



Full wwPDB X-ray Structure Validation Report ⓘ

May 16, 2020 – 10:49 pm BST

PDB ID : 6D88
Title : Tubulin-RB3_SLD-TTL in complex with compound 13f
Authors : Kumar, G.; Wang, Y.; Li, W.; White, S.W.
Deposited on : 2018-04-26
Resolution : 2.85 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The following versions of software and data (see [references ⓘ](#)) 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 : 2.11
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) : 2.11

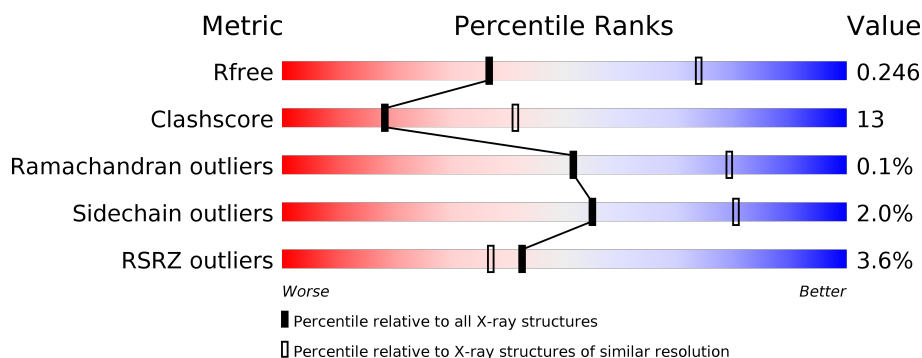
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.85 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	3168 (2.90-2.82)
Clashscore	141614	3438 (2.90-2.82)
Ramachandran outliers	138981	3348 (2.90-2.82)
Sidechain outliers	138945	3351 (2.90-2.82)
RSRZ outliers	127900	3103 (2.90-2.82)

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 on 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 $\leq 5\%$. 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	450	<div> <div>74%</div> <div>22%</div> <div>•</div> </div>
1	C	450	<div> <div>80%</div> <div>18%</div> <div>•</div> </div>
2	B	445	<div> <div>5%</div> <div>70%</div> <div>25%</div> <div>•</div> </div>
2	D	445	<div> <div>5%</div> <div>63%</div> <div>31%</div> <div>• 5%</div> </div>
3	E	143	<div> <div>2%</div> <div>59%</div> <div>25%</div> <div>15%</div> </div>
4	F	384	<div> <div>11%</div> <div>54%</div> <div>30%</div> <div>• 14%</div> </div>

2 Entry composition

There are 12 unique types of molecules in this entry. The entry contains 17544 atoms, of which 14 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 Tubulin alpha-1B chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	437	Total	C	N	O	S	0	0	0
			3405	2154	580	649	22			
1	C	440	Total	C	N	O	S	0	0	0
			3433	2172	583	656	22			

- Molecule 2 is a protein called Tubulin beta chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	427	Total	C	N	O	S	0	0	0
			3351	2104	572	649	26			
2	D	421	Total	C	N	O	S	0	0	0
			3300	2076	559	638	27			

- Molecule 3 is a protein called Stathmin-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	E	121	Total	C	N	O	S	0	0	0
			1000	617	181	197	5			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	3	MET	-	expression tag	UNP P63043
E	4	ALA	-	expression tag	UNP P63043

- Molecule 4 is a protein called Tubulin tyrosine ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	F	332	Total	C	N	O	S	0	0	0
			2713	1740	466	493	14			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	379	HIS	-	expression tag	UNP E1BQ43
F	380	HIS	-	expression tag	UNP E1BQ43
F	381	HIS	-	expression tag	UNP E1BQ43
F	382	HIS	-	expression tag	UNP E1BQ43
F	383	HIS	-	expression tag	UNP E1BQ43
F	384	HIS	-	expression tag	UNP E1BQ43

- Molecule 5 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	A	1	Total	C	N	O	P	0	0
			32	10	5	14	3		
5	C	1	Total	C	N	O	P	0	0
			32	10	5	14	3		

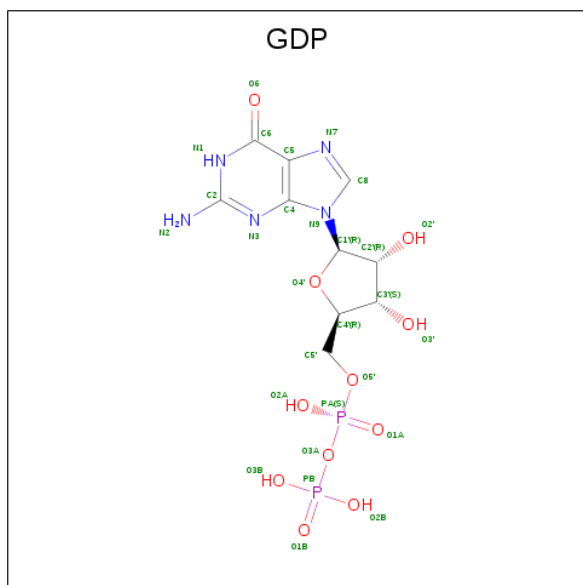
- Molecule 6 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total	Ca	0	0
			1	1		
6	C	1	Total	Ca	0	0
			1	1		

- Molecule 7 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	B	1	Total Mg 1 1	0	0
7	A	1	Total Mg 1 1	0	0
7	C	1	Total Mg 1 1	0	0

- Molecule 8 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$).



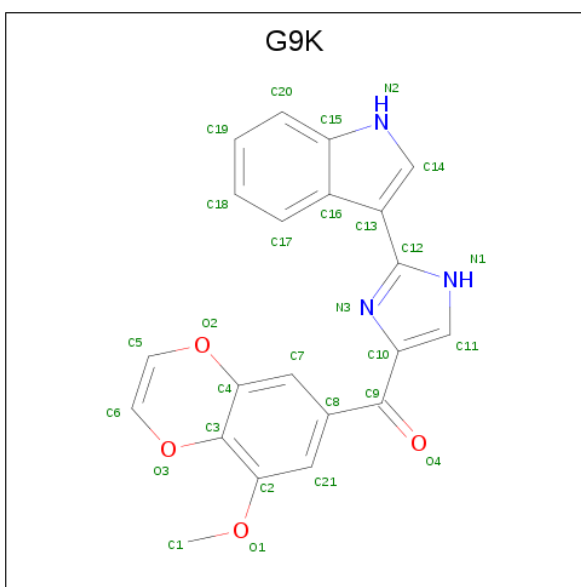
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	B	1	Total C N O P 28 10 5 11 2	0	0
8	D	1	Total C N O P 28 10 5 11 2	0	0

- Molecule 9 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula: $C_6H_{13}NO_4S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
9	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
9	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

- Molecule 10 is [2-(1H-indol-3-yl)-1H-imidazol-4-yl](8-methoxy-1,4-benzodioxin-6-yl)methanone (three-letter code: G9K) (formula: C₂₁H₁₅N₃O₄) (labeled as "Ligand of Interest" by author).



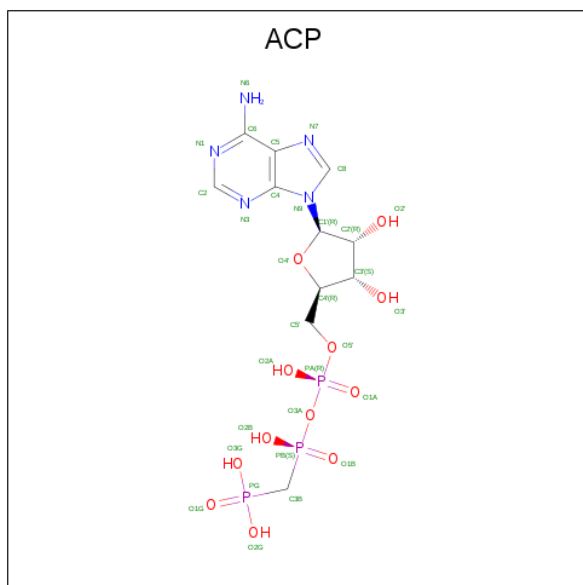
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
10	B	1	Total	C	N	O		0	0
			28	21	3	4			

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
10	D	1	Total	C	N	O	0	0
			28	21	3	4		

- Molecule 11 is PHOSPHOMETHYLPHOSPHONIC ACID ADENYLATE ESTER (three-letter code: ACP) (formula: $C_{11}H_{18}N_5O_{12}P_3$).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
11	F	1	Total	C	H	N	O	P	0	0
			45	11	14	5	12	3		

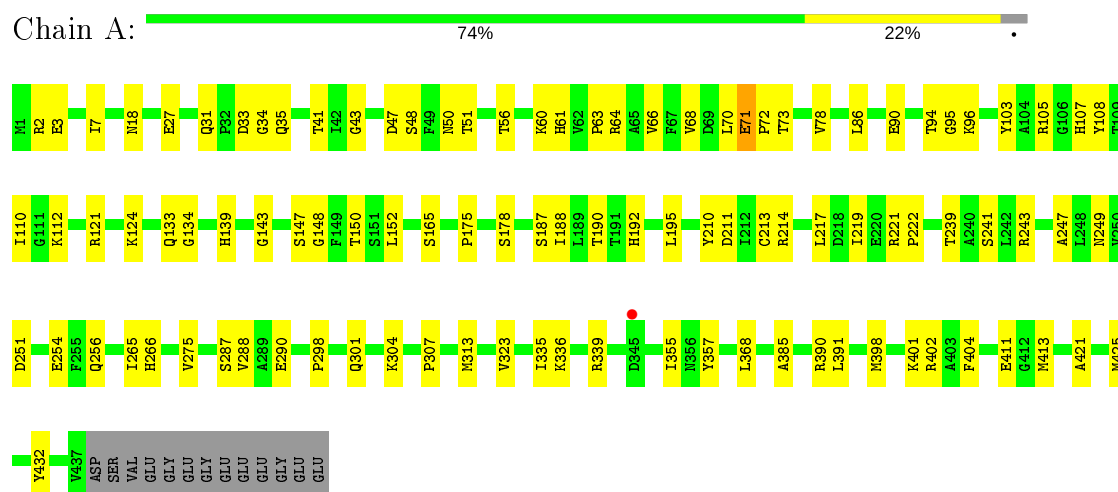
- Molecule 12 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
12	A	17	Total	O	0	0
			17	17		
12	B	19	Total	O	0	0
			19	19		
12	C	29	Total	O	0	0
			29	29		
12	D	14	Total	O	0	0
			14	14		
12	E	5	Total	O	0	0
			5	5		
12	F	8	Total	O	0	0
			8	8		

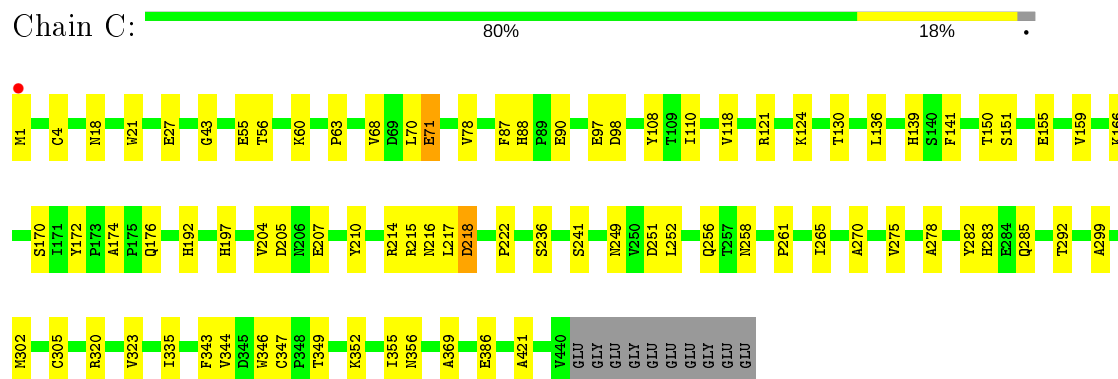
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA 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.

