Full wwPDB X-ray Structure Validation Report (i)

Sep 9, 2023 – 06:38 PM EDT

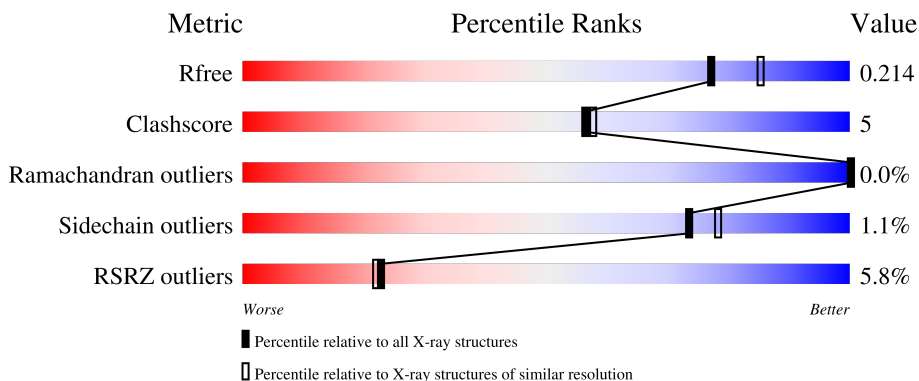|		
PDB ID	:	4IHJ
Title	:	Crystal structure of tubulin-stathmin-TTL-ADP complex
Authors	:	Prota, A.E.; Magiera, M.M.; Kuijpers, M.; Bargsten, K.; Frey, D.; Wieser, M.; Jaussi, R.; Hoogenraad, C.C.; Kammerer, R.A.; Janke, C.; Steinmetz, M.O.
Deposited on	:	2012-12-18
Resolution	:	2.00 Å(reported)

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 2.00 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.

Metric	Percentile Ranks	Value
Rfree		0.214
Clashscore		5
Ramachandran outliers		0.0%
Sidechain outliers		1.1%
RSRZ outliers		5.8%

Worse ... *Better*

▌ Percentile relative to all X-ray structures
▐ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	8085 (2.00-2.00)
Clashscore	141614	9178 (2.00-2.00)
Ramachandran outliers	138981	9054 (2.00-2.00)
Sidechain outliers	138945	9053 (2.00-2.00)
RSRZ outliers	127900	7900 (2.00-2.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	450	88% ... 10% •
1	C	450	85% ... 12% •
2	B	445	87% ... 8% 5%
2	D	445	83% ... 12% 5%
3	E	143	80% ... 5% 15%

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Mol	Chain	Length	Quality of chain
4	F	384	

2 Entry composition ⓘ

There are 13 unique types of molecules in this entry. The entry contains 36041 atoms, of which 17304 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	442	Total 6927	C 2210	H 3432	N 594	O 666	S 25	0	8	0
1	C	440	Total 6898	C 2203	H 3419	N 586	O 664	S 26	0	10	0

- Molecule 2 is a protein called Tubulin beta-2B chain.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
2	B	422	Total 6591	C 2103	H 3250	N 567	O 644	S 27	0	5	0
2	D	422	Total 6555	C 2093	H 3224	N 563	O 648	S 27	0	5	0

- Molecule 3 is a protein called Stathmin-4.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
3	E	121	Total 2062	C 629	H 1045	N 184	O 198	S 6	0	3	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	3	MET	-	cloning artifact	UNP P63043
E	4	ALA	-	cloning artifact	UNP P63043

- Molecule 4 is a protein called TUBULIN TYROSINE LIGASE, TTL.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
4	F	344	Total 5700	C 1837	H 2848	N 488	O 513	S 14	0	4	0

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: $C_{10}H_{16}N_5O_{14}P_3$).
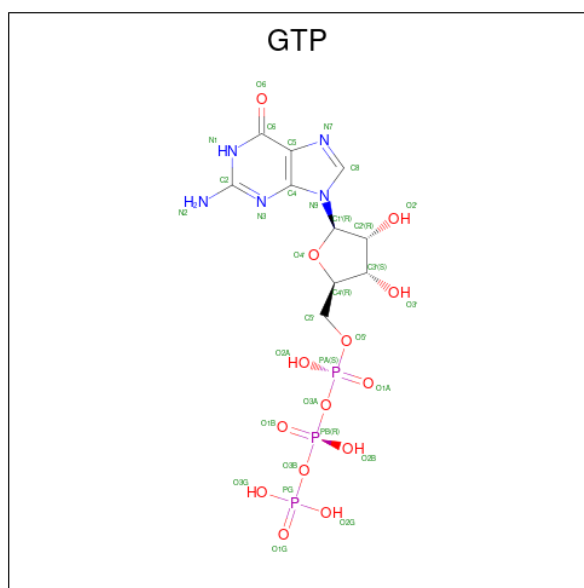
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
5	A	1	Total	C	H	N	O	P	0	0
			42	10	10	5	14	3		
5	C	1	Total	C	H	N	O	P	0	0
			42	10	10	5	14	3		

• Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total	Mg	0	0
			1	1		
6	B	1	Total	Mg	0	0
			1	1		
6	C	1	Total	Mg	0	0
			1	1		
6	D	2	Total	Mg	0	0
			2	2		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	F	2	Total 2	Mg 2	0	0

- Molecule 7 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	2	Total 2	Ca 2	0	0
7	B	1	Total 1	Ca 1	0	0
7	C	1	Total 1	Ca 1	0	0

- Molecule 8 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	1	Total 1	Cl 1	0	0

- Molecule 9 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$).
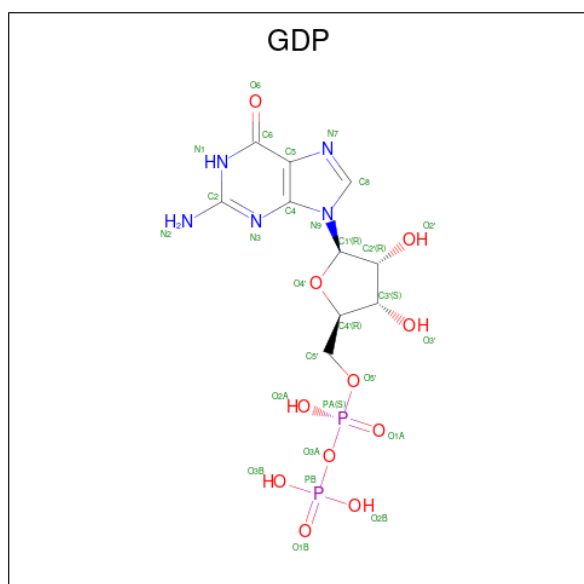
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
9	B	1	Total 38	C 10	H 10	N 5	O 11	P 2	0	0

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Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
			Total	C	H	N	O	P		
9	D	1	38	10	10	5	11	2	0	0

- Molecule 10 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula: $C_6H_{13}NO_4S$).

MES
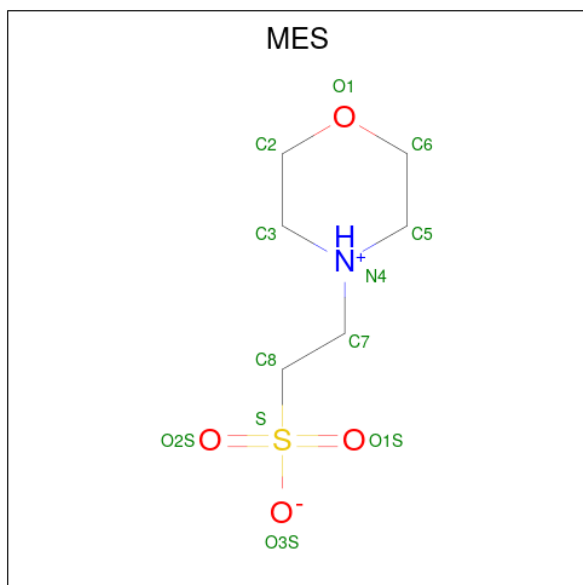
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
			Total	C	H	N	O	S		
10	B	1	25	6	13	1	4	1	0	0
10	B	1	Total	C	H	N	O	S	0	0
			25	6	13	1	4	1		

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

ADP

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
11	F	1	Total	C	H	N	O	P	0	0
			39	10	12	5	10	2		

- Molecule 12 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

GOL
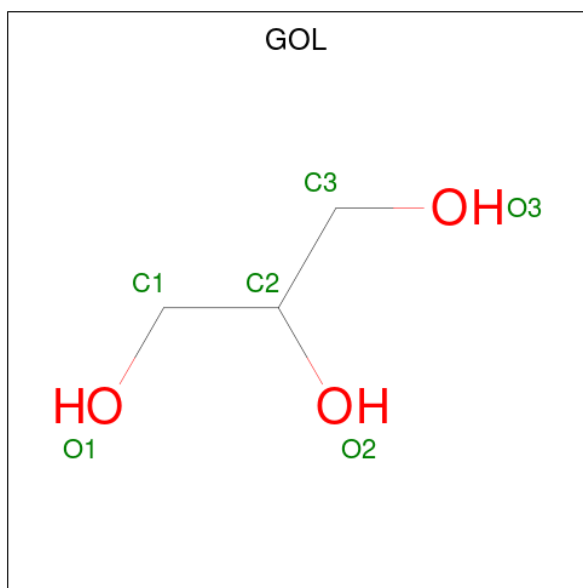
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
12	F	1	Total	C	H	O	0	0
			14	3	8	3		

