



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 27, 2014 – 11:44 AM GMT

PDB ID : 1IFX
Title : CRYSTAL STRUCTURE OF NH₃-DEPENDENT NAD⁺ SYNTHETASE FROM BACILLUS SUBTILIS COMPLEXED WITH TWO MOLECULES DEAMIDO-NAD
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Deposited on : 2001-04-13
Resolution : 2.25 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

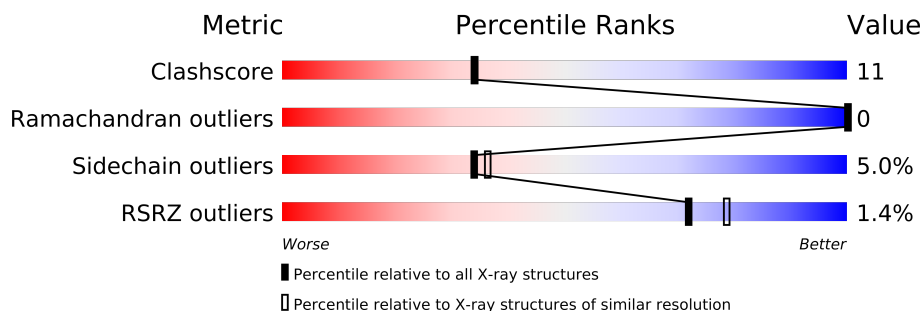
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.15 2013
Xtriage (Phenix) : dev-1323
EDS : stable22639
Percentile statistics : 21963
Refmac : 5.8.0049
CCP4 : 6.3.0 (Settle)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable22683

1 Overall quality at a glance

The reported resolution of this entry is 2.25 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))
Clashscore	79885	1326 (2.28-2.24)
Ramachandran outliers	78287	1291 (2.28-2.24)
Sidechain outliers	78261	1291 (2.28-2.24)
RSRZ outliers	66119	1110 (2.28-2.24)

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. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	271	
1	B	271	

2 Entry composition i

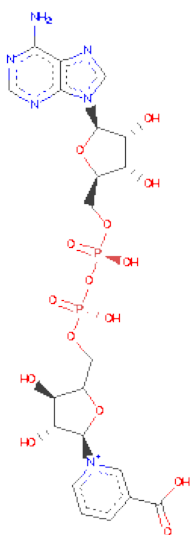
There are 3 unique types of molecules in this entry. The entry contains 4174 atoms, of which 0 are hydrogen and 0 are deuterium.

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 NH(3)-DEPENDENT NAD(+) SYNTHETASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	245	Total	C	N	O	S	0	0	0
			1927	1217	332	373	5			
1	B	245	Total	C	N	O	S	0	0	0
			1927	1217	332	373	5			

- Molecule 2 is NICOTINIC ACID ADENINE DINUCLEOTIDE (three-letter code: DND) (formula: C₂₁H₂₇N₆O₁₅P₂).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	B	1	Total	C	N	O	P	0	0
			44	21	6	15	2		
2	A	1	Total	C	N	O	P	0	0
			44	21	6	15	2		

- Molecule 3 is water.

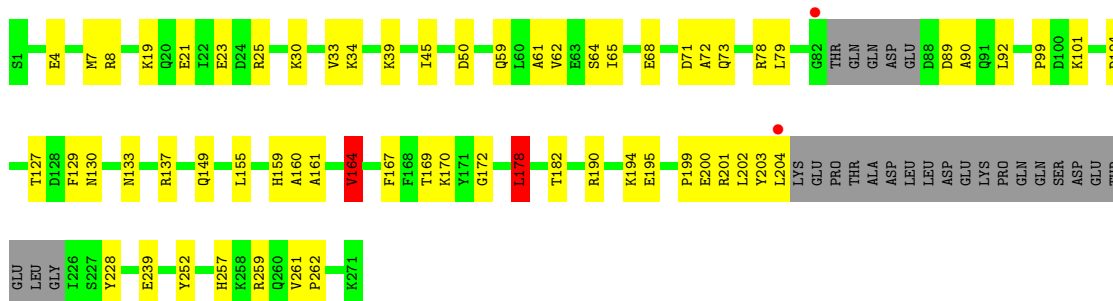
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	117	Total 117	O 117	0	0
3	B	115	Total 115	O 115	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

