



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 14, 2022 – 01:19 am BST

PDB ID : 8ASN
Title : Crystal structure of the apo human TTL in complex with tubulin-stathmin
Authors : Vuillard, L.; Miallau, L.
Deposited on : 2022-08-19
Resolution : 2.57 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 : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.30
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.30

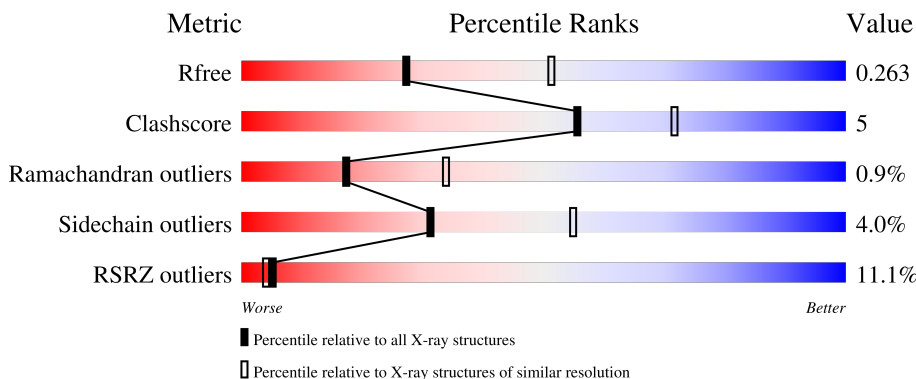
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION




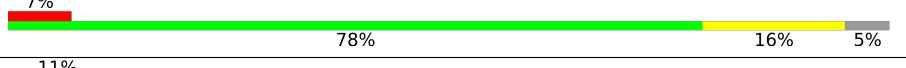

The reported resolution of this entry is 2.57 Å.

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	3676 (2.60-2.56)
Clashscore	141614	4049 (2.60-2.56)
Ramachandran outliers	138981	3979 (2.60-2.56)
Sidechain outliers	138945	3979 (2.60-2.56)
RSRZ outliers	127900	3614 (2.60-2.56)

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	
1	C	451	
2	B	445	
2	D	445	
3	E	143	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	F	383	
4	G	383	
4	H	383	
4	I	383	

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	ACP	F	401	-	-	-	X

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 26206 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	426	Total	C	N	O	S	0	2	0
			3353	2127	570	632	24			
1	C	430	Total	C	N	O	S	3	5	0
			3408	2156	578	649	25			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	425	Total	C	N	O	S	0	0	0
			3337	2097	569	645	26			
2	D	421	Total	C	N	O	S	0	0	0
			3305	2074	563	641	27			

- Molecule 3 is a protein called Stathmin-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	E	123	Total	C	N	O	S	0	1	0
			1025	631	187	203	4			

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	3	MET	-	initiating methionine	UNP P63043
E	4	ALA	-	expression tag	UNP P63043
E	20	TRP	PHE	conflict	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	317	Total	C	N	O	S	18	0	0
			2588	1671	438	471	8			

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	G	346	2826	1819	478	519	10	0	0	0
4	H	345	2830	1827	477	516	10	2	0	0
4	I	345	2828	1824	477	517	10	0	0	0

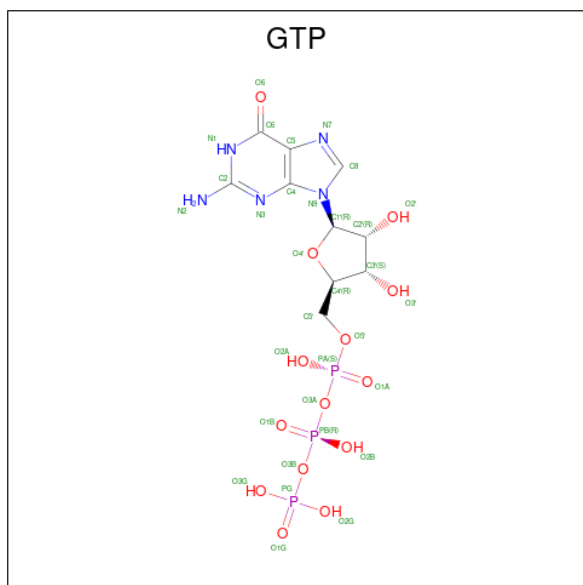
There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	2	GLY	-	expression tag	UNP Q8NG68
F	380	GLU	-	expression tag	UNP Q8NG68
F	381	ASN	-	expression tag	UNP Q8NG68
F	382	LEU	-	expression tag	UNP Q8NG68
F	383	TYR	-	expression tag	UNP Q8NG68
F	384	PHE	-	expression tag	UNP Q8NG68
F	385	GLN	-	expression tag	UNP Q8NG68
G	2	GLY	-	expression tag	UNP Q8NG68
G	380	GLU	-	expression tag	UNP Q8NG68
G	381	ASN	-	expression tag	UNP Q8NG68
G	382	LEU	-	expression tag	UNP Q8NG68
G	383	TYR	-	expression tag	UNP Q8NG68
G	384	PHE	-	expression tag	UNP Q8NG68
G	385	GLN	-	expression tag	UNP Q8NG68
H	2	GLY	-	expression tag	UNP Q8NG68
H	380	GLU	-	expression tag	UNP Q8NG68
H	381	ASN	-	expression tag	UNP Q8NG68
H	382	LEU	-	expression tag	UNP Q8NG68
H	383	TYR	-	expression tag	UNP Q8NG68
H	384	PHE	-	expression tag	UNP Q8NG68
H	385	GLN	-	expression tag	UNP Q8NG68
I	2	GLY	-	expression tag	UNP Q8NG68
I	380	GLU	-	expression tag	UNP Q8NG68
I	381	ASN	-	expression tag	UNP Q8NG68
I	382	LEU	-	expression tag	UNP Q8NG68
I	383	TYR	-	expression tag	UNP Q8NG68
I	384	PHE	-	expression tag	UNP Q8NG68
I	385	GLN	-	expression tag	UNP Q8NG68

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

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

- Molecule 6 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$) (labeled as "Ligand of Interest" by depositor).



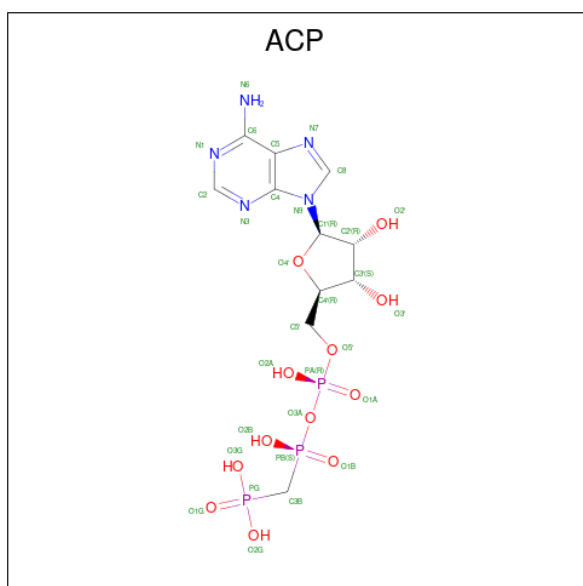
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C N O P 32 10 5 14 3	0	0
6	C	1	Total C N O P 32 10 5 14 3	0	0

- Molecule 7 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$) (labeled as "Ligand of Interest" by depositor).



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

- Molecule 8 is PHOSPHOMETHYLPHOSPHONIC ACID ADENYLATE ESTER (three-letter code: ACP) (formula: $C_{11}H_{18}N_5O_{12}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	N	O			P
8	F	1	31	11	5	12	3	4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
8	G	1	Total	C	N	O	P	0	0
			31	11	5	12	3		
8	H	1	Total	C	N	O	P	0	0
			31	11	5	12	3		
8	I	1	Total	C	N	O	P	0	0
			31	11	5	12	3		

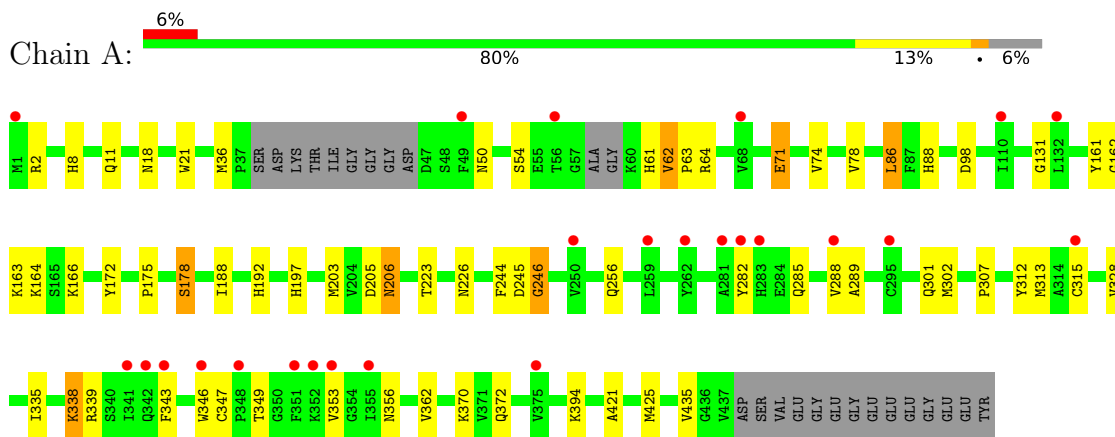
- Molecule 9 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	A	56	Total	O	0	0
			56	56		
9	B	64	Total	O	0	0
			64	64		
9	C	91	Total	O	0	0
			91	91		
9	D	55	Total	O	0	0
			55	55		
9	E	26	Total	O	0	0
			26	26		
9	F	49	Total	O	0	0
			49	49		
9	G	38	Total	O	0	0
			38	38		
9	H	39	Total	O	0	0
			39	39		
9	I	40	Total	O	0	0
			40	40		

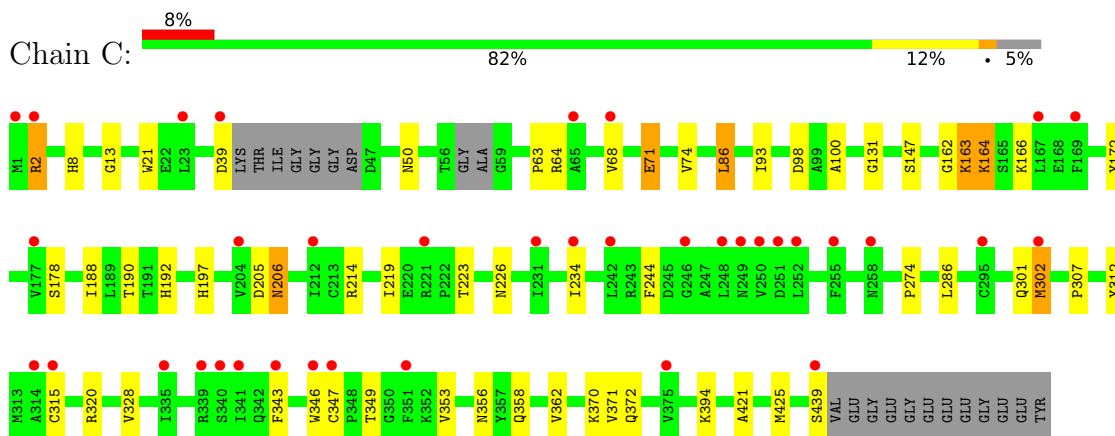
3 Residue-property plots [i](#)

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.

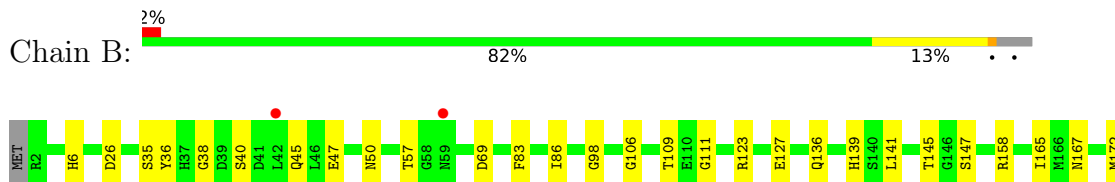
- Molecule 1: Tubulin alpha-1B chain

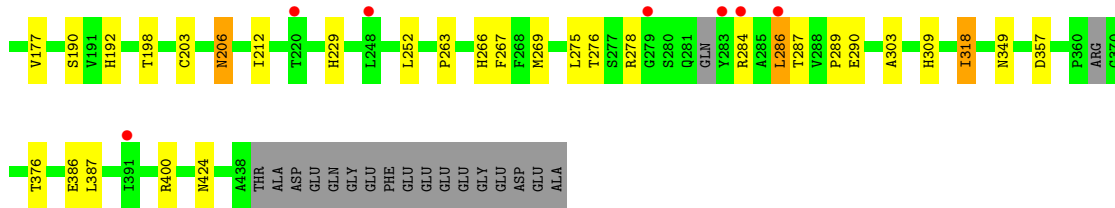


- Molecule 1: Tubulin alpha-1B chain

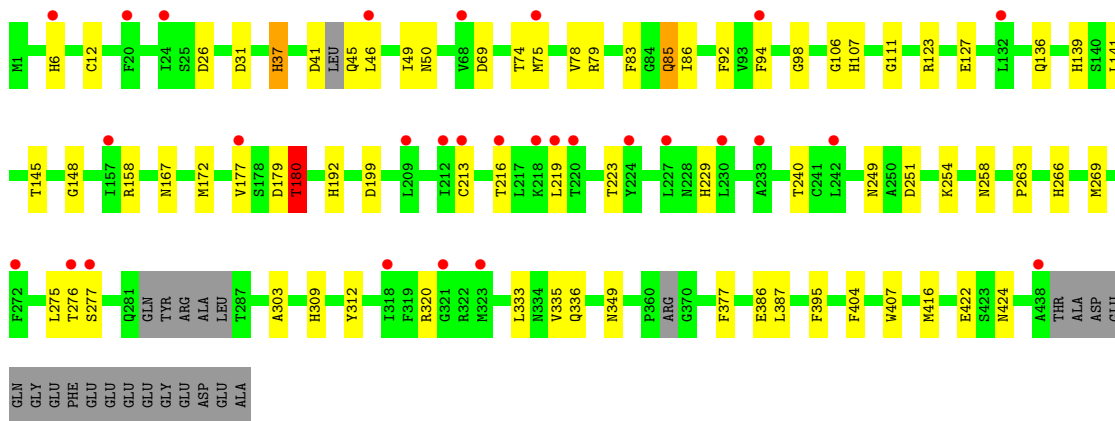
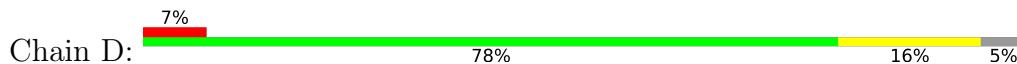


