WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

Feb 13, 2024 – 05:33 PM EST

PDB ID	:	3JBH
EMDB ID	:	EMD-1950
Title	:	TWO HEAVY MEROMYOSIN INTERACTING-HEADS MOTIFS FLEXIBLE DOCKED INTO TARANTULA THICK FILAMENT 3D-MAP ALLOWS IN DEPTH STUDY OF INTRA- AND INTERMOLECULAR INTERACTIONS
Authors	:	Alamo, L.; Qi, D.; Wriggers, W.; Pinto, A.; Zhu, J.; Bilbao, A.; Gillilan, R.E.; Hu, S.; Padron, R.
Deposited on	:	2015-09-01
Resolution	:	20.00 Å(reported)
Based on initial model	:	3DTP

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:
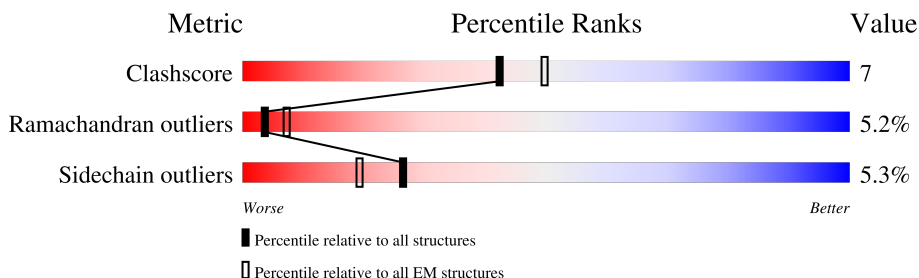
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 20.00 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.
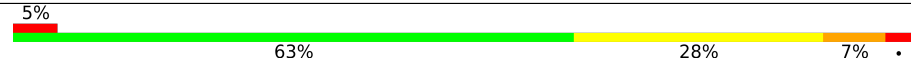
Metric	Percentile Ranks	Value
Clashscore		7
Ramachandran outliers		5.2%
Sidechain outliers		5.3%

Worse   *Better*

▌ Percentile relative to all structures

▯ Percentile relative to all EM structures

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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

Mol	Chain	Length	Quality of chain
1	A	1953	37% 10% •• 51%
1	B	1953	33% 13% • 51%
1	G	1953	35% 12% •• 51%
1	H	1953	33% 14% • 51%
2	C	156	86% 12% •
2	D	156	83% 15% •
2	I	156	83% 15% •
2	J	156	76% 21% •

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Mol	Chain	Length	Quality of chain
3	E	196	73% ▐ 24% ▐
3	F	196	5% ▐ 64% ▐ 29% ▐ 6%
3	K	196	78% ▐ 19% ▐
3	L	196	5% ▐ 63% ▐ 28% ▐ 7%

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 41968 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.

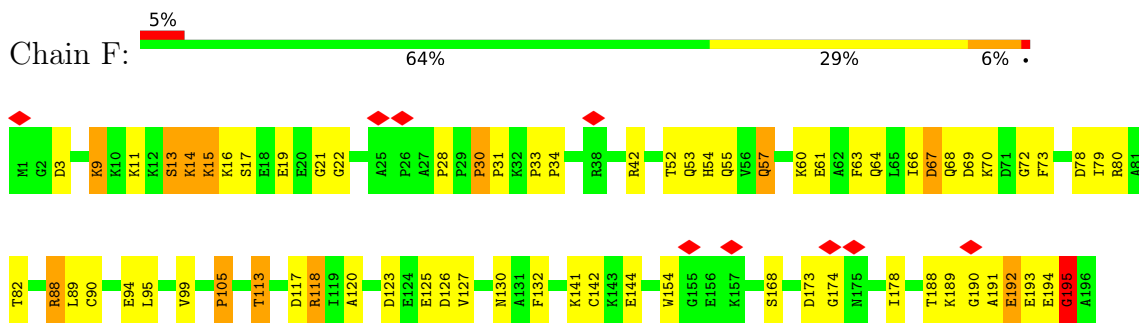- Molecule 1 is a protein called MYOSIN 2 HEAVY CHAIN STRIATED MUSCLE.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	962	Total	C	N	O	S	0	0
			7721	4907	1334	1450	30		
1	B	964	Total	C	N	O	S	0	0
			7739	4918	1338	1453	30		
1	G	962	Total	C	N	O	S	0	0
			7721	4907	1334	1450	30		
1	H	964	Total	C	N	O	S	0	0
			7739	4918	1338	1453	30		

- Molecule 2 is a protein called MYOSIN 2 ESSENTIAL LIGHT CHAIN STRIATED MUSCLE.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	156	Total	C	N	O	S	0	0
			1233	779	199	247	8		
2	D	156	Total	C	N	O	S	0	0
			1233	779	199	247	8		
2	I	156	Total	C	N	O	S	0	0
			1233	779	199	247	8		
2	J	156	Total	C	N	O	S	0	0
			1233	779	199	247	8		

- Molecule 3 is a protein called MYOSIN 2 REGULATORY LIGHT CHAIN STRIATED MUSCLE.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	196	Total	C	N	O	S	0	0
			1529	952	257	314	6		
3	F	196	Total	C	N	O	S	0	0
			1529	952	257	314	6		
3	K	196	Total	C	N	O	S	0	0
			1529	952	257	314	6		
3	L	196	Total	C	N	O	S	0	0
			1529	952	257	314	6		

3   Residue-property plots ⓘ

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

• Molecule 1: MYOSIN 2 HEAVY CHAIN STRIATED MUSCLE

• Molecule 1: MYOSIN 2 HEAVY CHAIN STRIATED MUSCLE

Chain B: 33% 13% · 51%

LEU GLU GLN LYS VAL ARG GLU LEU GLU THR GLU LEU ASP ASN GLU ARG ARG HIS SER GLU ALA ALA LYS ASN VAL ARG ARG SER GLU ARG ARG VAL LYS GLU LEU GLN PHE GLN ALA GLU GLU ASP ARG ASN GLN GLU ARG MET ASP LEU VAL ASP LYS LEU GLN GLN LYS

ILE LYS THR TYR LYS ARG GLN GLU ILE GLU GLU ALA GLU GLU ILE ALA ALA LEU ASN LEU ALA LYS PHE ARG LYS VAL GLN GLN GLU LEU GLU ASP ALA GLU GLU ARG ALA ASP MET ALA GLU ASN VAL ALA LEU LYS LEU ARG ALA LYS ASN ARG SER SER ALA SER VAL GLY ARG ALA MET

SER PRO ILE MET GLY PRO GLY LYS LYS PRO GLY ARG PRO LYS LYS SER ILE ASP GLU GLU

● Molecule 1: MYOSIN 2 HEAVY CHAIN STRIATED MUSCLE

Row 1: ALA ALA LYS LYS ARG LEU THR VAL GLU ASN THR GLU LEU THR ARG GLN GLU LEU GLU ASP ALA GLU GLU SER GLN VAL SER GLN GLU SER LYS LEU THR SER LEU GLU THR GLN LEU GLU ASP THR LYS ARG ALA ASP GLU GLU SER ARG GLU ARG ALA THR MET GLY LYS PHE ARG

Row 2: SER VAL GLU HIS ASP LEU ASP SER LEU ARG GLU GLN GLN ILE ASP GLU GLU GLN GLY LYS ALA ASP GLU LEU GLN ARG GLN LEU SER GLU LYS ALA ASN GLU ALA GLU VAL GLN LEU TRP ARG SER LYS TYR GLU GLU GLY GLY LEU ALA ARG LEU GLU GLU LEU GLU SER LYS ARG LYS LEU ASP

Row 3: ALA LYS LEU GLU ALA MET GLU THR ILE ASP GLN LEU ASN SER LYS THR SER GLY LEU GLU LYS LYS THR ARG LEU GLN GLY GLU GLU ASP MET THR ILE GLU VAL GLU LYS ALA ASN ALA LEU ALA SER ALA MET GLU LYS LYS GLN GLN PHE ASP ARG ILE ILE SER

Row 4: GLU TRP LYS LYS VAL ASP ASP LEU LEU GLU ASP ALA SER GLN GLY LYS LEU CYS ARG ASN TYR SER THR GLU VAL PHE LYS LEU ARG SER GLN TYR GLU GLU SER GLN LEU HIS TYR SER VAL LYS ARG ALA ASN LYS GLN ASP GLU ILE LYS ASP LEU VAL ASP

Row 5: GLN LEU GLY GLU GLY GLY ARG SER VAL HIS GLU LEU GLU LYS ALA ARG LYS ARG LEU GLU GLU THR GLN GLU LEU ALA LEU GLU GLU ALA ALA LEU GLN GLN ASN LYS VAL LEU ARG ALA ALA LEU GLU GLN SER GLN VAL ARG GLN ILE ASP ARG

Row 6: ARG LEU GLN GLU LYS GLU GLU PHE GLU ASN THR ARG LYS ASN HIS GLN ARG ALA ILE ASP SER MET GLN ALA SER LEU GLU ALA GLU ALA LYS GLY LYS ALA GLU ALA LEU ARG MET LYS LYS LEU GLU ASP GLU ASN ASP LEU GLU ILE ALA LEU ASP HIS SER ASN LYS

Row 7: ALA ASN ALA ALA GLN ALA GLN LYS ASN ILE LYS TYR GLN ILE GLN LEU LYS GLU THR GLN GLU LEU ALA LEU GLU ASP GLU VAL ARG ALA GLU ALA LEU THR MET SER GLN ARG CYS ASN ALA MET HIS GLY LEU LEU GLU LEU SER ARG GLN LEU LEU GLU GLN

Row 8: ALA ASP ARG ARG ARG ALA ALA ASP SER GLU LEU LEU HIS GLU ASN VAL ASN SER LEU ALA GLN ASN SER MET LEU SER MET ALA LYS ARG LEU LEU GLY MET GLN LEU ALA LEU HIS ALA ASP LEU GLU ASP ALA ALA LEU ASN LEU GLU ALA LYS SER GLU GLU LYS

Row 9: ALA LYS LYS ALA MET VAL ASP ALA ALA ARG LEU ALA ASP GLU LEU ARG ALA GLU GLN GLN HIS ALA GLN GLN GLN LYS MET ARG LYS ALA MET GLU GLY GLN LYS GLU LEU VAL ARG LEU ALA ASP ALA ALA LEU LYS GLY LYS LYS ILE GLN LYS

Row 10: LEU GLU GLN LYS VAL ARG GLU LEU GLU THR LEU ASP ASN GLU ARG ARG HIS SER GLU ALA ALA LYS ASN VAL ARG ARG GLY SER GLU ARG VAL LYS ALA MET GLU GLY GLN LYS GLU LEU GLN ALA GLU ASP ARG MET GLN ASP LEU VAL ASP LYS LEU GLN LYS

Row 11: ILE LYS THR TYR LYS ARG GLN ILE GLU GLU ALA GLU GLU ILE ALA ALA LEU ASN LEU ALA LYS PHE ARG LYS VAL GLN GLU GLU LEU ASP GLU ALA GLU GLU ARG ALA ASP MET ALA GLU ASN VAL ALA ALA LYS LEU ARG ALA LYS ASN ARG SER SER ALA SER VAL GLY ARG ALA MET

Row 12: SER PRO ILE PRO MET GLY LYS PRO GLY LYS ARG PRO LYS SER LYS ILE ASP GLU GLU

• Molecule 1: MYOSIN 2 HEAVY CHAIN STRIATED MUSCLE

Chain H: 33%   14% · 51%

T541 D542 K543 S544 F545 Q546 D547 K548 K556 V561 K562 P563 K564 P565 P566 K567 P568 G569 Q570 Q571 E572 A573 H574 F575 S576 Y580 I588 W591 L592 E593 D597 P598 V599 N600 D601 Q606 F607 K608 K613 I618 F619 E620 D621 H622 A627 E628 E629 K630 G631

G632 K635 G636 G637 G638 G639 R640 K641 K642 G643 A644 S645 F646 Q647 T648 V649 R654 R659 T667 Q668 V672 R673 C674 I675 I676 P677 L680 K681 I686 L695 L701 E702 R705 I706 C707 F711 P712 N713 R714 M715 V716 K721 Q722 R723 Y724 T725 I726

S730 A731 V732 P733 K734 D738 V742 T743 V746 L747 I750 Q751 L752 G760 K763 V764 R767 A768 G769 V770 L771 G772 R773 E776 D779 I785 W788 W792 I793 R794 W795 Y796 K803 K804 R809 R817 R826 N827 W828 L829 W830 Y831 K832 L833

Y834 I835 K836 V837 K838 T842 M843 A844 K845 D848 E862 E868 R871 D887 S894 E895 S896 S897 L906 I923 Q924 E925 R929 E930 A933 R941 I948 K952 K953 E954 D957 K964 THR GLU GLN ASP LYS ALA ALA LYS ASP HIS GLN ILE

ARG ASN LEU ASN ASP GLU ILE ALA HIS GLN ASP GLU LEU ILE ASN LYS LEU ASN ARG GLU LYS LYS MET GLN GLU MET GLY LYS THR GLY ASP LEU GLN ALA THR GLU LYS LEU GLU GLN THR LEU ASP GLU LEU ASP GLU

ASP SER LEU ARG GLU GLU LYS LYS LEU ASN ARG GLU GLN ILE LYS ASP LYS THR LEU ALA GLN MET GLY ASP ALA VAL ASP GLU GLU LYS ASN LYS GLU HIS ASN ASP VAL ALA LEU GLN ARG LYS GLU GLU GLY LYS MET ALA SER LEU SER SER LYS LEU GLU

ASP GLU GLN LEU VAL LYS ALA LYS GLU GLN GLY LYS ILE LYS GLU LEU GLN GLU LEU GLN LEU ALA GLU ARG GLN ALA ALA LYS GLU ARG GLN ILE GLU GLN LEU SER GLU ARG LEU GLU GLU ALA GLY

ALA THR SER GLN VAL LEU ASN THR LEU ARG ALA MET LYS ARG ILE GLU LEU SER ASN GLN HIS GLN THR LEU ASN ARG LYS HIS ASN ASP VAL GLU LEU GLN GLU SER GLU ARG LEU ASN HIS LYS ALA

ARG LEU GLU GLU LYS GLU MET GLY GLU ASP LEU ASP ARG SER VAL HIS VAL ASN GLU LYS HIS ASN ASP VAL ALA GLU SER GLU ILE ASP GLN ASN HIS LYS ALA

ALA LYS LYS ARG LEU THR VAL LEU ASN THR LEU ARG GLN LEU ASP ARG GLN LEU GLU ASP SER GLN LEU LYS HIS ASN ASP MET ALA ASP GLN GLU SER ARG GLU GLN ALA THR ALA MET GLY LYS PHE ARG SER

VAL GLU HIS ASP LEU ASP SER LEU ARG GLU GLN ILE ASP THR ARG GLN LEU GLU LYS ALA ASP LEU ALA GLU ARG LEU TRP SER ARG LYS TYR GLU SER GLY LEU ALA ARG LEU GLU LEU GLU SER LYS ARG LEU ASP ALA

LYS LEU GLN GLU ALA MET GLU THR ILE ASP LEU GLN LEU ASN SER LYS THR SER GLY LEU LYS SER ARG ASN ALA ASN ALA GLU GLU MET THR ILE GLU VAL LYS TYR GLU SER GLU GLY LEU ALA SER ALA MET GLY LYS PHE ASP ARG ILE ILE SER GLU

TRP LYS GLN LYS VAL ASP ASP LEU ALA LEU GLU GLU LEU ALA SER GLN LYS GLU CYS ARG ASN TYR SER THR GLU LEU PHE LYS LEU ARG SER GLN TYR GLU GLU SER GLN HIS TYR GLU SER VAL LYS ARG GLY ALA ASN LYS ASN LEU GLN GLU ASP GLU ILE LYS ASP ARG LEU VAL ASP GLN

LEU GLY GLU GLY ARG SER VAL HIS GLU LEU GLU LEU ASP LYS ALA ARG LYS ARG LEU GLU ILE GLU LYS ALA GLU ALA GLU LEU GLU GLU MET LYS LYS LEU VAL LEU ARG ALA GLN ASN LYS ASN LEU GLU GLN ILE ASP ARG ARG

LEU GLN GLU LYS GLU GLU PHE GLU ASN THR ARG GLN LYS ASN HIS GLN VAL ASN GLU ALA ILE ASP SER MET GLN ALA LYS LYS ALA GLU GLN ALA LEU ARG MET LYS LYS LEU GLU SER GLN VAL ARG GLN GLU ILE ALA LEU ASP HIS SER ASN LYS ALA

ASN ALA GLU ALA GLN LYS ASN ILE LYS TYR GLN ILE GLN LEU LYS LEU GLU ARG ALA ARG ASP GLU VAL LYS ARG GLU TYR ALA MET SER GLU ARG ARG CYS ASN ALA MET HIS GLY LEU GLU GLU SER GLN LEU GLU GLU GLU ASP ARG ARG

ASP ARG ALA ARG ALA ALA ALA ASP SER LEU ALA ASP GLU HIS GLU ASN VAL ASN GLN ALA SER MET ALA LYS ARG GLN LEU VAL GLY GLN TYR ALA MET SER GLU ARG ARG CYS ASN ALA MET HIS GLY LEU GLU LEU GLU SER GLN LEU GLU LYS ALA

LYS LYS ALA MET VAL ASP ALA ALA ASP SER ARG ALA ASP LEU ALA GLU HIS GLY ASN VAL ASN GLN HIS ALA ALA GLN LEU LYS GLU GLU GLY GLN ILE LEU GLU GLU LEU VAL ARG LEU ASP GLU HIS ALA ASP GLN GLU SER GLU GLU GLU LYS LYS LEU

GLU GLN LYS ARG GLU LEU GLU THR LEU ASP ASN GLN ARG HIS SER GLU ALA ALA LYS ASN VAL ARG SER LEU ARG ARG ARG ASP LYS ASN GLU ALA ARG MET GLN LEU VAL ASP GLU LYS LEU GLN GLU GLN ALA GLU GLU GLU ASP ARG ARG MET GLN ASN LEU VAL ASP LYS LEU GLN GLN GLN LYS ILE

LYS THR TYR LYS ARG GLN ILE GLU GLU ALA GLU GLU ILE ALA ALA LEU ASN LEU ALA LYS PHE ARG LYS VAL GLN GLN GLU LEU GLU ASP ALA GLU GLU ARG ALA ASP MET ALA GLU ASN VAL ALA ALA LYS LEU ARG ALA LYS ASN ARG SER SER ALA SER VAL GLY ARG ALA MET SER

PRO ILE PRO MET GLY LYS PRO GLY ARG PRO LYS SER LYS ILE ASP GLU GLU

● Molecule 2: MYOSIN 2 ESSENTIAL LIGHT CHAIN STRIATED MUSCLE

Chain C: 86%   12%

M1 R13 W21 R37 C41 V48 N51 G52 G53 P69 L90 K91 V92 Y93 D94 K95 A96 E97 R116 D132 D133 D134 K138 Y139 E140 P141 I147 P152 D153 E154 G155 K156

● Molecule 2: MYOSIN 2 ESSENTIAL LIGHT CHAIN STRIATED MUSCLE

Chain D: 83%   15%

M1 R13 Y19 D20 W21 E22 D34 R37 D40 C41 K42 P43 R57 K61 L83 E84 D85 V92 Y93 D94 L111 S112 D119 R127 D130 D134 G135 Y139 E140 P141 I147 P152 D153 E154 G155 K156

