



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 9, 2026 – 05:58 AM UTC

PDB ID : 3RMB / pdb_00003rmb
Title : Crystal Structure of a replicative DNA polymerase bound to DNA containing
Thymine Glycol
Authors : Aller, P.; Duclos, S.; Wallace, S.S.; Doublié, S.
Deposited on : 2011-04-20
Resolution : 2.65 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ 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
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

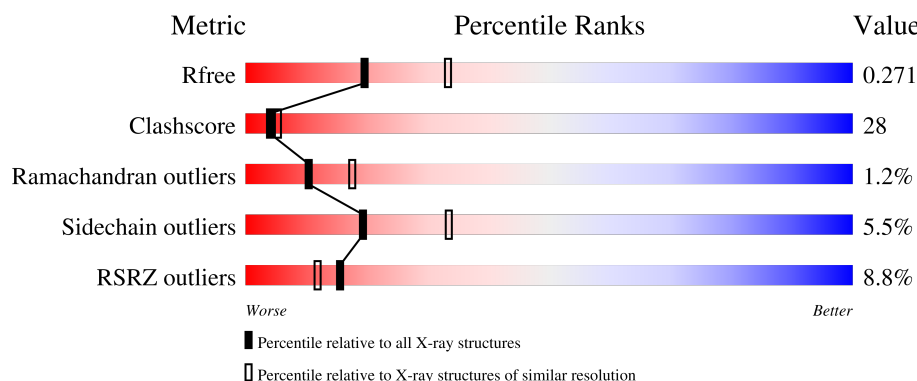
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.65 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	1110 (2.66-2.66)
Clashscore	190562	1141 (2.66-2.66)
Ramachandran outliers	187476	1126 (2.66-2.66)
Sidechain outliers	187428	1126 (2.66-2.66)
RSRZ outliers	180081	1110 (2.66-2.66)

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	906	10% 50% 43% 6%
1	B	906	7% 56% 40% .
1	C	906	2% 59% 37% ..
1	D	906	17% 47% 48% 5%
2	E	18	17% 11% 83% 6%

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Mol	Chain	Length	Quality of chain
2	G	18	22%72%6%
2	I	18	39%44%17%
2	K	18	17%39%56%6%
3	F	14	21%21%79%
3	H	14	14%86%
3	J	14	29%64%7%
3	L	14	14%7%93%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 32166 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.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	903	Total	C	N	O	S	4	0	0
			7342	4715	1220	1374	33			
1	B	903	Total	C	N	O	S	0	0	0
			7294	4686	1209	1366	33			
1	C	900	Total	C	N	O	S	0	0	0
			7332	4706	1220	1373	33			
1	D	897	Total	C	N	O	S	0	0	0
			7097	4558	1163	1344	32			

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	222	ALA	ASP	engineered mutation	UNP Q38087
A	327	ALA	ASP	engineered mutation	UNP Q38087
A	904	HIS	-	expression tag	UNP Q38087
A	905	HIS	-	expression tag	UNP Q38087
A	906	HIS	-	expression tag	UNP Q38087
B	222	ALA	ASP	engineered mutation	UNP Q38087
B	327	ALA	ASP	engineered mutation	UNP Q38087
B	904	HIS	-	expression tag	UNP Q38087
B	905	HIS	-	expression tag	UNP Q38087
B	906	HIS	-	expression tag	UNP Q38087
C	222	ALA	ASP	engineered mutation	UNP Q38087
C	327	ALA	ASP	engineered mutation	UNP Q38087
C	904	HIS	-	expression tag	UNP Q38087
C	905	HIS	-	expression tag	UNP Q38087
C	906	HIS	-	expression tag	UNP Q38087
D	222	ALA	ASP	engineered mutation	UNP Q38087
D	327	ALA	ASP	engineered mutation	UNP Q38087
D	904	HIS	-	expression tag	UNP Q38087
D	905	HIS	-	expression tag	UNP Q38087
D	906	HIS	-	expression tag	UNP Q38087

