



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 05:07 PM UTC

PDB ID : 4ZOL / pdb_00004zol
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 : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtrriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

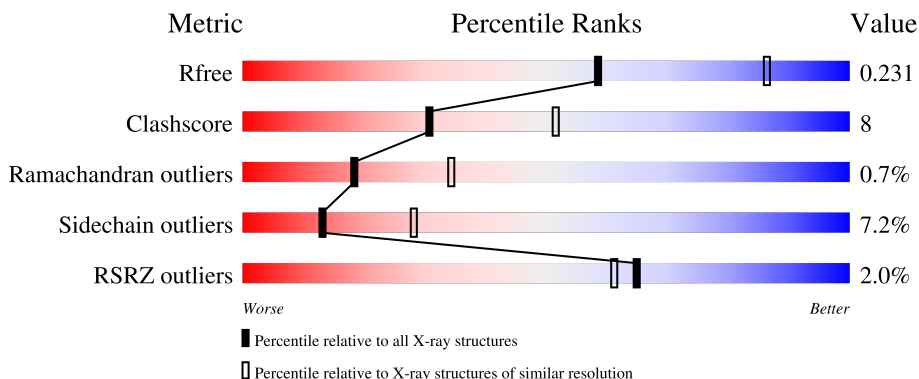
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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.



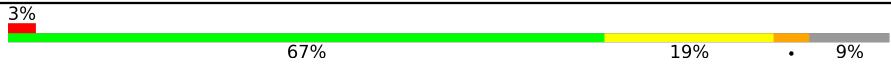
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	5829 (2.50-2.50)
Clashscore	190562	6492 (2.50-2.50)
Ramachandran outliers	187476	6378 (2.50-2.50)
Sidechain outliers	187428	6380 (2.50-2.50)
RSRZ outliers	180081	5833 (2.50-2.50)

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	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 79%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">79% 17% ..</p>
1	C	451	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 82%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 14%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">82% 14% ..</p>
2	B	445	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 77%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">77% 17% ..</p>
2	D	445	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 70%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 22%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">3% 70% 22% ..</p>
3	E	143	<div style="display: flex; align-items: center;"> <div style="width: 4%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 63%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 19%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">4% 63% 19% 15%</p>

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Mol	Chain	Length	Quality of chain
4	F	384	

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

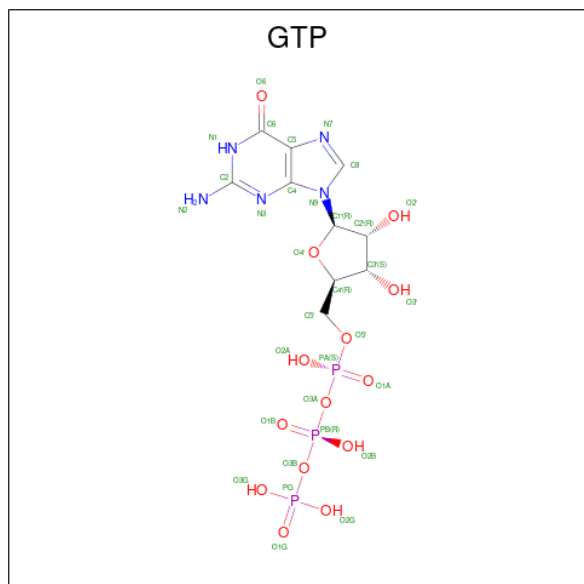
- Molecule 4 is a protein called Tubulin-tyrosine ligase.

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 (CCD ID: GTP) (formula: C₁₀H₁₆N₅O₁₄P₃).



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		

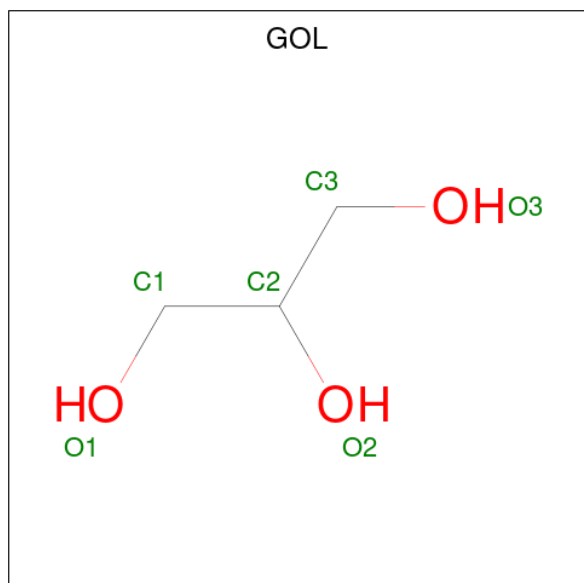
- Molecule 6 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

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	1	Total	Mg	0	0
			1	1		

- Molecule 7 is CALCIUM ION (CCD ID: CA) (formula: Ca).

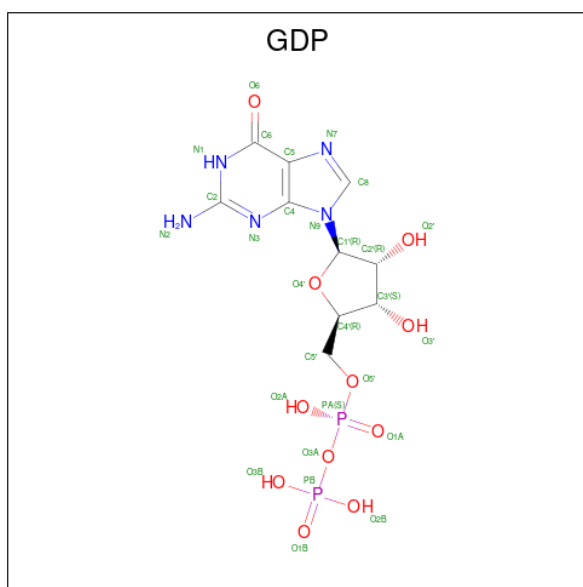
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total Ca 1 1	0	0
7	C	1	Total Ca 1 1	0	0

- Molecule 8 is GLYCEROL (CCD ID: GOL) (formula: C₃H₈O₃).



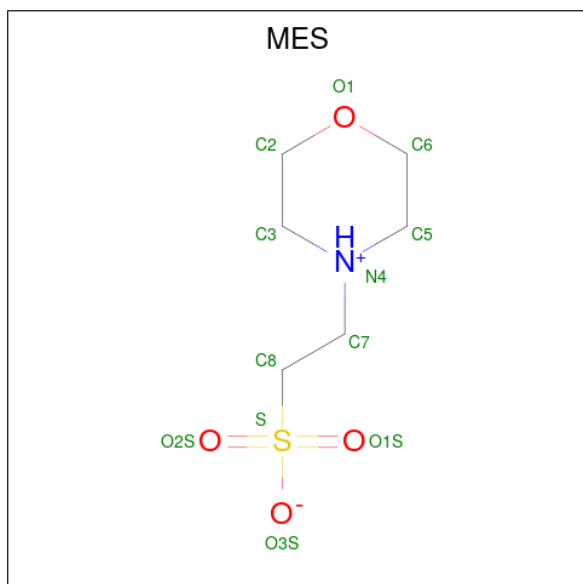
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	1	Total C O 6 3 3	0	0
8	A	1	Total C O 6 3 3	0	0
8	A	1	Total C O 6 3 3	0	0
8	B	1	Total C O 6 3 3	0	0
8	B	1	Total C O 6 3 3	0	0
8	C	1	Total C O 6 3 3	0	0
8	F	1	Total C O 6 3 3	0	0

- Molecule 9 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: C₁₀H₁₅N₅O₁₁P₂).



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

- Molecule 10 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (CCD ID: MES) (formula: C₆H₁₃NO₄S).



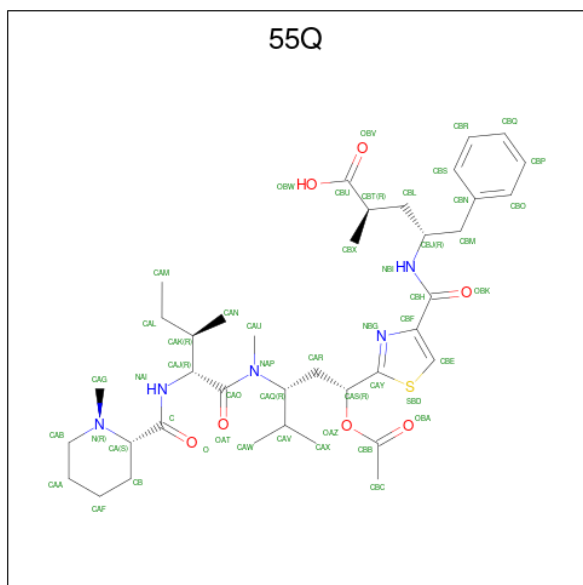
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
10	B	1	12	6	1	4	1	0	0

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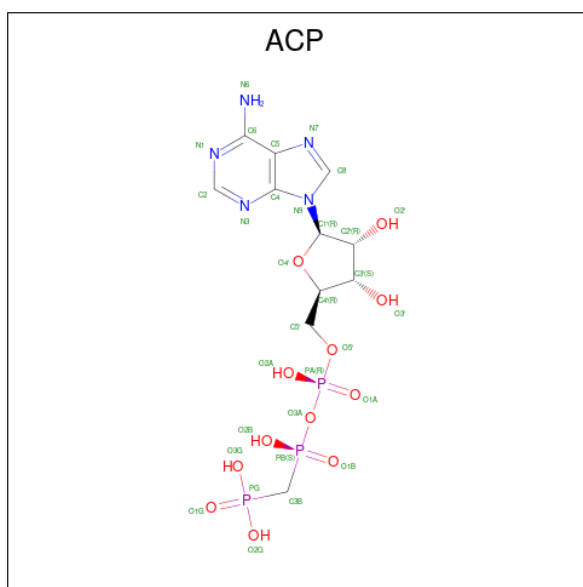
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
10	B	1	12	6	1	4	1	0	0

- 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 (CCD ID: 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 (CCD ID: ACP) (formula: C₁₁H₁₈N₅O₁₂P₃).



