



Full wwPDB EM Validation Report ⓘ

Mar 7, 2026 – 04:15 AM UTC

PDB ID : 5FLM / pdb_00005flm
EMDB ID : EMD-3218
Title : Structure of transcribing mammalian RNA polymerase II
Authors : Bernecky, C.; Herzog, F.; Baumeister, W.; Plitzko, J.M.; Cramer, P.
Deposited on : 2015-10-26
Resolution : 3.40 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:

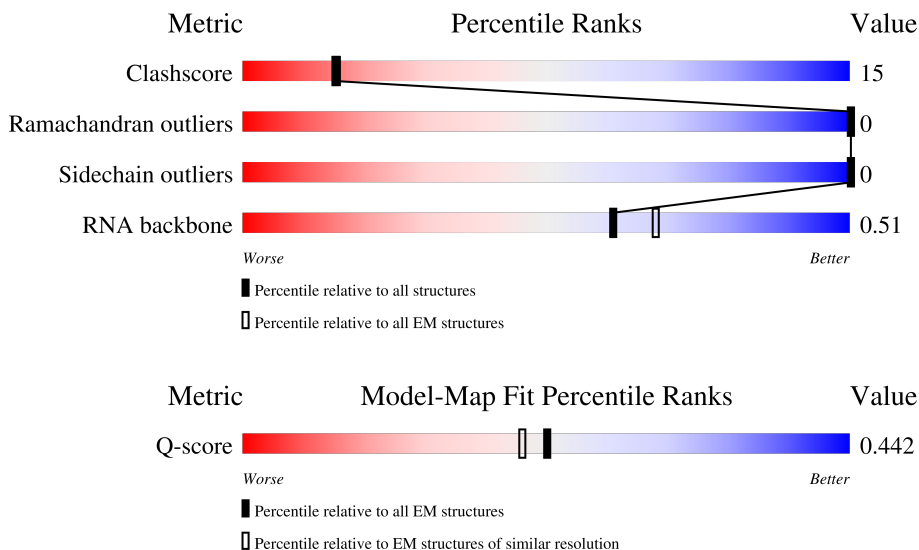
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

1 Overall quality at a glance i

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

The reported resolution of this entry is 3.40 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	14717 (2.90 - 3.90)

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	1970	<div style="display: flex; align-items: center;"> <div style="width: 14%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 49%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 24%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 28%; height: 10px; background-color: grey;"></div> </div>
2	B	1174	<div style="display: flex; align-items: center;"> <div style="width: 15%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 62%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 34%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 5%; height: 10px; background-color: grey;"></div> </div>
3	C	275	<div style="display: flex; align-items: center;"> <div style="width: 10%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 64%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 29%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 7%; height: 10px; background-color: grey;"></div> </div>

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Mol	Chain	Length	Quality of chain
4	D	142	<p>90% 46% 44% 10%</p>
5	E	210	<p>19% 72% 28%</p>
6	F	127	<p>16% 47% 17% 35%</p>
7	G	172	<p>97% 53% 46%</p>
8	H	150	<p>17% 67% 31%</p>
9	I	125	<p>29% 65% 26% 9%</p>
10	J	67	<p>75% 25%</p>
11	K	117	<p>13% 62% 37%</p>
12	L	58	<p>14% 57% 19% 24%</p>
13	N	39	<p>56% 38% 31% 31%</p>
14	P	20	<p>25% 25% 20% 30%</p>
15	T	39	<p>59% 56% 41%</p>

2 Entry composition

There are 17 unique types of molecules in this entry. The entry contains 32712 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.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1427	Total	C	N	O	S	0	0
			11291	7102	2021	2096	72		

- Molecule 2 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	1134	Total	C	N	O	S	0	0
			9062	5732	1595	1671	64		

- Molecule 3 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	257	Total	C	N	O	S	0	0
			2059	1294	351	408	6		

- Molecule 4 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	128	Total	C	N	O	S	0	0
			1005	632	172	197	4		

- Molecule 5 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	209	Total	C	N	O	S	0	0
			1711	1084	300	319	8		

- Molecule 6 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	82	658	419	113	121	5	0	0

- Molecule 7 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	171	1334	867	216	243	8	0	0

- Molecule 8 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	H	148	1186	750	194	237	5	0	0

- Molecule 9 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	114	927	571	166	179	11	0	0

- Molecule 10 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	67	533	345	90	92	6	0	0

- Molecule 11 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	115	920	593	152	173	2	0	0

- Molecule 12 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	44	372	231	72	63	6	0	0

- Molecule 13 is a DNA chain called DNA, DNA-RNA ELONGATION SCAFFOLD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
13	N	27	552	266	103	158	25	0	0

- Molecule 14 is a RNA chain called RNA, DNA-RNA ELONGATION SCAFFOLD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
14	P	14	301	135	59	93	14	0	0

- Molecule 15 is a DNA chain called DNA, DNA-RNA ELONGATION SCAFFOLD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
15	T	39	792	380	142	232	38	0	0

- Molecule 16 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
16	A	2	Total	Zn	0
			2	2	
16	B	1	Total	Zn	0
			1	1	
16	C	1	Total	Zn	0
			1	1	
16	I	2	Total	Zn	0
			2	2	
16	J	1	Total	Zn	0
			1	1	
16	L	1	Total	Zn	0
			1	1	

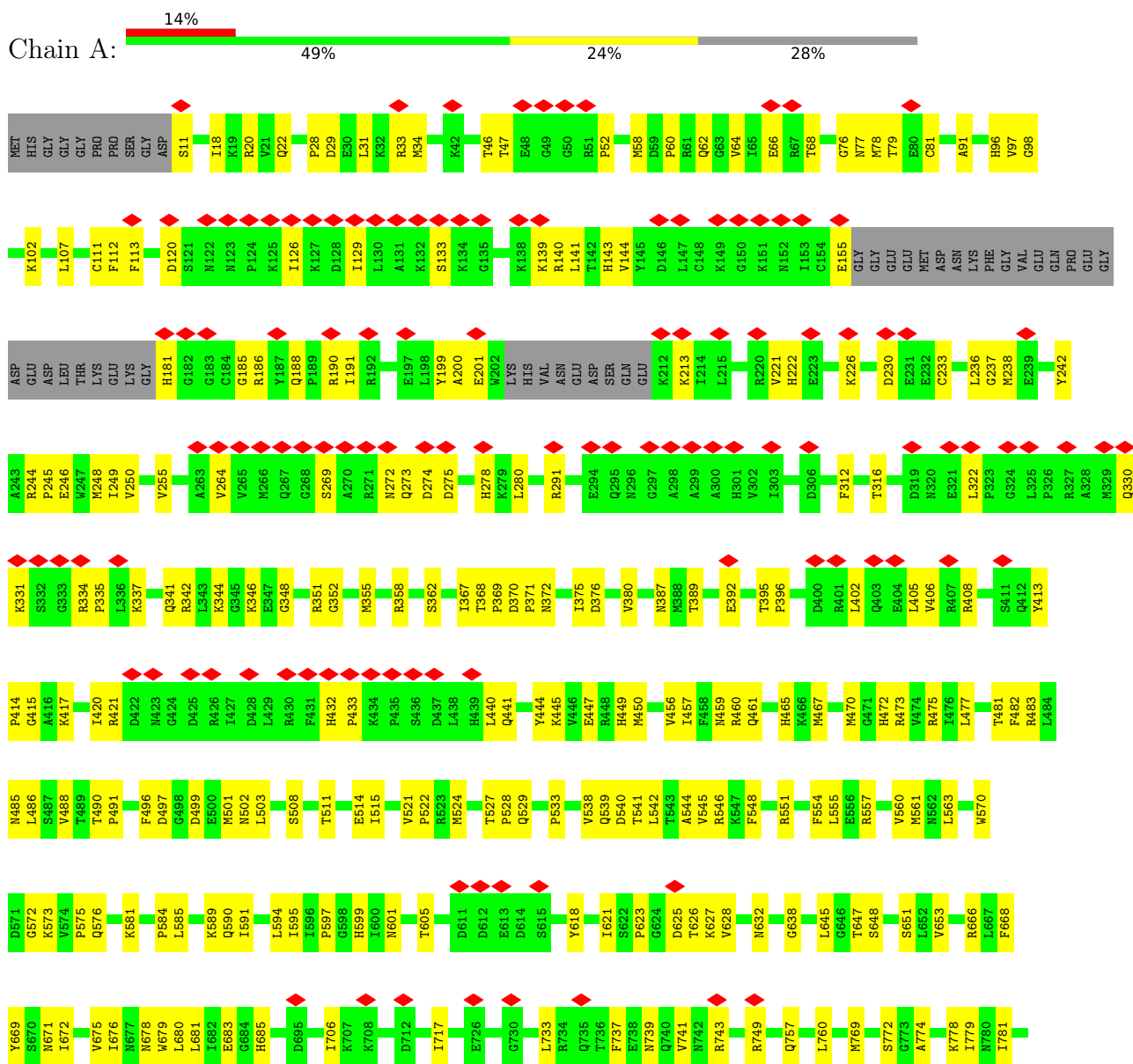
- Molecule 17 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

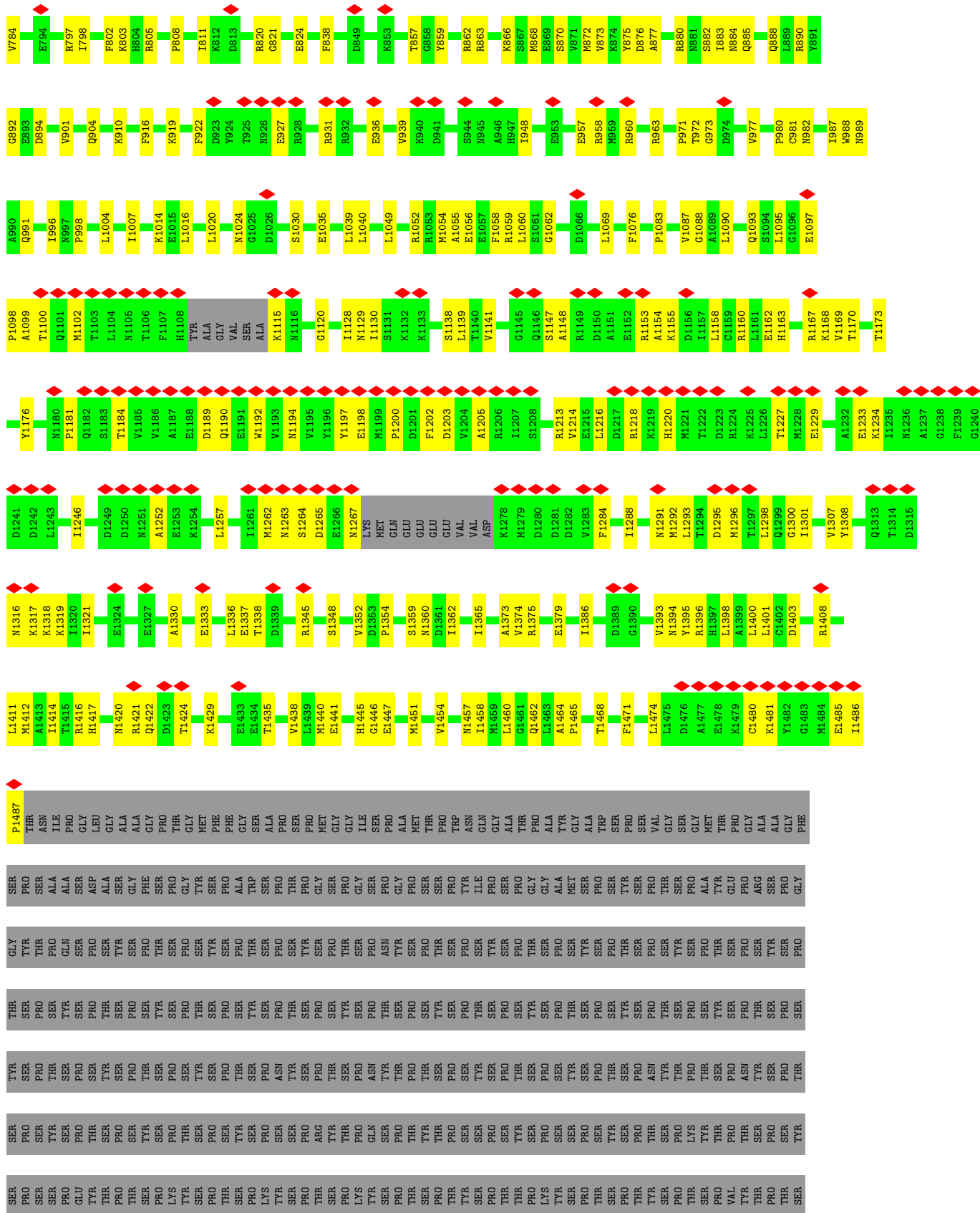
Mol	Chain	Residues	Atoms		AltConf
17	A	1	Total	Mg	0
			1	1	

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.

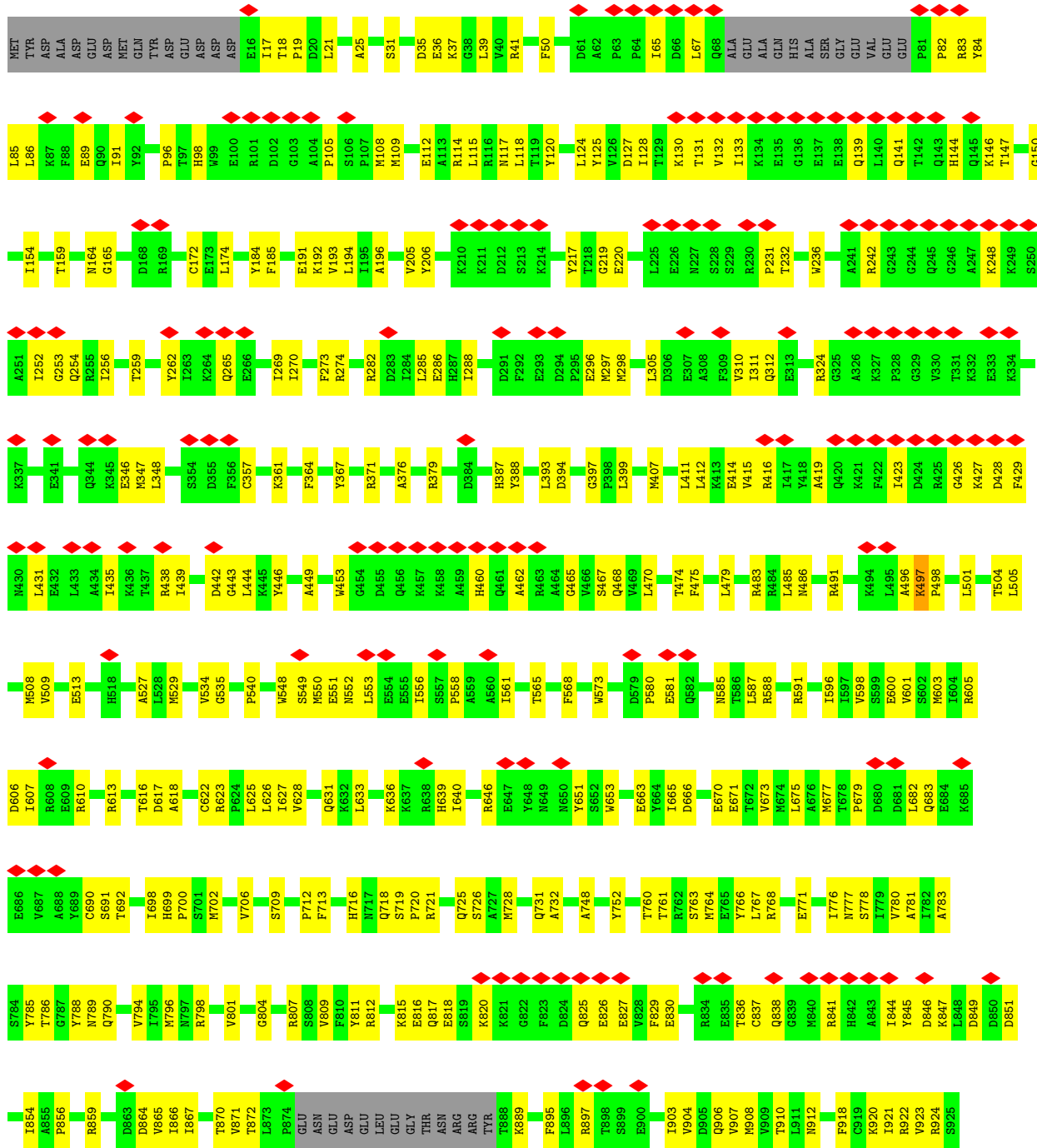
- Molecule 1: DNA-DIRECTED RNA POLYMERASE

