



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 01:25 AM UTC

PDB ID : 4N54 / pdb_00004n54
Title : Crystal structure of scyllo-inositol dehydrogenase from *Lactobacillus casei* with bound cofactor NAD(H) and scyllo-inositol
Authors : Bertwistle, D.; Sanders, D.A.R.; Palmer, D.R.J.
Deposited on : 2013-10-09
Resolution : 2.05 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 types of validation reports are described at

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

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

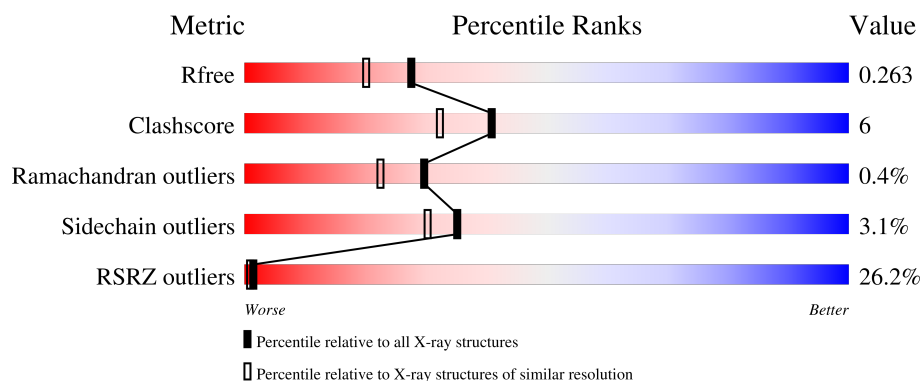
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.05 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}	180053	2260 (2.04-2.04)
Clashscore	190562	2333 (2.04-2.04)
Ramachandran outliers	187476	2318 (2.04-2.04)
Sidechain outliers	187428	2318 (2.04-2.04)
RSRZ outliers	180081	2260 (2.04-2.04)

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 of 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 $\leq 5\%$. 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	352	14% 84% 12% .
1	B	352	23% 82% 14% .
1	C	352	29% 83% 13% ..
1	D	352	36% 74% 20% ...

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 10913 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 Inositol dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	340	Total	C	N	O	S	0	0	0
			2626	1668	450	500	8			
1	B	340	Total	C	N	O	S	0	2	0
			2640	1676	452	504	8			
1	C	340	Total	C	N	O	S	0	0	0
			2626	1668	450	500	8			
1	D	340	Total	C	N	O	S	0	0	0
			2626	1668	450	500	8			

There are 48 discrepancies between the modelled and reference sequences:

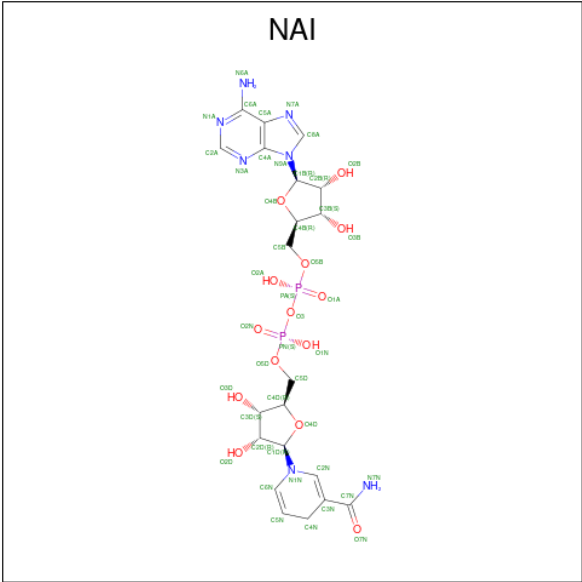
Chain	Residue	Modelled	Actual	Comment	Reference
A	-8	MET	-	expression tag	UNP B3W8L4
A	-7	ARG	-	expression tag	UNP B3W8L4
A	-6	GLY	-	expression tag	UNP B3W8L4
A	-5	SER	-	expression tag	UNP B3W8L4
A	-4	HIS	-	expression tag	UNP B3W8L4
A	-3	HIS	-	expression tag	UNP B3W8L4
A	-2	HIS	-	expression tag	UNP B3W8L4
A	-1	HIS	-	expression tag	UNP B3W8L4
A	0	HIS	-	expression tag	UNP B3W8L4
A	1	HIS	-	expression tag	UNP B3W8L4
A	2	GLY	-	expression tag	UNP B3W8L4
A	3	SER	-	expression tag	UNP B3W8L4
B	-8	MET	-	expression tag	UNP B3W8L4
B	-7	ARG	-	expression tag	UNP B3W8L4
B	-6	GLY	-	expression tag	UNP B3W8L4
B	-5	SER	-	expression tag	UNP B3W8L4
B	-4	HIS	-	expression tag	UNP B3W8L4
B	-3	HIS	-	expression tag	UNP B3W8L4
B	-2	HIS	-	expression tag	UNP B3W8L4
B	-1	HIS	-	expression tag	UNP B3W8L4
B	0	HIS	-	expression tag	UNP B3W8L4

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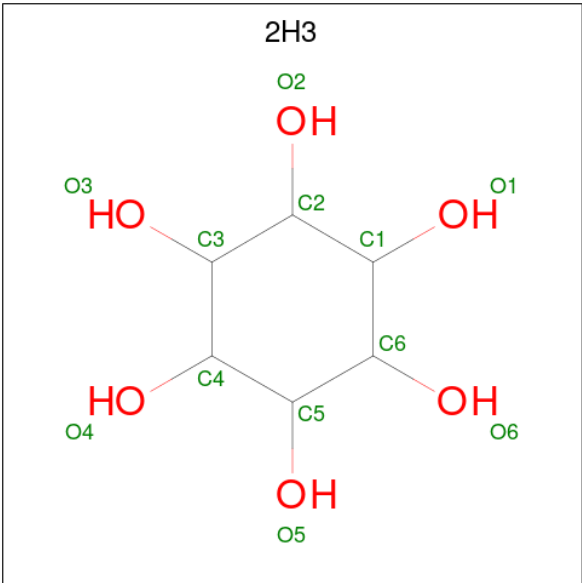
Chain	Residue	Modelled	Actual	Comment	Reference
B	1	HIS	-	expression tag	UNP B3W8L4
B	2	GLY	-	expression tag	UNP B3W8L4
B	3	SER	-	expression tag	UNP B3W8L4
C	-8	MET	-	expression tag	UNP B3W8L4
C	-7	ARG	-	expression tag	UNP B3W8L4
C	-6	GLY	-	expression tag	UNP B3W8L4
C	-5	SER	-	expression tag	UNP B3W8L4
C	-4	HIS	-	expression tag	UNP B3W8L4
C	-3	HIS	-	expression tag	UNP B3W8L4
C	-2	HIS	-	expression tag	UNP B3W8L4
C	-1	HIS	-	expression tag	UNP B3W8L4
C	0	HIS	-	expression tag	UNP B3W8L4
C	1	HIS	-	expression tag	UNP B3W8L4
C	2	GLY	-	expression tag	UNP B3W8L4
C	3	SER	-	expression tag	UNP B3W8L4
D	-8	MET	-	expression tag	UNP B3W8L4
D	-7	ARG	-	expression tag	UNP B3W8L4
D	-6	GLY	-	expression tag	UNP B3W8L4
D	-5	SER	-	expression tag	UNP B3W8L4
D	-4	HIS	-	expression tag	UNP B3W8L4
D	-3	HIS	-	expression tag	UNP B3W8L4
D	-2	HIS	-	expression tag	UNP B3W8L4
D	-1	HIS	-	expression tag	UNP B3W8L4
D	0	HIS	-	expression tag	UNP B3W8L4
D	1	HIS	-	expression tag	UNP B3W8L4
D	2	GLY	-	expression tag	UNP B3W8L4
D	3	SER	-	expression tag	UNP B3W8L4

- Molecule 2 is 1,4-DIHYDRONICOTINAMIDE ADENINE DINUCLEOTIDE (CCD ID: NAI) (formula: $C_{21}H_{29}N_7O_{14}P_2$).



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

- Molecule 3 is (1r,2r,3r,4r,5r,6r)-cyclohexane-1,2,3,4,5,6-hexol (CCD ID: 2H3) (formula: C₆H₁₂O₆).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			12	6	6		
3	B	1	Total	C	O	0	0
			12	6	6		
3	D	1	Total	C	O	0	0
			12	6	6		

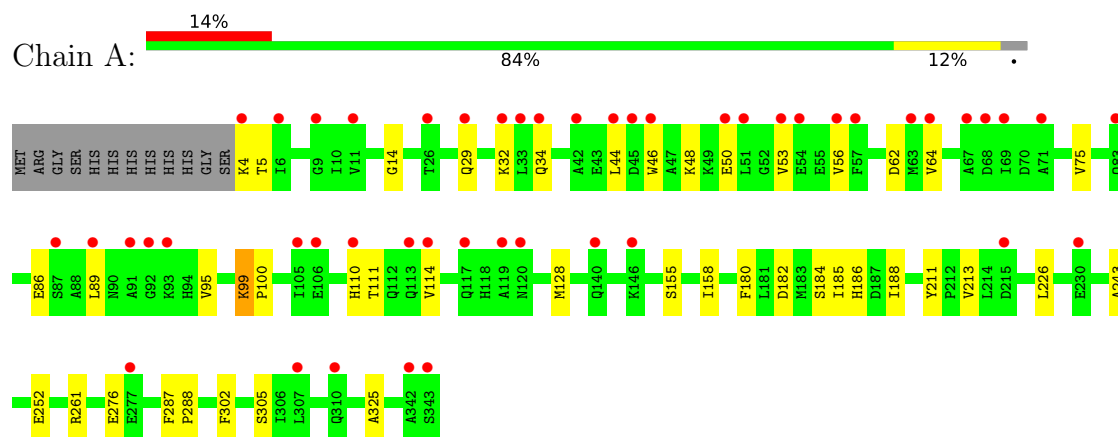
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	62	Total	O	0	0
			62	62		
4	B	54	Total	O	0	0
			54	54		
4	C	28	Total	O	0	0
			28	28		
4	D	39	Total	O	0	0
			39	39		

