

Insilico Analysis of MicroRNA of Mentha (X piperita Peppermint)

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Received: 19-September-2023; **Manuscript No:** IPBMBJ-23-17816; **Editor assigned:** 21-September -2023; **PreQC No:** IPBMBJ-23-17816 (PQ); **Reviewed:** 04-October-2023; **QC No:** IPBMBJ-23-17816; **Revised:** 07-January-2025; **Manuscript No:** IPBMBJ-23-17816 (R); **Published:** 14-January-2025; **DOI:** 10.36648/ 2471-8084.11.1.48

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Citation: Ishaq S, Khan J, Tahir R, Aziz A, Habib O, et al. (2025) Insilico Analysis of MicroRNA of Mentha (X piperita Peppermint). Biochem Mol Biol J. 11.1.48.

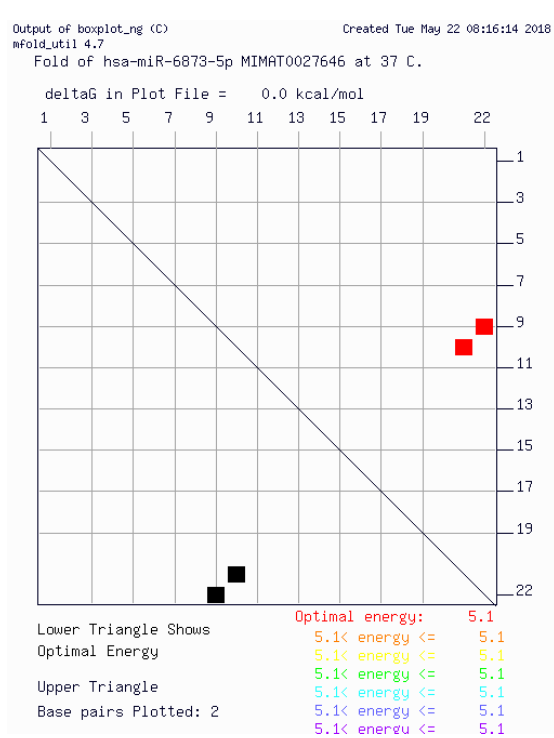
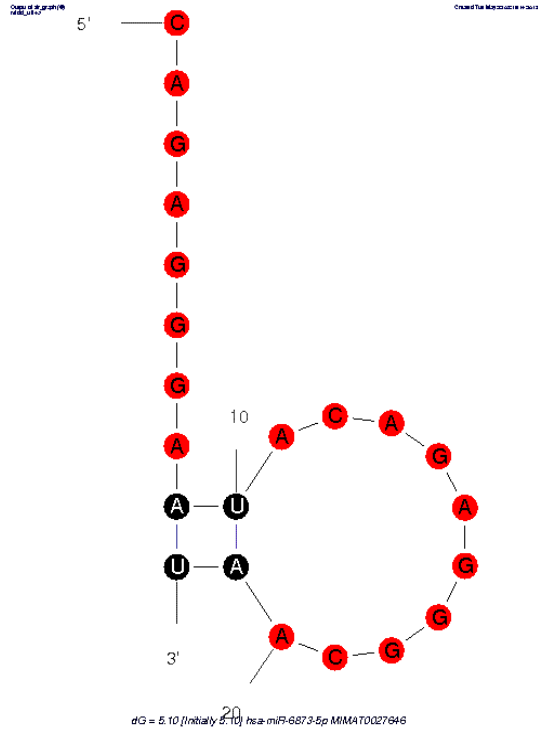
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SUPPLEMENTARY DATA

Micro RNA Structure # 1

>hsa-miR-6873-5p MIMAT0027646

Energy=5.10



Structural Elements	Energy	Information
External loop	0.20	8 ss bases & 1 closing helix
Stack	-1.10	External closing pair is A ⁹ – U ²²
Helix	-1.10	2 base pairs
Hair pin loop	6.00	Closing pair is U ¹⁰ – A ²¹

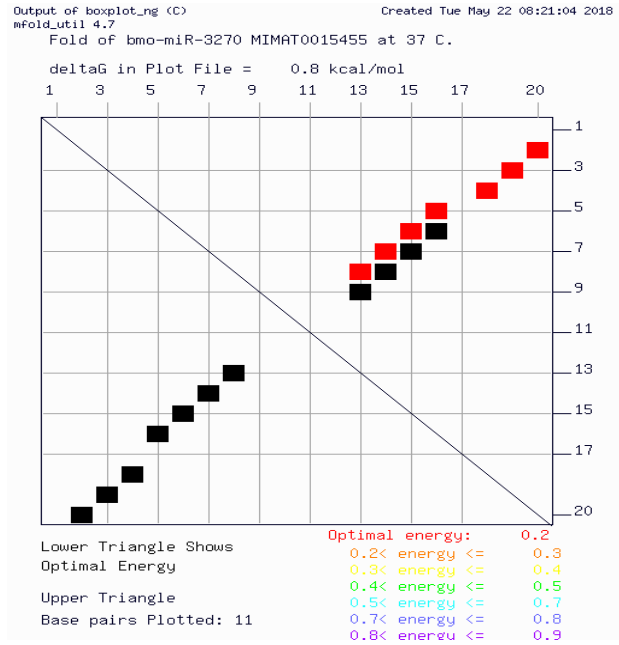
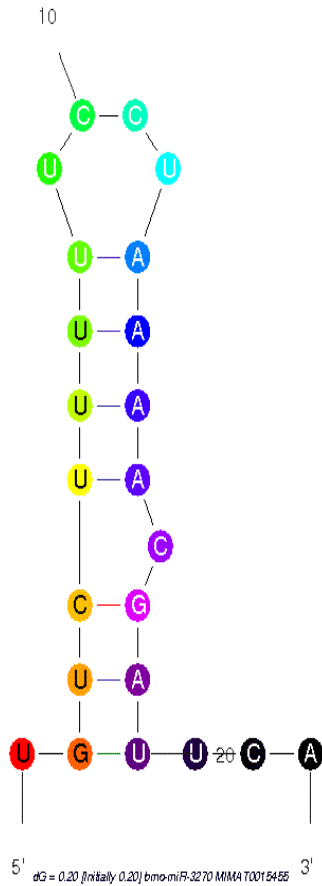
Micro RNA Structure # 2:

>bmo-miR-3270 MIMAT0015455

Energy= 0.20

Output of boxplot_ng (C)
mfold_util 4.7

Created Tue May 22 08:21:04 2018



Structural element	deltaG	Information
External loop	0.20	4 ss bases & 1 closing helices.
Stack	-1.40	External closing pair is G 2-U 20
Stack	-2.40	External closing pair is U 3-A 19
Helix	-3.80	3 base pairs.
Bulge loop	1.70	External closing pair is C 4-G 18
Stack	-0.90	External closing pair is U 5-A 16
Stack	-0.90	External closing pair is U 6-A 15
Stack	-0.90	External closing pair is U 7-A 14
Helix	-2.70	4 base pairs.
Hairpin loop	4.80	Closing pair is U 8-A 13

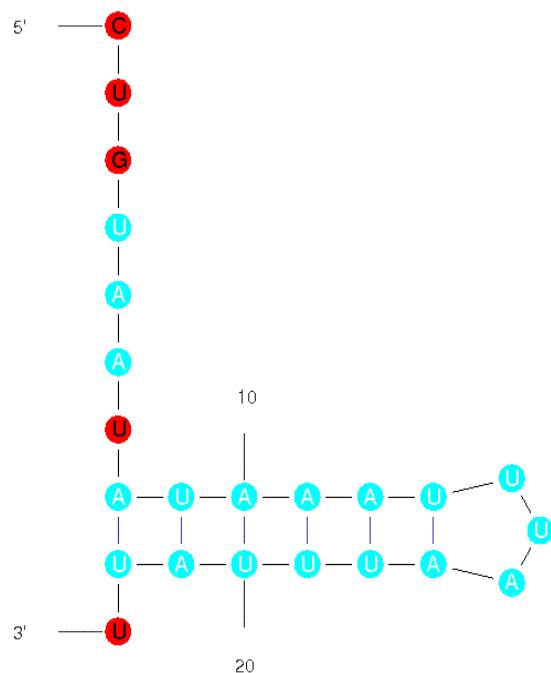
Micro RNA Structure # 3

>hsa-miR-2054 MIMAT0009979

Energy = 1.10

Output of mfold

Output of mfold



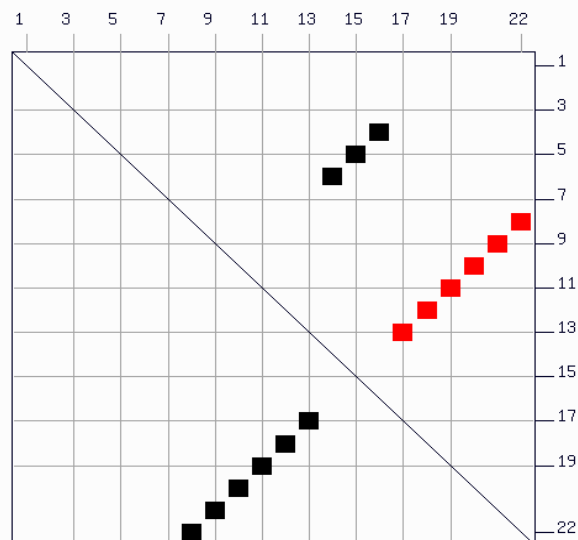
dG = 1.10 [initially 1.10] hsa-miR-2054 MIMAT0009979

Output of boxplot_ng (C)
mfold_util 4.7

Created Tue May 22 08:14:50 2018

Fold of hsa-miR-2054 MIMAT0009979 at 37 C.

deltaG in Plot File = 1.0 kcal/mol



Lower Triangle Shows
Optimal Energy
Upper Triangle
Base pairs Plotted: 9

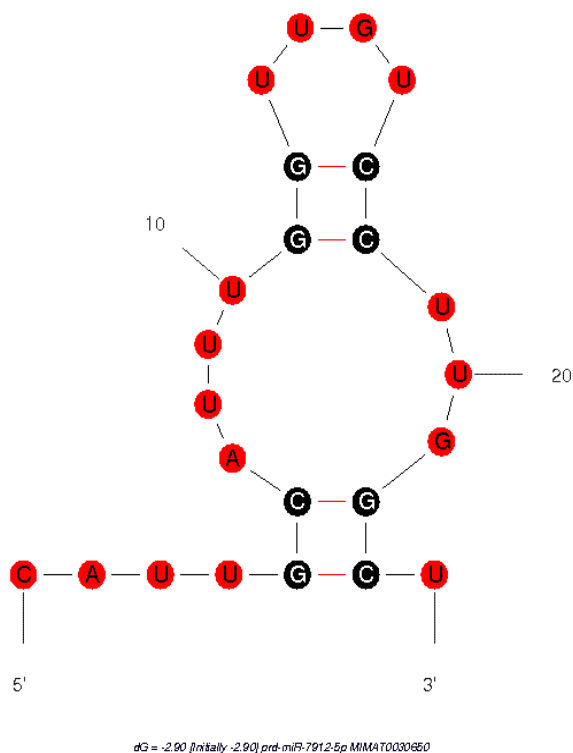
Optimal energy: 1.1
1.1 < energy <= 1.2
1.2 < energy <= 1.4
1.4 < energy <= 1.5
1.5 < energy <= 1.7
1.7 < energy <= 1.8
1.8 < energy <= 2.0