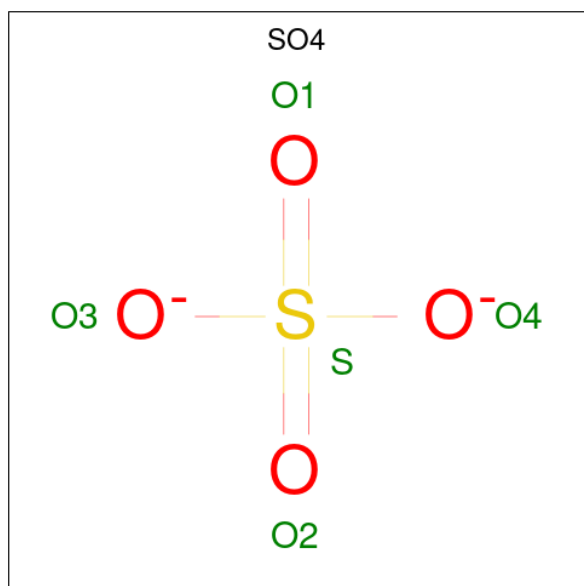
- Molecule 2 is a DNA chain called DNA (5'-D(*CP*GP*CP*(CTG)P*GP*AP*AP*TP*GP*AP*CP*AP*GP*CP*CP*GP*CP*G)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	E	18	Total	C	N	O	P	0	0	0
			369	174	72	106	17			
2	G	18	Total	C	N	O	P	0	0	0
			369	174	72	106	17			
2	I	18	Total	C	N	O	P	0	0	0
			369	174	72	106	17			
2	K	18	Total	C	N	O	P	0	0	0
			369	174	72	106	17			

- Molecule 3 is a DNA chain called DNA (5'-D(*GP*CP*GP*GP*CP*TP*GP*TP*CP*AP*TP*TP*CP*A)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	F	14	Total	C	N	O	P	0	0	0
			280	134	50	83	13			
3	H	14	Total	C	N	O	P	0	0	0
			280	134	50	83	13			
3	J	14	Total	C	N	O	P	0	0	0
			280	134	50	83	13			
3	L	14	Total	C	N	O	P	0	0	0
			280	134	50	83	13			

- Molecule 4 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total	O	S	0	0
			5	4	1		

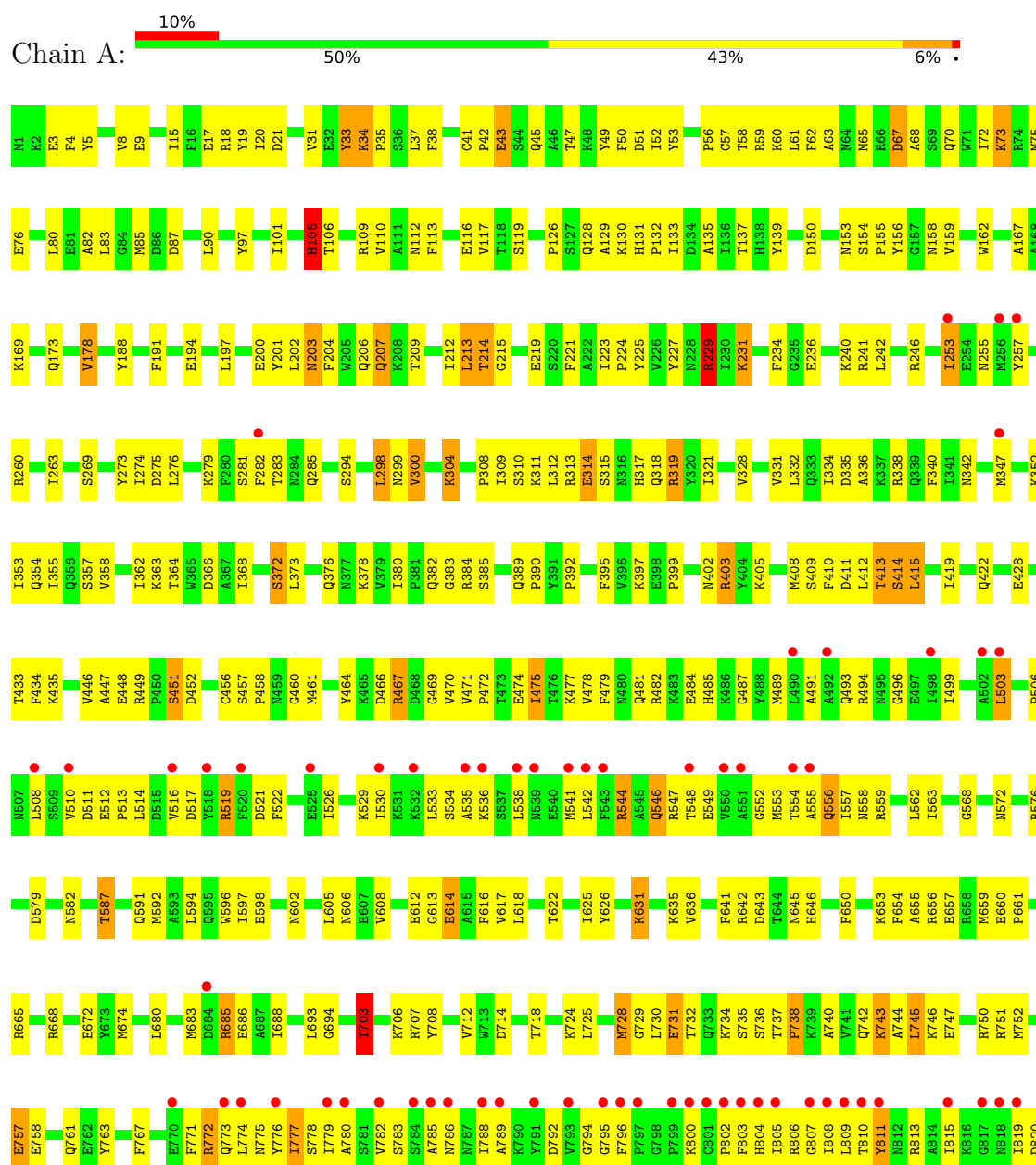
- Molecule 5 is water.

