



## Full wwPDB EM Validation Report ⓘ

Dec 16, 2024 – 05:37 PM EST

PDB ID : 7K04  
EMDB ID : EMD-22588  
Title : Structure of TFIIH/Rad4-Rad23-Rad33/DNA in DNA opening  
Authors : van Eeuwen, T.; Min, J.H.; Murakami, K.  
Deposited on : 2020-09-03  
Resolution : 9.25 Å (reported)  
Based on initial model : 6CFI

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

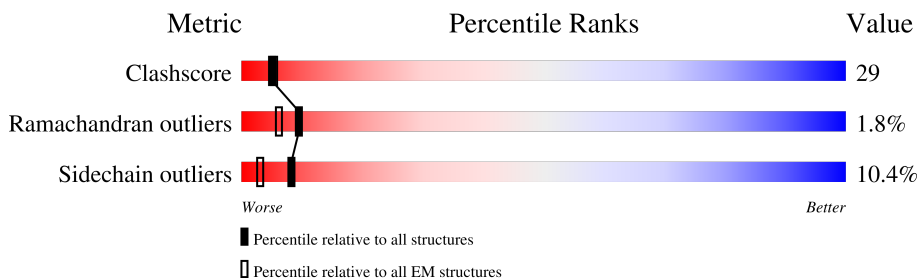
EMDB validation analysis : 0.0.1.dev113  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4.02b-467  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.40

# 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 9.25 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	E	177	
2	2	513	
3	0	778	
4	1	642	
5	4	338	
6	6	461	
7	Y	27	
8	W	29	

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Mol	Chain	Length	Quality of chain
9	A	754	
10	7	843	
11	5	72	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
13	SF4	0	801	-	-	X	-

## 2 Entry composition [i](#)

There are 14 unique types of molecules in this entry. The entry contains 32727 atoms, of which 4782 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 repair protein RAD33.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	E	62	476	301	77	92	6	0	0

- Molecule 2 is a protein called General transcription and DNA repair factor IIIH subunit TFB2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	2	460	3011	1856	562	584	9	0	0

- Molecule 3 is a protein called DNA repair helicase RAD3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	0	754	6108	3891	1032	1147	38	0	0

- Molecule 4 is a protein called General transcription and DNA repair factor IIIH subunit TFB1.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
4	1	487	4240	2123	884	605	616	12	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	1	PRO	-	insertion	UNP P32776

- Molecule 5 is a protein called General transcription and DNA repair factor IIIH subunit TFB4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	4	284	2041	1310	343	376	12	0	0

- Molecule 6 is a protein called General transcription and DNA repair factor IIIH subunit SSL1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	6	351	2526	1589	454	456	27	0	0

- Molecule 7 is a DNA chain called Damaged DNA strand.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			P
7	Y	25	717	256	183	92	160	26	0	0

- Molecule 8 is a DNA chain called Undamaged DNA strand.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			P
8	W	29	758	282	170	111	167	28	0	0

- Molecule 9 is a protein called DNA repair protein RAD4.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
9	A	524	7859	2747	3545	774	766	27	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	223	GLU	VAL	conflict	UNP P14736
A	427	ARG	GLN	conflict	UNP P14736

- Molecule 10 is a protein called DNA repair helicase RAD25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	7	638	4478	2739	832	883	24	0	0

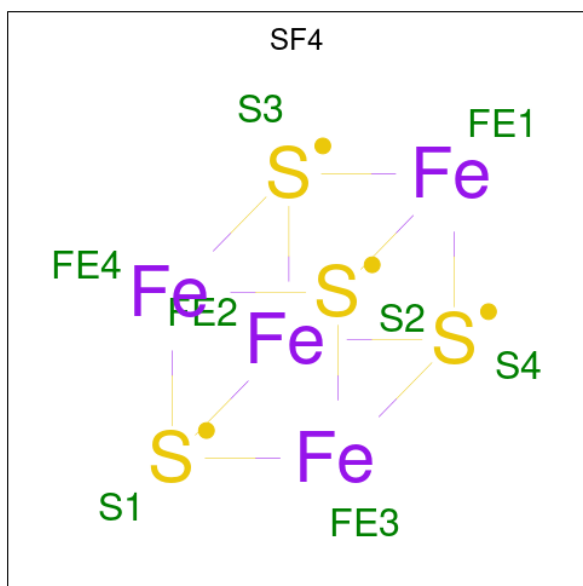
- Molecule 11 is a protein called RNA polymerase II transcription factor B subunit 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	5	66	498	314	89	93	2	0	0

- Molecule 12 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
12	E	2	Total	Ca	0
			2	2	

- Molecule 13 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe<sub>4</sub>S<sub>4</sub>).



