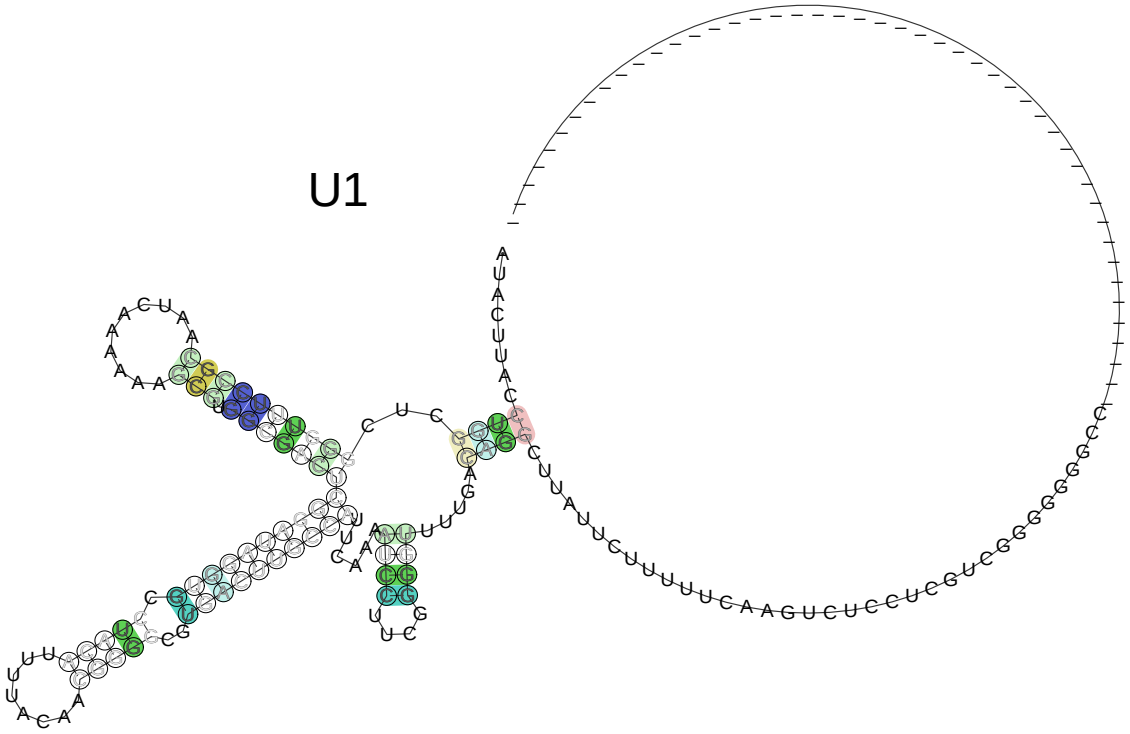
FIG. S2

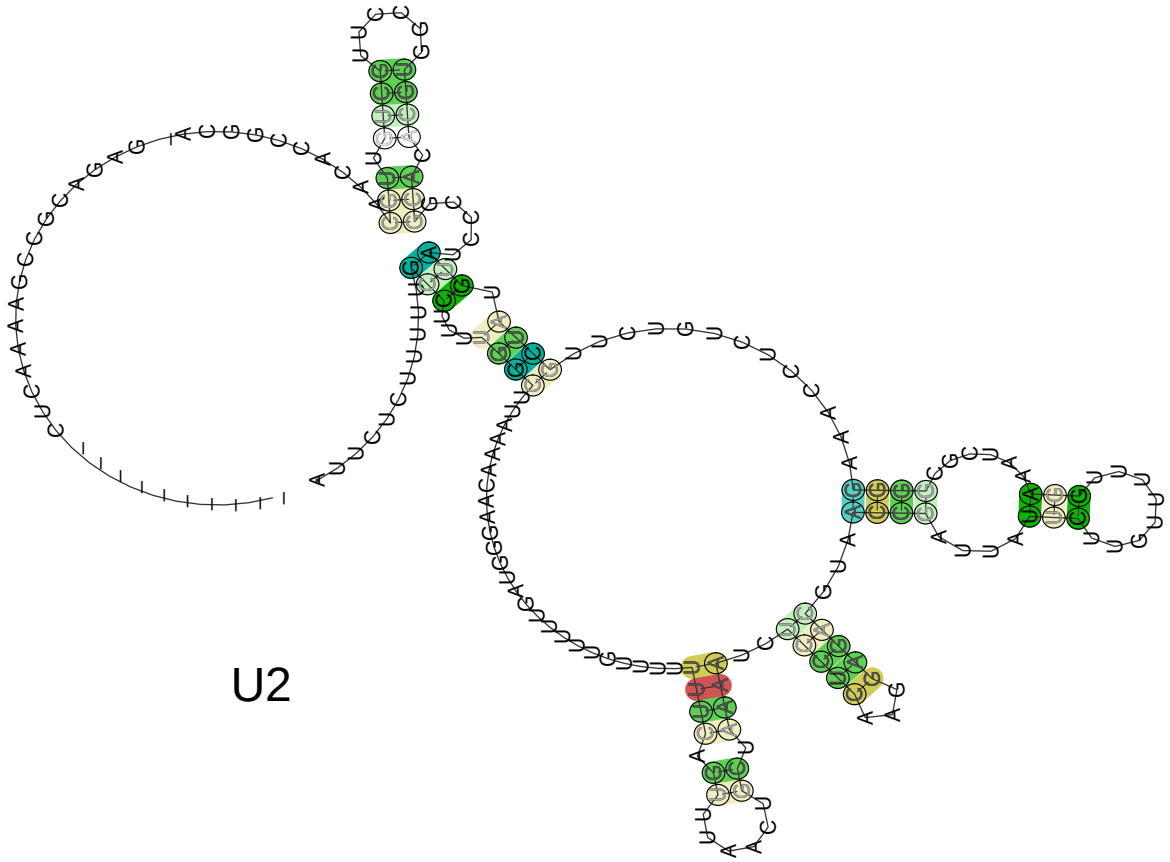



```
T.rubrum          AUACUUACCUUGUUUGGGCUGGCGCGAU-CAAAAAGGC--GCUUCGCCGUGGAAAGGCUC 57
T.equinum         AUACUUACCUUGUUUGGGCUGGCGCGAU-CAAAAAGGC--GCUUCGCCGUGGAAAGGCUC 57
A.fumigatus       AUACUUACCUUGUUUGGGUGGCUGCGAU-CAAGAAGGC--GGUCCACCACGGAUUGGUCC 57
A.niger           AUACUUACCUUGUUUGGGUGACUGCGAU-CAAGAAGGC--GGUUCACCACGGAUUGGUCC 57
R.oryzae          AUACUUACCUGGGUCGUGUAUUCGGAAU-CAAGAAUCCCGAAUAUACAGUGAAAGUGGUU 59
S.pombe           UUACUUACCUGGCAUGAGUUUCUGCAGCACAAGAAUUGUGGAGACUCAGUU-AUUUGUCU 59
S.octosporus      UUACUUACCUGGCACGGGUUUUCGCAGCUCAAGAAUUGUGGGAAUUCAGCU-GUUUGUCU 59
                    ********* *   * *     *     *** **           *        *

T.rubrum          CUACAUUGCAC---AGCG-UGGAGAGCCUUGCCACUCAACAUCCUUCGGGGUUUUGACAG 113
T.equinum         CUACAUUGCAC---AGCG-UGGAGAGCCUUGCCACUCAACAUCCUUCGGGGUUUUGACAG 113
A.fumigatus       CUGCAUUGCAC---AGCG-CGGCGGAACAAUCCGUUCAACGGCCUUCGGGUCAUUGACAG 113
A.niger           CUGCAUUGCAC---AGCG-CGGCGGAACAAUCCGUUCAACGGCCUACGGGUCAUUGACAG 113
R.oryzae          GU-CAUUGCAC---AGCGACCGCUGUUUUUGCUGCG-AACGCUCUUCGGGGCGUCUCGAG 114