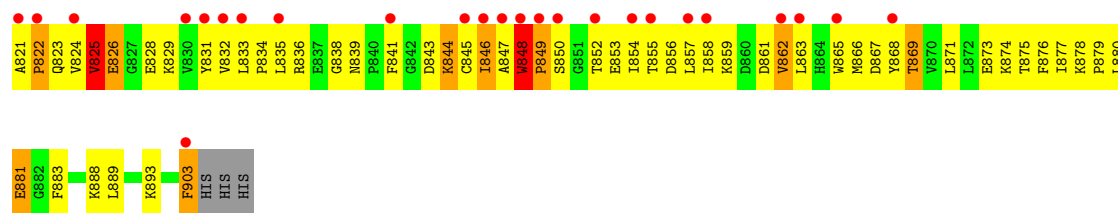
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	111	Total	O		0	0
			111	111			
5	B	129	Total	O		0	0
			129	129			
5	C	178	Total	O		0	0
			178	178			
5	D	33	Total	O		0	0
			33	33			
5	E	5	Total	O		0	0
			5	5			
5	F	4	Total	O		0	0
			4	4			
5	G	11	Total	O		0	0
			11	11			
5	H	4	Total	O		0	0
			4	4			
5	I	13	Total	O		0	0
			13	13			
5	J	7	Total	O		0	0
			7	7			
5	K	3	Total	O		0	0
			3	3			
5	L	2	Total	O		0	0
			2	2			

