

Supplementary Information

Figure S1. RNA hairpin structure predictions for the novel miRNA precursors. Precursor structures were predicted by Mfold online.

```
> gly_1 Gm20:38248017:38248148:-
TAGTGAGCAAATCAGCAATAGGGCTCCTCTCTCCTGGCATGCAGACAGACATTATTTTGGTAGTTACCTACCAAAAGTTGGTATTAACAAC
ATGCCAAGGGAGAGTTGCCCTGTGGCTGCTTTAGCTTAATC
Initial ΔG = -61.20
UAG - U A UC C CAGACAG-| AUUA U
UGAGC AAA CAGC AUAGGGC CUCUCUC UGGCAUG AC UUUUGGUAG U
AUUCG UUU GUCG UGUCCCG GAGAGGG ACCGUAC UG AAAACCAUC A
CUA A C G UU A AACAAUUA^ GUUG C

> gly_2 Gm12:35489086:35489194:+
ACATGACAAATAAGGTATTGGCGTGCCTCAATTTGAATACATGGCTATTATGACAAATCCAGCCTTGTAGTTTGATTGAGCCGCGTCAAT
ATCTTATTTTGCTCTTCT
Initial ΔG = -41.90
ACAU -| U C UGAA U AUUAUG
GA CAAA UAAGGUUAUUGCGUG CUCAUU UACA GGCU A
CU GUUU AUUCUAUAACUGCGC GAGUUAG AUGU CCGA C
UCUU C^ U C UUUG U CCUAAA

> gly_3 Gm17:14170511:14170612:-
AACTGAGAGTGTGAGAGGTGAAGGAAGCTAATCTTGACCATTCAATCTTAATAGGGATTCCGGTTCGTGATTTAGCTTCTTTACCTTTCC
CACTTTCACCT
Initial ΔG = -55.00
AAC| U U C UC A
UGAGAGUG GAGAGGUGAAGGAAGCUAAUC UGA CAU AAUCUU A
ACUUUCAC CUUCCACUUUCUUGCAUUAG GCU GUG UUAGGG U
UCC^ C U U GC A

> gly_4 Gm07:5393976:5394157:-
ACCCAAGTTGGAGCTCTCAGCACTCCAGTGTGAAGGAAGTGATGGTAAACCCCTAGCTGCTAATTCATGGTTACCTTTGGTTTCACATAAG
GAAGCATGTGAAGTCATGGTCTGCATGAACTTGGAGATGGGGTTGCCTTGATCTTTTATGATTTGGAGTGAAGGGAGCTCCTAATTAGGCC
Initial ΔG = -82.50
AC A -| AG AGUGAU A G G - GUU U GU AAG
CC AGUU GGAGCUCUC CACUCCAGUGUUGAAGGA GGUA CCCUA CU CUAU UUCAUG ACCU UG UUCACAU G
GG UUA CCUCGAGGG GUGAGGUUAUGAUUUUCU CCGUU GGGGU GA GGUU AAGUAC UGGG AC AAGUGUA A
CC A U^ AA AGUU-- - A - C GUC U UG CGA

> gly_5a Gm10:893455:893562:+
AATAAATGGCACTACCTCTGCTCCTATTTTATAAGAAACAAGTTATATAGTGTAAAATACACTACATCTTGTCTTTATATAAATAGGACCA
GAGGTAGTATTAATTAT
Initial ΔG = -47.10
A| A C C UU UUAUA A
AUAA UGG ACUACCUCUG UCCUAUU UAUAAGAAACAAG UAGUGUA \
UAUU AU UGAUGGAGAC AGGAUAA AUAUUCUUUGUUC AUCACAU A
-^ A A C -- UAC-- A

> gly_5b Gm13:37718475:37718554:+
TTACTATAATACTACCTATGGTCTCTATTTATAAGAAACAAGTTGTAGTGTATAAATAGGACCAGAGGTAGTAATAAAGTA
Initial ΔG = -35.10
U| A A A AGAA AA
UACU UA UACUACCU UGGUCCUAUUUAUA AC \
AUGA AU UGAUGGA ACCAGGAUAAAUAU UG G
-^ A A G GUGA UU

> gly_6 Gm16:2804159:2804348:-
```

TACTCCTTCATGGTGATCATTAGGACAATATTCATATATAGAAGCTTTCTTTCAATCATTATATATTTGTATAACAAAAGCCAAAAATGA
 AGCAACACCTCCACAATAAGCATGACACAAATTATAATTGGAAGAAAGCTTCTGTTATGTATTGAAGTATTGTCCAACGATCACCATG
 AAAACAAT

Initial $\Delta G = -64.00$

```

UACUCC      A  A      ---- -      AUC      U      .-AUAACAAAAGC| A
      UUCAUGGUGAUC UU GGACAAUUUUCA      UAU AUAGAAGCUUUUUUCA      AUUUAU AUUUGU      CA A
      AAGUACCACUAG AA CCUGUUUGAAGU      GUA UGUCUUCGAAAGAAGGU      UAAUUA UAAACA      GU A
UAACAA      C  C      UUAU      U      ---      -      \ -----^ A
                                                    100-110

```

> gly_7 Gm05:41564645:41564756:+

GTTGGAGGAATACATGGGGATGTTGGACGGTTCAATCAAA TCAAATCTCCTAATGGCTGGGTCCTTTGGTATGATTGAGCCGTGCCAATAT
 CAAATCCTGCTTAACATGAAT

Initial $\Delta G = -42.40$

```

----- - -| AUACAUGGG      -      A      UCU      AU
      GUU GG AGGA      GAUGUUGG ACGGUUCAAUCA AUCAA CCUA \
      CAA UC UCCU      CUAUAACC UGCCGAGUUAGU UGGUUU GGGU G
UAAGUA      U G^      AAA-----      G      A      CCU      CG

```

> gly_8 Gm05:30104428:30104503:-

AGCAACCTATAGGCAATCTGTATGGACATATGGATCAGCAATCCA TATGAACCATACGGATTGTCAATTTGTAAGT

Initial $\Delta G = -32.60$

```

AGCAACCUAUA      A-|      CA
      GGCAAUCUGUAUGG      CAUAUGGAU \
      UGUUAGGCAUACC GUAUACCUA G
UGAAUGUUUA      AA^      AC

```

> gly_9 Gm15:20061038:20061157:-

GTTTAGAGACCAACCCGTCTTAGAATGAGCA CAATGTAGAATTTGCTTATCTACATCAGTTGTGGCGACGAACCAATGTAGAATTTGTC
 TTATTCTAAAACGGGTTGGTCTCTAAACC

Initial $\Delta G = -65.10$

```

-      C      .-AU| GA
      GUUUAGAGACCAACCCGU UUAGAAUGAGCACA      GUA A
      CAAAUUCUGGUUGGGCA AAUCUUAUUCGUGU      CGU U
C      A      \ --^ GU

```

> gly_10 Gm13:32275832:32275962:-

CAAAGGATTTTAGGCTTTCAACATGGCTCTTGAATGGCTATTGGAGAAAGAGGAACACAATTTGTCATGCGGACAAAAGCTGTGCATAA
 CCATTGCAAGAGCCATTCTGAAAGATCCTAGAATCCTTTT

Initial $\Delta G = -60.20$

```

C      -      AC      | A GG
      AAAAGGAUUUUAGG UCUUUA AUGGCUCUUGCAAUGG--CU UU \
      UUUUCCUAAGAUCC AGAAAGU UACCGAGAACGUUACC GA AA A
-      U      CU      \ ^ G AG

```

> gly_11a Gm14:13819007:13819089:+

TCGTAGTTATTATCAGTAGCATCATCATCA AAGTTCTTTACATGAAAGTTTGATGATGATGTTACCGATAAAGAGCTACGAG

Initial $\Delta G = -42.70$

```

-      A      A      G-|      UUU
      UCGUAGUU UUUAUC GUAGCAUCAUCAAAA UUC \
      AGCAUCGA AAAUAG CAUUGUAGUAGUAGUUU AAG A
G      G      C      GA^      UAC

```

> gly_11b Gm07:10004527:10004609:+

TCGTAGTTATTATCAGTAGCATCATCATCA AAGTTCTTAAACATAAAAGTTTGATGATGATGTTACCGATAAAGAGCTACGAG

Initial $\Delta G = -40.60$

```

-|      A      A      G      CUUA
      UCGUAGUU UUUAUC GUAGCAUCAUCAAAA UU A
      AGCAUCGA AAAUAG CAUUGUAGUAGUAGUUU AA C
G^      G      C      G      AAUA

```

> gly_11c Gm07:10001915:10001997:+

TCGTAGTTATTATCAGTAGCATCATCATCA AAGTTCTTTACATGAAAGTTTGATGATGATGTTACCGATAATGAGCTACGAG

Initial $\Delta G = -41.10$

```

-      AU      A      G-|   UUU
UCGUAGUU UUAUC GUAGCAUCAUCAAAA UUC \
AGCAUCGA AAUAG CAUUGUAGUAGUAGUUU AAG A
G      GU      C      GA^   UAC

```

>gly_12 Gm19:37100978:37101075:+

TCATATTGATCAATTTGATTCCTTTACTTTTAAAAATAAGTTGATTTAGTCCTCGTTCCTATTTTTTTTAAAGTATAGGGACCAAATTAAT
CAATGTG

Initial $\Delta G = -26.40$

```

U      C      A      U      U--   AGU-|   UUU
CAUAUUGAU AAUUUG UUCU UACUUU AAAAAUA   UGA A
GUGUAACUA UUAAC AGGGA AUGAAA UUUUUAU   GCU G
-      A      C      U      UUU   CCUU^   CCU

```

>gly_13a Gm19:3610433:3610530:+

TCCATATCCACTTAAATGGATTGGATCTTGAATCCAAATTGTTTTTAAACAAATGTGGATATAGATTTAAGATCCAATCCATTTAAGTAT
ATATGAA

Initial $\Delta G = -42.00$

```

UC      CC      -----   AA-|   U
CAUAU ACUUAUUGGAUUGGAUCUUGA AUCCA UUGUUU \
GUAUA UGAAUUUACCUAACCUAGAAU UAGGU AACAAA U
AA      UA      UAGUA      GUA^   U

```

>gly_13b Gm17:32044297:32044393:-

TTTATATACACTTAAATGGATTGGATCTTGAATCCAAATTGTTTTTAAAAAATAGAGATATAGATTTAAGATCCAATCTATTTAAGTATAT
ATGGAT

Initial $\Delta G = -39.90$

```

-|      C      CAAU      AAAA
UUUAUAUA ACUUAUUGGAUUGGAUCUUGAAUC UGUUUU \
AGGUAUAU UGAAUUUACCUAACCUAGAAUUUAG AUAGAG A
U^      A      AU---   AUAA

```

>gly_13c Gm15:43239794:43239891:+

TCCATATCCACTTAAATGGATTGGATCTTGAATCCAAATTGTTTTTTTTTAAATATGGATATAGATTTAAGATCCAATCCATTTAAGTATA
TATGGAT

Initial $\Delta G = -44.20$

```

-      CC      -----|   A   UUUU
UCCAUAU ACUUAUUGGAUUGGAUCUUGA AUCCA AUUG \
AGGUAUA UGAAUUUACCUAACCUAGAAU UAGGU UAAU U
U      UA      UAGUA^   A   UUUU