S.pombe           UGGCAUUGCACUG-AGCCCUGACGAA--UAACUGUG-GACUGGCUAAGGUCAGCUCCGGA 115
S.octosporus      UUGCAUUGCACUGUAGCUCUGACGGA--CAGUUGCG-GACUGGCUACGGUCAGAUCCGAG 116
                     ********   ***                          **   **  **

T.rubrum          G-CAUAUUCUUUG---------GCACCUCUC-CUGGACU-CAGGUCCUACCUUUCUUUUCA 162
T.equinum         G-CAUAUUCUUUG---------GCACCUCUC-CUGGACUUCGGGUCCUAC------------ 152
A.fumigatus       G-CGUAUUCUUUG---------GCUCUAU---------------------------------- 132
A.niger           G-CGUAUUCUUUG---------GCACUUCUC-CU----UUUGGAGCUU-------------- 146
R.oryzae          AUCAUAAUUUUUGUUUUGGGGGUAUUGGUGGUUCGCCGCCGAGGCCCCU------------ 163
S.pombe           UGCAUCAUUUUUG----------AGUUCGUCCCUCA--UUUGGGGCA--------------- 150
S.octosporus      UGCAUCAUUUUUG----------AGUUCGUCUCU-G--UUAAGGAGACA------------ 152
                    * *  * ****

T.rubrum          UUGUCUCUGCGCUUUAUGUGCUGUUGCAAAGAAG 196
T.equinum         ----------------------------------
A.fumigatus       ----------------------------------
A.niger           ----------------------------------
R.oryzae          ----------------------------------
S.pombe           ----------------------------------
S.octosporus      ----------------------------------
```

