wwPDB X-ray Structure Validation Summary Report (i)

Mar 8, 2026 – 03:31 PM UTC

PDB ID	:	1Z82 / pdb_00001z82
Title	:	Crystal structure of glycerol-3-phosphate dehydrogenase (TM0378) from THERMOTOGA MARITIMA at 2.00 A resolution
Authors	:	Joint Center for Structural Genomics (JCSG)
Deposited on	:	2005-03-29
Resolution	:	2.00 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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:

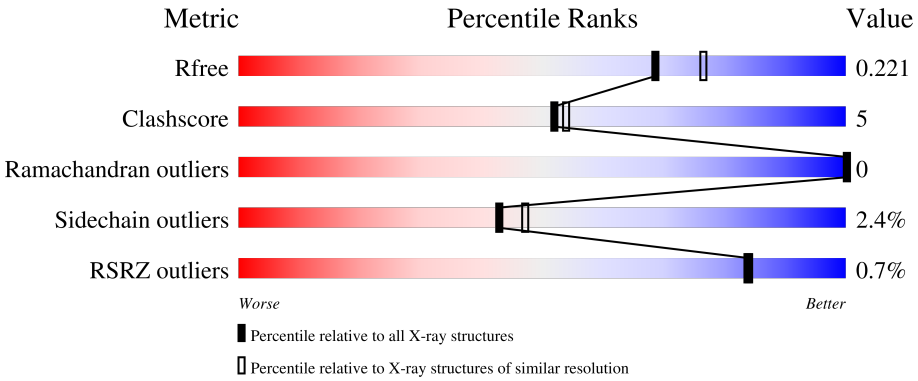
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal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

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

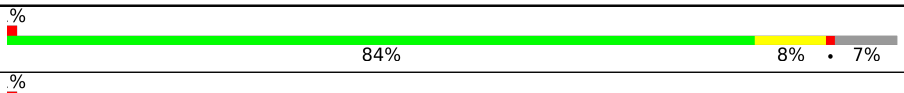
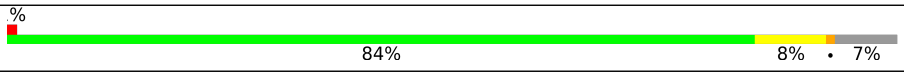
The reported resolution of this entry is 2.00 Å.

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	10052 (2.00-2.00)
Clashscore	190562	11152 (2.00-2.00)
Ramachandran outliers	187476	11031 (2.00-2.00)
Sidechain outliers	187428	11029 (2.00-2.00)
RSRZ outliers	180081	10067 (2.00-2.00)

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	335	
1	B	335	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	G3H	A	600	X	-	-	-
6	G3P	B	600	X	-	-	-

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 5339 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 glycerol-3-phosphate dehydrogenase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	312	Total	C	N	O	S	Se	0	4	0
			2422	1548	415	445	3	11			
1	B	312	Total	C	N	O	S	Se	0	2	0
			2414	1543	413	444	3	11			

There are 46 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-11	MET	-	expression tag	GB 15644628
A	-10	GLY	-	expression tag	GB 15644628
A	-9	SER	-	expression tag	GB 15644628
A	-8	ASP	-	expression tag	GB 15644628
A	-7	LYS	-	expression tag	GB 15644628
A	-6	ILE	-	expression tag	GB 15644628
A	-5	HIS	-	expression tag	GB 15644628
A	-4	HIS	-	expression tag	GB 15644628
A	-3	HIS	-	expression tag	GB 15644628
A	-2	HIS	-	expression tag	GB 15644628
A	-1	HIS	-	expression tag	GB 15644628
A	0	HIS	-	expression tag	GB 15644628
A	1	MSE	MET	modified residue	GB 15644628
A	3	MSE	MET	modified residue	GB 15644628
A	20	MSE	MET	modified residue	GB 15644628
A	94	MSE	MET	modified residue	GB 15644628
A	215	MSE	MET	modified residue	GB 15644628
A	225	MSE	MET	modified residue	GB 15644628
A	234	MSE	MET	modified residue	GB 15644628
A	278	MSE	MET	modified residue	GB 15644628
A	288	MSE	MET	modified residue	GB 15644628
A	308	MSE	MET	modified residue	GB 15644628
A	312	MSE	MET	modified residue	GB 15644628
B	-11	MET	-	expression tag	GB 15644628
B	-10	GLY	-	expression tag	GB 15644628

