



Full wwPDB EM Validation Report ⓘ

Mar 25, 2026 – 02:57 PM UTC

PDB ID : 3LU0 / pdb_00003lu0
EMDB ID : EMD-5169
Title : Molecular model of Escherichia coli core RNA polymerase
Authors : Darst, S.A.
Deposited on : 2010-02-16
Resolution : 11.20 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

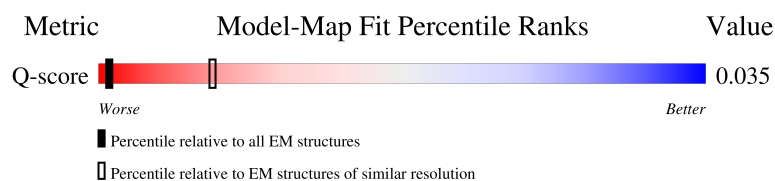
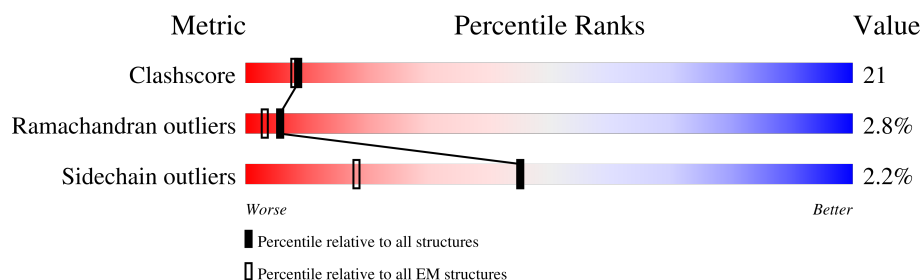
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 11.20 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	97 (10.50 - 11.50)

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	329	30% 44% 25% 29%
1	B	329	32% 44% 26% 29%
2	C	1342	19% 67% 31% ..
3	D	1407	21% 60% 33% ..

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Mol	Chain	Length	Quality of chain
4	E	91	98% 20%65%10% . .

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 25410 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	235	Total	C	N	O	S	0	0
			1820	1132	323	358	7		
1	B	235	Total	C	N	O	S	0	0
			1820	1132	323	358	7		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	1335	Total	C	N	O	S	0	0
			10523	6602	1836	2042	43		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	516	VAL	ASP	conflict	UNP P0A8V2

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

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	1364	Total	C	N	O	S	0	0
			10547	6624	1879	1994	50		

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

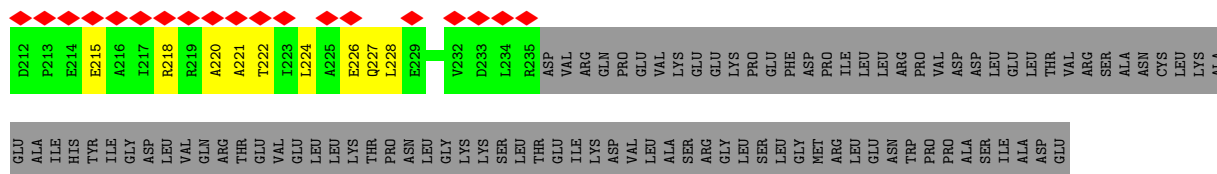
Mol	Chain	Residues	Atoms					AltConf	Trace
4	E	89	Total	C	N	O	S	0	0
			697	424	132	140	1		

- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

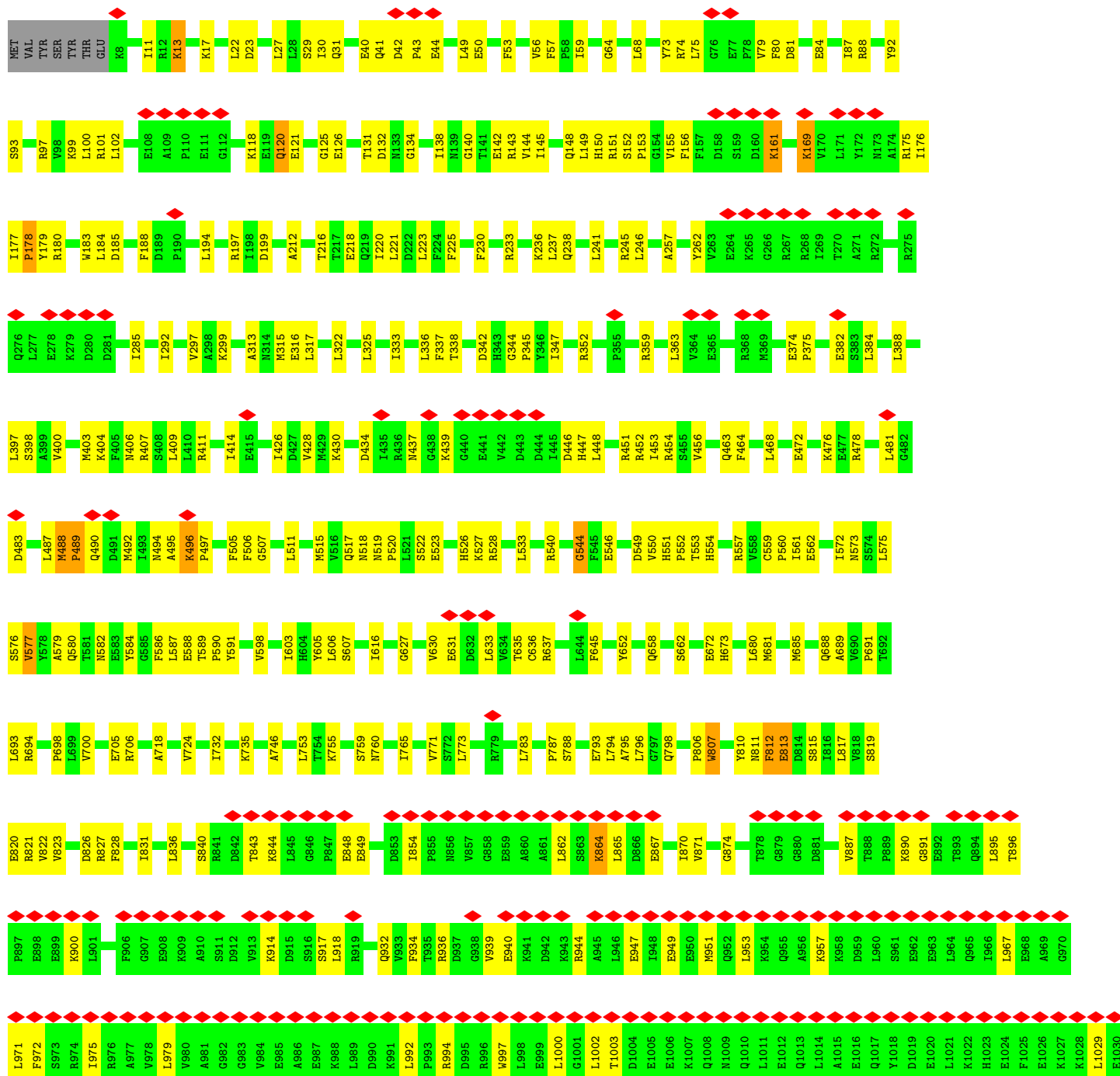
Mol	Chain	Residues	Atoms		AltConf
5	D	1	Total	Mg	0
			1	1	

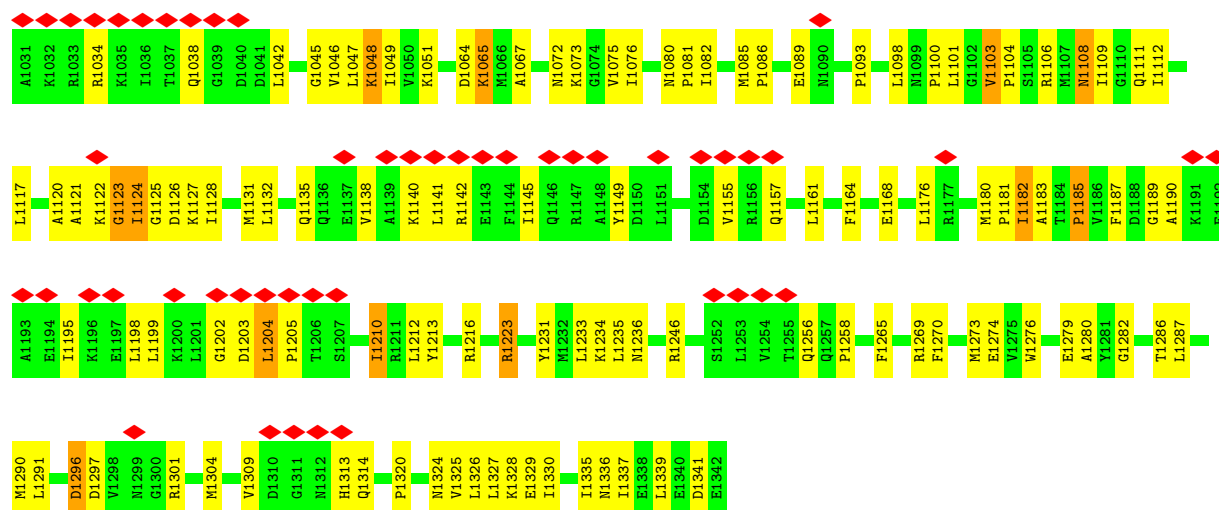
- Molecule 6 is ZINC ION (CCD ID: ZN) (formula: Zn).

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

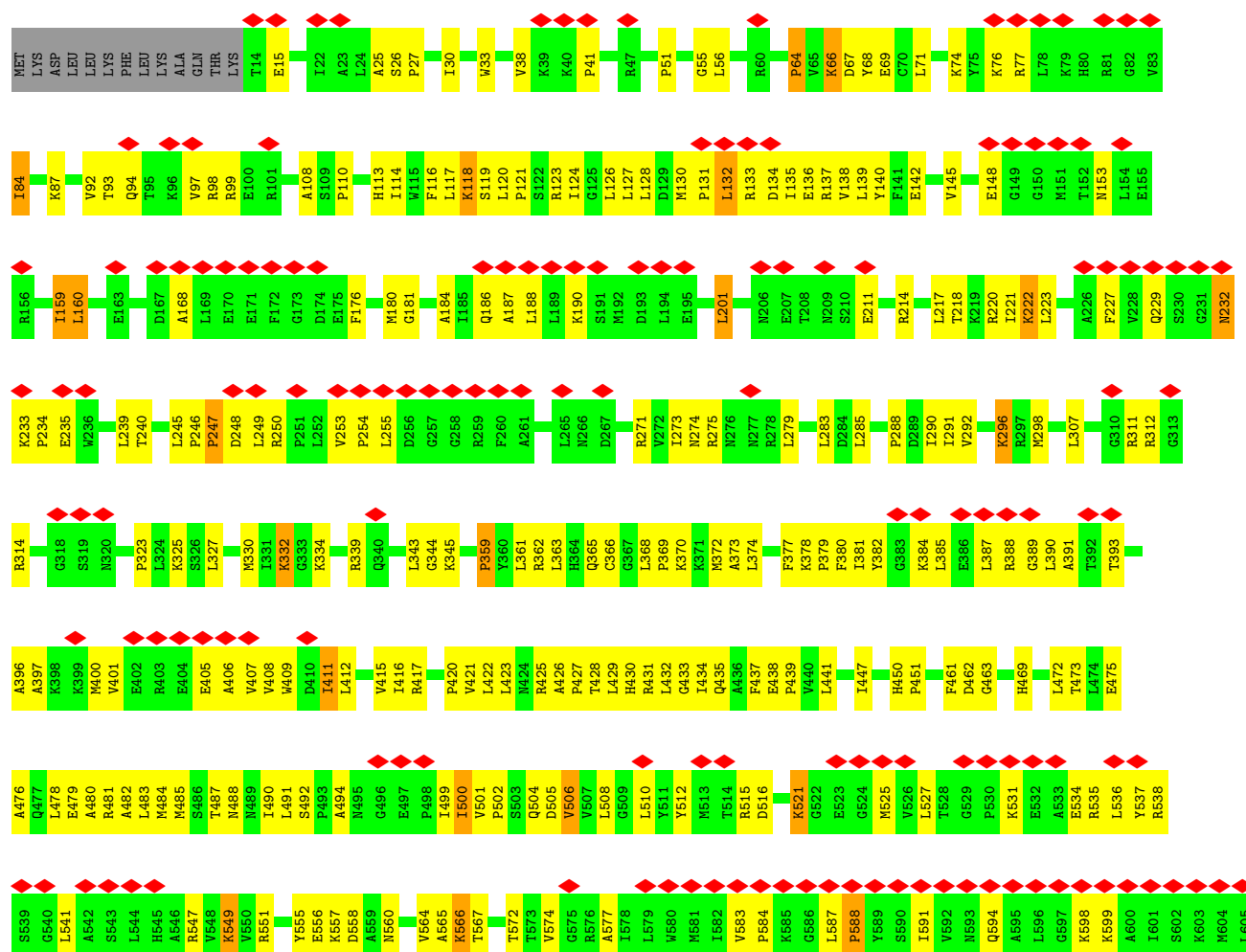


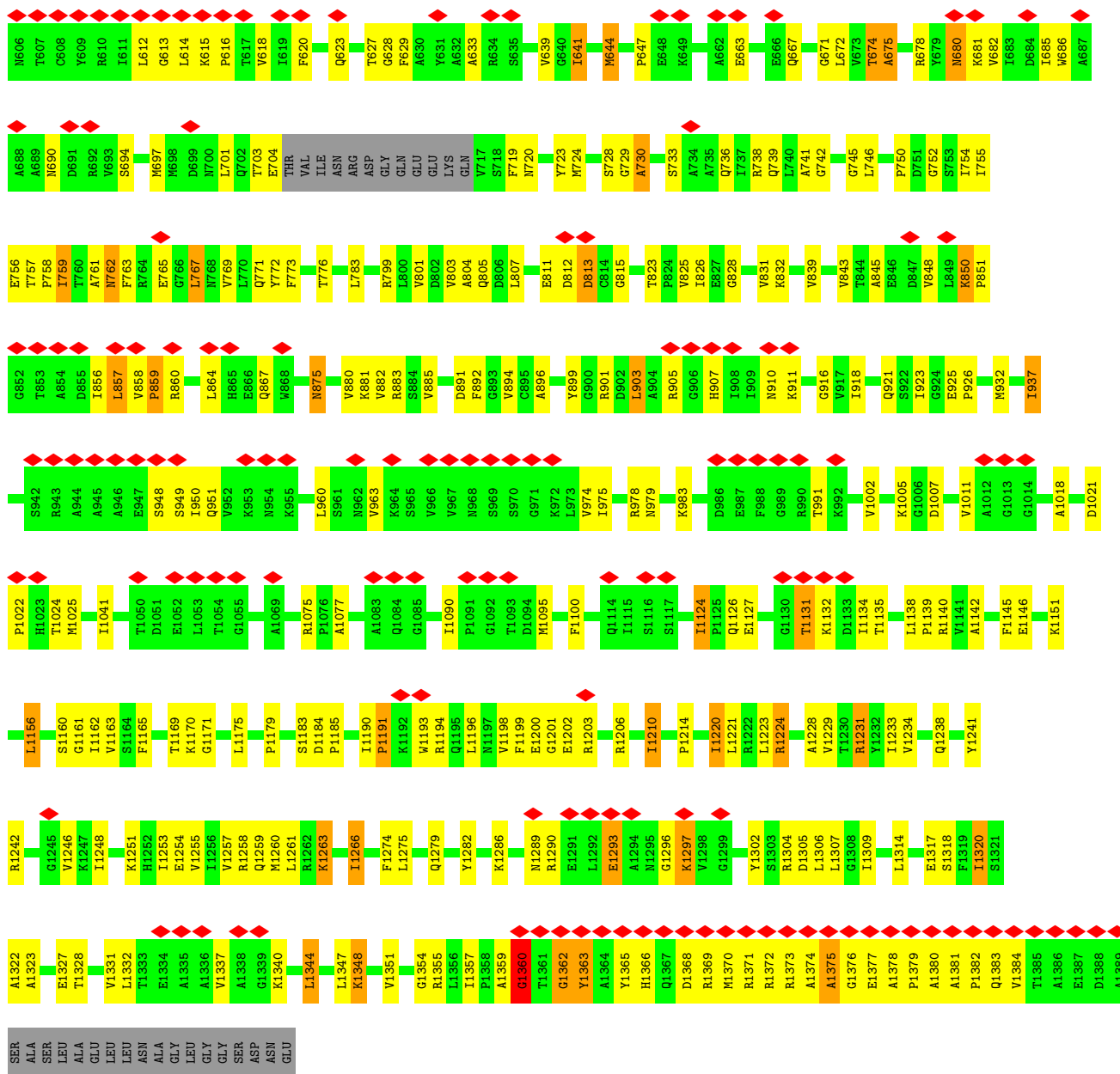
• Molecule 2: DNA-directed RNA polymerase subunit beta



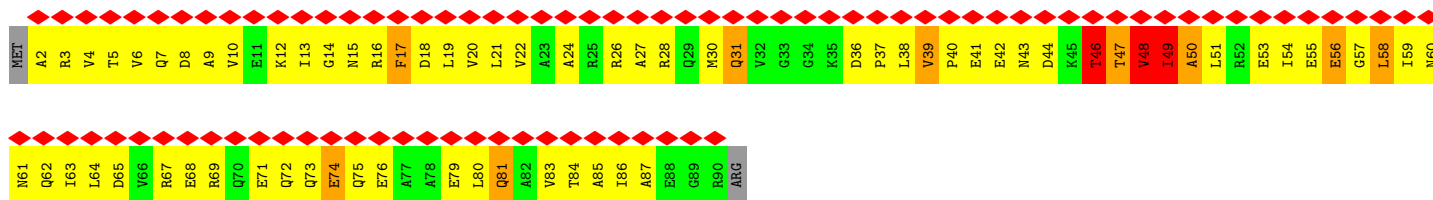


• Molecule 3: DNA-directed RNA polymerase subunit beta'





• Molecule 4: DNA-directed RNA polymerase subunit omega



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	42000	Depositor
Resolution determination method	Not provided	
CTF correction method	Not provided	
Microscope	FEI TECNAI F20	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	10	Depositor
Minimum defocus (nm)	1800	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	50000	Depositor
Image detector	KODAK SO-163 FILM	Depositor
Maximum map value	69.984	Depositor
Minimum map value	-1.475	Depositor
Average map value	0.803	Depositor
Map value standard deviation	3.186	Depositor
Recommended contour level	11	Depositor
Map size ($\text{\AA}$)	252, 252, 252	wwPDB
Map dimensions	90, 90, 90	wwPDB
Map angles ($^\circ$)	90, 90, 90	wwPDB
Pixel spacing ($\text{\AA}$)	2.8, 2.8, 2.8	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z > 5$	RMSZ	# $ Z > 5$
1	A	0.24	0/1842	0.68	1/2495 (0.0%)
1	B	0.24	0/1842	0.68	0/2495
2	C	0.25	2/10690 (0.0%)	0.65	0/14422
3	D	0.33	0/10710	0.87	9/14470 (0.1%)
4	E	1.59	6/699 (0.9%)	2.39	14/942 (1.5%)
All	All	0.39	8/25783 (0.0%)	0.84	24/34824 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
3	D	0	1

