



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 13, 2024 – 03:29 PM JST

PDB ID : 4ZOL
Title : Crystal Structure of Tubulin-Stathmin-TTL-Tubulysin M Complex
Authors : Wang, Y.; Zhang, R.
Deposited on : 2015-05-06
Resolution : 2.50 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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 : 2.36
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) : 2.36

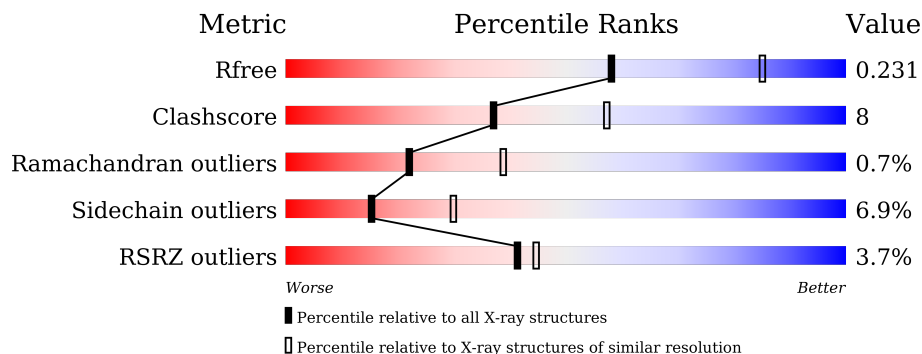
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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 $\leq 5\%$. 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	451	 2% (red), 82% (green), 14% (yellow), .. (grey)
1	C	451	 % (red), 83% (green), 13% (yellow), .. (grey)
2	B	445	 81% (green), 14% (yellow), .. (grey)
2	D	445	 6% (red), 72% (green), 21% (yellow), .. (grey)
3	E	143	 6% (red), 66% (green), 16% (yellow), . (orange), 15% (grey)
4	F	384	 9% (red), 70% (green), 17% (yellow), . (orange), 9% (grey)

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
8	GOL	A	506	-	-	X	-

2 Entry composition i

There are 13 unique types of molecules in this entry. The entry contains 18159 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Tubulin alpha-1B chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	439	Total	C	N	O	S	0	0	0
			3430	2170	583	655	22			
1	C	440	Total	C	N	O	S	0	0	0
			3437	2175	584	656	22			

- Molecule 2 is a protein called Tubulin beta chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	430	Total	C	N	O	S	0	0	0
			3376	2120	579	651	26			
2	D	427	Total	C	N	O	S	0	0	0
			3343	2099	571	647	26			

- Molecule 3 is a protein called Stathmin-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	E	122	Total	C	N	O	S	0	3	0
			1033	637	190	201	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

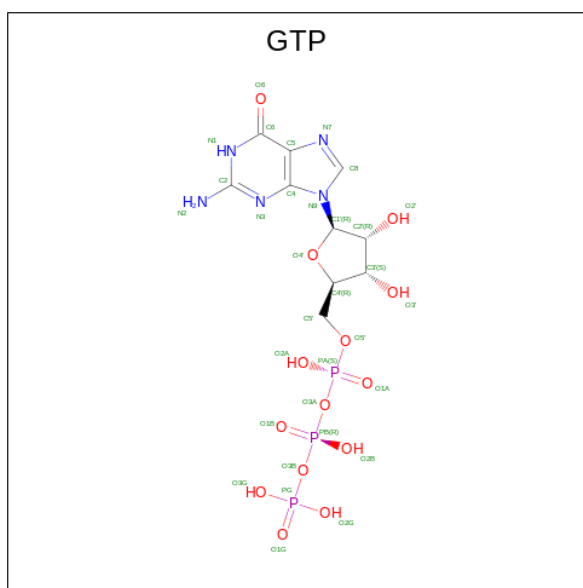
- Molecule 4 is a protein called Tubulin-tyrosine ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	F	348	Total	C	N	O	S	0	0	0
			2862	1832	494	522	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
			Total	C	N	O	P		
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		

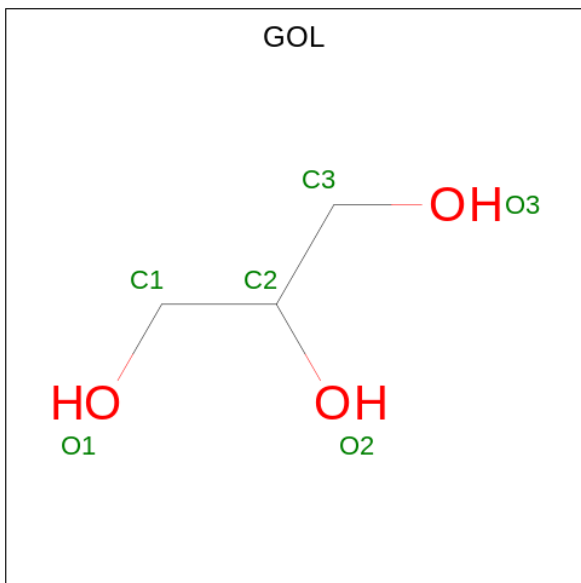
- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Mg		
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	1	Total	Mg	0	0
			1	1		

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

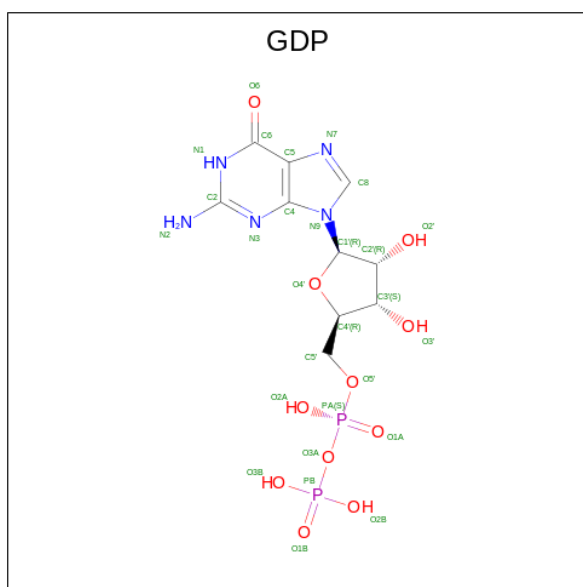
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total Ca 1 1	0	0
7	C	1	Total Ca 1 1	0	0

- Molecule 8 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



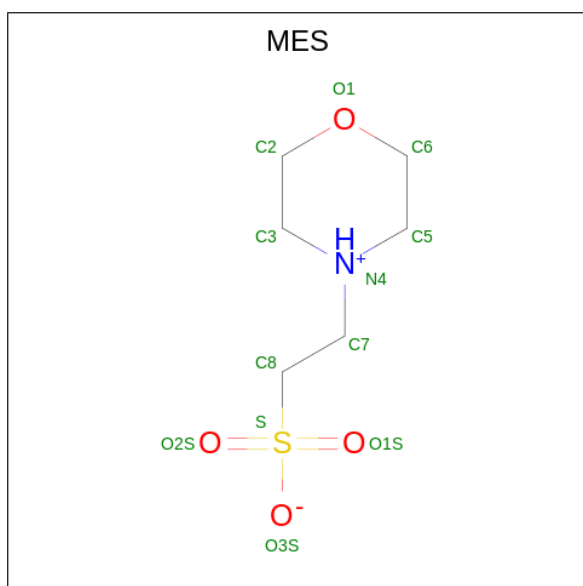
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	1	Total C O 6 3 3	0	0
8	A	1	Total C O 6 3 3	0	0
8	A	1	Total C O 6 3 3	0	0
8	B	1	Total C O 6 3 3	0	0
8	B	1	Total C O 6 3 3	0	0
8	C	1	Total C O 6 3 3	0	0
8	F	1	Total C O 6 3 3	0	0

- Molecule 9 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: C₁₀H₁₅N₅O₁₁P₂).



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

- Molecule 10 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula: C₆H₁₃NO₄S).



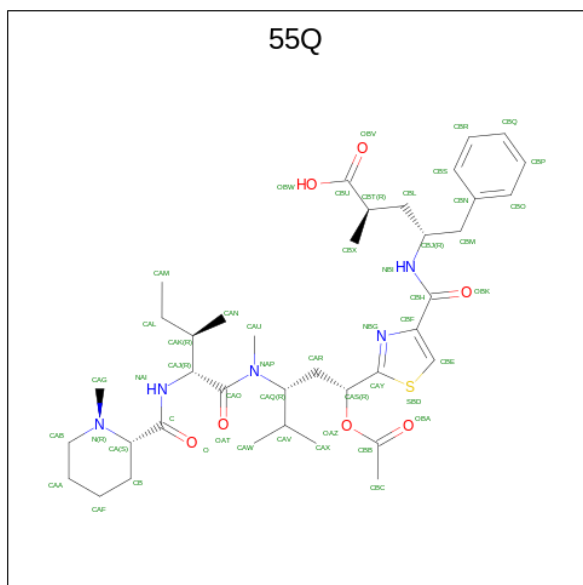
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
10	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

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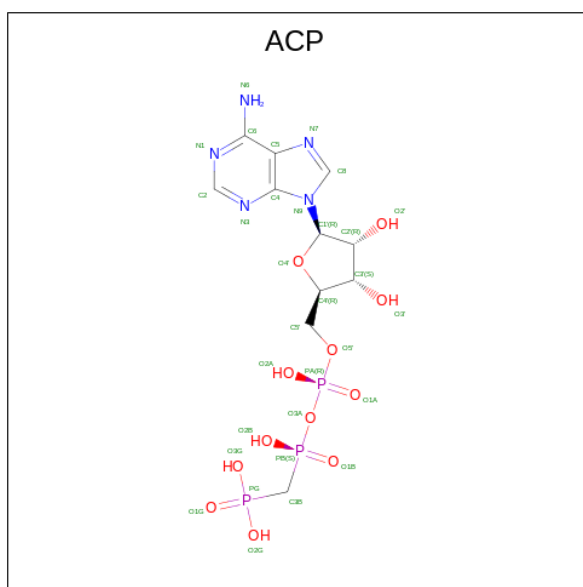
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
10	B	1	12	6	1	4	1	0	0

- Molecule 11 is (2R,4R)-4-[[[(2-{(1R,3R)-1-(acetyloxy)-4-methyl-3-[methyl(N-[(2S)-1-methylpiperidin-2-yl]carbonyl)-D-isoleucyl)amino]pentyl}-1,3-thiazol-4-yl)carbonyl]amino]-2-methyl-5-phenylpentanoic acid (three-letter code: 55Q) (formula: C₃₈H₅₇N₅O₇S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
11	B	1	51	38	5	7	1	0	0
11	D	1	51	38	5	7	1	0	0

- Molecule 12 is PHOSPHOMETHYLPHOSPHONIC ACID ADENYLATE ESTER (three-letter code: ACP) (formula: C₁₁H₁₈N₅O₁₂P₃).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
12	F	1	31	11	5	12	3	0	0

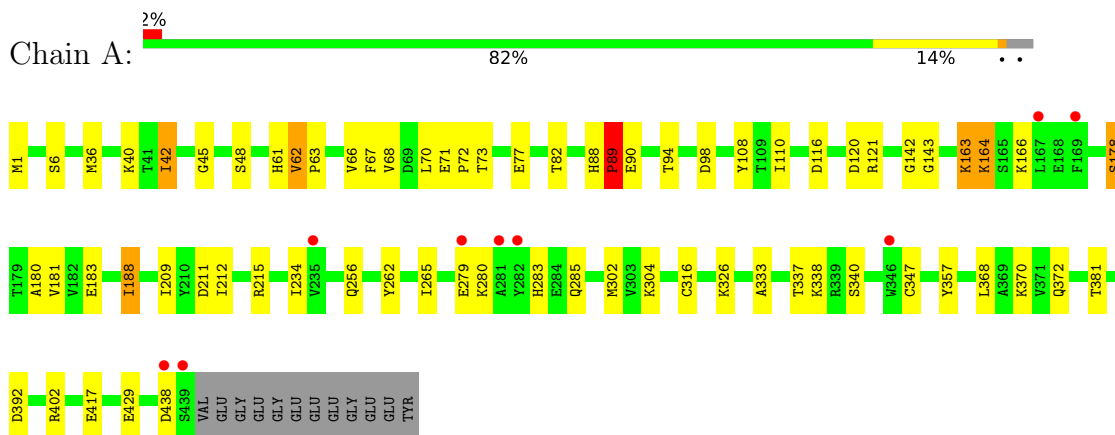
- Molecule 13 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	A	80	Total	O	0	0
			80	80		
13	B	63	Total	O	0	0
			63	63		
13	C	123	Total	O	0	0
			123	123		
13	D	34	Total	O	0	0
			34	34		
13	E	9	Total	O	0	0
			9	9		
13	F	44	Total	O	0	0
			44	44		

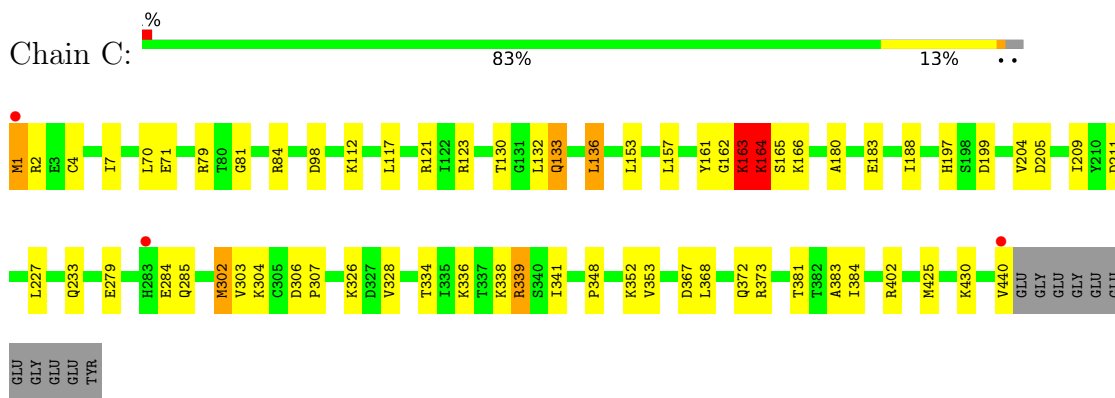
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

