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PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Oct 9, 2023 – 11:23 AM EDT

PDB ID	:	8CTR
Title	:	Crystal Structure of dTDP-4-dehydrorhamnose reductase from Klebsiella pneumoniae with bound NADP
Authors	:	Seattle Structural Genomics Center for Infectious Disease; Seattle Structural Genomics Center for Infectious Disease (SSGCID)
Deposited on	:	2022-05-16
Resolution	:	1.65 Å(reported)

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

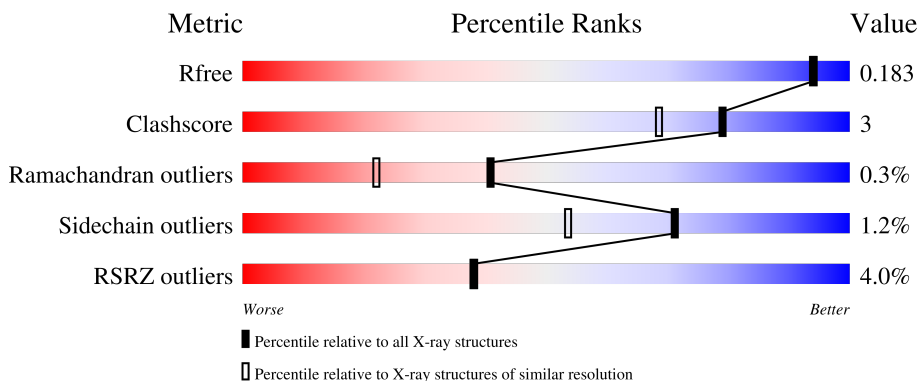|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

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 1.65 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	Percentile Ranks	Value
Rfree		0.183
Clashscore		3
Ramachandran outliers		0.3%
Sidechain outliers		1.2%
RSRZ outliers		4.0%

Worse *Better*

▌ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1827 (1.66-1.66)
Clashscore	141614	1931 (1.66-1.66)
Ramachandran outliers	138981	1891 (1.66-1.66)
Sidechain outliers	138945	1891 (1.66-1.66)
RSRZ outliers	127900	1791 (1.66-1.66)

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	304	3% / 93% / 5% •
1	B	304	5% / 94% / • •
1	C	304	3% / 91% / 7% •
1	D	304	4% / 93% / 5% •

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 11103 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 dTDP-4-dehydrorhamnose reductase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	298	Total	C	N	O	S	0	10	0
			2322	1461	411	444	6			
1	B	298	Total	C	N	O	S	0	4	0
			2296	1438	412	440	6			
1	C	298	Total	C	N	O	S	0	7	0
			2310	1449	417	438	6			
1	D	297	Total	C	N	O	S	0	8	0
			2311	1453	412	440	6			

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-7	MET	-	initiating methionine	UNP C9K1F1
A	-6	ALA	-	expression tag	UNP C9K1F1
A	-5	HIS	-	expression tag	UNP C9K1F1
A	-4	HIS	-	expression tag	UNP C9K1F1
A	-3	HIS	-	expression tag	UNP C9K1F1
A	-2	HIS	-	expression tag	UNP C9K1F1
A	-1	HIS	-	expression tag	UNP C9K1F1
A	0	HIS	-	expression tag	UNP C9K1F1
B	-7	MET	-	initiating methionine	UNP C9K1F1
B	-6	ALA	-	expression tag	UNP C9K1F1
B	-5	HIS	-	expression tag	UNP C9K1F1
B	-4	HIS	-	expression tag	UNP C9K1F1
B	-3	HIS	-	expression tag	UNP C9K1F1
B	-2	HIS	-	expression tag	UNP C9K1F1
B	-1	HIS	-	expression tag	UNP C9K1F1
B	0	HIS	-	expression tag	UNP C9K1F1
C	-7	MET	-	initiating methionine	UNP C9K1F1
C	-6	ALA	-	expression tag	UNP C9K1F1
C	-5	HIS	-	expression tag	UNP C9K1F1
C	-4	HIS	-	expression tag	UNP C9K1F1
C	-3	HIS	-	expression tag	UNP C9K1F1

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-2	HIS	-	expression tag	UNP C9K1F1
C	-1	HIS	-	expression tag	UNP C9K1F1
C	0	HIS	-	expression tag	UNP C9K1F1
D	-7	MET	-	initiating methionine	UNP C9K1F1
D	-6	ALA	-	expression tag	UNP C9K1F1
D	-5	HIS	-	expression tag	UNP C9K1F1
D	-4	HIS	-	expression tag	UNP C9K1F1
D	-3	HIS	-	expression tag	UNP C9K1F1
D	-2	HIS	-	expression tag	UNP C9K1F1
D	-1	HIS	-	expression tag	UNP C9K1F1
D	0	HIS	-	expression tag	UNP C9K1F1

- Molecule 2 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: $C_{21}H_{28}N_7O_{17}P_3$) (labeled as "Ligand of Interest" by depositor).
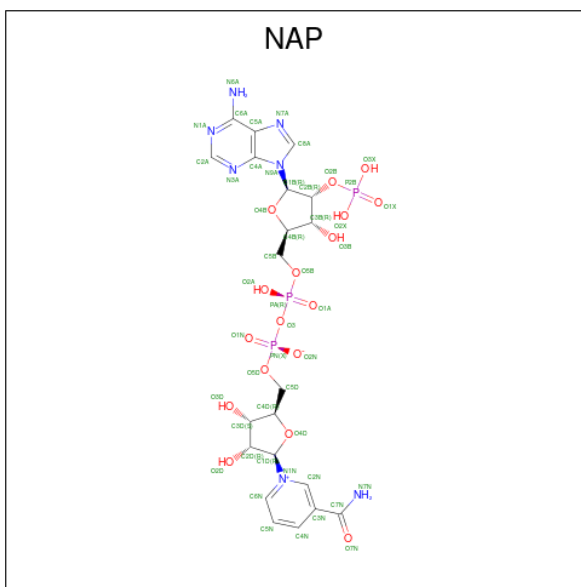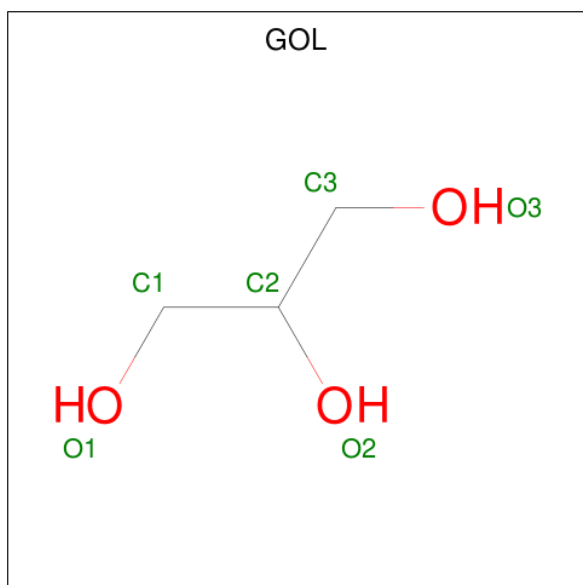

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	1
			96	42	14	34	6		
2	B	1	Total	C	N	O	P	0	1
			96	42	14	34	6		
2	C	1	Total	C	N	O	P	0	1
			96	42	14	34	6		
2	D	1	Total	C	N	O	P	0	1
			96	42	14	34	6		

- Molecule 3 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).

