WORLDWIDE PDB
PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 25, 2024 – 06:12 AM EST

PDB ID	:	5C53
Title	:	Probing the Structural and Molecular Basis of Nucleotide Selectivity by Human Mitochondrial DNA Polymerase gamma
Authors	:	Sohl, C.D.; Szymanski, M.R.; Mislak, A.C.; Shumate, C.K.; Amiralaei, S.; Schinazi, R.F.; Anderson, K.S.; Yin, Y.W.
Deposited on	:	2015-06-19
Resolution	:	3.57 Å(reported)

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

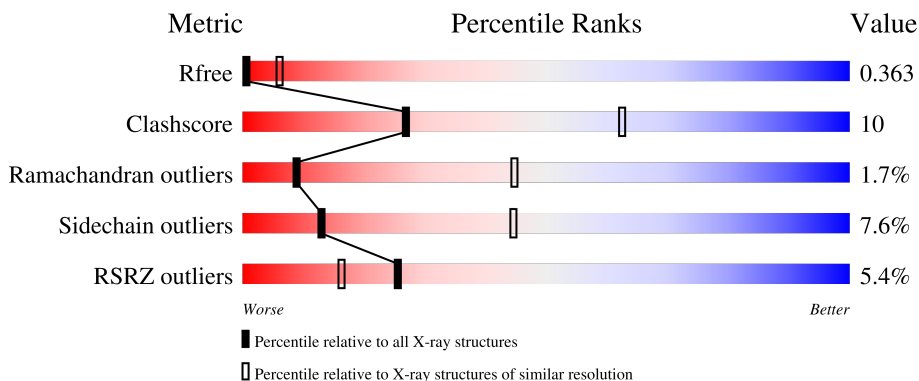|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1   Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.57 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	Percentile Ranks	Value
Rfree		0.363
Clashscore		10
Ramachandran outliers		1.7%
Sidechain outliers		7.6%
RSRZ outliers		5.4%

Worse   *Better*

▮ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1020 (3.62-3.50)
Clashscore	141614	1100 (3.62-3.50)
Ramachandran outliers	138981	1065 (3.62-3.50)
Sidechain outliers	138945	1066 (3.62-3.50)
RSRZ outliers	127900	1009 (3.64-3.48)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1205	5% �/ 56% / 21% ・ 18%
2	B	903	.% �/ 31% / 8% ・ 60%
2	C	903	3% �/ 29% / 9% ・ 60%
3	T	26	12% �/ 62% / 38%

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Mol	Chain	Length	Quality of chain
4	P	22	68% 27% 5%

2 Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 14634 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 DNA polymerase subunit gamma-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	983	Total 7799	C 4966	N 1371	O 1413	S 49	0	0	0

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098
A	?	-	GLN	deletion	UNP P54098

- Molecule 2 is a protein called Pol gamma B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	363	Total 2942	C 1885	N 520	O 521	S 16	0	0	0
2	C	358	Total 2883	C 1850	N 506	O 511	S 16	0	0	0

- Molecule 3 is a DNA chain called DNA (26-MER).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	T	26	Total 529	C 251	N 93	O 159	P 26	0	0	0

- Molecule 4 is a DNA chain called DNA (5'-D(*AP*AP*AP*AP*CP*GP*AP*GP*GP*GP*

CP*CP*AP*GP*TP*GP*CP*CP*GP*TP*AP*C)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
4	P	21	433	205	89	119	20	0	0	0

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Mg		
5	A	2	2	2	0	0

- Molecule 6 is [[(2 {S},5 {R})-5-(4-azanyl-5-fluoranyl-2-oxidanylidene-pyrimidin-1-yl)-1 ,3$l^{4}-oxathiolan-2-yl]methoxy-oxidanyl-phosphoryl] phosphono hydrogen phosphate (three-letter code: 4Y3) (formula: $C_8H_{15}FN_3O_{12}P_3S$).