Mol	Chain	Residues	Atoms			AltConf
13	0	1	Total	Fe	S	0
			8	4	4	

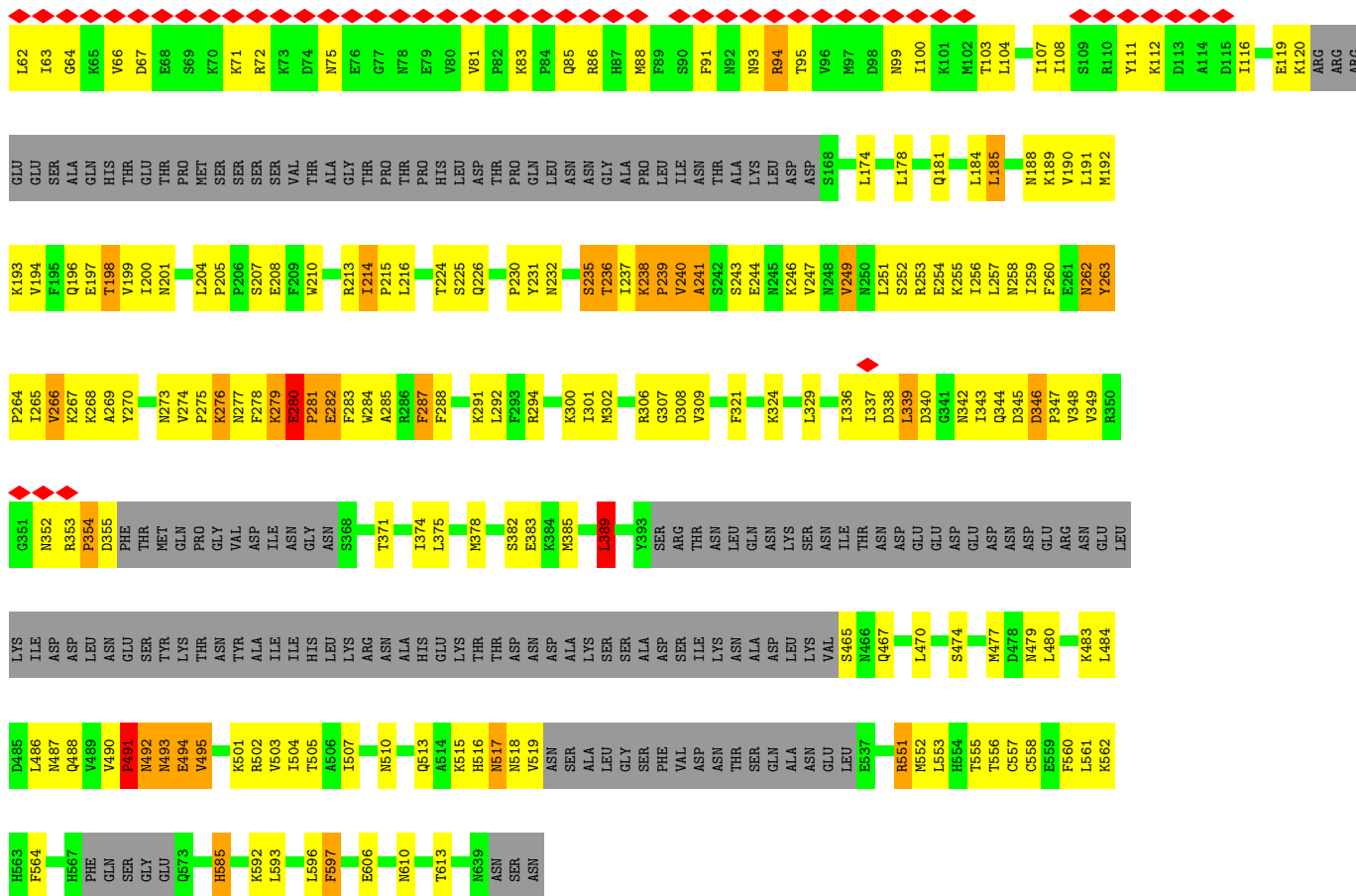
- Molecule 14 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
14	4	1	Total	Zn	0
			1	1	
14	6	4	Total	Zn	0
			4	4	

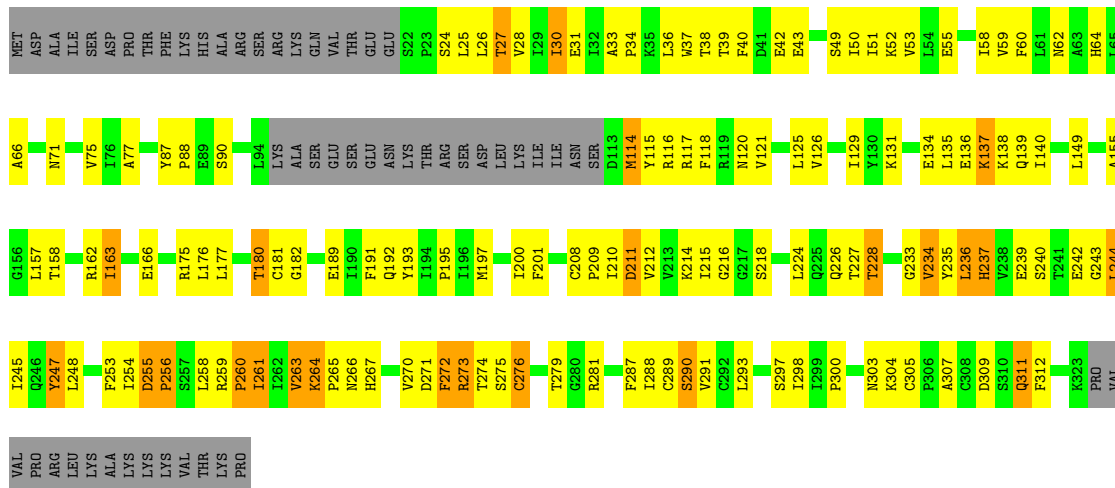








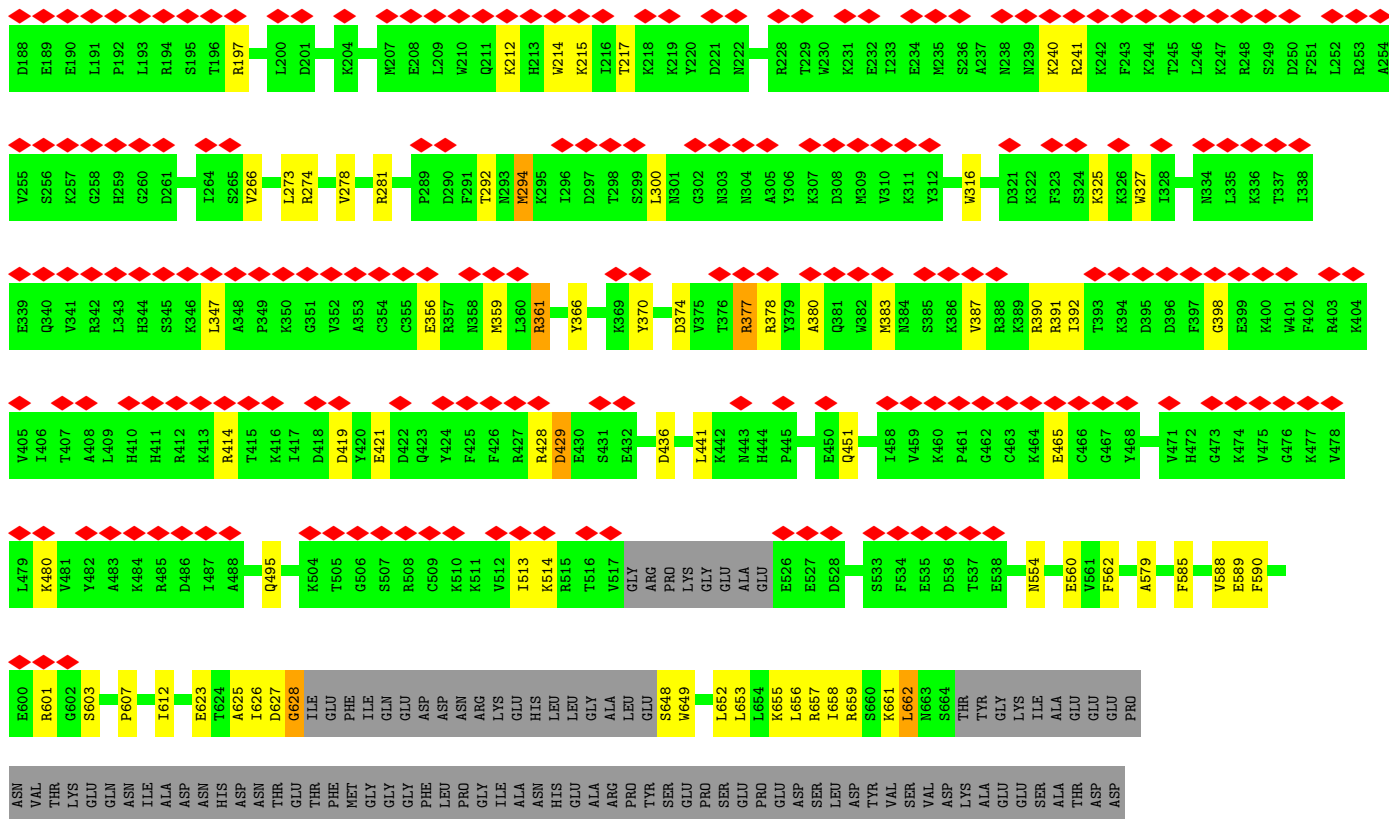
● Molecule 5: General transcription and DNA repair factor IIIH subunit TFB4