ACT

OXT

O⁻

C

CH3

O

O
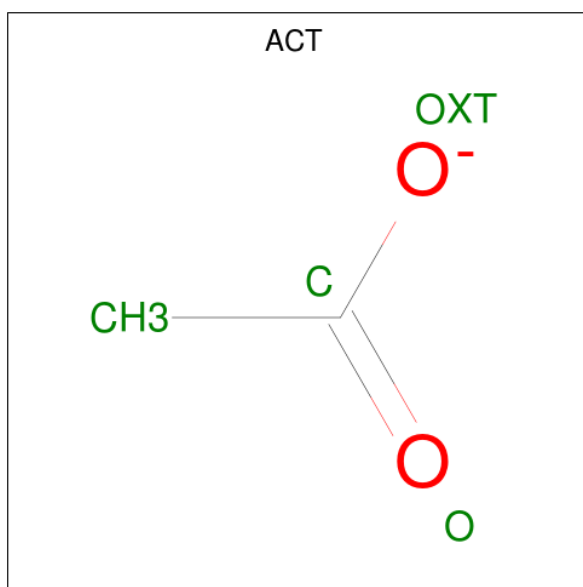
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 4	C 2	O 2	0	0
3	B	1	Total 4	C 2	O 2	0	0
3	C	1	Total 4	C 2	O 2	0	0
3	D	1	Total 4	C 2	O 2	0	0

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

GOL

C3

OH O3

C1 C2

HO

O1

OH

O2

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

- Molecule 5 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total 1	Na 1	0	0
5	B	2	Total 2	Na 2	0	0
5	D	1	Total 1	Na 1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	392	Total 392	O 392	0	0
6	B	358	Total 358	O 358	0	0
6	C	349	Total 350	O 350	0	1
6	D	336	Total 336	O 336	0	0

3 Residue-property plots ⓘ

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.
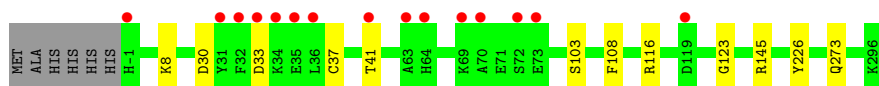
• Molecule 1: dTDP-4-dehydrorhamnose reductase

Chain A:

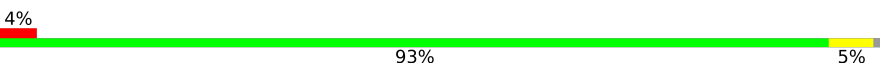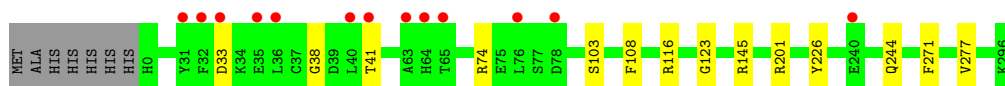• Molecule 1: dTDP-4-dehydrorhamnose reductase

Chain B:

• Molecule 1: dTDP-4-dehydrorhamnose reductase

Chain C:

• Molecule 1: dTDP-4-dehydrorhamnose reductase

Chain D:

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	71.55Å 71.69Å 81.23Å 89.96° 66.58° 83.08°	Depositor
Resolution (Å)	45.35 – 1.65 49.26 – 1.65	Depositor EDS
% Data completeness (in resolution range)	96.4 (45.35-1.65) 96.4 (49.26-1.65)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.97 (at 1.65Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.162 , 0.184 0.161 , 0.183	Depositor DCC
R_{free} test set	2059 reflections (1.21%)	wwPDB-VP
Wilson B-factor (Å^2)	19.8	Xtriage
Anisotropy	0.175	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 51.1	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	0.97	EDS
Total number of atoms	11103	wwPDB-VP
Average B, all atoms (Å^2)	26.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.82% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: GOL, NA, NAP, ACT

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	0.35	0/2396	0.60	0/3258
1	B	0.34	0/2351	0.60	0/3195
1	C	0.33	0/2375	0.59	0/3228
1	D	0.33	0/2378	0.58	0/3230
All	All	0.34	0/9500	0.59	0/12911

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	2322	0	2298	10	0
1	B	2296	0	2268	8	0
1	C	2310	0	2285	17	0
1	D	2311	0	2295	8	0
2	A	96	0	50	7	0
2	B	96	0	50	5	0
2	C	96	0	50	7	0
2	D	96	0	50	5	0
3	A	4	0	3	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	4	0	3	0	0
3	C	4	0	3	0	0
3	D	4	0	3	0	0
4	A	6	0	8	0	0
4	B	6	0	8	0	0
4	C	6	0	8	0	0
4	D	6	0	8	0	0
5	A	1	0	0	0	0
5	B	2	0	0	0	0
5	D	1	0	0	0	0
6	A	392	0	0	6	1
6	B	358	0	0	5	0
6	C	350	0	0	5	1
6	D	336	0	0	3	0
All	All	11103	0	9390	53	1

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 3.

All (53) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:37:CYS:SG	6:C:709:HOH:O	2.43	0.76
2:A:301[A]:NAP:O5D	2:A:301[A]:NAP:H6N	1.87	0.74
1:D:201[A]:ARG:NH1	6:D:402:HOH:O	2.23	0.71
1:C:64[B]:HIS:NE2	1:C:70:ALA:HB2	2.06	0.70
1:A:244[B]:GLN:OE1	6:A:401:HOH:O	2.12	0.68
2:D:301[B]:NAP:O5D	2:D:301[B]:NAP:H6N	1.95	0.66
1:B:37:CYS:SG	6:B:678:HOH:O	2.52	0.66
1:D:103:SER:O	2:D:301[A]:NAP:H6N	1.96	0.65
1:A:120:GLU:OE2	6:A:402:HOH:O	2.15	0.64
1:C:64[B]:HIS:HE2	1:C:70:ALA:HB2	1.63	0.63
1:D:145[A]:ARG:NH2	6:D:404:HOH:O	2.30	0.59
2:C:301[A]:NAP:O5D	2:C:301[A]:NAP:H6N	2.03	0.58
1:C:205[A]:ARG:NH1	6:C:404:HOH:O	2.33	0.56
1:B:103:SER:O	2:B:302[B]:NAP:H6N	2.07	0.55
2:B:302[A]:NAP:O5D	2:B:302[A]:NAP:H6N	2.08	0.54
1:C:103:SER:O	2:C:301[B]:NAP:H6N	2.08	0.54
1:C:151:THR:O	2:C:301[A]:NAP:N7N	2.42	0.52
1:B:145[B]:ARG:NH1	6:B:409:HOH:O	2.43	0.50
1:C:145[B]:ARG:NH1	6:C:408:HOH:O	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:103:SER:O	2:A:301[B]:NAP:H6N	2.12	0.49
1:D:38:GLY:O	2:D:301[A]:NAP:H2A	2.13	0.48
2:B:302[B]:NAP:H8A	2:B:302[B]:NAP:O3X	2.13	0.48
2:A:301[B]:NAP:H4N	6:A:432:HOH:O	2.14	0.48
1:B:41:THR:HG23	2:B:302[A]:NAP:N6A	2.30	0.47
1:A:145[A]:ARG:NH2	6:A:415:HOH:O	2.40	0.47
1:B:116:ARG:NE	6:B:408:HOH:O	2.43	0.47
1:C:126:ASN:O	1:C:130[B]:GLU:HG2	2.15	0.47
1:A:80:LEU:HD21	2:A:301[B]:NAP:C6A	2.46	0.45
1:B:273:GLN:HG2	6:B:487:HOH:O	2.16	0.44
1:A:80:LEU:HD21	2:A:301[A]:NAP:C6A	2.46	0.44
1:C:64[B]:HIS:CE1	1:C:128:TYR:HD1	2.36	0.44
1:D:41:THR:HG23	2:D:301[A]:NAP:N6A	2.32	0.44
1:B:8:LYS:HG2	1:B:30:ASP:HB2	2.00	0.44
1:C:41:THR:HG23	2:C:301[A]:NAP:N6A	2.33	0.44
1:C:151:THR:O	2:C:301[B]:NAP:H5N	2.17	0.44
1:D:244[A]:GLN:OE1	6:D:401:HOH:O	2.21	0.44
2:A:301[B]:NAP:O3X	2:A:301[B]:NAP:H8A	2.18	0.43
1:C:38:GLY:O	2:C:301[A]:NAP:H2A	2.19	0.43
1:A:8:LYS:HG2	1:A:30:ASP:HB2	2.01	0.42
1:A:30:ASP:HA	6:A:539:HOH:O	2.18	0.42
2:B:302[B]:NAP:H4N	6:B:413:HOH:O	2.19	0.42
1:D:108:PHE:CG	1:D:116:ARG:HD2	2.55	0.42
1:C:145[A]:ARG:NH2	6:C:418:HOH:O	2.52	0.42
1:D:271:PHE:HE1	1:D:277:VAL:HG21	1.85	0.41
1:C:8:LYS:HG2	1:C:30:ASP:HB2	2.02	0.41
1:C:64[B]:HIS:ND1	1:C:81:ASN:ND2	2.68	0.41
2:D:301[B]:NAP:H8A	2:D:301[B]:NAP:O1X	2.20	0.41
1:A:178[B]:ILE:HD12	1:A:246:VAL:HG13	2.02	0.41
2:A:301[A]:NAP:H6N	2:A:301[A]:NAP:PN	2.60	0.41
1:A:116:ARG:NE	6:A:412:HOH:O	2.39	0.41
1:C:80:LEU:HD21	2:C:301[A]:NAP:C6A	2.51	0.41
1:C:83:LYS:HE3	6:C:483:HOH:O	2.21	0.41
1:B:108:PHE:CD2	1:B:116:ARG:HD2	2.56	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:A:660:HOH:O	6:C:666:HOH:O[1_466]	2.17	0.03

