Full wwPDB EM Validation Report ⓘ

Oct 3, 2023 – 12:42 PM JST

PDB ID	:	8KD2
EMDB ID	:	EMD-37122
Title	:	Rpd3S in complex with 187bp nucleosome
Authors	:	Dong, S.; Li, H.; Wang, M.; Rasheed, N.; Zou, B.; Gao, X.; Guan, J.; Li, W.; Zhang, J.; Wang, C.; Zhou, N.; Shi, X.; Li, M.; Zhou, M.; Huang, J.; Li, H.; Zhang, Y.; Wong, K.H.; Zhang, X.; Chao, W.C.H.; He, J.
Deposited on	:	2023-08-09
Resolution	:	3.02 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:

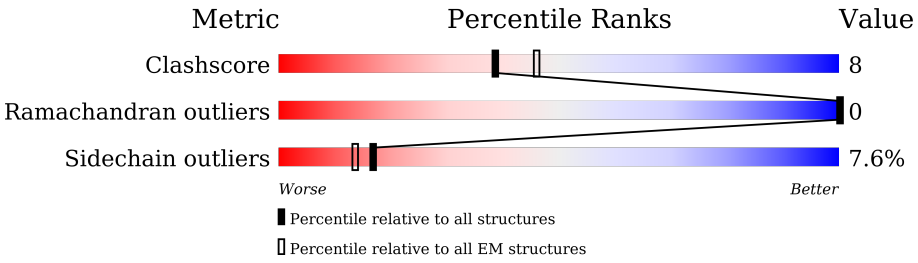
EMDB validation analysis	:	0.0.1.dev50
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

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 3.02 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

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 <=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	433	70% 18% 10%
2	B	1544	7% 25% 8% 66%
3	D	401	34% 10% 55%
3	F	401	95%
4	E	733	8% 26% 13% 60%
4	G	733	98%
5	O	135	56% 15% 29%
5	S	135	53% 18% 29%

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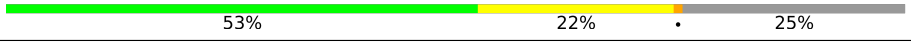
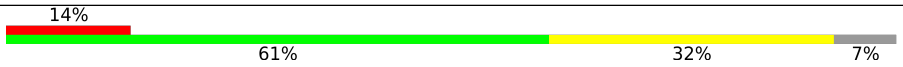
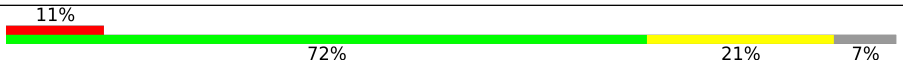
Mol	Chain	Length	Quality of chain
6	P	102	
6	T	102	
7	Q	129	
7	U	129	
8	R	122	
8	V	122	
9	X	187	
10	Y	187	

2 Entry composition (i)

There are 10 unique types of molecules in this entry. The entry contains 24694 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 Histone deacetylase RPD3.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	391	Total	C	N	O	S	0	0
			3097	1960	526	586	25		

- Molecule 2 is a protein called Transcriptional regulatory protein SIN3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	519	Total	C	N	O	S	0	0
			4361	2812	733	802	14		

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-7	MET	-	initiating methionine	UNP P22579
B	-6	HIS	-	expression tag	UNP P22579
B	-5	HIS	-	expression tag	UNP P22579
B	-4	HIS	-	expression tag	UNP P22579
B	-3	HIS	-	expression tag	UNP P22579
B	-2	HIS	-	expression tag	UNP P22579
B	-1	HIS	-	expression tag	UNP P22579
B	0	HIS	-	expression tag	UNP P22579
B	1	HIS	-	expression tag	UNP P22579

- Molecule 3 is a protein called Chromatin modification-related protein EAF3.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	182	Total	C	N	O	S	0	0
			1474	944	237	284	9		
3	F	19	Total	C	N	O	S	0	0
			146	88	25	32	1		

- Molecule 4 is a protein called Transcriptional regulatory protein RCO1.

Mol	Chain	Residues	Atoms	AltConf	Trace
4	E	290	Total C N O S 2399 1526 418 439 16	0	0
4	G	18	Total C N O 160 105 25 30	0	0

There are 98 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	685	MET	-	expression tag	UNP Q04779
E	686	HIS	-	expression tag	UNP Q04779
E	687	HIS	-	expression tag	UNP Q04779
E	688	HIS	-	expression tag	UNP Q04779
E	689	HIS	-	expression tag	UNP Q04779
E	690	HIS	-	expression tag	UNP Q04779
E	691	HIS	-	expression tag	UNP Q04779
E	692	HIS	-	expression tag	UNP Q04779
E	693	HIS	-	expression tag	UNP Q04779
E	694	PRO	-	expression tag	UNP Q04779
E	695	GLN	-	expression tag	UNP Q04779
E	696	LEU	-	expression tag	UNP Q04779
E	697	ALA	-	expression tag	UNP Q04779
E	698	MET	-	expression tag	UNP Q04779
E	699	TRP	-	expression tag	UNP Q04779
E	700	SER	-	expression tag	UNP Q04779
E	701	HIS	-	expression tag	UNP Q04779
E	702	PRO	-	expression tag	UNP Q04779
E	703	GLN	-	expression tag	UNP Q04779
E	704	PHE	-	expression tag	UNP Q04779
E	705	GLU	-	expression tag	UNP Q04779
E	706	LYS	-	expression tag	UNP Q04779
E	707	GLY	-	expression tag	UNP Q04779
E	708	GLY	-	expression tag	UNP Q04779
E	709	GLY	-	expression tag	UNP Q04779
E	710	SER	-	expression tag	UNP Q04779
E	711	GLY	-	expression tag	UNP Q04779
E	712	GLY	-	expression tag	UNP Q04779
E	713	GLY	-	expression tag	UNP Q04779
E	714	SER	-	expression tag	UNP Q04779
E	715	GLY	-	expression tag	UNP Q04779
E	716	GLY	-	expression tag	UNP Q04779
E	717	GLY	-	expression tag	UNP Q04779
E	718	SER	-	expression tag	UNP Q04779
E	719	TRP	-	expression tag	UNP Q04779

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Chain	Residue	Modelled	Actual	Comment	Reference
E	720	SER	-	expression tag	UNP Q04779
E	721	HIS	-	expression tag	UNP Q04779
E	722	PRO	-	expression tag	UNP Q04779
E	723	GLN	-	expression tag	UNP Q04779
E	724	PHE	-	expression tag	UNP Q04779
E	725	GLU	-	expression tag	UNP Q04779
E	726	LYS	-	expression tag	UNP Q04779
E	727	GLU	-	expression tag	UNP Q04779
E	728	ASN	-	expression tag	UNP Q04779
E	729	LEU	-	expression tag	UNP Q04779
E	730	TYR	-	expression tag	UNP Q04779
E	731	PHE	-	expression tag	UNP Q04779
E	732	GLN	-	expression tag	UNP Q04779
E	733	SER	-	expression tag	UNP Q04779
G	685	MET	-	expression tag	UNP Q04779
G	686	HIS	-	expression tag	UNP Q04779
G	687	HIS	-	expression tag	UNP Q04779
G	688	HIS	-	expression tag	UNP Q04779
G	689	HIS	-	expression tag	UNP Q04779
G	690	HIS	-	expression tag	UNP Q04779
G	691	HIS	-	expression tag	UNP Q04779
G	692	HIS	-	expression tag	UNP Q04779
G	693	HIS	-	expression tag	UNP Q04779
G	694	PRO	-	expression tag	UNP Q04779
G	695	GLN	-	expression tag	UNP Q04779
G	696	LEU	-	expression tag	UNP Q04779
G	697	ALA	-	expression tag	UNP Q04779
G	698	MET	-	expression tag	UNP Q04779
G	699	TRP	-	expression tag	UNP Q04779
G	700	SER	-	expression tag	UNP Q04779
G	701	HIS	-	expression tag	UNP Q04779
G	702	PRO	-	expression tag	UNP Q04779
G	703	GLN	-	expression tag	UNP Q04779
G	704	PHE	-	expression tag	UNP Q04779
G	705	GLU	-	expression tag	UNP Q04779
G	706	LYS	-	expression tag	UNP Q04779
G	707	GLY	-	expression tag	UNP Q04779
G	708	GLY	-	expression tag	UNP Q04779
G	709	GLY	-	expression tag	UNP Q04779
G	710	SER	-	expression tag	UNP Q04779
G	711	GLY	-	expression tag	UNP Q04779
G	712	GLY	-	expression tag	UNP Q04779

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Chain	Residue	Modelled	Actual	Comment	Reference
G	713	GLY	-	expression tag	UNP Q04779
G	714	SER	-	expression tag	UNP Q04779
G	715	GLY	-	expression tag	UNP Q04779
G	716	GLY	-	expression tag	UNP Q04779
G	717	GLY	-	expression tag	UNP Q04779
G	718	SER	-	expression tag	UNP Q04779
G	719	TRP	-	expression tag	UNP Q04779
G	720	SER	-	expression tag	UNP Q04779
G	721	HIS	-	expression tag	UNP Q04779
G	722	PRO	-	expression tag	UNP Q04779
G	723	GLN	-	expression tag	UNP Q04779
G	724	PHE	-	expression tag	UNP Q04779
G	725	GLU	-	expression tag	UNP Q04779
G	726	LYS	-	expression tag	UNP Q04779
G	727	GLU	-	expression tag	UNP Q04779
G	728	ASN	-	expression tag	UNP Q04779
G	729	LEU	-	expression tag	UNP Q04779
G	730	TYR	-	expression tag	UNP Q04779
G	731	PHE	-	expression tag	UNP Q04779
G	732	GLN	-	expression tag	UNP Q04779
G	733	SER	-	expression tag	UNP Q04779

- Molecule 5 is a protein called Histone H3.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	O	96	Total	C	N	O	S	0	0
			791	500	151	137	3		
5	S	96	Total	C	N	O	S	0	0
			791	500	151	137	3		

- Molecule 6 is a protein called Histone H4.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	P	79	Total	C	N	O	S	0	0
			637	403	124	109	1		
6	T	77	Total	C	N	O	S	0	0
			618	391	119	107	1		

- Molecule 7 is a protein called Histone H2A.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	Q	107	Total 825	C 519	N 163	O 143	0	0
7	U	107	Total 825	C 519	N 163	O 143	0	0

- Molecule 8 is a protein called Histone H2B 1.1.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	R	91	Total 715	C 451	N 128	O 134	S 2	0	0
8	V	92	Total 721	C 454	N 129	O 136	S 2	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	29	THR	SER	engineered mutation	UNP P02281
V	29	THR	SER	engineered mutation	UNP P02281

- Molecule 9 is a DNA chain called 187bp DNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	X	174	Total 3590	C 1697	N 676	O 1043	P 174	0	0

- Molecule 10 is a DNA chain called 187bp DNA.

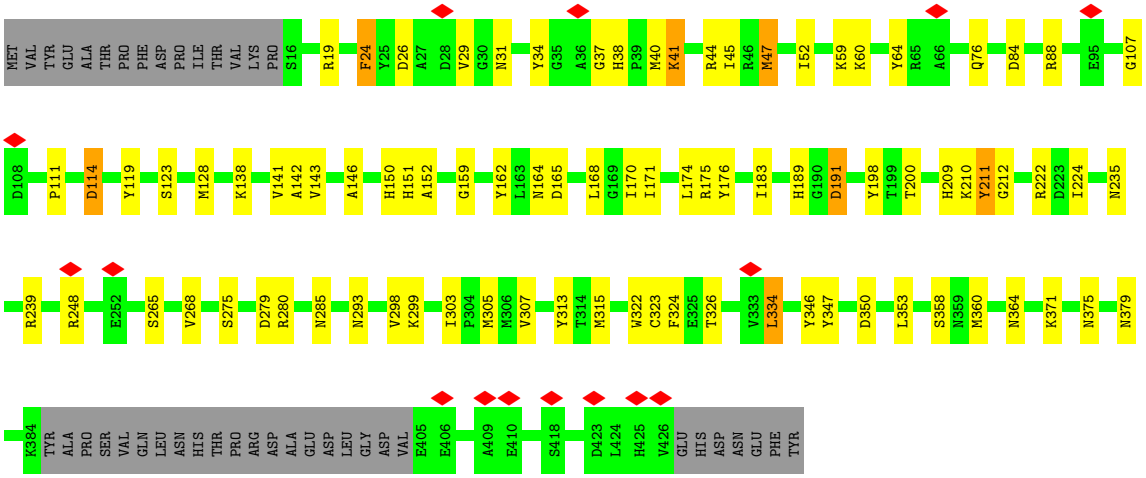
Mol	Chain	Residues	Atoms					AltConf	Trace
10	Y	174	Total 3544	C 1682	N 643	O 1045	P 174	0	0

3 Residue-property plots (i)

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.

