```
                                 ((((.(((..(((...........))).(((((.......)))))..((((((........
chr-9.trna38-Ser-GCT     GGAG-AGAUGCCUGAGUGGACUAAAGGGUCAUAAUUGCUAUUUUCAUA------------ 46
chr-5.trna26-Ser-CGA     UGGG-GCGUGCCAAGUGGU--AAGGCAACAAGUUUUGGUCCCACUAU------------ 45
chr-9.trna34-Ser-TGA     GGGC-ACUUGGUCUAGUUGAUUUC--UCGCUUUGAGAGCAAGAGG------------ 45
chr-6.trna69-Ser-GGA     GGUG-AGAUGGCCGAGUGGUUGAAGGCAUAGCAUUGGAACUGCUAUGUAGGCU--UUU-- 55
chr-2.trna75-Ser-GGA     GGAG-AGACGCCCGAGUGGUUGAAUGCGUAGCAUUGGAACUGCUAUGUAGGCU--UUU-- 55
chr-2.trna87-Ser-GGA     GGAG-AGAUGCCCGAGUGGUUGAAGGCAUAGCGUUGGAAUUGCUAUGUAGGCU--UUU-- 55
chr-6.trna104-Ser-GGA    UGAG-AGAUGCCCGAGUGGUUGAAGGCGUAGCAUUGGAACUGCUAUGUAGGCU--UUU-- 55
chr-5.trna42-Ser-GGA     GGAG-AGAUGGCCAAGUAGUUGAAGGCGUAGCAUUGGAACUGUUAUGUAGGCU--UUU-- 55
chr-12.trna54-Ser-GGA    GGAG-AGAUGGCCAAGUAGUUGAAGGCGUAGCAUUGGAACUGUUAUGUAGGCU--UUU-- 55
chr-8.trna30-Ser-GGA     AGAG-AGAUGGCUGAGUGGUUAAAGGCGUAGCAUUGGAACUGCUAUGUAGGCU--UUU-- 55
chr-5.trna1-Ser-GGA      GGAG-AGAUCGCUGAGUGGUUGAAGGCGUAGCAUUGGAGCUGCUAUAUAGGUU--UUU-- 55
chr-12.trna8-Ser-GGA     GGAG-AGAUGGCCGAGUGGUUGAAGGCAUAGCAUUGGAACUGAUAUGUAGGCU--UUU-- 55
chr-12.trna6-Ser-GGA     GGAG-AGAUGGCCGAGUGGUUGAAGGCAUAGCAUUGGAACUGAUAUGUAGGCU--UUU-- 55
chr-1.trna56-Ser-GCT     GGAG-GUAUGGCUGAGUGGCUUAAGGCAUUGGUUUGCUAAAUCGACAUACAAGAAAGA-- 57
chr-12.trna1-Ser-GCT     GGAG-GUAUGGCUGAGUGGCUUAAGGCAUUGGUUUGCUAAAUCGACAUACAAGAAAGA-- 57
chr-4.trna55-Ser-TGA     GGAU-GGAUGUCUGAGCGGUUGAAAGAGUCGGUCUUGAAAACCGAAGUAUUGA--UAG-- 55
chr-8.trna83-Ser-TGA     GGAU-GGAUGUUUGAGCGGUUGAAAGAGUCGGUCUUGAAAACCGAAGUAUUGA--UAG-- 55
chr-8.trna41-Ser-TGA     GGAU-GGAUGUCUGAGCGGUUGAAAAAGUCGGUCUUGAAAACUGAAGUAUUGA--UAG-- 55
chr-6.trna79-Ser-TGA     GGAU-GGAUGUCUGAGCGGUUGAAAGAGUCGGUCUUGAAAACUGAAGUAUUGA--UAG-- 55
chr-8.trna47-Ser-TGA     GGAU-GGAUGUCUGAGCAGUUGAAAGGGUCGAUCUUGAAAACCGAAGUAUUGA--UAG-- 55
chr-2.trna83-Ser-GCT     AGAG-AGAUGGCUGAGUGGACGAAAGGUCGGAUUGCUAAUCCGUUGUACGAG-UUUU-- 56
chr-3.trna26-Ser-GCT     GGAG-AGAUGGCUGAGUGGACGAAAGGUCGGAUUGCUAAUCCAUUGUACGAG-UUUU-- 56
chr-5.trna4-Ser-GCT      GGAG-AGAUGGCUGAGUGGACGAAAGGUCGGAUUGCUAAUCCAUUGUACGAG-UUUU-- 56
