Full wwPDB EM Validation Report ⓘ

Jun 25, 2025 – 04:40 am BST

PDB ID	:	7O9W / pdb_00007o9w
EMDB ID	:	EMD-12765
Title	:	Encequidar-bound human P-glycoprotein in complex with UIC2-Fab
Authors	:	Nosol, K.; Locher, K.P.
Deposited on	:	2021-04-17
Resolution	:	3.50 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:

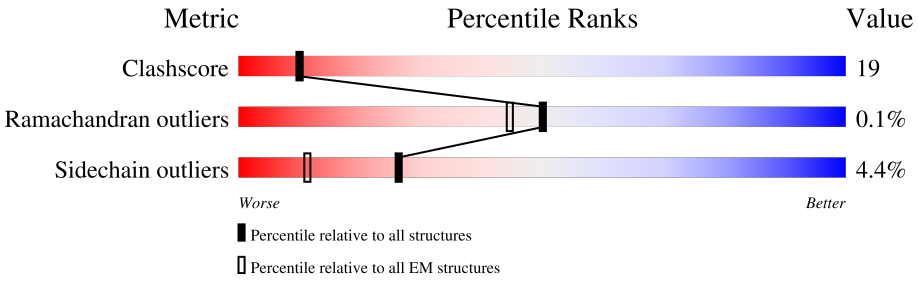
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

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 3.50 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	1280	44% 66% 24% • 9%
2	B	220	45% 60% 37% •
3	C	225	39% 67% 31% •

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	V5Q	A	1401	X	-	-	-

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 12618 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 Multidrug resistance protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1169	9089	5858	1540	1654	37	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	893	ALA	SER	variant	UNP P08183

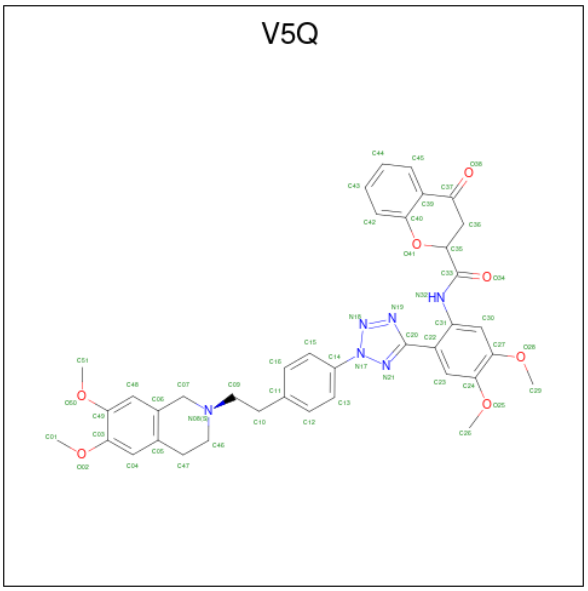
- Molecule 2 is a protein called UIC2 Fab-fragment light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	220	1710	1069	292	342	7	0	0

- Molecule 3 is a protein called UIC2 Fab-fragment heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	225	1717	1098	274	337	8	0	0

- Molecule 4 is {N}-[2-[2-[4-[2-(6,7-dimethoxy-3,4-dihydro-1 {H}-isoquinolin-2-yl)ethyl]phenyl]-1,2,3,4-tetrazol-5-yl]-4,5-dimethoxy-phenyl]-4-oxidanylidene-2,3-dihydrochromene-2-carboxamide (CCD ID: V5Q) (formula: $C_{38}H_{38}N_6O_7$) (labeled as "Ligand of Interest" by depositor).



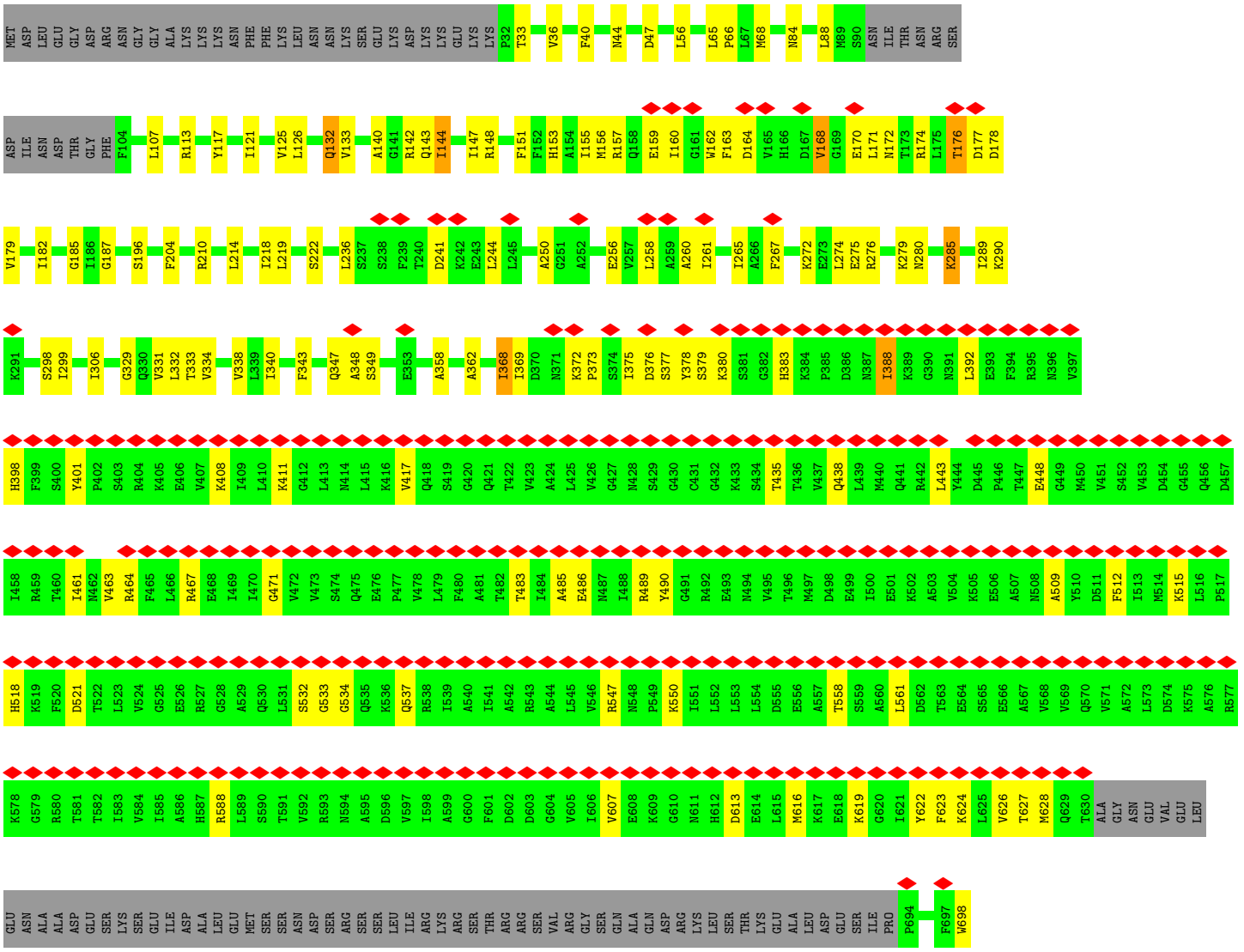
Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	N	O	0
			51	38	6	7	
4	A	1	Total	C	N	O	0
			51	38	6	7	

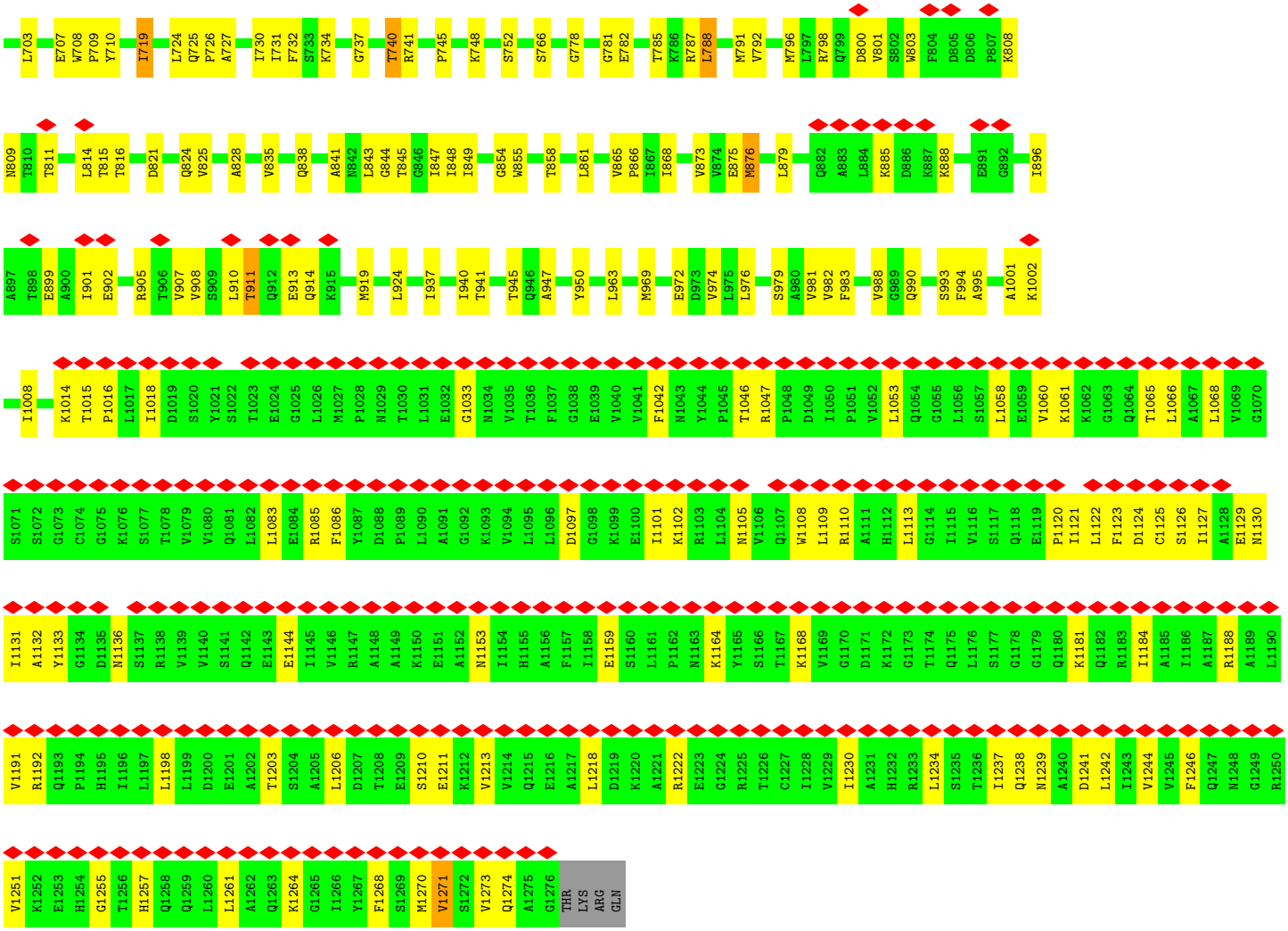
3 Residue-property plots (i)

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: Multidrug resistance protein 1

Chain A:



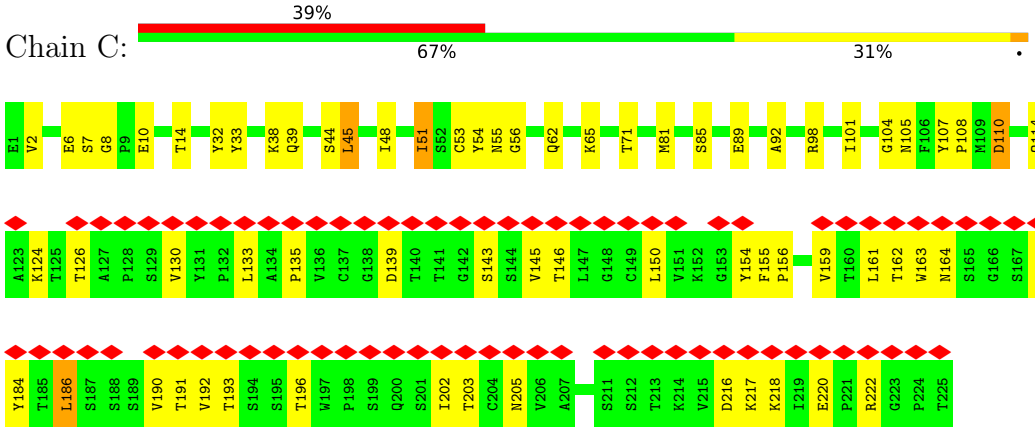


• Molecule 2: UIC2 Fab-fragment light chain

Chain B:

• Molecule 3: UIC2 Fab-fragment heavy chain

Chain C:


39%
67%
31%
E1 V2 E6 S7 G8 P9 E10 T14 Y32 Y33 K38 Q39 S44 L45 I48 I51 S52 C53 Y54 N55 G56 Q62 K65 T71 M81 S85 E89 A92 R98 I101 G104 N105 F106 Y107 P108 M109 D110 Q114 G115 T116 T117
A123 K124 T125 T126 A127 P128 S129 V130 Y131 P132 L133 A134 P135 V136 C137 G138 D139 T140 T141 G142 S143 S144 V145 T146 L147 G148 C149 L150 V151 K152 G153 Y154 F155 P156 V159 T160 L161 T162 W163 N164 S165 G166 S167 L168 S169 S170 G171 V172 H173 T174 F175 P176 A177 V178 L179 Q180 S181 D182 L183
Y184 T185 L186 S187 S188 S189 V190 T191 V192 T193 S194 S195 T196 W197 P198 S199 Q200 S201 I202 T203 C204 N205 V206 A207 S211 S212 T213 K214 V215 D216 K217 K218 I219 E220 P221 R222 G223 P224 T225

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	79634	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	58	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.068	Depositor
Minimum map value	-0.042	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.00892	Depositor
Map size (Å)	295.68002, 295.68002, 295.68002	wwPDB
Map dimensions	448, 448, 448	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.66, 0.66, 0.66	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: V5Q

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.28	0/9257	0.51	0/12507
2	B	0.22	0/1751	0.62	7/2376 (0.3%)
3	C	0.21	0/1767	0.49	0/2412
All	All	0.27	0/12775	0.52	7/17295 (0.0%)

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	100	PRO	CA-C-N	9.20	131.34	119.84
2	B	100	PRO	C-N-CA	9.20	131.34	119.84
2	B	99	ILE	N-CA-C	5.70	121.19	108.88
2	B	55	LYS	CB-CA-C	-5.55	110.19	116.63
2	B	55	LYS	N-CA-C	5.09	116.69	108.08
2	B	99	ILE	CA-C-N	-5.08	115.14	120.38
2	B	99	ILE	C-N-CA	-5.08	115.14	120.38

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	9089	0	9300	340	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	1710	0	1654	84	0
3	C	1717	0	1656	56	0
4	A	102	0	0	22	0
All	All	12618	0	12610	479	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 19.

