Full wwPDB X-ray Structure Validation Report (i)

Jan 7, 2024 – 11:12 pm GMT

PDB ID	:	6GWC
Title	:	Tubulin:iE5 alphaRep complex
Authors	:	Gigant, B.; Campanacci, V.
Deposited on	:	2018-06-22
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 (i) 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 (i)) were used in the production of this report:

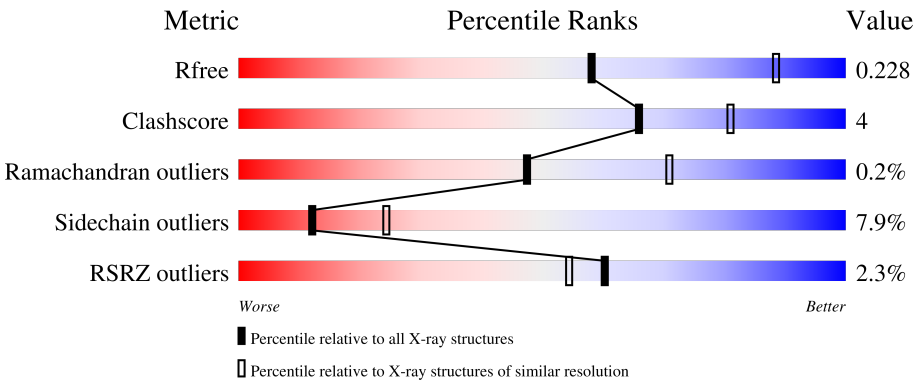
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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 <=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	.% 81% 13% • •
2	B	445	4% 79% 13% • 6%
3	C	232	.% 79% 14% 6%

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 8542 atoms, of which 64 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 ALPHA-TUBULIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	431	3367	2133	572	640	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	417	3228	2032	541	628	27	0	0	0

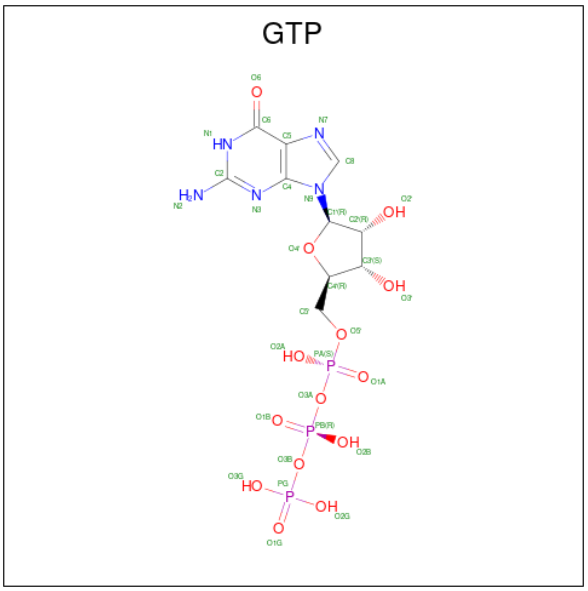
There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	203	CYS	SER	conflict	UNP D0VWY9
B	318	ILE	VAL	conflict	UNP D0VWY9

- Molecule 3 is a protein called iE5 ALPHAREP.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	217	1607	993	291	321	2	0	0	0

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

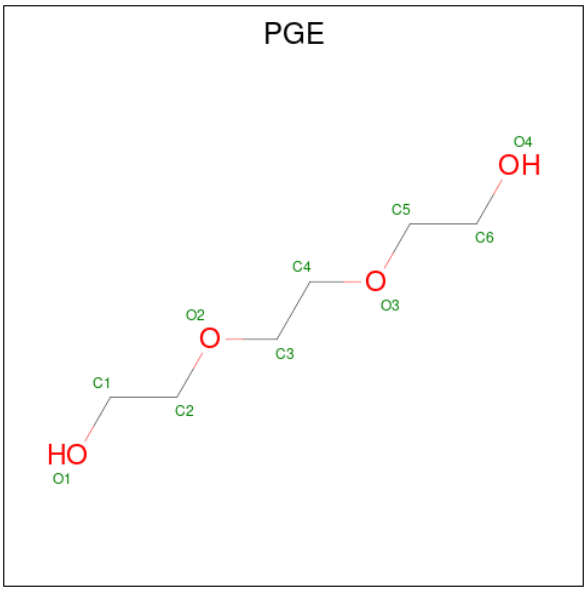


Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
			Total	C	H	N	O	P		
4	A	1	44	10	12	5	14	3	0	0
			Total	C	H	N	O	P		
4	B	1	44	10	12	5	14	3	0	0