3 Residue-property plots

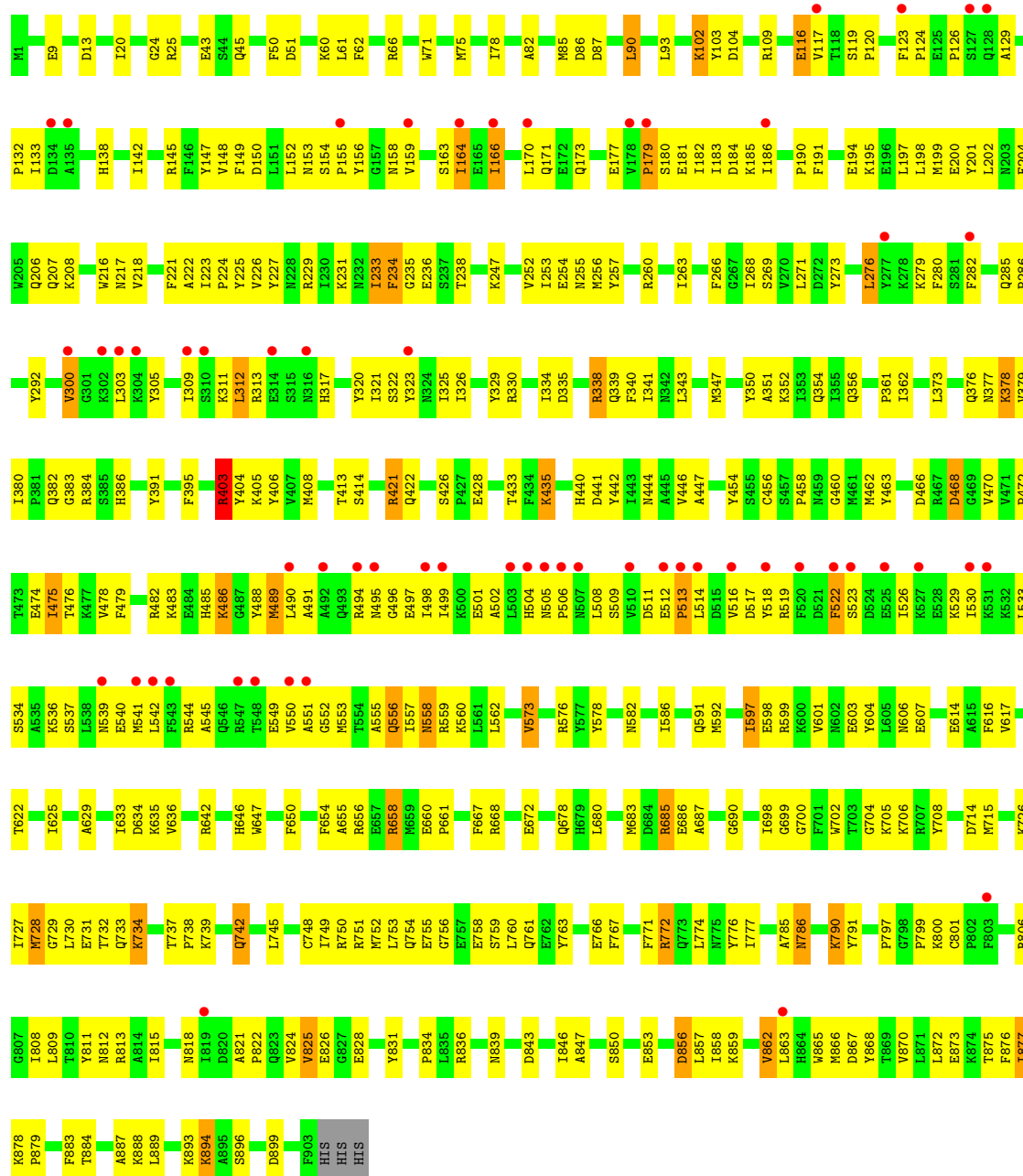
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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