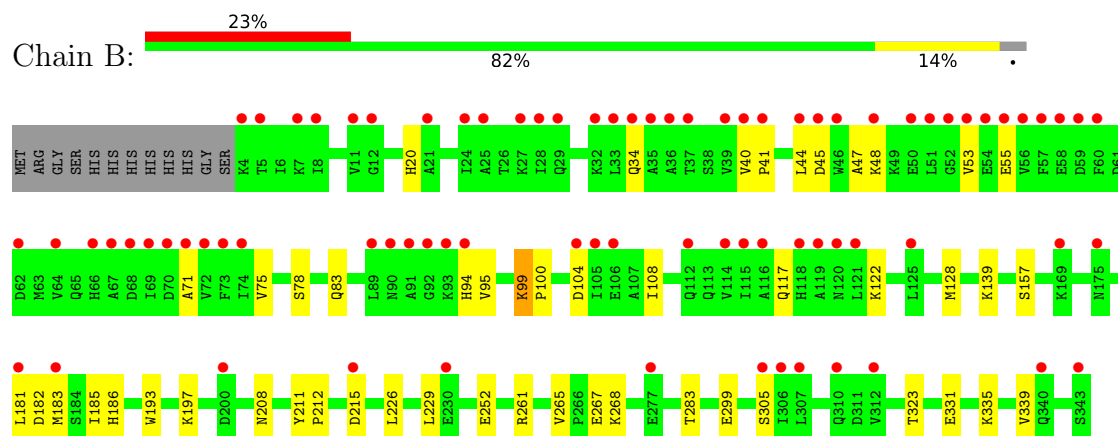
3 Residue-property plots [i](#)

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.

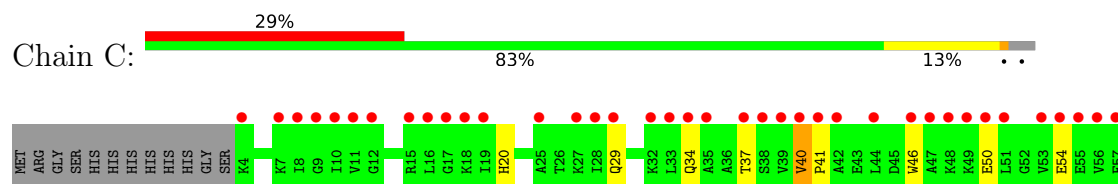
• Molecule 1: Inositol dehydrogenase

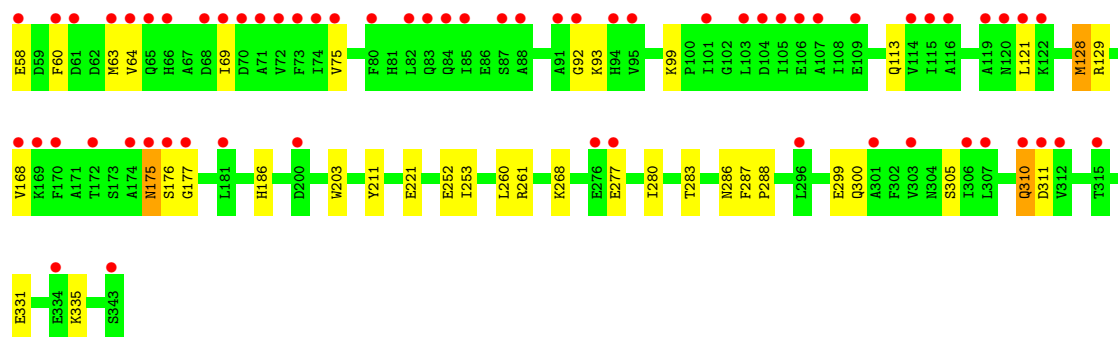


• Molecule 1: Inositol dehydrogenase

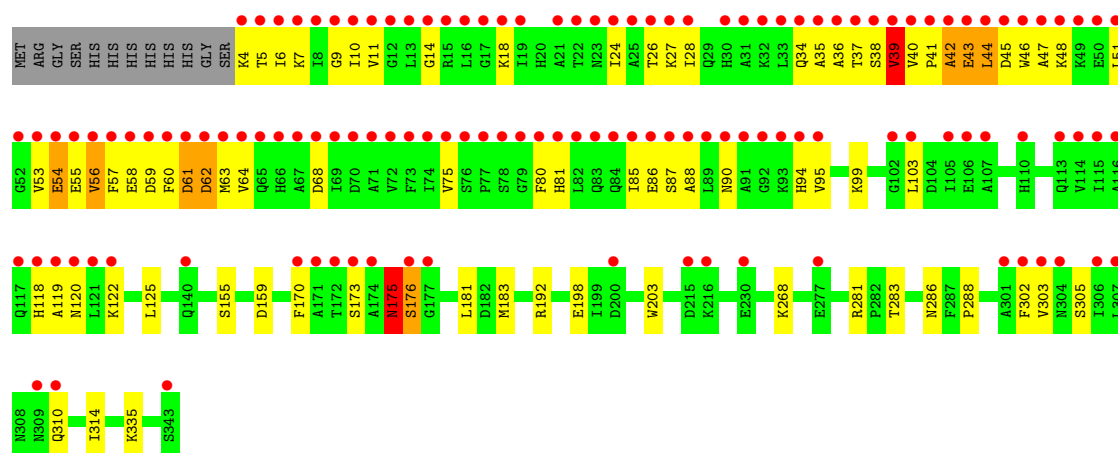
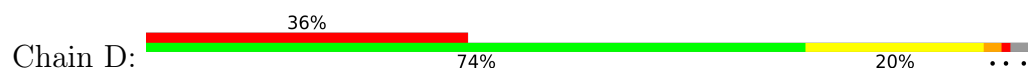


• Molecule 1: Inositol dehydrogenase





● Molecule 1: Inositol dehydrogenase



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	85.25Å 99.83Å 192.51Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	45.61 – 2.05 45.61 – 2.05	Depositor EDS
% Data completeness (in resolution range)	96.6 (45.61-2.05) 96.6 (45.61-2.05)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.14	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.96 (at 2.05Å)	Xtriage
Refinement program	PHENIX 1.8.2_1309	Depositor
R, R_{free}	0.222 , 0.261 0.224 , 0.263	Depositor DCC
R_{free} test set	5002 reflections (4.83%)	wwPDB-VP
Wilson B-factor (Å ²)	32.0	Xtriage
Anisotropy	0.519	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 46.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	10913	wwPDB-VP
Average B, all atoms (Å ²)	49.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.71% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: NAI, 2H3

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	0.97	0/2671	0.81	3/3610 (0.1%)
1	B	0.94	0/2688	0.81	3/3633 (0.1%)
1	C	0.94	0/2671	0.87	6/3610 (0.2%)
1	D	0.93	0/2671	0.88	3/3610 (0.1%)
All	All	0.94	0/10701	0.84	15/14463 (0.1%)

There are no bond length outliers.

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	211	TYR	CA-C-N	7.45	128.12	119.47
1	A	211	TYR	C-N-CA	7.45	128.12	119.47
1	C	40	VAL	CA-C-N	7.06	126.54	118.85
1	C	40	VAL	C-N-CA	7.06	126.54	118.85
1	D	39	VAL	CA-C-N	-5.95	118.15	123.33
1	D	39	VAL	C-N-CA	-5.95	118.15	123.33
1	B	211	TYR	CA-C-N	5.84	127.14	119.84
1	B	211	TYR	C-N-CA	5.84	127.14	119.84
1	C	58	GLU	N-CA-C	-5.83	105.94	114.39
1	D	95	VAL	N-CA-C	5.76	116.58	108.17
1	C	168	VAL	N-CA-C	-5.65	101.62	110.09
1	A	95	VAL	N-CA-C	5.62	116.21	108.12
1	C	211	TYR	CA-C-N	5.55	125.91	119.47
1	C	211	TYR	C-N-CA	5.55	125.91	119.47
1	B	95	VAL	N-CA-C	5.39	115.75	107.77

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-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 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	2626	0	2626	23	0
1	B	2640	0	2637	28	0
1	C	2626	0	2626	25	0
1	D	2626	0	2626	61	0
2	A	44	0	27	2	0
2	B	44	0	27	2	0
2	C	44	0	27	1	0
2	D	44	0	27	3	0
3	A	12	0	11	1	0
3	B	12	0	11	4	0
3	D	12	0	12	3	0
4	A	62	0	0	0	0
4	B	54	0	0	0	0
4	C	28	0	0	0	0
4	D	39	0	0	0	0
All	All	10913	0	10657	138	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 6.

