



Full wwPDB EM Validation Report ⓘ

Jun 5, 2021 – 12:08 PM EDT

PDB ID : 7LVV
EMDB ID : EMD-23543
Title : cryoEM structure DrdV-DNA complex
Authors : Shen, B.W.; Stoddard, B.L.
Deposited on : 2021-02-26
Resolution : 3.25 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

EMDB validation analysis : 0.0.0.dev75
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
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) : 2.20

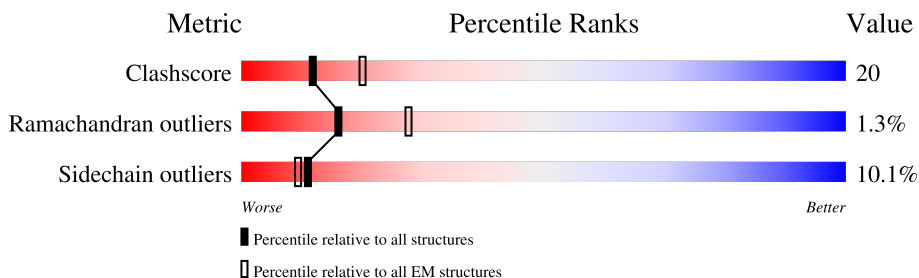
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.25 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	1029	
1	B	1029	
1	C	1029	
1	D	1029	
2	E	29	
2	G	29	
3	F	29	
3	H	29	

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 21020 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 Site-specific DNA-methyltransferase (adenine-specific).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1011	8216	5222	1439	1536	19	0	0
1	B	1012	8219	5223	1440	1537	19	0	0
1	C	143	1126	704	197	223	2	0	0
1	D	146	1149	719	201	227	2	0	0

- Molecule 2 is a DNA chain called DNA (28-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	E	28	561	265	107	161	28	0	0
2	G	28	561	265	107	161	28	0	0

- Molecule 3 is a DNA chain called DNA (27-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	F	27	565	266	103	169	27	0	0
3	H	27	565	266	103	169	27	0	0

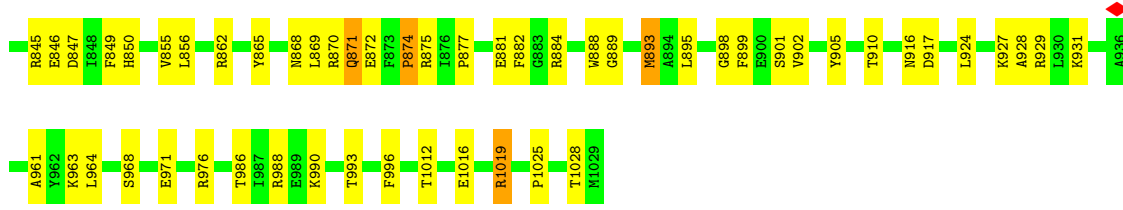
- Molecule 4 is S-ADENOSYLMETHIONINE (three-letter code: SAM) (formula: $C_{15}H_{22}N_6O_5S$) (labeled as "Ligand of Interest" by depositor).

3 Residue-property plots [i](#)

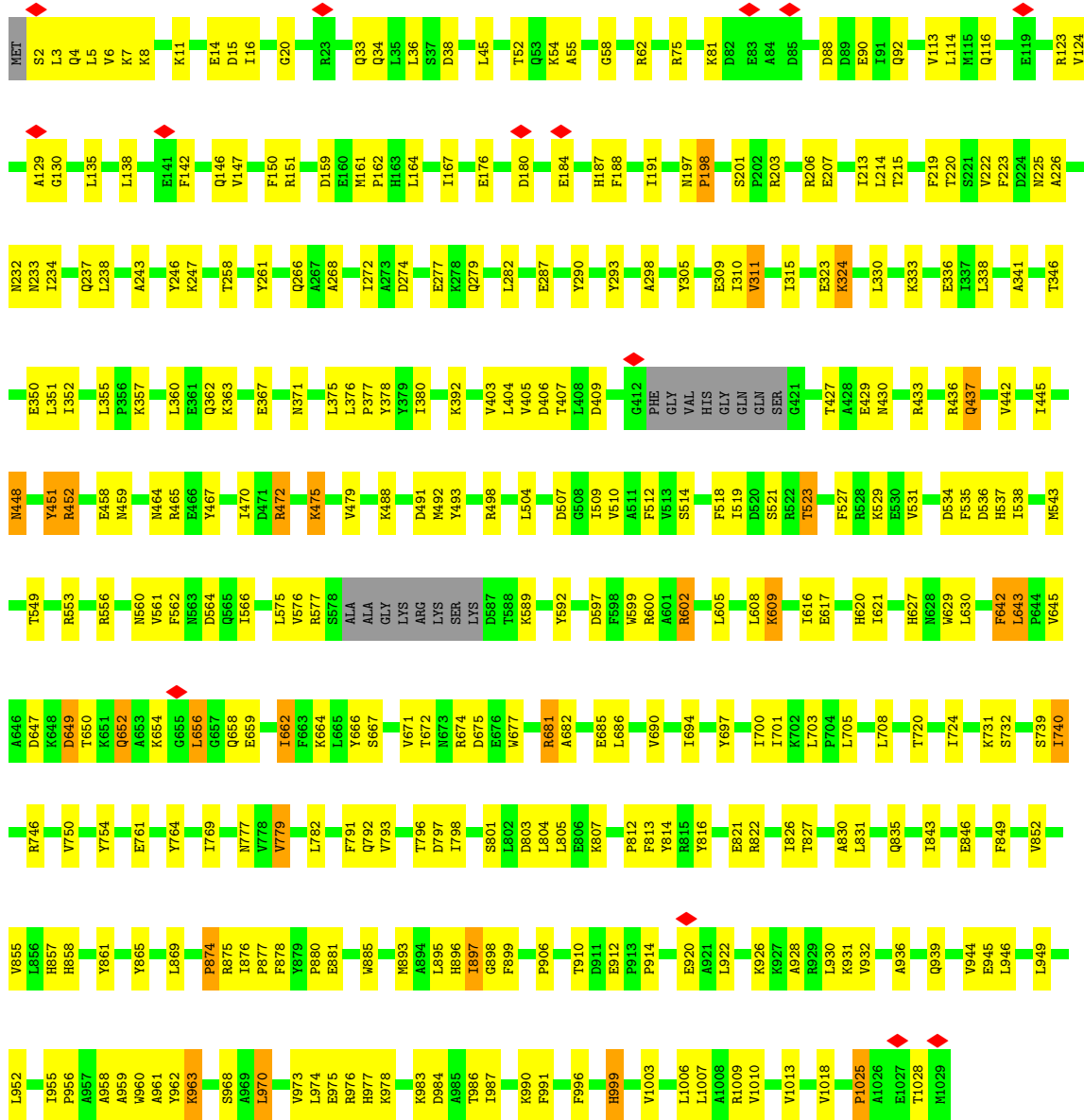
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: Site-specific DNA-methyltransferase (adenine-specific)



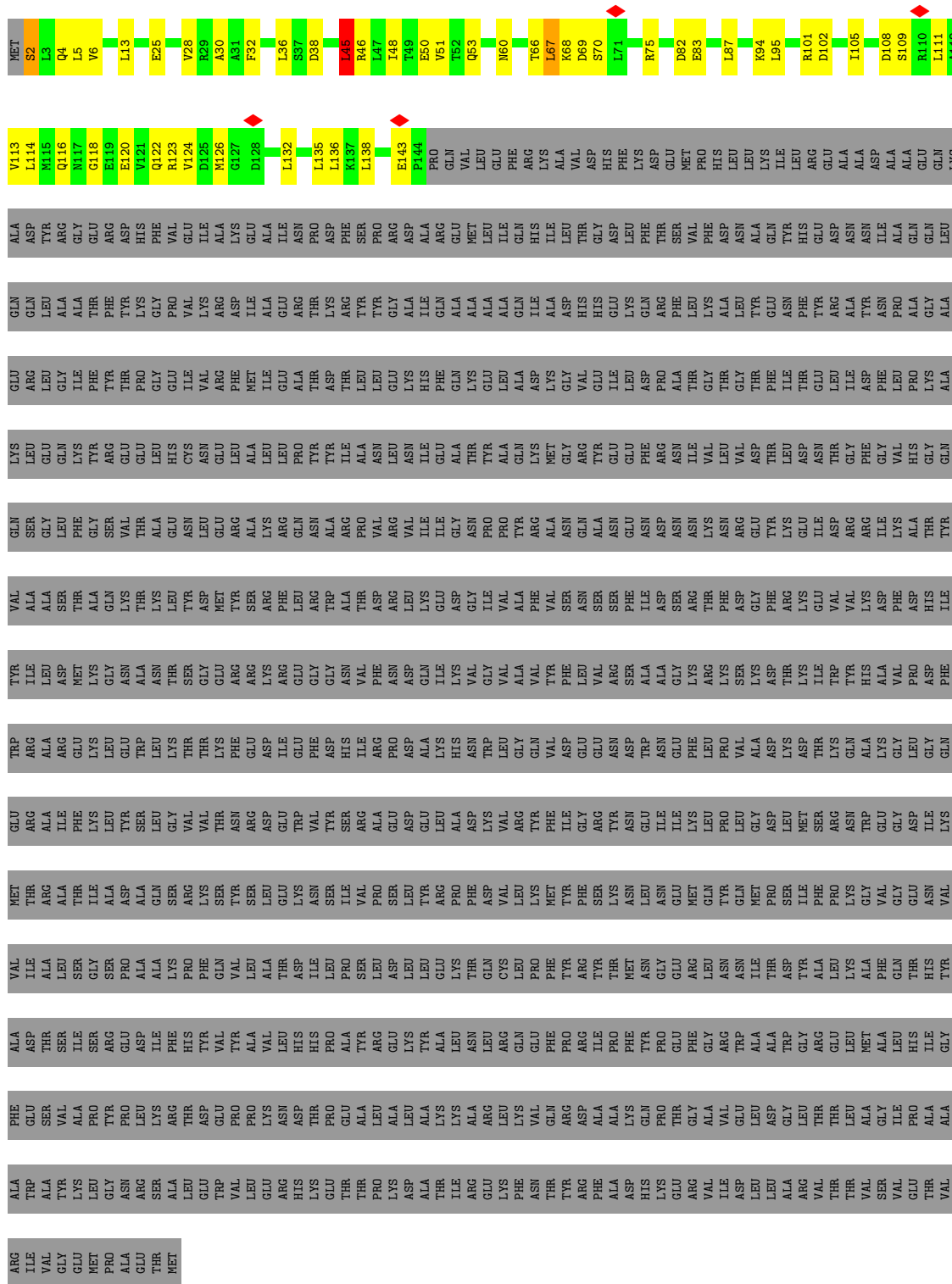


● Molecule 1: Site-specific DNA-methyltransferase (adenine-specific)



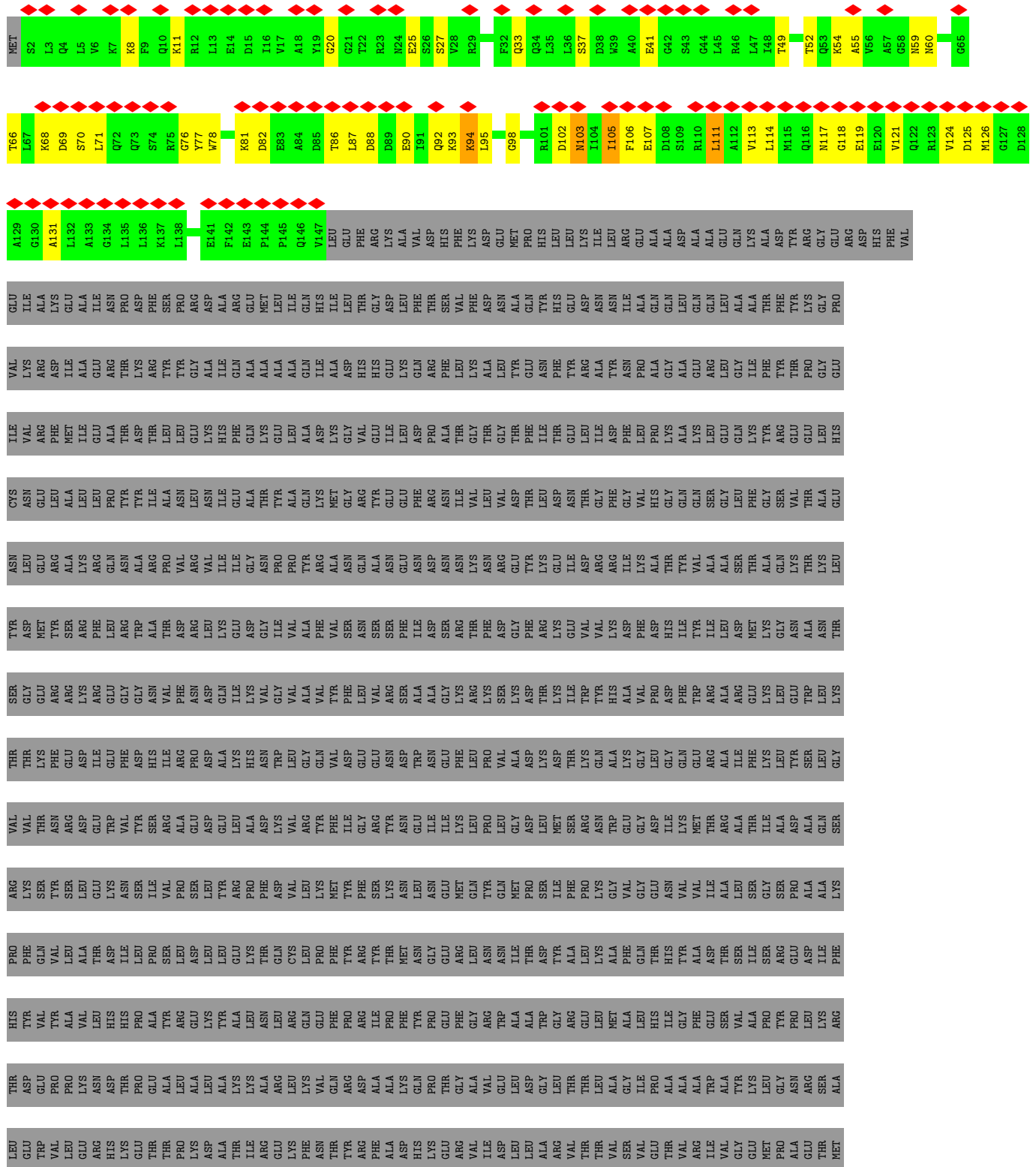
● Molecule 1: Site-specific DNA-methyltransferase (adenine-specific)



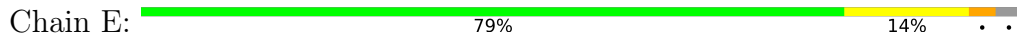


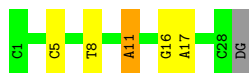
• Molecule 1: Site-specific DNA-methyltransferase (adenine-specific)



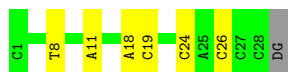
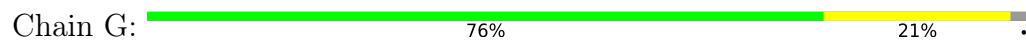


• Molecule 2: DNA (28-MER)

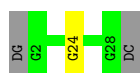
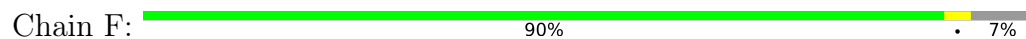




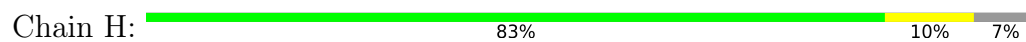
- Molecule 2: DNA (28-MER)



- Molecule 3: DNA (27-MER)



- Molecule 3: DNA (27-MER)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	34554	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2300	Depositor
Magnification	37000	Depositor
Image detector	FEI CETA (4k x 4k)	Depositor
Maximum map value	2.203	Depositor
Minimum map value	-0.745	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.050	Depositor
Recommended contour level	0.375	Depositor
Map size (\AA)	464.0, 464.0, 464.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.16, 1.16, 1.16	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.64	0/8396	0.80	0/11348
1	B	0.63	0/8399	0.79	0/11351
1	C	0.65	0/1141	0.79	0/1534
1	D	0.62	0/1165	0.77	0/1568
2	E	0.58	1/628 (0.2%)	0.87	0/962
2	G	0.52	0/628	0.85	0/962
3	F	0.57	0/633	0.82	0/979
3	H	0.50	0/633	0.84	0/979
All	All	0.63	1/21623 (0.0%)	0.80	0/29683

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	11	DA	O3'-P	-5.09	1.55	1.61

There are no bond angle outliers.

