



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 01:07 PM UTC

PDB ID : 4TNP / pdb_00004tnp
Title : Structural basis of cellular dNTP regulation, SAMHD1-GTP-dCTP-cCTP complex
Authors : Ji, X.; Tang, C.; Zhao, Q.; Wang, W.; Xiong, Y.
Deposited on : 2014-06-04
Resolution : 2.00 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

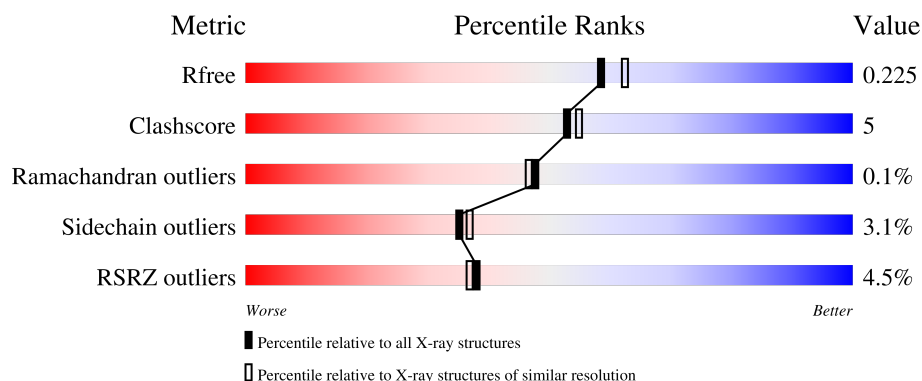
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	10052 (2.00-2.00)
Clashscore	190562	11152 (2.00-2.00)
Ramachandran outliers	187476	11031 (2.00-2.00)
Sidechain outliers	187428	11029 (2.00-2.00)
RSRZ outliers	180081	10067 (2.00-2.00)

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	514	3% 84% 8% 7%
1	B	514	3% 84% 9% 7%
1	C	514	5% 83% 9% 6%
1	D	514	6% 84% 9% 6%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 16430 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.

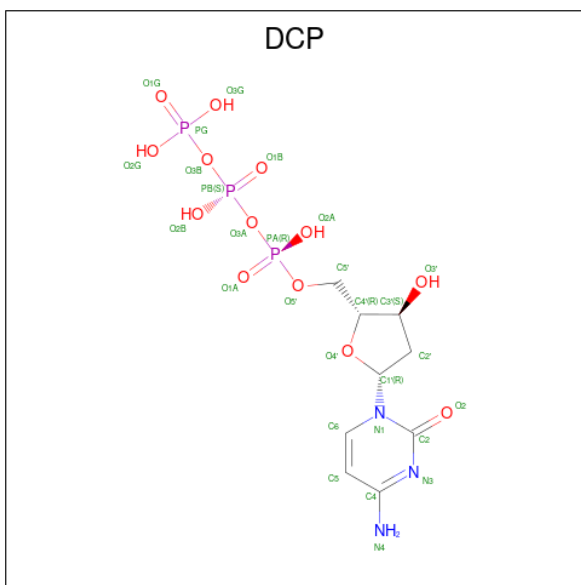
- Molecule 1 is a protein called Deoxynucleoside triphosphate triphosphohydrolase SAMHD1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	479	Total	C	N	O	S	0	1	0
			3919	2510	683	705	21			
1	B	480	Total	C	N	O	S	0	0	0
			3924	2512	684	708	20			
1	C	481	Total	C	N	O	S	0	2	0
			3944	2522	687	715	20			
1	D	484	Total	C	N	O	S	0	0	0
			3953	2530	688	715	20			

There are 8 discrepancies between the modelled and reference sequences:

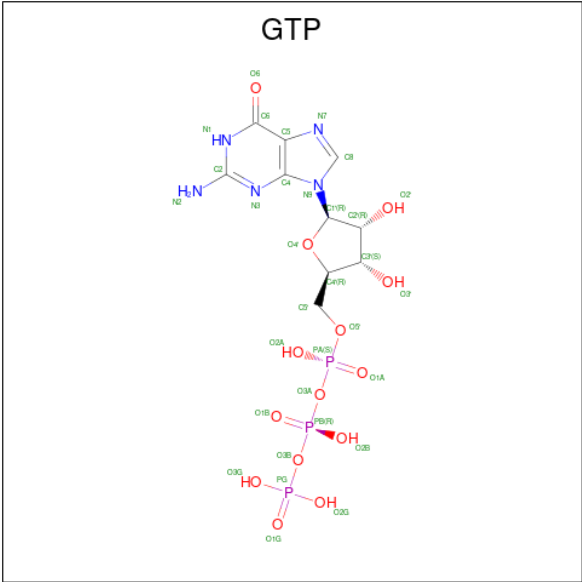
Chain	Residue	Modelled	Actual	Comment	Reference
A	206	ARG	HIS	engineered mutation	UNP Q9Y3Z3
A	207	ASN	ASP	engineered mutation	UNP Q9Y3Z3
B	206	ARG	HIS	engineered mutation	UNP Q9Y3Z3
B	207	ASN	ASP	engineered mutation	UNP Q9Y3Z3
C	206	ARG	HIS	engineered mutation	UNP Q9Y3Z3
C	207	ASN	ASP	engineered mutation	UNP Q9Y3Z3
D	206	ARG	HIS	engineered mutation	UNP Q9Y3Z3
D	207	ASN	ASP	engineered mutation	UNP Q9Y3Z3

- Molecule 2 is 2'-DEOXYCYTIDINE-5'-TRIPHOSPHATE (CCD ID: DCP) (formula: $C_9H_{16}N_3O_{13}P_3$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 28	C 9	N 3	O 13	P 3	0	0
2	A	1	Total 28	C 9	N 3	O 13	P 3	0	0
2	A	1	Total 28	C 9	N 3	O 13	P 3	0	0
2	B	1	Total 28	C 9	N 3	O 13	P 3	0	0
2	B	1	Total 28	C 9	N 3	O 13	P 3	0	0
2	C	1	Total 28	C 9	N 3	O 13	P 3	0	0
2	D	1	Total 28	C 9	N 3	O 13	P 3	0	0
2	D	1	Total 28	C 9	N 3	O 13	P 3	0	0

- Molecule 3 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $\text{C}_{10}\text{H}_{16}\text{N}_5\text{O}_{14}\text{P}_3$).



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

- Molecule 4 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

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

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	81	Total	O	0	0
			81	81		

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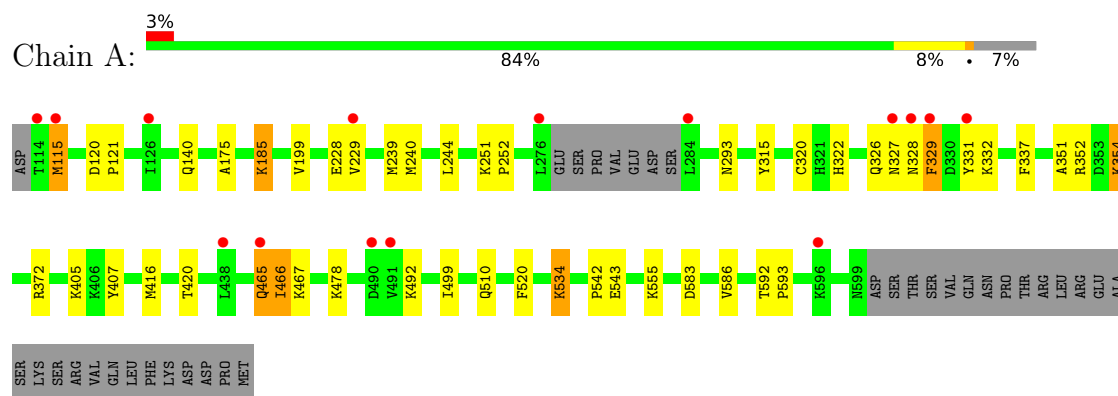
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	108	Total 108	O 108	0	0
5	C	84	Total 84	O 84	0	0
5	D	61	Total 61	O 61	0	0

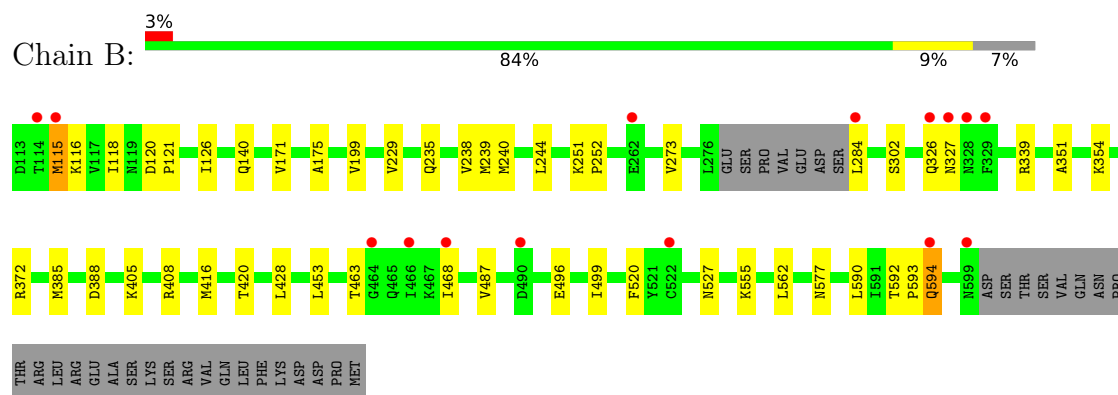
3 Residue-property plots [i](#)

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.

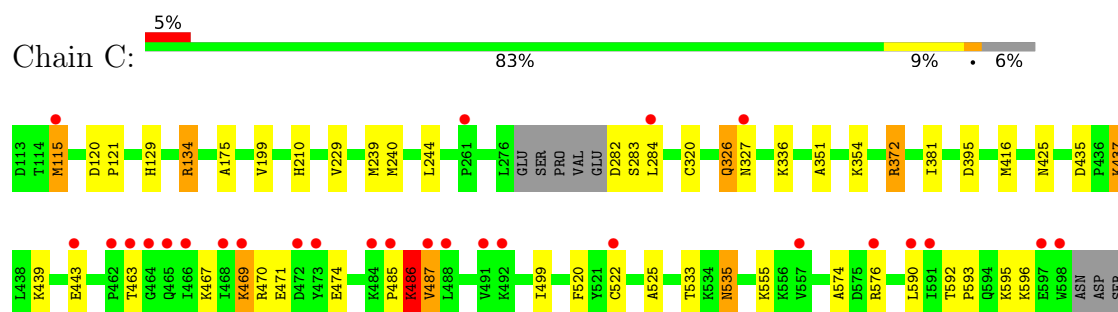
- Molecule 1: Deoxynucleoside triphosphate triphosphohydrolase SAMHD1



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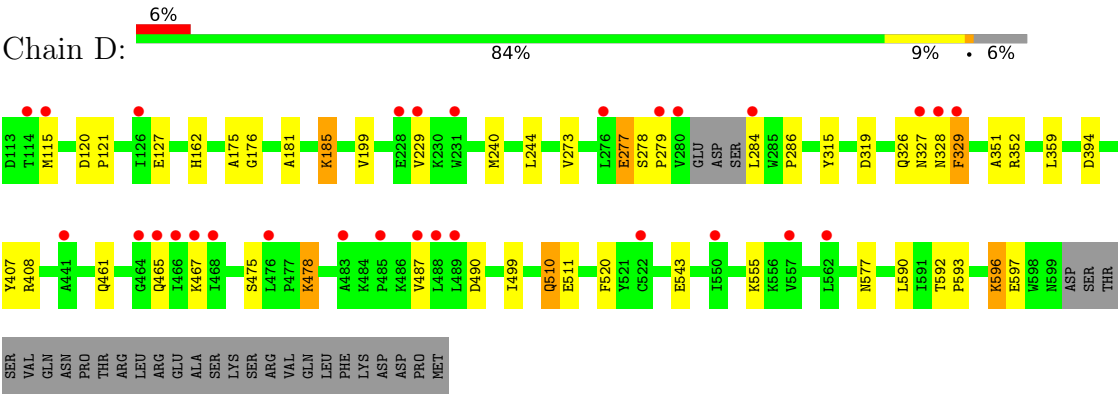


- Molecule 1: Deoxynucleoside triphosphate triphosphohydrolase SAMHD1



THR	SER	VAL	GLN	ASN	PRO	THR	ARG	LEU	ARG	GLU	ALA	SER	LYS	SER	ARG	VAL	GLN	LEU	PHE	LYS	ASP	ASP	PRO	MET
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● Molecule 1: Deoxynucleoside triphosphate triphosphohydrolase SAMHD1



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	81.51Å 140.75Å 97.49Å 90.00° 114.79° 90.00°	Depositor
Resolution (Å)	50.00 – 2.00 50.00 – 2.00	Depositor EDS
% Data completeness (in resolution range)	97.8 (50.00-2.00) 97.9 (50.00-2.00)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.89 (at 2.00Å)	Xtriage
Refinement program	REFMAC 5.8.0049	Depositor
R, R_{free}	0.198 , 0.222 0.203 , 0.225	Depositor DCC
R_{free} test set	6550 reflections (4.87%)	wwPDB-VP
Wilson B-factor (Å ²)	33.5	Xtriage
Anisotropy	0.744	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 45.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.024 for h,-k,-h-l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	16430	wwPDB-VP
Average B, all atoms (Å ²)	46.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.43% 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

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.71	0/4011	0.86	0/5414
1	B	0.76	0/4016	0.90	2/5421 (0.0%)
1	C	0.76	0/4036	0.88	3/5448 (0.1%)
1	D	0.69	0/4046	0.84	3/5463 (0.1%)
All	All	0.73	0/16109	0.87	8/21746 (0.0%)