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	E	49	ILE	CA-C	11.00	1.66	1.52
4	E	49	ILE	C-N	9.95	1.47	1.33
4	E	50	ALA	N-CA	8.08	1.56	1.46
4	E	48	VAL	C-N	7.72	1.44	1.33
2	C	951	MET	SD-CE	6.36	1.95	1.79
4	E	49	ILE	N-CA	6.14	1.54	1.46
4	E	48	VAL	CA-C	6.13	1.60	1.52
2	C	951	MET	CG-SD	5.89	1.95	1.80

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	1360	GLY	CA-C-N	-41.66	41.97	121.54
3	D	1360	GLY	C-N-CA	-41.66	41.97	121.54
4	E	81	GLN	CG-CD-OE1	-38.25	44.30	120.80
4	E	49	ILE	CA-C-N	16.39	142.25	120.28
4	E	49	ILE	C-N-CA	16.39	142.25	120.28
4	E	81	GLN	OE1-CD-NE2	15.25	137.85	122.60
4	E	81	GLN	CG-CD-NE2	-15.23	93.55	116.40
4	E	50	ALA	N-CA-C	10.10	122.28	111.28
4	E	17	PHE	CA-CB-CG	-8.71	105.09	113.80
3	D	1363	TYR	CA-CB-CG	-7.24	100.88	113.90
4	E	74	GLU	N-CA-C	-6.75	104.31	112.54
4	E	49	ILE	N-CA-C	6.73	123.33	109.34
4	E	56	GLU	CA-C-N	6.67	128.69	120.22
4	E	56	GLU	C-N-CA	6.67	128.69	120.22
3	D	1375	ALA	CA-C-N	6.46	127.11	120.00
3	D	1375	ALA	C-N-CA	6.46	127.11	120.00
3	D	1362	GLY	N-CA-C	-5.93	106.99	114.16
4	E	58	LEU	N-CA-C	5.82	117.62	111.28
4	E	47	THR	N-CA-C	-5.56	99.95	109.24
3	D	730	ALA	CB-CA-C	-5.28	110.47	116.54
1	A	20	SER	CB-CA-C	-5.28	110.51	116.63
3	D	1124	ILE	CA-C-N	5.16	124.77	119.05
3	D	1124	ILE	C-N-CA	5.16	124.77	119.05
4	E	46	THR	N-CA-C	-5.15	99.83	110.80

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	D	1360	GLY	Peptide

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1820	0	1850	85	0
1	B	1820	0	1850	67	0
2	C	10523	0	10551	349	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	D	10547	0	10751	528	0
4	E	697	0	706	213	0
5	D	1	0	0	0	0
6	D	2	0	0	0	0
All	All	25410	0	25708	1081	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 21.

