



Full wwPDB EM Validation Report ⓘ

Mar 5, 2026 – 11:15 AM UTC

PDB ID : 7PYJ / pdb_00007pyj
EMDB ID : EMD-13717
Title : CryoEM structure of E.coli RNA polymerase elongation complex bound to NusA (NusA elongation complex in less-swiveled conformation)
Authors : Zhu, C.; Guo, X.; Weixlbaumer, A.
Deposited on : 2021-10-10
Resolution : 4.20 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.dev132
MolProbity : 4-5-2 with Phenix2.0
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) : 2.49

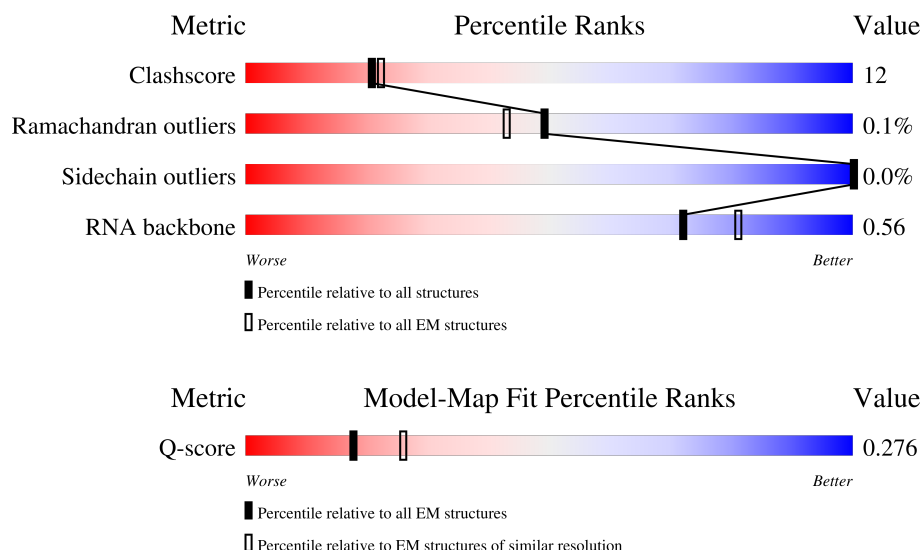
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.20 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.





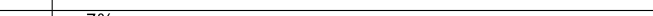



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	5410 (3.70 - 4.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	329	
1	B	329	
2	C	1342	

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Mol	Chain	Length	Quality of chain
3	D	1407	 67% 28% 5%
4	E	91	 7% 67% 32%
5	N	39	 31% 38% 31%
6	R	14	 14% 50% 14% 21%
7	T	39	 38% 38% 23%
8	F	495	 70% 97%

2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 29362 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 alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	229	Total	C	N	O	S	0	0
			1775	1106	313	350	6		
1	B	298	Total	C	N	O	S	0	0
			2076	1286	374	410	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	1341	Total	C	N	O	S	0	0
			10577	6636	1842	2056	43		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	1334	Total	C	N	O	S	0	0
			10375	6519	1850	1957	49		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
4	E	90	Total	C	N	O	S	0	0
			709	430	136	142	1		

- Molecule 5 is a DNA chain called ntDNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	N	27	Total	C	N	O	P	0	0
			554	263	103	161	27		

- Molecule 6 is a RNA chain called RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	R	11	Total	C	N	O	P	0	0
			235	104	42	78	11		

- Molecule 7 is a DNA chain called tDNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	T	30	Total	C	N	O	P	0	0
			611	289	110	182	30		

- Molecule 8 is a protein called Transcription termination/antitermination protein NusA.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	F	495	Total	C	N	O	0	0
			2447	1457	495	495		

- Molecule 9 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
9	D	1	Total	Mg	0
			1	1	

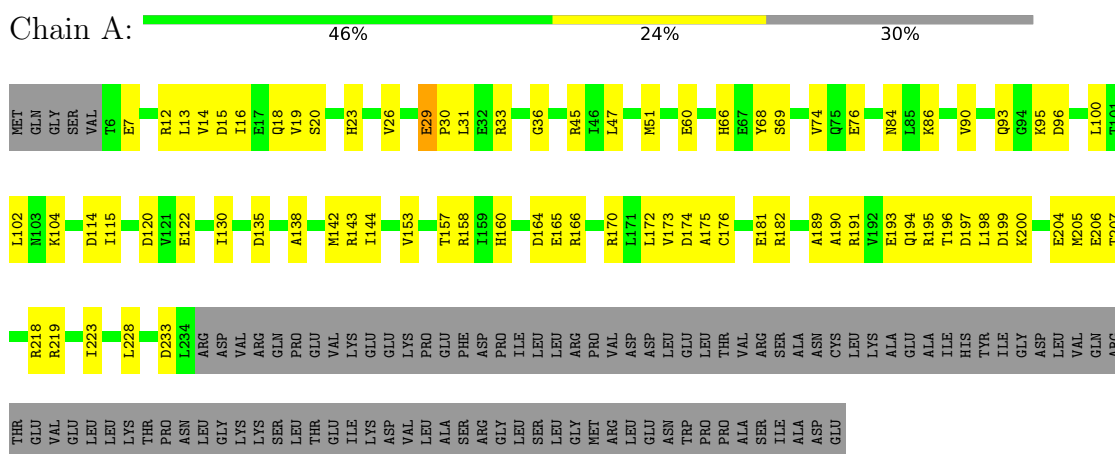
- Molecule 10 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
10	D	2	Total	Zn	0
			2	2	

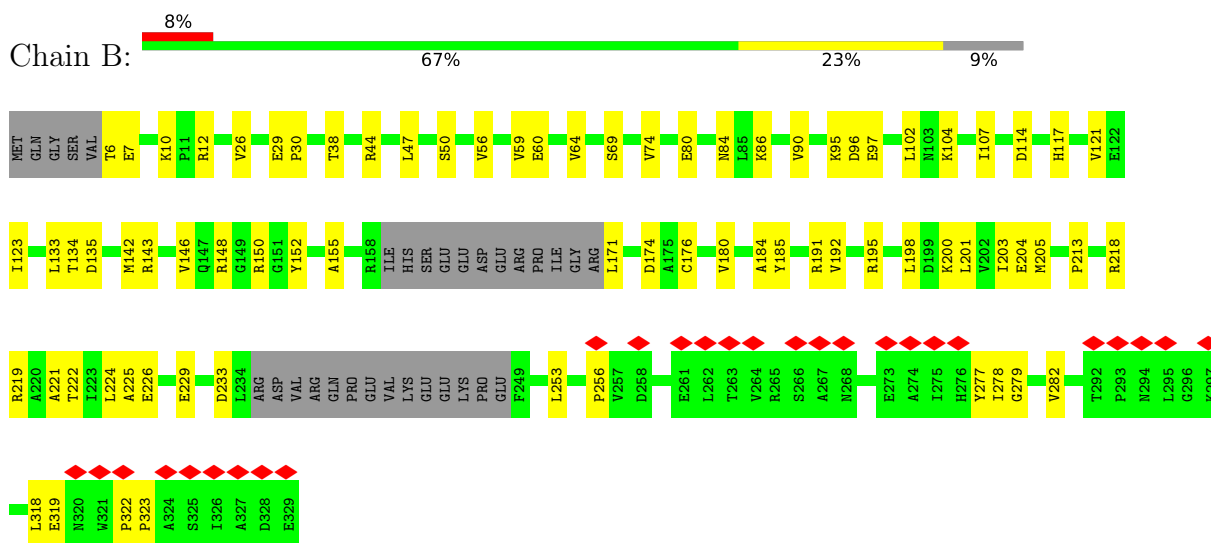
3 Residue-property plots

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 alpha



- Molecule 1: DNA-directed RNA polymerase subunit alpha



- Molecule 2: DNA-directed RNA polymerase subunit beta



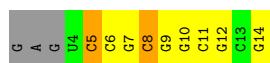
Q1257	S1165	K1051	K914	L783	L644	L309	D199	V98	MET
K1262	E1168	M1066	D915	D785	M653	I310	R200	V2	V3
F1265	R1177	H1070	Q932	G786	S656	N314	E202	R101	S4
Q1268	K1178	G1071	V933	P787	T657	E458	K203	R107	T6
R1269	T1182	N1072	F934	S788	Q658	M459	A206	K115	E7
E1272	A1183	K1073	V939	D790	Q659	L468	I209	K118	K8
M1273	T1184	S1077	R944	E793	V661	K324	A212	E121	R12
Y1281	F1185	E1083	L794	A795	D674	I333	E212	E126	K13
G1282	V1186	D1084	D959	L796	R678	E334	V228	V122	D14
D1287	F1187	M1085	L960	G797	R678	G344	F230	Y123	K17
L1286	G1189	D1088	L971	Q798	M681	Y346	E240	G125	P19
Q1288	E1192	E1089	S973	R801	N684	S348	E244	E126	Y26
E1289	A1193	N1090	S973	P806	R687	S349	E244	L129	L27
M1290	E1194	G1091	R974	W807	R687	T350	R245	M130	L28
L1291	I1195	P1093	R976	N808	R687	K527	L246	T131	S29
K1294	K1196	V1094	L979	G809	T692	R352	R247	D132	I30
S1295	E1197	D1095	L979	Y810	L693	L533	G248	N133	Q31
D1296	L1198	D1095	L979	N811	R694	R359	E249	N139	F35
L1201	L1201	L1101	E985	F812	R694	R540	E249	G140	F35
R1301	Q1209	S1105	K988	S815	P699	M370	T250	T141	L49
H1313	T1210	R1106	L989	I816	V700	R371	F253	E142	E50
Q1314	R1211	L1117	L992	L817	G701	T377	D254	Q148	F53
M1315	Y1213	G1118	P993	R827	E705	A380	I255	L149	R54
F1322	T1217	M1119	R994	S840	R706	V558	E256	H150	S55
M1324	G1218	A1120	D995	R841	A716	L571	G259	P153	V57
V1325	E1219	A1121	Q997	D842	V717	D396	V261	G154	P58
L1326	Q1220	K1127	L1000	T843	A718	L575	Y262	I59	I59
L1327	V1225	I1128	L1000	K844	V723	A399	V263	K161	Q60
K1328	T1226	N1129	D1004	L845	W723	M403	K163	G162	S61
E1329	T1227	A1130	L1004	G846	Y726	F586	R268	K163	G64
I1330	V1227	Q1134	L1021	P847	I726	F405	I269	K169	N65
R1331	G1228	Q1135	L1021	E848	I732	N406	T270	V170	S66
S1332	Y1229	Q1136	E1024	E849	V733	R407	H273	L171	E67
L1333	M1230	L1141	K1028	L850	M741	V594	I277	L177	L68
G1334	Y1231	R1142	L1028	D853	Y741	R411	L277	Q69	Q69
M1232	M1232	E1143	E1030	L862	Y751	E412	V282	V71	Y70
N1336	L1233	F1144	A1031	L862	Y751	E413	K283	R180	V71
I1337	K1234	I1145	K1031	L865	Y756	I414	E183	Y73	S72
E1338	D1240	K1032	R1034	D866	T757	D423	L184	L184	Y73
E1342	K1242	R1147	A1034	G869	S759	D424	F188	F188	F80
	M1243	A1153	K1035			I425	D189	D189	C85
	H1244		D1040	T888	I765	I426	P190	P190	
	A1245	R1156	V1046	P889	N766	D427	Y301	N193	R88
	R1246	Q1157	L1047	K890	P776	H447	I302	N193	A94
	S1252	V1159	K1048	E908		L448	D303	F195	P95
		L1161	I1049	K909	D781				L96
	Q1256		V1050	A910	S642		E209	T109	R97

• Molecule 3: DNA-directed RNA polymerase subunit beta'

Chain D: 

MET																									E16	F17	D18	A19	I20	K21	A22	A23	S24	F35	G36	E37	K40	T43	I44	N45	Y46	R47	P51	G55	I61	F62	D67	C70	K74	L78	R81	Q94	T95	K96	V97	R98
	M102	G103	H104	I105	E106	H113	L114	W115	P121	S122	R123	P131	L132	R133	D134	R137	F141	I142	S143	Y144	E148	M151	L154	E155	R156	Q157	Q158	I159	L160	T161	Q164	F172	E175	M180	G181	A182	Q186	L187	L188	S191	M192	D193	L194	E211												
R214	L224	K233	P234	E235	R236	M237	L238	L239	L242	P243	V244	L245	P246	R250	V253	P254	L255	F260	L268	Y269	R270	N276	D289	V292	R297	Q300	L306	G310	R314	A315	I316	T317	G318	S319	R320	K321	R322	R339	L343	R346																

