Full wwPDB EM Validation Report ⓘ

Mar 2, 2025 – 01:01 PM JST

PDB ID	:	9KEV
EMDB ID	:	EMD-62295
Title	:	Cryo-EM structure of Mycobacterium tuberculosis transcription activation complex with six PhoP molecules (composite map)
Authors	:	Lin, W.; Feng, Y.
Deposited on	:	2024-11-05
Resolution	:	3.31 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:

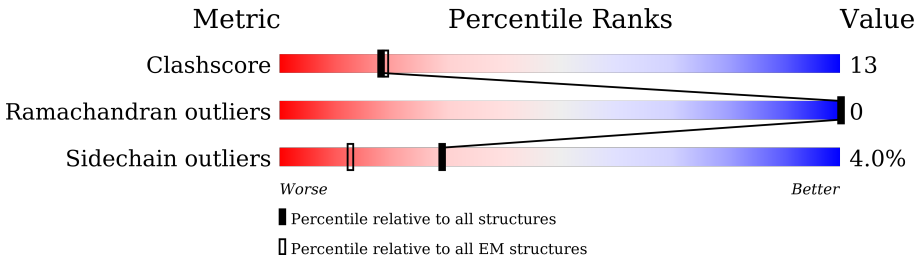
EMDB validation analysis	:	0.0.1.dev117
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.41.2

1 Overall quality at a glance

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

The reported resolution of this entry is 3.31 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	A	347	56% 25% • 19%
1	B	347	49% 17% • 33%
2	C	1178	70% 23% • 6%
3	D	1316	70% 25% • •
4	E	110	46% 28% • 25%
5	H	108	40% 52% 8%
6	G	108	38% 53% 9%
7	F	528	45% 16% 39%

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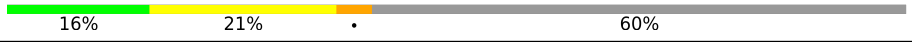
Mol	Chain	Length	Quality of chain
8	J	247	
8	K	247	
8	L	247	
8	M	247	
8	N	247	
8	O	247	

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 34321 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	282	Total	C	N	O	S	0	0
			2143	1350	371	419	3		
1	B	234	Total	C	N	O	S	0	0
			1748	1105	298	342	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	1111	Total	C	N	O	S	0	0
			8554	5360	1500	1655	39		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	1263	Total	C	N	O	S	0	0
			9838	6162	1784	1851	41		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
4	E	83	Total	C	N	O	0	0
			649	414	108	127		

- Molecule 5 is a DNA chain called Non-template strand DNA of the promoter.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	H	99	Total	C	N	O	P	0	0
			2044	965	388	592	99		

- Molecule 6 is a DNA chain called Template strand DNA of the promoter.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	98	Total	C	N	O	P	0	0
			2007	950	370	589	98		

- Molecule 7 is a protein called RNA polymerase sigma factor SigA.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	F	322	Total	C	N	O	S	0	0
			2529	1577	454	489	9		

- Molecule 8 is a protein called Possible two component system response transcriptional positive regulator PhoP.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	J	99	Total	C	N	O	0	0
			801	515	139	147		
8	K	99	Total	C	N	O	0	0
			801	515	139	147		
8	M	99	Total	C	N	O	0	0
			801	515	139	147		
8	L	99	Total	C	N	O	0	0
			801	515	139	147		
8	N	99	Total	C	N	O	0	0
			801	515	139	147		
8	O	99	Total	C	N	O	0	0
			801	515	139	147		

- Molecule 9 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

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

- Molecule 10 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

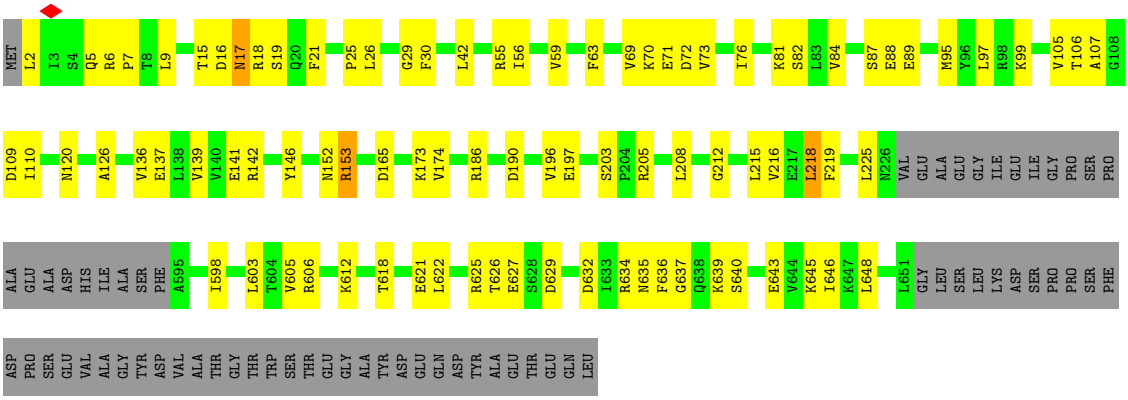
Mol	Chain	Residues	Atoms		AltConf
10	D	1	Total	Mg	0
			1	1	

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

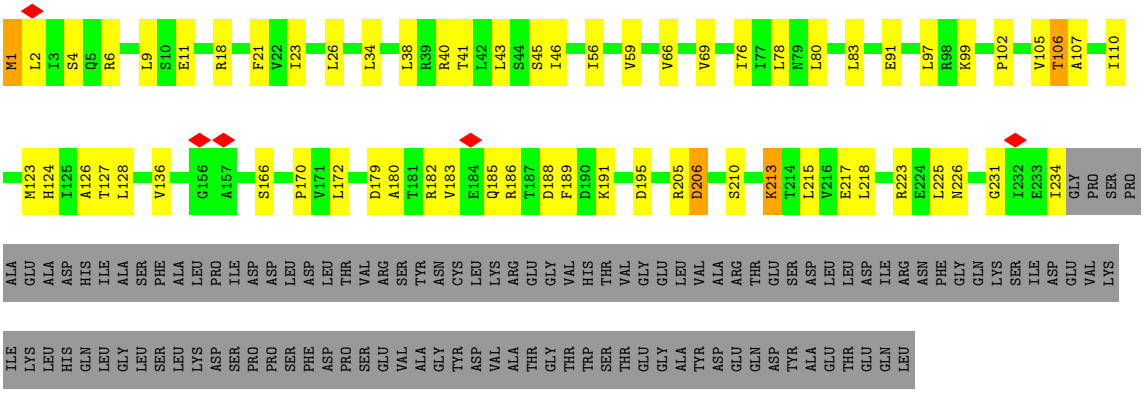
• Molecule 1: DNA-directed RNA polymerase subunit alpha

Chain A:



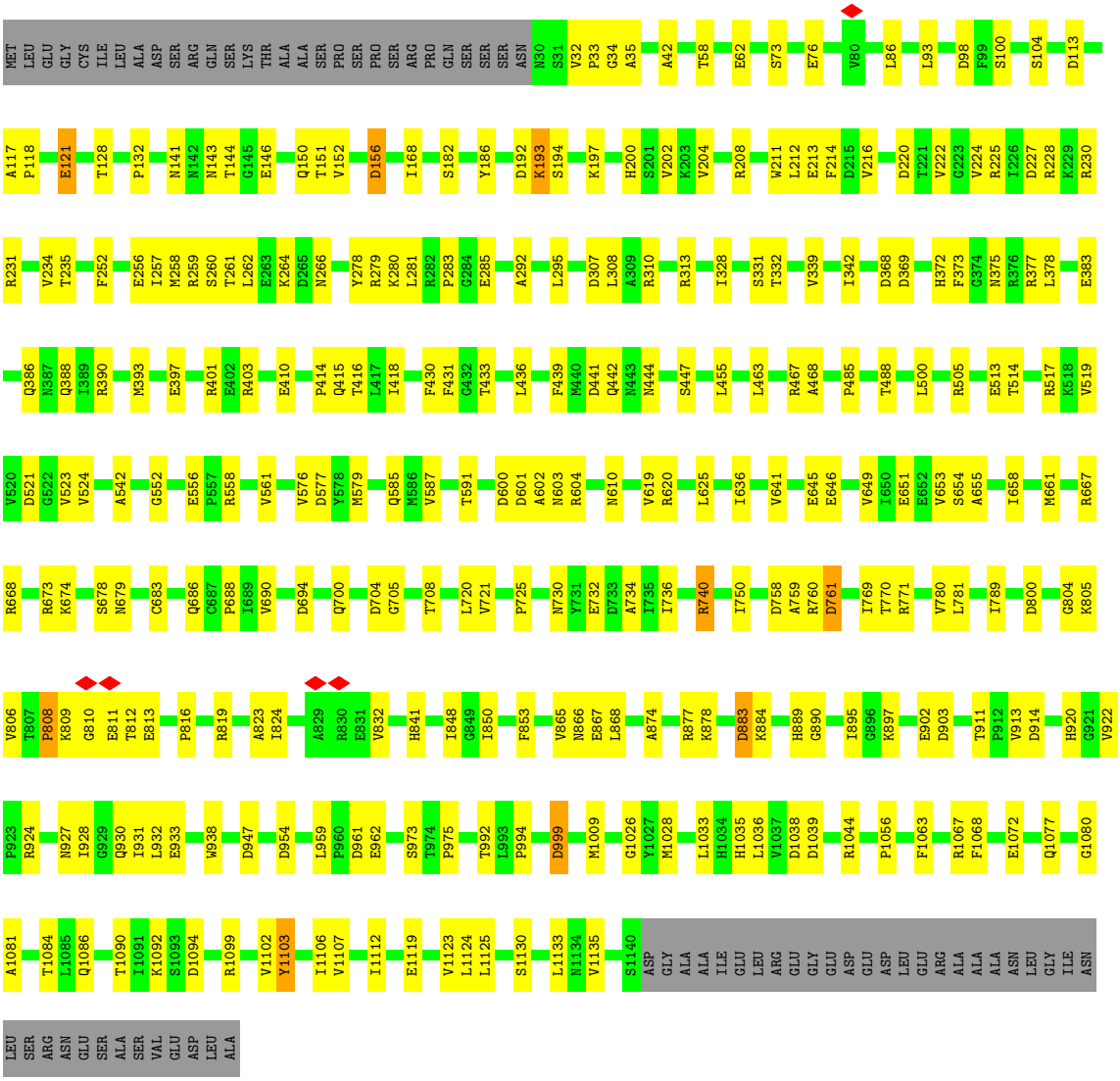
• Molecule 1: DNA-directed RNA polymerase subunit alpha

Chain B:



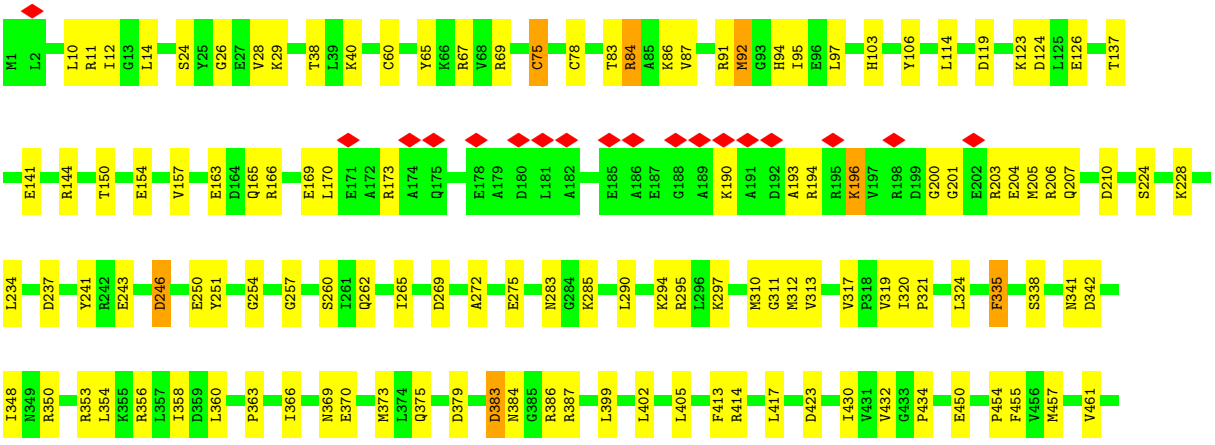
• Molecule 2: DNA-directed RNA polymerase subunit beta

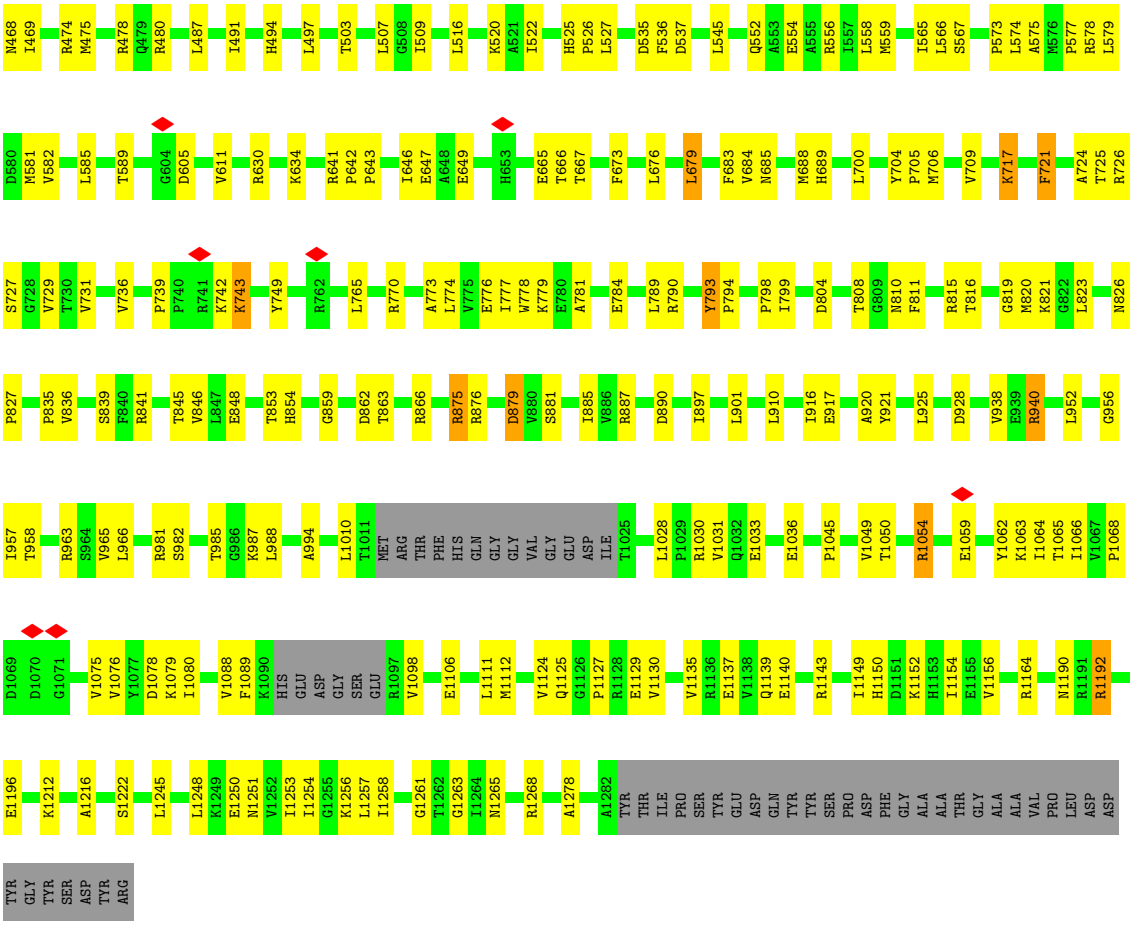
Chain C:



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

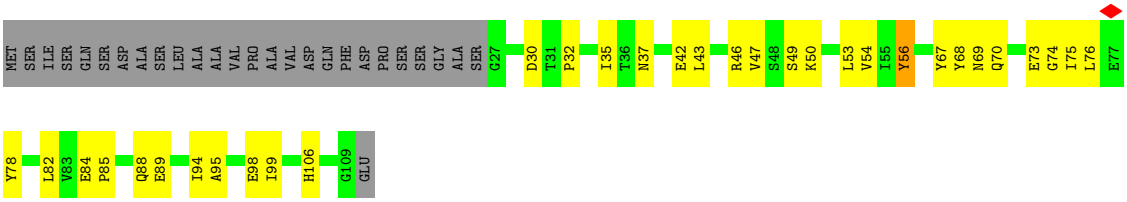
Chain D:





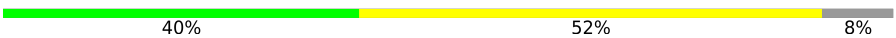
• Molecule 4: DNA-directed RNA polymerase subunit omega

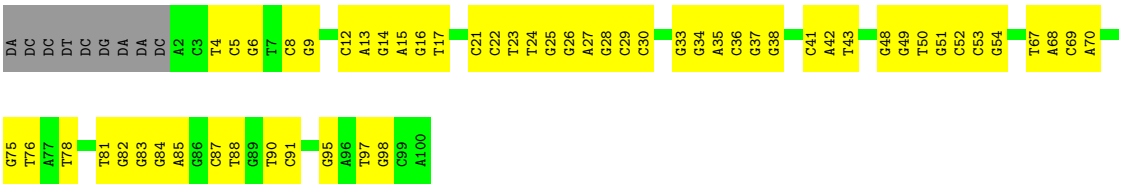
Chain E:



• Molecule 5: Non-template strand DNA of the promoter

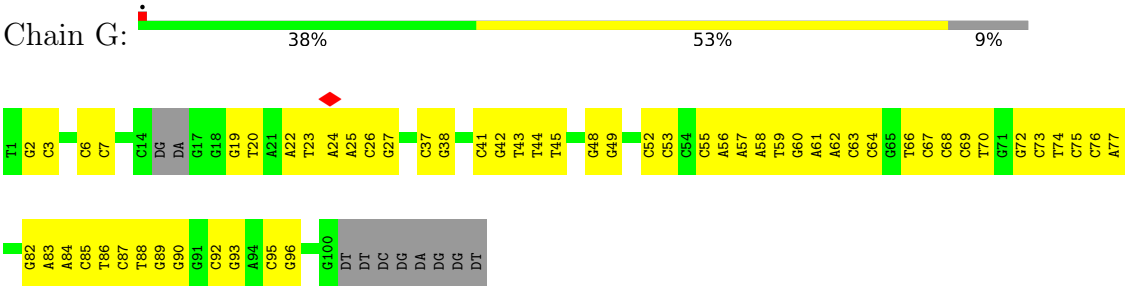
Chain H:





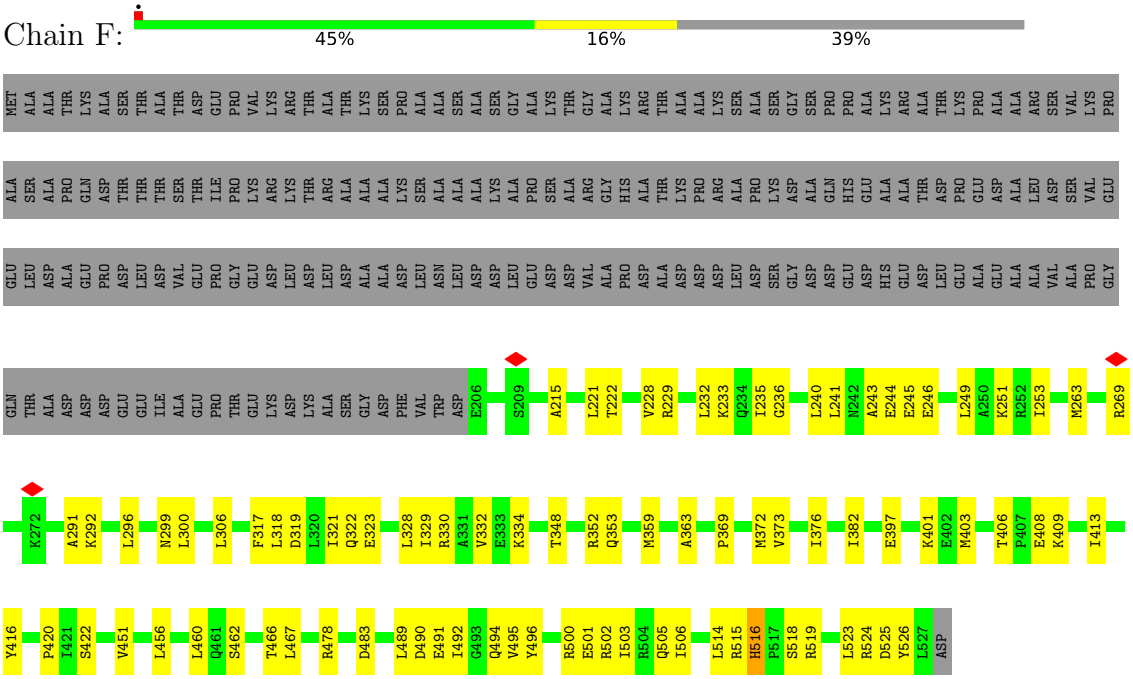
• Molecule 6: Template strand DNA of the promoter

Chain G:



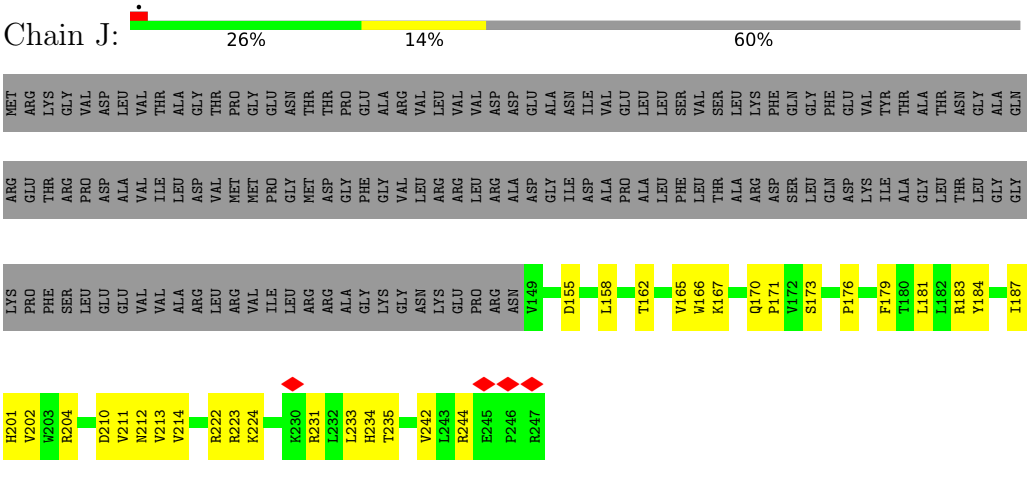
• Molecule 7: RNA polymerase sigma factor SigA

Chain F:



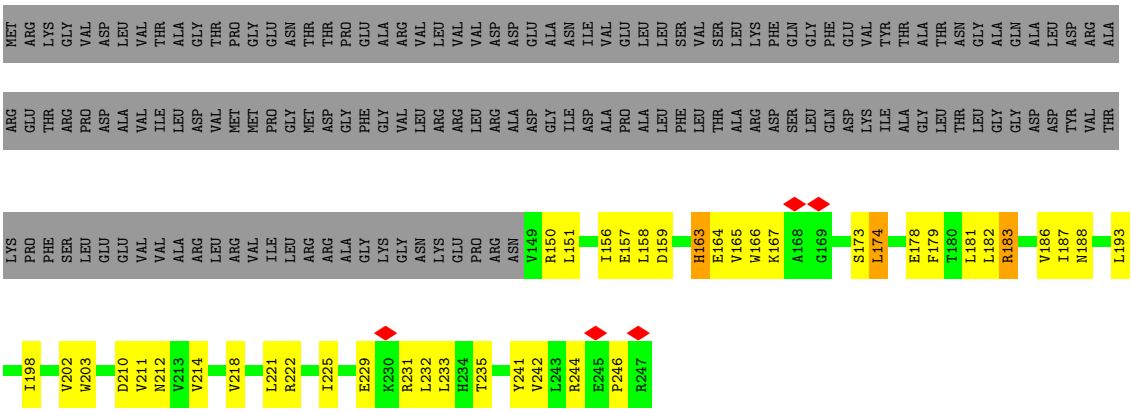
• Molecule 8: Possible two component system response transcriptional positive regulator PhoP

Chain J:



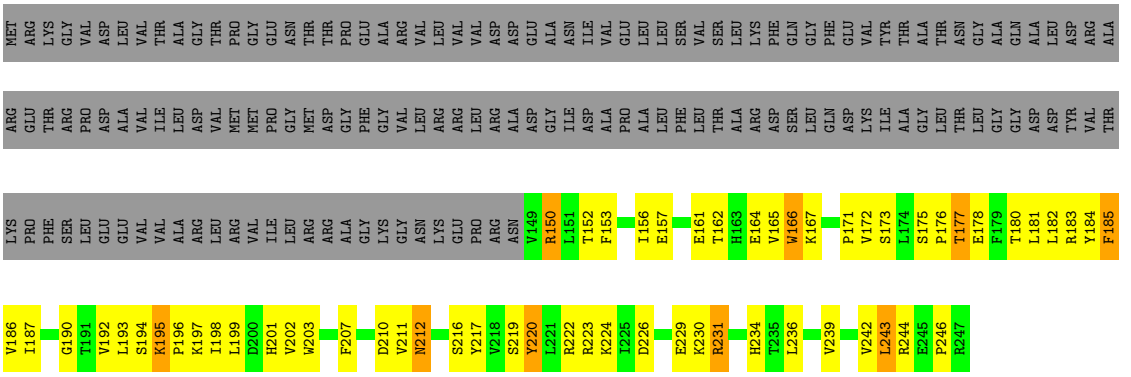
• Molecule 8: Possible two component system response transcriptional positive regulator PhoP

Chain K:



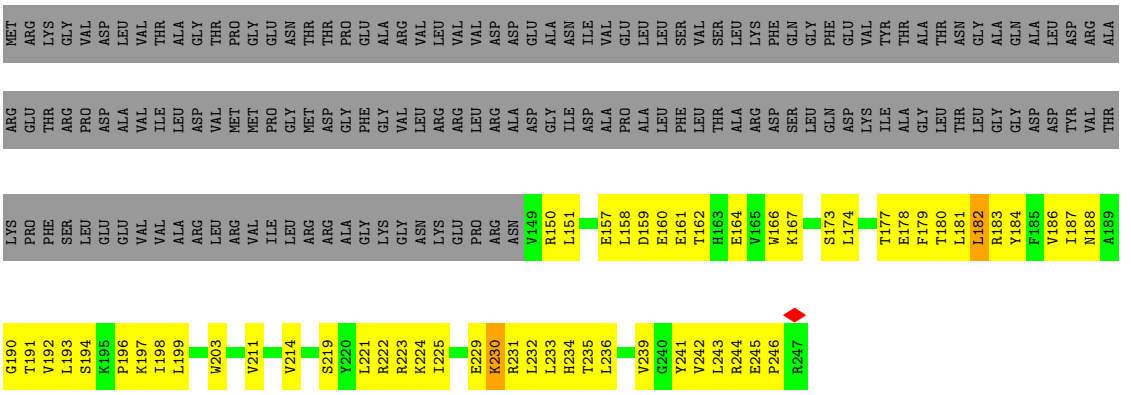
• Molecule 8: Possible two component system response transcriptional positive regulator PhoP

Chain M:



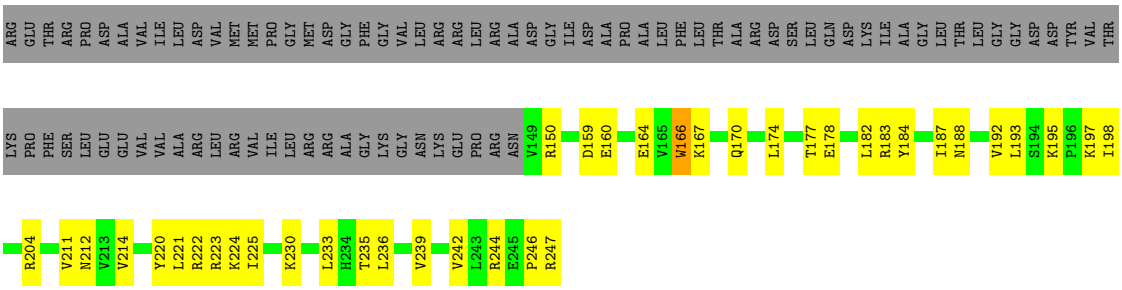
• Molecule 8: Possible two component system response transcriptional positive regulator PhoP

Chain L:

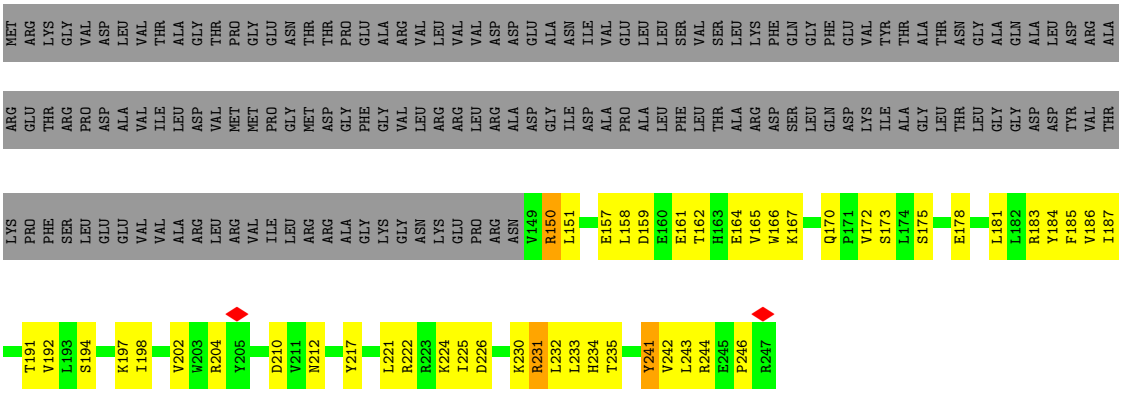


• Molecule 8: Possible two component system response transcriptional positive regulator PhoP

Chain N:



• Molecule 8: Possible two component system response transcriptional positive regulator PhoP



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	227755	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	52	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.129	Depositor
Minimum map value	-0.124	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.01	Depositor
Map size (Å)	360.0, 360.0, 360.0	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.6, 0.6, 0.6	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	0.26	0/2172	0.53	0/2951
1	B	0.26	0/1774	0.54	0/2417
2	C	0.25	0/8709	0.51	0/11811
3	D	0.25	0/10002	0.52	0/13526
4	E	0.28	0/662	0.58	0/901
5	H	0.54	0/2296	0.91	0/3545
6	G	0.51	0/2249	0.88	0/3466
7	F	0.24	0/2559	0.52	0/3453
8	J	0.27	0/819	0.59	0/1111
8	K	0.27	0/819	0.62	0/1111
8	L	0.26	0/819	0.55	0/1111
8	M	0.27	0/819	0.67	0/1111
8	N	0.24	0/819	0.52	0/1111
8	O	0.24	0/819	0.54	0/1111
All	All	0.30	0/35337	0.60	0/48736

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2143	0	2185	69	0
1	B	1748	0	1779	50	0
2	C	8554	0	8457	188	0
3	D	9838	0	9878	221	0
4	E	649	0	645	21	0
5	H	2044	0	1109	50	0
6	G	2007	0	1100	50	0
7	F	2529	0	2536	63	0
8	J	801	0	799	25	0
8	K	801	0	799	39	0
8	L	801	0	799	46	0
8	M	801	0	799	54	0
8	N	801	0	799	30	0
8	O	801	0	799	39	0
9	D	2	0	0	0	0
10	D	1	0	0	0	0
All	All	34321	0	32483	860	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 13.