- Molecule 13 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	A	217	Total 217	O 217	0	0
13	B	189	Total 189	O 189	0	0
13	C	376	Total 376	O 376	0	0
13	D	117	Total 117	O 117	0	0
13	E	54	Total 54	O 54	0	0
13	F	80	Total 80	O 80	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: Tubulin alpha-1B chain
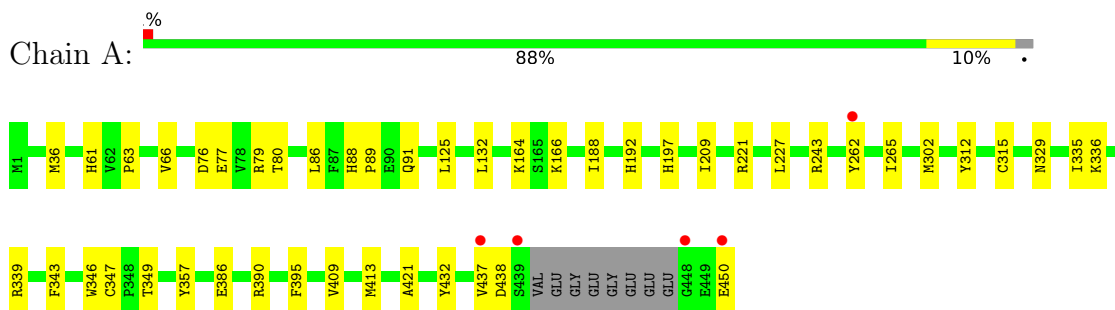
- Molecule 1: Tubulin alpha-1B chain
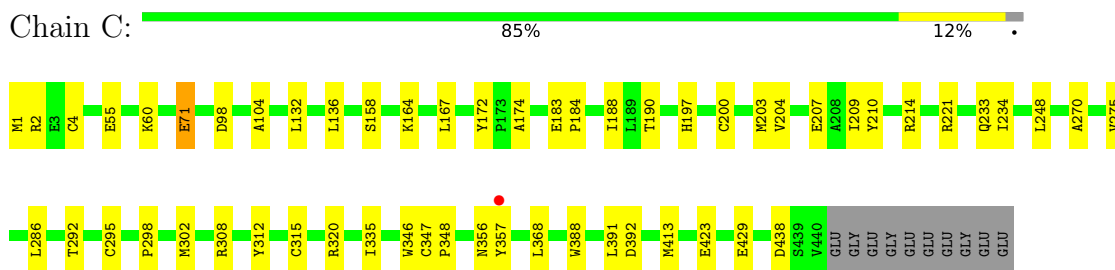
- Molecule 2: Tubulin beta-2B chain

- Molecule 2: Tubulin beta-2B chain

M269 T276 SER ARG GLY S280 GLN GLN TYR ARG ALA L286 E290 L291 T292 M295 A303 R308 R311 I318 F319 R320 M325 V335 Y342 E345 W346 I347 N350 A375 I384 F399 R400 R401 K402 A403 F404 L405 H406 T409 M413 D414

E415 Q436 D441 GLU GLN GLY GLU PHE GLU GLU GLU GLY GLU ASP GLU ALA
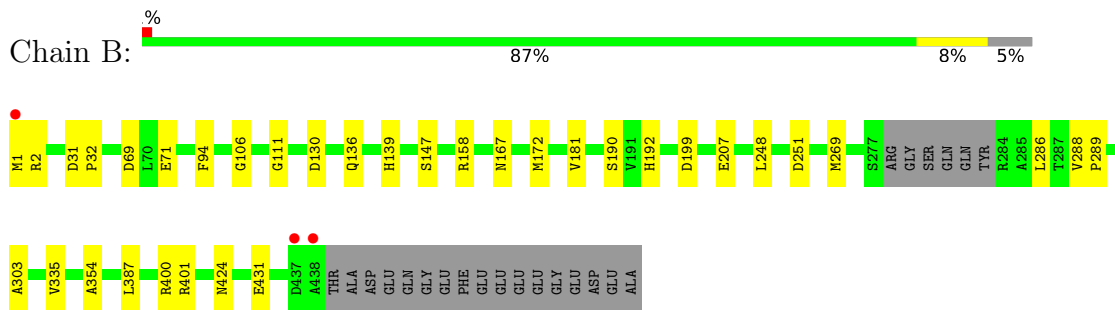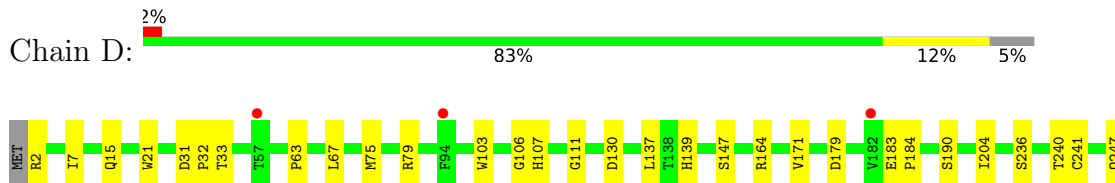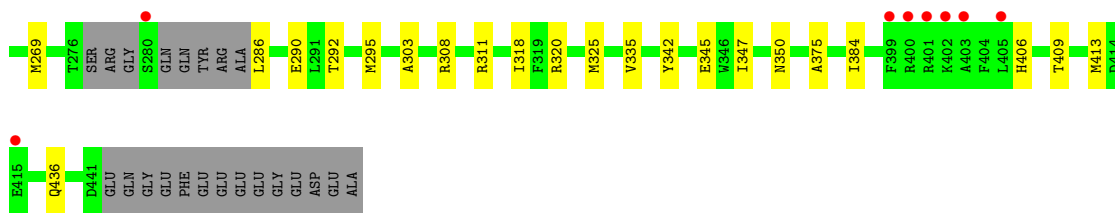
• Molecule 3: Stathmin-4

Chain E:

80%　　　　　　　　　　　　　　　　　5%　　15%

MET ALA ASP M6 G17 L24 S28 PHE ASP GLY VAL PRO GLU PHE ASN ALA SER LEU PRO ARG ARG ARG D44 L72 R76 K135 K140 E141 GLU ALA SER ARG
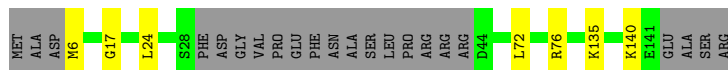
• Molecule 4: TUBULIN TYROSINE LIGASE, TTL

Chain F:

28%

76%　　　　　　　　　　　　　13%　　10%

M1 V13 Y14 V17 L20 L21 L22 R31 R44 R73 E86 E89 Y98 V99 I100 Y101 P102 THR ASN LEU LYS THR PRO VAL ALA ALA PRO ALA GLN ASN GLY ILE ARG HIS LEU ILE ASN ASN THR ARG T125 D126 E127 R128 E129 V130 F131 L132 A133 A134 Y135 N136

R137 R138 R139 E140 G141 R142 E143 G144 N145 V146 W147 I148 A149 K150 S151 S152 ALA GLY ALA LYS GLY GLU GLY L160 L161 I162 S163 L169 L170 D171 F172 I173 D174 E175 GLN GLY GLN V179 H180 V181 I182 Q183 K184 Y185 L186 E187 K188 P189 L190 L191 L192 R197 K198 F199 D200 I201 L206

Y211 Y214 V220 L221 R222 T223 S224 S225 Y228 N229 S230 A231 N232 F233 Q234 D235 K236 H239 L240 T241 C244 I245 Q246 K247 E248 Y249 S250 K251 N252 Y253 G254 R255 Y256 E257 E258 G259 N260 F263 F267 L271 L275 N276 T277 T278 I283 I287 L314

F317 M320 W328 L329 I330 N333 G334 A335 P336 A337 C338 A339 L342 Y343 A344 E345 L346 V353 L361 A362 ASP THR GLY GLN LYS THR SER GLN P371 T372 S373 H379 H380 H381 H382 H383 H384

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	104.52Å 157.31Å 180.99Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	72.10 – 2.00 78.45 – 2.00	Depositor EDS
% Data completeness (in resolution range)	99.1 (72.10-2.00) 99.1 (78.45-2.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.41 (at 2.00Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7.3_928)	Depositor
R, R_{free}	0.168 , 0.217 0.166 , 0.214	Depositor DCC
R_{free} test set	10033 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	36.2	Xtriage
Anisotropy	0.230	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.39 , 58.2	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	36041	wwPDB-VP
Average B, all atoms (Å^2)	54.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.52% 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: GTP, CA, MES, GOL, ADP, GDP, CL, MG

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	0.42	0/3596	0.61	2/4875 (0.0%)
1	C	0.53	1/3587 (0.0%)	0.63	0/4871
2	B	0.46	0/3429	0.57	0/4644
2	D	0.39	0/3420	0.53	0/4632
3	E	0.42	0/1035	0.51	0/1373
4	F	0.34	0/2932	0.51	0/3962
All	All	0.44	1/17999 (0.0%)	0.57	2/24357 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	295	CYS	CB-SG	-5.25	1.73	1.81

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	243	ARG	NE-CZ-NH2	-6.43	117.08	120.30
1	A	243	ARG	NE-CZ-NH1	6.12	123.36	120.30

There are no chirality outliers.