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T.rubrum          ---GCUCUCUUUGCCAUUAUGGCUUAGAUCAAGUGUAGUAUCUGUUCUUUUCAGUUUAAU 57
A.nidulans        CCAGCUCUCUUUGCCUUU-UGGCUUAGAUCAAGUGUAGUAUCUGUUCUUUUCAGUUUAAU 59
S.octosporus      -AUUCUCUCUUUGCCUUU-UGGCUUAGAUCAAGUGUAGUAUCUGUUCUUUUCAGUUUAAU 58
S.japonicus       -AUUCUCUCUUUGCCUUU-UGGCUUAGAUCAAGUGUAGUAUCUGUUCUUUUCAGUUUAAU 58
S.cerevisiae      ----AUCUCUUUGCCUUU-UGGCUUAGAUCAAGUGUAGUAUCUGUUCUUUUCAGUGUAAC 55
                       ********** ** ************************************ ***

T.rubrum          CUCUGAAAGUAUUCUAAGGAAUACGAAAGUGAUUAUUCUUAUUUUUGUACCGCGCGAUUA 117
A.nidulans        CUCUGAAAGUGUUCUAAGGAACACAACAUUGAUUAAUCUUAUUUUUGGAUCUCGUGGCAG 119
S.octosporus      CGCUGAAAUCGCCUCACUGAG-GUGUUUCCGAUUAAUCUUGUUUUUGGUAUUUGCUGGAA 117
S.japonicus       CGCUGAAAUCACCCCAUCGGG-GUGUUUCCGAUUAUUCUUGUUUUUGGGAAUCGCCGAGA 117
S.cerevisiae      AACUGAAAUGACCUCAAUGAG---------GCUCA---UUACCUUU-UAAUUUGUUACAA 102
                     ******       *  *           * * *   **   ***       *

T.rubrum          GACCUCUGUGCUUGCGCAUGUCUUUUCGCACCG-UGUCAUCGGUCUUACACUACCACCGA 176
A.nidulans        GGCCUCUGUGCUUGCGCAUGCCUUGCCACAUAG-UGUCAUUGGGCUUACACUACCCCCAA 178
S.octosporus      AGCCUCUG-GCUUGC-UAUGUUUUCCGGCACCGGUGUCCUUGCUAUUGCACUACCGGCAA 175
S.japonicus       GACCUAUG-GCUUGC-UAUGUCUCUUGGCACCGGUGUCCUUGCCGUUGCACUCCUGGCAU 175
S.cerevisiae      UAC--------------ACAUUUUUUGGCACC--------------CAAAAUAAUAA-AA 133
                    *              *    *     **                   * *