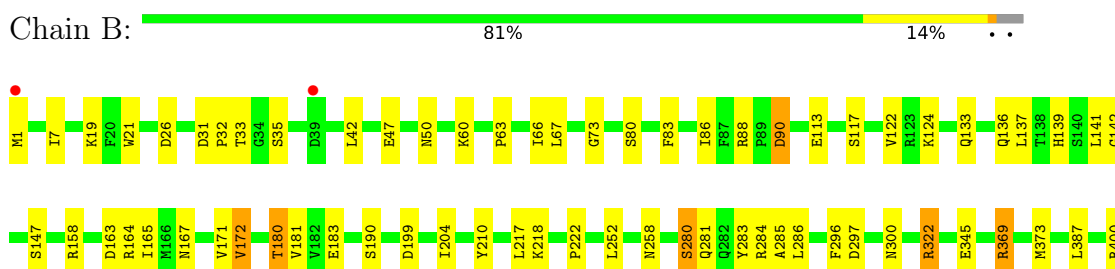
- Molecule 1: Tubulin alpha-1B chain

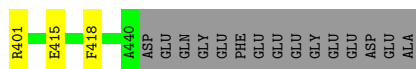


- Molecule 1: Tubulin alpha-1B chain

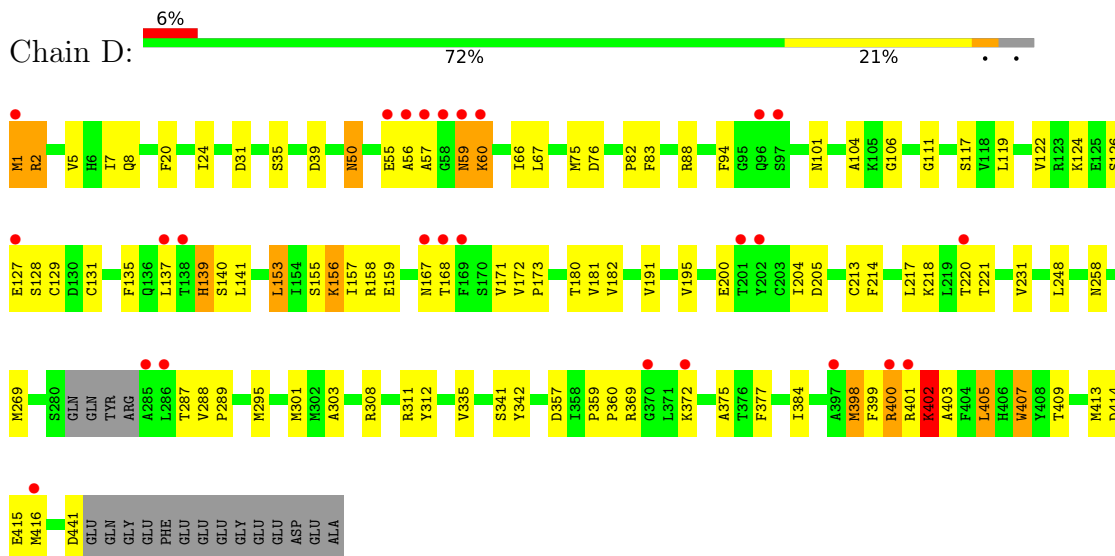


- Molecule 2: Tubulin beta chain

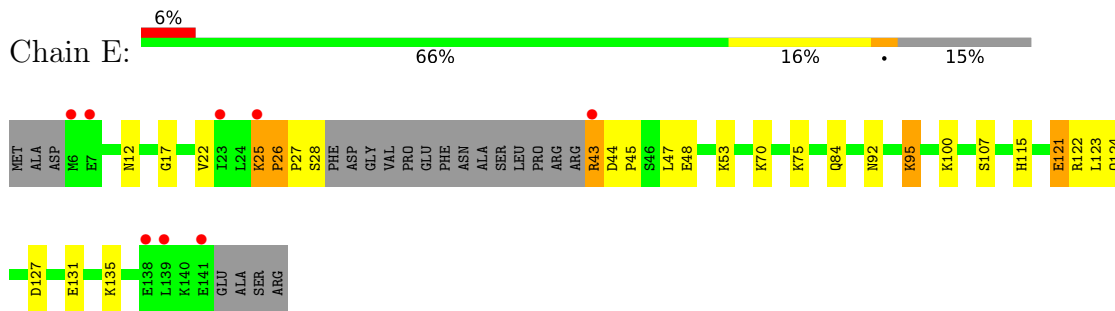




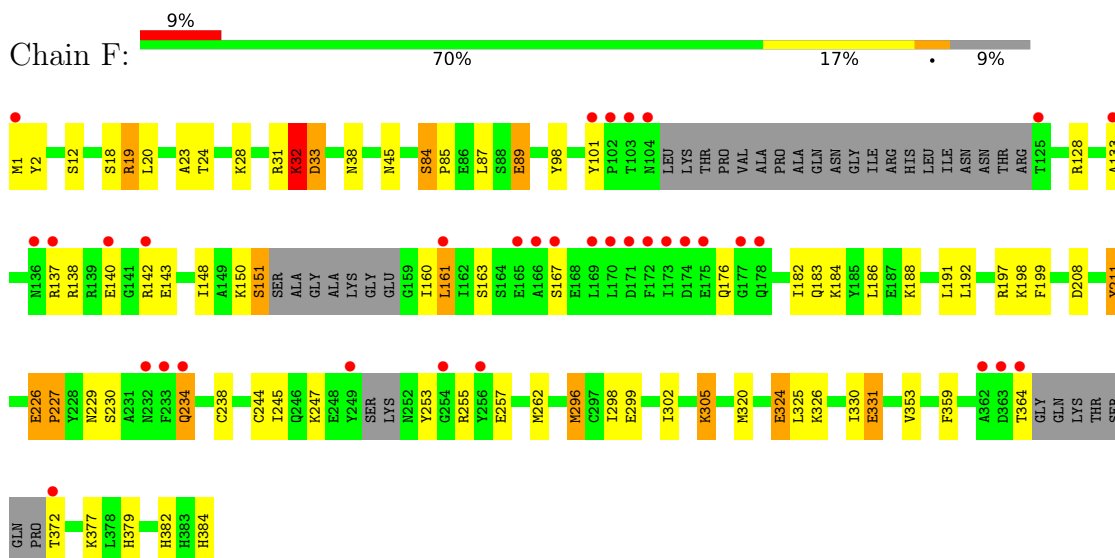
- Molecule 2: Tubulin beta chain



- 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	105.13Å 154.82Å 186.52Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.63 – 2.50 40.14 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.9 (46.63-2.50) 99.9 (40.14-2.50)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.30 (at 2.51Å)	Xtrriage
Refinement program	REFMAC 5.8.0049	Depositor
R, R_{free}	0.174 , 0.232 0.176 , 0.231	Depositor DCC
R_{free} test set	5201 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å ²)	41.8	Xtrriage
Anisotropy	0.042	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 35.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	18159	wwPDB-VP
Average B, all atoms (Å ²)	47.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.49% 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 i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: CA, MG, GDP, ACP, MES, 55Q, GTP, GOL

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	0.79	0/3508	0.89	2/4762 (0.0%)
1	C	0.86	0/3515	0.95	6/4772 (0.1%)
2	B	0.85	0/3451	0.90	2/4676 (0.0%)
2	D	0.76	1/3416 (0.0%)	0.87	5/4628 (0.1%)
3	E	0.78	0/1049	0.87	2/1393 (0.1%)
4	F	0.67	0/2929	0.84	2/3958 (0.1%)
All	All	0.79	1/17868 (0.0%)	0.89	19/24189 (0.1%)

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
2	B	0	1
3	E	0	1
All	All	0	2

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	173	PRO	N-CD	5.06	1.54	1.47

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	136	LEU	CA-CB-CG	7.19	131.83	115.30
1	A	402	ARG	NE-CZ-NH1	7.02	123.81	120.30
1	A	316	CYS	CB-CA-C	-6.11	98.18	110.40
2	D	359	PRO	C-N-CD	6.06	141.12	128.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	402	ARG	NE-CZ-NH2	5.93	123.26	120.30
4	F	161	LEU	CA-CB-CG	-5.92	101.68	115.30
3	E	26	PRO	C-N-CD	5.81	140.60	128.40
3	E	25	LYS	C-N-CD	5.81	140.60	128.40
1	C	373	ARG	NE-CZ-NH1	5.68	123.14	120.30
2	B	163	ASP	CB-CG-OD1	5.65	123.39	118.30
2	D	172	VAL	C-N-CD	5.53	140.01	128.40
2	D	2	ARG	NE-CZ-NH1	5.36	122.98	120.30
2	D	248	LEU	CB-CG-CD2	-5.35	101.91	111.00
1	C	302	MET	CB-CG-SD	-5.26	96.61	112.40
1	C	402	ARG	NE-CZ-NH1	-5.18	117.71	120.30
2	B	172	VAL	C-N-CD	5.17	139.26	128.40
4	F	305	LYS	C-N-CA	-5.12	108.91	121.70
1	C	123	ARG	NE-CZ-NH2	-5.09	117.75	120.30
2	D	407	TRP	CA-CB-CG	5.08	123.35	113.70

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	280	SER	Peptide
3	E	115[B]	HIS	Mainchain

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3430	0	3340	45	0
1	C	3437	0	3348	54	0
2	B	3376	0	3258	40	0
2	D	3343	0	3223	75	0
3	E	1033	0	1048	12	0
4	F	2862	0	2808	49	0
5	A	32	0	12	1	0
5	C	32	0	12	0	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	C	1	0	0	0	0
6	D	1	0	0	0	0
7	A	1	0	0	0	0
7	C	1	0	0	0	0
8	A	18	0	24	13	0
8	B	12	0	16	1	0
8	C	6	0	8	0	0
8	F	6	0	8	0	0
9	B	28	0	12	1	0
9	D	28	0	12	1	0
10	B	24	0	26	4	0
11	B	51	0	0	0	0
11	D	51	0	0	0	0
12	F	31	0	14	4	0
13	A	80	0	0	4	0
13	B	63	0	0	4	0
13	C	123	0	0	6	0
13	D	34	0	0	1	0
13	E	9	0	0	0	0
13	F	44	0	0	3	0
All	All	18159	0	17169	271	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 8.