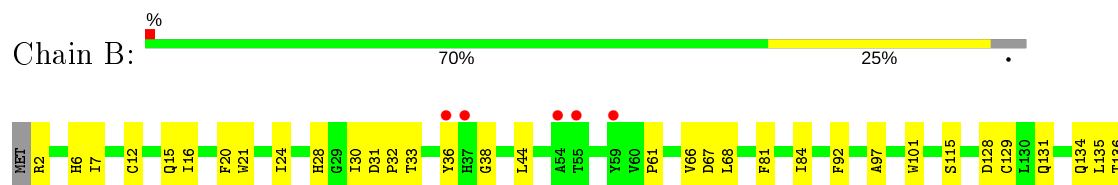
• Molecule 1: Tubulin alpha-1B chain

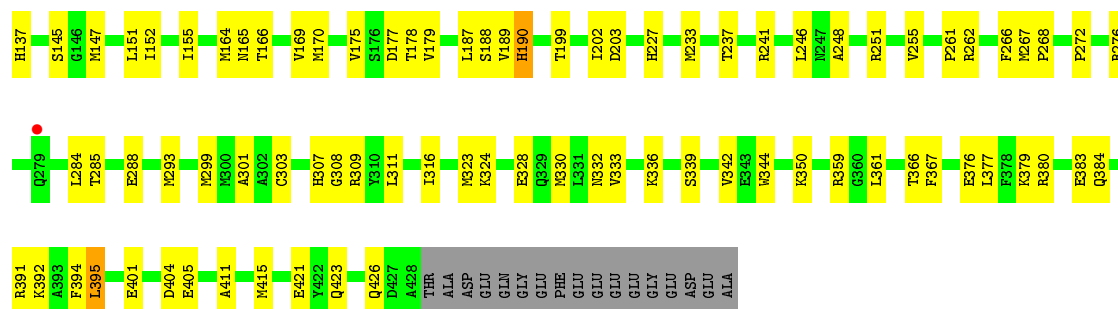


• Molecule 1: Tubulin alpha-1B chain

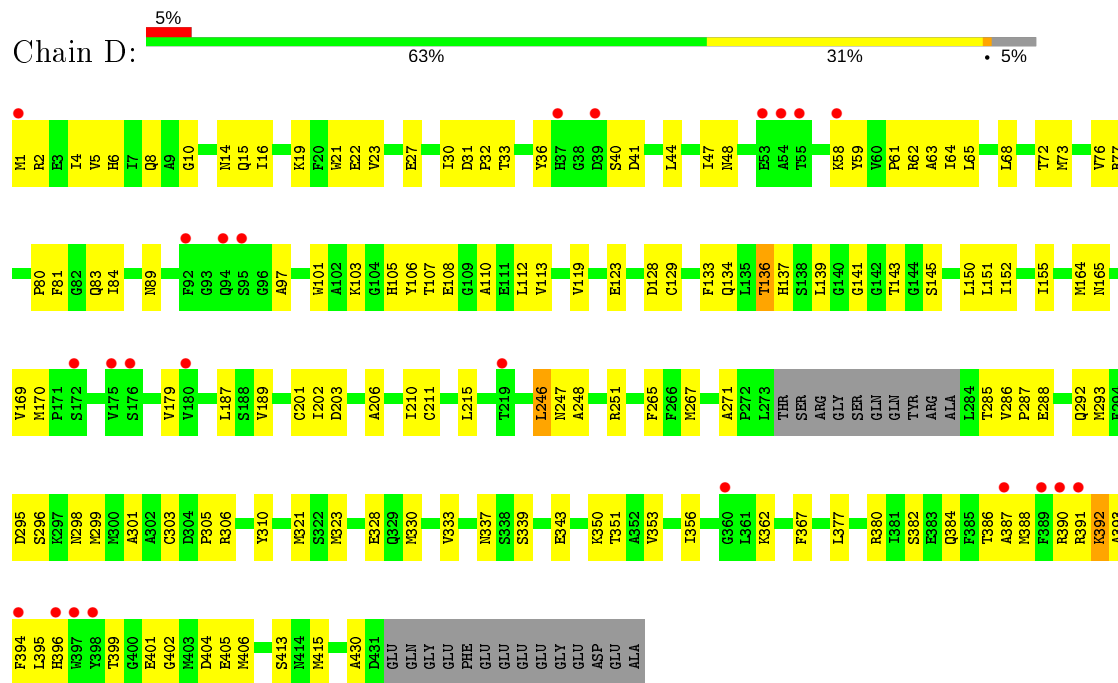


• Molecule 2: Tubulin beta chain

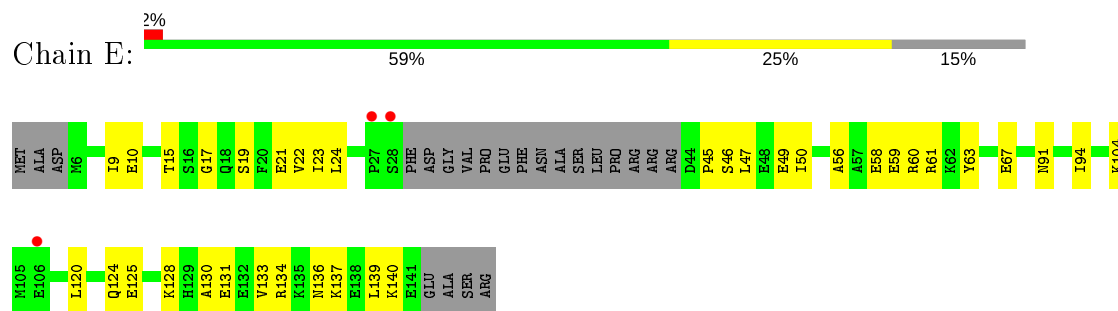




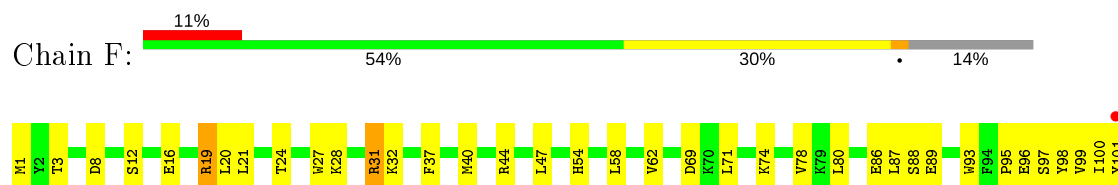
• Molecule 2: Tubulin beta chain

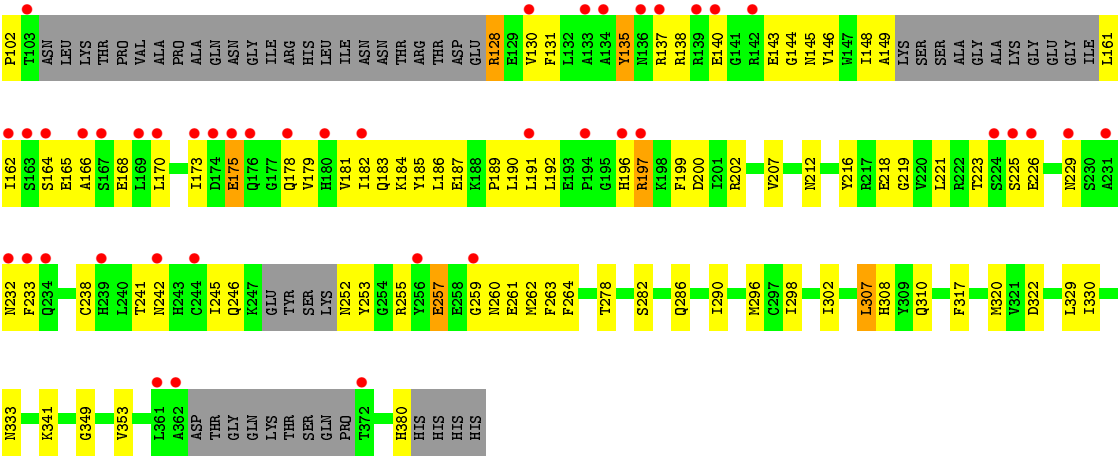


• Molecule 3: Stathmin-4



• Molecule 4: Tubulin tyrosine ligase





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	105.54Å 157.89Å 182.03Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	45.65 – 2.85 45.65 – 2.85	Depositor EDS
% Data completeness (in resolution range)	97.2 (45.65-2.85) 97.2 (45.65-2.85)	Depositor EDS
R_{merge}	0.23	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.04 (at 2.86Å)	Xtriage
Refinement program	PHENIX 1.13 _2998	Depositor
R, R_{free}	0.192 , 0.246 0.193 , 0.246	Depositor DCC
R_{free} test set	4083 reflections (5.88%)	wwPDB-VP
Wilson B-factor (Å ²)	51.0	Xtriage
Anisotropy	0.073	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 42.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	17544	wwPDB-VP
Average B, all atoms (Å ²)	59.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.38% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: GDP, MG, CA, G9K, GTP, ACP, MES

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	0.39	0/3482	0.55	0/4728
1	C	0.44	1/3511 (0.0%)	0.59	0/4768
2	B	0.41	0/3426	0.57	0/4643
2	D	0.37	0/3373	0.51	0/4570
3	E	0.39	0/1008	0.44	0/1337
4	F	0.34	0/2775	0.49	0/3752
All	All	0.39	1/17575 (0.0%)	0.54	0/23798

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	347	CYS	CB-SG	-6.16	1.71	1.82

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	217	LEU	Peptide

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	3405	0	3313	81	0
1	C	3433	0	3337	50	2
2	B	3351	0	3216	89	1
2	D	3300	0	3176	116	0
3	E	1000	0	1018	33	1
4	F	2713	0	2659	105	0
5	A	32	0	12	1	0
5	C	32	0	12	0	0
6	A	1	0	0	0	0
6	C	1	0	0	0	0
7	A	1	0	0	0	0
7	B	1	0	0	0	0
7	C	1	0	0	0	0
8	B	28	0	12	0	0
8	D	28	0	12	3	0
9	B	24	0	24	3	0
10	B	28	0	0	3	0
10	D	28	0	0	2	0
11	F	31	14	13	4	0
12	A	17	0	0	0	0
12	B	19	0	0	2	0
12	C	29	0	0	0	0
12	D	14	0	0	1	0
12	E	5	0	0	0	0
12	F	8	0	0	1	0
All	All	17530	14	16804	457	2

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 13.