All (860) 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)
4:E:43:LEU:HB3	4:E:53:LEU:HD11	1.59	0.82
8:K:150:ARG:HE	8:K:151:LEU:H	1.26	0.82
3:D:579:LEU:HD23	3:D:808:THR:HG22	1.62	0.82
8:M:190:GLY:H	8:M:244:ARG:HH22	1.29	0.80
8:J:210:ASP:OD2	8:J:211:VAL:N	2.15	0.79
5:H:95:DG:H1	6:G:6:DC:H42	1.32	0.78
1:B:210:SER:HA	1:B:213:LYS:HE3	1.66	0.78
8:J:222:ARG:NH2	8:J:235:THR:OG1	2.20	0.75
2:C:231:ARG:HG3	2:C:280:LYS:HE3	1.70	0.74
1:A:205:ARG:HG3	1:B:225:LEU:HD21	1.71	0.73
2:C:884:LYS:HD3	2:C:1033:LEU:HD12	1.70	0.73
2:C:811:GLU:H	8:J:197:LYS:HZ3	1.34	0.73
3:D:589:THR:HG21	3:D:688:MET:HG3	1.71	0.72
3:D:1124:VAL:HG23	3:D:1125:GLN:HG3	1.70	0.72
4:E:70:GLN:NE2	4:E:74:GLY:O	2.23	0.71
3:D:673:PHE:HA	3:D:676:LEU:HD12	1.72	0.71
8:M:210:ASP:OD1	8:M:211:VAL:N	2.24	0.71
8:K:150:ARG:HH22	8:K:157:GLU:HG3	1.56	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:634:LYS:HG2	3:D:665:GLU:HG2	1.74	0.69
2:C:542:ALA:HA	2:C:561:VAL:HG12	1.74	0.69
3:D:689:HIS:NE2	3:D:804:ASP:O	2.24	0.69
1:B:182:ARG:HH21	1:B:185:GLN:H	1.38	0.69
8:K:222:ARG:HH22	8:K:235:THR:HG23	1.58	0.68
3:D:75:CYS:HB3	3:D:78:CYS:SG	2.33	0.68
8:M:167:LYS:NZ	8:M:171:PRO:O	2.27	0.68
3:D:370:GLU:HA	3:D:373:MET:HE2	1.76	0.68
8:L:167:LYS:NZ	8:L:225:ILE:O	2.26	0.68
2:C:442:GLN:NE2	2:C:679:ASN:OD1	2.27	0.68
8:L:188:ASN:HB3	8:L:191:THR:HB	1.76	0.67
8:N:236:LEU:HB2	8:N:239:VAL:HB	1.76	0.67
1:A:606:ARG:HH12	1:A:639:LYS:HB3	1.59	0.67
8:M:222:ARG:O	8:M:222:ARG:NH1	2.26	0.67
2:C:283:PRO:HB2	7:F:222:THR:HG21	1.77	0.67
3:D:1054:ARG:HH21	3:D:1065:THR:HG23	1.59	0.67
6:G:83:DA:H2"	6:G:84:DA:C8	2.28	0.67
8:N:222:ARG:NH2	8:N:235:THR:OG1	2.23	0.67
8:K:150:ARG:NH2	8:K:151:LEU:O	2.19	0.66
8:M:173:SER:O	8:M:224:LYS:NZ	2.28	0.66
1:A:165:ASP:OD2	2:C:878:LYS:NZ	2.26	0.66
2:C:720:LEU:HD23	2:C:913:VAL:HA	1.76	0.66
3:D:554:GLU:HG3	4:E:54:VAL:HG11	1.77	0.66
3:D:1062:TYR:HB2	3:D:1080:ILE:HD11	1.77	0.66
3:D:1050:THR:HG23	3:D:1106:GLU:HA	1.77	0.66
2:C:519:VAL:HG21	2:C:576:VAL:HG23	1.77	0.66
3:D:743:LYS:HA	3:D:743:LYS:HE2	1.78	0.66
3:D:201:GLY:O	3:D:205:MET:HG2	1.95	0.66
6:G:6:DC:H2"	6:G:7:DC:H5'	1.78	0.66
3:D:643:PRO:HD3	3:D:683:PHE:HB3	1.79	0.65
3:D:1066:ILE:HB	3:D:1075:VAL:HG12	1.77	0.65
8:N:221:LEU:HD13	8:N:224:LYS:HZ1	1.61	0.65
7:F:244:GLU:OE1	7:F:244:GLU:N	2.30	0.65
7:F:456:LEU:HD12	7:F:526:TYR:HB3	1.79	0.65
8:M:229:GLU:N	8:M:229:GLU:OE1	2.29	0.65
1:A:97:LEU:HD12	1:A:110:ILE:HB	1.78	0.65
8:J:158:LEU:HD13	8:J:165:VAL:HG12	1.78	0.65
6:G:69:DC:H4'	8:L:235:THR:HG21	1.79	0.64
3:D:1065:THR:HG22	3:D:1076:VAL:HG12	1.78	0.64
3:D:170:LEU:HA	3:D:173:ARG:HE	1.63	0.64
6:G:70:DT:OP1	8:L:222:ARG:NH1	2.30	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:F:306:LEU:HD21	7:F:348:THR:HG23	1.80	0.64
8:N:167:LYS:HG2	8:N:170:GLN:HE22	1.62	0.64
7:F:406:THR:HG23	7:F:409:LYS:H	1.61	0.64
1:B:182:ARG:HG3	1:B:186:ARG:HB2	1.80	0.64
1:A:225:LEU:HD22	1:B:9:LEU:HD11	1.80	0.64
6:G:82:DG:H2'	6:G:83:DA:C8	2.33	0.63
8:M:182:LEU:O	8:M:186:VAL:HG23	1.98	0.63
8:M:156:ILE:H	8:M:156:ILE:HD12	1.64	0.63
1:A:146:TYR:OH	2:C:878:LYS:NZ	2.31	0.63
2:C:658:ILE:HD11	2:C:688:PRO:HB3	1.81	0.63
1:A:97:LEU:HB3	1:A:136:VAL:HG12	1.81	0.63
3:D:566:LEU:HA	3:D:573:PRO:HA	1.81	0.63
3:D:1054:ARG:NE	3:D:1065:THR:OG1	2.31	0.63
8:K:181:LEU:HD12	8:K:202:VAL:HG21	1.81	0.62
1:B:97:LEU:HB3	1:B:110:ILE:HG13	1.80	0.62
3:D:642:PRO:HG2	3:D:647:GLU:HB2	1.80	0.62
2:C:877:ARG:HD2	2:C:1036:LEU:HD13	1.82	0.62
3:D:1140:GLU:HA	3:D:1143:ARG:HG2	1.80	0.62
3:D:910:LEU:HD11	3:D:956:GLY:HA2	1.80	0.62
8:M:165:VAL:HG23	8:M:172:VAL:HG13	1.82	0.62
8:J:170:GLN:N	8:J:170:GLN:OE1	2.32	0.62
8:K:158:LEU:HD11	8:K:179:PHE:HE2	1.64	0.62
2:C:403:ARG:NH2	2:C:416:THR:O	2.32	0.62
3:D:353:ARG:NH1	7:F:323:GLU:OE2	2.32	0.62
3:D:736:VAL:O	3:D:841:ARG:NH1	2.33	0.62
2:C:216:VAL:HG12	2:C:222:VAL:HG12	1.82	0.62
2:C:645:GLU:HG3	2:C:646:GLU:HG2	1.81	0.62
1:A:196:VAL:HG21	1:A:208:LEU:HD11	1.82	0.62
1:A:7:PRO:HA	1:A:25:PRO:HD2	1.82	0.61
8:N:160:GLU:HA	8:N:183:ARG:HH12	1.65	0.61
8:N:224:LYS:HG2	8:N:225:ILE:HG23	1.80	0.61
1:A:212:GLY:O	1:A:216:VAL:HG13	2.00	0.61
8:K:150:ARG:NH2	8:K:157:GLU:HG3	2.14	0.61
3:D:353:ARG:NH2	7:F:319:ASP:OD1	2.33	0.61
5:H:42:DA:H3'	5:H:43:DT:H71	1.81	0.61
3:D:1164:ARG:NH2	3:D:1216:ALA:O	2.33	0.61
8:J:181:LEU:HA	8:J:202:VAL:HG21	1.82	0.61
2:C:761:ASP:OD1	2:C:866:ASN:ND2	2.34	0.61
2:C:1038:ASP:OD1	3:D:520:LYS:NZ	2.34	0.61
2:C:442:GLN:HG3	2:C:678:SER:HB2	1.83	0.61
3:D:124:ASP:HB3	3:D:234:LEU:HD12	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:M:222:ARG:HH21	8:M:229:GLU:HA	1.65	0.61
8:N:182:LEU:HB2	8:N:221:LEU:HD11	1.83	0.61
3:D:725:THR:OG1	3:D:726:ARG:NH1	2.34	0.61
6:G:87:DC:H2'	6:G:88:DT:H71	1.83	0.61
1:A:87:SER:O	1:A:142:ARG:NH1	2.34	0.60
3:D:739:PRO:HG2	3:D:742:LYS:HB2	1.82	0.60
2:C:211:TRP:HH2	5:H:88:DT:H2'	1.66	0.60
2:C:725:PRO:HA	2:C:730:ASN:HD21	1.65	0.60
2:C:853:PHE:HB2	2:C:868:LEU:HB3	1.84	0.60
8:J:167:LYS:NZ	8:J:224:LYS:O	2.34	0.60
2:C:200:HIS:H	2:C:216:VAL:HG22	1.66	0.60
5:H:8:DC:H2'	5:H:9:DG:C8	2.36	0.60
6:G:87:DC:H2"	6:G:88:DT:H5'	1.82	0.60
8:O:242:VAL:HG13	8:O:244:ARG:HG2	1.84	0.60
1:A:56:ILE:HG13	1:A:136:VAL:HG23	1.83	0.59
1:B:102:PRO:HA	1:B:128:LEU:O	2.01	0.59
2:C:204:VAL:HB	2:C:212:LEU:HB3	1.84	0.59
1:B:23:ILE:HG22	1:B:26:LEU:HD21	1.83	0.59
5:H:14:DG:H2"	5:H:15:DA:C8	2.37	0.59
1:B:1:MET:N	1:B:231:GLY:O	2.35	0.59
3:D:173:ARG:HH11	3:D:205:MET:HB3	1.66	0.59
2:C:152:VAL:HG21	2:C:418:ILE:HD12	1.85	0.59
8:N:160:GLU:HB3	8:N:183:ARG:HH22	1.68	0.59
2:C:156:ASP:OD1	2:C:156:ASP:N	2.35	0.59
8:L:178:GLU:HB3	8:L:221:LEU:HD21	1.84	0.59
1:B:26:LEU:O	1:B:189:PHE:HB3	2.02	0.59
3:D:1080:ILE:HD12	3:D:1112:MET:HE1	1.84	0.59
8:M:176:PRO:O	8:M:180:THR:HG23	2.01	0.59
8:L:222:ARG:HH22	8:L:235:THR:HG1	1.47	0.59
2:C:771:ARG:NH2	2:C:781:LEU:O	2.35	0.59
3:D:491:ILE:HG13	3:D:516:LEU:HD21	1.83	0.59
7:F:524:ARG:NH1	7:F:524:ARG:O	2.36	0.59
1:B:46:ILE:HB	1:B:170:PRO:HD2	1.84	0.59
3:D:885:ILE:HG22	3:D:994:ALA:HA	1.84	0.59
8:J:242:VAL:HG21	8:J:244:ARG:HH21	1.68	0.59
1:A:215:LEU:HD12	1:A:219:PHE:HE2	1.67	0.58
2:C:577:ASP:OD1	2:C:577:ASP:N	2.36	0.58
3:D:461:VAL:HG21	3:D:469:ILE:HD13	1.86	0.58
3:D:641:ARG:NH2	3:D:647:GLU:OE2	2.36	0.58
8:O:192:VAL:O	8:O:197:LYS:NZ	2.29	0.58
1:A:19:SER:HG	1:A:21:PHE:HE1	1.49	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:69:VAL:HG21	1:B:126:ALA:HB1	1.85	0.58
2:C:141:ASN:ND2	2:C:410:GLU:OE2	2.36	0.58
3:D:1222:SER:OG	3:D:1250:GLU:OE1	2.21	0.58
8:O:194:SER:H	8:O:197:LYS:HE3	1.67	0.58
3:D:468:ASN:HD21	7:F:525:ASP:HB2	1.68	0.58
3:D:556:ARG:HB2	4:E:35:ILE:HD11	1.86	0.58
8:K:156:ILE:HD12	8:K:167:LYS:HE2	1.85	0.58
8:K:202:VAL:HG13	8:K:203:TRP:CD1	2.39	0.58
8:M:242:VAL:HG22	8:M:244:ARG:HE	1.68	0.58
2:C:823:ALA:O	7:F:515:ARG:NH2	2.37	0.58
3:D:724:ALA:O	3:D:727:SER:OG	2.20	0.58
8:L:178:GLU:HA	8:L:181:LEU:HG	1.85	0.58
8:O:231:ARG:O	8:O:234:HIS:NE2	2.36	0.58
2:C:369:ASP:O	2:C:375:ASN:ND2	2.36	0.58
1:A:6:ARG:HE	1:A:7:PRO:HD2	1.69	0.58
8:M:210:ASP:OD1	8:M:212:ASN:N	2.36	0.58
7:F:249:LEU:O	7:F:253:ILE:HG12	2.04	0.57
8:J:242:VAL:HG11	8:J:244:ARG:HH21	1.69	0.57
8:K:183:ARG:O	8:K:187:ILE:HG22	2.04	0.57
4:E:70:GLN:HE22	4:E:75:ILE:HA	1.68	0.57
1:A:18:ARG:HG2	1:A:197:GLU:HB2	1.85	0.57
1:B:206:ASP:N	1:B:206:ASP:OD1	2.36	0.57
5:H:28:DG:N2	6:G:74:DT:O2	2.38	0.57
6:G:66:DT:H2"	6:G:67:DC:C5	2.39	0.57
8:J:162:THR:O	8:K:244:ARG:NH2	2.37	0.57
8:J:166:TRP:HZ3	8:J:171:PRO:HD3	1.70	0.57
8:M:183:ARG:O	8:M:187:ILE:HG23	2.05	0.57
3:D:262:GLN:HG3	3:D:310:MET:HE1	1.86	0.57
6:G:37:DC:H2'	6:G:38:DG:C8	2.40	0.57
5:H:51:DG:H5'	5:H:51:DG:C8	2.39	0.57
3:D:556:ARG:NH2	4:E:35:ILE:O	2.36	0.57
8:M:157:GLU:HB3	8:M:166:TRP:HB2	1.87	0.57
8:M:177:THR:O	8:M:181:LEU:HD13	2.05	0.56
8:L:179:PHE:O	8:L:182:LEU:HD23	2.05	0.56
8:N:247:ARG:NH2	8:O:162:THR:OG1	2.38	0.56
1:A:605:VAL:HG13	5:H:17:DT:H4'	1.87	0.56
3:D:1278:ALA:HB1	4:E:82:LEU:HD13	1.86	0.56
1:A:81:LYS:NZ	1:A:165:ASP:O	2.39	0.56
2:C:789:ILE:HG21	2:C:850:ILE:HG21	1.86	0.56
3:D:497:LEU:HD13	3:D:509:ILE:HD11	1.88	0.56
3:D:83:THR:HG22	3:D:84:ARG:H	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:119:ASP:OD2	3:D:295:ARG:NH1	2.38	0.56
7:F:299:ASN:HB2	7:F:328:LEU:HD21	1.87	0.56
2:C:220:ASP:HB3	2:C:257:ILE:HG13	1.87	0.56
3:D:126:GLU:OE2	3:D:387:ARG:NH1	2.38	0.56
2:C:279:ARG:HH21	7:F:215:ALA:HA	1.70	0.56
2:C:281:LEU:HD11	2:C:295:LEU:HD21	1.88	0.56
2:C:811:GLU:HG3	8:J:201:HIS:CD2	2.41	0.56
3:D:360:LEU:HD21	7:F:329:ILE:HG21	1.88	0.56
3:D:1030:ARG:NH1	3:D:1033:GLU:OE2	2.38	0.56
8:M:184:TYR:O	8:M:187:ILE:HG12	2.05	0.56
1:A:645:LYS:HD2	1:A:648:LEU:HD21	1.88	0.56
2:C:208:ARG:NH2	2:C:307:ASP:OD1	2.39	0.56
3:D:454:PRO:HA	3:D:457:MET:HE3	1.88	0.56
8:M:219:SER:OG	8:M:223:ARG:NH2	2.39	0.56
1:A:174:VAL:HG22	1:A:196:VAL:HG13	1.88	0.56
7:F:483:ASP:OD1	7:F:483:ASP:N	2.37	0.56
2:C:455:LEU:HD21	2:C:500:LEU:HG	1.88	0.55
8:O:210:ASP:OD1	8:O:212:ASN:ND2	2.34	0.55
3:D:585:LEU:HD13	3:D:673:PHE:HE2	1.70	0.55
3:D:845:THR:HG22	3:D:846:VAL:H	1.71	0.55
3:D:137:THR:HG23	3:D:254:GLY:HA2	1.87	0.55
3:D:204:GLU:O	3:D:207:GLN:HG3	2.06	0.55
6:G:68:DC:H2'	6:G:69:DC:C6	2.41	0.55
2:C:441:ASP:OD1	2:C:441:ASP:N	2.40	0.55
3:D:369:ASN:ND2	7:F:322:GLN:OE1	2.37	0.55
6:G:24:DA:H2'	6:G:25:DA:H4'	1.87	0.55
8:L:190:GLY:H	8:L:244:ARG:NH1	2.05	0.55
8:L:229:GLU:O	8:L:231:ARG:NH1	2.31	0.55
1:B:91:GLU:OE1	1:B:91:GLU:N	2.27	0.55
2:C:705:GLY:N	2:C:708:THR:OG1	2.39	0.55
3:D:457:MET:SD	3:D:469:ILE:HD12	2.47	0.55
3:D:605:ASP:OD1	3:D:605:ASP:N	2.39	0.55
2:C:514:THR:OG1	2:C:585:GLN:NE2	2.40	0.55
1:A:146:TYR:HH	2:C:878:LYS:NZ	2.05	0.55
3:D:384:ASN:ND2	3:D:399:LEU:O	2.33	0.55
5:H:69:DC:H2"	5:H:70:DA:C8	2.42	0.55
3:D:567:SER:HB2	3:D:574:LEU:HG	1.89	0.54
6:G:26:DC:H2"	6:G:27:DG:C8	2.42	0.54
8:L:173:SER:O	8:L:224:LYS:NZ	2.33	0.54
2:C:42:ALA:HB2	2:C:975:PRO:HG2	1.88	0.54
8:O:210:ASP:OD2	8:O:210:ASP:N	2.37	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:42:GLU:O	4:E:46:ARG:NH1	2.41	0.54
5:H:33:DG:H2"	5:H:34:DG:C8	2.41	0.54
1:A:69:VAL:HG22	1:A:71:GLU:H	1.72	0.54
8:L:193:LEU:HB3	8:L:198:ILE:HD11	1.89	0.54
2:C:924:ARG:HD3	3:D:808:THR:HB	1.89	0.54
8:L:192:VAL:O	8:L:197:LYS:NZ	2.40	0.54
3:D:876:ARG:NH1	3:D:1036:GLU:OE2	2.41	0.54
8:M:229:GLU:O	8:M:231:ARG:NH2	2.41	0.54
8:L:194:SER:O	8:L:198:ILE:HG12	2.08	0.54
2:C:654:SER:OG	2:C:655:ALA:N	2.40	0.54
7:F:489:LEU:H	8:J:204:ARG:HH12	1.56	0.54
8:K:198:ILE:O	8:K:202:VAL:HG12	2.07	0.54
8:N:174:LEU:HG	8:N:178:GLU:HB2	1.89	0.54
6:G:93:DG:OP2	8:N:223:ARG:NH2	2.40	0.53
8:K:229:GLU:OE2	8:K:231:ARG:NH1	2.41	0.53
8:K:167:LYS:HA	8:K:167:LYS:HE3	1.89	0.53
1:A:218:LEU:HD22	1:B:34:LEU:HD21	1.90	0.53
1:B:2:LEU:HG	1:B:4:SER:H	1.72	0.53
1:B:106:THR:OG1	1:B:107:ALA:N	2.42	0.53
3:D:507:LEU:HD12	3:D:574:LEU:HD12	1.91	0.53
3:D:579:LEU:HD12	3:D:579:LEU:H	1.73	0.53
1:B:99:LYS:HG3	1:B:105:VAL:HG22	1.91	0.53
5:H:35:DA:H4'	5:H:36:DC:OP1	2.07	0.53
2:C:523:VAL:HG13	2:C:552:GLY:HA3	1.91	0.53
3:D:1045:PRO:HB2	3:D:1111:LEU:HD11	1.91	0.53
7:F:501:GLU:O	7:F:505:GLN:HG2	2.09	0.53
8:N:222:ARG:NH2	8:N:233:LEU:O	2.33	0.53
3:D:114:LEU:HD11	3:D:265:ILE:HD11	1.90	0.53
7:F:502:ARG:O	7:F:502:ARG:NH1	2.41	0.53
1:A:55:ARG:NH2	1:A:137:GLU:OE2	2.42	0.53
8:L:151:LEU:HD22	8:L:186:VAL:HG23	1.91	0.53
8:O:181:LEU:HA	8:O:202:VAL:HG21	1.91	0.53
2:C:225:ARG:HD2	2:C:230:ARG:HA	1.91	0.53
2:C:313:ARG:NH2	2:C:332:THR:O	2.42	0.53
2:C:922:VAL:HG11	2:C:931:ILE:HD12	1.91	0.53
3:D:373:MET:SD	7:F:318:LEU:HB3	2.49	0.53
3:D:1088:VAL:HG12	3:D:1098:VAL:HA	1.91	0.53
7:F:296:LEU:O	7:F:300:LEU:HG	2.09	0.53
8:J:222:ARG:HG2	8:J:233:LEU:HD23	1.91	0.53
1:A:606:ARG:NH1	6:G:87:DC:OP1	2.42	0.52
8:K:232:LEU:HG	8:K:246:PRO:HD3	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:M:190:GLY:N	8:M:244:ARG:HH22	2.03	0.52
8:N:192:VAL:HG22	8:N:242:VAL:HB	1.91	0.52
2:C:517:ARG:HG3	2:C:579:MET:HB3	1.91	0.52
8:O:173:SER:O	8:O:224:LYS:NZ	2.32	0.52
3:D:141:GLU:OE2	3:D:144:ARG:NH2	2.43	0.52
3:D:815:ARG:NH1	3:D:820:MET:O	2.42	0.52
6:G:69:DC:H3'	6:G:70:DT:H71	1.91	0.52
8:M:222:ARG:NH1	8:M:226:ASP:O	2.42	0.52
2:C:485:PRO:HB2	3:D:853:THR:HG21	1.91	0.52
1:A:71:GLU:HG3	1:A:126:ALA:HA	1.91	0.52
5:H:41:DC:H2"	5:H:42:DA:C8	2.44	0.52
7:F:490:ASP:HB3	7:F:500:ARG:HH22	1.75	0.52
8:J:181:LEU:HD13	8:J:202:VAL:HG11	1.92	0.52
2:C:369:ASP:HB3	2:C:372:HIS:HB2	1.90	0.52
2:C:889:HIS:NE2	2:C:933:GLU:OE1	2.37	0.52
8:M:185:PHE:HB3	8:M:243:LEU:HD22	1.90	0.52
1:A:153:ARG:NH2	2:C:800:ASP:OD2	2.43	0.52
1:B:6:ARG:NH1	1:B:234:ILE:O	2.42	0.52
6:G:26:DC:H2"	6:G:27:DG:H8	1.74	0.52
8:K:163:HIS:CD2	8:K:179:PHE:HE1	2.28	0.52
2:C:433:THR:HG21	6:G:20:DT:H1'	1.92	0.52
8:O:157:GLU:HB3	8:O:166:TRP:HB2	1.91	0.52
1:A:89:GLU:N	1:A:89:GLU:OE1	2.43	0.52
1:A:2:LEU:N	1:A:186:ARG:O	2.42	0.51
2:C:34:GLY:HA3	2:C:700:GLN:HG3	1.91	0.51
3:D:402:LEU:O	3:D:405:LEU:HG	2.10	0.51
8:L:222:ARG:NH2	8:L:235:THR:OG1	2.25	0.51
1:A:56:ILE:HB	1:A:59:VAL:HG22	1.92	0.51
1:B:210:SER:O	1:B:213:LYS:HD2	2.10	0.51
2:C:938:TRP:HB2	2:C:1026:GLY:HA2	1.92	0.51
