Full wwPDB X-ray Structure Validation Report (i)

Jul 3, 2026 – 01:09 AM JST

PDB ID	:	9VRG / pdb_00009vrg
Title	:	Carbonyl reductase SxPR mutant-T149AF153A
Authors	:	Zhen, M.; Tingting, Y.
Deposited on	:	2025-07-06
Resolution	:	1.58 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 (i) 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 (i)) were used in the production of this report:

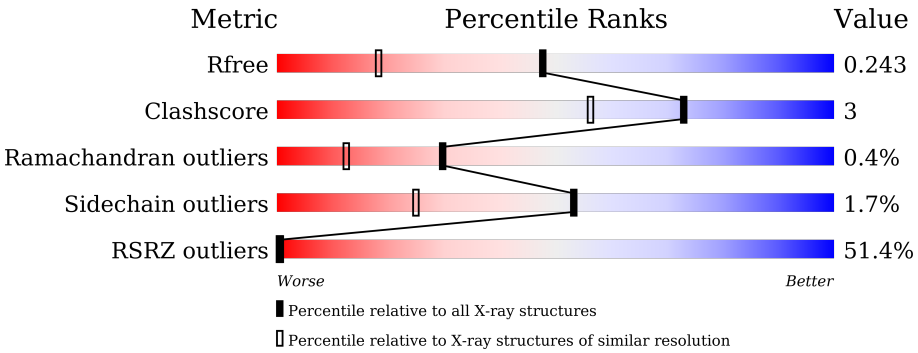
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.015 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.50

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 1.58 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	1094 (1.58-1.58)
Clashscore	190562	1105 (1.58-1.58)
Ramachandran outliers	187476	1082 (1.58-1.58)
Sidechain outliers	187428	1081 (1.58-1.58)
RSRZ outliers	180081	1094 (1.58-1.58)

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	260	3% 88% 9%
1	B	260	97% 93%

2 Entry composition

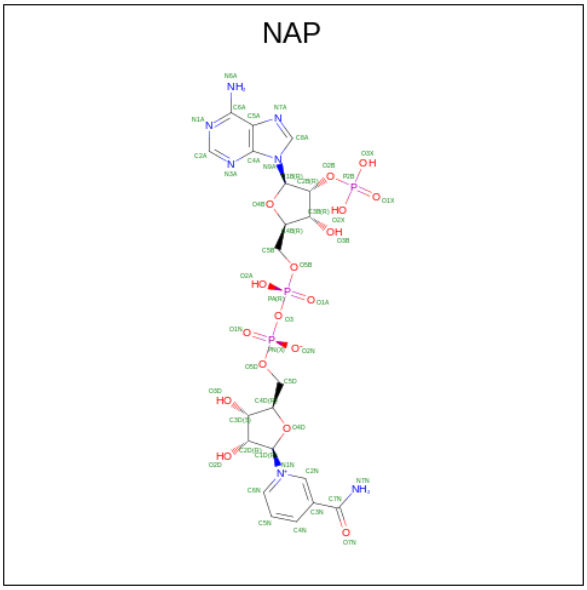
There are 3 unique types of molecules in this entry. The entry contains 3796 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Carbonyl Reductase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	252	Total	C	N	O	S	0	3	0
			1824	1138	324	358	4			
1	B	252	Total	C	N	O	S	0	0	0
			1810	1127	324	355	4			

- Molecule 2 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (CCD ID: 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	0
			48	21	7	17	3		
2	B	1	Total	C	N	O	P	0	0
			48	21	7	17	3		

- Molecule 3 is water.

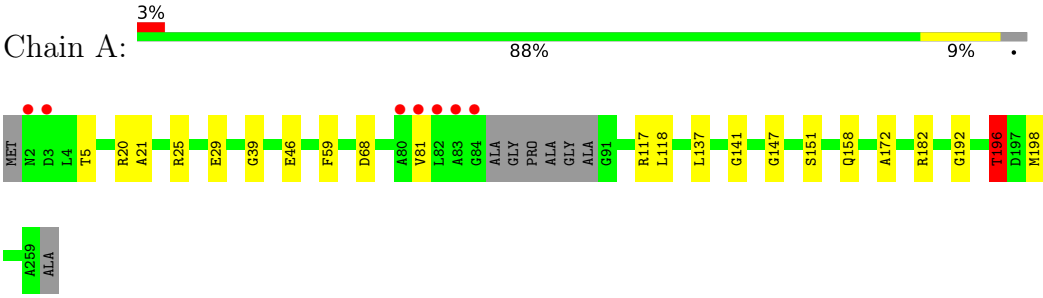
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	65	Total O 65 65	0	0
3	B	1	Total O 1 1	0	0

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.

