Full wwPDB X-ray Structure Validation Report ⓘ

Nov 13, 2023 – 12:15 am GMT

PDB ID	:	8OY7
Title	:	Time-resolved SFX structure of the class II photolyase complexed with a thymine dimer (10 nanosecond pump-probe delay)
Authors	:	Lane, T.J.; Christou, N.-E.; Melo, D.V.M.; Apostolopoulou, V.; Pateras, A.; Mashhour, A.R.; Galchenkova, M.; Gunther, S.; Reinke, P.; Kremling, V.; Oberthuer, D.; Henkel, A.; Sprenger, J.; Scheer, T.E.S.; Lange, E.; Yefanov, O.N.; Middendorf, P.; Sellberg, J.A.; Schubert, R.; Fadini, A.; Cirelli, C.; Beale, E.V.; Johnson, P.; Dworkowski, F.; Ozerov, D.; Bertrand, Q.; Wranik, M.; Zitter, E.D.; Turk, D.; Bajt, S.; Chapman, H.; Bacellar, C.
Deposited on	:	2023-05-03
Resolution	:	2.36 Å(reported)

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

|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.36 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.
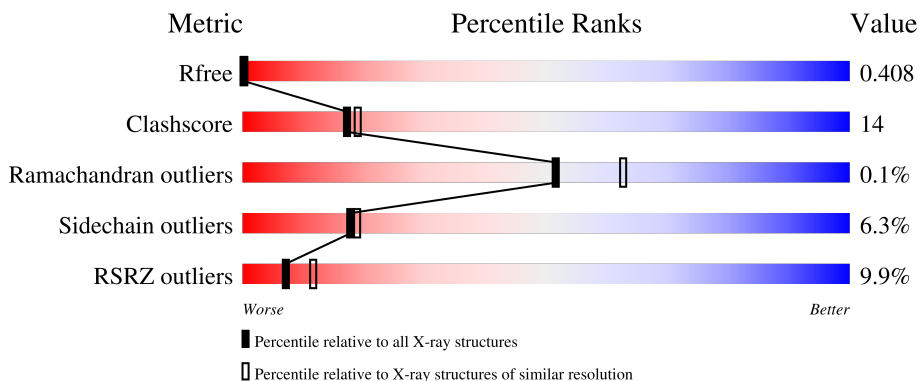
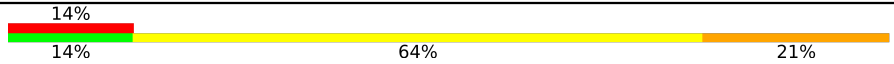| Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1164 (2.36-2.36)
Clashscore	141614	1232 (2.36-2.36)
Ramachandran outliers	138981	1211 (2.36-2.36)
Sidechain outliers	138945	1212 (2.36-2.36)
RSRZ outliers	127900	1150 (2.36-2.36)
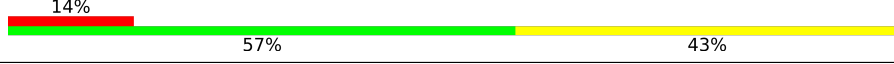
The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. 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	498	2% 62% 27% • 9%
1	B	498	14% 58% 25% • 14%

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CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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Mol	Chain	Length	Quality of chain
2	C	14	14% 14% 64% 21%
2	E	14	21% 50% 36% 14%
3	D	14	14% 57% 43%
3	F	14	43% 43% 57%

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 8609 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 Deoxyribodipyrimidine photo-lyase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	455	Total 3690	C 2372	N 623	O 681	S 14	0	0	0
1	B	428	Total 3498	C 2248	N 592	O 643	S 15	0	1	0

There are 68 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MET	-	initiating methionine	UNP Q8PYK9
A	-18	GLY	-	expression tag	UNP Q8PYK9
A	-17	SER	-	expression tag	UNP Q8PYK9
A	-16	SER	-	expression tag	UNP Q8PYK9
A	-15	HIS	-	expression tag	UNP Q8PYK9
A	-14	HIS	-	expression tag	UNP Q8PYK9
A	-13	HIS	-	expression tag	UNP Q8PYK9
A	-12	HIS	-	expression tag	UNP Q8PYK9
A	-11	HIS	-	expression tag	UNP Q8PYK9
A	-10	HIS	-	expression tag	UNP Q8PYK9
A	-9	SER	-	expression tag	UNP Q8PYK9
A	-8	SER	-	expression tag	UNP Q8PYK9
A	-7	GLY	-	expression tag	UNP Q8PYK9
A	-6	LEU	-	expression tag	UNP Q8PYK9
A	-5	VAL	-	expression tag	UNP Q8PYK9
A	-4	PRO	-	expression tag	UNP Q8PYK9
A	-3	ARG	-	expression tag	UNP Q8PYK9
A	-2	GLY	-	expression tag	UNP Q8PYK9
A	-1	SER	-	expression tag	UNP Q8PYK9
A	0	HIS	-	expression tag	UNP Q8PYK9
A	465	ASP	-	expression tag	UNP Q8PYK9
A	466	LYS	-	expression tag	UNP Q8PYK9
A	467	LEU	-	expression tag	UNP Q8PYK9
A	468	ALA	-	expression tag	UNP Q8PYK9
A	469	ALA	-	expression tag	UNP Q8PYK9

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Chain	Residue	Modelled	Actual	Comment	Reference
A	470	ALA	-	expression tag	UNP Q8PYK9
A	471	LEU	-	expression tag	UNP Q8PYK9
A	472	GLU	-	expression tag	UNP Q8PYK9
A	473	HIS	-	expression tag	UNP Q8PYK9
A	474	HIS	-	expression tag	UNP Q8PYK9
A	475	HIS	-	expression tag	UNP Q8PYK9
A	476	HIS	-	expression tag	UNP Q8PYK9
A	477	HIS	-	expression tag	UNP Q8PYK9
A	478	HIS	-	expression tag	UNP Q8PYK9
B	-19	MET	-	initiating methionine	UNP Q8PYK9
B	-18	GLY	-	expression tag	UNP Q8PYK9
B	-17	SER	-	expression tag	UNP Q8PYK9
B	-16	SER	-	expression tag	UNP Q8PYK9
B	-15	HIS	-	expression tag	UNP Q8PYK9
B	-14	HIS	-	expression tag	UNP Q8PYK9
B	-13	HIS	-	expression tag	UNP Q8PYK9
B	-12	HIS	-	expression tag	UNP Q8PYK9
B	-11	HIS	-	expression tag	UNP Q8PYK9
B	-10	HIS	-	expression tag	UNP Q8PYK9
B	-9	SER	-	expression tag	UNP Q8PYK9
B	-8	SER	-	expression tag	UNP Q8PYK9
B	-7	GLY	-	expression tag	UNP Q8PYK9
B	-6	LEU	-	expression tag	UNP Q8PYK9
B	-5	VAL	-	expression tag	UNP Q8PYK9
B	-4	PRO	-	expression tag	UNP Q8PYK9
B	-3	ARG	-	expression tag	UNP Q8PYK9
B	-2	GLY	-	expression tag	UNP Q8PYK9
B	-1	SER	-	expression tag	UNP Q8PYK9
B	0	HIS	-	expression tag	UNP Q8PYK9
B	465	ASP	-	expression tag	UNP Q8PYK9
B	466	LYS	-	expression tag	UNP Q8PYK9
B	467	LEU	-	expression tag	UNP Q8PYK9
B	468	ALA	-	expression tag	UNP Q8PYK9
B	469	ALA	-	expression tag	UNP Q8PYK9
B	470	ALA	-	expression tag	UNP Q8PYK9
B	471	LEU	-	expression tag	UNP Q8PYK9
B	472	GLU	-	expression tag	UNP Q8PYK9
B	473	HIS	-	expression tag	UNP Q8PYK9
B	474	HIS	-	expression tag	UNP Q8PYK9
B	475	HIS	-	expression tag	UNP Q8PYK9
B	476	HIS	-	expression tag	UNP Q8PYK9
B	477	HIS	-	expression tag	UNP Q8PYK9

