Full wwPDB X-ray Structure Validation Report ⓘ

Aug 21, 2020 – 05:05 AM BST

PDB ID	:	3WGI
Title	:	Crystal structure of RSP in complex with beta-NAD+ and operator DNA
Authors	:	Zheng, Y.; Ko, T.-P.; Guo, R.-T.
Deposited on	:	2013-08-05
Resolution	:	3.25 Å(reported)

This is a Full wwPDB X-ray 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/XrayValidationReportHelp
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:

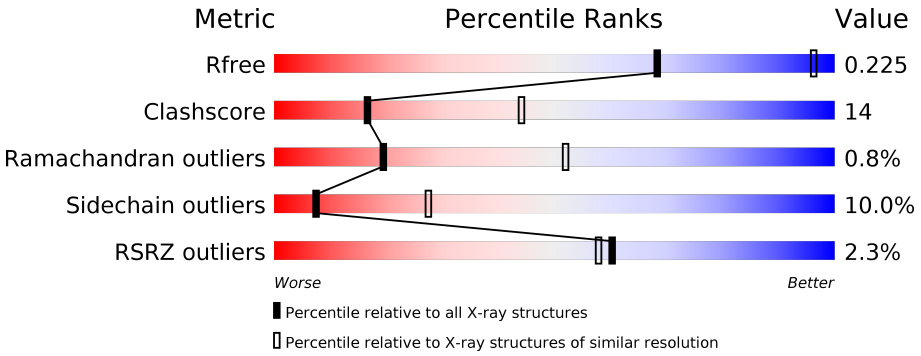
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.13.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.13.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.25 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 (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1191 (3.30-3.22)
Clashscore	141614	1251 (3.30-3.22)
Ramachandran outliers	138981	1229 (3.30-3.22)
Sidechain outliers	138945	1228 (3.30-3.22)
RSRZ outliers	127900	1154 (3.30-3.22)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for >=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 <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	224	2% 67% 26%
1	B	224	3% 69% 24%
1	C	224	2% 72% 21%
1	D	224	% 60% 32%
2	E	24	29% 54% 17%
2	F	24	4% 21% 54% 25%

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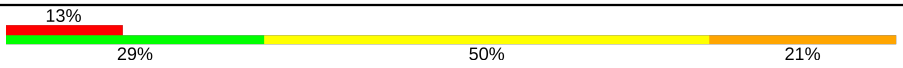
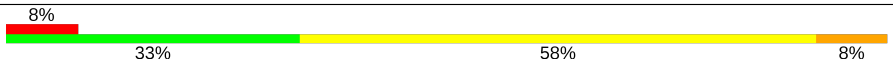
Mol	Chain	Length	Quality of chain
2	G	24	
2	H	24	

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 9092 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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.

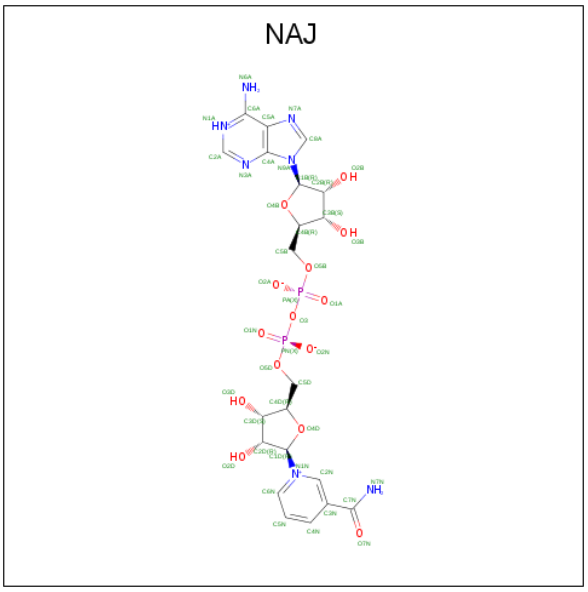
- Molecule 1 is a protein called Redox-sensing transcriptional repressor rex.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	217	Total	C	N	O	S	0	0	0
			1740	1111	299	326	4			
1	B	217	Total	C	N	O	S	0	0	0
			1740	1111	299	326	4			
1	C	217	Total	C	N	O	S	0	0	0
			1740	1111	299	326	4			
1	D	217	Total	C	N	O	S	0	0	0
			1740	1111	299	326	4			

- Molecule 2 is a DNA chain called DNA (5'-D(*TP*AP*GP*AP*TP*TP*GP*TP*TP*AP*AP*TP*CP*GP*AP*TP*TP*AP*AP*CP*AP*AP*TP*C)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	E	24	Total	C	N	O	P	0	0	0
			489	237	87	142	23			
2	F	24	Total	C	N	O	P	0	0	0
			489	237	87	142	23			
2	G	24	Total	C	N	O	P	0	0	0
			489	237	87	142	23			
2	H	24	Total	C	N	O	P	0	0	0
			489	237	87	142	23			

- Molecule 3 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (ACIDIC FORM) (three-letter code: NAJ) (formula: $C_{21}H_{27}N_7O_{14}P_2$).



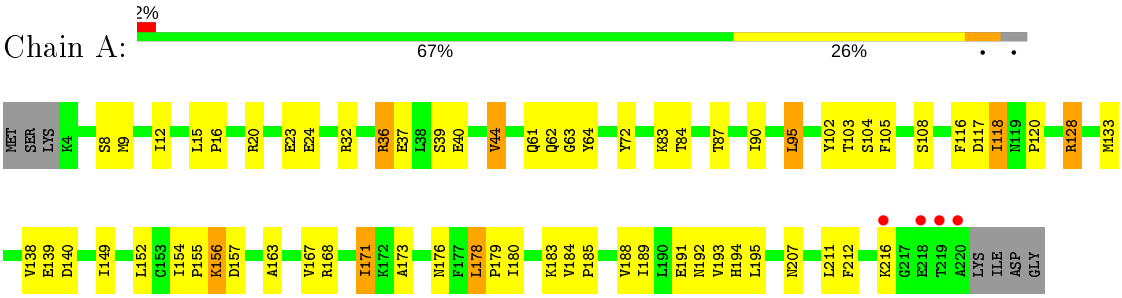
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
3	B	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
3	C	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
3	D	1	Total	C	N	O	P	0	0
			44	21	7	14	2		

3 Residue-property plots (i)

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 electron 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 dot above a residue indicates a poor fit to the electron density (RSRZ > 2). 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.

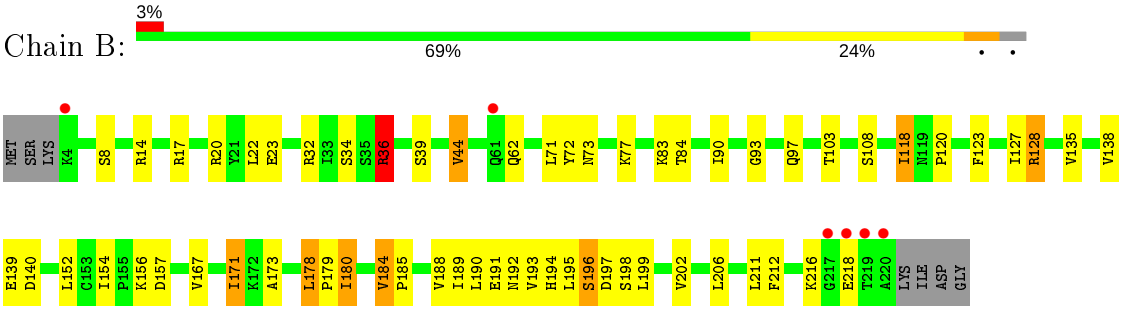
- Molecule 1: Redox-sensing transcriptional repressor rex

Chain A:



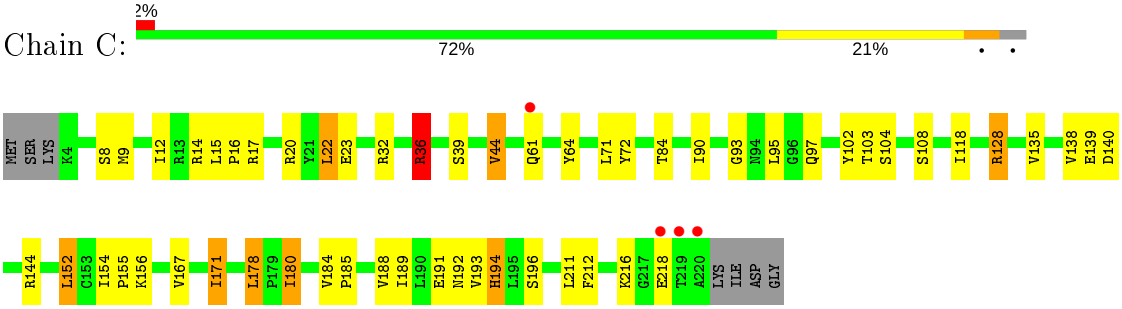
- Molecule 1: Redox-sensing transcriptional repressor rex

Chain B:



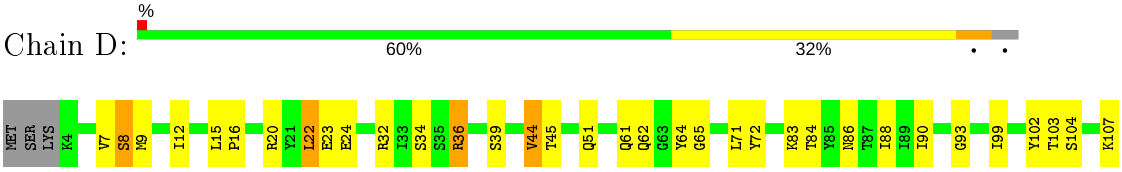
- Molecule 1: Redox-sensing transcriptional repressor rex

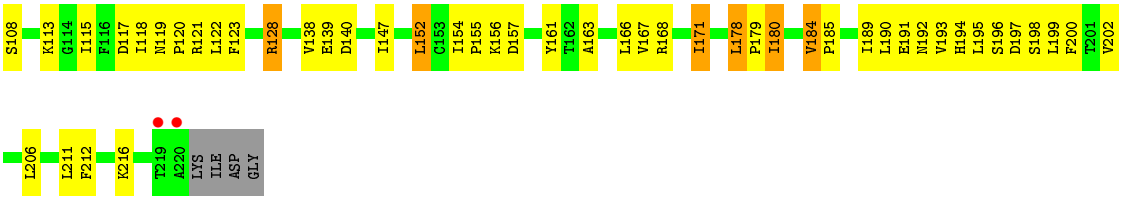
Chain C:



- Molecule 1: Redox-sensing transcriptional repressor rex

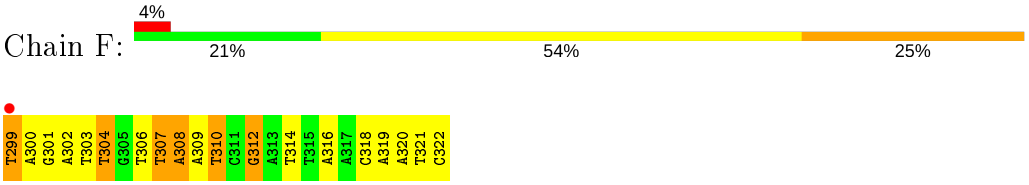
Chain D:



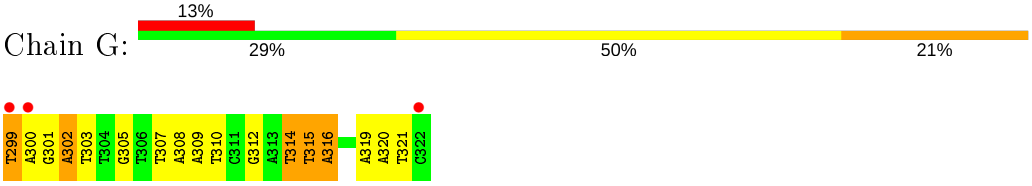


• Molecule 2: DNA (5'-D(*TP*AP*GP*AP*TP*TP*GP*TP*TP*AP*AP*TP*CP*GP*AP*TP *TP*AP*AP*CP*AP*AP*TP*C)-3')

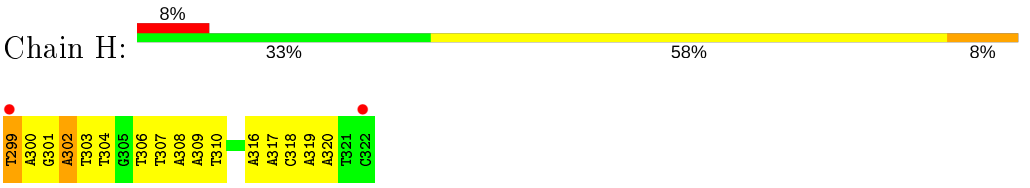
• Molecule 2: DNA (5'-D(*TP*AP*GP*AP*TP*TP*GP*TP*TP*AP*AP*TP*CP*GP*AP*TP *TP*AP*AP*CP*AP*AP*TP*C)-3')



• Molecule 2: DNA (5'-D(*TP*AP*GP*AP*TP*TP*GP*TP*TP*AP*AP*TP*CP*GP*AP*TP *TP*AP*AP*CP*AP*AP*TP*C)-3')



• Molecule 2: DNA (5'-D(*TP*AP*GP*AP*TP*TP*GP*TP*TP*AP*AP*TP*CP*GP*AP*TP *TP*AP*AP*CP*AP*AP*TP*C)-3')



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	95.99Å 116.44Å 132.89Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	25.00 – 3.25 25.02 – 3.25	Depositor EDS
% Data completeness (in resolution range)	100.0 (25.00-3.25) 94.6 (25.02-3.25)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.03 (at 3.23Å)	Xtriage
Refinement program	CNS, REFMAC 5.5.0109	Depositor
R, R_{free}	0.193 , 0.228 0.192 , 0.225	Depositor DCC
R_{free} test set	1105 reflections (4.88%)	wwPDB-VP
Wilson B-factor (Å^2)	84.7	Xtriage
Anisotropy	0.459	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 55.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	9092	wwPDB-VP
Average B, all atoms (Å^2)	104.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.66% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAJ

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	A	0.77	0/1767	0.76	1/2382 (0.0%)
1	B	0.74	1/1767 (0.1%)	0.75	0/2382
1	C	0.72	0/1767	0.73	0/2382
1	D	0.68	0/1767	0.71	0/2382
2	E	1.00	2/548 (0.4%)	1.68	10/844 (1.2%)
2	F	0.90	0/548	1.66	14/844 (1.7%)
2	G	0.85	0/548	1.63	12/844 (1.4%)
2	H	0.85	0/548	1.58	7/844 (0.8%)
All	All	0.77	3/9260 (0.0%)	1.05	44/12904 (0.3%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	196	SER	CB-OG	6.20	1.50	1.42
2	E	314	DT	N1-C2	5.29	1.42	1.38
2	E	300	DA	C3'-O3'	-5.09	1.37	1.44

All (44) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	G	299	DT	O4'-C1'-N1	7.94	113.56	108.00
2	H	299	DT	O4'-C1'-N1	6.76	112.73	108.00
2	G	302	DA	P-O3'-C3'	6.63	127.66	119.70
2	F	299	DT	O4'-C1'-N1	6.53	112.57	108.00
2	E	299	DT	O4'-C1'-N1	6.46	112.52	108.00
2	F	321	DT	O4'-C1'-N1	6.33	112.43	108.00
2	E	314	DT	N3-C2-O2	-6.31	118.51	122.30
2	F	322	DC	C1'-O4'-C4'	-6.21	103.89	110.10
2	G	315	DT	C5-C4-O4	-6.18	120.57	124.90
2	E	305	DG	O4'-C1'-N9	-6.18	103.67	108.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	H	302	DA	P-O3'-C3'	6.13	127.06	119.70
2	F	314	DT	N3-C2-O2	-6.06	118.67	122.30
2	G	315	DT	N3-C4-O4	6.04	123.52	119.90
2	F	304	DT	N3-C4-O4	5.63	123.28	119.90
2	F	321	DT	C5-C4-O4	-5.59	120.99	124.90
2	G	303	DT	C3'-C2'-C1'	-5.58	95.81	102.50
2	E	308	DA	P-O3'-C3'	5.56	126.37	119.70
2	H	318	DC	C3'-C2'-C1'	-5.51	95.88	102.50
2	H	303	DT	C4-C5-C7	5.49	122.30	119.00
2	F	321	DT	N3-C4-O4	5.49	123.19	119.90
2	E	319	DA	P-O3'-C3'	5.46	126.25	119.70
2	E	315	DT	C5-C4-O4	-5.43	121.10	124.90
2	F	310	DT	C4-C5-C7	5.33	122.19	119.00
2	F	318	DC	C3'-C2'-C1'	-5.30	96.14	102.50
2	F	303	DT	O4'-C1'-N1	5.29	111.70	108.00
2	E	299	DT	N3-C4-O4	5.26	123.06	119.90
2	F	308	DA	P-O3'-C3'	5.26	126.01	119.70
1	A	95	LEU	CB-CG-CD2	-5.25	102.08	111.00
2	G	312	DG	N1-C6-O6	-5.23	116.76	119.90
2	F	307	DT	C3'-C2'-C1'	-5.22	96.23	102.50
2	F	312	DG	O4'-C1'-N9	5.20	111.64	108.00
2	H	317	DA	O4'-C1'-N9	5.16	111.61	108.00
2	E	315	DT	N3-C4-O4	5.13	122.98	119.90
2	E	317	DA	O4'-C1'-N9	5.13	111.59	108.00
2	G	321	DT	C4-C5-C7	5.11	122.06	119.00
2	G	321	DT	O4'-C1'-C2'	-5.10	101.82	105.90
2	G	312	DG	N9-C4-C5	5.10	107.44	105.40
2	E	314	DT	N1-C2-O2	5.09	127.17	123.10
2	G	305	DG	O4'-C1'-N9	-5.08	104.44	108.00
2	G	314	DT	C4-C5-C7	5.05	122.03	119.00
2	F	306	DT	N3-C4-O4	5.04	122.92	119.90
2	H	303	DT	C6-C5-C7	-5.03	119.88	122.90
2	H	306	DT	N3-C4-O4	5.02	122.91	119.90
2	G	316	DA	C3'-C2'-C1'	-5.00	96.49	102.50

There are no chirality outliers.