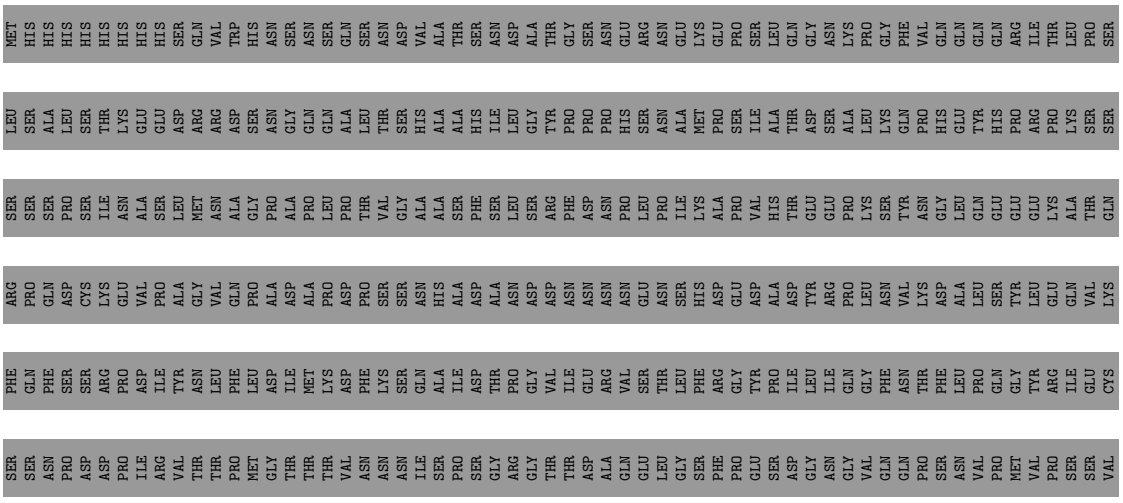
• Molecule 1: Histone deacetylase RPD3

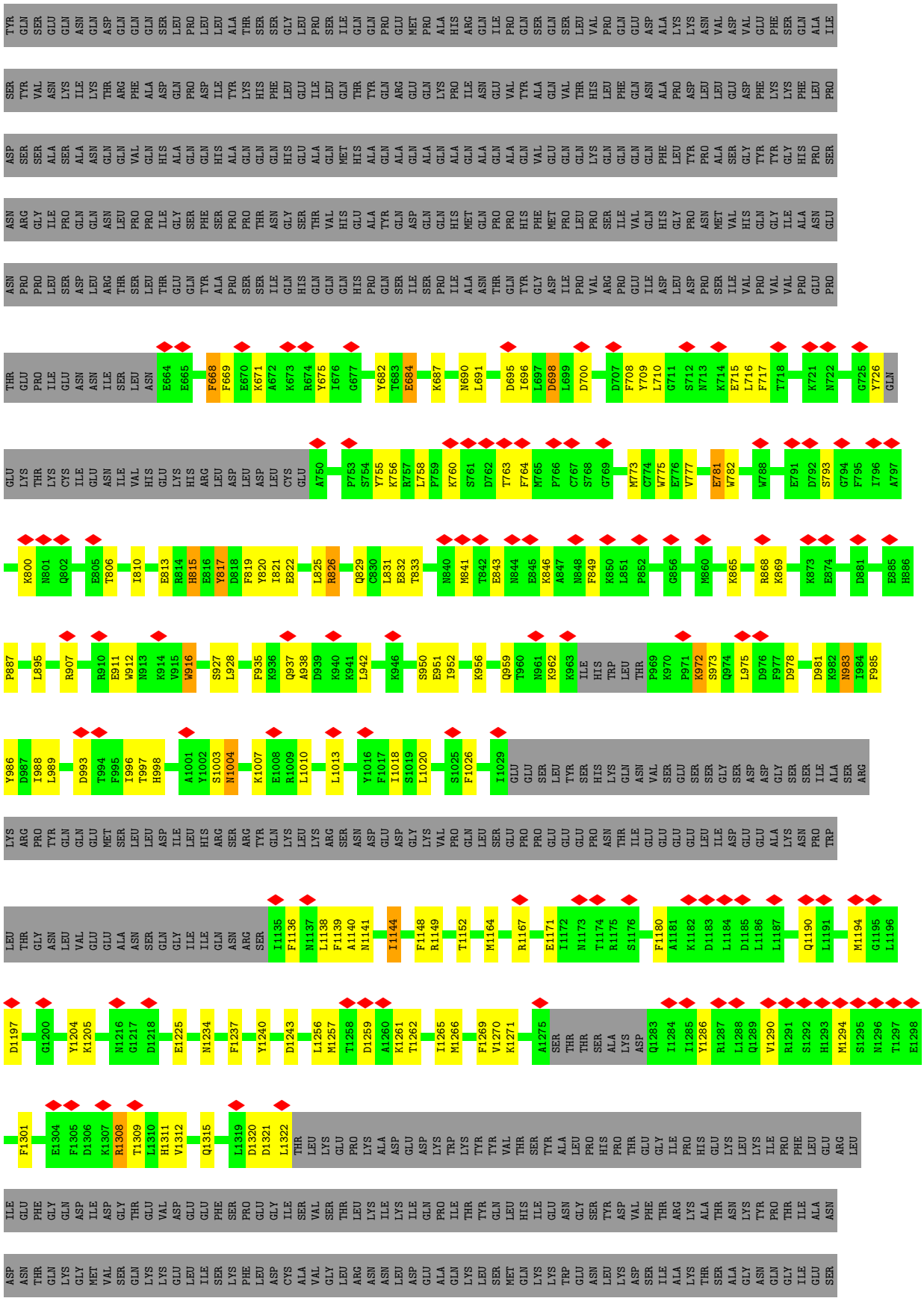
Chain A:



• Molecule 2: Transcriptional regulatory protein SIN3

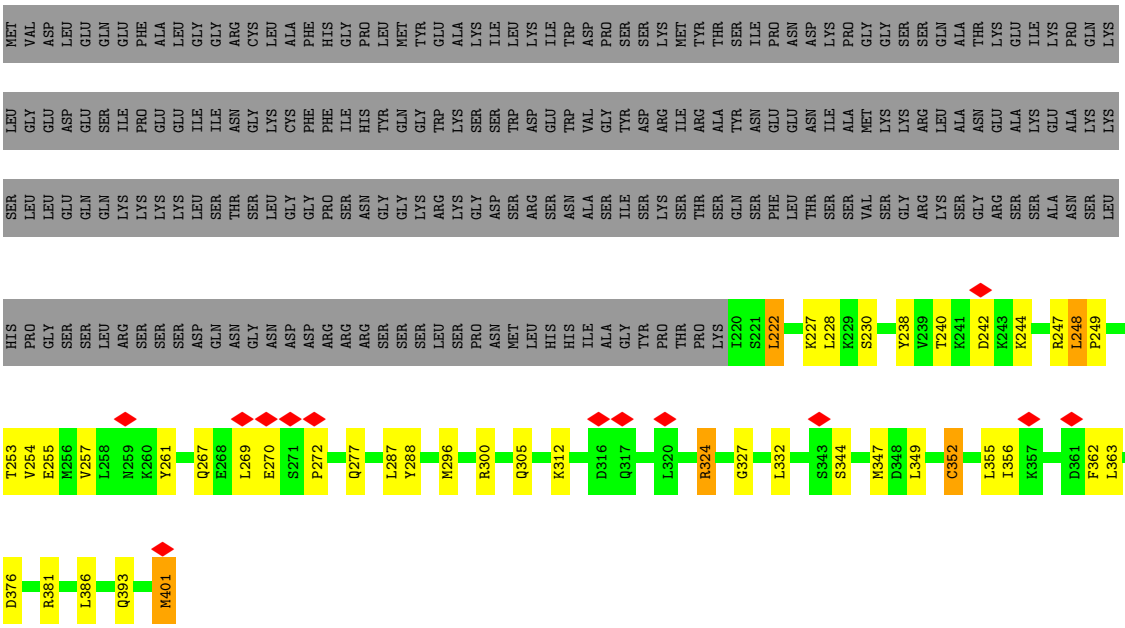
Chain B:




TYR GLN SER GLU GLN ASN GLN ASP GLN GLN GLN SER LEU PRO LEU LEU ALA THR SER SER GLY LEU PRO SER ILE GLN GLN PRO GLU MET PRO ALA HIS ARG GLN ILE PRO GLN SER GLN SER LEU VAL PRO GLN GLU ASP ALA LYS LYS ASN VAL ASP VAL GLU PHE SER GLN ALA ILE
SER TYR VAL ASN LYS ILE LYS THR ARG PHE ALA ASP GLN PRO ASP ILE TYR LYS HIS PHE LEU GLU ILE LEU GLN THR TYR GLN ARG GLU GLN LYS PRO ILE ASN GLU VAL TYR ALA GLN VAL THR HIS LEU PHE GLN ASN ALA PRO ASP LEU LEU GLU ASP PHE LYS LYS PHE LEU PRO
ASP SER SER ALA ASN GLN GLN VAL GLN HIS ALA GLN GLN GLN HIS GLU ALA GLN MET HIS ALA GLN GLN ALA GLN ALA GLN GLN ALA GLN GLN HIS ALA GLN ALA GLN GLN LYS GLN GLN GLN LEU GLY TYR TYR GLY ILE HIS PRO SER
ASN ARG GLY ILE PRO GLN GLN ASN LEU PRO PRO ILE GLY SER PHE SER PRO PRO THR ASN GLY SER THR VAL HIS GLU ALA TYR GLN ASP GLN GLN HIS MET GLN PRO HIS PHE MET PRO LEU PRO SER ILE VAL GLN HIS GLY PRO ASN MET VAL HIS GLN GLY ILE ALA ASN GLU
ASN PRO PRO LEU SER ASP LEU ARG THR SER LEU THR GLU GLN TYR ALA PRO SER SER ILE GLN HIS PRO GLN SER ILE SER PRO ILE ALA ASN THR GLN TYR GLY ASP ILE PRO VAL ARG PRO GLU ILE ASP LEU ASP PRO SER ILE VAL GLN GLN PRO VAL VAL PRO GLU PRO
THR GLU PRO ILE GLU ASN ASN ILE SER LEU ASN E664 E665 F668 F669 E670 K671 A672 K673 R674 Y675 I676 G677 Y682 T683 E684 K687 N690 L691 D695 I696 L697 D698 L699 D700 D707 F708 Y709 L710 G711 S712 N713 K714 E715 L716 F717 T718 K721 N722 G725 Y726 GLN
GLU LYS THR LYS CYS ILE GLU ASN ILE VAL HIS GLU LYS HIS ARG LEU ASP LEU ASP LEU CYS GLU A750 P753 S754 Y755 K756 R757 L758 P759 K760 S761 D762 T763 F764 W765 P766 C767 S768 G769 W773 C774 W775 E776 V777 E781 W782 W788 E791 D792 S793 G794 F795 T796 A797
K800 N801 Q802 E805 T806 I810 E813 R814 H815 E816 Y817 D818 F819 Y820 I821 E822 L825 R826 Q829 C830 L831 E832 T833 N840 M841 T842 E843 N844 E845 K846 A847 N848 F849 K850 L851 P852 G856 M860 K865 R868 K869 K873 E874 D881 E885 H886
P887 L895 R907 R910 E911 W912 N913 K914 V915 W916 S927 L928 F935 K936 Q937 A938 D939 K940 K941 L942 K946 S950 E951 I952 K956 Q959 T960 N961 K962 K963 ILE HIS TRP LEU THR P969 K970 P971 K972 S973 Q974 L975 D976 F977 D978 D981 K982 N983 I984 F985
Y986 D987 I988 L989 D993 T994 F995 I996 T997 H998 A1001 Y1002 S1003 N1004 K1007 E1008 R1009 L1010 L1013 Y1016 F1017 I1018 S1019 L1020 S1025 F1026 I1029 GLU GLU SER LEU TYR SER HIS LYS GLN ASN VAL SER GLU SER SER GLY SER ASP ASP GLY SER SER ILE ALA SER ARG
LYS ARG PRO TYR GLN GLN GLU MET SER LEU LEU ASP ILE LEU HIS ARG SER ARG TYR GLN LYS LEU LYS ARG SER ASN ASP GLU ASP GLY LYS VAL PRO GLN LEU SER GLU PRO PRO GLU GLU GLU PRO ASN THR ILE GLU GLU GLU GLU LEU ILE ASP GLU GLU ALA LYS ASN PRO TRP
LEU THR GLY ASN LEU VAL GLU GLU ALA ASN SER GLN GLY ILE ILE GLN ASN ARG SER I1135 F1136 N1137 L1138 F1139 A1140 N1141 I1144 F1148 R1149 T1152 M1164 R1167 E1171 I1172 N1173 T1174 R1175 S1176 F1180 A1181 K1182 D1183 L1184 D1185 L1186 L1187 Q1190 L1191 M1194 G1195 L1196
D1197 G1200 Y1204 K1205 N1216 G1217 D1218 E1225 N1234 F1237 Y1240 D1243 L1256 M1257 T1258 D1259 A1260 K1261 T1262 I1265 M1266 F1269 V1270 K1271 A1275 SER THR THR SER ALA LYS ASP Q1283 I1284 I1285 Y1286 R1287 L1288 Q1289 V1290 R1291 S1292 H1293 M1294 S1295 N1296 T1297 E1298
F1301 E1304 F1305 D1306 K1307 R1308 T1309 L1310 H1311 V1312 Q1315 L1319 D1320 D1321 L1322 THR LEU LYS GLU PRO LYS ALA ASP GLU ASP LYS TRP LYS TYR TYR VAL THR SER TYR ALA LEU PRO HIS PRO THR GLU GLY ILE PRO HIS GLU LYS LEU LYS ILE PRO PHE LEU GLU ARG LEU
ILE GLU PHE GLY GLN ASP ILE ASP GLY THR GLU VAL ASP GLU GLU PHE SER PRO GLU GLY ILE SER VAL SER THR LEU LYS ILE LYS ILE GLN PRO ILE THR TYR GLN LEU HIS ILE GLU ASN GLY SER TYR ASP VAL PHE THR ARG LYS ALA THR ASN LYS TYR PRO THR ILE ALA ASN
ASP ASN THR GLN LYS GLY MET VAL SER GLN LYS LYS GLU LEU ILE SER LYS PHE LEU ASP CYS ALA VAL GLY LEU ARG ASN ASN LEU ASP GLU ALA GLN LYS LEU SER MET GLN LYS LYS TRP GLU ASN LEU LYS ASP SER ILE ALA LYS THR SER ALA GLY ASN GLN GLY ILE GLU SER

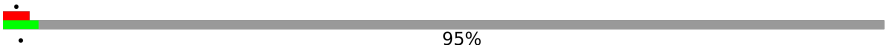
• Molecule 3: Chromatin modification-related protein EAF3

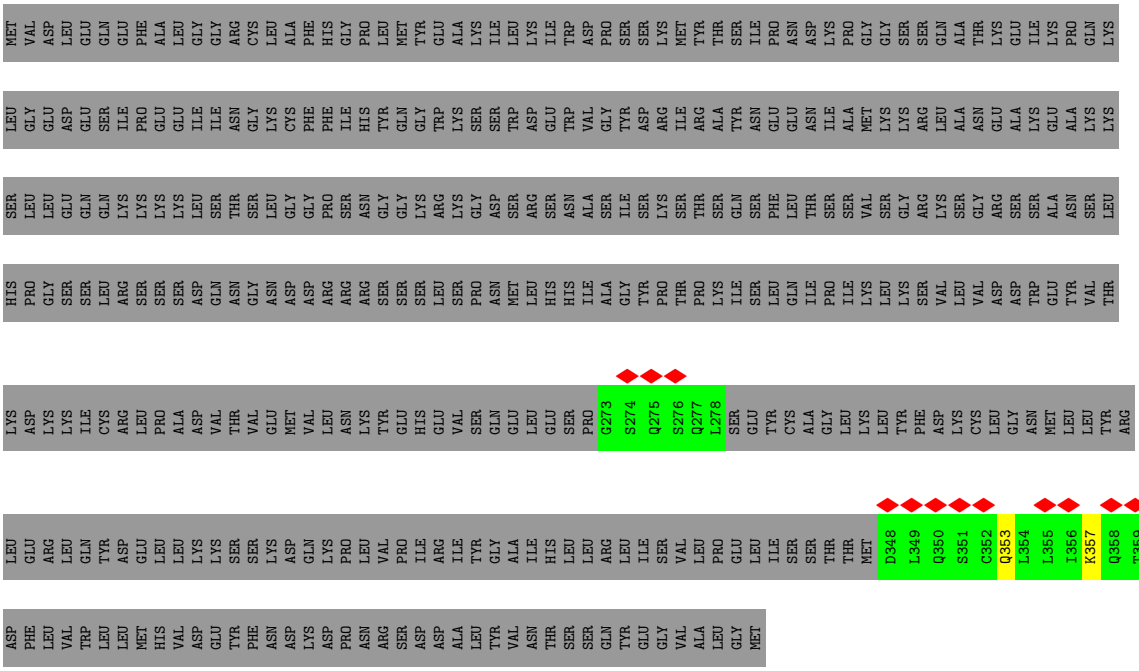
Chain D:



• Molecule 3: Chromatin modification-related protein EAF3

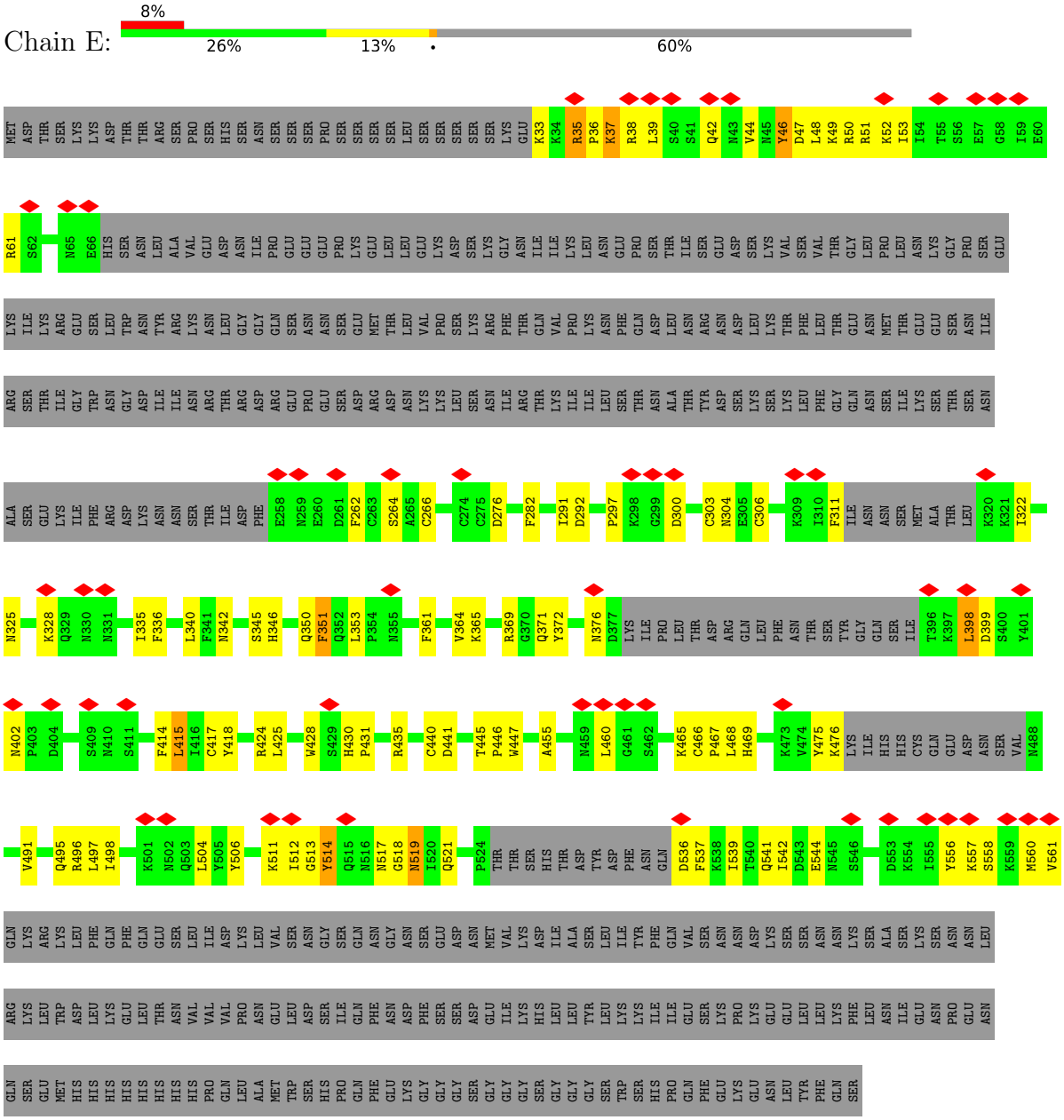
Chain F:





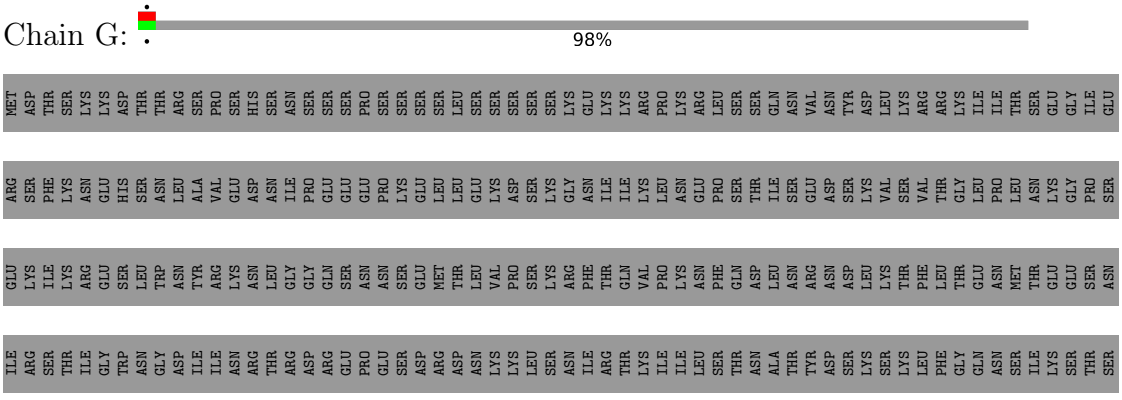
• Molecule 4: Transcriptional regulatory protein RCO1

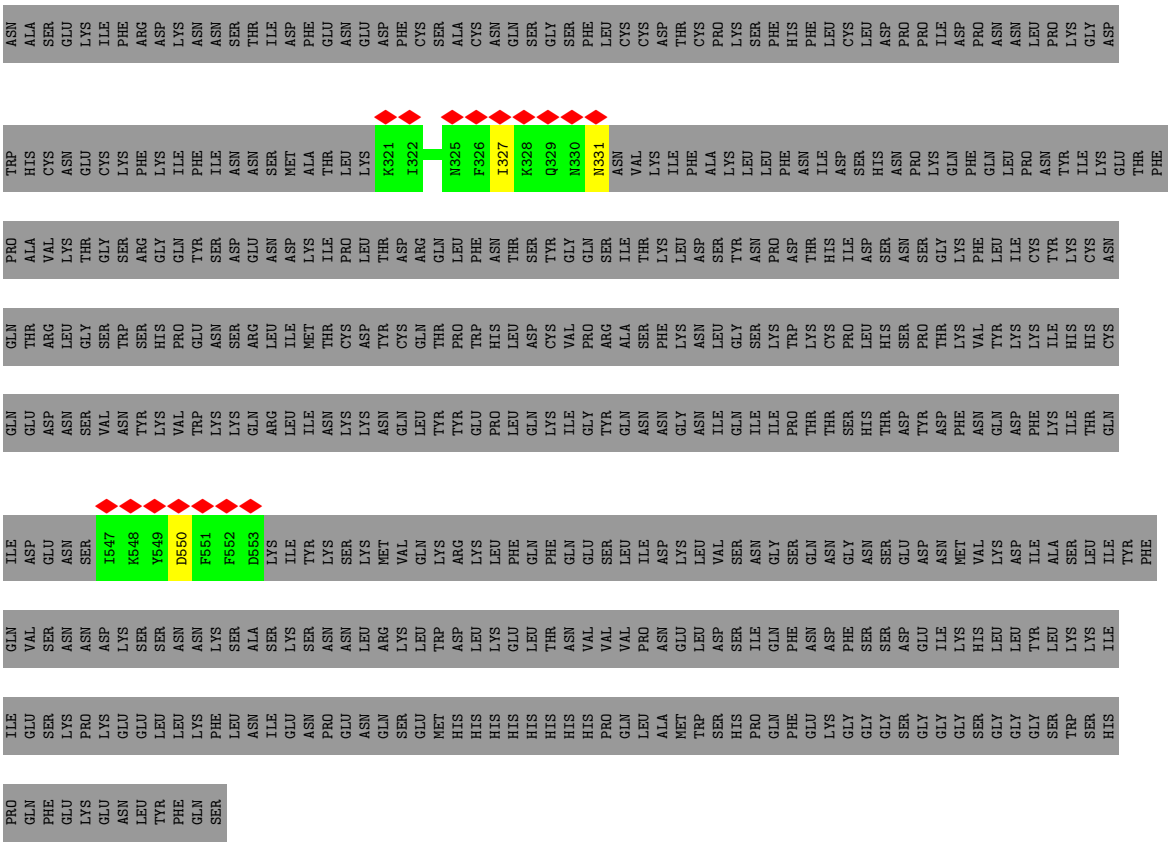
Chain E:



• Molecule 4: Transcriptional regulatory protein RCO1

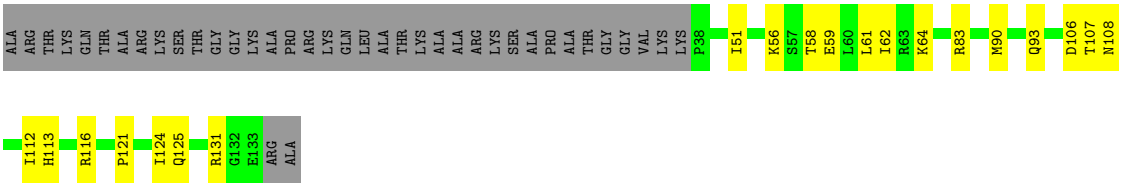
Chain G:





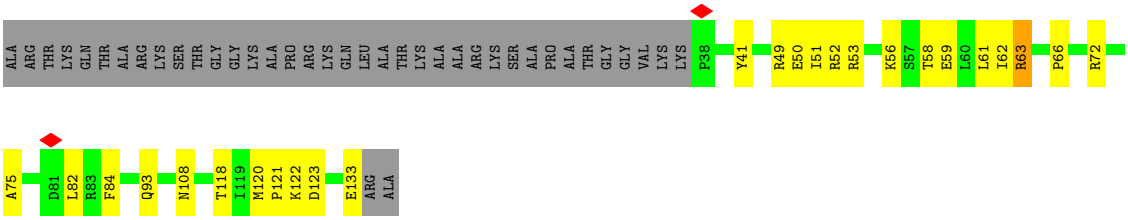
• Molecule 5: Histone H3

Chain O:



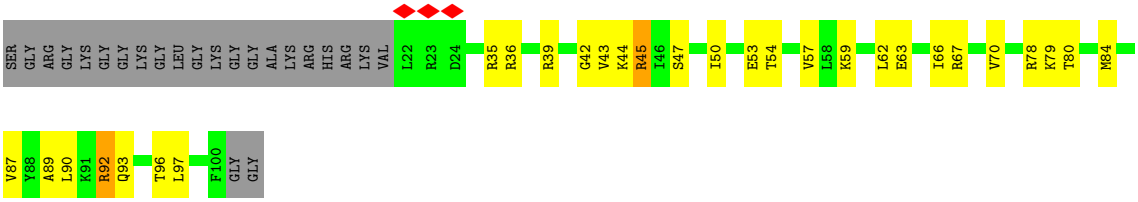
• Molecule 5: Histone H3

Chain S:



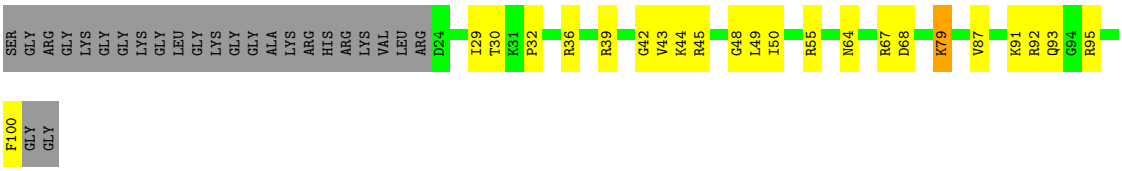
• Molecule 6: Histone H4

Chain P:



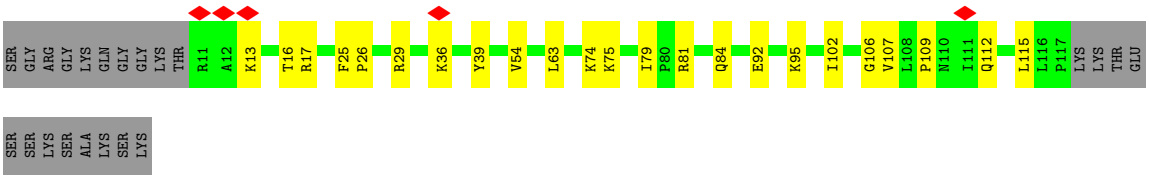
• Molecule 6: Histone H4

Chain T:



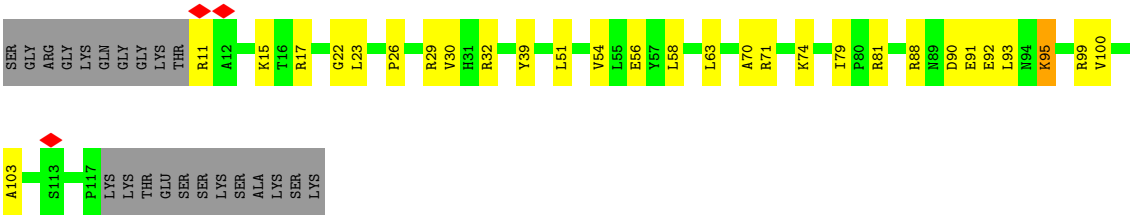
• Molecule 7: Histone H2A

Chain Q:



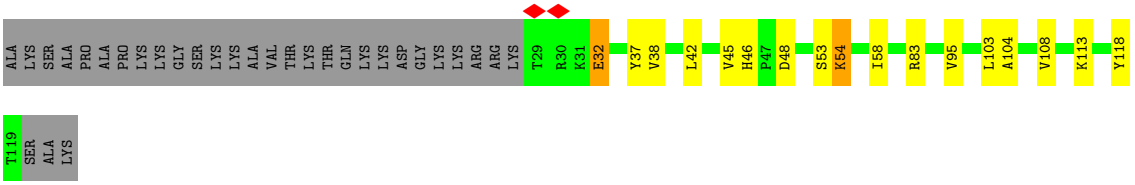
• Molecule 7: Histone H2A

Chain U:



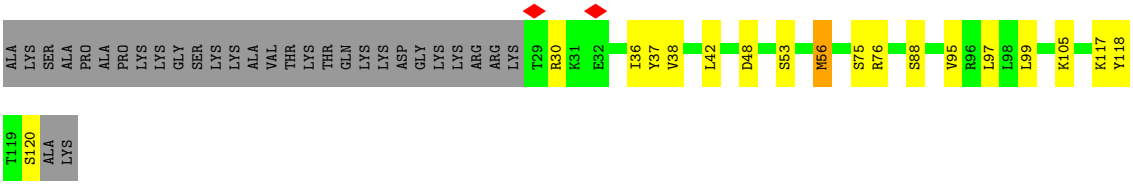
• Molecule 8: Histone H2B 1.1

Chain R:

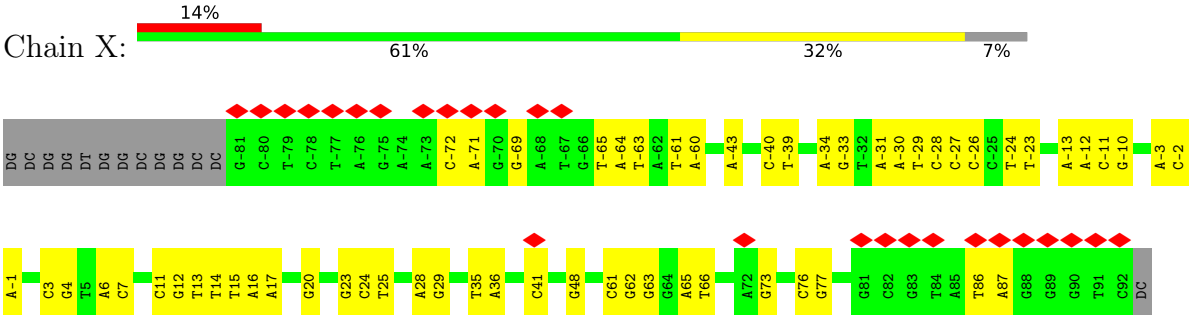


• Molecule 8: Histone H2B 1.1

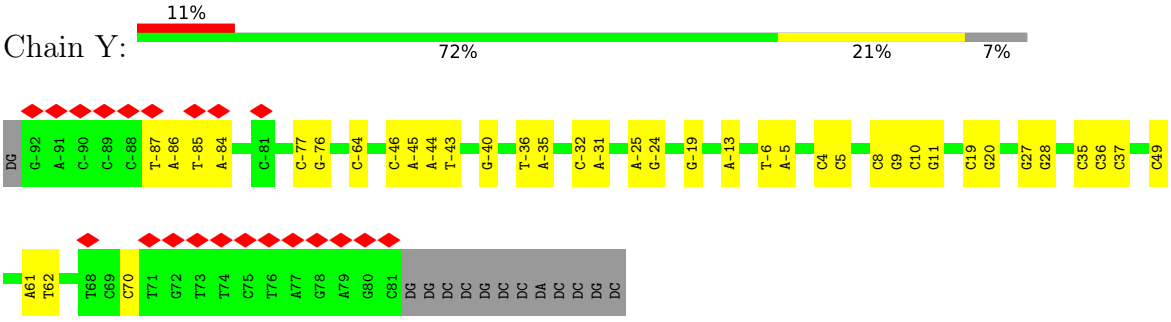
Chain V:



• Molecule 9: 187bp DNA



• Molecule 10: 187bp DNA



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	72120	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 ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.491	Depositor
Minimum map value	-0.034	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.009	Depositor
Recommended contour level	0.052	Depositor
Map size (Å)	383.4, 383.4, 383.4	wwPDB
Map dimensions	540, 540, 540	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.71, 0.71, 0.71	Depositor

5 Model quality

5.1 Standard geometry

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	0.28	0/3172	0.57	0/4284
2	B	0.27	0/4458	0.53	0/6003
3	D	0.27	0/1500	0.60	0/2028
3	F	0.22	0/144	0.45	0/190
4	E	0.29	0/2457	0.52	0/3302
4	G	0.25	0/162	0.33	0/213
5	O	0.25	0/803	0.55	0/1078
5	S	0.24	0/803	0.54	0/1078
6	P	0.27	0/644	0.62	0/863
6	T	0.26	0/625	0.61	0/838
7	Q	0.25	0/835	0.54	0/1127
7	U	0.27	0/835	0.61	0/1127
8	R	0.26	0/726	0.54	0/978
8	V	0.24	0/732	0.51	0/986
9	X	0.52	0/4032	0.89	0/6227
10	Y	0.51	0/3970	0.88	0/6119
All	All	0.37	0/25898	0.68	0/36441

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3097	0	2960	51	0
2	B	4361	0	4335	79	0
3	D	1474	0	1497	22	0
3	F	146	0	146	1	0
4	E	2399	0	2359	70	0
4	G	160	0	151	2	0
5	O	791	0	828	17	0
5	S	791	0	828	17	0
6	P	637	0	681	27	0
6	T	618	0	657	20	0
7	Q	825	0	882	17	0
7	U	825	0	882	20	0
8	R	715	0	737	12	0
8	V	721	0	742	11	0
9	X	3590	0	1951	43	0
10	Y	3544	0	1952	30	0
All	All	24694	0	21588	360	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 8.