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Chain	Residue	Modelled	Actual	Comment	Reference
B	478	HIS	-	expression tag	UNP Q8PYK9

- Molecule 2 is a DNA chain called CPD-COMPRISING OLIGONUCLEOTIDE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	14	Total 282	C 135	N 51	O 83	P 13	0	0	0
2	E	12	Total 244	C 115	N 44	O 73	P 12	0	0	0

- Molecule 3 is a DNA chain called COUNTERSTRAND-OLIGONUCLEOTIDE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	D	14	Total 286	C 136	N 56	O 81	P 13	0	0	0
3	F	14	Total 286	C 136	N 56	O 81	P 13	0	0	0

- Molecule 4 is DIHYDROFLAVINE-ADENINE DINUCLEOTIDE (three-letter code: FDA) (formula: $C_{27}H_{35}N_9O_{15}P_2$).
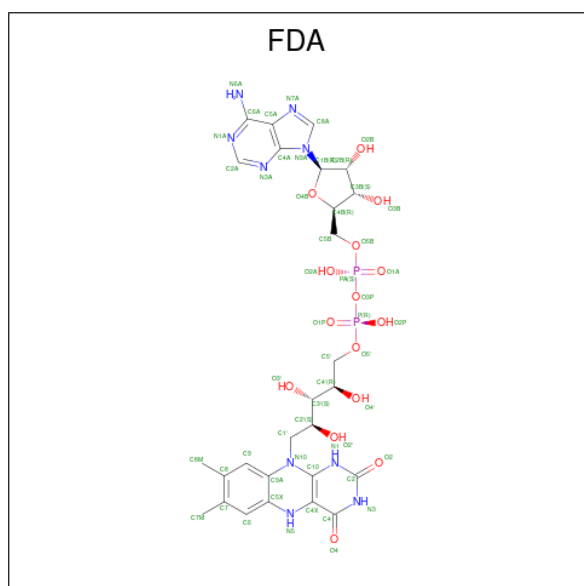
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total 53	C 27	N 9	O 15	P 2	0	0
4	B	1	Total 53	C 27	N 9	O 15	P 2	0	0

- Molecule 5 is SULFATE ION (three-letter code: SO4) (formula: O_4S).
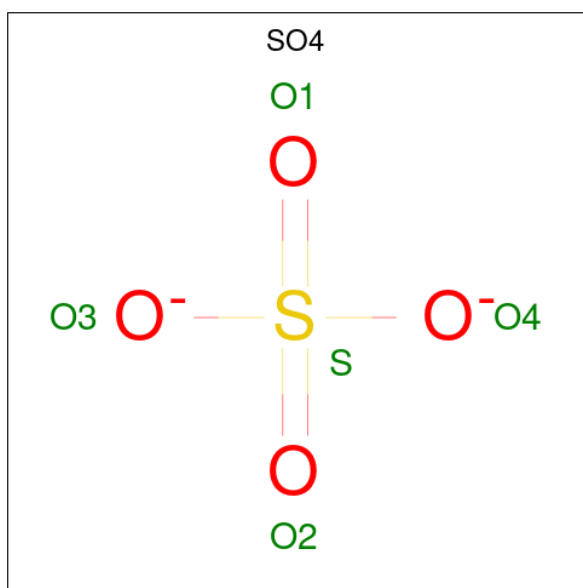
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total 5	O 4	S 1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	128	Total 128	O 128	0	0
6	B	56	Total 56	O 56	0	0
6	C	14	Total 14	O 14	0	0
6	D	10	Total 10	O 10	0	0
6	E	1	Total 1	O 1	0	0
6	F	3	Total 3	O 3	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: Deoxyribodipyrimidine photo-lyase
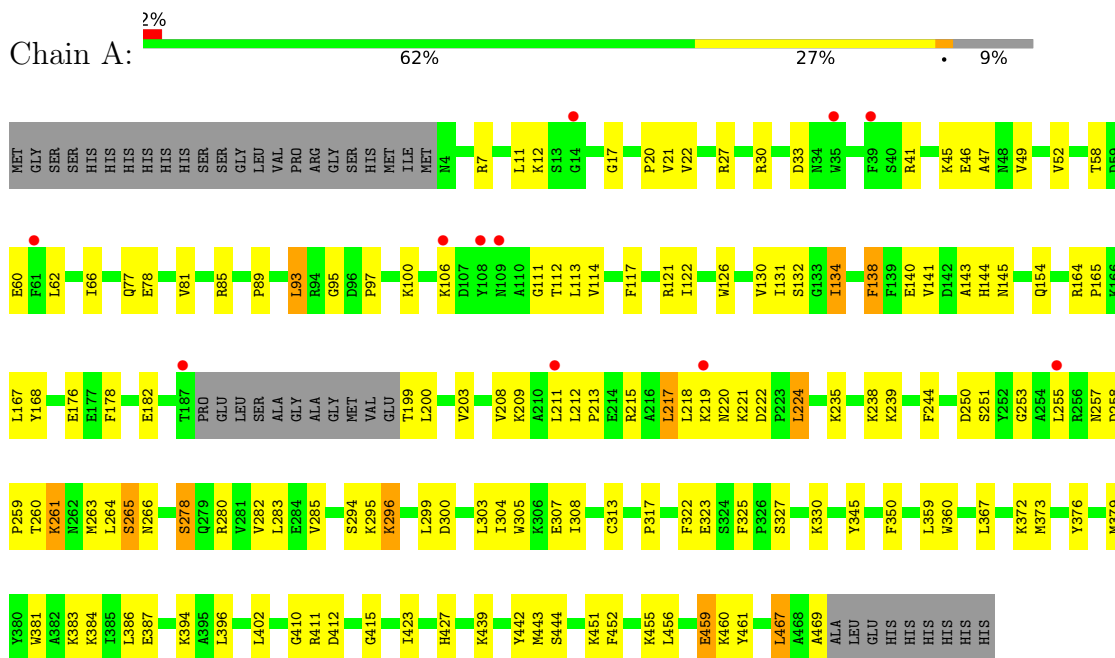
Chain A:

- Molecule 1: Deoxyribodipyrimidine photo-lyase

Chain B:

E289 S290 N291 P292 G293 S294 K295 K296 A297 F298 L299 L303 I304 W305 K306 E307 D310 D320 S327 S332 H336 R337 N338 S342 E351 D357 P358 N361 Q364 M365 S369 K372 Y380 W381 S389 E390 A395 L402 R405 G410 R411

Y416 W421 G432 E433 R434 K439 Y442 M443 S444 Y445 E446 K449 R450 V454 I458 A463 LEU ASP LYS LEU ALA ALA LEU GLU HIS HIS HIS HIS HIS HIS

• **Molecule 2: CPD-COMPRISING OLIGONUCLEOTIDE**

Chain C:

14%

14% 64% 21%

A1 T2 C3 G4 G5 C6 T7 T8 C9 G10 C11 G12 C13 A14

• **Molecule 2: CPD-COMPRISING OLIGONUCLEOTIDE**

Chain E:

21%

50% 36% 14%

DA DT C3 G4 G5 T8 C9 G10 C11 G12 C13 A14

• **Molecule 3: COUNTERSTRAND-OLIGONUCLEOTIDE**

Chain D:

14%

57% 43%

T1 T2 G3 C4 G5 C6 G7 A8 A14

• **Molecule 3: COUNTERSTRAND-OLIGONUCLEOTIDE**

Chain F:

43%

43% 57%

T1 T2 G3 C4 G5 C6 G7 A8 A9 G10 C11 C12 G13 A14
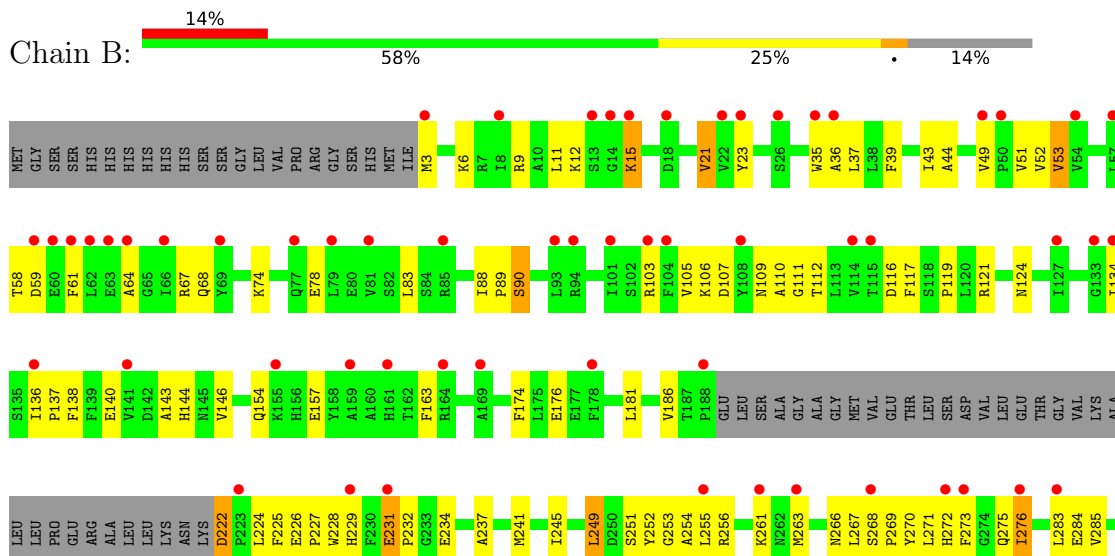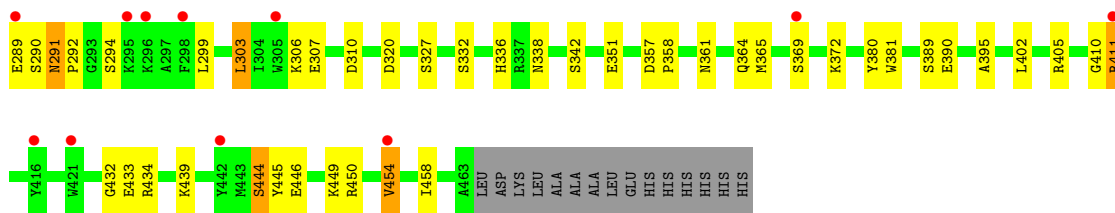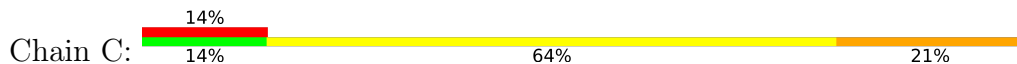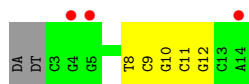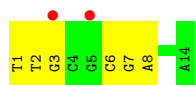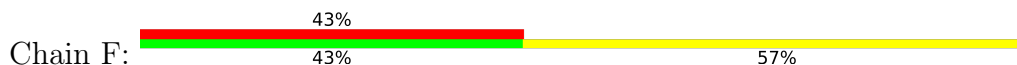
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	70.20Å 117.76Å 170.47Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	31.29 – 2.36 31.29 – 2.36	Depositor EDS
% Data completeness (in resolution range)	82.3 (31.29-2.36) 82.3 (31.29-2.36)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.11 (at 2.36Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.322 , 0.410 0.322 , 0.408	Depositor DCC
R_{free} test set	2449 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å^2)	32.9	Xtriage
Anisotropy	0.696	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 57.2	EDS
L-test for twinning[2]	$< |L| > = 0.55$, $< L^2 > = 0.40$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.87	EDS
Total number of atoms	8609	wwPDB-VP
Average B, all atoms (Å^2)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.23% 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: SO4, FDA

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	0.59	1/3788 (0.0%)	0.73	0/5121
1	B	0.50	0/3596	0.67	0/4862
2	C	1.10	1/315 (0.3%)	1.17	3/484 (0.6%)
2	E	1.06	0/272	1.16	3/417 (0.7%)
3	D	1.05	0/321	1.03	1/494 (0.2%)
3	F	0.89	0/321	0.96	0/494
All	All	0.64	2/8613 (0.0%)	0.78	7/11872 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	313	CYS	CB-SG	-7.44	1.69	1.82
2	C	12	DG	C3'-O3'	-5.17	1.37	1.44

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	8	DT	O4'-C1'-N1	8.58	114.00	108.00
2	E	8	DT	O4'-C1'-N1	7.78	113.45	108.00
2	C	8	DT	C1'-O4'-C4'	-6.15	103.95	110.10
2	E	8	DT	C1'-O4'-C4'	-5.31	104.79	110.10
3	D	6	DC	O4'-C1'-N1	5.30	111.71	108.00
2	C	9	DC	O5'-P-OP2	-5.09	101.12	105.70
2	E	8	DT	N3-C4-O4	5.04	122.92	119.90

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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	3690	0	3622	104	0
1	B	3498	0	3405	93	0
2	C	282	0	159	14	0
2	E	244	0	135	3	0
3	D	286	0	158	5	0
3	F	286	0	158	8	0
4	A	53	0	33	1	0
4	B	53	0	33	1	0
5	A	5	0	0	1	0
6	A	128	0	0	8	0
6	B	56	0	0	4	0
6	C	14	0	0	1	0
6	D	10	0	0	0	0
6	E	1	0	0	0	0
6	F	3	0	0	0	0
All	All	8609	0	7703	222	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 14.

