



## Full wwPDB EM Validation Report ⓘ

Nov 27, 2022 – 02:50 PM EST

PDB ID : 6WLL  
EMDB ID : EMD-21833  
Title : Apo F. nucleatum glycine riboswitch models, 10.0 Angstrom resolution  
Authors : Kappel, K.; Zhang, K.; Su, Z.; Watkins, A.M.; Kladwang, W.; Li, S.; Pintilie, G.; Topkar, V.V.; Rangan, R.; Zheludev, I.N.; Yesselman, J.D.; Chiu, W.; Das, R.  
Deposited on : 2020-04-20  
Resolution : 10.00 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.2

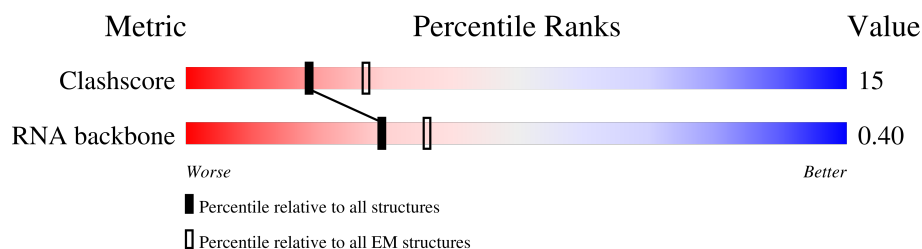
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 10.00 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.







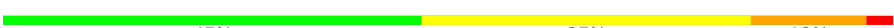





| Metric       | Whole archive<br>(#Entries) | EM structures<br>(#Entries) |
|--------------|-----------------------------|-----------------------------|
| Clashscore   | 158937                      | 4297                        |
| RNA backbone | 4643                        | 859                         |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain  |
|-----|-------|--------|-------------------|
| 1   | 1-A   | 171    | <br>54% 31% 11% . |
| 1   | 10-A  | 171    | <br>51% 33% 12% . |
| 1   | 11-A  | 171    | <br>46% 40% 12% . |
| 1   | 12-A  | 171    | <br>50% 35% 13% . |
| 1   | 13-A  | 171    | <br>42% 39% 15% . |
| 1   | 14-A  | 171    | <br>49% 36% 12% . |
| 1   | 15-A  | 171    | <br>49% 37% 12% . |
| 1   | 16-A  | 171    | <br>49% 33% 16% . |
| 1   | 17-A  | 171    | <br>49% 34% 15% . |

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| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 1   | 18-A  | 171    |  48% 37% 12% . |
| 1   | 19-A  | 171    |  50% 31% 17% . |
| 1   | 2-A   | 171    |  49% 36% 13% . |
| 1   | 20-A  | 171    |  48% 36% 13% . |
| 1   | 3-A   | 171    |  50% 32% 16% . |
| 1   | 4-A   | 171    |  47% 37% 13% . |
| 1   | 5-A   | 171    |  47% 38% 12% . |
| 1   | 6-A   | 171    |  51% 32% 13% . |
| 1   | 7-A   | 171    |  44% 33% 20% . |
| 1   | 8-A   | 171    |  49% 35% 14% . |
| 1   | 9-A   | 171    |  48% 36% 13% . |

## 2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 110240 atoms, of which 36820 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called RNA (171-MER).

| Mol | Chain | Residues | Atoms         |           |           |          |           |          | AltConf | Trace |
|-----|-------|----------|---------------|-----------|-----------|----------|-----------|----------|---------|-------|
| 1   | 1-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 2-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 3-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 4-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 5-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 6-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 7-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 8-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 9-A   | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 10-A  | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 11-A  | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 12-A  | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 13-A  | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 14-A  | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 15-A  | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 16-A  | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |
| 1   | 17-A  | 171      | Total<br>5512 | C<br>1646 | H<br>1841 | N<br>689 | O<br>1166 | P<br>170 | 0       | 0     |

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| Mol | Chain | Residues | Atoms |      |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|------|-----|---------|-------|
| 1   | 18-A  | 171      | Total | C    | H    | N   | O    | P   | 0       | 0     |
|     |       |          | 5512  | 1646 | 1841 | 689 | 1166 | 170 |         |       |
| 1   | 19-A  | 171      | Total | C    | H    | N   | O    | P   | 0       | 0     |
|     |       |          | 5512  | 1646 | 1841 | 689 | 1166 | 170 |         |       |
| 1   | 20-A  | 171      | Total | C    | H    | N   | O    | P   | 0       | 0     |
|     |       |          | 5512  | 1646 | 1841 | 689 | 1166 | 170 |         |       |

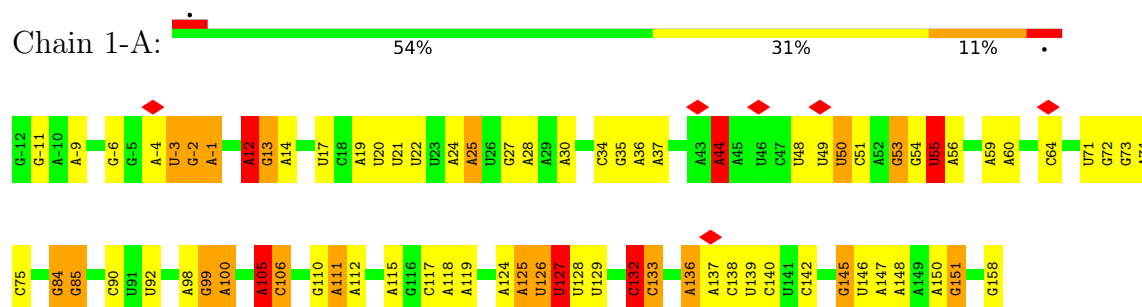
There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment        | Reference    |
|-------|---------|----------|--------|----------------|--------------|
| A     | -12     | G        | -      | expression tag | GB 929732263 |
| A     | -11     | G        | -      | expression tag | GB 929732263 |

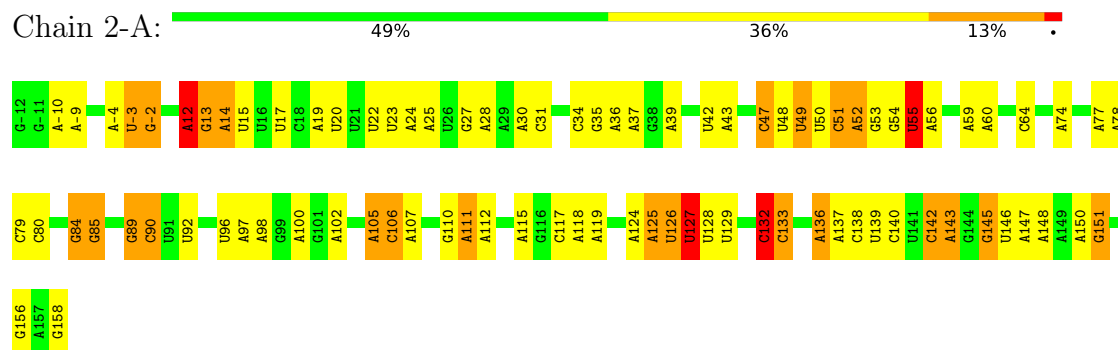
### 3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

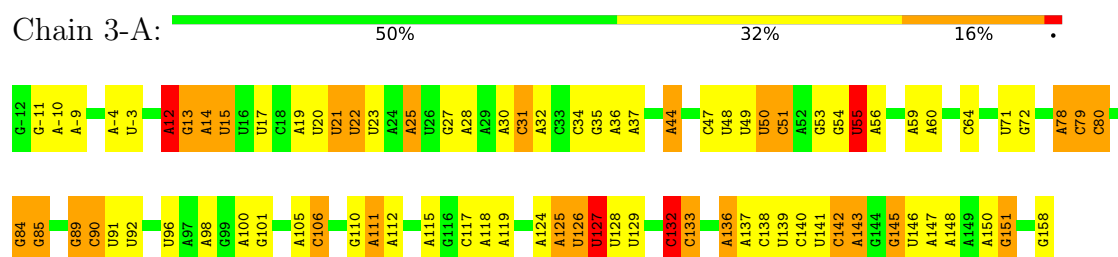
#### • Molecule 1: RNA (171-MER)



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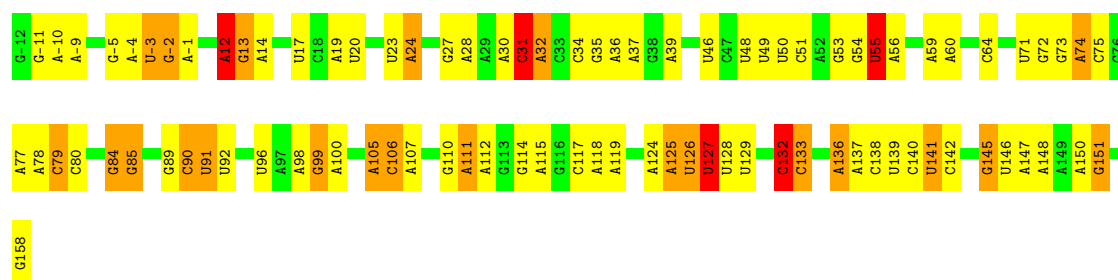


#### • Molecule 1: RNA (171-MER)

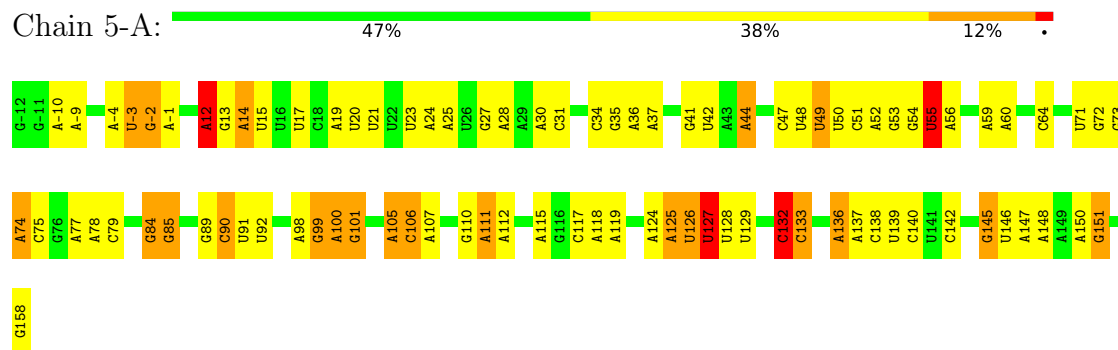


#### • Molecule 1: RNA (171-MER)

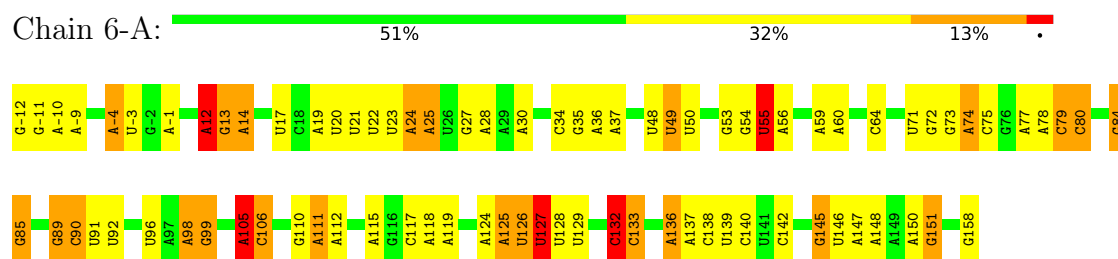




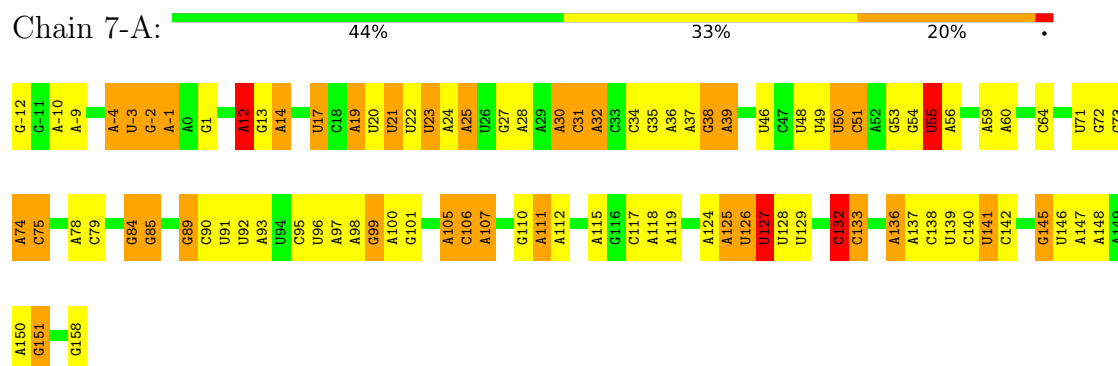
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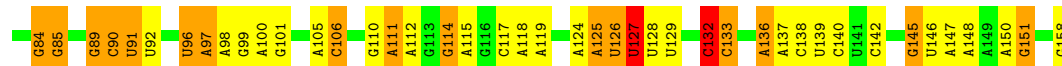
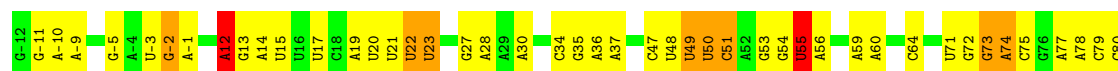


- Molecule 1: RNA (171-MER)

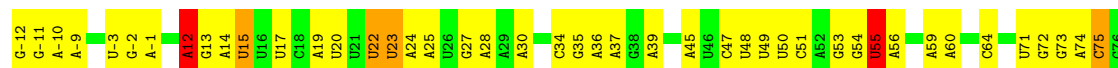


- Molecule 1: RNA (171-MER)

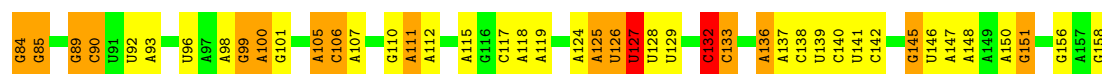




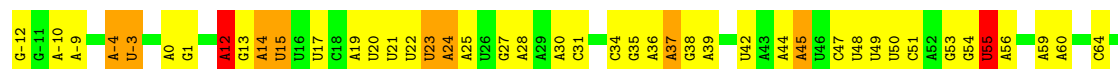
• Molecule 1: RNA (171-MER)



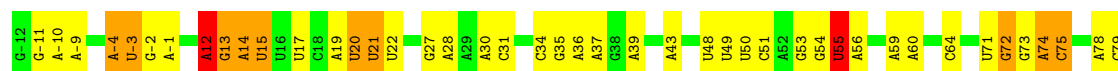
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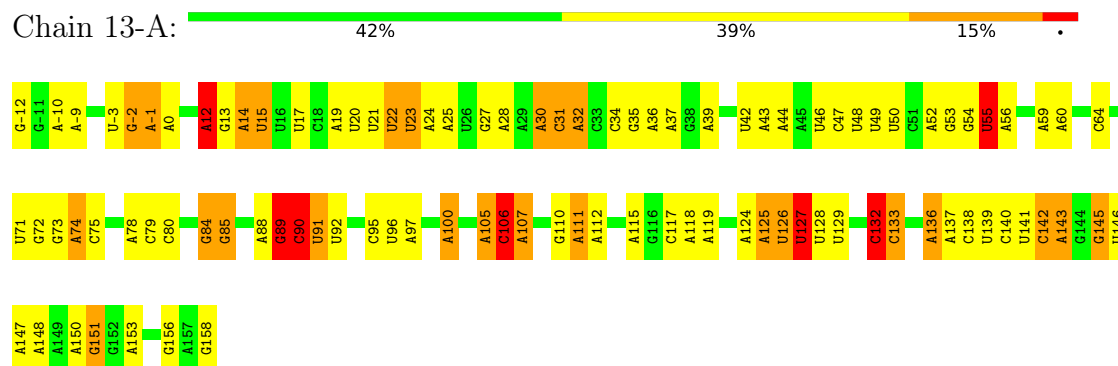


• Molecule 1: RNA (171-MER)

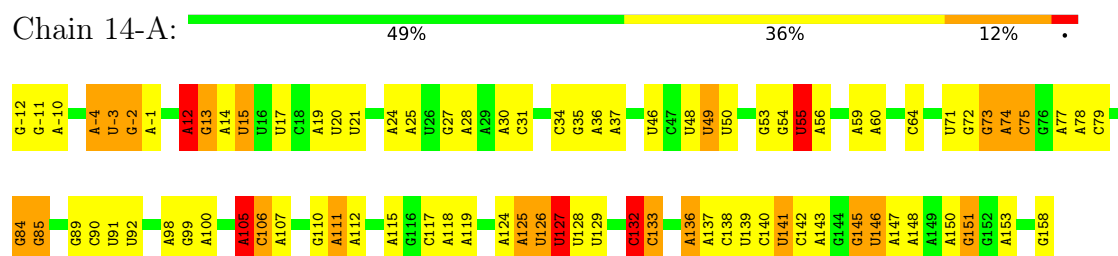




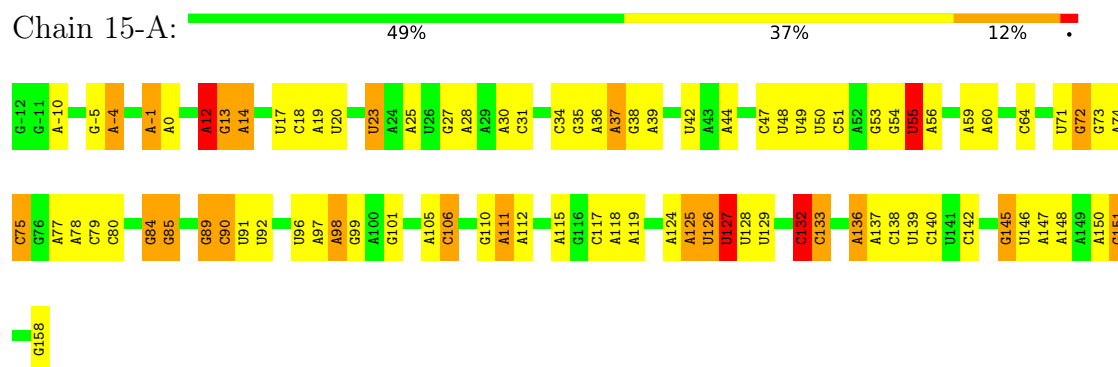
## • Molecule 1: RNA (171-MER)



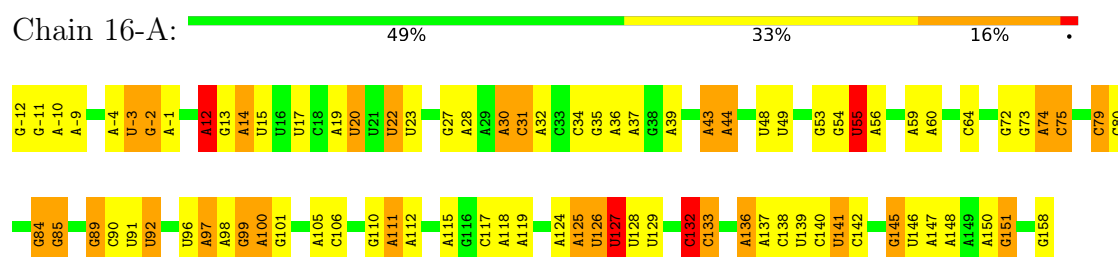
## • Molecule 1: RNA (171-MER)



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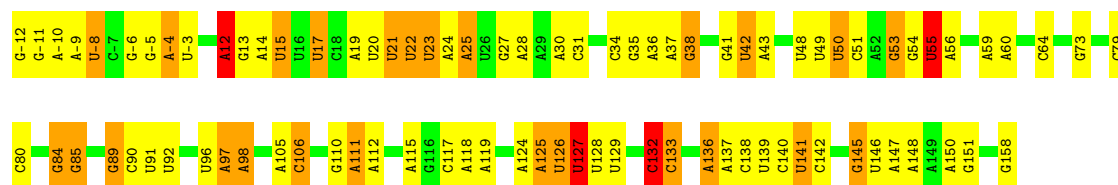


## • Molecule 1: RNA (171-MER)



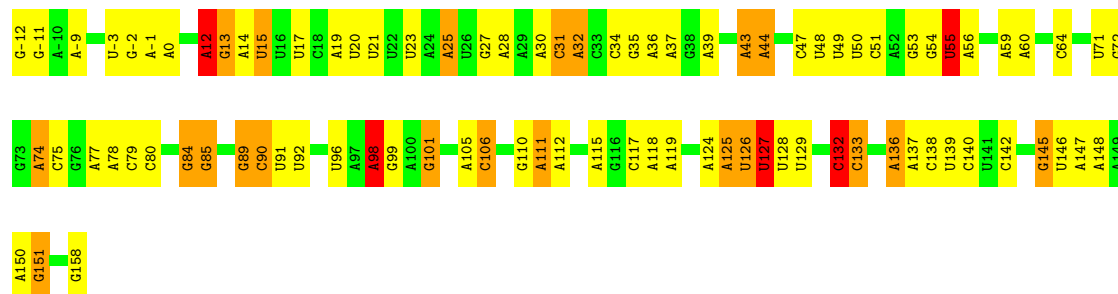
## • Molecule 1: RNA (171-MER)





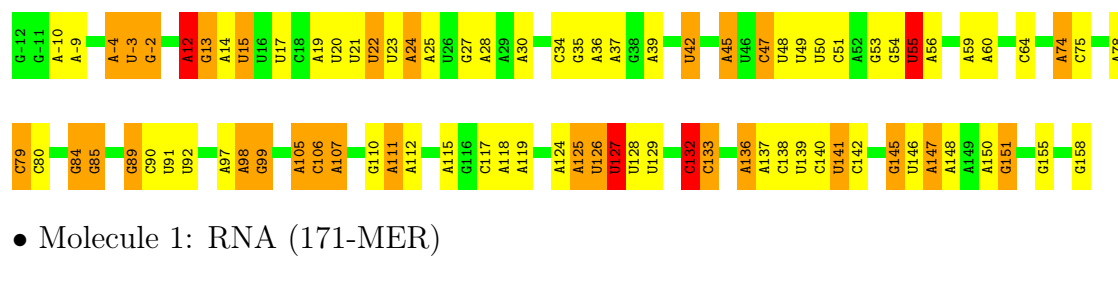
- Molecule 1: RNA (171-MER)

Chain 18-A: 48% 37% 12% .



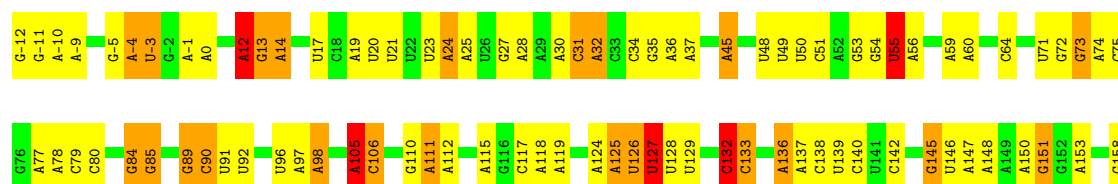
- Molecule 1: RNA (171-MER)

Chain 19-A: 50% 31% 17% .



- Molecule 1: RNA (171-MER)

Chain 20-A: 48% 36% 13% .



## 4 Experimental information

| Property                             | Value                           | Source    |
|--------------------------------------|---------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                 | Depositor |
| Imposed symmetry                     | POINT, Not provided             |           |
| Number of particles used             | 20269                           | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF               | Depositor |
| CTF correction method                | PHASE FLIPPING ONLY             | Depositor |
| Microscope                           | FEI TALOS ARCTICA               | Depositor |
| Voltage (kV)                         | 200                             | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 30                              | Depositor |
| Minimum defocus (nm)                 | Not provided                    |           |
| Maximum defocus (nm)                 | Not provided                    |           |
| Magnification                        | Not provided                    |           |
| Image detector                       | GATAN K2 SUMMIT (4k x 4k)       | Depositor |
| Maximum map value                    | 0.128                           | Depositor |
| Minimum map value                    | -0.032                          | Depositor |
| Average map value                    | 0.001                           | Depositor |
| Map value standard deviation         | 0.008                           | Depositor |
| Recommended contour level            | 0.05                            | Depositor |
| Map size ( $\text{\AA}$ )            | 171.20001, 171.20001, 171.20001 | wwPDB     |
| Map dimensions                       | 160, 160, 160                   | wwPDB     |
| Map angles ( $^\circ$ )              | 90.0, 90.0, 90.0                | wwPDB     |
| Pixel spacing ( $\text{\AA}$ )       | 1.07, 1.07, 1.07                | Depositor |

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths |                | Bond angles |                   |
|-----|-------|--------------|----------------|-------------|-------------------|
|     |       | RMSZ         | # $ Z  > 5$    | RMSZ        | # $ Z  > 5$       |
| 1   | 1-A   | 0.58         | 0/4119         | 1.12        | 18/6422 (0.3%)    |
| 1   | 2-A   | 0.58         | 0/4119         | 1.11        | 17/6422 (0.3%)    |
| 1   | 3-A   | 0.58         | 0/4119         | 1.11        | 17/6422 (0.3%)    |
| 1   | 4-A   | 0.59         | 0/4119         | 1.12        | 18/6422 (0.3%)    |
| 1   | 5-A   | 0.58         | 0/4119         | 1.11        | 17/6422 (0.3%)    |
| 1   | 6-A   | 0.59         | 0/4119         | 1.12        | 17/6422 (0.3%)    |
| 1   | 7-A   | 0.58         | 0/4119         | 1.14        | 19/6422 (0.3%)    |
| 1   | 8-A   | 0.58         | 0/4119         | 1.12        | 17/6422 (0.3%)    |
| 1   | 9-A   | 0.59         | 0/4119         | 1.12        | 17/6422 (0.3%)    |
| 1   | 10-A  | 0.59         | 1/4119 (0.0%)  | 1.11        | 18/6422 (0.3%)    |
| 1   | 11-A  | 0.58         | 0/4119         | 1.12        | 18/6422 (0.3%)    |
| 1   | 12-A  | 0.58         | 0/4119         | 1.11        | 17/6422 (0.3%)    |
| 1   | 13-A  | 0.59         | 0/4119         | 1.13        | 20/6422 (0.3%)    |
| 1   | 14-A  | 0.59         | 1/4119 (0.0%)  | 1.11        | 17/6422 (0.3%)    |
| 1   | 15-A  | 0.58         | 0/4119         | 1.11        | 17/6422 (0.3%)    |
| 1   | 16-A  | 0.58         | 0/4119         | 1.12        | 17/6422 (0.3%)    |
| 1   | 17-A  | 0.58         | 0/4119         | 1.12        | 16/6422 (0.2%)    |
| 1   | 18-A  | 0.59         | 0/4119         | 1.12        | 18/6422 (0.3%)    |
| 1   | 19-A  | 0.58         | 0/4119         | 1.12        | 17/6422 (0.3%)    |
| 1   | 20-A  | 0.58         | 0/4119         | 1.11        | 17/6422 (0.3%)    |
| All | All   | 0.58         | 2/82380 (0.0%) | 1.12        | 349/128440 (0.3%) |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1   | 7-A   | 1                   | 0                   |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 1   | 10-A  | 21  | U    | O4'-C1' | 5.13  | 1.48        | 1.41     |
| 1   | 14-A  | -4  | A    | O4'-C1' | -5.12 | 1.34        | 1.41     |