All (479) 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:464:ARG:HG3	1:A:911:THR:CG2	1.50	1.42
1:A:265:ILE:HD11	1:A:1086:PHE:CE1	1.54	1.39
1:A:1184:ILE:HG23	1:A:1188:ARG:NH1	1.51	1.21
1:A:377:SER:CB	1:A:464:ARG:HH21	1.52	1.21
2:B:100:PRO:HB2	2:B:101:PRO:HD3	1.23	1.17
1:A:1122:LEU:HD23	1:A:1130:ASN:ND2	1.62	1.15
1:A:258:LEU:HD12	1:A:815:THR:CG2	1.75	1.15
1:A:464:ARG:HG3	1:A:911:THR:HG21	1.25	1.13
1:A:157:ARG:HH21	1:A:376:ASP:HB3	0.97	1.12
1:A:616:MET:HE1	1:A:626:VAL:HG21	1.25	1.11
2:B:121:VAL:HG22	2:B:142:LEU:CD2	1.79	1.11
2:B:121:VAL:HG22	2:B:142:LEU:HD21	1.26	1.11
1:A:160:ILE:HD13	1:A:443:LEU:HD23	1.26	1.10
1:A:157:ARG:NH2	1:A:376:ASP:HB3	1.67	1.09
1:A:464:ARG:HG3	1:A:911:THR:HG23	1.35	1.08
1:A:265:ILE:CD1	1:A:1086:PHE:HE1	1.66	1.07
1:A:464:ARG:CG	1:A:911:THR:CG2	2.34	1.06
1:A:616:MET:HE1	1:A:626:VAL:CG2	1.85	1.05
1:A:1122:LEU:HD23	1:A:1130:ASN:CG	1.80	1.05
1:A:616:MET:CE	1:A:626:VAL:HG21	1.88	1.03
1:A:377:SER:HB3	1:A:464:ARG:HH21	1.20	1.03
1:A:800:ASP:OD2	1:A:1018:ILE:HD11	1.60	1.02
1:A:377:SER:HB2	1:A:464:ARG:HH21	1.26	0.99
2:B:100:PRO:CB	2:B:101:PRO:HD3	1.85	0.99
1:A:1184:ILE:CG2	1:A:1188:ARG:HH12	1.78	0.97
1:A:979:SER:HA	1:A:983:PHE:CD2	2.00	0.96
1:A:170:GLU:CG	1:A:174:ARG:NH2	2.29	0.95
1:A:377:SER:CB	1:A:464:ARG:NH2	2.30	0.95
1:A:258:LEU:HD12	1:A:815:THR:HG22	1.47	0.94
1:A:464:ARG:CG	1:A:911:THR:HG21	1.94	0.94