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	A	1740	0	1772	57	0
1	B	1740	0	1772	51	0
1	C	1740	0	1772	43	0
1	D	1740	0	1772	67	0
2	E	489	0	275	12	0
2	F	489	0	275	12	0
2	G	489	0	275	14	0
2	H	489	0	275	11	0
3	A	44	0	27	4	0
3	B	44	0	27	4	0
3	C	44	0	27	2	0
3	D	44	0	27	5	0
All	All	9092	0	8296	246	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 14.

All (246) 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:C:36:ARG:NH1	1:C:36:ARG:HG3	1.64	1.02
1:B:36:ARG:NH1	1:B:36:ARG:HG3	1.66	1.01
1:D:36:ARG:CG	1:D:36:ARG:HH11	1.73	1.01
1:C:36:ARG:HH11	1:C:36:ARG:HG3	0.84	1.00
1:B:36:ARG:HH11	1:B:36:ARG:HG3	0.86	1.00
1:A:36:ARG:HH11	1:A:36:ARG:HG3	0.84	1.00
1:D:128:ARG:NH1	1:D:128:ARG:HB3	1.77	0.99
1:D:36:ARG:HG3	1:D:36:ARG:HH11	0.82	0.98
1:B:36:ARG:CG	1:B:36:ARG:HH11	1.76	0.98
1:A:36:ARG:HH11	1:A:36:ARG:CG	1.77	0.98
1:D:36:ARG:NH1	1:D:36:ARG:HG3	1.62	0.98
1:C:36:ARG:HH11	1:C:36:ARG:CG	1.76	0.97
1:A:36:ARG:HG3	1:A:36:ARG:NH1	1.63	0.96
1:C:128:ARG:HB3	1:C:128:ARG:NH1	1.86	0.89
1:D:212:PHE:O	1:D:216:LYS:HB2	1.78	0.84
1:A:128:ARG:HB3	1:A:128:ARG:NH1	1.92	0.83
1:A:212:PHE:O	1:A:216:LYS:HB2	1.80	0.82
1:D:128:ARG:HH11	1:D:128:ARG:HB3	1.42	0.82
1:B:212:PHE:O	1:B:216:LYS:HB2	1.83	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:128:ARG:HB3	1:B:128:ARG:NH1	1.98	0.79
1:C:128:ARG:HH11	1:C:128:ARG:HB3	1.45	0.78
1:D:121:ARG:HG2	1:D:121:ARG:O	1.83	0.77
1:A:128:ARG:HB3	1:A:128:ARG:HH11	1.50	0.75
1:C:212:PHE:O	1:C:216:LYS:HB2	1.86	0.74
1:D:103:THR:HG22	1:D:128:ARG:HE	1.51	0.74
1:B:192:ASN:HB3	1:B:194:HIS:CD2	2.23	0.73
1:B:128:ARG:HB3	1:B:128:ARG:HH11	1.54	0.70
1:B:39:SER:HB2	1:B:44:VAL:O	1.92	0.70
1:C:192:ASN:HB3	1:C:194:HIS:CD2	2.27	0.70
1:C:193:VAL:O	1:C:194:HIS:HB2	1.92	0.68
1:C:103:THR:HG22	1:C:128:ARG:HE	1.59	0.67
1:D:90:ILE:HG22	1:D:154:ILE:CG2	2.24	0.67
1:B:103:THR:HG22	1:B:128:ARG:HE	1.60	0.67
1:A:192:ASN:HB3	1:A:194:HIS:CD2	2.31	0.66
1:B:179:PRO:O	1:B:180:ILE:HD13	1.96	0.65
2:G:309:DA:H2"	2:G:310:DT:OP2	1.96	0.65
1:D:192:ASN:HB3	1:D:194:HIS:CD2	2.31	0.65
1:A:167:VAL:HG11	1:A:185:PRO:HG2	1.80	0.64
1:B:193:VAL:O	1:B:194:HIS:HB2	1.98	0.64
1:A:183:LYS:HD2	1:D:168:ARG:HD2	1.79	0.63
1:C:9:MET:HA	1:C:12:ILE:HD12	1.80	0.63
1:A:193:VAL:O	1:A:194:HIS:HB2	1.99	0.63
2:H:319:DA:H2"	2:H:320:DA:OP2	1.99	0.63
1:A:90:ILE:HG22	1:A:154:ILE:CG2	2.29	0.63
2:F:319:DA:H2"	2:F:320:DA:OP2	1.99	0.63
1:A:103:THR:HG22	1:A:128:ARG:HE	1.64	0.62
1:D:39:SER:HB2	1:D:44:VAL:O	2.00	0.62
1:B:173:ALA:HB2	1:B:189:ILE:HB	1.80	0.62
1:B:192:ASN:HB3	1:B:194:HIS:HD2	1.61	0.61
1:A:39:SER:HB2	1:A:44:VAL:O	1.99	0.61
1:A:178:LEU:N	1:A:178:LEU:HD23	2.15	0.61
1:A:23:GLU:HB2	1:A:72:TYR:CE1	2.35	0.61
1:B:156:LYS:HB2	1:B:180:ILE:HG12	1.83	0.61
1:C:178:LEU:HD23	1:C:178:LEU:N	2.16	0.61
2:G:308:DA:H2"	2:G:309:DA:OP2	1.99	0.60
1:A:156:LYS:HB2	1:A:180:ILE:HG12	1.84	0.60
2:E:301:DG:H2"	2:E:302:DA:OP2	2.01	0.60
1:B:23:GLU:HB2	1:B:72:TYR:CE1	2.36	0.60
2:H:319:DA:OP2	2:H:319:DA:H8	1.85	0.60
1:C:192:ASN:HB3	1:C:194:HIS:HD2	1.66	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:138:VAL:CG1	1:B:139:GLU:N	2.65	0.59
2:H:309:DA:H2"	2:H:310:DT:OP2	2.01	0.59
1:D:102:TYR:CE2	1:D:104:SER:HB2	2.36	0.59
2:F:319:DA:H8	2:F:319:DA:OP2	1.86	0.59
2:E:309:DA:H2"	2:E:310:DT:OP2	2.03	0.59
1:B:90:ILE:HG22	1:B:154:ILE:CG2	2.33	0.58
2:G:319:DA:OP2	2:G:319:DA:H8	1.85	0.58
1:D:128:ARG:CZ	1:D:128:ARG:HB3	2.33	0.58
2:G:301:DG:H2"	2:G:302:DA:OP2	2.03	0.58
1:B:138:VAL:HG13	1:B:139:GLU:N	2.18	0.57
1:B:23:GLU:HB2	1:B:72:TYR:HE1	1.69	0.57
1:D:189:ILE:HD12	1:D:189:ILE:N	2.19	0.57
2:G:319:DA:H2"	2:G:320:DA:OP2	2.04	0.57
1:A:102:TYR:CE2	1:A:104:SER:HB2	2.39	0.57
1:D:178:LEU:HD23	1:D:178:LEU:N	2.20	0.56
2:H:308:DA:H2"	2:H:309:DA:OP2	2.05	0.56
1:B:36:ARG:CG	1:B:36:ARG:NH1	2.46	0.56
2:F:309:DA:H2"	2:F:310:DT:OP2	2.05	0.56
1:D:167:VAL:HG11	1:D:185:PRO:HG2	1.87	0.56
1:C:102:TYR:CE2	1:C:104:SER:HB2	2.41	0.56
1:C:155:PRO:HD2	3:C:900:NAJ:C8A	2.36	0.55
1:C:90:ILE:HG22	1:C:154:ILE:CG2	2.37	0.55
2:E:316:DA:C2	2:F:308:DA:C2	2.95	0.55
1:A:9:MET:HA	1:A:12:ILE:HD12	1.88	0.54
1:C:23:GLU:HB2	1:C:72:TYR:CE1	2.42	0.54
1:D:99:ILE:O	1:D:99:ILE:HG22	2.08	0.54
1:D:193:VAL:O	1:D:194:HIS:HB2	2.08	0.54
1:D:23:GLU:HB2	1:D:72:TYR:CE1	2.43	0.54
2:F:301:DG:H2"	2:F:302:DA:OP2	2.08	0.54
1:C:23:GLU:HB2	1:C:72:TYR:HE1	1.72	0.53
2:G:316:DA:C2	2:H:308:DA:C2	2.97	0.53
1:A:138:VAL:HG13	1:A:139:GLU:N	2.23	0.53
1:C:22:LEU:HD11	1:C:71:LEU:HD23	1.91	0.53
1:D:90:ILE:HG22	1:D:154:ILE:HG23	1.89	0.53
1:D:93:GLY:HA3	3:D:900:NAJ:O5B	2.10	0.52
1:A:195:LEU:HD12	3:A:900:NAJ:C4N	2.38	0.52
1:C:189:ILE:HD13	1:D:206:LEU:HD23	1.92	0.52
1:D:102:TYR:CZ	1:D:104:SER:HB2	2.44	0.52
2:E:299:DT:H2"	2:E:300:DA:O5'	2.09	0.52
2:F:308:DA:H2"	2:F:309:DA:OP2	2.10	0.52
1:C:36:ARG:NH1	1:C:36:ARG:CG	2.47	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:90:ILE:HG22	1:A:154:ILE:HG23	1.92	0.52
1:A:37:GLU:O	1:A:40:GLU:HB3	2.10	0.52
1:A:168:ARG:NH1	1:D:161:TYR:CE2	2.77	0.52
1:B:93:GLY:HA3	3:B:900:NAJ:O5B	2.09	0.52
1:D:189:ILE:H	1:D:189:ILE:HD12	1.75	0.51
1:D:86:ASN:OD1	1:D:113:LYS:HE2	2.09	0.51
1:B:120:PRO:HA	1:B:123:PHE:CD1	2.44	0.51
1:C:138:VAL:HG13	1:C:139:GLU:N	2.24	0.51
1:D:45:THR:HG21	2:G:315:DT:P	2.50	0.51
1:A:179:PRO:O	1:A:180:ILE:HD13	2.11	0.51
1:C:138:VAL:CG1	1:C:139:GLU:N	2.74	0.51
1:D:61:GLN:HB3	1:D:64:TYR:HB3	1.91	0.50
1:C:14:ARG:O	1:C:17:ARG:HB3	2.12	0.50
1:C:39:SER:HB2	1:C:44:VAL:O	2.11	0.50
1:D:9:MET:HA	1:D:12:ILE:HD12	1.93	0.50
1:A:155:PRO:HD2	3:A:900:NAJ:C8A	2.42	0.50
1:B:135:VAL:HG22	1:B:135:VAL:O	2.12	0.49
1:A:191:GLU:HA	1:A:191:GLU:OE1	2.12	0.49
1:A:168:ARG:NH1	1:D:161:TYR:CZ	2.80	0.49