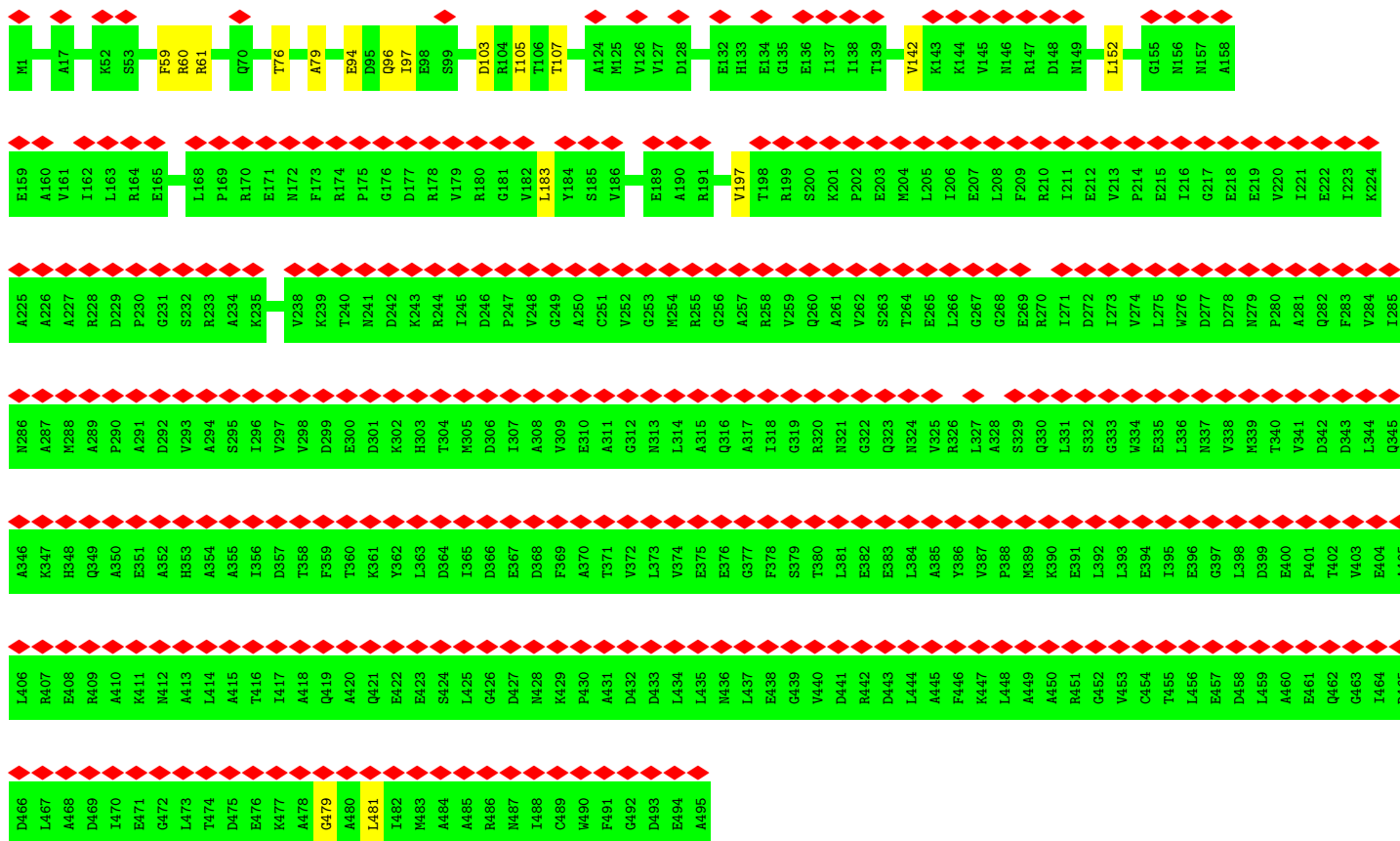




• Molecule 7: tDNA



• Molecule 8: Transcription termination/antitermination protein NusA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	36328	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	1.022	Depositor
Minimum map value	-0.358	Depositor
Average map value	0.006	Depositor
Map value standard deviation	0.053	Depositor
Recommended contour level	0.2	Depositor
Map size (\AA)	305.2, 305.2, 305.2	wwPDB
Map dimensions	280, 280, 280	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.09, 1.09, 1.09	Depositor

5 Model quality

5.1 Standard geometry

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	A	0.15	0/1797	0.39	0/2436
1	B	0.15	0/2094	0.39	0/2852
2	C	0.15	0/10746	0.36	0/14499
3	D	0.14	0/10532	0.36	0/14221
4	E	0.14	0/711	0.36	0/956
5	N	0.23	0/620	0.44	0/952
6	R	0.16	0/261	0.38	0/405
7	T	0.24	0/683	0.45	0/1051
8	F	0.14	0/2446	0.40	2/3406 (0.1%)
All	All	0.15	0/29890	0.37	2/40778 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
2	C	0	1
8	F	0	1
All	All	0	3

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	F	479	GLY	CA-C-N	-5.44	114.40	122.56
8	F	479	GLY	C-N-CA	-5.44	114.40	122.56

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	29	GLU	Peptide
2	C	57	PHE	Peptide
8	F	481	LEU	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1775	0	1800	57	0
1	B	2076	0	1885	57	0
2	C	10577	0	10591	265	0
3	D	10375	0	10599	280	0
4	E	709	0	719	21	0
5	N	554	0	305	17	0
6	R	235	0	120	16	0
7	T	611	0	337	14	0
8	F	2447	0	1180	8	0
9	D	1	0	0	0	0
10	D	2	0	0	0	0
All	All	29362	0	27536	678	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 12.