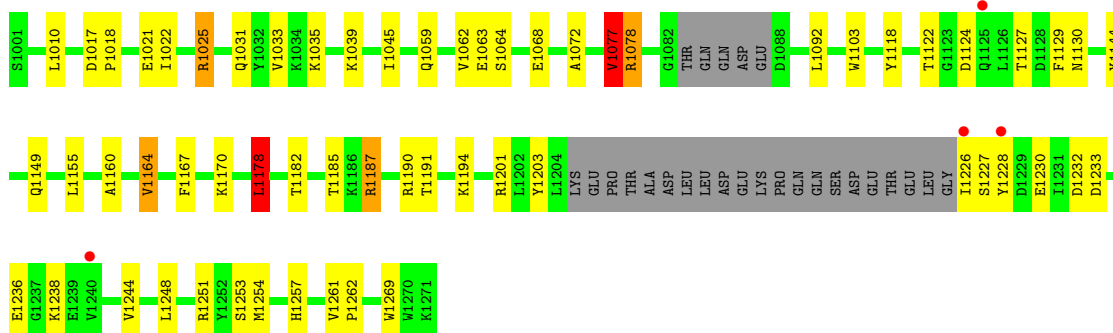
• Molecule 1: NH(3)-DEPENDENT NAD(+) SYNTHETASE

Chain A: 



• Molecule 1: NH(3)-DEPENDENT NAD(+) SYNTHETASE

Chain B: 



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	53.06Å 86.09Å 61.08Å 90.00° 111.18° 90.00°	Depositor
Resolution (Å)	8.00 – 2.25 49.48 – 2.25	Depositor EDS
% Data completeness (in resolution range)	99.5 (8.00-2.25) 99.5 (49.48-2.25)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.18 (at 2.25Å)	Xtriage
Refinement program	X-PLOR 3.851	Depositor
R, R_{free}	0.195 , 0.297 0.194 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	DCC
Wilson B-factor (Å ²)	24.8	Xtriage
Anisotropy	0.298	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 63.6	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	0 of 24251 reflections	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	4174	wwPDB-VP
Average B, all atoms (Å ²)	23.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.82% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

5 Model quality

5.1 Standard geometry

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

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	0.64	0/1959	0.81	3/2629 (0.1%)
1	B	0.64	0/1959	0.84	4/2629 (0.2%)
All	All	0.64	0/3918	0.83	7/5258 (0.1%)

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	B	0	1

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1178	LEU	CA-CB-CG	6.75	130.82	115.30
1	A	178	LEU	CA-CB-CG	6.34	129.89	115.30
1	B	1025	ARG	NE-CZ-NH1	5.96	123.28	120.30
1	A	164	VAL	CB-CA-C	-5.69	100.59	111.40
1	B	1017	ASP	N-CA-C	-5.42	96.36	111.00
1	B	1077	VAL	CB-CA-C	-5.28	101.36	111.40
1	A	50	ASP	CB-CG-OD1	5.18	122.96	118.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	1144	TYR	Sidechain

5.2 Close contacts ⓘ

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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1927	0	1921	43	0
1	B	1927	0	1918	51	0
2	A	44	0	22	5	0
2	B	44	0	20	4	0
3	A	117	0	0	0	0
3	B	115	0	0	1	0
All	All	4174	0	3881	85	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 11.