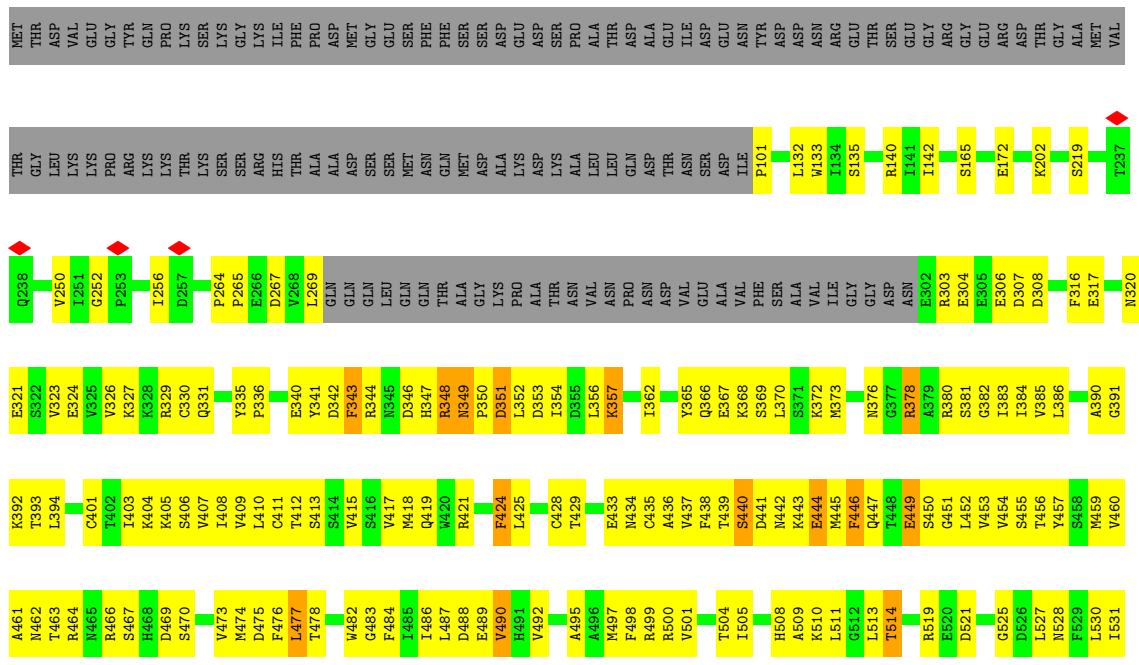
● Molecule 6: General transcription and DNA repair factor IIIH subunit SSL1

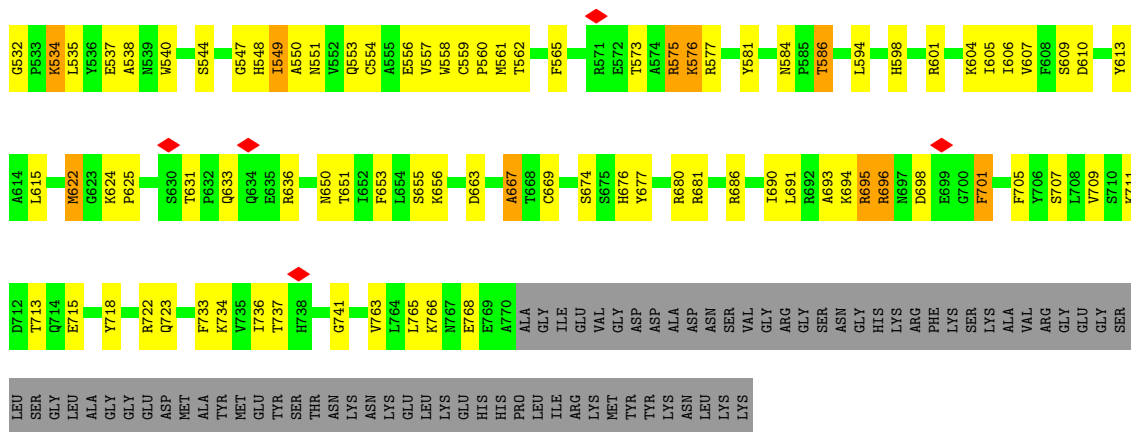






• Molecule 10: DNA repair helicase RAD25





• Molecule 11: RNA polymerase II transcription factor B subunit 5



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	73146	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.007	Depositor
Minimum map value	0.000	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.000	Depositor
Recommended contour level	0.00167	Depositor
Map size (Å)	324.0, 324.0, 324.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	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: T64, CA, SF4, 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	E	0.38	0/479	0.81	2/644 (0.3%)
2	2	0.28	0/3057	0.47	0/4071
3	0	0.54	0/6226	0.54	0/8407
4	1	0.37	0/3400	0.51	2/4618 (0.0%)
5	4	0.52	0/2072	0.57	0/2819
6	6	0.54	0/2571	0.57	1/3494 (0.0%)
7	Y	1.01	3/552 (0.5%)	1.33	4/848 (0.5%)
8	W	0.92	1/660 (0.2%)	1.51	8/1015 (0.8%)
9	A	0.33	0/4404	0.56	2/5919 (0.0%)
10	7	0.34	0/4552	0.58	3/6078 (0.0%)
11	5	0.23	0/502	0.47	0/677
All	All	0.46	4/28475 (0.0%)	0.62	22/38590 (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
7	Y	0	1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	W	15	DA	O3'-P	9.91	1.73	1.61
7	Y	5	DA	P-O5'	5.70	1.65	1.59
7	Y	3	DC	C1'-N1	-5.35	1.39	1.47
7	Y	3	DC	C3'-O3'	-5.09	1.37	1.44

