



Full wwPDB EM Validation Report ⓘ

Nov 6, 2022 – 06:52 PM EST

PDB ID : 6N9X
EMDB ID : EMD-0382
Title : Structure of bacteriophage T7 lagging-strand DNA polymerase (D5A/E7A) and gp4 (helicase/primase) bound to DNA including RNA/DNA hybrid, and an incoming dTTP (LagS3)
Authors : Gao, Y.; Fox, T.; Val, N.; Yang, W.
Deposited on : 2018-12-04
Resolution : 4.10 Å (reported)
Based on initial model : 1T8E

This is a Full wwPDB EM 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/EMValidationReportHelp>

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:

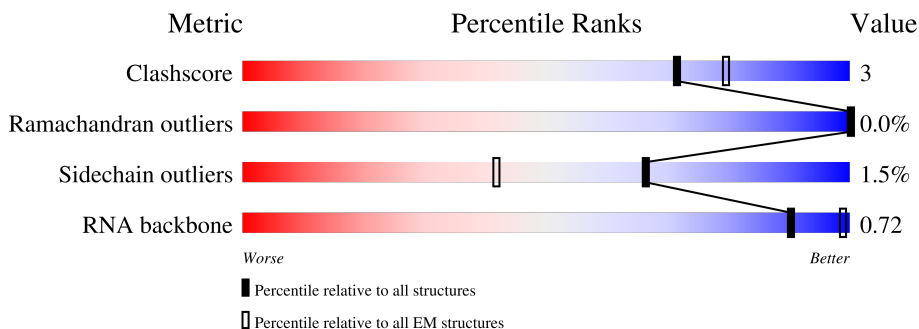
EMDB validation analysis : 0.0.1.dev43
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 4.10 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.




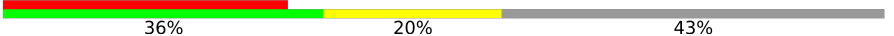
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	566	
1	B	566	
1	C	566	
1	D	566	
1	E	566	
1	F	566	
2	H	704	

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Mol	Chain	Length	Quality of chain
3	P	6	 67% 33%
4	T	44	 32% 36% 20% 43%

2 Entry composition i

There are 7 unique types of molecules in this entry. The entry contains 19658 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 primase/helicase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	271	2093	1309	374	397	13	0	0
1	B	500	3880	2434	680	738	28	0	0
1	C	474	3680	2304	649	703	24	0	0
1	D	271	2086	1304	373	396	13	0	0
1	E	241	1861	1171	331	346	13	0	0
1	F	17	134	82	28	24		0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	343	GLN	GLU	engineered mutation	UNP P03692
B	343	GLN	GLU	engineered mutation	UNP P03692
C	343	GLN	GLU	engineered mutation	UNP P03692
D	343	GLN	GLU	engineered mutation	UNP P03692
E	343	GLN	GLU	engineered mutation	UNP P03692
F	343	GLN	GLU	engineered mutation	UNP P03692

- Molecule 2 is a protein called DNA-directed DNA polymerase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	H	645	5144	3278	896	949	21	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	5	ALA	ASP	engineered mutation	UNP P00581

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Chain	Residue	Modelled	Actual	Comment	Reference
H	7	ALA	GLU	engineered mutation	UNP P00581

- Molecule 3 is a RNA chain called Primer.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	P	6	122	57	24	36	5	0	0

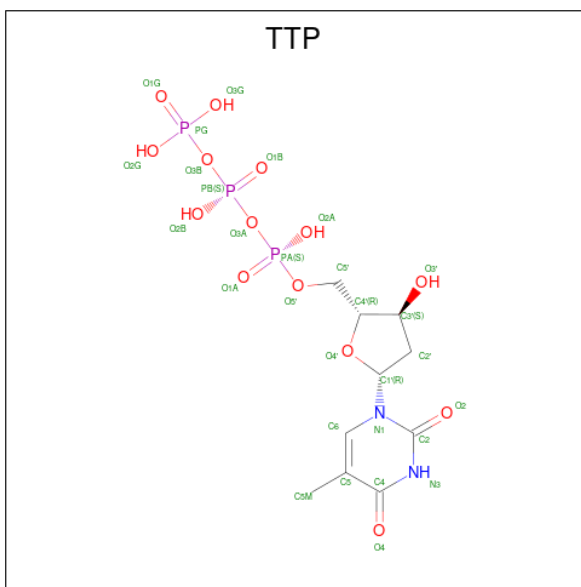
- Molecule 4 is a DNA chain called Template.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	T	25	506	248	67	166	25	0	0

- Molecule 5 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
5	B	1	1	1	0

- Molecule 6 is THYMIDINE-5'-TRIPHOSPHATE (three-letter code: TTP) (formula: C₁₀H₁₇N₂O₁₄P₃).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
6	B	1	29	10	2	14	3	0

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Mol	Chain	Residues	Atoms					AltConf
6	C	1	Total	C	N	O	P	0
			29	10	2	14	3	
6	D	1	Total	C	N	O	P	0
			29	10	2	14	3	
6	E	1	Total	C	N	O	P	0
			29	10	2	14	3	
6	H	1	Total	C	N	O	P	0
			29	10	2	14	3	

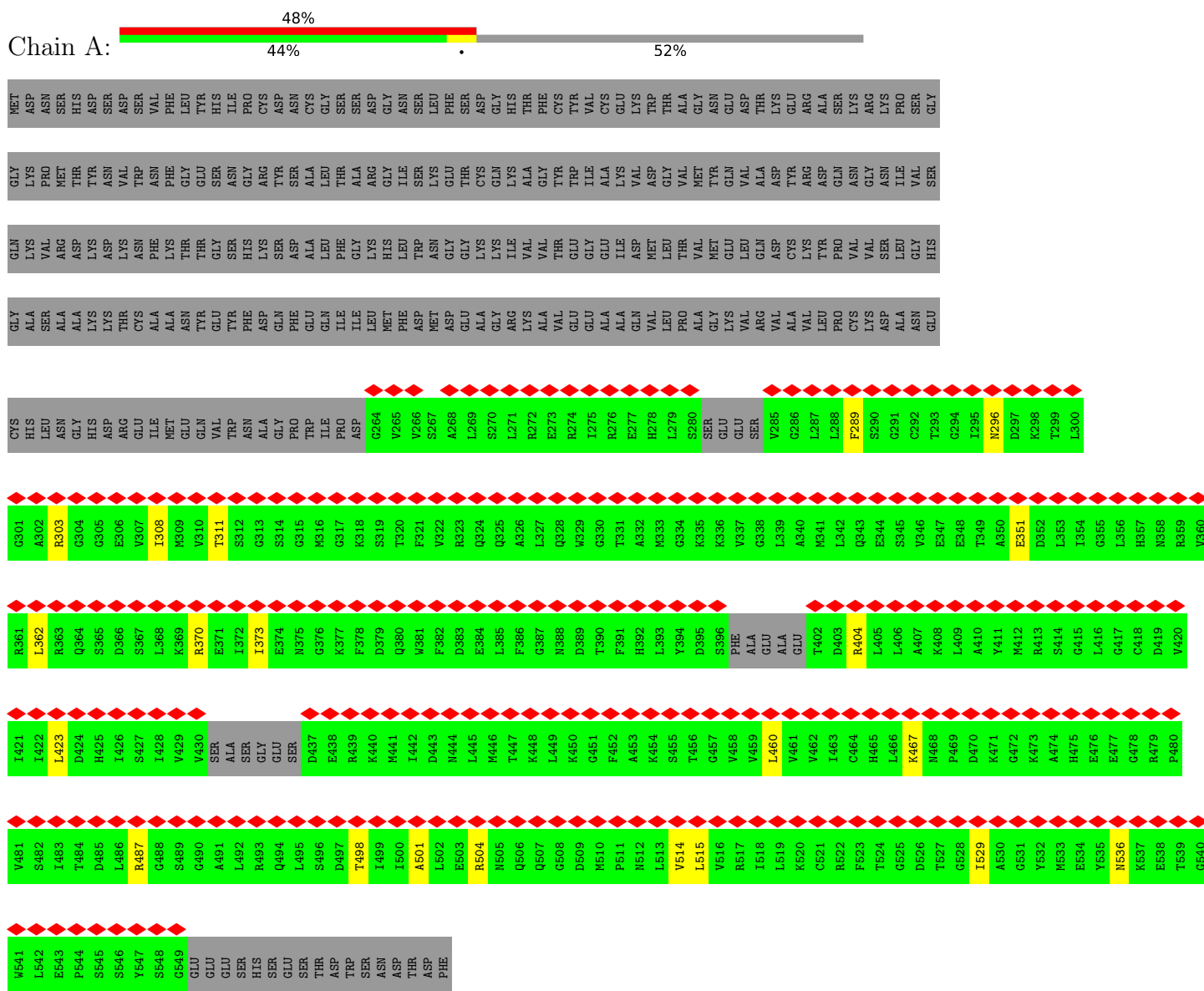
- Molecule 7 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
7	B	1	Total	Mg	0
			1	1	
7	C	1	Total	Mg	0
			1	1	
7	D	1	Total	Mg	0
			1	1	
7	E	1	Total	Mg	0
			1	1	
7	H	2	Total	Mg	0
			2	2	