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	1

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	463	THR	N-CA-C	-9.15	102.24	113.41
1	C	463	THR	N-CA-C	6.03	118.55	108.96
1	D	352	ARG	CG-CD-NE	-5.48	99.94	112.00
1	D	510	GLN	CB-CA-C	-5.20	110.60	116.63
1	B	468	ILE	N-CA-C	-5.13	102.44	109.37
1	D	329	PHE	N-CA-C	5.06	117.01	108.96
1	C	576	ARG	NE-CZ-NH2	5.04	123.74	119.20
1	C	487	VAL	N-CA-C	-5.00	100.70	108.81

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	465	GLN	Peptide

5.2 Too-close contacts

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	3919	0	3911	46	1
1	B	3924	0	3915	39	0
1	C	3944	0	3927	52	1
1	D	3953	0	3942	25	2
2	A	84	0	36	6	0
2	B	56	0	24	0	0
2	C	28	0	12	3	0
2	D	56	0	24	1	0
3	A	32	0	12	0	0
3	B	64	0	24	1	0
3	D	32	0	12	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
5	A	81	0	0	10	0
5	B	108	0	0	5	0
5	C	84	0	0	6	0
5	D	61	0	0	5	0
All	All	16430	0	15839	161	2

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

All (161) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:574:ALA:O	1:C:595:LYS:NZ	1.69	1.25
1:A:465:GLN:HG2	1:A:466:ILE:CD1	1.65	1.24
1:C:372:ARG:HG2	1:C:372:ARG:HH11	1.07	1.08
1:B:115:MET:HE2	1:B:115:MET:C	1.77	1.08

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:702:DCP:O2A	5:C:847:HOH:O	1.70	1.07
1:B:115:MET:HE2	1:B:116:LYS:N	1.71	1.04
1:B:171:VAL:HA	5:B:872:HOH:O	1.55	1.03
1:A:465:GLN:HG2	1:A:466:ILE:HD13	1.40	1.02
1:C:439:LYS:O	1:C:443:GLU:HG3	1.62	0.97
1:A:466:ILE:HD13	1:A:466:ILE:N	1.79	0.96
1:C:533:THR:OG1	1:C:535[A]:ASN:ND2	2.01	0.93
1:B:385:MET:HE1	5:B:876:HOH:O	1.69	0.91
1:C:435:ASP:CG	1:C:437:LYS:HG3	1.97	0.90
1:C:535[A]:ASN:HD22	1:C:535[A]:ASN:N	1.70	0.88
1:B:327:ASN:O	1:D:326:GLN:HB2	1.74	0.86
1:C:535[A]:ASN:HD22	1:C:535[A]:ASN:H	1.23	0.86
1:A:465:GLN:HG2	1:A:466:ILE:HD12	1.55	0.85
1:B:326:GLN:HB2	1:D:327:ASN:O	1.77	0.85
1:B:115:MET:CE	1:B:116:LYS:C	2.50	0.84
1:B:115:MET:HE1	1:B:116:LYS:O	1.77	0.84
1:C:372:ARG:HG2	1:C:372:ARG:NH1	1.85	0.84
1:B:115:MET:HE2	1:B:116:LYS:CA	2.09	0.82
1:B:115:MET:C	1:B:115:MET:CE	2.54	0.81
1:C:435:ASP:OD2	1:C:437:LYS:HD2	1.81	0.81
1:A:328:ASN:ND2	1:A:329:PHE:H	1.80	0.80
1:B:562:LEU:HB2	5:B:877:HOH:O	1.82	0.79
1:B:115:MET:CE	1:B:116:LYS:O	2.32	0.78
1:B:115:MET:CE	1:B:116:LYS:N	2.47	0.77
1:B:115:MET:HE1	1:B:116:LYS:C	2.08	0.77
1:A:327:ASN:O	5:A:837:HOH:O	2.03	0.77
1:A:466:ILE:CD1	1:A:466:ILE:N	2.48	0.75
1:C:435:ASP:CG	1:C:437:LYS:CG	2.60	0.74
1:C:435:ASP:OD1	1:C:437:LYS:HG2	1.87	0.74
1:A:466:ILE:HD13	1:A:466:ILE:H	1.52	0.73
1:A:185:LYS:HD2	5:A:861:HOH:O	1.87	0.73
1:A:140:GLN:HG3	1:A:240:MET:CE	2.19	0.72
1:C:435:ASP:OD1	1:C:437:LYS:CG	2.39	0.71
1:A:372:ARG:HD2	5:A:856:HOH:O	1.92	0.70
1:B:140:GLN:HG3	1:B:240:MET:CE	2.20	0.70
1:B:453:LEU:HD23	5:B:876:HOH:O	1.91	0.70
1:B:372:ARG:HH22	1:D:328:ASN:HD21	1.40	0.69
1:C:470:ARG:HB2	1:C:470:ARG:CZ	2.20	0.69
1:A:115:MET:HB3	5:A:849:HOH:O	1.92	0.68
1:A:328:ASN:HD22	1:A:329:PHE:N	1.92	0.67
1:B:115:MET:HE2	1:B:116:LYS:C	2.18	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:328:ASN:ND2	1:A:329:PHE:N	2.42	0.67
2:A:704:DCP:N3	1:C:372:ARG:NH1	2.43	0.67
2:C:702:DCP:O1B	5:C:846:HOH:O	2.14	0.66
1:C:115:MET:HE2	1:C:129:HIS:HA	1.77	0.66
1:C:435:ASP:OD2	1:C:437:LYS:CD	2.45	0.64
1:D:596:LYS:HE2	1:D:597:GLU:OE1	1.95	0.64
1:C:574:ALA:C	1:C:595:LYS:NZ	2.57	0.62
1:A:534:LYS:HE2	1:A:542:PRO:O	2.00	0.61
1:C:435:ASP:OD2	1:C:437:LYS:CG	2.48	0.61
1:C:435:ASP:OD2	1:C:437:LYS:HG3	2.00	0.61
1:C:535[A]:ASN:ND2	1:C:535[A]:ASN:H	1.95	0.61
1:C:210:HIS:CE1	5:C:854:HOH:O	2.55	0.59
1:B:594:GLN:N	1:B:594:GLN:OE1	2.35	0.59
1:C:372:ARG:HH11	1:C:372:ARG:CG	1.97	0.58
1:A:331:TYR:C	1:A:331:TYR:CD1	2.81	0.58
1:A:583:ASP:HB3	1:C:522:CYS:SG	2.44	0.57
1:A:337:PHE:CE1	1:A:354:LYS:NZ	2.74	0.56
1:B:339:ARG:HH11	1:B:527:ASN:HD21	1.52	0.56
1:A:405:LYS:HD3	1:A:407:TYR:OH	2.06	0.55
2:A:701:DCP:O3G	5:A:843:HOH:O	2.18	0.55
1:D:461:GLN:HG3	5:D:825:HOH:O	2.06	0.55
1:A:140:GLN:CG	1:A:240:MET:CE	2.84	0.55
1:B:140:GLN:CG	1:B:240:MET:CE	2.84	0.54
1:B:339:ARG:HH11	1:B:527:ASN:ND2	2.05	0.54
1:A:492:LYS:NZ	5:A:801:HOH:O	2.40	0.54
1:A:228:GLU:OE1	1:A:228:GLU:N	2.38	0.53
2:D:702:DCP:H5'1	5:D:828:HOH:O	2.08	0.53
1:C:467:LYS:HG2	1:C:469:LYS:HE3	1.90	0.53
1:A:322:HIS:HE1	5:A:821:HOH:O	1.91	0.53
1:A:465:GLN:CG	1:A:466:ILE:CD1	2.60	0.53
1:A:583:ASP:CB	1:C:522:CYS:SG	2.97	0.53
1:C:467:LYS:CE	1:C:469:LYS:HE3	2.40	0.51
1:A:352:ARG:CZ	1:A:354:LYS:HE3	2.41	0.51
1:A:320:CYS:CB	1:A:327:ASN:CB	2.89	0.50
1:A:320:CYS:HB2	1:A:327:ASN:CB	2.40	0.50
1:C:351:ALA:O	1:C:520:PHE:HA	2.12	0.50
1:D:394:ASP:O	1:D:408:ARG:HD2	2.12	0.50
1:D:511:GLU:H	1:D:511:GLU:CD	2.19	0.50
1:D:162:HIS:HE1	1:D:319:ASP:OD1	1.96	0.49
1:D:329:PHE:HB2	5:D:814:HOH:O	2.12	0.49
1:A:499:ILE:HD11	1:A:555:LYS:HE2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:118:ILE:HD11	3:B:705:GTP:C8	2.48	0.49
1:C:336:LYS:CE	1:D:127:GLU:HG3	2.43	0.49
1:D:279:PRO:HG3	1:D:286:PRO:HB3	1.94	0.49
1:B:351:ALA:O	1:B:520:PHE:HA	2.13	0.49
1:A:351:ALA:O	1:A:520:PHE:HA	2.13	0.48
1:C:574:ALA:C	1:C:595:LYS:HZ2	2.17	0.48
1:B:499:ILE:HD11	1:B:555:LYS:HE2	1.95	0.48
1:D:162:HIS:H	1:D:162:HIS:CD2	2.30	0.48
1:A:320:CYS:SG	1:A:327:ASN:HA	2.54	0.48
1:D:176:GLY:HA3	5:D:821:HOH:O	2.13	0.48
1:B:487:VAL:HG23	1:B:590:LEU:HD12	1.96	0.47
1:C:134:ARG:NE	1:C:134:ARG:HA	2.29	0.47
1:A:465:GLN:CG	1:A:466:ILE:HD12	2.37	0.47
1:C:210:HIS:HE1	5:C:854:HOH:O	1.96	0.47
1:C:499:ILE:HD11	1:C:555:LYS:HE2	1.95	0.47
1:D:351:ALA:O	1:D:520:PHE:HA	2.15	0.47
1:A:240:MET:HE1	1:A:420:THR:OG1	2.15	0.47
1:C:120:ASP:OD2	1:C:121:PRO:HD2	2.14	0.47
1:D:120:ASP:OD2	1:D:121:PRO:HD2	2.14	0.47
1:B:235:GLN:O	1:B:238:VAL:HG22	2.15	0.47
1:D:499:ILE:HD11	1:D:555:LYS:HE2	1.96	0.47
1:D:467:LYS:HD3	5:D:819:HOH:O	2.14	0.46
1:D:475:SER:HA	1:D:478:LYS:HE2	1.97	0.46
1:A:293:ASN:OD1	1:A:293:ASN:N	2.49	0.46
1:C:326:GLN:HE21	1:C:326:GLN:HB3	1.57	0.46
1:A:120:ASP:OD2	1:A:121:PRO:HD2	2.16	0.46
1:C:435:ASP:OD1	1:C:437:LYS:HG3	2.09	0.46
2:A:701:DCP:H5'1	5:A:843:HOH:O	2.16	0.46
1:A:331:TYR:CD1	1:A:332:LYS:N	2.85	0.45
1:A:592:THR:N	1:A:593:PRO:CD	2.80	0.45
1:D:487:VAL:HG23	1:D:590:LEU:HD12	1.98	0.45
1:C:487:VAL:HG23	1:C:590:LEU:HD12	1.98	0.45
1:B:240:MET:HE1	1:B:420:THR:OG1	2.17	0.45
1:B:175:ALA:HB1	1:B:199:VAL:HG12	1.99	0.45
2:C:702:DCP:H5'1	5:C:826:HOH:O	2.17	0.44
1:C:469:LYS:HB3	1:C:471:GLU:OE1	2.16	0.44
1:A:140:GLN:HG3	1:A:240:MET:HE2	1.98	0.44
1:A:244:LEU:C	1:A:244:LEU:HD23	2.41	0.44
1:B:244:LEU:C	1:B:244:LEU:HD23	2.43	0.44
1:C:592:THR:N	1:C:593:PRO:CD	2.80	0.44
1:A:586:VAL:HG11	1:C:525:ALA:HB3	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:328:ASN:CG	1:A:329:PHE:H	2.25	0.43
1:B:592:THR:N	1:B:593:PRO:CD	2.82	0.43
1:C:320:CYS:SG	1:C:327:ASN:O	2.76	0.43
1:D:175:ALA:HB1	1:D:199:VAL:HG12	2.00	0.43
1:D:244:LEU:C	1:D:244:LEU:HD23	2.44	0.43
1:D:592:THR:N	1:D:593:PRO:CD	2.82	0.43
1:C:467:LYS:CE	1:C:469:LYS:CE	2.97	0.43
2:A:701:DCP:PG	5:A:843:HOH:O	2.77	0.42
1:B:405:LYS:HE2	5:B:899:HOH:O	2.18	0.42
1:C:336:LYS:HE3	1:D:127:GLU:HG3	2.00	0.42
1:B:251:LYS:HB2	1:B:252:PRO:HD3	2.02	0.42
1:B:428:LEU:HD13	1:C:425:ASN:HB2	2.02	0.42
1:B:140:GLN:HG3	1:B:240:MET:HE2	1.98	0.42
1:A:175:ALA:HB1	1:A:199:VAL:HG12	2.01	0.42
1:B:120:ASP:OD1	1:B:121:PRO:HD2	2.20	0.42
1:C:175:ALA:HB1	1:C:199:VAL:HG12	2.01	0.41
1:D:181:ALA:O	1:D:185:LYS:HD2	2.19	0.41
1:A:251:LYS:HB2	1:A:252:PRO:HD3	2.02	0.41
1:C:244:LEU:C	1:C:244:LEU:HD23	2.45	0.41
1:D:277:GLU:HG2	1:D:278:SER:N	2.36	0.41
2:A:701:DCP:O2G	2:A:701:DCP:O2B	2.38	0.41
5:A:847:HOH:O	1:C:372:ARG:HD2	2.20	0.41
1:C:239:MET:HE2	1:C:416:MET:HE3	2.02	0.41
1:A:239:MET:HE2	1:A:416:MET:HE3	2.03	0.41
1:C:485:PRO:O	1:C:486:LYS:CB	2.68	0.41
1:C:381:ILE:HD12	1:C:381:ILE:HA	1.95	0.41
1:A:140:GLN:CG	1:A:240:MET:HE3	2.51	0.41
2:A:704:DCP:N4	1:C:372:ARG:HG2	2.36	0.41
1:B:239:MET:HE2	1:B:416:MET:HE3	2.03	0.41
1:C:467:LYS:HE2	1:C:469:LYS:HE3	2.02	0.41
1:B:126:ILE:HD13	1:B:126:ILE:HG21	1.89	0.40
1:C:471:GLU:HA	5:C:870:HOH:O	2.20	0.40
1:A:405:LYS:HD3	1:A:407:TYR:CZ	2.55	0.40
1:B:527:ASN:HD22	1:B:527:ASN:HA	1.63	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:543:GLU:O	1:D:465:GLN:OE1[1_655]	2.06	0.14
1:C:395:ASP:OD2	1:D:407:TYR:OH[1_554]	2.16	0.04