T.rubrum          UCGACGC-GAACCUACCUCUUUUUUC 201
A.nidulans        UCGACGC-GAACC-----CUU----- 193
S.octosporus      GAGACGCCGAAUC-----AUC----- 191
S.japonicus       GCGACGCCGAAAA-----CUC----- 191
S.cerevisiae      UGGACGG-GAA--------------- 143
                    ****  ***
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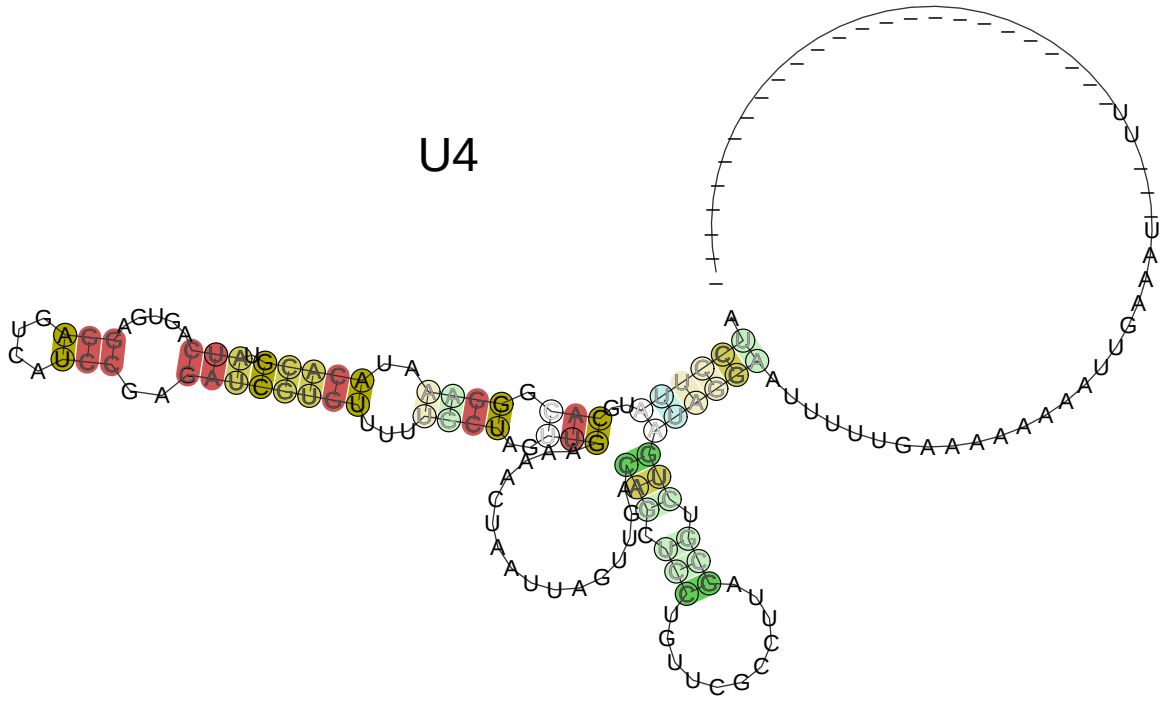