All (678) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:95:LYS:HZ2	1:A:96:ASP:H	1.22	0.88
3:D:845:ALA:HB3	3:D:881:LYS:HG2	1.65	0.79
3:D:156:ARG:NH2	3:D:192:MET:SD	2.57	0.77
4:E:66:VAL:HG12	4:E:70:GLN:HE22	1.49	0.77
2:C:1101:LEU:HD23	3:D:725:MET:HE3	1.66	0.77
5:N:35:DC:N3	7:T:5:DG:N1	2.28	0.77
3:D:506:VAL:HG23	3:D:628:GLY:HA3	1.66	0.76
2:C:678:ARG:HE	2:C:1106:ARG:HG2	1.50	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:592:ARG:HB2	2:C:653:MET:HB3	1.67	0.74
2:C:60:GLN:HB3	2:C:67:GLU:HG3	1.69	0.74
2:C:932:GLN:HB2	2:C:1051:LYS:HB2	1.70	0.73
2:C:1244:HIS:HB2	2:C:1262:LYS:HE2	1.70	0.72
5:N:35:DC:O2	7:T:5:DG:N2	2.16	0.72
3:D:964:LYS:HB3	3:D:977:SER:HB2	1.71	0.71
2:C:815:SER:HB2	2:C:1077:SER:HB3	1.72	0.71
3:D:1046:ILE:HD12	3:D:1059:LEU:HD11	1.73	0.71
3:D:1149:ARG:HH22	3:D:1218:HIS:H	1.38	0.71
2:C:1066:MET:HE1	2:C:1234:LYS:HG3	1.73	0.70
1:A:153:VAL:HB	1:A:175:ALA:HB3	1.71	0.70
2:C:59:ILE:HD12	2:C:68:LEU:HD11	1.74	0.70
2:C:808:ASN:H	3:D:633:ALA:HB2	1.56	0.70
1:A:182:ARG:NH2	1:A:206:GLU:OE1	2.24	0.69
5:N:37:DG:N2	7:T:3:DC:O2	2.18	0.69
3:D:903:LEU:HD11	3:D:1249:ASN:HD22	1.58	0.68
2:C:972:PHE:HA	2:C:975:ILE:HG12	1.75	0.68
3:D:1261:LEU:HD13	3:D:1304:ARG:HD2	1.76	0.68
2:C:97:ARG:HB3	2:C:121:GLU:HB2	1.76	0.68
1:A:182:ARG:NH1	2:C:1090:ASN:O	2.27	0.68
2:C:1120:ALA:HB1	2:C:1198:LEU:HD22	1.76	0.67
3:D:1028:ILE:HG12	3:D:1120:THR:HA	1.76	0.67
3:D:656:GLU:O	3:D:659:ALA:HB3	1.94	0.67
1:A:157:THR:O	1:A:160:HIS:ND1	2.28	0.67
8:F:61:ARG:HA	8:F:94:GLU:HA	1.78	0.66
2:C:31:GLN:NE2	2:C:527:LYS:O	2.28	0.66
2:C:633:LEU:HG	2:C:644:LEU:HD22	1.78	0.66
3:D:160:LEU:HD23	3:D:164:GLN:HB3	1.77	0.66
3:D:836:ARG:NH1	3:D:837:ASP:OD1	2.29	0.66
5:N:37:DG:N1	7:T:3:DC:N3	2.31	0.66
2:C:230:PHE:HB2	2:C:333:ILE:HB	1.77	0.66
1:A:195:ARG:HB3	1:A:198:LEU:HD23	1.78	0.66
2:C:58:PRO:HA	2:C:68:LEU:O	1.96	0.65
2:C:841:ARG:HA	2:C:1046:VAL:HA	1.78	0.65
2:C:256:GLU:HA	2:C:261:VAL:HA	1.78	0.65
3:D:1173:ARG:NH2	3:D:1194:ARG:O	2.27	0.65
4:E:4:VAL:HG13	4:E:5:THR:HG23	1.77	0.65
3:D:1078:LEU:HG	3:D:1101:LEU:HD11	1.78	0.65
2:C:142:GLU:HB3	2:C:515:MET:HE2	1.77	0.65
3:D:1168:GLU:O	3:D:1174:ARG:NH1	2.29	0.65
3:D:1161:GLY:HA3	3:D:1179:PRO:HA	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:F:183:LEU:HA	8:F:197:VAL:HA	1.79	0.65
2:C:1119:MET:HE3	2:C:1228:GLY:HA2	1.79	0.65
3:D:805:GLN:HB3	3:D:1347:LEU:HD21	1.79	0.64
1:B:10:LYS:O	1:B:12:ARG:NH1	2.30	0.64
2:C:56:VAL:HG21	2:C:468:LEU:HB3	1.79	0.64
2:C:1147:ARG:HB3	2:C:1201:LEU:HD11	1.79	0.64
2:C:1269:ARG:NH1	7:T:19:DG:OP1	2.31	0.64
1:B:60:GLU:O	1:B:143:ARG:NH2	2.30	0.64
2:C:1281:TYR:HA	3:D:431:ARG:HH21	1.61	0.64
3:D:706:VAL:HG12	3:D:715:LYS:HG2	1.80	0.64
3:D:425:ARG:NH2	3:D:457:TYR:O	2.30	0.64
3:D:245:LEU:O	3:D:250:ARG:NH1	2.31	0.64
2:C:195:PHE:HB3	2:C:203:LYS:HB2	1.79	0.63
2:C:758:ARG:NH1	2:C:759:SER:O	2.32	0.63
2:C:810:TYR:HB3	2:C:817:LEU:HD21	1.80	0.63
2:C:1230:MET:HE1	2:C:1232:MET:HE3	1.79	0.63
2:C:848:GLU:HG2	2:C:888:THR:HG22	1.81	0.63
3:D:816:THR:OG1	3:D:818:GLU:OE2	2.17	0.63
3:D:857:LEU:HG	3:D:858:VAL:HG13	1.79	0.63
1:B:107:ILE:HB	1:B:135:ASP:HA	1.81	0.63
2:C:18:ARG:O	2:C:1156:ARG:NH1	2.31	0.63
1:A:23:HIS:HA	1:A:205:MET:O	1.98	0.63
2:C:1240:ASP:O	2:C:1262:LYS:NZ	2.32	0.63
3:D:155:GLU:HB2	3:D:158:GLN:HB2	1.81	0.63
2:C:582:ASN:HB3	2:C:586:PHE:H	1.64	0.62
1:B:6:THR:HG23	1:B:7:GLU:HG2	1.81	0.62
2:C:934:PHE:HB2	2:C:1049:ILE:HB	1.81	0.62
1:A:30:PRO:HB2	1:A:198:LEU:HD12	1.81	0.62
3:D:37:GLU:HG3	3:D:105:ILE:HA	1.82	0.62
3:D:211:GLU:HB3	3:D:214:ARG:HH21	1.64	0.62
3:D:425:ARG:HG2	3:D:427:PRO:HD2	1.81	0.62
4:E:66:VAL:O	4:E:70:GLN:NE2	2.32	0.62
1:A:12:ARG:HE	1:A:13:LEU:H	1.44	0.62
3:D:514:THR:OG1	3:D:576:ARG:NH2	2.33	0.62
3:D:656:GLU:OE2	3:D:692:ARG:NH1	2.33	0.62
2:C:14:ASP:HB3	2:C:1183:ALA:HB3	1.80	0.62
3:D:43:THR:HG22	3:D:44:ILE:HG13	1.82	0.61
3:D:1369:ARG:HE	3:D:1373:ARG:HD3	1.66	0.61
2:C:302:ILE:HA	2:C:309:LEU:HA	1.81	0.61
3:D:559:ALA:HB3	3:D:562:GLU:HB3	1.83	0.61
2:C:255:ILE:HB	2:C:263:VAL:HB	1.83	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:218:ARG:NH1	1:B:233:ASP:OD1	2.33	0.61
3:D:557:LYS:HE3	3:D:561:GLY:HA2	1.81	0.61
2:C:788:SER:O	2:C:795:ALA:N	2.34	0.61
3:D:432:LEU:O	3:D:435:GLN:NE2	2.34	0.60
2:C:19:PRO:HA	2:C:1156:ARG:HD3	1.83	0.60
2:C:866:ASP:HB3	2:C:944:ARG:HH21	1.65	0.60
3:D:1149:ARG:HH12	3:D:1218:HIS:HB2	1.66	0.60
2:C:1342:GLU:HA	3:D:17:PHE:HA	1.83	0.60
3:D:363:LEU:HD21	3:D:618:VAL:HG13	1.84	0.60
3:D:984:LEU:HB3	3:D:993:GLU:H	1.67	0.60
2:C:240:GLU:HA	2:C:284:LEU:HA	1.83	0.59
3:D:863:LEU:HD11	3:D:901:ARG:HB2	1.83	0.59
3:D:1067:ARG:NH2	3:D:1074:LEU:O	2.35	0.59
2:C:411:ARG:NH2	2:C:427:ASP:OD2	2.33	0.59
1:B:318:LEU:HA	1:B:323:PRO:HA	1.85	0.59
2:C:139:ASN:H	2:C:141:THR:HG23	1.67	0.59
3:D:254:PRO:HA	3:D:260:PHE:HD1	1.66	0.59
1:A:45:ARG:NE	1:B:38:THR:OG1	2.30	0.59
1:B:60:GLU:OE2	1:B:171:LEU:N	2.34	0.59
2:C:716:ALA:HB3	2:C:784:ALA:H	1.67	0.59
3:D:576:ARG:NH1	3:D:593:ASN:OD1	2.30	0.59
3:D:1153:PRO:O	3:D:1194:ARG:NH1	2.32	0.58
1:B:47:LEU:HD21	1:B:180:VAL:HG11	1.84	0.58
1:B:117:HIS:HB2	1:B:121:VAL:HG21	1.86	0.58
1:A:164:ASP:HA	1:A:166:ARG:HH21	1.68	0.58
2:C:133:ASN:O	2:C:527:LYS:NZ	2.36	0.58
2:C:49:LEU:HB3	2:C:53:PHE:HE2	1.69	0.58
2:C:706:ARG:NH2	2:C:793:GLU:OE2	2.34	0.58
3:D:640:GLY:N	3:D:643:ASP:OD2	2.32	0.58
3:D:861:ASN:ND2	3:D:861:ASN:O	2.36	0.58
3:D:750:PRO:O	3:D:781:LYS:NZ	2.36	0.58
3:D:885:VAL:HG21	3:D:1255:VAL:HG12	1.85	0.58
3:D:161:THR:H	3:D:164:GLN:HB2	1.69	0.58
3:D:524:GLY:H	3:D:548:VAL:HG22	1.68	0.58
1:A:102:LEU:HB2	1:A:115:ILE:HD13	1.86	0.57
2:C:199:ASP:O	2:C:200:ARG:NE	2.37	0.57
1:B:253:LEU:O	1:B:279:GLY:N	2.37	0.57
3:D:591:ILE:HG23	3:D:592:VAL:HG13	1.84	0.57
3:D:1045:THR:HA	3:D:1067:ARG:HG2	1.84	0.57
3:D:1148:ARG:NH1	5:N:27:DA:O3'	2.38	0.57
3:D:1366:HIS:HA	3:D:1369:ARG:HB3	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:161:LYS:O	2:C:163:LYS:NZ	2.37	0.57
3:D:310:GLY:HA2	3:D:314:ARG:HA	1.87	0.57
3:D:1254:GLU:O	3:D:1257:VAL:HB	2.04	0.57
2:C:88:ARG:NH1	2:C:1040:ASP:OD1	2.37	0.57
3:D:1264:ALA:O	3:D:1278:GLU:N	2.37	0.57
2:C:1269:ARG:HA	3:D:346:ARG:HA	1.86	0.57
3:D:986:ASP:OD2	3:D:992:LYS:NZ	2.35	0.57
2:C:1286:THR:N	3:D:479:GLU:OE2	2.36	0.56
3:D:1257:VAL:O	3:D:1260:MET:HB3	2.05	0.56
5:N:27:DA:H2'	5:N:28:DA:C8	2.40	0.56
1:A:86:LYS:NZ	1:A:176:CYS:SG	2.69	0.56
2:C:862:LEU:HA	2:C:865:LEU:HD13	1.86	0.56
2:C:1142:ARG:NH2	2:C:1165:SER:O	2.38	0.56
3:D:70:CYS:SG	3:D:74:LYS:N	2.78	0.56
3:D:417:ARG:NH1	4:E:43:ASN:O	2.38	0.56
3:D:849:LEU:HB3	3:D:856:ILE:HG13	1.87	0.56
3:D:417:ARG:NH2	4:E:44:ASP:OD1	2.38	0.56
3:D:475:GLU:HG3	4:E:24:ALA:HB1	1.87	0.56
3:D:172:PHE:HB3	3:D:175:GLU:HG3	1.88	0.56
1:B:12:ARG:N	1:B:29:GLU:OE1	2.33	0.56
3:D:553:THR:HG22	3:D:567:THR:HG22	1.86	0.56
2:C:64:GLY:O	2:C:107:ARG:NH2	2.38	0.56
2:C:405:PHE:HZ	2:C:424:ASP:HB3	1.71	0.56
2:C:6:THR:HG21	2:C:781:ASP:HB3	1.88	0.56
2:C:1324:ASN:O	2:C:1327:LEU:HB2	2.06	0.56
3:D:233:LYS:HB2	3:D:236:TRP:CD2	2.41	0.56
1:B:191:ARG:NH1	1:B:192:VAL:O	2.39	0.56
2:C:1282:GLY:HA3	4:E:17:PHE:HE1	1.71	0.56
3:D:156:ARG:NH2	3:D:191:SER:OG	2.38	0.56
3:D:364:HIS:ND1	3:D:438:GLU:OE2	2.32	0.56
3:D:1368:ASP:OD1	3:D:1371:ARG:NH2	2.39	0.56
1:A:84:ASN:ND2	1:A:130:ILE:O	2.39	0.55
3:D:1029:THR:HG22	3:D:1121:LEU:HD21	1.88	0.55
1:A:104:LYS:NZ	1:A:114:ASP:OD2	2.38	0.55
1:B:95:LYS:NZ	1:B:97:GLU:O	2.39	0.55
1:B:319:GLU:N	1:B:322:PRO:O	2.34	0.55
3:D:534:GLU:HA	3:D:537:TYR:HB3	1.88	0.55
3:D:651:HIS:O	3:D:655:SER:N	2.33	0.55
2:C:189:ASP:OD1	2:C:193:ASN:N	2.33	0.55
2:C:765:ILE:HG13	2:C:787:PRO:HG3	1.87	0.55
2:C:790:ASP:N	2:C:793:GLU:O	2.38	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:839:VAL:HG12	3:D:864:LEU:HD22	1.87	0.55
2:C:169:LYS:NZ	2:C:190:PRO:O	2.40	0.55
2:C:1105:SER:OG	3:D:731:ARG:NH2	2.38	0.55
1:A:189:ALA:O	1:A:200:LYS:NZ	2.37	0.55
3:D:824:PRO:HD3	3:D:835:LEU:HD22	1.88	0.55
1:A:31:LEU:HD13	1:A:36:GLY:HA3	1.87	0.55
3:D:36:GLY:HA3	3:D:61:ILE:HD12	1.87	0.55
1:A:13:LEU:HD21	1:A:16:ILE:HD11	1.88	0.55
1:B:226:GLU:O	1:B:229:GLU:HB2	2.07	0.55
2:C:992:LEU:HD12	2:C:996:ARG:HB3	1.87	0.55
2:C:1242:LYS:HD2	3:D:465:GLN:HE21	1.71	0.55
2:C:228:VAL:HG22	2:C:245:ARG:HH11	1.71	0.55
2:C:314:ASN:O	2:C:352:ARG:NH1	2.40	0.55
2:C:853:ASP:OD2	8:F:105:ILE:N	2.40	0.55
2:C:992:LEU:O	2:C:997:TRP:NE1	2.40	0.55
3:D:78:LEU:O	3:D:81:ARG:NH1	2.40	0.54
3:D:1350:ASN:HA	3:D:1353:VAL:HG12	1.88	0.54
1:A:228:LEU:HD21	1:B:224:LEU:HD23	1.89	0.54
3:D:418:GLU:HB2	4:E:45:LYS:HD2	1.89	0.54
1:A:197:ASP:OD1	1:A:197:ASP:N	2.40	0.54
3:D:106:GLU:O	3:D:276:ASN:ND2	2.41	0.54
3:D:1319:PHE:HE1	3:D:1342:ASP:HB2	1.72	0.54
2:C:148:GLN:OE1	2:C:454:ARG:NH1	2.35	0.54
2:C:723:VAL:HA	2:C:776:PRO:HA	1.89	0.54
3:D:721:SER:HA	3:D:724:MET:HE2	1.90	0.54
2:C:718:ALA:HB3	2:C:781:ASP:H	1.72	0.54
3:D:353:SER:O	3:D:465:GLN:HA	2.07	0.54
3:D:604:MET:O	3:D:607:THR:OG1	2.22	0.54
2:C:243:PRO:O	2:C:247:ARG:N	2.41	0.54
2:C:540:ARG:NH2	6:R:11:C:OP2	2.39	0.54
3:D:982:LEU:HD22	3:D:995:TYR:HD2	1.72	0.54
1:B:95:LYS:O	1:B:148:ARG:NH2	2.40	0.54
3:D:143:SER:OG	3:D:160:LEU:O	2.22	0.54
3:D:270:ARG:NH1	7:T:27:DG:O6	2.36	0.54
1:A:165:GLU:OE2	1:A:170:ARG:NH1	2.41	0.53
3:D:586:GLY:HA3	3:D:612:LEU:HD11	1.89	0.53
3:D:849:LEU:HA	3:D:856:ILE:HA	1.89	0.53
1:A:158:ARG:NH1	1:A:173:VAL:O	2.41	0.53
1:B:80:GLU:O	1:B:84:ASN:ND2	2.40	0.53
2:C:656:SER:OG	2:C:657:THR:N	2.39	0.53
3:D:1004:ALA:HB3	3:D:1017:VAL:HA	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:842:ASP:HA	2:C:847:PRO:HA	1.89	0.53
5:N:21:DC:H2'	5:N:22:DT:C2	2.44	0.53
2:C:293:ALA:HA	2:C:317:LEU:HD12	1.91	0.53
3:D:892:PHE:O	3:D:1345:ARG:NH2	2.42	0.53
1:A:7:GLU:O	1:B:150:ARG:NH2	2.42	0.53
1:A:135:ASP:HB3	1:A:138:ALA:HB2	1.90	0.53
1:B:80:GLU:OE1	1:B:80:GLU:N	2.40	0.53
3:D:1266:ILE:HG21	3:D:1269:ALA:HB2	1.89	0.53
7:T:12:DT:H2'	7:T:13:DT:C6	2.43	0.53
2:C:989:LEU:O	2:C:997:TRP:NE1	2.41	0.53
2:C:985:GLU:HG2	2:C:988:LYS:HD3	1.90	0.53
3:D:474:LEU:HD21	4:E:27:ALA:HB3	1.89	0.53
2:C:1225:VAL:HG23	3:D:638:SER:HB2	1.90	0.53
2:C:1272:GLU:HG3	3:D:343:LEU:HB3	1.91	0.53