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:170:GLU:HG3	1:A:174:ARG:NH2	1.85	0.91
1:A:1184:ILE:HG23	1:A:1188:ARG:HH12	1.06	0.91
1:A:196:SER:OG	1:A:348:ALA:HB2	1.68	0.91
1:A:1122:LEU:HD11	1:A:1188:ARG:CZ	2.01	0.90
1:A:276:ARG:NH2	1:A:1133:TYR:HE1	1.67	0.90
1:A:732:PHE:CE2	4:A:1401:V5Q:O38	2.25	0.90
1:A:261:ILE:HD11	1:A:811:THR:HG22	1.54	0.89
1:A:258:LEU:HD12	1:A:815:THR:HG23	1.54	0.89
1:A:1131:ILE:HA	1:A:1188:ARG:HG2	1.53	0.88
1:A:1122:LEU:HD11	1:A:1188:ARG:NH2	1.88	0.88
1:A:160:ILE:HD13	1:A:443:LEU:CD2	2.03	0.88
1:A:256:GLU:OE2	1:A:1124:ASP:HB2	1.73	0.87
1:A:619:LYS:HA	1:A:623:PHE:CG	2.10	0.87
1:A:377:SER:HB3	1:A:464:ARG:NH2	1.87	0.86
1:A:258:LEU:CD1	1:A:815:THR:HG23	2.05	0.85
1:A:463:VAL:HG12	1:A:467:ARG:NE	1.92	0.84
1:A:258:LEU:CD1	1:A:815:THR:CG2	2.54	0.84
1:A:979:SER:HA	1:A:983:PHE:CE2	2.13	0.83
1:A:463:VAL:O	1:A:467:ARG:HG3	1.77	0.83
2:B:121:VAL:HA	2:B:142:LEU:HD23	1.59	0.83
1:A:148:ARG:HD2	1:A:924:LEU:HD11	1.61	0.82
1:A:378:TYR:O	1:A:380:LYS:HE2	1.80	0.81
1:A:377:SER:HB2	1:A:464:ARG:NH2	1.91	0.81
1:A:265:ILE:HD11	1:A:1086:PHE:HE1	0.74	0.81
1:A:1122:LEU:HD11	1:A:1188:ARG:NH1	1.95	0.81
1:A:800:ASP:OD2	1:A:1018:ILE:CD1	2.28	0.80
1:A:174:ARG:O	1:A:178:ASP:HB2	1.83	0.78
1:A:265:ILE:CD1	1:A:1086:PHE:CE1	2.50	0.78
1:A:983:PHE:CZ	4:A:1401:V5Q:O41	2.36	0.78
3:C:110:ASP:OD1	3:C:110:ASP:N	2.15	0.78
2:B:100:PRO:HB2	2:B:101:PRO:CD	2.11	0.77
1:A:160:ILE:CD1	1:A:443:LEU:HD23	2.11	0.76
2:B:59:ARG:NH1	2:B:59:ARG:HB2	2.00	0.75
1:A:707:GLU:HB3	1:A:710:TYR:HD2	1.52	0.75
1:A:798:ARG:O	1:A:1016:PRO:HG3	1.85	0.74
1:A:983:PHE:CE1	4:A:1401:V5Q:O41	2.41	0.74
1:A:726:PRO:HG2	1:A:845:THR:HG23	1.69	0.74
3:C:62:GLN:HA	3:C:65:LYS:HD2	1.70	0.73
1:A:1184:ILE:CG2	1:A:1188:ARG:NH1	2.41	0.72
1:A:372:LYS:HE3	1:A:373:PRO:HD2	1.71	0.72
1:A:1129:GLU:O	1:A:1133:TYR:CD2	2.42	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:622:TYR:CE1	1:A:626:VAL:HG13	2.26	0.71
2:B:29:LEU:HD12	2:B:76:PHE:HE1	1.56	0.70
1:A:726:PRO:HG2	1:A:845:THR:CG2	2.22	0.70
1:A:1261:LEU:CD2	1:A:1271:VAL:HG11	2.21	0.70
3:C:104:GLY:O	3:C:105:ASN:CG	2.35	0.70
1:A:875:GLU:OE1	1:A:876:MET:HE2	1.92	0.70
1:A:306:ILE:HD11	1:A:343:PHE:HZ	1.55	0.70
1:A:628:MET:HE2	1:A:1274:GLN:HA	1.73	0.69
1:A:159:GLU:OE2	1:A:375:ILE:HG12	1.92	0.69
1:A:170:GLU:CD	1:A:174:ARG:HH21	2.00	0.69
1:A:218:ILE:CG2	1:A:338:VAL:CG1	2.71	0.69
2:B:58:ASN:N	2:B:58:ASN:HD22	1.90	0.69
2:B:121:VAL:CG2	2:B:142:LEU:CD2	2.67	0.69
1:A:979:SER:HA	1:A:983:PHE:HD2	1.53	0.69
2:B:29:LEU:HD12	2:B:76:PHE:CE1	2.28	0.68
1:A:218:ILE:HB	1:A:338:VAL:HG11	1.74	0.68
2:B:12:PRO:HA	2:B:111:ASP:HB2	1.74	0.68
2:B:59:ARG:NE	2:B:65:ASP:OD1	2.27	0.68
1:A:160:ILE:HD11	1:A:908:VAL:HG21	1.76	0.68
1:A:803:TRP:HE1	1:A:1014:LYS:NZ	1.91	0.68
1:A:707:GLU:OE1	1:A:787:ARG:NH2	2.25	0.68
1:A:724:LEU:HD21	1:A:766:SER:HB2	1.76	0.68
2:B:33:ASN:OD1	2:B:34:GLY:N	2.28	0.67
2:B:100:PRO:CB	2:B:101:PRO:CD	2.68	0.67
1:A:828:ALA:HB2	1:A:1001:ALA:HB1	1.75	0.67
1:A:218:ILE:CG2	1:A:338:VAL:HG12	2.25	0.66
1:A:347:GLN:OE1	4:A:1402:V5Q:C26	2.44	0.66
1:A:236:LEU:HD11	1:A:879:LEU:HD23	1.77	0.66
1:A:1122:LEU:CD1	1:A:1188:ARG:NH2	2.59	0.65
3:C:146:THR:HG22	3:C:191:THR:HG22	1.78	0.65
1:A:155:ILE:HD11	1:A:171:LEU:HD13	1.77	0.65
1:A:463:VAL:CG1	1:A:467:ARG:NE	2.59	0.65
2:B:54:TYR:HD2	2:B:55:LYS:HG3	1.61	0.65
3:C:6:GLU:HB2	3:C:116:THR:HG23	1.78	0.65
1:A:730:ILE:O	1:A:734:LYS:HG2	1.97	0.65
1:A:329:GLY:O	1:A:333:THR:HG22	1.97	0.64
1:A:534:GLY:HA2	1:A:537:GLN:HE21	1.62	0.64
1:A:1153:ASN:HD22	1:A:1213:VAL:HG11	1.62	0.64
3:C:171:GLY:O	3:C:190:VAL:HA	1.98	0.64
1:A:261:ILE:HD11	1:A:811:THR:CG2	2.27	0.63
1:A:907:VAL:HG22	1:A:913:GLU:HG3	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:59:ARG:HB2	2:B:59:ARG:HH11	1.59	0.63
2:B:18:GLN:NE2	2:B:80:ILE:O	2.29	0.63
1:A:347:GLN:HE22	4:A:1402:V5Q:C26	2.12	0.63
1:A:616:MET:HE1	1:A:626:VAL:HG22	1.78	0.63
1:A:463:VAL:HG11	1:A:467:ARG:NH2	2.14	0.63
3:C:205:ASN:ND2	3:C:216:ASP:OD1	2.31	0.63
1:A:170:GLU:CG	1:A:174:ARG:HH21	2.06	0.62
2:B:172:GLN:NE2	2:B:177:SER:O	2.32	0.62
1:A:1122:LEU:HD11	1:A:1188:ARG:HH22	1.64	0.62
1:A:126:LEU:HB2	1:A:947:ALA:HB2	1.81	0.62
3:C:171:GLY:O	3:C:191:THR:N	2.30	0.62
1:A:741:ARG:O	1:A:748:LYS:NZ	2.30	0.62
1:A:377:SER:HB3	1:A:464:ARG:HE	1.65	0.62
1:A:178:ASP:O	1:A:182:ILE:HG12	2.00	0.61
1:A:1110:ARG:O	1:A:1192:ARG:NH2	2.32	0.61
1:A:868:ILE:HD13	1:A:982:VAL:HG13	1.82	0.61
2:B:100:PRO:HD2	2:B:101:PRO:HD2	1.81	0.61
1:A:65:LEU:HD22	1:A:340:ILE:HG21	1.81	0.61
1:A:843:LEU:HD22	1:A:988:VAL:HG21	1.83	0.61
1:A:983:PHE:CE2	4:A:1401:V5Q:C35	2.83	0.61
1:A:1129:GLU:O	1:A:1133:TYR:CE2	2.53	0.61
1:A:306:ILE:HD11	1:A:343:PHE:CZ	2.36	0.61
1:A:1184:ILE:O	1:A:1188:ARG:HG3	2.01	0.60
3:C:164:ASN:HD21	3:C:202:ILE:HD13	1.64	0.60
1:A:467:ARG:HD3	1:A:908:VAL:O	2.01	0.60
1:A:861:LEU:O	1:A:865:VAL:HG13	2.02	0.60
3:C:38:LYS:HB2	3:C:48:ILE:HD11	1.83	0.60
1:A:258:LEU:CD1	1:A:815:THR:HG22	2.26	0.60
1:A:185:GLY:HA3	1:A:358:ALA:HB2	1.84	0.59
2:B:126:PRO:O	3:C:222:ARG:NH1	2.35	0.59
2:B:195:HIS:O	2:B:217:ARG:NH1	2.35	0.59
3:C:39:GLN:HB2	3:C:45:LEU:HD22	1.83	0.59
1:A:983:PHE:CD2	4:A:1401:V5Q:C35	2.86	0.59
1:A:132:GLN:HE21	1:A:133:VAL:HG23	1.68	0.58
1:A:1046:THR:HG23	1:A:1047:ARG:HG3	1.84	0.58
1:A:170:GLU:HG2	1:A:174:ARG:NH2	2.19	0.58
1:A:260:ALA:HB2	1:A:1121:ILE:CD1	2.34	0.58
1:A:616:MET:SD	1:A:626:VAL:HG21	2.44	0.58
1:A:260:ALA:HB2	1:A:1121:ILE:HD13	1.86	0.58
1:A:377:SER:HB3	1:A:464:ARG:CZ	2.34	0.58
1:A:732:PHE:HE2	4:A:1401:V5Q:O38	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1122:LEU:CD1	1:A:1188:ARG:CZ	2.77	0.58
2:B:14:SER:OG	2:B:15:LEU:N	2.35	0.58
2:B:90:VAL:HG22	2:B:109:LYS:HG2	1.85	0.58
2:B:36:THR:HG23	2:B:56:VAL:HB	1.86	0.57
3:C:154:TYR:O	3:C:184:TYR:HB2	2.05	0.57
1:A:781:GLY:O	1:A:785:THR:HG23	2.05	0.57
1:A:990:GLN:O	1:A:993:SER:OG	2.20	0.57
1:A:619:LYS:HG3	1:A:619:LYS:O	2.05	0.57
1:A:885:LYS:HD3	1:A:888:LYS:HG3	1.86	0.57
2:B:42:LEU:HD12	2:B:91:TYR:CE1	2.40	0.57
3:C:164:ASN:HD22	3:C:168:LEU:HB2	1.69	0.57
1:A:157:ARG:CZ	1:A:378:TYR:HB3	2.35	0.56
1:A:160:ILE:HG22	1:A:164:ASP:OD2	2.05	0.56
2:B:172:GLN:HE21	2:B:177:SER:HB2	1.70	0.56
1:A:1123:PHE:HD2	1:A:1133:TYR:CE2	2.23	0.56
2:B:119:PRO:HA	2:B:143:ASN:O	2.04	0.56
1:A:619:LYS:HA	1:A:623:PHE:CD1	2.39	0.56
1:A:267:PHE:O	1:A:1136:ASN:ND2	2.39	0.56
1:A:803:TRP:HE1	1:A:1014:LYS:HZ2	1.51	0.56
1:A:160:ILE:HD13	1:A:443:LEU:CG	2.35	0.56
1:A:157:ARG:O	1:A:373:PRO:HG3	2.05	0.56
1:A:218:ILE:CG2	1:A:338:VAL:HG11	2.34	0.56
2:B:7:SER:HB2	2:B:8:PRO:HD3	1.88	0.56
1:A:558:THR:OG1	1:A:588:ARG:NH1	2.39	0.55
1:A:613:ASP:HA	1:A:616:MET:HB2	1.89	0.55
1:A:835:VAL:HG21	1:A:995:ALA:HB2	1.88	0.55
1:A:1122:LEU:CD2	1:A:1130:ASN:ND2	2.53	0.55
2:B:100:PRO:CD	2:B:101:PRO:CD	2.85	0.55
1:A:170:GLU:OE2	1:A:174:ARG:NH2	2.29	0.55
2:B:161:ARG:HH21	2:B:187:LEU:HD11	1.71	0.55
1:A:218:ILE:CB	1:A:338:VAL:HG11	2.37	0.55
1:A:276:ARG:NH2	1:A:1133:TYR:CE1	2.55	0.55
1:A:377:SER:HB3	1:A:464:ARG:NE	2.20	0.55
1:A:745:PRO:HG2	2:B:55:LYS:NZ	2.22	0.55
1:A:172:ASN:O	1:A:176:THR:HG22	2.07	0.54
1:A:275:GLU:O	1:A:279:LYS:NZ	2.41	0.54
1:A:65:LEU:HD21	1:A:340:ILE:CD1	2.37	0.54
1:A:798:ARG:O	1:A:798:ARG:HG2	2.07	0.54
1:A:788:LEU:O	1:A:792:VAL:HG22	2.07	0.54
3:C:202:ILE:H	3:C:218:LYS:HE2	1.73	0.54
1:A:140:ALA:CB	1:A:187:GLY:HA2	2.38	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:218:ILE:HG21	1:A:338:VAL:HG12	1.88	0.54
1:A:1264:LYS:HG2	1:A:1268:PHE:CG	2.43	0.54
3:C:6:GLU:HB2	3:C:116:THR:CG2	2.38	0.54
3:C:133:LEU:HD11	3:C:150:LEU:HD23	1.89	0.54
2:B:100:PRO:CG	2:B:101:PRO:HD3	2.37	0.54
2:B:119:PRO:HB3	2:B:145:PHE:HB3	1.90	0.54
3:C:168:LEU:HD21	3:C:190:VAL:HG11	1.88	0.54
3:C:139:ASP:OD1	3:C:139:ASP:N	2.41	0.54
1:A:218:ILE:HG22	1:A:338:VAL:HG12	1.89	0.54
1:A:561:LEU:O	1:A:588:ARG:NH2	2.41	0.54
1:A:1083:LEU:HD23	1:A:1198:LEU:HD11	1.90	0.54
2:B:48:SER:HB3	3:C:114:GLN:HA	1.89	0.54
2:B:154:TRP:CD1	2:B:165:VAL:HG11	2.42	0.54
1:A:865:VAL:HG23	1:A:866:PRO:HD3	1.90	0.54
3:C:104:GLY:O	3:C:105:ASN:OD1	2.25	0.54
1:A:196:SER:OG	1:A:348:ALA:CB	2.52	0.53
1:A:1065:THR:HB	1:A:1241:ASP:H	1.73	0.53
2:B:66:ARG:NH2	2:B:87:ASP:OD2	2.41	0.53
1:A:258:LEU:HD13	1:A:815:THR:HG23	1.87	0.53
1:A:44:ASN:HD22	1:A:142:ARG:HH12	1.57	0.53
4:A:1401:V5Q:C12	4:A:1402:V5Q:C29	2.86	0.53
1:A:623:PHE:O	1:A:627:THR:HG23	2.09	0.53
1:A:796:MET:HE1	1:A:814:LEU:HD22	1.91	0.53
1:A:376:ASP:HB2	1:A:379:SER:HB3	1.91	0.53
1:A:1122:LEU:HD11	1:A:1188:ARG:HH12	1.71	0.53
1:A:821:ASP:HB3	1:A:1008:ILE:HD11	1.91	0.52
3:C:179:LEU:HD12	3:C:184:TYR:CZ	2.44	0.52
1:A:1058:LEU:HD11	1:A:1066:LEU:HD11	1.91	0.52
1:A:1238:GLN:OE1	1:A:1257:HIS:NE2	2.39	0.52
1:A:40:PHE:HD1	1:A:143:GLN:HE22	1.58	0.52
1:A:65:LEU:HD21	1:A:340:ILE:HD13	1.91	0.52
1:A:383:HIS:HB3	1:A:461:ILE:HG22	1.91	0.52
1:A:1085:ARG:HG2	1:A:1109:LEU:HD22	1.91	0.52
1:A:1085:ARG:NH2	1:A:1101:ILE:O	2.42	0.52
2:B:25:SER:HB2	2:B:29:LEU:HD11	1.92	0.52
1:A:218:ILE:HG21	1:A:338:VAL:CG1	2.38	0.52
1:A:265:ILE:HD11	1:A:1086:PHE:CD1	2.30	0.52
3:C:177:ALA:HB2	3:C:186:LEU:HG	1.91	0.52
1:A:160:ILE:HG22	1:A:164:ASP:CG	2.34	0.52
1:A:865:VAL:CG2	1:A:866:PRO:HD3	2.40	0.52
1:A:994:PHE:HD2	4:A:1402:V5Q:C09	2.23	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:375:ILE:HB	1:A:463:VAL:HG21	1.90	0.51
1:A:547:ARG:HH11	1:A:910:LEU:HD13	1.76	0.51
1:A:854:GLY:O	1:A:858:THR:OG1	2.20	0.51
1:A:1271:VAL:HG13	1:A:1271:VAL:O	2.09	0.51
1:A:1122:LEU:HD21	1:A:1188:ARG:NH1	2.25	0.51
2:B:139:VAL:HG22	2:B:184:THR:HB	1.92	0.51
1:A:1042:PHE:HB3	1:A:1053:LEU:HD22	1.93	0.51
4:A:1401:V5Q:C16	4:A:1401:V5Q:C47	2.89	0.51
2:B:44:LYS:NZ	2:B:86:GLU:O	2.41	0.51
1:A:1060:VAL:HG22	1:A:1066:LEU:HD13	1.93	0.51
1:A:1113:LEU:O	1:A:1192:ARG:NH2	2.44	0.51
1:A:1126:SER:OG	1:A:1127:ILE:N	2.44	0.51
2:B:100:PRO:N	2:B:101:PRO:CD	2.73	0.51
1:A:218:ILE:HG22	1:A:338:VAL:CG1	2.41	0.50
3:C:6:GLU:CB	3:C:116:THR:HG23	2.41	0.50
1:A:159:GLU:OE2	1:A:375:ILE:CG1	2.60	0.50
1:A:463:VAL:CG1	1:A:467:ARG:HE	2.24	0.50
1:A:1120:PRO:HB2	1:A:1181:LYS:HD2	1.93	0.50
2:B:114:ARG:HG2	2:B:115:ALA:H	1.76	0.50
1:A:963:LEU:HD13	1:A:969:MET:HE3	1.94	0.50