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

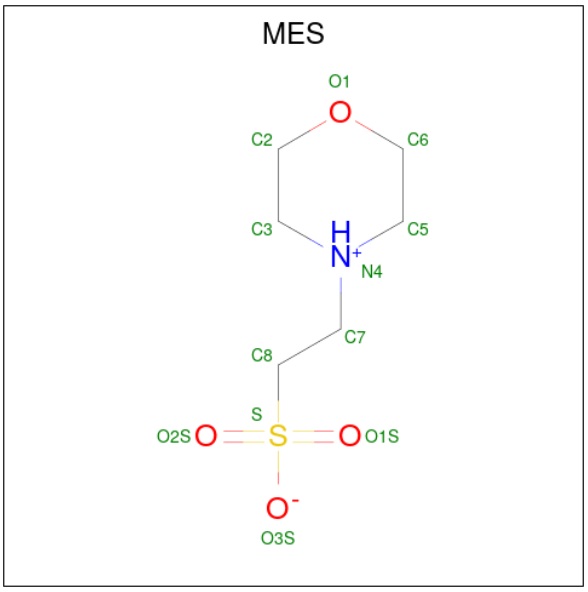
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Mg		
5	A	1	1	1	0	0
			Total	Mg		
5	B	1	1	1	0	0

- Molecule 6 is TRIETHYLENE GLYCOL (three-letter code: PGE) (formula: $C_6H_{14}O_4$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	H	O		
6	A	1	24	6	14	4	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	H	N	O	S		
7	B	1	25	6	13	1	4	1	0	0
			Total	C	H	N	O	S		
7	B	1	25	6	13	1	4	1	0	0

- Molecule 8 is water.

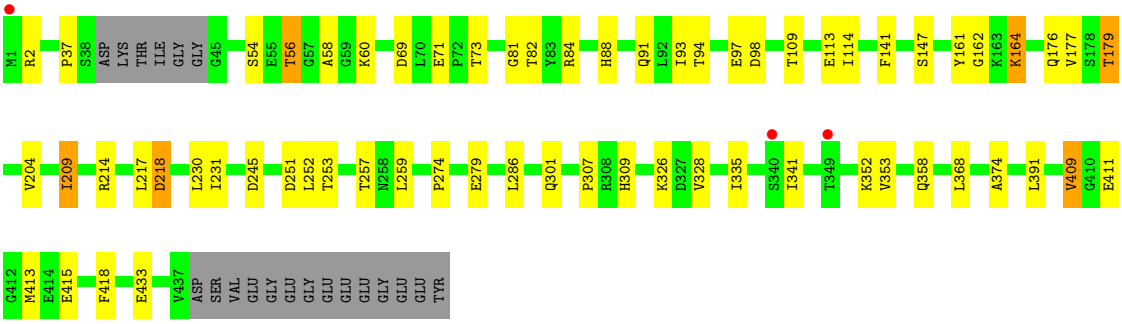
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	116	Total O 116 116	0	0
8	B	31	Total O 31 31	0	0
8	C	29	Total O 29 29	0	0

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.

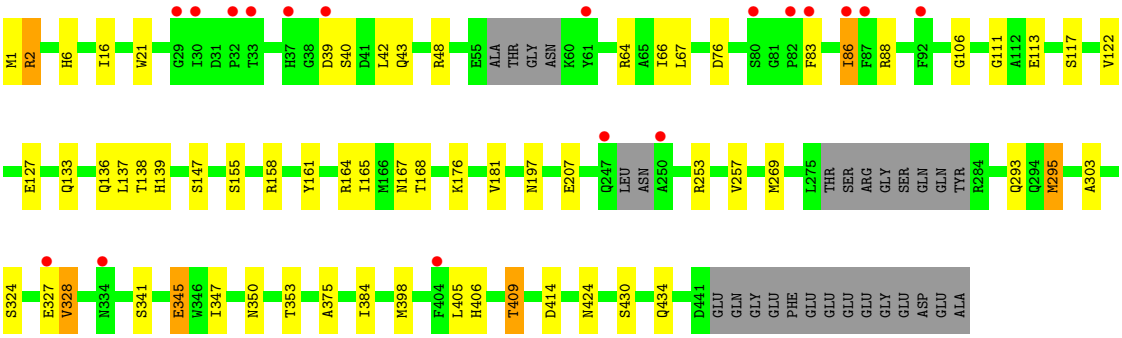
- Molecule 1: ALPHA-TUBULIN

Chain A:



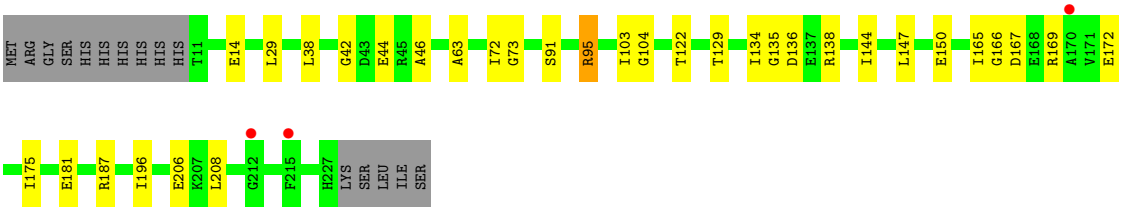
- Molecule 2: Tubulin beta chain

Chain B:



- Molecule 3: iE5 ALPHAREP

Chain C:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α, β, γ	102.35Å 102.35Å 216.21Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	46.25 – 2.60 46.25 – 2.60	Depositor EDS
% Data completeness (in resolution range)	100.0 (46.25-2.60) 99.9 (46.25-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.30 (at 2.61Å)	Xtriage
Refinement program	BUSTER 2.10.3	Depositor
R, R_{free}	0.173 , 0.223 0.183 , 0.228	Depositor DCC
R_{free} test set	2062 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	62.1	Xtriage
Anisotropy	0.061	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 54.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.035 for -h,-k,l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	8542	wwPDB-VP
Average B, all atoms (Å^2)	70.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.57% of the height of the origin peak. No significant pseudotranslation is detected.*

[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: GTP, MG, MES, PGE

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	0.54	0/3444	0.74	0/4678
2	B	0.49	0/3299	0.68	0/4477
3	C	0.53	0/1619	0.72	0/2188
All	All	0.52	0/8362	0.72	0/11343

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	3367	0	3264	28	0
2	B	3228	0	3048	28	0
3	C	1607	0	1617	11	0
4	A	32	12	12	0	0
4	B	32	12	12	0	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
6	A	10	14	14	0	0
7	B	24	26	26	0	0
8	A	116	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	B	31	0	0	0	0
8	C	29	0	0	0	0
All	All	8478	64	7993	65	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 4.