There are no planarity outliers.

5.2   Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

WORLDWIDE
wwPDB
PROTEIN DATA BANK

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3495	3432	3419	31	0
1	C	3479	3419	3406	39	0
2	B	3341	3250	3240	35	0
2	D	3331	3224	3212	33	0
3	E	1017	1045	1040	5	0
4	F	2852	2848	2833	37	0
5	A	32	10	12	0	0
5	C	32	10	12	0	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0
6	C	1	0	0	0	0
6	D	2	0	0	0	0
6	F	2	0	0	0	0
7	A	2	0	0	0	0
7	B	1	0	0	0	0
7	C	1	0	0	0	0
8	A	1	0	0	0	0
9	B	28	10	12	0	0
9	D	28	10	12	0	0
10	B	24	26	26	6	0
11	F	27	12	12	0	0
12	F	6	8	8	0	0
13	A	217	0	0	3	0
13	B	189	0	0	5	0
13	C	376	0	0	5	0
13	D	117	0	0	3	0
13	E	54	0	0	0	0
13	F	80	0	0	1	0
All	All	18737	17304	17244	173	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (173) 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:192:HIS:ND1	13:B:770:HOH:O	1.98	0.96
1:C:234:ILE:HG21	1:C:302[B]:MET:SD	2.07	0.94
2:B:199:ASP:OD2	10:B:504:MES:H32	1.75	0.87
1:C:270:ALA:HB3	1:C:302[B]:MET:SD	2.16	0.84
2:D:241[B]:CYS:SG	13:D:772:HOH:O	2.35	0.84
1:C:209:ILE:HD11	1:C:302[A]:MET:HG3	1.68	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:801:HOH:O	2:B:1:MET:SD	2.44	0.75
2:D:147[B]:SER:HG	2:D:190:SER:HG	1.34	0.74
1:A:209:ILE:HD11	1:A:302[A]:MET:SD	2.27	0.73
1:C:190:THR:OG1	13:C:889:HOH:O	2.05	0.73
1:C:4[A]:CYS:SG	1:C:136:LEU:HG	2.29	0.72
2:B:199:ASP:OD2	10:B:504:MES:C3	2.38	0.72
1:C:438:ASP:OD1	13:C:976:HOH:O	2.07	0.72
1:C:204:VAL:HG22	1:C:302[B]:MET:CE	2.22	0.68
2:B:192:HIS:CE1	2:B:424[B]:ASN:OD1	2.48	0.67
2:B:71:GLU:OE1	13:B:749:HOH:O	2.13	0.66
2:B:431:GLU:OE1	13:B:764:HOH:O	2.12	0.65
1:A:36:MET:HB3	1:A:61:HIS:CE1	2.31	0.65
4:F:161:LEU:HD22	4:F:172:PHE:CG	2.33	0.64
2:B:192:HIS:CD2	2:B:424[A]:ASN:HD22	2.16	0.63
1:C:270:ALA:CB	1:C:302[B]:MET:SD	2.87	0.62
2:D:247:GLN:OE1	13:D:799:HOH:O	2.16	0.61
2:D:106:GLY:O	2:D:111:GLY:HA3	2.01	0.60
1:A:386:GLU:O	1:A:390[A]:ARG:HD3	2.01	0.60
1:C:207:GLU:OE2	13:C:892:HOH:O	2.16	0.60
2:B:1:MET:SD	13:B:721:HOH:O	2.57	0.59
1:C:234:ILE:HD13	1:C:302[A]:MET:SD	2.43	0.59
4:F:128:ARG:NH2	4:F:174:ASP:OD1	2.35	0.59
4:F:162:ILE:HB	4:F:233:PHE:HB3	1.86	0.58
2:D:240[B]:THR:HG21	2:D:320:ARG:HD2	1.85	0.58
2:D:236:SER:O	2:D:240[B]:THR:HG23	2.04	0.57
4:F:161:LEU:HD13	4:F:172:PHE:CZ	2.38	0.57
1:A:437:VAL:HG12	1:A:438:ASP:O	2.04	0.57
1:A:343:PHE:HB2	1:A:349:THR:HG22	1.86	0.57
2:B:192:HIS:ND1	2:B:424[B]:ASN:OD1	2.37	0.56
2:D:21:TRP:CZ3	2:D:63:PRO:HB3	2.41	0.56
4:F:161:LEU:HD22	4:F:172:PHE:CB	2.36	0.56
2:B:199:ASP:CG	10:B:504:MES:H32	2.26	0.55
2:B:158:ARG:CZ	10:B:504:MES:H21	2.37	0.55
1:A:132:LEU:O	1:A:164:LYS:NZ	2.39	0.55
1:C:210:TYR:CD1	1:C:214:ARG:HD2	2.41	0.54
1:A:336:LYS:HG3	3:E:24:LEU:HD13	1.87	0.54
2:B:192:HIS:CD2	2:B:424[A]:ASN:ND2	2.74	0.54
2:D:292:THR:HG22	2:D:335:VAL:HG11	1.90	0.54
1:C:210:TYR:CE1	1:C:214:ARG:HD2	2.44	0.53
1:C:286:LEU:HB2	13:C:836:HOH:O	2.08	0.52
4:F:206:LEU:HD23	4:F:353[A]:VAL:CG2	2.39	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:188:ILE:HD12	1:A:395:PHE:HB2	1.91	0.52
1:A:349:THR:HG23	13:A:812:HOH:O	2.09	0.52
4:F:161:LEU:HD22	4:F:172:PHE:HB2	1.91	0.52
4:F:277:THR:HG22	4:F:278:THR:H	1.75	0.51
4:F:161:LEU:HD13	4:F:172:PHE:CE1	2.46	0.51
4:F:151:SER:OG	4:F:152:SER:N	2.44	0.51
2:B:251:ASP:OD2	13:B:708:HOH:O	2.19	0.51
1:A:262:TYR:CE2	1:A:346:TRP:CH2	2.98	0.50
2:D:2:ARG:NH1	2:D:130:ASP:CB	2.74	0.50
4:F:185:TYR:OH	4:F:198:LYS:NZ	2.44	0.50
4:F:206:LEU:CD2	4:F:353[A]:VAL:CG2	2.89	0.50
4:F:101:TYR:CD1	4:F:179:VAL:HG22	2.47	0.49
4:F:371:PRO:N	4:F:372:THR:HB	2.27	0.49
4:F:371:PRO:CA	4:F:372:THR:HB	2.41	0.49
1:C:292:THR:HG22	1:C:335:ILE:CD1	2.42	0.49
4:F:257:GLU:O	4:F:259:GLY:O	2.31	0.49
2:B:192:HIS:O	2:B:192:HIS:HD2	1.94	0.49
2:D:308:ARG:HG2	2:D:342:TYR:CZ	2.47	0.49
4:F:206:LEU:HD23	4:F:353[A]:VAL:HG21	1.93	0.49
4:F:373:SER:OG	13:F:856:HOH:O	2.20	0.49
1:C:233:GLN:HG3	1:C:368:LEU:CD1	2.42	0.49
1:A:209:ILE:CD1	1:A:302[A]:MET:SD	2.99	0.49
1:A:166:LYS:HE2	1:A:197:HIS:O	2.13	0.49
2:D:269:MET:HG3	2:D:303:ALA:HB3	1.95	0.48
1:C:248:LEU:HD12	1:C:357:TYR:CE1	2.49	0.48
1:A:357:TYR:CE1	3:E:17:GLY:HA2	2.49	0.48
2:B:2:ARG:HB3	2:B:2:ARG:NH1	2.29	0.48
2:B:31:ASP:HB2	2:B:32:PRO:CD	2.43	0.48
1:C:320:ARG:HA	1:C:356:ASN:O	2.13	0.48
4:F:371:PRO:HA	4:F:372:THR:C	2.33	0.48
1:A:450:GLU:HG3	4:F:333:ASN:HB3	1.95	0.48
2:B:192:HIS:CD2	2:B:192:HIS:O	2.67	0.48
4:F:252:ASN:O	4:F:255:ARG:HB2	2.14	0.48
1:A:66:VAL:HG23	1:A:125:LEU:HD12	1.96	0.47
1:C:275:VAL:HG13	1:C:368:LEU:HD21	1.96	0.47
1:C:346:TRP:CZ3	1:C:347[B]:CYS:SG	3.07	0.47
2:D:171:VAL:HA	2:D:204:ILE:O	2.14	0.47
2:B:69:ASP:O	2:B:94:PHE:HA	2.14	0.47
2:B:199:ASP:OD2	10:B:504:MES:H72	2.14	0.47
2:D:31:ASP:HB2	2:D:32:PRO:CD	2.44	0.47
2:B:269:MET:HG3	2:B:303:ALA:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:88:HIS:CD2	1:A:89:PRO:HD2	2.49	0.47
1:C:104:ALA:HB2	1:C:413:MET:SD	2.55	0.47
1:C:234:ILE:CD1	1:C:302[A]:MET:SD	3.02	0.47
2:D:311:ARG:NH1	2:D:436:GLN:O	2.46	0.47
4:F:254:GLY:HA2	4:F:259:GLY:O	2.14	0.47
2:B:106:GLY:O	2:B:111:GLY:HA3	2.15	0.47
1:C:221:ARG:HG3	2:D:325:MET:HG2	1.97	0.47
1:C:167:LEU:HG	1:C:200:CYS:HB3	1.97	0.46
1:C:203:MET:SD	1:C:388:TRP:CH2	3.09	0.46
1:A:76:ASP:OD1	1:A:79:ARG:NH1	2.43	0.46
2:D:183:GLU:N	2:D:184:PRO:CD	2.79	0.46
2:D:75:MET:O	2:D:79:ARG:NH1	2.49	0.46
4:F:141:GLY:O	4:F:142:ARG:HB2	2.16	0.46
1:C:55:GLU:HA	1:C:60:LYS:O	2.16	0.45
2:D:31:ASP:OD1	2:D:33:THR:N	2.49	0.45
4:F:277:THR:HG22	4:F:278:THR:N	2.31	0.45
1:A:209:ILE:HG22	1:A:227:LEU:HD22	1.99	0.45
1:C:1:MET:O	1:C:2:ARG:HB2	2.16	0.45
1:C:392:ASP:OD1	1:C:429:GLU:OE1	2.34	0.45
2:B:2:ARG:HB3	2:B:2:ARG:HH11	1.82	0.45
2:B:147:SER:OG	2:B:190:SER:OG	2.35	0.44
2:D:164:ARG:NH2	13:D:768:HOH:O	2.51	0.44
4:F:186:LEU:HD23	4:F:320:MET:HE2	2.00	0.44
2:D:318:ILE:N	2:D:318:ILE:HD12	2.32	0.44
2:D:103:TRP:CH2	2:D:107:HIS:CD2	3.06	0.44
4:F:161:LEU:CD1	4:F:172:PHE:CE1	3.01	0.44
2:B:136:GLN:HA	2:B:167:ASN:O	2.18	0.44
2:B:2:ARG:NH1	2:B:130:ASP:HB3	2.32	0.44
2:B:181:VAL:HG12	1:C:348:PRO:HG2	2.00	0.43
2:D:7:ILE:O	2:D:137:LEU:HA	2.17	0.43
1:A:77:GLU:HA	1:A:80:THR:HG22	2.00	0.43
1:A:265:ILE:HG23	1:A:432:TYR:CE2	2.53	0.43
2:D:286:LEU:HD12	2:D:290:GLU:OE1	2.18	0.43
4:F:161:LEU:HD13	4:F:172:PHE:CE2	2.53	0.43
1:A:63:PRO:CD	1:A:86:LEU:HG	2.48	0.43
1:A:409:VAL:HA	1:A:413:MET:O	2.19	0.43
1:C:71:GLU:HG2	1:C:98:ASP:HB3	1.99	0.43
1:C:183:GLU:N	1:C:184:PRO:CD	2.82	0.43
4:F:147:TRP:CE3	4:F:184:LYS:N	2.87	0.43
2:B:248:LEU:HD23	2:B:354:ALA:HB2	1.99	0.43
3:E:72:LEU:O	3:E:76:ARG:HG2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:220[A]:VAL:HG12	4:F:263:PHE:CE1	2.53	0.42
1:A:349:THR:HG21	13:A:813:HOH:O	2.19	0.42
2:D:384:ILE:O	2:D:384:ILE:HG13	2.19	0.42
4:F:132:LEU:HD21	4:F:170:LEU:HD11	2.02	0.42
2:D:67:LEU:N	2:D:67:LEU:HD12	2.34	0.42
1:A:312:TYR:CD2	1:A:315[B]:CYS:SG	3.13	0.42
2:D:295:MET:CE	2:D:375:ALA:HB1	2.50	0.42
2:B:288:VAL:HB	2:B:289:PRO:HD3	2.01	0.42
4:F:151:SER:HB2	4:F:180:HIS:CE1	2.54	0.42
1:A:335:ILE:HG23	1:A:339:ARG:CG	2.50	0.42
2:D:21:TRP:CE3	2:D:63:PRO:HB3	2.55	0.42
4:F:173:ILE:O	4:F:174:ASP:C	2.58	0.42
4:F:183:GLN:O	4:F:184:LYS:C	2.57	0.42
1:A:262:TYR:CE2	1:A:346:TRP:CZ2	3.08	0.42
1:C:2:ARG:HA	1:C:2:ARG:NE	2.35	0.42
1:C:158:SER:OG	1:C:197:HIS:HD2	2.02	0.42
1:C:132:LEU:O	1:C:164:LYS:CE	2.67	0.41
1:C:172:TYR:CE2	1:C:391:LEU:HD22	2.55	0.41
4:F:197:ARG:HD2	4:F:224:SER:O	2.19	0.41
2:D:409:THR:O	3:E:140:LYS:HE3	2.20	0.41
4:F:267:PHE:CE1	4:F:271[A]:LEU:CD1	3.03	0.41
1:A:329:ASN:HB3	3:E:6:MET:CE	2.51	0.41
2:D:31:ASP:HB2	2:D:32:PRO:HD2	2.03	0.41
2:D:31:ASP:OD1	2:D:31:ASP:C	2.59	0.41
1:C:423:GLU:HG2	13:C:688:HOH:O	2.20	0.41
1:A:192:HIS:CG	1:A:421:ALA:HA	2.56	0.41
1:A:346:TRP:CZ3	1:A:347:CYS:SG	3.14	0.41
2:B:400:ARG:HG3	2:B:401:ARG:HG2	2.02	0.41
1:C:312:TYR:CD2	1:C:315[B]:CYS:SG	3.14	0.41
4:F:371:PRO:HA	4:F:372:THR:HB	2.01	0.41
2:B:31:ASP:HB2	2:B:32:PRO:HD2	2.03	0.41
2:B:172:MET:HG3	2:B:387[B]:LEU:HD11	2.03	0.41
1:C:248:LEU:HD12	1:C:357:TYR:OH	2.21	0.41
2:D:406:HIS:HA	2:D:409:THR:OG1	2.21	0.41
2:B:335:VAL:HG13	10:B:505:MES:H22	2.03	0.40
1:C:298:PRO:HG2	1:C:308:ARG:NH2	2.37	0.40
1:A:88:HIS:N	1:A:91:GLN:OE1	2.45	0.40
1:A:346:TRP:CE3	1:A:347:CYS:SG	3.13	0.40
2:B:288:VAL:N	2:B:289:PRO:CD	2.84	0.40
4:F:214:TYR:CE2	4:F:353[B]:VAL:HG11	2.55	0.40
1:C:174:ALA:CB	1:C:207:GLU:HB2	2.52	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:347:ILE:HG22	2:D:350:ASN:HB3	2.04	0.40
2:D:409:THR:HA	2:D:413:MET:O	2.22	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	446/450 (99%)	435 (98%)	11 (2%)	0	100	100
1	C	448/450 (100%)	432 (96%)	16 (4%)	0	100	100
2	B	423/445 (95%)	412 (97%)	11 (3%)	0	100	100
2	D	422/445 (95%)	414 (98%)	8 (2%)	0	100	100
3	E	120/143 (84%)	118 (98%)	2 (2%)	0	100	100
4	F	338/384 (88%)	318 (94%)	19 (6%)	1 (0%)	41	37
All	All	2197/2317 (95%)	2129 (97%)	67 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	F	232	ASN