1:A:994:PHE:HD2	4:A:1402:V5Q:C10	2.24	0.50
3:C:7:SER:OG	3:C:10:GLU:OE1	2.28	0.50
1:A:84:ASN:ND2	3:C:101:ILE:O	2.44	0.50
1:A:160:ILE:HD11	1:A:908:VAL:HG11	1.92	0.50
1:A:170:GLU:HG3	1:A:174:ARG:CZ	2.40	0.50
1:A:512:PHE:HA	1:A:515:LYS:HG2	1.94	0.50
1:A:616:MET:O	1:A:623:PHE:CE1	2.65	0.50
2:B:178:THR:HG22	2:B:179:TYR:H	1.77	0.50
3:C:2:VAL:HG21	3:C:98:ARG:NH1	2.26	0.50
1:A:267:PHE:HD2	1:A:1123:PHE:HZ	1.60	0.50
1:A:153:HIS:O	1:A:157:ARG:HG2	2.11	0.49
2:B:114:ARG:HD2	2:B:177:SER:OG	2.11	0.49
2:B:119:PRO:HB2	2:B:142:LEU:HB3	1.94	0.49
1:A:547:ARG:HH11	1:A:910:LEU:CD1	2.25	0.49
1:A:619:LYS:HA	1:A:623:PHE:CB	2.43	0.49
1:A:65:LEU:CD2	1:A:340:ILE:HD13	2.41	0.49
1:A:88:LEU:HD11	3:C:105:ASN:ND2	2.27	0.49
1:A:463:VAL:CG1	1:A:467:ARG:CZ	2.90	0.49
2:B:53:ILE:HG23	2:B:58:ASN:O	2.13	0.49
3:C:32:TYR:O	3:C:53:CYS:HB2	2.12	0.49
1:A:1234:LEU:HB3	1:A:1238:GLN:HE21	1.76	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:401:TYR:OH	1:A:438:GLN:NE2	2.44	0.49
2:B:4:MET:HE1	2:B:29:LEU:HD11	1.94	0.49
2:B:122:SER:HB3	2:B:141:PHE:HB2	1.95	0.49
3:C:48:ILE:HD13	3:C:81:MET:HE1	1.95	0.49
3:C:107:TYR:CG	3:C:108:PRO:HD2	2.48	0.49
1:A:844:GLY:O	1:A:848:ILE:HG12	2.13	0.48
1:A:68:MET:HG3	1:A:950:TYR:CE2	2.48	0.48
1:A:88:LEU:CD1	3:C:105:ASN:ND2	2.75	0.48
1:A:983:PHE:CE2	4:A:1401:V5Q:C36	2.95	0.48
1:A:787:ARG:O	1:A:791:MET:HG2	2.12	0.48
1:A:276:ARG:NH1	1:A:1133:TYR:OH	2.35	0.48
1:A:509:ALA:HB1	1:A:512:PHE:HE1	1.78	0.48
2:B:8:PRO:O	2:B:108:THR:OG1	2.24	0.48
2:B:11:LEU:HD12	2:B:21:ILE:HG13	1.95	0.48
3:C:85:SER:O	3:C:85:SER:OG	2.30	0.48
1:A:463:VAL:HG12	1:A:467:ARG:CZ	2.42	0.48
2:B:60:PHE:O	2:B:63:VAL:HG12	2.13	0.48
1:A:258:LEU:O	1:A:811:THR:HG21	2.14	0.48
1:A:378:TYR:O	1:A:380:LYS:CE	2.58	0.48
1:A:1261:LEU:HD21	1:A:1271:VAL:HG11	1.94	0.48
1:A:347:GLN:NE2	4:A:1402:V5Q:C26	2.76	0.48
2:B:54:TYR:CD2	2:B:55:LYS:HG3	2.46	0.48
1:A:994:PHE:CD2	4:A:1402:V5Q:C10	2.96	0.48
1:A:1122:LEU:CD2	1:A:1130:ASN:CG	2.72	0.48
2:B:190:ASP:OD2	2:B:191:GLU:HG3	2.13	0.48
1:A:68:MET:HG2	1:A:121:ILE:HG21	1.96	0.47
1:A:464:ARG:CD	1:A:911:THR:CG2	2.91	0.47
2:B:59:ARG:CB	2:B:59:ARG:CZ	2.92	0.47
1:A:707:GLU:HB3	1:A:710:TYR:CD2	2.41	0.47
2:B:136:LEU:HD21	2:B:187:LEU:HB2	1.96	0.47
2:B:53:ILE:O	2:B:53:ILE:HG22	2.13	0.47
1:A:182:ILE:HD12	1:A:362:ALA:HB2	1.97	0.47
1:A:518:HIS:HB3	1:A:521:ASP:HB3	1.97	0.47
4:A:1401:V5Q:C29	4:A:1402:V5Q:C44	2.92	0.47
1:A:156:MET:SD	1:A:913:GLU:HB3	2.54	0.47
1:A:464:ARG:HG2	1:A:911:THR:HG21	1.92	0.47
1:A:1123:PHE:HD2	1:A:1133:TYR:CD2	2.32	0.47
1:A:1203:THR:OG1	1:A:1211:GLU:OE2	2.26	0.47
1:A:1246:PHE:HE1	1:A:1251:VAL:HG22	1.78	0.47
1:A:937:ILE:O	1:A:941:THR:HG23	2.13	0.47
1:A:979:SER:CA	1:A:983:PHE:HD2	2.23	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:201:GLU:HB3	2:B:210:PRO:HB3	1.96	0.47
1:A:383:HIS:HB3	1:A:461:ILE:HA	1.97	0.47
1:A:825:VAL:HG21	1:A:1008:ILE:HD12	1.96	0.47
1:A:1125:CYS:SG	1:A:1126:SER:N	2.83	0.47
1:A:1130:ASN:O	1:A:1188:ARG:CD	2.63	0.47
2:B:140:CYS:SG	2:B:200:CYS:CB	3.03	0.47
1:A:547:ARG:NH1	1:A:910:LEU:CD1	2.77	0.47
1:A:745:PRO:HG2	2:B:55:LYS:HZ3	1.79	0.47
1:A:1244:VAL:HG13	1:A:1251:VAL:HG13	1.97	0.47
1:A:144:ILE:HD11	1:A:182:ILE:HB	1.97	0.47
2:B:59:ARG:NH1	2:B:59:ARG:CB	2.73	0.46
3:C:7:SER:OG	3:C:8:GLY:N	2.48	0.46
1:A:236:LEU:HD13	1:A:994:PHE:CZ	2.51	0.46
1:A:1241:ASP:OD1	1:A:1242:LEU:HG	2.16	0.46
1:A:730:ILE:HD13	1:A:976:LEU:HD11	1.96	0.46
1:A:983:PHE:CZ	4:A:1401:V5Q:C40	2.98	0.46
3:C:54:TYR:HD2	3:C:55:ASN:HD22	1.62	0.46
3:C:220:GLU:CD	3:C:220:GLU:H	2.23	0.46
2:B:100:PRO:HD2	2:B:101:PRO:CD	2.42	0.46
1:A:204:PHE:CE2	1:A:219:LEU:HD12	2.50	0.46
1:A:1242:LEU:HD22	1:A:1255:GLY:C	2.40	0.46
4:A:1401:V5Q:C05	4:A:1401:V5Q:C09	2.92	0.46
1:A:392:LEU:HB2	1:A:417:VAL:HB	1.98	0.46
1:A:737:GLY:HA3	1:A:972:GLU:OE1	2.16	0.46
4:A:1401:V5Q:C47	4:A:1401:V5Q:C11	2.93	0.46
1:A:65:LEU:CD2	1:A:340:ILE:CD1	2.94	0.46
1:A:719:ILE:HD13	1:A:841:ALA:HB2	1.97	0.46
1:A:160:ILE:O	1:A:164:ASP:N	2.48	0.45
1:A:464:ARG:HH12	1:A:914:GLN:CD	2.24	0.45
1:A:168:VAL:HG21	1:A:902:GLU:HG2	1.98	0.45
1:A:628:MET:HE2	1:A:1274:GLN:CA	2.42	0.45
1:A:1121:ILE:C	1:A:1122:LEU:HD12	2.42	0.45
1:A:1270:MET:O	1:A:1270:MET:HG3	2.16	0.45
3:C:217:LYS:HE2	3:C:217:LYS:HB2	1.73	0.45
1:A:44:ASN:ND2	1:A:142:ARG:HH12	2.15	0.45
1:A:151:PHE:HB2	1:A:369:ILE:HD11	1.99	0.45
1:A:471:GLY:HA2	1:A:547:ARG:HH21	1.82	0.45
1:A:65:LEU:HB3	1:A:66:PRO:HD3	1.99	0.45
1:A:464:ARG:HD3	1:A:911:THR:HG22	1.98	0.45
1:A:485:ALA:O	1:A:489:ARG:HB2	2.17	0.45
2:B:42:LEU:HD12	2:B:91:TYR:HE1	1.79	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:885:LYS:HD3	1:A:885:LYS:HA	1.68	0.45
2:B:87:ASP:OD1	2:B:87:ASP:N	2.50	0.45
1:A:1105:ASN:HD22	1:A:1108:TRP:HB2	1.82	0.44
2:B:42:LEU:O	2:B:50:LYS:N	2.44	0.44
2:B:145:PHE:CE1	2:B:179:TYR:HB3	2.52	0.44
3:C:124:LYS:HD2	3:C:124:LYS:HA	1.77	0.44
1:A:162:TRP:HH2	1:A:368:ILE:HD13	1.81	0.44
1:A:800:ASP:OD1	1:A:801:VAL:N	2.49	0.44
1:A:163:PHE:O	1:A:163:PHE:CD1	2.70	0.44
1:A:267:PHE:CD2	1:A:1123:PHE:CZ	3.06	0.44
2:B:100:PRO:CD	2:B:101:PRO:HD3	2.46	0.44
1:A:267:PHE:HD2	1:A:1123:PHE:CZ	2.36	0.44
1:A:388:ILE:HD12	1:A:550:LYS:HG3	2.00	0.44
1:A:708:TRP:CD2	1:A:709:PRO:HD3	2.53	0.44
1:A:1159:GLU:HA	1:A:1164:LYS:HE3	1.99	0.44
1:A:1222:ARG:HH12	1:A:1239:ASN:HD22	1.66	0.44
1:A:616:MET:O	1:A:623:PHE:HE1	2.01	0.44
1:A:808:LYS:HG3	1:A:809:ASN:OD1	2.18	0.44
1:A:1261:LEU:HD23	1:A:1271:VAL:HG11	1.97	0.44
3:C:155:PHE:HA	3:C:156:PRO:HA	1.78	0.44
1:A:170:GLU:HG3	1:A:174:ARG:HH21	1.74	0.44
1:A:290:LYS:HB3	1:A:290:LYS:HE2	1.60	0.44
2:B:165:VAL:HG22	2:B:185:LEU:HA	2.00	0.44
1:A:398:HIS:HD2	1:A:411:LYS:HD2	1.81	0.43
1:A:843:LEU:O	1:A:847:ILE:HG12	2.18	0.43
3:C:161:LEU:HA	3:C:205:ASN:O	2.18	0.43
1:A:737:GLY:HA2	1:A:740:THR:HB	1.99	0.43
3:C:126:THR:OG1	3:C:154:TYR:HA	2.19	0.43
1:A:1002:LYS:HE3	1:A:1002:LYS:HB2	1.78	0.43
2:B:37:TYR:HB3	2:B:96:SER:OG	2.18	0.43
3:C:39:GLN:O	3:C:92:ALA:HB1	2.18	0.43
1:A:275:GLU:O	1:A:279:LYS:HG2	2.18	0.43
1:A:372:LYS:HE3	1:A:372:LYS:HA	2.01	0.43
1:A:814:LEU:HD23	1:A:814:LEU:HA	1.77	0.43
2:B:142:LEU:HD13	2:B:202:ALA:HB2	2.01	0.43
2:B:167:ASN:HB2	2:B:169:TRP:CZ2	2.54	0.43
3:C:171:GLY:HA3	3:C:191:THR:O	2.18	0.43
1:A:463:VAL:HG11	1:A:467:ARG:HH21	1.84	0.43
1:A:624:LYS:HG2	1:A:624:LYS:O	2.18	0.43
1:A:1168:LYS:HD3	1:A:1168:LYS:HA	1.80	0.43
2:B:161:ARG:HE	2:B:161:ARG:HA	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:136:LEU:HG	2:B:187:LEU:H	1.83	0.43
1:A:798:ARG:NH1	1:A:1015:THR:HG23	2.34	0.43
1:A:1184:ILE:HD12	1:A:1184:ILE:HA	1.86	0.43
1:A:515:LYS:HB3	1:A:515:LYS:HE3	1.74	0.43
1:A:622:TYR:CD1	1:A:622:TYR:O	2.72	0.43
1:A:1033:GLY:H	1:A:1097:ASP:CG	2.27	0.43
2:B:18:GLN:NE2	2:B:18:GLN:HA	2.34	0.43
1:A:285:LYS:O	1:A:289:ILE:HG12	2.19	0.43
2:B:174:SER:OG	2:B:175:LYS:N	2.50	0.43
3:C:171:GLY:O	3:C:190:VAL:HG13	2.19	0.43
1:A:176:THR:HG23	1:A:177:ASP:H	1.84	0.42
1:A:241:ASP:OD1	1:A:241:ASP:N	2.42	0.42
2:B:25:SER:OG	2:B:27:GLN:O	2.25	0.42
1:A:796:MET:HE2	1:A:803:TRP:HH2	1.84	0.42
1:A:113:ARG:HG2	1:A:117:TYR:HE1	1.83	0.42
1:A:1129:GLU:HA	1:A:1132:ALA:HB3	2.00	0.42
3:C:51:ILE:HD11	3:C:56:GLY:HA2	2.02	0.42
1:A:285:LYS:HB3	1:A:285:LYS:HE2	1.81	0.42
1:A:398:HIS:HB2	1:A:448:GLU:HB2	2.01	0.42
1:A:408:LYS:HE2	1:A:408:LYS:HB3	1.81	0.42
1:A:778:GLY:O	1:A:782:GLU:HG3	2.20	0.42
1:A:1068:LEU:HD23	1:A:1244:VAL:HB	2.01	0.42
3:C:163:TRP:HA	3:C:203:THR:O	2.19	0.42
1:A:47:ASP:OD1	1:A:142:ARG:NH1	2.53	0.42
1:A:725:GLN:NE2	4:A:1401:V5Q:O28	2.52	0.42
1:A:905:ARG:HD3	1:A:905:ARG:N	2.35	0.42
1:A:1068:LEU:HB2	1:A:1230:ILE:HG12	2.01	0.42
1:A:919:MET:HE2	1:A:919:MET:HA	2.02	0.42
1:A:941:THR:O	1:A:945:THR:HG23	2.20	0.42
1:A:1130:ASN:O	1:A:1188:ARG:HD2	2.20	0.42
3:C:33:TYR:CZ	3:C:101:ILE:HG13	2.54	0.42
3:C:171:GLY:O	3:C:190:VAL:CA	2.67	0.42
2:B:191:GLU:HA	2:B:194:ARG:HG3	2.02	0.42
1:A:401:TYR:HE1	1:A:435:THR:HG23	1.85	0.42
1:A:1144:GLU:HG3	1:A:1191:VAL:HG23	2.01	0.42
3:C:89:GLU:N	3:C:89:GLU:OE1	2.53	0.42
3:C:135:PRO:HG3	3:C:146:THR:O	2.19	0.42
2:B:91:TYR:O	2:B:107:GLY:HA2	2.20	0.42
1:A:532:SER:OG	1:A:533:GLY:N	2.53	0.41
2:B:150:ILE:HD11	2:B:202:ALA:HB1	2.01	0.41
1:A:1203:THR:HG23	1:A:1206:LEU:HB3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:100:PRO:CD	2:B:101:PRO:HD2	2.45	0.41
1:A:88:LEU:HD12	1:A:88:LEU:HA	1.89	0.41
1:A:170:GLU:CD	1:A:174:ARG:NH2	2.66	0.41
2:B:140:CYS:CB	2:B:200:CYS:SG	3.09	0.41
2:B:152:VAL:HG12	2:B:202:ALA:HA	2.03	0.41
3:C:143:SER:O	3:C:193:THR:HA	2.20	0.41
1:A:148:ARG:NH1	1:A:179:VAL:HG11	2.35	0.41
1:A:1101:ILE:HG13	1:A:1102:LYS:HD3	2.02	0.41
1:A:821:ASP:O	1:A:825:VAL:HG23	2.20	0.41
1:A:849:ILE:HG22	1:A:976:LEU:HD21	2.02	0.41
4:A:1401:V5Q:C27	4:A:1402:V5Q:C44	2.99	0.41
1:A:214:LEU:O	1:A:218:ILE:HG12	2.21	0.41
1:A:1234:LEU:HD13	1:A:1237:ILE:HD12	2.01	0.41
3:C:38:LYS:HG2	3:C:39:GLN:N	2.36	0.41
1:A:210:ARG:HB2	1:A:334:VAL:HG22	2.03	0.41
1:A:210:ARG:HD2	1:A:210:ARG:HA	1.90	0.41
1:A:380:LYS:HA	1:A:380:LYS:HD3	1.83	0.41
1:A:483:THR:HG23	1:A:486:GLU:H	1.84	0.41
1:A:547:ARG:NH1	1:A:910:LEU:HD11	2.36	0.41
1:A:732:PHE:CD2	4:A:1401:V5Q:O38	2.72	0.41
1:A:1210:SER:HA	1:A:1213:VAL:HG12	2.03	0.41
2:B:113:LYS:HD2	2:B:113:LYS:HA	1.85	0.41
2:B:138:VAL:HG22	2:B:154:TRP:HH2	1.85	0.41
3:C:192:VAL:HB	3:C:196:THR:OG1	2.21	0.41
1:A:250:ALA:HA	1:A:280:ASN:ND2	2.35	0.41
1:A:272:LYS:O	1:A:276:ARG:HG3	2.21	0.41
1:A:163:PHE:CD1	1:A:163:PHE:C	3.00	0.40
3:C:32:TYR:CD2	3:C:98:ARG:HG2	2.56	0.40
1:A:214:LEU:HD22	1:A:331:VAL:HG13	2.04	0.40
1:A:1122:LEU:CD1	1:A:1188:ARG:NH1	2.76	0.40
1:A:490:TYR:O	1:A:910:LEU:HD12	2.21	0.40
1:A:1218:LEU:O	1:A:1222:ARG:N	2.54	0.40
1:A:1264:LYS:HD3	1:A:1268:PHE:CE2	2.56	0.40
3:C:6:GLU:CB	3:C:116:THR:CG2	2.99	0.40
3:C:182:ASP:C	3:C:183:LEU:HD12	2.47	0.40
1:A:727:ALA:O	1:A:731:ILE:HG13	2.21	0.40
1:A:896:ILE:HA	1:A:899:GLU:HG2	2.03	0.40
1:A:1061:LYS:HE3	1:A:1061:LYS:HB3	1.90	0.40
2:B:148:LYS:HB3	2:B:179:TYR:CD1	2.57	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	1163/1280 (91%)	1113 (96%)	50 (4%)	0	100 100
2	B	218/220 (99%)	204 (94%)	13 (6%)	1 (0%)	25 59
3	C	223/225 (99%)	210 (94%)	13 (6%)	0	100 100
All	All	1604/1725 (93%)	1527 (95%)	76 (5%)	1 (0%)	50 79