● Molecule 2: MYOSIN 2 ESSENTIAL LIGHT CHAIN STRIATED MUSCLE

Chain I: 83%   15%

M1 R13 W21 R37 D40 C41 K42 P43 T44 N51 L90 Y93 D94 E97 T100 M101 L102 A103 R116 D119 I125 E131 D132 D133 D134 G135 F136 L137 K138 Y139 E140 V143 I146 P152 D153 E154 G155 K156

● Molecule 2: MYOSIN 2 ESSENTIAL LIGHT CHAIN STRIATED MUSCLE

Chain J: 76%   21%

M1 A2 D3 L4 K5 R13 W21 E22 K26 I27 R30 R37 K60 K61 L62 T63 E66 F67 L68 P69 K75 L83 E84 D85 V92 Y93 D94 M101 L111 S112 R116 D119 D130 E131 F136 L137 K138 Y139 E140 P141 I147 P152

D153 E154 G155 K156

● Molecule 3: MYOSIN 2 REGULATORY LIGHT CHAIN STRIATED MUSCLE

Chain E: 73%   24%

M1 E5 S17 E18 E19 E20 G21 P28 P29 P30 P33 P34 S35 Q36 K37 S43 M46 V47 M50 F51 T52 Q53 H54 Q55 V56 Q57 E58 F59 D67 K70 D71 G72 F73 I74 D78 I79 R80 F83 L86 L89 C90 E94 I106 N107 F108

T109 R118 G138 E139 G140 T153 W154 K157 E169 A191 E192 E193 E194 G195 A196

● Molecule 3: MYOSIN 2 REGULATORY LIGHT CHAIN STRIATED MUSCLE

Chain F:

5%

64%   29%   6% ·

M1 G2 D3 K9 K10 K11 K12 S13 K14 K15 K16 S17 E18 E19 E20 G21 G22 A25 P26 A27 P28 P29 P30 P31 K32 P33 P34 R38 R42 T52 Q53 H54 Q55 V56 Q57 K60 E61 A62 F63 Q64 L65 I66 D67 Q68 D69 K70 D71 G72 F73 D78 I79 R80 A81

T82 R88 L89 C90 E94 L95 V99 P105 T113 D117 R118 I119 A120 D123 E124 E125 D126 V127 N130 A131 F132 K141 C142 K143 E144 W154 G155 E156 K157 S168 D173 G174 N175 I178 T188 K189 G190 A191 E192 E193 E194 G195 A196

• Molecule 3: MYOSIN 2 REGULATORY LIGHT CHAIN STRIATED MUSCLE

Chain K: ·

78%   19%   ·

M1 E5 K16 S17 E20 G21 P29 P33 P34 R38 Q41 R42 F51 T52 Q53 H54 Q55 V56 Q57 E58 F59 D67 K70 I74 D78 I79 R80 L86 G87 G104 P105 I106 N107 F108 T109 R118 G138 E139 G140 R149 W154

E169 F183 G190 A191 E192 E193 E194 G195 A196

• Molecule 3: MYOSIN 2 REGULATORY LIGHT CHAIN STRIATED MUSCLE

Chain L:

5%

63%   28%   7% ·

M1 G2 D3 K6 K9 K10 K11 K12 S13 K14 K15 K16 S17 E18 G22 D23 A24 A25 P26 P29 P30 P31 K32 P33 P34 S35 Q36 K37 R38 R39 R42 S45 Q53 H54 Q55 E58 F59 K60 E61 A62 F63 D67 Q68 D69 K70 D71 G72 F73 I79 R80

S85 L89 C90 T91 E92 Q93 E94 L95 D96 S97 M98 V99 A100 E101 A102 P103 I106 T113 D123 E124 E125 I128 V129 N130 A131 F132 N133 L134 K141 C142 K143 E144 W154 G155 E156 K157 D173 G174 N175 I178 T188 K189 G190 A191 E192 E193 E194 G195 A196

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	HELICAL	Depositor
Imposed symmetry	HELICAL, twist=30°, rise=100 Å, axial sym=C4	Depositor
Number of segments used	Not provided	
Resolution determination method	FSC 0.5 CUT-OFF	Depositor
CTF correction method	Not provided	
Microscope	FEI/PHILIPS CM120T	Depositor
Voltage (kV)	120	Depositor
Electron dose $(e^-/\text{Å}^2)$	Not provided	
Minimum defocus (nm)	1950	Depositor
Maximum defocus (nm)	1950	Depositor
Magnification	35000	Depositor
Image detector	KODAK SO-163 FILM	Depositor
Maximum map value	247.077	Depositor
Minimum map value	-0.037	Depositor
Average map value	10.023	Depositor
Map value standard deviation	28.567	Depositor
Recommended contour level	25.0	Depositor
Map size (Å)	620, 620, 620.5	wwPDB
Map dimensions	250, 250, 250	wwPDB
Map angles (°)	90, 90, 90	wwPDB
Pixel spacing (Å)	2.48, 2.48, 2.482	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	0.65	0/7867	1.36	93/10591 (0.9%)
1	B	0.64	0/7885	1.35	68/10614 (0.6%)
1	G	0.64	0/7867	1.33	75/10591 (0.7%)
1	H	0.64	0/7885	1.34	64/10614 (0.6%)
2	C	0.66	0/1251	1.20	6/1674 (0.4%)
2	D	0.66	0/1251	1.19	8/1674 (0.5%)
2	I	0.64	0/1251	1.21	9/1674 (0.5%)
2	J	0.65	0/1251	1.21	7/1674 (0.4%)
3	E	0.64	0/1554	1.20	10/2081 (0.5%)
3	F	0.64	0/1554	1.30	11/2081 (0.5%)
3	K	0.65	0/1554	1.24	9/2081 (0.4%)
3	L	0.69	0/1554	1.40	17/2081 (0.8%)
All	All	0.65	0/42724	1.32	377/57430 (0.7%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	32
1	B	0	20
1	G	0	25
1	H	0	19
2	D	0	1
2	I	0	1
2	J	0	4
3	E	0	1
3	F	0	3
3	K	0	2
3	L	0	8
All	All	0	116

There are no bond length outliers.