4Y3
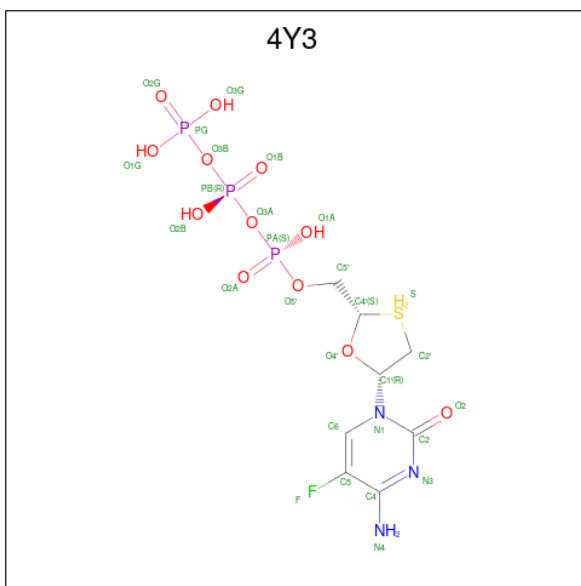
Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
			Total	C	F	N	O	P	S		
6	A	1	28	8	1	3	12	3	1	0	0

- Molecule 7 is 2',3'-DIDEOXYCYTIDINE-5'-MONOPHOSPHATE (three-letter code: DOC) (formula: $C_9H_{14}N_3O_6P$).

DOC
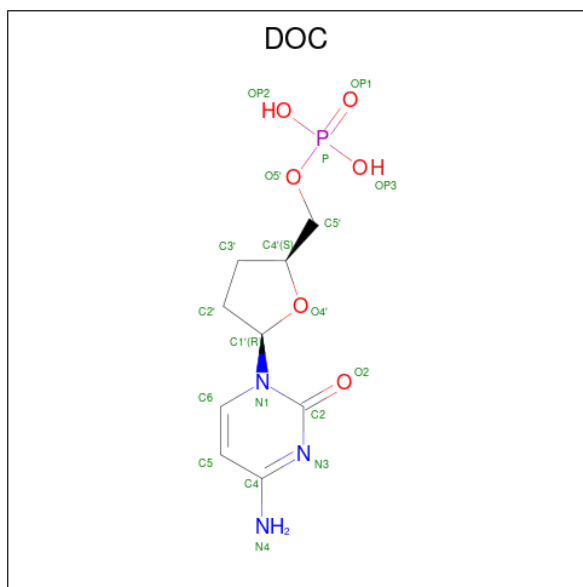
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
7	P	1	18	9	3	5	1	0	0

3 Residue-property plots ⓘ

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: DNA polymerase subunit gamma-1

TRP LEU VAL ARG GLU LEU ASN LEU PRO VAL ASP ARG THR GLY GLY TRP ILE SER LEU GLN ASP L1025 R1026 K1027 E1031 S1036 Q1037 W1038 V1043 R1047 K1050 G1051 G1052 E1056 M1057 K1060 L1061 I1064 D1068 I1069 P1070 R1071 T1072 P1073 V1074 L1075 G1076 I1079 S1080

R1081 A1082 P1085 S1086 A1087 V1088 Q1089 E1090 E1091 R1096 V1097 N1098 W1099 V1106 D1107 Y1108 A1115 W1118 L1119 F1120 A1124 F1129 C1130 I1131 S1132 I1133 H1134 D1135 E1136 V1137 R1138 V1141 R1142 E1143 E1144 R1148 Q1154 I1155 T1156 N1157 R1161 Y1166 K1167 L1170 N1171 D1172 L1173

P1174 V1177 A1178 V1183 D1184 I1185 D1186 R1187 R1190 K1191 C1197 K1198 T1199 P1200 S1201 N1202 E1207 R1208 R1209 Y1210 P1213 Q1214 G1215 L1218 K1228 GLY SER LEU GLU LYS ARG GLN SER GLN GLY PRO