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	101	PRO

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	965/1063 (91%)	925 (96%)	40 (4%)	26 55
2	B	199/199 (100%)	191 (96%)	8 (4%)	27 56
3	C	195/195 (100%)	183 (94%)	12 (6%)	15 42
All	All	1359/1457 (93%)	1299 (96%)	60 (4%)	26 53

All (60) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33	THR
1	A	36	VAL

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Mol	Chain	Res	Type
1	A	56	LEU
1	A	107	LEU
1	A	125	VAL
1	A	132	GLN
1	A	144	ILE
1	A	147	ILE
1	A	168	VAL
1	A	176	THR
1	A	222	SER
1	A	244	LEU
1	A	274	LEU
1	A	285	LYS
1	A	298	SER
1	A	299	ILE
1	A	332	LEU
1	A	349	SER
1	A	368	ILE
1	A	388	ILE
1	A	607	VAL
1	A	698	TRP
1	A	703	LEU
1	A	719	ILE
1	A	740	THR
1	A	752	SER
1	A	788	LEU
1	A	816	THR
1	A	824	GLN
1	A	838	GLN
1	A	855	TRP
1	A	873	VAL
1	A	876	MET
1	A	901	ILE
1	A	911	THR
1	A	940	ILE
1	A	974	VAL
1	A	981	VAL
1	A	1271	VAL
1	A	1273	VAL
2	B	2	VAL
2	B	13	VAL
2	B	23	CYS
2	B	56	VAL

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Mol	Chain	Res	Type
2	B	58	ASN
2	B	136	LEU
2	B	184	THR
2	B	220	CYS
3	C	14	THR
3	C	44	SER
3	C	45	LEU
3	C	51	ILE
3	C	71	THR
3	C	110	ASP
3	C	117	THR
3	C	130	VAL
3	C	145	VAL
3	C	159	VAL
3	C	162	THR
3	C	186	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (35) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	44	ASN
1	A	132	GLN
1	A	143	GLN
1	A	145	HIS
1	A	158	GLN
1	A	371	ASN
1	A	383	HIS
1	A	398	HIS
1	A	438	GLN
1	A	530	GLN
1	A	537	GLN
1	A	725	GLN
1	A	750	GLN
1	A	799	GLN
1	A	820	ASN
1	A	838	GLN
1	A	842	ASN
1	A	946	GLN
1	A	966	HIS
1	A	1054	GLN
1	A	1105	ASN
1	A	1136	ASN

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Mol	Chain	Res	Type
1	A	1153	ASN
1	A	1248	ASN
1	A	1259	GLN
2	B	1	GLN
2	B	18	GLN
2	B	31	HIS
2	B	58	ASN
2	B	98	HIS
2	B	167	ASN
2	B	216	ASN
3	C	55	ASN
3	C	102	GLN
3	C	164	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

2 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	V5Q	A	1402	-	57,57,57	2.91	22 (38%)	74,81,81	1.89	23 (31%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	V5Q	A	1401	-	57,57,57	2.90	21 (36%)	74,81,81	1.89	22 (29%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	V5Q	A	1402	-	-	15/29/50/50	0/7/7/7
4	V5Q	A	1401	-	1/1/4/5	12/29/50/50	0/7/7/7

All (43) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1402	V5Q	O41-C40	10.64	1.52	1.38
4	A	1401	V5Q	O41-C40	10.64	1.52	1.38
4	A	1402	V5Q	C09-N08	-8.03	1.28	1.47
4	A	1401	V5Q	C09-N08	-7.75	1.29	1.47
4	A	1401	V5Q	C07-N08	-5.71	1.37	1.47
4	A	1402	V5Q	C07-N08	-5.66	1.37	1.47
4	A	1401	V5Q	N21-N17	5.03	1.36	1.32
4	A	1402	V5Q	N21-N17	4.86	1.36	1.32
4	A	1401	V5Q	C33-N32	4.81	1.46	1.35
4	A	1402	V5Q	C33-N32	4.67	1.46	1.35
4	A	1402	V5Q	O02-C03	4.50	1.44	1.37
4	A	1402	V5Q	C36-C37	-4.50	1.43	1.50
4	A	1401	V5Q	C36-C37	-4.39	1.43	1.50
4	A	1401	V5Q	O02-C03	4.33	1.44	1.37
4	A	1401	V5Q	C06-C05	-4.19	1.32	1.40
4	A	1402	V5Q	C04-C05	4.09	1.46	1.39
4	A	1402	V5Q	C06-C05	-4.08	1.32	1.40
4	A	1401	V5Q	C04-C05	4.00	1.46	1.39
4	A	1402	V5Q	C22-C20	3.96	1.58	1.48
4	A	1402	V5Q	O25-C24	3.94	1.43	1.37
4	A	1401	V5Q	C22-C20	3.93	1.58	1.48
4	A	1401	V5Q	O25-C24	3.89	1.43	1.37
4	A	1401	V5Q	C48-C06	3.86	1.46	1.39
4	A	1402	V5Q	C48-C06	3.80	1.46	1.39
4	A	1401	V5Q	O50-C49	3.72	1.43	1.37
4	A	1402	V5Q	O50-C49	3.66	1.43	1.37
4	A	1401	V5Q	C46-C47	3.61	1.58	1.51
4	A	1402	V5Q	C46-C47	3.57	1.58	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1401	V5Q	C31-N32	3.41	1.48	1.41
4	A	1402	V5Q	C31-N32	3.16	1.47	1.41
4	A	1402	V5Q	O28-C27	2.95	1.41	1.37
4	A	1401	V5Q	O28-C27	2.93	1.41	1.37
4	A	1402	V5Q	C14-N17	2.91	1.48	1.44
4	A	1401	V5Q	C14-N17	2.86	1.48	1.44
4	A	1401	V5Q	C47-C05	2.33	1.55	1.51
4	A	1402	V5Q	C47-C05	2.32	1.55	1.51
4	A	1402	V5Q	C46-N08	-2.31	1.40	1.46
4	A	1401	V5Q	C46-N08	-2.22	1.40	1.46
4	A	1401	V5Q	O34-C33	-2.21	1.19	1.23
4	A	1402	V5Q	O34-C33	-2.20	1.19	1.23
4	A	1402	V5Q	C20-N19	2.12	1.36	1.33
4	A	1401	V5Q	C20-N19	2.06	1.36	1.33
4	A	1402	V5Q	O41-C35	2.03	1.47	1.44

All (45) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	1401	V5Q	O41-C35-C36	6.04	119.40	110.52
4	A	1402	V5Q	O41-C35-C36	5.84	119.11	110.52
4	A	1402	V5Q	N21-C20-N19	-5.10	107.93	111.85
4	A	1401	V5Q	N21-C20-N19	-5.04	107.98	111.85
4	A	1401	V5Q	O41-C35-C33	4.29	119.61	110.18
4	A	1401	V5Q	O25-C24-C27	3.75	120.64	115.41
4	A	1402	V5Q	O41-C35-C33	3.60	118.09	110.18
4	A	1401	V5Q	O02-C03-C49	3.46	120.22	115.41
4	A	1402	V5Q	O25-C24-C27	3.44	120.20	115.41
4	A	1402	V5Q	C07-N08-C46	3.44	114.30	109.91
4	A	1401	V5Q	C07-N08-C09	-3.42	107.78	112.94
4	A	1401	V5Q	O28-C27-C24	3.40	120.14	115.41
4	A	1401	V5Q	O50-C49-C03	3.33	120.05	115.41
4	A	1402	V5Q	O28-C27-C24	3.33	120.04	115.41
4	A	1402	V5Q	O02-C03-C49	3.22	119.90	115.41
4	A	1402	V5Q	O50-C49-C03	3.18	119.83	115.41
4	A	1401	V5Q	C20-N19-N18	3.08	107.86	105.47
4	A	1402	V5Q	C31-N32-C33	-2.96	118.79	126.92
4	A	1402	V5Q	C20-N19-N18	2.92	107.73	105.47
4	A	1401	V5Q	C26-O25-C24	-2.83	113.26	117.53
4	A	1401	V5Q	O25-C24-C23	-2.79	119.32	124.12
4	A	1402	V5Q	C14-N17-N18	2.72	126.54	123.28
4	A	1401	V5Q	C29-O28-C27	-2.69	113.47	117.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	1402	V5Q	C29-O28-C27	-2.68	113.49	117.53
4	A	1401	V5Q	O02-C03-C04	-2.65	119.56	124.12
4	A	1401	V5Q	C01-O02-C03	-2.61	113.59	117.53
4	A	1401	V5Q	C23-C22-C31	2.54	120.11	118.46
4	A	1402	V5Q	C23-C22-C31	2.51	120.09	118.46
4	A	1402	V5Q	C51-O50-C49	-2.50	113.76	117.53
4	A	1402	V5Q	O25-C24-C23	-2.49	119.83	124.12
4	A	1402	V5Q	O28-C27-C30	-2.48	119.86	124.12
4	A	1401	V5Q	O28-C27-C30	-2.45	119.90	124.12
4	A	1401	V5Q	O50-C49-C48	-2.37	120.04	124.12
4	A	1401	V5Q	C14-N17-N21	2.36	125.56	123.40
4	A	1402	V5Q	C01-O02-C03	-2.36	113.97	117.53
4	A	1402	V5Q	O02-C03-C04	-2.30	120.16	124.12
4	A	1402	V5Q	C26-O25-C24	-2.29	114.08	117.53
4	A	1402	V5Q	O50-C49-C48	-2.28	120.19	124.12
4	A	1402	V5Q	C40-C39-C37	2.27	121.16	119.85
4	A	1402	V5Q	C35-C36-C37	2.27	118.99	112.64
4	A	1401	V5Q	C51-O50-C49	-2.20	114.20	117.53
4	A	1401	V5Q	C31-N32-C33	-2.19	120.91	126.92
4	A	1402	V5Q	C06-C07-N08	2.14	114.67	112.14
4	A	1401	V5Q	C35-C36-C37	2.03	118.33	112.64
4	A	1401	V5Q	O41-C40-C42	2.02	119.89	116.29

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	A	1401	V5Q	C35

All (27) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1402	V5Q	O34-C33-C35-C36
4	A	1402	V5Q	C24-C27-O28-C29
4	A	1401	V5Q	C27-C24-O25-C26
4	A	1402	V5Q	C27-C24-O25-C26
4	A	1401	V5Q	C49-C03-O02-C01
4	A	1401	V5Q	C30-C27-O28-C29
4	A	1401	V5Q	C48-C49-O50-C51
4	A	1402	V5Q	C49-C03-O02-C01
4	A	1402	V5Q	C30-C27-O28-C29
4	A	1402	V5Q	C48-C49-O50-C51
4	A	1401	V5Q	C24-C27-O28-C29

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
4	A	1402	V5Q	C23-C24-O25-C26
4	A	1401	V5Q	C23-C24-O25-C26
4	A	1401	V5Q	C03-C49-O50-C51
4	A	1402	V5Q	C03-C49-O50-C51
4	A	1401	V5Q	C04-C03-O02-C01
4	A	1402	V5Q	C04-C03-O02-C01
4	A	1402	V5Q	N08-C09-C10-C11
4	A	1401	V5Q	C10-C09-N08-C46
4	A	1401	V5Q	N08-C09-C10-C11
4	A	1402	V5Q	C09-C10-C11-C12
4	A	1402	V5Q	C09-C10-C11-C16
4	A	1402	V5Q	N19-C20-C22-C23
4	A	1401	V5Q	C13-C14-N17-N18
4	A	1401	V5Q	C15-C14-N17-N18
4	A	1402	V5Q	N21-C20-C22-C23
4	A	1402	V5Q	N32-C33-C35-C36

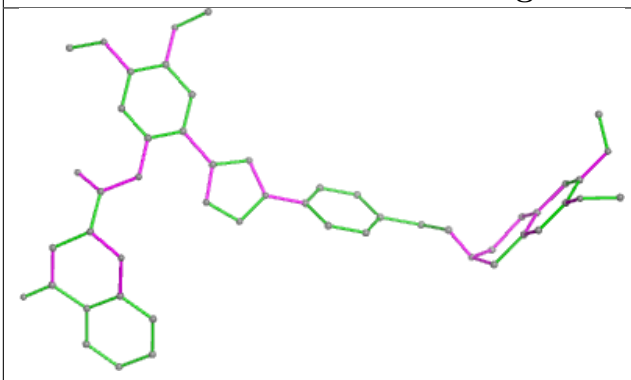
There are no ring outliers.