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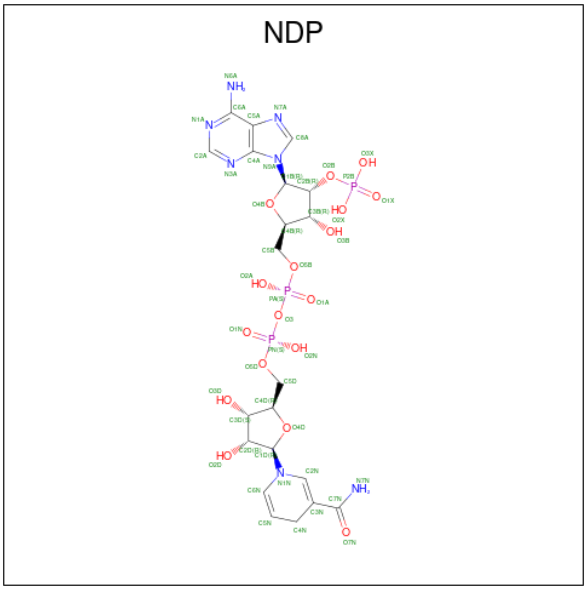
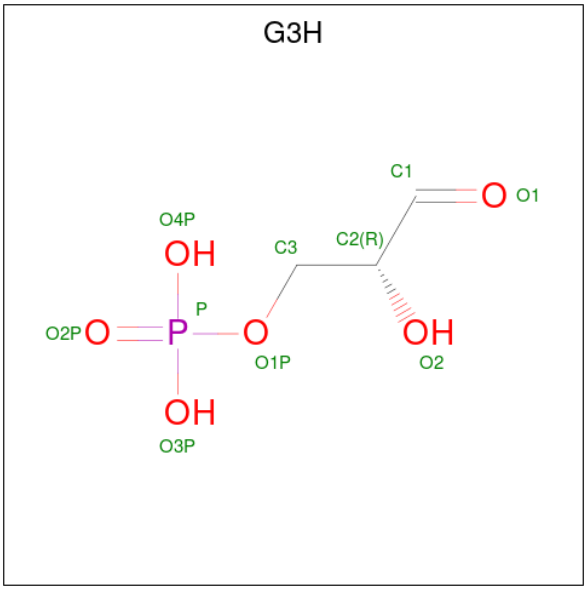
Chain	Residue	Modelled	Actual	Comment	Reference
B	-9	SER	-	expression tag	GB 15644628
B	-8	ASP	-	expression tag	GB 15644628
B	-7	LYS	-	expression tag	GB 15644628
B	-6	ILE	-	expression tag	GB 15644628
B	-5	HIS	-	expression tag	GB 15644628
B	-4	HIS	-	expression tag	GB 15644628
B	-3	HIS	-	expression tag	GB 15644628
B	-2	HIS	-	expression tag	GB 15644628
B	-1	HIS	-	expression tag	GB 15644628
B	0	HIS	-	expression tag	GB 15644628
B	1	MSE	MET	modified residue	GB 15644628
B	3	MSE	MET	modified residue	GB 15644628
B	20	MSE	MET	modified residue	GB 15644628
B	94	MSE	MET	modified residue	GB 15644628
B	215	MSE	MET	modified residue	GB 15644628
B	225	MSE	MET	modified residue	GB 15644628
B	234	MSE	MET	modified residue	GB 15644628
B	278	MSE	MET	modified residue	GB 15644628
B	288	MSE	MET	modified residue	GB 15644628
B	308	MSE	MET	modified residue	GB 15644628
B	312	MSE	MET	modified residue	GB 15644628

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



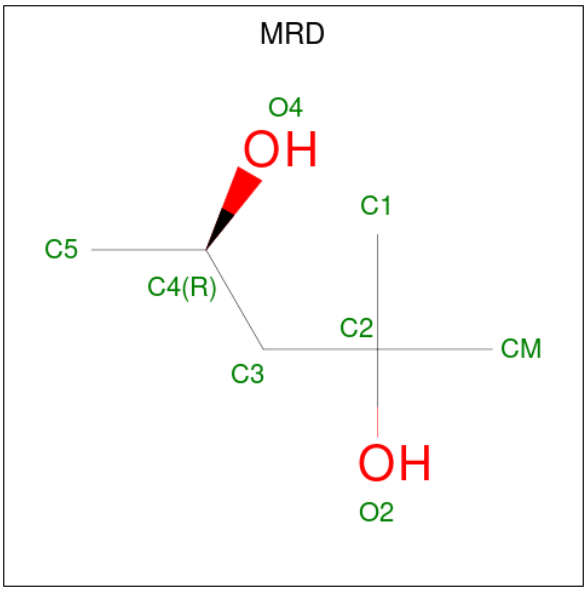
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
2	B	1	Total	C	N	O	P	0	0
			48	21	7	17	3		

- Molecule 3 is GLYCERALDEHYDE-3-PHOSPHATE (CCD ID: G3H) (formula: $C_3H_7O_6P$).



