



Full wwPDB EM Validation Report ⓘ

Dec 6, 2020 – 10:41 AM EST

PDB ID : 5K12
EMDB ID : EMD-8194
Title : Cryo-EM structure of glutamate dehydrogenase at 1.8 Å resolution
Authors : Merk, A.; Bartesaghi, A.; Banerjee, S.; Falconieri, V.; Rao, P.; Earl, L.; Milne, J.; Subramaniam, S.
Deposited on : 2016-05-17
Resolution : 1.80 Å (reported)
Based on initial model : 1NR7

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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.0.dev61
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.15.1

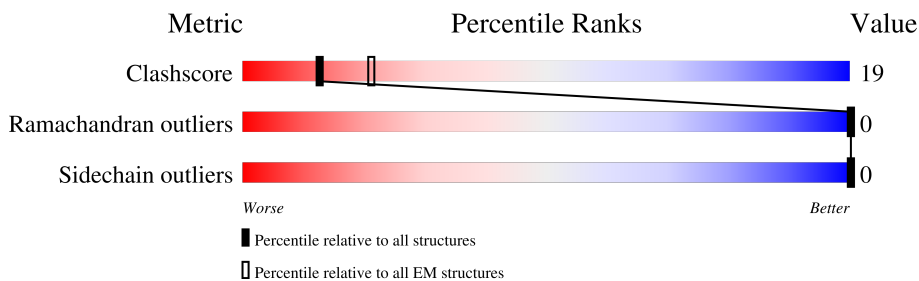
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 1.80 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	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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	558	
1	B	558	
1	C	558	
1	D	558	
1	E	558	
1	F	558	

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 14856 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 Glutamate dehydrogenase 1, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	294	2295	1445	409	429	12	0	0
1	B	294	2295	1445	409	429	12	0	0
1	C	294	2295	1445	409	429	12	0	0
1	D	294	2295	1445	409	429	12	0	0
1	E	294	2295	1445	409	429	12	0	0
1	F	294	2295	1445	409	429	12	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	387	LYS	ASN	conflict	UNP P00366
B	387	LYS	ASN	conflict	UNP P00366
C	387	LYS	ASN	conflict	UNP P00366
D	387	LYS	ASN	conflict	UNP P00366
E	387	LYS	ASN	conflict	UNP P00366
F	387	LYS	ASN	conflict	UNP P00366

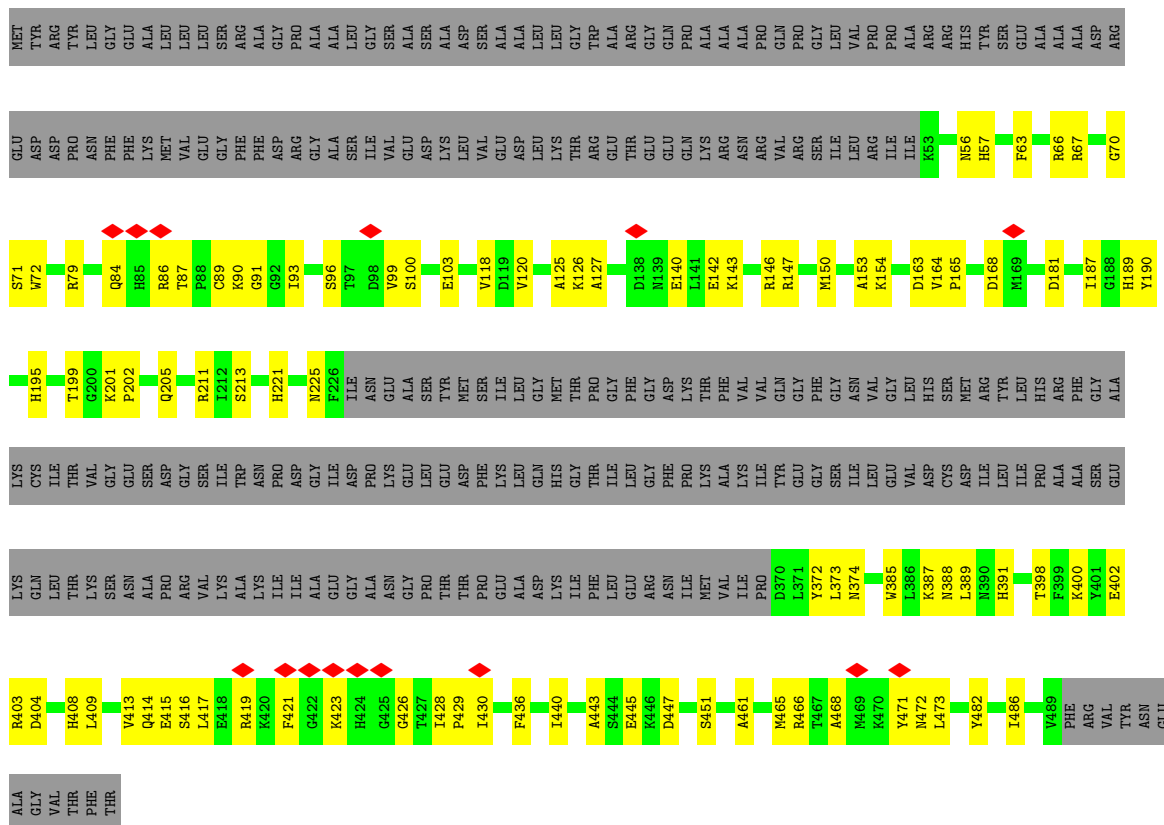
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		AltConf
			Total	O	
2	A	181	181	181	0
2	B	182	182	182	0
2	C	180	180	180	0
2	D	181	181	181	0

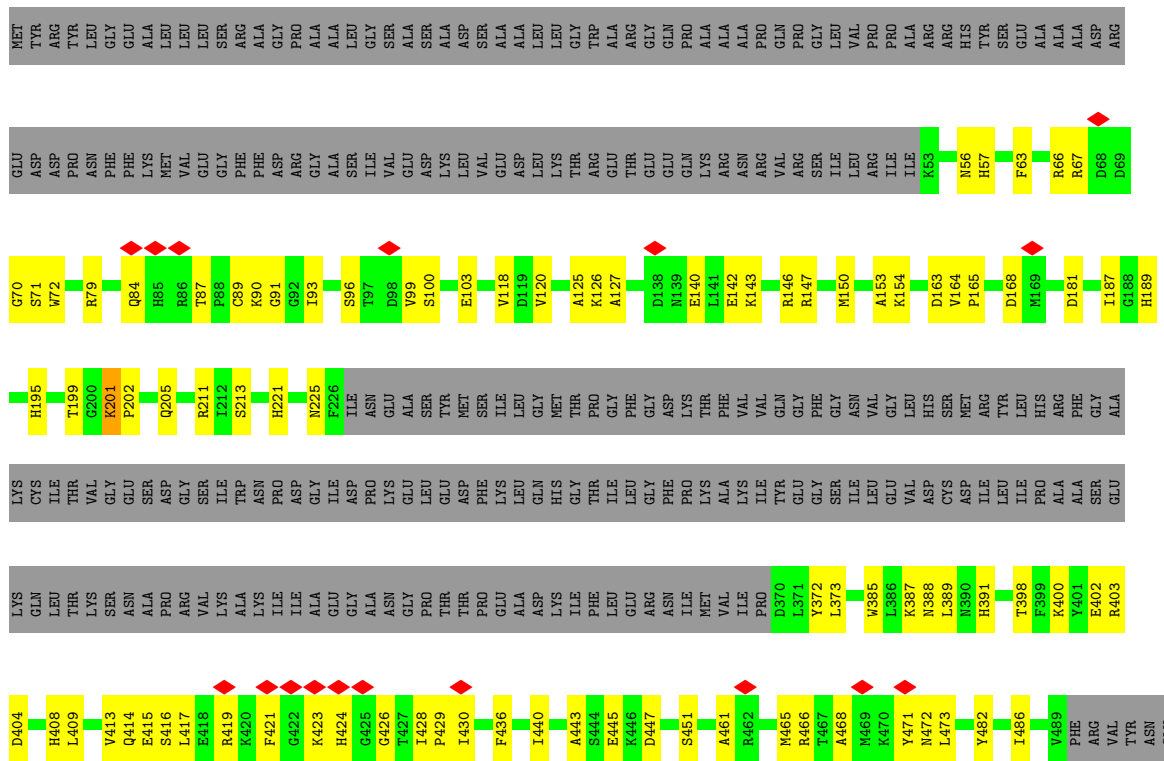
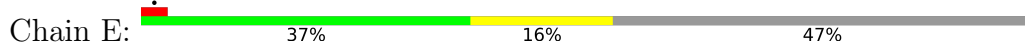
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Mol	Chain	Residues	Atoms		AltConf
2	E	181	Total 181	O 181	0
2	F	181	Total 181	O 181	0