3:D:268:LEU:HD13	3:D:306:LEU:HA	1.91	0.53
1:A:14:VAL:HG22	1:A:15:ASP:H	1.73	0.52
1:B:74:VAL:HG12	1:B:133:LEU:HB3	1.91	0.52
3:D:824:PRO:HB2	3:D:826:ILE:HG23	1.90	0.52
2:C:198:ILE:H	2:C:201:ARG:HB2	1.74	0.52
2:C:687:ARG:HH22	6:R:12:G:H5''	1.74	0.52
2:C:1329:GLU:O	2:C:1332:SER:OG	2.20	0.52
8:F:59:PHE:HA	8:F:97:ILE:HA	1.91	0.52
3:D:1046:ILE:HG22	3:D:1061:VAL:HG22	1.91	0.52
2:C:1117:LEU:O	2:C:1121:ALA:N	2.33	0.52
3:D:473:THR:HG23	3:D:476:ALA:H	1.75	0.52
8:F:76:THR:H	8:F:79:ALA:HB3	1.75	0.52
1:A:219:ARG:O	1:A:223:ILE:HG12	2.09	0.52
2:C:1331:ARG:HH22	2:C:1338:GLU:HB3	1.75	0.52
3:D:1161:GLY:HA2	3:D:1180:VAL:HG23	1.92	0.52
1:A:29:GLU:HG2	1:A:30:PRO:HD3	1.91	0.52
1:B:26:VAL:HB	1:B:203:ILE:HG12	1.91	0.52
2:C:12:ARG:NH1	2:C:699:LEU:O	2.41	0.52
2:C:95:PRO:HA	2:C:126:GLU:HG2	1.91	0.52
2:C:447:HIS:HE1	2:C:609:ILE:HG22	1.75	0.52
2:C:1177:ARG:HG3	2:C:1178:LYS:HD2	1.92	0.52
2:C:1211:ARG:HE	2:C:1220:GLN:CD	2.18	0.52
3:D:253:VAL:HB	6:R:5:C:C4	2.45	0.52
3:D:123:ARG:HE	3:D:1337:VAL:HG21	1.73	0.52
2:C:1073:LYS:NZ	6:R:14:G:OP1	2.43	0.51
3:D:20:ILE:HD12	3:D:1344:LEU:HD11	1.92	0.51
3:D:417:ARG:HG3	3:D:418:GLU:HG2	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:30:MET:HE1	4:E:37:PRO:HA	1.91	0.51
2:C:49:LEU:HB3	2:C:53:PHE:CE2	2.44	0.51
2:C:542:ARG:HB3	5:N:24:DC:H5''	1.92	0.51
2:C:866:ASP:OD2	2:C:944:ARG:NE	2.42	0.51
2:C:890:LYS:HB2	2:C:914:LYS:H	1.75	0.51
3:D:1076:PRO:HB2	3:D:1101:LEU:HB2	1.92	0.51
2:C:533:LEU:HD21	2:C:571:LEU:HD13	1.92	0.51
3:D:755:ILE:HG13	3:D:757:THR:H	1.75	0.51
2:C:678:ARG:NE	2:C:1106:ARG:HG2	2.24	0.51
3:D:319:SER:H	3:D:322:ARG:HB2	1.76	0.51
5:N:25:DG:H1	7:T:15:DC:H42	1.58	0.51
2:C:1269:ARG:NH2	3:D:339:ARG:O	2.41	0.51
3:D:18:ASP:OD1	3:D:1355:ARG:NH1	2.43	0.51
3:D:18:ASP:OD1	3:D:1369:ARG:NH2	2.44	0.51
3:D:94:GLN:HB2	3:D:96:LYS:HG2	1.93	0.51
4:E:58:LEU:HD12	4:E:59:ILE:HG12	1.92	0.51
5:N:32:DA:H2'	5:N:33:DT:H71	1.92	0.51
2:C:70:TYR:HE2	2:C:73:TYR:HB3	1.75	0.51
3:D:1042:ASP:HA	3:D:1046:ILE:HG13	1.93	0.51
1:A:23:HIS:NE2	1:A:204:GLU:OE2	2.43	0.51
2:C:692:THR:OG1	2:C:694:ARG:O	2.29	0.51
2:C:1030:GLU:OE1	2:C:1033:ARG:NH2	2.43	0.51
3:D:121:PRO:O	3:D:123:ARG:NH1	2.44	0.51
1:B:96:ASP:OD1	1:B:96:ASP:N	2.45	0.51
1:B:97:GLU:HA	1:B:146:VAL:O	2.11	0.51
3:D:1173:ARG:O	3:D:1190:ILE:N	2.45	0.50
6:R:6:C:H2'	6:R:7:G:C8	2.46	0.50
2:C:399:ALA:O	2:C:403:MET:N	2.45	0.50
2:C:473:ARG:HH12	5:N:19:DA:H5'	1.76	0.50
2:C:1119:MET:HG2	2:C:1228:GLY:HA2	1.93	0.50
3:D:422:LEU:HB3	3:D:434:ILE:HD11	1.92	0.50
3:D:749:LYS:N	3:D:753:SER:O	2.39	0.50
3:D:21:LYS:NZ	3:D:1339:GLY:O	2.42	0.50
3:D:515:ARG:NH2	3:D:718:SER:O	2.44	0.50
7:T:7:DA:H2'	7:T:8:DT:H71	1.93	0.50
1:B:86:LYS:NZ	3:D:528:THR:OG1	2.31	0.50
2:C:594:VAL:HG22	2:C:599:VAL:HG13	1.93	0.50
3:D:495:ASN:ND2	3:D:1247:LYS:O	2.44	0.50
2:C:240:GLU:HB3	2:C:284:LEU:HD12	1.94	0.50
2:C:301:TYR:OH	2:C:334:GLU:OE1	2.23	0.50
2:C:406:ASN:HB3	2:C:411:ARG:HB2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:131:PRO:HB2	3:D:133:ARG:HG2	1.93	0.50
3:D:1279:GLN:HB2	3:D:1282:TYR:HD2	1.76	0.50
3:D:1327:GLU:OE1	3:D:1330:ARG:NE	2.34	0.50
1:A:95:LYS:HZ2	1:A:96:ASP:N	2.02	0.50
1:A:174:ASP:OD1	1:A:174:ASP:N	2.44	0.50
2:C:423:ASP:HA	2:C:426:ILE:HD12	1.94	0.50
3:D:186:GLN:HB2	3:D:238:ILE:HG13	1.93	0.50
3:D:527:LEU:HD22	3:D:532:GLU:HG3	1.92	0.50
3:D:666:GLU:HA	3:D:669:GLN:HB2	1.92	0.50
1:B:102:LEU:HD11	1:B:104:LYS:HB2	1.94	0.50
2:C:1134:GLN:HG3	2:C:1136:GLN:HG2	1.94	0.50
1:A:194:GLN:HG2	1:A:195:ARG:HG2	1.94	0.50
2:C:256:GLU:OE1	2:C:259:GLY:N	2.45	0.49
2:C:413:GLU:HG2	2:C:415:GLU:H	1.76	0.49
2:C:959:ASP:OD1	2:C:960:LEU:N	2.45	0.49
2:C:1088:ASP:OD1	2:C:1092:THR:N	2.44	0.49
3:D:638:SER:OG	3:D:639:VAL:N	2.45	0.49
6:R:6:C:H2'	6:R:7:G:H8	1.77	0.49
3:D:1176:VAL:HG22	3:D:1187:GLU:HG2	1.95	0.49
3:D:878:ASP:OD1	3:D:878:ASP:N	2.43	0.49
1:B:59:VAL:H	1:B:171:LEU:HD11	1.77	0.49
1:B:155:ALA:N	1:B:174:ASP:OD1	2.45	0.49
1:A:66:HIS:CD2	1:A:68:TYR:H	2.30	0.49
3:D:661:VAL:HG12	3:D:685:ILE:HD11	1.93	0.49
3:D:1177:ILE:HB	3:D:1186:TYR:HB2	1.95	0.49
2:C:866:ASP:OD1	2:C:869:GLY:N	2.33	0.49
4:E:9:ALA:HB1	4:E:19:LEU:HD11	1.94	0.49
1:A:190:ALA:H	1:A:199:ASP:HA	1.78	0.49
3:D:289:ASP:HA	3:D:292:VAL:HG22	1.95	0.49
3:D:102:MET:HB3	3:D:246:PRO:HG3	1.95	0.49
3:D:423:LEU:HD13	3:D:468:VAL:HG12	1.94	0.49
6:R:11:C:H2'	6:R:12:G:C8	2.48	0.49
1:A:16:ILE:HG23	1:A:26:VAL:HG22	1.95	0.49
2:C:1273:MET:SD	2:C:1273:MET:N	2.86	0.49
3:D:40:LYS:HB2	3:D:55:GLY:HA2	1.93	0.49
3:D:144:TYR:O	3:D:160:LEU:N	2.37	0.49
3:D:847:ASP:N	3:D:847:ASP:OD1	2.44	0.49
2:C:183:TRP:N	2:C:199:ASP:OD1	2.29	0.48
2:C:599:VAL:N	2:C:627:GLY:O	2.43	0.48
2:C:718:ALA:HB2	2:C:783:LEU:HD21	1.94	0.48
3:D:399:LYS:HB3	3:D:403:ARG:HH12	1.77	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:270:THR:H	2:C:273:HIS:CD2	2.30	0.48
2:C:212:ALA:HA	2:C:359:ARG:HG3	1.95	0.48
3:D:105:ILE:HG22	3:D:242:LEU:HB3	1.95	0.48
6:R:7:G:H2'	6:R:8:C:C6	2.49	0.48
2:C:447:HIS:HA	2:C:553:THR:HG21	1.93	0.48
2:C:843:THR:OG1	2:C:846:GLY:O	2.30	0.48
2:C:1282:GLY:O	3:D:1361:THR:OG1	2.21	0.48
1:A:60:GLU:HB2	1:A:143:ARG:HB2	1.95	0.48
2:C:660:VAL:HG13	2:C:661:VAL:HG13	1.96	0.48
3:D:665:GLN:OE1	3:D:678:ARG:NH2	2.46	0.48
1:B:74:VAL:HA	1:B:133:LEU:HA	1.96	0.48
2:C:1326:LEU:HA	2:C:1329:GLU:HG2	1.96	0.48
3:D:692:ARG:HA	3:D:695:LYS:HD2	1.94	0.48
1:B:135:ASP:N	1:B:135:ASP:OD1	2.47	0.48
2:C:50:GLU:OE2	2:C:54:ARG:NH2	2.46	0.48
2:C:801:ARG:HB2	2:C:1095:ASP:H	1.79	0.48
3:D:584:PRO:HG2	3:D:587:LEU:HD23	1.96	0.48
2:C:30:ILE:HG23	2:C:31:GLN:HG3	1.95	0.48
2:C:301:TYR:O	2:C:310:ILE:N	2.47	0.48
2:C:598:VAL:HG23	2:C:627:GLY:HA3	1.95	0.48
2:C:701:GLY:O	2:C:1184:THR:N	2.46	0.48
2:C:17:LYS:HZ1	2:C:1153:ALA:HB3	1.79	0.48
3:D:405:GLU:O	3:D:408:VAL:HG22	2.13	0.48
3:D:816:THR:O	3:D:883:ARG:NH2	2.47	0.48
2:C:542:ARG:NH2	5:N:23:DT:O5'	2.47	0.48
2:C:17:LYS:HB2	2:C:1188:ASP:HB2	1.96	0.47
2:C:575:LEU:HD23	2:C:575:LEU:H	1.79	0.47
3:D:182:ALA:HB1	3:D:238:ILE:HD12	1.95	0.47
3:D:521:LYS:O	3:D:543:SER:N	2.46	0.47
1:B:184:ALA:HB3	1:B:204:GLU:HB3	1.94	0.47
3:D:148:GLU:OE1	3:D:156:ARG:NH1	2.47	0.47
3:D:255:LEU:HD23	6:R:5:C:H41	1.79	0.47
1:A:15:ASP:N	1:A:15:ASP:OD1	2.48	0.47
1:A:47:LEU:HA	1:A:51:MET:SD	2.54	0.47
1:B:185:TYR:HB2	1:B:203:ILE:HG22	1.97	0.47
1:B:12:ARG:NH2	1:B:29:GLU:OE2	2.47	0.47
2:C:1209:GLN:HA	2:C:1226:THR:HA	1.97	0.47
2:C:1336:ASN:N	3:D:23:ALA:O	2.47	0.47
2:C:12:ARG:NH2	2:C:698:PRO:O	2.40	0.47
2:C:303:ASP:N	2:C:308:GLU:O	2.44	0.47
2:C:637:ARG:HA	2:C:642:SER:HA	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:12:ARG:NH1	2:C:1182:ILE:O	2.37	0.47
2:C:732:ILE:HB	2:C:751:TYR:HB2	1.96	0.47
2:C:971:LEU:O	2:C:975:ILE:HG23	2.14	0.47
2:C:972:PHE:HD2	2:C:994:ARG:HH11	1.62	0.47
3:D:998:PRO:HG2	3:D:1020:TRP:CE2	2.50	0.47
3:D:1267:VAL:N	3:D:1301:THR:O	2.43	0.47
1:A:33:ARG:NH2	1:A:196:THR:O	2.47	0.47
3:D:910:ASN:HD21	4:E:15:ASN:HA	1.80	0.47
2:C:370:MET:SD	2:C:371:ARG:HG3	2.55	0.47
2:C:1160:ASP:OD1	2:C:1160:ASP:N	2.47	0.47
3:D:822:MET:HE2	3:D:822:MET:HA	1.97	0.47
3:D:393:THR:HG23	3:D:396:ALA:H	1.80	0.47
3:D:423:LEU:HD23	3:D:437:PHE:HD1	1.80	0.47
1:A:66:HIS:CE1	1:A:69:SER:HB3	2.49	0.47
1:B:102:LEU:HD13	1:B:114:ASP:O	2.15	0.47
2:C:314:ASN:ND2	2:C:348:SER:O	2.43	0.47
2:C:346:TYR:O	2:C:350:THR:OG1	2.26	0.47
2:C:1004:ASP:N	2:C:1004:ASP:OD1	2.46	0.47
3:D:123:ARG:HG3	3:D:1337:VAL:HG11	1.97	0.47
3:D:658:GLU:O	3:D:661:VAL:HG22	2.14	0.47
1:B:152:TYR:HD1	1:B:176:CYS:HA	1.80	0.46
2:C:678:ARG:HA	2:C:681:MET:SD	2.55	0.46
2:C:841:ARG:HG2	2:C:1046:VAL:HB	1.96	0.46
3:D:826:ILE:HG22	3:D:831:VAL:HG23	1.97	0.46
3:D:1059:LEU:HB3	3:D:1107:VAL:HB	1.96	0.46
2:C:1256:GLN:HB3	2:C:1301:ARG:HH22	1.79	0.46
3:D:697:MET:HE3	3:D:738:ARG:HA	1.98	0.46
1:B:64:VAL:HG13	1:B:69:SER:HB2	1.97	0.46
3:D:123:ARG:HH21	3:D:1334:GLU:HA	1.81	0.46
3:D:421:VAL:HG12	3:D:470:VAL:HG22	1.98	0.46
7:T:4:DT:H1'	7:T:5:DG:H5'	1.97	0.46
2:C:123:TYR:O	2:C:124:MET:HE2	2.16	0.46
2:C:149:LEU:HD11	2:C:451:ARG:HB3	1.97	0.46
2:C:253:PHE:CZ	2:C:255:ILE:HG13	2.50	0.46
2:C:674:ASP:OD2	2:C:1070:HIS:ND1	2.42	0.46
2:C:786:GLY:N	2:C:789:THR:OG1	2.49	0.46
3:D:514:THR:HG21	3:D:596:LEU:HB3	1.96	0.46
1:A:31:LEU:N	1:A:199:ASP:O	2.48	0.46
2:C:94:ALA:HB2	2:C:129:LEU:HD11	1.97	0.46
2:C:296:VAL:HA	2:C:316:GLU:HA	1.97	0.46
2:C:407:ARG:NH2	2:C:413:GLU:O	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:857:LEU:H	3:D:857:LEU:HD23	1.81	0.46
3:D:1358:PRO:HB3	3:D:1366:HIS:CG	2.51	0.46
1:A:100:LEU:N	1:A:144:ILE:O	2.35	0.46
2:C:4:SER:O	2:C:8:LYS:N	2.38	0.46
2:C:1217:THR:OG1	2:C:1219:GLU:OE1	2.29	0.46
3:D:154:LEU:HD11	3:D:160:LEU:HD21	1.97	0.46
2:C:705:GLU:OE2	2:C:794:LEU:N	2.49	0.46
2:C:1334:GLY:H	2:C:1335:ILE:HD12	1.81	0.46
3:D:78:LEU:HD12	3:D:81:ARG:HH12	1.80	0.46
3:D:1060:VAL:HG22	3:D:1106:ILE:HG23	1.98	0.46
3:D:1261:LEU:HD13	3:D:1304:ARG:HH11	1.81	0.46
4:E:82:ALA:O	4:E:86:ILE:HG13	2.15	0.46
2:C:59:ILE:HB	2:C:68:LEU:HG	1.98	0.46
2:C:277:LEU:HD22	2:C:282:VAL:HG21	1.98	0.46
2:C:1296:ASP:OD2	2:C:1322:SER:OG	2.29	0.46
3:D:430:HIS:HA	3:D:921:GLN:HB3	1.98	0.46
3:D:675:ALA:HA	3:D:678:ARG:HB3	1.98	0.46
1:A:18:GLN:HG2	1:A:19:VAL:O	2.16	0.46
1:B:200:LYS:NZ	1:B:201:LEU:O	2.48	0.46
2:C:72:SER:HB3	2:C:99:LYS:HG3	1.98	0.46
2:C:915:ASP:OD1	2:C:915:ASP:N	2.47	0.46
2:C:1184:THR:HG23	2:C:1189:GLY:HA3	1.97	0.46
3:D:34:SER:OG	3:D:104:HIS:ND1	2.43	0.45
6:R:9:G:H2'	6:R:10:G:C8	2.51	0.45
1:A:233:ASP:O	1:B:218:ARG:NH1	2.44	0.45
2:C:171:LEU:HB2	2:C:188:PHE:HB2	1.98	0.45
2:C:1268:GLN:HE22	3:D:352:ARG:HD2	1.81	0.45
3:D:973:LEU:HB3	3:D:1003:LEU:HB2	1.97	0.45
6:R:11:C:H2'	6:R:12:G:H8	1.81	0.45
1:B:219:ARG:O	1:B:222:THR:HB	2.16	0.45
2:C:681:MET:HA	2:C:684:ASN:HB2	1.98	0.45
3:D:950:ILE:HG23	3:D:1020:TRP:HZ3	1.81	0.45
4:E:27:ALA:HA	4:E:30:MET:HB2	1.99	0.45
7:T:27:DG:H2''	7:T:28:DG:C8	2.52	0.45
2:C:1230:MET:SD	2:C:1231:TYR:N	2.90	0.45
3:D:161:THR:HG22	3:D:164:GLN:HG2	1.98	0.45
3:D:675:ALA:O	3:D:679:TYR:N	2.46	0.45
2:C:115:LYS:HD2	2:C:115:LYS:HA	1.70	0.45
2:C:150:HIS:HE1	2:C:153:PRO:HD3	1.81	0.45
2:C:1165:SER:HB2	2:C:1168:GLU:HB2	1.98	0.45