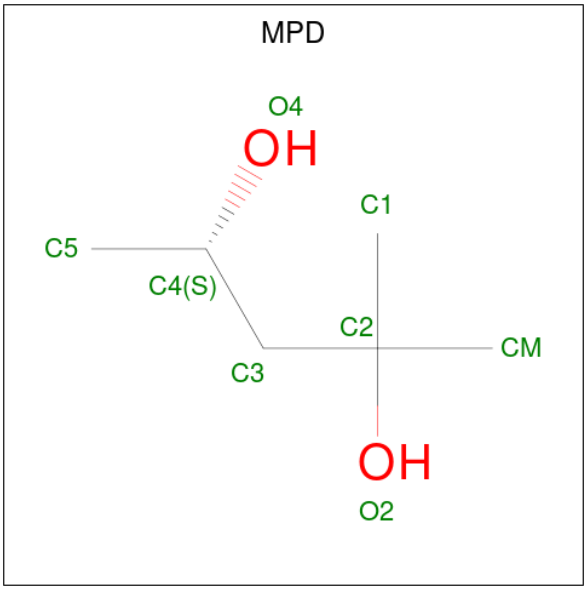
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	O	P	0	0
			10	3	6	1		

- Molecule 4 is (4R)-2-METHYLPENTANE-2,4-DIOL (CCD ID: MRD) (formula: $C_6H_{14}O_2$).



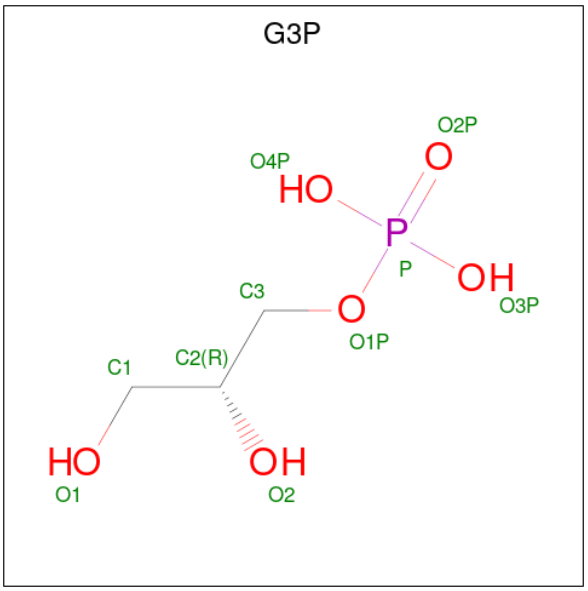
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 8 6 2	0	0
4	B	1	Total C O 8 6 2	0	0
4	B	1	Total C O 8 6 2	0	0
4	B	1	Total C O 8 6 2	0	0
4	B	1	Total C O 8 6 2	0	0

- Molecule 5 is (4S)-2-METHYL-2,4-PENTANEDIOL (CCD ID: MPD) (formula: $C_6H_{14}O_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O 8 6 2	0	0
5	A	1	Total C O 8 6 2	0	0
5	A	1	Total C O 8 6 2	0	0

- Molecule 6 is SN-GLYCEROL-3-PHOSPHATE (CCD ID: G3P) (formula: $C_3H_9O_6P$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C O P 10 3 6 1	0	0

- Molecule 7 is water.

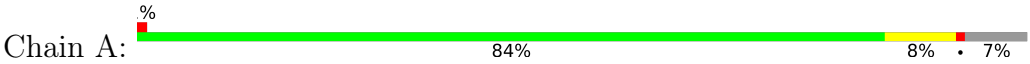
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	161	Total O 161 161	0	0
7	B	162	Total O 162 162	0	0

