



Full wwPDB EM Validation Report ⓘ

Oct 19, 2026 – 07:23 pm BST

PDB ID : 3ZS / pdb_000032zs
EMDB ID : EMD-59289
Title : B. subtilis RNA Polymerase with SigA
Authors : Loll, B.; Hilal, T.
Deposited on : 2026-08-03
Resolution : 3.10 Å (reported)

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.dev133
MolProbity : 4-5-2 with Phenix2.2
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.51

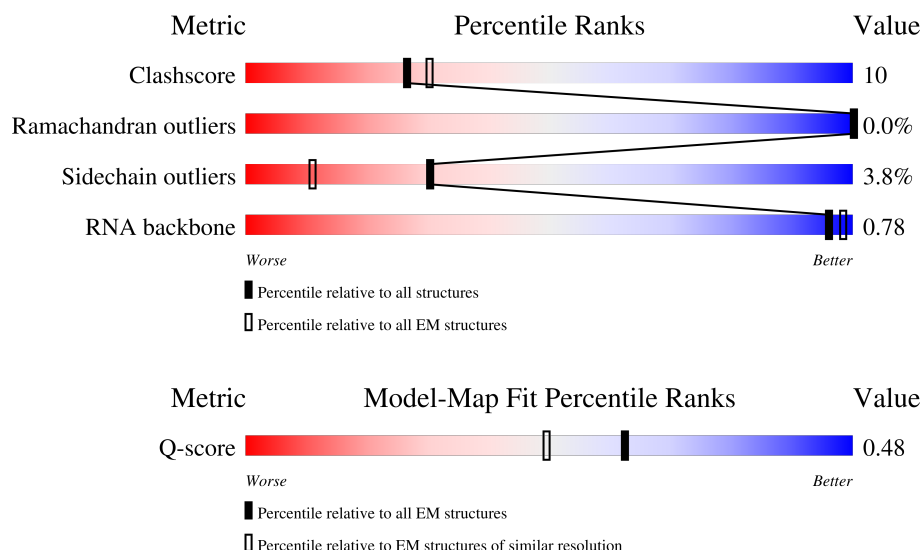
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

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.



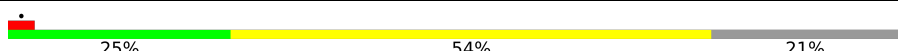
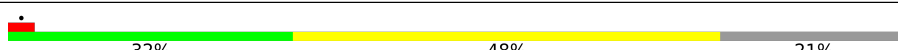
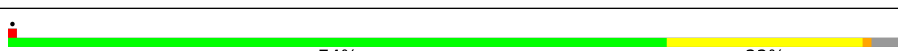
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	14724 (2.60 - 3.60)

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	O	67	
2	E	69	
3	U	314	

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Mol	Chain	Length	Quality of chain
3	V	314	
4	Y	1209	
5	G	371	
6	D	173	
7	K	63	
8	L	63	
9	R	5	
10	X	1193	

2 Entry composition [i](#)

There are 12 unique types of molecules in this entry. The entry contains 28185 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-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	O	61	Total	C	N	O	S	0	0
			485	305	83	93	4		

- Molecule 2 is a protein called DNA-directed RNA polymerase subunit epsilon.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	69	Total	C	N	O	S	0	0
			580	373	92	114	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	42	LEU	PHE	conflict	UNP A0A9W5LJC9

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	V	230	Total	C	N	O	S	0	0
			1770	1115	296	358	1		
3	U	228	Total	C	N	O		3	0
			1787	1122	306	359			

- Molecule 4 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	Y	1180	Total	C	N	O	S	0	0
			9282	5855	1654	1730	43		

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	1200	HIS	-	expression tag	UNP P37871
Y	1201	HIS	-	expression tag	UNP P37871

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Chain	Residue	Modelled	Actual	Comment	Reference
Y	1202	HIS	-	expression tag	UNP P37871
Y	1203	HIS	-	expression tag	UNP P37871
Y	1204	HIS	-	expression tag	UNP P37871
Y	1205	HIS	-	expression tag	UNP P37871
Y	1206	HIS	-	expression tag	UNP P37871
Y	1207	HIS	-	expression tag	UNP P37871
Y	1208	HIS	-	expression tag	UNP P37871
Y	1209	HIS	-	expression tag	UNP P37871

- Molecule 5 is a protein called RNA polymerase sigma factor SigA.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	G	272	Total	C	N	O	S	0	0
			2220	1390	400	424	6		

- Molecule 6 is a protein called DNA-directed RNA polymerase subunit delta.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	D	91	Total	C	N	O	S	0	0
			755	484	121	149	1		

- Molecule 7 is a DNA chain called SigA controlled promoter Pveg.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	K	50	Total	C	N	O	P	0	0
			1017	487	188	292	50		

There are 23 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
K	1	DA	-	expression tag	GB 2731940075
K	2	DT	-	expression tag	GB 2731940075
K	3	DC	-	expression tag	GB 2731940075
K	4	DC	-	expression tag	GB 2731940075
K	5	DA	-	expression tag	GB 2731940075
K	6	DC	-	expression tag	GB 2731940075
K	7	DC	-	expression tag	GB 2731940075
K	8	DT	-	expression tag	GB 2731940075
K	9	DC	-	expression tag	GB 2731940075
K	10	DA	-	expression tag	GB 2731940075
K	11	DG	-	expression tag	GB 2731940075
K	12	DA	-	expression tag	GB 2731940075

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Chain	Residue	Modelled	Actual	Comment	Reference
K	13	DT	-	expression tag	GB 2731940075
K	14	DG	-	expression tag	GB 2731940075
K	15	DT	-	expression tag	GB 2731940075
K	16	DA	-	expression tag	GB 2731940075
K	17	DA	-	expression tag	GB 2731940075
K	18	DA	-	expression tag	GB 2731940075
K	19	DT	-	expression tag	GB 2731940075
K	20	DA	-	expression tag	GB 2731940075
K	21	DA	-	expression tag	GB 2731940075
K	22	DC	-	expression tag	GB 2731940075
K	23	DA	-	expression tag	GB 2731940075

- Molecule 8 is a DNA chain called SigA controlled promoter Pveg.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	L	50	Total	C	N	O	P	0	0
			1040	496	194	300	50		

- Molecule 9 is a RNA chain called RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	R	5	Total	C	N	O	P	0	0
			104	47	17	35	5		

- Molecule 10 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	X	1157	Total	C	N	O	S	1	0
			9142	5735	1599	1774	34		

- Molecule 11 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
11	Y	1	Total	Mg	0
			1	1	

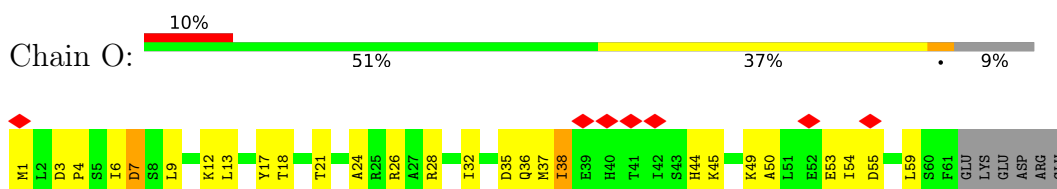
- Molecule 12 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
12	Y	2	Total	Zn	0
			2	2	

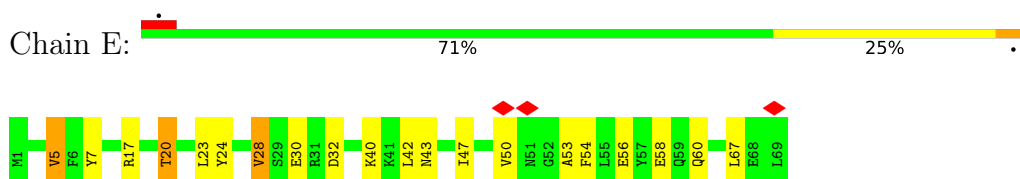
3 Residue-property plots

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.

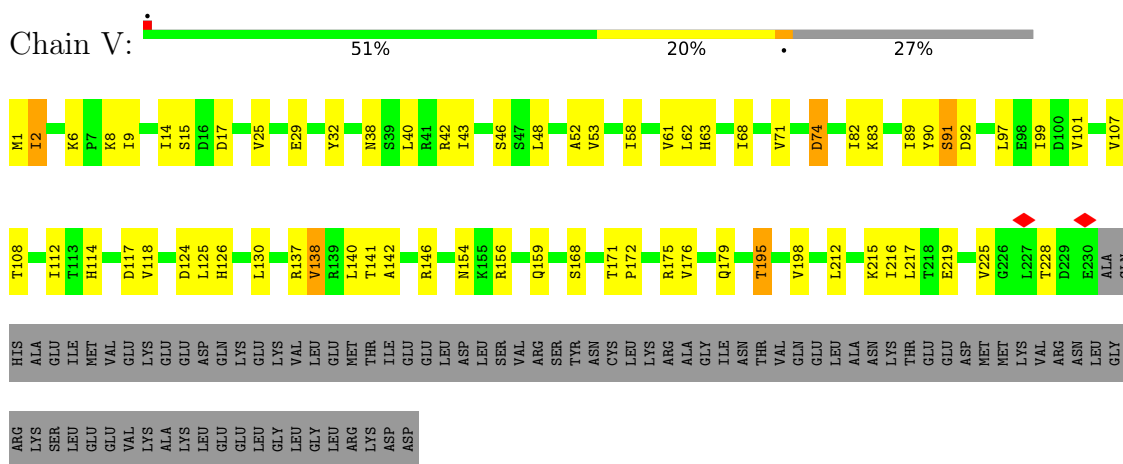
- Molecule 1: DNA-directed RNA polymerase subunit omega



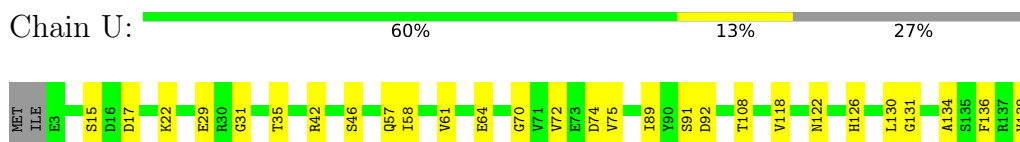
- Molecule 2: DNA-directed RNA polymerase subunit epsilon

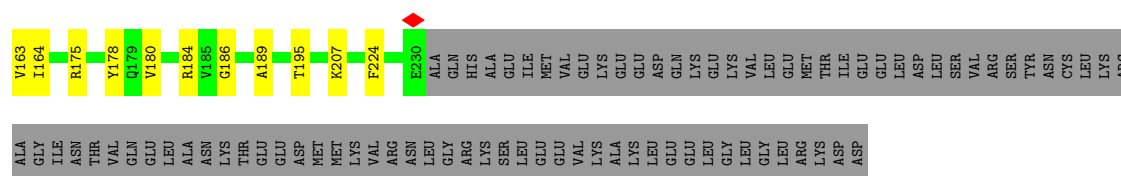


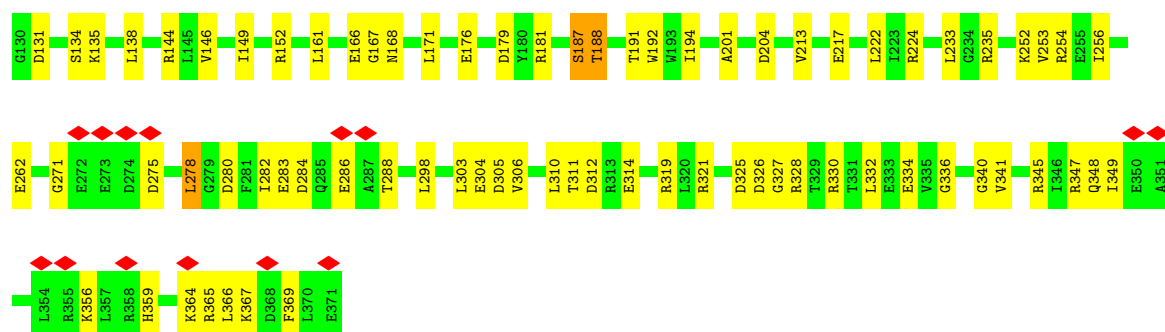
- Molecule 3: DNA-directed RNA polymerase subunit alpha



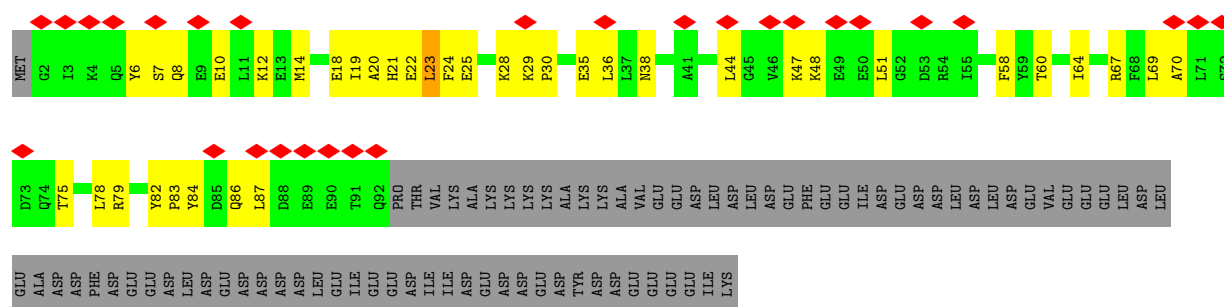
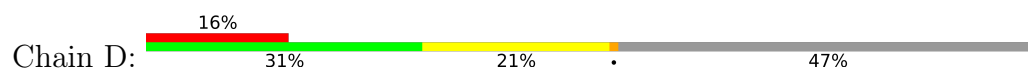
- Molecule 3: DNA-directed RNA polymerase subunit alpha



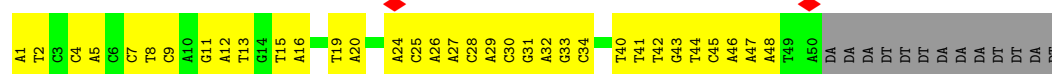




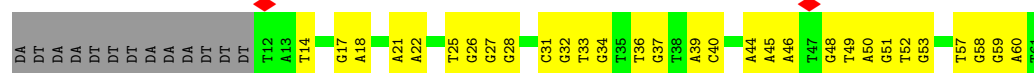
• Molecule 6: DNA-directed RNA polymerase subunit delta