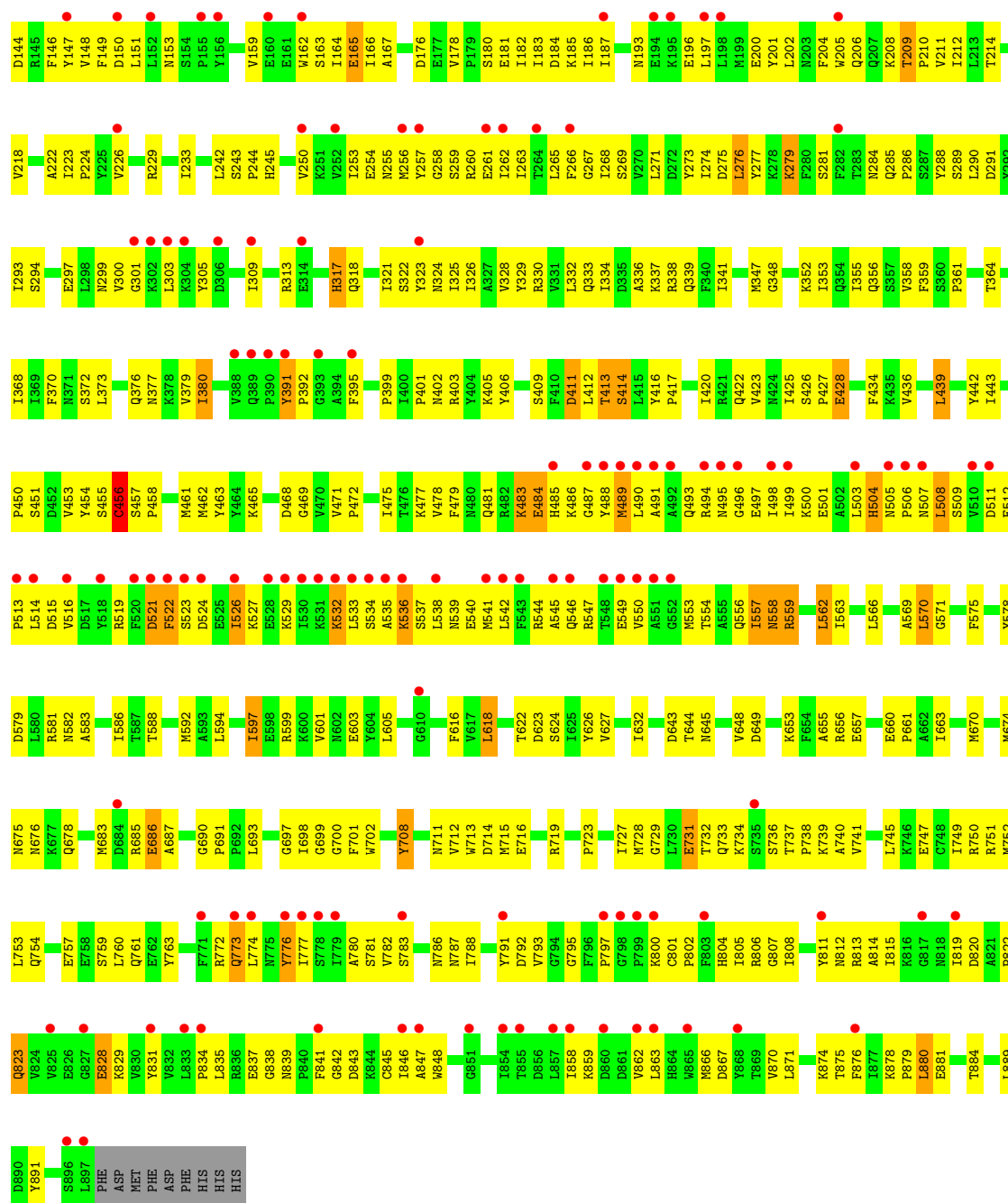


• Molecule 1: DNA polymerase

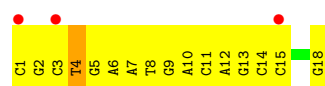


• Molecule 1: DNA polymerase

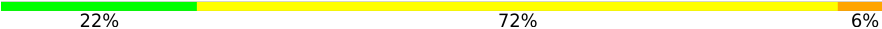


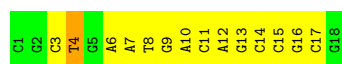


● Molecule 2: DNA (5'-D(*CP*GP*CP*(CTG)P*GP*AP*AP*TP*GP*AP*CP*AP*GP*CP*C
P*GP*CP*G)-3')



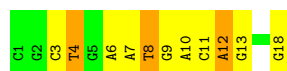
● Molecule 2: DNA (5'-D(*CP*GP*CP*(CTG)P*GP*AP*AP*TP*GP*AP*CP*AP*GP*CP*C
P*GP*CP*G)-3')

Chain G:  22% 72% 6%



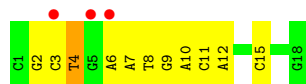
- Molecule 2: DNA (5'-D(*CP*GP*CP*(CTG)P*GP*AP*AP*TP*GP*AP*CP*AP*GP*CP*C
P*GP*CP*G)-3')

Chain I:  39% 44% 17%

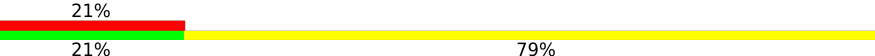


- Molecule 2: DNA (5'-D(*CP*GP*CP*(CTG)P*GP*AP*AP*TP*GP*AP*CP*AP*GP*CP*C
P*GP*CP*G)-3')

Chain K:  17% 39% 56% 6%



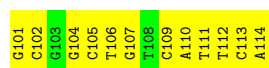
- Molecule 3: DNA (5'-D(*GP*CP*GP*GP*CP*TP*GP*TP*CP*AP*TP*TP*CP*A)-3')

Chain F:  21% 21% 79%



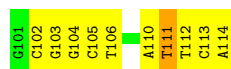
- Molecule 3: DNA (5'-D(*GP*CP*GP*GP*CP*TP*GP*TP*CP*AP*TP*TP*CP*A)-3')

Chain H:  14% 86%



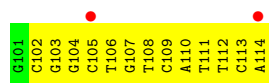
- Molecule 3: DNA (5'-D(*GP*CP*GP*GP*CP*TP*GP*TP*CP*AP*TP*TP*CP*A)-3')