All (360) 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)
9:X:-29:DT:H2”	9:X:-28:DC:H5’	1.42	0.97
4:E:46:TYR:HB3	4:E:51:ARG:HH12	1.27	0.95
1:A:171:ILE:HA	1:A:174:LEU:HG	1.55	0.88
9:X:20:DG:N2	10:Y:-19:DG:O6	2.17	0.77
3:D:287:LEU:HB3	4:E:340:LEU:HD11	1.68	0.74
4:E:46:TYR:HB3	4:E:51:ARG:NH1	2.03	0.72
2:B:668:PHE:HA	2:B:671:LYS:HE2	1.72	0.72
1:A:210:LYS:HG2	1:A:212:GLY:H	1.55	0.71
9:X:-29:DT:C2’	9:X:-28:DC:H5’	2.20	0.70
2:B:989:LEU:HD21	2:B:1018:ILE:HG13	1.73	0.69
4:E:511:LYS:HG2	4:E:542:ILE:HD12	1.76	0.68
2:B:998:HIS:O	2:B:998:HIS:ND1	2.27	0.68
6:T:91:LYS:HE2	8:V:76:ARG:HH12	1.59	0.66
3:D:238:TYR:HA	3:D:242:ASP:HB2	1.76	0.66
1:A:279:ASP:HB2	1:A:313:TYR:HB2	1.78	0.64
6:P:47:SER:HB3	6:P:50:ILE:HG23	1.80	0.64
1:A:248:ARG:HG2	1:A:293:ASN:HD22	1.63	0.64
5:O:106:ASP:OD2	5:O:131:ARG:NH2	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:560:MET:SD	4:E:560:MET:N	2.72	0.63
1:A:47:MET:HE1	1:A:315:MET:HB3	1.79	0.63
9:X:14:DT:H3	10:Y:-13:DA:H2	1.47	0.63
3:D:227:LYS:HE2	4:E:537:PHE:HE1	1.64	0.63
6:P:80:THR:HG23	10:Y:27:DG:H4'	1.81	0.63
5:S:61:LEU:HD22	6:T:36:ARG:HB3	1.80	0.63
3:D:270:GLU:HG3	3:D:272:PRO:HD3	1.81	0.62
1:A:324:PHE:HA	1:A:334:LEU:HD22	1.81	0.62
2:B:1190:GLN:HG3	4:E:33:LYS:HB2	1.81	0.62
9:X:15:DT:H4'	9:X:16:DA:H5'	1.81	0.62
3:D:401:MET:SD	3:D:401:MET:N	2.73	0.61
1:A:151:HIS:HB3	1:A:159:GLY:HA3	1.82	0.61
3:D:247:ARG:HG2	3:D:249:PRO:HD2	1.82	0.61
2:B:1308:ARG:HG2	2:B:1309:THR:HG23	1.83	0.61
2:B:849:PHE:HB3	2:B:887:PRO:HG2	1.82	0.60
5:O:113:HIS:NE2	5:S:123:ASP:OD1	2.29	0.60
1:A:19:ARG:NH2	1:A:303:ILE:O	2.35	0.60
5:S:108:ASN:HB2	6:T:43:VAL:HG22	1.83	0.60
7:U:79:ILE:HG22	7:U:81:ARG:H	1.64	0.60
3:D:240:THR:HG21	4:E:371:GLN:HA	1.82	0.60
6:T:29:ILE:HD11	6:T:55:ARG:HG2	1.83	0.60
1:A:191:ASP:OD1	1:A:191:ASP:N	2.35	0.59
10:Y:-36:DT:H2"	10:Y:-35:DA:N7	2.18	0.59
1:A:141:VAL:HG22	1:A:305:MET:HB3	1.83	0.59
9:X:23:DG:H2"	9:X:24:DC:H5'	1.85	0.59
3:D:255:GLU:HG3	3:D:324:ARG:HD3	1.84	0.59
2:B:793:SER:HB2	4:E:460:LEU:HB3	1.84	0.59
2:B:1256:LEU:HD13	2:B:1262:THR:HB	1.85	0.58
7:Q:63:LEU:HD13	8:R:42:LEU:HB2	1.86	0.58
2:B:810:ILE:HG13	2:B:916:TRP:CD1	2.39	0.58
5:S:108:ASN:ND2	6:T:42:GLY:O	2.37	0.58
7:U:39:TYR:HB3	8:V:75:SER:HB2	1.86	0.58
3:D:376:ASP:N	3:D:376:ASP:OD1	2.37	0.57
1:A:323:CYS:HB3	1:A:353:LEU:HD11	1.85	0.57
7:U:54:VAL:HG21	8:V:95:VAL:HG11	1.86	0.57
1:A:44:ARG:HH11	1:A:322:TRP:HH2	1.51	0.57
2:B:973:SER:HB2	2:B:1315:GLN:HA	1.87	0.57
3:D:228:LEU:HD12	3:D:363:LEU:HD12	1.87	0.57
5:O:51:ILE:HG13	6:P:39:ARG:HD2	1.87	0.57
5:O:56:LYS:NZ	10:Y:-64:DC:OP1	2.38	0.57
6:T:30:THR:HB	6:T:32:PRO:HD2	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:S:72:ARG:HE	5:S:84:PHE:HB2	1.70	0.56
9:X:-40:DC:H2"	9:X:-39:DT:H5'	1.87	0.56
8:R:45:VAL:HG12	8:R:46:HIS:CD2	2.40	0.56
3:D:238:TYR:O	3:D:244:LYS:N	2.36	0.56
5:O:61:LEU:O	6:P:36:ARG:NH2	2.35	0.56
1:A:200:THR:HG21	2:B:777:VAL:HA	1.88	0.56
6:P:59:LYS:O	6:P:63:GLU:HG3	2.06	0.56
4:E:37:LYS:HE2	4:E:37:LYS:H	1.70	0.56
7:Q:54:VAL:HG21	8:R:95:VAL:HG21	1.88	0.56
4:E:521:GLN:O	4:E:541:GLN:NE2	2.36	0.56
5:O:83:ARG:HB2	6:P:80:THR:HG22	1.87	0.55
7:Q:112:GLN:HB2	7:Q:115:LEU:HG	1.88	0.55
2:B:684:GLU:HG2	4:E:469:HIS:HA	1.88	0.55
1:A:174:LEU:HD11	2:B:777:VAL:HG21	1.89	0.55
1:A:211:TYR:HB2	4:E:455:ALA:HB3	1.89	0.55
1:A:19:ARG:NH1	1:A:299:LYS:O	2.40	0.55
4:E:322:ILE:HD12	4:E:325:ASN:HD21	1.71	0.55
7:U:63:LEU:HD13	8:V:42:LEU:HB2	1.89	0.55
7:U:17:ARG:NH1	10:Y:-43:DT:OP2	2.40	0.55
9:X:-11:DC:H2'	9:X:-10:DG:C8	2.42	0.54
1:A:189:HIS:HB3	1:A:209:HIS:HB3	1.89	0.54
6:T:68:ASP:OD2	6:T:93:GLN:NE2	2.39	0.54
3:D:277:GLN:OE1	3:D:277:GLN:N	2.34	0.54
1:A:59:LYS:HG3	1:A:60:LYS:HG2	1.89	0.54
2:B:813:GLU:OE1	4:E:48:LEU:HG	2.08	0.54
4:E:47:ASP:O	4:E:49:LYS:N	2.33	0.54
9:X:6:DA:H2	10:Y:-5:DA:H61	1.56	0.54
2:B:1257:MET:SD	2:B:1257:MET:N	2.81	0.54
4:E:335:ILE:HG23	4:E:336:PHE:HD1	1.72	0.54
4:E:495:GLN:HB2	4:E:519:ASN:OD1	2.08	0.54
7:Q:102:ILE:HG23	8:R:58:ILE:HD12	1.88	0.54
6:T:64:ASN:OD1	6:T:67:ARG:NH2	2.41	0.54
1:A:76:GLN:NE2	2:B:773:MET:O	2.33	0.53
1:A:84:ASP:OD2	1:A:88:ARG:NH2	2.39	0.53
4:E:504:LEU:HD11	4:E:506:TYR:OH	2.08	0.53
4:E:399:ASP:OD1	4:E:402:ASN:ND2	2.40	0.53
4:E:415:LEU:HD12	4:E:446:PRO:HB3	1.91	0.53
4:E:447:TRP:HZ2	4:E:468:LEU:HD21	1.73	0.53
7:U:88:ARG:NH2	7:U:100:VAL:O	2.41	0.53
3:D:349:LEU:HA	3:D:352:CYS:HB3	1.90	0.53
4:G:550:ASP:OD1	4:G:550:ASP:N	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:S:51:ILE:HG13	6:T:39:ARG:HD2	1.90	0.53
9:X:16:DA:H1'	9:X:17:DA:C8	2.43	0.53
4:E:47:ASP:C	4:E:49:LYS:H	2.11	0.52
9:X:-2:DC:H2"	9:X:-1:DA:H5"	1.91	0.52
5:O:108:ASN:O	5:O:112:ILE:HG12	2.09	0.52
1:A:26:ASP:HB3	1:A:29:VAL:HG23	1.90	0.52
7:Q:115:LEU:HD22	6:T:44:LYS:HG3	1.91	0.52
2:B:829:GLN:O	2:B:833:THR:HG23	2.10	0.52
2:B:1194:MET:SD	2:B:1194:MET:N	2.83	0.52
4:E:291:ILE:HD13	4:E:297:PRO:HG3	1.92	0.52
4:E:475:TYR:HE1	4:E:491:VAL:HG13	1.75	0.52
4:E:36:PRO:HD2	4:E:37:LYS:HE2	1.92	0.52
4:E:303:CYS:SG	4:E:306:CYS:N	2.82	0.52
5:O:121:PRO:HB3	6:P:53:GLU:HG2	1.92	0.52
1:A:24:PHE:HE1	1:A:142:ALA:HB1	1.75	0.52
9:X:28:DA:H2"	9:X:29:DG:H5"	1.90	0.52
4:E:44:VAL:O	4:E:51:ARG:NH1	2.40	0.51
4:E:300:ASP:OD1	4:E:300:ASP:N	2.43	0.51
4:E:372:TYR:OH	4:E:496:ARG:NH1	2.43	0.51
4:E:512:ILE:O	4:E:513:GLY:C	2.48	0.51
5:O:107:THR:HG21	5:O:124:ILE:HG12	1.93	0.51
10:Y:-6:DT:O2	10:Y:-5:DA:N6	2.43	0.51
2:B:843:GLU:HA	2:B:846:LYS:HB2	1.91	0.51
2:B:937:GLN:NE2	9:X:73:DG:OP1	2.44	0.51
5:S:120:MET:HB2	5:S:122:LYS:HG2	1.92	0.51
1:A:239:ARG:H	1:A:364:ASN:HD21	1.59	0.51
4:E:292:ASP:OD1	4:E:292:ASP:N	2.39	0.51
4:E:351:PHE:HE1	4:E:353:LEU:HD23	1.75	0.51
1:A:41:LYS:HE2	2:B:815:HIS:CD2	2.45	0.50
8:V:36:ILE:HD11	9:X:48:DG:H3'	1.93	0.50
5:O:108:ASN:ND2	6:P:42:GLY:O	2.45	0.50
6:P:50:ILE:O	6:P:54:THR:HG22	2.12	0.50
9:X:-64:DA:H2"	9:X:-63:DT:H72	1.91	0.50
9:X:35:DT:H2"	9:X:36:DA:C8	2.46	0.50
5:S:133:GLU:OE1	6:T:95:ARG:NH2	2.45	0.50
2:B:978:ASP:OD1	2:B:1311:HIS:ND1	2.45	0.50
5:S:63:ARG:HB2	5:S:66:PRO:HD2	1.94	0.50
4:E:266:CYS:HA	4:E:350:GLN:HG2	1.93	0.49
6:P:97:LEU:HD11	7:U:103:ALA:HB2	1.94	0.49
9:X:15:DT:H2"	9:X:16:DA:C8	2.47	0.49
10:Y:19:DC:H2"	10:Y:20:DG:H8	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:911:GLU:HG3	4:E:39:LEU:HD21	1.93	0.49
9:X:61:DC:H2"	9:X:62:DG:H5"	1.94	0.49
1:A:275:SER:O	1:A:275:SER:OG	2.24	0.49
4:E:264:SER:HB2	4:E:282:PHE:HE1	1.78	0.49
4:E:361:PHE:HB2	4:E:364:VAL:HG23	1.93	0.49
9:X:-27:DC:H2"	9:X:-26:DC:C6	2.48	0.49
2:B:983:ASN:O	2:B:983:ASN:ND2	2.45	0.49
5:O:125:GLN:NE2	6:P:53:GLU:OE2	2.46	0.49
7:Q:63:LEU:HD11	8:R:38:VAL:HG13	1.95	0.49
5:S:62:ILE:O	5:S:93:GLN:NE2	2.41	0.49
6:P:89:ALA:O	6:P:93:GLN:HG3	2.13	0.48
2:B:1139:PHE:HB3	2:B:1290:VAL:HG21	1.95	0.48
4:E:51:ARG:HG3	4:E:53:ILE:HG22	1.96	0.48
8:R:83:ARG:NH2	9:X:-33:DG:OP2	2.47	0.48
5:S:118:THR:HG22	6:T:45:ARG:HD3	1.95	0.48
4:E:342:ASN:OD1	4:E:345:SER:OG	2.31	0.48
2:B:1205:LYS:HD2	2:B:1205:LYS:HA	1.66	0.48
1:A:45:ILE:HG21	1:A:146:ALA:HA	1.96	0.47
1:A:111:PRO:O	1:A:162:TYR:OH	2.31	0.47
2:B:1148:PHE:O	2:B:1152:THR:HG23	2.14	0.47
7:Q:81:ARG:HB2	5:S:58:THR:HG21	1.96	0.47
6:T:87:VAL:HG11	6:T:100:PHE:HB2	1.95	0.47
8:R:54:LYS:HB2	8:R:54:LYS:HE3	1.73	0.47
2:B:831:LEU:HB3	2:B:895:LEU:HD21	1.96	0.47
3:D:393:GLN:CD	3:D:393:GLN:H	2.18	0.47
2:B:1010:LEU:O	2:B:1013:LEU:HG	2.14	0.47
5:O:108:ASN:HB2	6:P:43:VAL:HG22	1.97	0.47
10:Y:35:DC:H2"	10:Y:36:DC:C2	2.49	0.47
1:A:64:TYR:OH	1:A:138:LYS:NZ	2.46	0.47
1:A:371:LYS:O	1:A:375:ASN:ND2	2.47	0.47
7:U:30:VAL:HG11	7:U:51:LEU:HB3	1.97	0.47
2:B:951:GLU:HA	4:E:425:LEU:HD23	1.97	0.47
4:E:465:LYS:NZ	4:E:469:HIS:HB2	2.29	0.47
2:B:981:ASP:OD1	2:B:981:ASP:N	2.45	0.47
4:E:33:LYS:HD3	4:E:33:LYS:HA	1.75	0.47
9:X:-61:DT:H2"	9:X:-60:DA:H5'	1.97	0.47
9:X:3:DC:H2"	9:X:4:DG:C4	2.50	0.47
3:D:253:THR:HA	3:D:327:GLY:HA2	1.97	0.47
8:V:53:SER:HA	8:V:56:MET:HB2	1.97	0.46
1:A:324:PHE:HD1	1:A:334:LEU:HD22	1.79	0.46
2:B:1148:PHE:HZ	2:B:1312:VAL:HG21	1.78	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:S:52:ARG:O	5:S:56:LYS:HG2	2.15	0.46
6:P:62:LEU:O	6:P:66:ILE:HB	2.15	0.46
6:P:79:LYS:N	10:Y:28:DG:OP1	2.36	0.46
2:B:1141:ASN:HD22	2:B:1265:ILE:HG13	1.79	0.46
7:U:91:GLU:O	7:U:95:LYS:HG2	2.15	0.46
1:A:152:ALA:O	1:A:164:ASN:ND2	2.49	0.46