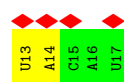
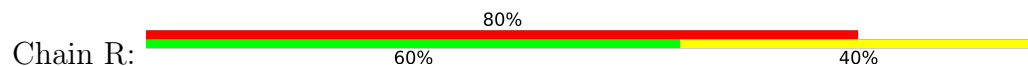
• Molecule 7: SigA controlled promoter Pveg



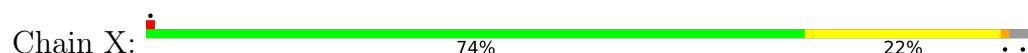
• Molecule 8: SigA controlled promoter Pveg



• Molecule 9: RNA



• Molecule 10: DNA-directed RNA polymerase subunit beta



M1154	L861	A1013	L862	M748	A566	M427	L290	M153	MET
D1156	H862	L1017	A863	E752	A569	E428	A291	G154	T2
L1157	T864	P1025	T864	G756	D582	R432	E292	K155	R10
E1158	R870	F1026	R757	R757	A586	R434	L294	K156	R14
ASP	L877	R1029	M758	M758	S614	M435	T299	Y172	R14
GLU	T887	V1030	V761	V761	K616	D439	A304	V179	L24
GLU	H888	G1033	M764	M764	S620	T440	E305	V182	L32
ALA	D889	I1034	T765	T765	S634	T444	R183	Q33	Q33
LYS	V890	M1035	N770	N770	M643	Q446	L184	Y37	Y37
GLN	K891	Y1036	E779	E779	Q644	Q447	L190	L45	L45
ALA	R895	M1037	R780	R780	R645	L448	R312	M48	M48
ASP	R899	I1038	L781	L781	M651	I461	R313	T193	T193
GLY	V905	K1039	V786	V786	E654	I455	R314	D57	D57
LEU	N906	L1048	I792	I792	P656	F461	L315	I67	I67
ALA	Q907	R1051	Y795	Y795	F657	F462	D316	P77	P77
LEU	L908	P1055	E796	E796	V658	L467	K322	E80	E80
SER	V909	L1058	S797	S797	M662	M471	G325	S81	S81
GLY	Y911	Q1062	A799	A799	E663	T481	F328	R84	R84
GLU	Y912	Q1069	R800	R800	A672	H482	R329	D85	D85
THR	I913	R1074	D801	D801	R684	R483	K330	Y88	Y88
ALA	M925	M1078	T810	T810	V685	R484	Q345	I99	I99
ALA	P940	D943	D812	D812	E686	L489	I349	V106	V106
ASP	D949	A1082	I813	I813	A687	L494	A367	Q109	Q109
ASP	G950	L1083	P814	P814	K688	T495	Y368	M113	M113
VAL	T951	T1085	L821	L821	R692	E497	K374	G114	G114
VAL	I955	I1102	L824	L824	R693	M501	T377	P117	P117
GLU	L972	T1109	D825	D825	E696	D805	A379	I118	I118
ARG	E973	H974	D826	D826	D699	S509	L391	M119	M119
ASP	H975	M976	I832	I832	G700	M514	A251	T120	T120
VAL	M976	M976	D838	D838	V703	C515	K252	D121	D121
VAL	A979	A979	V843	V843	K704	P516	L255	G123	G123
THR	G994	A995	K844	K844	L712	I517	D256	I127	I127
LYS	R996	T1003	V851	V851	R717	L527	F260	H128	H128
GLU	E1005	L1004	L854	L854	Q726	S532	G271	G129	G129
	R1011	E1005	T855	T855	E735	P546	I281	V135	V135
	D1012	D1012	E858	E858	D744	K556	L285	P142	P142
			R859	R859		I561	F286	V150	V150
			L860	L860			Q287	D151	D151
							R289	K152	K152

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	28416	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	42	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	96000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	2.448	Depositor
Minimum map value	-0.000	Depositor
Average map value	0.013	Depositor
Map value standard deviation	0.063	Depositor
Recommended contour level	0.26	Depositor
Map size (Å)	314.496, 314.496, 314.496	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.819, 0.819, 0.819	Depositor

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: MG, ZN

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	O	0.09	0/490	0.30	0/655
2	E	0.13	0/589	0.31	0/789
3	U	0.12	0/1813	0.24	0/2463
3	V	0.11	0/1796	0.28	0/2442
4	Y	0.11	0/9432	0.26	0/12723
5	G	0.11	0/2250	0.27	0/3024
6	D	0.13	0/771	0.39	0/1041
7	K	0.67	0/1141	0.86	0/1755
8	L	0.65	0/1169	0.88	0/1806
9	R	0.15	0/115	0.58	0/176
10	X	0.12	0/9301	0.27	0/12573
All	All	0.22	0/28867	0.37	0/39447

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 [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	O	485	0	505	21	0
2	E	580	0	585	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	U	1787	0	1798	28	0
3	V	1770	0	1785	47	0
4	Y	9282	0	9518	189	0
5	G	2220	0	2259	63	0
6	D	755	0	728	34	0
7	K	1017	0	563	28	0
8	L	1040	0	567	26	0
9	R	104	0	54	2	0
10	X	9142	0	9093	172	0
11	Y	1	0	0	0	0
12	Y	2	0	0	0	0
All	All	28185	0	27455	557	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.