```

>gly_13d Gm14:27129224:27129321:+

TTCATATCCACTTAAATGGATTGGATCTTGAATCCAAATTGTTTTTAAAAAATATGGATATAGATTTAAGATCAATCCATTTAAGTAGA
TATGGAT

Initial $\Delta G = -42.60$

```

-      C      CAAU---|   U
UUCAUAU ACUUAUUGGAUUGGAUCUUGA AUCCA AUUG U
AGGUAUAG UGAAUUUACCUAACCUAGAAUUUAG AUAAAA A
U      A      AUAUAGGU^   A

```

>gly_13e Gm12:37094765:37094863:-

TCTATATCCACTTAAATGGATTGGATCTTGAATCCAAATTGTTTTTAAAAAATATGGATATAGATTTAAGATCCAATCCATTTAAGTAG
ATATGGAT

Initial $\Delta G = -46.10$

```

-      C      CAAU---|   A
UCUAUAU ACUUAUUGGAUUGGAUCUUGA AUCCA AUUG U
AGGUAUAG UGAAUUUACCUAACCUAGAAUUUAG AUAAAA A
U      A      AUAUAGGU^   A

```

90 80 70 60 50

>gly_13f Gm11:35031000:35031097:-

TACATATCCACTTAAATGGATTGGATCTTGAATCCAAATTATTTTTGAAAAAATATGGATATAGATTTTCAGATCCAATCCATTTAAGTTG
ATATGGA

Initial $\Delta G = -42.40$

UA C U CAA AU--| G
 CAUAUC ACUUAUUUGGAUUGGAUCU GAAUC AUU UUUU A
 GUAUAG UGAAUUUACCUAACCUAGA UUUAG UAG AAAA A
 AG U C AUA GUAU^ A

>gly_13g Gm10:4635902:4636116:+

ATATGCCAAATTCATATCCA CTTAAATGGATTGGATCTTGA ATCCAAATTATTTTTAAAAAAATGTGAATATAAATATAAGATTCAATTTA
 TTTAAGTAGATATGGATTGAATTCTTAAAAATCCAATCCATGTCCACCCCTGGTGACGAGATAATGTCCCTTAAGAAGGCTTTTC AAGATC
 CAATCCATTTAAGTAGATATGAATTTGGTTAGA

Initial $\Delta G = -79.10$

AUAU C U-- .-AAAUUUU| A G AUAAA
 GCCAAAUUCAUAUC ACUUAUUUGGAUUGGAUCUUGAA CC UUUAAA AAU UGAAU \
 UGGUUUAAGUAUAG UGAAUUUACCUAACCUAGAACUU GG GAAUUU UUA ACUUA U
 AGAU A UUC \ -----^ A - GAAUA

>gly_13h Gm07:13683421:13683518:-

TCCATATCCA CTTAAATGGATTGGATCTTGA ATCCAAATTGCTTTTTAAAAAAATATGGATATAGATT TAAGATCCAATTCATTTAAGTGG
 ATATGAA

Initial $\Delta G = -46.20$

UC -----| A GCUUU
 CAUAUCCA CUUAAAUGGAUUGGAUCUUGA AUCCA AUU U
 GUAUAGGUGAAUUUACCUAACCUAGAAU UAGGU UAA U
 AA UAGUA^ A AAAAA

>gly_13i Gm07:42931413:42931510:+

TCCATATCCA CTTAAATGGATTGGATCTTGA ATCTAAATTGTTTTAAAAAAATGAATATAGATTCAAGATCCAATCTATTTAAGTAGA
 TATGGAT

Initial $\Delta G = -51.50$

- C A --| A
 UCCAUAUC ACUUAUUUGGAUUGGAUCUUGA AUCUA AUU GUUUUU \
 AGGUAUAG UGAAUUUACCUAACCUAGAACUUAGAU UAA UAAAA A
 U A A GU^ A

>gly_13j Gm06:39048243:39048358:-

TATGACCAAATCCATATCCA CTTAAATGGATTGGATCTTGA ATTCAAATTATTTTTAAAAAAATATAGATATAGATTC AAGATCCAATCCAT
 TTAAGTAGATATGGATTGGATGTGG

Initial $\Delta G = -53.20$

UAUGA-| A C CAAAU UAAAA
 CCAA UCCAUAUC ACUUAUUUGGAUUGGAUCUUGAAUU UAUUU \
 GGUU AGGUAUAG UGAAUUUACCUAACCUAGAACUUAG AUAGA A
 GGUGUA^ - A AU--- UAUA

>gly_13k Gm06:22728700:22728798:-

TCTATATCCA CTTAAATGGATTGGATCTTGA ATCCAAAGTGTAAAAAAATATGGATATAGATTTAAGATCCAATCCATTTAAGTAG
 ATGCGGAT

Initial $\Delta G = -43.50$

- UA C CAAA---| AAA
 UC UAUC ACUUAUUUGGAUUGGAUCUUGAUC GUGUUU \
 AG GUAG UGAAUUUACCUAACCUAGAAUUUAG UAUAAA A
 U GC A AUUAUGG^ AAA

>gly_13l Gm05:14960200:14960296:+

TTCATATCCA CTTAAATGGATTGGATCTTGA ATCCAAATTGATTTTTAAAAATATATGGATATAGATTTAAGATCCAATCCATTTAAGTAG
 ATGGAT

Initial $\Delta G = -45.50$

-| C CAA G UUAU
 UUCAUAUC ACUUAUUUGGAUUGGAUCUUGAUC AUU AU A
 AGGUAUAG UGAAUUUACCUAACCUAGAAUUUAG UAG UA A
 U^ A AUA G UAUA

>gly_13m Gm05:4272932:4273029:+

TCCATATCCA CTTAAATGGATTGGATCTTGA ATCCAAATTGTTTTAAAAAAATATGAATATAGATTTAAGATCCAATCCATTTAAGTAG
 TATGGAT

Initial $\Delta G = -48.60$

```

-      C                               CAAAU---|      A
UCCAUAUC ACUUAAAUGGAUUGGAUCUUGAAUC      UGUUUU A
AGGUAUAG UGAAUUUACCUAACCUGAAUUUAG      AUAAAA A
U      A                               AUAUAAGU^      A
>gly_13n  Gm01:28289348:28289444:-
TCCATATCCACTTAAATGGATTGGATCTTGAATCCAAATTTTTTTTAAAAAATATATGGATATAGATTTAAGATCCAATCCATTTAAGTAGA
TATGAA

```

Initial $\Delta G = -42.70$

```

UC|      C                               CAA  UUU  AA
  CAUAUC ACUUAAAUGGAUUGGAUCUUGAAUC  AUUU  UA  \
  GUAUAG UGAAUUUACCUAACCUGAAUUUAG  UAGG  AU  A
AA^      A                               AUA  UAU  AA

```

>gly_13o Gm01:5733903:5733997:+

```

TCCATATCAACTTAAATGGATTGGATCTTGAATCCAAATTTTTTTTAAATATGGATATAGATTTAAGATTCAAACCATTTAAGTAGATAT
GGAT

```

Initial $\Delta G = -39.40$

```

-      A      A      -----      -|      UUU
UCCAUAUC ACUUAAAUGG UUGGAUCUUGA      AUCCA AUUU  \
AGGUAUAG UGAAUUUACC AACUUAGAAUU      UAGGU UAAA  U
U      A      A      UAGUA      A^      UUU

```

> gly_14 Gm14:22838069:22838233:-

```

TAGAAGACTCCAAGTAGATTGAGCCAGAGATGCAAGAGAAGACCCTAGGGTCTCATGAGCCTTAGGGCAGATTTTATGGCCATGGGCTAA
GTATGAGCCCACTTATCATTGTACATATTAGATTAAGGTTTCATTATTTTTGGGTCGTGATTTAGGGCTCCAT

```

Initial $\Delta G = -50.80$

```

UAGAA  CU  -      G U  G      CAA  .-AGA|      U
      GA  CC AAGUA A UGA CCAGAGAUG  GAGA      CCCUAGGGUUC  C
      CU  GG UUUAU U GCU GGUUUUUAU  CUUU      GGGAUUCCGAG  A
UAC--  CG  A      G  -  G      UA-  \  ---^      U

```

70-127

> gly_15 Gm04:44568204:44568328:-

```

CTTTTTTAAATTTAAACAATATCCTGGAGATTTGAAATTAATTTTAATTGAGGGTAGAATTATTGGGAAACAATTCAAATTTGTAATTC
AAGTCTCTAGGATATTGTTTAGATTTGAAAAAGA

```

Initial $\Delta G = -54.00$

```

-                               |      AUU
CUUUUUUAAAUUUAAACAAUAUCCUGGAGAUUUGAAAUUA--AAUUUUA  G
GAAAAAGUUUAGAUUUGUUUAGGAUCUCUGAACUUUAAU  UUAAGAU  A
A                               \  ^      GGG

```

69-83

> gly_16 Gm03:45559347:45559504:-

```

GGTTCATACCAGAGAACATAAACCCCTAACCCGAAAGGATAGAATTCTTAGGGATAACCGGAACAATAGGGGGAATCCCAAAGCAGGACGC
AAATTAATAATCTTGAGCATAGAATTCTATTTTCATTCCGGATTATGGTATATGTCTTGAAAGTGAAC

```

Initial $\Delta G = -53.70$

```

G  ACCA      A  C  C      A-      UA----      .-AACGGAACAAUA|  G
GUUCAU  GAGAACAUA ACC UAA CCGGAA  GGAUAGAAUUCU      GGGAU      GGGG \
CAAGUG  UUCUUGUAU UGG AUU GGCCUU  UUUUUCUUAAGA      UUCUA      CCCU A
-      AAAG      A  U  A      AC      UACGAG  \  -----^      A

```

80-98

>gly_17 Gm04:28532443:28532536:-

```

GCCAGTGAAATCGGTGCGAGTGTCTTCGCCCTCTGAGAGAGATACTATGAGATCTCAAGCCTCGGAGGCGTAGATACTCACACCTCTTTTTTC
TGG

```

Initial $\Delta G = -49.70$

```

G  U  UC  C      U      A---|      ACU
CCAG GAAA  GGUG GAGUGUCU CGCCUCUGAG      GAGAU  A
GGUC UUUU  CCAC CUCAUAGA GCGGAGGCUC      CUCUA  U
-  U  CU  A      U      CGAA^      GAG

```

>gly_18 Gm04:33363384:33363625:+

TTAACCCTCTCACTTCATAGTTTTTCTGTATGATAACCAATTCTTGAGTATTTGTATCTATATGCATGACAACCTCTTCATAATATTC
 TTGAGTATATTCATATCTATATATAAATGAGTCAAGATAATCAAATTAATTAATAATAATAATAATAGTAATAATAATAAAGCTTATGC
 TGAATTCATCTTAATAATTGATCAGAAAA**CAGATAAAGCTATGAAGTGAG**AAATGGCTAAA

