Full wwPDB X-ray Structure Validation Report ⓘ

Nov 17, 2025 – 03:13 pm GMT

PDB ID	:	9SC9 / pdb_00009sc9
Title	:	Crystal structure of Methanocaldococcus jannaschii Malate dehydrogenase C7GP mutant
Authors	:	Coquille, S.; Madern, D.
Deposited on	:	2025-08-09
Resolution	:	2.90 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:

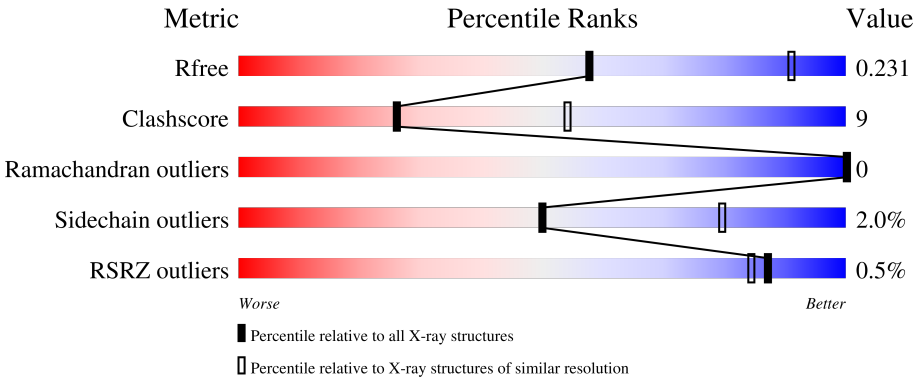
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

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 2.90 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}	164625	2335 (2.90-2.90)
Clashscore	180529	2564 (2.90-2.90)
Ramachandran outliers	177936	2514 (2.90-2.90)
Sidechain outliers	177891	2516 (2.90-2.90)
RSRZ outliers	164620	2337 (2.90-2.90)

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 <=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	319	80% 18%
1	B	319	79% 18%
1	C	319	80% 17%
1	D	319	74% 19% 5%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 19569 atoms, of which 9893 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 L-2-hydroxycarboxylate dehydrogenase (NAD(P)(+)).

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	314	Total	C	H	N	O	S	0	0	0
			4872	1525	2476	404	456	11			
1	B	313	Total	C	H	N	O	S	0	0	0
			4857	1519	2469	403	455	11			
1	C	313	Total	C	H	N	O	S	0	0	0
			4842	1516	2458	402	455	11			
1	D	302	Total	C	H	N	O	S	0	0	0
			4642	1458	2354	383	437	10			

There are 100 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	24	SER	PRO	engineered mutation	UNP Q60176
A	42	LYS	GLU	engineered mutation	UNP Q60176
A	46	MET	GLU	engineered mutation	UNP Q60176
A	56	GLY	ARG	engineered mutation	UNP Q60176
A	85	ALA	PRO	engineered mutation	UNP Q60176
A	105	ASN	LYS	engineered mutation	UNP Q60176
A	135	GLU	ASP	engineered mutation	UNP Q60176
A	137	GLY	LYS	engineered mutation	UNP Q60176
A	140	LYS	ARG	engineered mutation	UNP Q60176
A	198	ARG	LYS	engineered mutation	UNP Q60176
A	216	GLY	THR	engineered mutation	UNP Q60176
A	217	TYR	LYS	engineered mutation	UNP Q60176
A	219	LYS	GLU	engineered mutation	UNP Q60176
A	223	ASP	ARG	engineered mutation	UNP Q60176
A	266	GLY	ASP	engineered mutation	UNP Q60176
A	277	LYS	ARG	engineered mutation	UNP Q60176
A	289	ASN	ASP	engineered mutation	UNP Q60176
A	295	GLY	ALA	engineered mutation	UNP Q60176
A	305	GLY	LYS	engineered mutation	UNP Q60176
A	314	HIS	-	expression tag	UNP Q60176
A	315	HIS	-	expression tag	UNP Q60176

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Chain	Residue	Modelled	Actual	Comment	Reference
A	316	HIS	-	expression tag	UNP Q60176
A	317	HIS	-	expression tag	UNP Q60176
A	318	HIS	-	expression tag	UNP Q60176
A	319	HIS	-	expression tag	UNP Q60176
B	24	SER	PRO	engineered mutation	UNP Q60176
B	42	LYS	GLU	engineered mutation	UNP Q60176
B	46	MET	GLU	engineered mutation	UNP Q60176
B	56	GLY	ARG	engineered mutation	UNP Q60176
B	85	ALA	PRO	engineered mutation	UNP Q60176
B	105	ASN	LYS	engineered mutation	UNP Q60176
B	135	GLU	ASP	engineered mutation	UNP Q60176
B	137	GLY	LYS	engineered mutation	UNP Q60176
B	140	LYS	ARG	engineered mutation	UNP Q60176
B	198	ARG	LYS	engineered mutation	UNP Q60176
B	216	GLY	THR	engineered mutation	UNP Q60176
B	217	TYR	LYS	engineered mutation	UNP Q60176
B	219	LYS	GLU	engineered mutation	UNP Q60176
B	223	ASP	ARG	engineered mutation	UNP Q60176
B	266	GLY	ASP	engineered mutation	UNP Q60176
B	277	LYS	ARG	engineered mutation	UNP Q60176
B	289	ASN	ASP	engineered mutation	UNP Q60176
B	295	GLY	ALA	engineered mutation	UNP Q60176
B	305	GLY	LYS	engineered mutation	UNP Q60176
B	314	HIS	-	expression tag	UNP Q60176
B	315	HIS	-	expression tag	UNP Q60176
B	316	HIS	-	expression tag	UNP Q60176
B	317	HIS	-	expression tag	UNP Q60176
B	318	HIS	-	expression tag	UNP Q60176
B	319	HIS	-	expression tag	UNP Q60176
C	24	SER	PRO	engineered mutation	UNP Q60176
C	42	LYS	GLU	engineered mutation	UNP Q60176
C	46	MET	GLU	engineered mutation	UNP Q60176
C	56	GLY	ARG	engineered mutation	UNP Q60176
C	85	ALA	PRO	engineered mutation	UNP Q60176
C	105	ASN	LYS	engineered mutation	UNP Q60176
C	135	GLU	ASP	engineered mutation	UNP Q60176
C	137	GLY	LYS	engineered mutation	UNP Q60176
C	140	LYS	ARG	engineered mutation	UNP Q60176
C	198	ARG	LYS	engineered mutation	UNP Q60176
C	216	GLY	THR	engineered mutation	UNP Q60176
C	217	TYR	LYS	engineered mutation	UNP Q60176
C	219	LYS	GLU	engineered mutation	UNP Q60176

