Figure S1: The Phylogenetic tree by RNApdist using Unweighted Pair Group Method with Arithmetic Mean (UPGMA) for the four RNA classes (5S rRNA, miRNA, RNaseP arch and tRNA).
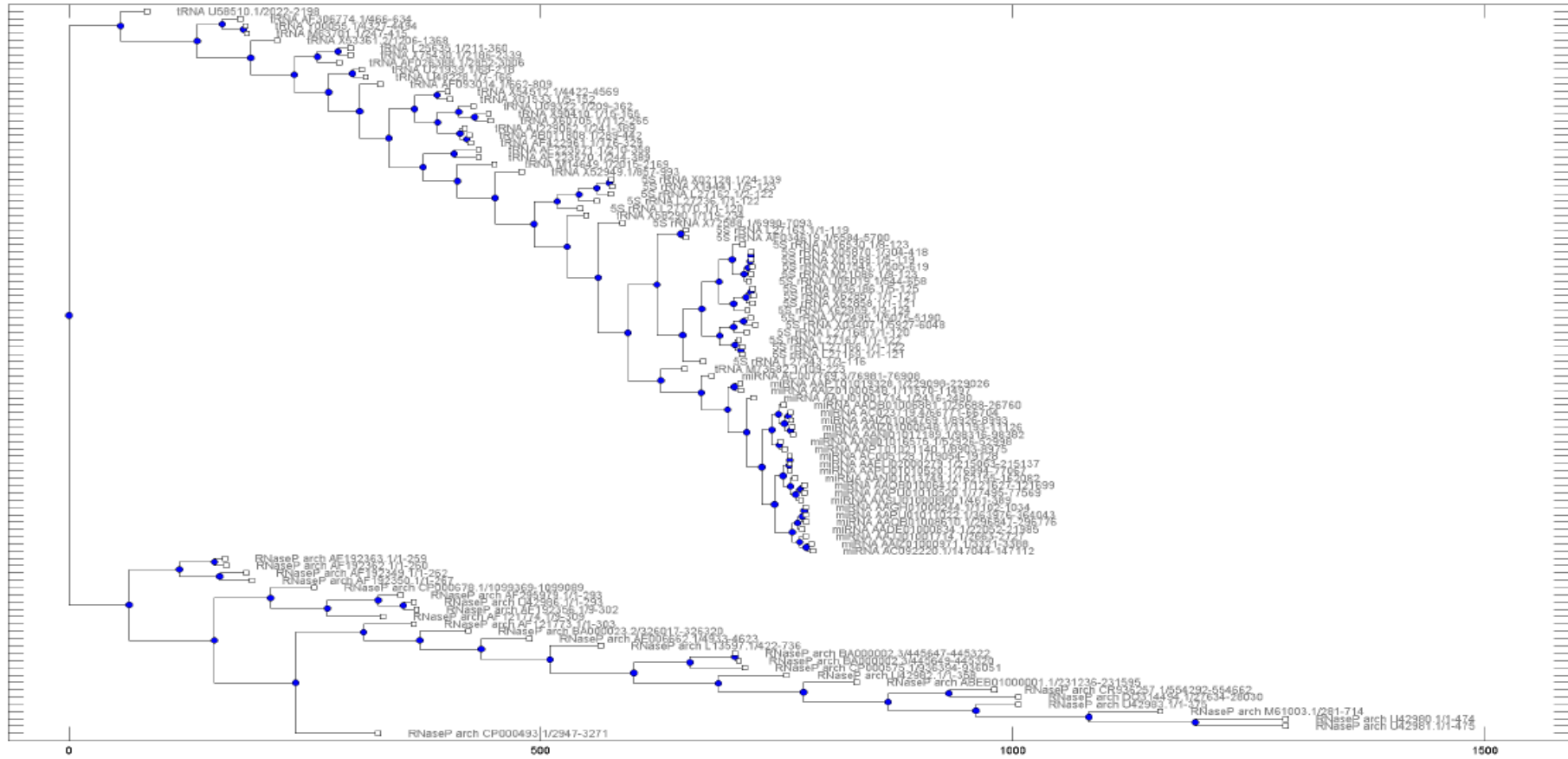
Figure S2: The Phylogenetic tree by RNAdistance using Unweighted Pair Group Method with Arithmetic Mean (UPGMA) using Unweighted Pair Group Method with Arithmetic Mean (UPGMA) for the four RNA classes (5S rRNA, miRNA, RNaseP arch and tRNA).
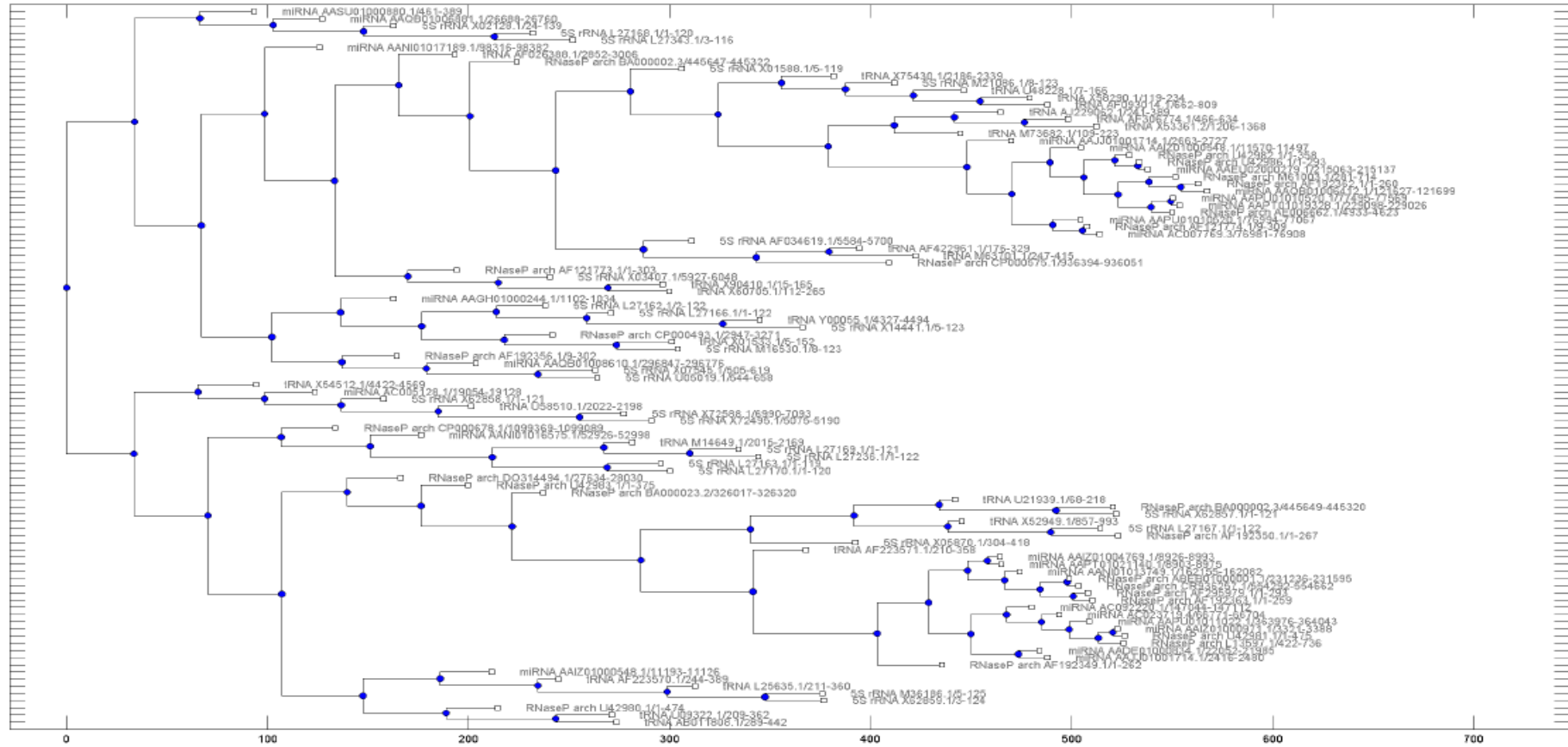
Figure S3: Largest structure mutation for 21 RNA Ribosomal sequences using RNAmscTV-Curve, RNAdistance and RNApdist

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

5   G29A   G29A   G29A

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

6   C24A   C48A   C48A

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

7   C28G   C28U   A37G

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

8   G31C   C17A   G62C

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

G76C   G10C   G10C

9

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

G60U   G60U   G60U

10

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

G18U   U42G   C32G

11

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

C26G   C3A   U54A

12

Wild type RNAmscTV-curve RNAdistance RNApdist

13 A63G G9C G28C

Wild type RNAmscTV-curve RNAdistance RNApdist

14 G45A G10C G43U

Wild type RNAmscTV-curve RNAdistance RNApdist

15 G17U A23G G32U

Wild type RNAmscTV-curve RNAdistance RNApdist

16 C12G G31C G6C

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

17

C21G   C27G   C27G

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

18

G16A   G16A   G16A

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

19

A36G   C15A   C38A

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

20

A53U   G52U   C21A

Wild type   RNAmscTV-curve   RNAdistance   RNApdist

21

G10C   U4C   G10A