2:B:817:TYR:O	2:B:821:ILE:HG12	2.15	0.46
2:B:822:GLU:HA	2:B:825:LEU:HG	1.98	0.46
9:X:24:DC:H2"	9:X:25:DT:C5	2.50	0.46
10:Y:-32:DC:H2"	10:Y:-31:DA:N7	2.30	0.46
2:B:928:LEU:HB3	2:B:1234:ASN:HD21	1.80	0.46
6:T:30:THR:HG21	10:Y:-13:DA:H5"	1.97	0.46
9:X:-31:DA:H2"	9:X:-30:DA:C8	2.51	0.46
1:A:114:ASP:HB3	2:B:865:LYS:HD3	1.98	0.46
6:P:89:ALA:O	6:P:92:ARG:HG3	2.16	0.46
1:A:107:GLY:HA2	1:A:111:PRO:HA	1.97	0.46
1:A:209:HIS:HE1	1:A:235:ASN:HB3	1.82	0.45
10:Y:-87:DT:H2"	10:Y:-86:DA:C8	2.51	0.45
1:A:175:ARG:H	1:A:175:ARG:HD2	1.81	0.45
2:B:938:ALA:O	2:B:942:LEU:HB2	2.16	0.45
4:E:276:ASP:OD1	4:E:276:ASP:N	2.49	0.45
5:S:121:PRO:HG3	6:T:50:ILE:HA	1.97	0.45
9:X:86:DT:H2"	9:X:87:DA:C8	2.52	0.45
4:E:399:ASP:HB2	4:E:431:PRO:HB3	1.99	0.45
4:E:558:SER:HA	4:E:561:VAL:HG22	1.98	0.45
7:U:70:ALA:O	7:U:74:LYS:N	2.50	0.45
9:X:35:DT:H2"	9:X:36:DA:N7	2.32	0.45
6:P:67:ARG:HA	6:P:70:VAL:HG22	1.99	0.45
4:E:417:CYS:SG	4:E:418:TYR:N	2.89	0.45
4:E:440:CYS:SG	4:E:441:ASP:N	2.89	0.45
2:B:760:LYS:HA	2:B:760:LYS:HD3	1.65	0.45
2:B:1225:GLU:HG2	2:B:1240:TYR:CD2	2.52	0.45
4:E:376:ASN:OD1	4:E:376:ASN:N	2.49	0.45
7:Q:81:ARG:HH22	7:Q:109:PRO:HG3	1.82	0.45
6:T:49:LEU:HD23	6:T:49:LEU:H	1.82	0.45
7:U:90:ASP:HB3	7:U:93:LEU:HB2	1.99	0.45
2:B:1197:ASP:OD1	2:B:1197:ASP:N	2.49	0.45
2:B:1256:LEU:O	2:B:1262:THR:OG1	2.29	0.45
4:E:440:CYS:HB3	4:E:445:THR:H	1.82	0.44
7:Q:16:THR:HA	9:X:-43:DA:H4'	1.99	0.44
5:S:50:GLU:HA	5:S:53:ARG:HG2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:687:LYS:O	2:B:691:LEU:HG	2.17	0.44
2:B:1259:ASP:OD1	2:B:1262:THR:OG1	2.34	0.44
2:B:708:PHE:HE2	4:E:467:PRO:HG2	1.81	0.44
4:E:536:ASP:OD1	4:E:536:ASP:N	2.48	0.44
6:P:53:GLU:O	6:P:57:VAL:HG13	2.17	0.44
10:Y:-77:DC:H2"	10:Y:-76:DG:C8	2.53	0.44
10:Y:61:DA:H2"	10:Y:62:DT:H71	1.99	0.44
1:A:183:ILE:HD12	1:A:298:VAL:HG11	1.99	0.44
2:B:829:GLN:O	2:B:832:GLU:HG2	2.17	0.44
7:Q:63:LEU:HB3	8:R:42:LEU:HD13	1.99	0.44
2:B:996:ILE:HG23	2:B:1007:LYS:HG2	1.98	0.44
5:O:83:ARG:HD3	6:P:80:THR:HG22	1.98	0.44
8:R:104:ALA:O	8:R:108:VAL:HG23	2.18	0.44
2:B:985:PHE:HA	2:B:988:ILE:HG22	1.99	0.44
6:P:87:VAL:HA	6:P:90:LEU:HD12	1.99	0.44
2:B:806:THR:O	2:B:810:ILE:HG22	2.18	0.44
6:P:80:THR:CG2	10:Y:27:DG:H4'	2.46	0.44
8:R:32:GLU:H	8:R:32:GLU:HG3	1.65	0.44
9:X:41:DC:N4	10:Y:-40:DG:H1	2.16	0.44
2:B:698:ASP:N	2:B:698:ASP:OD1	2.51	0.43
2:B:781:GLU:HG2	2:B:782:TRP:CD1	2.53	0.43
2:B:912:TRP:HZ3	4:E:39:LEU:HG	1.83	0.43
4:E:440:CYS:HB2	4:E:466:CYS:HB3	1.99	0.43
1:A:123:SER:OG	1:A:165:ASP:OD2	2.36	0.43
2:B:1010:LEU:HA	2:B:1013:LEU:CD2	2.48	0.43
3:D:248:LEU:HB2	3:D:249:PRO:HD3	2.01	0.43
7:Q:92:GLU:HG3	8:R:103:LEU:HB2	2.00	0.43
9:X:3:DC:H2"	9:X:4:DG:C5	2.53	0.43
2:B:763:THR:OG1	2:B:764:PHE:N	2.50	0.43
3:D:222:LEU:HD23	3:D:222:LEU:H	1.83	0.43
1:A:34:TYR:HD2	1:A:38:HIS:CE1	2.36	0.43
1:A:52:ILE:HG12	1:A:326:THR:HG21	1.99	0.43
6:T:44:LYS:HE2	6:T:44:LYS:HB3	1.78	0.43
7:Q:79:ILE:HD12	7:Q:81:ARG:H	1.83	0.43
6:T:92:ARG:HD3	8:V:97:LEU:HD22	1.99	0.43
2:B:820:TYR:HE1	2:B:869:LYS:HG3	1.83	0.43
4:E:504:LEU:HD12	4:E:539:ILE:HD12	2.00	0.43
5:O:62:ILE:O	5:O:93:GLN:NE2	2.52	0.43
5:S:75:ALA:HB1	5:S:82:LEU:HD23	2.00	0.43
5:O:58:THR:HG21	7:U:81:ARG:HB2	2.00	0.43
5:O:64:LYS:H	5:O:64:LYS:HG2	1.65	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:Q:81:ARG:NH1	7:Q:107:VAL:O	2.41	0.43
9:X:65:DA:H1'	9:X:66:DT:H5'	2.01	0.43
2:B:708:PHE:CE2	4:E:467:PRO:HG2	2.54	0.43
6:P:78:ARG:HG3	10:Y:28:DG:OP1	2.18	0.43
7:U:29:ARG:HG3	7:U:32:ARG:HH21	1.84	0.43
10:Y:27:DG:H2"	10:Y:28:DG:N7	2.34	0.43
1:A:143:VAL:HG22	1:A:307:VAL:HB	1.99	0.43
1:A:239:ARG:HD2	1:A:364:ASN:HA	2.01	0.43
4:E:61:ARG:HD3	4:E:61:ARG:HA	1.85	0.43
9:X:-72:DC:H2"	9:X:-71:DA:C8	2.54	0.43
4:E:511:LYS:HG2	4:E:542:ILE:CD1	2.44	0.43
10:Y:10:DC:H2"	10:Y:11:DG:H5'	2.00	0.43
1:A:47:MET:CE	1:A:315:MET:HB3	2.48	0.42
2:B:710:LEU:HD13	2:B:716:LEU:HD13	2.01	0.42
4:E:542:ILE:HD12	4:E:542:ILE:HA	1.88	0.42
7:U:22:GLY:HA3	8:V:117:LYS:HE3	2.01	0.42
9:X:-69:DG:N2	10:Y:70:DC:O2	2.52	0.42
10:Y:-25:DA:H2"	10:Y:-24:DG:N7	2.34	0.42
2:B:671:LYS:HE2	2:B:671:LYS:HB2	1.72	0.42
3:D:242:ASP:HB3	3:D:244:LYS:HE3	2.01	0.42
4:E:47:ASP:C	4:E:49:LYS:N	2.71	0.42
6:P:35:ARG:O	6:P:39:ARG:HG2	2.19	0.42
1:A:165:ASP:HA	1:A:168:LEU:HB2	2.00	0.42
2:B:843:GLU:HA	2:B:846:LYS:HD3	2.01	0.42
2:B:950:SER:HB2	4:E:414:PHE:HZ	1.84	0.42
7:U:63:LEU:HD11	8:V:38:VAL:HG13	2.01	0.42
1:A:41:LYS:HB3	1:A:41:LYS:HE3	1.75	0.42
2:B:1004:ASN:OD1	2:B:1004:ASN:N	2.52	0.42
4:E:476:LYS:HB3	4:E:476:LYS:HE3	1.77	0.42
7:Q:84:GLN:NE2	7:Q:106:GLY:O	2.53	0.42
2:B:1321:ASP:OD1	2:B:1321:ASP:N	2.44	0.42
3:D:228:LEU:HD13	3:D:332:LEU:HD13	2.02	0.42
4:E:511:LYS:HA	4:E:514:TYR:CD2	2.55	0.42
1:A:170:ILE:HG12	1:A:268:VAL:HG21	2.00	0.42
1:A:37:GLY:O	1:A:280:ARG:NH2	2.53	0.42
2:B:758:LEU:N	2:B:781:GLU:O	2.49	0.42
4:E:498:ILE:HD12	4:E:504:LEU:HA	2.02	0.42
5:S:49:ARG:HD2	9:X:-65:DT:OP1	2.20	0.42
9:X:-24:DT:H2"	9:X:-23:DT:H71	2.00	0.42
6:P:39:ARG:NH1	6:P:44:LYS:O	2.53	0.42
1:A:38:HIS:ND1	1:A:40:MET:O	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:P:96:THR:OG1	7:U:100:VAL:HG22	2.20	0.42
9:X:11:DC:H2'	9:X:12:DG:C8	2.55	0.42
1:A:224:ILE:HG13	1:A:379:ASN:HD21	1.85	0.41
1:A:285:ASN:ND2	1:A:358:SER:O	2.49	0.41
2:B:690:ASN:HD21	4:E:518:GLY:HA2	1.85	0.41
10:Y:-85:DT:H2"	10:Y:-84:DA:C8	2.55	0.41
2:B:700:ASP:OD1	2:B:700:ASP:N	2.52	0.41
2:B:826:ARG:HD3	2:B:829:GLN:HE21	1.84	0.41
6:P:54:THR:HA	6:P:57:VAL:HG22	2.01	0.41
10:Y:-46:DC:H2"	10:Y:-45:DA:N7	2.35	0.41
1:A:279:ASP:OD1	1:A:279:ASP:N	2.53	0.41
5:O:116:ARG:HD2	9:X:-3:DA:H3'	2.02	0.41
6:P:45:ARG:HE	6:P:45:ARG:HB3	1.70	0.41
7:U:92:GLU:HA	7:U:95:LYS:HE3	2.02	0.41
2:B:959:GLN:HE22	2:B:973:SER:HA	1.86	0.41
4:E:35:ARG:HG3	4:E:38:ARG:HB3	2.02	0.41
9:X:-13:DA:H2"	9:X:-12:DA:C8	2.55	0.41
2:B:1320:ASP:OD1	2:B:1320:ASP:N	2.52	0.41
7:Q:26:PRO:HG3	8:R:37:TYR:CE2	2.55	0.41
2:B:912:TRP:HD1	2:B:916:TRP:CH2	2.38	0.41
2:B:972:LYS:HD3	2:B:975:LEU:HD13	2.01	0.41
3:D:254:VAL:HA	3:D:257:VAL:HG12	2.03	0.41
7:U:58:LEU:HD21	8:V:99:LEU:HD21	2.03	0.41
9:X:-40:DC:C6	9:X:-39:DT:H72	2.55	0.41
2:B:952:ILE:HG12	2:B:1301:PHE:HE2	1.86	0.41
6:T:48:GLY:H	9:X:7:DC:P	2.44	0.41
6:T:79:LYS:HB2	6:T:79:LYS:HE3	1.77	0.41
1:A:191:ASP:O	2:B:755:TYR:OH	2.37	0.41
2:B:1266:MET:O	2:B:1270:VAL:HG23	2.20	0.41
2:B:1271:LYS:O	2:B:1271:LYS:NZ	2.39	0.41
4:E:415:LEU:HB2	4:E:446:PRO:HG3	2.02	0.41
10:Y:4:DC:H2"	10:Y:5:DC:C5	2.56	0.41
2:B:993:ASP:O	2:B:997:THR:OG1	2.34	0.41
4:E:424:ARG:HD2	4:E:435:ARG:HG3	2.03	0.41
3:F:353:GLN:HG2	3:F:357:LYS:HE2	2.02	0.41
7:Q:75:LYS:HE2	7:Q:75:LYS:HB3	1.66	0.41
9:X:13:DT:H2"	9:X:14:DT:C6	2.56	0.41
2:B:715:GLU:OE1	2:B:715:GLU:N	2.50	0.40
4:E:340:LEU:HD23	4:E:340:LEU:HA	1.86	0.40
10:Y:-44:DA:H2"	10:Y:-43:DT:C5	2.56	0.40
10:Y:36:DC:H2"	10:Y:37:DC:C5	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:Q:29:ARG:NH2	10:Y:49:DC:OP1	2.49	0.40
3:D:355:LEU:HD23	3:D:356:ILE:HD13	2.02	0.40
9:X:62:DG:H2"	9:X:63:DG:H5'	2.03	0.40
2:B:1138:LEU:HD13	2:B:1269:PHE:CD1	2.57	0.40
2:B:1140:ALA:HB1	2:B:1144:ILE:HG23	2.03	0.40
4:E:398:LEU:HD22	4:E:428:TRP:HH2	1.87	0.40
7:U:26:PRO:HD3	8:V:37:TYR:CG	2.56	0.40
7:U:95:LYS:HG2	7:U:95:LYS:H	1.71	0.40
9:X:-34:DA:H2"	9:X:-33:DG:H8	1.86	0.40
10:Y:8:DC:H2"	10:Y:9:DG:C8	2.57	0.40
2:B:696:ILE:HD11	4:E:517:ASN:HB2	2.03	0.40
3:D:312:LYS:HD2	3:D:312:LYS:HA	1.89	0.40
4:G:327:ILE:O	4:G:331:ASN:ND2	2.55	0.40
9:X:76:DC:H2"	9:X:77:DG:C8	2.56	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	387/433 (89%)	365 (94%)	22 (6%)	0	100	100
2	B	509/1544 (33%)	488 (96%)	21 (4%)	0	100	100
3	D	180/401 (45%)	171 (95%)	9 (5%)	0	100	100
3	F	15/401 (4%)	15 (100%)	0	0	100	100
4	E	278/733 (38%)	256 (92%)	22 (8%)	0	100	100
4	G	14/733 (2%)	13 (93%)	1 (7%)	0	100	100
5	O	94/135 (70%)	92 (98%)	2 (2%)	0	100	100
5	S	94/135 (70%)	92 (98%)	2 (2%)	0	100	100
6	P	77/102 (76%)	76 (99%)	1 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	T	75/102 (74%)	75 (100%)	0	0	100	100
7	Q	105/129 (81%)	101 (96%)	4 (4%)	0	100	100
7	U	105/129 (81%)	102 (97%)	3 (3%)	0	100	100
8	R	89/122 (73%)	87 (98%)	2 (2%)	0	100	100
8	V	90/122 (74%)	88 (98%)	2 (2%)	0	100	100
All	All	2112/5221 (40%)	2021 (96%)	91 (4%)	0	100	100