All (1081) 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)
3:D:615:LYS:CD	4:E:5:THR:CA	1.80	1.59
3:D:615:LYS:CE	4:E:5:THR:HA	1.37	1.53
3:D:615:LYS:HD3	4:E:5:THR:C	1.31	1.50
3:D:615:LYS:CD	4:E:5:THR:HA	1.34	1.46
3:D:615:LYS:HD3	4:E:5:THR:CA	1.34	1.45
3:D:618:VAL:HG21	4:E:2:ALA:CB	1.50	1.39
3:D:615:LYS:NZ	4:E:5:THR:HA	1.39	1.37
3:D:615:LYS:HD3	4:E:6:VAL:N	1.46	1.28
3:D:614:LEU:N	4:E:7:GLN:OE1	1.65	1.27
3:D:615:LYS:HD2	4:E:5:THR:N	1.48	1.26
3:D:614:LEU:H	4:E:7:GLN:CD	1.45	1.24
3:D:614:LEU:H	4:E:7:GLN:CG	1.53	1.20
2:C:1282:GLY:HA3	4:E:17:PHE:HE2	1.04	1.19
3:D:618:VAL:CG2	4:E:2:ALA:HB2	1.72	1.17
3:D:618:VAL:CG2	4:E:2:ALA:CB	2.22	1.16
3:D:615:LYS:CD	4:E:5:THR:N	2.08	1.11
3:D:615:LYS:NZ	4:E:5:THR:CA	2.12	1.11
4:E:73:GLN:HB3	4:E:75:GLN:HG2	1.30	1.09
2:C:1282:GLY:HA3	4:E:17:PHE:CE2	1.88	1.07
2:C:1282:GLY:CA	4:E:17:PHE:HE2	1.68	1.06
3:D:618:VAL:HG21	4:E:2:ALA:HB3	1.05	1.02
4:E:13:ILE:HD13	4:E:19:LEU:HG	1.38	1.02
3:D:1370:MET:HE1	4:E:61:ASN:HB3	1.41	1.01
3:D:615:LYS:CD	4:E:6:VAL:N	2.25	0.98
3:D:481:ARG:O	4:E:3:ARG:HD3	1.67	0.94
3:D:615:LYS:HD2	4:E:5:THR:H	1.14	0.92
3:D:615:LYS:NZ	4:E:5:THR:CB	2.32	0.91
4:E:44:ASP:CB	4:E:48:VAL:HG21	2.01	0.90
3:D:425:ARG:HG2	3:D:427:PRO:HD2	1.52	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:614:LEU:N	4:E:7:GLN:CD	2.18	0.89
1:A:166:ARG:HB2	1:A:167:PRO:HD3	1.52	0.89
3:D:614:LEU:N	4:E:7:GLN:CG	2.35	0.89
3:D:615:LYS:HD2	4:E:5:THR:CA	1.83	0.88
3:D:1375:ALA:O	3:D:1379:PRO:HD3	1.75	0.86
3:D:1370:MET:SD	4:E:22:VAL:HG13	2.15	0.86
3:D:478:LEU:HD12	4:E:24:ALA:HA	1.56	0.86
4:E:13:ILE:HB	4:E:19:LEU:HD11	1.58	0.86
4:E:13:ILE:CD1	4:E:19:LEU:HG	2.05	0.85
4:E:63:ILE:HG12	4:E:64:LEU:CD1	2.06	0.85
2:C:1180:MET:HB3	2:C:1181:PRO:HD3	1.59	0.85
4:E:63:ILE:HG12	4:E:64:LEU:HD12	1.58	0.84
3:D:618:VAL:HG22	4:E:2:ALA:HB2	1.58	0.84
1:B:58:GLU:HG3	1:B:170:ARG:HH21	1.43	0.84
1:B:89:ALA:HB1	1:B:210:THR:HG23	1.57	0.84
3:D:615:LYS:CG	4:E:6:VAL:H	1.91	0.83
4:E:17:PHE:O	4:E:20:VAL:HG12	1.78	0.83
4:E:63:ILE:C	4:E:64:LEU:HD12	2.03	0.83
4:E:10:VAL:HA	4:E:19:LEU:HD21	1.59	0.82
3:D:485:MET:HE1	4:E:3:ARG:HG3	1.58	0.82
3:D:615:LYS:HZ2	4:E:5:THR:CA	1.90	0.82
1:B:195:ARG:HG3	1:B:198:LEU:HD21	1.60	0.82
4:E:13:ILE:HB	4:E:19:LEU:CD1	2.10	0.82
3:D:1370:MET:CE	4:E:61:ASN:HB3	2.10	0.81
4:E:3:ARG:NH2	4:E:51:LEU:HD22	1.96	0.81
3:D:615:LYS:HZ3	4:E:5:THR:CB	1.94	0.81
3:D:1378:ALA:O	3:D:1382:PRO:HD2	1.81	0.81
1:A:234:LEU:HD13	1:A:234:LEU:H	1.46	0.80
3:D:1366:HIS:CE1	4:E:17:PHE:HB2	2.16	0.80
3:D:614:LEU:HB3	4:E:7:GLN:HG2	1.62	0.80
1:B:172:LEU:HD13	1:B:172:LEU:H	1.46	0.80
3:D:615:LYS:CD	4:E:6:VAL:H	1.92	0.80
3:D:615:LYS:HZ2	4:E:5:THR:HA	1.43	0.79
2:C:1330:ILE:HG23	2:C:1335:ILE:HG13	1.65	0.79
4:E:10:VAL:HA	4:E:19:LEU:CD2	2.12	0.79
2:C:403:MET:HG3	2:C:414:ILE:HB	1.64	0.79
3:D:618:VAL:CG2	4:E:2:ALA:HB3	1.96	0.79
3:D:615:LYS:HD3	4:E:6:VAL:H	1.46	0.78
2:C:56:VAL:HG11	2:C:468:LEU:HB3	1.65	0.78
3:D:1263:LYS:H	3:D:1263:LYS:HD2	1.47	0.78
4:E:6:VAL:O	4:E:10:VAL:HG23	1.82	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:1101:LEU:HD13	3:D:504:GLN:HB2	1.65	0.78
3:D:132:LEU:HD13	3:D:132:LEU:H	1.49	0.78
2:C:241:LEU:HD11	2:C:246:LEU:HD11	1.64	0.77
4:E:13:ILE:HG22	4:E:15:ASN:H	1.47	0.77
2:C:765:ILE:HG13	2:C:787:PRO:HG3	1.66	0.77
3:D:1156:LEU:HD13	3:D:1156:LEU:H	1.49	0.77
3:D:1373:ARG:HB3	4:E:58:LEU:HD11	1.66	0.77
4:E:31:GLN:HE21	4:E:31:GLN:HA	1.50	0.77
3:D:426:ALA:HB3	3:D:427:PRO:HD3	1.67	0.77
4:E:44:ASP:HB2	4:E:48:VAL:HG21	1.66	0.77
2:C:1080:ASN:HB2	2:C:1085:MET:HE3	1.66	0.76
3:D:500:ILE:H	3:D:500:ILE:HD13	1.51	0.76
2:C:1123:GLY:HA2	2:C:1127:LYS:HD2	1.66	0.76
3:D:615:LYS:CD	4:E:5:THR:C	2.27	0.76
4:E:13:ILE:HD13	4:E:19:LEU:CG	2.16	0.75
3:D:288:PRO:HG2	3:D:291:ILE:HD12	1.68	0.75
3:D:615:LYS:HZ3	4:E:5:THR:CA	1.99	0.75
3:D:1382:PRO:HG2	4:E:80:LEU:HD11	1.69	0.75
3:D:1371:ARG:O	4:E:59:ILE:HD12	1.86	0.75
2:C:487:LEU:HD23	2:C:487:LEU:H	1.51	0.75
2:C:1181:PRO:O	2:C:1182:ILE:HG13	1.86	0.74
2:C:342:ASP:HA	2:C:437:ASN:HB3	1.68	0.74
2:C:1065:LYS:H	2:C:1065:LYS:HD3	1.53	0.74
1:A:124:VAL:HG11	1:A:209:GLY:HA3	1.70	0.74
3:D:549:LYS:H	3:D:549:LYS:HD2	1.52	0.74
4:E:5:THR:OG1	4:E:8:ASP:HB2	1.87	0.73
3:D:99:ARG:HE	3:D:248:ASP:HB2	1.53	0.73
3:D:1380:ALA:O	3:D:1383:GLN:HG2	1.88	0.73
2:C:1282:GLY:CA	4:E:17:PHE:CE2	2.61	0.73
3:D:674:THR:HG23	3:D:675:ALA:H	1.52	0.73
3:D:1380:ALA:O	3:D:1384:VAL:HG23	1.89	0.73
3:D:615:LYS:NZ	4:E:5:THR:OG1	2.22	0.73
1:A:28:LEU:HG	1:A:31:LEU:HD21	1.69	0.72
3:D:325:LYS:HE2	3:D:330:MET:HE2	1.71	0.72
1:B:152:TYR:HB3	3:D:567:THR:HG21	1.71	0.72
2:C:223:LEU:HD13	2:C:426:ILE:HD13	1.72	0.72
3:D:615:LYS:HZ2	4:E:5:THR:CB	1.97	0.72
1:B:67:GLU:HG3	1:B:82:LEU:HD12	1.72	0.71
3:D:614:LEU:H	4:E:7:GLN:HG3	1.51	0.71
3:D:120:LEU:HB3	3:D:121:PRO:HD3	1.71	0.71
3:D:492:SER:HB3	3:D:499:ILE:HG13	1.71	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:368:LEU:HD21	3:D:439:PRO:HB3	1.72	0.71
3:D:615:LYS:HD3	4:E:5:THR:N	1.93	0.71
3:D:361:LEU:HD21	3:D:366:CYS:HA	1.73	0.71
3:D:1320:ILE:HD13	3:D:1320:ILE:H	1.56	0.71
3:D:1372:ARG:HG3	3:D:1375:ALA:H	1.56	0.70
2:C:633:LEU:HD23	2:C:633:LEU:H	1.55	0.70
3:D:478:LEU:HD11	4:E:27:ALA:CB	2.21	0.70
3:D:613:GLY:C	4:E:7:GLN:OE1	2.33	0.70
4:E:62:GLN:HG3	4:E:63:ILE:H	1.55	0.70
3:D:755:ILE:HG22	3:D:757:THR:H	1.56	0.70
3:D:479:GLU:CB	4:E:20:VAL:HG21	2.20	0.70
3:D:831:VAL:HG23	3:D:832:LYS:H	1.55	0.70
3:D:222:LYS:HD3	3:D:223:LEU:HG	1.73	0.70
3:D:949:SER:HB2	3:D:951:GLN:HE22	1.56	0.69
3:D:1368:ASP:OD1	4:E:21:LEU:HD23	1.93	0.69
2:C:317:LEU:HD13	2:C:322:LEU:HD21	1.75	0.69
3:D:1370:MET:CE	4:E:22:VAL:HG13	2.22	0.69
2:C:812:PHE:HD2	2:C:813:GLU:HG2	1.58	0.69
3:D:1221:LEU:HD11	3:D:1304:ARG:HB2	1.74	0.69
2:C:1045:GLY:HA3	2:C:1049:ILE:HD11	1.74	0.69
3:D:420:PRO:HA	3:D:439:PRO:HD3	1.75	0.69
1:B:83:LEU:HG	3:D:556:GLU:HG2	1.75	0.68
3:D:615:LYS:HG2	4:E:6:VAL:H	1.58	0.68
4:E:5:THR:HG21	4:E:55:GLU:CD	2.18	0.68
4:E:12:LYS:HB2	4:E:13:ILE:HD12	1.76	0.68
2:C:142:GLU:HB2	2:C:760:ASN:HD21	1.58	0.68
2:C:811:ASN:HA	2:C:815:SER:HB2	1.74	0.68
3:D:701:LEU:HD13	3:D:720:ASN:HD22	1.58	0.68
2:C:1138:VAL:HG12	2:C:1140:LYS:H	1.57	0.68
3:D:948:SER:CB	3:D:1022:PRO:HG3	2.24	0.68
4:E:46:THR:HG22	4:E:47:THR:H	1.58	0.68
3:D:84:ILE:HD13	3:D:84:ILE:H	1.59	0.68
3:D:384:LYS:HB3	3:D:411:ILE:HD11	1.76	0.68
4:E:37:PRO:HB3	4:E:58:LEU:HD23	1.75	0.68
4:E:41:GLU:HG3	4:E:42:GLU:H	1.56	0.68
1:A:61:ILE:HB	1:A:64:VAL:HB	1.75	0.67
3:D:211:GLU:HA	3:D:214:ARG:HG2	1.76	0.67
3:D:615:LYS:CG	4:E:6:VAL:N	2.55	0.67
3:D:482:ALA:HB2	4:E:3:ARG:NH1	2.08	0.67
1:A:6:THR:HG22	1:A:7:GLU:HG3	1.76	0.67
3:D:481:ARG:O	4:E:3:ARG:CD	2.41	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:1046:VAL:HG12	2:C:1047:LEU:HG	1.77	0.67
2:C:1291:LEU:HD12	3:D:345:LYS:HD3	1.76	0.67
3:D:41:PRO:HG3	3:D:273:ILE:HB	1.77	0.67
1:B:182:ARG:H	1:B:206:GLU:HB2	1.60	0.67
3:D:428:THR:HG23	3:D:433:GLY:HA3	1.77	0.67
1:B:100:LEU:HD21	1:B:121:VAL:HG11	1.76	0.67
3:D:482:ALA:HB2	4:E:3:ARG:HH12	1.60	0.66
2:C:616:ILE:HG12	2:C:652:TYR:HB2	1.77	0.66
4:E:12:LYS:C	4:E:13:ILE:HD12	2.20	0.66
3:D:93:THR:HG22	3:D:94:GLN:H	1.60	0.66
1:A:228:LEU:HB3	1:B:221:ALA:HB1	1.78	0.66
2:C:22:LEU:HG	2:C:603:ILE:HD13	1.77	0.66
4:E:76:GLU:O	4:E:80:LEU:HD23	1.95	0.66
3:D:746:LEU:HD13	3:D:754:ILE:HD11	1.78	0.65
3:D:1363:TYR:HD2	3:D:1365:TYR:H	1.43	0.65
2:C:1132:LEU:HG	2:C:1161:LEU:HD11	1.78	0.65
3:D:937:ILE:HG23	3:D:1135:THR:HG23	1.79	0.65
4:E:37:PRO:CB	4:E:58:LEU:HD23	2.25	0.65
2:C:230:PHE:HB2	2:C:333:ILE:HB	1.77	0.65
3:D:159:ILE:HD13	3:D:159:ILE:H	1.62	0.65
1:B:166:ARG:HB2	1:B:167:PRO:HD3	1.77	0.65
2:C:27:LEU:HB3	2:C:528:ARG:HD2	1.77	0.65
3:D:56:LEU:HB3	3:D:250:ARG:HH22	1.62	0.65
3:D:948:SER:HB3	3:D:1022:PRO:HG3	1.79	0.65
4:E:3:ARG:O	4:E:6:VAL:HG23	1.97	0.65
4:E:62:GLN:HG3	4:E:63:ILE:N	2.12	0.65
1:A:227:GLN:HE22	1:B:12:ARG:HE	1.45	0.65
4:E:39:VAL:HB	4:E:40:PRO:HD3	1.78	0.64
1:A:183:ILE:HG12	1:A:205:MET:HA	1.78	0.64
3:D:1194:ARG:H	3:D:1194:ARG:HD2	1.61	0.64
3:D:948:SER:OG	3:D:1022:PRO:HG3	1.98	0.64
2:C:120:GLN:HG2	2:C:121:GLU:H	1.63	0.64
3:D:504:GLN:HG3	3:D:505:ASP:H	1.62	0.64
3:D:1224:ARG:HD3	3:D:1228:ALA:HB2	1.80	0.64
4:E:81:GLN:O	4:E:84:THR:HG22	1.98	0.64
4:E:13:ILE:HG21	4:E:18:ASP:HB2	1.80	0.64
3:D:290:ILE:HD12	3:D:291:ILE:HG13	1.80	0.64
3:D:905:ARG:NH1	4:E:10:VAL:HG11	2.13	0.64
3:D:1005:LYS:HD2	3:D:1011:VAL:HG12	1.79	0.63
4:E:13:ILE:CG1	4:E:19:LEU:HG	2.26	0.63
1:A:111:THR:HG23	1:A:113:ALA:H	1.63	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:475:GLU:OE2	4:E:28:ARG:NH2	2.31	0.63
2:C:515:MET:HE3	2:C:527:LYS:HE3	1.80	0.63
4:E:38:LEU:HD11	4:E:53:GLU:HG3	1.80	0.63
1:B:68:TYR:HB3	3:D:531:LYS:HB2	1.81	0.63
2:C:143:ARG:HH12	2:C:507:GLY:HA2	1.62	0.63
3:D:365:GLN:HG2	3:D:438:GLU:HB3	1.80	0.63
2:C:1287:LEU:HB3	3:D:1357:ILE:HD11	1.81	0.63
2:C:957:LYS:HA	2:C:1029:LEU:HD11	1.80	0.63
3:D:850:LYS:HB2	3:D:851:PRO:HD3	1.79	0.63
1:A:28:LEU:HD23	1:A:201:LEU:HD23	1.81	0.62
3:D:1266:ILE:HG22	3:D:1302:TYR:HB3	1.79	0.62
3:D:479:GLU:HB3	4:E:20:VAL:HG21	1.80	0.62
3:D:905:ARG:HH12	4:E:10:VAL:HG11	1.64	0.62
3:D:925:GLU:HB3	3:D:926:PRO:HD3	1.81	0.62
3:D:978:ARG:HB2	3:D:1199:PHE:HB3	1.81	0.62
4:E:38:LEU:HD12	4:E:38:LEU:N	2.14	0.62
3:D:1348:LYS:HB2	3:D:1348:LYS:HZ2	1.65	0.62
4:E:41:GLU:HG3	4:E:42:GLU:N	2.15	0.62
2:C:42:ASP:HB3	2:C:43:PRO:HD3	1.82	0.62
3:D:1371:ARG:HE	3:D:1376:GLY:HA3	1.65	0.62
3:D:1261:LEU:HD11	3:D:1304:ARG:HD3	1.81	0.62
4:E:37:PRO:HB3	4:E:58:LEU:CD2	2.29	0.62
3:D:1372:ARG:HH21	4:E:84:THR:HG21	1.65	0.62
4:E:30:MET:HE1	4:E:50:ALA:HA	1.82	0.61
2:C:496:LYS:HB3	2:C:497:PRO:HD3	1.81	0.61
4:E:10:VAL:CA	4:E:19:LEU:HD21	2.30	0.61
3:D:615:LYS:HG3	4:E:7:GLN:H	1.65	0.61
3:D:1314:LEU:HD11	3:D:1327:GLU:HB2	1.82	0.61
3:D:587:LEU:HD12	3:D:588:PRO:HD2	1.83	0.61
3:D:1370:MET:SD	4:E:61:ASN:HB3	2.40	0.61
2:C:579:ALA:HB1	2:C:587:LEU:HD21	1.82	0.61
3:D:478:LEU:CD1	4:E:24:ALA:HA	2.28	0.61
3:D:960:LEU:HD12	3:D:1007:ASP:HB2	1.82	0.61
3:D:483:LEU:HG	4:E:16:ARG:HD3	1.83	0.61
2:C:635:THR:HB	2:C:637:ARG:HH12	1.65	0.61
3:D:245:LEU:HD22	3:D:246:PRO:HD2	1.83	0.61
3:D:587:LEU:HD11	3:D:616:PRO:HB3	1.82	0.61
2:C:1290:MET:HB3	2:C:1291:LEU:HD22	1.82	0.60
3:D:131:PRO:HB2	3:D:135:ILE:H	1.65	0.60
3:D:482:ALA:CB	4:E:3:ARG:HH12	2.14	0.60
4:E:3:ARG:HH21	4:E:51:LEU:HD22	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1370:MET:HE2	4:E:22:VAL:HG13	1.83	0.60
3:D:74:LYS:HE2	3:D:87:LYS:HD3	1.82	0.60
3:D:1160:SER:HB2	3:D:1206:ARG:HB3	1.83	0.60
1:A:107:ILE:HD12	2:C:773:LEU:HD13	1.84	0.60
2:C:630:VAL:HG13	2:C:631:GLU:H	1.66	0.60
2:C:1067:ALA:HB2	2:C:1073:LYS:HA	1.83	0.60
3:D:1371:ARG:NE	3:D:1376:GLY:HA3	2.16	0.60
1:B:71:LYS:HE2	1:B:71:LYS:HA	1.84	0.60
2:C:1246:ARG:HH21	2:C:1258:PRO:HB3	1.67	0.60
4:E:8:ASP:O	4:E:12:LYS:HG2	2.02	0.60
2:C:185:ASP:HB2	2:C:197:ARG:HB2	1.83	0.59
4:E:13:ILE:HD12	4:E:13:ILE:N	2.16	0.59
4:E:44:ASP:HB3	4:E:48:VAL:HG21	1.84	0.59
2:C:241:LEU:HD22	2:C:285:ILE:HD13	1.83	0.59
3:D:515:ARG:HE	3:D:515:ARG:HA	1.65	0.59
3:D:1373:ARG:CB	4:E:58:LEU:HD11	2.32	0.59
4:E:38:LEU:CD1	4:E:53:GLU:HG3	2.32	0.59
1:A:64:VAL:HG23	1:A:71:LYS:HD3	1.84	0.59
2:C:1155:VAL:HG12	2:C:1157:GLN:H	1.67	0.59
1:A:83:LEU:HD13	2:C:826:ASP:HB2	1.82	0.59
2:C:560:PRO:HB2	3:D:776:THR:HG21	1.85	0.59
3:D:1370:MET:HB3	4:E:59:ILE:HD11	1.84	0.59
1:B:44:ARG:HA	1:B:183:ILE:HD12	1.84	0.59
4:E:86:ILE:HG23	4:E:87:ALA:N	2.17	0.59
3:D:1376:GLY:O	3:D:1379:PRO:HD2	2.03	0.59
2:C:862:LEU:HD23	2:C:865:LEU:HD12	1.85	0.58
3:D:431:ARG:HB3	3:D:921:GLN:HE22	1.67	0.58
3:D:694:SER:HB2	3:D:738:ARG:HG3	1.86	0.58
4:E:49:ILE:N	4:E:49:ILE:HD13	2.18	0.58
1:B:155:ALA:HB1	1:B:172:LEU:HB2	1.84	0.58
2:C:1276:TRP:HE1	3:D:1348:LYS:HE3	1.67	0.58
1:A:158:ARG:HH21	1:A:172:LEU:HD11	1.68	0.58
3:D:478:LEU:HD11	4:E:27:ALA:HB2	1.84	0.58
4:E:19:LEU:H	4:E:19:LEU:HD12	1.68	0.58
2:C:176:ILE:HD12	2:C:184:LEU:HD23	1.85	0.58
3:D:363:LEU:HD12	3:D:363:LEU:H	1.69	0.58
3:D:384:LYS:HD2	3:D:387:LEU:HD12	1.86	0.58
2:C:79:VAL:HG12	2:C:80:PHE:CD1	2.39	0.58
2:C:225:PHE:HE2	2:C:347:ILE:HB	1.69	0.58
3:D:430:HIS:HA	3:D:921:GLN:HB2	1.86	0.58
3:D:1371:ARG:HH21	3:D:1376:GLY:HA3	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:322:LEU:HD23	2:C:325:LEU:HD12	1.85	0.58
2:C:1339:LEU:H	2:C:1339:LEU:HD23	1.68	0.58
2:C:131:THR:HG22	2:C:132:ASP:H	1.69	0.58
2:C:406:ASN:HD22	2:C:414:ILE:HA	1.69	0.58
1:A:2:GLN:H	1:A:2:GLN:NE2	2.02	0.57
1:A:118:ASP:HB3	1:A:121:VAL:HB	1.86	0.57
3:D:803:VAL:HG21	3:D:1309:ILE:HB	1.86	0.57
3:D:504:GLN:HA	3:D:730:ALA:HA	1.86	0.57
3:D:1274:PHE:CD2	3:D:1275:LEU:HG	2.39	0.57
3:D:110:PRO:HG2	3:D:186:GLN:HE22	1.69	0.57
4:E:15:ASN:HB3	4:E:18:ASP:OD2	2.04	0.57
2:C:705:GLU:HB2	2:C:794:LEU:H	1.68	0.57
3:D:201:LEU:HD12	3:D:221:ILE:HD12	1.86	0.57
3:D:1169:THR:HG22	3:D:1171:GLY:H	1.70	0.57
1:A:35:PHE:HE2	1:B:227:GLN:HG3	1.69	0.57
2:C:1120:ALA:O	2:C:1124:ILE:HG13	2.05	0.57
3:D:128:LEU:HD22	3:D:130:MET:HG3	1.86	0.57
3:D:1261:LEU:HD21	3:D:1304:ARG:NH1	2.20	0.57
3:D:1257:VAL:HA	3:D:1260:MET:HE2	1.85	0.57
3:D:1371:ARG:NH2	3:D:1376:GLY:HA3	2.19	0.57
2:C:1123:GLY:HA3	2:C:1202:GLY:HA3	1.85	0.57
4:E:63:ILE:HG23	4:E:64:LEU:N	2.18	0.57
2:C:1282:GLY:HA2	4:E:17:PHE:HE2	1.67	0.57
3:D:1363:TYR:HD2	3:D:1365:TYR:CB	2.18	0.57
4:E:12:LYS:CB	4:E:13:ILE:HD12	2.35	0.57
4:E:49:ILE:HD13	4:E:49:ILE:H	1.69	0.57
3:D:1297:LYS:H	3:D:1297:LYS:HD3	1.70	0.57
2:C:1122:LYS:HE3	2:C:1203:ASP:HB2	1.86	0.56
2:C:363:LEU:HD13	2:C:382:GLU:HG2	1.87	0.56
2:C:979:LEU:HD21	2:C:1000:LEU:HD23	1.86	0.56
3:D:145:VAL:HA	3:D:180:MET:HB3	1.87	0.56
3:D:974:VAL:HG22	3:D:1002:VAL:HG22	1.85	0.56
2:C:1223:ARG:HB2	2:C:1223:ARG:HH11	1.70	0.56
2:C:406:ASN:HB3	2:C:411:ARG:HB2	1.88	0.56
2:C:813:GLU:HB2	3:D:461:PHE:HD1	1.71	0.56
2:C:890:LYS:HG2	2:C:914:LYS:HD3	1.87	0.56
3:D:222:LYS:HB2	3:D:222:LYS:NZ	2.20	0.56
2:C:1047:LEU:O	2:C:1048:LYS:HG2	2.05	0.56
3:D:614:LEU:CA	4:E:7:GLN:OE1	2.51	0.56
1:A:44:ARG:HH22	2:C:1093:PRO:HG3	1.71	0.56
3:D:512:TYR:CE1	3:D:724:MET:HE1	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1025:MET:HE2	3:D:1127:GLU:HG2	1.88	0.56
3:D:64:PRO:HG2	3:D:92:VAL:HA	1.87	0.56
3:D:1347:LEU:HD21	3:D:1359:ALA:HB2	1.88	0.56
2:C:102:LEU:HD21	2:C:488:MET:HG3	1.87	0.56
2:C:561:ILE:HD11	2:C:680:LEU:HB2	1.87	0.56
3:D:118:LYS:HZ1	3:D:118:LYS:HA	1.70	0.56
3:D:420:PRO:HG2	3:D:481:ARG:HG2	1.88	0.56
3:D:547:ARG:HH11	3:D:547:ARG:HA	1.71	0.56
3:D:1371:ARG:HE	3:D:1376:GLY:CA	2.18	0.56
2:C:68:LEU:HD13	2:C:102:LEU:HD23	1.87	0.55
1:A:207:THR:HG22	1:A:209:GLY:H	1.71	0.55
2:C:1124:ILE:HG23	2:C:1198:LEU:HD13	1.88	0.55
2:C:41:GLN:HG3	2:C:75:LEU:HB3	1.88	0.55
2:C:120:GLN:H	2:C:120:GLN:NE2	2.04	0.55
1:B:118:ASP:HB3	1:B:121:VAL:HB	1.88	0.55
2:C:101:ARG:HG2	2:C:118:LYS:HG3	1.89	0.55
2:C:550:VAL:HG11	2:C:560:PRO:HB3	1.89	0.55
2:C:1204:LEU:H	2:C:1205:PRO:CD	2.20	0.55
3:D:121:PRO:HB2	3:D:123:ARG:HH12	1.70	0.55
1:A:221:ALA:HB1	1:B:228:LEU:HB3	1.88	0.55
2:C:1128:ILE:HA	2:C:1132:LEU:HD13	1.89	0.55
3:D:614:LEU:N	4:E:7:GLN:HG3	2.16	0.55
1:B:47:LEU:HB3	1:B:180:VAL:HG21	1.89	0.55
2:C:552:PRO:HA	3:D:773:PHE:CE1	2.41	0.55
2:C:1002:LEU:HD23	2:C:1003:THR:N	2.21	0.55
3:D:680:ASN:HD22	3:D:680:ASN:C	2.15	0.55
2:C:836:LEU:HB3	2:C:918:LEU:HD21	1.88	0.55
3:D:1090:ILE:HG13	3:D:1162:ILE:HD12	1.89	0.55
4:E:36:ASP:HB2	4:E:37:PRO:HD2	1.88	0.55
4:E:54:ILE:N	4:E:54:ILE:HD12	2.22	0.55
3:D:807:LEU:HD21	3:D:1259:GLN:HE21	1.71	0.54
2:C:1109:ILE:HD12	2:C:1112:ILE:HD12	1.89	0.54
2:C:1276:TRP:CZ2	3:D:801:VAL:HG21	2.43	0.54
3:D:1381:ALA:HB3	3:D:1382:PRO:CD	2.37	0.54
2:C:179:TYR:CD2	2:C:180:ARG:HG3	2.42	0.54
3:D:759:ILE:HD13	3:D:759:ILE:H	1.72	0.54
1:A:5:VAL:HG22	1:A:9:LEU:HD22	1.89	0.54
1:A:192:VAL:HG13	1:A:194:GLN:H	1.73	0.54
2:C:810:TYR:HB2	2:C:817:LEU:HD11	1.89	0.54
2:C:1203:ASP:HB3	2:C:1204:LEU:HB2	1.89	0.54
3:D:739:GLN:HB3	3:D:763:PHE:HE2	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:68:LEU:HD11	2:C:100:LEU:HB3	1.88	0.54
2:C:257:ALA:HB3	2:C:262:TYR:HE2	1.72	0.54
3:D:485:MET:HG2	3:D:487:THR:HG22	1.89	0.54
1:A:65:LEU:H	1:A:65:LEU:HD22	1.70	0.54
4:E:59:ILE:HG13	4:E:60:ASN:N	2.22	0.54