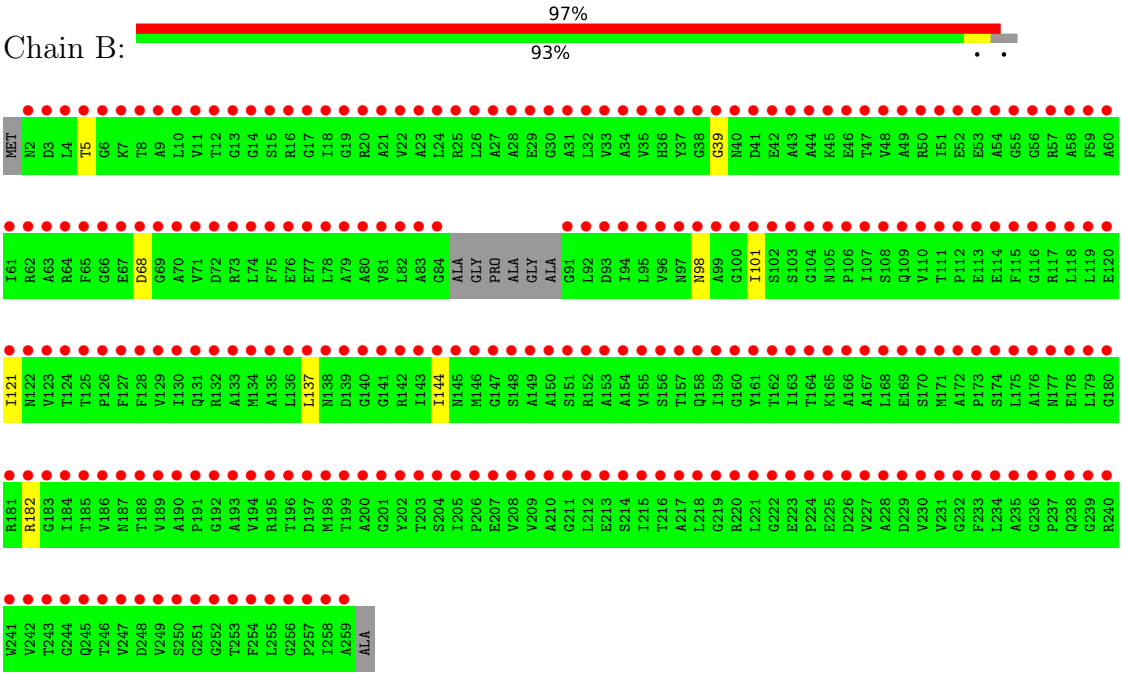
• Molecule 1: Carbonyl Reductase

Chain A:



• Molecule 1: Carbonyl Reductase

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	80.05Å 80.07Å 131.82Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	42.94 – 1.58 42.94 – 1.58	Depositor EDS
% Data completeness (in resolution range)	99.1 (42.94-1.58) 99.6 (42.94-1.58)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.09 (at 1.58Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.204 , 0.237 0.214 , 0.243	Depositor DCC
R_{free} test set	2832 reflections (4.86%)	wwPDB-VP
Wilson B-factor (Å^2)	13.5	Xtriage
Anisotropy	0.105	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 37.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.110 for -k,-h,-l	Xtriage
Reported twinning fraction	0.504 for H, K, L 0.496 for -K, -H, -L	Depositor
Outliers	0 of 58059 reflections	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	3796	wwPDB-VP
Average B, all atoms (Å^2)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.73% 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: NAP

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	0.88	0/1854	0.95	3/2517 (0.1%)
1	B	0.50	0/1831	0.76	0/2485
All	All	0.72	0/3685	0.86	3/5002 (0.1%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	196	THR	N-CA-CB	-6.24	101.70	111.56
1	A	172	ALA	CA-C-N	-5.20	113.28	119.05
1	A	172	ALA	C-N-CA	-5.20	113.28	119.05

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	1824	0	1845	20	0
1	B	1810	0	1823	4	0
2	A	48	0	25	4	0
2	B	48	0	25	1	0
3	A	65	0	0	8	0
3	B	1	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	3796	0	3718	24	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 3.