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	380/378 (100%)	379 (100%)	1 (0%)	92	95
1	C	381/378 (101%)	379 (100%)	2 (0%)	88	92
2	B	370/383 (97%)	367 (99%)	3 (1%)	81	86
2	D	370/383 (97%)	366 (99%)	4 (1%)	73	78
3	E	112/127 (88%)	111 (99%)	1 (1%)	78	83
4	F	316/342 (92%)	307 (97%)	9 (3%)	43	44
All	All	1929/1991 (97%)	1909 (99%)	20 (1%)	73	81

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	221	ARG
2	B	139	HIS
2	B	207	GLU
2	B	286	LEU
1	C	71	GLU
1	C	188	ILE
2	D	15	GLN
2	D	139	HIS
2	D	179	ASP
2	D	345	GLU
3	E	135	LYS
4	F	22	LEU
4	F	86	GLU
4	F	160	ILE
4	F	188	LYS
4	F	192	LEU
4	F	211	TYR
4	F	222	ARG
4	F	255	ARG
4	F	260	ASN

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

Mol	Chain	Res	Type
1	A	301	GLN
1	A	309	HIS
2	B	192	HIS
2	B	229	HIS
1	C	197	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 20 ligands modelled in this entry, 12 are monoatomic - leaving 8 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	$\#|Z| > 2$
11	ADP	F	703	6	24,29,29	1.03	1 (4%)	29,45,45	1.34	4 (13%)
10	MES	B	504	-	12,12,12	1.87	1 (8%)	14,16,16	2.03	2 (14%)
10	MES	B	505	-	12,12,12	2.21	1 (8%)	14,16,16	1.67	3 (21%)
9	GDP	D	600	6	24,30,30	1.10	2 (8%)	30,47,47	1.04	3 (10%)
5	GTP	A	501	6	26,34,34	1.01	2 (7%)	32,54,54	1.17	3 (9%)
12	GOL	F	704	-	5,5,5	0.38	0	5,5,5	0.56	0
9	GDP	B	501	6	24,30,30	1.12	2 (8%)	30,47,47	1.03	1 (3%)
5	GTP	C	501	6	26,34,34	1.13	1 (3%)	32,54,54	1.13	3 (9%)