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	8216	0	8108	348	0
1	B	8219	0	8109	380	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	1126	0	1115	43	0
1	D	1149	0	1139	38	0
2	E	561	0	310	8	0
2	G	561	0	310	19	0
3	F	565	0	306	3	0
3	H	565	0	306	3	0
4	A	27	0	22	2	0
4	B	27	0	22	1	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
5	D	1	0	0	1	0
All	All	21020	0	19747	798	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 20.

All (798) 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:509:ILE:CG2	1:B:576:VAL:HG22	1.32	1.58
1:B:543:MET:HE2	1:B:561:VAL:CG1	1.42	1.50
1:B:782:LEU:CD2	1:B:793:VAL:HG12	1.39	1.50
1:B:543:MET:CE	1:B:561:VAL:HG11	1.40	1.46
1:A:209:LEU:HD21	1:A:245:PHE:CZ	1.51	1.44
1:B:543:MET:CE	1:B:608:LEU:HD11	1.50	1.41
1:B:930:LEU:HD23	1:B:946:LEU:CD2	1.54	1.37
1:B:973:VAL:HG21	1:B:1006:LEU:CD2	1.53	1.37
1:B:529:LYS:HD2	1:B:627:HIS:CE1	1.62	1.34
1:B:509:ILE:HG22	1:B:576:VAL:CG2	1.59	1.31
1:B:973:VAL:CG2	1:B:1006:LEU:HD23	1.61	1.29
1:B:543:MET:SD	1:B:608:LEU:HD11	1.83	1.19
1:B:807:LYS:HE3	2:G:8:DT:C6	1.77	1.19
1:B:45:LEU:CD2	1:B:75:ARG:HD3	1.73	1.18
1:A:189:VAL:CG1	1:A:193:LYS:HE3	1.73	1.18
1:B:930:LEU:CD2	1:B:946:LEU:HD22	1.74	1.16
1:A:120:GLU:OE1	1:A:123:ARG:HG3	1.47	1.15
1:B:543:MET:CE	1:B:608:LEU:CD1	2.26	1.14
1:A:45:LEU:HD11	1:A:75:ARG:HD3	1.31	1.13
1:A:309:GLU:HG2	1:A:609:LYS:CE	1.79	1.12
1:B:3:LEU:O	1:B:7:LYS:HG2	1.48	1.12