● Molecule 1: Glutamate dehydrogenase 1, mitochondrial



ALA
GLY
VAL
THR
PHE
THR

- Molecule 1: Glutamate dehydrogenase 1, mitochondrial

Chain F:  36% 16% 47%MET
TYR
ARG
TYR
LEU
GLY
GLU
ALA
LEU
LEU
LEU
LEU
SER
ARG
ALA
GLY
PRO
ALA
ALA
ALA
LEU
LEU
GLY
SER
SER
SER
ASP
SER
SER
GLN
PRO
ALA
ALA
ALA
Gln
PRO
Gly
LEU
VAL
PRO
PRO
PRO
ARG
ARG
ARG
HIS
TYR
SER
GLU
ALA
ALA
ASP
ARGGLU
ASP
ASP
PRO
ASN
PHE
PHE
LYS
MET
VAL
GLU
GLY
GLY
PHE
PHE
ASP
ASP
GLY
ALA
ALA
SER
ILE
VAL
VAL
GLU
ASP
THR
LEU
LYS
THR
ARG
THR
GLU
GLN
GLU
GLN
LYS
GLN
LYS
LEU
LEU
ILE
R53
R56
H57
F63
R66
R67
D68
D69G70
S71
W72
R79
Q84
H85
R86
T87
C89
K90
G91
I93
S96
T97
D98
V99
S100
E103
V118
D119
V120
A125
K126
A127
D138
H139
L140
L141
K143
R146
R147
M150
A153
K154
D163
V164
P165
D168
M169
D181
I187
G188
H189Y190
H195
T199
K201
F202
Q205
R211
T212
S213
H221
N225
F226
ILE
ASN
GLU
ALA
SER
TYR
MET
PHE
SER
ILE
LEU
GLN
GLY
MET
THR
PRO
GLY
PHE
GLY
LEU
LEU
GLY
ASP
LYS
PRO
THR
PHE
VAL
ILE
VAL
TYR
GLY
PHE
ASN
VAL
LEU
GLY
VAL
LEU
HIS
SER
MET
ARG
LEU
TYR
HIS
PHE
ARG
GLY
SERALA
LYS
CYS
ILE
THR
VAL
GLY
GLU
SER
ASP
GLY
SER
ILE
TRP
ASN
PRO
ASP
ILE
GLY
ASP
ILE
PRO
LYS
GLU
ALA
GLY
GLY
ALA
ASN
GLY
PRO
THR
ASP
PHE
SER
LYS
ILE
GLU
ALA
SER
ILE
VAL
TYR
GLY
SER
ILE
GLY
VAL
VAL
ASP
CYS
ASP
ILE
LEU
ILE
PRO
ALA
ALA
SERGLU
LYS
GLN
THR
SER
ASN
ALA
PRO
ARG
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ALA
LYS
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LYS
ALA
GLU
GLY
ALA
ALA
ASN
GLY
PRO
THR
THR
PRO
GLU
ALA
ASP
LYS
ILE
PHE
GLU
ARG
ASN
ILE
MET
VAL
ILE
PRO
D370
L371
Y372
L373
W385
L386
K387
N388
L389
N390
H391
T398
F399
K400
Y401
E402R403
D404
H408
L409
V413
Q414
E415
S416
L417
E418
R419
K420
F421
G422
K423
H424
G425
G426
T427
I428
P429
I430
F436
I440
A443
S444
E445
K446
D447
S451
A461
R462
M465
R466
T467
A468
M469
K470
Y471
M472
L473
Y482
I486
V489
PHE
ARG
VAL
TYR
ASNGLU
ALA
GLY
VAL
THR
PHE
THR

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D3	Depositor
Number of particles used	21818	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2100	Depositor
Magnification	78000	Depositor
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.034	Depositor
Minimum map value	-0.014	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.0085	Depositor
Map size (Å)	149.058, 149.058, 149.058	wwPDB
Map dimensions	234, 234, 234	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.63699996, 0.63699996, 0.63699996	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.43	0/2345	0.55	1/3166 (0.0%)
1	B	0.43	0/2345	0.55	1/3166 (0.0%)
1	C	0.43	0/2345	0.55	1/3166 (0.0%)
1	D	0.43	0/2345	0.55	0/3166
1	E	0.43	0/2345	0.55	1/3166 (0.0%)
1	F	0.43	0/2345	0.55	1/3166 (0.0%)
All	All	0.43	0/14070	0.55	5/18996 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	201	LYS	C-N-CD	5.02	138.94	128.40
1	A	201	LYS	C-N-CD	5.01	138.93	128.40
1	F	201	LYS	C-N-CD	5.01	138.92	128.40
1	E	201	LYS	C-N-CD	5.00	138.91	128.40
1	C	201	LYS	C-N-CD	5.00	138.90	128.40