All (138) 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:D:59:ASP:HB3	1:D:62:ASP:HB2	1.49	0.94
1:D:42:ALA:O	1:D:44:LEU:N	2.02	0.92
1:D:37:THR:OG1	1:D:63:MET:SD	2.28	0.91
1:C:69:ILE:O	1:C:93:LYS:NZ	2.17	0.77
1:C:176:SER:HB2	1:C:177:GLY:HA2	1.67	0.76
1:D:59:ASP:OD2	1:D:62:ASP:N	2.21	0.74
1:D:42:ALA:HA	1:D:45:ASP:HB2	1.68	0.74
1:A:99:LYS:NZ	1:A:182:ASP:O	2.21	0.72
1:D:44:LEU:HA	1:D:47:ALA:HB3	1.72	0.71
1:C:34:GLN:NE2	1:C:54:GLU:OE1	2.19	0.70
1:D:34:GLN:NE2	1:D:55:GLU:OE2	2.25	0.69
2:B:401:NAI:H42N	3:B:402:2H3:H11	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:401:NAI:H42N	3:D:402:2H3:H11	1.75	0.67
1:A:4:LYS:HG2	1:A:5:THR:H	1.62	0.65
1:B:208[B]:ASN:HD21	1:B:212:PRO:HA	1.63	0.64
1:D:47:ALA:HB1	1:D:53:VAL:HG21	1.79	0.64
1:D:60:PHE:HZ	1:D:88:ALA:HB2	1.63	0.63
1:D:61:ASP:OD1	1:D:61:ASP:N	2.27	0.63
1:B:208[B]:ASN:ND2	1:B:215:ASP:OD2	2.29	0.62
1:D:40:VAL:HG21	1:D:43:GLU:HB2	1.82	0.62
1:A:188:ILE:HD13	1:A:325:ALA:HB3	1.83	0.61
1:C:310:GLN:NE2	1:C:311:ASP:O	2.34	0.61
1:D:38:SER:OG	1:D:39:VAL:N	2.35	0.59
1:D:54:GLU:HB2	1:D:55:GLU:HG3	1.85	0.58
1:D:41:PRO:O	1:D:45:ASP:N	2.36	0.58
1:D:170:PHE:HE1	2:D:401:NAI:O1A	1.87	0.58
1:B:20:HIS:ND1	1:B:299:GLU:OE2	2.33	0.57
1:D:44:LEU:O	1:D:48:LYS:N	2.31	0.57
1:C:20:HIS:ND1	1:C:299:GLU:OE2	2.33	0.56
1:D:302:PHE:O	1:D:305:SER:OG	2.16	0.56
1:D:44:LEU:HG	1:D:56:VAL:HB	1.87	0.55
1:D:44:LEU:HD11	1:D:56:VAL:HG11	1.87	0.55
1:C:99:LYS:HE2	1:C:186:HIS:CE1	2.42	0.54
1:D:38:SER:OG	1:D:40:VAL:HG22	2.06	0.54
1:C:305:SER:HB2	1:C:310:GLN:O	2.08	0.53
1:D:9:GLY:HA3	1:D:35:ALA:HB3	1.90	0.53
1:C:253:ILE:HD12	1:C:260:LEU:HD11	1.89	0.53
1:C:331:GLU:OE2	1:C:335:LYS:NZ	2.32	0.53
1:B:252:GLU:HB2	1:B:261:ARG:HG2	1.91	0.52
1:A:29:GLN:HE22	1:D:26:THR:HB	1.75	0.52
2:B:401:NAI:C4N	3:B:402:2H3:H11	2.40	0.52
1:B:331:GLU:O	1:B:335:LYS:HG3	2.10	0.52
1:D:38:SER:CB	1:D:40:VAL:HG22	2.40	0.51
1:B:45:ASP:HA	1:B:48:LYS:HE3	1.91	0.51
1:C:252:GLU:HB2	1:C:261:ARG:HG2	1.91	0.51
1:D:44:LEU:HA	1:D:47:ALA:CB	2.39	0.51
1:C:37:THR:OG1	1:C:63:MET:SD	2.65	0.51
1:D:7:LYS:HD3	1:D:68:ASP:O	2.11	0.51
1:D:42:ALA:C	1:D:44:LEU:N	2.68	0.51
1:B:157:SER:HB3	1:B:183:MET:HE3	1.94	0.50
1:D:125:LEU:HB3	1:D:314:ILE:HG22	1.94	0.50
1:D:34:GLN:NE2	1:D:54:GLU:OE1	2.31	0.50
1:D:44:LEU:O	1:D:44:LEU:HD22	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:32:LYS:HE3	1:A:34:GLN:OE1	2.11	0.49
1:B:99:LYS:HD3	1:B:186:HIS:NE2	2.28	0.49
1:A:29:GLN:NE2	1:D:26:THR:O	2.45	0.49
1:D:38:SER:C	1:D:40:VAL:H	2.19	0.49
1:D:183:MET:SD	3:D:402:2H3:H2	2.52	0.49
1:B:99:LYS:O	1:B:99:LYS:HE3	2.12	0.49
1:D:34:GLN:HE22	1:D:54:GLU:CD	2.19	0.49
1:B:183:MET:SD	3:B:402:2H3:H2	2.52	0.49
1:A:180:PHE:HA	1:A:184:SER:HB2	1.95	0.48
1:D:38:SER:HB3	1:D:40:VAL:HG22	1.95	0.48
2:A:401:NAI:H42N	3:A:402:2H3:H11	1.94	0.48
1:B:265:VAL:HG23	1:B:267:GLU:HG3	1.95	0.48
1:A:302:PHE:O	1:A:305:SER:OG	2.27	0.48
1:B:99:LYS:NZ	1:B:182:ASP:O	2.46	0.48
1:D:10:ILE:O	1:D:36:ALA:HA	2.14	0.47
1:A:46:TRP:CD1	1:A:50:GLU:HG3	2.49	0.47
1:B:268:LYS:HB2	1:B:283:THR:C	2.38	0.47
1:C:60:PHE:O	1:C:64:VAL:HG23	2.15	0.47
1:C:46:TRP:CD1	1:C:50:GLU:HG3	2.50	0.46
1:A:276:GLU:H	1:A:276:GLU:CD	2.22	0.46
1:D:81:HIS:O	1:D:85:ILE:N	2.48	0.46
1:C:128:MET:HE2	1:C:129:ARG:HG3	1.97	0.46
1:D:14:GLY:O	1:D:18:LYS:HG2	2.15	0.46
1:D:43:GLU:O	1:D:46:TRP:HB3	2.16	0.46
1:D:192:ARG:NH2	1:D:198:GLU:OE2	2.34	0.46
1:D:57:PHE:CD2	1:D:63:MET:HA	2.51	0.46
1:D:103:LEU:HD22	1:D:181:LEU:HD21	1.97	0.46
1:D:118:HIS:C	1:D:120:ASN:H	2.24	0.46
1:D:286:ASN:OD1	1:D:288:PRO:HD2	2.15	0.46
1:A:99:LYS:HD3	1:A:186:HIS:NE2	2.31	0.45
1:D:61:ASP:HA	1:D:64:VAL:HG22	1.98	0.45
1:C:175:ASN:O	1:C:176:SER:OG	2.27	0.45
1:C:46:TRP:O	1:C:50:GLU:HB2	2.17	0.45
1:D:80:PHE:CZ	2:D:401:NAI:N6A	2.85	0.45
1:C:268:LYS:HB2	1:C:283:THR:C	2.42	0.45
1:D:6:ILE:HG13	1:D:303:VAL:HG13	1.98	0.45
1:D:60:PHE:CZ	1:D:88:ALA:HB2	2.49	0.44
1:D:175:ASN:O	1:D:176:SER:HB3	2.17	0.44
1:D:122:LYS:HZ1	1:D:310:GLN:C	2.25	0.44
1:C:92:GLY:HA2	1:C:121:LEU:HD11	1.98	0.44
1:B:331:GLU:HG2	1:B:339:VAL:HG21	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:277:GLU:HB2	1:C:280:ILE:HD11	1.99	0.44
1:A:86:GLU:HG3	1:A:111:THR:HG23	1.99	0.44
1:B:34:GLN:NE2	1:B:55:GLU:OE2	2.43	0.44
1:C:40:VAL:HA	1:C:41:PRO:HD3	1.70	0.44
1:D:159:ASP:OD1	3:D:402:2H3:O4	2.33	0.44
1:B:183:MET:SD	3:B:402:2H3:H5	2.58	0.43
1:B:208[A]:ASN:ND2	1:B:215:ASP:OD1	2.51	0.43
1:D:26:THR:OG1	1:D:27:LYS:HG3	2.17	0.43
1:A:252:GLU:HB2	1:A:261:ARG:HG2	2.00	0.43
1:B:104:ASP:O	1:B:108:ILE:HG13	2.19	0.43
1:D:24:ILE:HA	1:D:28:ILE:HB	2.00	0.43
1:C:286:ASN:OD1	1:C:288:PRO:HD2	2.19	0.43
1:D:268:LYS:HB2	1:D:283:THR:C	2.44	0.43
1:A:100:PRO:HB3	1:A:185:ILE:HD13	1.99	0.43
1:A:226:LEU:HD23	1:C:203:TRP:CE3	2.53	0.43
1:B:139:LYS:HE3	1:B:193:TRP:NE1	2.34	0.43
1:C:29:GLN:HG2	1:C:300:GLN:NE2	2.33	0.43
1:D:38:SER:O	1:D:58:GLU:HG3	2.19	0.43
1:D:37:THR:HG23	1:D:57:PHE:HB2	2.01	0.42
1:A:287:PHE:CG	1:A:288:PRO:HD3	2.53	0.42
1:A:48:LYS:HG2	1:A:53:VAL:O	2.19	0.42
1:A:158:ILE:HG22	1:A:243:ALA:HB2	2.01	0.42
1:B:40:VAL:HA	1:B:41:PRO:HD3	1.80	0.42
1:A:14:GLY:HA3	2:A:401:NAI:O5B	2.19	0.42
1:A:99:LYS:O	1:A:99:LYS:HE3	2.20	0.42
1:A:110:HIS:O	1:A:114:VAL:HG23	2.20	0.42
1:B:78:SER:OG	1:B:100:PRO:HD2	2.19	0.42
1:C:287:PHE:CG	1:C:288:PRO:HD3	2.54	0.42
1:D:94:HIS:ND1	1:D:122:LYS:HG2	2.35	0.42
1:B:47:ALA:HB1	1:B:53:VAL:HG21	2.00	0.42
2:C:400:NAI:H2D	2:C:400:NAI:H6N	1.84	0.42
1:A:44:LEU:HD13	1:A:56:VAL:HB	2.01	0.42
1:B:181:LEU:HD21	1:B:323:THR:HG23	2.02	0.41
1:D:47:ALA:O	1:D:51:LEU:HB2	2.20	0.41
1:B:122:LYS:HE3	1:B:305:SER:O	2.21	0.41
1:B:197:LYS:HB2	1:B:229:LEU:HD23	2.01	0.41
1:D:86:GLU:O	1:D:90:ASN:N	2.41	0.41
1:B:226:LEU:HD23	1:D:203:TRP:CE3	2.56	0.41
1:B:41:PRO:HA	1:B:44:LEU:HD12	2.02	0.41
1:D:281:ARG:HA	1:D:281:ARG:HD2	1.79	0.41
1:B:71:ALA:HB2	1:B:94:HIS:HB2	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:175:ASN:C	1:C:176:SER:HG	2.24	0.40
1:A:89:LEU:HD23	1:A:89:LEU:HA	1.96	0.40
1:D:60:PHE:HE2	1:D:87:SER:HB3	1.86	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	338/352 (96%)	329 (97%)	9 (3%)	0	100	100
1	B	340/352 (97%)	329 (97%)	11 (3%)	0	100	100
1	C	338/352 (96%)	325 (96%)	13 (4%)	0	100	100
1	D	338/352 (96%)	312 (92%)	21 (6%)	5 (2%)	8	2
All	All	1354/1408 (96%)	1295 (96%)	54 (4%)	5 (0%)	30	22