All (271) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:4:CYS:HB3	13:C:719:HOH:O	1.12	1.24
1:C:161:TYR:O	1:C:163:LYS:CD	1.86	1.23
1:C:1:MET:CE	1:C:130:THR:OG1	1.87	1.22
2:D:57:ALA:O	2:D:60:LYS:HD2	1.33	1.22
4:F:296:MET:HE1	13:F:540:HOH:O	1.47	1.15
1:C:161:TYR:O	1:C:163:LYS:HD3	1.40	1.12
4:F:138:ARG:NH2	4:F:184:LYS:HE2	1.75	0.99
1:C:161:TYR:O	1:C:163:LYS:HD2	1.63	0.98
1:C:1:MET:HE2	1:C:130:THR:OG1	1.69	0.92
2:D:57:ALA:O	2:D:60:LYS:CD	2.18	0.89
4:F:31:ARG:HD3	4:F:32:LYS:H	1.39	0.88
1:A:304:LYS:HE3	8:A:506:GOL:H2	1.57	0.86
2:B:199:ASP:OD2	10:B:504:MES:H52	1.74	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:163:LYS:HE2	1:C:164:LYS:HD2	1.54	0.86
4:F:150:LYS:HG2	4:F:151:SER:H	1.39	0.86
1:C:381:THR:HG23	13:C:672:HOH:O	1.76	0.86
1:C:1:MET:HE1	1:C:130:THR:OG1	1.74	0.85
1:A:178:SER:HB2	1:A:183:GLU:OE1	1.77	0.83
2:D:1:MET:HG3	2:D:50:ASN:HB2	1.62	0.82
1:A:211:ASP:HB2	8:A:506:GOL:H31	1.64	0.80
1:C:2:ARG:HD2	13:C:714:HOH:O	1.82	0.79
9:B:501:GDP:O3B	13:B:601:HOH:O	2.00	0.78
1:C:204:VAL:HG22	1:C:302:MET:CE	2.16	0.76
2:B:172:VAL:HG11	2:B:387:LEU:HD11	1.66	0.76
2:D:56:ALA:HB3	2:D:60:LYS:O	1.85	0.76
1:A:304:LYS:HE3	8:A:506:GOL:C2	2.16	0.75
4:F:234:GLN:HA	4:F:234:GLN:NE2	2.01	0.74
4:F:89:GLU:CD	4:F:89:GLU:H	1.91	0.74
2:D:400:ARG:HB3	2:D:400:ARG:NH1	2.03	0.74
4:F:382:HIS:ND1	4:F:384:HIS:HD2	1.85	0.73
8:A:504:GOL:H12	3:E:44[A]:ASP:OD2	1.89	0.72
2:D:220:THR:HG23	2:D:221:THR:H	1.54	0.72
2:D:398:MET:O	2:D:400:ARG:N	2.23	0.71
4:F:234:GLN:HA	4:F:234:GLN:HE21	1.54	0.71
1:C:1:MET:O	1:C:1:MET:HG3	1.90	0.71
2:D:75:MET:HG3	2:D:94:PHE:HB3	1.72	0.71
1:C:336:LYS:HD2	13:C:656:HOH:O	1.91	0.70
2:D:400:ARG:HH11	2:D:400:ARG:CG	2.04	0.70
1:C:71:GLU:HB2	1:C:98:ASP:HB3	1.73	0.69
4:F:244:CYS:SG	4:F:245:ILE:N	2.65	0.69
2:D:400:ARG:HH11	2:D:400:ARG:HG2	1.58	0.69
12:F:401:ACP:O1A	12:F:401:ACP:O3G	2.11	0.68
1:C:211:ASP:OD2	1:C:304:LYS:NZ	2.25	0.68
2:D:180:THR:CG2	2:D:182:VAL:HG12	2.25	0.67
2:D:269:MET:CE	2:D:301:MET:HG3	2.24	0.67
2:D:31:ASP:OD2	2:D:35:SER:HB2	1.95	0.66
1:C:367:ASP:O	13:C:601:HOH:O	2.13	0.66
9:D:501:GDP:O3B	13:D:601:HOH:O	2.13	0.66
2:D:1:MET:HG3	2:D:50:ASN:CB	2.26	0.65
4:F:298:ILE:HD12	4:F:302:ILE:HD13	1.77	0.65
2:D:56:ALA:CB	2:D:60:LYS:O	2.43	0.65
1:A:211:ASP:HB3	8:A:506:GOL:O3	1.96	0.65
1:C:163:LYS:HD3	1:C:164:LYS:H	1.62	0.65
4:F:150:LYS:HE3	12:F:401:ACP:O2B	1.96	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:295:MET:SD	2:D:375:ALA:HB1	2.37	0.65
4:F:320:MET:HB2	4:F:330:ILE:HD11	1.77	0.65
2:D:56:ALA:HB3	2:D:60:LYS:HB2	1.79	0.65
1:A:357:TYR:CE2	3:E:17:GLY:HA2	2.33	0.64
1:C:204:VAL:HG22	1:C:302:MET:HE1	1.78	0.64
4:F:150:LYS:HG2	4:F:151:SER:N	2.11	0.64
1:A:209:ILE:HD11	1:A:302:MET:SD	2.39	0.63
4:F:31:ARG:HD3	4:F:32:LYS:N	2.11	0.63
1:A:215:ARG:HH21	8:A:506:GOL:C3	2.12	0.62
2:D:59:ASN:OD1	2:D:59:ASN:N	2.33	0.62
1:C:209:ILE:HG22	1:C:227:LEU:HD22	1.82	0.61
2:B:26:ASP:OD2	2:B:369:ARG:NH1	2.34	0.61
1:A:215:ARG:HH21	8:A:506:GOL:H32	1.65	0.61
2:D:153:LEU:O	2:D:157:ILE:HG13	2.00	0.61
2:D:101:ASN:HD22	2:D:180:THR:HG21	1.65	0.61
2:D:55:GLU:OE2	2:D:55:GLU:HA	2.00	0.60
4:F:138:ARG:HH21	4:F:184:LYS:HE2	1.66	0.60
4:F:324:GLU:O	4:F:325:LEU:HB2	2.01	0.60
1:C:163:LYS:HE2	1:C:164:LYS:CD	2.29	0.60
1:A:357:TYR:CZ	3:E:17:GLY:HA2	2.37	0.60
4:F:138:ARG:HH22	4:F:184:LYS:HE2	1.61	0.60
1:C:279:GLU:N	1:C:279:GLU:OE1	2.34	0.59
1:A:108:TYR:OH	1:A:417:GLU:OE1	2.19	0.59
4:F:191:LEU:HA	4:F:197:ARG:O	2.03	0.59
1:A:265:ILE:O	1:A:265:ILE:HG22	2.03	0.59
2:D:220:THR:CG2	2:D:221:THR:H	2.16	0.59
2:D:180:THR:HG22	2:D:182:VAL:HG12	1.85	0.59
1:A:211:ASP:CB	8:A:506:GOL:H31	2.33	0.59
1:A:211:ASP:HB2	8:A:506:GOL:C3	2.31	0.58
2:D:400:ARG:HH11	2:D:400:ARG:CB	2.15	0.58
1:C:204:VAL:HG22	1:C:302:MET:HE3	1.85	0.58
1:A:142:GLY:HA3	1:A:183:GLU:OE2	2.04	0.58
2:D:288:VAL:HB	2:D:289:PRO:HD3	1.87	0.57
1:C:1:MET:HE2	1:C:130:THR:HG1	1.67	0.57
1:C:1:MET:HE1	1:C:130:THR:CB	2.33	0.57
1:C:163:LYS:CE	1:C:164:LYS:HD2	2.29	0.57
2:D:39:ASP:OD1	2:D:39:ASP:N	2.35	0.57
2:D:400:ARG:HB3	2:D:400:ARG:HH11	1.70	0.56
2:D:287:THR:HB	2:D:289:PRO:HD2	1.86	0.56
1:C:1:MET:HE3	1:C:130:THR:OG1	1.97	0.55
1:A:45:GLY:HA3	13:A:603:HOH:O	2.04	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:220:THR:HG23	2:D:221:THR:N	2.20	0.55
4:F:31:ARG:HA	4:F:31:ARG:NE	2.21	0.55
1:A:42:ILE:N	1:A:42:ILE:HD13	2.21	0.55
4:F:382:HIS:ND1	4:F:384:HIS:CD2	2.73	0.55
2:D:7:ILE:O	2:D:137:LEU:HD12	2.07	0.54
2:D:191:VAL:O	2:D:195:VAL:HG12	2.07	0.54
3:E:43:ARG:HB2	3:E:43:ARG:CZ	2.36	0.54
2:B:284:ARG:HH12	2:B:286:LEU:HA	1.71	0.54
2:D:137:LEU:HB3	2:D:168:THR:HG22	1.89	0.54
4:F:140:GLU:C	4:F:142:ARG:H	2.11	0.54
4:F:1:MET:SD	4:F:28:LYS:HG2	2.48	0.54
2:D:312:TYR:CE1	2:D:377:PHE:HZ	2.25	0.54
4:F:377:LYS:HG2	4:F:379:HIS:HD2	1.73	0.54
2:D:180:THR:HG22	2:D:182:VAL:H	1.73	0.54
2:B:164:ARG:NE	13:B:603:HOH:O	2.41	0.53
4:F:160:ILE:HG22	4:F:161:LEU:N	2.22	0.53
1:A:98:ASP:C	1:A:98:ASP:OD1	2.47	0.53
2:D:56:ALA:CB	2:D:60:LYS:HB2	2.38	0.53
2:D:204:ILE:HG21	2:D:231:VAL:HG22	1.91	0.53
1:C:117:LEU:HD11	1:C:121:ARG:NH2	2.23	0.53
2:D:66:ILE:HD13	2:D:122:VAL:HG22	1.89	0.53
2:B:297:ASP:HB3	2:B:300:ASN:HD22	1.74	0.52
1:A:212:ILE:HG13	8:A:506:GOL:H32	1.91	0.52
2:D:20:PHE:CZ	2:D:24:ILE:HD13	2.44	0.52
2:B:284:ARG:NH1	2:B:285:ALA:O	2.42	0.52
2:B:1:MET:N	2:B:50:ASN:HB2	2.25	0.52
1:A:70:LEU:HD13	1:A:110:ILE:HG21	1.92	0.52
2:B:21:TRP:CZ3	2:B:63:PRO:HB3	2.45	0.52
2:B:401:ARG:HE	8:B:506:GOL:H11	1.75	0.52
3:E:27:PRO:O	3:E:27:PRO:HG2	2.10	0.52
1:A:143:GLY:HA3	5:A:501:GTP:O3A	2.10	0.52
1:C:163:LYS:CD	1:C:163:LYS:N	2.72	0.51
1:A:211:ASP:CB	8:A:506:GOL:O3	2.58	0.51
2:B:345:GLU:OE1	2:B:345:GLU:N	2.37	0.51
1:C:180:ALA:O	1:C:183:GLU:HG3	2.10	0.51
2:D:401:ARG:O	2:D:403:ALA:N	2.43	0.51
4:F:192:LEU:HD13	4:F:262:MET:CE	2.41	0.51
3:E:121:GLU:HG3	3:E:122:ARG:N	2.25	0.51
3:E:43:ARG:HB2	3:E:43:ARG:NH1	2.25	0.51
2:D:398:MET:O	2:D:401:ARG:N	2.43	0.50
2:D:167:ASN:OD1	2:D:200:GLU:HG3	2.10	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:211:ASP:CB	8:A:506:GOL:C3	2.89	0.50
1:C:381:THR:HG22	1:C:383:ALA:H	1.76	0.50
1:C:163:LYS:CD	1:C:163:LYS:H	2.24	0.50
2:D:82:PRO:O	2:D:83:PHE:HB2	2.12	0.50
1:A:36:MET:HB3	1:A:61:HIS:CE1	2.46	0.50
2:D:126:SER:O	2:D:129:CYS:HB2	2.11	0.50
4:F:331:GLU:OE2	12:F:401:ACP:O1B	2.30	0.50
1:A:180:ALA:HA	2:B:258:ASN:OD1	2.12	0.49
1:C:188:ILE:HG13	1:C:425:MET:HG3	1.93	0.49
4:F:2:TYR:CZ	4:F:359:PHE:HB3	2.47	0.49
2:D:414:ASP:OD1	2:D:415:GLU:N	2.46	0.49
2:B:158:ARG:CZ	10:B:504:MES:H21	2.43	0.49
1:C:161:TYR:C	1:C:163:LYS:HD2	2.31	0.49
1:A:234:ILE:HD13	1:A:302:MET:SD	2.52	0.49
2:B:66:ILE:HD12	2:B:122:VAL:HG22	1.94	0.49
4:F:160:ILE:CG2	4:F:161:LEU:N	2.76	0.49
2:B:88:ARG:HH21	2:B:124:LYS:HE3	1.77	0.49
1:C:381:THR:CG2	13:C:672:HOH:O	2.48	0.49
2:B:141:LEU:HD22	2:B:190:SER:HB3	1.95	0.49
2:D:56:ALA:HB3	2:D:60:LYS:CB	2.42	0.49
1:A:304:LYS:HE3	8:A:506:GOL:O2	2.13	0.48
1:C:81:GLY:O	1:C:84:ARG:NH2	2.45	0.48
2:D:409:THR:HA	2:D:413:MET:O	2.13	0.48
12:F:401:ACP:O1B	13:F:501:HOH:O	2.20	0.48
2:D:1:MET:O	2:D:131:CYS:HB3	2.14	0.47
3:E:47:LEU:HD12	3:E:47:LEU:O	2.14	0.47
4:F:32:LYS:HB3	4:F:33:ASP:OD1	2.14	0.47
4:F:84:SER:HA	4:F:85:PRO:HD2	1.72	0.47
2:D:311:ARG:NH1	2:D:341:SER:O	2.46	0.47
2:B:297:ASP:HB3	2:B:300:ASN:ND2	2.29	0.47
2:D:402:LYS:HE3	2:D:415:GLU:OE2	2.15	0.47
2:B:90:ASP:OD1	2:B:90:ASP:N	2.47	0.47
1:C:161:TYR:O	1:C:163:LYS:N	2.48	0.47
2:D:400:ARG:NH1	2:D:400:ARG:CG	2.72	0.47
2:D:67:LEU:N	2:D:67:LEU:HD12	2.31	0.46
2:D:180:THR:HG21	2:D:182:VAL:HG12	1.97	0.46
1:A:188:ILE:N	1:A:188:ILE:HD13	2.31	0.46
1:A:285:GLN:NE2	1:A:372:GLN:H	2.14	0.46
2:B:35:SER:OG	2:B:60:LYS:HE3	2.15	0.46
4:F:101:TYR:O	4:F:128:ARG:NH2	2.48	0.46
2:B:322:ARG:O	2:B:373:MET:HE1	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:171:VAL:HA	2:D:204:ILE:O	2.15	0.46
1:C:233:GLN:HG3	1:C:368:LEU:CD1	2.46	0.46
2:B:164:ARG:HD2	13:B:603:HOH:O	2.14	0.46
4:F:20:LEU:O	4:F:24:THR:HG23	2.16	0.46
2:B:83:PHE:O	2:B:86:ILE:HG22	2.17	0.45
2:B:296:PHE:O	10:B:503:MES:H81	2.16	0.45
4:F:192:LEU:HD13	4:F:262:MET:HE3	1.97	0.45
2:B:218:LYS:HD2	2:B:218:LYS:HA	1.69	0.45
2:B:136:GLN:HA	2:B:167:ASN:O	2.16	0.45
2:B:142:GLY:O	2:B:183:GLU:HG2	2.16	0.45
2:D:398:MET:C	2:D:400:ARG:H	2.20	0.45
1:C:372:GLN:OE1	1:C:372:GLN:HA	2.17	0.45
2:D:269:MET:HE3	2:D:301:MET:HG3	1.98	0.45
2:B:33:THR:O	2:B:60:LYS:HE2	2.18	0.44
1:C:328:VAL:HG11	1:C:353:VAL:HG11	1.98	0.44
4:F:186:LEU:HD12	4:F:320:MET:HG2	1.99	0.44
2:D:5:VAL:HB	2:D:135:PHE:CD1	2.52	0.44
2:D:104:ALA:HB2	2:D:413:MET:SD	2.57	0.44
4:F:208:ASP:OD1	4:F:208:ASP:C	2.56	0.44
1:A:88:HIS:O	1:A:89:PRO:C	2.56	0.44
2:D:119:LEU:HD11	2:D:156:LYS:HG2	2.00	0.44
4:F:19:ARG:HD3	13:F:532:HOH:O	2.17	0.44
2:D:213:CYS:HA	2:D:217:LEU:HB2	2.00	0.44
4:F:148:ILE:HG22	4:F:183:GLN:O	2.18	0.44
2:B:210:TYR:CE2	2:B:222:PRO:HG2	2.52	0.44
1:A:333:ALA:O	1:A:337:THR:HG23	2.17	0.43
1:C:70:LEU:HA	1:C:70:LEU:HD23	1.73	0.43
2:D:308:ARG:HG2	2:D:342:TYR:CZ	2.53	0.43
1:A:347:CYS:C	3:E:27:PRO:HB3	2.38	0.43
1:A:116:ASP:HB2	13:A:656:HOH:O	2.18	0.43
4:F:140:GLU:C	4:F:142:ARG:N	2.72	0.43
4:F:197:ARG:NH1	4:F:257:GLU:OE1	2.52	0.43
3:E:127:ASP:O	3:E:131:GLU:HG2	2.19	0.43
1:A:72:PRO:HA	1:A:94:THR:HG21	2.01	0.43
3:E:95:LYS:HB3	3:E:95:LYS:HE2	1.68	0.43
1:A:280:LYS:HD3	1:A:283:HIS:HB2	1.99	0.43
1:A:164:LYS:N	1:A:164:LYS:HD3	2.32	0.43
2:B:281:GLN:HB3	2:B:283:TYR:CZ	2.52	0.42
1:C:306:ASP:HA	1:C:307:PRO:HD3	1.88	0.42
2:D:398:MET:C	2:D:400:ARG:N	2.73	0.42
2:B:415:GLU:O	2:B:418:PHE:HB2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:247:LYS:HA	4:F:253:TYR:CD2	2.54	0.42
1:A:68:VAL:HG13	1:A:68:VAL:O	2.19	0.42
1:A:392:ASP:OD2	1:A:429:GLU:OE1	2.37	0.42
2:B:180:THR:HG22	1:C:352:LYS:NZ	2.35	0.42
2:D:405:LEU:HD13	2:D:405:LEU:HA	1.88	0.42
2:B:171:VAL:HA	2:B:204:ILE:O	2.20	0.42
2:B:199:ASP:OD1	10:B:504:MES:H32	2.19	0.42
1:C:233:GLN:HG3	1:C:368:LEU:HD11	2.02	0.42
2:D:56:ALA:N	2:D:60:LYS:O	2.52	0.42
1:A:256:GLN:HG3	13:A:666:HOH:O	2.20	0.42
4:F:226:GLU:HA	4:F:227:PRO:HD2	1.88	0.42
1:A:1:MET:SD	1:A:1:MET:C	2.98	0.42
1:C:132:LEU:O	1:C:164:LYS:HE2	2.20	0.42
1:C:165:SER:HA	1:C:199:ASP:OD2	2.19	0.42
1:C:334:THR:O	1:C:338:LYS:HB2	2.20	0.42
4:F:143:GLU:H	4:F:143:GLU:HG2	1.69	0.42
1:A:90:GLU:O	1:A:121:ARG:HD2	2.20	0.42
4:F:133:ALA:O	4:F:137:ARG:HB2	2.19	0.42
2:D:56:ALA:HB1	2:D:60:LYS:HD3	2.02	0.41
2:D:398:MET:O	2:D:401:ARG:HG2	2.20	0.41
1:A:40:LYS:HA	1:A:40:LYS:HD3	1.57	0.41
4:F:199:PHE:O	4:F:320:MET:CE	2.67	0.41
2:D:205:ASP:HB2	2:D:303:ALA:HA	2.02	0.41
2:B:21:TRP:CE3	2:B:63:PRO:HB3	2.55	0.41
4:F:31:ARG:HA	4:F:31:ARG:HE	1.85	0.41
4:F:98:TYR:HB2	4:F:182:ILE:HG23	2.02	0.41
1:A:163:LYS:HB2	13:A:679:HOH:O	2.20	0.41
2:D:441:ASP:OD1	2:D:441:ASP:N	2.54	0.41
1:A:62:VAL:HA	1:A:63:PRO:HD3	1.95	0.41
4:F:211:TYR:CE2	4:F:299:GLU:HB2	2.56	0.41
2:B:31:ASP:HB2	2:B:32:PRO:CD	2.51	0.41
2:B:67:LEU:N	2:B:67:LEU:HD12	2.36	0.41
1:C:7:ILE:HG21	1:C:153:LEU:HD21	2.03	0.41
2:D:156:LYS:O	2:D:159:GLU:HB2	2.21	0.41
1:C:166:LYS:HE2	1:C:197:HIS:O	2.21	0.41
2:D:1:MET:SD	2:D:1:MET:N	2.84	0.41
1:A:67:PHE:CD1	1:A:67:PHE:N	2.89	0.40
2:D:220:THR:CG2	2:D:221:THR:N	2.81	0.40
2:B:181:VAL:HG23	1:C:348:PRO:CG	2.51	0.40
2:D:139:HIS:CE1	2:D:141:LEU:CD2	3.04	0.40
2:D:158:ARG:HG2	3:E:123:LEU:HD11	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:38:ASN:HB3	4:F:359:PHE:CZ	2.56	0.40
1:C:2:ARG:HB3	1:C:133:GLN:HB2	2.03	0.40
4:F:198:LYS:HG3	4:F:199:PHE:N	2.37	0.40
2:B:7:ILE:O	2:B:137:LEU:HA	2.21	0.40
2:B:164:ARG:CD	13:B:603:HOH:O	2.70	0.40
1:C:153:LEU:O	1:C:157:LEU:HG	2.21	0.40
2:D:106:GLY:O	2:D:111:GLY:HA3	2.20	0.40
2:B:165:ILE:HG21	2:B:252:LEU:HB3	2.03	0.40
1:C:79:ARG:O	1:C:84:ARG:HB2	2.21	0.40
1:C:180:ALA:HA	2:D:258:ASN:OD1	2.21	0.40
1:C:205:ASP:HB3	1:C:303:VAL:HA	2.03	0.40
2:D:400:ARG:HB3	2:D:400:ARG:CZ	2.51	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	437/451 (97%)	416 (95%)	20 (5%)	1 (0%)	47	68
1	C	438/451 (97%)	419 (96%)	15 (3%)	4 (1%)	17	31
2	B	428/445 (96%)	415 (97%)	12 (3%)	1 (0%)	47	68
2	D	423/445 (95%)	401 (95%)	18 (4%)	4 (1%)	17	31
3	E	121/143 (85%)	114 (94%)	6 (5%)	1 (1%)	19	35
4	F	338/384 (88%)	313 (93%)	21 (6%)	4 (1%)	13	24
All	All	2185/2319 (94%)	2078 (95%)	92 (4%)	15 (1%)	22	39

