



Full wwPDB NMR Structure Validation Report ⓘ

Feb 23, 2022 – 09:43 AM EST

PDB ID : 1X0F
Title : Complex structure of the C-terminal RNA-binding domain of hnRNP D(AUF1) with telomeric DNA
Authors : Enokizono, Y.; Konishi, Y.; Nagata, K.; Ouhashi, K.; Uesugi, S.; Ishikawa, F.; Katahira, M.
Deposited on : 2005-03-22

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/NMRValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI : v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV : Wang et al. (2010)
ShiftChecker : 2.26
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.26

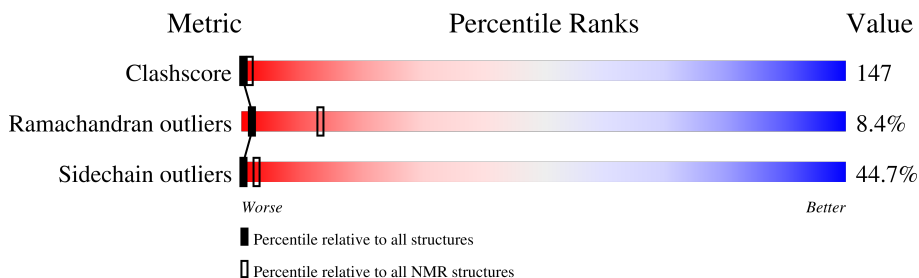
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment was not calculated.

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 (#Entries)	NMR archive (#Entries)
Clashscore	158937	12864
Ramachandran outliers	154571	11451
Sidechain outliers	154315	11428

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and 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 $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	B	4	100%
2	A	79	6% 46% 34% • 13%

2 Ensemble composition and analysis i

This entry contains 20 models. Model 8 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *lowest energy*.

The following residues are included in the computation of the global validation metrics.

Well-defined (core) protein residues			
Well-defined core	Residue range (total)	Backbone RMSD (Å)	Medoid model
1	A:181-A:213, A:224-A:259 (69)	0.14	8

Ill-defined regions of proteins are excluded from the global statistics.

Ligands and non-protein polymers are included in the analysis.

The models can be grouped into 5 clusters and 2 single-model clusters were found.

Cluster number	Models
1	5, 7, 8, 9, 12, 14
2	1, 2, 10, 19
3	3, 4, 6
4	17, 18, 20
5	11, 15
Single-model clusters	13; 16

3 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 1417 atoms, of which 696 are hydrogens and 0 are deuteriums.

- Molecule 1 is a DNA chain called 5'-D(P*TP*AP*GP*G)-3'.

Mol	Chain	Residues	Atoms					Trace	
			Total	C	H	N	O		P
1	B	4	130	40	45	17	24	4	0

- Molecule 2 is a protein called Heterogeneous nuclear ribonucleoprotein D0.

Mol	Chain	Residues	Atoms					Trace	
			Total	C	H	N	O		S
2	A	79	1287	409	651	105	117	5	0

4 Residue-property plots

4.1 Average score per residue in the NMR ensemble

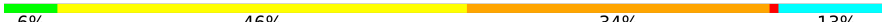
These plots are provided for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

 T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A:  6% 46% 34% 13%

 V181 K152 K183 I184 F185 V186 G187 G188 L189 S190 P191 D192 T193 P194 E195 E196 K197 I198 R199 E200 E201 F202 G203 G204 F205 G206 E207 V208 E209 S210 I211 E212 L213 P214 M215 D216 N217 K218 T219 M220 K221 R222 R223 G224 F225 C226 F227 I228 T229 F230 K231 E232 E233 E234 P235 V236 K237 K238 M240

 E241 K242 Y243 H245 V247 G248 L249 S250 C252 E253 I254 K255 V256 A257 M258 S259

4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

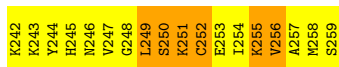
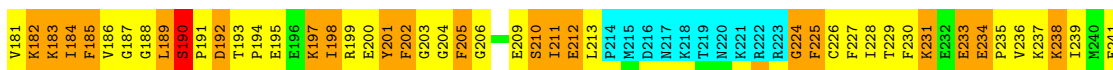
- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

 T2
A3
G4
G5

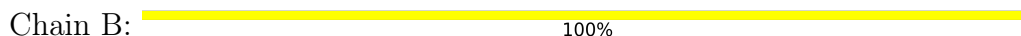
- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A:  6% 47% 33% 13%



4.2.2 Score per residue for model 2

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

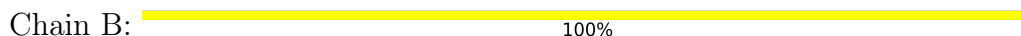


- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

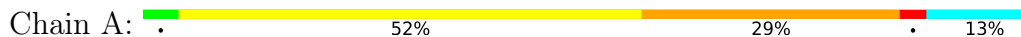


4.2.3 Score per residue for model 3

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

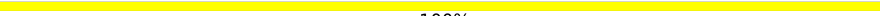


- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0



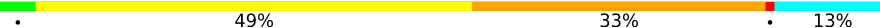
4.2.4 Score per residue for model 4

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0


Chain A:  49% 33% 13%

V181 K182 K183 I184 F185 N246 G187 G188 L189 S190 P191 D192 T193 P194 E195 E196 E197 K197 I198 R199 E200 Y201 F202 G203 G204 F205 G206 G207 V208 E209 I211 E212 L213 P214 M215 D216 N217 K218 T219 M220 K221 R222 R223 G224 F225 C226 F227 I228 T229 F230 K231 E232 E233 E234 P235 V236 K237 K238 I239 M240

E241 K242 K243 Y244 H245 N246 V247 G248 L249 S250 K251 C252 E253 I254 K255 E196 V256 A257 M258 S259


4.2.5 Score per residue for model 5

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A:  47% 34% 13%

V181 K182 K183 I184 F185 N246 G187 G188 L189 S190 P191 D192 T193 P194 E195 E196 E197 K197 I198 R199 E200 Y201 F202 G203 G204 F205 G206 G207 V208 E209 S210 I211 E212 L213 P214 M215 D216 N217 K218 T219 M220 K221 R222 R223 G224 F225 C226 F227 I228 T229 F230 K231 E232 E233 E234 P235 V236 K237 K238 I239 M240

E241 K242 K243 Y244 H245 N246 V247 G248 L249 S250 K251 C252 E253 I254 K255 E196 V256 A257 M258 S259


4.2.6 Score per residue for model 6

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A:  11% 38% 37% 13%

V181 K182 K183 I184 F185 N246 G187 G188 L189 S190 P191 D192 T193 P194 E195 E196 E197 K197 I198 R199 E200 Y201 F202 G203 G204 F205 G206 E209 S210 I211 E212 L213 P214 M215 D216 N217 K218 T219 M220 K221 R222 R223 G224 F225 C226 F227 I228 T229 F230 K231 E232 E233 E234 P235 V236 K237 K238 I239 M240 E241



4.2.7 Score per residue for model 7

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B: 100%



- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A: 5% 49% 30% 13%



4.2.8 Score per residue for model 8 (medoid)

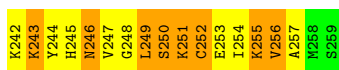
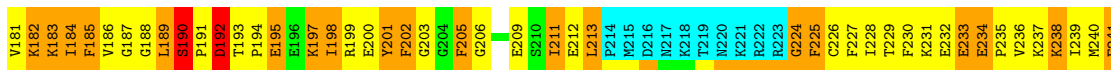
- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B: 100%



- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A: 9% 42% 34% 13%



4.2.9 Score per residue for model 9

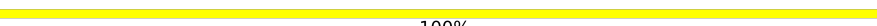
- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B: 100%

K242
K243
Y244
H245
N246
V247
G248
L249
S250
K251
C252
E253
I254
K255
V256
A257
M258
S259

4.2.12 Score per residue for model 12

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

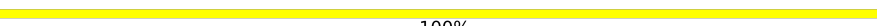
Chain A:  5% 47% 33% 13%

V181
K182
K183
I184
F185
V186
G187
G188
L189
S190
P191
D192
T193
P194
E195
E196
K197
I198
R199
E200
Y201
F202
G203
G204
F205
G206
E207
E209
V208
S210
I211
E212
L213
P214
M215
D216
N217
K218
T219
M220
K221
R222
R223
G224
F225
C226
F227
I228
T229
F230
K231
E232
E233
E234
P235
V236
K237
K238
I239
M240

