



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 23, 2022 – 06:18 PM JST

PDB ID : 7EM3  
Title : Crystal structure of the PI5P4Kbeta-2a-ATP complex  
Authors : Senda, M.; Senda, T.  
Deposited on : 2021-04-13  
Resolution : 3.10 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](mailto: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.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.27  
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) : 2.27

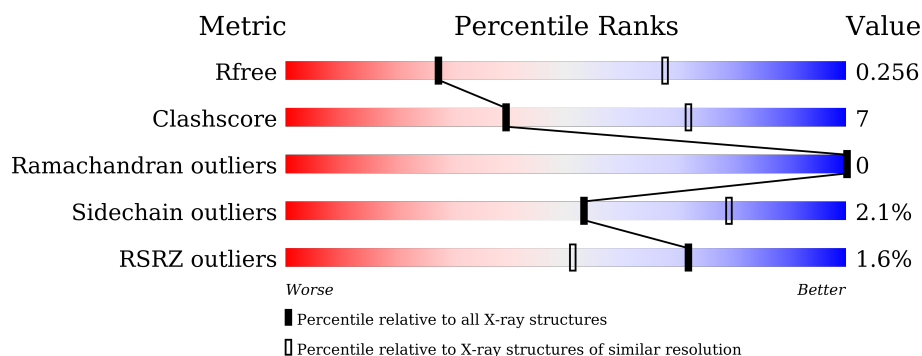
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.10 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	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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  $\geq 3$ , 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	393	<div> <div>%</div> <div> <div></div> <div>66%</div> <div>13%</div> <div>•</div> <div>20%</div> </div> </div>
1	B	393	<div> <div>2%</div> <div> <div></div> <div>65%</div> <div>12%</div> <div>23%</div> </div> </div>

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
2	CX0	A	501	-	-	-	X

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 4634 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.

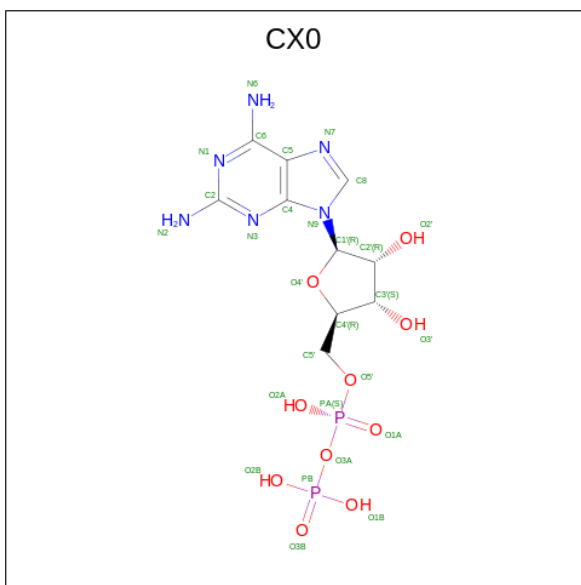
- Molecule 1 is a protein called Phosphatidylinositol 5-phosphate 4-kinase type-2 beta.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	313	Total	C	N	O	S	0	0	0
			2367	1517	390	448	12			
1	B	302	Total	C	N	O	S	0	0	0
			2207	1420	370	405	12			

There are 14 discrepancies between the modelled and reference sequences:

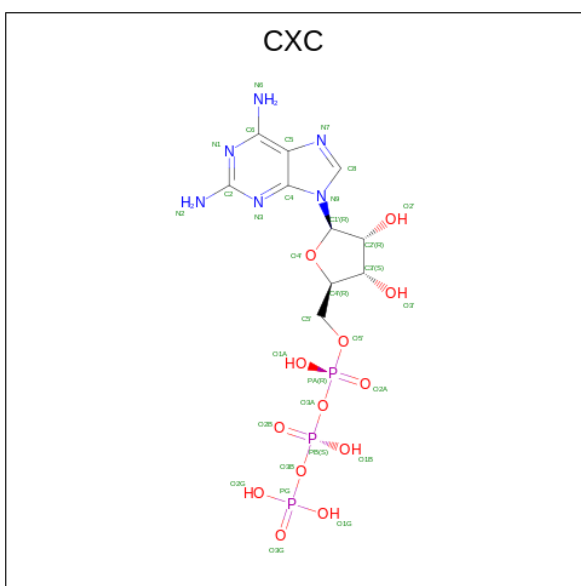
Chain	Residue	Modelled	Actual	Comment	Reference
A	24	GLY	-	expression tag	UNP P78356
A	25	PRO	-	expression tag	UNP P78356
A	26	ASN	-	expression tag	UNP P78356
A	27	CYS	-	expression tag	UNP P78356
A	28	ALA	-	expression tag	UNP P78356
A	29	PRO	-	expression tag	UNP P78356
A	30	GLY	-	expression tag	UNP P78356
B	24	GLY	-	expression tag	UNP P78356
B	25	PRO	-	expression tag	UNP P78356
B	26	ASN	-	expression tag	UNP P78356
B	27	CYS	-	expression tag	UNP P78356
B	28	ALA	-	expression tag	UNP P78356
B	29	PRO	-	expression tag	UNP P78356
B	30	GLY	-	expression tag	UNP P78356

- Molecule 2 is [(2 {R},3 {S},4 {R},5 {R})-5-[2,6-bis(azanyl)purin-9-yl]-3,4-bis(oxidan yl)oxolan-2-yl]methyl phosphono hydrogen phosphate (three-letter code: CX0) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>6</sub>O<sub>10</sub>P<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).



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

- Molecule 3 is [[(2 {R},3 {S},4 {R},5 {R})-5-[2,6-bis(azanyl)purin-9-yl]-3,4-bis(oxidanyl)oxolan-2-yl]methoxy-oxidanyl-phosphoryl] phosphono hydrogen phosphate (three-letter code: CXC) (formula:  $\text{C}_{10}\text{H}_{17}\text{N}_6\text{O}_{13}\text{P}_3$ ).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total 32	C 10	N 6	O 13	P 3	0	0



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	109.82Å 185.95Å 106.24Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.12 – 3.10 48.78 – 3.10	Depositor EDS
% Data completeness (in resolution range)	99.9 (46.12-3.10) 99.9 (48.78-3.10)	Depositor EDS
$R_{merge}$	0.06	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.42 (at 3.12Å)	Xtriage
Refinement program	PHENIX 1.14_3260	Depositor
R, $R_{free}$	0.213 , 0.256 0.213 , 0.256	Depositor DCC
$R_{free}$ test set	1005 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	103.4	Xtriage
Anisotropy	0.138	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 93.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	0.000 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.014 for 1/2*h+1/2*k,3/2*h-1/2*k,-l	Xtriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	4634	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	109.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.95% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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: CXC, CX0

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	0.50	0/2419	0.67	0/3297
1	B	0.47	0/2258	0.67	0/3083
All	All	0.49	0/4677	0.67	0/6380

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

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	2367	0	2123	37	0
1	B	2207	0	1907	29	0
2	A	28	0	0	1	0
3	A	32	0	0	3	0
All	All	4634	0	4030	64	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 7.