All (222) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:11:LEU:HD11	1:B:140:GLU:HB2	1.63	0.79
1:B:103:ARG:NH1	1:B:107:ASP:OD2	2.16	0.77
1:B:450:ARG:NH2	2:E:12:DG:N7	2.34	0.75
1:B:449:LYS:HG2	1:B:454:VAL:HG21	1.68	0.74
1:A:41:ARG:HH12	1:A:45:LYS:HG3	1.53	0.72
1:A:255:LEU:HD13	1:A:261:LYS:HD2	1.73	0.69
1:B:68:GLN:HB3	1:B:411:ARG:HH21	1.57	0.69
1:B:351:GLU:HB2	1:B:402:LEU:HD21	1.74	0.68
1:B:357:ASP:OD2	1:B:380:TYR:OH	2.10	0.68
3:F:1:DT:H5'	3:F:1:DT:H6	1.59	0.68
1:A:145:ASN:HD22	1:A:307:GLU:HG2	1.59	0.67
1:A:217:LEU:HD23	1:A:221:LYS:HA	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:30:ARG:NE	1:A:33:ASP:O	2.19	0.66
1:A:296:LYS:HD3	1:A:300:ASP:OD1	1.95	0.65
1:B:112:THR:HG23	1:B:137:PRO:HB2	1.78	0.65
2:C:14:DA:H8	2:C:14:DA:OP2	1.79	0.65
1:B:12:LYS:H	1:B:138:PHE:HB3	1.62	0.65
1:A:244:PHE:CD1	1:A:265:SER:HA	2.32	0.64
1:A:285:VAL:O	1:A:295:LYS:NZ	2.29	0.64
1:B:251:SER:OG	1:B:263:MET:SD	2.56	0.64
1:A:66:ILE:HG23	1:A:208:VAL:HG22	1.81	0.63
1:B:255:LEU:HB2	1:B:263:MET:HG2	1.80	0.62
1:A:131:ILE:HG12	1:A:138:PHE:HD2	1.65	0.62
2:C:9:DC:H2'	2:C:10:DG:C8	2.33	0.62
1:A:200:LEU:HA	1:A:203:VAL:HG12	1.80	0.62
1:B:266:ASN:HA	1:B:372:LYS:HE3	1.82	0.61
1:B:231:GLU:OE2	1:B:232:PRO:HD2	2.00	0.61
1:B:52:VAL:HG22	1:B:89:PRO:HG2	1.83	0.60
1:A:218:LEU:HD21	1:A:224:LEU:HD13	1.83	0.60
1:A:384:LYS:NZ	1:A:387:GLU:OE1	2.33	0.60
1:A:81:VAL:HG22	1:A:85:ARG:HE	1.66	0.60
1:A:257:ASN:HB2	6:A:651:HOH:O	2.02	0.60
1:B:291:ASN:HD22	1:B:292:PRO:N	2.00	0.60
1:B:358:PRO:HB2	1:B:458:ILE:HD13	1.83	0.59
3:F:7:DG:H2''	3:F:8:DA:H5'	1.84	0.59
2:C:5:DG:H2''	2:C:6:DC:OP2	2.03	0.59
1:A:299:LEU:O	1:A:303:LEU:HB2	2.03	0.58
2:C:12:DG:H5'	6:C:107:HOH:O	2.03	0.58
2:E:9:DC:H2''	2:E:10:DG:H5'	1.85	0.58
1:B:117:PHE:CE2	1:B:119:PRO:HD3	2.39	0.58
1:B:271:LEU:HD23	1:B:276:ILE:HG23	1.86	0.58
1:B:241:MET:HB2	1:B:267:LEU:HD21	1.86	0.58
1:B:222:ASP:OD1	1:B:222:ASP:N	2.37	0.57
1:A:376:TYR:CZ	1:A:451:LYS:HE2	2.40	0.57
1:A:460:LYS:HD2	1:A:461:TYR:CZ	2.40	0.56
1:A:253:GLY:HA3	6:A:658:HOH:O	2.05	0.56
1:B:109:ASN:O	1:B:109:ASN:ND2	2.38	0.56
3:F:13:DG:H2''	3:F:14:DA:H5''	1.88	0.56
1:B:110:ALA:O	1:B:136:ILE:HG21	2.06	0.55
1:A:20:PRO:O	1:A:111:GLY:N	2.39	0.55
1:B:389:SER:OG	1:B:395:ALA:HB2	2.07	0.55
1:B:255:LEU:HD22	1:B:261:LYS:HG3	1.88	0.54
1:A:411:ARG:NH2	6:A:609:HOH:O	2.39	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:97:PRO:HG2	1:A:126:TRP:CD2	2.42	0.54
1:A:145:ASN:HD22	1:A:307:GLU:CG	2.19	0.54
1:B:144:HIS:O	1:B:306:LYS:NZ	2.41	0.54
1:A:30:ARG:NH2	1:A:143:ALA:O	2.40	0.54
1:A:113:LEU:HD12	1:A:114:VAL:H	1.73	0.53
1:B:299:LEU:O	1:B:303:LEU:HB2	2.08	0.53
1:A:220:ASN:ND2	1:A:222:ASP:OD2	2.41	0.53
1:B:3:MET:HG3	1:B:35:TRP:CZ3	2.43	0.53
1:B:44:ALA:HB1	1:B:49:VAL:O	2.09	0.53
1:B:251:SER:O	1:B:254:ALA:HB3	2.09	0.52
1:A:7:ARG:O	1:A:141:VAL:HA	2.09	0.52
1:A:259:PRO:HG2	1:A:452:PHE:CZ	2.44	0.52
1:B:224:LEU:O	1:B:369:SER:HA	2.09	0.52
1:A:164:ARG:O	1:A:168:TYR:HD1	1.93	0.52
1:A:345:TYR:HB2	1:A:350:PHE:CE2	2.44	0.52
1:B:186:VAL:HG23	6:B:638:HOH:O	2.09	0.52
1:B:83:LEU:HB3	1:B:88:ILE:HB	1.92	0.52
1:B:291:ASN:HB3	1:B:294:SER:HB2	1.91	0.52
1:A:78:GLU:HG2	6:A:678:HOH:O	2.09	0.51
1:A:278:SER:O	1:A:282:VAL:HG23	2.10	0.51
1:A:12:LYS:HD2	1:A:131:ILE:HG23	1.93	0.51
1:A:167:LEU:HD23	1:A:304:ILE:HD13	1.93	0.51
1:A:259:PRO:HG2	1:A:452:PHE:CE1	2.46	0.51
1:A:219:LYS:HG2	1:A:469:ALA:HB2	1.92	0.51
1:A:442:TYR:CE2	1:A:444:SER:HB3	2.45	0.51
1:B:116:ASP:O	1:B:140:GLU:HG3	2.11	0.51
1:B:432:GLY:O	1:B:434:ARG:HG3	2.11	0.51
1:B:222:ASP:HB3	1:B:225:PHE:HB2	1.93	0.50
1:B:68:GLN:HB3	1:B:411:ARG:NH2	2.25	0.50
1:B:15:LYS:O	1:B:137:PRO:HD3	2.11	0.50
1:A:255:LEU:HD12	1:A:263:MET:HE2	1.92	0.50
1:A:455:LYS:O	1:A:459:GLU:HB3	2.11	0.50
1:B:146:VAL:HG22	1:B:307:GLU:OE2	2.11	0.50
1:B:241:MET:HE2	1:B:284:GLU:HB2	1.92	0.50
1:A:93:LEU:HD22	1:A:100:LYS:HB3	1.93	0.49
1:B:253:GLY:H	1:B:256:ARG:HB3	1.77	0.49
1:B:111:GLY:O	1:B:137:PRO:HD2	2.12	0.49
1:A:255:LEU:HD12	1:A:263:MET:CE	2.42	0.49
1:B:364:GLN:NE2	1:B:381:TRP:HE1	2.09	0.49
1:A:33:ASP:OD2	1:A:280:ARG:HB2	2.13	0.49
1:A:78:GLU:OE2	1:A:235:LYS:HB2	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:218:LEU:HD13	1:A:467:LEU:HD22	1.93	0.49
1:B:23:TYR:CD2	1:B:37:LEU:HD13	2.48	0.49
1:A:259:PRO:HD2	1:A:452:PHE:CG	2.47	0.49
3:F:11:DC:H2"	3:F:12:DC:H5'	1.95	0.49
1:A:41:ARG:NH1	1:A:45:LYS:HG3	2.26	0.49
1:A:386:LEU:HD22	1:A:423:ILE:HG23	1.95	0.49
1:B:23:TYR:HD2	1:B:37:LEU:HD13	1.77	0.49
1:B:146:VAL:HG21	1:B:303:LEU:HD11	1.94	0.49
1:B:227:PRO:HD2	1:B:228:TRP:CE3	2.48	0.49
3:D:1:DT:H2"	3:D:2:DT:H5'	1.94	0.49
2:C:4:DG:H2"	2:C:5:DG:H5'	1.95	0.48
3:D:7:DG:H2"	3:D:8:DA:C8	2.47	0.48
3:F:12:DC:H2"	3:F:13:DG:C8	2.48	0.48
2:E:11:DC:H2"	2:E:12:DG:C8	2.48	0.48
1:A:130:VAL:O	1:A:134:ILE:HB	2.12	0.48
1:B:12:LYS:HB3	1:B:138:PHE:HB2	1.94	0.48