E241
K242
Y244
H245
N246
V247
G248
L249
S250
K251
C252
E253
I254
K255
V256
A257
M258
S259

4.2.13 Score per residue for model 13

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A:  9% 42% 35% 13%

V181
K182
K183
I184
F185
V186
G187
G188
L189
S190
P191
D192
T193
P194
E195
E196
K197
I198
R199
E200
Y201
F202
G203
G204
F205
G206
E207
E209
V208
S210
I211
E212
L213
P214
M215
D216
N217
K218
T219
M220
K221
R222
R223
G224
F225
C226
F227
I228
T229
F230
K231
E232
E233
E234
P235
V236
K237
K238
I239
M240

E241
K242
Y244
H245
N246
V247
G248
L249
S250
K251
C252
E253
I254
K255
V256
A257
M258
S259

4.2.14 Score per residue for model 14

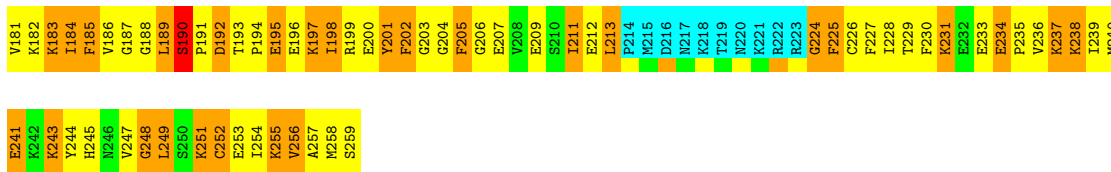
- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A:  8% 44% 34% 13%



4.2.15 Score per residue for model 15

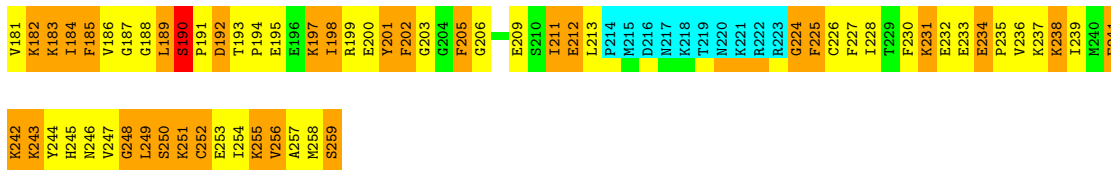
- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A:  9% 41% 37% 13%




4.2.16 Score per residue for model 16

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B:  100%

T2
A3
G4
G5

- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A:  11% 41% 34% 13%





4.2.17 Score per residue for model 17

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B: 100%



- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A: 5% 48% 32% 13%



4.2.18 Score per residue for model 18

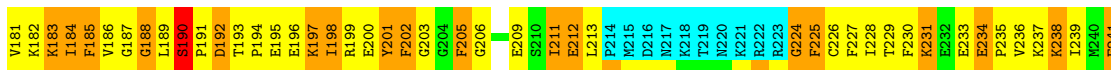
- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B: 100%



- Molecule 2: Heterogeneous nuclear ribonucleoprotein D0

Chain A: 9% 43% 34% 13%



4.2.19 Score per residue for model 19

- Molecule 1: 5'-D(P*TP*AP*GP*G)-3'

Chain B: 100%

5 Refinement protocol and experimental data overview

The models were refined using the following method: *simulated annealing*.

Of the 228 calculated structures, 20 were deposited, based on the following criterion: *structures with the lowest energy*.

The following table shows the software used for structure solution, optimisation and refinement.

Software name	Classification	Version
X-PLOR	structure solution	3.851
X-PLOR	refinement	3.851

No chemical shift data was provided.

6 Model quality i

6.1 Standard geometry i

There are no covalent bond-length or bond-angle outliers.

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 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 each 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 averaged over the ensemble.

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	B	85	45	46	27±6
2	A	550	560	559	172±9
All	All	12700	12100	12100	3653

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 147.

All unique clashes are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:227:PHE:CE2	2:A:257:ALA:HB1	1.07	1.84	19	19
2:A:202:PHE:CE2	2:A:228:ILE:HD12	1.04	1.86	4	20
2:A:227:PHE:CE1	2:A:257:ALA:HB1	1.02	1.90	10	1
2:A:227:PHE:CD2	2:A:257:ALA:HB1	0.95	1.96	14	19
1:B:4:DG:H2''	1:B:5:DG:O5'	0.95	1.58	14	12
1:B:3:DA:H4'	1:B:4:DG:O5'	0.94	1.57	19	8
2:A:227:PHE:CD1	2:A:257:ALA:HB1	0.94	1.98	10	1
2:A:186:VAL:HG12	2:A:252:CYS:HB2	0.93	1.38	12	17
2:A:189:LEU:HD13	2:A:193:THR:OG1	0.92	1.65	5	20
2:A:198:ILE:HG22	2:A:202:PHE:CE1	0.92	1.99	3	18
2:A:182:LYS:HB2	2:A:236:VAL:HG21	0.89	1.45	3	9
2:A:213:LEU:HD22	2:A:226:CYS:CB	0.88	1.99	10	2
2:A:189:LEU:HD23	2:A:225:PHE:C	0.87	1.91	1	20

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:198:ILE:CD1	2:A:213:LEU:HD21	0.87	2.00	1	2
2:A:211:ILE:HD13	2:A:228:ILE:HG23	0.85	1.49	4	10
2:A:186:VAL:HG13	2:A:254:ILE:HG12	0.85	1.47	19	17
2:A:189:LEU:HD23	2:A:225:PHE:CA	0.85	2.01	11	19
2:A:198:ILE:CG2	2:A:228:ILE:HD11	0.85	2.02	1	20
2:A:235:PRO:O	2:A:239:ILE:HD12	0.84	1.71	11	19
1:B:2:DT:H2'	1:B:2:DT:O2	0.84	1.73	12	18
2:A:202:PHE:CD2	2:A:228:ILE:HD12	0.84	2.08	1	20
2:A:189:LEU:HD12	2:A:190:SER:O	0.83	1.73	18	19
2:A:193:THR:HG22	2:A:198:ILE:CD1	0.81	2.05	9	20
2:A:245:HIS:CG	2:A:254:ILE:HD12	0.81	2.10	11	20
2:A:183:LYS:HB3	2:A:257:ALA:HB3	0.81	1.51	19	20
2:A:198:ILE:HG22	2:A:228:ILE:HD11	0.80	1.53	1	10
2:A:189:LEU:HD22	2:A:226:CYS:SG	0.78	2.18	13	2
2:A:185:PHE:N	2:A:257:ALA:HB2	0.77	1.94	5	20
2:A:198:ILE:HG22	2:A:228:ILE:CD1	0.77	2.10	1	15
2:A:182:LYS:HB3	2:A:236:VAL:HG21	0.76	1.55	18	8
1:B:4:DG:C2	2:A:227:PHE:CE1	0.76	2.73	14	19
2:A:195:GLU:HA	2:A:198:ILE:CG1	0.76	2.11	8	20
2:A:213:LEU:N	2:A:213:LEU:HD23	0.76	1.96	10	2
2:A:205:PHE:CD2	2:A:239:ILE:HD11	0.75	2.16	19	20
2:A:213:LEU:HD22	2:A:226:CYS:HB3	0.75	1.56	10	1
2:A:213:LEU:HD13	2:A:226:CYS:HB2	0.74	1.58	9	2
2:A:245:HIS:CD2	2:A:254:ILE:HD12	0.74	2.18	11	20
2:A:193:THR:HB	2:A:213:LEU:HD11	0.74	1.59	18	3
1:B:4:DG:C5	1:B:5:DG:N7	0.73	2.56	17	13
2:A:239:ILE:CG2	2:A:254:ILE:HG21	0.73	2.13	16	20
2:A:193:THR:HG22	2:A:198:ILE:HD11	0.73	1.61	17	8
2:A:186:VAL:HG13	2:A:254:ILE:CG1	0.72	2.14	2	14
1:B:3:DA:C2	2:A:185:PHE:CD2	0.72	2.77	19	14
1:B:4:DG:C6	1:B:5:DG:N7	0.71	2.58	19	1
1:B:3:DA:C4	2:A:185:PHE:CE2	0.71	2.78	10	16
2:A:205:PHE:CE2	2:A:239:ILE:HG13	0.71	2.21	15	19
2:A:198:ILE:HG21	2:A:228:ILE:HD11	0.71	1.62	9	17
2:A:186:VAL:HG12	2:A:252:CYS:CB	0.71	2.16	12	16
2:A:184:ILE:HD12	2:A:239:ILE:HG21	0.70	1.62	10	19
2:A:189:LEU:HD23	2:A:225:PHE:HA	0.70	1.61	11	9
2:A:185:PHE:CE2	2:A:225:PHE:CE2	0.70	2.78	9	18
1:B:2:DT:O2	1:B:2:DT:H5''	0.70	1.85	4	2
1:B:4:DG:N2	2:A:227:PHE:CE1	0.70	2.59	14	3
1:B:4:DG:C8	1:B:5:DG:N7	0.70	2.59	17	10