1:A:165:GLU:O	1:A:166:ARG:HB2	2.08	0.54
2:C:698:PRO:HG3	2:C:1231:TYR:CZ	2.43	0.54
3:D:857:LEU:HG	3:D:858:VAL:H	1.72	0.54
3:D:905:ARG:HG3	4:E:16:ARG:HH21	1.73	0.54
3:D:614:LEU:CB	4:E:7:GLN:HG2	2.37	0.54
2:C:1269:ARG:HB3	3:D:344:GLY:HA3	1.90	0.53
1:A:166:ARG:CB	1:A:167:PRO:HD3	2.31	0.53
4:E:5:THR:HG21	4:E:55:GLU:CG	2.39	0.53
3:D:370:LYS:HG2	3:D:441:LEU:HB3	1.90	0.53
3:D:644:MET:HE2	3:D:697:MET:HE1	1.90	0.53
3:D:903:LEU:HD22	3:D:910:ASN:H	1.73	0.53
4:E:5:THR:O	4:E:5:THR:HG23	2.08	0.53
2:C:724:VAL:HG21	2:C:771:VAL:HG11	1.89	0.53
3:D:767:LEU:HD12	3:D:772:TYR:HB2	1.90	0.53
3:D:1263:LYS:HD3	3:D:1307:LEU:HD13	1.90	0.53
3:D:1381:ALA:HB3	3:D:1382:PRO:HD3	1.89	0.53
2:C:183:TRP:H	2:C:199:ASP:HA	1.72	0.53
2:C:575:LEU:HD13	2:C:576:SER:N	2.23	0.53
3:D:1263:LYS:NZ	3:D:1263:LYS:HB3	2.23	0.53
3:D:1279:GLN:HE22	3:D:1317:GLU:HB2	1.73	0.53
3:D:1360:GLY:O	3:D:1366:HIS:CD2	2.61	0.53
2:C:1313:HIS:CE1	4:E:28:ARG:NH1	2.76	0.53
3:D:377:PHE:O	3:D:381:ILE:HG13	2.08	0.53
3:D:1380:ALA:HA	3:D:1383:GLN:HG2	1.90	0.53
4:E:46:THR:HG22	4:E:47:THR:N	2.22	0.53
1:B:60:GLU:HB3	1:B:170:ARG:HD2	1.91	0.53
2:C:1256:GLN:HB3	2:C:1301:ARG:HH22	1.74	0.53
3:D:275:ARG:HH11	3:D:298:MET:HB3	1.74	0.53
3:D:1140:ARG:HH12	3:D:1214:PRO:HG3	1.74	0.53
4:E:56:GLU:HG2	4:E:57:GLY:N	2.23	0.53
2:C:49:LEU:HB3	2:C:53:PHE:CZ	2.44	0.53
3:D:110:PRO:HB3	3:D:240:THR:HA	1.91	0.53
3:D:1317:GLU:HG3	3:D:1340:LYS:HD3	1.91	0.53
4:E:4:VAL:C	4:E:5:THR:HG22	2.33	0.53
2:C:148:GLN:HB3	2:C:454:ARG:HD3	1.91	0.52
3:D:217:LEU:HA	3:D:220:ARG:HG2	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:432:LEU:HD22	3:D:435:GLN:HE21	1.73	0.52
2:C:518:ASN:HD21	2:C:688:GLN:HA	1.73	0.52
2:C:681:MET:O	2:C:685:MET:HG2	2.10	0.52
3:D:108:ALA:HB1	3:D:283:LEU:HD11	1.91	0.52
3:D:1371:ARG:HB3	4:E:60:ASN:HB3	1.91	0.52
3:D:369:PRO:HD3	3:D:447:ILE:HG22	1.92	0.52
2:C:338:THR:HB	2:C:345:PRO:HG3	1.91	0.52
2:C:591:TYR:HB2	2:C:606:LEU:HD23	1.91	0.52
2:C:896:THR:O	2:C:900:LYS:HG3	2.10	0.52
3:D:113:HIS:CD2	3:D:307:LEU:HD22	2.44	0.52
3:D:482:ALA:CB	4:E:3:ARG:NH1	2.72	0.52
3:D:527:LEU:HD23	3:D:534:GLU:HA	1.91	0.52
4:E:13:ILE:HD13	4:E:19:LEU:CD2	2.39	0.52
1:B:68:TYR:CE1	3:D:535:ARG:HB2	2.45	0.52
2:C:74:ARG:HE	2:C:99:LYS:HE3	1.74	0.52
2:C:1101:LEU:HD21	3:D:508:LEU:HD22	1.90	0.52
3:D:516:ASP:HA	3:D:572:THR:HG21	1.90	0.52
3:D:690:ASN:HB2	3:D:738:ARG:HD3	1.92	0.52
4:E:43:ASN:CG	4:E:44:ASP:H	2.18	0.52
4:E:46:THR:CG2	4:E:47:THR:H	2.19	0.52
3:D:703:THR:HG23	3:D:704:GLU:HG2	1.91	0.52
3:D:825:VAL:HG13	3:D:826:ILE:HG13	1.92	0.52
1:A:161:SER:HB2	1:A:164:ASP:HB2	1.91	0.52
2:C:151:ARG:HE	2:C:177:ILE:HD12	1.75	0.52
2:C:589:THR:HG23	2:C:591:TYR:CE2	2.44	0.52
2:C:689:ALA:HB2	2:C:1233:LEU:HD21	1.90	0.52
3:D:1095:MET:HE2	3:D:1161:GLY:HA3	1.92	0.52
1:A:205:MET:HE1	1:A:217:ILE:HB	1.90	0.52
2:C:732:ILE:HG13	2:C:753:LEU:HD21	1.91	0.52
3:D:534:GLU:O	3:D:538:ARG:HB2	2.10	0.52
3:D:762:ASN:HD22	3:D:762:ASN:H	1.57	0.52
2:C:1286:THR:HG21	3:D:484:MET:HE1	1.91	0.51
3:D:937:ILE:HD12	3:D:1151:LYS:H	1.76	0.51
3:D:960:LEU:HB3	3:D:963:VAL:HG11	1.92	0.51
2:C:40:GLU:HB3	2:C:43:PRO:HB2	1.92	0.51
3:D:733:SER:HB3	3:D:736:GLN:HG2	1.90	0.51
3:D:1348:LYS:HB2	3:D:1348:LYS:NZ	2.25	0.51
4:E:39:VAL:HB	4:E:40:PRO:CD	2.40	0.51
2:C:53:PHE:CD1	2:C:57:PHE:HE2	2.28	0.51
3:D:381:ILE:O	3:D:385:LEU:HG	2.11	0.51
3:D:393:THR:HG23	3:D:396:ALA:H	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:149:LEU:HD21	2:C:451:ARG:HB3	1.91	0.51
3:D:515:ARG:HA	3:D:515:ARG:NE	2.26	0.51
1:A:65:LEU:HD23	2:C:874:GLY:HA3	1.92	0.51
1:A:66:HIS:HB3	2:C:874:GLY:HA2	1.93	0.51
1:B:32:GLU:HB2	1:B:35:PHE:CD1	2.45	0.51
2:C:31:GLN:HE22	2:C:456:VAL:HG21	1.75	0.51
3:D:615:LYS:HZ2	4:E:5:THR:HB	1.73	0.51
3:D:1191:PRO:HD2	3:D:1194:ARG:HD3	1.91	0.51
2:C:79:VAL:HG21	2:C:93:SER:H	1.76	0.51
2:C:237:LEU:HD13	2:C:292:ILE:HD12	1.93	0.51
3:D:140:TYR:HA	3:D:181:GLY:HA2	1.91	0.51
3:D:647:PRO:HG3	3:D:697:MET:HB2	1.92	0.51
3:D:1369:ARG:NE	4:E:74:GLU:HB3	2.25	0.51
2:C:488:MET:HB2	2:C:489:PRO:HD3	1.93	0.51
2:C:840:SER:HB2	2:C:848:GLU:HB2	1.93	0.51
2:C:1127:LYS:HE2	2:C:1149:TYR:CD1	2.46	0.51
3:D:380:PHE:HB3	3:D:415:VAL:HG11	1.93	0.51
3:D:521:LYS:NZ	3:D:521:LYS:HB3	2.26	0.51
2:C:1065:LYS:HB3	2:C:1075:VAL:HG22	1.93	0.51
3:D:1165:PHE:HD1	3:D:1200:GLU:HG2	1.76	0.51
3:D:1190:ILE:HG21	3:D:1196:LEU:HD11	1.93	0.51
2:C:177:ILE:HG12	2:C:183:TRP:CZ3	2.46	0.51
3:D:1145:PHE:HB3	3:D:1309:ILE:HD13	1.93	0.51
2:C:50:GLU:HB2	2:C:73:TYR:HE1	1.76	0.50
3:D:425:ARG:CG	3:D:427:PRO:HD2	2.35	0.50
2:C:236:LYS:HE3	2:C:238:GLN:HE21	1.75	0.50
2:C:515:MET:HE2	2:C:517:GLN:HG2	1.92	0.50
1:A:47:LEU:HD23	1:A:51:MET:HG3	1.93	0.50
1:B:69:SER:H	1:B:78:ILE:HD11	1.77	0.50
2:C:1185:PRO:HD2	2:C:1189:GLY:HA3	1.93	0.50
3:D:614:LEU:HD12	4:E:6:VAL:HB	1.92	0.50
3:D:615:LYS:HB2	3:D:616:PRO:HD3	1.93	0.50
1:A:234:LEU:H	1:A:234:LEU:CD1	2.21	0.50
2:C:694:ARG:HB2	2:C:798:GLN:NE2	2.27	0.50
2:C:1204:LEU:H	2:C:1205:PRO:HD2	1.77	0.50
3:D:1344:LEU:HD12	3:D:1355:ARG:HH11	1.76	0.50
3:D:1372:ARG:NH2	4:E:84:THR:HG21	2.25	0.50
2:C:451:ARG:HH21	2:C:554:HIS:CE1	2.30	0.50
2:C:718:ALA:HB2	2:C:783:LEU:HD21	1.93	0.50
3:D:1366:HIS:O	4:E:21:LEU:HD22	2.11	0.50
3:D:1373:ARG:HG3	3:D:1374:ALA:N	2.27	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:520:PRO:HG3	2:C:787:PRO:HG2	1.93	0.50
3:D:516:ASP:OD2	3:D:551:ARG:HG2	2.12	0.50
3:D:1193:TRP:HB2	3:D:1194:ARG:HH11	1.77	0.50
2:C:972:PHE:HB3	2:C:994:ARG:HH21	1.77	0.50
2:C:1100:PRO:HB3	3:D:639:VAL:HG12	1.93	0.50
3:D:332:LYS:HB2	3:D:332:LYS:NZ	2.27	0.50
3:D:682:VAL:O	3:D:686:TRP:HD1	1.95	0.50
2:C:478:ARG:HA	2:C:481:LEU:HD23	1.93	0.50
2:C:572:ILE:N	2:C:572:ILE:HD12	2.27	0.50
3:D:128:LEU:HD13	3:D:130:MET:HE2	1.93	0.50
3:D:296:LYS:HB2	3:D:296:LYS:NZ	2.27	0.50
3:D:481:ARG:HB3	4:E:3:ARG:HD2	1.94	0.50
1:B:83:LEU:HD12	1:B:86:LYS:HD2	1.94	0.50
2:C:551:HIS:CG	2:C:552:PRO:HD2	2.46	0.50
2:C:557:ARG:HA	2:C:579:ALA:HB2	1.93	0.50
2:C:1336:ASN:HB2	3:D:25:ALA:HB2	1.92	0.50
1:B:56:VAL:HG22	1:B:144:ILE:HD11	1.93	0.49
2:C:31:GLN:NE2	2:C:456:VAL:HG21	2.26	0.49
2:C:297:VAL:HB	2:C:317:LEU:HD21	1.93	0.49
2:C:1324:ASN:O	2:C:1328:LYS:HG2	2.12	0.49
3:D:397:ALA:HA	3:D:400:MET:HE2	1.93	0.49
3:D:521:LYS:HE3	3:D:551:ARG:NH2	2.27	0.49
3:D:1156:LEU:HD23	3:D:1223:LEU:HD11	1.93	0.49
2:C:680:LEU:HD13	3:D:783:LEU:HD22	1.94	0.49
2:C:821:ARG:HB2	2:C:1082:ILE:HD11	1.93	0.49
2:C:827:ARG:HG3	2:C:828:PHE:CD2	2.47	0.49
3:D:480:ALA:HA	3:D:484:MET:HB3	1.93	0.49
4:E:13:ILE:HG22	4:E:14:GLY:N	2.27	0.49
1:B:111:THR:HG23	1:B:113:ALA:H	1.76	0.49
2:C:169:LYS:HB2	2:C:169:LYS:NZ	2.27	0.49
3:D:233:LYS:HB3	3:D:235:GLU:OE1	2.13	0.49
3:D:378:LYS:N	3:D:379:PRO:CD	2.76	0.49
3:D:500:ILE:O	3:D:500:ILE:HG12	2.12	0.49
3:D:843:VAL:O	3:D:882:VAL:HG23	2.11	0.49
4:E:12:LYS:HB2	4:E:13:ILE:CD1	2.42	0.49
3:D:430:HIS:HD2	3:D:432:LEU:H	1.61	0.49
1:B:173:VAL:HA	3:D:538:ARG:HH22	1.78	0.49
2:C:1141:LEU:O	2:C:1145:ILE:HG12	2.13	0.49
3:D:555:TYR:HE2	3:D:560:ASN:HB3	1.77	0.49
1:B:158:ARG:HE	1:B:158:ARG:HA	1.78	0.49
2:C:131:THR:HG22	2:C:132:ASP:N	2.26	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:705:GLU:CD	2:C:705:GLU:H	2.20	0.49
3:D:558:ASP:HB3	3:D:577:ALA:HB1	1.94	0.49
3:D:1304:ARG:HE	3:D:1304:ARG:HA	1.77	0.49
2:C:1195:ILE:O	2:C:1199:LEU:HD13	2.12	0.49
3:D:1221:LEU:HD23	3:D:1229:VAL:HG11	1.94	0.49
4:E:47:THR:C	4:E:48:VAL:HG13	2.37	0.49
2:C:891:GLY:O	2:C:895:LEU:HG	2.12	0.49
2:C:932:GLN:HG3	2:C:934:PHE:CE1	2.48	0.49
3:D:139:LEU:HD12	3:D:140:TYR:N	2.28	0.49
4:E:79:GLU:O	4:E:83:VAL:HG23	2.13	0.49
4:E:84:THR:HG23	4:E:85:ALA:N	2.28	0.49
1:A:51:MET:HE1	1:A:219:ARG:HB2	1.95	0.49
3:D:1024:THR:HA	3:D:1124:ILE:O	2.12	0.49
2:C:735:LYS:NZ	2:C:735:LYS:HB3	2.27	0.48
3:D:864:LEU:O	3:D:867:GLN:HG2	2.13	0.48
3:D:1224:ARG:HH11	3:D:1228:ALA:HB2	1.77	0.48
1:A:71:LYS:NZ	1:A:71:LYS:HB3	2.28	0.48
2:C:598:VAL:HG13	2:C:627:GLY:HA2	1.94	0.48
3:D:114:ILE:HD13	3:D:311:ARG:HD3	1.96	0.48
3:D:138:VAL:O	3:D:142:GLU:HB2	2.13	0.48
3:D:932:MET:HE3	3:D:932:MET:HA	1.96	0.48
2:C:404:LYS:NZ	2:C:452:ARG:HE	2.10	0.48
2:C:518:ASN:HD22	2:C:1236:ASN:ND2	2.11	0.48
3:D:858:VAL:HB	3:D:859:PRO:HD2	1.95	0.48
1:B:110:VAL:HG13	1:B:130:ILE:HG23	1.95	0.48
2:C:1034:ARG:O	2:C:1038:GLN:HB2	2.13	0.48
2:C:1204:LEU:HB3	2:C:1205:PRO:HD3	1.96	0.48
3:D:811:GLU:HG3	3:D:896:ALA:H	1.78	0.48
3:D:1206:ARG:HG3	3:D:1224:ARG:HA	1.95	0.48
1:A:159:ILE:HG23	1:A:159:ILE:O	2.12	0.48
2:C:519:ASN:HD21	2:C:796:LEU:HD22	1.79	0.48
3:D:325:LYS:NZ	3:D:325:LYS:HB3	2.28	0.48
3:D:385:LEU:HB3	3:D:391:ALA:HB3	1.95	0.48
3:D:881:LYS:HD2	3:D:881:LYS:N	2.28	0.48
3:D:926:PRO:HB3	3:D:1246:VAL:HG11	1.95	0.48
2:C:1103:VAL:HB	2:C:1104:PRO:HD3	1.95	0.48
3:D:378:LYS:HG3	3:D:379:PRO:HD3	1.95	0.48
3:D:1231:ARG:CZ	3:D:1231:ARG:HA	2.43	0.48
4:E:19:LEU:HD12	4:E:19:LEU:N	2.29	0.48
3:D:132:LEU:HD23	3:D:133:ARG:HG3	1.94	0.48
3:D:314:ARG:HD2	3:D:323:PRO:HG3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:479:GLU:HB3	4:E:20:VAL:CG2	2.44	0.48
3:D:804:ALA:O	3:D:916:GLY:HA3	2.14	0.48
3:D:1142:ALA:O	3:D:1146:GLU:HB2	2.13	0.48
3:D:1210:ILE:HD13	3:D:1210:ILE:O	2.13	0.48
2:C:688:GLN:HB2	2:C:1235:LEU:HD22	1.95	0.48
2:C:1273:MET:HA	2:C:1276:TRP:CE3	2.48	0.48
3:D:184:ALA:O	3:D:188:LEU:HD13	2.14	0.48
1:A:102:LEU:HD12	1:A:142:MET:HG2	1.96	0.48
3:D:131:PRO:HB3	3:D:134:ASP:HB2	1.95	0.48
3:D:905:ARG:HD3	3:D:907:HIS:NE2	2.29	0.48
3:D:1263:LYS:HD2	3:D:1263:LYS:N	2.24	0.48
3:D:1360:GLY:N	3:D:1362:GLY:H	2.10	0.48
4:E:26:ARG:HH21	4:E:37:PRO:CD	2.27	0.48
4:E:63:ILE:CG1	4:E:64:LEU:HD12	2.38	0.48
1:A:86:LYS:HE3	2:C:826:ASP:OD2	2.14	0.47
2:C:1205:PRO:HG3	2:C:1210:ILE:HG13	1.96	0.47
3:D:275:ARG:NH1	3:D:298:MET:HB3	2.29	0.47
3:D:370:LYS:HB3	3:D:409:TRP:CZ3	2.49	0.47
3:D:421:VAL:HG22	3:D:439:PRO:HG3	1.95	0.47
3:D:1344:LEU:HD12	3:D:1355:ARG:NH1	2.28	0.47
1:A:102:LEU:HD23	1:A:115:ILE:HA	1.96	0.47
3:D:334:LYS:HD3	3:D:334:LYS:C	2.39	0.47
3:D:926:PRO:HG2	3:D:1248:ILE:HD11	1.96	0.47
1:A:43:LEU:HD13	1:A:217:ILE:HD11	1.96	0.47
2:C:1290:MET:HE1	3:D:469:HIS:CG	2.49	0.47
3:D:381:ILE:HG21	3:D:401:VAL:HG21	1.97	0.47
3:D:525:MET:HG2	3:D:537:TYR:CE1	2.49	0.47
3:D:1373:ARG:HB3	4:E:58:LEU:CD1	2.42	0.47
2:C:150:HIS:CD2	2:C:454:ARG:HD2	2.49	0.47
2:C:975:ILE:HD11	2:C:997:TRP:HE3	1.78	0.47
3:D:1266:ILE:HD13	3:D:1266:ILE:H	1.79	0.47
3:D:1371:ARG:CZ	3:D:1376:GLY:HA3	2.44	0.47
2:C:333:ILE:N	2:C:333:ILE:HD12	2.30	0.47
2:C:867:GLU:HB2	2:C:947:GLU:OE1	2.13	0.47
3:D:38:VAL:HG13	3:D:55:GLY:HA2	1.96	0.47
3:D:1369:ARG:HE	4:E:74:GLU:HB3	1.78	0.47
3:D:1376:GLY:C	3:D:1379:PRO:HD2	2.40	0.47
4:E:10:VAL:HA	4:E:19:LEU:HD22	1.94	0.47
2:C:88:ARG:HA	2:C:932:GLN:HE22	1.80	0.47
2:C:1190:ALA:HB1	2:C:1195:ILE:HD11	1.97	0.47
2:C:1320:PRO:HG2	3:D:1354:GLY:HA3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:423:LEU:HD13	3:D:437:PHE:HD2	1.78	0.47
3:D:485:MET:HE1	4:E:3:ARG:CG	2.38	0.47
3:D:801:VAL:O	3:D:805:GLN:HB3	2.15	0.47
3:D:1163:VAL:HG21	3:D:1198:VAL:HG21	1.95	0.47
4:E:54:ILE:HD12	4:E:54:ILE:H	1.78	0.47
4:E:63:ILE:HG12	4:E:64:LEU:HD11	1.93	0.47
1:A:224:LEU:HD23	1:B:228:LEU:HD21	1.96	0.47
1:B:30:PRO:C	1:B:31:LEU:HD22	2.39	0.47
1:B:123:ILE:HG22	1:B:125:LYS:H	1.80	0.47
2:C:30:ILE:N	2:C:30:ILE:HD12	2.30	0.47
2:C:120:GLN:H	2:C:120:GLN:CD	2.22	0.47
2:C:144:VAL:HB	2:C:526:HIS:CE1	2.50	0.47
2:C:145:ILE:N	2:C:145:ILE:HD12	2.29	0.47
2:C:153:PRO:HB3	2:C:397:LEU:HD22	1.97	0.47
2:C:551:HIS:CD2	2:C:553:THR:H	2.33	0.47
2:C:559:CYS:SG	2:C:562:GLU:HG2	2.55	0.47
2:C:870:ILE:HD12	2:C:870:ILE:N	2.30	0.47
2:C:1108:ASN:O	2:C:1111:GLN:HG2	2.15	0.47
2:C:1135:GLN:HB2	2:C:1142:ARG:HA	1.95	0.47
3:D:118:LYS:HG2	3:D:311:ARG:HH21	1.80	0.47
3:D:598:LYS:HG3	3:D:599:LYS:HD3	1.96	0.47
3:D:848:VAL:HB	3:D:856:ILE:HD11	1.95	0.47
3:D:885:VAL:HG11	3:D:1255:VAL:HG12	1.96	0.47
4:E:64:LEU:HD12	4:E:64:LEU:N	2.29	0.47
2:C:22:LEU:HD13	2:C:23:ASP:O	2.13	0.47
3:D:812:ASP:O	3:D:813:ASP:C	2.57	0.47
4:E:36:ASP:HB2	4:E:37:PRO:CD	2.45	0.47
1:A:47:LEU:HB3	1:A:180:VAL:HG21	1.97	0.47
1:B:69:SER:N	1:B:78:ILE:HD11	2.30	0.47
1:B:135:ASP:CG	1:B:136:GLU:H	2.21	0.47
3:D:1274:PHE:HD2	3:D:1275:LEU:HG	1.80	0.47
1:B:102:LEU:HD12	1:B:115:ILE:HG12	1.97	0.47
2:C:99:LYS:HA	2:C:120:GLN:O	2.14	0.47
2:C:161:LYS:HE3	2:C:175:ARG:HH21	1.80	0.47
2:C:552:PRO:HA	3:D:773:PHE:HE1	1.79	0.47
2:C:810:TYR:CD2	3:D:359:PRO:HG2	2.50	0.47
2:C:1216:ARG:HH22	3:D:633:ALA:HB3	1.79	0.47
3:D:1306:LEU:C	3:D:1307:LEU:HD12	2.40	0.47
2:C:403:MET:HG2	2:C:407:ARG:HH12	1.80	0.46
2:C:496:LYS:HD3	2:C:496:LYS:C	2.40	0.46
2:C:562:GLU:HG3	2:C:662:SER:HB2	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:672:GLU:HB2	3:D:767:LEU:HB3	1.98	0.46
2:C:1182:ILE:HD12	2:C:1183:ALA:N	2.30	0.46
3:D:614:LEU:HB2	4:E:7:GLN:OE1	2.16	0.46
3:D:1234:VAL:HG11	3:D:1254:GLU:HG2	1.97	0.46
1:B:88:LEU:HB2	1:B:128:HIS:CE1	2.49	0.46
3:D:41:PRO:HG2	3:D:274:ASN:ND2	2.29	0.46
3:D:378:LYS:CG	3:D:379:PRO:HD3	2.44	0.46
3:D:430:HIS:CD2	3:D:432:LEU:H	2.33	0.46
2:C:176:ILE:O	2:C:178:PRO:HD3	2.15	0.46
1:A:30:PRO:C	1:A:31:LEU:HD22	2.41	0.46
3:D:201:LEU:HD22	3:D:217:LEU:HD23	1.97	0.46
3:D:1234:VAL:HG12	3:D:1253:ILE:HG22	1.98	0.46
3:D:1322:ALA:HB3	3:D:1331:VAL:HG11	1.96	0.46
2:C:1128:ILE:O	2:C:1132:LEU:HB2	2.15	0.46
3:D:30:ILE:HA	3:D:33:TRP:CZ3	2.49	0.46
3:D:160:LEU:N	3:D:160:LEU:HD13	2.31	0.46
3:D:1370:MET:HE2	4:E:22:VAL:CG1	2.44	0.46
1:A:74:VAL:HG22	1:A:76:GLU:H	1.80	0.46
2:C:29:SER:HB2	2:C:580:GLN:NE2	2.31	0.46
2:C:142:GLU:HG3	2:C:517:GLN:OE1	2.15	0.46
2:C:161:LYS:C	2:C:161:LYS:HD2	2.41	0.46
2:C:453:ILE:HD11	2:C:587:LEU:HD12	1.98	0.46
3:D:521:LYS:HG3	3:D:525:MET:HE2	1.98	0.46
3:D:614:LEU:CB	4:E:7:GLN:OE1	2.64	0.46
4:E:53:GLU:O	4:E:56:GLU:HB3	2.15	0.46
2:C:434:ASP:HB3	2:C:439:LYS:HG3	1.98	0.46
2:C:630:VAL:HG13	2:C:631:GLU:N	2.29	0.46
2:C:932:GLN:HG3	2:C:934:PHE:HE1	1.81	0.46
2:C:932:GLN:CB	2:C:1051:LYS:H	2.28	0.46
3:D:557:LYS:HG3	3:D:560:ASN:H	1.80	0.46
4:E:31:GLN:HA	4:E:31:GLN:NE2	2.26	0.46
2:C:472:GLU:HG2	2:C:476:LYS:NZ	2.31	0.46
2:C:810:TYR:HB3	2:C:817:LEU:HD21	1.97	0.46
3:D:51:PRO:HD2	3:D:71:LEU:HD11	1.98	0.46
3:D:500:ILE:H	3:D:500:ILE:CD1	2.26	0.46
3:D:759:ILE:HD13	3:D:759:ILE:N	2.31	0.46
4:E:31:GLN:HE21	4:E:31:GLN:CA	2.24	0.46
4:E:68:GLU:HG2	4:E:69:ARG:N	2.31	0.46
1:B:207:THR:HG21	1:B:211:ILE:O	2.16	0.46
2:C:138:ILE:HD12	2:C:138:ILE:N	2.31	0.46
2:C:1187:PHE:CD1	3:D:769:VAL:HG12	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:114:ILE:H	3:D:307:LEU:HD13	1.81	0.46
3:D:148:GLU:HB3	3:D:187:ALA:HB3	1.96	0.46
3:D:644:MET:HA	3:D:644:MET:HE3	1.98	0.46
3:D:1138:LEU:N	3:D:1139:PRO:CD	2.79	0.46
3:D:623:GLN:O	3:D:627:THR:HG22	2.16	0.46
1:A:2:GLN:HB2	1:A:9:LEU:HD11	1.99	0.45
2:C:151:ARG:HB3	2:C:156:PHE:CZ	2.51	0.45
3:D:77:ARG:NE	3:D:77:ARG:HA	2.31	0.45
3:D:804:ALA:HB1	3:D:807:LEU:HD23	1.98	0.45
3:D:1025:MET:HE3	3:D:1124:ILE:HD12	1.98	0.45
1:A:29:GLU:OE1	1:A:200:LYS:HE2	2.16	0.45
1:B:10:LYS:HB3	1:B:10:LYS:NZ	2.31	0.45
1:B:222:THR:O	1:B:226:GLU:HG3	2.16	0.45
2:C:448:LEU:HD11	2:C:554:HIS:CG	2.51	0.45
2:C:519:ASN:HB3	2:C:522:SER:OG	2.16	0.45
3:D:121:PRO:HB2	3:D:123:ARG:NH1	2.31	0.45
3:D:1380:ALA:CA	3:D:1383:GLN:HG2	2.46	0.45
4:E:39:VAL:HG12	4:E:40:PRO:N	2.30	0.45
1:A:82:LEU:O	1:A:86:LYS:HG3	2.16	0.45
2:C:528:ARG:NH2	2:C:577:VAL:HA	2.31	0.45
3:D:77:ARG:HA	3:D:77:ARG:HE	1.81	0.45
3:D:527:LEU:HD12	3:D:527:LEU:N	2.31	0.45
1:A:113:ALA:HB2	1:A:126:PRO:HB3	1.99	0.45
2:C:212:ALA:HA	2:C:359:ARG:HG3	1.98	0.45
3:D:113:HIS:O	3:D:117:LEU:HD13	2.15	0.45
3:D:232:ASN:HD22	3:D:232:ASN:N	2.13	0.45
3:D:482:ALA:C	3:D:483:LEU:HD12	2.41	0.45
3:D:566:LYS:HB2	3:D:566:LYS:NZ	2.31	0.45
3:D:615:LYS:CE	4:E:5:THR:CA	2.33	0.45
3:D:762:ASN:HD21	3:D:765:GLU:H	1.64	0.45
3:D:823:THR:HB	3:D:880:VAL:HB	1.98	0.45
3:D:1041:ILE:N	3:D:1041:ILE:HD12	2.32	0.45
1:A:130:ILE:N	1:A:130:ILE:HD12	2.32	0.45
1:A:166:ARG:HB2	1:A:167:PRO:CD	2.36	0.45
2:C:478:ARG:NH1	2:C:494:ASN:HB2	2.31	0.45
2:C:518:ASN:O	2:C:691:PRO:HD3	2.17	0.45
3:D:113:HIS:HB3	3:D:116:PHE:HD2	1.81	0.45
3:D:1025:MET:HB2	3:D:1124:ILE:HD12	1.99	0.45
3:D:1238:GLN:NE2	3:D:1242:ARG:HH21	2.15	0.45
3:D:1371:ARG:HD2	4:E:65:ASP:OD2	2.16	0.45