Chain J:  29% 64% 7%



- Molecule 3: DNA (5'-D(*GP*CP*GP*GP*CP*TP*GP*TP*CP*AP*TP*TP*CP*A)-3')

Chain L:  14% 7% 93%



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	133.53Å 123.44Å 164.29Å 90.00° 96.84° 90.00°	Depositor
Resolution (Å)	50.00 – 2.65 50.00 – 2.65	Depositor EDS
% Data completeness (in resolution range)	91.5 (50.00-2.65) 93.8 (50.00-2.65)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.87 (at 2.65Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.224 , 0.276 0.218 , 0.271	Depositor DCC
R_{free} test set	26586 reflections (9.14%)	wwPDB-VP
Wilson B-factor (Å ²)	48.7	Xtriage
Anisotropy	0.140	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 58.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	32166	wwPDB-VP
Average B, all atoms (Å ²)	70.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.66% 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, CTG

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	0.48	0/7523	0.97	27/10175 (0.3%)
1	B	0.47	0/7475	0.93	24/10121 (0.2%)
1	C	0.50	0/7511	0.96	21/10154 (0.2%)
1	D	0.39	0/7275	0.92	25/9887 (0.3%)
2	E	0.30	0/389	0.66	0/596
2	G	0.35	0/389	0.70	0/596
2	I	0.41	0/389	0.88	3/596 (0.5%)
2	K	0.28	0/389	0.51	0/596
3	F	0.28	0/312	0.63	0/478
3	H	0.31	0/312	0.73	0/478
3	J	0.37	0/312	0.84	1/478 (0.2%)
3	L	0.25	0/312	0.58	0/478
All	All	0.45	0/32588	0.92	101/44633 (0.2%)

There are no bond length outliers.

The worst 5 of 101 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	209	THR	CA-C-N	9.08	128.84	119.76
1	C	209	THR	C-N-CA	9.08	128.84	119.76
1	D	489	MET	N-CA-C	-8.46	102.97	113.38
1	D	540	GLU	N-CA-C	-8.23	103.25	113.38
1	B	786	ASN	N-CA-C	7.86	123.19	112.90

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	7342	0	7193	421	0
1	B	7294	0	7096	399	0
1	C	7332	0	7212	306	0
1	D	7097	0	6752	425	0
2	E	369	0	204	29	0
2	G	369	0	204	31	0
2	I	369	0	204	20	0
2	K	369	0	204	19	0
3	F	280	0	154	25	0
3	H	280	0	154	22	0
3	J	280	0	154	19	0
3	L	280	0	154	14	0
4	C	5	0	0	0	0
5	A	111	0	0	14	0
5	B	129	0	0	11	0
5	C	178	0	0	16	0
5	D	33	0	0	3	0
5	E	5	0	0	0	0
5	F	4	0	0	3	0
5	G	11	0	0	0	0
5	H	4	0	0	1	0
5	I	13	0	0	0	0
5	J	7	0	0	0	0
5	K	3	0	0	1	0
5	L	2	0	0	0	0
All	All	32166	0	29685	1710	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 28.

The worst 5 of 1710 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:D:686:GLU:HG3	1:D:715:MET:HE1	1.22	1.18
3:L:104:DG:H2"	3:L:105:DC:H5"	1.19	1.14

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:309:ILE:HA	1:B:312:LEU:HB2	1.31	1.11
3:J:104:DG:H2''	3:J:105:DC:H5''	1.22	1.11
2:K:10:DA:H2''	2:K:11:DC:H5''	1.20	1.08

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	901/906 (99%)	781 (87%)	105 (12%)	15 (2%)	7	12
1	B	901/906 (99%)	816 (91%)	79 (9%)	6 (1%)	18	30
1	C	898/906 (99%)	818 (91%)	68 (8%)	12 (1%)	9	16
1	D	895/906 (99%)	769 (86%)	115 (13%)	11 (1%)	10	17
All	All	3595/3624 (99%)	3184 (89%)	367 (10%)	44 (1%)	10	17

5 of 44 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	524	ASP
1	A	300	VAL
1	A	773	GLN
1	A	825	VAL
1	A	856	ASP