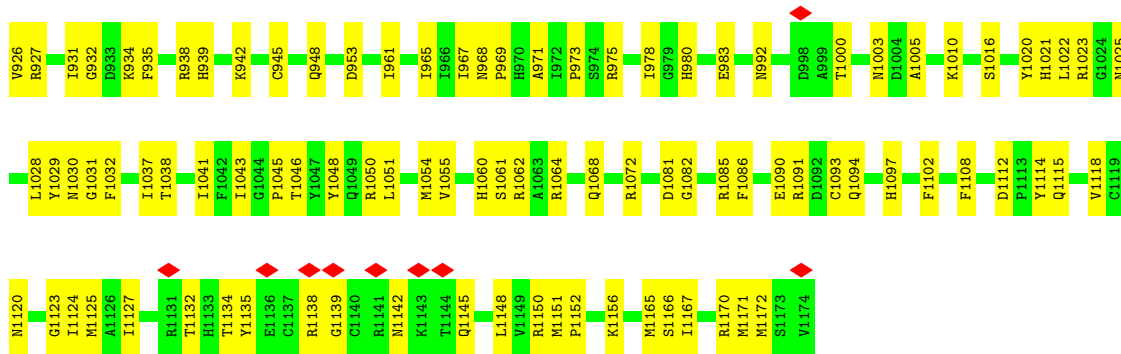




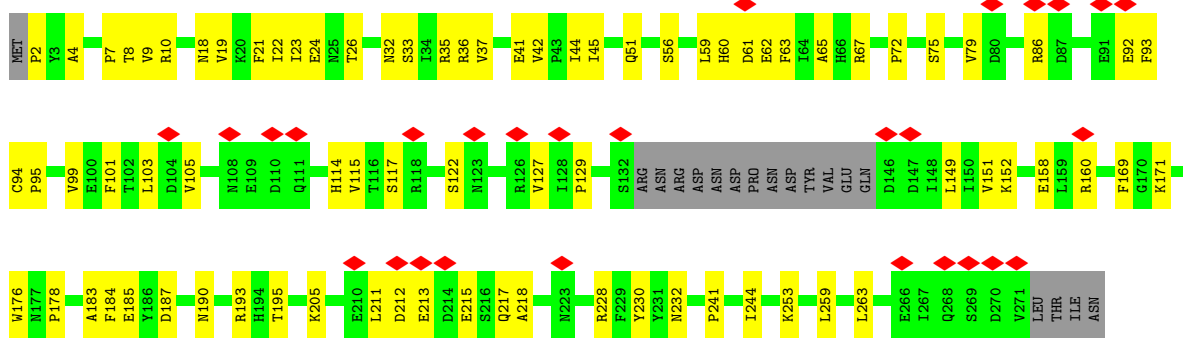
PRO	LYS	TYR	ASP	GLU	ASN	ASP	ASP	GLU	ASN
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

● Molecule 2: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB2

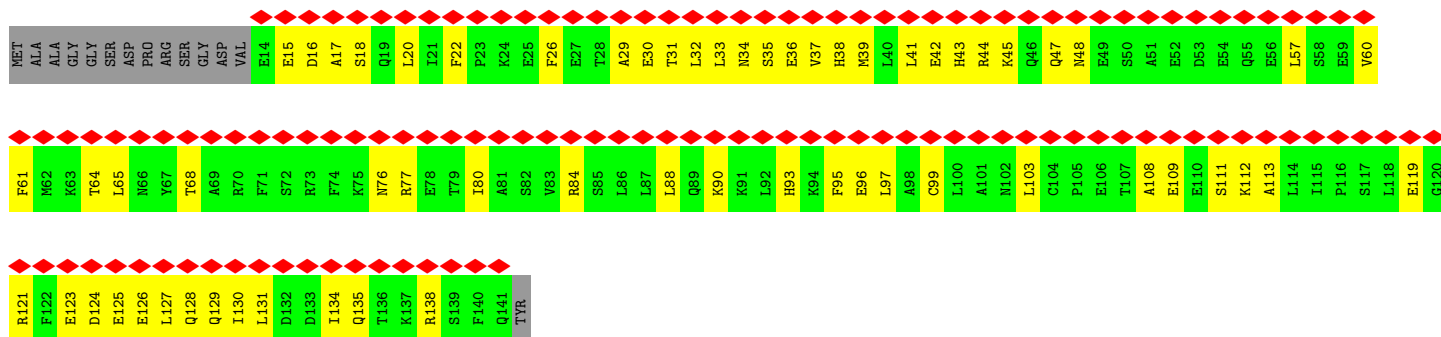




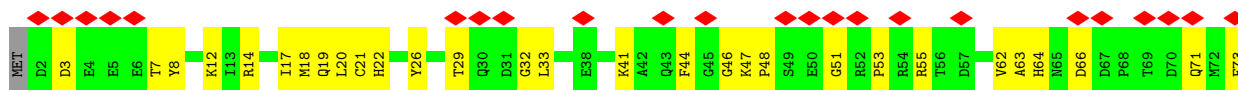
● Molecule 3: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB3

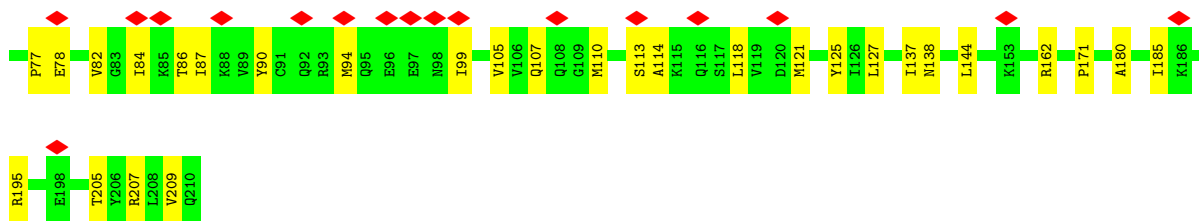


● Molecule 4: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB4

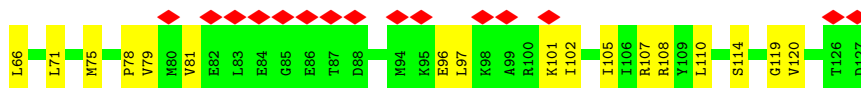
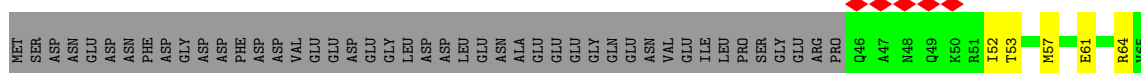


● Molecule 5: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC1

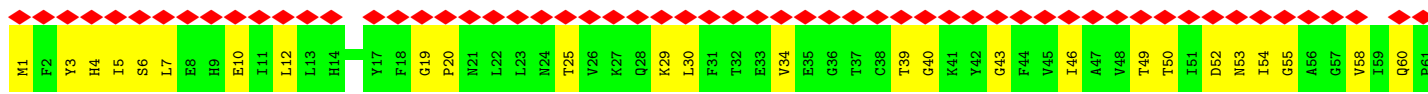




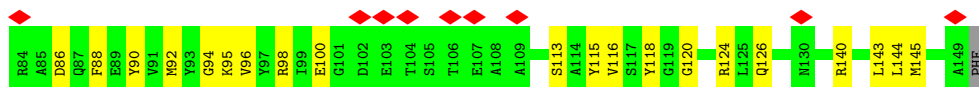
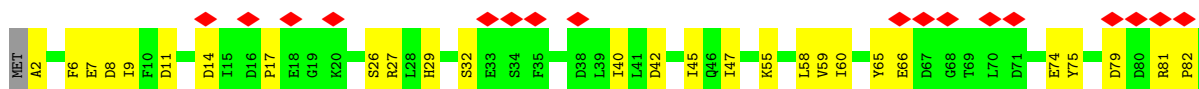
- Molecule 6: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC2



- Molecule 7: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB7

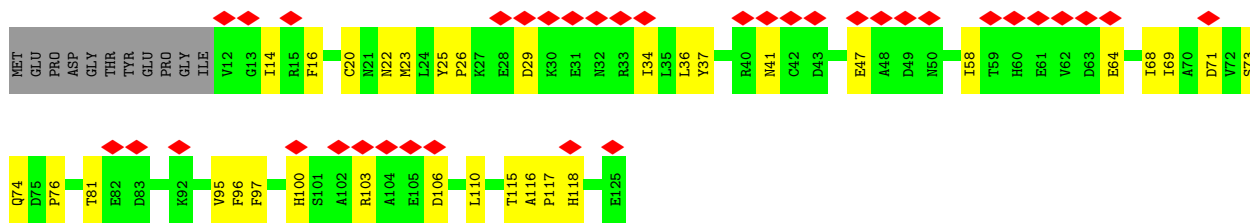


- Molecule 8: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC3

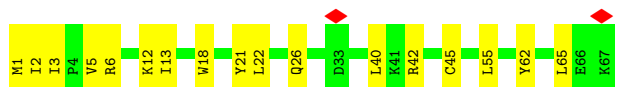
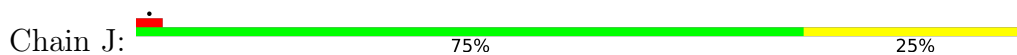


- Molecule 9: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB9

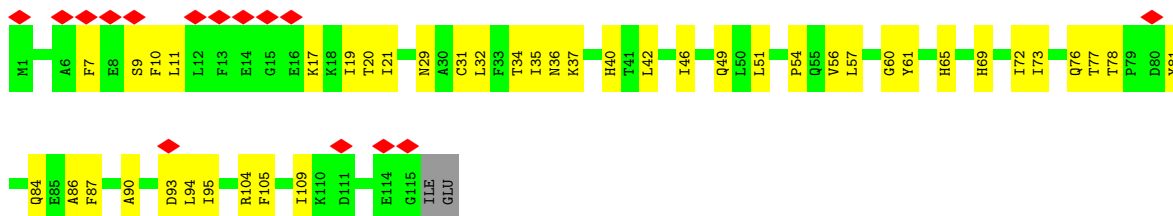




• Molecule 10: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC5



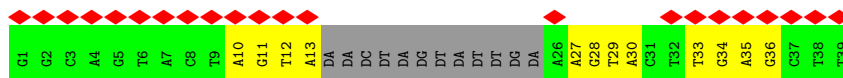
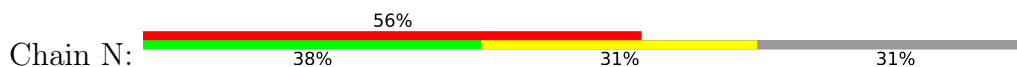
• Molecule 11: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB11



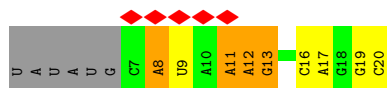
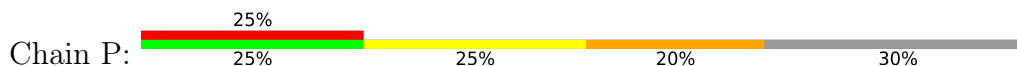
• Molecule 12: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC4



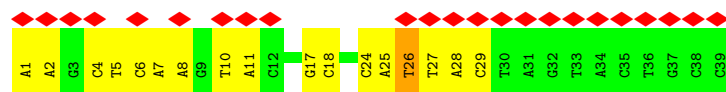
• Molecule 13: DNA, DNA-RNA ELONGATION SCAFFOLD



• Molecule 14: RNA, DNA-RNA ELONGATION SCAFFOLD



• Molecule 15: DNA, DNA-RNA ELONGATION SCAFFOLD



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	264134	Depositor
Resolution determination method	Not provided	
CTF correction method	INDIVIDUAL PARTICLES	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	43	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	3100	Depositor
Magnification	37037	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.500	Depositor
Minimum map value	-0.301	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.018	Depositor
Recommended contour level	0.07	Depositor
Map size (\AA)	275.4, 275.4, 275.4	wwPDB
Map dimensions	204, 204, 204	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.35, 1.35, 1.35	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.15	0/11497	0.44	0/15521
2	B	0.16	0/9243	0.45	0/12475
3	C	0.15	0/2102	0.41	0/2857
4	D	0.19	0/1019	0.34	0/1374
5	E	0.14	0/1742	0.42	0/2353
6	F	0.41	1/668 (0.1%)	0.44	0/903
7	G	0.25	0/1365	0.43	0/1853
8	H	0.15	0/1207	0.46	0/1628
9	I	0.13	0/948	0.42	0/1284
10	J	0.14	0/542	0.40	0/730
11	K	0.18	0/939	0.39	0/1271
12	L	0.18	0/377	0.58	0/500
13	N	0.32	0/619	0.72	0/953
14	P	0.11	0/337	0.27	0/523
15	T	0.53	1/887 (0.1%)	0.75	2/1366 (0.1%)
All	All	0.19	2/33492 (0.0%)	0.45	2/45591 (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	B	0	1
11	K	0	1
All	All	0	3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
15	T	26	DT	O3'-P	-12.74	1.42	1.61
6	F	102	ILE	C-N	9.82	1.56	1.33

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
15	T	26	DT	O3'-P-O5'	10.34	119.51	104.00
15	T	26	DT	P-O3'-C3'	8.77	133.35	120.20

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	910	LYS	Peptide
2	B	497	LYS	Peptide
11	K	7	PHE	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	11291	0	11403	351	0
2	B	9062	0	9107	305	0
3	C	2059	0	2007	67	0
4	D	1005	0	964	53	0
5	E	1711	0	1733	40	0
6	F	658	0	686	17	0
7	G	1334	0	1333	66	0
8	H	1186	0	1147	41	0
9	I	927	0	859	30	0
10	J	533	0	554	15	0
11	K	920	0	942	31	0
12	L	372	0	378	15	0
13	N	552	0	309	16	0
14	P	301	0	153	10	0
15	T	792	0	442	16	0
16	A	2	0	0	0	0
16	B	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
16	C	1	0	0	0	0
16	I	2	0	0	0	0
16	J	1	0	0	0	0
16	L	1	0	0	0	0
17	A	1	0	0	0	0
All	All	32712	0	32017	953	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 15.