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	476/514 (93%)	467 (98%)	8 (2%)	1 (0%)	43	42
1	B	476/514 (93%)	467 (98%)	9 (2%)	0	100	100
1	C	479/514 (93%)	471 (98%)	7 (2%)	1 (0%)	43	42
1	D	480/514 (93%)	471 (98%)	9 (2%)	0	100	100
All	All	1911/2056 (93%)	1876 (98%)	33 (2%)	2 (0%)	48	46

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	329	PHE
1	C	486	LYS

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	425/459 (93%)	414 (97%)	11 (3%)	40	44
1	B	426/459 (93%)	415 (97%)	11 (3%)	40	44
1	C	429/459 (94%)	412 (96%)	17 (4%)	28	27
1	D	430/459 (94%)	415 (96%)	15 (4%)	32	32
All	All	1710/1836 (93%)	1656 (97%)	54 (3%)	35	35

All (54) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	115	MET
1	A	185	LYS
1	A	229	VAL
1	A	315	TYR
1	A	326	GLN
1	A	354	LYS
1	A	466	ILE
1	A	467	LYS
1	A	478	LYS
1	A	510	GLN
1	A	534	LYS
1	B	115	MET
1	B	229	VAL
1	B	273	VAL
1	B	284	LEU
1	B	302	SER
1	B	354	LYS
1	B	388	ASP
1	B	408	ARG
1	B	496	GLU
1	B	577	ASN
1	B	594	GLN
1	C	115	MET
1	C	134	ARG
1	C	229	VAL
1	C	240	MET
1	C	282	ASP
1	C	283	SER
1	C	284	LEU
1	C	326	GLN
1	C	354	LYS
1	C	372	ARG
1	C	437	LYS
1	C	469	LYS
1	C	474	GLU
1	C	486	LYS
1	C	535[A]	ASN
1	C	535[B]	ASN
1	C	596	LYS
1	D	115	MET
1	D	185	LYS
1	D	229	VAL
1	D	240	MET

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Mol	Chain	Res	Type
1	D	273	VAL
1	D	277	GLU
1	D	284	LEU
1	D	315	TYR
1	D	359	LEU
1	D	478	LYS
1	D	490	ASP
1	D	510	GLN
1	D	543	GLU
1	D	577	ASN
1	D	596	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (50) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	149	GLN
1	A	200	GLN
1	A	210	HIS
1	A	233	HIS
1	A	243	HIS
1	A	248	ASN
1	A	321	HIS
1	A	322	HIS
1	A	328	ASN
1	A	364	HIS
1	A	539	GLN
1	A	571	GLN
1	A	594	GLN
1	B	149	GLN
1	B	180	HIS
1	B	200	GLN
1	B	370	HIS
1	B	375	GLN
1	B	380	ASN
1	B	425	ASN
1	B	447	GLN
1	B	517	HIS
1	B	527	ASN
1	B	539	GLN
1	B	567	GLN
1	B	571	GLN
1	B	599	ASN

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Mol	Chain	Res	Type
1	C	149	GLN
1	C	235	GLN
1	C	243	HIS
1	C	248	ASN
1	C	326	GLN
1	C	327	ASN
1	C	539	GLN
1	C	567	GLN
1	C	571	GLN
1	C	577	ASN
1	C	594	GLN
1	D	149	GLN
1	D	162	HIS
1	D	200	GLN
1	D	210	HIS
1	D	233	HIS
1	D	235	GLN
1	D	243	HIS
1	D	328	ASN
1	D	425	ASN
1	D	535	ASN
1	D	567	GLN
1	D	599	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 16 ligands modelled in this entry, 4 are monoatomic - leaving 12 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$
2	DCP	D	703	4	28,29,29	1.13	2 (7%)	41,45,45	1.25	5 (12%)
2	DCP	A	702	4	28,29,29	1.34	4 (14%)	41,45,45	1.04	4 (9%)
2	DCP	B	702	4	28,29,29	1.27	4 (14%)	41,45,45	1.29	6 (14%)
2	DCP	C	702	-	28,29,29	1.52	4 (14%)	41,45,45	1.02	1 (2%)
2	DCP	D	702	-	28,29,29	1.39	2 (7%)	41,45,45	0.94	2 (4%)
3	GTP	B	703	4	33,34,34	1.17	3 (9%)	50,54,54	1.85	11 (22%)
3	GTP	B	705	4	33,34,34	1.39	4 (12%)	50,54,54	1.93	13 (26%)
2	DCP	A	704	4	28,29,29	1.29	2 (7%)	41,45,45	1.18	3 (7%)
2	DCP	B	701	-	28,29,29	1.25	2 (7%)	41,45,45	0.91	0
3	GTP	A	703	4	33,34,34	1.30	5 (15%)	50,54,54	1.67	9 (18%)
3	GTP	D	704	4	33,34,34	1.16	3 (9%)	50,54,54	1.64	7 (14%)
2	DCP	A	701	-	28,29,29	1.15	3 (10%)	41,45,45	0.89	1 (2%)

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
2	DCP	D	703	4	-	3/22/34/34	0/2/2/2
2	DCP	A	702	4	-	5/22/34/34	0/2/2/2
2	DCP	B	702	4	-	4/22/34/34	0/2/2/2
2	DCP	C	702	-	-	5/22/34/34	0/2/2/2
2	DCP	D	702	-	-	6/22/34/34	0/2/2/2
3	GTP	B	703	4	-	4/22/38/38	0/3/3/3
3	GTP	B	705	4	-	6/22/38/38	0/3/3/3
2	DCP	A	704	4	-	1/22/34/34	0/2/2/2
2	DCP	B	701	-	-	4/22/34/34	0/2/2/2
3	GTP	A	703	4	-	5/22/38/38	0/3/3/3
3	GTP	D	704	4	-	6/22/38/38	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	DCP	A	701	-	-	6/22/34/34	0/2/2/2

All (38) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	702	DCP	PB-O3B	4.93	1.64	1.59
2	D	702	DCP	PB-O3B	4.89	1.64	1.59
2	B	701	DCP	PB-O3B	4.01	1.63	1.59
3	B	705	GTP	C5-N7	-3.67	1.31	1.39
2	A	704	DCP	PB-O3B	3.44	1.63	1.59
3	A	703	GTP	C5-C4	3.31	1.47	1.38
3	A	703	GTP	PB-O3A	3.30	1.63	1.59
3	B	705	GTP	PB-O3B	-3.23	1.56	1.59
2	A	701	DCP	PB-O3B	3.19	1.62	1.59
3	B	703	GTP	C5-C4	3.05	1.47	1.38
2	A	702	DCP	C6-N1	-2.97	1.31	1.38
2	A	702	DCP	PB-O3B	2.96	1.62	1.59
2	A	701	DCP	PA-O3A	2.95	1.62	1.59
2	B	702	DCP	C6-N1	-2.91	1.31	1.38
2	D	702	DCP	PA-O3A	2.91	1.62	1.59
2	C	702	DCP	PB-O3A	2.88	1.62	1.59
3	D	704	GTP	C5-C4	2.81	1.46	1.38
3	A	703	GTP	C6-N1	-2.79	1.33	1.38
2	B	702	DCP	PB-O3A	2.74	1.62	1.59
2	D	703	DCP	PA-O3A	2.71	1.62	1.59
2	C	702	DCP	PA-O3A	2.65	1.62	1.59
3	D	704	GTP	C6-N1	-2.64	1.33	1.38
3	B	705	GTP	C5-C4	2.48	1.45	1.38
3	B	703	GTP	C6-N1	-2.35	1.34	1.38
2	A	702	DCP	PG-O3G	-2.27	1.46	1.54
3	A	703	GTP	C5-N7	-2.26	1.34	1.39
2	D	703	DCP	PB-O3A	2.25	1.61	1.59
2	A	704	DCP	C5-C4	-2.25	1.37	1.42
2	B	702	DCP	C5-C4	-2.25	1.37	1.42
2	B	701	DCP	PA-O3A	2.21	1.61	1.59
2	A	702	DCP	C5-C4	-2.19	1.37	1.42
2	B	702	DCP	PB-O3B	2.18	1.61	1.59
3	B	703	GTP	PB-O3B	2.18	1.61	1.59
2	C	702	DCP	C6-C5	2.15	1.40	1.35
3	D	704	GTP	C5-N7	-2.14	1.34	1.39
2	A	701	DCP	PB-O3A	2.08	1.61	1.59
3	B	705	GTP	PG-O2G	-2.08	1.47	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	703	GTP	C4-N9	-2.05	1.32	1.38

All (62) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	705	GTP	C5-C4-N3	-5.89	119.01	128.39
3	A	703	GTP	C5-C4-N3	-5.89	119.02	128.39
3	D	704	GTP	C5-C4-N3	-5.76	119.22	128.39
3	B	703	GTP	C5-C4-N3	-5.32	119.93	128.39
3	D	704	GTP	C2-N3-C4	4.80	120.57	112.30
3	A	703	GTP	C2-N3-C4	4.71	120.41	112.30
3	B	703	GTP	N9-C4-N3	4.54	135.04	125.95
3	D	704	GTP	N9-C4-N3	4.45	134.86	125.95
3	A	703	GTP	N9-C4-N3	4.43	134.81	125.95
3	B	705	GTP	O3A-PB-O1B	-4.42	97.41	110.70
3	B	705	GTP	N9-C4-N3	4.36	134.68	125.95
3	B	705	GTP	C2-N3-C4	4.34	119.78	112.30
3	B	703	GTP	C2-N3-C4	4.32	119.74	112.30
3	B	703	GTP	O3G-PG-O2G	3.74	121.84	107.80
3	B	705	GTP	O6-C6-C5	-3.49	117.33	126.53
3	B	703	GTP	O6-C6-C5	-3.24	117.99	126.53
2	D	703	DCP	O2-C2-N3	-2.96	117.66	122.33
3	D	704	GTP	C6-C5-N7	2.83	135.44	130.29
3	B	703	GTP	C3'-C2'-C1'	2.83	106.81	101.46
3	B	705	GTP	C3'-C2'-C1'	2.82	106.79	101.46
3	D	704	GTP	C3'-C2'-C1'	2.82	106.79	101.46
3	B	705	GTP	O2B-PB-O3B	2.74	114.68	107.27
3	B	705	GTP	O6-C6-N1	2.72	125.22	120.11
3	A	703	GTP	C6-C5-N7	2.68	135.17	130.29
3	B	703	GTP	O2A-PA-O1A	2.55	124.33	112.44
2	B	702	DCP	O2-C2-N3	-2.55	118.31	122.33
2	B	702	DCP	O2G-PG-O1G	2.45	120.38	110.83
3	B	703	GTP	C6-C5-N7	2.42	134.69	130.29
2	D	702	DCP	O3G-PG-O2G	2.42	116.86	107.80
2	A	702	DCP	O2B-PB-O1B	2.41	123.66	112.44
3	B	703	GTP	O6-C6-N1	2.41	124.64	120.11
3	B	705	GTP	C6-C5-N7	2.39	134.64	130.29
2	A	702	DCP	O2-C2-N3	-2.38	118.57	122.33
2	B	702	DCP	O2A-PA-O1A	2.37	123.49	112.44
3	A	703	GTP	C3'-C2'-C1'	2.37	105.94	101.46
2	B	702	DCP	O3A-PB-O1B	-2.34	103.67	110.70
2	D	703	DCP	O3G-PG-O2G	2.33	116.53	107.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	704	DCP	C6-C5-C4	2.30	121.30	117.53
2	B	702	DCP	O3B-PG-O1G	-2.26	99.13	111.04
2	A	702	DCP	C2'-C3'-C4'	2.26	107.38	102.80
3	D	704	GTP	C4-C5-N7	-2.25	107.10	110.67
2	A	701	DCP	O3G-PG-O2G	2.23	116.16	107.80
2	B	702	DCP	C2'-C1'-N1	2.23	119.38	113.81
2	D	703	DCP	O3B-PG-O1G	-2.22	99.36	111.04
2	A	704	DCP	C2'-C3'-C4'	2.20	107.26	102.80
3	A	703	GTP	O2B-PB-O1B	2.16	122.50	112.44
2	A	704	DCP	O2-C2-N3	-2.16	118.93	122.33
3	A	703	GTP	O3B-PG-O1G	-2.15	99.73	111.04
3	B	703	GTP	N2-C2-N3	-2.14	115.50	119.67
2	D	702	DCP	O4'-C1'-N1	2.13	111.64	107.86
3	B	705	GTP	O2B-PB-O1B	2.12	122.29	112.44
3	B	703	GTP	O2B-PB-O1B	2.10	122.20	112.44
2	C	702	DCP	O3B-PG-O1G	-2.10	100.01	111.04
2	A	702	DCP	O2G-PG-O1G	2.07	118.92	110.83
3	A	703	GTP	O2A-PA-O1A	2.06	122.02	112.44
3	B	705	GTP	C4-C5-N7	-2.06	107.41	110.67
3	A	703	GTP	C4-C5-N7	-2.04	107.44	110.67
3	B	705	GTP	O2G-PG-O1G	2.03	118.73	110.83
2	D	703	DCP	O3A-PB-O1B	-2.02	104.61	110.70
3	D	704	GTP	O6-C6-C5	-2.02	121.19	126.53
3	B	705	GTP	O2B-PB-O3A	2.02	112.73	107.27
2	D	703	DCP	C4'-O4'-C1'	2.02	114.30	109.51

There are no chirality outliers.