3:D:363:PRO:HD2	3:D:366:ILE:HD12	1.93	0.51
3:D:1265:ASN:OD1	3:D:1268:ARG:NH2	2.41	0.51
8:K:151:LEU:HD21	8:K:183:ARG:HH11	1.74	0.51
8:M:217:TYR:HA	8:M:220:TYR:CD2	2.44	0.51
3:D:320:ILE:HG13	3:D:321:PRO:HD2	1.93	0.51
3:D:836:VAL:HG12	3:D:848:GLU:HB3	1.92	0.51
4:E:95:ALA:O	4:E:99:ILE:HG12	2.10	0.51
8:M:190:GLY:H	8:M:244:ARG:NH2	2.05	0.51
2:C:603:ASN:N	2:C:603:ASN:OD1	2.44	0.51
8:K:221:LEU:O	8:K:225:ILE:HG22	2.11	0.51
8:M:242:VAL:HG22	8:M:244:ARG:HH21	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:L:167:LYS:HD3	8:L:225:ILE:HB	1.93	0.51
2:C:467:ARG:O	2:C:467:ARG:HD3	2.10	0.51
7:F:317:PHE:O	7:F:321:ILE:HG12	2.10	0.51
3:D:704:TYR:HD1	3:D:705:PRO:HD2	1.74	0.51
3:D:114:LEU:HD13	3:D:312:MET:HG3	1.91	0.51
3:D:773:ALA:O	3:D:776:GLU:HG3	2.11	0.51
1:B:26:LEU:HD13	1:B:34:LEU:HD22	1.92	0.51
6:G:66:DT:H2"	6:G:67:DC:C6	2.45	0.51
2:C:144:THR:OG1	2:C:146:GLU:OE1	2.29	0.50
2:C:604:ARG:NH2	2:C:890:GLY:O	2.44	0.50
3:D:67:ARG:HB3	3:D:69:ARG:HG2	1.93	0.50
1:A:72:ASP:OD1	1:A:73:VAL:N	2.42	0.50
3:D:350:ARG:HD2	3:D:373:MET:HB3	1.93	0.50
6:G:63:DC:H2"	6:G:64:DC:C5	2.45	0.50
5:H:49:DG:H4'	5:H:50:DT:OP1	2.12	0.50
8:O:151:LEU:HD22	8:O:186:VAL:HG23	1.93	0.50
1:A:106:THR:OG1	1:A:107:ALA:N	2.44	0.50
8:M:150:ARG:HG3	8:M:157:GLU:OE2	2.11	0.50
8:N:188:ASN:HB3	8:N:193:LEU:HD21	1.94	0.50
1:A:42:LEU:HD21	1:A:208:LEU:HD12	1.94	0.50
5:H:82:DG:H21	7:F:236:GLY:HA2	1.76	0.50
8:J:158:LEU:HD11	8:J:179:PHE:HE1	1.76	0.50
8:O:167:LYS:HD3	8:O:225:ILE:HB	1.93	0.50
1:B:18:ARG:NE	1:B:195:ASP:OD1	2.44	0.50
1:B:105:VAL:HB	1:B:126:ALA:HB3	1.93	0.50
2:C:310:ARG:HG3	2:C:328:ILE:HG21	1.94	0.50
3:D:1078:ASP:OD1	3:D:1078:ASP:N	2.44	0.50
3:D:1254:ILE:HD11	3:D:1256:LYS:HE3	1.93	0.50
5:H:75:DG:OP2	7:F:330:ARG:NH2	2.45	0.50
8:N:184:TYR:HA	8:N:187:ILE:HG22	1.92	0.50
7:F:516:HIS:CE1	7:F:518:SER:H	2.30	0.50
8:J:242:VAL:HG21	8:J:244:ARG:NH2	2.27	0.50
8:M:178:GLU:HA	8:M:181:LEU:HD22	1.94	0.50
2:C:694:ASP:OD1	2:C:694:ASP:N	2.43	0.49
2:C:1102:VAL:HG23	2:C:1112:ILE:HG23	1.94	0.49
3:D:173:ARG:HB2	3:D:205:MET:SD	2.52	0.49
3:D:862:ASP:OD1	3:D:863:THR:N	2.45	0.49
1:A:84:VAL:H	1:A:120:ASN:ND2	2.09	0.49
2:C:770:THR:N	2:C:804:GLY:O	2.45	0.49
2:C:808:PRO:HA	2:C:832:VAL:HG12	1.94	0.49
3:D:917:GLU:HA	3:D:921:TYR:HB2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:M:182:LEU:HA	8:M:185:PHE:CD2	2.47	0.49
2:C:256:GLU:OE1	2:C:259:ARG:NH2	2.45	0.49
6:G:48:DG:H2"	6:G:49:DG:C8	2.47	0.49
8:K:210:ASP:OD2	8:K:210:ASP:N	2.42	0.49
8:N:230:LYS:HD3	8:N:246:PRO:HB3	1.94	0.49
1:A:82:SER:O	1:A:82:SER:OG	2.23	0.49
3:D:901:LEU:HB3	3:D:958:THR:O	2.13	0.49
3:D:525:HIS:NE2	3:D:527:LEU:HD12	2.27	0.49
2:C:339:VAL:HA	2:C:342:ILE:HD12	1.94	0.49
3:D:925:LEU:HD11	3:D:938:VAL:HG23	1.94	0.49
3:D:1139:GLN:NE2	3:D:1149:ILE:O	2.46	0.49
5:H:16:DG:H2"	5:H:17:DT:H71	1.95	0.49
5:H:41:DC:H2"	5:H:42:DA:H8	1.77	0.49
8:M:242:VAL:HG13	8:M:244:ARG:HG2	1.95	0.49
8:L:158:LEU:HD23	8:L:186:VAL:HG21	1.94	0.49
8:L:192:VAL:HA	8:L:242:VAL:HG23	1.94	0.49
8:N:221:LEU:HD13	8:N:224:LYS:NZ	2.27	0.49
2:C:1044:ARG:NE	3:D:423:ASP:OD1	2.43	0.49
3:D:250:GLU:HG2	3:D:251:TYR:CD1	2.47	0.49
4:E:73:GLU:OE1	4:E:73:GLU:N	2.45	0.49
6:G:74:DT:H2"	6:G:75:DC:O5'	2.12	0.49
2:C:235:THR:HG21	2:C:262:LEU:HA	1.95	0.49
2:C:1107:VAL:HG11	7:F:451:VAL:HG11	1.93	0.49
3:D:916:ILE:HG23	3:D:920:ALA:HB3	1.94	0.49
5:H:37:DG:H1'	5:H:38:DG:C5	2.48	0.49
6:G:52:DC:H2'	6:G:53:DC:C5	2.47	0.49
7:F:492:ILE:HA	7:F:495:VAL:HG22	1.95	0.49
8:M:202:VAL:HG23	8:M:203:TRP:CD1	2.48	0.49
8:M:230:LYS:HZ1	8:M:246:PRO:HD3	1.78	0.49
8:M:236:LEU:HG	8:M:239:VAL:HB	1.95	0.49
8:O:178:GLU:HB3	8:O:221:LEU:HD21	1.95	0.49
2:C:33:PRO:HG2	2:C:700:GLN:HB2	1.95	0.49
2:C:58:THR:O	2:C:62:GLU:HG2	2.13	0.49
2:C:278:TYR:HD2	2:C:292:ALA:HA	1.78	0.49
5:H:5:DC:H1'	5:H:6:DG:C8	2.47	0.49
6:G:60:DG:H2'	6:G:61:DA:C8	2.48	0.49
1:A:635:ASN:O	1:A:635:ASN:ND2	2.46	0.49
2:C:542:ALA:HB3	2:C:579:MET:HG3	1.95	0.49
3:D:965:VAL:HG21	3:D:1156:VAL:HG23	1.95	0.48
1:A:97:LEU:HD21	1:A:105:VAL:HG21	1.94	0.48
2:C:388:GLN:HG3	2:C:430:PHE:HB2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:24:SER:HB2	3:D:94:HIS:HB3	1.95	0.48
3:D:95:ILE:HG21	3:D:348:ILE:HD11	1.95	0.48
5:H:68:DA:H2"	5:H:69:DC:C6	2.47	0.48
8:L:232:LEU:HA	8:L:246:PRO:HD3	1.95	0.48
1:A:625:ARG:NH2	1:A:629:ASP:O	2.46	0.48
2:C:117:ALA:HB1	2:C:121:GLU:HG2	1.96	0.48
2:C:994:PRO:HB3	2:C:999:ASP:H	1.78	0.48
6:G:76:DC:H2"	6:G:77:DA:C8	2.48	0.48
7:F:503:ILE:HA	7:F:506:ILE:HG22	1.95	0.48
2:C:769:ILE:HD12	2:C:867:GLU:HG2	1.95	0.48
5:H:52:DC:H2"	5:H:53:DC:O4'	2.13	0.48
8:L:236:LEU:HB2	8:L:239:VAL:HB	1.95	0.48
2:C:397:GLU:OE2	2:C:401:ARG:NH2	2.46	0.48
8:M:177:THR:HG23	8:M:178:GLU:H	1.79	0.48
3:D:375:GLN:NE2	3:D:379:ASP:OD1	2.46	0.48
3:D:642:PRO:HB2	3:D:646:ILE:HG23	1.95	0.48
4:E:32:PRO:HB2	4:E:37:ASN:HA	1.94	0.48
7:F:359:MET:O	7:F:363:ALA:HB2	2.13	0.48
1:A:637:GLY:O	1:A:640:SER:OG	2.24	0.48
3:D:165:GLN:O	3:D:169:GLU:HG2	2.14	0.48
3:D:666:THR:OG1	3:D:667:THR:N	2.47	0.48
2:C:93:LEU:HD22	2:C:393:MET:HB3	1.95	0.48
8:K:188:ASN:HB3	8:K:193:LEU:HD21	1.96	0.48
8:L:219:SER:HB2	8:L:223:ARG:HH21	1.79	0.48
8:O:167:LYS:NZ	8:O:225:ILE:O	2.45	0.48
2:C:556:GLU:OE2	2:C:558:ARG:HG3	2.13	0.48
2:C:587:VAL:HG22	2:C:591:THR:HB	1.96	0.48
2:C:812:THR:OG1	2:C:813:GLU:N	2.47	0.48
2:C:883:ASP:HB2	2:C:895:ILE:HD12	1.96	0.48
5:H:78:DT:H5'	5:H:78:DT:H6	1.78	0.48
5:H:90:DT:H2"	5:H:91:DC:C6	2.49	0.48
6:G:52:DC:H2'	6:G:53:DC:C6	2.49	0.48
8:K:151:LEU:HD23	8:K:186:VAL:HG23	1.95	0.48
2:C:113:ASP:HB3	2:C:132:PRO:HD2	1.96	0.47
2:C:645:GLU:OE2	2:C:668:ARG:NE	2.42	0.47
3:D:24:SER:OG	3:D:26:GLY:O	2.32	0.47
8:M:219:SER:O	8:M:223:ARG:HG2	2.14	0.47
8:L:157:GLU:HB3	8:L:166:TRP:HB3	1.96	0.47
3:D:170:LEU:HA	3:D:173:ARG:NE	2.28	0.47
3:D:366:ILE:HD11	7:F:300:LEU:HD21	1.96	0.47
8:N:242:VAL:HG22	8:N:244:ARG:HG2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:9:LEU:HD11	1:A:21:PHE:HD2	1.78	0.47
7:F:292:LYS:HB3	7:F:292:LYS:HE2	1.78	0.47
8:K:158:LEU:HD11	8:K:179:PHE:CE2	2.47	0.47
8:M:194:SER:O	8:M:197:LYS:HG2	2.14	0.47
1:A:84:VAL:HG22	1:A:120:ASN:HD22	1.79	0.47
2:C:444:ASN:OD1	2:C:447:SER:N	2.38	0.47
7:F:232:LEU:O	7:F:235:ILE:HG22	2.14	0.47
8:L:234:HIS:NE2	8:L:244:ARG:O	2.48	0.47
1:B:78:LEU:HD21	3:D:611:VAL:HG12	1.96	0.47
3:D:196:LYS:HE3	3:D:196:LYS:HB3	1.75	0.47
8:O:232:LEU:HA	8:O:246:PRO:HD3	1.95	0.47
2:C:641:VAL:HG12	2:C:704:ASP:HA	1.95	0.47
4:E:88:GLN:OE1	4:E:88:GLN:HA	2.14	0.47
6:G:89:DG:H2"	6:G:90:DG:C8	2.49	0.47
8:M:195:LYS:HA	8:M:198:ILE:HG12	1.97	0.47
8:N:220:TYR:HD1	8:N:223:ARG:HD2	1.78	0.47
2:C:758:ASP:HB3	2:C:868:LEU:HD13	1.97	0.47
2:C:811:GLU:HB2	8:J:197:LYS:HG3	1.96	0.47
2:C:1086:GLN:O	2:C:1090:THR:OG1	2.24	0.47
3:D:203:ARG:O	3:D:206:ARG:HG3	2.15	0.47
5:H:21:DC:H2'	5:H:22:DC:C6	2.50	0.47
6:G:6:DC:C2'	6:G:7:DC:H5'	2.44	0.47
7:F:491:GLU:O	7:F:494:GLN:HG3	2.15	0.47
3:D:173:ARG:HD3	3:D:205:MET:HB3	1.97	0.47
3:D:190:LYS:HE2	3:D:193:ALA:HB2	1.97	0.47
3:D:866:ARG:NE	3:D:1010:LEU:O	2.46	0.47
5:H:68:DA:H2"	5:H:69:DC:C5	2.49	0.47
8:K:150:ARG:NE	8:K:158:LEU:O	2.48	0.47
8:K:235:THR:HG22	8:K:241:TYR:CD1	2.50	0.47
1:A:26:LEU:HD21	1:B:218:LEU:HD11	1.97	0.47
1:B:83:LEU:HA	1:B:123:MET:HE1	1.97	0.47
3:D:875:ARG:NH1	3:D:879:ASP:OD2	2.48	0.47
8:K:158:LEU:HD13	8:K:165:VAL:HG12	1.97	0.47
1:B:59:VAL:HG11	1:B:66:VAL:HG12	1.97	0.47
2:C:202:VAL:HG12	2:C:214:PHE:HB2	1.96	0.47
1:A:88:GLU:HA	1:A:142:ARG:HH12	1.80	0.46
2:C:151:THR:O	2:C:151:THR:OG1	2.32	0.46
2:C:721:VAL:HG11	2:C:1028:MET:HB2	1.96	0.46
4:E:94:ILE:O	4:E:98:GLU:HG3	2.15	0.46
6:G:41:DC:H2"	6:G:42:DG:N7	2.31	0.46
7:F:467:LEU:HD21	7:F:519:ARG:HH12	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:K:150:ARG:HH22	8:K:157:GLU:CG	2.27	0.46
2:C:732:GLU:HB3	3:D:536:PHE:HD2	1.80	0.46
2:C:732:GLU:HB3	3:D:536:PHE:CD2	2.50	0.46
8:N:150:ARG:CZ	8:N:159:ASP:HB3	2.45	0.46
2:C:928:ILE:HG13	2:C:932:LEU:HD23	1.97	0.46
3:D:641:ARG:O	3:D:683:PHE:N	2.40	0.46
3:D:901:LEU:HD12	3:D:916:ILE:HD12	1.97	0.46
3:D:97:LEU:HD11	3:D:317:VAL:HG13	1.96	0.46
3:D:859:GLY:HA2	3:D:862:ASP:OD2	2.16	0.46
3:D:985:THR:HG23	3:D:987:LYS:H	1.80	0.46
3:D:1079:LYS:HD2	3:D:1079:LYS:HA	1.60	0.46
6:G:68:DC:H2'	6:G:69:DC:H6	1.79	0.46
3:D:373:MET:HE1	7:F:322:GLN:HG3	1.97	0.46
5:H:84:DG:O6	7:F:229:ARG:NH2	2.46	0.46
6:G:85:DC:H2"	6:G:86:DT:C5	2.51	0.46
8:L:199:LEU:HA	8:L:203:TRP:HB2	1.97	0.46
1:A:71:GLU:HB3	1:A:76:ILE:HG13	1.97	0.46
2:C:601:ASP:OD1	2:C:602:ALA:N	2.48	0.46
3:D:241:TYR:OH	3:D:254:GLY:O	2.31	0.46
4:E:47:VAL:HG11	4:E:53:LEU:HB2	1.96	0.46
6:G:63:DC:H1'	6:G:64:DC:C2	2.51	0.46
8:K:158:LEU:HD23	8:K:186:VAL:HG21	1.97	0.46
8:M:194:SER:O	8:M:198:ILE:HG12	2.16	0.46
8:O:235:THR:HG1	8:O:241:TYR:HD1	1.64	0.46
2:C:651:GLU:OE1	2:C:667:ARG:NH1	2.49	0.46
3:D:28:VAL:HG13	3:D:95:ILE:HG22	1.96	0.46
3:D:283:ASN:O	3:D:285:LYS:HE2	2.15	0.46
8:L:187:ILE:HG23	8:L:188:ASN:OD1	2.15	0.46
2:C:505:ARG:NH2	2:C:513:GLU:OE2	2.42	0.46
2:C:1106:ILE:HD11	3:D:455:PHE:CE2	2.51	0.46
3:D:1028:LEU:HA	3:D:1031:VAL:HG12	1.98	0.46
8:J:176:PRO:O	8:J:179:PHE:N	2.49	0.46
8:L:190:GLY:H	8:L:244:ARG:CZ	2.29	0.46
2:C:848:ILE:HD11	2:C:874:ALA:HB3	1.98	0.46
5:H:4:DT:H2"	5:H:5:DC:C4	2.50	0.46
5:H:23:DT:H2"	5:H:24:DT:H5'	1.98	0.46
5:H:33:DG:H2"	5:H:34:DG:H8	1.81	0.46
8:L:159:ASP:HB3	8:L:164:GLU:CD	2.36	0.46
8:O:158:LEU:HD13	8:O:165:VAL:HG12	1.97	0.46
1:A:15:THR:HG22	1:A:16:ASP:H	1.80	0.46
1:A:643:GLU:HA	1:A:646:ILE:HG22	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:252:PHE:CD1	2:C:252:PHE:N	2.84	0.46
3:D:706:MET:HA	3:D:709:VAL:HG12	1.98	0.46
8:L:211:VAL:O	8:L:214:VAL:HG22	2.15	0.46
8:L:230:LYS:HD2	8:L:230:LYS:C	2.36	0.46
1:B:217:GLU:N	1:B:217:GLU:OE1	2.50	0.45
1:A:215:LEU:HD12	1:A:219:PHE:CE2	2.49	0.45
2:C:414:PRO:O	2:C:418:ILE:HG13	2.17	0.45
8:O:244:ARG:HA	8:O:244:ARG:HD3	1.67	0.45
1:A:625:ARG:NH1	1:A:629:ASP:OD2	2.49	0.45
2:C:285:GLU:HG3	7:F:233:LYS:HE3	1.97	0.45
2:C:758:ASP:N	2:C:758:ASP:OD1	2.49	0.45
2:C:816:PRO:HA	2:C:819:ARG:HD2	1.97	0.45
2:C:992:THR:HG23	2:C:992:THR:O	2.16	0.45
2:C:1081:ALA:HB2	3:D:558:LEU:HD12	1.97	0.45
2:C:1124:LEU:HD22	3:D:417:LEU:HD11	1.98	0.45
3:D:257:GLY:O	3:D:260:SER:OG	2.27	0.45
3:D:611:VAL:HG22	3:D:634:LYS:HB2	1.99	0.45
2:C:649:VAL:HG12	2:C:661:MET:HB3	1.99	0.45
6:G:72:DG:H2"	6:G:73:DC:OP2	2.16	0.45
8:M:193:LEU:HD13	8:M:197:LYS:HD2	1.98	0.45
1:A:598:ILE:HG22	1:A:603:LEU:HD23	1.99	0.45
1:B:6:ARG:HG3	1:B:234:ILE:HG12	1.99	0.45
3:D:1152:LYS:HE2	3:D:1152:LYS:HB3	1.75	0.45
6:G:59:DT:C2	6:G:60:DG:N7	2.84	0.45
6:G:92:DC:H2"	6:G:93:DG:H8	1.82	0.45
8:K:233:LEU:HD12	8:K:242:VAL:O	2.17	0.45
2:C:947:ASP:OD1	2:C:947:ASP:N	2.44	0.45
2:C:1072:GLU:HG3	3:D:503:THR:HG21	1.97	0.45
3:D:1150:HIS:CE1	3:D:1152:LYS:HE3	2.52	0.45
6:G:19:DG:H4'	6:G:20:DT:C5	2.51	0.45
7:F:269:ARG:HD2	7:F:269:ARG:HA	1.69	0.45
7:F:296:LEU:HD22	7:F:332:VAL:HG21	1.98	0.45
8:L:150:ARG:HD3	8:L:159:ASP:HB2	1.97	0.45
8:L:192:VAL:HG13	8:L:242:VAL:HB	1.98	0.45
2:C:192:ASP:N	2:C:192:ASP:OD1	2.50	0.45
2:C:810:GLY:HA3	8:J:197:LYS:NZ	2.32	0.45
5:H:97:DT:H2"	5:H:98:DG:C5	2.52	0.45
6:G:92:DC:N4	8:N:212:ASN:HD21	2.15	0.45
8:M:234:HIS:CD2	8:M:244:ARG:HB2	2.52	0.45
1:A:84:VAL:H	1:A:120:ASN:HD21	1.63	0.45
1:B:56:ILE:HG22	1:B:136:VAL:HG22	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:97:LEU:HG	1:B:136:VAL:HB	1.97	0.45
2:C:467:ARG:CD	5:H:90:DT:H5'	2.47	0.45
3:D:890:ASP:OD1	3:D:963:ARG:NH2	2.48	0.45
4:E:56:TYR:HE2	4:E:106:HIS:CG	2.35	0.45
1:A:17:ASN:N	1:A:17:ASN:OD1	2.49	0.45
2:C:780:VAL:HG23	2:C:781:LEU:HD13	1.99	0.45
3:D:193:ALA:HB1	3:D:194:ARG:HH21	1.81	0.45
3:D:262:GLN:HB2	3:D:313:VAL:HG21	1.97	0.45
3:D:290:LEU:O	3:D:294:LYS:HG2	2.16	0.45
3:D:474:ARG:O	3:D:478:ARG:HG2	2.17	0.45
3:D:1059:GLU:CD	3:D:1059:GLU:H	2.20	0.45
4:E:76:LEU:HG	4:E:78:TYR:H	1.82	0.45
8:N:159:ASP:OD1	8:N:164:GLU:N	2.48	0.45
1:B:40:ARG:HA	1:B:40:ARG:HD3	1.73	0.45
2:C:377:ARG:NH1	2:C:383:GLU:OE2	2.47	0.45
3:D:717:LYS:HB3	3:D:717:LYS:HE3	1.63	0.45
5:H:87:DC:H1'	5:H:88:DT:C2	2.52	0.45
8:J:211:VAL:O	8:J:214:VAL:HG12	2.16	0.45
8:O:184:TYR:O	8:O:187:ILE:HG22	2.17	0.45
2:C:674:LYS:NZ	2:C:686:GLN:O	2.45	0.44
2:C:730:ASN:HB3	2:C:736:ILE:HG13	2.00	0.44
3:D:819:GLY:O	3:D:839:SER:HB3	2.16	0.44
5:H:97:DT:H2"	5:H:98:DG:N7	2.32	0.44
8:L:243:LEU:O	8:L:244:ARG:NH1	2.50	0.44
8:N:166:TRP:HB3	8:N:170:GLN:H	1.82	0.44
2:C:193:LYS:HA	2:C:193:LYS:HD3	1.70	0.44
3:D:475:MET:HB2	3:D:480:ARG:HG3	1.99	0.44
3:D:578:ARG:O	3:D:582:VAL:HG22	2.17	0.44
5:H:27:DA:H1'	5:H:28:DG:O4'	2.18	0.44
2:C:463:LEU:HD12	2:C:468:ALA:HA	2.00	0.44
3:D:816:THR:HG22	3:D:821:LYS:HA	1.99	0.44
5:H:81:DT:C2	7:F:240:LEU:HD11	2.52	0.44
6:G:44:DT:H4'	6:G:45:DT:OP1	2.16	0.44
6:G:62:DA:H2"	6:G:63:DC:H2'	1.98	0.44
7:F:376:ILE:HG12	7:F:413:ILE:HG23	1.99	0.44
8:O:165:VAL:HG23	8:O:172:VAL:HG13	1.99	0.44
8:O:185:PHE:CE2	8:O:233:LEU:HD13	2.52	0.44
1:B:210:SER:CA	1:B:213:LYS:HE3	2.41	0.44
3:D:170:LEU:O	3:D:173:ARG:HG2	2.17	0.44
3:D:417:LEU:HD13	3:D:1253:ILE:HG23	1.98	0.44