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	43	GLU
1	D	175	ASN
1	D	176	SER
1	D	119	ALA
1	D	42	ALA

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	275/285 (96%)	268 (98%)	7 (2%)	42	39
1	B	277/285 (97%)	271 (98%)	6 (2%)	45	44
1	C	275/285 (96%)	269 (98%)	6 (2%)	45	44
1	D	275/285 (96%)	260 (94%)	15 (6%)	19	12
All	All	1102/1140 (97%)	1068 (97%)	34 (3%)	35	30

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	62	ASP
1	A	64	VAL
1	A	75	VAL
1	A	99	LYS
1	A	128	MET
1	A	155	SER
1	A	213	VAL
1	B	75	VAL
1	B	83	GLN
1	B	99	LYS
1	B	117	GLN
1	B	128	MET
1	B	185	ILE
1	C	75	VAL
1	C	113	GLN
1	C	128	MET
1	C	175	ASN
1	C	221	GLU
1	C	310	GLN
1	D	4	LYS
1	D	5	THR
1	D	11	VAL
1	D	39	VAL
1	D	44	LEU
1	D	54	GLU
1	D	56	VAL
1	D	61	ASP
1	D	62	ASP
1	D	75	VAL
1	D	99	LYS

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Mol	Chain	Res	Type
1	D	155	SER
1	D	173	SER
1	D	175	ASN
1	D	335	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	29	GLN
1	C	113	GLN
1	C	330	GLN
1	D	34	GLN
1	D	144	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

7 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	2H3	B	402	-	12,12,12	2.13	7 (58%)	18,18,18	1.02	0
3	2H3	A	402	-	12,12,12	2.14	6 (50%)	18,18,18	1.08	2 (11%)
2	NAI	D	401	-	47,48,48	1.27	6 (12%)	64,73,73	2.04	18 (28%)
2	NAI	A	401	-	47,48,48	1.58	9 (19%)	64,73,73	1.69	14 (21%)
2	NAI	C	400	-	47,48,48	2.12	13 (27%)	64,73,73	4.10	27 (42%)
3	2H3	D	402	-	12,12,12	2.09	5 (41%)	18,18,18	1.35	2 (11%)
2	NAI	B	401	-	47,48,48	1.51	8 (17%)	64,73,73	1.78	16 (25%)

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	2H3	B	402	-	-	-	0/1/1/1
3	2H3	A	402	-	-	-	0/1/1/1
2	NAI	D	401	-	-	5/29/72/72	0/5/5/5
2	NAI	A	401	-	-	5/29/72/72	0/5/5/5
2	NAI	C	400	-	-	5/29/72/72	0/5/5/5
3	2H3	D	402	-	-	-	0/1/1/1
2	NAI	B	401	-	-	4/29/72/72	0/5/5/5

All (54) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	400	NAI	C4N-C3N	-6.24	1.38	1.50
2	C	400	NAI	C7N-C3N	-4.43	1.39	1.48
3	A	402	2H3	C2-C1	4.40	1.63	1.52
3	D	402	2H3	C2-C1	4.34	1.63	1.52
2	C	400	NAI	C4N-C5N	-4.11	1.38	1.49
3	B	402	2H3	C2-C1	4.07	1.62	1.52
2	C	400	NAI	C5A-C4A	-3.93	1.32	1.39
2	B	401	NAI	C5A-N7A	-3.72	1.32	1.39
2	C	400	NAI	C2B-C3B	-3.67	1.43	1.53
2	A	401	NAI	C5A-N7A	-3.63	1.32	1.39
2	C	400	NAI	C5A-N7A	-3.54	1.32	1.39
2	B	401	NAI	C4A-N9A	-3.48	1.30	1.37
2	A	401	NAI	C5A-C4A	3.42	1.45	1.39
2	A	401	NAI	C8A-N9A	-3.31	1.31	1.37
2	C	400	NAI	C2D-C3D	-3.29	1.44	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	401	NAI	C5A-C4A	3.27	1.44	1.39
2	C	400	NAI	PA-O3	-3.21	1.56	1.59
2	C	400	NAI	C5A-C6A	-3.12	1.32	1.41
2	C	400	NAI	C8A-N9A	-3.02	1.32	1.37
2	B	401	NAI	C8A-N9A	-3.01	1.32	1.37
2	A	401	NAI	C4A-N9A	-2.95	1.31	1.37
2	C	400	NAI	C2A-N1A	2.94	1.39	1.33
2	A	401	NAI	O7N-C7N	-2.92	1.17	1.24
2	A	401	NAI	PN-O3	-2.85	1.56	1.59
2	C	400	NAI	C4A-N9A	-2.69	1.32	1.37
2	C	400	NAI	C2A-N3A	2.60	1.38	1.33
3	B	402	2H3	O6-C6	-2.59	1.36	1.43
3	A	402	2H3	O6-C6	-2.58	1.36	1.43
2	D	401	NAI	O7N-C7N	-2.53	1.18	1.24
3	B	402	2H3	O5-C5	-2.47	1.36	1.43
2	B	401	NAI	PN-O1N	-2.47	1.43	1.55
2	B	401	NAI	C5A-C4A	2.45	1.43	1.39
3	A	402	2H3	O5-C5	-2.43	1.36	1.43
2	D	401	NAI	C6N-N1N	-2.43	1.31	1.37
2	A	401	NAI	PN-O1N	-2.40	1.44	1.55
3	A	402	2H3	O2-C2	-2.37	1.37	1.43
3	B	402	2H3	O3-C3	-2.36	1.37	1.43
3	D	402	2H3	O4-C4	-2.31	1.37	1.43
2	A	401	NAI	C6N-N1N	-2.31	1.31	1.37
2	B	401	NAI	C6N-N1N	-2.29	1.31	1.37
3	A	402	2H3	O1-C1	-2.27	1.37	1.43
3	D	402	2H3	O3-C3	-2.21	1.37	1.43
2	B	401	NAI	O7N-C7N	-2.18	1.19	1.24
3	B	402	2H3	O2-C2	-2.18	1.37	1.43
3	D	402	2H3	O5-C5	-2.17	1.37	1.43
3	B	402	2H3	O1-C1	-2.15	1.37	1.43
3	D	402	2H3	O6-C6	-2.13	1.37	1.43
2	D	401	NAI	C5A-C6A	2.12	1.46	1.41
2	A	401	NAI	C5A-C6A	2.11	1.46	1.41
2	D	401	NAI	C5A-N7A	-2.10	1.35	1.39
2	D	401	NAI	C4A-N9A	-2.10	1.33	1.37
3	A	402	2H3	O4-C4	-2.09	1.37	1.43
3	B	402	2H3	O4-C4	-2.05	1.37	1.43
2	B	401	NAI	O4D-C4D	-2.04	1.40	1.45