- Molecule 2: Tubulin beta-2B chain

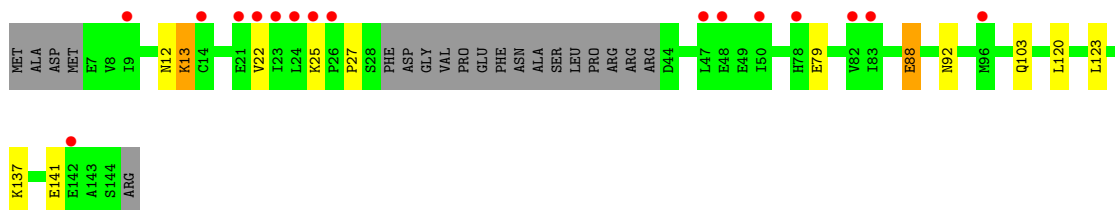
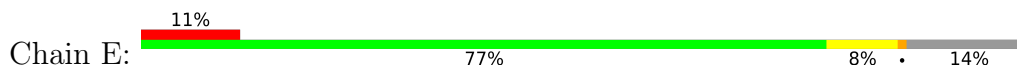




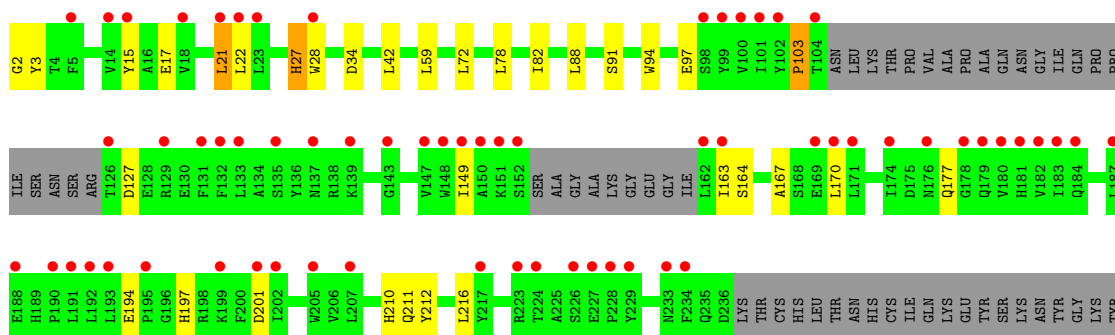
• Molecule 2: Tubulin beta-2B chain

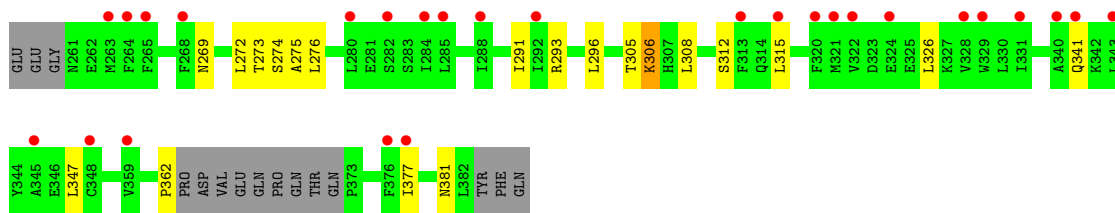


• Molecule 3: Stathmin-4

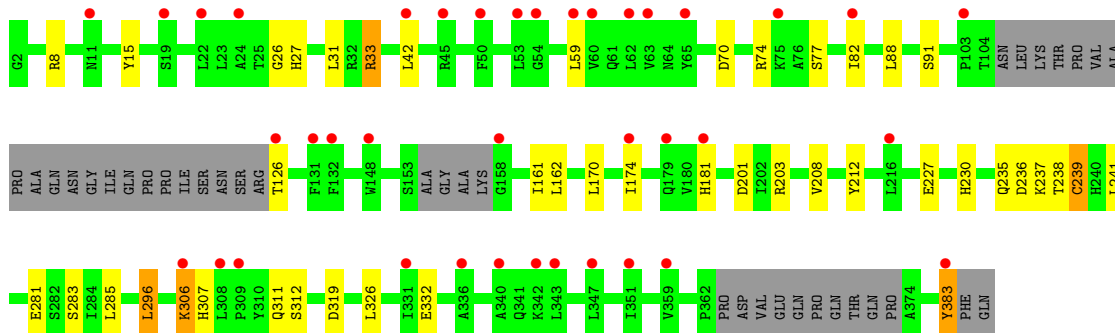
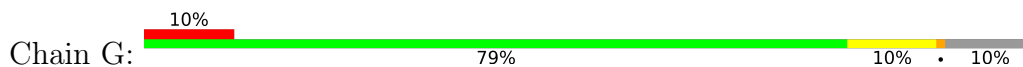


• Molecule 4: Tubulin-tyrosine ligase

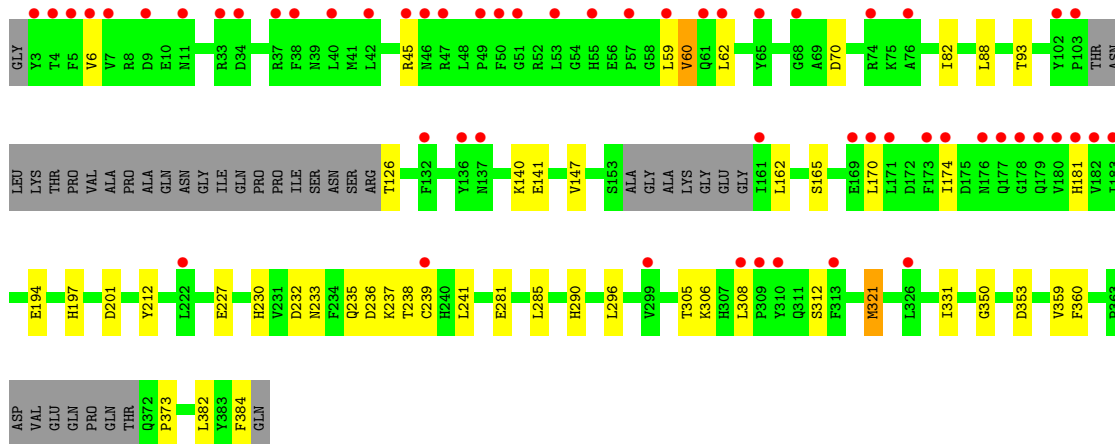
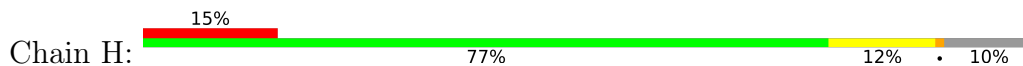




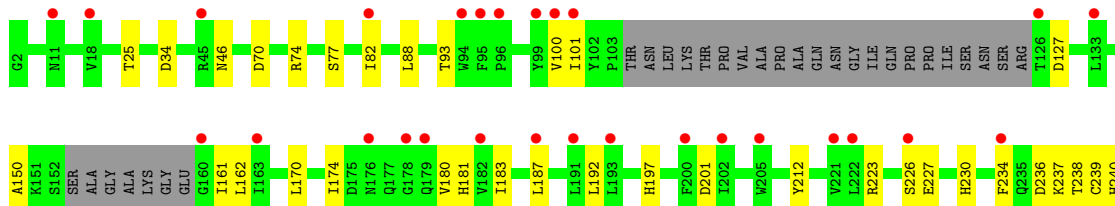
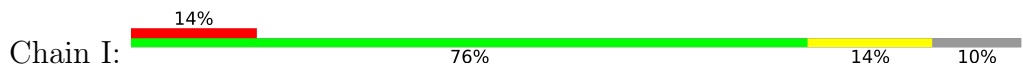
● Molecule 4: Tubulin-tyrosine ligase

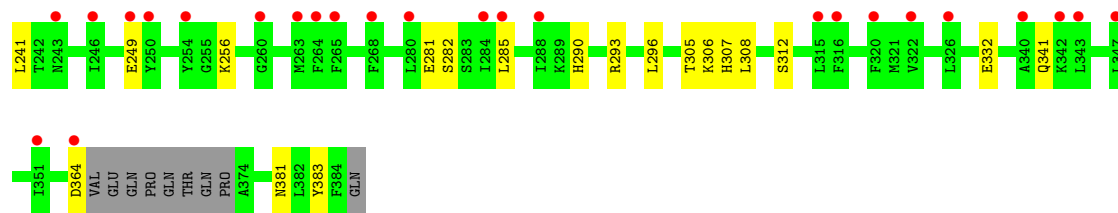


● Molecule 4: Tubulin-tyrosine ligase



● Molecule 4: Tubulin-tyrosine ligase





4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	82.55Å 199.64Å 134.67Å 90.00° 97.02° 90.00°	Depositor
Resolution (Å)	133.66 – 2.57 133.66 – 2.57	Depositor EDS
% Data completeness (in resolution range)	65.1 (133.66-2.57) 65.1 (133.66-2.57)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.95 (at 2.58Å)	Xtriage
Refinement program	BUSTER 2.11.8 (8-JUN-2022)	Depositor
R, R_{free}	0.243 , 0.273 0.233 , 0.263	Depositor DCC
R_{free} test set	4463 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	55.9	Xtriage
Anisotropy	0.053	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	26206	wwPDB-VP
Average B, all atoms (Å ²)	67.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.03% 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: GTP, ACP, GDP, MG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.32	0/3429	0.50	0/4655
1	C	0.31	0/3484	0.49	0/4729
2	B	0.33	0/3409	0.51	0/4614
2	D	0.32	0/3376	0.53	0/4568
3	E	0.31	0/1035	0.43	0/1376
4	F	0.27	0/2649	0.53	1/3584 (0.0%)
4	G	0.27	0/2894	0.53	0/3914
4	H	0.27	0/2901	0.49	0/3927
4	I	0.28	0/2898	0.51	0/3921
All	All	0.30	0/26075	0.51	1/35288 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	F	103	PRO	N-CA-CB	5.51	109.92	103.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3353	0	3261	44	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	3408	0	3311	37	0
2	B	3337	0	3208	31	0
2	D	3305	0	3177	44	0
3	E	1025	0	1032	4	0
4	F	2588	0	2551	32	0
4	G	2826	0	2775	23	0
4	H	2830	0	2783	24	0
4	I	2828	0	2779	30	0
5	A	1	0	0	0	0
5	B	2	0	0	0	0
5	C	1	0	0	0	0
6	A	32	0	12	3	0
6	C	32	0	12	2	0
7	B	28	0	12	1	0
7	D	28	0	12	1	0
8	F	31	0	14	3	0
8	G	31	0	14	2	0
8	H	31	0	14	0	0
8	I	31	0	14	3	0
9	A	56	0	0	0	0
9	B	64	0	0	0	0
9	C	91	0	0	0	0
9	D	55	0	0	0	0
9	E	26	0	0	0	0
9	F	49	0	0	0	0
9	G	38	0	0	0	0
9	H	39	0	0	0	0
9	I	40	0	0	0	0
All	All	26206	0	24981	256	0

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

All (256) 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:206:ASN:HD21	6:C:502:GTP:HN22	1.05	0.99
4:I:174:ILE:HG23	4:I:181:HIS:HD2	1.29	0.98
4:H:174:ILE:HG23	4:H:181:HIS:HD2	1.28	0.98
4:G:174:ILE:HG23	4:G:181:HIS:HD2	1.31	0.95
1:A:206:ASN:HD21	6:A:502:GTP:HN22	0.96	0.93