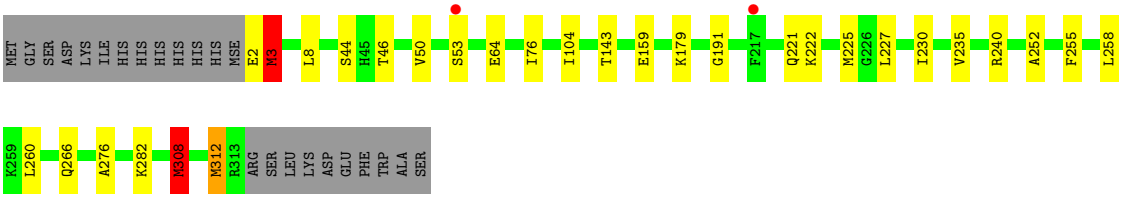
3 Residue-property plots (i)

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: glycerol-3-phosphate dehydrogenase

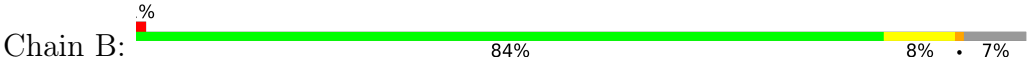
Chain A:

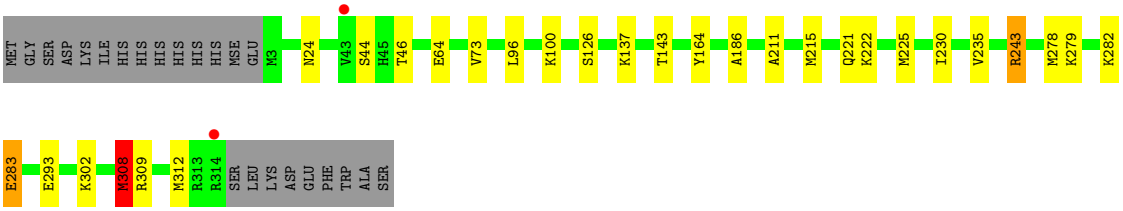




• Molecule 1: glycerol-3-phosphate dehydrogenase

Chain B:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	65.09Å 67.45Å 75.60Å 90.00° 113.67° 90.00°	Depositor
Resolution (Å)	29.81 – 2.00 29.81 – 2.00	Depositor EDS
% Data completeness (in resolution range)	98.3 (29.81-2.00) 98.3 (29.81-2.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.08	Depositor
$< I/\sigma(I) >$ [1]	2.35 (at 2.00Å)	Xtriage
Refinement program	REFMAC 5.2.0005	Depositor
R, R_{free}	0.166 , 0.211 0.176 , 0.221	Depositor DCC
R_{free} test set	2024 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å^2)	23.0	Xtriage
Anisotropy	0.804	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 48.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.019 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5339	wwPDB-VP
Average B, all atoms (Å^2)	32.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.81% 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: G3H, MPD, G3P, NDP, MRD

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	0.95	3/2470 (0.1%)	0.94	1/3321 (0.0%)
1	B	0.97	2/2453 (0.1%)	0.97	0/3298
All	All	0.96	5/4923 (0.1%)	0.95	1/6619 (0.0%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	308	MSE	SE-CE	-8.98	1.68	1.95
1	A	308	MSE	SE-CE	-6.89	1.74	1.95
1	A	312	MSE	SE-CE	6.69	2.15	1.95
1	B	186	ALA	CA-CB	-5.95	1.43	1.53
1	A	3	MSE	SE-CE	5.06	2.10	1.95

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	3	MSE	N-CA-C	5.28	117.10	108.76

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	2422	0	2452	25	0
1	B	2414	0	2438	23	0
2	A	48	0	26	1	0
2	B	48	0	26	1	0
3	A	10	0	5	1	0
4	A	8	0	14	0	0
4	B	32	0	56	1	0
5	A	24	0	42	5	0
6	B	10	0	7	1	0
7	A	161	0	0	2	0
7	B	162	0	0	4	0
All	All	5339	0	5066	51	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 5.

The worst 5 of 51 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:312:MSE:SE	1:A:312:MSE:CE	2.15	1.44
1:A:308:MSE:HE1	1:A:312:MSE:SE	1.90	1.21
1:B:308:MSE:CE	1:B:312:MSE:SE	2.54	1.05
2:B:500:NDP:H8A	7:B:652:HOH:O	1.60	1.01
1:B:308:MSE:HE1	1:B:312:MSE:SE	2.16	0.96

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	314/335 (94%)	308 (98%)	6 (2%)	0	100	100
1	B	312/335 (93%)	303 (97%)	9 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	626/670 (93%)	611 (98%)	15 (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	256/272 (94%)	250 (98%)	6 (2%)	44 49
1	B	253/272 (93%)	247 (98%)	6 (2%)	43 47
All	All	509/544 (94%)	497 (98%)	12 (2%)	43 47