1:B:46:ILE:HG23	1:B:50:SER:HB2	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:68:LEU:HA	2:C:102:LEU:HB3	1.98	0.45
2:C:233:ARG:O	2:C:236:LYS:HG2	2.16	0.45
2:C:551:HIS:HD2	2:C:553:THR:H	1.65	0.45
3:D:94:GLN:O	3:D:97:VAL:HG22	2.16	0.45
3:D:1253:ILE:O	3:D:1257:VAL:HG23	2.16	0.45
2:C:138:ILE:HG12	2:C:506:PHE:HB3	1.99	0.45
2:C:827:ARG:HG3	2:C:828:PHE:HD2	1.82	0.45
2:C:1121:ALA:O	2:C:1126:ASP:HB3	2.17	0.45
2:C:793:GLU:CD	2:C:793:GLU:H	2.25	0.45
2:C:1089:GLU:H	2:C:1089:GLU:CD	2.24	0.45
2:C:1325:VAL:HG22	3:D:249:LEU:HD11	1.99	0.45
3:D:87:LYS:N	3:D:87:LYS:HD2	2.32	0.45
3:D:339:ARG:O	3:D:343:LEU:HB2	2.17	0.45
3:D:850:LYS:H	3:D:851:PRO:CD	2.30	0.45
1:A:56:VAL:HG11	1:A:86:LYS:HA	1.99	0.45
2:C:245:ARG:HB3	2:C:337:PHE:CZ	2.52	0.45
2:C:1103:VAL:H	2:C:1104:PRO:CD	2.30	0.45
3:D:227:PHE:CZ	3:D:1337:VAL:HB	2.52	0.45
3:D:565:ALA:HB2	3:D:574:VAL:HG21	1.99	0.45
1:A:83:LEU:HD22	2:C:693:LEU:HD13	1.99	0.44
1:B:191:ARG:HH21	3:D:417:ARG:HD3	1.82	0.44
3:D:135:ILE:HG13	3:D:139:LEU:HD23	1.99	0.44
1:A:152:TYR:CZ	2:C:823:VAL:HG22	2.53	0.44
2:C:188:PHE:CE1	2:C:194:LEU:HB2	2.52	0.44
2:C:673:HIS:HB3	2:C:1109:ILE:HG23	1.98	0.44
2:C:932:GLN:HB3	2:C:1051:LYS:H	1.82	0.44
3:D:69:GLU:HG2	3:D:76:LYS:HB3	1.99	0.44
3:D:71:LEU:H	3:D:71:LEU:HD22	1.82	0.44
3:D:983:LYS:HD3	3:D:991:THR:HG23	1.98	0.44
1:A:58:GLU:H	1:A:145:LYS:HB3	1.83	0.44
1:A:165:GLU:O	1:A:166:ARG:CB	2.65	0.44
2:C:400:VAL:HG22	2:C:584:TYR:HD1	1.83	0.44
2:C:517:GLN:HA	2:C:523:GLU:HG2	2.00	0.44
2:C:1327:LEU:HG	2:C:1337:ILE:HG23	2.00	0.44
3:D:525:MET:HG2	3:D:537:TYR:CD1	2.52	0.44
3:D:1263:LYS:HB3	3:D:1263:LYS:HZ2	1.82	0.44
3:D:1373:ARG:NH1	4:E:58:LEU:HD22	2.32	0.44
4:E:9:ALA:O	4:E:19:LEU:HD21	2.17	0.44
2:C:1304:MET:HG3	3:D:472:LEU:HD13	1.99	0.44
3:D:799:ARG:HA	3:D:799:ARG:NE	2.32	0.44
4:E:7:GLN:HE21	4:E:7:GLN:HB3	1.44	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:61:ILE:N	1:A:61:ILE:HD12	2.33	0.44
2:C:155:VAL:HG11	2:C:428:VAL:HG21	2.00	0.44
2:C:464:PHE:O	2:C:468:LEU:HG	2.17	0.44
2:C:496:LYS:H	2:C:497:PRO:CD	2.30	0.44
2:C:549:ASP:OD2	3:D:750:PRO:HB3	2.16	0.44
2:C:577:VAL:HG11	2:C:658:GLN:OE1	2.18	0.44
2:C:588:GLU:HG2	2:C:607:SER:HA	2.00	0.44
2:C:1128:ILE:HG23	2:C:1132:LEU:HD22	2.00	0.44
2:C:1135:GLN:HB3	2:C:1145:ILE:HG13	1.99	0.44
3:D:950:ILE:HB	3:D:1018:ALA:HB3	2.00	0.44
3:D:1297:LYS:HD3	3:D:1297:LYS:N	2.30	0.44
2:C:403:MET:HE3	2:C:586:PHE:HE2	1.81	0.44
2:C:446:ASP:HB3	2:C:551:HIS:HB2	2.00	0.44
3:D:583:VAL:N	3:D:584:PRO:HD2	2.33	0.44
3:D:815:GLY:HA2	3:D:883:ARG:NH1	2.32	0.44
3:D:894:VAL:HG22	3:D:1258:ARG:HH22	1.82	0.44
4:E:67:ARG:HG3	4:E:68:GLU:N	2.32	0.44
2:C:463:GLN:HG3	2:C:505:PHE:CG	2.52	0.44
2:C:557:ARG:HB3	2:C:587:LEU:HD13	2.00	0.44
1:A:83:LEU:HD12	1:A:86:LYS:HD2	2.00	0.44
2:C:87:ILE:HG12	2:C:88:ARG:NH2	2.33	0.44
2:C:636:CYS:HB2	2:C:645:PHE:HD1	1.83	0.44
2:C:1073:LYS:HE2	3:D:462:ASP:O	2.17	0.44
2:C:1325:VAL:O	2:C:1329:GLU:HG3	2.18	0.44
3:D:485:MET:HB3	3:D:488:ASN:ND2	2.33	0.44
1:A:192:VAL:HG22	1:A:193:GLU:N	2.33	0.44
1:B:215:GLU:HA	1:B:218:ARG:HG2	2.00	0.44
2:C:819:SER:O	2:C:822:VAL:HG12	2.18	0.44
2:C:1106:ARG:HD2	2:C:1106:ARG:N	2.33	0.44
2:C:1328:LYS:HG3	3:D:246:PRO:HG2	2.00	0.44
3:D:168:ALA:H	3:D:176:PHE:HZ	1.64	0.44
3:D:416:ILE:HG21	3:D:439:PRO:HB2	1.99	0.44
3:D:479:GLU:HA	4:E:20:VAL:CG2	2.48	0.44
1:A:110:VAL:HG21	1:A:140:ILE:HD11	2.00	0.43
1:A:168:ILE:HD13	1:A:168:ILE:N	2.32	0.43
3:D:124:ILE:C	3:D:124:ILE:HD12	2.42	0.43
3:D:1203:ARG:HB3	3:D:1203:ARG:NH1	2.33	0.43
3:D:1220:ILE:HD13	3:D:1220:ILE:O	2.17	0.43
4:E:15:ASN:O	4:E:19:LEU:HD12	2.18	0.43
1:A:60:GLU:HB3	1:A:143:ARG:HB2	2.00	0.43
1:A:168:ILE:HD13	1:A:168:ILE:H	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:218:GLU:HG2	2:C:299:LYS:HA	2.01	0.43
2:C:517:GLN:HE21	2:C:759:SER:HB3	1.82	0.43
2:C:1203:ASP:HA	2:C:1204:LEU:HA	1.59	0.43
3:D:288:PRO:O	3:D:292:VAL:HG22	2.17	0.43
3:D:1377:GLU:C	3:D:1379:PRO:HD2	2.43	0.43
2:C:788:SER:HB3	2:C:795:ALA:O	2.18	0.43
2:C:1131:MET:HE2	2:C:1145:ILE:HG23	1.98	0.43
3:D:845:ALA:HB3	3:D:881:LYS:HB3	2.00	0.43
3:D:1290:ARG:O	3:D:1297:LYS:HA	2.18	0.43
3:D:1379:PRO:CD	3:D:1380:ALA:H	2.31	0.43
4:E:13:ILE:CG2	4:E:14:GLY:N	2.81	0.43
1:A:171:LEU:N	1:A:171:LEU:HD13	2.34	0.43
1:B:123:ILE:C	1:B:125:LYS:H	2.27	0.43
2:C:87:ILE:HG23	2:C:88:ARG:HG2	1.99	0.43
2:C:939:VAL:O	2:C:939:VAL:HG12	2.18	0.43
2:C:1309:VAL:HG12	3:D:382:TYR:HB2	2.00	0.43
1:B:29:GLU:HB2	1:B:30:PRO:HA	2.01	0.43
1:B:102:LEU:HD23	1:B:102:LEU:C	2.43	0.43
2:C:488:MET:H	2:C:489:PRO:CD	2.31	0.43
2:C:1274:GLU:HB3	3:D:434:ILE:HD11	1.99	0.43
3:D:136:GLU:O	3:D:140:TYR:HD1	2.00	0.43
3:D:190:LYS:HG2	3:D:235:GLU:HG2	1.99	0.43
3:D:430:HIS:NE2	3:D:432:LEU:HB2	2.33	0.43
3:D:901:ARG:H	3:D:1251:LYS:NZ	2.17	0.43
3:D:1184:ASP:HB2	3:D:1185:PRO:HD3	2.01	0.43
1:B:47:LEU:HD21	1:B:220:ALA:HB2	2.01	0.43
2:C:975:ILE:C	2:C:975:ILE:HD12	2.43	0.43
3:D:15:GLU:H	3:D:15:GLU:CD	2.26	0.43
3:D:68:TYR:HA	3:D:92:VAL:HG21	1.99	0.43
3:D:137:ARG:HB3	3:D:312:ARG:HH22	1.83	0.43
3:D:506:VAL:HG23	3:D:628:GLY:HA3	1.99	0.43
3:D:978:ARG:HG2	3:D:979:ASN:H	1.83	0.43
4:E:63:ILE:HG23	4:E:64:LEU:CD1	2.47	0.43
1:A:192:VAL:HG22	1:A:193:GLU:H	1.84	0.43
1:B:12:ARG:HD2	1:B:12:ARG:N	2.34	0.43
1:B:68:TYR:HE1	3:D:535:ARG:HB2	1.82	0.43
2:C:155:VAL:HG11	2:C:428:VAL:HG11	2.01	0.43
2:C:489:PRO:HB2	2:C:490:GLN:H	1.57	0.43
2:C:680:LEU:C	2:C:680:LEU:HD23	2.44	0.43
2:C:753:LEU:N	2:C:753:LEU:HD22	2.34	0.43
2:C:806:PRO:HD3	2:C:1100:PRO:HG2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:1125:GLY:HA3	2:C:1182:ILE:HG22	2.01	0.43
2:C:1280:ALA:HB1	3:D:918:ILE:HG22	2.01	0.43
3:D:66:LYS:HG2	3:D:67:ASP:H	1.82	0.43
3:D:296:LYS:HD3	3:D:296:LYS:H	1.84	0.43
3:D:406:ALA:HA	3:D:409:TRP:CD1	2.54	0.43
3:D:473:THR:HG23	3:D:476:ALA:H	1.84	0.43
3:D:501:VAL:HG23	3:D:502:PRO:HD2	2.00	0.43
4:E:4:VAL:HG13	4:E:5:THR:HG22	1.99	0.43
1:A:77:ASP:O	1:A:81:ILE:HG13	2.19	0.43
1:A:133:LEU:HD11	1:A:140:ILE:HD13	2.01	0.43
2:C:949:GLU:O	2:C:953:LEU:HD23	2.19	0.43
2:C:1065:LYS:HG2	2:C:1235:LEU:HB2	2.00	0.43
2:C:1329:GLU:HG2	3:D:327:LEU:HD22	2.00	0.43
3:D:875:ASN:N	3:D:875:ASN:HD22	2.16	0.43
1:B:79:LEU:HD23	1:B:79:LEU:C	2.44	0.43
3:D:1075:ARG:NH1	3:D:1184:ASP:HB3	2.34	0.43
3:D:1163:VAL:HG23	3:D:1175:LEU:HD11	2.01	0.43
1:A:60:GLU:HB2	1:A:170:ARG:NE	2.34	0.43
1:B:73:GLY:HA3	1:B:138:ALA:HA	2.00	0.43
1:B:158:ARG:HA	1:B:158:ARG:NE	2.34	0.43
2:C:1080:ASN:HA	2:C:1081:PRO:HD3	1.93	0.43
4:E:37:PRO:HG2	4:E:53:GLU:OE2	2.19	0.43
1:B:28:LEU:C	1:B:28:LEU:HD23	2.44	0.42
2:C:540:ARG:HD2	2:C:540:ARG:N	2.34	0.42
2:C:544:GLY:C	2:C:546:GLU:H	2.26	0.42
2:C:820:GLU:HB2	2:C:1081:PRO:HA	2.00	0.42
2:C:1296:ASP:O	2:C:1297:ASP:C	2.62	0.42
3:D:222:LYS:CD	3:D:223:LEU:HG	2.46	0.42
3:D:245:LEU:HB3	3:D:250:ARG:HE	1.83	0.42
3:D:373:ALA:HA	3:D:377:PHE:HD2	1.84	0.42
3:D:490:ILE:HA	3:D:500:ILE:HD11	2.00	0.42
3:D:510:LEU:HD21	3:D:627:THR:HG23	2.01	0.42
3:D:667:GLN:HG2	3:D:672:LEU:HD22	2.00	0.42
3:D:923:ILE:C	3:D:926:PRO:HD2	2.44	0.42
3:D:1328:THR:O	3:D:1332:LEU:HD23	2.19	0.42
1:B:74:VAL:HG11	1:B:81:ILE:HD11	2.01	0.42
3:D:99:ARG:HH21	3:D:248:ASP:HB3	1.85	0.42
3:D:587:LEU:HD22	3:D:620:PHE:HB2	2.01	0.42
2:C:448:LEU:HD13	2:C:553:THR:HG22	2.02	0.42
3:D:416:ILE:O	3:D:416:ILE:HG22	2.19	0.42
3:D:1370:MET:CE	4:E:22:VAL:CG1	2.95	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:41:GLU:CG	4:E:42:GLU:N	2.82	0.42
1:B:61:ILE:HB	1:B:64:VAL:HB	2.00	0.42
1:A:65:LEU:HD13	1:A:65:LEU:N	2.34	0.42
1:B:65:LEU:O	1:B:171:LEU:HD21	2.19	0.42
2:C:152:SER:HA	2:C:153:PRO:HD3	1.91	0.42
2:C:1270:PHE:CE1	2:C:1274:GLU:HB3	2.54	0.42
3:D:421:VAL:C	3:D:422:LEU:HD12	2.44	0.42
3:D:762:ASN:ND2	3:D:765:GLU:H	2.17	0.42
2:C:143:ARG:NH1	2:C:507:GLY:HA2	2.32	0.42
3:D:218:THR:OG1	3:D:1275:LEU:HB2	2.20	0.42
3:D:478:LEU:HD11	4:E:27:ALA:HB3	2.01	0.42
3:D:975:ILE:HD12	3:D:975:ILE:C	2.45	0.42
3:D:1370:MET:SD	4:E:61:ASN:CB	3.07	0.42
4:E:50:ALA:O	4:E:54:ILE:HD13	2.20	0.42
2:C:374:GLU:CD	2:C:374:GLU:H	2.28	0.42
2:C:1064:ASP:O	2:C:1076:ILE:HG22	2.20	0.42
2:C:1072:ASN:ND2	2:C:1098:LEU:HD23	2.34	0.42
2:C:1223:ARG:HB2	2:C:1223:ARG:NH1	2.32	0.42
3:D:98:ARG:HG2	3:D:247:PRO:HG2	2.01	0.42
3:D:227:PHE:CG	3:D:234:PRO:HG3	2.54	0.42
3:D:923:ILE:HD13	3:D:1248:ILE:HD13	2.02	0.42
3:D:1289:ASN:O	3:D:1293:GLU:HB2	2.19	0.42
4:E:13:ILE:CD1	4:E:13:ILE:N	2.82	0.42
4:E:13:ILE:HG22	4:E:15:ASN:N	2.26	0.42
1:A:70:THR:HG21	2:C:755:LYS:HE2	2.01	0.42
2:C:149:LEU:HD23	2:C:149:LEU:C	2.44	0.42
2:C:221:LEU:HD22	2:C:336:LEU:HD11	2.00	0.42
2:C:344:GLY:HA2	2:C:345:PRO:HD3	1.85	0.42
2:C:1108:ASN:C	2:C:1108:ASN:HD22	2.27	0.42
3:D:482:ALA:HA	4:E:3:ARG:NH1	2.35	0.42
3:D:1347:LEU:N	3:D:1347:LEU:HD12	2.34	0.42
2:C:97:ARG:HD2	2:C:121:GLU:HB3	2.02	0.42
2:C:590:PRO:HG3	2:C:605:TYR:CE2	2.55	0.42
2:C:865:LEU:HD23	2:C:871:VAL:HB	2.02	0.42
2:C:936:ARG:HA	2:C:1042:LEU:HD11	2.02	0.42
2:C:1164:PHE:HD2	2:C:1168:GLU:HB3	1.83	0.42
3:D:369:PRO:HD2	3:D:372:MET:HE2	2.01	0.42
3:D:491:LEU:HD12	3:D:905:ARG:O	2.19	0.42
3:D:680:ASN:HD22	3:D:681:LYS:N	2.18	0.42
3:D:1095:MET:HG3	3:D:1162:ILE:H	1.85	0.42
3:D:1282:TYR:O	3:D:1286:LYS:HG3	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:79:LEU:HG	2:C:831:ILE:HD11	2.02	0.42
2:C:313:ALA:C	2:C:315:MET:H	2.28	0.42
2:C:384:LEU:O	2:C:388:LEU:HG	2.19	0.42
2:C:587:LEU:HD23	2:C:588:GLU:N	2.35	0.42
2:C:706:ARG:HA	2:C:793:GLU:HA	2.02	0.42
2:C:1103:VAL:HG22	2:C:1111:GLN:HE21	1.83	0.42
2:C:1327:LEU:HD23	2:C:1327:LEU:C	2.45	0.42
3:D:390:LEU:HD23	3:D:390:LEU:C	2.45	0.42
3:D:412:LEU:HD23	3:D:412:LEU:C	2.45	0.42
3:D:587:LEU:HA	3:D:588:PRO:HD3	1.92	0.42
3:D:756:GLU:O	3:D:758:PRO:HD3	2.19	0.42
3:D:1131:THR:HG22	3:D:1132:LYS:HG3	2.02	0.42
4:E:13:ILE:HG21	4:E:18:ASP:CB	2.49	0.42
1:A:45:ARG:HG2	1:B:38:THR:HB	2.02	0.41
2:C:409:LEU:HD21	2:C:428:VAL:HG22	2.02	0.41
2:C:992:LEU:H	2:C:992:LEU:HD23	1.84	0.41
3:D:271:ARG:O	3:D:275:ARG:HG2	2.20	0.41
3:D:381:ILE:HD13	3:D:408:VAL:HG21	2.02	0.41
3:D:536:LEU:HD23	3:D:536:LEU:C	2.45	0.41
3:D:685:ILE:HG13	3:D:686:TRP:CD1	2.55	0.41
3:D:762:ASN:H	3:D:762:ASN:ND2	2.18	0.41
3:D:1372:ARG:HG2	3:D:1375:ALA:HB2	2.01	0.41
4:E:20:VAL:HG13	4:E:21:LEU:N	2.34	0.41
4:E:38:LEU:C	4:E:39:VAL:HG23	2.45	0.41
4:E:56:GLU:CG	4:E:57:GLY:N	2.83	0.41
4:E:86:ILE:CG2	4:E:87:ALA:N	2.83	0.41
1:A:185:TYR:HB2	1:A:201:LEU:HD11	2.02	0.41
1:B:7:GLU:CD	1:B:7:GLU:H	2.28	0.41
1:B:201:LEU:HD13	1:B:201:LEU:C	2.45	0.41
2:C:150:HIS:NE2	2:C:454:ARG:HD2	2.35	0.41
2:C:426:ILE:HG22	2:C:430:LYS:HE3	2.01	0.41
3:D:26:SER:O	3:D:30:ILE:HG13	2.20	0.41
3:D:450:HIS:HA	3:D:451:PRO:HD3	1.95	0.41
3:D:891:ASP:CG	3:D:892:PHE:H	2.28	0.41
4:E:30:MET:HE1	4:E:50:ALA:CA	2.49	0.41
1:B:10:LYS:HD2	1:B:30:PRO:HG2	2.01	0.41
2:C:698:PRO:HG3	2:C:1231:TYR:CE1	2.55	0.41
2:C:773:LEU:HD23	2:C:773:LEU:C	2.45	0.41
2:C:1246:ARG:HD2	2:C:1265:PHE:O	2.21	0.41
3:D:430:HIS:HE2	3:D:432:LEU:HB2	1.84	0.41
3:D:614:LEU:HD13	3:D:614:LEU:C	2.46	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:860:ARG:HD2	3:D:860:ARG:C	2.46	0.41
3:D:1263:LYS:O	3:D:1305:ASP:HB3	2.20	0.41
4:E:20:VAL:CG1	4:E:21:LEU:N	2.83	0.41
4:E:71:GLU:HG2	4:E:72:GLN:N	2.35	0.41
2:C:93:SER:OG	2:C:126:GLU:HB3	2.19	0.41
2:C:125:GLY:H	2:C:495:ALA:HB1	1.86	0.41
2:C:403:MET:HE3	2:C:586:PHE:CE2	2.55	0.41
3:D:506:VAL:HB	3:D:629:PHE:CZ	2.55	0.41
3:D:512:TYR:HE1	3:D:724:MET:HE1	1.81	0.41
1:A:90:VAL:HG21	1:A:146:VAL:HG21	2.02	0.41
1:A:188:GLU:OE2	1:A:200:LYS:HD2	2.20	0.41
1:B:135:ASP:O	1:B:136:GLU:C	2.63	0.41
2:C:316:GLU:HG3	2:C:352:ARG:NH2	2.35	0.41
2:C:1339:LEU:H	2:C:1339:LEU:CD2	2.34	0.41
3:D:905:ARG:HG3	4:E:16:ARG:NH2	2.34	0.41
3:D:1126:GLN:OE1	3:D:1170:LYS:HE3	2.21	0.41
3:D:1306:LEU:C	3:D:1306:LEU:HD13	2.45	0.41
1:A:148:ARG:HD3	1:A:148:ARG:C	2.45	0.41
1:A:168:ILE:HG21	2:C:864:LYS:NZ	2.35	0.41
2:C:685:MET:HA	2:C:685:MET:HE2	2.02	0.41
2:C:820:GLU:O	2:C:823:VAL:HG12	2.21	0.41
3:D:128:LEU:HD11	3:D:188:LEU:HB3	2.02	0.41
3:D:246:PRO:HA	3:D:247:PRO:HD3	1.85	0.41
3:D:292:VAL:HB	3:D:296:LYS:HE3	2.02	0.41
3:D:1199:PHE:HE2	3:D:1202:GLU:O	2.02	0.41
3:D:1229:VAL:O	3:D:1233:ILE:HG22	2.21	0.41
3:D:1380:ALA:C	3:D:1383:GLN:HG2	2.44	0.41
1:A:9:LEU:C	1:A:11:PRO:HD3	2.46	0.41
2:C:519:ASN:ND2	2:C:796:LEU:HD22	2.36	0.41
2:C:843:THR:HG22	2:C:844:LYS:N	2.36	0.41
2:C:1205:PRO:HB3	2:C:1210:ILE:HB	2.02	0.41
2:C:1276:TRP:HA	2:C:1279:GLU:HB3	2.01	0.41
3:D:127:LEU:HD23	3:D:127:LEU:C	2.46	0.41
3:D:641:ILE:HD13	3:D:641:ILE:C	2.45	0.41
3:D:978:ARG:HG2	3:D:979:ASN:N	2.35	0.41
3:D:1163:VAL:CG2	3:D:1175:LEU:HD11	2.50	0.41
1:A:64:VAL:HG13	1:A:69:SER:HB2	2.02	0.41
2:C:374:GLU:HA	2:C:375:PRO:HD3	1.92	0.41
2:C:384:LEU:C	2:C:384:LEU:HD23	2.45	0.41
2:C:519:ASN:O	2:C:523:GLU:HG3	2.21	0.41
2:C:559:CYS:HA	2:C:560:PRO:HD3	1.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:374:LEU:HD11	3:D:409:TRP:CH2	2.55	0.41
3:D:926:PRO:HB2	3:D:1241:TYR:CE2	2.56	0.41
3:D:978:ARG:CB	3:D:1199:PHE:HB3	2.50	0.41
3:D:1021:ASP:HA	3:D:1022:PRO:HD3	1.80	0.41
4:E:38:LEU:N	4:E:38:LEU:CD1	2.83	0.41
1:A:71:LYS:HG2	1:A:78:ILE:HD11	2.02	0.41
1:A:159:ILE:HA	1:A:172:LEU:HD22	2.02	0.41
1:B:172:LEU:H	1:B:172:LEU:CD1	2.23	0.41
1:B:198:LEU:N	1:B:198:LEU:HD22	2.36	0.41
2:C:807:TRP:HE1	2:C:1086:PRO:HD3	1.86	0.41
2:C:854:ILE:HD13	2:C:917:SER:HB3	2.03	0.41
2:C:870:ILE:HD13	2:C:944:ARG:HD3	2.03	0.41
2:C:1117:LEU:HD21	2:C:1182:ILE:HD11	2.03	0.41
2:C:1326:LEU:HD23	2:C:1326:LEU:C	2.45	0.41
3:D:27:PRO:HG3	3:D:240:THR:OG1	2.20	0.41
3:D:120:LEU:HD13	3:D:120:LEU:C	2.46	0.41
3:D:239:LEU:C	3:D:239:LEU:HD23	2.46	0.41
3:D:279:LEU:O	3:D:279:LEU:HD23	2.21	0.41
3:D:381:ILE:HG23	3:D:411:ILE:HD12	2.03	0.41
3:D:401:VAL:O	3:D:401:VAL:HG22	2.21	0.41
4:E:54:ILE:H	4:E:54:ILE:CD1	2.33	0.41
1:A:2:GLN:H	1:A:2:GLN:CD	2.28	0.41
1:B:65:LEU:HD13	1:B:65:LEU:C	2.46	0.41
2:C:11:ILE:O	2:C:13:LYS:HG3	2.21	0.41
2:C:216:THR:O	2:C:220:ILE:HG13	2.21	0.41
2:C:403:MET:HG2	2:C:407:ARG:NH1	2.36	0.41
2:C:447:HIS:CD2	2:C:553:THR:HG21	2.56	0.41
2:C:1212:LEU:HB3	2:C:1213:TYR:H	1.77	0.41
3:D:541:LEU:HD13	3:D:541:LEU:C	2.46	0.41
3:D:555:TYR:CE1	3:D:564:VAL:HG21	2.56	0.41
3:D:663:GLU:O	3:D:667:GLN:HG3	2.21	0.41
1:A:10:LYS:HE2	1:A:30:PRO:HB2	2.03	0.40
1:A:44:ARG:HE	1:A:48:LEU:HD11	1.86	0.40
1:A:228:LEU:HG	1:B:224:LEU:HD23	2.02	0.40
1:B:59:VAL:HG22	1:B:144:ILE:HG13	2.03	0.40
3:D:362:ARG:HH21	3:D:365:GLN:HE21	1.69	0.40
3:D:719:PHE:HA	3:D:724:MET:SD	2.62	0.40
3:D:761:ALA:H	3:D:771:GLN:HE22	1.68	0.40
3:D:1221:LEU:C	3:D:1221:LEU:HD13	2.45	0.40
3:D:1318:SER:HB3	3:D:1320:ILE:HD13	2.02	0.40
3:D:1347:LEU:O	3:D:1351:VAL:HG23	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:4:VAL:O	4:E:5:THR:HG22	2.21	0.40
4:E:63:ILE:CG2	4:E:64:LEU:N	2.82	0.40
1:B:109:PRO:HG3	1:B:132:HIS:CE1	2.57	0.40
2:C:849:GLU:O	2:C:887:VAL:HG12	2.20	0.40
2:C:967:LEU:O	2:C:971:LEU:HD13	2.21	0.40
2:C:1103:VAL:H	2:C:1104:PRO:HD2	1.87	0.40
3:D:119:SER:OG	3:D:121:PRO:HD2	2.21	0.40
3:D:126:LEU:HD22	3:D:223:LEU:HD12	2.03	0.40
3:D:1323:ALA:HA	3:D:1328:THR:HG22	2.03	0.40
4:E:63:ILE:O	4:E:64:LEU:HD12	2.21	0.40
3:D:148:GLU:HB3	3:D:187:ALA:CB	2.51	0.40
3:D:253:VAL:HA	3:D:254:PRO:HD3	1.93	0.40
3:D:720:ASN:HB3	3:D:723:TYR:HB3	2.03	0.40
1:A:124:VAL:C	1:A:126:PRO:HD3	2.46	0.40
2:C:84:GLU:O	2:C:88:ARG:HB2	2.22	0.40
3:D:71:LEU:HD22	3:D:71:LEU:N	2.36	0.40
3:D:405:GLU:HG2	3:D:407:VAL:H	1.87	0.40
3:D:1077:ALA:HB2	3:D:1100:PHE:CD1	2.57	0.40
3:D:1184:ASP:N	3:D:1185:PRO:CD	2.84	0.40
3:D:1320:ILE:H	3:D:1320:ILE:CD1	2.29	0.40
1:A:159:ILE:HD13	1:A:159:ILE:C	2.47	0.40
2:C:511:LEU:HD13	2:C:533:LEU:O	2.22	0.40
2:C:864:LYS:HE2	2:C:864:LYS:N	2.37	0.40
2:C:1064:ASP:OD2	2:C:1234:LYS:HE3	2.21	0.40
2:C:1131:MET:HB3	2:C:1145:ILE:HD12	2.02	0.40
3:D:388:ARG:HB3	3:D:389:GLY:H	1.80	0.40
3:D:429:LEU:HB3	3:D:925:GLU:HB2	2.04	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	233/329 (71%)	196 (84%)	31 (13%)	6 (3%)	4	25
1	B	233/329 (71%)	197 (84%)	28 (12%)	8 (3%)	3	21
2	C	1333/1342 (99%)	1109 (83%)	190 (14%)	34 (3%)	4	25
3	D	1362/1407 (97%)	1124 (82%)	198 (14%)	40 (3%)	3	23
4	E	87/91 (96%)	74 (85%)	10 (12%)	3 (3%)	3	21
All	All	3248/3498 (93%)	2700 (83%)	457 (14%)	91 (3%)	6	24

