```
                          (((((((..(((..........)))((((((.....))))))..)))).(((((.........
chr-9.trna68-Ser-GCT      GCGGAUAUAAUCAAAUGGUCAAAAU-UUCUCUUUGCUAAGGAGAA--------------- 44
chr-2.trna18-Ser-TGA      GUCGAUAUGUCCGAGUGGUCAACAA-AACAGACUUGAAAUCUGUU--------------- 44
chr-3.trna28-Ser-TGA      GGAGAGAUGGCUGGGUGGUUGAUAACUUAAAUCUUGAAUGUUUAGA------------- 46
chr-8.trna130-Ser-ACT     GCGUCCAUAGUCUACUGGAUAGGAC-GUAGGUCUACUAAAUCUUU--------------- 44
chr-1.trna75-Ser-GGA      GGAGAGGUGGUCGAGUGGUUCAAGGCGUAGCAUUGGAACUGCUAUGUAGGC-----UUU- 54
chr-4.trna23-Ser-GGA      GGAGAGGUGGCCGAGUGGUUCAAGGCGUAGCAUUGGAACUGCUAUGUAGGC-----UUU- 54
chr-7.trna49-Ser-GGA      GGAGAGAUGGCCGAGUGGUUCAAGGCGUAGCAUUGGAACUGCUAUGUAGGC-----UUU- 54
chr-5.trna104-Ser-GGA     GAAGAGA-GACCGAGUGGUUUAAGGCGUAGCAUUGGAACUGCUAUGUAGGC-----UUU- 53
chr-5.trna47-Ser-GCT      GGAGAGAUGGCUGAGUGGACGAAAGCGUCGGAUUGCUAAUCCGUUGUACGA-----GUCA 55
chr-4.trna2-Ser-GCT       AGAGAGAUGGCUGAGUGGACGAAAGCGUCGGAUUGCUAAUCCGUUGUACGA-----GUCA 55
chr-2.trna8-Ser-TGA       GGAUGGAUUUCUGAGCGGUUGAAAGAGUCGGUCUUGAAAACCGAAGUAUU------GAUA 54
chr-2.trna53-Ser-TGA      GUUGCUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUUU-UGAGCU-----UC-- 51
chr-2.trna17-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UU-- 51
chr-2.trna19-Ser-TGA      GUCGACAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UU-- 51
chr-4.trna47-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UU-- 51
chr-4.trna46-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UU-- 51
chr-4.trna45-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UU-- 51
chr-4.trna44-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UU-- 51
chr-4.trna48-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UU-- 51
chr-2.trna15-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-2.trna16-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-6.trna49-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-2.trna20-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-7.trna54-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-2.trna54-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-6.trna47-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-4.trna43-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-4.trna49-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-9.trna87-Ser-TGA      GUCGGUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-3.trna74-Ser-TGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGCU-----UC-- 51
chr-5.trna35-Ser-CGA      GUCGAUAUGUCCGAGUGGUU-AAGGAGACAGACUCGAAAUCUGU-UGGGCU-----UU-- 51
chr-2.trna36-Ser-CGA      GUCAGUAUGUCCGAGUGGUU-AAGGAGACAGACUCGAAAUCUGU-UGGGCU-----UU-- 51
chr-7.trna81-Ser-CGA      GUCAAUAUGUCCGAGUGGUU-AAGGAGACAGACUCGAAAUCUGU-UGGGCU-----UU-- 51
chr-2.trna1-Ser-GCT       GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-2.trna51-Ser-GCT      GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-3.trna54-Ser-GCT      GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-5.trna122-Ser-GCT     GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-5.trna123-Ser-GCT     GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-6.trna9-Ser-GCT       GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-6.trna35-Ser-GCT      GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-9.trna31-Ser-GCT      GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-6.trna67-Ser-GCT      GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-6.trna66-Ser-GCT      GUCGCUUUGGCCGAGUGGUU-AAGGCGUGUGCCUGCUAAGUACA-UGGGGU-----UU-- 51
chr-3.trna46-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-4.trna3-Ser-AGA       GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-1.trna7-Ser-AGA       GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-6.trna85-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna43-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna42-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-8.trna73-Ser-AGA      GUGAGCGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna26-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna25-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna12-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna23-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna22-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna21-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna20-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna19-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna18-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna17-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna16-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna15-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna14-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna13-Ser-AGA      GUGGACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----UU-- 51
chr-9.trna24-Ser-AGA      GUGAACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGCU-----CU-- 51
chr-8.trna79-Ser-TGA      GGAGAGAUGGCUGAGUGGCUGAUAGCUCCGGUCUUGAAAACCAGCAUAGUUCUUUCUUCA 60
                          .........10........20........30........40........50.........