All (24) 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:A:21:ALA:HB1	3:A:409:HOH:O	1.47	1.13
1:A:196:THR:HG21	2:A:301:NAP:O2N	1.61	1.00
1:A:225:GLU:HA	3:A:409:HOH:O	1.66	0.94
1:A:20:ARG:CZ	1:A:46:GLU:OE2	2.40	0.69
1:A:25:ARG:NH1	1:A:29:GLU:OE2	2.26	0.68
1:B:144:ILE:O	3:B:401:HOH:O	2.11	0.67
1:A:117:ARG:NH2	3:A:403:HOH:O	2.34	0.59
1:A:59:PHE:CE2	1:A:81:VAL:HG11	2.39	0.57
1:A:118:LEU:HB2	3:A:427:HOH:O	2.07	0.54
1:A:196:THR:HG23	1:A:198:MET:H	1.75	0.50
1:A:141:GLY:HA3	3:A:423:HOH:O	2.11	0.49
1:A:158:GLN:NE2	3:A:405:HOH:O	2.46	0.48
1:A:196:THR:CG2	2:A:301:NAP:O2N	2.48	0.48
1:A:225:GLU:CA	3:A:409:HOH:O	2.42	0.47
1:A:196:THR:CG2	1:A:198:MET:HB3	2.45	0.46
1:A:59:PHE:CZ	1:A:81:VAL:HG11	2.50	0.46
1:A:137:LEU:O	1:A:182:ARG:NH2	2.50	0.45
1:B:137:LEU:O	1:B:182:ARG:NH2	2.51	0.43
1:A:221:LEU:HD12	1:A:221:LEU:N	2.34	0.42
1:A:147:GLY:O	2:A:301:NAP:H6N	2.19	0.42
1:B:98:ASN:O	2:B:301:NAP:H4D	2.19	0.42
1:A:225:GLU:HG3	3:A:409:HOH:O	2.20	0.41
1:A:192:GLY:O	2:A:301:NAP:H4N	2.20	0.41
1:B:101:ILE:HD13	1:B:121:ILE:HD12	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	251/260 (96%)	249 (99%)	1 (0%)	1 (0%)	30 12
1	B	248/260 (95%)	246 (99%)	1 (0%)	1 (0%)	30 12
All	All	499/520 (96%)	495 (99%)	2 (0%)	2 (0%)	30 12

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	39	GLY
1	A	39	GLY

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	183/182 (100%)	178 (97%)	5 (3%)	39 10
1	B	180/182 (99%)	178 (99%)	2 (1%)	65 43
All	All	363/364 (100%)	356 (98%)	7 (2%)	53 21

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	THR
1	A	68	ASP
1	A	151[A]	SER
1	A	151[B]	SER

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Mol	Chain	Res	Type
1	A	196	THR
1	B	5	THR
1	B	68	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	97	ASN
1	A	131	GLN
1	A	138	ASN
1	A	158	GLN
1	B	131	GLN
1	B	138	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

2 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	NAP	B	301	-	49,52,52	1.56	6 (12%)	69,80,80	1.84	13 (18%)
2	NAP	A	301	-	49,52,52	1.49	5 (10%)	69,80,80	2.10	18 (26%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAP	B	301	-	-	12/35/67/67	0/5/5/5
2	NAP	A	301	-	-	6/35/67/67	0/5/5/5

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	301	NAP	C4N-C3N	7.05	1.51	1.39
2	A	301	NAP	C4N-C3N	6.12	1.49	1.39
2	B	301	NAP	C5A-C4A	4.49	1.47	1.39
2	A	301	NAP	C5N-C4N	3.70	1.46	1.38
2	A	301	NAP	C5A-C4A	3.53	1.45	1.39
2	B	301	NAP	C5N-C4N	3.30	1.45	1.38
2	A	301	NAP	O4D-C1D	2.85	1.45	1.41
2	B	301	NAP	C5A-C6A	2.58	1.48	1.41
2	B	301	NAP	C8A-N7A	2.45	1.36	1.31
2	A	301	NAP	C4A-N9A	-2.44	1.32	1.37
2	B	301	NAP	C5A-N7A	-2.20	1.34	1.39

All (31) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	301	NAP	C5N-C4N-C3N	-7.73	111.20	120.34
2	B	301	NAP	C5N-C4N-C3N	-6.81	112.28	120.34
2	B	301	NAP	C5A-C4A-N3A	-5.76	119.24	126.75
2	A	301	NAP	C5A-C4A-N3A	-4.72	120.59	126.75
2	B	301	NAP	N3A-C4A-N9A	4.56	134.59	127.08
2	A	301	NAP	C4A-N9A-C8A	4.55	110.66	105.73
2	A	301	NAP	N3A-C4A-N9A	4.15	133.92	127.08
2	B	301	NAP	C2A-N3A-C4A	3.93	121.04	111.75
2	A	301	NAP	N3A-C2A-N1A	-3.85	122.58	128.60
2	A	301	NAP	C2A-N3A-C4A	3.70	120.50	111.75
2	A	301	NAP	C2B-C1B-N9A	-3.69	107.32	113.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	301	NAP	N3A-C2A-N1A	-3.63	122.92	128.60
2	A	301	NAP	N9A-C8A-N7A	-3.40	109.27	113.91
2	A	301	NAP	C4A-C5A-N7A	-3.30	106.60	110.62
2	A	301	NAP	C3N-C2N-N1N	3.20	123.56	120.43
2	B	301	NAP	C3N-C7N-N7N	3.16	121.54	117.75
2	A	301	NAP	C5A-N7A-C8A	3.14	107.97	103.51
2	B	301	NAP	C4A-C5A-N7A	-3.13	106.80	110.62
2	A	301	NAP	C4N-C3N-C7N	-3.08	112.78	121.04
2	A	301	NAP	C6A-C5A-N7A	3.01	137.62	132.02
2	B	301	NAP	PN-O3-PA	-2.89	122.90	132.83
2	B	301	NAP	C4A-N9A-C8A	2.88	108.85	105.73
2	A	301	NAP	C6N-N1N-C2N	-2.86	119.36	121.97
2	B	301	NAP	C5A-N7A-C8A	2.83	107.53	103.51
2	A	301	NAP	C2N-C3N-C4N	2.78	121.41	118.26
2	A	301	NAP	C6N-C5N-C4N	2.40	122.93	119.44
2	B	301	NAP	N9A-C8A-N7A	-2.39	110.65	113.91
2	B	301	NAP	C6A-C5A-N7A	2.33	136.37	132.02
2	A	301	NAP	C2N-C3N-C7N	2.18	125.81	119.46
2	A	301	NAP	C5A-C6A-N6A	-2.16	118.73	123.43
2	B	301	NAP	C2N-C3N-C4N	2.09	120.63	118.26