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:B:4:DG:C2	2:A:227:PHE:CE2	0.70	2.80	10	1
2:A:193:THR:O	2:A:213:LEU:HD13	0.70	1.87	20	6
1:B:4:DG:N2	2:A:227:PHE:CZ	0.69	2.61	14	6
2:A:213:LEU:HD22	2:A:213:LEU:N	0.69	2.02	15	2
1:B:3:DA:C2	2:A:185:PHE:CG	0.69	2.80	5	4
2:A:183:LYS:O	2:A:256:VAL:HG23	0.69	1.88	19	20
2:A:230:PHE:CE1	2:A:235:PRO:CB	0.68	2.76	11	13
2:A:205:PHE:CE2	2:A:239:ILE:CD1	0.68	2.76	16	20
1:B:3:DA:C5'	2:A:225:PHE:CE1	0.68	2.77	7	10
2:A:209:GLU:HB3	2:A:229:THR:HG22	0.68	1.64	14	11
2:A:245:HIS:CE1	2:A:254:ILE:HD12	0.68	2.23	13	18
1:B:4:DG:N1	2:A:227:PHE:CZ	0.67	2.63	8	20
2:A:184:ILE:HD11	2:A:202:PHE:CE2	0.67	2.25	1	20
2:A:230:PHE:CE2	2:A:235:PRO:CB	0.67	2.77	14	6
2:A:198:ILE:HB	2:A:211:ILE:HD12	0.67	1.65	16	16
1:B:4:DG:C8	1:B:5:DG:C5	0.67	2.82	17	3
2:A:202:PHE:O	2:A:205:PHE:HB2	0.66	1.91	11	20
1:B:4:DG:N7	1:B:5:DG:N7	0.66	2.42	11	7
1:B:2:DT:O2	1:B:2:DT:C2'	0.66	2.43	11	11
1:B:3:DA:C4'	2:A:225:PHE:CZ	0.66	2.77	4	11
2:A:184:ILE:HD13	2:A:230:PHE:HE2	0.66	1.51	20	13
2:A:213:LEU:HD23	2:A:226:CYS:HB3	0.66	1.68	1	1
1:B:4:DG:C2'	1:B:5:DG:O5'	0.66	2.43	14	5
2:A:213:LEU:HD23	2:A:226:CYS:CB	0.66	2.19	11	2
1:B:4:DG:H1'	1:B:5:DG:O5'	0.66	1.91	19	1
2:A:184:ILE:HD13	2:A:239:ILE:HD13	0.65	1.66	13	15
2:A:227:PHE:CE2	2:A:257:ALA:CB	0.65	2.76	14	19
1:B:4:DG:H1'	1:B:5:DG:C8	0.65	2.26	4	3
2:A:227:PHE:HE2	2:A:257:ALA:HB1	0.65	1.50	2	19
2:A:184:ILE:HD13	2:A:230:PHE:HE1	0.65	1.52	14	6
2:A:213:LEU:N	2:A:213:LEU:HD22	0.65	2.07	9	3
2:A:245:HIS:CG	2:A:254:ILE:CD1	0.65	2.80	7	20
1:B:4:DG:C2	2:A:227:PHE:CZ	0.64	2.85	10	20
2:A:205:PHE:CE2	2:A:239:ILE:CG1	0.64	2.81	6	19
2:A:184:ILE:C	2:A:257:ALA:HB2	0.64	2.13	16	20
2:A:227:PHE:CD2	2:A:257:ALA:CB	0.64	2.79	6	19
1:B:3:DA:OP1	1:B:3:DA:C8	0.64	2.51	11	1
2:A:230:PHE:CE2	2:A:239:ILE:HD13	0.64	2.27	13	13
2:A:184:ILE:HD11	2:A:202:PHE:HE2	0.64	1.52	6	20
2:A:213:LEU:HD22	2:A:226:CYS:HB2	0.64	1.69	10	2
1:B:2:DT:P	1:B:2:DT:O4'	0.64	2.56	12	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:227:PHE:HE1	2:A:257:ALA:HB1	0.64	1.51	10	1
2:A:209:GLU:CB	2:A:229:THR:HG22	0.64	2.22	14	5
1:B:4:DG:H5''	2:A:225:PHE:CE1	0.63	2.28	9	19
1:B:3:DA:OP2	2:A:225:PHE:CD2	0.63	2.51	11	1
2:A:239:ILE:CG2	2:A:254:ILE:CG2	0.63	2.76	9	20
2:A:182:LYS:CB	2:A:236:VAL:HG21	0.63	2.23	9	16
2:A:245:HIS:CD2	2:A:254:ILE:CG1	0.63	2.81	15	19
2:A:205:PHE:CE2	2:A:239:ILE:HD11	0.63	2.29	10	20
2:A:227:PHE:CD1	2:A:257:ALA:CB	0.62	2.81	10	1
1:B:3:DA:N6	2:A:258:MET:CE	0.62	2.63	2	1
2:A:190:SER:CB	2:A:191:PRO:CD	0.62	2.77	14	19
2:A:230:PHE:CE1	2:A:239:ILE:HD13	0.62	2.28	2	6
1:B:2:DT:OP2	1:B:2:DT:C2	0.62	2.52	17	3
1:B:4:DG:C4	1:B:5:DG:N7	0.61	2.68	17	6
2:A:213:LEU:CD2	2:A:213:LEU:N	0.61	2.62	3	2
2:A:239:ILE:HG21	2:A:254:ILE:HG21	0.61	1.71	19	19
1:B:4:DG:C4	1:B:5:DG:C8	0.61	2.89	7	3
2:A:245:HIS:CD2	2:A:254:ILE:CD1	0.61	2.84	15	15
2:A:184:ILE:HB	2:A:239:ILE:HG21	0.60	1.73	17	20
1:B:4:DG:N3	1:B:4:DG:H5'	0.60	2.10	14	5
2:A:248:GLY:C	2:A:249:LEU:HD23	0.60	2.16	4	2
1:B:3:DA:OP2	2:A:185:PHE:CE2	0.60	2.54	11	1
2:A:185:PHE:CA	2:A:257:ALA:HB2	0.60	2.27	8	20
2:A:245:HIS:ND1	2:A:254:ILE:HD12	0.59	2.12	17	14
1:B:3:DA:O4'	2:A:225:PHE:CZ	0.59	2.54	3	5
2:A:185:PHE:CD1	2:A:185:PHE:O	0.59	2.55	13	14
2:A:195:GLU:HA	2:A:198:ILE:HG13	0.59	1.72	18	20
2:A:186:VAL:HG22	2:A:254:ILE:CD1	0.59	2.27	5	8
2:A:186:VAL:HG12	2:A:252:CYS:SG	0.59	2.37	18	4
2:A:186:VAL:HG22	2:A:254:ILE:HG12	0.59	1.73	5	8
2:A:202:PHE:CZ	2:A:228:ILE:HD12	0.59	2.32	2	9
2:A:200:GLU:CG	2:A:201:TYR:N	0.58	2.67	14	10
1:B:4:DG:H5''	2:A:225:PHE:CZ	0.58	2.34	9	19
1:B:3:DA:N3	2:A:185:PHE:CD2	0.58	2.72	5	4
2:A:189:LEU:HD13	2:A:193:THR:CB	0.58	2.29	4	12
2:A:243:LYS:CE	2:A:244:TYR:CG	0.58	2.86	2	1
2:A:185:PHE:O	2:A:185:PHE:CD1	0.58	2.57	3	4
2:A:235:PRO:O	2:A:239:ILE:CG1	0.58	2.52	16	1
2:A:244:TYR:CD1	2:A:253:GLU:HB3	0.58	2.33	18	3
2:A:191:PRO:O	2:A:192:ASP:CB	0.57	2.52	15	16
2:A:227:PHE:CE1	2:A:257:ALA:CB	0.57	2.79	10	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:186:VAL:HG22	2:A:254:ILE:CG1	0.57	2.29	5	7
2:A:235:PRO:C	2:A:239:ILE:HD12	0.57	2.19	20	19
2:A:243:LYS:HE2	2:A:244:TYR:CG	0.57	2.35	2	1
1:B:3:DA:C6	2:A:258:MET:CE	0.57	2.88	2	2
2:A:244:TYR:CE1	2:A:253:GLU:HB3	0.57	2.35	20	3
2:A:194:PRO:O	2:A:198:ILE:HD11	0.57	1.99	18	9
2:A:230:PHE:CD2	2:A:235:PRO:HB2	0.57	2.33	18	7
2:A:230:PHE:CD1	2:A:235:PRO:HB2	0.56	2.34	13	13
1:B:3:DA:N1	2:A:258:MET:HE2	0.56	2.15	2	1
2:A:247:VAL:O	2:A:249:LEU:N	0.56	2.38	15	17
1:B:4:DG:H2'	1:B:4:DG:N3	0.56	2.15	4	9
2:A:187:GLY:O	2:A:253:GLU:N	0.56	2.38	9	15
2:A:193:THR:HG1	2:A:250:SER:CB	0.56	2.13	15	3
2:A:183:LYS:O	2:A:256:VAL:CG2	0.56	2.54	8	20
2:A:184:ILE:CG1	2:A:184:ILE:O	0.56	2.54	16	14
2:A:194:PRO:HG2	2:A:197:LYS:CD	0.56	2.31	2	10
2:A:243:LYS:HE3	2:A:244:TYR:CD2	0.56	2.36	2	3
2:A:205:PHE:CZ	2:A:239:ILE:HG13	0.56	2.36	3	19
2:A:247:VAL:O	2:A:248:GLY:C	0.56	2.45	6	9
2:A:239:ILE:HG12	2:A:245:HIS:CE1	0.56	2.36	14	19
2:A:183:LYS:HE2	2:A:227:PHE:CD2	0.56	2.36	7	15
2:A:201:TYR:CD1	2:A:202:PHE:CD1	0.56	2.93	11	12
2:A:235:PRO:O	2:A:239:ILE:CD1	0.55	2.53	6	19
1:B:2:DT:C6	2:A:188:GLY:HA3	0.55	2.35	11	6
2:A:213:LEU:HD22	2:A:213:LEU:H	0.55	1.59	17	1
2:A:243:LYS:CD	2:A:244:TYR:CD2	0.55	2.89	20	2
2:A:193:THR:CG2	2:A:198:ILE:CD1	0.55	2.81	9	9
1:B:3:DA:H5''	2:A:225:PHE:CE1	0.55	2.36	1	11
2:A:198:ILE:HD12	2:A:213:LEU:HD11	0.55	1.79	1	1
2:A:198:ILE:CG2	2:A:228:ILE:CD1	0.55	2.83	9	12
2:A:193:THR:O	2:A:213:LEU:CD1	0.55	2.55	10	7
2:A:202:PHE:HB3	2:A:230:PHE:CZ	0.55	2.36	10	20
2:A:230:PHE:CE1	2:A:235:PRO:HB2	0.55	2.37	7	13
2:A:197:LYS:O	2:A:200:GLU:N	0.55	2.39	16	20
2:A:243:LYS:CE	2:A:244:TYR:CD2	0.55	2.90	2	1
2:A:198:ILE:HG13	2:A:211:ILE:HG21	0.55	1.79	3	9
2:A:205:PHE:CE1	2:A:238:LYS:HG3	0.55	2.37	4	4
1:B:3:DA:C5	2:A:185:PHE:CZ	0.55	2.94	10	5
1:B:4:DG:C1'	1:B:5:DG:P	0.55	2.94	19	1
1:B:2:DT:O2	1:B:2:DT:C5'	0.55	2.55	7	1
1:B:4:DG:N7	2:A:212:GLU:OE1	0.55	2.40	20	6