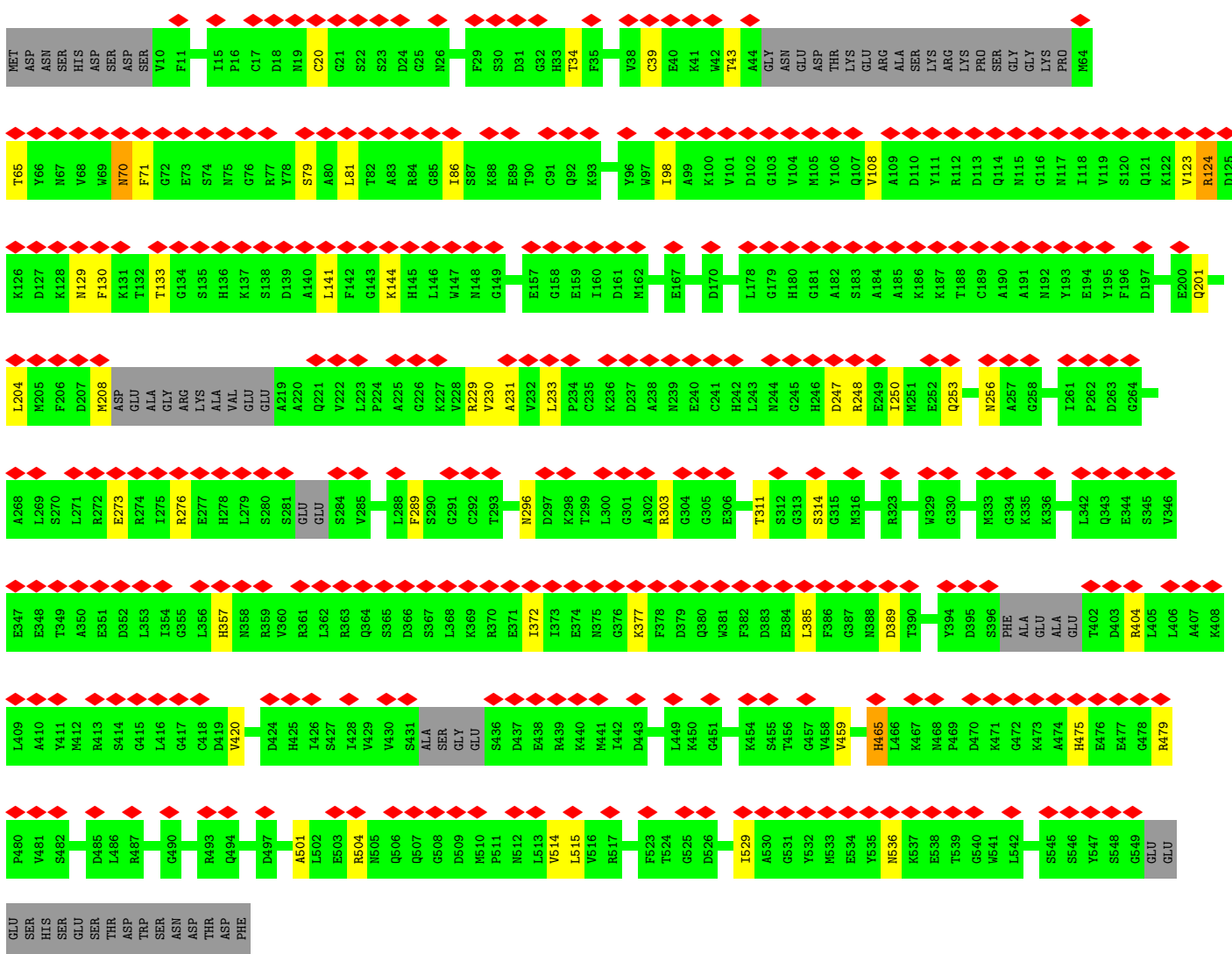
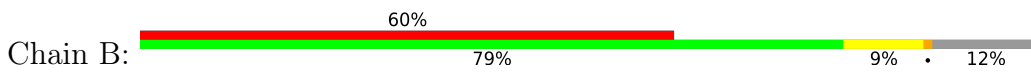
3 Residue-property plots

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

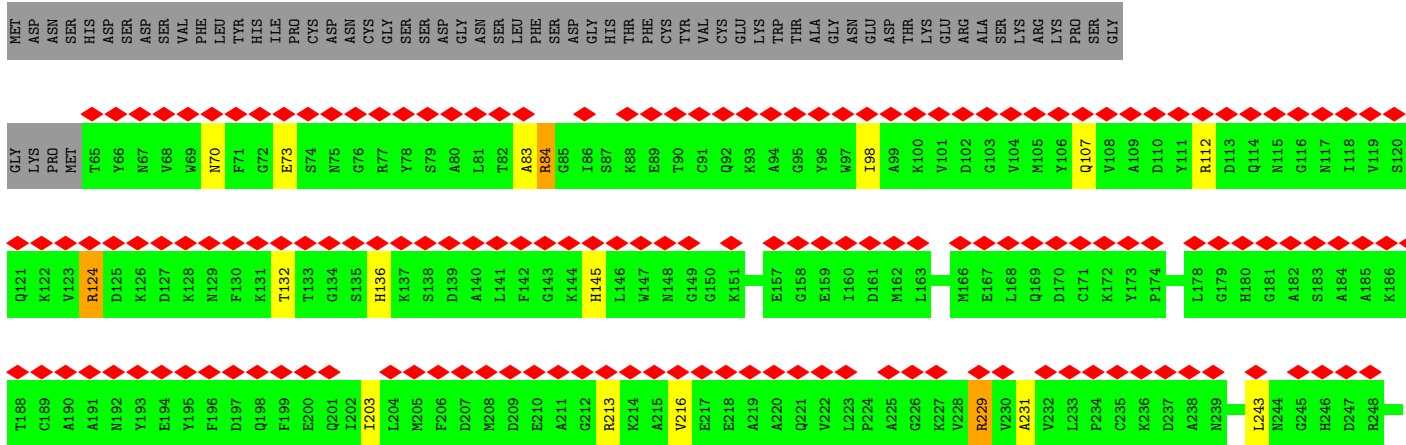
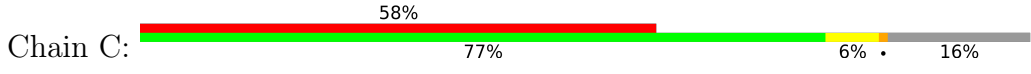
- Molecule 1: DNA primase/helicase



- Molecule 1: DNA primase/helicase

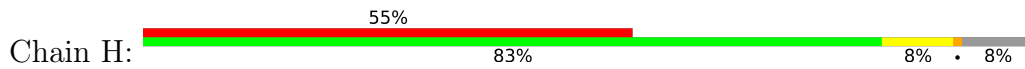


• Molecule 1: DNA primase/helicase

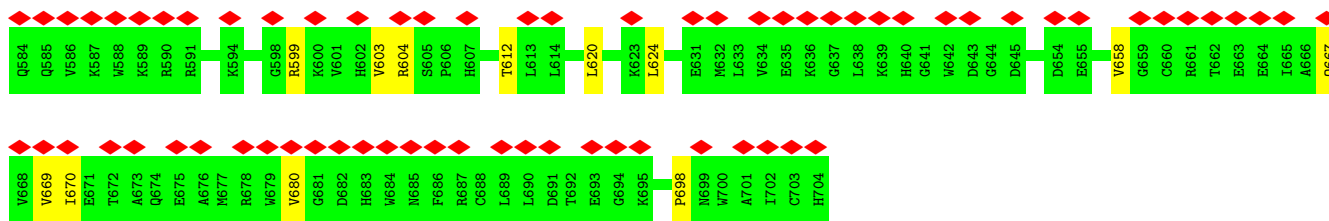


CYS	HIS	LEU	ASN	GLY	HIS	ASP	ARG	GLU	ILE	MET	GLU	GLN	VAL	TRP	ASP	G264	V265	V266	S267	A268	L269	S270	L271	R272	E273	R274	I275	R276	E277	H278	L279	S280	SER	GLU	GLU	GLU	VAL	VAL	GLY	LEU	LEU	PHE	LEU	GLY	CYS	THR	GLY	ILE	ASN	ASP	LYS	THR	LEU
GLY	ALA	ARG	GLN	GLY	GLY	VAL	ILE	MET	THR	VAL	SER	GLY	SER	ILE	GLU	ASN	GLY	GLN	ALA	TRP	GLY	THR	ALA	LEU	GLY	VAL	GLY	ALA	ALA	MET	LEU	GLN	SER	VAL	VAL	GLY	VAL	VAL	GLY	VAL	ALA	ALA	LEU	LEU	ARG	LEU	GLY	GLY	HIS	ASN	GLY	THR	VAL
ARG	LEU	GLN	ASP	SER	ASP	SER	LEU	LYS	ARG	VAL	ILE	GLU	ASN	GLY	ASP	LYS	PHE	GLY	ALA	ASP	THR	GLN	TRP	PHE	ASP	VAL	ALA	GLU	GLU	THR	ASP	ARG	LEU	LEU	ALA	LYS	PRO	ASP	ALA	TYR	MET	ARG	LEU	LEU	GLY	GLY	GLY	CYS	THR	GLY	ASP	VAL	
ILE	ILE	THR	ASP	HIS	ILE	SER	ILE	VAL	VAL	VAL	ALA	ALA	SER	GLY	GLU	GLU	ASP	THR	GLY	ASP	THR	GLY	MET	ILE	LYS	MET	VAL	VAL	VAL	VAL	VAL	ILE	CYS	HIS	LEU	LYS	THR	THR	ILE	ILE	ALA	TYR	GLY	GLY	ALA	GLY	GLY	GLY	GLY	ARG	PRO		
VAL	SER	THR	THR	ASP	LEU	ARG	GLY	SER	GLY	ALA	GLU	GLU	LEU	GLN	GLN	GLN	GLY	ASP	ASP	PRO	GLY	PHE	LEU	VAL	ILE	LYS	LEU	CYS	VAL	ARG	PHE	THR	GLY	ASP	THR	THR	THR	GLY	TYR	GLY	MET	GLU	GLY	TYR	GLY	GLY	THR	THR	GLY	PRO			
TRP	LEU	PRO	PRO	SER	SER	TYR	SER	GLY	GLY	GLU	GLU	GLU	HIS	SER	GLU	GLU	THR	THR	ASP	ASP	ALA	TRP	SER	ASP	ASN	THR	THR	GLU	GLU	GLU	THR	ASN	VAL	VAL	VAL	VAL	ARG	ILE	ALA	ALA	TYR	GLY	GLY	GLY	GLY	GLY	GLY	THR	THR	GLY			

• Molecule 2: DNA-directed DNA polymerase



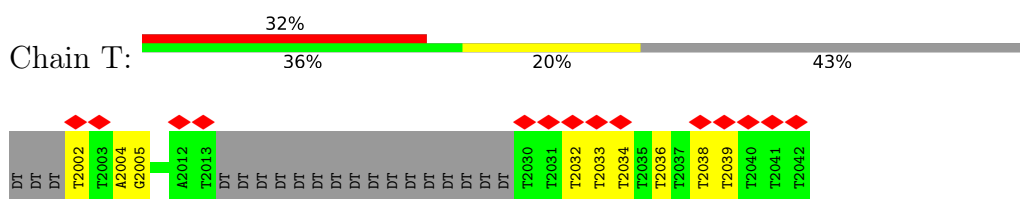
M1	S4	A10	E13	T16	K17	F18	Y26	S27	T28	A29	E30	Y31	R35	D38	F39	G40	A41	Y42	L43	D44	A45	L46	E47	A48	E49	V50	A51	R52	G53	G54	V57	F58	H62	K63	Y64	D65	K74	L75	Q76	L77	N78	R79	E80	F81	H82	R85	E86	M87										
C88	R96	S100	M101	L102	K103	D104	T105	D106	M107	G108	L109	L110	R111	SER	K114	L115	P116	G117	K118	R119	F120	L43	G121	S122	H123	G129	Y130	R131	L132	G133	M135	K136	G137	E138	Y139	K140	D141	D142	F143	K144	R145	M146	L147	E148	E149	Q150	G151	E152	E153	Y154	V155	D156	G157	M158				
M162	F163	M164	E165	E166	M167	M168	D169	Y170	M171	V172	Q173	D174	K179	A180	L181	L182	E183	L186	S187	D188	K189	H190	Y191	F192	P193	P194	E195	I196	D197	F198	T199	D200	Y203	T204	T205	S208	E209	S210	L211	E212	A213	V214	D215	I216	E217	H218	R219	A220	A221	W222	K226	K237	A238					
T239	E240	E241	L242	E245	A247	A248	R249	R250	S251	E252	R255	K256	L257	T258	E259	T260	F261	G262	S263	W264	Q266	K267	K268	GLY	THR	GLU	MET	PHE	CYS	HIS	PRO	THR	GLY	LYS	PRO	PRO	TYR	PRO	ARG	ILE	LYS	THR	VAL	VAL	GLY	GLY	ILE	PHE	LYS									
PRO	LYS	ASN	LYS	ALA	ARG	GLU	PRO	CYS	GLU	LEU	ASP	THR	ARG	GLU	TYR	VAL	ALA	PRO	Y326	T327	P328	V329	E330	H331	V332	V333	F334	N335	P336	S337	S338	R339	D340	H341	I342	Q343	K344	K345	L346	Q347	E348	A349	G350	G351	V352	P353	T354	K355	Y356	T357	D358	K359	G360					
A361	P362	V363	V364	D365	D366	E367	V368	L369	E370	G371	V372	R373	V374	D375	D376	P377	E378	K379	Q380	A381	I382	D384	L385	K386	K387	E388	K394	R395	I396	G397	E401	K404	Y409	E412	D413	G414	K415	M423	V426	T427	M436	L437	A438	Q439	G442	V443	R444	S445										
E449	Q450	C451	R452	A457	E458	L461	D462	G463	I464	T465	G466	K467	Q471	I474	D475	E480	L481	R482	C483	L484	A485	H486	F487	M488	A489	R490	F491	D492	M493	G494	E495	Y496	A497	H498	E499	I500	L501	N502	G503	D504	I505	H506	T507	K508	N509	Q510	I511	A512	A513	E514	L515	P516	T517	R518				
D519	N520	A521	K522	T523	F524	G531	A532	G533	D534	E535	K536	I537	G538	Q539	I540	V541	G542	A543	G544	K545	E546	R547	G548	K549	E550	L551	K552	K553	K554	F555	L556	E557	N558	T559	P560	A561	I562	A563	A564	L565	R566	E567	S568	I569	Q570	Q571	T572	L573	V574	E575	S576	S577	Q578	N579	V580	A581	G582	E583