Initial $\Delta G = -54.80$

U A C U .-AUGUAACCAAU G- CU-- .-C| CAA
 UUA CCA UCUCACUUCUAGUUUU UCUGU UCUUGA UAUUUGUUAU AUAUG AUGA C
 AAU GGU **AGAGUGAAGUUCGAAA AGACA** AGAACU GUAAAUAUA UAUAC UACU C
 A C A U \ ----- GA UAUC \ -^ UCU
80-98

>gly_19 Gm04:46348842:46348957:+

GATTGAAGGGTTGCTGAAGCATCTGCTGACTCATTTCATACACAGAAATAGTGATTCAAATTGCTAAGGTAATTG**TGTGAATGAAGCAGGA**
GATATTTTTGCATCCCTCTTTCTTTG

Initial $\Delta G = -41.10$

---- UU A U U GC G AC .-A| AG
 GA G AGGG UGC GAA AUCU CUG UCAUUCUAC CAC A
 CU C UCCC ACG UUU **UAGA GAC AGUAAGUGUG** GUG A
 GUUU UU - U U **A- G GA** \ -^ AU
55-73

>miR5037e Gm18:61631517:61631620:-

AGTTTTTAA**CAACCCTCAAAGGCTTCCACTAC**TTTCATATTTTCATTCCAGTGAGAATATCACAAACATGAAAAAGTGGTGAACCTTTGAGGC
 TTGTTGAAGCCTT

Initial $\Delta G = -41.10$

-| U **C GC** CAUA UCCA GA
 AG UUUUAAC**AA CCUCAAG UCCACUACUU** UUUCAU GUGA \
 UC GAAGUUGUU GGAGUUUC AAGGUGGUGAA AAAGUA CACU A
 U^ C C -- ---- CAAA AU

>gly_20 Gm18:54327830:54328015:+

GTTGCTTCTGCCTTCCCAAGTTGCTTCTGTACTCCTTCAGGAATATTTTTTTGACCTTCTGGGTTGGTCATTCCATAAGACAAAAAGA
 GAATGCATTCAAGAAGGTAATTTTACATTTTCGGATTGATCGTTCTGAAAAGTAAAAGGGAGTG**CAGGAAACAACCTAGGAAATGC**AGGAAG
 CAAA

Initial $\Delta G = -79.40$

G C CA C | U
 UUGCUCUCCUGCA UUC AGUUG UCCUGUACUCCU--UCAGGAA A
 AACGAAGG**CGU AAGG UCAAC AAGGAC**GUGAGGG AGUUUUU U
 A **A A- A** \ ^ U
60-140

>gly_21a Gm17:19846241:19846404:+

TTGTTCTTGACACTTATTTTTAGTCCCTAATAAATTATCAAATTTTGTGTTTGTCTACATGATAAATATTTCTCATTATTATTATTAATACAGA
 CTAATAAATAAATTTCTAATTTGTTAGGAAGCAAACACAAAATTT**TTCTAATTTATCAGGGACTAA**AAACAAAACAT

Initial $\Delta G = -47.50$

U C ACACUUAU A UC .-AC| AUU
 UGUU UUG UUUUAGUCCCU AUAAAUA AAAUUUUGUGUUUGCU AUGAUAAU \
 ACAA AAC **AAAUCAGGGA UAUUUAAU UUUAAAACACAAACGA** UAUUAUUUA U
 U - ----- **C CU** \ --^ CUC
84-117

>gly_21b Gm16:8096019:8096185:+

TGACACATTTTTTAGTTCTTGATAAATTAATGAATTTTGTTTTGTCTCCTTGATAATTTTTTTTCATTTGTGAGTGGTCTTTTCAAAGG
 GACAAATAACAAATGAAATTTTATTAGGGAGCAAATACAAAATTT**TTCTAATTTATCAGGGACTAA**AAGAAGTGTG

Initial $\Delta G = -79.80$

U| A AU U UUUUU GAGUG U
 GACAC UUUUUUAGUUCUUGAUAAAUA GAAUUUUGU UUUGCUCCUUGAUAA UUUCAUUUGU GUCCUUU \
 CUGUG AGAAA**AUCAGGGACUAAUUAAU UUUAAAACA AAACGAGGGAUUUU** AAAGUAAAACA CAGGGAA C
 -^ A CU U UUU--- AUAAA A

>gly_21c Gm07:17786347:17786503:+

CCACTTATTTTTAGTTCTTGTAATTAAGCAATTTTATGTTTATTCTATAATAAATATTTCTCATTATTATTATTAATACAGACAAAAATGA
 AATTTGTTAATTTATTAAGAAGCAAATACAAAATTT**TTCTAATTTATCAGGGACTAA**AATAAATAAT

Initial $\Delta G = -38.40$

CCACUUAU C A A- A .-AUUCUCAU| U

```

UUUUAGUUCUUGGUAUUUAG AAAUUUU UGUUU UUCU UAAUAAA          UUA U
AAAAAUCAGGGACUAUUUAAUC UUUAAAA AUAAA AAGA AUUUUUUA        AAU A
UAUAAAAU          U      C      CG      -      \ -----^ U
                                                    78-100

```

>gly_21d Gm05:9977544:9977700:-

```

ACACTTATTTTGTAGCCTTTGATAAATTAGAAAATTTTGTGTTTGCTTCATGATAAATATTTTCGCATATGTTATTAATCCAGACTAAAACAA
AATTTGCTAATTTATTAGGAAACAAACACAAAATATTCTAATTTATCAGGGACTAAAATAAAATAT

```

Initial $\Delta G = -46.00$

```

ACACUUAU|      C          A          C  A          AUUUC  UA---  A  AUC
UUUUAG CUUUGAUAAAUUAGAA AUUUUGUGUUUG UUC UGAUAAA  GCA  UGUU UUA  C
AAAAAUC GGGACUAUUUAAUCUU UAAAACACAAAC AAG AUUUUUUA  CGU  ACAA AAU  A
UAUAAAAU^      A          A  G          AU---  UUAAA  -  CAG

```

>gly_22 Gm09:109565:109722:-

```

CAGGAAAATAAAATGAATTAAGCTTCTCCATAAGTTAAAATTAGCTTAAGCATAAGCTAATTCATAGAATTTCTCTCATTAGCTTCTCCA
AAATCTAATTTTAACTTGGACATAAGCTAATTTAACTTATGGAAGAAGCTCAATTCATTTTTTCTTC

```

Initial $\Delta G = -53.30$

```

C  AAU      A      -      A          .-AGCAU|      UUCAU  AU
AGGAA  AAAUGAAUU AGCUUC UCCAUAAGUU AAAUUAGCUUA      AAGCUAA  AGA  \
UUCUU  UUUUACUUA UCGAAG AGGUUUCAA UUUAAUCGAAU      UUCGAUU  UCU  U
C  ---      C      A      -      \ -----^      UAC--  CU
                                                    88-111

```

>mir1507d Gm09:16565920:16566038:-

```

CTTTTAAGATGATGTTTGTAGAGGTGTTTGGGATGAGAGAATAGAATTTTTTCAAATGCTTGAAGTGATCTCTCCCTCATTCCAAACA
TCATCTAACACACATGATGTTAACCAAC

```

Initial $\Delta G = -44.70$

```

CUU--      G  G      U  C      -|      A  U  AUU      A
UUAA AU AUGU UG UAGA GGUGUUUGGAUGAG GAA AGA  UUUUCA  U
AAUU UA UACA AC AUCU CUACAAACCUUACUC CUU UCU  GAAAGUU  G
CAACC      G  G      C  A      A^      C  C  AGU      C

```

>mir405b Gm04:34315950:34316105:-

```

CGGTTATTAGTAATAATCGTCTTAGAAAGTCAATGTTTTAAGACGGTTATTA AAAAACCGTTTTAAAAGTTTGAATGAAACACTTTTTTA
AGATGGTTATTTAGTGATAATCGTCTTAAAAAATATATTTTCTAAGACGGTTATTACTGATAACC

```

Initial $\Delta G = -74.40$

```

C          CAAUG          AAA---|          UU  AA
GGUUUUAGUAAUAAUCGUCUUAGAAAGU  UUUUAAGACGGUUUUA  AACCGUUUUAAAAGU  GU  U
CCAAUAGUCAUUUUGGCAGAAUCUUUUA  AAAAUUCUGCUAAUAGU  UUGGUAGAUUUUUUCA  CA  G
-          UAUA          GAUUUA^          --  AA

```

>gly_23 Gm02:42141385:42141491:+

```

TTTCAATTTGTTTCTGTTTCAAAGATTTGTACAGGAAACATTGAAAACAACCTTTTTTTGTTCTCTGTTTCCTTTACAGATCTTTGAAA
CAGGCAACAGATTGAA

```

Initial $\Delta G = -47.80$

```

U          U      -|      C          UU  A  CUU
UUCAAUUUGUU UCUGUUU  CAAAGAUUGUA AGGAAACA  GA AACAA  \
AAGUUAGACA GGACAAA GUUUCUAGACAU UCCUUUGU  CU UUGUU  U
-          C      G^      U      --  C  UUU

```

>gly_24 Gm10:2905320:2905422:-

```

AAAGTTGAGGGGGAATGTCGTTTGGTTCGAGATCATTTCATGCAAGTAGTCTCAGACATAACTCTCTGAGTGATTTCCGACCAGGCTTCATT
CCCCTCAGCTAC

```

Initial $\Delta G = -57.20$

```

AA          UC          UGCA  A--|  U
AGUUGAGGGGGAUG GUUUGGUUCGAGAUCAUUA  AGU  GUC  \
UCGACUCCCCUAC  CGGACCAGGCUUUAGUGAGU  UCA  CAG  C
CA          UU          CUUC  AUA^  A

```

>gly_25a Gm18:29620793:29620900:-

```

AATATTTATAATTAGAAAACATTTTTATATGTTACTAATAATCAATAATAAATATATATATTTATTGATTATTAGTAACATATAAAATAGT
TTTCTAATTATAAATAT

```

Initial ΔG = -54.80

```
A|                                     UAAAA
  AUAUUUAUAAUUAGAAAACUAAUUUUUAUUGUUACUAAUAAUCAUAA  \
  UAUAAAUAUUAAUCUUUUGAUAAAAUAUCAUGAUUUUUAGUUUUU    U
-^                                     UAUUA
```

>gly_25b Gm18:3402620:3402707:-

AATATTTATAAATTAATAAACTATTTTATATCTTAATAATAATCAATAAATATTAGTAAACATATAAAAATAGTTTCTAAATTATAAATAT
Initial ΔG = -25.50

```
A|           A           C   A   AUCA
  AUAUUUAUAAUUA AAAACUAAUUUUUAU UUA UAAUA  \
  UAUAAAUAUUAAU UUUUGAUAAAAUAU AAU AUUAU   A
-^           C           C   G   AAAU
```

>gly_25c Gm18:29620792:29620899:+

AATATTTATAAATTAGAAAACATTTTATATGTTACTAATAATCAATAAATATATATATTTATTATTGATTATTAGTAAACATATAAAAATAGT
TTTCTAAATTATAAATAT
Initial ΔG = -54.60

```
A|                                     A UAU
  AUAUUUAUAAUUAGAAAACUAAUUUUUAUUGUUACUAAUAAUCAUAA UA  A
  UAUAAAUAUUAAUCUUUUGAUAAAAUAUCAUGAUUUUUAGUUUUU AU   U
-^                                     - UUA
```