All (64) 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:B:272:ALA:HB1	1:B:401:GLU:HG2	1.65	0.78
1:A:57:LEU:HD22	1:A:104:ARG:HD3	1.72	0.72
1:A:203:ASN:ND2	1:A:205:PHE:H	1.88	0.70
1:A:203:ASN:HD22	1:A:204:VAL:N	1.88	0.70
1:B:203:ASN:HD22	1:B:204:VAL:H	1.41	0.68
1:A:188:ARG:NH1	3:A:502:CXC:O3A	2.27	0.67
1:B:69:ASP:HA	1:B:72:LYS:HE2	1.76	0.66
1:A:230:GLU:O	1:A:233:LYS:HG2	1.99	0.62
1:A:102:VAL:HG11	1:A:164:LEU:HD21	1.82	0.62
1:B:203:ASN:HD22	1:B:204:VAL:N	1.98	0.62
1:A:128:ASN:HB3	1:A:139:PHE:O	2.02	0.60
1:B:57:LEU:HD22	1:B:104:ARG:HD3	1.86	0.57
1:A:215:TYR:HB3	1:A:217:LEU:HD21	1.85	0.57
1:A:208:ARG:NH1	1:A:341:GLU:O	2.29	0.56
1:B:107:ARG:NH1	1:B:184:LEU:O	2.38	0.56
1:A:117:TYR:HE2	1:A:200:VAL:HG11	1.69	0.56
1:B:211:VAL:HG22	1:B:364:PHE:HE2	1.71	0.56
1:B:338:GLY:HA3	1:B:341:GLU:OE1	2.06	0.55
1:A:204:VAL:HA	1:A:349:TYR:CD2	2.42	0.54
1:B:79:VAL:O	1:B:92:ARG:HA	2.06	0.54
1:B:96:LYS:HB3	1:B:188:ARG:HB3	1.88	0.54
1:B:282:LEU:HB2	1:B:368:ILE:HD13	1.90	0.54
1:A:204:VAL:HA	1:A:349:TYR:HD2	1.73	0.53
1:B:203:ASN:ND2	1:B:204:VAL:N	2.57	0.52
1:A:203:ASN:HD22	1:A:204:VAL:H	1.56	0.51
1:A:407:PHE:O	1:A:411:MET:HG2	2.11	0.51
1:A:188:ARG:HH12	3:A:502:CXC:PB	2.35	0.50
1:A:208:ARG:NH1	1:A:342:PHE:HA	2.27	0.50
1:A:410:PHE:O	1:A:414:ILE:HG23	2.12	0.49
1:B:74:TYR:HE1	1:B:76:LYS:HE3	1.77	0.49
1:A:276:ILE:HA	1:A:373:PRO:HG3	1.95	0.49
1:A:49:GLY:O	1:A:53:THR:HG23	2.14	0.48
1:A:69:ASP:HB3	1:B:83:LEU:HD13	1.96	0.47
1:A:350:ALA:HA	1:A:363:TYR:O	2.14	0.47
1:B:127:ILE:HD11	1:B:141:THR:OG1	2.15	0.47
1:B:203:ASN:ND2	1:B:205:PHE:H	2.12	0.47
1:A:204:VAL:HG23	2:A:501:CX0:C6	2.45	0.47
1:A:117:TYR:CE2	1:A:200:VAL:HG11	2.49	0.46
1:B:109:ARG:NH1	1:B:172:VAL:HG23	2.30	0.46
1:A:152:VAL:O	1:A:197:TYR:HB2	2.15	0.46
1:B:206:SER:HB3	1:B:209:LEU:HB2	1.98	0.45
1:B:81:ASN:N	1:B:91:SER:O	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:110:PHE:CE2	1:B:182:GLN:HG2	2.52	0.45
1:B:49:GLY:O	1:B:53:THR:HG23	2.16	0.44
1:A:206:SER:HB3	1:A:209:LEU:HB2	1.98	0.44
1:B:74:TYR:CE1	1:B:76:LYS:HE3	2.52	0.44
1:A:97:GLU:CD	1:A:100:PRO:HB3	2.38	0.44
1:A:158:ALA:HA	3:A:502:CXC:N3	2.32	0.43
1:B:43:LEU:O	1:B:47:MET:HG3	2.18	0.43
1:A:105:ASN:OD1	1:A:168:HIS:NE2	2.36	0.43
1:B:400:PRO:HB2	1:B:401:GLU:H	1.63	0.43
1:A:179:LEU:HG	1:A:263:LYS:HG2	2.01	0.43
1:A:286:HIS:CE1	1:A:291:ALA:HB2	2.53	0.43
1:A:215:TYR:HA	1:A:238:PHE:O	2.19	0.42
1:B:211:VAL:HG22	1:B:364:PHE:CE2	2.51	0.42
1:B:407:PHE:O	1:B:411:MET:HG2	2.19	0.42
1:A:83:LEU:HD13	1:B:69:ASP:HB3	2.02	0.41
1:A:113:ASP:HB3	1:A:116:ASP:OD2	2.19	0.41
1:B:159:GLU:HG2	1:B:371:LEU:O	2.20	0.41
1:A:57:LEU:HD23	1:A:57:LEU:HA	1.87	0.41
1:A:77:ILE:HD12	1:A:77:ILE:O	2.21	0.41
1:B:38:ALA:HB1	1:B:43:LEU:HB2	2.04	0.40
1:A:62:VAL:HA	1:A:104:ARG:NH2	2.36	0.40
1:A:169:GLN:O	1:A:172:VAL:HG12	2.21	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	303/393 (77%)	293 (97%)	10 (3%)	0	100	100
1	B	292/393 (74%)	282 (97%)	10 (3%)	0	100	100
All	All	595/786 (76%)	575 (97%)	20 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains ⓘ