1:B:14:ARG:O	1:B:17:ARG:HB3	2.13	0.49
1:B:167:VAL:HG11	1:B:185:PRO:HG2	1.94	0.49
1:D:138:VAL:HG13	1:D:139:GLU:N	2.28	0.49
2:H:301:DG:H2"	2:H:302:DA:OP2	2.12	0.49
1:A:192:ASN:HB3	1:A:194:HIS:HD2	1.76	0.49
1:B:123:PHE:N	1:B:123:PHE:CD1	2.80	0.49
2:E:319:DA:OP2	2:E:319:DA:H8	1.96	0.49
1:A:167:VAL:HA	1:A:171:ILE:HG22	1.93	0.49
1:B:191:GLU:OE1	1:B:191:GLU:HA	2.13	0.49
1:D:156:LYS:HB2	1:D:180:ILE:HG12	1.94	0.48
1:D:23:GLU:HB2	1:D:72:TYR:HE1	1.76	0.48
2:E:308:DA:H2"	2:E:309:DA:OP2	2.12	0.48
1:D:197:ASP:O	1:D:200:PHE:N	2.46	0.48
1:B:118:ILE:H	1:B:118:ILE:HG13	1.45	0.48
1:D:120:PRO:HA	1:D:123:PHE:CG	2.48	0.48
1:A:63:GLY:O	2:E:303:DT:H5'	2.13	0.48
2:E:319:DA:H2"	2:E:320:DA:OP2	2.12	0.48
1:D:90:ILE:HG22	1:D:154:ILE:HG21	1.96	0.48
2:G:299:DT:H2"	2:G:300:DA:O5'	2.13	0.48
1:A:167:VAL:HG13	1:A:188:VAL:HG21	1.95	0.48
1:B:178:LEU:HD23	1:B:178:LEU:N	2.28	0.47
1:A:138:VAL:CG1	1:A:139:GLU:N	2.77	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:154:ILE:HB	1:D:155:PRO:HD2	1.96	0.47
1:C:155:PRO:HD3	3:C:900:NAJ:H52A	1.96	0.47
2:F:307:DT:OP2	2:F:307:DT:H6	1.98	0.47
1:A:23:GLU:HB2	1:A:72:TYR:HE1	1.78	0.47
1:B:118:ILE:HD11	3:B:900:NAJ:C8A	2.45	0.47
1:C:189:ILE:HD13	1:D:206:LEU:CD2	2.45	0.47
1:B:195:LEU:HD12	3:B:900:NAJ:C4N	2.44	0.47
1:C:61:GLN:HB3	1:C:64:TYR:HB3	1.95	0.47
2:F:299:DT:H2"	2:F:300:DA:O5'	2.14	0.47
1:D:195:LEU:HD12	3:D:900:NAJ:C4N	2.44	0.46
1:B:120:PRO:HA	1:B:123:PHE:CE1	2.50	0.46
1:D:191:GLU:HA	1:D:191:GLU:OE1	2.15	0.46
2:G:308:DA:C2	2:H:316:DA:C2	3.02	0.46
1:B:156:LYS:HA	1:B:178:LEU:HD13	1.98	0.46
1:D:138:VAL:CG1	1:D:139:GLU:N	2.78	0.46
1:C:128:ARG:HB3	1:C:128:ARG:CZ	2.42	0.46
1:D:88:ILE:HG12	1:D:147:ILE:HG21	1.97	0.46
1:A:163:ALA:O	1:A:167:VAL:HG23	2.16	0.45
1:D:22:LEU:HD11	1:D:71:LEU:HD23	1.98	0.45
1:A:36:ARG:HA	1:A:36:ARG:HD2	1.51	0.45
2:G:307:DT:OP2	2:G:307:DT:H6	2.00	0.45
1:A:178:LEU:H	1:A:178:LEU:HD23	1.81	0.45
1:B:62:GLN:HG3	2:F:304:DT:H1'	1.97	0.45
1:A:189:ILE:HD13	1:B:206:LEU:HD23	1.99	0.45
1:A:15:LEU:N	1:A:16:PRO:CD	2.80	0.45
2:H:299:DT:H2"	2:H:300:DA:O5'	2.17	0.45
1:B:184:VAL:HG21	1:B:190:LEU:HB2	2.00	0.44
1:C:167:VAL:HA	1:C:171:ILE:HG22	1.99	0.44
1:C:36:ARG:HA	1:C:36:ARG:HD2	1.39	0.44
1:B:167:VAL:HG13	1:B:188:VAL:HG21	1.98	0.44
1:C:191:GLU:OE1	1:C:191:GLU:HA	2.18	0.44
1:B:167:VAL:HA	1:B:171:ILE:HG22	2.00	0.44
1:D:120:PRO:HA	1:D:123:PHE:CD1	2.53	0.44
2:E:308:DA:C2	2:F:316:DA:C2	3.05	0.44
2:E:319:DA:H2'	2:E:319:DA:OP2	2.18	0.44
1:B:173:ALA:CB	1:B:189:ILE:HB	2.47	0.44
1:B:36:ARG:HD2	1:B:36:ARG:HA	1.42	0.44
1:C:95:LEU:HA	1:C:95:LEU:HD12	1.72	0.44
1:C:144:ARG:CZ	1:C:144:ARG:HB2	2.48	0.43
1:A:118:ILE:HD11	3:A:900:NAJ:C8A	2.48	0.43
1:C:90:ILE:HG22	1:C:154:ILE:HG21	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:99:ILE:O	1:D:99:ILE:CG2	2.66	0.43
1:B:93:GLY:O	1:B:97:GLN:HG3	2.18	0.43
1:A:167:VAL:HG11	1:A:185:PRO:CG	2.47	0.43
1:A:176:ASN:OD1	1:A:178:LEU:HG	2.18	0.43
1:A:167:VAL:CG1	1:A:185:PRO:HG2	2.48	0.43
2:F:319:DA:H2'	2:F:319:DA:OP2	2.19	0.43
1:D:51:GLN:HE21	2:G:314:DT:H71	1.84	0.43
1:C:135:VAL:HG22	1:C:135:VAL:O	2.18	0.43
1:A:87:THR:HG22	1:A:149:ILE:HB	2.00	0.43
1:A:173:ALA:HB2	1:A:189:ILE:HB	2.01	0.43
1:D:119:ASN:HA	1:D:120:PRO:HD3	1.89	0.43
1:A:90:ILE:HG22	1:A:154:ILE:HG21	2.00	0.42
1:B:34:SER:OG	1:B:36:ARG:HB3	2.20	0.42
1:D:163:ALA:O	1:D:166:LEU:HB2	2.19	0.42
1:D:192:ASN:HB3	1:D:194:HIS:HD2	1.79	0.42
1:C:15:LEU:N	1:C:16:PRO:CD	2.82	0.42
1:D:62:GLN:HG3	2:H:304:DT:H1'	2.01	0.42
1:A:102:TYR:CZ	1:A:104:SER:HB2	2.54	0.42
1:B:197:ASP:O	1:B:198:SER:C	2.56	0.42
1:D:179:PRO:O	1:D:180:ILE:HD13	2.18	0.42
1:C:156:LYS:HB2	1:C:180:ILE:HG12	2.01	0.42
1:D:117:ASP:CG	3:D:900:NAJ:H1B	2.40	0.42
1:D:36:ARG:CG	1:D:36:ARG:NH1	2.44	0.42
2:H:307:DT:H2'	2:H:307:DT:OP2	2.19	0.42
1:B:199:LEU:O	1:B:202:VAL:HB	2.19	0.41
1:B:90:ILE:HG22	1:B:154:ILE:HG23	2.02	0.41
1:D:121:ARG:O	1:D:122:LEU:HD23	2.19	0.41
1:D:184:VAL:HG21	1:D:190:LEU:HB2	2.02	0.41
2:E:312:DG:C2	2:F:312:DG:C2	3.08	0.41
1:B:73:ASN:O	1:B:77:LYS:HG2	2.20	0.41
1:C:167:VAL:HG13	1:C:188:VAL:HG21	2.02	0.41
2:E:307:DT:OP2	2:E:307:DT:H2'	2.21	0.41
1:B:127:ILE:O	1:B:128:ARG:C	2.59	0.41
1:D:51:GLN:HE21	2:G:314:DT:C7	2.32	0.41
1:C:102:TYR:CZ	1:C:104:SER:HB2	2.56	0.41
1:A:117:ASP:OD1	3:A:900:NAJ:H1B	2.20	0.41
1:A:61:GLN:O	1:A:62:GLN:C	2.58	0.41
2:G:319:DA:H2'	2:G:319:DA:OP2	2.21	0.41
1:A:207:ASN:HD21	1:B:83:LYS:CE	2.34	0.41
1:A:61:GLN:HB3	1:A:64:TYR:HB3	2.03	0.41
1:A:95:LEU:HA	1:A:95:LEU:HD12	1.78	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:22:LEU:HD11	1:B:71:LEU:HD23	2.02	0.41
1:C:152:LEU:HD22	1:C:154:ILE:HG12	2.02	0.41
1:C:167:VAL:HG11	1:C:185:PRO:HG2	2.02	0.41
1:C:93:GLY:O	1:C:97:GLN:HG3	2.21	0.41
1:D:15:LEU:N	1:D:16:PRO:CD	2.83	0.41
1:D:7:VAL:HG12	1:D:8:SER:N	2.35	0.41
1:D:199:LEU:O	1:D:202:VAL:HB	2.20	0.41
1:D:155:PRO:HD2	3:D:900:NAJ:C8A	2.51	0.40
1:D:51:GLN:NE2	2:G:314:DT:H71	2.36	0.40
1:A:116:PHE:HA	1:A:133:MET:O	2.20	0.40
1:A:189:ILE:HD12	1:A:189:ILE:N	2.36	0.40
1:A:105:PHE:HE1	1:B:196:SER:HA	1.85	0.40
1:D:34:SER:OG	1:D:36:ARG:HB3	2.20	0.40
1:A:118:ILE:O	1:A:120:PRO:HD3	2.22	0.40
1:A:36:ARG:NH1	1:A:36:ARG:CG	2.47	0.40
1:B:178:LEU:HD22	3:B:900:NAJ:O3D	2.22	0.40
1:A:128:ARG:HB3	1:A:128:ARG:CZ	2.50	0.40
1:D:152:LEU:HA	1:D:152:LEU:HD23	1.85	0.40
1:D:167:VAL:HA	1:D:171:ILE:HG22	2.02	0.40
1:D:65:GLY:HA2	2:H:304:DT:H5'	2.03	0.40
1:C:152:LEU:HD23	1:C:152:LEU:HA	1.86	0.40
1:D:117:ASP:OD1	3:D:900:NAJ:H1B	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 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 X-ray entries followed by that with respect to entries of similar resolution.