All (457) 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)
2:B:307:HIS:O	2:B:426:GLN:NE2	1.99	0.95
4:F:100:ILE:HD12	4:F:128:ARG:N	1.91	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:2:ARG:NH1	2:D:129:CYS:SG	2.51	0.84
2:B:293:MET:HE2	2:B:367:PHE:HB2	1.59	0.83
2:D:330:MET:HG3	2:D:351:THR:HG21	1.61	0.82
4:F:137:ARG:NH1	4:F:137:ARG:O	2.12	0.80
4:F:263:PHE:CE2	4:F:341:LYS:HD3	2.16	0.80
2:D:388:MET:HG2	2:D:391:ARG:HH21	1.46	0.79
4:F:16:GLU:O	4:F:20:LEU:HD12	1.82	0.79
2:B:308:GLY:HA2	2:B:426:GLN:HE21	1.47	0.79
2:D:285:THR:HG23	2:D:288:GLU:H	1.47	0.79
2:B:392:LYS:HE3	2:B:405:GLU:OE2	1.84	0.77
4:F:192:LEU:HD21	4:F:262:MET:HE1	1.64	0.77
2:B:177:ASP:O	1:C:352:LYS:HE2	1.85	0.76
2:D:285:THR:HG22	2:D:288:GLU:OE2	1.85	0.76
2:D:151:LEU:O	2:D:155:ILE:HG13	1.86	0.76
1:A:221:ARG:HH11	2:B:323:MET:HB3	1.50	0.76
2:D:110:ALA:O	2:D:113:VAL:HG12	1.86	0.75
2:B:66:VAL:CG1	2:B:147:MET:HE1	2.16	0.75
4:F:192:LEU:HD21	4:F:262:MET:CE	2.16	0.75
2:B:324:LYS:O	2:B:328:GLU:HG3	1.86	0.75
2:D:401:GLU:HA	3:E:137:LYS:HD2	1.69	0.73
2:D:106:TYR:CD1	3:E:133:VAL:HG11	2.24	0.72
4:F:149:ALA:HB3	4:F:161:LEU:HD23	1.71	0.72
2:D:382:SER:O	2:D:386:THR:HG23	1.90	0.72
2:D:81:PHE:O	2:D:84:ILE:HG22	1.90	0.72
2:D:6:HIS:HE2	2:D:8:GLN:HG2	1.55	0.71
1:A:72:PRO:CA	1:A:94:THR:HG21	2.20	0.71
2:D:106:TYR:O	3:E:134:ARG:NH1	2.23	0.71
11:F:401:ACP:H51	11:F:401:ACP:H8	1.72	0.71
2:D:16:ILE:HD11	2:D:136:THR:HG22	1.72	0.70
4:F:197:ARG:HH12	4:F:257:GLU:CD	1.94	0.70
4:F:148:ILE:HD13	4:F:162:ILE:HG12	1.73	0.70
2:D:139:LEU:HA	2:D:145:SER:HB3	1.73	0.70
1:A:72:PRO:HA	1:A:94:THR:HG21	1.74	0.70
2:B:262:ARG:NH1	2:B:421:GLU:OE2	2.24	0.70
1:C:204:VAL:HG22	1:C:302:MET:CE	2.22	0.69
3:E:9:ILE:HG12	3:E:21:GLU:HB3	1.74	0.69
4:F:95:PRO:HB2	4:F:183:GLN:HG2	1.75	0.69
2:D:387:ALA:HA	2:D:390:ARG:HE	1.58	0.68
4:F:148:ILE:O	4:F:182:ILE:HA	1.93	0.68
2:D:134:GLN:HA	2:D:165:ASN:O	1.93	0.68
1:A:188:ILE:HG13	1:A:425:MET:HG3	1.76	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:189:VAL:HB	2:B:415:MET:HE3	1.76	0.68
2:D:65:LEU:CD2	2:D:76:VAL:HG11	2.24	0.68
2:D:1:MET:HG3	2:D:128:ASP:HB3	1.76	0.67
2:D:89:ASN:ND2	2:D:123:GLU:OE2	2.23	0.67
4:F:62:VAL:HG12	4:F:310:GLN:O	1.94	0.67
2:B:324:LYS:HE3	2:B:328:GLU:OE2	1.94	0.67
2:B:6:HIS:CD2	2:B:21:TRP:HE1	2.13	0.67
2:B:81:PHE:O	2:B:84:ILE:HG22	1.94	0.67
1:A:2:ARG:CB	1:A:133:GLN:HG3	2.25	0.67
1:A:90:GLU:OE2	1:A:124:LYS:NZ	2.19	0.66
2:B:134:GLN:HA	2:B:165:ASN:O	1.96	0.66
4:F:184:LYS:O	11:F:401:ACP:N6	2.29	0.65
1:A:239:THR:OG1	1:A:243:ARG:NH1	2.28	0.65
2:D:141:GLY:HA3	8:D:501:GDP:O3A	1.97	0.65
1:A:72:PRO:HB3	1:A:94:THR:HG21	1.78	0.65
2:D:63:ALA:O	2:D:64:ILE:HD13	1.96	0.65
4:F:186:LEU:HD12	4:F:320:MET:HG2	1.79	0.65
2:B:170:MET:HG3	2:B:377:LEU:HD11	1.78	0.64
2:D:386:THR:O	2:D:390:ARG:HG2	1.97	0.64
4:F:199:PHE:CD2	4:F:221:LEU:HD23	2.32	0.64
2:D:330:MET:O	2:D:333:VAL:HG12	1.97	0.64
2:B:261:PRO:HD2	12:B:611:HOH:O	1.98	0.64
1:C:214:ARG:O	1:C:218:ASP:HA	1.97	0.64
2:D:10:GLY:O	2:D:14:ASN:ND2	2.21	0.63
4:F:242:ASN:HB2	4:F:245:ILE:HB	1.79	0.63
2:B:237:THR:HG22	2:B:241:ARG:HG3	1.79	0.63
4:F:296:MET:HE2	4:F:380:HIS:HB2	1.80	0.62
1:A:357:TYR:CE2	3:E:17:GLY:HA2	2.34	0.62
4:F:21:LEU:HD22	4:F:27:TRP:CD1	2.35	0.62
3:E:128:LYS:O	3:E:128:LYS:HD2	1.99	0.62
1:A:175:PRO:HA	1:A:178:SER:HB3	1.82	0.62
2:B:267:MET:HE1	2:B:299:MET:HG3	1.82	0.61
1:C:344:VAL:HG21	1:C:346:TRP:CE2	2.35	0.61
2:D:33:THR:OG1	2:D:58:LYS:HE3	2.00	0.61
1:A:2:ARG:HB3	1:A:133:GLN:HG3	1.83	0.61
2:D:293:MET:CG	2:D:367:PHE:HB2	2.31	0.61
4:F:135:TYR:OH	4:F:164:SER:O	2.17	0.61
2:B:2:ARG:HA	2:B:129:CYS:O	2.01	0.61
2:B:316:ILE:HG23	2:B:366:THR:HB	1.82	0.60
2:B:66:VAL:HG12	2:B:147:MET:HE1	1.83	0.60
4:F:135:TYR:CE2	4:F:166:ALA:HB2	2.36	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:72:PRO:CB	1:A:94:THR:HG21	2.32	0.60
2:B:251:ARG:O	2:B:255:VAL:HG23	2.01	0.60
1:A:211:ASP:OD2	1:A:304:LYS:NZ	2.33	0.60
2:D:396:HIS:HA	2:D:399:THR:HG22	1.83	0.60
2:B:423:GLN:HG3	12:B:614:HOH:O	2.01	0.60
4:F:135:TYR:CD2	4:F:166:ALA:HB2	2.36	0.59
4:F:78:VAL:HG21	4:F:181:VAL:HG21	1.82	0.59
2:D:285:THR:OG1	2:D:287:PRO:HD2	2.01	0.59
1:A:390:ARG:HD2	4:F:54:HIS:CD2	2.38	0.59
2:B:36:TYR:CD2	2:B:44:LEU:HD11	2.38	0.59
1:C:204:VAL:HG22	1:C:302:MET:HE3	1.83	0.59
2:D:103:LYS:HE2	2:D:108:GLU:OE2	2.03	0.59
2:B:21:TRP:CZ3	2:B:61:PRO:HB3	2.37	0.59
4:F:16:GLU:OE2	4:F:20:LEU:HD11	2.02	0.59
3:E:46:SER:O	3:E:50:ILE:HG12	2.02	0.59
2:B:316:ILE:CG2	2:B:366:THR:HB	2.33	0.58
2:B:309:ARG:HH21	2:B:342:VAL:HA	1.67	0.58
4:F:144:GLY:HA3	4:F:187:GLU:OE2	2.02	0.58
2:D:387:ALA:HA	2:D:390:ARG:NE	2.16	0.58
2:D:251:ARG:HH11	2:D:251:ARG:HG3	1.68	0.58
2:D:170:MET:CE	2:D:377:LEU:HD11	2.34	0.58
2:D:251:ARG:NH1	2:D:251:ARG:HG3	2.18	0.57
1:A:72:PRO:HA	1:A:94:THR:CG2	2.33	0.57
3:E:21:GLU:HG2	3:E:23:ILE:HD11	1.85	0.57
3:E:46:SER:HB3	3:E:49:GLU:HG3	1.86	0.57
2:B:332:ASN:O	2:B:336:LYS:HG3	2.05	0.57
4:F:97:SER:OG	4:F:183:GLN:HG3	2.05	0.57
2:D:1:MET:HE3	2:D:128:ASP:HB2	1.86	0.57
4:F:138:ARG:HD2	4:F:143:GLU:HB2	1.87	0.57
2:B:189:VAL:HB	2:B:415:MET:CE	2.35	0.56
1:A:34:GLY:HA3	1:A:60:LYS:HG3	1.86	0.56
2:D:285:THR:HG22	2:D:288:GLU:CD	2.26	0.56
4:F:221:LEU:HD13	4:F:262:MET:HE3	1.87	0.56
1:A:221:ARG:NH1	2:B:323:MET:HB3	2.17	0.56
1:A:105:ARG:NH1	1:A:411:GLU:OE1	2.36	0.56
1:C:204:VAL:HG22	1:C:302:MET:HE1	1.87	0.56
1:A:108:TYR:CE2	1:A:413:MET:HG3	2.41	0.56
2:B:248:ALA:HB1	10:B:505:G9K:C7	2.36	0.56
2:D:65:LEU:HD22	2:D:76:VAL:HG11	1.88	0.56
4:F:74:LYS:NZ	4:F:183:GLN:OE1	2.39	0.56
2:D:97:ALA:HB2	2:D:143:THR:OG1	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:21:TRP:CZ3	1:C:63:PRO:HB3	2.40	0.55
4:F:197:ARG:NH2	4:F:257:GLU:OE2	2.36	0.55
1:A:247:ALA:HB3	3:E:19:SER:OG	2.07	0.55
1:A:96:LYS:HE3	2:B:128:ASP:OD1	2.07	0.55
2:D:271:ALA:HB2	2:D:298:ASN:HD22	1.70	0.55
2:D:6:HIS:NE2	2:D:8:GLN:HG2	2.21	0.55
1:A:2:ARG:HB2	1:A:133:GLN:HG3	1.87	0.55
4:F:200:ASP:OD2	4:F:241:THR:OG1	2.15	0.55
4:F:87:LEU:O	4:F:88:SER:OG	2.17	0.55
3:E:58:GLU:HG3	3:E:61:ARG:HH21	1.72	0.55
11:F:401:ACP:C8	11:F:401:ACP:H5'1	2.37	0.55
4:F:137:ARG:NH1	4:F:140:GLU:HB3	2.21	0.55
4:F:95:PRO:HD2	4:F:183:GLN:NE2	2.22	0.55
1:C:18:ASN:HD21	1:C:78:VAL:HG22	1.72	0.55
3:E:45:PRO:HB2	3:E:50:ILE:HD11	1.89	0.55
4:F:197:ARG:NH1	4:F:257:GLU:OE1	2.36	0.55
2:B:284:LEU:N	2:B:284:LEU:HD12	2.22	0.54
2:B:251:ARG:NH2	9:B:502:MES:O3S	2.41	0.54
2:D:169:VAL:HA	2:D:202:ILE:O	2.08	0.54
1:A:402:ARG:HH11	1:A:402:ARG:HG3	1.72	0.54
2:B:227:HIS:CG	2:B:276:ARG:HG3	2.43	0.54
4:F:199:PHE:CE2	4:F:221:LEU:HD23	2.43	0.54
1:A:3:GLU:HG2	1:A:64:ARG:CZ	2.38	0.54
2:B:266:PHE:O	2:B:268:PRO:HD3	2.08	0.54
1:A:18:ASN:HD21	1:A:78:VAL:HG22	1.73	0.54
4:F:37:PHE:CZ	4:F:40:MET:HE3	2.43	0.54
4:F:3:THR:HG22	4:F:28:LYS:HG3	1.90	0.54
1:C:71:GLU:HG2	1:C:98:ASP:HB3	1.90	0.53
2:D:64:ILE:HD11	2:D:123:GLU:HG3	1.89	0.53
2:D:267:MET:HE1	2:D:299:MET:HG3	1.90	0.53
2:B:330:MET:O	2:B:333:VAL:HG12	2.09	0.53
2:D:23:VAL:O	2:D:27:GLU:HG3	2.09	0.53
4:F:99:VAL:O	4:F:100:ILE:HD13	2.09	0.53
1:A:103:TYR:CE1	1:A:148:GLY:HA2	2.44	0.53
2:D:36:TYR:OH	2:D:40:SER:O	2.27	0.53
2:B:36:TYR:CE1	2:B:38:GLY:HA3	2.44	0.52
1:C:1:MET:HB3	1:C:130:THR:OG1	2.09	0.52
4:F:74:LYS:HD2	4:F:181:VAL:HG11	1.91	0.52
1:A:31:GLN:HG3	1:A:33:ASP:OD1	2.09	0.52
2:B:380:ARG:O	2:B:384:GLN:HG3	2.09	0.52
2:B:67:ASP:O	2:B:92:PHE:HA	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:9:ILE:HG13	3:E:10:GLU:HG3	1.92	0.52
2:B:272:PRO:HD2	2:B:361:LEU:HD13	1.92	0.52
2:D:64:ILE:HD12	2:D:119:VAL:CG1	2.40	0.52
2:B:145:SER:HG	2:B:188:SER:HG	1.52	0.52
2:D:101:TRP:CE3	2:D:187:LEU:HD13	2.44	0.52
1:A:71:GLU:HG2	1:A:72:PRO:N	2.23	0.52
2:B:350:LYS:HB2	10:B:505:G9K:C15	2.40	0.52
1:A:275:VAL:HG13	1:A:368:LEU:HD21	1.91	0.52
1:C:139:HIS:CD2	1:C:150:THR:HG21	2.45	0.52
1:C:166:LYS:HE2	1:C:197:HIS:O	2.10	0.52
2:D:306:ARG:NH2	2:D:337:ASN:OD1	2.43	0.52
4:F:259:GLY:O	4:F:261:GLU:HG3	2.10	0.52
2:B:190:HIS:CD2	2:B:411:ALA:HA	2.45	0.51
2:D:395:LEU:O	2:D:399:THR:HG22	2.10	0.51
2:B:203:ASP:HB3	2:B:301:ALA:HA	1.93	0.51
2:B:267:MET:CE	2:B:299:MET:HG3	2.39	0.51
1:A:214:ARG:HG2	1:A:219:ILE:O	2.09	0.51
4:F:102:PRO:HG3	4:F:178:GLN:O	2.10	0.51
1:C:43:GLY:HA2	1:C:56:THR:O	2.10	0.51
4:F:307:LEU:HD22	4:F:308:HIS:CE1	2.45	0.51
3:E:59:GLU:OE1	3:E:59:GLU:HA	2.11	0.51
4:F:138:ARG:NH1	4:F:144:GLY:O	2.44	0.51
2:D:30:ILE:HD13	2:D:59:TYR:HB2	1.92	0.51
2:D:206:ALA:O	2:D:210:ILE:HG13	2.10	0.51
4:F:148:ILE:HD13	4:F:162:ILE:CG1	2.40	0.51
1:C:97:GLU:HG3	2:D:2:ARG:NH1	2.25	0.51
1:A:192:HIS:CG	1:A:421:ALA:HA	2.47	0.50
2:D:1:MET:HB3	2:D:48:ASN:ND2	2.26	0.50
3:E:130:ALA:O	3:E:133:VAL:HG12	2.11	0.50
1:A:94:THR:HG22	1:A:95:GLY:N	2.27	0.50
2:B:31:ASP:OD1	2:B:33:THR:HG22	2.12	0.50
2:D:203:ASP:HB3	2:D:301:ALA:HA	1.93	0.50
2:D:31:ASP:CG	2:D:33:THR:HG22	2.32	0.50
3:E:56:ALA:HB1	3:E:60:ARG:HH12	1.76	0.50
4:F:16:GLU:OE1	4:F:19:ARG:HD2	2.12	0.50
1:A:210:TYR:CE1	1:A:222:PRO:HD2	2.47	0.50
1:A:287:SER:OG	1:A:290:GLU:HG3	2.11	0.50
2:D:211:CYS:HA	2:D:215:LEU:HD13	1.93	0.50
4:F:219:GLY:HA3	4:F:264:PHE:CZ	2.47	0.50
1:A:288:VAL:HG22	1:A:323:VAL:HG22	1.93	0.49
2:B:31:ASP:CG	2:B:33:THR:HG22	2.31	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:249:ASN:N	1:A:254:GLU:OE2	2.43	0.49
2:B:151:LEU:O	2:B:155:ILE:HG13	2.12	0.49
2:D:323:MET:SD	2:D:353:VAL:HG11	2.52	0.49
4:F:138:ARG:HB3	4:F:145:ASN:OD1	2.12	0.49
1:A:210:TYR:CZ	1:A:222:PRO:HD2	2.48	0.49
2:D:393:ALA:HB1	2:D:394:PHE:CD2	2.47	0.49
1:A:103:TYR:CD1	1:A:148:GLY:HA2	2.48	0.49
1:A:298:PRO:HA	1:A:301:GLN:HG3	1.95	0.48
4:F:20:LEU:O	4:F:24:THR:HG23	2.13	0.48
1:A:323:VAL:HG12	1:A:355:ILE:HD13	1.95	0.48
2:D:301:ALA:O	2:D:303:CYS:N	2.44	0.48
1:C:270:ALA:HB3	1:C:302:MET:HG3	1.95	0.48
2:D:310:TYR:CE1	2:D:367:PHE:HZ	2.31	0.48
2:D:64:ILE:HD12	2:D:119:VAL:HG12	1.95	0.48
3:E:125:GLU:OE2	3:E:128:LYS:HB3	2.12	0.48
4:F:191:LEU:HD12	4:F:191:LEU:N	2.28	0.48
4:F:202:ARG:NH1	12:F:501:HOH:O	2.41	0.48
1:A:34:GLY:O	1:A:61:HIS:N	2.40	0.48
2:B:68:LEU:HD12	2:B:97:ALA:HB2	1.96	0.48
2:D:285:THR:HG22	2:D:288:GLU:HB2	1.94	0.48