All (85) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:1191:THR:HA	1:B:1194:LYS:HE2	1.42	0.99
1:B:1118:TYR:O	1:B:1122:THR:HB	1.84	0.77
1:B:1031:GLN:O	1:B:1035:LYS:HD3	1.86	0.75
1:A:149:GLN:HE21	1:B:1130:ASN:HD22	1.32	0.74
1:B:1227:SER:HB3	1:B:1230:GLU:HG3	1.69	0.73
1:B:1021:GLU:O	1:B:1025:ARG:HG3	1.91	0.70
1:A:149:GLN:NE2	1:B:1130:ASN:HD22	1.91	0.69
1:A:78:ARG:HD3	1:A:90:ALA:HB1	1.74	0.69
1:A:21:GLU:O	1:A:25:ARG:HG3	1.96	0.66
1:A:261:VAL:HG13	1:A:262:PRO:HD2	1.80	0.64
1:A:155:LEU:HD23	1:A:178:LEU:HD13	1.77	0.64
1:B:1025:ARG:NH2	1:B:1182:THR:O	2.29	0.63
1:B:1257:HIS:HE1	3:B:6099:HOH:O	1.81	0.63
1:A:199:PRO:HD2	1:A:202:LEU:HD12	1.80	0.63
1:B:1077:VAL:HG13	1:B:1103:TRP:HB2	1.79	0.63
1:A:149:GLN:HE21	1:B:1130:ASN:ND2	1.96	0.63
1:A:45:ILE:O	1:A:78:ARG:NH1	2.31	0.62
1:A:149:GLN:HE22	1:B:1127:THR:H	1.46	0.62
1:B:1155:LEU:HD23	1:B:1178:LEU:HD13	1.82	0.61
1:A:73:GLN:OE1	1:A:101:LYS:HE3	2.01	0.60
1:A:19:LYS:HE2	1:A:195:GLU:OE1	2.01	0.60

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:133:ASN:OD1	2:A:8000:DND:H5N2	2.01	0.60
1:B:1078:ARG:HA	1:B:1078:ARG:HE	1.67	0.59
1:B:1059:GLN:O	1:B:1063:GLU:HG3	2.04	0.58
1:B:1167:PHE:CD2	2:B:7000:DND:H2NC	2.38	0.58
1:B:1190:ARG:HG3	1:B:1203:TYR:HB2	1.85	0.56
1:B:1122:THR:HG22	1:B:1124:ASP:H	1.71	0.56
1:B:1226:ILE:CD1	1:B:1244:VAL:HG13	2.36	0.56
1:B:1187:ARG:HD2	1:B:1236:GLU:OE2	2.06	0.56
1:A:130:ASN:HD22	1:B:1149:GLN:HE21	1.54	0.55
1:B:1129:PHE:HE2	2:B:7000:DND:O11	1.89	0.55
1:A:4:GLU:HG2	1:A:8:ARG:HH21	1.73	0.54
1:A:64:SER:O	1:A:68:GLU:HG3	2.07	0.54
1:B:1160:ALA:O	1:B:1164:VAL:HG22	2.08	0.54
1:A:30:LYS:O	1:A:34:LYS:HG3	2.07	0.54
1:A:78:ARG:NH1	1:A:79:LEU:H	2.06	0.54
1:A:25:ARG:NH2	1:A:182:THR:O	2.42	0.53
1:A:129:PHE:CZ	2:A:8000:DND:H5N1	2.45	0.51
1:A:130:ASN:HD22	1:B:1149:GLN:NE2	2.08	0.51
1:B:1129:PHE:CE2	2:B:7000:DND:O11	2.63	0.51
1:A:130:ASN:ND2	1:B:1149:GLN:HE21	2.08	0.51
1:B:1257:HIS:HA	1:B:1269:TRP:CH2	2.45	0.51
1:A:160:ALA:O	1:A:164:VAL:HG22	2.10	0.51
1:B:1190:ARG:O	1:B:1194:LYS:HG3	2.11	0.51
1:A:59:GLN:NE2	1:A:99:PRO:HA	2.26	0.50
1:B:1062:VAL:HG22	1:B:1072:ALA:HB1	1.92	0.50
1:A:127:THR:H	1:B:1149:GLN:HE22	1.58	0.50
1:A:159:HIS:CD2	1:A:161:ALA:HB3	2.48	0.49
1:B:1122:THR:HG22	1:B:1124:ASP:N	2.27	0.49
1:B:1170:LYS:NZ	1:B:1257:HIS:HD2	2.11	0.49
1:A:252:TYR:O	1:A:259:ARG:NH2	2.46	0.49
1:B:1064:SER:O	1:B:1068:GLU:HG3	2.13	0.49
1:B:1045:ILE:O	1:B:1078:ARG:NE	2.48	0.47
1:B:1227:SER:HB3	1:B:1230:GLU:CG	2.40	0.47
1:B:1261:VAL:HG13	1:B:1262:PRO:HD2	1.97	0.47
1:B:1018:PRO:O	1:B:1022:ILE:HG13	2.16	0.45
1:B:1018:PRO:HB3	1:B:1191:THR:HG22	1.97	0.45
1:A:169:THR:OG1	2:A:8000:DND:H6NC	2.16	0.45
1:B:1201:ARG:O	1:B:1201:ARG:HD2	2.16	0.45
1:B:1226:ILE:HD12	1:B:1244:VAL:HG13	1.98	0.45
1:A:167:PHE:CE1	2:A:8000:DND:H2B	2.52	0.44
1:B:1185:THR:HB	1:B:1232:ASP:OD1	2.16	0.44
1:B:1233:ASP:OD2	1:B:1238:LYS:HD2	2.18	0.44