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	237/352 (67%)	233 (98%)	4 (2%)	60	83
1	B	202/352 (57%)	197 (98%)	5 (2%)	47	75
All	All	439/704 (62%)	430 (98%)	9 (2%)	53	79

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	114	ASP
1	A	139	PHE
1	A	203	ASN
1	A	410	PHE
1	B	114	ASP
1	B	139	PHE
1	B	203	ASN
1	B	234	ASP
1	B	410	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	203	ASN
1	B	203	ASN

### 5.3.3 RNA ⓘ

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](#)

2 ligands are modelled in this entry.

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$
3	CXC	A	502	-	27,34,34	2.01	5 (18%)	34,54,54	2.48	12 (35%)
2	CX0	A	501	-	25,30,30	1.38	4 (16%)	32,47,47	1.91	10 (31%)

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
3	CXC	A	502	-	-	5/18/38/38	0/3/3/3
2	CX0	A	501	-	-	5/12/32/32	0/3/3/3

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	502	CXC	O4'-C1'	7.63	1.51	1.41
2	A	501	CX0	PB-O3B	3.19	1.60	1.50
3	A	502	CXC	C3'-C4'	3.07	1.60	1.53
2	A	501	CX0	C6-C5	-2.65	1.33	1.43
2	A	501	CX0	C5-C4	-2.65	1.33	1.40
3	A	502	CXC	O2'-C2'	2.55	1.49	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	501	CX0	O4'-C1'	2.27	1.44	1.41
3	A	502	CXC	C6-C5	-2.27	1.34	1.43
3	A	502	CXC	C5-C4	-2.10	1.35	1.40

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	502	CXC	N3-C2-N1	-5.93	119.31	127.22
3	A	502	CXC	C2-N3-C4	5.75	121.92	115.36
3	A	502	CXC	O4'-C1'-C2'	-5.28	99.20	106.93
2	A	501	CX0	N3-C2-N1	-4.68	120.98	127.22
3	A	502	CXC	PB-O3A-PA	-4.64	116.90	132.83
2	A	501	CX0	C1'-N9-C4	4.17	133.97	126.64
2	A	501	CX0	C2-N3-C4	3.94	119.85	115.36
3	A	502	CXC	O5'-C5'-C4'	3.31	120.39	108.99
2	A	501	CX0	O2B-PB-O1B	3.18	119.80	107.64
2	A	501	CX0	PA-O3A-PB	-3.01	122.48	132.83
3	A	502	CXC	C3'-C2'-C1'	-2.89	96.63	100.98
2	A	501	CX0	O4'-C4'-C3'	-2.82	99.54	105.11
3	A	502	CXC	O2G-PG-O1G	2.76	118.19	107.64
3	A	502	CXC	C5-C6-N6	-2.60	116.40	120.35
3	A	502	CXC	O4'-C4'-C3'	-2.57	100.03	105.11
2	A	501	CX0	C5-C6-N6	-2.56	116.46	120.35
3	A	502	CXC	O3B-PG-O3G	-2.27	98.57	111.19
3	A	502	CXC	C2'-C3'-C4'	2.25	107.01	102.64
2	A	501	CX0	N6-C6-N1	2.14	122.90	117.07
2	A	501	CX0	O3A-PB-O3B	-2.09	99.62	111.19
2	A	501	CX0	N2-C2-N1	2.02	120.39	117.25
3	A	502	CXC	O2G-PG-O3G	2.01	118.56	110.68