>gly_25d Gm06:45100817:45100917:-

AATATTTATAAATTAGAAAACATTTTATTTGTTACTAATAATCAATAAATATATTTATTATTGATTATTAGTAAACATATAAAAATAGTTTCTAA
TTATAAATAT
Initial ΔG = -52.20

```
A|                                     U           U
  AUAUUUAUAAUUAGAAAACUAAUUUUUAU UGUUACUAAUAAUCAUAAA A
  UAUAAAUAUUAAUCUUUUGAUAAAAUA ACAUGAUUUUUAGUUUUU U
-^                                     U           A
```

>gly_25e Gm10:6636180:6636267:-

AATATTTATAAATTAGAAAACATTTTATATCTTACTAATAATCAATAAATATAATAAACATATAAAAATAGTTTCTAAATTATAAATAT
Initial ΔG = -31.70

```
A|           C   C   AUCA
  AUAUUUAUAAUUAGAAAACUAAUUUUUAU UUA UAAUA  \
  UAUAAAUAUUAAUCUUUUGAUAAAAUAU AAU AUUAU   A
-^           C   A   AAAU
```

>gly_25f Gm15:37277120:37277207:-

AATATTTATAAATTAGAAAACATTTTACATCTTACTAATAATCAATAAATATTAGTAAACATATAAAAATAGTTTCTAAATTATAAATAT
Initial ΔG = -33.60

```
A|           C   C   AUCA
  AUAUUUAUAAUUAGAAAACUAAUUUUUA AU UUACUAAUA  \
  UAUAAAUAUUAAUCUUUUGAUAAAAU UA AAUGAUUAU   A
-^           A   C           AAAU
```

>gly_25g Gm15:37421666:37421753:-

AATATTTATAAATTAGAAAACATTTTATATCTTACTAATAATCAATAAATATTAGTAAACATATAAAAATAGTTTCTAAATTATAAATAT
Initial ΔG = -37.70

```
A|           C           AUCA
  AUAUUUAUAAUUAGAAAACUAAUUUUUAU UUACUAAUA  \
  UAUAAAUAUUAAUCUUUUGAUAAAAUA AAUGAUUAU   A
-^           C           AAAU
```

>gly_25h Gm15:37480614:37480701:-

AATATTTATAAATTAGAAAACATTTTATATCTTACTAATAATCAATAAATATTAGTAAACATATAAAAATAGTTTCTAAATTATAAATAT
Initial ΔG = -37.70

```
A|           C           AUCA
  AUAUUUAUAAUUAGAAAACUAAUUUUUAU UUACUAAUA  \
  UAUAAAUAUUAAUCUUUUGAUAAAAUA AAUGAUUAU   A
-^           C           AAAU
```

>gly_25i Gm15:37461824:37461911:-

AATATTTATAAATTAGAAAACATTTTATATCTTACTAATAATCAATAAATATTAGTAAACATATAAAAATAGTTTCTAAATTATAAATAT

Initial $\Delta G = -37.70$

```
A|           C           AUCA
  AUAUUUAUAUUAGAAAACUAUUUUUAU UUACUAAU  \
  UAUAAAUAUUAUCUUUUUGAUAAAAUAUA AAUGAUUAU  A
-^           C           AAAU
```

>gly25j Gm17:12625806:12625906:+

```
AATATTTATAATTAGAAAACATTTTATATGTTACTAATAATCAATAAATATATTTATTGATTATTAGTAAACATATAAAATAGTTTCTAA
TTATAAATAT
```

Initial $\Delta G = -56.10$

```
A|           U
  AUAUUUAUAUUAGAAAACUAUUUUUAUUGUUACUAAUAAUCAUAAA A
  UAUAAAUAUUAUCUUUUUGAUAAAAUAUCAAUGAUUAUUAGUUUUU U
-^           A
```

>gly_25k Gm17:12625807:12625907:-

```
AATATTTATAATTAGAAAACATTTTATATGTTACTAATAATCAATAAATATATTTATTGATTATTAGTAAACATATAAAATAGTTTCTAA
TTATAAATAT
```

Initial $\Delta G = -56.10$

```
A|           U
  AUAUUUAUAUUAGAAAACUAUUUUUAUUGUUACUAAUAAUCAUAAA A
  UAUAAAUAUUAUCUUUUUGAUAAAAUAUCAAUGAUUAUUAGUUUUU U
-^           A
```

>gly_26 Gm20:26233269:26233370:-

```
CATATTCATCACCAGATGAATTCACACTAACATGGGTCAGCAATCTCCTTTCTTATGGTTGTTACTCTCATGTTAGTGTGCATTCATCTGA
TGGTGATTAAG
```

Initial $\Delta G = -48.30$

```
CA U      C      U      UC-|      UCCUU
  UA UCAUCA CAGAUGAAU CACACUAACAUGGG AGCAAUC  \
  AU AGUGGU GUCUACUUA GUGUGAUUGUACUC UUGUUGG  U
GA U      A      C      UCA^      UAUUC
```

>gly_27 Gm15:28664008:28664115:+

```
CAACCTTTGGTTCAACTAACTGAAGGACGAATTCTCTTAGAGGGGGTTTGACCTATCTTGTTACCTTTATGTATTTGTCTTTTCTAGTTG
GGTTTGGCTCATCATTG
```

Initial $\Delta G = -27.70$

```
CAACCUUU  --  U-      UCUCU  -----|  GU
      GGUCA CUAACU GAAGGACGAAU      UAGAGG      GGG  U
      UCGGUU  GGUUGA  UUUUCUGUUUA      AUUUC      UCC  U
GUUACUAC  UG      UC      UGU--      AUUGUUCUA^  AG
```

>gly_28 Gm18:10413935:10414028:+

```
ATTTTTAGCTTTCAAACCCCCTATCTTGGATCACAGCCCCATTGCCTATCATGGGGCTTGGAGTGGGGCTTGATCCAAGATAGGAAGCTGG
AAA
```

Initial $\Delta G = -50.80$

```
A|      UCAAACCC      C      ----  AU
  UUUUUAGCUU      CCUAUCUUGGAUCA AGCCCAUU  GCCU  C
  AAAGGUCGAA      GGAUAGAACCUAGU UCGGGGUGA  CGGG  A
-^      -----      -      GGUU  GU
```

>gly_29 Gm14:19673165:19673347:-

```
TCTAAGACGGTTATTACAAAATAACCGCCTTAGAAAAGTTTATAAAGAAAGACTTTCTAAGACAGTTGTTTGTAAATACCCATCTTAGAAAAGT
ATACCTTCTAAGACGGTCAATTACAAAATAACCGTTTTAGAAAAGCATGCTTTGCCAGACTTTCTAAGACGATTGTTGTAAATAACCGTCTTA
G
```

Initial $\Delta G = -81.40$

```
U|      A  C  C      A-  AAAGA      A      -  AC  A      AGU
  CUAAGACGGUUUAUACAAA  UAA  CG  CUUAGAAAGUUU  UAAAG      CUUUCUAGAC  GUUGUUU  GUAU  CC  UCUUAGAA  A
  GAUUCUGCCAAUAUGUUU  GUU  GC  GAAUCUUUCAGA  GUUUC      GAAAGAUUUUG  CAAUAAA  CAUUA  GG  AGAAUCUU  U
-^      -  A  A      CC  GUAC-      C      A      CU  C      CCA
```

>gly_30 Gm08:8481417:8481647:+

CTAGCTAACATCAACGATTCCCGCTGTGTTTCATAAGTGGGAACGATCTAAACCGTATTCGATTCCTTGCAAATTCCAAAGCAGAGACT
 GAAAATGTTCCGGCTGTATTTCCAGAATAATAGCTAATTTTTCAGATGATTTTTTGGGGGATTTGTATATGTAAAAATATAAAATATG
 AAAAGTTGCCTTCAATTCTGTGGACATGCCGGAGTGGTTATCGGGCATG

Initial ΔG = -56.70

CUA AACAUC G C U .-AGU -| UCUAA
 GCU AAC AUUCC GC GUGUUCAUA GGGGAA CGA A
 CGG UUG UGAGG CG UACAGGUGU UCCCUU GCU C
 GUA GCUA-- G C - \ --- A^ UAUGC
 70-200

>gly_31 Gm13:41358339:41358461:+

GCCTGGCCCGACTGATCTGCATACATATCGTGTGGCCAAGCGTCTCCATCAAACAGGGACCAAGCGTGCCTGGAGACAGCAAGGCAGAA
 CGATATGTACCGAGATCGGTTTCGATCATGCAG

Initial ΔG = -60.80

--| C CC - A G AA C UCAAAACA G CA
 GC UGG CGA CUGAUCUGC UACAUUUCGU UUGCC GC GUCUCCA GG AC \
 CG ACU GCU GGCUAGACG AUGUAUAGCA GACGG CG CAGAGGU CC UG A
 GA^ U A- U C A AA A ----- G CG

>gly_32 Gm17:10900636:10900727:+

AAATTAGTTACAGGACCTCTTTTTTGGCACATCGCACACACTCGAGTCCCAAATGATGCGCCAAAGAAGAGTTGTCCTGCAAGTGATT
 C

Initial ΔG = -36.90

A G A CU A CACAC--| U
 AAUUA UU CAGGAC CUCUUUUUUGGC CAUCG AC C
 UUAGU AA GUCCUG GAGAAGAAACCG GUAGU UG G
 C G C UU C AAACCU^A

>gly_33a Gm12:32340039:32340153:-

ATTAATTGGTCAAACCTAATCTTGATTGGGCTGAATTGTGTGAAGAATTGTTGGGAGTTAGACCACAAGAAGGTGAACTTCAAGGCAGTGTG
 GTCAAATTAAGTTGGCTGGCTCAC

Initial ΔG = -28.90

AUUAA UG AC C G AA U- GAAGAA--| U GAG
 U GUCAA UAAU UUGAUUG GCUG UUG GU UUGU GG U
 G CGGUU AUUA AACUGGU UGAC AAC CA AACA CC U
 CACUC GU GA - G GG UU AGUGGAAG^ - AGA

>gly_33b Gm06:19079272:19079386:+

ATTAATTGGTCAAACCTAATCTTGATTGGGCTGAATTGTGTGAAGAATTGTTGGGAGTCAGACCACAGAAAGGTGAACTTCAAGGCAGTGTG
 GTCAAATTAAGTTGGCTGACTCAC

Initial ΔG = -30.30

AUUAA UG AC C G AA .-UGUGAAGAA| U GAG
 U GCCAA UAAU UUGAUUG GCUG UUG UUGU GG U
 A CGGUU AUUA AACUGGU UGAC AAC GACA CC C
 CACUC GU GA - G GG \ -----^ - AGA