All (349) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 1   | 7-A   | 21  | U    | C2'-C3'-O3' | 12.51 | 137.03      | 109.50   |
| 1   | 13-A  | 136 | A    | P-O3'-C3'   | 9.96  | 131.65      | 119.70   |
| 1   | 7-A   | 136 | A    | P-O3'-C3'   | 9.95  | 131.64      | 119.70   |
| 1   | 1-A   | 136 | A    | P-O3'-C3'   | 9.95  | 131.63      | 119.70   |
| 1   | 15-A  | 136 | A    | P-O3'-C3'   | 9.95  | 131.64      | 119.70   |
| 1   | 2-A   | 136 | A    | P-O3'-C3'   | 9.94  | 131.63      | 119.70   |
| 1   | 18-A  | 136 | A    | P-O3'-C3'   | 9.93  | 131.62      | 119.70   |
| 1   | 3-A   | 136 | A    | P-O3'-C3'   | 9.93  | 131.61      | 119.70   |
| 1   | 4-A   | 136 | A    | P-O3'-C3'   | 9.93  | 131.61      | 119.70   |
| 1   | 6-A   | 136 | A    | P-O3'-C3'   | 9.93  | 131.61      | 119.70   |
| 1   | 14-A  | 136 | A    | P-O3'-C3'   | 9.93  | 131.61      | 119.70   |
| 1   | 11-A  | 136 | A    | P-O3'-C3'   | 9.92  | 131.61      | 119.70   |
| 1   | 9-A   | 136 | A    | P-O3'-C3'   | 9.92  | 131.60      | 119.70   |
| 1   | 17-A  | 136 | A    | P-O3'-C3'   | 9.92  | 131.60      | 119.70   |
| 1   | 5-A   | 136 | A    | P-O3'-C3'   | 9.92  | 131.60      | 119.70   |
| 1   | 8-A   | 136 | A    | P-O3'-C3'   | 9.92  | 131.60      | 119.70   |
| 1   | 16-A  | 136 | A    | P-O3'-C3'   | 9.91  | 131.60      | 119.70   |
| 1   | 12-A  | 136 | A    | P-O3'-C3'   | 9.91  | 131.59      | 119.70   |
| 1   | 10-A  | 136 | A    | P-O3'-C3'   | 9.90  | 131.59      | 119.70   |
| 1   | 19-A  | 136 | A    | P-O3'-C3'   | 9.90  | 131.58      | 119.70   |
| 1   | 20-A  | 136 | A    | P-O3'-C3'   | 9.90  | 131.58      | 119.70   |
| 1   | 10-A  | 145 | G    | P-O3'-C3'   | 9.60  | 131.22      | 119.70   |
| 1   | 9-A   | 145 | G    | P-O3'-C3'   | 9.59  | 131.21      | 119.70   |
| 1   | 19-A  | 145 | G    | P-O3'-C3'   | 9.59  | 131.21      | 119.70   |
| 1   | 12-A  | 145 | G    | P-O3'-C3'   | 9.58  | 131.20      | 119.70   |
| 1   | 6-A   | 145 | G    | P-O3'-C3'   | 9.58  | 131.20      | 119.70   |
| 1   | 20-A  | 145 | G    | P-O3'-C3'   | 9.58  | 131.19      | 119.70   |
| 1   | 2-A   | 145 | G    | P-O3'-C3'   | 9.57  | 131.18      | 119.70   |
| 1   | 16-A  | 145 | G    | P-O3'-C3'   | 9.57  | 131.18      | 119.70   |
| 1   | 1-A   | 145 | G    | P-O3'-C3'   | 9.56  | 131.18      | 119.70   |
| 1   | 3-A   | 145 | G    | P-O3'-C3'   | 9.56  | 131.18      | 119.70   |
| 1   | 17-A  | 145 | G    | P-O3'-C3'   | 9.56  | 131.17      | 119.70   |
| 1   | 5-A   | 145 | G    | P-O3'-C3'   | 9.56  | 131.17      | 119.70   |
| 1   | 8-A   | 145 | G    | P-O3'-C3'   | 9.55  | 131.16      | 119.70   |
| 1   | 15-A  | 145 | G    | P-O3'-C3'   | 9.55  | 131.16      | 119.70   |
| 1   | 4-A   | 145 | G    | P-O3'-C3'   | 9.55  | 131.16      | 119.70   |
| 1   | 11-A  | 145 | G    | P-O3'-C3'   | 9.55  | 131.16      | 119.70   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 1   | 18-A  | 145 | G    | P-O3'-C3'   | 9.55  | 131.16      | 119.70   |
| 1   | 14-A  | 145 | G    | P-O3'-C3'   | 9.54  | 131.15      | 119.70   |
| 1   | 7-A   | 145 | G    | P-O3'-C3'   | 9.53  | 131.13      | 119.70   |
| 1   | 13-A  | 145 | G    | P-O3'-C3'   | 9.53  | 131.14      | 119.70   |
| 1   | 11-A  | 145 | G    | C4'-C3'-C2' | -6.75 | 95.85       | 102.60   |
| 1   | 10-A  | 145 | G    | C4'-C3'-C2' | -6.73 | 95.87       | 102.60   |
| 1   | 7-A   | 145 | G    | C4'-C3'-C2' | -6.72 | 95.88       | 102.60   |
| 1   | 8-A   | 145 | G    | C4'-C3'-C2' | -6.71 | 95.89       | 102.60   |
| 1   | 17-A  | 145 | G    | C4'-C3'-C2' | -6.71 | 95.89       | 102.60   |
| 1   | 19-A  | 145 | G    | C4'-C3'-C2' | -6.71 | 95.89       | 102.60   |
| 1   | 18-A  | 145 | G    | C4'-C3'-C2' | -6.71 | 95.89       | 102.60   |
| 1   | 9-A   | 145 | G    | C4'-C3'-C2' | -6.71 | 95.89       | 102.60   |
| 1   | 13-A  | 145 | G    | C4'-C3'-C2' | -6.71 | 95.89       | 102.60   |
| 1   | 16-A  | 145 | G    | C4'-C3'-C2' | -6.70 | 95.90       | 102.60   |
| 1   | 4-A   | 145 | G    | C4'-C3'-C2' | -6.70 | 95.90       | 102.60   |
| 1   | 5-A   | 145 | G    | C4'-C3'-C2' | -6.69 | 95.91       | 102.60   |
| 1   | 6-A   | 145 | G    | C4'-C3'-C2' | -6.69 | 95.91       | 102.60   |
| 1   | 1-A   | 145 | G    | C4'-C3'-C2' | -6.69 | 95.91       | 102.60   |
| 1   | 12-A  | 145 | G    | C4'-C3'-C2' | -6.69 | 95.91       | 102.60   |
| 1   | 14-A  | 145 | G    | C4'-C3'-C2' | -6.69 | 95.91       | 102.60   |
| 1   | 20-A  | 145 | G    | C4'-C3'-C2' | -6.69 | 95.91       | 102.60   |
| 1   | 15-A  | 145 | G    | C4'-C3'-C2' | -6.68 | 95.92       | 102.60   |
| 1   | 3-A   | 145 | G    | C4'-C3'-C2' | -6.68 | 95.92       | 102.60   |
| 1   | 2-A   | 145 | G    | C4'-C3'-C2' | -6.67 | 95.93       | 102.60   |
| 1   | 2-A   | 12  | A    | C3'-C2'-C1' | -6.45 | 96.34       | 101.50   |
| 1   | 16-A  | 12  | A    | C3'-C2'-C1' | -6.44 | 96.34       | 101.50   |
| 1   | 14-A  | 12  | A    | C3'-C2'-C1' | -6.43 | 96.36       | 101.50   |
| 1   | 18-A  | 136 | A    | C3'-C2'-C1' | -6.43 | 96.36       | 101.50   |
| 1   | 11-A  | 12  | A    | C3'-C2'-C1' | -6.43 | 96.36       | 101.50   |
| 1   | 8-A   | 12  | A    | C3'-C2'-C1' | -6.42 | 96.36       | 101.50   |
| 1   | 17-A  | 12  | A    | C3'-C2'-C1' | -6.42 | 96.36       | 101.50   |
| 1   | 19-A  | 136 | A    | C3'-C2'-C1' | -6.42 | 96.36       | 101.50   |
| 1   | 17-A  | 136 | A    | C3'-C2'-C1' | -6.42 | 96.36       | 101.50   |
| 1   | 3-A   | 12  | A    | C3'-C2'-C1' | -6.41 | 96.37       | 101.50   |
| 1   | 4-A   | 12  | A    | C3'-C2'-C1' | -6.41 | 96.38       | 101.50   |
| 1   | 13-A  | 12  | A    | C3'-C2'-C1' | -6.41 | 96.38       | 101.50   |
| 1   | 1-A   | 12  | A    | C3'-C2'-C1' | -6.40 | 96.38       | 101.50   |
| 1   | 11-A  | 136 | A    | C3'-C2'-C1' | -6.40 | 96.38       | 101.50   |
| 1   | 12-A  | 12  | A    | C3'-C2'-C1' | -6.39 | 96.39       | 101.50   |
| 1   | 9-A   | 12  | A    | C3'-C2'-C1' | -6.38 | 96.40       | 101.50   |
| 1   | 6-A   | 12  | A    | C3'-C2'-C1' | -6.38 | 96.40       | 101.50   |
| 1   | 10-A  | 12  | A    | C3'-C2'-C1' | -6.38 | 96.40       | 101.50   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 1   | 5-A   | 12  | A    | C3'-C2'-C1' | -6.37 | 96.40       | 101.50   |
| 1   | 14-A  | 136 | A    | C3'-C2'-C1' | -6.37 | 96.40       | 101.50   |
| 1   | 20-A  | 136 | A    | C3'-C2'-C1' | -6.37 | 96.40       | 101.50   |
| 1   | 20-A  | 12  | A    | C3'-C2'-C1' | -6.37 | 96.40       | 101.50   |
| 1   | 13-A  | 136 | A    | C3'-C2'-C1' | -6.36 | 96.41       | 101.50   |
| 1   | 15-A  | 12  | A    | C3'-C2'-C1' | -6.36 | 96.41       | 101.50   |
| 1   | 7-A   | 12  | A    | C3'-C2'-C1' | -6.36 | 96.41       | 101.50   |
| 1   | 19-A  | 12  | A    | C3'-C2'-C1' | -6.36 | 96.41       | 101.50   |
| 1   | 3-A   | 136 | A    | C3'-C2'-C1' | -6.36 | 96.41       | 101.50   |
| 1   | 6-A   | 136 | A    | C3'-C2'-C1' | -6.35 | 96.42       | 101.50   |
| 1   | 10-A  | 136 | A    | C3'-C2'-C1' | -6.35 | 96.42       | 101.50   |
| 1   | 16-A  | 136 | A    | C3'-C2'-C1' | -6.35 | 96.42       | 101.50   |
| 1   | 5-A   | 136 | A    | C3'-C2'-C1' | -6.35 | 96.42       | 101.50   |
| 1   | 1-A   | 136 | A    | C3'-C2'-C1' | -6.34 | 96.42       | 101.50   |
| 1   | 8-A   | 136 | A    | C3'-C2'-C1' | -6.34 | 96.42       | 101.50   |
| 1   | 12-A  | 136 | A    | C3'-C2'-C1' | -6.34 | 96.42       | 101.50   |
| 1   | 2-A   | 136 | A    | C3'-C2'-C1' | -6.34 | 96.43       | 101.50   |
| 1   | 4-A   | 136 | A    | C3'-C2'-C1' | -6.34 | 96.43       | 101.50   |
| 1   | 9-A   | 136 | A    | C3'-C2'-C1' | -6.34 | 96.43       | 101.50   |
| 1   | 7-A   | 136 | A    | C3'-C2'-C1' | -6.33 | 96.43       | 101.50   |
| 1   | 18-A  | 12  | A    | C3'-C2'-C1' | -6.33 | 96.43       | 101.50   |
| 1   | 15-A  | 136 | A    | C3'-C2'-C1' | -6.32 | 96.44       | 101.50   |
| 1   | 18-A  | 12  | A    | C5'-C4'-O4' | 6.24  | 116.58      | 109.10   |
| 1   | 4-A   | 12  | A    | C5'-C4'-O4' | 6.24  | 116.58      | 109.10   |
| 1   | 19-A  | 12  | A    | C5'-C4'-O4' | 6.21  | 116.56      | 109.10   |
| 1   | 20-A  | 12  | A    | C5'-C4'-O4' | 6.21  | 116.55      | 109.10   |
| 1   | 9-A   | 12  | A    | C5'-C4'-O4' | 6.21  | 116.55      | 109.10   |
| 1   | 5-A   | 12  | A    | C5'-C4'-O4' | 6.20  | 116.54      | 109.10   |
| 1   | 13-A  | 12  | A    | C5'-C4'-O4' | 6.20  | 116.54      | 109.10   |
| 1   | 8-A   | 12  | A    | C5'-C4'-O4' | 6.19  | 116.53      | 109.10   |
| 1   | 17-A  | 12  | A    | C5'-C4'-O4' | 6.19  | 116.53      | 109.10   |
| 1   | 12-A  | 12  | A    | C5'-C4'-O4' | 6.19  | 116.53      | 109.10   |
| 1   | 1-A   | 12  | A    | C5'-C4'-O4' | 6.18  | 116.52      | 109.10   |
| 1   | 6-A   | 12  | A    | C5'-C4'-O4' | 6.18  | 116.52      | 109.10   |
| 1   | 14-A  | 12  | A    | C5'-C4'-O4' | 6.18  | 116.52      | 109.10   |
| 1   | 16-A  | 12  | A    | C5'-C4'-O4' | 6.18  | 116.52      | 109.10   |
| 1   | 3-A   | 12  | A    | C5'-C4'-O4' | 6.17  | 116.51      | 109.10   |
| 1   | 7-A   | 12  | A    | C5'-C4'-O4' | 6.17  | 116.51      | 109.10   |
| 1   | 10-A  | 12  | A    | C5'-C4'-O4' | 6.17  | 116.51      | 109.10   |
| 1   | 15-A  | 12  | A    | C5'-C4'-O4' | 6.17  | 116.50      | 109.10   |
| 1   | 2-A   | 12  | A    | C5'-C4'-O4' | 6.16  | 116.50      | 109.10   |
| 1   | 11-A  | 12  | A    | C5'-C4'-O4' | 6.15  | 116.48      | 109.10   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 1   | 13-A  | 90  | C    | C4'-C3'-C2' | -5.88 | 96.72       | 102.60   |
| 1   | 13-A  | 89  | G    | O4'-C1'-N9  | 5.85  | 112.88      | 108.20   |
| 1   | 1-A   | 44  | A    | O4'-C1'-N9  | 5.76  | 112.81      | 108.20   |
| 1   | 2-A   | 110 | G    | N3-C4-N9    | -5.74 | 122.56      | 126.00   |
| 1   | 17-A  | 110 | G    | N3-C4-N9    | -5.73 | 122.56      | 126.00   |
| 1   | 7-A   | 110 | G    | N3-C4-N9    | -5.73 | 122.56      | 126.00   |
| 1   | 18-A  | 110 | G    | N3-C4-N9    | -5.72 | 122.56      | 126.00   |
| 1   | 9-A   | 110 | G    | N3-C4-N9    | -5.72 | 122.57      | 126.00   |
| 1   | 1-A   | 110 | G    | N3-C4-N9    | -5.70 | 122.58      | 126.00   |
| 1   | 5-A   | 110 | G    | N3-C4-N9    | -5.70 | 122.58      | 126.00   |
| 1   | 2-A   | 110 | G    | N3-C4-C5    | 5.69  | 131.45      | 128.60   |
| 1   | 12-A  | 110 | G    | N3-C4-N9    | -5.69 | 122.59      | 126.00   |
| 1   | 13-A  | 110 | G    | N3-C4-N9    | -5.68 | 122.59      | 126.00   |
| 1   | 6-A   | 110 | G    | N3-C4-N9    | -5.68 | 122.59      | 126.00   |
| 1   | 20-A  | 110 | G    | N3-C4-N9    | -5.68 | 122.59      | 126.00   |
| 1   | 11-A  | 110 | G    | N3-C4-N9    | -5.67 | 122.60      | 126.00   |
| 1   | 6-A   | 110 | G    | N3-C4-C5    | 5.67  | 131.44      | 128.60   |
| 1   | 19-A  | 110 | G    | N3-C4-N9    | -5.67 | 122.60      | 126.00   |
| 1   | 16-A  | 110 | G    | N3-C4-C5    | 5.67  | 131.43      | 128.60   |
| 1   | 8-A   | 110 | G    | N3-C4-N9    | -5.66 | 122.60      | 126.00   |
| 1   | 19-A  | 110 | G    | N3-C4-C5    | 5.66  | 131.43      | 128.60   |
| 1   | 3-A   | 110 | G    | N3-C4-N9    | -5.66 | 122.60      | 126.00   |
| 1   | 7-A   | 110 | G    | N3-C4-C5    | 5.66  | 131.43      | 128.60   |
| 1   | 17-A  | 110 | G    | N3-C4-C5    | 5.65  | 131.43      | 128.60   |
| 1   | 16-A  | 110 | G    | N3-C4-N9    | -5.65 | 122.61      | 126.00   |
| 1   | 4-A   | 110 | G    | N3-C4-N9    | -5.65 | 122.61      | 126.00   |
| 1   | 9-A   | 110 | G    | N3-C4-C5    | 5.64  | 131.42      | 128.60   |
| 1   | 14-A  | 110 | G    | N3-C4-N9    | -5.64 | 122.61      | 126.00   |
| 1   | 20-A  | 110 | G    | N3-C4-C5    | 5.64  | 131.42      | 128.60   |
| 1   | 5-A   | 110 | G    | N3-C4-C5    | 5.64  | 131.42      | 128.60   |
| 1   | 15-A  | 110 | G    | N3-C4-N9    | -5.63 | 122.62      | 126.00   |
| 1   | 11-A  | 110 | G    | N3-C4-C5    | 5.62  | 131.41      | 128.60   |
| 1   | 1-A   | 110 | G    | N3-C4-C5    | 5.62  | 131.41      | 128.60   |
| 1   | 8-A   | 110 | G    | N3-C4-C5    | 5.62  | 131.41      | 128.60   |
| 1   | 20-A  | 136 | A    | C4'-C3'-O3' | 5.60  | 124.20      | 113.00   |
| 1   | 5-A   | 136 | A    | C4'-C3'-O3' | 5.60  | 124.19      | 113.00   |
| 1   | 9-A   | 136 | A    | C4'-C3'-O3' | 5.60  | 124.19      | 113.00   |
| 1   | 13-A  | 110 | G    | N3-C4-C5    | 5.60  | 131.40      | 128.60   |
| 1   | 19-A  | 136 | A    | C4'-C3'-O3' | 5.60  | 124.19      | 113.00   |
| 1   | 2-A   | 136 | A    | C4'-C3'-O3' | 5.59  | 124.19      | 113.00   |
| 1   | 10-A  | 136 | A    | C4'-C3'-O3' | 5.59  | 124.19      | 113.00   |
| 1   | 18-A  | 110 | G    | N3-C4-C5    | 5.59  | 131.40      | 128.60   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 1   | 3-A   | 136 | A    | C4'-C3'-O3' | 5.59  | 124.18      | 113.00   |
| 1   | 17-A  | 136 | A    | C4'-C3'-O3' | 5.59  | 124.18      | 113.00   |
| 1   | 4-A   | 136 | A    | C4'-C3'-O3' | 5.59  | 124.18      | 113.00   |
| 1   | 6-A   | 136 | A    | C4'-C3'-O3' | 5.59  | 124.17      | 113.00   |
| 1   | 11-A  | 136 | A    | C4'-C3'-O3' | 5.58  | 124.17      | 113.00   |
| 1   | 1-A   | 136 | A    | C4'-C3'-O3' | 5.58  | 124.17      | 113.00   |
| 1   | 15-A  | 136 | A    | C4'-C3'-O3' | 5.58  | 124.17      | 113.00   |
| 1   | 10-A  | 110 | G    | N3-C4-N9    | -5.58 | 122.65      | 126.00   |
| 1   | 16-A  | 136 | A    | C4'-C3'-O3' | 5.58  | 124.16      | 113.00   |
| 1   | 7-A   | 136 | A    | C4'-C3'-O3' | 5.58  | 124.16      | 113.00   |
| 1   | 12-A  | 110 | G    | N3-C4-C5    | 5.58  | 131.39      | 128.60   |
| 1   | 12-A  | 136 | A    | C4'-C3'-O3' | 5.58  | 124.16      | 113.00   |
| 1   | 14-A  | 136 | A    | C4'-C3'-O3' | 5.58  | 124.15      | 113.00   |
| 1   | 8-A   | 136 | A    | C4'-C3'-O3' | 5.57  | 124.14      | 113.00   |
| 1   | 15-A  | 110 | G    | N3-C4-C5    | 5.57  | 131.39      | 128.60   |
| 1   | 18-A  | 136 | A    | C4'-C3'-O3' | 5.57  | 124.14      | 113.00   |
| 1   | 3-A   | 110 | G    | N3-C4-C5    | 5.57  | 131.38      | 128.60   |
| 1   | 13-A  | 136 | A    | C4'-C3'-O3' | 5.56  | 124.13      | 113.00   |
| 1   | 4-A   | 110 | G    | N3-C4-C5    | 5.52  | 131.36      | 128.60   |
| 1   | 10-A  | 110 | G    | N3-C4-C5    | 5.51  | 131.35      | 128.60   |
| 1   | 14-A  | 110 | G    | N3-C4-C5    | 5.51  | 131.35      | 128.60   |
| 1   | 4-A   | 31  | C    | P-O3'-C3'   | 5.49  | 126.28      | 119.70   |
| 1   | 11-A  | 105 | A    | O4'-C1'-N9  | 5.46  | 112.57      | 108.20   |
| 1   | 7-A   | 105 | A    | O4'-C1'-N9  | 5.45  | 112.56      | 108.20   |
| 1   | 13-A  | 105 | A    | O4'-C1'-N9  | 5.44  | 112.55      | 108.20   |
| 1   | 18-A  | 105 | A    | O4'-C1'-N9  | 5.44  | 112.55      | 108.20   |
| 1   | 12-A  | 105 | A    | O4'-C1'-N9  | 5.43  | 112.54      | 108.20   |
| 1   | 14-A  | 105 | A    | O4'-C1'-N9  | 5.42  | 112.54      | 108.20   |
| 1   | 7-A   | 21  | U    | C4'-C3'-C2' | 5.41  | 108.00      | 102.60   |
| 1   | 17-A  | 105 | A    | O4'-C1'-N9  | 5.41  | 112.53      | 108.20   |
| 1   | 10-A  | 105 | A    | O4'-C1'-N9  | 5.40  | 112.52      | 108.20   |
| 1   | 16-A  | 105 | A    | O4'-C1'-N9  | 5.40  | 112.52      | 108.20   |
| 1   | 3-A   | 105 | A    | O4'-C1'-N9  | 5.40  | 112.52      | 108.20   |
| 1   | 19-A  | 105 | A    | O4'-C1'-N9  | 5.38  | 112.51      | 108.20   |
| 1   | 9-A   | 105 | A    | O4'-C1'-N9  | 5.38  | 112.51      | 108.20   |
| 1   | 8-A   | 105 | A    | O4'-C1'-N9  | 5.38  | 112.50      | 108.20   |
| 1   | 1-A   | 105 | A    | O4'-C1'-N9  | 5.37  | 112.50      | 108.20   |
| 1   | 5-A   | 105 | A    | O4'-C1'-N9  | 5.37  | 112.50      | 108.20   |
| 1   | 15-A  | 105 | A    | O4'-C1'-N9  | 5.37  | 112.49      | 108.20   |
| 1   | 4-A   | 105 | A    | O4'-C1'-N9  | 5.36  | 112.48      | 108.20   |
| 1   | 6-A   | 105 | A    | O4'-C1'-N9  | 5.35  | 112.48      | 108.20   |
| 1   | 20-A  | 105 | A    | O4'-C1'-N9  | 5.34  | 112.47      | 108.20   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 1   | 2-A   | 105 | A    | O4'-C1'-N9  | 5.34  | 112.47      | 108.20   |
| 1   | 17-A  | 132 | C    | C4'-C3'-C2' | -5.32 | 97.28       | 102.60   |
| 1   | 15-A  | 136 | A    | C4'-C3'-C2' | -5.31 | 97.29       | 102.60   |
| 1   | 5-A   | 136 | A    | C4'-C3'-C2' | -5.30 | 97.30       | 102.60   |
| 1   | 4-A   | 136 | A    | C4'-C3'-C2' | -5.30 | 97.30       | 102.60   |
| 1   | 18-A  | 132 | C    | C4'-C3'-C2' | -5.30 | 97.30       | 102.60   |
| 1   | 6-A   | 136 | A    | C4'-C3'-C2' | -5.30 | 97.30       | 102.60   |
| 1   | 2-A   | 136 | A    | C4'-C3'-C2' | -5.29 | 97.31       | 102.60   |
| 1   | 16-A  | 136 | A    | C4'-C3'-C2' | -5.29 | 97.31       | 102.60   |
| 1   | 3-A   | 136 | A    | C4'-C3'-C2' | -5.29 | 97.31       | 102.60   |
| 1   | 7-A   | 136 | A    | C4'-C3'-C2' | -5.29 | 97.31       | 102.60   |
| 1   | 19-A  | 136 | A    | C4'-C3'-C2' | -5.29 | 97.31       | 102.60   |
| 1   | 4-A   | 132 | C    | C4'-C3'-C2' | -5.29 | 97.31       | 102.60   |
| 1   | 15-A  | 132 | C    | C4'-C3'-C2' | -5.29 | 97.31       | 102.60   |
| 1   | 11-A  | 136 | A    | C4'-C3'-C2' | -5.28 | 97.32       | 102.60   |
| 1   | 18-A  | 136 | A    | C4'-C3'-C2' | -5.28 | 97.32       | 102.60   |
| 1   | 8-A   | 132 | C    | C4'-C3'-C2' | -5.28 | 97.32       | 102.60   |
| 1   | 14-A  | 136 | A    | C4'-C3'-C2' | -5.28 | 97.32       | 102.60   |
| 1   | 17-A  | 136 | A    | C4'-C3'-C2' | -5.28 | 97.32       | 102.60   |
| 1   | 19-A  | 132 | C    | C4'-C3'-C2' | -5.28 | 97.33       | 102.60   |
| 1   | 7-A   | 132 | C    | C4'-C3'-C2' | -5.27 | 97.33       | 102.60   |
| 1   | 20-A  | 136 | A    | C4'-C3'-C2' | -5.27 | 97.33       | 102.60   |
| 1   | 12-A  | 136 | A    | C4'-C3'-C2' | -5.27 | 97.33       | 102.60   |
| 1   | 3-A   | 132 | C    | C4'-C3'-C2' | -5.27 | 97.33       | 102.60   |
| 1   | 10-A  | 136 | A    | C4'-C3'-C2' | -5.27 | 97.33       | 102.60   |
| 1   | 10-A  | 132 | C    | C4'-C3'-C2' | -5.27 | 97.33       | 102.60   |
| 1   | 5-A   | 132 | C    | C4'-C3'-C2' | -5.26 | 97.34       | 102.60   |
| 1   | 11-A  | 132 | C    | C4'-C3'-C2' | -5.26 | 97.34       | 102.60   |
| 1   | 14-A  | 132 | C    | C4'-C3'-C2' | -5.26 | 97.34       | 102.60   |
| 1   | 8-A   | 136 | A    | C4'-C3'-C2' | -5.26 | 97.34       | 102.60   |
| 1   | 9-A   | 136 | A    | C4'-C3'-C2' | -5.26 | 97.34       | 102.60   |
| 1   | 13-A  | 132 | C    | C4'-C3'-C2' | -5.26 | 97.34       | 102.60   |
| 1   | 13-A  | 136 | A    | C4'-C3'-C2' | -5.26 | 97.34       | 102.60   |
| 1   | 9-A   | 132 | C    | C4'-C3'-C2' | -5.25 | 97.34       | 102.60   |
| 1   | 16-A  | 132 | C    | C4'-C3'-C2' | -5.25 | 97.34       | 102.60   |
| 1   | 1-A   | 136 | A    | C4'-C3'-C2' | -5.25 | 97.35       | 102.60   |
| 1   | 1-A   | 132 | C    | C4'-C3'-C2' | -5.25 | 97.35       | 102.60   |
| 1   | 20-A  | 132 | C    | C4'-C3'-C2' | -5.25 | 97.35       | 102.60   |
| 1   | 6-A   | 132 | C    | C4'-C3'-C2' | -5.25 | 97.35       | 102.60   |
| 1   | 12-A  | 132 | C    | C4'-C3'-C2' | -5.24 | 97.36       | 102.60   |
| 1   | 2-A   | 132 | C    | C4'-C3'-C2' | -5.24 | 97.36       | 102.60   |
| 1   | 13-A  | 145 | G    | C2'-C3'-O3' | 5.23  | 122.07      | 113.70   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 1   | 18-A  | 98  | A    | C4'-C3'-C2' | -5.23 | 97.37       | 102.60   |
| 1   | 7-A   | 145 | G    | C2'-C3'-O3' | 5.23  | 122.06      | 113.70   |
| 1   | 17-A  | 145 | G    | C2'-C3'-O3' | 5.22  | 122.06      | 113.70   |
| 1   | 11-A  | 145 | G    | C2'-C3'-O3' | 5.21  | 122.04      | 113.70   |
| 1   | 8-A   | 145 | G    | C2'-C3'-O3' | 5.21  | 122.04      | 113.70   |
| 1   | 2-A   | 145 | G    | C2'-C3'-O3' | 5.21  | 122.03      | 113.70   |
| 1   | 13-A  | 106 | C    | C1'-O4'-C4' | -5.21 | 105.73      | 109.90   |
| 1   | 3-A   | 145 | G    | C2'-C3'-O3' | 5.21  | 122.03      | 113.70   |
| 1   | 18-A  | 145 | G    | C2'-C3'-O3' | 5.20  | 122.03      | 113.70   |
| 1   | 5-A   | 145 | G    | C2'-C3'-O3' | 5.20  | 122.02      | 113.70   |
| 1   | 4-A   | 145 | G    | C2'-C3'-O3' | 5.20  | 122.01      | 113.70   |
| 1   | 16-A  | 127 | U    | C3'-C2'-C1' | 5.20  | 105.66      | 101.50   |
| 1   | 16-A  | 145 | G    | C2'-C3'-O3' | 5.20  | 122.01      | 113.70   |
| 1   | 15-A  | 145 | G    | C2'-C3'-O3' | 5.19  | 122.01      | 113.70   |
| 1   | 6-A   | 145 | G    | C2'-C3'-O3' | 5.19  | 122.00      | 113.70   |
| 1   | 10-A  | 145 | G    | C2'-C3'-O3' | 5.19  | 122.00      | 113.70   |
| 1   | 14-A  | 145 | G    | C2'-C3'-O3' | 5.19  | 122.00      | 113.70   |
| 1   | 20-A  | 145 | G    | C2'-C3'-O3' | 5.19  | 122.00      | 113.70   |
| 1   | 1-A   | 145 | G    | C2'-C3'-O3' | 5.18  | 121.99      | 113.70   |
| 1   | 19-A  | 145 | G    | C2'-C3'-O3' | 5.18  | 121.99      | 113.70   |
| 1   | 1-A   | 127 | U    | C3'-C2'-C1' | 5.18  | 105.64      | 101.50   |
| 1   | 9-A   | 145 | G    | C2'-C3'-O3' | 5.18  | 121.99      | 113.70   |
| 1   | 20-A  | 110 | G    | C2-N3-C4    | -5.18 | 109.31      | 111.90   |
| 1   | 4-A   | 151 | G    | C6-C5-N7    | -5.18 | 127.29      | 130.40   |
| 1   | 8-A   | 110 | G    | C2-N3-C4    | -5.18 | 109.31      | 111.90   |
| 1   | 12-A  | 145 | G    | C2'-C3'-O3' | 5.18  | 121.98      | 113.70   |
| 1   | 4-A   | 127 | U    | C3'-C2'-C1' | 5.16  | 105.63      | 101.50   |
| 1   | 5-A   | 127 | U    | C3'-C2'-C1' | 5.16  | 105.63      | 101.50   |
| 1   | 14-A  | 127 | U    | C3'-C2'-C1' | 5.16  | 105.63      | 101.50   |
| 1   | 5-A   | 110 | G    | C2-N3-C4    | -5.16 | 109.32      | 111.90   |
| 1   | 9-A   | 110 | G    | C2-N3-C4    | -5.15 | 109.32      | 111.90   |
| 1   | 6-A   | 127 | U    | C3'-C2'-C1' | 5.15  | 105.62      | 101.50   |
| 1   | 11-A  | 89  | G    | C4'-C3'-C2' | -5.15 | 97.45       | 102.60   |
| 1   | 8-A   | 55  | U    | O4'-C1'-N1  | 5.15  | 112.32      | 108.20   |
| 1   | 10-A  | 127 | U    | C3'-C2'-C1' | 5.15  | 105.62      | 101.50   |
| 1   | 3-A   | 127 | U    | C3'-C2'-C1' | 5.14  | 105.62      | 101.50   |
| 1   | 9-A   | 127 | U    | C3'-C2'-C1' | 5.14  | 105.61      | 101.50   |
| 1   | 19-A  | 110 | G    | C2-N3-C4    | -5.14 | 109.33      | 111.90   |
| 1   | 11-A  | 127 | U    | C3'-C2'-C1' | 5.14  | 105.61      | 101.50   |
| 1   | 13-A  | 110 | G    | C2-N3-C4    | -5.14 | 109.33      | 111.90   |
| 1   | 15-A  | 55  | U    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 1   | 15-A  | 127 | U    | C3'-C2'-C1' | 5.14  | 105.61      | 101.50   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 1   | 8-A   | 127 | U    | C3'-C2'-C1' | 5.14  | 105.61      | 101.50   |
| 1   | 19-A  | 127 | U    | C3'-C2'-C1' | 5.14  | 105.61      | 101.50   |
| 1   | 13-A  | 127 | U    | C3'-C2'-C1' | 5.13  | 105.61      | 101.50   |
| 1   | 17-A  | 127 | U    | C3'-C2'-C1' | 5.13  | 105.61      | 101.50   |
| 1   | 2-A   | 110 | G    | C2-N3-C4    | -5.13 | 109.33      | 111.90   |
| 1   | 16-A  | 110 | G    | C2-N3-C4    | -5.13 | 109.33      | 111.90   |
| 1   | 6-A   | 55  | U    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 1   | 11-A  | 55  | U    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 1   | 20-A  | 55  | U    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 1   | 1-A   | 55  | U    | O4'-C1'-N1  | 5.12  | 112.29      | 108.20   |
| 1   | 1-A   | 151 | G    | C6-C5-N7    | -5.12 | 127.33      | 130.40   |
| 1   | 5-A   | 151 | G    | C6-C5-N7    | -5.12 | 127.33      | 130.40   |
| 1   | 7-A   | 110 | G    | C2-N3-C4    | -5.11 | 109.34      | 111.90   |
| 1   | 12-A  | 127 | U    | C3'-C2'-C1' | 5.11  | 105.59      | 101.50   |
| 1   | 17-A  | 55  | U    | O4'-C1'-N1  | 5.11  | 112.29      | 108.20   |
| 1   | 18-A  | 110 | G    | C2-N3-C4    | -5.11 | 109.34      | 111.90   |
| 1   | 18-A  | 127 | U    | C3'-C2'-C1' | 5.11  | 105.59      | 101.50   |
| 1   | 18-A  | 151 | G    | C6-C5-N7    | -5.11 | 127.33      | 130.40   |
| 1   | 2-A   | 127 | U    | C3'-C2'-C1' | 5.11  | 105.59      | 101.50   |
| 1   | 6-A   | 151 | G    | C6-C5-N7    | -5.11 | 127.34      | 130.40   |
| 1   | 16-A  | 151 | G    | C6-C5-N7    | -5.11 | 127.34      | 130.40   |
| 1   | 19-A  | 55  | U    | O4'-C1'-N1  | 5.11  | 112.28      | 108.20   |
| 1   | 1-A   | 110 | G    | C2-N3-C4    | -5.10 | 109.35      | 111.90   |
| 1   | 12-A  | 55  | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 1   | 20-A  | 127 | U    | C3'-C2'-C1' | 5.10  | 105.58      | 101.50   |
| 1   | 6-A   | 110 | G    | C2-N3-C4    | -5.10 | 109.35      | 111.90   |
| 1   | 7-A   | 127 | U    | C3'-C2'-C1' | 5.10  | 105.58      | 101.50   |
| 1   | 3-A   | 110 | G    | C2-N3-C4    | -5.09 | 109.35      | 111.90   |
| 1   | 10-A  | 151 | G    | C6-C5-N7    | -5.09 | 127.34      | 130.40   |
| 1   | 12-A  | 110 | G    | C2-N3-C4    | -5.09 | 109.35      | 111.90   |
| 1   | 19-A  | 151 | G    | C6-C5-N7    | -5.09 | 127.34      | 130.40   |
| 1   | 13-A  | 55  | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 1   | 2-A   | 55  | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 1   | 14-A  | 110 | G    | C2-N3-C4    | -5.09 | 109.36      | 111.90   |
| 1   | 10-A  | 55  | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 1   | 11-A  | 110 | G    | C2-N3-C4    | -5.09 | 109.36      | 111.90   |
| 1   | 14-A  | 55  | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 1   | 15-A  | 110 | G    | C2-N3-C4    | -5.09 | 109.36      | 111.90   |
| 1   | 17-A  | 110 | G    | C2-N3-C4    | -5.09 | 109.36      | 111.90   |
| 1   | 7-A   | 151 | G    | C6-C5-N7    | -5.08 | 127.35      | 130.40   |
| 1   | 13-A  | 151 | G    | C6-C5-N7    | -5.08 | 127.35      | 130.40   |
| 1   | 3-A   | 55  | U    | O4'-C1'-N1  | 5.08  | 112.27      | 108.20   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 1   | 9-A   | 55  | U    | O4'-C1'-N1 | 5.08  | 112.27      | 108.20   |
| 1   | 10-A  | 13  | G    | O4'-C1'-N9 | 5.08  | 112.27      | 108.20   |
| 1   | 5-A   | 55  | U    | O4'-C1'-N1 | 5.08  | 112.26      | 108.20   |
| 1   | 4-A   | 110 | G    | C2-N3-C4   | -5.07 | 109.36      | 111.90   |
| 1   | 12-A  | 151 | G    | C6-C5-N7   | -5.07 | 127.36      | 130.40   |
| 1   | 15-A  | 151 | G    | C6-C5-N7   | -5.07 | 127.36      | 130.40   |
| 1   | 2-A   | 151 | G    | C6-C5-N7   | -5.06 | 127.36      | 130.40   |
| 1   | 16-A  | 55  | U    | O4'-C1'-N1 | 5.06  | 112.25      | 108.20   |
| 1   | 8-A   | 151 | G    | C6-C5-N7   | -5.06 | 127.37      | 130.40   |
| 1   | 10-A  | 110 | G    | C2-N3-C4   | -5.05 | 109.38      | 111.90   |
| 1   | 7-A   | 55  | U    | O4'-C1'-N1 | 5.05  | 112.24      | 108.20   |
| 1   | 18-A  | 55  | U    | O4'-C1'-N1 | 5.05  | 112.24      | 108.20   |
| 1   | 3-A   | 151 | G    | C6-C5-N7   | -5.05 | 127.37      | 130.40   |
| 1   | 14-A  | 151 | G    | C6-C5-N7   | -5.05 | 127.37      | 130.40   |
| 1   | 4-A   | 55  | U    | O4'-C1'-N1 | 5.04  | 112.23      | 108.20   |
| 1   | 11-A  | 151 | G    | C6-C5-N7   | -5.04 | 127.38      | 130.40   |
| 1   | 20-A  | 151 | G    | C6-C5-N7   | -5.04 | 127.38      | 130.40   |
| 1   | 9-A   | 151 | G    | C6-C5-N7   | -5.03 | 127.38      | 130.40   |