5 of 12 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	235	VAL
1	B	243	ARG
1	B	309	ARG
1	B	283	GLU
1	A	230	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 6 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	24	ASN
1	B	238	ASN
1	B	306	GLN
1	A	238	ASN
1	A	148	ASN

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)

12 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	$\#\|Z\| > 2$
5	MPD	A	604	-	7,7,7	0.26	0	9,10,10	0.79	0
4	MRD	B	603	-	7,7,7	0.36	0	9,10,10	0.37	0
4	MRD	B	602	-	7,7,7	0.39	0	9,10,10	0.91	0
5	MPD	A	602	-	7,7,7	0.44	0	9,10,10	1.03	1 (11%)
3	G3H	A	600	-	8,9,9	2.25	1 (12%)	7,12,12	1.29	1 (14%)
4	MRD	B	601	-	7,7,7	0.35	0	9,10,10	0.39	0
5	MPD	A	603	-	7,7,7	0.44	0	9,10,10	0.54	0
4	MRD	A	601	-	7,7,7	0.45	0	9,10,10	0.58	0
4	MRD	B	604	-	7,7,7	0.34	0	9,10,10	0.64	0
6	G3P	B	600	-	9,9,9	0.71	0	10,12,12	1.20	1 (10%)
2	NDP	A	500	-	51,52,52	1.75	8 (15%)	71,80,80	1.67	10 (14%)
2	NDP	B	500	-	51,52,52	1.79	8 (15%)	71,80,80	2.01	16 (22%)

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
5	MPD	A	604	-	-	0/5/5/5	-
4	MRD	B	603	-	-	0/5/5/5	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	MRD	B	602	-	-	0/5/5/5	-
5	MPD	A	602	-	-	0/5/5/5	-
3	G3H	A	600	-	1/1/2/3	1/7/8/8	-
4	MRD	B	601	-	-	0/5/5/5	-
5	MPD	A	603	-	-	0/5/5/5	-
4	MRD	A	601	-	-	0/5/5/5	-
6	G3P	B	600	-	1/1/2/2	3/8/8/8	-
4	MRD	B	604	-	-	0/5/5/5	-
2	NDP	A	500	-	-	9/34/77/77	0/5/5/5
2	NDP	B	500	-	-	8/34/77/77	0/5/5/5

The worst 5 of 17 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	500	NDP	O7N-C7N	7.42	1.41	1.24
2	B	500	NDP	O7N-C7N	6.80	1.40	1.24
3	A	600	G3H	O1-C1	5.86	1.42	1.20
2	B	500	NDP	C2A-N1A	5.27	1.43	1.33
2	B	500	NDP	PN-O3	4.18	1.64	1.59

The worst 5 of 29 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	500	NDP	O4B-C1B-N9A	7.19	121.91	108.09
2	A	500	NDP	O4B-C1B-N9A	6.55	120.67	108.09
2	A	500	NDP	N3A-C2A-N1A	-5.13	120.81	128.58
2	B	500	NDP	C5A-C6A-N6A	-4.85	111.27	123.29
2	B	500	NDP	C6A-C5A-N7A	-4.42	123.56	132.09

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
3	A	600	G3H	C2
6	B	600	G3P	C2

5 of 21 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	500	NDP	C5D-O5D-PN-O3
2	A	500	NDP	C5D-O5D-PN-O1N
2	B	500	NDP	C5D-O5D-PN-O3

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Mol	Chain	Res	Type	Atoms
2	B	500	NDP	C5D-O5D-PN-O1N
3	A	600	G3H	O1-C1-C2-C3

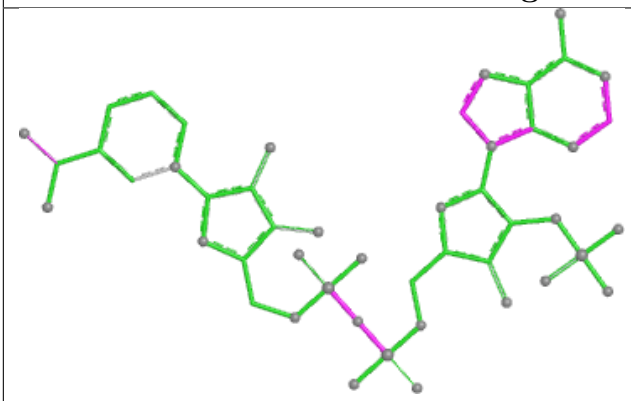
There are no ring outliers.

