((((((.....)))))))).(((((
chr-11.trna32-Lys-CTT    GCCCGUCU-----AGCUCAGU--UUG-UAGAGUGCAAGGCUCUUAACCUUGUGGUCAUGG 52
chr-11.trna34-Lys-CTT    GCCCGUCU-----AGCUUAGU--UGG-UAGAGCGUAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-11.trna26-Lys-CTT    GCCCGUCU-----AGCUUAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUAUGGUCCUGG 52
chr-3.trna76-Lys-CTT     GCCUAUGU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCCUGUGGUCCUGG 52
chr-10.trna262-Lys-CTT   GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-3.trna77-Lys-CTT     GCGCAUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-3.trna82-Lys-CTT     GCCCGCCU-----AGCUAAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGCGGUCCUGG 52
chr-3.trna78-Lys-CTT     GCCCGUCU-----AGCUUAGU--UGG-UAAAGCGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-12.trna256-Lys-CTT   GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-15.trna33-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUUGUGG 52
chr-5.trna209-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-11.trna426-Lys-CTT   GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-1.trna157-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-16.trna76-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-1.trna260-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-3.trna17-Lys-CTT     GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-3.trna120-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-4.trna1-Lys-CTT      GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-4.trna2-Lys-CTT      GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-4.trna3-Lys-CTT      GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-4.trna4-Lys-CTT      GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-12.trna192-Lys-CTT   GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-4.trna105-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-5.trna251-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-5.trna252-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-5.trna253-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-11.trna54-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-11.trna53-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-7.trna4-Lys-CTT      GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-7.trna210-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-8.trna150-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-9.trna48-Lys-CTT     GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-3.trna14-Lys-CTT     GCCCGUCU-----AGCUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-3.trna24-Lys-CTT     GCCCGUCU-----AGCUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-3.trna117-Lys-CTT    GCCCGUCU-----AGCUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-12.trna180-Lys-CTT   GCCCGUCU-----AGCUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-7.trna3-Lys-CTT      GCCCGUCU-----AGCUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-7.trna149-Lys-CTT    GCCCGUCU-----AGCUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-10.trna263-Lys-CTT   GCCCGUCU-----AGCUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-12.trna255-Lys-CTT   GCCCGUCU-----AGUUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-11.trna47-Lys-CTT    GUCUGUUU-----AGCUCAGU--UGG-UAGAGCACAAGGCUCUUAACCUUGUGAUCCUGG 52
chr-11.trna46-Lys-CTT    GUUCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-11.trna38-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCCUGU 52
chr-11.trna427-Lys-CTT   GCCCGUCU-----AGCUCAGU--CGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-11.trna30-Lys-CTT    GCCUGUCU-----AGCUCAGU--UGG-UAGAGCGCAAAGCUCUUAACUUUGUGGUCCGGG 52