3:D:928:ASP:OD1	3:D:940:ARG:N	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:952:LEU:HD22	3:D:957:ILE:HD11	1.98	0.44
3:D:1063:LYS:NZ	3:D:1064:ILE:O	2.50	0.44
3:D:1125:GLN:NE2	3:D:1129:GLU:HG2	2.33	0.44
8:K:159:ASP:HB3	8:K:164:GLU:CD	2.38	0.44
2:C:266:ASN:ND2	2:C:266:ASN:O	2.51	0.44
2:C:1077:GLN:CD	3:D:1248:LEU:HD21	2.37	0.44
3:D:354:LEU:O	3:D:358:ILE:HG23	2.18	0.44
3:D:1064:ILE:HD11	3:D:1080:ILE:HD13	1.98	0.44
4:E:49:SER:OG	4:E:50:LYS:N	2.51	0.44
6:G:2:DG:H2"	6:G:3:DC:C6	2.53	0.44
6:G:95:DC:H2"	6:G:96:DG:C8	2.52	0.44
8:M:194:SER:OG	8:M:197:LYS:HE3	2.17	0.44
8:M:216:SER:O	8:M:219:SER:OG	2.21	0.44
8:L:161:GLU:HG2	8:O:191:THR:HG23	1.98	0.44
8:O:150:ARG:NE	8:O:157:GLU:HG3	2.33	0.44
8:O:158:LEU:HD23	8:O:186:VAL:HG21	1.99	0.44
8:O:217:TYR:O	8:O:221:LEU:HG	2.18	0.44
8:O:230:LYS:HD2	8:O:234:HIS:HE1	1.83	0.44
1:B:185:GLN:HE22	1:B:186:ARG:HG3	1.81	0.44
2:C:1084:THR:HG21	3:D:559:MET:HE1	2.00	0.44
5:H:52:DC:H4'	5:H:53:DC:OP1	2.18	0.44
2:C:418:ILE:HG13	2:C:418:ILE:H	1.65	0.44
2:C:730:ASN:HA	2:C:734:ALA:HB3	1.99	0.44
3:D:525:HIS:HD2	3:D:527:LEU:HB2	1.83	0.44
5:H:76:DT:O4	7:F:353:GLN:HB2	2.17	0.44
8:J:198:ILE:O	8:J:202:VAL:HG12	2.18	0.44
8:K:158:LEU:HD13	8:K:165:VAL:CG1	2.48	0.44
8:M:199:LEU:HA	8:M:203:TRP:HB2	2.00	0.44
2:C:143:ASN:OD1	2:C:144:THR:N	2.50	0.44
5:H:48:DG:H2"	5:H:49:DG:O5'	2.18	0.44
7:F:502:ARG:HH22	7:F:506:ILE:HB	1.83	0.44
8:K:182:LEU:O	8:K:186:VAL:HG22	2.18	0.44
1:A:186:ARG:HA	1:A:186:ARG:HD3	1.91	0.44
2:C:86:LEU:HD23	2:C:86:LEU:HA	1.87	0.44
2:C:98:ASP:OD2	2:C:100:SER:OG	2.35	0.44
2:C:118:PRO:HG2	2:C:121:GLU:HB3	1.99	0.44
2:C:388:GLN:HG3	2:C:430:PHE:CG	2.53	0.44
3:D:700:LEU:O	3:D:704:TYR:HB2	2.18	0.44
5:H:5:DC:OP2	8:N:177:THR:OG1	2.35	0.44
2:C:653:VAL:HG23	2:C:658:ILE:HG12	1.99	0.43
3:D:577:PRO:HB3	3:D:581:MET:HB2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1135:VAL:HG22	3:D:1154:ILE:HG22	2.00	0.43
3:D:1245:LEU:O	3:D:1251:ASN:ND2	2.48	0.43
6:G:61:DA:H2'	6:G:62:DA:C8	2.53	0.43
1:A:70:LYS:NZ	2:C:690:VAL:O	2.50	0.43
1:A:205:ARG:CG	1:B:225:LEU:HD21	2.46	0.43
1:A:626:THR:OG1	1:A:627:GLU:N	2.51	0.43
1:B:76:ILE:O	1:B:80:LEU:HD23	2.18	0.43
2:C:386:GLN:OE1	2:C:390:ARG:NH2	2.49	0.43
3:D:67:ARG:HE	3:D:69:ARG:HD2	1.81	0.43
3:D:92:MET:HG3	3:D:319:VAL:O	2.18	0.43
7:F:406:THR:OG1	7:F:408:GLU:OE1	2.28	0.43
8:M:198:ILE:O	8:M:202:VAL:HG22	2.18	0.43
8:L:162:THR:HA	8:O:192:VAL:HB	2.00	0.43
2:C:213:GLU:HB3	2:C:225:ARG:O	2.19	0.43
2:C:224:VAL:HG21	2:C:234:VAL:HA	2.00	0.43
4:E:89:GLU:HG2	4:E:94:ILE:HG13	1.99	0.43
7:F:249:LEU:HD22	7:F:291:ALA:HB1	2.00	0.43
7:F:462:SER:O	7:F:466:THR:HG23	2.18	0.43
4:E:56:TYR:CE1	4:E:99:ILE:HD12	2.54	0.43
8:K:156:ILE:HG23	8:K:167:LYS:NZ	2.34	0.43
8:M:193:LEU:HB3	8:M:198:ILE:HD11	2.00	0.43
2:C:619:VAL:HG23	2:C:620:ARG:HG2	2.00	0.43
2:C:760:ARG:HB3	2:C:865:VAL:HG22	2.01	0.43
2:C:1133:LEU:HD13	3:D:12:ILE:HD11	2.01	0.43
2:C:1135:VAL:HB	3:D:12:ILE:HG13	2.01	0.43
3:D:335:PHE:HB3	7:F:420:PRO:HB3	2.01	0.43
7:F:306:LEU:HD12	7:F:306:LEU:HA	1.82	0.43
2:C:150:GLN:OE1	2:C:415:GLN:N	2.52	0.43
2:C:759:ALA:HB3	2:C:867:GLU:HB3	2.00	0.43
2:C:1068:PHE:CE1	2:C:1072:GLU:HB3	2.54	0.43
3:D:414:ARG:HE	3:D:414:ARG:HB3	1.54	0.43
3:D:827:PRO:HG3	3:D:854:HIS:CD2	2.54	0.43
5:H:84:DG:H2"	5:H:85:DA:OP2	2.18	0.43
8:O:222:ARG:O	8:O:226:ASP:C	2.57	0.43
1:A:632:ASP:N	1:A:632:ASP:OD1	2.52	0.43
1:B:38:LEU:HD23	1:B:38:LEU:HA	1.89	0.43
2:C:197:LYS:HA	2:C:197:LYS:HD3	1.73	0.43
2:C:235:THR:HG21	2:C:262:LEU:HB2	2.01	0.43
3:D:981:ARG:HA	3:D:988:LEU:HA	2.01	0.43
3:D:1192:ARG:NH1	3:D:1196:GLU:OE1	2.52	0.43
8:O:198:ILE:O	8:O:202:VAL:HG12	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:877:ARG:NH1	2:C:1039:ASP:OD1	2.50	0.43
5:H:12:DC:H2"	5:H:13:DA:C8	2.54	0.43
8:J:155:ASP:OD1	8:J:155:ASP:N	2.43	0.43
8:K:211:VAL:O	8:K:214:VAL:HG12	2.18	0.43
1:B:4:SER:O	1:B:4:SER:OG	2.37	0.42
3:D:154:GLU:O	3:D:157:VAL:HG12	2.19	0.42
3:D:1049:VAL:HG21	3:D:1068:PRO:HB3	2.00	0.42
8:K:178:GLU:HB2	8:K:221:LEU:CD2	2.49	0.42
8:M:195:LYS:H	8:M:195:LYS:HD2	1.83	0.42
8:M:212:ASN:N	8:M:212:ASN:OD1	2.51	0.42
8:O:164:GLU:N	8:O:164:GLU:OE1	2.52	0.42
1:A:29:GLY:N	1:A:190:ASP:OD2	2.43	0.42
2:C:200:HIS:H	2:C:216:VAL:CG2	2.31	0.42
3:D:749:TYR:CG	3:D:781:ALA:HB2	2.54	0.42
3:D:777:ILE:HG13	3:D:778:TRP:N	2.34	0.42
3:D:897:ILE:HD11	3:D:966:LEU:HD12	2.02	0.42
8:O:159:ASP:O	8:O:183:ARG:NH2	2.42	0.42
1:B:223:ARG:NH1	1:B:226:ASN:O	2.53	0.42
2:C:234:VAL:HG11	2:C:342:ILE:HG21	2.01	0.42
2:C:264:LYS:HD2	2:C:264:LYS:N	2.33	0.42
2:C:1103:TYR:O	2:C:1106:ILE:HG22	2.19	0.42
3:D:729:VAL:HG23	3:D:798:PRO:HB3	2.00	0.42
3:D:810:ASN:N	3:D:810:ASN:OD1	2.51	0.42
5:H:25:DG:H2"	5:H:26:DG:H8	1.83	0.42
7:F:492:ILE:HG13	7:F:503:ILE:HD13	1.99	0.42
8:M:197:LYS:HB2	8:M:201:HIS:NE2	2.34	0.42
8:N:197:LYS:HE3	8:N:197:LYS:HB2	1.88	0.42
1:A:173:LYS:HB2	1:A:173:LYS:HE2	1.69	0.42
2:C:884:LYS:NZ	3:D:537:ASP:O	2.30	0.42
3:D:87:VAL:O	3:D:91:ARG:HG2	2.19	0.42
3:D:565:ILE:HG23	3:D:575:ALA:HB3	2.01	0.42
8:M:161:GLU:OE2	8:L:191:THR:OG1	2.35	0.42
1:A:139:VAL:HG22	1:A:141:GLU:OE2	2.20	0.42
2:C:182:SER:O	2:C:186:TYR:OH	2.30	0.42
3:D:65:TYR:HE2	3:D:75:CYS:HA	1.84	0.42
3:D:684:VAL:HG23	3:D:685:ASN:H	1.84	0.42
3:D:823:LEU:HD23	3:D:835:PRO:HB3	2.01	0.42
6:G:55:DC:H1'	6:G:56:DA:O4'	2.20	0.42
7:F:334:LYS:HD3	7:F:334:LYS:HA	1.81	0.42
1:A:173:LYS:NZ	2:C:911:THR:HG22	2.35	0.42
2:C:73:SER:O	2:C:76:GLU:HG3	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:1135:VAL:HA	3:D:11:ARG:O	2.20	0.42
3:D:250:GLU:OE1	3:D:250:GLU:N	2.43	0.42
3:D:789:LEU:O	3:D:793:TYR:HB2	2.18	0.42
3:D:790:ARG:HB2	3:D:811:PHE:CZ	2.55	0.42
4:E:76:LEU:HD21	4:E:78:TYR:HB2	2.01	0.42
7:F:369:PRO:O	7:F:373:VAL:HG23	2.20	0.42
8:N:150:ARG:NH1	8:N:159:ASP:HB3	2.34	0.42
8:N:211:VAL:O	8:N:214:VAL:HG12	2.20	0.42
8:N:244:ARG:HH22	8:O:161:GLU:HG2	1.84	0.42
2:C:519:VAL:HG12	2:C:524:VAL:HA	2.01	0.42
2:C:841:HIS:CD2	2:C:841:HIS:C	2.93	0.42
3:D:237:ASP:HB2	7:F:221:LEU:HD21	2.01	0.42
3:D:1127:PRO:O	3:D:1130:VAL:HG12	2.20	0.42
8:L:196:PRO:O	8:L:199:LEU:HG	2.20	0.42
2:C:1125:LEU:HD12	2:C:1125:LEU:HA	1.86	0.42
3:D:487:LEU:HG	3:D:516:LEU:HD11	2.02	0.42
3:D:731:VAL:HG13	3:D:799:ILE:HD11	2.01	0.42
3:D:881:SER:O	3:D:881:SER:OG	2.36	0.42
6:G:22:DA:H2"	6:G:23:DT:O4'	2.20	0.42
7:F:382:ILE:HD11	7:F:403:MET:SD	2.60	0.42
1:A:63:PHE:HE1	2:C:750:ILE:HD12	1.84	0.42
1:A:203:SER:OG	1:A:205:ARG:HB3	2.19	0.42
2:C:488:THR:O	2:C:610:ASN:ND2	2.51	0.42
2:C:740:ARG:NH1	2:C:914:ASP:OD2	2.53	0.42
3:D:779:LYS:HE2	3:D:779:LYS:HB3	1.90	0.42
8:L:222:ARG:NE	8:L:233:LEU:O	2.53	0.42
8:O:185:PHE:CE2	8:O:243:LEU:HB2	2.55	0.42
1:B:183:VAL:HG23	1:B:188:ASP:HB2	2.01	0.41
2:C:258:MET:HA	2:C:261:THR:HB	2.01	0.41
3:D:383:ASP:HB3	3:D:386:ARG:HB2	2.02	0.41
4:E:84:GLU:OE2	4:E:85:PRO:HD2	2.20	0.41
5:H:29:DC:H2"	5:H:30:DC:OP2	2.20	0.41
8:L:174:LEU:HD11	8:L:178:GLU:HB2	2.01	0.41
1:B:43:LEU:HD23	1:B:43:LEU:HA	1.82	0.41
1:B:183:VAL:HA	1:B:188:ASP:HA	2.02	0.41
2:C:32:VAL:HB	2:C:35:ALA:HB2	2.02	0.41
2:C:378:LEU:HD11	2:C:455:LEU:HD22	2.02	0.41
2:C:192:ASP:OD1	2:C:197:LYS:N	2.49	0.41
2:C:769:ILE:HA	2:C:805:LYS:HA	2.02	0.41
3:D:774:LEU:HA	3:D:777:ILE:HG12	2.02	0.41
5:H:83:DG:OP2	5:H:83:DG:H2'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:J:211:VAL:O	8:J:213:VAL:N	2.53	0.41
8:L:160:GLU:OE1	8:L:160:GLU:N	2.43	0.41
1:A:598:ILE:HD12	1:A:598:ILE:H	1.84	0.41
3:D:150:THR:O	3:D:154:GLU:HG2	2.20	0.41
3:D:272:ALA:O	3:D:275:GLU:HG3	2.20	0.41
3:D:885:ILE:HD11	3:D:887:ARG:NH1	2.35	0.41
7:F:397:GLU:O	7:F:401:LYS:HG2	2.20	0.41
2:C:308:LEU:O	2:C:331:SER:HB3	2.21	0.41
2:C:824:ILE:HD11	7:F:514:LEU:C	2.41	0.41
2:C:1103:TYR:O	2:C:1107:VAL:HG12	2.19	0.41
2:C:1123:VAL:HG22	3:D:324:LEU:HD11	2.01	0.41
3:D:38:THR:HG23	3:D:40:LYS:H	1.85	0.41
3:D:338:SER:OG	3:D:341:ASN:OD1	2.37	0.41
6:G:55:DC:H6	6:G:55:DC:H2'	1.67	0.41
8:K:174:LEU:HG	8:K:179:PHE:HB2	2.02	0.41
8:O:222:ARG:NH2	8:O:233:LEU:O	2.52	0.41
8:O:230:LYS:HA	8:O:230:LYS:HD3	1.79	0.41
1:A:99:LYS:HE2	1:A:99:LYS:HB3	1.86	0.41
3:D:1106:GLU:OE1	3:D:1106:GLU:N	2.54	0.41
8:K:157:GLU:HG2	8:K:166:TRP:CD1	2.55	0.41
8:L:177:THR:O	8:L:180:THR:OG1	2.31	0.41
8:L:232:LEU:HD23	8:L:245:GLU:HA	2.02	0.41
8:N:198:ILE:HD13	8:N:198:ILE:HA	1.91	0.41
8:O:222:ARG:HA	8:O:226:ASP:HB2	2.02	0.41
2:C:1099:ARG:O	2:C:1102:VAL:HG12	2.19	0.41
3:D:430:ILE:HD13	3:D:522:ILE:HB	2.02	0.41
3:D:494:HIS:NE2	3:D:552:GLN:OE1	2.53	0.41
6:G:68:DC:C2	6:G:69:DC:C5	3.09	0.41
8:L:221:LEU:HD23	8:L:221:LEU:HA	1.82	0.41
1:B:172:LEU:HD23	1:B:172:LEU:HA	1.83	0.41
2:C:257:ILE:O	2:C:260:SER:OG	2.31	0.41
3:D:163:GLU:O	3:D:166:ARG:HG2	2.20	0.41
3:D:200:GLY:O	3:D:203:ARG:HG2	2.21	0.41
3:D:243:GLU:HA	3:D:246:ASP:OD2	2.20	0.41
6:G:43:DT:H2"	6:G:44:DT:C6	2.56	0.41
8:K:164:GLU:OE1	8:K:164:GLU:N	2.54	0.41
8:K:218:VAL:HG23	8:K:233:LEU:HD21	2.02	0.41
8:M:162:THR:HG23	8:M:164:GLU:HB2	2.03	0.41
1:A:219:PHE:CE1	1:B:215:LEU:HD13	2.56	0.41
1:A:622:LEU:HD23	1:A:622:LEU:HA	1.89	0.41
1:B:41:THR:O	1:B:45:SER:HB2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:124:HIS:CE1	1:B:127:THR:HG23	2.56	0.41
2:C:128:THR:HG23	2:C:168:ILE:HA	2.02	0.41
2:C:281:LEU:HD21	2:C:295:LEU:HD21	2.02	0.41
2:C:388:GLN:HG3	2:C:430:PHE:CB	2.51	0.41
2:C:436:LEU:HD23	2:C:436:LEU:HA	1.88	0.41
2:C:1044:ARG:NH2	2:C:1056:PRO:HB3	2.36	0.41
2:C:1092:LYS:NZ	3:D:545:LEU:O	2.40	0.41
2:C:1094:ASP:HB3	2:C:1119:GLU:H	1.85	0.41
3:D:14:LEU:HD13	3:D:311:GLY:HA3	2.02	0.41
3:D:103:HIS:HB3	3:D:106:TYR:HD2	1.86	0.41
3:D:982:SER:N	3:D:987:LYS:O	2.54	0.41
3:D:1137:GLU:O	3:D:1140:GLU:HG3	2.20	0.41
5:H:53:DC:H2"	5:H:54:DG:H8	1.86	0.41
5:H:67:DT:H2"	5:H:68:DA:C8	2.55	0.41
7:F:319:ASP:O	7:F:323:GLU:HG2	2.21	0.41
8:M:152:THR:HB	8:M:157:GLU:CD	2.41	0.41
8:M:161:GLU:HG2	8:L:191:THR:HG23	2.00	0.41
8:L:183:ARG:NH1	8:L:184:TYR:HA	2.36	0.41
8:O:170:GLN:O	8:O:172:VAL:HG12	2.21	0.41
2:C:927:ASN:O	2:C:930:GLN:HG2	2.21	0.41
7:F:251:LYS:HA	7:F:251:LYS:HD2	1.92	0.41
8:J:187:ILE:HG23	8:J:188:ASN:OD1	2.20	0.41
1:B:223:ARG:O	1:B:225:LEU:N	2.47	0.40
2:C:1080:GLY:O	3:D:1261:GLY:HA3	2.21	0.40
3:D:29:LYS:HE2	3:D:29:LYS:HB3	1.89	0.40
3:D:793:TYR:HA	3:D:794:PRO:HD3	1.97	0.40
6:G:60:DG:H2'	6:G:61:DA:H8	1.86	0.40
7:F:241:LEU:HB3	7:F:245:GLU:HB2	2.04	0.40
8:L:235:THR:HG1	8:L:241:TYR:HE2	1.66	0.40
7:F:460:LEU:HD23	7:F:460:LEU:HA	1.86	0.40
1:B:191:LYS:HE3	1:B:191:LYS:HB2	1.91	0.40
2:C:625:LEU:HD23	2:C:625:LEU:HA	1.90	0.40
3:D:224:SER:O	3:D:228:LYS:HG2	2.21	0.40
3:D:679:LEU:HD23	3:D:679:LEU:H	1.86	0.40
3:D:1258:ILE:O	3:D:1263:GLY:HA3	2.22	0.40
7:F:490:ASP:OD1	7:F:491:GLU:N	2.54	0.40
8:K:163:HIS:CG	8:M:192:VAL:HG11	2.56	0.40
1:A:218:LEU:HD12	1:A:218:LEU:H	1.85	0.40
2:C:636:ILE:HD13	2:C:636:ILE:HA	1.97	0.40
2:C:902:GLU:HG2	2:C:903:ASP:N	2.36	0.40
2:C:961:ASP:OD1	2:C:962:GLU:N	2.47	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:123:LYS:HD3	3:D:123:LYS:HA	1.86	0.40
3:D:383:ASP:OD2	3:D:386:ARG:NH1	2.54	0.40
3:D:1257:LEU:HD23	3:D:1257:LEU:HA	1.92	0.40
5:H:69:DC:H4'	5:H:70:DA:OP1	2.22	0.40
5:H:83:DG:H1	7:F:228:VAL:CG1	2.35	0.40
5:H:90:DT:H2"	5:H:91:DC:H6	1.86	0.40
6:G:57:DA:C4	6:G:58:DA:C8	3.09	0.40
8:M:175:SER:HB2	8:M:178:GLU:OE1	2.21	0.40
8:M:178:GLU:OE1	8:M:178:GLU:N	2.51	0.40
8:N:195:LYS:H	8:N:195:LYS:HD2	1.86	0.40
8:O:150:ARG:HG2	8:O:159:ASP:HA	2.04	0.40
1:A:612:LYS:HA	1:A:612:LYS:HD3	1.81	0.40
1:A:618:THR:O	1:A:621:GLU:HG2	2.22	0.40
1:B:11:GLU:HB2	1:B:21:PHE:CD2	2.57	0.40
1:B:179:ASP:OD1	1:B:180:ALA:N	2.54	0.40
2:C:600:ASP:OD2	2:C:889:HIS:ND1	2.54	0.40
2:C:806:VAL:HG22	2:C:832:VAL:HB	2.02	0.40
3:D:269:ASP:OD1	3:D:269:ASP:N	2.41	0.40
3:D:432:VAL:HG22	3:D:434:PRO:HD3	2.03	0.40
3:D:526:PRO:HG3	3:D:721:PHE:HE2	1.87	0.40
5:H:15:DA:OP1	8:O:175:SER:HB3	2.21	0.40
7:F:243:ALA:O	7:F:246:GLU:HG2	2.21	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	278/347 (80%)	269 (97%)	9 (3%)	0	100	100
1	B	232/347 (67%)	217 (94%)	15 (6%)	0	100	100
2	C	1109/1178 (94%)	1053 (95%)	56 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	D	1257/1316 (96%)	1209 (96%)	48 (4%)	0	100	100
4	E	81/110 (74%)	77 (95%)	4 (5%)	0	100	100
7	F	320/528 (61%)	317 (99%)	3 (1%)	0	100	100
8	J	97/247 (39%)	90 (93%)	7 (7%)	0	100	100
8	K	97/247 (39%)	89 (92%)	8 (8%)	0	100	100
8	L	97/247 (39%)	88 (91%)	9 (9%)	0	100	100
8	M	97/247 (39%)	88 (91%)	9 (9%)	0	100	100
8	N	97/247 (39%)	92 (95%)	5 (5%)	0	100	100
8	O	97/247 (39%)	93 (96%)	4 (4%)	0	100	100
All	All	3859/5308 (73%)	3682 (95%)	177 (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	239/297 (80%)	229 (96%)	10 (4%)	25	54
1	B	193/297 (65%)	187 (97%)	6 (3%)	35	62
2	C	924/998 (93%)	893 (97%)	31 (3%)	32	59
3	D	1037/1095 (95%)	1001 (96%)	36 (4%)	31	58
4	E	69/90 (77%)	64 (93%)	5 (7%)	12	37
7	F	264/427 (62%)	255 (97%)	9 (3%)	32	59
8	J	87/208 (42%)	80 (92%)	7 (8%)	10	33
8	K	87/208 (42%)	82 (94%)	5 (6%)	17	45
8	L	87/208 (42%)	85 (98%)	2 (2%)	45	69
8	M	87/208 (42%)	75 (86%)	12 (14%)	3	14
8	N	87/208 (42%)	85 (98%)	2 (2%)	45	69
8	O	87/208 (42%)	83 (95%)	4 (5%)	23	52