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:198:ILE:HB	2:A:211:ILE:CD1	0.55	2.32	11	6
2:A:245:HIS:CD2	2:A:254:ILE:HB	0.55	2.37	1	15
2:A:245:HIS:CD2	2:A:254:ILE:HG13	0.55	2.37	16	16
2:A:247:VAL:N	2:A:250:SER:O	0.55	2.40	1	17
1:B:3:DA:C4'	2:A:225:PHE:CE1	0.55	2.90	10	5
2:A:184:ILE:HG12	2:A:228:ILE:HB	0.54	1.77	13	20
2:A:190:SER:CB	2:A:191:PRO:HD2	0.54	2.32	15	4
2:A:237:LYS:O	2:A:241:GLU:CG	0.54	2.55	13	12
2:A:213:LEU:HD23	2:A:226:CYS:HB2	0.54	1.78	11	2
2:A:189:LEU:HD23	2:A:226:CYS:N	0.54	2.16	18	4
1:B:4:DG:H1'	1:B:5:DG:P	0.54	2.42	19	1
1:B:3:DA:C5'	2:A:225:PHE:CZ	0.54	2.91	2	7
2:A:238:LYS:O	2:A:241:GLU:CG	0.54	2.56	7	5
2:A:183:LYS:CG	2:A:229:THR:OG1	0.54	2.56	1	6
2:A:199:ARG:O	2:A:203:GLY:HA3	0.54	2.03	6	20
2:A:202:PHE:N	2:A:202:PHE:CD1	0.54	2.76	6	11
2:A:183:LYS:HE3	2:A:227:PHE:CD2	0.54	2.37	6	1
2:A:189:LEU:CB	2:A:252:CYS:SG	0.54	2.96	14	14
2:A:189:LEU:CD2	2:A:225:PHE:C	0.54	2.76	13	18
2:A:234:GLU:O	2:A:237:LYS:N	0.54	2.40	13	9
2:A:189:LEU:O	2:A:190:SER:O	0.54	2.26	20	20
2:A:202:PHE:CD1	2:A:202:PHE:N	0.54	2.76	10	9
2:A:234:GLU:O	2:A:238:LYS:CD	0.54	2.56	13	1
2:A:198:ILE:HD11	2:A:213:LEU:HD21	0.54	1.78	1	1
2:A:200:GLU:O	2:A:204:GLY:N	0.54	2.36	5	14
2:A:184:ILE:HD12	2:A:254:ILE:HG21	0.54	1.80	20	10
2:A:187:GLY:C	2:A:252:CYS:HB3	0.54	2.23	20	17
2:A:213:LEU:N	2:A:213:LEU:CD2	0.53	2.66	10	5
1:B:2:DT:C5	2:A:188:GLY:HA3	0.53	2.38	10	6
2:A:195:GLU:OE1	2:A:213:LEU:HD13	0.53	2.03	1	1
2:A:198:ILE:O	2:A:202:PHE:CD1	0.53	2.61	1	16
2:A:230:PHE:CD2	2:A:235:PRO:CB	0.53	2.91	18	5
2:A:183:LYS:HE2	2:A:227:PHE:CD1	0.53	2.39	10	1
2:A:185:PHE:CE2	2:A:225:PHE:CD2	0.53	2.97	13	15
2:A:187:GLY:O	2:A:252:CYS:HB3	0.53	2.04	5	16
2:A:190:SER:OG	2:A:191:PRO:CD	0.53	2.56	2	7
2:A:255:LYS:O	2:A:256:VAL:C	0.53	2.47	16	20
2:A:184:ILE:O	2:A:184:ILE:CG1	0.53	2.57	18	6
2:A:202:PHE:O	2:A:205:PHE:CB	0.53	2.56	3	20
2:A:230:PHE:CD1	2:A:235:PRO:CB	0.53	2.92	13	13
2:A:201:TYR:C	2:A:201:TYR:CD1	0.53	2.81	4	13