All (79) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	400	NAI	O4D-C1D-C2D	-15.00	74.52	106.62
2	C	400	NAI	O4B-C1B-C2B	-14.78	74.98	106.62
2	C	400	NAI	O4D-C4D-C5D	-10.01	77.26	109.33
2	C	400	NAI	O4B-C4B-C5B	-9.90	77.61	109.33
2	C	400	NAI	O4D-C4D-C3D	-7.93	89.42	105.15
2	C	400	NAI	N3A-C2A-N1A	-7.49	117.24	128.58
2	C	400	NAI	O4B-C4B-C3B	-6.85	91.56	105.15
2	A	401	NAI	C5A-C4A-N3A	-6.31	118.03	126.72
2	B	401	NAI	C5A-C4A-N3A	-5.45	119.21	126.72
2	C	400	NAI	C3B-C2B-C1B	-5.34	91.36	101.46
2	C	400	NAI	C5B-C4B-C3B	5.25	134.13	115.21
2	D	401	NAI	C5A-C4A-N3A	-5.19	119.58	126.72
2	C	400	NAI	C5D-C4D-C3D	5.16	133.79	115.21
2	A	401	NAI	N3A-C4A-N9A	5.03	135.72	127.17
2	D	401	NAI	N3A-C4A-N9A	5.03	135.72	127.17
2	D	401	NAI	C4A-N9A-C8A	4.99	110.98	105.74
2	C	400	NAI	C5A-C4A-N3A	-4.54	120.47	126.72
2	D	401	NAI	N3A-C2A-N1A	-4.40	121.92	128.58
2	C	400	NAI	N9A-C8A-N7A	-4.35	107.77	113.94
2	B	401	NAI	N3A-C2A-N1A	-4.28	122.10	128.58
2	B	401	NAI	C2A-N3A-C4A	4.19	122.07	111.83
2	D	401	NAI	C2A-N3A-C4A	4.17	122.02	111.83
2	D	401	NAI	O3B-C3B-C2B	-3.90	99.33	111.82
2	B	401	NAI	N3A-C4A-N9A	3.89	133.79	127.17
2	A	401	NAI	C2A-N3A-C4A	3.84	121.21	111.83
2	B	401	NAI	C4A-C5A-N7A	-3.71	106.34	110.58
2	C	400	NAI	C2A-N3A-C4A	3.62	120.67	111.83
2	D	401	NAI	O4B-C1B-N9A	3.48	114.77	108.09
2	D	401	NAI	N9A-C8A-N7A	-3.48	109.00	113.94
2	A	401	NAI	C4A-C5A-N7A	-3.45	106.64	110.58
2	D	401	NAI	O4D-C1D-N1N	3.24	114.27	108.08
2	C	400	NAI	C5A-C6A-N6A	-3.13	115.53	123.29
2	C	400	NAI	C3D-C2D-C1D	-2.95	95.89	101.46
2	B	401	NAI	C6N-N1N-C2N	2.88	122.41	119.32
2	C	400	NAI	C1D-N1N-C2N	2.88	125.89	121.14
3	D	402	2H3	C1-C2-C3	-2.85	105.83	110.83
2	B	401	NAI	C6A-C5A-N7A	2.73	137.35	132.09
2	A	401	NAI	C3N-C7N-N7N	2.73	122.51	117.67
2	D	401	NAI	C5A-N7A-C8A	2.72	107.72	103.45
2	A	401	NAI	N3A-C2A-N1A	-2.71	124.48	128.58
2	C	400	NAI	C5A-N7A-C8A	2.69	107.68	103.45
2	B	401	NAI	C4A-N9A-C8A	2.67	108.54	105.74
3	D	402	2H3	O4-C4-C5	-2.66	104.11	110.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	401	NAI	C5A-N7A-C8A	2.64	107.60	103.45
2	A	401	NAI	C4A-N9A-C8A	2.61	108.48	105.74
2	D	401	NAI	C4A-C5A-N7A	-2.61	107.60	110.58
2	A	401	NAI	C1D-N1N-C2N	-2.53	116.97	121.14
2	A	401	NAI	C6N-N1N-C2N	2.52	122.02	119.32
2	B	401	NAI	O3-PA-O1A	-2.49	103.23	110.70
2	D	401	NAI	O1N-PN-O2N	2.49	124.01	112.44
2	C	400	NAI	C2B-C3B-C4B	-2.48	97.81	102.61
2	C	400	NAI	N3A-C4A-N9A	2.44	131.32	127.17
2	C	400	NAI	C2D-C3D-C4D	-2.42	97.93	102.61
2	B	401	NAI	N9A-C8A-N7A	-2.41	110.52	113.94
2	B	401	NAI	O7N-C7N-C3N	-2.40	116.38	120.90
2	D	401	NAI	C6A-C5A-N7A	2.38	136.68	132.09
2	C	400	NAI	C6A-C5A-C4A	2.38	120.43	117.18
2	C	400	NAI	C4A-N9A-C8A	2.35	108.21	105.74
2	C	400	NAI	O2A-PA-O3	-2.34	100.95	107.27
2	A	401	NAI	C5A-N7A-C8A	2.33	107.11	103.45
2	A	401	NAI	O2A-PA-O1A	2.30	123.16	112.44
2	B	401	NAI	C2A-N1A-C6A	2.27	122.47	118.73
2	D	401	NAI	C4B-O4B-C1B	-2.27	104.46	109.47
2	B	401	NAI	O1N-PN-O2N	2.26	122.96	112.44
3	A	402	2H3	O4-C4-C5	-2.24	105.08	110.38
2	C	400	NAI	C4B-O4B-C1B	-2.22	104.57	109.47
2	C	400	NAI	C6N-N1N-C2N	-2.19	116.98	119.32
2	D	401	NAI	C5A-C6A-N6A	-2.19	117.87	123.29
2	A	401	NAI	O3-PA-O1A	-2.17	104.18	110.70
2	C	400	NAI	O2D-C2D-C3D	-2.16	104.88	111.82
2	B	401	NAI	O1N-PN-O3	-2.12	101.55	107.27
3	A	402	2H3	C2-C3-C4	2.11	114.54	110.83
2	A	401	NAI	C6A-C5A-N7A	2.10	136.13	132.09
2	D	401	NAI	C2B-C1B-N9A	-2.10	108.10	113.30
2	C	400	NAI	C4A-C5A-N7A	-2.09	108.19	110.58
2	D	401	NAI	N6A-C6A-N1A	2.08	123.01	118.38
2	D	401	NAI	O2B-C2B-C3B	-2.06	105.21	111.82
2	A	401	NAI	O3B-C3B-C2B	-2.03	105.32	111.82
2	B	401	NAI	O2A-PA-O3	2.02	112.73	107.27

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	400	NAI	C3D-C4D-C5D-O5D

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Mol	Chain	Res	Type	Atoms
2	C	400	NAI	C2D-C1D-N1N-C2N
2	C	400	NAI	O4B-C4B-C5B-O5B
2	C	400	NAI	O4D-C1D-N1N-C2N
2	C	400	NAI	C2D-C1D-N1N-C6N
2	B	401	NAI	PN-O3-PA-O1A
2	A	401	NAI	C3B-C4B-C5B-O5B
2	A	401	NAI	O4D-C1D-N1N-C2N
2	A	401	NAI	O4B-C4B-C5B-O5B
2	B	401	NAI	O4D-C1D-N1N-C2N
2	D	401	NAI	O4D-C1D-N1N-C2N
2	D	401	NAI	C2D-C1D-N1N-C2N
2	D	401	NAI	O4D-C1D-N1N-C6N
2	A	401	NAI	C2D-C1D-N1N-C2N
2	D	401	NAI	C2D-C1D-N1N-C6N
2	B	401	NAI	PN-O3-PA-O2A
2	B	401	NAI	C2D-C1D-N1N-C2N
2	A	401	NAI	PN-O3-PA-O2A
2	D	401	NAI	PN-O3-PA-O1A

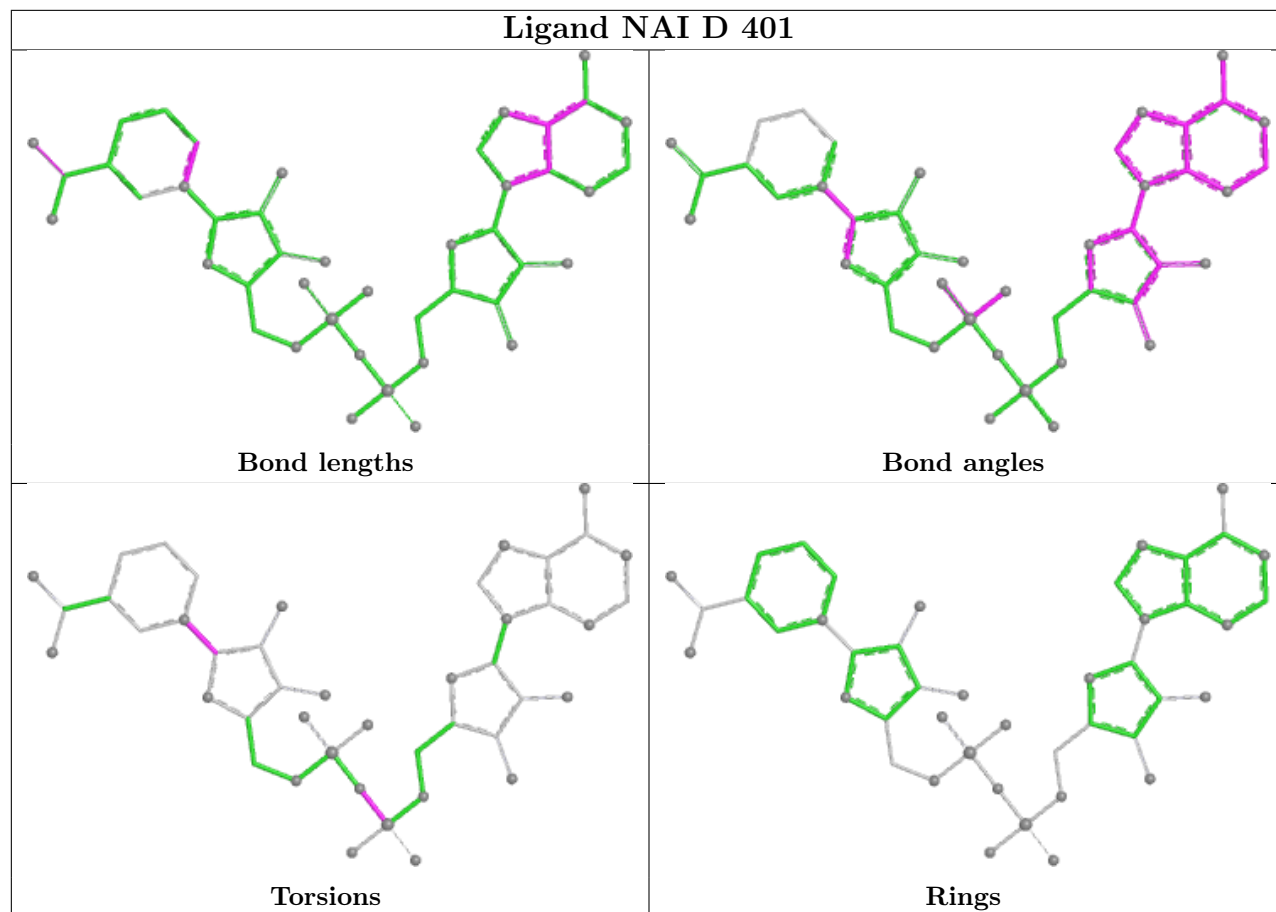
There are no ring outliers.