• Molecule 3: Primer



• Molecule 4: Template



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	38544	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.156	Depositor
Minimum map value	-0.083	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	344.0, 344.0, 344.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.86, 0.86, 0.86	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: DOC, MG, ZN, TTP

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	0.26	0/2118	0.49	0/2841
1	B	0.27	0/3947	0.48	0/5314
1	C	0.28	0/3739	0.50	0/5031
1	D	0.27	0/2111	0.52	0/2833
1	E	0.28	0/1884	0.52	0/2527
1	F	0.22	0/134	0.41	0/178
2	H	0.31	0/5268	0.52	0/7126
3	P	0.30	0/116	0.98	0/179
4	T	0.60	0/559	1.21	0/859
All	All	0.30	0/19876	0.55	0/26888

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	B	0	1
1	C	0	1
1	D	0	1
1	E	0	3
2	H	0	2
All	All	0	8

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	124	ARG	Sidechain
1	C	229	ARG	Sidechain
1	D	504	ARG	Sidechain
1	E	323	ARG	Sidechain
1	E	504	ARG	Sidechain
1	E	522	ARG	Sidechain
2	H	145	ARG	Sidechain
2	H	604	ARG	Sidechain

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2093	0	2122	10	0
1	B	3880	0	3818	28	0
1	C	3680	0	3654	26	0
1	D	2086	0	2110	13	0
1	E	1861	0	1896	15	0
1	F	134	0	142	3	0
2	H	5144	0	5031	33	0
3	P	122	0	68	12	0
4	T	506	0	295	6	0
5	B	1	0	0	0	0
6	B	29	0	13	0	0
6	C	29	0	13	0	0
6	D	29	0	13	0	0
6	E	29	0	13	1	0
6	H	29	0	13	3	0
7	B	1	0	0	0	0
7	C	1	0	0	0	0
7	D	1	0	0	0	0
7	E	1	0	0	0	0
7	H	2	0	0	0	0
All	All	19658	0	19201	134	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 3.

All (134) 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:20:CYS:HB3	1:B:39:CYS:HB3	1.51	0.91
3:P:4:A:O2'	3:P:5:G:H5'	1.85	0.77
1:C:98:ILE:HG12	2:H:150:GLN:O	1.86	0.75
3:P:6:DOC:H6	3:P:6:DOC:O5'	1.89	0.72
1:D:412:MET:O	1:D:416:LEU:HB2	1.93	0.69
1:C:83:ALA:HB2	2:H:147:LEU:HD21	1.75	0.69
2:H:102:LEU:O	2:H:106:ASP:HB2	1.93	0.68
1:B:201:GLN:HE21	1:B:229:ARG:HG3	1.58	0.68
1:B:289:PHE:H	1:B:296:ASN:HD21	1.41	0.68
1:C:527:THR:HG21	1:D:506:GLN:HE21	1.60	0.67
6:H:801:TTP:H5'1	3:P:6:DOC:C2'	2.26	0.65
1:B:314:SER:HA	1:B:465:HIS:CE1	2.32	0.64
2:H:266:GLN:O	2:H:266:GLN:HG3	1.97	0.63
6:H:801:TTP:H5'1	3:P:6:DOC:H2''	1.82	0.60
1:B:248:ARG:HH22	2:H:245:GLU:HA	1.65	0.60
3:P:4:A:C2'	3:P:5:G:H5'	2.31	0.60
2:H:442:GLY:HA2	2:H:452:ARG:HE	1.67	0.59
2:H:580:VAL:O	4:T:2002:DT:H71	2.03	0.58
2:H:547:ARG:HA	2:H:550:GLU:HG2	1.86	0.57
1:C:289:PHE:H	1:C:296:ASN:HD21	1.51	0.57
1:C:243:LEU:HD22	2:H:162:ASN:HD22	1.68	0.57
1:C:354:ILE:HD13	1:C:385:LEU:HD13	1.87	0.56
1:B:314:SER:HA	1:B:465:HIS:HE1	1.70	0.56
1:A:373:ILE:HG13	1:F:276:ARG:HH21	1.71	0.56
1:B:79:SER:HB2	1:B:98:ILE:HD12	1.88	0.56
2:H:401:GLU:HG3	2:H:401:GLU:O	2.05	0.56
1:D:498:THR:HA	1:D:520:LYS:O	2.06	0.55
1:B:141:LEU:HB2	1:B:144:LYS:HD2	1.89	0.55
1:C:439:ARG:HG3	4:T:2036:DT:H5''	1.89	0.55
1:A:515:LEU:HD21	1:A:529:ILE:HG12	1.88	0.55
1:C:132:THR:HG21	1:C:136:HIS:HB2	1.88	0.54
3:P:1:A:H2'	3:P:2:C:C6	2.43	0.53
1:C:203:ILE:HD13	1:C:229:ARG:HB2	1.89	0.53
1:C:484:THR:HG22	1:C:493:ARG:HH12	1.74	0.53
1:B:34:THR:HG1	1:B:43:THR:HG1	1.57	0.53
1:B:108:VAL:HG22	1:B:123:VAL:HG22	1.91	0.52
1:B:515:LEU:HD21	1:B:529:ILE:HG12	1.90	0.52
1:E:291:GLY:HA2	1:E:544:PRO:HD3	1.92	0.52
3:P:2:C:H2'	3:P:3:C:C6	2.44	0.52
2:H:439:GLN:HG2	2:H:439:GLN:O	2.10	0.52
1:E:288:LEU:HD22	1:E:296:ASN:HD22	1.75	0.51
4:T:2032:DT:H2''	4:T:2033:DT:H5'	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:308:ILE:HG12	1:A:498:THR:HB	1.93	0.51
2:H:57:VAL:HG11	2:H:182:LEU:HD22	1.92	0.51
1:C:312:SER:HB3	1:C:316:MET:HB2	1.93	0.51
1:E:423:LEU:HD22	1:E:462:VAL:HG13	1.93	0.51
4:T:2038:DT:H2''	4:T:2039:DT:H5'	1.93	0.51
1:D:475:HIS:HD2	1:D:481:VAL:HG22	1.76	0.51
1:F:268:ALA:HA	1:F:271:LEU:HD13	1.93	0.51
1:B:504:ARG:HB3	1:B:514:VAL:HG12	1.93	0.50
1:E:483:ILE:HG12	1:E:493:ARG:HD2	1.93	0.49
1:E:504:ARG:HB3	1:E:514:VAL:HG12	1.93	0.49
1:D:316:MET:SD	1:D:504:ARG:HG2	2.52	0.49
1:C:475:HIS:HA	1:C:479:ARG:HB3	1.95	0.49
1:B:81:LEU:HD12	1:B:86:ILE:HD12	1.95	0.49
2:H:457:ALA:HB3	2:H:471:GLN:HB2	1.94	0.49
1:D:523:PHE:HE1	1:E:363:ARG:HH12	1.59	0.48
1:A:289:PHE:H	1:A:296:ASN:HD21	1.61	0.48
1:C:343:GLN:HG3	1:C:344:GLU:HG3	1.95	0.48
1:E:319:SER:O	1:E:323:ARG:HB2	2.14	0.48
1:E:343:GLN:HB2	1:E:425:HIS:HB2	1.95	0.48
2:H:603:VAL:HG22	2:H:612:THR:HG21	1.94	0.48
3:P:4:A:H2'	3:P:5:G:C8	2.48	0.48
1:D:336:LYS:HB2	1:D:418:CYS:HA	1.95	0.48
1:C:83:ALA:CB	2:H:147:LEU:HD21	2.43	0.48
2:H:96:ARG:HG2	2:H:123:HIS:HD1	1.79	0.47
1:C:107:GLN:HB2	1:C:124:ARG:HG2	1.96	0.47
1:E:361:ARG:HH22	1:E:535:TYR:HE2	1.62	0.47
4:T:2004:DA:H2'	4:T:2005:DG:H8	1.80	0.47
1:B:204:LEU:HB2	1:B:230:VAL:HG22	1.96	0.47
3:P:2:C:H6	3:P:2:C:O5'	1.98	0.47
1:E:317:GLY:HA3	6:E:700:TTP:HM51	1.97	0.47
1:E:513:LEU:HD11	1:E:532:TYR:HB3	1.96	0.47
2:H:480:GLU:HG3	6:H:801:TTP:O3'	2.15	0.47
2:H:458:GLU:HG2	2:H:698:PRO:HB2	1.98	0.46
3:P:5:G:H2'	3:P:6:DOC:C6	2.46	0.46
1:E:475:HIS:HD2	1:E:481:VAL:HG22	1.81	0.46
1:C:361:ARG:HE	1:C:364:GLN:HG2	1.81	0.45
1:B:208:MET:HG2	1:B:233:LEU:H	1.81	0.45
2:H:658:VAL:HG11	2:H:669:VAL:HG11	1.96	0.45
2:H:62:HIS:HD2	2:H:222:TRP:HE3	1.62	0.45
1:B:208:MET:HG2	1:B:233:LEU:HB2	1.99	0.45
1:E:491:ALA:HB1	1:E:495:LEU:HD13	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:271:LEU:HG	1:F:274:ARG:HD3	1.98	0.44
1:A:423:LEU:HD13	1:A:460:LEU:HD11	2.00	0.44
2:H:624:LEU:HD22	2:H:680:VAL:HG22	2.00	0.44
1:C:70:ASN:HB3	1:C:73:GLU:HG2	2.00	0.44
1:C:84:ARG:HD2	1:C:84:ARG:HA	1.43	0.44
1:A:311:THR:O	1:A:501:ALA:HA	2.18	0.43
1:B:231:ALA:HB1	1:B:253:GLN:HB3	2.00	0.43
1:E:295:ILE:HD12	1:E:518:ILE:HD11	2.00	0.43
1:B:65:THR:HB	1:B:133:THR:HG22	2.00	0.43
1:B:70:ASN:HD22	1:B:71:PHE:H	1.66	0.43
1:D:340:ALA:HA	1:D:394:TYR:HB3	2.01	0.43
1:C:112:ARG:HD2	1:C:145:HIS:CD2	2.54	0.43
1:D:425:HIS:CE1	1:D:427:SER:HB2	2.53	0.43
1:B:420:VAL:HG22	1:B:459:VAL:HB	2.01	0.43
2:H:426:VAL:HG23	2:H:427:THR:HG23	2.01	0.43
1:C:322:VAL:HG21	1:C:463:ILE:HD11	2.00	0.43
2:H:464:ILE:HG23	2:H:465:THR:HG23	2.01	0.43
1:B:273:GLU:O	1:B:276:ARG:HB3	2.19	0.43
1:C:522:ARG:HE	1:C:522:ARG:HB2	1.64	0.42
1:A:504:ARG:HB3	1:A:514:VAL:HG12	2.00	0.42
1:B:124:ARG:HG3	1:B:130:PHE:HE1	1.85	0.42
1:B:357:HIS:CG	1:B:385:LEU:HD21	2.54	0.42
1:D:271:LEU:HD12	1:D:274:ARG:HD3	2.00	0.42
3:P:2:C:H2'	3:P:3:C:H6	1.83	0.42
1:C:522:ARG:O	1:C:522:ARG:HG3	2.17	0.42
2:H:599:ARG:HH12	2:H:620:LEU:HD21	1.85	0.42
1:C:203:ILE:CD1	1:C:229:ARG:HB2	2.50	0.42
2:H:505:ILE:HD12	2:H:508:LYS:HE3	2.01	0.42
1:C:231:ALA:HB1	1:C:253:GLN:HB3	2.02	0.42
3:P:3:C:H2'	3:P:4:A:C8	2.55	0.42
1:B:256:ASN:HD21	2:H:237:LYS:HE3	1.85	0.42
1:B:247:ASP:O	1:B:250:ILE:HB	2.19	0.42
1:A:351:GLU:HB3	1:A:362:LEU:HD23	2.01	0.41
2:H:395:ARG:HD3	2:H:395:ARG:HA	1.77	0.41
1:A:467:LYS:HB3	1:A:487:ARG:HB3	2.02	0.41
1:C:350:ALA:HB2	1:C:393:LEU:HD21	2.03	0.41
1:E:342:LEU:HD23	1:E:428:ILE:HD11	2.03	0.41
2:H:213:ALA:HA	2:H:216:ILE:HG22	2.02	0.41
2:H:365:ASP:H	2:H:368:VAL:HG22	1.86	0.41
1:B:311:THR:O	1:B:501:ALA:HA	2.19	0.41
1:D:322:VAL:HG11	1:D:463:ILE:HD11	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:667:GLN:HA	2:H:670:ILE:HG22	2.03	0.41
1:D:504:ARG:HB3	1:D:514:VAL:HG12	2.02	0.41
1:D:489:SER:HA	4:T:2034:DT:H4'	2.01	0.41
2:H:404:LYS:HA	2:H:409:TYR:HE2	1.85	0.41
2:H:342:ILE:HD13	2:H:386:ILE:HD13	2.03	0.40
1:A:370:ARG:HA	1:A:373:ILE:HG22	2.02	0.40
1:B:372:ILE:HG22	1:B:377:LYS:HD3	2.03	0.40
1:C:213:ARG:HA	1:C:216:VAL:HG12	2.03	0.40
1:B:475:HIS:HD2	1:B:479:ARG:HD3	1.86	0.40
2:H:265:TYR:HA	2:H:330:GLU:O	2.22	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 PDB entries followed by that with respect to all EM entries.