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
1	A	215/224 (96%)	192 (89%)	23 (11%)	0	100 100
1	B	215/224 (96%)	193 (90%)	21 (10%)	1 (0%)	29 62
1	C	215/224 (96%)	190 (88%)	22 (10%)	3 (1%)	11 40

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	D	215/224 (96%)	195 (91%)	17 (8%)	3 (1%)	11 40
All	All	860/896 (96%)	770 (90%)	83 (10%)	7 (1%)	19 52

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	196	SER
1	D	198	SER
1	C	194	HIS
1	C	196	SER
1	C	36	ARG
1	B	36	ARG
1	D	107	LYS

5.3.2 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 X-ray entries followed by that with respect to entries of similar resolution.

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
1	A	190/196 (97%)	171 (90%)	19 (10%)	7 27
1	B	190/196 (97%)	172 (90%)	18 (10%)	8 29
1	C	190/196 (97%)	172 (90%)	18 (10%)	8 29
1	D	190/196 (97%)	169 (89%)	21 (11%)	6 23
All	All	760/784 (97%)	684 (90%)	76 (10%)	7 27

All (76) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	8	SER
1	A	20	ARG
1	A	24	GLU
1	A	32	ARG
1	A	36	ARG
1	A	44	VAL
1	A	83	LYS

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Mol	Chain	Res	Type
1	A	84	THR
1	A	108	SER
1	A	118	ILE
1	A	128	ARG
1	A	140	ASP
1	A	152	LEU
1	A	156	LYS
1	A	157	ASP
1	A	171	ILE
1	A	178	LEU
1	A	184	VAL
1	A	211	LEU
1	B	8	SER
1	B	20	ARG
1	B	32	ARG
1	B	36	ARG
1	B	44	VAL
1	B	84	THR
1	B	108	SER
1	B	118	ILE
1	B	128	ARG
1	B	140	ASP
1	B	152	LEU
1	B	157	ASP
1	B	171	ILE
1	B	178	LEU
1	B	180	ILE
1	B	184	VAL
1	B	211	LEU
1	B	218	GLU
1	C	8	SER
1	C	20	ARG
1	C	22	LEU
1	C	32	ARG
1	C	36	ARG
1	C	44	VAL
1	C	84	THR
1	C	108	SER
1	C	118	ILE
1	C	128	ARG
1	C	140	ASP
1	C	152	LEU

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Mol	Chain	Res	Type
1	C	171	ILE
1	C	178	LEU
1	C	180	ILE
1	C	184	VAL
1	C	211	LEU
1	C	218	GLU
1	D	8	SER
1	D	20	ARG
1	D	22	LEU
1	D	24	GLU
1	D	32	ARG
1	D	36	ARG
1	D	44	VAL
1	D	83	LYS
1	D	84	THR
1	D	108	SER
1	D	115	ILE
1	D	118	ILE
1	D	128	ARG
1	D	140	ASP
1	D	152	LEU
1	D	157	ASP
1	D	171	ILE
1	D	178	LEU
1	D	180	ILE
1	D	184	VAL
1	D	211	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	54	ASN
1	A	158	ASN
1	A	194	HIS
1	A	207	ASN
1	B	51	GLN
1	B	194	HIS
1	B	207	ASN
1	C	51	GLN
1	C	61	GLN
1	C	194	HIS
1	C	207	ASN

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Mol	Chain	Res	Type
1	D	51	GLN
1	D	194	HIS
1	D	207	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	NAJ	A	900	-	42,48,48	2.02	6 (14%)	50,73,73	1.83	10 (20%)
3	NAJ	B	900	-	42,48,48	1.89	5 (11%)	50,73,73	1.81	13 (26%)
3	NAJ	C	900	-	42,48,48	1.90	8 (19%)	50,73,73	1.79	9 (18%)
3	NAJ	D	900	-	42,48,48	1.94	5 (11%)	50,73,73	1.87	10 (20%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAJ	A	900	-	-	7/26/62/62	0/5/5/5
3	NAJ	B	900	-	-	6/26/62/62	0/5/5/5
3	NAJ	C	900	-	-	5/26/62/62	0/5/5/5
3	NAJ	D	900	-	-	5/26/62/62	0/5/5/5

All (24) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	900	NAJ	C4N-C3N	8.44	1.53	1.39
3	B	900	NAJ	C4N-C3N	7.82	1.52	1.39
3	C	900	NAJ	C4N-C3N	7.30	1.51	1.39
3	D	900	NAJ	C4N-C3N	7.27	1.51	1.39
3	D	900	NAJ	C5N-C4N	7.13	1.53	1.38
3	A	900	NAJ	C5N-C4N	6.87	1.53	1.38
3	B	900	NAJ	C5N-C4N	6.33	1.52	1.38
3	C	900	NAJ	C5N-C4N	5.98	1.51	1.38
3	D	900	NAJ	C2N-N1N	3.81	1.39	1.35
3	A	900	NAJ	C2N-N1N	3.06	1.38	1.35
3	C	900	NAJ	C2N-N1N	3.03	1.38	1.35
3	C	900	NAJ	C3N-C7N	-2.76	1.46	1.50
3	C	900	NAJ	C2D-C1D	-2.74	1.49	1.53
3	D	900	NAJ	C3N-C7N	-2.74	1.46	1.50
3	B	900	NAJ	C2N-C3N	-2.73	1.34	1.39
3	B	900	NAJ	C6N-N1N	2.54	1.41	1.35
3	C	900	NAJ	C2N-C3N	-2.52	1.35	1.39
3	C	900	NAJ	C6N-C5N	-2.29	1.33	1.38
3	D	900	NAJ	C2N-C3N	-2.25	1.35	1.39
3	A	900	NAJ	C2N-C3N	-2.23	1.35	1.39
3	C	900	NAJ	C2B-C1B	-2.22	1.50	1.53
3	A	900	NAJ	C2B-C1B	-2.17	1.50	1.53
3	A	900	NAJ	O4D-C1D	2.03	1.43	1.41
3	B	900	NAJ	O4B-C1B	2.01	1.43	1.41