>gly_34 Gm16:30111973:30112055:+

CGAAAACCTTTCATCTTCAACTTGCTCAACGGTACACTCAAGTATAATCATATCGTTGAGCAAGTTGAAGATGAATGTTGTGCG
 Initial ΔG = -43.80

-| A U CACUCA
 CGA AAC UUCAUCUUAACUUGCUCAACGGUA G
 GCU UUG AAGUAGAAGUUGAACGAGUUGCUAU U
 G^ G U ACUAAUA

>gly_35 Gm14:41954319:41954474:-

TAGTATTCATAGGCTCACATAAAGTTTATATATATTTACACGCATGATATTTAGCTTATACACGCATGATACCTTAGCCAAGTCACACGT
 GATATTAGCTCAAGTTAATATTAGCTTTAGGTATATATTTGTAAATTTTAGGCACACGTAATTT

Initial ΔG = -29.50

UAGUAUUCUAUG CACA U U AC--- A UU---- U -| CA ACUUU

```

GCU  UAAAGUUUAUA AUAU UAC  GC UGAUAUU  AGCU AUA CACG UGAU  \
CGG  AUUUUAAAUGU UAUA AUG  CG AUUAUAA  UCGA UAU GUGC ACUG  A
UUUAAAUGCACA ----  U  U  GAUUU -  UUGAAC  U  A^  AC  AACCG
>gly_36  Gm09:33092118:33092255:+
GTCAGGCTTCTAAGACGGTGCTGACATCACGACTGTCTTAGAAAGCCAAGCTTCAAAGACGGTGCTAATGTGACAACGTCTTAGAAAGTC
AACCTTCAAAGACGGTCTGACGTGACGTGACATCGTCTTTAAAGCCTGGT
Initial ΔG = -71.40
G|  CU  A  A  AGCCAA  -  A  G  CUAU
UCAGGCUU AAGACGGUGCUGAC UCACGACUGUCUU GAA  GCUU C AAGACG UG  U
GGUCCGAA UUCUGCUACGACUG AGUGCUGGCAGAA CUU  UGAA G UUCUGC AC  G
U^  AU  C  A  CCAAC-  A  A  A  AGCU

```

```

>gly_37a  Gm10:4733496:4733599:-
GCATACATTGTGTGCCTGGCTCCCTGTATGCCATTTGTAGACCCCATCACAATGGTGATGGCCTTATCAAATGGCGTATGAGGAGTCATGC
ATGCTGTGTTTTG
Initial ΔG = -52.20
GCAU|  U  C  CU  UAGACC  A
  ACAU GUGUGC UGGCUCC GUAUGCCAUUUG  CCAUCAC A
  UGUG CGUACG ACUGAGG UAUGCGGUA AAC  GGUAGUG U
GUUU^  U  U  AG  UAUUCC  G

```

```

>gly_37b  Gm13:23749975:23750082:-
ATAAGCATACTTTGTGTGCCTGGCTCCCTGTATGCCATTTGTAGACCCATTACAAAGGTGATGGCCTTAGCAAATGGCGTATGAGGAGTC
ATGCATGCTGTGTTTTG
Initial ΔG = -52.30
AU|  CUUU  C  CU  A  CC  A
  AAGCAUA  GUGUGC UGGCUCC GUAUGCCAUUUGU GA  CCAUUAC A
  UUUGUGU  CGUACG ACUGAGG UAUGCGGUA AACG UU  GGUAGUG A
GU^  ----  U  AG  A  CC  G

```

```

> gly_38  Gm18:34200523:34200636:+
CTATATATAATATGGATAACATGCAGAAGCTTTGTACTACGTTCTACAAGAATAAAAGCTTTTTATTCTCTAAATGTAGTAC
AAAGCTTCTATATGTTATCCATGTTAGTGTGC
Initial ΔG = -54.70
C|  A  C  CUACA  G
  UAUAU UAAUAUGGAUACAUG AGAAGCUUUGUACUACGUU  AGAAUAAAA  \
  GUGUG AUUGUACCUAUUGUAU UCUUCGAAACAUGAUGUAA  UCUUAUUUU C
C^  -  A  AUC--  U

```

```

>gly_39  Gm08:4270886:4271063:-
AAGAAAAATATCTTGGGACAGAGGTATCAATACTAAATTTTTTATTGAATTCATCAAATAACAATGACAAATTTTCCTTAT
AACTCTTTGAATGACTTAACACAATTTATCCTTGTATTTGATGGAGTTTAATAAAAAATTTAGTTTTGATATCACTGTCCA
AGATATTTTCTTA
Initial ΔG = -79.40
-|  G  A  U  U  C  UUCUUA  C  UUU
  AAGAAAAUAUCUUGG ACAG GUAUCAACUAAAUUUUUAUGAAUCCAUAUAAACAA GA AAAUU  UAA UC  \
  UUCUUUUUAUGAACC UGUC CUUAUGUU UGAUUUAAAAAAUAAUUGAGGUUUUAUUGUU CU UUUA  AUU AG  G
A^  -  A  U  C  A  CACA---  C  UAA

```

```

> gly_40a  Gm02:9877923:9878114:-
GTTCTTTTTGTTCATTTGATTTTTTAATATTTAAATTAATTCATTTTTTTAAGAATGTGTATTTTATGATGATTTAAATCATTGATA
TTAATTTTGAATTGCCACAAAATTTAATTTCTTATAATTTAGACTCAAAAATAAAATGAATCAATTTAAAAATTAGAAGATCAAATTGA
ATCTATGAAA
Initial ΔG = -39.70
G  UUUUU  A  A  A  U  UUAAGAAU  G  UU  U  .-U|  A  A
UUC  GUUCAUUUGAUUUUUUAAU UUU  AAAUU AUUCA UUUU  GU UA  UUAUGA GA  UUAU AUC U
AAG  UAAGUUAAACUAGAAGAUUA AAA  UUUUA UAAGU AAAA  CA AU  AAUAUU CU  AAUU UAG U
A  UAUC-  A  A  C  U  UAAAAACU  G  UU  -  \  -^  A  U

```

90-120

```

>gly_40b  Gm11:36587596:36587859:+

```

TTTTTTAGGTTCAATTTGGTTATCTAGTTTTCTTAGACTGAATTTGTTTTTTTTTTAATTTTAAAAATTGATTTAATTTGGTCATACAAT
 TTAAATTAGATCAACAATAAAGAAATAACACTTTCTCTTGAAATTTAAAAATCATCACCGAGTGAGTGATTTTAAACCGTCTATACATTT
 TCTAACATGTCATTTTTTTTTTTATTGACAAGATCAAATTTAAATAATTTAA^AAAATTAGAAGATCAAATTGAA

Initial $\Delta G = -54.10$

```
UUUUUUAGG      A      .-CUUA  UG      U-|  UU      UUA
      UUCAUUUGGUU  UCUAGUUUU      GAC  AAUU  GUU  UUUUU  A
      AAGUUAAACUAG  AGAUUAAA      CUG  UUAA  UAG  AAAAA  U
-----          A          \ ----  GU      UU^  UU      UUU
                          90-230
```

> gly_40c Gm18:52073025:52073212:+

TAATTTTTTGTTCGATTTGGTCATTTAATTTTAAAAATAATTTTTTTTTTATAAAAATATATATTTTGTGATGATTTAAAAATCACTTAATGAG
 TTTTGAGCTATCACAAAGGGTGATTTTTTACCATTTAAAAATGAAAAATAAATGAATCAATTTAAAA^AAAATTAGAAGATCAAATTGAAAAA
 AAAATT

Initial $\Delta G = -47.00$

```
U      G      A      .-AAAAUAAUU      .-AAAAUUAUUAU      A      -|  CU
AAUUUUUU  UUCGAUUUGGUC  UUAAUUUUUU      UUUUUUUUAU      UUUGUGAUG  UUAAAAA  UCA  \
UUAAAAAA  AAGUUAAACUAG  AGAUUAAA      AAAAAAGUA      AAACACUAU  GAGUUUU  AGU  U
-      A      A      \ -----  \ -----  C      G^  AA
```

> gly_41a Gm03:41268407:41268513:-

TTAGCATACTTGGCGTGCCTGGCTCCCTGTATGCCATTTGCAGAGCCCATCAGGACAGTGATGGCCTTAACGAATG^GCGTGCGAGGAGCCA
^TGCATGCTGTGTGTTA

Initial $\Delta G = -63.80$

```
U|      UU      C      C      CA      C      GG
UAGCAUAC  GCGGUGC  UGGCUCC  UGUAUGCCAUUUG  GAG  CCAUCA  A
AUUGUGUG  UCGUACG  ACCGAGG  GCGUGCGGUAAGC  UUC  GGUAGU  C
-^      --      U      A      AA      C      GA
```

> gly_41b Gm19:43795944:43796051:-

ATTAGCATACTTGGCGTGCCTGGCTCCCTGTATGCCATTTGCAGAGCCCATCAGGACAGTGATGGCCTTAACGAATG^GCGTGCGAGGAGGCC
^ATGCATGTTGTGCGTTA

Initial $\Delta G = -58.50$

```
AUUA|      CUUG      C      C      CA      C      GG
      GCAUA      GCGUGC  UGGCUCC  UGUAUGCCAUUUG  GAG  CCAUCA  A
      CGUGU      UGUACG  ACCGAGG  GCGUGCGGUAAGC  UUC  GGUAGU  C
AUUG^      ----      U      A      AA      C      GA
```

> gly_42 Gm14:13037548:13037788:+

GTATTTTGTG^AAGTTGATGATAATAAATGAA^CCTTAACTAGATAGTGACCTTTGTATGCATGAAGGGATGATTTGGTGAAGTCAACCCCAA
 CACTTTTATTCATTGTTGTTATGTTTTTTTTTTTACCACATTCCAAGTATTTGTAATAAATTACCAAAAACAGTTTATTGTTCTTTACTCT
 TTAATTTTTTTGTTTATTTTAGTTCTTGGCATTTACATTATCGCAATTCAATTTAAACC

Initial $\Delta G = -41.30$

```
-  A  U      A      --      AA  UUA      .-UA  CC  U--|  AUGAA  AUU      UC--  CC---  CUUUU
GU  UU  GUUGAGUUG  UGAUAA  UAAUUG  CC  AACUAGA  GUGA  UUUG  AUGC  GGGUUG  UGGUGAAG  AAC  CAACA  \
CA  AA  UAACUUAAC  GCUAUU  AUUUAC  GG  UUGAUUU  CAUU  AAAU  UAUG  CCUUAAC  ACCAUUUU  UUG  GUUGU  A
C  A  U      -  AC  --  UUC  \ --  AA  GUU^  AA---  ---  UUUU  UAUUU  UACUU
                          160-170
```

