



Full wwPDB X-ray Structure Validation Report ⓘ

Jul 19, 2023 – 06:17 PM JST

PDB ID : 7YHN
Title : ANTI-TUMOR AGENT Y48 IN COMPLEX WITH TUBULIN
Authors : Du, T.; Ji, M.; Hou, Z.; Lin, S.; Zhang, J.; Wu, D.; Zhang, K.; Lu, D.; Xu, H.;
Chen, X.
Deposited on : 2022-07-14
Resolution : 2.60 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.34
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.34

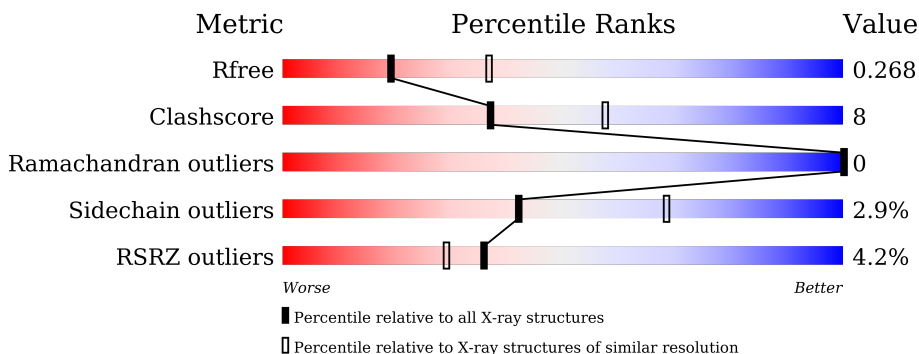
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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	152	

2 Entry composition [i](#)

There are 9 unique types of molecules in this entry. The entry contains 13868 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	415	3013	1902	505	587	19	0	0	0
1	C	433	3316	2102	561	631	22	0	0	0

- Molecule 2 is a protein called Tubulin beta chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	419	3164	1990	528	622	24	0	0	0
2	D	420	3201	2015	536	625	25	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	55	THR	ALA	conflict	UNP P02554
B	170	MET	VAL	conflict	UNP P02554
B	296	SER	ALA	conflict	UNP P02554
B	316	ILE	VAL	conflict	UNP P02554
D	55	THR	ALA	conflict	UNP P02554
D	170	MET	VAL	conflict	UNP P02554
D	296	SER	ALA	conflict	UNP P02554
D	316	ILE	VAL	conflict	UNP P02554

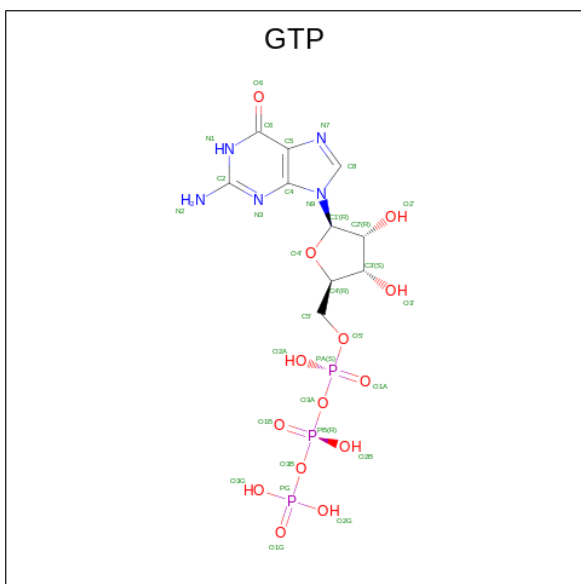
- Molecule 3 is a protein called Stathmin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	E	123	952	587	171	190	4	0	0	0

There are 11 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	1	ALA	-	expression tag	UNP F2Z508
E	143	LEU	-	expression tag	UNP F2Z508
E	144	GLU	-	expression tag	UNP F2Z508
E	145	HIS	-	expression tag	UNP F2Z508
E	146	HIS	-	expression tag	UNP F2Z508
E	147	HIS	-	expression tag	UNP F2Z508
E	148	HIS	-	expression tag	UNP F2Z508
E	149	HIS	-	expression tag	UNP F2Z508
E	150	HIS	-	expression tag	UNP F2Z508
E	151	HIS	-	expression tag	UNP F2Z508
E	152	HIS	-	expression tag	UNP F2Z508

- Molecule 4 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).

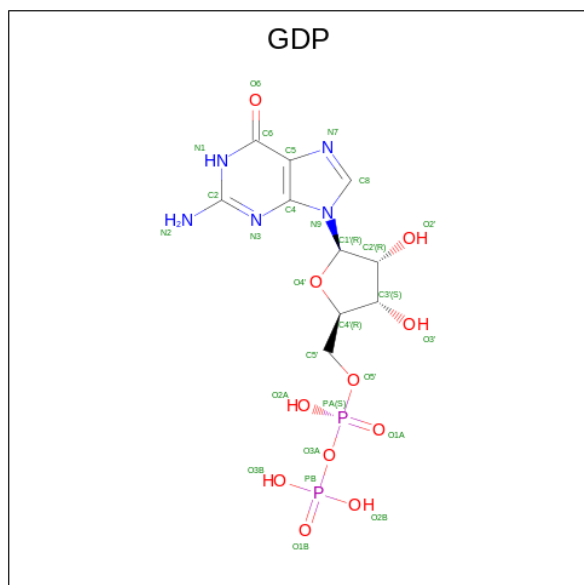


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	N	O			P
4	A	1	Total	C	N	O	P	0	0
			32	10	5	14	3		
4	C	1	Total	C	N	O	P	0	0
			32	10	5	14	3		
4	D	1	Total	C	N	O	P	0	0
			32	10	5	14	3		

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

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	2	Total Mg 2 2	0	0
5	C	3	Total Mg 3 3	0	0
5	D	1	Total Mg 1 1	0	0

- Molecule 6 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$).



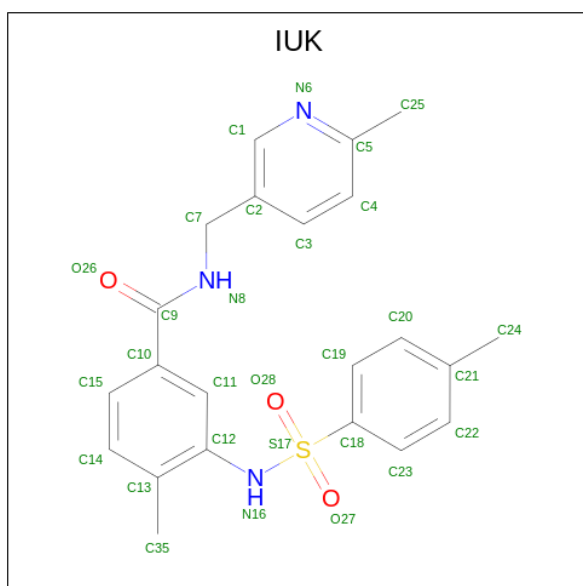
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C N O P 28 10 5 11 2	0	0

- Molecule 7 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula: $C_6H_{13}NO_4S$).



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

- Molecule 8 is 4-methyl-3-[(4-methylphenyl)sulfonylamino]-{N}-[(6-methylpyridin-3-yl)methyl]benzamide (three-letter code: IUK) (formula: $C_{22}H_{23}N_3O_3S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
8	B	1	29	22	3	3	1	0	0
8	D	1	29	22	3	3	1	0	0

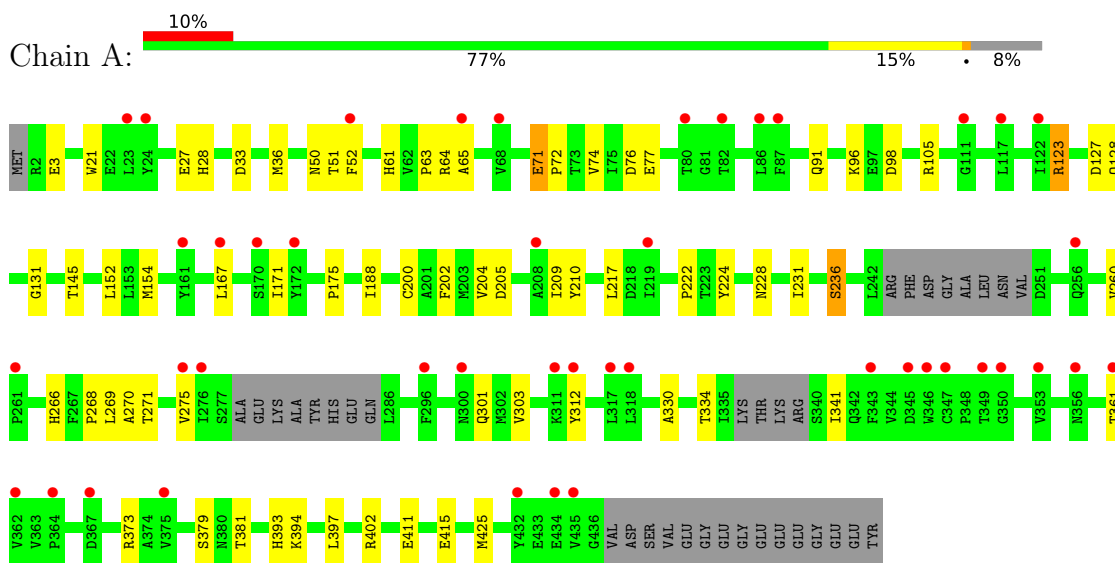
- Molecule 9 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	A	2	Total O 2 2	0	0
9	B	6	Total O 6 6	0	0
9	C	9	Total O 9 9	0	0
9	D	5	Total O 5 5	0	0