All (953) 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:1481:LYS:HG2	7:G:20:PRO:HA	1.30	1.10
13:N:13:DA:H61	15:T:27:DT:H3	1.05	0.98
13:N:13:DA:N1	15:T:27:DT:O2	2.03	0.91
1:A:948:ILE:HG12	1:A:1007:ILE:HD11	1.52	0.89
1:A:392:GLU:O	1:A:445:LYS:HA	1.74	0.86
1:A:1457:ASN:HD22	1:A:1465:PRO:HD3	1.42	0.84
2:B:718:GLN:HG2	2:B:720:PRO:HD2	1.58	0.83
3:C:259:LEU:HD11	11:K:42:LEU:HD21	1.59	0.83
2:B:282:ARG:O	2:B:286:GLU:HB2	1.80	0.82
2:B:159:THR:HA	2:B:164:ASN:HD22	1.45	0.81
2:B:1016:SER:HB2	2:B:1022:LEU:HB3	1.63	0.81
1:A:111:CYS:SG	1:A:188:GLN:NE2	2.54	0.80
2:B:550:MET:HG2	2:B:551:GLU:H	1.44	0.80
2:B:130:LYS:O	2:B:141:GLN:HA	1.81	0.79
1:A:1468:THR:HG23	6:F:64:ARG:HB2	1.65	0.79
2:B:115:LEU:HB3	2:B:908:MET:HE1	1.63	0.79
1:A:627:LYS:HG2	1:A:628:VAL:H	1.48	0.78
2:B:1031:GLY:O	3:C:36:ARG:NH2	2.18	0.77
15:T:25:DA:H2''	15:T:26:DT:H5''	1.65	0.76
1:A:1481:LYS:CG	7:G:20:PRO:HA	2.14	0.76
1:A:922:PHE:H	1:A:1052:ARG:HD2	1.51	0.76
1:A:904:GLN:NE2	1:A:981:CYS:O	2.17	0.76
3:C:24:GLU:HG2	3:C:228:ARG:HG2	1.68	0.75
2:B:1062:ARG:NH1	2:B:1081:ASP:O	2.20	0.74
1:A:129:ILE:O	1:A:133:SER:HB2	1.88	0.74
7:G:89:VAL:HA	7:G:99:THR:HG22	1.68	0.74
13:N:13:DA:N6	15:T:27:DT:H3	1.83	0.74
1:A:1291:ASN:O	1:A:1295:ASP:HB3	1.88	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:415:VAL:O	2:B:419:ALA:HB2	1.87	0.73
2:B:713:PHE:HB3	2:B:716:HIS:HD2	1.53	0.72
3:C:7:PRO:O	11:K:104:ARG:NH1	2.22	0.72
4:D:90:LYS:HE2	4:D:130:ILE:HD11	1.70	0.72
2:B:939:HIS:NE2	2:B:983:GLU:OE1	2.23	0.72
3:C:99:VAL:HG11	3:C:127:VAL:HG21	1.72	0.71
13:N:10:DA:H2'	13:N:11:DG:OP2	1.91	0.71
1:A:191:ILE:HA	1:A:199:TYR:O	1.90	0.71
1:A:1138:SER:OG	1:A:1360:ASN:ND2	2.23	0.71
2:B:827:GLU:HG2	2:B:871:VAL:HG22	1.73	0.71
1:A:52:PRO:HG3	1:A:58:MET:HE3	1.71	0.71
13:N:29:DT:H2'	13:N:30:DA:C8	2.26	0.71
2:B:265:GLN:HE21	2:B:324:ARG:HE	1.36	0.71
2:B:196:ALA:HA	2:B:394:ASP:O	1.91	0.71
1:A:18:ILE:H	1:A:1462:GLN:HE22	1.36	0.70
2:B:109:MET:HE2	2:B:174:LEU:HD13	1.73	0.70
7:G:40:GLY:HA2	7:G:157:ILE:HD11	1.71	0.70
9:I:115:THR:HG22	9:I:116:ALA:H	1.56	0.70
1:A:264:VAL:HB	1:A:272:ASN:HB2	1.74	0.70
1:A:362:SER:HA	1:A:503:LEU:O	1.92	0.70
2:B:760:THR:OG1	2:B:764:MET:SD	2.50	0.70
1:A:904:GLN:HE21	1:A:982:ASN:HA	1.56	0.70
1:A:1087:VAL:HG12	1:A:1400:LEU:HD22	1.74	0.70
2:B:748:ALA:HB3	2:B:811:TYR:HB2	1.74	0.70
1:A:1474:LEU:HB2	6:F:105:ILE:HG13	1.72	0.69
1:A:877:ALA:HB3	1:A:890:ARG:HH11	1.56	0.69
12:L:17:TYR:HB3	12:L:44:MET:HB3	1.73	0.69
2:B:1060:HIS:NE2	2:B:1082:GLY:O	2.25	0.69
1:A:312:PHE:O	1:A:316:THR:OG1	2.10	0.69
2:B:108:MET:HE2	2:B:118:LEU:HD12	1.74	0.69
2:B:415:VAL:O	2:B:419:ALA:CB	2.41	0.69
2:B:591:ARG:NH2	2:B:663:GLU:OE2	2.25	0.69
2:B:924:ARG:NH1	3:C:62:GLU:OE2	2.25	0.69
7:G:100:GLU:HA	7:G:105:SER:HA	1.73	0.69
7:G:152:VAL:HA	7:G:157:ILE:HA	1.76	0.68
1:A:20:ARG:NH2	2:B:1172:MET:SD	2.66	0.68
1:A:538:VAL:HG12	1:A:539:GLN:HG2	1.75	0.68
2:B:298:MET:HB3	9:I:14:ILE:HD12	1.76	0.68
2:B:357:CYS:SG	2:B:361:LYS:NZ	2.66	0.68
2:B:65:ILE:HB	2:B:86:LEU:HB2	1.75	0.68
2:B:627:ILE:HD11	2:B:663:GLU:HB2	1.76	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1348:SER:O	5:E:12:LYS:NZ	2.25	0.68
3:C:56:SER:HG	3:C:158:GLU:H	1.41	0.68
4:D:34:ASN:O	4:D:68:THR:OG1	2.11	0.68
1:A:372:ASN:ND2	2:B:788:TYR:OH	2.27	0.68
1:A:601:ASN:ND2	1:A:989:ASN:OD1	2.26	0.68
2:B:438:ARG:O	2:B:442:ASP:HB2	1.93	0.68
7:G:110:ARG:HA	7:G:113:ILE:HD12	1.76	0.67
8:H:58:LEU:HD11	8:H:143:LEU:HD11	1.75	0.67
2:B:992:ASN:HD21	2:B:1020:TYR:HE2	1.40	0.67
1:A:811:ILE:HD11	2:B:690:CYS:HB2	1.77	0.67
3:C:10:ARG:NH1	3:C:24:GLU:OE2	2.27	0.67
4:D:108:ALA:N	4:D:128:GLN:OE1	2.27	0.67
7:G:148:VAL:N	7:G:160:ILE:O	2.27	0.67
1:A:883:ILE:HD11	1:A:1424:THR:HG22	1.75	0.66
2:B:535:GLY:N	2:B:600:GLU:OE2	2.17	0.66
5:E:63:ALA:HA	5:E:71:GLN:HA	1.77	0.66
1:A:461:GLN:HE22	1:A:502:ASN:ND2	1.94	0.66
2:B:274:ARG:NH1	2:B:311:ILE:O	2.28	0.66
1:A:1416:ARG:O	1:A:1420:ASN:HB2	1.96	0.66
2:B:124:LEU:HB3	2:B:150:GLY:O	1.95	0.66
3:C:59:LEU:HD12	3:C:151:VAL:HG23	1.77	0.66
2:B:706:VAL:HG13	2:B:767:LEU:HD22	1.78	0.66
5:E:171:PRO:HB2	5:E:207:ARG:HD3	1.78	0.66
13:N:11:DG:OP2	13:N:11:DG:H8	1.78	0.66
5:E:84:ILE:HD11	5:E:113:SER:HB3	1.78	0.66
1:A:375:ILE:HD11	1:A:669:TYR:HB2	1.78	0.65
2:B:427:LYS:HG3	2:B:428:ASP:H	1.61	0.65
4:D:34:ASN:O	4:D:38:HIS:HB2	1.96	0.65
1:A:155:GLU:HA	1:A:185:GLY:HA2	1.79	0.65
1:A:885:GLN:HE22	1:A:1408:ARG:HH12	1.43	0.65
2:B:96:PRO:HG3	2:B:154:ILE:HG13	1.78	0.65
4:D:48:ASN:HD22	4:D:57:LEU:HG	1.60	0.65
6:F:81:VAL:HG22	6:F:101:LYS:HD3	1.79	0.65
1:A:894:ASP:OD1	1:A:1396:ARG:NH1	2.23	0.65
2:B:731:GLN:HE22	14:P:19:G:H5 ⁷	1.62	0.65
2:B:778:SER:O	2:B:1045:PRO:HA	1.96	0.65
2:B:565:THR:HA	2:B:610:ARG:HG2	1.79	0.65
2:B:816:GLU:HG2	2:B:867:ILE:HG21	1.77	0.65
1:A:112:PHE:HZ	1:A:191:ILE:HD11	1.62	0.64
1:A:76:GLY:HA2	1:A:81:CYS:HB2	1.79	0.64
2:B:625:LEU:HD13	2:B:675:LEU:HD21	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1205:ALA:HB1	1:A:1267:ASN:HB2	1.80	0.64
1:A:581:LYS:NZ	8:H:86:ASP:O	2.31	0.64
2:B:364:PHE:O	2:B:367:TYR:HB3	1.97	0.64
2:B:628:VAL:HG22	2:B:633:LEU:HD23	1.80	0.64
3:C:183:ALA:HB3	3:C:232:ASN:HB3	1.80	0.64
2:B:217:TYR:OH	9:I:103:ARG:NH2	2.31	0.64
1:A:102:LYS:HZ1	1:A:141:LEU:HD13	1.63	0.63
1:A:1184:THR:OG1	1:A:1190:GLN:NE2	2.31	0.63
2:B:679:PRO:O	2:B:683:GLN:HB2	1.98	0.63
7:G:91:GLN:HB3	7:G:98:PHE:HB2	1.80	0.63
2:B:636:LYS:H	2:B:639:HIS:HD2	1.47	0.63
1:A:675:VAL:HG23	1:A:676:ILE:HG13	1.78	0.63
1:A:757:GLN:NE2	1:A:778:LYS:HB3	2.13	0.63
5:E:195:ARG:NH1	5:E:205:THR:OG1	2.32	0.63
5:E:62:VAL:O	5:E:71:GLN:HA	1.99	0.63
2:B:83:ARG:HB2	2:B:133:ILE:HB	1.81	0.62
2:B:598:VAL:HG12	2:B:600:GLU:H	1.64	0.62
2:B:851:ASP:OD2	12:L:17:TYR:OH	2.16	0.62
3:C:51:GLN:HE21	12:L:52:LEU:HB3	1.64	0.62
2:B:411:LEU:HD11	2:B:435:ILE:HG23	1.81	0.62
3:C:205:LYS:NZ	3:C:212:ASP:O	2.32	0.62
2:B:194:LEU:HD23	2:B:467:SER:HB3	1.82	0.62
1:A:653:VAL:HG22	1:A:668:PHE:HE2	1.62	0.62
1:A:554:PHE:HB3	1:A:585:LEU:HD23	1.82	0.62
1:A:863:ARG:NH2	1:A:1129:ASN:OD1	2.30	0.62
1:A:1319:LYS:HE2	1:A:1321:ILE:HD11	1.82	0.62
2:B:866:ILE:HG22	2:B:867:ILE:HG13	1.81	0.62
1:A:1485:GLU:HB3	6:F:78:PRO:HB3	1.81	0.62
2:B:785:TYR:OH	2:B:953:ASP:O	2.18	0.62
1:A:375:ILE:HD12	1:A:666:ARG:HG3	1.82	0.61
1:A:1147:SER:HA	1:A:1153:ARG:HB2	1.82	0.61
2:B:419:ALA:O	2:B:423:ILE:HG12	2.00	0.61
2:B:938:ARG:NH2	2:B:983:GLU:OE2	2.23	0.61
8:H:26:SER:HB3	8:H:45:ILE:HD11	1.82	0.61
11:K:10:PHE:HA	11:K:37:LYS:HB3	1.81	0.61
8:H:2:ALA:N	8:H:66:GLU:O	2.33	0.61
1:A:605:THR:HA	1:A:627:LYS:HA	1.83	0.61
1:A:803:LYS:NZ	2:B:606:ASP:OD1	2.33	0.61
2:B:67:LEU:HD21	2:B:423:ILE:HG13	1.82	0.61
2:B:387:HIS:NE2	2:B:671:GLU:OE2	2.33	0.61
1:A:97:VAL:HG21	1:A:322:LEU:HD11	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:483:ARG:NH2	2:B:527:ALA:O	2.30	0.61
4:D:26:PHE:CE2	7:G:78:ARG:HD3	2.35	0.61
1:A:408:ARG:HH11	1:A:414:PRO:HB2	1.65	0.61
1:A:1049:LEU:HA	1:A:1054:MET:HE3	1.82	0.61
1:A:1417:HIS:O	1:A:1421:ARG:HG2	2.01	0.61
1:A:545:VAL:HG22	1:A:676:ILE:HD13	1.83	0.60
1:A:483:ARG:HH21	2:B:931:ILE:HD11	1.66	0.60
1:A:678:ASN:HA	1:A:681:LEU:HD13	1.83	0.60
2:B:1115:GLN:HB3	2:B:1148:LEU:HD11	1.83	0.60
9:I:29:ASP:CB	9:I:34:ILE:O	2.49	0.60
2:B:192:LYS:NZ	2:B:449:ALA:O	2.34	0.60
7:G:39:THR:O	7:G:43:GLY:N	2.32	0.60
4:D:95:PHE:O	4:D:99:CYS:HB2	2.02	0.60
5:E:29:THR:HG23	5:E:32:GLY:H	1.66	0.60
2:B:953:ASP:OD1	3:C:36:ARG:NH1	2.34	0.60
1:A:1412:MET:SD	1:A:1422:GLN:NE2	2.75	0.60
15:T:7:DA:H2'	15:T:8:DA:C8	2.36	0.60
1:A:201:GLU:OE2	1:A:213:LYS:NZ	2.33	0.60
1:A:576:GLN:O	1:A:590:GLN:NE2	2.34	0.60
7:G:55:GLY:HA3	7:G:69:PRO:HG2	1.84	0.60
2:B:626:LEU:HG	2:B:698:ILE:HD13	1.84	0.60
2:B:809:VAL:HG22	2:B:926:VAL:HG12	1.84	0.60
13:N:35:DA:H2''	13:N:36:DG:H8	1.66	0.60
1:A:575:PRO:HG3	1:A:594:LEU:HD11	1.84	0.59
2:B:486:ASN:OD1	2:B:491:ARG:NH2	2.31	0.59
2:B:474:THR:OG1	2:B:732:ALA:O	2.20	0.59
2:B:856:PRO:HG2	12:L:48:ARG:HA	1.84	0.59
4:D:38:HIS:O	4:D:42:GLU:HG2	2.02	0.59
1:A:1202:PHE:O	1:A:1263:ASN:ND2	2.35	0.59
2:B:580:PRO:HB2	2:B:605:ARG:HE	1.68	0.59
2:B:585:ASN:OD1	2:B:588:ARG:NH2	2.35	0.59
5:E:55:ARG:HB2	5:E:78:GLU:HG2	1.84	0.59
2:B:849:ASP:OD2	12:L:46:LYS:NZ	2.34	0.59
4:D:32:LEU:HD11	7:G:4:HIS:HB2	1.83	0.59
1:A:107:LEU:HD21	1:A:221:VAL:HG13	1.84	0.59
1:A:733:LEU:HB3	9:I:106:ASP:HB2	1.83	0.59
1:A:573:LYS:NZ	8:H:74:GLU:OE2	2.26	0.59
2:B:31:SER:HG	2:B:766:TYR:HH	1.41	0.59
2:B:131:THR:HG22	2:B:141:GLN:HB3	1.84	0.59
4:D:41:LEU:HD12	4:D:68:THR:HG21	1.84	0.59
2:B:296:GLU:OE1	2:B:379:ARG:NH2	2.33	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:581:GLU:OE2	9:I:74:GLN:NE2	2.36	0.59
8:H:79:ASP:O	8:H:82:PRO:HD2	2.01	0.59
8:H:88:PHE:CD2	8:H:144:LEU:HB3	2.38	0.59
1:A:1374:VAL:HG11	1:A:1411:LEU:HD21	1.85	0.58
4:D:111:SER:HB2	4:D:131:LEU:HD21	1.85	0.58
1:A:648:SER:OG	1:A:651:SER:OG	2.20	0.58
1:A:1291:ASN:O	1:A:1295:ASP:CB	2.51	0.58
2:B:794:VAL:O	2:B:945:CYS:HA	2.04	0.58
2:B:50:PHE:HB2	2:B:397:GLY:HA2	1.86	0.58
2:B:854:ILE:HD12	2:B:866:ILE:HA	1.85	0.58
4:D:95:PHE:O	4:D:99:CYS:CB	2.52	0.58
2:B:164:ASN:OD1	2:B:165:GLY:N	2.36	0.58
2:B:407:MET:HE1	2:B:444:LEU:HG	1.84	0.58
1:A:244:ARG:HD3	1:A:245:PRO:HD2	1.86	0.58
1:A:20:ARG:NH1	1:A:22:GLN:OE1	2.36	0.58
2:B:39:LEU:HB3	2:B:483:ARG:HD2	1.86	0.58
3:C:67:ARG:HH12	10:J:2:ILE:HD13	1.69	0.58
7:G:4:HIS:CE1	7:G:73:LYS:HB3	2.39	0.58
1:A:870:SER:HB2	1:A:882:SER:HB3	1.85	0.57
2:B:159:THR:HA	2:B:164:ASN:ND2	2.18	0.57
7:G:129:LYS:HB2	7:G:136:VAL:HG22	1.84	0.57
1:A:330:GLN:HG3	1:A:331:LYS:N	2.19	0.57
1:A:1030:SER:HG	5:E:162:ARG:HE	1.52	0.57
4:D:84:ARG:O	4:D:88:LEU:HB2	2.04	0.57
5:E:87:ILE:HA	5:E:90:TYR:HD2	1.68	0.57
7:G:30:LEU:HD22	7:G:70:VAL:HG11	1.85	0.57
8:H:59:VAL:O	8:H:144:LEU:HB2	2.04	0.57
1:A:544:ALA:O	1:A:548:PHE:CB	2.53	0.57
4:D:16:ASP:OD2	4:D:18:SER:OG	2.17	0.57
4:D:31:THR:HG22	7:G:3:TYR:HE1	1.69	0.57
3:C:56:SER:OG	3:C:158:GLU:N	2.32	0.57
14:P:11:A:N6	15:T:25:DA:N1	2.53	0.57
1:A:875:TYR:HA	1:A:1083:PRO:HB3	1.86	0.57
2:B:37:LYS:HB3	2:B:41:ARG:HG3	1.86	0.57
3:C:19:VAL:HG23	3:C:241:PRO:HB2	1.87	0.57
6:F:81:VAL:HG21	6:F:96:GLU:HA	1.86	0.57
5:E:86:THR:HG22	5:E:90:TYR:CE2	2.40	0.57
8:H:6:PHE:HB3	8:H:60:ILE:HB	1.86	0.57
2:B:206:TYR:O	2:B:219:GLY:HA2	2.05	0.56
1:A:274:ASP:OD2	1:A:342:ARG:NH2	2.37	0.56
1:A:888:GLN:NE2	1:A:1403:ASP:OD2	2.31	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1176:TYR:HE2	1:A:1213:ARG:HD3	1.69	0.56
1:A:1307:VAL:HG22	1:A:1338:THR:HG22	1.86	0.56
1:A:1386:ILE:HD12	1:A:1398:LEU:HD21	1.86	0.56
2:B:617:ASP:OD1	2:B:618:ALA:N	2.38	0.56
4:D:44:ARG:HH12	4:D:48:ASN:HB2	1.70	0.56
7:G:101:ILE:N	7:G:104:MET:O	2.37	0.56
9:I:69:ILE:HG22	9:I:71:ASP:H	1.70	0.56
1:A:1441:GLU:OE2	1:A:1445:HIS:NE2	2.37	0.56
10:J:18:TRP:O	10:J:21:TYR:HB3	2.06	0.56
1:A:1128:ILE:HG23	1:A:1414:ILE:HD12	1.86	0.56
13:N:35:DA:H2''	13:N:36:DG:C8	2.41	0.56
4:D:124:ASP:O	4:D:128:GLN:HB3	2.06	0.56
8:H:100:GLU:HB3	8:H:113:SER:OG	2.06	0.56
9:I:64:GLU:O	9:I:68:ILE:HG12	2.06	0.56
1:A:485:ASN:OD1	1:A:486:LEU:N	2.38	0.56