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

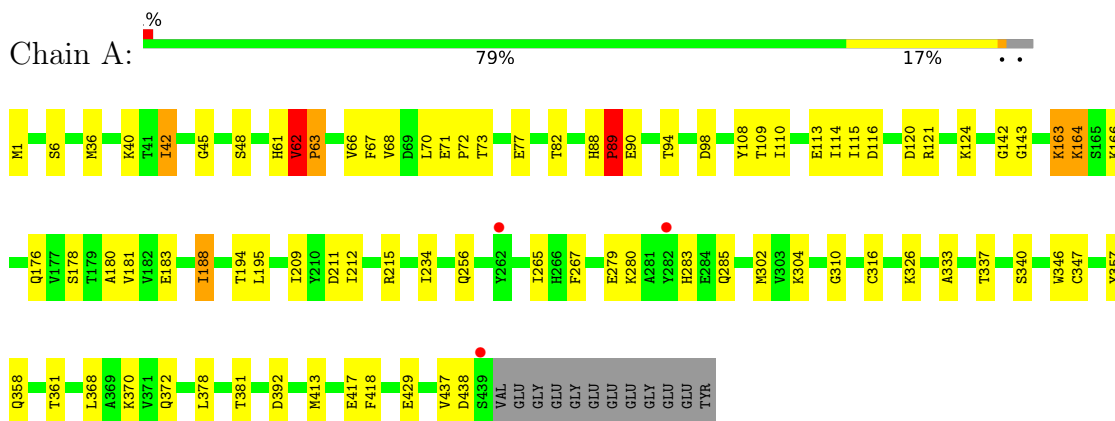
- Molecule 13 is water.

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		

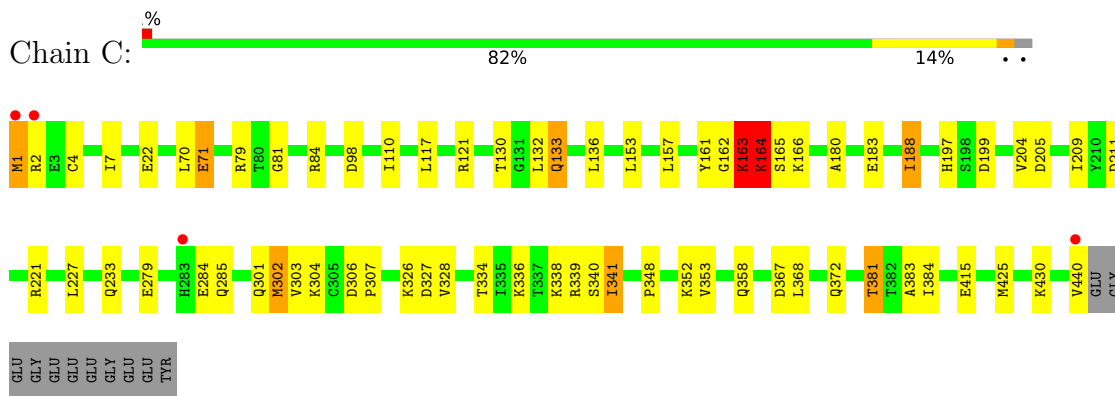
3 Residue-property plots [i](#)

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.

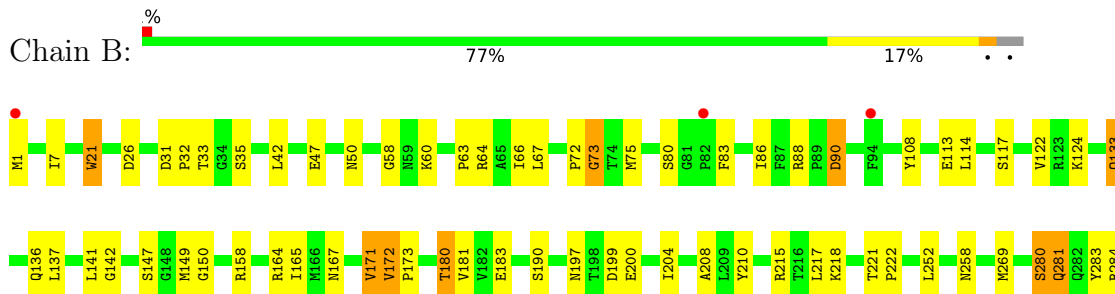
- Molecule 1: Tubulin alpha-1B chain



- Molecule 1: Tubulin alpha-1B chain

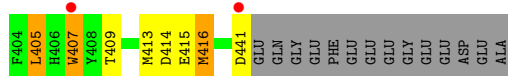
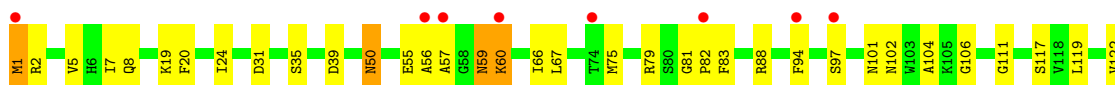


- Molecule 2: Tubulin beta chain





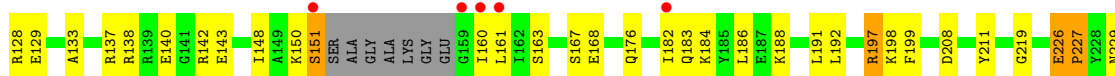
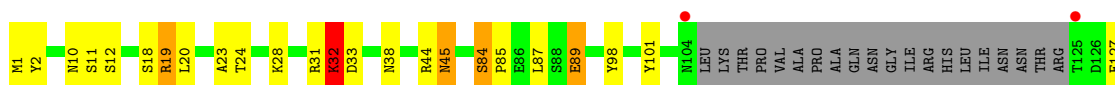
- Molecule 2: Tubulin beta chain



- 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 46.63 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.9 (46.63-2.50) 99.9 (46.63-2.50)	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 (4.92%)	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)	0.32 , 30.5	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: 55Q, ACP, GTP, MES, GDP, GOL, CA, 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	1.06	3/3508 (0.1%)	1.18	10/4762 (0.2%)
1	C	1.12	0/3515	1.21	13/4772 (0.3%)
2	B	1.12	7/3451 (0.2%)	1.20	19/4676 (0.4%)
2	D	1.02	2/3416 (0.1%)	1.18	17/4628 (0.4%)
3	E	1.06	2/1049 (0.2%)	1.21	5/1393 (0.4%)
4	F	0.88	0/2929	1.13	13/3958 (0.3%)
All	All	1.05	14/17868 (0.1%)	1.18	77/24189 (0.3%)

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 (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	171	VAL	C-O	-6.64	1.16	1.24
3	E	25	LYS	C-N	6.08	1.40	1.33
1	A	62	VAL	CA-CB	5.80	1.58	1.54
2	B	172	VAL	C-N	5.75	1.40	1.33
2	D	172	VAL	C-N	5.74	1.40	1.33
1	A	316	CYS	CA-C	-5.52	1.46	1.52
2	B	305	CYS	CA-C	-5.39	1.46	1.52
2	B	21	TRP	C-O	-5.16	1.18	1.24
2	B	64	ARG	CA-C	5.13	1.59	1.53
2	D	173	PRO	N-CD	5.13	1.54	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	E	26	PRO	N-CD	5.05	1.54	1.47
2	B	173	PRO	N-CD	5.03	1.54	1.47
2	B	318	VAL	C-O	-5.01	1.18	1.24
1	A	378	LEU	CA-C	-5.00	1.46	1.52

All (77) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	F	305	LYS	CA-C-N	-9.04	108.91	122.83
4	F	305	LYS	C-N-CA	-9.04	108.91	122.83
1	C	71	GLU	CA-C-N	-8.62	111.25	120.47
1	C	71	GLU	C-N-CA	-8.62	111.25	120.47
4	F	363	ASP	N-CA-C	7.70	122.29	110.36
2	D	244	PHE	CA-C-N	-7.69	111.99	120.14
2	D	244	PHE	C-N-CA	-7.69	111.99	120.14
1	A	358	GLN	CA-C-N	-7.36	112.80	120.38
1	A	358	GLN	C-N-CA	-7.36	112.80	120.38
2	B	373	MET	N-CA-C	7.19	120.19	108.55
1	C	221	ARG	CA-C-N	6.93	126.90	119.76
1	C	221	ARG	C-N-CA	6.93	126.90	119.76
3	E	25	LYS	CA-C-N	-6.75	113.42	120.38
3	E	25	LYS	C-N-CA	-6.75	113.42	120.38
2	B	281	GLN	N-CA-C	6.63	120.85	110.17
1	C	22	GLU	N-CA-C	-6.41	104.21	111.07
2	B	75	MET	N-CA-C	6.39	120.28	112.23
2	D	215	ARG	N-CA-C	6.33	118.70	111.11
1	A	316	CYS	CB-CA-C	-6.22	98.18	109.38
2	D	347	ILE	N-CA-CB	6.16	117.71	111.36
2	B	58	GLY	N-CA-C	-6.13	106.69	115.64
1	C	358	GLN	CA-C-N	-6.12	114.08	120.38
1	C	358	GLN	C-N-CA	-6.12	114.08	120.38
1	C	301	GLN	CA-C-N	-6.09	113.10	122.60
1	C	301	GLN	C-N-CA	-6.09	113.10	122.60
2	B	215	ARG	N-CA-C	5.92	117.73	111.28
4	F	168	GLU	N-CA-C	-5.88	106.27	113.50
4	F	255	ARG	N-CA-C	5.87	118.19	111.02
2	D	400	ARG	N-CA-C	-5.87	104.24	111.40
4	F	373	SER	N-CA-C	5.85	118.84	110.24
2	D	81	GLY	CA-C-N	-5.82	113.97	119.85
2	D	81	GLY	C-N-CA	-5.82	113.97	119.85
4	F	127	GLU	N-CA-C	5.74	118.22	110.88
2	D	97	SER	N-CA-C	5.72	117.21	110.97

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	F	219	GLY	N-CA-C	-5.58	105.10	112.81
1	A	113	GLU	CA-C-N	-5.57	115.89	122.36
1	A	113	GLU	C-N-CA	-5.57	115.89	122.36
3	E	7	GLU	N-CA-C	5.56	119.33	107.70
1	A	267	PHE	CA-C-N	-5.55	114.25	120.14
1	A	267	PHE	C-N-CA	-5.55	114.25	120.14
4	F	197	ARG	N-CA-C	5.54	119.27	109.96
2	B	269	MET	CB-CA-C	-5.45	104.78	110.17
2	B	172	VAL	CA-C-N	-5.41	114.41	120.14
2	B	172	VAL	C-N-CA	-5.41	114.41	120.14
2	D	172	VAL	CA-C-N	-5.40	113.71	120.51
2	D	172	VAL	C-N-CA	-5.40	113.71	120.51
2	D	167	ASN	N-CA-CB	-5.39	102.10	110.57
2	D	359	PRO	CA-C-N	-5.39	113.10	119.84
2	D	359	PRO	C-N-CA	-5.39	113.10	119.84
1	C	381	THR	CB-CA-C	-5.39	98.71	109.33
3	E	26	PRO	CA-C-N	-5.37	113.12	119.84
3	E	26	PRO	C-N-CA	-5.37	113.12	119.84
2	B	372	LYS	N-CA-C	-5.37	105.47	112.23
1	C	302	MET	CB-CG-SD	-5.37	96.61	112.70
1	C	327	ASP	N-CA-C	5.33	117.18	111.36
2	D	403	ALA	N-CA-C	5.33	117.96	110.23
1	A	361	THR	N-CA-C	-5.33	102.59	110.48
2	B	208	ALA	N-CA-C	-5.30	105.42	111.14
2	B	410	GLY	N-CA-C	-5.29	107.75	114.16
1	C	110	ILE	N-CA-C	-5.27	107.28	111.81
2	B	150	GLY	N-CA-C	-5.22	106.46	112.73
1	A	310	GLY	N-CA-C	-5.17	103.51	110.80
4	F	359	PHE	CA-C-N	5.15	125.16	119.90
4	F	359	PHE	C-N-CA	5.15	125.16	119.90
2	D	373	MET	N-CA-C	5.13	117.53	108.75
2	D	407	TRP	CA-CB-CG	5.13	123.35	113.60
2	B	347	ILE	CA-C-N	-5.13	114.67	119.85
2	B	347	ILE	C-N-CA	-5.13	114.67	119.85
4	F	272	MET	N-CA-C	-5.12	105.61	111.14
2	B	221	THR	CA-C-N	-5.11	114.69	119.85
2	B	221	THR	C-N-CA	-5.11	114.69	119.85
2	B	133	GLN	N-CA-CB	5.09	117.85	110.26
2	B	197	ASN	CA-C-N	-5.08	113.95	123.05
2	B	197	ASN	C-N-CA	-5.08	113.95	123.05
4	F	306	HIS	N-CA-C	5.08	118.31	112.57
2	D	129	CYS	N-CA-C	5.02	117.62	110.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	109	THR	N-CA-C	5.01	117.71	111.24