2 monomers are involved in 22 short contacts:

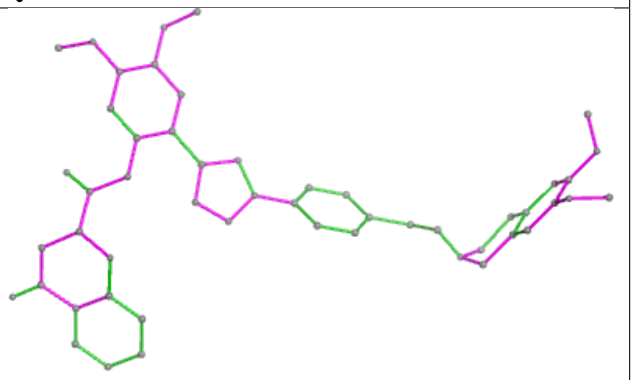
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1402	V5Q	9	0
4	A	1401	V5Q	16	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

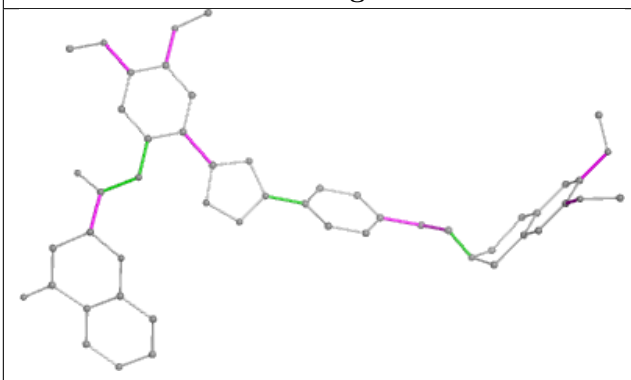
Ligand V5Q A 1402



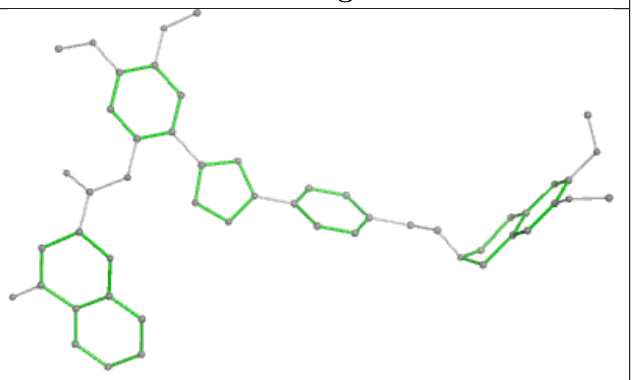
Bond lengths



Bond angles

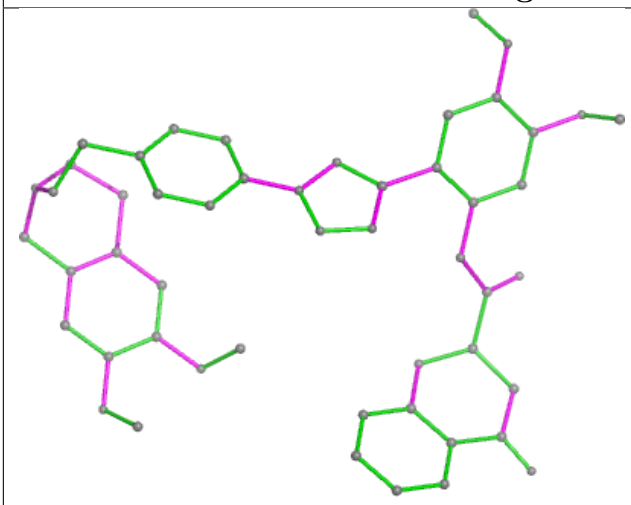


Torsions

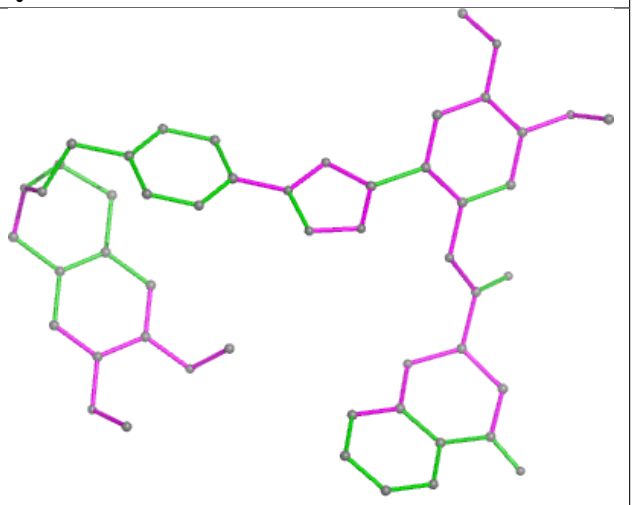


Rings

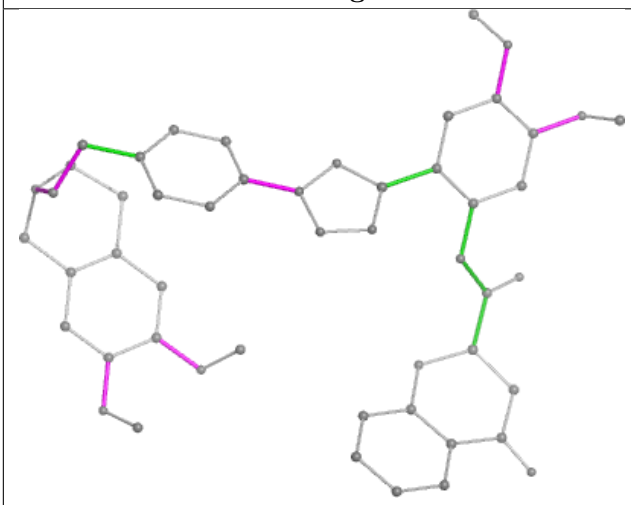
Ligand V5Q A 1401



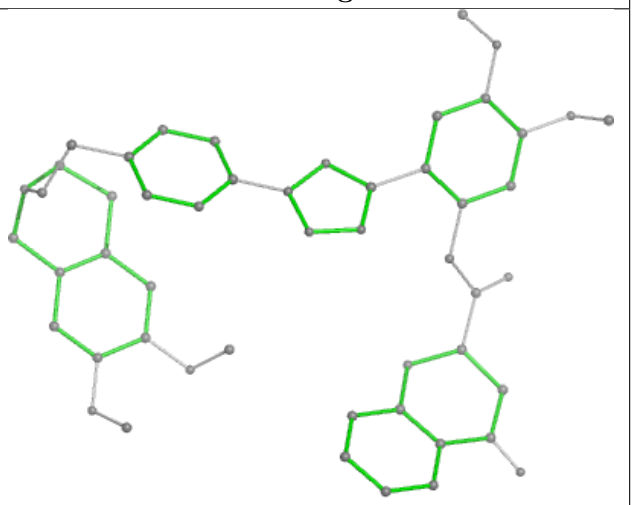
Bond lengths



Bond angles



Torsions



Rings

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.

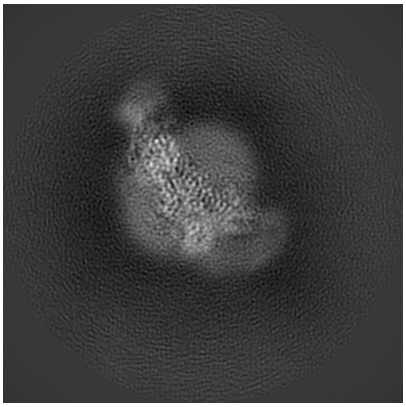
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-12765. These allow visual inspection of the internal detail of the map and identification of artifacts.

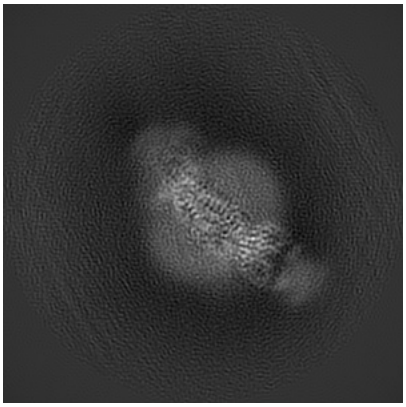
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

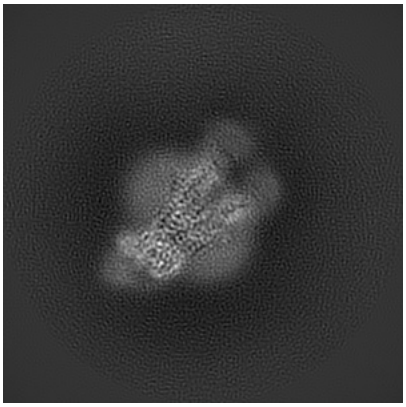
6.1.1 Primary map



X



Y

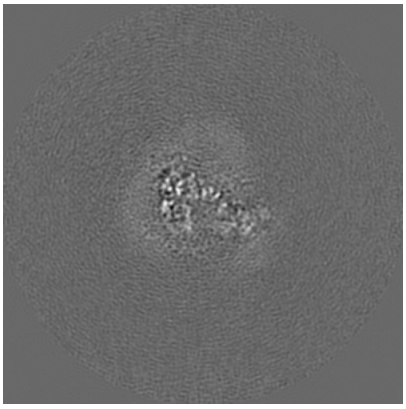


Z

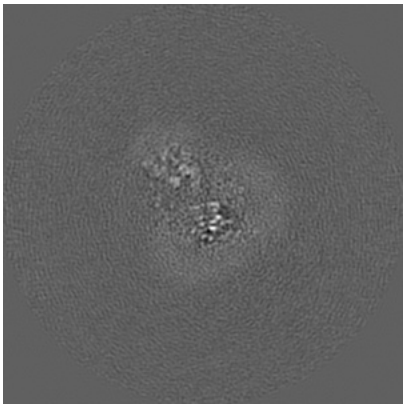
The images above show the map projected in three orthogonal directions.