2:B:771:GLU:O	10:J:55:LEU:HD21	2.06	0.56
8:H:90:TYR:HE2	8:H:92:MET:HE2	1.71	0.56
3:C:92:GLU:HG3	3:C:93:PHE:H	1.71	0.56
6:F:57:MET:HE1	6:F:120:VAL:HG13	1.88	0.56
1:A:459:ASN:OD1	1:A:460:ARG:N	2.38	0.55
1:A:877:ALA:HB3	1:A:890:ARG:NH1	2.20	0.55
7:G:3:TYR:N	7:G:76:VAL:O	2.29	0.55
1:A:599:HIS:ND1	1:A:632:ASN:OD1	2.39	0.55
1:A:1262:MET:HE2	1:A:1264:SER:HB3	1.89	0.55
1:A:1375:ARG:NE	1:A:1403:ASP:OD1	2.38	0.55
4:D:96:GLU:OE2	4:D:121:ARG:NH1	2.40	0.55
5:E:55:ARG:NH1	5:E:107:GLN:HE21	2.04	0.55
15:T:28:DA:H2''	15:T:29:DC:OP2	2.05	0.55
4:D:135:GLN:HA	4:D:138:ARG:HD3	1.87	0.55
1:A:585:LEU:HD22	8:H:47:ILE:HD11	1.87	0.55
1:A:706:ILE:HG21	1:A:824:GLU:HG3	1.88	0.55
7:G:60:GLN:OE1	7:G:63:ARG:HD2	2.07	0.55
12:L:36:CYS:HB2	12:L:44:MET:HE1	1.87	0.55
1:A:358:ARG:HA	2:B:1085:ARG:HA	1.88	0.55
1:A:470:MET:HB3	1:A:521:VAL:HG22	1.89	0.55
1:A:1102:MET:HE2	1:A:1120:GLY:HA2	1.89	0.55
1:A:1115:LYS:HZ3	1:A:1337:GLU:HB3	1.71	0.55
2:B:193:VAL:HG21	2:B:470:LEU:HD13	1.87	0.55
8:H:118:TYR:CZ	8:H:143:LEU:HB2	2.41	0.55
1:A:544:ALA:HB2	1:A:680:LEU:HD13	1.89	0.55
2:B:587:LEU:HB3	2:B:603:MET:SD	2.47	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:140:ARG:HD2	1:A:237:GLY:HA2	1.89	0.55
1:A:542:LEU:HD23	1:A:774:ALA:HA	1.88	0.55
3:C:2:PRO:HB3	11:K:54:PRO:HD2	1.89	0.55
1:A:1004:LEU:HD13	1:A:1062:GLY:HA2	1.89	0.55
2:B:85:LEU:HB2	2:B:131:THR:OG1	2.06	0.54
2:B:961:ILE:HD11	10:J:42:ARG:HB2	1.88	0.54
2:B:780:VAL:HG21	2:B:1048:TYR:CE1	2.42	0.54
4:D:48:ASN:ND2	4:D:57:LEU:HG	2.22	0.54
2:B:728:MET:SD	2:B:942:LYS:HD3	2.48	0.54
2:B:812:ARG:HH12	2:B:897:ARG:HG3	1.72	0.54
2:B:817:GLN:HE22	2:B:912:ASN:ND2	2.05	0.54
6:F:52:ILE:O	6:F:53:THR:HG23	2.07	0.54
10:J:5:VAL:HG12	10:J:6:ARG:HG2	1.88	0.54
1:A:540:ASP:HB2	2:B:790:GLN:NE2	2.22	0.54
2:B:91:ILE:HD11	2:B:124:LEU:HD11	1.89	0.54
2:B:1032:PHE:O	3:C:32:ASN:ND2	2.40	0.54
1:A:916:PHE:CE1	1:A:963:ARG:HD2	2.43	0.54
2:B:535:GLY:HA3	2:B:618:ALA:HB2	1.89	0.54
1:A:420:ILE:HB	1:A:445:LYS:HB2	1.89	0.54
1:A:475:ARG:NH1	1:A:477:LEU:HD21	2.23	0.54
2:B:534:VAL:N	2:B:600:GLU:OE2	2.41	0.54
4:D:17:ALA:HB2	7:G:80:PHE:HB2	1.89	0.54
6:F:110:LEU:HD12	6:F:114:SER:HB3	1.88	0.54
13:N:12:DT:HI'	13:N:13:DA:N7	2.22	0.54
1:A:533:PRO:O	1:A:647:THR:OG1	2.21	0.54
1:A:863:ARG:NH2	1:A:1414:ILE:O	2.30	0.54
2:B:631:GLN:NE2	2:B:691:SER:O	2.33	0.54
2:B:817:GLN:HE22	2:B:912:ASN:HD21	1.56	0.54
2:B:1115:GLN:HG2	2:B:1150:ARG:HG2	1.90	0.54
3:C:105:VAL:HG11	3:C:115:VAL:HG22	1.89	0.54
1:A:546:ARG:HD2	1:A:772:SER:HB3	1.90	0.53
1:A:996:ILE:HD13	1:A:1060:LEU:HA	1.88	0.53
2:B:1124:ILE:HG22	2:B:1125:MET:H	1.73	0.53
1:A:805:ARG:NH2	2:B:673:VAL:O	2.33	0.53
2:B:185:PHE:O	2:B:191:GLU:HA	2.08	0.53
8:H:81:ARG:CG	8:H:82:PRO:HD3	2.39	0.53
11:K:9:SER:HA	11:K:69:HIS:CG	2.43	0.53
1:A:358:ARG:NH2	2:B:1068:GLN:OE1	2.41	0.53
1:A:1155:LYS:HD2	1:A:1158:LEU:HD23	1.90	0.53
1:A:1218:ARG:NH2	1:A:1252:ALA:O	2.42	0.53
4:D:112:LYS:HB3	4:D:119:GLU:OE2	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:8:TYR:CE2	5:E:12:LYS:HE3	2.43	0.53
9:I:29:ASP:HB3	9:I:34:ILE:O	2.08	0.53
15:T:6:DC:H2"	15:T:7:DA:C8	2.43	0.53
2:B:446:TYR:HE1	15:T:25:DA:H5"	1.74	0.53
1:A:112:PHE:CZ	1:A:191:ILE:HD11	2.43	0.53
1:A:1451:MET:HE2	1:A:1460:LEU:HD12	1.91	0.53
2:B:725:GLN:HG2	2:B:938:ARG:O	2.08	0.53
3:C:253:LYS:HE3	11:K:95:ILE:HG23	1.90	0.53
1:A:380:VAL:HG11	1:A:450:MET:HE3	1.89	0.53
1:A:508:SER:HB3	1:A:511:THR:HG22	1.91	0.53
2:B:98:HIS:O	2:B:105:PRO:HA	2.09	0.53
3:C:62:GLU:HA	3:C:65:ALA:HB3	1.91	0.53
5:E:118:LEU:HD22	5:E:127:LEU:HB2	1.90	0.53
2:B:89:GLU:HB3	2:B:127:ASP:HB2	1.91	0.52
3:C:4:ALA:HB2	11:K:93:ASP:HB3	1.91	0.52
1:A:859:TYR:CE2	1:A:863:ARG:HD2	2.44	0.52
1:A:1052:ARG:NE	1:A:1056:GLU:OE2	2.42	0.52
3:C:75:SER:HB3	3:C:79:VAL:HG21	1.91	0.52
5:E:26:TYR:HD1	5:E:64:HIS:HA	1.74	0.52
7:G:108:ILE:HD11	7:G:145:LEU:HD22	1.92	0.52
9:I:14:ILE:HG21	9:I:23:MET:HE2	1.91	0.52
11:K:9:SER:HA	11:K:69:HIS:CD2	2.44	0.52
2:B:285:LEU:HD11	2:B:305:LEU:HD11	1.91	0.52
2:B:910:THR:HG22	12:L:43:ILE:HA	1.91	0.52
1:A:1093:GLN:HE22	2:B:1093:CYS:HA	1.75	0.52
2:B:1123:GLY:HA3	2:B:1170:ARG:HB3	1.91	0.52
2:B:927:ARG:HD2	2:B:1054:MET:SD	2.49	0.52
2:B:282:ARG:O	2:B:286:GLU:CB	2.56	0.52
12:L:43:ILE:O	12:L:44:MET:HE2	2.10	0.52
1:A:1394:ASN:OD1	1:A:1395:TYR:N	2.42	0.52
2:B:752:TYR:HE1	3:C:60:HIS:CE1	2.28	0.52
11:K:46:ILE:HG21	11:K:87:PHE:HE1	1.75	0.52
11:K:60:GLY:O	11:K:73:ILE:HA	2.09	0.52
1:A:991:GLN:HA	1:A:996:ILE:HD12	1.90	0.52
2:B:605:ARG:NH1	2:B:607:ILE:HG12	2.25	0.52
3:C:22:ILE:HG12	3:C:230:TYR:HD1	1.75	0.52
1:A:922:PHE:N	1:A:1052:ARG:HD2	2.22	0.52
1:A:957:GLU:HG2	1:A:960:ARG:HH21	1.75	0.52
1:A:1375:ARG:NH1	1:A:1379:GLU:OE1	2.43	0.52
4:D:90:LYS:NZ	4:D:126:GLU:OE2	2.32	0.52
7:G:97:LEU:HB2	7:G:108:ILE:HB	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:98:ARG:HD2	8:H:115:TYR:CD2	2.45	0.52
1:A:1163:HIS:O	1:A:1168:LYS:NZ	2.42	0.52
2:B:393:LEU:HD22	2:B:485:LEU:HD22	1.92	0.52
8:H:96:VAL:HA	8:H:116:VAL:HA	1.92	0.52
2:B:625:LEU:HD12	2:B:665:ILE:HD12	1.92	0.51
2:B:1003:ASN:C	2:B:1005:ALA:H	2.17	0.51
2:B:1037:ILE:HG21	2:B:1041:ILE:HD11	1.92	0.51
7:G:50:THR:O	7:G:73:LYS:N	2.39	0.51
2:B:125:TYR:HB3	2:B:146:LYS:HA	1.91	0.51
2:B:918:PHE:HE2	2:B:920:LYS:HE3	1.76	0.51
1:A:1308:TYR:O	1:A:1336:LEU:HA	2.10	0.51
1:A:1458:ILE:HD12	2:B:1091:ARG:HH21	1.75	0.51
3:C:61:ASP:OD2	12:L:48:ARG:NH2	2.43	0.51
7:G:79:PRO:HG3	7:G:104:MET:SD	2.50	0.51
7:G:129:LYS:HB3	7:G:136:VAL:HG13	1.93	0.51
1:A:977:VAL:HG11	1:A:1040:LEU:HD21	1.92	0.51
1:A:1141:VAL:HG13	1:A:1352:VAL:HG13	1.92	0.51
2:B:801:VAL:O	2:B:807:ARG:NH2	2.44	0.51
6:F:105:ILE:HG22	6:F:119:GLY:HA2	1.92	0.51
1:A:1318:LYS:HE2	1:A:1330:ALA:HB1	1.92	0.51
2:B:114:ARG:NH2	2:B:184:TYR:OH	2.44	0.51
7:G:108:ILE:HG12	7:G:161:GLY:C	2.36	0.51
13:N:33:DT:H2"	13:N:34:DG:C8	2.46	0.51
2:B:529:MET:HG2	2:B:702:MET:HB3	1.91	0.51
2:B:713:PHE:HB3	2:B:716:HIS:CD2	2.41	0.51
9:I:29:ASP:HB3	9:I:34:ILE:H	1.75	0.51
1:A:1115:LYS:NZ	1:A:1337:GLU:HB3	2.26	0.51
2:B:82:PRO:HA	2:B:133:ILE:O	2.11	0.51
4:D:124:ASP:O	4:D:128:GLN:CB	2.59	0.51
9:I:97:PHE:HB2	9:I:100:HIS:HE2	1.76	0.51
2:B:84:TYR:CE2	2:B:423:ILE:HD12	2.45	0.51
2:B:761:THR:HG23	2:B:1000:THR:HA	1.93	0.51
2:B:1038:THR:HA	3:C:195:THR:HA	1.93	0.51
5:E:17:ILE:HA	5:E:20:LEU:HD12	1.92	0.51
1:A:802:PHE:HE2	1:A:808:PRO:HD3	1.76	0.51
3:C:18:ASN:OD1	3:C:19:VAL:N	2.43	0.51
8:H:113:SER:HB3	8:H:126:GLN:HG2	1.93	0.51
2:B:540:PRO:HB2	2:B:596:ILE:HG23	1.93	0.50
3:C:67:ARG:NH2	3:C:149:LEU:O	2.44	0.50
4:D:15:GLU:OE1	7:G:78:ARG:NH1	2.41	0.50
11:K:21:ILE:HG21	11:K:84:GLN:HE21	1.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1022:LEU:HD12	2:B:1023:ARG:HG2	1.94	0.50
8:H:98:ARG:HD2	8:H:115:TYR:HD2	1.76	0.50
1:A:544:ALA:O	1:A:548:PHE:HB2	2.10	0.50
2:B:818:GLU:HB2	2:B:829:PHE:CE2	2.46	0.50
2:B:1060:HIS:HE1	2:B:1081:ASP:HA	1.77	0.50
3:C:8:THR:OG1	3:C:24:GLU:HB2	2.10	0.50
1:A:52:PRO:HB2	1:A:60:PRO:HD3	1.93	0.50
1:A:1189:ASP:HA	1:A:1192:TRP:CZ2	2.47	0.50
2:B:622:CYS:HB3	2:B:666:ASP:HB3	1.93	0.50
2:B:935:PHE:HE1	2:B:1050:ARG:HG3	1.75	0.50
1:A:355:MET:O	2:B:1091:ARG:HD2	2.11	0.50
1:A:528:PRO:HG2	1:A:1090:LEU:HD11	1.92	0.50
1:A:563:LEU:HD21	1:A:679:TRP:HB2	1.94	0.50
2:B:475:PHE:CE2	2:B:479:LEU:HD11	2.46	0.50
3:C:32:ASN:HA	3:C:35:ARG:HG2	1.93	0.50
5:E:77:PRO:HD2	5:E:105:VAL:O	2.12	0.50
2:B:117:ASN:HD21	2:B:815:LYS:NZ	2.10	0.50
4:D:109:GLU:O	4:D:113:ALA:CB	2.60	0.50
4:D:134:ILE:O	4:D:138:ARG:HG3	2.12	0.50
7:G:52:ASP:H	7:G:72:TYR:HA	1.76	0.50
2:B:501:LEU:HD12	2:B:505:LEU:HD12	1.94	0.50
2:B:761:THR:HG22	2:B:763:SER:H	1.77	0.50
4:D:123:GLU:O	4:D:127:LEU:N	2.27	0.50
7:G:1:MET:HB3	7:G:3:TYR:CZ	2.47	0.50
11:K:61:TYR:HA	11:K:72:ILE:O	2.12	0.50
1:A:98:GLY:HA3	1:A:1440:MET:HE2	1.94	0.50
1:A:387:ASN:ND2	2:B:1061:SER:OG	2.28	0.50
1:A:1141:VAL:HB	1:A:1336:LEU:HB2	1.93	0.50
7:G:7:LEU:HB2	7:G:72:TYR:CZ	2.47	0.50
7:G:119:PHE:HB2	7:G:128:TYR:HE1	1.76	0.50
1:A:274:ASP:OD1	1:A:275:ASP:N	2.45	0.50
1:A:589:LYS:HZ3	1:A:638:GLY:H	1.59	0.50
4:D:125:GLU:O	4:D:129:GLN:HB2	2.12	0.50
1:A:475:ARG:HH12	1:A:477:LEU:HD21	1.76	0.49
1:A:1234:LYS:NZ	1:A:1298:LEU:O	2.36	0.49
2:B:65:ILE:O	2:B:85:LEU:HA	2.12	0.49
9:I:81:THR:HG23	9:I:96:PHE:HE1	1.77	0.49
1:A:555:LEU:HD12	1:A:591:ILE:HD12	1.95	0.49
1:A:1139:LEU:HD13	1:A:1359:SER:HB3	1.94	0.49
2:B:845:TYR:CE1	2:B:865:VAL:HG21	2.47	0.49
3:C:35:ARG:HD2	3:C:184:PHE:CG	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:84:ARG:NH1	4:D:97:LEU:HD22	2.27	0.49
5:E:47:LYS:O	5:E:51:GLY:HA3	2.12	0.49
7:G:151:ARG:O	7:G:158:PHE:N	2.28	0.49
1:A:367:ILE:HG22	1:A:482:PHE:HB2	1.94	0.49
1:A:1301:ILE:HG12	1:A:1345:ARG:HD2	1.94	0.49
2:B:1120:ASN:HD22	2:B:1145:GLN:HB2	1.76	0.49
9:I:29:ASP:HB2	9:I:34:ILE:O	2.12	0.49
1:A:392:GLU:O	1:A:445:LYS:CA	2.56	0.49
2:B:785:TYR:CD2	2:B:786:THR:HG23	2.47	0.49
13:N:11:DG:H2'	13:N:12:DT:H72	1.93	0.49
1:A:255:VAL:HG13	1:A:280:LEU:HD13	1.94	0.49
1:A:541:THR:O	1:A:545:VAL:HG23	2.12	0.49
3:C:169:PHE:HE1	3:C:171:LYS:HD2	1.77	0.49
1:A:1194:ASN:O	1:A:1198:GLU:HG3	2.12	0.49
7:G:30:LEU:O	7:G:34:VAL:HG22	2.13	0.49
1:A:375:ILE:HD11	1:A:669:TYR:CB	2.43	0.49
1:A:987:ILE:HG23	1:A:1060:LEU:HD11	1.93	0.49
8:H:58:LEU:HD12	8:H:144:LEU:O	2.12	0.49
1:A:671:ASN:O	1:A:675:VAL:HG22	2.12	0.49
1:A:1130:ILE:HD13	1:A:1411:LEU:HB3	1.95	0.49
2:B:646:ARG:HG3	2:B:651:TYR:O	2.12	0.49
2:B:677:MET:H	2:B:682:LEU:HD22	1.78	0.49
5:E:3:ASP:HB3	5:E:48:PRO:HD2	1.94	0.49
5:E:73:PHE:HB2	5:E:99:ILE:HD12	1.95	0.49
2:B:907:VAL:HG22	2:B:921:ILE:HG12	1.95	0.49
11:K:46:ILE:HG21	11:K:87:PHE:CE1	2.48	0.49
2:B:242:ARG:HB3	2:B:254:GLN:HG3	1.94	0.49
2:B:830:GLU:OE2	2:B:870:THR:OG1	2.24	0.49
7:G:97:LEU:HD22	7:G:108:ILE:HD12	1.95	0.49
10:J:65:LEU:O	12:L:23:HIS:ND1	2.45	0.49
1:A:245:PRO:HA	1:A:248:MET:HE2	1.95	0.48
1:A:460:ARG:NH2	14:P:20:C:O2'	2.44	0.48
1:A:560:VAL:HG22	1:A:591:ILE:HD11	1.93	0.48
1:A:623:PRO:HA	8:H:27:ARG:HH22	1.75	0.48
1:A:868:MET:HE3	1:A:1401:LEU:HD13	1.95	0.48
2:B:820:LYS:HG3	2:B:826:GLU:HG2	1.94	0.48
9:I:25:TYR:O	9:I:37:TYR:HA	2.13	0.48
2:B:796:MET:HE3	2:B:948:GLN:HE21	1.76	0.48
2:B:1124:ILE:HG22	2:B:1125:MET:N	2.28	0.48
7:G:25:THR:O	7:G:29:LYS:HG2	2.13	0.48
1:A:1375:ARG:HH12	1:A:1379:GLU:CD	2.22	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:141:LEU:HD13	1:A:1445:HIS:HE1	1.79	0.48
1:A:222:HIS:ND1	1:A:246:GLU:HB2	2.29	0.48
5:E:22:HIS:HB2	5:E:33:LEU:HD21	1.96	0.48
7:G:52:ASP:N	7:G:71:LYS:O	2.46	0.48
7:G:92:VAL:HG11	7:G:127:CYS:HA	1.95	0.48
1:A:1288:ILE:HG22	1:A:1292:MET:HE2	1.95	0.48
2:B:553:LEU:HD11	2:B:573:TRP:O	2.13	0.48
10:J:3:ILE:HD13	10:J:18:TRP:HB2	1.94	0.48
1:A:441:GLN:HG2	1:A:444:TYR:CE2	2.49	0.48
1:A:958:ARG:HH12	1:A:1014:LYS:HZ2	1.61	0.48
1:A:1160:ARG:O	1:A:1300:GLY:HA2	2.12	0.48
2:B:19:PRO:C	2:B:21:LEU:H	2.21	0.48
2:B:407:MET:HE3	2:B:443:GLY:HA3	1.94	0.48
1:A:1148:ALA:HB1	1:A:1333:GLU:HB2	1.96	0.48
2:B:231:PRO:O	2:B:232:THR:HG23	2.13	0.48
8:H:11:ASP:OD1	8:H:55:LYS:HG2	2.14	0.48
1:A:461:GLN:HE22	1:A:502:ASN:HD22	1.60	0.48