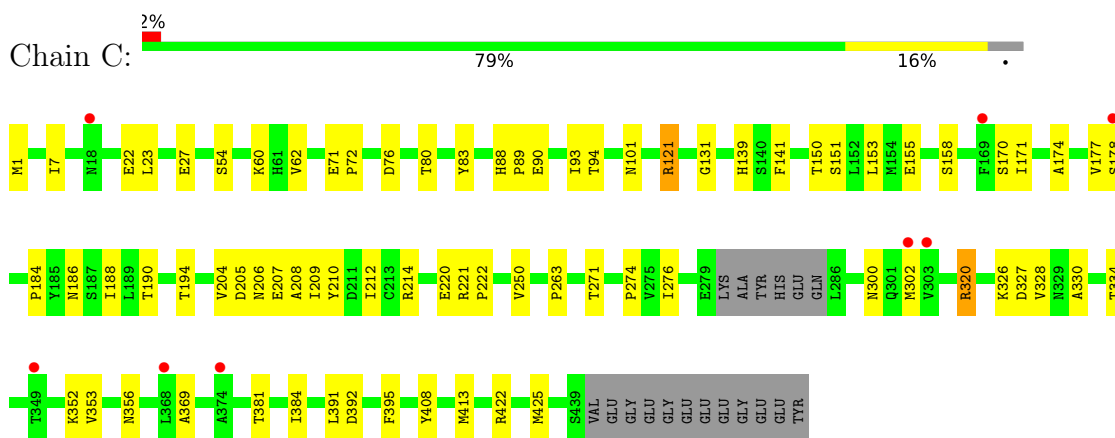
3 Residue-property plots [i](#)

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.

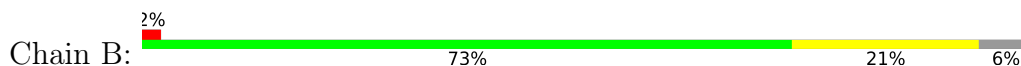
- Molecule 1: Tubulin alpha-1B chain



- Molecule 1: Tubulin alpha-1B chain

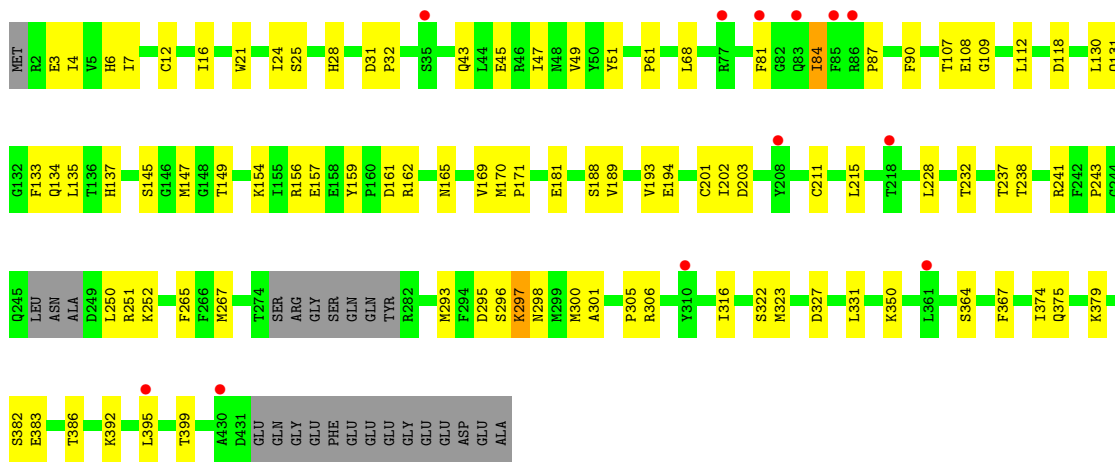
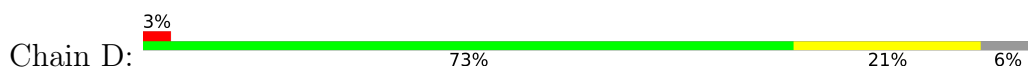


- Molecule 2: Tubulin beta chain

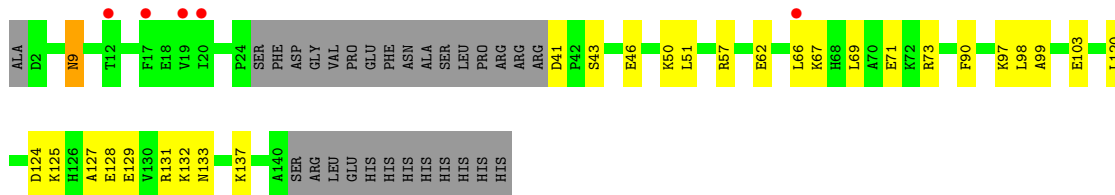




- Molecule 2: Tubulin beta chain



- Molecule 3: Stathmin



4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	81.87Å 102.03Å 131.13Å 90.00° 106.91° 90.00°	Depositor
Resolution (Å)	78.33 – 2.60 78.33 – 2.60	Depositor EDS
% Data completeness (in resolution range)	98.8 (78.33-2.60) 99.1 (78.33-2.60)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.30 (at 2.62Å)	Xtrriage
Refinement program	PHENIX 1.20.1_4487, PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.230 , 0.272 0.225 , 0.268	Depositor DCC
R_{free} test set	3216 reflections (5.10%)	wwPDB-VP
Wilson B-factor (Å ²)	67.4	Xtrriage
Anisotropy	0.422	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 79.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	0.010 for h,-k,-h-l	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	13868	wwPDB-VP
Average B, all atoms (Å ²)	88.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.54% 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: GDP, GTP, MG, MES, IUK

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	0.31	0/3079	0.50	0/4209
1	C	0.30	0/3390	0.53	0/4611
2	B	0.32	0/3236	0.52	0/4406
2	D	0.30	0/3272	0.50	0/4448
3	E	0.28	0/960	0.48	0/1284
All	All	0.31	0/13937	0.51	0/18958

There are no bond length outliers.

There are no bond angle outliers.