There are no Ramachandran outliers to report.

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	329/367 (90%)	310 (94%)	19 (6%)	20	53
2	B	482/1399 (34%)	434 (90%)	48 (10%)	7	28
3	D	171/359 (48%)	152 (89%)	19 (11%)	6	23
3	F	18/359 (5%)	18 (100%)	0	100	100
4	E	276/692 (40%)	253 (92%)	23 (8%)	11	37
4	G	18/692 (3%)	18 (100%)	0	100	100
5	O	84/110 (76%)	82 (98%)	2 (2%)	49	79
5	S	84/110 (76%)	81 (96%)	3 (4%)	35	69
6	P	66/78 (85%)	63 (96%)	3 (4%)	27	63
6	T	64/78 (82%)	63 (98%)	1 (2%)	62	86
7	Q	84/101 (83%)	77 (92%)	7 (8%)	11	37
7	U	84/101 (83%)	77 (92%)	7 (8%)	11	37
8	R	78/102 (76%)	72 (92%)	6 (8%)	13	41
8	V	79/102 (78%)	72 (91%)	7 (9%)	9	34
All	All	1917/4650 (41%)	1772 (92%)	145 (8%)	17	41

All (145) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	24	PHE
1	A	31	ASN
1	A	41	LYS
1	A	47	MET
1	A	114	ASP
1	A	119	TYR
1	A	128	MET
1	A	150	HIS
1	A	176	TYR
1	A	191	ASP
1	A	198	TYR
1	A	211	TYR
1	A	222	ARG
1	A	265	SER
1	A	334	LEU
1	A	346	TYR
1	A	347	TYR
1	A	350	ASP
1	A	360	MET
2	B	668	PHE
2	B	669	PHE
2	B	675	TYR
2	B	682	TYR
2	B	684	GLU
2	B	695	ASP
2	B	698	ASP
2	B	709	TYR
2	B	717	PHE
2	B	726	TYR
2	B	756	LYS
2	B	775	TRP
2	B	781	GLU
2	B	800	LYS
2	B	815	HIS
2	B	817	TYR
2	B	819	PHE
2	B	826	ARG
2	B	841	MET
2	B	868	ARG
2	B	907	ARG
2	B	916	TRP
2	B	927	SER

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Mol	Chain	Res	Type
2	B	935	PHE
2	B	956	LYS
2	B	962	LYS
2	B	972	LYS
2	B	983	ASN
2	B	986	TYR
2	B	1003	SER
2	B	1004	ASN
2	B	1020	LEU
2	B	1026	PHE
2	B	1136	PHE
2	B	1144	ILE
2	B	1149	ARG
2	B	1164	MET
2	B	1167	ARG
2	B	1171	GLU
2	B	1180	PHE
2	B	1204	TYR
2	B	1237	PHE
2	B	1243	ASP
2	B	1261	LYS
2	B	1286	TYR
2	B	1294	MET
2	B	1308	ARG
2	B	1322	LEU
3	D	222	LEU
3	D	230	SER
3	D	248	LEU
3	D	261	TYR
3	D	267	GLN
3	D	269	LEU
3	D	288	TYR
3	D	296	MET
3	D	300	ARG
3	D	305	GLN
3	D	324	ARG
3	D	344	SER
3	D	347	MET
3	D	352	CYS
3	D	362	PHE
3	D	373	TYR
3	D	381	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	D	386	LEU
3	D	401	MET
4	E	35	ARG
4	E	37	LYS
4	E	42	GLN
4	E	46	TYR
4	E	50	ARG
4	E	52	LYS
4	E	262	PHE
4	E	304	ASN
4	E	311	PHE
4	E	328	LYS
4	E	346	HIS
4	E	351	PHE
4	E	365	LYS
4	E	369	ARG
4	E	398	LEU
4	E	415	LEU
4	E	430	HIS
4	E	497	LEU
4	E	514	TYR
4	E	519	ASN
4	E	544	GLU
4	E	556	TYR
4	E	557	LYS
5	O	59	GLU
5	O	90	MET
6	P	45	ARG
6	P	84	MET
6	P	92	ARG
7	Q	13	LYS
7	Q	17	ARG
7	Q	25	PHE
7	Q	36	LYS
7	Q	39	TYR
7	Q	74	LYS
7	Q	95	LYS
8	R	32	GLU
8	R	48	ASP
8	R	53	SER
8	R	54	LYS
8	R	113	LYS

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Mol	Chain	Res	Type
8	R	118	TYR
5	S	41	TYR
5	S	59	GLU
5	S	63	ARG
6	T	79	LYS
7	U	11	ARG
7	U	15	LYS
7	U	23	LEU
7	U	56	GLU
7	U	71	ARG
7	U	95	LYS
7	U	99	ARG
8	V	30	ARG
8	V	48	ASP
8	V	56	MET
8	V	88	SER
8	V	105	LYS
8	V	118	TYR
8	V	120	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	293	ASN
1	A	375	ASN
2	B	829	GLN
3	D	295	ASN
4	E	325	ASN
4	E	346	HIS
8	R	46	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

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.

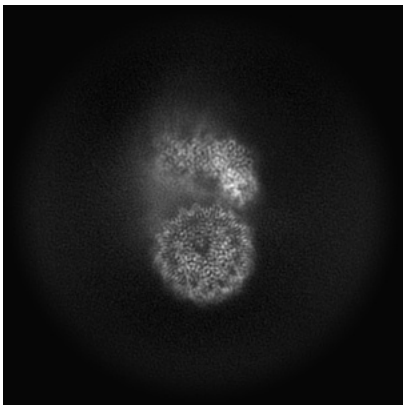
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-37122. These allow visual inspection of the internal detail of the map and identification of artifacts.

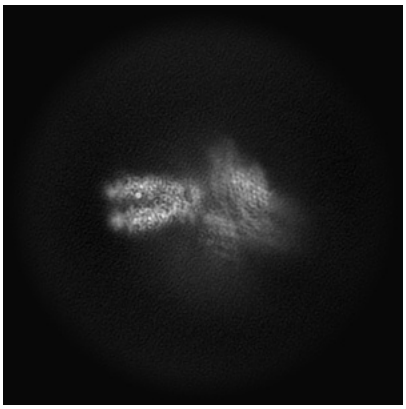
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

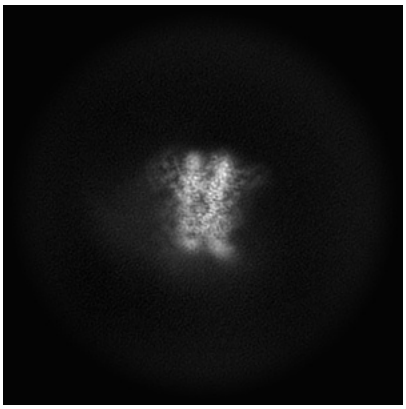
6.1.1 Primary map



X

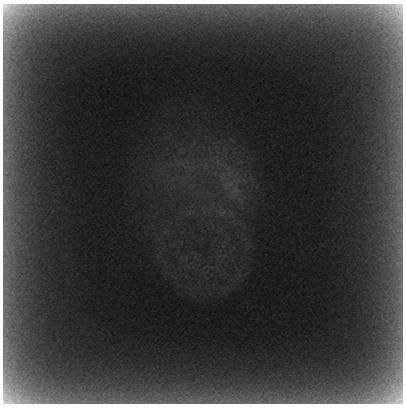


Y

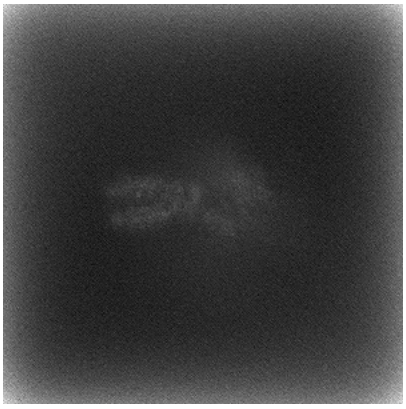


Z

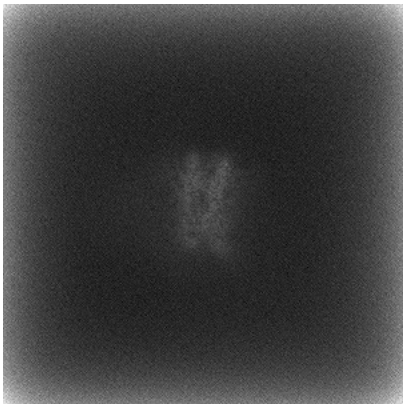
6.1.2 Raw map



X



Y

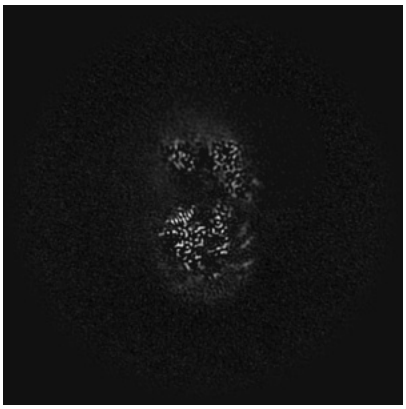


Z

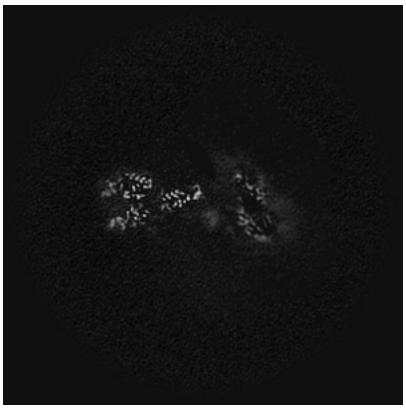
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

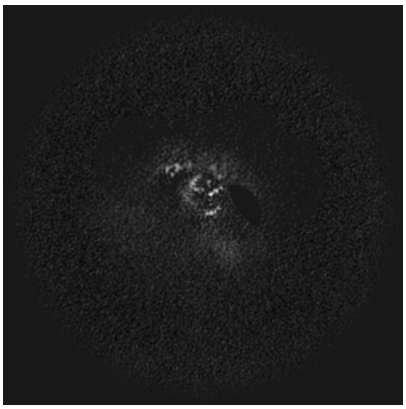
6.2.1 Primary map



X Index: 270

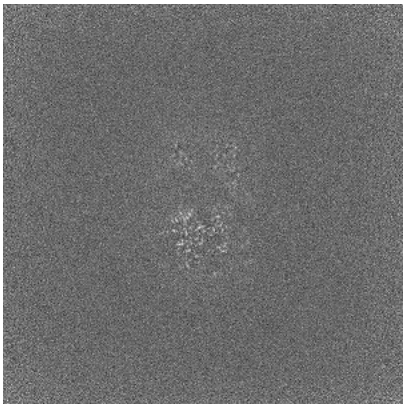


Y Index: 270

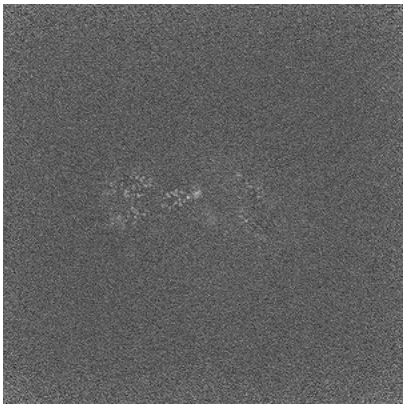


Z Index: 270

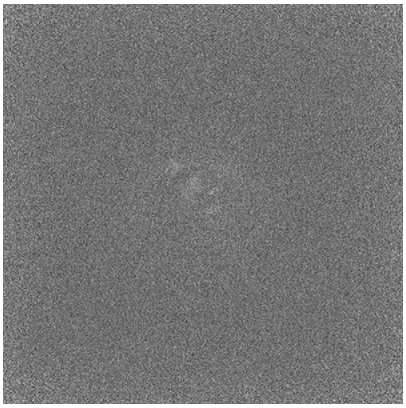
6.2.2 Raw map



X Index: 270



Y Index: 270

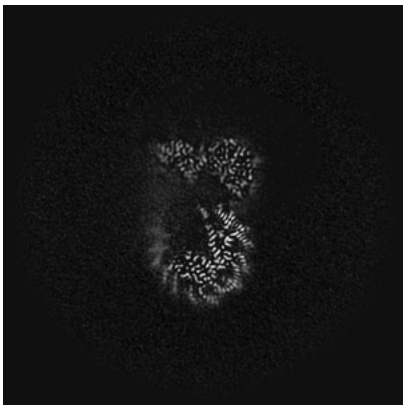


Z Index: 270

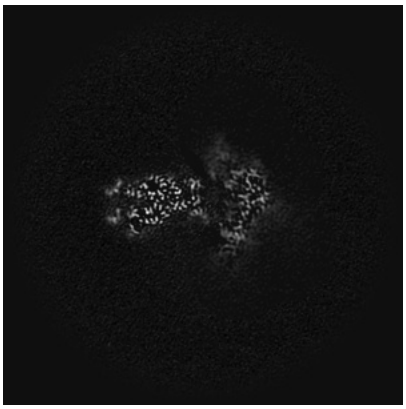
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