All (55) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	701	DCP	PB-O3A-PA-O5'
2	D	702	DCP	C5'-O5'-PA-O2A
2	D	702	DCP	PB-O3A-PA-O5'
2	D	703	DCP	PB-O3B-PG-O3G
3	B	705	GTP	PB-O3B-PG-O2G
3	B	705	GTP	PB-O3B-PG-O3G
3	D	704	GTP	PB-O3B-PG-O2G
2	A	701	DCP	O4'-C4'-C5'-O5'
2	A	701	DCP	C3'-C4'-C5'-O5'
2	D	703	DCP	PB-O3B-PG-O1G
3	A	703	GTP	PB-O3B-PG-O1G
3	B	705	GTP	PG-O3B-PB-O1B

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Mol	Chain	Res	Type	Atoms
2	D	702	DCP	C4'-C5'-O5'-PA
2	A	701	DCP	C4'-C5'-O5'-PA
2	C	702	DCP	C4'-C5'-O5'-PA
2	B	701	DCP	PB-O3A-PA-O5'
2	C	702	DCP	PB-O3A-PA-O5'
2	A	702	DCP	PB-O3A-PA-O1A
2	B	702	DCP	PG-O3B-PB-O1B
3	B	703	GTP	PG-O3B-PB-O1B
3	D	704	GTP	PG-O3B-PB-O1B
3	D	704	GTP	PB-O3A-PA-O2A
2	C	702	DCP	C3'-C4'-C5'-O5'
2	B	701	DCP	C4'-C5'-O5'-PA
2	A	702	DCP	PG-O3B-PB-O1B
3	A	703	GTP	PG-O3B-PB-O2B
3	B	705	GTP	PG-O3B-PB-O2B
3	B	703	GTP	C4'-C5'-O5'-PA
2	A	701	DCP	PG-O3B-PB-O2B
2	D	703	DCP	PG-O3B-PB-O1B
2	D	702	DCP	C3'-C4'-C5'-O5'
3	A	703	GTP	C4'-C5'-O5'-PA
3	D	704	GTP	C4'-C5'-O5'-PA
2	A	702	DCP	PB-O3B-PG-O2G
3	B	705	GTP	C4'-C5'-O5'-PA
2	B	701	DCP	C3'-C4'-C5'-O5'
2	A	702	DCP	PB-O3A-PA-O2A
2	A	702	DCP	PG-O3B-PB-O2B
2	B	702	DCP	PB-O3A-PA-O1A
2	B	702	DCP	PG-O3B-PB-O2B
2	C	702	DCP	PG-O3B-PB-O1B
3	A	703	GTP	PG-O3B-PB-O1B
3	D	704	GTP	PG-O3B-PB-O2B
3	D	704	GTP	PB-O3A-PA-O1A
2	C	702	DCP	O4'-C4'-C5'-O5'
2	A	701	DCP	PG-O3B-PB-O1B
2	A	704	DCP	PG-O3B-PB-O2B
2	B	701	DCP	PG-O3B-PB-O2B
2	B	702	DCP	PB-O3A-PA-O2A
2	D	702	DCP	PG-O3B-PB-O2B
3	A	703	GTP	PB-O3A-PA-O2A
3	B	703	GTP	PG-O3B-PB-O2B
3	B	703	GTP	PB-O3A-PA-O2A
3	B	705	GTP	PB-O3A-PA-O2A

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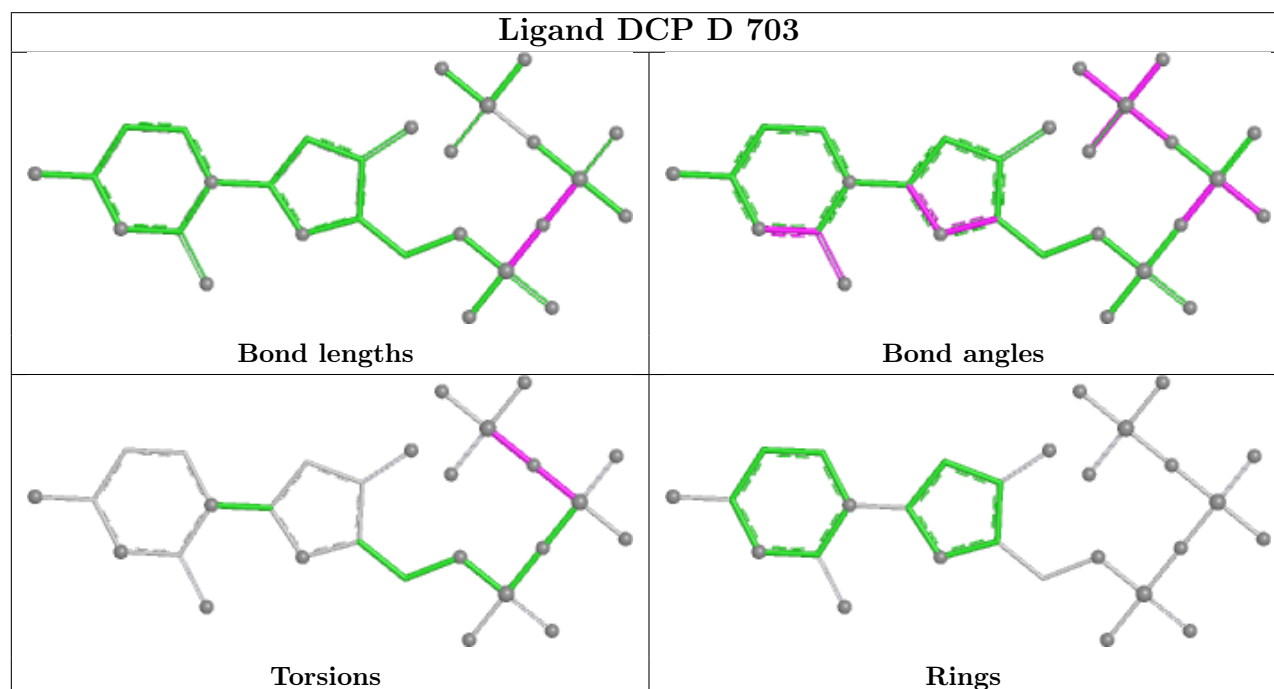
Mol	Chain	Res	Type	Atoms
2	D	702	DCP	O4'-C4'-C5'-O5'

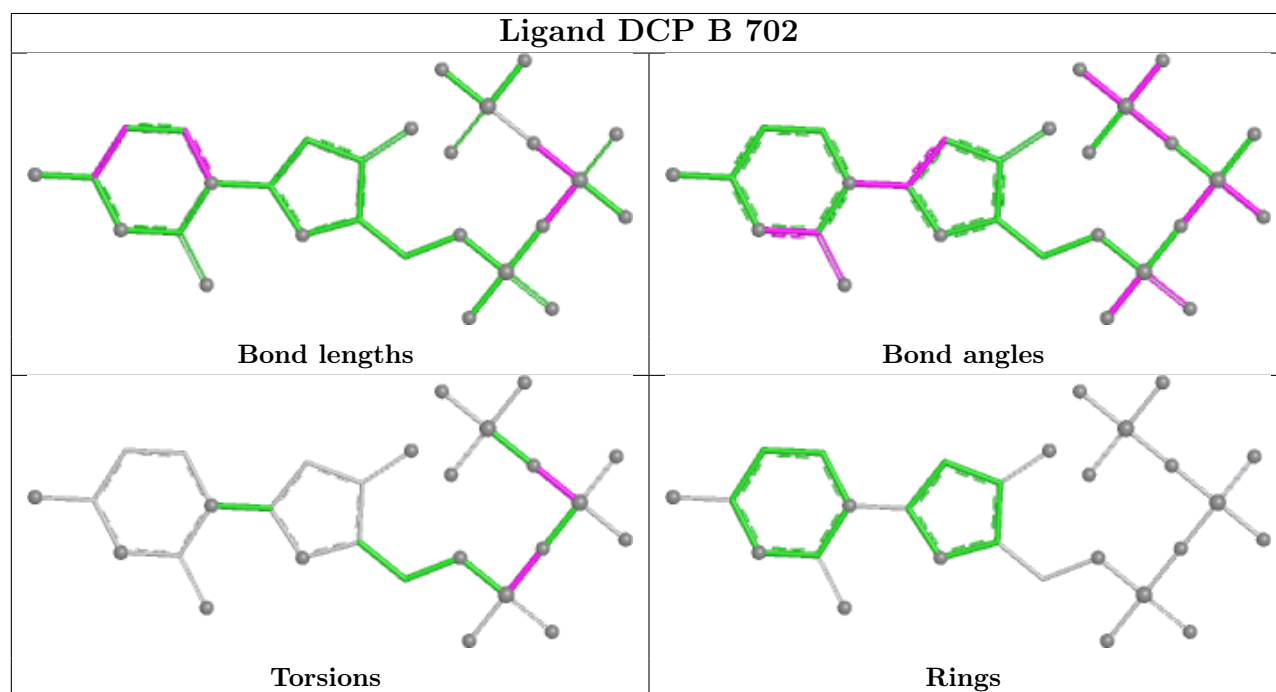
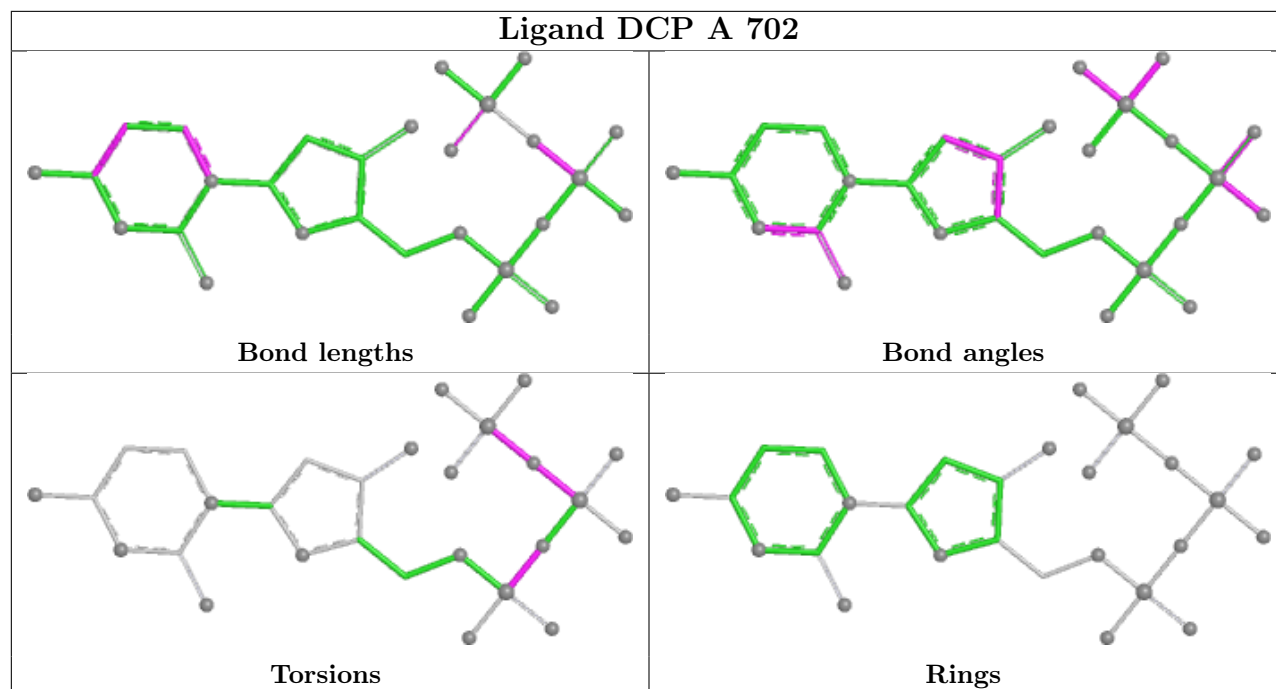
There are no ring outliers.