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:930:LEU:CD2	1:B:946:LEU:CD2	2.27	1.12
1:B:782:LEU:HD23	1:B:793:VAL:HG12	1.17	1.12
1:B:560:ASN:ND2	1:B:566:ILE:HG12	1.64	1.12
1:B:114:LEU:HB2	1:B:135:LEU:HD11	1.20	1.11
1:B:3:LEU:HD21	1:B:130:GLY:HA2	1.29	1.11
1:B:234:ILE:HD13	1:B:404:LEU:CD2	1.81	1.10
1:B:543:MET:HE3	1:B:608:LEU:HD11	1.22	1.10
1:A:189:VAL:HG13	1:A:193:LYS:HE3	1.16	1.09
1:B:782:LEU:CD2	1:B:793:VAL:CG1	2.32	1.08
1:A:309:GLU:CG	1:A:609:LYS:CE	2.30	1.08
1:A:924:LEU:HD23	1:A:927:LYS:HE3	1.35	1.08
1:B:403:VAL:HG12	1:B:405:VAL:HG23	1.28	1.08
1:B:643:LEU:HD21	1:B:875:ARG:HD2	1.24	1.07
1:B:45:LEU:HD21	1:B:75:ARG:HD3	1.22	1.07
1:B:519:ILE:HG21	1:B:630:LEU:CD1	1.84	1.07
1:A:157:PHE:O	1:A:161:MET:HG3	1.56	1.06
1:C:13:LEU:HD13	1:C:28:VAL:HG13	1.33	1.06
1:A:649:ASP:OD2	1:A:661:ALA:HB3	1.53	1.06
1:A:924:LEU:HD23	1:A:927:LYS:CE	1.85	1.06
1:A:153:ALA:HB1	1:A:265:ILE:HD13	1.36	1.05
1:B:930:LEU:HD23	1:B:946:LEU:HD23	1.08	1.05
1:A:209:LEU:CD2	1:A:245:PHE:CZ	2.40	1.05
1:A:45:LEU:CD1	1:A:75:ARG:HD3	1.84	1.05
1:A:48:ILE:HD13	1:D:20:GLY:HA3	1.35	1.05
1:B:510:VAL:HG22	1:B:575:LEU:HB2	1.37	1.05
1:A:309:GLU:HG2	1:A:609:LYS:HE3	1.38	1.04
1:B:510:VAL:CG2	1:B:575:LEU:HB2	1.88	1.04
1:B:234:ILE:HD13	1:B:404:LEU:HD23	1.05	1.03
1:B:330:LEU:CD1	1:B:355:LEU:HD21	1.87	1.03
1:B:234:ILE:CD1	1:B:404:LEU:HD23	1.87	1.03
1:A:200:PHE:HZ	1:A:208:MET:SD	1.82	1.02
1:A:120:GLU:HG3	1:A:123:ARG:HE	1.23	1.02
1:B:782:LEU:HD21	1:B:793:VAL:HG12	1.34	1.01
1:B:922:LEU:HD11	1:B:926:LYS:HE3	1.43	1.01
1:A:209:LEU:HD21	1:A:245:PHE:HZ	1.22	1.00
1:B:643:LEU:HD23	1:B:875:ARG:HG2	1.37	1.00
1:A:309:GLU:CG	1:A:609:LYS:HE2	1.89	0.99
1:B:519:ILE:CG2	1:B:630:LEU:HD12	1.93	0.99
1:A:895:LEU:HD21	1:A:1016:GLU:HB2	1.42	0.99
1:B:807:LYS:CE	2:G:8:DT:C6	2.44	0.99
1:B:543:MET:SD	1:B:608:LEU:CD1	2.51	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:930:LEU:HD21	1:B:946:LEU:HD22	1.43	0.98
1:A:895:LEU:HD12	1:A:902:VAL:HG21	1.44	0.98
1:A:491:ASP:CG	1:A:493:TYR:CE2	2.36	0.98
1:B:509:ILE:CG2	1:B:576:VAL:CG2	2.29	0.97
1:B:54:LYS:HE2	1:B:58:GLY:HA2	1.44	0.97
1:B:45:LEU:HD21	1:B:75:ARG:CD	1.94	0.97
1:B:403:VAL:CG1	1:B:405:VAL:HG23	1.94	0.96
1:B:556:ARG:HG2	1:B:597:ASP:OD1	1.65	0.96
1:B:643:LEU:HD21	1:B:875:ARG:CD	1.96	0.96
1:B:643:LEU:CD2	1:B:875:ARG:CD	2.43	0.96
1:A:309:GLU:CG	1:A:609:LYS:HE3	1.95	0.96
1:B:519:ILE:HG21	1:B:630:LEU:HD12	1.48	0.96
1:B:1006:LEU:CD1	1:B:1010:VAL:HG23	1.96	0.95
1:B:509:ILE:HG21	1:B:576:VAL:HG22	1.46	0.95
1:B:560:ASN:ND2	1:B:566:ILE:CG1	2.29	0.95
1:B:529:LYS:CD	1:B:627:HIS:CE1	2.49	0.94
1:A:924:LEU:CD2	1:A:927:LYS:NZ	2.29	0.94
1:B:1006:LEU:HD11	1:B:1010:VAL:CG2	1.96	0.94
1:B:643:LEU:HD23	1:B:875:ARG:CG	1.97	0.94
1:A:153:ALA:O	1:A:265:ILE:HD11	1.66	0.93
1:B:560:ASN:HD22	1:B:566:ILE:HG12	1.32	0.93
1:B:3:LEU:CD2	1:B:130:GLY:HA2	1.98	0.93
1:B:643:LEU:HG	1:B:875:ARG:CZ	1.99	0.92
1:A:924:LEU:HD23	1:A:927:LYS:NZ	1.83	0.92
1:B:330:LEU:HD13	1:B:330:LEU:O	1.70	0.92
1:A:83:GLU:HB3	1:A:110:ARG:NE	1.84	0.92
1:A:48:ILE:CD1	1:D:20:GLY:CA	2.48	0.91
1:A:48:ILE:HD13	1:D:20:GLY:CA	2.00	0.91
1:C:13:LEU:CD1	1:C:28:VAL:HG13	2.00	0.91
1:B:643:LEU:CD2	1:B:875:ARG:HD2	2.01	0.91
1:D:54:LYS:HG3	1:D:55:ALA:H	1.36	0.90
1:B:150:PHE:HB2	1:B:272:ILE:HD11	1.51	0.90
1:A:309:GLU:HG3	1:A:609:LYS:HE2	1.53	0.90
1:B:164:LEU:HD13	1:B:261:TYR:CD2	2.06	0.90
1:B:807:LYS:HE2	2:G:8:DT:C2'	2.01	0.90
1:B:333:LYS:HE3	1:B:362:GLN:NE2	1.87	0.90
1:D:52:THR:HB	1:D:60:ASN:HD21	1.36	0.90
1:B:234:ILE:CD1	1:B:404:LEU:CD2	2.49	0.90
1:A:681:ARG:HH11	1:A:751:LEU:HD21	1.32	0.90
1:B:543:MET:HE3	1:B:608:LEU:CD1	1.98	0.90
1:A:209:LEU:HD21	1:A:245:PHE:CE2	2.06	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:272:ILE:HD11	1:A:278:LYS:CG	2.01	0.90
1:C:69:ASP:CG	1:C:70:SER:H	1.75	0.89
1:A:45:LEU:HD11	1:A:75:ARG:CD	2.03	0.89
1:A:895:LEU:CD2	1:A:1016:GLU:HB2	2.03	0.89
1:A:309:GLU:OE2	1:A:609:LYS:HE3	1.72	0.88
1:B:371:ASN:HD22	1:B:407:THR:HG22	1.37	0.88
1:B:592:TYR:CE1	1:B:630:LEU:HD11	2.08	0.88
1:B:330:LEU:HD12	1:B:355:LEU:CD2	2.04	0.87
1:B:114:LEU:HB2	1:B:135:LEU:CD1	2.05	0.87
1:B:519:ILE:CG2	1:B:630:LEU:CD1	2.52	0.87
1:B:807:LYS:CE	2:G:8:DT:H6	1.86	0.87
1:D:69:ASP:OD1	1:D:70:SER:N	2.07	0.87
1:A:209:LEU:HD11	1:A:245:PHE:CZ	2.10	0.86
1:B:114:LEU:HD21	1:B:138:LEU:HD12	1.53	0.86
1:B:215:THR:HG23	1:B:219:PHE:CE1	2.10	0.86
1:A:673:ASN:HB3	1:A:720:THR:HG21	1.57	0.86
1:D:54:LYS:HG3	1:D:55:ALA:N	1.92	0.85
1:A:372:GLU:OE2	1:A:377:PRO:HB2	1.75	0.85
1:A:491:ASP:OD2	1:A:493:TYR:HE2	1.59	0.85
1:B:556:ARG:CG	1:B:597:ASP:OD1	2.24	0.85
1:A:649:ASP:OD2	1:A:661:ALA:CB	2.24	0.85
1:A:48:ILE:CD1	1:D:20:GLY:N	2.41	0.84
1:D:118:GLY:O	1:D:119:GLU:HG3	1.77	0.83
1:B:779:VAL:HG22	1:B:796:THR:CG2	2.08	0.82
1:A:200:PHE:CZ	1:A:208:MET:SD	2.71	0.82
1:A:209:LEU:CD2	1:A:245:PHE:HZ	1.84	0.81
1:A:487:THR:HG21	3:F:24:DG:H5'	1.60	0.81
1:B:974:LEU:O	1:B:978:LYS:HG3	1.78	0.81
1:B:1006:LEU:CD1	1:B:1010:VAL:CG2	2.57	0.81
1:A:602:ARG:O	1:A:606:GLU:HG2	1.80	0.81
1:B:779:VAL:HG22	1:B:796:THR:HG22	1.62	0.81
1:A:895:LEU:HD12	1:A:902:VAL:CG2	2.10	0.81
1:B:54:LYS:CE	1:B:58:GLY:HA2	2.11	0.81
1:A:491:ASP:OD2	1:A:493:TYR:CE2	2.33	0.80
1:B:1006:LEU:HD12	1:B:1010:VAL:HG23	1.62	0.80
1:B:910:THR:HG22	1:B:912:GLU:OE1	1.82	0.80
1:B:330:LEU:HD11	1:B:355:LEU:HD21	1.62	0.80
1:B:510:VAL:HG22	1:B:575:LEU:CB	2.11	0.80
1:B:330:LEU:CD1	1:B:355:LEU:CD2	2.58	0.80
1:A:895:LEU:CD2	1:A:1016:GLU:CB	2.59	0.80
1:A:519:ILE:CG2	1:A:630:LEU:HD11	2.12	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:895:LEU:CD1	1:A:902:VAL:HG21	2.12	0.79
1:D:76:GLY:HA2	1:D:103:ASN:HB3	1.64	0.79
1:A:188:PHE:HZ	1:A:208:MET:CE	1.96	0.79
1:B:114:LEU:CD2	1:B:138:LEU:HD12	2.13	0.79
1:A:309:GLU:HG2	1:A:609:LYS:CG	2.12	0.79
1:B:592:TYR:CZ	1:B:630:LEU:HD11	2.18	0.79
1:B:518:PHE:CE1	1:B:519:ILE:HD11	2.17	0.78
1:A:272:ILE:HD11	1:A:278:LYS:HG2	1.64	0.78
1:A:272:ILE:HD11	1:A:278:LYS:HG3	1.65	0.78
1:B:529:LYS:HD2	1:B:627:HIS:NE2	1.98	0.78
1:B:807:LYS:HE2	2:G:8:DT:H2''	1.64	0.78
1:B:782:LEU:HD21	1:B:793:VAL:CG1	2.05	0.77
1:B:807:LYS:HG2	2:G:8:DT:H72	1.65	0.77
1:B:45:LEU:HD23	1:B:75:ARG:HD3	1.63	0.77
1:B:643:LEU:HD23	1:B:875:ARG:CD	2.15	0.77
1:A:588:THR:HG22	1:A:589:LYS:N	1.99	0.77
1:C:66:THR:HG22	1:C:66:THR:O	1.84	0.76
1:B:20:GLY:HA3	1:C:48:ILE:CD1	2.15	0.76
1:B:138:LEU:HD13	1:B:138:LEU:C	2.06	0.76
1:A:519:ILE:HG21	1:A:630:LEU:HD11	1.66	0.76
1:B:973:VAL:CG2	1:B:1006:LEU:CD2	2.40	0.75
1:A:762:MET:CE	2:E:5:DC:C6	2.70	0.75
1:B:371:ASN:ND2	1:B:407:THR:HG22	2.02	0.75
1:A:120:GLU:CD	1:A:123:ARG:HG3	2.06	0.74
1:B:519:ILE:HG21	1:B:630:LEU:HD11	1.69	0.74
1:B:643:LEU:CD2	1:B:875:ARG:HG2	2.15	0.74
1:A:762:MET:HE2	2:E:5:DC:C6	2.22	0.74
1:B:150:PHE:CD1	1:B:272:ILE:HD12	2.23	0.74
1:B:782:LEU:HD23	1:B:793:VAL:CG1	2.10	0.74
1:A:309:GLU:CD	1:A:609:LYS:HE3	2.08	0.74
1:B:330:LEU:HD13	1:B:330:LEU:C	2.08	0.74
1:B:592:TYR:CE2	1:B:630:LEU:HD21	2.22	0.74
1:A:48:ILE:CD1	1:D:20:GLY:HA3	2.11	0.74
1:A:153:ALA:O	1:A:265:ILE:CD1	2.34	0.74
1:B:330:LEU:HD12	1:B:355:LEU:HD23	1.69	0.74
1:A:924:LEU:CD2	1:A:927:LYS:HZ1	2.01	0.74
1:B:519:ILE:HG22	1:B:630:LEU:HD12	1.69	0.74
1:A:322:LEU:HD13	1:A:509:ILE:HD11	1.70	0.74
1:D:54:LYS:CG	1:D:55:ALA:H	2.01	0.74
1:A:209:LEU:CG	1:A:245:PHE:HZ	2.01	0.74
1:A:272:ILE:CD1	1:A:278:LYS:HG3	2.18	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:492:MET:SD	1:A:495:ARG:NH1	2.61	0.73
1:A:895:LEU:HD21	1:A:1016:GLU:CB	2.17	0.73
1:A:287:GLU:OE2	1:A:305:TYR:HD1	1.72	0.72
1:A:491:ASP:OD1	1:A:493:TYR:CD2	2.42	0.72
1:B:589:LYS:HA	1:B:620:HIS:CE1	2.24	0.72
1:B:3:LEU:HB3	1:B:7:LYS:HE2	1.72	0.72
1:A:209:LEU:HD11	1:A:245:PHE:HZ	1.52	0.71
1:A:710:SER:OG	1:A:712:ASN:ND2	2.23	0.71
1:B:895:LEU:HD22	1:B:1013:VAL:HA	1.69	0.71
1:B:509:ILE:HG22	1:B:576:VAL:HG22	0.72	0.71
1:B:197:ASN:OD1	1:B:197:ASN:O	2.08	0.71
1:B:488:LYS:HB2	1:B:523:THR:HG21	1.71	0.71
1:B:592:TYR:CD2	1:B:630:LEU:HD21	2.24	0.71
1:B:861:TYR:HA	1:B:1028:THR:HG21	1.72	0.71
1:B:549:THR:HG21	1:B:553:ARG:HG2	1.74	0.70
1:A:184:GLU:OE1	1:A:244:THR:HG21	1.90	0.70
1:A:116:GLN:NE2	1:A:142:PHE:CD1	2.60	0.70
1:A:588:THR:HG22	1:A:589:LYS:H	1.55	0.70
1:C:83:GLU:HB3	1:C:109:SER:HB2	1.73	0.70
1:B:643:LEU:CD2	1:B:875:ARG:CG	2.70	0.70
1:A:645:VAL:HG11	1:A:666:TYR:HB3	1.73	0.70
1:A:929:ARG:O	1:A:931:LYS:HG3	1.91	0.70
1:B:114:LEU:CB	1:B:135:LEU:HD11	2.13	0.69
1:B:164:LEU:CD1	1:B:258:THR:HG22	2.22	0.69
1:C:4:GLN:HG2	1:C:5:LEU:N	2.08	0.69
1:B:560:ASN:HD21	1:B:566:ILE:CD1	2.05	0.69
1:B:807:LYS:HE2	2:G:8:DT:H2'	1.72	0.69
1:B:138:LEU:HD13	1:B:138:LEU:O	1.92	0.69
1:B:543:MET:CE	1:B:561:VAL:CG1	2.26	0.69
1:B:215:THR:CG2	1:B:219:PHE:CE1	2.76	0.69
1:B:543:MET:HE1	1:B:608:LEU:CD1	2.23	0.69
1:B:560:ASN:HD21	1:B:566:ILE:HD11	1.58	0.69
1:B:560:ASN:ND2	1:B:562:PHE:HB2	2.08	0.69
1:A:905:TYR:HB2	1:A:1012:THR:HG23	1.75	0.69
1:B:207:GLU:HG2	1:B:293:TYR:CE2	2.28	0.69
1:A:672:THR:HG21	1:A:678:VAL:HG11	1.76	0.68
1:B:4:GLN:HG2	1:B:8:LYS:NZ	2.08	0.68
1:B:333:LYS:HG3	1:B:362:GLN:NE2	2.09	0.68
1:A:91:ILE:O	1:A:95:LEU:HG	1.94	0.68
1:A:209:LEU:CD1	1:A:245:PHE:HZ	2.06	0.68
1:B:518:PHE:CZ	1:B:519:ILE:HD11	2.28	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:924:LEU:CD2	1:A:927:LYS:HZ2	2.04	0.68
1:B:782:LEU:HD22	1:B:791:PHE:CZ	2.28	0.68
1:B:973:VAL:HG22	1:B:977:HIS:CD2	2.28	0.68
1:A:225:ASN:ND2	1:A:228:TYR:HB2	2.08	0.67
1:A:83:GLU:HG2	1:A:109:SER:HB3	1.77	0.67
1:B:643:LEU:HG	1:B:875:ARG:NE	2.09	0.67
1:A:161:MET:SD	1:A:288:ASN:HB3	2.34	0.67
1:A:1016:GLU:OE1	1:A:1019:ARG:NH2	2.27	0.67
1:B:642:PHE:HZ	1:B:830:ALA:HA	1.59	0.67
1:B:671:VAL:HG23	1:B:764:TYR:HE2	1.60	0.67
1:D:25:GLU:OE2	5:D:1101:CA:CA	1.70	0.67
1:B:88:ASP:CG	1:B:123:ARG:HH12	1.98	0.67
1:A:750:VAL:HG23	1:A:899:PHE:HZ	1.60	0.66
1:A:862:ARG:HG2	1:A:869:LEU:HD13	1.76	0.66
1:B:807:LYS:HE2	2:G:8:DT:H6	1.58	0.66
1:B:975:GLU:HA	1:B:978:LYS:HD2	1.77	0.66
1:B:150:PHE:CB	1:B:272:ILE:HD11	2.22	0.66
1:A:491:ASP:CG	1:A:493:TYR:CD2	2.68	0.66
1:D:33:GLN:NE2	1:D:49:THR:HG21	2.09	0.66
1:D:71:LEU:N	1:D:71:LEU:HD12	2.11	0.66
1:B:518:PHE:CE1	1:B:519:ILE:CD1	2.78	0.66
1:B:643:LEU:CD2	1:B:875:ARG:NE	2.59	0.66
1:A:422:LEU:HG	1:A:422:LEU:O	1.95	0.66
1:A:188:PHE:HZ	1:A:208:MET:HE1	1.60	0.65
1:A:895:LEU:HG	1:A:895:LEU:O	1.96	0.65
1:B:164:LEU:HD12	1:B:258:THR:HG22	1.76	0.65
1:B:970:LEU:HD21	1:B:1007:LEU:HA	1.77	0.65
1:A:189:VAL:CG1	1:A:193:LYS:CE	2.64	0.65
1:B:333:LYS:HE3	1:B:362:GLN:HE21	1.58	0.65
1:B:592:TYR:CE2	1:B:630:LEU:CD2	2.80	0.65
1:A:850:HIS:HE1	1:A:893:MET:SD	2.19	0.65
1:A:309:GLU:CD	1:A:609:LYS:CE	2.64	0.65
1:B:187:HIS:O	1:B:191:ILE:HG12	1.97	0.65
1:A:682:ALA:HB3	1:A:685:GLU:HB2	1.78	0.65
1:B:529:LYS:HD2	1:B:627:HIS:ND1	2.09	0.65
1:A:817:THR:OG1	1:A:820:GLY:HA3	1.96	0.65
1:C:32:PHE:CE2	1:C:36:LEU:HD11	2.31	0.65
1:B:560:ASN:HD21	1:B:566:ILE:CG1	2.09	0.65
1:A:309:GLU:OE2	1:A:609:LYS:CE	2.42	0.65
1:A:929:ARG:HG2	1:A:931:LYS:HE3	1.79	0.65
1:A:372:GLU:OE2	1:A:377:PRO:CB	2.45	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:780:ILE:HG13	1:A:849:PHE:CE1	2.31	0.64
1:C:114:LEU:HB2	1:C:135:LEU:HD11	1.78	0.64
1:A:83:GLU:CG	1:A:109:SER:HB3	2.27	0.64
1:B:667:SER:OG	1:B:769:ILE:HD11	1.97	0.64
1:B:963:LYS:HA	1:B:968:SER:HA	1.78	0.64
1:B:124:VAL:HG22	1:B:135:LEU:HD22	1.78	0.64
1:B:958:ALA:HB1	1:B:1018:VAL:HG11	1.80	0.64
1:B:946:LEU:HD21	1:B:1007:LEU:HD11	1.79	0.64
1:C:66:THR:HG22	1:C:68:LYS:HG3	1.77	0.64
1:B:592:TYR:CZ	1:B:630:LEU:CD1	2.81	0.64
1:D:52:THR:HB	1:D:60:ASN:ND2	2.10	0.64
1:A:737:LYS:O	1:A:740:ILE:HG12	1.98	0.64
1:A:45:LEU:HD11	1:A:75:ARG:NH1	2.13	0.63