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	306/304 (101%)	302 (99%)	3 (1%)	1 (0%)	41	22
1	B	300/304 (99%)	297 (99%)	2 (1%)	1 (0%)	41	22
1	C	303/304 (100%)	300 (99%)	2 (1%)	1 (0%)	41	22
1	D	303/304 (100%)	298 (98%)	4 (1%)	1 (0%)	41	22
All	All	1212/1216 (100%)	1197 (99%)	11 (1%)	4 (0%)	41	22

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	123	GLY
1	C	123	GLY
1	D	123	GLY
1	A	123	GLY

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	240/241 (100%)	236 (98%)	4 (2%)	60	39
1	B	236/241 (98%)	234 (99%)	2 (1%)	81	70
1	C	237/241 (98%)	234 (99%)	3 (1%)	69	50
1	D	238/241 (99%)	235 (99%)	3 (1%)	69	50
All	All	951/964 (99%)	939 (99%)	12 (1%)	71	50

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33[A]	ASP
1	A	33[B]	ASP
1	A	172	GLU
1	A	226	TYR
1	B	33	ASP
1	B	226	TYR
1	C	33	ASP
1	C	226	TYR
1	C	240	GLU
1	D	33	ASP
1	D	74	ARG
1	D	226	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	0	HIS
1	B	64	HIS
1	C	272	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 20 ligands modelled in this entry, 4 are monoatomic - leaving 16 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	ACT	A	302	-	3,3,3	1.39	0	3,3,3	1.48	0
2	NAP	B	302[A]	-	45,52,52	2.15	6 (13%)	56,80,80	1.71	17 (30%)
3	ACT	D	302	-	3,3,3	1.42	1 (33%)	3,3,3	1.46	0
2	NAP	B	302[B]	-	45,52,52	2.42	12 (26%)	56,80,80	1.67	14 (25%)
4	GOL	B	301	-	5,5,5	0.98	0	5,5,5	0.94	0
4	GOL	D	303	-	5,5,5	0.91	0	5,5,5	0.95	0
3	ACT	B	303	-	3,3,3	1.35	1 (33%)	3,3,3	1.40	0
4	GOL	A	303	-	5,5,5	0.88	0	5,5,5	0.92	0
2	NAP	C	301[A]	-	45,52,52	2.11	7 (15%)	56,80,80	1.66	16 (28%)
2	NAP	C	301[B]	-	45,52,52	2.32	9 (20%)	56,80,80	1.65	11 (19%)
3	ACT	C	302	-	3,3,3	1.33	1 (33%)	3,3,3	1.43	0
2	NAP	A	301[A]	-	45,52,52	2.41	9 (20%)	56,80,80	1.69	13 (23%)
2	NAP	A	301[B]	-	45,52,52	2.38	9 (20%)	56,80,80	1.73	14 (25%)
2	NAP	D	301[A]	-	45,52,52	2.15	6 (13%)	56,80,80	1.59	13 (23%)
2	NAP	D	301[B]	-	45,52,52	2.17	6 (13%)	56,80,80	1.74	15 (26%)
4	GOL	C	303	-	5,5,5	0.80	0	5,5,5	0.96	0

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
4	GOL	B	301	-	-	2/4/4/4	-
2	NAP	B	302[A]	-	-	13/31/67/67	0/5/5/5
4	GOL	D	303	-	-	0/4/4/4	-
2	NAP	B	302[B]	-	-	8/31/67/67	0/5/5/5
4	GOL	A	303	-	-	0/4/4/4	-
2	NAP	C	301[A]	-	-	13/31/67/67	0/5/5/5
2	NAP	C	301[B]	-	-	6/31/67/67	0/5/5/5
2	NAP	A	301[A]	-	-	9/31/67/67	0/5/5/5
2	NAP	A	301[B]	-	-	6/31/67/67	0/5/5/5
2	NAP	D	301[A]	-	-	10/31/67/67	0/5/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAP	D	301[B]	-	-	9/31/67/67	0/5/5/5
4	GOL	C	303	-	-	0/4/4/4	-