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	W	28	DT	O5'-P-OP1	-26.89	78.44	110.70
8	W	26	DG	O5'-P-OP1	-14.80	92.38	105.70
9	A	628	GLY	N-CA-C	10.82	140.15	113.10
8	W	28	DT	O5'-P-OP2	10.40	123.18	110.70
8	W	27	DA	OP1-P-O3'	8.39	123.66	105.20
1	E	101	LEU	CA-CB-CG	-7.30	98.52	115.30
7	Y	3	DC	O5'-P-OP1	-7.28	99.15	105.70
8	W	28	DT	OP1-P-OP2	-6.97	109.14	119.60
10	7	351	ASP	N-CA-C	6.94	129.74	111.00
4	1	491	PRO	N-CA-CB	6.81	111.47	103.30
7	Y	11	DG	O4'-C1'-N9	6.61	112.62	108.00
10	7	351	ASP	CB-CA-C	-6.44	97.52	110.40
10	7	547	GLY	N-CA-C	6.35	128.98	113.10
4	1	354	PRO	N-CA-CB	6.26	110.81	103.30
8	W	25	DA	OP1-P-O3'	6.20	118.83	105.20
7	Y	4	DA	P-O3'-C3'	6.09	127.00	119.70
1	E	137	ILE	CB-CA-C	6.02	123.65	111.60
6	6	448	LEU	CA-CB-CG	5.99	129.08	115.30
8	W	9	DA	O4'-C1'-C2'	-5.83	101.23	105.90
7	Y	3	DC	OP1-P-OP2	5.71	128.17	119.60
8	W	3	DG	O4'-C1'-N9	5.29	111.71	108.00
9	A	601	ARG	C-N-CA	5.15	133.12	122.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	Y	-3	DA	Sidechain

## 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	E	476	0	487	127	0
2	2	3011	0	2600	182	0
3	0	6108	0	6167	406	0
4	1	3356	884	2945	287	0
5	4	2041	0	1953	151	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	6	2526	0	2333	124	0
7	Y	534	183	298	45	0
8	W	588	170	327	21	0
9	A	4314	3545	4388	126	0
10	7	4478	0	3928	268	0
11	5	498	0	506	35	0
12	E	2	0	0	0	0
13	0	8	0	0	2	0
14	4	1	0	0	0	0
14	6	4	0	0	0	0
All	All	27945	4782	25932	1534	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 29.

All (1534) 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:E:149:ILE:HG12	9:A:649:TRP:CZ2	1.31	1.65
1:E:149:ILE:HA	9:A:649:TRP:CZ2	1.27	1.65
4:1:270:TYR:CE1	4:1:279:LYS:HE3	1.26	1.62
1:E:149:ILE:CG1	9:A:649:TRP:CH2	1.78	1.60
4:1:279:LYS:HA	4:1:283:PHE:CB	1.27	1.56
1:E:149:ILE:CA	9:A:649:TRP:HZ2	1.19	1.50
1:E:149:ILE:HG12	9:A:649:TRP:CH2	0.96	1.46
1:E:130:LEU:CD2	1:E:149:ILE:HG13	0.89	1.36
7:Y:4:DA:OP1	10:7:439:THR:HG22	1.25	1.36
7:Y:4:DA:O5'	10:7:441:ASP:HB2	1.25	1.35
1:E:130:LEU:HD22	1:E:149:ILE:CG1	0.89	1.35
2:2:336:ASP:O	2:2:351:SER:HB3	1.20	1.34
1:E:149:ILE:CA	9:A:649:TRP:CZ2	1.97	1.34
1:E:148:MET:C	9:A:649:TRP:HE1	1.27	1.33
4:1:270:TYR:CZ	4:1:279:LYS:HE3	1.64	1.32
4:1:486:LEU:CB	5:4:55:GLU:OE2	1.78	1.31
4:1:491:PRO:CB	5:4:245:ILE:HD11	1.64	1.27
1:E:148:MET:C	9:A:649:TRP:NE1	1.89	1.24
4:1:279:LYS:CA	4:1:283:PHE:CB	2.13	1.24
4:1:491:PRO:O	5:4:245:ILE:HD12	1.33	1.22
1:E:149:ILE:CD1	9:A:649:TRP:HH2	1.51	1.22
4:1:270:TYR:CE1	4:1:279:LYS:CE	2.22	1.21
1:E:130:LEU:HD22	1:E:149:ILE:CD1	1.69	1.21