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2295	0	2261	94	0
1	B	2295	0	2261	93	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2295	0	2261	93	0
1	D	2295	0	2261	92	0
1	E	2295	0	2261	89	0
1	F	2295	0	2261	92	0
2	A	181	0	0	18	0
2	B	182	0	0	20	0
2	C	180	0	0	18	0
2	D	181	0	0	20	0
2	E	181	0	0	16	0
2	F	181	0	0	16	0
All	All	14856	0	13566	512	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 (512) 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:142:GLU:O	1:B:146:ARG:HG3	1.62	0.99
1:D:142:GLU:O	1:D:146:ARG:HG3	1.62	0.99
1:A:142:GLU:O	1:A:146:ARG:HG3	1.62	0.99
1:C:142:GLU:O	1:C:146:ARG:HG3	1.62	0.99
1:E:142:GLU:O	1:E:146:ARG:HG3	1.62	0.98
1:F:142:GLU:O	1:F:146:ARG:HG3	1.62	0.98
1:E:90:LYS:HE3	2:E:721:HOH:O	1.76	0.85
1:F:90:LYS:HE3	2:F:721:HOH:O	1.76	0.85
1:B:90:LYS:HE3	2:B:722:HOH:O	1.76	0.85
1:D:90:LYS:HE3	2:D:721:HOH:O	1.76	0.85
1:E:201:LYS:HZ1	1:E:388:ASN:HD21	1.23	0.85
1:C:90:LYS:HE3	2:C:720:HOH:O	1.76	0.84
1:F:201:LYS:HZ1	1:F:388:ASN:HD21	1.23	0.84
1:A:90:LYS:HE3	2:A:722:HOH:O	1.76	0.84
1:C:201:LYS:HZ3	1:C:388:ASN:HD21	1.24	0.83
1:A:201:LYS:HZ3	1:A:388:ASN:HD21	1.24	0.83
1:F:211:ARG:NH2	2:F:603:HOH:O	2.13	0.82
1:E:211:ARG:NH2	2:E:603:HOH:O	2.13	0.82
1:B:211:ARG:NH2	2:B:603:HOH:O	2.13	0.81
1:D:211:ARG:NH2	2:D:603:HOH:O	2.13	0.81
1:A:211:ARG:NH2	2:A:603:HOH:O	2.13	0.80
1:C:211:ARG:NH2	2:C:603:HOH:O	2.13	0.80
1:E:201:LYS:NZ	1:E:388:ASN:HD21	1.81	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:201:LYS:NZ	1:F:388:ASN:HD21	1.81	0.78
1:A:201:LYS:NZ	1:A:388:ASN:HD21	1.81	0.78
1:C:201:LYS:NZ	1:C:388:ASN:HD21	1.81	0.78
1:B:201:LYS:HZ3	1:B:388:ASN:HD21	1.29	0.77
1:D:201:LYS:HZ3	1:D:388:ASN:HD21	1.29	0.77
1:A:201:LYS:NZ	1:A:388:ASN:ND2	2.33	0.76
1:C:201:LYS:NZ	1:C:388:ASN:ND2	2.33	0.76
1:B:201:LYS:NZ	1:B:388:ASN:HD21	1.81	0.76
1:D:201:LYS:NZ	1:D:388:ASN:HD21	1.81	0.76
1:B:201:LYS:NZ	1:B:388:ASN:ND2	2.33	0.76
1:D:201:LYS:NZ	1:D:388:ASN:ND2	2.33	0.76
1:E:201:LYS:NZ	1:E:388:ASN:ND2	2.33	0.75
1:F:150:MET:HE3	2:F:775:HOH:O	1.86	0.75
1:F:201:LYS:NZ	1:F:388:ASN:ND2	2.33	0.75
1:E:150:MET:HE3	2:E:775:HOH:O	1.86	0.75
1:A:414:GLN:HG2	1:A:429:PRO:HD2	1.69	0.75
1:C:414:GLN:HG2	1:C:429:PRO:HD2	1.69	0.75
1:F:79:ARG:NE	1:F:163:ASP:OD2	2.20	0.75
1:E:79:ARG:NE	1:E:163:ASP:OD2	2.20	0.74
1:A:211:ARG:O	2:A:601:HOH:O	2.05	0.74
1:B:211:ARG:O	2:B:601:HOH:O	2.05	0.74
1:A:150:MET:CE	2:A:775:HOH:O	2.35	0.74
1:D:211:ARG:O	2:D:601:HOH:O	2.05	0.74
1:B:142:GLU:OE1	2:B:602:HOH:O	2.06	0.74
1:C:211:ARG:O	2:C:601:HOH:O	2.05	0.74
1:D:142:GLU:OE1	2:D:602:HOH:O	2.06	0.74
1:C:150:MET:CE	2:C:774:HOH:O	2.35	0.74
1:C:79:ARG:NE	1:C:163:ASP:OD2	2.20	0.74
1:F:150:MET:CE	2:F:775:HOH:O	2.35	0.73
1:E:150:MET:CE	2:E:775:HOH:O	2.35	0.73
1:F:211:ARG:O	2:F:601:HOH:O	2.05	0.73
1:A:142:GLU:OE1	2:A:602:HOH:O	2.06	0.73
1:C:142:GLU:OE1	2:C:602:HOH:O	2.06	0.73
1:E:211:ARG:O	2:E:601:HOH:O	2.05	0.73
1:B:150:MET:CE	2:B:776:HOH:O	2.35	0.73
1:D:150:MET:CE	2:D:775:HOH:O	2.35	0.73
1:E:414:GLN:HG2	1:E:429:PRO:HD2	1.69	0.73
1:B:414:GLN:HG2	1:B:429:PRO:HD2	1.69	0.72
1:F:142:GLU:OE1	2:F:602:HOH:O	2.06	0.72
1:F:126:LYS:NZ	1:F:168:ASP:OD2	2.22	0.72
1:E:126:LYS:NZ	1:E:168:ASP:OD2	2.22	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:142:GLU:OE1	2:E:602:HOH:O	2.06	0.72
1:F:423:LYS:HD3	1:F:426:GLY:HA3	1.71	0.72
1:F:414:GLN:HG2	1:F:429:PRO:HD2	1.69	0.72
1:A:423:LYS:HD3	1:A:426:GLY:HA3	1.71	0.72
1:B:423:LYS:HD3	1:B:426:GLY:HA3	1.71	0.72
1:D:414:GLN:HG2	1:D:429:PRO:HD2	1.69	0.72
1:E:423:LYS:HD3	1:E:426:GLY:HA3	1.72	0.72
1:D:423:LYS:HD3	1:D:426:GLY:HA3	1.72	0.72
1:C:423:LYS:HD3	1:C:426:GLY:HA3	1.72	0.72
1:A:126:LYS:NZ	1:A:168:ASP:OD2	2.22	0.71
1:A:79:ARG:NE	1:A:163:ASP:OD2	2.20	0.71
1:C:126:LYS:NZ	1:C:168:ASP:OD2	2.22	0.71
1:C:90:LYS:NZ	1:C:199:THR:OG1	2.22	0.71
1:A:90:LYS:NZ	1:A:199:THR:OG1	2.22	0.71
1:B:201:LYS:HZ1	1:B:388:ASN:ND2	1.88	0.71
1:D:201:LYS:HZ1	1:D:388:ASN:ND2	1.88	0.70
1:D:126:LYS:NZ	1:D:168:ASP:OD2	2.22	0.70
1:D:79:ARG:NE	1:D:163:ASP:OD2	2.20	0.70
1:B:126:LYS:NZ	1:B:168:ASP:OD2	2.22	0.70
1:B:79:ARG:NE	1:B:163:ASP:OD2	2.20	0.70
1:E:90:LYS:NZ	1:E:199:THR:OG1	2.22	0.70
1:A:150:MET:HE3	2:A:775:HOH:O	1.90	0.69
1:F:90:LYS:NZ	1:F:199:THR:OG1	2.22	0.69
1:B:90:LYS:NZ	1:B:199:THR:OG1	2.22	0.69
1:D:90:LYS:NZ	1:D:199:THR:OG1	2.22	0.69
1:F:415:GLU:O	1:F:419:ARG:HG2	1.93	0.68
1:E:415:GLU:O	1:E:419:ARG:HG2	1.93	0.68
1:C:150:MET:HE3	2:C:774:HOH:O	1.92	0.68
1:D:415:GLU:O	1:D:419:ARG:HG2	1.93	0.68
1:B:415:GLU:O	1:B:419:ARG:HG2	1.93	0.68
1:A:415:GLU:O	1:A:419:ARG:HG2	1.93	0.67
1:C:415:GLU:O	1:C:419:ARG:HG2	1.93	0.67
1:E:221:HIS:O	1:E:225:ASN:ND2	2.29	0.66
1:F:221:HIS:O	1:F:225:ASN:ND2	2.29	0.66
1:C:63:PHE:HB2	1:C:147:ARG:HE	1.61	0.66
1:A:63:PHE:HB2	1:A:147:ARG:HE	1.61	0.66
1:B:63:PHE:HB2	1:B:147:ARG:HE	1.61	0.66
1:D:63:PHE:HB2	1:D:147:ARG:HE	1.61	0.65
1:A:221:HIS:O	1:A:225:ASN:ND2	2.29	0.65
1:E:63:PHE:HB2	1:E:147:ARG:HE	1.61	0.65
1:F:63:PHE:HB2	1:F:147:ARG:HE	1.61	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:221:HIS:O	1:C:225:ASN:ND2	2.29	0.65
1:D:221:HIS:O	1:D:225:ASN:ND2	2.29	0.65
1:B:221:HIS:O	1:B:225:ASN:ND2	2.29	0.65
1:C:201:LYS:HZ1	1:C:388:ASN:ND2	1.94	0.64
1:A:201:LYS:HZ1	1:A:388:ASN:ND2	1.94	0.64
1:D:100:SER:OG	1:D:103:GLU:HG2	1.98	0.64
1:A:100:SER:OG	1:A:103:GLU:HG2	1.98	0.64
1:B:100:SER:OG	1:B:103:GLU:HG2	1.98	0.64
1:C:100:SER:OG	1:C:103:GLU:HG2	1.97	0.64
1:F:146:ARG:NH1	1:F:181:ASP:OD2	2.32	0.63
1:E:146:ARG:NH1	1:E:181:ASP:OD2	2.32	0.63
1:D:150:MET:HE3	2:D:775:HOH:O	1.98	0.63
1:B:150:MET:HE3	2:B:776:HOH:O	1.98	0.63
1:B:146:ARG:NH1	1:B:181:ASP:OD2	2.32	0.63
1:D:146:ARG:NH1	1:D:181:ASP:OD2	2.32	0.63
1:E:100:SER:OG	1:E:103:GLU:HG2	1.98	0.62
1:B:414:GLN:HE21	1:B:428:ILE:HA	1.64	0.62
1:F:100:SER:OG	1:F:103:GLU:HG2	1.98	0.62
1:A:146:ARG:NH1	1:A:181:ASP:OD2	2.32	0.62
1:C:146:ARG:NH1	1:C:181:ASP:OD2	2.32	0.62
1:D:414:GLN:HE21	1:D:428:ILE:HA	1.64	0.62
1:A:414:GLN:HE21	1:A:428:ILE:HA	1.64	0.62
1:B:189:HIS:HB3	2:B:761:HOH:O	2.00	0.62
1:C:414:GLN:HE21	1:C:428:ILE:HA	1.64	0.62
1:D:189:HIS:HB3	2:D:760:HOH:O	1.99	0.62
1:A:189:HIS:HB3	2:A:760:HOH:O	1.99	0.62
1:C:189:HIS:HB3	2:C:759:HOH:O	1.99	0.62
1:E:201:LYS:HZ2	1:E:388:ASN:ND2	1.96	0.62
1:F:201:LYS:HZ2	1:F:388:ASN:ND2	1.96	0.61
1:E:90:LYS:HD2	1:E:164:VAL:O	2.00	0.61
1:F:90:LYS:HD2	1:F:164:VAL:O	2.01	0.61
1:A:90:LYS:HD2	1:A:164:VAL:O	2.00	0.61
1:E:414:GLN:HE21	1:E:428:ILE:HA	1.64	0.61
1:F:189:HIS:HB3	2:F:760:HOH:O	1.99	0.61
1:C:90:LYS:HD2	1:C:164:VAL:O	2.00	0.61
1:E:189:HIS:HB3	2:E:760:HOH:O	1.99	0.61
1:F:414:GLN:HE21	1:F:428:ILE:HA	1.64	0.61
1:D:90:LYS:HD2	1:D:164:VAL:O	2.00	0.60
1:B:90:LYS:HD2	1:B:164:VAL:O	2.01	0.60
1:E:202:PRO:HD2	1:E:205:GLN:HB2	1.83	0.60
1:F:202:PRO:HD2	1:F:205:GLN:HB2	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:202:PRO:HD2	1:A:205:GLN:HB2	1.83	0.60
1:C:202:PRO:HD2	1:C:205:GLN:HB2	1.83	0.60
1:A:195:HIS:HE1	1:A:391:HIS:CD2	2.21	0.59
1:C:195:HIS:HE1	1:C:391:HIS:CD2	2.21	0.59
1:B:91:GLY:O	1:B:165:PRO:HA	2.03	0.58
1:B:195:HIS:HE1	1:B:391:HIS:CD2	2.21	0.58
1:D:91:GLY:O	1:D:165:PRO:HA	2.03	0.58
1:D:195:HIS:HE1	1:D:391:HIS:CD2	2.21	0.58
1:F:91:GLY:O	1:F:165:PRO:HA	2.03	0.58
1:E:91:GLY:O	1:E:165:PRO:HA	2.03	0.58
1:E:195:HIS:HE1	1:E:391:HIS:CD2	2.21	0.58
1:F:195:HIS:HE1	1:F:391:HIS:CD2	2.21	0.58
1:B:202:PRO:HD2	1:B:205:GLN:HB2	1.83	0.58
1:D:202:PRO:HD2	1:D:205:GLN:HB2	1.83	0.58
1:C:91:GLY:O	1:C:165:PRO:HA	2.03	0.58
1:E:56:ASN:OD1	1:E:57:HIS:N	2.37	0.58
1:B:56:ASN:OD1	1:B:57:HIS:N	2.37	0.58
1:D:56:ASN:OD1	1:D:57:HIS:N	2.37	0.58
1:F:56:ASN:OD1	1:F:57:HIS:N	2.37	0.58
1:A:372:TYR:HD2	1:A:373:LEU:HD12	1.69	0.58
1:A:91:GLY:O	1:A:165:PRO:HA	2.03	0.58
1:C:372:TYR:HD2	1:C:373:LEU:HD12	1.69	0.58
1:B:372:TYR:HD2	1:B:373:LEU:HD12	1.69	0.57
1:C:56:ASN:OD1	1:C:57:HIS:N	2.37	0.57
1:E:372:TYR:HD2	1:E:373:LEU:HD12	1.69	0.57
1:F:372:TYR:HD2	1:F:373:LEU:HD12	1.69	0.57
1:A:56:ASN:OD1	1:A:57:HIS:N	2.37	0.57