All (65) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:83:PHE:HD1	2:B:86:ILE:HD11	1.39	0.86
1:A:204:VAL:HG13	1:A:209:ILE:HD11	1.64	0.79
2:B:83:PHE:CD1	2:B:86:ILE:HD11	2.29	0.66
2:B:66:ILE:HD13	2:B:122:VAL:HG12	1.78	0.65
1:A:141:PHE:O	1:A:147:SER:HB3	1.98	0.63
1:A:81:GLY:O	1:A:84:ARG:HG2	1.99	0.62
1:A:71:GLU:OE1	1:A:73:THR:HB	1.99	0.62
3:C:167:ASP:OD2	3:C:169:ARG:HG3	2.00	0.62
1:A:328:VAL:HG11	1:A:353:VAL:HG11	1.82	0.62
3:C:42:GLY:HA2	3:C:72:ILE:HG12	1.83	0.61
1:A:71:GLU:HB2	1:A:98:ASP:HB3	1.82	0.60
2:B:161:TYR:HB3	2:B:164:ARG:HG3	1.83	0.60
2:B:158:ARG:HH11	2:B:197:ASN:HD22	1.49	0.60
2:B:295:MET:CE	2:B:375:ALA:HB1	2.31	0.59
2:B:406:HIS:HA	2:B:409:THR:HG22	1.84	0.59
1:A:109:THR:HG21	1:A:411:GLU:OE2	2.03	0.59
1:A:301:GLN:NE2	1:A:307:PRO:HG2	2.18	0.58
1:A:56:THR:HG22	1:A:60:LYS:H	1.68	0.58
1:A:161:TYR:HB3	1:A:164:LYS:HD2	1.87	0.57
1:A:204:VAL:HG13	1:A:209:ILE:CD1	2.35	0.57
2:B:347:ILE:HG22	2:B:350:ASN:HB3	1.86	0.55
3:C:73:GLY:HA2	3:C:103:ILE:HG12	1.90	0.53
2:B:40:SER:HB2	2:B:43:GLN:HG3	1.91	0.53
3:C:63:ALA:O	3:C:95:ARG:HG2	2.09	0.52
2:B:269:MET:HG3	2:B:303:ALA:HB3	1.93	0.51
3:C:104:GLY:HA2	3:C:134:ILE:HG12	1.92	0.51
1:A:217:LEU:HD21	1:A:368:LEU:HD23	1.92	0.51
2:B:324:SER:HB3	2:B:327:GLU:HB2	1.91	0.51
1:A:176:GLN:HG2	1:A:179:THR:HB	1.93	0.51
2:B:6:HIS:CD2	2:B:21:TRP:HE1	2.29	0.50
2:B:136:GLN:HA	2:B:167:ASN:O	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:135:GLY:HA2	3:C:165:ILE:HG12	1.93	0.50
2:B:295:MET:HE3	2:B:375:ALA:HB1	1.93	0.49
2:B:295:MET:HE2	2:B:375:ALA:HB1	1.92	0.49
1:A:56:THR:HG23	1:A:58:ALA:H	1.76	0.49
2:B:253:ARG:O	2:B:257:VAL:HG23	2.12	0.49
1:A:204:VAL:CG1	1:A:209:ILE:HD11	2.38	0.49
1:A:209:ILE:HG22	1:A:230:LEU:HD23	1.95	0.49
1:A:93:ILE:HG22	1:A:114:ILE:HD11	1.96	0.48
1:A:257:THR:OG1	3:C:91:SER:HB2	2.14	0.48
2:B:2:ARG:HH12	2:B:48:ARG:HD2	1.79	0.47
2:B:16:ILE:HD11	2:B:138:THR:HB	1.97	0.47
1:A:214:ARG:O	1:A:218:ASP:HA	2.15	0.47
2:B:106:GLY:O	2:B:111:GLY:HA3	2.15	0.46
2:B:165:ILE:HD11	2:B:253:ARG:HG3	1.98	0.46
3:C:38:LEU:HD22	3:C:46:ALA:HB2	1.96	0.46
1:A:204:VAL:HG11	1:A:231:ILE:HG12	1.98	0.46
1:A:274:PRO:HD3	1:A:374:ALA:HA	1.97	0.45
2:B:176:LYS:HD2	2:B:207:GLU:HG3	1.98	0.45
1:A:301:GLN:HE22	1:A:307:PRO:HG2	1.82	0.45
3:C:166:GLY:HA2	3:C:196:ILE:HG12	1.99	0.44
1:A:97:GLU:HG2	2:B:1:MET:HG2	1.99	0.44
1:A:415:GLU:O	1:A:418:PHE:HB2	2.17	0.44
1:A:69:ASP:O	1:A:94:THR:HA	2.18	0.44
3:C:136:ASP:OD2	3:C:138:ARG:HD3	2.17	0.43
1:A:209:ILE:N	1:A:209:ILE:HD13	2.34	0.43
2:B:324:SER:O	2:B:328:VAL:HG12	2.19	0.43
2:B:345:GLU:H	2:B:345:GLU:HG3	1.55	0.42
2:B:1:MET:SD	2:B:133:GLN:HA	2.60	0.42
1:A:88:HIS:HB2	1:A:91:GLN:OE1	2.20	0.41
2:B:137:LEU:HB3	2:B:168:THR:HG22	2.02	0.41
2:B:83:PHE:O	2:B:86:ILE:HG13	2.21	0.41
2:B:161:TYR:HB3	2:B:164:ARG:CG	2.48	0.41
3:C:144:ILE:O	3:C:147:LEU:HB2	2.21	0.41
1:A:409:VAL:HA	1:A:413:MET:O	2.21	0.41