• Molecule 2: Pol gamma B

%

Chain B:　31%　8% •　60%

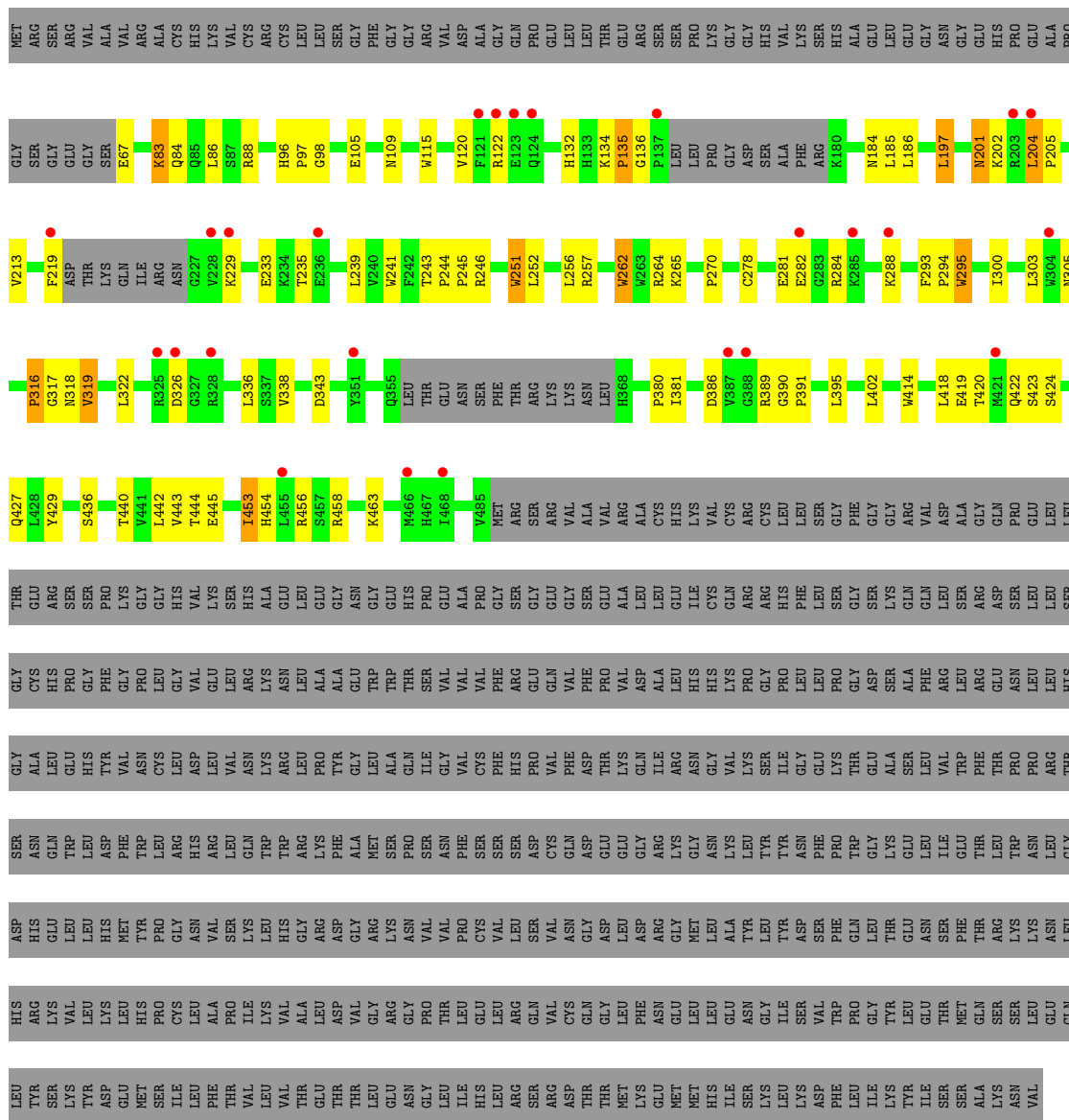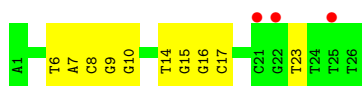MET ARG SER ARG VAL ALA VAL ARG ALA CYS HIS LYS VAL CYS ARG LEU LEU SER GLY PHE GLY GLY ARG VAL ASP ALA GLY GLN PRO GLU LEU LEU THR GLU ARG SER PRO LYS GLY HIS VAL LYS SER HIS ALA GLU LEU GLY GLY ASN GLU HIS PRO GLU ALA PRO

GLY SER GLY GLU GLY SER GLU A68 L69 R75 R76 H77 F78 L79 S80 G81 S82 K83 Q84 Q85 D89 L102 G103 V104 R107 K108 N109 H133 G136 PRO LEU LEU PRO GLY ASP SER ALA PHE R179 L185 L186 Y193 L197 K202 V213 F219 D220 T221

LYS GLN ILE ARG ASN GLY VAL K229 S230 I231 T235 W241 P244 P245 W262 W263 R264 K265 F266 C278 K288 L289 Y290 L299 G317 L322 H323 R328 K329 N330 P333 L336 Q355 LEU THR GLU ASN SER PHE T362 R363 K364 K365 N366 L367 H368