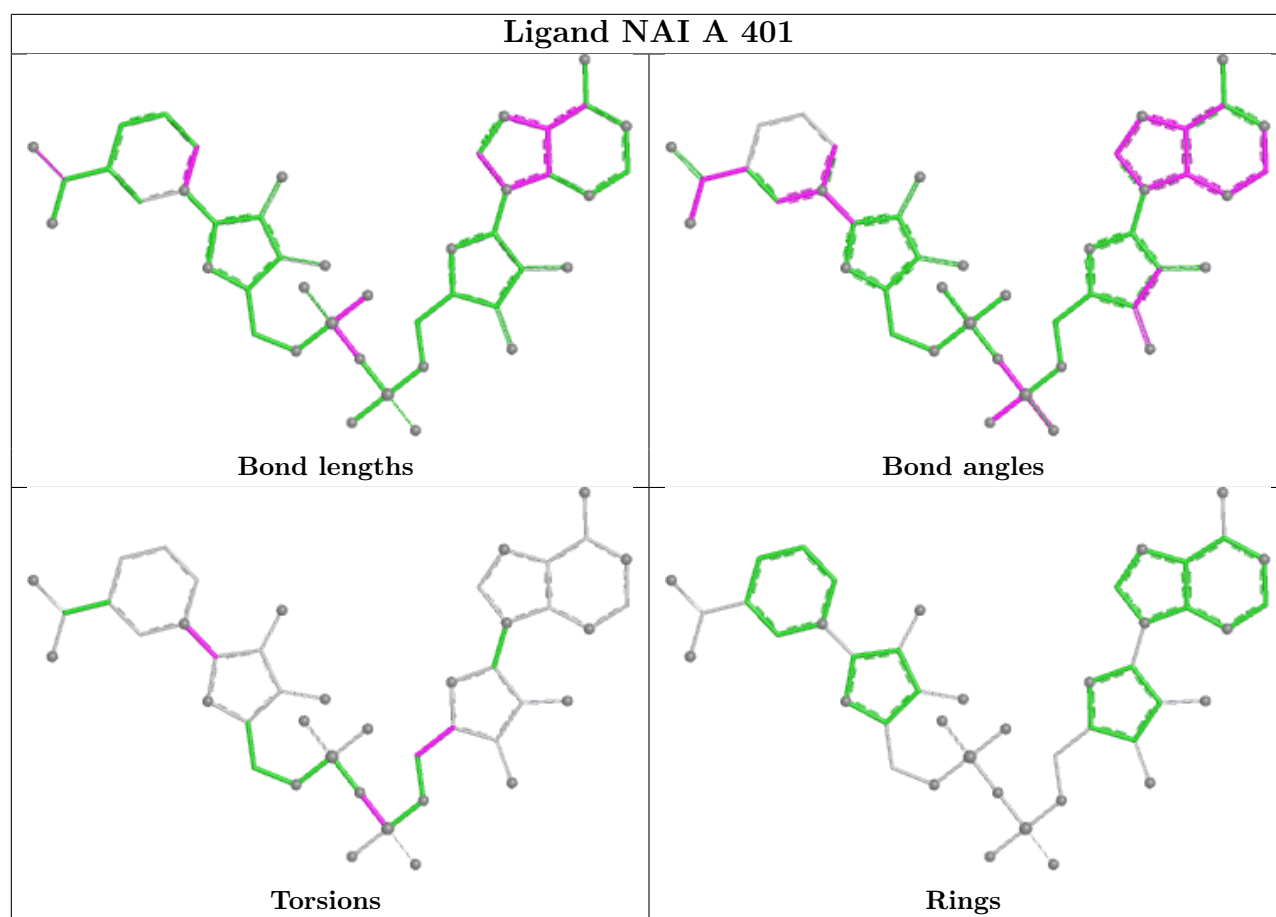
7 monomers are involved in 12 short contacts:

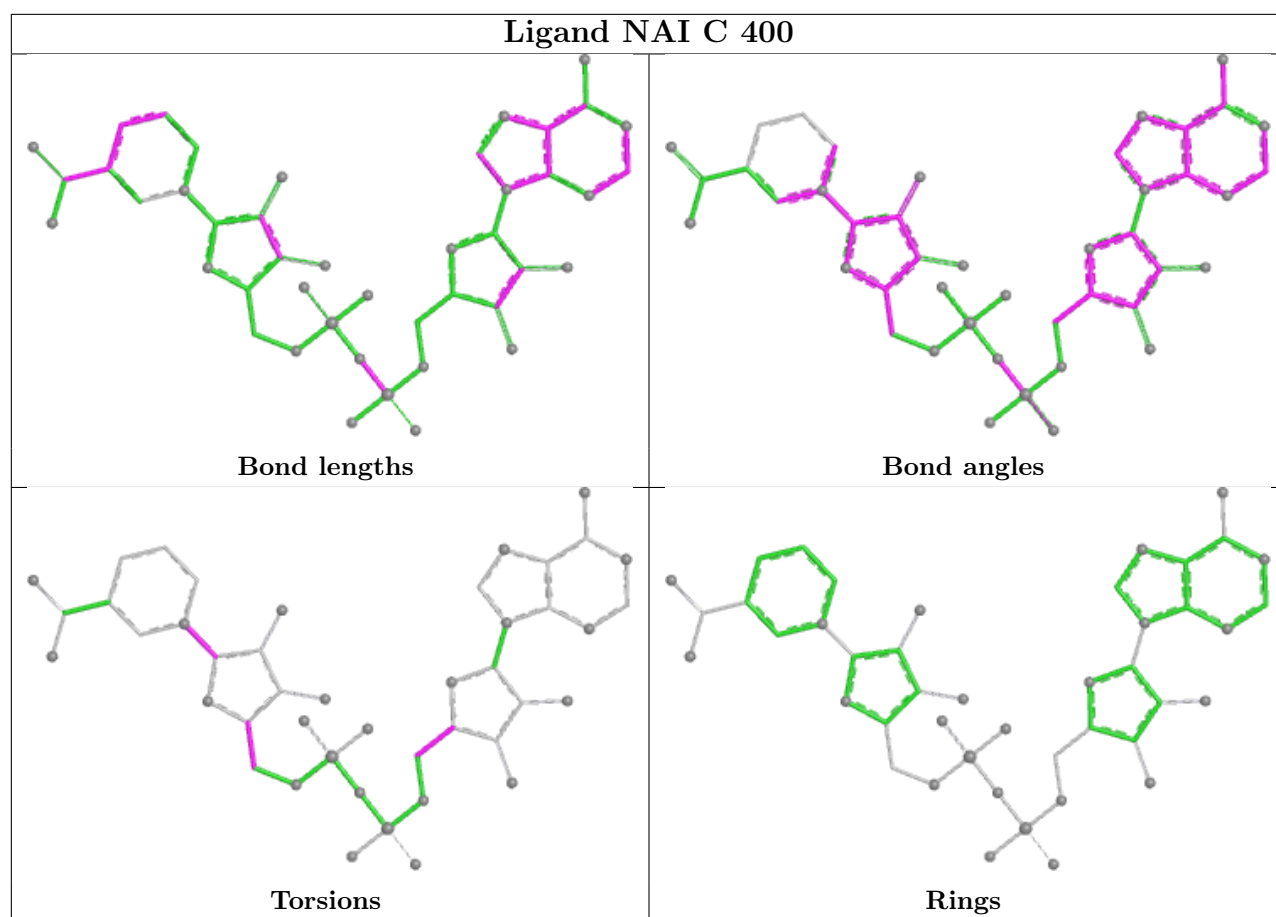
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	402	2H3	4	0
3	A	402	2H3	1	0
2	D	401	NAI	3	0
2	A	401	NAI	2	0
2	C	400	NAI	1	0
3	D	402	2H3	3	0
2	B	401	NAI	2	0

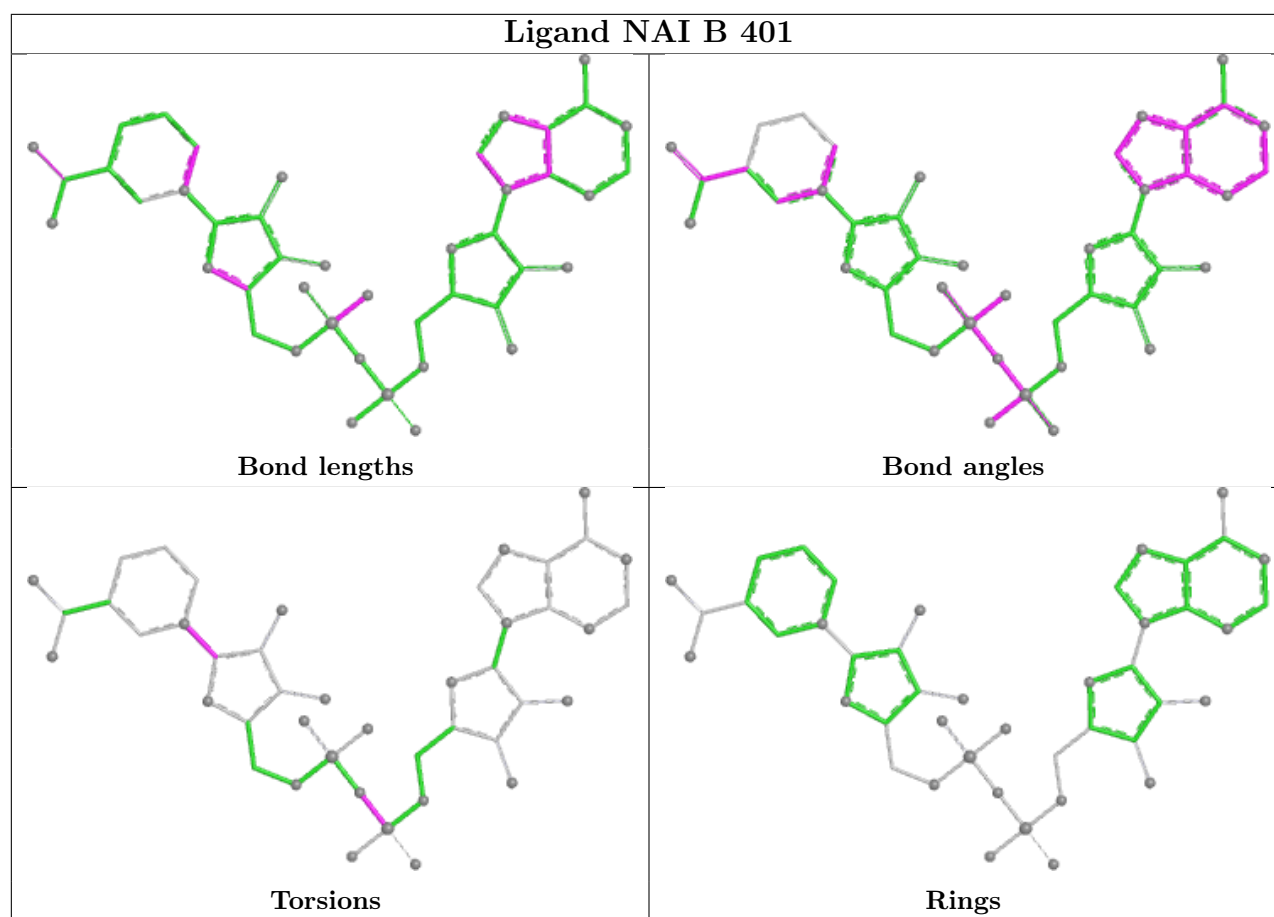
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 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.