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:223:THR:H	1:C:226:ASN:HD22	1.20	0.89
4:I:174:ILE:HG23	4:I:181:HIS:CD2	2.09	0.88
4:H:174:ILE:HG23	4:H:181:HIS:CD2	2.09	0.87
2:B:192:HIS:HD2	2:B:424:ASN:HD22	1.23	0.85
2:D:192:HIS:HD2	2:D:424:ASN:HD22	1.24	0.84
1:A:223:THR:H	1:A:226:ASN:HD22	1.21	0.84
4:G:174:ILE:HG23	4:G:181:HIS:CD2	2.11	0.84
4:F:22:LEU:HD22	4:F:28:TRP:CG	2.15	0.81
1:A:206:ASN:HD21	6:A:502:GTP:N2	1.79	0.78
1:A:394:LYS:NZ	2:B:349:ASN:HD21	1.82	0.77
4:F:22:LEU:HD22	4:F:28:TRP:CD1	2.24	0.72
4:H:62:LEU:HD22	4:H:359:VAL:HG11	1.72	0.70
2:B:206:ASN:HD21	7:B:501:GDP:HN22	1.39	0.70
4:I:174:ILE:HD12	4:I:181:HIS:CG	2.26	0.70
2:B:318:ILE:HG23	2:B:376:THR:HB	1.74	0.69
1:A:161:TYR:HB3	1:A:164:LYS:HG3	1.73	0.69
2:D:192:HIS:CD2	2:D:424:ASN:HD22	2.09	0.69
8:F:401:ACP:O2B	8:F:401:ACP:H8	1.92	0.69
2:D:158:ARG:NH1	2:D:199:ASP:OD2	2.26	0.67
1:A:63:PRO:HD3	1:A:86:LEU:HD22	1.76	0.67
2:B:192:HIS:CD2	2:B:424:ASN:HD22	2.08	0.67
1:C:63:PRO:HD3	1:C:86:LEU:HD22	1.76	0.66
4:F:94:TRP:CG	4:F:291:ILE:HD12	2.30	0.66
2:D:75:MET:SD	2:D:94:PHE:CE1	2.89	0.66
4:I:174:ILE:HD12	4:I:181:HIS:CD2	2.31	0.66
2:D:240:THR:HG21	2:D:320:ARG:HD2	1.78	0.65
4:F:94:TRP:CD2	4:F:291:ILE:HD12	2.33	0.64
1:A:394:LYS:HZ2	2:B:349:ASN:HD21	1.45	0.64
1:A:335:ILE:HA	1:A:338:LYS:HD2	1.79	0.64
4:F:22:LEU:HD22	4:F:28:TRP:CD2	2.33	0.63
1:C:206:ASN:HD21	6:C:502:GTP:N2	1.88	0.62
2:B:229:HIS:NE2	2:B:276:THR:HG23	2.14	0.62
4:G:8:ARG:HG2	4:G:33:ARG:HD2	1.80	0.62
2:D:192:HIS:HD2	2:D:424:ASN:ND2	1.95	0.62
1:A:206:ASN:ND2	6:A:502:GTP:HN22	1.82	0.62
2:B:192:HIS:HD2	2:B:424:ASN:ND2	1.95	0.60
4:H:140:LYS:O	4:H:141:GLU:HB3	2.02	0.59
4:G:15:TYR:HB3	4:G:42:LEU:HD13	1.84	0.58
2:B:172:MET:HG3	2:B:387:LEU:HD11	1.85	0.58
4:F:15:TYR:HB3	4:F:42:LEU:HD13	1.83	0.58
1:A:335:ILE:HA	1:A:338:LYS:CD	2.33	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:8:HIS:CE1	1:C:21:TRP:HE1	2.22	0.58
1:C:394:LYS:NZ	2:D:349:ASN:HD21	2.02	0.58
1:A:346:TRP:HZ2	1:A:435:VAL:HG13	1.69	0.58
4:H:93:THR:HG23	4:I:290:HIS:CE1	2.39	0.58
4:I:150:ALA:HB1	4:I:174:ILE:HD11	1.86	0.57
2:B:269:MET:HG3	2:B:303:ALA:HB3	1.85	0.57
4:H:350:GLY:O	4:H:353:ASP:O	2.21	0.57
4:I:174:ILE:HD12	4:I:181:HIS:CB	2.35	0.57
2:D:172:MET:HG3	2:D:387:LEU:HD11	1.86	0.57
4:I:174:ILE:CG2	4:I:181:HIS:HD2	2.12	0.57
2:D:85:GLN:H	2:D:85:GLN:NE2	2.02	0.57
1:A:343:PHE:CD1	1:A:349:THR:HG23	2.40	0.56
4:G:230:HIS:HE1	4:G:236:ASP:OD2	1.89	0.56
4:H:162:LEU:HD23	4:H:170:LEU:HD23	1.87	0.56
4:H:194:GLU:OE2	4:H:197:HIS:HD2	1.88	0.56
2:D:263:PRO:O	2:D:266:HIS:HD2	1.87	0.56
1:C:343:PHE:HB2	1:C:349:THR:HG22	1.88	0.56
4:F:94:TRP:CD1	4:F:291:ILE:HD12	2.41	0.56
4:H:60:VAL:HG13	4:H:360:PHE:HE1	1.71	0.56
1:A:394:LYS:HZ3	2:B:349:ASN:HD21	1.54	0.56
1:A:11:GLN:HG3	1:A:74:VAL:HG11	1.87	0.55
1:C:8:HIS:HE1	1:C:21:TRP:HE1	1.55	0.55
1:C:320:ARG:O	1:C:358:GLN:O	2.25	0.55
2:B:36:TYR:OH	2:B:40:SER:O	2.23	0.55
1:C:301:GLN:NE2	1:C:307:PRO:HG3	2.22	0.55
4:G:283:SER:HB2	4:G:326:LEU:HD13	1.88	0.55
2:B:309:HIS:HD2	2:B:386:GLU:OE2	1.90	0.55
2:D:309:HIS:HD2	2:D:386:GLU:OE2	1.89	0.55
4:I:162:LEU:HD23	4:I:170:LEU:HD23	1.87	0.55
2:B:6:HIS:HD2	2:B:136:GLN:HE21	1.55	0.55
2:D:6:HIS:HD2	2:D:136:GLN:HE21	1.56	0.54
4:G:162:LEU:HD23	4:G:170:LEU:HD23	1.88	0.54
1:C:320:ARG:O	1:C:356:ASN:O	2.25	0.54
2:D:251:ASP:OD1	2:D:254:LYS:HB2	2.08	0.54
4:F:2:GLY:O	4:F:27:HIS:O	2.26	0.54
4:F:194:GLU:OE2	4:F:197:HIS:HD2	1.91	0.54
4:H:62:LEU:HD22	4:H:359:VAL:CG1	2.37	0.54
2:D:85:GLN:H	2:D:85:GLN:HE21	1.55	0.53
1:A:245:ASP:O	1:A:246:GLY:O	2.27	0.53
2:D:75:MET:O	2:D:78:VAL:O	2.27	0.53
4:H:230:HIS:HE1	4:H:236:ASP:OD2	1.91	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:I:161:ILE:HG21	4:I:241:LEU:HD21	1.89	0.53
1:A:301:GLN:NE2	1:A:307:PRO:HG3	2.24	0.52
1:C:301:GLN:HE22	1:C:307:PRO:HG3	1.75	0.52
1:C:172:TYR:HB3	1:C:205:ASP:HA	1.90	0.52
4:H:174:ILE:CG2	4:H:181:HIS:HD2	2.12	0.52
1:A:166:LYS:HE2	1:A:197:HIS:O	2.10	0.52
1:A:172:TYR:HB3	1:A:205:ASP:HA	1.90	0.52
4:F:97:GLU:HG3	4:G:383:TYR:HE2	1.74	0.52
4:F:27:HIS:CE1	4:F:362:PRO:HA	2.44	0.52
4:H:290:HIS:CE1	4:I:93:THR:HG23	2.45	0.52
2:B:147:SER:HG	2:B:190:SER:HG	1.55	0.51
2:D:46:LEU:HA	2:D:49:ILE:HB	1.91	0.51
1:C:274:PRO:HG2	1:C:371:VAL:HG11	1.92	0.51
1:A:223:THR:H	1:A:226:ASN:ND2	2.00	0.51
4:F:94:TRP:CG	4:F:291:ILE:CD1	2.94	0.51
1:A:328:VAL:HG11	1:A:353:VAL:HG11	1.92	0.51
4:G:227:GLU:HG3	4:G:238:THR:HB	1.92	0.51
4:I:381:ASN:HD22	4:I:383:TYR:H	1.60	0.50
1:A:362:VAL:HG22	1:A:370:LYS:HE3	1.94	0.50
4:H:321:MET:HG3	4:H:331:ILE:HG13	1.94	0.50
1:C:166:LYS:HE2	1:C:197:HIS:O	2.10	0.50
4:I:192:LEU:HD12	4:I:197:HIS:CE1	2.47	0.50
2:B:287:THR:HG23	2:B:289:PRO:HD2	1.94	0.50
4:G:174:ILE:CG2	4:G:181:HIS:HD2	2.14	0.50
4:G:203:ARG:NH1	4:G:319:ASP:OD1	2.45	0.50
1:C:346:TRP:CZ3	1:C:347[B]:CYS:SG	3.05	0.49
4:F:164:SER:HB3	4:F:170:LEU:HG	1.93	0.49
4:F:82:ILE:HD13	4:F:88:LEU:HD13	1.95	0.49
3:E:137:LYS:O	3:E:141:GLU:HG2	2.12	0.49
1:C:223:THR:H	1:C:226:ASN:ND2	2.01	0.49
1:A:346:TRP:CZ3	1:A:347:CYS:SG	3.05	0.49
4:G:208:VAL:HG21	4:G:296:LEU:HD22	1.93	0.49
4:F:94:TRP:CE2	4:F:291:ILE:HD12	2.48	0.49
4:H:237:LYS:HD2	4:H:241:LEU:HD13	1.94	0.49
1:C:312:TYR:CD2	1:C:315[B]:CYS:SG	3.06	0.49
1:C:362:VAL:HG22	1:C:370:LYS:HE3	1.93	0.49
1:A:8:HIS:CE1	1:A:21:TRP:HE1	2.31	0.49
1:C:163:LYS:NZ	1:C:163:LYS:HA	2.28	0.48
1:A:18:ASN:HD21	1:A:78:VAL:HG22	1.77	0.48
2:B:263:PRO:O	2:B:266:HIS:HD2	1.96	0.48
2:D:179:ASP:O	2:D:180:THR:OG1	2.29	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:94:TRP:CD2	4:F:291:ILE:CD1	2.96	0.48
4:I:161:ILE:HD11	8:I:401:ACP:O3G	2.14	0.48
1:A:312:TYR:CD2	1:A:315[B]:CYS:SG	3.06	0.48
4:I:281:GLU:HA	4:I:285:LEU:HB2	1.96	0.48
4:G:306:LYS:NZ	4:G:311:GLN:HE22	2.12	0.48
4:G:82:ILE:HD13	4:G:88:LEU:HD13	1.95	0.48
4:I:227:GLU:HG3	4:I:238:THR:HB	1.96	0.48
1:A:301:GLN:HE22	1:A:307:PRO:CD	2.27	0.48
4:G:74:ARG:HB2	4:G:77:SER:OG	2.14	0.48
4:G:237:LYS:HD2	4:G:241:LEU:HD13	1.96	0.48
1:A:288:VAL:O	1:A:289:ALA:HB3	2.14	0.47
3:E:88:GLU:O	3:E:92:ASN:HB2	2.13	0.47
4:F:22:LEU:HD22	4:F:28:TRP:CE2	2.49	0.47
4:H:227:GLU:HG3	4:H:238:THR:HB	1.96	0.47
4:I:82:ILE:HD13	4:I:88:LEU:HD13	1.97	0.47
1:A:301:GLN:HE22	1:A:307:PRO:HG3	1.78	0.47
1:A:346:TRP:CE3	1:A:347:CYS:SG	3.06	0.47
4:G:174:ILE:HA	4:G:181:HIS:CD2	2.50	0.47
1:A:203:MET:O	1:A:302:MET:HE3	2.15	0.47
1:C:50:ASN:O	1:C:64:ARG:NH1	2.47	0.47
1:C:328:VAL:HG11	1:C:353:VAL:HG11	1.95	0.47
2:D:229:HIS:CE1	2:D:277:SER:HB2	2.49	0.47
4:I:74:ARG:HB2	4:I:77:SER:OG	2.15	0.47
4:F:17:GLU:O	4:F:21:LEU:HD22	2.16	0.46
4:H:230:HIS:CE1	4:H:239:CYS:SG	3.08	0.46
4:I:230:HIS:CE1	4:I:239:CYS:SG	3.09	0.46
2:D:74:THR:HB	2:D:75:MET:HE2	1.98	0.46
1:C:234:ILE:HD12	1:C:302:MET:HE3	1.96	0.46
4:F:269:ASN:O	4:F:272:LEU:O	2.34	0.46
2:D:41:ASP:HA	2:D:45:GLN:O	2.16	0.46
2:D:92:PHE:HB3	2:D:94:PHE:CE2	2.50	0.46
4:H:82:ILE:HD13	4:H:88:LEU:HD13	1.97	0.46
2:D:312:TYR:CE1	2:D:377:PHE:HZ	2.34	0.46
4:F:91:SER:HB2	4:G:91:SER:HB2	1.97	0.46
1:C:100:ALA:HA	2:D:254:LYS:HG3	1.98	0.46
2:D:136:GLN:HA	2:D:167:ASN:O	2.16	0.46
4:G:332:GLU:HG3	8:G:401:ACP:O2B	2.16	0.46
4:G:161:ILE:HD11	8:G:401:ACP:O3G	2.16	0.45
2:D:192:HIS:CD2	2:D:424:ASN:ND2	2.78	0.45
4:F:22:LEU:CD2	4:F:28:TRP:CD1	2.98	0.45
4:F:273:THR:HA	4:F:274:SER:HA	1.72	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:301:GLN:HE22	1:C:307:PRO:CD	2.30	0.45
1:A:335:ILE:CG1	1:A:338:LYS:HZ2	2.29	0.45
2:B:141:LEU:HD12	2:B:172:MET:SD	2.56	0.45
2:B:147:SER:OG	2:B:190:SER:OG	2.28	0.45
1:A:349:THR:HB	3:E:25:LYS:HG2	1.99	0.45
1:C:301:GLN:HE22	1:C:307:PRO:CG	2.29	0.45
2:B:136:GLN:HA	2:B:167:ASN:O	2.17	0.45
2:D:158:ARG:HG2	3:E:123:LEU:HD11	1.99	0.45
4:H:174:ILE:HA	4:H:181:HIS:CD2	2.51	0.45
4:F:276:LEU:HD13	4:F:326:LEU:HD21	1.99	0.45
4:I:174:ILE:HA	4:I:181:HIS:CD2	2.52	0.44
1:A:36:MET:HB3	1:A:61:HIS:CE1	2.51	0.44
1:C:188:ILE:HG13	1:C:425:MET:HG3	2.00	0.44
2:D:123:ARG:O	2:D:127:GLU:HG2	2.16	0.44
4:F:167:ALA:HA	4:F:170:LEU:HB2	1.97	0.44
4:F:210:HIS:O	4:F:211:GLN:HB2	2.17	0.44
4:H:93:THR:CG2	4:I:290:HIS:CE1	3.00	0.44
1:C:71:GLU:HB3	1:C:98:ASP:HB3	2.00	0.44
1:A:2:ARG:HA	1:A:131:GLY:O	2.17	0.44
1:C:394:LYS:HZ3	2:D:349:ASN:HD21	1.64	0.44
2:D:78:VAL:O	2:D:79:ARG:CB	2.65	0.44
1:A:71:GLU:HB3	1:A:98:ASP:HB3	1.99	0.44
2:D:395:PHE:CE1	2:D:422:GLU:HB2	2.52	0.44
4:I:174:ILE:CD1	4:I:181:HIS:CD2	3.00	0.44
4:G:230:HIS:CE1	4:G:239:CYS:SG	3.11	0.44
2:B:83:PHE:O	2:B:86:ILE:HG22	2.18	0.44
2:B:123:ARG:O	2:B:127:GLU:HG2	2.18	0.44
4:I:332:GLU:HG3	8:I:401:ACP:O2B	2.17	0.44
1:A:188:ILE:HG13	1:A:425:MET:HG3	2.00	0.43
2:B:38:GLY:HA3	2:B:45:GLN:OE1	2.18	0.43
2:D:141:LEU:HD12	2:D:172:MET:SD	2.57	0.43
4:F:216:LEU:HB3	4:F:377:ILE:HG13	2.00	0.43
4:F:305:THR:HG22	4:F:308:LEU:HD12	2.00	0.43
4:G:281:GLU:HA	4:G:285:LEU:HB2	2.01	0.43
4:I:101:ILE:HG13	4:I:183:ILE:HG13	1.99	0.43
2:D:92:PHE:HD2	2:D:94:PHE:CZ	2.36	0.43
2:D:269:MET:HG3	2:D:303:ALA:HB3	1.99	0.43
1:A:50:ASN:O	1:A:64:ARG:NH1	2.51	0.43
4:I:230:HIS:HE1	4:I:236:ASP:OD2	2.01	0.43
2:D:83:PHE:O	2:D:86:ILE:HG22	2.19	0.43
1:C:244:PHE:HB2	1:C:356:ASN:HD21	1.83	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:107:HIS:HD2	2:D:148:GLY:O	2.02	0.43
4:G:208:VAL:HG21	4:G:296:LEU:CD2	2.49	0.43
4:H:281:GLU:HA	4:H:285:LEU:HB2	2.00	0.43
2:D:229:HIS:NE2	2:D:277:SER:HB2	2.34	0.43
4:I:234:PHE:HA	4:I:240:HIS:CD2	2.54	0.43
1:A:175:PRO:HA	1:A:178:SER:HB2	2.01	0.42
4:F:272:LEU:O	4:F:273:THR:HG22	2.19	0.42
4:I:187:LEU:HD23	8:I:401:ACP:N1	2.34	0.42
4:F:149:ILE:HD13	8:F:401:ACP:N7	2.35	0.42
1:A:244:PHE:HB2	1:A:356:ASN:HD21	1.84	0.42
4:I:237:LYS:HD2	4:I:241:LEU:HD12	2.01	0.42
1:A:192:HIS:CG	1:A:421:ALA:HA	2.55	0.42
2:B:198:THR:OG1	2:B:266:HIS:CE1	2.72	0.42
2:D:31:ASP:HB3	2:D:37:HIS:CE1	2.54	0.42
2:D:12:CYS:HB2	7:D:501:GDP:C8	2.54	0.42
2:B:69:ASP:HA	2:B:145:THR:HG21	2.02	0.42
1:C:192:HIS:CG	1:C:421:ALA:HA	2.55	0.42
1:A:54:SER:OG	1:A:62:VAL:HG13	2.20	0.42
1:A:301:GLN:HE22	1:A:307:PRO:CG	2.32	0.42
1:C:68[B]:VAL:HG12	1:C:93:ILE:HB	2.01	0.42
4:F:72:LEU:HD12	4:F:78:LEU:HD13	2.02	0.42
4:F:315:LEU:HD21	4:F:347:LEU:HD21	2.02	0.42
1:A:313:MET:SD	1:A:435:VAL:HG11	2.60	0.41
1:A:335:ILE:HG23	1:A:339:ARG:HG3	2.02	0.41
1:C:8:HIS:HB3	1:C:13:GLY:O	2.20	0.41
2:D:404:PHE:HD1	2:D:407:TRP:HE1	1.67	0.41
4:I:305:THR:HG22	4:I:308:LEU:HD12	2.02	0.41
2:B:106:GLY:O	2:B:111:GLY:HA3	2.21	0.41
1:C:2:ARG:HA	1:C:131:GLY:O	2.19	0.41
2:D:249:ASN:HD21	2:D:258:ASN:HD22	1.68	0.41
4:H:290:HIS:CE1	4:I:93:THR:CG2	3.03	0.41
4:H:305:THR:HG22	4:H:308:LEU:HD12	2.02	0.41
4:F:211:GLN:HA	4:F:306:LYS:HE2	2.02	0.41
8:F:401:ACP:O2B	8:F:401:ACP:H5'1	2.20	0.41
2:B:400:ARG:HD3	1:C:439:SER:HB3	2.03	0.41
1:C:147:SER:HB2	1:C:190:THR:HB	2.03	0.41
2:D:333:LEU:O	2:D:336:GLN:O	2.38	0.41
4:H:147:VAL:HG22	4:H:165:SER:HB3	2.03	0.41
2:B:203:CYS:SG	2:B:267:PHE:HB3	2.62	0.40
2:D:69:ASP:HA	2:D:145:THR:HG21	2.03	0.40
1:C:214:ARG:HG2	1:C:219:ILE:O	2.21	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:213:CYS:O	2:D:219:LEU:HB2	2.21	0.40
2:B:165:ILE:HG21	2:B:252:LEU:HB3	2.03	0.40
2:B:286:LEU:HD22	2:B:290:GLU:HB3	2.03	0.40
2:B:212:ILE:HG23	2:B:275:LEU:HD13	2.03	0.40
2:D:106:GLY:O	2:D:111:GLY:HA3	2.21	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	422/451 (94%)	409 (97%)	10 (2%)	3 (1%)	22	41
1	C	429/451 (95%)	415 (97%)	10 (2%)	4 (1%)	17	34
2	B	417/445 (94%)	399 (96%)	14 (3%)	4 (1%)	15	31
2	D	413/445 (93%)	391 (95%)	19 (5%)	3 (1%)	22	41
3	E	120/143 (84%)	115 (96%)	3 (2%)	2 (2%)	9	17
4	F	307/383 (80%)	286 (93%)	16 (5%)	5 (2%)	9	18
4	G	338/383 (88%)	321 (95%)	14 (4%)	3 (1%)	17	34
4	H	337/383 (88%)	320 (95%)	15 (4%)	2 (1%)	25	45
4	I	337/383 (88%)	319 (95%)	15 (4%)	3 (1%)	17	34
All	All	3120/3467 (90%)	2975 (95%)	116 (4%)	29 (1%)	17	34

