

Supplemental Figure 2

Predicted fold-back structures for miRNAs in Figure 1

MiR171b family

***Oryza sativa* (a) (Chr 4) ($\Delta G -47.1$) (O.s.(a) and O.s.(e) have identical sequences)**

```
-   G           UG           A CUUGU     GAA
   ACG GAUAUUGG  CGGUUCAAU CAGA AG     GCUCC  G
   UGC CUAUAACC  GCCGAGUUAGUUU UC     CGGGG  G
C   A           GU           C ACCU-     AGC
```

***Oryza sativa* (b) (Chr 3) ($\Delta G -72.6$)**

```
      UG AG  GC--           A           C           .-ACUA  U
UUGGC  GG  AGU     GAUGUUGGCAUGGUUCAUCA ACCGGGCAAA UUAUGC     GC \
AAUUCG  CC  UCG     CUAUAACCGUGCCGAGUUAGU UGGUUUUUUU  GGUAUG     CG A
      GU  GU  AACA           C           U           \ ----  A
```

***Oryza sativa* (c) (Chr 7) ($\Delta G -58.2$)**

```
GCAA      --  A           CA           A           AGCAA  AAA  C
      AGAACA  GGA  GACAUGG  UGGUAUUG  CUUGGCUCAUCUC     CAGC  CUG A
      UCUUGU  UCU  CUGUACU  ACUAUAAC  GAGCCGAGUGGAG     GUCG  GAC U
----      UU  C           UC           C           -----  C--  G
```

***Oryza sativa* (d) (Chr 10) ($\Delta G -62.4$)**

```
GA      U  G  U           U           C           C           UGGC  U  A---  C
      AUGAAA  GGUA  CUA  GAUGUUGGC  CGGCUCA  UCAGA  GGCAU  GUGA  GC  AAGCAUG  A
      UACUUU  UCGU  GAU  CUAUAACCG  GCCGAGU  AGUCU  UUGUG  CACU  CG  UUCGUGC  U
--      C  -  U           U           U           -  UU--  -  AUCG  G
```

***Oryza sativa* (e) (Chr 8) ($\Delta G -52.7$)**

```
      G           G           AGCUUGU     GGA
CGACG GAUAUUGG  GCGGUUCAAU CAGAA     GCUCC  A
GCUGC CUAUAACC  UGCCGAGUUAGUUUU     CGAGG  G
      A           G           CUCAUCU     AGC
```

***Medicago* ($\Delta G -51.2$)**

```
-   G  A           UG           --  G  U           AUA
   GUUGA  AUG  GAUAUUGG  CGGUUCAAU CAGA  A  GCAG  GCUUUU  A
   UAAUU  UGC  CUAUAACC  GCCGAGUUAGUUU  U  UGUC  CGAAAA  U
C   G  A           GU           AU  G  U           ACU
```

MiR319c-Lotus ($\Delta G -87.5$)

```
UAC U UG ----- A U UGC C .-AUUAUGU G
GAGCU UGA AU GGA GGG AAUAGAA GAAGGAGCUCCUUC CCAA CAUGG GAGG A
UUCGA ACU UG CCU UCC UUGUCUJ CUUCCCUCGAGGGAAG GGUU GUAUC UUCC A
UAA C GU AUCUUUACC G U UCA U \ ----- G
```

MiR393 family

Oryza sativa (a) (Chr 1) ($\Delta G -58.8$)

```
G A U U UC - ----- CU UC
GGGAAGC UCCAAAGGGAUCGCAU GAUCC UCA GCU CU CG CGCU \
UCCUUCG AGGUUUUCCUAGCGUA CUAGG AGU CGA GA GC GCGG C
- G - C U- C ACAUCUGCU UG UA
```

Oryza sativa (b) (Chr 4) ($\Delta G -56.7$)

```
UGA ACU U C C U GC - UA- - A CC
GGAA AG GGAGGA UCCAAAGGGAU GCAUUGAUC G UA GC UC UCG UCGAUCG U
CCUU UC CCUUUU AGGUUUUCCUA CGUGACUAG C GU CG AG AGC AGCUAGC C
CG- CGU U A A - UA G UGC C - UA
```

MiR397a-Medicago ($\Delta G -38.4$)

```
C C A .-CCU U UG
GAGAA CAU AUUGAGUGCAGCGUUG UGAAAU ACA UUUG C
CUUUU GUA UAACUUACGUCGCGAC ACUUUA UGU AAU U
U C C \ --- C UC
```