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	3013	0	2720	39	0
1	C	3316	0	3188	48	0
2	B	3164	0	2897	55	0
2	D	3201	0	2984	54	0
3	E	952	0	907	21	0
4	A	32	0	12	1	0
4	C	32	0	12	0	0
4	D	32	0	12	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	2	0	0	0	0
5	C	3	0	0	0	0
5	D	1	0	0	0	0
6	B	28	0	12	1	0
7	B	12	0	13	1	0
8	B	29	0	0	0	0
8	D	29	0	0	0	0
9	A	2	0	0	0	0
9	B	6	0	0	0	0
9	C	9	0	0	0	0
9	D	5	0	0	0	0
All	All	13868	0	12757	207	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 (207) 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:A:167:LEU:HG	1:A:200:CYS:HB3	1.72	0.71
3:E:128:GLU:HG3	3:E:131:ARG:HH21	1.60	0.66
1:C:88:HIS:CD2	1:C:90:GLU:HB2	2.32	0.64
1:C:250:VAL:HG22	1:C:352:LYS:HE2	1.79	0.64
1:A:397:LEU:HD12	2:B:346:PRO:HG3	1.81	0.63
2:D:154:LYS:NZ	3:E:124:ASP:OD2	2.35	0.60
1:A:27:GLU:HA	1:A:361:THR:HG21	1.83	0.59
2:B:343:GLU:H	2:B:343:GLU:CD	2.07	0.57
2:D:211:CYS:HA	2:D:215:LEU:HB2	1.87	0.57
2:B:316:ILE:HB	2:B:366:THR:HG23	1.86	0.57
2:D:157:GLU:HG2	3:E:120:LEU:HD13	1.87	0.56
3:E:43:SER:HB3	3:E:46:GLU:HG2	1.86	0.56
1:C:320:ARG:HA	1:C:356:ASN:O	2.06	0.55
2:D:267:MET:HG2	2:D:374:ILE:HD12	1.87	0.55
2:B:293:MET:CG	2:B:367:PHE:HB2	2.35	0.55
1:A:3:GLU:N	1:A:131:GLY:O	2.40	0.54
2:B:318:ARG:HB3	2:B:357:PRO:HA	1.89	0.54
2:B:44:LEU:HA	2:B:47:ILE:HB	1.90	0.54
1:A:202:PHE:CE1	1:A:268:PRO:HG2	2.43	0.53
2:B:42:LEU:HA	2:B:45:GLU:HG3	1.91	0.53
1:C:208:ALA:O	1:C:212:ILE:HG13	2.09	0.53
1:C:214:ARG:HD3	1:C:220:GLU:O	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:161:ASP:OD1	2:D:161:ASP:N	2.40	0.52
2:D:296:SER:H	2:D:306:ARG:NH2	2.06	0.52
1:C:204:VAL:HG12	1:C:302:MET:HB3	1.91	0.52
2:D:28:HIS:HE1	2:D:241:ARG:HH11	1.56	0.52
3:E:99:ALA:O	3:E:103:GLU:HG3	2.09	0.52
1:A:312:TYR:HE1	1:A:341:ILE:HG12	1.74	0.52
1:C:7:ILE:HG21	1:C:153:LEU:HD21	1.91	0.52
1:C:23:LEU:O	1:C:27:GLU:HG3	2.08	0.52
1:A:271:THR:HG23	1:A:301:GLN:HA	1.92	0.52
2:B:395:LEU:HD21	2:B:405:GLU:HG2	1.91	0.52
2:B:51:TYR:O	2:B:62:ARG:NH2	2.43	0.52
2:D:61:PRO:HD3	2:D:84:ILE:HG13	1.90	0.52
2:D:295:ASP:OD1	2:D:297:LYS:HD2	2.10	0.52
1:C:210:TYR:CZ	1:C:222:PRO:HD2	2.44	0.52
2:B:286:VAL:O	2:B:290:THR:HG23	2.10	0.51
2:B:290:THR:HG21	2:B:329:GLN:HB3	1.90	0.51
1:C:330:ALA:O	1:C:334:THR:HG23	2.11	0.51
2:D:327:ASP:O	2:D:331:LEU:HD13	2.11	0.51
2:B:309:ARG:NH2	2:B:426:GLN:O	2.44	0.51
2:B:375:GLN:OE1	2:B:423:GLN:HG2	2.09	0.51
1:C:71:GLU:HG2	1:C:72:PRO:HD2	1.92	0.51
2:B:249:ASP:OD2	2:B:252:LYS:HD2	2.10	0.51
1:A:217:LEU:HD21	1:A:275:VAL:HG12	1.92	0.51
2:D:293:MET:HG3	2:D:367:PHE:HB2	1.93	0.51
2:B:289:LEU:HD23	2:B:365:ALA:HB2	1.93	0.50
1:C:76:ASP:O	1:C:80:THR:HG23	2.11	0.50
1:A:210:TYR:CE1	1:A:222:PRO:HD2	2.47	0.50
2:B:6:HIS:CD2	2:B:21:TRP:HE1	2.29	0.50
2:D:112:LEU:HB3	2:D:147:MET:HE3	1.93	0.50
2:B:169:VAL:HA	2:B:202:ILE:O	2.11	0.50
2:D:3:GLU:OE1	2:D:3:GLU:N	2.45	0.50
3:E:62:GLU:O	3:E:66:LEU:HG	2.12	0.50
1:C:395:PHE:CD1	1:C:422:ARG:HD3	2.46	0.49
2:D:379:LYS:O	2:D:383:GLU:HG3	2.12	0.49
2:B:251:ARG:O	2:B:255:VAL:HG13	2.12	0.49
1:C:392:ASP:HB3	1:C:422:ARG:CZ	2.42	0.49
3:E:127:ALA:HB1	3:E:131:ARG:HH12	1.78	0.49
2:D:45:GLU:HB2	2:D:243:PRO:HG3	1.95	0.49
1:C:88:HIS:NE2	1:C:90:GLU:HB2	2.27	0.48
2:D:382:SER:O	2:D:386:THR:OG1	2.25	0.48
3:E:43:SER:CB	3:E:46:GLU:HG2	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:312:TYR:CE1	1:A:341:ILE:HG12	2.49	0.48
1:C:188:ILE:HG23	1:C:425:MET:HG3	1.93	0.48
1:A:171:ILE:HD13	1:A:204:VAL:HG13	1.95	0.48
1:A:205:ASP:HB2	1:A:303:VAL:HA	1.96	0.48
1:C:93:ILE:HD11	1:C:121:ARG:HD3	1.96	0.48
1:A:123:ARG:NH1	1:A:127:ASP:OD1	2.46	0.48
2:D:375:GLN:O	2:D:379:LYS:HG3	2.14	0.48
2:D:21:TRP:CE3	2:D:24:ILE:HD11	2.48	0.48
2:B:197:ASP:CG	7:B:502:MES:HN4	2.16	0.48
1:C:151:SER:O	1:C:155:GLU:HG3	2.14	0.48
1:C:171:ILE:HD13	1:C:204:VAL:HG23	1.94	0.48
2:D:232:THR:HG21	2:D:300:MET:HG3	1.96	0.48
3:E:41:ASP:OD1	3:E:41:ASP:N	2.47	0.47
2:D:131:GLN:HB3	2:D:250:LEU:HD12	1.97	0.47
1:A:63:PRO:O	1:A:91:GLN:NE2	2.47	0.47
2:B:252:LYS:O	2:B:255:VAL:HG22	2.13	0.47
2:D:4:ILE:HD12	2:D:49:VAL:HG12	1.95	0.47
2:D:25:SER:OG	2:D:51:TYR:OH	2.27	0.47
2:D:171:PRO:HB3	2:D:181:GLU:OE1	2.14	0.47
1:C:174:ALA:HB1	1:C:207:GLU:HB2	1.96	0.47
2:D:134:GLN:HA	2:D:165:ASN:O	2.13	0.47
1:A:27:GLU:OE2	1:A:236:SER:OG	2.27	0.47
1:A:312:TYR:CD2	1:A:379:SER:HB2	2.49	0.47
1:C:88:HIS:ND1	1:C:89:PRO:HD2	2.30	0.47
1:C:177:VAL:HG21	1:C:206:ASN:HB3	1.97	0.47
1:C:274:PRO:HB2	1:C:276:ILE:HD13	1.96	0.47
2:D:296:SER:HB3	2:D:305:PRO:HD2	1.95	0.47
1:C:54:SER:HB3	1:C:62:VAL:HG22	1.97	0.47
1:C:139:HIS:CD2	1:C:150:THR:HG21	2.49	0.47
2:D:228:LEU:O	2:D:232:THR:HG23	2.14	0.47
1:C:271:THR:HG23	1:C:300:ASN:O	2.15	0.47
2:D:12:CYS:O	2:D:16:ILE:HG12	2.15	0.47
1:A:65:ALA:O	1:A:91:GLN:HG2	2.14	0.47
2:B:189:VAL:HG11	2:B:415:MET:HG3	1.96	0.47
2:B:396:HIS:CG	1:C:263:PRO:HD3	2.50	0.47
2:B:189:VAL:O	2:B:193:VAL:HG23	2.14	0.46
1:A:71:GLU:HB3	1:A:98:ASP:HB3	1.98	0.46
1:A:152:LEU:HD11	3:E:51:LEU:HD11	1.98	0.46
3:E:67:LYS:O	3:E:71:GLU:HG3	2.15	0.46
2:B:36:TYR:CE2	2:B:44:LEU:HD11	2.51	0.46
2:B:237:THR:O	2:B:241:ARG:HG3	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:43:GLN:O	2:D:47:ILE:HD12	2.17	0.45
1:A:402:ARG:NE	1:A:415:GLU:OE2	2.38	0.45
2:B:12:CYS:HB2	6:B:501:GDP:C8	2.52	0.45
1:C:209:ILE:H	1:C:209:ILE:HD12	1.82	0.45
3:E:97:LYS:HG3	3:E:98:LEU:N	2.31	0.45
1:A:145:THR:HG23	4:A:501:GTP:O2G	2.16	0.45
1:A:36:MET:HB3	1:A:61:HIS:CE1	2.52	0.45
2:D:107:THR:OG1	2:D:108:GLU:N	2.50	0.45
1:A:330:ALA:O	1:A:334:THR:HG23	2.17	0.45
2:B:31:ASP:OD1	2:B:33:THR:HG22	2.17	0.45
1:C:408:TYR:O	1:C:413:MET:HB2	2.17	0.45
2:D:237:THR:O	2:D:241:ARG:HG3	2.17	0.45
3:E:133:ASN:O	3:E:137:LYS:HG3	2.17	0.45
2:D:238:THR:OG1	2:D:316:ILE:HG21	2.16	0.45
3:E:69:LEU:O	3:E:73:ARG:HG2	2.17	0.45
2:B:48:ASN:O	2:B:62:ARG:NH2	2.41	0.44
2:B:317:PHE:CE1	2:B:330:MET:HE1	2.52	0.44
2:B:134:GLN:HA	2:B:165:ASN:O	2.18	0.44
2:B:245:GLN:CB	2:B:248:ALA:HB2	2.47	0.44
2:D:7:ILE:O	2:D:135:LEU:HA	2.17	0.44
1:A:105:ARG:NH1	1:A:411:GLU:OE2	2.50	0.44
1:A:175:PRO:HG3	1:A:394:LYS:NZ	2.33	0.44
2:B:317:PHE:CZ	2:B:330:MET:HE1	2.52	0.44
2:B:11:GLN:HA	2:B:72:THR:HG21	1.99	0.44
1:C:384:ILE:H	1:C:384:ILE:HG13	1.58	0.44
2:D:81:PHE:O	2:D:84:ILE:HG22	2.18	0.44
3:E:125:LYS:O	3:E:129:GLU:HG3	2.18	0.44
1:A:393:HIS:O	1:A:397:LEU:HG	2.18	0.44
1:A:204:VAL:HG23	1:A:209:ILE:HD11	2.00	0.44
3:E:9:ASN:N	3:E:9:ASN:OD1	2.50	0.44
2:D:28:HIS:CE1	2:D:241:ARG:HH11	2.36	0.44
1:C:276:ILE:HG22	1:C:369:ALA:HB3	2.00	0.43
2:D:392:LYS:HG2	2:D:395:LEU:HD12	1.99	0.43
1:A:74:VAL:O	1:A:77:GLU:HG2	2.18	0.43
1:C:184:PRO:O	1:C:188:ILE:HG12	2.18	0.43
1:C:190:THR:O	1:C:194:THR:HG23	2.18	0.43
1:C:174:ALA:O	1:C:178:SER:N	2.51	0.43
2:B:345:ILE:HG22	2:B:348:ASN:HB3	2.01	0.43
1:C:60:LYS:HE2	1:C:60:LYS:HB3	1.53	0.43
2:B:325:GLU:O	2:B:329:GLN:HG2	2.19	0.43
2:D:68:LEU:HD21	2:D:109:GLY:HA2	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:12:CYS:HB3	2:B:138:SER:HB3	2.01	0.43
2:D:189:VAL:O	2:D:193:VAL:HG23	2.18	0.43
2:B:46:ARG:HH11	2:B:46:ARG:HG2	1.84	0.43
1:A:28:HIS:HB3	1:A:36:MET:HE3	2.01	0.43
1:A:50:ASN:O	1:A:64:ARG:NH1	2.52	0.43
2:D:350:LYS:HA	2:D:350:LYS:HD3	1.79	0.43
1:A:188:ILE:HG23	1:A:425:MET:HG3	2.00	0.43
1:A:269:LEU:HD22	1:A:270:ALA:H	1.84	0.43
2:B:21:TRP:CZ3	2:B:61:PRO:HB3	2.54	0.43
1:C:205:ASP:O	1:C:209:ILE:HD12	2.19	0.43
2:D:130:LEU:HD21	2:D:133:PHE:CZ	2.54	0.43
2:B:267:MET:HG2	2:B:374:ILE:HD12	2.01	0.42
1:A:3:GLU:HA	1:A:51:THR:HA	2.02	0.42
1:A:64:ARG:NH2	1:A:128:GLN:O	2.52	0.42
1:C:158:SER:HB3	3:E:90:PHE:CZ	2.54	0.42
2:D:6:HIS:CD2	2:D:21:TRP:HE1	2.37	0.42
2:B:372:THR:HA	2:B:422:TYR:CD1	2.55	0.42
2:D:31:ASP:HB2	2:D:32:PRO:HD2	2.01	0.42
2:B:132:GLY:HA3	2:B:163:ILE:O	2.20	0.42
1:C:1:MET:HG3	1:C:131:GLY:HA3	2.01	0.42
2:B:120:VAL:O	2:B:124:SER:OG	2.28	0.42
2:B:163:ILE:HG21	2:B:250:LEU:HB3	2.01	0.42
1:C:158:SER:HB3	3:E:90:PHE:CE2	2.54	0.42
1:C:186:ASN:O	1:C:190:THR:HG22	2.19	0.42
1:A:72:PRO:HB2	1:A:76:ASP:OD2	2.19	0.42
1:C:90:GLU:N	1:C:90:GLU:OE1	2.53	0.42
2:D:156:ARG:HG2	3:E:120:LEU:HD11	2.01	0.42
2:B:65:LEU:HD22	2:B:90:PHE:CE2	2.55	0.42
2:B:348:ASN:OD1	2:B:348:ASN:N	2.42	0.42
1:C:391:LEU:HD12	1:C:391:LEU:HA	1.90	0.42
1:A:52:PHE:O	1:A:64:ARG:HG3	2.20	0.41
2:B:172:SER:HB2	2:B:205:GLU:HB2	2.02	0.41
2:B:203:ASP:O	2:B:207:LEU:HG	2.19	0.41
3:E:57:ARG:HA	3:E:57:ARG:HD2	1.78	0.41
2:D:149:THR:HG21	2:D:188:SER:HA	2.01	0.41
1:A:260:VAL:HG11	1:A:266:HIS:HB3	2.01	0.41
2:B:54:ALA:N	2:B:58:LYS:O	2.51	0.41
1:A:228:ASN:HA	1:A:231:ILE:HD12	2.03	0.41
2:B:101:TRP:HB2	2:B:184:ASN:OD1	2.20	0.41
2:B:379:LYS:O	2:B:383:GLU:HG3	2.20	0.41
2:D:87:PRO:HA	2:D:90:PHE:CD1	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:203:ASP:HB2	2:D:301:ALA:HA	2.02	0.41
1:C:90:GLU:HG3	1:C:121:ARG:HH21	1.85	0.41
2:B:293:MET:CE	2:B:365:ALA:HB1	2.50	0.41
2:B:311:LEU:HD11	2:B:372:THR:HG22	2.02	0.41
1:C:101:ASN:ND2	2:D:252:LYS:HE2	2.36	0.41
2:D:169:VAL:HA	2:D:202:ILE:O	2.21	0.41
2:D:295:ASP:HB3	2:D:298:ASN:HD22	1.85	0.41
1:C:22:GLU:HG3	1:C:83:TYR:CE2	2.56	0.41
2:D:159:TYR:HB3	2:D:162:ARG:HG3	2.03	0.41
3:E:128:GLU:O	3:E:132:LYS:HG3	2.21	0.41
1:C:328:VAL:HG11	1:C:353:VAL:HG21	2.03	0.41
2:D:28:HIS:HE1	2:D:241:ARG:HD2	1.86	0.40
1:A:21:TRP:CZ2	1:A:65:ALA:HB2	2.55	0.40
1:C:326:LYS:HG3	1:C:327:ASP:N	2.36	0.40
2:B:91:VAL:HG12	2:B:112:LEU:HD11	2.04	0.40
2:B:212:PHE:CD1	2:B:218:THR:O	2.75	0.40
1:C:221:ARG:CZ	2:D:323:MET:HE2	2.51	0.40
2:D:87:PRO:HA	2:D:90:PHE:CE1	2.56	0.40
2:B:293:MET:HG3	2:B:367:PHE:HB2	2.02	0.40
2:D:156:ARG:NH1	2:D:194:GLU:OE1	2.54	0.40
2:D:201:CYS:SG	2:D:265:PHE:HB3	2.61	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	407/451 (90%)	385 (95%)	22 (5%)	0	100	100
1	C	429/451 (95%)	413 (96%)	16 (4%)	0	100	100
2	B	415/445 (93%)	394 (95%)	21 (5%)	0	100	100
2	D	414/445 (93%)	400 (97%)	14 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	E	119/152 (78%)	118 (99%)	1 (1%)	0	100	100
All	All	1784/1944 (92%)	1710 (96%)	74 (4%)	0	100	100