> gly_43 Gm15:16622255:16622354:+
AAGGATATATTTTAAAGACGGTTGTTAGCTAAAAATCATCTTAGAGGAGTATATTTTTAAAGATGATTTATGTAAAGACTGTCTTAAATC
ATTTTTTTA
Initial $\Delta G = -33.30$
-| U AU G G UAA GU
AAGGA AU UUUUAAGACGGUU UUA C AAAUCAUCUUAGAGGA \
UUUUU UA AAAAUUCUGUCAAA AAU G UUUAGUAGAAUUUUU A
A^ U CU G - UA- AU
> gly_44a Gm02:38406240:38406364:+
ATGCATGTTCTCCTCTACCAGCTTAATATCTTCCGTTTCACCTTTGCTTTTGTAAACTACACTGTAATTTACAAAAAAAAGTTGAAAGG
AAAGATATTGAGCTGGTAGATGAGGAAGAAGCAC
Initial $\Delta G = -60.10$
A AUG C -| G C GC C A
UGC UUCCUC UCUACCAGCUAAUAUC UUC UUCA CUUU UUUUGUAAA UAC \
ACG AAGGAG AGAUGGUCGAGUUUAG AAG AAAGU GAAA AAAACAUUU AUG C
C AAG U A^ - U AA A U
> gly_44b Gm04:36054334:36054457:-
CGGCTCTTCTCCTCTACCAACTCAATATCTTTCGTTTCACCTTTGCTTTTGTAAACTACACTGTAATTTACAAAACAAAAGTTGAAAGGA
AAGATATTGAGCTGGTAGATGAGGAAGAAGCAC
Initial $\Delta G = -63.80$
CG -| C A G C GC C A
GC UCUUCCUC UCUACCA CUCAAUAUCUUUC UUCA CUUU UUUUGUAAA UAC \
CG AGAAGGAG AGAUGGU GAGUUUAGAAAG AAAGU GAAA AAAACAUUU AUG C
CA A^ U C G U AC A U
> gly_44c Gm07:21834157:21834282:-
TGTGTCTGTTCTCCTCTACCAGCTCAATATCTTTCGTTTCACCTTTGCTTTTGTAAACTACACTGTAATTTACAAAACAAAAGTTGAAAG
GAAAGATATTGAGCTGGTAGATGAGGAAGAAGCAC
Initial $\Delta G = -66.20$
U| U G- C G C GC C A
GUG CU UUCCUC UCUACCAGCUCAAUAUCUUUC UUCA CUUU UUUUGUAAA UAC \
CAC GA AAGGAG AGAUGGUCGAGUUUAGAAAG AAAGU GAAA AAAACAUUU AUG C
-^ - AG U G U AC A U
> gly_44d Gm10:27337135:27337260:+
CGTGGCTCTTCTCCTCTACCAGCTCAATATCTTTCCTTTACCTTTGCTTTTGTAAACTACACTGTAATTTACAAAACAAAAGTTGAAAG
GAAAGATATTGAGCTGGTAGATGAGGAAGAACCAC
Initial $\Delta G = -78.20$
C| C C C GC C A
GUGG UCUUCCUC UCUACCAGCUCAAUAUCUUUCUUUCA CUUU UUUUGUAAA UAC \
CACC AGAAGGAG AGAUGGUCGAGUUUAGAAAGGAAAGU GAAA AAAACAUUU AUG C
-^ A U U AC A U
> gly_44e Gm14:12615238:12615363:+
CGTGCCTGTTCTCCTCTACCAGCTCAATATCTTTATTTTCACTTTTGTGCTTTTGTAAACTACACTGTAATTTACAAAACAAAAGTTGAAAG
GAAAGATATTGAGCTGGTAGATGAGGAAGAAGCAC
Initial $\Delta G = -66.60$
C CUG C A -| C C A
GUGC UUCCUC UCUACCAGCUCAAUAUCUUUCUUUC ACUUUUG UUUUGUAAA UAC \
CACG AAGGAG AGAUGGUCGAGUUUAGAAA GAAAG UGAAAAC AAAACAUUU AUG U
- AAG U G U^ - A U
> gly_44f Gm18:15474680:15474805:+
CGTGCCTGTTCTCCTCTACCAGCTCAATATCTTTCGTTTCACCTTTGCTTTTGTAAACTACACTGTAATTTACAAAACAAAAGTTGAAAG
GAAAGATATTGAGCTGGTAGATGAGGAAGAAGCAC
Initial $\Delta G = -67.80$
C| CUG C G C GC C A
GUGC UUCCUC UCUACCAGCUCAAUAUCUUUC UUCA CUUU UUUUGUAAA UAC \
CACG AAGGAG AGAUGGUCGAGUUUAGAAAG AAAGU GAAA AAAACAUUU AUG C
-^ AAG U G U AC A U
> gly_44g Gm18:12719394:12719518:-
ATGCATGTTCTCCTCTACCAGCTCAATATCTTTCGTTTCACCTTTGCTTTTGTAAACTACACTGTAATTTACAAAACAAAAGTTGAAAGG
AAAGATATTGAGCTGGTAGATGAGGAAGAAGCAC
Initial $\Delta G = -65.60$

A| AUG C G C GC C A
 UGC UUCCUC UCUACCAGCUCAAUAUCUUUC UUUCA CUUU UUUUGUAAA UAC \
 ACG AAGGAG AGAUGGUCGAGUUUAUGAAG AAAGU GAAA AAAACAUUU AUG C
 C^ AAG U G U AC A U

>gly_44h Gm19:7602747:7602871:+
 GTGCCTGTTCCTCCTCTACCAGCTCAATATCTTTTCGTTTCACCATTGCTTTTGTAACTACACTGTAATTTATAAAAACAAAAGTTGAAAGG
 AAAGATATTGAGCTGGTAGATGAGGAAGAAGCAA

Initial ΔG = -61.40

G CUG C G -| CA C C A
 UGC UUCCUC UCUACCAGCUCAAUAUCUUUC UUUC AC UUG UUUUGUAAA UAC \
 ACG AAGGAG AGAUGGUCGAGUUUAUGAAG AAAG UG AAC AAAAUUUU AUG C
 A AAG U G U^ AA - A U

>gly_45 Gm05:14712477:14712591:-
 TAATGAACAAGTTTCTTAACTATTTGTCCTTAAGATTTTACTATTTCTTTTGTCTAATATGTAAATATAAATGGTGTAAAGGCC TAAAGGAC
 AAATAGTTAAGAAA GTTGTTCATT

Initial ΔG = -50.20

U G A A- -| CUU UA
 AAUGAACAA UUUCUUAACUAAUUUGUCCUU AG UUU UACUAAUU UUUGC A
 UUACUUGUU AAAGAAUUGAUAAACAGGAA UC GAA GUGGUAAA AAAUG U
 - G A GG U^ UAU UA

>gly_46 Gm16:2717409:2717580:+
 AATGATAACAAGGTAAAATGAATTGAGTTCTTTGTGAGTTAAAATCAACTTATGCACCTCACTTTTAGTTTTTGAAGAAGTTAAATGAAA
 GAGTTTCTATAGAAGTTAAGTGTGTAATGATTTTAAGTTATACAAAAAATCCAATTCATTTTACCCTTAAAATTATTT

Initial ΔG = -46.20

- AACAA- AG C --| G C CUC GUUUUU AAG- AA
 AAUGAU GGUAAAUGAAUUG UUU UUUGU GA UUAUUUCAA UUAUGCAC ACUUUUU GAAG UU \
 UUAUUU CCAUUUUACUUAAC AAA AAACA UU AAUUUUAGUU AAUGUGUG UGAAGAU CUUU AA A
 U AAUUC CU A UA^ G A AAU AU---- GAGA GU

>gly_47 Gm16:28407538:28407722:+
 GAGAGGAAGGAGGCTGATAGTTCAACAAGGCAGCTTTTCTTCATTTATATTGTGAAAAGTCTGTCTAGTATCCACCCTACCATCTGAATT
 CAGATTTCTTGAGAAAGAATGTCCCTTGCCATGAATGCCTCTAGAAATTAGGTGAGAAGCTTGCCCTGTGCGAACTATCAGCCTCCTTCCTC
 TCT

Initial ΔG = -88.60

- A .-U| UUA
 GAGAGGAAGGAGGCUGAUAGUUC ACAAGGCAAGCUUUUC UCAU \
 CUCUCCUUCUCCGACUAUCAAG UGUUCCGUUCGAAGAG AGUG U
 U C \ -^ UUA
 60-140

> miR4416d Gm02:30498955:30499126:-
 TGTGGTCACTTCTGCTCTGGGTGAGAGAAACACGTATTGAAGAAGGTTTCATGGCTTAGACAATAAGTTGCTACTTTGCTGAACTCACCATT
 TTATGTGAAGAAGTGGCTATGCTAATTGTTTGATTCTGTACAGTACGATACGGGTCGCTCTCACCTGGAGTAGGGCTGCC

Initial ΔG = -65.30

U|UG ACUU UG AA A AAGAAG U U GC A U-- GCUGAAC CAU
 G GUC CUGCUC GGUGAGAG AC CGUAUUG GU CA G UUAGACAAU AGU GCUACUUU UCAC U
 C CGG GAUGAG CCACUCUC UG GCAUAGC CA GU C AGUUUGUUA UCG CGGUGAAG AGUG U
 C^GU ---- GU GC G AUGCA- U - UU A UAU A----- UAU

> miR399i Gm08:9112036:9112142:-
 AGGTGCATTACTGGGCAATGACTTATTTGGCAGTTGAATTGACCATTACAGCCATGACCAGAGAAGCTATGTTTACCGCCAAAGAAGATTT
 GCCCGGCAATTCATCC

Initial ΔG = -31.40

A| C A UGA A A U UGACCA A-- CC
 GGUG AUU CUGGGCAA CUU UUUGGC GU GAAU UUC GG A
 CUAC UAA GGCCCGUU GAA AAACCG CA UUUG AAG CC U
 C^ U C UA- G C - UAUCG- AGA AG

> miR399j Gm09:34174615:34174748:+
 GTAAGCAAATCATTTCATAGGCATGTCTCTTTTGGCAGGTAATGGTGATTACTTTGGATTAATTCAGAGCTACCAAAATATGCCTCATAAA
 TAGTAATCAACTTGCCAAAGGAGAGCTGCCCTGTGAGTGCTTG

