wwPDB X-ray Structure Validation Summary Report (i)

Dec 10, 2023 – 12:43 am GMT

PDB ID	:	8CLF
Title	:	Z-SolQ2Br bound to tubulin (T2R-TTL) complex
Authors	:	Wranik, M.; Bertrand, Q.; Kepa, M.; Weinert, T.; Steinmetz, M.; Standfuss, J.
Deposited on	:	2023-02-16
Resolution	:	2.70 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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:

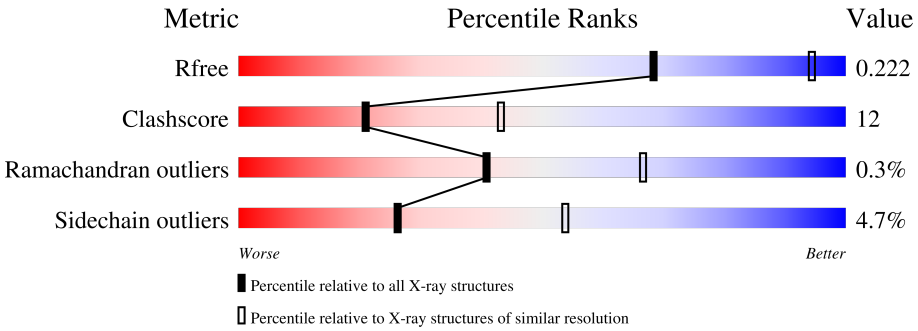
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
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 2.70 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	2808 (2.70-2.70)
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)

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%

Mol	Chain	Length	Quality of chain
1	A	440	72% 26% .
1	C	440	82% 18%
2	B	431	70% 27% . .
2	D	431	68% 29% .
3	E	121	78% 21% .
4	F	320	69% 29% .

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
9	V1O	B	503	-	-	X	-

2 Entry composition (i)

There are 11 unique types of molecules in this entry. The entry contains 34805 atoms, of which 17172 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
1	A	439	Total	C	H	N	O	S	0	10	0
			6888	2204	3414	585	661	24			
1	C	440	Total	C	H	N	O	S	0	10	0
			6884	2203	3405	586	666	24			

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

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
2	B	428	Total	C	H	N	O	S	2	11	0
			6733	2148	3317	581	660	27			
2	D	431	Total	C	H	N	O	S	0	4	0
			6705	2140	3299	580	658	28			

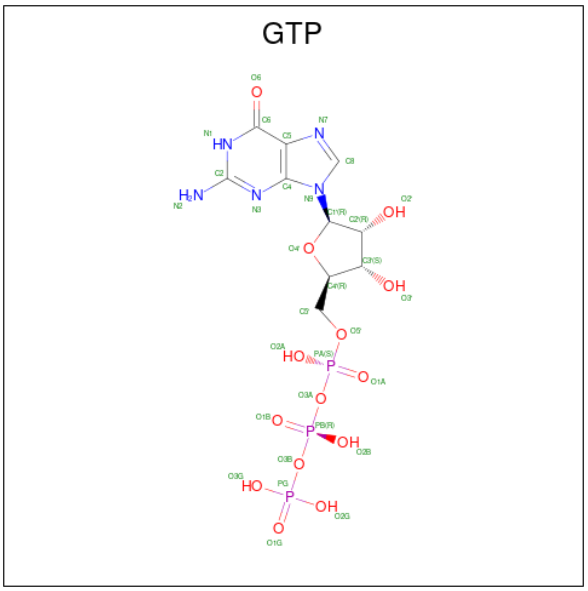
- Molecule 3 is a protein called Stathmin-4.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
3	E	121	Total	C	H	N	O	S	0	2	0
			2046	625	1035	182	198	6			

- Molecule 4 is a protein called Tubulin-Tyrosine Ligase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
4	F	320	Total	C	H	N	O	S	0	4	0
			5269	1707	2633	437	478	14			

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



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

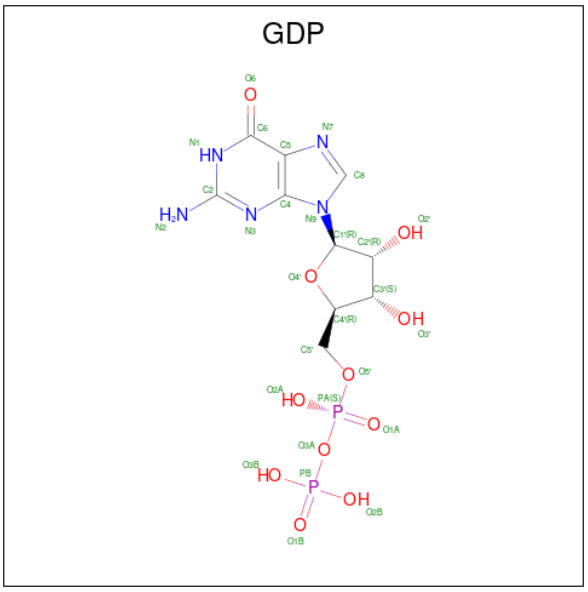
- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Mg 1 1	0	0
6	B	1	Total Mg 1 1	0	0
6	C	1	Total Mg 1 1	0	0
6	D	1	Total Mg 1 1	0	0

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

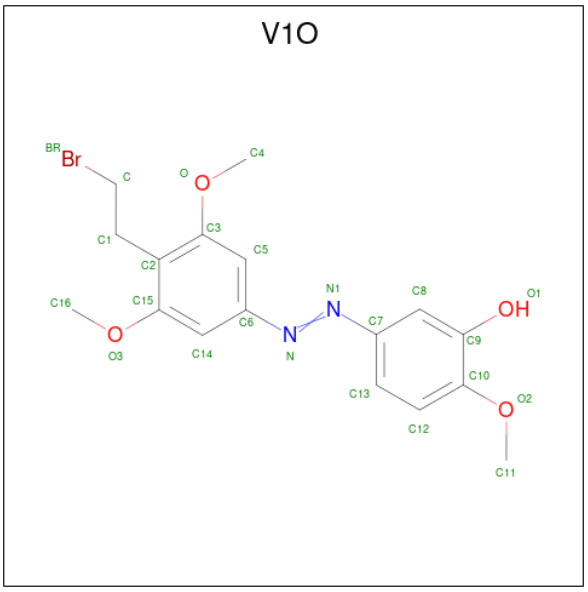
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total Ca 1 1	0	0
7	C	1	Total Ca 1 1	0	0

- Molecule 8 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$).