1:D:372:TYR:HD2	1:D:373:LEU:HD12	1.69	0.57
1:D:387:LYS:HD2	1:D:445:GLU:OE2	2.04	0.57
1:B:387:LYS:HD2	1:B:445:GLU:OE2	2.04	0.57
1:A:471:TYR:HB3	1:A:473:LEU:HD12	1.87	0.57
1:C:471:TYR:HB3	1:C:473:LEU:HD12	1.87	0.57
1:D:471:TYR:HB3	1:D:473:LEU:HD12	1.87	0.57
1:B:471:TYR:HB3	1:B:473:LEU:HD12	1.87	0.57
1:C:387:LYS:HD2	1:C:445:GLU:OE2	2.04	0.57
1:E:471:TYR:HB3	1:E:473:LEU:HD12	1.87	0.57
1:F:471:TYR:HB3	1:F:473:LEU:HD12	1.87	0.57
1:E:387:LYS:HD2	1:E:445:GLU:OE2	2.04	0.56
1:F:387:LYS:HD2	1:F:445:GLU:OE2	2.04	0.56
1:A:387:LYS:HD2	1:A:445:GLU:OE2	2.04	0.56
1:A:79:ARG:HH11	1:A:127:ALA:HB2	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:79:ARG:HH11	1:C:127:ALA:HB2	1.70	0.56
1:D:79:ARG:HH11	1:D:127:ALA:HB2	1.70	0.55
1:F:79:ARG:HH11	1:F:127:ALA:HB2	1.70	0.55
1:B:79:ARG:HH11	1:B:127:ALA:HB2	1.70	0.55
1:E:79:ARG:HH11	1:E:127:ALA:HB2	1.70	0.55
1:A:451:SER:HB2	1:B:400:LYS:HB3	1.89	0.54
1:B:190:TYR:OH	1:E:154:LYS:O	2.15	0.54
1:B:87:THR:HG22	2:B:658:HOH:O	2.07	0.54
1:C:87:THR:HG22	2:C:658:HOH:O	2.07	0.54
1:D:87:THR:HG22	2:D:658:HOH:O	2.07	0.54
1:A:87:THR:HG22	2:A:657:HOH:O	2.07	0.54
1:E:403:ARG:NE	2:E:616:HOH:O	2.41	0.54
1:F:403:ARG:NE	2:F:616:HOH:O	2.41	0.54
1:F:87:THR:HG22	2:F:657:HOH:O	2.07	0.54
1:C:403:ARG:NE	2:C:616:HOH:O	2.41	0.53
1:D:403:ARG:NE	2:D:616:HOH:O	2.41	0.53
1:E:87:THR:HG22	2:E:658:HOH:O	2.07	0.53
1:A:403:ARG:NE	2:A:616:HOH:O	2.41	0.53
1:B:403:ARG:NE	2:B:616:HOH:O	2.41	0.53
1:C:153:ALA:HB1	1:C:187:ILE:HG13	1.90	0.53
1:A:153:ALA:HB1	1:A:187:ILE:HG13	1.90	0.53
1:B:451:SER:HB2	1:F:400:LYS:HB3	1.89	0.53
1:E:153:ALA:HB1	1:E:187:ILE:HG13	1.90	0.53
1:F:153:ALA:HB1	1:F:187:ILE:HG13	1.90	0.52
1:D:140:GLU:OE1	1:D:143:LYS:HD2	2.10	0.52
1:B:140:GLU:OE1	1:B:143:LYS:HD2	2.10	0.52
1:A:140:GLU:OE1	1:A:143:LYS:HD2	2.10	0.52
1:B:153:ALA:HB1	1:B:187:ILE:HG13	1.90	0.52
1:C:140:GLU:OE1	1:C:143:LYS:HD2	2.10	0.52
1:E:140:GLU:OE1	1:E:143:LYS:HD2	2.10	0.52
1:D:153:ALA:HB1	1:D:187:ILE:HG13	1.90	0.51
1:C:451:SER:HB2	1:D:400:LYS:HB3	1.92	0.51
1:F:140:GLU:OE1	1:F:143:LYS:HD2	2.10	0.51
1:E:398:THR:HG22	1:E:402:GLU:HG2	1.92	0.51
1:F:90:LYS:HZ3	1:F:164:VAL:HG12	1.74	0.51
1:B:398:THR:HG22	1:B:402:GLU:HG2	1.92	0.51
1:C:400:LYS:HB3	1:E:451:SER:HB2	1.92	0.51
1:F:398:THR:HG22	1:F:402:GLU:HG2	1.92	0.51
1:A:429:PRO:HA	1:B:416:SER:HB3	1.92	0.51
1:D:190:TYR:OH	1:F:154:LYS:O	2.18	0.51
1:D:398:THR:HG22	1:D:402:GLU:HG2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:400:LYS:HB3	1:F:451:SER:HB2	1.92	0.51
1:D:187:ILE:HG23	2:D:766:HOH:O	2.11	0.51
1:B:187:ILE:HG23	2:B:767:HOH:O	2.11	0.51
1:F:187:ILE:HG23	2:F:766:HOH:O	2.11	0.50
1:E:187:ILE:HG23	2:E:767:HOH:O	2.11	0.50
1:E:90:LYS:HZ3	1:E:164:VAL:HG12	1.75	0.50
1:A:398:THR:HG22	1:A:402:GLU:HG2	1.92	0.50
1:C:398:THR:HG22	1:C:402:GLU:HG2	1.92	0.50
1:C:187:ILE:HG23	2:C:765:HOH:O	2.11	0.50
1:D:154:LYS:O	1:F:190:TYR:OH	2.18	0.50
1:F:436:PHE:CZ	1:F:440:ILE:HD11	2.47	0.50
1:A:187:ILE:HG23	2:A:766:HOH:O	2.11	0.50
1:B:142:GLU:O	1:B:146:ARG:CG	2.50	0.50
1:E:436:PHE:CZ	1:E:440:ILE:HD11	2.47	0.50
1:A:436:PHE:CG	1:B:408:HIS:HB3	2.47	0.50
1:C:142:GLU:O	1:C:146:ARG:CG	2.50	0.50
1:D:436:PHE:CZ	1:D:440:ILE:HD11	2.47	0.50
1:A:429:PRO:HA	1:B:416:SER:CB	2.42	0.50
1:B:436:PHE:CZ	1:B:440:ILE:HD11	2.47	0.50
1:D:451:SER:HB2	1:E:400:LYS:HB3	1.93	0.50
1:D:142:GLU:O	1:D:146:ARG:CG	2.50	0.49
1:E:430:ILE:HD12	2:E:710:HOH:O	2.13	0.49
1:B:482:TYR:O	1:B:486:ILE:HD12	2.12	0.49
1:F:430:ILE:HD12	2:F:710:HOH:O	2.13	0.49
1:A:90:LYS:HZ3	1:A:164:VAL:HG12	1.76	0.49
1:C:372:TYR:CD2	1:C:373:LEU:HD12	2.48	0.49
1:C:482:TYR:O	1:C:486:ILE:HD12	2.12	0.49
1:D:482:TYR:O	1:D:486:ILE:HD12	2.12	0.49
1:B:150:MET:HE2	2:B:776:HOH:O	2.08	0.49
1:C:436:PHE:CZ	1:C:440:ILE:HD11	2.47	0.49
1:E:482:TYR:O	1:E:486:ILE:HD12	2.12	0.49
1:A:372:TYR:CD2	1:A:373:LEU:HD12	2.48	0.48
1:A:436:PHE:CZ	1:A:440:ILE:HD11	2.47	0.48
1:A:482:TYR:O	1:A:486:ILE:HD12	2.12	0.48
1:A:436:PHE:HB2	1:B:408:HIS:CD2	2.48	0.48
1:C:90:LYS:HZ3	1:C:164:VAL:HG12	1.76	0.48
1:E:372:TYR:CD2	1:E:373:LEU:HD12	2.48	0.48
1:F:372:TYR:CD2	1:F:373:LEU:HD12	2.48	0.48
1:A:416:SER:HB3	1:F:429:PRO:HA	1.95	0.48
1:F:482:TYR:O	1:F:486:ILE:HD12	2.12	0.48
1:A:66:ARG:HD3	1:A:72:TRP:CZ2	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:430:ILE:HD12	2:B:711:HOH:O	2.13	0.48
1:C:66:ARG:HD3	1:C:72:TRP:CZ2	2.48	0.48
1:D:150:MET:HE2	2:D:775:HOH:O	2.08	0.48
1:D:430:ILE:HD12	2:D:710:HOH:O	2.13	0.48
1:A:430:ILE:HD12	2:A:710:HOH:O	2.13	0.48
1:D:404:ASP:O	1:D:408:HIS:ND1	2.32	0.48
1:C:430:ILE:HD12	2:C:709:HOH:O	2.13	0.48
1:B:436:PHE:CG	1:F:408:HIS:HB3	2.49	0.48
1:C:404:ASP:O	1:C:408:HIS:ND1	2.32	0.48
1:E:66:ARG:HD3	1:E:72:TRP:CZ2	2.48	0.48
1:B:404:ASP:O	1:B:408:HIS:ND1	2.32	0.48
1:F:66:ARG:HD3	1:F:72:TRP:CZ2	2.48	0.48
1:A:404:ASP:O	1:A:408:HIS:ND1	2.32	0.48
1:A:190:TYR:OH	1:C:154:LYS:O	2.18	0.47
1:D:66:ARG:HD3	1:D:72:TRP:CZ2	2.48	0.47
1:B:56:ASN:HD22	1:B:84:GLN:H	1.63	0.47
1:B:66:ARG:HD3	1:B:72:TRP:CZ2	2.48	0.47
1:C:416:SER:HB3	1:E:429:PRO:HA	1.97	0.47
1:D:372:TYR:CD2	1:D:373:LEU:HD12	2.48	0.47
1:D:56:ASN:HD22	1:D:84:GLN:N	2.12	0.47
1:A:56:ASN:HD22	1:A:84:GLN:N	2.12	0.47
1:C:56:ASN:HD22	1:C:84:GLN:N	2.12	0.47
1:D:56:ASN:HD22	1:D:84:GLN:H	1.63	0.47
1:A:56:ASN:HD22	1:A:84:GLN:H	1.63	0.47
1:B:372:TYR:CD2	1:B:373:LEU:HD12	2.48	0.47
1:B:56:ASN:HD22	1:B:84:GLN:N	2.12	0.47
1:F:56:ASN:HD22	1:F:84:GLN:H	1.63	0.47
1:B:56:ASN:CG	1:B:57:HIS:HD1	2.18	0.47
1:C:56:ASN:HD22	1:C:84:GLN:H	1.63	0.47
1:D:56:ASN:CG	1:D:57:HIS:HD1	2.18	0.47
1:E:56:ASN:HD22	1:E:84:GLN:H	1.63	0.47
1:E:56:ASN:HD22	1:E:84:GLN:N	2.12	0.47
1:A:154:LYS:O	1:C:190:TYR:OH	2.20	0.46
1:F:56:ASN:HD22	1:F:84:GLN:N	2.12	0.46
1:A:56:ASN:CG	1:A:57:HIS:HD1	2.18	0.46
1:D:429:PRO:HA	1:E:416:SER:HB3	1.96	0.46
1:C:56:ASN:CG	1:C:57:HIS:HD1	2.18	0.46
1:C:429:PRO:HA	1:D:416:SER:HB3	1.97	0.46
1:E:430:ILE:HG12	2:E:631:HOH:O	2.16	0.46
1:F:430:ILE:HG12	2:F:631:HOH:O	2.16	0.46
1:D:430:ILE:HG12	2:D:631:HOH:O	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:430:ILE:HG12	2:B:631:HOH:O	2.16	0.45
1:F:56:ASN:CG	1:F:57:HIS:HD1	2.18	0.45
1:B:436:PHE:HB2	1:F:408:HIS:CD2	2.51	0.45
1:C:430:ILE:HG12	2:C:631:HOH:O	2.16	0.45
1:E:56:ASN:CG	1:E:57:HIS:HD1	2.18	0.45
1:A:430:ILE:HG12	2:A:631:HOH:O	2.16	0.45
1:B:461:ALA:O	1:B:465:MET:HG3	2.17	0.45
1:D:461:ALA:O	1:D:465:MET:HG3	2.17	0.45
1:C:461:ALA:O	1:C:465:MET:HG3	2.17	0.45
1:E:461:ALA:O	1:E:465:MET:HG3	2.17	0.45
1:A:461:ALA:O	1:A:465:MET:HG3	2.17	0.45
1:D:409:LEU:O	1:D:413:VAL:HG23	2.17	0.45
1:D:423:LYS:HD3	1:D:426:GLY:CA	2.44	0.45
1:E:421:PHE:CD2	1:E:423:LYS:HE2	2.52	0.45
1:F:421:PHE:CD2	1:F:423:LYS:HE2	2.52	0.45
1:F:461:ALA:O	1:F:465:MET:HG3	2.17	0.45
1:A:409:LEU:O	1:A:413:VAL:HG23	2.17	0.45
1:B:409:LEU:O	1:B:413:VAL:HG23	2.17	0.45
1:B:423:LYS:HD3	1:B:426:GLY:CA	2.44	0.45
1:C:409:LEU:O	1:C:413:VAL:HG23	2.17	0.45
1:E:91:GLY:HA3	1:E:125:ALA:O	2.17	0.45
1:E:142:GLU:HG2	1:E:146:ARG:HD2	1.99	0.45
1:B:400:LYS:HA	1:B:403:ARG:HG2	1.99	0.44
1:B:414:GLN:NE2	1:B:428:ILE:HA	2.31	0.44
1:D:400:LYS:HA	1:D:403:ARG:HG2	1.99	0.44
1:F:142:GLU:HG2	1:F:146:ARG:HD2	1.99	0.44
1:A:408:HIS:CD2	1:F:436:PHE:HB2	2.53	0.44
1:B:142:GLU:HG2	1:B:146:ARG:HD2	1.99	0.44
1:D:414:GLN:NE2	1:D:428:ILE:HA	2.31	0.44
1:F:91:GLY:HA3	1:F:125:ALA:O	2.18	0.44
1:A:142:GLU:HG2	1:A:146:ARG:HD2	1.99	0.44
1:C:142:GLU:HG2	1:C:146:ARG:HD2	1.99	0.44
1:E:213:SER:HB2	2:E:642:HOH:O	2.17	0.44
1:E:423:LYS:HD3	1:E:426:GLY:CA	2.44	0.44
1:E:414:GLN:NE2	1:E:428:ILE:HA	2.31	0.44
1:F:213:SER:HB2	2:F:642:HOH:O	2.17	0.44
1:A:118:VAL:HG23	1:A:120:VAL:HG23	2.00	0.44
1:A:436:PHE:HB2	1:B:408:HIS:HD2	1.81	0.44
1:B:398:THR:O	1:B:402:GLU:HG2	2.18	0.44
1:B:421:PHE:CD2	1:B:423:LYS:HE2	2.52	0.44
1:C:118:VAL:HG23	1:C:120:VAL:HG23	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:142:GLU:HG2	1:D:146:ARG:HD2	1.99	0.44
1:E:417:LEU:HD12	1:E:429:PRO:HG2	1.99	0.44
1:F:423:LYS:HD3	1:F:426:GLY:CA	2.44	0.44