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:B:3:DA:N6	2:A:258:MET:HE3	0.53	2.19	2	1
2:A:181:VAL:CG1	2:A:182:LYS:N	0.53	2.71	9	20
2:A:213:LEU:HD13	2:A:226:CYS:CB	0.53	2.32	9	3
2:A:230:PHE:CE2	2:A:235:PRO:HB2	0.53	2.39	19	6
1:B:2:DT:O4'	1:B:2:DT:P	0.53	2.67	9	1
2:A:187:GLY:O	2:A:252:CYS:CB	0.53	2.57	5	10
2:A:211:ILE:CD1	2:A:228:ILE:HG23	0.53	2.30	4	1
1:B:3:DA:OP1	1:B:3:DA:O4'	0.53	2.27	11	1
2:A:186:VAL:CG1	2:A:252:CYS:HB2	0.53	2.33	5	7
2:A:186:VAL:CG1	2:A:252:CYS:SG	0.53	2.97	13	3
2:A:198:ILE:HG23	2:A:247:VAL:HG11	0.52	1.80	19	2
1:B:3:DA:H4'	2:A:225:PHE:CZ	0.52	2.38	12	7
2:A:189:LEU:HD12	2:A:190:SER:N	0.52	2.19	11	14
2:A:194:PRO:O	2:A:198:ILE:CD1	0.52	2.57	18	6
2:A:188:GLY:O	2:A:252:CYS:CB	0.52	2.57	10	8
2:A:211:ILE:HD12	2:A:228:ILE:HD13	0.52	1.82	4	6
2:A:244:TYR:CE1	2:A:253:GLU:CG	0.52	2.92	3	6
1:B:3:DA:OP2	2:A:185:PHE:CZ	0.52	2.62	11	1
2:A:193:THR:OG1	2:A:250:SER:CB	0.52	2.57	19	3
2:A:230:PHE:CE2	2:A:239:ILE:CD1	0.52	2.93	20	13
2:A:198:ILE:CG2	2:A:202:PHE:CE1	0.52	2.86	3	5
2:A:201:TYR:CD1	2:A:201:TYR:C	0.52	2.82	3	7
2:A:243:LYS:HD3	2:A:244:TYR:CD2	0.52	2.40	20	3
2:A:198:ILE:HD13	2:A:213:LEU:HD21	0.52	1.80	1	1
2:A:213:LEU:HD13	2:A:226:CYS:HB3	0.52	1.81	16	3
1:B:2:DT:C6	2:A:188:GLY:CA	0.52	2.93	14	7
1:B:4:DG:C6	2:A:227:PHE:CD2	0.52	2.98	1	5
2:A:186:VAL:CG1	2:A:254:ILE:HG12	0.52	2.34	9	10
2:A:193:THR:HB	2:A:213:LEU:HD22	0.52	1.81	1	1
1:B:3:DA:C5	2:A:185:PHE:CE2	0.52	2.98	17	5
2:A:189:LEU:CD1	2:A:190:SER:O	0.52	2.58	3	13
2:A:193:THR:HB	2:A:213:LEU:HD21	0.52	1.81	14	3
2:A:200:GLU:HG3	2:A:201:TYR:N	0.51	2.21	16	6
1:B:3:DA:C6	2:A:258:MET:HE3	0.51	2.40	2	1
2:A:189:LEU:HD12	2:A:189:LEU:C	0.51	2.25	20	5
1:B:4:DG:C8	2:A:212:GLU:OE1	0.51	2.63	20	1
1:B:3:DA:O5'	2:A:225:PHE:CE1	0.51	2.63	11	1
1:B:3:DA:C4'	1:B:4:DG:O5'	0.51	2.45	19	1
1:B:4:DG:C1'	1:B:5:DG:O5'	0.51	2.58	19	1
1:B:4:DG:O4'	1:B:5:DG:OP1	0.51	2.29	20	1
1:B:4:DG:O6	2:A:227:PHE:CD2	0.51	2.63	1	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:244:TYR:CE1	2:A:253:GLU:HG3	0.51	2.41	15	9
2:A:239:ILE:HG23	2:A:254:ILE:HG21	0.51	1.80	2	2
2:A:211:ILE:HG23	2:A:228:ILE:HG12	0.51	1.83	10	9
2:A:239:ILE:CG1	2:A:245:HIS:CE1	0.51	2.93	11	18
1:B:3:DA:H5'	2:A:225:PHE:CE1	0.51	2.41	9	2
2:A:198:ILE:HD12	2:A:213:LEU:HD21	0.51	1.82	12	1
2:A:230:PHE:CD1	2:A:235:PRO:HG2	0.51	2.41	7	13
2:A:181:VAL:C	2:A:182:LYS:CD	0.51	2.80	7	2
2:A:225:PHE:CE2	2:A:227:PHE:CE1	0.51	2.99	16	9
2:A:203:GLY:O	2:A:206:GLY:O	0.51	2.28	5	20
2:A:236:VAL:HG12	2:A:240:MET:SD	0.51	2.46	9	5
2:A:211:ILE:HD13	2:A:228:ILE:HD13	0.51	1.82	19	1
2:A:195:GLU:HA	2:A:198:ILE:CD1	0.50	2.35	17	14
2:A:244:TYR:CE1	2:A:253:GLU:HB2	0.50	2.41	13	7
1:B:3:DA:C6	2:A:185:PHE:CD1	0.50	2.99	10	1
2:A:184:ILE:CD1	2:A:239:ILE:HD13	0.50	2.36	11	5
1:B:4:DG:C5'	2:A:225:PHE:CZ	0.50	2.93	9	12
2:A:185:PHE:CE1	2:A:225:PHE:CE2	0.50	2.99	2	2
2:A:239:ILE:HD13	2:A:245:HIS:CE1	0.50	2.40	16	1
2:A:194:PRO:C	2:A:198:ILE:HD11	0.50	2.26	18	4
1:B:3:DA:C8	2:A:185:PHE:CZ	0.50	3.00	10	1
2:A:195:GLU:OE1	2:A:213:LEU:CD1	0.50	2.60	1	1
2:A:238:LYS:O	2:A:241:GLU:N	0.50	2.44	4	4
2:A:245:HIS:O	2:A:251:LYS:HA	0.50	2.07	20	19
2:A:195:GLU:O	2:A:199:ARG:HG3	0.50	2.07	1	16
1:B:2:DT:O2	1:B:2:DT:O5'	0.50	2.29	2	1
2:A:187:GLY:C	2:A:252:CYS:CB	0.50	2.79	18	3
2:A:208:VAL:O	2:A:231:LYS:NZ	0.50	2.45	17	1
2:A:202:PHE:HA	2:A:205:PHE:HB2	0.50	1.82	16	18
2:A:249:LEU:N	2:A:249:LEU:HD23	0.50	2.22	1	4
2:A:185:PHE:CE1	2:A:225:PHE:CD2	0.50	2.99	2	2
2:A:203:GLY:O	2:A:206:GLY:N	0.50	2.45	2	16
1:B:4:DG:H2'	1:B:4:DG:OP1	0.50	2.06	13	5
1:B:4:DG:O6	2:A:183:LYS:HE3	0.50	2.07	6	1
2:A:181:VAL:HG12	2:A:182:LYS:N	0.49	2.22	9	15
1:B:4:DG:H3'	1:B:4:DG:P	0.49	2.46	11	2
2:A:243:LYS:N	2:A:243:LYS:HD3	0.49	2.21	11	2
2:A:183:LYS:HD2	2:A:257:ALA:CB	0.49	2.37	1	1
1:B:4:DG:C6	2:A:227:PHE:CG	0.49	3.01	1	3
2:A:184:ILE:HG22	2:A:236:VAL:HG13	0.49	1.84	10	2
2:A:230:PHE:CE1	2:A:239:ILE:CD1	0.49	2.96	4	6