2:D:80:PRO:O	2:D:81:PHE:HB2	2.13	0.48
2:B:189:VAL:HG11	2:B:415:MET:HE2	1.94	0.48
2:D:392:LYS:HG3	2:D:395:LEU:HD12	1.96	0.48
1:A:72:PRO:CA	1:A:94:THR:CG2	2.90	0.48
1:A:241:SER:HB2	1:A:249:ASN:O	2.13	0.48
1:A:70:LEU:HD13	1:A:110:ILE:CG2	2.44	0.48
1:A:143:GLY:HA3	5:A:501:GTP:O3A	2.14	0.47
4:F:8:ASP:OD2	4:F:44:ARG:HG3	2.14	0.47
2:D:1:MET:CE	2:D:128:ASP:HB2	2.44	0.47
2:D:380:ARG:O	2:D:384:GLN:HG3	2.13	0.47
2:D:388:MET:HG2	2:D:391:ARG:NH2	2.21	0.47
3:E:130:ALA:HA	3:E:133:VAL:HG12	1.96	0.47
3:E:140:LYS:O	3:E:140:LYS:HG2	2.14	0.47
1:A:18:ASN:HD21	1:A:78:VAL:CG2	2.26	0.47
3:E:22:VAL:O	3:E:23:ILE:HD13	2.14	0.47
1:A:71:GLU:HG2	1:A:72:PRO:HD2	1.96	0.47
9:B:503:MES:H81	9:B:503:MES:H51	1.59	0.47
4:F:263:PHE:CZ	4:F:341:LYS:HD3	2.49	0.47
4:F:138:ARG:HB3	4:F:145:ASN:HD21	1.79	0.47
4:F:71:LEU:HD12	4:F:80:LEU:HD23	1.97	0.47
4:F:86:GLU:C	4:F:87:LEU:HD23	2.35	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:359:ARG:HA	2:B:359:ARG:HE	1.78	0.47
1:C:215:ARG:NH1	1:C:299:ALA:HB1	2.29	0.47
2:D:83:GLN:HB3	12:D:611:HOH:O	2.15	0.47
4:F:349:GLY:O	4:F:353:VAL:HG23	2.14	0.47
1:A:251:ASP:OD2	1:A:254:GLU:N	2.47	0.47
4:F:175:GLU:HG2	4:F:175:GLU:O	2.14	0.47
2:D:21:TRP:CZ3	2:D:61:PRO:HB3	2.50	0.47
2:B:308:GLY:HA2	2:B:426:GLN:NE2	2.23	0.47
2:B:28:HIS:O	2:B:30:ILE:HD12	2.14	0.47
3:E:63:TYR:O	3:E:67:GLU:HG2	2.15	0.47
4:F:165:GLU:HB2	4:F:168:GLU:HG3	1.95	0.47
2:D:72:THR:O	2:D:76:VAL:HG23	2.15	0.47
4:F:98:TYR:O	4:F:181:VAL:HG23	2.14	0.47
1:C:278:ALA:HA	1:C:369:ALA:HB2	1.97	0.46
1:C:27:GLU:OE1	1:C:236:SER:OG	2.27	0.46
4:F:191:LEU:HA	4:F:197:ARG:O	2.14	0.46
2:B:20:PHE:CZ	2:B:24:ILE:HD13	2.51	0.46
2:B:246:LEU:HD22	10:B:505:G9K:C11	2.45	0.46
1:C:282:TYR:O	1:C:283:HIS:HB2	2.14	0.46
1:C:320:ARG:HA	1:C:356:ASN:O	2.15	0.46
2:B:189:VAL:CB	2:B:415:MET:CE	2.94	0.46
1:C:292:THR:HG22	1:C:335:ILE:CD1	2.46	0.46
2:D:179:VAL:O	2:D:388:MET:HE1	2.15	0.46
4:F:128:ARG:HD2	4:F:128:ARG:N	2.30	0.46
2:D:107:THR:OG1	2:D:108:GLU:N	2.48	0.46
2:D:285:THR:HG22	2:D:288:GLU:CG	2.46	0.46
2:D:44:LEU:HA	2:D:47:ILE:HB	1.97	0.46
4:F:170:LEU:O	4:F:173:ILE:HG12	2.15	0.46
1:A:147:SER:HB2	1:A:190:THR:HB	1.97	0.46
2:B:31:ASP:HB2	2:B:32:PRO:CD	2.45	0.46
2:B:166:THR:OG1	2:B:199:THR:HB	2.16	0.46
4:F:232:ASN:OD1	4:F:232:ASN:N	2.48	0.46
4:F:96:GLU:O	4:F:183:GLN:HG3	2.16	0.46
2:B:12:CYS:SG	2:B:169:VAL:HG21	2.56	0.46
1:C:216:ASN:HB3	1:C:275:VAL:O	2.15	0.46
2:D:19:LYS:O	2:D:23:VAL:HG23	2.16	0.46
1:A:124:LYS:HE2	1:A:124:LYS:HB3	1.65	0.46
1:A:335:ILE:HG23	1:A:339:ARG:HG3	1.97	0.46
1:A:71:GLU:HG2	1:A:72:PRO:CD	2.46	0.46
2:B:169:VAL:HA	2:B:202:ILE:O	2.16	0.46
2:B:7:ILE:O	2:B:135:LEU:HA	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:189:PRO:O	4:F:191:LEU:HD12	2.15	0.46
1:C:265:ILE:N	1:C:265:ILE:HD12	2.31	0.45
4:F:161:LEU:HD12	4:F:161:LEU:N	2.31	0.45
2:B:391:ARG:HA	2:B:391:ARG:HD2	1.72	0.45
2:B:66:VAL:CG1	2:B:147:MET:CE	2.90	0.45
2:D:170:MET:HE3	2:D:377:LEU:HD11	1.97	0.45
4:F:149:ALA:HB3	4:F:161:LEU:HB3	1.99	0.45
2:B:311:LEU:HD23	2:B:342:VAL:HG11	1.96	0.45
1:C:252:LEU:O	1:C:256:GLN:HG3	2.16	0.45
2:D:271:ALA:HB2	2:D:298:ASN:ND2	2.32	0.45
2:D:36:TYR:CD2	2:D:44:LEU:HD11	2.51	0.45
4:F:223:THR:O	4:F:260:ASN:HB3	2.17	0.45
1:A:43:GLY:HA2	1:A:56:THR:O	2.16	0.45
2:B:31:ASP:HB2	2:B:32:PRO:HD2	1.99	0.45
4:F:189:PRO:HA	4:F:322:ASP:HA	1.97	0.45
1:A:139:HIS:CD2	1:A:150:THR:HG21	2.51	0.45
1:A:2:ARG:O	1:A:51:THR:HG23	2.16	0.45
1:C:192:HIS:CG	1:C:421:ALA:HA	2.51	0.45
1:C:63:PRO:HG2	1:C:87:PHE:CE1	2.51	0.45
2:D:170:MET:HE2	2:D:377:LEU:HD11	1.98	0.45
4:F:191:LEU:HD22	4:F:196:HIS:CD2	2.52	0.45
2:B:21:TRP:CE3	2:B:61:PRO:HB3	2.52	0.45
2:D:63:ALA:C	2:D:64:ILE:HD13	2.37	0.45
4:F:148:ILE:HG13	4:F:149:ALA:N	2.32	0.45
4:F:1:MET:HB3	4:F:1:MET:HE2	1.85	0.45
1:A:411:GLU:O	3:E:61:ARG:NH1	2.44	0.45
1:C:90:GLU:O	1:C:121:ARG:HD2	2.16	0.45
2:D:31:ASP:HB2	2:D:32:PRO:CD	2.45	0.45
4:F:229:ASN:ND2	4:F:232:ASN:OD1	2.50	0.45
1:A:265:ILE:HG21	1:A:313:MET:HE1	1.98	0.45
2:B:190:HIS:HD2	2:B:411:ALA:HA	1.82	0.45
2:D:251:ARG:CG	2:D:251:ARG:HH11	2.28	0.45
2:D:203:ASP:OD1	2:D:377:LEU:HD23	2.17	0.45
4:F:130:VAL:O	4:F:130:VAL:HG12	2.16	0.45
4:F:146:VAL:HG11	4:F:233:PHE:CE1	2.52	0.45
2:B:394:PHE:CD1	1:C:261:PRO:HA	2.52	0.45
2:D:286:VAL:HB	2:D:287:PRO:HD3	1.98	0.45
2:D:305:PRO:HB3	2:D:310:TYR:OH	2.17	0.45
4:F:93:TRP:HZ3	4:F:329:LEU:CD2	2.29	0.45
2:B:227:HIS:HB2	2:B:276:ARG:HG3	1.98	0.44
2:B:285:THR:O	2:B:288:GLU:N	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:172:TYR:HB3	1:C:205:ASP:HA	1.99	0.44
2:D:105:HIS:O	2:D:150:LEU:HD22	2.16	0.44
2:D:215:LEU:N	2:D:215:LEU:HD12	2.32	0.44
2:D:288:GLU:O	2:D:292:GLN:HG3	2.17	0.44
2:B:152:ILE:HG23	2:B:164:MET:HG2	1.99	0.44
1:C:68:VAL:HG11	1:C:118:VAL:HG21	1.99	0.44
1:C:210:TYR:CZ	1:C:222:PRO:HD2	2.53	0.44
1:C:70:LEU:HD13	1:C:110:ILE:CG2	2.48	0.44
2:D:5:VAL:HB	2:D:133:PHE:CD1	2.52	0.44
1:A:187:SER:CB	1:A:391:LEU:HD21	2.48	0.44
1:A:63:PRO:HD3	1:A:86:LEU:HG	2.00	0.44
4:F:31:ARG:HG3	4:F:32:LYS:N	2.32	0.44
4:F:87:LEU:N	4:F:87:LEU:HD23	2.31	0.44
3:E:9:ILE:CG1	3:E:21:GLU:HB3	2.43	0.44
1:A:195:LEU:HD12	1:A:266:HIS:CE1	2.53	0.44
2:D:8:GLN:OE1	2:D:14:ASN:HA	2.17	0.44
3:E:139:LEU:HG	3:E:139:LEU:O	2.18	0.44
4:F:216:TYR:CZ	4:F:218:GLU:HB2	2.52	0.44
2:D:112:LEU:HG	2:D:112:LEU:O	2.18	0.44
2:D:141:GLY:HA3	8:D:501:GDP:O5'	2.18	0.44
2:D:4:ILE:O	2:D:62:ARG:HD2	2.18	0.44
4:F:253:TYR:CZ	4:F:259:GLY:HA2	2.53	0.44
2:D:350:LYS:HB2	10:D:502:G9K:C15	2.48	0.43
1:C:343:PHE:CG	1:C:349:THR:HG22	2.53	0.43
1:C:108:TYR:OH	3:E:104:LYS:HD2	2.18	0.43
1:A:2:ARG:HB2	1:A:133:GLN:HE21	1.83	0.43
2:D:41:ASP:N	2:D:41:ASP:OD1	2.40	0.43
2:D:343:GLU:HG3	2:D:430:ALA:HB2	2.00	0.43
4:F:253:TYR:CE2	4:F:259:GLY:HA2	2.54	0.43
1:A:402:ARG:NH1	1:A:402:ARG:HG3	2.33	0.43
2:D:248:ALA:HA	10:D:502:G9K:O4	2.18	0.43
2:D:201:CYS:SG	2:D:265:PHE:HB3	2.58	0.43
2:D:267:MET:CE	2:D:299:MET:HG3	2.48	0.43
4:F:100:ILE:HG23	4:F:128:ARG:N	2.33	0.43
1:A:401:LYS:HG3	2:B:344:TRP:CE3	2.53	0.43
1:C:151:SER:O	1:C:155:GLU:HG3	2.18	0.43
2:D:267:MET:SD	2:D:303:CYS:HB2	2.57	0.43
4:F:138:ARG:CB	4:F:145:ASN:OD1	2.67	0.43
1:A:31:GLN:HG2	1:A:35:GLN:O	2.18	0.43
1:A:90:GLU:O	1:A:121:ARG:HD2	2.18	0.43
2:D:404:ASP:OD1	2:D:405:GLU:N	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:213:CYS:O	1:A:217:LEU:HB2	2.19	0.43
1:A:7:ILE:HG23	1:A:66:VAL:CG1	2.49	0.43
2:B:233:MET:HE2	2:B:233:MET:HB3	1.87	0.43
4:F:138:ARG:HG3	4:F:145:ASN:OD1	2.18	0.43
2:D:246:LEU:HD13	2:D:248:ALA:HB2	1.99	0.42
1:A:336:LYS:HG2	3:E:24:LEU:HD13	2.01	0.42
4:F:101:TYR:CE2	4:F:179:VAL:HG23	2.54	0.42
4:F:135:TYR:CE1	4:F:145:ASN:HB3	2.54	0.42
4:F:190:LEU:HB2	4:F:322:ASP:O	2.19	0.42
2:B:395:LEU:HA	2:B:395:LEU:HD12	1.66	0.42
2:D:189:VAL:HG11	2:D:415:MET:HG3	2.02	0.42
2:D:77:ARG:HG2	2:D:83:GLN:OE1	2.19	0.42
2:D:402:GLY:HA2	3:E:136:ASN:HB3	2.01	0.42
3:E:47:LEU:HD12	3:E:47:LEU:O	2.19	0.42
4:F:226:GLU:HB2	4:F:238:CYS:HB3	2.01	0.42
1:C:176:GLN:HE22	1:C:207:GLU:HG3	1.83	0.42
4:F:278:THR:O	4:F:282:SER:OG	2.35	0.42
4:F:286:GLN:O	4:F:290:ILE:HG13	2.19	0.42
1:C:241:SER:HA	1:C:249:ASN:OD1	2.20	0.42
1:C:21:TRP:CE3	1:C:63:PRO:HB3	2.54	0.42
4:F:135:TYR:HE1	4:F:145:ASN:HB3	1.84	0.42
4:F:200:ASP:O	4:F:221:LEU:HA	2.19	0.42
4:F:330:ILE:HA	4:F:330:ILE:HD13	1.79	0.42
4:F:185:TYR:HA	11:F:401:ACP:N1	2.34	0.42
2:B:301:ALA:O	2:B:303:CYS:N	2.52	0.42
2:B:179:VAL:HG22	1:C:258:ASN:OD1	2.19	0.42
2:D:143:THR:HB	8:D:501:GDP:O1B	2.19	0.42
2:D:152:ILE:HG23	2:D:164:MET:HG2	2.00	0.42
2:D:362:LYS:HB3	2:D:362:LYS:HE2	1.88	0.42
2:B:177:ASP:O	2:B:178:THR:HG23	2.20	0.42
2:B:359:ARG:HA	2:B:359:ARG:NE	2.35	0.42
3:E:131:GLU:OE1	3:E:131:GLU:HA	2.20	0.42
1:A:47:ASP:O	1:A:50:ASN:HB2	2.20	0.42
1:C:88:HIS:NE2	1:C:90:GLU:HG3	2.34	0.42
4:F:202:ARG:HA	4:F:317:PHE:O	2.20	0.42
1:A:27:GLU:OE2	1:A:243:ARG:NH2	2.52	0.42
2:B:404:ASP:OD1	2:B:405:GLU:N	2.53	0.42
2:D:22:GLU:HG2	2:D:81:PHE:CD1	2.55	0.42
2:D:31:ASP:OD1	2:D:33:THR:HG22	2.19	0.42
1:A:107:HIS:O	1:A:152:LEU:HD22	2.20	0.41
1:C:174:ALA:HB2	1:C:207:GLU:N	2.34	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:70:LEU:HD13	1:A:110:ILE:HG21	2.02	0.41
2:D:31:ASP:HB2	2:D:32:PRO:HD2	2.02	0.41
2:D:68:LEU:HA	2:D:68:LEU:HD23	1.94	0.41
1:A:134:GLY:HA3	1:A:165:SER:O	2.21	0.41
1:C:55:GLU:HA	1:C:60:LYS:O	2.20	0.41
1:C:88:HIS:CD2	1:C:90:GLU:H	2.38	0.41
4:F:93:TRP:HZ3	4:F:329:LEU:HD23	1.85	0.41
1:A:301:GLN:HE22	1:A:307:PRO:HG2	1.86	0.41
1:A:385:ALA:HB2	1:A:432:TYR:CG	2.56	0.41
4:F:225:SER:HB2	4:F:252:ASN:HB3	2.01	0.41
2:D:31:ASP:OD1	2:D:33:THR:CG2	2.68	0.41
1:C:176:GLN:NE2	1:C:207:GLU:HG3	2.35	0.41
2:D:139:LEU:CA	2:D:145:SER:HB3	2.46	0.41
1:C:159:VAL:HA	3:E:94:ILE:HG23	2.02	0.41
2:D:203:ASP:CB	2:D:301:ALA:HA	2.50	0.41
9:B:502:MES:H82	9:B:502:MES:H51	1.90	0.41
1:C:124:LYS:HD3	1:C:124:LYS:HA	1.82	0.41
1:A:357:TYR:CD2	3:E:17:GLY:HA2	2.55	0.41
4:F:58:LEU:HA	4:F:58:LEU:HD23	1.93	0.41
1:A:112:LYS:O	1:A:112:LYS:HG2	2.21	0.41
1:A:165:SER:OG	1:A:256:GLN:OE1	2.29	0.41
2:B:16:ILE:HD11	2:B:136:THR:HB	2.03	0.41
2:B:309:ARG:NH2	2:B:342:VAL:HA	2.35	0.41
1:C:305:CYS:HA	1:C:386:GLU:OE2	2.21	0.41
2:D:295:ASP:OD1	2:D:296:SER:N	2.54	0.41
4:F:246:GLN:OE1	4:F:260:ASN:ND2	2.54	0.41
4:F:298:ILE:HD12	4:F:302:ILE:HD13	2.03	0.41
2:B:101:TRP:CE3	2:B:187:LEU:HD13	2.55	0.40
2:B:307:HIS:ND1	2:B:376:GLU:OE1	2.49	0.40
2:B:379:LYS:O	2:B:383:GLU:HG3	2.20	0.40
4:F:131:PHE:CZ	4:F:182:ILE:CD1	3.03	0.40
2:B:237:THR:HG22	2:B:237:THR:O	2.21	0.40
3:E:120:LEU:O	3:E:124:GLN:HG3	2.22	0.40
2:B:66:VAL:HG11	2:B:147:MET:CE	2.51	0.40
1:C:141:PHE:CE2	1:C:170:SER:HB3	2.57	0.40
1:C:323:VAL:HG12	1:C:355:ILE:HD13	2.04	0.40
1:C:4:CYS:HB3	1:C:136:LEU:CD1	2.51	0.40
4:F:207:VAL:HA	4:F:212:ASN:O	2.22	0.40
2:B:2:ARG:HB3	2:B:131:GLN:CG	2.51	0.40
3:E:22:VAL:C	3:E:23:ILE:HD13	2.42	0.40
4:F:47:LEU:C	4:F:47:LEU:HD23	2.42	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:398:MET:CE	1:A:404:PHE:CD2	3.05	0.40
1:A:71:GLU:OE1	1:A:73:THR:HB	2.21	0.40
1:A:221:ARG:NH1	2:B:323:MET:CE	2.85	0.40
4:F:135:TYR:HE2	4:F:166:ALA:H	1.70	0.40