All (1) chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|-----|-------|-----|------|------|
| 1   | 7-A   | 21  | U    | C3'  |

There are no planarity outliers.

## 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | 1-A   | 3671  | 1841     | 1842     | 57      | 0            |
| 1   | 2-A   | 3671  | 1841     | 1842     | 73      | 0            |
| 1   | 3-A   | 3671  | 1841     | 1842     | 88      | 0            |
| 1   | 4-A   | 3671  | 1841     | 1842     | 69      | 0            |
| 1   | 5-A   | 3671  | 1841     | 1842     | 91      | 0            |
| 1   | 6-A   | 3671  | 1841     | 1842     | 66      | 0            |
| 1   | 7-A   | 3671  | 1841     | 1842     | 88      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | 8-A   | 3671  | 1841     | 1842     | 70      | 0            |
| 1   | 9-A   | 3671  | 1841     | 1842     | 65      | 0            |
| 1   | 10-A  | 3671  | 1841     | 1842     | 78      | 0            |
| 1   | 11-A  | 3671  | 1841     | 1842     | 77      | 0            |
| 1   | 12-A  | 3671  | 1841     | 1842     | 68      | 0            |
| 1   | 13-A  | 3671  | 1841     | 1842     | 92      | 0            |
| 1   | 14-A  | 3671  | 1841     | 1842     | 66      | 0            |
| 1   | 15-A  | 3671  | 1841     | 1842     | 64      | 0            |
| 1   | 16-A  | 3671  | 1841     | 1842     | 75      | 0            |
| 1   | 17-A  | 3671  | 1841     | 1842     | 73      | 0            |
| 1   | 18-A  | 3671  | 1841     | 1842     | 69      | 0            |
| 1   | 19-A  | 3671  | 1841     | 1842     | 62      | 0            |
| 1   | 20-A  | 3671  | 1841     | 1842     | 77      | 0            |
| All | All   | 73420 | 36820    | 36840    | 1468    | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 15.

All (1468) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:15:U:C6   | 1:A:15:U:OP2  | 1.76                     | 1.39              |
| 1:A:106:C:H6  | 1:A:106:C:OP2 | 1.02                     | 1.34              |
| 1:A:106:C:OP2 | 1:A:106:C:C6  | 1.79                     | 1.34              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:44:A:C8   | 1:A:44:A:OP2  | 1.87                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |
| 1:A:125:A:C8  | 1:A:125:A:OP1 | 1.85                     | 1.27              |

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[illegible]

| <b>Atom-1</b> | <b>Atom-2</b> | <b>Interatomic distance (<math>\text{\AA}</math>)</b> | <b>Clash overlap (<math>\text{\AA}</math>)</b> |
|---------------|---------------|---|--|
| 1:A:44:A:OP2  | 1:A:44:A:O4'  | 1.72  | 1.06   |
| 1:A:89:G:O4'  | 1:A:89:G:OP2  | 1.73  | 1.05   |
| 1:A:89:G:OP1  | 1:A:89:G:O4'  | 1.73  | 1.03   |
| 1:A:32:A:O4'  | 1:A:32:A:OP1  | 1.74  | 1.02   |
| 1:A:15:U:OP2  | 1:A:15:U:C5   | 2.13  | 1.00   |
| 1:A:14:A:H4'  | 1:A:14:A:OP1  | 1.60  | 0.98   |
| 1:A:38:G:OP2  | 1:A:38:G:C8   | 2.17  | 0.97   |
| 1:A:98:A:OP1  | 1:A:98:A:C4'  | 2.12  | 0.97   |
| 1:A:106:C:OP2 | 1:A:106:C:C5  | 2.17  | 0.97   |
| 1:A:-4:A:O2'  | 1:A:-3:U:OP2  | 1.84  | 0.96   |
| 1:A:15:U:OP2  | 1:A:15:U:H6   | 1.46  | 0.96   |
| 1:A:51:C:P    | 1:A:51:C:C6   | 2.59  | 0.95   |
| 1:A:106:C:OP2 | 1:A:106:C:H6  | 1.45  | 0.95   |
| 1:A:15:U:OP2  | 1:A:15:U:H6   | 1.20  | 0.94   |
| 1:A:105:A:O2' | 1:A:106:C:OP1 | 1.85  | 0.94   |
| 1:A:91:U:P    | 1:A:91:U:H6   | 1.90  | 0.94   |
| 1:A:14:A:O4'  | 1:A:14:A:OP1  | 1.84  | 0.93   |
| 1:A:106:C:OP2 | 1:A:106:C:C5  | 2.22  | 0.93   |
| 1:A:105:A:O2' | 1:A:106:C:OP1 | 1.87  | 0.93   |
| 1:A:51:C:H3'  | 1:A:51:C:OP1  | 1.69  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:14:A:OP1  | 1:A:14:A:C4'  | 2.16  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |
| 1:A:106:C:C6  | 1:A:106:C:OP2 | 2.22  | 0.93   |
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51  | 0.93   |





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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:133:C:OP2 | 1:A:133:C:H6  | 1.51                     | 0.93              |
| 1:A:106:C:OP2 | 1:A:106:C:C6  | 2.23                     | 0.92              |
| 1:A:89:G:OP1  | 1:A:89:G:O4'  | 1.88                     | 0.92              |
| 1:A:51:C:C6   | 1:A:51:C:OP2  | 2.23                     | 0.91              |
| 1:A:24:A:O4'  | 1:A:24:A:OP2  | 1.88                     | 0.91              |
| 1:A:106:C:C6  | 1:A:106:C:OP2 | 2.24                     | 0.91              |
| 1:A:73:G:O2'  | 1:A:74:A:OP1  | 1.89                     | 0.91              |
| 1:A:-10:A:H8  | 1:A:-10:A:O5' | 1.54                     | 0.90              |
| 1:A:89:G:OP1  | 1:A:89:G:C4'  | 2.20                     | 0.90              |
| 1:A:15:U:C5   | 1:A:15:U:OP2  | 2.25                     | 0.90              |
| 1:A:105:A:O2' | 1:A:106:C:OP1 | 1.91                     | 0.89              |
| 1:A:-3:U:O2'  | 1:A:-2:G:P    | 2.31                     | 0.89              |
| 1:A:89:G:P    | 1:A:89:G:C8   | 2.66                     | 0.89              |
| 1:A:91:U:OP2  | 1:A:91:U:C5   | 2.27                     | 0.88              |
| 1:A:91:U:P    | 1:A:91:U:C6   | 2.66                     | 0.88              |
| 1:A:143:A:OP2 | 1:A:143:A:C8  | 2.27                     | 0.87              |
| 1:A:15:U:C5   | 1:A:15:U:OP2  | 2.28                     | 0.87              |
| 1:A:14:A:OP1  | 1:A:14:A:C3'  | 2.23                     | 0.87              |
| 1:A:106:C:C6  | 1:A:106:C:OP2 | 2.28                     | 0.86              |
| 1:A:23:U:C4'  | 1:A:24:A:OP2  | 2.22                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |
| 1:A:50:U:O2'  | 1:A:51:C:OP2  | 1.93                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |
| 1:A:44:A:O4'  | 1:A:44:A:P    | 2.32                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.28                     | 0.86              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:106:C:C6  | 1:A:106:C:OP2 | 2.29                     | 0.86              |
| 1:A:133:C:OP2 | 1:A:133:C:C6  | 2.29                     | 0.86              |
| 1:A:14:A:OP2  | 1:A:14:A:N3   | 2.09                     | 0.85              |
| 1:A:24:A:H8   | 1:A:24:A:OP2  | 1.60                     | 0.85              |
| 1:A:106:C:OP2 | 1:A:106:C:C5  | 2.29                     | 0.85              |
| 1:A:-4:A:H2'  | 1:A:-4:A:OP2  | 1.77                     | 0.84              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:106:C:OP2 | 1:A:106:C:C5  | 2.31                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.51                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.51                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:21:U:O2'  | 1:A:22:U:P    | 2.37                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.83              |
| 1:A:14:A:OP1  | 1:A:14:A:N9   | 2.11                     | 0.83              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.82              |
| 1:A:89:G:C8   | 1:A:89:G:OP1  | 2.32                     | 0.82              |
| 1:A:125:A:OP1 | 1:A:125:A:H8  | 1.50                     | 0.82              |
| 1:A:99:G:C8   | 1:A:99:G:OP1  | 2.33                     | 0.82              |
| 1:A:14:A:O4'  | 1:A:14:A:P    | 2.38                     | 0.82              |
| 1:A:15:U:C6   | 1:A:15:U:OP1  | 2.33                     | 0.81              |
| 1:A:21:U:O2'  | 1:A:22:U:OP2  | 1.98                     | 0.81              |
| 1:A:-1:A:N6   | 1:A:73:G:O2'  | 2.13                     | 0.81              |
| 1:A:-4:A:O2'  | 1:A:-3:U:P    | 2.38                     | 0.80              |
| 1:A:51:C:H2'  | 1:A:51:C:O2   | 1.79                     | 0.80              |
| 1:A:106:C:C6  | 1:A:106:C:OP2 | 2.35                     | 0.79              |
| 1:A:31:C:C2'  | 1:A:32:A:OP1  | 2.28                     | 0.79              |
| 1:A:44:A:OP2  | 1:A:44:A:C1'  | 2.29                     | 0.79              |
| 1:A:-4:A:C2'  | 1:A:-3:U:OP2  | 2.30                     | 0.79              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:126:U:O4' | 1:A:126:U:P   | 2.44                     | 0.76              |
| 1:A:-4:A:O2'  | 1:A:-3:U:OP1  | 2.04                     | 0.76              |
| 1:A:-2:G:O5'  | 1:A:-2:G:C8   | 2.38                     | 0.76              |
| 1:A:15:U:C6   | 1:A:15:U:OP1  | 2.39                     | 0.76              |
| 1:A:51:C:C6   | 1:A:51:C:OP1  | 2.38                     | 0.76              |
| 1:A:-4:A:OP2  | 1:A:-4:A:N3   | 2.19                     | 0.75              |
| 1:A:23:U:C6   | 1:A:23:U:OP1  | 2.38                     | 0.75              |
| 1:A:-4:A:O2'  | 1:A:-3:U:P    | 2.44                     | 0.75              |
| 1:A:73:G:H8   | 1:A:73:G:OP2  | 1.69                     | 0.75              |
| 1:A:-3:U:O2'  | 1:A:-2:G:OP2  | 2.04                     | 0.75              |
| 1:A:100:A:O5' | 1:A:100:A:N3  | 2.20                     | 0.75              |
| 1:A:31:C:O2'  | 1:A:32:A:OP1  | 2.03                     | 0.75              |
| 1:A:98:A:OP2  | 1:A:98:A:N9   | 2.19                     | 0.75              |
| 1:A:-4:A:O4'  | 1:A:74:A:N6   | 2.20                     | 0.74              |
| 1:A:22:U:O4'  | 1:A:22:U:OP1  | 2.05                     | 0.74              |
| 1:A:106:C:C6  | 1:A:106:C:OP2 | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:-3:U:O2'  | 1:A:-2:G:O5'  | 2.05                     | 0.74              |
| 1:A:13:G:OP2  | 1:A:55:U:O2'  | 2.04                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:14:A:OP1  | 1:A:14:A:O3'  | 2.05                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:126:U:OP1 | 1:A:126:U:C6  | 2.41                     | 0.74              |
| 1:A:106:C:OP2 | 1:A:106:C:H6  | 1.68                     | 0.74              |
| 1:A:100:A:N3  | 1:A:100:A:P   | 2.61                     | 0.74              |
| 1:A:-2:G:O5'  | 1:A:-2:G:H8   | 1.71                     | 0.73              |
| 1:A:50:U:O2'  | 1:A:51:C:P    | 2.46                     | 0.73              |
| 1:A:97:A:O2'  | 1:A:98:A:O5'  | 2.05                     | 0.73              |
| 1:A:22:U:O4'  | 1:A:22:U:P    | 2.46                     | 0.73              |
| 1:A:22:U:H4'  | 1:A:23:U:OP1  | 1.87                     | 0.73              |
| 1:A:20:U:H3'  | 1:A:21:U:C5'  | 2.18                     | 0.73              |
| 1:A:74:A:O3'  | 1:A:75:C:O4'  | 2.05                     | 0.73              |
| 1:A:106:C:OP2 | 1:A:106:C:H6  | 1.72                     | 0.73              |
| 1:A:106:C:OP2 | 1:A:106:C:H6  | 1.71                     | 0.73              |
| 1:A:43:A:O2'  | 1:A:44:A:OP1  | 2.05                     | 0.72              |
| 1:A:99:G:H3'  | 1:A:99:G:N3   | 2.04                     | 0.72              |
| 1:A:-3:U:O2'  | 1:A:74:A:N6   | 2.22                     | 0.72              |
| 1:A:32:A:H8   | 1:A:32:A:P    | 2.13                     | 0.72              |
| 1:A:23:U:H4'  | 1:A:24:A:OP2  | 1.88                     | 0.71              |
| 1:A:32:A:OP1  | 1:A:32:A:H8   | 1.72                     | 0.71              |
| 1:A:75:C:OP2  | 1:A:75:C:H6   | 1.73                     | 0.71              |
| 1:A:-11:G:O2' | 1:A:-9:A:N7   | 2.22                     | 0.71              |
| 1:A:14:A:H3'  | 1:A:14:A:N3   | 2.06                     | 0.71              |
| 1:A:-2:G:OP2  | 1:A:-2:G:O4'  | 2.08                     | 0.71              |
| 1:A:15:U:OP1  | 1:A:15:U:C5   | 2.44                     | 0.71              |
| 1:A:100:A:OP1 | 1:A:100:A:C2  | 2.44                     | 0.71              |
| 1:A:-1:A:N7   | 1:A:73:G:N2   | 2.39                     | 0.70              |
| 1:A:75:C:OP1  | 1:A:75:C:H4'  | 1.89                     | 0.70              |
| 1:A:51:C:OP1  | 1:A:51:C:C3'  | 2.38                     | 0.70              |
| 1:A:106:C:H6  | 1:A:106:C:OP2 | 1.74                     | 0.70              |
| 1:A:106:C:OP2 | 1:A:106:C:H6  | 1.72                     | 0.70              |
| 1:A:78:A:O2'  | 1:A:79:C:OP1  | 2.10                     | 0.70              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:141:U:OP2 | 1:A:141:U:C6  | 2.43                     | 0.70              |
| 1:A:15:U:OP1  | 1:A:15:U:H6   | 1.74                     | 0.70              |
| 1:A:106:C:OP2 | 1:A:106:C:H6  | 1.70                     | 0.70              |
| 1:A:-4:A:O2'  | 1:A:-3:U:P    | 2.50                     | 0.70              |
| 1:A:14:A:OP2  | 1:A:14:A:C4   | 2.45                     | 0.70              |
| 1:A:22:U:OP1  | 1:A:22:U:C6   | 2.46                     | 0.69              |
| 1:A:91:U:OP2  | 1:A:91:U:H5   | 1.74                     | 0.69              |
| 1:A:106:C:OP2 | 1:A:106:C:H6  | 1.76                     | 0.69              |
| 1:A:13:G:O2'  | 1:A:14:A:O5'  | 2.10                     | 0.69              |
| 1:A:96:U:H6   | 1:A:96:U:O5'  | 1.76                     | 0.69              |
| 1:A:-12:G:O2' | 1:A:78:A:N6   | 2.26                     | 0.69              |
| 1:A:31:C:HO2' | 1:A:32:A:P    | 2.16                     | 0.69              |
| 1:A:22:U:H2'  | 1:A:23:U:OP1  | 1.93                     | 0.69              |
| 1:A:89:G:OP2  | 1:A:89:G:C8   | 2.46                     | 0.69              |
| 1:A:143:A:OP2 | 1:A:143:A:H8  | 1.75                     | 0.68              |
| 1:A:43:A:N1   | 1:A:156:G:O2' | 2.26                     | 0.68              |
| 1:A:97:A:O2'  | 1:A:98:A:P    | 2.50                     | 0.68              |
| 1:A:14:A:OP1  | 1:A:14:A:C8   | 2.46                     | 0.68              |
| 1:A:79:C:OP2  | 1:A:79:C:H6   | 1.77                     | 0.68              |
| 1:A:44:A:OP2  | 1:A:44:A:N9   | 2.26                     | 0.68              |
| 1:A:99:G:H4'  | 1:A:100:A:OP2 | 1.93                     | 0.68              |
| 1:A:50:U:C4'  | 1:A:51:C:OP2  | 2.41                     | 0.68              |
| 1:A:-3:U:H2'  | 1:A:-3:U:OP2  | 1.93                     | 0.68              |
| 1:A:74:A:OP1  | 1:A:74:A:O4'  | 2.12                     | 0.68              |
| 1:A:74:A:O2'  | 1:A:75:C:OP1  | 2.11                     | 0.68              |
| 1:A:141:U:OP2 | 1:A:141:U:H6  | 1.77                     | 0.67              |
| 1:A:106:C:H6  | 1:A:106:C:OP2 | 1.76                     | 0.67              |
| 1:A:106:C:OP2 | 1:A:106:C:O4' | 2.12                     | 0.67              |
| 1:A:15:U:H6   | 1:A:15:U:P    | 2.17                     | 0.67              |
| 1:A:14:A:OP1  | 1:A:14:A:H2'  | 1.95                     | 0.67              |
| 1:A:47:C:O5'  | 1:A:47:C:C6   | 2.47                     | 0.67              |
| 1:A:73:G:OP2  | 1:A:73:G:C8   | 2.47                     | 0.67              |
| 1:A:99:G:O2'  | 1:A:101:G:O4' | 2.10                     | 0.67              |
| 1:A:75:C:OP2  | 1:A:75:C:H6   | 1.78                     | 0.67              |
| 1:A:142:C:O2' | 1:A:143:A:OP1 | 2.13                     | 0.67              |
| 1:A:14:A:OP2  | 1:A:14:A:C2   | 2.48                     | 0.67              |
| 1:A:105:A:H2' | 1:A:106:C:OP2 | 1.94                     | 0.66              |
| 1:A:75:C:OP2  | 1:A:75:C:H6   | 1.78                     | 0.66              |
| 1:A:13:G:OP2  | 1:A:55:U:O2'  | 2.13                     | 0.66              |
| 1:A:-11:G:O2' | 1:A:-9:A:N7   | 2.27                     | 0.66              |
| 1:A:-2:G:H4'  | 1:A:-2:G:OP1  | 1.95                     | 0.66              |