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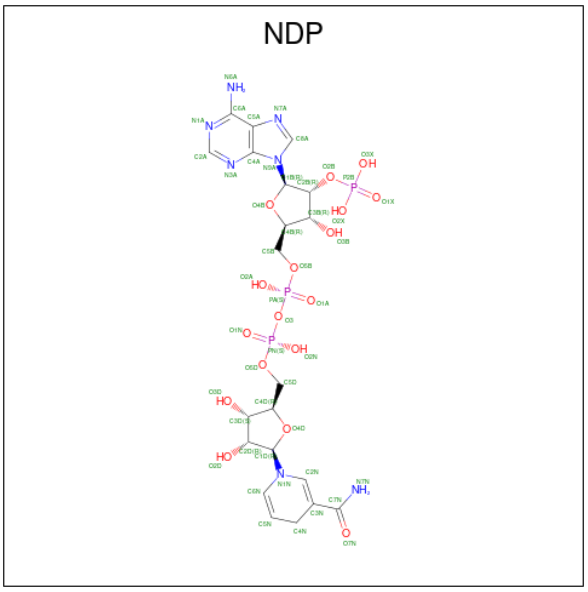
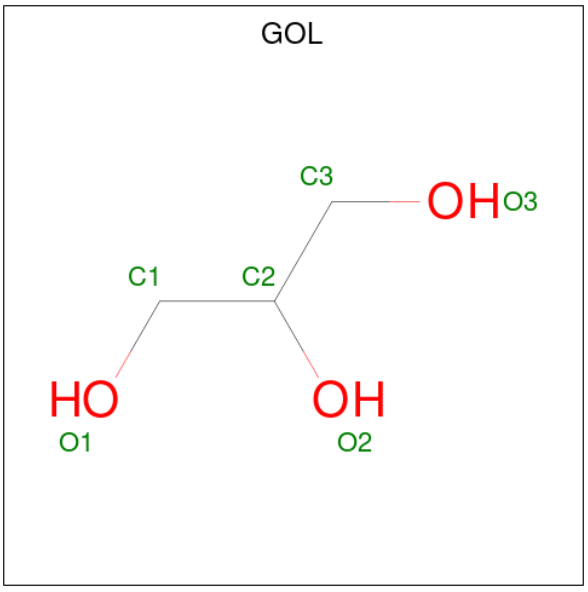
Chain	Residue	Modelled	Actual	Comment	Reference
C	223	ASP	ARG	engineered mutation	UNP Q60176
C	266	GLY	ASP	engineered mutation	UNP Q60176
C	277	LYS	ARG	engineered mutation	UNP Q60176
C	289	ASN	ASP	engineered mutation	UNP Q60176
C	295	GLY	ALA	engineered mutation	UNP Q60176
C	305	GLY	LYS	engineered mutation	UNP Q60176
C	314	HIS	-	expression tag	UNP Q60176
C	315	HIS	-	expression tag	UNP Q60176
C	316	HIS	-	expression tag	UNP Q60176
C	317	HIS	-	expression tag	UNP Q60176
C	318	HIS	-	expression tag	UNP Q60176
C	319	HIS	-	expression tag	UNP Q60176
D	24	SER	PRO	engineered mutation	UNP Q60176
D	42	LYS	GLU	engineered mutation	UNP Q60176
D	46	MET	GLU	engineered mutation	UNP Q60176
D	56	GLY	ARG	engineered mutation	UNP Q60176
D	85	ALA	PRO	engineered mutation	UNP Q60176
D	105	ASN	LYS	engineered mutation	UNP Q60176
D	135	GLU	ASP	engineered mutation	UNP Q60176
D	137	GLY	LYS	engineered mutation	UNP Q60176
D	140	LYS	ARG	engineered mutation	UNP Q60176
D	198	ARG	LYS	engineered mutation	UNP Q60176
D	216	GLY	THR	engineered mutation	UNP Q60176
D	217	TYR	LYS	engineered mutation	UNP Q60176
D	219	LYS	GLU	engineered mutation	UNP Q60176
D	223	ASP	ARG	engineered mutation	UNP Q60176
D	266	GLY	ASP	engineered mutation	UNP Q60176
D	277	LYS	ARG	engineered mutation	UNP Q60176
D	289	ASN	ASP	engineered mutation	UNP Q60176
D	295	GLY	ALA	engineered mutation	UNP Q60176
D	305	GLY	LYS	engineered mutation	UNP Q60176
D	314	HIS	-	expression tag	UNP Q60176
D	315	HIS	-	expression tag	UNP Q60176
D	316	HIS	-	expression tag	UNP Q60176
D	317	HIS	-	expression tag	UNP Q60176
D	318	HIS	-	expression tag	UNP Q60176
D	319	HIS	-	expression tag	UNP Q60176

- Molecule 2 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (CCD ID: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	P	0	0
			74	21	26	7	17	3		
2	B	1	Total	C	H	N	O	P	0	0
			74	21	26	7	17	3		
2	C	1	Total	C	H	N	O	P	0	0
			74	21	26	7	17	3		
2	D	1	Total	C	H	N	O	P	0	0
			74	21	26	7	17	3		

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	H	O	0	0
			14	3	8	3		
3	B	1	Total	C	H	O	0	0
			14	3	8	3		
3	C	1	Total	C	H	O	0	0
			14	3	8	3		
3	D	1	Total	C	H	O	0	0
			14	3	8	3		

- Molecule 4 is POTASSIUM ION (CCD ID: K) (formula: K).

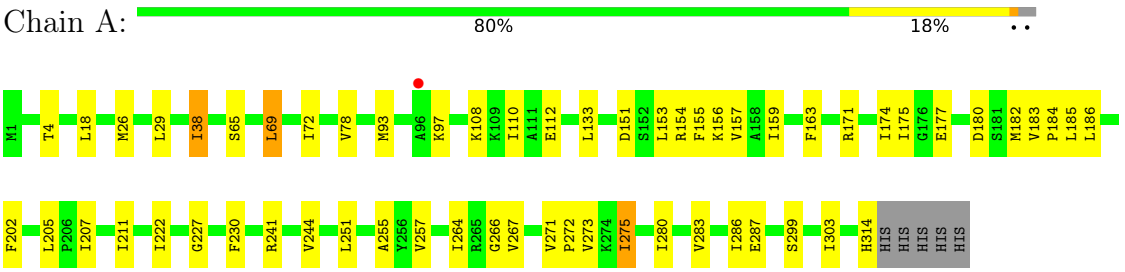
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	K	0	0
			1	1		
4	B	1	Total	K	0	0
			1	1		
4	C	1	Total	K	0	0
			1	1		
4	D	1	Total	K	0	0
			1	1		

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.

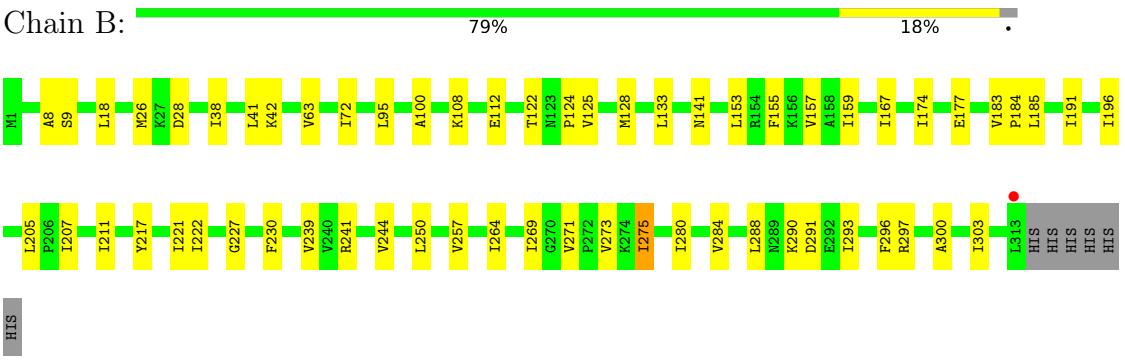
• Molecule 1: L-2-hydroxycarboxylate dehydrogenase (NAD(P)(+))

Chain A:



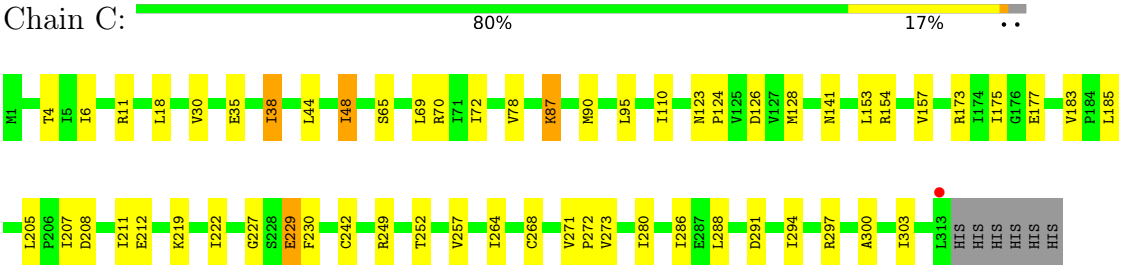
• Molecule 1: L-2-hydroxycarboxylate dehydrogenase (NAD(P)(+))

Chain B:



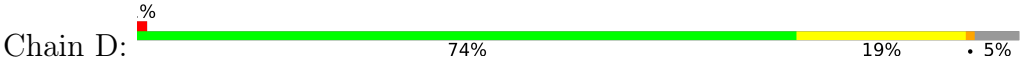
• Molecule 1: L-2-hydroxycarboxylate dehydrogenase (NAD(P)(+))