chr-1.trna86-Ser-GCT     GGAG-AGAUGGCUGAGUGGACGAGAGGGUUGGAUUGCUAAUCCAUUGUAUGAG-UUUU-- 56
chr-5.trna25-Ser-GCT     GGAA-AGAUGGCUGAGUGGACGAAAGGUCGGAUUGCUAAUCCGUUGUAUGAG-UUUU-- 56
chr-1.trna96-Ser-GCT     GGAG-AGAUGGCAGAGUGGACGAAAGGAUCGGAUUGCUAAUCCGUUGUACGAG-UUUU-- 56
chr-2.trna27-Ser-GCT     GGAG-AGAUGGCUGAGUGGACGAAAGGUCAGAUUGCUAAUCCAAUGUACAAG-UUUU-- 56
chr-8.trna97-Ser-GCT     GGAAGAGAUGGCUGAGUGGACAAAAGGUCGGAUUGCUAAUCCGUUGUACGAG-UAUU-- 57
chr-2.trna82-Ser-GCT     GGAG-AGAUGGCUGAGCGGACGAAAGGUCGGAUUGCUAAUCCGUUGUACGAG-UUUU-- 56
chr-11.trna5-Ser-GCT     GGAG-AGAUGGCUGAGUGGACGAAAGGUCAGAUUGCUAAUCUGUUGUACAAG-UUUU-- 56
chr-1.trna52-Ser-AGA     GUGG-ACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGC-----UC-- 50
chr-1.trna71-Ser-AGA     GUGG-ACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGC-----UC-- 50
chr-1.trna72-Ser-AGA     GUGG-ACGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGC-----UC-- 50
chr-10.trna27-Ser-AGA    GUGG-GCGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGC-----UC-- 50
chr-11.trna13-Ser-AGA    GUGG-GCGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGC-----UC-- 50
chr-11.trna15-Ser-AGA    GUGG-GCGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGC-----UC-- 50
chr-2.trna100-Ser-AGA    GUGA-GCGUGCCGGAGUGGUU-AUCGGGCAUGACUAGAAAUCAUG-UGGGC-----UC-- 50
chr-5.trna55-Ser-GCT     GUCG-CUUUGGCCGAGUGGUU-AAGGGUGUGCCUGCUAAGUACA-UGGGG-----UU-- 50
chr-5.trna56-Ser-GCT     GUCG-CUUUGGCCGAGUGGUU-AAGGGUGUGCCUGCUAAGUACA-UGGGG-----UU-- 50
chr-8.trna85-Ser-GCT     GUCG-CUUUGGCCGAGUGGUU-AAGGGUGUGCCUGCUAAGUACA-UGGGG-----UU-- 50
chr-1.trna2-Ser-GCT      GUCG-CUUUGGCCGAGUGGUU-AAGGGUGUGCCUGCUAAGUACA-UGGGG-----UU-- 50
chr-6.trna5-Ser-GCT      GUCG-CUUUGGCCGAGUGGUU-AAGGGCUUGCCUGCUAAGUAAG-UGGGG-----UU-- 50
chr-2.trna45-Ser-TGA     GUCG-AUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGC-----UU-- 50
chr-9.trna9-Ser-TGA      GUCG-AUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGC-----UU-- 50
chr-9.trna59-Ser-TGA     GUCG-AUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGC-----UU-- 50