6.2 Central slices

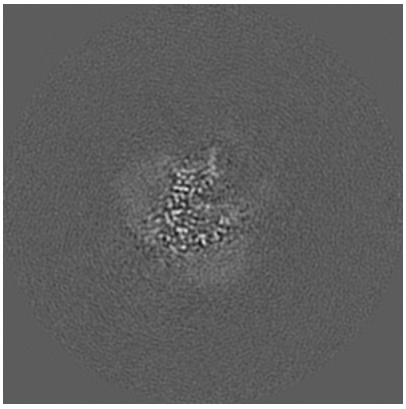
6.2.1 Primary map



X Index: 224



Y Index: 224

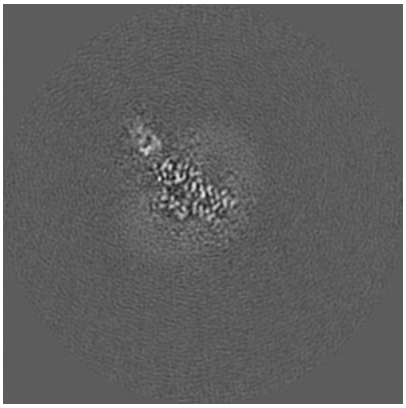


Z Index: 224

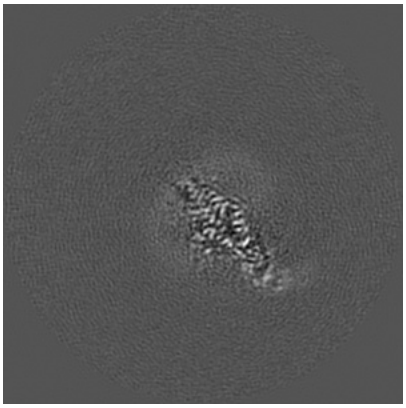
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

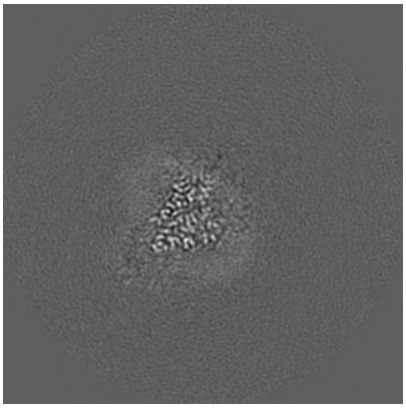
6.3.1 Primary map



X Index: 197



Y Index: 184

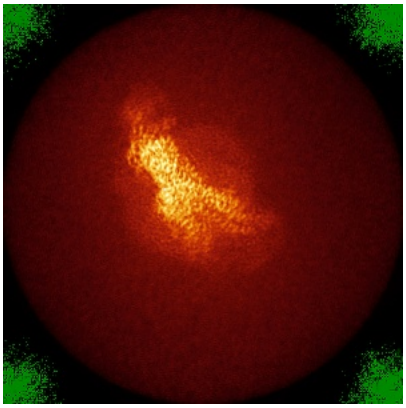


Z Index: 233

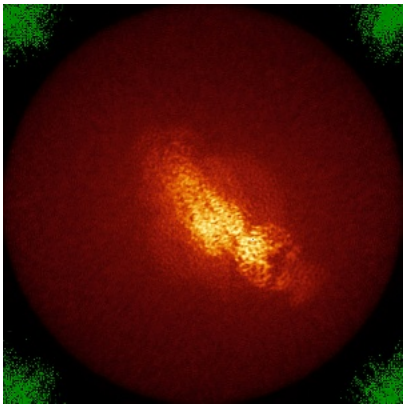
The images above show the largest variance slices of the map in three orthogonal directions.

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

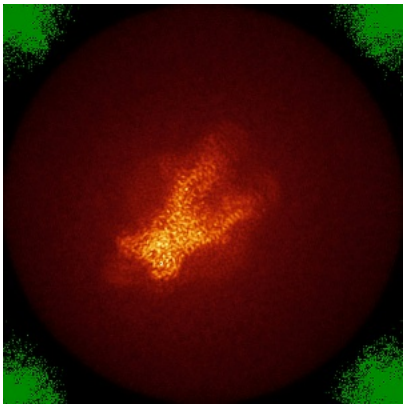
6.4.1 Primary map



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 0.00892. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

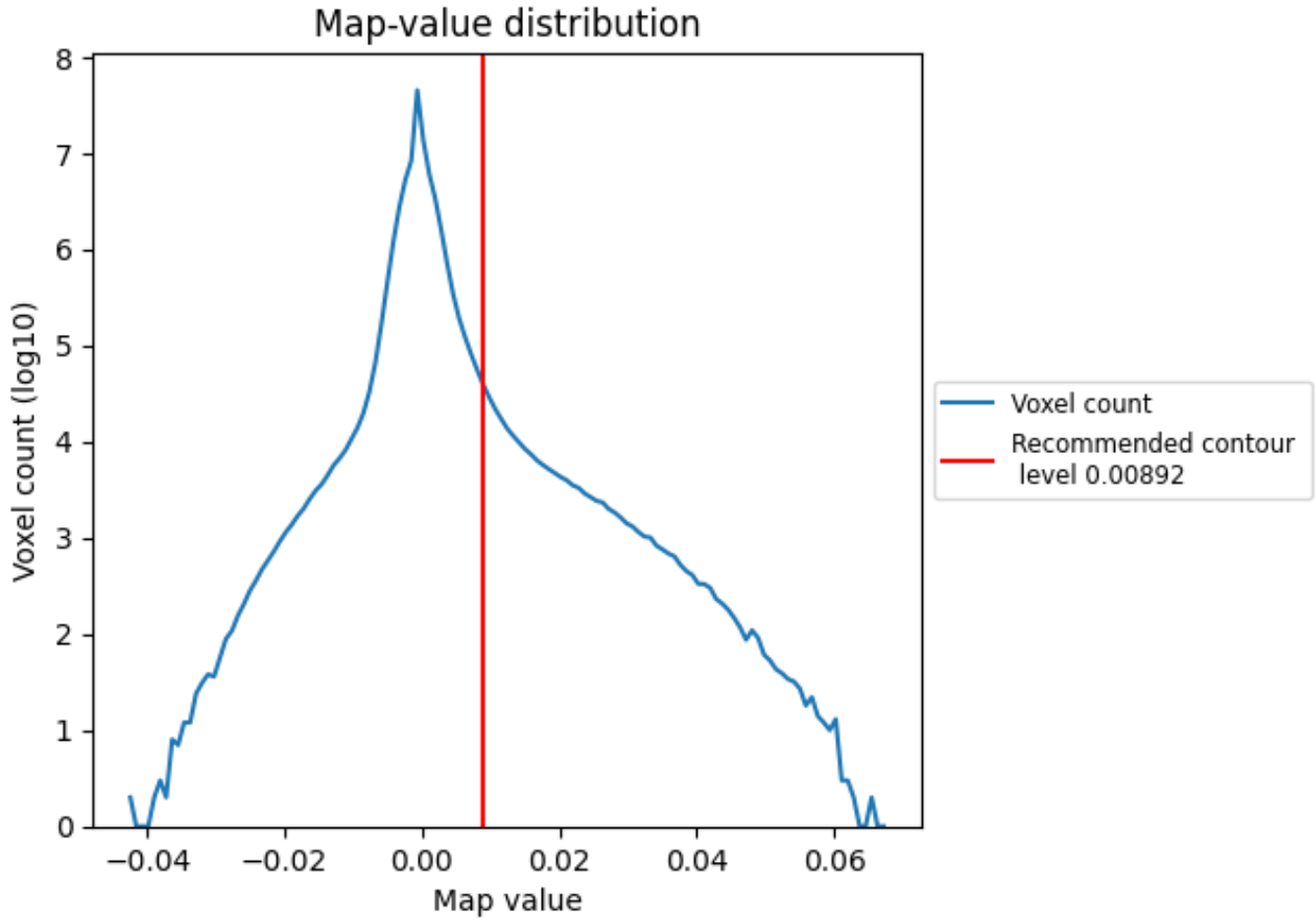
6.6 Mask visualisation (i)

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

7 Map analysis

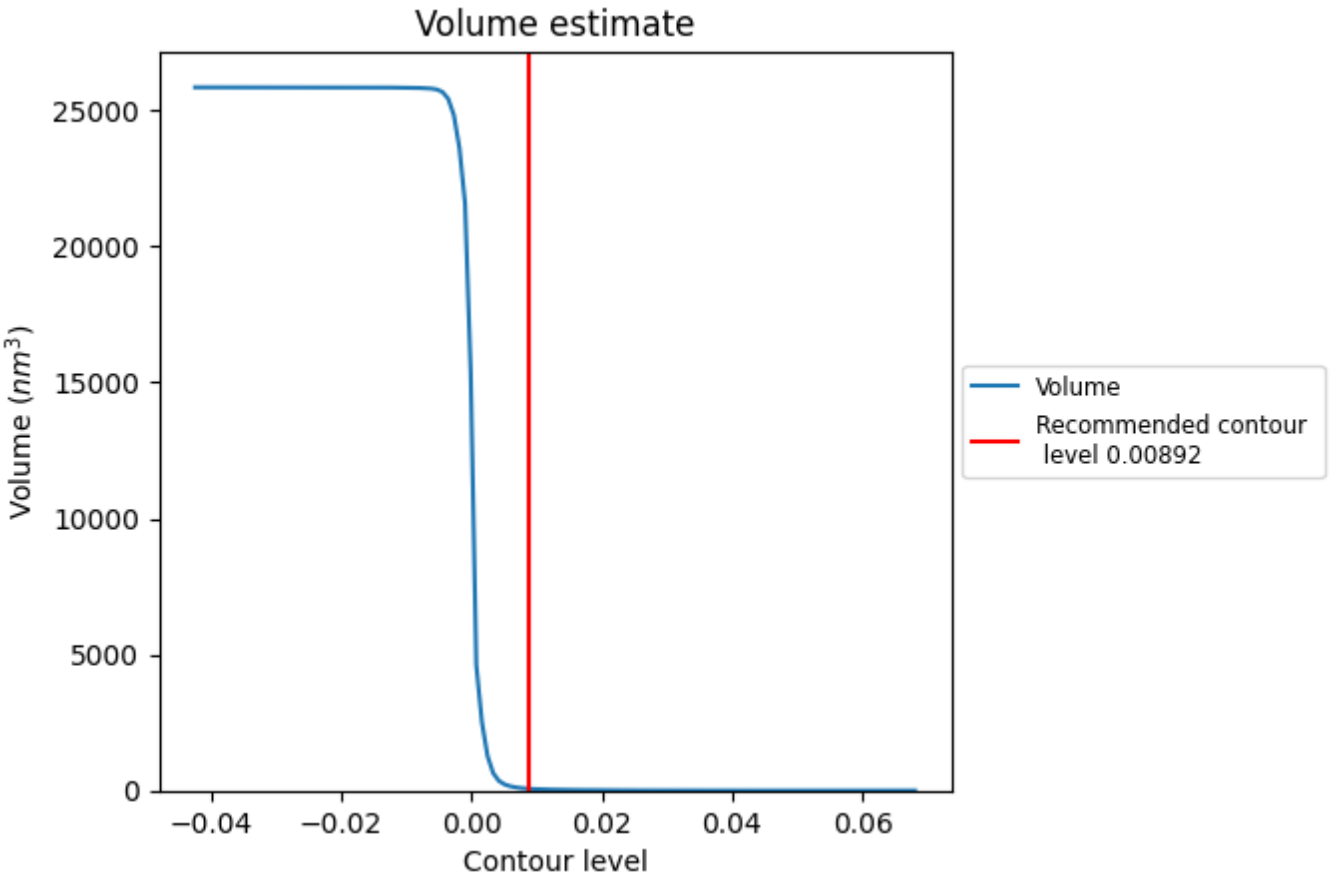
This section contains the results of statistical analysis of the map.

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.

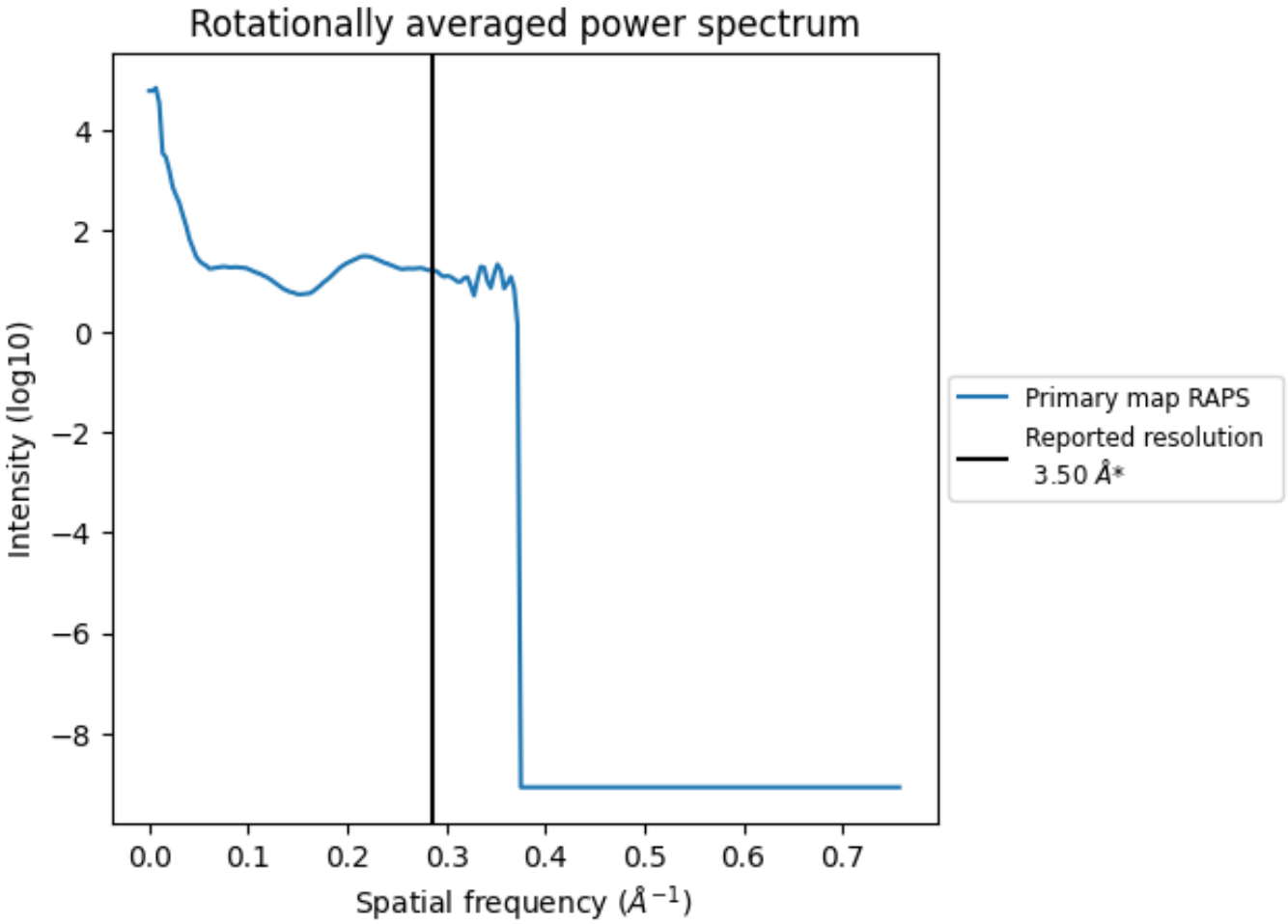
7.2 Volume estimate



The volume at the recommended contour level is 65 nm^3; this corresponds to an approximate mass of 59 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)