All (2) 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)
2:B:401:GLU:OE1	1:C:282:TYR:OH[4_545]	1.99	0.21
1:C:285:GLN:NE2	3:E:91:ASN:OD1[4_445]	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	435/450 (97%)	427 (98%)	8 (2%)	0	100	100
1	C	438/450 (97%)	426 (97%)	11 (2%)	1 (0%)	47	75
2	B	425/445 (96%)	414 (97%)	10 (2%)	1 (0%)	47	75
2	D	417/445 (94%)	407 (98%)	10 (2%)	0	100	100
3	E	117/143 (82%)	114 (97%)	3 (3%)	0	100	100
4	F	322/384 (84%)	301 (94%)	20 (6%)	1 (0%)	41	68
All	All	2154/2317 (93%)	2089 (97%)	62 (3%)	3 (0%)	51	79

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	218	ASP
4	F	255	ARG
2	B	175	VAL

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	366/378 (97%)	362 (99%)	4 (1%)	73	90
1	C	370/378 (98%)	368 (100%)	2 (0%)	88	96
2	B	367/383 (96%)	361 (98%)	6 (2%)	62	84
2	D	362/383 (94%)	349 (96%)	13 (4%)	35	66
3	E	109/127 (86%)	108 (99%)	1 (1%)	78	92
4	F	295/342 (86%)	283 (96%)	12 (4%)	30	61
All	All	1869/1991 (94%)	1831 (98%)	38 (2%)	55	80

All (38) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	41	THR
1	A	48	SER
1	A	68	VAL
1	A	71	GLU
2	B	15	GLN
2	B	115	SER
2	B	137	HIS
2	B	190	HIS
2	B	339	SER
2	B	395	LEU
1	C	71	GLU
1	C	251	ASP
2	D	15	GLN
2	D	73	MET
2	D	136	THR
2	D	137	HIS
2	D	246	LEU
2	D	247	ASN
2	D	321	MET
2	D	328	GLU
2	D	339	SER
2	D	356	ILE

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Mol	Chain	Res	Type
2	D	392	LYS
2	D	406	MET
2	D	413	SER
3	E	15	THR
4	F	12	SER
4	F	19	ARG
4	F	31	ARG
4	F	69	ASP
4	F	89	GLU
4	F	128	ARG
4	F	135	TYR
4	F	175	GLU
4	F	197	ARG
4	F	257	GLU
4	F	307	LEU
4	F	333	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	18	ASN
1	A	301	GLN
2	B	423	GLN
2	B	426	GLN
2	D	298	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 carbohydrates in this entry.

5.6 Ligand geometry

Of 14 ligands modelled in this entry, 5 are monoatomic - leaving 9 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
8	GDP	D	501	-	24,30,30	1.17	2 (8%)	31,47,47	1.87	7 (22%)
5	GTP	A	501	7	26,34,34	1.08	2 (7%)	33,54,54	1.68	6 (18%)
5	GTP	C	501	7	26,34,34	0.99	1 (3%)	33,54,54	1.83	9 (27%)
8	GDP	B	501	7	24,30,30	1.16	2 (8%)	31,47,47	1.66	7 (22%)
11	ACP	F	401	-	27,33,33	4.65	9 (33%)	32,52,52	2.43	6 (18%)
9	MES	B	503	-	12,12,12	2.20	1 (8%)	14,16,16	1.93	5 (35%)
9	MES	B	502	-	12,12,12	2.18	1 (8%)	14,16,16	2.12	5 (35%)
10	G9K	B	505	-	31,32,32	0.82	1 (3%)	34,46,46	1.08	3 (8%)
10	G9K	D	502	-	31,32,32	0.83	1 (3%)	34,46,46	1.01	2 (5%)

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
8	GDP	D	501	-	-	3/12/32/32	0/3/3/3
5	GTP	A	501	7	-	6/18/38/38	0/3/3/3
5	GTP	C	501	7	-	7/18/38/38	0/3/3/3
8	GDP	B	501	7	-	3/12/32/32	0/3/3/3
11	ACP	F	401	-	-	6/15/38/38	0/3/3/3
9	MES	B	503	-	-	1/6/14/14	0/1/1/1
9	MES	B	502	-	-	5/6/14/14	0/1/1/1
10	G9K	B	505	-	-	0/6/21/21	0/5/5/5
10	G9K	D	502	-	-	0/6/21/21	0/5/5/5

All (20) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	F	401	ACP	C2'-C1'	-15.49	1.30	1.53
11	F	401	ACP	O4'-C1'	14.51	1.61	1.41
9	B	503	MES	C8-S	-7.30	1.67	1.77
9	B	502	MES	C8-S	-7.26	1.67	1.77
11	F	401	ACP	O4'-C4'	-6.22	1.31	1.45
11	F	401	ACP	PB-O3A	5.55	1.64	1.58
8	D	501	GDP	C6-C5	3.96	1.48	1.41
8	B	501	GDP	C6-C5	3.56	1.47	1.41
5	C	501	GTP	C6-N1	3.30	1.38	1.33
11	F	401	ACP	O2'-C2'	3.11	1.50	1.43
5	A	501	GTP	C6-N1	3.04	1.38	1.33
11	F	401	ACP	C6-N6	3.00	1.45	1.34
10	D	502	G9K	C6-C5	2.99	1.41	1.32
10	B	505	G9K	C6-C5	2.94	1.41	1.32
11	F	401	ACP	C5-C4	-2.81	1.33	1.40
11	F	401	ACP	O3'-C3'	-2.70	1.36	1.43
8	B	501	GDP	C5-C4	2.41	1.47	1.40
8	D	501	GDP	C5-C4	2.35	1.47	1.40
5	A	501	GTP	C2-N1	2.19	1.39	1.35
11	F	401	ACP	C2-N3	2.04	1.35	1.32

All (50) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	F	401	ACP	C5-C6-N6	7.92	132.39	120.35
11	F	401	ACP	N3-C2-N1	-5.48	120.12	128.68
11	F	401	ACP	C3'-C2'-C1'	5.35	109.03	100.98
5	A	501	GTP	N3-C2-N1	-5.18	120.31	127.22
11	F	401	ACP	N6-C6-N1	-5.01	108.18	118.57
5	C	501	GTP	N3-C2-N1	-4.82	120.79	127.22
8	D	501	GDP	C2-N3-C4	4.76	120.79	115.36
8	B	501	GDP	C2-N3-C4	4.31	120.28	115.36
9	B	503	MES	C5-N4-C3	4.16	118.20	108.83
5	C	501	GTP	C5-C6-N1	-3.92	118.06	123.43
9	B	502	MES	C5-N4-C3	3.92	117.66	108.83
5	C	501	GTP	C2-N3-C4	3.90	119.81	115.36
5	A	501	GTP	C2-N3-C4	3.88	119.78	115.36
8	D	501	GDP	C6-N1-C2	3.80	121.97	115.93
11	F	401	ACP	PA-O3A-PB	-3.74	120.69	132.56
8	D	501	GDP	C5-C6-N1	-3.70	118.37	123.43
8	B	501	GDP	C5-C6-N1	-3.63	118.47	123.43
9	B	502	MES	C6-C5-N4	-3.60	104.64	110.10
8	D	501	GDP	C6-C5-C4	-3.57	117.39	120.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	B	501	GDP	C6-N1-C2	3.37	121.29	115.93
8	D	501	GDP	O3B-PB-O3A	3.33	115.79	104.64
5	C	501	GTP	N2-C2-N1	3.29	122.37	117.25
9	B	502	MES	O3S-S-C8	3.28	111.07	105.77
5	A	501	GTP	C5-C6-N1	-3.21	119.04	123.43
8	D	501	GDP	N3-C2-N1	-3.17	123.00	127.22
9	B	502	MES	O1S-S-C8	3.03	110.56	106.92
5	C	501	GTP	C4-C5-N7	-2.97	106.31	109.40
8	B	501	GDP	C6-C5-C4	-2.96	117.97	120.80
5	C	501	GTP	PB-O3B-PG	-2.81	123.19	132.83
5	C	501	GTP	C6-N1-C2	2.75	120.30	115.93
8	B	501	GDP	N3-C2-N1	-2.68	123.64	127.22
9	B	503	MES	O2S-S-C8	2.64	110.10	106.92
10	B	505	G9K	C13-C12-N3	2.63	127.03	123.67
10	D	502	G9K	O2-C4-C7	2.59	118.79	115.80
8	D	501	GDP	C4-C5-N7	-2.56	106.73	109.40
5	A	501	GTP	C6-N1-C2	2.53	119.94	115.93
10	D	502	G9K	O3-C3-C2	2.52	118.97	116.31
9	B	502	MES	C7-N4-C5	2.42	117.43	111.23
9	B	503	MES	C6-C5-N4	-2.40	106.46	110.10
10	B	505	G9K	O3-C3-C2	2.40	118.85	116.31
8	B	501	GDP	C4-C5-N7	-2.39	106.91	109.40
5	A	501	GTP	PA-O3A-PB	-2.34	124.80	132.83
10	B	505	G9K	O2-C4-C7	2.33	118.49	115.80
9	B	503	MES	C7-N4-C5	2.28	117.07	111.23
9	B	503	MES	O1S-S-C8	2.27	109.65	106.92
8	B	501	GDP	PA-O3A-PB	-2.14	125.47	132.83
11	F	401	ACP	C5'-C4'-C3'	-2.12	107.25	115.18
5	C	501	GTP	O3G-PG-O3B	2.09	111.66	104.64
5	A	501	GTP	O2G-PG-O3B	2.08	111.61	104.64
5	C	501	GTP	O3'-C3'-C4'	-2.04	105.15	111.05

There are no chirality outliers.