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:235:PRO:O	2:A:239:ILE:HG13	0.49	2.07	16	1
1:B:4:DG:N7	1:B:5:DG:C6	0.49	2.81	2	1
2:A:193:THR:HB	2:A:213:LEU:CD2	0.49	2.38	1	1
2:A:198:ILE:O	2:A:202:PHE:HB2	0.49	2.07	7	13
2:A:185:PHE:CB	2:A:257:ALA:HA	0.49	2.38	5	19
2:A:189:LEU:HD22	2:A:226:CYS:HB3	0.49	1.85	9	1
2:A:209:GLU:CD	2:A:229:THR:CG2	0.49	2.81	18	1
2:A:245:HIS:O	2:A:251:LYS:CA	0.49	2.61	20	2
2:A:183:LYS:NZ	2:A:259:SER:OG	0.49	2.46	19	1
2:A:186:VAL:O	2:A:225:PHE:HB2	0.49	2.08	7	20
2:A:230:PHE:CZ	2:A:239:ILE:CD1	0.49	2.96	4	19
2:A:230:PHE:CD2	2:A:235:PRO:HG2	0.49	2.42	14	5
2:A:247:VAL:HG12	2:A:248:GLY:H	0.49	1.67	13	3
2:A:212:GLU:N	2:A:212:GLU:CD	0.49	2.66	10	1
1:B:4:DG:O6	2:A:259:SER:OG	0.49	2.30	20	2
2:A:185:PHE:HB3	2:A:255:LYS:O	0.49	2.08	17	19
2:A:189:LEU:CD1	2:A:193:THR:OG1	0.49	2.59	4	11
2:A:205:PHE:HB3	2:A:235:PRO:HB3	0.49	1.84	16	16
2:A:184:ILE:HG13	2:A:254:ILE:CG2	0.49	2.38	17	10
2:A:225:PHE:C	2:A:225:PHE:CD1	0.48	2.85	2	4
1:B:3:DA:C4	2:A:185:PHE:CD2	0.48	3.01	10	1
2:A:243:LYS:O	2:A:253:GLU:CG	0.48	2.61	15	2
2:A:234:GLU:O	2:A:238:LYS:HG2	0.48	2.09	18	6
2:A:184:ILE:CD1	2:A:239:ILE:HD12	0.48	2.39	16	1
2:A:189:LEU:CD2	2:A:226:CYS:SG	0.48	2.98	13	1
2:A:239:ILE:HG23	2:A:254:ILE:CG2	0.48	2.37	2	13
2:A:182:LYS:HG2	2:A:233:GLU:CB	0.48	2.38	18	6
2:A:184:ILE:CD1	2:A:228:ILE:HB	0.48	2.38	16	1
1:B:3:DA:N1	2:A:185:PHE:CG	0.48	2.82	19	1
2:A:244:TYR:CD1	2:A:253:GLU:HG3	0.48	2.44	7	9
2:A:198:ILE:HG22	2:A:202:PHE:CZ	0.48	2.44	8	3
2:A:243:LYS:HE3	2:A:244:TYR:CG	0.48	2.43	13	1
2:A:230:PHE:CE1	2:A:235:PRO:HB3	0.48	2.44	11	10
2:A:205:PHE:CZ	2:A:239:ILE:HG12	0.48	2.44	16	1
2:A:194:PRO:HG2	2:A:197:LYS:HD2	0.48	1.84	1	9
2:A:185:PHE:CD2	2:A:225:PHE:CE2	0.48	3.02	9	3
2:A:192:ASP:N	2:A:192:ASP:OD1	0.48	2.46	20	1
2:A:183:LYS:HG2	2:A:229:THR:OG1	0.48	2.09	10	5
2:A:184:ILE:CD1	2:A:239:ILE:HG21	0.48	2.38	10	11
2:A:193:THR:O	2:A:213:LEU:HD12	0.48	2.09	10	1
1:B:2:DT:O4'	1:B:2:DT:OP2	0.48	2.32	12	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:B:4:DG:N1	1:B:5:DG:N7	0.48	2.62	19	1
2:A:191:PRO:O	2:A:192:ASP:HB2	0.47	2.09	13	6
1:B:4:DG:N7	1:B:5:DG:O6	0.47	2.47	2	1
1:B:3:DA:H4'	1:B:4:DG:C5'	0.47	2.40	1	9
1:B:3:DA:H5''	2:A:225:PHE:CZ	0.47	2.44	2	1
2:A:242:LYS:N	2:A:242:LYS:HD2	0.47	2.24	3	1
2:A:182:LYS:N	2:A:182:LYS:HD2	0.47	2.25	5	8
2:A:213:LEU:CD1	2:A:226:CYS:CB	0.47	2.92	9	2
2:A:243:LYS:HE2	2:A:244:TYR:CE1	0.47	2.45	19	1
2:A:197:LYS:NZ	2:A:200:GLU:OE1	0.47	2.43	20	1
2:A:182:LYS:CD	2:A:233:GLU:HB3	0.47	2.39	14	3
2:A:234:GLU:O	2:A:237:LYS:HG2	0.47	2.09	5	11
2:A:186:VAL:HG22	2:A:254:ILE:HD13	0.47	1.87	17	4
2:A:190:SER:OG	2:A:191:PRO:HD2	0.47	2.10	3	4
1:B:4:DG:C5	1:B:5:DG:C5	0.47	3.02	19	1
2:A:209:GLU:HB2	2:A:231:LYS:N	0.47	2.24	17	15
2:A:190:SER:HB3	2:A:191:PRO:CD	0.47	2.39	19	5
1:B:4:DG:O6	2:A:183:LYS:HE2	0.47	2.10	20	14
2:A:187:GLY:O	2:A:225:PHE:HB2	0.47	2.10	17	1
2:A:230:PHE:CG	2:A:235:PRO:HB2	0.47	2.45	11	10
2:A:193:THR:OG1	2:A:250:SER:OG	0.47	2.33	12	4
2:A:243:LYS:O	2:A:253:GLU:HG3	0.47	2.10	15	3
2:A:190:SER:OG	2:A:191:PRO:HD3	0.47	2.10	1	6
2:A:191:PRO:O	2:A:192:ASP:OD2	0.47	2.33	2	1
2:A:234:GLU:O	2:A:237:LYS:HB2	0.47	2.10	16	5
2:A:189:LEU:HD23	2:A:225:PHE:O	0.47	2.08	12	3
2:A:241:GLU:N	2:A:241:GLU:OE1	0.47	2.48	2	1
2:A:194:PRO:CG	2:A:197:LYS:HD2	0.46	2.41	18	4
2:A:184:ILE:CB	2:A:239:ILE:HG21	0.46	2.39	17	5
1:B:4:DG:OP1	1:B:4:DG:C2'	0.46	2.62	13	3
2:A:246:ASN:N	2:A:246:ASN:ND2	0.46	2.62	18	2
2:A:183:LYS:NZ	2:A:259:SER:HB3	0.46	2.25	17	1
2:A:208:VAL:O	2:A:231:LYS:CE	0.46	2.64	17	1
2:A:243:LYS:HD2	2:A:244:TYR:CG	0.46	2.45	17	1
1:B:2:DT:H4'	1:B:3:DA:OP2	0.46	2.09	10	9
2:A:195:GLU:CA	2:A:198:ILE:HG13	0.46	2.40	5	4
2:A:230:PHE:CD1	2:A:236:VAL:HG22	0.46	2.45	16	2
2:A:234:GLU:O	2:A:238:LYS:CG	0.46	2.64	14	5
1:B:3:DA:N7	2:A:185:PHE:CZ	0.46	2.84	10	1
2:A:201:TYR:CE2	2:A:246:ASN:O	0.46	2.69	4	9
1:B:3:DA:N1	2:A:258:MET:CE	0.46	2.78	2	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:207:GLU:HG3	2:A:232:GLU:CG	0.46	2.41	4	1
2:A:243:LYS:CD	2:A:244:TYR:CE2	0.46	2.98	10	1
2:A:195:GLU:O	2:A:199:ARG:N	0.46	2.48	12	1
2:A:184:ILE:CG1	2:A:254:ILE:HG21	0.46	2.41	18	5
2:A:242:LYS:HD3	2:A:245:HIS:CE1	0.46	2.44	10	1
2:A:238:LYS:O	2:A:241:GLU:HG3	0.46	2.11	15	7
2:A:194:PRO:HG2	2:A:197:LYS:CG	0.46	2.41	14	3
2:A:234:GLU:HG2	2:A:235:PRO:N	0.46	2.26	11	2
2:A:243:LYS:HD2	2:A:244:TYR:CE2	0.46	2.46	10	1
1:B:2:DT:C7	2:A:188:GLY:HA3	0.46	2.41	10	7
2:A:230:PHE:CE2	2:A:235:PRO:HB3	0.46	2.46	18	3
1:B:4:DG:C8	1:B:5:DG:C8	0.46	3.02	10	1
2:A:195:GLU:C	2:A:198:ILE:HG12	0.46	2.31	18	15
2:A:184:ILE:O	2:A:184:ILE:HG13	0.46	2.11	12	4
2:A:193:THR:HB	2:A:213:LEU:CD1	0.46	2.41	3	2
2:A:236:VAL:O	2:A:240:MET:SD	0.46	2.74	12	3
2:A:241:GLU:OE1	2:A:241:GLU:CA	0.46	2.63	2	1
2:A:182:LYS:HG2	2:A:233:GLU:CG	0.46	2.41	17	1
2:A:186:VAL:HB	2:A:226:CYS:O	0.46	2.11	5	11
2:A:230:PHE:O	2:A:232:GLU:O	0.46	2.33	19	5
2:A:183:LYS:HG3	2:A:229:THR:OG1	0.46	2.11	17	3
1:B:2:DT:C6	2:A:187:GLY:C	0.45	2.89	2	1
2:A:242:LYS:O	2:A:243:LYS:C	0.45	2.54	11	11
2:A:184:ILE:HD12	2:A:239:ILE:HD12	0.45	1.88	16	1
2:A:188:GLY:O	2:A:252:CYS:SG	0.45	2.74	20	1
2:A:233:GLU:O	2:A:237:LYS:HG3	0.45	2.12	12	7
2:A:213:LEU:CD1	2:A:226:CYS:HB2	0.45	2.39	15	1
2:A:183:LYS:HD2	2:A:257:ALA:HB3	0.45	1.88	1	1
2:A:194:PRO:O	2:A:198:ILE:HG13	0.45	2.11	1	3
2:A:183:LYS:CE	2:A:259:SER:HB3	0.45	2.42	1	1
1:B:3:DA:C5'	2:A:225:PHE:CE2	0.45	2.99	2	1
2:A:209:GLU:OE1	2:A:209:GLU:O	0.45	2.33	3	1
2:A:241:GLU:HG3	2:A:242:LYS:CD	0.45	2.42	4	2
1:B:2:DT:H72	2:A:188:GLY:HA3	0.45	1.89	6	1
2:A:235:PRO:O	2:A:239:ILE:HB	0.45	2.11	19	15
2:A:194:PRO:O	2:A:196:GLU:N	0.45	2.49	5	3
2:A:243:LYS:HG2	2:A:244:TYR:N	0.45	2.26	12	4
1:B:3:DA:H1'	1:B:4:DG:OP2	0.45	2.12	9	9
2:A:184:ILE:CD1	2:A:254:ILE:HG21	0.45	2.42	18	4
2:A:193:THR:HG22	2:A:198:ILE:HD12	0.45	1.88	15	4
2:A:182:LYS:HE2	2:A:233:GLU:CB	0.45	2.42	12	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:245:HIS:C	2:A:246:ASN:ND2	0.45	2.70	20	1
1:B:3:DA:C1'	1:B:4:DG:OP2	0.45	2.65	9	4
2:A:189:LEU:HB3	2:A:252:CYS:SG	0.45	2.52	3	5
2:A:230:PHE:CD2	2:A:236:VAL:HG22	0.45	2.47	5	2
2:A:193:THR:CG2	2:A:198:ILE:HD12	0.45	2.42	9	2
2:A:209:GLU:O	2:A:209:GLU:OE1	0.45	2.35	14	1
2:A:189:LEU:HG	2:A:224:GLY:O	0.45	2.12	19	1
2:A:191:PRO:O	2:A:192:ASP:OD1	0.45	2.34	3	2
2:A:182:LYS:HD2	2:A:233:GLU:CB	0.45	2.41	14	3
2:A:205:PHE:CE1	2:A:238:LYS:HB2	0.45	2.47	13	1
2:A:188:GLY:HA2	2:A:224:GLY:O	0.45	2.12	18	2
2:A:195:GLU:O	2:A:198:ILE:HG12	0.44	2.12	2	13
2:A:195:GLU:CA	2:A:198:ILE:CG1	0.44	2.93	18	7
2:A:198:ILE:CB	2:A:211:ILE:HG21	0.44	2.42	18	4
2:A:212:GLU:C	2:A:213:LEU:HD23	0.44	2.33	10	1
1:B:3:DA:N6	2:A:255:LYS:NZ	0.44	2.65	20	2
2:A:234:GLU:O	2:A:238:LYS:CE	0.44	2.65	6	1
2:A:184:ILE:O	2:A:184:ILE:HG12	0.44	2.13	16	4
2:A:238:LYS:O	2:A:242:LYS:CD	0.44	2.65	12	2
1:B:4:DG:H2''	1:B:5:DG:H2'	0.44	1.88	20	3
2:A:234:GLU:CD	2:A:234:GLU:N	0.44	2.71	5	2
2:A:201:TYR:CD2	2:A:246:ASN:O	0.44	2.71	12	1
2:A:237:LYS:O	2:A:241:GLU:HG2	0.44	2.13	19	2
1:B:4:DG:H1'	1:B:5:DG:OP1	0.44	2.13	14	2
2:A:207:GLU:O	2:A:231:LYS:HG3	0.44	2.12	16	11
2:A:256:VAL:O	2:A:256:VAL:HG13	0.44	2.13	8	5
1:B:4:DG:C2'	1:B:5:DG:H2'	0.44	2.42	10	1
2:A:198:ILE:CD1	2:A:213:LEU:HD11	0.44	2.42	5	2
2:A:245:HIS:NE2	2:A:254:ILE:HD12	0.44	2.27	15	1
2:A:211:ILE:HG23	2:A:228:ILE:CD1	0.44	2.43	6	7
2:A:230:PHE:HB2	2:A:236:VAL:CG2	0.44	2.43	6	11
2:A:184:ILE:CG1	2:A:228:ILE:HB	0.44	2.43	19	2
2:A:185:PHE:HE2	2:A:225:PHE:CE2	0.44	2.29	3	8
2:A:202:PHE:HB2	2:A:208:VAL:HG21	0.44	1.90	4	2
2:A:213:LEU:CD2	2:A:226:CYS:HB3	0.43	2.36	10	2
2:A:209:GLU:OE1	2:A:209:GLU:HA	0.43	2.13	7	1
1:B:3:DA:H4'	1:B:4:DG:H5''	0.43	1.90	12	3
1:B:4:DG:N1	2:A:227:PHE:CE2	0.43	2.86	17	5
2:A:182:LYS:CE	2:A:233:GLU:HB3	0.43	2.43	1	2
2:A:188:GLY:O	2:A:252:CYS:HB3	0.43	2.13	18	10
2:A:195:GLU:HA	2:A:198:ILE:HD12	0.43	1.90	5	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:184:ILE:HD12	2:A:239:ILE:CG2	0.43	2.41	10	2
1:B:4:DG:H2''	1:B:5:DG:C2'	0.43	2.43	10	1
2:A:233:GLU:OE1	2:A:234:GLU:OE2	0.43	2.36	14	1
2:A:209:GLU:CD	2:A:229:THR:HG21	0.43	2.33	18	1
1:B:2:DT:O4	2:A:253:GLU:HB2	0.43	2.13	12	3
2:A:184:ILE:HD13	2:A:230:PHE:CE2	0.43	2.42	20	7
1:B:4:DG:C1'	1:B:5:DG:OP1	0.43	2.66	10	1
2:A:237:LYS:O	2:A:241:GLU:HG3	0.43	2.14	10	1
2:A:242:LYS:N	2:A:242:LYS:HD3	0.43	2.28	13	1
2:A:247:VAL:O	2:A:250:SER:N	0.43	2.51	15	4
2:A:183:LYS:CE	2:A:227:PHE:CD2	0.43	3.01	5	1
2:A:230:PHE:HD2	2:A:236:VAL:HG22	0.43	1.73	5	1
2:A:193:THR:O	2:A:213:LEU:HG	0.43	2.13	9	1
2:A:182:LYS:HG3	2:A:230:PHE:O	0.43	2.14	10	1
2:A:242:LYS:N	2:A:242:LYS:CD	0.43	2.81	11	1
2:A:189:LEU:CD2	2:A:226:CYS:HB3	0.43	2.44	18	2
2:A:194:PRO:CG	2:A:197:LYS:CD	0.43	2.96	18	1
2:A:241:GLU:CA	2:A:241:GLU:OE1	0.43	2.66	19	1
1:B:2:DT:H71	2:A:188:GLY:HA3	0.43	1.89	4	2
2:A:235:PRO:HA	2:A:238:LYS:CG	0.43	2.43	19	1
2:A:199:ARG:HG2	2:A:211:ILE:CD1	0.43	2.43	1	1
2:A:199:ARG:O	2:A:203:GLY:CA	0.43	2.67	4	9
1:B:4:DG:OP1	1:B:4:DG:H3'	0.43	2.13	4	5
1:B:3:DA:C4'	1:B:4:DG:OP1	0.43	2.66	6	2
1:B:4:DG:O6	2:A:183:LYS:CE	0.43	2.66	6	1
1:B:3:DA:H4'	1:B:4:DG:OP2	0.43	2.14	1	2
2:A:210:SER:OG	2:A:212:GLU:OE2	0.43	2.35	1	1
2:A:193:THR:CG2	2:A:250:SER:OG	0.43	2.66	2	1
2:A:237:LYS:O	2:A:241:GLU:CD	0.43	2.57	19	1
2:A:245:HIS:CD2	2:A:254:ILE:CB	0.43	3.02	9	4
1:B:2:DT:C6	2:A:188:GLY:N	0.43	2.86	2	3
2:A:185:PHE:HE1	2:A:225:PHE:CE2	0.43	2.31	14	2
2:A:234:GLU:HG2	2:A:235:PRO:CD	0.43	2.43	8	2
1:B:2:DT:H5'	1:B:3:DA:OP2	0.43	2.14	9	1
2:A:234:GLU:OE1	2:A:237:LYS:CE	0.43	2.66	9	1
2:A:234:GLU:OE1	2:A:237:LYS:HE2	0.43	2.13	9	1
1:B:3:DA:C6	2:A:185:PHE:CE1	0.43	3.07	19	1
1:B:4:DG:H3'	1:B:4:DG:OP1	0.42	2.14	3	1
2:A:181:VAL:CA	2:A:182:LYS:HE3	0.42	2.44	3	1
2:A:182:LYS:CD	2:A:182:LYS:N	0.42	2.82	16	1
1:B:4:DG:C2	1:B:5:DG:N7	0.42	2.86	19	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:A:191:PRO:O	2:A:192:ASP:HB3	0.42	2.14	8	3
2:A:184:ILE:HD13	2:A:230:PHE:CE1	0.42	2.42	14	2
2:A:189:LEU:CA	2:A:252:CYS:SG	0.42	3.07	17	1
2:A:209:GLU:OE1	2:A:229:THR:CG2	0.42	2.67	18	1
2:A:241:GLU:OE1	2:A:241:GLU:N	0.42	2.52	19	1
1:B:4:DG:O6	2:A:259:SER:HB3	0.42	2.15	14	2
2:A:185:PHE:O	2:A:254:ILE:HA	0.42	2.14	19	4
2:A:234:GLU:O	2:A:238:LYS:HD2	0.42	2.14	13	1
1:B:3:DA:C6	2:A:258:MET:HE2	0.42	2.49	18	2
2:A:230:PHE:CZ	2:A:235:PRO:CB	0.42	3.02	11	1
2:A:187:GLY:O	2:A:252:CYS:SG	0.42	2.78	18	1
2:A:244:TYR:CD1	2:A:253:GLU:CB	0.42	3.02	3	1
2:A:208:VAL:HG22	2:A:230:PHE:CE2	0.42	2.50	3	1
2:A:243:LYS:CA	2:A:243:LYS:CE	0.42	2.96	7	1
2:A:210:SER:C	2:A:212:GLU:OE2	0.42	2.57	10	1
2:A:181:VAL:C	2:A:182:LYS:HD3	0.42	2.34	16	2
2:A:190:SER:OG	2:A:249:LEU:HD11	0.42	2.14	12	1
2:A:232:GLU:OE1	2:A:234:GLU:CD	0.42	2.57	17	1
2:A:232:GLU:OE1	2:A:234:GLU:OE1	0.42	2.37	17	1
1:B:2:DT:P	1:B:2:DT:C2	0.42	3.13	2	1
2:A:185:PHE:HB2	2:A:227:PHE:CE2	0.42	2.50	2	3
2:A:193:THR:OG1	2:A:250:SER:HB3	0.42	2.14	10	1
1:B:4:DG:N1	2:A:227:PHE:CE1	0.42	2.88	15	1
1:B:3:DA:C4'	1:B:4:DG:OP2	0.41	2.68	16	3
2:A:205:PHE:CD2	2:A:239:ILE:CD1	0.41	2.99	8	1
2:A:246:ASN:ND2	2:A:246:ASN:N	0.41	2.67	8	2
1:B:4:DG:H4'	1:B:5:DG:OP2	0.41	2.15	10	1
2:A:198:ILE:HA	2:A:202:PHE:CD1	0.41	2.50	16	1
2:A:243:LYS:HE2	2:A:244:TYR:CZ	0.41	2.49	20	1
1:B:3:DA:C5'	1:B:4:DG:OP1	0.41	2.67	6	1
2:A:196:GLU:O	2:A:200:GLU:HG2	0.41	2.15	17	1
2:A:244:TYR:CE1	2:A:253:GLU:CD	0.41	2.93	3	1
2:A:208:VAL:HG22	2:A:230:PHE:CE1	0.41	2.50	11	2
2:A:183:LYS:CE	2:A:227:PHE:CD1	0.41	3.03	10	1
2:A:234:GLU:O	2:A:238:LYS:HD3	0.41	2.15	13	1
2:A:207:GLU:HB3	2:A:231:LYS:CE	0.41	2.45	14	1
2:A:238:LYS:O	2:A:242:LYS:HG2	0.41	2.16	5	1
2:A:234:GLU:CB	2:A:235:PRO:HD3	0.41	2.45	7	1
2:A:243:LYS:CD	2:A:243:LYS:C	0.41	2.88	7	1
2:A:192:ASP:O	2:A:192:ASP:CG	0.41	2.58	13	1
2:A:196:GLU:O	2:A:199:ARG:HB2	0.41	2.15	10	6