All (377) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	365	PRO	CA-N-CD	-13.39	92.75	111.50
1	B	380	ARG	NE-CZ-NH1	-12.71	113.94	120.30
1	G	140	ARG	NE-CZ-NH1	-10.79	114.91	120.30
1	B	654	ARG	NE-CZ-NH1	-10.67	114.97	120.30
1	G	367	GLU	CA-C-N	10.62	140.56	117.20
1	G	367	GLU	O-C-N	-10.30	106.22	122.70
1	H	64	ARG	NE-CZ-NH1	-10.23	115.18	120.30
1	G	64	ARG	NE-CZ-NH1	-10.13	115.24	120.30
1	G	778	ARG	NE-CZ-NH1	-9.87	115.36	120.30
1	A	367	GLU	CA-C-N	9.85	138.87	117.20
1	B	12	TYR	CB-CG-CD2	-9.84	115.10	121.00
3	L	39	ARG	NE-CZ-NH1	-9.62	115.49	120.30
1	H	929	ARG	NE-CZ-NH1	-9.50	115.55	120.30
1	A	367	GLU	O-C-N	-9.49	107.52	122.70
1	H	364	ARG	NE-CZ-NH1	-9.40	115.60	120.30
1	A	364	ARG	NE-CZ-NH1	9.19	124.89	120.30
1	A	365	PRO	N-CA-C	9.18	135.98	112.10
1	B	439	ARG	NE-CZ-NH1	-9.11	115.74	120.30
1	A	140	ARG	NE-CZ-NH1	-9.09	115.76	120.30
1	G	310	VAL	CA-C-N	9.03	137.06	117.20
3	E	154	TRP	CD1-CG-CD2	9.02	113.51	106.30
1	B	929	ARG	NE-CZ-NH1	-8.99	115.80	120.30
1	A	505	TRP	CD1-CG-CD2	8.94	113.45	106.30
1	G	505	TRP	CD1-CG-CD2	8.93	113.44	106.30
1	G	310	VAL	O-C-N	-8.91	108.45	122.70
1	H	654	ARG	NE-CZ-NH1	-8.85	115.87	120.30
2	C	21	TRP	CD1-CG-CD2	8.84	113.37	106.30
1	B	140	ARG	NE-CZ-NH1	-8.79	115.91	120.30
1	G	788	TRP	CD1-CG-CD2	8.72	113.28	106.30
1	A	306	ASP	N-CA-C	8.62	134.27	111.00
1	A	591	TRP	CD1-CG-CD2	8.57	113.16	106.30
1	H	929	ARG	NE-CZ-NH2	8.57	124.58	120.30
1	B	794	ARG	NE-CZ-NH1	-8.56	116.02	120.30
3	L	13	SER	O-C-N	-8.55	109.02	122.70
3	K	118	ARG	NE-CZ-NH1	-8.52	116.04	120.30
1	G	206	THR	CA-C-N	8.49	135.87	117.20
1	A	788	TRP	CD1-CG-CD2	8.48	113.08	106.30
1	A	362	LYS	C-N-CA	8.46	142.85	121.70
3	L	154	TRP	CD1-CG-CD2	8.46	113.07	106.30
1	H	828	TRP	CD1-CG-CD2	8.44	113.05	106.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	I	21	TRP	CD1-CG-CD2	8.43	113.04	106.30
1	H	565	PRO	N-CA-C	8.39	133.91	112.10
1	B	830	TRP	CD1-CG-CD2	8.38	113.00	106.30
3	E	118	ARG	NE-CZ-NH2	8.36	124.48	120.30
1	A	778	ARG	NE-CZ-NH1	-8.35	116.13	120.30
1	A	788	TRP	CE2-CD2-CG	-8.33	100.64	107.30
2	J	13	ARG	NE-CZ-NH1	-8.33	116.14	120.30
1	H	830	TRP	CD1-CG-CD2	8.32	112.95	106.30
1	A	505	TRP	CE2-CD2-CG	-8.26	100.69	107.30
1	B	103	ARG	NE-CZ-NH2	8.21	124.40	120.30
1	A	206	THR	CA-C-N	8.20	135.24	117.20
1	B	795	TRP	CD1-CG-CD2	8.19	112.85	106.30
1	H	500	ARG	NE-CZ-NH2	8.18	124.39	120.30
1	B	565	PRO	N-CA-C	8.17	133.34	112.10
1	G	505	TRP	CE2-CD2-CG	-8.14	100.78	107.30
1	G	788	TRP	CE2-CD2-CG	-8.13	100.79	107.30
1	G	673	ARG	NE-CZ-NH1	-8.11	116.24	120.30
1	H	788	TRP	CD1-CG-CD2	8.11	112.78	106.30
1	G	591	TRP	CD1-CG-CD2	8.09	112.77	106.30
1	H	591	TRP	CD1-CG-CD2	8.09	112.77	106.30
1	B	640	ARG	NE-CZ-NH2	-8.08	116.26	120.30
1	A	828	TRP	CD1-CG-CD2	8.08	112.77	106.30
1	B	828	TRP	CD1-CG-CD2	8.08	112.76	106.30
3	E	154	TRP	CE2-CD2-CG	-8.05	100.86	107.30
1	A	828	TRP	CE2-CD2-CG	-8.04	100.87	107.30
1	A	435	TRP	CD1-CG-CD2	8.03	112.72	106.30
1	H	64	ARG	NE-CZ-NH2	8.00	124.30	120.30
2	I	37	ARG	NE-CZ-NH1	-8.00	116.30	120.30
3	K	154	TRP	CD1-CG-CD2	7.99	112.69	106.30
2	C	21	TRP	CE2-CD2-CG	-7.99	100.91	107.30
1	H	830	TRP	CE2-CD2-CG	-7.97	100.92	107.30
1	G	435	TRP	CD1-CG-CD2	7.95	112.66	106.30
3	F	154	TRP	CD1-CG-CD2	7.93	112.64	106.30
1	B	33	TRP	CE2-CD2-CG	-7.92	100.96	107.30
1	A	311	SER	N-CA-C	7.92	132.37	111.00
1	H	795	TRP	CD1-CG-CD2	7.85	112.58	106.30
1	G	140	ARG	NE-CZ-NH2	7.84	124.22	120.30
1	G	568	PRO	CA-N-CD	-7.83	100.54	111.50
1	H	33	TRP	CD1-CG-CD2	7.81	112.55	106.30
2	C	13	ARG	NE-CZ-NH2	7.77	124.19	120.30
1	A	33	TRP	CD1-CG-CD2	7.70	112.46	106.30
1	G	206	THR	O-C-N	-7.68	110.42	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	H	792	TRP	CD1-CG-CD2	7.68	112.44	106.30
1	G	792	TRP	CD1-CG-CD2	7.67	112.44	106.30
1	B	788	TRP	CD1-CG-CD2	7.66	112.43	106.30
1	H	435	TRP	CD1-CG-CD2	7.66	112.43	106.30
1	B	830	TRP	CE2-CD2-CG	-7.65	101.18	107.30
1	H	505	TRP	CD1-CG-CD2	7.65	112.42	106.30
2	J	21	TRP	CD1-CG-CD2	7.65	112.42	106.30
3	L	154	TRP	CE2-CD2-CG	-7.64	101.18	107.30
1	A	591	TRP	CE2-CD2-CG	-7.64	101.19	107.30
1	B	792	TRP	CD1-CG-CD2	7.64	112.41	106.30
1	G	828	TRP	CD1-CG-CD2	7.64	112.41	106.30
1	H	33	TRP	CE2-CD2-CG	-7.63	101.20	107.30
1	H	591	TRP	CE2-CD2-CG	-7.63	101.20	107.30
1	G	828	TRP	CE2-CD2-CG	-7.62	101.20	107.30
2	I	21	TRP	CE2-CD2-CG	-7.61	101.21	107.30
1	B	33	TRP	CD1-CG-CD2	7.61	112.38	106.30
1	B	505	TRP	CD1-CG-CD2	7.61	112.38	106.30
1	G	33	TRP	CD1-CG-CD2	7.59	112.38	106.30
1	G	268	ALA	CA-C-N	7.57	133.85	117.20
1	B	435	TRP	CD1-CG-CD2	7.54	112.33	106.30
1	A	363	GLN	N-CA-CB	-7.53	97.05	110.60
3	K	118	ARG	NE-CZ-NH2	7.49	124.04	120.30
1	H	788	TRP	CE2-CD2-CG	-7.48	101.31	107.30
1	G	896	ARG	NE-CZ-NH1	-7.48	116.56	120.30
1	H	505	TRP	CE2-CD2-CG	-7.48	101.32	107.30
3	K	154	TRP	CE2-CD2-CG	-7.47	101.32	107.30
1	H	828	TRP	CE2-CD2-CG	-7.47	101.33	107.30
1	A	206	THR	O-C-N	-7.47	110.75	122.70
3	F	154	TRP	CE2-CD2-CG	-7.46	101.33	107.30
1	B	795	TRP	CE2-CD2-CG	-7.45	101.34	107.30
1	B	809	ARG	NE-CZ-NH1	-7.42	116.59	120.30
2	D	21	TRP	CE2-CD2-CG	-7.42	101.37	107.30
1	B	792	TRP	CE2-CD2-CG	-7.40	101.38	107.30
1	B	505	TRP	CE2-CD2-CG	-7.40	101.38	107.30
1	A	364	ARG	NE-CZ-NH2	-7.39	116.60	120.30
1	B	591	TRP	CD1-CG-CD2	7.39	112.21	106.30
1	A	640	ARG	NE-CZ-NH1	-7.37	116.62	120.30
1	G	435	TRP	CE2-CD2-CG	-7.35	101.42	107.30
1	A	500	ARG	NE-CZ-NH2	7.35	123.97	120.30
1	A	896	ARG	NE-CZ-NH1	-7.33	116.64	120.30
1	A	792	TRP	CD1-CG-CD2	7.31	112.15	106.30
1	B	788	TRP	CE2-CD2-CG	-7.30	101.46	107.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	I	13	ARG	NE-CZ-NH2	7.28	123.94	120.30
1	A	435	TRP	CE2-CD2-CG	-7.27	101.48	107.30
1	B	828	TRP	CE2-CD2-CG	-7.27	101.49	107.30
1	G	450	ARG	NE-CZ-NH1	-7.26	116.67	120.30
1	A	673	ARG	NE-CZ-NH1	-7.26	116.67	120.30
1	H	795	TRP	CE2-CD2-CG	-7.25	101.50	107.30
2	J	21	TRP	CE2-CD2-CG	-7.25	101.50	107.30
1	G	591	TRP	CE2-CD2-CG	-7.23	101.52	107.30
1	B	591	TRP	CE2-CD2-CG	-7.22	101.52	107.30
1	G	926	ARG	NE-CZ-NH2	7.22	123.91	120.30
1	A	363	GLN	CA-CB-CG	7.22	129.29	113.40
1	A	654	ARG	NE-CZ-NH2	7.21	123.91	120.30
3	E	192	GLU	O-C-N	-7.21	111.17	122.70
1	H	792	TRP	CE2-CD2-CG	-7.21	101.54	107.30
1	G	654	ARG	NE-CZ-NH2	7.20	123.90	120.30
1	G	268	ALA	O-C-N	-7.19	111.19	122.70
3	L	195	GLY	O-C-N	-7.19	111.20	122.70
1	A	792	TRP	CE2-CD2-CG	-7.15	101.58	107.30
1	H	794	ARG	NE-CZ-NH1	-7.15	116.73	120.30
3	K	192	GLU	O-C-N	-7.14	111.27	122.70
1	A	268	ALA	CA-C-N	7.13	132.89	117.20
1	H	435	TRP	CE2-CD2-CG	-7.12	101.60	107.30
1	A	33	TRP	CE2-CD2-CG	-7.12	101.60	107.30
1	G	593	GLU	CA-CB-CG	7.12	129.06	113.40
1	G	830	TRP	CD1-CG-CD2	7.11	111.99	106.30
2	D	21	TRP	CD1-CG-CD2	7.11	111.99	106.30
2	D	134	ASP	CA-C-N	7.09	130.38	116.20
1	G	795	TRP	CD1-CG-CD2	7.08	111.96	106.30
1	G	795	TRP	CE2-CD2-CG	-7.06	101.65	107.30
2	D	134	ASP	O-C-N	-7.05	111.21	123.20
1	A	830	TRP	CD1-CG-CD2	7.04	111.94	106.30
3	L	13	SER	CA-C-N	7.01	132.62	117.20
1	A	794	ARG	NE-CZ-NH1	-6.99	116.81	120.30
1	G	792	TRP	CE2-CD2-CG	-6.99	101.71	107.30
1	B	380	ARG	NE-CZ-NH2	6.96	123.78	120.30
1	A	795	TRP	CE2-CD2-CG	-6.96	101.73	107.30
1	G	33	TRP	CE2-CD2-CG	-6.93	101.75	107.30
1	G	830	TRP	CE2-CD2-CG	-6.89	101.79	107.30
1	B	435	TRP	CE2-CD2-CG	-6.88	101.79	107.30
3	L	195	GLY	CA-C-N	6.86	132.28	117.20
1	H	12	TYR	CB-CG-CD2	-6.85	116.89	121.00
1	A	365	PRO	CA-C-N	-6.84	102.15	117.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	L	42	ARG	NE-CZ-NH1	-6.84	116.88	120.30
1	A	830	TRP	CE2-CD2-CG	-6.83	101.83	107.30
1	B	64	ARG	NE-CZ-NH1	-6.79	116.91	120.30
1	B	872	LYS	CG-CD-CE	6.78	132.24	111.90
1	A	828	TRP	CB-CG-CD1	-6.73	118.25	127.00
1	G	640	ARG	NE-CZ-NH1	-6.71	116.94	120.30
1	A	364	ARG	CD-NE-CZ	-6.71	114.21	123.60
1	A	312	GLN	N-CA-C	6.70	129.08	111.00
1	H	364	ARG	NE-CZ-NH2	6.67	123.64	120.30
1	G	450	ARG	NE-CZ-NH2	6.64	123.62	120.30
1	B	640	ARG	NE-CZ-NH1	6.61	123.61	120.30
2	J	37	ARG	NE-CZ-NH1	-6.61	117.00	120.30
1	A	767	ARG	NE-CZ-NH2	6.61	123.60	120.30
1	A	788	TRP	CG-CD2-CE3	6.60	139.84	133.90
1	H	439	ARG	NE-CZ-NH1	-6.60	117.00	120.30
1	B	33	TRP	CB-CG-CD1	-6.56	118.47	127.00
1	B	439	ARG	NE-CZ-NH2	6.56	123.58	120.30
1	A	781	ARG	NE-CZ-NH1	-6.55	117.03	120.30
1	A	364	ARG	N-CA-C	6.54	128.66	111.00
1	A	795	TRP	CD1-CG-CD2	6.49	111.49	106.30
1	A	673	ARG	NE-CZ-NH2	6.47	123.53	120.30
1	A	603	VAL	N-CA-C	6.47	128.46	111.00
1	G	809	ARG	NE-CZ-NH2	6.46	123.53	120.30
1	A	313	GLY	O-C-N	-6.43	112.42	122.70
3	K	195	GLY	O-C-N	-6.39	112.48	122.70
3	F	14	LYS	N-CA-C	6.37	128.19	111.00
1	B	708	ARG	NE-CZ-NH1	-6.32	117.14	120.30
1	B	708	ARG	NE-CZ-NH2	6.30	123.45	120.30
3	E	192	GLU	CA-C-N	6.30	131.06	117.20
1	A	268	ALA	O-C-N	-6.29	112.63	122.70
1	A	451	GLN	O-C-N	-6.29	112.63	122.70
1	G	422	GLY	CA-C-N	6.26	128.72	116.20
3	L	31	PRO	N-CD-CG	-6.26	93.81	103.20
1	H	280	TYR	CB-CG-CD2	-6.25	117.25	121.00
1	A	788	TRP	CB-CG-CD1	-6.25	118.87	127.00
1	G	712	PRO	N-CA-C	6.24	128.33	112.10
1	A	306	ASP	CA-C-N	-6.23	103.49	117.20
1	G	157	TYR	CB-CG-CD2	-6.22	117.27	121.00
1	A	240	ARG	NE-CZ-NH2	6.19	123.40	120.30
2	J	30	ARG	NE-CZ-NH1	-6.18	117.21	120.30
1	B	364	ARG	NE-CZ-NH2	6.18	123.39	120.30
3	F	88	ARG	NE-CZ-NH2	6.17	123.38	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	K	192	GLU	CA-C-N	6.14	130.71	117.20
1	A	363	GLN	N-CA-C	6.13	127.55	111.00
1	A	368	GLU	N-CA-C	6.11	127.51	111.00
1	B	500	ARG	NE-CZ-NH1	-6.11	117.24	120.30
1	G	788	TRP	CG-CD2-CE3	6.09	139.38	133.90
1	B	500	ARG	NE-CZ-NH2	6.08	123.34	120.30
1	G	705	ARG	NE-CZ-NH1	-6.07	117.27	120.30
2	D	127	ARG	NE-CZ-NH2	6.05	123.32	120.30
1	B	659	ARG	NE-CZ-NH1	-6.02	117.29	120.30
1	G	788	TRP	CB-CG-CD1	-6.02	119.18	127.00
1	H	796	TYR	CB-CG-CD1	-6.02	117.39	121.00
1	A	596	LYS	CA-CB-CG	6.01	126.63	113.40
1	H	380	ARG	NE-CZ-NH1	-6.01	117.30	120.30
1	A	831	TYR	CB-CG-CD2	-6.00	117.40	121.00
1	B	641	LYS	O-C-N	-6.00	113.11	122.70
1	H	33	TRP	CB-CG-CD1	-5.99	119.21	127.00
1	B	905	ARG	NE-CZ-NH1	-5.99	117.31	120.30
1	G	313	GLY	O-C-N	-5.99	113.12	122.70
1	H	871	ARG	NE-CZ-NH1	-5.98	117.31	120.30
3	L	31	PRO	N-CA-CB	-5.97	96.04	102.60
3	K	149	ARG	NE-CZ-NH1	-5.95	117.32	120.30
1	B	642	LYS	CA-C-N	5.93	128.07	116.20
1	H	773	ARG	NE-CZ-NH2	5.93	123.27	120.30
1	G	828	TRP	CB-CG-CD1	-5.92	119.30	127.00
1	A	828	TRP	CG-CD2-CE3	5.92	139.23	133.90
1	H	164	ARG	NE-CZ-NH1	5.91	123.26	120.30
1	B	941	ARG	NE-CZ-NH1	-5.88	117.36	120.30
1	A	712	PRO	N-CA-C	5.87	127.36	112.10
1	G	596	LYS	CA-CB-CG	5.86	126.28	113.40
1	A	373	ASP	CB-CG-OD1	5.84	123.56	118.30
1	A	498	TYR	CB-CG-CD2	-5.83	117.50	121.00
1	A	64	ARG	NE-CZ-NH1	-5.82	117.39	120.30
1	A	103	ARG	NE-CZ-NH1	-5.82	117.39	120.30
1	G	498	TYR	CB-CG-CD2	-5.81	117.51	121.00
1	H	412	ARG	NE-CZ-NH1	-5.81	117.39	120.30
1	B	33	TRP	CG-CD2-CE3	5.81	139.13	133.90
1	B	103	ARG	NE-CZ-NH1	-5.81	117.40	120.30
1	B	452	TYR	CB-CG-CD2	-5.80	117.52	121.00
1	A	778	ARG	NE-CZ-NH2	5.80	123.20	120.30
1	A	313	GLY	CA-C-N	5.79	129.95	117.20
1	B	926	ARG	NE-CZ-NH2	5.77	123.19	120.30
1	G	603	VAL	N-CA-C	5.75	126.54	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	J	116	ARG	NE-CZ-NH1	-5.75	117.43	120.30
3	K	42	ARG	NE-CZ-NH1	-5.75	117.43	120.30
3	F	13	SER	O-C-N	-5.73	113.53	122.70
1	H	673	ARG	NE-CZ-NH1	-5.73	117.44	120.30
1	A	568	PRO	CA-N-CD	-5.72	103.49	111.50
1	A	795	TRP	CB-CG-CD1	-5.72	119.56	127.00
1	B	269	ARG	NE-CZ-NH2	5.72	123.16	120.30
1	G	640	ARG	NE-CZ-NH2	5.71	123.16	120.30
1	H	673	ARG	N-CA-CB	-5.71	100.32	110.60
3	L	67	ASP	N-CA-C	5.71	126.40	111.00
2	D	57	ARG	NE-CZ-NH2	5.70	123.15	120.30
1	A	505	TRP	CG-CD2-CE3	5.68	139.02	133.90
3	E	118	ARG	NE-CZ-NH1	-5.68	117.46	120.30
3	F	195	GLY	O-C-N	-5.68	113.61	122.70
1	A	431	ARG	NE-CZ-NH2	5.67	123.13	120.30
1	A	773	ARG	NE-CZ-NH2	5.67	123.13	120.30
1	H	673	ARG	NE-CZ-NH2	5.67	123.14	120.30
1	H	767	ARG	NE-CZ-NH1	-5.64	117.48	120.30
1	B	210	LYS	O-C-N	-5.63	113.69	122.70
3	E	195	GLY	O-C-N	-5.63	113.69	122.70
1	H	565	PRO	CA-N-CD	-5.63	103.62	111.50
1	G	505	TRP	CG-CD2-CE3	5.61	138.95	133.90
1	H	830	TRP	CG-CD2-CE3	5.58	138.92	133.90
1	H	598	PRO	N-CA-C	5.57	126.59	112.10
1	G	820	ARG	NE-CZ-NH1	-5.57	117.51	120.30
1	H	33	TRP	CG-CD2-CE3	5.57	138.91	133.90
1	A	871	ARG	NE-CZ-NH1	-5.56	117.52	120.30
1	G	33	TRP	CB-CG-CD1	-5.56	119.77	127.00
1	G	142	ARG	NE-CZ-NH2	5.56	123.08	120.30
1	B	12	TYR	CB-CG-CD1	5.55	124.33	121.00
1	G	887	ASP	CB-CG-OD1	5.55	123.30	118.30
1	H	830	TRP	CB-CG-CD1	-5.55	119.78	127.00
1	H	724	TYR	CB-CG-CD2	-5.54	117.68	121.00
1	B	872	LYS	CB-CG-CD	5.52	125.96	111.60
2	C	21	TRP	CG-CD1-NE1	-5.52	104.58	110.10
2	C	21	TRP	CG-CD2-CE3	5.51	138.85	133.90
3	F	195	GLY	CA-C-N	5.51	129.32	117.20
1	H	141	ARG	NE-CZ-NH2	5.49	123.04	120.30
1	A	375	THR	CA-C-N	5.48	129.25	117.20
1	G	505	TRP	CG-CD1-NE1	-5.48	104.62	110.10
1	G	788	TRP	CG-CD1-NE1	-5.47	104.63	110.10
3	E	154	TRP	CG-CD1-NE1	-5.44	104.66	110.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	828	TRP	CG-CD2-CE3	5.44	138.80	133.90
1	A	809	ARG	NE-CZ-NH2	5.43	123.01	120.30
3	L	31	PRO	O-C-N	-5.42	114.02	122.70
2	D	13	ARG	NE-CZ-NH1	-5.42	117.59	120.30
1	G	313	GLY	CA-C-N	5.41	129.10	117.20
1	H	659	ARG	NE-CZ-NH2	5.41	123.00	120.30
3	E	154	TRP	CG-CD2-CE3	5.40	138.76	133.90
2	I	139	TYR	CB-CG-CD2	-5.40	117.76	121.00
1	B	565	PRO	CA-N-CD	-5.39	103.95	111.50
1	H	137	TYR	CB-CG-CD2	-5.39	117.77	121.00
1	B	280	TYR	CB-CG-CD2	-5.38	117.77	121.00
2	I	21	TRP	CB-CG-CD1	-5.37	120.02	127.00
1	G	64	ARG	NE-CZ-NH2	5.37	122.99	120.30
2	D	37	ARG	NE-CZ-NH1	-5.37	117.61	120.30
1	G	786	VAL	CA-CB-CG2	5.36	118.93	110.90
3	L	17	SER	N-CA-C	5.34	125.43	111.00
1	A	505	TRP	CG-CD1-NE1	-5.33	104.77	110.10
1	H	439	ARG	NE-CZ-NH2	5.33	122.96	120.30
1	B	637	GLY	CA-C-N	5.32	126.85	116.20
3	E	154	TRP	CB-CG-CD1	-5.32	120.08	127.00
1	H	140	ARG	NE-CZ-NH1	-5.32	117.64	120.30
1	A	505	TRP	CB-CG-CD1	-5.30	120.11	127.00
1	A	189	TYR	CB-CG-CD1	-5.30	117.82	121.00
1	A	360	LYS	O-C-N	-5.30	114.22	122.70
1	G	327	ARG	NE-CZ-NH1	-5.30	117.65	120.30
1	B	830	TRP	CB-CG-CD1	-5.29	120.12	127.00
1	H	809	ARG	NE-CZ-NH1	-5.29	117.65	120.30
3	F	67	ASP	N-CA-C	5.28	125.27	111.00
1	G	597	ASP	N-CA-C	5.28	125.27	111.00
3	L	17	SER	O-C-N	-5.28	114.26	122.70
3	L	154	TRP	CG-CD2-CE3	5.27	138.64	133.90
1	A	207	LYS	N-CA-CB	5.27	120.08	110.60
1	A	367	GLU	C-N-CA	5.27	134.87	121.70
1	A	640	ARG	NE-CZ-NH2	5.26	122.93	120.30
1	G	431	ARG	NE-CZ-NH2	5.25	122.93	120.30
1	B	210	LYS	CA-C-N	5.25	128.75	117.20
1	G	596	LYS	N-CA-CB	-5.24	101.17	110.60
1	H	19	ARG	NE-CZ-NH1	-5.24	117.68	120.30
3	L	154	TRP	CG-CD1-NE1	-5.24	104.86	110.10
1	A	591	TRP	CG-CD1-NE1	-5.24	104.86	110.10
1	H	86	SER	N-CA-C	5.22	125.09	111.00
1	G	773	ARG	NE-CZ-NH2	5.21	122.91	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	16	LYS	O-C-N	-5.20	114.38	122.70
1	B	637	GLY	O-C-N	-5.20	114.36	123.20
2	C	21	TRP	CB-CG-CD1	-5.20	120.24	127.00
1	H	637	GLY	CA-C-N	5.20	126.60	116.20
1	H	771	LEU	CA-CB-CG	5.20	127.25	115.30
1	G	820	ARG	NE-CZ-NH2	5.19	122.90	120.30
2	I	156	LYS	CB-CG-CD	-5.19	98.11	111.60
1	H	453	PHE	N-CA-C	5.18	124.98	111.00
3	L	39	ARG	NE-CZ-NH2	5.16	122.88	120.30
2	I	21	TRP	CG-CD2-CE3	5.15	138.54	133.90
1	B	828	TRP	CG-CD1-NE1	-5.14	104.95	110.10
1	A	450	ARG	NE-CZ-NH2	5.14	122.87	120.30
1	B	164	ARG	NE-CZ-NH2	5.14	122.87	120.30
1	A	795	TRP	CG-CD2-CE3	5.13	138.52	133.90
1	H	28	GLY	O-C-N	-5.12	114.51	122.70
1	H	234	ARG	NE-CZ-NH2	5.11	122.86	120.30
1	A	788	TRP	CG-CD1-NE1	-5.10	105.00	110.10
1	B	146	PRO	N-CA-CB	-5.10	96.99	102.60
1	G	422	GLY	O-C-N	-5.10	114.53	123.20
1	G	659	ARG	NE-CZ-NH2	5.09	122.84	120.30
2	I	21	TRP	CG-CD1-NE1	-5.09	105.01	110.10
1	A	365	PRO	CA-CB-CG	-5.09	94.33	104.00
1	G	246	ARG	NE-CZ-NH2	5.08	122.84	120.30
1	A	142	ARG	NE-CZ-NH1	-5.08	117.76	120.30
1	B	132	ARG	NE-CZ-NH1	-5.08	117.76	120.30
1	A	33	TRP	CB-CG-CD1	-5.07	120.41	127.00
1	A	596	LYS	N-CA-CB	-5.07	101.48	110.60
3	F	154	TRP	CG-CD2-CE3	5.06	138.46	133.90
1	A	364	ARG	CA-C-N	5.06	131.26	117.10
1	B	870	VAL	CA-C-N	5.05	128.32	117.20
1	G	591	TRP	CG-CD1-NE1	-5.05	105.05	110.10
1	H	619	PHE	N-CA-C	5.05	124.64	111.00
1	H	828	TRP	CG-CD1-NE1	-5.05	105.05	110.10
1	H	505	TRP	CG-CD2-CE3	5.05	138.44	133.90
1	B	149	LEU	N-CA-C	5.04	124.60	111.00
1	G	137	TYR	CB-CG-CD2	-5.04	117.98	121.00
1	B	141	ARG	NE-CZ-NH2	5.03	122.81	120.30
3	F	118	ARG	NE-CZ-NH1	-5.03	117.79	120.30
1	B	830	TRP	CG-CD1-NE1	-5.01	105.09	110.10
1	B	505	TRP	CG-CD2-CE3	5.01	138.41	133.90
1	A	140	ARG	NE-CZ-NH2	5.01	122.81	120.30
2	J	139	TYR	CB-CG-CD1	-5.00	118.00	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	367	GLU	C-N-CA	5.00	134.21	121.70

There are no chirality outliers.

All (116) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	110	TYR	Sidechain
1	A	142	ARG	Sidechain
1	A	157	TYR	Sidechain
1	A	190	TYR	Sidechain
1	A	269	ARG	Sidechain
1	A	272	SER	Peptide
1	A	280	TYR	Sidechain
1	A	307	TYR	Sidechain,Peptide
1	A	310	VAL	Peptide
1	A	361	PHE	Sidechain
1	A	363	GLN	Sidechain,Peptide,Mainchain
1	A	364	ARG	Sidechain
1	A	366	ARG	Sidechain,Peptide
1	A	393	TYR	Sidechain
1	A	41	TYR	Sidechain
1	A	410	GLN	Peptide
1	A	412	ARG	Sidechain
1	A	418	SER	Peptide
1	A	567	LYS	Peptide
1	A	586	TYR	Sidechain
1	A	64	ARG	Sidechain
1	A	640	ARG	Sidechain
1	A	708	ARG	Sidechain
1	A	724	TYR	Sidechain
1	A	757	TYR	Sidechain
1	A	796	TYR	Sidechain
1	A	831	TYR	Sidechain
1	A	871	ARG	Sidechain
1	B	103	ARG	Sidechain
1	B	190	TYR	Sidechain
1	B	26	TYR	Sidechain
1	B	278	ARG	Sidechain
1	B	366	ARG	Sidechain
1	B	41	TYR	Sidechain
1	B	419	TYR	Sidechain
1	B	450	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	B	526	GLY	Peptide
1	B	621	ASP	Peptide
1	B	627	ALA	Peptide
1	B	639	GLY	Peptide
1	B	645	SER	Peptide
1	B	654	ARG	Sidechain
1	B	659	ARG	Sidechain
1	B	673	ARG	Sidechain
1	B	708	ARG	Sidechain
1	B	714	ARG	Sidechain
1	B	867	GLU	Peptide
1	B	941	ARG	Sidechain
2	D	111	LEU	Peptide
3	E	80	ARG	Sidechain
3	F	113	THR	Peptide
3	F	80	ARG	Sidechain
3	F	9	LYS	Peptide
1	G	10	TYR	Sidechain
1	G	123	TYR	Sidechain
1	G	157	TYR	Sidechain
1	G	164	ARG	Sidechain
1	G	190	TYR	Sidechain
1	G	272	SER	Peptide
1	G	273	GLN	Peptide
1	G	305	TYR	Sidechain,Peptide
1	G	307	TYR	Sidechain
1	G	347	TYR	Sidechain
1	G	366	ARG	Peptide
1	G	41	TYR	Sidechain
1	G	410	GLN	Peptide
1	G	418	SER	Peptide
1	G	452	TYR	Sidechain
1	G	586	TYR	Sidechain
1	G	64	ARG	Sidechain
1	G	640	ARG	Sidechain
1	G	654	ARG	Sidechain
1	G	724	TYR	Sidechain
1	G	757	TYR	Sidechain
1	G	817	ARG	Sidechain
1	G	831	TYR	Sidechain
1	G	926	ARG	Sidechain
1	H	110	TYR	Sidechain

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Mol	Chain	Res	Type	Group
1	H	112	TYR	Sidechain
1	H	140	ARG	Sidechain
1	H	142	ARG	Sidechain
1	H	164	ARG	Sidechain
1	H	26	TYR	Sidechain
1	H	278	ARG	Sidechain
1	H	347	TYR	Sidechain
1	H	419	TYR	Sidechain
1	H	462	PHE	Sidechain
1	H	571	GLN	Peptide
1	H	621	ASP	Peptide
1	H	627	ALA	Peptide
1	H	647	GLN	Peptide
1	H	654	ARG	Sidechain
1	H	673	ARG	Sidechain
1	H	767	ARG	Sidechain
1	H	79	TYR	Sidechain
1	H	941	ARG	Sidechain
2	I	93	TYR	Sidechain
2	J	111	LEU	Peptide
2	J	116	ARG	Sidechain
2	J	13	ARG	Sidechain
2	J	136	PHE	Peptide
3	K	38	ARG	Sidechain
3	K	80	ARG	Sidechain
3	L	113	THR	Peptide
3	L	29	PRO	Peptide
3	L	30	PRO	Mainchain
3	L	31	PRO	Peptide
3	L	32	LYS	Peptide,Mainchain
3	L	39	ARG	Peptide
3	L	80	ARG	Sidechain

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	7721	0	7778	123	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	7739	0	7799	165	0
1	G	7721	0	7778	108	0
1	H	7739	0	7799	130	0
2	C	1233	0	1227	9	0
2	D	1233	0	1227	9	0
2	I	1233	0	1227	10	0
2	J	1233	0	1227	14	0
3	E	1529	0	1491	27	0
3	F	1529	0	1491	28	0
3	K	1529	0	1491	23	0
3	L	1529	0	1491	47	0
All	All	41968	0	42026	606	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 7.