All (557) 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)
3:V:42:ARG:HE	3:U:35:THR:HG22	1.38	0.89
4:Y:657:THR:HG21	10:X:1030:VAL:HA	1.58	0.84
4:Y:549:PHE:HB3	4:Y:554:ARG:HG3	1.61	0.82
4:Y:62:CYS:HB3	4:Y:78:CYS:SG	2.25	0.76
8:L:39:DA:H2''	8:L:40:DC:H5''	1.71	0.73
4:Y:473:MET:HE1	10:X:1083:LEU:HD22	1.71	0.72
10:X:616:LYS:HD3	10:X:662:MET:HE1	1.72	0.72
10:X:858:GLU:O	10:X:862:HIS:ND1	2.23	0.71
10:X:891:LYS:NZ	10:X:912:TYR:OH	2.24	0.70
4:Y:1178:MET:HE3	4:Y:1178:MET:HA	1.74	0.69
4:Y:1037:VAL:HG23	4:Y:1038:THR:HG23	1.74	0.69
5:G:127:ILE:HD12	5:G:135:LYS:HG2	1.75	0.68
3:V:156:ARG:H	3:V:159:GLN:HE22	1.41	0.67
4:Y:375:VAL:HG21	4:Y:383:ILE:HD13	1.77	0.67
8:L:48:DG:H2''	8:L:49:DT:H5'	1.76	0.66
4:Y:280:ILE:HG23	5:G:168:ASN:HD22	1.61	0.65
4:Y:374:LEU:HD11	4:Y:397:VAL:HG22	1.77	0.65
1:O:17:TYR:O	1:O:21:THR:HG23	1.96	0.65
7:K:47:DA:H2''	7:K:48:DA:H5'	1.79	0.65
5:G:345:ARG:NH1	8:L:14:DT:OP2	2.29	0.65
4:Y:854:HIS:HD2	4:Y:856:GLU:H	1.44	0.64
5:G:254:ARG:HH21	10:X:895:ARG:HH21	1.45	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:Y:984:VAL:HB	4:Y:988:GLN:HB2	1.77	0.64
4:Y:814:ARG:NH2	4:Y:896:HIS:O	2.29	0.64
4:Y:846:ARG:NH1	4:Y:903:TYR:O	2.30	0.64
4:Y:439:HIS:HE1	4:Y:441:LEU:HD12	1.63	0.64
10:X:566:ALA:HA	10:X:569:GLU:HG2	1.80	0.64
4:Y:1061:GLU:N	4:Y:1061:GLU:OE1	2.31	0.64
6:D:19:ILE:O	6:D:23:LEU:HD22	1.98	0.64
4:Y:618:GLY:O	4:Y:622:LYS:HG2	1.98	0.63
4:Y:944:VAL:HG13	4:Y:949:ILE:HD12	1.80	0.63
5:G:187:SER:O	5:G:191:THR:OG1	2.14	0.63
2:E:5:VAL:HB	2:E:47:ILE:HD13	1.78	0.63
10:X:434:ARG:NH1	10:X:447:GLN:O	2.31	0.63
4:Y:1161:LEU:HD22	4:Y:1171:VAL:HG13	1.80	0.63
10:X:484:ARG:NH2	10:X:532:SER:O	2.31	0.63
4:Y:1083:ALA:O	4:Y:1086:THR:OG1	2.16	0.62
10:X:312:ARG:NH1	10:X:316:ASP:OD1	2.33	0.62
4:Y:117:VAL:O	4:Y:209:ARG:NH2	2.32	0.62
5:G:131:ASP:HB3	5:G:134:SER:HB2	1.81	0.62
10:X:761:VAL:HG11	10:X:1035:MET:HB3	1.82	0.62
10:X:377:THR:HG22	10:X:379:ALA:H	1.65	0.61
5:G:187:SER:HB2	8:L:40:DC:H2'	1.83	0.61
5:G:187:SER:OG	5:G:188:THR:N	2.31	0.61
5:G:326:ASP:OD2	5:G:328:ARG:NH2	2.33	0.61
4:Y:483:LYS:NZ	4:Y:484:ASP:OD1	2.32	0.61
4:Y:279:ILE:HD11	5:G:109:ILE:HG22	1.83	0.61
2:E:43:ASN:OD1	10:X:1029:ARG:NH1	2.34	0.61
10:X:150:VAL:HG22	10:X:156:LYS:HZ1	1.66	0.60
4:Y:186:LYS:O	4:Y:190:MET:HG3	2.01	0.60
4:Y:581:PRO:HB2	4:Y:619:ILE:HG13	1.83	0.60
7:K:40:DT:H2''	7:K:41:DT:H5''	1.84	0.60
2:E:5:VAL:HG13	2:E:23:LEU:HG	1.82	0.60
4:Y:348:PRO:O	4:Y:644:LYS:NZ	2.34	0.60
4:Y:358:PRO:HG2	4:Y:361:MET:HB3	1.83	0.60
4:Y:1106:VAL:HG13	4:Y:1111:ASN:HB2	1.84	0.60
5:G:328:ARG:HG3	5:G:330:ARG:HG3	1.82	0.60
10:X:156:LYS:HA	10:X:156:LYS:HE3	1.83	0.60
10:X:99:ILE:HG12	10:X:106:VAL:HG12	1.84	0.59
4:Y:1036:LYS:HA	4:Y:1117:ARG:HH22	1.67	0.59
10:X:194:VAL:HG13	10:X:232:ALA:HB1	1.85	0.59
4:Y:169:SER:HB2	4:Y:174:ALA:HB2	1.85	0.59
6:D:8:GLN:NE2	6:D:44:LEU:O	2.36	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:19:ILE:HD12	6:D:19:ILE:H	1.67	0.59
10:X:813:ILE:HD11	10:X:844:GLY:HA3	1.85	0.59
10:X:761:VAL:HA	10:X:955:ILE:O	2.03	0.58
10:X:1097:THR:HG22	10:X:1125:PRO:HG3	1.84	0.58
10:X:80:GLU:OE2	10:X:84:ARG:NH2	2.33	0.58
4:Y:663:ILE:O	4:Y:768:ARG:NH2	2.36	0.58
10:X:684:ARG:NH1	10:X:686:GLU:OE2	2.37	0.58
10:X:811:ARG:NH2	10:X:821:LEU:O	2.36	0.58
10:X:974:LEU:HG	10:X:1033:GLY:HA3	1.85	0.58
4:Y:210:LEU:HD12	4:Y:1089:LEU:HD11	1.85	0.58
4:Y:61:HIS:H	4:Y:80:VAL:HG11	1.68	0.58
4:Y:1037:VAL:O	6:D:67:ARG:NH2	2.37	0.57
1:O:24:ALA:HB1	4:Y:464:GLU:HG3	1.86	0.57
3:V:179:GLN:HB2	3:V:195:THR:HG23	1.86	0.57
4:Y:37:ARG:HH12	8:L:31:DC:H5"	1.70	0.57
4:Y:417:THR:HG23	10:X:1078:MET:HB2	1.86	0.57
5:G:188:THR:O	5:G:192:TRP:HD1	1.87	0.57
3:U:108:THR:HG22	3:U:126:HIS:HA	1.87	0.57
4:Y:948:ASP:OD2	4:Y:1028:SER:OG	2.21	0.57
5:G:330:ARG:HB3	5:G:334:GLU:HB2	1.87	0.57
1:O:26:ARG:HD3	1:O:59:LEU:HD21	1.86	0.57
2:E:17:ARG:HD3	10:X:1025:PRO:HD3	1.86	0.57
3:V:228:THR:O	3:U:207:LYS:NZ	2.31	0.57
10:X:489:LEU:HD21	10:X:527:LEU:HD13	1.86	0.57
7:K:29:DA:H2"	7:K:30:DC:H5'	1.86	0.56
10:X:109:GLN:NE2	10:X:445:PRO:O	2.38	0.56
3:U:89:ILE:HG12	3:U:118:VAL:HG22	1.88	0.56
4:Y:69:ARG:HH12	5:G:327:GLY:C	2.13	0.56
4:Y:1053:LYS:O	4:Y:1057:MET:HG2	2.05	0.56
10:X:1005:GLU:OE2	10:X:1011:ARG:NH2	2.36	0.56
5:G:222:LEU:HD11	5:G:253:VAL:HG23	1.88	0.55
3:U:58:ILE:HB	3:U:61:VAL:HG22	1.87	0.55
6:D:84:TYR:HA	6:D:87:LEU:HD12	1.88	0.55
4:Y:10:MET:HB3	4:Y:1156:ASP:HB3	1.89	0.55
4:Y:116:LEU:HD23	4:Y:212:VAL:HG21	1.87	0.55
4:Y:208:LYS:NZ	8:L:58:DG:OP1	2.40	0.55
4:Y:911:SER:OG	4:Y:912:ASP:N	2.39	0.55
10:X:949:ASP:O	3:U:175:ARG:NH1	2.40	0.55
4:Y:1096:ILE:O	4:Y:1100:THR:HG23	2.07	0.55
4:Y:83:THR:HG22	4:Y:84:ARG:H	1.72	0.55
10:X:1146:SER:HB3	10:X:1152:ILE:HD11	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:Y:580:GLU:OE2	4:Y:593:ARG:NH2	2.39	0.55
6:D:83:PRO:HD2	6:D:86:GLN:HE21	1.71	0.55
3:V:179:GLN:N	3:V:179:GLN:OE1	2.40	0.54
3:V:156:ARG:CZ	3:V:159:GLN:HE21	2.20	0.54
4:Y:92:MET:HG2	4:Y:235:PRO:HD3	1.90	0.54
4:Y:658:VAL:HG22	4:Y:729:MET:HE1	1.89	0.54
6:D:35:GLU:HA	6:D:38:ASN:HD21	1.72	0.54
4:Y:69:ARG:NH1	5:G:328:ARG:HA	2.21	0.54
4:Y:797:SER:HB2	4:Y:953:LEU:HD21	1.88	0.54
4:Y:897:GLY:O	4:Y:1072:ARG:NH1	2.39	0.54
10:X:1017:LEU:HB3	10:X:1026:PHE:HD2	1.73	0.54
4:Y:412:LEU:HD22	4:Y:457:VAL:HG22	1.88	0.54
4:Y:572:PRO:HG2	4:Y:575:PHE:HB2	1.89	0.54
4:Y:564:LYS:O	4:Y:568:ASN:ND2	2.39	0.54
4:Y:737:ASN:OD1	4:Y:739:SER:OG	2.25	0.54
8:L:25:DT:H2''	8:L:26:DG:H5''	1.89	0.54
10:X:696:GLU:HB2	10:X:703:VAL:HB	1.90	0.54
10:X:994:GLY:O	10:X:996:ARG:NH1	2.41	0.54
10:X:190:LEU:HD23	10:X:191:PRO:HD2	1.89	0.53
10:X:855:THR:HG22	10:X:858:GLU:HG3	1.90	0.53
4:Y:1023:VAL:HG22	4:Y:1029:ILE:HD11	1.89	0.53
5:G:123:TYR:HB3	5:G:138:LEU:HD22	1.89	0.53
3:U:70:GLY:O	3:U:131:GLY:N	2.40	0.53
3:V:175:ARG:NH1	4:Y:520:ASP:OD1	2.41	0.53
6:D:47:LYS:HD3	6:D:48:LYS:H	1.73	0.53
10:X:233:LEU:HD21	10:X:252:LYS:HG2	1.90	0.53
4:Y:199:GLN:OE1	4:Y:199:GLN:N	2.42	0.53
7:K:1:DA:H2''	7:K:2:DT:H5'	1.89	0.53
7:K:8:DT:H2'	7:K:9:DC:C6	2.43	0.53
8:L:59:DG:H2''	8:L:60:DA:C8	2.44	0.53
3:V:97:LEU:HD23	3:V:112:ILE:HG21	1.91	0.53
4:Y:491:PRO:HB3	4:Y:495:MET:HE2	1.90	0.53
4:Y:958:GLU:OE2	4:Y:965:PRO:HA	2.08	0.53
10:X:14:ARG:NH1	10:X:752:GLU:OE2	2.42	0.53
10:X:152:LYS:NZ	10:X:153:ASN:OD1	2.35	0.53
4:Y:900:LYS:HG3	4:Y:913:VAL:HG12	1.90	0.53
5:G:332:LEU:HD13	5:G:347:ARG:HB2	1.91	0.53
4:Y:264:ARG:HH11	4:Y:291:ALA:HB2	1.73	0.53
4:Y:785:LYS:NZ	10:X:505:ASP:OD2	2.42	0.53
2:E:24:TYR:OH	2:E:58:GLU:OE2	2.26	0.53
10:X:37:TYR:OH	10:X:117:PRO:O	2.26	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:Y:505:GLU:OE1	4:Y:564:LYS:NZ	2.42	0.52
5:G:341:VAL:HG22	5:G:345:ARG:HH21	1.74	0.52
10:X:979:ALA:HB2	10:X:1004:LEU:HD23	1.90	0.52
3:V:99:ILE:HB	3:V:138:VAL:HG13	1.91	0.52
5:G:305:ASP:OD2	5:G:365:ARG:NH1	2.43	0.52
10:X:481:THR:HG21	10:X:645:ARG:HD3	1.91	0.52
3:V:42:ARG:O	3:V:46:SER:OG	2.27	0.52
4:Y:776:TYR:CE1	10:X:517:ILE:HD11	2.45	0.52
4:Y:1141:GLU:HG2	4:Y:1144:ARG:NH2	2.25	0.52
4:Y:38:THR:HG23	4:Y:40:LYS:HB2	1.92	0.52
5:G:112:VAL:O	5:G:144:ARG:NH2	2.43	0.52
5:G:167:GLY:HA2	5:G:194:ILE:HG23	1.92	0.52
10:X:256:ASP:HA	10:X:260:PHE:HD2	1.75	0.52
10:X:1035:MET:HG2	10:X:1037:MET:HG3	1.91	0.52
10:X:781:LEU:HD22	10:X:786:VAL:HG21	1.91	0.52
1:O:12:LYS:NZ	1:O:55:ASP:O	2.43	0.52
3:V:29:GLU:HB2	3:V:32:TYR:CD2	2.45	0.52
5:G:106:LEU:HA	5:G:109:ILE:HG12	1.91	0.52
7:K:33:DG:H2''	7:K:34:DC:C5	2.45	0.52
3:V:90:TYR:HB2	3:V:117:ASP:HB3	1.93	0.51
7:K:44:DT:H2''	7:K:45:DC:H5''	1.93	0.51
10:X:810:THR:OG1	10:X:812:ASP:OD1	2.23	0.51
4:Y:948:ASP:OD1	4:Y:950:THR:OG1	2.26	0.51
10:X:976:MET:HE1	10:X:1003:THR:HG21	1.92	0.51
4:Y:334:LYS:HD2	10:X:1096:LEU:HD22	1.91	0.51
4:Y:414:ARG:HD2	4:Y:448:ALA:HB2	1.92	0.51
6:D:83:PRO:HG2	6:D:86:GLN:HG2	1.91	0.51
6:D:21:HIS:CE1	6:D:78:LEU:HD11	2.45	0.51
6:D:30:PRO:HB2	6:D:75:THR:HB	1.92	0.51
10:X:345:GLN:HE21	10:X:367:ALA:HA	1.75	0.51
4:Y:776:TYR:HE1	10:X:517:ILE:HD11	1.76	0.51
4:Y:846:ARG:NH2	4:Y:1068:GLU:OE2	2.43	0.51
4:Y:1064:ASP:O	4:Y:1068:GLU:HG3	2.10	0.51
8:L:27:DG:H2''	8:L:28:DG:C8	2.45	0.51
10:X:799:ALA:HB3	10:X:907:GLN:HB2	1.92	0.51
10:X:821:LEU:HA	10:X:824:LEU:HD13	1.93	0.51
5:G:319:ARG:NH1	5:G:325:ASP:OD2	2.44	0.51
5:G:321:ARG:HD3	5:G:332:LEU:HD23	1.93	0.51
1:O:28:ARG:O	1:O:32:ILE:HG12	2.11	0.51
8:L:45:DA:H3'	8:L:46:DA:H3'	1.92	0.51
10:X:764:MET:O	10:X:770:ASN:ND2	2.42	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:X:854:LEU:O	10:X:859:ARG:NE	2.40	0.51
10:X:1144:ILE:HG21	10:X:1154:MET:HE3	1.92	0.51
3:V:91:SER:OG	3:V:92:ASP:N	2.43	0.51
4:Y:553:GLN:HB3	4:Y:554:ARG:HH21	1.75	0.51
1:O:1:MET:HE3	4:Y:474:LEU:HD11	1.92	0.50
6:D:18:GLU:CD	6:D:18:GLU:H	2.19	0.50
7:K:19:DT:H2''	7:K:20:DA:C2	2.46	0.50
10:X:895:ARG:NH1	10:X:905:VAL:O	2.33	0.50
7:K:7:DC:H2'	7:K:8:DT:C6	2.46	0.50
7:K:27:DA:H2''	7:K:28:DC:H5'	1.91	0.50
4:Y:830:LYS:HG2	4:Y:835:THR:HG23	1.93	0.50
4:Y:1000:ARG:HH12	6:D:84:TYR:HB3	1.76	0.50
10:X:779:GLU:N	10:X:939:LEU:O	2.41	0.50
1:O:1:MET:SD	1:O:1:MET:N	2.84	0.50
4:Y:185:VAL:O	4:Y:188:VAL:HG12	2.11	0.50
1:O:13:LEU:HD21	1:O:18:THR:HG22	1.92	0.50
10:X:888:HIS:N	10:X:912:TYR:O	2.44	0.50
3:U:89:ILE:HG22	3:U:91:SER:H	1.76	0.50
3:V:1:MET:SD	3:V:1:MET:N	2.76	0.50
4:Y:103:HIS:HB3	4:Y:106:TYR:HD1	1.77	0.50
5:G:336:GLY:O	5:G:340:GLY:N	2.45	0.50
10:X:203:SER:N	10:X:206:GLU:OE2	2.45	0.50
10:X:428:GLU:OE2	10:X:432:ARG:NH1	2.42	0.50
4:Y:176:HIS:NE2	4:Y:180:GLN:OE1	2.45	0.49
8:L:52:DT:H6	8:L:52:DT:H5'	1.77	0.49
4:Y:151:SER:OG	4:Y:152:GLU:N	2.44	0.49
10:X:895:ARG:HE	10:X:906:ASN:HA	1.76	0.49
4:Y:361:MET:O	4:Y:365:LEU:HB2	2.12	0.49
4:Y:439:HIS:HD1	4:Y:441:LEU:HB2	1.77	0.49
3:V:215:LYS:O	3:V:219:GLU:HG2	2.12	0.49
5:G:233:LEU:HD22	5:G:235:ARG:HG3	1.95	0.49
10:X:925:MET:HG2	10:X:1039:LYS:HA	1.95	0.49
4:Y:336:VAL:HG11	10:X:1095:ILE:HG23	1.95	0.49
10:X:556:LYS:HG2	10:X:586:ALA:HB2	1.93	0.49
4:Y:415:ALA:HB1	7:K:13:DT:H1'	1.94	0.49
4:Y:807:VAL:HG21	4:Y:1123:ILE:HG23	1.94	0.49
10:X:114:GLY:HA3	10:X:455:ILE:HD11	1.95	0.49
3:V:176:VAL:HG22	3:V:198:VAL:HG22	1.93	0.49
4:Y:361:MET:HB2	10:X:1048:LEU:HD11	1.93	0.49
4:Y:384:LYS:HD3	5:G:369:PHE:HA	1.94	0.49
10:X:940:PRO:HG2	10:X:943:ASP:HB2	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:V:29:GLU:OE1	3:V:29:GLU:N	2.37	0.49
10:X:832:ILE:HA	10:X:887:ILE:HD11	1.94	0.49
3:U:74:ASP:OD1	3:U:74:ASP:N	2.42	0.49
3:V:62:LEU:O	3:V:63:HIS:ND1	2.46	0.48
7:K:26:DA:H2''	7:K:27:DA:H5''	1.94	0.48
1:O:7:ASP:OD1	1:O:7:ASP:N	2.46	0.48
10:X:85:ASP:HA	10:X:129:GLY:HA3	1.94	0.48
10:X:290:LEU:HA	10:X:349:ILE:HG22	1.94	0.48
10:X:318:VAL:O	10:X:322:LEU:N	2.46	0.48
1:O:17:TYR:OH	4:Y:917:GLU:OE2	2.31	0.48
4:Y:984:VAL:HG12	4:Y:986:ASP:H	1.78	0.48
5:G:347:ARG:HH11	7:K:45:DC:H5'	1.78	0.48
7:K:32:DA:H2''	7:K:33:DG:C8	2.49	0.48
10:X:142:PRO:O	10:X:271:GLY:HA2	2.13	0.48
4:Y:337:ASP:OD2	10:X:1051:ARG:NE	2.45	0.48
10:X:515:CYS:HB2	10:X:620:SER:HB3	1.95	0.48
4:Y:609:GLN:HG2	4:Y:610:PRO:HD2	1.95	0.48
4:Y:956:ILE:HG12	4:Y:1054:VAL:HG11	1.95	0.48
5:G:364:LYS:HA	5:G:367:LYS:HZ1	1.77	0.48
7:K:4:DC:H2''	7:K:5:DA:C8	2.48	0.48
8:L:44:DA:H2''	8:L:45:DA:C8	2.49	0.48
10:X:151:ASP:HB3	10:X:155:LYS:H	1.78	0.48
1:O:50:ALA:O	1:O:54:ILE:HG12	2.14	0.48
3:V:43:ILE:HG13	3:V:217:LEU:HD22	1.96	0.48
4:Y:507:ALA:HB2	4:Y:611:ILE:HD11	1.95	0.48
8:L:33:DT:H2''	8:L:34:DG:C8	2.49	0.48
10:X:419:GLN:HG3	10:X:461:PHE:HB2	1.96	0.48
4:Y:287:MET:SD	5:G:161:LEU:HB3	2.54	0.48
4:Y:1140:GLN:HB3	4:Y:1141:GLU:OE2	2.13	0.48
8:L:44:DA:H1'	8:L:45:DA:O4'	2.13	0.48
10:X:860:LEU:O	10:X:864:ILE:HD13	2.13	0.48
3:U:130:LEU:HD21	3:U:136:PHE:HB2	1.96	0.48
4:Y:248:ARG:NH1	5:G:262:GLU:O	2.47	0.48
4:Y:972:THR:HG21	4:Y:1018:ILE:HD12	1.95	0.48
5:G:144:ARG:H	5:G:144:ARG:HD2	1.79	0.48
6:D:6:TYR:HB3	6:D:10:GLU:HG2	1.96	0.48
6:D:12:LYS:HD3	6:D:12:LYS:C	2.39	0.48
10:X:814:PRO:HB3	10:X:870:ARG:HG2	1.94	0.48
2:E:28:VAL:N	2:E:32:ASP:OD2	2.42	0.48
3:V:89:ILE:HG22	3:V:91:SER:H	1.79	0.48
7:K:45:DC:H2''	7:K:46:DA:H5'	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:R:13:U:H2'	9:R:14:A:C8	2.49	0.48
3:V:48:LEU:HD23	3:V:172:PRO:HD2	1.96	0.47
4:Y:65:TYR:O	4:Y:66:LYS:NZ	2.44	0.47
4:Y:805:VAL:HG11	10:X:1081:TRP:CD2	2.49	0.47
5:G:356:LYS:O	5:G:359:HIS:NE2	2.47	0.47
6:D:60:THR:HG22	6:D:64:ILE:HD13	1.95	0.47
3:U:184:ARG:NH1	3:U:186:GLY:O	2.47	0.47
3:V:74:ASP:OD2	3:V:74:ASP:N	2.40	0.47
4:Y:423:ILE:HD13	10:X:1083:LEU:HD21	1.96	0.47
10:X:234:LEU:HD11	10:X:246:PRO:HB3	1.96	0.47
10:X:471:MET:HA	10:X:482:HIS:HD2	1.79	0.47
10:X:1004:LEU:HD13	10:X:1013:ALA:HB2	1.96	0.47
6:D:35:GLU:HA	6:D:38:ASN:ND2	2.30	0.47
10:X:663:GLU:HB3	10:X:752:GLU:HG3	1.97	0.47
10:X:756:GLY:HA3	10:X:1038:ILE:HG22	1.97	0.47