3:D:36:GLY:O	3:D:104:HIS:ND1	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1040:MET:HG2	3:D:1046:ILE:HD13	1.99	0.45
2:C:230:PHE:HZ	2:C:292:ILE:HG21	1.81	0.45
2:C:310:ILE:HD12	2:C:324:LYS:HB3	1.99	0.45
4:E:53:GLU:HB3	4:E:59:ILE:HG13	1.97	0.45
7:T:11:DC:H2'	7:T:12:DT:H71	1.98	0.45
1:B:104:LYS:NZ	1:B:114:ASP:OD2	2.37	0.45
2:C:1157:GLN:OE1	2:C:1158:LYS:N	2.50	0.45
3:D:1034:PHE:HA	3:D:1114:GLN:HA	1.99	0.45
6:R:9:G:H2'	6:R:10:G:H8	1.82	0.45
1:B:278:ILE:O	1:B:282:VAL:N	2.44	0.45
2:C:1085:MET:HE2	2:C:1085:MET:N	2.31	0.45
3:D:180:MET:HE3	3:D:180:MET:HA	1.98	0.45
3:D:430:HIS:NE2	3:D:432:LEU:HB2	2.32	0.45
4:E:25:ARG:NH2	4:E:68:GLU:OE1	2.45	0.45
1:A:74:VAL:HG12	1:A:76:GLU:H	1.81	0.45
2:C:248:GLY:O	2:C:268:ARG:NH2	2.50	0.45
2:C:806:PRO:HA	2:C:811:ASN:HD21	1.81	0.45
2:C:992:LEU:HG	2:C:997:TRP:CD1	2.52	0.45
2:C:1269:ARG:HB2	3:D:346:ARG:CZ	2.46	0.45
1:B:185:TYR:HA	1:B:203:ILE:HA	1.99	0.45
2:C:448:LEU:HG	2:C:553:THR:HB	1.99	0.45
2:C:1342:GLU:O	3:D:1373:ARG:NH2	2.49	0.45
3:D:297:ARG:O	3:D:300:GLN:N	2.50	0.45
3:D:1116:SER:N	3:D:1119:ASP:OD2	2.50	0.45
3:D:1266:ILE:HA	3:D:1302:TYR:HA	1.99	0.45
2:C:840:SER:HB3	2:C:1048:LYS:H	1.82	0.44
3:D:194:LEU:HB3	3:D:224:LEU:HD22	1.99	0.44
3:D:370:LYS:HG2	3:D:441:LEU:HD12	1.99	0.44
3:D:515:ARG:O	3:D:545:HIS:ND1	2.51	0.44
3:D:1145:PHE:HE1	3:D:1256:ILE:HD11	1.82	0.44
3:D:1280:VAL:HG12	3:D:1284:ARG:NE	2.32	0.44
2:C:154:GLY:N	2:C:177:ILE:O	2.50	0.44
2:C:1313:HIS:CE1	4:E:31:GLN:HE22	2.36	0.44
3:D:1106:ILE:N	3:D:1123:ARG:O	2.36	0.44
1:B:56:VAL:HG12	1:B:146:VAL:HG22	1.99	0.44
1:B:90:VAL:HG12	1:B:123:ILE:HA	1.98	0.44
2:C:53:PHE:HB3	2:C:57:PHE:CE2	2.53	0.44
2:C:698:PRO:HG3	2:C:1231:TYR:CZ	2.52	0.44
2:C:979:LEU:HD21	2:C:1000:LEU:HD23	1.99	0.44
2:C:1129:ASN:OD1	2:C:1177:ARG:NH2	2.51	0.44
5:N:26:DG:H2''	5:N:27:DA:H8	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:44:ARG:CZ	3:D:538:ARG:HE	2.31	0.44
2:C:184:LEU:HD11	2:C:388:LEU:HD11	1.99	0.44
2:C:206:ALA:O	2:C:209:ILE:HG22	2.18	0.44
2:C:478:ARG:HD2	2:C:478:ARG:HA	1.82	0.44
3:D:37:GLU:HB2	3:D:104:HIS:CE1	2.53	0.44
1:A:33:ARG:HH21	1:A:197:ASP:HA	1.82	0.44
1:B:221:ALA:O	1:B:225:ALA:N	2.47	0.44
2:C:1324:ASN:HA	2:C:1327:LEU:HD23	2.00	0.44
6:R:8:C:H2'	6:R:9:G:C8	2.53	0.44
8:F:103:ASP:O	8:F:107:THR:N	2.49	0.44
8:F:142:VAL:HA	8:F:152:LEU:HA	2.00	0.44
3:D:660:GLU:O	3:D:663:GLU:HB2	2.18	0.44
3:D:525:MET:SD	3:D:525:MET:N	2.91	0.44
3:D:839:VAL:HG11	3:D:880:VAL:HG11	2.00	0.44
1:A:60:GLU:OE1	1:A:143:ARG:NE	2.44	0.43
1:B:192:VAL:HG21	1:B:198:LEU:HD12	2.00	0.43
3:D:902:ASP:CG	3:D:904:ALA:H	2.26	0.43
3:D:966:VAL:HG11	3:D:1030:GLU:HG2	2.00	0.43
3:D:1265:THR:N	3:D:1305:ASP:OD2	2.51	0.43
4:E:46:THR:HA	4:E:49:ILE:HG12	1.99	0.43
4:E:69:ARG:O	4:E:73:GLN:HG2	2.18	0.43
1:A:23:HIS:ND1	1:A:206:GLU:HB2	2.33	0.43
2:C:101:ARG:HB3	2:C:118:LYS:HG3	1.99	0.43
3:D:321:LYS:NZ	6:R:8:C:O3'	2.51	0.43
3:D:502:PRO:HB2	3:D:507:VAL:HG13	2.00	0.43
3:D:893:GLY:O	3:D:1258:ARG:NH2	2.51	0.43
3:D:1041:ILE:HD13	3:D:1074:LEU:HD13	1.99	0.43
2:C:26:TYR:CE2	2:C:28:LEU:HB2	2.53	0.43
2:C:377:THR:HG22	2:C:380:ALA:H	1.83	0.43
2:C:1230:MET:HB3	2:C:1230:MET:HE3	1.57	0.43
2:C:1294:LYS:HE3	3:D:349:TYR:HD2	1.82	0.43
4:E:78:ALA:O	4:E:81:GLN:HG2	2.18	0.43
1:A:45:ARG:NH1	2:C:1083:GLU:OE1	2.52	0.43
2:C:250:THR:OG1	2:C:268:ARG:NH1	2.41	0.43
6:R:8:C:H2'	6:R:9:G:H8	1.83	0.43
3:D:705:THR:HG23	3:D:718:SER:HA	2.00	0.43
3:D:861:ASN:C	3:D:861:ASN:HD22	2.26	0.43
3:D:863:LEU:HD21	3:D:901:ARG:HG3	2.00	0.43
2:C:797:GLY:HA3	2:C:1232:MET:O	2.17	0.43
2:C:801:ARG:HD3	2:C:1094:VAL:HA	2.01	0.43
2:C:1252:SER:N	2:C:1257:GLN:O	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:154:LEU:HD12	3:D:160:LEU:HD11	2.01	0.43
3:D:978:ARG:NH1	3:D:1197:ASN:O	2.51	0.43
2:C:798:GLN:OE1	2:C:827:ARG:NH2	2.49	0.43
3:D:234:PRO:O	3:D:237:MET:HB2	2.18	0.43
3:D:349:TYR:HD2	3:D:472:LEU:HD21	1.83	0.43
3:D:1106:ILE:HG22	3:D:1108:GLN:HG3	2.00	0.43
2:C:960:LEU:HD21	2:C:1028:LYS:HE3	2.00	0.43
3:D:490:ILE:HG13	3:D:491:LEU:HG	2.01	0.43
3:D:1024:THR:OG1	3:D:1123:ARG:NH2	2.52	0.43
3:D:1159:ILE:HD12	3:D:1159:ILE:HA	1.87	0.43
3:D:1309:ILE:HG13	3:D:1310:THR:H	1.84	0.43
1:B:44:ARG:NH1	3:D:538:ARG:HE	2.17	0.43
1:B:205:MET:SD	1:B:213:PRO:HB3	2.59	0.43
3:D:417:ARG:NE	3:D:418:GLU:OE2	2.43	0.43
1:B:50:SER:HB2	1:B:150:ARG:HB3	2.00	0.42
2:C:26:TYR:HE2	2:C:28:LEU:HB2	1.83	0.42
2:C:504:GLU:OE2	2:C:508:SER:OG	2.36	0.42
3:D:113:HIS:CD2	3:D:115:TRP:HB2	2.53	0.42
1:A:158:ARG:HH21	1:A:172:LEU:HD22	1.84	0.42
2:C:1117:LEU:HA	2:C:1120:ALA:HB3	2.00	0.42
3:D:102:MET:HE1	3:D:243:PRO:HB3	2.01	0.42
3:D:489:ASN:OD1	3:D:489:ASN:N	2.51	0.42
2:C:13:LYS:O	2:C:1183:ALA:N	2.46	0.42
2:C:35:PHE:CD1	2:C:130:MET:HE3	2.53	0.42
2:C:812:PHE:HA	3:D:505:ASP:OD2	2.19	0.42
2:C:1192:GLU:HA	2:C:1195:ILE:HD12	2.00	0.42
2:C:1286:THR:O	2:C:1289:GLU:HG3	2.19	0.42
3:D:1149:ARG:NH1	3:D:1218:HIS:HB2	2.32	0.42
3:D:1164:SER:OG	3:D:1178:THR:OG1	2.31	0.42
3:D:1322:ALA:HA	3:D:1325:PHE:HE1	1.84	0.42
5:N:35:DC:H2''	5:N:36:DA:OP2	2.20	0.42
2:C:344:GLY:HA3	2:C:346:TYR:CE2	2.54	0.42
2:C:1246:ARG:NE	2:C:1265:PHE:O	2.32	0.42
5:N:31:DG:H2''	5:N:32:DA:C8	2.54	0.42
1:A:93:GLN:H	1:A:120:ASP:HB2	1.85	0.42
2:C:99:LYS:HD3	2:C:121:GLU:N	2.34	0.42
2:C:1146:GLN:OE1	2:C:1161:LEU:N	2.35	0.42
2:C:908:GLU:HG2	2:C:910:ALA:H	1.85	0.42
3:D:67:ASP:OD1	3:D:95:THR:N	2.48	0.42
3:D:1260:MET:HE2	3:D:1260:MET:HA	2.02	0.42
2:C:30:ILE:HD12	2:C:575:LEU:HD13	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:741:MET:HG2	2:C:974:ARG:HH12	1.84	0.42
3:D:34:SER:HB2	3:D:104:HIS:HB3	2.01	0.42
1:B:102:LEU:HB3	1:B:142:MET:SD	2.60	0.42
3:D:233:LYS:HB3	3:D:235:GLU:HG2	2.00	0.42
3:D:254:PRO:C	6:R:5:C:H42	2.28	0.42
3:D:396:ALA:O	3:D:400:MET:HG2	2.20	0.42
3:D:826:ILE:HA	3:D:832:LYS:H	1.84	0.42
3:D:1097:ALA:HB1	3:D:1099:TYR:CZ	2.55	0.42
1:B:50:SER:HB2	1:B:150:ARG:HH11	1.85	0.42
2:C:1194:GLU:O	2:C:1197:GLU:HG3	2.20	0.42
5:N:36:DA:H2''	5:N:37:DG:OP2	2.20	0.42
3:D:407:VAL:O	3:D:411:ILE:HG12	2.19	0.42
3:D:954:ASN:HB2	3:D:984:LEU:HD21	2.01	0.42
3:D:1335:ALA:O	3:D:1339:GLY:N	2.53	0.42
5:N:32:DA:H2''	5:N:33:DT:H5'	2.01	0.42
2:C:554:HIS:HB3	2:C:558:VAL:HB	2.01	0.41
3:D:316:ILE:HG13	3:D:317:THR:H	1.85	0.41
3:D:316:ILE:HG13	3:D:317:THR:N	2.33	0.41
3:D:518:VAL:HG22	3:D:709:ARG:HB2	2.01	0.41
3:D:855:ASP:OD1	3:D:855:ASP:N	2.51	0.41
3:D:1037:PHE:CE2	3:D:1059:LEU:HD22	2.55	0.41
2:C:976:ARG:HG3	2:C:989:LEU:HD23	2.02	0.41
2:C:1127:LYS:O	2:C:1130:ALA:HB3	2.20	0.41
2:C:1143:GLU:O	2:C:1146:GLN:HB2	2.20	0.41
3:D:151:MET:SD	3:D:151:MET:N	2.88	0.41
8:F:60:ARG:N	8:F:96:GLN:O	2.48	0.41
2:C:726:TYR:HB3	2:C:733:VAL:HB	2.02	0.41
2:C:939:VAL:HG21	2:C:1047:LEU:HD12	2.01	0.41
1:B:192:VAL:HB	1:B:195:ARG:HB2	2.02	0.41
2:C:99:LYS:HA	2:C:121:GLU:H	1.86	0.41
2:C:756:TYR:HE1	2:C:766:ASN:HD22	1.68	0.41
3:D:594:GLN:CD	3:D:596:LEU:H	2.27	0.41
3:D:827:GLU:HB2	3:D:832:LYS:HG2	2.02	0.41
1:B:134:THR:OG1	1:B:135:ASP:N	2.53	0.41
2:C:180:ARG:O	2:C:396:ASP:N	2.46	0.41
2:C:458:GLU:HG2	2:C:459:MET:HE2	2.03	0.41
2:C:478:ARG:O	2:C:482:GLY:N	2.54	0.41
2:C:626:GLU:HB2	2:C:628:HIS:CD2	2.55	0.41
2:C:678:ARG:HA	2:C:678:ARG:HD3	1.80	0.41
2:C:840:SER:HB2	2:C:850:ILE:HD11	2.02	0.41
2:C:1211:ARG:NH1	2:C:1213:TYR:OH	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:521:LYS:H	3:D:543:SER:HB2	1.85	0.41
3:D:883:ARG:NH1	3:D:897:HIS:HB3	2.36	0.41
1:A:100:LEU:O	1:A:144:ILE:N	2.41	0.41
1:A:191:ARG:HH21	1:A:193:GLU:HA	1.84	0.41
2:C:80:PHE:HB2	2:C:85:CYS:HB2	2.03	0.41
2:C:454:ARG:NE	2:C:459:MET:HE3	2.35	0.41
3:D:134:ASP:OD1	3:D:137:ARG:NH1	2.53	0.41
3:D:504:GLN:NE2	3:D:731:ARG:HD3	2.35	0.41
1:A:90:VAL:HG13	1:A:122:GLU:H	1.86	0.41
2:C:65:ASN:HB2	2:C:107:ARG:CZ	2.50	0.41
2:C:972:PHE:CE2	2:C:994:ARG:HB3	2.56	0.41
3:D:352:ARG:NH1	7:T:20:DC:H4'	2.34	0.41
3:D:793:SER:O	3:D:797:THR:HG23	2.21	0.41
3:D:985:ILE:HD13	3:D:985:ILE:HA	1.94	0.41
2:C:314:ASN:OD1	2:C:352:ARG:NH2	2.54	0.41
2:C:1072:ASN:OD1	2:C:1072:ASN:N	2.53	0.41
2:C:1141:LEU:O	2:C:1145:ILE:HG12	2.21	0.41
2:C:1287:LEU:HD12	2:C:1288:GLN:N	2.36	0.41
3:D:45:ASN:HD21	3:D:47:ARG:HB2	1.85	0.41
3:D:113:HIS:HB2	3:D:239:LEU:HD23	2.03	0.41
3:D:141:PHE:HD1	3:D:180:MET:HB3	1.85	0.41
3:D:412:LEU:HA	3:D:415:VAL:HG22	2.03	0.41
1:A:142:MET:SD	1:A:142:MET:N	2.93	0.41
1:B:30:PRO:HA	1:B:200:LYS:HA	2.03	0.41
2:C:840:SER:O	2:C:1047:LEU:N	2.32	0.41
2:C:1021:LEU:O	2:C:1024:GLU:HG2	2.21	0.41
3:D:44:ILE:HG12	3:D:51:PRO:HA	2.03	0.41
3:D:62:PHE:HB3	3:D:98:ARG:HG3	2.02	0.41
3:D:355:ILE:HD13	3:D:355:ILE:HA	1.91	0.41
3:D:521:LYS:N	3:D:543:SER:HB2	2.36	0.41
3:D:532:GLU:O	3:D:535:ARG:HB3	2.21	0.41
3:D:603:LYS:O	3:D:606:ASN:HB3	2.20	0.41
3:D:1028:ILE:HA	3:D:1121:LEU:HG	2.03	0.41
3:D:1216:ALA:O	3:D:1220:ILE:HG12	2.21	0.41
3:D:1021:ASP:OD2	3:D:1024:THR:OG1	2.32	0.41
7:T:22:DC:H2'	7:T:23:DC:C6	2.56	0.41
2:C:842:ASP:OD1	2:C:842:ASP:N	2.54	0.40
2:C:1289:GLU:HB3	2:C:1315:MET:HG3	2.03	0.40
3:D:759:ILE:HG23	3:D:771:GLN:HG2	2.03	0.40
3:D:1169:THR:HG22	3:D:1174:ARG:H	1.86	0.40
1:A:181:GLU:HB2	1:A:207:THR:HA	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:256:PRO:HA	1:B:277:TYR:HA	2.03	0.40
2:C:1032:LYS:HA	2:C:1035:LYS:HG2	2.03	0.40
2:C:1287:LEU:O	2:C:1291:LEU:HG	2.22	0.40
3:D:733:SER:O	3:D:737:ILE:HG12	2.22	0.40
2:C:131:THR:HG22	2:C:132:ASP:OD1	2.21	0.40
2:C:658:GLN:HG2	2:C:1186:VAL:HG23	2.02	0.40
2:C:699:LEU:HD12	2:C:1121:ALA:HB1	2.02	0.40
3:D:1063:ASP:O	3:D:1067:ARG:N	2.47	0.40
1:A:19:VAL:HG22	1:A:20:SER:H	1.86	0.40
2:C:61:SER:HB3	2:C:64:GLY:HA2	2.04	0.40
2:C:844:LYS:NZ	3:D:47:ARG:O	2.46	0.40
3:D:188:LEU:HD23	3:D:192:MET:HE1	2.03	0.40
3:D:686:TRP:CZ2	3:D:758:PRO:HG3	2.56	0.40
3:D:1230:THR:HG22	3:D:1257:VAL:HG11	2.04	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	227/329 (69%)	201 (88%)	26 (12%)	0	100	100
1	B	292/329 (89%)	256 (88%)	36 (12%)	0	100	100
2	C	1339/1342 (100%)	1257 (94%)	80 (6%)	2 (0%)	48	82
3	D	1328/1407 (94%)	1252 (94%)	76 (6%)	0	100	100
4	E	88/91 (97%)	87 (99%)	1 (1%)	0	100	100
8	F	493/495 (100%)	461 (94%)	32 (6%)	0	100	100
All	All	3767/3993 (94%)	3514 (93%)	251 (7%)	2 (0%)	49	82