All (91) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	159	ILE
1	A	166	ARG
1	B	124	VAL
2	C	489	PRO
2	C	582	ASN
2	C	1182	ILE
3	D	903	LEU
4	E	39	VAL
4	E	46	THR
4	E	48	VAL
2	C	483	ASP
2	C	807	TRP
3	D	741	ALA
3	D	745	GLY
3	D	839	VAL
3	D	857	LEU
3	D	937	ILE
3	D	1134	ILE
3	D	1179	PRO
3	D	1224	ARG
3	D	1293	GLU
3	D	1296	GLY
1	A	62	ASP
1	A	137	ASN
1	B	49	SER
1	B	93	GLN
1	B	165	GLU
1	B	194	GLN
2	C	64	GLY
2	C	81	ASP
2	C	140	GLY

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Mol	Chain	Res	Type
2	C	544	GLY
2	C	812	PHE
2	C	813	GLU
2	C	1048	LYS
2	C	1204	LEU
3	D	66	LYS
3	D	229	GLN
3	D	285	LEU
3	D	359	PRO
3	D	594	GLN
3	D	612	LEU
3	D	813	ASP
3	D	899	TYR
1	A	194	GLN
2	C	44	GLU
2	C	92	TYR
2	C	134	GLY
2	C	398	SER
2	C	492	MET
2	C	496	LYS
2	C	573	ASN
2	C	940	GLU
2	C	1123	GLY
2	C	1185	PRO
3	D	153	ASN
3	D	494	ALA
3	D	728	SER
3	D	850	LYS
3	D	1131	THR
1	A	179	PRO
1	B	21	SER
1	B	159	ILE
2	C	13	LYS
2	C	746	ALA
2	C	1223	ARG
2	C	1296	ASP
3	D	64	PRO
3	D	463	GLY
3	D	588	PRO
3	D	671	GLY
3	D	675	ALA
3	D	729	GLY