All (29) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	162	GLY
1	A	246	GLY
1	A	285	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	B	286	LEU
1	C	74	VAL
1	C	162	GLY
2	D	180	THR
3	E	13	LYS
4	G	26	GLY
4	G	27	HIS
4	G	307	HIS
4	H	373	PRO
4	I	307	HIS
1	C	164	LYS
3	E	27	PRO
4	I	127	ASP
4	I	282	SER
2	B	57	THR
4	F	3	TYR
4	F	275	ALA
4	F	381	ASN
2	B	278	ARG
2	D	216	THR
4	F	127	ASP
4	H	233	ASN
1	C	286	LEU
4	F	103	PRO
2	B	98	GLY
2	D	98	GLY

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	361/379 (95%)	350 (97%)	11 (3%)	41 65
1	C	371/379 (98%)	361 (97%)	10 (3%)	44 68
2	B	366/383 (96%)	354 (97%)	12 (3%)	38 61
2	D	364/383 (95%)	352 (97%)	12 (3%)	38 61

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	E	111/127 (87%)	104 (94%)	7 (6%)	18	35
4	F	282/340 (83%)	269 (95%)	13 (5%)	27	49
4	G	308/340 (91%)	295 (96%)	13 (4%)	30	53
4	H	310/340 (91%)	294 (95%)	16 (5%)	23	44
4	I	309/340 (91%)	291 (94%)	18 (6%)	20	38
All	All	2782/3011 (92%)	2670 (96%)	112 (4%)	31	55

All (112) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	62	VAL
1	A	71	GLU
1	A	86	LEU
1	A	88	HIS
1	A	163	LYS
1	A	178	SER
1	A	206	ASN
1	A	256	GLN
1	A	282	TYR
1	A	338	LYS
1	A	372	GLN
2	B	26	ASP
2	B	35	SER
2	B	47	GLU
2	B	50	ASN
2	B	109	THR
2	B	139	HIS
2	B	158	ARG
2	B	177	VAL
2	B	206	ASN
2	B	284	ARG
2	B	318	ILE
2	B	357	ASP
1	C	2	ARG
1	C	39	ASP
1	C	71	GLU
1	C	86	LEU
1	C	163	LYS
1	C	164	LYS
1	C	178	SER

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	C	206	ASN
1	C	302	MET
1	C	372	GLN
2	D	26	ASP
2	D	37	HIS
2	D	50	ASN
2	D	85	GLN
2	D	139	HIS
2	D	177	VAL
2	D	180	THR
2	D	223	THR
2	D	275	LEU
2	D	276	THR
2	D	335	VAL
2	D	416	MET
3	E	12	ASN
3	E	13	LYS
3	E	22	VAL
3	E	79	GLU
3	E	88	GLU
3	E	103	GLN
3	E	120	LEU
4	F	21	LEU
4	F	27	HIS
4	F	34	ASP
4	F	59	LEU
4	F	163	ILE
4	F	177	GLN
4	F	201	ASP
4	F	212	TYR
4	F	293	ARG
4	F	296	LEU
4	F	306	LYS
4	F	312	SER
4	F	341	GLN
4	G	31	LEU
4	G	33	ARG
4	G	59	LEU
4	G	70	ASP
4	G	126	THR
4	G	201	ASP
4	G	212	TYR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	G	235	GLN
4	G	239	CYS
4	G	296	LEU
4	G	306	LYS
4	G	312	SER
4	G	383	TYR
4	H	6	VAL
4	H	45	ARG
4	H	59	LEU
4	H	60	VAL
4	H	70	ASP
4	H	126	THR
4	H	201	ASP
4	H	212	TYR
4	H	232	ASP
4	H	235	GLN
4	H	296	LEU
4	H	306	LYS
4	H	312	SER
4	H	321	MET
4	H	382	LEU
4	H	384	PHE
4	I	25	THR
4	I	34	ASP
4	I	46	ASN
4	I	70	ASP
4	I	100	VAL
4	I	180	VAL
4	I	201	ASP
4	I	212	TYR
4	I	223	ARG
4	I	226	SER
4	I	249	GLU
4	I	256	LYS
4	I	293	ARG
4	I	296	LEU
4	I	306	LYS
4	I	312	SER
4	I	341	GLN
4	I	364	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (67) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	8	HIS
1	A	11	GLN
1	A	18	ASN
1	A	88	HIS
1	A	206	ASN
1	A	226	ASN
1	A	256	GLN
1	A	301	GLN
1	A	356	ASN
2	B	6	HIS
2	B	15	GLN
2	B	59	ASN
2	B	107	HIS
2	B	192	HIS
2	B	193	GLN
2	B	206	ASN
2	B	266	HIS
2	B	309	HIS
2	B	337	ASN
2	B	349	ASN
1	C	8	HIS
1	C	206	ASN
1	C	226	ASN
1	C	293	ASN
1	C	301	GLN
1	C	356	ASN
1	C	393	HIS
2	D	6	HIS
2	D	15	GLN
2	D	37	HIS
2	D	59	ASN
2	D	85	GLN
2	D	107	HIS
2	D	186	ASN
2	D	192	HIS
2	D	197	ASN
2	D	249	ASN
2	D	266	HIS
2	D	309	HIS
2	D	337	ASN
2	D	349	ASN
3	E	91	ASN
4	F	27	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	F	39	ASN
4	F	197	HIS
4	G	39	ASN
4	G	177	GLN
4	G	179	GLN
4	G	181	HIS
4	G	230	HIS
4	G	311	GLN
4	H	39	ASN
4	H	177	GLN
4	H	181	HIS
4	H	197	HIS
4	H	230	HIS
4	H	290	HIS
4	H	307	HIS
4	H	311	GLN
4	I	39	ASN
4	I	177	GLN
4	I	181	HIS
4	I	230	HIS
4	I	290	HIS
4	I	294	ASN
4	I	311	GLN
4	I	381	ASN

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 12 ligands modelled in this entry, 4 are monoatomic - leaving 8 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
8	ACP	G	401	-	27,33,33	1.42	2 (7%)	32,52,52	1.00	4 (12%)
7	GDP	B	501	5	24,30,30	0.82	0	30,47,47	0.83	1 (3%)
6	GTP	A	502	5	26,34,34	0.90	1 (3%)	32,54,54	0.65	0
8	ACP	H	401	-	27,33,33	1.70	2 (7%)	32,52,52	0.93	3 (9%)
8	ACP	F	401	-	27,33,33	1.21	2 (7%)	32,52,52	0.95	3 (9%)
6	GTP	C	502	5	26,34,34	0.87	1 (3%)	32,54,54	0.68	0
7	GDP	D	501	-	24,30,30	0.91	1 (4%)	30,47,47	0.73	1 (3%)
8	ACP	I	401	-	27,33,33	1.53	2 (7%)	32,52,52	0.98	4 (12%)

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	ACP	G	401	-	-	7/15/38/38	0/3/3/3
7	GDP	B	501	5	-	6/12/32/32	0/3/3/3
6	GTP	A	502	5	-	4/18/38/38	0/3/3/3
8	ACP	H	401	-	-	7/15/38/38	0/3/3/3
8	ACP	F	401	-	-	7/15/38/38	0/3/3/3
6	GTP	C	502	5	-	5/18/38/38	0/3/3/3
7	GDP	D	501	-	-	6/12/32/32	0/3/3/3
8	ACP	I	401	-	-	7/15/38/38	0/3/3/3

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	H	401	ACP	PB-O3A	7.73	1.67	1.58
8	I	401	ACP	PB-O3A	6.75	1.65	1.58
8	G	401	ACP	PB-O3A	5.98	1.65	1.58
8	F	401	ACP	PB-O3A	4.48	1.63	1.58

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	D	501	GDP	C5-C6	-2.70	1.41	1.47
8	F	401	ACP	PB-O2B	-2.53	1.50	1.56
8	G	401	ACP	PB-O2B	-2.35	1.50	1.56
6	A	502	GTP	C5-C6	-2.31	1.42	1.47
8	H	401	ACP	PB-O2B	-2.24	1.51	1.56
8	I	401	ACP	PB-O2B	-2.19	1.51	1.56
6	C	502	GTP	C5-C6	-2.10	1.43	1.47

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	B	501	GDP	PA-O3A-PB	3.06	143.33	132.83
8	F	401	ACP	O2B-PB-O1B	2.94	119.89	110.07
8	G	401	ACP	O2B-PB-O1B	2.61	118.78	110.07
8	I	401	ACP	O2B-PB-O1B	2.61	118.77	110.07
8	H	401	ACP	O2B-PB-O1B	2.46	118.30	110.07
8	G	401	ACP	O1G-PG-C3B	-2.44	105.99	111.24
8	F	401	ACP	O1G-PG-C3B	-2.42	106.03	111.24
8	F	401	ACP	C5-C6-N6	2.34	123.90	120.35
8	I	401	ACP	C5-C6-N6	2.33	123.89	120.35
8	I	401	ACP	O1G-PG-C3B	-2.26	106.37	111.24
7	D	501	GDP	PA-O3A-PB	2.26	140.56	132.83
8	H	401	ACP	C5-C6-N6	2.25	123.77	120.35
8	G	401	ACP	C5-C6-N6	2.25	123.77	120.35
8	G	401	ACP	PB-O3A-PA	2.23	139.63	132.56
8	H	401	ACP	O1G-PG-C3B	-2.20	106.49	111.24
8	I	401	ACP	PB-O3A-PA	2.13	139.32	132.56

There are no chirality outliers.