1:A:862:ARG:HG2	1:A:869:LEU:CD1	2.27	0.63
1:C:6:VAL:HG13	1:C:132:LEU:HD23	1.80	0.63
1:B:3:LEU:HD21	1:B:130:GLY:CA	2.18	0.63
1:B:452:ARG:HB3	1:B:464:ASN:HD21	1.62	0.63
1:D:70:SER:C	1:D:71:LEU:HD12	2.19	0.63
1:A:188:PHE:CZ	1:A:208:MET:CE	2.81	0.63
1:A:747:PRO:HD3	1:A:804:LEU:HD12	1.80	0.63
1:B:243:ALA:O	1:B:247:LYS:HG3	1.98	0.63
1:B:645:VAL:HG21	1:B:666:TYR:HB3	1.81	0.63
1:B:1006:LEU:HD11	1:B:1010:VAL:HG21	1.78	0.63
1:C:69:ASP:CG	1:C:70:SER:N	2.45	0.63
1:B:336:GLU:HB2	1:B:442:VAL:HA	1.81	0.63
1:A:120:GLU:CD	1:A:123:ARG:CG	2.67	0.62
1:A:153:ALA:CB	1:A:265:ILE:HD13	2.23	0.62
1:B:731:LYS:HG2	1:B:732:SER:H	1.63	0.62
1:A:48:ILE:HD12	1:D:20:GLY:CA	2.30	0.62
1:A:357:LYS:O	1:A:357:LYS:HG2	2.00	0.62
1:B:150:PHE:HB2	1:B:272:ILE:CD1	2.28	0.62
1:A:591:TRP:HB3	1:A:618:PHE:HB3	1.81	0.61
1:B:807:LYS:HE2	2:G:8:DT:C6	2.34	0.61
1:C:32:PHE:CD2	1:C:36:LEU:HD11	2.36	0.61
1:A:242:ALA:C	1:A:244:THR:H	2.04	0.61
1:A:309:GLU:HG2	1:A:609:LYS:HG3	1.81	0.61
1:B:807:LYS:CE	2:G:8:DT:H2"	2.31	0.61
1:A:519:ILE:HG22	1:A:630:LEU:CD1	2.31	0.61
1:A:762:MET:HE1	2:E:5:DC:C6	2.35	0.60
1:C:13:LEU:CD1	1:C:28:VAL:HG22	2.32	0.60
1:D:118:GLY:O	1:D:119:GLU:CG	2.49	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:928:ALA:HB2	1:A:996:PHE:HB2	1.84	0.60
1:A:48:ILE:HD11	1:D:20:GLY:N	2.15	0.60
1:B:467:TYR:HB2	1:B:470:ILE:HG22	1.83	0.60
1:A:746:ARG:HA	1:A:804:LEU:HD12	1.83	0.60
1:B:3:LEU:CD2	1:B:130:GLY:CA	2.77	0.60
1:B:592:TYR:CG	1:B:621:ILE:HD11	2.37	0.60
1:A:83:GLU:HB3	1:A:110:ARG:CZ	2.32	0.60
1:A:560:ASN:HB2	1:A:564:ASP:HA	1.84	0.60
1:A:209:LEU:CD1	1:A:245:PHE:CZ	2.81	0.60
1:B:363:LYS:HA	1:B:367:GLU:HB2	1.84	0.59
1:B:509:ILE:HG22	1:B:576:VAL:CB	2.29	0.59
1:A:487:THR:HG21	3:F:24:DG:C5'	2.31	0.59
1:B:164:LEU:HD13	1:B:261:TYR:HD2	1.65	0.59
1:A:408:LEU:O	1:A:470:ILE:CG1	2.50	0.59
1:A:905:TYR:HB2	1:A:1012:THR:CG2	2.32	0.59
1:B:510:VAL:HG23	1:B:510:VAL:O	2.02	0.59
1:B:803:ASP:OD1	1:B:803:ASP:O	2.21	0.59
1:A:116:GLN:NE2	1:A:142:PHE:CE1	2.71	0.59
1:A:528:ARG:HA	1:A:531:VAL:HG22	1.84	0.59
1:A:555:LYS:HB3	1:A:598:PHE:CE1	2.37	0.59
1:B:543:MET:SD	1:B:608:LEU:HD13	2.41	0.59
1:A:408:LEU:HB3	1:A:470:ILE:HG13	1.84	0.59
1:A:519:ILE:HG22	1:A:630:LEU:HD11	1.85	0.59
1:B:403:VAL:CG1	1:B:405:VAL:CG2	2.75	0.59
1:A:336:GLU:HB2	1:A:442:VAL:HA	1.85	0.59
1:B:589:LYS:HA	1:B:620:HIS:HE1	1.68	0.58
1:A:83:GLU:HB3	1:A:110:ARG:HE	1.68	0.58
1:A:184:GLU:OE1	1:A:244:THR:CG2	2.51	0.58
1:A:762:MET:HE2	2:E:5:DC:C5	2.39	0.58
1:B:20:GLY:HA3	1:C:48:ILE:HD13	1.84	0.58
1:A:504:LEU:HD22	1:A:510:VAL:HG23	1.85	0.58
1:B:357:LYS:HG3	1:B:392:LYS:HE3	1.85	0.58
1:C:48:ILE:HG22	1:C:51:VAL:CG2	2.33	0.58
1:A:8:LYS:HG2	1:A:12:ARG:HE	1.69	0.58
1:B:274:ASP:OD2	1:B:277:GLU:HG2	2.02	0.58
1:A:188:PHE:CE2	1:A:208:MET:SD	2.97	0.58
1:B:543:MET:CE	1:B:561:VAL:CB	2.82	0.58
1:A:519:ILE:HG12	1:A:540:ILE:HD13	1.85	0.58
1:A:710:SER:HG	1:A:712:ASN:HD21	1.52	0.57
1:A:681:ARG:NH1	1:A:751:LEU:HD21	2.12	0.57
1:B:45:LEU:HD21	1:B:75:ARG:NE	2.19	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:433:ARG:HA	1:B:436:ARG:HD3	1.85	0.57
1:D:71:LEU:N	1:D:71:LEU:CD1	2.67	0.57
1:A:309:GLU:HG2	1:A:609:LYS:CD	2.33	0.57
1:A:588:THR:CG2	1:A:589:LYS:H	2.17	0.57
1:B:309:GLU:HB3	1:B:609:LYS:HB2	1.85	0.57
1:C:124:VAL:HG22	1:C:135:LEU:HD22	1.85	0.57
1:A:452:ARG:HH22	1:A:462:ASN:HB3	1.68	0.57
1:A:45:LEU:HD11	1:A:75:ARG:CZ	2.34	0.57
1:A:668:LEU:HD23	1:A:809:GLN:HA	1.86	0.57
1:C:122:GLN:HB3	1:C:135:LEU:HD13	1.86	0.57
1:A:146:GLN:NE2	1:A:271:GLN:OE1	2.37	0.57
1:A:403:VAL:HG12	1:A:404:LEU:N	2.20	0.57
1:B:529:LYS:CE	1:B:627:HIS:CE1	2.88	0.57
1:B:543:MET:CE	1:B:608:LEU:HD12	2.32	0.57
1:B:643:LEU:CG	1:B:875:ARG:CZ	2.81	0.57
1:B:700:ILE:O	1:B:708:LEU:HD21	2.05	0.56
1:A:881:GLU:OE1	1:A:884:ARG:HD2	2.05	0.56
1:B:138:LEU:C	1:B:138:LEU:CD1	2.74	0.56
1:A:178:LYS:NZ	1:A:245:PHE:HA	2.21	0.56
1:B:777:ASN:HD22	1:B:816:TYR:HE1	1.54	0.56
1:A:855:VAL:HG11	1:A:877:PRO:HD2	1.86	0.56
1:B:750:VAL:HG23	1:B:750:VAL:O	2.05	0.56
1:A:116:GLN:CD	1:A:142:PHE:CD1	2.80	0.56
1:A:161:MET:O	1:A:165:LEU:HG	2.06	0.56
1:A:803:ASP:OD1	1:A:803:ASP:O	2.22	0.56
1:A:203:ARG:NH1	1:A:204:ASP:OD1	2.39	0.56
1:A:49:THR:O	1:D:27:SER:OG	2.22	0.56
1:A:203:ARG:O	1:A:203:ARG:HG2	2.05	0.56
1:A:328:LYS:HD3	1:A:443:ARG:HH12	1.71	0.56
1:B:52:THR:HG22	1:B:62:ARG:HE	1.71	0.55
1:B:922:LEU:HD12	1:B:949:LEU:HD11	1.88	0.55
1:A:724:ILE:O	1:A:728:GLN:HG3	2.07	0.55
1:B:556:ARG:HG3	1:B:597:ASP:CG	2.27	0.55
1:A:153:ALA:HB1	1:A:265:ILE:CD1	2.25	0.55
1:B:215:THR:CG2	1:B:219:PHE:CZ	2.89	0.55
1:A:214:LEU:HD12	1:A:262:TYR:OH	2.07	0.55
1:A:924:LEU:HD21	1:A:927:LYS:HZ1	1.72	0.55
1:B:4:GLN:HG2	1:B:8:LYS:HZ2	1.72	0.55
1:B:813:PHE:HZ	1:B:846:GLU:HG2	1.70	0.55
1:A:116:GLN:NE2	1:A:142:PHE:HD1	2.03	0.55
1:B:113:VAL:HG22	1:B:123:ARG:HG3	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:642:PHE:CZ	1:B:830:ALA:HA	2.40	0.55
1:A:519:ILE:CG2	1:A:630:LEU:CD1	2.85	0.55
1:A:587:ASP:OD1	1:A:588:THR:N	2.40	0.55
1:A:474:ILE:HD11	1:A:495:ARG:HA	1.89	0.55
1:B:406:ASP:HB3	1:B:409:ASP:HB2	1.89	0.55
1:B:807:LYS:HE3	2:G:8:DT:C5	2.36	0.54
1:A:45:LEU:CD2	1:A:75:ARG:HD3	2.37	0.54
1:A:639:TRP:CH2	1:A:869:LEU:HD23	2.42	0.54
1:B:234:ILE:CD1	1:B:404:LEU:HD22	2.37	0.54
1:A:233:ASN:HB2	1:A:427:THR:HG21	1.90	0.54
1:A:929:ARG:HG2	1:A:931:LYS:CE	2.37	0.54
1:B:403:VAL:HG22	1:B:433:ARG:HB3	1.89	0.54
1:B:858:HIS:CE1	1:B:1025:PRO:HG2	2.43	0.54
1:A:780:ILE:HG13	1:A:849:PHE:CZ	2.41	0.54
1:A:986:THR:O	1:A:986:THR:HG22	2.07	0.54
1:B:973:VAL:CG2	1:B:977:HIS:CD2	2.90	0.54
1:B:592:TYR:CB	1:B:621:ILE:HD11	2.38	0.54
1:A:83:GLU:HG2	1:A:109:SER:CB	2.37	0.54
1:B:807:LYS:CE	2:G:8:DT:C2'	2.83	0.54
1:B:996:PHE:CE1	1:B:1003:VAL:HG21	2.42	0.54
1:D:54:LYS:CG	1:D:55:ALA:N	2.58	0.54
1:B:330:LEU:CD1	1:B:330:LEU:C	2.75	0.54
1:A:850:HIS:CE1	1:A:893:MET:SD	3.00	0.53
1:B:333:LYS:HG3	1:B:362:GLN:CD	2.28	0.53
1:C:13:LEU:CD1	1:C:28:VAL:CG1	2.80	0.53
1:B:534:ASP:OD1	1:B:577:ARG:CZ	2.57	0.53
1:B:731:LYS:HG2	1:B:732:SER:N	2.24	0.53
1:B:797:ASP:OD1	1:B:797:ASP:O	2.27	0.53
1:B:814:TYR:HB3	1:B:822:ARG:HG3	1.91	0.53
1:A:45:LEU:HD13	1:A:75:ARG:HD3	1.86	0.53
1:A:787:ALA:HB3	1:A:870:ARG:HG2	1.91	0.53
1:B:198:PRO:HD2	1:B:465:ARG:HH21	1.74	0.53
1:A:652:GLN:OE1	1:A:664:LYS:HE3	2.08	0.53
1:A:895:LEU:CD1	1:A:902:VAL:CG2	2.79	0.53
1:A:185:ARG:NH1	1:A:186:ASP:OD1	2.41	0.53
1:B:238:LEU:CD1	1:B:375:LEU:HD21	2.39	0.52
1:D:8:LYS:HE3	1:D:11:LYS:HD2	1.91	0.52
1:B:54:LYS:CE	1:B:58:GLY:CA	2.86	0.52
1:B:488:LYS:HZ2	2:G:8:DT:H1'	1.73	0.52
1:A:164:LEU:HD13	1:A:261:TYR:CD2	2.43	0.52
1:A:403:VAL:HG11	1:A:434:ALA:HB2	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:824:ASN:HD22	1:A:845:ARG:HG3	1.75	0.52
1:B:238:LEU:CD1	1:B:375:LEU:CD2	2.87	0.52
1:A:157:PHE:O	1:A:161:MET:CG	2.46	0.52
1:A:650:THR:CG2	1:A:666:TYR:CD1	2.92	0.52
1:A:119:GLU:OE1	1:A:121:VAL:HG12	2.09	0.52
1:A:176:GLU:O	1:A:176:GLU:HG2	2.09	0.52
1:A:450:PRO:HA	2:E:11:DA:H62	1.75	0.52
1:B:701:ILE:HG13	1:B:731:LYS:O	2.10	0.52
1:B:974:LEU:CD2	1:B:1007:LEU:HD21	2.40	0.52
1:A:83:GLU:HA	1:A:108:ASP:O	2.10	0.52
1:A:666:TYR:HE2	1:A:809:GLN:HB3	1.75	0.52
1:A:527:PHE:CZ	1:A:531:VAL:HG11	2.45	0.51
1:A:650:THR:CG2	1:A:666:TYR:HD1	2.23	0.51
1:B:643:LEU:CG	1:B:875:ARG:NE	2.73	0.51
1:C:132:LEU:HG	1:C:136:LEU:CD1	2.40	0.51
1:A:209:LEU:CD2	1:A:245:PHE:CE2	2.80	0.51
1:A:487:THR:CG2	3:F:24:DG:H5'	2.36	0.51
1:B:150:PHE:CG	1:B:272:ILE:CD1	2.94	0.51
1:A:540:ILE:HD11	1:A:629:TRP:CZ3	2.46	0.51
1:A:826:ILE:HG22	1:A:845:ARG:HH21	1.76	0.51
1:B:896:HIS:C	1:B:898:GLY:N	2.64	0.51
1:B:974:LEU:HD21	1:B:1007:LEU:HD21	1.93	0.51
1:A:543:MET:HB3	1:A:561:VAL:HG21	1.91	0.51
1:A:750:VAL:CG2	1:A:899:PHE:HZ	2.23	0.51
1:B:536:ASP:H	1:B:577:ARG:HA	1.75	0.51
1:B:643:LEU:HG	1:B:875:ARG:NH2	2.25	0.51
1:A:666:TYR:HA	1:A:812:PRO:HD3	1.93	0.51
1:B:899:PHE:HD2	1:B:1006:LEU:CD1	2.23	0.51
1:A:73:GLN:NE2	1:A:146:GLN:HE22	2.09	0.51
1:B:54:LYS:HE2	1:B:58:GLY:CA	2.31	0.51
1:B:739:SER:OG	1:B:754:TYR:CE1	2.64	0.51
1:B:996:PHE:HE1	1:B:1003:VAL:HG21	1.75	0.51
1:A:675:ASP:HA	1:A:678:VAL:HG12	1.92	0.51
1:A:865:TYR:O	1:A:869:LEU:HG	2.11	0.51
1:A:895:LEU:CD2	1:A:1016:GLU:HB3	2.40	0.51
1:B:164:LEU:CD1	1:B:261:TYR:CD2	2.90	0.51
1:A:45:LEU:HD21	1:A:75:ARG:CD	2.40	0.51
1:A:650:THR:HG21	1:A:666:TYR:CE1	2.46	0.50
1:B:621:ILE:HG21	1:B:629:TRP:HB3	1.93	0.50
1:B:977:HIS:CG	1:B:999:HIS:NE2	2.79	0.50
1:B:88:ASP:OD1	1:B:123:ARG:NH1	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:556:ARG:HG3	1:B:597:ASP:OD1	2.09	0.50
1:A:652:GLN:CD	1:A:664:LYS:HE3	2.32	0.50
1:B:180:ASP:O	1:B:184:GLU:HG2	2.10	0.50
1:A:16:ILE:HG21	1:A:27:SER:O	2.12	0.50
1:A:710:SER:HG	1:A:712:ASN:ND2	2.08	0.50
1:B:519:ILE:CG2	1:B:630:LEU:CG	2.90	0.50
1:B:650:THR:HG1	1:B:666:TYR:HD1	1.58	0.50
1:B:975:GLU:HA	1:B:978:LYS:CD	2.40	0.50
1:D:106:PHE:HB2	1:D:113:VAL:HG22	1.92	0.50
1:A:491:ASP:OD1	1:A:493:TYR:HD2	1.92	0.50
1:A:45:LEU:HD11	1:A:75:ARG:NE	2.26	0.50
1:A:849:PHE:HE2	1:A:893:MET:HG3	1.76	0.50
1:B:311:VAL:HG21	1:B:346:THR:HG22	1.94	0.50
1:B:333:LYS:HG3	1:B:362:GLN:HE22	1.75	0.50
1:B:287:GLU:OE2	1:B:305:TYR:HD1	1.94	0.49
1:B:880:PRO:O	1:B:881:GLU:HG3	2.12	0.49
1:A:556:ARG:HB3	1:A:597:ASP:OD2	2.12	0.49
1:B:150:PHE:CD1	1:B:272:ILE:CD1	2.94	0.49
1:B:697:TYR:CZ	1:B:701:ILE:HD11	2.47	0.49
1:C:4:GLN:HG2	1:C:5:LEU:H	1.75	0.49
1:C:95:LEU:HD22	1:C:101:ARG:HG2	1.94	0.49
1:A:24:ASN:HB3	2:G:24:DC:H5''	1.95	0.49
1:B:899:PHE:CD2	1:B:1006:LEU:CD1	2.96	0.49
1:B:914:PRO:HG3	1:B:922:LEU:HD13	1.94	0.49
1:A:825:ASN:O	1:A:826:ILE:C	2.50	0.49
1:A:777:ASN:HD21	1:A:814:TYR:H	1.58	0.49
1:B:147:VAL:O	1:B:151:ARG:HG3	2.11	0.49
1:C:113:VAL:HG13	1:C:120:GLU:HG3	1.93	0.49
1:A:116:GLN:CG	1:A:142:PHE:CE1	2.96	0.49
1:A:700:ILE:O	1:A:703:LEU:HB2	2.13	0.49
1:A:78:TRP:CZ2	1:A:80:SER:HB2	2.48	0.49
1:B:667:SER:OG	1:B:769:ILE:CD1	2.60	0.49
1:B:164:LEU:HD11	1:B:258:THR:HG22	1.93	0.49
1:B:219:PHE:HA	1:B:223:PHE:HB2	1.95	0.49
1:C:45:LEU:HD22	1:C:67:LEU:HG	1.94	0.49
1:A:650:THR:HG21	1:A:666:TYR:CD1	2.47	0.49
1:B:488:LYS:NZ	2:G:8:DT:H1'	2.28	0.49
1:B:858:HIS:HE1	1:B:1025:PRO:HG2	1.77	0.49
1:B:899:PHE:CD2	1:B:1006:LEU:HD13	2.48	0.48
1:D:105:ILE:HG12	1:D:114:LEU:HD13	1.94	0.48
1:A:153:ALA:C	1:A:265:ILE:CD1	2.81	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:519:ILE:HD11	1:A:540:ILE:HG21	1.96	0.48
1:A:668:LEU:HD21	1:A:809:GLN:HE21	1.79	0.48
1:B:243:ALA:O	1:B:247:LYS:HE3	2.13	0.48
1:A:20:GLY:HA2	1:D:68:LYS:HD3	1.95	0.48
1:A:588:THR:CG2	1:A:589:LYS:N	2.66	0.48
1:A:847:ASP:HB3	1:A:882:PHE:HE2	1.78	0.48
1:B:519:ILE:CG2	1:B:630:LEU:HG	2.42	0.48
1:A:109:SER:O	1:A:110:ARG:HG3	2.14	0.48
1:B:543:MET:HE1	1:B:608:LEU:HD12	1.93	0.48
1:A:164:LEU:HD13	1:A:261:TYR:HB2	1.95	0.48
1:A:403:VAL:CG1	1:A:404:LEU:N	2.77	0.48
1:B:652:GLN:HG3	1:B:658:GLN:HB3	1.95	0.48
1:B:782:LEU:HD22	1:B:793:VAL:HG12	1.72	0.48
1:B:813:PHE:CZ	1:B:846:GLU:HG2	2.47	0.48
1:B:928:ALA:HB2	1:B:996:PHE:HB2	1.95	0.48
1:A:408:LEU:O	1:A:470:ILE:HD11	2.13	0.48
1:A:475:LYS:HA	1:A:479:VAL:HB	1.94	0.48
1:B:529:LYS:NZ	1:B:627:HIS:CE1	2.81	0.48
1:B:642:PHE:HD1	1:B:878:PHE:CZ	2.31	0.48
1:B:973:VAL:HG21	1:B:1006:LEU:HD23	0.65	0.48
1:A:445:ILE:HD11	1:A:503:ARG:HB3	1.96	0.48
1:A:747:PRO:HB3	1:A:964:LEU:HD23	1.96	0.48
1:A:762:MET:CE	2:E:5:DC:C5	2.97	0.48
1:A:924:LEU:HD22	1:A:927:LYS:HZ2	1.77	0.47
1:A:976:ARG:HD2	1:A:976:ARG:HA	1.54	0.47
1:B:803:ASP:OD2	3:H:19:DC:H5	1.97	0.47
1:A:741:VAL:HG11	1:A:773:GLY:HA3	1.96	0.47
1:A:789:LYS:HB2	1:A:806:GLU:HG3	1.95	0.47
1:A:792:GLN:HG3	1:A:805:LEU:HD13	1.95	0.47