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
11	ADP	F	703	6	-	2/12/32/32	0/3/3/3
10	MES	B	504	-	-	1/6/14/14	0/1/1/1
10	MES	B	505	-	-	5/6/14/14	0/1/1/1
9	GDP	D	600	6	-	4/12/32/32	0/3/3/3
5	GTP	A	501	6	-	5/18/38/38	0/3/3/3
12	GOL	F	704	-	-	2/4/4/4	-
9	GDP	B	501	6	-	5/12/32/32	0/3/3/3
5	GTP	C	501	6	-	6/18/38/38	0/3/3/3

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	B	505	MES	C8-S	-7.31	1.67	1.77
10	B	504	MES	C8-S	-6.11	1.68	1.77
5	C	501	GTP	C5-C6	-3.81	1.39	1.47
5	A	501	GTP	C5-C6	-3.33	1.40	1.47
9	B	501	GDP	C6-N1	-2.87	1.33	1.37
9	D	600	GDP	C6-N1	-2.78	1.33	1.37
11	F	703	ADP	C5-C4	2.58	1.47	1.40
9	B	501	GDP	O4'-C1'	2.50	1.44	1.41
9	D	600	GDP	O4'-C1'	2.18	1.44	1.41
5	A	501	GTP	O4'-C1'	2.08	1.44	1.41

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	B	504	MES	O1S-S-C8	5.83	113.93	106.92
11	F	703	ADP	N3-C2-N1	-3.56	123.11	128.68
5	A	501	GTP	C8-N7-C5	3.25	109.17	102.99
5	C	501	GTP	C8-N7-C5	3.00	108.70	102.99
10	B	505	MES	C2-C3-N4	-2.97	105.60	110.10
10	B	505	MES	O1S-S-C8	2.97	110.49	106.92
10	B	505	MES	C5-N4-C3	2.96	115.48	108.83
11	F	703	ADP	C4-C5-N7	-2.94	106.34	109.40
5	A	501	GTP	PA-O3A-PB	-2.81	123.17	132.83
5	C	501	GTP	C5-C6-N1	2.68	118.68	113.95
5	C	501	GTP	C2-N1-C6	-2.45	120.58	125.10
9	D	600	GDP	C5-C6-N1	2.33	118.07	113.95
9	D	600	GDP	C8-N7-C5	2.27	107.31	102.99
11	F	703	ADP	C3'-C2'-C1'	2.23	104.34	100.98
10	B	504	MES	C6-O1-C2	2.23	117.34	109.89

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	B	501	GDP	C8-N7-C5	2.13	107.04	102.99
11	F	703	ADP	C2-N1-C6	2.07	122.29	118.75
9	D	600	GDP	PA-O3A-PB	-2.04	125.84	132.83
5	A	501	GTP	O6-C6-N1	-2.02	118.26	120.65

There are no chirality outliers.

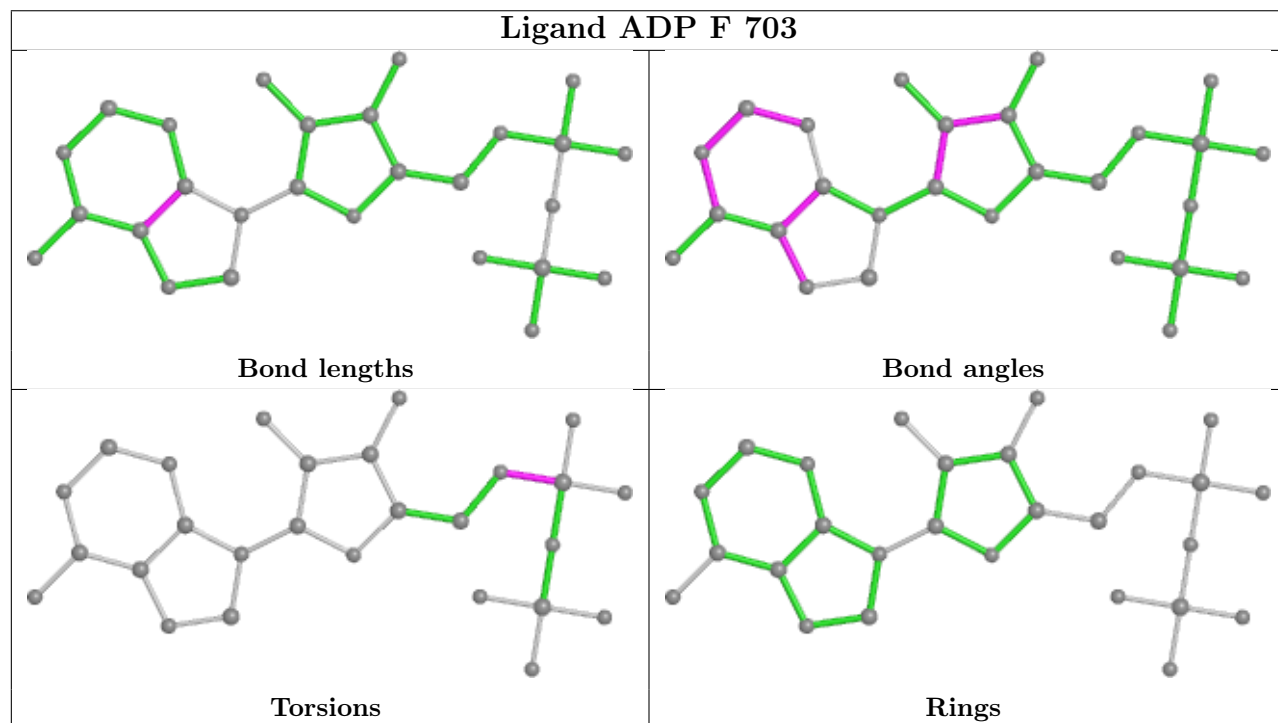All (30) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	501	GTP	C5'-O5'-PA-O1A
5	C	501	GTP	C5'-O5'-PA-O1A
5	C	501	GTP	C5'-O5'-PA-O2A
9	B	501	GDP	C5'-O5'-PA-O1A
9	B	501	GDP	C5'-O5'-PA-O2A
9	D	600	GDP	C5'-O5'-PA-O1A
9	D	600	GDP	C5'-O5'-PA-O2A
10	B	504	MES	C8-C7-N4-C5
10	B	505	MES	C8-C7-N4-C3
10	B	505	MES	C7-C8-S-O1S
10	B	505	MES	C7-C8-S-O2S
11	F	703	ADP	C5'-O5'-PA-O3A
10	B	505	MES	C7-C8-S-O3S
10	B	505	MES	C8-C7-N4-C5
5	A	501	GTP	PB-O3B-PG-O3G
5	C	501	GTP	PB-O3B-PG-O3G
5	A	501	GTP	C5'-O5'-PA-O3A
12	F	704	GOL	O1-C1-C2-O2
5	A	501	GTP	C5'-O5'-PA-O2A
11	F	703	ADP	C5'-O5'-PA-O1A
5	C	501	GTP	C4'-C5'-O5'-PA
5	C	501	GTP	PB-O3A-PA-O2A
9	D	600	GDP	PB-O3A-PA-O2A
12	F	704	GOL	O1-C1-C2-C3
5	C	501	GTP	C5'-O5'-PA-O3A
9	B	501	GDP	C5'-O5'-PA-O3A
9	D	600	GDP	C5'-O5'-PA-O3A
5	A	501	GTP	PB-O3A-PA-O2A
9	B	501	GDP	PB-O3A-PA-O1A
9	B	501	GDP	PB-O3A-PA-O2A

There are no ring outliers.

2 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	B	504	MES	5	0
10	B	505	MES	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 ADP F 703