L372 H375 K382 V383 A384 P391 T392 L393 E394 L395 R396 N404 L407 S412 L418 E419 T420 M421 Q422 S423 S424 L428 K431 I437 L438 F439 T440 V441 L442 T446 N450 G451 L452 I453 H454 L455 R456 S457 T460 T461 M462 K463 H467 I468 S469 K470

W485 MET ARG SER ARG VAL ALA VAL ARG ALA CYS HIS LYS VAL CYS ARG LEU LEU SER GLY PHE GLY GLY ARG VAL ASP ALA GLY GLN PRO GLU LEU LEU THR GLU ARG SER PRO LYS GLY HIS VAL LYS SER HIS ALA GLU LEU GLU GLY ASN GLY HIS PRO GLU

ALA PRO GLY SER GLY GLU GLY SER GLU SER GLU ALA LEU LEU GLU LEU CYS GLN ARG HIS PHE LEU SER GLY SER GLU LYS GLN GLU LEU ILE GLU LEU ILE ARG LYS ASN LEU ALA GLU LEU ALA GLU LEU ALA GLU TRP THR SER VAL

VAL VAL PHE ARG GLU GLN VAL PHE PRO VAL SER GLU PRO VAL ASP ALA LEU HIS HIS LYS PRO GLY PRO LEU LEU LEU PRO GLY ASP ALA SER GLU ALA PHE ARG ARG LEU ARG GLU ASP ASN LEU LEU HIS GLY LEU ALA LEU GLU GLU LEU ASN TYR VAL ASN CYS SER LEU ASP LEU VAL GLU VAL ASN LYS ARG LYS ASN LEU ALA ALA MET SER PRO SER ASN

VAL CYS PHE HIS PRO VAL PHE ASP THR LYS GLN ILE LEU ARG ASN GLY TYR TYR ASN PHE PRO TRP GLY LYS GLU THR GLU ILE GLU THR LEU LEU TRP ASN PRO ARG THR SER ASN SER GLY LEU GLU LEU GLY ASP GLY ARG LYS LEU ASP PHE ALA MET SER PRO SER ASN

PHE SER SER ASP CYS GLN ASP GLU GLU GLY ARG LYS GLY ASN LYS TYR TYR ASN PHE PRO TRP GLY LYS GLU THR GLU ILE GLU THR LEU LEU TRP ASN LEU ASP ALA HIS LEU GLU LEU HIS MET TYR PRO GLY ASN VAL SER LYS LEU HIS ARG ARG GLY GLY ASP LYS ASN VAL VAL

PRO CYS VAL LEU SER VAL ASN VAL ASP ASP LEU ASP ARG GLY MET LEU ALA TYR LEU TYR ASP SER PHE GLN LEU GLU THR MET GLN LEU SER SER LEU GLN GLN GLY TYR SER TYR LYS LEU TYR ASP MET SER ILE LEU GLU ARG HIS MET PRO CYS LEU ALA PRO ILE LYS VAL ALA LEU ASP VAL GLY ARG GLY PRO THR

LEU GLU LEU ARG GLN GLN VAL CYS GLN GLY LEU LEU PHE ASN GLU GLU LEU GLU ASN GLY ILE SER GLU VAL TRP PRO GLY TYR LEU GLU THR ILE GLU ASN THR MET GLN LEU SER SER SER GLU GLN GLN TYR SER TYR LYS LEU TYR ASP MET SER ILE LEU GLU LEU PHE THR VAL LEU VAL THR GLU THR THR LEU GLU ASN GLY LEU

ILE HIS LEU ARG SER ARG ASP THR THR MET LYS GLU MET HIS SER ILE LYS LEU LYS ASP PHE LEU ILE LYS TYR ILE SER SER ALA LYS ASN VAL
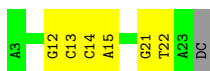
• Molecule 2: Pol gamma B

Chain C:

• Molecule 3: DNA (26-MER)

Chain T:

• Molecule 4: DNA (5'-D(*AP*AP*AP*AP*CP*GP*AP*GP*GP*GP*CP*CP*AP*GP*TP*GP
*CP*CP*GP*TP*AP*C)-3')