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	48	0
1	C	3437	0	3348	56	0
2	B	3376	0	3258	43	0
2	D	3343	0	3223	82	0
3	E	1033	0	1048	12	0
4	F	2862	0	2808	52	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
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

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
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	289	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 (289) 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	1.63	0.95
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
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: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
4:F:89:GLU:CD	4:F:89:GLU:H	1.91	0.79
9:B:501:GDP:O3B	13:B:601:HOH:O	2.00	0.78
1:C:1:MET:HE1	1:C:130:THR:OG1	1.85	0.77
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:234:GLN:HA	4:F:234:GLN:NE2	2.01	0.74
1:C:204:VAL:HG22	1:C:302:MET:HE3	1.68	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:295:MET:HE3	2:D:377:PHE:HB2	1.77	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
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
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:A:413:MET:HE2	1:A:418:PHE:CE1	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
1:C:1:MET:HE2	1:C:130:THR:HG1	1.66	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
4:F:140:GLU:C	4:F:142:ARG:H	2.11	0.59
1:C:1:MET:HE3	1:C:130:THR:OG1	1.92	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: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: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
1:A:98:ASP:C	1:A:98:ASP:OD1	2.47	0.56
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:A:45:GLY:HA3	13:A:603:HOH:O	2.04	0.55
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
1:C:161:TYR:C	1:C:163:LYS:HD2	2.31	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
4:F:192:LEU:HD13	4:F:262:MET:HE1	1.90	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
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:D:269:MET:HE3	2:D:301:MET:HG3	1.90	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
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
2:D:323:MET:HE2	2:D:373:MET:HB2	1.94	0.49
2:D:398:MET:C	2:D:400:ARG:H	2.20	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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: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
1:A:88:HIS:O	1:A:89:PRO:C	2.56	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
4:F:208:ASP:OD1	4:F:208:ASP:C	2.56	0.48
1:C:81:GLY:O	1:C:84:ARG:NH2	2.45	0.48
1:A:347:CYS:C	3:E:27:PRO:HB3	2.38	0.48
4:F:140:GLU:C	4:F:142:ARG:N	2.72	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:B:322:ARG:O	2:B:373:MET:HE1	2.14	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
1:C:204:VAL:HG22	1:C:302:MET:HE1	1.95	0.47
2:D:398:MET:C	2:D:400:ARG:N	2.73	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:B:108:TYR:OH	2:B:417:GLU:OE2	2.33	0.47
2:D:311:ARG:NH1	2:D:341:SER:O	2.46	0.47
2:D:414:ASP:HB3	2:D:416:MET:HE2	1.96	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
1:A:1:MET:SD	1:A:1:MET:C	2.98	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:D:171:VAL:HA	2:D:204:ILE:O	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
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:325:MET:HE3	2:D:325:MET:HB2	1.89	0.45
1:C:372:GLN:OE1	1:C:372:GLN:HA	2.17	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:102:ASN:OD1	2:D:102:ASN:C	2.60	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
1:C:1:MET:HE1	1:C:130:THR:CB	2.47	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
1:C:340:SER:C	1:C:341:ILE:HD12	2.43	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:116:ASP:HB2	13:A:656:HOH:O	2.18	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
1:A:194:THR:O	1:A:195:LEU:C	2.60	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
4:F:44:ARG:C	4:F:45:ASN:HD22	2.27	0.43
1:A:164:LYS:N	1:A:164:LYS:HD3	2.32	0.43
2:B:72:PRO:O	2:B:73:GLY:C	2.62	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:B:415:GLU:O	2:B:418:PHE:HB2	2.19	0.42
4:F:236:LYS:C	4:F:238:CYS:N	2.76	0.42
4:F:247:LYS:HA	4:F:253:TYR:CD2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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: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
1:A:346:TRP:CD1	1:A:346:TRP:H	2.37	0.41
2:D:56:ALA:HB3	2:D:60:LYS:C	2.42	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
2:B:114:LEU:HD23	2:B:149:MET:HE1	2.02	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
1:C:279:GLU:H	1:C:279:GLU:CD	2.27	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
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:10:ASN:O	4:F:11:SER:C	2.63	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:D:373:MET:HE2	2:D:373:MET:HB3	1.91	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%)	43 63
1	C	438/451 (97%)	419 (96%)	15 (3%)	4 (1%)	14 27
2	B	428/445 (96%)	415 (97%)	12 (3%)	1 (0%)	43 63
2	D	423/445 (95%)	401 (95%)	18 (4%)	4 (1%)	14 27
3	E	121/143 (85%)	114 (94%)	6 (5%)	1 (1%)	16 31
4	F	338/384 (88%)	313 (93%)	21 (6%)	4 (1%)	10 20
All	All	2185/2319 (94%)	2078 (95%)	92 (4%)	15 (1%)	18 34

All (15) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	162	GLY
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%)	341 (92%)	29 (8%)	11	24
1	C	371/379 (98%)	357 (96%)	14 (4%)	29	56
2	B	369/381 (97%)	355 (96%)	14 (4%)	29	56
2	D	366/381 (96%)	335 (92%)	31 (8%)	10	22
3	E	113/127 (89%)	92 (81%)	21 (19%)	1	3
4	F	314/342 (92%)	287 (91%)	27 (9%)	10	21
All	All	1903/1989 (96%)	1767 (93%)	136 (7%)	13	29

All (136) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	SER
1	A	42	ILE

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Mol	Chain	Res	Type
1	A	48	SER
1	A	62	VAL
1	A	63	PRO
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	114	ILE
1	A	115	ILE
1	A	120	ASP
1	A	124	LYS
1	A	163	LYS
1	A	164	LYS
1	A	166	LYS
1	A	176	GLN
1	A	181	VAL
1	A	188	ILE
1	A	279	GLU
1	A	326	LYS
1	A	340	SER
1	A	368	LEU
1	A	370	LYS
1	A	381	THR
1	A	437	VAL
1	A	438	ASP
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	147	SER
2	B	180	THR
2	B	200	GLU
2	B	217	LEU
2	B	280	SER
2	B	335	VAL
2	B	369	ARG
1	C	1	MET

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Mol	Chain	Res	Type
1	C	133	GLN
1	C	136	LEU
1	C	163	LYS
1	C	164	LYS
1	C	188	ILE
1	C	284	GLU
1	C	285	GLN
1	C	326	LYS
1	C	341	ILE
1	C	384	ILE
1	C	415	GLU
1	C	430	LYS
1	C	440	VAL
2	D	1	MET
2	D	2	ARG
2	D	8	GLN
2	D	19	LYS
2	D	50	ASN
2	D	59	ASN
2	D	60	LYS
2	D	79	ARG
2	D	88	ARG
2	D	117	SER
2	D	124	LYS
2	D	127	GLU
2	D	128	SER
2	D	140	SER
2	D	149	MET
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

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Mol	Chain	Res	Type
2	D	407	TRP
2	D	416	MET
3	E	12	ASN
3	E	22	VAL
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	98	LYS
3	E	99	GLU
3	E	100	LYS
3	E	107	SER
3	E	121	GLU
3	E	124	GLN
3	E	133	VAL
3	E	135	LYS
4	F	12	SER
4	F	18	SER
4	F	19	ARG
4	F	32	LYS
4	F	45	ASN
4	F	84	SER
4	F	87	LEU
4	F	89	GLU
4	F	129	GLU
4	F	151	SER
4	F	163	SER
4	F	167	SER
4	F	176	GLN
4	F	188	LYS
4	F	226	GLU
4	F	229	ASN
4	F	234	GLN
4	F	245	ILE
4	F	255	ARG

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Mol	Chain	Res	Type
4	F	284	LEU
4	F	296	MET
4	F	305	LYS
4	F	324	GLU
4	F	331	GLU
4	F	353	VAL
4	F	364	THR
4	F	372	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	15	GLN
1	A	176	GLN
1	A	256	GLN
1	A	285	GLN
1	A	309	HIS
1	A	342	GLN
1	A	356	ASN
2	B	8	GLN
2	B	11	GLN
2	B	14	ASN
2	B	15	GLN
2	B	50	ASN
2	B	85	GLN
2	B	136	GLN
2	B	300	ASN
2	B	385	GLN
2	B	433	GLN
2	B	436	GLN
1	C	15	GLN
1	C	85	GLN
1	C	285	GLN
1	C	293	ASN
2	D	85	GLN
2	D	101	ASN
2	D	193	GLN
2	D	197	ASN
2	D	385	GLN
3	E	18	GLN
3	E	64	GLN
4	F	45	ASN