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

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	340/352 (96%)	0.81	48 (14%) 6 5	20, 39, 64, 75	33 (9%)
1	B	340/352 (96%)	1.10	80 (23%) 2 1	19, 43, 70, 82	44 (12%)
1	C	340/352 (96%)	1.31	101 (29%) 1 0	22, 47, 78, 95	40 (11%)
1	D	340/352 (96%)	1.66	128 (37%) 1 0	22, 45, 86, 105	55 (16%)
All	All	1360/1408 (96%)	1.22	357 (26%) 1 1	19, 43, 76, 105	172 (12%)

All (357) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	10	ILE	8.2
1	D	176	SER	7.2
1	D	63	MET	6.8
1	D	60	PHE	6.6
1	C	176	SER	6.6
1	D	51	LEU	6.6
1	D	56	VAL	6.5
1	D	41	PRO	6.4
1	D	66	HIS	5.9
1	D	46	TRP	5.9
1	D	53	VAL	5.9
1	D	72	VAL	5.8
1	D	57	PHE	5.8
1	D	39	VAL	5.7
1	D	64	VAL	5.5
1	D	47	ALA	5.4
1	D	42	ALA	5.3
1	D	33	LEU	5.3
1	D	40	VAL	5.2
1	D	34	GLN	5.1
1	D	37	THR	5.0

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Mol	Chain	Res	Type	RSRZ
1	D	170	PHE	5.0
1	D	306	ILE	5.0
1	D	8	ILE	4.9
1	C	66	HIS	4.9
1	B	306	ILE	4.9
1	C	57	PHE	4.9
1	D	35	ALA	4.7
1	D	68	ASP	4.7
1	D	173	SER	4.6
1	D	49	LYS	4.6
1	D	86	GLU	4.6
1	D	75	VAL	4.5
1	D	103	LEU	4.5
1	D	13	LEU	4.5
1	D	80	PHE	4.5
1	D	32	LYS	4.4
1	D	89	LEU	4.4
1	D	69	ILE	4.4
1	D	54	GLU	4.4
1	D	48	LYS	4.3
1	D	303	VAL	4.3
1	D	91	ALA	4.2
1	B	58	GLU	4.2
1	C	73	PHE	4.2
1	A	56	VAL	4.2
1	C	56	VAL	4.2
1	C	65	GLN	4.2
1	D	307	LEU	4.1
1	D	52	GLY	4.1
1	C	120	ASN	4.1
1	D	114	VAL	4.1
1	D	120	ASN	4.0
1	B	48	LYS	4.0
1	D	59	ASP	4.0
1	D	31	ALA	4.0
1	D	67	ALA	4.0
1	D	15	ARG	4.0
1	D	36	ALA	3.9
1	D	44	LEU	3.9
1	D	110	HIS	3.9
1	D	121	LEU	3.9
1	D	26	THR	3.9

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Mol	Chain	Res	Type	RSRZ
1	C	80	PHE	3.9
1	C	49	LYS	3.9
1	D	50	GLU	3.9
1	D	62	ASP	3.9
1	B	106[A]	GLU	3.9
1	C	64	VAL	3.8
1	D	95	VAL	3.8
1	D	73	PHE	3.8
1	D	9	GLY	3.8
1	C	91	ALA	3.8
1	D	88	ALA	3.8
1	D	43	GLU	3.8
1	D	6	ILE	3.7
1	D	92	GLY	3.7
1	C	44	LEU	3.7
1	C	4	LYS	3.7
1	C	87	SER	3.7
1	B	91	ALA	3.7
1	A	117	GLN	3.7
1	D	12	GLY	3.6
1	D	25	ALA	3.6
1	A	4	LYS	3.6
1	C	53	VAL	3.6
1	C	114	VAL	3.6
1	C	69	ILE	3.6
1	A	106	GLU	3.6
1	B	46	TRP	3.5
1	D	24	ILE	3.5
1	C	60	PHE	3.5
1	A	113	GLN	3.5
1	D	113	GLN	3.5
1	A	54	GLU	3.5
1	C	35	ALA	3.5
1	A	146	LYS	3.5
1	C	175	ASN	3.5
1	C	174	ALA	3.4
1	C	17	GLY	3.4
1	D	216	LYS	3.4
1	B	69	ILE	3.4
1	D	70	ASP	3.4
1	C	343	SER	3.4
1	C	33	LEU	3.4

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Mol	Chain	Res	Type	RSRZ
1	D	11	VAL	3.4
1	A	69	ILE	3.4
1	B	307	LEU	3.4
1	C	11	VAL	3.3
1	D	82	LEU	3.3
1	D	79	GLY	3.3
1	A	277	GLU	3.3
1	D	77	PRO	3.3
1	B	64	VAL	3.3
1	C	116	ALA	3.3
1	D	174	ALA	3.3
1	B	121	LEU	3.3
1	C	121	LEU	3.3
1	C	169	LYS	3.3
1	C	55	GLU	3.2
1	C	71	ALA	3.2
1	B	57	PHE	3.2
1	B	343	SER	3.2
1	D	58	GLU	3.2
1	B	62	ASP	3.2
1	C	200	ASP	3.2
1	B	55	GLU	3.2
1	C	85	ILE	3.2
1	A	53	VAL	3.1
1	B	45	ASP	3.1
1	A	45	ASP	3.1
1	B	25	ALA	3.1
1	B	53	VAL	3.1
1	C	312	VAL	3.1
1	D	4	LYS	3.1
1	D	65	GLN	3.1
1	D	27	LYS	3.1
1	C	103	LEU	3.1
1	B	74	ILE	3.1
1	D	30	HIS	3.0
1	B	40	VAL	3.0
1	D	115	ILE	3.0
1	B	90	ASN	3.0
1	C	12	GLY	3.0
1	D	55	GLU	3.0
1	A	342	ALA	3.0
1	B	36	ALA	3.0

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Mol	Chain	Res	Type	RSRZ
1	D	87	SER	3.0
1	D	28	ILE	3.0
1	B	215	ASP	3.0
1	D	106	GLU	3.0
1	C	74	ILE	3.0
1	C	177	GLY	3.0
1	B	41	PRO	3.0
1	C	54	GLU	2.9
1	D	119	ALA	2.9
1	C	68	ASP	2.9
1	A	57	PHE	2.9
1	D	302	PHE	2.9
1	C	28	ILE	2.9
1	D	172	THR	2.9
1	B	29	GLN	2.9
1	C	29	GLN	2.9
1	A	87	SER	2.9
1	D	90	ASN	2.9
1	B	310	GLN	2.9
1	B	73	PHE	2.9
1	A	215	ASP	2.8
1	B	125	LEU	2.8
1	C	48	LYS	2.8
1	D	200	ASP	2.8
1	B	33	LEU	2.8
1	C	51	LEU	2.8
1	D	16	LEU	2.8
1	C	277	GLU	2.8
1	C	168	VAL	2.8
1	B	8	ILE	2.8
1	C	10	ILE	2.8
1	A	89	LEU	2.8
1	B	7	LYS	2.8
1	C	101	ILE	2.8
1	A	110	HIS	2.8
1	C	42	ALA	2.8
1	B	51	LEU	2.8
1	C	307	LEU	2.8
1	C	18	LYS	2.8
1	C	41	PRO	2.8
1	B	115	ILE	2.8
1	C	19	ILE	2.8

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Mol	Chain	Res	Type	RSRZ
1	D	94	HIS	2.7
1	B	5	THR	2.7
1	B	11	VAL	2.7
1	C	8	ILE	2.7
1	D	85	ILE	2.7
1	C	47	ALA	2.7
1	A	120	ASN	2.7
1	C	115	ILE	2.7
1	D	78	SER	2.7
1	D	45	ASP	2.7
1	C	32	LYS	2.7
1	D	93	LYS	2.7
1	B	119	ALA	2.7
1	D	84	GLN	2.7
1	B	56	VAL	2.7
1	C	75	VAL	2.7
1	C	9	GLY	2.7
1	A	83	GLN	2.6
1	D	21	ALA	2.6
1	A	29	GLN	2.6
1	B	230	GLU	2.6
1	A	91	ALA	2.6
1	B	71	ALA	2.6
1	C	119	ALA	2.6
1	D	71	ALA	2.6
1	D	5	THR	2.6
1	C	7	LYS	2.6
1	D	76	SER	2.6
1	A	6	ILE	2.6
1	D	171	ALA	2.6
1	B	4	LYS	2.6
1	C	37	THR	2.6
1	C	311	ASP	2.6
1	C	46	TRP	2.6
1	C	82	LEU	2.6
1	D	83	GLN	2.5
1	C	105	ILE	2.5
1	D	74	ILE	2.5
1	B	59	ASP	2.5
1	D	107	ALA	2.5
1	A	33	LEU	2.5
1	C	34	GLN	2.5