All (42) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	D	900	NAJ	C5N-C4N-C3N	-7.30	111.70	120.34
3	C	900	NAJ	C5N-C4N-C3N	-6.52	112.63	120.34
3	A	900	NAJ	C5N-C4N-C3N	-6.02	113.21	120.34
3	D	900	NAJ	N3A-C2A-N1A	-5.55	120.01	128.68
3	B	900	NAJ	C5N-C4N-C3N	-5.50	113.83	120.34
3	B	900	NAJ	N3A-C2A-N1A	-5.50	120.09	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	900	NAJ	N3A-C2A-N1A	-4.99	120.89	128.68
3	C	900	NAJ	N3A-C2A-N1A	-4.96	120.93	128.68
3	A	900	NAJ	O7N-C7N-C3N	3.86	124.25	119.63
3	C	900	NAJ	PN-O3-PA	-3.51	120.79	132.83
3	A	900	NAJ	O2D-C2D-C3D	-3.47	100.60	111.82
3	D	900	NAJ	PN-O3-PA	-3.23	121.75	132.83
3	A	900	NAJ	C5D-C4D-C3D	-3.20	103.17	115.18
3	C	900	NAJ	C2N-C3N-C4N	3.16	121.84	118.26
3	B	900	NAJ	PN-O3-PA	-3.15	122.00	132.83
3	B	900	NAJ	C2N-C3N-C4N	3.11	121.79	118.26
3	B	900	NAJ	C5D-C4D-C3D	-3.00	103.95	115.18
3	D	900	NAJ	C6N-C5N-C4N	2.90	123.66	119.44
3	B	900	NAJ	O4D-C1D-C2D	-2.86	102.74	106.93
3	C	900	NAJ	O3D-C3D-C2D	-2.78	102.83	111.82
3	B	900	NAJ	O7N-C7N-N7N	-2.77	118.65	122.58
3	B	900	NAJ	O7N-C7N-C3N	2.68	122.84	119.63
3	A	900	NAJ	PN-O3-PA	-2.64	123.77	132.83
3	C	900	NAJ	C1B-N9A-C4A	-2.58	122.11	126.64
3	D	900	NAJ	O2D-C2D-C3D	-2.54	103.62	111.82
3	C	900	NAJ	O2N-PN-O1N	2.44	124.30	112.24
3	A	900	NAJ	O4D-C1D-C2D	-2.40	103.42	106.93
3	B	900	NAJ	O2N-PN-O1N	2.39	124.05	112.24
3	A	900	NAJ	O7N-C7N-N7N	-2.37	119.21	122.58
3	C	900	NAJ	O2A-PA-O1A	2.28	123.51	112.24
3	A	900	NAJ	O3D-C3D-C2D	-2.25	104.55	111.82
3	D	900	NAJ	C2N-C3N-C4N	2.24	120.80	118.26
3	D	900	NAJ	C1B-N9A-C4A	-2.24	122.71	126.64
3	D	900	NAJ	C3D-C2D-C1D	2.19	104.27	100.98
3	D	900	NAJ	O7N-C7N-C3N	2.16	122.22	119.63
3	B	900	NAJ	O3B-C3B-C4B	-2.15	104.82	111.05
3	A	900	NAJ	C4A-C5A-N7A	-2.15	107.16	109.40
3	D	900	NAJ	C3N-C2N-N1N	2.14	122.52	120.43
3	B	900	NAJ	O4B-C1B-C2B	-2.09	103.87	106.93
3	B	900	NAJ	O4D-C4D-C3D	2.06	109.19	105.11
3	B	900	NAJ	O2D-C2D-C3D	-2.06	105.16	111.82
3	C	900	NAJ	C2D-C3D-C4D	2.03	106.59	102.64

There are no chirality outliers.

All (23) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	900	NAJ	C5B-O5B-PA-O1A

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Mol	Chain	Res	Type	Atoms
3	B	900	NAJ	C5B-O5B-PA-O1A
3	C	900	NAJ	C5B-O5B-PA-O1A
3	D	900	NAJ	C5B-O5B-PA-O1A
3	A	900	NAJ	O4B-C4B-C5B-O5B
3	A	900	NAJ	C3B-C4B-C5B-O5B
3	B	900	NAJ	O4B-C4B-C5B-O5B
3	B	900	NAJ	C3B-C4B-C5B-O5B
3	C	900	NAJ	O4B-C4B-C5B-O5B
3	C	900	NAJ	C3B-C4B-C5B-O5B
3	D	900	NAJ	O4B-C4B-C5B-O5B
3	A	900	NAJ	O4D-C4D-C5D-O5D
3	B	900	NAJ	O4D-C4D-C5D-O5D
3	D	900	NAJ	C3B-C4B-C5B-O5B
3	B	900	NAJ	C3D-C4D-C5D-O5D
3	A	900	NAJ	C5B-O5B-PA-O3
3	B	900	NAJ	C5B-O5B-PA-O3
3	C	900	NAJ	C5B-O5B-PA-O3
3	D	900	NAJ	C5B-O5B-PA-O3
3	A	900	NAJ	C5B-O5B-PA-O2A
3	C	900	NAJ	C5B-O5B-PA-O2A
3	D	900	NAJ	C5B-O5B-PA-O2A
3	A	900	NAJ	C3D-C4D-C5D-O5D

There are no ring outliers.

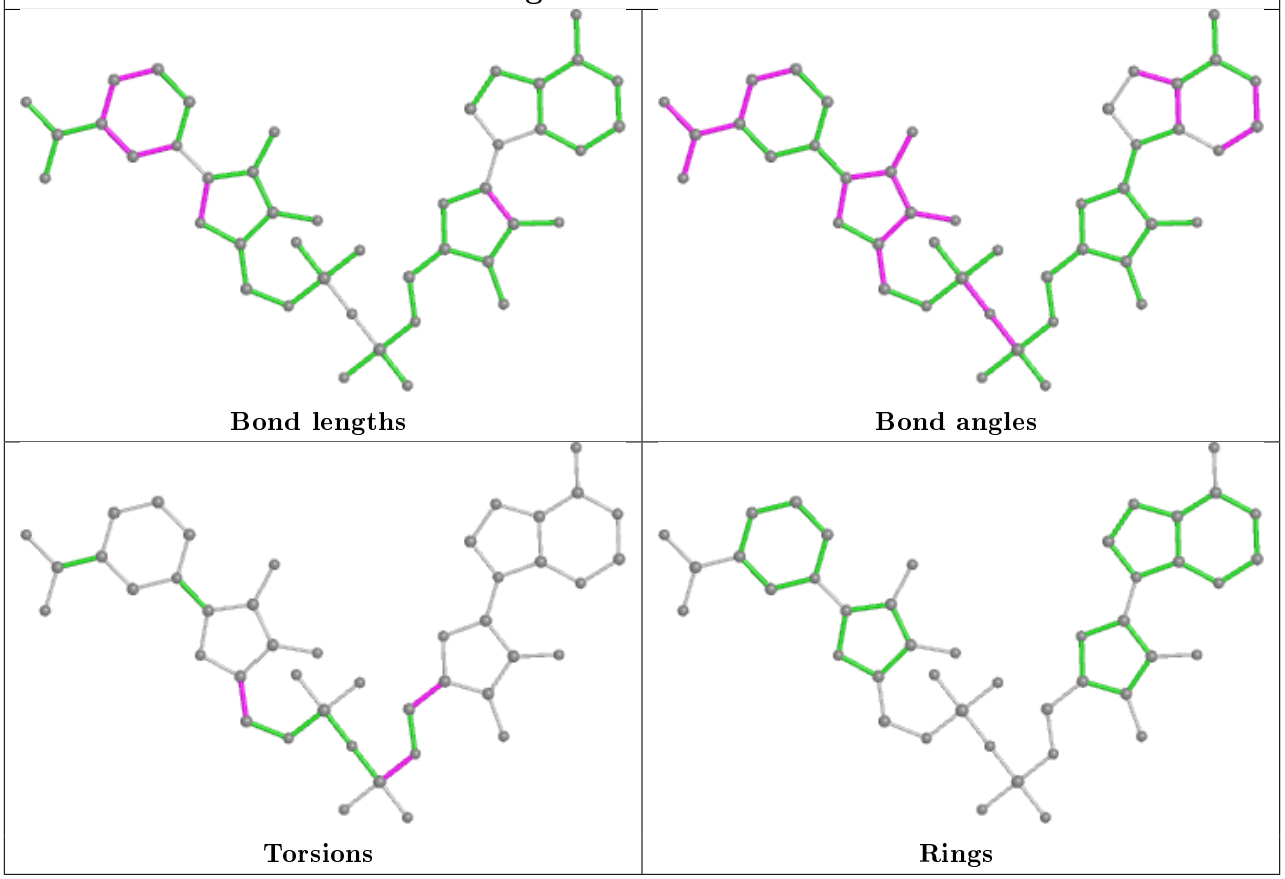
4 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	900	NAJ	4	0
3	B	900	NAJ	4	0
3	C	900	NAJ	2	0
3	D	900	NAJ	5	0

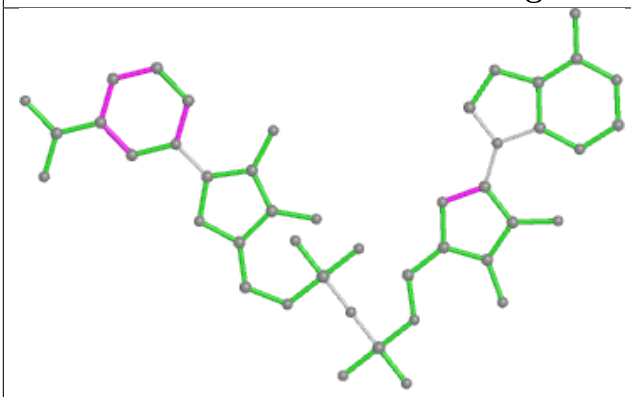
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier.