All (15) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	162	GLY

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Mol	Chain	Res	Type
1	C	339	ARG
2	D	399	PHE
2	D	402	LYS
4	F	32	LYS
2	B	73	GLY
4	F	23	ALA
1	C	164	LYS
2	D	214	PHE
4	F	230	SER
2	D	360	PRO
4	F	227	PRO
1	A	89	PRO
1	C	163	LYS
3	E	45	PRO

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	370/379 (98%)	344 (93%)	26 (7%)	15	29
1	C	371/379 (98%)	357 (96%)	14 (4%)	33	58
2	B	369/381 (97%)	353 (96%)	16 (4%)	29	53
2	D	366/381 (96%)	336 (92%)	30 (8%)	11	22
3	E	113/127 (89%)	95 (84%)	18 (16%)	2	4
4	F	314/342 (92%)	286 (91%)	28 (9%)	9	19
All	All	1903/1989 (96%)	1771 (93%)	132 (7%)	15	30

All (132) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	SER
1	A	42	ILE
1	A	48	SER
1	A	62	VAL

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Mol	Chain	Res	Type
1	A	66	VAL
1	A	71	GLU
1	A	73	THR
1	A	77	GLU
1	A	82	THR
1	A	89	PRO
1	A	120	ASP
1	A	163	LYS
1	A	164	LYS
1	A	166	LYS
1	A	178	SER
1	A	181	VAL
1	A	188	ILE
1	A	262	TYR
1	A	279	GLU
1	A	326	LYS
1	A	338	LYS
1	A	340	SER
1	A	368	LEU
1	A	370	LYS
1	A	381	THR
1	A	438	ASP
2	B	19	LYS
2	B	42	LEU
2	B	47	GLU
2	B	80	SER
2	B	90	ASP
2	B	113	GLU
2	B	117	SER
2	B	133	GLN
2	B	139	HIS
2	B	147	SER
2	B	180	THR
2	B	217	LEU
2	B	280	SER
2	B	322	ARG
2	B	369	ARG
2	B	400	ARG
1	C	1	MET
1	C	112	LYS
1	C	133	GLN
1	C	136	LEU

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Mol	Chain	Res	Type
1	C	163	LYS
1	C	164	LYS
1	C	284	GLU
1	C	285	GLN
1	C	326	LYS
1	C	339	ARG
1	C	341	ILE
1	C	384	ILE
1	C	430	LYS
1	C	440	VAL
2	D	1	MET
2	D	2	ARG
2	D	8	GLN
2	D	50	ASN
2	D	59	ASN
2	D	60	LYS
2	D	76	ASP
2	D	88	ARG
2	D	117	SER
2	D	124	LYS
2	D	127	GLU
2	D	128	SER
2	D	139	HIS
2	D	140	SER
2	D	153	LEU
2	D	155	SER
2	D	156	LYS
2	D	181	VAL
2	D	218	LYS
2	D	335	VAL
2	D	357	ASP
2	D	369	ARG
2	D	372	LYS
2	D	384	ILE
2	D	398	MET
2	D	400	ARG
2	D	402	LYS
2	D	405	LEU
2	D	407	TRP
2	D	416	MET
3	E	12	ASN
3	E	22	VAL

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Mol	Chain	Res	Type
3	E	25	LYS
3	E	26	PRO
3	E	28	SER
3	E	43	ARG
3	E	48	GLU
3	E	53	LYS
3	E	70	LYS
3	E	75	LYS
3	E	84	GLN
3	E	92	ASN
3	E	95	LYS
3	E	100	LYS
3	E	107	SER
3	E	121	GLU
3	E	124	GLN
3	E	135	LYS
4	F	12	SER
4	F	18	SER
4	F	19	ARG
4	F	32	LYS
4	F	33	ASP
4	F	45	ASN
4	F	84	SER
4	F	87	LEU
4	F	89	GLU
4	F	151	SER
4	F	163	SER
4	F	167	SER
4	F	176	GLN
4	F	188	LYS
4	F	211	TYR
4	F	226	GLU
4	F	229	ASN
4	F	234	GLN
4	F	238	CYS
4	F	255	ARG
4	F	296	MET
4	F	305	LYS
4	F	324	GLU
4	F	326	LYS
4	F	331	GLU
4	F	353	VAL

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Mol	Chain	Res	Type
4	F	364	THR
4	F	372	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	285	GLN
1	A	300	ASN
2	B	15	GLN
2	B	85	GLN
2	B	167	ASN
2	B	300	ASN
1	C	11	GLN
1	C	285	GLN
1	C	293	ASN
2	D	101	ASN
2	D	247	GLN
4	F	45	ASN
4	F	234	GLN
4	F	260	ASN
4	F	379	HIS
4	F	384	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 22 ligands modelled in this entry, 6 are monoatomic - leaving 16 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
9	GDP	D	501	6	24,30,30	1.13	2 (8%)	30,47,47	1.81	7 (23%)
10	MES	B	503	-	12,12,12	2.04	1 (8%)	14,16,16	2.31	7 (50%)
8	GOL	A	505	-	5,5,5	0.17	0	5,5,5	0.89	0
9	GDP	B	501	6	24,30,30	1.27	3 (12%)	30,47,47	0.99	2 (6%)
5	GTP	C	501	6	26,34,34	1.01	1 (3%)	32,54,54	1.59	7 (21%)
11	55Q	D	503	-	51,53,53	1.90	9 (17%)	58,73,73	2.36	17 (29%)
8	GOL	A	504	-	5,5,5	0.37	0	5,5,5	0.48	0
8	GOL	B	505	-	5,5,5	0.33	0	5,5,5	0.48	0
8	GOL	B	506	-	5,5,5	0.38	0	5,5,5	0.40	0
11	55Q	B	507	-	51,53,53	1.88	12 (23%)	58,73,73	2.42	16 (27%)
12	ACP	F	401	-	27,33,33	1.97	8 (29%)	32,52,52	1.26	5 (15%)
8	GOL	A	506	-	5,5,5	0.47	0	5,5,5	0.55	0
8	GOL	F	402	-	5,5,5	0.59	0	5,5,5	1.05	0
5	GTP	A	501	6	26,34,34	1.49	3 (11%)	32,54,54	1.42	4 (12%)
10	MES	B	504	-	12,12,12	2.06	1 (8%)	14,16,16	6.49	10 (71%)
8	GOL	C	504	-	5,5,5	0.41	0	5,5,5	1.18	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	GDP	D	501	6	-	5/12/32/32	0/3/3/3
10	MES	B	503	-	-	1/6/14/14	0/1/1/1
8	GOL	A	505	-	-	4/4/4/4	-
9	GDP	B	501	6	-	5/12/32/32	0/3/3/3
5	GTP	C	501	6	-	4/18/38/38	0/3/3/3
11	55Q	D	503	-	-	24/54/73/73	0/3/3/3
8	GOL	A	504	-	-	3/4/4/4	-
8	GOL	B	505	-	-	2/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	GOL	B	506	-	-	4/4/4/4	-
11	55Q	B	507	-	-	18/54/73/73	0/3/3/3
12	ACP	F	401	-	-	6/15/38/38	0/3/3/3
8	GOL	A	506	-	-	2/4/4/4	-
8	GOL	F	402	-	-	0/4/4/4	-
5	GTP	A	501	6	-	6/18/38/38	0/3/3/3
10	MES	B	504	-	-	4/6/14/14	0/1/1/1
8	GOL	C	504	-	-	4/4/4/4	-