1:A:21:VAL:HG22	1:A:112:THR:HB	1.94	0.48
1:A:379:MET:O	1:A:383:LYS:HG3	2.13	0.48
1:B:124:ASN:OD1	6:B:601:HOH:O	2.19	0.48
1:A:451:LYS:HB3	1:A:451:LYS:HE3	1.66	0.47
1:B:291:ASN:HD22	1:B:292:PRO:CD	2.27	0.47
1:A:47:ALA:O	1:A:49:VAL:HG13	2.15	0.47
1:A:396:LEU:HD23	1:A:396:LEU:HA	1.69	0.47
1:B:53:VAL:HG11	1:B:83:LEU:HD12	1.97	0.47
1:A:266:ASN:HA	1:A:372:LYS:HE3	1.97	0.47
1:B:226:GLU:OE1	1:B:229:HIS:NE2	2.39	0.47
1:B:445:TYR:HE1	1:B:449:LYS:HD2	1.80	0.46
1:B:439:LYS:NZ	3:F:10:DG:OP1	2.24	0.46
1:A:296:LYS:O	1:A:300:ASP:OD1	2.34	0.46
1:B:105:VAL:HG11	1:B:134:ILE:HG22	1.97	0.46
1:B:268:SER:OG	1:B:269:PRO:HD3	2.15	0.46
1:A:11:LEU:HD21	1:A:140:GLU:HB2	1.99	0.45
1:A:164:ARG:N	1:A:165:PRO:HD2	2.31	0.45
1:A:322:PHE:CE2	1:A:330:LYS:HG2	2.51	0.45
2:C:3:DC:H2"	2:C:4:DG:C8	2.51	0.45
1:A:299:LEU:HD23	1:A:299:LEU:HA	1.87	0.45
1:A:215:ARG:HA	5:A:502:SO4:O2	2.16	0.45
1:B:146:VAL:O	1:B:174:PHE:HB3	2.17	0.45
1:A:258:ASP:OD1	1:A:260:THR:OG1	2.16	0.45
1:B:64:ALA:HB1	1:B:405:ARG:HD2	1.97	0.45
1:B:78:GLU:OE2	1:B:234:GLU:N	2.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:12:DC:H2"	3:F:13:DG:N7	2.32	0.45
1:B:12:LYS:HB3	1:B:138:PHE:CB	2.47	0.45
1:A:17:GLY:CA	1:A:111:GLY:HA2	2.48	0.44
1:B:6:LYS:HB2	1:B:6:LYS:HE3	1.80	0.44
1:B:272:HIS:HD2	1:B:273:PHE:CD2	2.35	0.44
1:A:33:ASP:HA	1:A:178:PHE:CD1	2.53	0.44
1:A:45:LYS:NZ	1:A:182:GLU:OE1	2.37	0.44
1:A:345:TYR:HB2	1:A:350:PHE:CZ	2.53	0.44
1:A:317:PRO:HG3	1:B:338:ASN:OD1	2.18	0.44
1:A:12:LYS:HB2	1:A:131:ILE:HD13	1.98	0.44
1:A:325:PHE:CZ	1:A:396:LEU:HD11	2.53	0.44
1:B:68:GLN:OE1	1:B:68:GLN:N	2.50	0.44
3:D:2:DT:H2"	3:D:3:DG:OP2	2.17	0.44
3:D:7:DG:H2"	3:D:8:DA:H8	1.83	0.44
1:A:264:LEU:HB2	6:A:656:HOH:O	2.17	0.44
2:C:7:DT:H2"	2:C:8:DT:O5'	2.18	0.44
2:C:2:DT:H2"	2:C:3:DC:C6	2.53	0.44
1:A:58:THR:CG2	1:A:97:PRO:HD3	2.49	0.43
1:A:121:ARG:NH2	1:B:390:GLU:OE2	2.50	0.43
1:A:212:LEU:N	1:A:213:PRO:HD2	2.33	0.43
1:A:308:ILE:HG12	1:A:427:HIS:CE1	2.53	0.43
1:B:21:VAL:CG2	1:B:51:VAL:HG23	2.48	0.43
1:B:67:ARG:HB2	1:B:225:PHE:CZ	2.53	0.43
1:B:291:ASN:HD22	1:B:292:PRO:HD2	1.83	0.43
1:A:376:TYR:OH	1:A:451:LYS:HE2	2.19	0.43
1:A:305:TRP:CH2	2:C:7:DT:H71	2.53	0.43
1:A:367:LEU:HB2	1:A:373:MET:HE3	2.01	0.43
1:B:336:HIS:NE2	1:B:433:GLU:OE2	2.52	0.43
1:B:361:ASN:O	1:B:365:MET:HG2	2.19	0.43
1:A:145:ASN:ND2	1:A:307:GLU:HG2	2.29	0.43
1:A:27:ARG:HD2	1:A:117:PHE:O	2.19	0.43
1:A:58:THR:HG22	1:A:95:GLY:O	2.19	0.43
1:A:439:LYS:NZ	6:A:619:HOH:O	2.51	0.43
1:A:46:GLU:O	1:A:46:GLU:HG3	2.19	0.42
1:B:245:ILE:HG22	1:B:285:VAL:HG22	2.01	0.42
2:C:4:DG:O5'	2:C:4:DG:H8	2.02	0.42
2:C:9:DC:H2"	2:C:10:DG:H5'	2.00	0.42
1:A:7:ARG:NH2	1:A:176:GLU:OE2	2.51	0.42
1:B:61:PHE:HE2	6:B:627:HOH:O	2.03	0.42
1:A:144:HIS:HA	6:A:661:HOH:O	2.20	0.42
1:B:410:GLY:O	1:B:411:ARG:HG3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:2:DT:H2"	2:C:3:DC:C5	2.54	0.42
1:A:62:LEU:HA	1:A:211:LEU:HD21	2.02	0.42
1:B:444:SER:OG	1:B:445:TYR:N	2.52	0.42
1:B:320:ASP:OD1	1:B:320:ASP:N	2.51	0.42
1:A:199:THR:O	1:A:203:VAL:N	2.40	0.42
1:A:415:GLY:HA3	6:A:654:HOH:O	2.20	0.42
1:A:167:LEU:HA	1:A:167:LEU:HD12	1.63	0.42
1:A:323:GLU:O	1:A:330:LYS:HE2	2.20	0.42
1:B:39:PHE:CE1	1:B:43:ILE:HD11	2.54	0.42
1:B:157:GLU:HG3	1:B:163:PHE:CD1	2.54	0.42
2:C:1:DA:H2"	2:C:2:DT:C5	2.55	0.42
1:A:384:LYS:HD3	1:A:384:LYS:HA	1.76	0.41
1:B:53:VAL:HG13	1:B:90:SER:HA	2.02	0.41
3:F:1:DT:H5'	3:F:1:DT:C6	2.48	0.41
1:A:402:LEU:HD23	1:A:402:LEU:HA	1.83	0.41
1:A:455:LYS:HD3	1:A:455:LYS:HA	1.81	0.41
1:B:181:LEU:HA	1:B:181:LEU:HD12	1.77	0.41
1:A:22:VAL:O	1:A:113:LEU:HD12	2.20	0.41
1:A:359:LEU:HA	1:A:359:LEU:HD12	1.59	0.41
1:B:249:LEU:O	1:B:252:TYR:HB3	2.21	0.41
1:A:122:ILE:HD12	1:A:122:ILE:HA	1.71	0.41
1:B:176:GLU:O	1:B:283:LEU:HD21	2.21	0.41
1:B:74:LYS:HB3	1:B:232:PRO:HG2	2.02	0.41
1:B:410:GLY:HA2	4:B:501:FDA:O4	2.20	0.41
1:A:77:GLN:HG2	1:A:200:LEU:HD23	2.03	0.41
1:B:252:TYR:O	1:B:254:ALA:N	2.53	0.41
1:B:266:ASN:O	1:B:269:PRO:HD2	2.21	0.41
1:A:106:LYS:NZ	1:A:134:ILE:HA	2.36	0.41
1:A:373:MET:HE1	1:A:381:TRP:CD1	2.56	0.41
1:A:412:ASP:O	1:A:415:GLY:N	2.53	0.40
1:B:106:LYS:HG2	6:B:647:HOH:O	2.21	0.40
1:A:52:VAL:HG12	1:A:89:PRO:HG2	2.02	0.40
1:A:260:THR:HB	1:A:456:LEU:HD23	2.02	0.40
1:A:410:GLY:HA2	4:A:501:FDA:O4	2.21	0.40
1:B:12:LYS:HG2	1:B:134:ILE:CD1	2.51	0.40
1:B:67:ARG:HB2	1:B:225:PHE:CE1	2.56	0.40
1:B:252:TYR:HA	1:B:263:MET:HG3	2.03	0.40
1:A:283:LEU:HA	1:A:283:LEU:HD23	1.71	0.40
1:B:237:ALA:HB2	1:B:270:TYR:CD2	2.56	0.40
1:B:291:ASN:HD22	1:B:291:ASN:C	2.22	0.40
2:C:4:DG:C2'	2:C:5:DG:H5'	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1:DT:H2'	3:D:2:DT:C6	2.55	0.40
1:A:360:TRP:CD1	1:A:384:LYS:HB2	2.57	0.40
1:B:36:ALA:H	1:B:143:ALA:HB2	1.86	0.40
1:B:222:ASP:CB	1:B:225:PHE:HB2	2.51	0.40
1:A:97:PRO:HG2	1:A:126:TRP:CG	2.57	0.40