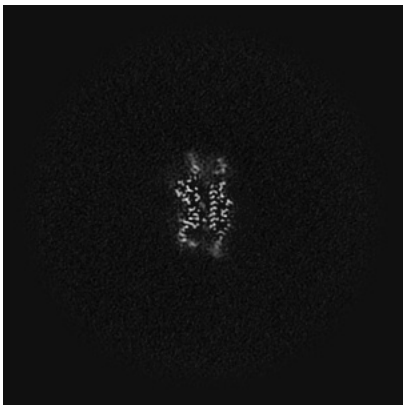
6.3.1 Primary map



X Index: 294

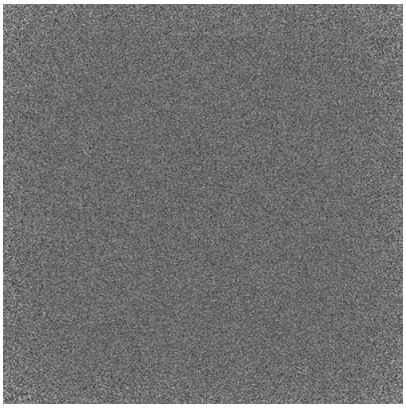


Y Index: 295

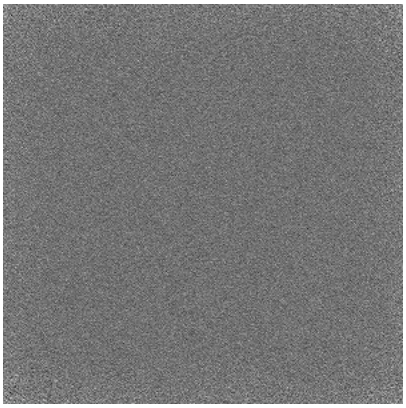


Z Index: 185

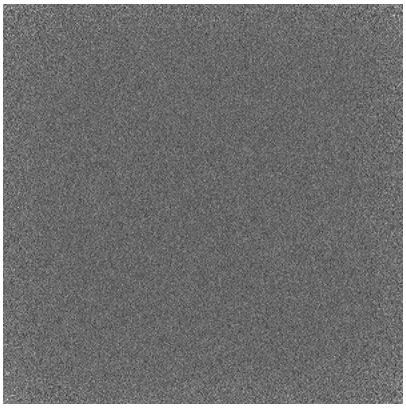
6.3.2 Raw map



X Index: 0



Y Index: 0

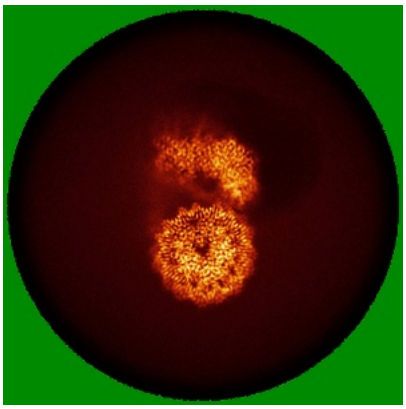


Z Index: 539

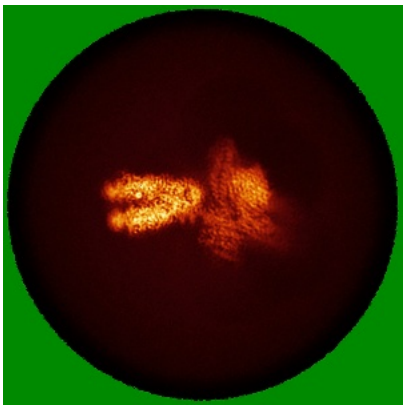
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

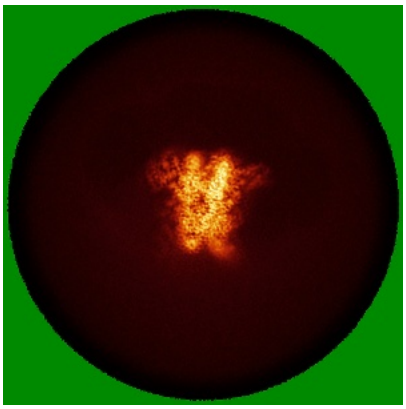
6.4.1 Primary map



X

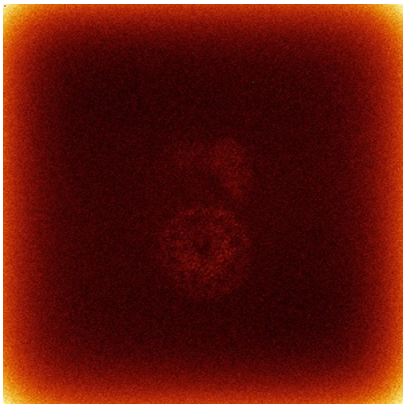


Y

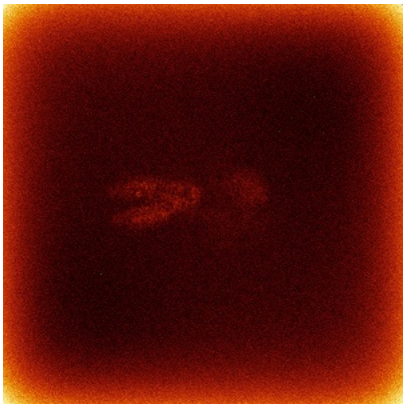


Z

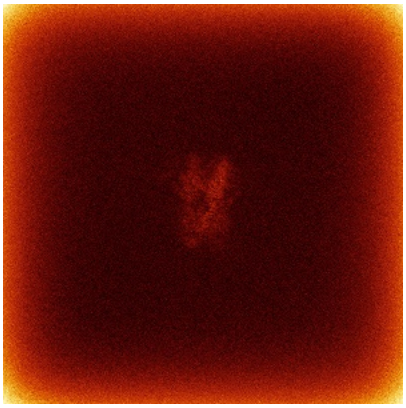
6.4.2 Raw map



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 0.052. 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.

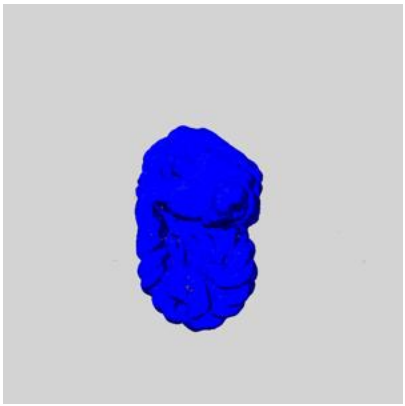
6.6 Mask visualisation

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

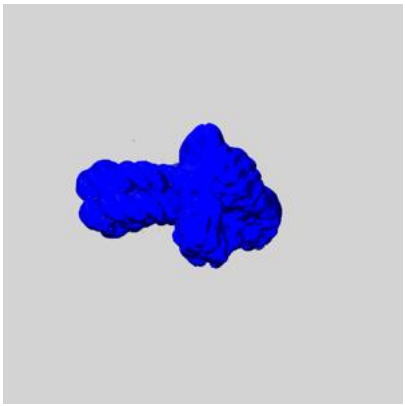
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

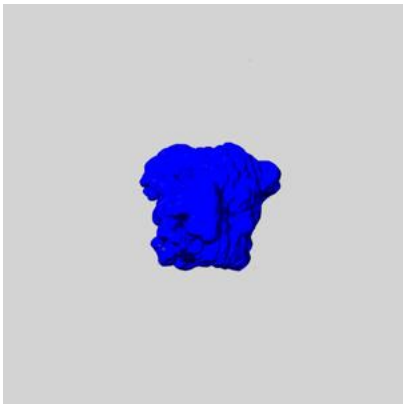
6.6.1 emd_37122_msk_1.map



X



Y

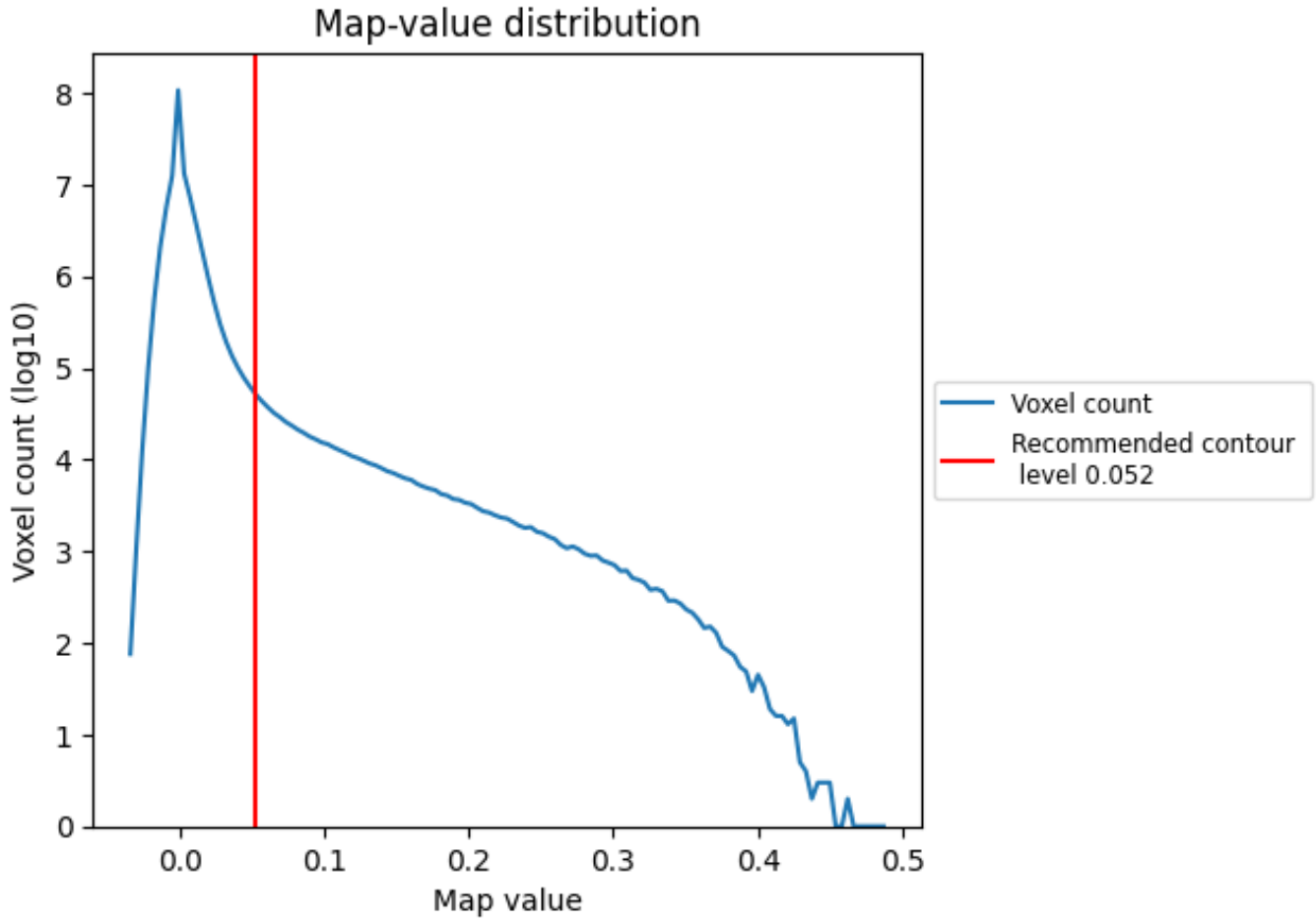


Z

7 Map analysis

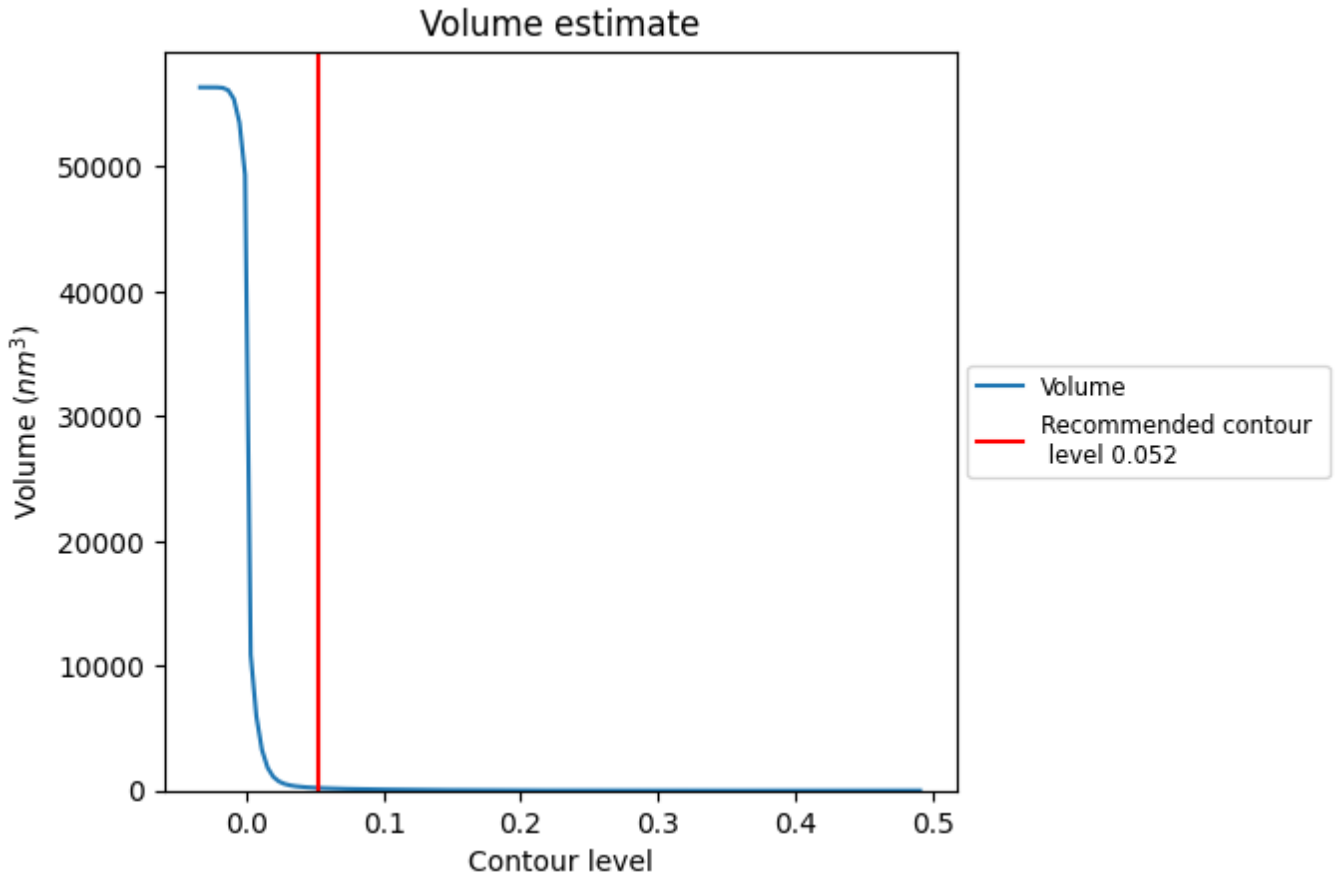
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