The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

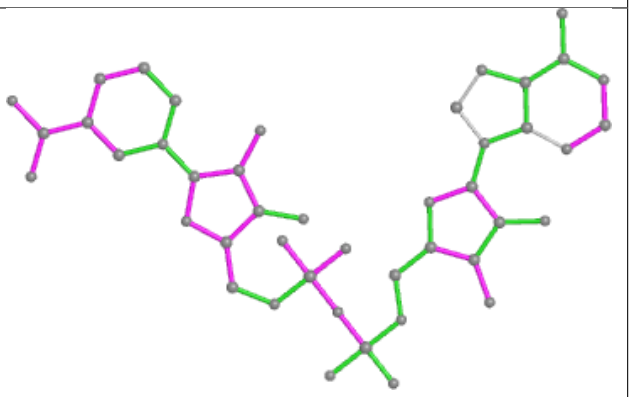
Ligand NAJ A 900



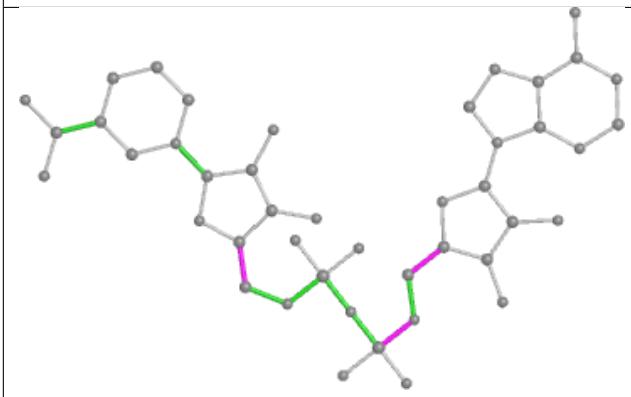
Ligand NAJ B 900



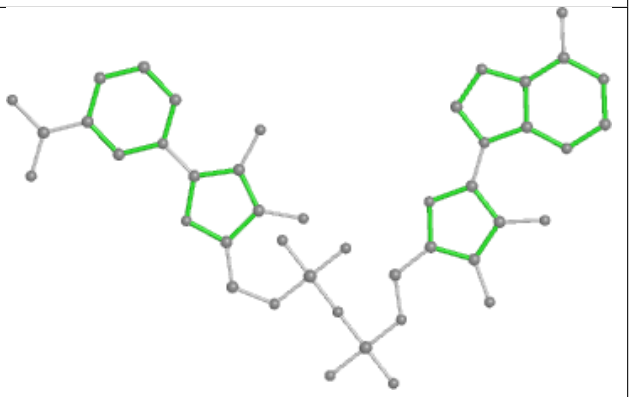
Bond lengths



Bond angles

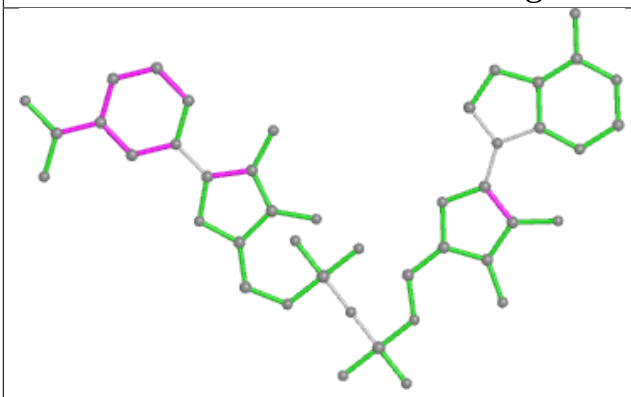


Torsions

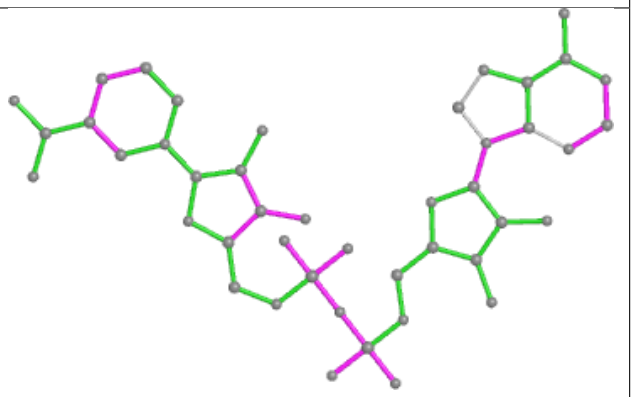


Rings

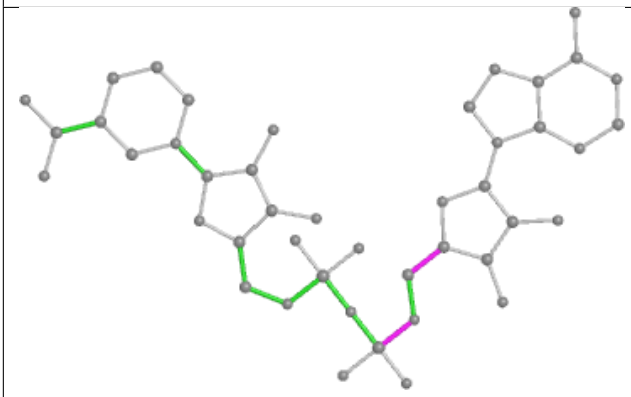
Ligand NAJ C 900



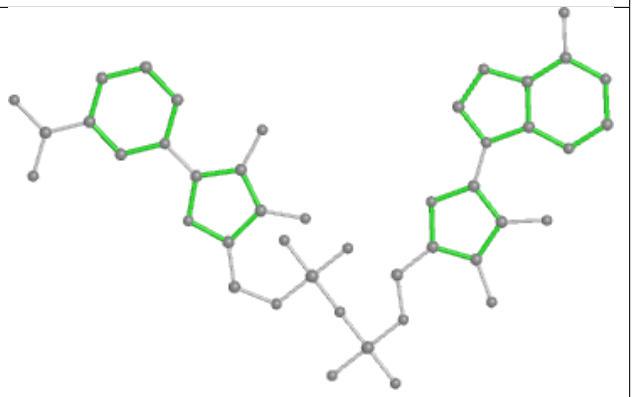
Bond lengths



Bond angles

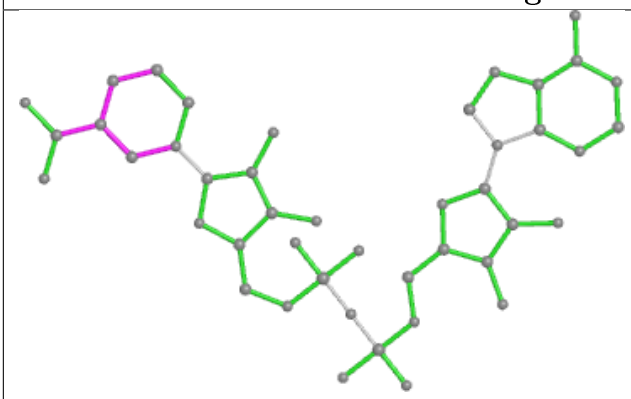


Torsions

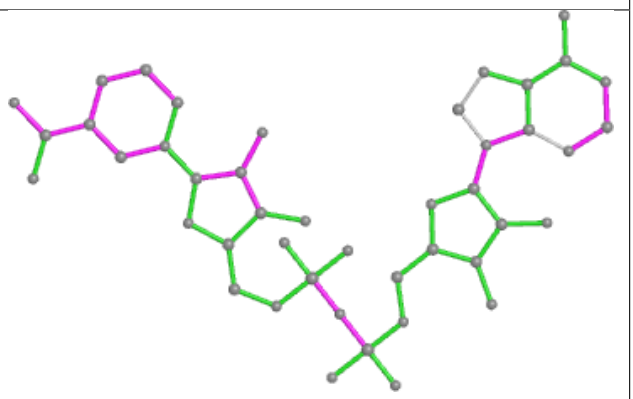


Rings

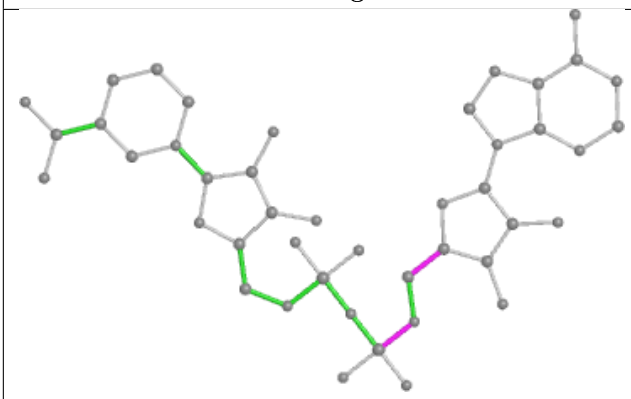
Ligand NAJ D 900



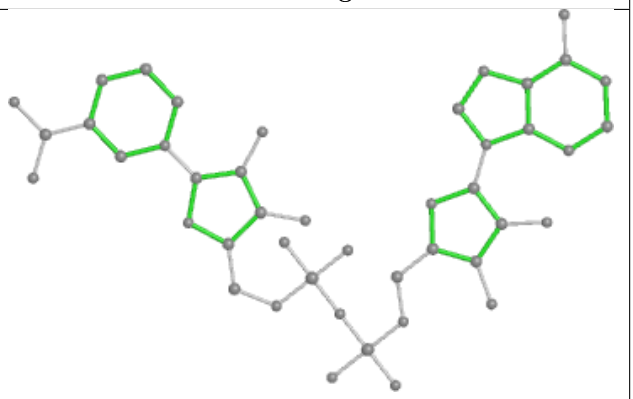
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	217/224 (96%)	-0.29	4 (1%) 68 65	53, 79, 126, 211	0
1	B	217/224 (96%)	-0.19	6 (2%) 53 50	51, 82, 136, 208	0
1	C	217/224 (96%)	-0.21	4 (1%) 68 65	52, 86, 158, 227	0
1	D	217/224 (96%)	-0.24	2 (0%) 84 84	58, 88, 144, 225	0
2	E	24/24 (100%)	0.07	0 100 100	100, 146, 172, 178	0
2	F	24/24 (100%)	0.23	1 (4%) 36 33	103, 141, 185, 209	0
2	G	24/24 (100%)	0.42	3 (12%) 3 3	119, 169, 209, 241	0
2	H	24/24 (100%)	0.41	2 (8%) 11 11	123, 174, 202, 226	0
All	All	964/992 (97%)	-0.18	22 (2%) 60 58	51, 87, 177, 241	0