1:B:769:ILE:HD13	1:B:812:PRO:HG3	1.96	0.47
1:A:711:ARG:HE	1:A:711:ARG:HB3	1.45	0.47
1:B:445:ILE:O	1:B:445:ILE:HG22	2.13	0.47
1:A:343:GLY:HA3	4:A:1101:SAM:HG2	1.96	0.47
1:A:372:GLU:CD	1:A:377:PRO:HB2	2.33	0.47
1:B:535:PHE:CD1	1:B:577:ARG:HB2	2.50	0.47
1:A:189:VAL:O	1:A:193:LYS:HG3	2.14	0.47
1:A:362:GLN:HE21	1:A:363:LYS:HD2	1.79	0.47
1:A:452:ARG:HD2	1:A:464:ASN:HD21	1.79	0.47
1:A:895:LEU:O	1:A:895:LEU:CG	2.63	0.47
1:B:150:PHE:HA	1:B:268:ALA:HB1	1.95	0.47
1:B:203:ARG:O	1:B:207:GLU:HG3	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:686:LEU:HD23	1:B:740:ILE:HG23	1.97	0.47
1:B:973:VAL:HG23	1:B:977:HIS:NE2	2.29	0.47
1:B:116:GLN:HE21	1:B:142:PHE:HB2	1.79	0.47
1:B:899:PHE:O	1:B:1009:ARG:HB3	2.15	0.47
1:A:325:HIS:CD2	1:A:576:VAL:HG21	2.50	0.47
1:B:507:ASP:OD1	1:B:507:ASP:O	2.33	0.47
1:B:531:VAL:HG12	1:B:538:ILE:HD11	1.97	0.47
1:A:552:GLU:HB3	1:A:556:ARG:HH21	1.80	0.47
1:B:45:LEU:HD21	1:B:75:ARG:CZ	2.45	0.47
3:H:5:DG:H2"	3:H:6:DG:C8	2.50	0.47
1:A:541:LEU:HD11	1:A:607:TRP:HH2	1.81	0.46
1:A:862:ARG:HA	1:A:869:LEU:CD1	2.45	0.46
1:B:899:PHE:CE2	1:B:1006:LEU:HD13	2.50	0.46
1:B:930:LEU:O	1:B:931:LYS:HG3	2.15	0.46
1:C:13:LEU:HD12	1:C:28:VAL:HG22	1.96	0.46
1:A:83:GLU:HG3	1:A:109:SER:HB3	1.98	0.46
1:A:666:TYR:CE2	1:A:809:GLN:HB3	2.50	0.46
1:A:445:ILE:HD13	1:A:500:ALA:HA	1.98	0.46
1:A:680:SER:HB3	1:A:686:LEU:HD13	1.97	0.46
1:A:865:TYR:HB3	1:A:868:ASN:HB2	1.97	0.46
1:B:237:GLN:OE1	1:B:427:THR:HG22	2.15	0.46
1:B:700:ILE:HA	1:B:703:LEU:HD11	1.98	0.46
1:B:922:LEU:CD1	1:B:926:LYS:HE3	2.30	0.46
2:E:16:DG:H2"	2:E:17:DA:C8	2.50	0.46
1:A:119:GLU:OE1	1:A:121:VAL:CG1	2.64	0.46
1:A:561:VAL:HG12	1:A:561:VAL:O	2.16	0.46
1:B:220:THR:HG22	1:B:226:ALA:HA	1.97	0.46
1:C:66:THR:O	1:C:66:THR:CG2	2.48	0.46
1:C:102:ASP:O	1:C:116:GLN:HA	2.15	0.46
1:B:232:ASN:HD21	1:B:378:TYR:HE2	1.62	0.46
1:B:813:PHE:HB2	1:B:849:PHE:CE1	2.51	0.46
1:C:48:ILE:HG22	1:C:51:VAL:HG23	1.97	0.46
1:A:120:GLU:OE1	1:A:123:ARG:CG	2.38	0.46
1:B:6:VAL:HG11	1:B:129:ALA:HA	1.97	0.46
1:B:654:LYS:H	1:B:654:LYS:HG2	1.54	0.46
1:B:893:MET:O	1:B:897:ILE:HB	2.15	0.46
1:B:222:VAL:HG12	1:B:266:GLN:HG2	1.97	0.46
1:B:649:ASP:O	1:B:652:GLN:HB3	2.16	0.46
1:A:188:PHE:CZ	1:A:208:MET:SD	3.09	0.46
1:B:560:ASN:HB3	1:B:564:ASP:HA	1.98	0.45
1:B:922:LEU:CD1	1:B:949:LEU:HD11	2.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:45:LEU:HD21	1:C:75:ARG:HD3	1.98	0.45
1:D:59:ASN:HD21	2:G:26:DC:H5'	1.82	0.45
1:A:871:GLN:HE21	1:A:871:GLN:HB2	1.55	0.45
1:B:352:ILE:HA	1:B:360:LEU:HD13	1.98	0.45
1:D:94:LYS:HA	1:D:94:LYS:HD3	1.68	0.45
1:A:662:ILE:HA	1:A:830:ALA:HB2	1.97	0.45
1:B:592:TYR:HB2	1:B:621:ILE:CD1	2.47	0.45
1:B:701:ILE:HD13	1:B:701:ILE:HA	1.67	0.45
1:B:282:LEU:HD22	1:B:380:ILE:HG23	1.99	0.45
1:B:807:LYS:CG	2:G:8:DT:H72	2.43	0.45
1:D:69:ASP:CG	1:D:70:SER:H	2.07	0.45
1:A:73:GLN:HE21	1:A:146:GLN:HE22	1.63	0.45
1:B:895:LEU:HB3	1:B:1013:VAL:HG13	1.99	0.45
1:A:161:MET:SD	1:A:288:ASN:CB	3.04	0.45
1:A:968:SER:OG	1:A:971:GLU:CD	2.55	0.45
4:A:1101:SAM:HE1	4:A:1101:SAM:HB1	1.87	0.45
1:B:233:ASN:ND2	1:B:429:GLU:HB3	2.31	0.45
1:B:272:ILE:HG21	1:B:277:GLU:HB2	1.99	0.45
1:B:475:LYS:HA	1:B:479:VAL:HB	1.99	0.45
1:B:973:VAL:CG2	1:B:977:HIS:NE2	2.80	0.45
2:G:18:DA:H2''	2:G:19:DC:H5'	1.98	0.45
1:B:510:VAL:HG23	1:B:575:LEU:HB2	1.86	0.45
1:D:37:SER:O	1:D:41:GLU:HG3	2.17	0.45
1:A:233:ASN:HB3	1:A:429:GLU:OE1	2.17	0.45
1:B:592:TYR:CZ	1:B:630:LEU:HD21	2.51	0.45
1:A:372:GLU:HG2	1:A:378:TYR:HB2	1.99	0.44
1:B:324:LYS:HB3	1:B:324:LYS:HE3	1.41	0.44
1:B:341:ALA:HB1	4:B:1101:SAM:H5'2	1.99	0.44
1:B:855:VAL:HG11	1:B:877:PRO:HD2	1.98	0.44
1:C:120:GLU:OE2	1:C:123:ARG:HB2	2.17	0.44
1:A:789:LYS:H	1:A:806:GLU:HG3	1.82	0.44
1:A:898:GLY:O	1:A:902:VAL:HG23	2.17	0.44
1:B:536:ASP:O	1:B:537:HIS:CG	2.70	0.44
1:C:2:SER:HB2	1:C:4:GLN:OE1	2.17	0.44
1:C:5:LEU:HD21	1:C:38:ASP:HB2	1.99	0.44
1:D:118:GLY:C	1:D:119:GLU:HG3	2.38	0.44
1:A:242:ALA:C	1:A:244:THR:N	2.70	0.44
1:A:445:ILE:HG22	1:A:445:ILE:O	2.16	0.44
1:A:693:PHE:C	1:A:695:GLY:N	2.69	0.44
1:A:747:PRO:CD	1:A:804:LEU:HD12	2.47	0.44
1:A:45:LEU:HD21	1:A:75:ARG:HD3	1.97	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:33:GLN:NE2	1:C:30:ALA:HB1	2.31	0.44
1:D:111:LEU:HA	1:D:125:ASP:HA	1.98	0.44
1:B:518:PHE:CD1	1:B:519:ILE:HD12	2.53	0.44
1:B:681:ARG:H	1:B:681:ARG:HG2	1.41	0.44
1:A:451:TYR:CE1	1:A:514:SER:HA	2.53	0.44
1:A:910:THR:O	1:A:910:THR:OG1	2.29	0.44
1:B:188:PHE:CZ	1:B:238:LEU:HD21	2.53	0.44
1:B:509:ILE:HG21	1:B:576:VAL:CG2	2.25	0.44
1:A:164:LEU:HD21	1:A:262:TYR:CE1	2.53	0.44
1:A:193:LYS:HE2	1:A:200:PHE:O	2.18	0.44
1:D:111:LEU:N	1:D:126:MET:HG3	2.32	0.44
1:A:181:TYR:CE1	1:A:245:PHE:CE2	3.06	0.43
1:A:847:ASP:HB3	1:A:882:PHE:CE2	2.53	0.43
1:B:543:MET:HE1	1:B:561:VAL:CB	2.48	0.43
1:B:932:VAL:HA	1:B:944:VAL:HG22	1.99	0.43
1:B:952:LEU:HD12	1:B:952:LEU:HA	1.89	0.43
1:A:457:ASN:HB2	1:A:718:LYS:HE2	1.99	0.43
1:A:659:GLU:O	1:A:659:GLU:HG3	2.17	0.43
1:B:427:THR:OG1	1:B:430:ASN:HB2	2.18	0.43
1:A:696:ARG:HH22	1:A:714:GLU:HB2	1.84	0.43
1:B:333:LYS:HG3	1:B:362:GLN:OE1	2.19	0.43
1:B:920:GLU:HA	1:D:92:GLN:HE21	1.82	0.43
1:B:977:HIS:HB3	1:B:999:HIS:NE2	2.33	0.43
1:A:197:ASN:HB3	1:A:200:PHE:HD1	1.82	0.43
1:A:651:LYS:HA	1:A:651:LYS:HD3	1.63	0.43
1:A:826:ILE:O	1:A:845:ARG:NH2	2.51	0.43
1:B:556:ARG:CG	1:B:597:ASP:CG	2.83	0.43
1:B:746:ARG:HG3	1:B:976:ARG:HD3	2.00	0.43
1:B:936:ALA:O	1:B:939:GLN:HG3	2.18	0.43
1:A:22:THR:HB	1:A:27:SER:OG	2.19	0.43
1:A:486:LYS:HB3	2:E:8:DT:H5'	2.00	0.43
1:A:45:LEU:HD21	1:A:75:ARG:HD2	2.00	0.43
1:A:678:VAL:O	1:A:686:LEU:HD21	2.19	0.43
1:B:896:HIS:C	1:B:898:GLY:H	2.22	0.43
1:A:846:GLU:O	1:A:849:PHE:HB3	2.18	0.43
1:B:198:PRO:HD2	1:B:465:ARG:NH2	2.33	0.43
1:B:376:LEU:HB3	1:B:377:PRO:HD3	2.00	0.43
1:B:448:ASN:HD21	2:G:11:DA:H61	1.66	0.43
1:B:962:TYR:O	1:B:963:LYS:C	2.57	0.43
1:C:114:LEU:CB	1:C:135:LEU:HD11	2.47	0.43
1:A:309:GLU:CG	1:A:609:LYS:CG	2.91	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:528:ARG:O	1:A:531:VAL:HG22	2.19	0.43
1:A:736:GLU:O	1:A:738:ASN:N	2.52	0.43
1:A:777:ASN:ND2	1:A:814:TYR:H	2.17	0.43
1:A:884:ARG:NE	1:A:888:TRP:CH2	2.87	0.43
1:B:371:ASN:CB	1:B:407:THR:HG22	2.49	0.43
1:B:403:VAL:HG11	1:B:405:VAL:CG2	2.48	0.43
1:B:865:TYR:O	1:B:869:LEU:HG	2.18	0.43
1:D:66:THR:HG23	1:D:77:TYR:CE1	2.54	0.43
1:C:13:LEU:HD11	1:C:28:VAL:HG22	2.01	0.43
1:A:641:GLU:HB3	1:A:642:PHE:H	1.69	0.43
1:A:641:GLU:H	1:A:875:ARG:HD3	1.84	0.43
1:A:961:ALA:O	1:A:963:LYS:HG3	2.19	0.43
1:B:150:PHE:CB	1:B:272:ILE:CD1	2.92	0.43
1:B:472:ARG:HE	1:B:472:ARG:HB3	1.58	0.43
1:B:518:PHE:CE1	1:B:519:ILE:HD12	2.54	0.43
1:B:987:ILE:HG23	1:B:991:PHE:HB2	2.00	0.43
1:A:786:PRO:HA	1:A:870:ARG:O	2.18	0.42
1:B:279:GLN:HA	1:B:282:LEU:HD12	2.00	0.42
1:B:674:ARG:HH12	1:B:720:THR:HG22	1.84	0.42
1:C:126:MET:HE2	1:C:126:MET:HB3	1.84	0.42
1:D:124:VAL:HB	1:D:131:ALA:HB1	2.00	0.42
1:A:178:LYS:HZ2	1:A:245:PHE:HA	1.84	0.42
1:A:445:ILE:HG21	1:A:500:ALA:HB1	2.00	0.42
1:A:646:ALA:H	1:A:649:ASP:HB2	1.83	0.42
1:B:403:VAL:HG12	1:B:404:LEU:N	2.34	0.42
1:B:527:PHE:CZ	1:B:531:VAL:HG21	2.53	0.42
1:A:681:ARG:HH22	1:A:976:ARG:NH1	2.17	0.42
1:A:705:LEU:O	1:A:709:MET:HG2	2.19	0.42
1:A:777:ASN:HD21	1:A:813:PHE:H	1.66	0.42
1:B:54:LYS:HG2	1:B:55:ALA:N	2.34	0.42
1:B:974:LEU:HD21	1:B:1007:LEU:CD2	2.49	0.42
1:A:814:TYR:HD1	1:A:824:ASN:HA	1.83	0.42
1:B:20:GLY:HA3	1:C:48:ILE:HD11	1.97	0.42
1:B:605:LEU:HA	1:B:605:LEU:HD23	1.77	0.42
1:C:82:ASP:OD1	1:C:83:GLU:N	2.52	0.42
1:A:181:TYR:HE1	1:A:245:PHE:CE2	2.37	0.42
1:A:746:ARG:C	1:A:804:LEU:CD1	2.88	0.42
1:A:964:LEU:HD12	1:A:964:LEU:HA	1.79	0.42
1:B:34:GLN:HG3	1:B:38:ASP:OD2	2.19	0.42
1:A:736:GLU:C	1:A:738:ASN:N	2.72	0.42
1:A:755:PHE:HA	1:A:760:ASN:ND2	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:176:GLU:O	1:B:176:GLU:HG3	2.19	0.42
1:B:642:PHE:CD1	1:B:878:PHE:CZ	3.07	0.42
1:B:852:VAL:HG13	1:B:876:ILE:HG21	2.02	0.42
1:A:755:PHE:HA	1:A:760:ASN:HD21	1.84	0.42
1:B:81:LYS:NZ	1:B:90:GLU:HB3	2.35	0.42
1:B:404:LEU:HD12	1:B:404:LEU:HA	1.86	0.42
1:B:782:LEU:HD13	1:B:874:PRO:HG3	2.01	0.42
1:B:961:ALA:C	1:B:963:LYS:H	2.23	0.42
1:A:528:ARG:CA	1:A:531:VAL:HG22	2.49	0.42
1:B:858:HIS:ND1	1:B:885:TRP:HH2	2.18	0.42
1:A:67:LEU:HD12	1:A:67:LEU:HA	1.88	0.42
1:B:504:LEU:HD11	1:B:507:ASP:O	2.19	0.42
1:A:165:LEU:HB2	1:A:169:ARG:HH21	1.85	0.41
1:A:519:ILE:CD1	1:A:540:ILE:HG21	2.50	0.41
1:A:802:LEU:HD12	1:A:802:LEU:HA	1.91	0.41
1:B:392:LYS:HE3	1:B:392:LYS:HB3	1.89	0.41
1:B:731:LYS:CG	1:B:732:SER:H	2.33	0.41
1:A:330:LEU:HD23	1:A:330:LEU:HA	1.93	0.41
1:A:376:LEU:HB3	1:A:377:PRO:HD3	2.02	0.41
1:B:682:ALA:HB3	1:B:685:GLU:HB3	2.02	0.41
1:B:970:LEU:HD23	1:B:970:LEU:HA	1.84	0.41
1:A:460:ASP:O	1:A:461:ASN:HB2	2.19	0.41
1:A:782:LEU:HD11	1:A:856:LEU:HD13	2.02	0.41
1:B:33:GLN:NE2	1:C:30:ALA:CB	2.83	0.41
1:A:188:PHE:HE2	1:A:208:MET:SD	2.40	0.41
1:A:607:TRP:O	1:A:611:THR:HB	2.21	0.41
1:A:782:LEU:HD22	1:A:811:LEU:HD11	2.01	0.41
1:A:895:LEU:HD22	1:A:1016:GLU:CB	2.44	0.41
1:B:52:THR:HG22	1:B:62:ARG:NE	2.35	0.41
1:B:237:GLN:HB2	1:B:427:THR:CG2	2.51	0.41
1:B:451:TYR:CE1	1:B:514:SER:HA	2.54	0.41
1:B:451:TYR:HA	1:B:493:TYR:HD2	1.84	0.41
1:B:804:LEU:HG	1:B:805:LEU:HG	2.03	0.41
1:A:78:TRP:CE2	1:A:80:SER:HB2	2.55	0.41
1:A:116:GLN:CD	1:A:142:PHE:CE1	2.94	0.41
1:B:238:LEU:CD1	1:B:375:LEU:HD22	2.50	0.41
1:C:94:LYS:HA	1:C:94:LYS:HD3	1.85	0.41
1:A:713:TRP:HB2	1:A:714:GLU:H	1.67	0.41
1:B:437:GLN:HE21	1:B:437:GLN:HB3	1.61	0.41
1:B:803:ASP:OD2	3:H:19:DC:C5	2.73	0.41
1:A:45:LEU:HD11	1:A:75:ARG:HH11	1.80	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:528:ARG:HH11	1:A:629:TRP:H	1.68	0.41
1:A:639:TRP:HH2	1:A:874:PRO:HA	1.85	0.41
1:A:895:LEU:HD22	1:A:1016:GLU:HB3	2.01	0.41
1:B:592:TYR:CE2	1:B:630:LEU:HD22	2.53	0.41
1:A:503:ARG:HD2	1:A:503:ARG:HA	1.88	0.41
1:A:528:ARG:HA	1:A:531:VAL:CG2	2.49	0.41
1:A:608:LEU:HD23	1:A:608:LEU:HA	1.72	0.41
1:A:792:GLN:HE21	1:A:805:LEU:HD22	1.84	0.41
1:A:990:LYS:HE2	1:A:990:LYS:HB2	1.86	0.41
1:B:161:MET:HB3	1:B:162:PRO:HD3	2.03	0.41
1:B:290:TYR:HB3	1:B:298:ALA:HB2	2.02	0.41
1:B:338:LEU:HB2	1:B:442:VAL:HG11	2.03	0.41
1:B:602:ARG:H	1:B:602:ARG:HG2	1.58	0.41
1:C:138:LEU:HA	1:C:138:LEU:HD23	1.82	0.41
1:D:102:ASP:HA	1:D:117:ASN:HA	2.03	0.41
1:A:445:ILE:HG21	1:A:500:ALA:CB	2.51	0.41
1:A:656:LEU:HD22	1:A:656:LEU:HA	1.88	0.41
1:B:36:LEU:HD23	1:B:36:LEU:HA	1.75	0.41
1:A:323:GLU:H	1:A:323:GLU:HG3	1.52	0.40
1:A:889:GLY:O	1:A:893:MET:HB2	2.21	0.40
1:B:2:SER:OG	1:B:5:LEU:HG	2.21	0.40
1:B:465:ARG:NH1	1:B:467:TYR:CD1	2.89	0.40
1:A:93:LYS:HE2	1:A:93:LYS:HB3	1.86	0.40
1:A:746:ARG:CA	1:A:804:LEU:HD12	2.50	0.40
1:B:333:LYS:CE	1:B:362:GLN:NE2	2.71	0.40
1:B:543:MET:HE1	1:B:561:VAL:HB	2.03	0.40
1:B:662:ILE:O	1:B:827:THR:HG23	2.21	0.40
1:B:835:GLN:HG3	1:B:843:ILE:HB	2.02	0.40
1:C:132:LEU:HG	1:C:136:LEU:HD11	2.03	0.40
1:A:57:ALA:HB3	1:A:59:ASN:HD22	1.87	0.40
1:A:467:TYR:HE2	1:A:492:MET:SD	2.45	0.40
1:A:639:TRP:HH2	1:A:869:LEU:HD23	1.84	0.40
1:A:750:VAL:HG23	1:A:899:PHE:CZ	2.47	0.40
1:A:128:ASP:OD1	1:A:129:ALA:N	2.54	0.40
1:A:239:GLN:O	1:A:240:GLN:C	2.60	0.40
1:B:672:THR:OG1	1:B:675:ASP:OD1	2.39	0.40
1:B:677:TRP:CD2	1:B:987:ILE:HD11	2.56	0.40
1:B:977:HIS:HB3	1:B:999:HIS:CD2	2.56	0.40
1:C:87:LEU:HD13	1:C:108:ASP:HB3	2.03	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	1005/1029 (98%)	895 (89%)	98 (10%)	12 (1%)	13	43
1	B	1006/1029 (98%)	883 (88%)	112 (11%)	11 (1%)	14	46
1	C	141/1029 (14%)	124 (88%)	14 (10%)	3 (2%)	7	32
1	D	144/1029 (14%)	127 (88%)	13 (9%)	4 (3%)	5	25
All	All	2296/4116 (56%)	2029 (88%)	237 (10%)	30 (1%)	16	41