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| Atom-1         | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|---------------|--------------------------|-------------------|
| 1:A:-2:G:O2'   | 1:A:-1:A:P    | 2.52                     | 0.66              |
| 1:A:106:C:OP2  | 1:A:106:C:H6  | 1.77                     | 0.66              |
| 1:A:45:A:OP1   | 1:A:45:A:H4'  | 1.94                     | 0.66              |
| 1:A:-2:G:H8    | 1:A:-2:G:P    | 2.19                     | 0.66              |
| 1:A:-11:G:O2'  | 1:A:-9:A:N7   | 2.27                     | 0.66              |
| 1:A:21:U:O2'   | 1:A:22:U:OP1  | 2.13                     | 0.66              |
| 1:A:142:C:HO2' | 1:A:143:A:P   | 2.18                     | 0.66              |
| 1:A:23:U:O4'   | 1:A:24:A:OP2  | 2.14                     | 0.66              |
| 1:A:-4:A:OP2   | 1:A:-4:A:C2   | 2.49                     | 0.66              |
| 1:A:14:A:C4    | 1:A:14:A:OP2  | 2.49                     | 0.65              |
| 1:A:98:A:O2'   | 1:A:99:G:OP1  | 2.08                     | 0.65              |
| 1:A:-11:G:O2'  | 1:A:-9:A:N7   | 2.28                     | 0.65              |
| 1:A:89:G:P     | 1:A:89:G:H8   | 2.18                     | 0.65              |
| 1:A:-11:G:O2'  | 1:A:-9:A:N7   | 2.29                     | 0.65              |
| 1:A:15:U:H6    | 1:A:15:U:P    | 2.19                     | 0.65              |
| 1:A:79:C:OP2   | 1:A:79:C:H6   | 1.80                     | 0.65              |
| 1:A:44:A:H8    | 1:A:44:A:OP2  | 1.79                     | 0.65              |
| 1:A:99:G:OP1   | 1:A:99:G:O4'  | 2.15                     | 0.65              |
| 1:A:89:G:O2'   | 1:A:90:C:O4'  | 2.14                     | 0.65              |
| 1:A:96:U:H6    | 1:A:96:U:O5'  | 1.79                     | 0.65              |
| 1:A:106:C:OP2  | 1:A:106:C:H5  | 1.77                     | 0.65              |
| 1:A:44:A:OP2   | 1:A:44:A:C4'  | 2.46                     | 0.64              |
| 1:A:99:G:O4'   | 1:A:99:G:P    | 2.54                     | 0.64              |
| 1:A:24:A:OP2   | 1:A:24:A:C8   | 2.47                     | 0.64              |
| 1:A:22:U:O2'   | 1:A:23:U:O5'  | 2.15                     | 0.64              |
| 1:A:-1:A:N7    | 1:A:72:G:N2   | 2.45                     | 0.64              |
| 1:A:89:G:O3'   | 1:A:90:C:O4'  | 2.15                     | 0.64              |
| 1:A:-4:A:O2'   | 1:A:-3:U:OP2  | 2.15                     | 0.64              |
| 1:A:23:U:O4'   | 1:A:25:A:N6   | 2.30                     | 0.64              |
| 1:A:98:A:OP1   | 1:A:98:A:H4'  | 1.97                     | 0.64              |
| 1:A:-12:G:O2'  | 1:A:78:A:N6   | 2.31                     | 0.64              |
| 1:A:22:U:OP1   | 1:A:22:U:C6   | 2.50                     | 0.64              |
| 1:A:13:G:HO2'  | 1:A:14:A:P    | 2.19                     | 0.64              |
| 1:A:15:U:OP2   | 1:A:15:U:C6   | 2.51                     | 0.63              |
| 1:A:91:U:H6    | 1:A:91:U:OP1  | 1.80                     | 0.63              |
| 1:A:14:A:OP1   | 1:A:14:A:H3'  | 1.99                     | 0.63              |
| 1:A:96:U:H6    | 1:A:96:U:O5'  | 1.81                     | 0.63              |
| 1:A:13:G:O2'   | 1:A:14:A:P    | 2.57                     | 0.63              |
| 1:A:89:G:O2'   | 1:A:90:C:O5'  | 2.15                     | 0.63              |
| 1:A:111:A:H8   | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:15:U:OP2   | 1:A:15:U:C6   | 2.51                     | 0.63              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:-3:U:C2'  | 1:A:-2:G:OP1  | 2.47                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:97:A:O2'  | 1:A:98:A:N7   | 2.28                     | 0.63              |
| 1:A:-10:A:O5' | 1:A:-10:A:C8  | 2.45                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:-12:G:O2' | 1:A:78:A:N6   | 2.32                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:14:A:H4'  | 1:A:15:U:OP2  | 1.99                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:75:C:OP2  | 1:A:75:C:H6   | 1.80                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:14:A:H8   | 1:A:14:A:OP2  | 1.81                     | 0.63              |
| 1:A:24:A:H8   | 1:A:24:A:O5'  | 1.81                     | 0.63              |
| 1:A:111:A:H8  | 1:A:111:A:OP1 | 1.81                     | 0.63              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:98:A:OP2  | 1:A:98:A:H8   | 1.76                     | 0.63              |
| 1:A:90:C:N4   | 1:A:107:A:N3  | 2.46                     | 0.63              |
| 1:A:-12:G:O2' | 1:A:78:A:N6   | 2.32                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:12:A:H2'  | 1:A:55:U:O2   | 1.98                     | 0.63              |
| 1:A:51:C:P    | 1:A:51:C:H6   | 2.19                     | 0.63              |
| 1:A:-2:G:O2'  | 1:A:73:G:N2   | 2.32                     | 0.63              |
| 1:A:31:C:O2'  | 1:A:32:A:OP1  | 2.14                     | 0.62              |
| 1:A:-12:G:O2' | 1:A:78:A:N6   | 2.31                     | 0.62              |
| 1:A:-11:G:O2' | 1:A:-9:A:N7   | 2.33                     | 0.62              |
| 1:A:79:C:OP2  | 1:A:79:C:C6   | 2.53                     | 0.62              |
| 1:A:142:C:H6  | 1:A:142:C:O5' | 1.82                     | 0.62              |
| 1:A:47:C:H6   | 1:A:47:C:O5'  | 1.83                     | 0.62              |
| 1:A:-12:G:O2' | 1:A:78:A:N6   | 2.33                     | 0.62              |
| 1:A:45:A:OP1  | 1:A:45:A:O4'  | 2.17                     | 0.62              |
| 1:A:100:A:N3  | 1:A:100:A:H2' | 2.13                     | 0.62              |
| 1:A:89:G:O4'  | 1:A:89:G:P    | 2.58                     | 0.62              |
| 1:A:-10:A:OP1 | 1:A:-10:A:H8  | 1.83                     | 0.62              |
| 1:A:75:C:OP2  | 1:A:75:C:H6   | 1.81                     | 0.61              |
| 1:A:47:C:O5'  | 1:A:47:C:H6   | 1.82                     | 0.61              |
| 1:A:91:U:OP2  | 1:A:91:U:C6   | 2.53                     | 0.61              |
| 1:A:79:C:O2'  | 1:A:80:C:P    | 2.58                     | 0.61              |
| 1:A:0:A:O2'   | 1:A:74:A:N6   | 2.33                     | 0.61              |
| 1:A:89:G:OP1  | 1:A:89:G:H4'  | 1.97                     | 0.61              |
| 1:A:100:A:H8  | 1:A:100:A:O5' | 1.84                     | 0.61              |
| 1:A:106:C:C6  | 1:A:106:C:OP2 | 2.54                     | 0.61              |
| 1:A:-1:A:N7   | 1:A:73:G:N2   | 2.47                     | 0.61              |
| 1:A:142:C:H6  | 1:A:142:C:O5' | 1.83                     | 0.61              |
| 1:A:99:G:OP2  | 1:A:99:G:C1'  | 2.49                     | 0.61              |
| 1:A:79:C:OP2  | 1:A:79:C:C6   | 2.53                     | 0.61              |
| 1:A:13:G:HO2' | 1:A:14:A:P    | 2.23                     | 0.61              |
| 1:A:-2:G:H8   | 1:A:-2:G:OP2  | 1.82                     | 0.61              |
| 1:A:142:C:O2' | 1:A:143:A:P   | 2.58                     | 0.61              |
| 1:A:74:A:OP2  | 1:A:74:A:C4'  | 2.49                     | 0.60              |
| 1:A:-2:G:H8   | 1:A:-2:G:OP1  | 1.84                     | 0.60              |
| 1:A:13:G:OP2  | 1:A:55:U:O2'  | 2.13                     | 0.60              |
| 1:A:78:A:HO2' | 1:A:79:C:P    | 2.24                     | 0.60              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:32:A:OP1  | 1:A:32:A:C8   | 2.55                     | 0.60              |
| 1:A:96:U:H6   | 1:A:96:U:O5'  | 1.83                     | 0.60              |
| 1:A:99:G:C8   | 1:A:99:G:P    | 2.94                     | 0.60              |
| 1:A:23:U:H6   | 1:A:23:U:OP2  | 1.84                     | 0.60              |
| 1:A:31:C:H6   | 1:A:31:C:O5'  | 1.84                     | 0.60              |
| 1:A:14:A:OP1  | 1:A:14:A:C3'  | 2.49                     | 0.60              |
| 1:A:50:U:O2'  | 1:A:51:C:O5'  | 2.16                     | 0.60              |
| 1:A:142:C:H6  | 1:A:142:C:O5' | 1.84                     | 0.60              |
| 1:A:44:A:H8   | 1:A:44:A:P    | 2.23                     | 0.60              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.85                     | 0.59              |
| 1:A:44:A:H8   | 1:A:44:A:OP2  | 1.85                     | 0.59              |
| 1:A:23:U:OP2  | 1:A:23:U:O2   | 2.20                     | 0.59              |
| 1:A:98:A:OP2  | 1:A:98:A:H3'  | 2.01                     | 0.59              |
| 1:A:98:A:H8   | 1:A:98:A:OP2  | 1.85                     | 0.59              |
| 1:A:90:C:N4   | 1:A:91:U:C4   | 2.71                     | 0.59              |
| 1:A:-3:U:OP2  | 1:A:73:G:O2'  | 2.20                     | 0.59              |
| 1:A:106:C:H2' | 1:A:107:A:O4' | 2.02                     | 0.59              |
| 1:A:14:A:OP1  | 1:A:14:A:H8   | 1.83                     | 0.59              |
| 1:A:24:A:OP2  | 1:A:24:A:N9   | 2.36                     | 0.59              |
| 1:A:13:G:OP2  | 1:A:55:U:O2'  | 2.19                     | 0.59              |
| 1:A:106:C:OP2 | 1:A:106:C:C5  | 2.56                     | 0.59              |
| 1:A:14:A:OP1  | 1:A:14:A:C1'  | 2.51                     | 0.58              |
| 1:A:106:C:H2' | 1:A:107:A:O4' | 2.03                     | 0.58              |
| 1:A:-10:A:OP1 | 1:A:-10:A:H8  | 1.86                     | 0.58              |
| 1:A:21:U:O2'  | 1:A:22:U:O5'  | 2.21                     | 0.58              |
| 1:A:23:U:OP1  | 1:A:23:U:C5   | 2.55                     | 0.58              |
| 1:A:98:A:H3'  | 1:A:98:A:P    | 2.43                     | 0.58              |
| 1:A:-3:U:H2'  | 1:A:-2:G:O4'  | 2.03                     | 0.58              |
| 1:A:98:A:H8   | 1:A:98:A:O5'  | 1.86                     | 0.58              |
| 1:A:99:G:O4'  | 1:A:100:A:O4' | 2.22                     | 0.58              |
| 1:A:105:A:H4' | 1:A:106:C:OP1 | 2.03                     | 0.58              |
| 1:A:79:C:OP2  | 1:A:79:C:H6   | 1.87                     | 0.58              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.39                     | 0.58              |
| 1:A:89:G:OP1  | 1:A:89:G:O4'  | 2.22                     | 0.57              |
| 1:A:14:A:OP2  | 1:A:14:A:C8   | 2.57                     | 0.57              |
| 1:A:98:A:O4'  | 1:A:98:A:P    | 2.62                     | 0.57              |
| 1:A:-3:U:O4'  | 1:A:74:A:N6   | 2.36                     | 0.57              |
| 1:A:79:C:HO2' | 1:A:80:C:P    | 2.28                     | 0.57              |
| 1:A:106:C:H6  | 1:A:106:C:P   | 2.27                     | 0.57              |
| 1:A:97:A:C2'  | 1:A:98:A:OP1  | 2.52                     | 0.57              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.57              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.57              |
| 1:A:98:A:OP2  | 1:A:98:A:C3'  | 2.52                     | 0.57              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.57              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.57              |
| 1:A:31:C:H6   | 1:A:31:C:OP2  | 1.87                     | 0.57              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.57              |
| 1:A:141:U:H2' | 1:A:142:C:C6  | 2.39                     | 0.57              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.57              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:142:C:H6  | 1:A:142:C:O5' | 1.87                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:50:U:HO2' | 1:A:51:C:P    | 2.29                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.37                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:89:G:O4'  | 1:A:89:G:P    | 2.63                     | 0.56              |
| 1:A:127:U:H6  | 1:A:127:U:H5' | 1.70                     | 0.56              |
| 1:A:24:A:O2'  | 1:A:25:A:OP2  | 2.21                     | 0.56              |
| 1:A:142:C:O2' | 1:A:143:A:OP2 | 2.22                     | 0.56              |
| 1:A:31:C:O2'  | 1:A:32:A:P    | 2.63                     | 0.56              |
| 1:A:79:C:OP2  | 1:A:79:C:C6   | 2.58                     | 0.56              |
| 1:A:89:G:C4'  | 1:A:89:G:OP1  | 2.53                     | 0.56              |
| 1:A:-4:A:O5'  | 1:A:-4:A:H8   | 1.89                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:91:U:C6   | 1:A:91:U:OP1  | 2.58                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:105:A:H2' | 1:A:106:C:O4' | 2.04                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:126:U:OP1 | 1:A:126:U:C1' | 2.54                     | 0.56              |
| 1:A:20:U:H3'  | 1:A:21:U:H5'' | 1.87                     | 0.56              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.38                     | 0.56              |
| 1:A:15:U:C6   | 1:A:15:U:P    | 2.93                     | 0.56              |
| 1:A:38:G:O2'  | 1:A:39:A:P    | 2.64                     | 0.56              |
| 1:A:-1:A:OP2  | 1:A:75:C:O2'  | 2.23                     | 0.56              |
| 1:A:-1:A:H8   | 1:A:-1:A:O5'  | 1.88                     | 0.56              |
| 1:A:79:C:C2'  | 1:A:80:C:OP1  | 2.54                     | 0.56              |
| 1:A:98:A:OP2  | 1:A:98:A:C1'  | 2.55                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.38                     | 0.55              |
| 1:A:-3:U:O2'  | 1:A:-2:G:OP1  | 2.21                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.42                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.38                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:99:G:HO2' | 1:A:100:A:P   | 2.29                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:-4:A:H2'  | 1:A:-4:A:N3   | 2.20                     | 0.55              |
| 1:A:13:G:O2'  | 1:A:14:A:P    | 2.63                     | 0.55              |
| 1:A:50:U:C2'  | 1:A:51:C:OP2  | 2.55                     | 0.55              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:43:A:O2'  | 1:A:44:A:OP2  | 2.23                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:25:A:H8   | 1:A:25:A:OP2  | 1.89                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:75:C:OP2  | 1:A:75:C:C6   | 2.57                     | 0.55              |
| 1:A:106:C:H6  | 1:A:106:C:P   | 2.30                     | 0.55              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.55              |
| 1:A:50:U:H2'  | 1:A:51:C:O4'  | 2.07                     | 0.55              |
| 1:A:38:G:O2'  | 1:A:39:A:OP1  | 2.24                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:99:G:OP2  | 1:A:99:G:N9   | 2.40                     | 0.55              |
| 1:A:44:A:O4'  | 1:A:44:A:P    | 2.64                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:-3:U:OP2  | 1:A:-3:U:C3'  | 2.55                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:90:C:H5'  | 1:A:91:U:OP2  | 2.07                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.55              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.54              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.54              |
| 1:A:31:C:HO2' | 1:A:32:A:P    | 2.30                     | 0.54              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.07                     | 0.54              |
| 1:A:50:U:H4'  | 1:A:51:C:OP2  | 2.05                     | 0.54              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.89                     | 0.54              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.54              |
| 1:A:-11:G:O2' | 1:A:-9:A:N7   | 2.40                     | 0.54              |
| 1:A:132:C:C2' | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:30:A:H2'  | 1:A:31:C:O4'  | 2.07                     | 0.54              |
| 1:A:132:C:C2' | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.54              |
| 1:A:132:C:C2' | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:-3:U:OP2  | 1:A:-3:U:H3'  | 2.07                     | 0.54              |
| 1:A:132:C:C2' | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:84:G:O2'  | 1:A:85:G:OP1  | 2.18                     | 0.54              |

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| Atom-1         | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|---------------|--------------------------|-------------------|
| 1:A:84:G:O2'   | 1:A:85:G:OP1  | 2.18                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:84:G:O2'   | 1:A:85:G:OP1  | 2.18                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:51:C:HO2'  | 1:A:52:A:P    | 2.30                     | 0.54              |
| 1:A:25:A:OP2   | 1:A:25:A:C8   | 2.60                     | 0.54              |
| 1:A:51:C:OP2   | 1:A:51:C:H6   | 1.79                     | 0.54              |
| 1:A:49:U:H2'   | 1:A:50:U:C6   | 2.42                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:-3:U:OP2   | 1:A:-3:U:C2'  | 2.54                     | 0.54              |
| 1:A:73:G:O2'   | 1:A:74:A:P    | 2.65                     | 0.54              |
| 1:A:105:A:H2'  | 1:A:106:C:C4' | 2.38                     | 0.54              |
| 1:A:132:C:C2'  | 1:A:133:C:H5' | 2.37                     | 0.54              |
| 1:A:140:C:H2'  | 1:A:141:U:C6  | 2.43                     | 0.54              |
| 1:A:24:A:OP2   | 1:A:24:A:C1'  | 2.55                     | 0.54              |
| 1:A:84:G:O2'   | 1:A:85:G:OP1  | 2.18                     | 0.54              |
| 1:A:96:U:O2    | 1:A:100:A:N6  | 2.41                     | 0.54              |
| 1:A:90:C:H4'   | 1:A:91:U:OP1  | 2.07                     | 0.54              |
| 1:A:50:U:H2'   | 1:A:51:C:O4'  | 2.07                     | 0.54              |
| 1:A:84:G:O2'   | 1:A:85:G:OP1  | 2.18                     | 0.54              |
| 1:A:73:G:H4'   | 1:A:74:A:OP1  | 2.07                     | 0.54              |
| 1:A:96:U:N3    | 1:A:98:A:N7   | 2.56                     | 0.53              |
| 1:A:78:A:O2'   | 1:A:79:C:P    | 2.66                     | 0.53              |
| 1:A:-10:A:OP1  | 1:A:-10:A:H8  | 1.91                     | 0.53              |
| 1:A:99:G:N3    | 1:A:99:G:C3'  | 2.71                     | 0.53              |
| 1:A:-11:G:O2'  | 1:A:-9:A:N7   | 2.41                     | 0.53              |
| 1:A:-2:G:OP1   | 1:A:-2:G:C4'  | 2.56                     | 0.53              |
| 1:A:105:A:HO2' | 1:A:106:C:P   | 2.24                     | 0.53              |
| 1:A:142:C:O5'  | 1:A:142:C:C6  | 2.61                     | 0.53              |

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| Atom-1         | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|---------------|--------------------------|-------------------|
| 1:A:38:G:H2'   | 1:A:39:A:O5'  | 2.09                     | 0.53              |
| 1:A:74:A:O4'   | 1:A:74:A:P    | 2.64                     | 0.53              |
| 1:A:21:U:H6    | 1:A:21:U:OP2  | 1.92                     | 0.53              |
| 1:A:91:U:N3    | 1:A:106:C:O2  | 2.42                     | 0.53              |
| 1:A:106:C:OP2  | 1:A:106:C:H6  | 1.91                     | 0.53              |
| 1:A:75:C:OP2   | 1:A:75:C:C6   | 2.61                     | 0.53              |
| 1:A:90:C:H6    | 1:A:90:C:O5'  | 1.91                     | 0.53              |
| 1:A:38:G:HO2'  | 1:A:39:A:P    | 2.31                     | 0.53              |
| 1:A:-4:A:H2'   | 1:A:-4:A:OP2  | 2.08                     | 0.53              |
| 1:A:89:G:O4'   | 1:A:89:G:P    | 2.66                     | 0.53              |
| 1:A:-3:U:O2'   | 1:A:-2:G:OP1  | 2.26                     | 0.53              |
| 1:A:96:U:H6    | 1:A:96:U:O5'  | 1.92                     | 0.53              |
| 1:A:141:U:H2'  | 1:A:142:C:C6  | 2.43                     | 0.53              |
| 1:A:106:C:H6   | 1:A:106:C:P   | 2.32                     | 0.53              |
| 1:A:14:A:N9    | 1:A:14:A:P    | 2.82                     | 0.53              |
| 1:A:43:A:O2'   | 1:A:44:A:P    | 2.67                     | 0.53              |
| 1:A:43:A:H2'   | 1:A:44:A:C8   | 2.43                     | 0.53              |
| 1:A:42:U:H6    | 1:A:42:U:O5'  | 1.92                     | 0.53              |
| 1:A:89:G:OP2   | 1:A:89:G:C1'  | 2.55                     | 0.53              |
| 1:A:15:U:H6    | 1:A:15:U:P    | 2.32                     | 0.53              |
| 1:A:49:U:H2'   | 1:A:50:U:C6   | 2.44                     | 0.52              |
| 1:A:13:G:C2'   | 1:A:14:A:OP2  | 2.57                     | 0.52              |
| 1:A:15:U:H6    | 1:A:15:U:O5'  | 1.92                     | 0.52              |
| 1:A:13:G:OP1   | 1:A:55:U:O2'  | 2.18                     | 0.52              |
| 1:A:105:A:HO2' | 1:A:106:C:P   | 2.26                     | 0.52              |
| 1:A:-10:A:N6   | 1:A:79:C:O2   | 2.43                     | 0.52              |
| 1:A:31:C:H6    | 1:A:31:C:O5'  | 1.93                     | 0.52              |
| 1:A:47:C:H6    | 1:A:47:C:O5'  | 1.93                     | 0.52              |
| 1:A:-4:A:H4'   | 1:A:-3:U:OP2  | 2.10                     | 0.52              |
| 1:A:-2:G:O2'   | 1:A:-1:A:OP1  | 2.27                     | 0.52              |
| 1:A:91:U:P     | 1:A:91:U:C5   | 3.01                     | 0.52              |
| 1:A:91:U:OP1   | 1:A:91:U:H3'  | 2.10                     | 0.52              |
| 1:A:22:U:O2'   | 1:A:23:U:OP1  | 2.27                     | 0.52              |
| 1:A:141:U:O2   | 1:A:142:C:N4  | 2.43                     | 0.52              |
| 1:A:99:G:OP2   | 1:A:99:G:C8   | 2.62                     | 0.52              |
| 1:A:15:U:H6    | 1:A:15:U:O5'  | 1.92                     | 0.52              |
| 1:A:142:C:H6   | 1:A:142:C:O5' | 1.93                     | 0.52              |
| 1:A:15:U:OP2   | 1:A:15:U:H5   | 1.86                     | 0.52              |
| 1:A:13:G:C2'   | 1:A:14:A:OP2  | 2.57                     | 0.52              |
| 1:A:118:A:H2'  | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2'  | 1:A:119:A:O4' | 2.10                     | 0.52              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:20:U:H3'  | 1:A:21:U:H5'  | 1.89                     | 0.52              |
| 1:A:-9:A:O5'  | 1:A:-9:A:C8   | 2.63                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:89:G:OP2  | 1:A:89:G:H8   | 1.87                     | 0.52              |
| 1:A:13:G:OP2  | 1:A:55:U:O2'  | 2.26                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:51:C:O2'  | 1:A:52:A:OP1  | 2.26                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:15:U:C6   | 1:A:15:U:P    | 3.03                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:99:G:N3   | 1:A:99:G:C2'  | 2.73                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:15:U:H6   | 1:A:15:U:O5'  | 1.92                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:96:U:O2'  | 1:A:97:A:N7   | 2.37                     | 0.52              |
| 1:A:118:A:H2' | 1:A:119:A:O4' | 2.10                     | 0.52              |
| 1:A:89:G:O2'  | 1:A:90:C:OP2  | 2.24                     | 0.52              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.93                     | 0.52              |
| 1:A:-2:G:OP2  | 1:A:73:G:N1   | 2.41                     | 0.51              |
| 1:A:99:G:O2'  | 1:A:100:A:P   | 2.68                     | 0.51              |
| 1:A:44:A:O2'  | 1:A:155:G:O2' | 2.24                     | 0.51              |
| 1:A:75:C:OP2  | 1:A:75:C:C6   | 2.61                     | 0.51              |
| 1:A:44:A:OP2  | 1:A:44:A:C8   | 2.61                     | 0.51              |
| 1:A:73:G:O2'  | 1:A:74:A:N7   | 2.43                     | 0.51              |
| 1:A:50:U:H2'  | 1:A:51:C:O4'  | 2.10                     | 0.51              |
| 1:A:-11:G:H8  | 1:A:-11:G:O5' | 1.93                     | 0.51              |
| 1:A:-5:G:O2'  | 1:A:-4:A:O4'  | 2.28                     | 0.51              |
| 1:A:49:U:H2'  | 1:A:50:U:C6   | 2.46                     | 0.51              |
| 1:A:72:G:H8   | 1:A:72:G:O5'  | 1.93                     | 0.51              |
| 1:A:106:C:OP2 | 1:A:106:C:H5  | 1.84                     | 0.51              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:140:C:H2' | 1:A:141:U:C6  | 2.46                     | 0.51              |
| 1:A:99:G:OP1  | 1:A:99:G:H3'  | 2.10                     | 0.51              |
| 1:A:106:C:H2' | 1:A:107:A:O4' | 2.10                     | 0.51              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.44                     | 0.51              |
| 1:A:31:C:O2'  | 1:A:32:A:OP1  | 2.28                     | 0.51              |
| 1:A:-10:A:H8  | 1:A:-10:A:P   | 2.33                     | 0.51              |
| 1:A:79:C:H2'  | 1:A:80:C:OP1  | 2.10                     | 0.51              |
| 1:A:-2:G:O2'  | 1:A:-1:A:O5'  | 2.28                     | 0.51              |
| 1:A:21:U:O2   | 1:A:24:A:N6   | 2.44                     | 0.51              |
| 1:A:42:U:N3   | 1:A:45:A:OP2  | 2.44                     | 0.51              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.11                     | 0.51              |
| 1:A:80:C:O4'  | 1:A:80:C:P    | 2.66                     | 0.51              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.43                     | 0.51              |
| 1:A:21:U:N3   | 1:A:24:A:N1   | 2.55                     | 0.51              |
| 1:A:-3:U:H3'  | 1:A:-2:G:H5'' | 1.93                     | 0.51              |
| 1:A:-11:G:H3' | 1:A:-10:A:C8  | 2.45                     | 0.51              |
| 1:A:44:A:C8   | 1:A:44:A:P    | 3.00                     | 0.51              |
| 1:A:106:C:H6  | 1:A:106:C:P   | 2.32                     | 0.51              |
| 1:A:74:A:H2'  | 1:A:75:C:O4'  | 2.11                     | 0.51              |
| 1:A:50:U:H2'  | 1:A:51:C:OP2  | 2.11                     | 0.51              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.51              |
| 1:A:98:A:O5'  | 1:A:98:A:C8   | 2.64                     | 0.51              |
| 1:A:43:A:HO2' | 1:A:44:A:P    | 2.34                     | 0.51              |
| 1:A:99:G:N2   | 1:A:101:G:O6  | 2.44                     | 0.51              |
| 1:A:106:C:OP2 | 1:A:106:C:C5  | 2.64                     | 0.51              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.51              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.46                     | 0.51              |
| 1:A:106:C:OP2 | 1:A:106:C:C5  | 2.56                     | 0.51              |
| 1:A:143:A:O4' | 1:A:143:A:P   | 2.63                     | 0.51              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.51              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.51              |
| 1:A:141:U:H2' | 1:A:142:C:C6  | 2.46                     | 0.51              |
| 1:A:22:U:N3   | 1:A:25:A:N3   | 2.58                     | 0.51              |
| 1:A:15:U:H6   | 1:A:15:U:O5'  | 1.93                     | 0.51              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.51              |
| 1:A:96:U:N3   | 1:A:98:A:C8   | 2.79                     | 0.51              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:99:G:OP1  | 1:A:99:G:N9   | 2.44                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:89:G:OP2  | 1:A:89:G:C8   | 2.63                     | 0.50              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:100:A:P   | 1:A:100:A:C4  | 3.04                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:98:A:O5'  | 1:A:98:A:H8   | 1.94                     | 0.50              |
| 1:A:106:C:OP2 | 1:A:106:C:H5  | 1.88                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:24:A:H8   | 1:A:24:A:P    | 2.33                     | 0.50              |
| 1:A:13:G:H2'  | 1:A:14:A:OP2  | 2.11                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:89:G:OP2  | 1:A:89:G:C1'  | 2.58                     | 0.50              |
| 1:A:125:A:H8  | 1:A:125:A:P   | 2.33                     | 0.50              |
| 1:A:99:G:O2'  | 1:A:100:A:OP2 | 2.17                     | 0.50              |
| 1:A:73:G:O2'  | 1:A:74:A:P    | 2.69                     | 0.50              |
| 1:A:-2:G:O6   | 1:A:74:A:O4'  | 2.28                     | 0.50              |
| 1:A:98:A:C8   | 1:A:101:G:C6  | 2.99                     | 0.50              |
| 1:A:140:C:H2' | 1:A:141:U:N1  | 2.25                     | 0.50              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.44                     | 0.50              |
| 1:A:141:U:H2' | 1:A:142:C:C6  | 2.46                     | 0.50              |
| 1:A:75:C:OP2  | 1:A:75:C:C6   | 2.62                     | 0.50              |
| 1:A:100:A:C8  | 1:A:101:G:C8  | 2.99                     | 0.50              |
| 1:A:93:A:N7   | 1:A:98:A:N6   | 2.57                     | 0.50              |
| 1:A:89:G:H8   | 1:A:89:G:O5'  | 1.95                     | 0.50              |
| 1:A:96:U:H3'  | 1:A:97:A:C5'  | 2.42                     | 0.50              |
| 1:A:143:A:OP1 | 1:A:143:A:C4' | 2.58                     | 0.50              |
| 1:A:49:U:O2   | 1:A:50:U:N3   | 2.44                     | 0.50              |
| 1:A:-3:U:P    | 1:A:-3:U:H2'  | 2.51                     | 0.50              |
| 1:A:140:C:H2' | 1:A:141:U:C6  | 2.47                     | 0.50              |
| 1:A:50:U:H2'  | 1:A:51:C:O4'  | 2.11                     | 0.50              |
| 1:A:89:G:H3'  | 1:A:90:C:C5'  | 2.42                     | 0.50              |
| 1:A:106:C:H6  | 1:A:106:C:P   | 2.35                     | 0.50              |
| 1:A:72:G:H8   | 1:A:72:G:O5'  | 1.94                     | 0.50              |
| 1:A:50:U:N3   | 1:A:53:G:O6   | 2.45                     | 0.50              |
| 1:A:22:U:H4'  | 1:A:23:U:OP2  | 2.11                     | 0.50              |
| 1:A:141:U:H2' | 1:A:142:C:C6  | 2.47                     | 0.50              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.12                     | 0.50              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.12                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.12                     | 0.49              |
| 1:A:-10:A:H8  | 1:A:-10:A:P   | 2.35                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:-10:A:N6  | 1:A:79:C:N3   | 2.57                     | 0.49              |
| 1:A:24:A:H2'  | 1:A:24:A:N3   | 2.28                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.12                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.12                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.12                     | 0.49              |
| 1:A:-4:A:H4'  | 1:A:-3:U:OP2  | 2.11                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.12                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.94                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:49:U:O2   | 1:A:50:U:N3   | 2.45                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:15:U:C5   | 1:A:15:U:OP2  | 2.65                     | 0.49              |
| 1:A:21:U:H3'  | 1:A:22:U:C5   | 2.47                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:-4:A:H2'  | 1:A:-4:A:N3   | 2.27                     | 0.49              |
| 1:A:15:U:H6   | 1:A:15:U:O5'  | 1.95                     | 0.49              |
| 1:A:139:U:H2' | 1:A:140:C:O4' | 2.13                     | 0.49              |
| 1:A:22:U:OP1  | 1:A:22:U:C1'  | 2.58                     | 0.49              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.95                     | 0.49              |
| 1:A:18:C:N4   | 1:A:23:U:O2   | 2.45                     | 0.49              |
| 1:A:89:G:O2'  | 1:A:90:C:OP2  | 2.23                     | 0.49              |
| 1:A:105:A:H2' | 1:A:106:C:O4' | 2.12                     | 0.49              |
| 1:A:-4:A:O4'  | 1:A:74:A:N6   | 2.45                     | 0.49              |
| 1:A:140:C:H2' | 1:A:141:U:C6  | 2.47                     | 0.49              |
| 1:A:89:G:O2'  | 1:A:90:C:O4'  | 2.14                     | 0.49              |
| 1:A:140:C:H2' | 1:A:141:U:C6  | 2.48                     | 0.49              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.95                     | 0.49              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.13                     | 0.49              |