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:454:TYR:CE1	11:5:11:GLN:HB3	1.77	1.20
4:1:486:LEU:CA	5:4:55:GLU:OE2	1.90	1.20
3:0:112:LYS:HE2	4:1:345:ASP:OD2	1.42	1.19
4:1:279:LYS:HB3	4:1:283:PHE:CG	1.78	1.19
1:E:149:ILE:CD1	9:A:649:TRP:CH2	2.26	1.18
4:1:279:LYS:HA	4:1:283:PHE:HB3	1.19	1.18
5:4:255:ASP:H	5:4:256:PRO:CD	1.55	1.17
4:1:270:TYR:CE2	4:1:279:LYS:HB2	1.80	1.16
4:1:279:LYS:CA	4:1:283:PHE:HB3	1.75	1.15
5:4:255:ASP:H	5:4:256:PRO:HD3	1.04	1.14
1:E:130:LEU:HD21	1:E:149:ILE:HG13	1.27	1.14
3:0:112:LYS:CG	4:1:345:ASP:HB3	1.76	1.14
10:7:610:ASP:OD2	10:7:676:HIS:HB2	1.46	1.13
1:E:128:LYS:HD3	10:7:765:LEU:HD22	1.30	1.12
3:0:545:LEU:HD23	4:1:355:ASP:C	1.70	1.12
4:1:280:GLU:HB3	4:1:281:PRO:HD3	1.28	1.12
4:1:491:PRO:CB	5:4:245:ILE:CD1	2.27	1.12
1:E:149:ILE:CG1	9:A:649:TRP:CZ2	2.12	1.11
3:0:576:ALA:CB	4:1:343:ILE:HG12	1.81	1.10
4:1:510:ASN:ND2	5:4:265:PRO:O	1.82	1.10
2:2:450:ARG:HD2	11:5:54:LEU:HD11	1.30	1.09
2:2:338:SER:CA	2:2:407:GLN:OE1	2.00	1.09
3:0:112:LYS:HG2	4:1:345:ASP:HB3	1.34	1.09
2:2:346:LYS:HE2	2:2:377:GLN:HB2	1.24	1.08
4:1:280:GLU:CB	4:1:281:PRO:HD3	1.84	1.07
7:Y:4:DA:P	10:7:439:THR:HG22	1.93	1.07
3:0:580:SER:HA	4:1:339:LEU:HD23	1.12	1.06
2:2:416:LEU:CA	2:2:432:VAL:HG12	1.83	1.05
4:1:486:LEU:O	5:4:55:GLU:CD	1.94	1.05
3:0:127:THR:HG22	4:1:348:VAL:HG12	1.31	1.04
4:1:270:TYR:CZ	4:1:279:LYS:HB2	1.92	1.04
3:0:112:LYS:HG2	4:1:345:ASP:CB	1.87	1.04
1:E:148:MET:CB	9:A:649:TRP:CD1	2.42	1.03
3:0:545:LEU:HD23	4:1:355:ASP:O	1.56	1.03
2:2:458:LEU:HB3	11:5:5:ARG:HB2	1.37	1.03
1:E:148:MET:HB3	9:A:649:TRP:CD1	1.92	1.02
4:1:270:TYR:CZ	4:1:279:LYS:CE	2.42	1.01
2:2:416:LEU:HA	2:2:432:VAL:CG1	1.91	1.00
3:0:580:SER:HA	4:1:339:LEU:CD2	1.91	1.00
7:Y:4:DA:O5'	10:7:441:ASP:CB	2.10	0.98
3:0:580:SER:CA	4:1:339:LEU:HD23	1.94	0.98