All (606) 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:B:641:LYS:HE3	1:B:642:LYS:NZ	1.21	1.52
1:B:641:LYS:CE	1:B:642:LYS:NZ	2.16	1.08
1:A:364:ARG:HA	3:L:31:PRO:HG2	1.42	1.00
1:B:641:LYS:CE	1:B:642:LYS:HZ1	1.70	0.99
1:A:364:ARG:HA	3:L:31:PRO:CG	1.95	0.94
1:A:449:LYS:HD3	1:B:405:ASN:OD1	1.72	0.90
1:B:641:LYS:HE3	1:B:642:LYS:HZ2	1.07	0.90
1:B:635:LYS:HE3	1:B:904:GLU:HA	1.55	0.87
1:H:175:SER:HB2	1:H:463:GLU:HA	1.56	0.87
1:B:641:LYS:HE3	1:B:642:LYS:HZ1	1.01	0.80
1:A:369:GLN:HA	1:A:417:VAL:HG21	1.64	0.80
1:A:500:ARG:HG3	1:B:366:ARG:HB2	1.64	0.79
1:B:174:GLU:HB3	1:B:676:ILE:HD12	1.65	0.79
3:L:22:GLY:HA3	3:L:94:GLU:HG3	1.66	0.78
1:H:135:GLN:HG3	1:H:199:LYS:HE3	1.66	0.77
2:I:100:THR:HB	2:I:136:PHE:HB3	1.65	0.77
3:F:173:ASP:HB3	3:F:178:ILE:HG13	1.66	0.77
1:B:267:LYS:HD3	1:B:430:ASP:HB2	1.67	0.77
1:A:58:ILE:HB	1:A:61:GLN:HB2	1.68	0.76
1:A:833:LEU:HA	3:E:192:GLU:HG3	1.68	0.76
3:L:97:SER:HA	3:L:100:ALA:HB2	1.68	0.76
1:A:206:THR:HB	1:A:207:LYS:HB2	1.67	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:641:LYS:HE3	1:B:642:LYS:CE	2.17	0.75
3:E:51:PHE:HB3	3:E:56:VAL:HG21	1.67	0.75
1:G:58:ILE:HB	1:G:61:GLN:HB2	1.69	0.74
3:L:130:ASN:HA	3:L:133:ASN:HB3	1.69	0.74
3:E:192:GLU:HG2	3:E:193:GLU:HA	1.70	0.74
1:B:642:LYS:HE2	1:B:903:GLU:OE1	1.87	0.73
3:L:173:ASP:HB3	3:L:178:ILE:HG13	1.68	0.73
1:A:879:VAL:HG12	1:B:450:ARG:HB2	1.69	0.73
1:H:561:VAL:HB	1:H:576:SER:HB2	1.71	0.72
1:G:833:LEU:HA	3:K:192:GLU:HG3	1.73	0.70
2:I:101:MET:SD	2:I:139:TYR:HB3	2.31	0.70
1:B:902:VAL:HA	1:B:905:ARG:HB2	1.73	0.70
1:H:431:ARG:NH2	1:H:619:PHE:HA	2.07	0.70
2:J:26:LYS:HD2	2:J:61:LYS:HD3	1.73	0.69
1:A:449:LYS:HA	1:A:449:LYS:HE2	1.73	0.69
1:A:271:ILE:HD12	1:A:419:TYR:HA	1.75	0.69
1:G:716:VAL:HG12	1:G:763:LYS:HE2	1.75	0.69
1:H:597:ASP:HB3	1:H:646:PHE:HD2	1.58	0.68
1:B:7:PRO:HA	1:B:12:TYR:HE2	1.58	0.68
3:F:117:ASP:HA	3:F:120:ALA:HB3	1.76	0.67
1:B:13:ILE:HB	1:B:108:LEU:HD22	1.77	0.67
1:B:541:THR:HA	1:B:592:LEU:HD11	1.77	0.67
1:B:641:LYS:CE	1:B:642:LYS:HZ2	1.95	0.67
1:A:37:GLU:HB2	1:A:38:LYS:HD3	1.77	0.67
1:G:779:ASP:HA	1:G:782:LEU:HB2	1.77	0.67
1:A:34:VAL:HG11	1:A:58:ILE:HD12	1.75	0.67
1:G:367:GLU:HB2	1:G:369:GLN:H	1.61	0.66
1:A:309:PHE:HB2	3:L:18:GLU:HG3	1.77	0.66
1:A:772:GLY:HA2	1:A:775:GLU:HG3	1.78	0.65
1:B:175:SER:HB2	1:B:463:GLU:HA	1.76	0.65
1:A:364:ARG:HD2	1:A:371:GLU:H	1.62	0.65
3:K:51:PHE:HB2	3:L:61:GLU:HG2	1.79	0.65
1:H:244:PHE:O	1:H:260:ILE:HA	1.97	0.65
1:A:539:LYS:HD2	2:J:3:ASP:HB2	1.78	0.64
1:A:366:ARG:HA	3:L:39:ARG:HB2	1.78	0.64
1:B:716:VAL:HG13	1:B:718:PRO:HD2	1.79	0.64
1:B:431:ARG:NH2	1:B:619:PHE:HA	2.13	0.64
1:B:388:ASN:HB3	1:B:391:ASP:HB2	1.80	0.64
1:B:423:GLY:HA2	1:B:426:LYS:HE2	1.79	0.64
1:G:645:SER:HB3	1:G:647:GLN:HG3	1.80	0.64
1:A:100:LEU:HB3	1:A:120:ILE:HD11	1.78	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:743:THR:HA	1:B:746:VAL:HG22	1.81	0.63
1:B:635:LYS:HB3	1:B:642:LYS:CD	2.28	0.62
1:B:97:LEU:HD11	1:B:692:MET:HA	1.81	0.62
1:A:712:PRO:HD2	1:A:767:ARG:HA	1.81	0.62
1:G:500:ARG:HG3	1:H:366:ARG:HB2	1.81	0.62
1:A:364:ARG:HA	3:L:31:PRO:HG3	1.80	0.62
2:D:34:ASP:HA	2:D:37:ARG:HD2	1.81	0.62
1:G:34:VAL:HG11	1:G:58:ILE:HD12	1.82	0.62
1:A:762:THR:HG21	1:B:371:GLU:HB3	1.81	0.62
1:H:131:ASN:O	1:H:135:GLN:HB2	2.00	0.62
1:H:356:LEU:HD22	1:H:425:ALA:HB2	1.82	0.62
1:B:635:LYS:HB3	1:B:642:LYS:HD3	1.80	0.61
1:B:833:LEU:HD23	3:F:192:GLU:HG2	1.82	0.61
1:B:904:GLU:O	1:B:908:LYS:HB2	2.01	0.61
1:H:231:LYS:HB3	1:H:278:ARG:H	1.66	0.61
1:H:231:LYS:HG3	1:H:236:ASP:HA	1.83	0.61
1:A:399:PRO:O	1:A:409:THR:HA	2.01	0.61
1:G:166:ASN:ND2	1:G:667:THR:HG22	2.16	0.61
1:H:13:ILE:HB	1:H:108:LEU:HD22	1.83	0.60
1:H:171:ILE:HG12	1:H:672:VAL:HB	1.82	0.60
1:G:884:GLU:HA	1:G:887:ASP:HB2	1.82	0.60
1:G:309:PHE:HB2	1:G:362:LYS:HE3	1.84	0.60
1:H:211:ALA:HB3	1:H:214:GLU:HG2	1.82	0.60
3:E:109:THR:HG23	3:F:70:LYS:HD3	1.84	0.60
1:G:46:ILE:HG23	1:G:54:CYS:SG	2.41	0.60
1:B:431:ARG:HH22	1:B:619:PHE:HA	1.66	0.60
3:L:69:ASP:HB2	3:L:73:PHE:HB2	1.83	0.60
1:B:481:LYS:HD3	1:B:520:LEU:HA	1.84	0.60
1:G:785:ILE:HG23	1:G:786:VAL:HG23	1.83	0.60
1:G:37:GLU:HB2	1:G:38:LYS:HD3	1.82	0.59
1:H:84:ASP:HA	1:H:112:TYR:HB2	1.84	0.59
1:B:84:ASP:HA	1:B:112:TYR:HB2	1.84	0.59
1:B:142:ARG:HG2	1:B:145:VAL:HB	1.85	0.59
1:B:640:ARG:NH1	1:B:896:ARG:HG3	2.17	0.59
1:G:791:ALA:HB2	2:I:44:THR:HG22	1.85	0.59
1:H:498:TYR:HB3	1:H:503:ILE:HG12	1.83	0.59
1:H:743:THR:HA	1:H:746:VAL:HG22	1.83	0.59
1:A:256:ALA:HB1	1:A:447:LYS:HG3	1.84	0.58
1:G:287:MET:SD	1:G:360:LYS:HE2	2.43	0.58
1:H:141:ARG:NH1	1:H:776:GLU:HA	2.18	0.58
1:B:493:LEU:HA	1:B:496:GLU:HB2	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:114:GLY:HA2	1:H:712:PRO:HG3	1.85	0.58
1:A:109:ILE:HG21	1:A:122:PRO:HD3	1.86	0.58
1:A:884:GLU:HA	1:A:887:ASP:HB2	1.86	0.58
2:I:131:GLU:HG2	2:I:137:LEU:HD11	1.85	0.58
1:G:118:VAL:HG12	1:G:673:ARG:HB3	1.85	0.58
1:G:243:LYS:HB3	1:G:458:ASP:HB3	1.84	0.58
1:G:713:ASN:HB2	1:G:766:PHE:HB2	1.85	0.58
1:H:635:LYS:HB2	1:H:643:GLY:H	1.69	0.58
1:A:923:LEU:HD23	1:A:926:ARG:HH11	1.69	0.58
1:B:210:LYS:HB3	1:B:211:ALA:HA	1.86	0.58
3:K:20:GLU:HG3	3:K:109:THR:HG21	1.86	0.57
1:A:785:ILE:HG23	1:A:786:VAL:HG23	1.86	0.57
1:B:141:ARG:NH1	1:B:776:GLU:HA	2.19	0.57
1:H:546:GLN:HE22	1:H:575:PHE:HB3	1.69	0.57
3:K:109:THR:HG23	3:L:70:LYS:HD3	1.86	0.57
1:B:157:TYR:HB2	1:B:190:TYR:HE2	1.68	0.57
1:A:308:HIS:HA	3:L:13:SER:HB3	1.86	0.57
1:H:250:GLY:HA2	1:H:450:ARG:HB3	1.86	0.57
1:B:832:LYS:HD3	3:F:191:ALA:HB3	1.86	0.57
1:B:836:LYS:HB3	3:E:46:ASN:HB3	1.86	0.57
1:H:632:GLY:H	1:H:644:ALA:HB2	1.68	0.57
1:B:356:LEU:HD21	1:B:421:VAL:O	2.05	0.57
1:H:356:LEU:HD21	1:H:421:VAL:O	2.05	0.57
1:H:267:LYS:HD3	1:H:430:ASP:HB2	1.88	0.56
1:H:423:GLY:HA2	1:H:426:LYS:HE2	1.87	0.56
3:K:192:GLU:HG2	3:K:193:GLU:HA	1.87	0.56
1:B:168:SER:OG	1:B:669:PRO:HA	2.06	0.56
1:H:726:ILE:HG12	1:H:785:ILE:HB	1.86	0.56
1:B:231:LYS:HG3	1:B:236:ASP:HA	1.87	0.56
3:E:30:PRO:HB3	3:E:37:LYS:HD3	1.87	0.56
1:B:864:LEU:O	1:B:868:GLU:HG2	2.06	0.56
1:H:541:THR:HA	1:H:592:LEU:HD11	1.88	0.56
3:K:41:GLN:HG2	3:L:194:GLU:HG3	1.88	0.56
3:F:132:PHE:HB3	3:F:142:CYS:SG	2.45	0.55
1:H:457:LEU:HD23	1:H:482:LEU:HD13	1.88	0.55
1:A:906:LEU:HD13	1:B:906:LEU:HA	1.87	0.55
1:H:295:LYS:HA	1:H:300:LEU:HD12	1.87	0.55
1:H:480:GLU:HG2	1:H:518:ILE:HG12	1.87	0.55
1:B:871:ARG:HB3	1:B:872:LYS:HD3	1.89	0.55
1:G:743:THR:HA	1:G:746:VAL:HG12	1.88	0.55
1:A:832:LYS:O	3:E:192:GLU:HA	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:642:LYS:CE	1:B:903:GLU:OE1	2.55	0.55
1:H:138:LYS:HA	1:H:193:VAL:HG13	1.89	0.55
1:B:91:LEU:HD23	1:B:705:ARG:HG2	1.89	0.55
1:G:712:PRO:HD2	1:G:767:ARG:HA	1.89	0.55
1:B:219:GLN:HB3	1:B:332:ALA:HB1	1.89	0.54
2:D:140:GLU:HB3	2:D:141:PRO:HD3	1.87	0.54
1:A:570:GLN:HE21	2:J:26:LYS:HG3	1.71	0.54
1:B:83:GLU:HG3	1:B:84:ASP:H	1.72	0.54
1:H:542:ASP:HB3	1:H:588:ILE:HG22	1.89	0.54
1:A:874:ILE:HD12	1:B:871:ARG:HD2	1.90	0.54
1:B:740:LYS:O	1:B:743:THR:HG22	2.07	0.54
1:B:868:GLU:HG3	1:B:869:LYS:HD2	1.90	0.54
1:A:118:VAL:HA	1:A:673:ARG:O	2.07	0.54
1:A:593:GLU:HG2	1:A:598:PRO:HB3	1.89	0.54
1:H:231:LYS:HB3	1:H:278:ARG:HB2	1.89	0.54
1:G:134:VAL:HG13	1:G:189:TYR:HE1	1.73	0.54
1:B:635:LYS:CE	1:B:904:GLU:HA	2.34	0.54
1:H:732:VAL:HG11	1:H:742:VAL:HG23	1.89	0.54
1:A:33:TRP:HB2	1:A:72:GLN:HB2	1.90	0.54
1:A:711:PHE:HB3	1:A:765:PHE:HB3	1.89	0.54
1:G:451:GLN:HB3	1:G:452:TYR:HA	1.90	0.54
1:B:146:PRO:HB2	1:B:147:PRO:HD2	1.91	0.53
1:B:811:ALA:HA	3:F:127:VAL:HG13	1.91	0.53
1:A:134:VAL:HG13	1:A:189:TYR:HE1	1.73	0.53
1:B:673:ARG:HH21	1:B:673:ARG:HB3	1.72	0.53
1:G:100:LEU:HB3	1:G:120:ILE:HD11	1.90	0.53
1:H:832:LYS:HD3	3:L:191:ALA:HB3	1.90	0.53
3:E:74:ILE:HG23	3:E:78:ASP:HB2	1.91	0.53
3:K:74:ILE:HG23	3:K:78:ASP:HB2	1.91	0.53
1:A:599:VAL:HG11	1:A:604:VAL:HG23	1.91	0.53
1:B:732:VAL:HG11	1:B:742:VAL:HG23	1.89	0.53
1:G:256:ALA:HB1	1:G:447:LYS:HG3	1.91	0.53
1:G:951:LEU:HD11	1:H:952:LYS:HE3	1.90	0.53
1:H:747:LEU:HB3	1:H:752:LEU:HD23	1.90	0.53
2:I:94:ASP:HB2	2:I:139:TYR:HE2	1.73	0.53
3:L:58:GLU:HA	3:L:61:GLU:HB2	1.91	0.52
1:G:599:VAL:HG22	1:G:603:VAL:HG23	1.91	0.52
1:H:15:MET:SD	1:H:82:CYS:HA	2.50	0.52
1:H:157:TYR:HB2	1:H:190:TYR:HE2	1.74	0.52
3:K:51:PHE:HB3	3:K:56:VAL:HG21	1.91	0.52
1:G:245:ILE:HG23	1:G:260:ILE:HG12	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:354:MET:SD	1:G:358:GLU:HG3	2.49	0.52
1:A:721:LYS:NZ	1:B:379:GLU:OE1	2.34	0.52
1:H:330:ASP:CG	1:H:343:LYS:HZ1	2.12	0.52
1:A:837:VAL:HG21	3:E:86:LEU:HA	1.91	0.52
1:B:154:ASP:HA	1:B:189:TYR:CZ	2.45	0.52
1:H:265:LEU:HD23	1:H:430:ASP:HA	1.91	0.52
1:G:422:GLY:HA2	1:G:425:ALA:H	1.75	0.52
3:L:132:PHE:HB3	3:L:142:CYS:SG	2.49	0.52
1:G:84:ASP:HB3	1:G:87:ASN:HD22	1.74	0.52
1:H:54:CYS:SG	1:H:56:VAL:HG23	2.49	0.52
1:H:356:LEU:HD11	1:H:424:LEU:HB3	1.91	0.52
1:H:677:PRO:HB2	1:H:686:ILE:HA	1.92	0.52
2:J:27:ILE:HG13	2:J:62:LEU:HB2	1.91	0.52
1:B:175:SER:HB3	1:B:234:ARG:NH2	2.24	0.51
1:B:169:MET:HB3	1:B:456:VAL:HG22	1.92	0.51
1:H:167:GLN:NE2	1:H:668:GLN:HB3	2.25	0.51
1:H:166:ASN:HB3	1:H:667:THR:HG22	1.93	0.51
1:B:271:ILE:HA	1:B:309:PHE:CE1	2.46	0.51
1:H:119:ALA:O	1:H:674:CYS:HA	2.10	0.51
1:H:145:VAL:HG12	1:H:151:ALA:HB2	1.93	0.51
1:H:146:PRO:HB2	1:H:147:PRO:HD2	1.92	0.51
1:H:724:TYR:HE2	1:H:747:LEU:HD23	1.74	0.51
1:B:5:PRO:HG3	1:B:769:GLY:HA2	1.92	0.51
2:D:41:CYS:O	2:D:43:PRO:HD3	2.10	0.51
1:B:138:LYS:HA	1:B:193:VAL:HG13	1.93	0.51
1:B:930:GLU:HA	1:B:933:ALA:HB3	1.91	0.51
1:H:283:PHE:HB3	1:H:354:MET:SD	2.51	0.51
1:H:144:GLU:O	1:H:146:PRO:HD3	2.11	0.50
1:H:237:ASN:OD1	1:H:281:HIS:HE1	1.94	0.50
3:F:69:ASP:HB2	3:F:73:PHE:HB2	1.94	0.50
1:H:493:LEU:HA	1:H:496:GLU:HB2	1.93	0.50
1:A:55:THR:HA	1:A:65:GLN:HA	1.93	0.50
1:A:309:PHE:CE2	3:L:31:PRO:N	2.80	0.50
1:A:830:TRP:HA	3:E:195:GLY:HA3	1.94	0.50
1:B:726:ILE:HG12	1:B:785:ILE:HB	1.93	0.50
2:C:48:VAL:HG12	2:C:53:GLY:HA3	1.93	0.50
1:H:521:ILE:HB	1:H:524:PRO:HD2	1.94	0.50
2:J:140:GLU:HB3	2:J:141:PRO:HD3	1.93	0.50
3:L:6:LYS:HD3	3:L:9:LYS:O	2.11	0.50
1:G:435:TRP:O	1:G:439:ARG:HG2	2.12	0.50
1:H:240:ARG:HB3	1:H:266:GLU:HB2	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:278:ARG:HD2	1:B:315:ILE:O	2.12	0.50
1:A:170:LEU:HD13	1:A:482:LEU:HD11	1.94	0.50
1:G:883:GLN:OE1	1:H:450:ARG:HG3	2.12	0.50
3:L:59:PHE:O	3:L:63:PHE:HB2	2.11	0.50
1:A:892:LEU:HD22	1:A:896:ARG:HH22	1.76	0.49
1:H:169:MET:O	1:H:456:VAL:HA	2.11	0.49
3:L:92:GLU:HA	3:L:95:LEU:HG	1.93	0.49
1:G:795:TRP:HZ3	2:I:40:ASP:HA	1.77	0.49
1:A:875:GLU:O	1:A:879:VAL:HG23	2.13	0.49
1:B:497:GLU:HG2	1:B:668:GLN:HG3	1.94	0.49
1:B:636:GLY:H	1:B:643:GLY:HA3	1.78	0.49
1:G:310:VAL:HB	1:G:311:SER:HA	1.94	0.49
1:A:690:LEU:O	1:A:694:GLN:HG3	2.12	0.49
1:B:635:LYS:HE3	1:B:904:GLU:CA	2.34	0.49
3:F:22:GLY:HA3	3:F:94:GLU:HG2	1.94	0.49
1:H:167:GLN:HE22	1:H:668:GLN:HB3	1.78	0.49
1:H:721:LYS:HB3	2:J:92:VAL:HG12	1.95	0.49
2:J:68:LEU:HB2	2:J:69:PRO:HD3	1.95	0.49
2:I:103:ALA:HB2	2:I:137:LEU:HD13	1.95	0.49
3:E:51:PHE:HB2	3:F:61:GLU:HG2	1.95	0.49
3:F:188:THR:HG22	3:F:189:LYS:H	1.78	0.48
1:G:84:ASP:HB3	1:G:87:ASN:ND2	2.27	0.48
1:A:451:GLN:HB3	1:A:452:TYR:HA	1.95	0.48
1:A:716:VAL:HG21	1:B:390:ALA:HA	1.93	0.48
1:H:97:LEU:HD12	1:H:695:LEU:HD12	1.94	0.48
3:E:67:ASP:O	3:E:70:LYS:NZ	2.47	0.48
1:G:285:GLN:NE2	1:G:326:LEU:HB2	2.27	0.48
1:H:484:GLN:HA	1:H:484:GLN:OE1	2.13	0.48
3:K:67:ASP:O	3:K:70:LYS:NZ	2.46	0.48
1:A:435:TRP:O	1:A:439:ARG:HG2	2.14	0.48
1:B:248:HIS:HA	1:B:452:TYR:O	2.14	0.48
1:H:930:GLU:HA	1:H:933:ALA:HB3	1.95	0.48
1:H:109:ILE:HG23	1:H:120:ILE:O	2.14	0.48
1:H:210:LYS:HB3	1:H:211:ALA:HA	1.95	0.48
1:H:714:ARG:HA	1:H:764:VAL:O	2.13	0.48
1:A:372:ALA:HB3	1:A:377:GLU:HA	1.96	0.48
1:G:221:ASN:HB3	1:G:222:PRO:HD3	1.96	0.48
1:G:863:SER:O	1:G:867:GLU:HG2	2.14	0.48
1:A:134:VAL:HG11	1:A:192:ASN:OD1	2.14	0.48
1:A:461:GLY:HA2	1:A:479:ASN:OD1	2.14	0.48
1:G:588:ILE:O	1:G:591:TRP:HB2	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:171:ILE:HA	1:H:672:VAL:O	2.13	0.48
1:G:109:ILE:HG21	1:G:122:PRO:HD3	1.95	0.47
1:B:419:TYR:OH	1:B:426:LYS:NZ	2.47	0.47
3:E:20:GLU:HG3	3:E:109:THR:HG21	1.95	0.47
1:B:244:PHE:O	1:B:260:ILE:HA	2.14	0.47
3:F:33:PRO:HA	3:F:34:PRO:HD3	1.83	0.47
1:G:119:ALA:O	1:G:674:CYS:HA	2.13	0.47
1:A:232:THR:O	1:A:236:ASP:HA	2.14	0.47
1:A:789:LEU:O	1:A:793:ILE:HG13	2.15	0.47
1:B:356:LEU:HD22	1:B:425:ALA:HB2	1.95	0.47
2:J:136:PHE:O	2:J:138:LYS:NZ	2.43	0.47
1:A:119:ALA:O	1:A:674:CYS:HA	2.14	0.47
1:B:530:ILE:HG12	1:B:548:LYS:HB2	1.95	0.47
1:G:56:VAL:HG22	1:G:64:ARG:O	2.13	0.47
1:H:169:MET:HB3	1:H:456:VAL:HG22	1.96	0.47
1:H:563:PRO:HB2	1:H:566:PRO:HD2	1.95	0.47
1:B:141:ARG:HH12	1:B:779:ASP:CG	2.18	0.47
1:H:817:ARG:NH2	3:L:123:ASP:OD2	2.48	0.47
1:A:55:THR:HG22	1:A:65:GLN:HB3	1.96	0.47
1:B:157:TYR:HA	1:B:160:MET:HG2	1.97	0.47
1:B:711:PHE:HA	1:B:712:PRO:HD3	1.72	0.47
3:F:126:ASP:O	3:F:130:ASN:HB2	2.15	0.47
1:H:894:SER:HA	1:H:897:SER:OG	2.15	0.47
3:K:52:THR:HB	3:K:55:GLN:HE21	1.80	0.47
1:A:662:ALA:O	1:A:665:HIS:HB2	2.15	0.47
1:B:526:GLY:CA	1:B:654:ARG:HD3	2.45	0.47
1:A:353:CYS:SG	1:A:428:MET:SD	3.13	0.47
1:A:420:SER:O	1:A:423:GLY:HA3	2.14	0.47
1:A:867:GLU:OE1	1:B:872:LYS:HD2	2.15	0.47
1:H:278:ARG:HD2	1:H:315:ILE:O	2.15	0.47
1:A:272:SER:HB2	1:A:418:SER:HB2	1.97	0.47
1:G:107:ASN:O	1:G:109:ILE:HG23	2.15	0.47
1:H:141:ARG:HH12	1:H:779:ASP:CG	2.18	0.47
1:B:242:GLY:O	1:B:262:THR:HA	2.15	0.46
1:H:33:TRP:HB2	1:H:72:GLN:HB2	1.96	0.46
2:J:60:LYS:HZ1	2:J:66:GLU:CD	2.18	0.46
1:B:142:ARG:HH11	1:B:151:ALA:HB1	1.80	0.46
1:A:6:ASP:OD1	1:A:7:PRO:HD3	2.14	0.46
1:A:362:LYS:H	3:L:32:LYS:HE3	1.80	0.46
1:B:640:ARG:HH12	1:B:896:ARG:HG3	1.79	0.46