1:F:417:LEU:HD12	1:F:429:PRO:HG2	1.99	0.44
1:C:400:LYS:HA	1:C:403:ARG:HG2	1.99	0.44
1:C:408:HIS:CD2	1:E:436:PHE:HB2	2.53	0.44
1:C:414:GLN:NE2	1:C:428:ILE:HA	2.31	0.44
1:D:421:PHE:CD2	1:D:423:LYS:HE2	2.52	0.44
1:A:400:LYS:HA	1:A:403:ARG:HG2	1.99	0.44
1:A:417:LEU:HD12	1:A:429:PRO:HG2	1.99	0.44
1:C:213:SER:HB2	2:C:642:HOH:O	2.17	0.44
1:D:398:THR:O	1:D:402:GLU:HG2	2.18	0.44
1:F:142:GLU:O	1:F:146:ARG:CG	2.50	0.44
1:F:414:GLN:NE2	1:F:428:ILE:HA	2.31	0.44
1:A:91:GLY:HA3	1:A:125:ALA:O	2.18	0.44
1:A:414:GLN:NE2	1:A:428:ILE:HA	2.31	0.44
1:B:91:GLY:HA3	1:B:125:ALA:O	2.18	0.44
1:C:403:ARG:NH2	2:C:616:HOH:O	2.51	0.44
1:A:213:SER:HB2	2:A:642:HOH:O	2.17	0.44
1:A:398:THR:O	1:A:402:GLU:HG2	2.18	0.44
1:A:403:ARG:NH2	2:A:616:HOH:O	2.51	0.44
1:A:408:HIS:HB3	1:F:436:PHE:CG	2.53	0.44
1:A:416:SER:CB	1:F:429:PRO:HA	2.47	0.44
1:A:421:PHE:CD2	1:A:423:LYS:HE2	2.52	0.44
1:B:213:SER:HB2	2:B:641:HOH:O	2.17	0.44
1:C:398:THR:O	1:C:402:GLU:HG2	2.18	0.44
1:C:423:LYS:HD3	1:C:426:GLY:CA	2.44	0.44
1:D:213:SER:HB2	2:D:642:HOH:O	2.17	0.44
1:D:91:GLY:HA3	1:D:125:ALA:O	2.18	0.44
1:F:409:LEU:O	1:F:413:VAL:HG23	2.17	0.44
1:A:423:LYS:HD3	1:A:426:GLY:CA	2.44	0.43
1:C:91:GLY:HA3	1:C:125:ALA:O	2.18	0.43
1:C:408:HIS:HB3	1:E:436:PHE:CG	2.53	0.43
1:C:417:LEU:HD12	1:C:429:PRO:HG2	1.99	0.43
1:C:421:PHE:CD2	1:C:423:LYS:HE2	2.52	0.43
1:D:436:PHE:HB2	1:E:408:HIS:CD2	2.53	0.43
1:E:409:LEU:O	1:E:413:VAL:HG23	2.17	0.43
1:B:466:ARG:HG3	2:B:717:HOH:O	2.18	0.43
1:D:466:ARG:HG3	2:D:716:HOH:O	2.18	0.43
1:F:385:TRP:CZ2	1:F:389:LEU:HD11	2.54	0.43
1:F:400:LYS:HA	1:F:403:ARG:HG2	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:93:ILE:HD11	2:B:714:HOH:O	2.18	0.43
1:E:118:VAL:HG23	1:E:120:VAL:HG23	2.00	0.43
1:E:142:GLU:O	1:E:146:ARG:CG	2.50	0.43
1:E:385:TRP:CZ2	1:E:389:LEU:HD11	2.54	0.43
1:E:400:LYS:HA	1:E:403:ARG:HG2	1.99	0.43
1:E:398:THR:O	1:E:402:GLU:HG2	2.18	0.43
1:E:466:ARG:HG3	2:E:716:HOH:O	2.19	0.43
1:F:466:ARG:HG3	2:F:716:HOH:O	2.18	0.43
1:D:429:PRO:HA	1:E:416:SER:CB	2.48	0.43
1:F:118:VAL:HG23	1:F:120:VAL:HG23	2.00	0.43
1:C:385:TRP:CZ2	1:C:389:LEU:HD11	2.54	0.43
1:C:436:PHE:CG	1:D:408:HIS:HB3	2.54	0.43
1:D:417:LEU:HD12	1:D:429:PRO:HG2	1.99	0.43
1:E:93:ILE:HD11	2:E:713:HOH:O	2.18	0.43
1:F:398:THR:O	1:F:402:GLU:HG2	2.18	0.43
1:A:93:ILE:HG12	1:A:127:ALA:HB3	2.01	0.43
1:A:385:TRP:CZ2	1:A:389:LEU:HD11	2.54	0.43
1:A:67:ARG:HB2	1:A:71:SER:HB3	2.01	0.43
1:B:403:ARG:NH2	2:B:616:HOH:O	2.51	0.43
1:A:436:PHE:CD1	1:B:408:HIS:HB3	2.54	0.43
1:C:67:ARG:HB2	1:C:71:SER:HB3	2.01	0.43
1:C:93:ILE:HG12	1:C:127:ALA:HB3	2.01	0.43
1:D:385:TRP:CZ2	1:D:389:LEU:HD11	2.54	0.43
1:D:93:ILE:HD11	2:D:713:HOH:O	2.18	0.43
1:E:403:ARG:NH2	2:E:616:HOH:O	2.51	0.43
1:A:93:ILE:HD11	2:A:713:HOH:O	2.18	0.43
1:B:385:TRP:CZ2	1:B:389:LEU:HD11	2.54	0.43
1:B:417:LEU:HD12	1:B:429:PRO:HG2	1.99	0.43
1:C:93:ILE:HD11	2:C:711:HOH:O	2.18	0.43
1:A:66:ARG:NH1	1:A:70:GLY:O	2.52	0.43
1:C:66:ARG:NH1	1:C:70:GLY:O	2.52	0.43
1:F:403:ARG:NH2	2:F:616:HOH:O	2.51	0.43
1:F:93:ILE:HD11	2:F:713:HOH:O	2.18	0.43
1:D:118:VAL:HG23	1:D:120:VAL:HG23	2.00	0.43
1:D:403:ARG:NH2	2:D:616:HOH:O	2.51	0.43
1:D:436:PHE:CG	1:E:408:HIS:HB3	2.54	0.43
1:D:67:ARG:HB2	1:D:71:SER:HB3	2.01	0.43
1:B:66:ARG:NH1	1:B:70:GLY:O	2.52	0.42
1:B:67:ARG:HB2	1:B:71:SER:HB3	2.01	0.42
1:C:416:SER:CB	1:E:429:PRO:HA	2.48	0.42
1:C:429:PRO:HA	1:D:416:SER:CB	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:66:ARG:NH1	1:D:70:GLY:O	2.52	0.42
1:B:118:VAL:HG23	1:B:120:VAL:HG23	2.00	0.42
1:B:96:SER:HB3	1:B:99:VAL:HG13	2.02	0.42
1:D:96:SER:HB3	1:D:99:VAL:HG13	2.02	0.42
1:E:66:ARG:NH1	1:E:70:GLY:O	2.52	0.42
1:D:443:ALA:HA	1:D:447:ASP:OD2	2.20	0.42
1:F:66:ARG:NH1	1:F:70:GLY:O	2.52	0.42
1:B:443:ALA:HA	1:B:447:ASP:OD2	2.20	0.42
1:C:436:PHE:HB2	1:D:408:HIS:CD2	2.53	0.42
1:E:443:ALA:HA	1:E:447:ASP:OD2	2.20	0.42
1:D:374:ASN:O	2:D:604:HOH:O	2.22	0.42
1:F:443:ALA:HA	1:F:447:ASP:OD2	2.20	0.42
1:A:96:SER:HB3	1:A:99:VAL:HG13	2.02	0.42
1:A:96:SER:O	1:A:99:VAL:HG22	2.20	0.42
1:C:96:SER:HB3	1:C:99:VAL:HG13	2.02	0.42
1:D:150:MET:HG2	1:D:154:LYS:NZ	2.35	0.42
1:B:150:MET:HG2	1:B:154:LYS:NZ	2.35	0.42
1:C:96:SER:O	1:C:99:VAL:HG22	2.20	0.42
1:B:429:PRO:HA	1:F:416:SER:HB3	2.01	0.42
1:A:466:ARG:HG3	2:A:716:HOH:O	2.19	0.42
1:A:468:ALA:O	1:A:472:ASN:HA	2.20	0.42
1:C:466:ARG:HG3	2:C:715:HOH:O	2.19	0.42
1:C:468:ALA:O	1:C:472:ASN:HA	2.20	0.42
1:E:150:MET:HG2	1:E:154:LYS:NZ	2.35	0.42
1:A:414:GLN:O	1:A:417:LEU:N	2.53	0.42
1:B:374:ASN:O	2:B:604:HOH:O	2.22	0.42
1:E:67:ARG:HB2	1:E:71:SER:HB3	2.01	0.42
1:E:96:SER:O	1:E:99:VAL:HG22	2.20	0.42
1:F:150:MET:HG2	1:F:154:LYS:NZ	2.35	0.42
1:F:67:ARG:HB2	1:F:71:SER:HB3	2.01	0.42
1:B:93:ILE:HG12	1:B:127:ALA:HB3	2.01	0.41
1:A:154:LYS:HE2	1:E:84:GLN:HE22	1.84	0.41
1:C:414:GLN:O	1:C:417:LEU:N	2.53	0.41
1:D:414:GLN:O	1:D:417:LEU:N	2.53	0.41
1:B:414:GLN:O	1:B:417:LEU:N	2.53	0.41
1:D:93:ILE:HG12	1:D:127:ALA:HB3	2.01	0.41
1:E:404:ASP:O	1:E:408:HIS:ND1	2.32	0.41
1:E:468:ALA:O	1:E:472:ASN:HA	2.20	0.41
1:F:468:ALA:O	1:F:472:ASN:HA	2.20	0.41
1:F:96:SER:O	1:F:99:VAL:HG22	2.20	0.41
1:A:443:ALA:HA	1:A:447:ASP:OD2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:468:ALA:O	1:D:472:ASN:HA	2.20	0.41
1:E:89:CYS:HB3	1:E:125:ALA:HB2	2.02	0.41
1:F:89:CYS:HB3	1:F:125:ALA:HB2	2.03	0.41
1:B:86:ARG:HD3	2:B:681:HOH:O	2.21	0.41
1:D:96:SER:O	1:D:99:VAL:HG22	2.20	0.41
1:E:93:ILE:HG12	1:E:127:ALA:HB3	2.01	0.41
1:C:84:GLN:HE22	1:F:154:LYS:HE2	1.84	0.41
1:B:468:ALA:O	1:B:472:ASN:HA	2.20	0.41
1:B:96:SER:O	1:B:99:VAL:HG22	2.20	0.41
1:C:374:ASN:O	2:C:604:HOH:O	2.22	0.41
1:C:443:ALA:HA	1:C:447:ASP:OD2	2.20	0.41
1:D:86:ARG:HD3	2:D:680:HOH:O	2.21	0.41
1:E:96:SER:HB3	1:E:99:VAL:HG13	2.02	0.41
1:C:154:LYS:HE2	1:F:84:GLN:HE22	1.84	0.41
1:F:96:SER:HB3	1:F:99:VAL:HG13	2.02	0.41
1:C:150:MET:HG2	1:C:154:LYS:NZ	2.35	0.41
1:C:86:ARG:HD3	2:C:679:HOH:O	2.21	0.41
1:D:89:CYS:HB3	1:D:125:ALA:HB2	2.03	0.41
1:A:86:ARG:HD3	2:A:680:HOH:O	2.21	0.41
1:B:403:ARG:CZ	2:B:616:HOH:O	2.69	0.41
1:D:403:ARG:CZ	2:D:616:HOH:O	2.69	0.41
1:F:93:ILE:HG12	1:F:127:ALA:HB3	2.01	0.41
1:A:90:LYS:NZ	1:A:164:VAL:HG12	2.36	0.41
1:B:89:CYS:HB3	1:B:125:ALA:HB2	2.03	0.41
1:C:90:LYS:NZ	1:C:164:VAL:HG12	2.36	0.41
1:F:404:ASP:O	1:F:408:HIS:ND1	2.32	0.41
1:A:150:MET:HG2	1:A:154:LYS:NZ	2.35	0.41
1:A:408:HIS:HD2	1:F:436:PHE:HB2	1.86	0.41
1:A:374:ASN:O	2:A:604:HOH:O	2.22	0.40
1:B:90:LYS:NZ	1:B:164:VAL:HG12	2.36	0.40
1:D:90:LYS:NZ	1:D:164:VAL:HG12	2.36	0.40
1:E:414:GLN:O	1:E:417:LEU:N	2.53	0.40
1:A:78:TYR:CE1	1:A:101:VAL:HG22	2.57	0.40
1:C:78:TYR:CE1	1:C:101:VAL:HG22	2.57	0.40
1:B:436:PHE:CD1	1:F:408:HIS:HB3	2.56	0.40
1:F:414:GLN:O	1:F:417:LEU:N	2.53	0.40
1:E:424:HIS:ND1	1:E:424:HIS:O	2.55	0.40
1:F:424:HIS:ND1	1:F:424:HIS:O	2.55	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	290/558 (52%)	279 (96%)	11 (4%)	0	100	100
1	B	290/558 (52%)	279 (96%)	11 (4%)	0	100	100
1	C	290/558 (52%)	279 (96%)	11 (4%)	0	100	100
1	D	290/558 (52%)	279 (96%)	11 (4%)	0	100	100
1	E	290/558 (52%)	279 (96%)	11 (4%)	0	100	100
1	F	290/558 (52%)	279 (96%)	11 (4%)	0	100	100
All	All	1740/3348 (52%)	1674 (96%)	66 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	244/456 (54%)	244 (100%)	0	100	100
1	B	244/456 (54%)	244 (100%)	0	100	100
1	C	244/456 (54%)	244 (100%)	0	100	100
1	D	244/456 (54%)	244 (100%)	0	100	100
1	E	244/456 (54%)	244 (100%)	0	100	100
1	F	244/456 (54%)	244 (100%)	0	100	100
All	All	1464/2736 (54%)	1464 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	189	HIS
1	A	195	HIS
1	A	209	HIS
1	A	388	ASN
1	A	414	GLN
1	B	189	HIS
1	B	195	HIS
1	B	209	HIS
1	B	388	ASN
1	B	414	GLN
1	C	189	HIS
1	C	195	HIS
1	C	209	HIS
1	C	388	ASN
1	C	414	GLN
1	D	189	HIS
1	D	195	HIS
1	D	209	HIS
1	D	388	ASN
1	D	414	GLN
1	E	189	HIS
1	E	195	HIS
1	E	209	HIS
1	E	388	ASN
1	E	414	GLN
1	F	189	HIS
1	F	195	HIS
1	F	209	HIS
1	F	388	ASN
1	F	414	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