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| Atom-1         | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|---------------|--------------------------|-------------------|
| 1:A:12:A:O2'   | 1:A:13:G:OP1  | 2.28                     | 0.49              |
| 1:A:141:U:H2'  | 1:A:142:C:C6  | 2.47                     | 0.49              |
| 1:A:90:C:H4'   | 1:A:91:U:OP2  | 2.12                     | 0.49              |
| 1:A:89:G:C2    | 1:A:90:C:N4   | 2.81                     | 0.49              |
| 1:A:-5:G:H2'   | 1:A:-4:A:H5'  | 1.94                     | 0.49              |
| 1:A:50:U:H1'   | 1:A:51:C:C5   | 2.48                     | 0.49              |
| 1:A:15:U:OP2   | 1:A:15:U:H5   | 1.88                     | 0.49              |
| 1:A:-3:U:H6    | 1:A:-3:U:O5'  | 1.96                     | 0.49              |
| 1:A:98:A:H8    | 1:A:98:A:P    | 2.35                     | 0.49              |
| 1:A:141:U:H2'  | 1:A:142:C:C6  | 2.47                     | 0.49              |
| 1:A:99:G:O2'   | 1:A:100:A:OP1 | 2.30                     | 0.49              |
| 1:A:31:C:H6    | 1:A:31:C:O5'  | 1.96                     | 0.49              |
| 1:A:140:C:H2'  | 1:A:141:U:C6  | 2.47                     | 0.49              |
| 1:A:22:U:C6    | 1:A:22:U:H5'  | 2.48                     | 0.49              |
| 1:A:45:A:N1    | 1:A:153:A:N6  | 2.60                     | 0.49              |
| 1:A:-4:A:O4'   | 1:A:74:A:N6   | 2.46                     | 0.48              |
| 1:A:105:A:O2'  | 1:A:106:C:H5' | 2.13                     | 0.48              |
| 1:A:21:U:OP2   | 1:A:21:U:C6   | 2.66                     | 0.48              |
| 1:A:106:C:OP2  | 1:A:106:C:H5  | 1.86                     | 0.48              |
| 1:A:23:U:O4'   | 1:A:25:A:N6   | 2.46                     | 0.48              |
| 1:A:24:A:O2'   | 1:A:25:A:OP2  | 2.31                     | 0.48              |
| 1:A:21:U:HO2'  | 1:A:22:U:P    | 2.36                     | 0.48              |
| 1:A:-10:A:OP1  | 1:A:-10:A:C8  | 2.67                     | 0.48              |
| 1:A:75:C:OP2   | 1:A:75:C:C6   | 2.65                     | 0.48              |
| 1:A:37:A:H2'   | 1:A:38:G:H5'  | 1.94                     | 0.48              |
| 1:A:79:C:H2'   | 1:A:80:C:C6   | 2.48                     | 0.48              |
| 1:A:45:A:C2    | 1:A:155:G:H1' | 2.48                     | 0.48              |
| 1:A:-4:A:H5''  | 1:A:-3:U:H2'  | 1.95                     | 0.48              |
| 1:A:-2:G:N2    | 1:A:75:C:O2'  | 2.46                     | 0.48              |
| 1:A:89:G:H3'   | 1:A:90:C:H5'  | 1.94                     | 0.48              |
| 1:A:142:C:HO2' | 1:A:143:A:P   | 2.36                     | 0.48              |
| 1:A:106:C:H2'  | 1:A:107:A:O4' | 2.14                     | 0.48              |
| 1:A:127:U:H2'  | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:140:C:H2'  | 1:A:141:U:C6  | 2.48                     | 0.48              |
| 1:A:20:U:H5'   | 1:A:21:U:H5'  | 1.96                     | 0.48              |
| 1:A:142:C:H5'  | 1:A:142:C:H6  | 1.78                     | 0.48              |
| 1:A:127:U:H2'  | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:-2:G:OP1   | 1:A:-2:G:C8   | 2.67                     | 0.48              |
| 1:A:127:U:H2'  | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:127:U:H2'  | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:34:C:O2'   | 1:A:35:G:H5'  | 2.13                     | 0.48              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:13:G:H2'  | 1:A:14:A:OP2  | 2.13                     | 0.48              |
| 1:A:31:C:H6   | 1:A:31:C:O5'  | 1.95                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:-3:U:H2'  | 1:A:-2:G:OP1  | 2.14                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:15:U:OP1  | 1:A:15:U:C5   | 2.67                     | 0.48              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.49                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:31:C:H6   | 1:A:31:C:O5'  | 1.96                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:51:C:H2'  | 1:A:51:C:O2   | 2.14                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:24:A:C5   | 1:A:25:A:H1'  | 2.49                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:22:U:O4'  | 1:A:22:U:P    | 2.67                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:-4:A:H2'  | 1:A:-3:U:OP2  | 2.13                     | 0.48              |
| 1:A:-4:A:H4'  | 1:A:-4:A:OP1  | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:22:U:OP1  | 1:A:22:U:H6   | 1.95                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.48              |
| 1:A:22:U:C4'  | 1:A:23:U:OP1  | 2.61                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:142:C:O5' | 1:A:142:C:C6  | 2.67                     | 0.48              |
| 1:A:30:A:H2'  | 1:A:31:C:O4'  | 2.14                     | 0.48              |
| 1:A:127:U:H2' | 1:A:128:U:O4' | 2.13                     | 0.48              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.96                     | 0.48              |
| 1:A:13:G:O2'  | 1:A:14:A:P    | 2.72                     | 0.48              |
| 1:A:105:A:O2' | 1:A:106:C:H5' | 2.14                     | 0.48              |
| 1:A:34:C:O2'  | 1:A:35:G:H5'  | 2.13                     | 0.48              |
| 1:A:21:U:N3   | 1:A:24:A:N1   | 2.61                     | 0.48              |
| 1:A:73:G:HO2' | 1:A:74:A:P    | 2.37                     | 0.48              |
| 1:A:49:U:H2'  | 1:A:50:U:C1'  | 2.44                     | 0.48              |
| 1:A:-4:A:N3   | 1:A:-4:A:H2'  | 2.28                     | 0.48              |
| 1:A:14:A:C4'  | 1:A:15:U:OP2  | 2.62                     | 0.47              |
| 1:A:89:G:OP1  | 1:A:89:G:H4'  | 2.14                     | 0.47              |
| 1:A:14:A:N3   | 1:A:14:A:H2'  | 2.28                     | 0.47              |
| 1:A:74:A:H8   | 1:A:74:A:O5'  | 1.96                     | 0.47              |
| 1:A:12:A:N1   | 1:A:54:G:O2'  | 2.39                     | 0.47              |
| 1:A:89:G:O2'  | 1:A:90:C:O3'  | 2.30                     | 0.47              |
| 1:A:50:U:H2'  | 1:A:51:C:O4'  | 2.13                     | 0.47              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.46                     | 0.47              |
| 1:A:24:A:H3'  | 1:A:25:A:C8   | 2.49                     | 0.47              |
| 1:A:98:A:OP2  | 1:A:98:A:O4'  | 2.32                     | 0.47              |
| 1:A:24:A:H1'  | 1:A:25:A:H5'' | 1.95                     | 0.47              |
| 1:A:14:A:OP1  | 1:A:14:A:C2'  | 2.59                     | 0.47              |
| 1:A:15:U:C6   | 1:A:15:U:P    | 3.03                     | 0.47              |
| 1:A:0:A:HO2'  | 1:A:74:A:N6   | 2.10                     | 0.47              |
| 1:A:98:A:O2'  | 1:A:99:G:N2   | 2.47                     | 0.47              |
| 1:A:93:A:N6   | 1:A:100:A:N7  | 2.56                     | 0.47              |
| 1:A:46:U:O2'  | 1:A:153:A:N1  | 2.46                     | 0.47              |
| 1:A:20:U:O4   | 1:A:22:U:O4'  | 2.33                     | 0.47              |
| 1:A:-12:G:O6  | 1:A:79:C:N4   | 2.47                     | 0.47              |
| 1:A:-10:A:H8  | 1:A:-10:A:OP1 | 1.96                     | 0.47              |
| 1:A:-3:U:H6   | 1:A:-3:U:O5'  | 1.96                     | 0.47              |
| 1:A:96:U:H6   | 1:A:96:U:O5'  | 1.97                     | 0.47              |
| 1:A:50:U:O4'  | 1:A:51:C:OP2  | 2.33                     | 0.47              |
| 1:A:106:C:H2' | 1:A:107:A:O4' | 2.13                     | 0.47              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:-1:A:OP2  | 1:A:73:G:N2   | 2.47                     | 0.47              |
| 1:A:38:G:C2'  | 1:A:39:A:O5'  | 2.62                     | 0.47              |
| 1:A:106:C:OP2 | 1:A:106:C:C6  | 2.63                     | 0.47              |
| 1:A:-2:G:O4'  | 1:A:-1:A:OP1  | 2.33                     | 0.47              |
| 1:A:98:A:O2'  | 1:A:100:A:N7  | 2.43                     | 0.47              |
| 1:A:19:A:N6   | 1:A:23:U:OP2  | 2.48                     | 0.47              |
| 1:A:74:A:H4'  | 1:A:75:C:OP1  | 2.15                     | 0.47              |
| 1:A:43:A:H8   | 1:A:43:A:OP1  | 1.96                     | 0.47              |
| 1:A:42:U:O2'  | 1:A:43:A:OP1  | 2.30                     | 0.47              |
| 1:A:-2:G:N2   | 1:A:1:G:N7    | 2.62                     | 0.47              |
| 1:A:-2:G:H2'  | 1:A:-1:A:O4'  | 2.15                     | 0.47              |
| 1:A:71:U:H2'  | 1:A:72:G:H4'  | 1.96                     | 0.47              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.98                     | 0.47              |
| 1:A:141:U:H6  | 1:A:141:U:O5' | 1.97                     | 0.47              |
| 1:A:105:A:C2' | 1:A:106:C:OP2 | 2.59                     | 0.46              |
| 1:A:41:G:H2'  | 1:A:42:U:O4'  | 2.15                     | 0.46              |
| 1:A:105:A:O2' | 1:A:106:C:H5' | 2.15                     | 0.46              |
| 1:A:141:U:H6  | 1:A:141:U:O5' | 1.97                     | 0.46              |
| 1:A:43:A:N1   | 1:A:156:G:O2' | 2.48                     | 0.46              |
| 1:A:-5:G:O2'  | 1:A:-4:A:C8   | 2.69                     | 0.46              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.50                     | 0.46              |
| 1:A:31:C:OP2  | 1:A:31:C:C6   | 2.68                     | 0.46              |
| 1:A:14:A:H2'  | 1:A:15:U:H5'  | 1.98                     | 0.46              |
| 1:A:14:A:H5'' | 1:A:15:U:O5'  | 2.16                     | 0.46              |
| 1:A:142:C:H2' | 1:A:143:A:O5' | 2.16                     | 0.46              |
| 1:A:14:A:OP1  | 1:A:14:A:C4'  | 2.64                     | 0.46              |
| 1:A:142:C:H6  | 1:A:142:C:O5' | 1.98                     | 0.46              |
| 1:A:96:U:H6   | 1:A:96:U:O5'  | 1.98                     | 0.46              |
| 1:A:15:U:H6   | 1:A:15:U:O5'  | 1.98                     | 0.46              |
| 1:A:-9:A:N6   | 1:A:79:C:O2   | 2.49                     | 0.46              |
| 1:A:51:C:O2   | 1:A:51:C:C2'  | 2.49                     | 0.46              |
| 1:A:72:G:H2'  | 1:A:73:G:O4'  | 2.15                     | 0.46              |
| 1:A:98:A:H4'  | 1:A:99:G:OP1  | 2.16                     | 0.46              |
| 1:A:43:A:O2'  | 1:A:44:A:O4'  | 2.34                     | 0.46              |
| 1:A:73:G:N2   | 1:A:75:C:O2'  | 2.48                     | 0.46              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.48                     | 0.46              |
| 1:A:50:U:C2'  | 1:A:51:C:OP2  | 2.64                     | 0.46              |
| 1:A:15:U:O5'  | 1:A:15:U:C6   | 2.69                     | 0.46              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.47                     | 0.46              |
| 1:A:89:G:C2   | 1:A:90:C:C4   | 3.03                     | 0.46              |
| 1:A:-9:A:N6   | 1:A:79:C:O2   | 2.48                     | 0.46              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:22:U:HO2' | 1:A:23:U:P    | 2.37                     | 0.46              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 1.98                     | 0.46              |
| 1:A:13:G:H2'  | 1:A:55:U:H2'  | 1.98                     | 0.46              |
| 1:A:78:A:H2'  | 1:A:79:C:O4'  | 2.15                     | 0.46              |
| 1:A:-10:A:H8  | 1:A:-10:A:P   | 2.38                     | 0.46              |
| 1:A:51:C:H2'  | 1:A:52:A:O5'  | 2.16                     | 0.46              |
| 1:A:-1:A:H8   | 1:A:-1:A:O5'  | 1.99                     | 0.46              |
| 1:A:142:C:C2' | 1:A:143:A:O5' | 2.63                     | 0.45              |
| 1:A:95:C:C4   | 1:A:96:U:C4   | 3.04                     | 0.45              |
| 1:A:74:A:O4'  | 1:A:74:A:P    | 2.74                     | 0.45              |
| 1:A:14:A:OP1  | 1:A:14:A:O4'  | 2.34                     | 0.45              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.48                     | 0.45              |
| 1:A:49:U:H2'  | 1:A:50:U:H5'' | 1.97                     | 0.45              |
| 1:A:89:G:H2'  | 1:A:90:C:H4'  | 1.99                     | 0.45              |
| 1:A:30:A:H5'' | 1:A:31:C:OP2  | 2.16                     | 0.45              |
| 1:A:38:G:OP2  | 1:A:38:G:O4'  | 2.34                     | 0.45              |
| 1:A:-4:A:O2'  | 1:A:-3:U:OP2  | 2.33                     | 0.45              |
| 1:A:-4:A:H2'  | 1:A:-3:U:OP2  | 2.14                     | 0.45              |
| 1:A:141:U:O2  | 1:A:142:C:N4  | 2.49                     | 0.45              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.52                     | 0.45              |
| 1:A:15:U:C6   | 1:A:15:U:O5'  | 2.69                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:79:C:H2'  | 1:A:80:C:O4'  | 2.16                     | 0.45              |
| 1:A:98:A:H2'  | 1:A:98:A:N3   | 2.31                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:99:G:O4'  | 1:A:99:G:P    | 2.75                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:72:G:H8   | 1:A:72:G:O5'  | 1.99                     | 0.45              |
| 1:A:74:A:O2'  | 1:A:75:C:H4'  | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.17                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.17                     | 0.45              |
| 1:A:22:U:O2'  | 1:A:23:U:P    | 2.75                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.17                     | 0.45              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:-10:A:H8  | 1:A:-10:A:P   | 2.40                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.17                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:100:A:OP2 | 1:A:102:A:N6  | 2.50                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:-2:G:H2'  | 1:A:-1:A:H5'' | 1.99                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:89:G:N2   | 1:A:90:C:N3   | 2.65                     | 0.45              |
| 1:A:-2:G:OP2  | 1:A:-2:G:C8   | 2.67                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.16                     | 0.45              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.16                     | 0.45              |
| 1:A:-10:A:H8  | 1:A:-10:A:P   | 2.39                     | 0.45              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 2.00                     | 0.45              |
| 1:A:150:A:H2' | 1:A:151:G:O4' | 2.17                     | 0.45              |
| 1:A:107:A:OP2 | 1:A:107:A:H8  | 2.00                     | 0.45              |
| 1:A:15:U:C6   | 1:A:15:U:O5'  | 2.70                     | 0.45              |
| 1:A:100:A:C4  | 1:A:101:G:C8  | 3.05                     | 0.45              |
| 1:A:15:U:C6   | 1:A:15:U:P    | 3.03                     | 0.45              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 2.00                     | 0.45              |
| 1:A:50:U:H2'  | 1:A:51:C:C6   | 2.51                     | 0.44              |
| 1:A:142:C:O2' | 1:A:143:A:P   | 2.75                     | 0.44              |
| 1:A:-3:U:H4'  | 1:A:-2:G:O5'  | 2.17                     | 0.44              |
| 1:A:24:A:H3'  | 1:A:25:A:C8   | 2.52                     | 0.44              |
| 1:A:-1:A:N7   | 1:A:73:G:N2   | 2.61                     | 0.44              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.51                     | 0.44              |
| 1:A:31:C:H6   | 1:A:31:C:O5'  | 2.00                     | 0.44              |
| 1:A:91:U:H6   | 1:A:91:U:O5'  | 2.00                     | 0.44              |
| 1:A:-10:A:N6  | 1:A:-8:U:O4   | 2.50                     | 0.44              |
| 1:A:78:A:H2'  | 1:A:79:C:O4'  | 2.17                     | 0.44              |
| 1:A:-9:A:O5'  | 1:A:-9:A:C8   | 2.71                     | 0.44              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.53                     | 0.44              |
| 1:A:74:A:H8   | 1:A:74:A:OP2  | 2.01                     | 0.44              |
| 1:A:0:A:H1'   | 1:A:74:A:N1   | 2.33                     | 0.44              |
| 1:A:24:A:H3'  | 1:A:25:A:C8   | 2.53                     | 0.44              |
| 1:A:21:U:HO2' | 1:A:22:U:P    | 2.41                     | 0.44              |
| 1:A:37:A:H2'  | 1:A:38:G:H5'  | 1.99                     | 0.44              |
| 1:A:99:G:O3'  | 1:A:100:A:O4' | 2.35                     | 0.44              |
| 1:A:-11:G:O2' | 1:A:-10:A:N7  | 2.50                     | 0.44              |
| 1:A:91:U:H6   | 1:A:91:U:O5'  | 2.00                     | 0.44              |
| 1:A:31:C:O2'  | 1:A:32:A:P    | 2.69                     | 0.44              |
| 1:A:-2:G:H2'  | 1:A:-1:A:O4'  | 2.17                     | 0.44              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:21:U:H2'  | 1:A:22:U:C4'  | 2.48                     | 0.44              |
| 1:A:23:U:N3   | 1:A:24:A:N7   | 2.66                     | 0.44              |
| 1:A:21:U:H3'  | 1:A:22:U:H5'  | 1.98                     | 0.44              |
| 1:A:-3:U:H3'  | 1:A:-2:G:H5'  | 1.98                     | 0.44              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.17                     | 0.44              |
| 1:A:89:G:C2'  | 1:A:90:C:H4'  | 2.47                     | 0.44              |
| 1:A:96:U:O4   | 1:A:99:G:C8   | 2.70                     | 0.44              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.47                     | 0.44              |
| 1:A:14:A:N3   | 1:A:14:A:C3'  | 2.77                     | 0.44              |
| 1:A:50:U:H2'  | 1:A:51:C:O4'  | 2.17                     | 0.44              |
| 1:A:-4:A:HO2' | 1:A:74:A:H62  | 1.66                     | 0.44              |
| 1:A:-3:U:H3'  | 1:A:-3:U:OP1  | 2.18                     | 0.44              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.18                     | 0.44              |
| 1:A:89:G:H2'  | 1:A:146:U:H2' | 1.99                     | 0.44              |
| 1:A:96:U:H4'  | 1:A:97:A:OP1  | 2.16                     | 0.44              |
| 1:A:45:A:N1   | 1:A:153:A:N6  | 2.65                     | 0.44              |
| 1:A:106:C:H6  | 1:A:106:C:P   | 2.41                     | 0.44              |
| 1:A:23:U:OP1  | 1:A:23:U:H6   | 1.99                     | 0.44              |
| 1:A:98:A:OP2  | 1:A:98:A:C4'  | 2.66                     | 0.44              |
| 1:A:50:U:N3   | 1:A:53:G:O6   | 2.51                     | 0.44              |
| 1:A:99:G:H8   | 1:A:99:G:OP2  | 2.00                     | 0.44              |
| 1:A:142:C:O5' | 1:A:142:C:C6  | 2.66                     | 0.44              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.50                     | 0.44              |
| 1:A:44:A:C2   | 1:A:156:G:H1' | 2.53                     | 0.44              |
| 1:A:90:C:H2'  | 1:A:91:U:H5'' | 2.00                     | 0.44              |
| 1:A:114:G:H8  | 1:A:114:G:OP2 | 2.01                     | 0.43              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.52                     | 0.43              |
| 1:A:89:G:N1   | 1:A:107:A:C2  | 2.86                     | 0.43              |
| 1:A:-12:G:C2  | 1:A:77:A:N6   | 2.85                     | 0.43              |
| 1:A:13:G:OP2  | 1:A:55:U:O2'  | 2.35                     | 0.43              |
| 1:A:125:A:O4' | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:98:A:H2'  | 1:A:100:A:C8  | 2.54                     | 0.43              |
| 1:A:-10:A:P   | 1:A:-10:A:C8  | 3.11                     | 0.43              |
| 1:A:17:U:OP2  | 1:A:23:U:N3   | 2.48                     | 0.43              |
| 1:A:91:U:H6   | 1:A:91:U:O5'  | 2.00                     | 0.43              |
| 1:A:125:A:O4' | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.53                     | 0.43              |
| 1:A:125:A:O4' | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4' | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:51:C:C5   | 1:A:52:A:N7   | 2.86                     | 0.43              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.17                     | 0.43              |