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	3248/4452 (73%)	3119 (96%)	129 (4%)	29 54

All (129) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	GLN
1	A	17	ASN
1	A	30	PHE
1	A	95	MET
1	A	109	ASP
1	A	152	ASN
1	A	153	ARG
1	A	218	LEU
1	A	634	ARG
1	A	636	PHE
1	B	1	MET
1	B	106	THR
1	B	166	SER
1	B	205	ARG
1	B	206	ASP
1	B	213	LYS
2	C	104	SER
2	C	121	GLU
2	C	156	ASP
2	C	193	LYS
2	C	194	SER
2	C	227	ASP
2	C	228	ARG
2	C	368	ASP
2	C	373	PHE
2	C	431	PHE
2	C	439	PHE
2	C	521	ASP
2	C	673	ARG
2	C	683	CYS
2	C	740	ARG
2	C	761	ASP
2	C	808	PRO
2	C	809	LYS
2	C	883	ASP
2	C	897	LYS
2	C	920	HIS

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Mol	Chain	Res	Type
2	C	954	ASP
2	C	959	LEU
2	C	973	SER
2	C	999	ASP
2	C	1009	MET
2	C	1035	HIS
2	C	1063	PHE
2	C	1067	ARG
2	C	1103	TYR
2	C	1130	SER
3	D	10	LEU
3	D	60	CYS
3	D	75	CYS
3	D	84	ARG
3	D	86	LYS
3	D	92	MET
3	D	196	LYS
3	D	210	ASP
3	D	246	ASP
3	D	297	LYS
3	D	335	PHE
3	D	342	ASP
3	D	356	ARG
3	D	383	ASP
3	D	413	PHE
3	D	450	GLU
3	D	535	ASP
3	D	630	ARG
3	D	649	GLU
3	D	679	LEU
3	D	717	LYS
3	D	721	PHE
3	D	743	LYS
3	D	765	LEU
3	D	770	ARG
3	D	784	GLU
3	D	793	TYR
3	D	826	ASN
3	D	875	ARG
3	D	879	ASP
3	D	940	ARG
3	D	1054	ARG