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:149:ILE:CB	9:A:649:TRP:CZ2	2.47	0.96
4:1:279:LYS:HB3	4:1:283:PHE:CD1	2.00	0.96
4:1:40:VAL:HG11	4:1:62:LEU:HD23	1.47	0.96
1:E:128:LYS:CD	10:7:765:LEU:HD22	1.96	0.95
4:1:279:LYS:CB	4:1:283:PHE:CG	2.49	0.95
2:2:454:TYR:HE1	11:5:11:GLN:HB3	1.16	0.94
2:2:334:ILE:O	2:2:409:ARG:NH2	1.99	0.94
10:7:549:ILE:HD13	10:7:549:ILE:H	1.33	0.94
5:4:255:ASP:N	5:4:256:PRO:CD	2.30	0.94
2:2:416:LEU:HA	2:2:432:VAL:HG12	0.95	0.92
3:0:577:GLN:OE1	4:1:340:ASP:HB2	1.70	0.92
4:1:279:LYS:HA	4:1:283:PHE:HB2	0.94	0.92
1:E:107:ARG:NH2	10:7:768:GLU:HB3	1.83	0.92
3:0:726:GLN:CD	6:6:292:LEU:HD23	1.90	0.92
1:E:137:ILE:HG13	9:A:628:GLY:C	1.91	0.91
4:1:279:LYS:CA	4:1:283:PHE:HB2	1.87	0.91
3:0:545:LEU:CD2	4:1:355:ASP:C	2.38	0.91
4:1:25:ALA:N	4:1:111:TYR:OH	2.03	0.91
4:1:491:PRO:O	5:4:245:ILE:CD1	2.19	0.91
4:1:507:ILE:HG23	5:4:264:LYS:HD2	1.51	0.91
1:E:149:ILE:HG12	9:A:649:TRP:CZ3	2.03	0.91
7:Y:3:DC:P	10:7:415:VAL:HG13	2.11	0.90
1:E:107:ARG:HH22	10:7:768:GLU:CB	1.83	0.90
1:E:137:ILE:HB	9:A:655:LYS:HD3	1.53	0.90
2:2:72:LEU:HD23	2:2:72:LEU:H	1.36	0.90
1:E:128:LYS:HD3	10:7:765:LEU:CD2	2.01	0.90
2:2:338:SER:CA	2:2:351:SER:HB2	2.02	0.89
7:Y:4:DA:P	10:7:439:THR:CG2	2.61	0.89
2:2:336:ASP:O	2:2:351:SER:CB	2.16	0.89
4:1:492:ASN:CB	5:4:243:GLY:HA3	2.01	0.89
1:E:149:ILE:HD13	9:A:649:TRP:HH2	1.39	0.88
4:1:279:LYS:C	4:1:283:PHE:HB3	1.95	0.87
4:1:486:LEU:O	5:4:55:GLU:OE1	1.93	0.87
5:4:255:ASP:N	5:4:256:PRO:HD3	1.88	0.87
1:E:130:LEU:CD2	1:E:149:ILE:CB	2.52	0.86
5:4:289:CYS:HA	6:6:319:LEU:HD23	1.56	0.86
8:W:26:DG:H5''	10:7:492:VAL:CG1	2.06	0.86
1:E:139:ALA:N	9:A:628:GLY:O	2.09	0.86
7:Y:4:DA:OP1	10:7:439:THR:CG2	2.18	0.86
4:1:270:TYR:HE1	4:1:279:LYS:HE3	1.39	0.86
2:2:347:ILE:O	2:2:373:MET:CE	2.23	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:130:LEU:CD2	1:E:149:ILE:CG1	1.76	0.85
4:1:280:GLU:HB3	4:1:281:PRO:CD	2.06	0.85
2:2:346:LYS:HE2	2:2:377:GLN:CB	2.06	0.85
4:1:343:ILE:O	4:1:345:ASP:N	2.09	0.85
2:2:338:SER:CA	2:2:407:GLN:HB2	2.06	0.85
1:E:146:ILE:HB	1:E:150:SER:HB2	1.57	0.85
10:7:610:ASP:OD2	10:7:676:HIS:CB	2.25	0.84
4:1:51:THR:OG1	4:1:59:MET:N	2.11	0.84
7:Y:4:DA:OP2	10:7:439:THR:HG21	1.77	0.84
3:0:112:LYS:HG3	4:1:345:ASP:HB3	1.57	0.84
3:0:378:SER:HG	3:0:407:THR:HG1	1.21	0.83
4:1:486:LEU:HA	5:4:55:GLU:OE2	1.78	0.83
6:6:403:CYS:SG	6:6:404:PHE:N	2.51	0.83
3:0:127:THR:HG22	4:1:348:VAL:CG1	2.09	0.82
4:1:270:TYR:CE2	4:1:279:LYS:CB	2.60	0.82
10:7:344:ARG:CZ	10:7:378:ARG:HE	1.92	0.82
3:0:592:ASN:OD1	3:0:593:GLY:N	2.11	0.82
2:2:460:SER:HB2	11:5:3:ARG:HD2	1.61	0.82
7:Y:4:DA:H4'	10:7:466:ARG:CB	2.10	0.82
1:E:125:LEU:CD2	1:E:149:ILE:HD11	2.10	0.82
1:E:130:LEU:HB2	1:E:149:ILE:HD12	1.59	0.82
2:2:347:ILE:O	2:2:373:MET:HE1	1.80	0.82
5:4:289:CYS:SG	5:4:290:SER:N	2.53	0.81
1:E:107:ARG:NH2	10:7:768:GLU:CB	2.42	0.81
5:4:201:PHE:CE1	6:6:374:THR:HB	2.16	0.81
1:E:101:LEU:HD22	9:A:657:ARG:HG2	1.63	0.80
1:E:138:GLY:N	9:A:628:GLY:O	2.14	0.80
8:W:26:DG:H5''	10:7:492:VAL:HG13	1.63	0.80
4:1:15:ILE:N	4:1:30:ARG:O	2.13	0.80
3:0:576:ALA:HB1	4:1:343:ILE:HG12	1.63	0.80
2:2:51:VAL:O	2:2:109:ARG:NH2	2.15	0.80
3:0:577:GLN:OE1	4:1:340:ASP:CB	2.30	0.80
4:1:280:GLU:CB	4:1:281:PRO:CD	2.60	0.79
6:6:432:CYS:HB3	6:6:454:CYS:SG	2.20	0.79
1:E:149:ILE:N	9:A:649:TRP:CZ2	2.49	0.79
3:0:297:ASP:O	3:0:386:ARG:NH1	2.16	0.79
3:0:314:GLN:HA	3:0:317:LEU:HD13	1.64	0.79
1:E:148:MET:O	9:A:649:TRP:NE1	2.04	0.79
2:2:353:SER:HB2	2:2:356:GLN:HB3	1.66	0.78
10:7:576:LYS:HB2	10:7:576:LYS:NZ	1.97	0.78
3:0:674:ASP:N	3:0:674:ASP:OD1	2.17	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:0:112:LYS:HG2	4:1:345:ASP:CG	2.02	0.78
3:0:63:TYR:O	3:0:67:ARG:NH2	2.17	0.78
1:E:128:LYS:CE	10:7:765:LEU:HD22	2.13	0.78
5:4:293:LEU:CB	6:6:380:TYR:HE1	1.97	0.78
4:1:112:LYS:O	4:1:116:ILE:HG12	1.84	0.78
10:7:351:ASP:OD1	10:7:405:LYS:NZ	2.14	0.78
3:0:166:GLU:OE2	3:0:198:ARG:NH1	2.17	0.78