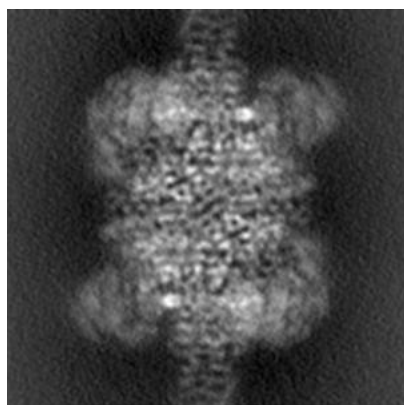
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8194. These allow visual inspection of the internal detail of the map and identification of artifacts.

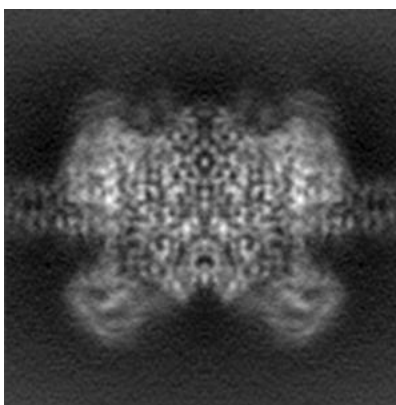
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

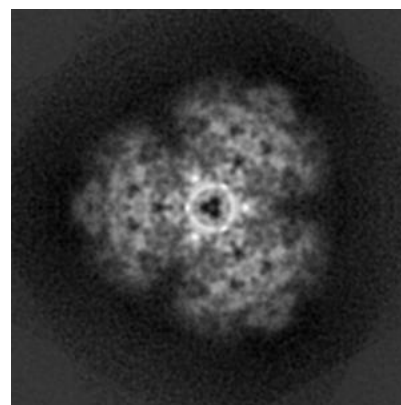
6.1.1 Primary map



X



Y

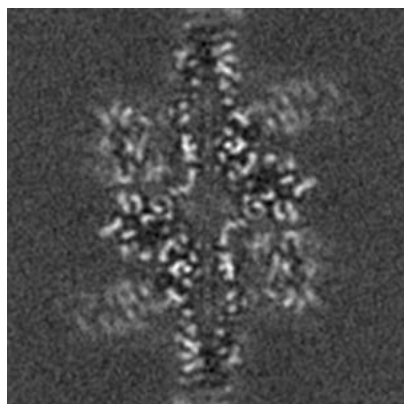


Z

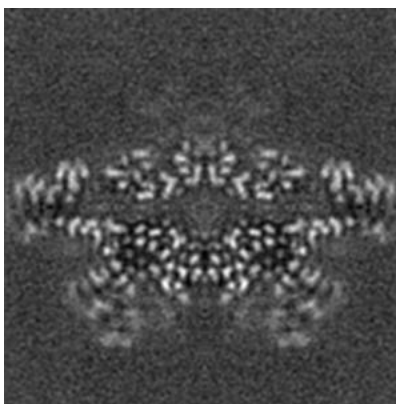
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