There are no Ramachandran outliers to report.

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	294/379 (78%)	285 (97%)	9 (3%)	40	66
1	C	350/379 (92%)	344 (98%)	6 (2%)	60	81
2	B	328/383 (86%)	315 (96%)	13 (4%)	31	57
2	D	337/383 (88%)	327 (97%)	10 (3%)	41	67
3	E	94/136 (69%)	92 (98%)	2 (2%)	53	77
All	All	1403/1660 (84%)	1363 (97%)	40 (3%)	42	68

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33	ASP
1	A	71	GLU
1	A	96	LYS
1	A	123	ARG
1	A	154	MET
1	A	224	TYR
1	A	236	SER
1	A	373	ARG
1	A	381	THR
2	B	137	HIS
2	B	162	ARG
2	B	172	SER
2	B	205	GLU
2	B	219	THR

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Mol	Chain	Res	Type
2	B	253	LEU
2	B	300	MET
2	B	338	SER
2	B	339	SER
2	B	347	ASN
2	B	364	SER
2	B	371	SER
2	B	404	ASP
1	C	94	THR
1	C	121	ARG
1	C	141	PHE
1	C	170	SER
1	C	320	ARG
1	C	381	THR
2	D	84	ILE
2	D	118	ASP
2	D	137	HIS
2	D	145	SER
2	D	170	MET
2	D	251	ARG
2	D	297	LYS
2	D	322	SER
2	D	364	SER
2	D	399	THR
3	E	9	ASN
3	E	50	LYS