8 monomers are involved in 10 short contacts:

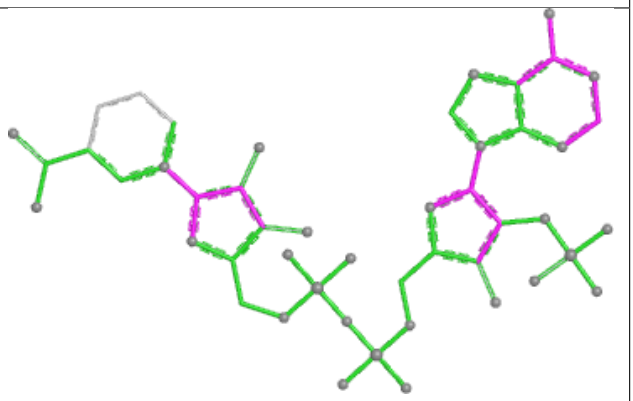
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	604	MPD	2	0
5	A	602	MPD	1	0
3	A	600	G3H	1	0
4	B	601	MRD	1	0
5	A	603	MPD	2	0
6	B	600	G3P	1	0
2	A	500	NDP	1	0
2	B	500	NDP	1	0

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.

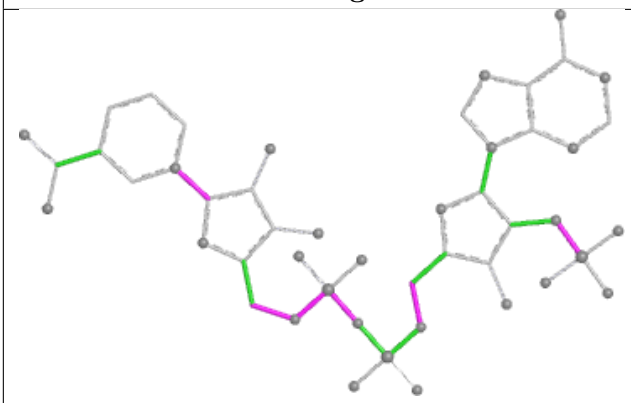
Ligand NDP A 500



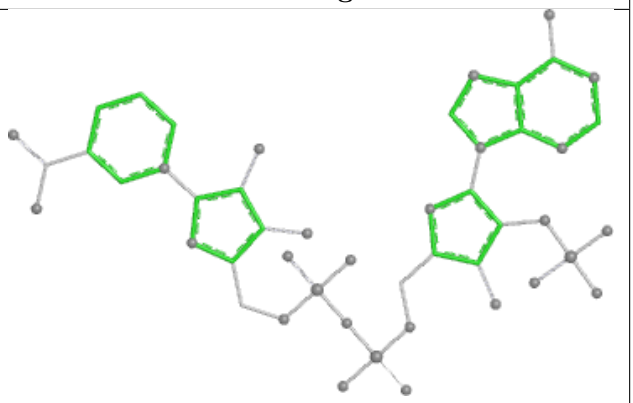
Bond lengths



Bond angles

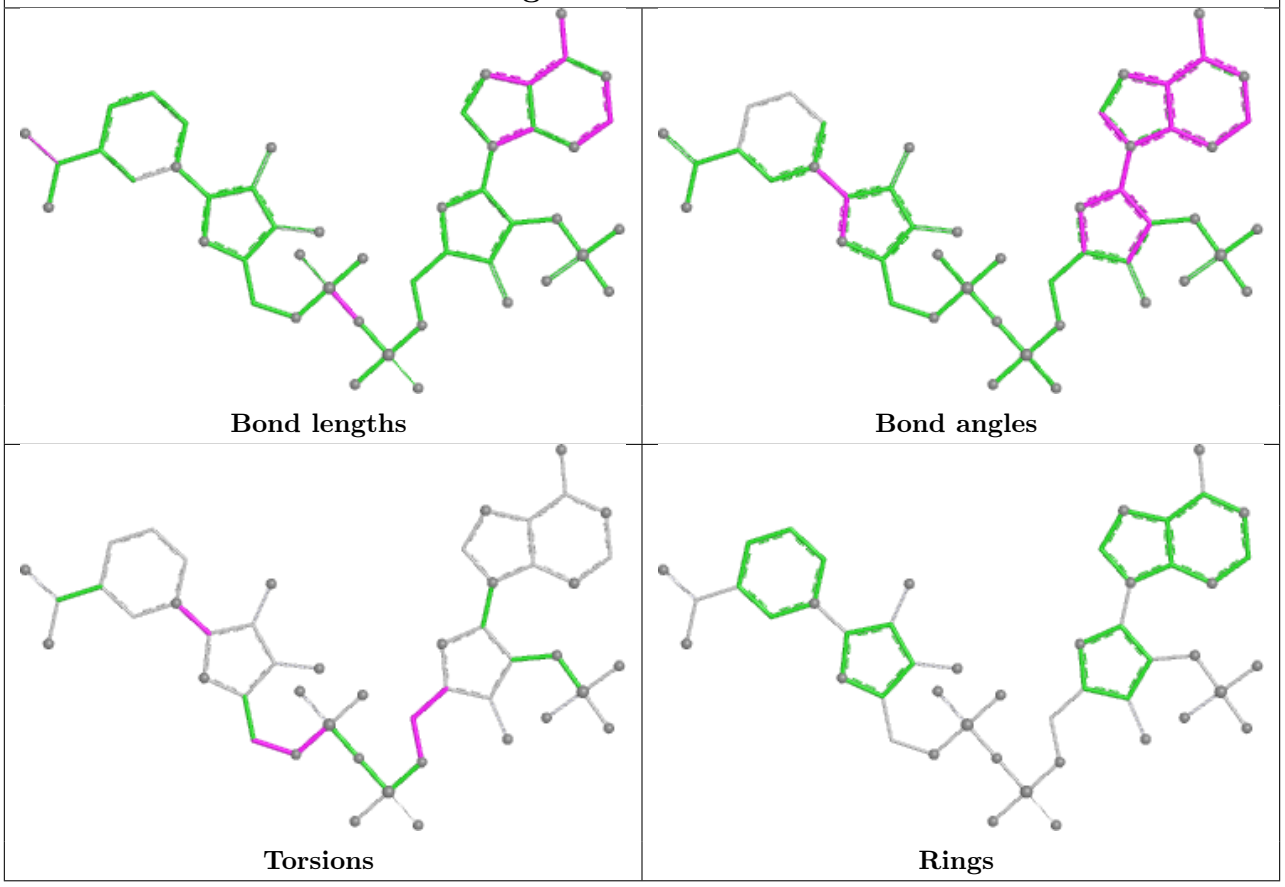


Torsions



Rings

Ligand NDP B 500



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	302/335 (90%)	0.52	2 (0%)	84	84	16, 31, 40, 54	3 (0%)
1	B	302/335 (90%)	0.48	2 (0%)	84	84	21, 31, 40, 51	1 (0%)
All	All	604/670 (90%)	0.50	4 (0%)	84	84	16, 31, 40, 54	4 (0%)

All (4) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	53	SER	2.5