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Mol	Chain	Res	Type
4	F	234	GLN
4	F	260	ASN
4	F	269	GLN
4	F	333	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 oligosaccharides 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$
8	GOL	F	402	-	5,5,5	0.61	0	5,5,5	1.11	0
8	GOL	C	504	-	5,5,5	0.43	0	5,5,5	1.28	0
10	MES	B	503	-	12,12,12	2.09	1 (8%)	15,16,16	2.03	6 (40%)
11	55Q	B	507	-	52,53,53	1.90	11 (21%)	64,73,73	2.12	22 (34%)
10	MES	B	504	-	12,12,12	2.11	1 (8%)	15,16,16	5.72	10 (66%)
12	ACP	F	401	-	31,33,33	2.23	10 (32%)	47,52,52	1.68	11 (23%)
9	GDP	D	501	6	29,30,30	1.53	4 (13%)	45,47,47	2.03	11 (24%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
8	GOL	B	505	-	5,5,5	0.33	0	5,5,5	0.53	0
8	GOL	A	505	-	5,5,5	0.17	0	5,5,5	0.97	0
5	GTP	A	501	6	33,34,34	1.50	6 (18%)	50,54,54	1.81	10 (20%)
8	GOL	A	506	-	5,5,5	0.47	0	5,5,5	0.56	0
5	GTP	C	501	6	33,34,34	1.13	3 (9%)	50,54,54	1.92	11 (22%)
8	GOL	B	506	-	5,5,5	0.39	0	5,5,5	0.42	0
9	GDP	B	501	6	29,30,30	1.28	2 (6%)	45,47,47	1.56	6 (13%)
11	55Q	D	503	-	52,53,53	1.88	9 (17%)	64,73,73	2.04	18 (28%)
8	GOL	A	504	-	5,5,5	0.38	0	5,5,5	0.53	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
8	GOL	F	402	-	-	0/4/4/4	-
8	GOL	C	504	-	-	4/4/4/4	-
10	MES	B	503	-	-	1/6/14/14	0/1/1/1
11	55Q	B	507	-	-	21/62/73/73	0/3/3/3
10	MES	B	504	-	-	4/6/14/14	0/1/1/1
12	ACP	F	401	-	-	6/19/38/38	0/3/3/3
9	GDP	D	501	6	-	5/16/32/32	0/3/3/3
8	GOL	B	505	-	-	2/4/4/4	-
8	GOL	A	505	-	-	4/4/4/4	-
5	GTP	A	501	6	-	6/22/38/38	0/3/3/3
8	GOL	A	506	-	-	2/4/4/4	-
5	GTP	C	501	6	-	5/22/38/38	0/3/3/3
8	GOL	B	506	-	-	4/4/4/4	-
9	GDP	B	501	6	-	5/16/32/32	0/3/3/3
11	55Q	D	503	-	-	28/62/73/73	0/3/3/3
8	GOL	A	504	-	-	4/4/4/4	-

All (47) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	D	503	55Q	CBF-CBH	-8.42	1.32	1.48
11	B	507	55Q	CBF-CBH	-7.43	1.34	1.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	B	504	MES	C8-S	-6.61	1.68	1.77
10	B	503	MES	C8-S	-6.58	1.68	1.77
12	F	401	ACP	PG-O1G	5.83	1.62	1.50
12	F	401	ACP	C5-C4	5.12	1.48	1.39
11	D	503	55Q	CBM-CBN	-4.72	1.40	1.51
9	D	501	GDP	PA-O3A	4.46	1.64	1.59
12	F	401	ACP	PB-O3A	4.46	1.63	1.58
5	A	501	GTP	C6-N1	-3.84	1.31	1.38
12	F	401	ACP	PA-O3A	3.82	1.63	1.59
11	D	503	55Q	OAZ-CBB	3.61	1.43	1.35
11	B	507	55Q	OAZ-CBB	3.60	1.43	1.35
9	B	501	GDP	C5-C4	3.58	1.48	1.38
11	B	507	55Q	CBM-CBN	-3.27	1.43	1.51
11	B	507	55Q	CBT-CBU	3.14	1.60	1.51
9	B	501	GDP	C6-N1	-3.12	1.33	1.38
5	A	501	GTP	C5-C4	3.05	1.47	1.38
12	F	401	ACP	PG-O3G	3.01	1.61	1.55
12	F	401	ACP	C5-C6	3.01	1.49	1.41
5	C	501	GTP	PA-O3A	2.97	1.62	1.59
11	D	503	55Q	OAZ-CAS	2.92	1.51	1.45
9	D	501	GDP	C5-C4	2.90	1.46	1.38
11	B	507	55Q	CA-N	2.86	1.52	1.48
9	D	501	GDP	C5-N7	-2.79	1.33	1.39
11	B	507	55Q	CAB-N	2.77	1.52	1.47
12	F	401	ACP	PG-O2G	-2.69	1.49	1.55
11	D	503	55Q	CAV-CAQ	2.55	1.58	1.53
12	F	401	ACP	C8-N7	2.50	1.36	1.31
5	A	501	GTP	PB-O3A	-2.49	1.56	1.59
11	B	507	55Q	CAY-SBD	-2.47	1.68	1.73
12	F	401	ACP	PB-O2B	2.46	1.62	1.56
11	B	507	55Q	CAO-NAP	2.44	1.40	1.35
11	D	503	55Q	CAO-NAP	2.41	1.40	1.35
5	C	501	GTP	C8-N7	2.41	1.39	1.32
12	F	401	ACP	C4-N9	-2.40	1.32	1.37
9	D	501	GDP	C2-N3	2.38	1.38	1.33
5	A	501	GTP	PA-O3A	2.36	1.62	1.59
5	C	501	GTP	C5-C4	2.34	1.45	1.38
11	B	507	55Q	CBC-CBB	2.33	1.57	1.49
5	A	501	GTP	C5-N7	-2.16	1.34	1.39
11	D	503	55Q	CAR-CAS	2.07	1.56	1.53
11	D	503	55Q	CB-CA	2.07	1.57	1.53
11	B	507	55Q	CAK-CAJ	-2.07	1.48	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	D	503	55Q	CAY-NBG	2.07	1.34	1.30
11	B	507	55Q	CAY-NBG	2.03	1.34	1.30
5	A	501	GTP	C8-N7	2.03	1.38	1.32

All (105) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	B	504	MES	O3S-S-O1S	-11.40	82.88	111.40
10	B	504	MES	O1S-S-C8	-10.84	90.34	106.73
10	B	504	MES	O2S-S-O1S	-10.40	79.99	113.82
11	D	503	55Q	CAS-OAZ-CBB	6.87	127.19	117.00
5	C	501	GTP	C2-N3-C4	6.41	123.33	112.30
5	A	501	GTP	C5-C4-N3	-5.91	118.98	128.39
11	B	507	55Q	CAS-OAZ-CBB	5.83	125.65	117.00
10	B	504	MES	O3S-S-C8	5.80	117.36	106.00
9	D	501	GDP	O4'-C1'-N9	-5.51	95.88	108.36
11	B	507	55Q	CAO-CAJ-NAI	5.42	121.17	108.06
10	B	504	MES	O2S-S-C8	5.37	114.84	106.73
9	D	501	GDP	C5-C4-N3	-5.36	119.86	128.39
10	B	504	MES	O3S-S-O2S	5.35	124.77	111.40
5	C	501	GTP	C5-C4-N3	-5.33	119.90	128.39
9	B	501	GDP	C5-C4-N3	-5.19	120.13	128.39
12	F	401	ACP	C5-C4-N3	-4.83	120.07	126.72
11	B	507	55Q	OAT-CAO-CAJ	-4.80	110.93	119.96
9	D	501	GDP	N9-C4-N3	4.75	135.45	125.95
11	D	503	55Q	OAT-CAO-CAJ	-4.69	111.14	119.96
10	B	503	MES	O2S-S-C8	4.53	113.58	106.73
5	A	501	GTP	C2-N3-C4	4.47	120.00	112.30
5	A	501	GTP	N9-C4-N3	4.33	134.60	125.95
9	B	501	GDP	C2-N3-C4	4.26	119.64	112.30
11	B	507	55Q	CAL-CAK-CAJ	-4.18	100.65	111.17
12	F	401	ACP	N3-C4-N9	4.13	134.19	127.17
10	B	504	MES	C2-C3-N4	4.10	116.35	110.12
11	B	507	55Q	CAJ-CAO-NAP	4.03	126.77	118.80
5	C	501	GTP	C6-C5-N7	3.98	137.54	130.29
11	B	507	55Q	CAS-CAR-CAQ	-3.97	105.03	113.30
11	D	503	55Q	CBL-CBJ-CBM	-3.93	108.03	112.44
11	D	503	55Q	CAJ-CAO-NAP	3.93	126.56	118.80
9	B	501	GDP	N9-C4-N3	3.84	133.63	125.95
11	B	507	55Q	CAJ-NAI-C	3.83	131.39	121.90
11	D	503	55Q	SBD-CAY-NBG	-3.83	109.19	114.19
11	D	503	55Q	CBF-NBG-CAY	3.81	114.59	110.65