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

Mol	Chain	Res	Type
1	A	88	HIS
1	A	393	HIS
2	B	423	GLN
2	D	11	GLN
2	D	57	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 13 ligands modelled in this entry, 6 are monoatomic - leaving 7 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
6	GDP	B	501	-	24,30,30	0.96	1 (4%)	30,47,47	1.05	3 (10%)
8	IUK	D	503	-	31,31,31	4.20	17 (54%)	44,44,44	2.56	7 (15%)
7	MES	B	502	-	12,12,12	0.70	0	14,16,16	0.38	0
4	GTP	D	501	5	26,34,34	1.00	2 (7%)	32,54,54	0.71	1 (3%)
4	GTP	C	502	5	26,34,34	1.01	2 (7%)	32,54,54	0.70	1 (3%)
8	IUK	B	503	-	31,31,31	4.10	17 (54%)	44,44,44	2.61	8 (18%)
4	GTP	A	501	5	26,34,34	1.00	2 (7%)	32,54,54	0.69	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
6	GDP	B	501	-	-	4/12/32/32	0/3/3/3
8	IUK	D	503	-	-	0/20/20/20	0/3/3/3
7	MES	B	502	-	-	1/6/14/14	0/1/1/1
4	GTP	D	501	5	-	8/18/38/38	0/3/3/3
4	GTP	C	502	5	-	8/18/38/38	0/3/3/3
8	IUK	B	503	-	-	0/20/20/20	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	GTP	A	501	5	-	7/18/38/38	0/3/3/3

All (41) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	D	503	IUK	C23-C18	9.24	1.53	1.38
8	B	503	IUK	C23-C18	8.74	1.52	1.38
8	D	503	IUK	C11-C12	8.47	1.52	1.39
8	B	503	IUK	C11-C12	8.34	1.52	1.39
8	D	503	IUK	C15-C10	8.08	1.53	1.39
8	D	503	IUK	C19-C20	7.95	1.53	1.38
8	B	503	IUK	C19-C20	7.94	1.53	1.38
8	B	503	IUK	C15-C10	7.77	1.52	1.39
8	D	503	IUK	C14-C13	6.38	1.53	1.39
8	B	503	IUK	C14-C13	6.22	1.53	1.39
8	D	503	IUK	C9-N8	5.20	1.45	1.33
8	D	503	IUK	C11-C10	-5.16	1.31	1.39
8	B	503	IUK	C11-C10	-5.15	1.31	1.39
8	D	503	IUK	C22-C21	5.09	1.53	1.38
8	B	503	IUK	C22-C21	5.07	1.52	1.38
8	B	503	IUK	C9-N8	4.95	1.44	1.33
8	D	503	IUK	S17-N16	4.93	1.71	1.63
8	B	503	IUK	S17-N16	4.68	1.71	1.63
8	D	503	IUK	C12-C13	-4.27	1.31	1.40
8	B	503	IUK	C19-C18	-4.23	1.32	1.38
8	D	503	IUK	C19-C18	-4.19	1.32	1.38
8	B	503	IUK	C12-C13	-4.19	1.32	1.40
8	B	503	IUK	C15-C14	-3.82	1.31	1.38
8	B	503	IUK	C23-C22	-3.77	1.31	1.38
8	D	503	IUK	C15-C14	-3.67	1.32	1.38
8	D	503	IUK	C23-C22	-3.63	1.32	1.38
8	D	503	IUK	C18-S17	3.48	1.81	1.76
8	D	503	IUK	O27-S17	3.34	1.47	1.43
8	B	503	IUK	C18-S17	3.23	1.81	1.76
8	B	503	IUK	O27-S17	3.07	1.47	1.43
8	B	503	IUK	O28-S17	3.06	1.47	1.43
8	D	503	IUK	O28-S17	2.86	1.46	1.43
4	D	501	GTP	C5-C6	-2.74	1.41	1.47
4	A	501	GTP	C5-C6	-2.70	1.41	1.47
4	C	502	GTP	C5-C6	-2.67	1.42	1.47
8	B	503	IUK	C20-C21	-2.36	1.32	1.38
8	D	503	IUK	C20-C21	-2.30	1.32	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	C	502	GTP	C8-N7	-2.17	1.31	1.35
6	B	501	GDP	C6-N1	-2.15	1.34	1.37
4	A	501	GTP	C8-N7	-2.15	1.31	1.35
4	D	501	GTP	C8-N7	-2.13	1.31	1.35

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	B	503	IUK	O28-S17-O27	-14.72	101.46	119.55
8	D	503	IUK	O28-S17-O27	-14.66	101.53	119.55
8	B	503	IUK	C14-C13-C12	3.49	120.73	117.44
8	B	503	IUK	O27-S17-C18	3.45	112.22	107.97
8	D	503	IUK	C14-C13-C12	3.35	120.60	117.44
8	B	503	IUK	O28-S17-C18	3.24	111.95	107.97
8	D	503	IUK	O28-S17-C18	2.86	111.50	107.97
8	D	503	IUK	O27-S17-C18	2.82	111.44	107.97
8	B	503	IUK	C2-C1-N6	-2.59	119.88	123.95
6	B	501	GDP	C8-N7-C5	2.42	107.61	102.99
8	D	503	IUK	C2-C1-N6	-2.42	120.14	123.95
6	B	501	GDP	C5-C6-N1	2.40	118.18	113.95
6	B	501	GDP	PA-O3A-PB	-2.27	125.03	132.83
8	B	503	IUK	C1-N6-C5	2.19	119.99	117.45
8	D	503	IUK	O27-S17-N16	2.07	111.91	106.73
8	B	503	IUK	O28-S17-N16	2.04	111.84	106.73
8	B	503	IUK	C3-C2-C1	2.04	120.10	117.10
4	C	502	GTP	O6-C6-C5	2.03	128.34	124.37
4	D	501	GTP	O6-C6-C5	2.03	128.33	124.37
8	D	503	IUK	C1-N6-C5	2.01	119.78	117.45

There are no chirality outliers.

All (28) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	501	GTP	C5'-O5'-PA-O1A
4	C	502	GTP	C5'-O5'-PA-O1A
4	C	502	GTP	C5'-O5'-PA-O2A
4	D	501	GTP	PB-O3B-PG-O3G
4	D	501	GTP	C5'-O5'-PA-O1A
4	D	501	GTP	C5'-O5'-PA-O2A
6	B	501	GDP	C5'-O5'-PA-O1A
6	B	501	GDP	C5'-O5'-PA-O2A
4	A	501	GTP	PB-O3B-PG-O1G

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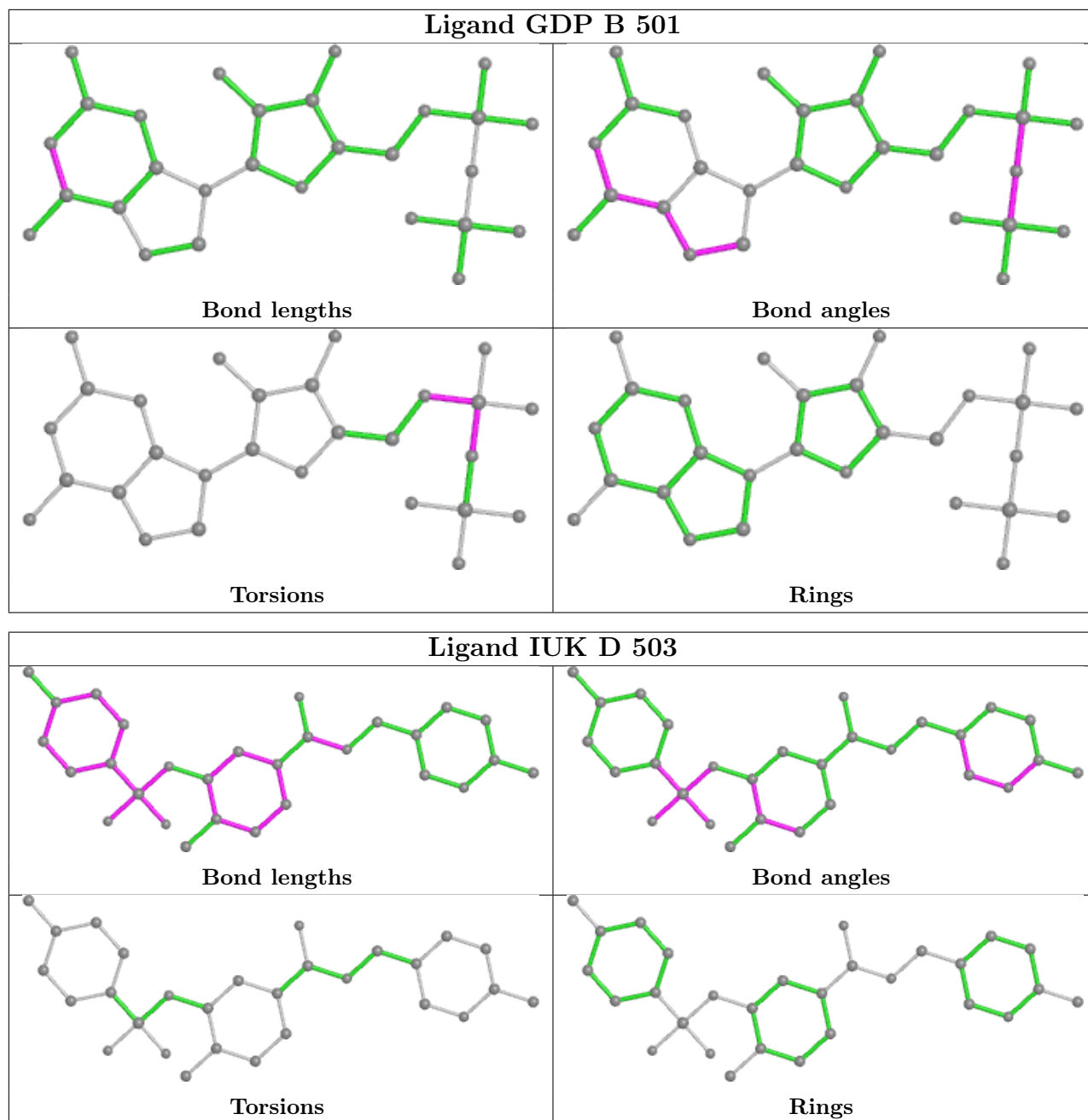
Mol	Chain	Res	Type	Atoms
4	C	502	GTP	PB-O3B-PG-O1G
4	A	501	GTP	C5'-O5'-PA-O3A
6	B	501	GDP	C5'-O5'-PA-O3A
4	C	502	GTP	PB-O3A-PA-O2A
4	A	501	GTP	C5'-O5'-PA-O2A
7	B	502	MES	C7-C8-S-O3S
4	D	501	GTP	PB-O3B-PG-O1G
4	A	501	GTP	PB-O3B-PG-O2G
4	A	501	GTP	PB-O3B-PG-O3G
4	C	502	GTP	PB-O3B-PG-O2G
4	C	502	GTP	PB-O3B-PG-O3G
4	D	501	GTP	PB-O3B-PG-O2G
4	C	502	GTP	C5'-O5'-PA-O3A
4	D	501	GTP	C5'-O5'-PA-O3A
4	A	501	GTP	PB-O3A-PA-O2A
4	C	502	GTP	PB-O3A-PA-O1A
4	D	501	GTP	PB-O3A-PA-O1A
4	D	501	GTP	PB-O3A-PA-O2A
6	B	501	GDP	PB-O3A-PA-O2A