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	263/566 (46%)	254 (97%)	9 (3%)	0	100	100
1	B	488/566 (86%)	467 (96%)	20 (4%)	1 (0%)	47	80
1	C	466/566 (82%)	449 (96%)	17 (4%)	0	100	100
1	D	263/566 (46%)	251 (95%)	12 (5%)	0	100	100
1	E	233/566 (41%)	224 (96%)	9 (4%)	0	100	100
1	F	15/566 (3%)	15 (100%)	0	0	100	100
2	H	639/704 (91%)	614 (96%)	25 (4%)	0	100	100
All	All	2367/4100 (58%)	2274 (96%)	92 (4%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	389	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 PDB entries followed by that with respect to all EM entries.

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	228/475 (48%)	225 (99%)	3 (1%)	69	81
1	B	419/475 (88%)	413 (99%)	6 (1%)	67	80
1	C	395/475 (83%)	389 (98%)	6 (2%)	65	79
1	D	227/475 (48%)	225 (99%)	2 (1%)	78	87
1	E	201/475 (42%)	198 (98%)	3 (2%)	65	79
1	F	15/475 (3%)	15 (100%)	0	100	100
2	H	530/582 (91%)	520 (98%)	10 (2%)	57	75
All	All	2015/3432 (59%)	1985 (98%)	30 (2%)	66	79

All (30) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	303	ARG
1	A	404	ARG
1	A	536	ASN
1	B	70	ASN
1	B	129	ASN
1	B	303	ARG
1	B	404	ARG
1	B	465	HIS
1	B	536	ASN
1	C	84	ARG
1	C	124	ARG
1	C	318	LYS
1	C	361	ARG
1	C	493	ARG
1	C	522	ARG
1	D	341	MET
1	D	510	MET
1	E	323	ARG
1	E	341	MET
1	E	510	MET

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Mol	Chain	Res	Type
2	H	4	SER
2	H	107	MET
2	H	250	ARG
2	H	266	GLN
2	H	347	GLN
2	H	359	LYS
2	H	401	GLU
2	H	423	ASN
2	H	439	GLN
2	H	508	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	296	ASN
1	A	536	ASN
1	B	70	ASN
1	B	129	ASN
1	B	201	GLN
1	B	244	ASN
1	B	253	GLN
1	B	256	ASN
1	B	296	ASN
1	B	475	HIS
1	B	512	ASN
1	C	192	ASN
1	C	239	ASN
1	C	296	ASN
1	C	392	HIS
1	C	465	HIS
1	C	475	HIS
1	C	512	ASN
1	D	325	GLN
1	E	325	GLN
1	E	425	HIS
1	E	465	HIS
1	E	512	ASN
2	H	423	ASN
2	H	439	GLN
2	H	520	ASN
2	H	615	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	P	4/6 (66%)	1 (25%)	0

All (1) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
3	P	5	G

There are no RNA pucker outliers to report.

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

1 non-standard protein/DNA/RNA residue 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
3	DOC	P	6	3,4	16,19,20	0.91	0	20,26,29	1.30	1 (5%)

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	DOC	P	6	3,4	-	2/7/18/19	0/2/2/2

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
3	P	6	DOC	C3'-C2'-C1'	2.87	106.09	102.78

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	P	6	DOC	O4'-C4'-C5'-O5'
3	P	6	DOC	C3'-C4'-C5'-O5'

There are no ring outliers.

1 monomer is involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	P	6	DOC	4	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 7 are monoatomic - leaving 5 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	TTP	C	700	7	26,30,30	1.78	5 (19%)	39,47,47	3.41	9 (23%)
6	TTP	H	801	7	26,30,30	1.86	5 (19%)	39,47,47	3.40	10 (25%)
6	TTP	D	700	7	26,30,30	1.80	6 (23%)	39,47,47	3.44	9 (23%)
6	TTP	E	700	7	26,30,30	1.86	5 (19%)	39,47,47	3.40	10 (25%)
6	TTP	B	602	7	26,30,30	1.81	5 (19%)	39,47,47	3.42	9 (23%)

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	TTP	C	700	7	-	5/22/34/34	0/2/2/2
6	TTP	H	801	7	-	8/22/34/34	0/2/2/2
6	TTP	D	700	7	-	7/22/34/34	0/2/2/2
6	TTP	E	700	7	-	4/22/34/34	0/2/2/2
6	TTP	B	602	7	-	5/22/34/34	0/2/2/2

All (26) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	H	801	TTP	C2-N1	6.73	1.49	1.38
6	E	700	TTP	C2-N1	6.71	1.49	1.38
6	D	700	TTP	C2-N1	6.49	1.48	1.38
6	B	602	TTP	C2-N1	6.47	1.48	1.38
6	C	700	TTP	C2-N1	6.46	1.48	1.38
6	E	700	TTP	C6-N1	2.96	1.43	1.38
6	E	700	TTP	C4-C5	2.96	1.49	1.44
6	H	801	TTP	C4-C5	2.94	1.49	1.44
6	H	801	TTP	C6-N1	2.94	1.43	1.38
6	D	700	TTP	C6-N1	2.84	1.42	1.38
6	B	602	TTP	C6-N1	2.81	1.42	1.38
6	B	602	TTP	C4-C5	2.79	1.49	1.44
6	C	700	TTP	C6-N1	2.78	1.42	1.38
6	D	700	TTP	C4-C5	2.76	1.49	1.44
6	C	700	TTP	C4-C5	2.63	1.49	1.44
6	D	700	TTP	O2-C2	-2.44	1.18	1.23
6	H	801	TTP	C6-C5	2.41	1.38	1.34
6	E	700	TTP	C6-C5	2.40	1.38	1.34
6	B	602	TTP	O2-C2	-2.39	1.18	1.23
6	B	602	TTP	C6-C5	2.38	1.38	1.34
6	C	700	TTP	O2-C2	-2.33	1.18	1.23
6	C	700	TTP	C6-C5	2.29	1.38	1.34
6	H	801	TTP	O2-C2	-2.26	1.18	1.23
6	E	700	TTP	O2-C2	-2.24	1.19	1.23
6	D	700	TTP	C6-C5	2.22	1.38	1.34
6	D	700	TTP	C4-N3	-2.05	1.35	1.38