chr-4.trna25-Ser-TGA     GUCG-AUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGC-----UA-- 50
chr-5.trna52-Ser-TGA     GUCG-AUAUGUCCGAGUGGUU-AAGGAGACAGACUUGAAAUCUGU-UGGGC-----UA-- 50
chr-1.trna43-Ser-CGA     GUCG-AUAUGUCCGAGUGGUU-AAGGAGACAGACUCGAAAUCUGU-UGGGC-----UA-- 50
chr-11.trna91-Ser-CGA    GUCG-AUAUGUCCGAGUGGUU-AAGGAGACAGACUCGAAAUCUGU-UGGGC-----UA-- 50
chr-5.trna13-Ser-CGA     GACG-AUAUGUCCGAGUGGUU-AAGGAGACAGACUCGAAAUCUGU-UGGGC-----UU-- 50
chr-11.trna105-Ser-TGA   GUCG-AUAUGUCCGAGUUGUU-AAGGAGAUAGACUUGAAAUCUGU-UGGGU-----UU-- 50
chr-1.trna91-Ser-TGA     GGAG-AGAUGGCUGAGAAGUUGAUAGGUUCGGUCUUGAAAACCGAUAUAGUUCAAAACAA 59
chr-10.trna38-Ser-TGA    AGAG-AGAUGGCCGAGU-GUUCAUAGGUUCGGUCUUGAGAACCGGUAUAGUUCGAAACAA 58
chr-10.trna42-Ser-TGA    AGAG-AGAUGGUCGAGU-GUUCAUAGGUUCGGUCUUGAGAACCGGUAUAGUUCGAAACAA 58
chr-11.trna84-Ser-TGA    AGAG-AGAUGGCCGAGUGGUUCAUAGGUUCGGUCUUGAGAACCGGUAUAGUUCGAAACAA 59
chr-12.trna50-Ser-TGA    AGAG-AGAUGGCCGAGUGGUUCAUAGGUCCGGUCUUGAGAACCGGUAUAGUUCGAAACAA 59
chr-12.trna12-Ser-TGA    GGAG-AGAUGGCCGAGUGGUUGAUAGGUCAGGUCUUGAAAGCCAGUAUAGUUUGAAACAA 59
chr-1.trna26-Ser-CGA     GGAG-AGAUGGCCAAGUGGUUGAUAGGUCUGGUCUCGAAAACUAGUAUAGUUCGAAACAA 59
chr-2.trna23-Ser-TGA     AGAG-AGAUGGCCGAGUGGUUGAUAGGUCCGGUCUUGAAAAUAGGUAUAGUUCGAAACAA 59
chr-6.trna45-Ser-TGA     GGAG-AGAUGGCCGAGUGGUUGAUAGGUCUGGUCUUGAAAACUGGUAUAGUUCGAAAUAA 59
chr-12.trna21-Ser-TGA    GAAG-AGAUGGCCGAGUGGUUCAUAGGUUCGGUCUUGAAAACCGAUAUAGUUCGAAACAA 59
chr-9.trna72-Ser-TGA     AAAG-AGAUGGCCAAGUGGUUCAUAGGUCUGGUCUUGAAAACCGGUAUAGUUCGAAAUGA 59
chr-8.trna21-Ser-TGA     AGAG-AGAUGGCCUGAGUGGUUCAUAGGUCCGGUUUUGAAAACUGGUAUAGUUCGAAACAA 59
chr-11.trna55-Ser-TGA    AAAG-AGAUGGCCGAGUGGUUGAUAGGUCCAGUCUUGAAAACUUGUAUAGCUUGAAACAA 59
chr-10.trna56-Ser-TGA    GGAG-AGAUGGCCGAGUGGUUGAUAGGUUUGAUCUUGAAAAACAAAGAA---------- 48
                                 .........10........20........30........40........50.........
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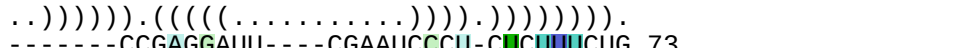

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                                 ..)))))).(((((.........)))).)))))))).