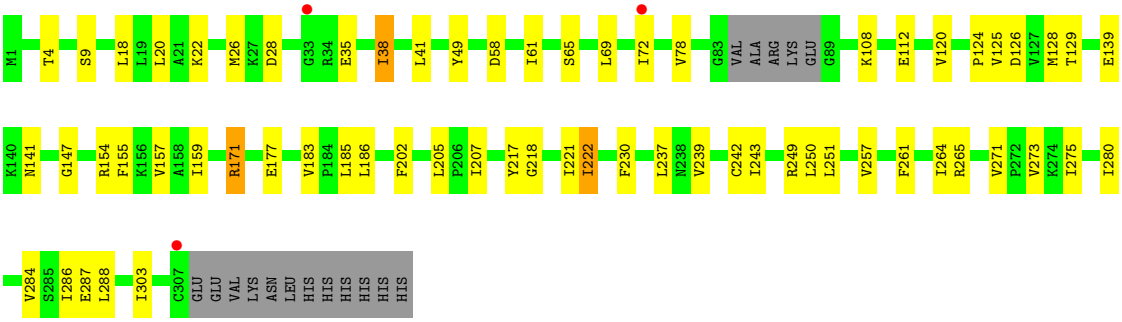
Chain C:



• Molecule 1: L-2-hydroxycarboxylate dehydrogenase (NAD(P)(+))

Chain D:




M1 T4 S9 L18 L19 L20 A21 K22 M26 K27 D28 G33 R34 E35 I38 L41 Y49 D58 I61 S65 L69 I72 V78 G83 VAL ALA ARG LYS GLU G89 K108 E112 V120 P124 V125 D126 V127 M128 T129 E139
K140 N141 G147 R154 F155 K156 V157 A158 I159 R171 E177 V183 P184 L185 L186 P202 L205 P206 I207 Y217 G218 I221 I222 F230 L237 N238 V239 C242 I243 R249 L250 L251 V257 F261 I264 R265 V271 P272 V273 K274 I275 I280
V284 S285 I286 E287 L288 I303 C307 GLU GLU VAL LYS ASN LEU HIS HIS HIS HIS HIS HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	73.99Å 75.53Å 118.50Å 90.00° 95.57° 90.00°	Depositor
Resolution (Å)	117.94 – 2.90 117.94 – 2.90	Depositor EDS
% Data completeness (in resolution range)	74.7 (117.94-2.90) 98.7 (117.94-2.90)	Depositor EDS
R_{merge}	0.21	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.31 (at 2.86Å)	Xtriage
Refinement program	PHENIX 1.21.2_5419+SVN	Depositor
R, R_{free}	0.205 , 0.246 0.229 , 0.231	Depositor DCC
R_{free} test set	1512 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	68.8	Xtriage
Anisotropy	0.502	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.41 , 55.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	19569	wwPDB-VP
Average B, all atoms (Å^2)	59.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.84% 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: K, NDP, GOL

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	0.17	0/2425	0.35	0/3262
1	B	0.17	0/2416	0.35	0/3250
1	C	0.16	0/2412	0.33	0/3246
1	D	0.17	0/2315	0.33	0/3116
All	All	0.17	0/9568	0.34	0/12874

There are no bond length outliers.

There are no bond angle outliers.

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	2396	2476	2475	48	0
1	B	2388	2469	2468	49	0
1	C	2384	2458	2457	44	0
1	D	2288	2354	2352	46	0
2	A	48	26	25	0	0
2	B	48	26	25	0	0
2	C	48	26	25	0	0
2	D	48	26	25	0	0
3	A	6	8	8	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	6	8	8	0	0
3	C	6	8	8	0	0
3	D	6	8	8	1	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
All	All	9676	9893	9884	181	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 9.