All (49) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	502	GTP	C5'-O5'-PA-O1A
6	A	502	GTP	C5'-O5'-PA-O2A
6	C	502	GTP	PB-O3B-PG-O2G
6	C	502	GTP	C5'-O5'-PA-O1A
6	C	502	GTP	C5'-O5'-PA-O2A
7	B	501	GDP	C5'-O5'-PA-O1A
7	B	501	GDP	C5'-O5'-PA-O2A
7	D	501	GDP	PA-O3A-PB-O2B
7	D	501	GDP	C5'-O5'-PA-O1A
7	D	501	GDP	C5'-O5'-PA-O2A

Continued on next page...

Continued from previous page...

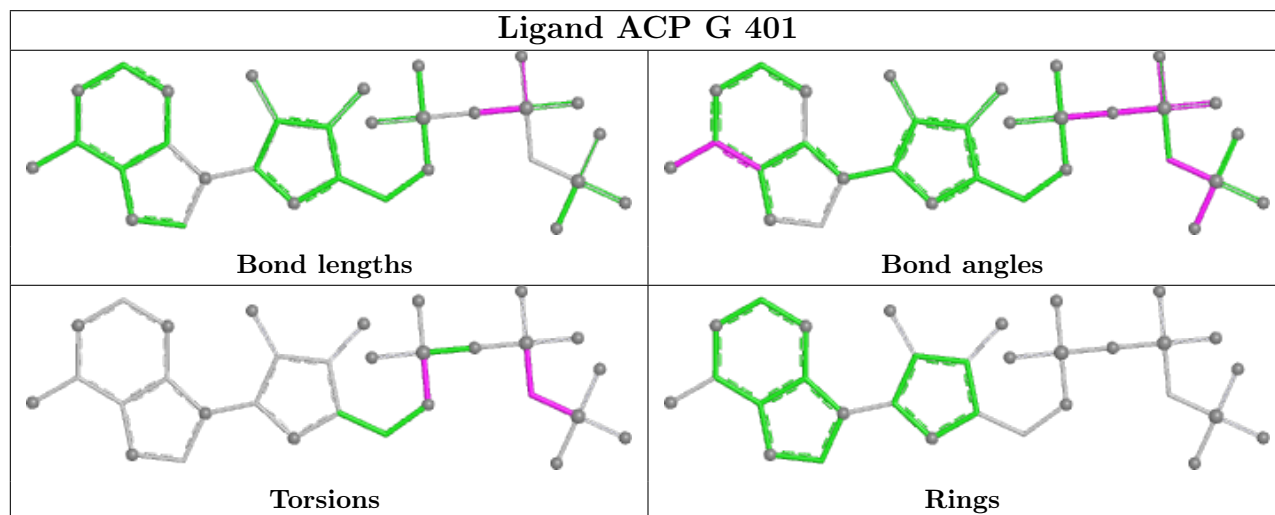
Mol	Chain	Res	Type	Atoms
8	F	401	ACP	PB-C3B-PG-O1G
8	F	401	ACP	PB-C3B-PG-O2G
8	F	401	ACP	PB-C3B-PG-O3G
8	F	401	ACP	PG-C3B-PB-O1B
8	F	401	ACP	PG-C3B-PB-O3A
8	F	401	ACP	PB-O3A-PA-O5'
8	G	401	ACP	PB-C3B-PG-O1G
8	G	401	ACP	PB-C3B-PG-O2G
8	G	401	ACP	PB-C3B-PG-O3G
8	G	401	ACP	PG-C3B-PB-O1B
8	G	401	ACP	PG-C3B-PB-O2B
8	G	401	ACP	PG-C3B-PB-O3A
8	H	401	ACP	PB-C3B-PG-O1G
8	H	401	ACP	PB-C3B-PG-O2G
8	H	401	ACP	PG-C3B-PB-O1B
8	H	401	ACP	PG-C3B-PB-O2B
8	H	401	ACP	PG-C3B-PB-O3A
8	I	401	ACP	PB-C3B-PG-O1G
8	I	401	ACP	PB-C3B-PG-O2G
8	I	401	ACP	PB-C3B-PG-O3G
8	I	401	ACP	PG-C3B-PB-O1B
8	I	401	ACP	PG-C3B-PB-O2B
8	I	401	ACP	PG-C3B-PB-O3A
8	F	401	ACP	O4'-C4'-C5'-O5'
6	C	502	GTP	PB-O3B-PG-O1G
6	A	502	GTP	C5'-O5'-PA-O3A
8	G	401	ACP	C5'-O5'-PA-O3A
8	I	401	ACP	C5'-O5'-PA-O3A
8	H	401	ACP	PB-C3B-PG-O3G
7	B	501	GDP	PB-O3A-PA-O1A
7	B	501	GDP	PB-O3A-PA-O2A
7	D	501	GDP	C4'-C5'-O5'-PA
6	A	502	GTP	C4'-C5'-O5'-PA
7	B	501	GDP	PA-O3A-PB-O1B
6	C	502	GTP	C5'-O5'-PA-O3A
7	B	501	GDP	C5'-O5'-PA-O3A
7	D	501	GDP	C5'-O5'-PA-O3A
8	H	401	ACP	C5'-O5'-PA-O3A
7	D	501	GDP	PA-O3A-PB-O1B

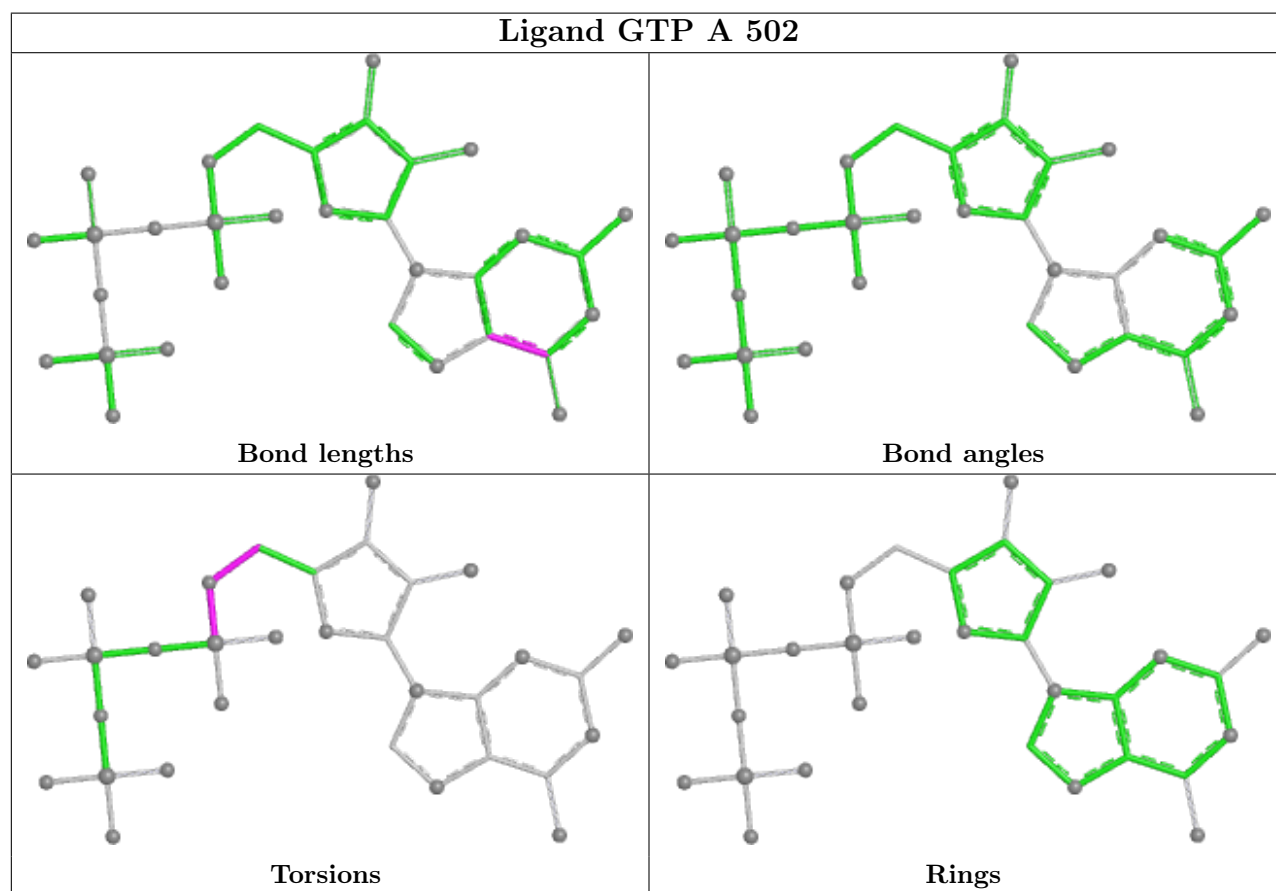
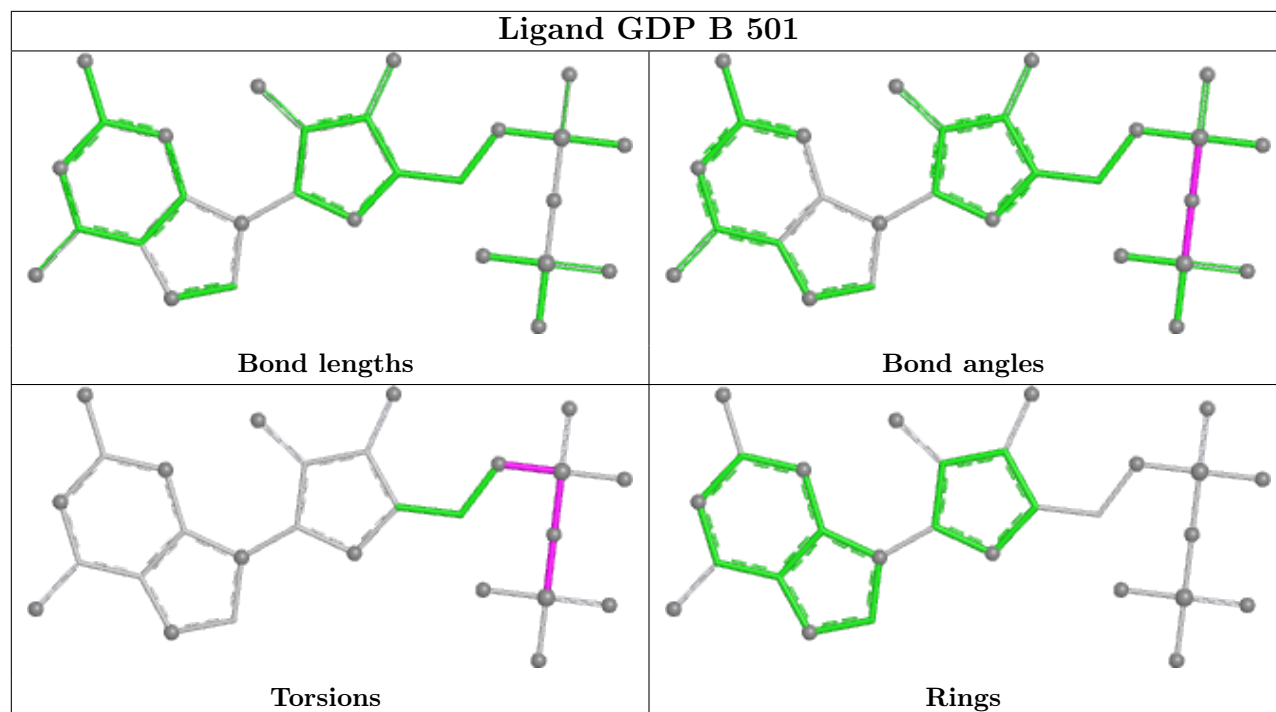
There are no ring outliers.