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Mol	Chain	Res	Type
3	D	1183	SER
3	D	1344	LEU
1	B	69	SER
2	C	1103	VAL
2	C	1341	ASP
3	D	859	PRO
2	C	577	VAL
3	D	742	GLY
2	C	700	VAL
3	D	247	PRO
3	D	828	GLY
2	C	178	PRO
2	C	488	MET
2	C	1124	ILE
3	D	752	GLY
3	D	1191	PRO
3	D	1201	GLY
3	D	1360	GLY

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	202/286 (71%)	195 (96%)	7 (4%)	32	53
1	B	202/286 (71%)	199 (98%)	3 (2%)	57	72
2	C	1150/1157 (99%)	1139 (99%)	11 (1%)	68	78
3	D	1129/1168 (97%)	1092 (97%)	37 (3%)	33	55
4	E	73/75 (97%)	71 (97%)	2 (3%)	39	61
All	All	2756/2972 (93%)	2696 (98%)	60 (2%)	45	64

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

Mol	Chain	Res	Type
1	A	2	GLN

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Mol	Chain	Res	Type
1	A	65	LEU
1	A	71	LYS
1	A	159	ILE
1	A	168	ILE
1	A	171	LEU
1	A	234	LEU
1	B	71	LYS
1	B	124	VAL
1	B	172	LEU
2	C	17	LYS
2	C	59	ILE
2	C	120	GLN
2	C	161	LYS
2	C	169	LYS
2	C	864	LYS
2	C	1065	LYS
2	C	1108	ASN
2	C	1176	LEU
2	C	1210	ILE
2	C	1314	GLN
3	D	84	ILE
3	D	118	LYS
3	D	132	LEU
3	D	159	ILE
3	D	160	LEU
3	D	201	LEU
3	D	222	LYS
3	D	232	ASN
3	D	255	LEU
3	D	296	LYS
3	D	332	LYS
3	D	411	ILE
3	D	500	ILE
3	D	506	VAL
3	D	521	LYS
3	D	549	LYS
3	D	566	LYS
3	D	591	ILE
3	D	641	ILE
3	D	644	MET
3	D	674	THR
3	D	678	ARG

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Mol	Chain	Res	Type
3	D	680	ASN
3	D	759	ILE
3	D	762	ASN
3	D	767	LEU
3	D	875	ASN
3	D	911	LYS
3	D	1156	LEU
3	D	1210	ILE
3	D	1220	ILE
3	D	1231	ARG
3	D	1263	LYS
3	D	1266	ILE
3	D	1297	LYS
3	D	1320	ILE
3	D	1348	LYS
4	E	31	GLN
4	E	49	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (87) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	2	GLN
1	A	84	ASN
1	A	93	GLN
1	A	227	GLN
1	B	18	GLN
1	B	75	GLN
1	B	93	GLN
1	B	127	GLN
1	B	128	HIS
1	B	160	HIS
2	C	31	GLN
2	C	41	GLN
2	C	83	GLN
2	C	120	GLN
2	C	165	HIS
2	C	238	GLN
2	C	258	ASN
2	C	330	HIS
2	C	437	ASN
2	C	462	ASN
2	C	463	GLN

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Mol	Chain	Res	Type
2	C	490	GLN
2	C	510	GLN
2	C	517	GLN
2	C	518	ASN
2	C	519	ASN
2	C	551	HIS
2	C	580	GLN
2	C	613	ASN
2	C	618	GLN
2	C	649	GLN
2	C	659	GLN
2	C	688	GLN
2	C	737	ASN
2	C	798	GLN
2	C	799	ASN
2	C	932	GLN
2	C	955	GLN
2	C	1013	GLN
2	C	1023	HIS
2	C	1072	ASN
2	C	1080	ASN
2	C	1090	ASN
2	C	1108	ASN
2	C	1111	GLN
2	C	1116	HIS
2	C	1209	GLN
2	C	1220	GLN
2	C	1256	GLN
2	C	1288	GLN
2	C	1299	ASN
2	C	1313	HIS
3	D	164	GLN
3	D	186	GLN
3	D	232	ASN
3	D	274	ASN
3	D	294	ASN
3	D	340	GLN
3	D	365	GLN
3	D	435	GLN
3	D	448	GLN
3	D	545	HIS
3	D	594	GLN

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Mol	Chain	Res	Type
3	D	665	GLN
3	D	680	ASN
3	D	720	ASN
3	D	739	GLN
3	D	762	ASN
3	D	792	ASN
3	D	817	HIS
3	D	867	GLN
3	D	875	ASN
3	D	907	HIS
3	D	921	GLN
3	D	951	GLN
3	D	954	ASN
3	D	1019	ASN
3	D	1114	GLN
3	D	1197	ASN
3	D	1238	GLN
3	D	1259	GLN
3	D	1279	GLN
3	D	1295	ASN
3	D	1366	HIS
3	D	1383	GLN
4	E	31	GLN
4	E	62	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

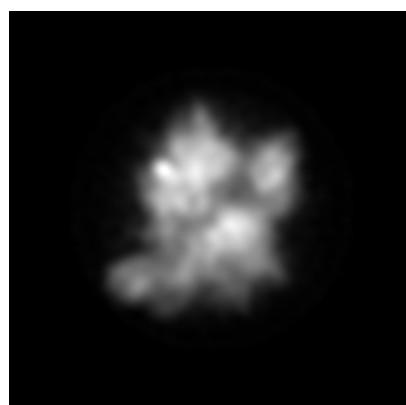
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-5169. These allow visual inspection of the internal detail of the map and identification of artifacts.

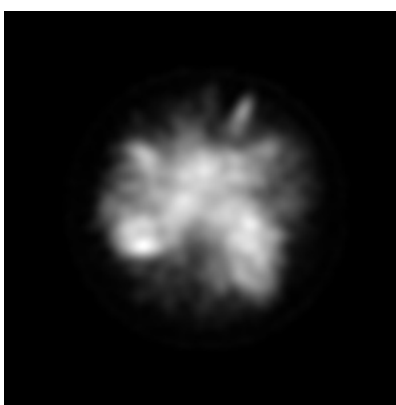
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

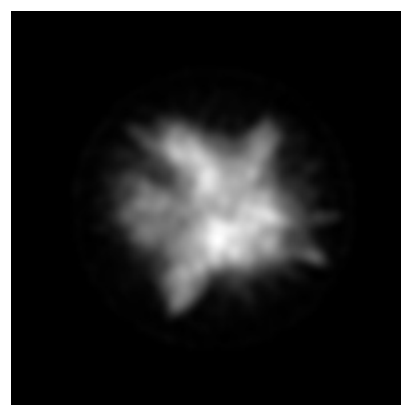
6.1.1 Primary map



X



Y

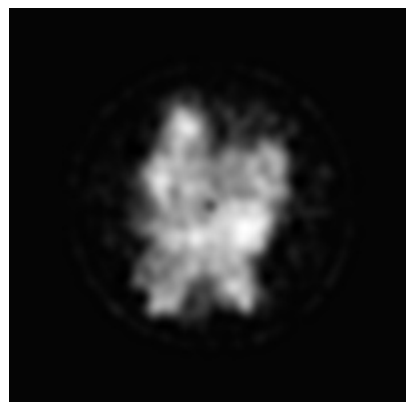


Z

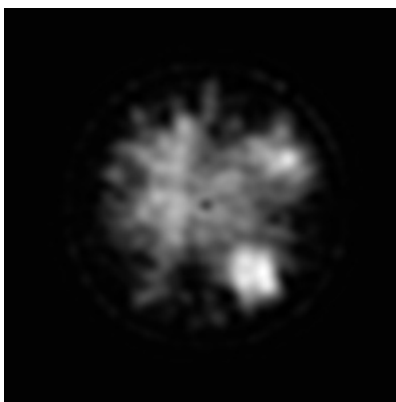
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

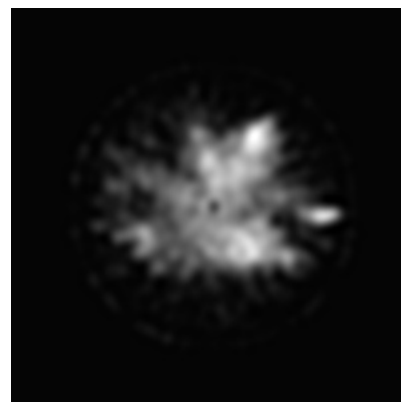
6.2.1 Primary map



X Index: 45



Y Index: 45

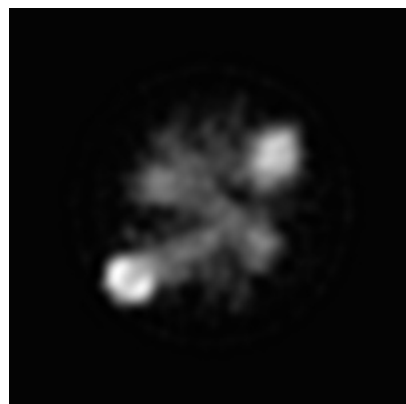


Z Index: 45

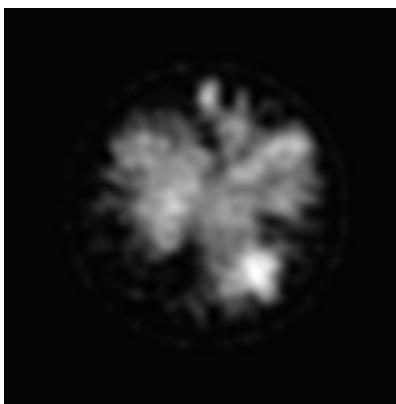
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

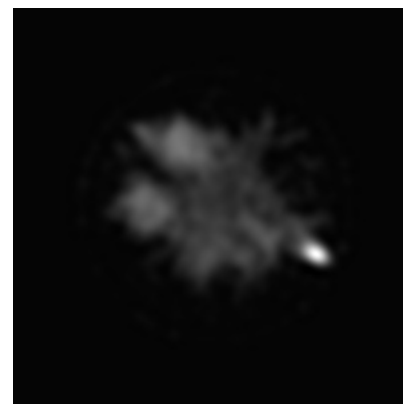
6.3.1 Primary map



X Index: 38



Y Index: 42

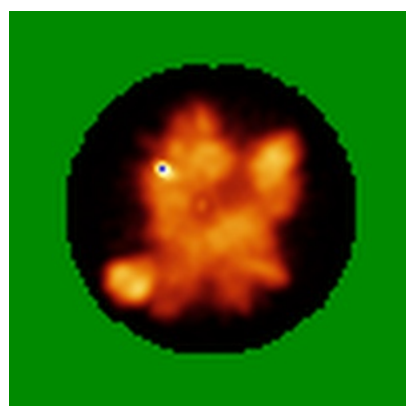


Z Index: 54

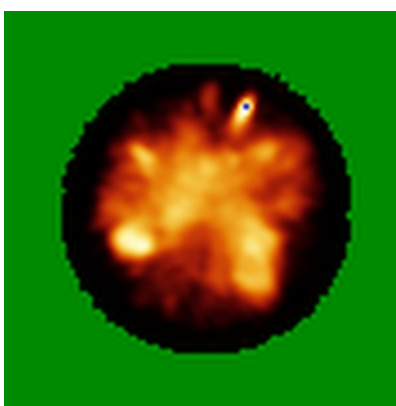
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

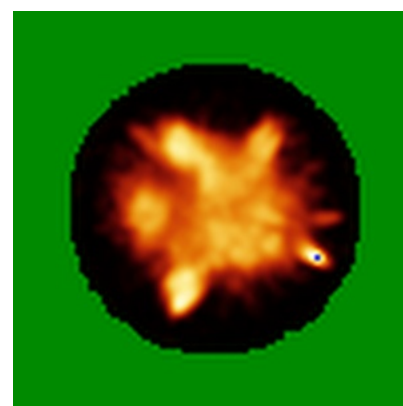
6.4.1 Primary map



X



Y

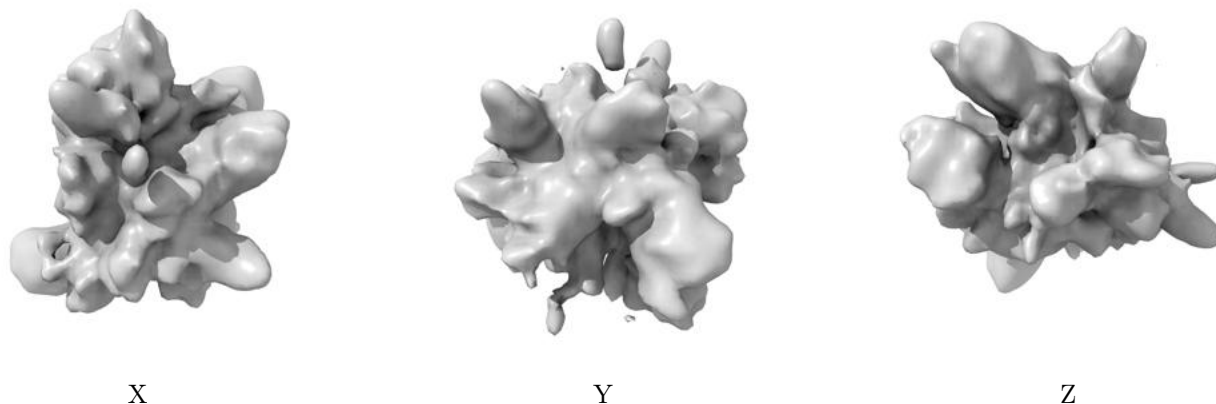


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 11.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

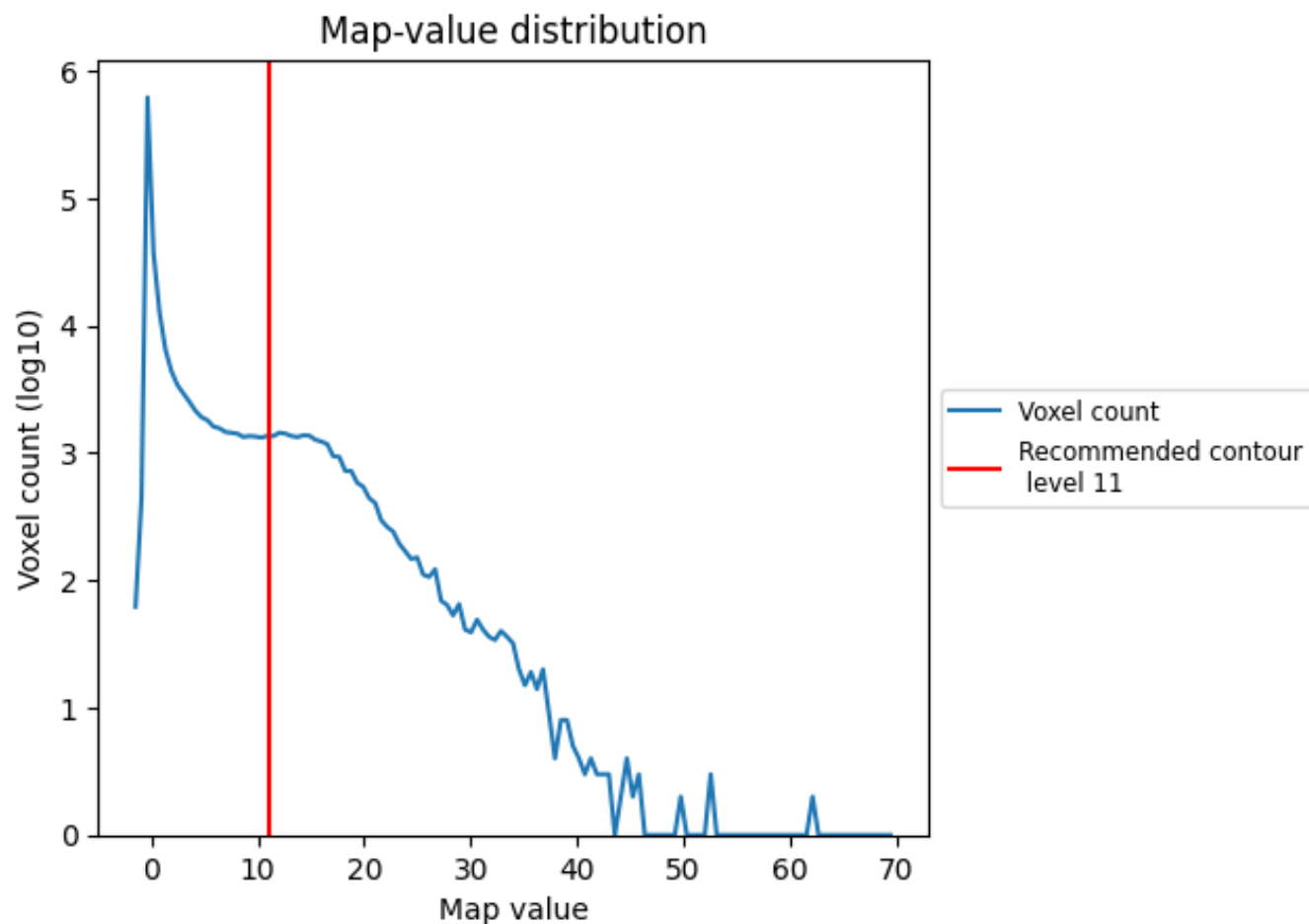
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