MiR398 family

Oryza sativa (a) (Chr 7) ($\Delta G -69.6$)

```
GAAC G UA G U- G GC
GC AGGGAGUUC CAGGGGCGA CUGGGAACACACGG GAU AG \
UG UCUCUCAGGG GUCCCCGCU GACUCUUGUGUCU CUG UC G
U--- G CC G UU G UG
```

Oryza sativa (b) (Chr 10) ($\Delta G -57.7$)

```
ACAGCAAUGAA CU A GUA G .-CAAUACAA A
GAGAAG GAACCCAGAGG GUG CUGAGAACACAG UGC UGUAUGGUG \
CUCUUC UUUGGGUUUC CAC GACUCUUGUGUC AUG AUAUGUCAU G
GUUUCUUAGUA -- C UG- A \ ----- C
```

Lotus ($\Delta G -36.6$)

```
A G A C C UUGAAUUGU UC- A
UUAUCUCAGAGG GUGA CUU AGAACACAAG UG AUUGGU UAUA AUAUACUAG \
AAUGGAGUUUC CACU GGA UCUUGUGUUC AU UAAUCA GUAU UAAUGAUC A
C - C U U UU----- UUC U
```

Medicago ($\Delta G -51.4$)

```
U-   UA   U   A   C   AGCUAU---   UU
GGUAGAGA  GUUC  CAGGG  CGAC  UGAGA  CACAUGA   CAUA  U
UCGUCUCU  UAAG  GUGCC  GCUG  ACUCU  GUGUACU   GUAU  G
      UU   UC   C   G   U   CAACCUAUU   CU
```

MiR399 family

MiR399(a) ($\Delta G -50.7$)

```
AUGGAUCAAA--   GAAAUGC           A   A   A   -   C   UCUU-   CU
      GGUG           AUUACAGGGUA  GAUCUCU  UUGGCAGG  AAC  CAUUA  UUAGA   UGCAU  C
      CCAC           UAAUGUGCCGU  UUAGAGG  AACCGUCU  UUG  GUGAU  AAUUU   ACGUA  U
AUAUUUAUACAA   GUCUUCU           -   A           A   A   U   UCGUU   UU
```

MiR399(d) ($\Delta G -57.1$)

```
A-----   U-   ACU           A   A           UC-   G-   AGAU
AGAGAGAU           UGUUAUGG  UGGAAUU  GGGCGAAU  CUCCU  UGCAGA  GCAUU  GCU   \
UCUUUCUUAU           ACGUACC  ACUUAA   CCGUUUA  GAGGA  ACCGUCU  CGUAA  UGA   A
      AUAACAAA           CU           CGC           -   A           CUU   AA   ACGU
```

MiR399(e) ($\Delta G -44.3$)

```
A   A   ACA           C   A           U   U           CCCU-   UA
GAA  GCAUU  GGGCGAAUC  UCU  UUGGCAG  GGAAG  UGAUGA   UA   \
CUU  CGUAA   UCCGUUUAG  AGG  AACCGUC  CCUUU  ACUACU   AU  U
-   -   CGC           -   A           U   U           CUUUU  UG
```

Oryza sativa(f) (Chr 5) ($\Delta G -59.8$)

```
-   ----   A           C           C-----   GA
GGCC  CA   UGCAUU  CUGGGCAGGUCUCC  UUGGCAGUGGC           GAUC  \
CCGG  GU   ACGUAA  GACCCGUUCAGAGG  AACCGUCACCG           CUAG  G
      A   UUAG           C           A           AAAACGCACCAAA   UC
```

Oryza sativa (d) (Chr 5) ($\Delta G -51.4$)

```
AU--   UGAU           GA---   CA  U           C           -   AGAGGC  AA
      GAC   GAGGGU           GAAU  CAG  GCGAUUCUCCU  UGGCAUGGCA  UG           CU   \
      CUG   CUCCUA           CUUA   GUC  CGUUAAGAGGA  ACCGUGCCGU  AC           GA  A
AACC  UGAU           AAAGA   CC  C           A           C  GCAGA-  AA
```

Oryza sativa (c) (Chr 2) ($\Delta G -66.3$)

```
AUC   CU   AU   C   A   CUA   A   --   -   UG  UA   UAU   U
      GAGC  GUGG  GUG  AUUGC  GGGCAA   CUCC  UUGGCAGA  GGGAUGG  AU  GA  UGGA  GGC  G
      CUCG  CAUC  CAC  UAGCG  CCGUU   GAGG  AACCGUCU  CCCUACC  UA  UU  ACCU  UCG  A
---   UU   CU   U   A   UA-   A           AU           C  GU  --   ---  U
```