All (47) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	C	700	TTP	C5-C4-N3	12.89	126.31	115.31
6	D	700	TTP	C5-C4-N3	12.80	126.24	115.31
6	H	801	TTP	C5-C4-N3	12.69	126.14	115.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	B	602	TTP	C5-C4-N3	12.68	126.14	115.31
6	E	700	TTP	C5-C4-N3	12.66	126.12	115.31
6	D	700	TTP	C4-N3-C2	-10.48	113.78	127.35
6	B	602	TTP	C4-N3-C2	-10.43	113.84	127.35
6	E	700	TTP	C4-N3-C2	-10.40	113.89	127.35
6	H	801	TTP	C4-N3-C2	-10.39	113.89	127.35
6	C	700	TTP	C4-N3-C2	-10.39	113.90	127.35
6	D	700	TTP	N3-C2-N1	7.87	125.34	114.89
6	B	602	TTP	N3-C2-N1	7.81	125.26	114.89
6	E	700	TTP	N3-C2-N1	7.80	125.25	114.89
6	H	801	TTP	N3-C2-N1	7.75	125.18	114.89
6	C	700	TTP	N3-C2-N1	7.66	125.06	114.89
6	C	700	TTP	O4-C4-C5	-6.99	116.80	124.90
6	D	700	TTP	O4-C4-C5	-6.99	116.80	124.90
6	B	602	TTP	O4-C4-C5	-6.96	116.83	124.90
6	E	700	TTP	O4-C4-C5	-6.88	116.93	124.90
6	H	801	TTP	O4-C4-C5	-6.86	116.95	124.90
6	D	700	TTP	C6-N1-C2	-4.81	116.42	121.30
6	E	700	TTP	C6-N1-C2	-4.81	116.43	121.30
6	H	801	TTP	C6-N1-C2	-4.75	116.49	121.30
6	B	602	TTP	C6-N1-C2	-4.71	116.52	121.30
6	C	700	TTP	C6-N1-C2	-4.60	116.64	121.30
6	B	602	TTP	O2-C2-N1	-4.29	117.08	122.79
6	E	700	TTP	O2-C2-N1	-4.09	117.35	122.79
6	H	801	TTP	O2-C2-N1	-4.06	117.38	122.79
6	C	700	TTP	O2-C2-N1	-4.05	117.40	122.79
6	D	700	TTP	O2-C2-N1	-3.99	117.48	122.79
6	B	602	TTP	C5-C6-N1	-2.74	120.52	123.34
6	C	700	TTP	C5-C6-N1	-2.72	120.54	123.34
6	D	700	TTP	C5-C6-N1	-2.70	120.56	123.34
6	H	801	TTP	C5-C6-N1	-2.65	120.61	123.34
6	E	700	TTP	C5-C6-N1	-2.62	120.64	123.34
6	D	700	TTP	O2-C2-N3	-2.32	117.18	121.50
6	E	700	TTP	O2-C2-N3	-2.20	117.40	121.50
6	H	801	TTP	O2-C2-N3	-2.18	117.43	121.50
6	E	700	TTP	C5M-C5-C4	2.15	121.14	118.77
6	H	801	TTP	C5M-C5-C4	2.15	121.13	118.77
6	C	700	TTP	O2-C2-N3	-2.13	117.53	121.50
6	D	700	TTP	C5M-C5-C4	2.12	121.10	118.77
6	H	801	TTP	C1'-N1-C2	2.11	121.80	117.64
6	E	700	TTP	C1'-N1-C2	2.08	121.74	117.64
6	B	602	TTP	O2-C2-N3	-2.07	117.65	121.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	C	700	TTP	C5M-C5-C4	2.02	120.99	118.77
6	B	602	TTP	C5M-C5-C4	2.02	120.99	118.77

There are no chirality outliers.

All (29) torsion outliers are listed below:

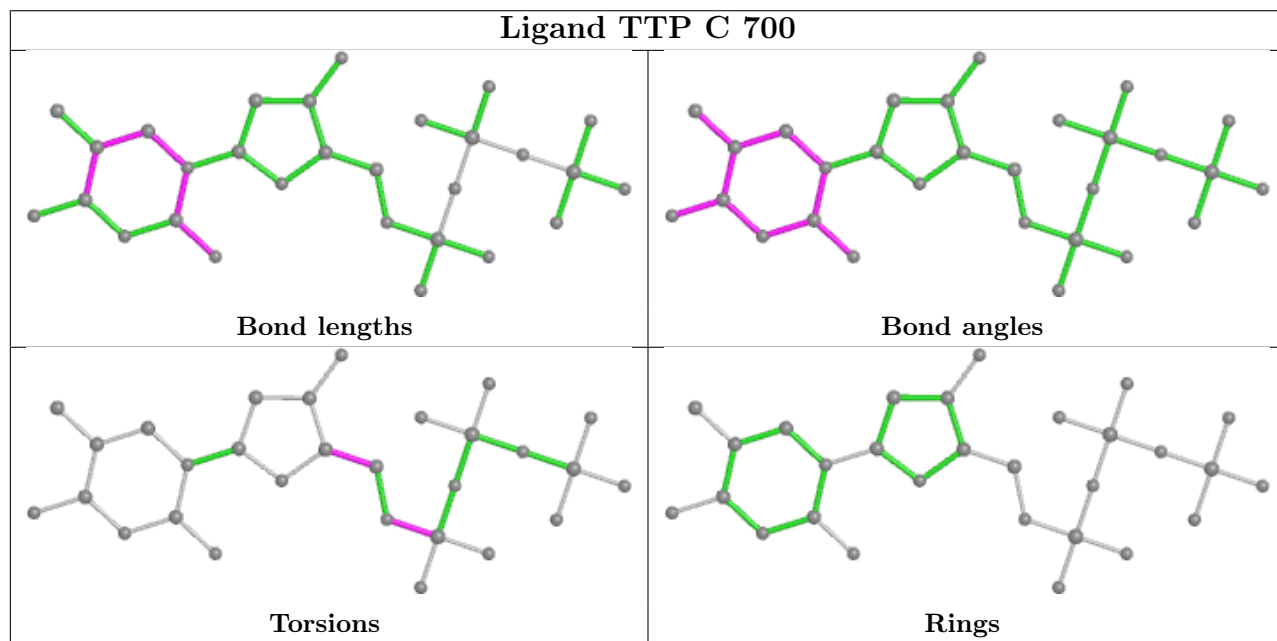
Mol	Chain	Res	Type	Atoms
6	B	602	TTP	PB-O3B-PG-O3G
6	B	602	TTP	O4'-C4'-C5'-O5'
6	C	700	TTP	C5'-O5'-PA-O1A
6	C	700	TTP	C5'-O5'-PA-O2A
6	C	700	TTP	C5'-O5'-PA-O3A
6	D	700	TTP	PB-O3B-PG-O2G
6	D	700	TTP	PB-O3B-PG-O3G
6	D	700	TTP	C3'-C4'-C5'-O5'
6	E	700	TTP	PB-O3B-PG-O2G
6	H	801	TTP	C5'-O5'-PA-O1A
6	H	801	TTP	C5'-O5'-PA-O2A
6	H	801	TTP	PB-O3B-PG-O2G
6	C	700	TTP	O4'-C4'-C5'-O5'
6	D	700	TTP	O4'-C4'-C5'-O5'
6	D	700	TTP	PG-O3B-PB-O2B
6	H	801	TTP	PA-O3A-PB-O2B
6	D	700	TTP	PA-O3A-PB-O2B
6	E	700	TTP	PA-O3A-PB-O1B
6	H	801	TTP	PB-O3A-PA-O1A
6	C	700	TTP	C3'-C4'-C5'-O5'
6	H	801	TTP	PG-O3B-PB-O1B
6	E	700	TTP	PB-O3B-PG-O1G
6	B	602	TTP	C2'-C1'-N1-C6
6	B	602	TTP	O4'-C1'-N1-C6
6	H	801	TTP	C5'-O5'-PA-O3A
6	E	700	TTP	PA-O3A-PB-O2B
6	H	801	TTP	PA-O3A-PB-O1B
6	B	602	TTP	C5'-O5'-PA-O1A
6	D	700	TTP	C5'-O5'-PA-O1A

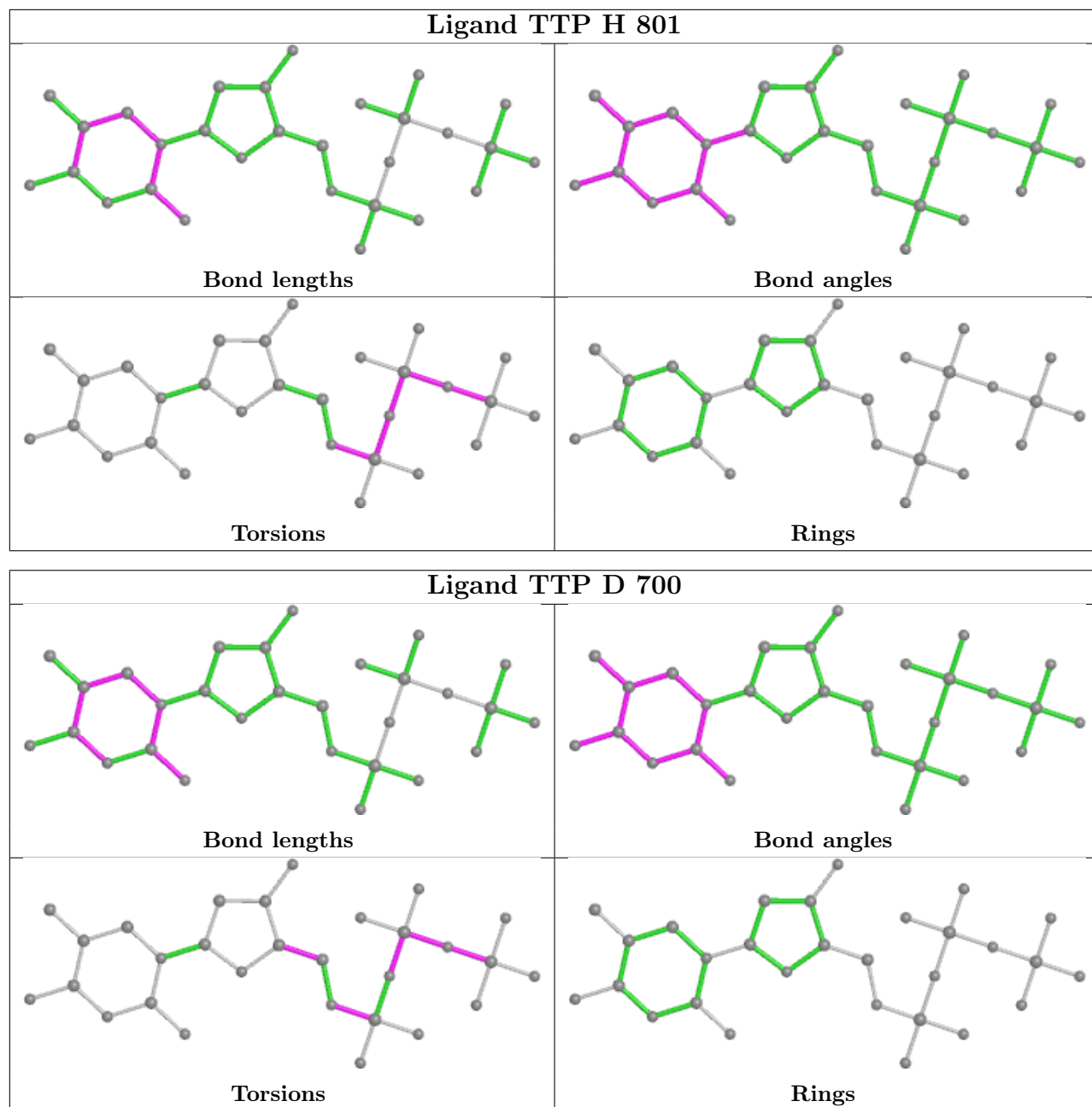
There are no ring outliers.