All (30) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	737	LYS
1	B	959	ALA
1	B	990	LYS
1	A	327	GLN
1	A	822	ARG
1	B	656	LEU
1	B	963	LYS
1	C	118	GLY
1	A	110	ARG
1	A	456	ALA
1	A	1025	PRO
1	B	643	LEU
1	C	50	GLU
1	D	103	ASN
1	A	644	PRO
1	A	812	PRO
1	B	874	PRO
1	B	906	PRO
1	B	999	HIS
1	B	1025	PRO
1	C	45	LEU
1	A	874	PRO

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Mol	Chain	Res	Type
1	B	198	PRO
1	D	95	LEU
1	A	394	GLY
1	A	678	VAL
1	D	98	GLY
1	A	826	ILE
1	B	956	PRO
1	D	121	VAL

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	860/872 (99%)	755 (88%)	105 (12%)	5	20
1	B	860/872 (99%)	788 (92%)	72 (8%)	11	35
1	C	119/872 (14%)	109 (92%)	10 (8%)	11	35
1	D	122/872 (14%)	110 (90%)	12 (10%)	8	29
All	All	1961/3488 (56%)	1762 (90%)	199 (10%)	11	27

All (199) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	PHE
1	A	22	THR
1	A	23	ARG
1	A	37	SER
1	A	46	ARG
1	A	47	LEU
1	A	52	THR
1	A	70	SER
1	A	80	SER
1	A	99	TYR
1	A	104	ILE
1	A	105	ILE
1	A	107	GLU

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Mol	Chain	Res	Type
1	A	113	VAL
1	A	136	LEU
1	A	147	VAL
1	A	167	ILE
1	A	168	LEU
1	A	191	ILE
1	A	215	THR
1	A	233	ASN
1	A	241	LEU
1	A	250	VAL
1	A	300	ARG
1	A	323	GLU
1	A	324	LYS
1	A	326	PHE
1	A	328	LYS
1	A	329	GLU
1	A	346	THR
1	A	351	LEU
1	A	362	GLN
1	A	365	ARG
1	A	383	LEU
1	A	393	MET
1	A	395	ARG
1	A	396	TYR
1	A	411	THR
1	A	451	TYR
1	A	452	ARG
1	A	455	GLN
1	A	458	GLU
1	A	474	ILE
1	A	494	SER
1	A	509	ILE
1	A	525	ASP
1	A	544	LYS
1	A	552	GLU
1	A	575	LEU
1	A	576	VAL
1	A	578	SER
1	A	589	LYS
1	A	608	LEU
1	A	611	THR
1	A	642	PHE

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Mol	Chain	Res	Type
1	A	645	VAL
1	A	647	ASP
1	A	651	LYS
1	A	654	LYS
1	A	656	LEU
1	A	671	VAL
1	A	674	ARG
1	A	678	VAL
1	A	680	SER
1	A	684	ASP
1	A	685	GLU
1	A	686	LEU
1	A	688	ASP
1	A	691	ARG
1	A	694	ILE
1	A	696	ARG
1	A	699	GLU
1	A	700	ILE
1	A	713	TRP
1	A	723	THR
1	A	726	ASP
1	A	732	SER
1	A	734	SER
1	A	736	GLU
1	A	751	LEU
1	A	753	MET
1	A	763	GLN
1	A	765	GLN
1	A	766	MET
1	A	779	VAL
1	A	782	LEU
1	A	783	SER
1	A	785	SER
1	A	791	PHE
1	A	793	VAL
1	A	796	THR
1	A	798	ILE
1	A	805	LEU
1	A	811	LEU
1	A	815	ARG
1	A	871	GLN
1	A	872	GLU

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Mol	Chain	Res	Type
1	A	893	MET
1	A	901	SER
1	A	916	ASN
1	A	917	ASP
1	A	988	ARG
1	A	993	THR
1	A	1019	ARG
1	A	1028	THR
1	B	11	LYS
1	B	14	GLU
1	B	15	ASP
1	B	16	ILE
1	B	92	GLN
1	B	146	GLN
1	B	159	ASP
1	B	167	ILE
1	B	201	SER
1	B	206	ARG
1	B	213	ILE
1	B	214	LEU
1	B	225	ASN
1	B	246	TYR
1	B	310	ILE
1	B	311	VAL
1	B	315	ILE
1	B	323	GLU
1	B	324	LYS
1	B	350	GLU
1	B	351	LEU
1	B	437	GLN
1	B	448	ASN
1	B	451	TYR
1	B	452	ARG
1	B	458	GLU
1	B	459	ASN
1	B	472	ARG
1	B	475	LYS
1	B	491	ASP
1	B	492	MET
1	B	498	ARG
1	B	512	PHE
1	B	521	SER

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Mol	Chain	Res	Type
1	B	523	THR
1	B	599	TRP
1	B	600	ARG
1	B	602	ARG
1	B	609	LYS
1	B	616	ILE
1	B	617	GLU
1	B	642	PHE
1	B	647	ASP
1	B	649	ASP
1	B	652	GLN
1	B	656	LEU
1	B	659	GLU
1	B	662	ILE
1	B	664	LYS
1	B	681	ARG
1	B	690	VAL
1	B	694	ILE
1	B	705	LEU
1	B	724	ILE
1	B	740	ILE
1	B	761	GLU
1	B	779	VAL
1	B	792	GLN
1	B	798	ILE
1	B	801	SER
1	B	821	GLU
1	B	826	ILE
1	B	831	LEU
1	B	857	HIS
1	B	897	ILE
1	B	945	GLU
1	B	955	ILE
1	B	960	TRP
1	B	970	LEU
1	B	983	LYS
1	B	984	ASP
1	B	986	THR
1	C	2	SER
1	C	25	GLU
1	C	45	LEU
1	C	46	ARG