Oryza sativa(b) (Chr 1) ($\Delta G -51.4$)

```
CACA ACC UG C UUC C CA -- UGC
  UGCAUU GGG AGUCUUC UUGGCAGUG GAAU GG GU ACCGGUC \
  ACGUAA CCC UUAGAGG AACCGUCGC CUUG CC UA UGGCUAG A
---- CGA GU A CA- A AC AC UGA
```

Oryza sativa(e) (Chr 5) ($\Delta G -60.8$)

```
AG CGACC C UA U C A- A C GCGG
  UGUG GG GAAU CAGGGCGGUU CUCCUUUGGCACGUA GG GGC AGG AU U
  ACAC CC CUUA GUCCCGUUAA GAGGAAACCGU GCGU CC UCG UCU UA G
G- AA--- A GC - A GA A C AAAA
```

Oryza sativa(a) (Chr 4) ($\Delta G -56.3$)

```
-- C UC UC A AU--- --- CUU
UAAGC AGUCCAGUUU AGGGC CUCUC UUGGCAGGG GC GUGA AGU U
AUUCG UCAGGUCAAA UCCCG GAGAG AACCGUCUC CG UACU UCG U
  AC A UU GA C ACUUU CAC AUG
```

MiR403 Populus ($\Delta G -41.0$)

```
U UCA A A-- AAAAAUCCCAUCAAAACACAAAUAAAAU AUA AA
GAAGAGGCA AUU GGUUUUGUC UGAAUCUAAUUAU GCUAA ACUAG GC \
UUUUUUCUGU UAA UCAAACACG ACUUAAGAUUAUG UGAUU UGAUC CG U
  C UGC C AUA ----- A-- AC
```

MiR407b ($\Delta G -140.6$) (A.t.)

```
G UG - A U C A G C C U UG
AAAAAAUUGCCAACUUU AAAAAUGGGA AAAAA UC CCAACUCCUGAAAUGUCUUU AUACA AUACUUUUG UUGA UU UUUAGAAAGAUAA AGAGCAAAG UUUUG \
UUUUUUUAGCGGUUGAAA UUUUUACCCU UUUUU AG GGUUGAGGACUUACAGUAAA UUAGU UAUGAAAAC AACU AA AGGUCUUUCUAUU UUUCGUUUC AAGCA A
  A GU U C U A C G A A U UU
```

MiR408

Oryza sativa ($\Delta G -92.7$)

```
U AG UUCUGUGAUU ----- A A U A U U UAU -AUGUAG UC G
UAGA AGAGAGA GGGAG GGAGAGG AG GGAG CAGGGA GAGGCAG GCA GGA GGGC CAACAG AUUAU CUU C
GUCU UCUCUCU CUCUC UCUCUCC UC CCUC GUCCCU CUCGUC CGU CCCU CCUCG GUUGUU UAGUA GAA A
  C CU ----- ACACG C G U A C C UU- \ ----- GA C
```

MiR408-Medicago ($\Delta G -62.5$)

```
A -- U AU- AAGUUU- UG AUU UAAU ACA- A CAU A GA AAA U GAA
AGGUAU GUAA UUAG GUAAAA GGGAC GG AAUAGU GACAGG AAG CAGGAA GCAG GCAUG UG CUA CGACAGU \
UCUAUUA UAUU AGUU UAUUUU CCUUG UC UUAUUA UUUGUCU UUC GUCCCUU CGUC CGUAC AC GGU GUUGUCA G
A UU U GUU CUACUUA GU C-- UUU- AAUA G CUC A UC CUC - AAG
```

MiR408-Populus (ΔG -98.5)

```
      - UACGU      NAUCGU      AG      C      A      A      GAUG      A      C      A      A      CU      GAA
GAAAGGUGAA GG      AACACAGG      GGGGAG      GGAG      AGAA      GAG      CA      AAG      CGGGGAA      AGGCAG      GCAUGG      UGGAGCUA      AACA      G
UUUUUCAUUU CC      UUUUUUUU      UCCUC      CUUU      UCUU      CUC      GU      UUC      GUGCCUU      UCCGUC      CGUACC      AUCUCGGU      UUGU      U
      A      -----      CU-----      CU      U      -      G      G---      G      C      A      C      U-      ACA
```