There are no symmetry-related clashes.

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	451/498 (91%)	428 (95%)	23 (5%)	0	100	100
1	B	425/498 (85%)	393 (92%)	31 (7%)	1 (0%)	47	56
All	All	876/996 (88%)	821 (94%)	54 (6%)	1 (0%)	51	63

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	275	GLN

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.

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	394/429 (92%)	371 (94%)	23 (6%)	20	22
1	B	373/429 (87%)	348 (93%)	25 (7%)	16	17
All	All	767/858 (89%)	719 (94%)	48 (6%)	18	19

All (48) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	60	GLU
1	A	93	LEU
1	A	132	SER
1	A	134	ILE
1	A	138	PHE
1	A	154	GLN
1	A	209	LYS
1	A	217	LEU
1	A	224	LEU
1	A	238	LYS
1	A	239	LYS
1	A	250	ASP
1	A	251	SER
1	A	261	LYS
1	A	265	SER
1	A	278	SER
1	A	294	SER
1	A	296	LYS
1	A	327	SER
1	A	394	LYS
1	A	443	MET
1	A	459	GLU
1	A	467	LEU
1	B	9	ARG
1	B	15	LYS
1	B	21	VAL
1	B	53	VAL
1	B	58	THR
1	B	59	ASP
1	B	90	SER
1	B	121	ARG
1	B	154	GLN

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Mol	Chain	Res	Type
1	B	222	ASP
1	B	231	GLU
1	B	249	LEU
1	B	276	ILE
1	B	289	GLU
1	B	290	SER
1	B	291	ASN
1	B	303	LEU
1	B	310	ASP
1	B	327	SER
1	B	332	SER
1	B	342	SER
1	B	411	ARG
1	B	444	SER
1	B	446	GLU
1	B	454	VAL

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	145	ASN
1	A	156	HIS
1	A	316	ASN
1	B	109	ASN
1	B	291	ASN
1	B	364	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 ⓘ

3 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	$\#|Z| > 2$
4	FDA	B	501	-	52,58,58	0.66	0	60,89,89	0.76	2 (3%)
4	FDA	A	501	-	52,58,58	0.71	0	60,89,89	0.82	2 (3%)
5	SO4	A	502	-	4,4,4	0.17	0	6,6,6	0.23	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	FDA	B	501	-	-	2/30/50/50	0/6/6/6
4	FDA	A	501	-	-	5/30/50/50	0/6/6/6

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	501	FDA	N3-C2-N1	2.30	119.50	115.80
4	B	501	FDA	N3-C2-N1	2.23	119.38	115.80
4	B	501	FDA	C5A-C6A-N6A	2.20	123.69	120.35
4	A	501	FDA	O3B-C3B-C2B	-2.19	104.74	111.82

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	501	FDA	P-O3P-PA-O1A
4	A	501	FDA	C4B-C5B-O5B-PA
4	A	501	FDA	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
4	A	501	FDA	C5B-O5B-PA-O3P
4	B	501	FDA	C4'-C5'-O5'-P
4	A	501	FDA	C5B-O5B-PA-O1A
4	A	501	FDA	C5B-O5B-PA-O2A

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	501	FDA	1	0
4	A	501	FDA	1	0
5	A	502	SO4	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 FDA B 501