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:1078:ARG:NE	1:B:1078:ARG:HA	2.32	0.44
1:A:190:ARG:O	1:A:194:LYS:HG3	2.18	0.44
1:A:89:ASP:OD1	1:A:201:ARG:HD2	2.18	0.43
1:B:1251:ARG:HA	1:B:1251:ARG:HD2	1.67	0.43
1:B:1248:LEU:HD23	1:B:1248:LEU:HA	1.82	0.43
1:B:1167:PHE:CE2	2:B:7000:DND:H2NC	2.53	0.43
1:A:129:PHE:HZ	2:A:8000:DND:O11	2.02	0.43
1:A:61:ALA:O	1:A:65:ILE:HG13	2.19	0.42
1:A:78:ARG:CD	1:A:90:ALA:HB1	2.45	0.42
1:B:1010:LEU:HD11	1:B:1164:VAL:HG13	2.01	0.42
1:A:21:GLU:OE1	1:A:25:ARG:NH1	2.52	0.42
1:B:1194:LYS:HG2	1:B:1203:TYR:CZ	2.55	0.42
1:A:78:ARG:HD2	1:A:78:ARG:HA	1.79	0.42
1:A:170:LYS:NZ	1:A:257:HIS:HD2	2.18	0.41
1:A:200:GLU:HA	1:A:203:TYR:CE2	2.55	0.41
1:A:200:GLU:HG3	1:A:204:LEU:HD12	2.02	0.41
1:B:1039:LYS:HA	1:B:1039:LYS:HD3	1.88	0.41
1:A:149:GLN:NE2	1:B:1127:THR:H	2.17	0.41
1:A:39:LYS:O	1:A:72:ALA:HA	2.21	0.41
1:A:137:ARG:HA	1:A:172:GLY:HA2	2.03	0.41
1:B:1227:SER:O	1:B:1230:GLU:HB2	2.21	0.40
1:A:62:VAL:HG22	1:A:72:ALA:HB1	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone ⓘ

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	239/271 (88%)	237 (99%)	2 (1%)	0	100	100
1	B	239/271 (88%)	238 (100%)	1 (0%)	0	100	100
All	All	478/542 (88%)	475 (99%)	3 (1%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	202/226 (89%)	192 (95%)	10 (5%)	34	36
1	B	202/226 (89%)	192 (95%)	10 (5%)	34	36
All	All	404/452 (89%)	384 (95%)	20 (5%)	34	36

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	7	MET
1	A	23	GLU
1	A	33	VAL
1	A	71	ASP
1	A	92	LEU
1	A	124	ASP
1	A	164	VAL
1	A	178	LEU
1	A	228	TYR
1	A	239	GLU
1	B	1033	VAL
1	B	1077	VAL
1	B	1078	ARG
1	B	1092	LEU
1	B	1164	VAL
1	B	1178	LEU
1	B	1187	ARG
1	B	1228	TYR
1	B	1253	SER
1	B	1254	MET

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	31	GLN
1	A	59	GLN
1	A	81	HIS
1	A	117	GLN