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	792/803 (99%)	740 (93%)	52 (7%)	15	26
1	B	780/803 (97%)	742 (95%)	38 (5%)	22	38
1	C	794/803 (99%)	752 (95%)	42 (5%)	20	35
1	D	743/803 (92%)	705 (95%)	38 (5%)	21	36
All	All	3109/3212 (97%)	2939 (94%)	170 (6%)	19	33

5 of 170 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	562	LEU
1	D	413	THR
1	C	612	GLU
1	C	880	LEU
1	D	484	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 118 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	742	GLN
1	D	711	ASN
1	C	245	HIS
1	D	678	GLN
1	D	495	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

4 non-standard protein/DNA/RNA residues 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	$\# Z > 2$
2	CTG	K	4	3,2	18,23,24	0.79	1 (5%)	21,35,38	0.75	1 (4%)
2	CTG	E	4	3,2	18,23,24	0.74	0	21,35,38	1.06	2 (9%)
2	CTG	G	4	3,2	18,23,24	0.71	0	21,35,38	0.96	1 (4%)
2	CTG	I	4	3,2	18,23,24	0.71	0	21,35,38	1.01	2 (9%)

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	CTG	K	4	3,2	-	2/7/45/46	0/2/2/2
2	CTG	E	4	3,2	-	2/7/45/46	0/2/2/2
2	CTG	G	4	3,2	-	1/7/45/46	0/2/2/2
2	CTG	I	4	3,2	-	0/7/45/46	0/2/2/2

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	K	4	CTG	C1'-N1	2.14	1.48	1.45

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	4	CTG	C2'-C1'-N1	-3.09	111.41	115.59
2	G	4	CTG	C2'-C1'-N1	-2.83	111.76	115.59
2	I	4	CTG	C2'-C1'-N1	-2.74	111.88	115.59
2	I	4	CTG	N3-C2-N1	-2.44	114.23	116.78
2	E	4	CTG	N3-C2-N1	-2.29	114.39	116.78

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	K	4	CTG	C2'-C1'-N1-C6
2	K	4	CTG	O4'-C1'-N1-C6
2	G	4	CTG	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	E	4	CTG	C2'-C1'-N1-C6
2	E	4	CTG	O4'-C1'-N1-C6

There are no ring outliers.

4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	K	4	CTG	2	0
2	E	4	CTG	3	0
2	G	4	CTG	3	0
2	I	4	CTG	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

1 ligand is 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	$\# Z > 2$
4	SO4	C	907	-	4,4,4	0.38	0	6,6,6	0.10	0

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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	903/906 (99%)	0.43	89 (9%)	13	10	24, 53, 143, 162	1 (0%)
1	B	903/906 (99%)	0.33	60 (6%)	24	18	20, 59, 157, 172	0
1	C	900/906 (99%)	-0.00	18 (2%)	65	59	17, 47, 89, 109	0
1	D	897/906 (99%)	1.11	151 (16%)	4	3	48, 98, 134, 169	0
2	E	17/18 (94%)	1.22	3 (17%)	4	3	70, 88, 124, 132	0
2	G	17/18 (94%)	0.19	0	100	100	45, 57, 79, 92	0
2	I	17/18 (94%)	-0.26	0	100	100	32, 38, 85, 94	0
2	K	17/18 (94%)	1.36	3 (17%)	4	3	59, 126, 147, 151	0
3	F	14/14 (100%)	1.43	3 (21%)	2	1	85, 117, 130, 134	0
3	H	14/14 (100%)	0.43	0	100	100	53, 70, 83, 85	0
3	J	14/14 (100%)	-0.15	0	100	100	30, 45, 93, 99	0
3	L	14/14 (100%)	1.30	2 (14%)	6	5	120, 131, 135, 136	0
All	All	3727/3752 (99%)	0.47	329 (8%)	15	12	17, 62, 132, 172	1 (0%)

The worst 5 of 329 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	817	GLY	7.3
1	A	848	TRP	6.2
1	D	526	ILE	6.1
1	D	530	ILE	5.8
1	A	811	TYR	5.4

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

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
2	CTG	K	4	22/23	0.51	0.17	144,145,151,152	0
2	CTG	E	4	22/23	0.87	0.15	102,103,106,107	0
2	CTG	G	4	22/23	0.91	0.11	65,69,71,71	0
2	CTG	I	4	22/23	0.97	0.07	44,50,54,54	0

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.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	SO4	C	907	5/5	0.92	0.10	89,90,90,90	0

6.5 Other polymers [i](#)

There are no such residues in this entry.