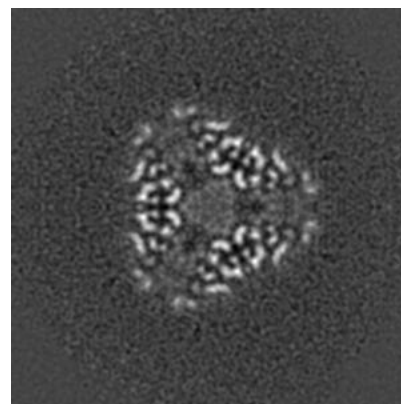
6.2.1 Primary map



X Index: 117



Y Index: 117

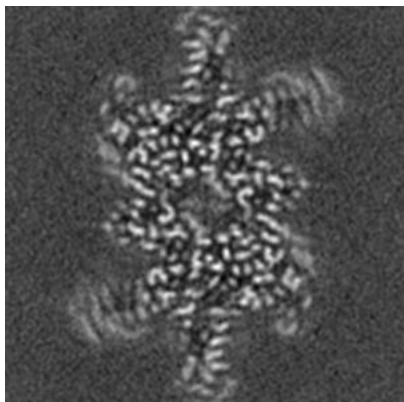


Z Index: 117

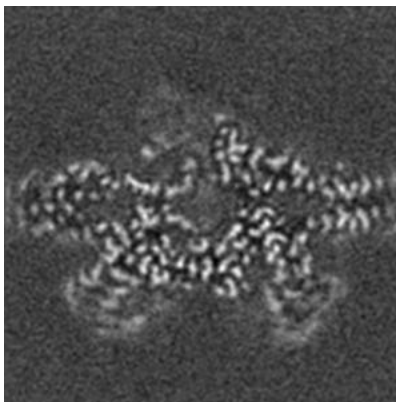
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

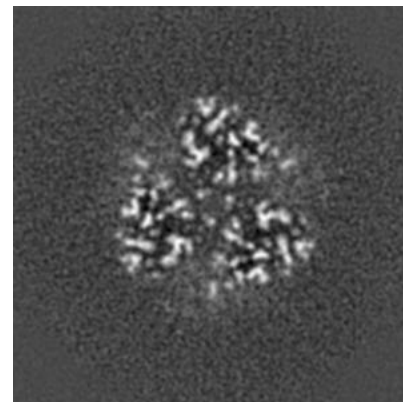
6.3.1 Primary map



X Index: 127



Y Index: 112

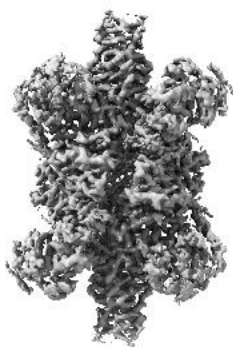


Z Index: 133

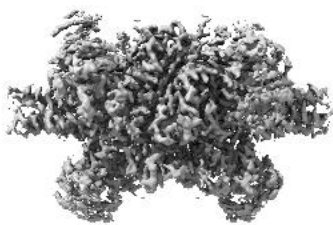
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0085. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

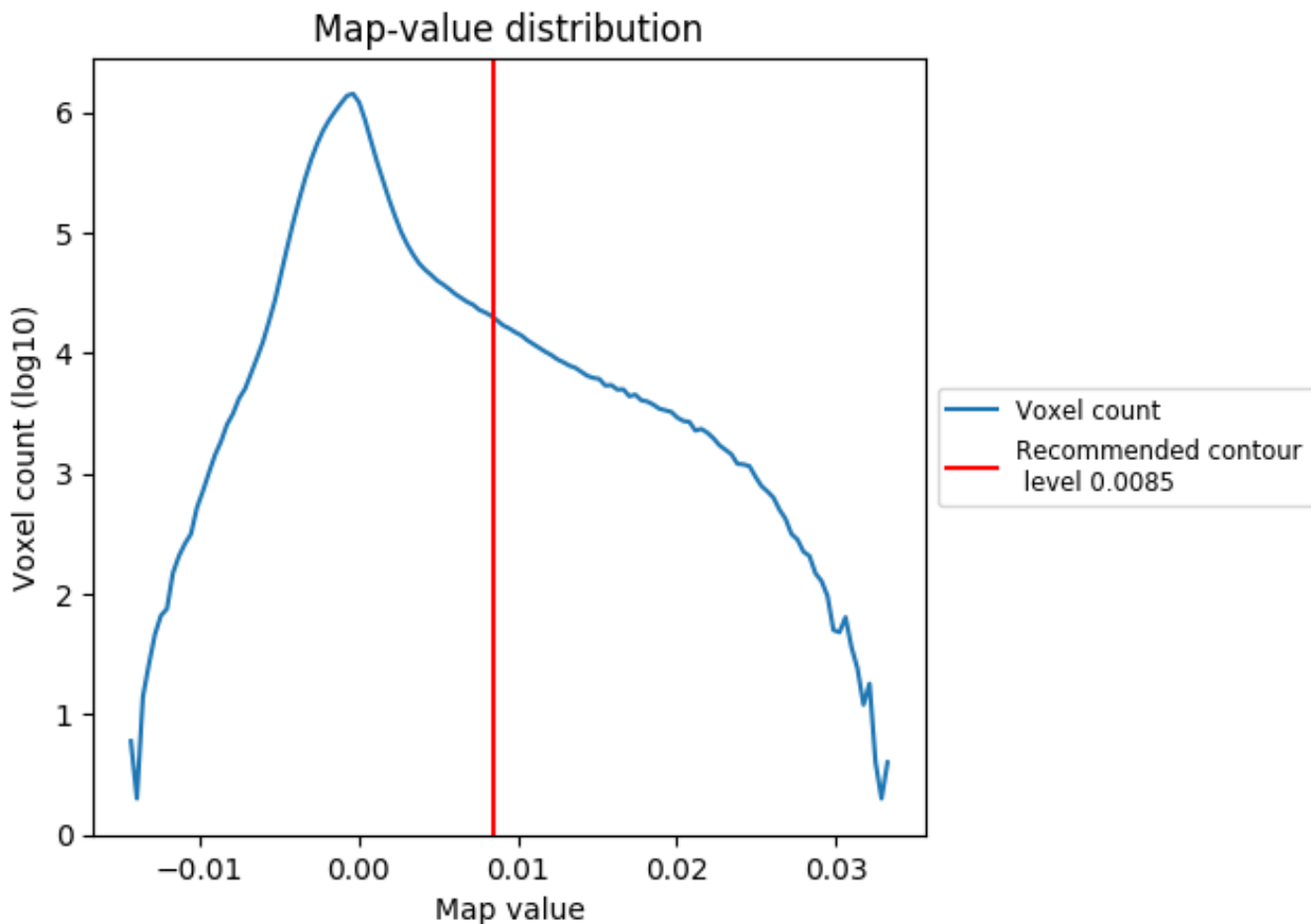
6.5 Mask visualisation

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

7 Map analysis [i](#)

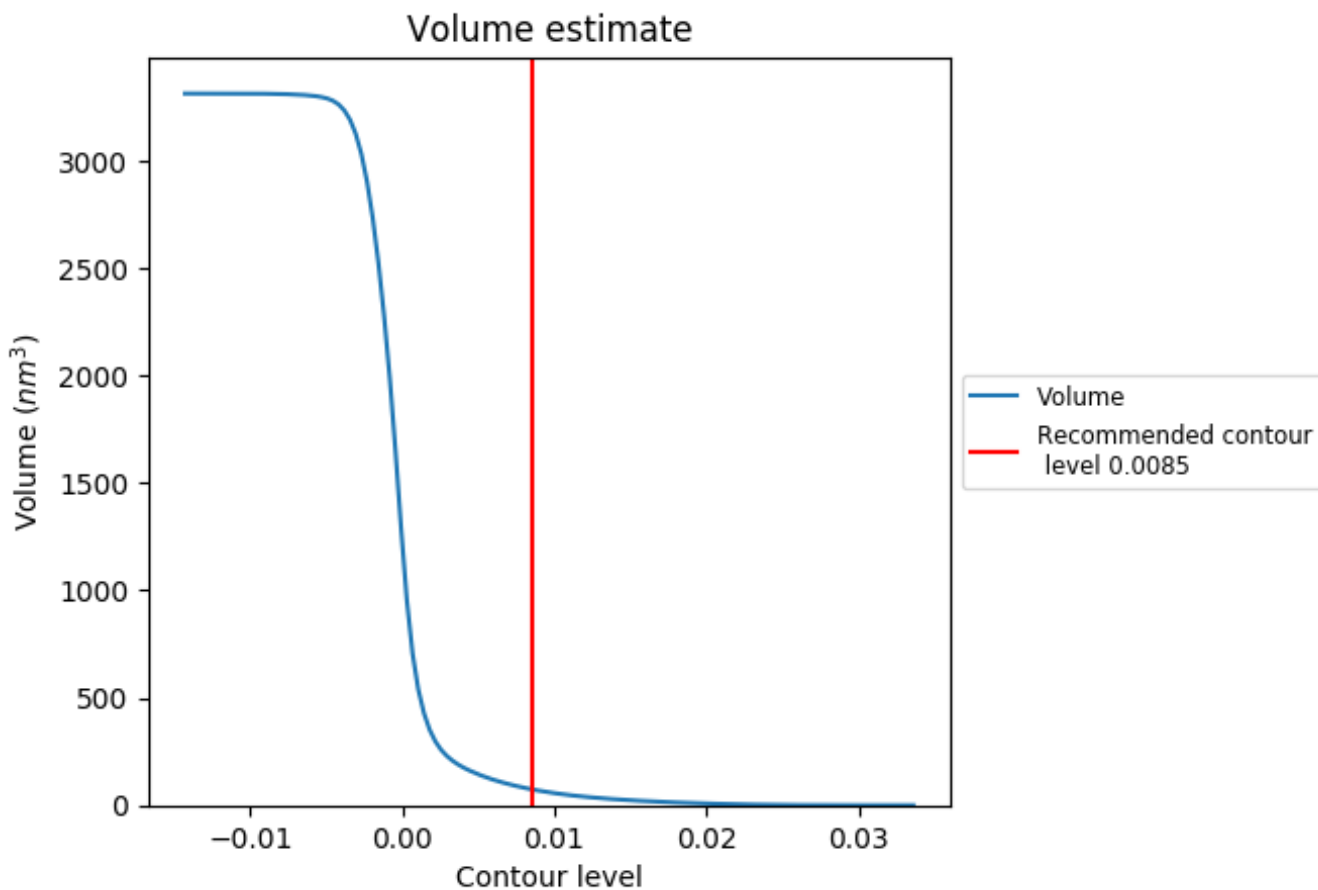
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