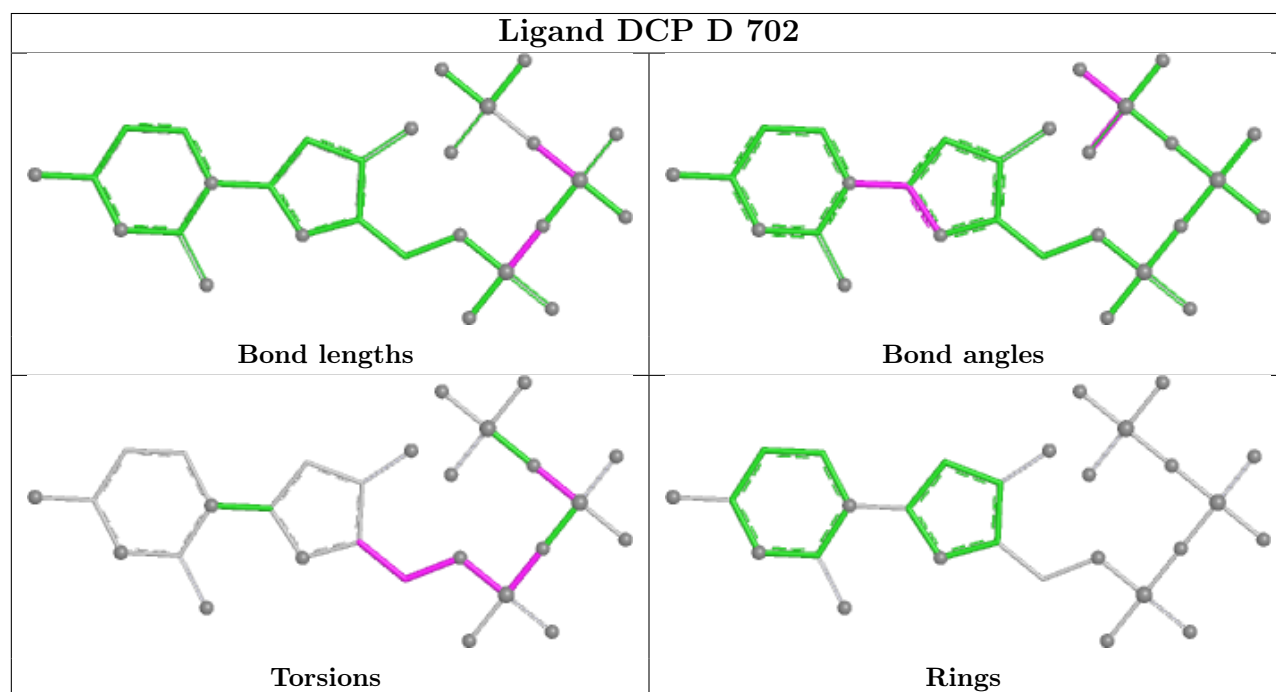
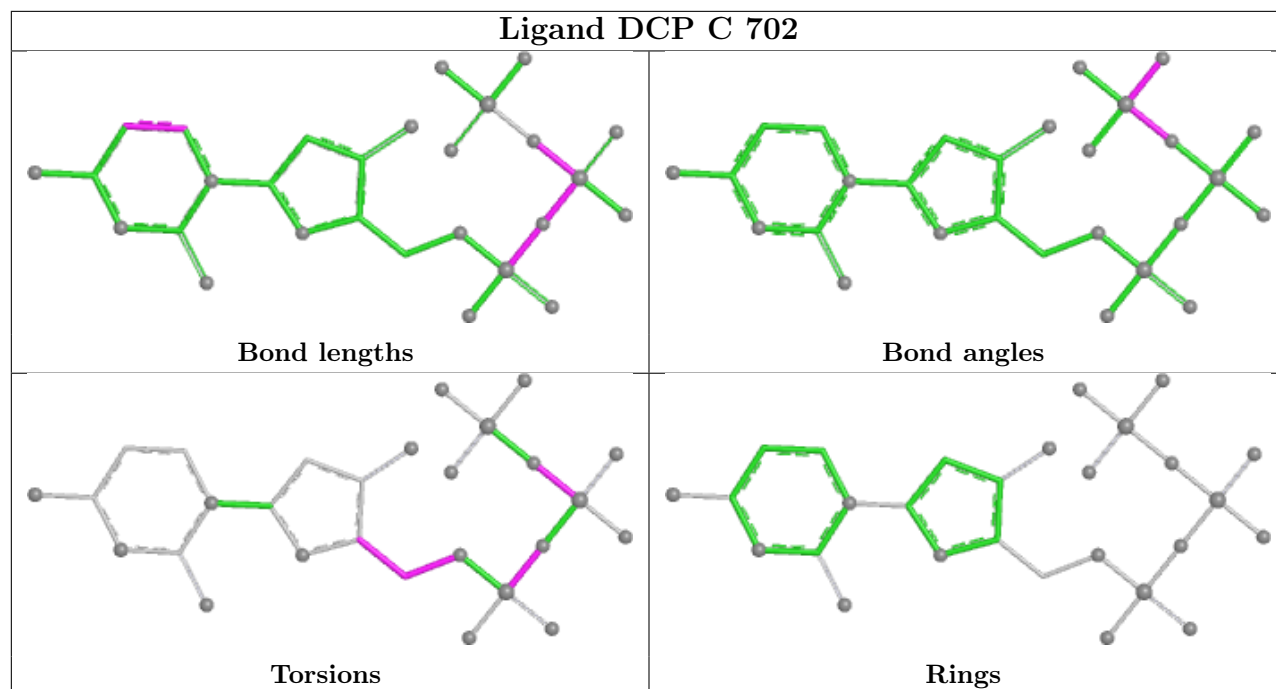
5 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	702	DCP	3	0
2	D	702	DCP	1	0
3	B	705	GTP	1	0
2	A	704	DCP	2	0
2	A	701	DCP	4	0

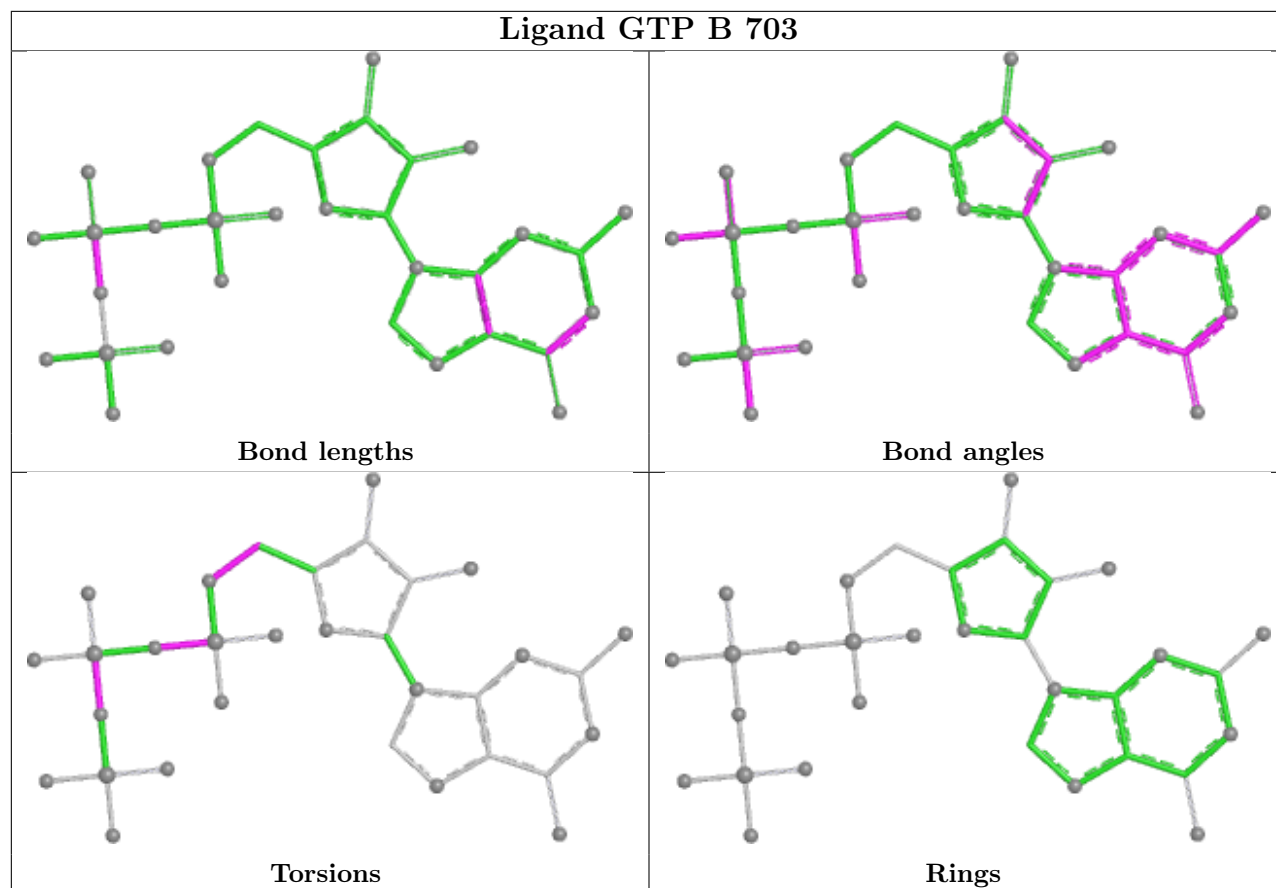
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