Initial ΔG = -54.80

G AAUCA UG .-AA| AUUA U

```

UAAGCA      UUCAUAGGGCA UCUCUUUUGGCAGGU      UGGUG      CUUUGGA U
GUUCGU      GAGUGUCCCGU AGAGGAAACCGUUCA      ACCAU      GAGACUU A
-      - - - - -      CG      \  --^      C--      A
> miR399k Gm16:35606655:35606782:+
GCAAATCATTCATAGGGCATGTCTCTTTGGCAGGTAATGGTGATTACTTTGGATTAATTTAGAGCTACCAAAATATGTCTTATATAGTAA
TCAACTTGCCAAAGGAGAGCTGCCCTGTGAGTGTTTG
Initial ΔG = -55.80
G|      U      UG      AAUGG      UU---      UA      AGAG
  CAAA CAUCAUAGGGCA UCUCUUUUGGCAGGU      UGAUUACU      GGAU AUUU      C
  GUUU GUGAGUGUCCCGU AGAGGAAACCGUUCA      ACUAAUGA      UCUG UAAA      U
-^      -      CG      - - - - -      UUAU      UA      ACCA

> miR4416c Gm19:40699070:40699221:-
TCCTATGGTCATCTTTGATCTGGGTGAGAGAAACGCGTATCGATGGATTGGGTTTCAGTTCTGGTCTCACACGGTTTGTCTAACAATTTGT
ACTGACTGTGTTTTGATCGATACGGGTGCGTCTCACCTAGGCCAGAGTTGCCAAACTTTG
Initial ΔG = -67.50
UCCUA-- U U AU      AA G      .-G| UG UU
      UGG CA CUUUG CUGGUGAGAG AC CGUAUCGAU GAU GG C
      ACC GU GAGAC GAUCCACUCUC UG GCAUAGCUA CUG CU A
GUUUCAA C U CG      GC G      \ -^ GU UG
      70~100

> miR408e Gm19:47163685:47163821:-
CAGGGCAAAGGCTGGGAACAGGCAGAGCACGAATGGAGCTATCAACAGAAAATGGAGAAGTGAGAAATGAGAGGAGAGAAAG
AGAGAGATCTGTTAGGGCTACGCTCATGCACTGCCTCTTCCCTGGCTCTGTCTCT
Initial ΔG = -42.69
CA| AA - C A C A G AUC AAAUGGAGAAGUGAGAAAU
  GGGCA GGCU GGGAA AGGCAG GCA GA UG AGCU AACAGA G
  UCUGU UCGG CCCUU UCCGUC CGU CU GC UCGG UUGUCU A
UC^ C- U C A A C A GA- AGAGAGAGAAAGAGAGGAG

> miR156aa Gm18:61442586:61442692:-
GGTGATGCTGCTGACAGAAGATAGAGAGCACTGATGATGAAATGCATGAAAGGGAATGGCATCTCACTCCTTTGTGCTCTCTAGTCTTCTG
TCATCATCCTTCTCCC
Initial ΔG = -43.90
- U UGC- C - U U - A -| GAA
  GG GA UG UGACAGAAGA UAGAGAGCAC GA GA UGA AUG CAU A
  CC CU AC ACUGUCUUCU AUCUCUCGUG UU CU ACU UAC GUA G
C U UCCU U G U C C C G^ AGG

> miR482f Gm18:61452908:61452997:-
AGAATTTGTGGGAATGGGCTGATTGGGAAGTAAATGAGATTGAGCAATACATTTAATTTCTTCCCAATTCGCCCATTCCTATGATTTCTG
Initial ΔG = -41.00
- U UG U-| GUAAU CAA
  AGAA U UGGAUUGGGC GAUUGGGAA GAGAUUGAG \
  UCUU A AUCCUUACCG UUAACCCUU CUUUAUUU U
G U GU CC^ - - - - - ACA

> miR164l Gm07:3508921:3509000:+
CGAACCACGCTGGAGAAGCAGGGCACATGCTTGATTTATGTAAGTTTTGAGCTGTGTCTACTTCTCCAGCATGGTTTC
Initial ΔG = -45.80
C| C C U UG UUUU
  GAACCA GCUGGAGAAG AGGGCACA GCU A G
  UUUGGU CGACCUCUUC UCCUGUGU CGA U U
C^ A A U GU UUGAA

Initial ΔG = -55.20
- - - -| UUU UAAUUUGU A - U CUUUC U
      GG GU GG UGACAGA AGAGAGUGAGCAC UGGCU UAGCAUGGA \
      CC CA CC CCACUGUCU UCUCUUACUCGUG GUCGA AUCGUGCU C
CUCU^ CU- UUUUCU- A A U AA- - - - U
> miR396l Gm17:35366529:35366672:-

```

GAATGGTCTTTTTCGTGATCTTCCACAGCTTTCTTGAACCTGTGTTGTGAGGCTTCTCTCCAATGAAGGTTTATACCTATGCAAAGAAAT
TCTATGAGCACAATTCAAGATAGCTGTGGAAAATCACTGAGATGATCTGGTTC

Initial $\Delta G = -53.30$

```
--   U   C   C           U   C   |   G   UCU
GAUU  GGUC UUUU GUGAU  UCCACAGCU UCUUGAA UGUU--UGUGAG CUUC  C
CUUG  CUAG AGAG CACUA  AAGGUGUCGA AGAACUU ACACG  AUAUUU GAAG  C
GU    U    U    A      U      A    \  ^    G    UAA
                                76-96
```

>miR156ab Gm06:4699132:4699253:-

TTCTTGGGACATAGAAATTGACAGAAGAGAGTGAGCACACAGAGGCACTTGGTATAGTATATATACTATTGCTTTTGCCTGCTCACTTCTC
TTTCTGTCAACTTCCAGTGTCTGAAAATTCC

Initial $\Delta G = -56.10$

```
UUCUU  .-CAUAGAAA      -   -|   A      CU   GU
      GGA      UUGACAG AAGAG AGUGAGCAC CAGAGGCA UGUUAU \
      CCUU      AACUGUC UUCUC UCACUCGUG GUUUUCGU AUCAUUA A
----- \ -----      U   U^   C      U-   AU
```

>miR156ac Gm04:4990842:4990962:-

TCTTTGGAACCTTAGAAATTGACAGAAGAGAGTGAGCACACAGAAGCACTTGGTATAGTTATATACTGTTGCTTTTGCCTGCTCACTTCTCT
TTCTGTCAACTTCCAGTGTCTGAAAATTCC

Initial $\Delta G = -55.60$

```
UCUUU  .-CUUAGAAA      -   -|   A      CU   G
      GGAA      UUGACAG AAGAG AGUGAGCAC CAGAAGCA UGUUAU U
      CCUU      AACUGUC UUCUC UCACUCGUG GUUUUCGU GUCAUUA U
----- \ -----      U   U^   C      U-   A
```

>miR156ad Gm17:38431866:38431973:-

AAGGGAGGTGACAGAAGAGAGTGAGCACACATAGTACTTTCTTGAATGATATAAGGTTTCATGCTTGAAGTTATGCTGCTTACTCTCTAT
CTGTCAACCATCACCAT

Initial $\Delta G = -49.80$

```
AA - --      -|   A      GU   CUUGA   UUAU
      GG GA  GGUGACAGA AGAGAGUGAGCAC CAUA ACUUU   AUGA   \
      CC CU  CCACUGUCU UCUCUCAUUCGUG GUAU UGAAG   UACU   A
UA A AC      A^   C      --   UUCG-   UUGG
```

>miR156ae Gm14:9431590:9431718:+

AATGAAGGGTAAGAGAGGTGACAGAAGAGAGTGAGCACACATGGTATTTTCTTGGATGATATAAGATTTTCATGCTTGAACCTATGCGTCT
CATTCTCTATCTGTCACCCATCATCATTTCTTTCTTGT

Initial $\Delta G = -54.70$

```
AAU-   UAA - --      -|   A      AUU  UU  -   UUAU
      GAAGGG  GA GA  GGUGACAGA AGAGAGUGAGCAC CAUGGU  UUC  GG  AUGA   \
      CUUUUCU  CU CU  CCACUGUCU UCUCUUACUCGUG GUAUCA  AAG  UC  UACU   A
UGUU   UUA A AC      A^   C      ---  U-  G   UUAG
```

>miR156af Gm04:4257059:4257160:+

AAGGGAGGTGACAGAAGAGAGTGAGCACACATAAATACTTTCTTGAAGATAAAGATTCATGCTTGAAGTTATGTGTGCTCACTCTCTATCT
GTCACCCACC

Initial $\Delta G = -58.60$

```
AAG| A      -      ACU  UU  A  UAA
      GG GGUGACAGA AGAGAGUGAGCACACAUAAU  UUC  GUA  GA   \
      CC CCACUGUCU UCUCUCACUCGUGUGUAUUG  AAG  CGU  CU   A
CCA^ -      A      ---  UU  A  UAG
```

>miR156ag Gm06:4013572:4013673:+

AAGGGAGATGACAGAAGAGAGTGAGCACACATGGTATTTTCTTGCACGATGACGATTCATGCTTGAAGCTATGCTGCTTACTCTCTATCT
GTCATCCCATC

Initial $\Delta G = -58.40$

```
AAG| A      -      AUU  UU  C  UGA
      GG GAUGACAGA AGAGAGUGAGCACACAUUGU  UUC  GCA  GA   \
      CC CUACUGUCU UCUCUCAUUCGUGUGUAUCG  AAG  CGU  CU   C
CUA^ -      A      ---  UU  A  UAG
```

>miR397c Gm08:4639046:4639152:-

GAGAAACATCAATTGAGTGCAGCGTTGATGAA GTTTCACTCTCATCTCAGGTAGATGCTTAATTTATAGTGTATGTTCATCGACACTGCAC
TCAATCA TGTTTTCT
Initial $\Delta G = -45.70$
- C C - UU CU-----| CA
GAGAAACAU AUUGAGUGCAG GUUGAUGA AGU CACU CAUCU \
CUUUUUGUA UAACUCACGUC CAGCUACU UUA GUGA GUAGA G
U C A G UU UAUUUAAUUC^ UG
>miR1513e Gm17:1401437:1401518:-
GATATGAGAGAAAGCCATGACTTACACACGCAATTGAAATCTAAGTTAAATATGTGTGTAAGTCATGGCATTATCTCATATCT
Initial $\Delta G = -42.20$
-| G A C GAAAUC
GAUAUGAGA AA GCCAUGACUUACACAG AUU \
CUAUACUCU UU CGGUACUGAAUGUGUGU UAA U
U^ A A A AUUGAA
>miR167k Gm02:307523:307611:-
CACTACTGGTTGAAGCTGCCAGCCTGATCTTA ACTTTTCTCTTTTATTAGGAAAAGATCAGATCATGTGGTAGCCTTCACCTAGTTGTT
Initial $\Delta G = -34.30$
C U U -| G C UAA U UU
AC ACUGG UGAA GCUGCCA C UGAUCU CUUUUC CU U
UG UGAUC ACUU CGAUGGU G ACUAGA GAAAAG GA A
U U C C^ - U CUA - UU
miR167i Gm02:307523:307611:-
CACTACTGGTTGAAGCTGCCAGCCTGATCTTA ACTTTTCTCTTTTATTAGGAAAAGATCAGATCATGTGGTAGCCTTCACCTAGTTGTT
Initial $\Delta G = -34.30$
C U U -| G C UAA U UU
AC ACUGG UGAA GCUGCCA C UGAUCU CUUUUC CU U
UG UGAUC ACUU CGAUGGU G ACUAGA GAAAAG GA A
U U C C^ - U CUA - UU
>miR2111g Gm01:31787453:31787538:+
CCGGATTAGGTAATCTGCATCCTGAGGTTTAGGACAATATCCTTTGTTTTGTTTCTAGTCCTTGGGATGCAGATTACGTCTTCCTT
Initial $\Delta G = -39.80$
CC UUAG UG U -| UAUC
GGA GUAAUCUGCAUCC AGG UUAG GACAA \
CCU CAUUAGACGUAGG UCC GAUC UUGUU U
UU UCUG GU U U^ UUGUU
>miR2111h Gm07:16402351:16402433:-
TGGGAAAAGCTAATCTGCATCCTGAGGTTTAGGACAATGTTTTGTTGCATCTAGTCCTTGGGATGCAGATTATCTCTTCCTT
Initial $\Delta G = -45.60$
U A C UG U -| GU
GGGAA AG UAAUCUGCAUCC AGG UUAGA GCAAU U
UCCUU UC AUUAGACGUAGG UCC GAUCU CGUUG U
U C U GU U A^ UU
>miR2111i Gm01:31787453:31787538:+
CCGGATTAGGTAATCTGCATCCTGAGGTTTAGGACAATATCCTTTGTTTTGTTTCTAGTCCTTGGGATGCAGATTACGTCTTCCTT
Initial $\Delta G = -39.80$
CC UUAG UG U -| UAUC
GGA GUAAUCUGCAUCC AGG UUAG GACAA \
CCU CAUUAGACGUAGG UCC GAUC UUGUU U
UU UCUG GU U U^ UUGUU
>miR2111j Gm18:49934381:49934486:-
AGTATTGGTTTAGGATCAGGTAATCTGCATCCTGAGGTTTAGAAACAATATGTTTATCGGGTCTAATCCTTGGGATGTAGATTACCGTC
CTTATGTTATGACCA
Initial $\Delta G = -44.00$
AGUAU U-----| CA UG U AACA U
UGGUU AGGAU GUAAUCUGCAUCC AGG UUAGA AUA G
ACCAG UCCUG CCAUUAGAUGUAGG UCC AAUCU UAU U
----- UAUUGUAU^ CA GU U GGGC U
>miR399e Gm05:34951412:34951529:+
TGTGCTGTTGAGGAATGATAGACAAATCTCCAGTGGCAGAGAGAAGTAGAGGGCTTGAACATGCATGCTTCTGGTTGCCAAAGGAGATT
TGCCCTGCCATTTTTTAAACAGTTTCAG