Ligand GDP D 600

Bond lengths

Bond angles

Torsions

Rings

Ligand GTP A 501

Bond lengths

Bond angles

Torsions

Rings

Ligand GDP B 501

Bond lengths

Bond angles

Torsions

Rings

Ligand GTP C 501

Bond lengths

Bond angles

Torsions

Rings
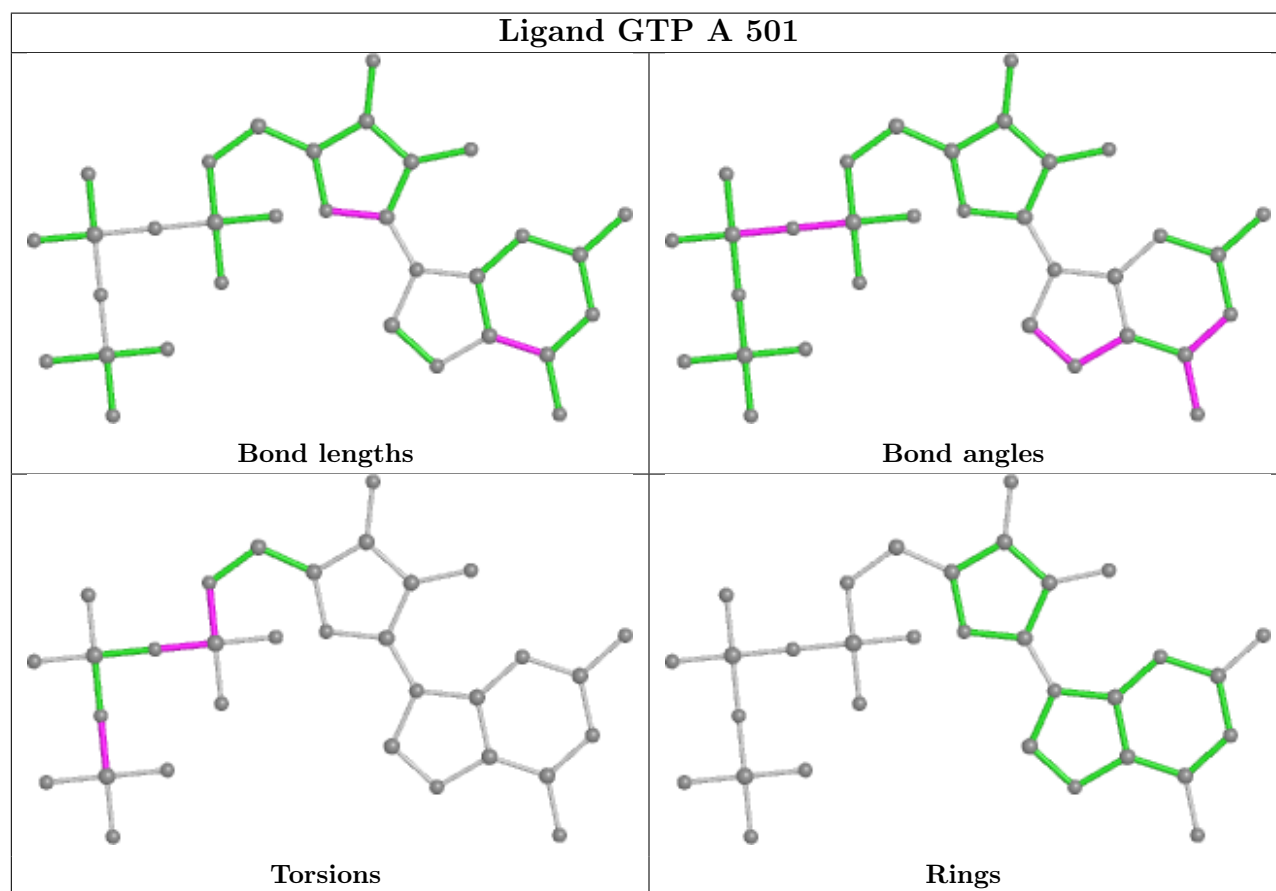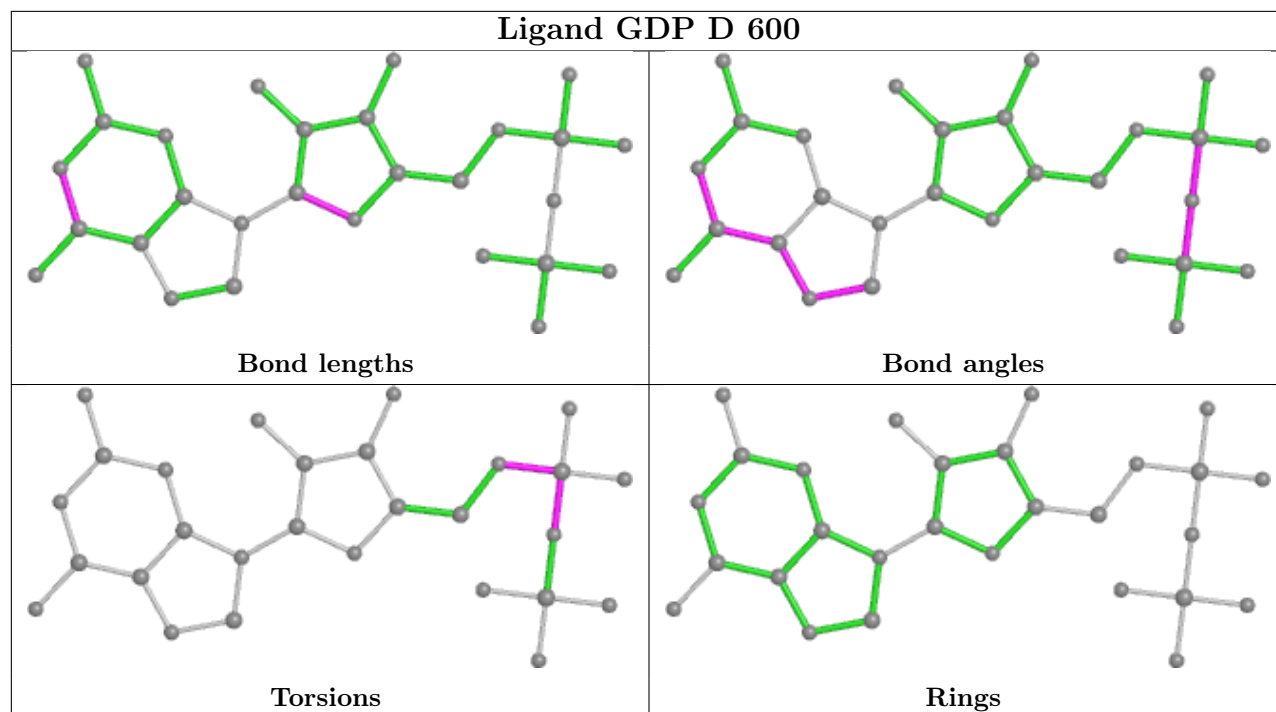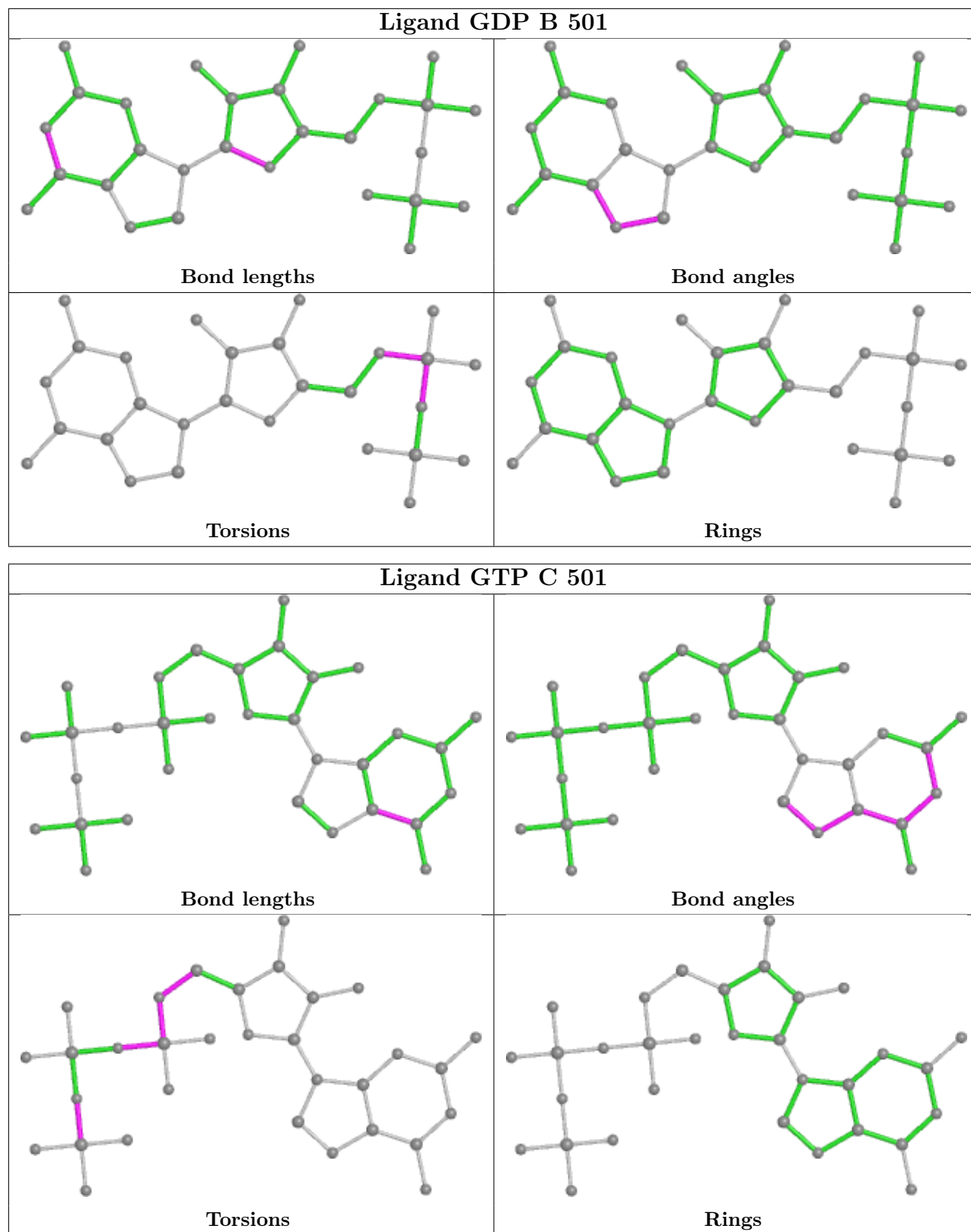
5.7　Other polymers ⓘ