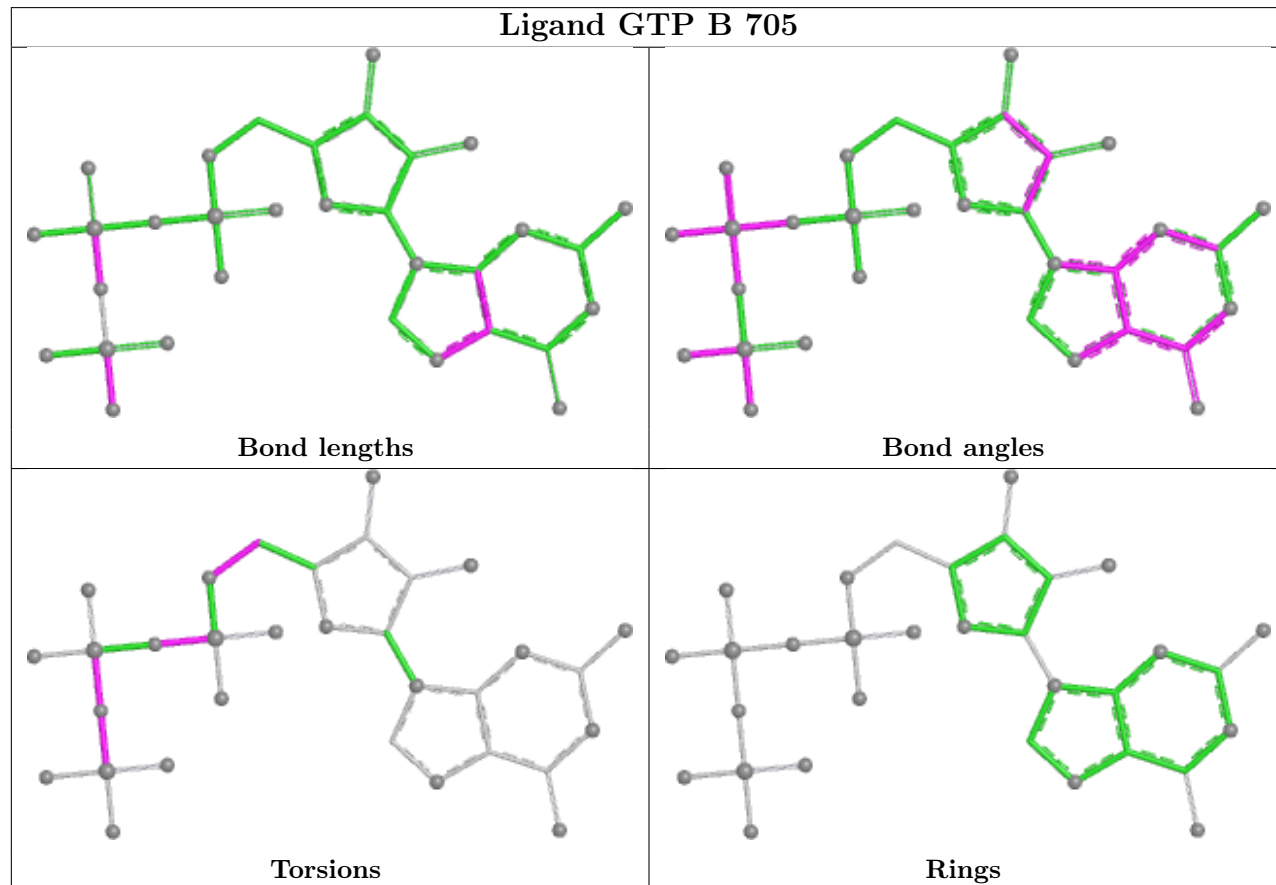


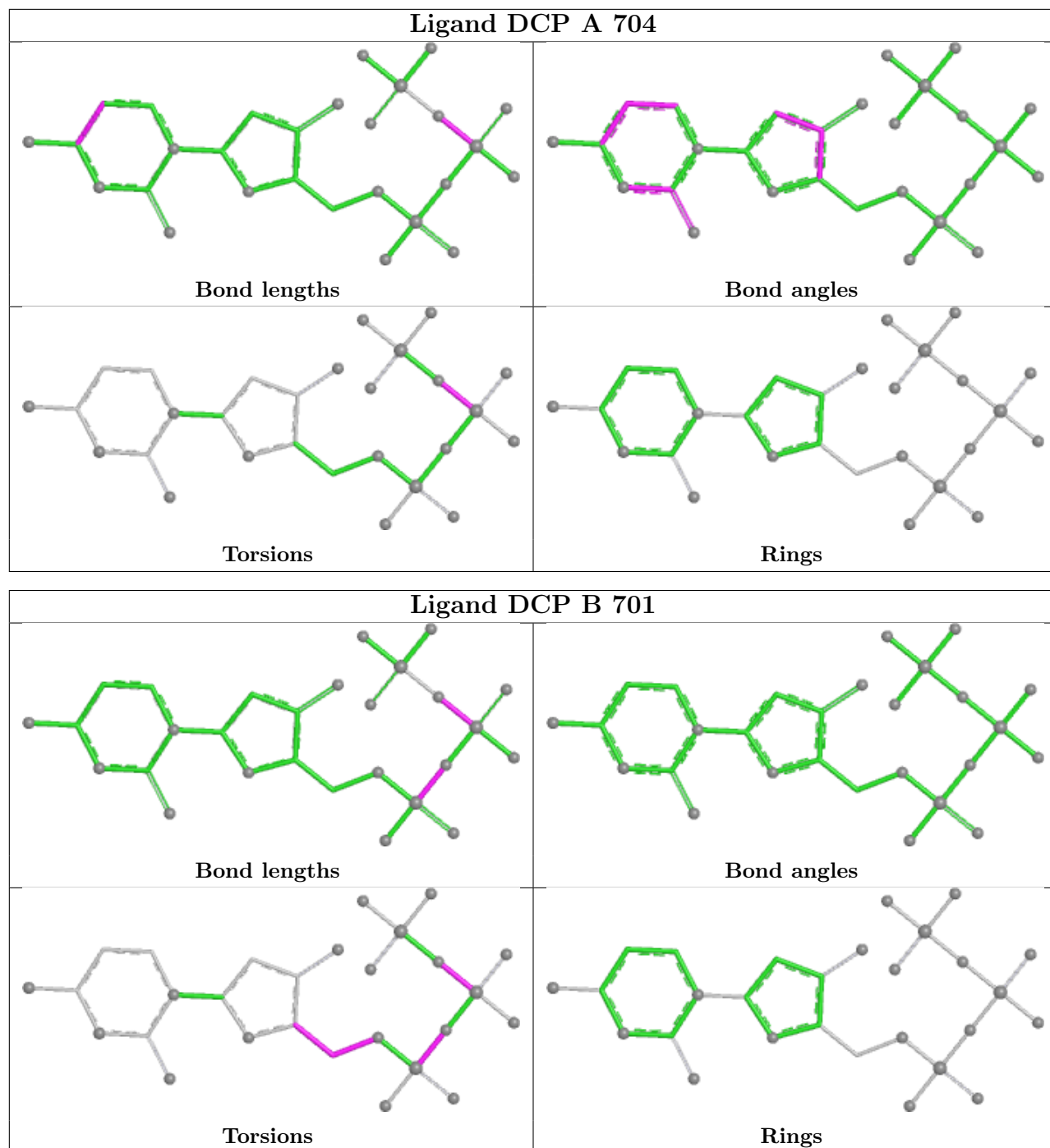


Ligand GTP B 703

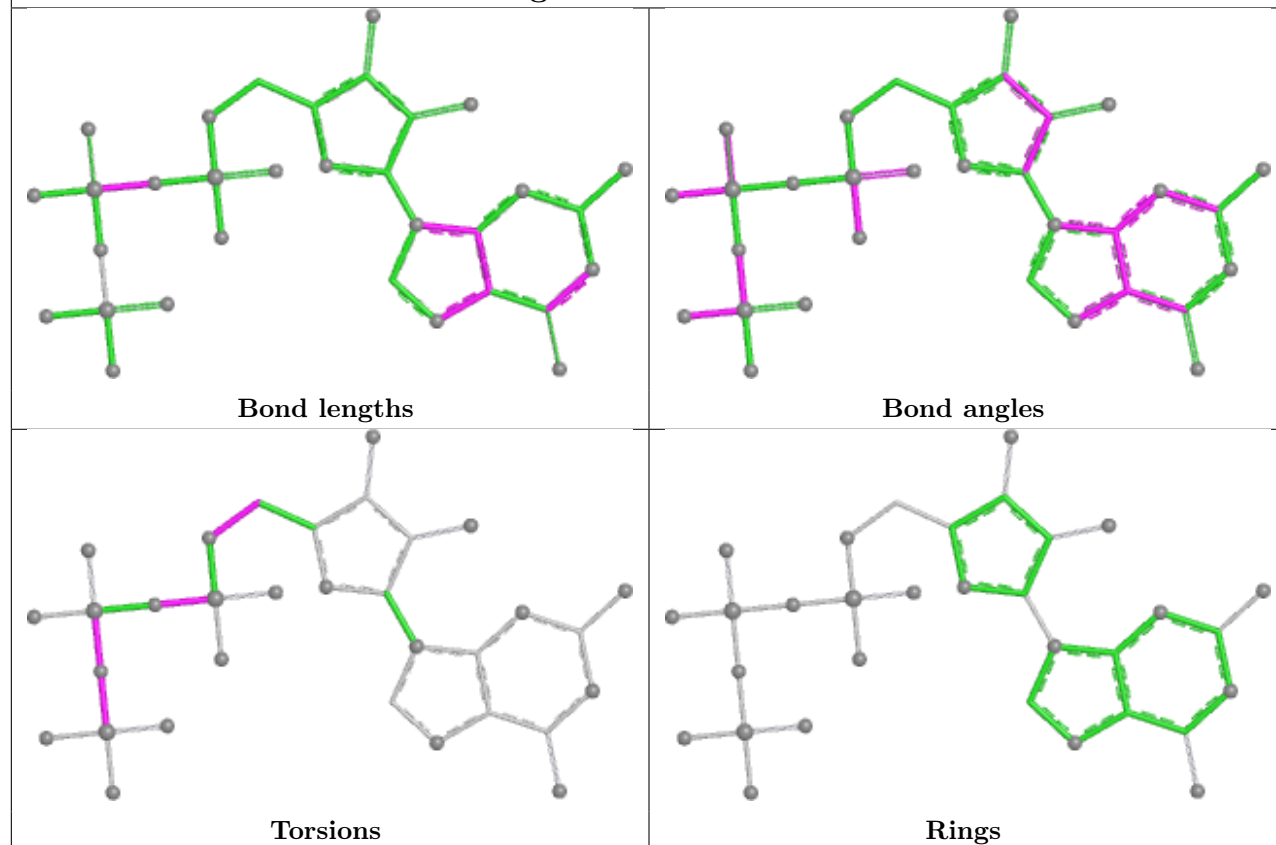


Ligand GTP B 705

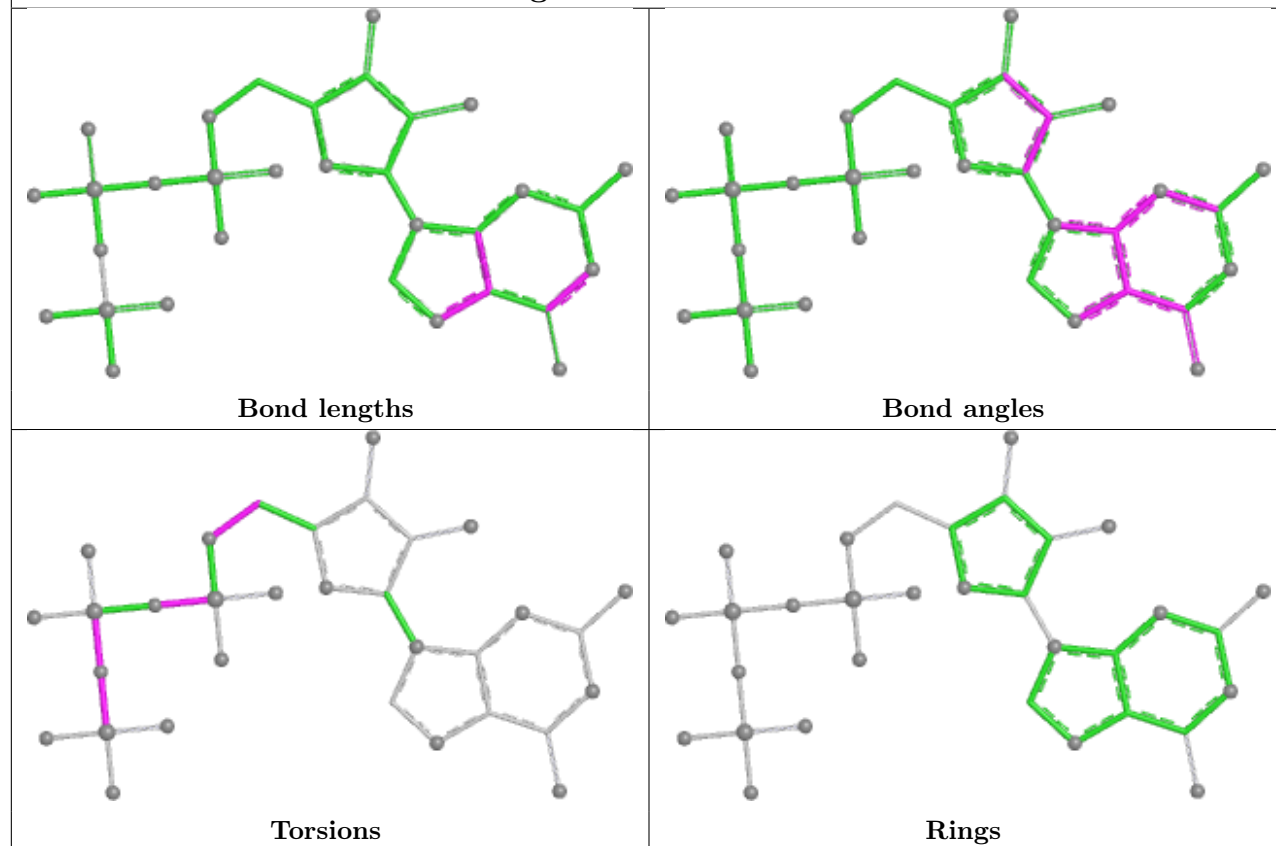


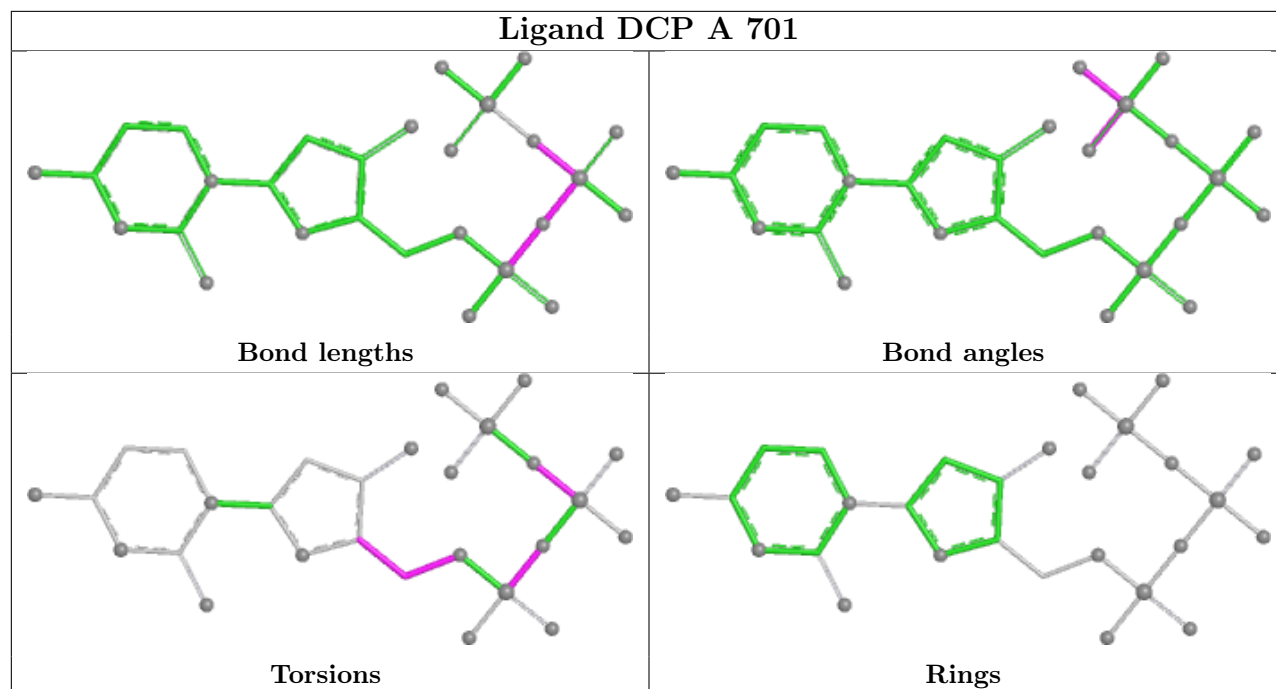


Ligand GTP A 703



Ligand GTP D 704





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	479/514 (93%)	0.47	15 (3%) 51 50	18, 45, 75, 94	1 (0%)
1	B	480/514 (93%)	0.28	15 (3%) 51 50	18, 38, 66, 89	0
1	C	481/514 (93%)	0.43	27 (5%) 30 29	12, 39, 80, 109	2 (0%)
1	D	484/514 (94%)	0.61	29 (5%) 27 26	26, 48, 81, 150	0
All	All	1924/2056 (93%)	0.45	86 (4%) 38 37	12, 43, 77, 150	3 (0%)

All (86) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	280	VAL	5.9
1	A	284	LEU	5.6
1	A	327	ASN	4.9
1	D	466	ILE	4.5
1	B	327	ASN	4.0
1	C	473	TYR	4.0
1	D	279	PRO	3.8
1	C	487	VAL	3.8
1	D	327	ASN	3.6
1	C	485	PRO	3.5
1	C	598	TRP	3.4
1	C	463	THR	3.3
1	D	328	ASN	3.2
1	D	464	GLY	3.2
1	C	468	ILE	3.1
1	C	464	GLY	3.0
1	A	490	ASP	3.0
1	B	115	MET	3.0
1	D	284	LEU	3.0
1	D	557	VAL	2.9
1	B	490	ASP	2.9

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Mol	Chain	Res	Type	RSRZ
1	B	262	GLU	2.9
1	D	489	LEU	2.9
1	D	228	GLU	2.8
1	D	276	LEU	2.8
1	D	488	LEU	2.8
1	D	485	PRO	2.8
1	D	467	LYS	2.8
1	A	491	VAL	2.8
1	D	522	CYS	2.8
1	C	488	LEU	2.7
1	B	284	LEU	2.7
1	C	590	LEU	2.7
1	A	331	TYR	2.7
1	C	261	PRO	2.7
1	C	491	VAL	2.7
1	D	562	LEU	2.6
1	C	472	ASP	2.6
1	B	329	PHE	2.6
1	C	466	ILE	2.6
1	D	115	MET	2.6
1	A	114	THR	2.6
1	B	114	THR	2.6
1	C	522	CYS	2.5
1	A	596	LYS	2.5
1	C	469	LYS	2.5
1	D	483	ALA	2.5
1	A	276	LEU	2.5
1	D	231	TRP	2.5
1	A	115	MET	2.5
1	B	466	ILE	2.5
1	B	464	GLY	2.4
1	B	328	ASN	2.4
1	A	126	ILE	2.4
1	D	126	ILE	2.4
1	C	576	ARG	2.4
1	B	468	ILE	2.4
1	C	443	GLU	2.3
1	D	441	ALA	2.3
1	C	462	PRO	2.3
1	C	327	ASN	2.3
1	C	557	VAL	2.3
1	B	522	CYS	2.3