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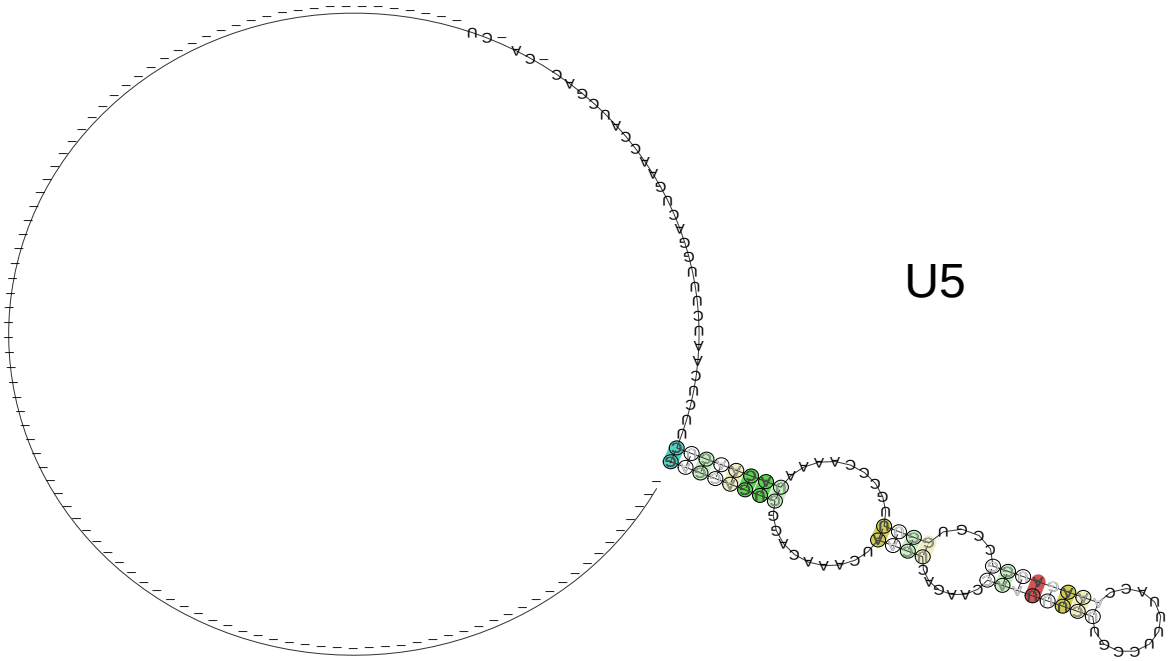
A.fumigatus          AUCCUGGUGCACGGGUUUUACACGUGUCAGUGAGGAGACAUCCGAGACCGUGUUUUUGCU 60
A.oryzae             AUCCUAGUGCACGGGCAAUACACGUAUCAGUGAGGAGACAUCCGAGAUCGUGUUUUUGCU 60
A.nidulans           AUCCUGGUGCAAGGGUUUUACACGUGUCAGUGAGGAGCCAUCCGAGACCGUGUUUUUGCU 60
T.rubrum             ----GAGUGCAAGGGUUUUACGUUU-CCAGUGAAGGUUCGCCUGAGGCAACGUUUUUGCU 55
S.kudriavzevii       AUCCUUAUGCACGGGAAAUACGCAUAUCAGUGAGGAUUCGUCCGAGAUUGUGUUUUUGCU 60
S.castelliiU4        AUCCUUAUGCAAGGGAAAUACGCAUAUCAGUGAGGAUUCGUCCGAGAUUGUGUUUUUGCU 60
Candida              GUCUUUAUGCAGGGGCAUUACGUGUAUCAGUGAGGAUUCGUCCGAGAUCAUGUUUUUGCU 60
                           **** ***   ***   *  ****** *   *  * ***     *********

A.fumigatus          AGUUGAAA----------------ACUACCUAGU--UGACCGCUU--CAG---UUGGUCU 97
A.oryzae             AGUUGAAA----------------ACUAUUUUUU--UGACCGCUC--UAG---UUGGCCU 97
A.nidulans           AGUUGAAA----------------ACUACCUAGU--UGACCGCUC--CAA---UUGGCCU 97
T.rubrum             AGUUGAAA----------------ACUACAAACCAAUGACCGCUC--UAG---UUGGUCU 94
S.kudriavzevii       GGUUGAAAUUUAAUUAUAAACCAGACCGUCUCCUCAUGGUCGCUUAUCGG-UGUUCGCUU 119
S.castelliiU4        GGUUGAAAUUUAAUU--AAACCAGACCUGCUCCUCAUUGUCGCCAGUUAGAUGUUCGCUU 118
Candida              GGUUGAAA---ACUU--AAACCUGAC-AACUUCU--UGAAUGCUA--UAG-UAUUUUACU 109
                      *******                **          *    **          **    *

A.fumigatus          U-CGGA----UCG-------GCUGGGAAUUUUUGAAAAAAAGUUGCCCUGACAUCCUAAG 145
A.oryzae             U-CGGG----UCG-------GCUAGGAAUUUUUGAAAACAAACUGCCCUGGC-UCAUA-- 142
A.nidulans           U-AGGG----UCG-------GUUGGGAAUUUUUGAACA--------CUUAA----AGAAA 133
T.rubrum             U-CGGA----UCG-------GCUGGGAAUUUUUGAAGAA---------------------- 121
S.kudriavzevii       U-UGAAUACUUCAAGACUAUGUAGGGAAUUUUUGGAA----------------------- 155
S.castelliiU4        CAUGAACAUCUCA-GAUAAUGUAGGGAAUUUUUGGAAUACUUUUAUU------------- 164
Candida              UGUGUG---UUUA---------AGAGAAUUUUUGGAACCAUUU----------------- 140
                         *      *            ********* *