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(Å²)	Q<0.9
1	A	442/450 (98%)	0.11	5 (1%)	80	79	24, 40, 78, 126	0
1	C	440/450 (97%)	0.20	1 (0%)	95	94	18, 31, 63, 95	0
2	B	422/445 (94%)	0.21	3 (0%)	87	87	21, 39, 80, 124	2 (0%)
2	D	422/445 (94%)	0.23	11 (2%)	56	54	25, 50, 89, 124	5 (1%)
3	E	121/143 (84%)	0.15	0	100	100	27, 56, 92, 108	0
4	F	344/384 (89%)	1.45	106 (30%)	0	0	33, 65, 125, 160	0
All	All	2191/2317 (94%)	0.38	126 (5%)	23	22	18, 44, 94, 160	7 (0%)

All (126) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	280	SER	9.3
4	F	182	ILE	8.9
2	D	401	ARG	8.5
4	F	173	ILE	7.8
4	F	186	LEU	7.8
4	F	161	LEU	7.7
4	F	99	VAL	6.8
4	F	231	ALA	6.6
4	F	134	ALA	6.5
4	F	169	LEU	6.5
4	F	170	LEU	5.9
4	F	179	VAL	5.6
2	B	1	MET	5.4
4	F	233	PHE	5.3
4	F	137	ARG	5.1
4	F	138	ARG	5.1
4	F	100	ILE	5.1
4	F	372	THR	5.1
4	F	181	VAL	4.8

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Mol	Chain	Res	Type	RSRZ
4	F	132	LEU	4.8
4	F	135	TYR	4.8
2	B	438	ALA	4.8
4	F	381	HIS	4.6
4	F	131	PHE	4.6
4	F	101	TYR	4.6
4	F	249	TYR	4.6
4	F	240	LEU	4.3
4	F	151	SER	4.2
2	D	405	LEU	4.2
4	F	130	VAL	4.1
4	F	232	ASN	4.1
4	F	160	ILE	4.1
4	F	220[A]	VAL	3.9
4	F	184	LYS	3.9
4	F	330	ILE	3.8
4	F	320	MET	3.7
4	F	162	ILE	3.6
4	F	17	VAL	3.5
4	F	361	LEU	3.4
4	F	20	LEU	3.4
4	F	150	LYS	3.3
4	F	148	ILE	3.3
4	F	147	TRP	3.3
4	F	380	HIS	3.2
4	F	44	ARG	3.2
2	D	400	ARG	3.2
4	F	253	TYR	3.2
2	D	57	THR	3.1
4	F	371	PRO	3.1
4	F	191	LEU	3.1
4	F	73	ARG	3.1
4	F	163	SER	3.1
4	F	149	ALA	3.0
4	F	344	ALA	3.0
4	F	346	LEU	3.0
4	F	172	PHE	3.0
4	F	199	PHE	3.0
4	F	241	THR	3.0
4	F	353[A]	VAL	2.9
2	D	399	PHE	2.9
4	F	248	GLU	2.9

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Mol	Chain	Res	Type	RSRZ
4	F	144	GLY	2.9
4	F	180	HIS	2.9
4	F	192	LEU	2.9
4	F	314	LEU	2.9
4	F	245	ILE	2.8
1	A	448	GLY	2.8
4	F	221	LEU	2.8
4	F	133	ALA	2.7
4	F	337	ALA	2.7
4	F	317	PHE	2.7
4	F	143	GLU	2.7
4	F	13	VAL	2.7
1	A	450	GLU	2.6
2	D	415	GLU	2.6
4	F	335	ALA	2.6
4	F	383	HIS	2.5
4	F	271[A]	LEU	2.5
4	F	382	HIS	2.5
4	F	129	GLU	2.5
4	F	142	ARG	2.5
4	F	362	ALA	2.5
4	F	234	GLN	2.4
4	F	239	HIS	2.4
4	F	379	HIS	2.4
1	A	262	TYR	2.4
4	F	244	CYS	2.4
4	F	342	LEU	2.4
4	F	225	SER	2.4
2	D	402	LYS	2.3
2	D	403	ALA	2.3
4	F	339	ALA	2.3
4	F	201	ILE	2.3
2	D	94	PHE	2.3
4	F	174	ASP	2.3
4	F	251	LYS	2.3
4	F	336	PRO	2.3
4	F	250	SER	2.3
4	F	329	LEU	2.2
1	C	357	TYR	2.2
4	F	31	ARG	2.2
4	F	89	GLU	2.2
4	F	14	TYR	2.2

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Mol	Chain	Res	Type	RSRZ
4	F	140	GLU	2.2
4	F	190	LEU	2.2
4	F	98	TYR	2.2
4	F	283	ILE	2.2
1	A	437	VAL	2.2
4	F	146	VAL	2.2
4	F	267	PHE	2.2
4	F	384	HIS	2.2
4	F	136	ASN	2.1
4	F	145	ASN	2.1
2	D	182	VAL	2.1
4	F	287	ILE	2.1
4	F	230	SER	2.1
4	F	328	TRP	2.1
1	A	439	SER	2.1
2	B	437	ASP	2.1
4	F	126	ASP	2.1
4	F	183	GLN	2.1
4	F	228	TYR	2.1
4	F	236	LYS	2.1
4	F	275[A]	LEU	2.0
4	F	246	GLN	2.0
4	F	224	SER	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.

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
12	GOL	F	704	6/6	0.76	0.21	72,87,92,93	0
6	MG	D	602	1/1	0.86	0.17	100,100,100,100	0
6	MG	D	601	1/1	0.92	0.20	99,99,99,99	0
8	CL	A	504	1/1	0.94	0.21	72,72,72,72	0
10	MES	B	505	12/12	0.96	0.12	73,77,89,90	0
7	CA	A	505	1/1	0.96	0.32	103,103,103,103	0
7	CA	B	503	1/1	0.97	0.14	95,95,95,95	0
7	CA	A	503	1/1	0.97	0.15	59,59,59,59	0
9	GDP	D	600	28/28	0.98	0.13	50,54,67,69	0
10	MES	B	504	12/12	0.98	0.12	50,57,62,64	0
6	MG	F	701	1/1	0.98	0.12	55,55,55,55	0
11	ADP	F	703	27/27	0.98	0.14	70,75,87,88	0
6	MG	F	702	1/1	0.98	0.07	66,66,66,66	0
9	GDP	B	501	28/28	0.99	0.16	22,27,34,35	0
5	GTP	A	501	32/32	0.99	0.16	23,26,31,32	0
6	MG	A	502	1/1	0.99	0.21	28,28,28,28	0
6	MG	B	502	1/1	0.99	0.20	27,27,27,27	0
7	CA	C	503	1/1	0.99	0.18	44,44,44,44	0
6	MG	C	502	1/1	0.99	0.19	27,27,27,27	0
5	GTP	C	501	32/32	1.00	0.15	19,23,26,28	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.

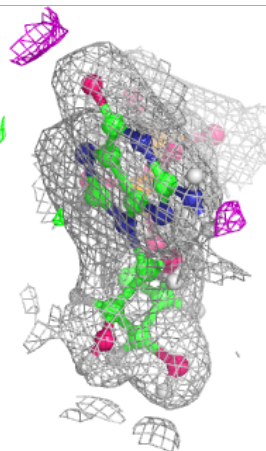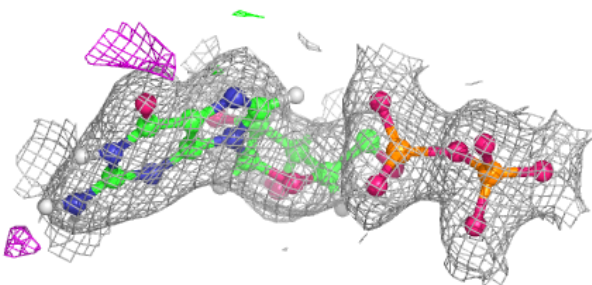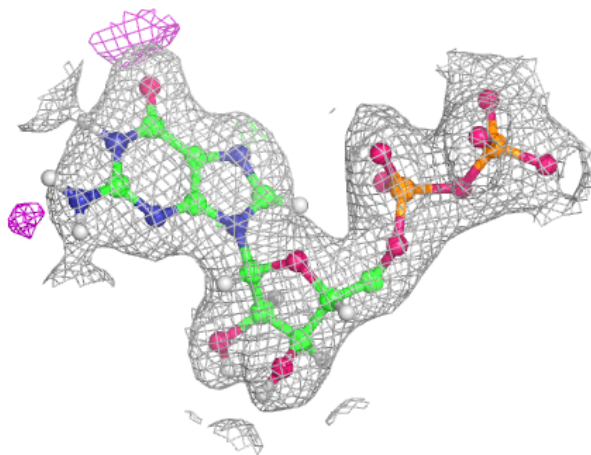**Electron density around GDP D 600:**