Structural elements	Energy	Information
External loop	0.20	8 ss bases % one closing helix
Stack	-1.1	External closing pair is A ⁸ - U ²²
Stack	-1.3	External closing pair is U ⁹ - A ²¹
Stack	-0.90	External closing pair is A ¹⁰ - U ¹⁰
Stack	-0.90	External closing pair is A ¹¹ - U ¹⁹
Stack	-1.1	External closing pair is A ¹² - U ¹⁸
Helix	-5.3	6 bases pairs
Hairpin loop	6.20	Closing pair is U ¹³ - A ¹⁷

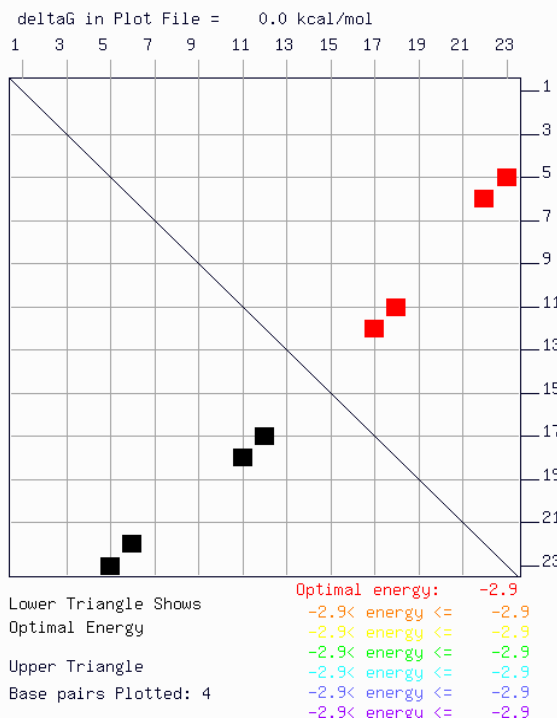
Micro RNA structure # 4

>prd-miR-7912-5p MIMAT0030650

Energy = -2.90



Output of boxplot_ng (C) Created Tue May 22 08:13:35 2018
mFoldUtil 4.7
Fold of prd-miR-7912-5p MIMAT0030650 at 37 C.

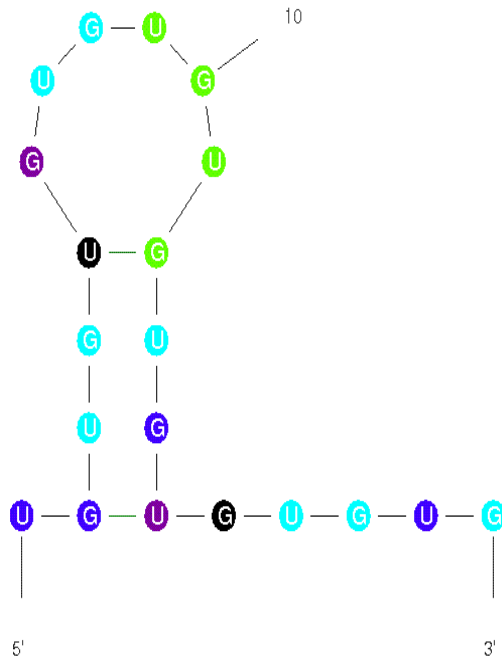


Structural information	Energy	Information
External loop	-1.2	5 ss bases and one closing helix
Stack	-3.4	External closing pair is G ⁵ – C ²³
Interior loop	-3.4	2 base pair
Stack	0.90	External closing pair is G ⁶ – C ¹⁸
Helix	-3.30	2 base pair
Hairpin loop	4.10	Closing pair is G ¹² – C ¹⁷

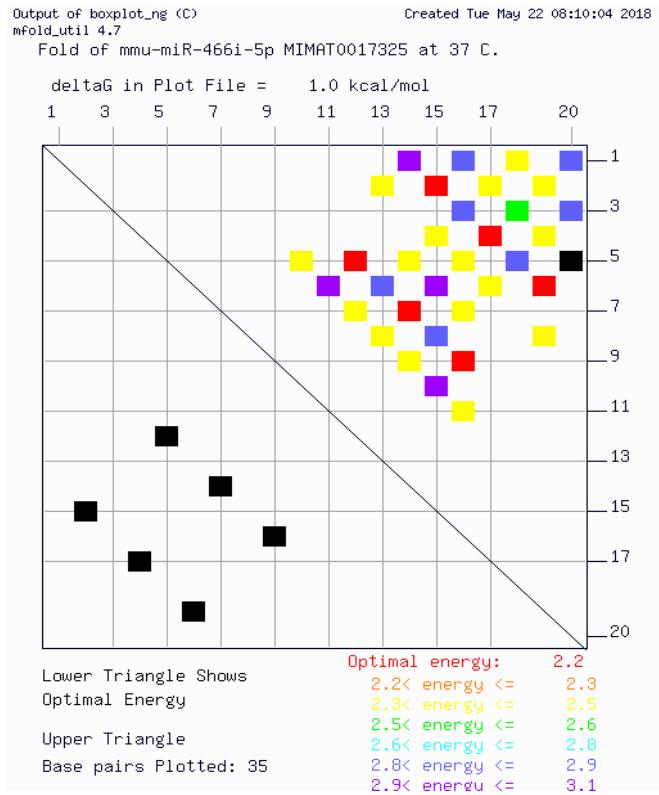
Micro RNA structure # 5

>bta-miR-574 MIMAT0024577

Energy = 2.10



$\Delta G = 2.20$ [initially 2.20] mmu-miR-466i-5p MIMAT0017325

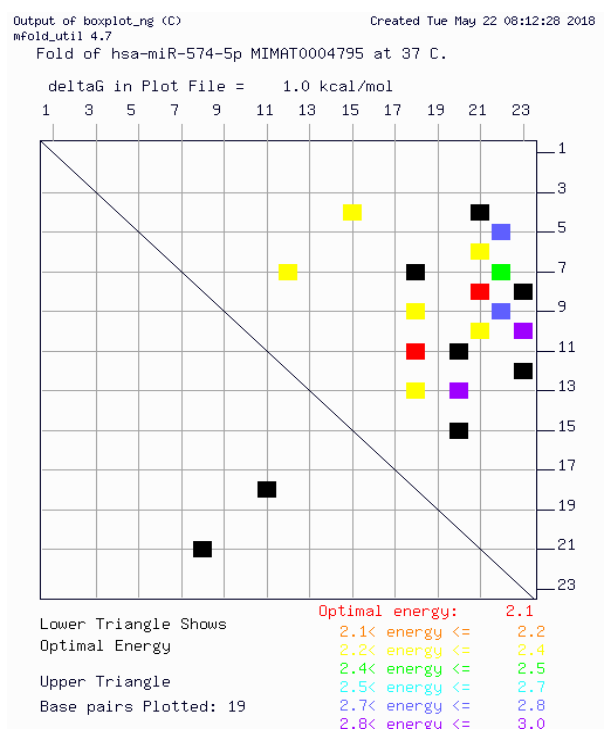


Structural Elements	Energy	Information
Exterior loop	-0.40	6 ss bases and one closing helix
Interior loop	-2.10	External closing pair is G ² – U ¹⁵
Hairpin loop	4.7	Closing pair is U ⁵ – G ¹²

Micro RNA Structure # 7

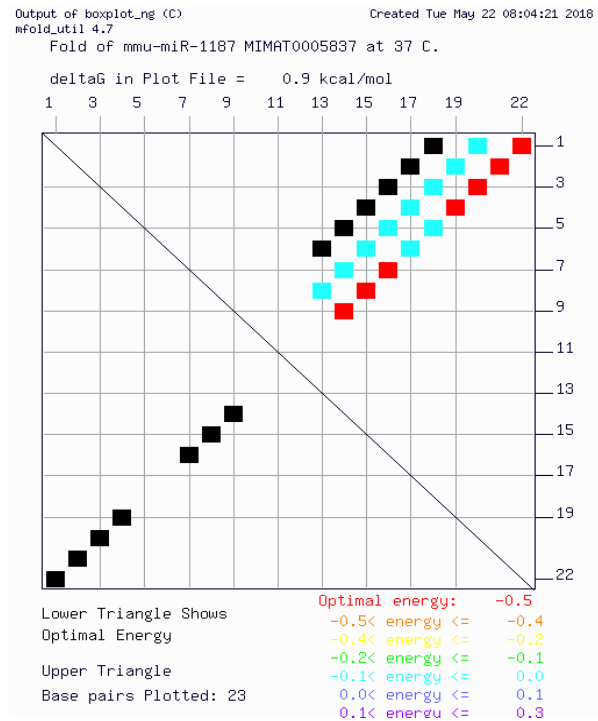
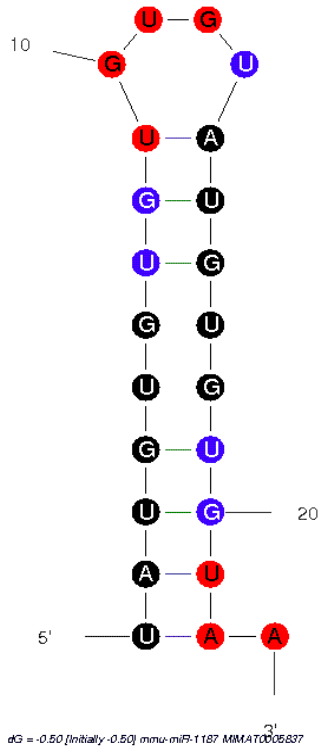
>hsa-miR-574-5p MIMAT0004795

Energy = 2.1



Structural Elements	Energy	Information
External loop	-0.40	9 ss base pair and one closing helix
Interior loop	-2.10	External closing pair is G ⁸ – U ²¹
Hairpin loop	4.60	Closing pair U ¹¹ – G ¹⁸