10:X:779:GLU:HB2	10:X:940:PRO:HA	1.96	0.47
4:Y:26:GLY:O	4:Y:94:HIS:ND1	2.47	0.47
4:Y:277:PRO:HD2	4:Y:280:ILE:HD12	1.96	0.47
5:G:310:LEU:HD13	5:G:311:THR:N	2.30	0.47
5:G:314:GLU:HG2	5:G:349:ILE:HG23	1.96	0.47
6:D:29:LYS:HD3	6:D:30:PRO:HD2	1.96	0.47
5:G:303:LEU:HD21	10:X:861:LEU:HD21	1.97	0.47
3:U:31:GLY:O	3:U:35:THR:HG23	2.14	0.47
3:V:212:LEU:O	3:V:216:ILE:HG13	2.15	0.47
4:Y:849:ARG:H	4:Y:886:ILE:HA	1.79	0.47
5:G:271:GLY:HA3	9:R:13:U:C5	2.50	0.47
7:K:24:DA:H2''	7:K:25:DC:H4'	1.97	0.47
3:U:184:ARG:HG3	3:U:189:ALA:HB2	1.97	0.47
4:Y:495:MET:O	4:Y:499:ASN:ND2	2.48	0.47
4:Y:496:VAL:HG23	4:Y:620:LEU:HD12	1.97	0.47
4:Y:930:PRO:HG2	4:Y:1062:ILE:HD11	1.97	0.47
10:X:797:SER:HB3	10:X:909:VAL:HB	1.97	0.47
4:Y:811:VAL:HG12	4:Y:919:VAL:HG23	1.96	0.46
5:G:166:GLU:OE1	5:G:166:GLU:HA	2.14	0.46
5:G:213:VAL:O	5:G:217:GLU:HG2	2.14	0.46
10:X:135:VAL:HG23	10:X:467:LEU:HD12	1.97	0.46
3:U:92:ASP:OD1	3:U:144:ARG:NH2	2.48	0.46
5:G:126:LYS:O	5:G:129:GLU:HG3	2.16	0.46
7:K:42:DT:H4'	7:K:43:DG:OP1	2.15	0.46
2:E:50:VAL:HG11	3:U:22:LYS:HE3	1.97	0.46
3:V:52:ALA:O	3:V:142:ALA:HA	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:V:83:LYS:NZ	4:Y:521:GLU:OE1	2.47	0.46
4:Y:988:GLN:NE2	4:Y:1004:ALA:O	2.48	0.46
10:X:247:THR:HB	10:X:250:ASN:HB3	1.98	0.46
3:U:64:GLU:O	3:U:75:VAL:HB	2.15	0.46
2:E:53:ALA:O	2:E:56:GLU:HG3	2.15	0.46
4:Y:497:LEU:HD21	4:Y:656:ILE:HG21	1.96	0.46
4:Y:28:VAL:HG11	4:Y:46:LEU:HD23	1.97	0.46
5:G:321:ARG:NH2	7:K:44:DT:OP1	2.49	0.46
10:X:801:ASP:OD1	10:X:906:ASN:ND2	2.33	0.46
3:V:146:ARG:NH1	3:U:29:GLU:HG2	2.31	0.46
4:Y:187:GLU:OE2	4:Y:209:ARG:NH1	2.48	0.46
5:G:121:ILE:O	5:G:125:GLN:HG2	2.15	0.46
10:X:48:MET:HE3	10:X:48:MET:HA	1.98	0.46
4:Y:850:LYS:HG2	4:Y:885:TRP:HB2	1.98	0.46
1:O:28:ARG:NH1	4:Y:464:GLU:OE1	2.41	0.46
1:O:37:MET:HE3	1:O:59:LEU:HD11	1.98	0.46
4:Y:248:ARG:HD2	4:Y:248:ARG:HA	1.77	0.46
5:G:179:ASP:HB3	5:G:181:ARG:HH11	1.79	0.46
10:X:24:LEU:HD13	10:X:561:ILE:HD13	1.98	0.46
10:X:889:ASP:HB3	10:X:912:TYR:HD2	1.81	0.46
3:V:108:THR:HG22	3:V:126:HIS:HA	1.98	0.45
4:Y:4:VAL:HG22	4:Y:1169:LYS:HG3	1.97	0.45
10:X:314:THR:O	10:X:317:LYS:HG3	2.15	0.45
3:V:156:ARG:N	3:V:159:GLN:HE22	2.10	0.45
4:Y:191:LEU:HD21	4:Y:209:ARG:HH11	1.80	0.45
4:Y:392:ARG:NH1	10:X:838:ASP:O	2.49	0.45
4:Y:990:GLU:HA	4:Y:1002:TYR:O	2.16	0.45
10:X:582:ASP:OD1	10:X:586:ALA:N	2.50	0.45
10:X:688:LYS:NZ	10:X:712:LEU:O	2.47	0.45
4:Y:119:ASP:HB2	4:Y:209:ARG:NH2	2.31	0.45
10:X:127:ILE:HG13	10:X:462:PHE:HB3	1.99	0.45
4:Y:253:ASP:HB3	4:Y:313:LEU:HD22	1.98	0.45
4:Y:821:ASP:OD2	4:Y:821:ASP:N	2.49	0.45
4:Y:1134:LEU:HD23	4:Y:1134:LEU:HA	1.87	0.45
6:D:83:PRO:HD2	6:D:86:GLN:NE2	2.32	0.45
10:X:113:MET:HA	10:X:451:ILE:HD12	1.99	0.45
1:O:49:LYS:O	1:O:53:GLU:HG2	2.17	0.45
2:E:20:THR:OG1	3:U:180:VAL:O	2.33	0.45
4:Y:486:LYS:HA	4:Y:486:LYS:HD3	1.70	0.45
4:Y:991:ILE:HD11	4:Y:1010:LEU:HD11	1.97	0.45
5:G:166:GLU:HG3	5:G:201:ALA:CB	2.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:G:224:ARG:NE	7:K:24:DA:OP2	2.48	0.45
10:X:374:LYS:HE3	10:X:374:LYS:HB3	1.70	0.45
3:V:53:VAL:O	3:V:141:THR:OG1	2.31	0.45
4:Y:751:MET:HE2	4:Y:779:SER:HA	1.98	0.45
8:L:33:DT:H2''	8:L:34:DG:H8	1.82	0.45
10:X:290:LEU:HD12	10:X:292:GLU:H	1.82	0.45
10:X:693:ARG:HD2	10:X:704:LYS:HG3	1.99	0.45
10:X:1055:PRO:HG2	10:X:1069:GLN:O	2.16	0.45
3:V:58:ILE:HG23	3:V:138:VAL:HB	1.99	0.45
4:Y:330:ASN:HB3	10:X:1062:GLN:HE22	1.81	0.45
2:E:54:PHE:O	2:E:58:GLU:HG2	2.17	0.45
3:V:61:VAL:HG11	3:V:68:ILE:HG12	1.99	0.45
4:Y:69:ARG:HB3	4:Y:70:TYR:CE2	2.52	0.45
5:G:252:LYS:O	5:G:256:ILE:HG12	2.17	0.45
6:D:20:ALA:HB2	6:D:58:PHE:HZ	1.81	0.45
10:X:285:LEU:HA	10:X:288:GLN:HG3	1.98	0.45
4:Y:947:ASP:OD1	4:Y:947:ASP:N	2.46	0.45
4:Y:1034:LEU:O	4:Y:1038:THR:OG1	2.33	0.45
10:X:435:MET:HG3	10:X:448:LEU:HD22	1.98	0.45
3:U:58:ILE:HG12	3:U:138:VAL:HG22	1.98	0.45
1:O:3:ASP:HB3	1:O:4:PRO:HD3	1.97	0.45
1:O:26:ARG:HH21	1:O:37:MET:HE2	1.82	0.45
3:V:38:ASN:O	3:V:42:ARG:HG3	2.16	0.45
3:V:89:ILE:HD11	3:V:142:ALA:HB1	1.98	0.45
4:Y:1039:ASP:N	6:D:67:ARG:HH12	2.15	0.45
3:V:17:ASP:OD1	3:V:17:ASP:N	2.38	0.44
7:K:11:DG:H2'	7:K:12:DA:C8	2.52	0.44
10:X:150:VAL:HA	10:X:156:LYS:HZ1	1.81	0.44
10:X:798:GLU:OE2	10:X:798:GLU:HA	2.17	0.44
4:Y:434:ARG:HG2	10:X:1048:LEU:HD22	1.99	0.44
3:V:114:HIS:CE1	3:V:118:VAL:HG22	2.52	0.44
4:Y:699:GLU:O	4:Y:702:ILE:HG13	2.17	0.44
5:G:102:VAL:HB	8:L:44:DA:N1	2.33	0.44
6:D:82:TYR:HB3	6:D:86:GLN:HE21	1.82	0.44
10:X:949:ASP:OD1	10:X:951:THR:OG1	2.35	0.44
3:V:6:LYS:HE3	3:V:6:LYS:HA	1.99	0.44
4:Y:660:VAL:HG11	10:X:972:LEU:HD13	1.99	0.44
3:V:8:LYS:HB3	3:V:8:LYS:HE3	1.85	0.44
10:X:310:LEU:HD12	10:X:310:LEU:H	1.82	0.44
10:X:400:ASP:HB3	10:X:403:HIS:HB2	2.00	0.44
10:X:1097:THR:O	10:X:1102:ASP:HB2	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:Y:803:ARG:HG2	4:Y:1139:PHE:HZ	1.83	0.44
5:G:204:ASP:C	5:G:204:ASP:OD1	2.61	0.44
8:L:57:DT:H2''	8:L:58:DG:C8	2.53	0.44
10:X:744:ASP:HB2	10:X:748:MET:HB2	2.00	0.44
8:L:17:DG:H2''	8:L:18:DA:H5'	1.98	0.44
4:Y:65:TYR:HD2	4:Y:70:TYR:CD2	2.36	0.44
4:Y:759:ILE:HD13	4:Y:778:ILE:HG23	2.00	0.44
7:K:12:DA:H4'	10:X:1078:MET:HE2	1.99	0.44
10:X:119:MET:SD	10:X:123:GLY:HA2	2.58	0.44
10:X:294:LEU:HD23	10:X:304:ALA:HB3	1.99	0.44
4:Y:113:ARG:HD3	4:Y:1151:ILE:HD12	2.00	0.44
4:Y:244:LEU:HD11	5:G:278:LEU:HD11	1.99	0.44
8:L:21:DA:H2''	8:L:22:DA:O5'	2.18	0.44
10:X:286:PHE:HE1	10:X:312:ARG:HE	1.66	0.44
4:Y:186:LYS:HB2	4:Y:186:LYS:HE2	1.78	0.43
4:Y:560:THR:OG1	4:Y:561:THR:N	2.51	0.43
5:G:146:VAL:HG11	5:G:168:ASN:OD1	2.18	0.43
6:D:10:GLU:O	6:D:14:MET:HE3	2.18	0.43
3:V:82:ILE:HD13	3:V:82:ILE:HA	1.89	0.43
4:Y:937:ARG:HB2	4:Y:1058:GLN:CD	2.43	0.43
4:Y:1036:LYS:O	6:D:79:ARG:NH2	2.41	0.43
4:Y:1118:PRO:HG3	6:D:64:ILE:HA	2.00	0.43
5:G:328:ARG:HE	5:G:328:ARG:HB2	1.60	0.43
4:Y:176:HIS:HB2	4:Y:227:ILE:HG21	1.99	0.43
4:Y:474:LEU:HB3	4:Y:477:GLN:HG3	1.99	0.43
10:X:614:SER:OG	10:X:616:LYS:HG2	2.18	0.43
10:X:800:ARG:HA	10:X:905:VAL:HA	2.00	0.43
3:V:71:VAL:HG12	3:V:130:LEU:HD22	2.00	0.43
4:Y:324:GLN:OE1	4:Y:324:GLN:HA	2.18	0.43
4:Y:405:ILE:HG13	4:Y:428:PRO:HG2	2.00	0.43
4:Y:633:ILE:O	4:Y:634:THR:OG1	2.27	0.43
4:Y:1074:MET:HE2	4:Y:1074:MET:HB3	1.83	0.43
5:G:135:LYS:NZ	5:G:176:GLU:OE1	2.43	0.43
4:Y:190:MET:O	4:Y:193:GLU:HG3	2.19	0.43
4:Y:805:VAL:HG11	10:X:1081:TRP:CE2	2.53	0.43
4:Y:1029:ILE:HG21	4:Y:1034:LEU:HD22	2.00	0.43
5:G:254:ARG:HH21	10:X:895:ARG:NH2	2.13	0.43
6:D:21:HIS:HA	6:D:24:PHE:HD1	1.84	0.43
7:K:20:DA:N3	7:K:20:DA:H2'	2.32	0.43
10:X:1109:THR:HG23	10:X:1119:VAL:HG22	2.00	0.43
1:O:45:LYS:HG2	4:Y:407:GLU:HB3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:Y:673:LEU:HD23	4:Y:673:LEU:HA	1.79	0.43
6:D:22:GLU:O	6:D:25:GLU:HG3	2.19	0.43
6:D:82:TYR:HB2	6:D:87:LEU:HD21	2.00	0.43
10:X:322:LEU:O	10:X:368:TYR:OH	2.30	0.43
10:X:330:LYS:HB3	10:X:330:LYS:HE2	1.74	0.43
4:Y:234:ILE:HG12	4:Y:235:PRO:HD2	2.01	0.43
4:Y:720:LEU:HG	4:Y:727:TYR:HB2	2.00	0.43
6:D:47:LYS:HD3	6:D:48:LYS:N	2.33	0.43
8:L:31:DC:H2"	8:L:32:DG:C8	2.54	0.43
3:U:122:ASN:OD1	3:U:122:ASN:N	2.51	0.43
4:Y:415:ALA:HB3	4:Y:416:PRO:HD3	2.00	0.43
4:Y:777:PHE:O	4:Y:780:THR:HG22	2.18	0.43
10:X:451:ILE:HD13	10:X:451:ILE:HA	1.82	0.43
1:O:26:ARG:NH2	1:O:35:ASP:OD2	2.52	0.43
5:G:222:LEU:HG	5:G:256:ILE:HG21	2.01	0.43
7:K:31:DG:H2"	7:K:32:DA:C8	2.54	0.43
10:X:315:LEU:HD23	10:X:315:LEU:HA	1.79	0.43
10:X:654:GLU:HG2	10:X:757:ARG:HD2	2.00	0.43
10:X:758:ASN:HA	10:X:1036:TYR:HA	2.00	0.43
10:X:765:THR:HA	10:X:770:ASN:HD21	1.83	0.43
1:O:36:GLN:NE2	1:O:38:ILE:O	2.53	0.42
2:E:7:TYR:CE2	2:E:23:LEU:HD23	2.54	0.42
4:Y:500:TYR:CG	4:Y:732:SER:HB3	2.54	0.42
4:Y:953:LEU:HD12	4:Y:953:LEU:HA	1.83	0.42
10:X:223:LYS:O	10:X:223:LYS:NZ	2.36	0.42
10:X:255:LEU:HD23	10:X:255:LEU:HA	1.81	0.42
4:Y:1013:ALA:N	4:Y:1016:ASP:OD2	2.42	0.42
4:Y:1081:ILE:HG13	4:Y:1116:GLY:HA2	2.00	0.42
10:X:214:ASN:HB3	10:X:217:LEU:HB3	2.01	0.42
10:X:546:PRO:HB2	10:X:561:ILE:HD11	2.01	0.42
3:U:64:GLU:HB2	3:U:164:ILE:HG21	2.00	0.42
3:V:101:VAL:HG11	3:V:107:VAL:HG22	2.01	0.42
4:Y:639:MET:HE3	4:Y:639:MET:HB3	1.76	0.42
8:L:51:DG:N1	10:X:402:ASP:OD1	2.52	0.42
10:X:14:ARG:NH2	10:X:656:PRO:O	2.49	0.42
10:X:192:VAL:HG12	10:X:220:THR:HG21	2.01	0.42
2:E:32:ASP:OD1	2:E:32:ASP:N	2.50	0.42
4:Y:19:LYS:HB2	4:Y:19:LYS:HE2	1.81	0.42
6:D:7:SER:O	6:D:10:GLU:HG3	2.19	0.42
10:X:193:THR:O	10:X:197:ARG:HG2	2.19	0.42
4:Y:1098:GLN:O	4:Y:1101:GLU:HG2	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:G:188:THR:HG22	5:G:192:TRP:CD1	2.55	0.42
8:L:49:DT:H2''	8:L:50:DA:C8	2.54	0.42
10:X:121:ASP:OD1	10:X:121:ASP:C	2.62	0.42
10:X:281:ILE:HD13	10:X:281:ILE:HA	1.83	0.42
10:X:404:LEU:HB2	10:X:509:SER:HB2	2.01	0.42
1:O:1:MET:HE1	4:Y:353:TYR:CD1	2.55	0.42
8:L:31:DC:H2''	8:L:32:DG:H8	1.85	0.42
10:X:845:LYS:HE3	10:X:845:LYS:HB3	1.88	0.42
3:U:15:SER:OG	3:U:17:ASP:OD1	2.36	0.42
3:U:178:TYR:HA	3:U:195:THR:O	2.20	0.42
4:Y:35:ASN:OD1	4:Y:38:THR:N	2.41	0.42
4:Y:58:TRP:HA	4:Y:82:VAL:HG23	2.02	0.42
4:Y:392:ARG:HE	4:Y:392:ARG:HA	1.85	0.42
10:X:57:ASP:OD1	10:X:57:ASP:N	2.38	0.42
10:X:444:THR:HA	10:X:447:GLN:HE22	1.83	0.42
10:X:489:LEU:HA	10:X:494:LEU:O	2.19	0.42
10:X:795:TYR:HB3	10:X:877:LEU:HD21	2.01	0.42
10:X:887:ILE:HA	10:X:913:ILE:HA	2.01	0.42
5:G:366:LEU:HA	5:G:369:PHE:HD2	1.84	0.42
7:K:13:DT:OP1	10:X:1074:ARG:NE	2.37	0.42
5:G:282:ILE:C	5:G:282:ILE:HD12	2.45	0.42
10:X:199:LEU:HD12	10:X:378:PRO:HB3	2.02	0.42
1:O:44:HIS:N	4:Y:407:GLU:OE2	2.40	0.41
4:Y:493:GLN:O	4:Y:496:VAL:HG12	2.20	0.41
4:Y:1082:ASP:HB3	4:Y:1115:THR:HG1	1.85	0.41
10:X:422:ILE:O	10:X:426:ARG:HD2	2.19	0.41
10:X:717:ARG:HG3	10:X:792:ILE:HB	2.02	0.41
10:X:890:VAL:HG22	10:X:911:VAL:HG22	2.01	0.41
4:Y:106:TYR:CG	4:Y:226:MET:HG2	2.55	0.41
4:Y:411:LEU:HD13	4:Y:423:ILE:HD11	2.02	0.41
4:Y:806:ASP:C	4:Y:806:ASP:OD1	2.63	0.41
5:G:149:ILE:HA	5:G:152:ARG:HH21	1.84	0.41
6:D:70:ALA:HA	6:D:75:THR:O	2.20	0.41
7:K:33:DG:OP2	7:K:33:DG:H2'	2.21	0.41
7:K:43:DG:C8	7:K:44:DT:H72	2.55	0.41
10:X:184:ILE:N	10:X:184:ILE:HD12	2.35	0.41
10:X:1133:LYS:HD3	10:X:1133:LYS:HA	1.85	0.41
3:V:25:VAL:HG21	3:U:224:PHE:CZ	2.56	0.41
3:V:154:ASN:ND2	3:V:168:SER:OG	2.43	0.41
5:G:345:ARG:O	5:G:348:GLN:HG3	2.21	0.41
10:X:77:PRO:O	10:X:81:SER:OG	2.28	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:X:943:ASP:OD2	3:U:42:ARG:NH1	2.41	0.41
4:Y:822:ARG:HB2	4:Y:891:THR:HB	2.03	0.41
8:L:52:DT:C2	8:L:53:DG:C8	3.09	0.41
10:X:306:LYS:HE3	10:X:306:LYS:HB2	1.79	0.41
10:X:325:GLY:HA3	10:X:328:PHE:CE1	2.56	0.41
3:V:15:SER:OG	3:V:17:ASP:OD1	2.30	0.41
10:X:88:TYR:CZ	10:X:118:ILE:HD11	2.56	0.41
3:U:42:ARG:O	3:U:46:SER:HB2	2.21	0.41
3:V:40:LEU:HD23	3:V:40:LEU:HA	1.86	0.41
4:Y:559:ILE:HD11	4:Y:596:LEU:HG	2.03	0.41
10:X:45:LEU:HD23	10:X:45:LEU:HA	1.91	0.41
10:X:813:ILE:HD12	10:X:813:ILE:N	2.36	0.41
4:Y:71:LYS:HE3	4:Y:71:LYS:HB3	1.64	0.41
4:Y:296:ILE:O	4:Y:317:SER:OG	2.32	0.41
4:Y:883:GLU:OE2	4:Y:883:GLU:N	2.49	0.41
4:Y:934:LEU:O	4:Y:934:LEU:HD13	2.21	0.41
5:G:283:GLU:OE2	10:X:1055:PRO:HB3	2.20	0.41
6:D:18:GLU:O	6:D:22:GLU:HG2	2.21	0.41
10:X:10:ARG:NH2	10:X:735:GLU:O	2.54	0.41
2:E:30:GLU:HG3	2:E:47:ILE:HG21	2.02	0.41
3:V:48:LEU:HA	3:V:48:LEU:HD12	1.84	0.41
6:D:29:LYS:HB2	6:D:29:LYS:HE3	1.71	0.41
10:X:172:TYR:HD1	10:X:182:VAL:HG23	1.86	0.41
5:G:123:TYR:O	5:G:127:ILE:HG12	2.21	0.40
3:V:29:GLU:HB2	3:V:32:TYR:HD2	1.85	0.40
4:Y:984:VAL:N	4:Y:988:GLN:O	2.54	0.40
5:G:284:ASP:HB2	10:X:1058:LEU:HD22	2.04	0.40
10:X:408:ARG:NH1	10:X:414:GLU:OE2	2.37	0.40
3:U:57:GLN:HG3	3:U:163:VAL:HG22	2.03	0.40
4:Y:975:ASP:OD2	4:Y:975:ASP:N	2.52	0.40
8:L:48:DG:C4	8:L:49:DT:H72	2.57	0.40
10:X:672:ALA:O	10:X:726:GLN:NE2	2.55	0.40
3:U:70:GLY:HA3	3:U:134:ALA:HB2	2.04	0.40
2:E:40:LYS:HD2	2:E:42:LEU:HD11	2.03	0.40
3:V:2:ILE:HD12	3:V:2:ILE:H	1.87	0.40
4:Y:407:GLU:HA	4:Y:427:GLU:OE1	2.21	0.40
4:Y:804:LEU:HD23	4:Y:1070:MET:HE2	2.04	0.40
8:L:36:DT:H2''	8:L:37:DG:C8	2.56	0.40
4:Y:253:ASP:OD2	4:Y:311:ARG:NH1	2.53	0.40
4:Y:763:ILE:HG21	4:Y:771:LEU:HD22	2.04	0.40
6:D:21:HIS:HE1	6:D:78:LEU:HD11	1.84	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:K:15:DT:H3'	7:K:16:DA:H8	1.86	0.40
10:X:32:ILE:HG23	10:X:33:GLN:HG2	2.03	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	O	59/67 (88%)	58 (98%)	1 (2%)	0	100	100
2	E	67/69 (97%)	64 (96%)	3 (4%)	0	100	100
3	U	229/314 (73%)	225 (98%)	4 (2%)	0	100	100
3	V	228/314 (73%)	220 (96%)	8 (4%)	0	100	100
4	Y	1178/1209 (97%)	1146 (97%)	32 (3%)	0	100	100
5	G	270/371 (73%)	266 (98%)	3 (1%)	1 (0%)	30	61
6	D	89/173 (51%)	84 (94%)	5 (6%)	0	100	100
10	X	1156/1193 (97%)	1132 (98%)	24 (2%)	0	100	100
All	All	3276/3710 (88%)	3195 (98%)	80 (2%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	G	187	SER