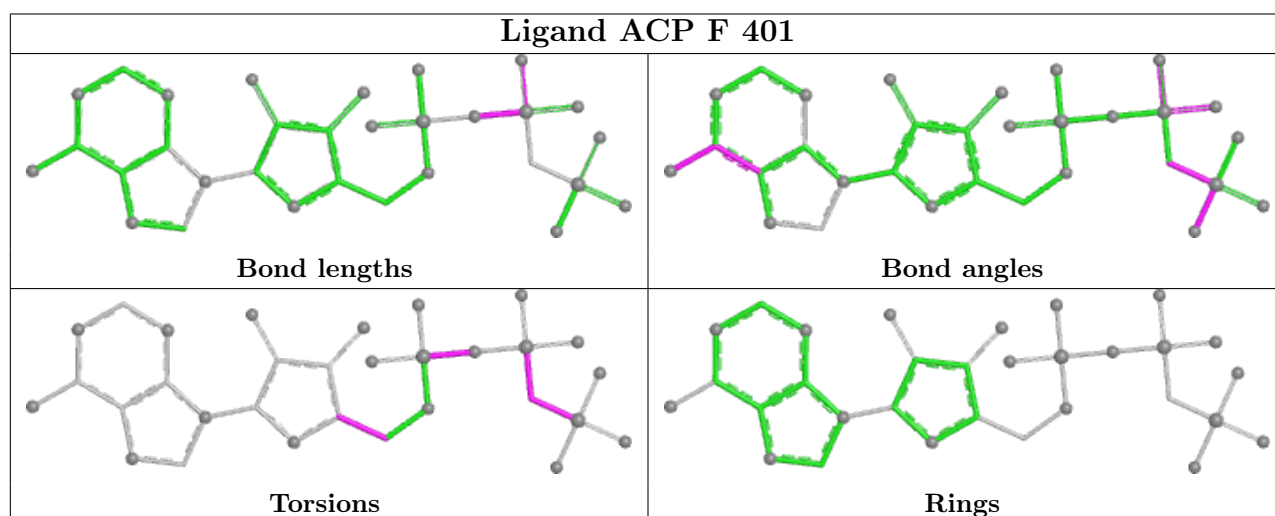
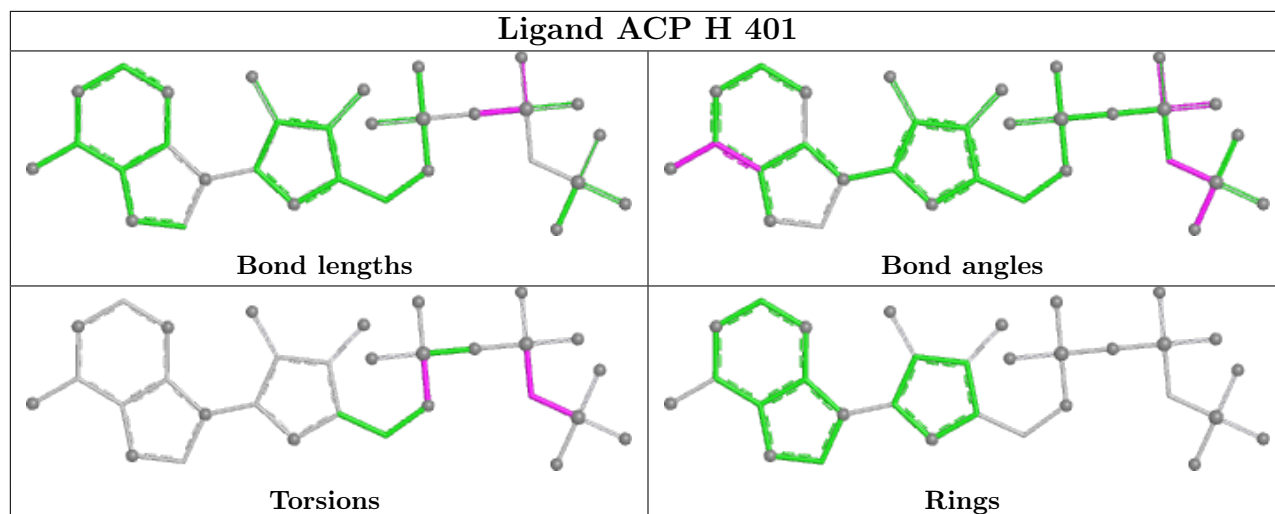
7 monomers are involved in 15 short contacts:

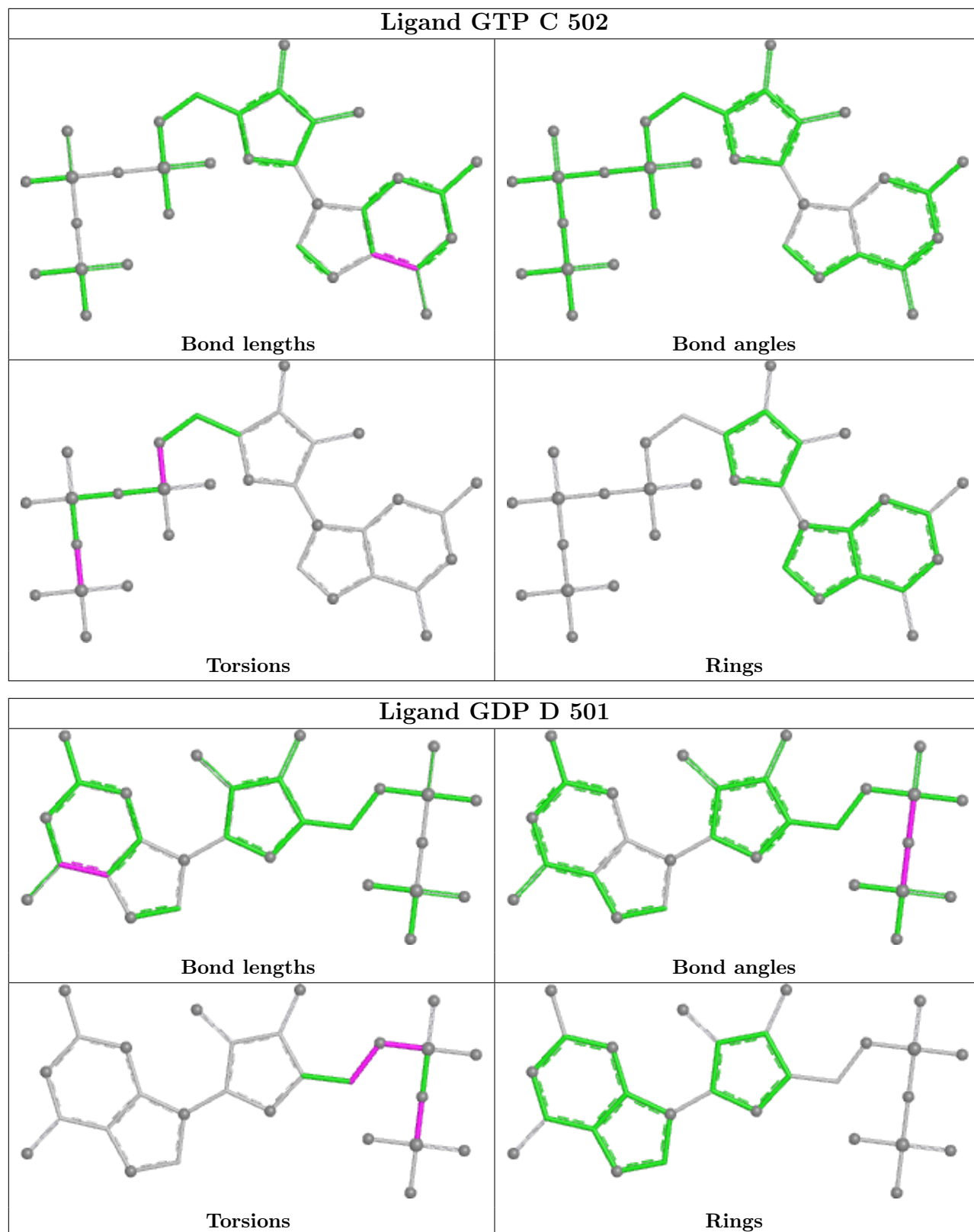
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	G	401	ACP	2	0
7	B	501	GDP	1	0
6	A	502	GTP	3	0
8	F	401	ACP	3	0
6	C	502	GTP	2	0
7	D	501	GDP	1	0
8	I	401	ACP	3	0

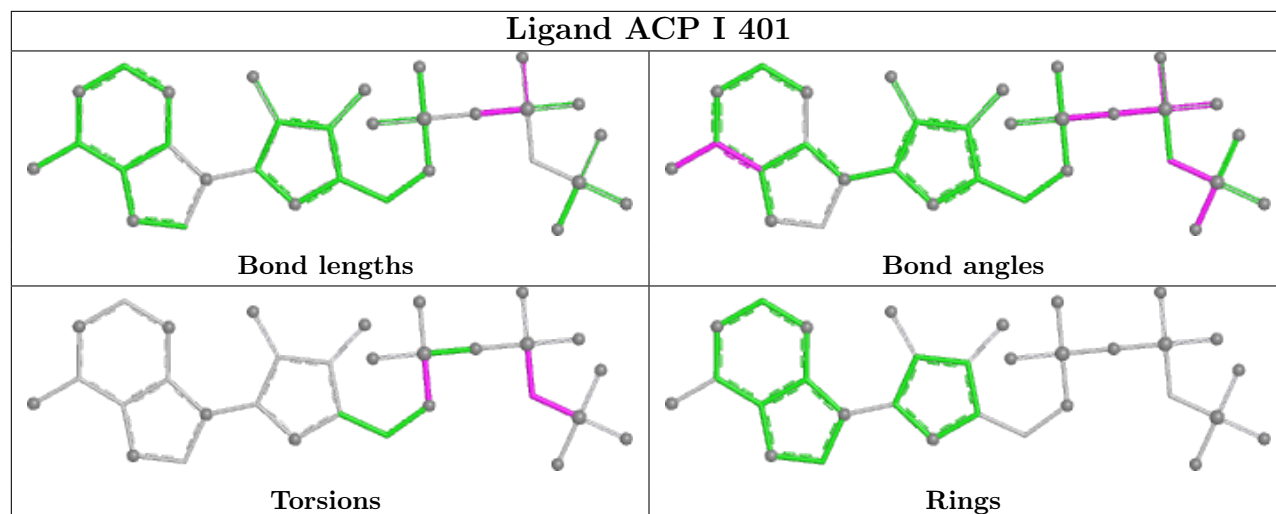
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	B	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	42:LEU	C	45:GLN	N	2.99

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	426/451 (94%)	0.66	25 (5%) 22 19	32, 55, 91, 108	0
1	C	430/451 (95%)	0.76	37 (8%) 10 8	28, 55, 92, 112	1 (0%)
2	B	425/445 (95%)	0.52	9 (2%) 63 60	28, 48, 73, 102	1 (0%)
2	D	421/445 (94%)	0.72	29 (6%) 16 14	30, 62, 97, 113	1 (0%)
3	E	123/143 (86%)	0.85	16 (13%) 3 2	33, 67, 92, 101	0
4	F	317/383 (82%)	1.46	91 (28%) 0 0	53, 88, 127, 145	5 (1%)
4	G	346/383 (90%)	0.82	38 (10%) 5 4	41, 68, 98, 110	0
4	H	345/383 (90%)	1.02	56 (16%) 1 1	42, 78, 117, 125	1 (0%)
4	I	345/383 (90%)	0.99	53 (15%) 2 1	47, 76, 104, 110	0
All	All	3178/3467 (91%)	0.84	354 (11%) 5 4	28, 65, 107, 145	9 (0%)

All (354) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	F	150	ALA	10.7
1	A	282	TYR	9.7
4	H	50	PHE	8.5
1	C	250	VAL	8.4
4	F	147	VAL	6.8
1	C	255	PHE	6.8
4	H	53	LEU	5.8
4	G	59	LEU	5.8
4	F	151	LYS	5.7
1	C	248	LEU	5.6
4	F	183	ILE	5.4
4	H	59	LEU	5.3
4	F	187	LEU	5.3
4	F	193	LEU	5.3
4	H	179	GLN	5.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
4	I	254	TYR	5.2
4	I	187	LEU	5.2
4	F	322	VAL	5.1
4	H	102	TYR	5.0
4	I	221	VAL	4.9
4	F	341	GLN	4.9
4	F	182	VAL	4.9
4	F	179	GLN	4.9
4	F	329	TRP	4.9
4	F	229	TYR	4.9
4	F	132	PHE	4.8
2	D	212	ILE	4.8
4	F	228	PRO	4.8
4	G	53	LEU	4.7
4	I	193	LEU	4.7
4	F	181	HIS	4.7
4	H	170	LEU	4.7
2	D	438	ALA	4.7
4	F	184	GLN	4.7
4	H	181	HIS	4.6
4	F	178	GLY	4.6
1	C	246	GLY	4.6
1	C	340	SER	4.5
4	I	191	LEU	4.5
4	H	57	PRO	4.5
4	F	191	LEU	4.4
4	I	178	GLY	4.4
4	G	11	ASN	4.4
3	E	23	ILE	4.4
4	F	101	ILE	4.4
4	H	174	ILE	4.4
4	F	149	ILE	4.4
4	F	376	PHE	4.4
4	F	148	TRP	4.4
4	F	163	ILE	4.4
3	E	25	LYS	4.4
3	E	24	LEU	4.3
4	H	46	ASN	4.3
4	F	22	LEU	4.3
2	D	216	THR	4.2
4	H	5	PHE	4.2
4	F	331	ILE	4.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
4	F	162	LEU	4.2
2	B	283	TYR	4.2
4	I	202	ILE	4.1
1	A	351	PHE	4.1
2	D	220	THR	4.0
4	F	169	GLU	4.0
4	F	100	VAL	4.0
1	A	1	MET	4.0
4	H	173	PHE	3.9
1	C	252	LEU	3.9
4	G	174	ILE	3.9
4	F	263	MET	3.9
1	C	439	SER	3.9
4	F	223	ARG	3.9
4	F	174	ILE	3.9
4	H	49	PRO	3.9
4	F	201	ASP	3.9
4	F	195	PRO	3.8
4	G	383	TYR	3.8
4	G	50	PHE	3.7
4	F	280	LEU	3.7
2	D	230	LEU	3.7
2	D	321	GLY	3.7
4	H	61	GLN	3.7
4	I	246	ILE	3.6
4	I	265	PHE	3.6
4	F	192	LEU	3.6
4	F	205	TRP	3.6
4	I	260	GLY	3.6
2	B	42	LEU	3.6
4	F	284	ILE	3.5
1	C	339	ARG	3.5
4	I	322	VAL	3.5
1	C	335	ILE	3.4
4	H	11	ASN	3.4
4	F	227	GLU	3.4
4	I	264	PHE	3.4
4	F	102	TYR	3.4
4	H	7	VAL	3.4
4	H	299	VAL	3.4
4	I	200	PHE	3.4
2	D	277	SER	3.4

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	346	TRP	3.4
4	F	234	PHE	3.4
4	I	226	SER	3.4
1	C	302	MET	3.4
4	F	226	SER	3.3
4	H	9	ASP	3.3
1	C	251	ASP	3.3
4	I	268	PHE	3.3
1	A	262	TYR	3.3
4	H	45	ARG	3.3
4	I	250	TYR	3.3
4	H	313	PHE	3.3
1	A	342	GLN	3.3
4	H	309	PRO	3.2
2	D	75	MET	3.2
4	I	263	MET	3.2
1	A	283	HIS	3.2
2	D	318	ILE	3.2
4	H	176	ASN	3.2
4	I	249	GLU	3.2
4	I	126	THR	3.1
4	F	282	SER	3.1
4	G	309	PRO	3.1
4	H	161	ILE	3.1
2	D	219	LEU	3.1
4	F	264	PHE	3.1
4	G	62	LEU	3.1
4	I	18	VAL	3.1
4	G	103	PRO	3.0
1	C	315[A]	CYS	3.0
2	D	218	LYS	3.0
2	D	233	ALA	3.0
4	F	176	ASN	3.0
4	F	285	LEU	3.0
4	G	24	ALA	3.0
4	I	176	ASN	3.0
4	F	315	LEU	2.9
4	G	158	GLY	2.9
4	I	182	VAL	2.9
2	D	94	PHE	2.9
4	I	101	ILE	2.9
1	A	348	PRO	2.9