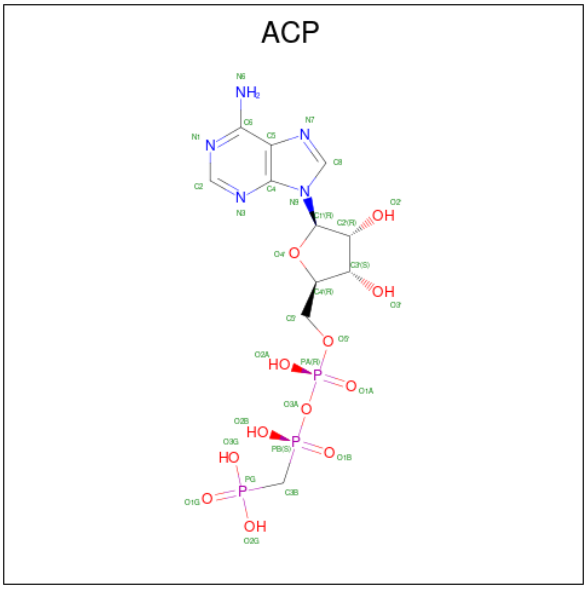
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
8	B	1	Total	C	H	N	O	P	0	0
			40	10	12	5	11	2		
8	D	1	Total	C	H	N	O	P	0	0
			40	10	12	5	11	2		

- Molecule 9 is 5-[[4-(2-bromoethyl)-3,5-dimethoxy-phenyl]diazenyl]-2-methoxy-phenol (three-letter code: V1O) (formula: $C_{17}H_{19}BrN_2O_4$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
9	B	1	Total	Br	C	H	N	O	0	0
			31	1	17	7	2	4		

- Molecule 10 is PHOSPHOMETHYLPHOSPHONIC ACID ADENYLATE ESTER (three-letter code: ACP) (formula: $C_{11}H_{18}N_5O_{12}P_3$).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
10	F	1	Total	C	H	N	O	P	0	0
			45	11	14	5	12	3		

- Molecule 11 is water.

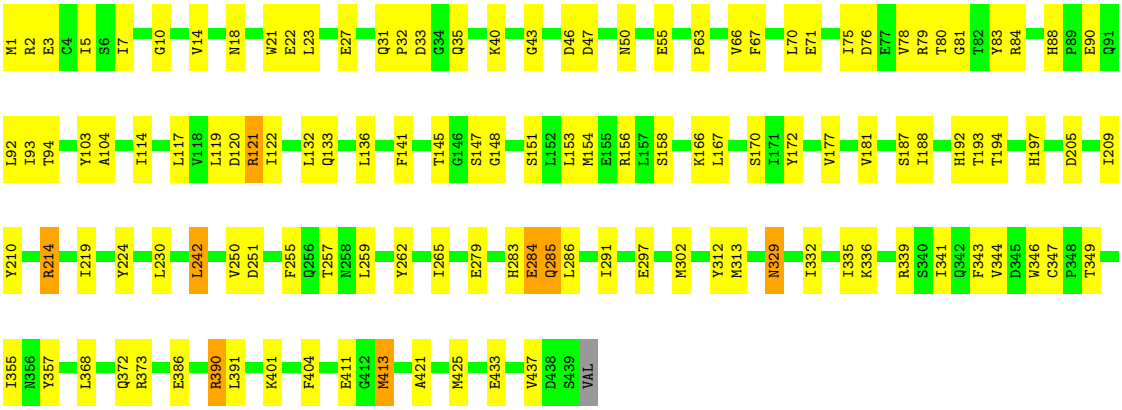
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	A	4	Total	O	0	0
			4	4		
11	B	6	Total	O	0	0
			6	6		
11	C	18	Total	O	0	0
			18	18		
11	D	1	Total	O	0	0
			1	1		
11	F	1	Total	O	0	0
			1	1		

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. 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. 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.

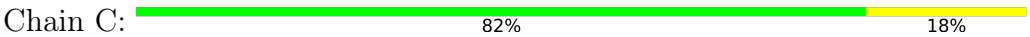
• Molecule 1: Tubulin alpha-1B chain

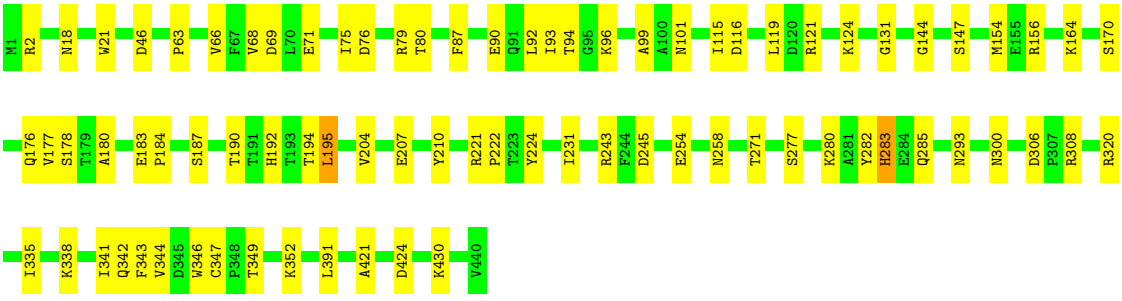
Chain A:



• Molecule 1: Tubulin alpha-1B chain

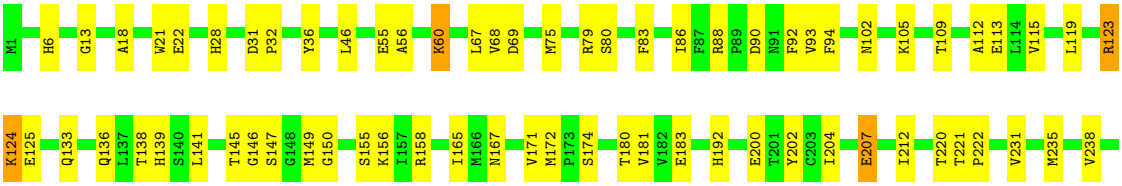
Chain C:

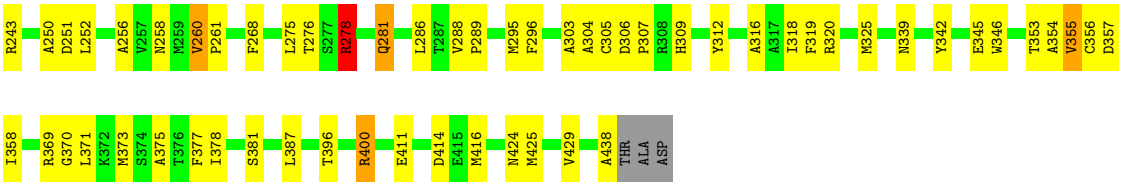




• Molecule 2: Tubulin beta-2B chain

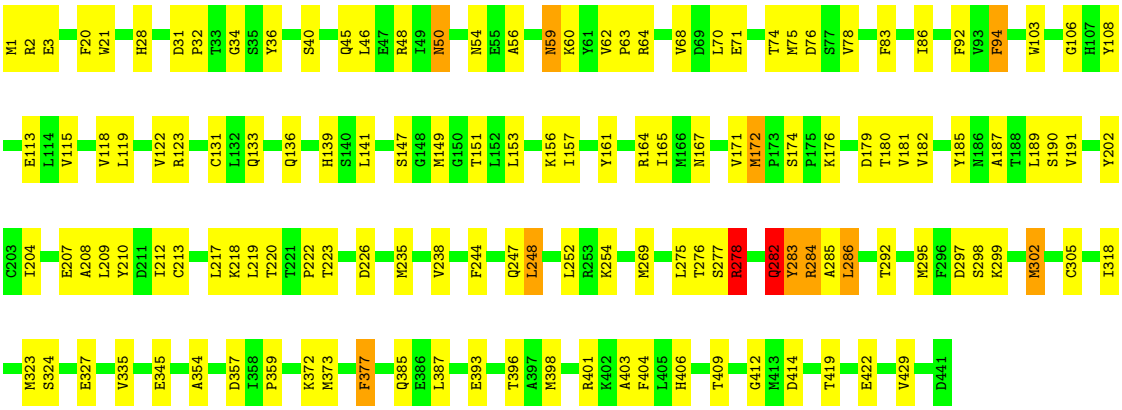
Chain B:





• Molecule 2: Tubulin beta-2B chain

Chain D:

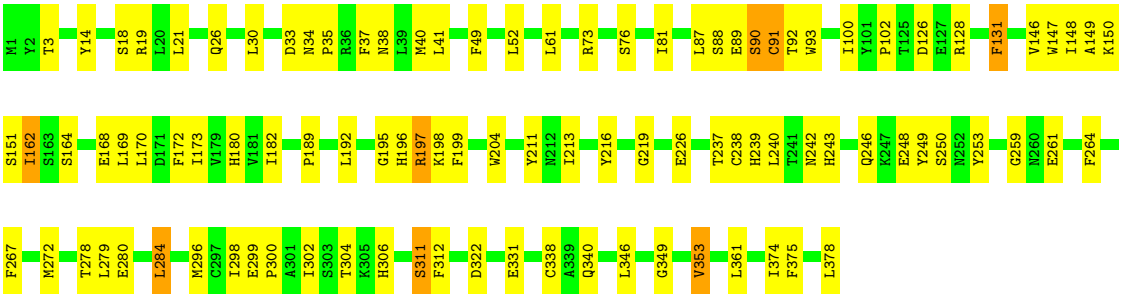


• Molecule 3: Stathmin-4

Chain E:

• Molecule 4: Tubulin-Tyrosine Ligase

Chain F:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	106.65Å 160.33Å 180.95Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	15.35 – 2.70 15.37 – 2.03	Depositor EDS
% Data completeness (in resolution range)	99.9 (15.35-2.70) 56.8 (15.37-2.03)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1764.17 (at 2.03Å)	Xtriage
Refinement program	PHENIX 1.20_4487	Depositor
R, R_{free}	0.168 , 0.217 0.181 , 0.222	Depositor DCC
R_{free} test set	1974 reflections (1.74%)	wwPDB-VP
Wilson B-factor (Å^2)	-9.9	Xtriage
Anisotropy	-0.596	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.39 , 71.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.65	EDS
Total number of atoms	34805	wwPDB-VP
Average B, all atoms (Å^2)	85.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.49% of the height of the origin peak. No significant pseudotranslation is detected.*

[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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CA, GDP, MG, V1O, ACP, GTP

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	0.29	0/3582	0.49	0/4864
1	C	0.33	0/3593	0.51	0/4878
2	B	0.36	0/3527	0.55	0/4776
2	D	0.33	0/3493	0.53	0/4733
3	E	0.25	0/1025	0.44	0/1359
4	F	0.34	0/2705	0.54	0/3653
All	All	0.32	0/17925	0.52	0/24263

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	C	0	2
2	B	0	2
2	D	0	1
All	All	0	7

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 7 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	121	ARG	Sidechain
1	A	214	ARG	Sidechain
2	B	123	ARG	Sidechain

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Mol	Chain	Res	Type	Group
2	B	278	ARG	Sidechain
1	C	243	ARG	Sidechain

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	3474	3414	3412	96	0
1	C	3479	3405	3392	47	0
2	B	3416	3317	3309	95	0
2	D	3406	3299	3298	106	0
3	E	1011	1035	1035	26	0
4	F	2636	2633	2632	68	0
5	A	32	12	12	1	0
5	C	32	12	12	1	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0
6	C	1	0	0	0	0
6	D	1	0	0	0	0
7	A	1	0	0	0	0
7	C	1	0	0	0	0
8	B	28	12	12	0	0
8	D	28	12	12	1	0
9	B	24	7	0	9	0
10	F	31	14	14	2	0
11	A	4	0	0	0	0
11	B	6	0	0	0	0
11	C	18	0	0	0	0
11	D	1	0	0	1	0
11	F	1	0	0	0	0
All	All	17633	17172	17140	423	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 12.

The worst 5 of 423 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:13:GLY:HA2	2:B:138[B]:THR:HG22	1.47	0.93
2:D:181:VAL:O	2:D:398:MET:HE1	1.84	0.78
2:B:256:ALA:O	2:B:260:VAL:HG13	1.85	0.76
4:F:248:GLU:HG2	4:F:249:TYR:CD1	2.19	0.76
2:D:292:THR:HG22	2:D:335:VAL:HG21	1.68	0.75

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	447/440 (102%)	439 (98%)	8 (2%)	0	100	100
1	C	448/440 (102%)	433 (97%)	14 (3%)	1 (0%)	47	73
2	B	437/431 (101%)	421 (96%)	13 (3%)	3 (1%)	22	46
2	D	433/431 (100%)	403 (93%)	28 (6%)	2 (0%)	29	54
3	E	119/121 (98%)	117 (98%)	2 (2%)	0	100	100
4	F	309/320 (97%)	294 (95%)	14 (4%)	1 (0%)	41	66
All	All	2193/2183 (100%)	2107 (96%)	79 (4%)	7 (0%)	41	66

5 of 7 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	283	HIS
2	D	276	THR
2	B	278	ARG
2	B	281	GLN
2	B	304	ALA

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	380/371 (102%)	365 (96%)	15 (4%)	32	61
1	C	381/371 (103%)	368 (97%)	13 (3%)	37	66
2	B	380/372 (102%)	360 (95%)	20 (5%)	22	48
2	D	376/372 (101%)	354 (94%)	22 (6%)	19	43
3	E	111/109 (102%)	109 (98%)	2 (2%)	59	83
4	F	293/289 (101%)	275 (94%)	18 (6%)	18	41
All	All	1921/1884 (102%)	1831 (95%)	90 (5%)	26	54

5 of 90 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	247	GLN
3	E	103	GLN
2	D	278	ARG
2	D	302	MET
4	F	90	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 10 such sidechains are listed below:

Mol	Chain	Res	Type
2	D	281	GLN
2	D	300	ASN
4	F	239	HIS
2	B	136	GLN
2	B	385	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 12 ligands modelled in this entry, 6 are monoatomic - leaving 6 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	GDP	D	501	6	24,30,30	0.99	3 (12%)	30,47,47	0.68	1 (3%)
9	V1O	B	503	-	25,25,25	0.35	0	33,33,33	1.94	2 (6%)
10	ACP	F	401	-	27,33,33	0.92	1 (3%)	32,52,52	0.85	2 (6%)
5	GTP	C	501	-	26,34,34	1.01	2 (7%)	32,54,54	0.69	1 (3%)
5	GTP	A	501	6	26,34,34	1.00	2 (7%)	32,54,54	0.69	1 (3%)
8	GDP	B	501	6	24,30,30	1.00	2 (8%)	30,47,47	0.66	1 (3%)

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	GDP	D	501	6	-	5/12/32/32	0/3/3/3
9	V1O	B	503	-	-	12/14/14/14	0/2/2/2
10	ACP	F	401	-	-	8/15/38/38	0/3/3/3
5	GTP	C	501	-	-	5/18/38/38	0/3/3/3
5	GTP	A	501	6	-	4/18/38/38	0/3/3/3
8	GDP	B	501	6	-	4/12/32/32	0/3/3/3

The worst 5 of 10 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	B	501	GDP	C5-C6	-2.73	1.41	1.47
8	D	501	GDP	C5-C6	-2.69	1.41	1.47
5	C	501	GTP	C5-C6	-2.69	1.42	1.47
5	A	501	GTP	C5-C6	-2.67	1.42	1.47
10	F	401	ACP	PB-O2B	-2.51	1.50	1.56

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	B	503	V1O	C1-C2-C15	-7.79	111.03	121.53
9	B	503	V1O	C1-C2-C3	7.02	130.99	121.53
10	F	401	ACP	O1G-PG-C3B	-2.33	106.22	111.24
10	F	401	ACP	C5-C6-N6	2.28	123.82	120.35
5	C	501	GTP	O6-C6-C5	2.07	128.41	124.37

There are no chirality outliers.

5 of 38 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	501	GTP	C5'-O5'-PA-O1A
5	C	501	GTP	C5'-O5'-PA-O1A
8	B	501	GDP	C5'-O5'-PA-O1A
8	D	501	GDP	C5'-O5'-PA-O1A
10	F	401	ACP	PG-C3B-PB-O1B

There are no ring outliers.

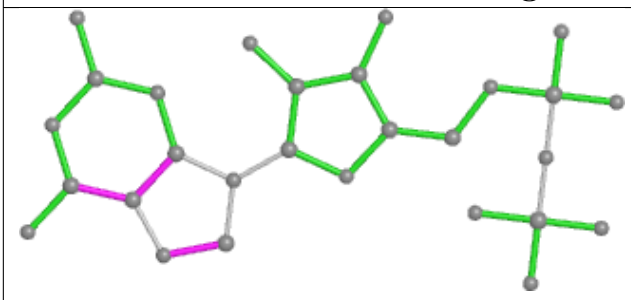
5 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	D	501	GDP	1	0
9	B	503	V1O	9	0
10	F	401	ACP	2	0
5	C	501	GTP	1	0
5	A	501	GTP	1	0

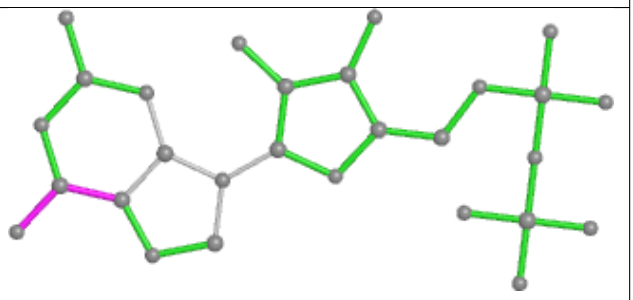
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