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	CX0	C5'-O5'-PA-O2A
3	A	502	CXC	C4'-C5'-O5'-PA
3	A	502	CXC	C5'-O5'-PA-O3A
2	A	501	CX0	C3'-C4'-C5'-O5'
3	A	502	CXC	O4'-C4'-C5'-O5'
3	A	502	CXC	C3'-C4'-C5'-O5'
2	A	501	CX0	C5'-O5'-PA-O3A
2	A	501	CX0	C5'-O5'-PA-O1A

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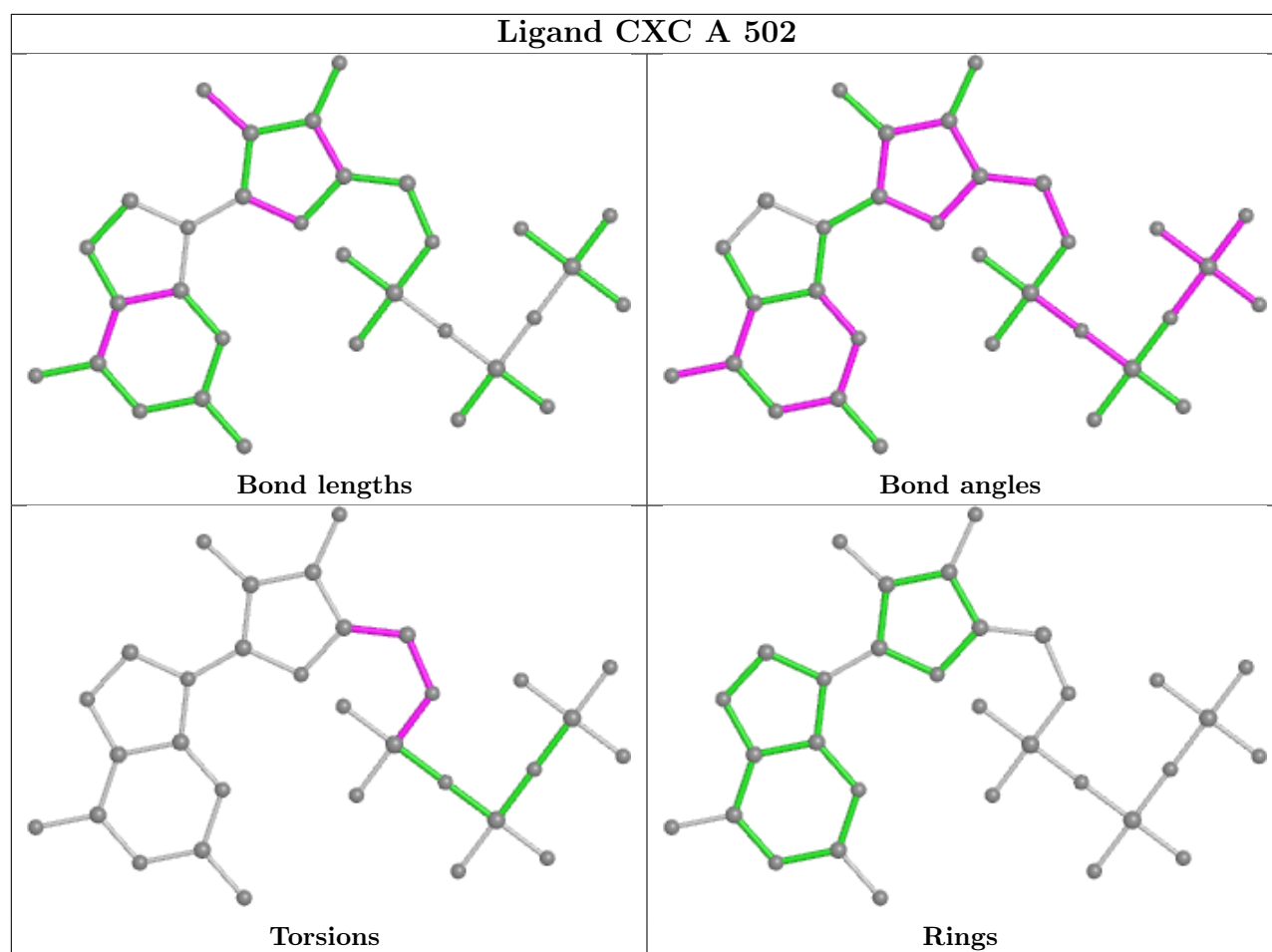
Mol	Chain	Res	Type	Atoms
3	A	502	CXC	C5'-O5'-PA-O2A
2	A	501	CX0	O4'-C4'-C5'-O5'