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	301	NAP	O4D-C1D-N1N-C2N
2	B	301	NAP	C5B-O5B-PA-O1A
2	B	301	NAP	C2B-O2B-P2B-O3X
2	B	301	NAP	O4D-C1D-N1N-C2N
2	A	301	NAP	PN-O3-PA-O1A
2	B	301	NAP	PN-O3-PA-O5B
2	B	301	NAP	C2B-O2B-P2B-O1X
2	B	301	NAP	C5B-O5B-PA-O3
2	B	301	NAP	O4B-C4B-C5B-O5B
2	B	301	NAP	C5B-O5B-PA-O2A
2	B	301	NAP	C5D-O5D-PN-O2N
2	A	301	NAP	PN-O3-PA-O2A
2	B	301	NAP	PN-O3-PA-O1A
2	A	301	NAP	C3B-C2B-O2B-P2B
2	A	301	NAP	C1B-C2B-O2B-P2B
2	B	301	NAP	C5D-O5D-PN-O3
2	A	301	NAP	O4B-C4B-C5B-O5B

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Mol	Chain	Res	Type	Atoms
2	B	301	NAP	C3B-C4B-C5B-O5B

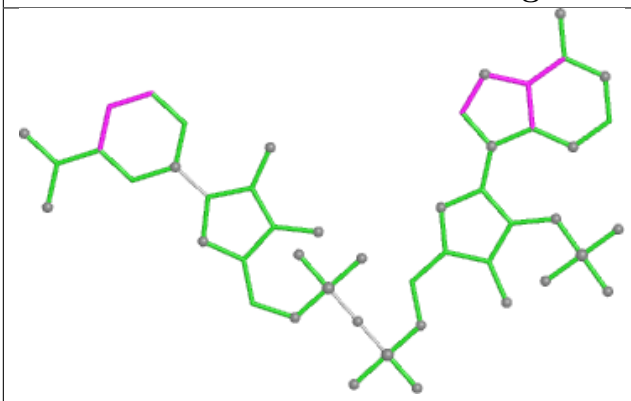
There are no ring outliers.

2 monomers are involved in 5 short contacts:

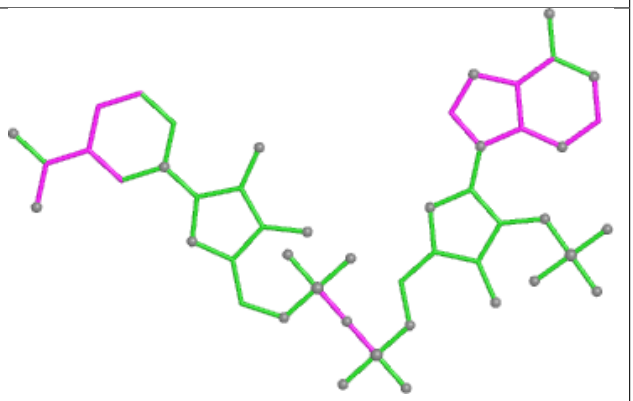
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	301	NAP	1	0
2	A	301	NAP	4	0

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.