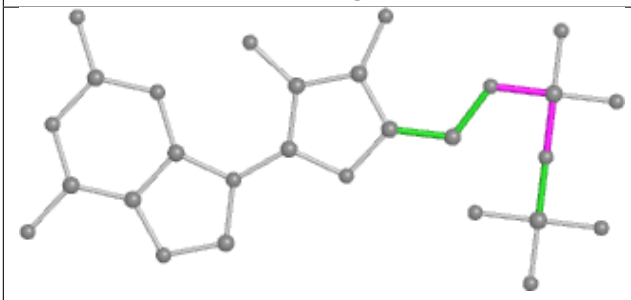
Ligand GDP D 501



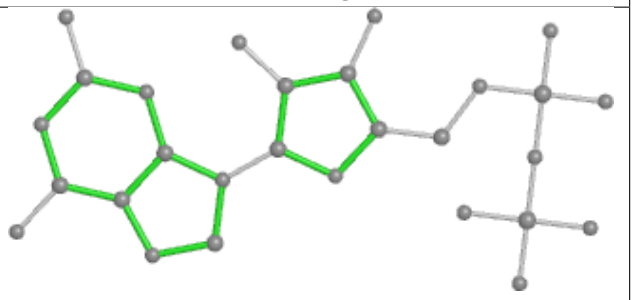
Bond lengths



Bond angles

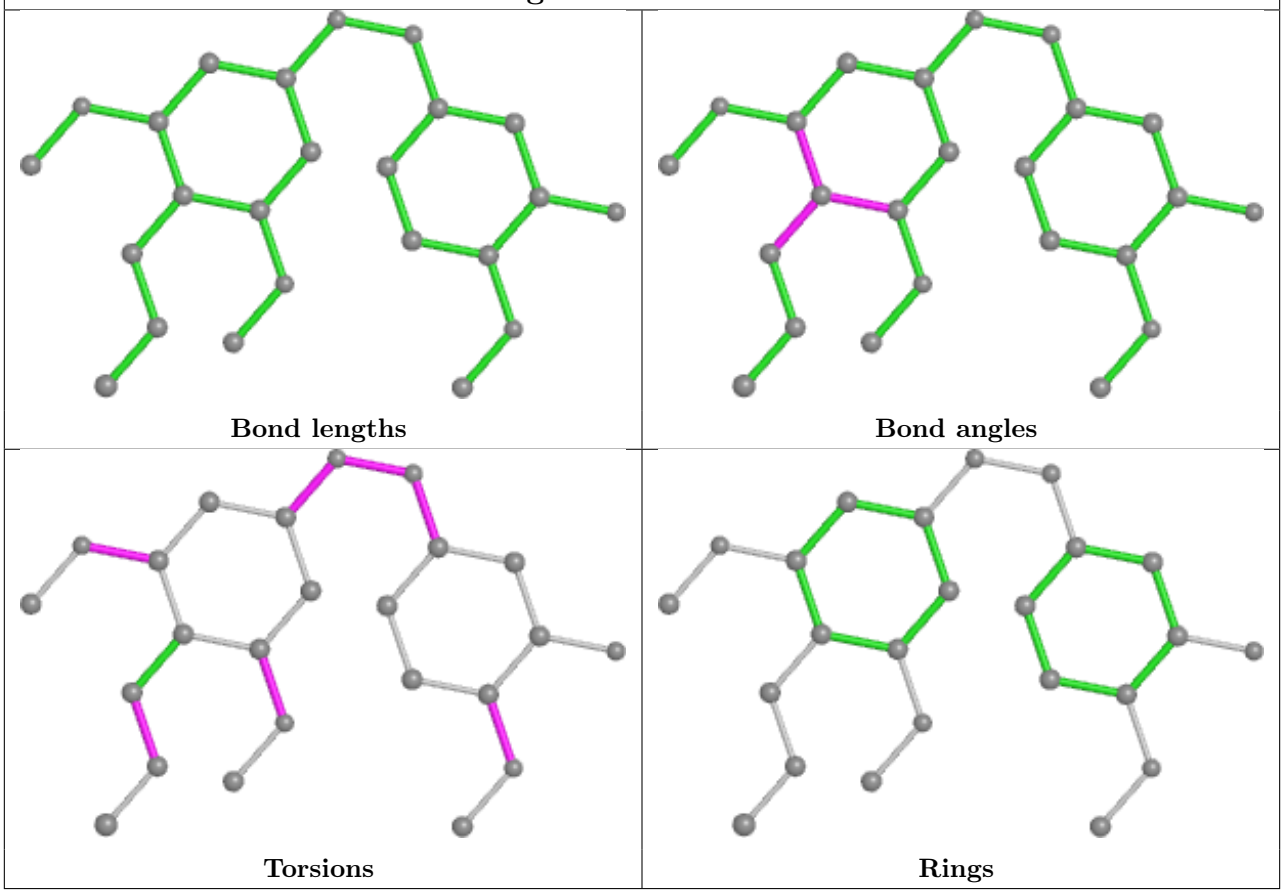


Torsions

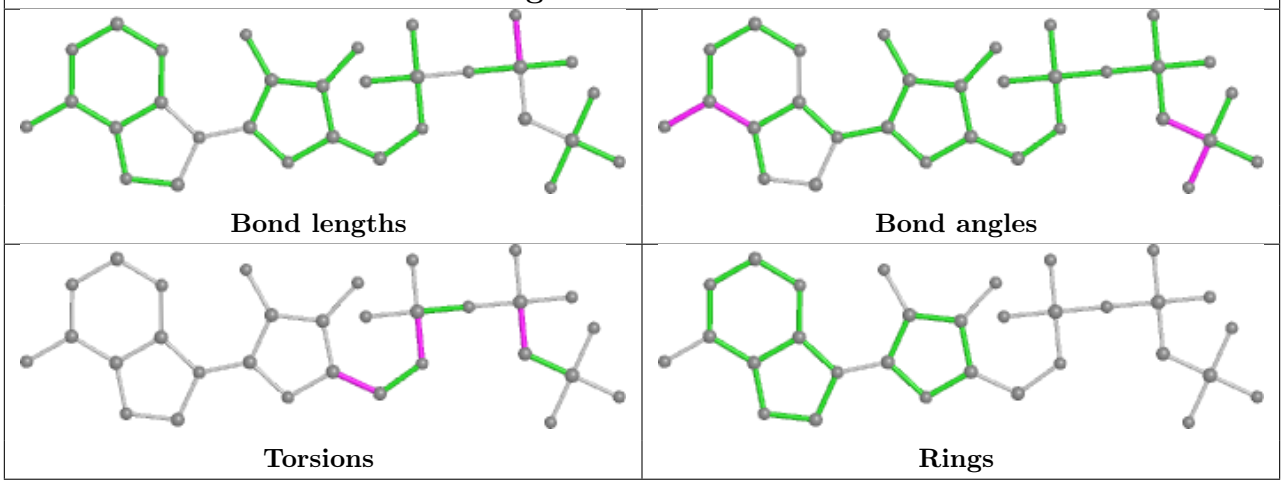


Rings

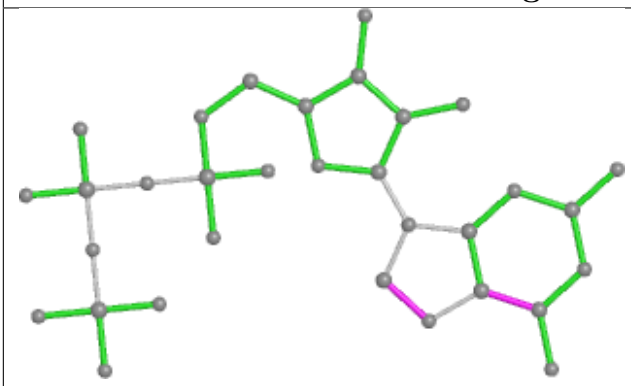
Ligand V1O B 503



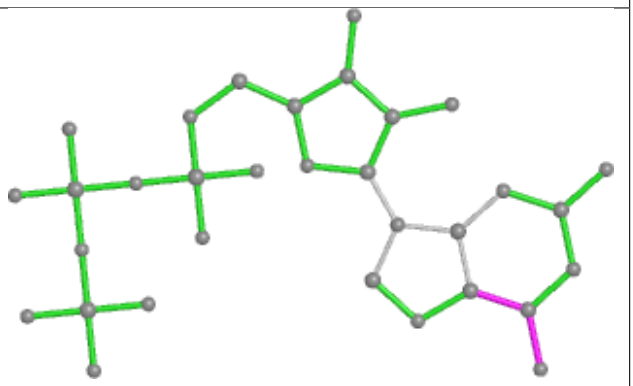
Ligand ACP F 401



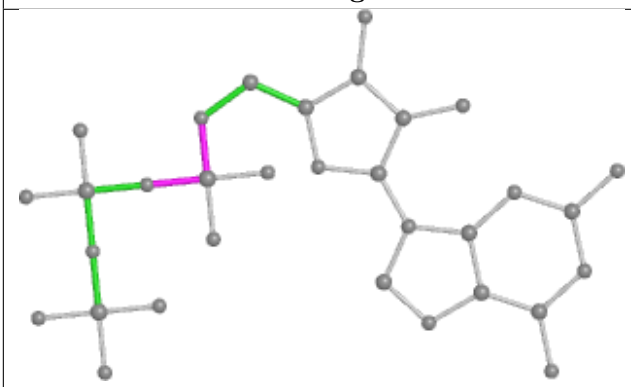
Ligand GTP C 501



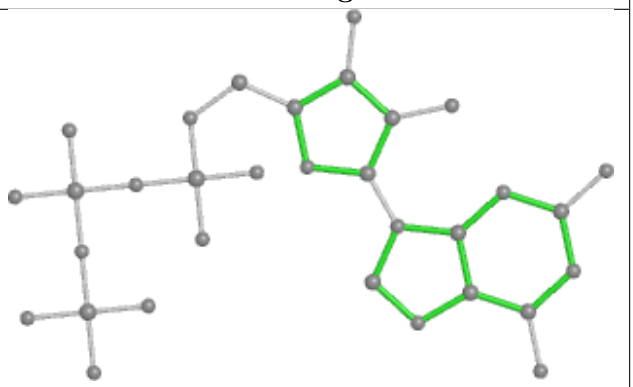
Bond lengths



Bond angles

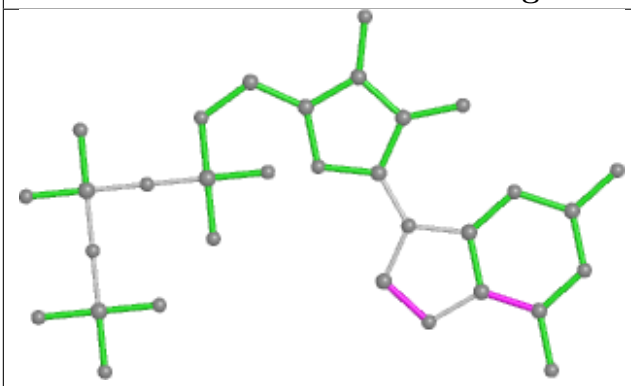


Torsions