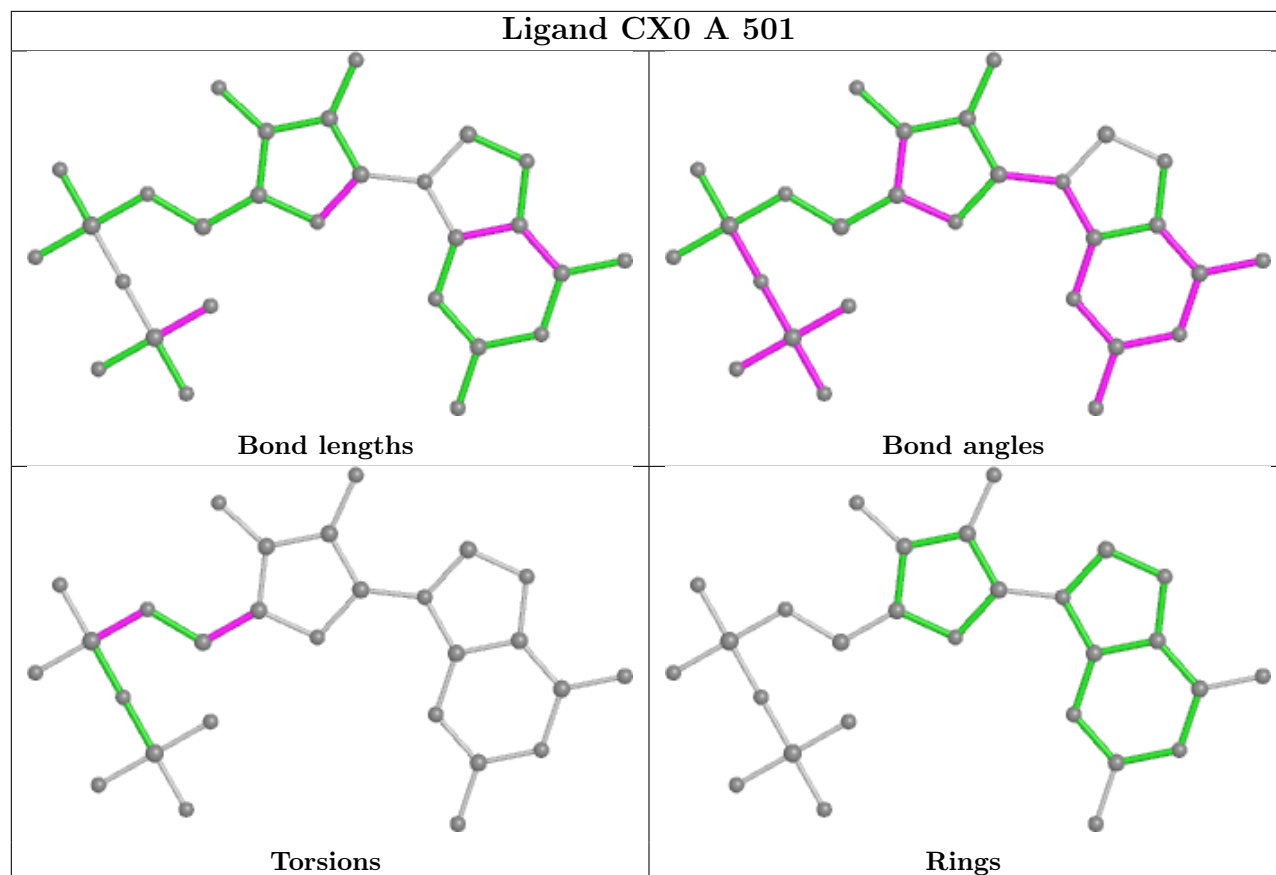
There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	502	CXC	3	0
2	A	501	CX0	1	0