Chain P:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	217.45Å 217.45Å 163.59Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.91 – 3.57 48.91 – 3.57	Depositor EDS
% Data completeness (in resolution range)	99.0 (48.91-3.57) 85.1 (48.91-3.57)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.41 (at 3.57Å)	Xtriage
Refinement program	PHENIX 1.9_1692	Depositor
R, R_{free}	0.300 , 0.338 0.333 , 0.363	Depositor DCC
R_{free} test set	2000 reflections (4.24%)	wwPDB-VP
Wilson B-factor (Å^2)	135.3	Xtriage
Anisotropy	0.207	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.26 , 7.5	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.88	EDS
Total number of atoms	14634	wwPDB-VP
Average B, all atoms (Å^2)	74.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.41% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: MG, 4Y3, DOC

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	0.22	0/7999	0.43	1/10852 (0.0%)
2	B	0.22	0/3015	0.39	0/4074
2	C	0.23	0/2956	0.42	2/3997 (0.1%)
3	T	0.51	0/591	0.88	0/909
4	P	0.49	0/488	0.75	0/752
All	All	0.25	0/15049	0.47	3/20584 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	135	PRO	CA-N-CD	-8.64	99.41	111.50
2	C	96	HIS	C-N-CD	-7.46	104.20	120.60
1	A	752	LEU	C-N-CD	-6.44	106.44	120.60

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	7799	0	7692	184	0
2	B	2942	0	2937	44	0
2	C	2883	0	2858	64	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	T	529	0	291	10	0
4	P	433	0	234	6	0
5	A	2	0	0	0	0
6	A	28	0	11	4	0
7	P	18	0	12	1	0
All	All	14634	0	14035	292	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 10.

The worst 5 of 292 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:C:134:LYS:CD	2:C:135:PRO:HD3	1.82	1.08
2:C:135:PRO:HD2	2:C:136:GLY:H	1.11	1.06
2:C:134:LYS:HD2	2:C:135:PRO:CD	1.92	1.00
2:C:134:LYS:HD2	2:C:135:PRO:HD3	1.01	1.00
2:C:419:GLU:H	2:C:420:THR:HA	1.35	0.92

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	969/1205 (80%)	835 (86%)	114 (12%)	20 (2%)	7	40
2	B	355/903 (39%)	326 (92%)	27 (8%)	2 (1%)	25	64
2	C	350/903 (39%)	325 (93%)	18 (5%)	7 (2%)	7	42
All	All	1674/3011 (56%)	1486 (89%)	159 (10%)	29 (2%)	9	45

5 of 29 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	752	LEU
1	A	1070	PRO
2	C	97	PRO
1	A	749	PHE
1	A	1177	VAL

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	823/1017 (81%)	749 (91%)	74 (9%)	9	39
2	B	325/791 (41%)	307 (94%)	18 (6%)	21	56
2	C	316/791 (40%)	297 (94%)	19 (6%)	19	54
All	All	1464/2599 (56%)	1353 (92%)	111 (8%)	13	44

5 of 111 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1071	ARG
2	C	453	ILE
1	A	1198	LYS
2	C	402	LEU
2	C	204	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	264	GLN
1	A	1134	HIS
2	C	96	HIS

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 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z| > 2$	Counts	RMSZ	#$|Z| > 2$
6	4Y3	A	4003	5	25,29,29	4.32	10 (40%)	35,45,45	1.80	7 (20%)
7	DOC	P	101	4	16,19,20	0.42	0	20,26,29	0.44	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	4Y3	A	4003	5	-	5/22/31/31	0/2/2/2
7	DOC	P	101	4	-	0/7/18/19	0/2/2/2

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	4003	4Y3	O2-C2	10.19	1.42	1.23
6	A	4003	4Y3	C2'-S	-10.06	1.51	1.81
6	A	4003	4Y3	O4'-C1'	8.80	1.62	1.42
6	A	4003	4Y3	C4'-S	-6.81	1.58	1.81
6	A	4003	4Y3	C2'-C1'	-5.62	1.33	1.52

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	A	4003	4Y3	C2'-S-C4'	6.80	106.11	88.24
6	A	4003	4Y3	F-C5-C4	4.44	120.92	118.02
6	A	4003	4Y3	PB-O3A-PA	-2.79	123.25	132.83
6	A	4003	4Y3	PB-O3B-PG	-2.52	124.19	132.83
6	A	4003	4Y3	O2-C2-N3	-2.49	118.28	122.33

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	4003	4Y3	C5'-O5'-PA-O1A
6	A	4003	4Y3	C5'-O5'-PA-O2A
6	A	4003	4Y3	PA-O3A-PB-O2B
6	A	4003	4Y3	C5'-O5'-PA-O3A
6	A	4003	4Y3	PG-O3B-PB-O2B

There are no ring outliers.