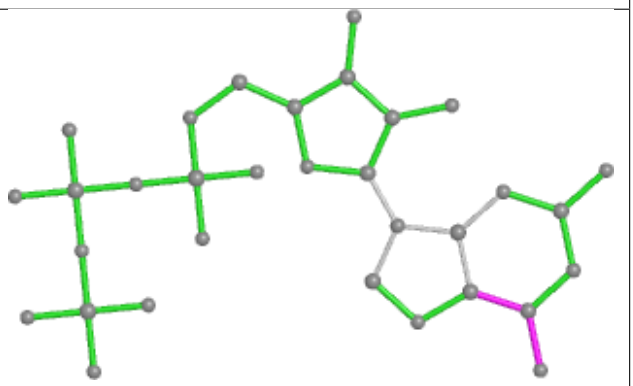


Rings

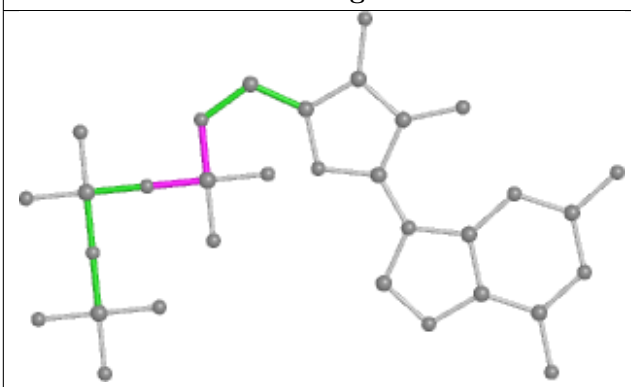
Ligand GTP A 501



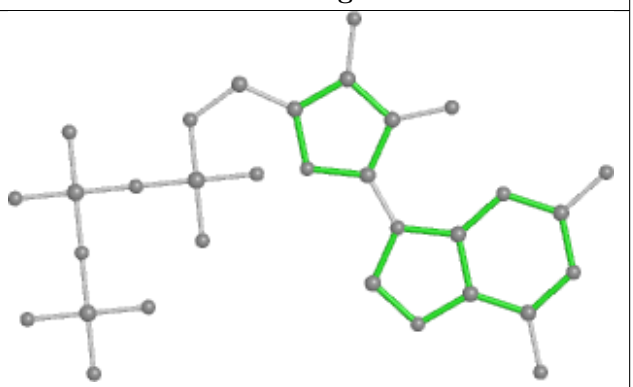
Bond lengths



Bond angles

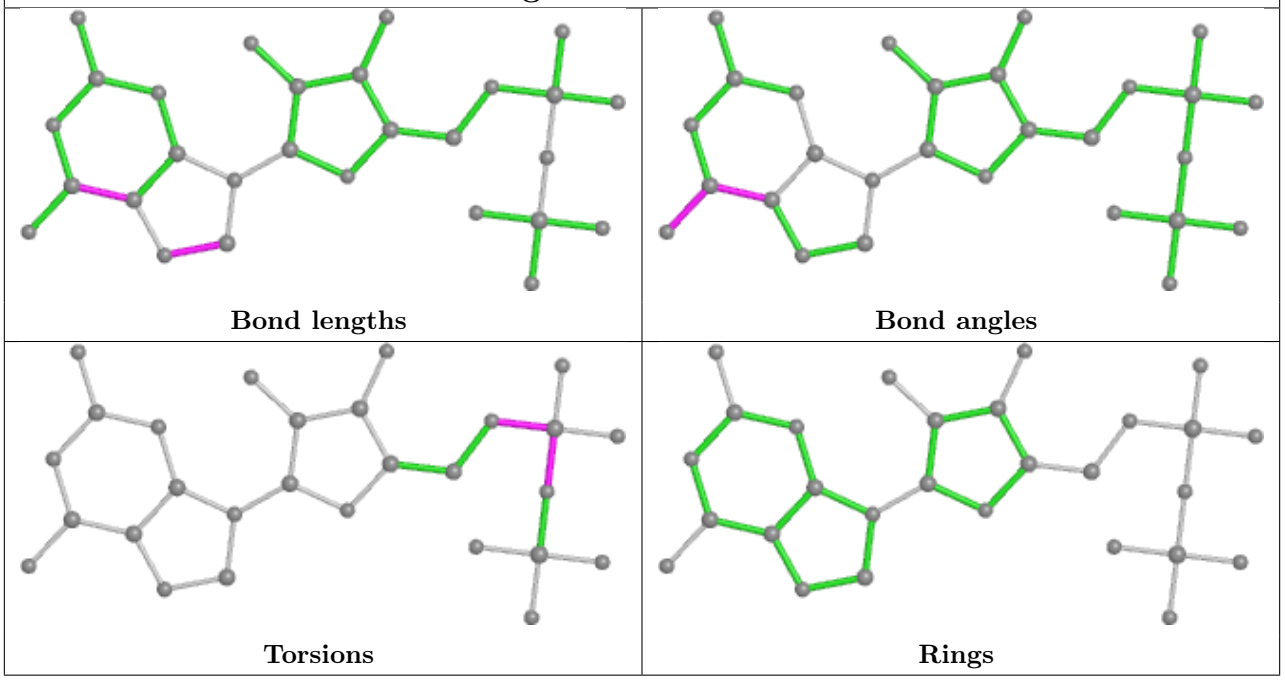


Torsions



Rings

Ligand GDP B 501



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
4	F	6
3	E	1

The worst 5 of 7 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	E	28:SER	C	44:ASP	N	31.51
1	F	362:ALA	C	373:SER	N	19.14
1	F	102:PRO	C	125:THR	N	12.94
1	F	151:SER	C	162:ILE	N	12.03
1	F	136:ASN	C	144:GLY	N	10.25