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	58	PRO
2	C	57	PHE

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	197/286 (69%)	197 (100%)	0	100	100
1	B	186/286 (65%)	186 (100%)	0	100	100
2	C	1156/1157 (100%)	1156 (100%)	0	100	100
3	D	1118/1168 (96%)	1117 (100%)	1 (0%)	88	88
4	E	74/75 (99%)	74 (100%)	0	100	100
All	All	2731/2972 (92%)	2730 (100%)	1 (0%)	100	100

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	D	861	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	66	HIS
1	A	227	GLN
1	B	227	GLN
2	C	65	ASN
2	C	447	HIS
2	C	463	GLN
2	C	551	HIS
2	C	613	ASN
2	C	620	ASN
2	C	688	GLN
2	C	725	GLN
2	C	894	GLN

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Mol	Chain	Res	Type
2	C	1010	GLN
2	C	1023	HIS
2	C	1264	GLN
3	D	274	ASN
3	D	680	ASN
3	D	867	GLN
4	E	31	GLN
4	E	70	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
6	R	10/14 (71%)	2 (20%)	0

All (2) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
6	R	5	C
6	R	8	C

There are no RNA pucker outliers to report.

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

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.

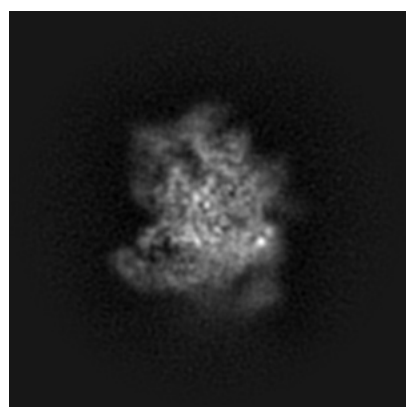
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13717. These allow visual inspection of the internal detail of the map and identification of artifacts.