All (67) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	301[B]	NAP	P2B-O2B	12.81	1.83	1.59
2	A	301[A]	NAP	P2B-O2B	12.67	1.83	1.59
2	B	302[B]	NAP	P2B-O2B	12.11	1.82	1.59
2	C	301[B]	NAP	P2B-O2B	11.72	1.81	1.59
2	D	301[B]	NAP	P2B-O2B	10.80	1.79	1.59
2	D	301[A]	NAP	P2B-O2B	10.59	1.79	1.59
2	B	302[A]	NAP	P2B-O2B	10.55	1.79	1.59
2	C	301[A]	NAP	P2B-O2B	10.38	1.78	1.59
2	A	301[A]	NAP	PN-O5D	5.36	1.81	1.59
2	B	302[A]	NAP	PN-O5D	5.25	1.80	1.59
2	B	302[B]	NAP	PN-O5D	5.22	1.80	1.59
2	D	301[A]	NAP	PN-O5D	5.08	1.79	1.59
2	D	301[B]	NAP	PN-O5D	4.79	1.78	1.59
2	C	301[A]	NAP	PN-O5D	4.78	1.78	1.59
2	C	301[B]	NAP	PN-O5D	4.56	1.77	1.59
2	A	301[B]	NAP	PN-O5D	4.13	1.76	1.59
2	C	301[B]	NAP	C7N-N7N	3.64	1.39	1.33
2	C	301[A]	NAP	C3N-C7N	-3.54	1.45	1.50
2	B	302[B]	NAP	C7N-N7N	3.37	1.39	1.33
2	D	301[B]	NAP	C3N-C7N	-3.30	1.45	1.50
2	A	301[B]	NAP	C3N-C7N	-3.30	1.45	1.50
2	D	301[A]	NAP	C7N-N7N	3.21	1.39	1.33
2	A	301[B]	NAP	C7N-N7N	3.20	1.39	1.33
2	A	301[A]	NAP	C3N-C7N	-3.16	1.45	1.50
2	B	302[B]	NAP	C2N-N1N	3.16	1.38	1.35
2	C	301[B]	NAP	C3N-C7N	-3.08	1.45	1.50
2	C	301[B]	NAP	C2N-N1N	3.04	1.38	1.35
2	D	301[A]	NAP	C3N-C7N	-2.80	1.46	1.50
2	C	301[A]	NAP	C7N-N7N	2.71	1.38	1.33
2	B	302[A]	NAP	C3N-C7N	-2.68	1.46	1.50
2	B	302[B]	NAP	C3N-C7N	-2.62	1.46	1.50
2	B	302[B]	NAP	C2D-C1D	2.60	1.57	1.53
2	B	302[A]	NAP	C7N-N7N	2.58	1.37	1.33
2	B	302[A]	NAP	O2B-C2B	-2.44	1.35	1.44
2	C	301[A]	NAP	O2B-C2B	-2.42	1.35	1.44
2	D	301[B]	NAP	O2B-C2B	-2.37	1.35	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	301[A]	NAP	O2B-C2B	-2.35	1.35	1.44
2	A	301[A]	NAP	C4A-N3A	2.30	1.38	1.35
2	B	302[B]	NAP	C4A-N3A	2.30	1.38	1.35
2	D	301[B]	NAP	C7N-N7N	2.28	1.37	1.33
2	A	301[B]	NAP	C4A-N3A	2.28	1.38	1.35
2	A	301[B]	NAP	O2B-C2B	-2.26	1.35	1.44
2	D	301[B]	NAP	C2A-N1A	2.26	1.38	1.33
2	B	302[B]	NAP	C2A-N1A	2.24	1.38	1.33
2	A	301[A]	NAP	O2B-C2B	-2.22	1.36	1.44
2	A	301[A]	NAP	C7N-N7N	2.22	1.37	1.33
2	B	302[B]	NAP	O2B-C2B	-2.22	1.36	1.44
2	C	301[B]	NAP	O2B-C2B	-2.20	1.36	1.44
2	A	301[B]	NAP	C2A-N1A	2.19	1.38	1.33
2	B	302[B]	NAP	C2A-N3A	2.18	1.35	1.32
2	B	302[B]	NAP	PA-O5B	2.16	1.68	1.59
2	A	301[A]	NAP	C2A-N1A	2.14	1.37	1.33
2	B	302[A]	NAP	PA-O5B	2.13	1.67	1.59
2	C	301[B]	NAP	C2D-C1D	2.12	1.57	1.53
2	C	301[B]	NAP	C4A-N3A	2.12	1.38	1.35
2	C	301[B]	NAP	C2A-N1A	2.12	1.37	1.33
2	C	301[A]	NAP	C2A-N1A	2.10	1.37	1.33
2	A	301[A]	NAP	C6N-N1N	2.07	1.40	1.35
2	A	301[B]	NAP	O2D-C2D	-2.06	1.38	1.43
2	D	301[A]	NAP	C2A-N1A	2.05	1.37	1.33
3	C	302	ACT	CH3-C	2.05	1.57	1.49
2	B	302[B]	NAP	C3D-C4D	2.05	1.58	1.53
2	C	301[A]	NAP	PA-O5B	2.05	1.67	1.59
3	B	303	ACT	CH3-C	2.02	1.57	1.49
2	A	301[B]	NAP	C2A-N3A	2.01	1.35	1.32
3	D	302	ACT	CH3-C	2.01	1.57	1.49
2	A	301[A]	NAP	O5D-C5D	-2.00	1.37	1.44

All (113) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	302[A]	NAP	PN-O3-PA	-5.24	114.84	132.83
2	C	301[A]	NAP	PN-O3-PA	-5.22	114.92	132.83
2	D	301[B]	NAP	PN-O3-PA	-4.88	116.09	132.83
2	D	301[A]	NAP	PN-O3-PA	-4.76	116.48	132.83
2	B	302[B]	NAP	PN-O3-PA	-4.58	117.09	132.83
2	C	301[B]	NAP	PN-O3-PA	-4.43	117.63	132.83
2	A	301[A]	NAP	PN-O3-PA	-4.35	117.91	132.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	302[B]	NAP	C3B-C2B-C1B	-4.21	94.97	102.89
2	A	301[B]	NAP	C3B-C2B-C1B	-4.19	95.02	102.89
2	C	301[B]	NAP	C3B-C2B-C1B	-4.06	95.25	102.89
2	A	301[B]	NAP	PN-O3-PA	-4.05	118.94	132.83
2	A	301[A]	NAP	C3B-C2B-C1B	-3.77	95.81	102.89
2	D	301[B]	NAP	C5B-C4B-C3B	-3.38	102.51	115.18
2	D	301[B]	NAP	C3B-C2B-C1B	-3.36	96.56	102.89
2	C	301[B]	NAP	O4B-C1B-C2B	-3.34	100.80	106.59
2	A	301[B]	NAP	O4B-C1B-C2B	-3.28	100.90	106.59
2	D	301[A]	NAP	O3X-P2B-O2X	3.07	119.39	107.64
2	D	301[B]	NAP	O3X-P2B-O2X	3.06	119.34	107.64
2	D	301[B]	NAP	O7N-C7N-C3N	3.05	123.28	119.63
2	C	301[A]	NAP	O3X-P2B-O2X	3.02	119.17	107.64
2	B	302[A]	NAP	O3X-P2B-O2X	3.00	119.12	107.64
2	D	301[B]	NAP	O4B-C1B-C2B	-2.97	101.44	106.59
2	C	301[B]	NAP	O3X-P2B-O2X	2.93	118.85	107.64
2	A	301[B]	NAP	C5B-C4B-C3B	-2.93	104.19	115.18
2	B	302[B]	NAP	C5B-C4B-C3B	-2.93	104.20	115.18
2	C	301[B]	NAP	C5B-C4B-C3B	-2.93	104.21	115.18
2	A	301[B]	NAP	O3X-P2B-O2X	2.92	118.80	107.64
2	A	301[A]	NAP	O3X-P2B-O2X	2.89	118.69	107.64
2	B	302[B]	NAP	O3X-P2B-O2X	2.88	118.64	107.64
2	A	301[A]	NAP	O4B-C1B-C2B	-2.82	101.70	106.59
2	A	301[A]	NAP	O7N-C7N-C3N	2.80	122.98	119.63
2	C	301[A]	NAP	O2A-PA-O1A	2.79	126.03	112.24
2	B	302[A]	NAP	O2A-PA-O1A	2.75	125.86	112.24
2	B	302[A]	NAP	O2B-P2B-O1X	-2.72	98.88	109.39
2	D	301[A]	NAP	C5B-C4B-C3B	-2.70	105.07	115.18
2	D	301[B]	NAP	O2B-P2B-O1X	-2.69	99.02	109.39
2	C	301[B]	NAP	O5D-PN-O1N	-2.68	98.60	109.07
2	D	301[A]	NAP	O2A-PA-O1A	2.66	125.39	112.24
2	B	302[B]	NAP	O2B-P2B-O1X	-2.66	99.13	109.39
2	D	301[A]	NAP	O2B-P2B-O1X	-2.66	99.14	109.39
2	D	301[B]	NAP	O2A-PA-O1A	2.65	125.36	112.24
2	C	301[A]	NAP	O5D-PN-O1N	-2.64	98.73	109.07
2	D	301[B]	NAP	O5D-PN-O1N	-2.63	98.77	109.07
2	C	301[A]	NAP	O7N-C7N-C3N	2.63	122.78	119.63
2	A	301[B]	NAP	O2A-PA-O1A	2.63	125.23	112.24
2	A	301[A]	NAP	C5B-C4B-C3B	-2.62	105.37	115.18
2	C	301[A]	NAP	C5B-C4B-C3B	-2.61	105.38	115.18
2	C	301[A]	NAP	O2B-P2B-O1X	-2.59	99.40	109.39
2	A	301[A]	NAP	O2A-PA-O1A	2.58	125.00	112.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	301[A]	NAP	PN-O5D-C5D	-2.58	106.56	121.68
2	A	301[B]	NAP	O2B-P2B-O1X	-2.57	99.48	109.39
2	D	301[A]	NAP	O5D-PN-O1N	-2.56	99.06	109.07
2	C	301[A]	NAP	PA-O5B-C5B	-2.55	106.71	121.68
2	B	302[A]	NAP	C5B-C4B-C3B	-2.55	105.62	115.18
2	B	302[B]	NAP	O2A-PA-O1A	2.54	124.81	112.24
2	D	301[A]	NAP	PA-O5B-C5B	-2.54	106.77	121.68
2	B	302[B]	NAP	O4B-C1B-C2B	-2.54	102.18	106.59
2	B	302[A]	NAP	PA-O5B-C5B	-2.53	106.84	121.68
2	B	302[A]	NAP	O5D-PN-O1N	-2.52	99.24	109.07
2	A	301[A]	NAP	O2B-P2B-O1X	-2.51	99.69	109.39
2	A	301[A]	NAP	PA-O5B-C5B	-2.50	107.02	121.68
2	A	301[A]	NAP	O5D-PN-O1N	-2.50	99.30	109.07
2	A	301[B]	NAP	O2N-PN-O1N	2.48	124.53	112.24
2	A	301[B]	NAP	O5D-PN-O1N	-2.48	99.37	109.07
2	A	301[B]	NAP	PA-O5B-C5B	-2.48	107.16	121.68
2	C	301[B]	NAP	O2A-PA-O1A	2.45	124.36	112.24
2	C	301[A]	NAP	PN-O5D-C5D	-2.45	107.31	121.68
2	C	301[B]	NAP	O2B-P2B-O1X	-2.45	99.94	109.39
2	B	302[A]	NAP	C3D-C2D-C1D	2.45	104.66	100.98
2	B	302[B]	NAP	O5D-PN-O1N	-2.45	99.51	109.07
2	A	301[A]	NAP	O2N-PN-O1N	2.44	124.31	112.24
2	C	301[A]	NAP	O2N-PN-O1N	2.44	124.30	112.24
2	C	301[A]	NAP	C3B-C2B-C1B	-2.44	98.30	102.89
2	B	302[B]	NAP	PN-O5D-C5D	-2.44	107.38	121.68
2	B	302[A]	NAP	O7N-C7N-C3N	2.41	122.52	119.63
2	D	301[A]	NAP	C3B-C2B-C1B	-2.40	98.38	102.89
2	B	302[A]	NAP	O4D-C1D-C2D	2.39	110.42	106.93
2	A	301[B]	NAP	PN-O5D-C5D	-2.38	107.74	121.68
2	B	302[A]	NAP	O2N-PN-O1N	2.37	123.94	112.24
2	C	301[B]	NAP	PA-O5B-C5B	-2.35	107.92	121.68
2	B	302[B]	NAP	O2N-PN-O1N	2.34	123.83	112.24
2	D	301[B]	NAP	O2N-PN-O1N	2.34	123.80	112.24
2	D	301[B]	NAP	PN-O5D-C5D	-2.32	108.09	121.68
2	D	301[A]	NAP	O2N-PN-O1N	2.31	123.66	112.24
2	C	301[B]	NAP	O2N-PN-O1N	2.30	123.62	112.24
2	C	301[B]	NAP	PN-O5D-C5D	-2.30	108.22	121.68
2	B	302[A]	NAP	C3B-C2B-C1B	-2.29	98.59	102.89
2	B	302[B]	NAP	PA-O5B-C5B	-2.29	108.28	121.68
2	D	301[B]	NAP	O7N-C7N-N7N	-2.28	119.34	122.58
2	D	301[B]	NAP	PA-O5B-C5B	-2.27	108.35	121.68
2	B	302[A]	NAP	O2N-PN-O5D	-2.25	97.28	107.75