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
4	F	180	VAL	2.9
4	G	22	LEU	2.9
1	C	375	VAL	2.9
4	F	199	LYS	2.9
2	D	68	VAL	2.9
4	G	60	VAL	2.9
4	F	99	TYR	2.9
2	D	24	ILE	2.8
4	F	23	LEU	2.8
4	G	63	VAL	2.8
4	G	342	LYS	2.8
1	C	39	ASP	2.8
1	C	346	TRP	2.8
1	A	353	VAL	2.8
3	E	22	VAL	2.8
1	A	56	THR	2.8
2	D	213	CYS	2.8
1	C	169	PHE	2.8
4	H	33	ARG	2.8
4	F	377	ILE	2.8
1	C	249	ASN	2.8
4	F	171	LEU	2.8
1	A	375	VAL	2.8
2	D	20	PHE	2.8
2	B	286	LEU	2.8
2	D	209	LEU	2.8
4	F	28	TRP	2.7
1	C	347[A]	CYS	2.7
4	I	222	LEU	2.7
4	I	280	LEU	2.7
1	C	212	ILE	2.7
3	E	14	CYS	2.7
1	C	2	ARG	2.7
4	F	104	THR	2.7
4	G	181	HIS	2.7
1	C	295	CYS	2.7
4	G	347	LEU	2.7
4	H	40	LEU	2.7
4	I	326	LEU	2.7
2	D	6	HIS	2.7
4	F	217	TYR	2.7
4	F	268	PHE	2.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
4	G	343	LEU	2.7
2	B	220	THR	2.6
4	H	137	ASN	2.6
4	F	129	ARG	2.6
4	H	171	LEU	2.6
4	H	74	ARG	2.6
2	D	224	TYR	2.6
1	A	250	VAL	2.6
4	F	345	ALA	2.6
4	I	315	LEU	2.6
4	G	132	PHE	2.6
4	F	152	SER	2.6
1	C	221	ARG	2.6
1	C	242	LEU	2.6
1	C	258	ASN	2.6
4	G	54	GLY	2.6
4	H	222	LEU	2.5
4	I	133	LEU	2.5
1	C	343	PHE	2.5
4	I	234	PHE	2.5
4	H	65	TYR	2.5
4	G	45	ARG	2.5
4	F	320	PHE	2.5
4	H	310	TYR	2.5
4	F	133	LEU	2.5
4	F	137	ASN	2.5
4	F	135	SER	2.5
4	H	4	THR	2.5
4	F	292	ILE	2.5
1	A	315[A]	CYS	2.5
3	E	26	PRO	2.5
4	F	18	VAL	2.5
4	F	5	PHE	2.5
4	H	169	GLU	2.5
4	H	47	ARG	2.4
4	G	65	TYR	2.4
1	A	343	PHE	2.4
4	I	364	ASP	2.4
3	E	78	HIS	2.4
4	F	21	LEU	2.4
4	F	170	LEU	2.4
4	I	285	LEU	2.4

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
4	F	328	VAL	2.4
4	G	359	VAL	2.4
4	F	15	TYR	2.4
4	F	265	PHE	2.4
4	F	288	ILE	2.4
1	C	1	MET	2.4
4	F	321	MET	2.4
4	I	243	ASN	2.4
1	C	65	ALA	2.4
1	A	288	VAL	2.4
4	F	188	GLU	2.4
1	C	351	PHE	2.4
4	I	342	LYS	2.4
4	G	308	LEU	2.4
4	I	179	GLN	2.4
4	G	148	TRP	2.4
1	C	234	ILE	2.4
2	D	242	LEU	2.4
4	F	233	ASN	2.3
1	C	68[A]	VAL	2.3
4	H	180	VAL	2.3
1	A	259	LEU	2.3
4	F	202	ILE	2.3
4	I	347	LEU	2.3
4	F	190	PRO	2.3
4	I	100	VAL	2.3
2	D	272	PHE	2.3
4	F	143	GLY	2.3
4	G	216	LEU	2.3
1	A	68	VAL	2.3
4	G	331	ILE	2.3
4	F	131	PHE	2.3
4	H	177	GLN	2.3
4	H	326	LEU	2.3
4	F	340	ALA	2.3
4	H	38	PHE	2.3
4	H	76	ALA	2.3
4	H	42	LEU	2.3
4	F	14	VAL	2.3
4	I	316	PHE	2.3
1	A	132	LEU	2.3
4	I	99	TYR	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
4	I	343	LEU	2.3
4	F	139	LYS	2.2
4	H	51	GLY	2.2
3	E	50	ILE	2.2
3	E	83	ILE	2.2
4	G	82	ILE	2.2
4	F	224	THR	2.2
4	I	320	PHE	2.2
4	H	239	CYS	2.2
1	C	314	ALA	2.2
4	G	351	ILE	2.2
4	F	313	PHE	2.2
4	G	131	PHE	2.2
4	G	179	GLN	2.2
2	B	279	GLY	2.2
4	F	348	CYS	2.2
1	A	281	ALA	2.2
4	I	82	ILE	2.2
1	C	23	LEU	2.2
2	B	391	ILE	2.2
4	I	340	ALA	2.2
3	E	21	GLU	2.2
1	C	167	LEU	2.2
4	G	126	THR	2.2
4	H	55	HIS	2.2
4	I	205	TRP	2.2
4	H	6	VAL	2.2
1	A	341	ILE	2.2
2	D	157	ILE	2.2
4	H	68	GLY	2.2
4	H	178	GLY	2.2
4	G	19	SER	2.2
4	G	75	LYS	2.1
2	B	59	ASN	2.1
1	A	49	PHE	2.1
3	E	142	GLU	2.1
4	F	343	LEU	2.1
1	A	352	LYS	2.1
4	H	3	TYR	2.1
4	G	336	ALA	2.1
4	F	126	THR	2.1
1	C	341	ILE	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
4	F	207	LEU	2.1
2	B	284	ARG	2.1
1	A	295	CYS	2.1
1	C	204	VAL	2.1
1	A	355	ILE	2.1
2	D	46	LEU	2.1
3	E	47	LEU	2.1
3	E	48	GLU	2.1
4	H	37	ARG	2.1
2	D	323	MET	2.1
3	E	82	VAL	2.1
4	F	359	VAL	2.1
4	H	136	TYR	2.1
4	H	103	PRO	2.1
1	A	110	ILE	2.1
4	H	183	ILE	2.1
4	I	163	ILE	2.1
4	I	288	ILE	2.1
2	D	227	LEU	2.1
4	I	95	PHE	2.1
4	I	96	PRO	2.1
4	I	45	ARG	2.1
4	H	34	ASP	2.1
4	H	62	LEU	2.1
4	I	94	TRP	2.1
4	G	340	ALA	2.1
1	C	177	VAL	2.1
1	C	231	ILE	2.1
2	B	248	LEU	2.1
4	F	98	SER	2.1
4	H	132	PHE	2.1
4	G	306	LYS	2.1
4	I	284	ILE	2.0
4	I	160	GLY	2.0
3	E	96	MET	2.0
2	D	177	VAL	2.0
2	D	276	THR	2.0
4	H	182	VAL	2.0
4	I	11	ASN	2.0
3	E	9	ILE	2.0
4	G	42	LEU	2.0
4	H	308	LEU	2.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
2	D	132	LEU	2.0
4	I	351	ILE	2.0
4	F	324	GLU	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](#)

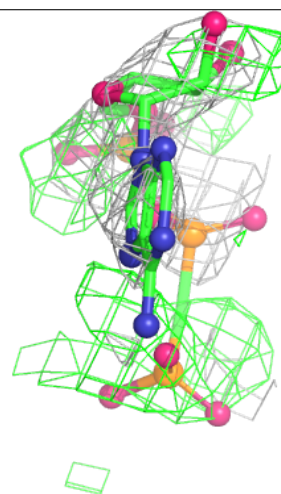
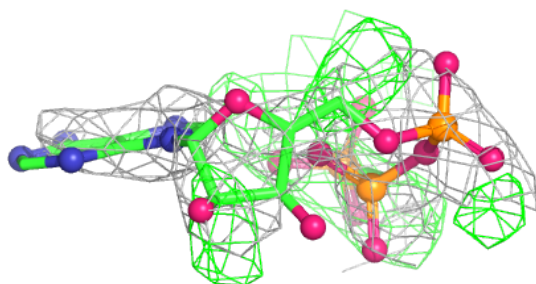
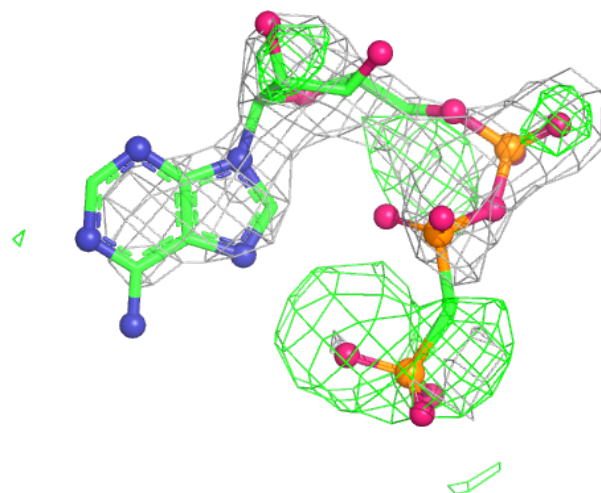
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists 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	ACP	F	401	31/31	0.78	0.44	74,75,79,79	31
8	ACP	I	401	31/31	0.81	0.24	112,113,118,118	4
8	ACP	H	401	31/31	0.85	0.21	85,88,100,100	0
8	ACP	G	401	31/31	0.90	0.20	73,77,91,91	0
7	GDP	D	501	28/28	0.95	0.19	56,58,59,59	0
6	GTP	C	502	32/32	0.97	0.18	37,43,43,43	0
5	MG	B	503	1/1	0.97	0.17	51,51,51,51	0
7	GDP	B	501	28/28	0.98	0.17	34,37,38,39	0
6	GTP	A	502	32/32	0.98	0.17	36,38,39,39	0
5	MG	B	502	1/1	0.98	0.09	32,32,32,32	0
5	MG	A	501	1/1	0.99	0.28	42,42,42,42	0
5	MG	C	501	1/1	0.99	0.15	33,33,33,33	0

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

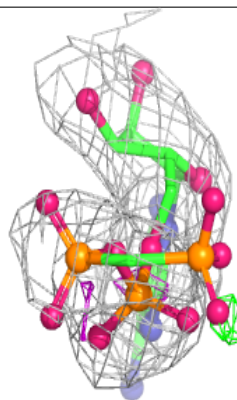
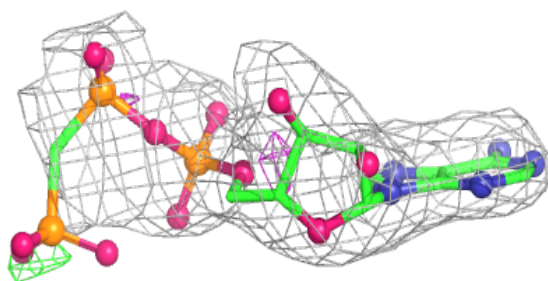
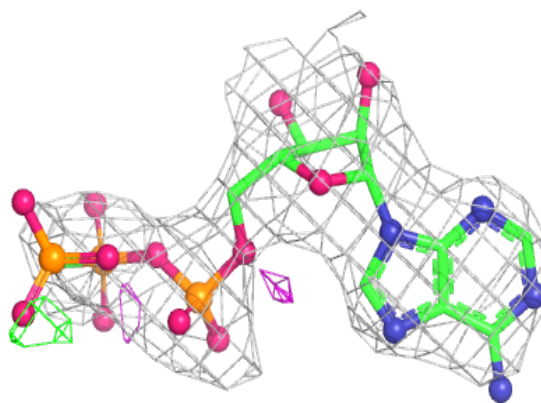
Electron density around ACP F 401:

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

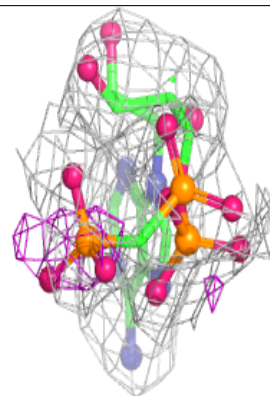
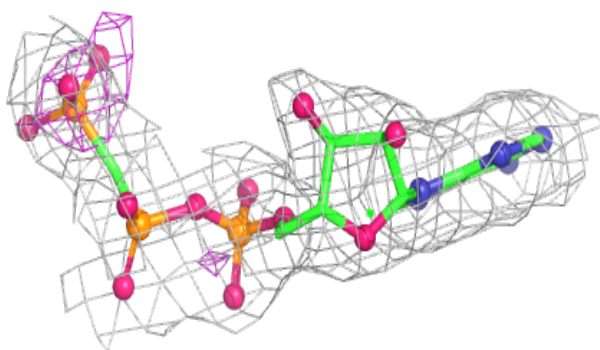
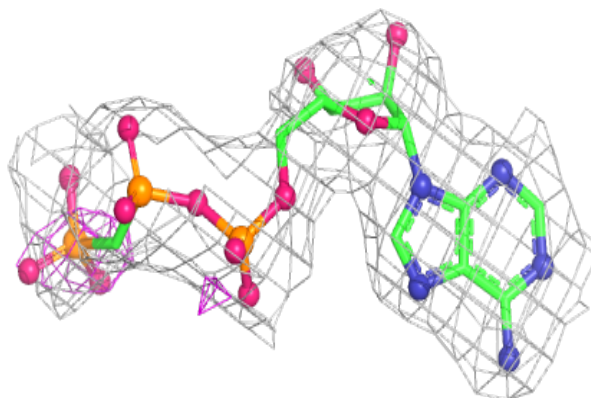