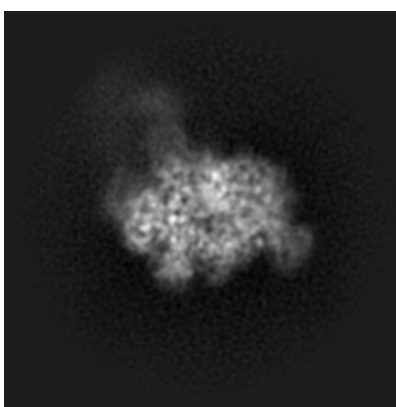
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

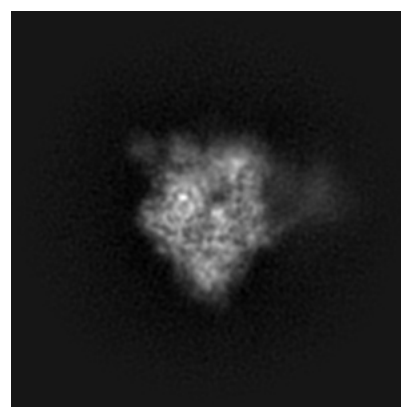
6.1.1 Primary map



X



Y

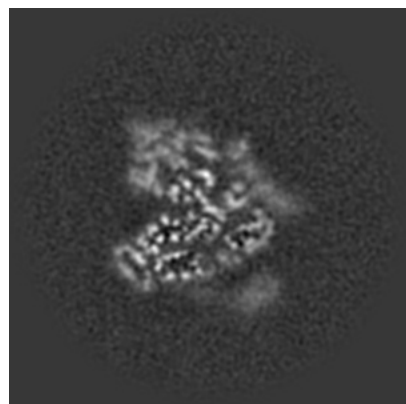


Z

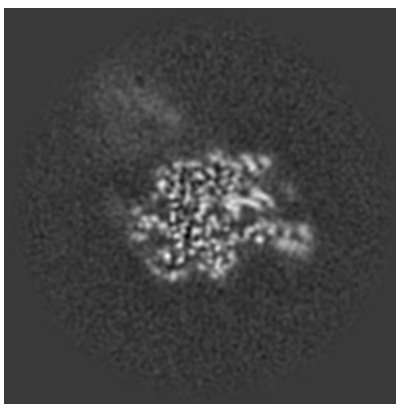
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

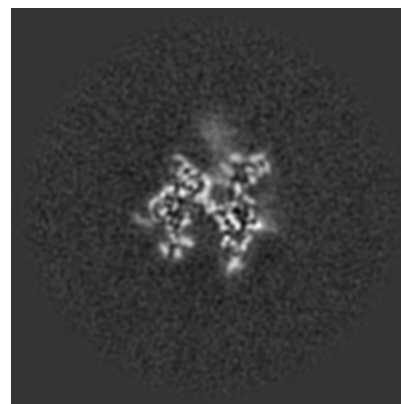
6.2.1 Primary map



X Index: 140



Y Index: 140

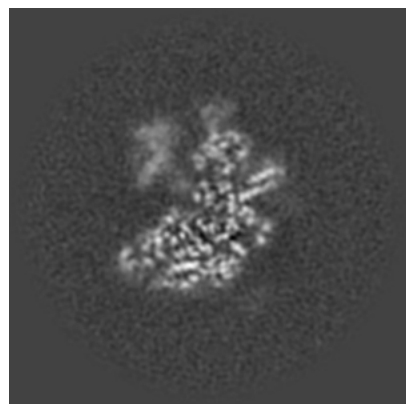


Z Index: 140

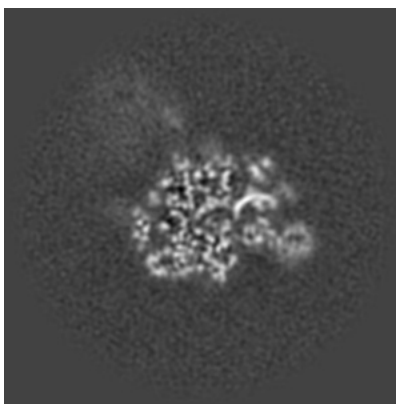
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

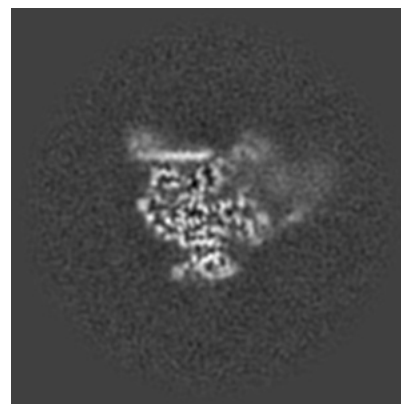
6.3.1 Primary map



X Index: 128



Y Index: 137

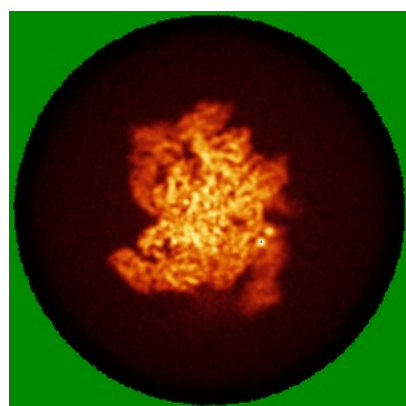


Z Index: 118

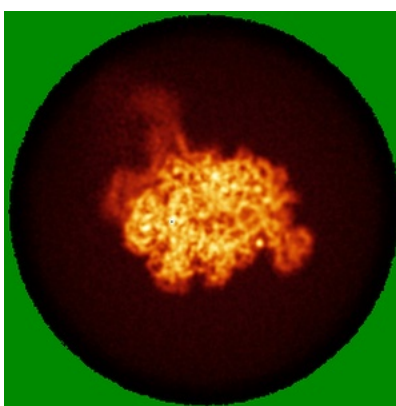
The images above show the largest variance slices of the map in three orthogonal directions.

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

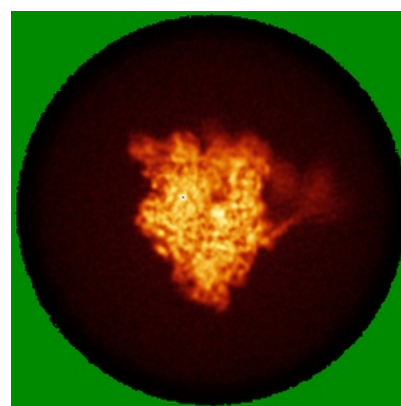
6.4.1 Primary map



X



Y



Z

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

This section was not generated.

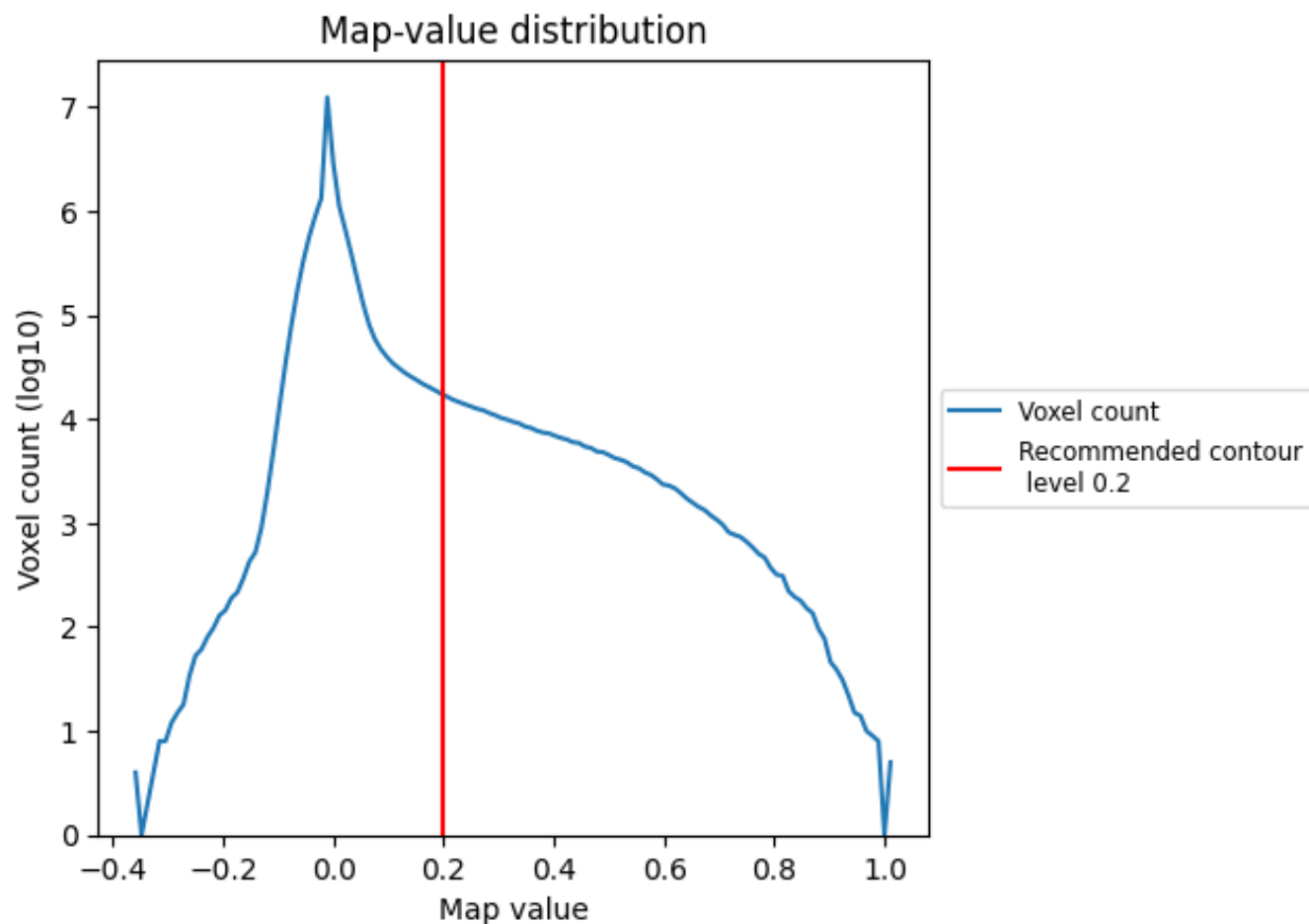
6.6 Mask visualisation

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

7 Map analysis [i](#)

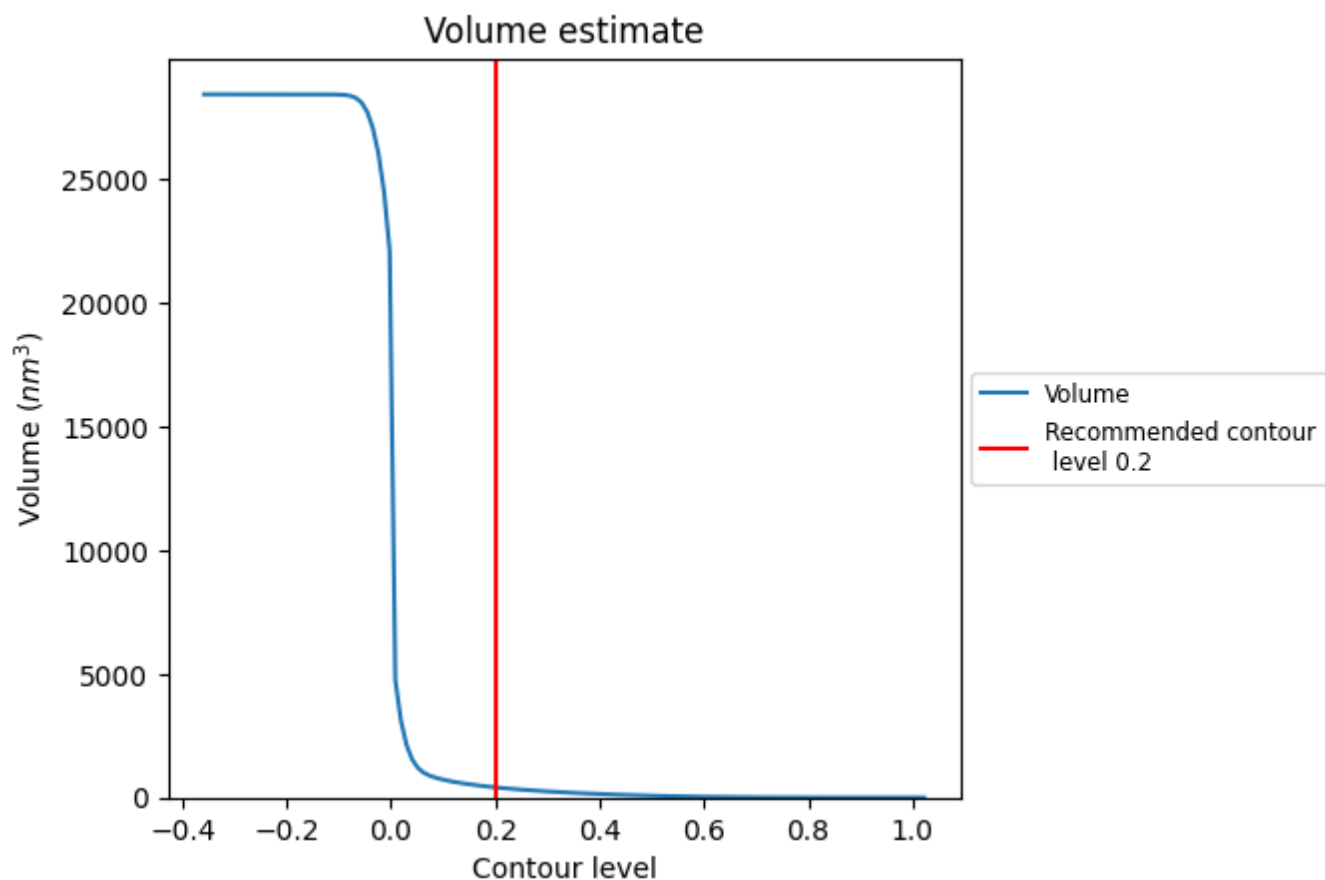
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