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	301[B]	NAP	O2N-PN-O5D	-2.25	97.31	107.75
2	A	301[A]	NAP	O2N-PN-O5D	-2.24	97.34	107.75
2	B	302[B]	NAP	C1B-N9A-C4A	-2.22	122.74	126.64
2	B	302[B]	NAP	O2N-PN-O5D	-2.21	97.50	107.75
2	A	301[B]	NAP	C2B-C3B-C4B	-2.18	97.25	101.99
2	B	302[A]	NAP	O7N-C7N-N7N	-2.18	119.48	122.58
2	C	301[A]	NAP	O2N-PN-O5D	-2.18	97.64	107.75
2	D	301[A]	NAP	O2N-PN-O5D	-2.15	97.76	107.75
2	A	301[B]	NAP	O7N-C7N-C3N	2.14	122.19	119.63
2	D	301[B]	NAP	O2N-PN-O5D	-2.13	97.87	107.75
2	C	301[A]	NAP	O7N-C7N-N7N	-2.10	119.59	122.58
2	C	301[A]	NAP	C5D-C4D-C3D	-2.09	107.35	115.18
2	B	302[A]	NAP	O4B-C4B-C3B	2.09	109.25	105.11
2	A	301[A]	NAP	O7N-C7N-N7N	-2.07	119.64	122.58
2	B	302[A]	NAP	O2X-P2B-O1X	2.04	118.68	110.68
2	C	301[A]	NAP	O4B-C4B-C3B	2.02	109.11	105.11
2	B	302[A]	NAP	PN-O5D-C5D	-2.02	109.85	121.68
2	D	301[B]	NAP	O2X-P2B-O1X	2.02	118.57	110.68
2	C	301[A]	NAP	O2X-P2B-O1X	2.01	118.56	110.68
2	D	301[A]	NAP	O2X-P2B-O1X	2.01	118.55	110.68
2	D	301[A]	NAP	O4B-C4B-C3B	2.01	109.09	105.11
2	B	302[B]	NAP	O2X-P2B-O1X	2.01	118.53	110.68

There are no chirality outliers.

All (76) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	301[A]	NAP	C2B-O2B-P2B-O3X
2	A	301[A]	NAP	O4D-C4D-C5D-O5D
2	A	301[A]	NAP	C3D-C4D-C5D-O5D
2	A	301[A]	NAP	C2N-C3N-C7N-O7N
2	B	302[A]	NAP	C5B-O5B-PA-O1A
2	B	302[A]	NAP	C5D-O5D-PN-O3
2	B	302[A]	NAP	C5D-O5D-PN-O1N
2	B	302[A]	NAP	O4D-C4D-C5D-O5D
2	B	302[A]	NAP	C3D-C4D-C5D-O5D
2	B	302[A]	NAP	C2N-C3N-C7N-O7N
2	B	302[A]	NAP	C2N-C3N-C7N-N7N
2	B	302[B]	NAP	O4D-C1D-N1N-C2N
2	C	301[A]	NAP	C5B-O5B-PA-O1A
2	C	301[A]	NAP	C2B-O2B-P2B-O1X
2	C	301[A]	NAP	O4D-C4D-C5D-O5D