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	427/451 (95%)	411 (96%)	14 (3%)	2 (0%)	29	52
2	B	409/445 (92%)	398 (97%)	11 (3%)	0	100	100
3	C	215/232 (93%)	213 (99%)	2 (1%)	0	100	100
All	All	1051/1128 (93%)	1022 (97%)	27 (3%)	2 (0%)	47	71

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	162	GLY
1	A	37	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	361/379 (95%)	335 (93%)	26 (7%)	14	29
2	B	348/383 (91%)	319 (92%)	29 (8%)	11	22
3	C	154/176 (88%)	141 (92%)	13 (8%)	11	21
All	All	863/938 (92%)	795 (92%)	68 (8%)	12	24

All (68) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	ARG

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Mol	Chain	Res	Type
1	A	54	SER
1	A	56	THR
1	A	82	THR
1	A	113	GLU
1	A	164	LYS
1	A	177	VAL
1	A	179	THR
1	A	209	ILE
1	A	218	ASP
1	A	245	ASP
1	A	251	ASP
1	A	252	LEU
1	A	253	THR
1	A	259	LEU
1	A	279	GLU
1	A	286	LEU
1	A	309	HIS
1	A	326	LYS
1	A	335	ILE
1	A	341	ILE
1	A	352	LYS
1	A	358	GLN
1	A	391	LEU
1	A	409	VAL
1	A	433	GLU
2	B	2	ARG
2	B	39	ASP
2	B	42	LEU
2	B	64	ARG
2	B	67	LEU
2	B	76	ASP
2	B	86	ILE
2	B	88	ARG
2	B	113	GLU
2	B	117	SER
2	B	127	GLU
2	B	139	HIS
2	B	147	SER
2	B	155	SER
2	B	181	VAL
2	B	293	GLN
2	B	295	MET

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Mol	Chain	Res	Type
2	B	328	VAL
2	B	341	SER
2	B	345	GLU
2	B	353	THR
2	B	384	ILE
2	B	398	MET
2	B	405	LEU
2	B	409	THR
2	B	414	ASP
2	B	424	ASN
2	B	430	SER
2	B	434	GLN
3	C	14	GLU
3	C	29	LEU
3	C	44	GLU
3	C	95	ARG
3	C	122	THR
3	C	129	THR
3	C	150	GLU
3	C	172	GLU
3	C	175	ILE
3	C	181	GLU
3	C	187	ARG
3	C	206	GLU
3	C	208	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	101	ASN
1	A	249	ASN
1	A	301	GLN
2	B	197	ASN
2	B	406	HIS
2	B	433	GLN
2	B	436	GLN

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 7 ligands modelled in this entry, 2 are monoatomic - leaving 5 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	$\#\|Z\| > 2$
7	MES	B	602	-	12,12,12	0.68	0	14,16,16	0.35	0
4	GTP	A	600	5	26,34,34	0.70	1 (3%)	32,54,54	0.72	0
4	GTP	B	600	5	26,34,34	0.65	0	32,54,54	0.70	0
6	PGE	A	602	-	9,9,9	0.11	0	8,8,8	0.16	0
7	MES	B	603	-	12,12,12	0.64	0	14,16,16	0.36	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
7	MES	B	602	-	-	2/6/14/14	0/1/1/1
4	GTP	A	600	5	-	5/18/38/38	0/3/3/3
4	GTP	B	600	5	-	4/18/38/38	0/3/3/3
6	PGE	A	602	-	-	3/7/7/7	-
7	MES	B	603	-	-	0/6/14/14	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	600	GTP	C8-N7	-2.03	1.31	1.35

There are no bond angle outliers.

There are no chirality outliers.