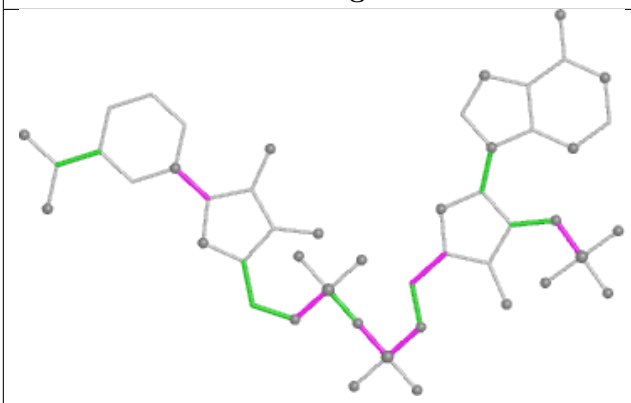
Ligand NAP B 301



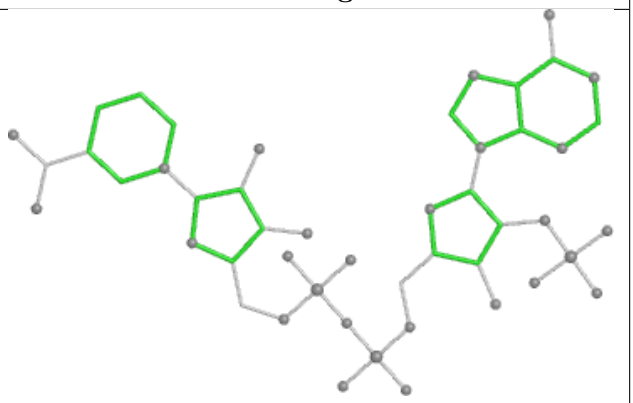
Bond lengths



Bond angles

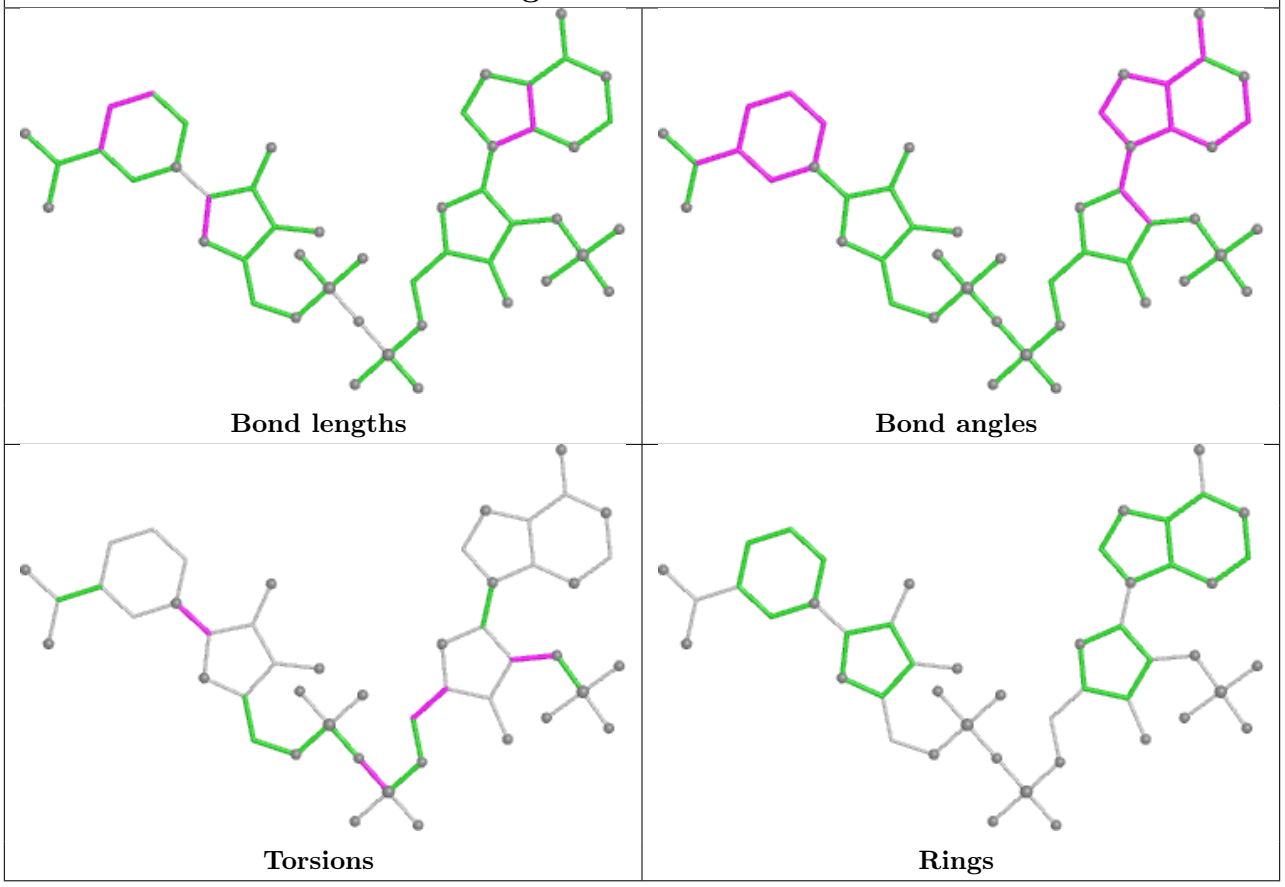


Torsions



Rings

Ligand NAP A 301



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, 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	252/260 (96%)	0.18	7 (2%) 55 67	6, 12, 29, 45	3 (1%)
1	B	252/260 (96%)	5.92	252 (100%) 0 0	56, 102, 117, 124	0
All	All	504/520 (96%)	3.05	259 (51%) 0 0	6, 45, 114, 124	3 (0%)