Bond lengths

Bond angles

Torsions

Rings

Ligand FDA A 501

Bond lengths

Bond angles

Torsions

Rings
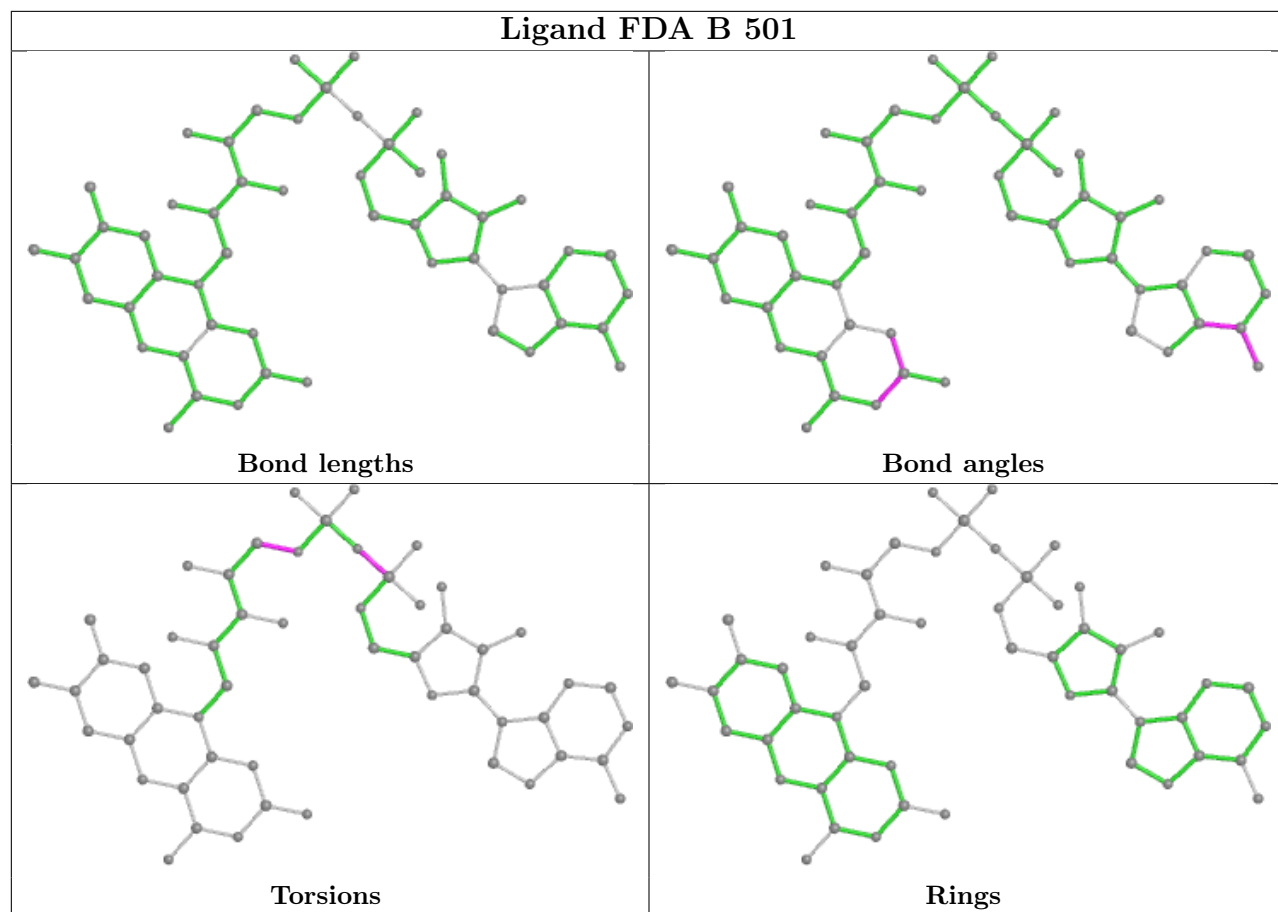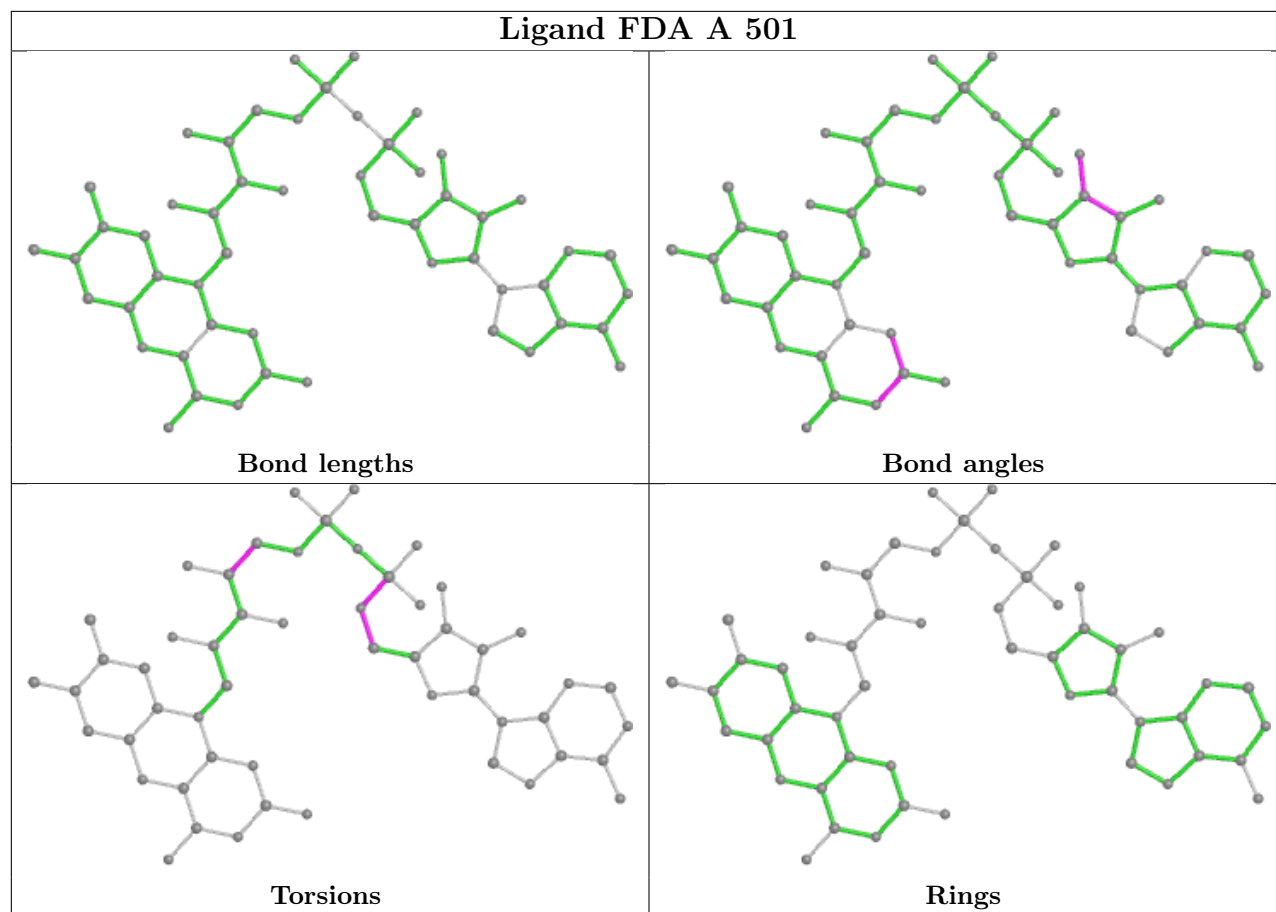
5.7 Other polymers ⓘ

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(Å^2)	Q<0.9
1	A	455/498 (91%)	0.35	11 (2%)	59	68	14, 30, 57, 86	0
1	B	428/498 (85%)	0.97	69 (16%)	1	3	25, 52, 78, 103	0
2	C	14/14 (100%)	0.68	2 (14%)	2	4	26, 56, 84, 91	0
2	E	12/14 (85%)	0.90	3 (25%)	0	1	41, 62, 113, 123	0
3	D	14/14 (100%)	0.56	2 (14%)	2	4	42, 57, 69, 75	0
3	F	14/14 (100%)	1.64	6 (42%)	0	0	57, 74, 111, 119	0
All	All	937/1052 (89%)	0.67	93 (9%)	7	11	14, 41, 75, 123	0

All (93) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	64	ALA	10.2
1	B	61	PHE	5.4
1	A	108	TYR	5.0
1	B	134	ILE	4.7
3	F	4	DC	3.9
2	C	1	DA	3.8
1	B	255	LEU	3.6
1	B	114	VAL	3.6
1	B	103	ARG	3.6
1	A	61	PHE	3.6
1	B	3	MET	3.5
1	B	57	LEU	3.4
1	B	81	VAL	3.4
1	B	8	ILE	3.3
3	F	13	DG	3.3
1	B	54	VAL	3.2
1	B	63	GLU	3.2
1	B	69	TYR	3.2
1	B	178	PHE	3.2

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Mol	Chain	Res	Type	RSRZ
3	F	5	DG	3.1
2	E	4	DG	3.1
1	B	23	TYR	3.0
3	F	14	DA	3.0
1	B	101	ILE	3.0
1	B	229	HIS	3.0
1	B	35	TRP	2.9
1	B	169	ALA	2.9
1	B	77	GLN	2.9
1	B	13	SER	2.8
1	B	14	GLY	2.7
1	B	141	VAL	2.7
1	B	283	LEU	2.7
1	B	295	LYS	2.7
1	B	49	VAL	2.7
1	B	50	PRO	2.7
1	A	106	LYS	2.7
1	B	231	GLU	2.7
2	C	2	DT	2.6
1	B	263	MET	2.6
3	D	5	DG	2.6
1	B	26	SER	2.6
1	B	108	TYR	2.6
1	B	296	LYS	2.5
2	E	5	DG	2.5
1	B	133	GLY	2.5
3	F	1	DT	2.5
1	B	305	TRP	2.5
1	B	66	ILE	2.5
1	B	136	ILE	2.5
3	D	3	DG	2.4
1	B	85	ARG	2.4
1	B	93	LEU	2.4
1	B	454	VAL	2.4
1	B	421	TRP	2.4
1	B	94	ARG	2.4
1	A	211	LEU	2.4
1	B	79	LEU	2.4
1	A	187	THR	2.4
1	B	289	GLU	2.4
1	B	161	HIS	2.3
1	B	442	TYR	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	369	SER	2.3
1	B	15	LYS	2.3
1	B	223	PRO	2.3
3	F	3	DG	2.3
1	B	60	GLU	2.3
1	B	155	LYS	2.3
1	B	411	ARG	2.3
2	E	14	DA	2.3
1	B	104	PHE	2.3
1	A	255	LEU	2.2
1	B	22	VAL	2.2
1	B	298	PHE	2.2
1	B	268	SER	2.2
1	B	261	LYS	2.2
1	B	164[A]	ARG	2.2
1	A	14	GLY	2.2
1	B	36	ALA	2.2
1	A	109	ASN	2.1
1	A	219	LYS	2.1
1	B	188	PRO	2.1
1	B	115	THR	2.1
1	A	39	PHE	2.1
1	B	62	LEU	2.1
1	B	272	HIS	2.1
1	B	127	ILE	2.1
1	A	35	TRP	2.1
1	B	159	ALA	2.1
1	B	59	ASP	2.0
1	B	276	ILE	2.0
1	B	273	PHE	2.0
1	B	416	TYR	2.0
1	B	18	ASP	2.0