Initial $\Delta G = -54.40$

```

- U-      A  A      AG      G-|      GAGG  UUG
UG  GCUGUUGAGGAAUG UAG GCAAAUCUCC UGGCAGA AGAAGUA  GC  A
AC  UGACAAUUUUUUAC GUC CGUUUAGAGG ACCGUUU  UCUUCGU  CG  A
G  UU      C  C      AA      GG^      A---  UAC

```

>miR399f Gm08:9114311:9114428:+

```

TGTGCTGTTGAGGAATGATAGAGCAAATCTCCATTGGCAGTGGGAAGTAGAGGGCTTGAACATGCATGCTTCTGGTTTGCCAAAGGAGATT
TGCCCTGCCATTTTTTAACAGTTTCTG

```

Initial $\Delta G = -53.80$

```

UGU--      A  A      A      UG-|      GAGG  UUG
      GCUGUUGAGGAAUG UAG GCAAAUCUCC UGGCAG  GGAAGUA  GC  A
      UGACAAUUUUUUAC GUC CGUUUAGAGG AACCGUU  UCUUCGU  CG  A
GUCUU      C  C      A      UGG^      A---  UAC

```

>miR398d Gm08:14299237:14299369:-

```

GTAGGTAGAGGGATTCTACAGGGTCGTCCTGAGATCACATGAAGTAGAATATAAGCAGCCATATTTGCTTCTGTCTCGTGTCTCAGCTC
ATGTGTTCTCAGGTCGCCCTGCTGGACTATTCTCTACCAAC

```

Initial $\Delta G = -60.80$

```

GUA      AU-  -  U  U      U  A  --  -----|  CC
      GGUAGAGGG  UCUA CAGGG CG CCUGAGA CACAUG AGU  AGAAUUA  AAGCAG  A
      CCAUCUCUU  AGGU GUCC GC GGACUCU GUGUAC UCG  UCUUGUG  UUCGUU  U
CAA      AUC  C  C  U      U  -  AC      CUCUGUUC^  UA

```

>miR399n Gm05:34951412:34951528:+

```

TGTGCTGTTGAGGAATGATAGAGCAAATCTCCAGTGGCAGAGAGAAGTAGAGGGCTTGAACATGCATGCTTCTGGTTTGCCA
AAGGAGATTTGCCCTGCCATTTTTTAACAGTTTCA

```

Initial $\Delta G = -53.80$

```

UGU-      A  A      AG      G-|      GAGG  UUG
      GCUGUUGAGGAAUG UAG GCAAAUCUCC UGGCAGA AGAAGUA  GC  A
      UGACAAUUUUUUAC GUC CGUUUAGAGG ACCGUUU  UCUUCGU  CG  A
ACUU      C  C      AA      GG^      A---  UAC

```

> miR399o Gm08:9114319:9114417:+

```

TGAGGAATGATAGAGCAAATCTCCATTGGCAGTGGGAAGTAGAGGGCTTGAACATGCATGCTTCTGGTTTGCCAAAGGAGAT
TTGCCCTGCCATTTTTT

```

Initial $\Delta G = -42.90$

```

U      A  A      A      UG-|      GAGG  UUG
      GAGGAAUG UAG GCAAAUCUCC UGGCAG  GGAAGUA  GC  A
      UUUUUUAC GUC CGUUUAGAGG AACCGUU  UCUUCGU  CG  A
-      C  C      A      UGG^      A---  UAC

```

>miR1520s Gm13:27429341:27429439:-

```

TGACTGTCTATGTTATGTTCTGATTGGATGTTAACTCCATGAAAAATGAAATGCATTGTTATATTTATTGACCAATCAAACATGACACA
TGATAGTC

```

Initial $\Delta G = -37.80$

```

U|      C      AUG  CUCCAUGAAA  AA
      GACUGUCAUGUGUUAUGUU UGAUUGG  UUAA  AAUG  \
      CUGAUAGUACACAGUACAA ACUAACC  AGUU  UUAC  A
-^      A      ---  AUUUUAUUG  GU

```

>miR4357b Gm05:28486211:28486397:-

```

TCTATCTATGAACTGTACAAAACACACGACTCCTCAATTTTTCTCAAATAATTTTATCTCGTTGTGCCTCAAAGTGATTAAATTCGTCCG
GTTTCCGCAGTGGTTCCCATACAATACTCATCGCACATTAACCTCATCACCTTAAAGGGTCTTACAGTCGTGTGATTGTACGGTTTCATAA
CTCAC

```

Initial $\Delta G = -51.30$

```

UCUAUC      AA      .-CCUCAUUUUUUUCUAAAAUUUUUAUCUCGU  CUCAA  .-AUUAAAUC|U  G
      UAUGAACUGUACAA  CACACGACU  UGUGC  AGUG  G  CGG  U
      AUACUUGGCAUGUU  GUGUGUGA  ACACG  UCAU  C  GCC  U
CACUCA      A-  \  -----  CUAC-  \  -----^  U
      UUAACUCAUC  UU
      ACCC  \
      UGGG  A
      CAUUC-----  AA

```

>miR4357c Gm16:25363104:25363290:-
TCTATCTATTAAGTGTACAAAACACATGACTCCTCAATTATTTCTCAAATAATTTTAAGTCATCGCACCTCAAAGTGATTGAACTCGTCGG
GTTTCCACGGTGGATCCCATACAATACTCGTCGCACACTAATTCGTCGCCTTAAAGGGTTTACAGTCGTGTGATTGTACGGTTCATAG
CTCGC
Initial ΔG = -44.10

```
UCUAU      U          AA          -----  .-C|          CU
      CUAU AACUGUACAA  CACAUGACU      CCU      AAUUAUU  \
      GAUA UUGGCAUGUU GUGUGCUGA      GGG      UUAUAAA  C
CGCUC      C          A-          CAUUUU  \ -^          AA
                                     (60-140)
```

>miR166v Gm19:36649678:36649997:-
AAGGAAAGGAGGGTGTCTGG**AATGAAGTTTGATCCGAAATC**ATTGTCTCAGTTTCGTTTCATTTTAACTTTGCTTGTGTCAAAGAGAGGCA
GAAAGAGAGAGAGAGAGAGAGATTGGTCATGATCTGAGAAGGAAAGGGGGTGTGGAAATGAGGTTTGATCCAAGATCATCACATCATATA
TATATCTTCTTCTCAATTTCCCTTTCTTCTGATTTACTTACCTTCATACATATATTATTATTTTCATCACTTCATGCATGGGATGAGA
CTGATC**TCGGACCAGGCTTCATTCCTC**ACACCTAACTTTCTTGTAG
Initial ΔG = -112.80

```
----      GA      CU          A      A      .-UU|      AG      G      A      AAC      G      GU
      AAGGAAAG  GGGUGU  GAUGAAGUUUG UCCGA AUCA      GUCUC  UUUC  UUC  UUUU  UUUGCUU  UU  C
      UUCUUUC  UCCACA  CCUUAUCUCCGAC AGGCU  UAGU      UAGAG  AGAG  GAG  AGAG  AGACGGA  AG  A
GAUG      AA      CU          C      C      \  --^      AG      A      -      AA-      G      AA
                                     120-270
```

>miR166w Gm16:3661255:3661616:+
AAGTAGGGTGTGTTGG**AATGAAGTTTGATCCGAAATC**ATTGTCTCAGTTTCATTCATTTAATTTTAACTTTGCTTGTGTGTCAGAGAGAGAGA
GATTTGTCATGATCTGAGAAGGAAAGGGGGTGTGTGGAATGAGGTTTGATCCAAGATCATCACATCATATATATATATATATATATATA
TAT
TCATACATATACTGTTATTATTATCATCTCTAATTCATGCATTGGATGGGACTGATC**TCGGACCAGGCTTCATTCCTC**ACACCTAGCT
Initial ΔG = -130.50

```
A      A      UU          A      AAUCAUUGUC      UU      .-UUUAAUUUUAA      -|UU
      AGU  GGGUGU  GAUGAAGUUUG UCCGA          UCAGU  CAUUA          CUUUG  C      \
      UCG  UCCACA  CCUUAUCUCCGAC AGGCU          AGUCA  GUAGGU          GAGAC  G      G
-      A      CU          C      CU-----      GG      \ -----      U^UU
                                     90-310
```

> miR862c Gm08:46853888:46854011:+
AACAGGAGAACTCTTCATGT**TCCCTCAAAGGCTTCCAGTAT**TCCCGTATTCATTCATATATACCTAGCTAGAATTGATTGAA
TGCTGGATGTCTTTGAAGGAACTTGGAAGCTTACTTTCGATCT
Initial ΔG = -42.00

```
AACA-      AACU      AU-      C      U      CCGU-|      AUUCAUUA
      GGAG      CUUC      GUUCC UCAAAGGC UCCAGUAUUC      AUUC      \
      CUUC      GAAG      CAAGG AGUUUCUG AGGUCGUAAG      UAAG      U
UCUAG      AUUC      GUU      A      U      UUAGU^      AUCGAUCCA
```

> miR862d Gm18:61624595:61624704:-
ATCAAAAAGAGTCTTCGTGT**TCCCTCAAAGGCTTCCAGTAT**TCATTCATACCTAACTAGTTGCTTGAAT**GCTGGATGTCTTT**
GAAGGAATTTGAAAGCTTACTTCTACGC
Initial ΔG = -42.50

```
AUCAA-      -|      UC      U      C      U      UU      UACCU
      AAG  AAG  UUCG  GUUCC UCAAAGGC UCCAGUAUUCA  CA      A
      UUC  UUC  AAGU  UAAGG AGUUUCUG AGGUCGUAAGU  GU      A
CGCAUC  A^  GA      U      A      U      UC  UGAUC
```