1	B	43	VAL	2.2
1	A	217	PHE	2.1
1	B	314	ARG	2.1

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, 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
4	MRD	B	604	8/8	0.63	0.23	69,72,73,74	0

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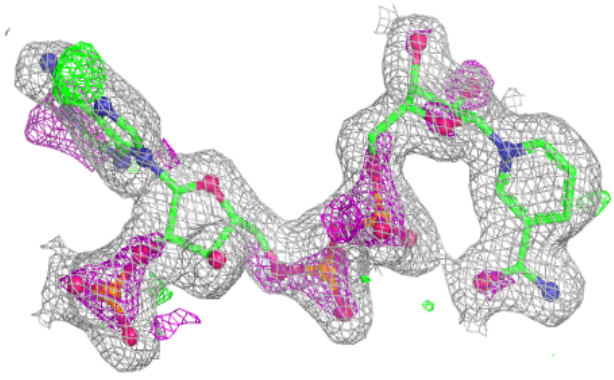
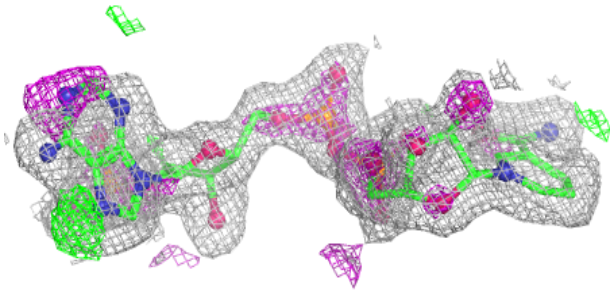
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	MPD	A	604	8/8	0.70	0.18	65,67,69,69	0
4	MRD	B	602	8/8	0.76	0.15	45,46,48,49	0
5	MPD	A	603	8/8	0.77	0.17	57,58,60,61	0
5	MPD	A	602	8/8	0.78	0.17	54,55,57,57	0
4	MRD	B	603	8/8	0.85	0.16	51,52,55,56	0
4	MRD	A	601	8/8	0.91	0.12	30,33,34,35	0
4	MRD	B	601	8/8	0.94	0.12	25,28,29,30	0
2	NDP	A	500	48/48	0.95	0.09	18,25,38,40	0
2	NDP	B	500	48/48	0.95	0.08	16,22,34,35	0
3	G3H	A	600	10/10	0.97	0.12	18,21,22,22	0
6	G3P	B	600	10/10	0.97	0.11	18,23,25,25	0