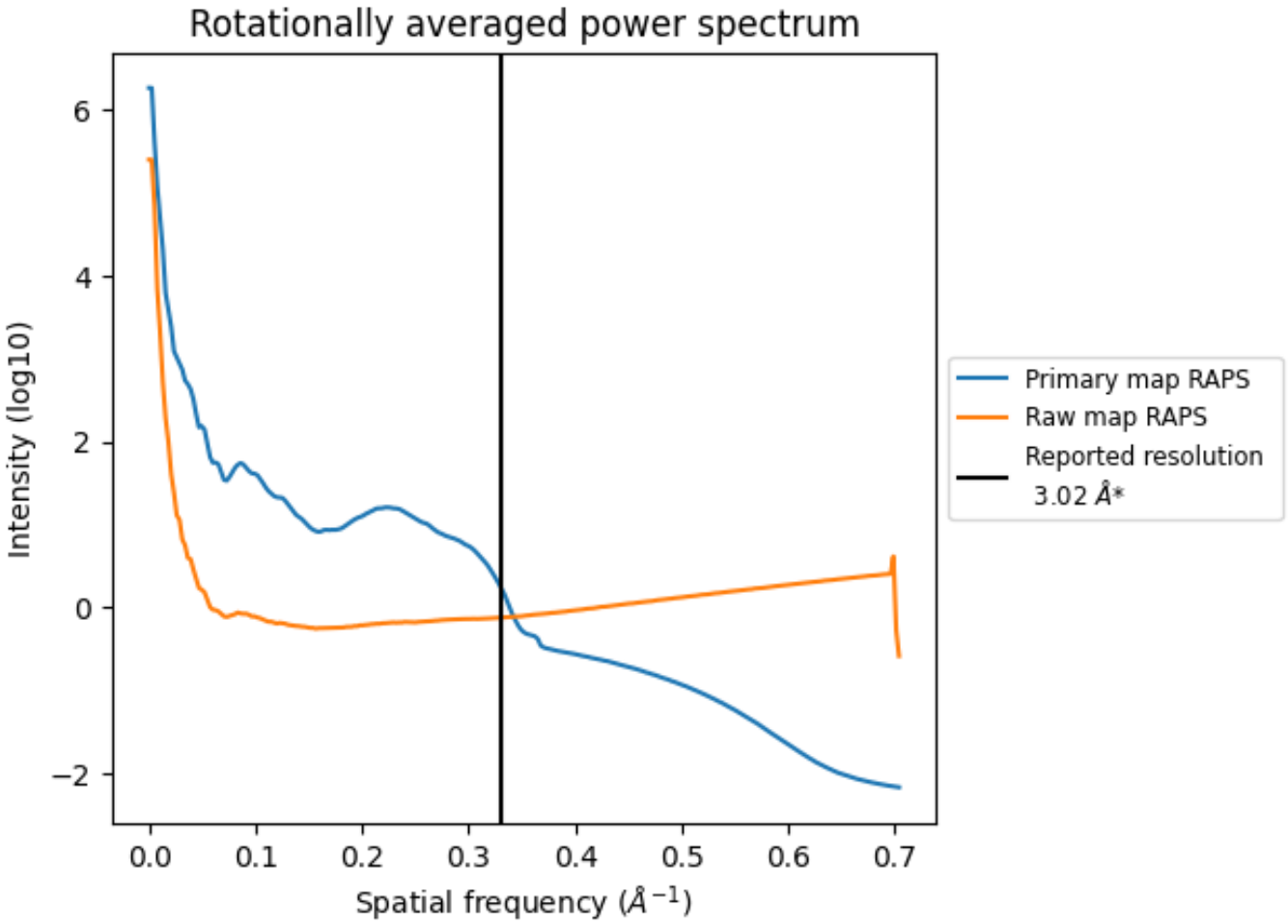
7.2 Volume estimate



The volume at the recommended contour level is 208 nm^3; this corresponds to an approximate mass of 187 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)

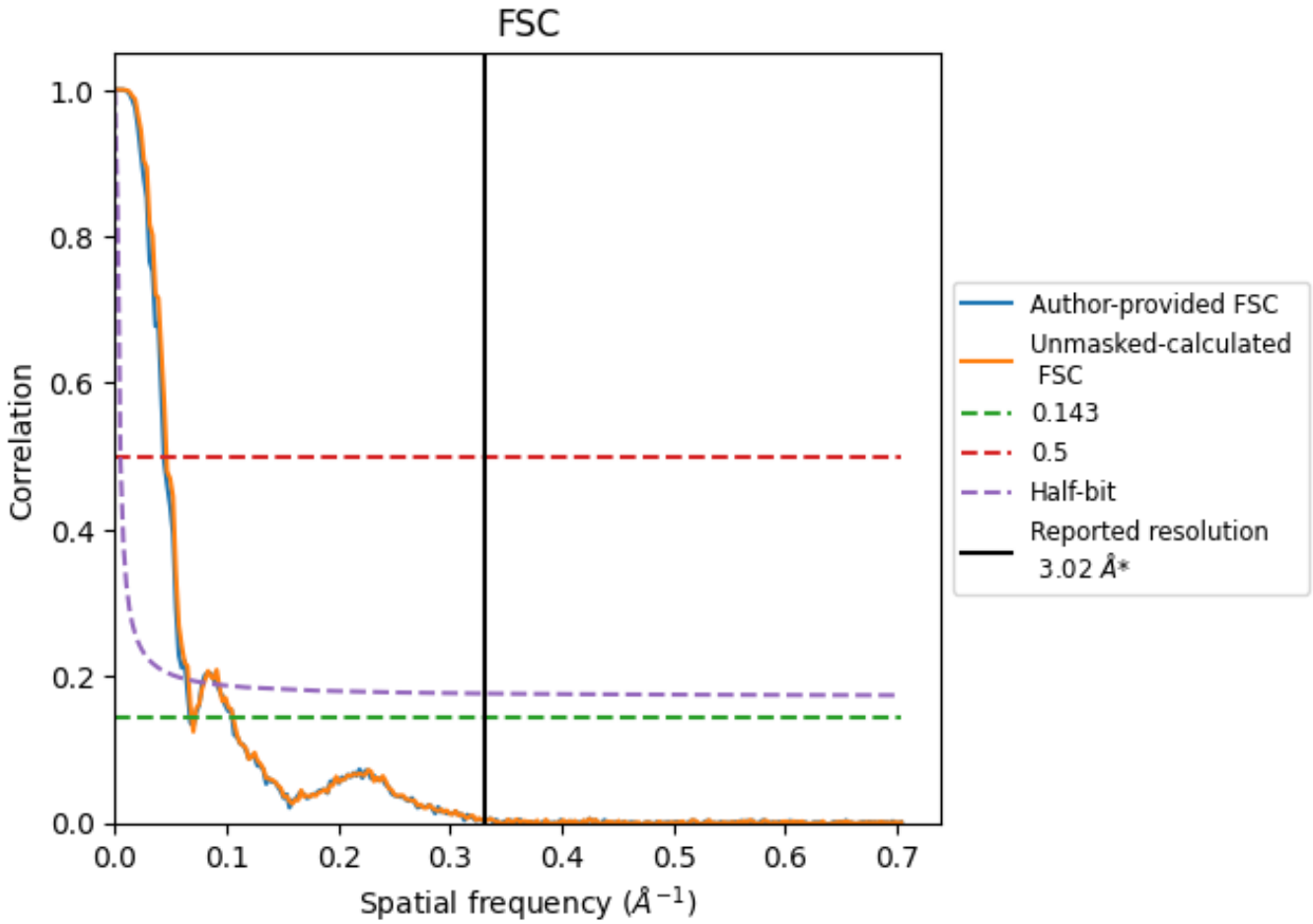


*Reported resolution corresponds to spatial frequency of 0.331 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.331 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.02	-	-
Author-provided FSC curve	14.84	22.68	15.58
Unmasked-calculated*	14.49	21.55	15.13

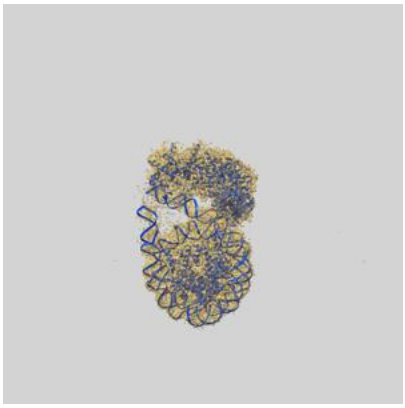
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 14.84 differs from the reported value 3.02 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 14.49 differs from the reported value 3.02 by more than 10 %

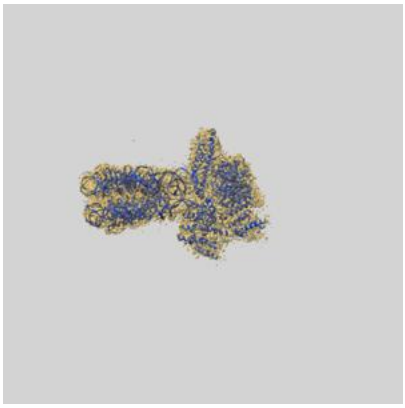
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-37122 and PDB model 8KD2. Per-residue inclusion information can be found in section 3 on page 9.

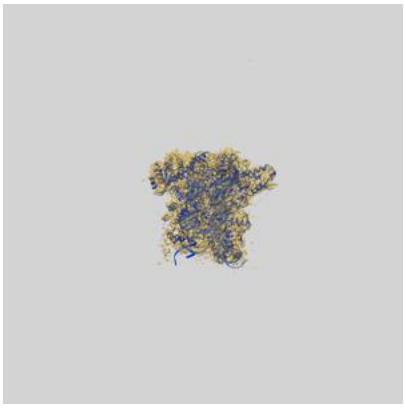
9.1 Map-model overlay



X



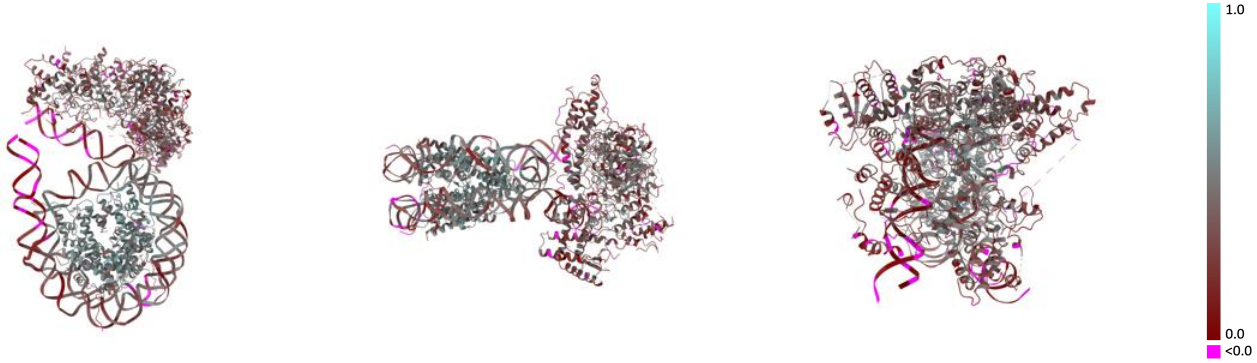
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.052 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.

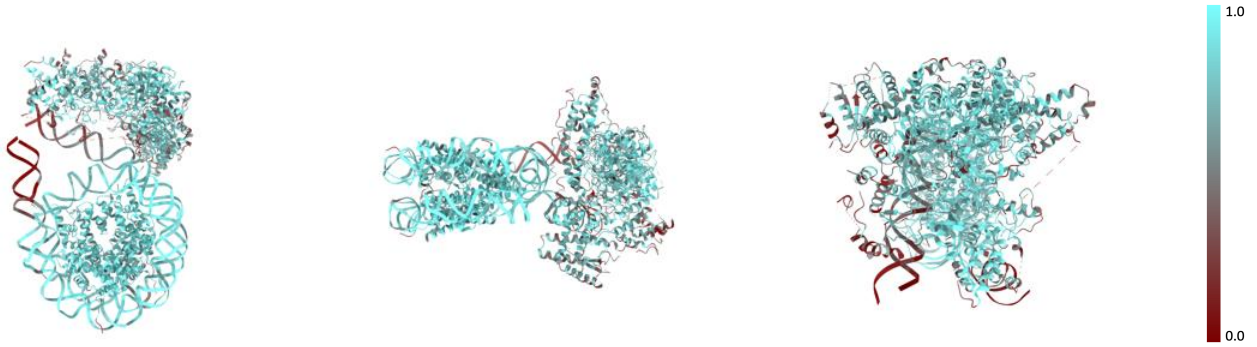
9.2 Q-score mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according 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.

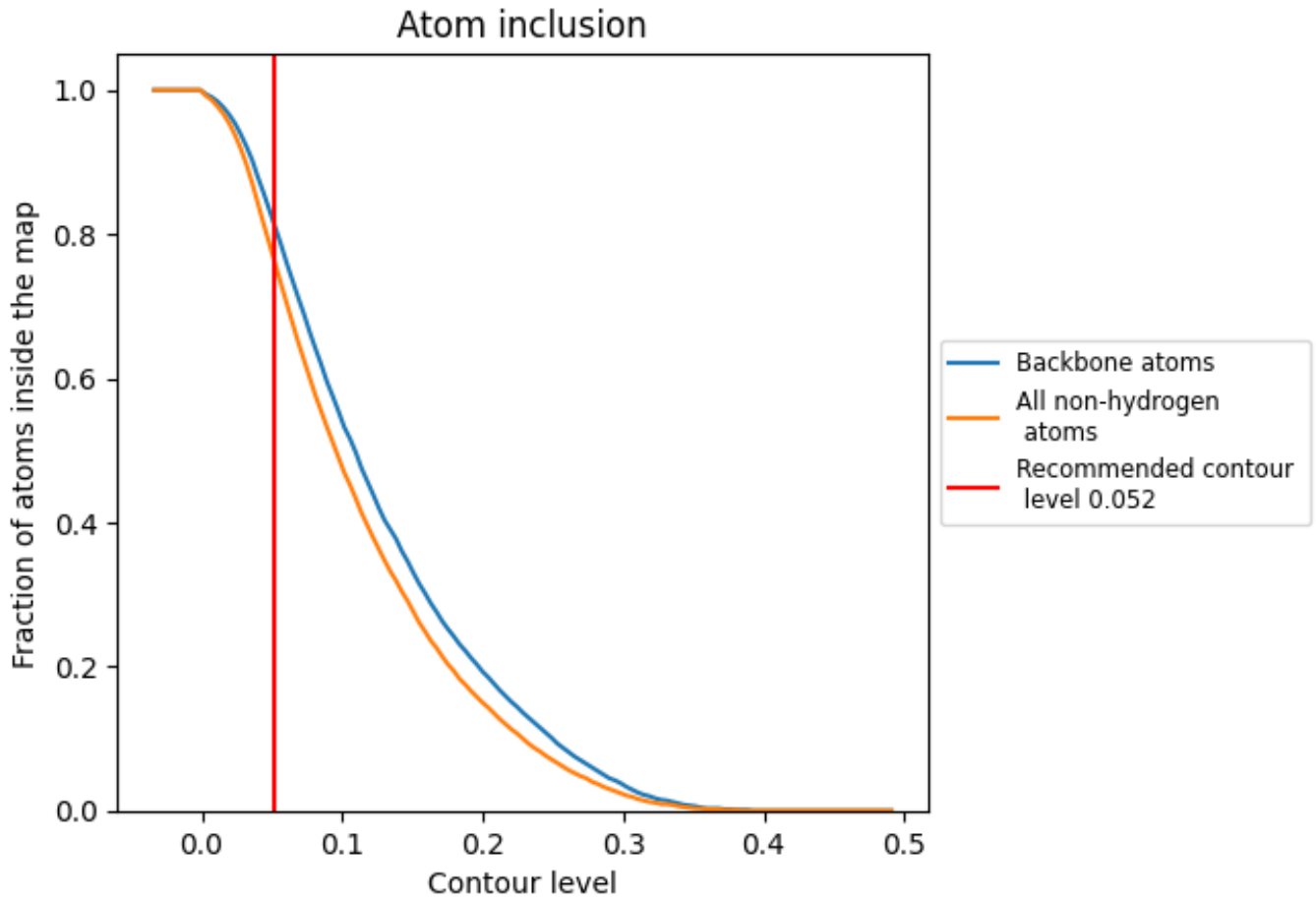
9.3 Atom inclusion mapped to coordinate model



X Y Z

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 (0.052).

9.4 Atom inclusion (i)



At the recommended contour level, 81% of all backbone atoms, 76% 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 (0.052) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7610	0.3500
A	0.8030	0.3670
B	0.6590	0.2990
D	0.7760	0.3470
E	0.6730	0.2890
F	0.3080	0.1510
G	0.2700	0.1550
O	0.9020	0.5260
P	0.8890	0.5200
Q	0.8560	0.4880
R	0.8800	0.4760
S	0.9020	0.5080
T	0.9060	0.5100
U	0.8950	0.4870
V	0.8890	0.5050
X	0.7490	0.2720
Y	0.7490	0.2820