3:F:79:ILE:HG21	3:F:99:VAL:HG22	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:141:LYS:NZ	3:F:173:ASP:O	2.46	0.46
1:G:80:GLU:HG3	1:G:102:GLN:HE22	1.79	0.46
1:H:215:ASP:O	1:H:219:GLN:HG2	2.14	0.46
3:L:79:ILE:HG13	3:L:99:VAL:HG13	1.96	0.46
1:A:571:GLN:HG2	1:A:572:GLU:HB2	1.95	0.46
1:A:836:LYS:HB2	3:E:192:GLU:HB3	1.98	0.46
1:B:7:PRO:HA	1:B:12:TYR:CE2	2.44	0.46
1:B:256:ALA:O	1:B:446:THR:HA	2.15	0.46
3:E:192:GLU:CG	3:E:193:GLU:HA	2.43	0.46
1:G:571:GLN:HG2	1:G:572:GLU:HB2	1.97	0.46
1:H:192:ASN:HA	1:H:197:THR:HG21	1.98	0.46
1:H:845:LYS:HE2	1:H:848:ASP:HB3	1.97	0.46
2:J:83:LEU:HD21	2:J:147:ILE:HG21	1.96	0.46
1:A:575:PHE:HD2	1:A:588:ILE:HD11	1.80	0.46
3:F:30:PRO:HA	3:F:31:PRO:HD2	1.84	0.46
1:A:309:PHE:HD2	3:L:18:GLU:HG3	1.80	0.46
1:A:713:ASN:HB2	1:A:766:PHE:HB2	1.97	0.46
1:H:142:ARG:HD3	1:H:713:ASN:OD1	2.14	0.46
1:B:168:SER:O	1:B:670:HIS:HB2	2.15	0.46
3:F:54:HIS:HB2	3:F:57:GLN:OE1	2.16	0.46
1:H:248:HIS:HA	1:H:452:TYR:O	2.16	0.46
1:H:402:LYS:HE2	1:H:405:ASN:HA	1.97	0.46
2:I:90:LEU:HD22	2:I:139:TYR:HB2	1.98	0.46
1:B:546:GLN:HE22	1:B:575:PHE:HB3	1.80	0.46
1:G:378:GLY:HA2	1:G:381:VAL:HG23	1.97	0.46
3:K:33:PRO:HA	3:K:34:PRO:HD3	1.83	0.46
1:G:164:ARG:O	1:H:400:LYS:HE3	2.16	0.46
1:H:358:GLU:HB2	1:H:377:GLU:HB3	1.97	0.46
1:A:137:TYR:O	1:A:140:ARG:HG2	2.15	0.46
1:A:629:GLU:HB2	1:A:640:ARG:HA	1.98	0.46
1:B:104:TYR:HE2	1:B:686:ILE:HB	1.80	0.46
1:B:231:LYS:HB3	1:B:278:ARG:HB2	1.98	0.46
1:H:103:ARG:HG2	1:H:111:THR:OG1	2.15	0.46
3:K:107:ASN:OD1	3:K:109:THR:HB	2.16	0.46
1:B:168:SER:HA	1:B:455:GLY:O	2.16	0.45
1:B:845:LYS:HE2	1:B:848:ASP:HB3	1.98	0.45
3:E:153:THR:O	3:E:157:LYS:NZ	2.44	0.45
1:G:273:GLN:HG2	1:G:277:GLU:HB2	1.99	0.45
1:G:691:VAL:O	1:G:695:LEU:HG	2.16	0.45
1:H:17:GLN:NE2	1:H:81:LYS:HB2	2.31	0.45
1:H:131:ASN:ND2	1:H:207:LYS:HD3	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:193:GLU:HB2	3:L:194:GLU:H	1.70	0.45
1:G:174:GLU:HB2	1:G:676:ILE:HD11	1.98	0.45
1:B:142:ARG:NH1	1:B:151:ALA:HB1	2.32	0.45
1:B:423:GLY:O	1:B:426:LYS:HG2	2.16	0.45
1:B:701:LEU:HG	1:B:705:ARG:HH21	1.81	0.45
1:B:953:LYS:NZ	1:B:957:ASP:OD2	2.49	0.45
1:G:115:LEU:HD23	1:G:490:MET:SD	2.56	0.45
3:L:90:CYS:SG	3:L:95:LEU:HD23	2.57	0.45
1:B:504:ASP:HB3	1:B:758:ARG:HD2	1.99	0.45
1:B:567:LYS:HB3	1:B:568:PRO:HD3	1.99	0.45
1:G:93:ASP:HB3	1:G:701:LEU:HD22	1.98	0.45
1:H:132:ARG:HB2	1:H:204:ALA:HB1	1.98	0.45
2:C:90:LEU:HD22	2:C:139:TYR:HB2	1.98	0.45
1:G:264:LEU:HD22	1:G:474:CYS:HB2	1.98	0.45
1:A:46:ILE:HG23	1:A:54:CYS:SG	2.57	0.45
1:A:309:PHE:HE2	3:L:31:PRO:HD2	1.82	0.45
1:A:364:ARG:C	3:L:31:PRO:HG2	2.37	0.45
1:G:355:HIS:HB3	1:G:381:VAL:HG22	1.99	0.45
3:K:192:GLU:CG	3:K:193:GLU:HA	2.46	0.45
1:B:141:ARG:NH2	2:D:112:SER:O	2.50	0.45
1:G:891:GLN:HE21	1:G:891:GLN:HA	1.82	0.45
3:K:57:GLN:HB3	3:L:60:LYS:NZ	2.32	0.45
1:A:565:PRO:HA	1:A:566:PRO:HD2	1.86	0.45
1:G:137:TYR:HE2	1:G:151:ALA:HB2	1.82	0.45
1:B:868:GLU:HA	1:B:872:LYS:HG2	1.99	0.45
2:C:37:ARG:HA	2:C:41:CYS:O	2.17	0.45
1:H:953:LYS:NZ	1:H:957:ASP:OD2	2.50	0.45
1:A:375:THR:HA	1:A:377:GLU:HG3	1.99	0.44
1:A:947:GLU:HB3	1:B:948:ILE:HD11	2.00	0.44
1:B:817:ARG:NH2	3:F:123:ASP:OD2	2.50	0.44
1:G:91:LEU:HD13	1:G:705:ARG:HG2	1.98	0.44
1:G:420:SER:O	1:G:423:GLY:HA3	2.18	0.44
1:H:119:ALA:HB3	1:H:674:CYS:SG	2.57	0.44
1:H:167:GLN:O	1:H:454:ILE:HA	2.17	0.44
1:B:142:ARG:HD3	1:B:713:ASN:OD1	2.17	0.44
1:B:522:GLU:OE2	1:B:658:ASN:HB2	2.18	0.44
1:H:647:GLN:OE1	1:H:648:THR:HA	2.17	0.44
1:H:702:GLU:HG3	1:H:705:ARG:NH1	2.33	0.44
1:A:561:VAL:HB	1:A:576:SER:HB2	1.99	0.44
1:A:367:GLU:HB3	1:A:368:GLU:HB2	1.99	0.44
1:G:367:GLU:HB3	1:G:368:GLU:HB2	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:422:GLY:O	1:G:426:LYS:HB2	2.18	0.44
1:G:832:LYS:O	3:K:192:GLU:HA	2.17	0.44
1:G:901:ASP:HB3	1:H:523:LYS:HD3	2.00	0.44
1:A:795:TRP:HA	2:C:37:ARG:HD3	1.99	0.44
1:B:790:GLN:O	1:B:794:ARG:HG2	2.18	0.44
3:F:11:LYS:HE3	3:F:11:LYS:HB2	1.81	0.44
1:G:837:VAL:HG21	3:K:86:LEU:HA	1.99	0.44
1:B:495:GLN:HA	1:B:498:TYR:CD1	2.53	0.44
1:B:926:ARG:HG2	1:B:929:ARG:HD2	1.98	0.44
3:F:66:ILE:HG23	3:F:82:THR:HG21	1.99	0.44
1:H:246:ARG:O	1:H:258:ALA:HA	2.18	0.44
1:H:601:ASP:HB3	1:H:629:GLU:HG2	2.00	0.44
1:A:468:ASN:HB2	1:A:585:PRO:O	2.18	0.44
1:B:521:ILE:HB	1:B:524:PRO:HD2	1.99	0.44
2:C:138:LYS:O	2:C:141:PRO:HD2	2.17	0.44
1:G:222:PRO:HA	1:G:225:GLU:HB2	2.00	0.44
1:G:682:GLN:HA	1:G:683:PRO:HD2	1.90	0.44
1:G:815:ILE:HD11	3:K:183:PHE:HE1	1.81	0.44
1:A:716:VAL:HG12	1:A:763:LYS:HE2	2.00	0.44
1:A:757:TYR:HB3	1:A:770:VAL:HG11	2.00	0.44
1:B:563:PRO:HB2	1:B:566:PRO:HD2	2.00	0.44
1:B:868:GLU:CA	1:B:872:LYS:HG2	2.48	0.44
1:G:232:THR:OG1	1:G:238:SER:HB3	2.17	0.44
1:A:134:VAL:HG13	1:A:189:TYR:CE1	2.51	0.44
1:A:832:LYS:HB3	3:E:191:ALA:O	2.18	0.44
1:B:714:ARG:HA	1:B:764:VAL:O	2.18	0.44
1:B:836:LYS:HD2	1:B:836:LYS:O	2.18	0.44
1:G:561:VAL:HB	1:G:576:SER:HB2	2.00	0.44
1:H:141:ARG:HH11	1:H:776:GLU:HA	1.83	0.44
3:L:11:LYS:HB2	3:L:11:LYS:HE3	1.75	0.44
1:B:488:HIS:O	1:B:492:VAL:HB	2.18	0.43
1:G:830:TRP:HA	3:K:195:GLY:HA3	1.98	0.43
1:H:159:ALA:HB2	1:H:714:ARG:O	2.18	0.43
1:H:400:LYS:HA	1:H:400:LYS:HD3	1.84	0.43
1:A:268:ALA:N	1:A:269:ARG:HB2	2.34	0.43
1:B:246:ARG:HA	1:B:454:ILE:O	2.17	0.43
1:B:723:ARG:HD2	2:D:112:SER:HB2	2.00	0.43
1:G:717:TYR:CE1	1:G:764:VAL:HB	2.53	0.43
1:H:668:GLN:OE1	1:H:763:LYS:NZ	2.51	0.43
1:A:364:ARG:O	3:L:31:PRO:HG2	2.18	0.43
1:A:782:LEU:HA	1:A:785:ILE:HG13	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:871:ARG:HB3	1:B:872:LYS:HE2	2.00	0.43
1:H:298:LEU:HA	1:H:384:LEU:HD21	1.99	0.43
2:J:93:TYR:CZ	2:J:101:MET:HA	2.54	0.43
1:A:231:LYS:HA	1:A:236:ASP:O	2.18	0.43
1:A:835:ILE:O	1:A:839:PRO:HD2	2.17	0.43
1:G:164:ARG:HH11	1:H:606:GLN:NE2	2.17	0.43
1:A:85:MET:HA	1:A:88:LEU:HD13	2.01	0.43
1:A:166:ASN:ND2	1:A:667:THR:HG22	2.34	0.43
1:B:869:LYS:O	1:B:873:ASP:HB2	2.19	0.43
1:G:55:THR:HA	1:G:65:GLN:HA	2.01	0.43
1:G:629:GLU:HB2	1:G:640:ARG:HA	2.00	0.43
1:H:5:PRO:HG3	1:H:769:GLY:HA2	2.00	0.43
1:H:331:THR:HA	1:H:334:ASP:OD2	2.18	0.43
2:J:22:GLU:HB3	3:L:154:TRP:HZ2	1.84	0.43
1:A:792:TRP:CZ3	2:C:147:ILE:HA	2.54	0.43
1:A:926:ARG:O	1:A:929:ARG:HB3	2.18	0.43
1:B:523:LYS:O	1:B:527:ILE:HG13	2.18	0.43
1:H:701:LEU:O	1:H:705:ARG:HG3	2.19	0.43
1:A:17:GLN:OE1	1:A:20:LYS:NZ	2.51	0.43
1:A:107:ASN:O	1:A:109:ILE:HG23	2.19	0.43
1:B:233:VAL:HG22	1:B:275:THR:O	2.19	0.43
3:E:90:CYS:HB3	3:E:94:GLU:HB2	2.01	0.43
1:G:17:GLN:OE1	1:G:20:LYS:NZ	2.52	0.43
1:G:661:MET:O	1:G:665:HIS:HD2	2.01	0.43
1:G:843:MET:SD	3:K:57:GLN:HB2	2.59	0.43
1:H:126:PHE:HB3	1:H:128:ILE:HG13	2.00	0.43
3:L:33:PRO:HB2	3:L:34:PRO:CD	2.48	0.43
1:A:599:VAL:HG22	1:A:603:VAL:HG23	2.01	0.43
1:B:31:MET:HB2	1:B:74:VAL:HG11	2.01	0.43
1:B:155:GLY:HA2	1:B:158:SER:OG	2.18	0.43
1:B:701:LEU:HG	1:B:705:ARG:NH2	2.33	0.43
1:G:710:GLY:O	1:G:767:ARG:NH2	2.51	0.43
1:A:557:SER:HA	1:A:558:PRO:HD3	1.87	0.43
1:A:690:LEU:HG	1:A:694:GLN:HE21	1.84	0.43
1:B:119:ALA:O	1:B:674:CYS:HA	2.19	0.43
3:E:28:PRO:HA	3:E:29:PRO:HD3	1.86	0.43
1:G:575:PHE:HD2	1:G:588:ILE:HD11	1.83	0.43
1:A:367:GLU:HB2	1:A:369:GLN:H	1.84	0.43
1:A:923:LEU:HD21	1:B:924:GLN:HG2	2.01	0.43
1:G:377:GLU:HB3	1:G:393:TYR:OH	2.19	0.43
1:H:159:ALA:HA	1:H:715:MET:HA	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:310:VAL:HG12	1:A:311:SER:HA	2.01	0.42
1:B:240:ARG:HB2	1:B:280:TYR:HE2	1.83	0.42
1:B:531:LEU:HG	1:B:595:ASN:ND2	2.34	0.42
1:B:534:GLU:OE1	1:B:537:PHE:CD1	2.72	0.42
1:B:109:ILE:HG21	1:B:122:PRO:HD3	1.99	0.42
1:B:875:GLU:O	1:B:878:ASN:HB3	2.20	0.42
3:E:33:PRO:HA	3:E:34:PRO:HD3	1.86	0.42
3:E:57:GLN:HB3	3:F:60:LYS:NZ	2.34	0.42
3:L:14:LYS:HD3	3:L:103:PRO:HB2	2.00	0.42
1:B:54:CYS:O	1:B:65:GLN:HA	2.20	0.42
1:B:668:GLN:OE1	1:B:763:LYS:NZ	2.51	0.42
1:H:371:GLU:HG2	1:H:397:VAL:HG21	2.01	0.42
1:B:75:ASN:HA	1:B:76:PRO:HD3	1.89	0.42
1:B:480:GLU:HG2	1:B:518:ILE:HG12	2.02	0.42
1:G:232:THR:O	1:G:236:ASP:HA	2.19	0.42
1:G:195:ALA:HB1	1:G:197:THR:HG23	2.02	0.42
1:H:342:TYR:HA	1:H:345:ASP:HB2	2.01	0.42
1:H:503:ILE:HG22	1:H:760:GLY:HA2	2.01	0.42
3:L:23:ASP:HA	3:L:93:GLN:NE2	2.34	0.42
3:L:102:ALA:HB1	3:L:106:ILE:HD11	2.00	0.42
1:B:654:ARG:HE	1:B:654:ARG:HA	1.84	0.42
1:B:721:LYS:HB3	2:D:92:VAL:HG12	2.02	0.42
3:E:72:GLY:O	3:E:107:ASN:HA	2.20	0.42
1:G:497:GLU:O	1:G:501:GLU:HG2	2.19	0.42
1:A:282:ILE:HA	1:A:285:GLN:OE1	2.19	0.42
1:B:702:GLU:HG3	1:B:705:ARG:NH1	2.34	0.42
1:B:743:THR:HG23	1:B:744:GLU:OE2	2.20	0.42
1:A:80:GLU:HG3	1:A:102:GLN:HE22	1.85	0.42
1:G:468:ASN:HB2	1:G:585:PRO:O	2.20	0.42
3:L:188:THR:HG22	3:L:189:LYS:H	1.83	0.42
1:B:501:GLU:O	1:B:761:ASN:HB2	2.20	0.42
3:F:13:SER:HA	3:F:15:LYS:N	2.35	0.42
1:G:923:LEU:HD13	1:H:923:LEU:HB3	2.02	0.42
1:H:1:MET:HA	1:H:4:ASP:O	2.20	0.42
1:B:716:VAL:HG22	1:B:762:THR:HG22	2.02	0.42
2:D:83:LEU:HD21	2:D:147:ILE:HG21	2.01	0.42
1:G:906:LEU:HD13	1:H:906:LEU:HA	2.01	0.42
1:H:512:LEU:HB3	1:H:580:TYR:OH	2.20	0.42
1:H:711:PHE:HA	1:H:712:PRO:HD3	1.73	0.42
1:A:782:LEU:HD13	2:C:92:VAL:HB	2.01	0.41
1:B:157:TYR:CZ	1:B:161:LEU:HD11	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:134:VAL:HG13	1:G:189:TYR:CE1	2.54	0.41
1:H:142:ARG:HG2	1:H:145:VAL:HB	2.01	0.41
1:A:132:ARG:HG3	1:A:205:PRO:HB2	2.01	0.41
1:A:500:ARG:HD2	1:B:367:GLU:HB3	2.01	0.41
2:D:22:GLU:CD	2:D:61:LYS:HZ3	2.22	0.41
3:E:51:PHE:HA	3:E:56:VAL:HG11	2.01	0.41
3:E:83:PHE:HB3	3:E:89:LEU:HG	2.01	0.41
1:G:97:LEU:HD11	1:G:688:SER:HB3	2.02	0.41
1:G:282:ILE:HA	1:G:285:GLN:OE1	2.20	0.41
1:H:528:LEU:HD12	1:H:529:SER:HB3	2.01	0.41
1:H:804:LYS:HE3	3:L:134:LEU:O	2.21	0.41
1:B:727:LEU:HG	1:B:782:LEU:HD21	2.01	0.41
1:G:667:THR:O	1:G:669:PRO:HD3	2.20	0.41
1:H:654:ARG:HA	1:H:654:ARG:HE	1.85	0.41
3:K:16:LYS:NZ	3:K:17:SER:OG	2.46	0.41
3:K:104:GLY:HA3	3:K:105:PRO:HD3	1.84	0.41
1:A:364:ARG:CB	1:A:369:GLN:O	2.68	0.41
1:B:717:TYR:HE1	1:B:743:THR:HG21	1.85	0.41
3:E:5:GLU:OE2	3:F:90:CYS:HB3	2.20	0.41
1:G:889:PHE:HA	1:G:892:LEU:HD12	2.02	0.41
1:A:181:GLU:OE2	1:A:185:LYS:NZ	2.53	0.41
1:B:402:LYS:NZ	1:B:630:LYS:O	2.46	0.41
2:D:19:TYR:O	2:D:21:TRP:HD1	2.02	0.41
3:E:43:SER:HA	3:F:193:GLU:O	2.20	0.41
1:H:541:THR:HG23	1:H:544:SER:H	1.84	0.41
1:A:406:GLU:HB3	2:J:5:LYS:HG2	2.03	0.41
1:A:501:GLU:O	1:B:364:ARG:NH2	2.54	0.41
1:G:131:ASN:ND2	1:G:204:ALA:O	2.54	0.41
1:G:217:VAL:HA	1:G:220:THR:OG1	2.20	0.41
1:G:271:ILE:HD12	1:G:419:TYR:HA	2.02	0.41
1:G:718:PRO:HG2	1:H:389:ALA:HB1	2.02	0.41
1:H:530:ILE:HG12	1:H:548:LYS:HB2	2.02	0.41
3:L:30:PRO:HA	3:L:31:PRO:HD3	1.84	0.41
1:A:309:PHE:CD2	3:L:18:GLU:HG3	2.55	0.41
1:A:715:MET:O	1:A:763:LYS:HD2	2.20	0.41
1:A:779:ASP:HA	1:A:782:LEU:HB2	2.02	0.41
1:B:829:LEU:O	3:F:195:GLY:HA3	2.21	0.41
1:G:715:MET:O	1:G:763:LYS:HD2	2.20	0.41
1:G:769:GLY:O	1:G:773:ARG:N	2.54	0.41
1:G:843:MET:HG2	3:L:53:GLN:O	2.20	0.41
1:A:883:GLN:NE2	1:B:451:GLN:HB3	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:309:PHE:HD1	1:B:309:PHE:HA	1.79	0.41
1:B:400:LYS:HD3	1:B:400:LYS:HA	1.91	0.41
2:C:94:ASP:HB2	2:C:139:TYR:HE2	1.86	0.41
1:G:33:TRP:HE1	1:G:74:VAL:HA	1.86	0.41
1:G:372:ALA:HB3	1:G:377:GLU:HG2	2.03	0.41
1:G:815:ILE:HD13	1:G:815:ILE:HA	1.95	0.41
1:H:110:TYR:OH	1:H:185:LYS:NZ	2.51	0.41
1:H:234:ARG:NH2	1:H:676:ILE:HD13	2.35	0.41
1:H:300:LEU:HA	1:H:307:TYR:OH	2.20	0.41
1:H:523:LYS:HE2	1:H:523:LYS:HB3	1.89	0.41
1:A:11:LEU:HD11	1:A:148:HIS:HB2	2.02	0.41
1:A:364:ARG:HG3	3:L:36:GLN:HG3	2.03	0.41
1:A:369:GLN:HG2	1:A:417:VAL:HG11	2.03	0.41
1:A:710:GLY:O	1:A:767:ARG:NH2	2.54	0.41
1:B:9:GLU:CD	1:B:132:ARG:HH11	2.25	0.41
1:B:230:ALA:HB1	1:B:278:ARG:O	2.21	0.41
1:B:260:ILE:H	1:B:441:ASN:ND2	2.19	0.41
1:B:491:PHE:O	1:B:495:GLN:HG2	2.20	0.41
1:G:286:LEU:HD11	1:G:298:LEU:HD22	2.02	0.41
1:G:483:GLN:O	1:G:486:PHE:HB3	2.20	0.41
1:G:919:GLN:HA	1:G:922:GLU:HG2	2.01	0.41
3:K:5:GLU:OE2	3:L:90:CYS:HB3	2.21	0.41
1:B:612:ASN:O	1:B:614:LEU:N	2.54	0.41
3:L:141:LYS:NZ	3:L:173:ASP:O	2.47	0.41
1:A:364:ARG:HH11	3:L:33:PRO:HD3	1.85	0.40
1:B:283:PHE:HB3	1:B:354:MET:SD	2.60	0.40
3:E:33:PRO:HB2	3:E:36:GLN:NE2	2.36	0.40
1:G:892:LEU:HD22	1:G:896:ARG:HH22	1.86	0.40
1:B:163:ASN:HD21	1:B:165:GLU:HB3	1.87	0.40
1:B:169:MET:O	1:B:456:VAL:HA	2.21	0.40
3:F:9:LYS:O	3:F:13:SER:HB3	2.21	0.40
1:H:175:SER:HB3	1:H:234:ARG:NH2	2.36	0.40
1:H:635:LYS:HB2	1:H:643:GLY:N	2.36	0.40
1:H:723:ARG:HD2	2:J:112:SER:HB2	2.03	0.40
2:I:143:VAL:O	2:I:146:ILE:HB	2.22	0.40
2:C:91:LYS:HD3	2:C:97:GLU:HG2	2.03	0.40
1:G:527:ILE:HG23	1:G:549:LEU:HD11	2.04	0.40
1:G:793:ILE:HG23	2:I:125:ILE:HD12	2.02	0.40
3:K:41:GLN:HA	3:L:85:SER:O	2.21	0.40
1:A:41:TYR:HD1	1:A:97:LEU:HD22	1.87	0.40
1:A:922:GLU:HG3	1:A:923:LEU:N	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:248:HIS:ND1	1:B:453:PHE:HB3	2.37	0.40
1:B:309:PHE:CD1	1:B:357:GLY:HA3	2.57	0.40
1:B:330:ASP:CG	1:B:343:LYS:HZ1	2.24	0.40
1:B:715:MET:O	1:B:763:LYS:HA	2.21	0.40
3:F:68:GLN:OE1	3:F:78:ASP:HB2	2.21	0.40
1:H:162:ALA:O	1:H:164:ARG:NH2	2.55	0.40
1:B:41:TYR:HD1	1:B:97:LEU:HD22	1.86	0.40
1:B:831:TYR:HD2	3:F:194:GLU:HB3	1.86	0.40
1:G:599:VAL:HG11	1:G:604:VAL:HG23	2.04	0.40
1:H:7:PRO:HA	1:H:12:TYR:CE2	2.56	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	960/1953 (49%)	772 (80%)	149 (16%)	39 (4%)	3	23
1	B	962/1953 (49%)	779 (81%)	128 (13%)	55 (6%)	1	18
1	G	960/1953 (49%)	783 (82%)	136 (14%)	41 (4%)	2	22
1	H	962/1953 (49%)	779 (81%)	125 (13%)	58 (6%)	1	17
2	C	154/156 (99%)	137 (89%)	13 (8%)	4 (3%)	5	31
2	D	154/156 (99%)	139 (90%)	11 (7%)	4 (3%)	5	31
2	I	154/156 (99%)	135 (88%)	16 (10%)	3 (2%)	8	38
2	J	154/156 (99%)	131 (85%)	19 (12%)	4 (3%)	5	31
3	E	194/196 (99%)	139 (72%)	40 (21%)	15 (8%)	1	13
3	F	194/196 (99%)	136 (70%)	41 (21%)	17 (9%)	1	11
3	K	194/196 (99%)	144 (74%)	37 (19%)	13 (7%)	1	15
3	L	194/196 (99%)	129 (66%)	46 (24%)	19 (10%)	0	10