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

Electron density around ADP F 703:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
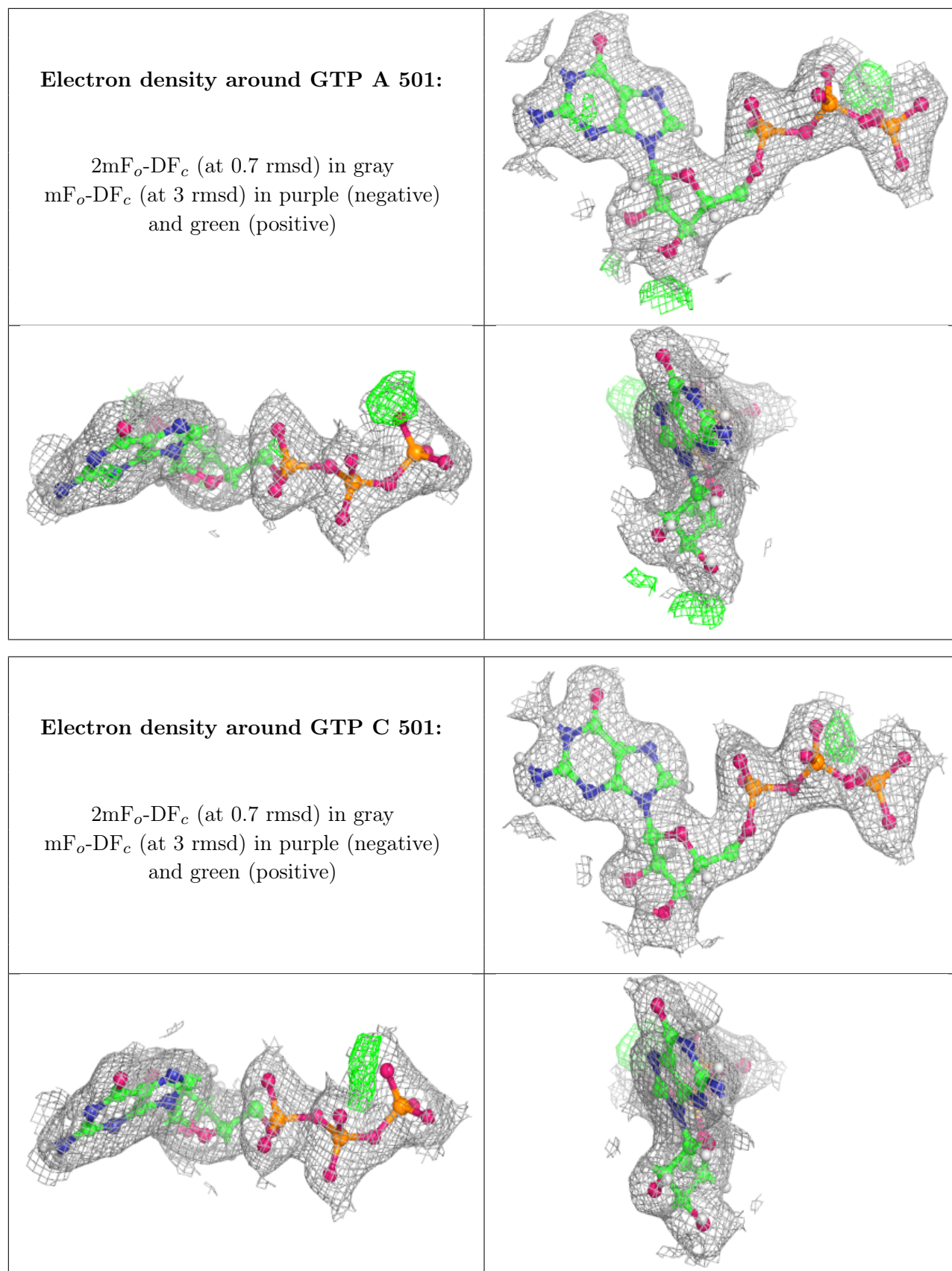mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
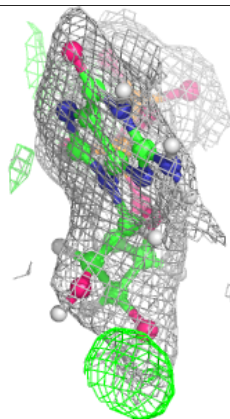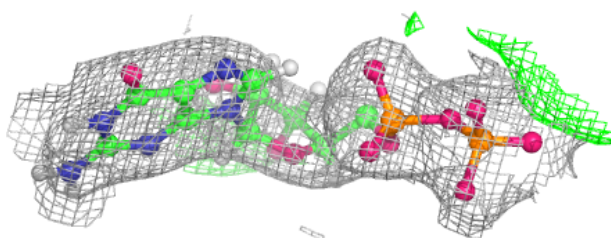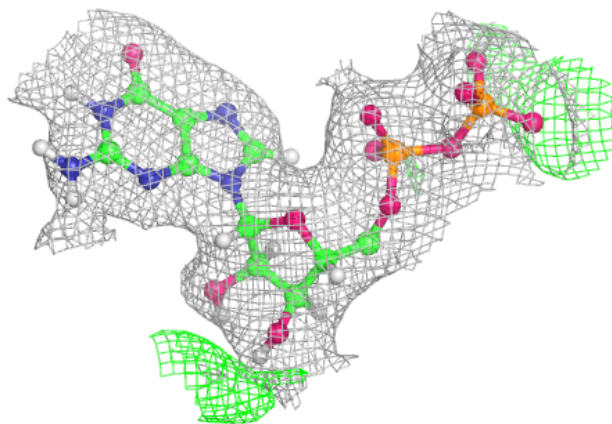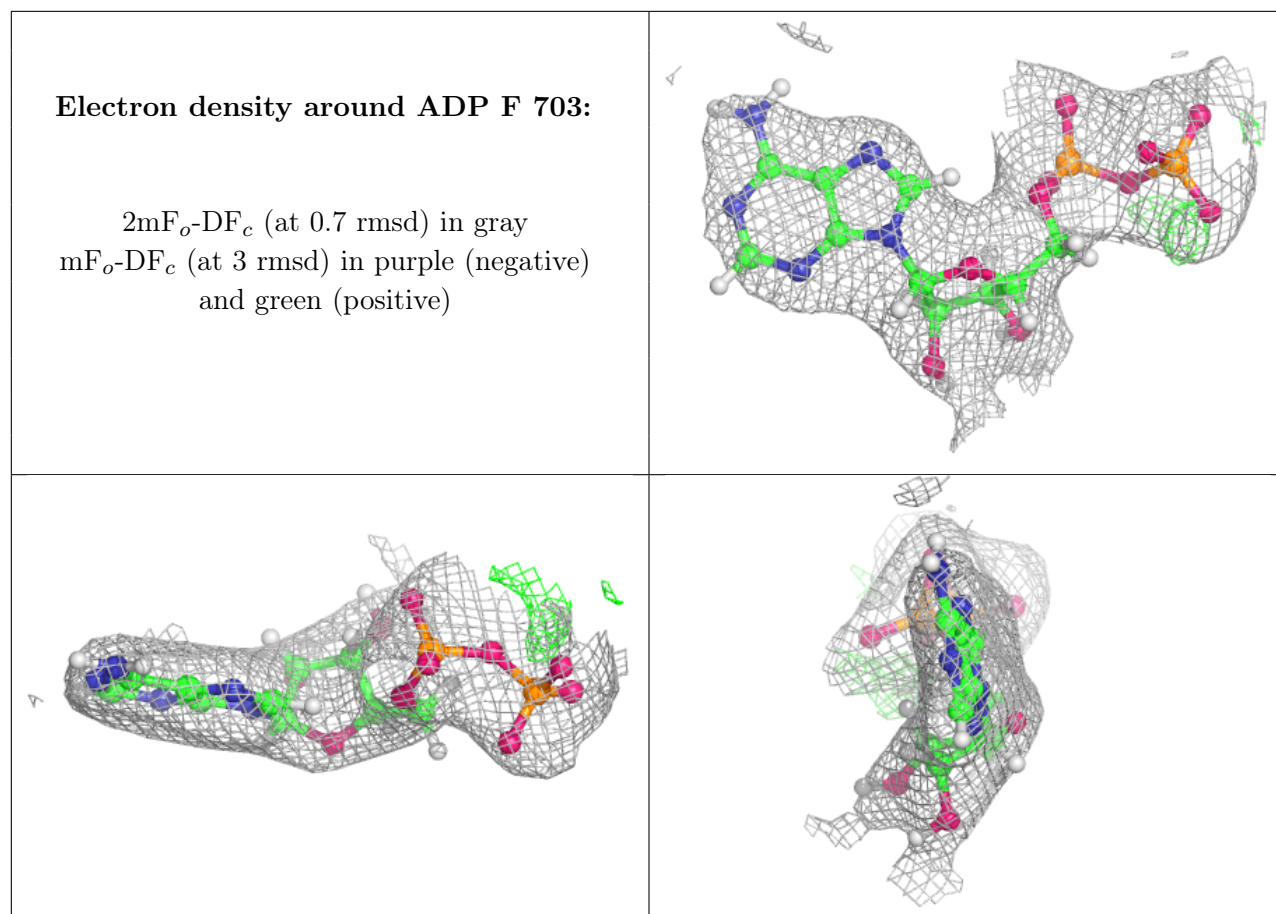
Electron density around GDP B 501:

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 GTP A 501:

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

Electron density around GTP C 501:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.