Energy = -0.50

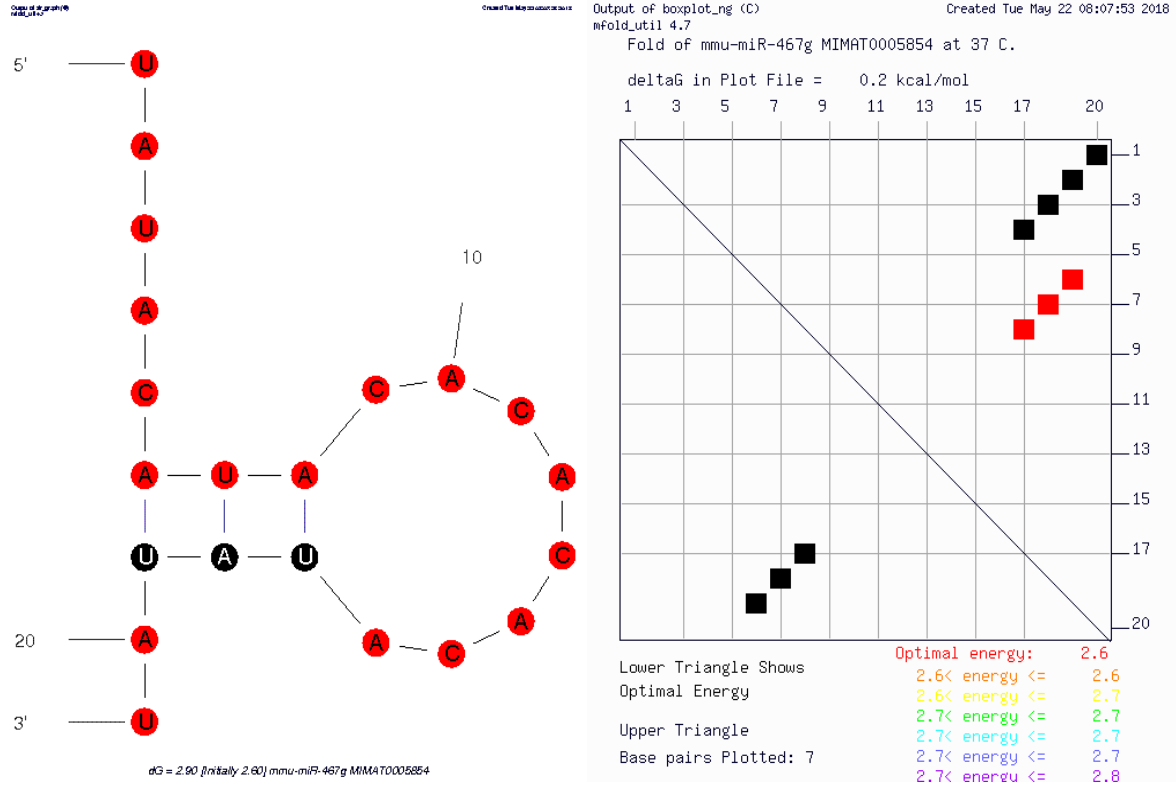


Structural elements	Energy	Information
External loop	0.30	1 ss base and one closing helix
Stack	-1.30	External closing pair is G ⁴ – U ¹⁷
Stack	-1.40	External closing pair is U ⁵ – G ¹⁶
Stack	0.3	External closing pair is G ⁶ – C ¹⁵
Helix	-1.40	External closing pair is U ⁷ – A ¹⁶
Interior loop	-2.40	4 base pairs
Stack	-2.1	Closing pair is G ⁸ – U ¹³
Stack	0.3	External closing pair is U ⁴ – U ¹⁹
Helix	-1.4	Closing pair is G ⁸ – U ¹⁵
Hairpin loop	-1.10	3 base pair is U ⁹ – A ¹⁴

Micro RNA Structure # 9

>mmu-miR-467g MIMAT0005854

Energy = 2.60

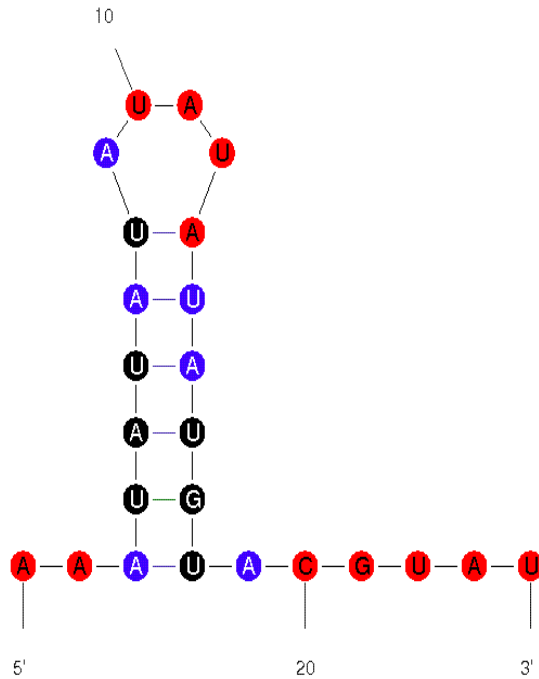


Structural Elements	Energy	Information
External loop	-0.50	7 ss base and one closing helix
Stack	-1.10	External closing pair is A ⁶ – U ¹⁹
Stack	-1.30	External closing pair U ⁷ – A ¹⁸
Helix	-2.40	3 ss base pairs
Hair pin loop	5.50	Closing pair is A ⁸ – U ¹⁷

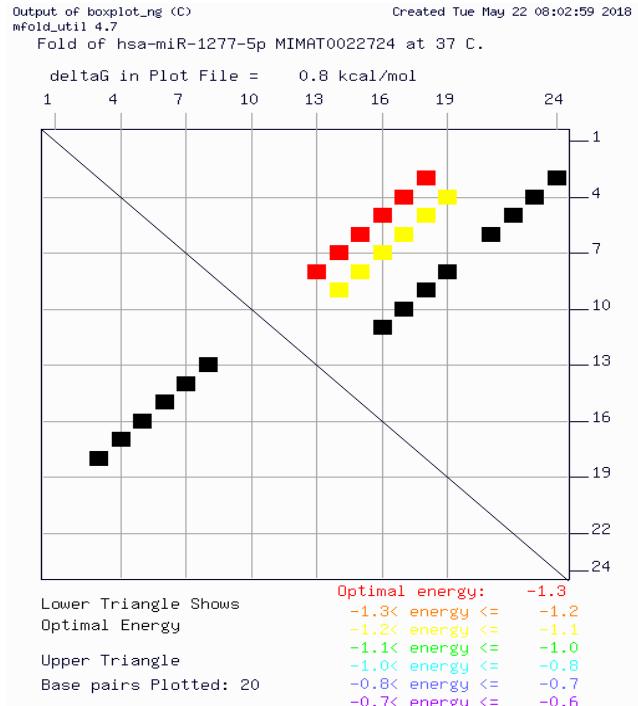
Micro RNA Structure # 10

>hsa-miR-1277-5p MIMAT0022724

Energy = -1.3



dG = -1.30 [Initially -1.30] hsa-miR-1277-5p MIMAT0022724



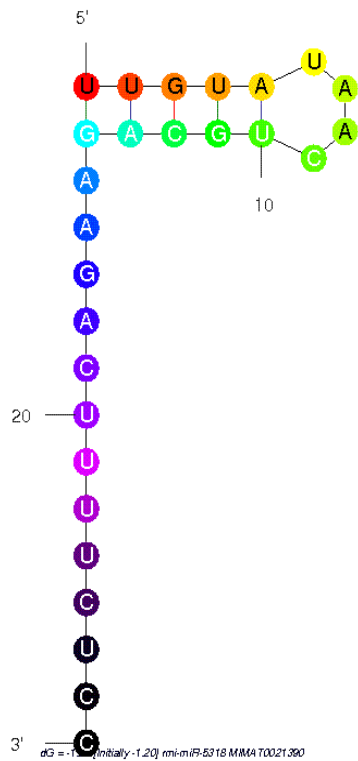
Structural element	dG	Information
External loop	-0.50	8 ss bases & 1 closing helices.
Stack	-1.40	External closing pair is A ³ -U ¹⁸
Stack	-1.00	External closing pair is U ⁴ -G ¹⁷
Stack	-1.10	External closing pair is A ⁵ -U ¹⁶
Stack	-1.30	External closing pair is U ⁶ -A ¹⁵
Stack	-1.10	External closing pair is A ⁷ -U ¹⁴
Helix	-5.90	6 base pairs.
Hairpin loop	5.10	Closing pair is U ⁸ -A ¹³

Micro RNA Structure # 11

>rmi-miR-5318 MIMAT0021390

Energy = -1.20

Output of boxplot.ng
mfold_util

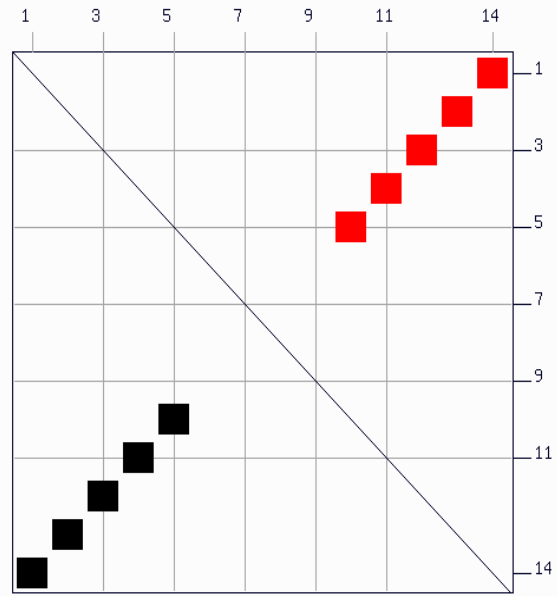


Output of boxplot.ng (C)
mfold_util 4.7

Created Tue May 22 04:01:56 2018

Fold of rmi-miR-5318 MIMAT0021390 at 37 C.