All (40) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	D	503	55Q	CBF-CBH	-7.33	1.32	1.50
11	B	507	55Q	CBF-CBH	-6.56	1.34	1.50
10	B	504	MES	C8-S	-6.46	1.68	1.77
10	B	503	MES	C8-S	-6.44	1.68	1.77
12	F	401	ACP	PG-O1G	5.64	1.62	1.50
11	D	503	55Q	CBM-CBN	-4.62	1.40	1.51
12	F	401	ACP	PB-O3A	4.48	1.63	1.58
5	A	501	GTP	C6-N1	-4.17	1.31	1.37
11	B	507	55Q	CBE-SBD	3.91	1.76	1.70
11	D	503	55Q	CAR-CAS	3.78	1.56	1.52
11	D	503	55Q	CAV-CAQ	3.71	1.58	1.53
11	D	503	55Q	OAZ-CAS	3.64	1.51	1.46
11	D	503	55Q	OAZ-CBB	3.53	1.43	1.35
11	B	507	55Q	OAZ-CBB	3.52	1.43	1.35
9	B	501	GDP	C6-N1	-3.27	1.33	1.37
11	B	507	55Q	CBM-CBN	-3.20	1.43	1.51
11	B	507	55Q	CBT-CBU	3.10	1.60	1.51
11	B	507	55Q	CA-N	3.00	1.52	1.48
12	F	401	ACP	PG-O3G	2.96	1.61	1.54
11	B	507	55Q	CAR-CAS	2.95	1.55	1.52
11	B	507	55Q	CAB-N	2.85	1.52	1.47
5	A	501	GTP	O4'-C1'	2.83	1.45	1.41
12	F	401	ACP	C5-C4	2.76	1.48	1.40
5	A	501	GTP	C2'-C1'	-2.61	1.49	1.53
12	F	401	ACP	PG-O2G	-2.60	1.49	1.54
11	D	503	55Q	CBE-SBD	2.57	1.74	1.70
12	F	401	ACP	PB-O2B	2.56	1.62	1.56
11	B	507	55Q	CAV-CAQ	2.54	1.57	1.53
5	C	501	GTP	C8-N7	2.52	1.39	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	B	501	GDP	O4'-C1'	2.44	1.44	1.41
9	D	501	GDP	C2-N3	2.39	1.38	1.33
11	B	507	55Q	CAO-NAP	2.34	1.40	1.35
11	D	503	55Q	CAO-NAP	2.31	1.40	1.35
11	B	507	55Q	CBC-CBB	2.25	1.57	1.49
12	F	401	ACP	C2'-C1'	-2.23	1.50	1.53
9	B	501	GDP	C5-C4	2.15	1.48	1.43
11	D	503	55Q	CB-CA	2.14	1.57	1.53
12	F	401	ACP	C2-N3	2.12	1.35	1.32
11	B	507	55Q	CAK-CAJ	-2.09	1.48	1.54
9	D	501	GDP	C2'-C1'	-2.00	1.50	1.53

All (75) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	B	504	MES	O1S-S-C8	-13.76	90.34	106.92
10	B	504	MES	O3S-S-O1S	-11.62	82.88	111.27
11	D	503	55Q	CAS-OAZ-CBB	11.26	127.19	117.37
10	B	504	MES	O2S-S-O1S	-9.81	79.99	113.95
11	B	507	55Q	CAS-OAZ-CBB	9.50	125.65	117.37
10	B	504	MES	O3S-S-C8	7.17	117.36	105.77
10	B	504	MES	O2S-S-C8	6.58	114.84	106.92
11	B	507	55Q	CAO-CAJ-NAI	5.59	121.17	108.03
10	B	503	MES	O2S-S-C8	5.53	113.58	106.92
10	B	504	MES	O3S-S-O2S	5.52	124.77	111.27
11	B	507	55Q	C-CA-N	4.90	119.70	111.84
11	D	503	55Q	C-CA-N	4.78	119.50	111.84
11	B	507	55Q	OAT-CAO-CAJ	-4.64	110.93	119.99
11	D	503	55Q	OAT-CAO-CAJ	-4.54	111.14	119.99
9	D	501	GDP	O4'-C1'-C2'	-4.33	100.59	106.93
11	B	507	55Q	CAL-CAK-CAJ	-4.24	100.65	111.17
10	B	504	MES	C2-C3-N4	4.12	116.35	110.10
11	B	507	55Q	CAS-CAR-CAQ	-3.97	105.03	113.30
11	B	507	55Q	CAJ-CAO-NAP	3.89	126.77	118.74
9	D	501	GDP	O3B-PB-O1B	3.82	125.65	110.68
11	D	503	55Q	CAO-CAJ-NAI	3.82	117.01	108.03
11	D	503	55Q	CAJ-CAO-NAP	3.79	126.56	118.74
11	B	507	55Q	CAJ-NAI-C	3.73	131.39	121.89
11	B	507	55Q	CBF-CBE-SBD	-3.69	107.26	111.79
11	D	503	55Q	CBL-CBJ-CBM	-3.49	108.03	112.42
12	F	401	ACP	N3-C2-N1	-3.43	123.32	128.68
11	D	503	55Q	CAK-CAJ-NAI	3.30	118.25	111.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	501	GTP	C5-C6-N1	3.28	119.75	113.95
10	B	504	MES	O1-C6-C5	-3.26	104.62	111.80
9	D	501	GDP	O3'-C3'-C4'	-3.22	101.73	111.05
11	D	503	55Q	CBN-CBM-CBJ	-3.16	106.61	113.78
11	D	503	55Q	CBF-CBE-SBD	-3.14	107.93	111.79
9	D	501	GDP	PA-O3A-PB	-3.09	122.22	132.83
11	D	503	55Q	OAZ-CBB-CBC	3.04	116.68	111.09
11	D	503	55Q	OAZ-CAS-CAR	3.03	113.17	106.54
5	A	501	GTP	PA-O3A-PB	-2.91	122.85	132.83
10	B	503	MES	C5-N4-C3	2.89	115.32	108.83
5	C	501	GTP	O4'-C1'-C2'	-2.87	102.73	106.93
11	B	507	55Q	OAZ-CBB-CBC	2.85	116.33	111.09
5	A	501	GTP	O3G-PG-O2G	2.84	118.48	107.64
5	C	501	GTP	C5'-C4'-C3'	-2.79	104.73	115.18
10	B	503	MES	O3S-S-O2S	-2.67	104.74	111.27
11	B	507	55Q	CBP-CBO-CBN	2.67	124.72	120.63
11	B	507	55Q	OBV-CBU-CBT	-2.65	113.33	122.02
9	D	501	GDP	O6-C6-C5	-2.62	119.25	124.37
10	B	504	MES	C5-N4-C3	2.61	114.71	108.83
9	B	501	GDP	O3B-PB-O1B	2.61	120.89	110.68
5	C	501	GTP	N2-C2-N1	2.50	122.03	116.71
5	C	501	GTP	C5-C6-N1	2.48	118.34	113.95
11	D	503	55Q	CBF-CBH-NBI	2.46	119.76	115.20
10	B	503	MES	O3S-S-O1S	2.43	117.21	111.27
9	D	501	GDP	O6-C6-N1	2.37	123.45	120.65
5	C	501	GTP	O3G-PG-O3B	-2.37	96.70	104.64
5	C	501	GTP	C3'-C2'-C1'	2.36	104.53	100.98
11	D	503	55Q	CAL-CAK-CAJ	2.35	117.02	111.17
5	A	501	GTP	C8-N7-C5	2.35	107.47	102.99
11	B	507	55Q	CAR-CAQ-CAV	2.30	118.56	113.40
11	D	503	55Q	CBM-CBJ-NBI	-2.28	106.01	110.39
10	B	503	MES	C7-N4-C5	-2.27	105.43	111.23
10	B	504	MES	C7-N4-C3	-2.26	105.45	111.23
5	C	501	GTP	C8-N7-C5	2.24	107.26	102.99
11	B	507	55Q	CAA-CAF-CB	2.24	115.98	111.42
11	D	503	55Q	OBV-CBU-CBT	-2.20	114.81	122.02
12	F	401	ACP	PB-O3A-PA	-2.19	125.61	132.56
10	B	503	MES	C6-O1-C2	2.17	117.12	109.89
12	F	401	ACP	C4-C5-N7	-2.16	107.14	109.40
11	D	503	55Q	OBA-CBB-CBC	-2.14	117.02	124.81
9	D	501	GDP	O3B-PB-O3A	-2.13	97.49	104.64
12	F	401	ACP	C2-N1-C6	2.09	122.33	118.75

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	D	503	55Q	CAB-N-CA	-2.09	108.30	112.39
9	B	501	GDP	O3'-C3'-C2'	-2.08	105.10	111.82
10	B	503	MES	O3S-S-C8	2.08	109.13	105.77
11	B	507	55Q	CAK-CAJ-NAI	2.05	115.64	111.34
11	B	507	55Q	CAX-CAV-CAQ	2.05	116.63	111.52
12	F	401	ACP	C3'-C2'-C1'	2.04	104.05	100.98

There are no chirality outliers.

All (92) 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
8	A	504	GOL	C1-C2-C3-O3
8	A	505	GOL	C1-C2-C3-O3
8	A	506	GOL	C1-C2-C3-O3
8	B	505	GOL	C1-C2-C3-O3
8	B	506	GOL	O1-C1-C2-C3
8	B	506	GOL	C1-C2-C3-O3
8	C	504	GOL	O1-C1-C2-C3
8	C	504	GOL	C1-C2-C3-O3
9	B	501	GDP	C5'-O5'-PA-O1A
9	D	501	GDP	C5'-O5'-PA-O1A
10	B	503	MES	C8-C7-N4-C3
10	B	504	MES	C8-C7-N4-C5
10	B	504	MES	N4-C7-C8-S
10	B	504	MES	C7-C8-S-O3S
11	B	507	55Q	NAI-C-CA-CB
11	B	507	55Q	NAP-CAQ-CAV-CAX
11	B	507	55Q	CAR-CAQ-CAV-CAX
11	B	507	55Q	CAR-CAQ-CAV-CAW
11	B	507	55Q	CAY-CAS-OAZ-CBB
11	B	507	55Q	CBJ-CBL-CBT-CBX
11	B	507	55Q	CBJ-CBL-CBT-CBU
11	D	503	55Q	O-C-CA-CB
11	D	503	55Q	NAI-C-CA-CB
11	D	503	55Q	CAK-CAJ-CAO-OAT
11	D	503	55Q	CAK-CAJ-CAO-NAP
11	D	503	55Q	NAP-CAQ-CAV-CAX
11	D	503	55Q	CAR-CAQ-CAV-CAX
11	D	503	55Q	CAR-CAQ-CAV-CAW

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Mol	Chain	Res	Type	Atoms
11	D	503	55Q	CBJ-CBL-CBT-CBU
12	F	401	ACP	PG-C3B-PB-O1B
12	F	401	ACP	PG-C3B-PB-O2B
12	F	401	ACP	PG-C3B-PB-O3A
11	D	503	55Q	CBC-CBB-OAZ-CAS
11	D	503	55Q	OBA-CBB-OAZ-CAS
11	D	503	55Q	NAI-CAJ-CAK-CAL
12	F	401	ACP	O4'-C4'-C5'-O5'
11	D	503	55Q	CAK-CAJ-NAI-C
8	A	504	GOL	O2-C2-C3-O3
8	B	505	GOL	O2-C2-C3-O3
12	F	401	ACP	C3'-C4'-C5'-O5'
8	A	504	GOL	O1-C1-C2-C3
8	A	505	GOL	O1-C1-C2-C3
11	B	507	55Q	CBM-CBJ-CBL-CBT
11	D	503	55Q	CBM-CBJ-CBL-CBT
8	A	505	GOL	O2-C2-C3-O3
8	B	506	GOL	O1-C1-C2-O2
8	B	506	GOL	O2-C2-C3-O3
8	C	504	GOL	O2-C2-C3-O3
11	B	507	55Q	NBI-CBJ-CBL-CBT
11	D	503	55Q	NAI-CAJ-CAK-CAN
11	D	503	55Q	NBI-CBJ-CBL-CBT
12	F	401	ACP	PB-O3A-PA-O1A
8	C	504	GOL	O1-C1-C2-O2
11	B	507	55Q	O-C-CA-CB
5	A	501	GTP	PB-O3B-PG-O1G
8	A	506	GOL	O2-C2-C3-O3
9	B	501	GDP	C5'-O5'-PA-O3A
11	B	507	55Q	NAP-CAQ-CAV-CAW
11	D	503	55Q	NAP-CAQ-CAV-CAW
11	B	507	55Q	NAI-C-CA-N
11	D	503	55Q	O-C-CA-N
11	D	503	55Q	NAI-C-CA-N
5	A	501	GTP	C5'-O5'-PA-O2A
9	B	501	GDP	C5'-O5'-PA-O2A
9	D	501	GDP	C5'-O5'-PA-O2A
10	B	504	MES	C7-C8-S-O1S
11	D	503	55Q	CBJ-CBL-CBT-CBX
11	B	507	55Q	CAK-CAJ-NAI-C
11	D	503	55Q	CAV-CAQ-NAP-CAU
11	B	507	55Q	CBX-CBT-CBU-OBW