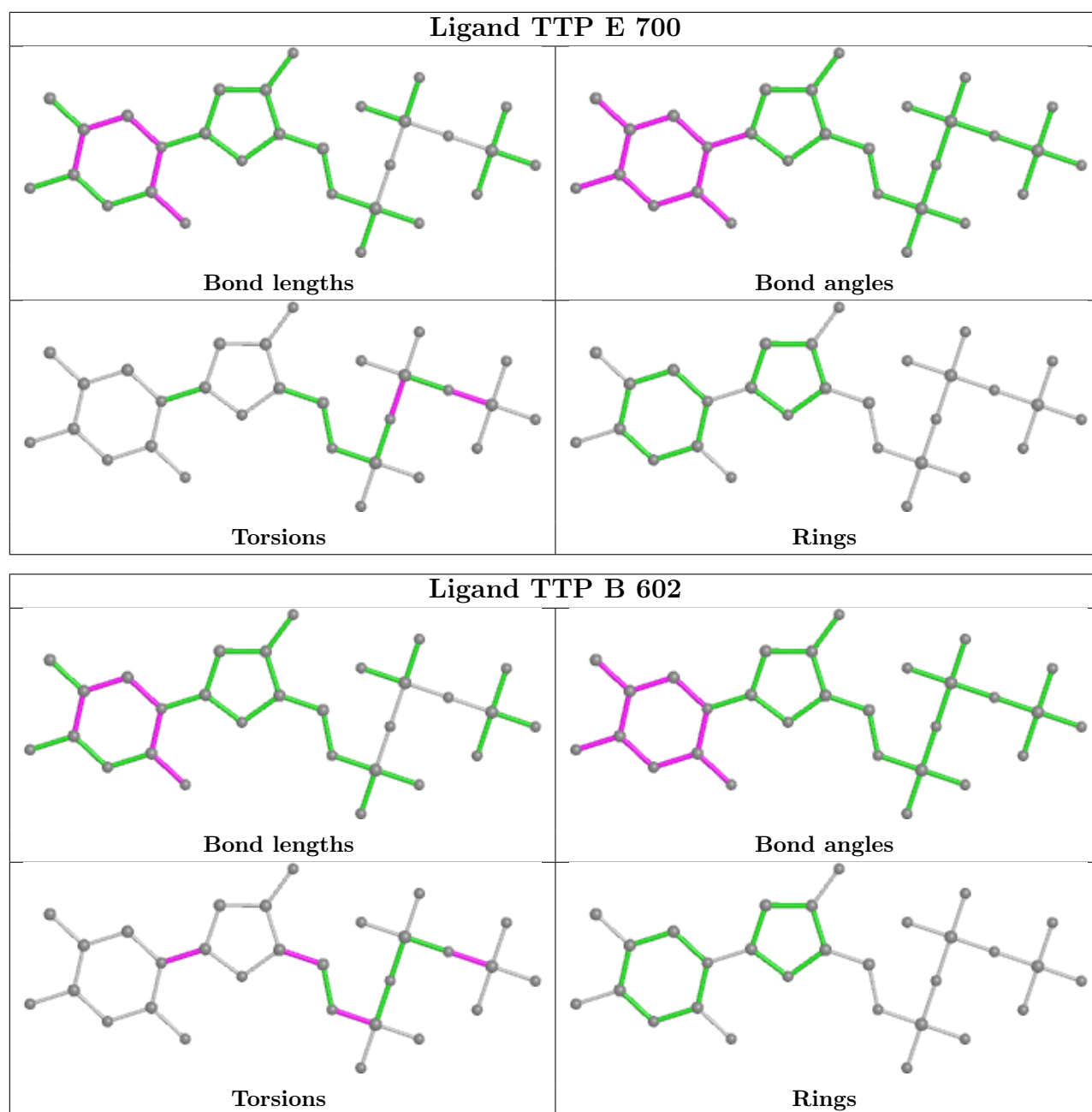
2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	H	801	TTP	3	0
6	E	700	TTP	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.

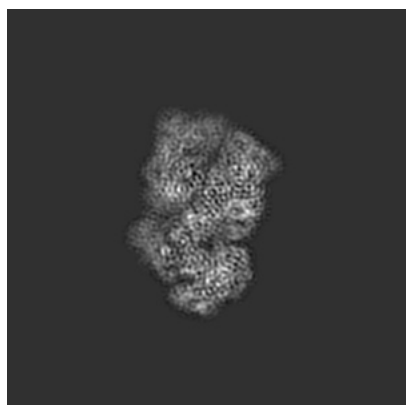
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-0382. These allow visual inspection of the internal detail of the map and identification of artifacts.

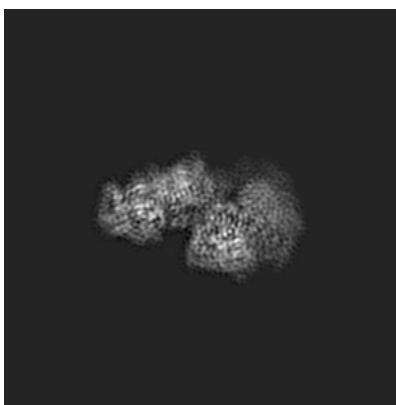
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

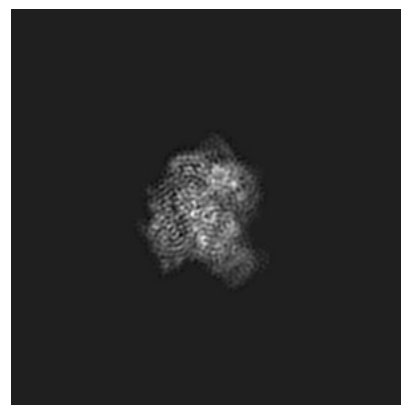
6.1.1 Primary map



X



Y



Z

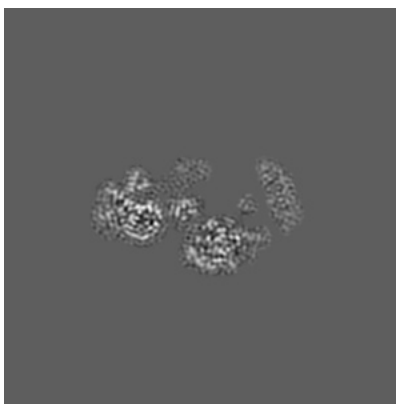
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

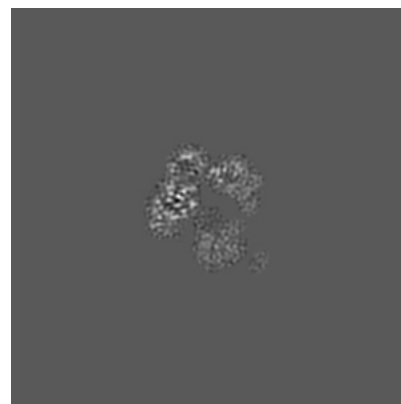
6.2.1 Primary map



X Index: 200



Y Index: 200

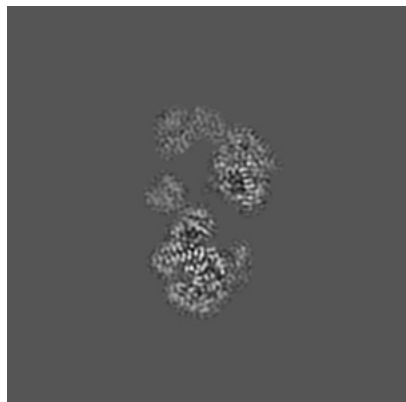


Z Index: 200

The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

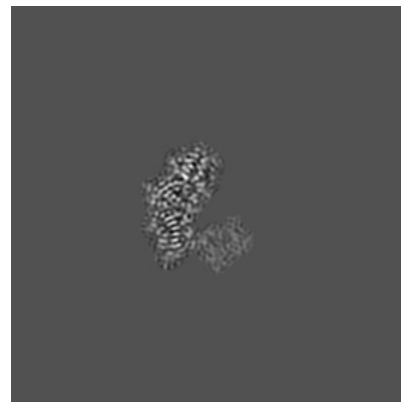
6.3.1 Primary map



X Index: 192



Y Index: 190



Z Index: 220

The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

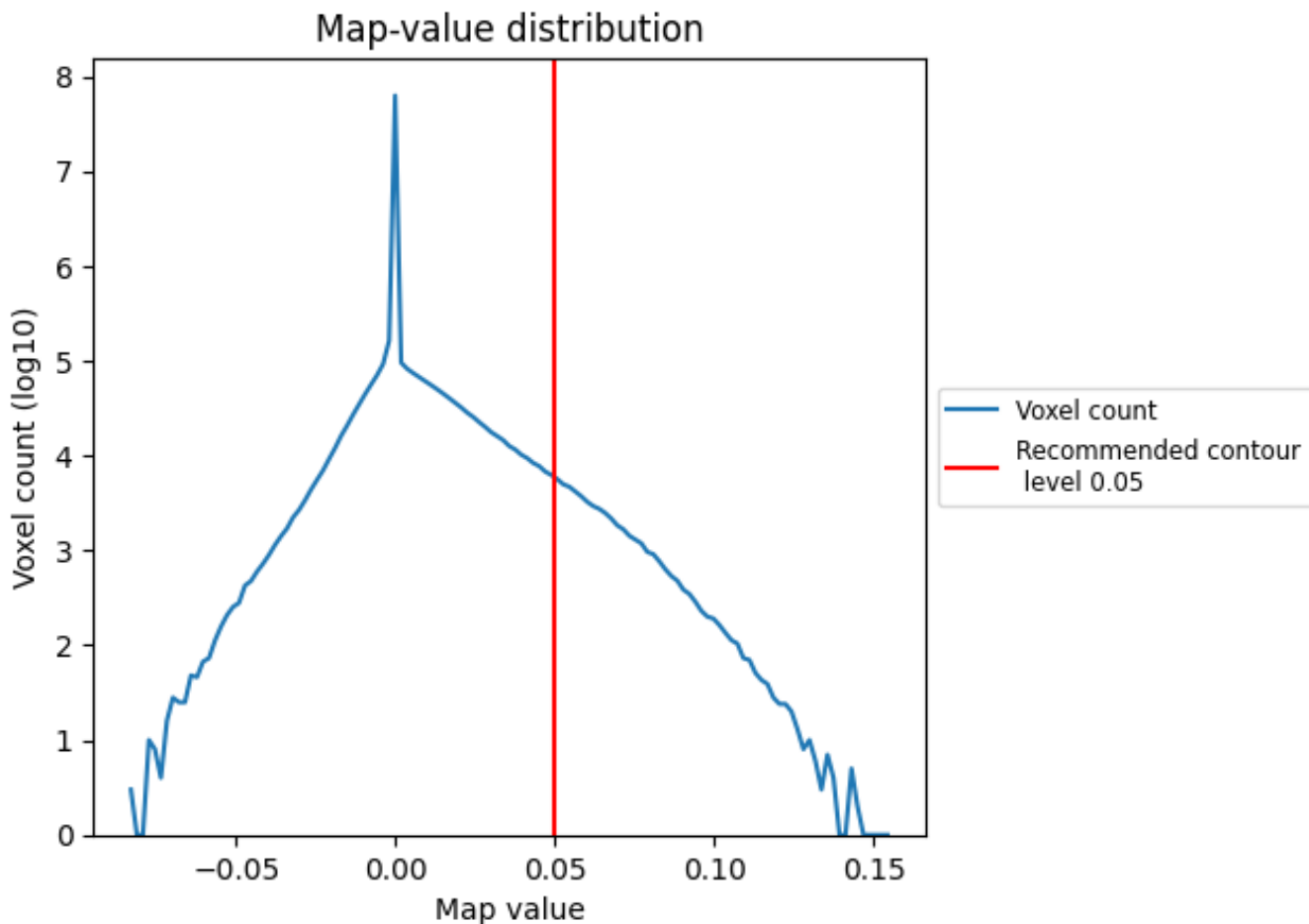
6.5 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