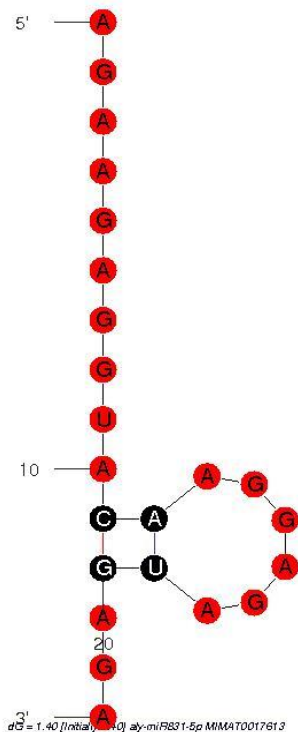
deltaG in Plot File = 0.0 kcal/mol



Lower Triangle Shows
Optimal Energy
Upper Triangle
Base pairs Plotted: 5

Optimal energy: -1.2
-1.2 < energy <= -1.2
-1.2 < energy <= -1.2
-1.2 < energy <= -1.2
-1.2 < energy <= -1.2
-1.2 < energy <= -1.2
-1.2 < energy <= -1.2

Output of boxplot.ng
mfold_util



Micro RNA Structure # 12

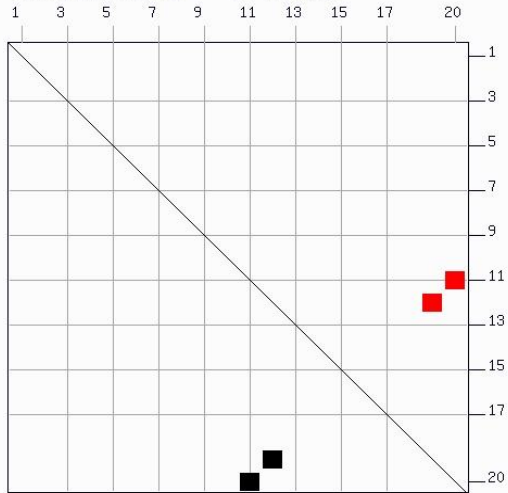
>aly-miR831-5p MIMAT0017613

Energy = 1.4

Output of boxplot_ng (C) Created Mon May 21 08:00:09 2018
mFold_util 4.7

Fold of aly-miR831-5p MIMAT0017613 at 37 C.

deltaG in Plot File = 0.0 kcal/mol



Lower Triangle Shows
Optimal Energy

Upper Triangle

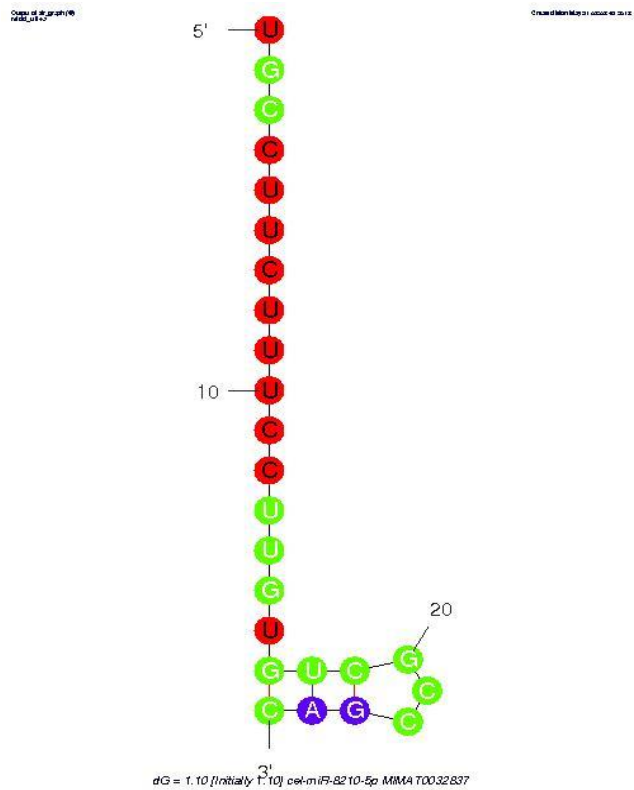
Base pairs Plotted: 2

[illegible]

Micro RNA structure # 13

```
>cel-miR-8210-5p MIMAT0032837
```

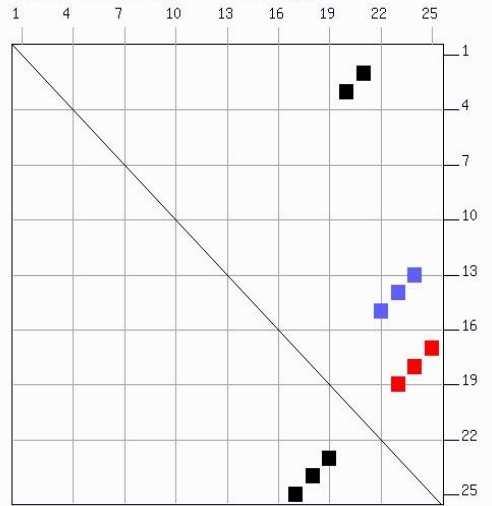
Energy = 1.10



Output of boxplot_ng (C) Created Mon May 21 08:03:45 2018
mfold_util 4.7

Fold of cel-miR-8210-5p MIMAT0032837 at 37 C.

deltaG in Plot File = 0.8 kcal/mol



Lower Triangle Shows
Optimal Energy

Upper Triangle

Base pairs Plotted: 8

Optimal energy:	1.1
1.1 < energy <=	1.2
1.2 < energy <=	1.3
1.3 < energy <=	1.4
1.4 < energy <=	1.6
1.6 < energy <=	1.7
1.7 < energy <=	1.8

Micro RNA structure # 14

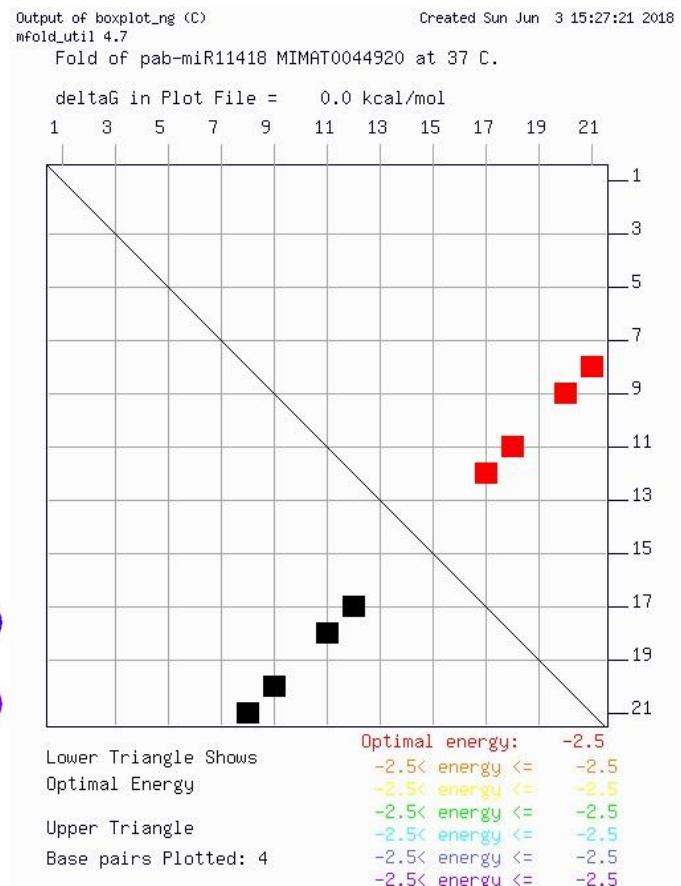
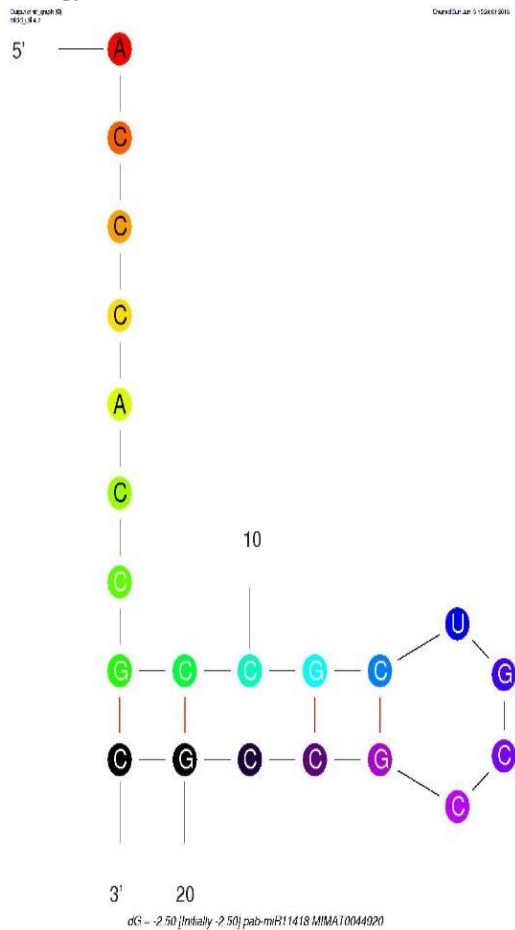
>cel-miR-8209-5p MIMAT0032835

No folding is possible because they contain no pair. The e-value is lower than 0.099 but it will not perform the function.

Micro RNA Structure # 15

>pab-miR11418 MIMAT0044920

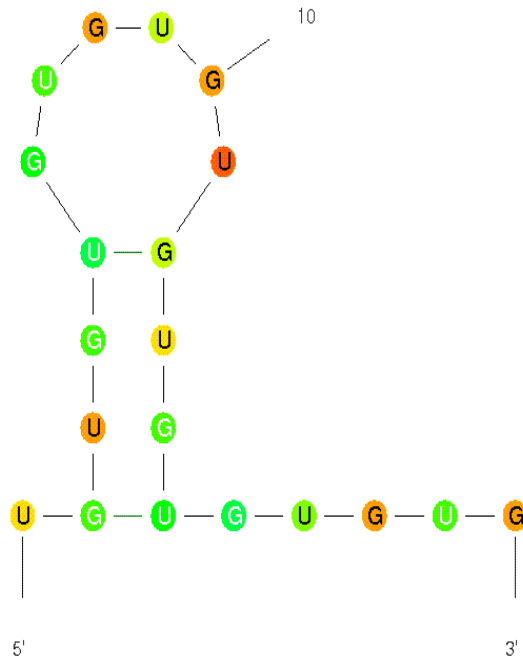
Energy = -2.50



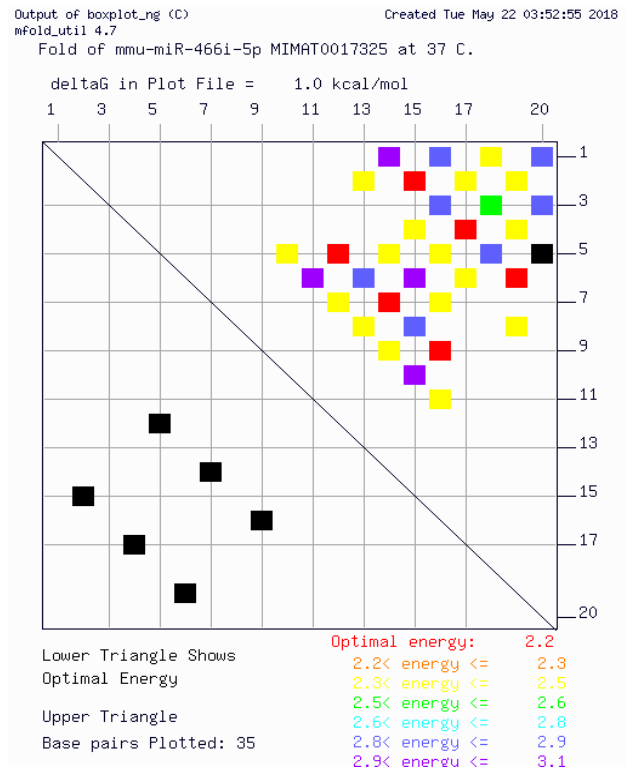
Micro RNA Structure # 16

>mmu-miR-466i-5p MIMAT0017325

Energy = 2.20



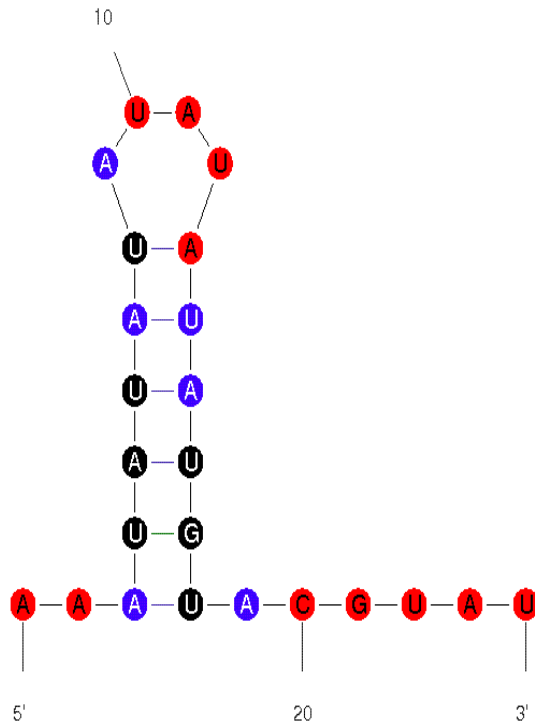
dG = 2.20 (Initially 2.20) mmu-miR-466i-5p MIMAT0017325