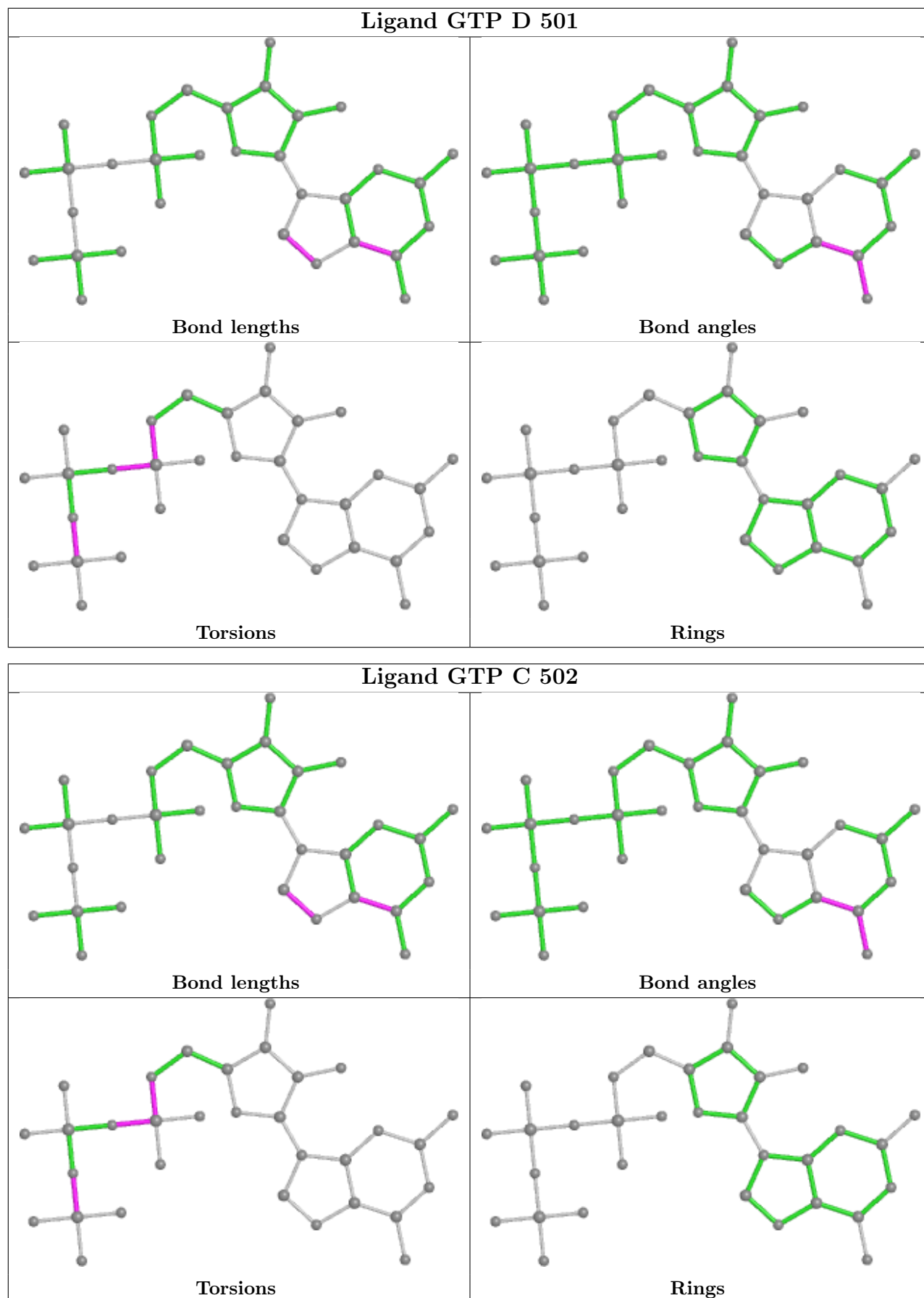
There are no ring outliers.

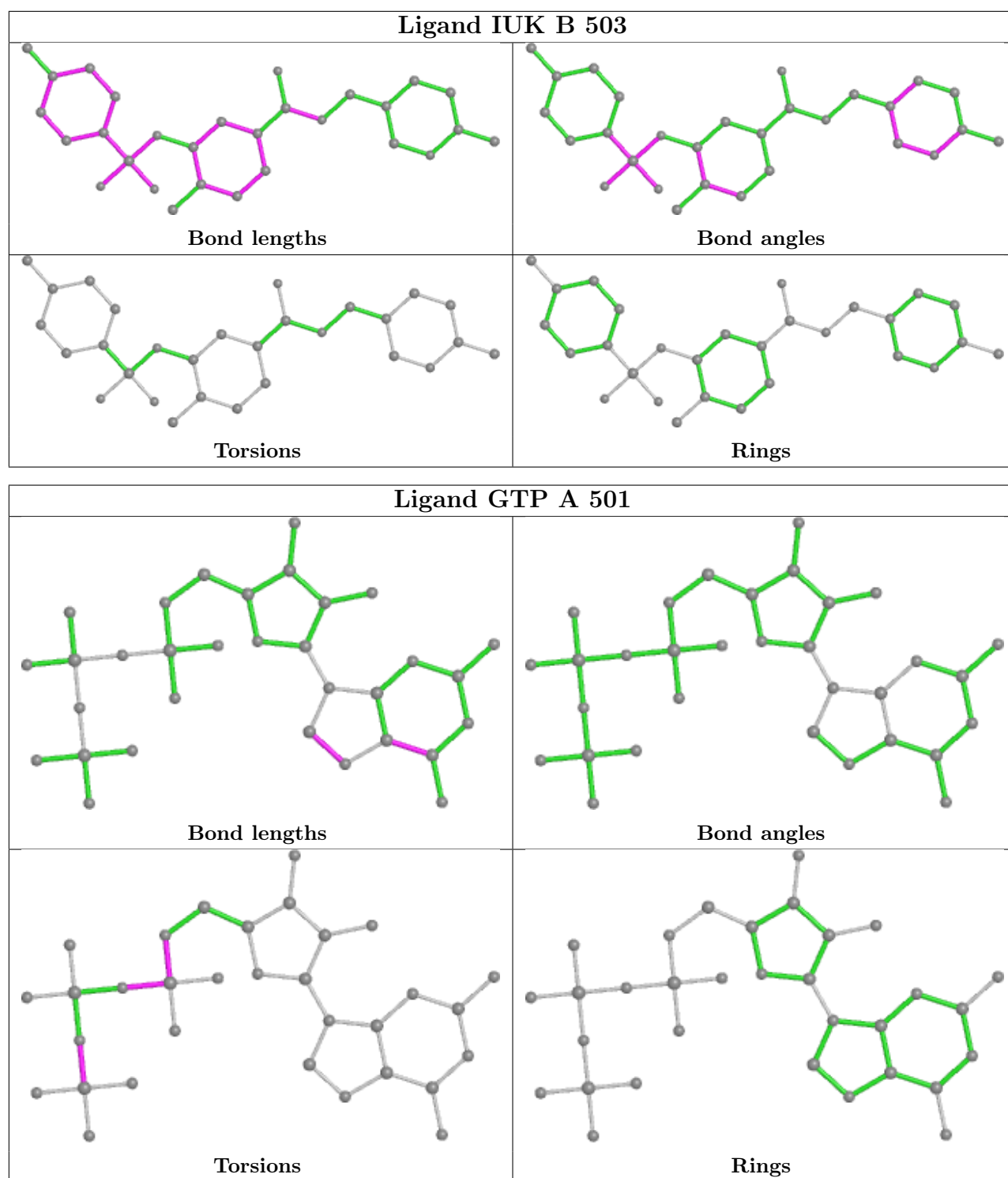
3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	501	GDP	1	0
7	B	502	MES	1	0
4	A	501	GTP	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