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	5236/9220 (57%)	4203 (80%)	761 (14%)	272 (5%)	4 19

All (272) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	6	ASP
1	A	22	GLN
1	A	138	LYS
1	A	269	ARG
1	A	310	VAL
1	A	311	SER
1	A	363	GLN
1	A	365	PRO
1	A	393	TYR
1	A	394	LYS
1	A	568	PRO
1	A	603	VAL
1	A	845	LYS
1	B	68	LYS
1	B	86	SER
1	B	142	ARG
1	B	149	LEU
1	B	178	GLY
1	B	205	PRO
1	B	367	GLU
1	B	565	PRO
1	B	613	LYS
1	B	621	ASP
1	B	646	PHE
1	B	680	LEU
1	B	725	THR
1	B	733	PRO
1	B	869	LYS
2	D	152	PRO
3	E	17	SER
3	E	47	VAL
3	E	50	MET
3	F	14	LYS
3	F	15	LYS
3	F	53	GLN
3	F	105	PRO
3	F	125	GLU

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Mol	Chain	Res	Type
3	F	144	GLU
1	G	22	GLN
1	G	138	LYS
1	G	177	ALA
1	G	264	LEU
1	G	282	ILE
1	G	358	GLU
1	G	568	PRO
1	G	601	ASP
1	G	603	VAL
1	G	843	MET
1	H	21	ASP
1	H	68	LYS
1	H	86	SER
1	H	142	ARG
1	H	205	PRO
1	H	307	TYR
1	H	367	GLU
1	H	565	PRO
1	H	622	HIS
1	H	645	SER
1	H	680	LEU
1	H	725	THR
1	H	733	PRO
1	H	752	LEU
1	H	842	THR
2	I	97	GLU
3	K	17	SER
3	L	13	SER
3	L	16	LYS
3	L	31	PRO
3	L	32	LYS
3	L	53	GLN
3	L	58	GLU
3	L	67	ASP
3	L	125	GLU
3	L	144	GLU
1	A	271	ILE
1	A	366	ARG
1	A	460	ALA
1	A	621	ASP
1	A	737	VAL

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Mol	Chain	Res	Type
1	A	831	TYR
1	A	843	MET
1	B	14	SER
1	B	274	GLN
1	B	312	GLN
1	B	446	THR
1	B	447	LYS
1	B	451	GLN
1	B	517	CYS
1	B	535	SER
1	B	645	SER
1	B	752	LEU
1	B	834	TYR
1	B	842	THR
1	B	844	ALA
1	B	870	VAL
2	C	97	GLU
2	C	152	PRO
3	E	55	GLN
3	E	59	PHE
3	E	139	GLU
3	F	63	PHE
3	F	174	GLY
3	F	195	GLY
1	G	269	ARG
1	G	271	ILE
1	G	308	HIS
1	G	516	ALA
1	G	621	ASP
1	G	712	PRO
1	G	735	GLY
1	G	737	VAL
1	G	831	TYR
1	H	3	GLU
1	H	11	LEU
1	H	178	GLY
1	H	356	LEU
1	H	580	TYR
1	H	613	LYS
1	H	621	ASP
1	H	646	PHE
1	H	648	THR

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Mol	Chain	Res	Type
1	H	738	ASP
1	H	804	LYS
1	H	834	TYR
3	K	55	GLN
3	K	59	PHE
3	K	169	GLU
3	L	174	GLY
3	L	195	GLY
1	A	11	LEU
1	A	177	ALA
1	A	228	GLY
1	A	270	VAL
1	A	299	LEU
1	A	367	GLU
1	A	392	LEU
1	A	597	ASP
1	A	712	PRO
1	A	784	LYS
1	B	3	GLU
1	B	77	PRO
1	B	292	GLU
1	B	448	GLN
1	B	529	SER
1	B	567	LYS
1	B	630	LYS
1	B	751	GLN
2	C	96	ALA
2	C	116	ARG
3	E	53	GLN
3	E	58	GLU
3	E	169	GLU
3	F	72	GLY
1	G	11	LEU
1	G	108	LEU
1	G	114	GLY
1	G	144	GLU
1	G	207	LYS
1	G	310	VAL
1	H	14	SER
1	H	57	ASP
1	H	109	ILE
1	H	446	THR

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Mol	Chain	Res	Type
1	H	529	SER
1	H	567	LYS
1	H	573	ALA
1	H	751	GLN
1	H	844	ALA
2	J	152	PRO
3	K	139	GLU
3	L	72	GLY
3	L	192	GLU
1	A	207	LYS
1	A	827	ASN
1	B	20	LYS
1	B	57	ASP
1	B	601	ASP
1	B	804	LYS
1	B	871	ARG
3	E	106	ILE
3	F	28	PRO
3	F	57	GLN
3	F	95	LEU
3	F	192	GLU
1	G	9	GLU
1	G	392	LEU
1	G	460	ALA
1	G	784	LYS
1	G	827	ASN
1	H	137	TYR
1	H	200	PRO
1	H	251	PRO
1	H	375	THR
1	H	639	GLY
1	H	803	LYS
2	I	116	ARG
2	J	130	ASP
3	L	70	LYS
3	L	80	ARG
3	L	188	THR
3	L	190	GLY
1	A	735	GLY
1	B	618	ILE
2	D	40	ASP
3	E	21	GLY