All (31) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	D	501	GDP	C5'-O5'-PA-O2A
5	A	501	GTP	PB-O3B-PG-O2G
5	A	501	GTP	C5'-O5'-PA-O1A
5	A	501	GTP	C5'-O5'-PA-O2A
5	C	501	GTP	PB-O3B-PG-O3G
5	C	501	GTP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
5	C	501	GTP	C5'-O5'-PA-O2A
8	B	501	GDP	C5'-O5'-PA-O1A
8	B	501	GDP	C5'-O5'-PA-O2A
11	F	401	ACP	C5'-O5'-PA-O1A
11	F	401	ACP	C5'-O5'-PA-O2A
9	B	503	MES	C8-C7-N4-C5
9	B	502	MES	C8-C7-N4-C5
9	B	502	MES	C7-C8-S-O1S
9	B	502	MES	C7-C8-S-O2S
9	B	502	MES	C7-C8-S-O3S
11	F	401	ACP	O4'-C4'-C5'-O5'
11	F	401	ACP	C3'-C4'-C5'-O5'
11	F	401	ACP	C4'-C5'-O5'-PA
5	A	501	GTP	C5'-O5'-PA-O3A
8	B	501	GDP	C5'-O5'-PA-O3A
8	D	501	GDP	C5'-O5'-PA-O1A
5	A	501	GTP	C3'-C4'-C5'-O5'
9	B	502	MES	C8-C7-N4-C3
5	A	501	GTP	PB-O3B-PG-O1G
5	C	501	GTP	PB-O3B-PG-O1G
5	C	501	GTP	C4'-C5'-O5'-PA
8	D	501	GDP	C5'-O5'-PA-O3A
5	C	501	GTP	C5'-O5'-PA-O3A
11	F	401	ACP	C5'-O5'-PA-O3A
5	C	501	GTP	PB-O3A-PA-O2A

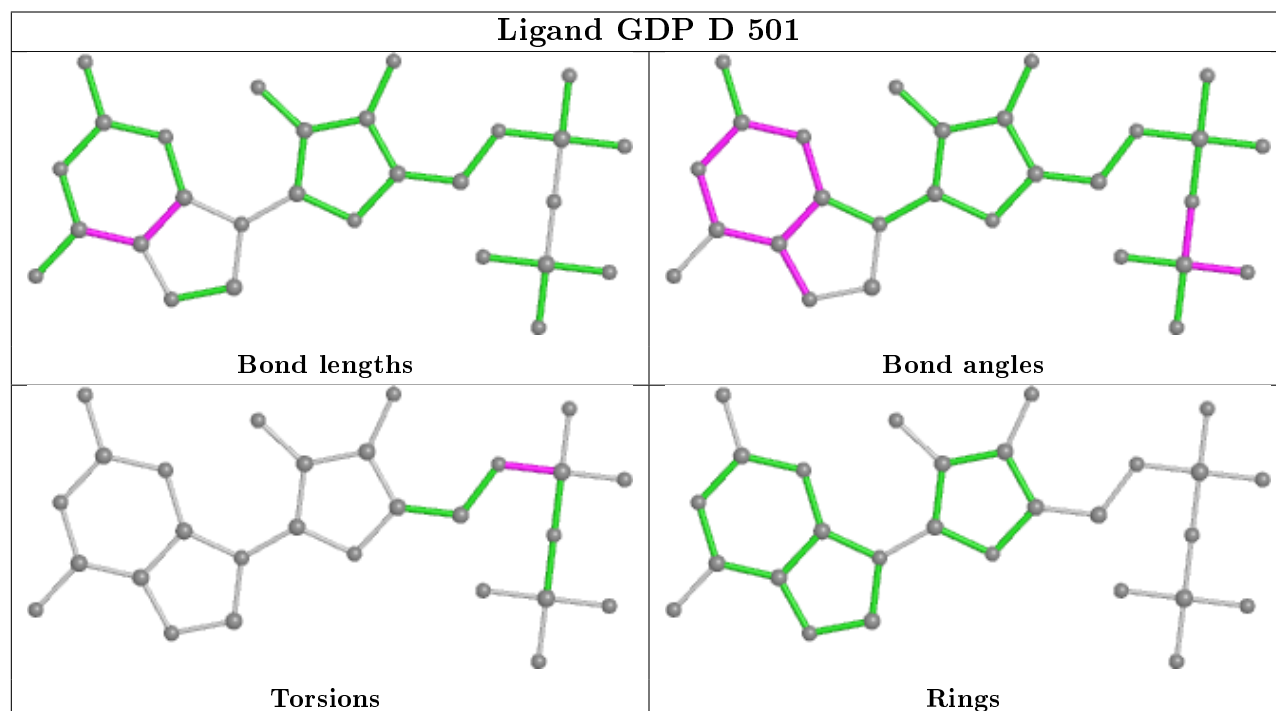
There are no ring outliers.

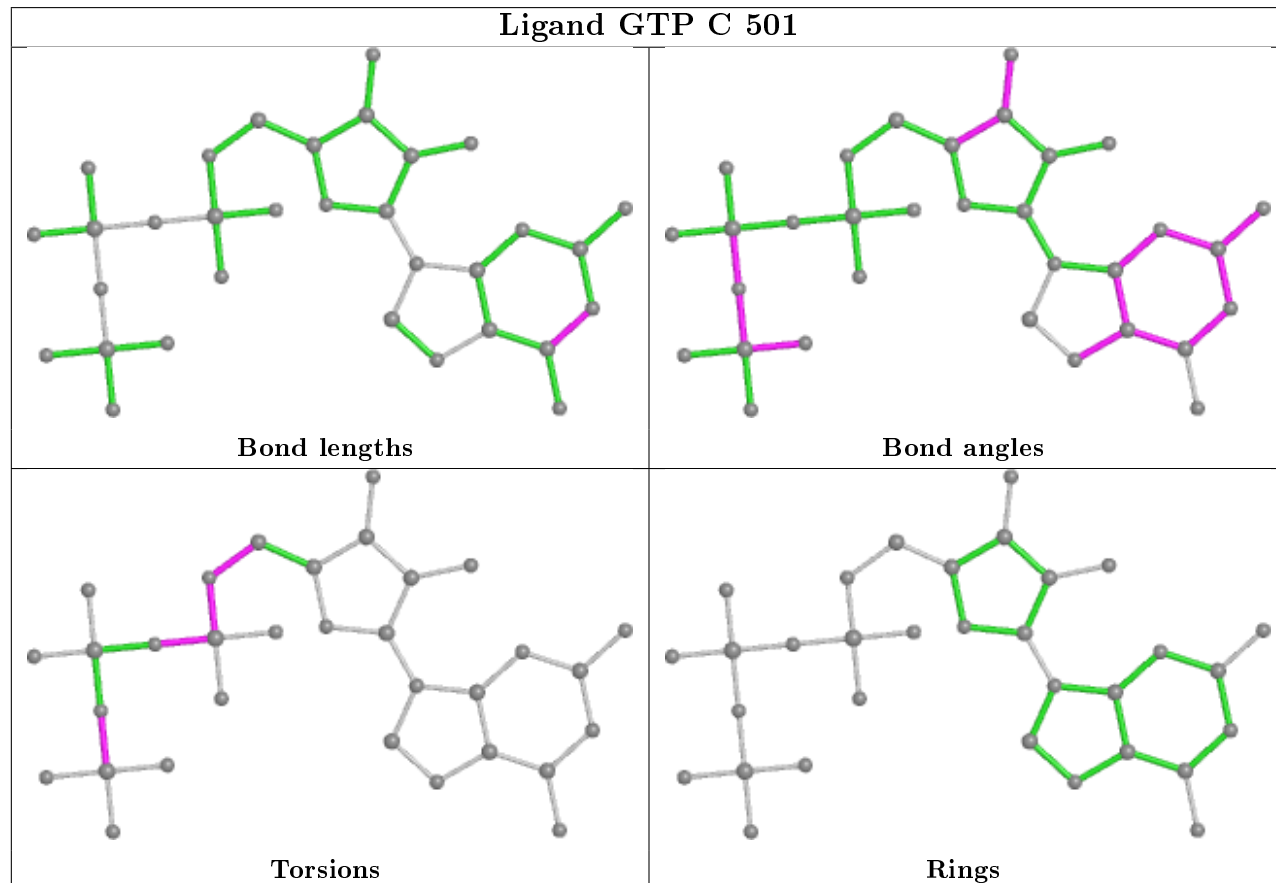
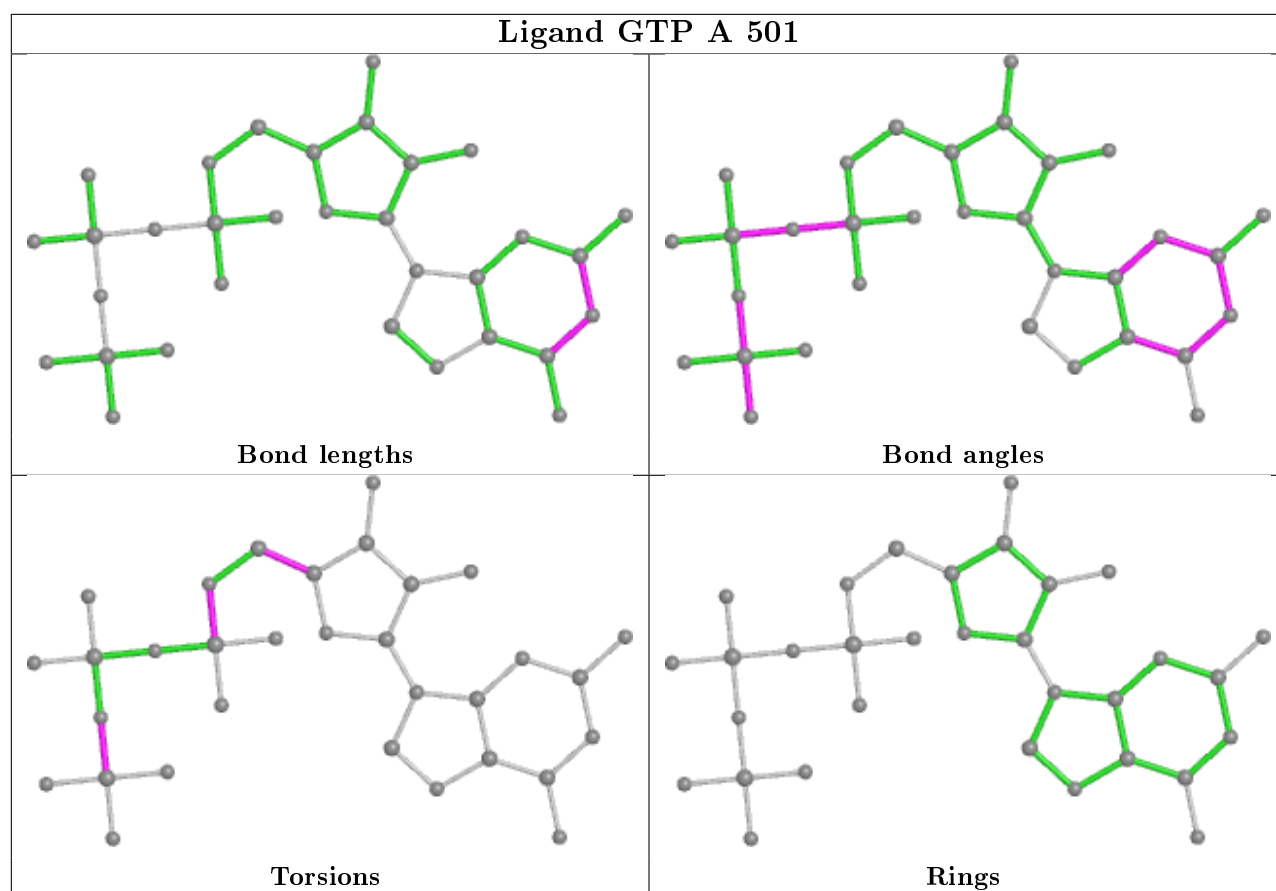
7 monomers are involved in 16 short contacts:

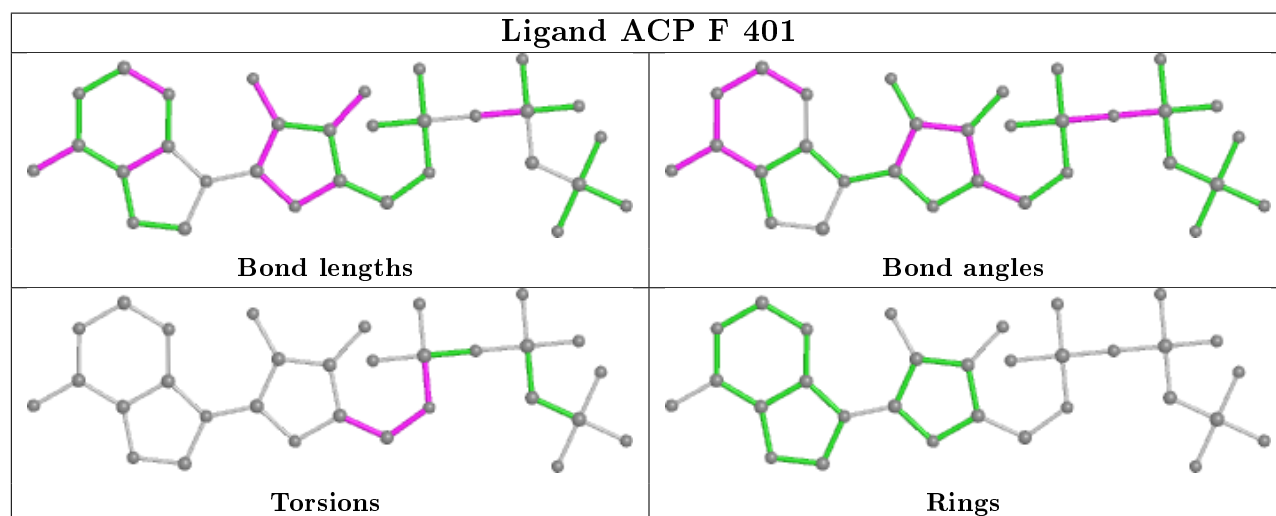
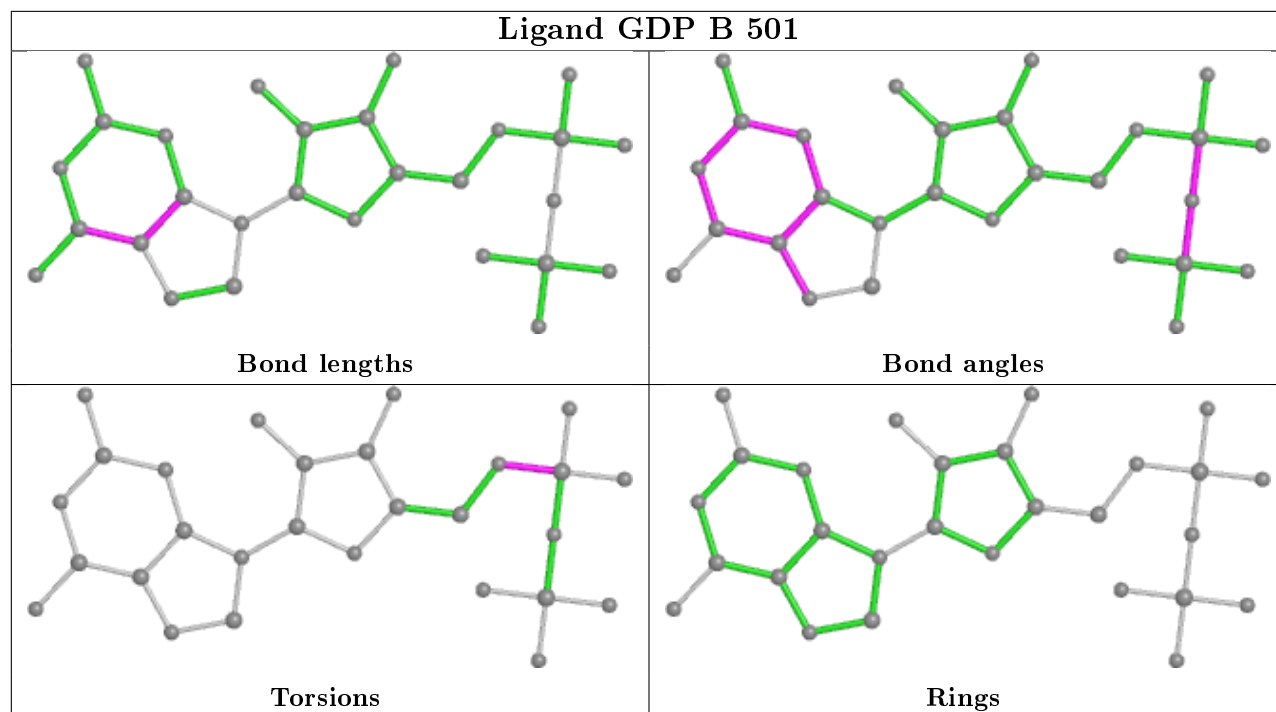
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	D	501	GDP	3	0
5	A	501	GTP	1	0
11	F	401	ACP	4	0
9	B	503	MES	1	0
9	B	502	MES	2	0
10	B	505	G9K	3	0
10	D	502	G9K	2	0

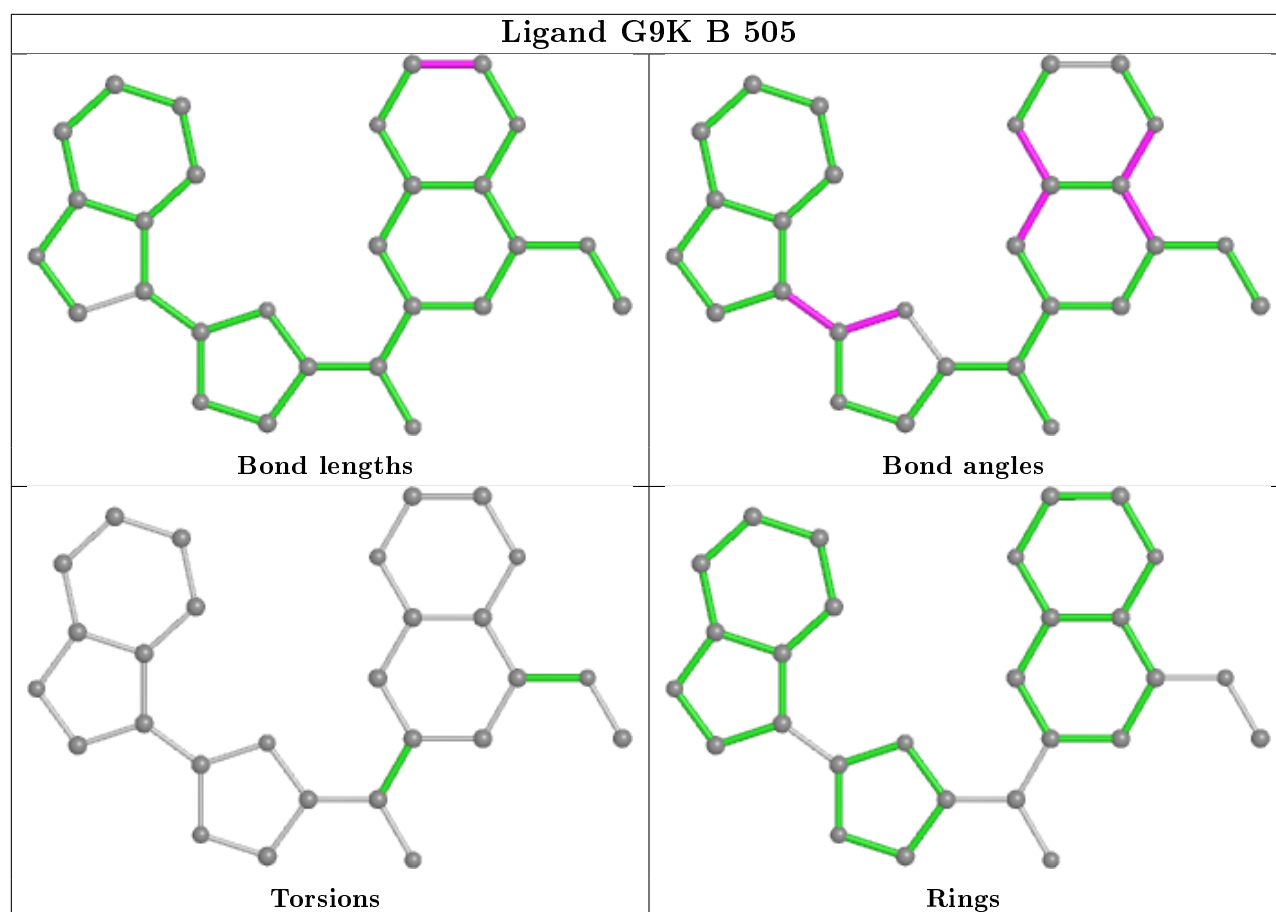
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is

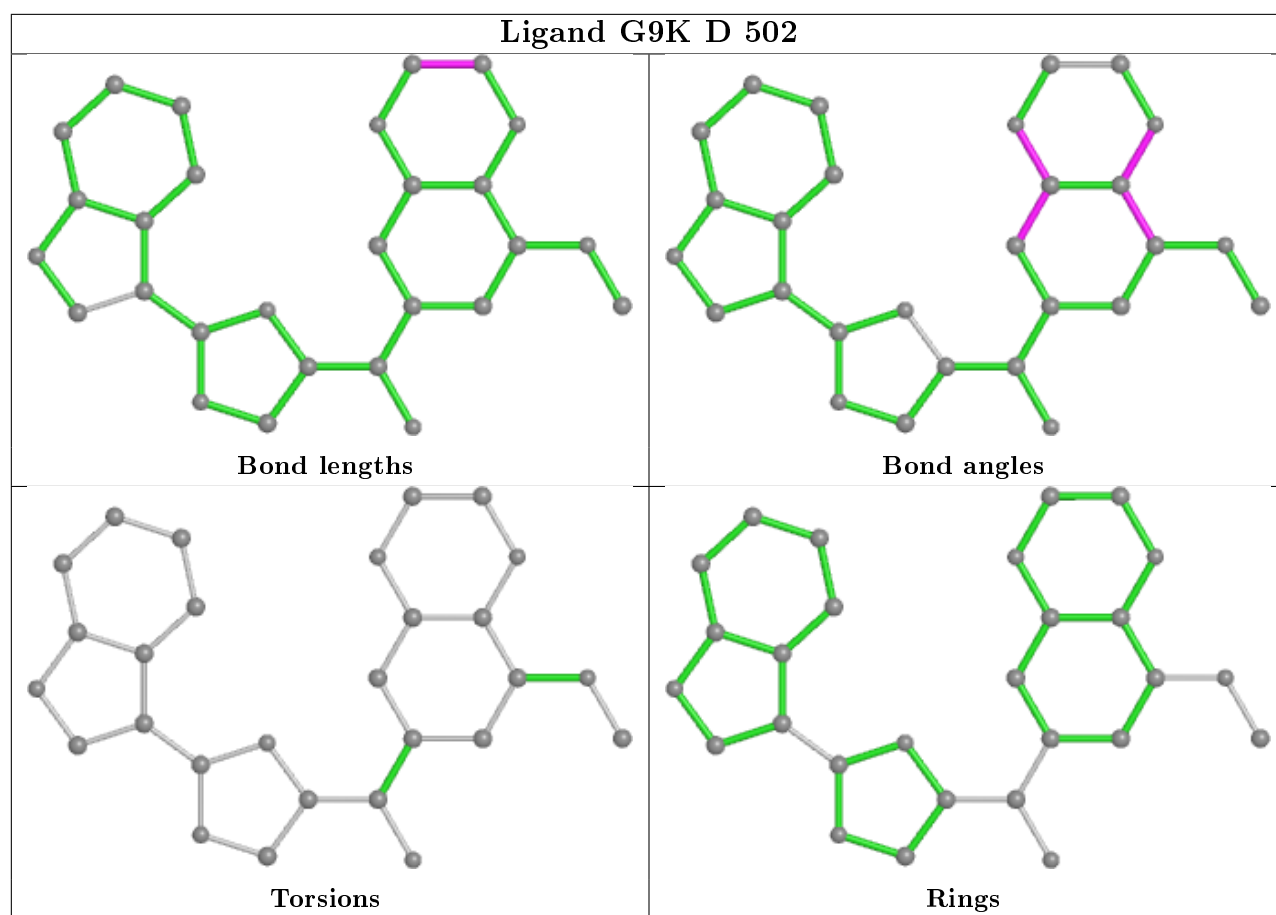
within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question 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.











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	437/450 (97%)	-0.31	1 (0%)	95 95	29, 49, 79, 142	0
1	C	440/450 (97%)	-0.44	1 (0%)	95 95	21, 36, 63, 93	0
2	B	427/445 (95%)	-0.30	6 (1%)	75 74	21, 44, 84, 147	0
2	D	421/445 (94%)	0.15	24 (5%)	23 19	35, 69, 115, 152	0
3	E	121/143 (84%)	0.03	3 (2%)	57 54	30, 63, 100, 122	0
4	F	332/384 (86%)	0.52	44 (13%)	3 2	39, 81, 146, 179	0
All	All	2178/2317 (94%)	-0.10	79 (3%)	42 37	21, 53, 112, 179	0

All (79) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	F	233	PHE	7.4
4	F	173	ILE	7.3
4	F	133	ALA	7.1
4	F	136	ASN	7.0
2	D	37	HIS	4.9
4	F	244	CYS	4.7
4	F	234	GLN	4.5
2	D	55	THR	4.4
4	F	167	SER	4.1
2	D	94	GLN	3.9
4	F	130	VAL	3.8
4	F	163	SER	3.7
4	F	101	TYR	3.6
3	E	28	SER	3.6
4	F	231	ALA	3.4
4	F	134	ALA	3.4
4	F	194	PRO	3.4
4	F	242	ASN	3.3
2	D	39	ASP	3.3

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Mol	Chain	Res	Type	RSRZ
2	B	54	ALA	3.3
4	F	140	GLU	3.2
4	F	256	TYR	3.2
4	F	162	ILE	3.1
4	F	137	ARG	3.0
4	F	232	ASN	3.0
4	F	166	ALA	3.0
2	D	389	PHE	3.0
4	F	197	ARG	2.9
4	F	174	ASP	2.8
2	D	180	VAL	2.8
3	E	27	PRO	2.8
2	B	279	GLN	2.8
2	D	92	PHE	2.7
4	F	175	GLU	2.7
4	F	225	SER	2.7
4	F	259	GLY	2.7
2	D	1	MET	2.6
4	F	224	SER	2.6
4	F	191	LEU	2.6
2	D	397	TRP	2.6
2	D	54	ALA	2.6
2	D	387	ALA	2.5
4	F	372	THR	2.5
4	F	170	LEU	2.5
4	F	182	ILE	2.5
4	F	103	THR	2.5
2	D	176	SER	2.5
1	C	1	MET	2.5
2	D	396	HIS	2.5
4	F	169	LEU	2.5
2	D	58	LYS	2.4
4	F	180	HIS	2.4
4	F	176	GLN	2.4
2	B	37	HIS	2.4
2	D	390	ARG	2.4
2	D	398	TYR	2.4
4	F	361	LEU	2.4
4	F	178	GLN	2.3
4	F	229	ASN	2.3
2	D	95	SER	2.3
4	F	196	HIS	2.2