All (259) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	59	PHE	10.5
1	B	26	LEU	9.8
1	B	94	ILE	9.6
1	B	61	ILE	9.6
1	B	44	ALA	9.6
1	B	54	ALA	9.4
1	B	193	ALA	9.2
1	B	34	ALA	9.1
1	B	78	LEU	9.1
1	B	127	PHE	9.1
1	B	48	VAL	8.9
1	B	159	ILE	8.9
1	B	32	LEU	8.9
1	B	60	ALA	8.7
1	B	33	VAL	8.7
1	B	35	VAL	8.6
1	B	24	LEU	8.6
1	B	129	VAL	8.5
1	B	23	ALA	8.4
1	B	233	PHE	8.4
1	B	212	LEU	8.3
1	B	205	ILE	8.3
1	B	215	ILE	8.3
1	B	11	VAL	8.2

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Mol	Chain	Res	Type	RSRZ
1	B	4	LEU	8.2
1	B	189	VAL	8.1
1	B	128	PHE	8.1
1	B	230	VAL	8.1
1	B	227	VAL	8.0
1	B	184	ILE	8.0
1	B	28	ALA	7.9
1	B	242	VAL	7.8
1	B	179	LEU	7.8
1	B	221	LEU	7.8
1	B	186	VAL	7.8
1	B	208	VAL	7.8
1	B	200	ALA	7.8
1	B	92	LEU	7.8
1	B	119	LEU	7.8
1	B	137	LEU	7.8
1	B	144	ILE	7.8
1	B	96	VAL	7.7
1	B	10	LEU	7.7
1	B	247	VAL	7.7
1	B	18	ILE	7.7
1	B	22	VAL	7.6
1	B	99	ALA	7.6
1	B	39	GLY	7.6
1	B	194	VAL	7.5
1	B	55	GLY	7.5
1	B	234	LEU	7.5
1	B	65	PHE	7.5
1	B	130	ILE	7.5
1	B	255	LEU	7.4
1	B	51	ILE	7.4
1	B	150	ALA	7.4
1	B	71	VAL	7.4
1	B	175	LEU	7.3
1	B	258	ILE	7.3
1	B	31	ALA	7.3
1	B	70	ALA	7.3
1	B	37	TYR	7.3
1	B	21	ALA	7.3
1	B	231	VAL	7.3
1	B	101	ILE	7.2
1	B	49	ALA	7.2

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Mol	Chain	Res	Type	RSRZ
1	B	95	LEU	7.2
1	B	110	VAL	7.2
1	B	155	VAL	7.1
1	B	74	LEU	7.1
1	B	243	THR	7.0
1	B	163	ILE	7.0
1	B	9	ALA	7.0
1	B	63	ALA	7.0
1	B	210	ALA	6.9
1	B	201	GLY	6.9
1	B	17	GLY	6.8
1	B	75	PHE	6.8
1	B	106	PRO	6.8
1	B	118	LEU	6.8
1	B	168	LEU	6.8
1	B	30	GLY	6.8
1	B	121	ILE	6.8
1	B	81	VAL	6.7
1	B	115	PHE	6.7
1	B	107	ILE	6.7
1	B	27	ALA	6.7
1	B	202	TYR	6.7
1	B	224	PRO	6.7
1	B	47	THR	6.7
1	B	123	VAL	6.7
1	B	249	VAL	6.7
1	B	143	ILE	6.6
1	B	188	THR	6.5
1	B	79	ALA	6.5
1	B	253	THR	6.5
1	B	38	GLY	6.5
1	B	254	PHE	6.5
1	B	176	ALA	6.4
1	B	222	GLY	6.4
1	B	58	ALA	6.4
1	B	235	ALA	6.3
1	B	218	LEU	6.3
1	B	154	ALA	6.3
1	B	167	ALA	6.3
1	B	228	ALA	6.3
1	B	180	GLY	6.3
1	B	209	VAL	6.3