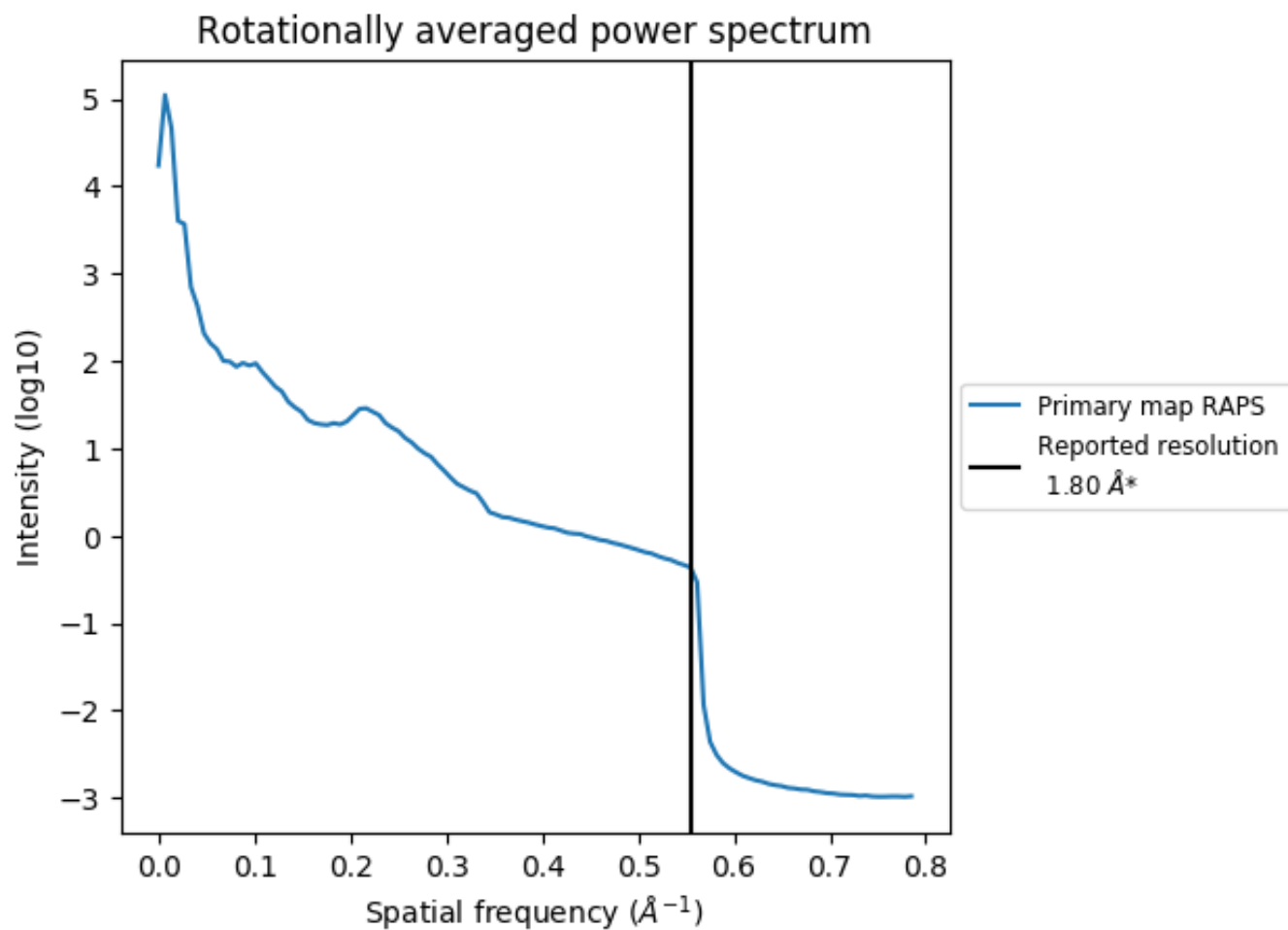
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 74 nm^3 ; this corresponds to an approximate mass of 67 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 0.556 Å⁻¹

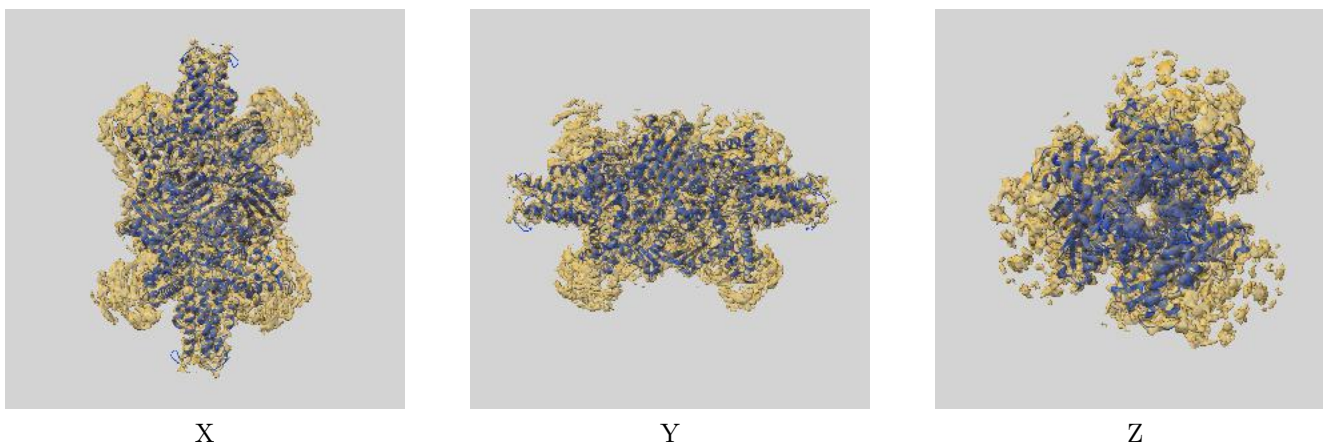
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

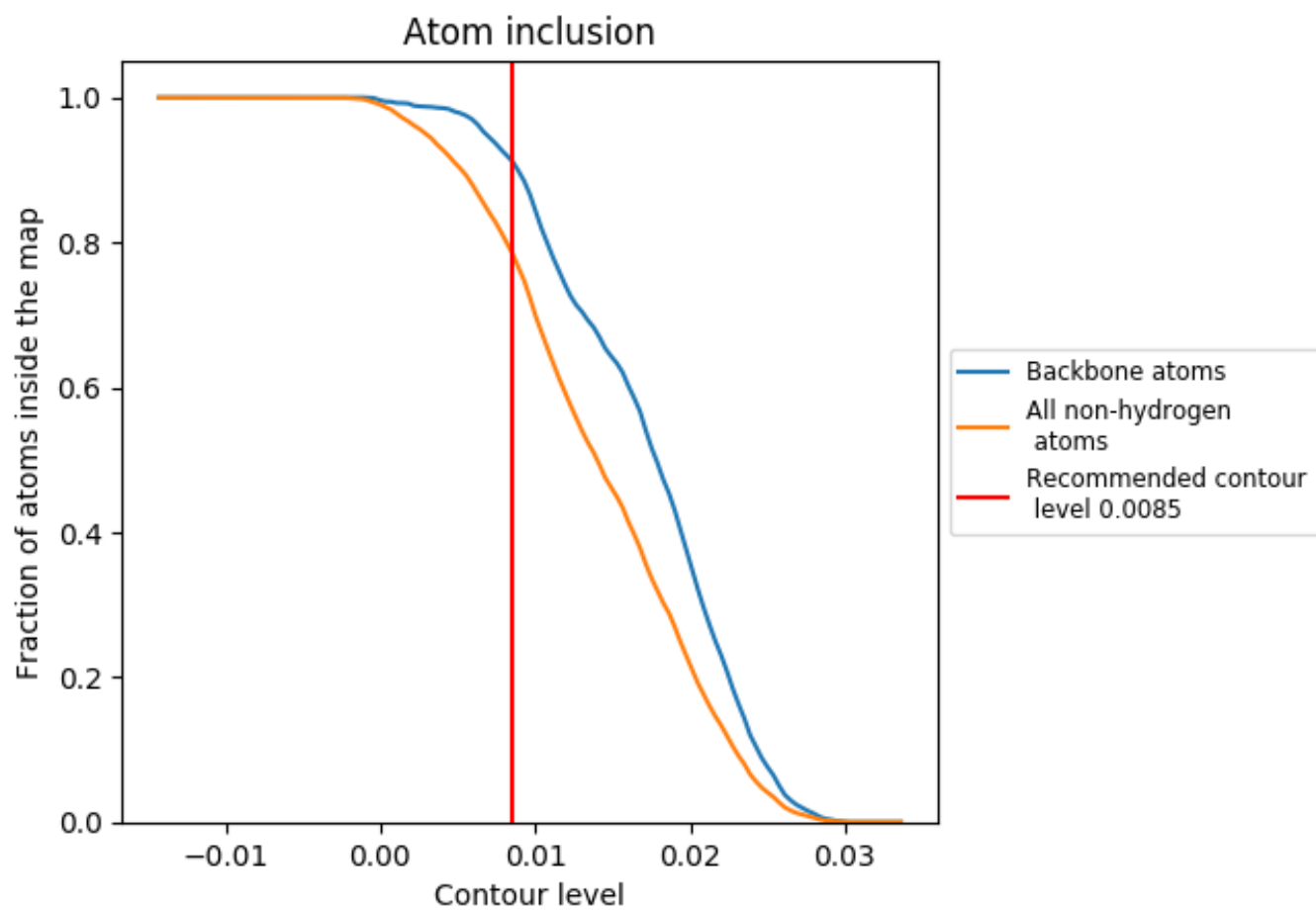
This section contains information regarding the fit between EMDB map EMD-8194 and PDB model 5K12. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.0085 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 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 79% of all non-hydrogen atoms, are inside the map.