2 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	4003	4Y3	4	0
7	P	101	DOC	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 4Y3 A 4003

Bond lengths

Bond angles

Torsions

Rings
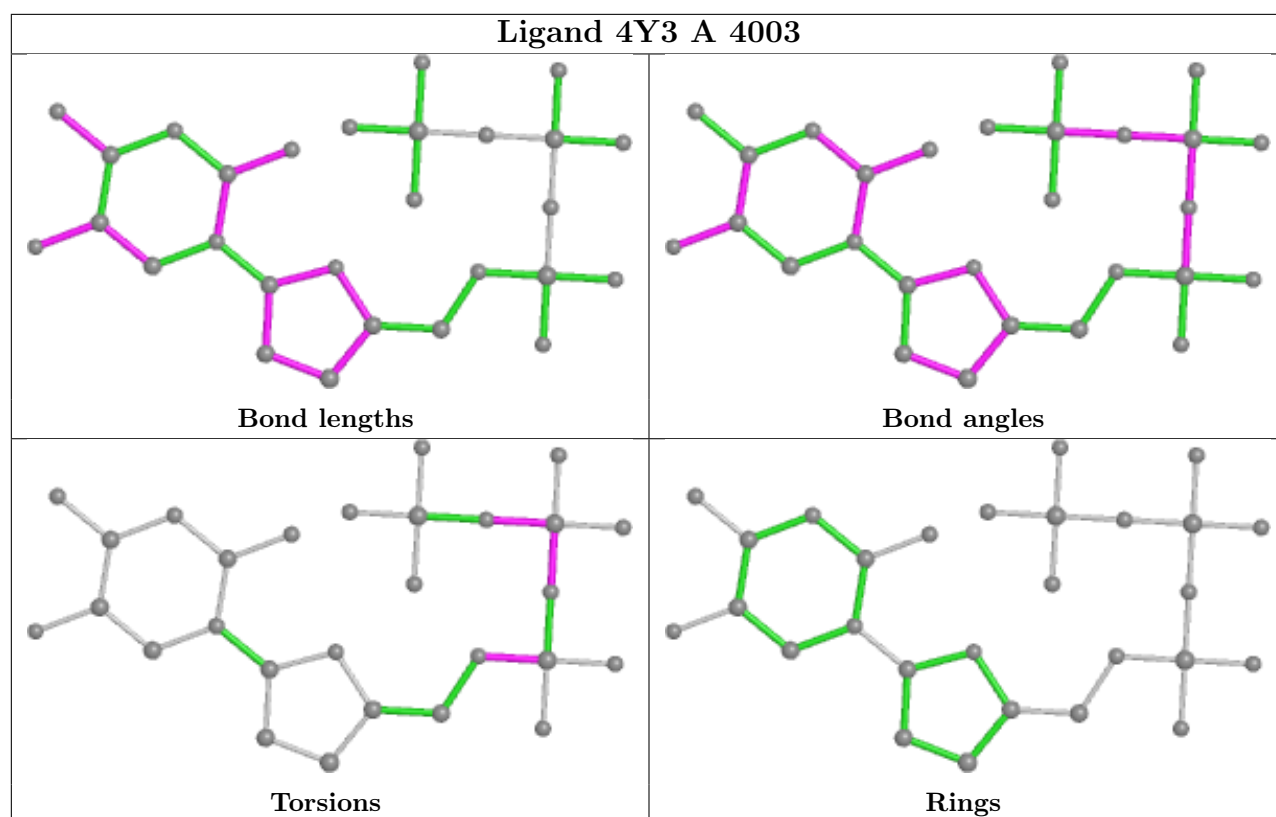
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	983/1205 (81%)	0.32	59 (6%)	21	13	44, 73, 91, 163	0
2	B	363/903 (40%)	0.21	8 (2%)	62	45	47, 65, 87, 101	0
2	C	358/903 (39%)	0.33	25 (6%)	16	10	54, 73, 86, 96	0
3	T	26/26 (100%)	0.76	3 (11%)	4	4	84, 107, 126, 131	0
4	P	21/22 (95%)	0.17	0	100	100	92, 105, 127, 166	0
All	All	1751/3059 (57%)	0.30	95 (5%)	25	16	44, 72, 94, 166	0