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Mol	Chain	Res	Type	RSRZ
1	B	125	THR	6.2
1	B	19	GLY	6.2
1	B	14	GLY	6.1
1	B	56	GLY	6.1
1	B	237	PRO	6.1
1	B	199	THR	6.0
1	B	246	THR	6.0
1	B	91	GLY	5.9
1	B	166	ALA	5.9
1	B	172	ALA	5.9
1	B	126	PRO	5.8
1	B	80	ALA	5.8
1	B	161	TYR	5.8
1	B	196	THR	5.8
1	B	217	ALA	5.8
1	B	100	GLY	5.8
1	B	116	GLY	5.7
1	B	102	SER	5.7
1	B	6	GLY	5.7
1	B	136	LEU	5.7
1	B	146	MET	5.7
1	B	160	GLY	5.7
1	B	190	ALA	5.7
1	B	124	THR	5.6
1	B	259	ALA	5.6
1	B	112	PRO	5.6
1	B	192	GLY	5.6
1	B	232	GLY	5.6
1	B	43	ALA	5.6
1	B	195	ARG	5.5
1	B	197	ASP	5.5
1	B	219	GLY	5.5
1	B	140	GLY	5.4
1	B	149	ALA	5.4
1	B	204	SER	5.4
1	B	241	TRP	5.4
1	B	8	THR	5.4
1	B	216	THR	5.4
1	B	13	GLY	5.4
1	B	183	GLY	5.4
1	B	25	ARG	5.4
1	B	185	THR	5.4

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Mol	Chain	Res	Type	RSRZ
1	B	203	THR	5.4
1	B	147	GLY	5.3
1	B	133	ALA	5.3
1	B	36	HIS	5.3
1	B	173	PRO	5.2
1	B	69	GLY	5.2
1	B	211	GLY	5.2
1	B	252	GLY	5.2
1	B	153	ALA	5.2
1	B	236	GLY	5.2
1	B	257	PRO	5.1
1	B	12	THR	5.1
1	B	206	PRO	5.1
1	B	156	SER	5.1
1	B	45	LYS	5.1
1	B	191	PRO	5.1
1	B	244	GLY	5.1
1	B	82	LEU	5.1
1	B	174	SER	5.0
1	B	53	GLU	5.0
1	B	171	MET	5.0
1	B	135	ALA	5.0
1	B	141	GLY	5.0
1	B	93	ASP	4.9
1	B	42	GLU	4.9
1	B	108	SER	4.9
1	B	3	ASP	4.9
1	B	7	LYS	4.9
1	B	198	MET	4.9
1	B	97	ASN	4.8
1	B	251	GLY	4.8
1	B	248	ASP	4.8
1	B	50	ARG	4.8
1	B	164	THR	4.8
1	B	40	ASN	4.8
1	B	238	GLN	4.8
1	B	187	ASN	4.8
1	B	41	ASP	4.7
1	B	62	ARG	4.7
1	B	220	ARG	4.7
1	B	256	GLY	4.7
1	B	5	THR	4.7

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Mol	Chain	Res	Type	RSRZ
1	B	103	SER	4.7
1	B	20	ARG	4.7
1	B	113	GLU	4.5
1	B	122	ASN	4.5
1	B	250	SER	4.5
1	B	66	GLY	4.5
1	B	157	THR	4.4
1	B	138	ASN	4.4
1	B	214	SER	4.4
1	B	162	THR	4.4
1	B	117	ARG	4.3
1	B	104	GLY	4.3
1	B	76	GLU	4.3
1	B	16	ARG	4.3
1	B	98	ASN	4.3
1	B	52	GLU	4.2
1	B	170	SER	4.2
1	B	111	THR	4.2
1	B	57	ARG	4.2
1	B	151	SER	4.1
1	B	105	ASN	4.1
1	B	225	GLU	4.0
1	B	15	SER	4.0
1	B	245	GLN	4.0
1	B	73	ARG	4.0
1	B	64	ARG	3.9
1	B	148	SER	3.9
1	B	131	GLN	3.9
1	B	46	GLU	3.9
1	B	132	ARG	3.9
1	B	223	GLU	3.8
1	B	2	ASN	3.8
1	B	67	GLU	3.8
1	B	145	ASN	3.8
1	B	177	ASN	3.8
1	B	181	ARG	3.7
1	B	207	GLU	3.7
1	A	82	LEU	3.6
1	B	68	ASP	3.6
1	B	240	ARG	3.6
1	B	178	GLU	3.6
1	B	239	GLY	3.6

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Mol	Chain	Res	Type	RSRZ
1	B	229	ASP	3.6
1	B	29	GLU	3.5
1	B	226	ASP	3.5
1	B	109	GLN	3.5
1	B	77	GLU	3.5
1	B	213	GLU	3.4
1	B	158	GLN	3.4
1	B	165	LYS	3.4
1	B	83	ALA	3.4
1	B	139	ASP	3.3
1	B	142	ARG	3.3
1	B	152	ARG	3.3
1	B	84	GLY	3.3
1	A	81	VAL	3.2
1	B	134	MET	3.1
1	A	84	GLY	3.1
1	B	182	ARG	3.0
1	A	83	ALA	2.8
1	B	169	GLU	2.8
1	B	72	ASP	2.7
1	B	120	GLU	2.5
1	A	80	ALA	2.3
1	A	3	ASP	2.2
1	B	114	GLU	2.2
1	A	2	ASN	2.2

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)