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	O	55/61 (90%)	51 (93%)	4 (7%)	13	40
2	E	65/65 (100%)	60 (92%)	5 (8%)	12	38
3	U	199/273 (73%)	197 (99%)	2 (1%)	68	79
3	V	198/273 (72%)	185 (93%)	13 (7%)	15	43
4	Y	1008/1037 (97%)	972 (96%)	36 (4%)	31	62
5	G	239/329 (73%)	227 (95%)	12 (5%)	22	53
6	D	81/159 (51%)	76 (94%)	5 (6%)	16	46
10	X	998/1026 (97%)	966 (97%)	32 (3%)	34	64
All	All	2843/3223 (88%)	2734 (96%)	109 (4%)	30	60

All (109) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	O	6	ILE
1	O	7	ASP
1	O	9	LEU
1	O	38	ILE
2	E	5	VAL
2	E	20	THR
2	E	28	VAL
2	E	60	GLN
2	E	67	LEU
3	V	2	ILE
3	V	9	ILE
3	V	14	ILE
3	V	74	ASP
3	V	91	SER
3	V	124	ASP
3	V	125	LEU
3	V	137	ARG
3	V	138	VAL
3	V	140	LEU
3	V	171	THR
3	V	195	THR
3	V	225	VAL
4	Y	27	GLU
4	Y	62	CYS

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Mol	Chain	Res	Type
4	Y	70	TYR
4	Y	78	CYS
4	Y	80	VAL
4	Y	82	VAL
4	Y	126	GLU
4	Y	133	SER
4	Y	279	ILE
4	Y	343	VAL
4	Y	405	ILE
4	Y	417	THR
4	Y	423	ILE
4	Y	461	LEU
4	Y	531	VAL
4	Y	552	GLU
4	Y	665	VAL
4	Y	667	ASP
4	Y	686	GLN
4	Y	780	THR
4	Y	787	LEU
4	Y	836	ILE
4	Y	862	VAL
4	Y	874	LEU
4	Y	877	VAL
4	Y	909	THR
4	Y	913	VAL
4	Y	958	GLU
4	Y	972	THR
4	Y	975	ASP
4	Y	981	ILE
4	Y	1009	ARG
4	Y	1023	VAL
4	Y	1089	LEU
4	Y	1095	ASP
4	Y	1123	ILE
5	G	104	MET
5	G	171	LEU
5	G	188	THR
5	G	275	ASP
5	G	278	LEU
5	G	280	ASP
5	G	286	GLU
5	G	288	THR

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Mol	Chain	Res	Type
5	G	298	LEU
5	G	304	GLU
5	G	306	VAL
5	G	312	ASP
6	D	23	LEU
6	D	28	LYS
6	D	36	LEU
6	D	51	LEU
6	D	69	LEU
10	X	67	ILE
10	X	179	VAL
10	X	217	LEU
10	X	234	LEU
10	X	281	ILE
10	X	290	LEU
10	X	299	THR
10	X	322	LEU
10	X	328	PHE
10	X	391	LEU
10	X	401	ILE
10	X	440	THR
10	X	451	ILE
10	X	495	THR
10	X	497	GLU
10	X	501	MET
10	X	514	MET
10	X	634	SER
10	X	643	MET
10	X	651	MET
10	X	658	VAL
10	X	663	GLU
10	X	692	VAL
10	X	758	ASN
10	X	761	VAL
10	X	826	ASP
10	X	843	VAL
10	X	908	LEU
10	X	951	THR
10	X	974	LEU
10	X	1095	ILE
10	X	1148	ASP
3	U	72	VAL

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Mol	Chain	Res	Type
3	U	155	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
2	E	8	GLN
3	V	114	HIS
3	V	126	HIS
3	V	159	GLN
3	V	220	HIS
4	Y	243	GLN
4	Y	283	ASN
4	Y	329	GLN
4	Y	413	ASN
4	Y	478	ASN
4	Y	579	ASN
4	Y	632	HIS
4	Y	682	ASN
4	Y	925	GLN
4	Y	940	HIS
4	Y	988	GLN
6	D	38	ASN
6	D	86	GLN
10	X	38	GLN
10	X	50	GLN
10	X	276	ASN
10	X	345	GLN
10	X	355	GLN
10	X	441	ASN
10	X	473	GLN
10	X	701	GLN
10	X	726	GLN
10	X	1069	GLN
3	U	133	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
9	R	4/5 (80%)	0	0

There are no RNA backbone outliers to report.