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

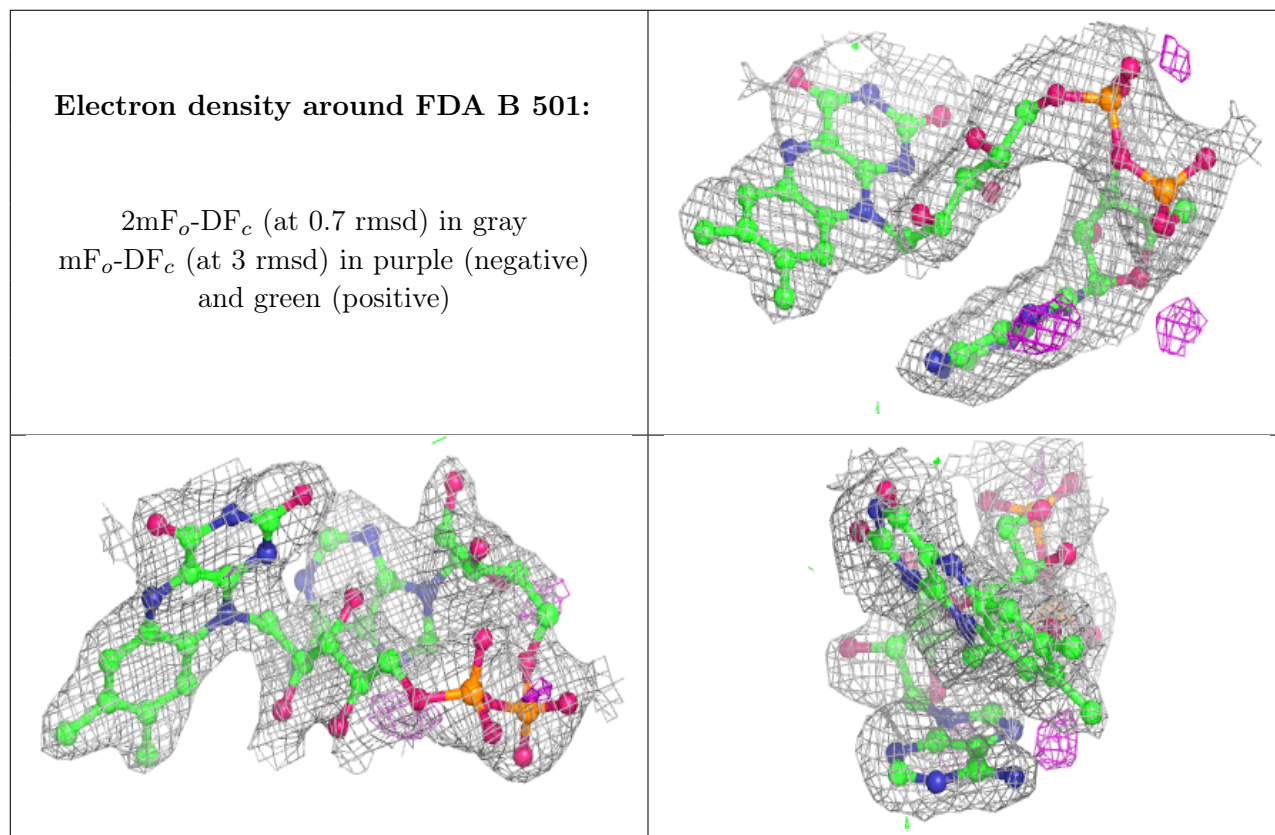There are no non-standard protein/DNA/RNA residues in this entry.

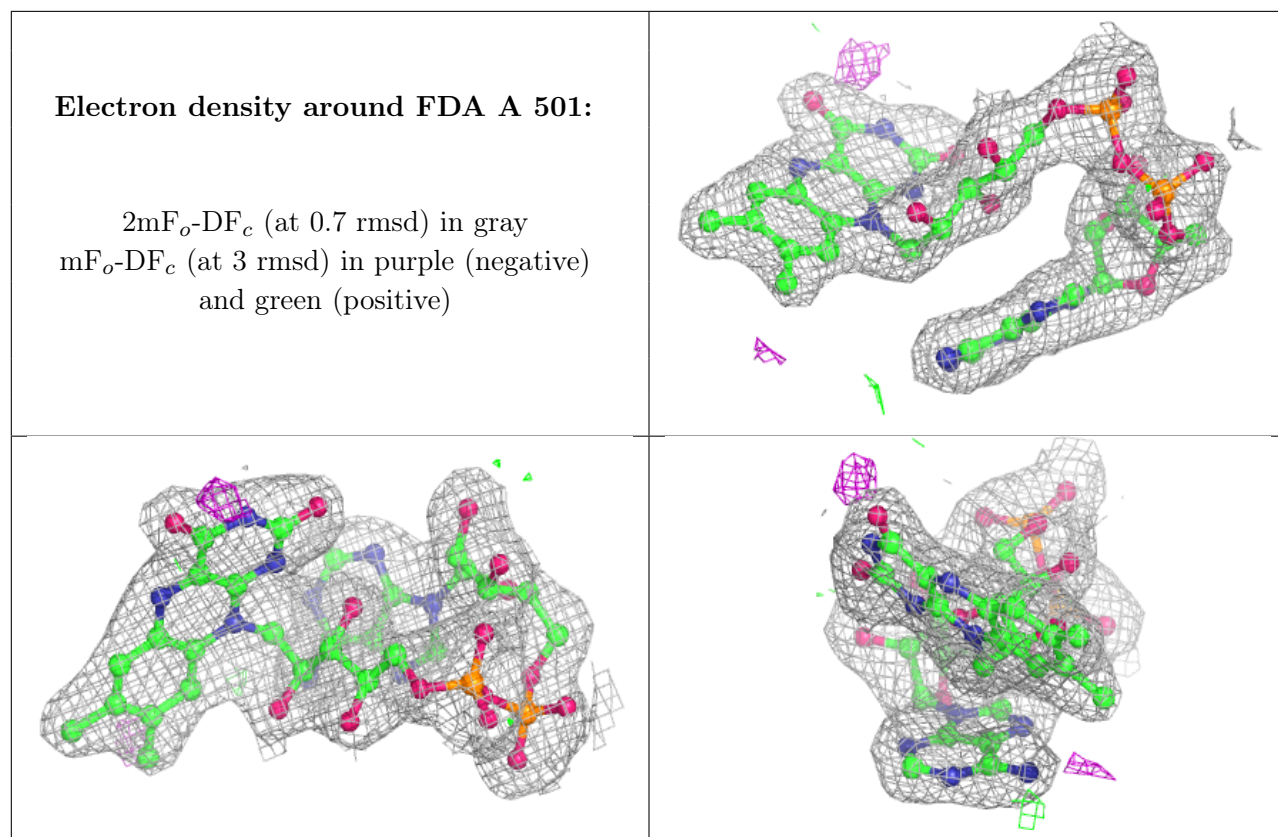## 6.3 Carbohydrates ⓘ

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
4	FDA	B	501	53/53	0.93	0.16	28,35,43,44	0
4	FDA	A	501	53/53	0.95	0.15	12,18,21,26	0
5	SO4	A	502	5/5	0.98	0.10	23,28,39,40	0

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

Electron density around FDA B 501:

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

Electron density around FDA A 501:

$2mF_o$-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 ⓘ

There are no such residues in this entry.