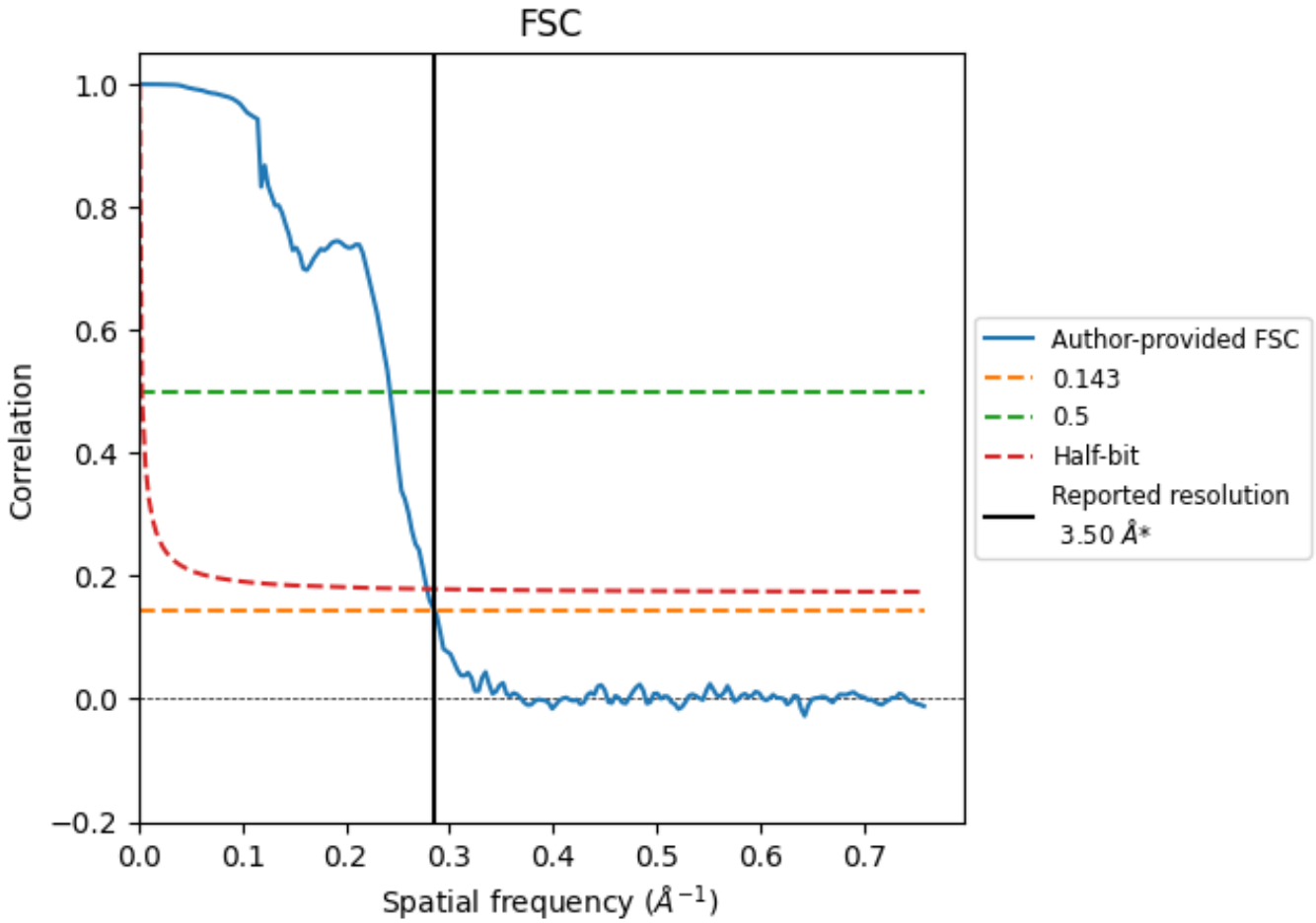


*Reported resolution corresponds to spatial frequency of 0.286 Å^{-1}

8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.286 $Å^{-1}$

8.2 Resolution estimates (i)

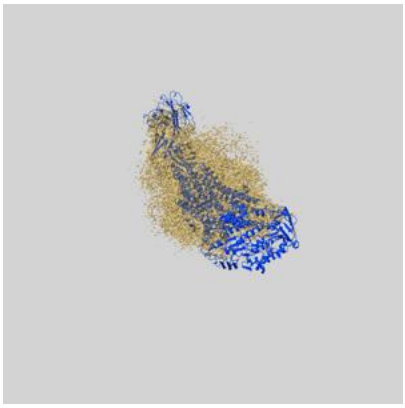
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	3.50	4.12	3.59
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

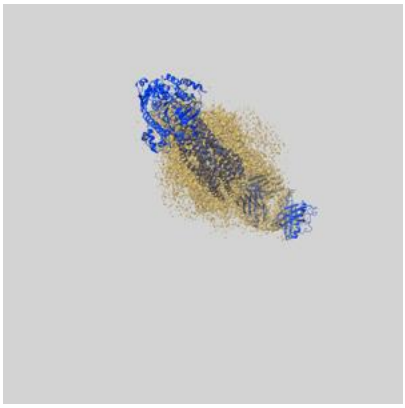
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-12765 and PDB model 7O9W. Per-residue inclusion information can be found in section 3 on page 5.

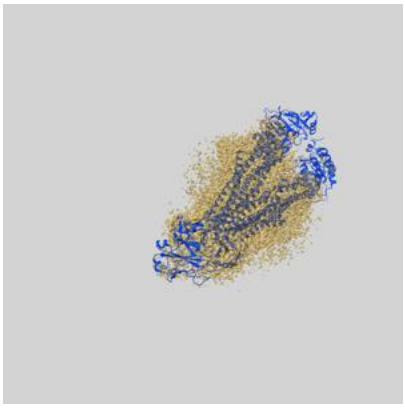
9.1 Map-model overlay



X



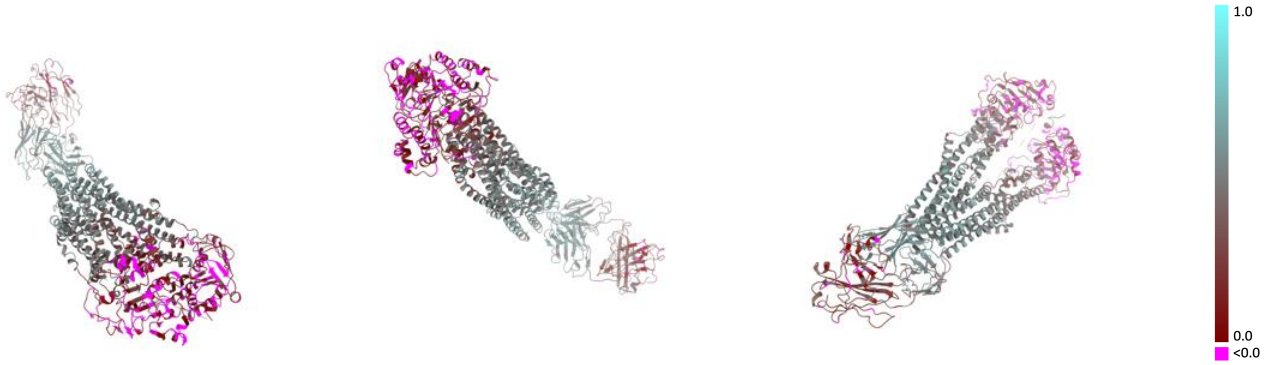
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.00892 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.

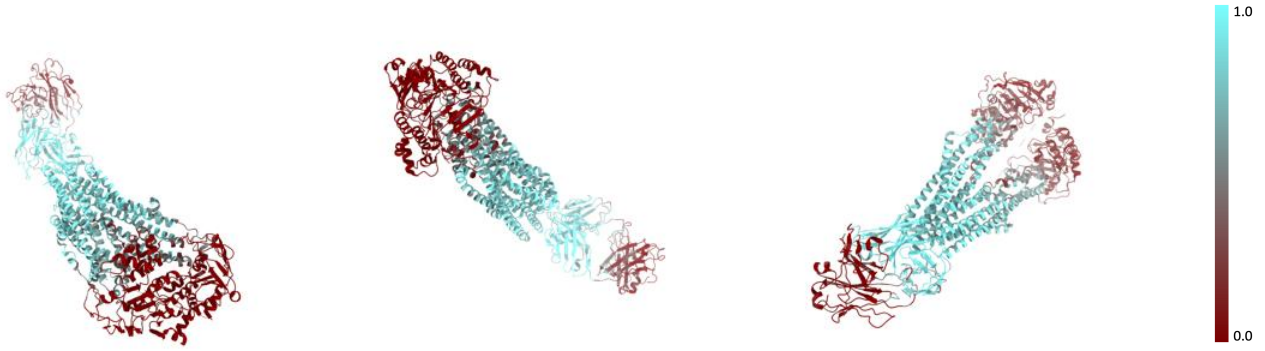
9.2 Q-score mapped to coordinate model (i)



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.

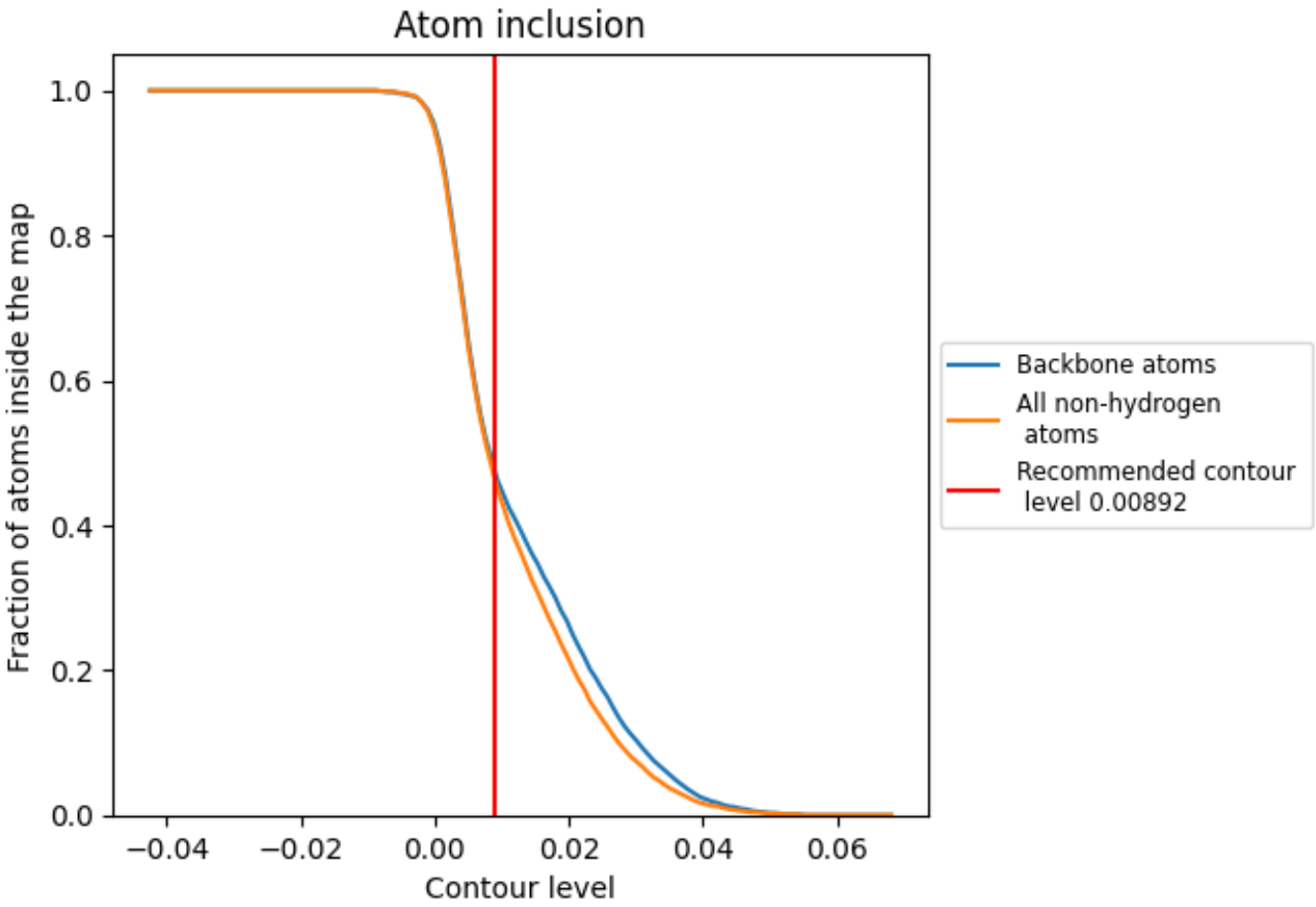
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.00892).

9.4 Atom inclusion (i)



At the recommended contour level, 48% of all backbone atoms, 46% 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 (0.00892) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4650	0.3210
A	0.4400	0.2940
B	0.4910	0.3870
C	0.5720	0.4020