All (181) 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:B:257:VAL:HG21	1:B:264:ILE:HG22	1.49	0.94
1:C:205:LEU:HD23	1:C:207:ILE:HG22	1.60	0.81
1:A:257:VAL:HG11	1:A:271:VAL:HG11	1.64	0.80
1:A:273:VAL:CG1	1:A:280:ILE:HD11	2.20	0.72
1:A:273:VAL:HG11	1:A:280:ILE:HD11	1.71	0.71
1:C:257:VAL:HG11	1:C:271:VAL:HG11	1.71	0.71
1:D:205:LEU:HD23	1:D:207:ILE:HG22	1.73	0.69
1:B:217:TYR:CE1	1:B:221:ILE:HD11	2.26	0.69
1:B:257:VAL:HG21	1:B:264:ILE:CG2	2.19	0.69
1:A:222:ILE:HD13	1:A:227:GLY:HA2	1.75	0.68
1:B:257:VAL:CG2	1:B:264:ILE:HG22	2.24	0.67
1:A:38:ILE:HD11	1:A:65:SER:HA	1.77	0.66
1:D:250:LEU:HD22	1:D:284:VAL:HG21	1.77	0.66
1:B:222:ILE:HD13	1:B:227:GLY:HA2	1.80	0.64
1:B:264:ILE:HD11	1:B:297:ARG:HA	1.80	0.63
1:B:250:LEU:HD22	1:B:284:VAL:HG21	1.80	0.62
1:C:272:PRO:HG2	1:C:286:ILE:HD13	1.81	0.62
1:A:251:LEU:HD12	1:A:275:ILE:HG21	1.82	0.62
1:D:35:GLU:HA	1:D:38:ILE:HD13	1.82	0.62
1:D:177:GLU:HG3	1:D:303:ILE:HD11	1.82	0.62
1:B:205:LEU:HD23	1:B:207:ILE:HG22	1.82	0.61
1:A:155:PHE:HB2	1:A:174:ILE:HD11	1.82	0.61
1:B:257:VAL:HG11	1:B:271:VAL:HG11	1.82	0.61
1:B:217:TYR:HE1	1:B:221:ILE:HD11	1.63	0.61
1:D:271:VAL:HG23	1:D:273:VAL:CG1	2.30	0.61
1:A:230:PHE:CG	1:C:18:LEU:HD22	2.35	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:205:LEU:CD2	1:C:207:ILE:HG22	2.31	0.61
1:A:155:PHE:CZ	1:A:159:ILE:HD11	2.36	0.60
1:A:257:VAL:CG1	1:A:271:VAL:HG11	2.31	0.60
1:A:175:ILE:HG12	1:A:185:LEU:HD11	1.84	0.59
1:C:35:GLU:HA	1:C:38:ILE:HD13	1.83	0.59
1:D:9:SER:N	1:D:41:LEU:HD21	2.17	0.59
1:C:175:ILE:HG12	1:C:185:LEU:HD11	1.85	0.57
1:A:4:THR:HG21	1:A:72:ILE:CD1	2.34	0.57
1:A:271:VAL:HG23	1:A:273:VAL:CG1	2.34	0.57
1:B:183:VAL:O	1:B:183:VAL:HG23	2.03	0.57
1:B:185:LEU:HD22	1:B:288:LEU:HD22	1.87	0.57
1:B:177:GLU:CG	1:B:303:ILE:HD11	2.36	0.56
1:A:78:VAL:HG11	1:A:110:ILE:CD1	2.35	0.56
1:A:280:ILE:O	1:A:280:ILE:HG23	2.06	0.56
1:A:255:ALA:CB	1:A:280:ILE:HD13	2.37	0.55
1:A:183:VAL:HG23	1:A:183:VAL:O	2.05	0.55
1:A:18:LEU:HD22	1:C:230:PHE:CG	2.42	0.54
1:B:18:LEU:HD22	1:D:230:PHE:CG	2.42	0.54
1:B:241:ARG:HA	1:B:244:VAL:HG12	1.89	0.54
1:A:153:LEU:HD23	1:A:156:LYS:HE3	1.89	0.54
1:B:280:ILE:HG23	1:B:280:ILE:O	2.08	0.54
1:C:177:GLU:HB2	1:C:303:ILE:HD11	1.88	0.54
1:A:151:ASP:OD2	1:A:182:MET:HE1	2.09	0.53
1:D:271:VAL:HG23	1:D:273:VAL:HG13	1.92	0.52
1:D:218:GLY:O	1:D:222:ILE:HG12	2.09	0.52
1:B:155:PHE:CZ	1:B:159:ILE:HD11	2.45	0.52
1:A:186:LEU:HD12	1:A:202:PHE:HE1	1.76	0.51
1:C:271:VAL:HG23	1:C:273:VAL:CG1	2.41	0.51
1:B:269:ILE:HG23	1:B:271:VAL:HG13	1.92	0.51
1:B:271:VAL:HG12	1:B:296:PHE:HZ	1.76	0.51
1:B:153:LEU:O	1:B:157:VAL:HG13	2.11	0.50
1:D:183:VAL:HG23	1:D:183:VAL:O	2.11	0.50
1:D:205:LEU:CD2	1:D:207:ILE:HG22	2.40	0.50
1:B:177:GLU:HB2	1:B:303:ILE:HD11	1.93	0.50
1:D:251:LEU:HD12	1:D:275:ILE:HG21	1.93	0.50
1:A:78:VAL:HG11	1:A:110:ILE:HD11	1.92	0.50
1:C:177:GLU:CG	1:C:303:ILE:HD11	2.42	0.50
1:D:243:ILE:HG13	1:D:275:ILE:HD11	1.92	0.50
1:D:177:GLU:CG	1:D:303:ILE:HD11	2.42	0.50
1:A:26:MET:HE2	1:A:29:LEU:HB2	1.93	0.50
1:D:20:LEU:HD23	1:D:237:LEU:HD13	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:108:LYS:O	1:A:112:GLU:HG3	2.11	0.50
1:C:87:LYS:H	1:C:90:MET:HE3	1.77	0.50
1:C:222:ILE:HD13	1:C:227:GLY:HA2	1.94	0.49
1:A:177:GLU:HB2	1:A:303:ILE:HD11	1.95	0.49
1:D:4:THR:HG21	1:D:72:ILE:HG12	1.95	0.49
1:A:255:ALA:HB2	1:A:280:ILE:HD13	1.94	0.49
1:B:108:LYS:O	1:B:112:GLU:HG3	2.12	0.49
1:D:257:VAL:HG11	1:D:271:VAL:HG11	1.94	0.49
1:A:153:LEU:O	1:A:157:VAL:HG13	2.12	0.48
1:D:261:PHE:HB2	1:D:264:ILE:CG1	2.44	0.48
1:C:95:LEU:HD23	1:C:124:PRO:HD3	1.96	0.48
1:A:241:ARG:HA	1:A:244:VAL:HG12	1.95	0.48
1:B:239:VAL:HG13	1:B:275:ILE:HD13	1.95	0.48
1:D:217:TYR:CE1	1:D:221:ILE:HD11	2.49	0.48
1:C:69:LEU:HD23	1:C:72:ILE:HD12	1.96	0.48
1:C:183:VAL:O	1:C:183:VAL:HG23	2.12	0.48
1:A:257:VAL:HG21	1:A:264:ILE:HG22	1.95	0.47
1:D:155:PHE:CE1	1:D:159:ILE:HD11	2.49	0.47
1:A:251:LEU:O	1:A:273:VAL:HG22	2.14	0.47
1:D:125:VAL:HG21	1:D:147:GLY:H	1.79	0.47
1:D:108:LYS:O	1:D:112:GLU:HG3	2.15	0.47
1:C:219:LYS:N	1:C:219:LYS:HD2	2.30	0.47
1:D:239:VAL:HG13	1:D:275:ILE:CD1	2.44	0.47
1:A:133:LEU:HD23	1:A:133:LEU:O	2.15	0.47
1:D:280:ILE:O	1:D:280:ILE:HG23	2.14	0.47
1:A:184:PRO:HG3	1:A:211:ILE:HD13	1.96	0.47
1:C:124:PRO:HG2	1:C:128:MET:HE3	1.97	0.47
1:C:264:ILE:HD11	1:C:297:ARG:HA	1.97	0.47
1:D:4:THR:HB	1:D:78:VAL:HG22	1.96	0.46
1:B:177:GLU:CB	1:B:303:ILE:HD11	2.46	0.46
1:B:133:LEU:HD23	1:B:133:LEU:O	2.15	0.46
1:C:78:VAL:HG11	1:C:110:ILE:HD11	1.96	0.46
1:B:271:VAL:HG12	1:B:296:PHE:CZ	2.50	0.46
1:C:185:LEU:HD22	1:C:288:LEU:HD12	1.97	0.46
1:D:124:PRO:HD2	1:D:128:MET:HE3	1.98	0.46
1:B:191:ILE:HD11	1:B:196:ILE:HD12	1.98	0.46
1:D:264:ILE:HD12	1:D:264:ILE:O	2.15	0.46
1:B:177:GLU:HG3	1:B:303:ILE:HD11	1.98	0.46
1:B:264:ILE:HD12	1:B:300:ALA:CB	2.45	0.46
1:C:11:ARG:HG2	1:C:229:GLU:HB3	1.97	0.46
1:B:257:VAL:CG1	1:B:271:VAL:HG11	2.45	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:141:ASN:HA	1:D:280:ILE:HG23	1.98	0.45
1:A:272:PRO:HG2	1:A:286:ILE:HD13	1.97	0.45
1:C:280:ILE:HG23	1:C:280:ILE:O	2.17	0.45
1:D:286:ILE:HG22	1:D:287:GLU:N	2.30	0.45
1:A:271:VAL:HG23	1:A:273:VAL:HG13	1.98	0.45
1:C:271:VAL:HG23	1:C:273:VAL:HG13	1.99	0.45
1:B:100:ALA:HB2	1:B:128:MET:HE1	1.98	0.45
1:C:44:LEU:HD11	1:C:48:ILE:HD11	1.99	0.45
1:C:177:GLU:CB	1:C:303:ILE:HD11	2.46	0.45
1:D:126:ASP:HB2	1:D:303:ILE:HD12	1.99	0.44
1:B:167:ILE:HG13	1:D:58:ASP:CG	2.43	0.44
1:C:4:THR:HG23	1:C:30:VAL:HG12	1.99	0.44
1:C:4:THR:HG21	1:C:72:ILE:HG12	2.00	0.44
1:A:299:SER:O	1:A:303:ILE:HG12	2.17	0.44
1:C:141:ASN:HA	1:C:280:ILE:HG23	2.00	0.44
1:C:173:ARG:HG3	1:C:252:THR:OG1	2.18	0.44
1:B:72:ILE:HG22	1:B:72:ILE:O	2.18	0.44
1:C:242:CYS:SG	1:C:249:ARG:HD2	2.58	0.44
1:B:9:SER:N	1:B:41:LEU:HD21	2.32	0.44
1:D:250:LEU:CD2	1:D:284:VAL:HG21	2.47	0.43
1:A:93:MET:HE2	1:A:97:LYS:CG	2.48	0.43
1:A:286:ILE:HG22	1:A:287:GLU:N	2.33	0.43
1:C:78:VAL:HG11	1:C:110:ILE:CD1	2.48	0.43
1:C:126:ASP:HB3	1:C:268:CYS:O	2.18	0.43
1:B:184:PRO:HG3	1:B:211:ILE:HD13	2.00	0.43
1:D:242:CYS:SG	1:D:249:ARG:HD2	2.59	0.43
1:A:154:ARG:O	1:A:157:VAL:HG22	2.18	0.43
1:B:205:LEU:CD2	1:B:207:ILE:HG22	2.47	0.43
1:D:186:LEU:HD12	1:D:202:PHE:HE1	1.83	0.43
1:A:93:MET:HE2	1:A:97:LYS:HG2	2.01	0.42
1:A:266:GLY:O	1:A:267:VAL:HG23	2.19	0.42
1:D:49:TYR:CZ	1:D:61:ILE:HD12	2.53	0.42
1:D:26:MET:HE1	1:D:28:ASP:O	2.20	0.42
1:B:230:PHE:CG	1:D:18:LEU:HD22	2.54	0.42
1:C:154:ARG:O	1:C:157:VAL:HG22	2.20	0.42
1:D:139:GLU:HB2	1:D:141:ASN:OD1	2.19	0.42
1:B:122:THR:O	1:B:125:VAL:HA	2.19	0.42
1:C:6:ILE:HD12	1:C:110:ILE:HD11	2.02	0.42
1:D:154:ARG:O	1:D:157:VAL:HG22	2.19	0.42
1:C:208:ASP:O	1:C:211:ILE:HG22	2.19	0.42
1:D:183:VAL:O	1:D:183:VAL:CG2	2.67	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:69:LEU:HG	1:A:72:ILE:HD12	2.01	0.42
1:A:205:LEU:HD23	1:A:207:ILE:HG22	2.02	0.42
1:C:70:ARG:CZ	1:C:70:ARG:HB2	2.49	0.42
1:A:255:ALA:HB2	1:A:280:ILE:CD1	2.50	0.42
1:B:273:VAL:CG1	1:B:280:ILE:HD11	2.50	0.42
1:C:38:ILE:HD11	1:C:65:SER:HA	2.01	0.42
1:D:120:VAL:HG21	1:D:129:THR:HA	2.02	0.42
1:C:123:ASN:HA	1:C:124:PRO:C	2.44	0.41
1:D:222:ILE:N	1:D:222:ILE:HD13	2.35	0.41
1:A:171:ARG:O	1:A:171:ARG:HG3	2.20	0.41
1:B:271:VAL:HG23	1:B:273:VAL:CG1	2.50	0.41
1:D:284:VAL:HG12	1:D:286:ILE:HD11	2.02	0.41
1:B:26:MET:HE1	1:B:28:ASP:O	2.20	0.41
1:B:95:LEU:HD23	1:B:124:PRO:HD3	2.01	0.41
1:B:155:PHE:HB2	1:B:174:ILE:HD11	2.03	0.41
1:B:183:VAL:O	1:B:183:VAL:CG2	2.68	0.41
1:A:163:PHE:HE1	1:A:205:LEU:HD13	1.85	0.41
1:B:42:LYS:HG3	1:B:63:VAL:HG11	2.02	0.41
1:B:141:ASN:HA	1:B:280:ILE:HG23	2.03	0.41
1:D:257:VAL:HG23	1:D:265:ARG:HA	2.02	0.41
1:A:4:THR:HG21	1:A:72:ILE:HD13	2.03	0.41
1:C:219:LYS:HD2	1:C:219:LYS:H	1.86	0.41
1:C:291:ASP:O	1:C:294:ILE:HG12	2.20	0.41
1:D:185:LEU:HD22	1:D:288:LEU:HD12	2.03	0.41
1:A:230:PHE:CD1	1:C:18:LEU:HD22	2.56	0.41
1:D:171:ARG:NH1	3:D:402:GOL:H2	2.36	0.41
1:C:264:ILE:HD12	1:C:300:ALA:CB	2.51	0.40
1:C:153:LEU:O	1:C:157:VAL:HG13	2.21	0.40
1:B:207:ILE:O	1:B:211:ILE:HG22	2.21	0.40
1:B:290:LYS:O	1:B:293:ILE:HG22	2.21	0.40
1:A:183:VAL:O	1:A:183:VAL:CG2	2.69	0.40
1:B:8:ALA:HB3	1:B:41:LEU:HD22	2.02	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	312/319 (98%)	304 (97%)	8 (3%)	0	100	100
1	B	311/319 (98%)	305 (98%)	6 (2%)	0	100	100
1	C	311/319 (98%)	302 (97%)	9 (3%)	0	100	100
1	D	298/319 (93%)	292 (98%)	6 (2%)	0	100	100
All	All	1232/1276 (97%)	1203 (98%)	29 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	260/267 (97%)	254 (98%)	6 (2%)	45	77
1	B	259/267 (97%)	256 (99%)	3 (1%)	67	89
1	C	258/267 (97%)	253 (98%)	5 (2%)	52	81
1	D	247/267 (92%)	241 (98%)	6 (2%)	44	76
All	All	1024/1068 (96%)	1004 (98%)	20 (2%)	50	79