1:E:130:LEU:HB2	1:E:149:ILE:CD1	2.13	0.77
6:6:176:ASN:HA	6:6:206:GLY:HA3	1.66	0.77
3:0:227:SER:HB2	3:0:230:SER:HB2	1.66	0.77
3:0:275:ARG:HH22	3:0:276:LYS:HG3	1.47	0.77
4:1:198:THR:O	4:1:204:LEU:N	2.12	0.77
10:7:343:PHE:HB2	10:7:378:ARG:NH1	1.98	0.77
2:2:454:TYR:HB2	11:5:9:LEU:HD23	1.67	0.77
4:1:503:VAL:HG13	5:4:247:TYR:CE1	2.20	0.76
9:A:625:ALA:HA	9:A:655:LYS:NZ	2.00	0.76
2:2:492:PHE:HB3	11:5:9:LEU:HD22	1.65	0.76
1:E:104:MET:HE2	9:A:656:LEU:HB3	1.66	0.76
4:1:486:LEU:C	5:4:55:GLU:CD	2.43	0.76
5:4:52:LYS:NZ	5:4:240:SER:O	2.19	0.76
2:2:349:SER:HA	2:2:407:GLN:HE22	1.51	0.75
10:7:343:PHE:CD2	10:7:378:ARG:HB2	2.22	0.75
6:6:269:GLN:HG3	6:6:288:TYR:HE2	1.51	0.75
1:E:149:ILE:HA	9:A:649:TRP:CE2	2.15	0.75
4:1:486:LEU:C	5:4:55:GLU:OE2	2.25	0.75
3:0:460:SER:HB2	3:0:463:ILE:HG13	1.68	0.75
1:E:130:LEU:HD23	1:E:149:ILE:CG1	2.13	0.75
2:2:54:GLU:OE2	2:2:109:ARG:NH2	2.20	0.74
7:Y:4:DA:OP2	10:7:441:ASP:HB3	1.87	0.74
1:E:125:LEU:HD23	1:E:149:ILE:HD11	1.69	0.74
1:E:149:ILE:N	9:A:649:TRP:CE2	2.55	0.74
6:6:144:ASN:OD1	6:6:147:ALA:N	2.17	0.74
1:E:126:SER:HA	1:E:159:PHE:HD1	1.51	0.74
3:0:288:LYS:O	3:0:291:GLN:NE2	2.20	0.74
10:7:418:MET:HG3	10:7:421:ARG:HH12	1.52	0.74
8:W:26:DG:OP1	10:7:492:VAL:CG1	2.36	0.74
3:0:110:SER:HB3	4:1:346:ASP:HA	1.68	0.74
3:0:37:ASN:ND2	3:0:476:LYS:O	2.21	0.73
4:1:491:PRO:O	4:1:493:ASN:N	2.19	0.73
5:4:290:SER:OG	5:4:291:VAL:N	2.18	0.73
6:6:139:LYS:NZ	6:6:143:PRO:O	2.19	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:0:304:GLU:OE1	3:0:386:ARG:NH1	2.22	0.73
2:2:335:PRO:CA	2:2:409:ARG:HH12	2.02	0.73
3:0:608:GLU:O	3:0:668:ARG:NH2	2.17	0.73
3:0:729:ASP:O	3:0:731:LYS:NZ	2.22	0.73
6:6:294:GLU:OE1	6:6:294:GLU:N	2.20	0.73
5:4:114:MET:C	5:4:116:ARG:H	1.93	0.72
10:7:376:ASN:OD1	10:7:380:ARG:NH2	2.22	0.72
3:0:651:ASN:N	3:0:651:ASN:OD1	2.21	0.72
4:1:507:ILE:HG23	5:4:264:LYS:CD	2.17	0.72
5:4:304:LYS:HG3	5:4:309:ASP:HA	1.70	0.72
2:2:335:PRO:CA	2:2:406:PRO:HB3	2.20	0.72
5:4:293:LEU:HB3	6:6:380:TYR:CE1	2.25	0.72
10:7:343:PHE:HD1	10:7:344:ARG:H	1.38	0.71
3:0:739:TRP:HB3	3:0:745:ILE:HG23	1.71	0.71
4:1:479:ASN:O	4:1:483:LYS:N	2.21	0.71
3:0:507:SER:HG	3:0:685:ARG:HH22	1.38	0.71
2:2:460:SER:HB2	11:5:3:ARG:CD	2.20	0.71
7:Y:4:DA:OP2	10:7:439:THR:CG2	2.37	0.71
7:Y:5:DA:OP2	10:7:467:SER:HB3	1.90	0.71
4:1:507:ILE:CG2	5:4:264:LYS:HD2	2.20	0.71
2:2:243:SER:O	2:2:247:ARG:N	2.22	0.71
3:0:12:PHE:HE1	3:0:14:TYR:HB2	1.54	0.71
4:1:279:LYS:HA	4:1:283:PHE:CG	2.23	0.71
2:2:431:GLN:HG3	2:2:434:PRO:HA	1.73	0.70
3:0:439:CYS:SG	3:0:440:LEU:N	2.63	0.70
10:7:613:TYR:CE2	10:7:766:LYS:HD3	2.26	0.70
3:0:545:LEU:CD2	4:1:355:ASP:O	2.36	0.70
5:4:260:PRO:HD2	5:4:261:ILE:HG22	1.73	0.70
6:6:138:GLU:OE2	6:6:145:ARG:NE	2.24	0.70
3:0:286:TYR:O	3:0:326:ARG:NH1	2.20	0.70
4:1:174:LEU:O	4:1:181:GLN:NE2	2.24	0.70
3:0:110:SER:HB2	4:1:346:ASP:O	1.91	0.70
3:0:134:ARG:NH2	3:0:303:GLU:O	2.25	0.70
3:0:224:ASN:OD1	3:0:452:ARG:NH2	2.23	0.70
10:7:421:ARG:HA	10:7:425:LEU:HD23	1.73	0.70
2:2:350:TYR:HA	2:2:372:ASN:HB2	1.73	0.70
3:0:295:SER:HA	3:0:298:ILE:HG22	1.74	0.70
3:0:705:ASP:N	3:0:705:ASP:OD1	2.25	0.70
4:1:188:ASN:HD21	4:1:190:VAL:HB	1.56	0.70
3:0:117:HIS:HE1	3:0:119:GLU:HB3	1.56	0.70
5:4:293:LEU:HB3	6:6:380:TYR:HE1	1.57	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:7:604:LYS:NZ	10:7:650:ASN:OD1	2.22	0.70
3:0:137:THR:HB	3:0:159:HIS:HD2	1.56	0.69
3:0:610:ILE:O	3:0:668:ARG:NH1	2.24	0.69
4:1:273:ASN:HD22	4:1:283:PHE:HE2	1.40	0.69
5:4:201:PHE:CZ	6:6:374:THR:HB	2.27	0.69
2:2:81:MET:HB2	2:2:86:LEU:HD11	1.72	0.69
3:0:135:ARG:NH2	3:0:391:THR:O	2.26	0.69
4:1:196:GLN:O	4:1:200:ILE:N	2.24	0.69
11:5:33:GLU:HB2	11:5:41:LEU:HB3	1.73	0.69
1:E:101:LEU:HD13	9:A:657:ARG:CZ	2.22	0.69
10:7:610:ASP:H	10:7:674:SER:HB2	1.56	0.69
4:1:214:ILE:HG23	4:1:215:PRO:HD3	1.75	0.69
7:Y:4:DA:C5'	10:7:441:ASP:HB2	2.22	0.69
10:7:352:LEU:O	10:7:404:LYS:NZ	2.25	0.69
2:2:338:SER:C	2:2:407:GLN:OE1	2.30	0.69