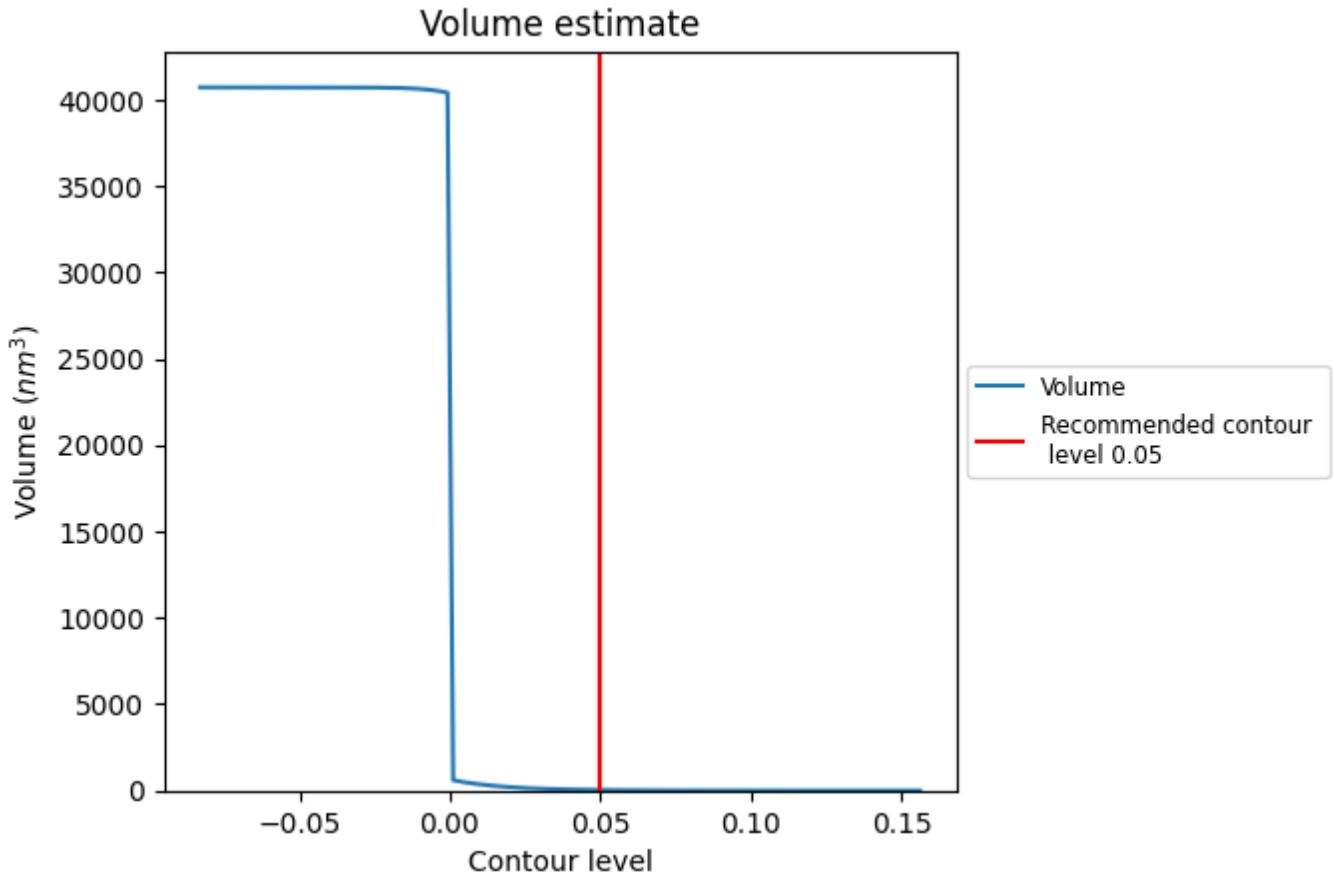
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

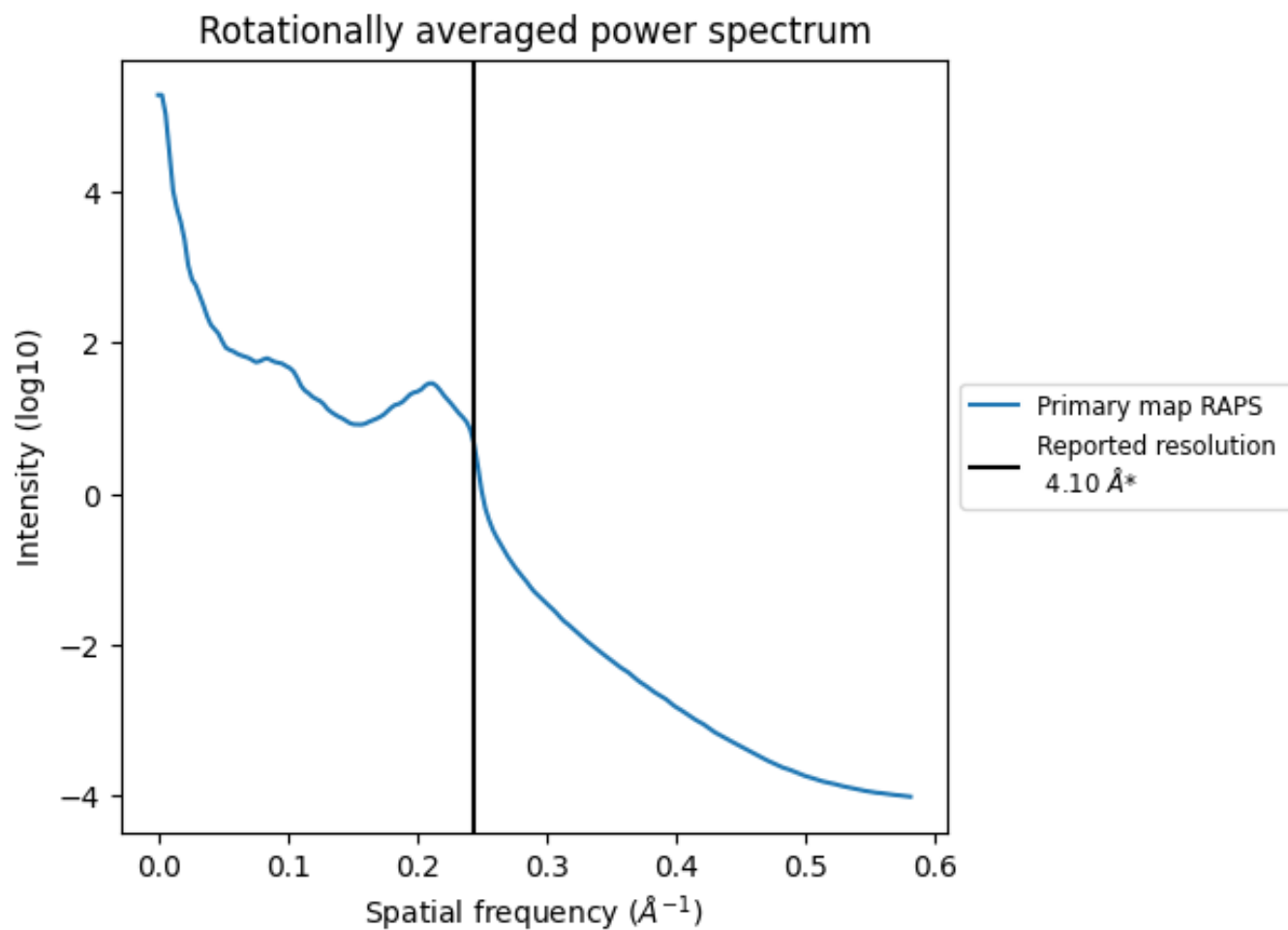
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 34 nm³; this corresponds to an approximate mass of 31 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [\(i\)](#)