1:A:927:GLU:O	1:A:931:ARG:HG2	2.14	0.48
2:B:968:ASN:OD1	2:B:969:PRO:HD2	2.14	0.48
1:A:370:ASP:OD1	11:K:65:HIS:NE2	2.46	0.48
1:A:892:GLY:HA3	1:A:1396:ARG:HH11	1.78	0.48
4:D:76:ASN:OD1	4:D:77:ARG:N	2.47	0.48
6:F:71:LEU:O	6:F:75:MET:HG3	2.14	0.48
1:A:230:ASP:OD1	1:A:244:ARG:NH2	2.47	0.48
1:A:683:GLU:HA	2:B:1038:THR:HB	1.96	0.48
2:B:548:TRP:O	2:B:549:SER:OG	2.23	0.48
2:B:699:HIS:ND1	2:B:700:PRO:HD2	2.28	0.48
5:E:185:ILE:HG21	5:E:209:VAL:HG21	1.96	0.48
7:G:62:GLY:C	7:G:64:GLY:H	2.22	0.48
1:A:515:ILE:HD11	2:B:1102:PHE:CD1	2.48	0.47
1:A:628:VAL:HA	1:A:638:GLY:HA3	1.96	0.47
1:A:222:HIS:CD2	1:A:226:LYS:HE3	2.50	0.47
1:A:557:ARG:O	1:A:561:MET:HG2	2.14	0.47
1:A:739:ASN:O	1:A:743:ARG:HG2	2.14	0.47
2:B:236:TRP:HB2	2:B:259:THR:HB	1.95	0.47
7:G:162:SER:OG	7:G:164:MET:HG2	2.15	0.47
7:G:114:PRO:HG3	7:G:164:MET:HA	1.96	0.47
1:A:447:GLU:OE1	2:B:1064:ARG:NH2	2.46	0.47
1:A:798:ILE:O	1:A:820:ARG:NE	2.41	0.47
2:B:65:ILE:HD11	2:B:412:LEU:HD22	1.97	0.47
2:B:388:TYR:HD1	2:B:504:THR:OG1	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:42:GLU:OE2	4:D:65:LEU:HD11	2.14	0.47
1:A:29:ASP:HB3	1:A:33:ARG:HH12	1.79	0.47
1:A:1167:ARG:HB2	1:A:1293:LEU:HB3	1.95	0.47
1:A:1184:THR:HB	1:A:1189:ASP:OD1	2.15	0.47
3:C:205:LYS:HZ2	3:C:213:GLU:HA	1.79	0.47
5:E:180:ALA:HA	5:E:185:ILE:HD12	1.96	0.47
1:A:465:HIS:CD2	1:A:467:MET:HB2	2.50	0.47
1:A:760:LEU:HD11	1:A:781:ILE:HG21	1.97	0.47
2:B:847:LYS:NZ	2:B:864:ASP:OD2	2.48	0.47
7:G:99:THR:OG1	7:G:106:CYS:O	2.28	0.47
8:H:8:ASP:OD2	8:H:32:SER:OG	2.24	0.47
8:H:8:ASP:OD1	8:H:9:ILE:N	2.47	0.47
14:P:12:A:H2'	14:P:13:G:O4'	2.14	0.47
1:A:22:GLN:NE2	1:A:1446:GLY:O	2.46	0.47
1:A:113:PHE:CE1	1:A:186:ARG:HD2	2.49	0.47
1:A:389:THR:HG21	1:A:417:LYS:HD3	1.97	0.47
1:A:472:HIS:CE1	1:A:521:VAL:HG21	2.50	0.47
1:A:1055:ALA:O	1:A:1059:ARG:NH1	2.47	0.47
2:B:84:TYR:HE2	2:B:423:ILE:HG23	1.80	0.47
2:B:496:ALA:C	2:B:498:PRO:HD2	2.40	0.47
2:B:692:THR:HB	9:I:76:PRO:HB3	1.97	0.47
2:B:841:ARG:HD2	2:B:895:PHE:CZ	2.50	0.47
2:B:1151:MET:SD	2:B:1171:MET:HE1	2.54	0.47
3:C:117:SER:HB2	3:C:129:PRO:HB2	1.95	0.47
4:D:33:LEU:O	4:D:37:VAL:N	2.37	0.47
7:G:10:GLU:HG2	7:G:69:PRO:HA	1.95	0.47
11:K:105:PHE:CE2	11:K:109:ILE:HD11	2.50	0.47
1:A:1292:MET:O	1:A:1296:MET:HG2	2.14	0.47
2:B:310:VAL:HG23	2:B:311:ILE:HD12	1.96	0.47
5:E:62:VAL:O	5:E:71:GLN:CA	2.62	0.47
12:L:41:TYR:CE2	12:L:43:ILE:HB	2.50	0.47
1:A:190:ARG:O	1:A:200:ALA:HA	2.14	0.47
1:A:460:ARG:HD2	1:A:501:MET:HE2	1.97	0.47
1:A:570:TRP:CZ3	1:A:572:GLY:HA2	2.50	0.47
2:B:217:TYR:CE2	2:B:376:ALA:HA	2.50	0.47
2:B:565:THR:HG22	2:B:610:ARG:HG3	1.97	0.47
7:G:49:THR:H	7:G:74:ALA:HA	1.78	0.47
2:B:836:THR:HG23	2:B:837:CYS:H	1.80	0.47
10:J:40:LEU:HD22	10:J:45:CYS:HB3	1.97	0.47
1:A:348:GLY:O	1:A:352:GLY:N	2.41	0.46
1:A:459:ASN:HD21	2:B:1090:GLU:HG3	1.79	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:618:TYR:HE1	8:H:40:ILE:HD13	1.79	0.46
1:A:717:ILE:HG12	1:A:737:PHE:HZ	1.79	0.46
1:A:1284:PHE:CE2	1:A:1288:ILE:HD11	2.50	0.46
2:B:132:VAL:O	2:B:139:GLN:HA	2.14	0.46
3:C:44:ILE:HG23	3:C:176:TRP:HD1	1.80	0.46
7:G:10:GLU:HA	7:G:68:TYR:O	2.16	0.46
11:K:29:ASN:ND2	11:K:78:THR:O	2.48	0.46
15:T:4:DC:H2'	15:T:5:DT:C6	2.50	0.46
1:A:415:GLY:H	1:A:449:HIS:HD2	1.63	0.46
1:A:488:VAL:C	1:A:491:PRO:HD2	2.41	0.46
1:A:802:PHE:HE2	1:A:808:PRO:CD	2.28	0.46
1:A:1362:ILE:HG23	1:A:1374:VAL:HG13	1.97	0.46
3:C:72:PRO:HG3	10:J:13:ILE:HD11	1.97	0.46
1:A:421:ARG:HA	1:A:444:TYR:CD1	2.50	0.46
1:A:499:ASP:OD1	14:P:20:C:H4'	2.16	0.46
1:A:672:ILE:HG23	1:A:676:ILE:HD12	1.98	0.46
1:A:1169:VAL:HG12	1:A:1220:HIS:HB3	1.96	0.46
1:A:1316:ASN:OD1	1:A:1317:LYS:N	2.48	0.46
1:A:1454:VAL:HG13	1:A:1464:ALA:HB1	1.97	0.46
2:B:282:ARG:NH2	9:I:16:PHE:HB2	2.31	0.46
2:B:1118:VAL:HG11	2:B:1171:MET:HB2	1.97	0.46
1:A:330:GLN:O	1:A:331:LYS:HG3	2.15	0.46
2:B:84:TYR:CD1	2:B:132:VAL:HG12	2.50	0.46
2:B:794:VAL:HG22	2:B:967:ILE:HG22	1.97	0.46
2:B:1072:ARG:O	2:B:1112:ASP:HB3	2.15	0.46
2:B:1151:MET:HE2	2:B:1156:LYS:N	2.30	0.46
5:E:121:MET:HE2	5:E:125:TYR:HB2	1.96	0.46
9:I:22:ASN:ND2	9:I:41:ASN:HD22	2.14	0.46
4:D:125:GLU:O	4:D:129:GLN:CB	2.64	0.46
5:E:94:MET:HE3	5:E:99:ILE:O	2.15	0.46
2:B:312:GLN:HE21	9:I:41:ASN:HD21	1.64	0.46
2:B:429:PHE:HE2	2:B:431:LEU:HD23	1.81	0.46
2:B:601:VAL:HG22	2:B:616:THR:HG23	1.97	0.46
2:B:1142:ASN:HD21	2:B:1145:GLN:HG3	1.81	0.46
3:C:259:LEU:O	3:C:263:LEU:HB3	2.15	0.46
7:G:137:ILE:HG12	7:G:170:LEU:HB2	1.96	0.46
8:H:58:LEU:HD11	8:H:143:LEU:CD1	2.44	0.46
13:N:11:DG:C5	13:N:12:DT:C4	3.04	0.46
1:A:544:ALA:O	1:A:548:PHE:HB3	2.16	0.46
1:A:584:PRO:O	1:A:585:LEU:HD12	2.16	0.46
1:A:931:ARG:HH11	1:A:936:GLU:HG3	1.79	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:81:ARG:HG3	8:H:82:PRO:HD3	1.97	0.46
1:A:432:HIS:HB3	1:A:433:PRO:HD2	1.97	0.46
1:A:971:PRO:O	1:A:972:THR:OG1	2.24	0.46
1:A:1474:LEU:CD2	7:G:58:VAL:HG22	2.46	0.46
2:B:465:GLY:O	2:B:468:GLN:NE2	2.48	0.46
2:B:865:VAL:HG22	2:B:895:PHE:CE1	2.51	0.46
2:B:906:GLN:OE1	2:B:922:ARG:NH2	2.49	0.46
2:B:939:HIS:CD2	2:B:980:HIS:HA	2.51	0.46
2:B:1108:PHE:HD1	2:B:1152:PRO:HG3	1.81	0.46
4:D:45:LYS:HB2	4:D:61:PHE:HZ	1.80	0.46
15:T:28:DA:C5	15:T:29:DC:N4	2.84	0.46
1:A:11:SER:N	2:B:1135:TYR:HH	2.13	0.46
1:A:62:GLN:HE22	1:A:255:VAL:HG12	1.81	0.46
1:A:335:PRO:HD3	2:B:460:HIS:CE1	2.51	0.46
1:A:595:ILE:HD11	1:A:675:VAL:HG21	1.98	0.46
2:B:1028:LEU:HD21	2:B:1043:ILE:HD11	1.97	0.46
3:C:114:HIS:CE1	3:C:152:LYS:HE2	2.51	0.46
2:B:781:ALA:HB2	2:B:1043:ILE:HG12	1.96	0.45
2:B:1030:ASN:OD1	2:B:1031:GLY:N	2.49	0.45
7:G:6:SER:HG	7:G:73:LYS:HZ3	1.55	0.45
4:D:131:LEU:O	4:D:135:GLN:HG2	2.16	0.45
5:E:114:ALA:O	5:E:118:LEU:HG	2.16	0.45
9:I:36:LEU:HD23	9:I:47:GLU:HA	1.97	0.45
1:A:1170:THR:HA	1:A:1216:LEU:HD23	1.98	0.45
2:B:1127:ILE:HD11	2:B:1138:ARG:HE	1.82	0.45
5:E:19:GLN:OE1	5:E:138:ASN:ND2	2.40	0.45
10:J:12:LYS:HG2	10:J:13:ILE:N	2.32	0.45
11:K:20:THR:OG1	11:K:34:THR:HB	2.17	0.45
15:T:10:DT:H2"	15:T:11:DA:H8	1.81	0.45
1:A:880:ARG:HD3	1:A:884:ASN:O	2.17	0.45
1:A:1181:PRO:HB3	1:A:1197:TYR:CE2	2.51	0.45
2:B:17:ILE:HG22	2:B:18:THR:H	1.81	0.45
2:B:841:ARG:HE	14:P:8:A:H2	1.65	0.45
2:B:859:ARG:HG2	2:B:903:ILE:HG12	1.98	0.45
4:D:109:GLU:O	4:D:113:ALA:HB2	2.17	0.45
8:H:94:GLY:HA3	8:H:118:TYR:HD1	1.81	0.45
1:A:868:MET:O	1:A:1088:GLY:HA3	2.17	0.45
2:B:670:GLU:O	2:B:673:VAL:HG12	2.17	0.45
3:C:187:ASP:OD2	3:C:190:ASN:HA	2.17	0.45
1:A:862:ARG:O	1:A:866:LYS:HG2	2.17	0.45
2:B:35:ASP:OD2	2:B:646:ARG:NH2	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:120:ASP:CG	1:A:181:HIS:HD1	2.25	0.45
1:A:931:ARG:HD3	1:A:939:VAL:HG11	1.98	0.45
1:A:1167:ARG:HG3	9:I:58:ILE:HD13	1.98	0.45
1:A:1457:ASN:ND2	1:A:1465:PRO:HD3	2.22	0.45
1:A:1474:LEU:HD11	6:F:107:ARG:NE	2.32	0.45
2:B:193:VAL:O	2:B:467:SER:HA	2.16	0.45
2:B:513:GLU:HG3	2:B:726:SER:HB3	1.97	0.45
2:B:552:ASN:O	2:B:556:ILE:HG13	2.17	0.45
3:C:45:ILE:HG13	3:C:79:VAL:HG22	1.99	0.45
5:E:14:ARG:O	5:E:18:MET:HG2	2.16	0.45
7:G:117:MET:HE2	7:G:137:ILE:HD12	1.99	0.45
2:B:838:GLN:N	2:B:889:LYS:O	2.46	0.45
4:D:65:LEU:HA	4:D:68:THR:HG22	1.99	0.45
11:K:19:ILE:HG12	11:K:35:ILE:HD12	1.98	0.45
1:A:545:VAL:HG11	1:A:645:LEU:HD12	1.99	0.45
1:A:797:ARG:HG2	1:A:820:ARG:HB3	1.98	0.45
1:A:808:PRO:HB2	2:B:675:LEU:HD12	1.99	0.45
1:A:1098:PRO:O	1:A:1102:MET:HG3	2.17	0.45
2:B:144:HIS:ND1	2:B:431:LEU:HD12	2.32	0.45
2:B:1028:LEU:HD12	2:B:1041:ILE:HD13	1.98	0.45
5:E:82:VAL:HB	5:E:110:MET:SD	2.56	0.45
9:I:81:THR:HG23	9:I:96:PHE:CE1	2.52	0.45
1:A:369:PRO:HB2	1:A:486:LEU:HD11	1.99	0.45
1:A:376:ASP:O	1:A:473:ARG:N	2.48	0.45
1:A:470:MET:HG2	1:A:524:MET:SD	2.56	0.45
1:A:529:GLN:O	1:A:1394:ASN:HB2	2.17	0.45
5:E:21:CYS:SG	5:E:62:VAL:HG21	2.57	0.45
6:F:61:GLU:OE2	6:F:108:ARG:NE	2.50	0.45
8:H:14:ASP:HB2	8:H:29:HIS:HB2	1.98	0.45
9:I:97:PHE:HD1	9:I:100:HIS:HD2	1.65	0.45
1:A:514:GLU:OE2	1:A:1468:THR:HG21	2.16	0.44
1:A:919:LYS:O	1:A:1052:ARG:HD3	2.16	0.44
1:A:1020:LEU:HD22	1:A:1076:PHE:CD2	2.52	0.44
2:B:124:LEU:CB	2:B:150:GLY:O	2.61	0.44
2:B:924:ARG:HH12	3:C:62:GLU:CD	2.24	0.44
2:B:1165:MET:O	2:B:1166:SER:OG	2.29	0.44
4:D:22:PHE:CE2	4:D:93:HIS:HE1	2.35	0.44
4:D:93:HIS:HB3	4:D:96:GLU:HG3	1.98	0.44
11:K:57:LEU:N	11:K:76:GLN:O	2.49	0.44
1:A:269:SER:HB3	2:B:825:GLN:HE22	1.82	0.44
1:A:1417:HIS:CE1	13:N:30:DA:H4'	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1359:SER:O	1:A:1365:ILE:HD11	2.17	0.44
2:B:1028:LEU:HD12	2:B:1041:ILE:HB	1.99	0.44
8:H:96:VAL:HB	8:H:116:VAL:HG22	1.99	0.44
11:K:10:PHE:CE2	11:K:11:LEU:HG	2.52	0.44
2:B:83:ARG:HD2	2:B:133:ILE:HD12	2.00	0.44
2:B:721:ARG:HH21	2:B:975:ARG:HG2	1.82	0.44
8:H:90:TYR:CE2	8:H:92:MET:HE2	2.51	0.44
15:T:17:DG:H2'	15:T:18:DC:C6	2.52	0.44
1:A:11:SER:N	2:B:1135:TYR:OH	2.50	0.44
1:A:557:ARG:NH1	11:K:51:LEU:HD22	2.32	0.44
2:B:679:PRO:HA	2:B:683:GLN:HG2	2.00	0.44
2:B:1032:PHE:HA	3:C:36:ARG:NH2	2.33	0.44
2:B:971:ALA:HA	2:B:975:ARG:NH1	2.32	0.44
12:L:36:CYS:HB2	12:L:44:MET:CE	2.48	0.44
1:A:1229:GLU:O	1:A:1233:GLU:HG2	2.17	0.44
2:B:971:ALA:HA	2:B:975:ARG:HH11	1.83	0.44
4:D:29:ALA:HA	7:G:5:ILE:HG22	1.99	0.44
10:J:22:LEU:O	10:J:26:GLN:HG2	2.18	0.44
1:A:406:VAL:HG21	1:A:440:LEU:HD11	2.00	0.44
1:A:971:PRO:C	1:A:973:GLY:H	2.25	0.44
1:A:1471:PHE:CE2	6:F:64:ARG:HD3	2.53	0.44
2:B:270:ILE:HG13	2:B:305:LEU:HD23	1.99	0.44
2:B:427:LYS:HG3	2:B:428:ASP:N	2.30	0.44
4:D:35:SER:O	4:D:39:MET:HG3	2.18	0.44
6:F:66:LEU:HD11	6:F:97:LEU:HD22	1.99	0.44
9:I:26:PRO:HA	9:I:36:LEU:O	2.16	0.44
1:A:576:GLN:HA	8:H:75:TYR:HB2	2.00	0.44
1:A:601:ASN:HB3	1:A:988:TRP:CZ3	2.53	0.44
1:A:626:THR:OG1	1:A:627:LYS:N	2.47	0.44
1:A:901:VAL:HG12	1:A:980:PRO:HA	1.99	0.44
1:A:991:GLN:NE2	1:A:1058:PHE:O	2.49	0.44
1:A:1139:LEU:HB3	1:A:1338:THR:OG1	2.18	0.44
2:B:36:GLU:OE1	2:B:653:TRP:HB3	2.17	0.44
3:C:86:ARG:NE	11:K:11:LEU:HD21	2.32	0.44
4:D:20:LEU:HD22	4:D:93:HIS:ND1	2.33	0.44
4:D:43:HIS:O	4:D:47:GLN:HG3	2.18	0.44
1:A:312:PHE:O	1:A:316:THR:CB	2.66	0.43
1:A:1200:PRO:HB2	1:A:1203:ASP:OD2	2.17	0.43
7:G:152:VAL:HB	7:G:157:ILE:HG12	1.99	0.43
9:I:73:SER:HA	9:I:95:VAL:HG11	1.99	0.43
11:K:61:TYR:HB3	11:K:73:ILE:HG12	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:96:HIS:HB2	1:A:250:VAL:HG23	2.00	0.43
1:A:337:LYS:HA	1:A:341:GLN:OE1	2.18	0.43
6:F:66:LEU:HD21	6:F:97:LEU:HB2	2.00	0.43
13:N:11:DG:C8	13:N:12:DT:H72	2.53	0.43
2:B:205:VAL:O	2:B:371:ARG:NH1	2.51	0.43
2:B:475:PHE:CE2	2:B:768:ARG:HB2	2.54	0.43
2:B:719:SER:OG	2:B:720:PRO:HD3	2.17	0.43
3:C:33:SER:O	3:C:37:VAL:HG23	2.19	0.43
9:I:20:CYS:SG	9:I:22:ASN:ND2	2.92	0.43
14:P:16:C:H2'	14:P:17:A:C8	2.53	0.43
1:A:76:GLY:C	1:A:78:MET:H	2.27	0.43
1:A:371:PRO:HD2	2:B:788:TYR:CE2	2.53	0.43
1:A:395:THR:HB	1:A:396:PRO:HD2	1.99	0.43
1:A:749:ARG:NH2	1:A:779:ILE:HD11	2.34	0.43
2:B:172:CYS:HA	10:J:62:TYR:HE1	1.83	0.43
3:C:37:VAL:HG13	3:C:41:GLU:HB2	1.99	0.43
1:A:467:MET:HE3	1:A:527:THR:HA	1.99	0.43
1:A:497:ASP:OD1	1:A:497:ASP:N	2.50	0.43
2:B:1132:THR:HG22	2:B:1134:THR:HG23	1.99	0.43
3:C:8:THR:O	3:C:23:ILE:HA	2.18	0.43
7:G:12:LEU:HA	7:G:66:VAL:O	2.18	0.43