There are no RNA pucker outliers to report.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

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 ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

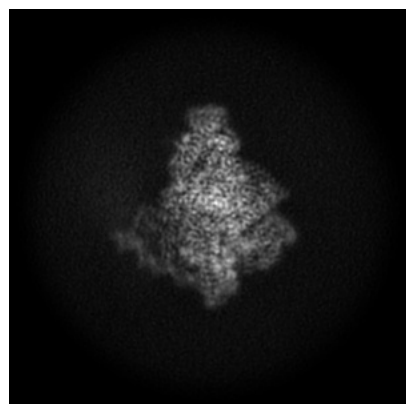
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-59289. These allow visual inspection of the internal detail of the map and identification of artifacts.

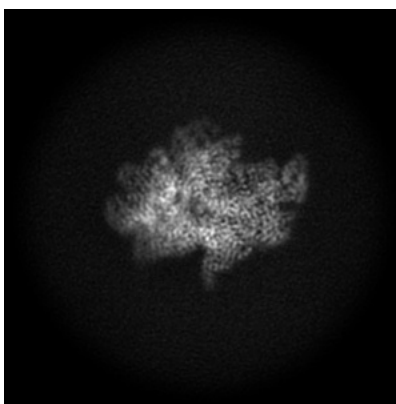
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

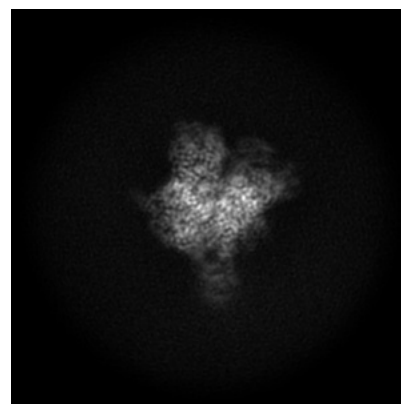
6.1.1 Primary map



X

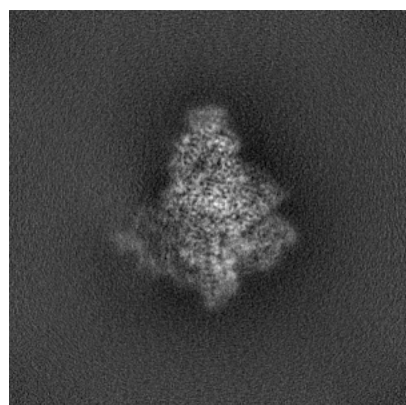


Y

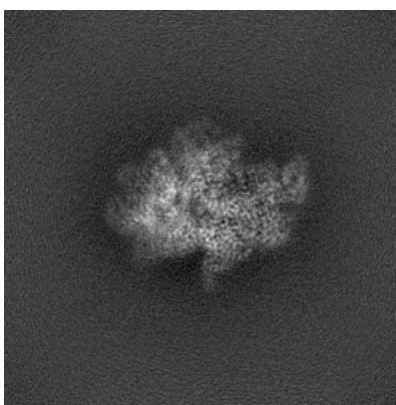


Z

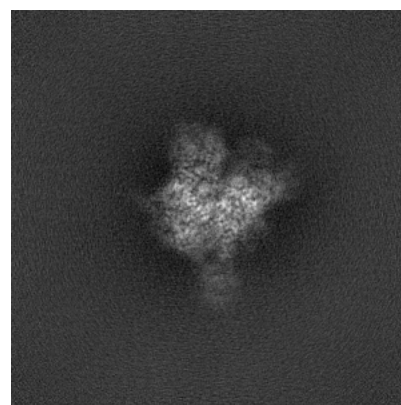
6.1.2 Raw map



X



Y

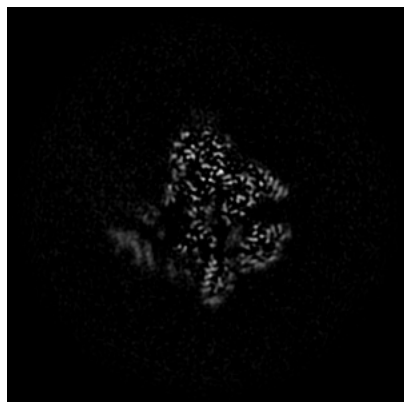


Z

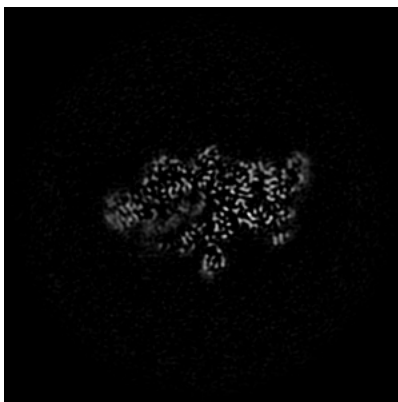
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

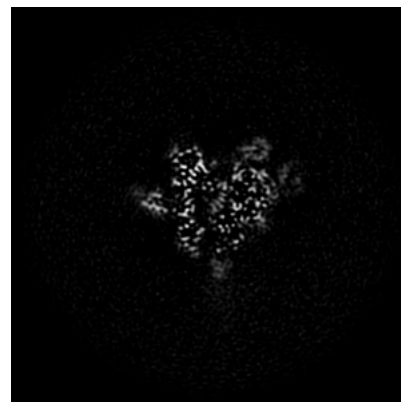
6.2.1 Primary map



X Index: 192

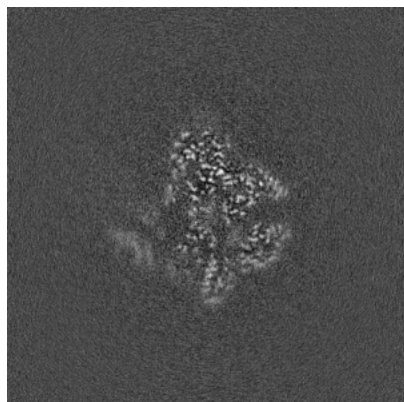


Y Index: 192

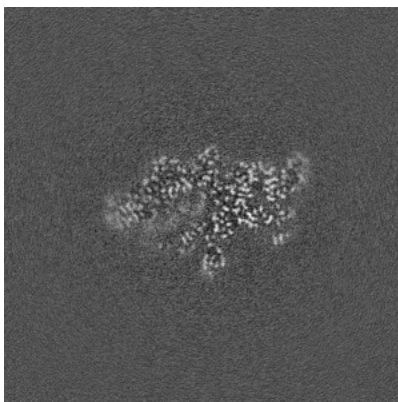


Z Index: 192

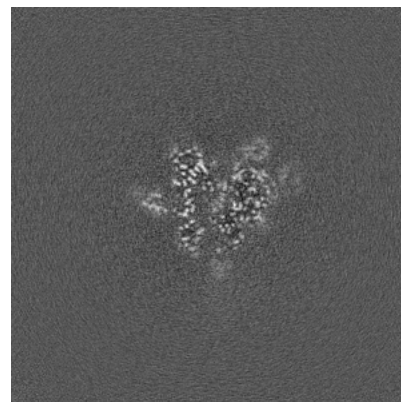
6.2.2 Raw map



X Index: 192



Y Index: 192

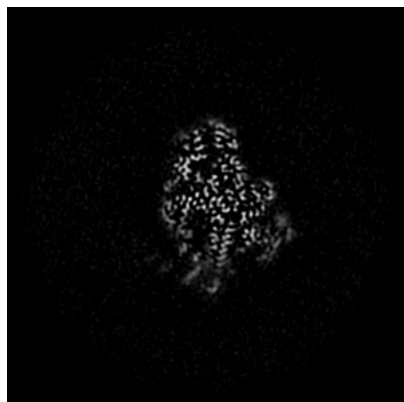


Z Index: 192

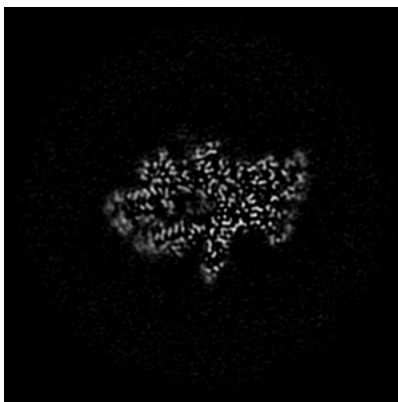
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

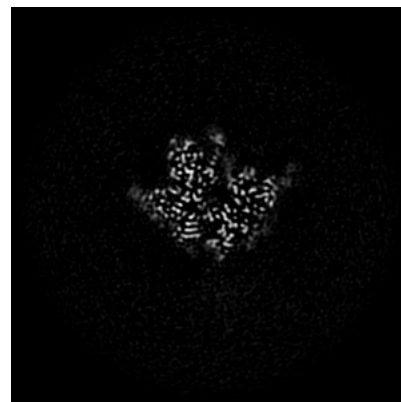
6.3.1 Primary map



X Index: 169

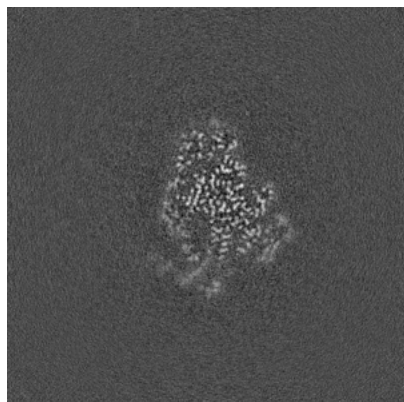


Y Index: 198

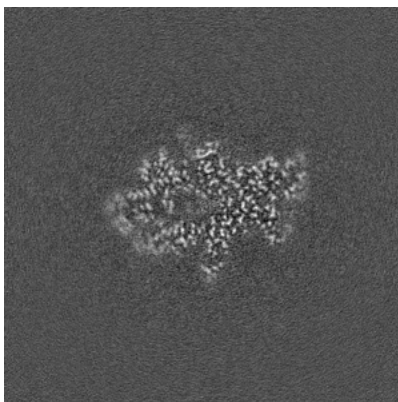


Z Index: 200

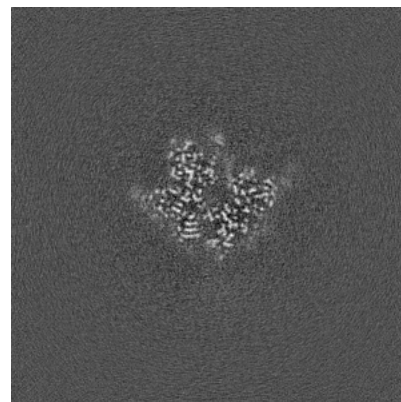
6.3.2 Raw map



X Index: 171



Y Index: 199

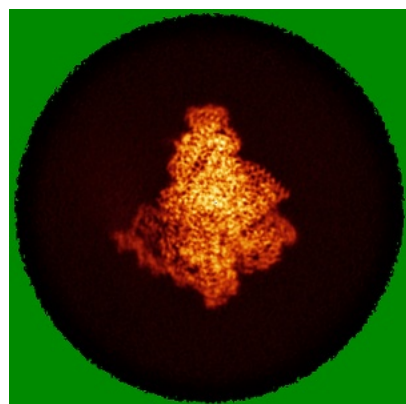


Z Index: 200

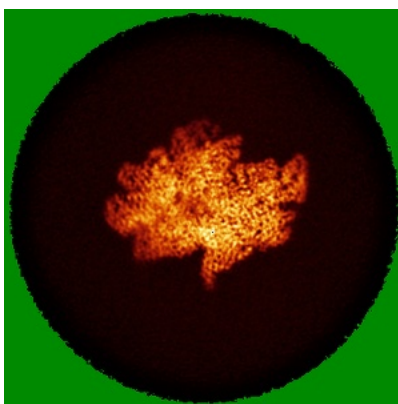
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