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





## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	313/393 (79%)	-0.13	4 (1%) 77 59	57, 102, 164, 209	0
1	B	302/393 (76%)	-0.06	6 (1%) 65 44	59, 109, 176, 212	0
All	All	615/786 (78%)	-0.10	10 (1%) 72 51	57, 105, 170, 212	0

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	243	PHE	4.2
1	A	217	LEU	3.6
1	B	245	ASN	3.3
1	B	281	LEU	2.8
1	B	366	ALA	2.6
1	B	241	ASN	2.6
1	A	373	PRO	2.5
1	A	215	TYR	2.2
1	A	281	LEU	2.1
1	B	240	ASP	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 ⓘ

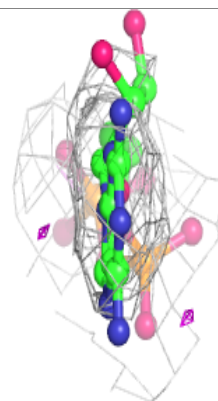
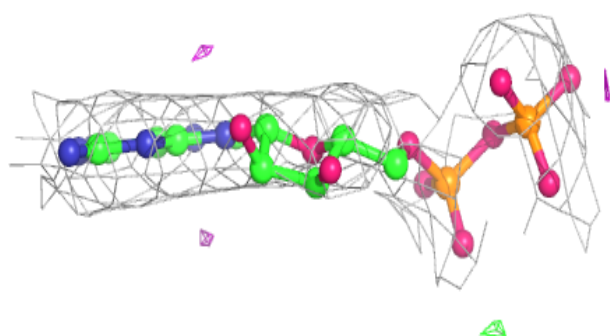
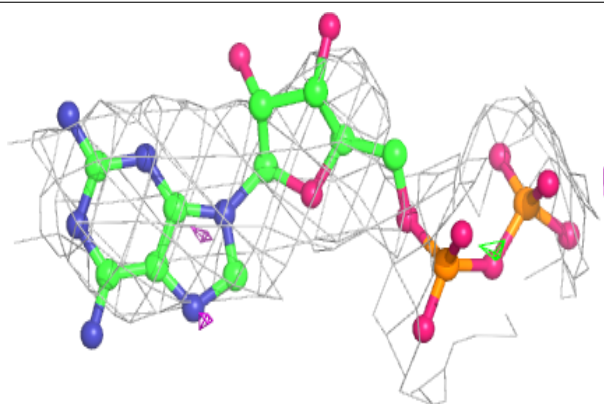
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