8:H:65:TYR:CD1	8:H:82:PRO:HB2	2.54	0.43
1:A:521:VAL:N	1:A:522:PRO:HD2	2.34	0.43
1:A:1173:THR:HG23	1:A:1214:VAL:HG12	2.00	0.43
3:C:62:GLU:HB3	12:L:55:PHE:CD1	2.53	0.43
1:A:589:LYS:NZ	1:A:625:ASP:OD1	2.50	0.43
2:B:812:ARG:NH1	2:B:897:ARG:HG3	2.33	0.43
5:E:7:THR:OG1	5:E:48:PRO:HD3	2.18	0.43
7:G:96:GLY:HA3	7:G:109:SER:HA	2.01	0.43
1:A:1024:ASN:O	5:E:162:ARG:NH2	2.52	0.43
2:B:17:ILE:HG22	2:B:18:THR:N	2.33	0.43
7:G:53:ASN:OD1	7:G:54:ILE:N	2.51	0.43
1:A:34:MET:HE1	2:B:1124:ILE:HD12	2.00	0.43
1:A:1099:ALA:HA	1:A:1102:MET:SD	2.59	0.43
1:A:1445:HIS:HB2	1:A:1447:GLU:HG3	2.00	0.43
2:B:932:GLY:HA3	2:B:1055:VAL:HG11	2.00	0.43
2:B:1118:VAL:HG21	2:B:1171:MET:SD	2.59	0.43
3:C:72:PRO:HG3	10:J:13:ILE:CD1	2.49	0.43
3:C:193:ARG:NH1	3:C:217:GLN:OE1	2.39	0.43
10:J:1:MET:HA	10:J:55:LEU:HB2	2.00	0.43
1:A:344:LYS:O	1:A:1435:THR:HG21	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:402:LEU:HD23	1:A:405:LEU:HD12	2.00	0.43
1:A:685:HIS:O	2:B:783:ALA:HA	2.19	0.43
1:A:1035:GLU:O	1:A:1039:LEU:HB2	2.18	0.43
2:B:84:TYR:HD1	2:B:132:VAL:HG12	1.83	0.43
3:C:94:CYS:HB2	3:C:95:PRO:HD2	2.00	0.43
1:A:141:LEU:HD12	1:A:236:LEU:O	2.19	0.42
2:B:568:PHE:HD2	2:B:613:ARG:HG2	1.83	0.42
2:B:844:ILE:HG22	2:B:846:ASP:H	1.84	0.42
2:B:1112:ASP:OD1	2:B:1112:ASP:N	2.52	0.42
3:C:205:LYS:NZ	3:C:215:GLU:O	2.47	0.42
3:C:211:LEU:HD11	3:C:218:ALA:HB2	2.01	0.42
4:D:60:VAL:HG13	7:G:103:PRO:HB3	2.01	0.42
7:G:52:ASP:OD1	7:G:73:LYS:HG2	2.19	0.42
1:A:1440:MET:SD	2:B:1167:ILE:HD11	2.59	0.42
2:B:252:ILE:HG13	2:B:253:GLY:N	2.34	0.42
4:D:30:GLU:O	7:G:3:TYR:HA	2.20	0.42
8:H:90:TYR:HB3	8:H:145:MET:HB2	2.01	0.42
1:A:668:PHE:CZ	1:A:672:ILE:HD11	2.53	0.42
5:E:44:PHE:O	5:E:53:PRO:HD3	2.20	0.42
11:K:49:GLN:HB2	11:K:94:LEU:HD21	2.00	0.42
2:B:623:ARG:NH1	2:B:625:LEU:HD21	2.34	0.42
2:B:836:THR:HG23	2:B:837:CYS:N	2.34	0.42
2:B:904:VAL:HG22	2:B:923:VAL:HG22	2.01	0.42
2:B:1094:GLN:HE22	2:B:1102:PHE:HE2	1.67	0.42
3:C:241:PRO:HA	3:C:244:ILE:HD12	2.00	0.42
4:D:84:ARG:O	4:D:88:LEU:CB	2.65	0.42
8:H:7:GLU:HG2	8:H:59:VAL:HG22	2.01	0.42
1:A:998:PRO:HA	1:A:1059:ARG:HG3	2.01	0.42
2:B:248:LYS:O	2:B:252:ILE:HG12	2.20	0.42
2:B:794:VAL:CG1	2:B:965:ILE:HG23	2.49	0.42
7:G:12:LEU:HD21	7:G:60:GLN:HE22	1.83	0.42
1:A:46:THR:HG22	1:A:47:THR:HG23	2.01	0.42
1:A:91:ALA:HB2	1:A:291:ARG:HD2	2.00	0.42
2:B:220:GLU:OE1	2:B:236:TRP:NE1	2.52	0.42
2:B:262:TYR:CD2	2:B:346:GLU:HG3	2.54	0.42
2:B:558:PRO:O	2:B:561:ILE:HG22	2.20	0.42
2:B:712:PRO:O	2:B:939:HIS:HE1	2.03	0.42
2:B:1046:THR:HB	2:B:1048:TYR:HE1	1.85	0.42
3:C:10:ARG:O	3:C:21:PHE:HA	2.20	0.42
3:C:42:VAL:HB	3:C:178:PRO:HG3	2.02	0.42
3:C:59:LEU:HD13	3:C:63:PHE:CE2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:64:THR:HG21	7:G:46:ILE:HG23	2.01	0.42
7:G:62:GLY:O	7:G:63:ARG:HG2	2.20	0.42
9:I:97:PHE:HB2	9:I:100:HIS:NE2	2.35	0.42
9:I:117:PRO:HB2	9:I:118:HIS:CD2	2.54	0.42
11:K:81:TYR:HE2	11:K:86:ALA:HB2	1.85	0.42
2:B:399:LEU:HB3	2:B:453:TRP:CZ2	2.54	0.42
1:A:230:ASP:HA	1:A:233:CYS:SG	2.60	0.42
1:A:749:ARG:HH22	1:A:779:ILE:HD11	1.84	0.42
2:B:497:LYS:O	2:B:497:LYS:HG2	2.20	0.42
3:C:259:LEU:O	3:C:263:LEU:CB	2.68	0.42
4:D:108:ALA:HB2	4:D:128:GLN:HB2	2.01	0.42
5:E:41:LYS:HG3	5:E:46:GLY:HA2	2.02	0.42
9:I:97:PHE:CD1	9:I:100:HIS:HD2	2.38	0.42
1:A:139:LYS:HG2	1:A:143:HIS:CD2	2.54	0.42
1:A:264:VAL:HG13	14:P:11:A:HI'	2.02	0.42
1:A:1115:LYS:HZ1	1:A:1138:SER:HB2	1.84	0.42
1:A:1354:PRO:HB3	5:E:137:ILE:HD11	2.01	0.42
1:A:1429:LYS:HB2	1:A:1438:VAL:HG11	2.02	0.42
2:B:130:LYS:NZ	2:B:429:PHE:O	2.53	0.42
2:B:776:ILE:HG22	2:B:777:ASN:O	2.19	0.42
1:A:370:ASP:HB2	1:A:483:ARG:HB3	2.02	0.42
1:A:904:GLN:NE2	1:A:982:ASN:HA	2.27	0.42
1:A:1471:PHE:CZ	6:F:61:GLU:HA	2.55	0.42
2:B:1005:ALA:O	2:B:1010:LYS:NZ	2.35	0.42
4:D:20:LEU:HD12	4:D:121:ARG:HH22	1.85	0.42
4:D:35:SER:HB3	4:D:80:ILE:HD11	2.02	0.42
13:N:13:DA:O5'	13:N:13:DA:H8	2.03	0.42
1:A:140:ARG:O	1:A:144:VAL:HG22	2.19	0.41
1:A:369:PRO:HD3	1:A:496:PHE:CG	2.55	0.41
2:B:568:PHE:CD2	2:B:613:ARG:HG2	2.55	0.41
2:B:709:SER:HB2	2:B:767:LEU:HD11	2.02	0.41
2:B:826:GLU:H	2:B:872:THR:HG22	1.85	0.41
7:G:62:GLY:O	7:G:64:GLY:N	2.50	0.41
2:B:96:PRO:HG2	2:B:120:TYR:CZ	2.56	0.41
2:B:273:PHE:HE2	2:B:288:ILE:HD11	1.86	0.41
2:B:1032:PHE:CD1	11:K:40:HIS:CD2	3.08	0.41
3:C:7:PRO:HB3	3:C:26:THR:OG1	2.20	0.41
10:J:3:ILE:CD1	10:J:18:TRP:HB2	2.50	0.41
15:T:24:DC:H2''	15:T:25:DA:C8	2.55	0.41
1:A:389:THR:CG2	1:A:417:LYS:HD3	2.49	0.41
1:A:623:PRO:HA	8:H:27:ARG:NH2	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:33:LEU:HB2	4:D:36:GLU:HG3	2.01	0.41
5:E:64:HIS:CD2	5:E:66:ASP:HB2	2.55	0.41
9:I:96:PHE:HD2	9:I:110:LEU:HD22	1.86	0.41
13:N:27:DA:H2''	13:N:28:DG:OP2	2.19	0.41
1:A:222:HIS:O	1:A:226:LYS:HG3	2.20	0.41
1:A:1095:LEU:HD23	1:A:1393:VAL:HG11	2.01	0.41
1:A:1097:GLU:HB3	1:A:1098:PRO:HD3	2.02	0.41
2:B:297:MET:HE3	2:B:379:ARG:NH1	2.35	0.41
11:K:56:VAL:HG22	11:K:77:THR:HG22	2.01	0.41
15:T:1:DA:H2''	15:T:2:DA:C8	2.56	0.41
1:A:28:PRO:HA	1:A:31:LEU:HD12	2.03	0.41
1:A:33:ARG:HD3	2:B:1139:GLY:HA2	2.02	0.41
1:A:369:PRO:HB3	1:A:486:LEU:HD21	2.02	0.41
1:A:456:VAL:HG21	1:A:503:LEU:HD11	2.03	0.41
1:A:551:ARG:NH1	8:H:42:ASP:OD2	2.53	0.41
1:A:717:ILE:HG12	1:A:737:PHE:CZ	2.56	0.41
1:A:1227:THR:HG22	1:A:1229:GLU:H	1.85	0.41
2:B:934:LYS:HG2	2:B:1051:LEU:HD12	2.02	0.41
1:A:1262:MET:HG2	1:A:1265:ASP:H	1.84	0.41
2:B:412:LEU:O	2:B:416:ARG:HG2	2.21	0.41
2:B:453:TRP:O	2:B:462:ALA:HB1	2.20	0.41
12:L:36:CYS:HB3	12:L:39:CYS:SG	2.61	0.41
1:A:22:GLN:HG2	1:A:242:TYR:CZ	2.56	0.41
1:A:66:GLU:C	1:A:68:THR:H	2.28	0.41
1:A:77:ASN:C	1:A:79:THR:H	2.28	0.41
1:A:273:GLN:HB2	1:A:278:HIS:NE2	2.35	0.41
1:A:481:THR:HG22	2:B:1055:VAL:HG21	2.03	0.41
2:B:347:MET:SD	2:B:348:LEU:HD13	2.61	0.41
2:B:798:ARG:HB2	2:B:948:GLN:HB3	2.02	0.41
3:C:37:VAL:O	3:C:42:VAL:HG23	2.21	0.41
7:G:97:LEU:HB3	7:G:99:THR:HG23	2.03	0.41
8:H:95:LYS:HB2	8:H:140:ARG:NH1	2.36	0.41
1:A:64:VAL:HG12	1:A:78:MET:HE2	2.03	0.41
1:A:597:PRO:HD3	1:A:668:PHE:CD1	2.56	0.41
1:A:621:ILE:HD11	8:H:124:ARG:HB2	2.02	0.41
1:A:784:VAL:HG13	2:B:978:ILE:HD11	2.02	0.41
1:A:872:MET:HG2	1:A:873:VAL:N	2.36	0.41
1:A:330:GLN:NE2	1:A:334:ARG:HH21	2.19	0.41
1:A:346:LYS:HA	1:A:351:ARG:HD2	2.03	0.41
1:A:460:ARG:HB2	1:A:501:MET:HG2	2.01	0.41
1:A:486:LEU:HD23	1:A:486:LEU:HA	1.71	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:488:VAL:O	1:A:491:PRO:HD2	2.20	0.41
1:A:741:VAL:HG11	1:A:797:ARG:NH1	2.36	0.41
1:A:857:THR:HG21	1:A:1100:THR:HA	2.01	0.41
1:A:1486:ILE:HG13	1:A:1487:PRO:HD3	2.02	0.41
2:B:414:GLU:OE1	2:B:439:ILE:HD11	2.20	0.41
2:B:508:MET:HE1	2:B:666:ASP:C	2.46	0.41
2:B:804:GLY:HA2	2:B:807:ARG:HE	1.85	0.41
2:B:1114:TYR:CE2	2:B:1156:LYS:HD3	2.56	0.41
3:C:193:ARG:HH12	3:C:217:GLN:CD	2.27	0.41
5:E:90:TYR:O	5:E:94:MET:HG2	2.20	0.41
8:H:98:ARG:HB3	8:H:115:TYR:HB2	2.03	0.41
11:K:17:LYS:O	11:K:36:ASN:ND2	2.54	0.41
1:A:457:ILE:HD12	2:B:1102:PHE:CZ	2.55	0.41
1:A:460:ARG:HB2	1:A:501:MET:HE2	2.02	0.41
2:B:907:VAL:HG13	2:B:921:ILE:HG12	2.03	0.41
3:C:101:PHE:CE2	3:C:122:SER:HB3	2.56	0.41
4:D:103:LEU:HB3	7:G:144:ARG:HH12	1.85	0.41
5:E:8:TYR:CZ	5:E:12:LYS:HE3	2.56	0.41
7:G:118:GLU:HG2	7:G:129:LYS:O	2.20	0.41
8:H:17:PRO:HG3	8:H:29:HIS:NE2	2.36	0.41
11:K:31:CYS:SG	11:K:32:LEU:N	2.94	0.41
11:K:81:TYR:CE2	11:K:86:ALA:HB2	2.57	0.41
11:K:90:ALA:O	11:K:94:LEU:HG	2.21	0.41
1:A:221:VAL:HG12	1:A:249:ILE:HD11	2.02	0.40
1:A:524:MET:HE1	2:B:1097:HIS:HE1	1.86	0.40
1:A:1373:ALA:HA	5:E:144:LEU:HB3	2.03	0.40
1:A:1480:CYS:HB3	7:G:19:GLY:CA	2.50	0.40
2:B:721:ARG:HD3	2:B:721:ARG:HA	1.90	0.40
2:B:1021:HIS:CD2	2:B:1025:ASN:HB2	2.56	0.40
3:C:103:LEU:O	3:C:160:ARG:HA	2.21	0.40
14:P:16:C:H2'	14:P:17:A:H8	1.85	0.40
1:A:368:THR:O	1:A:483:ARG:HA	2.21	0.40
1:A:589:LYS:HD2	8:H:120:GLY:HA3	2.03	0.40
1:A:1016:LEU:HD22	1:A:1069:LEU:HD22	2.03	0.40
2:B:25:ALA:HA	2:B:640:ILE:HD12	2.04	0.40
2:B:128:ILE:HD12	2:B:147:THR:HG21	2.02	0.40
2:B:505:LEU:HD22	2:B:509:VAL:HB	2.03	0.40
2:B:1086:PHE:CZ	2:B:1090:GLU:HB3	2.56	0.40
1:A:467:MET:SD	1:A:524:MET:HE2	2.61	0.40
1:A:821:GLY:HA2	1:A:838:PHE:CD2	2.56	0.40
1:A:1162:GLU:O	1:A:1300:GLY:HA3	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:112:GLU:HG3	12:L:43:ILE:HD11	2.04	0.40
2:B:446:TYR:CE1	15:T:25:DA:H5''	2.54	0.40
2:B:789:ASN:O	2:B:968:ASN:HB2	2.21	0.40
2:B:854:ILE:O	2:B:907:VAL:HG21	2.21	0.40
3:C:205:LYS:NZ	3:C:213:GLU:HA	2.36	0.40
1:A:120:ASP:O	1:A:126:ILE:HD12	2.22	0.40
1:A:238:MET:HE1	1:A:245:PRO:HG3	2.02	0.40
1:A:490:THR:OG1	1:A:491:PRO:HD3	2.21	0.40
1:A:769:MET:SD	2:B:973:PRO:HG3	2.61	0.40
1:A:876:ASP:O	1:A:890:ARG:NH1	2.55	0.40
1:A:1147:SER:O	1:A:1154:ALA:HB2	2.20	0.40
1:A:1246:ILE:O	1:A:1257:LEU:HD12	2.22	0.40
2:B:423:ILE:O	2:B:426:GLY:N	2.41	0.40
2:B:1021:HIS:HD2	2:B:1025:ASN:HB2	1.87	0.40
3:C:9:VAL:HA	3:C:22:ILE:O	2.21	0.40
14:P:8:A:H2'	14:P:9:U:C6	2.57	0.40
1:A:413:TYR:HB3	1:A:414:PRO:HD3	2.03	0.40
1:A:457:ILE:HD11	1:A:515:ILE:HG12	2.03	0.40
2:B:256:ILE:O	2:B:269:ILE:HG12	2.21	0.40
2:B:1029:TYR:OH	3:C:185:GLU:HG3	2.21	0.40
2:B:1114:TYR:HE2	2:B:1156:LYS:HD3	1.86	0.40
6:F:79:VAL:HG13	6:F:96:GLU:OE2	2.21	0.40
7:G:119:PHE:HA	7:G:128:TYR:HD1	1.85	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	1417/1970 (72%)	1347 (95%)	70 (5%)	0	100	100
2	B	1128/1174 (96%)	1072 (95%)	56 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	C	253/275 (92%)	238 (94%)	15 (6%)	0	100	100
4	D	126/142 (89%)	121 (96%)	5 (4%)	0	100	100
5	E	207/210 (99%)	198 (96%)	9 (4%)	0	100	100
6	F	80/127 (63%)	76 (95%)	4 (5%)	0	100	100
7	G	169/172 (98%)	164 (97%)	5 (3%)	0	100	100
8	H	146/150 (97%)	138 (94%)	8 (6%)	0	100	100
9	I	112/125 (90%)	103 (92%)	9 (8%)	0	100	100
10	J	65/67 (97%)	59 (91%)	6 (9%)	0	100	100
11	K	113/117 (97%)	110 (97%)	3 (3%)	0	100	100
12	L	42/58 (72%)	36 (86%)	6 (14%)	0	100	100
All	All	3858/4587 (84%)	3662 (95%)	196 (5%)	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	1252/1749 (72%)	1252 (100%)	0	100	100
2	B	993/1027 (97%)	993 (100%)	0	100	100
3	C	234/252 (93%)	234 (100%)	0	100	100
4	D	106/127 (84%)	106 (100%)	0	100	100
5	E	189/190 (100%)	189 (100%)	0	100	100
6	F	71/111 (64%)	71 (100%)	0	100	100
7	G	147/153 (96%)	147 (100%)	0	100	100
8	H	129/131 (98%)	129 (100%)	0	100	100
9	I	103/112 (92%)	103 (100%)	0	100	100
10	J	56/56 (100%)	56 (100%)	0	100	100
11	K	104/106 (98%)	104 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
12	L	41/55 (74%)	41 (100%)	0	100	100
All	All	3425/4069 (84%)	3425 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (63) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	77	ASN
1	A	96	HIS
1	A	143	HIS
1	A	330	GLN
1	A	372	ASN
1	A	449	HIS
1	A	472	HIS
1	A	493	ASN
1	A	502	ASN
1	A	504	HIS
1	A	757	GLN
1	A	790	GLN
1	A	804	HIS
1	A	861	GLN
1	A	947	HIS
1	A	1082	HIS
1	A	1093	GLN
1	A	1163	HIS
1	A	1190	GLN
1	A	1220	HIS
1	A	1230	GLN
1	A	1360	ASN
1	A	1417	HIS
1	A	1422	GLN
1	A	1457	ASN
1	A	1462	GLN
2	B	203	ASN
2	B	245	GLN
2	B	265	GLN
2	B	312	GLN
2	B	370	HIS
2	B	500	GLN
2	B	525	ASN