All (22) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	220	ALA	9.5
1	C	220	ALA	9.0
1	B	220	ALA	7.9
1	A	219	THR	5.7
1	C	219	THR	5.7
1	D	219	THR	5.3
2	F	299	DT	5.2
1	A	220	ALA	4.7
2	G	299	DT	4.4
2	H	299	DT	3.7
1	A	216	LYS	3.6
1	B	219	THR	3.5
1	B	218	GLU	3.5
1	C	218	GLU	3.1
1	B	217	GLY	2.9
2	G	300	DA	2.7

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Mol	Chain	Res	Type	RSRZ
1	B	61	GLN	2.6
2	G	322	DC	2.2
1	A	218	GLU	2.2
1	C	61	GLN	2.2
2	H	322	DC	2.1
1	B	4	LYS	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (i)

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

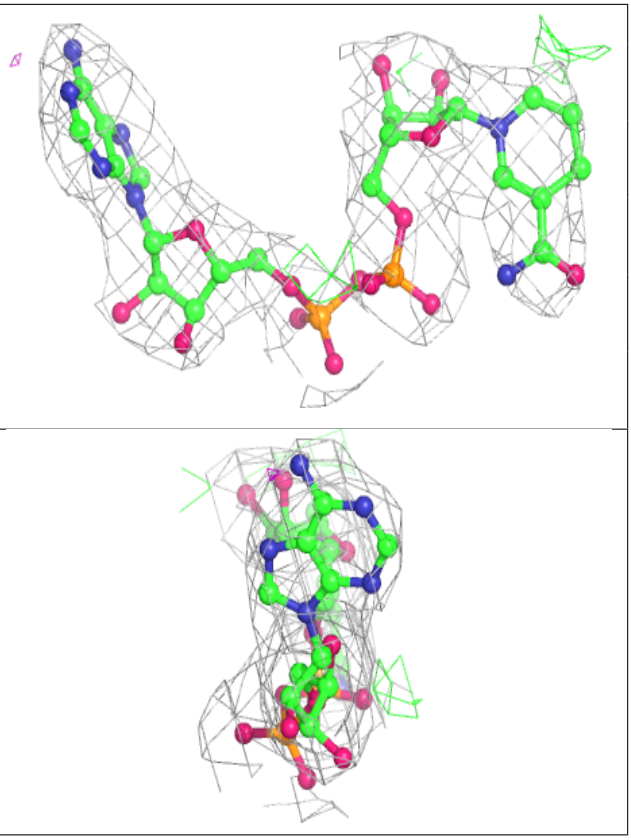
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NAJ	A	900	44/44	0.97	0.14	59,64,67,69	0
3	NAJ	B	900	44/44	0.97	0.15	55,59,62,64	0
3	NAJ	D	900	44/44	0.97	0.13	63,69,72,75	0
3	NAJ	C	900	44/44	0.98	0.14	52,57,63,66	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

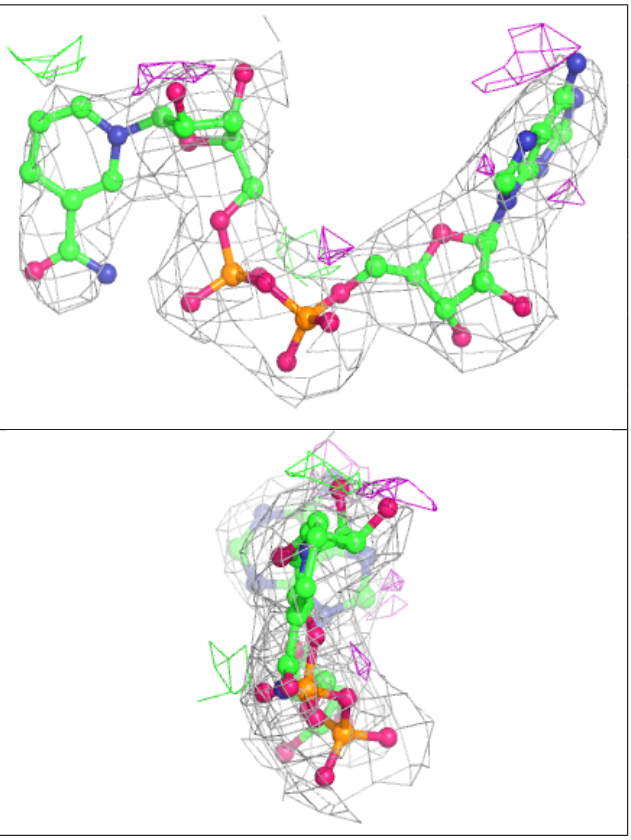
Electron density around NAJ A 900:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



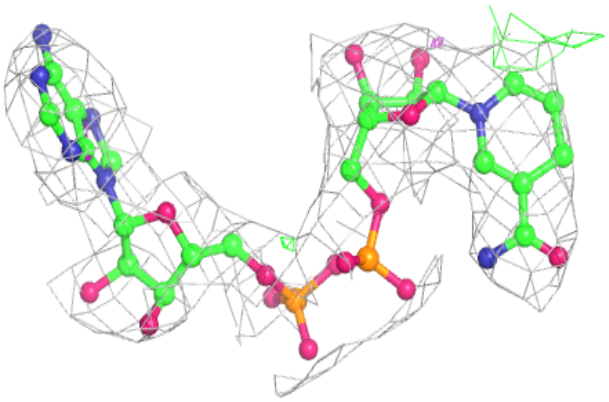
Electron density around NAJ B 900:

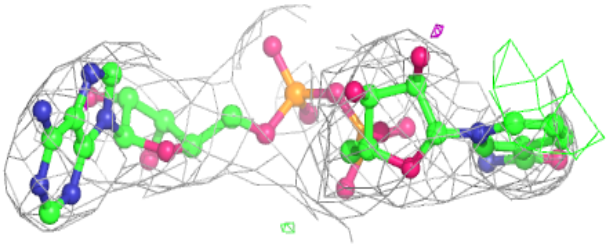
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

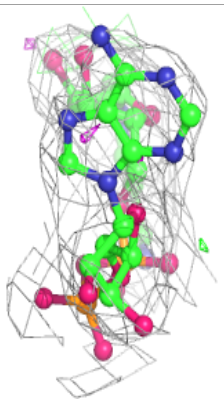


Electron density around NAJ D 900:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

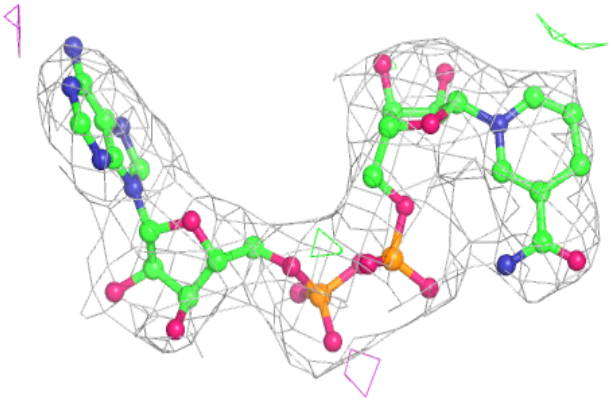


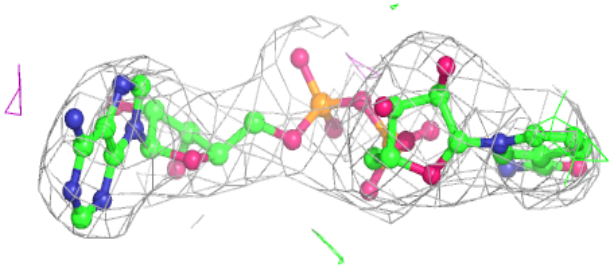


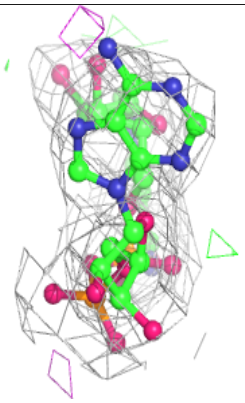


Electron density around NAJ C 900:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)







6.5 Other polymers (i)

There are no such residues in this entry.