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Mol	Chain	Res	Type	Atoms
2	C	301[A]	NAP	C3D-C4D-C5D-O5D
2	C	301[A]	NAP	C2N-C3N-C7N-O7N
2	C	301[A]	NAP	C2N-C3N-C7N-N7N
2	C	301[A]	NAP	C4N-C3N-C7N-N7N
2	C	301[B]	NAP	C2B-O2B-P2B-O1X
2	C	301[B]	NAP	C2B-O2B-P2B-O2X
2	C	301[B]	NAP	O4D-C1D-N1N-C2N
2	D	301[A]	NAP	C5B-O5B-PA-O1A
2	D	301[A]	NAP	O4D-C1D-N1N-C2N
2	D	301[B]	NAP	O4D-C4D-C5D-O5D
2	D	301[B]	NAP	C2N-C3N-C7N-O7N
2	D	301[B]	NAP	C2N-C3N-C7N-N7N
4	B	301	GOL	O1-C1-C2-C3
2	C	301[A]	NAP	C4N-C3N-C7N-O7N
2	D	301[B]	NAP	C4N-C3N-C7N-O7N
2	D	301[B]	NAP	C4N-C3N-C7N-N7N
2	B	302[A]	NAP	C4N-C3N-C7N-O7N
2	B	302[A]	NAP	C4N-C3N-C7N-N7N
2	A	301[A]	NAP	C2N-C3N-C7N-N7N
2	A	301[B]	NAP	O4B-C4B-C5B-O5B
2	A	301[B]	NAP	O4D-C4D-C5D-O5D
2	C	301[B]	NAP	O4B-C4B-C5B-O5B
2	D	301[A]	NAP	O4D-C4D-C5D-O5D
2	D	301[B]	NAP	C3D-C4D-C5D-O5D
2	B	302[B]	NAP	O4D-C4D-C5D-O5D
2	D	301[A]	NAP	C3D-C4D-C5D-O5D
2	A	301[A]	NAP	C4N-C3N-C7N-O7N
2	A	301[A]	NAP	C4N-C3N-C7N-N7N
4	B	301	GOL	O1-C1-C2-O2
2	A	301[B]	NAP	C3D-C4D-C5D-O5D
2	B	302[B]	NAP	O4B-C4B-C5B-O5B
2	D	301[B]	NAP	O4B-C4B-C5B-O5B
2	A	301[B]	NAP	C5B-O5B-PA-O3
2	B	302[A]	NAP	C5B-O5B-PA-O3
2	C	301[A]	NAP	C5B-O5B-PA-O3
2	C	301[A]	NAP	C2B-O2B-P2B-O2X
2	D	301[A]	NAP	C5B-O5B-PA-O3
2	B	302[B]	NAP	PN-O3-PA-O1A
2	B	302[B]	NAP	PN-O3-PA-O2A
2	C	301[B]	NAP	PN-O3-PA-O2A
2	B	302[A]	NAP	C5B-O5B-PA-O2A
2	B	302[A]	NAP	C5D-O5D-PN-O2N

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Mol	Chain	Res	Type	Atoms
2	C	301[A]	NAP	C5B-O5B-PA-O2A
2	A	301[B]	NAP	C3B-C4B-C5B-O5B
2	C	301[B]	NAP	O4D-C4D-C5D-O5D
2	D	301[B]	NAP	PN-O3-PA-O1A
2	D	301[A]	NAP	O4B-C4B-C5B-O5B
2	D	301[B]	NAP	PN-O3-PA-O2A
2	B	302[B]	NAP	C3D-C4D-C5D-O5D
2	D	301[A]	NAP	C2B-O2B-P2B-O1X
2	B	302[A]	NAP	O4B-C4B-C5B-O5B
2	A	301[A]	NAP	C2B-O2B-P2B-O2X
2	B	302[B]	NAP	C5B-O5B-PA-O3
2	D	301[A]	NAP	C2B-O2B-P2B-O2X
2	A	301[A]	NAP	O4B-C4B-C5B-O5B
2	C	301[A]	NAP	O4B-C4B-C5B-O5B
2	C	301[A]	NAP	PA-O3-PN-O1N
2	A	301[B]	NAP	C5B-O5B-PA-O1A
2	B	302[B]	NAP	C5B-O5B-PA-O1A
2	D	301[A]	NAP	C5B-O5B-PA-O2A
2	D	301[A]	NAP	C3B-C4B-C5B-O5B

There are no ring outliers.

8 monomers are involved in 24 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	302[A]	NAP	2	0
2	B	302[B]	NAP	3	0
2	C	301[A]	NAP	5	0
2	C	301[B]	NAP	2	0
2	A	301[A]	NAP	3	0
2	A	301[B]	NAP	4	0
2	D	301[A]	NAP	3	0
2	D	301[B]	NAP	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 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 NAP B 302 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand NAP B 302 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand NAP C 301 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand NAP C 301 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand NAP A 301 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand NAP A 301 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand NAP D 301 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand NAP D 301 (B)

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, 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(Å²)	Q<0.9
1	A	298/304 (98%)	0.13	10 (3%)	45	45	11, 20, 36, 72	0
1	B	298/304 (98%)	0.10	15 (5%)	28	27	12, 22, 44, 77	0
1	C	298/304 (98%)	0.13	10 (3%)	45	45	12, 22, 45, 79	0
1	D	297/304 (97%)	0.06	13 (4%)	34	34	13, 24, 49, 68	0
All	All	1191/1216 (97%)	0.10	48 (4%)	38	38	11, 22, 45, 79	0

All (48) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	254	TYR	8.8
1	B	64	HIS	5.9
1	D	31	TYR	5.7
1	C	254	TYR	5.4
1	B	31	TYR	5.0
1	B	32	PHE	5.0
1	D	63	ALA	5.0
1	A	-1	HIS	4.9
1	B	-1	HIS	4.6
1	D	32[A]	PHE	4.5
1	B	63	ALA	4.4
1	C	32	PHE	4.3
1	B	35	GLU	3.9
1	D	35	GLU	3.8
1	B	72	SER	3.5
1	D	41	THR	3.4
1	C	255	PRO	3.3
1	A	255	PRO	3.3
1	C	31	TYR	3.2
1	B	33	ASP	3.2
1	A	253	ALA	3.2

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Mol	Chain	Res	Type	RSRZ
1	C	63	ALA	2.9
1	A	31	TYR	2.9
1	A	172	GLU	2.7
1	B	70	ALA	2.7
1	B	119	ASP	2.7
1	D	65	THR	2.7
1	C	70	ALA	2.6
1	D	40	LEU	2.6
1	C	72	SER	2.6
1	C	64[A]	HIS	2.6
1	A	35	GLU	2.6
1	B	34	LYS	2.5
1	D	76	LEU	2.5
1	A	32[A]	PHE	2.5
1	D	64	HIS	2.5
1	C	-1	HIS	2.5
1	D	240[A]	GLU	2.4
1	B	41	THR	2.3
1	D	33	ASP	2.3
1	B	73	GLU	2.3
1	A	34	LYS	2.2
1	D	78	ASP	2.2
1	B	36	LEU	2.2
1	A	63	ALA	2.1
1	D	36	LEU	2.1
1	B	69	LYS	2.1
1	C	148	ILE	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 monosaccharides 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, 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($Å^2$)	Q<0.9
3	ACT	A	302	4/4	0.72	0.21	40,47,47,47	0
3	ACT	D	302	4/4	0.77	0.23	39,40,41,43	0
2	NAP	D	301[A]	48/48	0.80	0.26	17,29,45,47	48
2	NAP	D	301[B]	48/48	0.80	0.26	18,30,44,48	48
4	GOL	D	303	6/6	0.83	0.14	32,38,42,47	0
2	NAP	B	302[B]	48/48	0.84	0.29	19,34,57,58	48
2	NAP	B	302[A]	48/48	0.84	0.29	18,32,55,57	48
2	NAP	C	301[B]	48/48	0.85	0.23	16,28,43,48	48
2	NAP	C	301[A]	48/48	0.85	0.23	17,26,43,47	48
2	NAP	A	301[B]	48/48	0.86	0.22	14,23,40,48	48
2	NAP	A	301[A]	48/48	0.86	0.22	12,23,41,48	48
3	ACT	C	302	4/4	0.87	0.29	37,38,39,45	0
4	GOL	A	303	6/6	0.88	0.12	32,35,42,46	0
4	GOL	B	301	6/6	0.89	0.10	29,34,40,42	0
4	GOL	C	303	6/6	0.92	0.11	27,31,40,44	0
3	ACT	B	303	4/4	0.93	0.21	43,44,47,47	0
5	NA	A	304	1/1	0.96	0.08	28,28,28,28	0
5	NA	B	304	1/1	0.99	0.05	25,25,25,25	0
5	NA	B	305	1/1	0.99	0.06	17,17,17,17	0
5	NA	D	304	1/1	0.99	0.05	19,19,19,19	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.
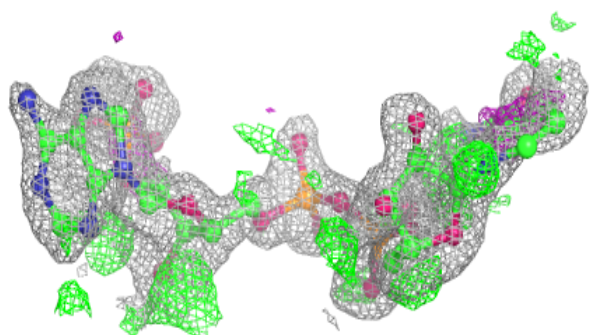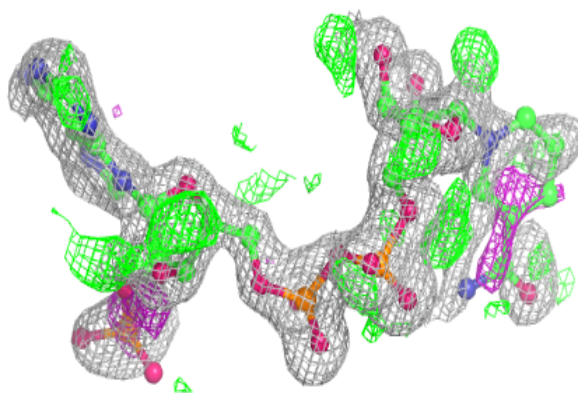
Electron density around NAP D 301 (A):