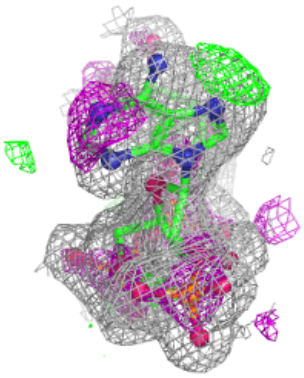
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around NDP A 500:

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

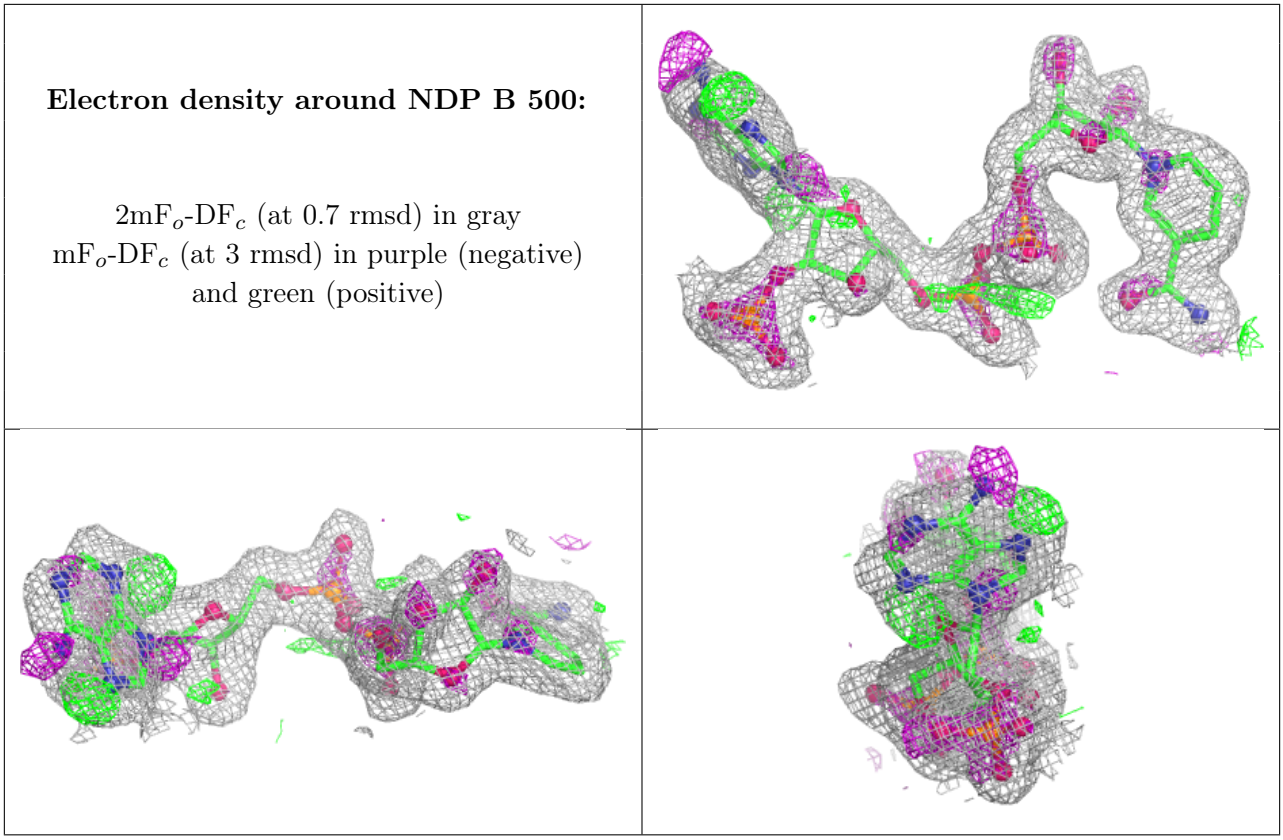






Electron density around NDP B 500:

$2mF_o$-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.