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	D	501	GDP	O3B-PB-O1B	3.80	125.65	110.83
11	D	503	55Q	CAO-CAJ-NAI	3.70	117.01	108.06
12	F	401	ACP	C2-N3-C4	3.52	120.42	111.83
9	D	501	GDP	C2-N3-C4	3.48	118.30	112.30
12	F	401	ACP	N3-C2-N1	-3.47	123.32	128.58
12	F	401	ACP	C4-N9-C8	3.43	109.34	105.74
5	A	501	GTP	C6-C5-N7	3.36	136.40	130.29
11	D	503	55Q	CAK-CAJ-NAI	3.35	118.25	111.35
10	B	504	MES	O1-C6-C5	-3.32	104.62	111.77
9	D	501	GDP	O3'-C3'-C4'	-3.26	101.73	111.08
5	A	501	GTP	O2B-PB-O3B	-3.25	98.49	107.27
11	D	503	55Q	CBN-CBM-CBJ	-3.23	106.61	113.71
11	D	503	55Q	CBF-CBH-NBI	3.19	119.76	115.22
11	D	503	55Q	OAZ-CBB-CBC	3.14	116.68	111.09
11	D	503	55Q	OAZ-CAS-CAR	3.11	113.17	106.65
5	C	501	GTP	N9-C4-N3	3.04	132.03	125.95
10	B	503	MES	C5-N4-C3	3.01	115.32	108.84
12	F	401	ACP	C4-C5-N7	-3.01	107.14	110.58
11	B	507	55Q	OBV-CBU-CBT	-2.94	113.33	122.27
11	B	507	55Q	OAZ-CBB-CBC	2.94	116.33	111.09
11	B	507	55Q	CBP-CBO-CBN	2.92	124.72	120.61
5	C	501	GTP	C5'-C4'-C3'	-2.91	104.73	115.21
5	A	501	GTP	O3G-PG-O2G	2.85	118.48	107.80
9	D	501	GDP	O4'-C1'-C2'	-2.81	100.59	106.62
9	D	501	GDP	O6-C6-C5	-2.76	119.25	126.53
10	B	504	MES	C5-N4-C3	2.72	114.71	108.84
9	B	501	GDP	C6-C5-N7	2.68	135.18	130.29
10	B	503	MES	O3S-S-O2S	-2.66	104.74	111.40
11	B	507	55Q	CB-CA-N	2.65	112.59	109.22
11	B	507	55Q	CBF-NBG-CAY	2.62	113.35	110.65
9	B	501	GDP	O3B-PB-O1B	2.58	120.89	110.83
11	B	507	55Q	CBF-CBE-SBD	-2.58	107.26	110.24
5	A	501	GTP	C5-C6-N1	2.55	119.75	113.25
5	C	501	GTP	N2-C2-N1	2.50	122.03	116.76
11	D	503	55Q	OBV-CBU-CBT	-2.45	114.81	122.27
5	C	501	GTP	C4-C5-N7	-2.41	106.85	110.67
5	C	501	GTP	O3G-PG-O3B	-2.37	96.70	104.64
11	B	507	55Q	CBQ-CBR-CBS	2.36	123.15	120.24
11	D	503	55Q	CAL-CAK-CAJ	2.32	117.02	111.17
10	B	503	MES	O3S-S-O1S	2.32	117.21	111.40
11	B	507	55Q	CAR-CAQ-CAV	2.30	118.56	113.40
5	A	501	GTP	O6-C6-C5	-2.29	120.49	126.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	F	401	ACP	C6-C5-N7	2.29	136.50	132.09
11	D	503	55Q	CBM-CBJ-NBI	-2.27	106.01	110.34
5	A	501	GTP	C4-C5-N7	-2.25	107.10	110.67
10	B	503	MES	C6-O1-C2	2.24	117.12	109.88
11	B	507	55Q	CAA-CAF-CB	2.22	115.98	111.42
11	D	503	55Q	CBE-SBD-CAY	2.21	92.14	89.52
12	F	401	ACP	C2-N1-C6	2.19	122.33	118.73
11	D	503	55Q	OBA-CBB-CBC	-2.19	117.02	124.77
10	B	503	MES	C7-N4-C5	-2.18	105.43	111.24
10	B	504	MES	C7-N4-C3	-2.17	105.45	111.24
5	C	501	GTP	C6-C5-C4	-2.15	115.59	118.83
5	C	501	GTP	O6-C6-C5	-2.15	120.86	126.53
11	D	503	55Q	CAB-N-CA	-2.13	108.30	112.39
9	D	501	GDP	O3B-PB-O3A	-2.13	97.49	104.64
12	F	401	ACP	C5-N7-C8	2.13	106.79	103.45
5	A	501	GTP	O3B-PB-O1B	2.12	117.08	110.70
9	B	501	GDP	O3'-C3'-C2'	-2.10	105.10	111.82
11	B	507	55Q	OBW-CBU-CBT	2.09	121.84	115.05
12	F	401	ACP	N9-C8-N7	-2.09	110.97	113.94
11	B	507	55Q	CAA-CAB-N	2.09	114.62	111.36
11	B	507	55Q	CAK-CAJ-NAI	2.08	115.64	111.35
12	F	401	ACP	PB-O3A-PA	-2.07	125.61	132.37
9	D	501	GDP	C8-N9-C4	2.05	109.86	106.03
11	B	507	55Q	CAX-CAV-CAQ	2.04	116.63	111.52
5	C	501	GTP	N9-C8-N7	-2.03	109.64	113.40
11	B	507	55Q	OBA-CBB-CBC	-2.01	117.67	124.77
9	D	501	GDP	O2A-PA-O5'	2.01	116.66	107.57
11	B	507	55Q	CAK-CAJ-CAO	2.00	115.50	111.30

There are no chirality outliers.

All (101) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	501	GTP	C5'-O5'-PA-O3A
5	A	501	GTP	C5'-O5'-PA-O1A
5	C	501	GTP	C5'-O5'-PA-O3A
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	B	505	GOL	C1-C2-C3-O3
8	B	506	GOL	O1-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
8	B	506	GOL	C1-C2-C3-O3
8	C	504	GOL	C1-C2-C3-O3
9	B	501	GDP	C5'-O5'-PA-O1A
9	D	501	GDP	C5'-O5'-PA-O3A
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	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	CBE-CBF-CBH-OBK
11	B	507	55Q	CBE-CBF-CBH-NBI
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
11	D	503	55Q	CBC-CBB-OAZ-CAS
11	D	503	55Q	CBE-CBF-CBH-OBK
11	D	503	55Q	CBE-CBF-CBH-NBI
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	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
11	B	507	55Q	NBG-CBF-CBH-NBI
11	D	503	55Q	NBG-CBF-CBH-NBI
8	A	504	GOL	O1-C1-C2-C3
8	A	505	GOL	O1-C1-C2-C3
8	A	506	GOL	C1-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
8	C	504	GOL	O1-C1-C2-C3
8	A	505	GOL	O2-C2-C3-O3
8	B	506	GOL	O1-C1-C2-O2
8	B	506	GOL	O2-C2-C3-O3
11	B	507	55Q	CBM-CBJ-CBL-CBT
11	D	503	55Q	CBM-CBJ-CBL-CBT
11	B	507	55Q	NBG-CBF-CBH-OBK
11	D	503	55Q	NBG-CBF-CBH-OBK
12	F	401	ACP	C3'-C4'-C5'-O5'
8	C	504	GOL	O2-C2-C3-O3
11	B	507	55Q	NAP-CAQ-CAV-CAW
11	D	503	55Q	NAP-CAQ-CAV-CAW
8	C	504	GOL	O1-C1-C2-O2
11	D	503	55Q	NAI-CAJ-CAK-CAN
11	B	507	55Q	O-C-CA-CB
12	F	401	ACP	PB-O3A-PA-O1A
8	A	506	GOL	O2-C2-C3-O3
10	B	504	MES	C7-C8-S-O1S
5	A	501	GTP	PB-O3B-PG-O1G
11	B	507	55Q	NBI-CBJ-CBL-CBT
10	B	504	MES	N4-C7-C8-S
11	B	507	55Q	NAI-C-CA-N
11	D	503	55Q	O-C-CA-N
11	D	503	55Q	NAI-C-CA-N
11	D	503	55Q	NBI-CBJ-CBL-CBT
11	D	503	55Q	CBJ-CBL-CBT-CBX
5	A	501	GTP	C5'-O5'-PA-O2A
9	B	501	GDP	C5'-O5'-PA-O3A
9	B	501	GDP	C5'-O5'-PA-O2A
9	D	501	GDP	C5'-O5'-PA-O2A
11	B	507	55Q	CAK-CAJ-NAI-C
11	D	503	55Q	CBX-CBT-CBU-OBW
11	D	503	55Q	CBX-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
11	D	503	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

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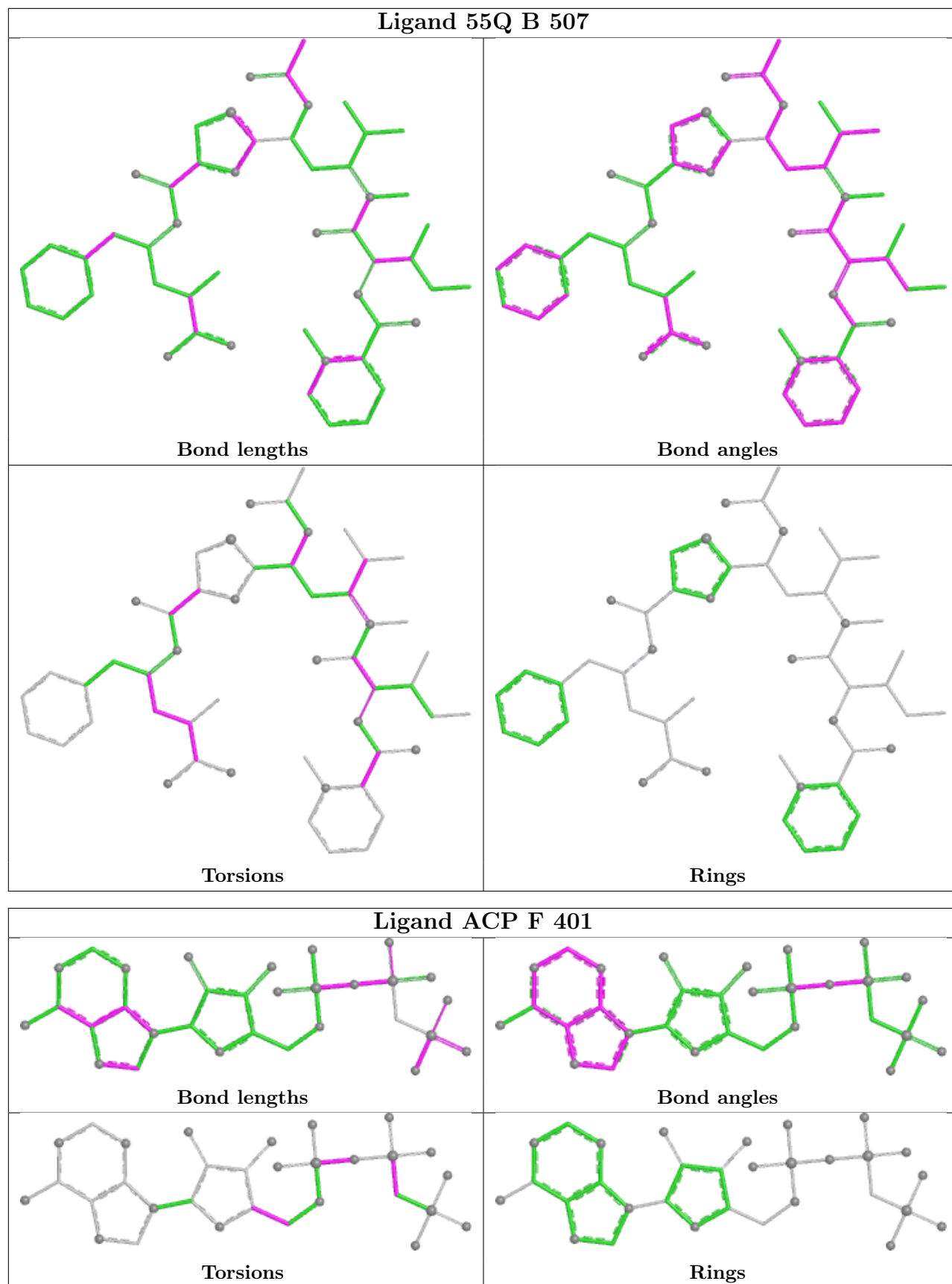
Mol	Chain	Res	Type	Atoms
11	B	507	55Q	CAV-CAQ-NAP-CAU
11	B	507	55Q	CBX-CBT-CBU-OBW
11	B	507	55Q	CBL-CBT-CBU-OBW
11	D	503	55Q	CBL-CBT-CBU-OBW
11	D	503	55Q	CBL-CBT-CBU-OBV
8	A	504	GOL	O1-C1-C2-O2
5	C	501	GTP	PB-O3A-PA-O1A
11	B	507	55Q	CAK-CAJ-CAO-NAP