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
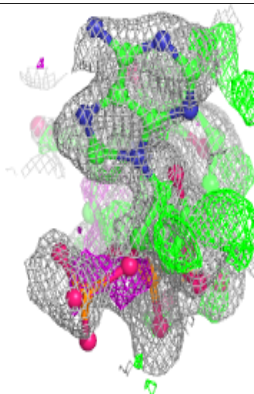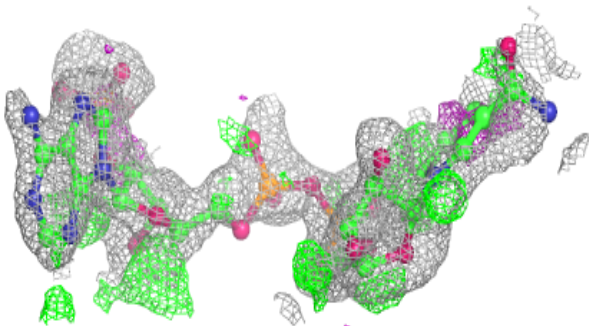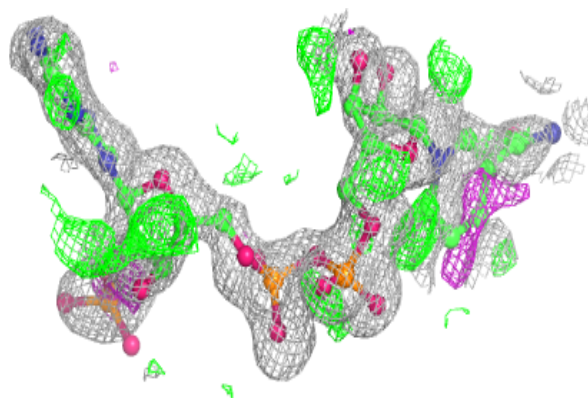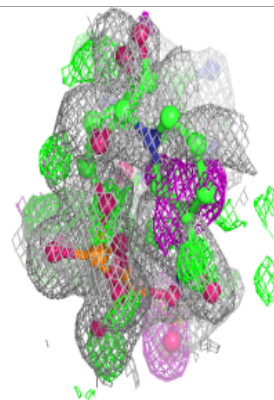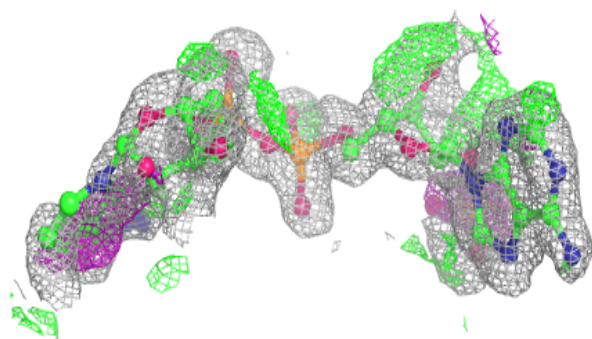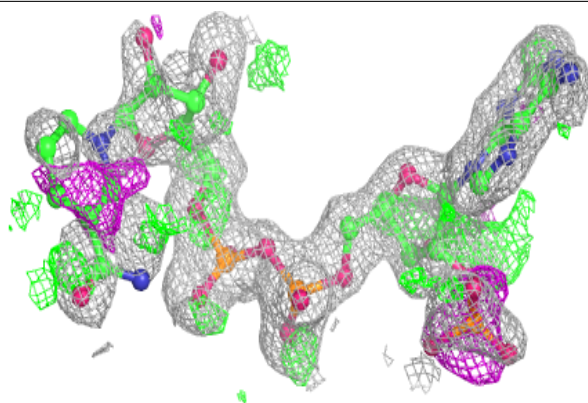and green (positive)
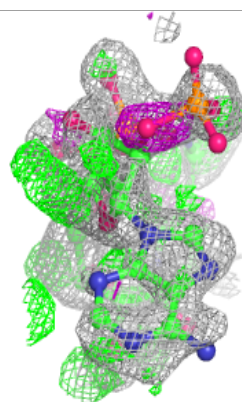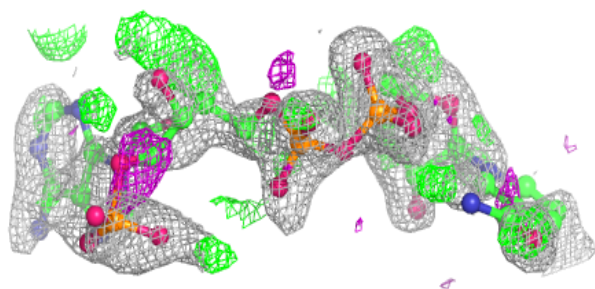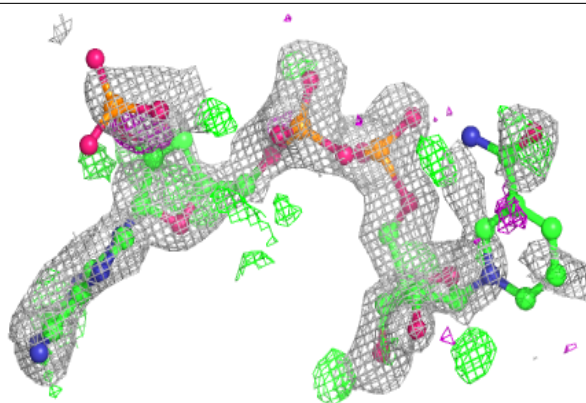
Electron density around NAP D 301 (B):