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Mol	Chain	Res	Type	RSRZ
1	C	84	GLN	2.5
1	C	58	GLU	2.5
1	B	24	ILE	2.5
1	B	114	VAL	2.5
1	C	95	VAL	2.5
1	D	61	ASP	2.5
1	D	117	GLN	2.5
1	C	106	GLU	2.5
1	D	19	ILE	2.5
1	A	26	THR	2.5
1	A	9	GLY	2.5
1	C	38	SER	2.4
1	A	67	ALA	2.4
1	A	51	LEU	2.4
1	B	181	LEU	2.4
1	C	27	LYS	2.4
1	C	122	LYS	2.4
1	B	94	HIS	2.4
1	C	92	GLY	2.4
1	A	11	VAL	2.4
1	B	105	ILE	2.4
1	B	277	GLU	2.4
1	D	277	GLU	2.4
1	B	37	THR	2.4
1	B	27	LYS	2.4
1	B	44	LEU	2.4
1	C	170	PHE	2.4
1	C	303	VAL	2.4
1	D	105	ILE	2.4
1	B	169	LYS	2.4
1	B	35	ALA	2.4
1	C	88	ALA	2.4
1	A	307	LEU	2.4
1	B	50	GLU	2.4
1	A	92	GLY	2.4
1	B	12	GLY	2.4
1	B	104	ASP	2.4
1	A	64	VAL	2.4
1	B	32	LYS	2.4
1	D	122	LYS	2.4
1	B	66	HIS	2.4
1	C	94	HIS	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	118	HIS	2.4
1	A	50	GLU	2.3
1	C	16	LEU	2.3
1	C	83	GLN	2.3
1	D	102	GLY	2.3
1	D	177	GLY	2.3
1	D	38	SER	2.3
1	A	71	ALA	2.3
1	B	89	LEU	2.3
1	B	68	ASP	2.3
1	D	215	ASP	2.3
1	B	39	VAL	2.3
1	D	116	ALA	2.3
1	B	118	HIS	2.3
1	B	60	PHE	2.3
1	A	105	ILE	2.3
1	B	28	ILE	2.3
1	B	340	GLN	2.3
1	B	183	MET	2.3
1	C	63	MET	2.3
1	D	81	HIS	2.2
1	B	312	VAL	2.2
1	C	40	VAL	2.2
1	C	15	ARG	2.2
1	D	304	ASN	2.2
1	A	68	ASP	2.2
1	D	17	GLY	2.2
1	A	310	GLN	2.2
1	D	309	ASN	2.2
1	B	72	VAL	2.2
1	B	116	ALA	2.2
1	C	50	GLU	2.2
1	C	310	GLN	2.2
1	B	305	SER	2.2
1	D	343	SER	2.2
1	D	18	LYS	2.2
1	B	70	ASP	2.2
1	B	54	GLU	2.2
1	A	93	LYS	2.2
1	D	7	LYS	2.2
1	B	120	ASN	2.2
1	D	23	ASN	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	63	MET	2.2
1	C	276	GLU	2.1
1	D	140	GLN	2.1
1	C	296	LEU	2.1
1	C	104	ASP	2.1
1	A	119	ALA	2.1
1	C	107	ALA	2.1
1	C	301	ALA	2.1
1	A	32	LYS	2.1
1	A	44	LEU	2.1
1	B	93	LYS	2.1
1	A	343	SER	2.1
1	C	181	LEU	2.1
1	C	109	GLU	2.1
1	B	200	ASP	2.1
1	C	172	THR	2.1
1	D	22	THR	2.1
1	C	306	ILE	2.1
1	A	46	TRP	2.1
1	C	39	VAL	2.1
1	A	42	ALA	2.1
1	A	34	GLN	2.1
1	B	34	GLN	2.1
1	C	72	VAL	2.1
1	A	230	GLU	2.0
1	C	25	ALA	2.1
1	C	334	GLU	2.0
1	D	230	GLU	2.0
1	B	175	ASN	2.0
1	A	140	GLN	2.0
1	B	112	GLN	2.0
1	C	70	ASP	2.0
1	D	310	GLN	2.0
1	C	315	THR	2.0
1	B	92	GLY	2.0
1	A	114	VAL	2.0
1	B	21	ALA	2.0
1	B	67	ALA	2.0
1	D	301	ALA	2.0
1	C	61	ASP	2.0
1	B	52	GLY	2.0
1	D	14	GLY	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

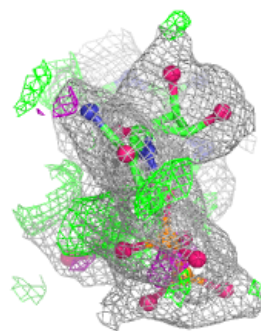
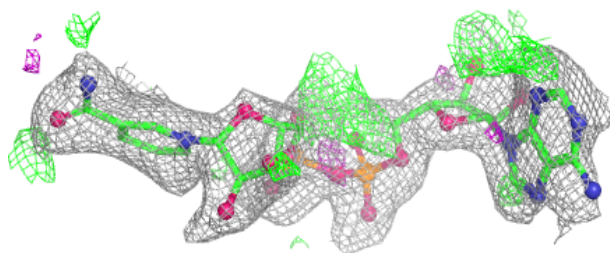
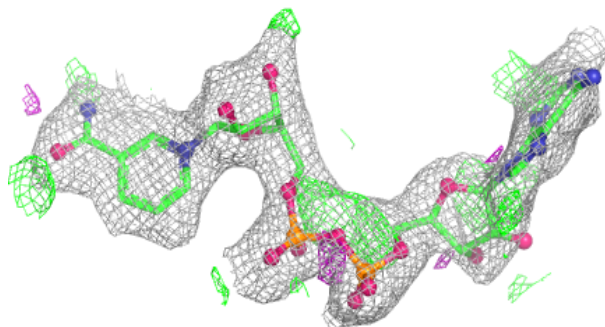
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	NAI	D	401	44/44	0.75	0.19	47,72,84,87	44
2	NAI	C	400	44/44	0.81	0.19	45,67,78,81	44
3	2H3	D	402	12/12	0.81	0.17	46,51,52,52	12
2	NAI	B	401	44/44	0.93	0.10	42,52,61,65	0
3	2H3	B	402	12/12	0.94	0.08	36,43,46,47	0
2	NAI	A	401	44/44	0.95	0.08	30,45,54,56	0
3	2H3	A	402	12/12	0.95	0.07	30,35,37,37	0

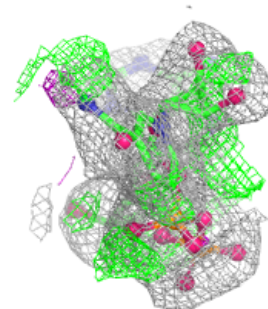
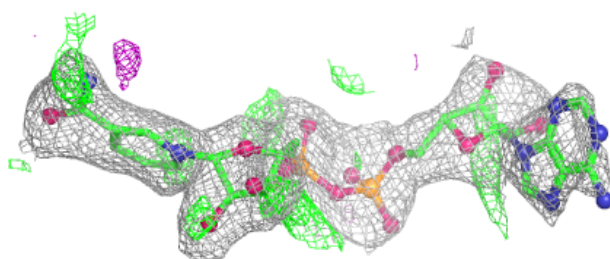
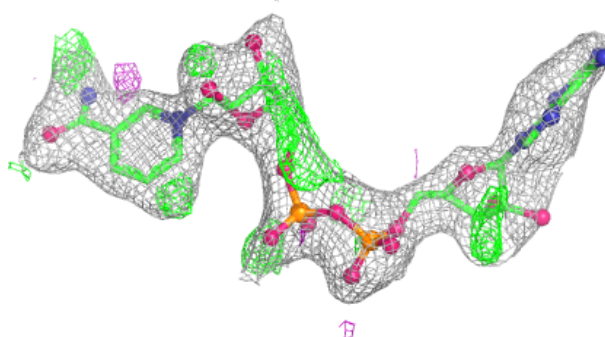
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around NAI D 401:

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

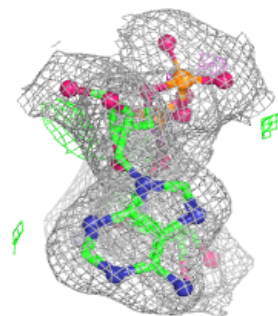
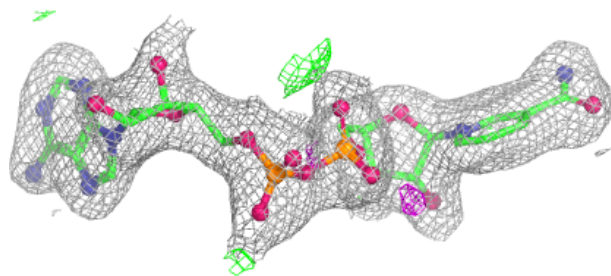
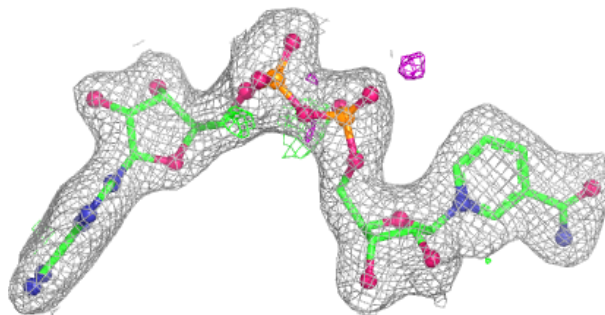
**Electron density around NAI C 400:**

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

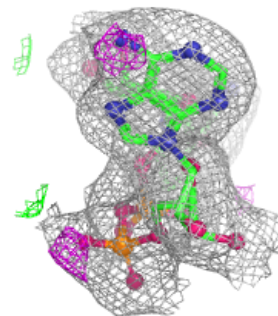
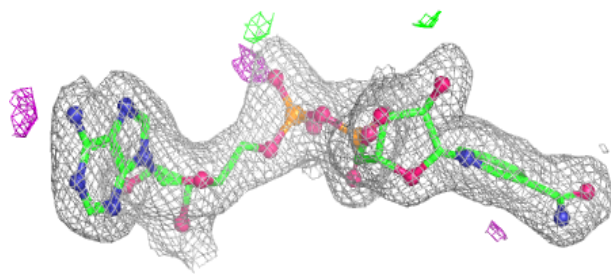
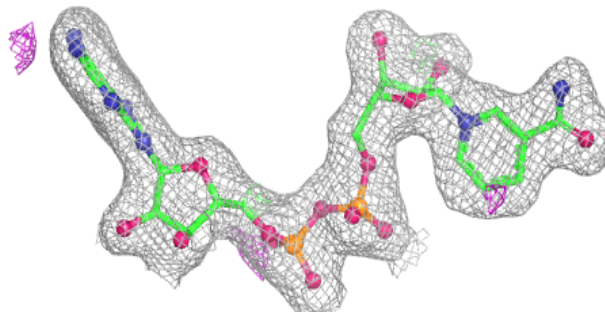


Electron density around NAI B 401:

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

**Electron density around NAI A 401:**

$2mF_o-DF_c$ (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.