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                          ..)))))..(((((.......)))))))))))).
chr-9.trna68-Ser-GCT      -----GACGCGGGGUUCGAUUCCCGCUAUCCGCU 72
chr-2.trna18-Ser-TGA      --------GCAGGUUCAAAUCCUGCUGCUGACA 69
chr-3.trna28-Ser-TGA      --ACUGUCGAGGGUUCAAAUCCCUCUCUCUCCU 77
chr-8.trna130-Ser-ACT     -----GGUAUAGGUUCAAAUCCUAUUCGACGCA 72
chr-1.trna75-Ser-GGA      UGUUUACCGAGGGUUCGAAUCCCUCUUUUUCCG 87
chr-4.trna23-Ser-GGA      UGUUUACCGAGGGUUCGAAUCCCUCUCUUUCCG 87
chr-7.trna49-Ser-GGA      UGUUUACCGAGGGUUCGAAUCCCUCUCUUUUCG 87
chr-5.trna104-Ser-GGA     UGUUUACCGAGGGUUCGAAUCCCUCUCUUUCCG 86
chr-5.trna47-Ser-GCT      UUCGUACCGAGGGUUCGAAUCCCUCUCUUUCCG 88
chr-4.trna2-Ser-GCT       UUCGUACCGAGGAUUCGAAUCCCUCUCUUUCCG 88
chr-2.trna8-Ser-TGA       GGAAUACCAGAGGUUCGAAUCCCUCUCCAUCCG 87
chr-2.trna53-Ser-TGA      --ACGUGCGCAGGUUUGAACCCUGCUGCCGACA 82
chr-2.trna17-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-2.trna19-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-4.trna47-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-4.trna46-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-4.trna45-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-4.trna44-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-4.trna48-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-2.trna15-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-2.trna16-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-6.trna49-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-2.trna20-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-7.trna54-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-2.trna54-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-6.trna47-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-4.trna43-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-4.trna49-Ser-TGA      --GCCCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-9.trna87-Ser-TGA      --GCCCGCGCAGGUUCAAAUCCUGCUGCCGACG 82
chr-3.trna74-Ser-TGA      --GCGCGCGCAGGUUCGAACCCUGCUGUCGACG 82
chr-5.trna35-Ser-CGA      --GCCUGCGCAGGUUCGAAUCCUGCUGUCGACG 82
chr-2.trna36-Ser-CGA      --GCCUGCGCAGGUUCGAAUCCUGCUGCUGACG 82
chr-7.trna81-Ser-CGA      --GCCUGCGCAGGUUCGAAUCCUGCUGUUGACG 82
chr-2.trna1-Ser-GCT       --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-2.trna51-Ser-GCT      --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-3.trna54-Ser-GCT      --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-5.trna122-Ser-GCT     --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-5.trna123-Ser-GCT     --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-6.trna9-Ser-GCT       --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-6.trna35-Ser-GCT      --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-9.trna31-Ser-GCT      --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-6.trna67-Ser-GCT      --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-6.trna66-Ser-GCT      --CCCCGCGAGAGUUCGAAUCUCUCAGGCGACG 82
chr-3.trna46-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-4.trna3-Ser-AGA       --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-1.trna7-Ser-AGA       --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-6.trna85-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna43-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna42-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-8.trna73-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGCUCACG 82
chr-9.trna26-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna25-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna12-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna23-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna22-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna21-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna20-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna19-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna18-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna17-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna16-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna15-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna14-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna13-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUCCACG 82
chr-9.trna24-Ser-AGA      --GCCCGCGCAGGUUCGAAUCCUGCCGUUCACG 82
chr-8.trna79-Ser-TGA      GAACUAUCGAGGGUUCGGAUCCCUCUCUCUCCU 93
                          .........70........80........90..
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