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Mol	Chain	Res	Type
1	A	143	GLN
1	A	149	GLN
1	A	159	HIS
1	A	257	HIS
1	B	1020	GLN
1	B	1059	GLN
1	B	1117	GLN
1	B	1149	GLN
1	B	1159	HIS
1	B	1257	HIS

5.3.3 RNA ⓘ

There are no RNA chains 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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

2 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$
2	DND	A	8000	-	48,48,48	1.43	7 (14%)	73,73,73	3.64	32 (43%)
2	DND	B	7000	-	48,48,48	1.32	7 (14%)	73,73,73	3.32	30 (41%)

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
2	DND	A	8000	-	1/1/11/11	0/30/62/62	0/3/5/5
2	DND	B	7000	-	2/2/11/11	0/30/62/62	0/3/5/5

All (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	7000	DND	C2N-N1N	4.77	1.41	1.35
2	A	8000	DND	C2N-N1N	3.89	1.40	1.35
2	A	8000	DND	C3N-C7N	3.44	1.56	1.49
2	B	7000	DND	C4A-N9A	-3.20	1.33	1.37
2	A	8000	DND	C2D-C1D	-3.15	1.49	1.53
2	A	8000	DND	C4A-N9A	-3.01	1.33	1.37
2	B	7000	DND	C6N-N1N	2.68	1.43	1.35
2	A	8000	DND	C6N-N1N	2.33	1.42	1.35
2	B	7000	DND	C2D-C1D	-2.23	1.50	1.53
2	A	8000	DND	PA-O14	-2.21	1.45	1.55
2	B	7000	DND	O4B-C1B	2.16	1.44	1.41
2	A	8000	DND	PN-O3P	2.11	1.63	1.59
2	B	7000	DND	O7N-C7N	-2.06	1.23	1.30
2	B	7000	DND	C5A-N7A	-2.01	1.32	1.40