chr-11.trna23-Lys-CTT    GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGGGGUCCUGG 52
chr-11.trna40-Lys-CTT    GCUCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUUCUGG 52
chr-3.trna93-Lys-CTT     GCUCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-16.trna77-Lys-CTT    GCCCGUCU-----AGCUCAGU--UUG-UAGGGUGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-5.trna254-Lys-CTT    GCCCGUCU-----AGCUCAGU--UUG-UAGGGUGCAAGGCUCUUAACCUUGUGGUCGUGG 52
chr-11.trna21-Lys-CTT    GCUCGUUA-----AGCUCAGU--UGU-UAGAGUGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-3.trna73-Lys-CTT     GCCCGUCC-----AGCUUAGU--UUG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-3.trna87-Lys-CTT     GCCCGUCC-----AGCUUAGU--UUG-UAGAGCGUAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-3.trna89-Lys-CTT     GCCCGUCC-----AGCUUAGU--UUG-UAGAGCGUAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-3.trna91-Lys-CTT     GCCCGUCC-----AGCUUAGU--UUG-UAGAGCGUAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-3.trna83-Lys-CTT     GCCCGUCC-----AGCUUAGU--UUG-UAGAGCGUAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-3.trna85-Lys-CTT     GCCCGUCC-----AGCUUAGU--UUG-UAGAGCGUAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-3.trna94-Lys-CTT     GCCCGUCU-----GGCUCAGU--UGG-UAGAGCGCUAGGCUCUUAACCUUGUGGUUUUGG 52
chr-3.trna71-Lys-CTT     GCCCGUCU-----AGCUCAGU--UGG-UAGAGCUCAAGUUUCUUAACCUUUUGGUCCUGG 52
chr-11.trna418-Lys-CTT   GCCUGUCU-----AGCUCAGU--UGG-UAGAGCACAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-8.trna25-Lys-CTT     GCCCGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCUUGG 52
chr-15.trna6-Lys-CTT     GCAUGUCU-----AGCUUAGU--UGG-UAGAGCGCAAGGCUCUUAACUUUGUGAUUGUGG 52
chr-7.trna14-Lys-CTT     ACUUGUCU-----AGCUUAGU--UGG-UAGAGCGCAAGGCUCUUAACUUUGUGGUUGUGG 52
chr-8.trna158-Lys-CTT    GCUCGUCU-----AGCUUAGU--UGG-UAGAGCGCAAGGCUCUUAACCUUGUGGUCGUUG 52
chr-11.trna42-Lys-CTT    GCCCAUCU-----AGCUUAGG--UGG-UAGAGUGCAAGGCUCUUAACCUUGUGGUCCUGG 52
chr-14.trna55-Lys-CTT    GCUUGUCU-----AGCUCAGU--UGG-UAGAGCGCAAGGCUCUUAACUUUGUGGUUGUGG 52
chr-15.trna53-Lys-CTT    GCUAGAAU-----AGUUUAGU--UGGUUAGAGCAUGUGGCUCUUAACCACAAGGUUUGAG 53
chr-1.trna134-Lys-CTT    ACUAGAGU-----AACUCAGU--UGGUUAGAGUGUGUGGCUCUUAACCACAAGGUCAAAG 53
chr-9.trna270-Lys-CTT    GCUGGAGU-----AGCUCAGU--UGGUUAAAGCGUGUGGCUCUUAACCAUAAGGUCGAAG 53
chr-2.trna184-Lys-CTT    GCACCUGU-----AGCUCAGU---GGAUAGAGUGUCUGUUUCUUAAGCAGAAAGUUGUAG 52
chr-12.trna264-Lys-CTT   GCGCUUGU-----AACUCAAU---GGAUAGAGUGUCUGUUUCUUAAGUAGAAAGUCGUAG 52
chr-7.trna90-Lys-CTT     GUGUUUGU-----AGUUUAGU---GGAUAGAGUGUCUGUUUCUUAAGUAGAAAGUCGUAG 52
chr-9.trna137-Lys-CTT    GUUGAUGU-----GGUGUAGUGGUUAUCAC-GUUAGUGUC-CUUACACACUAAAAGUCCA 53
chr-5.trna21-Lys-CTT     UCCGUUGU-----AGUCUAGU--UGGUUAGGAUACUUGGCUCUUA-CCCGAGAGACCCGG 52
chr-9.trna51-Lys-CTT     UCCAUUGUAUAGUAGUCUAGU--UGGUUAGGAUACUUGGUUCUUA-CCUAAGAGACUUGG 57
                         .........10........20........30........40........50.........
```

```
                         (.........)))))))))))).
chr-11.trna32-Lys-CTT    GU--UCAAGCCCCAGG--GAACA 71
chr-11.trna34-Lys-CTT    GC--UCGAGCCCCAGGGUGGGUG 73
chr-11.trna26-Lys-CTT    GU--UCGAGCCGCAGGGUGGGCG 73
chr-3.trna76-Lys-CTT     GU--UCAAGCCCCAGGGUGGGCG 73
chr-10.trna262-Lys-CTT   GU--UAGAGCCCCAGGGUGGGCG 73
chr-3.trna77-Lys-CTT     GU--UCGAGCCCCAGGGUGGGCG 73
chr-3.trna82-Lys-CTT     GU--UCGAGCCCCAGGGUGGGCA 73
chr-3.trna78-Lys-CTT     GU--UCGAGCCCCAGGGUGGGCG 73
chr-12.trna256-Lys-CTT   GU--UCAAGCCCCACGGUGGGCG 73