The worst 5 of 95 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	745	PRO	11.1
1	A	630	ASN	9.6
1	A	746	GLY	9.1
1	A	747	CYS	8.0
1	A	632	ALA	7.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

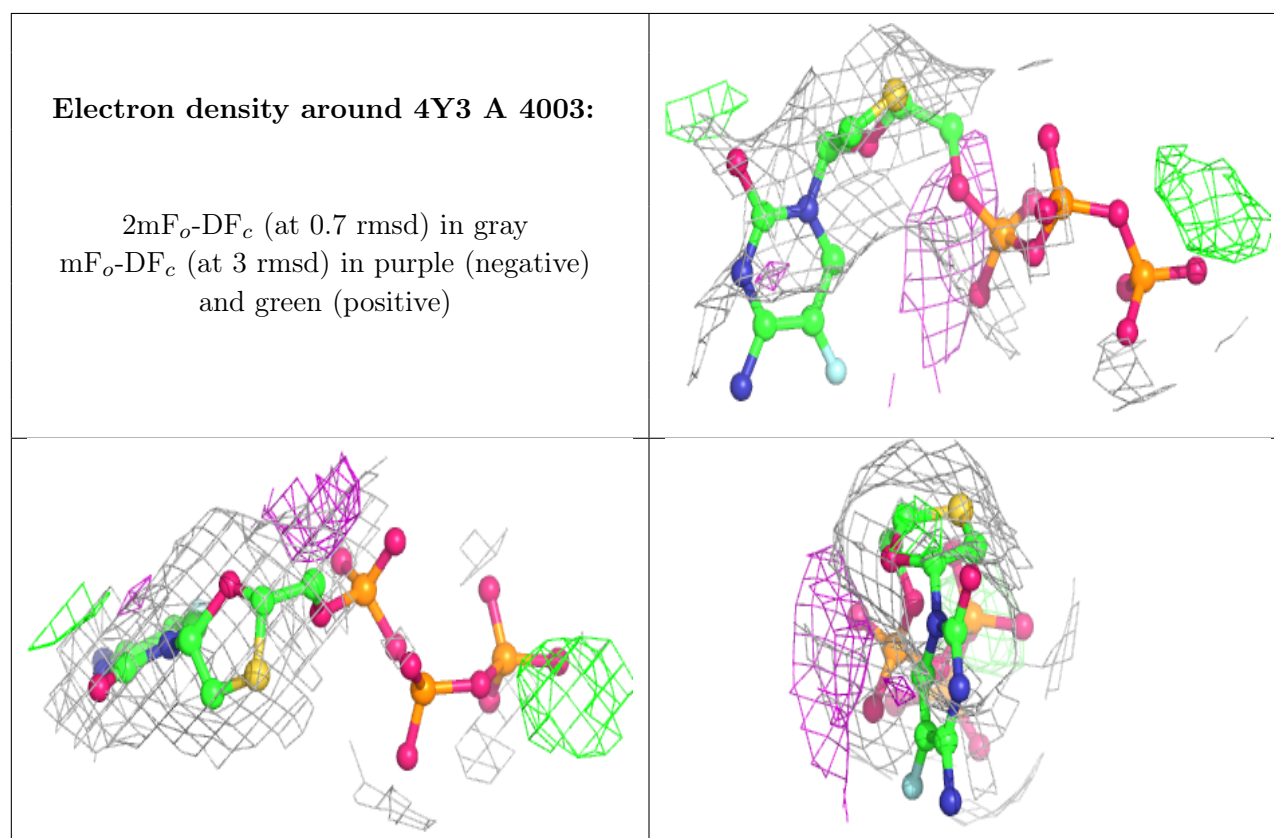## 6.4 Ligands ⓘ

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, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	4Y3	A	4003	28/28	0.82	0.39	80,100,106,107	0
7	DOC	P	101	18/19	0.84	0.35	91,94,98,99	0
5	MG	A	4002	1/1	0.88	0.34	60,60,60,60	0
5	MG	A	4001	1/1	0.94	0.20	70,70,70,70	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 4Y3 A 4003:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.