Micro RNA Structure # 17

>hsa-miR-1277-5p MIMAT0022724

Energy = -1.30

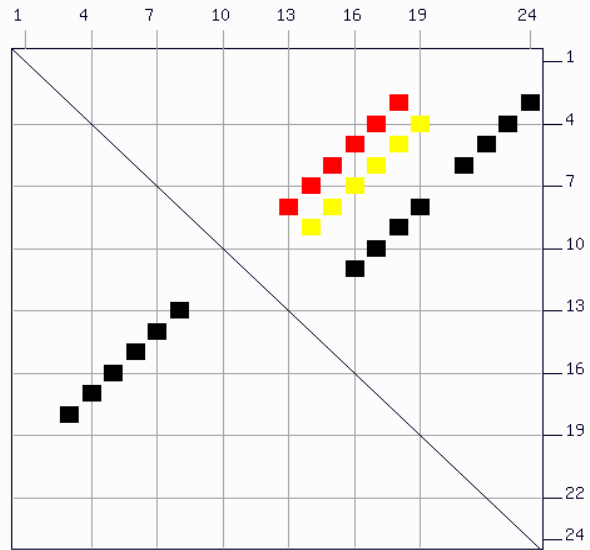


$\Delta G = -1.30$ [initially -1.30] hsa-miR-1277-5p MIMAT0022724

Output of boxplot_ng (C) Created Tue May 22 08:02:59 2018
mfold_util 4.7

Fold of hsa-miR-1277-5p MIMAT0022724 at 37 C.

deltaG in Plot File = 0.8 kcal/mol



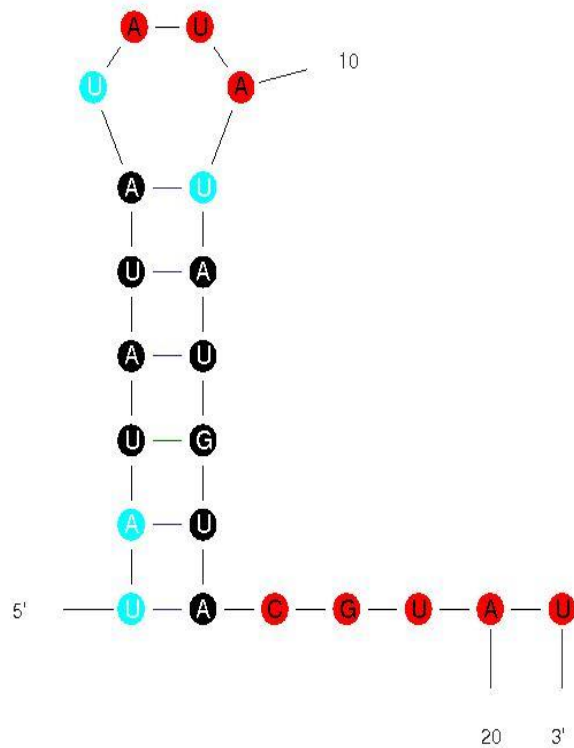
Lower Triangle Shows
Optimal Energy
Upper Triangle
Base pairs Plotted: 20

Optimal energy: -1.3
-1.3 < energy <= -1.2
-1.2 < energy <= -1.1
-1.1 < energy <= -1.0
-1.0 < energy <= -0.8
-0.8 < energy <= -0.7
-0.7 < energy <= -0.6

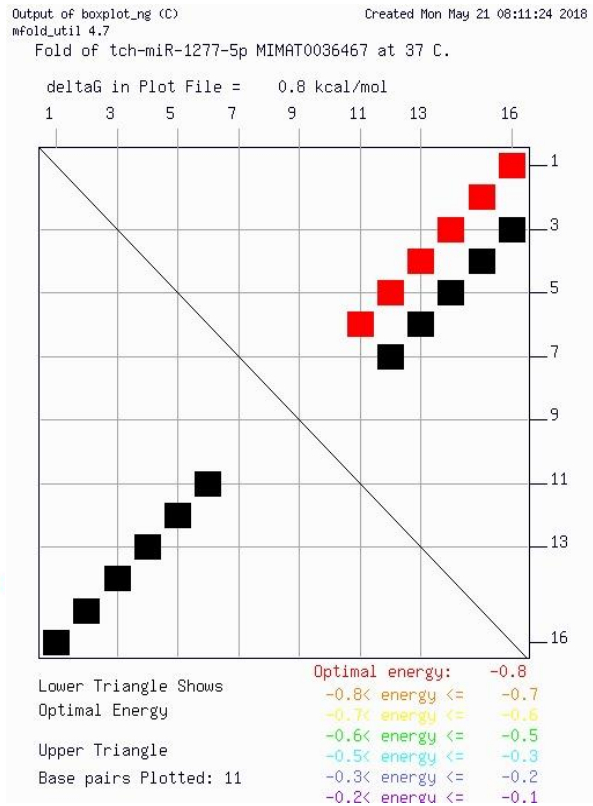
Micro RNA Structure # 18

>tch-miR-1277-5p MIMAT0036467

Energy = -0.80



dG = -0.80 (initially -0.80) tch-miR-1277-5p MIMAT0036467

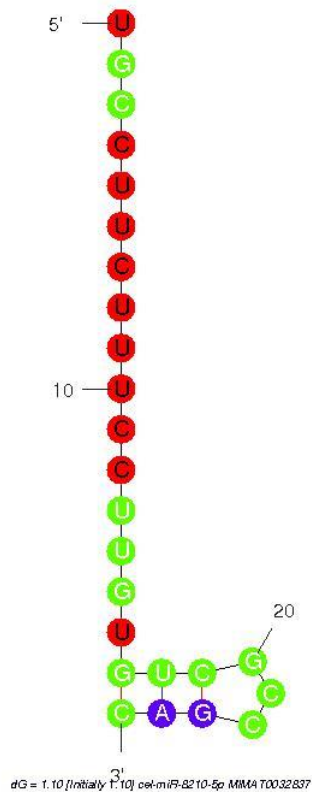


Micro RNA Structure # 19

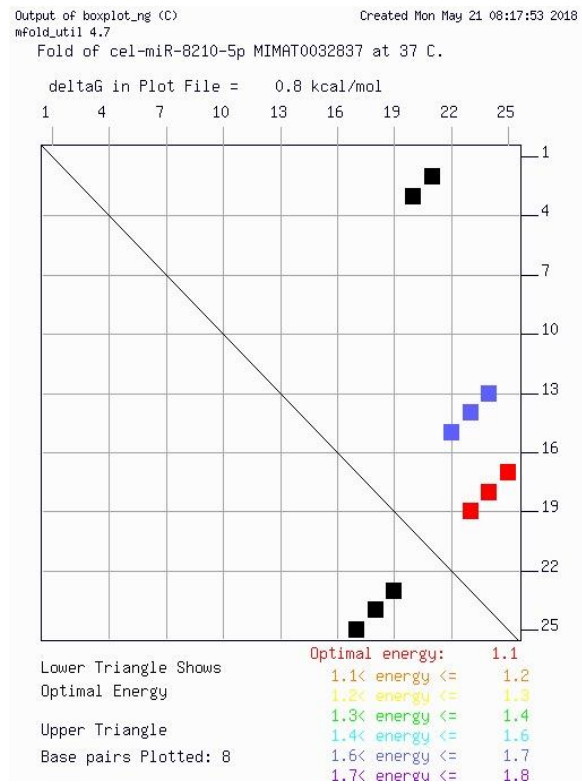
>cel-miR-8210-5p MIMAT0032837

Energy = 1.10

Output of graphviz
mfold_util



Created Mon May 21 08:17:53 2018



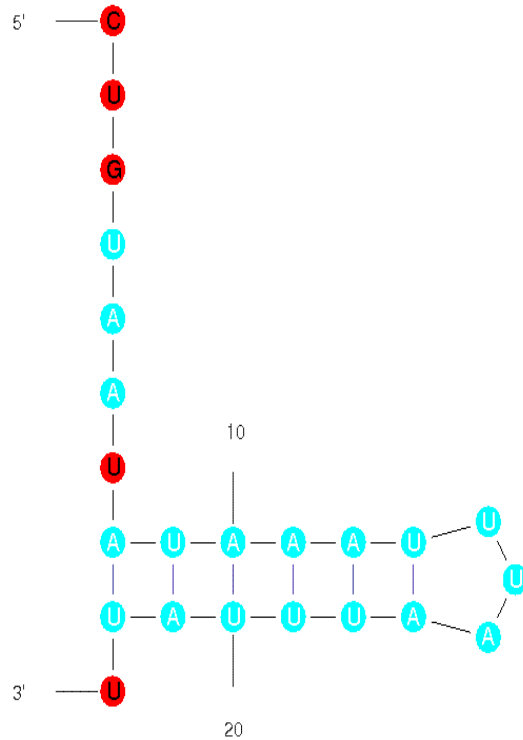
Micro RNA Structure # 20

>mmu-miR-467c-5p MIMAT0004885

Energy = -1.50

Output of boxplot_ng (C)