All (14) torsion outliers are listed below:

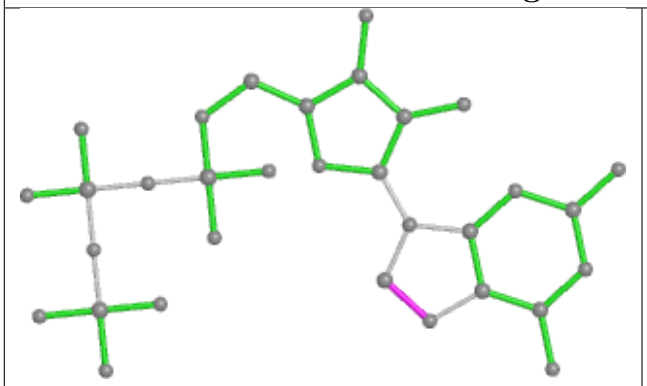
Mol	Chain	Res	Type	Atoms
4	A	600	GTP	PB-O3B-PG-O3G
4	A	600	GTP	C5'-O5'-PA-O1A
4	A	600	GTP	C5'-O5'-PA-O2A
4	B	600	GTP	C5'-O5'-PA-O1A
4	B	600	GTP	C5'-O5'-PA-O2A
6	A	602	PGE	O1-C1-C2-O2
6	A	602	PGE	O2-C3-C4-O3
4	A	600	GTP	PB-O3B-PG-O1G
7	B	602	MES	C8-C7-N4-C3
7	B	602	MES	C8-C7-N4-C5
4	B	600	GTP	PB-O3B-PG-O1G
4	A	600	GTP	C5'-O5'-PA-O3A
4	B	600	GTP	C5'-O5'-PA-O3A
6	A	602	PGE	O3-C5-C6-O4

There are no ring outliers.

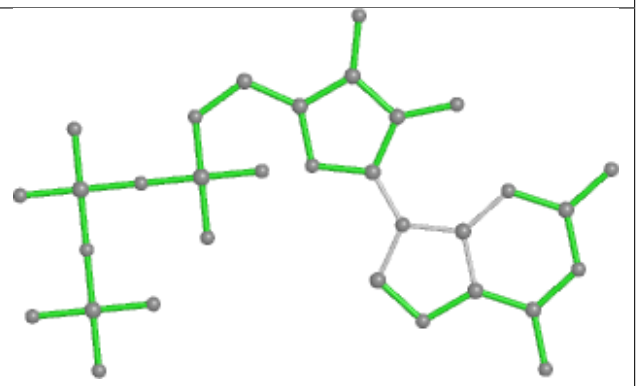
No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