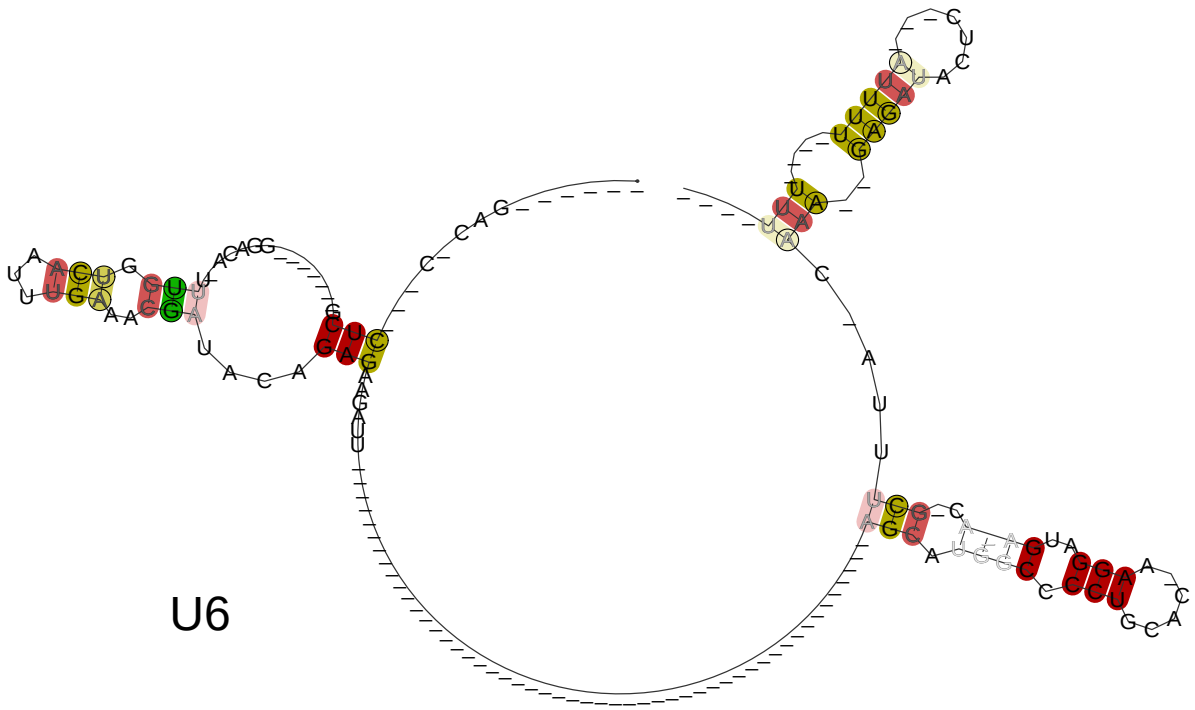
A.fumigatus          UCUUGGUGUCAGUUUU 161
A.oryzae             -UUUG----------- 146
A.nidulans           ---------------
T.rubrum             ---------------
S.kudriavzevii       ---------------
S.castelliiU4        ---------------
Candida              ---------------
```




```
S.pombe             -GUCAAAGCACUUUGCAAAAGCUA--AC-GUAUCUGUUUCUUGCCUUUUACCAGAAACAG 56
S.kudriavzevii      -UUUGUUGC---CUACAGAACUUAUAAC-GAACAUGGUUCUUGCCUUUUACCAGAACCAU 55
A.fumigatus         ----GAGGAG--UGGGACAAGCUAGCUCAGAACCCAUUUCUUGCCUUUUACCAGAGAUGG 54
A.clavatus          ----GAGGAG--UGGGACAAGCUAGCUCAGAACCCAUUUCUUGCCUUUUACCAGAGAUGG 54
A.niger             ----GAGGAG--UGGGACAAACUAGCUCAGAACCCAUUUCUUGCCUUUUACCAGAGAUGG 54
T.rubrum            CUGCGAGGAG--UGGGACAAACUAGCUCAGAAUCCAUUUCUUGCCUUUUACCAGAGAUGG 58
R.oryzae            ------UACUUCUGUCUUGUGCUCAUAUCGGAUAAAUCUUUCGCCUUUUACUAAAGAUUU 54
                                  *      * *      * * ********* * *