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| Atom-1         | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|---------------|--------------------------|-------------------|
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:50:U:C1'   | 1:A:51:C:OP2  | 2.66                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:89:G:O4'   | 1:A:89:G:P    | 2.71                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:90:C:O2'   | 1:A:91:U:C5   | 2.67                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:0:A:H2'    | 1:A:1:G:O4'   | 2.18                     | 0.43              |
| 1:A:77:A:H2'   | 1:A:78:A:C8   | 2.53                     | 0.43              |
| 1:A:-9:A:N6    | 1:A:79:C:O2   | 2.51                     | 0.43              |
| 1:A:74:A:OP2   | 1:A:74:A:C8   | 2.71                     | 0.43              |
| 1:A:73:G:C8    | 1:A:73:G:OP2  | 2.72                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:132:C:H2'  | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:125:A:O4'  | 1:A:125:A:OP2 | 2.36                     | 0.43              |
| 1:A:-10:A:H8   | 1:A:-10:A:P   | 2.42                     | 0.43              |
| 1:A:96:U:H6    | 1:A:96:U:O5'  | 2.00                     | 0.43              |
| 1:A:106:C:H5'' | 1:A:107:A:OP2 | 2.19                     | 0.43              |
| 1:A:-5:G:N2    | 1:A:75:C:O2   | 2.52                     | 0.43              |
| 1:A:-10:A:N6   | 1:A:79:C:O2   | 2.50                     | 0.43              |
| 1:A:78:A:H2'   | 1:A:79:C:O4'  | 2.19                     | 0.43              |
| 1:A:140:C:H2'  | 1:A:141:U:C6  | 2.53                     | 0.43              |
| 1:A:89:G:OP1   | 1:A:89:G:C4'  | 2.65                     | 0.43              |
| 1:A:132:C:H2'  | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:49:U:C2'   | 1:A:50:U:H5'' | 2.48                     | 0.43              |
| 1:A:106:C:OP2  | 1:A:106:C:H5  | 1.93                     | 0.43              |
| 1:A:132:C:H2'  | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:98:A:H2'   | 1:A:99:G:O4'  | 2.18                     | 0.43              |
| 1:A:132:C:H2'  | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:-2:G:N2    | 1:A:74:A:C8   | 2.87                     | 0.43              |
| 1:A:97:A:H4'   | 1:A:98:A:O5'  | 2.19                     | 0.43              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:97:A:H2'  | 1:A:98:A:OP1  | 2.18                     | 0.43              |
| 1:A:23:U:H2'  | 1:A:24:A:C8   | 2.53                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:-10:A:OP1 | 1:A:-10:A:H8  | 2.02                     | 0.43              |
| 1:A:14:A:H4'  | 1:A:15:U:H5'  | 2.01                     | 0.43              |
| 1:A:-4:A:H5'' | 1:A:-3:U:OP1  | 2.18                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:51:C:C5   | 1:A:52:A:N7   | 2.87                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.52                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:49:U:C2'  | 1:A:50:U:O4'  | 2.67                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.43              |
| 1:A:78:A:H2'  | 1:A:79:C:O4'  | 2.19                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.43              |
| 1:A:100:A:H4' | 1:A:101:G:OP1 | 2.18                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:-4:A:H5'' | 1:A:-3:U:P    | 2.58                     | 0.43              |
| 1:A:91:U:H6   | 1:A:91:U:O5'  | 2.02                     | 0.43              |
| 1:A:96:U:O4   | 1:A:99:G:N2   | 2.50                     | 0.43              |
| 1:A:132:C:H2' | 1:A:133:C:O4' | 2.18                     | 0.43              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.53                     | 0.43              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.50                     | 0.43              |
| 1:A:96:U:O2'  | 1:A:97:A:N7   | 2.49                     | 0.43              |
| 1:A:25:A:C8   | 1:A:25:A:OP2  | 2.72                     | 0.43              |
| 1:A:25:A:OP2  | 1:A:25:A:H8   | 2.01                     | 0.43              |
| 1:A:97:A:H2'  | 1:A:98:A:H4'  | 2.01                     | 0.43              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.43              |
| 1:A:23:U:H4'  | 1:A:24:A:OP2  | 2.18                     | 0.43              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.53                     | 0.42              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:71:U:H2'  | 1:A:72:G:H4'  | 2.01                     | 0.42              |
| 1:A:74:A:H8   | 1:A:74:A:P    | 2.42                     | 0.42              |
| 1:A:142:C:C5  | 1:A:143:A:N7  | 2.87                     | 0.42              |
| 1:A:24:A:H3'  | 1:A:25:A:C8   | 2.54                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:97:A:O2'  | 1:A:98:A:OP1  | 2.31                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.54                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:23:U:OP2  | 1:A:23:U:C6   | 2.68                     | 0.42              |
| 1:A:98:A:N7   | 1:A:101:G:N1  | 2.67                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.53                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.20                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:23:U:H4'  | 1:A:24:A:OP2  | 2.19                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:71:U:H2'  | 1:A:72:G:C4'  | 2.50                     | 0.42              |
| 1:A:17:U:OP2  | 1:A:23:U:N3   | 2.51                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:-9:A:H8   | 1:A:-9:A:O5'  | 2.02                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:31:C:H6   | 1:A:31:C:O5'  | 2.03                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:97:A:H2'  | 1:A:97:A:N3   | 2.34                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:105:A:H2' | 1:A:106:C:OP2 | 2.20                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:-9:A:N6   | 1:A:79:C:O2   | 2.53                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.42              |
| 1:A:50:U:O2   | 1:A:52:A:N6   | 2.52                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:127:U:H5' | 1:A:127:U:C6  | 2.51                     | 0.42              |
| 1:A:42:U:H5'' | 1:A:42:U:H6   | 1.84                     | 0.42              |
| 1:A:47:C:O5'  | 1:A:47:C:C6   | 2.67                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:105:A:H2' | 1:A:106:C:O4' | 2.20                     | 0.42              |
| 1:A:148:A:H8  | 1:A:148:A:O5' | 2.01                     | 0.42              |
| 1:A:106:C:H2' | 1:A:107:A:O4' | 2.20                     | 0.42              |
| 1:A:-6:G:H2'  | 1:A:-5:G:O4'  | 2.20                     | 0.42              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.42              |
| 1:A:-10:A:H8  | 1:A:-10:A:OP1 | 2.03                     | 0.42              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.42              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.42              |
| 1:A:-6:G:N2   | 1:A:-1:A:N1   | 2.60                     | 0.42              |
| 1:A:51:C:OP1  | 1:A:51:C:N1   | 2.51                     | 0.42              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.42              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.19                     | 0.42              |
| 1:A:89:G:O2'  | 1:A:90:C:C6   | 2.63                     | 0.42              |
| 1:A:-2:G:OP2  | 1:A:73:G:N1   | 2.52                     | 0.42              |
| 1:A:31:C:H6   | 1:A:31:C:O5'  | 2.03                     | 0.42              |
| 1:A:-5:G:C2'  | 1:A:-4:A:H5'  | 2.50                     | 0.42              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.55                     | 0.42              |
| 1:A:89:G:N2   | 1:A:91:U:O2   | 2.53                     | 0.42              |
| 1:A:-4:A:C2'  | 1:A:-3:U:OP2  | 2.66                     | 0.42              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.42              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.42              |
| 1:A:-12:G:O2' | 1:A:78:A:N6   | 2.51                     | 0.42              |
| 1:A:13:G:OP2  | 1:A:55:U:O2'  | 2.37                     | 0.42              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.42              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.55                     | 0.42              |
| 1:A:96:U:H2'  | 1:A:97:A:C8   | 2.54                     | 0.42              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:-2:G:N1   | 1:A:73:G:N3   | 2.68                     | 0.42              |
| 1:A:-10:A:N6  | 1:A:79:C:O2   | 2.52                     | 0.42              |
| 1:A:77:A:H2'  | 1:A:78:A:C8   | 2.54                     | 0.42              |
| 1:A:51:C:O2'  | 1:A:52:A:P    | 2.77                     | 0.41              |
| 1:A:-1:A:N6   | 1:A:73:G:N3   | 2.67                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:141:U:H6  | 1:A:141:U:O5' | 2.03                     | 0.41              |
| 1:A:72:G:H2'  | 1:A:73:G:O4'  | 2.20                     | 0.41              |
| 1:A:100:A:O5' | 1:A:100:A:C8  | 2.70                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:89:G:H2'  | 1:A:90:C:O4'  | 2.20                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:106:C:H6  | 1:A:106:C:P   | 2.42                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:98:A:N6   | 1:A:101:G:N3  | 2.67                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:72:G:H2'  | 1:A:73:G:O4'  | 2.19                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:-5:G:O2'  | 1:A:-2:G:H1'  | 2.21                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:95:C:C4   | 1:A:96:U:C4   | 3.09                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:-12:G:H2' | 1:A:-11:G:O4' | 2.20                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:43:A:H4'  | 1:A:44:A:OP1  | 2.20                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:24:A:O2'  | 1:A:25:A:OP2  | 2.24                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:-9:A:N6   | 1:A:79:C:O2   | 2.54                     | 0.41              |
| 1:A:-4:A:H4'  | 1:A:-3:U:H5'  | 2.03                     | 0.41              |
| 1:A:15:U:OP1  | 1:A:15:U:H5   | 1.99                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:142:C:C5  | 1:A:143:A:N7  | 2.88                     | 0.41              |
| 1:A:-9:A:O5'  | 1:A:-9:A:C8   | 2.73                     | 0.41              |
| 1:A:126:U:OP1 | 1:A:126:U:N1  | 2.53                     | 0.41              |
| 1:A:99:G:H1'  | 1:A:101:G:C8  | 2.56                     | 0.41              |
| 1:A:-4:A:O2'  | 1:A:-3:U:O5'  | 2.37                     | 0.41              |
| 1:A:14:A:H2'  | 1:A:15:U:O4'  | 2.21                     | 0.41              |
| 1:A:24:A:H3'  | 1:A:25:A:H8   | 1.86                     | 0.41              |
| 1:A:96:U:O4   | 1:A:99:G:N2   | 2.54                     | 0.41              |
| 1:A:97:A:HO2' | 1:A:98:A:P    | 2.29                     | 0.41              |
| 1:A:89:G:P    | 1:A:89:G:H8   | 2.44                     | 0.41              |
| 1:A:-9:A:N6   | 1:A:79:C:O2   | 2.53                     | 0.41              |
| 1:A:106:C:OP2 | 1:A:106:C:C5  | 2.74                     | 0.41              |
| 1:A:46:U:O2'  | 1:A:153:A:N6  | 2.54                     | 0.41              |
| 1:A:13:G:H5'  | 1:A:55:U:O2   | 2.21                     | 0.41              |
| 1:A:15:U:O5'  | 1:A:15:U:C6   | 2.72                     | 0.41              |
| 1:A:107:A:OP2 | 1:A:107:A:C8  | 2.74                     | 0.41              |
| 1:A:-1:A:N7   | 1:A:72:G:N2   | 2.68                     | 0.41              |
| 1:A:125:A:C8  | 1:A:125:A:P   | 3.02                     | 0.41              |
| 1:A:45:A:H8   | 1:A:45:A:O5'  | 2.03                     | 0.41              |
| 1:A:15:U:C6   | 1:A:15:U:O5'  | 2.72                     | 0.41              |
| 1:A:141:U:H2' | 1:A:142:C:C6  | 2.56                     | 0.41              |
| 1:A:91:U:H6   | 1:A:91:U:O5'  | 2.03                     | 0.41              |
| 1:A:78:A:H2'  | 1:A:79:C:O5'  | 2.21                     | 0.41              |
| 1:A:14:A:P    | 1:A:14:A:C4   | 3.14                     | 0.41              |
| 1:A:99:G:H2'  | 1:A:99:G:N3   | 2.35                     | 0.41              |
| 1:A:-11:G:O2' | 1:A:-9:A:N7   | 2.49                     | 0.41              |
| 1:A:74:A:H4'  | 1:A:75:C:O4'  | 2.21                     | 0.41              |
| 1:A:99:G:H2'  | 1:A:100:A:C8  | 2.56                     | 0.41              |
| 1:A:91:U:H6   | 1:A:91:U:O5'  | 2.04                     | 0.41              |
| 1:A:43:A:N1   | 1:A:156:G:O2' | 2.52                     | 0.41              |
| 1:A:99:G:N3   | 1:A:99:G:H2'  | 2.35                     | 0.41              |
| 1:A:20:U:C4   | 1:A:21:U:O2'  | 2.63                     | 0.41              |

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| Atom-1        | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|---------------|---------------|--------------------------|-------------------|
| 1:A:96:U:N3   | 1:A:97:A:C5   | 2.88                     | 0.41              |
| 1:A:92:U:C5   | 1:A:100:A:C6  | 3.08                     | 0.41              |
| 1:A:-5:G:N2   | 1:A:-4:A:N7   | 2.67                     | 0.41              |
| 1:A:24:A:H2'  | 1:A:24:A:N3   | 2.36                     | 0.41              |
| 1:A:100:A:N3  | 1:A:100:A:H2' | 2.35                     | 0.40              |
| 1:A:140:C:H2' | 1:A:141:U:C6  | 2.56                     | 0.40              |
| 1:A:44:A:OP1  | 1:A:44:A:C1'  | 2.61                     | 0.40              |
| 1:A:-4:A:OP2  | 1:A:-4:A:H3'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:106:C:OP2 | 1:A:106:C:H5  | 1.93                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:105:A:C2' | 1:A:106:C:H5' | 2.50                     | 0.40              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.21                     | 0.40              |
| 1:A:41:G:H2'  | 1:A:42:U:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:72:G:H2'  | 1:A:73:G:C8   | 2.56                     | 0.40              |
| 1:A:22:U:OP1  | 1:A:22:U:H6   | 1.98                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:96:U:O4   | 1:A:97:A:N6   | 2.54                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:89:G:OP2  | 1:A:89:G:O4'  | 2.38                     | 0.40              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:79:C:H2'  | 1:A:80:C:C6   | 2.57                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:71:U:H2'  | 1:A:72:G:O4'  | 2.22                     | 0.40              |
| 1:A:100:A:C5  | 1:A:101:G:C8  | 3.09                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:88:A:H5'' | 1:A:89:G:OP2  | 2.20                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:73:G:HO2' | 1:A:74:A:P    | 2.31                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2'  | 1:A:60:A:O4'  | 2.21                     | 0.40              |

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| Atom-1       | Atom-2        | Interatomic distance (Å) | Clash overlap (Å) |
|--------------|---------------|--------------------------|-------------------|
| 1:A:78:A:H2' | 1:A:79:C:O4'  | 2.21                     | 0.40              |
| 1:A:-2:G:H2' | 1:A:-1:A:C8   | 2.56                     | 0.40              |
| 1:A:59:A:H2' | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:59:A:H2' | 1:A:60:A:O4'  | 2.21                     | 0.40              |
| 1:A:89:G:H2' | 1:A:147:A:OP2 | 2.22                     | 0.40              |
| 1:A:97:A:O2' | 1:A:99:G:N7   | 2.55                     | 0.40              |
| 1:A:24:A:O5' | 1:A:24:A:C8   | 2.69                     | 0.40              |
| 1:A:15:U:C6  | 1:A:15:U:P    | 3.14                     | 0.40              |
| 1:A:24:A:H1' | 1:A:25:A:C8   | 2.57                     | 0.40              |
| 1:A:31:C:O5' | 1:A:31:C:H6   | 2.04                     | 0.40              |
| 1:A:25:A:O5' | 1:A:25:A:H8   | 2.05                     | 0.40              |
| 1:A:-1:A:N6  | 1:A:73:G:N3   | 2.69                     | 0.40              |
| 1:A:21:U:O5' | 1:A:21:U:H6   | 2.03                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

There are no protein molecules in this entry.

### 5.3.2 Protein sidechains [i](#)

There are no protein molecules in this entry.

### 5.3.3 RNA [i](#)

| Mol | Chain | Analysed      | Backbone Outliers | Pucker Outliers |
|-----|-------|---------------|-------------------|-----------------|
| 1   | 1-A   | 170/171 (99%) | 48 (28%)          | 10 (5%)         |
| 1   | 10-A  | 170/171 (99%) | 51 (30%)          | 10 (5%)         |
| 1   | 11-A  | 170/171 (99%) | 50 (29%)          | 9 (5%)          |
| 1   | 12-A  | 170/171 (99%) | 48 (28%)          | 9 (5%)          |
| 1   | 13-A  | 170/171 (99%) | 56 (32%)          | 11 (6%)         |
| 1   | 14-A  | 170/171 (99%) | 46 (27%)          | 9 (5%)          |
| 1   | 15-A  | 170/171 (99%) | 51 (30%)          | 7 (4%)          |
| 1   | 16-A  | 170/171 (99%) | 53 (31%)          | 10 (5%)         |
| 1   | 17-A  | 170/171 (99%) | 57 (33%)          | 10 (5%)         |
| 1   | 18-A  | 170/171 (99%) | 54 (31%)          | 8 (4%)          |

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| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | 19-A  | 170/171 (99%)   | 56 (32%)          | 9 (5%)          |
| 1   | 2-A   | 170/171 (99%)   | 50 (29%)          | 10 (5%)         |
| 1   | 20-A  | 170/171 (99%)   | 47 (27%)          | 10 (5%)         |
| 1   | 3-A   | 170/171 (99%)   | 54 (31%)          | 11 (6%)         |
| 1   | 4-A   | 170/171 (99%)   | 54 (31%)          | 9 (5%)          |
| 1   | 5-A   | 170/171 (99%)   | 46 (27%)          | 8 (4%)          |
| 1   | 6-A   | 170/171 (99%)   | 48 (28%)          | 11 (6%)         |
| 1   | 7-A   | 170/171 (99%)   | 57 (33%)          | 11 (6%)         |
| 1   | 8-A   | 170/171 (99%)   | 51 (30%)          | 12 (7%)         |
| 1   | 9-A   | 170/171 (99%)   | 49 (28%)          | 11 (6%)         |
| All | All   | 3400/3420 (99%) | 1026 (30%)        | 195 (5%)        |