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Mol	Chain	Res	Type
3	E	67	ASP
3	F	88	ARG
1	G	299	LEU
1	G	301	SER
1	G	375	THR
1	G	411	GLY
1	H	5	PRO
1	H	90	TYR
1	H	175	SER
1	H	491	PHE
1	H	597	ASP
1	H	707	CYS
2	J	75	LYS
2	J	131	GLU
3	K	138	GLY
3	L	14	LYS
1	A	719	ASP
1	B	200	PRO
1	B	251	PRO
1	B	375	THR
1	B	629	GLU
1	B	734	LYS
2	D	43	PRO
3	F	190	GLY
1	G	597	ASP
1	H	618	ILE
1	H	833	LEU
2	I	152	PRO
3	K	21	GLY
3	K	38	ARG
3	L	102	ALA
1	A	66	VAL
1	A	282	ILE
1	B	846	VAL
2	D	135	GLY
3	E	29	PRO
3	E	138	GLY
1	H	58	ILE
1	H	492	VAL
3	K	106	ILE
1	G	228	GLY
1	G	839	PRO

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Mol	Chain	Res	Type
1	H	198	PRO
1	H	599	VAL
3	K	140	GLY
1	B	404	GLY
1	G	492	VAL
1	G	760	GLY
1	H	511	GLY
3	K	29	PRO
3	K	87	GLY
3	K	190	GLY
1	A	364	ARG
1	A	760	GLY
1	A	839	PRO
1	B	58	ILE
1	B	634	GLY
1	B	639	GLY
3	F	21	GLY
1	G	66	VAL
1	H	564	LYS
1	H	631	GLY
1	B	198	PRO
1	B	750	ILE
3	E	140	GLY
1	G	786	VAL
1	H	750	ILE

5.3.2 Protein sidechains ⓘ

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	833/1689 (49%)	792 (95%)	41 (5%)	25	50
1	B	835/1689 (49%)	780 (93%)	55 (7%)	16	41
1	G	833/1689 (49%)	798 (96%)	35 (4%)	30	54
1	H	835/1689 (49%)	785 (94%)	50 (6%)	19	44
2	C	132/132 (100%)	126 (96%)	6 (4%)	27	52

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	D	132/132 (100%)	126 (96%)	6 (4%)	27	52
2	I	132/132 (100%)	127 (96%)	5 (4%)	33	57
2	J	132/132 (100%)	125 (95%)	7 (5%)	22	47
3	E	164/164 (100%)	157 (96%)	7 (4%)	29	53
3	F	164/164 (100%)	150 (92%)	14 (8%)	10	33
3	K	164/164 (100%)	160 (98%)	4 (2%)	49	69
3	L	164/164 (100%)	154 (94%)	10 (6%)	18	44
All	All	4520/7940 (57%)	4280 (95%)	240 (5%)	26	47

All (240) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	21	ASP
1	A	63	SER
1	A	145	VAL
1	A	172	THR
1	A	175	SER
1	A	222	PRO
1	A	266	GLU
1	A	271	ILE
1	A	281	HIS
1	A	308	HIS
1	A	309	PHE
1	A	312	GLN
1	A	334	ASP
1	A	345	ASP
1	A	362	LYS
1	A	363	GLN
1	A	365	PRO
1	A	388	ASN
1	A	397	VAL
1	A	418	SER
1	A	470	PHE
1	A	543	LYS
1	A	547	ASP
1	A	568	PRO
1	A	572	GLU
1	A	586	TYR
1	A	591	TRP
1	A	600	ASN

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Mol	Chain	Res	Type
1	A	616	GLN
1	A	693	HIS
1	A	696	THR
1	A	761	ASN
1	A	795	TRP
1	A	815	ILE
1	A	854	GLU
1	A	868	GLU
1	A	871	ARG
1	A	872	LYS
1	A	875	GLU
1	A	887	ASP
1	A	932	ASP
1	B	4	ASP
1	B	12	TYR
1	B	87	ASN
1	B	91	LEU
1	B	93	ASP
1	B	103	ARG
1	B	129	TYR
1	B	134	VAL
1	B	141	ARG
1	B	146	PRO
1	B	163	ASN
1	B	172	THR
1	B	174	GLU
1	B	180	THR
1	B	192	ASN
1	B	198	PRO
1	B	203	GLU
1	B	222	PRO
1	B	302	ASP
1	B	309	PHE
1	B	341	GLU
1	B	393	TYR
1	B	405	ASN
1	B	413	ASN
1	B	415	THR
1	B	417	VAL
1	B	448	GLN
1	B	524	PRO
1	B	565	PRO

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Mol	Chain	Res	Type
1	B	593	GLU
1	B	608	LYS
1	B	622	HIS
1	B	647	GLN
1	B	648	THR
1	B	654	ARG
1	B	668	GLN
1	B	681	LYS
1	B	708	ARG
1	B	716	VAL
1	B	718	PRO
1	B	758	ARG
1	B	771	LEU
1	B	776	GLU
1	B	826	ARG
1	B	827	ASN
1	B	836	LYS
1	B	838	LYS
1	B	843	MET
1	B	862	GLU
1	B	867	GLU
1	B	872	LYS
1	B	873	ASP
1	B	887	ASP
1	B	896	ARG
1	B	954	GLU
2	C	51	ASN
2	C	69	PRO
2	C	94	ASP
2	C	133	ASP
2	C	139	TYR
2	C	140	GLU
2	D	85	ASP
2	D	94	ASP
2	D	119	ASP
2	D	130	ASP
2	D	134	ASP
2	D	139	TYR
3	E	18	GLU
3	E	52	THR
3	E	54	HIS
3	E	58	GLU

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Mol	Chain	Res	Type
3	E	59	PHE
3	E	71	ASP
3	E	108	PHE
3	F	3	ASP
3	F	17	SER
3	F	19	GLU
3	F	30	PRO
3	F	42	ARG
3	F	52	THR
3	F	55	GLN
3	F	64	GLN
3	F	67	ASP
3	F	89	LEU
3	F	105	PRO
3	F	113	THR
3	F	118	ARG
3	F	168	SER
1	G	4	ASP
1	G	21	ASP
1	G	26	TYR
1	G	165	GLU
1	G	212	THR
1	G	215	ASP
1	G	222	PRO
1	G	266	GLU
1	G	271	ILE
1	G	306	ASP
1	G	334	ASP
1	G	345	ASP
1	G	362	LYS
1	G	391	ASP
1	G	470	PHE
1	G	538	PRO
1	G	543	LYS
1	G	547	ASP
1	G	568	PRO
1	G	586	TYR
1	G	591	TRP
1	G	600	ASN
1	G	605	ASP
1	G	616	GLN
1	G	668	GLN

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Mol	Chain	Res	Type
1	G	702	GLU
1	G	713	ASN
1	G	721	LYS
1	G	756	ASP
1	G	761	ASN
1	G	795	TRP
1	G	854	GLU
1	G	865	GLU
1	G	883	GLN
1	G	904	GLU
1	H	4	ASP
1	H	12	TYR
1	H	83	GLU
1	H	91	LEU
1	H	92	ASN
1	H	93	ASP
1	H	103	ARG
1	H	134	VAL
1	H	141	ARG
1	H	145	VAL
1	H	146	PRO
1	H	180	THR
1	H	192	ASN
1	H	203	GLU
1	H	222	PRO
1	H	236	ASP
1	H	302	ASP
1	H	341	GLU
1	H	405	ASN
1	H	473	LEU
1	H	522	GLU
1	H	524	PRO
1	H	565	PRO
1	H	571	GLN
1	H	593	GLU
1	H	597	ASP
1	H	601	ASP
1	H	608	LYS
1	H	641	LYS
1	H	642	LYS
1	H	645	SER
1	H	649	VAL

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Mol	Chain	Res	Type
1	H	668	GLN
1	H	681	LYS
1	H	716	VAL
1	H	743	THR
1	H	771	LEU
1	H	794	ARG
1	H	826	ARG
1	H	836	LYS
1	H	838	LYS
1	H	843	MET
1	H	862	GLU
1	H	868	GLU
1	H	887	ASP
1	H	896	ARG
1	H	923	LEU
1	H	925	GLU
1	H	948	ILE
1	H	954	GLU
2	I	42	LYS
2	I	51	ASN
2	I	94	ASP
2	I	119	ASP
2	I	140	GLU
2	J	63	THR
2	J	85	ASP
2	J	94	ASP
2	J	119	ASP
2	J	130	ASP
2	J	139	TYR
2	J	153	ASP
3	K	54	HIS
3	K	58	GLU
3	K	59	PHE
3	K	108	PHE
3	L	3	ASP
3	L	45	SER
3	L	55	GLN
3	L	67	ASP
3	L	68	GLN
3	L	89	LEU
3	L	97	SER
3	L	113	THR

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Mol	Chain	Res	Type
3	L	128	ILE
3	L	193	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	148	HIS
1	A	281	HIS
1	A	570	GLN
1	A	668	GLN
1	A	921	GLN
1	B	148	HIS
1	B	163	ASN
1	B	441	ASN
1	B	595	ASN
1	B	693	HIS
2	C	51	ASN
2	C	73	GLN
2	D	108	HIS
3	E	54	HIS
3	F	130	ASN
1	G	87	ASN
1	G	281	HIS
1	G	665	HIS
1	G	670	HIS
1	G	891	GLN
1	H	75	ASN
1	H	107	ASN
1	H	192	ASN
1	H	281	HIS
1	H	546	GLN
1	H	616	GLN
1	H	670	HIS
2	I	51	ASN
2	I	73	GLN
3	K	55	GLN
3	L	55	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6　Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-1950. 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 |
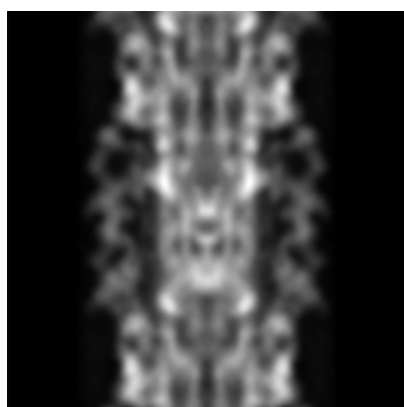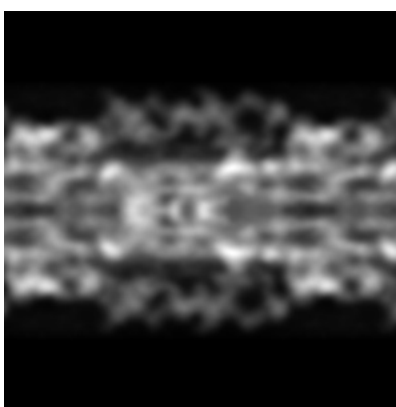
The images above show the map projected in three orthogonal directions.

6.2　Central slices ⓘ
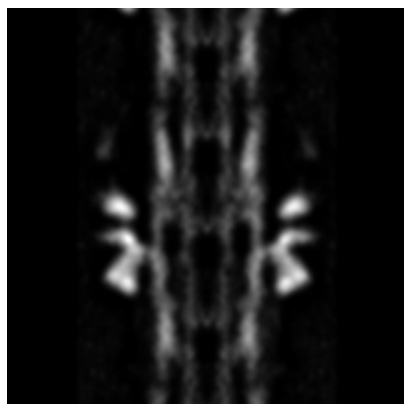
6.2.1　Primary map
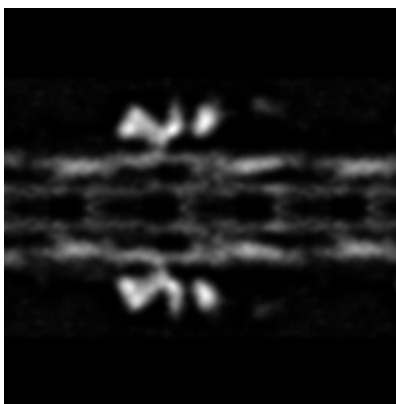
| X Index: 125 | Y Index: 125 | Z Index: 125 |
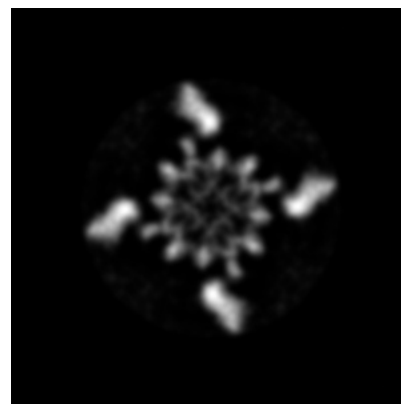
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices ⓘ
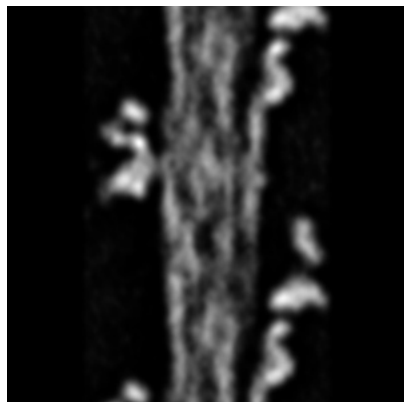
6.3.1 Primary map
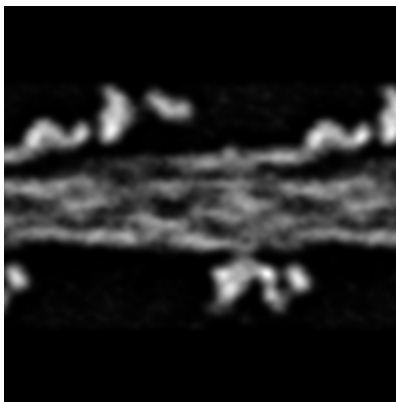
| X Index: 150 | Y Index: 99 | Z Index: 200 |

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

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

6.4.1 Primary map

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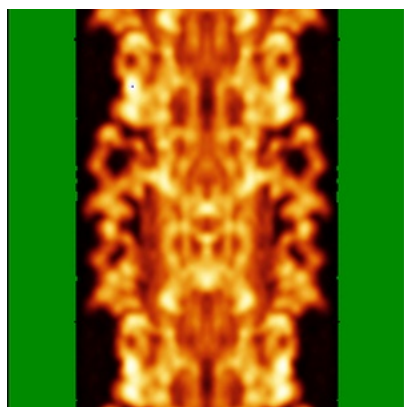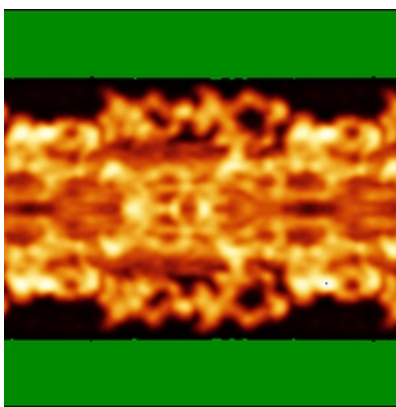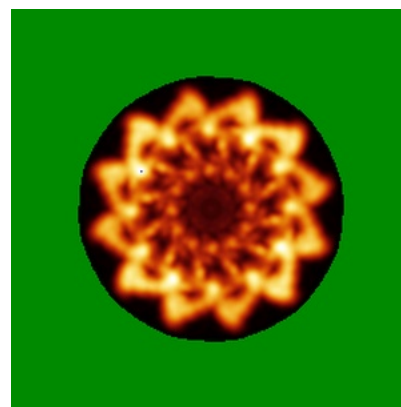
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5   Orthogonal surface views ⓘ

6.5.1   Primary map

X   Y   Z
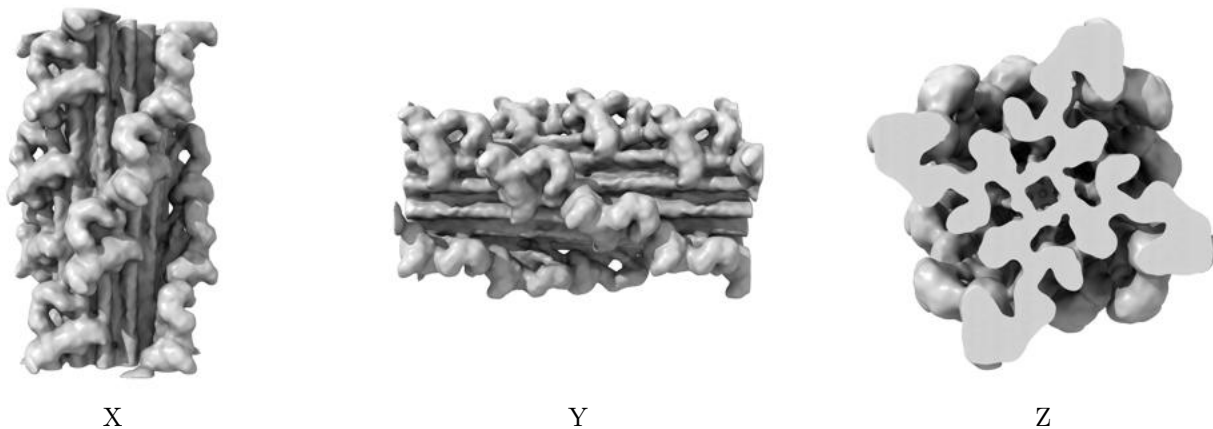
The images above show the 3D surface view of the map at the recommended contour level 25.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.6   Mask visualisation ⓘ