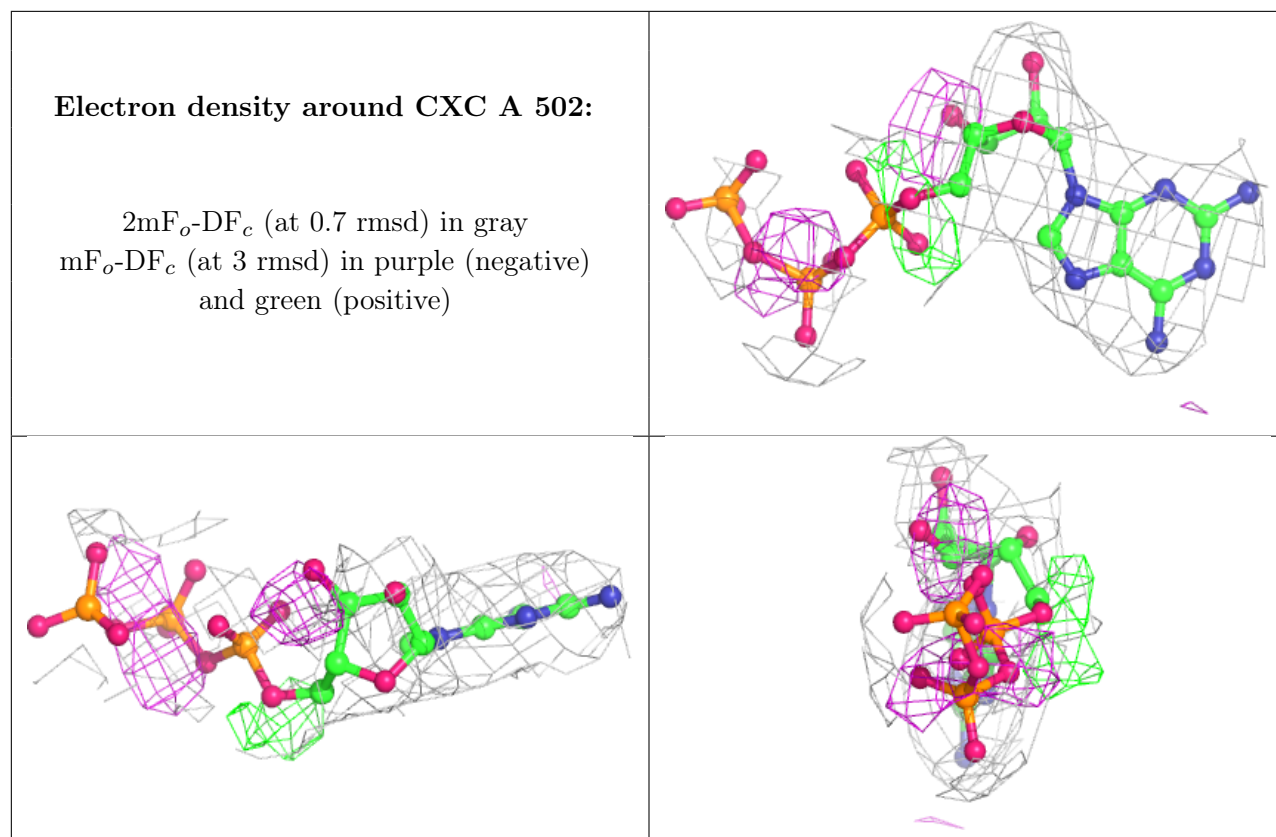
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	CX0	A	501	28/28	0.70	0.41	139,179,234,235	0
3	CXC	A	502	32/32	0.86	0.20	74,109,147,152	0

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 CX0 A 501:

2mF<sub>o</sub>-DF<sub>c</sub> (at 0.7 rmsd) in gray  
mF<sub>o</sub>-DF<sub>c</sub> (at 3 rmsd) in purple (negative)  
and green (positive)





## 6.5 Other polymers [i](#)

There are no such residues in this entry.