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Mol	Chain	Res	Type	Atoms
11	D	503	55Q	CBX-CBT-CBU-OBW
11	D	503	55Q	CBX-CBT-CBU-OBV
11	B	507	55Q	CBL-CBT-CBU-OBW
11	B	507	55Q	CBL-CBT-CBU-OBV
11	D	503	55Q	CBL-CBT-CBU-OBV
8	A	505	GOL	O1-C1-C2-O2
5	A	501	GTP	PB-O3B-PG-O2G
5	A	501	GTP	PB-O3B-PG-O3G
5	C	501	GTP	PB-O3B-PG-O3G
5	A	501	GTP	C5'-O5'-PA-O3A
5	C	501	GTP	C5'-O5'-PA-O3A
9	D	501	GDP	C5'-O5'-PA-O3A
11	B	507	55Q	CAV-CAQ-NAP-CAU
9	B	501	GDP	PB-O3A-PA-O1A
9	B	501	GDP	PB-O3A-PA-O2A
9	D	501	GDP	PB-O3A-PA-O1A
9	D	501	GDP	PB-O3A-PA-O2A
11	D	503	55Q	CAV-CAQ-CAR-CAS
11	B	507	55Q	CAK-CAJ-CAO-NAP

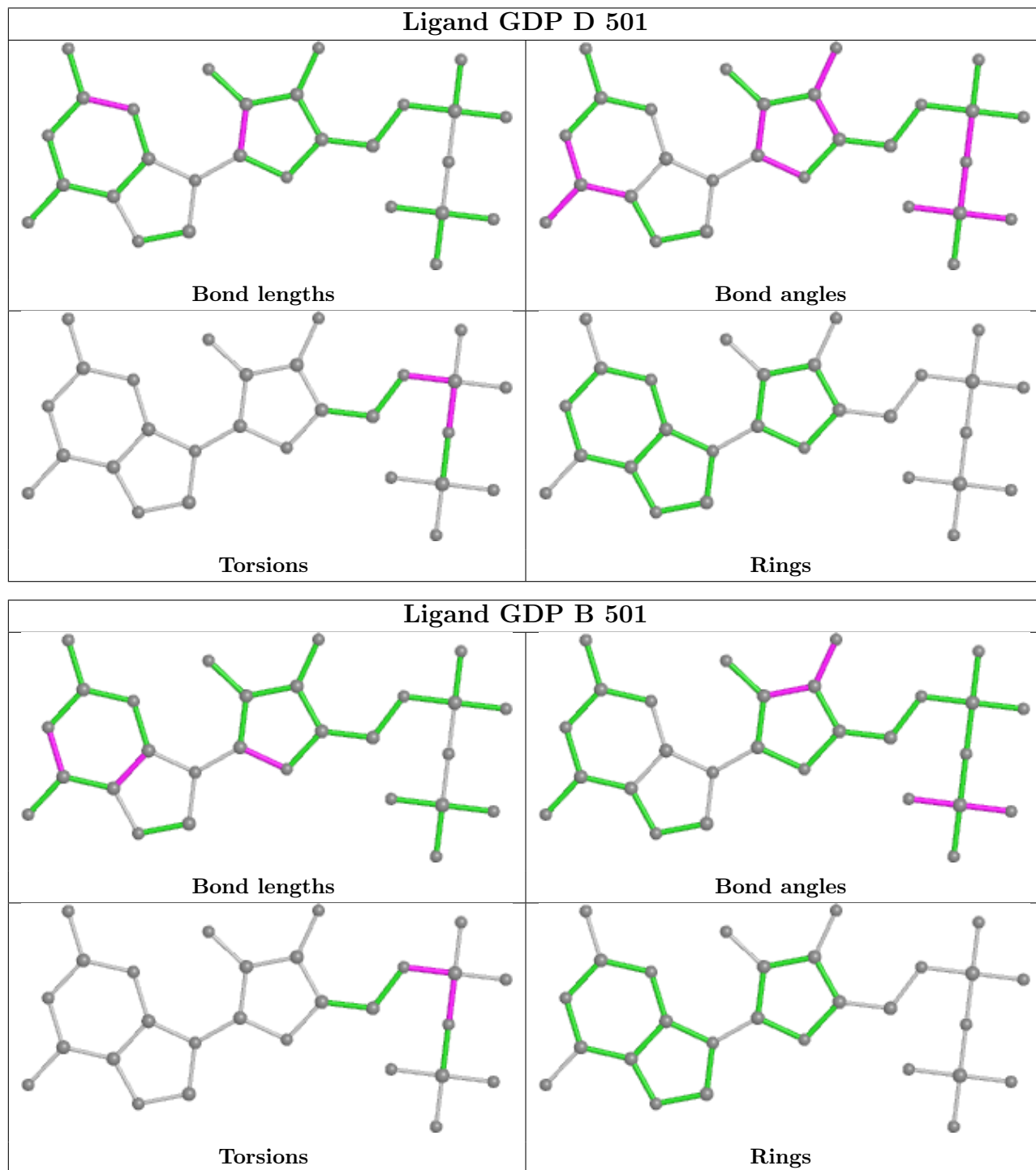
There are no ring outliers.

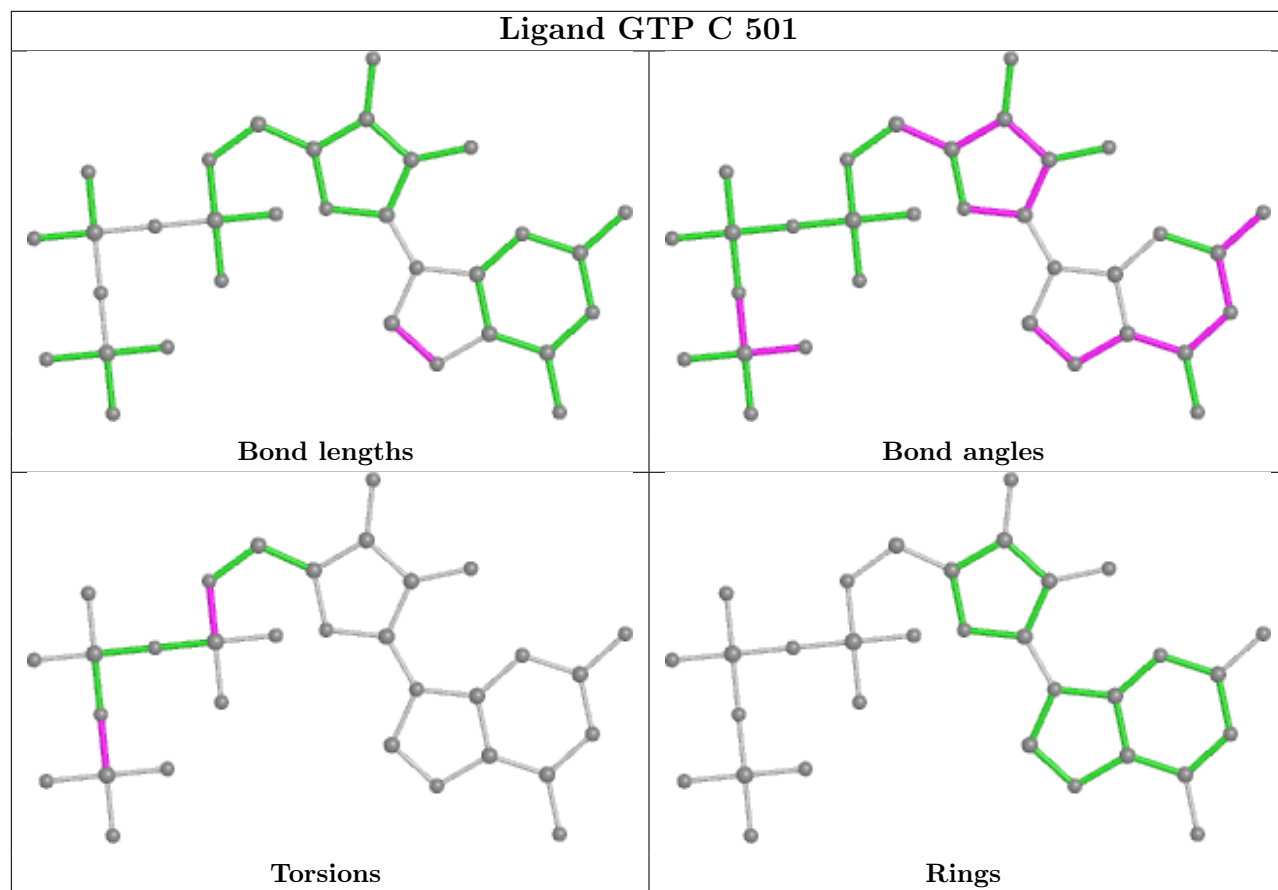
9 monomers are involved in 25 short contacts:

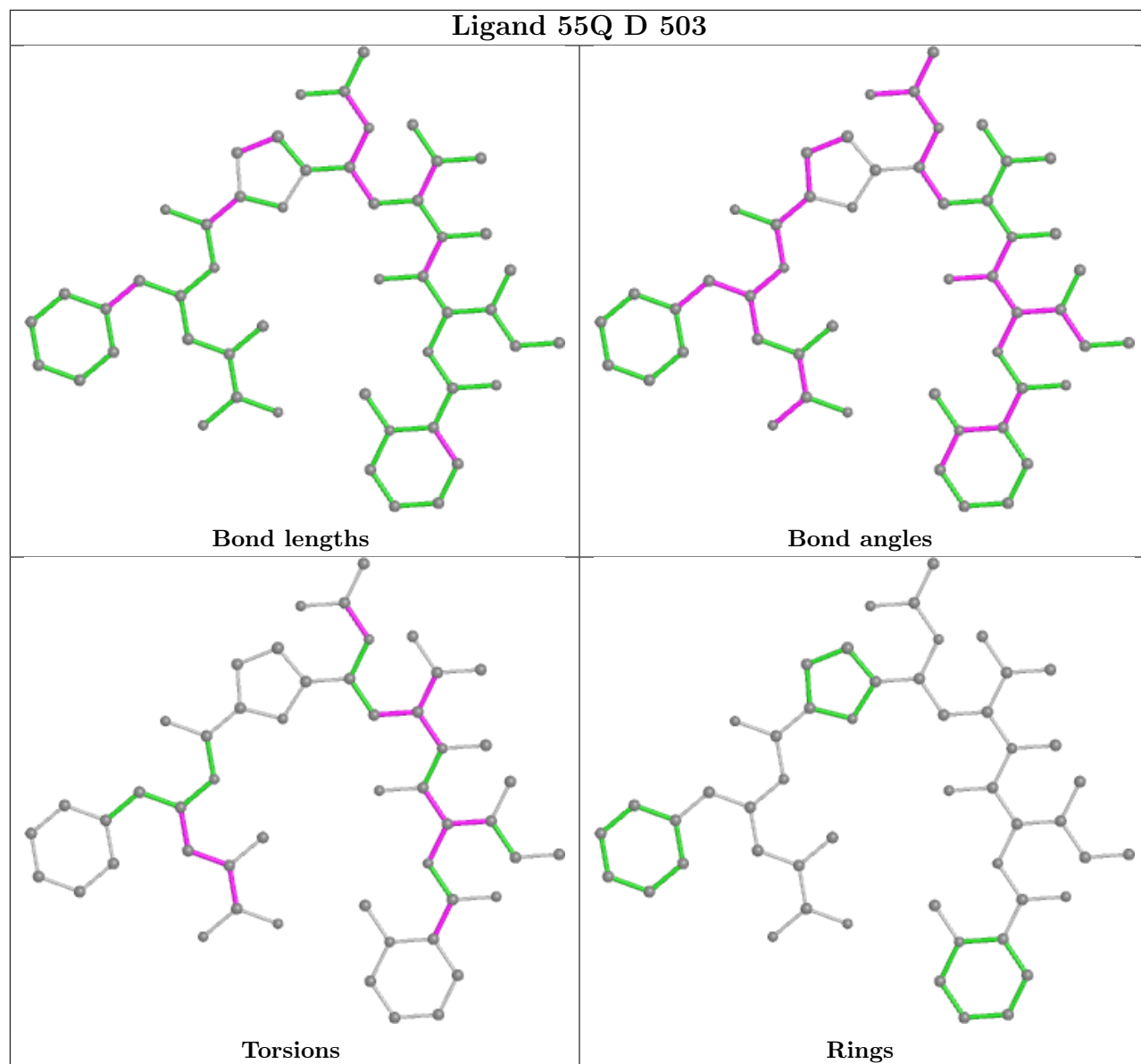
Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	D	501	GDP	1	0
10	B	503	MES	1	0
9	B	501	GDP	1	0
8	A	504	GOL	1	0
8	B	506	GOL	1	0
12	F	401	ACP	4	0
8	A	506	GOL	12	0
5	A	501	GTP	1	0
10	B	504	MES	3	0