All (62) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	8000	DND	C4D-O4D-C1D	-13.43	95.16	109.75
2	A	8000	DND	O4D-C1D-N1N	10.75	118.95	107.95
2	B	7000	DND	C4D-O4D-C1D	-9.46	99.47	109.75
2	B	7000	DND	N3A-C2A-N1A	-9.46	120.80	128.71
2	A	8000	DND	O4B-C1B-N9A	8.19	116.06	108.44
2	B	7000	DND	O2B-C2B-C1B	8.08	135.68	111.23
2	B	7000	DND	C2D-C1D-N1N	8.05	127.49	113.86
2	A	8000	DND	C4B-O4B-C1B	-7.80	101.28	109.75
2	B	7000	DND	O3B-C3B-C4B	7.74	133.90	111.08
2	A	8000	DND	N3A-C4A-N9A	7.45	138.88	125.43
2	B	7000	DND	O3D-C3D-C4D	7.07	131.91	111.08
2	A	8000	DND	N3A-C2A-N1A	-6.84	122.99	128.71
2	A	8000	DND	O3B-C3B-C4B	6.50	130.24	111.08
2	A	8000	DND	C3D-C2D-C1D	-6.26	91.12	100.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	7000	DND	N3A-C4A-N9A	5.96	136.19	125.43
2	B	7000	DND	O2D-C2D-C1D	5.82	128.85	111.23
2	B	7000	DND	C4B-O4B-C1B	-5.73	103.53	109.75
2	A	8000	DND	O2D-C2D-C1D	5.70	128.46	111.23
2	A	8000	DND	O5D-C5D-C4D	-5.61	88.36	108.94
2	A	8000	DND	O2B-C2B-C1B	5.37	127.47	111.23
2	A	8000	DND	O3D-C3D-C4D	5.36	126.88	111.08
2	B	7000	DND	C4A-C5A-N7A	5.19	113.97	109.52
2	B	7000	DND	C2B-C1B-N9A	5.03	126.17	113.27
2	A	8000	DND	C4A-C5A-N7A	4.79	113.62	109.52
2	B	7000	DND	O5D-C5D-C4D	-4.68	91.76	108.94
2	A	8000	DND	C2B-C1B-N9A	4.38	124.51	113.27
2	A	8000	DND	O4D-C4D-C5D	4.35	124.87	109.36
2	B	7000	DND	O2D-C2D-C3D	4.00	124.85	111.83
2	A	8000	DND	C5A-C4A-N3A	-3.88	117.26	125.70
2	B	7000	DND	O4D-C4D-C3D	3.87	113.01	105.17
2	A	8000	DND	C6A-C5A-C4A	3.55	123.77	117.25
2	A	8000	DND	O4B-C4B-C3B	3.47	112.21	105.17
2	A	8000	DND	C5B-C4B-C3B	3.29	128.40	115.21
2	A	8000	DND	O3D-C3D-C2D	3.28	122.49	111.83
2	B	7000	DND	O4D-C4D-C5D	3.23	120.90	109.36
2	B	7000	DND	C2A-N1A-C6A	3.19	124.53	118.77
2	B	7000	DND	O4B-C4B-C3B	3.17	111.60	105.17
2	A	8000	DND	O3P-PN-O5D	-3.07	89.69	103.41
2	B	7000	DND	C5B-C4B-C3B	2.93	126.94	115.21
2	B	7000	DND	PA-O3P-PN	2.92	140.24	131.68
2	A	8000	DND	O4D-C4D-C3D	2.88	111.01	105.17
2	B	7000	DND	C5A-C4A-N3A	-2.88	119.43	125.70
2	A	8000	DND	C5A-C4A-N9A	-2.78	103.14	107.16
2	B	7000	DND	O4D-C1D-N1N	2.78	110.79	107.95
2	B	7000	DND	O4B-C4B-C5B	2.77	119.26	109.36
2	B	7000	DND	O12-PN-O3P	2.72	118.05	105.14
2	B	7000	DND	C6A-C5A-C4A	2.72	122.23	117.25
2	B	7000	DND	O3B-C3B-C2B	2.71	120.66	111.83
2	B	7000	DND	C5D-C4D-C3D	2.68	125.94	115.21
2	B	7000	DND	C2D-C3D-C4D	-2.66	97.36	102.65
2	B	7000	DND	C6N-N1N-C2N	-2.57	119.14	122.04
2	A	8000	DND	C6A-C5A-N7A	-2.52	121.69	131.34
2	A	8000	DND	C2D-C1D-N1N	2.46	118.03	113.86
2	A	8000	DND	C5N-C4N-C3N	2.38	123.41	120.32
2	A	8000	DND	PA-O3P-PN	2.31	138.44	131.68
2	B	7000	DND	O3D-C3D-C2D	2.20	118.98	111.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	8000	DND	C5D-C4D-C3D	2.18	123.96	115.21
2	A	8000	DND	O4B-C1B-C2B	2.16	110.08	106.77
2	B	7000	DND	O5D-PN-O11	2.14	117.76	109.37
2	A	8000	DND	C8A-N9A-C1B	-2.09	122.26	126.38
2	A	8000	DND	N6A-C6A-N1A	2.01	123.31	119.36
2	A	8000	DND	C2A-N3A-C4A	2.01	119.73	114.01

All (3) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	A	8000	DND	C4D
2	B	7000	DND	C3B
2	B	7000	DND	C4D

There are no torsion outliers.

There are no ring outliers.

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, 95th 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	245/271 (90%)	-0.43	2 (0%) 83 88	6, 18, 38, 49	0
1	B	245/271 (90%)	-0.38	4 (1%) 68 75	10, 20, 47, 64	0
All	All	490/542 (90%)	-0.41	6 (1%) 72 81	6, 19, 42, 64	0

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	1226	ILE	2.8
1	A	204	LEU	2.4
1	B	1228	TYR	2.3
1	B	1240	VAL	2.0
1	A	82	GLY	2.0
1	B	1125	GLN	2.0

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

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

6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

6.4 Ligands ⓘ

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th 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	RSR	LLDF	B-factors(\AA^2)	Q<0.9
2	DND	B	7000	44/44	0.15	1.92	16,31,78,79	0
2	DND	A	8000	44/44	0.14	1.40	14,28,71,77	0

6.5 Other polymers ⓘ

There are no such residues in this entry.