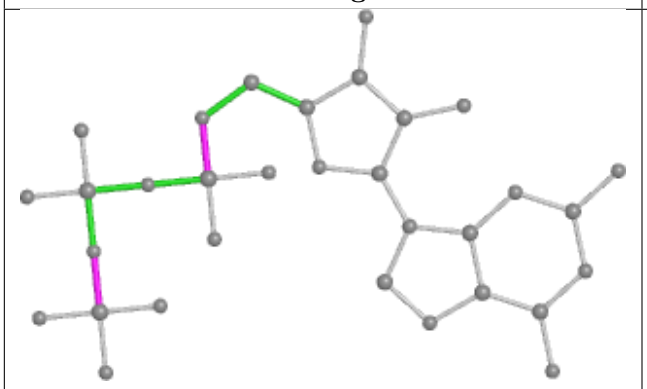
Ligand GTP A 600



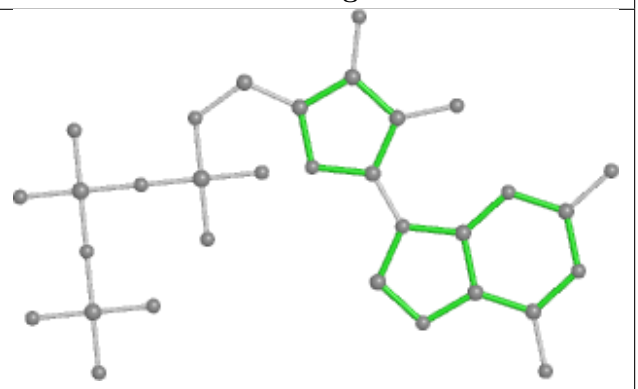
Bond lengths



Bond angles

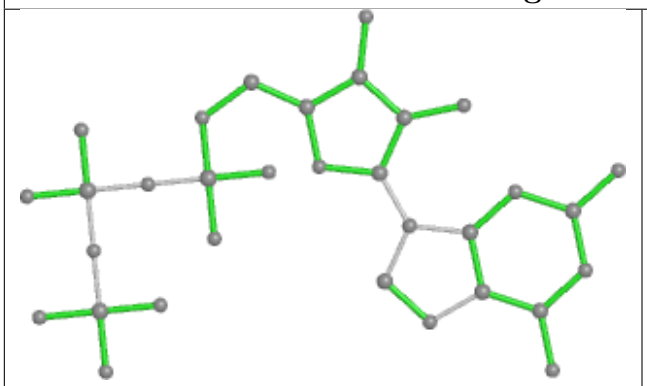


Torsions

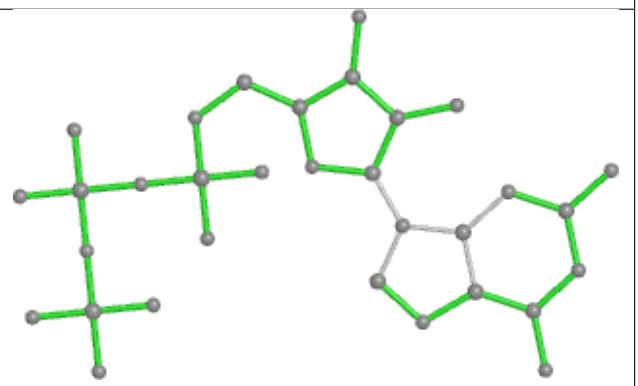


Rings

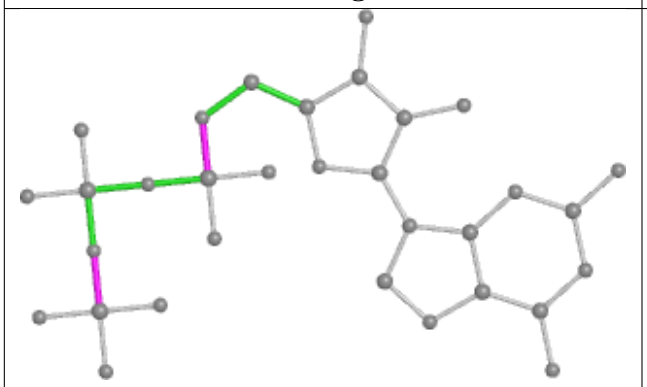
Ligand GTP B 600



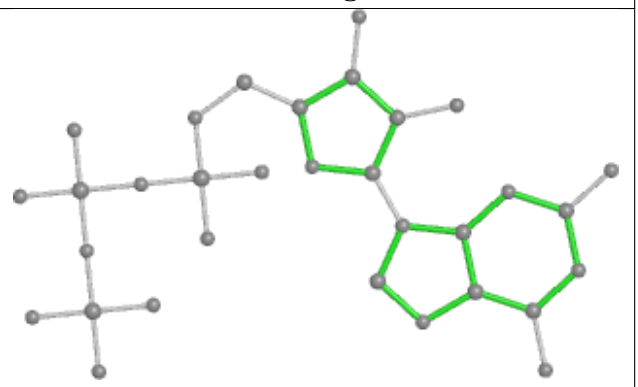
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data (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	431/451 (95%)	-0.32	3 (0%)	87	86	38, 56, 86, 109	1 (0%)
2	B	417/445 (93%)	-0.03	18 (4%)	35	28	48, 79, 112, 130	0
3	C	217/232 (93%)	-0.19	3 (1%)	75	71	50, 68, 101, 121	0
All	All	1065/1128 (94%)	-0.18	24 (2%)	60	54	38, 66, 104, 130	1 (0%)

All (24) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	33	THR	4.2
2	B	82	PRO	3.6
1	A	340	SER	3.5
2	B	247	GLN	3.5
2	B	61	TYR	3.4
2	B	250	ALA	2.9
2	B	334	ASN	2.7
2	B	404	PHE	2.6
2	B	29	GLY	2.6
2	B	83	PHE	2.5
2	B	37	HIS	2.4
2	B	87	PHE	2.4
3	C	170	ALA	2.3
1	A	349	THR	2.3
3	C	215	PHE	2.3
2	B	39	ASP	2.2
2	B	80	SER	2.2
3	C	212	GLY	2.1
2	B	86	ILE	2.1
2	B	327	GLU	2.1
2	B	92	PHE	2.1
1	A	1	MET	2.1
2	B	30	ILE	2.1

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Mol	Chain	Res	Type	RSRZ
2	B	32	PRO	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)