Created Tue May 22 08:14:50 2018



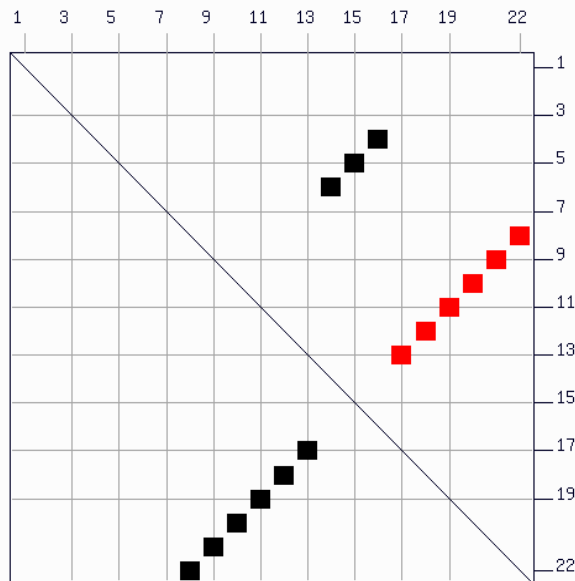
dG = 1.10 [initially 1.10] hsa-miR-2054 MIMAT0009979

Output of boxplot_ng (C)
mFold_util 4.7

Created Tue May 22 08:14:50 2018

Fold of hsa-miR-2054 MIMAT0009979 at 37 C.

deltaG in Plot File = 1.0 kcal/mol



Lower Triangle Shows
Optimal Energy
Upper Triangle
Base pairs Plotted: 9

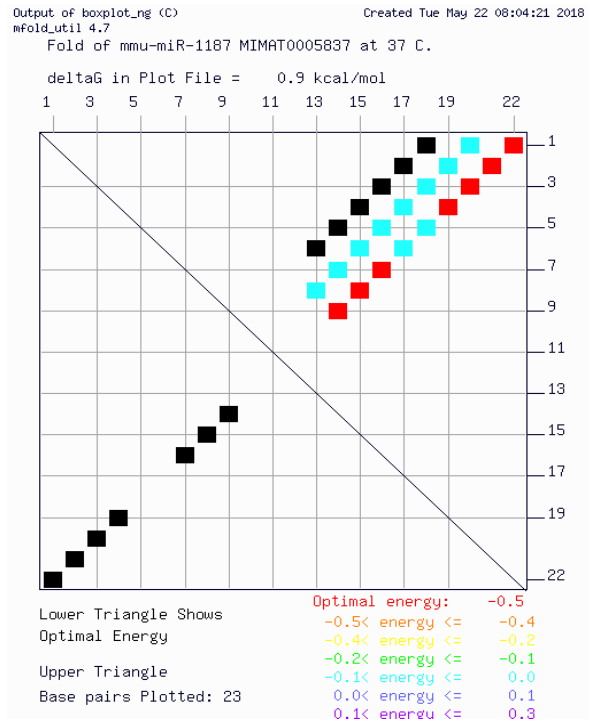
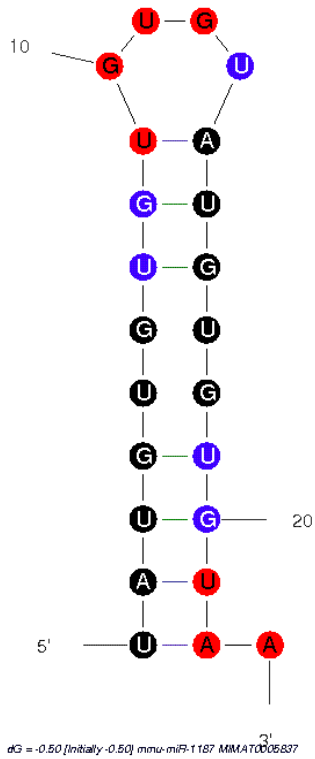
Optimal energy: 1.1
1.1< energy <= 1.2
1.2< energy <= 1.4
1.4< energy <= 1.5
1.5< energy <= 1.7
1.7< energy <= 1.8
1.8< energy <= 2.0

Structural elements	Energy	Information
External loop	0.20	8 ss bases % one closing helix
Stack	-1.1	External closing pair is A ⁸ - U ²²
Stack	-1.3	External closing pair is U ⁹ - A ²¹
Stack	-0.90	External closing pair is A ¹⁰ - U ¹⁰
Stack	-0.90	External closing pair is A ¹¹ - U ¹⁹
Stack	-1.1	External closing pair is A ¹² - U ¹⁸
Helix	-5.3	6 bases pairs
Hairpin loop	6.20	Closing pair is U ¹³ - A ¹⁷

Micro RNA Structure # 22

>mmu-miR-1187 MIMAT0005837

Energy = -0.50



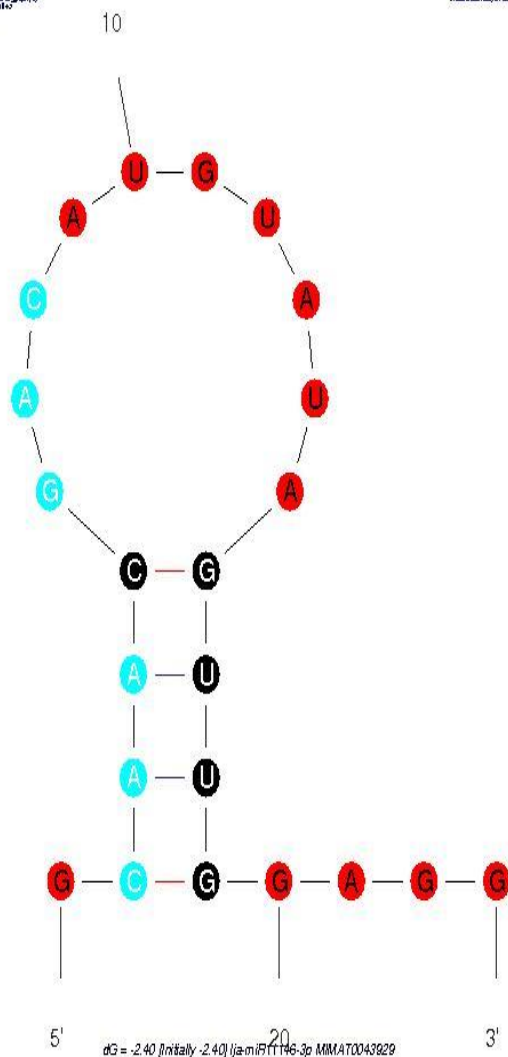
Structural elements	Energy	Information
External loop	0.30	1 ss base and one closing helix
Stack	-1.30	External closing pair is G ⁴ – U ¹⁷
Stack	-1.40	External closing pair is U ⁵ – G ¹⁶
Stack	0.3	External closing pair is G ⁶ – C ¹⁵
Helix	-1.40	External closing pair is U ⁷ – A ¹⁶
Interior loop	-2.40	4 base pairs
Stack	-2.1	Closing pair is G ⁸ – U ¹³
Stack	0.3	External closing pair is U ⁴ – U ¹⁹
Helix	-1.4	Closing pair is G ⁸ – U ¹⁵
Hairpin loop	-1.10	3 base pair is U ⁹ – A ¹⁴

Micro RNA Structure # 23

```
>lja-miR11146-3p MIMAT0043929
```

Energy 2.40

Output of boxplot_ng (C)
mfold_util 4.7



Created Mon May 21 08:27:33 2018

Micro RNA Structure # 24

>cgr-miR-598
MIMAT0023986

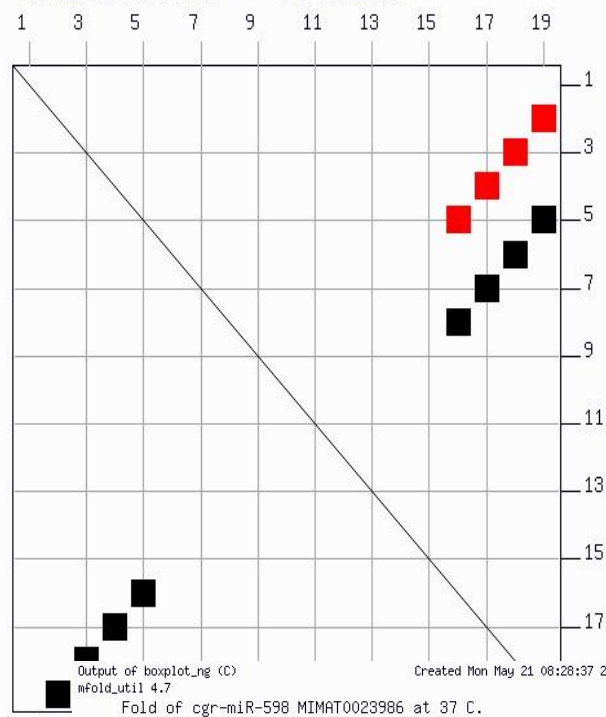
**Energy = -
0.30**

Output of boxplot_ng (C)
mfold_util 4.7

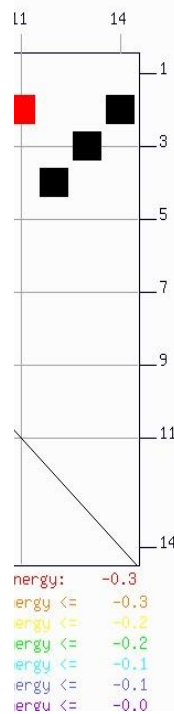
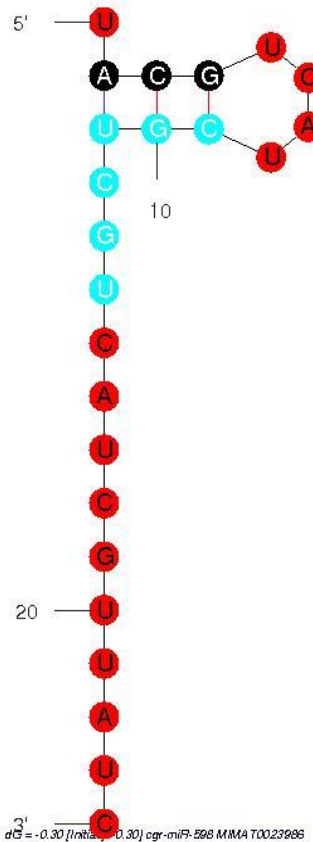
Output of boxplot_ng (C) Created Mon May 21 08:27:33 2018
mfold_util 4.7

Fold of lja-miR11146-3p MIMAT0043929 at 37 C.