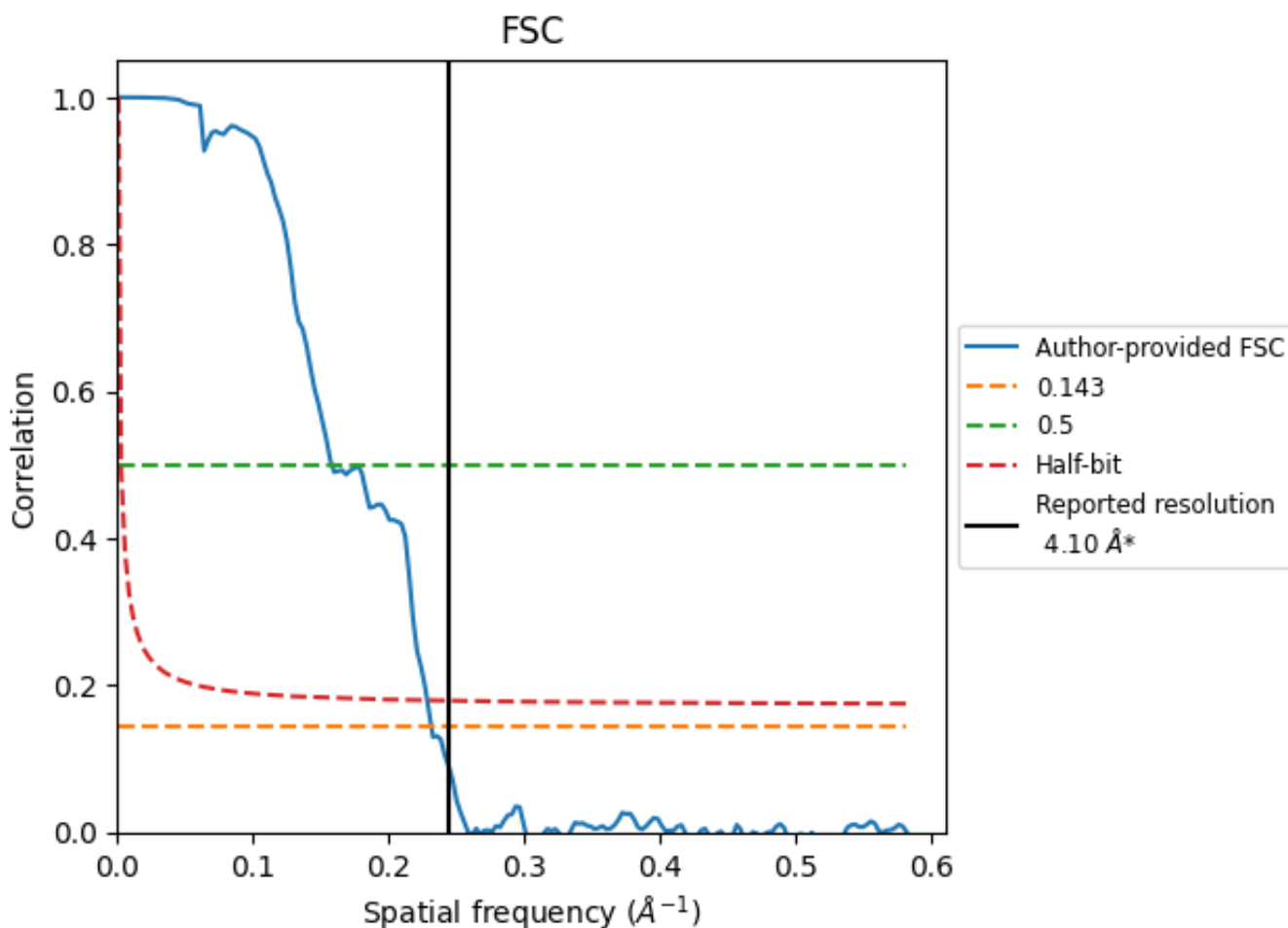


*Reported resolution corresponds to spatial frequency of 0.244\AA^{-1}

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.244 Å⁻¹

8.2 Resolution estimates [i](#)

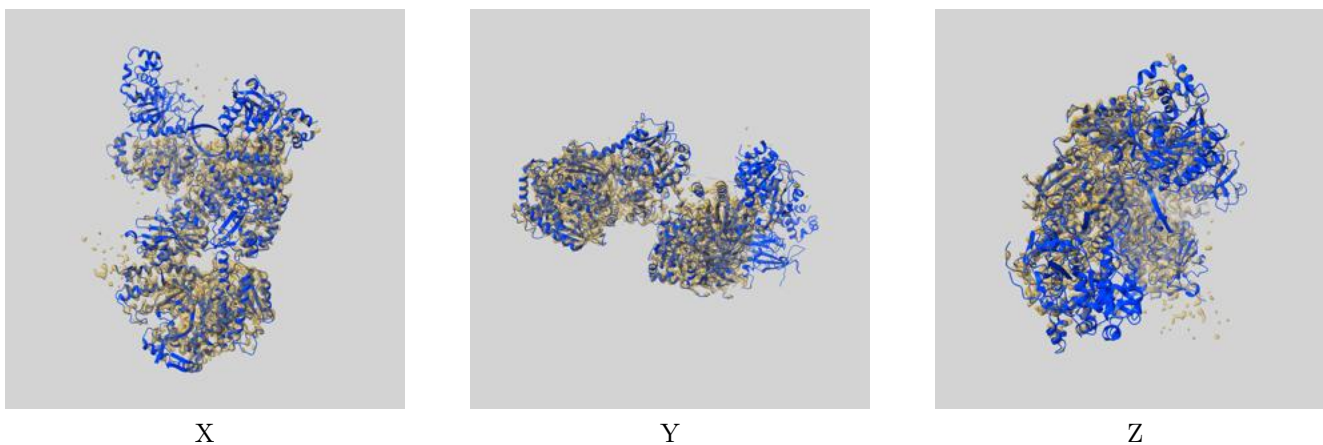
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.10	-	-
Author-provided FSC curve	4.32	6.33	4.38
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

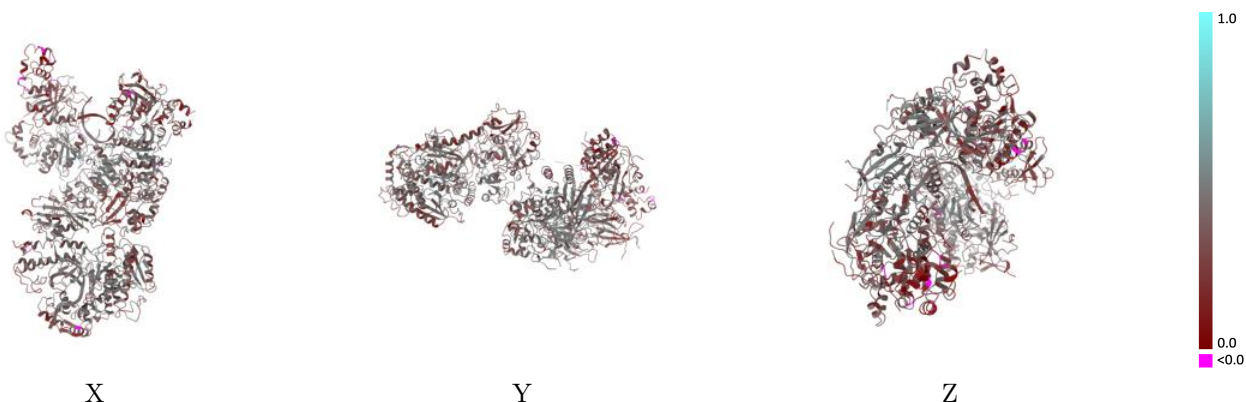
This section contains information regarding the fit between EMDB map EMD-0382 and PDB model 6N9X. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



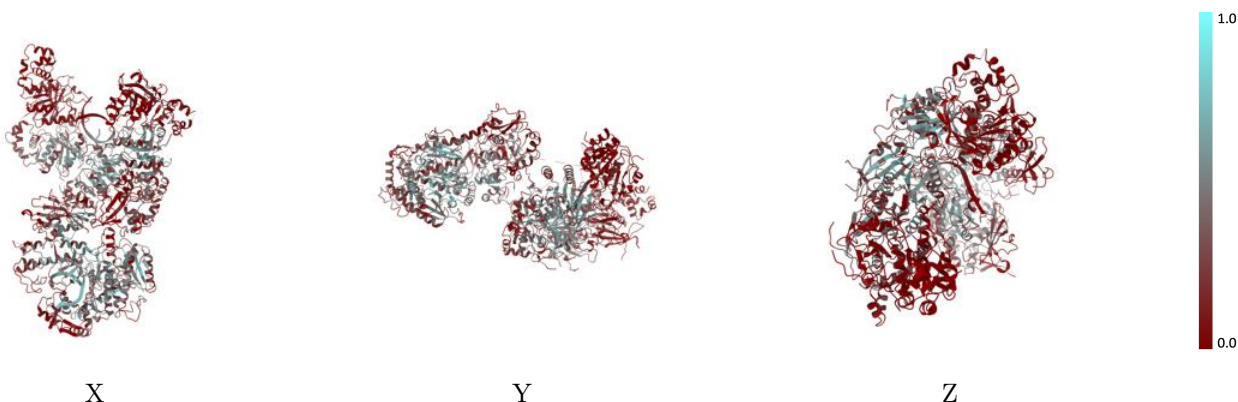
The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



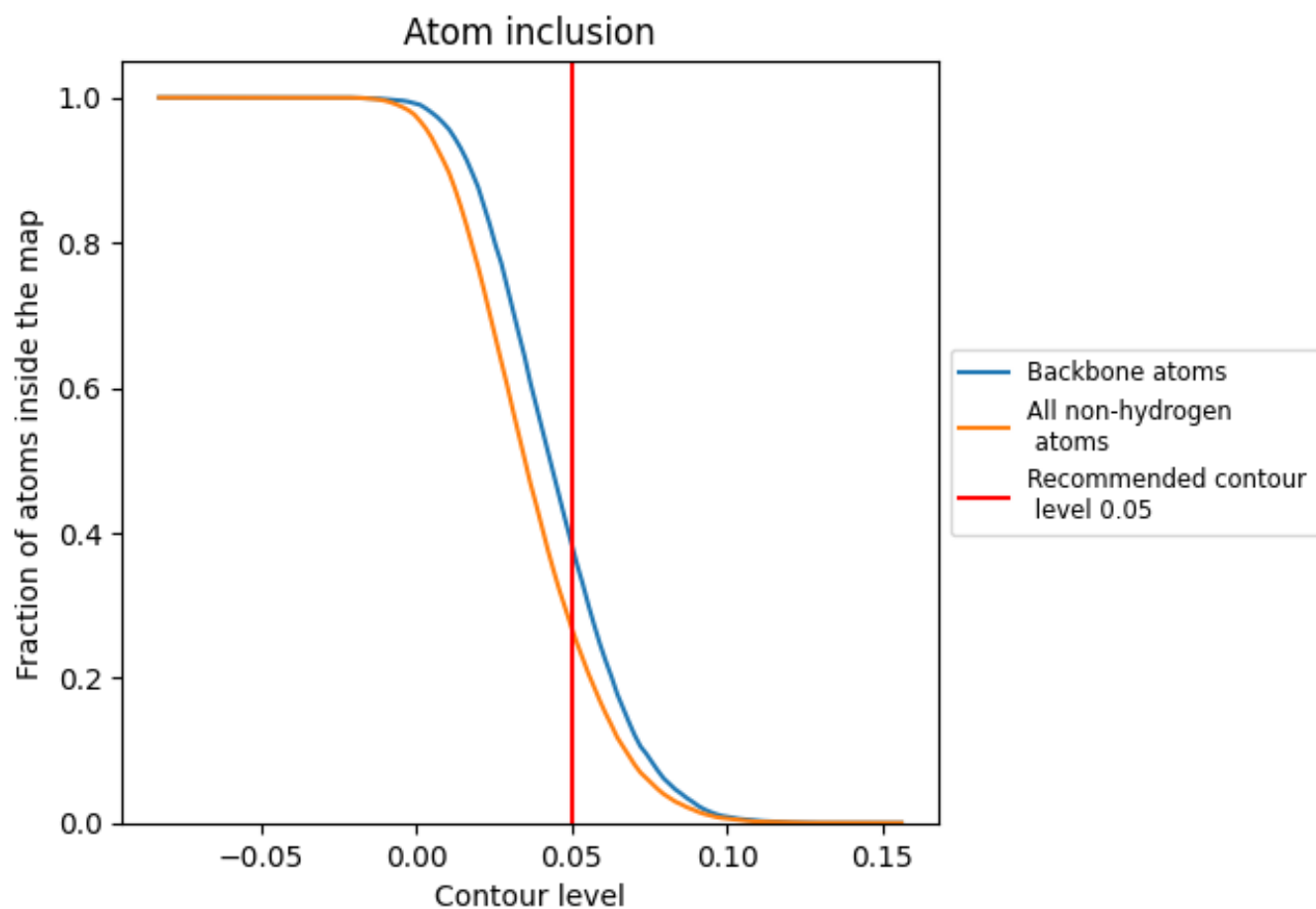
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.05).





















9.4 Atom inclusion [i](#)



At the recommended contour level, 38% of all backbone atoms, 27% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.2685	 0.3710
A	 0.0298	 0.2850
B	 0.3045	 0.4030
C	 0.2907	 0.3860
D	 0.3697	 0.4120
E	 0.0680	 0.3200
F	 0.0000	 0.2040
H	 0.3447	 0.3740
P	 0.6393	 0.4350
T	 0.3379	 0.3840