chr-9.trna38-Ser-GCT     -------CCGAGGAUU----CGAAUCCCU-CUCUUUCUG 73
chr-5.trna26-Ser-CGA     -------UCAGAGGUU----CGAAUCCUU-UCAUCUUAG 72
chr-9.trna34-Ser-TGA     -------UCCCGAUUU----UGAUUCUCA-GAUUGCCCC 72
chr-6.trna69-Ser-GGA     --GUUGACCGAGGGUU----UGAAUCCCU-UUCUUUUCG 87
chr-2.trna75-Ser-GGA     --GUUUACUGAGGGUU----CGAAUCCCU-UUCUUUCCG 87
chr-2.trna87-Ser-GGA     --GUUUGCCGAGGGUU----CGAAUCCCU-CUCUUUCCG 87
chr-6.trna104-Ser-GGA    --GUUUAUCGAGGGUU----CGACUCCCU-CUCUUUCCU 87
chr-5.trna42-Ser-GGA     --GUUUACCGGGGGUU----CGAAUCCCU-CUCUUUCUG 87
chr-12.trna54-Ser-GGA    --GUUUACCGAGGGUU----CGAAUCCCU-CUCUUUCUG 87
chr-8.trna30-Ser-GGA     --GUUUACCAAGGGUU----CGAAUCCCU-CUCUUUCUG 87
chr-5.trna1-Ser-GGA      --GUUUACCAAGGGUU----CGAAUCCCU-CUCUUUCCG 87
chr-12.trna8-Ser-GGA     --GUUUACCAAGGGUU----CAAAUACCU-CUCUUUCCG 87
chr-12.trna6-Ser-GGA     --GUUUACCAAGGGUU----CAAAUACCU-CUCUUUCCG 87
chr-1.trna56-Ser-GCT     --UUGUAUCAUGGGUU----CGAAUCCCA-UUUCCUCCG 89
chr-12.trna1-Ser-GCT     --UUGUAUCAUGGGUU----CGAAUCCCA-UUUCCUCCG 89
chr-4.trna55-Ser-TGA     --GAAUACCGGGGGUU----CGAAUCCCU-CUCCAUCCG 87
chr-8.trna83-Ser-TGA     --GAAUACCAAGGAUU----CGAAUCCCU-CUCCAUCCA 87
chr-8.trna41-Ser-TGA     --GAAUACAAGGGGUU----CAAAUCCCU-CUCCAUCCA 87
chr-6.trna79-Ser-TGA     --GAAUACAAGGUGUU----CAAAUCCCU-CUCCAUCCA 87
chr-8.trna47-Ser-TGA     --GAGUACCGGGGGUU----UGAAUCCCU-CUCCAUCCA 87
chr-2.trna83-Ser-GCT     --CCGUACCGAGGGUU----CGAAUCUCU-CUCUUUCCA 88
chr-3.trna26-Ser-GCT     --UCGUACCGAGGGUU----UGAAUCCAU-CUCUUUUCG 88
chr-5.trna4-Ser-GCT      --UCGUACCGAGGGUU----UGAAUCCAU-CUCUUUUCG 88
chr-1.trna86-Ser-GCT     --UCGUAUUGAGGGUU----CGAAUCCCU-CUUUUUCCG 88
chr-5.trna25-Ser-GCT     --UCGUACUGAGGGUC----CGAGUCCCU-CUCUUUUCA 88
chr-1.trna96-Ser-GCT     --UCAUACCGAGGGUU----CGAAUCCCU-CUCUUUCCG 88
chr-2.trna27-Ser-GCT     --UCAUAUCGAGGGUU----CGAAUCCCU-CUCUUUUCG 88
chr-8.trna97-Ser-GCT     --UCGUACUGAGGGUC----CAAAUCCCU-CUCUUUCCA 89
chr-2.trna82-Ser-GCT     --UCGUAACGCGGGUU----CCA--CCCA-CUUUCUUUA 86
chr-11.trna5-Ser-GCT     --UUGCACCGACGGUUCUUGCAAAUCUUUGGUCUUUCCA 93
chr-1.trna52-Ser-AGA     --UGCCCGCGCAGGUU----CGAAUCCUG-CCGUUCACG 82
chr-1.trna71-Ser-AGA     --UGCCCGCGCAGGUU----CGAAUCCUG-CCGUCCACG 82
chr-1.trna72-Ser-AGA     --UGCCCGCGCAGGUU----CGAAUCCUG-CCGUUCACG 82