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

Mol	Chain	Res	Type
1	A	38	ILE
1	A	69	LEU
1	A	180	ASP
1	A	275	ILE
1	A	283	VAL
1	A	314	HIS
1	B	38	ILE
1	B	275	ILE

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Mol	Chain	Res	Type
1	B	291	ASP
1	C	38	ILE
1	C	48	ILE
1	C	87	LYS
1	C	212	GLU
1	C	229	GLU
1	D	22	LYS
1	D	38	ILE
1	D	65	SER
1	D	69	LEU
1	D	171	ARG
1	D	222	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	60	ASN
1	B	36	HIS
1	D	123	ASN
1	D	166	HIS

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)

Of 12 ligands modelled in this entry, 4 are monoatomic - leaving 8 for Mogul analysis.

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	GOL	B	402	-	5,5,5	0.23	0	5,5,5	0.31	0
3	GOL	A	402	-	5,5,5	0.24	0	5,5,5	0.46	0
2	NDP	C	401	-	45,52,52	1.39	5 (11%)	53,80,80	1.36	9 (16%)
2	NDP	B	401	-	45,52,52	1.32	4 (8%)	53,80,80	1.37	9 (16%)
3	GOL	C	402	-	5,5,5	0.15	0	5,5,5	0.24	0
2	NDP	D	401	-	45,52,52	1.37	5 (11%)	53,80,80	1.37	10 (18%)
3	GOL	D	402	-	5,5,5	0.29	0	5,5,5	0.48	0
2	NDP	A	401	-	45,52,52	1.31	5 (11%)	53,80,80	1.39	10 (18%)

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	GOL	B	402	-	-	0/4/4/4	-
3	GOL	A	402	-	-	2/4/4/4	-
2	NDP	C	401	-	-	2/30/77/77	0/5/5/5
2	NDP	B	401	-	-	3/30/77/77	0/5/5/5
3	GOL	C	402	-	-	4/4/4/4	-
2	NDP	D	401	-	-	6/30/77/77	0/5/5/5
3	GOL	D	402	-	-	4/4/4/4	-
2	NDP	A	401	-	-	5/30/77/77	0/5/5/5

All (19) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	401	NDP	PN-O5D	4.28	1.76	1.59
2	B	401	NDP	PN-O5D	3.92	1.75	1.59
2	A	401	NDP	PN-O5D	3.91	1.75	1.59
2	D	401	NDP	PN-O5D	3.81	1.74	1.59
2	C	401	NDP	P2B-O2B	3.17	1.65	1.59
2	B	401	NDP	P2B-O2B	3.00	1.65	1.59
2	D	401	NDP	O3B-C3B	-2.83	1.36	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	401	NDP	O3B-C3B	-2.73	1.36	1.43
2	A	401	NDP	O3B-C3B	-2.65	1.36	1.43
2	B	401	NDP	O3B-C3B	-2.63	1.36	1.43
2	A	401	NDP	P2B-O2B	2.59	1.64	1.59
2	A	401	NDP	O5D-C5D	-2.43	1.35	1.44
2	D	401	NDP	P2B-O2B	2.38	1.63	1.59
2	D	401	NDP	O2B-C2B	-2.37	1.35	1.44
2	C	401	NDP	O2B-C2B	-2.25	1.35	1.44
2	D	401	NDP	O5D-C5D	-2.20	1.36	1.44
2	B	401	NDP	O5D-C5D	-2.20	1.36	1.44
2	C	401	NDP	O5D-C5D	-2.14	1.36	1.44
2	A	401	NDP	O2B-C2B	-2.08	1.36	1.44

All (38) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	401	NDP	O4D-C1D-N1N	3.84	115.56	108.06
2	A	401	NDP	O4D-C1D-N1N	3.78	115.45	108.06
2	B	401	NDP	O2B-P2B-O1X	-3.69	95.13	109.39
2	C	401	NDP	O2B-P2B-O1X	-3.59	95.55	109.39
2	D	401	NDP	O2B-P2B-O1X	-3.50	95.88	109.39
2	A	401	NDP	O2B-P2B-O1X	-3.43	96.15	109.39
2	C	401	NDP	O4D-C1D-N1N	3.35	114.60	108.06
2	B	401	NDP	O4D-C1D-N1N	3.29	114.48	108.06
2	C	401	NDP	C5A-C6A-N6A	-2.60	116.41	120.35
2	D	401	NDP	C5A-C6A-N6A	-2.59	116.41	120.35
2	B	401	NDP	C5A-C6A-N6A	-2.55	116.48	120.35
2	D	401	NDP	O3X-P2B-O1X	2.50	120.47	110.68
2	A	401	NDP	C5A-C6A-N6A	-2.46	116.61	120.35
2	B	401	NDP	O3X-P2B-O1X	2.45	120.27	110.68
2	B	401	NDP	O2A-PA-O1A	2.45	124.34	112.24
2	B	401	NDP	O2N-PN-O1N	2.45	124.34	112.24
2	A	401	NDP	O2A-PA-O1A	2.43	124.27	112.24
2	A	401	NDP	O3X-P2B-O1X	2.41	120.11	110.68
2	C	401	NDP	O3X-P2B-O1X	2.41	120.10	110.68
2	A	401	NDP	O2N-PN-O1N	2.37	123.96	112.24
2	A	401	NDP	C4A-C5A-N7A	2.34	111.83	109.40
2	D	401	NDP	O2A-PA-O1A	2.32	123.71	112.24
2	B	401	NDP	C4A-C5A-N7A	2.30	111.79	109.40
2	C	401	NDP	O2N-PN-O1N	2.29	123.59	112.24
2	D	401	NDP	O2N-PN-O1N	2.29	123.57	112.24
2	C	401	NDP	O2A-PA-O1A	2.29	123.54	112.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	401	NDP	C4A-C5A-N7A	2.27	111.76	109.40
2	D	401	NDP	O3X-P2B-O2X	2.17	115.95	107.64
2	D	401	NDP	C4A-C5A-N7A	2.17	111.66	109.40
2	C	401	NDP	O3X-P2B-O2X	2.15	115.86	107.64
2	A	401	NDP	PN-O3-PA	2.15	140.19	132.83
2	A	401	NDP	O5D-PN-O1N	-2.13	100.74	109.07
2	A	401	NDP	O3X-P2B-O2X	2.12	115.74	107.64
2	D	401	NDP	PN-O3-PA	2.11	140.07	132.83
2	B	401	NDP	O3X-P2B-O2X	2.11	115.71	107.64
2	B	401	NDP	O5D-PN-O1N	-2.10	100.86	109.07
2	C	401	NDP	PN-O3-PA	2.08	139.98	132.83
2	D	401	NDP	O5D-PN-O1N	-2.01	101.19	109.07