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Mol	Chain	Res	Type
2	B	639	HIS
2	B	699	HIS
2	B	717	ASN
2	B	731	GLN
2	B	825	GLN
2	B	912	ASN
2	B	992	ASN
2	B	1021	HIS
2	B	1094	GLN
2	B	1097	HIS
2	B	1117	HIS
2	B	1160	GLN
3	C	51	GLN
3	C	114	HIS
3	C	265	HIS
4	D	48	ASN
4	D	129	GLN
5	E	22	HIS
5	E	107	GLN
7	G	4	HIS
7	G	14	HIS
7	G	60	GLN
8	H	126	GLN
9	I	22	ASN
9	I	118	HIS
10	J	52	HIS
11	K	49	GLN
11	K	69	HIS
11	K	76	GLN
11	K	84	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
14	P	13/20 (65%)	3 (23%)	1 (7%)

All (3) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
14	P	8	A
14	P	11	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
14	P	13	G

All (1) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
14	P	12	A

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 9 ligands modelled in this entry, 9 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 [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

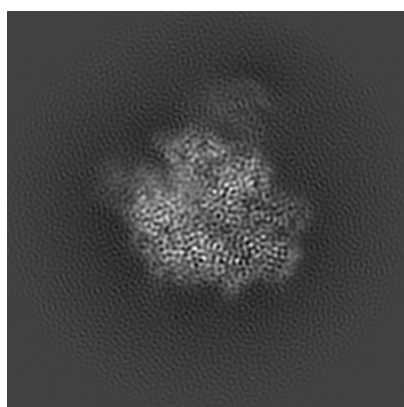
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-3218. These allow visual inspection of the internal detail of the map and identification of artifacts.

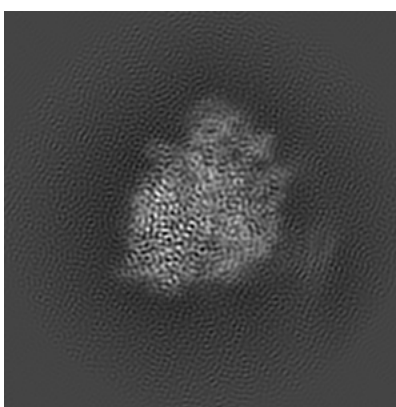
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

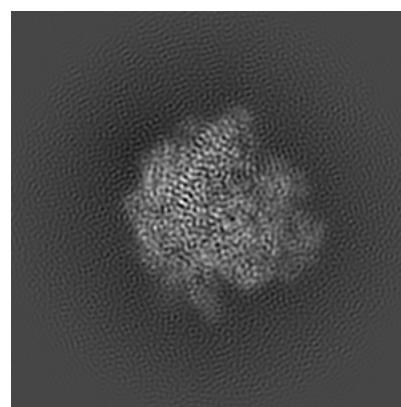
6.1.1 Primary map



X



Y

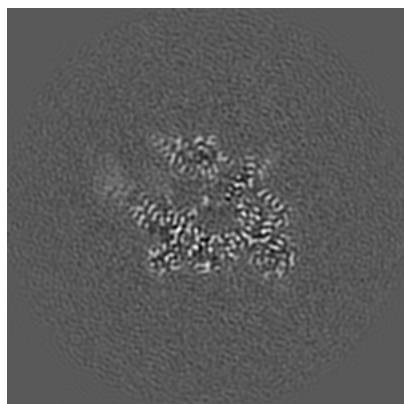


Z

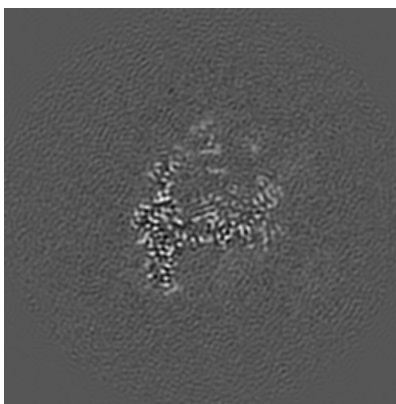
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

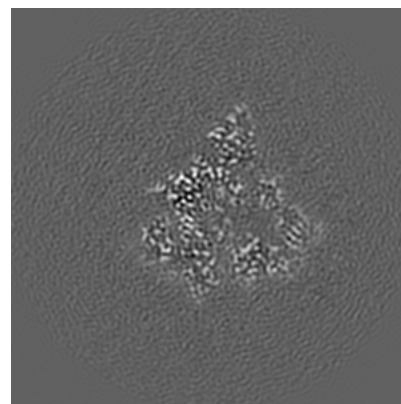
6.2.1 Primary map



X Index: 102



Y Index: 102

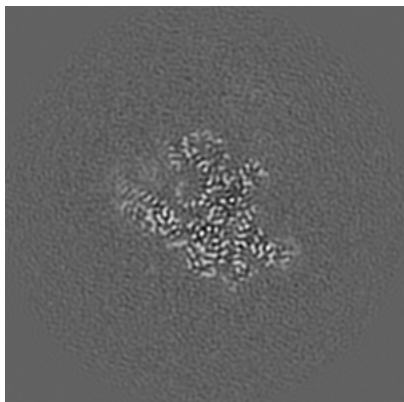


Z Index: 102

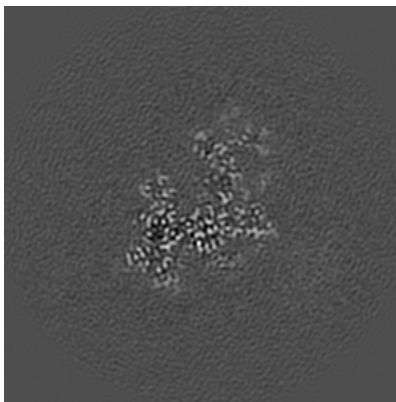
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

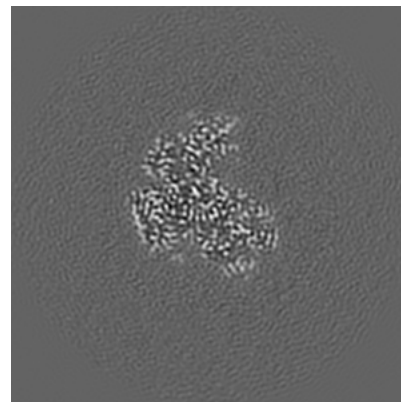
6.3.1 Primary map



X Index: 92



Y Index: 109

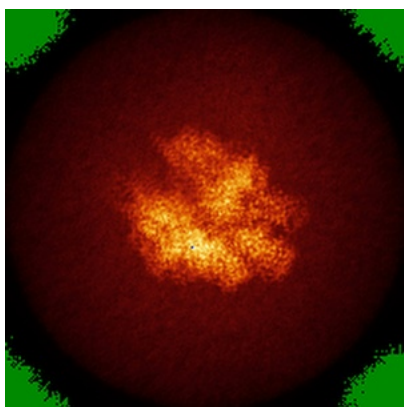


Z Index: 81

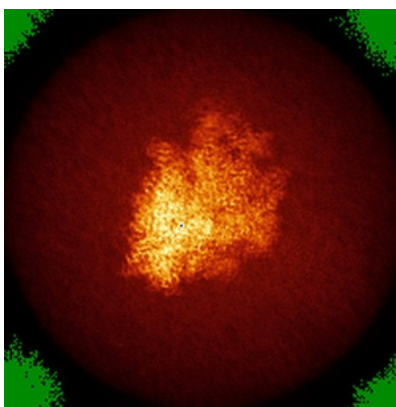
The images above show the largest variance slices of the map in three orthogonal directions.

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

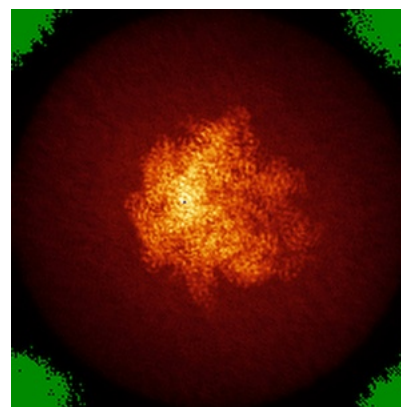
6.4.1 Primary map



X



Y



Z

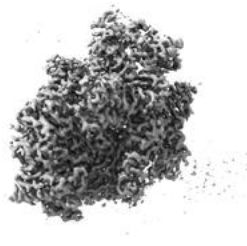
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

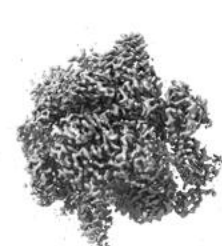
6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.07. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

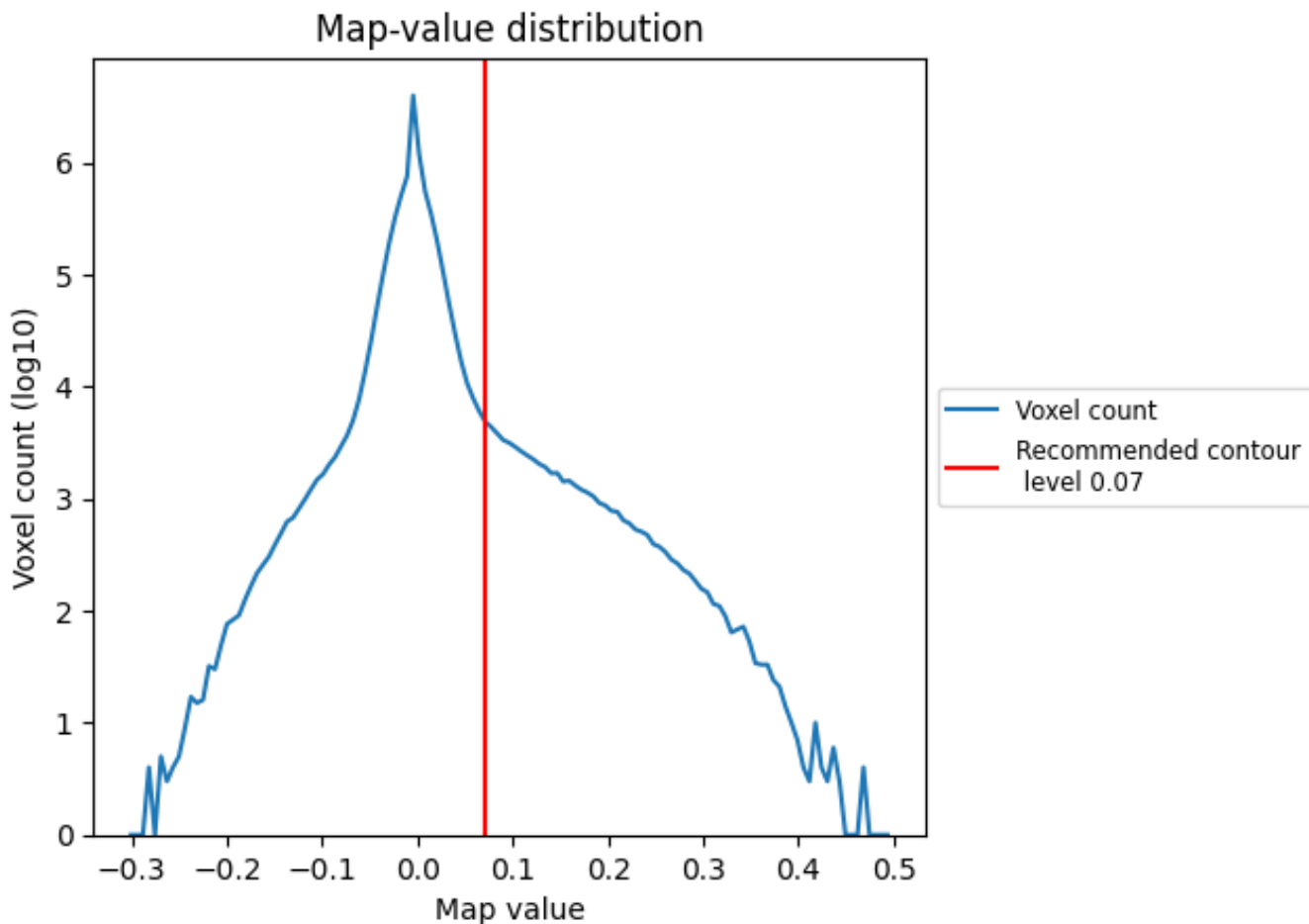
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