chr-10.trna27-Ser-AGA    --UGCCCGCGCAGGUU----CGAAUCCUG-CCGCUCACG 82
chr-11.trna13-Ser-AGA    --UGCCCGCGCAGGUU----CGAAUCCUG-CCGCUCACG 82
chr-11.trna15-Ser-AGA    --UGCCCGCGCAGGUU----CGAAUCCUG-CCGCUCACG 82
chr-2.trna100-Ser-AGA    --UGCUCGCGCACGUU----CGAUUCCUG-CCGCCCACG 82
chr-5.trna55-Ser-GCT     --UCCCCGCGAGAGUU----CGAAUCUCU-CAGGCGACG 82
chr-5.trna56-Ser-GCT     --UCCCCGCGAGAGUU----CGAAUCUCU-CAGGCGACG 82
chr-8.trna85-Ser-GCT     --UCCCCGCGAGAGUU----CGAAUCUCU-CAGGCGACG 82
chr-1.trna2-Ser-GCT      --UCCCCGCGAGAGUU----CGAAUCUCU-CAGGCGACG 82
chr-6.trna5-Ser-GCT      --UCCCCGCGUGAGUU----CGAAUCUCA-CAGGCGACG 82
chr-2.trna45-Ser-TGA     --CGCCCGCGCAGGUU----CGAACCCUG-CUGUCGACG 82
chr-9.trna9-Ser-TGA      --CGCCCGCGCAGGUU----CGAACCCUG-CUGUCGACG 82
chr-9.trna59-Ser-TGA     --CGCCCGCGCAGGUU----CGAUCCCUG-CUGUCGACG 82
chr-4.trna25-Ser-TGA     --CGCCCGCGCAGGUU----CGAACCCUG-CUGUCGAUG 82
chr-5.trna52-Ser-TGA     --CGCCCGCGCAGGUU----CGAACCCUG-CUGUCGACG 82
chr-1.trna43-Ser-CGA     --UGCCUGCGCAGGUU----CGAAUCCUG-CUGUCGACG 82
chr-11.trna91-Ser-CGA    --UGCCUGCGCAGGUU----CGAAUCCUG-CUGUCGACG 82
chr-5.trna13-Ser-CGA     --UGCCUGCGCAGGUU----CGAAUCCUG-CUGUCGACG 82
chr-11.trna105-Ser-TGA   --UGCCCGCGCAGGUU----GGAACCCUG-CUGGCGACG 82
chr-1.trna91-Ser-TGA     AGAACUAUCAAGGGUU----UGAAUCCCU-CUCUCUCCU 93
chr-10.trna38-Ser-TGA    AGAACUAUCGAGGGCU----CGAAUCCCU-CUCUCUCCU 92
chr-10.trna42-Ser-TGA    AGAACUAUCGAGGGCU----CGAAUCCCU-CUCUCUCCU 92
chr-11.trna84-Ser-TGA    AGAACUAUCGAGGGCU----CGAAUCCCU-CUCUCUCCU 93
chr-12.trna50-Ser-TGA    AGAACUAUCGAGGGCU----CGAAUCCCU-CUCUCUCCU 93
chr-12.trna12-Ser-TGA    AGAACUAUCGAGGGUU----CAAAUCCCU-CUCUCUCCU 93
chr-1.trna26-Ser-CGA     AGAACUAUCGAGGGUU----CGAAUCCUU-CUCUCUCCU 93
chr-2.trna23-Ser-TGA     AGAACUAUCGAGGGUU----CGAAUCCCU-CUCUCUCCU 93
chr-6.trna45-Ser-TGA     AGAACUAUCGAGGGUU----UGAAUCCCU-UUCUCUCCU 93
chr-12.trna21-Ser-TGA    AGAACUAUCGAGGGCU----CGAAUCCCU-CUCUCUCCU 93
chr-9.trna72-Ser-TGA     AGAACUAUCGAGGGUU----CGAAUCCCU-CUCUCUCCU 93
chr-8.trna21-Ser-TGA     AGAACUAUCGAGGGUU----CGAAUCCCU-CUCUCUCCU 93
chr-11.trna55-Ser-TGA    AAAACUAUCGAGGGUU----CGAAUCCCU-CUCUCUCCU 93
chr-10.trna56-Ser-TGA    ----CUAUCAAGGGUU----CGAAUCCCU-CUCUCUCCU 78
                                 .........70........80........90.........
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