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Mol	Chain	Res	Type
1	C	53	GLN
1	C	60	ASN
1	C	67	LEU
1	C	105	ILE
1	C	111	LEU
1	C	143	GLU
1	D	78	TRP
1	D	81	LYS
1	D	82	ASP
1	D	86	THR
1	D	87	LEU
1	D	88	ASP
1	D	90	GLU
1	D	93	LYS
1	D	94	LYS
1	D	105	ILE
1	D	107	GLU
1	D	111	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (44) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	59	ASN
1	A	73	GLN
1	A	116	GLN
1	A	146	GLN
1	A	197	ASN
1	A	212	HIS
1	A	232	ASN
1	A	362	GLN
1	A	448	ASN
1	A	464	ASN
1	A	637	ASN
1	A	673	ASN
1	A	712	ASN
1	A	763	GLN
1	A	792	GLN
1	A	809	GLN
1	A	850	HIS
1	B	34	GLN
1	B	59	ASN
1	B	92	GLN

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Mol	Chain	Res	Type
1	B	116	GLN
1	B	197	ASN
1	B	212	HIS
1	B	227	GLN
1	B	229	HIS
1	B	232	ASN
1	B	371	ASN
1	B	437	GLN
1	B	448	ASN
1	B	459	ASN
1	B	464	ASN
1	B	560	ASN
1	B	563	ASN
1	B	620	HIS
1	B	627	HIS
1	B	758	ASN
1	B	763	GLN
1	B	765	GLN
1	C	34	GLN
1	C	92	GLN
1	D	10	GLN
1	D	59	ASN
1	D	60	ASN
1	D	92	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](#)

Of 6 ligands modelled in this entry, 4 are monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	SAM	B	1101	-	21,29,29	0.63	0	18,42,42	0.92	1 (5%)
4	SAM	A	1101	-	21,29,29	0.62	0	18,42,42	0.96	1 (5%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	SAM	B	1101	-	-	6/8/33/33	0/3/3/3
4	SAM	A	1101	-	-	6/8/33/33	0/3/3/3

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	1101	SAM	C5-C6-N6	2.31	123.86	120.35
4	A	1101	SAM	C5-C6-N6	2.22	123.73	120.35

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1101	SAM	N-CA-CB-CG
4	A	1101	SAM	C-CA-CB-CG
4	A	1101	SAM	CA-CB-CG-SD
4	A	1101	SAM	O4'-C4'-C5'-SD
4	A	1101	SAM	C3'-C4'-C5'-SD
4	B	1101	SAM	N-CA-CB-CG
4	B	1101	SAM	C-CA-CB-CG
4	B	1101	SAM	O4'-C4'-C5'-SD
4	B	1101	SAM	C3'-C4'-C5'-SD

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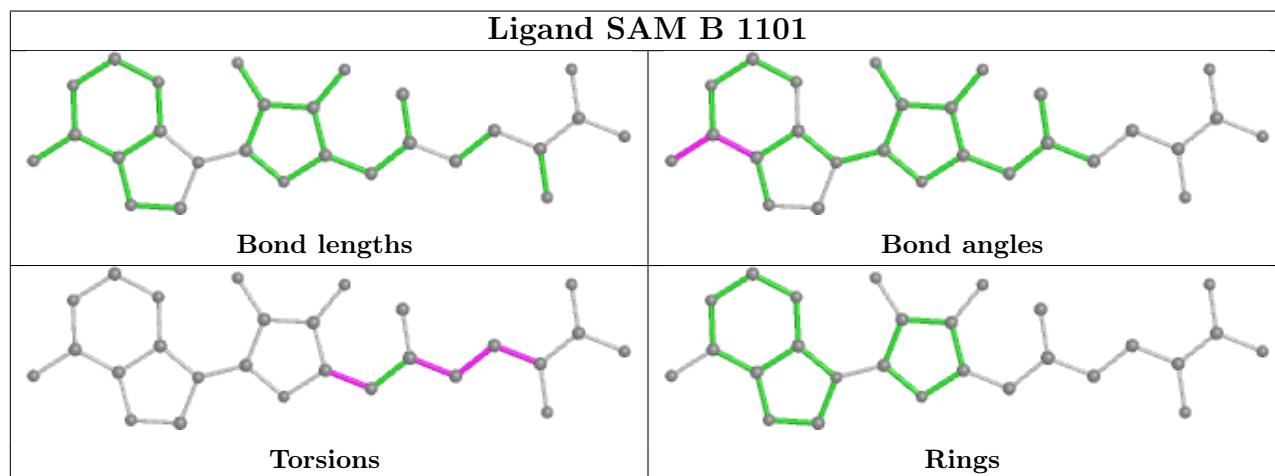
Mol	Chain	Res	Type	Atoms
4	A	1101	SAM	CB-CG-SD-C5'
4	B	1101	SAM	CA-CB-CG-SD
4	B	1101	SAM	CB-CG-SD-C5'

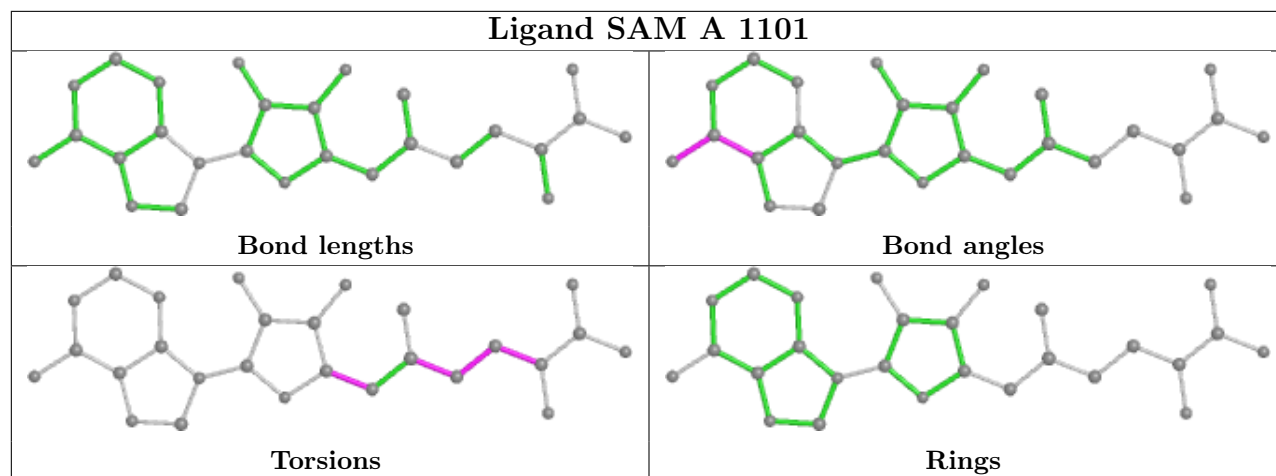
There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1101	SAM	1	0
4	A	1101	SAM	2	0

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





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.

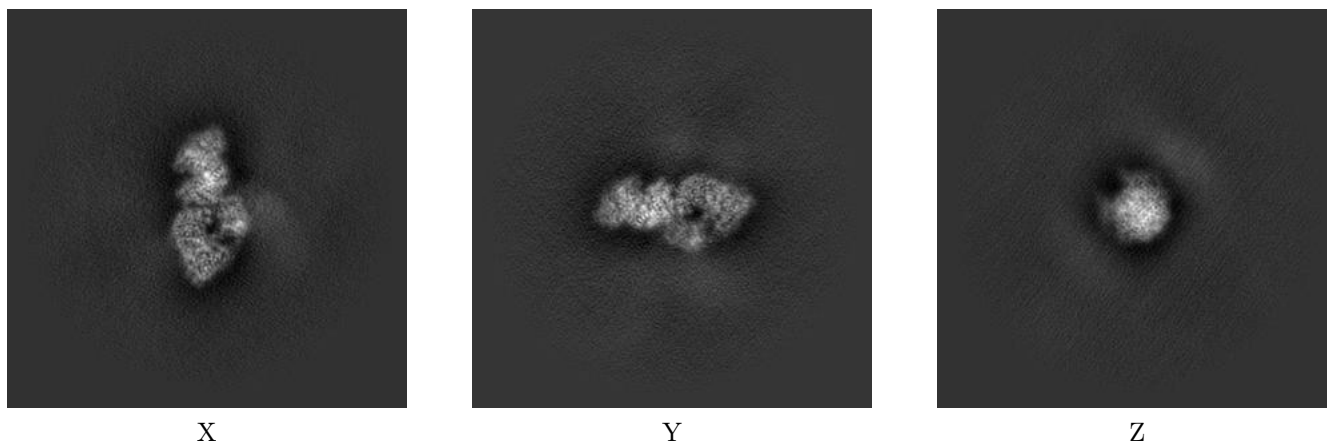
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-23543. 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](#)

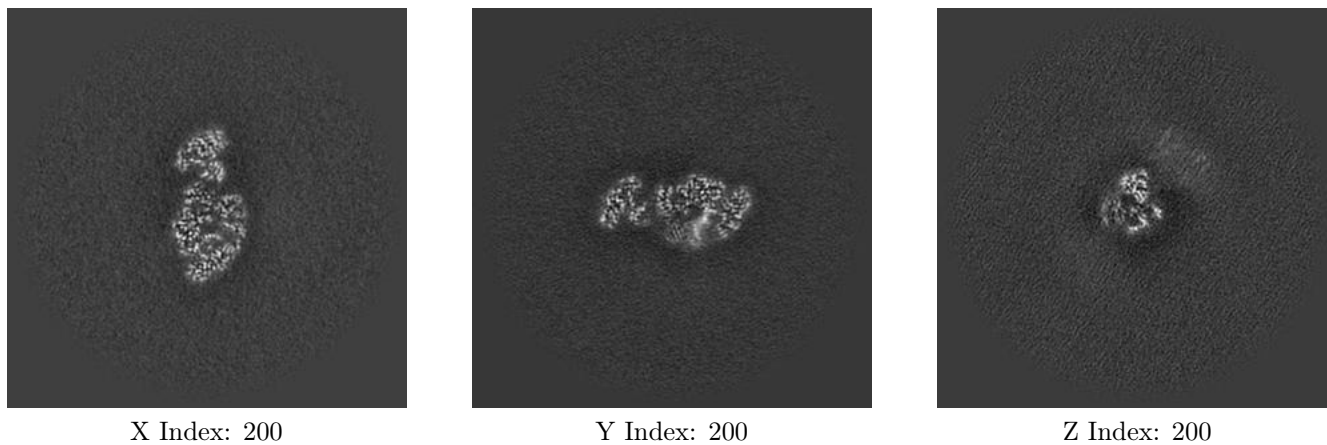
6.1.1 Primary map



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

6.2 Central slices [i](#)

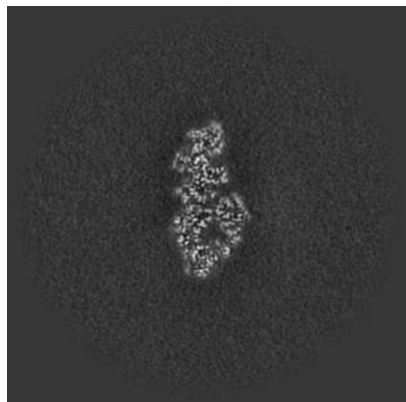
6.2.1 Primary map



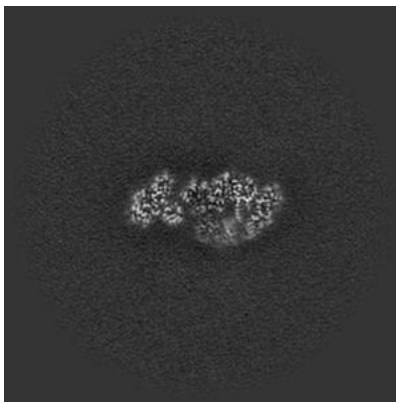
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

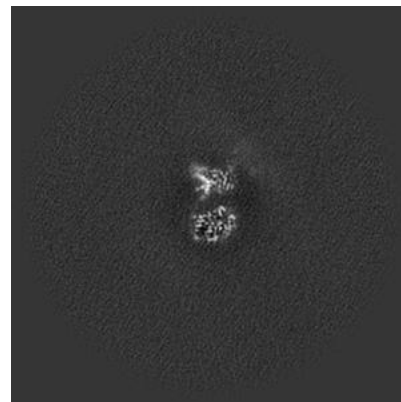
6.3.1 Primary map



X Index: 208



Y Index: 197

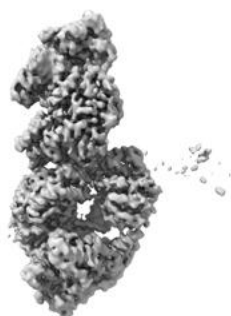


Z Index: 181

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

6.4 Orthogonal surface views [i](#)

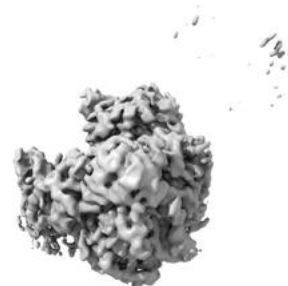
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.375. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