S.pombe             CCGUUUGUAAGGUGUGCUAAU-UUGACUGU-----AUAGUUUUUGAAUCUUUU--UCUUG 108
S.kudriavzevii      CCGGGUGU----UGUCUCCAU-UAAA---------ACAGGC------------------A 83
A.fumigatus         CCGUG-GC----UU-GCCCAA-CAUACUCCUCUUCUCAAUCUUUGGACCUUU-------- 99
A.clavatus          CCGUG-GC----UU-GCCCAA-AAUACUCCUCUUCUCAAUCUUUGGACUUAUC--CAUCG 105
A.niger             CCGUG-GU----UU-GCCCAA-AAGACUCCUCUCAUCAAUCUUUGGAAUCACC--CAUCG 105
T.rubrum            CCGUG-GU----UUUGCCCAU-AAUACUCCGCUCACCAAUCUUUGAACCUCCGAAUAUCG 112
R.oryzae            CCGUGGAUGCGGGACACUAAAGAAGAUUAC----CCGAAUUUUUUGG-----------UA 99
                    ***                 *     *           *

S.pombe             AAACAU---------- 114
S.kudriavzevii      AAGC------------ 87
A.fumigatus         ---------------
A.clavatus          ACACAGCUGUCGAUU- 120
A.niger             ACACAGCUGUC----- 116
T.rubrum            ACA------------- 115
R.oryzae            AAACCCUCUCUUUUUC 115
```




```
S.castellii       GGC---AACCC---CUCG------UGGACA-UUUGGUCAAUUUGAAACAAUACAGAGAUG 47
S.kluyveri        GUCCAAGACAU---UUCGGUGUUUUGGACA-UUUGGUCAAUUUGAAACAAUACAGAGAUG 56
T.rubrum          -------GC-C---UUCG--------GGCA-UUUGGUCA--UAGUAACGAUACAGAGAAG 38
A.oryzae          -------GC-C---CUCG-------AGGCA-UCCGGUCAAUUUGAAACGAUACAGAGAAG 41
S.pombe           -----UGAU-C---UUCG-------GAUCACUUUGGUCAAAUUGAAACGAUACAGAGAAG 44
A.niger           ----UGGACAUAUGCUCG---------ACA---UUGCUAAAUUGGAACGAUACAGAGACG 44
                             ***          **     *  *  * * *** ********* *

S.castellii       AUC-----------------------------------------------------AGCAGUU 57
S.kluyveri        AUC-----------------------------------------------------AGCAGUU 66
T.rubrum          AUU-----------------------------------------------------AGCAUGG 48
A.oryzae          AUU-----------------------------------------------------AGCAUGG 51
S.pombe           AUUGUAAGUAACAAUAUUUACCAAGGUUCGAGUCAUACUAACUCGUUGUUUAGAGCAUGG 104
A.niger           AU------------------------------------------------------AGCAUGU 53
                  **                                                      ****

S.castellii       CCCCUGCAU-AAGGAUGA-ACCGUUUUA-CAAA--GAGAUUUA-UUCGUUUU----UU-- 105
S.kluyveri        CCCCUGCAU-AAGGAUGA-ACCGUUUUA-CAAA--GAGAUUUACUUCAUUUU----U--- 114
T.rubrum          CCCCUGCACUAAGGAUGACAC-GCUCAAUCAAA--GAGAAGCUACCAGUUUU----UUUU 101
A.oryzae          CCCCUGCAC-AAGGUUGACAC-GCUUUAUCAAG--GAGAUGCUA--AACUUU----UUU- 100
S.pombe           CCCCUGCAC-AAGGAUGACACUGCGACAUUGAG--AGAAAACCC---AUUUU----UUU- 153
A.niger           CCCCUGCGC-AAGGAUGA-----CGUUA-CAAAUCGAGAUAUUC---GUUUUAGGCUUUU 103
                  *******   **** ***          *   *      *          ***    *

S.castellii       ---
S.kluyveri        ---
T.rubrum          UGG 104
A.oryzae          ---
S.pombe           ---
A.niger           ---
```

FIG. S2 Secondary structures prediction of aligned snRNAs.

T. rubrum snRNAs are compared with the homologs in other fungi using the multiple sequence alignment software Clustal W2. The secondary structures of aligned sequences are predicted by RNAalifold [27, 28]. The color of the bases changes from black to grey if one or more sequences in the alignments deviate from the consensus. If the homologous sequences shows a gap in the alignment, the gap character (-) will be signed in the secondary structures graphs. The results show that these snRNAs are with conserved regions in the hairpin loops.