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:B:3:DA:C5	2:A:185:PHE:CE1	0.41	3.08	10	1
1:B:4:DG:O3'	1:B:5:DG:H3'	0.41	2.15	10	1
2:A:194:PRO:C	2:A:196:GLU:N	0.41	2.74	17	2
2:A:249:LEU:HD23	2:A:249:LEU:N	0.41	2.31	13	1
2:A:195:GLU:HA	2:A:198:ILE:HG12	0.41	1.92	20	1
2:A:195:GLU:N	2:A:213:LEU:HD11	0.41	2.30	20	1
2:A:181:VAL:O	2:A:182:LYS:HD3	0.41	2.16	14	1
2:A:243:LYS:C	2:A:243:LYS:HD3	0.41	2.36	7	1
2:A:191:PRO:O	2:A:192:ASP:CG	0.41	2.59	11	2
2:A:239:ILE:HG21	2:A:254:ILE:CG2	0.41	2.45	11	1
2:A:184:ILE:CG1	2:A:254:ILE:CG2	0.41	2.98	17	1
2:A:183:LYS:NZ	2:A:259:SER:CB	0.41	2.84	19	1
1:B:4:DG:N7	1:B:5:DG:C5	0.41	2.89	3	1
2:A:256:VAL:O	2:A:256:VAL:CG1	0.41	2.69	16	1
1:B:3:DA:H5'	2:A:225:PHE:CE2	0.40	2.51	2	1
2:A:243:LYS:HE2	2:A:244:TYR:CB	0.40	2.45	2	1
2:A:186:VAL:HB	2:A:226:CYS:SG	0.40	2.56	6	1
2:A:237:LYS:HG2	2:A:238:LYS:CE	0.40	2.45	6	1
2:A:182:LYS:HG2	2:A:233:GLU:HB3	0.40	1.94	8	1
2:A:184:ILE:HB	2:A:254:ILE:CG2	0.40	2.46	20	1
1:B:2:DT:H2''	1:B:3:DA:OP2	0.40	2.15	11	1
2:A:182:LYS:HD2	2:A:233:GLU:CG	0.40	2.46	19	1
2:A:209:GLU:OE1	2:A:229:THR:HG22	0.40	2.17	5	1
2:A:200:GLU:CD	2:A:200:GLU:C	0.40	2.80	6	1
2:A:182:LYS:HE2	2:A:233:GLU:CG	0.40	2.47	19	1
2:A:183:LYS:CE	2:A:227:PHE:HB3	0.40	2.47	5	1
1:B:3:DA:O5'	2:A:225:PHE:CZ	0.40	2.74	11	1
2:A:182:LYS:HG3	2:A:232:GLU:O	0.40	2.16	12	1
1:B:4:DG:OP2	1:B:4:DG:N2	0.40	2.54	19	1
2:A:201:TYR:CD1	2:A:202:PHE:CE1	0.40	3.10	19	1