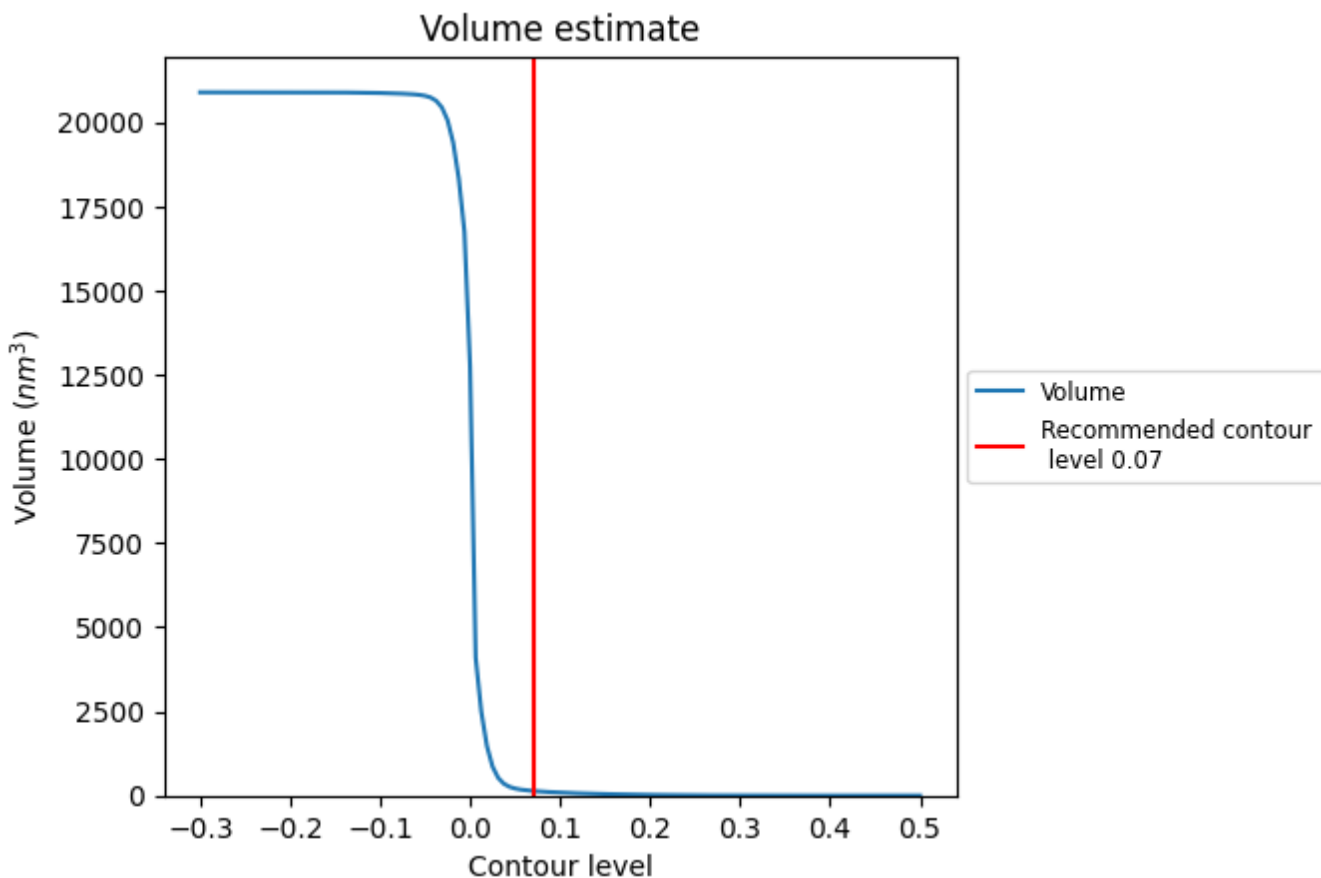
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

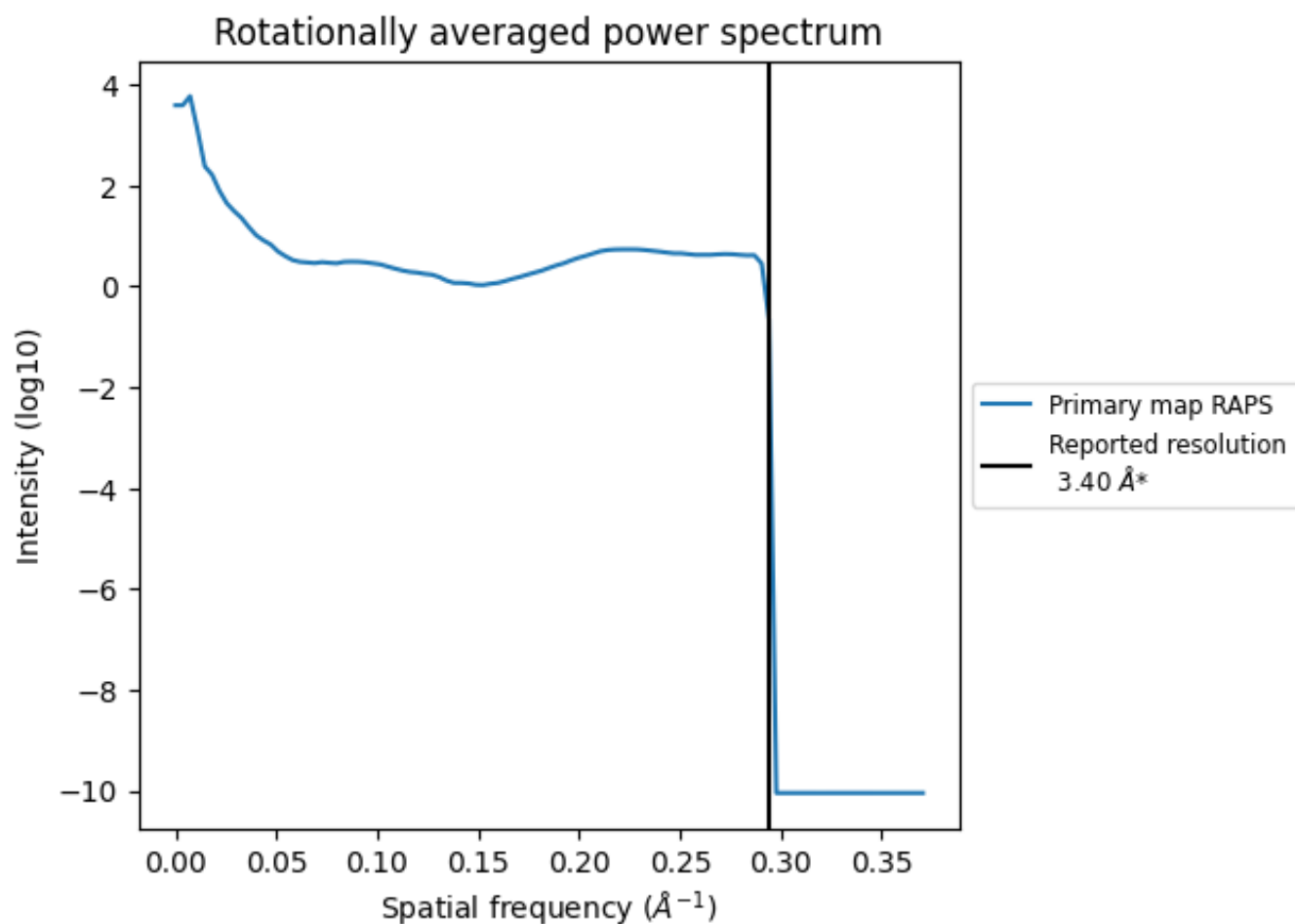
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 135 nm³; this corresponds to an approximate mass of 122 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 0.294 Å⁻¹

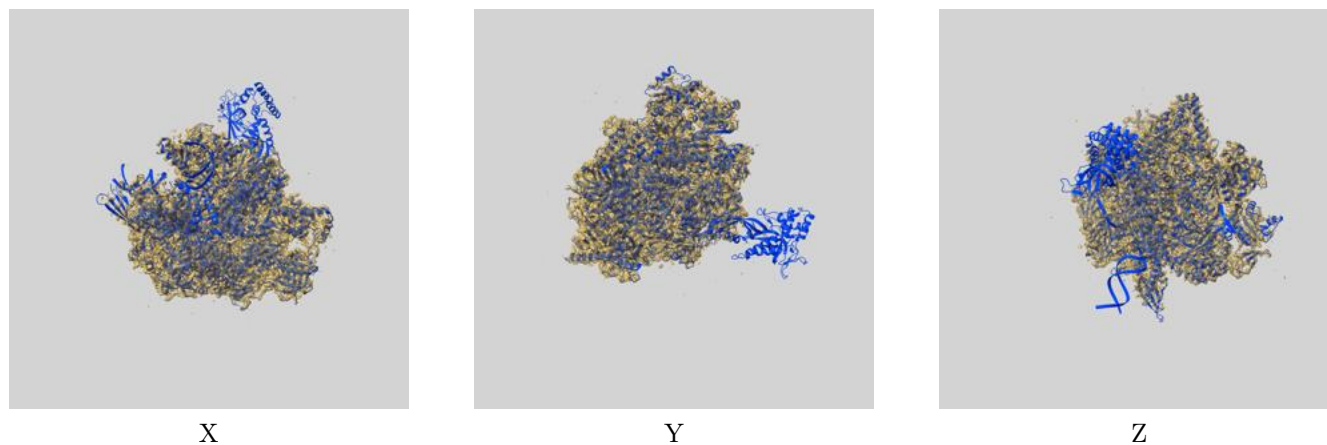
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

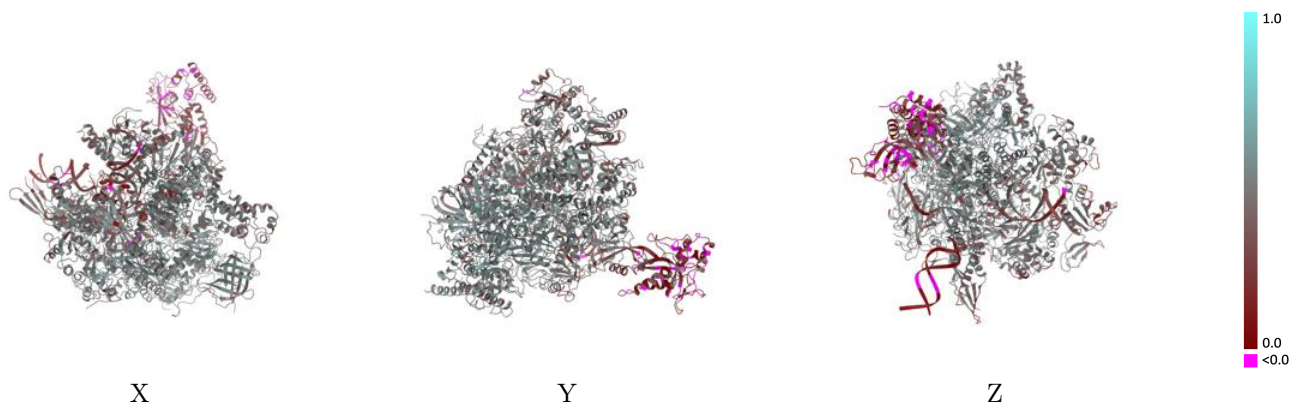
This section contains information regarding the fit between EMDB map EMD-3218 and PDB model 5FLM. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



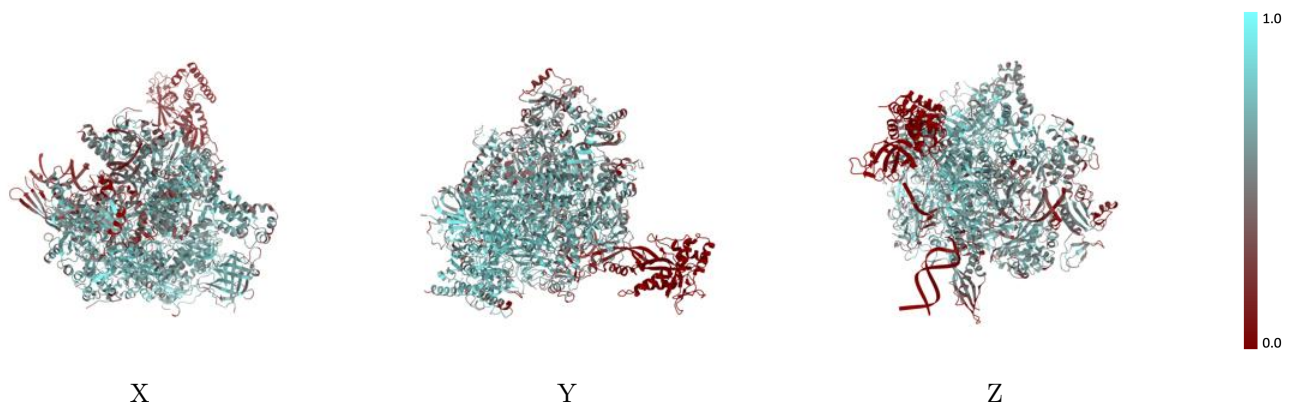
The images above show the 3D surface view of the map at the recommended contour level 0.07 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



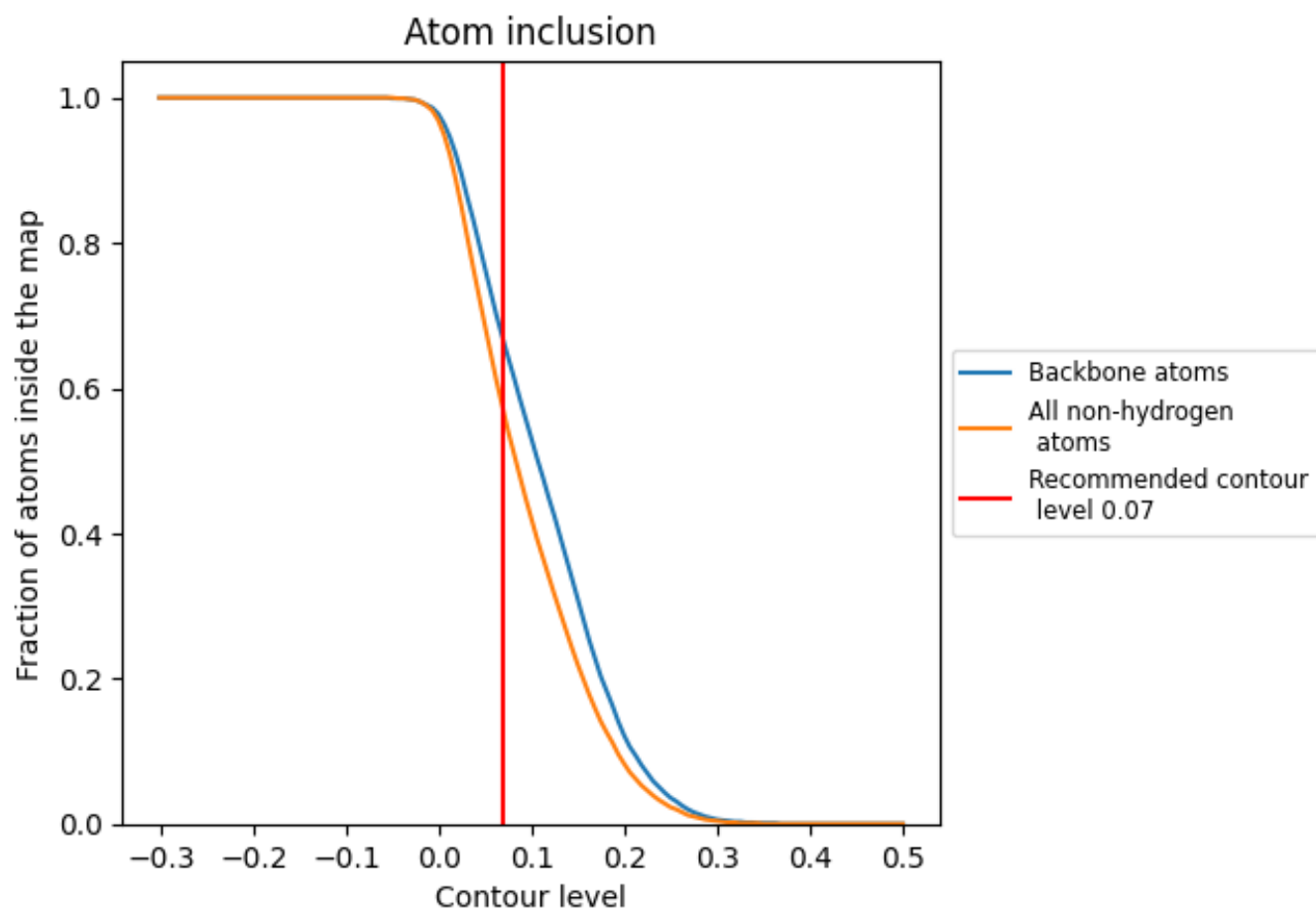
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.07).

































9.4 Atom inclusion [i](#)



At the recommended contour level, 66% of all backbone atoms, 57% 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 (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5660	 0.4420
A	 0.6030	 0.4690
B	 0.6470	 0.4790
C	 0.6840	 0.4900
D	 0.0010	 0.1330
E	 0.5940	 0.4570
F	 0.5810	 0.4640
G	 0.0610	 0.2020
H	 0.6200	 0.4680
I	 0.5160	 0.4490
J	 0.7500	 0.5160
K	 0.6460	 0.4900
L	 0.6180	 0.4570
N	 0.1760	 0.1710
P	 0.5080	 0.3920
T	 0.3650	 0.3080