chr-15.trna33-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-5.trna209-Lys-CTT    GU--UCGAGCCCCAGGGUGGGCG 73
chr-11.trna426-Lys-CTT   GU--UCGAGCCCCAGGGUGGGCG 73
chr-1.trna157-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-16.trna76-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-1.trna260-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-3.trna17-Lys-CTT     GU--UCGAGCCCCACGGUGGGCG 73
chr-3.trna120-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-4.trna1-Lys-CTT      GU--UCGAGCCCCACGGUGGGCG 73
chr-4.trna2-Lys-CTT      GU--UCGAGCCCCACGGUGGGCG 73
chr-4.trna3-Lys-CTT      GU--UCGAGCCCCACGGUGGGCG 73
chr-4.trna4-Lys-CTT      GU--UCGAGCCCCACGGUGGGCG 73
chr-12.trna192-Lys-CTT   GU--UCGAGCCCCACGGUGGGCG 73
chr-4.trna105-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-5.trna251-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-5.trna252-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-5.trna253-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-11.trna54-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-11.trna53-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-7.trna4-Lys-CTT      GU--UCGAGCCCCACGGUGGGCG 73
chr-7.trna210-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-8.trna150-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-9.trna48-Lys-CTT     GU--UCGAGCCCCACGGUGGGCG 73
chr-3.trna14-Lys-CTT     GU--UCGAGCCCCACGGUGGGCG 73
chr-3.trna24-Lys-CTT     GU--UCGAGCCCCACGGUGGGCG 73
chr-3.trna117-Lys-CTT    GU--UCGAGCCCCACGGUGGGCG 73
chr-12.trna180-Lys-CTT   GU--UCGAGCCCCACGGUGGGCG 73
chr-7.trna3-Lys-CTT      GU--UCGAGCCCCACGGUGGGCG 73
chr-7.trna149-Lys-CTT    GU--UCGAGCCCCAGGGUGGGCG 73
chr-10.trna263-Lys-CTT   GU--UCGAGCCCCAGGGUGGGCG 73
chr-12.trna255-Lys-CTT   GU--UCGAGCCCCACGGUGGGCG 73
chr-11.trna47-Lys-CTT    GU--UCGAGCCCUAGGGUGGGCG 73
chr-11.trna46-Lys-CTT    GU--UCGAGCCCCAGGGUGGGCA 73
chr-11.trna38-Lys-CTT    GC--UCGAGCCCCAGGGUGGGUG 73
chr-11.trna427-Lys-CTT   GU--UCGAGCCCCAGGGUGGGCG 73
chr-11.trna30-Lys-CTT    GU--UCGAGCCCUAGGGUGGGCG 73
chr-11.trna23-Lys-CTT    GU--UCGAGCCCCAGGGUGGGCG 73
chr-11.trna40-Lys-CTT    GU--UCGAGCCCCAGGGUGGGCG 73
chr-3.trna93-Lys-CTT     GU--UCGAGCCCCAAGGUGGGCG 73
chr-16.trna77-Lys-CTT    GU--UUGAAACCUACGGUGGGCG 73
chr-5.trna254-Lys-CTT    GU--UUGAAACCUACGGUGGGCG 73
chr-11.trna21-Lys-CTT    GU--UUGAGCCCCAGGAUAGGCG 73
chr-3.trna73-Lys-CTT     GU--UCGAGCCCCAGAGUGGGCG 73
chr-3.trna87-Lys-CTT     GA--UCGAGCCCCAGAGUGGGUG 73
chr-3.trna89-Lys-CTT     GA--UCGAGCCCCAGAGUGGGUG 73
chr-3.trna91-Lys-CTT     GA--UCGAGCCCCAGAGUGGGUG 73
chr-3.trna83-Lys-CTT     GU--UCGAGCCCCAGAGUGGGUG 73
chr-3.trna85-Lys-CTT     GU--UCGAGCCCCAGAGUGGGUG 73
chr-3.trna94-Lys-CTT     GU--UCGAGCCCCAGGGUGGGCG 73
chr-3.trna71-Lys-CTT     GU--UCAAGCCCCAGGGUGGGCG 73
chr-11.trna418-Lys-CTT   GU--UCGAGCCCCAAGGUGAGUG 73
chr-8.trna25-Lys-CTT     GUUCUCAAGCCCCACGGUGGGCG 75
chr-15.trna6-Lys-CTT     GU--UUAAGCUCCACGAUGGGCA 73
chr-7.trna14-Lys-CTT     GU--UUAAGCCCCACGGUGGGCG 73
chr-8.trna158-Lys-CTT    GU--UCGAGUCCA-UGGUGGGCA 72
chr-11.trna42-Lys-CTT    GU--UUGAGCCCCAAGGUUGGCG 73
chr-14.trna55-Lys-CTT    GU--UUGAGCCCUAUGGUGGGCG 73
chr-15.trna53-Lys-CTT    GU--UCAAGCCCUCUUUCUAGUG 74
chr-1.trna134-Lys-CTT    GU--UCAAGCCCUUUCUUUAGCA 74
chr-9.trna270-Lys-CTT    GU--UCAAGCCCUUCCUCUAGCG 74
chr-2.trna184-Lys-CTT    GU--UCGACCUCUACAUGGUGUA 73
chr-12.trna264-Lys-CTT   GU--UCAACCCUUACCUGGCGCG 73
chr-7.trna90-Lys-CTT     GU--UUGACCCCUACCUGACGUG 73
chr-9.trna137-Lys-CTT    AGU-UCAAUCCUGGGCAUCAACA 75
chr-5.trna21-Lys-CTT     GU--UCGAUUACCGGCAAUGGAA 73
chr-9.trna51-Lys-CTT     GU--UUGAUUCCCGGCAAUAGAA 78
                         .........70........80..
```