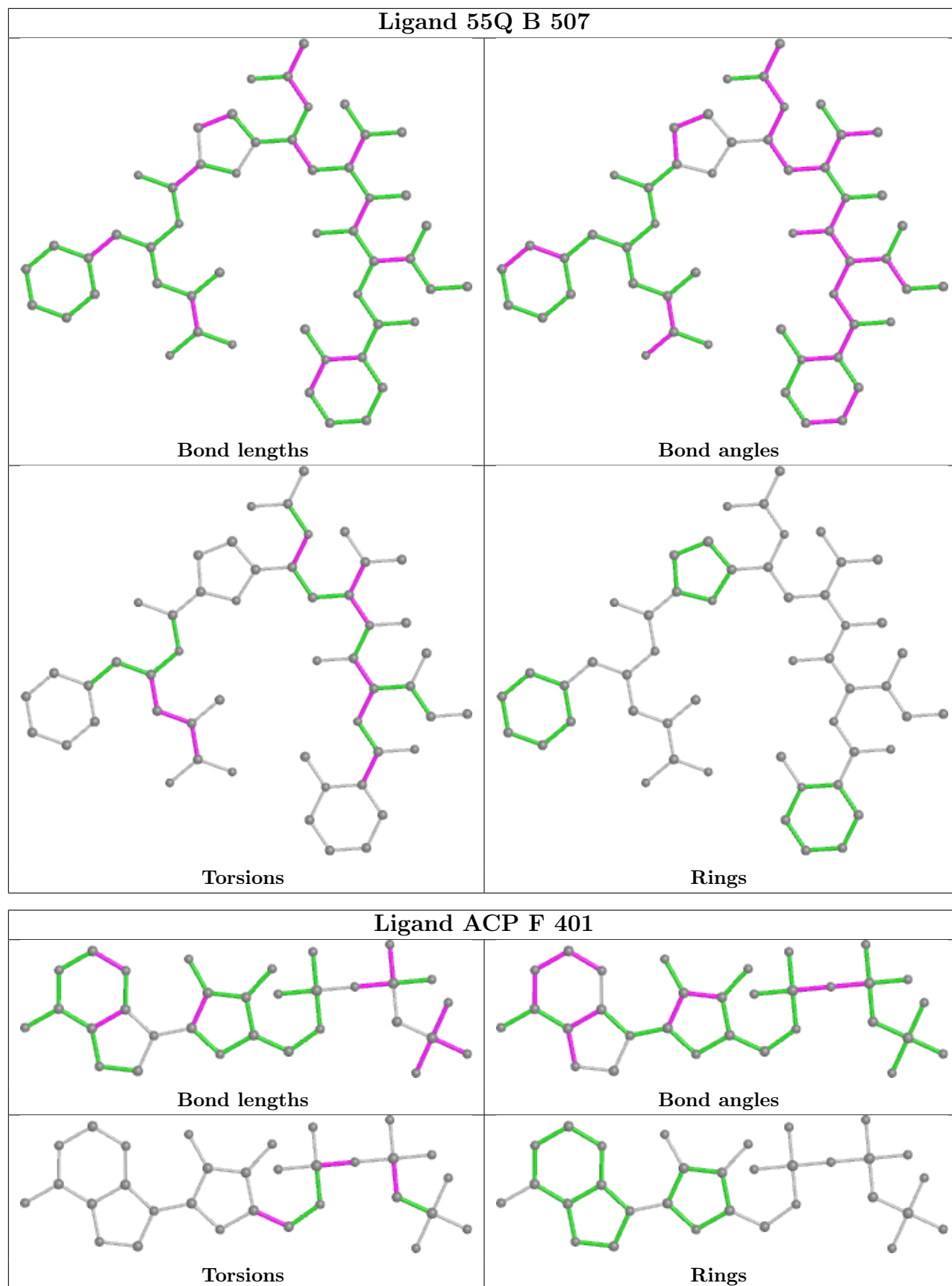
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

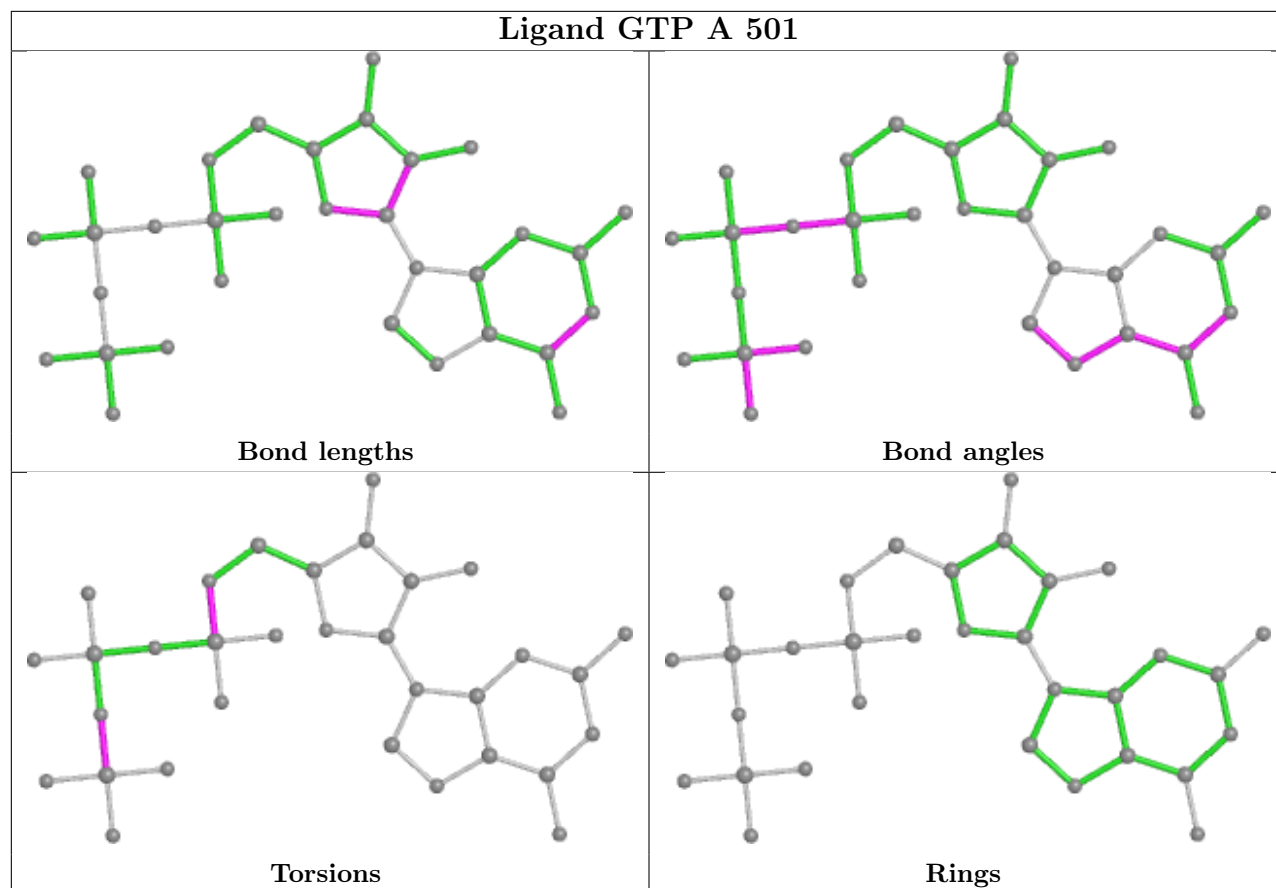
average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents 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	439/451 (97%)	-0.18	9 (2%) 63 66	23, 39, 66, 116	0
1	C	440/451 (97%)	-0.46	3 (0%) 87 89	21, 33, 62, 91	0
2	B	430/445 (96%)	-0.29	2 (0%) 91 91	20, 36, 71, 107	0
2	D	427/445 (95%)	0.06	26 (6%) 21 22	28, 50, 86, 124	0
3	E	122/143 (85%)	0.24	8 (6%) 18 19	30, 55, 87, 114	0
4	F	348/384 (90%)	0.13	34 (9%) 7 7	25, 56, 108, 138	0
All	All	2206/2319 (95%)	-0.14	82 (3%) 41 45	20, 42, 85, 138	0

All (82) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	F	177	GLY	5.7
1	A	282	TYR	4.9
4	F	372	THR	4.6
1	C	440	VAL	4.3
4	F	166	ALA	4.2
2	D	1	MET	4.2
4	F	104	ASN	4.2
4	F	133	ALA	4.1
4	F	234	GLN	4.1
3	E	43	ARG	3.9
2	D	56	ALA	3.9
4	F	169	LEU	3.6
4	F	103	THR	3.4
2	D	168	THR	3.4
2	D	58	GLY	3.3
4	F	170	LEU	3.3
2	D	55	GLU	3.2
3	E	6	MET	3.2
4	F	173	ILE	3.2

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Mol	Chain	Res	Type	RSRZ
4	F	249	TYR	3.1
4	F	167	SER	3.1
4	F	364	THR	3.1
1	A	439	SER	3.1
3	E	138	GLU	3.0
2	D	57	ALA	2.9
4	F	142	ARG	2.8
4	F	172	PHE	2.8
2	D	60	LYS	2.8
4	F	136	ASN	2.8
4	F	232	ASN	2.8
4	F	171	ASP	2.8
2	D	59	ASN	2.8
4	F	140	GLU	2.7
4	F	165	GLU	2.7
4	F	363	ASP	2.7
4	F	161	LEU	2.7
1	A	346	TRP	2.7
2	D	400	ARG	2.6
1	A	235	VAL	2.6
2	D	372	LYS	2.6
4	F	178	GLN	2.6
4	F	101	TYR	2.6
1	A	281	ALA	2.5
2	D	286	LEU	2.5
2	D	416	MET	2.5
3	E	7	GLU	2.5
1	A	279	GLU	2.5
1	A	167	LEU	2.4
2	B	39	ASP	2.4
3	E	139	LEU	2.4
4	F	256	TYR	2.4
2	D	401	ARG	2.4
2	D	285	ALA	2.4
4	F	362	ALA	2.4
1	A	438	ASP	2.4
2	D	138	THR	2.4
4	F	233	PHE	2.4
2	D	397	ALA	2.4
2	B	1	MET	2.3
4	F	175	GLU	2.3
4	F	137	ARG	2.3

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Mol	Chain	Res	Type	RSRZ
4	F	125	THR	2.3
3	E	25	LYS	2.2
1	C	283	HIS	2.2
2	D	97	SER	2.2
2	D	201	THR	2.2
4	F	174	ASP	2.2
3	E	141	GLU	2.2
3	E	23	ILE	2.2
2	D	137	LEU	2.1
2	D	202	TYR	2.1
1	A	169	PHE	2.1
2	D	167	ASN	2.1
4	F	254	GLY	2.1
1	C	1	MET	2.1
2	D	127	GLU	2.1
4	F	102	PRO	2.1
2	D	169	PHE	2.0
4	F	1	MET	2.0
2	D	220	THR	2.0
2	D	96	GLN	2.0
2	D	370	GLY	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 monosaccharides 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(Å ²)	Q<0.9
8	GOL	F	402	6/6	0.82	0.22	77,80,83,84	0
8	GOL	B	506	6/6	0.86	0.18	60,76,80,93	0

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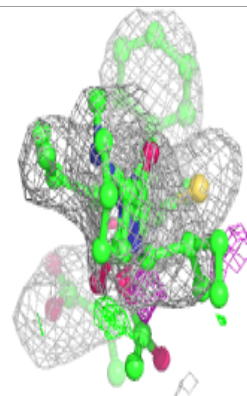
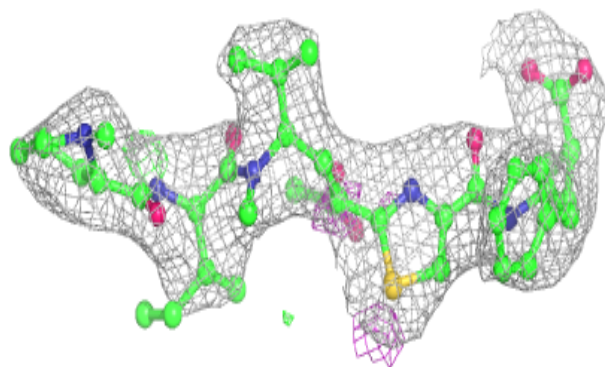
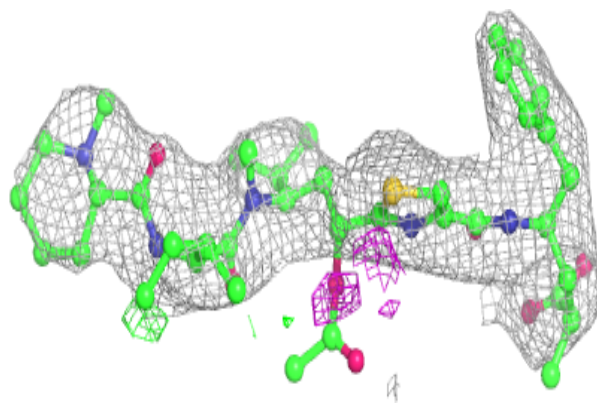
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
8	GOL	A	504	6/6	0.88	0.18	61,72,78,87	0
8	GOL	A	506	6/6	0.88	0.46	39,67,99,101	0
11	55Q	D	503	51/51	0.89	0.25	54,70,113,127	0
8	GOL	B	505	6/6	0.92	0.08	66,72,74,75	0
8	GOL	C	504	6/6	0.92	0.15	54,58,62,76	0
6	MG	D	502	1/1	0.93	0.16	36,36,36,36	0
12	ACP	F	401	31/31	0.94	0.14	58,72,124,137	0
10	MES	B	504	12/12	0.95	0.14	57,64,73,74	0
8	GOL	A	505	6/6	0.96	0.11	50,51,55,58	0
11	55Q	B	507	51/51	0.96	0.15	21,36,74,103	0
6	MG	B	502	1/1	0.96	0.12	44,44,44,44	0
10	MES	B	503	12/12	0.96	0.15	50,54,59,60	0
6	MG	C	502	1/1	0.97	0.04	30,30,30,30	0
9	GDP	D	501	28/28	0.98	0.13	33,39,47,52	0
6	MG	A	502	1/1	0.99	0.08	37,37,37,37	0
7	CA	A	503	1/1	0.99	0.04	50,50,50,50	0
7	CA	C	503	1/1	0.99	0.02	38,38,38,38	0
5	GTP	A	501	32/32	0.99	0.15	24,27,30,31	0
5	GTP	C	501	32/32	0.99	0.11	19,22,26,28	0
9	GDP	B	501	28/28	0.99	0.14	20,27,31,32	0