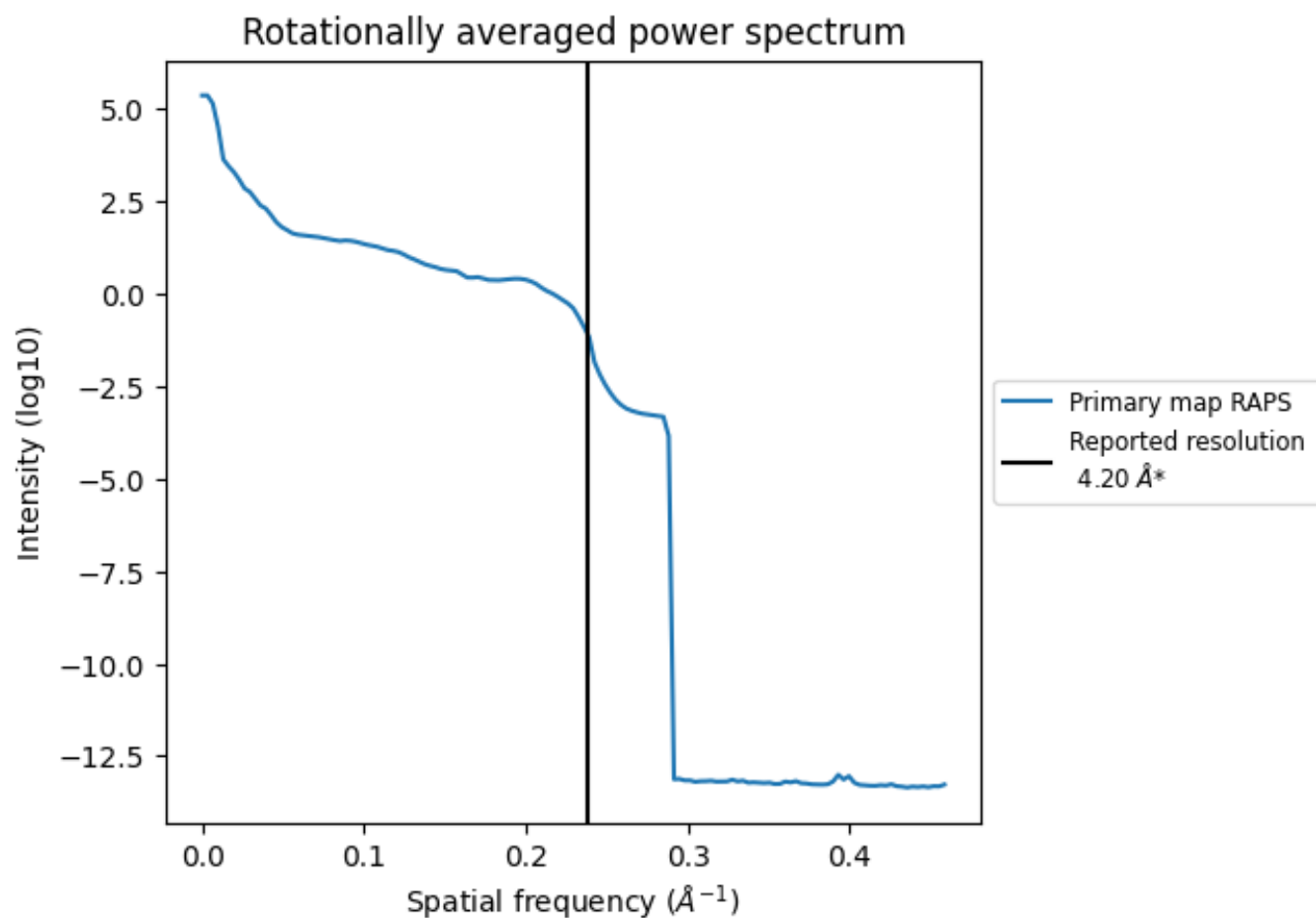
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 411 nm³; this corresponds to an approximate mass of 371 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 0.238 Å⁻¹

8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

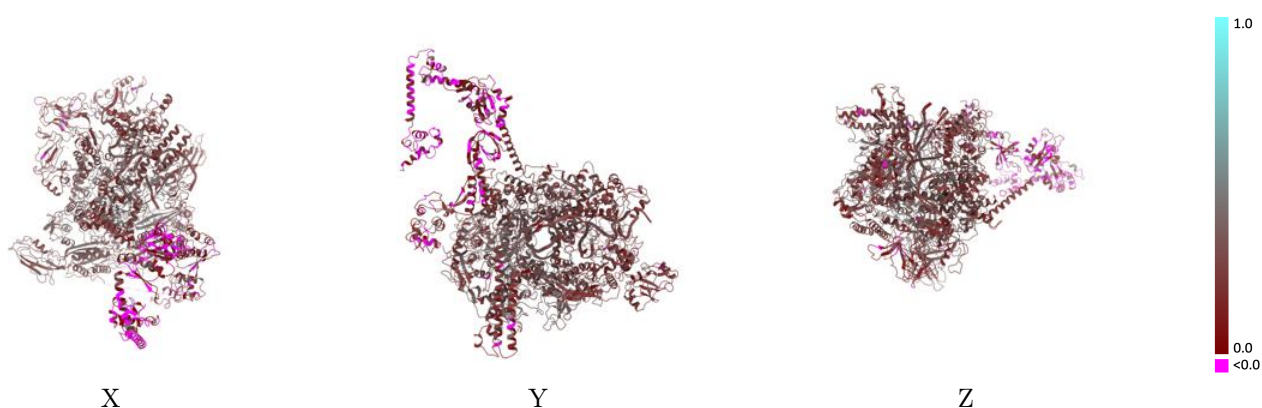
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-13717 and PDB model 7PYJ. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)

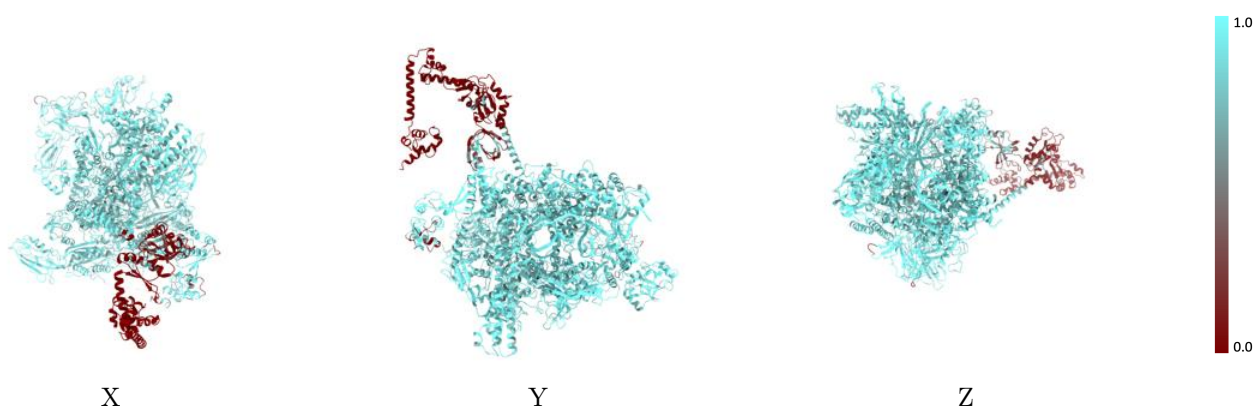
This section was not generated.

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



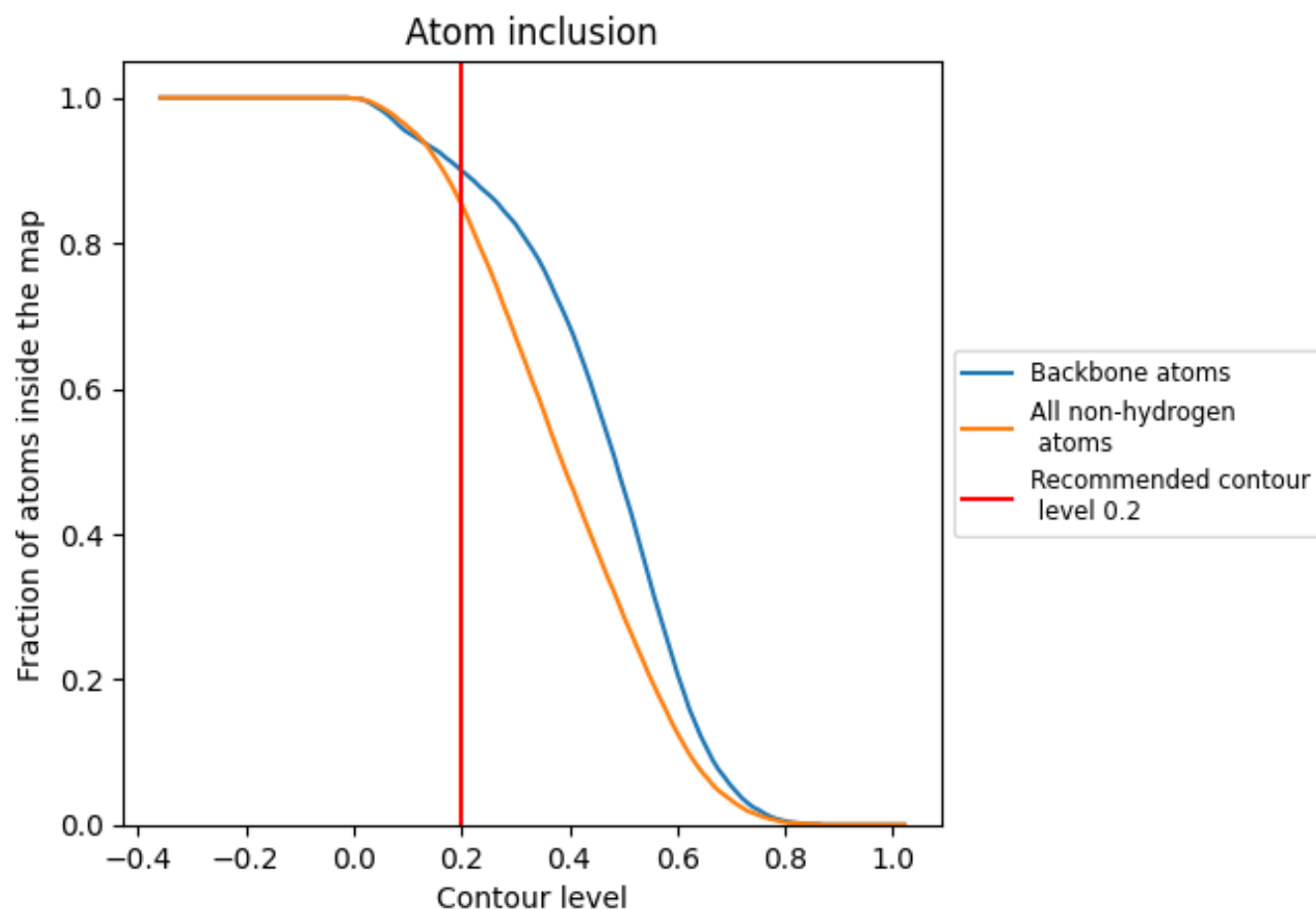
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.2).

9.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 85% 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 (0.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div><div></div>0.8530</div>	<div><div></div>0.2760</div>
A	<div><div></div>0.9060</div>	<div><div></div>0.3120</div>
B	<div><div></div>0.8800</div>	<div><div></div>0.2700</div>
C	<div><div></div>0.9030</div>	<div><div></div>0.3010</div>
D	<div><div></div>0.9030</div>	<div><div></div>0.2880</div>
E	<div><div></div>0.8400</div>	<div><div></div>0.2760</div>
F	<div><div></div>0.3040</div>	<div><div></div>0.0790</div>
N	<div><div></div>0.9800</div>	<div><div></div>0.2810</div>
R	<div><div></div>0.9530</div>	<div><div></div>0.3220</div>
T	<div><div></div>0.9920</div>	<div><div></div>0.3070</div>

1.0

0.0

<0.0