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	415/451 (92%)	0.73	44 (10%) 6 4	73, 102, 121, 134	0
1	C	433/451 (96%)	0.50	8 (1%) 68 64	60, 81, 104, 113	0
2	B	419/445 (94%)	0.51	7 (1%) 70 66	62, 82, 105, 124	0
2	D	420/445 (94%)	0.55	12 (2%) 51 45	63, 85, 114, 132	0
3	E	123/152 (80%)	0.51	5 (4%) 37 30	71, 89, 125, 139	0
All	All	1810/1944 (93%)	0.57	76 (4%) 36 29	60, 87, 116, 139	0

All (76) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	178	SER	3.8
1	A	435	VAL	3.4
2	D	81	PHE	3.3
1	A	256	GLN	3.3
2	B	284	LEU	3.1
1	A	346	TRP	3.1
1	A	345	ASP	3.1
1	A	361	THR	3.1
2	B	360	GLY	3.1
1	A	167	LEU	2.9
3	E	20	ILE	2.9
2	B	319	GLY	2.8
2	D	85	PHE	2.8
1	A	296	PHE	2.7
1	A	111	GLY	2.7
1	A	87	PHE	2.7
2	B	176	SER	2.6
1	A	343	PHE	2.5
1	A	82	THR	2.5
1	C	349	THR	2.5

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Mol	Chain	Res	Type	RSRZ
1	C	302	MET	2.5
3	E	17	PHE	2.5
1	A	434	GLU	2.5
1	C	18	ASN	2.5
1	A	261	PRO	2.5
1	C	303	VAL	2.4
1	A	375	VAL	2.4
1	A	364	PRO	2.4
1	A	117	LEU	2.4
1	A	275	VAL	2.4
1	A	80	THR	2.3
1	A	208	ALA	2.3
1	A	350	GLY	2.3
1	A	312	TYR	2.3
1	C	368	LEU	2.3
2	D	218	THR	2.3
1	A	122	ILE	2.3
1	C	169	PHE	2.3
1	A	318	LEU	2.3
2	D	208	TYR	2.3
1	A	347	CYS	2.3
2	B	76	VAL	2.2
1	A	356	ASN	2.2
1	A	367	ASP	2.2
2	D	86	ARG	2.2
2	D	395	LEU	2.2
1	C	374	ALA	2.2
1	A	353	VAL	2.2
1	A	362	VAL	2.2
2	D	83	GLN	2.2
1	A	276	ILE	2.2
3	E	66	LEU	2.2
1	A	52	PHE	2.2
1	A	311	LYS	2.1
2	B	178	THR	2.1
2	D	77	ARG	2.1
3	E	12	THR	2.1
2	D	35	SER	2.1
1	A	172	TYR	2.1
1	A	317	LEU	2.1
1	A	24	TYR	2.1
2	D	430	ALA	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	86	LEU	2.1
2	B	275	SER	2.1
2	D	310	TYR	2.1
1	A	300	ASN	2.1
1	A	170	SER	2.1
1	A	68	VAL	2.0
1	A	161	TYR	2.0
1	A	432	TYR	2.0
1	A	65	ALA	2.0
1	A	349	THR	2.0
1	A	219	ILE	2.0
1	A	23	LEU	2.0
2	D	361	LEU	2.0
3	E	19	VAL	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.

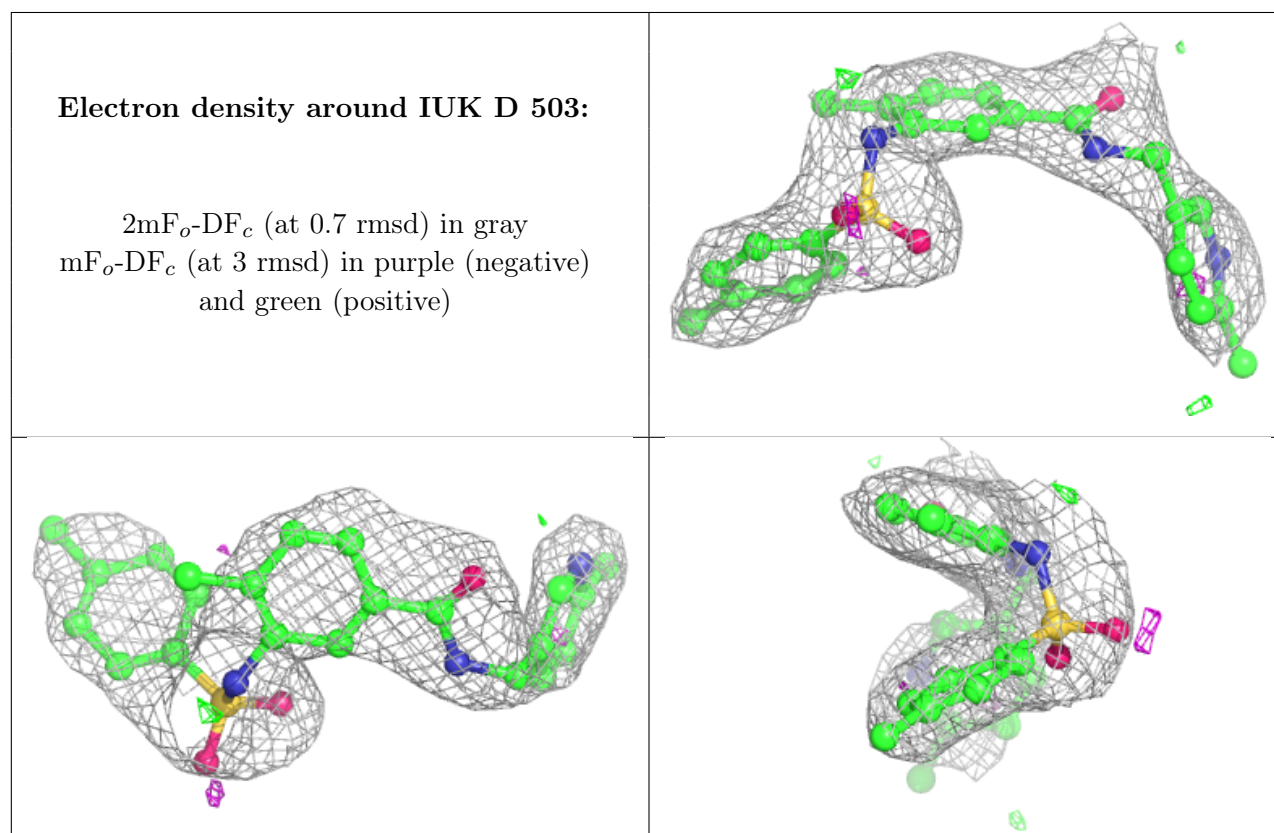
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
5	MG	A	503	1/1	0.84	0.17	106,106,106,106	0
5	MG	C	504	1/1	0.84	0.20	93,93,93,93	0
5	MG	D	502	1/1	0.84	0.28	82,82,82,82	0
5	MG	C	501	1/1	0.86	0.31	73,73,73,73	0
8	IUK	D	503	29/29	0.90	0.36	77,85,90,94	0
8	IUK	B	503	29/29	0.94	0.32	76,81,87,88	0
5	MG	C	503	1/1	0.94	0.16	70,70,70,70	0
4	GTP	D	501	32/32	0.95	0.17	58,79,84,85	0
7	MES	B	502	12/12	0.95	0.23	74,79,88,97	0