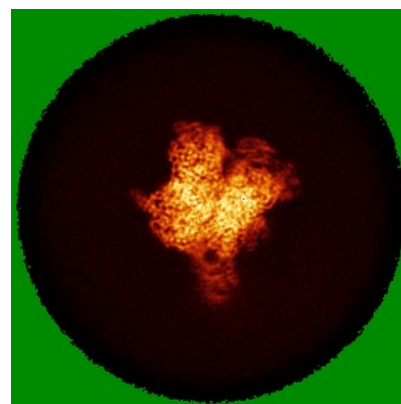
6.4.1 Primary map



X

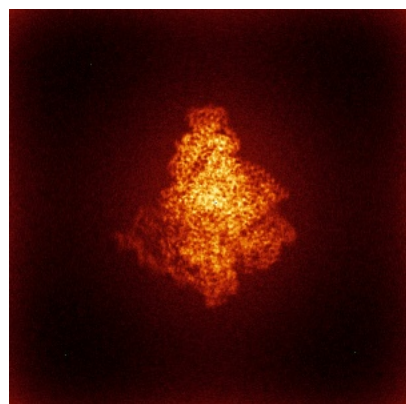


Y

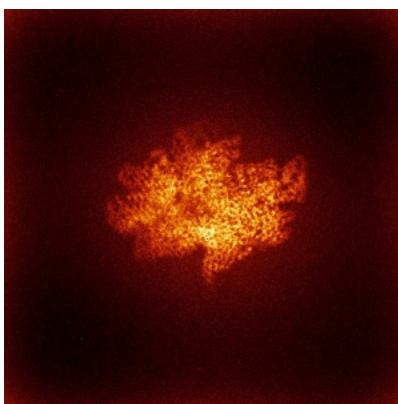


Z

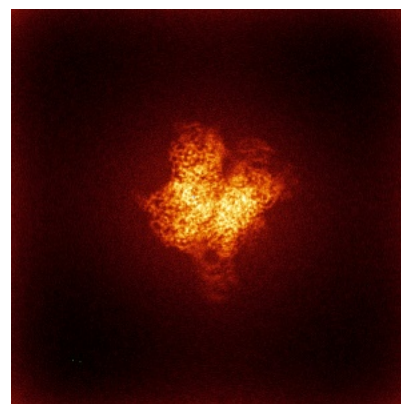
6.4.2 Raw map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



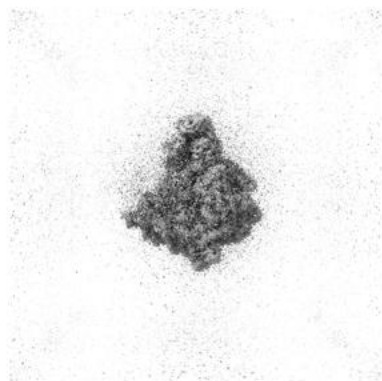
Y



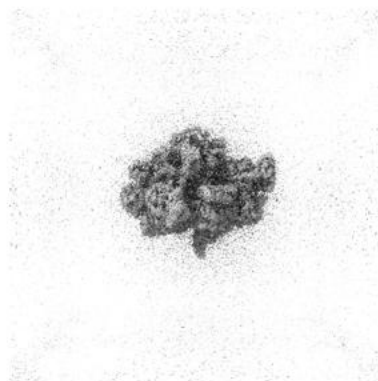
Z

The images above show the 3D surface view of the map at the recommended contour level 0.26. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

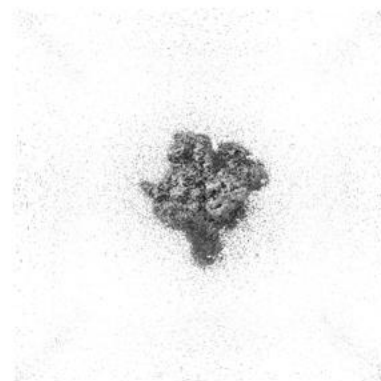
6.5.2 Raw map



X



Y



Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

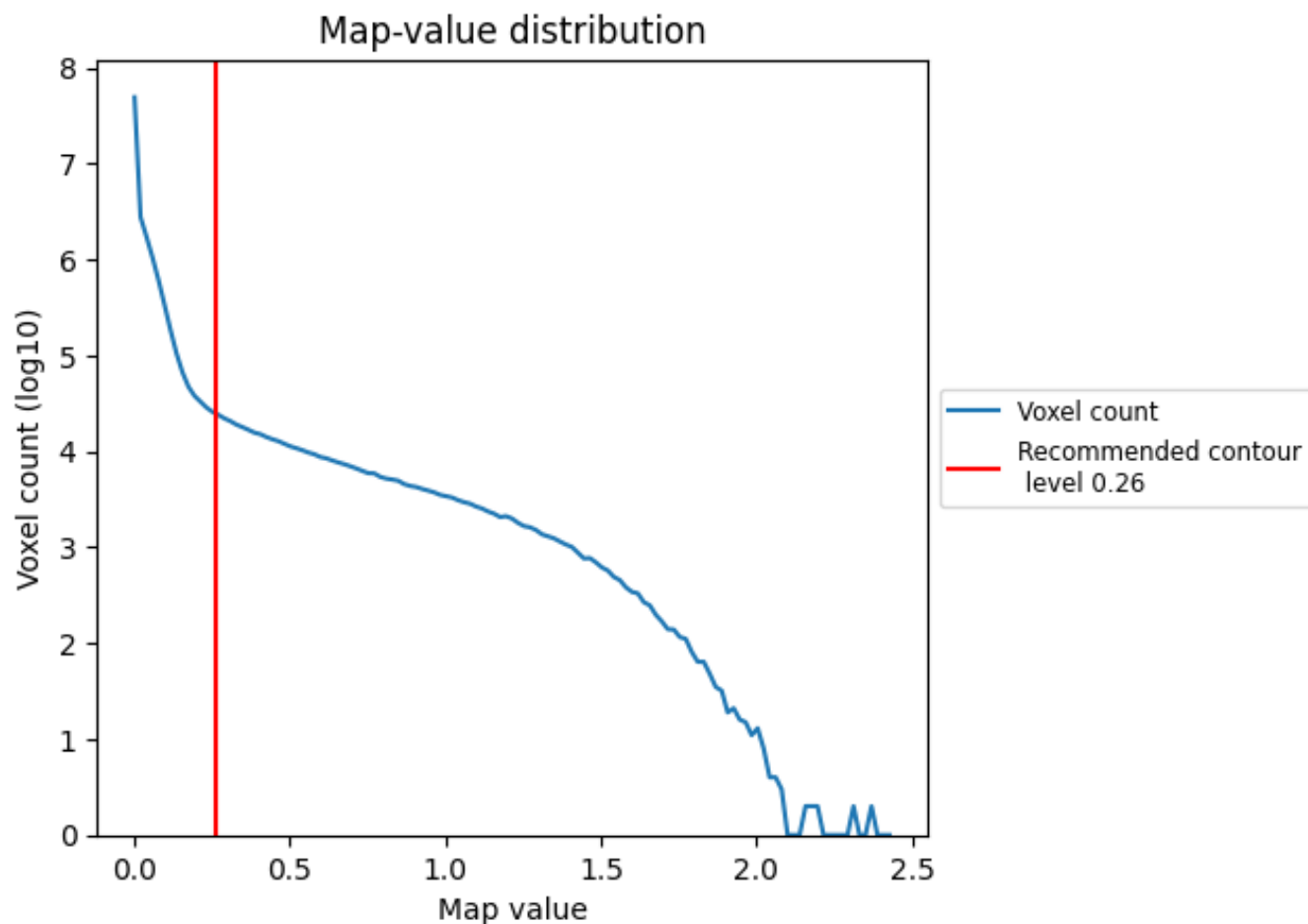
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

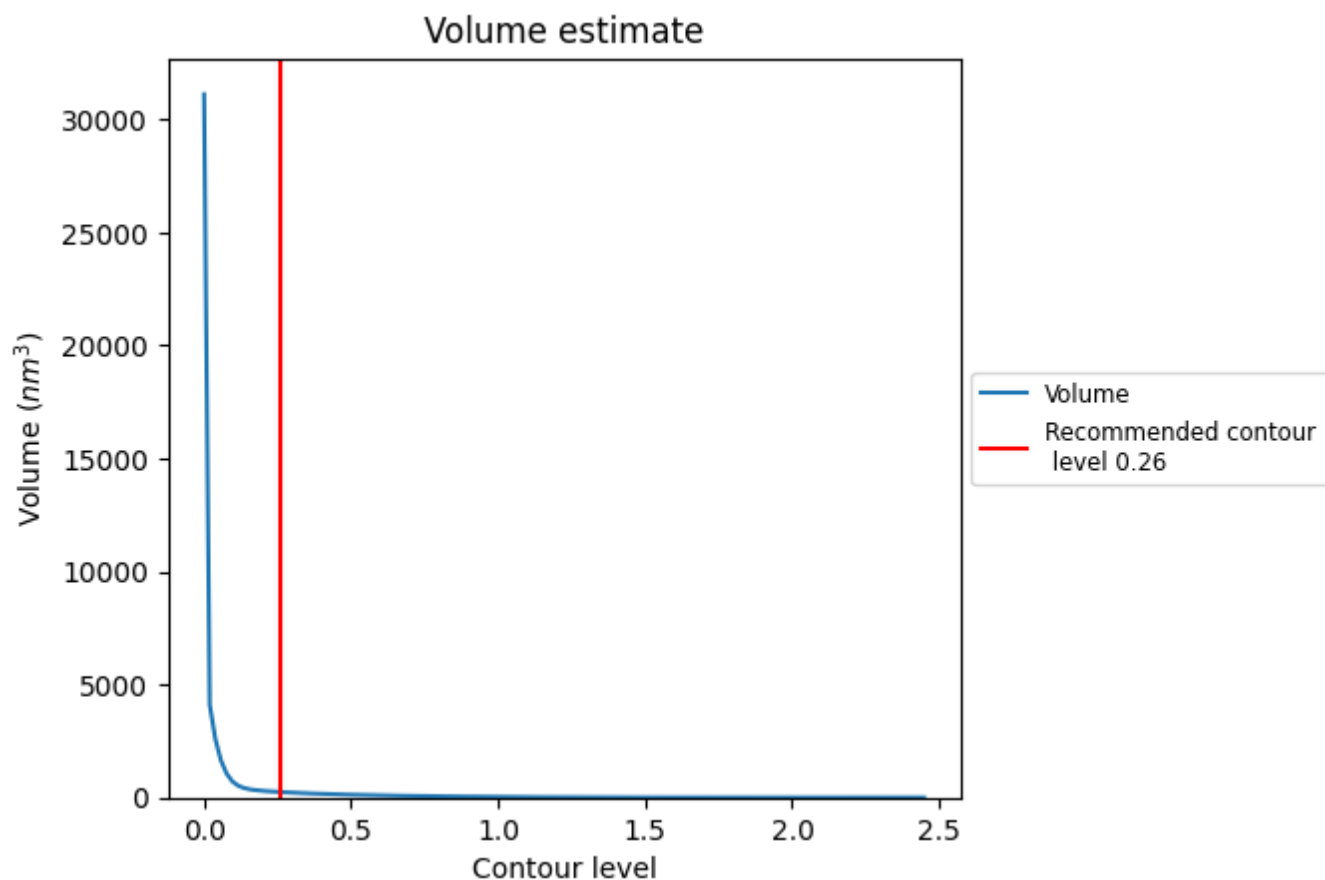
This section contains the results of statistical analysis of the map.

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.

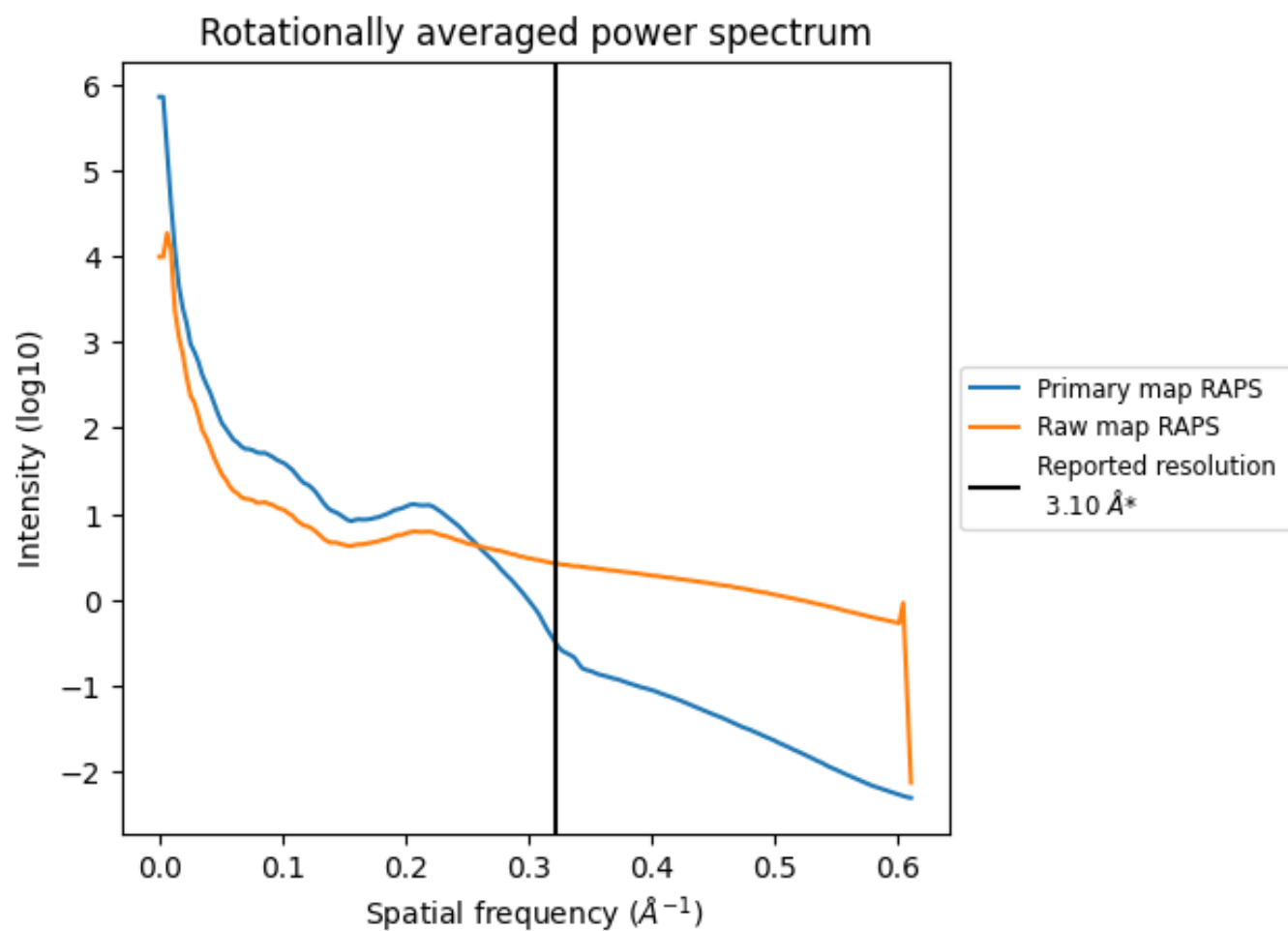
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 243 nm³; this corresponds to an approximate mass of 220 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 ⓘ