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	401	NDP	C2N-C3N-C7N-O7N
3	C	402	GOL	O1-C1-C2-C3
3	D	402	GOL	O1-C1-C2-C3
2	A	401	NDP	C3D-C4D-C5D-O5D
2	B	401	NDP	O4B-C4B-C5B-O5B
2	D	401	NDP	O4B-C4B-C5B-O5B
2	A	401	NDP	O4D-C4D-C5D-O5D
3	A	402	GOL	O1-C1-C2-C3
3	C	402	GOL	C1-C2-C3-O3
3	D	402	GOL	C1-C2-C3-O3
3	A	402	GOL	O1-C1-C2-O2
3	C	402	GOL	O1-C1-C2-O2
2	A	401	NDP	O4B-C4B-C5B-O5B
2	C	401	NDP	O4D-C1D-N1N-C2N
3	C	402	GOL	O2-C2-C3-O3
3	D	402	GOL	O1-C1-C2-O2
2	D	401	NDP	O4D-C1D-N1N-C2N
2	D	401	NDP	C2N-C3N-C7N-N7N
2	D	401	NDP	C3B-C4B-C5B-O5B
2	C	401	NDP	O4B-C4B-C5B-O5B
2	B	401	NDP	O4D-C1D-N1N-C2N
3	D	402	GOL	O2-C2-C3-O3
2	A	401	NDP	O4D-C1D-N1N-C2N
2	A	401	NDP	PN-O3-PA-O2A
2	D	401	NDP	C5B-O5B-PA-O1A

Continued on next page...

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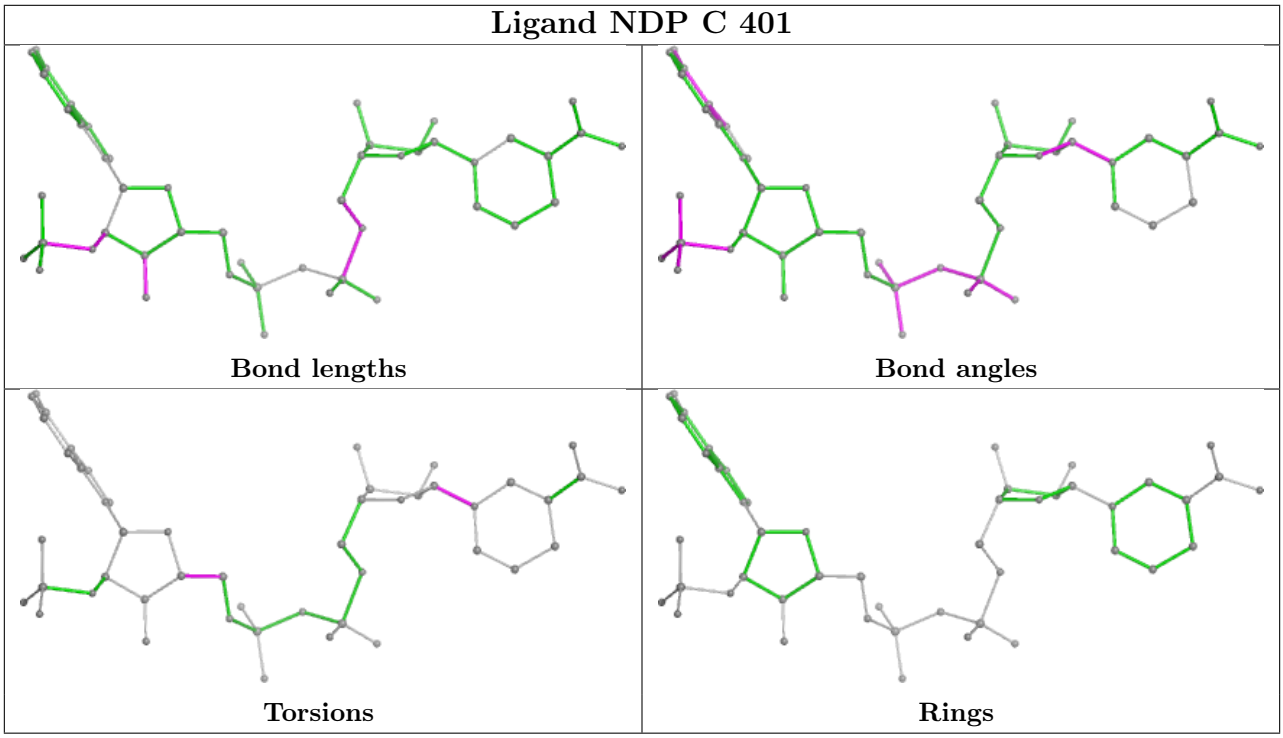
Mol	Chain	Res	Type	Atoms
2	B	401	NDP	C2D-C1D-N1N-C2N

There are no ring outliers.

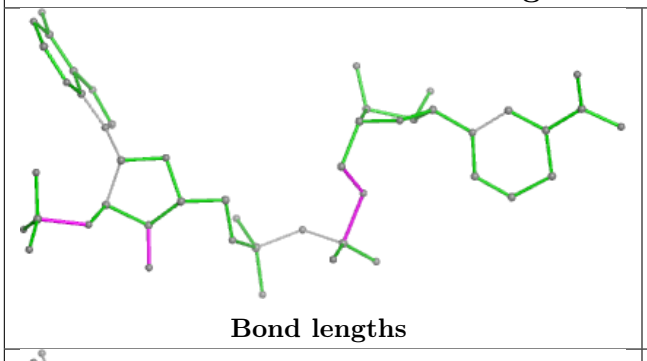
1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	402	GOL	1	0

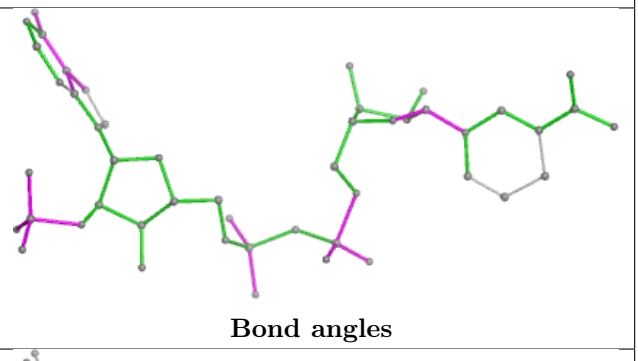
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