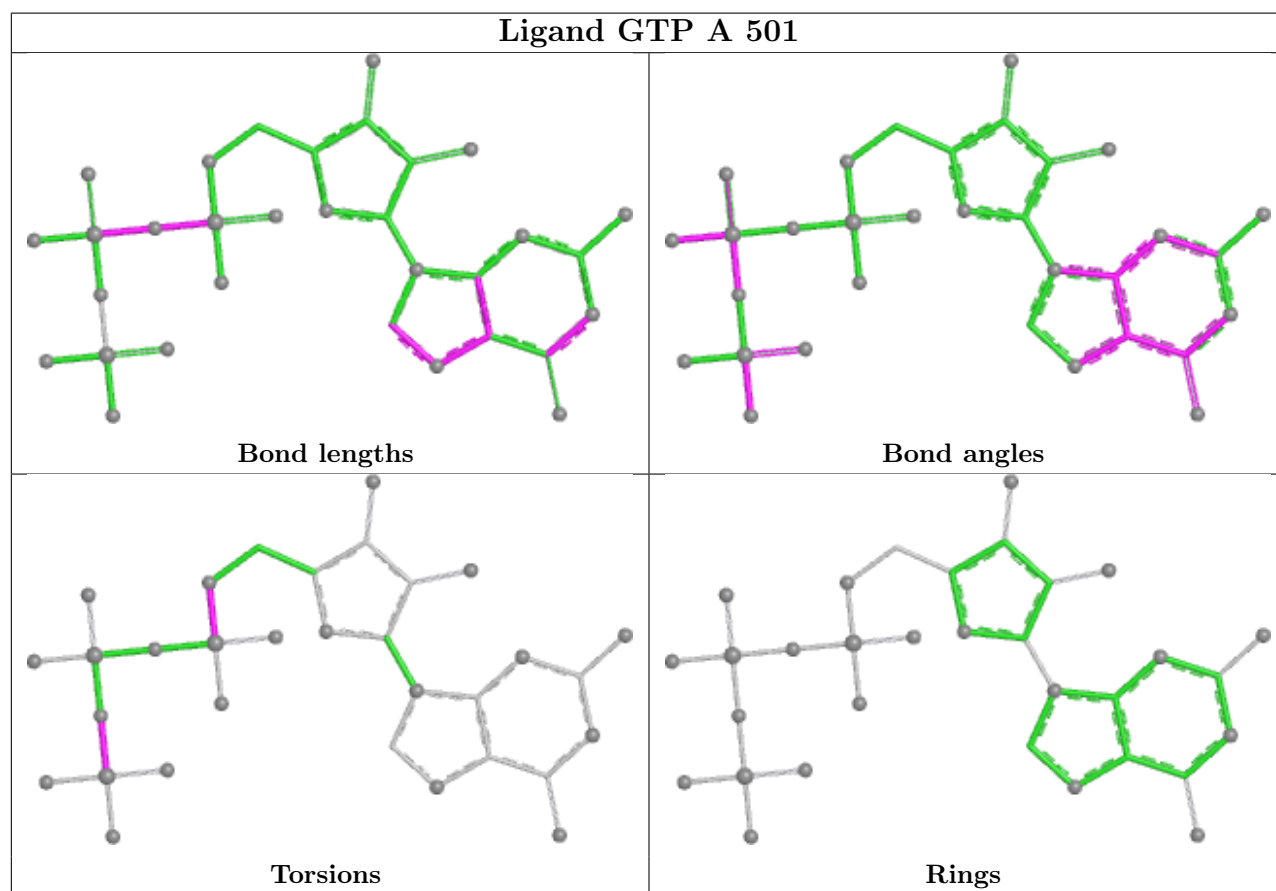
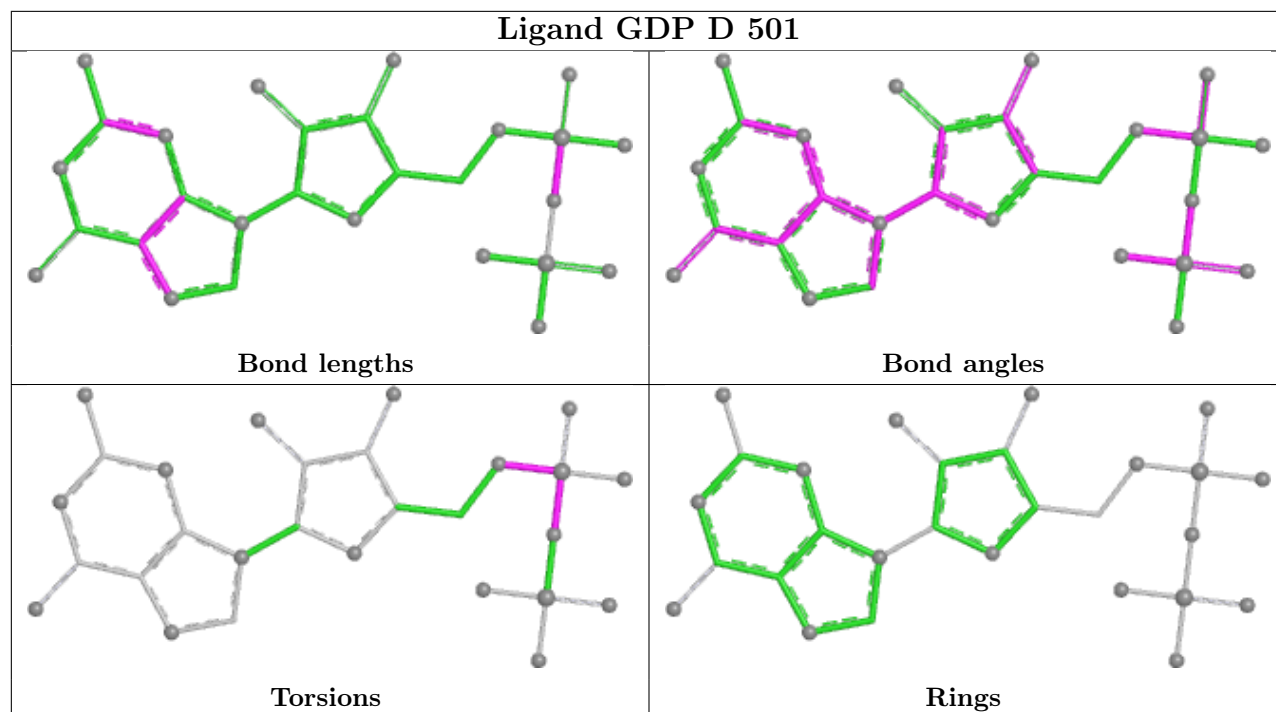
There are no ring outliers.

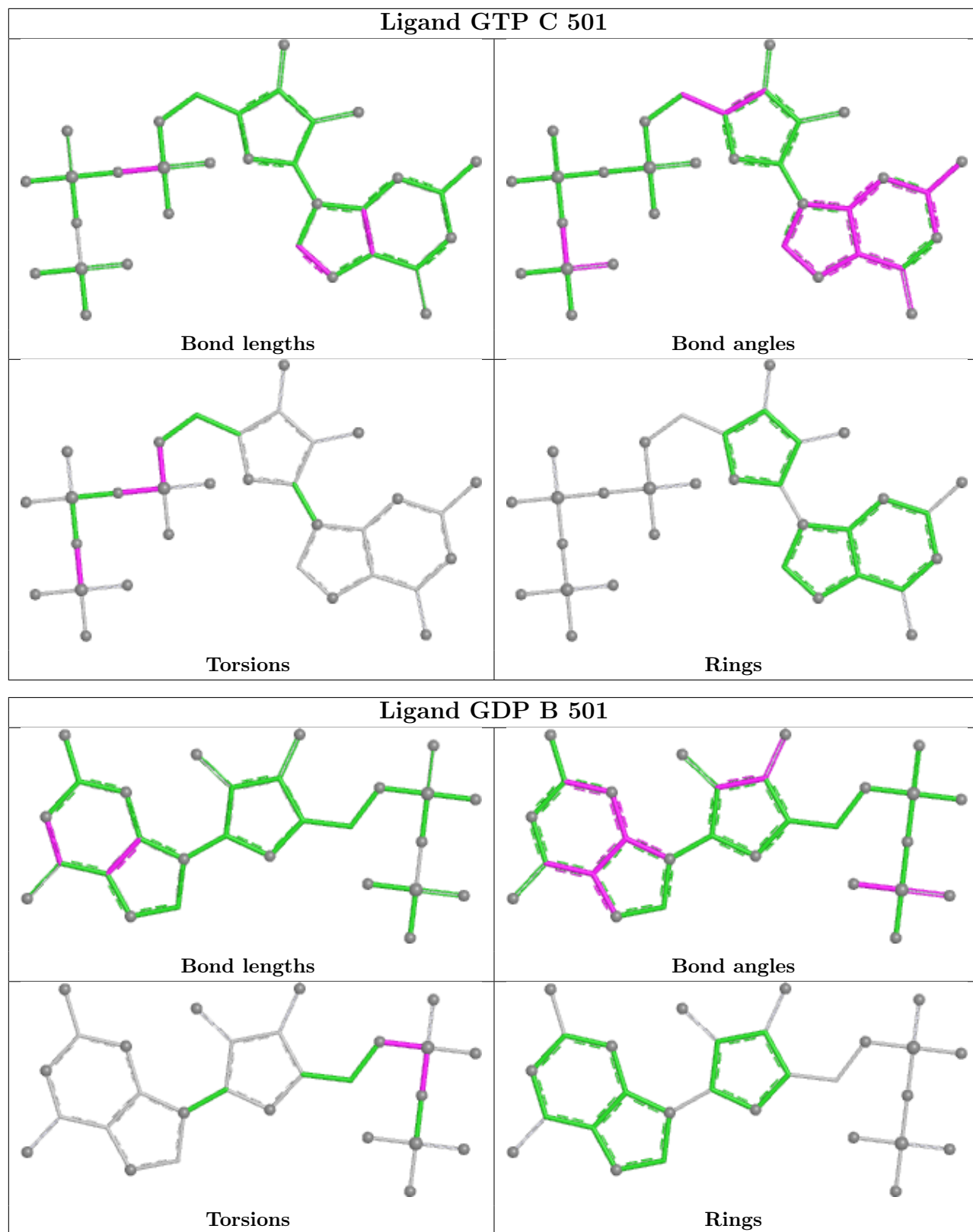
9 monomers are involved in 25 short contacts:

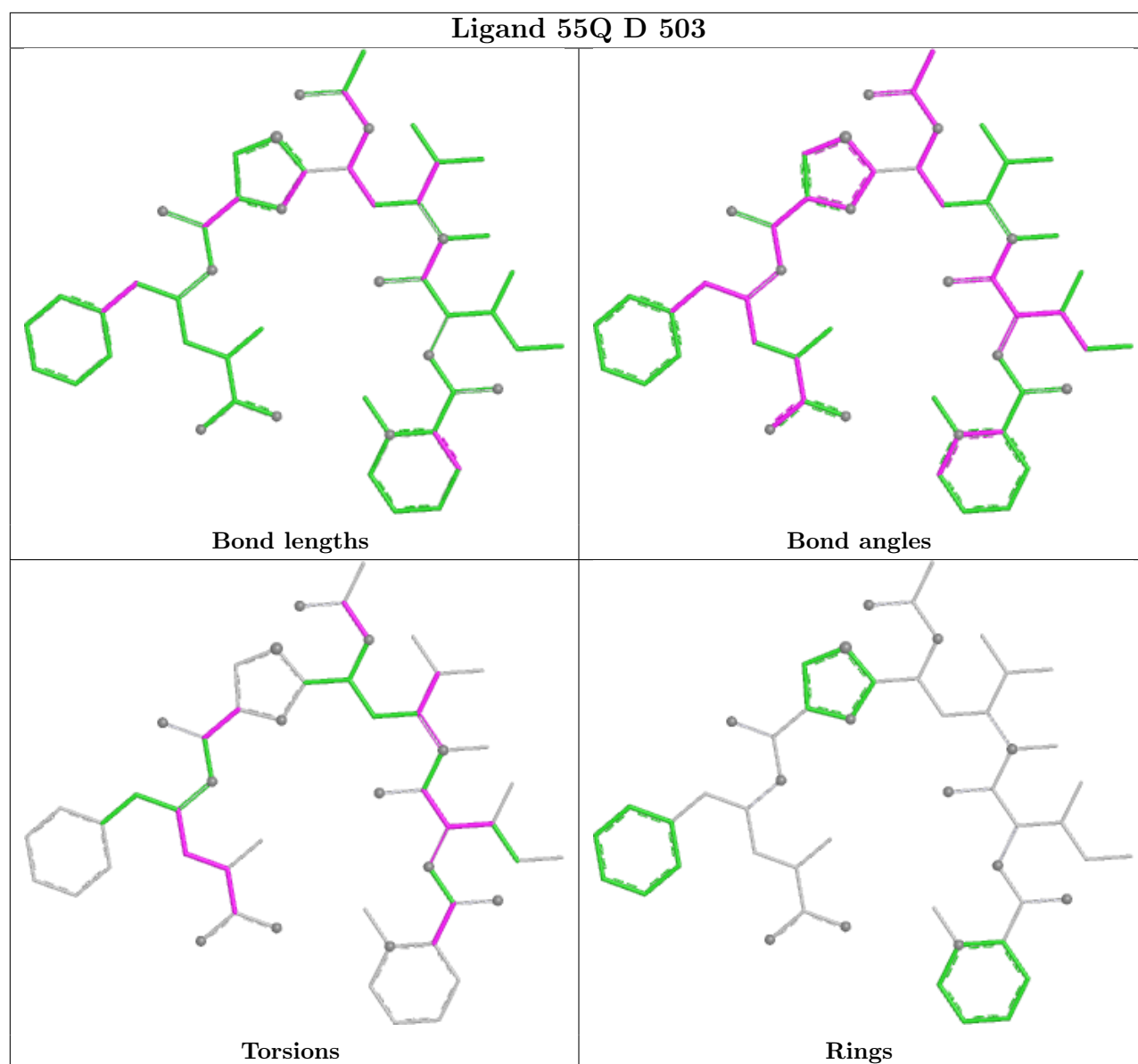
Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	B	503	MES	1	0
10	B	504	MES	3	0
12	F	401	ACP	4	0
9	D	501	GDP	1	0
5	A	501	GTP	1	0
8	A	506	GOL	12	0
8	B	506	GOL	1	0
9	B	501	GDP	1	0
8	A	504	GOL	1	0

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 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%)	-0.47	3 (0%) 84 81	23, 39, 66, 116	0
1	C	440/451 (97%)	-0.63	4 (0%) 81 78	21, 33, 62, 91	0
2	B	430/445 (96%)	-0.51	4 (0%) 81 78	20, 36, 71, 107	0
2	D	427/445 (95%)	-0.05	14 (3%) 49 45	28, 50, 86, 124	0
3	E	122/143 (85%)	0.31	6 (4%) 35 31	28, 54, 87, 114	3 (2%)
4	F	348/384 (90%)	0.12	13 (3%) 45 40	25, 56, 108, 138	0
All	All	2206/2319 (95%)	-0.29	44 (1%) 65 61	20, 42, 85, 138	3 (0%)

All (44) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	E	115[A]	HIS	7.2
2	D	280	SER	4.6
4	F	159	GLY	4.5
4	F	364	THR	4.3
1	A	282	TYR	3.8
2	D	1	MET	3.8
4	F	231	ALA	3.5
2	B	1	MET	3.5
3	E	141	GLU	3.4
1	C	283	HIS	3.3
4	F	245	ILE	3.2
3	E	6	MET	3.2
2	D	74	THR	3.2
2	D	94	PHE	3.0
4	F	161	LEU	3.0
1	C	440	VAL	3.0
4	F	249	TYR	3.0
1	A	439	SER	3.0
3	E	28	SER	3.0

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Mol	Chain	Res	Type	RSRZ
2	D	56	ALA	2.9
2	D	285	ALA	2.9
3	E	139	LEU	2.9
2	D	57	ALA	2.8
1	A	262	TYR	2.8
2	D	82	PRO	2.7
4	F	233	PHE	2.6
2	D	220	THR	2.5
4	F	372	THR	2.5
2	D	407	TRP	2.5
4	F	151	SER	2.5
2	D	60	LYS	2.4
4	F	125	THR	2.3
1	C	1	MET	2.3
1	C	2	ARG	2.3
4	F	104	ASN	2.3
4	F	160	ILE	2.3
2	D	441	ASP	2.2
2	B	94	PHE	2.1
2	D	97	SER	2.1
3	E	71[A]	HIS	2.1
2	D	400	ARG	2.1
4	F	182	ILE	2.0
2	B	82	PRO	2.0
2	B	325	MET	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

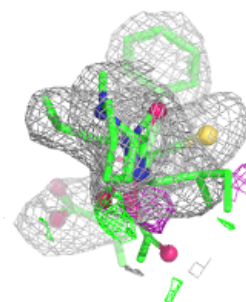
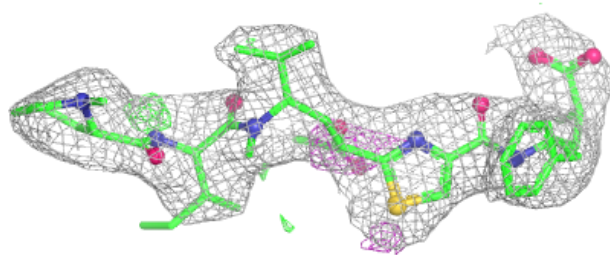
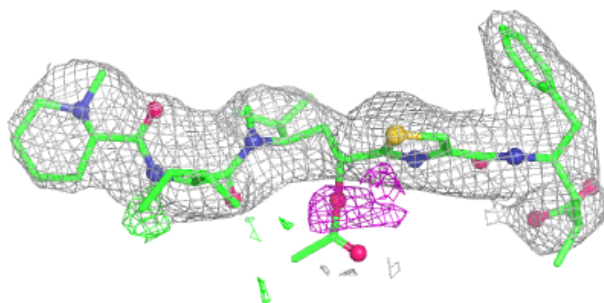
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
8	GOL	A	504	6/6	0.70	0.25	61,72,78,87	0
8	GOL	B	505	6/6	0.77	0.16	66,72,74,75	0
8	GOL	A	506	6/6	0.86	0.20	39,67,99,101	0
8	GOL	B	506	6/6	0.89	0.13	60,76,80,93	0
8	GOL	F	402	6/6	0.89	0.18	77,80,83,84	0
11	55Q	D	503	51/51	0.90	0.14	54,70,113,127	0
12	ACP	F	401	31/31	0.91	0.09	58,72,124,137	0
8	GOL	C	504	6/6	0.92	0.14	54,58,62,76	0
10	MES	B	504	12/12	0.93	0.10	57,64,73,74	0
6	MG	D	502	1/1	0.93	0.08	36,36,36,36	0
10	MES	B	503	12/12	0.93	0.10	50,54,59,60	0
8	GOL	A	505	6/6	0.95	0.08	50,51,55,58	0
11	55Q	B	507	51/51	0.95	0.09	21,36,74,103	0
6	MG	B	502	1/1	0.96	0.07	44,44,44,44	0
9	GDP	D	501	28/28	0.97	0.06	33,39,47,52	0
5	GTP	A	501	32/32	0.99	0.04	24,27,30,31	0
9	GDP	B	501	28/28	0.99	0.04	20,27,31,32	0
5	GTP	C	501	32/32	0.99	0.04	19,22,26,28	0
7	CA	A	503	1/1	0.99	0.03	50,50,50,50	0
7	CA	C	503	1/1	1.00	0.03	38,38,38,38	0
6	MG	A	502	1/1	1.00	0.02	37,37,37,37	0
6	MG	C	502	1/1	1.00	0.04	30,30,30,30	0

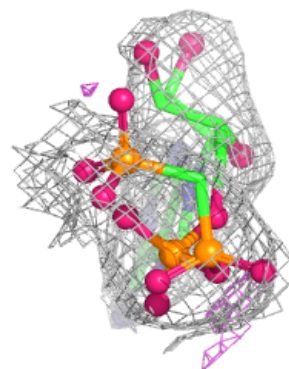
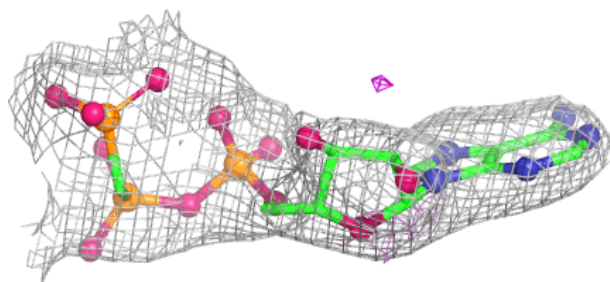
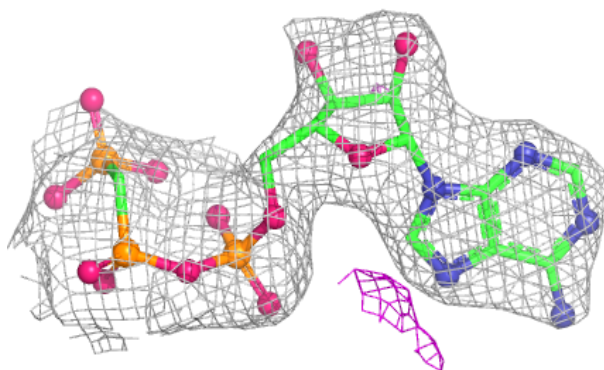
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