All (1026) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1-A   | -4  | A    |
| 1   | 1-A   | -3  | U    |
| 1   | 1-A   | -2  | G    |
| 1   | 1-A   | -1  | A    |
| 1   | 1-A   | 12  | A    |
| 1   | 1-A   | 13  | G    |
| 1   | 1-A   | 14  | A    |
| 1   | 1-A   | 17  | U    |
| 1   | 1-A   | 19  | A    |
| 1   | 1-A   | 20  | U    |
| 1   | 1-A   | 21  | U    |
| 1   | 1-A   | 22  | U    |
| 1   | 1-A   | 25  | A    |
| 1   | 1-A   | 27  | G    |
| 1   | 1-A   | 28  | A    |
| 1   | 1-A   | 30  | A    |
| 1   | 1-A   | 36  | A    |
| 1   | 1-A   | 37  | A    |
| 1   | 1-A   | 44  | A    |
| 1   | 1-A   | 48  | U    |
| 1   | 1-A   | 49  | U    |
| 1   | 1-A   | 50  | U    |
| 1   | 1-A   | 51  | C    |
| 1   | 1-A   | 53  | G    |
| 1   | 1-A   | 56  | A    |
| 1   | 1-A   | 64  | C    |
| 1   | 1-A   | 84  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1-A   | 85  | G    |
| 1   | 1-A   | 90  | C    |
| 1   | 1-A   | 92  | U    |
| 1   | 1-A   | 100 | A    |
| 1   | 1-A   | 106 | C    |
| 1   | 1-A   | 111 | A    |
| 1   | 1-A   | 112 | A    |
| 1   | 1-A   | 115 | A    |
| 1   | 1-A   | 117 | C    |
| 1   | 1-A   | 124 | A    |
| 1   | 1-A   | 125 | A    |
| 1   | 1-A   | 126 | U    |
| 1   | 1-A   | 127 | U    |
| 1   | 1-A   | 129 | U    |
| 1   | 1-A   | 132 | C    |
| 1   | 1-A   | 133 | C    |
| 1   | 1-A   | 137 | A    |
| 1   | 1-A   | 138 | C    |
| 1   | 1-A   | 146 | U    |
| 1   | 1-A   | 147 | A    |
| 1   | 1-A   | 158 | G    |
| 1   | 2-A   | -4  | A    |
| 1   | 2-A   | -3  | U    |
| 1   | 2-A   | -2  | G    |
| 1   | 2-A   | 12  | A    |
| 1   | 2-A   | 13  | G    |
| 1   | 2-A   | 14  | A    |
| 1   | 2-A   | 15  | U    |
| 1   | 2-A   | 17  | U    |
| 1   | 2-A   | 19  | A    |
| 1   | 2-A   | 20  | U    |
| 1   | 2-A   | 22  | U    |
| 1   | 2-A   | 25  | A    |
| 1   | 2-A   | 27  | G    |
| 1   | 2-A   | 28  | A    |
| 1   | 2-A   | 30  | A    |
| 1   | 2-A   | 36  | A    |
| 1   | 2-A   | 37  | A    |
| 1   | 2-A   | 39  | A    |
| 1   | 2-A   | 47  | C    |
| 1   | 2-A   | 48  | U    |
| 1   | 2-A   | 49  | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 2-A   | 52  | A    |
| 1   | 2-A   | 53  | G    |
| 1   | 2-A   | 56  | A    |
| 1   | 2-A   | 64  | C    |
| 1   | 2-A   | 74  | A    |
| 1   | 2-A   | 84  | G    |
| 1   | 2-A   | 85  | G    |
| 1   | 2-A   | 89  | G    |
| 1   | 2-A   | 90  | C    |
| 1   | 2-A   | 92  | U    |
| 1   | 2-A   | 106 | C    |
| 1   | 2-A   | 111 | A    |
| 1   | 2-A   | 112 | A    |
| 1   | 2-A   | 115 | A    |
| 1   | 2-A   | 117 | C    |
| 1   | 2-A   | 124 | A    |
| 1   | 2-A   | 125 | A    |
| 1   | 2-A   | 126 | U    |
| 1   | 2-A   | 127 | U    |
| 1   | 2-A   | 129 | U    |
| 1   | 2-A   | 132 | C    |
| 1   | 2-A   | 133 | C    |
| 1   | 2-A   | 137 | A    |
| 1   | 2-A   | 138 | C    |
| 1   | 2-A   | 142 | C    |
| 1   | 2-A   | 143 | A    |
| 1   | 2-A   | 146 | U    |
| 1   | 2-A   | 147 | A    |
| 1   | 2-A   | 158 | G    |
| 1   | 3-A   | -4  | A    |
| 1   | 3-A   | -3  | U    |
| 1   | 3-A   | 12  | A    |
| 1   | 3-A   | 13  | G    |
| 1   | 3-A   | 14  | A    |
| 1   | 3-A   | 15  | U    |
| 1   | 3-A   | 17  | U    |
| 1   | 3-A   | 19  | A    |
| 1   | 3-A   | 20  | U    |
| 1   | 3-A   | 21  | U    |
| 1   | 3-A   | 22  | U    |
| 1   | 3-A   | 25  | A    |
| 1   | 3-A   | 27  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 3-A   | 28  | A    |
| 1   | 3-A   | 30  | A    |
| 1   | 3-A   | 31  | C    |
| 1   | 3-A   | 32  | A    |
| 1   | 3-A   | 36  | A    |
| 1   | 3-A   | 37  | A    |
| 1   | 3-A   | 44  | A    |
| 1   | 3-A   | 47  | C    |
| 1   | 3-A   | 48  | U    |
| 1   | 3-A   | 49  | U    |
| 1   | 3-A   | 51  | C    |
| 1   | 3-A   | 53  | G    |
| 1   | 3-A   | 56  | A    |
| 1   | 3-A   | 64  | C    |
| 1   | 3-A   | 79  | C    |
| 1   | 3-A   | 80  | C    |
| 1   | 3-A   | 84  | G    |
| 1   | 3-A   | 85  | G    |
| 1   | 3-A   | 89  | G    |
| 1   | 3-A   | 90  | C    |
| 1   | 3-A   | 91  | U    |
| 1   | 3-A   | 92  | U    |
| 1   | 3-A   | 96  | U    |
| 1   | 3-A   | 106 | C    |
| 1   | 3-A   | 111 | A    |
| 1   | 3-A   | 112 | A    |
| 1   | 3-A   | 115 | A    |
| 1   | 3-A   | 117 | C    |
| 1   | 3-A   | 124 | A    |
| 1   | 3-A   | 125 | A    |
| 1   | 3-A   | 126 | U    |
| 1   | 3-A   | 127 | U    |
| 1   | 3-A   | 129 | U    |
| 1   | 3-A   | 132 | C    |
| 1   | 3-A   | 133 | C    |
| 1   | 3-A   | 137 | A    |
| 1   | 3-A   | 138 | C    |
| 1   | 3-A   | 143 | A    |
| 1   | 3-A   | 146 | U    |
| 1   | 3-A   | 147 | A    |
| 1   | 3-A   | 158 | G    |
| 1   | 4-A   | -3  | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 4-A   | -2  | G    |
| 1   | 4-A   | 12  | A    |
| 1   | 4-A   | 13  | G    |
| 1   | 4-A   | 14  | A    |
| 1   | 4-A   | 17  | U    |
| 1   | 4-A   | 19  | A    |
| 1   | 4-A   | 20  | U    |
| 1   | 4-A   | 23  | U    |
| 1   | 4-A   | 24  | A    |
| 1   | 4-A   | 27  | G    |
| 1   | 4-A   | 28  | A    |
| 1   | 4-A   | 30  | A    |
| 1   | 4-A   | 32  | A    |
| 1   | 4-A   | 36  | A    |
| 1   | 4-A   | 37  | A    |
| 1   | 4-A   | 39  | A    |
| 1   | 4-A   | 46  | U    |
| 1   | 4-A   | 48  | U    |
| 1   | 4-A   | 49  | U    |
| 1   | 4-A   | 51  | C    |
| 1   | 4-A   | 53  | G    |
| 1   | 4-A   | 56  | A    |
| 1   | 4-A   | 64  | C    |
| 1   | 4-A   | 74  | A    |
| 1   | 4-A   | 75  | C    |
| 1   | 4-A   | 79  | C    |
| 1   | 4-A   | 84  | G    |
| 1   | 4-A   | 85  | G    |
| 1   | 4-A   | 89  | G    |
| 1   | 4-A   | 90  | C    |
| 1   | 4-A   | 91  | U    |
| 1   | 4-A   | 92  | U    |
| 1   | 4-A   | 98  | A    |
| 1   | 4-A   | 99  | G    |
| 1   | 4-A   | 106 | C    |
| 1   | 4-A   | 111 | A    |
| 1   | 4-A   | 112 | A    |
| 1   | 4-A   | 114 | G    |
| 1   | 4-A   | 115 | A    |
| 1   | 4-A   | 117 | C    |
| 1   | 4-A   | 124 | A    |
| 1   | 4-A   | 125 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 4-A   | 126 | U    |
| 1   | 4-A   | 127 | U    |
| 1   | 4-A   | 129 | U    |
| 1   | 4-A   | 132 | C    |
| 1   | 4-A   | 133 | C    |
| 1   | 4-A   | 137 | A    |
| 1   | 4-A   | 138 | C    |
| 1   | 4-A   | 141 | U    |
| 1   | 4-A   | 146 | U    |
| 1   | 4-A   | 147 | A    |
| 1   | 4-A   | 158 | G    |
| 1   | 5-A   | -2  | G    |
| 1   | 5-A   | 12  | A    |
| 1   | 5-A   | 13  | G    |
| 1   | 5-A   | 14  | A    |
| 1   | 5-A   | 17  | U    |
| 1   | 5-A   | 19  | A    |
| 1   | 5-A   | 20  | U    |
| 1   | 5-A   | 27  | G    |
| 1   | 5-A   | 28  | A    |
| 1   | 5-A   | 30  | A    |
| 1   | 5-A   | 36  | A    |
| 1   | 5-A   | 37  | A    |
| 1   | 5-A   | 44  | A    |
| 1   | 5-A   | 47  | C    |
| 1   | 5-A   | 48  | U    |
| 1   | 5-A   | 49  | U    |
| 1   | 5-A   | 53  | G    |
| 1   | 5-A   | 56  | A    |
| 1   | 5-A   | 64  | C    |
| 1   | 5-A   | 74  | A    |
| 1   | 5-A   | 84  | G    |
| 1   | 5-A   | 85  | G    |
| 1   | 5-A   | 89  | G    |
| 1   | 5-A   | 90  | C    |
| 1   | 5-A   | 91  | U    |
| 1   | 5-A   | 92  | U    |
| 1   | 5-A   | 99  | G    |
| 1   | 5-A   | 100 | A    |
| 1   | 5-A   | 101 | G    |
| 1   | 5-A   | 106 | C    |
| 1   | 5-A   | 111 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 5-A   | 112 | A    |
| 1   | 5-A   | 115 | A    |
| 1   | 5-A   | 117 | C    |
| 1   | 5-A   | 124 | A    |
| 1   | 5-A   | 125 | A    |
| 1   | 5-A   | 126 | U    |
| 1   | 5-A   | 127 | U    |
| 1   | 5-A   | 129 | U    |
| 1   | 5-A   | 132 | C    |
| 1   | 5-A   | 133 | C    |
| 1   | 5-A   | 137 | A    |
| 1   | 5-A   | 138 | C    |
| 1   | 5-A   | 146 | U    |
| 1   | 5-A   | 147 | A    |
| 1   | 5-A   | 158 | G    |
| 1   | 6-A   | -4  | A    |
| 1   | 6-A   | 12  | A    |
| 1   | 6-A   | 13  | G    |
| 1   | 6-A   | 14  | A    |
| 1   | 6-A   | 17  | U    |
| 1   | 6-A   | 19  | A    |
| 1   | 6-A   | 20  | U    |
| 1   | 6-A   | 22  | U    |
| 1   | 6-A   | 23  | U    |
| 1   | 6-A   | 24  | A    |
| 1   | 6-A   | 25  | A    |
| 1   | 6-A   | 27  | G    |
| 1   | 6-A   | 28  | A    |
| 1   | 6-A   | 30  | A    |
| 1   | 6-A   | 36  | A    |
| 1   | 6-A   | 37  | A    |
| 1   | 6-A   | 48  | U    |
| 1   | 6-A   | 49  | U    |
| 1   | 6-A   | 53  | G    |
| 1   | 6-A   | 56  | A    |
| 1   | 6-A   | 64  | C    |
| 1   | 6-A   | 74  | A    |
| 1   | 6-A   | 80  | C    |
| 1   | 6-A   | 84  | G    |
| 1   | 6-A   | 85  | G    |
| 1   | 6-A   | 89  | G    |
| 1   | 6-A   | 90  | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 6-A   | 91  | U    |
| 1   | 6-A   | 92  | U    |
| 1   | 6-A   | 98  | A    |
| 1   | 6-A   | 99  | G    |
| 1   | 6-A   | 106 | C    |
| 1   | 6-A   | 111 | A    |
| 1   | 6-A   | 112 | A    |
| 1   | 6-A   | 115 | A    |
| 1   | 6-A   | 117 | C    |
| 1   | 6-A   | 124 | A    |
| 1   | 6-A   | 125 | A    |
| 1   | 6-A   | 126 | U    |
| 1   | 6-A   | 127 | U    |
| 1   | 6-A   | 129 | U    |
| 1   | 6-A   | 132 | C    |
| 1   | 6-A   | 133 | C    |
| 1   | 6-A   | 137 | A    |
| 1   | 6-A   | 138 | C    |
| 1   | 6-A   | 146 | U    |
| 1   | 6-A   | 147 | A    |
| 1   | 6-A   | 158 | G    |
| 1   | 7-A   | -4  | A    |
| 1   | 7-A   | -3  | U    |
| 1   | 7-A   | -2  | G    |
| 1   | 7-A   | -1  | A    |
| 1   | 7-A   | 12  | A    |
| 1   | 7-A   | 13  | G    |
| 1   | 7-A   | 14  | A    |
| 1   | 7-A   | 17  | U    |
| 1   | 7-A   | 19  | A    |
| 1   | 7-A   | 20  | U    |
| 1   | 7-A   | 21  | U    |
| 1   | 7-A   | 22  | U    |
| 1   | 7-A   | 23  | U    |
| 1   | 7-A   | 25  | A    |
| 1   | 7-A   | 27  | G    |
| 1   | 7-A   | 28  | A    |
| 1   | 7-A   | 30  | A    |
| 1   | 7-A   | 32  | A    |
| 1   | 7-A   | 36  | A    |
| 1   | 7-A   | 37  | A    |
| 1   | 7-A   | 39  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 7-A   | 46  | U    |
| 1   | 7-A   | 48  | U    |
| 1   | 7-A   | 49  | U    |
| 1   | 7-A   | 51  | C    |
| 1   | 7-A   | 53  | G    |
| 1   | 7-A   | 56  | A    |
| 1   | 7-A   | 64  | C    |
| 1   | 7-A   | 74  | A    |
| 1   | 7-A   | 75  | C    |
| 1   | 7-A   | 84  | G    |
| 1   | 7-A   | 85  | G    |
| 1   | 7-A   | 89  | G    |
| 1   | 7-A   | 90  | C    |
| 1   | 7-A   | 92  | U    |
| 1   | 7-A   | 97  | A    |
| 1   | 7-A   | 99  | G    |
| 1   | 7-A   | 101 | G    |
| 1   | 7-A   | 106 | C    |
| 1   | 7-A   | 107 | A    |
| 1   | 7-A   | 111 | A    |
| 1   | 7-A   | 112 | A    |
| 1   | 7-A   | 115 | A    |
| 1   | 7-A   | 117 | C    |
| 1   | 7-A   | 124 | A    |
| 1   | 7-A   | 125 | A    |
| 1   | 7-A   | 126 | U    |
| 1   | 7-A   | 127 | U    |
| 1   | 7-A   | 129 | U    |
| 1   | 7-A   | 132 | C    |
| 1   | 7-A   | 133 | C    |
| 1   | 7-A   | 137 | A    |
| 1   | 7-A   | 138 | C    |
| 1   | 7-A   | 141 | U    |
| 1   | 7-A   | 146 | U    |
| 1   | 7-A   | 147 | A    |
| 1   | 7-A   | 158 | G    |
| 1   | 8-A   | -3  | U    |
| 1   | 8-A   | -2  | G    |
| 1   | 8-A   | 12  | A    |
| 1   | 8-A   | 14  | A    |
| 1   | 8-A   | 15  | U    |
| 1   | 8-A   | 17  | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 8-A   | 19  | A    |
| 1   | 8-A   | 20  | U    |
| 1   | 8-A   | 23  | U    |
| 1   | 8-A   | 27  | G    |
| 1   | 8-A   | 28  | A    |
| 1   | 8-A   | 30  | A    |
| 1   | 8-A   | 36  | A    |
| 1   | 8-A   | 37  | A    |
| 1   | 8-A   | 47  | C    |
| 1   | 8-A   | 48  | U    |
| 1   | 8-A   | 49  | U    |
| 1   | 8-A   | 50  | U    |
| 1   | 8-A   | 51  | C    |
| 1   | 8-A   | 53  | G    |
| 1   | 8-A   | 56  | A    |
| 1   | 8-A   | 64  | C    |
| 1   | 8-A   | 74  | A    |
| 1   | 8-A   | 84  | G    |
| 1   | 8-A   | 85  | G    |
| 1   | 8-A   | 89  | G    |
| 1   | 8-A   | 90  | C    |
| 1   | 8-A   | 91  | U    |
| 1   | 8-A   | 92  | U    |
| 1   | 8-A   | 96  | U    |
| 1   | 8-A   | 97  | A    |
| 1   | 8-A   | 98  | A    |
| 1   | 8-A   | 100 | A    |
| 1   | 8-A   | 106 | C    |
| 1   | 8-A   | 111 | A    |
| 1   | 8-A   | 112 | A    |
| 1   | 8-A   | 114 | G    |
| 1   | 8-A   | 115 | A    |
| 1   | 8-A   | 117 | C    |
| 1   | 8-A   | 124 | A    |
| 1   | 8-A   | 125 | A    |
| 1   | 8-A   | 126 | U    |
| 1   | 8-A   | 127 | U    |
| 1   | 8-A   | 129 | U    |
| 1   | 8-A   | 132 | C    |
| 1   | 8-A   | 133 | C    |
| 1   | 8-A   | 137 | A    |
| 1   | 8-A   | 138 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 8-A   | 146 | U    |
| 1   | 8-A   | 147 | A    |
| 1   | 8-A   | 158 | G    |
| 1   | 9-A   | 12  | A    |
| 1   | 9-A   | 13  | G    |
| 1   | 9-A   | 14  | A    |
| 1   | 9-A   | 15  | U    |
| 1   | 9-A   | 17  | U    |
| 1   | 9-A   | 19  | A    |
| 1   | 9-A   | 20  | U    |
| 1   | 9-A   | 22  | U    |
| 1   | 9-A   | 23  | U    |
| 1   | 9-A   | 27  | G    |
| 1   | 9-A   | 28  | A    |
| 1   | 9-A   | 30  | A    |
| 1   | 9-A   | 36  | A    |
| 1   | 9-A   | 37  | A    |
| 1   | 9-A   | 39  | A    |
| 1   | 9-A   | 47  | C    |
| 1   | 9-A   | 48  | U    |
| 1   | 9-A   | 49  | U    |
| 1   | 9-A   | 53  | G    |
| 1   | 9-A   | 56  | A    |
| 1   | 9-A   | 64  | C    |
| 1   | 9-A   | 75  | C    |
| 1   | 9-A   | 84  | G    |
| 1   | 9-A   | 85  | G    |
| 1   | 9-A   | 89  | G    |
| 1   | 9-A   | 90  | C    |
| 1   | 9-A   | 91  | U    |
| 1   | 9-A   | 92  | U    |
| 1   | 9-A   | 98  | A    |
| 1   | 9-A   | 99  | G    |
| 1   | 9-A   | 100 | A    |
| 1   | 9-A   | 106 | C    |
| 1   | 9-A   | 111 | A    |
| 1   | 9-A   | 112 | A    |
| 1   | 9-A   | 115 | A    |
| 1   | 9-A   | 117 | C    |
| 1   | 9-A   | 124 | A    |
| 1   | 9-A   | 125 | A    |
| 1   | 9-A   | 126 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 9-A   | 127 | U    |
| 1   | 9-A   | 129 | U    |
| 1   | 9-A   | 132 | C    |
| 1   | 9-A   | 133 | C    |
| 1   | 9-A   | 137 | A    |
| 1   | 9-A   | 138 | C    |
| 1   | 9-A   | 142 | C    |
| 1   | 9-A   | 146 | U    |
| 1   | 9-A   | 147 | A    |
| 1   | 9-A   | 158 | G    |
| 1   | 10-A  | -3  | U    |
| 1   | 10-A  | 12  | A    |
| 1   | 10-A  | 13  | G    |
| 1   | 10-A  | 14  | A    |
| 1   | 10-A  | 15  | U    |
| 1   | 10-A  | 17  | U    |
| 1   | 10-A  | 19  | A    |
| 1   | 10-A  | 20  | U    |
| 1   | 10-A  | 21  | U    |
| 1   | 10-A  | 22  | U    |
| 1   | 10-A  | 23  | U    |
| 1   | 10-A  | 25  | A    |
| 1   | 10-A  | 27  | G    |
| 1   | 10-A  | 28  | A    |
| 1   | 10-A  | 30  | A    |
| 1   | 10-A  | 36  | A    |
| 1   | 10-A  | 37  | A    |
| 1   | 10-A  | 39  | A    |
| 1   | 10-A  | 43  | A    |
| 1   | 10-A  | 48  | U    |
| 1   | 10-A  | 49  | U    |
| 1   | 10-A  | 50  | U    |
| 1   | 10-A  | 53  | G    |
| 1   | 10-A  | 56  | A    |
| 1   | 10-A  | 64  | C    |
| 1   | 10-A  | 74  | A    |
| 1   | 10-A  | 84  | G    |
| 1   | 10-A  | 85  | G    |
| 1   | 10-A  | 89  | G    |
| 1   | 10-A  | 90  | C    |
| 1   | 10-A  | 92  | U    |
| 1   | 10-A  | 99  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 10-A  | 100 | A    |
| 1   | 10-A  | 106 | C    |
| 1   | 10-A  | 111 | A    |
| 1   | 10-A  | 112 | A    |
| 1   | 10-A  | 115 | A    |
| 1   | 10-A  | 117 | C    |
| 1   | 10-A  | 124 | A    |
| 1   | 10-A  | 125 | A    |
| 1   | 10-A  | 126 | U    |
| 1   | 10-A  | 127 | U    |
| 1   | 10-A  | 129 | U    |
| 1   | 10-A  | 132 | C    |
| 1   | 10-A  | 133 | C    |
| 1   | 10-A  | 137 | A    |
| 1   | 10-A  | 138 | C    |
| 1   | 10-A  | 142 | C    |
| 1   | 10-A  | 146 | U    |
| 1   | 10-A  | 147 | A    |
| 1   | 10-A  | 158 | G    |
| 1   | 11-A  | -3  | U    |
| 1   | 11-A  | 12  | A    |
| 1   | 11-A  | 13  | G    |
| 1   | 11-A  | 14  | A    |
| 1   | 11-A  | 15  | U    |
| 1   | 11-A  | 17  | U    |
| 1   | 11-A  | 19  | A    |
| 1   | 11-A  | 20  | U    |
| 1   | 11-A  | 23  | U    |
| 1   | 11-A  | 24  | A    |
| 1   | 11-A  | 27  | G    |
| 1   | 11-A  | 28  | A    |
| 1   | 11-A  | 30  | A    |
| 1   | 11-A  | 36  | A    |
| 1   | 11-A  | 37  | A    |
| 1   | 11-A  | 39  | A    |
| 1   | 11-A  | 45  | A    |
| 1   | 11-A  | 47  | C    |
| 1   | 11-A  | 48  | U    |
| 1   | 11-A  | 49  | U    |
| 1   | 11-A  | 53  | G    |
| 1   | 11-A  | 56  | A    |
| 1   | 11-A  | 64  | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 11-A  | 74  | A    |
| 1   | 11-A  | 84  | G    |
| 1   | 11-A  | 85  | G    |
| 1   | 11-A  | 90  | C    |
| 1   | 11-A  | 91  | U    |
| 1   | 11-A  | 92  | U    |
| 1   | 11-A  | 97  | A    |
| 1   | 11-A  | 98  | A    |
| 1   | 11-A  | 100 | A    |
| 1   | 11-A  | 111 | A    |
| 1   | 11-A  | 112 | A    |
| 1   | 11-A  | 115 | A    |
| 1   | 11-A  | 117 | C    |
| 1   | 11-A  | 124 | A    |
| 1   | 11-A  | 125 | A    |
| 1   | 11-A  | 126 | U    |
| 1   | 11-A  | 127 | U    |
| 1   | 11-A  | 129 | U    |
| 1   | 11-A  | 132 | C    |
| 1   | 11-A  | 133 | C    |
| 1   | 11-A  | 137 | A    |
| 1   | 11-A  | 138 | C    |
| 1   | 11-A  | 141 | U    |
| 1   | 11-A  | 143 | A    |
| 1   | 11-A  | 146 | U    |
| 1   | 11-A  | 147 | A    |
| 1   | 11-A  | 158 | G    |
| 1   | 12-A  | -3  | U    |
| 1   | 12-A  | 12  | A    |
| 1   | 12-A  | 13  | G    |
| 1   | 12-A  | 14  | A    |
| 1   | 12-A  | 15  | U    |
| 1   | 12-A  | 17  | U    |
| 1   | 12-A  | 19  | A    |
| 1   | 12-A  | 20  | U    |
| 1   | 12-A  | 21  | U    |
| 1   | 12-A  | 22  | U    |
| 1   | 12-A  | 27  | G    |
| 1   | 12-A  | 28  | A    |
| 1   | 12-A  | 30  | A    |
| 1   | 12-A  | 36  | A    |
| 1   | 12-A  | 37  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 12-A  | 39  | A    |
| 1   | 12-A  | 48  | U    |
| 1   | 12-A  | 49  | U    |
| 1   | 12-A  | 53  | G    |
| 1   | 12-A  | 56  | A    |
| 1   | 12-A  | 64  | C    |
| 1   | 12-A  | 72  | G    |
| 1   | 12-A  | 74  | A    |
| 1   | 12-A  | 75  | C    |
| 1   | 12-A  | 84  | G    |
| 1   | 12-A  | 85  | G    |
| 1   | 12-A  | 90  | C    |
| 1   | 12-A  | 91  | U    |
| 1   | 12-A  | 92  | U    |
| 1   | 12-A  | 99  | G    |
| 1   | 12-A  | 100 | A    |
| 1   | 12-A  | 106 | C    |
| 1   | 12-A  | 111 | A    |
| 1   | 12-A  | 112 | A    |
| 1   | 12-A  | 115 | A    |
| 1   | 12-A  | 117 | C    |
| 1   | 12-A  | 124 | A    |
| 1   | 12-A  | 125 | A    |
| 1   | 12-A  | 126 | U    |
| 1   | 12-A  | 127 | U    |
| 1   | 12-A  | 129 | U    |
| 1   | 12-A  | 132 | C    |
| 1   | 12-A  | 133 | C    |
| 1   | 12-A  | 137 | A    |
| 1   | 12-A  | 138 | C    |
| 1   | 12-A  | 146 | U    |
| 1   | 12-A  | 147 | A    |
| 1   | 12-A  | 158 | G    |
| 1   | 13-A  | -3  | U    |
| 1   | 13-A  | -1  | A    |
| 1   | 13-A  | 0   | A    |
| 1   | 13-A  | 12  | A    |
| 1   | 13-A  | 13  | G    |
| 1   | 13-A  | 14  | A    |
| 1   | 13-A  | 15  | U    |
| 1   | 13-A  | 17  | U    |
| 1   | 13-A  | 19  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 13-A  | 20  | U    |
| 1   | 13-A  | 21  | U    |
| 1   | 13-A  | 22  | U    |
| 1   | 13-A  | 23  | U    |
| 1   | 13-A  | 25  | A    |
| 1   | 13-A  | 27  | G    |
| 1   | 13-A  | 28  | A    |
| 1   | 13-A  | 30  | A    |
| 1   | 13-A  | 31  | C    |
| 1   | 13-A  | 32  | A    |
| 1   | 13-A  | 36  | A    |
| 1   | 13-A  | 37  | A    |
| 1   | 13-A  | 39  | A    |
| 1   | 13-A  | 47  | C    |
| 1   | 13-A  | 48  | U    |
| 1   | 13-A  | 49  | U    |
| 1   | 13-A  | 53  | G    |
| 1   | 13-A  | 56  | A    |
| 1   | 13-A  | 64  | C    |
| 1   | 13-A  | 74  | A    |
| 1   | 13-A  | 84  | G    |
| 1   | 13-A  | 85  | G    |
| 1   | 13-A  | 89  | G    |
| 1   | 13-A  | 90  | C    |
| 1   | 13-A  | 91  | U    |
| 1   | 13-A  | 92  | U    |
| 1   | 13-A  | 100 | A    |
| 1   | 13-A  | 106 | C    |
| 1   | 13-A  | 107 | A    |
| 1   | 13-A  | 111 | A    |
| 1   | 13-A  | 112 | A    |
| 1   | 13-A  | 115 | A    |
| 1   | 13-A  | 117 | C    |
| 1   | 13-A  | 124 | A    |
| 1   | 13-A  | 125 | A    |
| 1   | 13-A  | 126 | U    |
| 1   | 13-A  | 127 | U    |
| 1   | 13-A  | 129 | U    |
| 1   | 13-A  | 132 | C    |
| 1   | 13-A  | 133 | C    |
| 1   | 13-A  | 137 | A    |
| 1   | 13-A  | 138 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 13-A  | 142 | C    |
| 1   | 13-A  | 143 | A    |
| 1   | 13-A  | 146 | U    |
| 1   | 13-A  | 147 | A    |
| 1   | 13-A  | 158 | G    |
| 1   | 14-A  | -3  | U    |
| 1   | 14-A  | -2  | G    |
| 1   | 14-A  | 12  | A    |
| 1   | 14-A  | 13  | G    |
| 1   | 14-A  | 14  | A    |
| 1   | 14-A  | 15  | U    |
| 1   | 14-A  | 17  | U    |
| 1   | 14-A  | 19  | A    |
| 1   | 14-A  | 20  | U    |
| 1   | 14-A  | 21  | U    |
| 1   | 14-A  | 27  | G    |
| 1   | 14-A  | 28  | A    |
| 1   | 14-A  | 30  | A    |
| 1   | 14-A  | 36  | A    |
| 1   | 14-A  | 37  | A    |
| 1   | 14-A  | 48  | U    |
| 1   | 14-A  | 49  | U    |
| 1   | 14-A  | 53  | G    |
| 1   | 14-A  | 56  | A    |
| 1   | 14-A  | 64  | C    |
| 1   | 14-A  | 73  | G    |
| 1   | 14-A  | 74  | A    |
| 1   | 14-A  | 75  | C    |
| 1   | 14-A  | 84  | G    |
| 1   | 14-A  | 85  | G    |
| 1   | 14-A  | 90  | C    |
| 1   | 14-A  | 92  | U    |
| 1   | 14-A  | 100 | A    |
| 1   | 14-A  | 106 | C    |
| 1   | 14-A  | 111 | A    |
| 1   | 14-A  | 112 | A    |
| 1   | 14-A  | 115 | A    |
| 1   | 14-A  | 117 | C    |
| 1   | 14-A  | 124 | A    |
| 1   | 14-A  | 125 | A    |
| 1   | 14-A  | 126 | U    |
| 1   | 14-A  | 127 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 14-A  | 129 | U    |
| 1   | 14-A  | 132 | C    |
| 1   | 14-A  | 133 | C    |
| 1   | 14-A  | 137 | A    |
| 1   | 14-A  | 138 | C    |
| 1   | 14-A  | 141 | U    |
| 1   | 14-A  | 146 | U    |
| 1   | 14-A  | 147 | A    |
| 1   | 14-A  | 158 | G    |
| 1   | 15-A  | -4  | A    |
| 1   | 15-A  | -1  | A    |
| 1   | 15-A  | 0   | A    |
| 1   | 15-A  | 12  | A    |
| 1   | 15-A  | 13  | G    |
| 1   | 15-A  | 14  | A    |
| 1   | 15-A  | 17  | U    |
| 1   | 15-A  | 19  | A    |
| 1   | 15-A  | 20  | U    |
| 1   | 15-A  | 23  | U    |
| 1   | 15-A  | 27  | G    |
| 1   | 15-A  | 28  | A    |
| 1   | 15-A  | 30  | A    |
| 1   | 15-A  | 36  | A    |
| 1   | 15-A  | 37  | A    |
| 1   | 15-A  | 39  | A    |
| 1   | 15-A  | 42  | U    |
| 1   | 15-A  | 44  | A    |
| 1   | 15-A  | 47  | C    |
| 1   | 15-A  | 48  | U    |
| 1   | 15-A  | 49  | U    |
| 1   | 15-A  | 53  | G    |
| 1   | 15-A  | 56  | A    |
| 1   | 15-A  | 64  | C    |
| 1   | 15-A  | 72  | G    |
| 1   | 15-A  | 74  | A    |
| 1   | 15-A  | 75  | C    |
| 1   | 15-A  | 84  | G    |
| 1   | 15-A  | 85  | G    |
| 1   | 15-A  | 89  | G    |
| 1   | 15-A  | 90  | C    |
| 1   | 15-A  | 92  | U    |
| 1   | 15-A  | 98  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 15-A  | 101 | G    |
| 1   | 15-A  | 106 | C    |
| 1   | 15-A  | 111 | A    |
| 1   | 15-A  | 112 | A    |
| 1   | 15-A  | 115 | A    |
| 1   | 15-A  | 117 | C    |
| 1   | 15-A  | 124 | A    |
| 1   | 15-A  | 125 | A    |
| 1   | 15-A  | 126 | U    |
| 1   | 15-A  | 127 | U    |
| 1   | 15-A  | 129 | U    |
| 1   | 15-A  | 132 | C    |
| 1   | 15-A  | 133 | C    |
| 1   | 15-A  | 137 | A    |
| 1   | 15-A  | 138 | C    |
| 1   | 15-A  | 146 | U    |
| 1   | 15-A  | 147 | A    |
| 1   | 15-A  | 158 | G    |
| 1   | 16-A  | -3  | U    |
| 1   | 16-A  | -2  | G    |
| 1   | 16-A  | 12  | A    |
| 1   | 16-A  | 13  | G    |
| 1   | 16-A  | 14  | A    |
| 1   | 16-A  | 15  | U    |
| 1   | 16-A  | 17  | U    |
| 1   | 16-A  | 19  | A    |
| 1   | 16-A  | 20  | U    |
| 1   | 16-A  | 22  | U    |
| 1   | 16-A  | 23  | U    |
| 1   | 16-A  | 27  | G    |
| 1   | 16-A  | 28  | A    |
| 1   | 16-A  | 30  | A    |
| 1   | 16-A  | 32  | A    |
| 1   | 16-A  | 36  | A    |
| 1   | 16-A  | 37  | A    |
| 1   | 16-A  | 39  | A    |
| 1   | 16-A  | 44  | A    |
| 1   | 16-A  | 48  | U    |
| 1   | 16-A  | 49  | U    |
| 1   | 16-A  | 53  | G    |
| 1   | 16-A  | 56  | A    |
| 1   | 16-A  | 64  | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 16-A  | 74  | A    |
| 1   | 16-A  | 75  | C    |
| 1   | 16-A  | 79  | C    |
| 1   | 16-A  | 84  | G    |
| 1   | 16-A  | 85  | G    |
| 1   | 16-A  | 89  | G    |
| 1   | 16-A  | 90  | C    |
| 1   | 16-A  | 92  | U    |
| 1   | 16-A  | 97  | A    |
| 1   | 16-A  | 98  | A    |
| 1   | 16-A  | 99  | G    |
| 1   | 16-A  | 100 | A    |
| 1   | 16-A  | 111 | A    |
| 1   | 16-A  | 112 | A    |
| 1   | 16-A  | 115 | A    |
| 1   | 16-A  | 117 | C    |
| 1   | 16-A  | 124 | A    |
| 1   | 16-A  | 125 | A    |
| 1   | 16-A  | 126 | U    |
| 1   | 16-A  | 127 | U    |
| 1   | 16-A  | 129 | U    |
| 1   | 16-A  | 132 | C    |
| 1   | 16-A  | 133 | C    |
| 1   | 16-A  | 137 | A    |
| 1   | 16-A  | 138 | C    |
| 1   | 16-A  | 141 | U    |
| 1   | 16-A  | 146 | U    |
| 1   | 16-A  | 147 | A    |
| 1   | 16-A  | 158 | G    |
| 1   | 17-A  | -9  | A    |
| 1   | 17-A  | -8  | U    |
| 1   | 17-A  | -4  | A    |
| 1   | 17-A  | -3  | U    |
| 1   | 17-A  | 12  | A    |
| 1   | 17-A  | 13  | G    |
| 1   | 17-A  | 14  | A    |
| 1   | 17-A  | 15  | U    |
| 1   | 17-A  | 17  | U    |
| 1   | 17-A  | 19  | A    |
| 1   | 17-A  | 20  | U    |
| 1   | 17-A  | 21  | U    |
| 1   | 17-A  | 22  | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 17-A  | 23  | U    |
| 1   | 17-A  | 25  | A    |
| 1   | 17-A  | 27  | G    |
| 1   | 17-A  | 28  | A    |
| 1   | 17-A  | 30  | A    |
| 1   | 17-A  | 36  | A    |
| 1   | 17-A  | 37  | A    |
| 1   | 17-A  | 38  | G    |
| 1   | 17-A  | 42  | U    |
| 1   | 17-A  | 43  | A    |
| 1   | 17-A  | 48  | U    |
| 1   | 17-A  | 49  | U    |
| 1   | 17-A  | 50  | U    |
| 1   | 17-A  | 51  | C    |
| 1   | 17-A  | 53  | G    |
| 1   | 17-A  | 56  | A    |
| 1   | 17-A  | 64  | C    |
| 1   | 17-A  | 73  | G    |
| 1   | 17-A  | 84  | G    |
| 1   | 17-A  | 85  | G    |
| 1   | 17-A  | 89  | G    |
| 1   | 17-A  | 90  | C    |
| 1   | 17-A  | 91  | U    |
| 1   | 17-A  | 92  | U    |
| 1   | 17-A  | 97  | A    |
| 1   | 17-A  | 98  | A    |
| 1   | 17-A  | 106 | C    |
| 1   | 17-A  | 111 | A    |
| 1   | 17-A  | 112 | A    |
| 1   | 17-A  | 115 | A    |
| 1   | 17-A  | 117 | C    |
| 1   | 17-A  | 124 | A    |
| 1   | 17-A  | 125 | A    |
| 1   | 17-A  | 126 | U    |
| 1   | 17-A  | 127 | U    |
| 1   | 17-A  | 129 | U    |
| 1   | 17-A  | 132 | C    |
| 1   | 17-A  | 133 | C    |
| 1   | 17-A  | 137 | A    |
| 1   | 17-A  | 138 | C    |
| 1   | 17-A  | 141 | U    |
| 1   | 17-A  | 146 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 17-A  | 147 | A    |
| 1   | 17-A  | 158 | G    |
| 1   | 18-A  | -3  | U    |
| 1   | 18-A  | -2  | G    |
| 1   | 18-A  | 12  | A    |
| 1   | 18-A  | 13  | G    |
| 1   | 18-A  | 14  | A    |
| 1   | 18-A  | 15  | U    |
| 1   | 18-A  | 17  | U    |
| 1   | 18-A  | 19  | A    |
| 1   | 18-A  | 20  | U    |
| 1   | 18-A  | 21  | U    |
| 1   | 18-A  | 25  | A    |
| 1   | 18-A  | 27  | G    |
| 1   | 18-A  | 28  | A    |
| 1   | 18-A  | 30  | A    |
| 1   | 18-A  | 31  | C    |
| 1   | 18-A  | 32  | A    |
| 1   | 18-A  | 36  | A    |
| 1   | 18-A  | 37  | A    |
| 1   | 18-A  | 39  | A    |
| 1   | 18-A  | 44  | A    |
| 1   | 18-A  | 48  | U    |
| 1   | 18-A  | 49  | U    |
| 1   | 18-A  | 53  | G    |
| 1   | 18-A  | 56  | A    |
| 1   | 18-A  | 64  | C    |
| 1   | 18-A  | 74  | A    |
| 1   | 18-A  | 75  | C    |
| 1   | 18-A  | 84  | G    |
| 1   | 18-A  | 85  | G    |
| 1   | 18-A  | 89  | G    |
| 1   | 18-A  | 90  | C    |
| 1   | 18-A  | 91  | U    |
| 1   | 18-A  | 92  | U    |
| 1   | 18-A  | 98  | A    |
| 1   | 18-A  | 99  | G    |
| 1   | 18-A  | 101 | G    |
| 1   | 18-A  | 106 | C    |
| 1   | 18-A  | 111 | A    |
| 1   | 18-A  | 112 | A    |
| 1   | 18-A  | 115 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 18-A  | 117 | C    |
| 1   | 18-A  | 124 | A    |
| 1   | 18-A  | 125 | A    |
| 1   | 18-A  | 126 | U    |
| 1   | 18-A  | 127 | U    |
| 1   | 18-A  | 129 | U    |
| 1   | 18-A  | 132 | C    |
| 1   | 18-A  | 133 | C    |
| 1   | 18-A  | 137 | A    |
| 1   | 18-A  | 138 | C    |
| 1   | 18-A  | 142 | C    |
| 1   | 18-A  | 146 | U    |
| 1   | 18-A  | 147 | A    |
| 1   | 18-A  | 158 | G    |
| 1   | 19-A  | -4  | A    |
| 1   | 19-A  | -3  | U    |
| 1   | 19-A  | -2  | G    |
| 1   | 19-A  | 12  | A    |
| 1   | 19-A  | 13  | G    |
| 1   | 19-A  | 15  | U    |
| 1   | 19-A  | 17  | U    |
| 1   | 19-A  | 19  | A    |
| 1   | 19-A  | 20  | U    |
| 1   | 19-A  | 22  | U    |
| 1   | 19-A  | 23  | U    |
| 1   | 19-A  | 24  | A    |
| 1   | 19-A  | 27  | G    |
| 1   | 19-A  | 28  | A    |
| 1   | 19-A  | 30  | A    |
| 1   | 19-A  | 36  | A    |
| 1   | 19-A  | 37  | A    |
| 1   | 19-A  | 39  | A    |
| 1   | 19-A  | 42  | U    |
| 1   | 19-A  | 45  | A    |
| 1   | 19-A  | 47  | C    |
| 1   | 19-A  | 48  | U    |
| 1   | 19-A  | 49  | U    |
| 1   | 19-A  | 50  | U    |
| 1   | 19-A  | 51  | C    |
| 1   | 19-A  | 53  | G    |
| 1   | 19-A  | 56  | A    |
| 1   | 19-A  | 64  | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 19-A  | 74  | A    |
| 1   | 19-A  | 79  | C    |
| 1   | 19-A  | 84  | G    |
| 1   | 19-A  | 85  | G    |
| 1   | 19-A  | 89  | G    |
| 1   | 19-A  | 90  | C    |
| 1   | 19-A  | 92  | U    |
| 1   | 19-A  | 98  | A    |
| 1   | 19-A  | 99  | G    |
| 1   | 19-A  | 106 | C    |
| 1   | 19-A  | 107 | A    |
| 1   | 19-A  | 111 | A    |
| 1   | 19-A  | 112 | A    |
| 1   | 19-A  | 115 | A    |
| 1   | 19-A  | 117 | C    |
| 1   | 19-A  | 124 | A    |
| 1   | 19-A  | 125 | A    |
| 1   | 19-A  | 126 | U    |
| 1   | 19-A  | 127 | U    |
| 1   | 19-A  | 129 | U    |
| 1   | 19-A  | 132 | C    |
| 1   | 19-A  | 133 | C    |
| 1   | 19-A  | 137 | A    |
| 1   | 19-A  | 138 | C    |
| 1   | 19-A  | 141 | U    |
| 1   | 19-A  | 146 | U    |
| 1   | 19-A  | 147 | A    |
| 1   | 19-A  | 158 | G    |
| 1   | 20-A  | -3  | U    |
| 1   | 20-A  | 12  | A    |
| 1   | 20-A  | 13  | G    |
| 1   | 20-A  | 14  | A    |
| 1   | 20-A  | 17  | U    |
| 1   | 20-A  | 19  | A    |
| 1   | 20-A  | 20  | U    |
| 1   | 20-A  | 23  | U    |
| 1   | 20-A  | 24  | A    |
| 1   | 20-A  | 27  | G    |
| 1   | 20-A  | 28  | A    |
| 1   | 20-A  | 30  | A    |
| 1   | 20-A  | 32  | A    |
| 1   | 20-A  | 36  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 20-A  | 37  | A    |
| 1   | 20-A  | 45  | A    |
| 1   | 20-A  | 48  | U    |
| 1   | 20-A  | 49  | U    |
| 1   | 20-A  | 53  | G    |
| 1   | 20-A  | 56  | A    |
| 1   | 20-A  | 64  | C    |
| 1   | 20-A  | 73  | G    |
| 1   | 20-A  | 75  | C    |
| 1   | 20-A  | 84  | G    |
| 1   | 20-A  | 85  | G    |
| 1   | 20-A  | 89  | G    |
| 1   | 20-A  | 90  | C    |
| 1   | 20-A  | 91  | U    |
| 1   | 20-A  | 92  | U    |
| 1   | 20-A  | 98  | A    |
| 1   | 20-A  | 106 | C    |
| 1   | 20-A  | 111 | A    |
| 1   | 20-A  | 112 | A    |
| 1   | 20-A  | 115 | A    |
| 1   | 20-A  | 117 | C    |
| 1   | 20-A  | 124 | A    |
| 1   | 20-A  | 125 | A    |
| 1   | 20-A  | 126 | U    |
| 1   | 20-A  | 127 | U    |
| 1   | 20-A  | 129 | U    |
| 1   | 20-A  | 132 | C    |
| 1   | 20-A  | 133 | C    |
| 1   | 20-A  | 137 | A    |
| 1   | 20-A  | 138 | C    |
| 1   | 20-A  | 146 | U    |
| 1   | 20-A  | 147 | A    |
| 1   | 20-A  | 158 | G    |