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Mol	Chain	Res	Type	RSRZ
1	C	492	LYS	2.3
1	C	465	GLN	2.2
1	A	329	PHE	2.2
1	A	229	VAL	2.2
1	D	229	VAL	2.2
1	C	115	MET	2.2
1	C	484	LYS	2.2
1	D	465	GLN	2.2
1	A	438	LEU	2.2
1	C	284	LEU	2.2
1	D	476	LEU	2.2
1	A	328	ASN	2.2
1	A	465	GLN	2.1
1	D	468	ILE	2.1
1	D	550	ILE	2.1
1	B	326	GLN	2.1
1	B	594	GLN	2.1
1	C	591	ILE	2.1
1	D	329	PHE	2.1
1	D	487	VAL	2.1
1	C	597	GLU	2.0
1	B	599	ASN	2.0
1	D	114	THR	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

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

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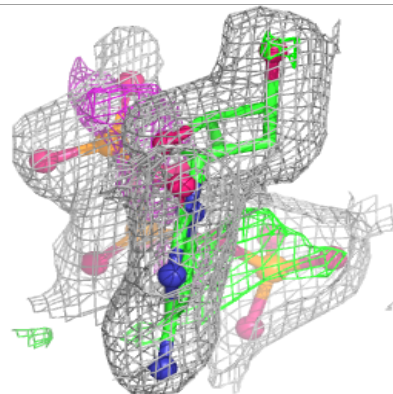
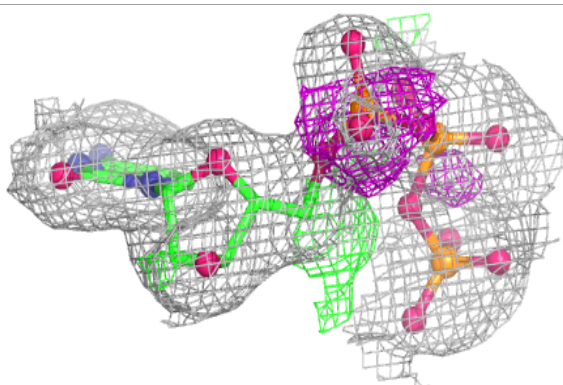
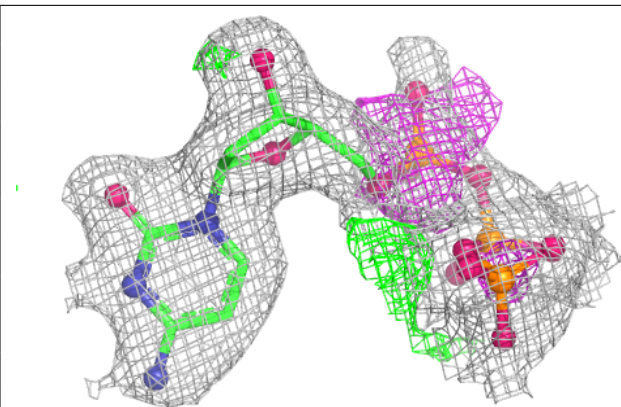
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	DCP	D	702	28/28	0.85	0.11	33,39,74,76	0
2	DCP	A	701	28/28	0.87	0.10	33,41,73,74	0
2	DCP	C	702	28/28	0.91	0.09	23,30,56,58	0
2	DCP	B	701	28/28	0.92	0.09	25,31,64,68	0
2	DCP	A	702	28/28	0.97	0.06	26,27,30,37	0
2	DCP	D	703	28/28	0.97	0.05	27,30,37,38	0
3	GTP	A	703	32/32	0.97	0.06	27,30,33,34	0
3	GTP	D	704	32/32	0.97	0.05	31,34,38,40	0
2	DCP	B	702	28/28	0.98	0.05	21,25,28,32	0
3	GTP	B	703	32/32	0.98	0.04	22,24,30,34	0
3	GTP	B	705	32/32	0.98	0.04	19,23,29,30	0
2	DCP	A	704	28/28	0.98	0.05	22,26,29,31	0
4	MG	B	704	1/1	0.98	0.06	25,25,25,25	0
4	MG	D	701	1/1	0.98	0.04	30,30,30,30	0
4	MG	C	701	1/1	0.99	0.03	30,30,30,30	0
4	MG	A	705	1/1	0.99	0.04	40,40,40,40	0

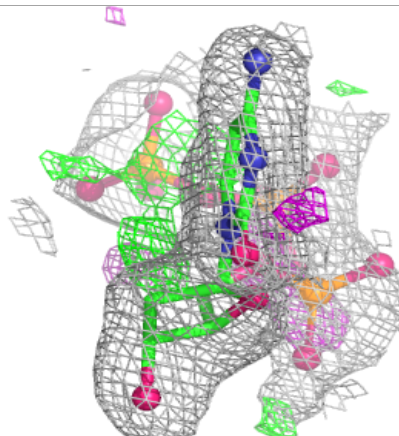
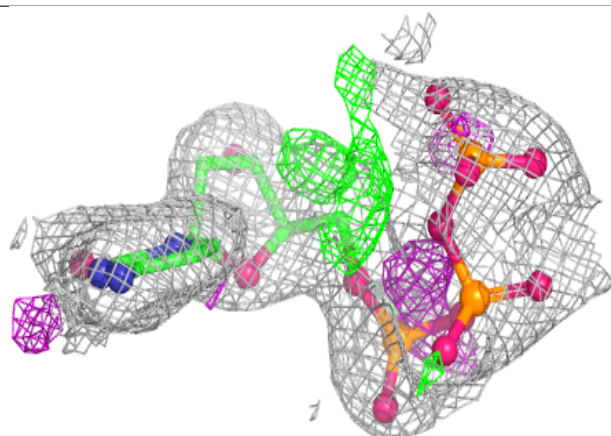
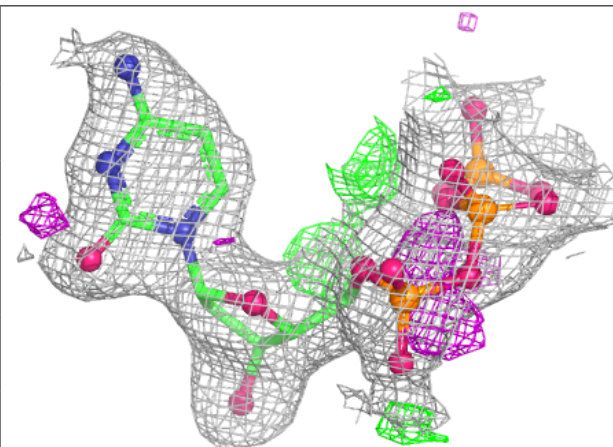
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around DCP D 702:

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

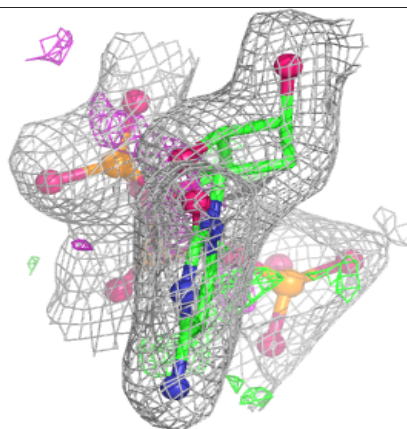
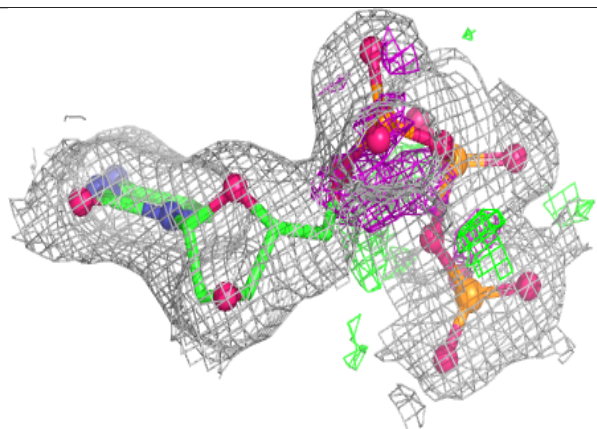
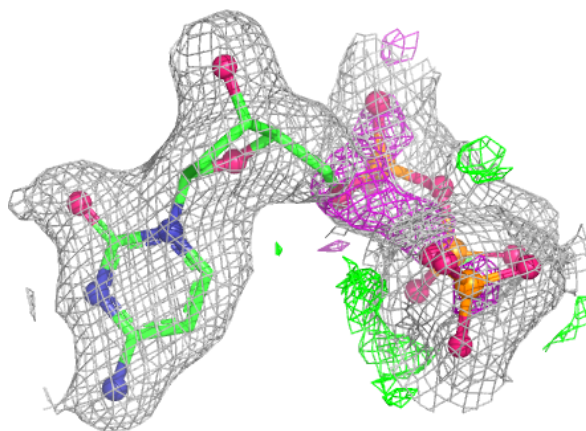
**Electron density around DCP A 701:**

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



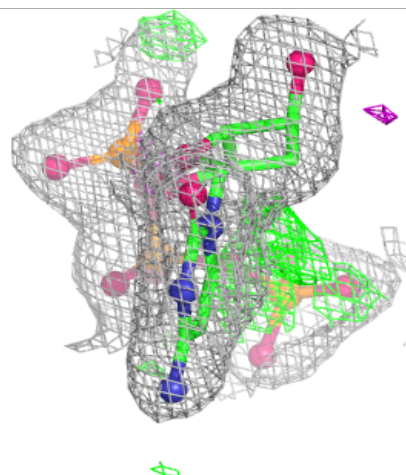
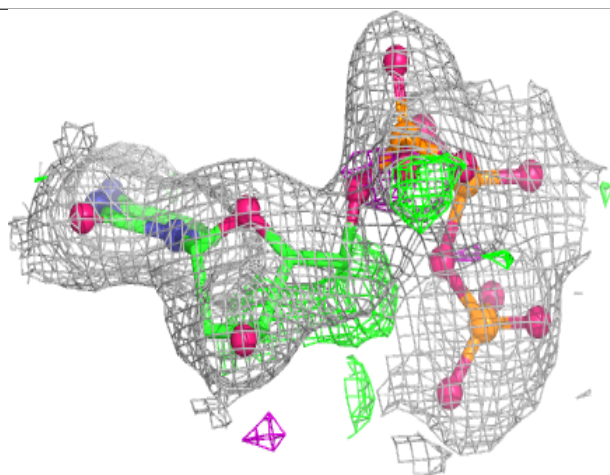
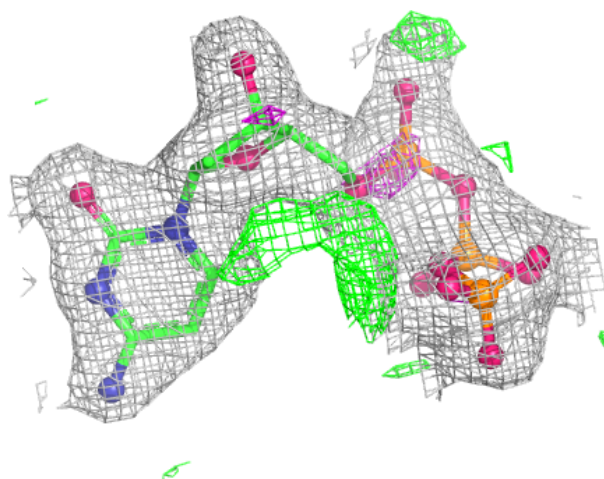
Electron density around DCP C 702:

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



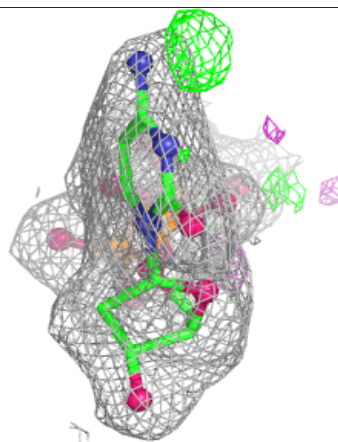
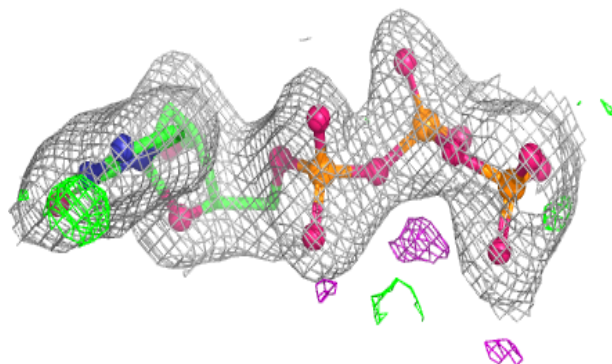
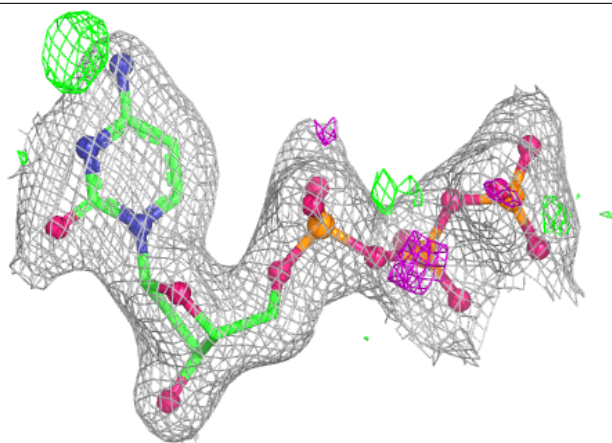
Electron density around DCP B 701:

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



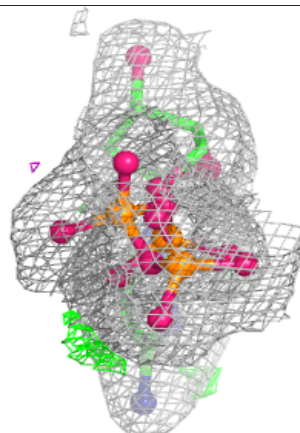
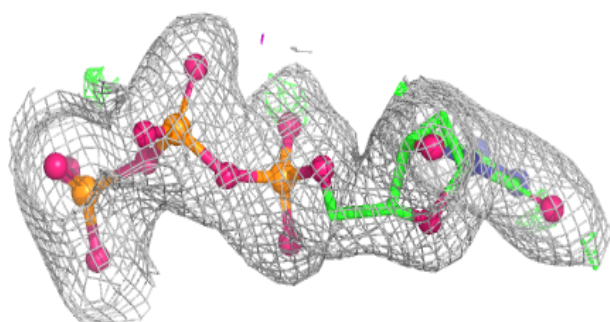
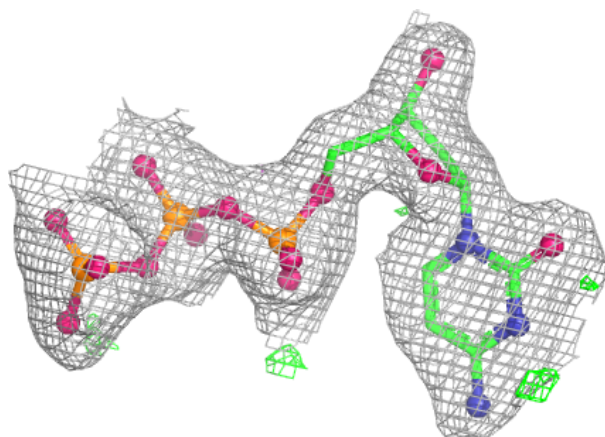
Electron density around DCP A 702:

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

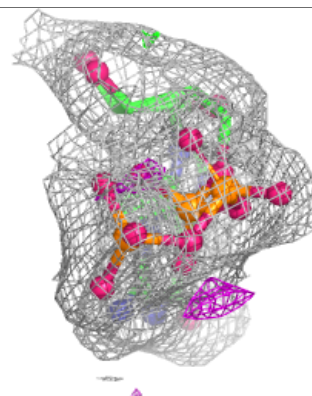
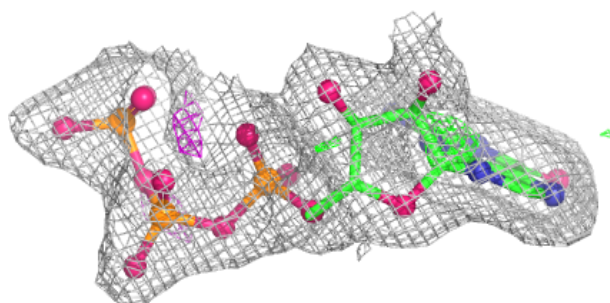
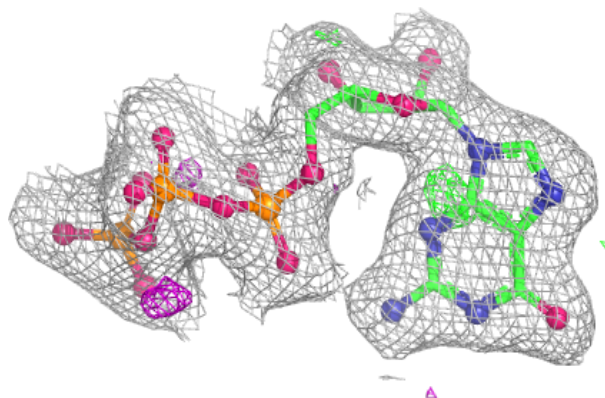


Electron density around DCP D 703:

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

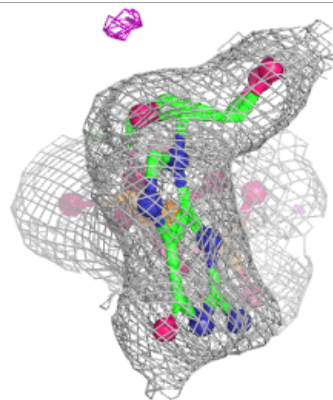
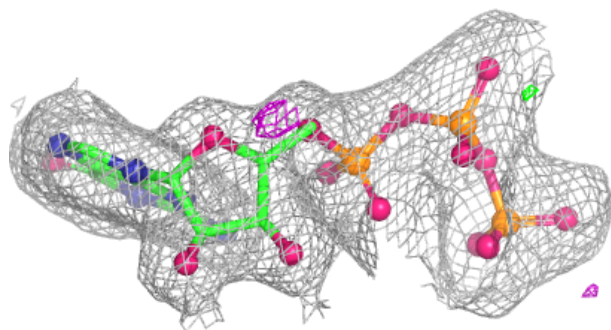
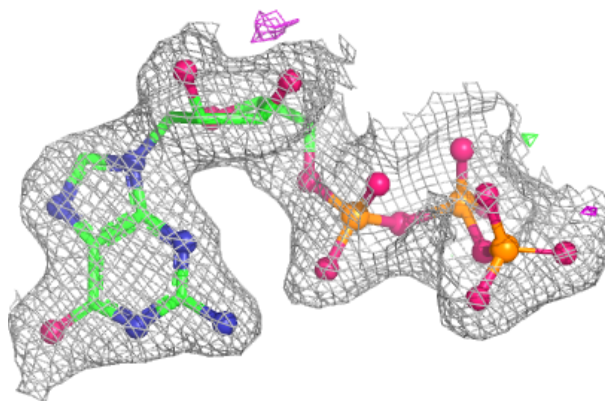
**Electron density around GTP A 703:**

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



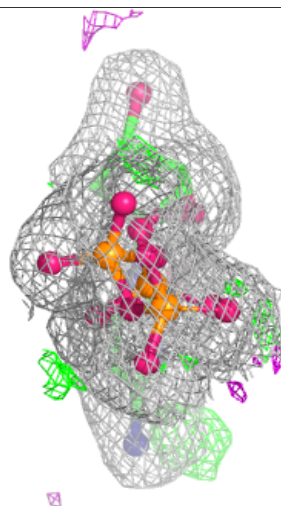
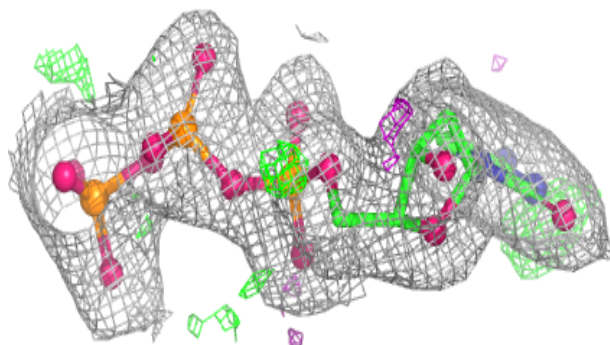
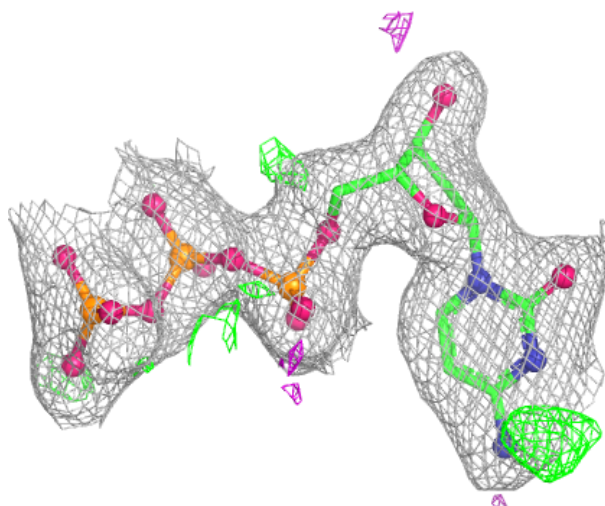
Electron density around GTP D 704:

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



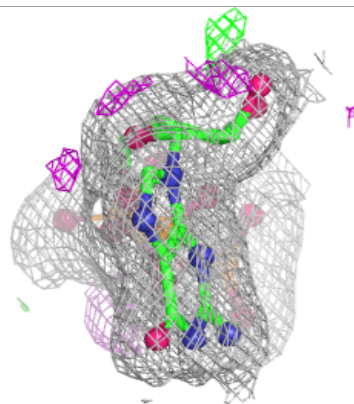
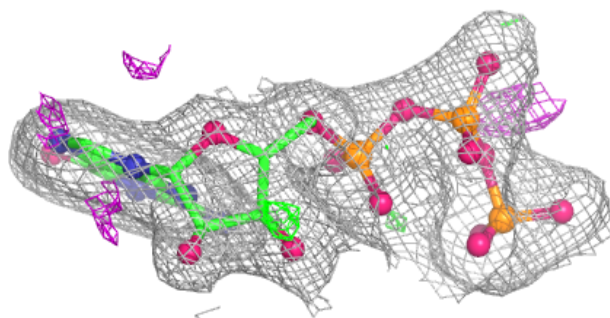
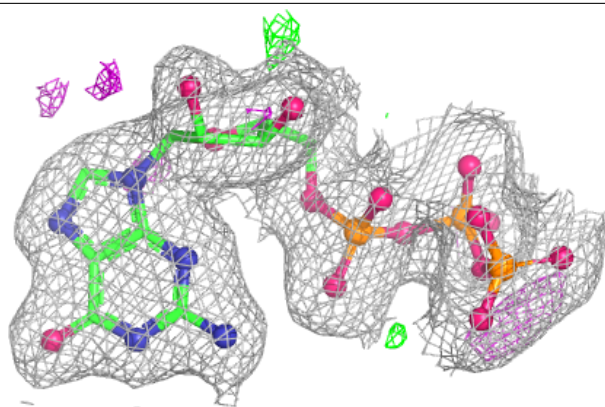
Electron density around DCP B 702:

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

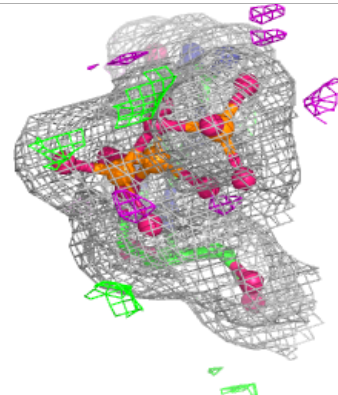
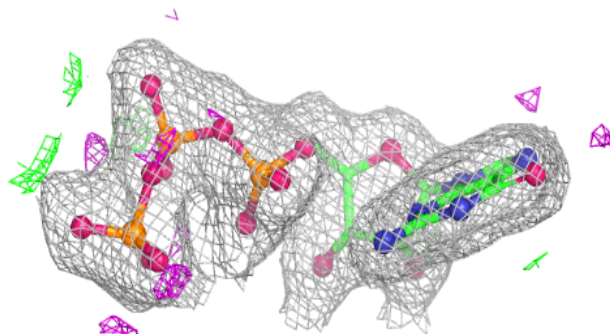
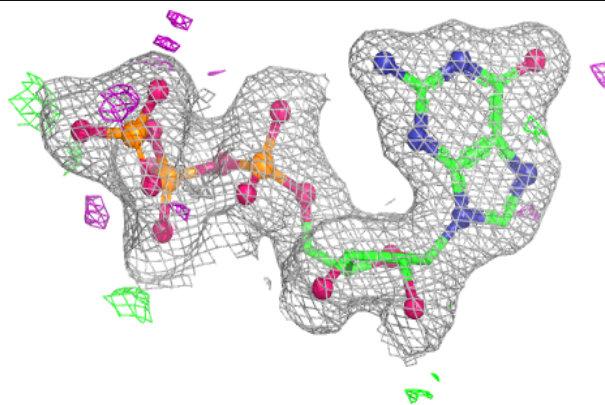


Electron density around GTP B 703:

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

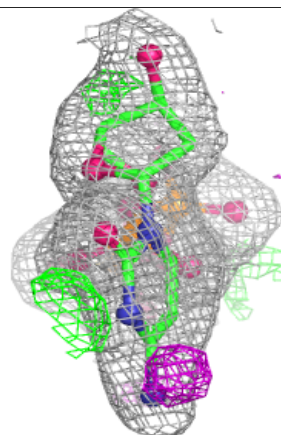
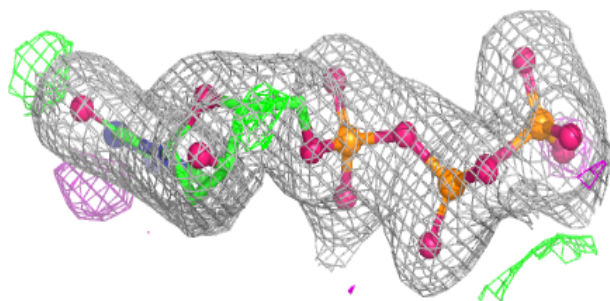
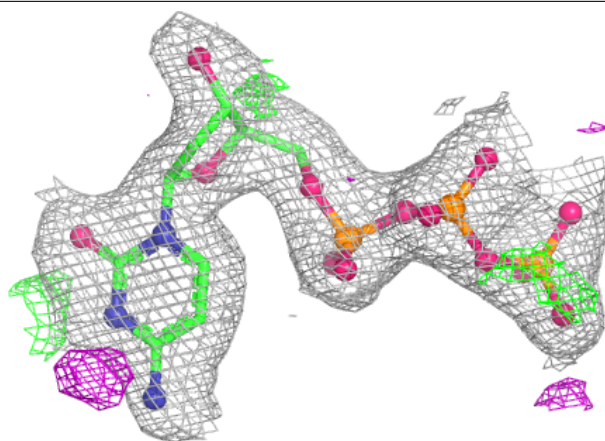
**Electron density around GTP B 705:**

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



Electron density around DCP A 704:

$2mF_o - DF_c$ (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.