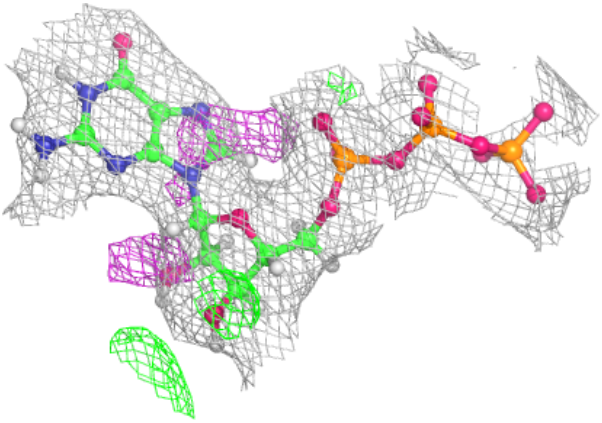
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

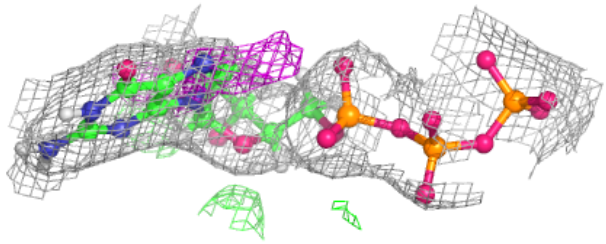
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	PGE	A	602	10/10	0.80	0.25	105,112,120,122	0
5	MG	A	601	1/1	0.92	0.20	44,44,44,44	0
7	MES	B	603	12/12	0.92	0.25	132,138,144,149	0
5	MG	B	601	1/1	0.96	0.12	86,86,86,86	0
7	MES	B	602	12/12	0.97	0.19	86,94,98,100	0
4	GTP	B	600	32/32	0.97	0.12	48,58,84,88	0
4	GTP	A	600	32/32	0.98	0.17	39,43,48,50	0

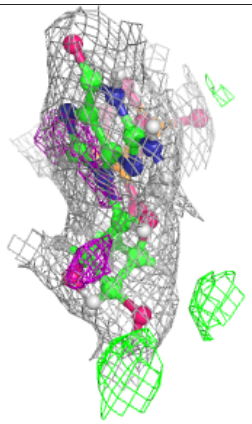
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

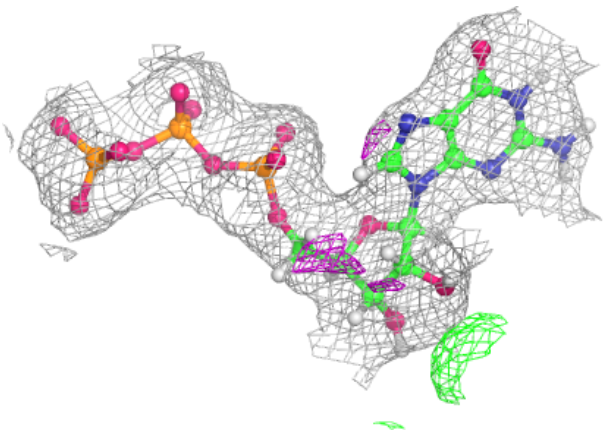
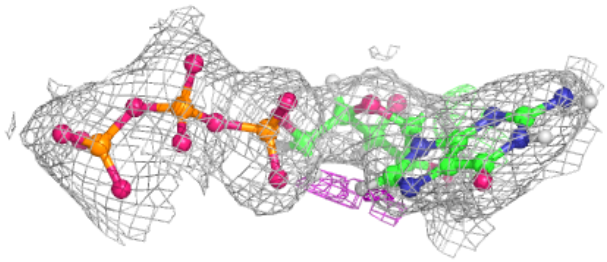
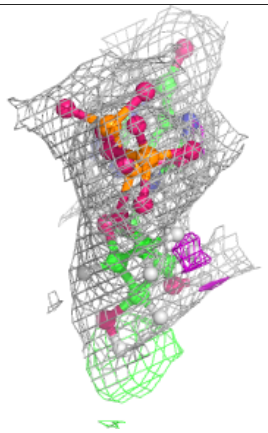
Electron density around GTP B 600:

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







Electron density around GTP A 600: $2mF_o$-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.