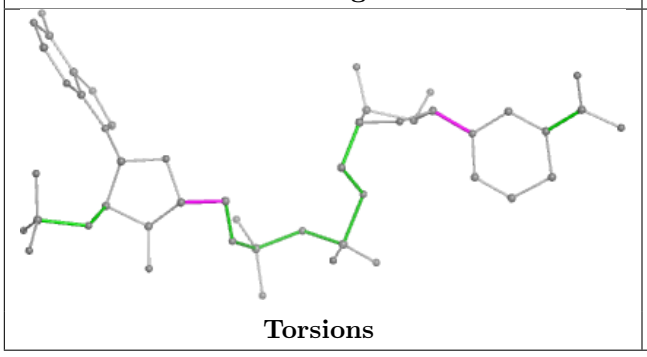
Ligand NDP B 401



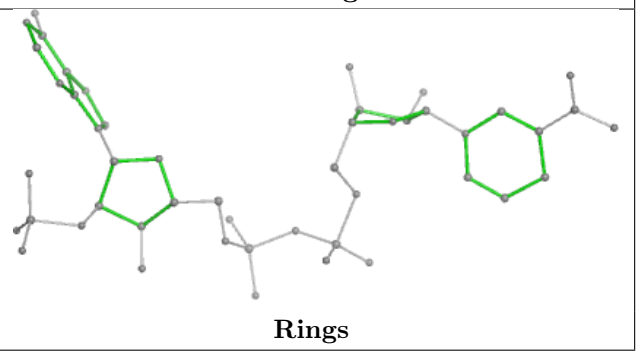
Bond lengths



Bond angles

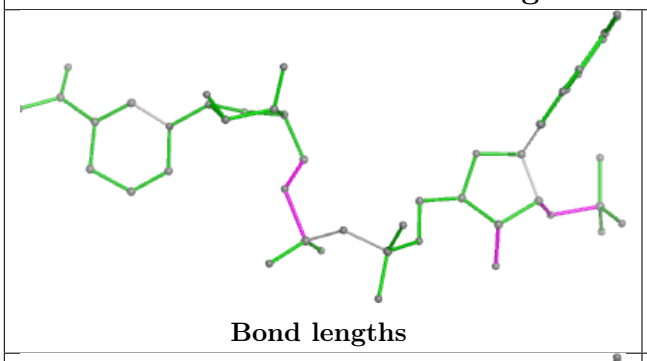


Torsions

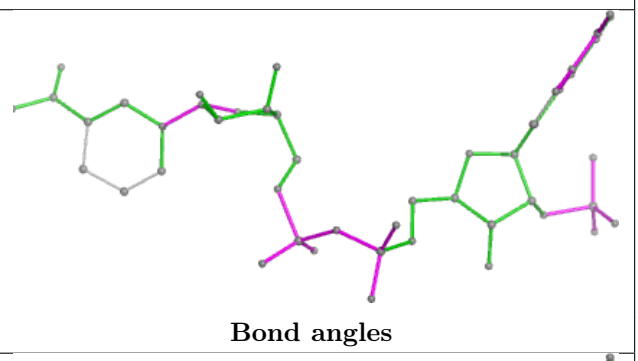


Rings

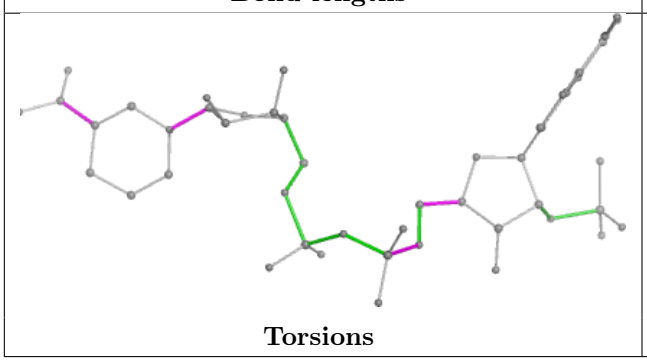
Ligand NDP D 401



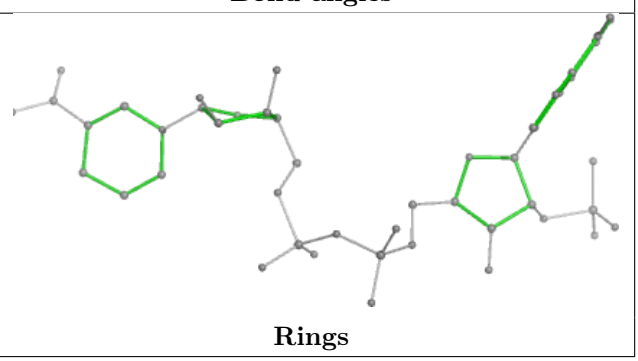
Bond lengths



Bond angles

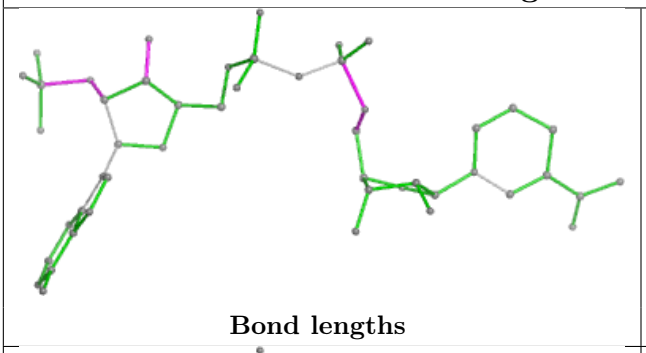


Torsions

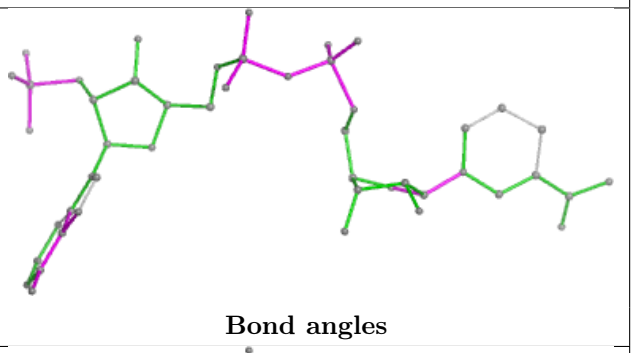


Rings

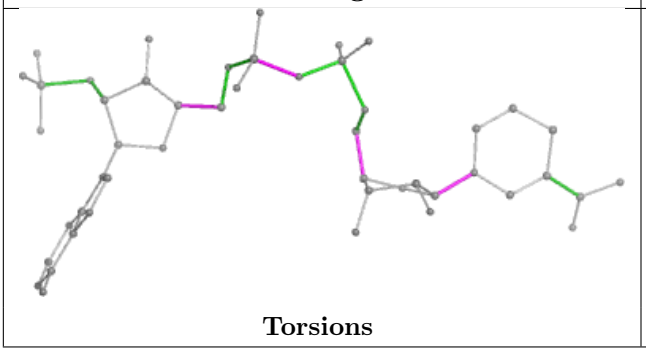
Ligand NDP A 401



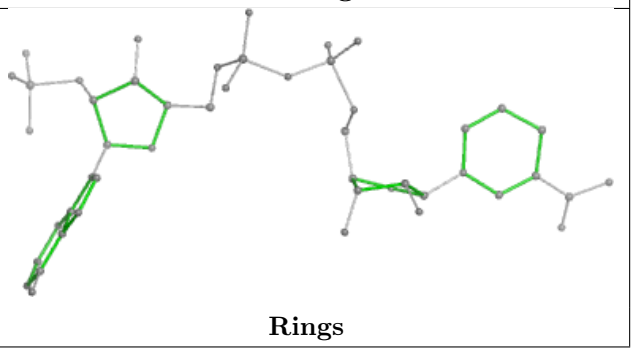
Bond lengths



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	314/319 (98%)	-0.49	1 (0%)	90	88	26, 53, 83, 103	0
1	B	313/319 (98%)	-0.49	1 (0%)	90	88	30, 46, 73, 101	0
1	C	313/319 (98%)	-0.39	1 (0%)	90	88	31, 58, 98, 136	0
1	D	302/319 (94%)	-0.28	3 (0%)	79	74	35, 73, 101, 115	0
All	All	1242/1276 (97%)	-0.41	6 (0%)	87	84	26, 55, 95, 136	0

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	96	ALA	3.9
1	D	72	ILE	2.5
1	B	313	LEU	2.3
1	D	33	GLY	2.2
1	D	307	CYS	2.1
1	C	313	LEU	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 oligosaccharides 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. The B-factors column lists the minimum,

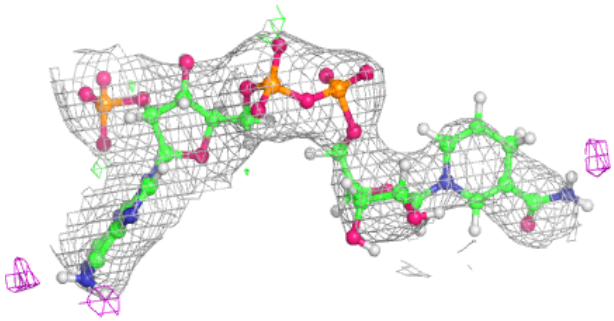
median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