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Mol	Chain	Res	Type
3	D	1089	PHE
3	D	1190	ASN
3	D	1192	ARG
3	D	1212	LYS
4	E	30	ASP
4	E	56	TYR
4	E	67	TYR
4	E	68	TYR
4	E	69	ASN
7	F	263	MET
7	F	352	ARG
7	F	372	MET
7	F	416	TYR
7	F	422	SER
7	F	478	ARG
7	F	496	TYR
7	F	516	HIS
7	F	523	LEU
8	J	173	SER
8	J	183	ARG
8	J	184	TYR
8	J	212	ASN
8	J	223	ARG
8	J	231	ARG
8	J	234	HIS
8	K	163	HIS
8	K	173	SER
8	K	174	LEU
8	K	183	ARG
8	K	212	ASN
8	M	150	ARG
8	M	153	PHE
8	M	166	TRP
8	M	177	THR
8	M	185	PHE
8	M	195	LYS
8	M	196	PRO
8	M	207	PHE
8	M	212	ASN
8	M	220	TYR
8	M	231	ARG
8	M	243	LEU

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Mol	Chain	Res	Type
8	L	182	LEU
8	L	230	LYS
8	N	166	TRP
8	N	204	ARG
8	O	150	ARG
8	O	204	ARG
8	O	231	ARG
8	O	241	TYR

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

Mol	Chain	Res	Type
1	A	120	ASN
1	B	226	ASN
2	C	442	GLN
2	C	679	ASN
2	C	1077	GLN
4	E	70	GLN
7	F	516	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no 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 (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

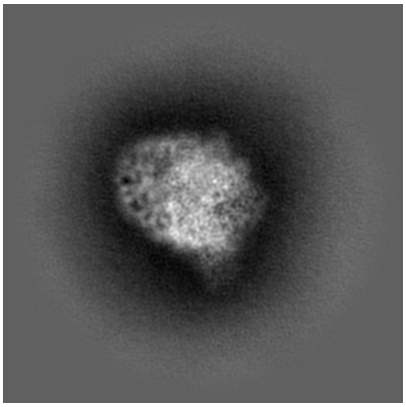
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-62295. These allow visual inspection of the internal detail of the map and identification of artifacts.

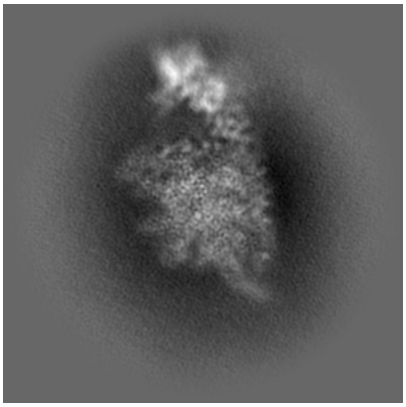
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

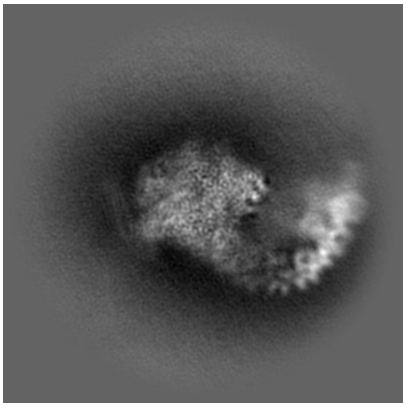
6.1.1 Primary map



X



Y

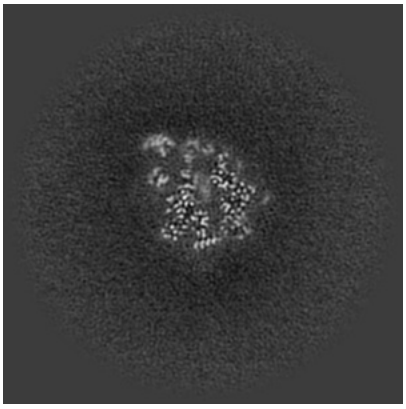


Z

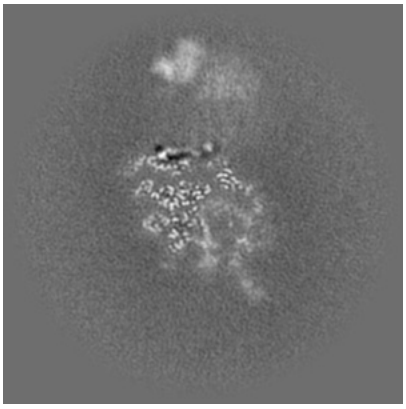
The images above show the map projected in three orthogonal directions.

6.2 Central slices

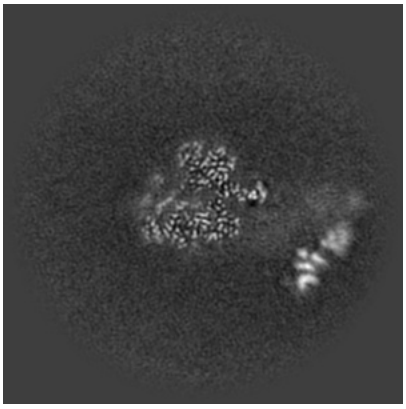
6.2.1 Primary map



X Index: 300



Y Index: 300

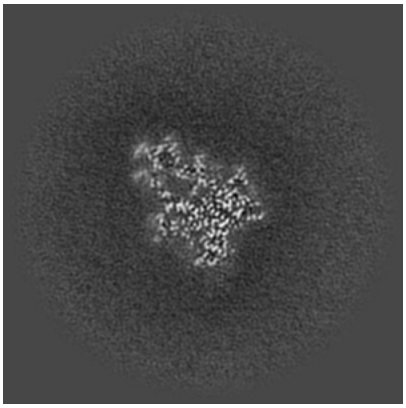


Z Index: 300

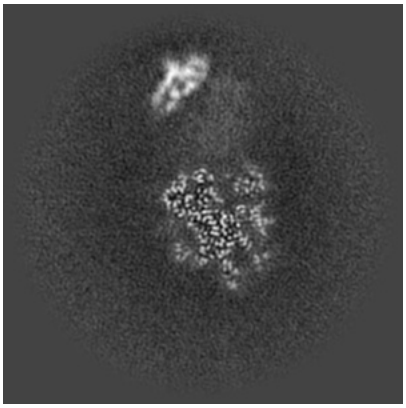
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

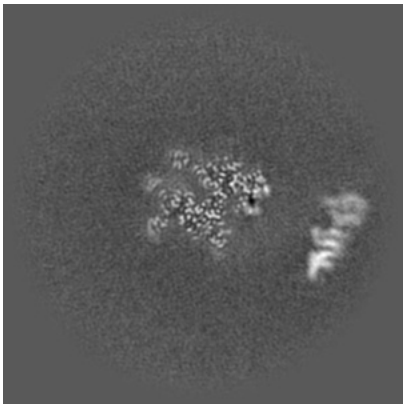
6.3.1 Primary map



X Index: 326



Y Index: 257

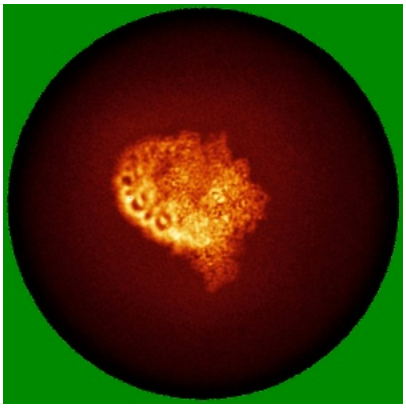


Z Index: 273

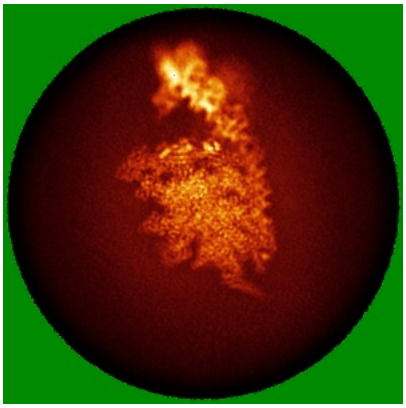
The images above show the largest variance slices of the map in three orthogonal directions.

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

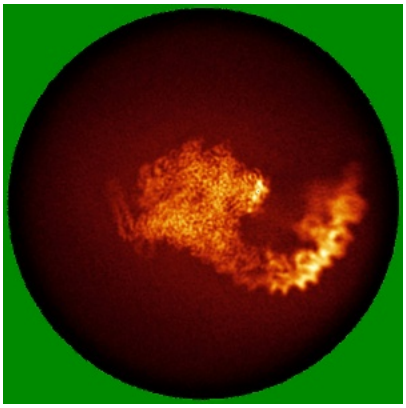
6.4.1 Primary map



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 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

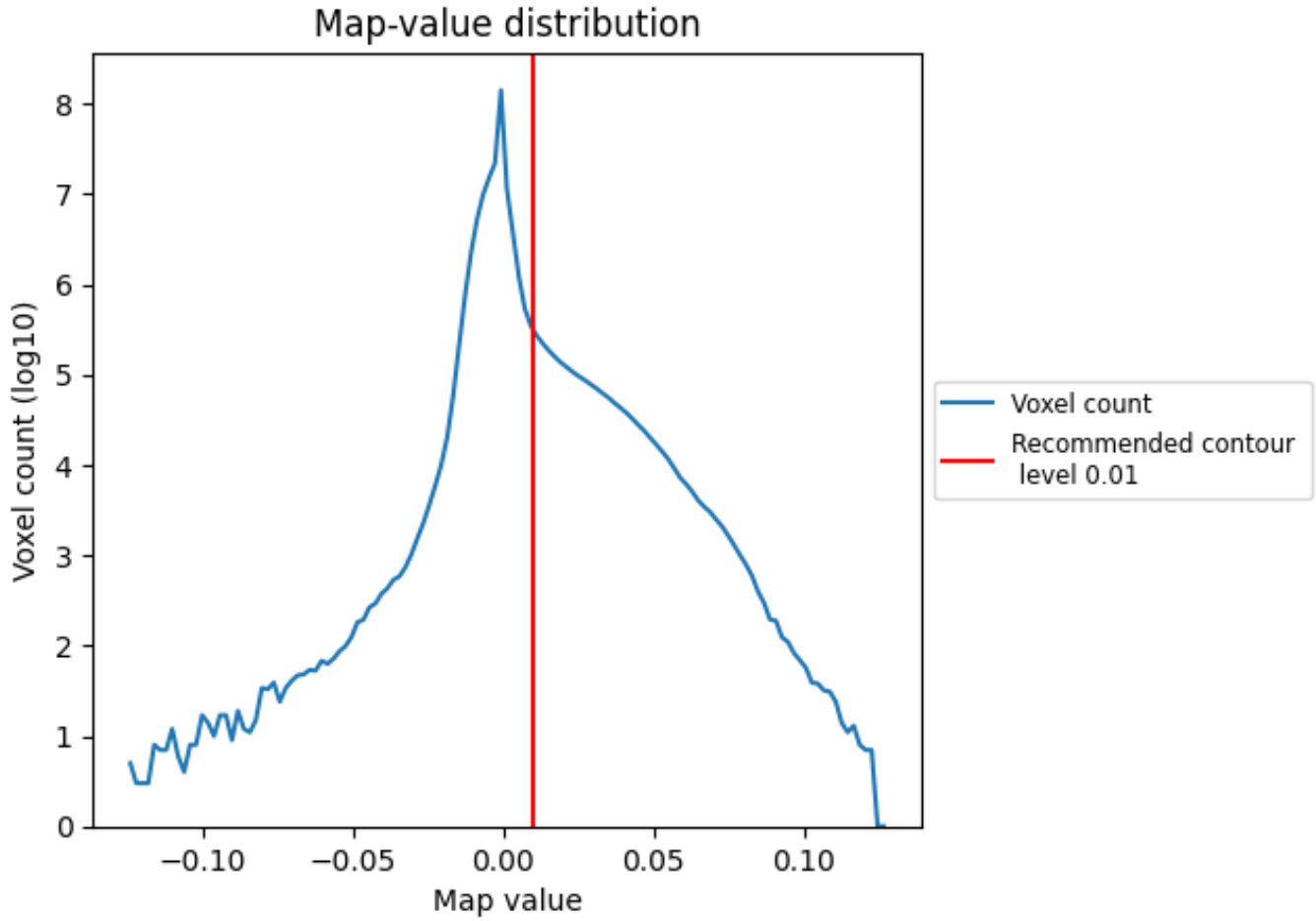
6.6 Mask visualisation (i)