All (195) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1-A   | -2  | G    |
| 1   | 1-A   | 12  | A    |
| 1   | 1-A   | 55  | U    |
| 1   | 1-A   | 99  | G    |
| 1   | 1-A   | 105 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1-A   | 127 | U    |
| 1   | 1-A   | 132 | C    |
| 1   | 1-A   | 136 | A    |
| 1   | 1-A   | 145 | G    |
| 1   | 1-A   | 146 | U    |
| 1   | 2-A   | -3  | U    |
| 1   | 2-A   | 12  | A    |
| 1   | 2-A   | 51  | C    |
| 1   | 2-A   | 55  | U    |
| 1   | 2-A   | 127 | U    |
| 1   | 2-A   | 132 | C    |
| 1   | 2-A   | 136 | A    |
| 1   | 2-A   | 142 | C    |
| 1   | 2-A   | 145 | G    |
| 1   | 2-A   | 146 | U    |
| 1   | 3-A   | 12  | A    |
| 1   | 3-A   | 14  | A    |
| 1   | 3-A   | 50  | U    |
| 1   | 3-A   | 55  | U    |
| 1   | 3-A   | 78  | A    |
| 1   | 3-A   | 127 | U    |
| 1   | 3-A   | 132 | C    |
| 1   | 3-A   | 136 | A    |
| 1   | 3-A   | 142 | C    |
| 1   | 3-A   | 145 | G    |
| 1   | 3-A   | 146 | U    |
| 1   | 4-A   | 12  | A    |
| 1   | 4-A   | 31  | C    |
| 1   | 4-A   | 50  | U    |
| 1   | 4-A   | 55  | U    |
| 1   | 4-A   | 127 | U    |
| 1   | 4-A   | 132 | C    |
| 1   | 4-A   | 136 | A    |
| 1   | 4-A   | 145 | G    |
| 1   | 4-A   | 146 | U    |
| 1   | 5-A   | -3  | U    |
| 1   | 5-A   | 12  | A    |
| 1   | 5-A   | 55  | U    |
| 1   | 5-A   | 127 | U    |
| 1   | 5-A   | 132 | C    |
| 1   | 5-A   | 136 | A    |
| 1   | 5-A   | 145 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 5-A   | 146 | U    |
| 1   | 6-A   | 12  | A    |
| 1   | 6-A   | 13  | G    |
| 1   | 6-A   | 24  | A    |
| 1   | 6-A   | 55  | U    |
| 1   | 6-A   | 79  | C    |
| 1   | 6-A   | 105 | A    |
| 1   | 6-A   | 127 | U    |
| 1   | 6-A   | 132 | C    |
| 1   | 6-A   | 136 | A    |
| 1   | 6-A   | 145 | G    |
| 1   | 6-A   | 146 | U    |
| 1   | 7-A   | 12  | A    |
| 1   | 7-A   | 21  | U    |
| 1   | 7-A   | 31  | C    |
| 1   | 7-A   | 38  | G    |
| 1   | 7-A   | 50  | U    |
| 1   | 7-A   | 55  | U    |
| 1   | 7-A   | 127 | U    |
| 1   | 7-A   | 132 | C    |
| 1   | 7-A   | 136 | A    |
| 1   | 7-A   | 145 | G    |
| 1   | 7-A   | 146 | U    |
| 1   | 8-A   | 12  | A    |
| 1   | 8-A   | 22  | U    |
| 1   | 8-A   | 50  | U    |
| 1   | 8-A   | 55  | U    |
| 1   | 8-A   | 73  | G    |
| 1   | 8-A   | 90  | C    |
| 1   | 8-A   | 96  | U    |
| 1   | 8-A   | 127 | U    |
| 1   | 8-A   | 132 | C    |
| 1   | 8-A   | 136 | A    |
| 1   | 8-A   | 145 | G    |
| 1   | 8-A   | 146 | U    |
| 1   | 9-A   | 12  | A    |
| 1   | 9-A   | 22  | U    |
| 1   | 9-A   | 55  | U    |
| 1   | 9-A   | 98  | A    |
| 1   | 9-A   | 99  | G    |
| 1   | 9-A   | 127 | U    |
| 1   | 9-A   | 132 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 9-A   | 136 | A    |
| 1   | 9-A   | 141 | U    |
| 1   | 9-A   | 145 | G    |
| 1   | 9-A   | 146 | U    |
| 1   | 10-A  | -4  | A    |
| 1   | 10-A  | 12  | A    |
| 1   | 10-A  | 21  | U    |
| 1   | 10-A  | 55  | U    |
| 1   | 10-A  | 127 | U    |
| 1   | 10-A  | 132 | C    |
| 1   | 10-A  | 136 | A    |
| 1   | 10-A  | 141 | U    |
| 1   | 10-A  | 145 | G    |
| 1   | 10-A  | 146 | U    |
| 1   | 11-A  | -4  | A    |
| 1   | 11-A  | 12  | A    |
| 1   | 11-A  | 23  | U    |
| 1   | 11-A  | 55  | U    |
| 1   | 11-A  | 127 | U    |
| 1   | 11-A  | 132 | C    |
| 1   | 11-A  | 136 | A    |
| 1   | 11-A  | 145 | G    |
| 1   | 11-A  | 146 | U    |
| 1   | 12-A  | -4  | A    |
| 1   | 12-A  | 12  | A    |
| 1   | 12-A  | 13  | G    |
| 1   | 12-A  | 55  | U    |
| 1   | 12-A  | 127 | U    |
| 1   | 12-A  | 132 | C    |
| 1   | 12-A  | 136 | A    |
| 1   | 12-A  | 145 | G    |
| 1   | 12-A  | 146 | U    |
| 1   | 13-A  | -2  | G    |
| 1   | 13-A  | 12  | A    |
| 1   | 13-A  | 14  | A    |
| 1   | 13-A  | 31  | C    |
| 1   | 13-A  | 55  | U    |
| 1   | 13-A  | 89  | G    |
| 1   | 13-A  | 127 | U    |
| 1   | 13-A  | 132 | C    |
| 1   | 13-A  | 136 | A    |
| 1   | 13-A  | 145 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 13-A  | 146 | U    |
| 1   | 14-A  | 12  | A    |
| 1   | 14-A  | 14  | A    |
| 1   | 14-A  | 55  | U    |
| 1   | 14-A  | 105 | A    |
| 1   | 14-A  | 127 | U    |
| 1   | 14-A  | 132 | C    |
| 1   | 14-A  | 136 | A    |
| 1   | 14-A  | 145 | G    |
| 1   | 14-A  | 146 | U    |
| 1   | 15-A  | 12  | A    |
| 1   | 15-A  | 55  | U    |
| 1   | 15-A  | 127 | U    |
| 1   | 15-A  | 132 | C    |
| 1   | 15-A  | 136 | A    |
| 1   | 15-A  | 145 | G    |
| 1   | 15-A  | 146 | U    |
| 1   | 16-A  | 12  | A    |
| 1   | 16-A  | 31  | C    |
| 1   | 16-A  | 43  | A    |
| 1   | 16-A  | 55  | U    |
| 1   | 16-A  | 74  | A    |
| 1   | 16-A  | 127 | U    |
| 1   | 16-A  | 132 | C    |
| 1   | 16-A  | 136 | A    |
| 1   | 16-A  | 145 | G    |
| 1   | 16-A  | 146 | U    |
| 1   | 17-A  | -9  | A    |
| 1   | 17-A  | 12  | A    |
| 1   | 17-A  | 21  | U    |
| 1   | 17-A  | 55  | U    |
| 1   | 17-A  | 97  | A    |
| 1   | 17-A  | 127 | U    |
| 1   | 17-A  | 132 | C    |
| 1   | 17-A  | 136 | A    |
| 1   | 17-A  | 145 | G    |
| 1   | 17-A  | 146 | U    |
| 1   | 18-A  | 12  | A    |
| 1   | 18-A  | 43  | A    |
| 1   | 18-A  | 55  | U    |
| 1   | 18-A  | 127 | U    |
| 1   | 18-A  | 132 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 18-A  | 136 | A    |
| 1   | 18-A  | 145 | G    |
| 1   | 18-A  | 146 | U    |
| 1   | 19-A  | 12  | A    |
| 1   | 19-A  | 22  | U    |
| 1   | 19-A  | 55  | U    |
| 1   | 19-A  | 98  | A    |
| 1   | 19-A  | 127 | U    |
| 1   | 19-A  | 132 | C    |
| 1   | 19-A  | 136 | A    |
| 1   | 19-A  | 145 | G    |
| 1   | 19-A  | 146 | U    |
| 1   | 20-A  | -4  | A    |
| 1   | 20-A  | 12  | A    |
| 1   | 20-A  | 31  | C    |
| 1   | 20-A  | 55  | U    |
| 1   | 20-A  | 105 | A    |
| 1   | 20-A  | 127 | U    |
| 1   | 20-A  | 132 | C    |
| 1   | 20-A  | 136 | A    |
| 1   | 20-A  | 145 | G    |
| 1   | 20-A  | 146 | U    |

#### 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

#### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

#### 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

#### 5.7 Other polymers [i](#)

There are no such residues in this entry.



## 5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-21833. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

#### 6.1.1 Primary map



X



Y



Z

The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

#### 6.2.1 Primary map



X Index: 80



Y Index: 80



Z Index: 80

The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

### 6.3.1 Primary map



X Index: 75



Y Index: 83



Z Index: 66

The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views [i](#)

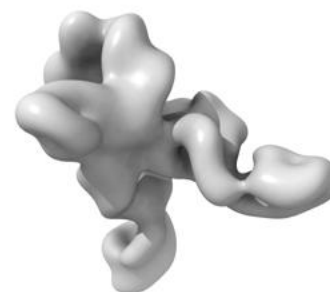
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

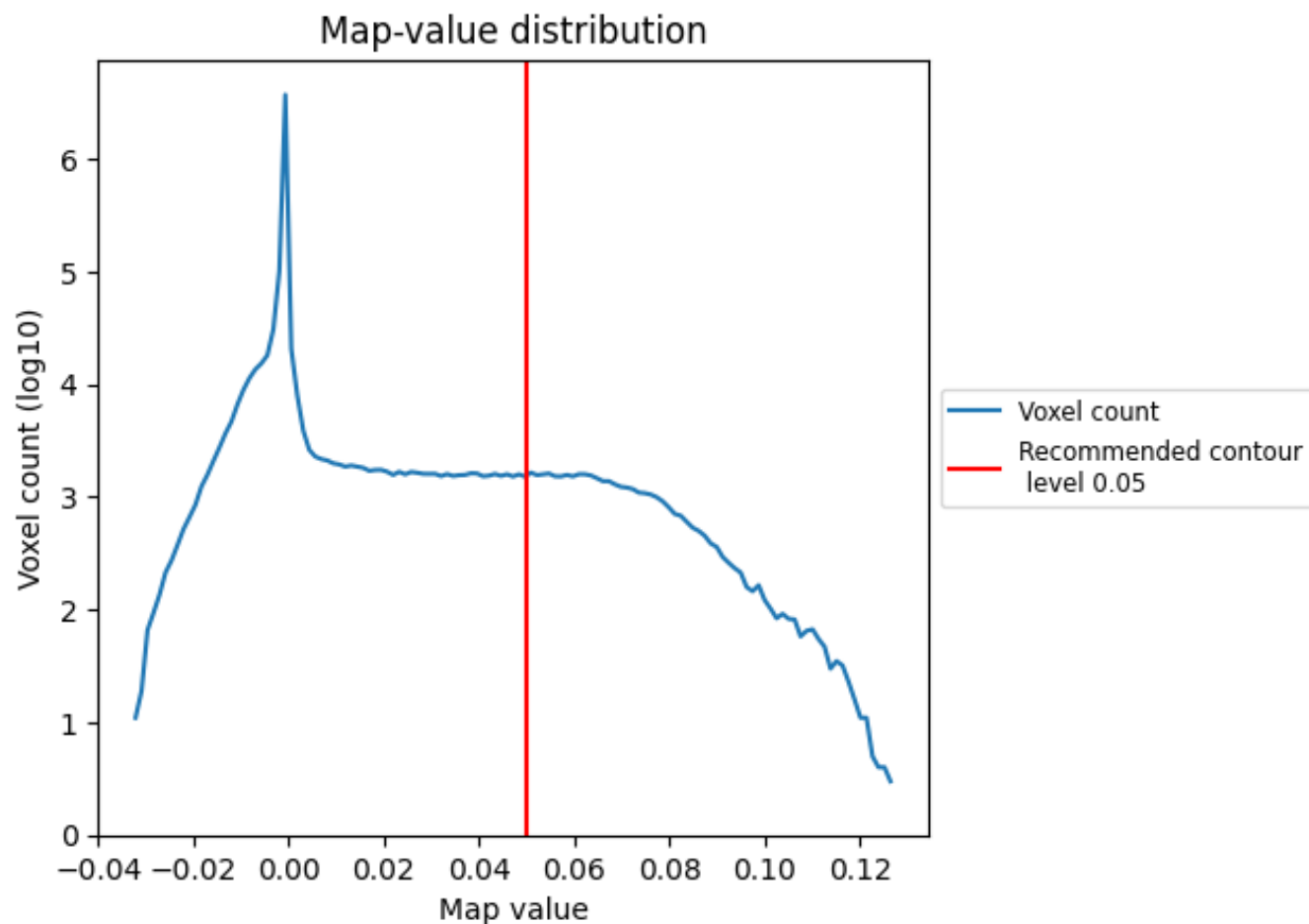
## 6.5 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

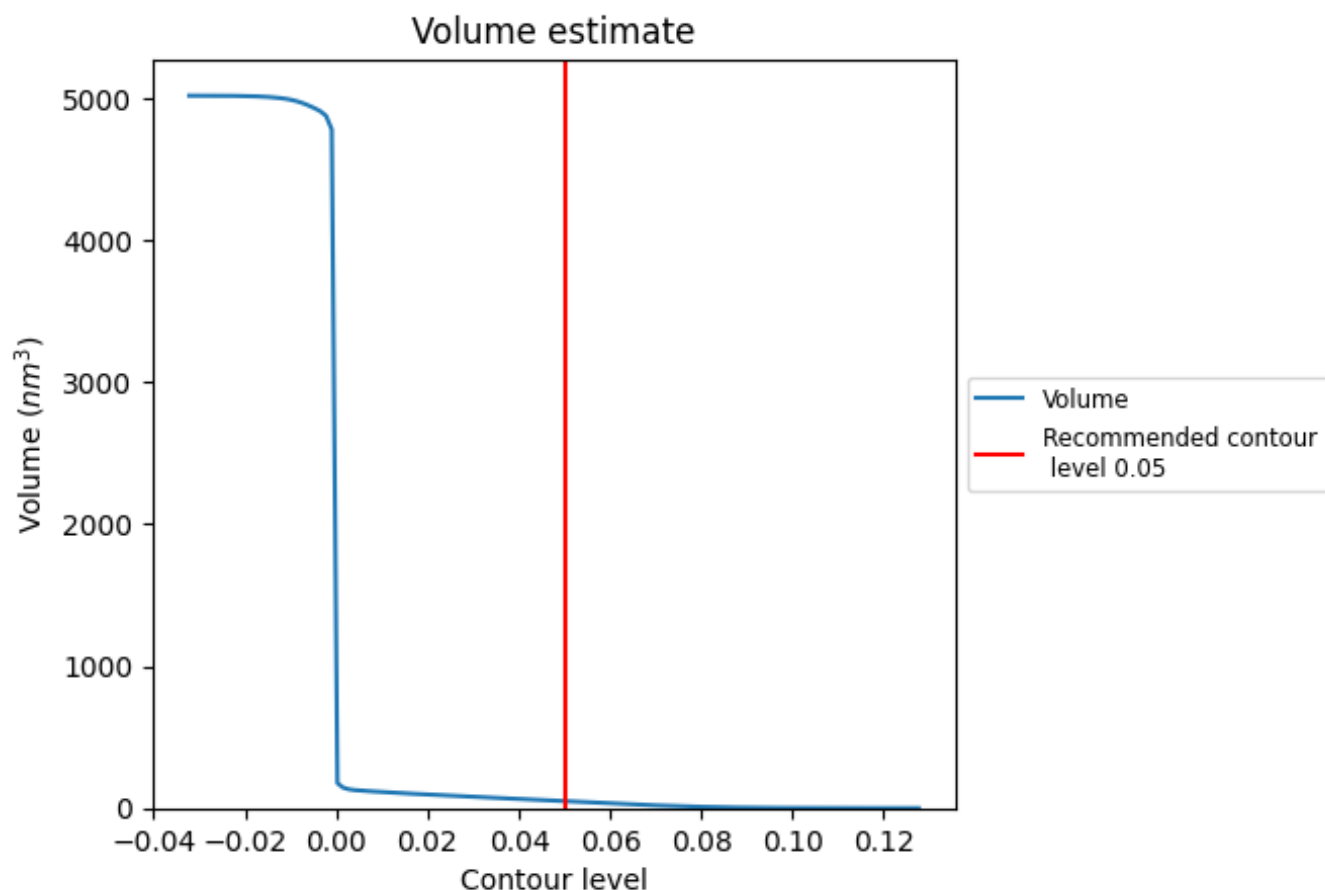
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

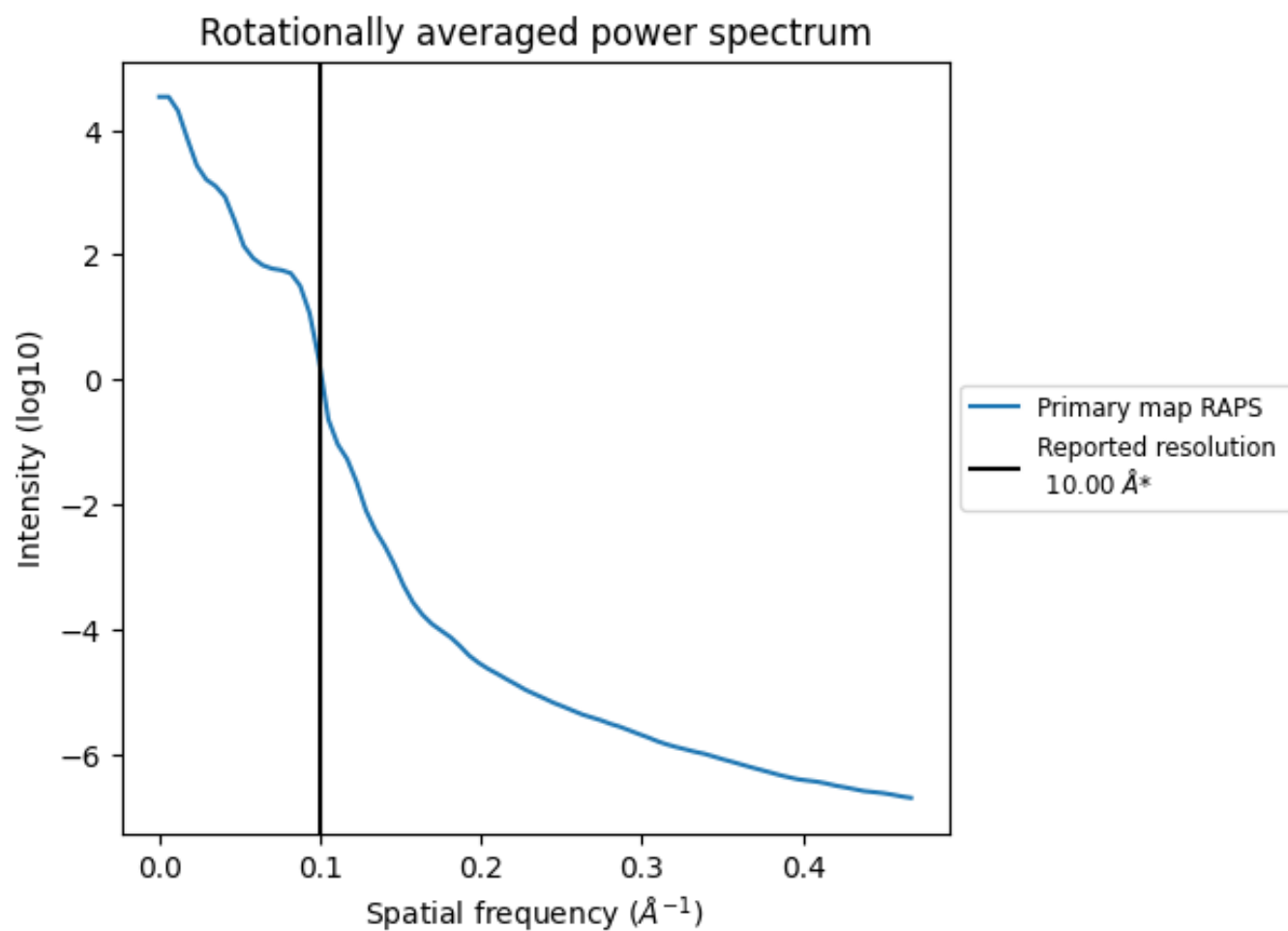
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 49 nm<sup>3</sup>; this corresponds to an approximate mass of 45 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum ⓘ



\*Reported resolution corresponds to spatial frequency of 0.100 Å<sup>-1</sup>

## 8 Fourier-Shell correlation ⓘ

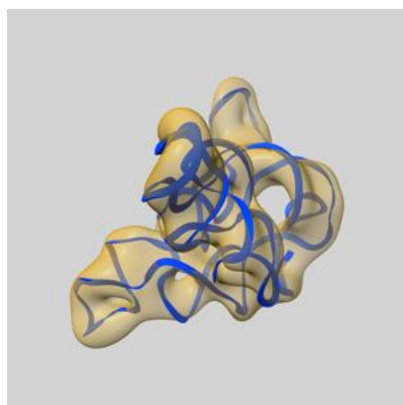
This section was not generated. No FSC curve or half-maps provided.



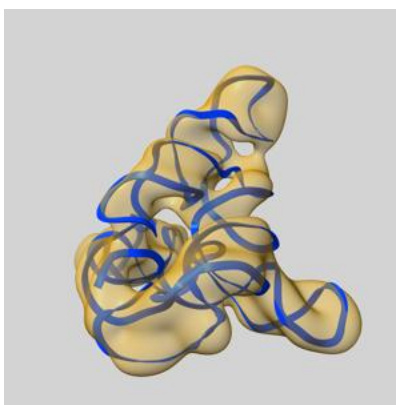
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-21833 and PDB model 6WLL. Per-residue inclusion information can be found in [section 3](#) on [page 6](#).

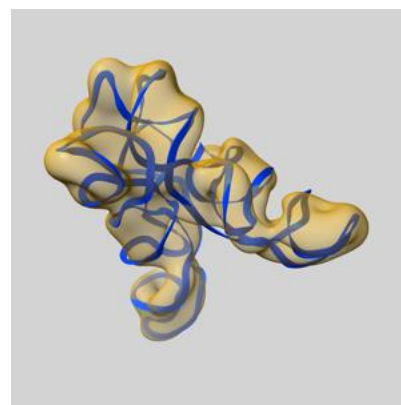
### 9.1 Map-model overlay [i](#)



X



Y



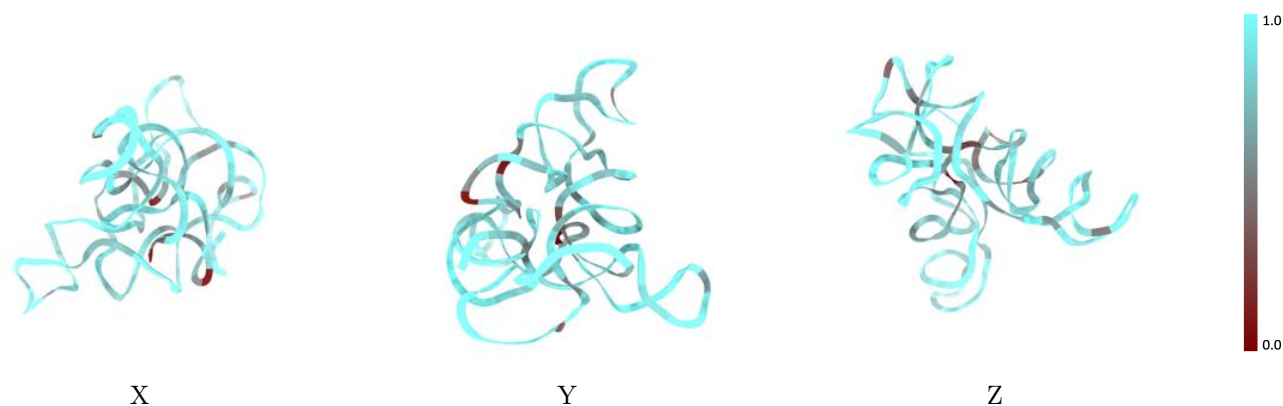
Z

The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)

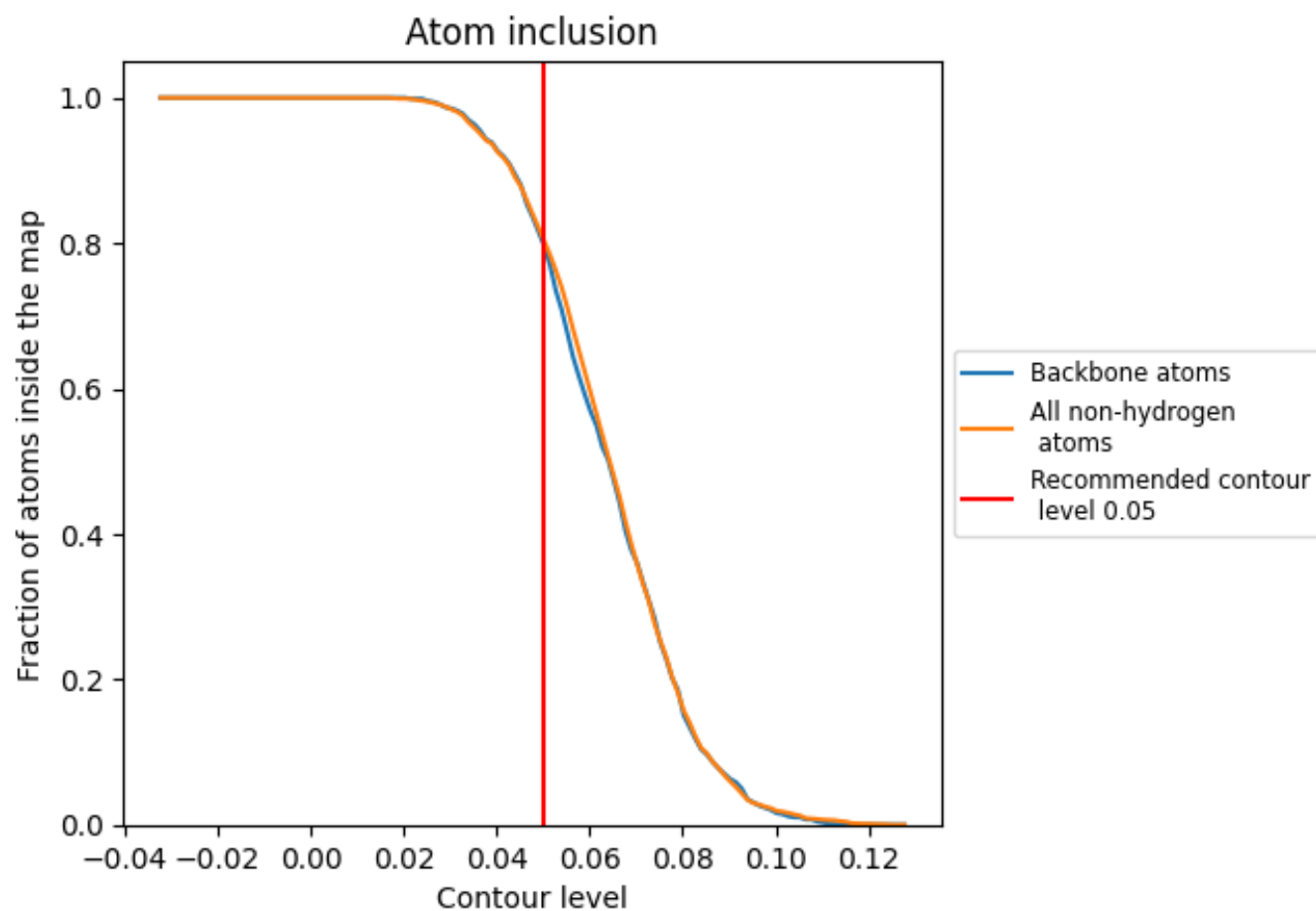
This section was not generated.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.05).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 80% of all backbone atoms, 81% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.05) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion     |
|-------|--------------------|
| All   | <div></div> 0.8055 |
| A     | <div></div> 0.8110 |