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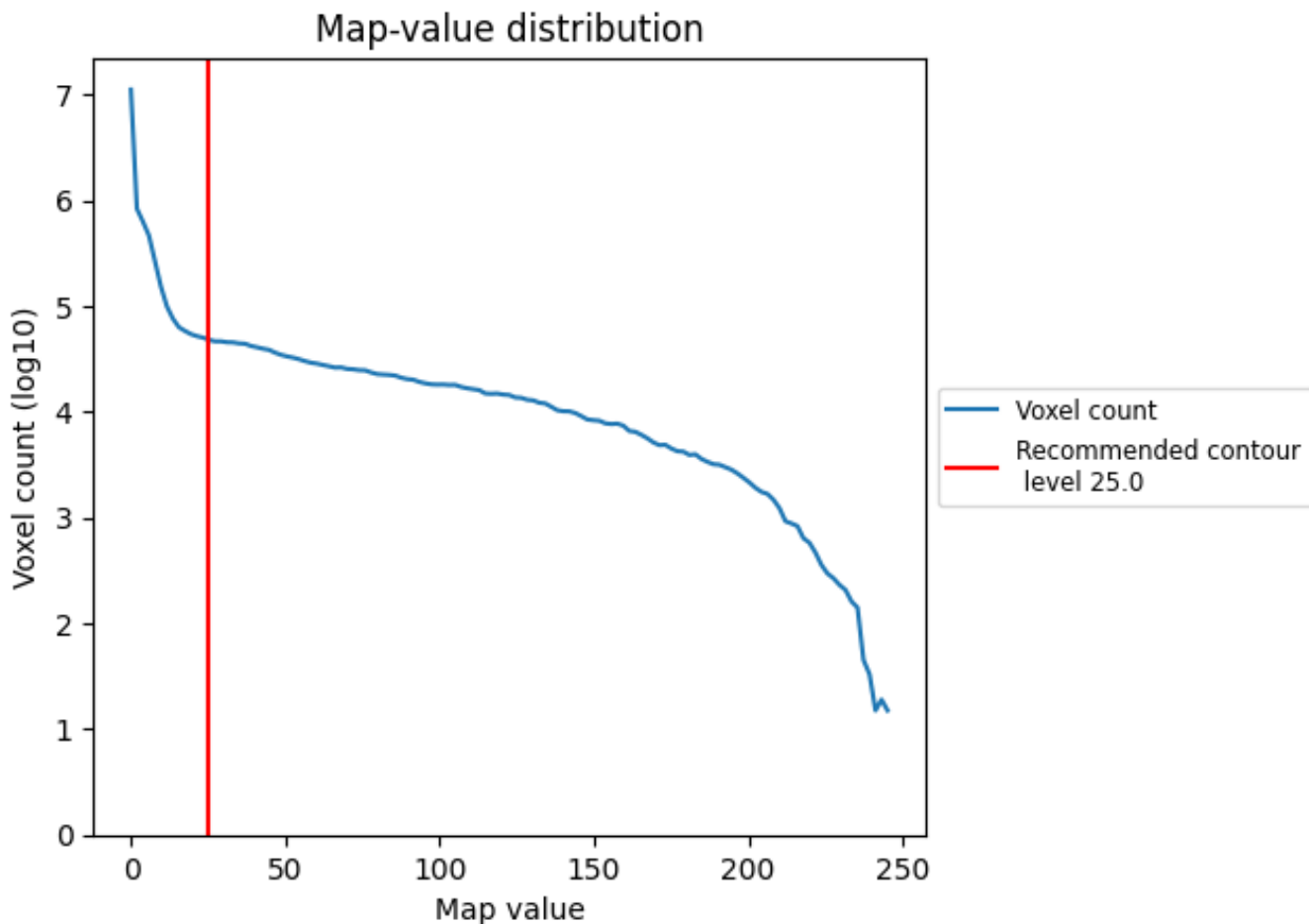
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2　Volume estimate ⓘ
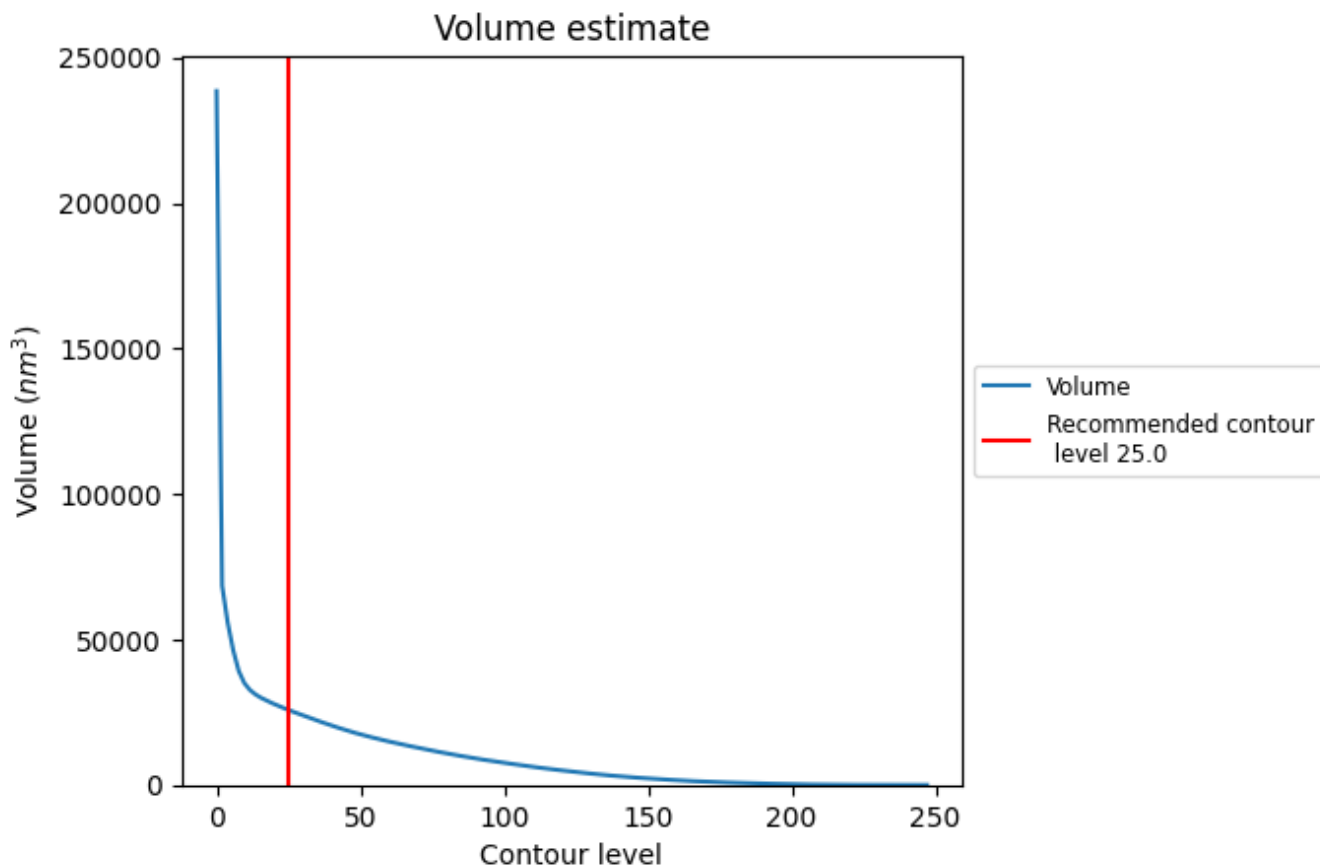
The volume at the recommended contour level is 25767 nm^3; this corresponds to an approximate mass of 23276 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3　Rotationally averaged power spectrum ⓘ
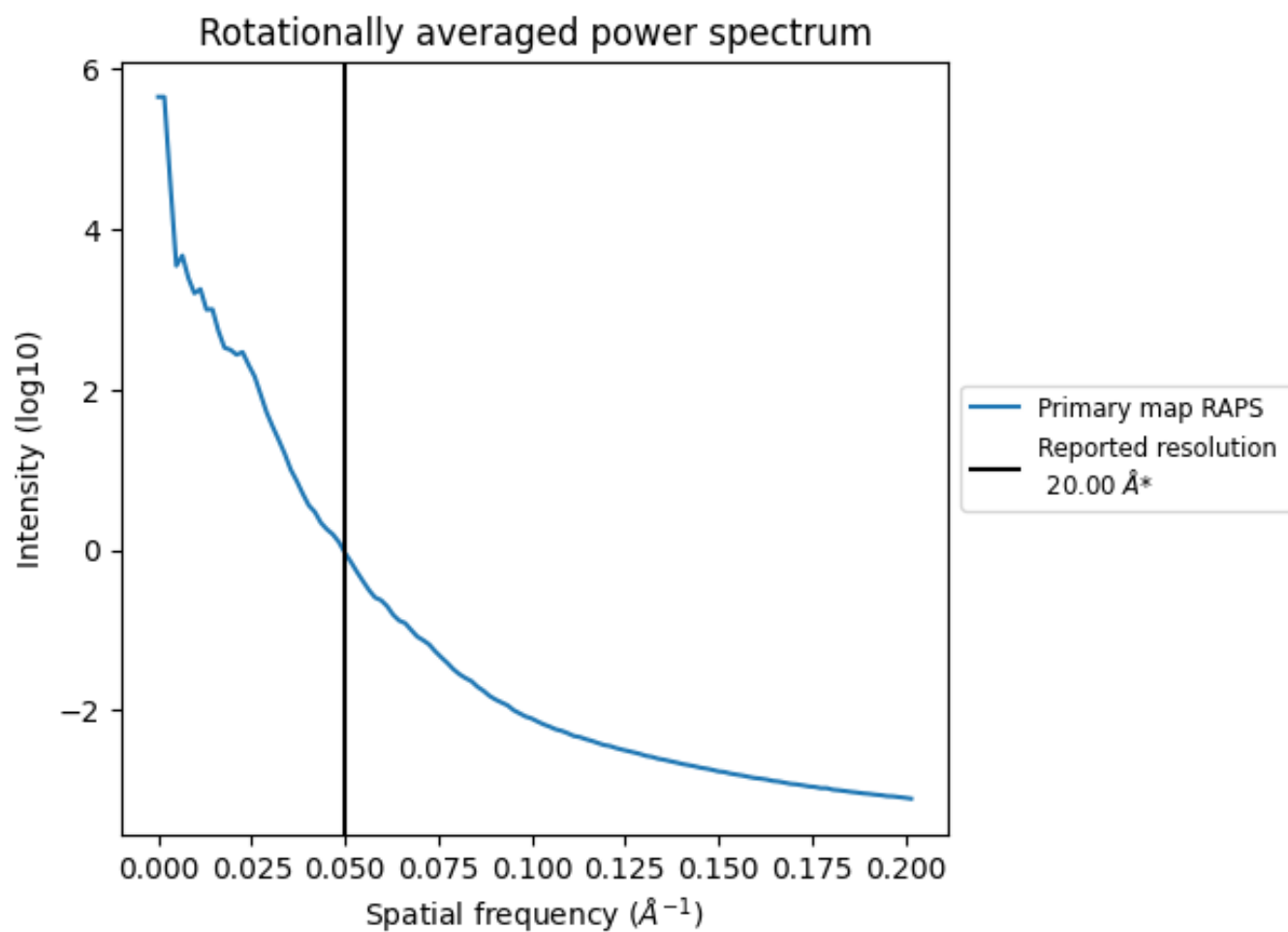
*Reported resolution corresponds to spatial frequency of 0.050 Å^{-1}

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-1950 and PDB model 3JBH. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay ⓘ

X   Y   Z
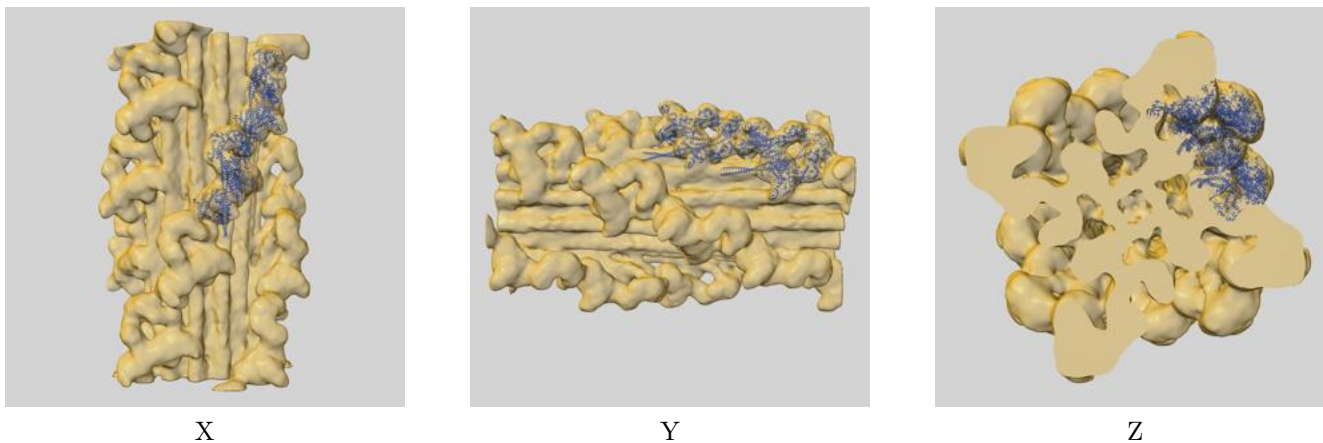
The images above show the 3D surface view of the map at the recommended contour level 25.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2　Q-score mapped to coordinate model　ⓘ

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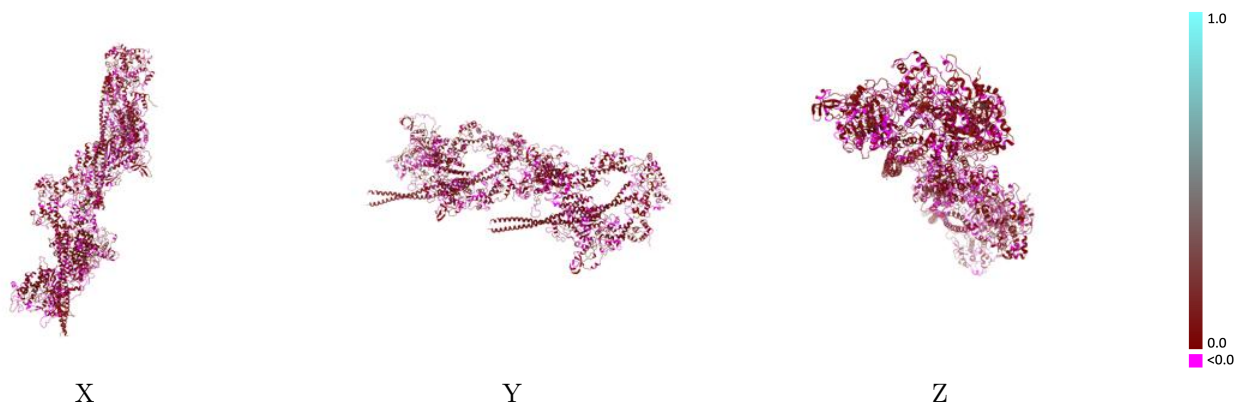
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3　Atom inclusion mapped to coordinate model　ⓘ

X　　　　　　　　　　　Y　　　　　　　　　　　Z
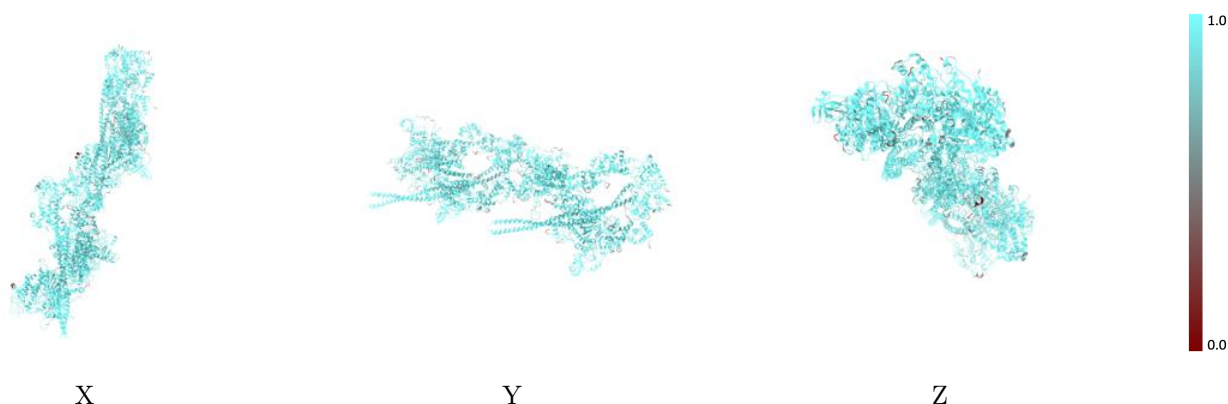
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (25.0).

## 9.4 Atom inclusion ⓘ
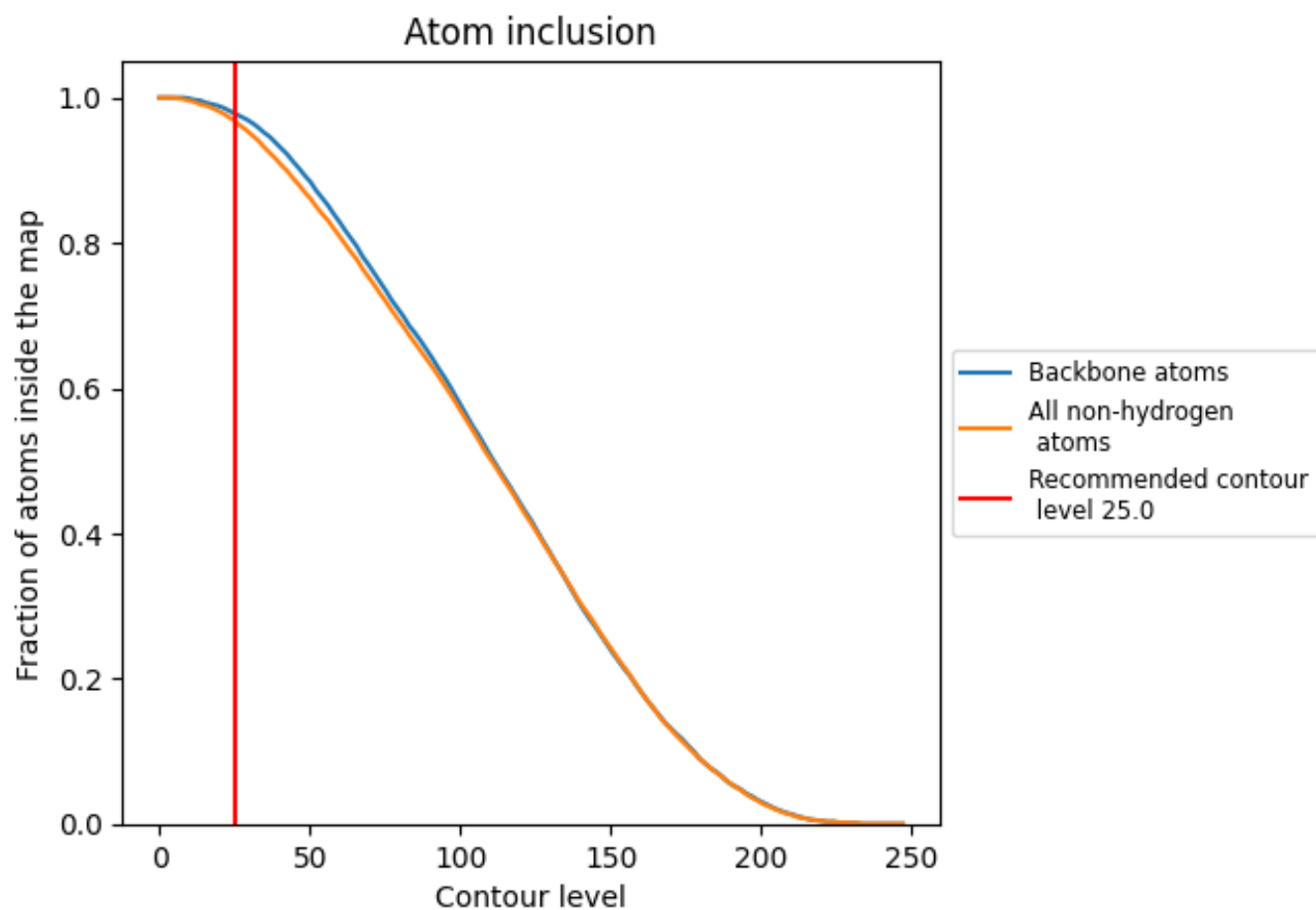
At the recommended contour level, 98% of all backbone atoms, 97% of all non-hydrogen atoms, are inside the map.

9.5   Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (25.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9680	0.0440
A	0.9730	0.0440
B	0.9670	0.0430
C	0.9540	0.0530
D	0.9590	0.0410
E	0.9720	0.0430
F	0.9460	0.0440
G	0.9770	0.0460
H	0.9680	0.0430
I	0.9550	0.0520
J	0.9610	0.0380
K	0.9680	0.0440
L	0.9440	0.0440

1.0

0.0
<0.0