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
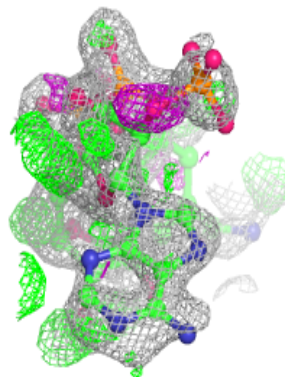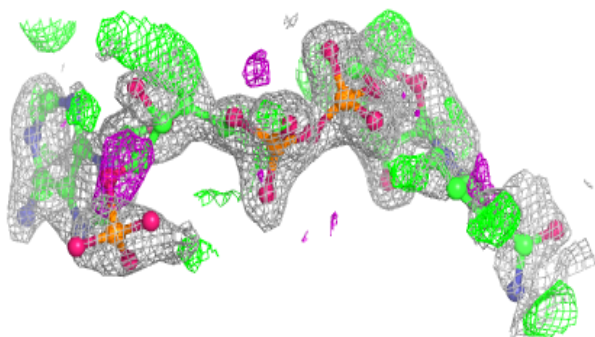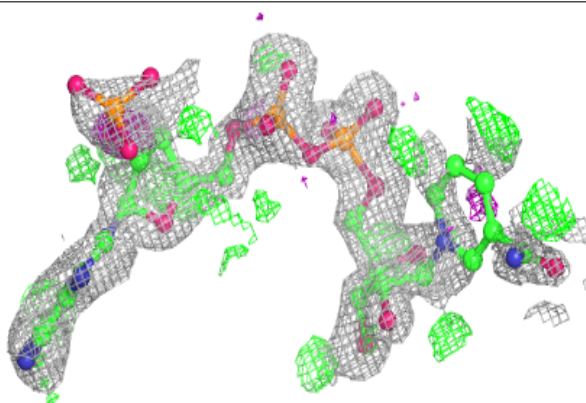
Electron density around NAP B 302 (B):

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
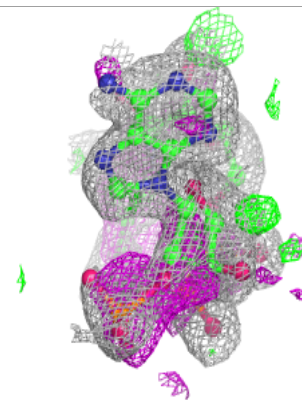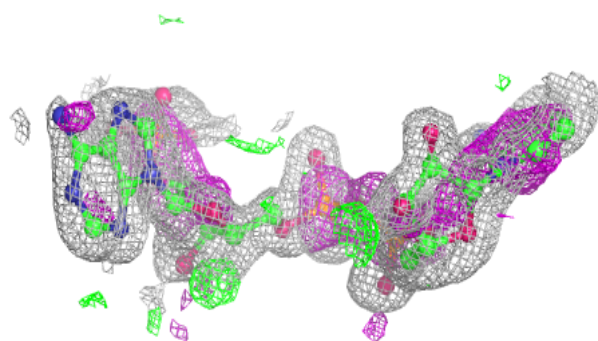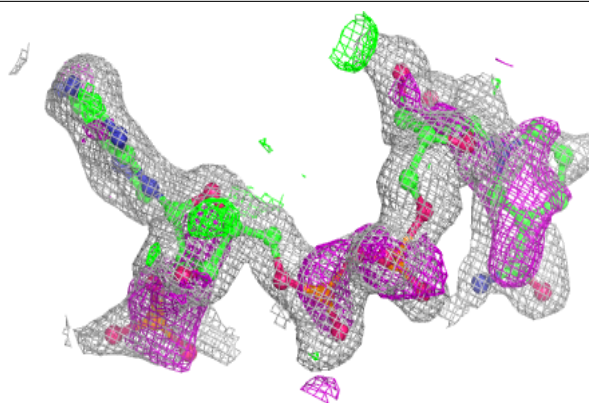
Electron density around NAP B 302 (A):

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
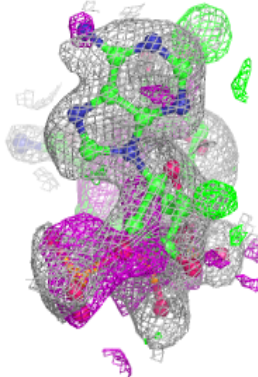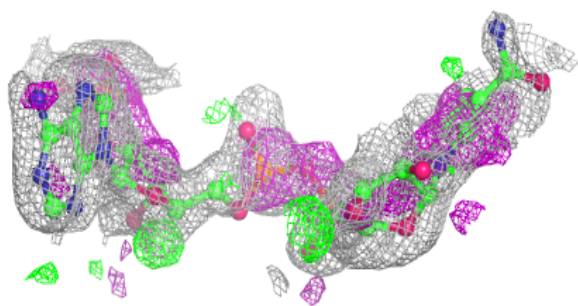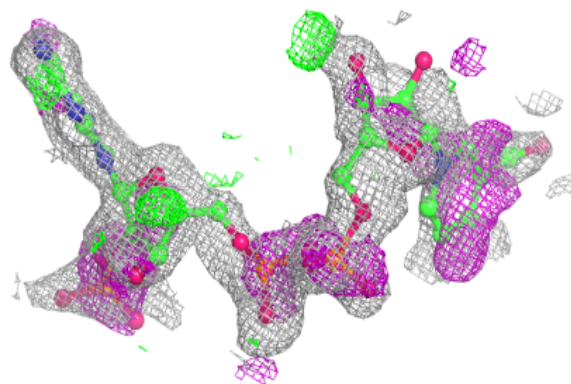
Electron density around NAP C 301 (B):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
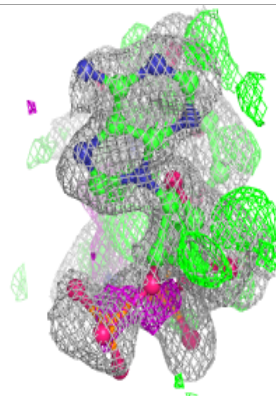
Electron density around NAP C 301 (A):

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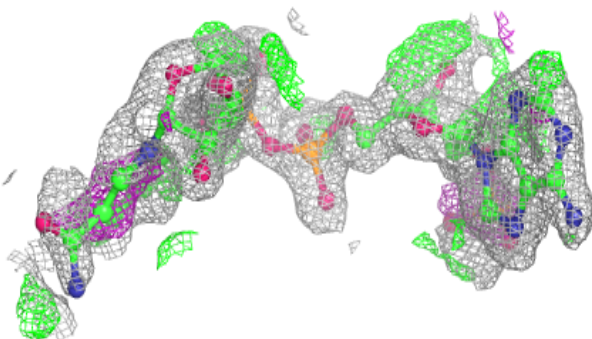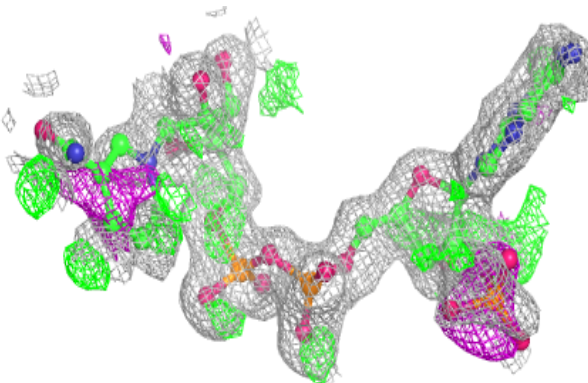and green (positive)

Electron density around NAP A 301 (B):

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

Electron density around NAP A 301 (A):

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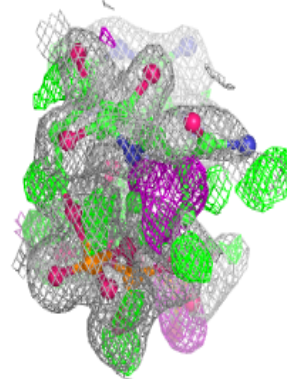
6.5 Other polymers (i)

There are no such residues in this entry.