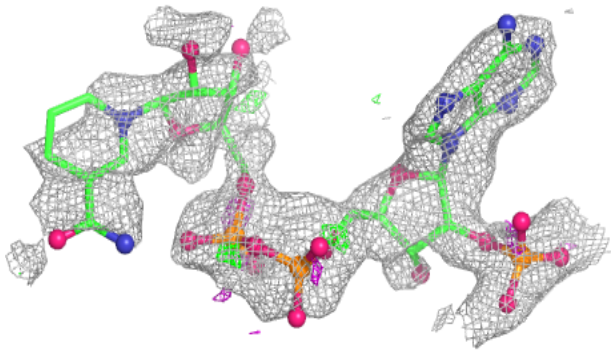
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

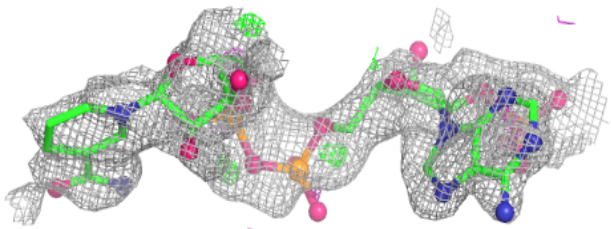
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	NAP	B	301	48/48	0.71	0.18	69,84,88,90	0
2	NAP	A	301	48/48	0.98	0.05	8,10,11,12	0

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 B 301:

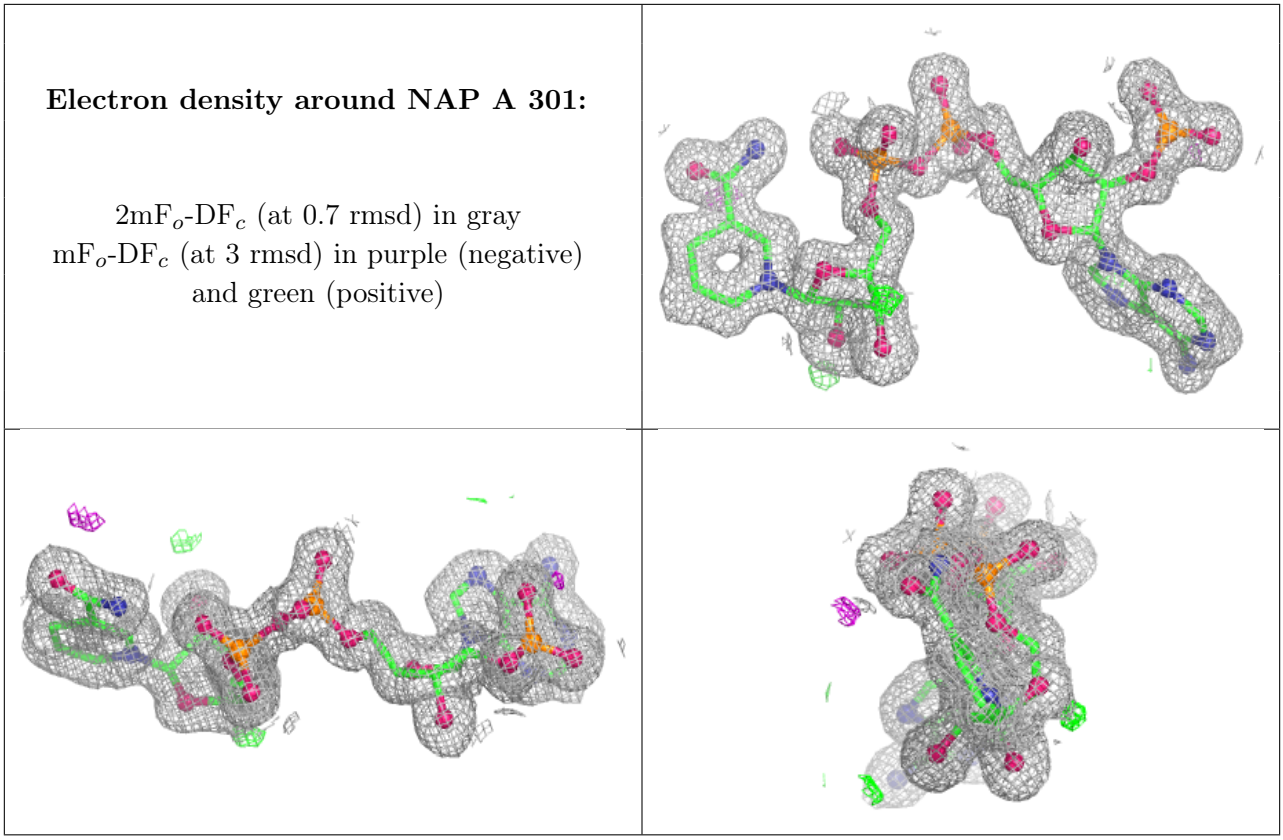
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)





Electron density around NAP A 301:

$2mF_o$-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.