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Mol	Chain	Res	Type	RSRZ
2	B	36	TYR	2.2
2	D	53	GLU	2.2
2	B	55	THR	2.2
4	F	142	ARG	2.2
3	E	106	GLU	2.2
2	D	394	PHE	2.1
2	D	172	SER	2.1
2	D	219	THR	2.1
4	F	139	ARG	2.1
1	A	345	ASP	2.1
2	D	360	GLY	2.1
2	D	175	VAL	2.1
2	D	391	ARG	2.1
2	B	59	TYR	2.0
4	F	226	GLU	2.0
4	F	239	HIS	2.0
4	F	164	SER	2.0
4	F	362	ALA	2.0

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 carbohydrates 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, 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(\AA^2)	Q<0.9
11	ACP	F	401	31/31	0.81	0.26	103,125,149,162	0
6	CA	C	502	1/1	0.92	0.09	54,54,54,54	0
8	GDP	D	501	28/28	0.92	0.16	59,66,98,103	0
9	MES	B	503	12/12	0.94	0.20	67,73,84,87	12
10	G9K	D	502	28/28	0.94	0.20	47,62,81,81	0

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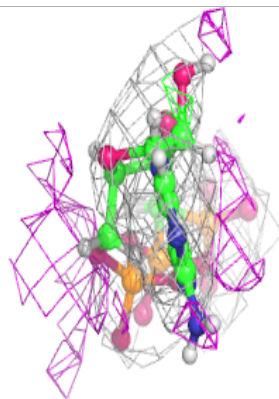
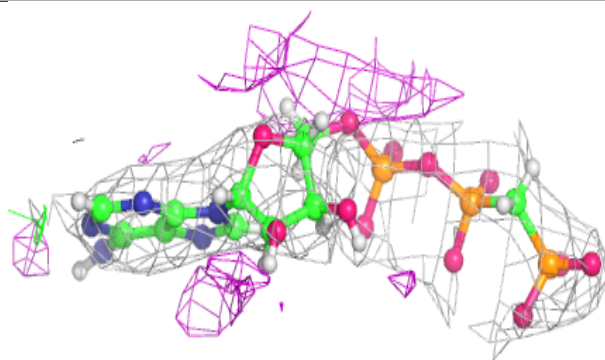
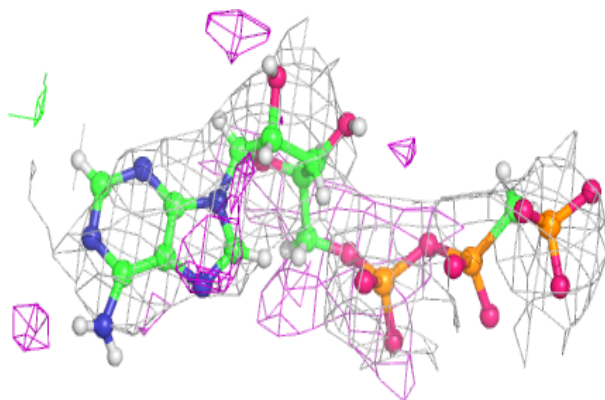
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
7	MG	C	503	1/1	0.96	0.33	41,41,41,41	0
5	GTP	C	501	32/32	0.97	0.18	27,34,38,42	0
9	MES	B	502	12/12	0.97	0.15	24,40,55,58	12
8	GDP	B	501	28/28	0.97	0.21	19,32,37,38	0
7	MG	A	503	1/1	0.98	0.24	41,41,41,41	0
10	G9K	B	505	28/28	0.98	0.15	39,44,54,54	0
7	MG	B	504	1/1	0.98	0.34	38,38,38,38	0
6	CA	A	502	1/1	0.99	0.05	63,63,63,63	0
5	GTP	A	501	32/32	0.99	0.21	27,34,41,45	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.

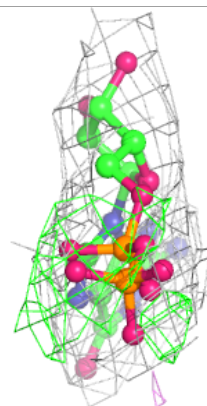
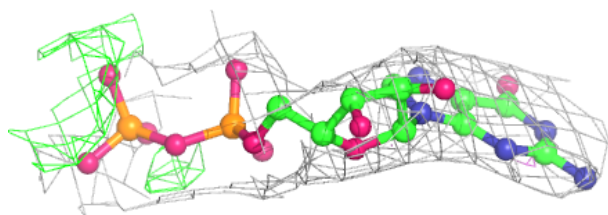
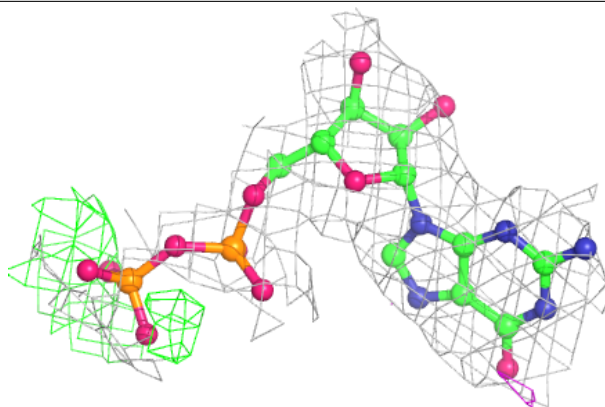
Electron density around ACP F 401:

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

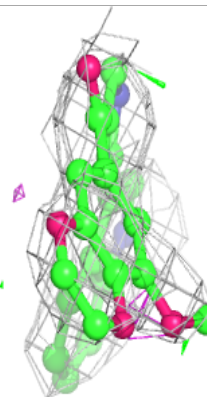
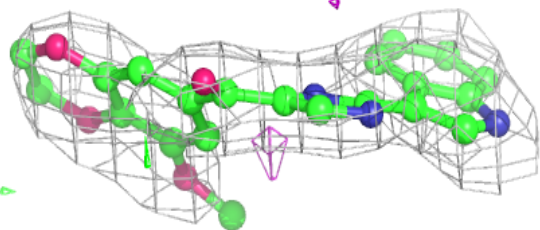
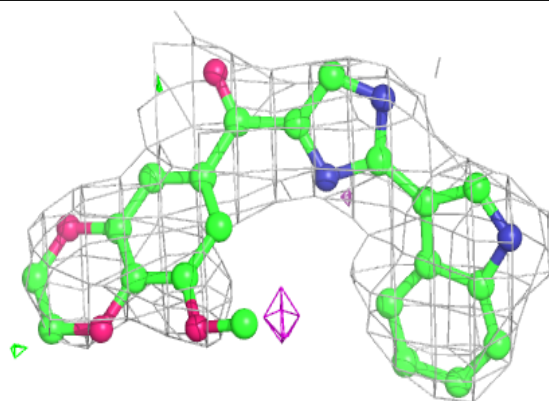


Electron density around GDP D 501:

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

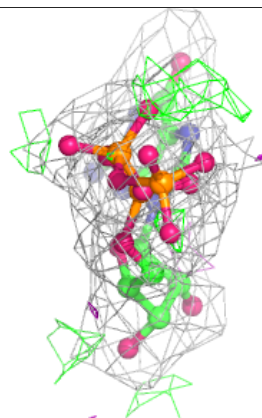
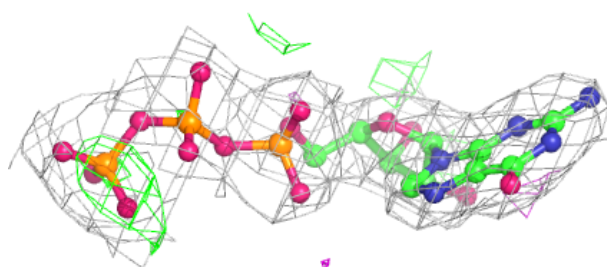
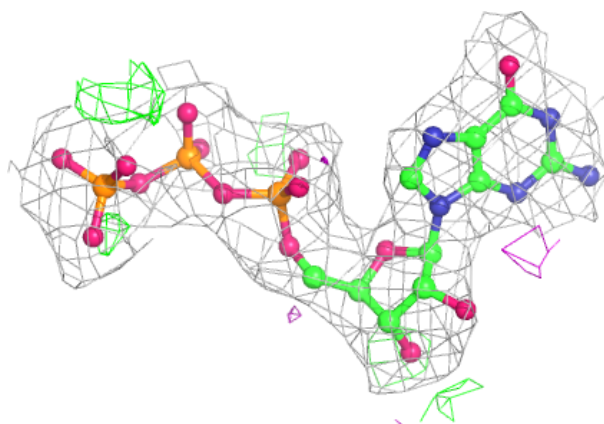
**Electron density around G9K D 502:**

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



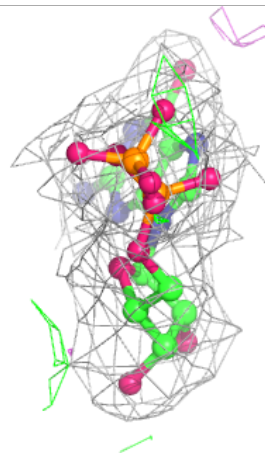
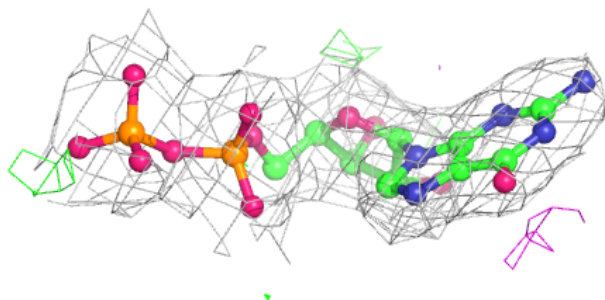
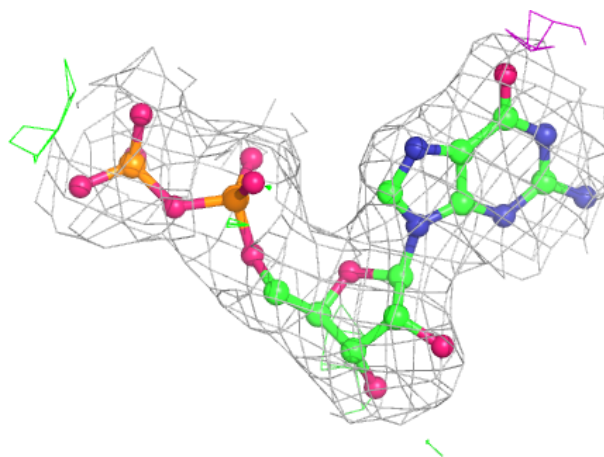
Electron density around GTP C 501:

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



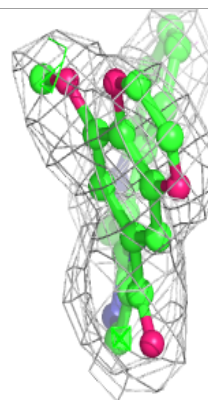
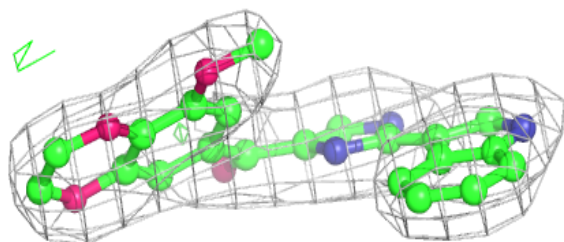
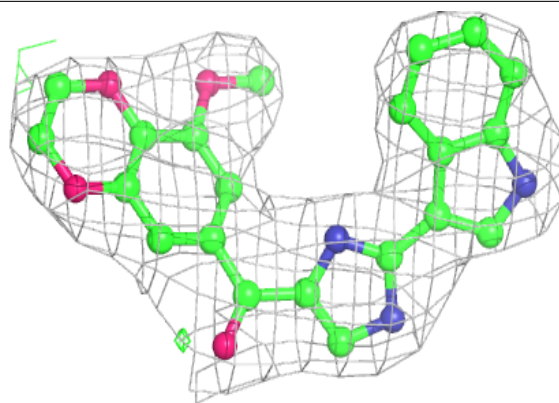
Electron density around GDP B 501:

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

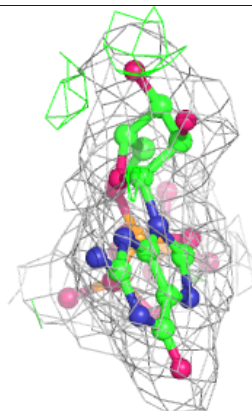
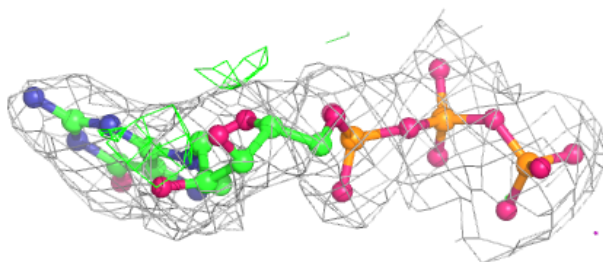
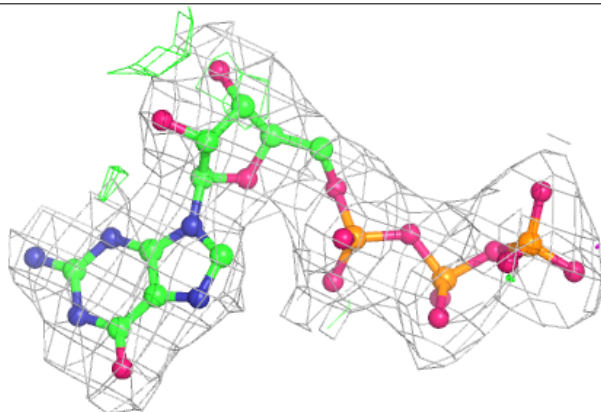


Electron density around G9K B 505:

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

**Electron density around GTP 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 [i](#)

There are no such residues in this entry.