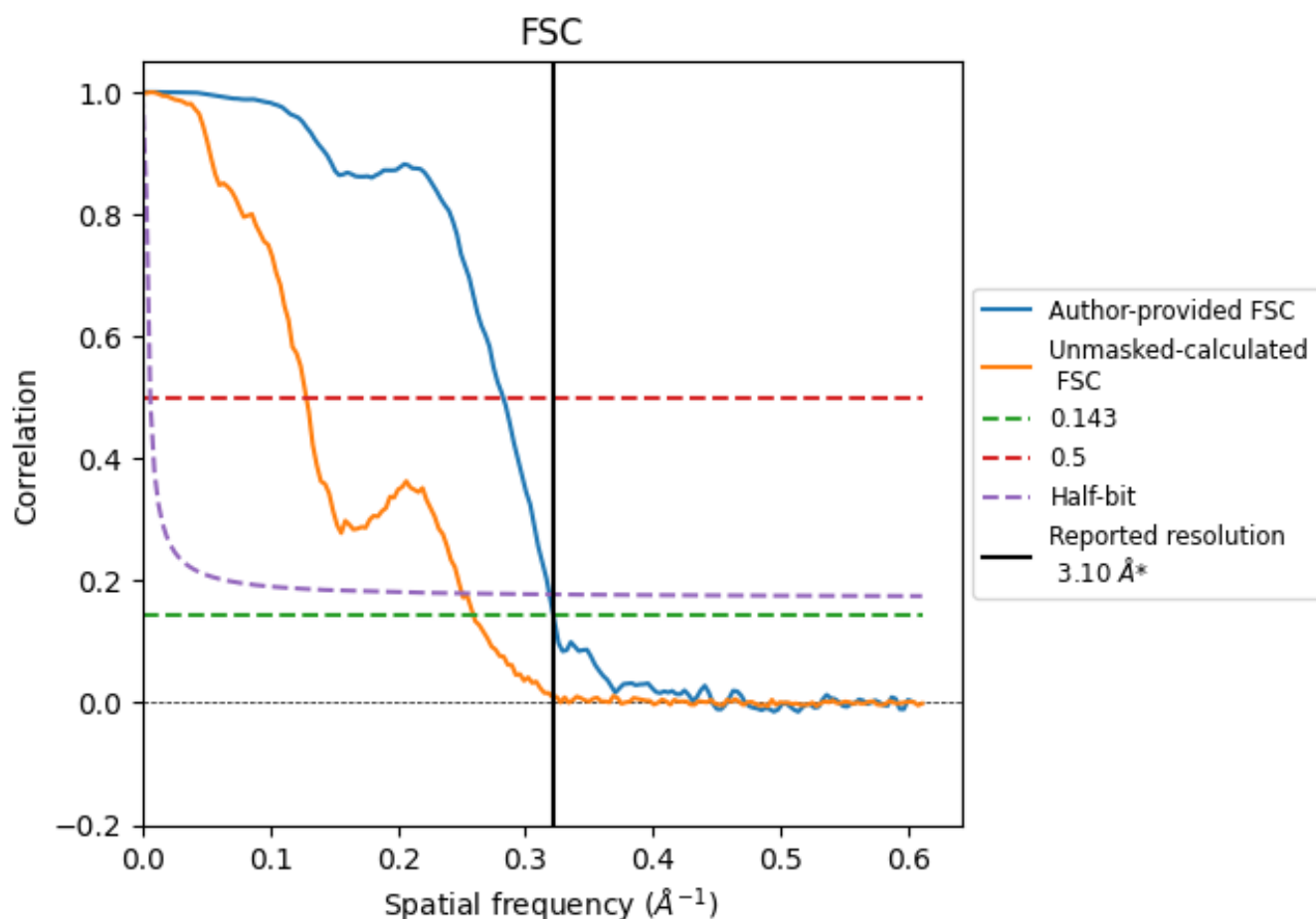


*Reported resolution corresponds to spatial frequency of 0.323 $\text{\AA}^{-1}$

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 0.323 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

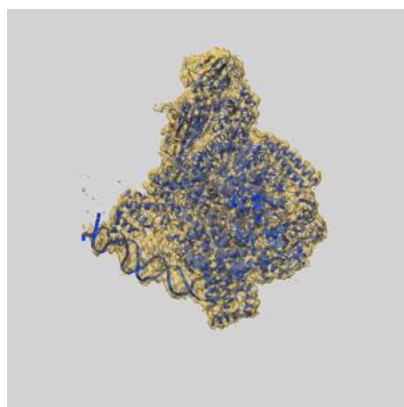
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.11	3.54	3.14
Unmasked-calculated*	3.86	7.79	4.00

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.86 differs from the reported value 3.1 by more than 10 %

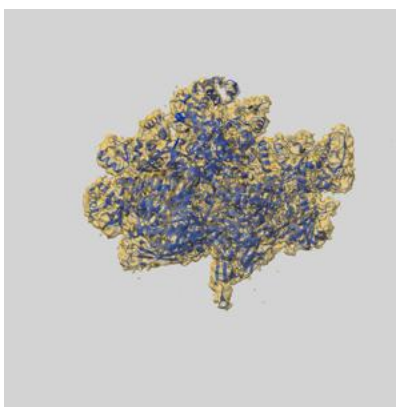
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-59289 and PDB model 3ZS. Per-residue inclusion information can be found in section 3 on page 8.

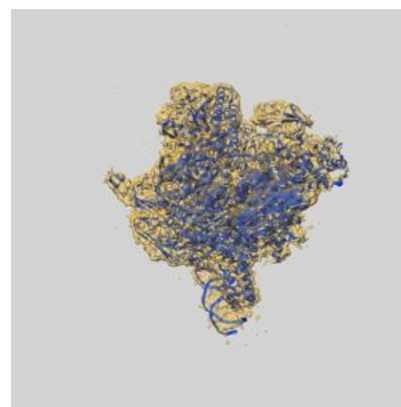
9.1 Map-model overlay [i](#)



X



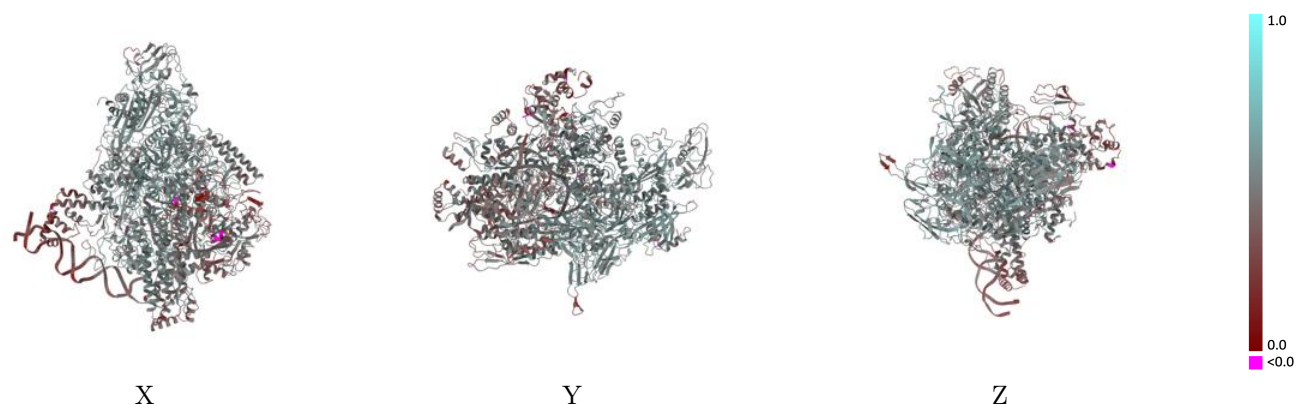
Y



Z

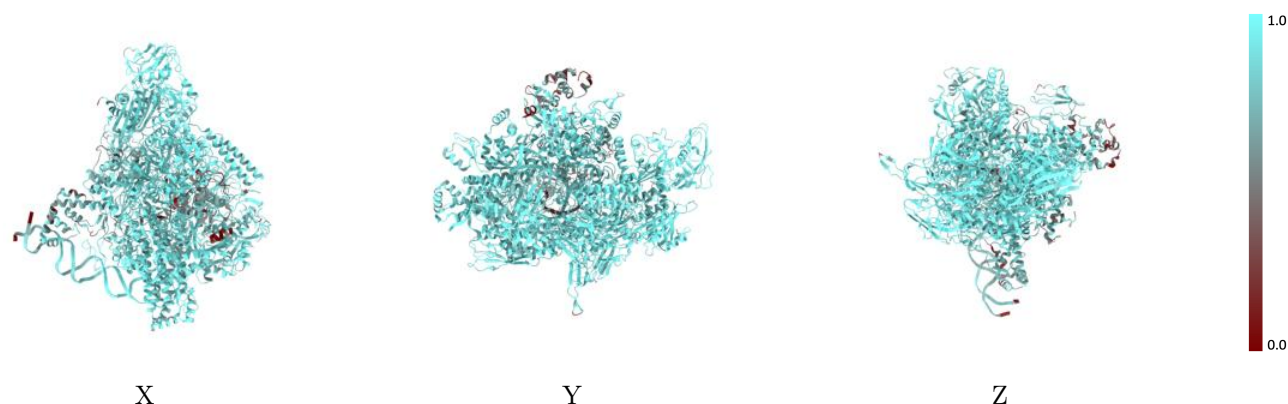
The images above show the 3D surface view of the map at the recommended contour level 0.26 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



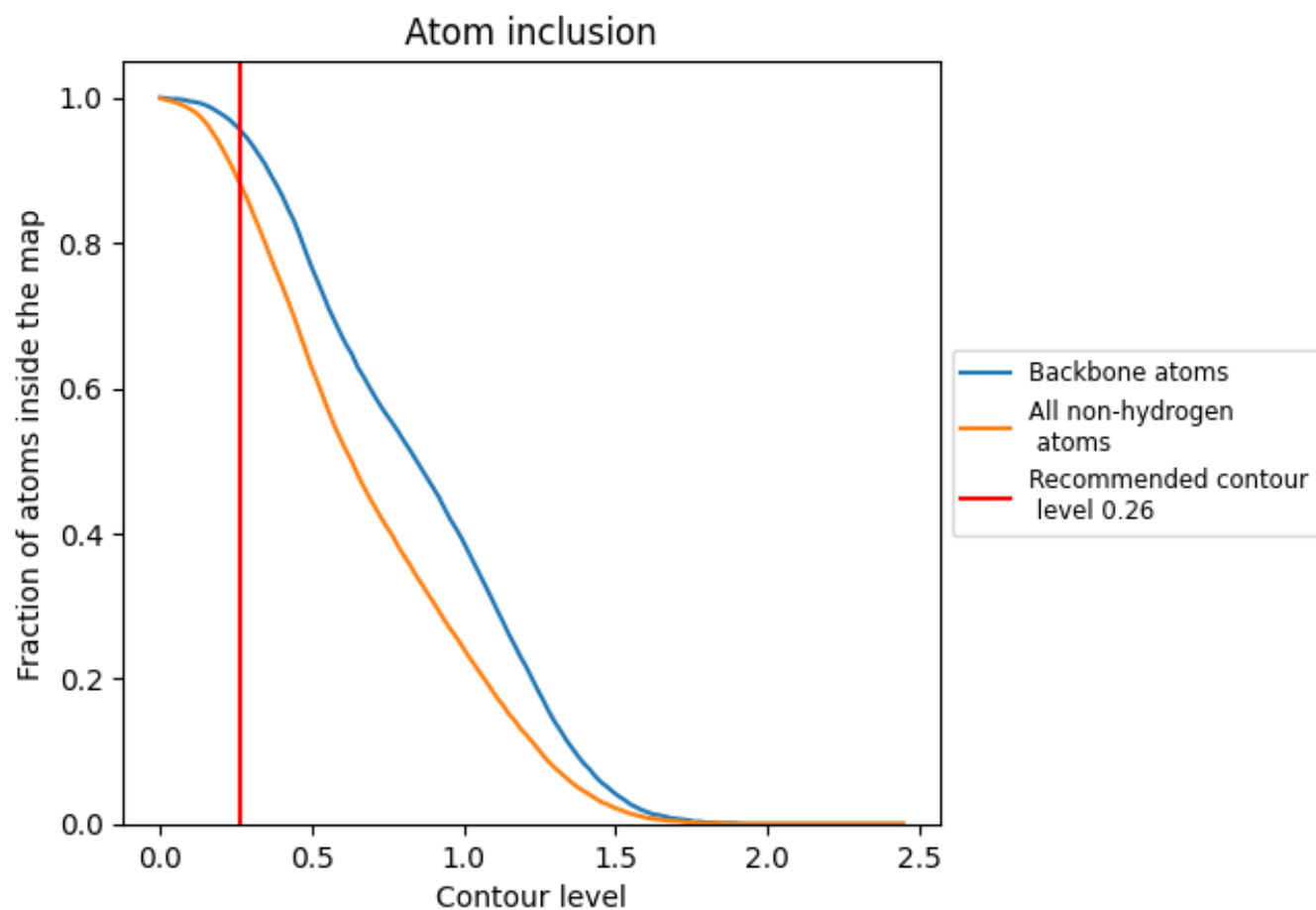
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.26).

9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 88% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.26) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8840	0.4800
D	0.4800	0.3110
E	0.9260	0.5090
G	0.8000	0.4020
K	0.8530	0.3480
L	0.8350	0.3370
O	0.6440	0.4680
R	0.2880	0.3470
U	0.9310	0.5280
V	0.9210	0.4930
X	0.9150	0.5040
Y	0.9170	0.5080

1.0

0.0

<0.0