deltaG in Plot File = 0.1 kcal/mol



Created Mon May 21 08:28:37 2018

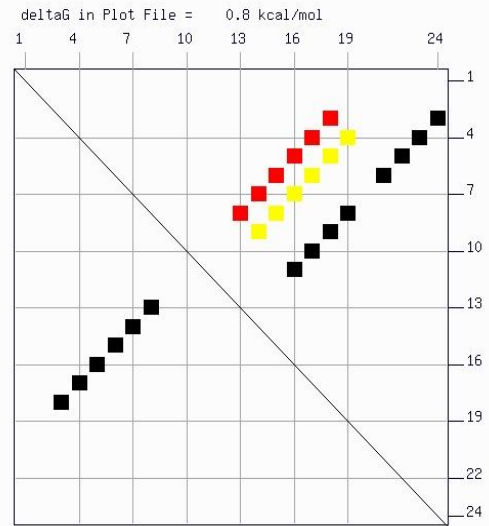


Energy = -1.30

Output of boxplot_ng (C)
#FoldUtil 4.7

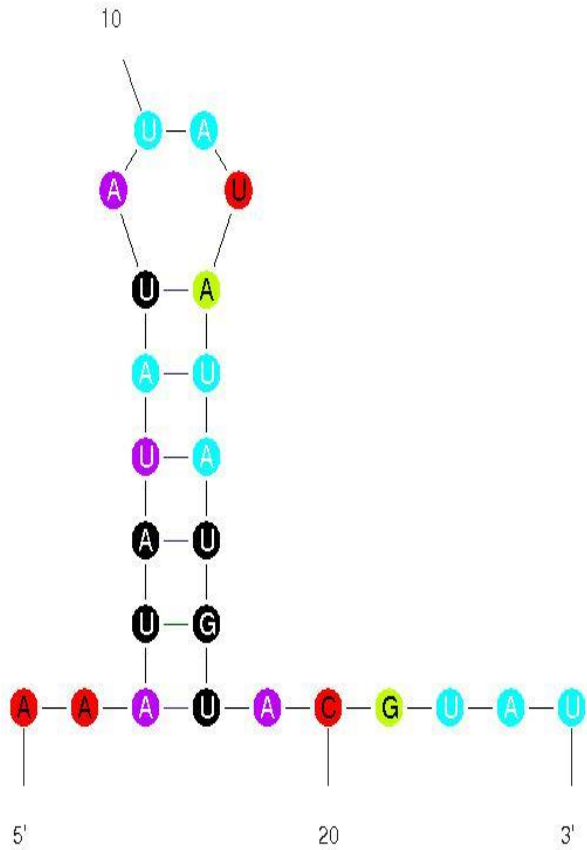
Created Mon May 21 08:09:49 2018

Output of boxplot_ng (C)
#FoldUtil 4.7
Fold of hsa-miR-1277-5p MIMAT0022724 at 37 C.



Lower Triangle Shows
Optimal Energy
Upper Triangle
Base pairs Plotted: 20

Optimal energy: -1.3
-1.3 < energy <= -1.2
-1.2 < energy <= -1.1
-1.1 < energy <= -1.0
-1.0 < energy <= -0.8
-0.8 < energy <= -0.7
-0.7 < energy <= -0.6



dG = -1.30 [initially -1.30] hsa-miR-1277-5p MIMAT0022724

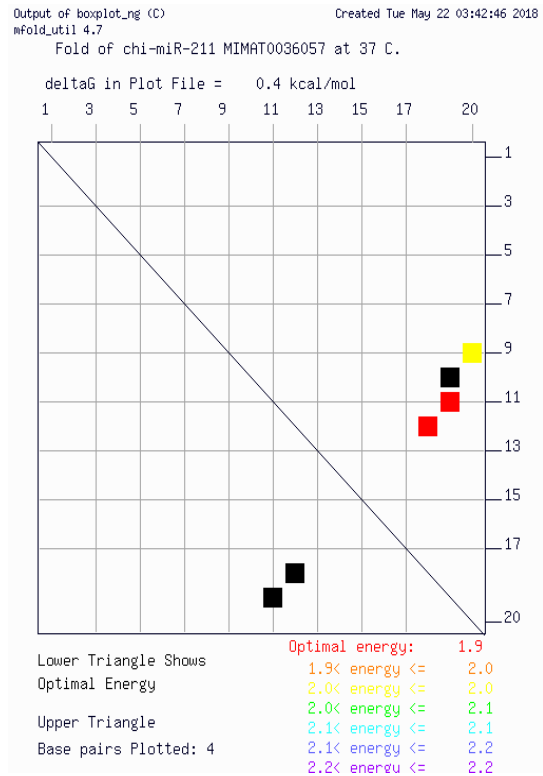
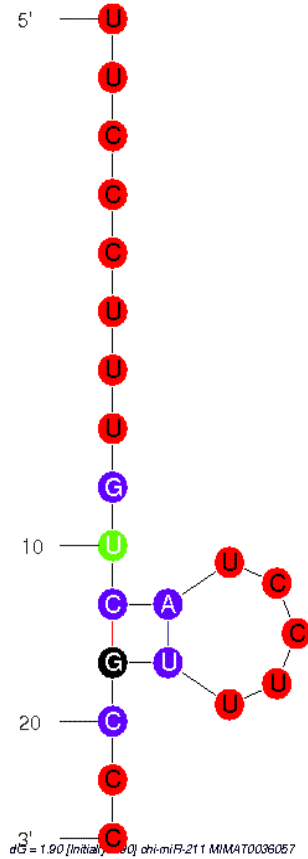
Micro RNA Structure # 27

>chi-miR-211 MIMAT0036057

Energy = 1.90

Output of mfold-ng
mfold_util 4.7

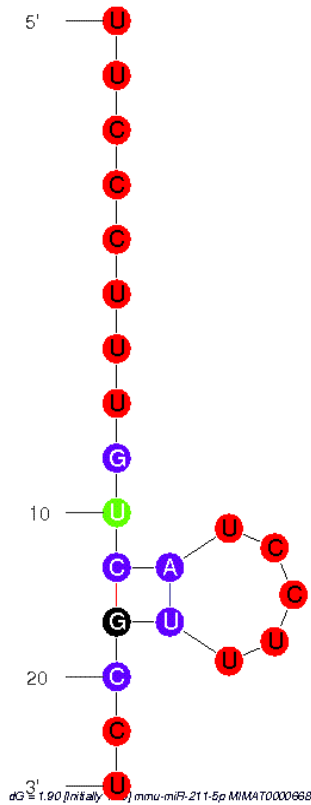
Created Tue May 22 03:42:46 2018



Micro RNA Structure # 28

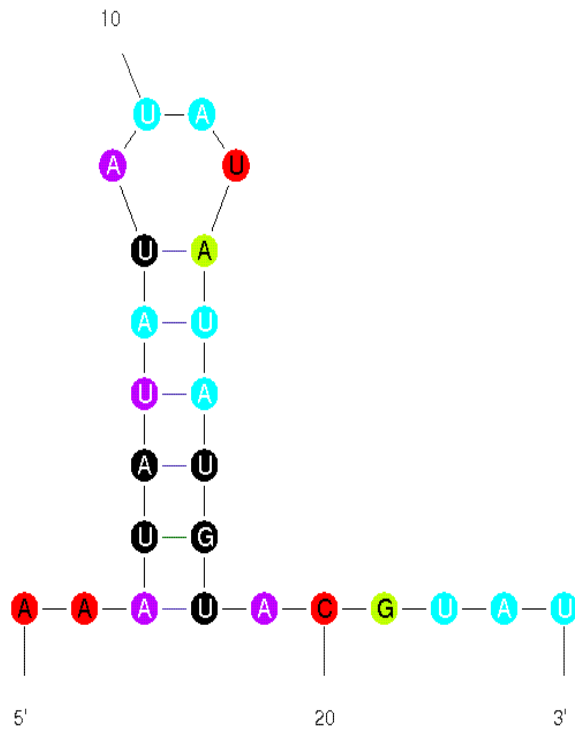
>mmu-miR-211-5p MIMAT0000668

Energy = 1.90

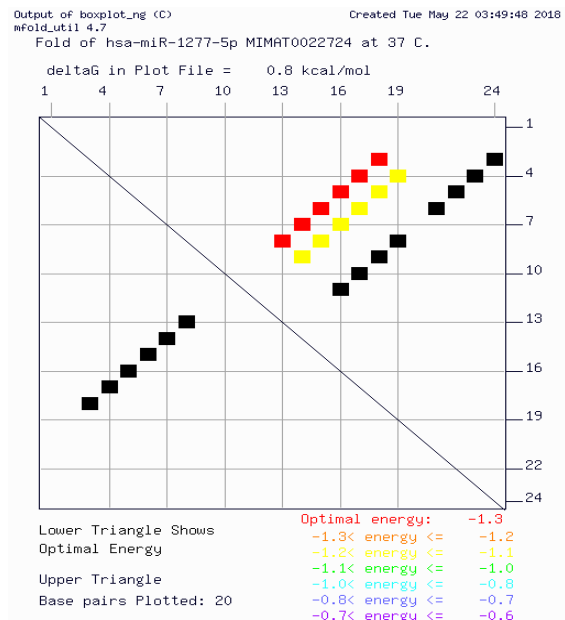


```
>dps-miR-980-5p MIMAT0012223
```

Energy = -2.70



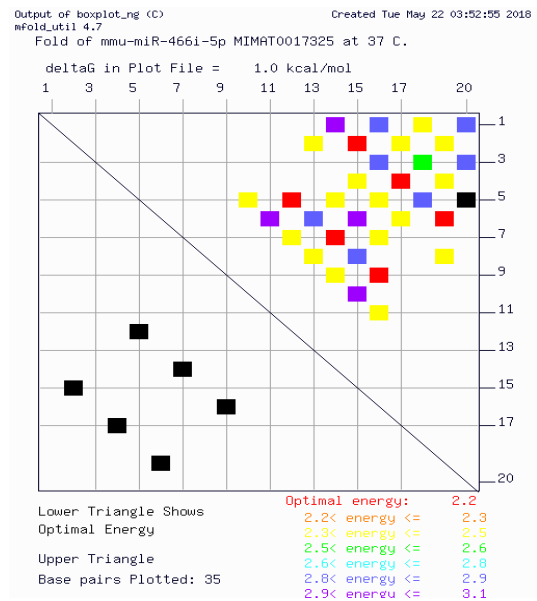
dG = -1.30 (initially -1.30) hsa-miR-1277-5p MIMAT0022724