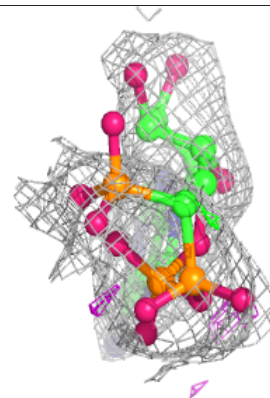
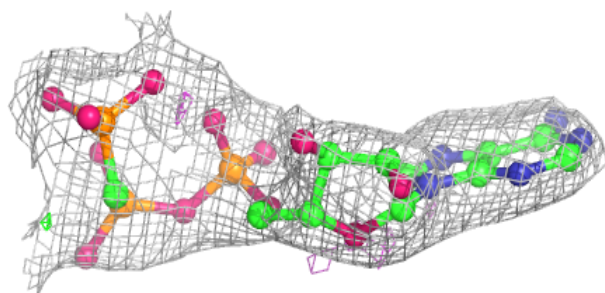
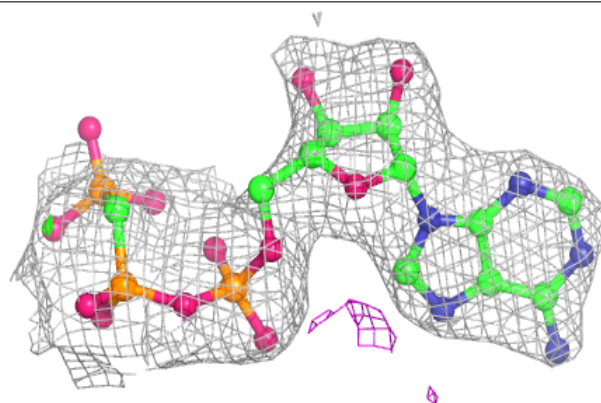
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around 55Q D 503:

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

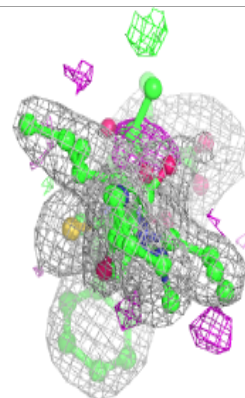
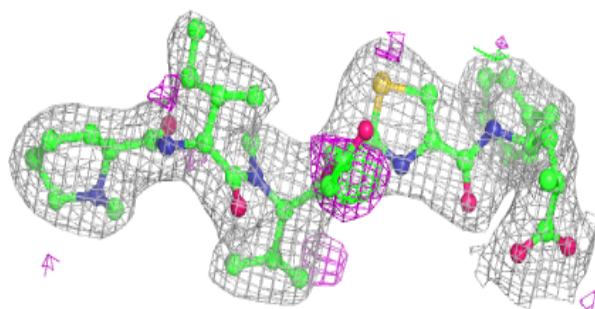
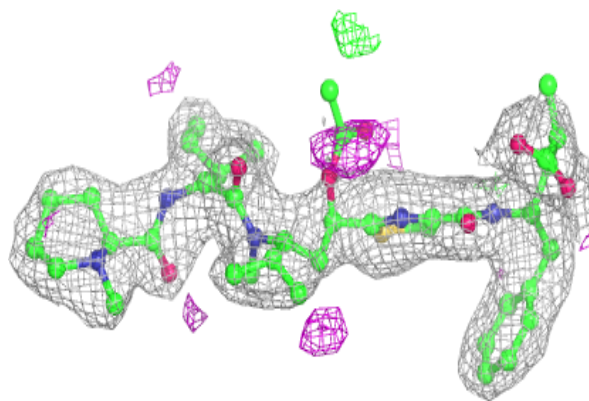
**Electron density around ACP F 401:**

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

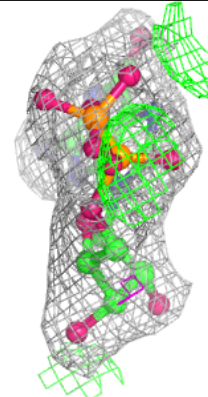
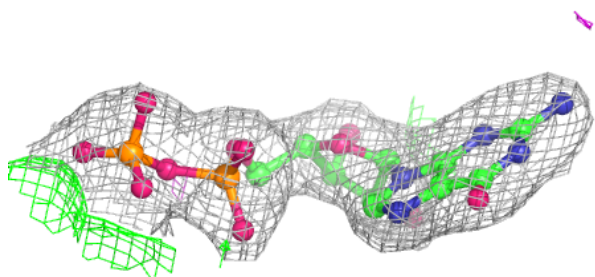
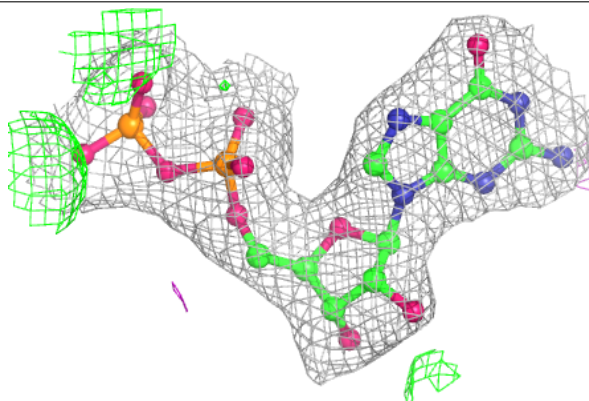


Electron density around 55Q B 507:

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

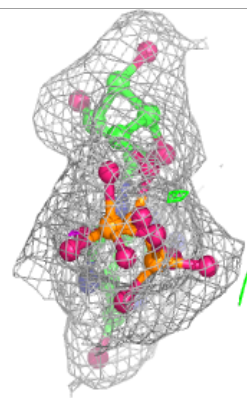
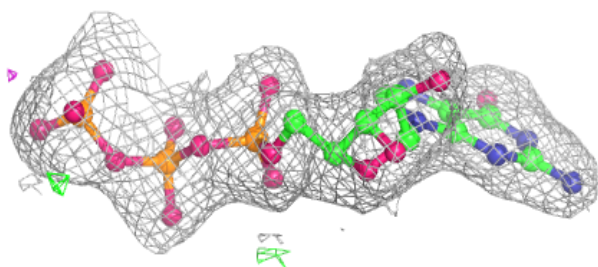
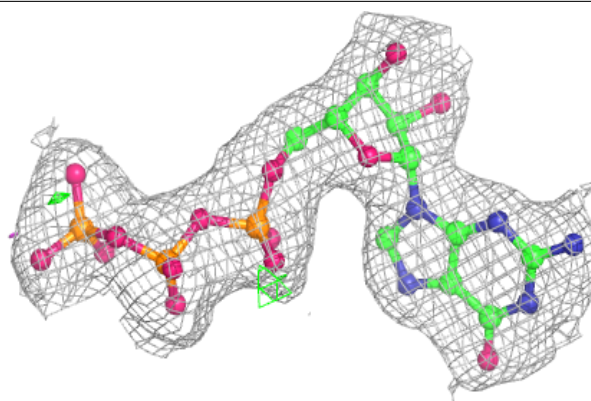
**Electron density around GDP D 501:**

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

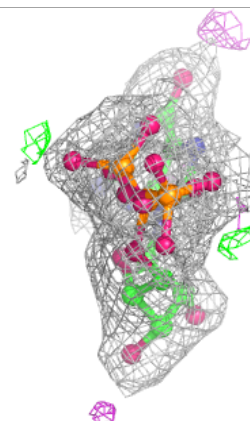
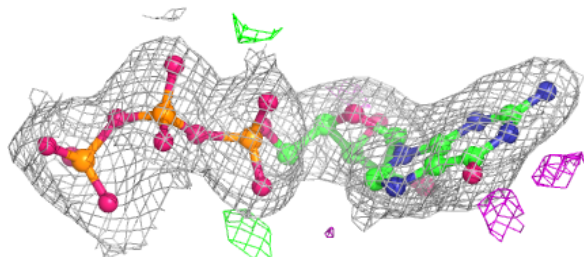
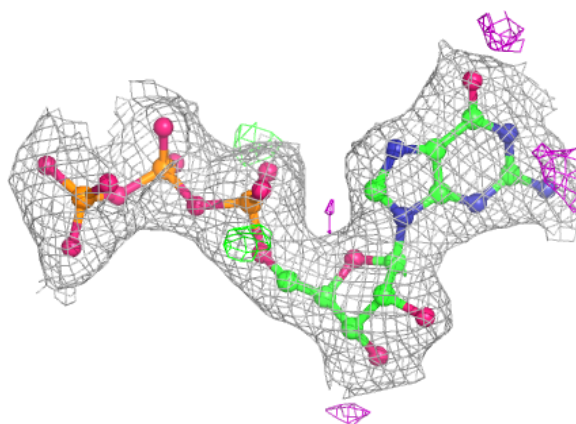


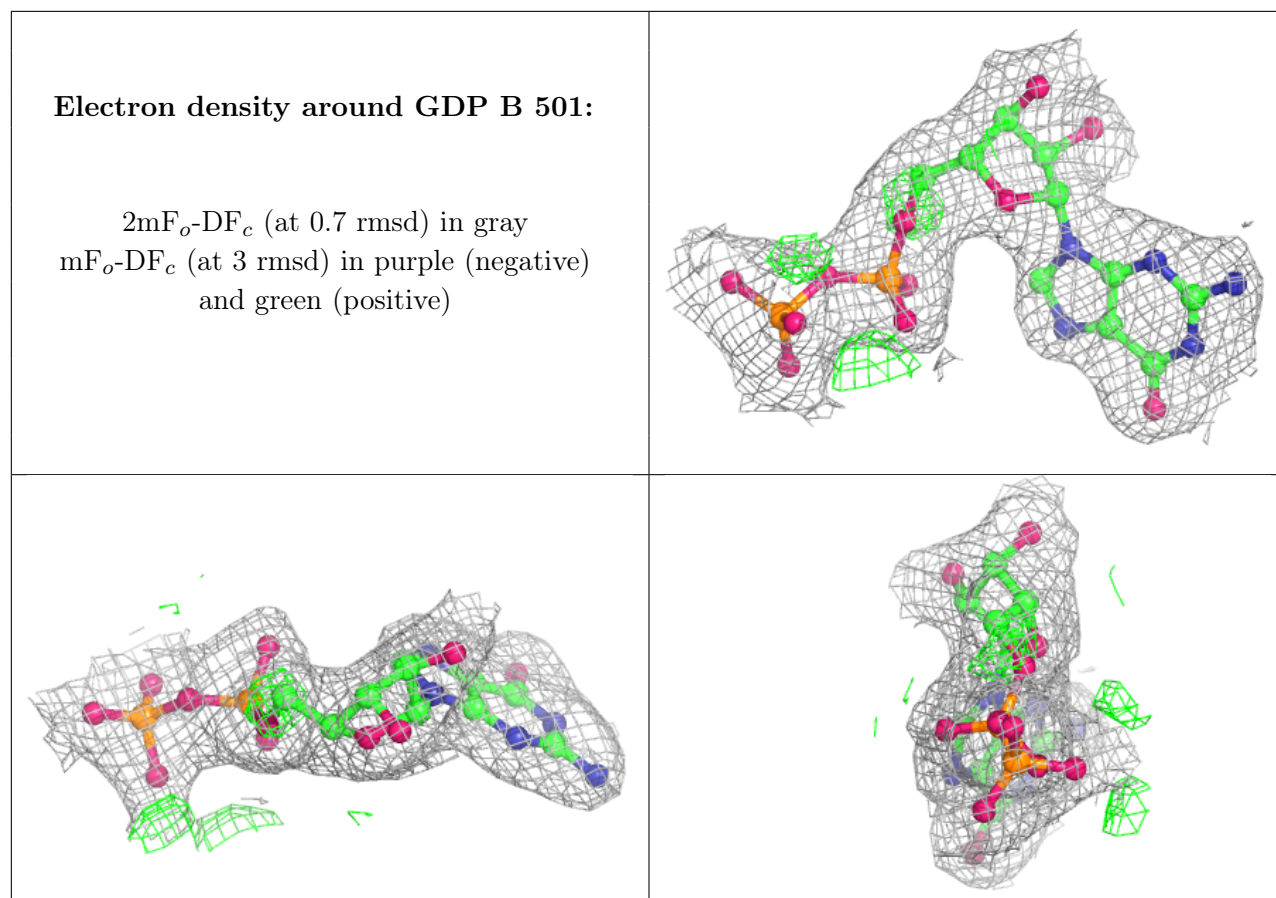
Electron density around GTP A 501:

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

**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)





6.5 Other polymers [i](#)

There are no such residues in this entry.