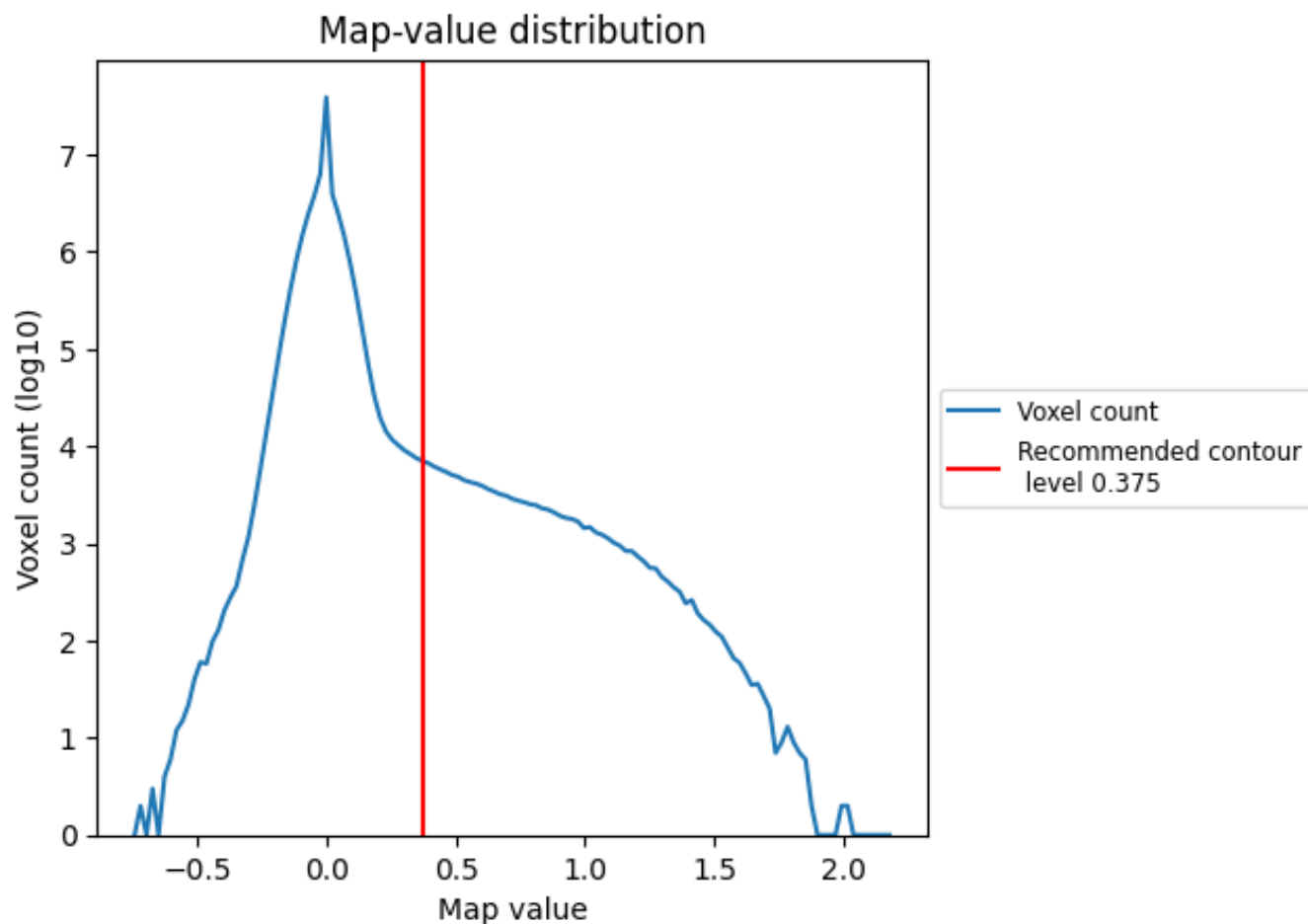
6.5 Mask visualisation

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

7 Map analysis [i](#)

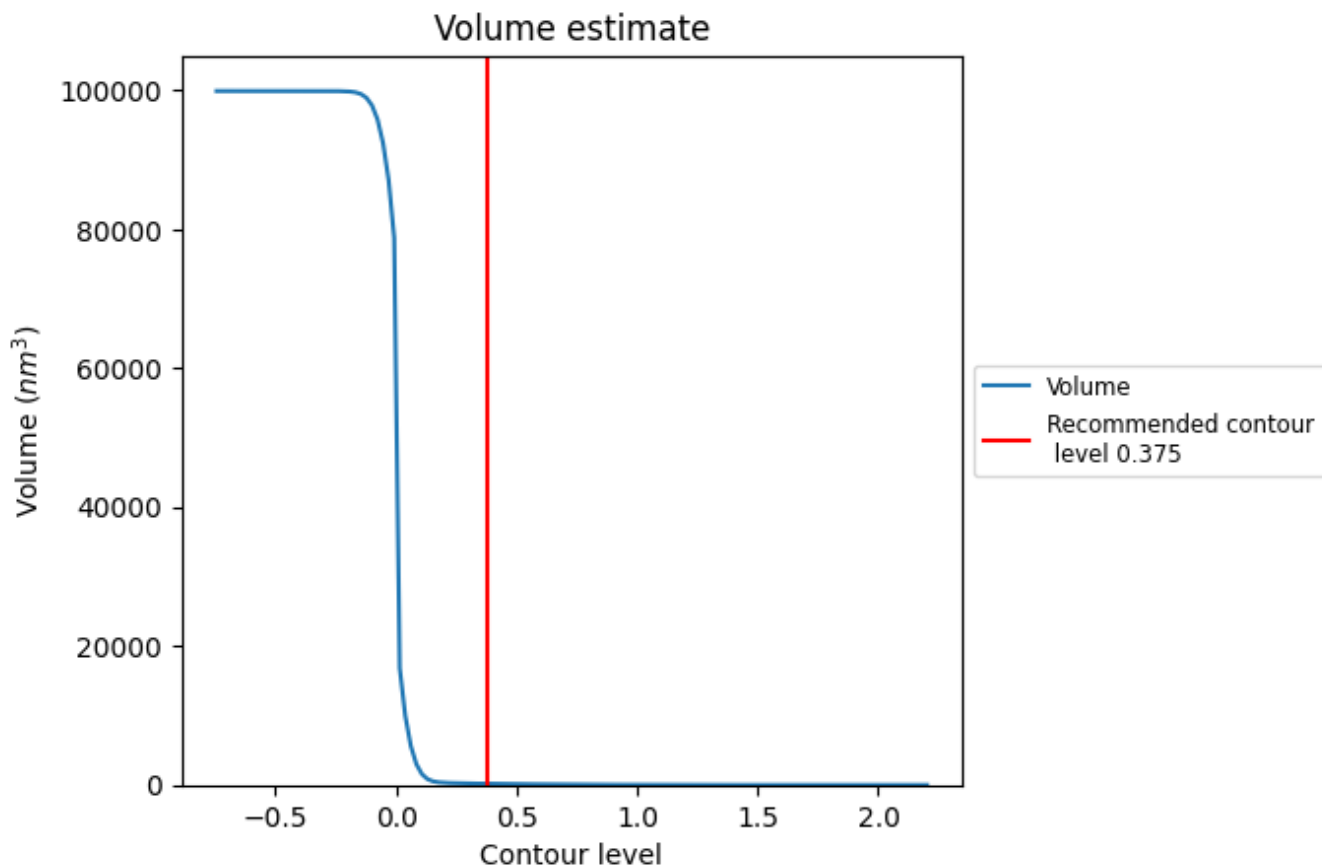
This section contains the results of statistical analysis of the map.

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.

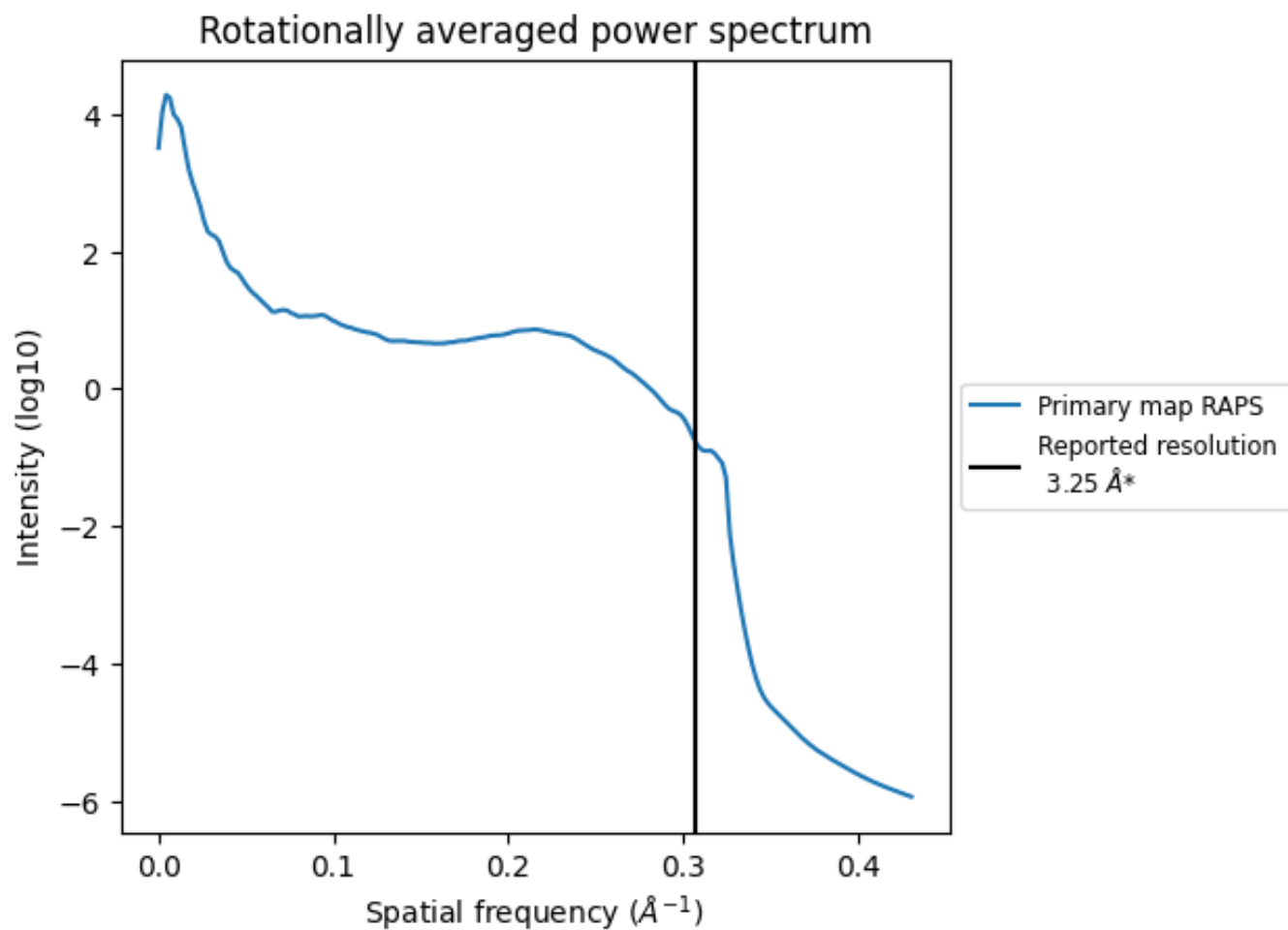
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 176 nm^3 ; this corresponds to an approximate mass of 159 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 0.308\AA^{-1}

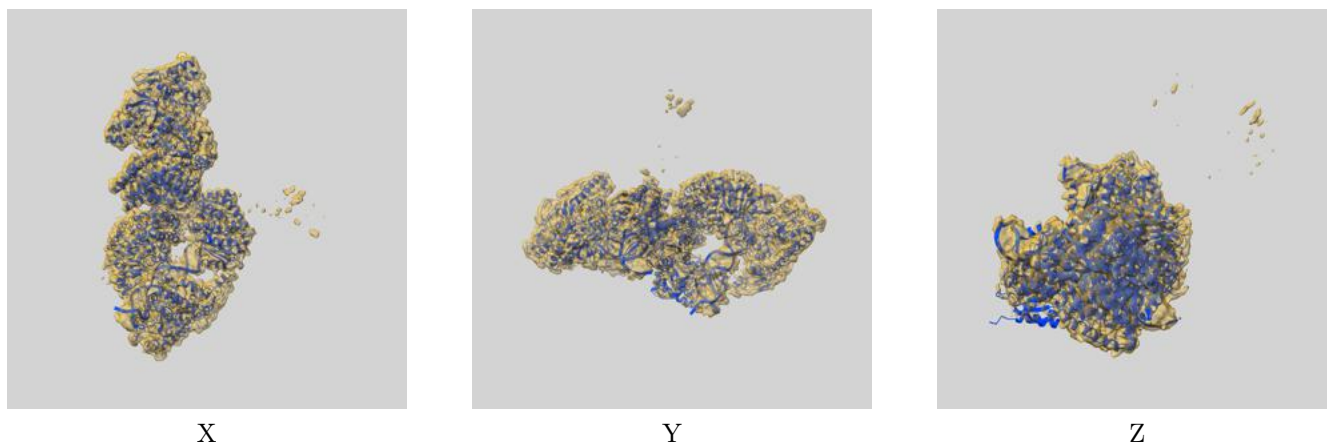
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

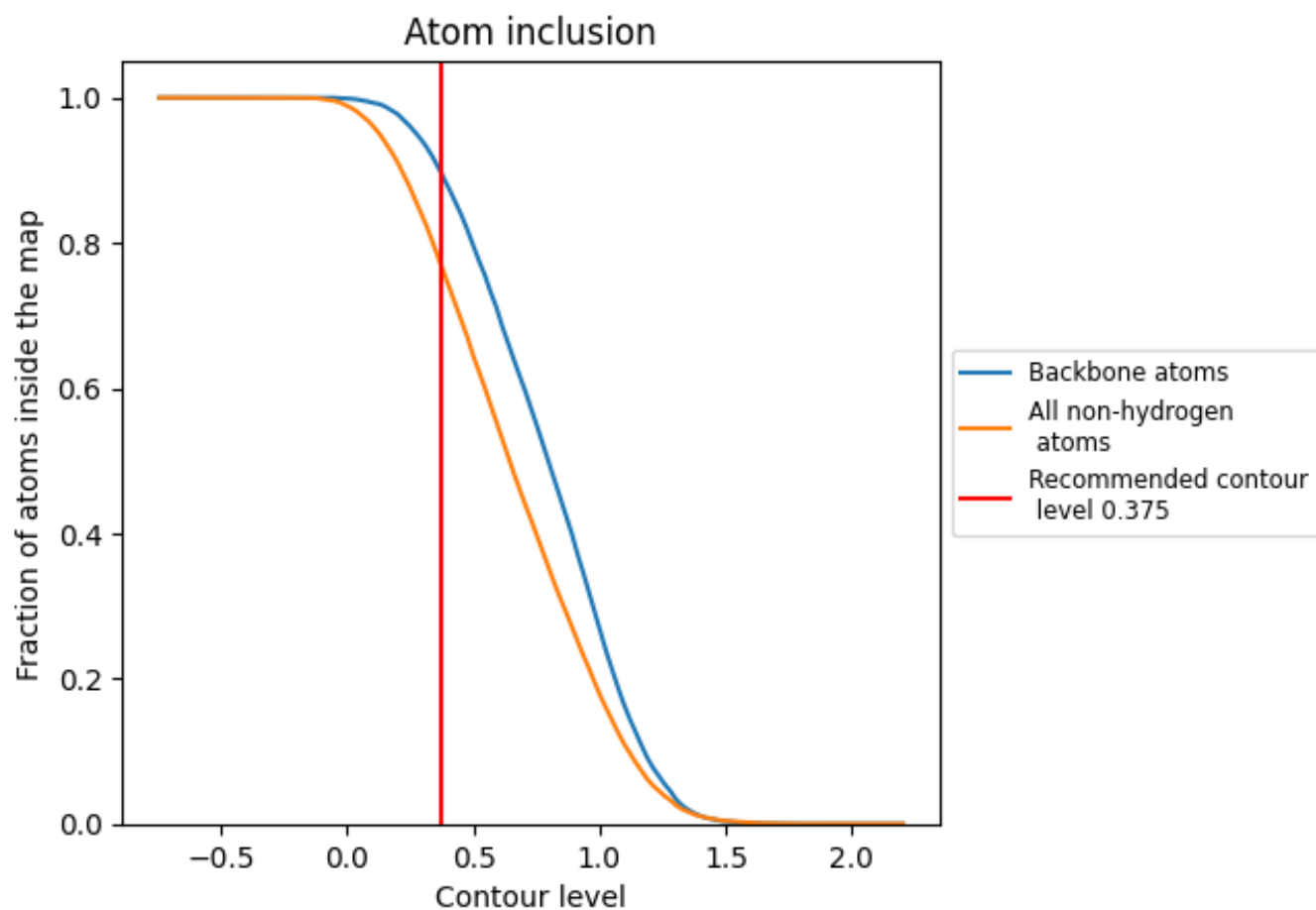
This section contains information regarding the fit between EMDB map EMD-23543 and PDB model 7LVV. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.375 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, 89% of all backbone atoms, 77% of all non-hydrogen atoms, are inside the map.