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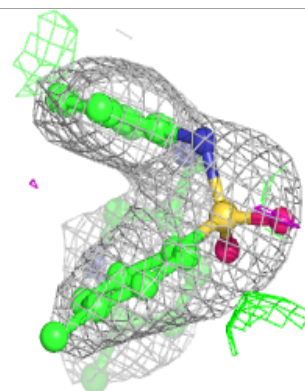
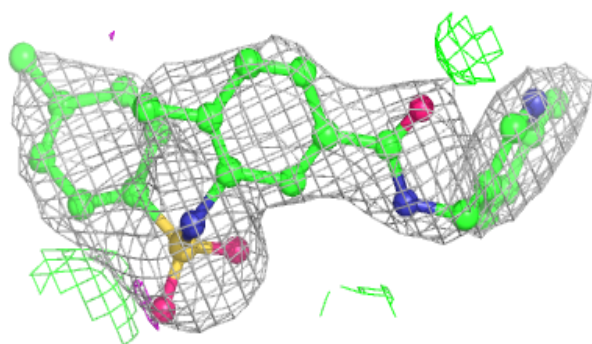
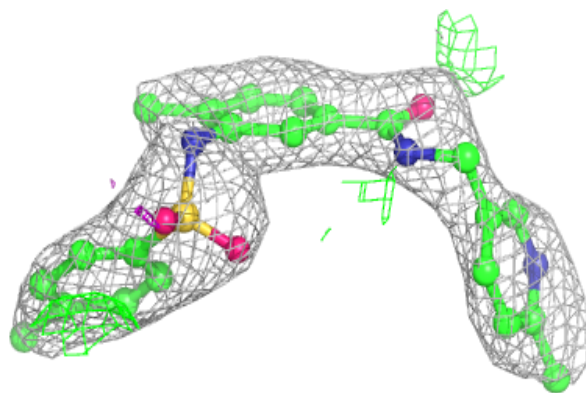
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
6	GDP	B	501	28/28	0.96	0.18	63,71,76,78	0
4	GTP	C	502	32/32	0.96	0.22	67,80,87,92	0
5	MG	A	502	1/1	0.97	0.26	85,85,85,85	0
4	GTP	A	501	32/32	0.97	0.21	71,84,88,90	0

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.

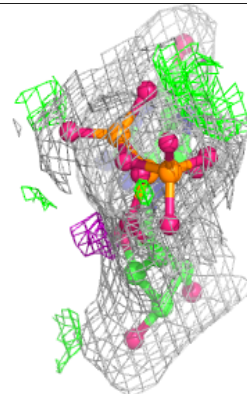
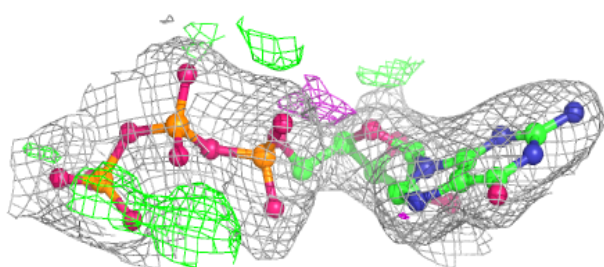
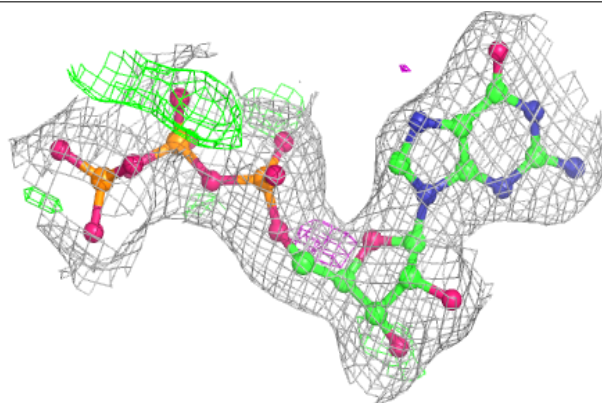


Electron density around IUK B 503:

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

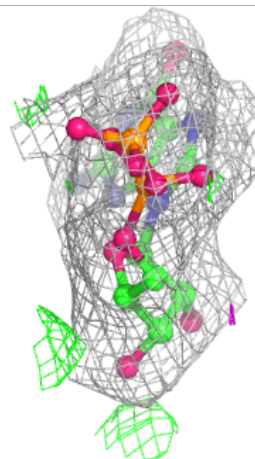
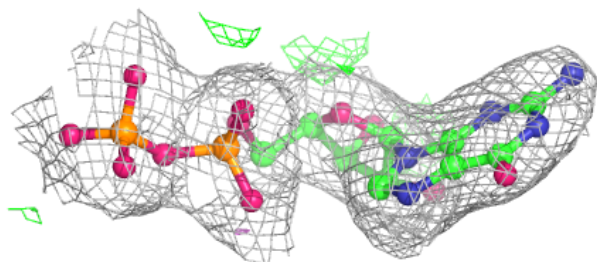
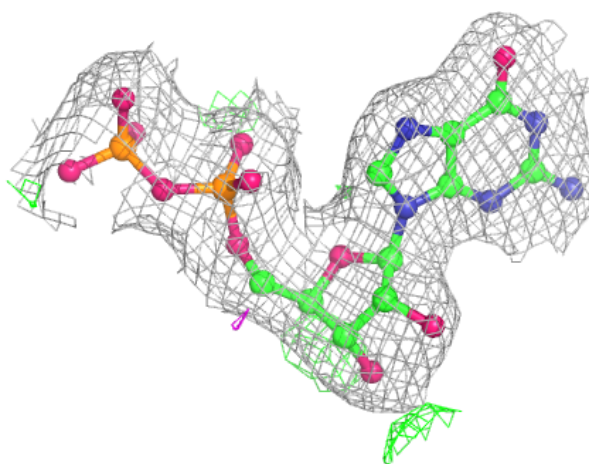
**Electron density around GTP D 501:**

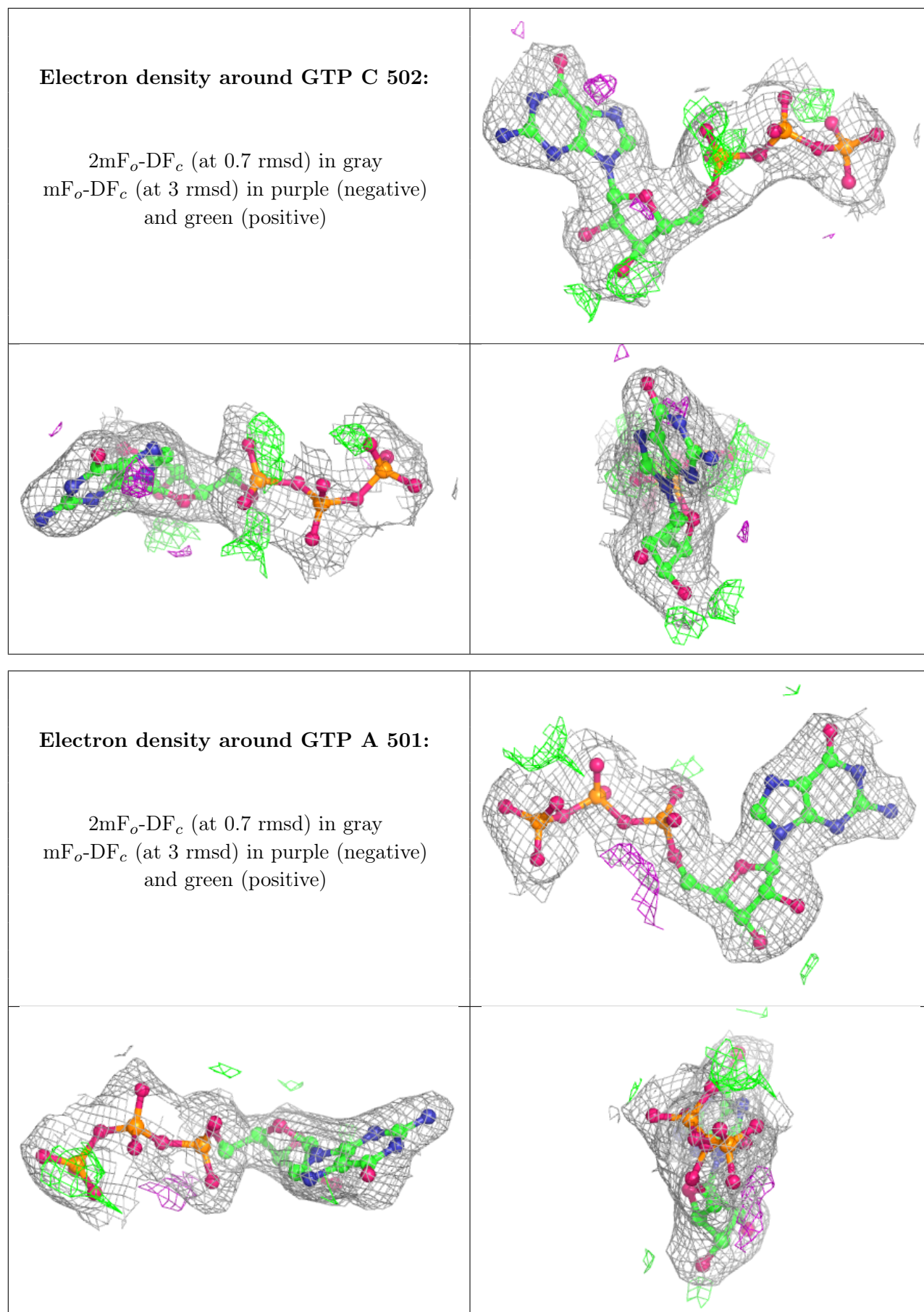
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



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.