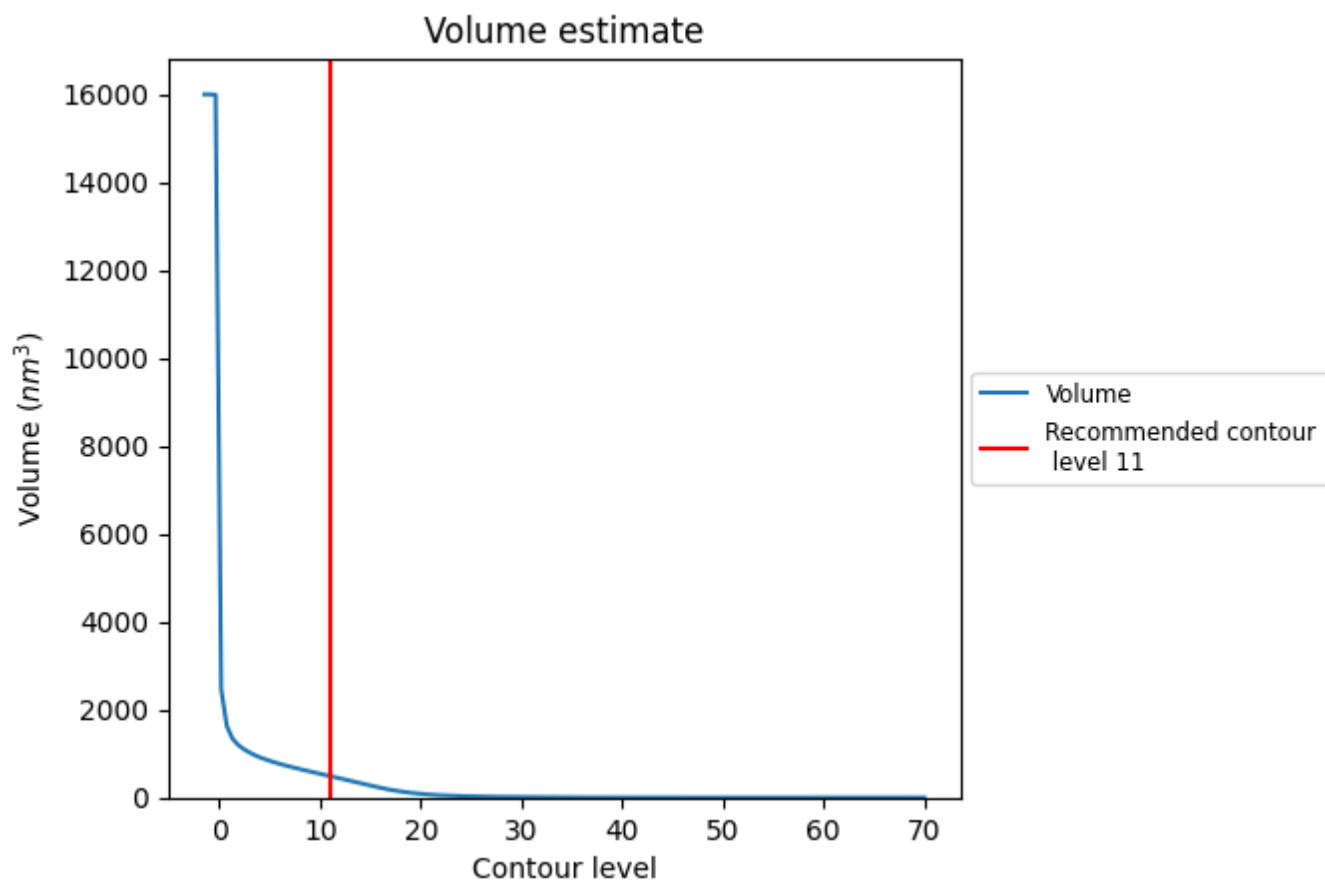
This section contains the results of statistical analysis of the map.

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.

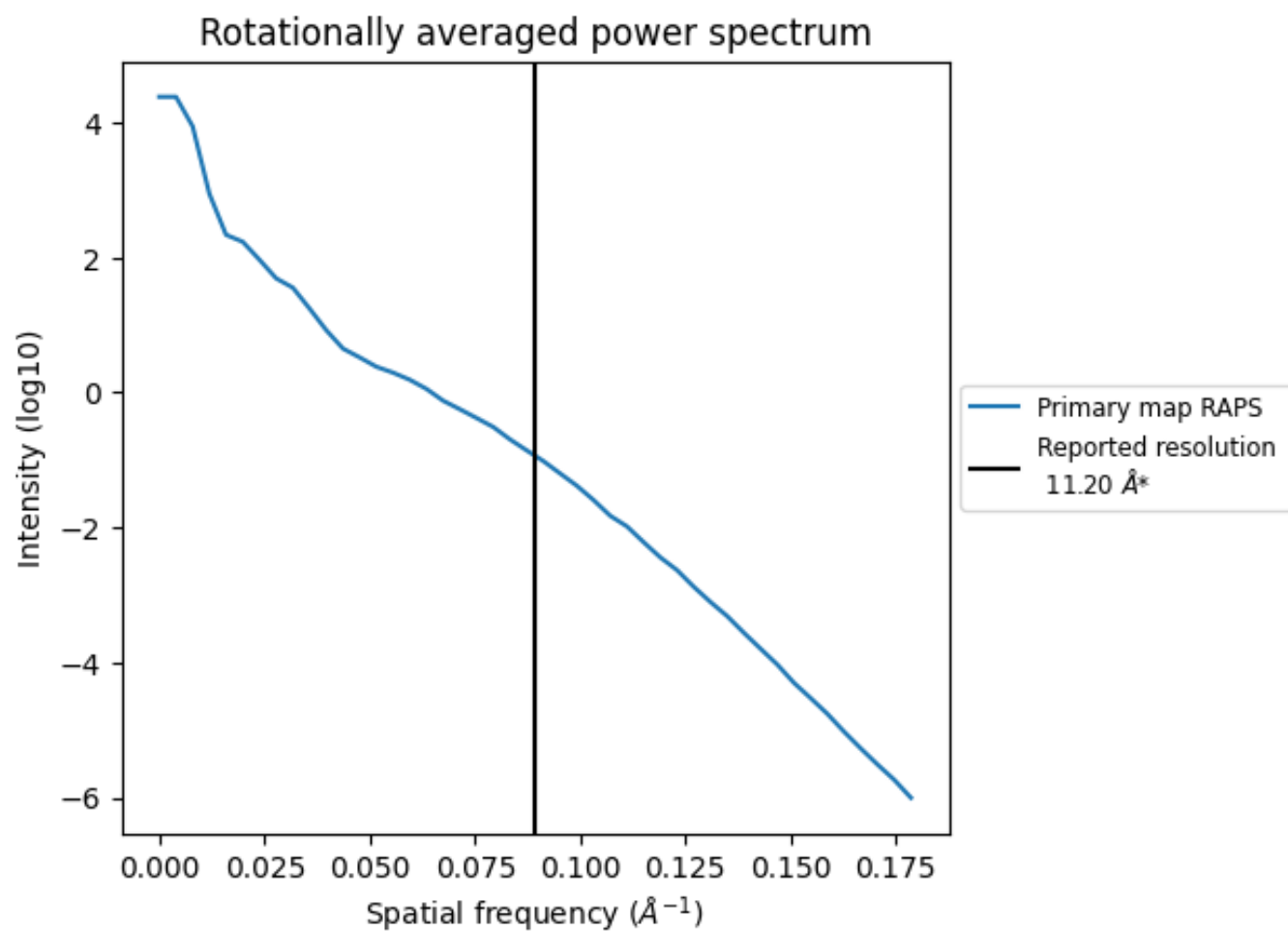
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 488 nm³; this corresponds to an approximate mass of 441 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.089 Å⁻¹

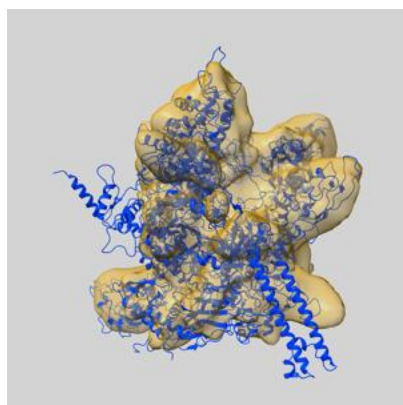
8 Fourier-Shell correlation

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

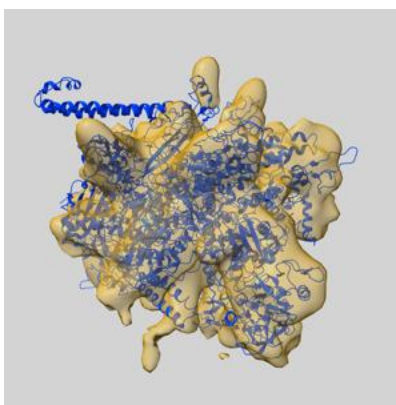
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-5169 and PDB model 3LU0. Per-residue inclusion information can be found in [section 3](#) on [page 6](#).

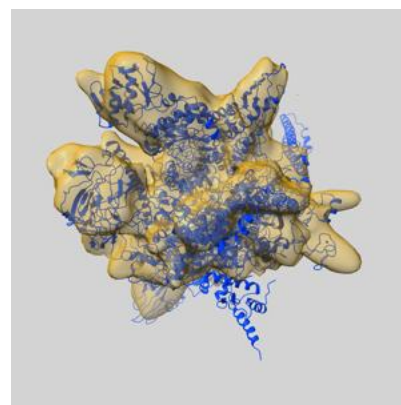
9.1 Map-model overlay [i](#)



X



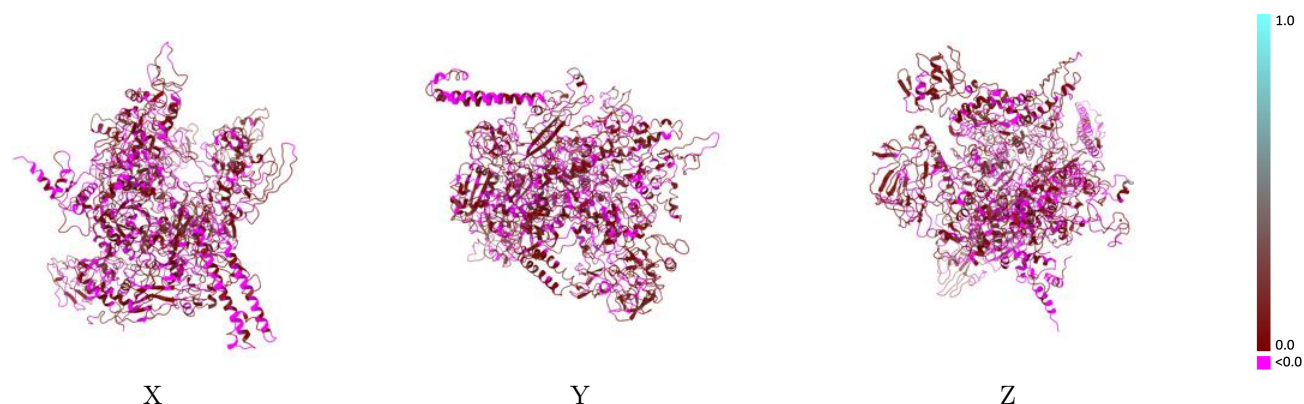
Y



Z

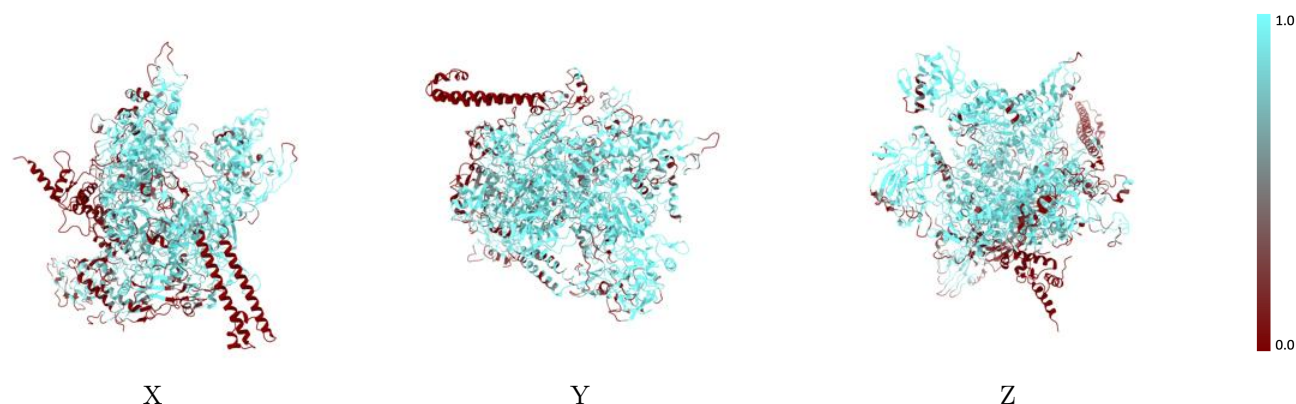
The images above show the 3D surface view of the map at the recommended contour level 11.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



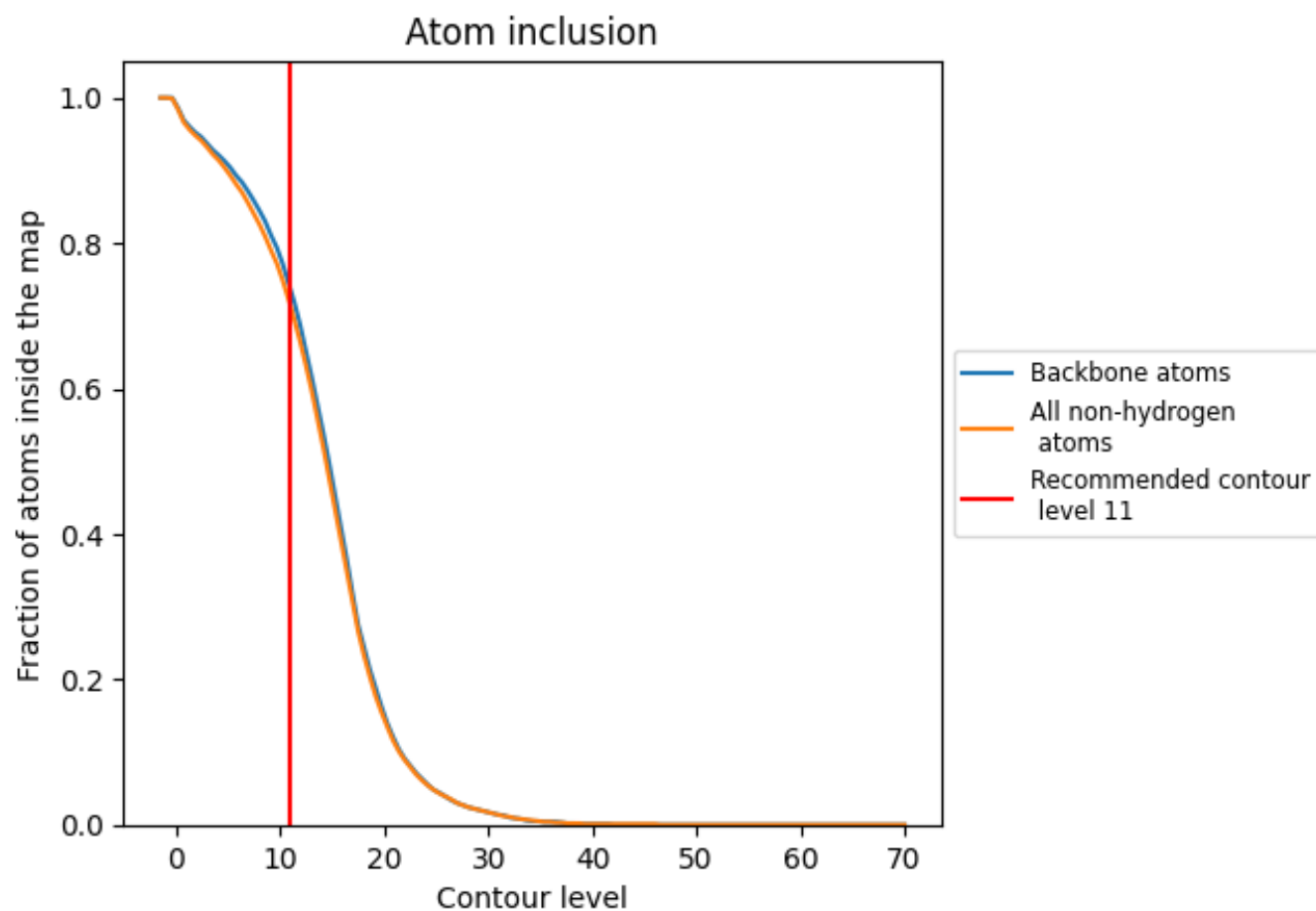
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (11).

9.4 Atom inclusion [i](#)



At the recommended contour level, 74% of all backbone atoms, 71% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (11) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7140	0.0350
A	0.5290	0.0420
B	0.5290	0.0160
C	0.7860	0.0390
D	0.7530	0.0370
E	0.0030	-0.0260