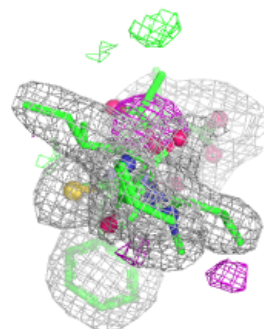
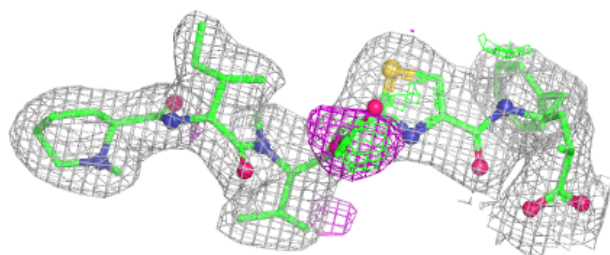
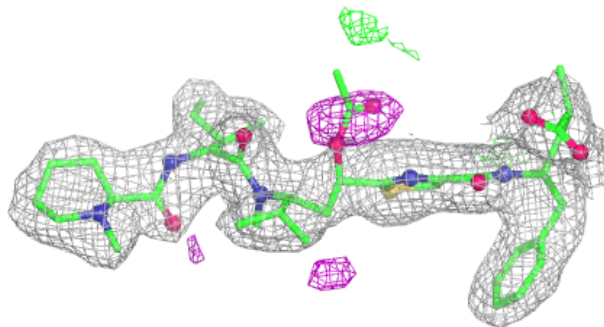
**Electron density around ACP F 401:**

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

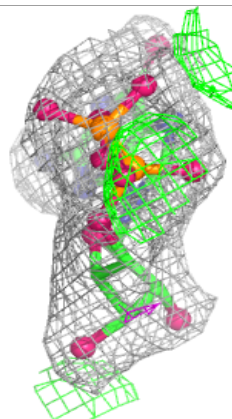
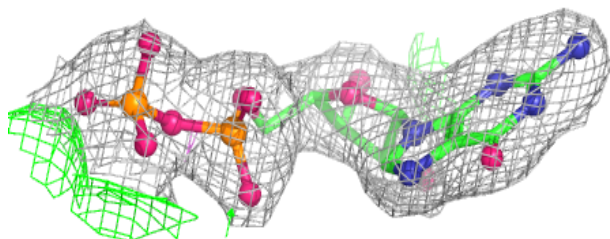
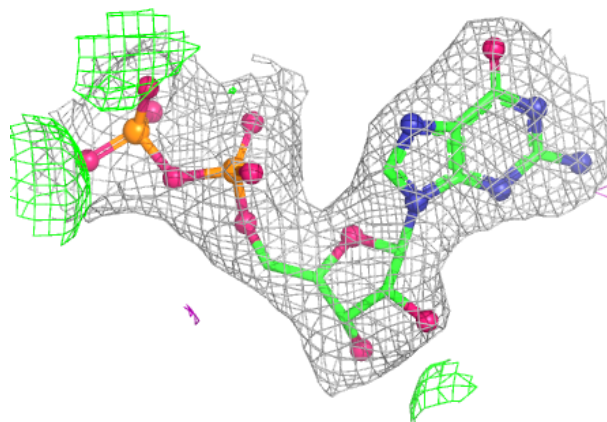


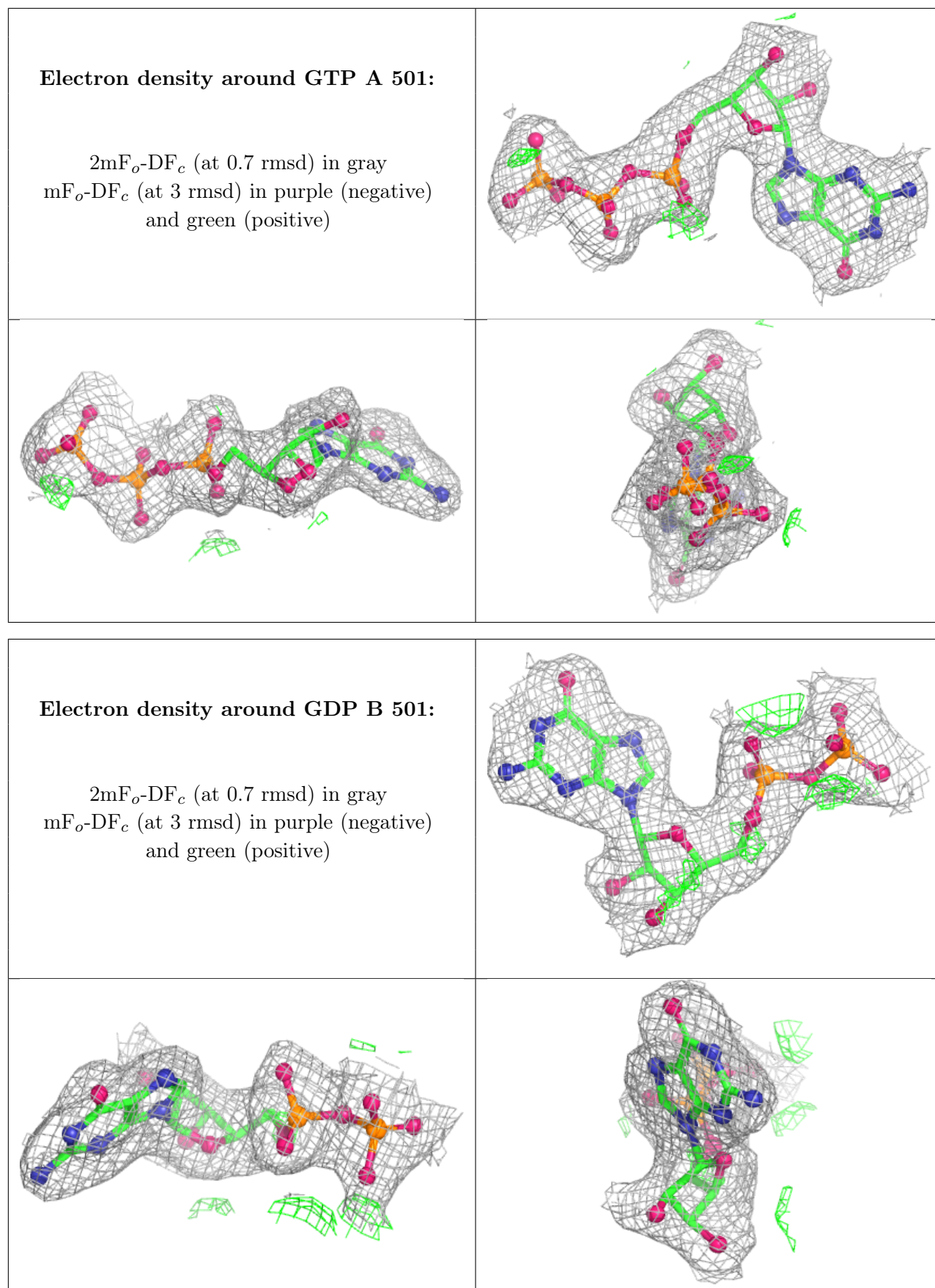
Electron density around 55Q B 507:

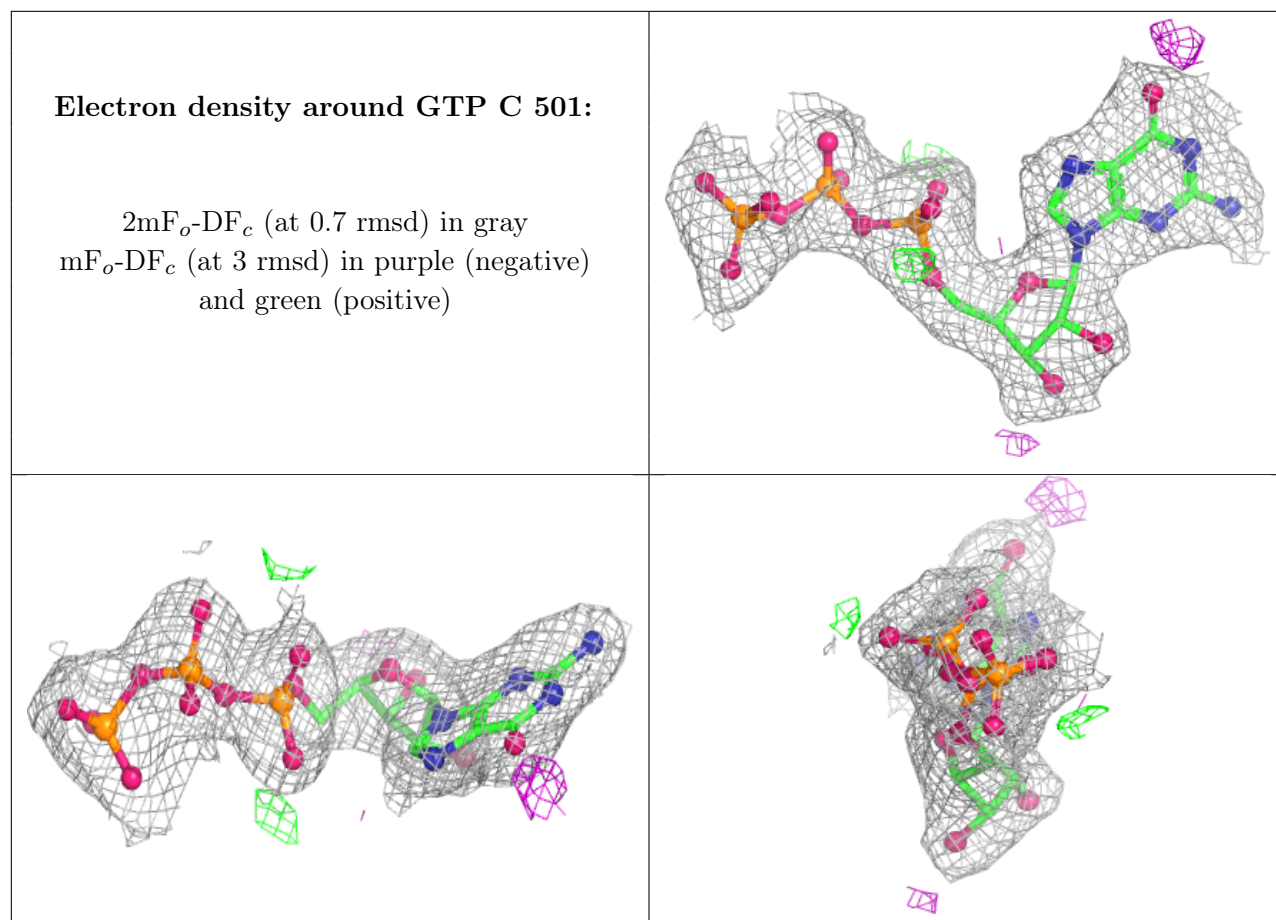
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**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)







6.5 Other polymers [i](#)

There are no such residues in this entry.