6 Fit of model and data

6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

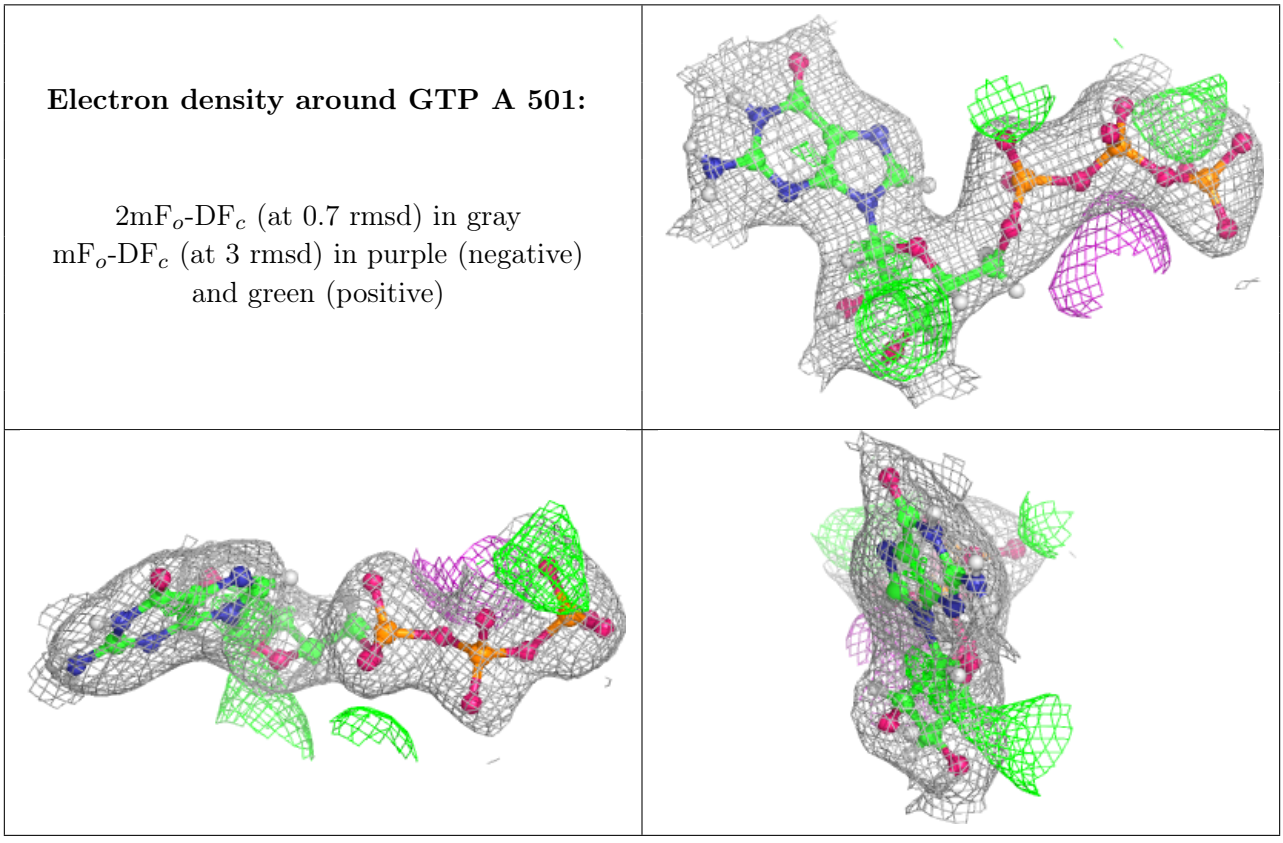
6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

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.

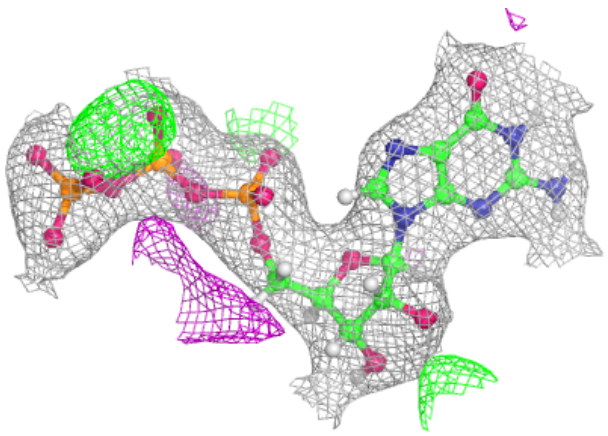
Electron density around GTP A 501:

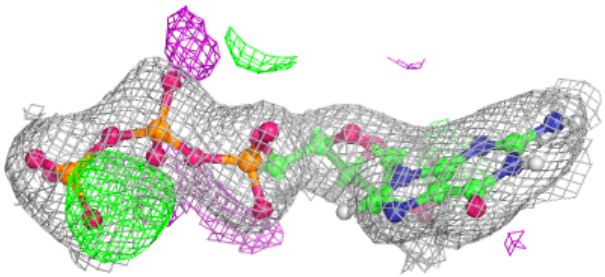
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

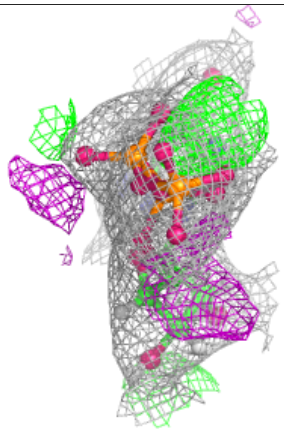


Electron density around GTP C 501:

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

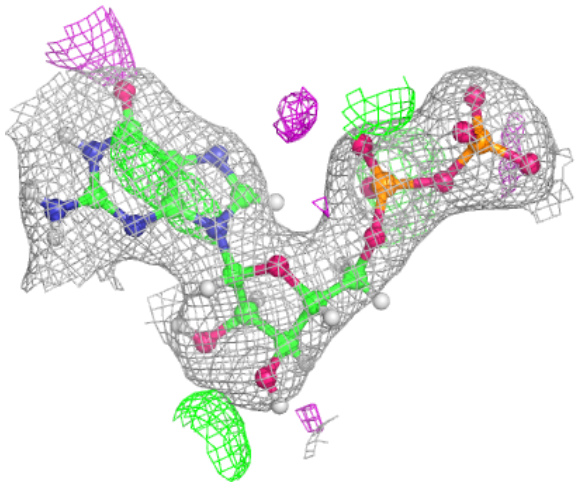


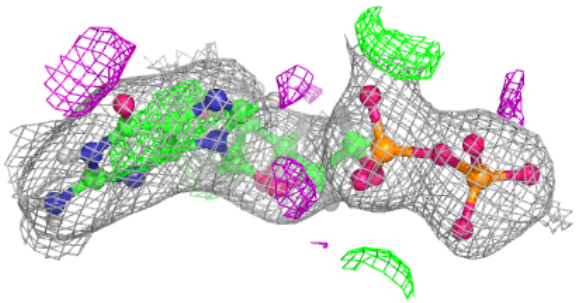


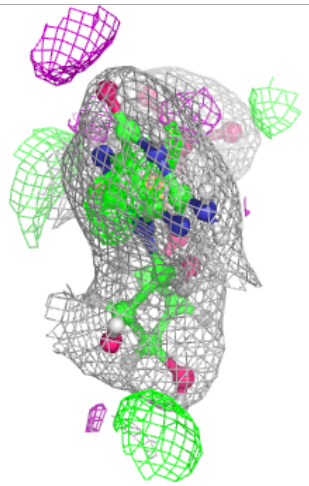


Electron density around GDP B 501:

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

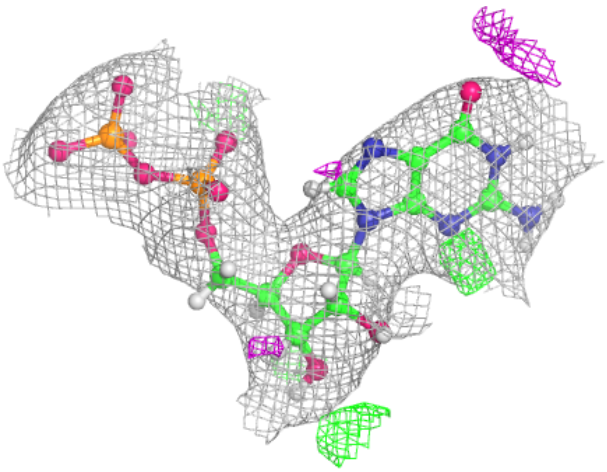


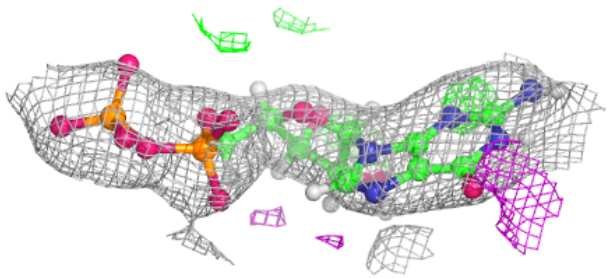


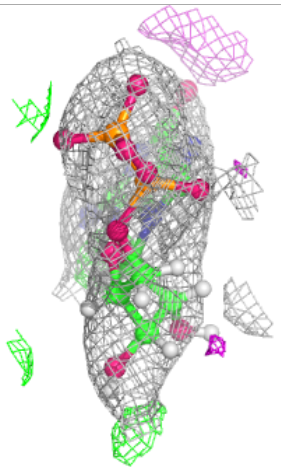


Electron density around GDP D 501:

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

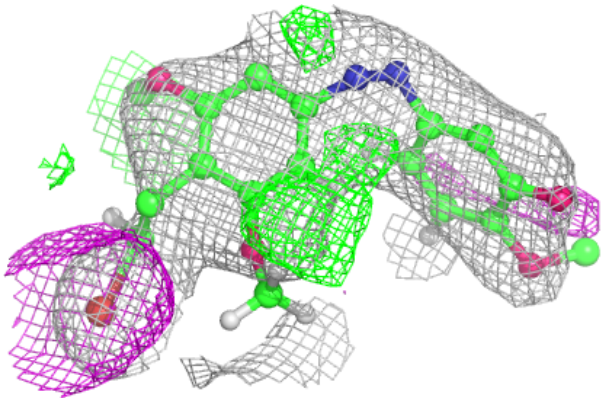


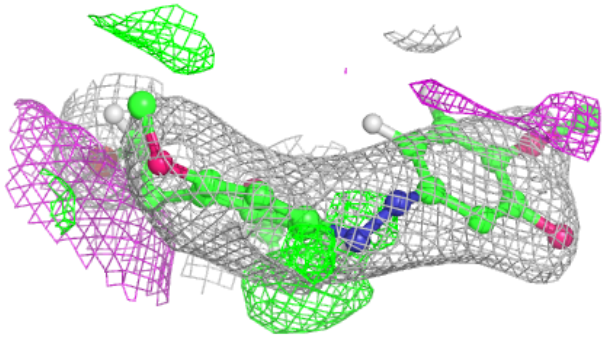


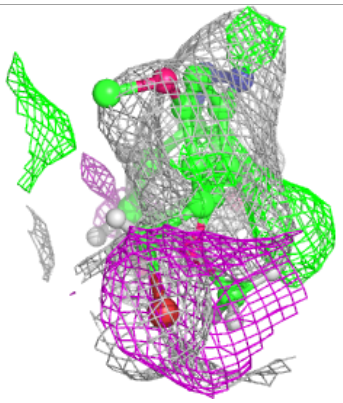


Electron density around V1O B 503:

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

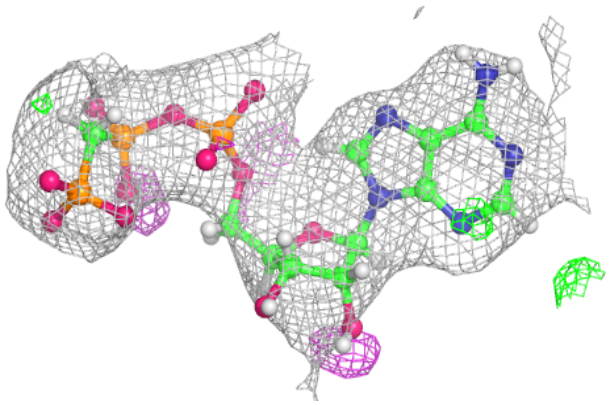


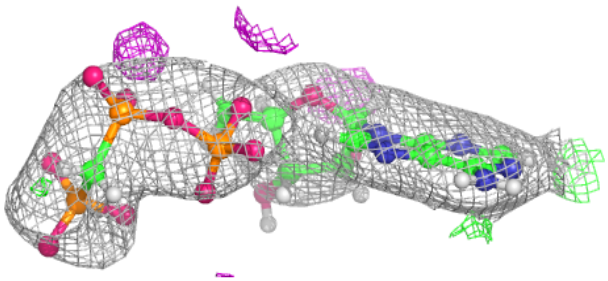


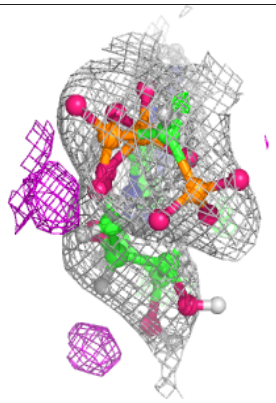


Electron density around ACP F 401:

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







6.5 Other polymers (i)

Unable to reproduce the depositors R factor - this section is therefore empty.