6.3 Torsion angles [i](#)

6.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the backbone conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	A	67/79 (85%)	55±1 (82±2%)	6±2 (9±2%)	6±1 (8±2%)	2	13
All	All	1340/1580 (85%)	1103 (82%)	124 (9%)	113 (8%)	2	13

All 9 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
2	A	190	SER	20
2	A	192	ASP	20
2	A	248	GLY	20
2	A	256	VAL	20
2	A	224	GLY	17
2	A	243	LYS	7
2	A	188	GLY	5
2	A	195	GLU	3
2	A	187	GLY	1

6.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the sidechain conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	A	61/71 (86%)	34±2 (55±3%)	27±2 (45±3%)	0	2
All	All	1220/1420 (86%)	675 (55%)	545 (45%)	0	2

All 41 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
2	A	183	LYS	20
2	A	185	PHE	20
2	A	190	SER	20
2	A	198	ILE	20
2	A	201	TYR	20
2	A	202	PHE	20
2	A	205	PHE	20
2	A	211	ILE	20
2	A	231	LYS	20

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Mol	Chain	Res	Type	Models (Total)
2	A	238	LYS	20
2	A	249	LEU	20
2	A	251	LYS	20
2	A	252	CYS	20
2	A	255	LYS	20
2	A	212	GLU	19
2	A	234	GLU	19
2	A	258	MET	19
2	A	182	LYS	17
2	A	184	ILE	16
2	A	241	GLU	16
2	A	195	GLU	15
2	A	233	GLU	14
2	A	246	ASN	14
2	A	213	LEU	14
2	A	189	LEU	13
2	A	225	PHE	12
2	A	243	LYS	12
2	A	197	LYS	11
2	A	259	SER	11
2	A	242	LYS	9
2	A	192	ASP	8
2	A	250	SER	7
2	A	210	SER	3
2	A	232	GLU	3
2	A	200	GLU	3
2	A	207	GLU	2
2	A	226	CYS	2
2	A	237	LYS	2
2	A	199	ARG	2
2	A	239	ILE	1
2	A	196	GLU	1

6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

6.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.6 Ligand geometry [i](#)

There are no ligands in this entry.

6.7 Other polymers [i](#)

There are no such molecules in this entry.

6.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

7 Chemical shift validation

No chemical shift data were provided