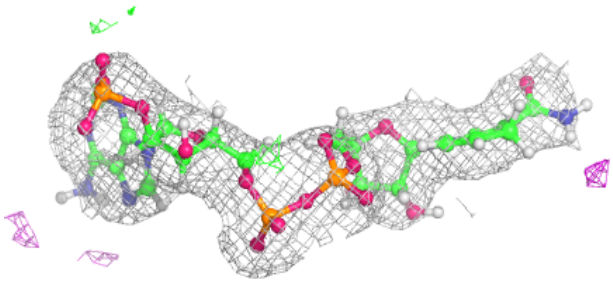
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	GOL	C	402	6/6	0.72	0.15	36,49,56,59	0
3	GOL	A	402	6/6	0.74	0.12	40,49,58,59	0
3	GOL	D	402	6/6	0.81	0.15	60,75,78,90	0
3	GOL	B	402	6/6	0.85	0.13	27,44,55,55	0
4	K	D	403	1/1	0.88	0.07	37,37,37,37	0
2	NDP	D	401	48/48	0.89	0.08	51,71,85,90	0
2	NDP	C	401	48/48	0.91	0.08	33,54,70,75	0
4	K	A	403	1/1	0.92	0.05	35,35,35,35	0
4	K	B	403	1/1	0.94	0.06	37,37,37,37	0
2	NDP	B	401	48/48	0.94	0.07	23,35,45,50	0
2	NDP	A	401	48/48	0.95	0.06	30,38,54,64	0
4	K	C	403	1/1	0.96	0.04	40,40,40,40	0

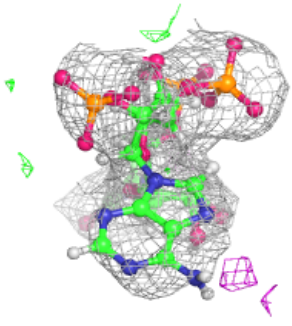
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around NDP 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)

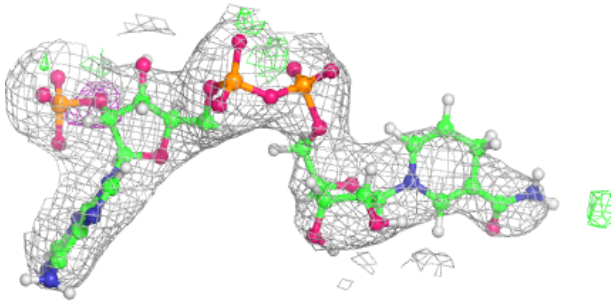


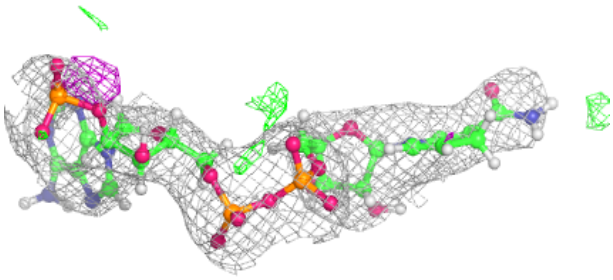


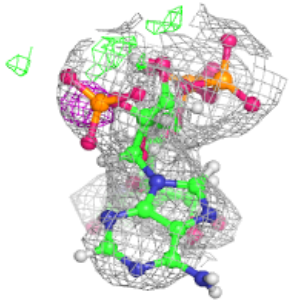


Electron density around NDP C 401:

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

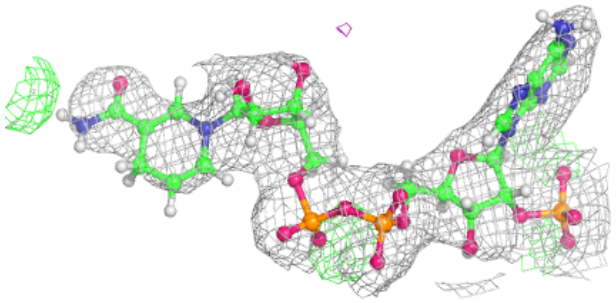


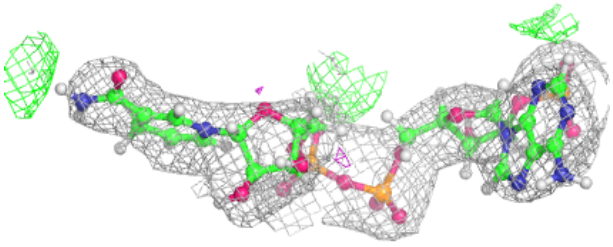


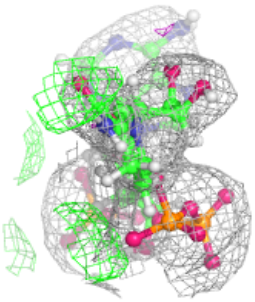


Electron density around NDP B 401:

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

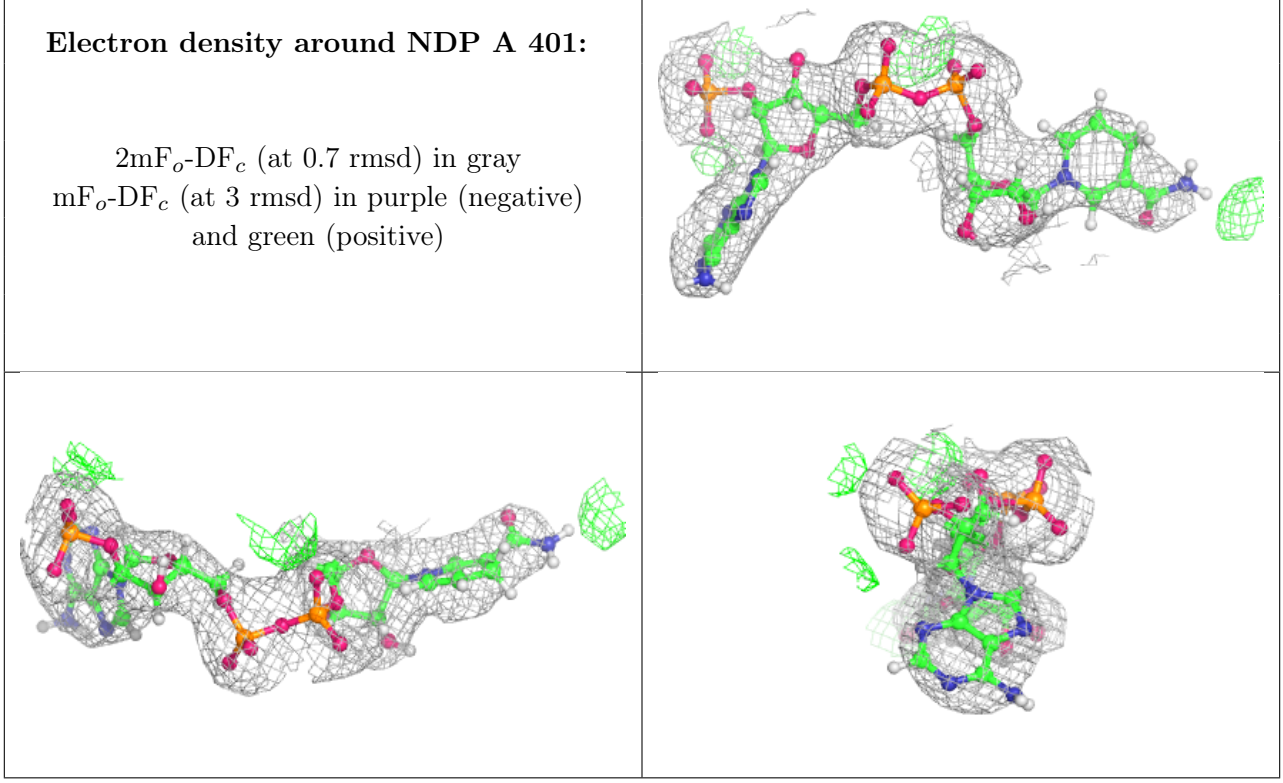






Electron density around NDP A 401:

$2mF_o$-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.