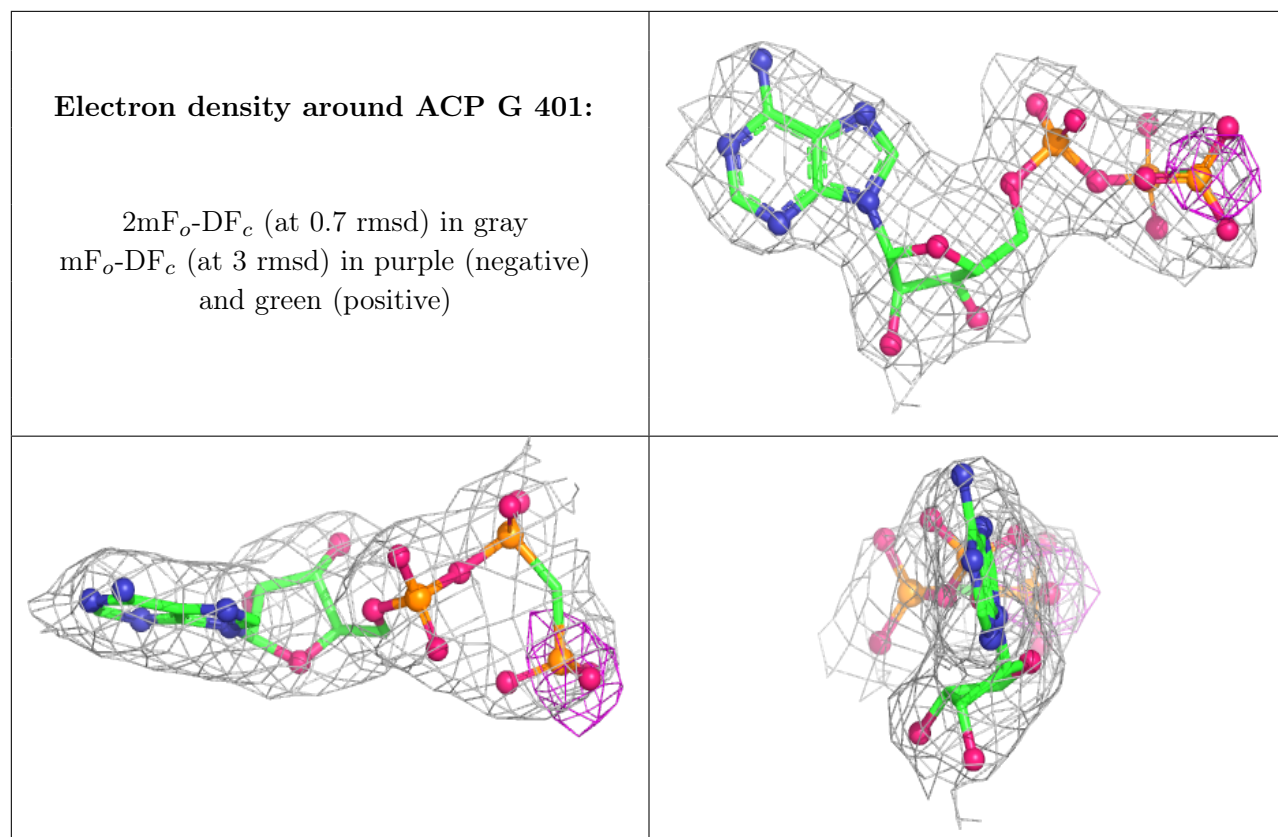
Electron density around ACP I 401:

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

**Electron density around ACP H 401:**

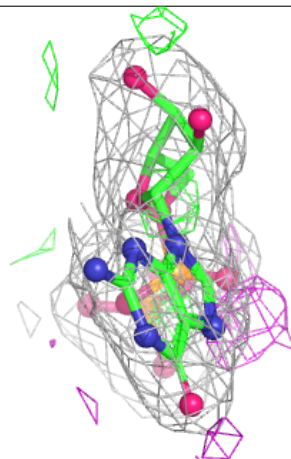
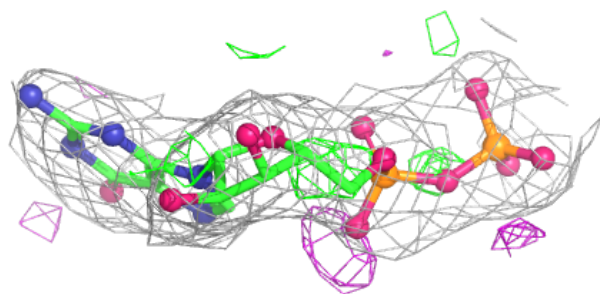
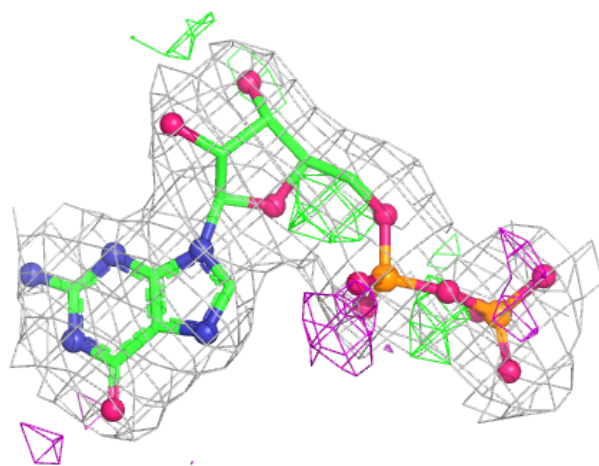
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

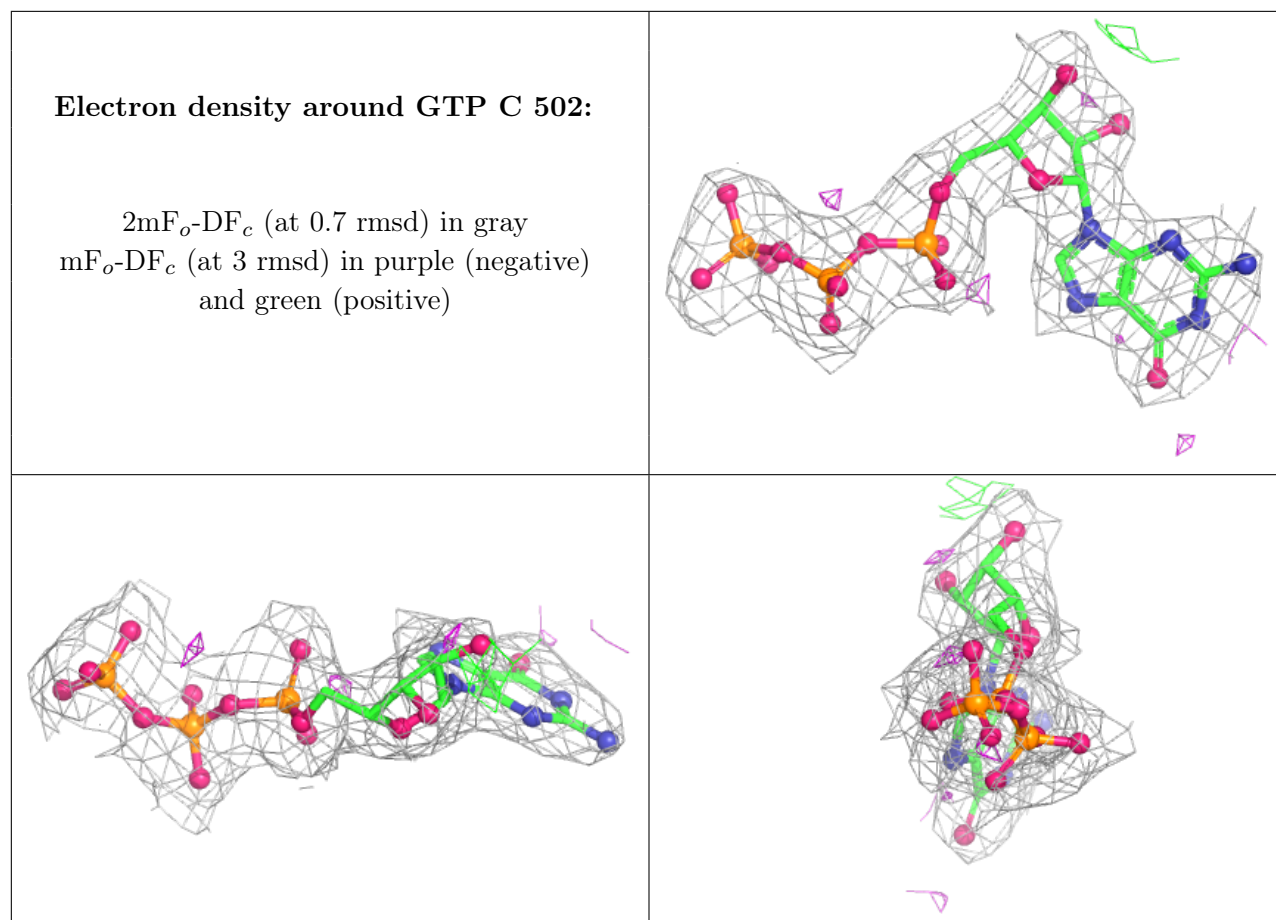




Electron density around GDP D 501:

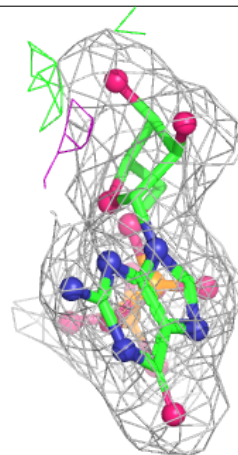
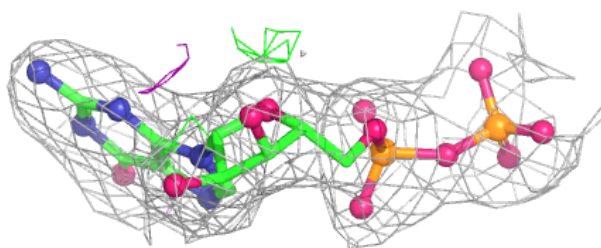
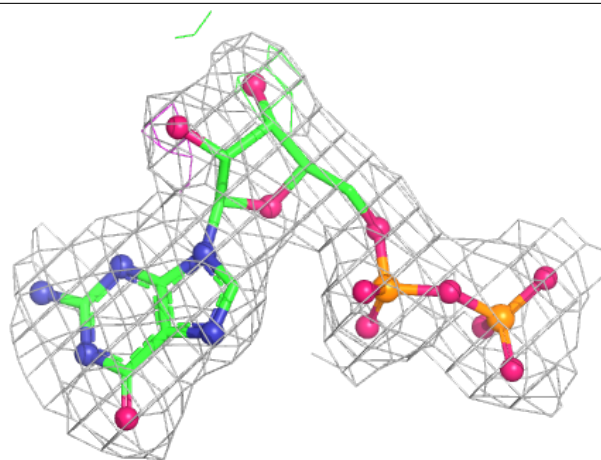
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

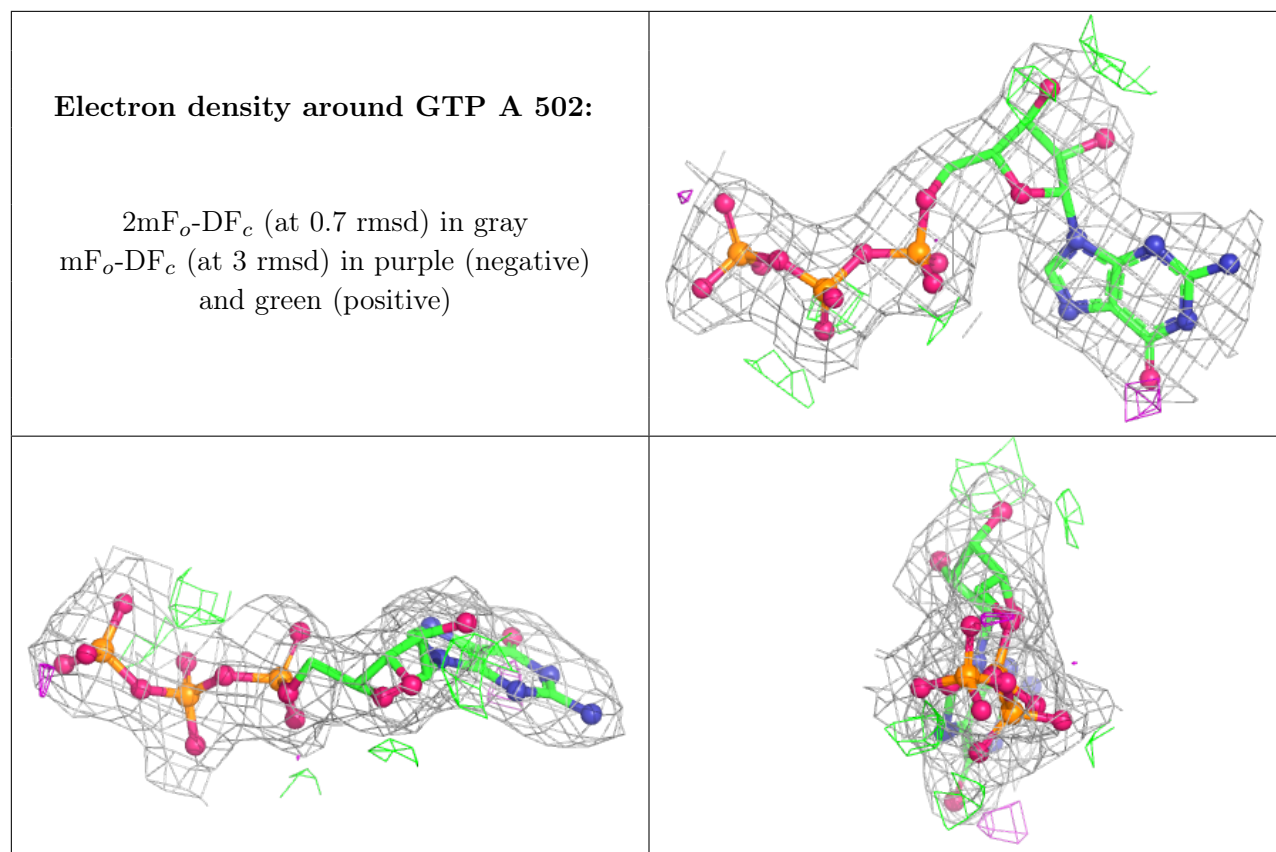




Electron density around GDP B 501:

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





6.5 Other polymers [i](#)

There are no such residues in this entry.