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

7 Map analysis

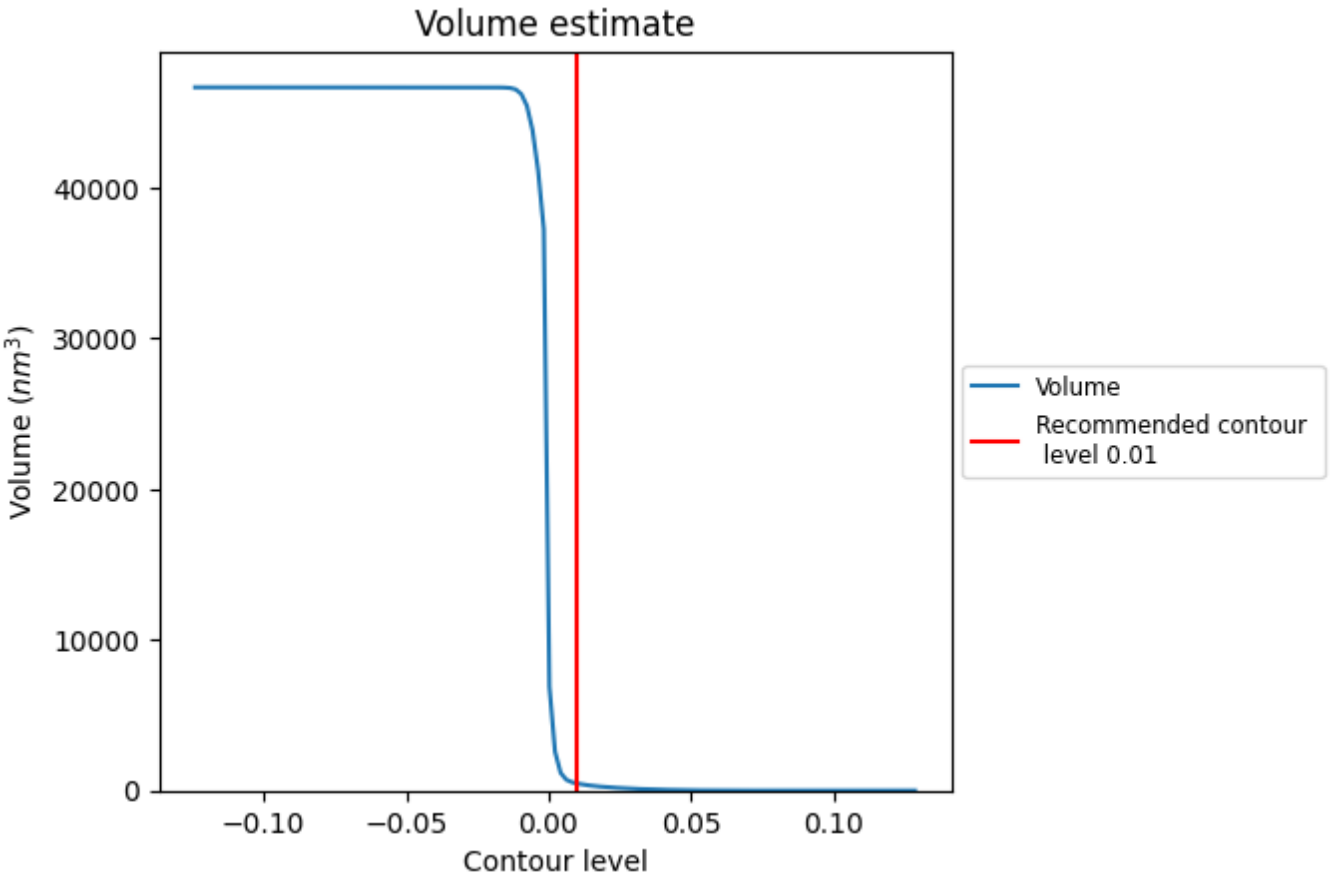
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

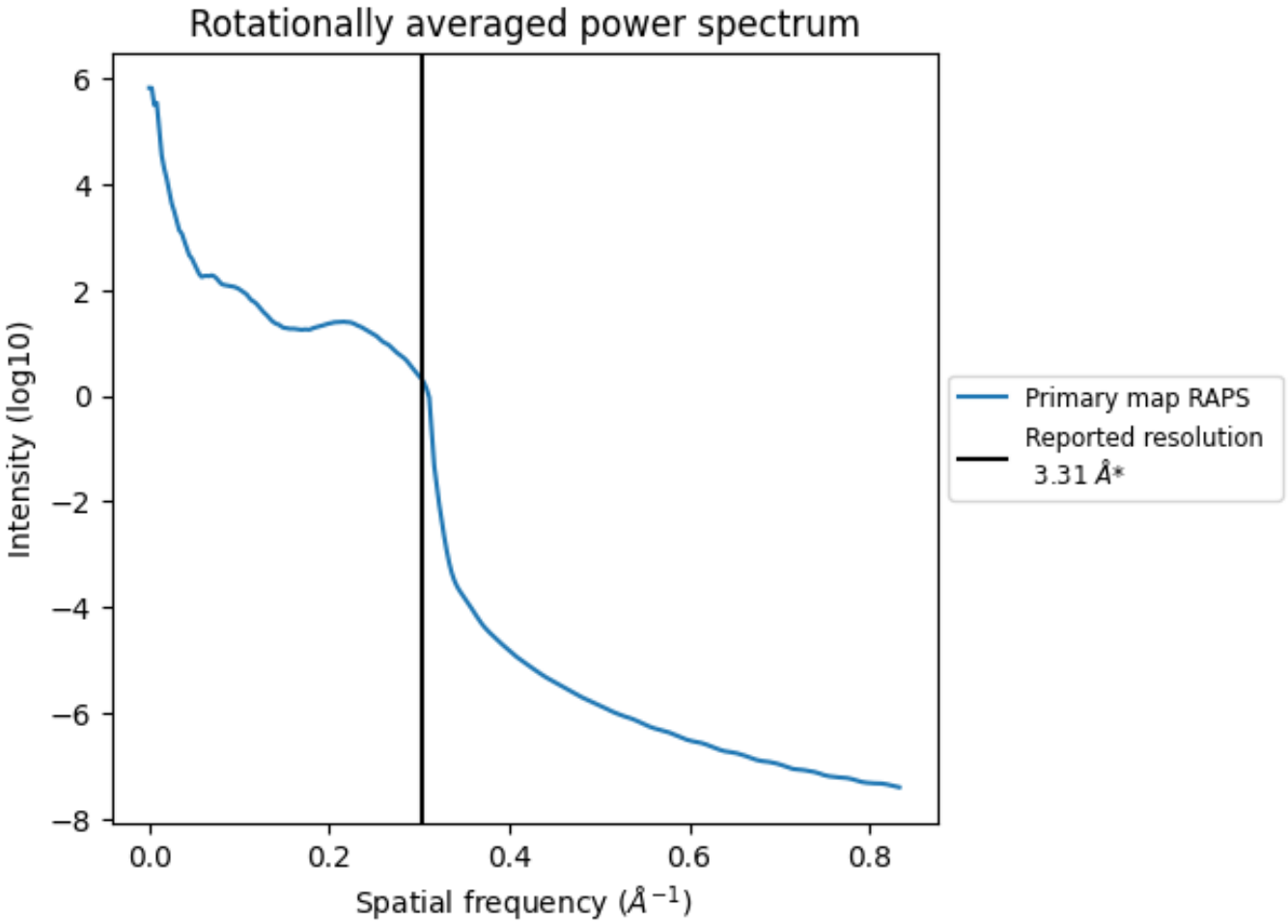
7.2 Volume estimate



The volume at the recommended contour level is 472 nm^3; this corresponds to an approximate mass of 426 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 0.302 Å^{-1}

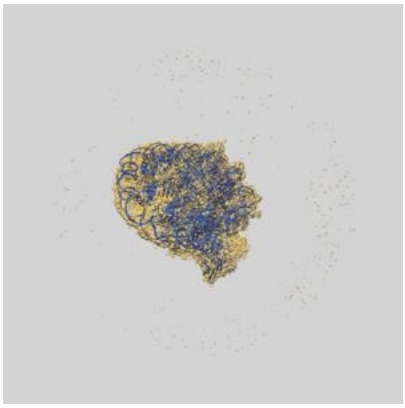
8 Fourier-Shell correlation (i)

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

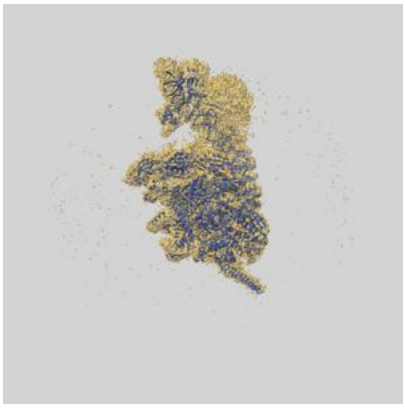
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-62295 and PDB model 9KEV. Per-residue inclusion information can be found in section 3 on page 6.

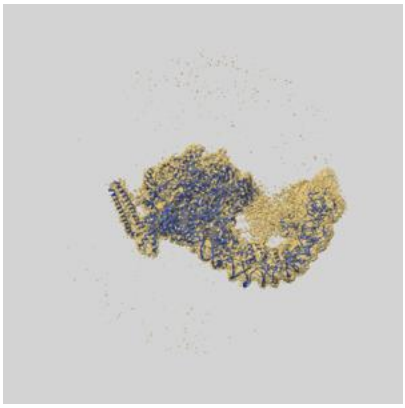
9.1 Map-model overlay



X



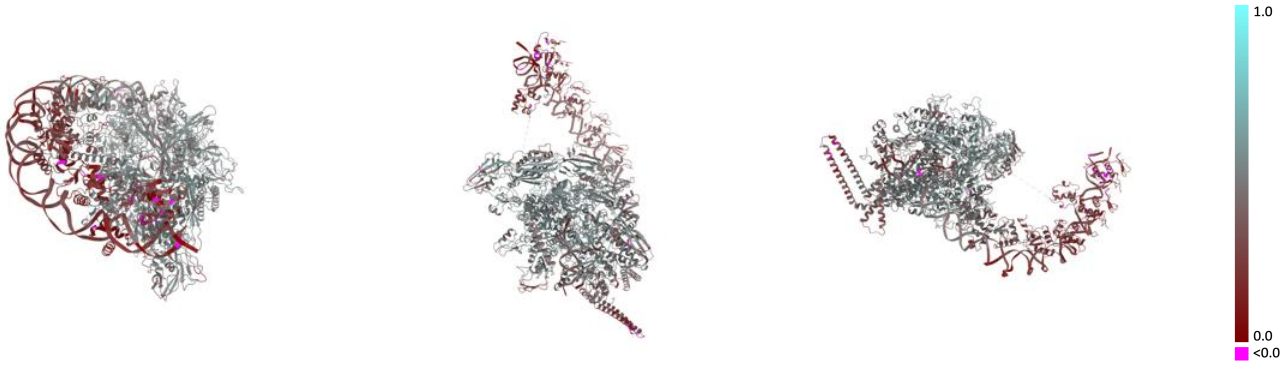
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.01 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.

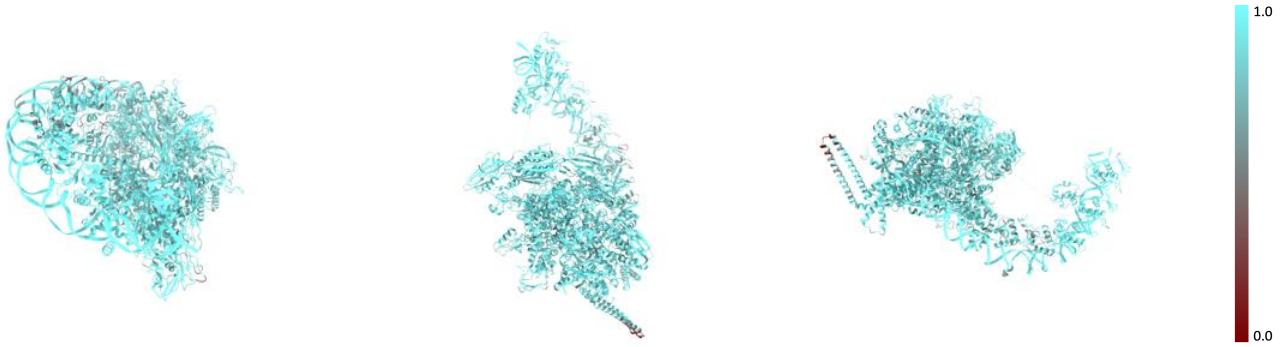
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

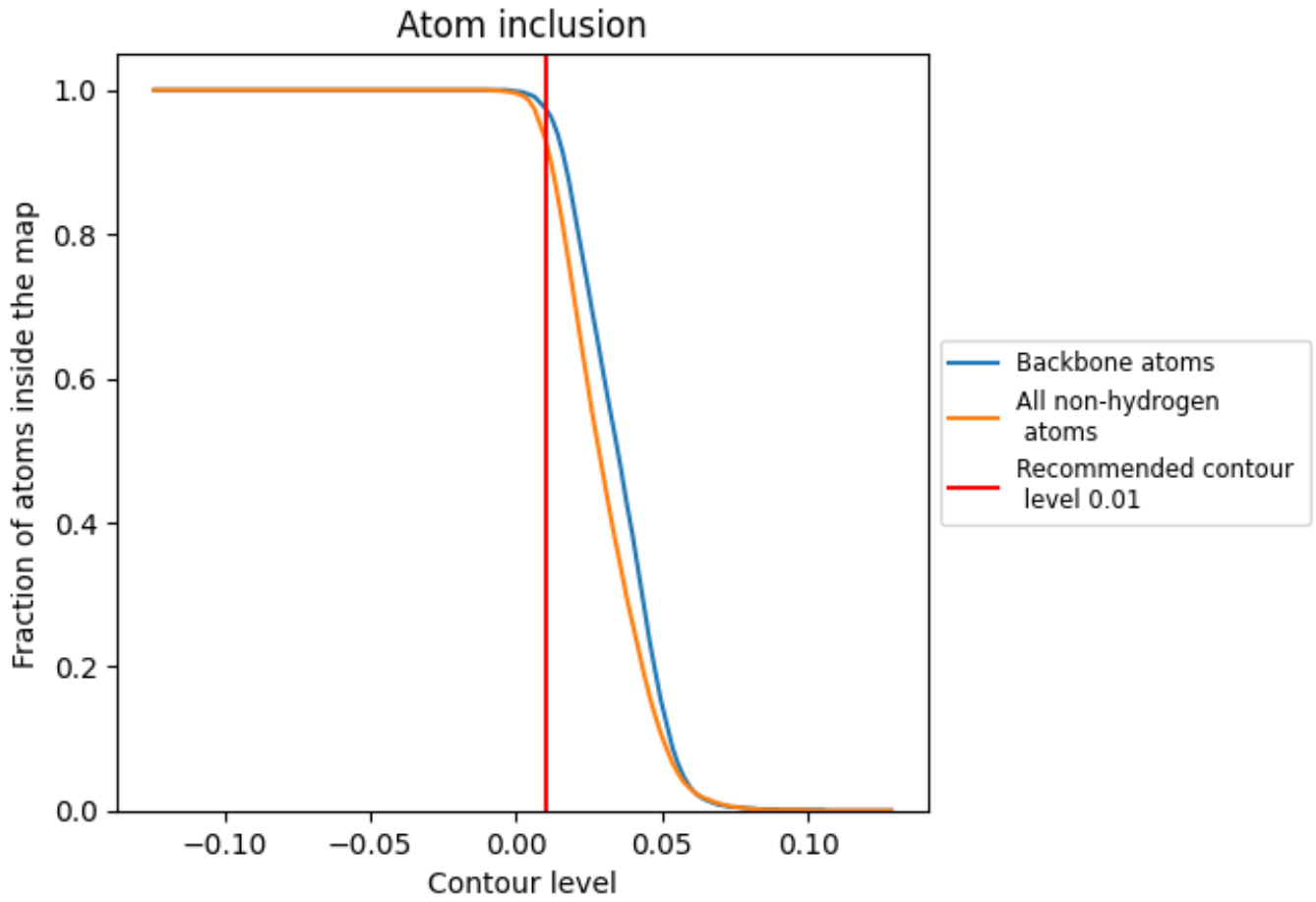
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.01).

9.4 Atom inclusion (i)



At the recommended contour level, 98% of all backbone atoms, 93% 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 (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9320	0.4250
A	0.9480	0.4210
B	0.9150	0.4470
C	0.9440	0.4980
D	0.9310	0.4810
E	0.9420	0.5050
F	0.9150	0.4360
G	0.9460	0.2930
H	0.9610	0.3040
J	0.8410	0.4230
K	0.7980	0.3390
L	0.9740	0.2170
M	0.8410	0.2570
N	0.9730	0.1630
O	0.9770	0.1950