Micro RNA Structure # 31

>mmu-miR-466i-5p MIMAT0017325

Energy = 2.20

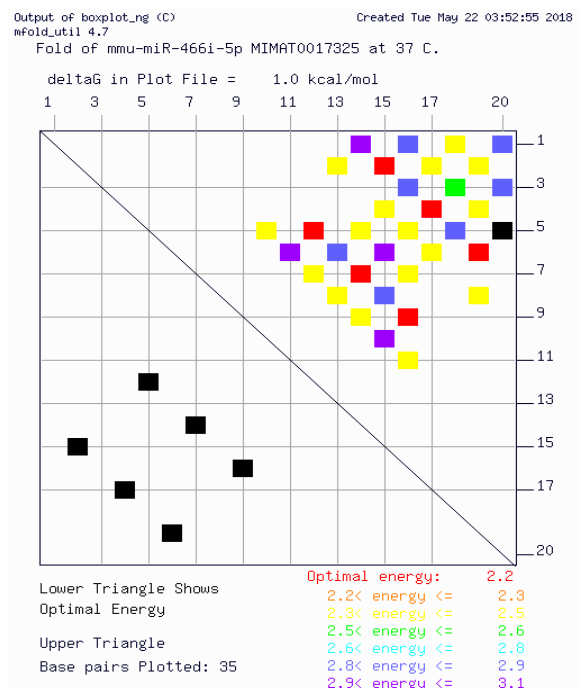


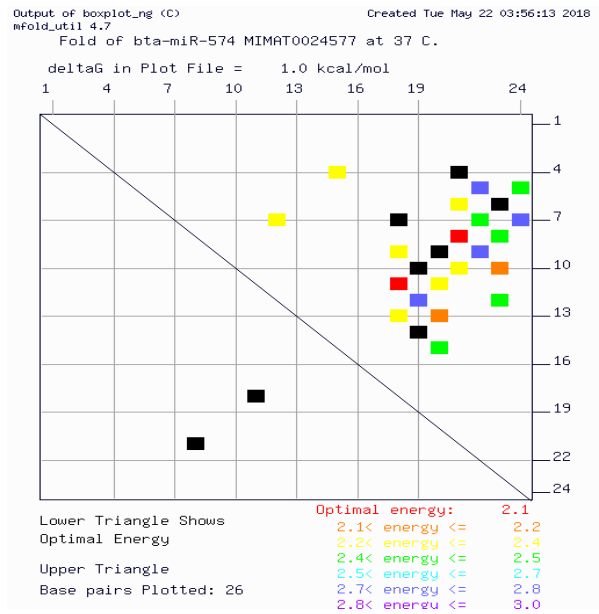
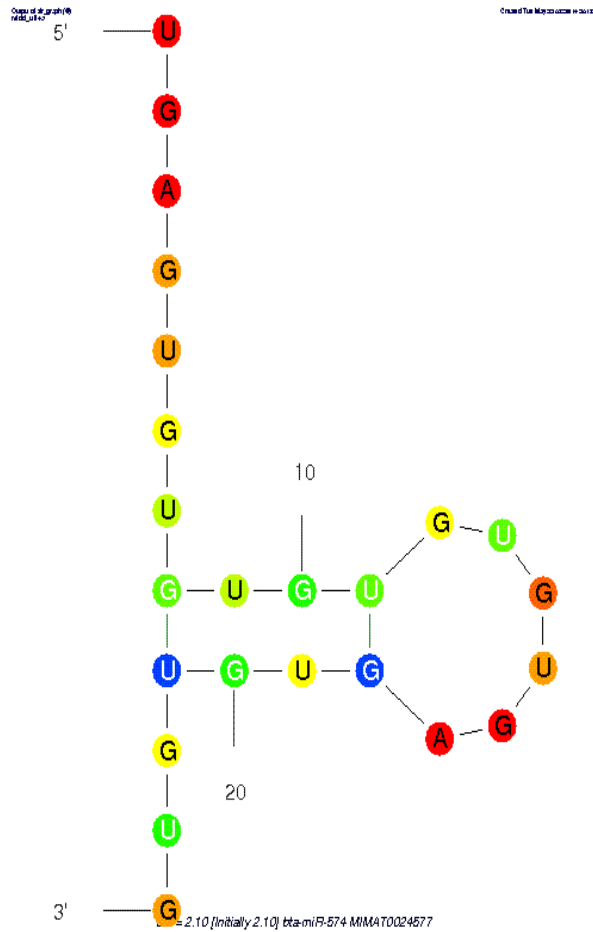
```
>mmu-miR-466i-5p MIMAT0017325
```

Energy = 2.20



Energy = 2.10



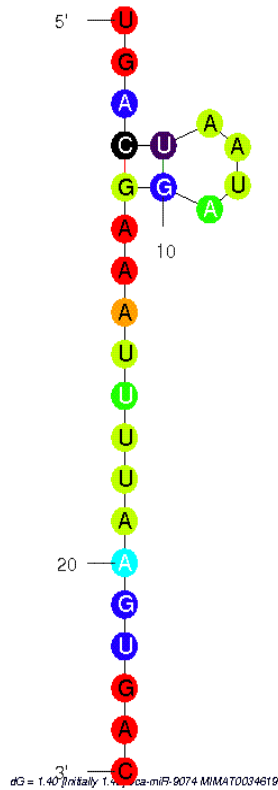


Micro RNA Structure # 34

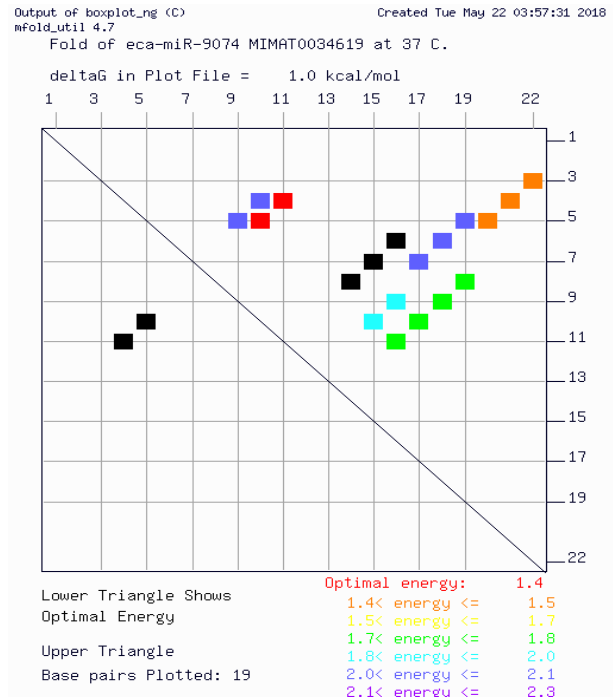
>eca-miR-9074 MIMAT0034619

Energy = 1.40

Copy of Rgraph
RNA_0182



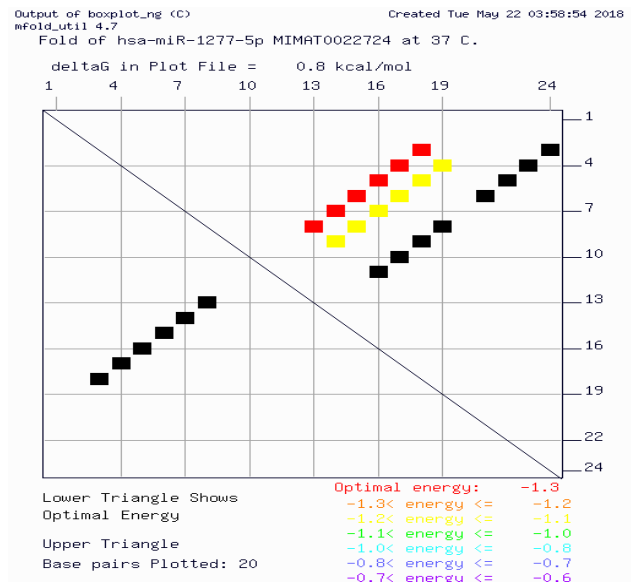
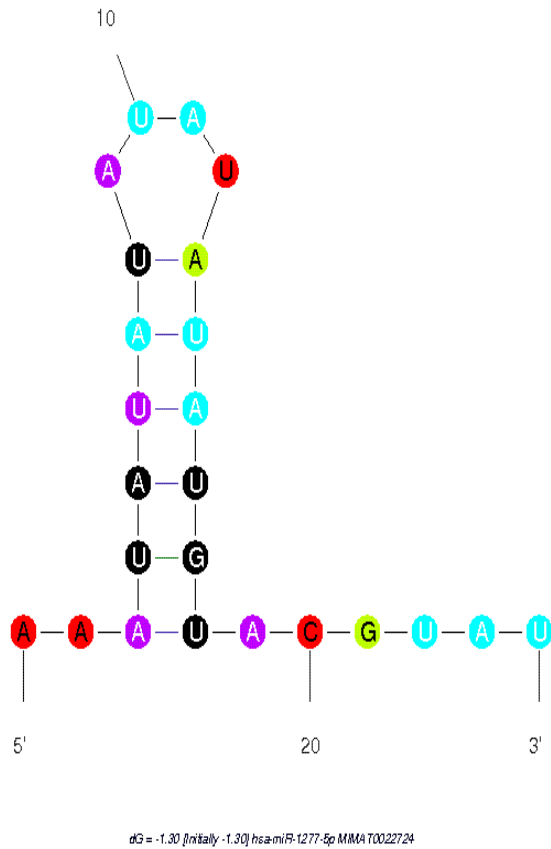
Created Tue May 22 03:57:31 2018



Micro RNA Structure # 35

>hsa-miR-1277-5p MIMAT0022724

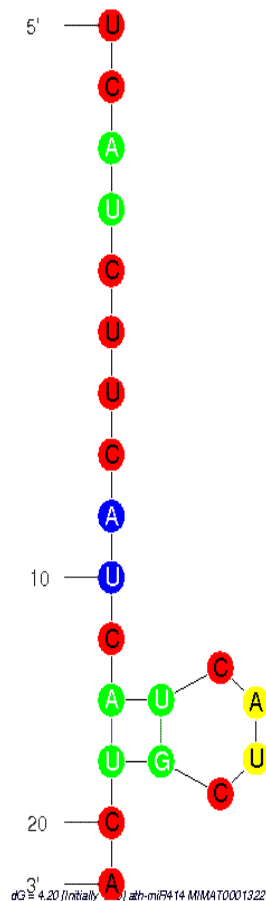
Energy = -1.30



Micro RNA Structure # 36

>ath-miR414 MIMAT0001322

Energy = 4.20

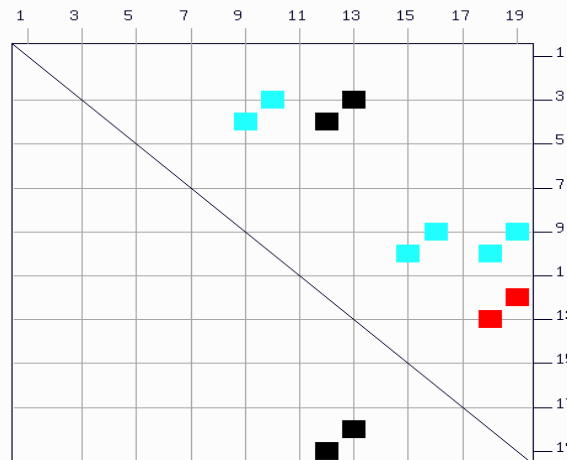


Output of boxplot_ng (C)
mfold_util 4.7

Created Tue May 22 04:00:40 2018

Fold of ath-miR414 MIMAT0001322 at 37 C.

deltaG in Plot File = 0.6 kcal/mol



Lower Triangle Shows

Optimal Energy

Upper Triangle

Base pairs Plotted: 10

Optimal energy:

4.2 < energy <= 4.3

4.3 < energy <= 4.4

4.4 < energy <= 4.5

4.5 < energy <= 4.6

4.6 < energy <= 4.7

4.2