3:0:127:THR:HA	4:1:348:VAL:HG11	1.74	0.69
4:1:491:PRO:C	5:4:245:ILE:HD12	2.12	0.69
6:6:116:THR:O	6:6:116:THR:OG1	2.10	0.69
3:0:104:ARG:N	3:0:204:ASN:OD1	2.23	0.68
10:7:477:LEU:HA	10:7:482:TRP:HE1	1.57	0.68
2:2:356:GLN:HG3	2:2:403:HIS:HE1	1.57	0.68
2:2:458:LEU:N	11:5:5:ARG:O	2.21	0.68
1:E:148:MET:CB	9:A:649:TRP:NE1	2.56	0.68
3:0:228:LYS:O	3:0:228:LYS:NZ	2.21	0.68
3:0:341:TYR:OH	3:0:362:HIS:ND1	2.23	0.68
5:4:58:ILE:HD11	5:4:125:LEU:HD22	1.75	0.68
10:7:411:CYS:HA	10:7:488:ASP:HB2	1.73	0.68
1:E:148:MET:HB2	9:A:649:TRP:CD1	2.27	0.68
3:0:321:ILE:HG13	3:0:323:GLY:H	1.58	0.68
4:1:251:LEU:HB3	4:1:254:GLU:HB2	1.74	0.68
3:0:39:ILE:HD11	3:0:466:LEU:HG	1.74	0.68
6:6:218:ARG:NH1	6:6:257:GLU:OE2	2.27	0.68
7:Y:3:DC:OP2	10:7:415:VAL:CG1	2.42	0.68
1:E:99:ASP:O	1:E:103:SER:HB2	1.93	0.68
4:1:279:LYS:CA	4:1:283:PHE:CG	2.76	0.68
5:4:244:LEU:O	5:4:247:TYR:N	2.27	0.68
5:4:293:LEU:CB	6:6:380:TYR:CE1	2.77	0.68
10:7:439:THR:HB	10:7:442:ASN:H	1.57	0.68
2:2:481:LEU:HD23	2:2:493:ILE:HG21	1.75	0.68
3:0:683:ASP:OD1	3:0:686:PHE:N	2.26	0.68
11:5:24:ASP:OD1	11:5:30:ILE:N	2.27	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:0:571:VAL:HG11	4:1:375:LEU:HB3	1.74	0.67
3:0:223:SER:O	3:0:226:VAL:N	2.18	0.67
3:0:350:HIS:HA	3:0:422:PRO:HG3	1.75	0.67
3:0:371:ARG:NH2	3:0:411:THR:O	2.27	0.67
1:E:149:ILE:N	9:A:649:TRP:NE1	2.42	0.67
2:2:399:TYR:O	2:2:403:HIS:N	2.25	0.67
10:7:691:LEU:HD23	10:7:694:LYS:HZ1	1.58	0.67
1:E:143:SER:O	1:E:146:ILE:HD11	1.95	0.67
5:4:137:LYS:HG2	5:4:140:ILE:HG12	1.76	0.67
5:4:138:LYS:O	5:4:138:LYS:NZ	2.21	0.67
11:5:5:ARG:NH2	11:5:33:GLU:OE2	2.28	0.67
7:Y:3:DC:OP2	10:7:415:VAL:HG13	1.95	0.67
2:2:469:ASN:ND2	2:2:486:ASP:OD2	2.28	0.66
6:6:221:LEU:HD23	6:6:230:ARG:HB3	1.78	0.66
1:E:148:MET:CA	9:A:649:TRP:NE1	2.57	0.66
5:4:182:GLY:N	5:4:215:ILE:O	2.26	0.66
3:0:424:GLU:OE1	3:0:432:ASN:ND2	2.28	0.66
3:0:307:VAL:H	3:0:382:SER:HB3	1.59	0.66
2:2:69:ASN:ND2	2:2:69:ASN:O	2.29	0.66
3:0:103:PHE:H	3:0:173:LYS:HZ1	1.42	0.66
3:0:587:ARG:NH2	3:0:611:ASP:O	2.28	0.66
3:0:251:ASP:OD1	3:0:436:ARG:NH1	2.25	0.66
6:6:406:CYS:HB3	6:6:440:CYS:SG	2.35	0.66
8:W:26:DG:OP1	10:7:492:VAL:HG12	1.96	0.66
10:7:428:CYS:SG	10:7:429:THR:N	2.69	0.66
2:2:347:ILE:HB	2:2:376:GLY:O	1.95	0.66
2:2:415:LYS:O	2:2:432:VAL:HA	1.95	0.66
3:0:127:THR:CG2	4:1:348:VAL:HG12	2.19	0.66
3:0:244:CYS:HB3	3:0:445:ALA:HB3	1.78	0.66
4:1:108:ILE:HG22	4:1:112:LYS:HE2	1.78	0.66
4:1:280:GLU:HB2	4:1:281:PRO:HD3	1.78	0.66
4:1:507:ILE:HD12	5:4:264:LYS:HG3	1.76	0.66
5:4:33:ALA:O	5:4:37:TRP:N	2.27	0.66
3:0:572:GLU:OE1	3:0:579:THR:OG1	2.14	0.66
3:0:645:ASN:O	3:0:647:ARG:NH1	2.29	0.66
4:1:19:ASN:N	4:1:26:GLU:O	2.29	0.66
10:7:483:GLY:HA2	10:7:508:HIS:HB2	1.78	0.65
6:6:188:ASN:ND2	6:6:191:ASP:OD1	2.28	0.65
10:7:435:CYS:HB3	10:7:454:VAL:HG12	1.79	0.65
3:0:21:GLN:HE21	3:0:46:THR:HG22	1.60	0.65
3:0:115:CYS:O	3:0:121:SER:OG	2.08	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:175:ARG:NH2	6:6:203:GLU:O	2.29	0.65
1:E:130:LEU:HD23	1:E:149:ILE:HB	1.77	0.65
10:7:343:PHE:CG	10:7:378:ARG:HB2	2.31	0.65
7:Y:3:DC:P	10:7:415:VAL:CG1	2.84	0.65
9:A:414:ARG:NH1	9:A:419:ASP:OD1	2.30	0.65
9:A:625:ALA:HA	9:A:655:LYS:HZ2	1.59	0.65
10:7:698:ASP:HB2	10:7:701:PHE:HB2	1.78	0.65
3:0:425:ILE:HA	3:0:428:ALA:HB2	1.79	0.65
4:1:27:LEU:HD12	4:1:104:LEU:HD11	1.78	0.65
5:4:192:GLN:N	5:4:192:GLN:OE1	2.28	0.65
5:4:244:LEU:HD12	5:4:244:LEU:H	1.60	0.65
5:4:270:VAL:HG22	5:4:272:PHE:H	1.60	0.65
10:7:425:LEU:HA	10:7:428:CYS:HB3	1.78	0.65
4:1:346:ASP:HB2	4:1:347:PRO:HD3	1.79	0.65
7:Y:4:DA:H4'	10:7:466:ARG:HB2	1.77	0.65
10:7:477:LEU:HB3	10:7:505:ILE:HD12	1.78	0.65
3:0:60:GLN:O	3:0:67:ARG:NH2	2.30	0.64
3:0:136:MET:HG3	3:0:155:LEU:HA	1.77	0.64
3:0:270:ARG:NH2	3:0:388:LEU:O	2.24	0.64
3:0:327:ARG:HG3	3:0:330:HIS:H	1.62	0.64
5:4:211:ASP:OD1	5:4:211:ASP:N	2.26	0.64
10:7:550:ALA:HB1	10:7:701:PHE:O	1.96	0.64
4:1:486:LEU:O	5:4:55:GLU:OE2	2.15	0.64
4:1:557:CYS:SG	4:1:585:HIS:NE2	2.68	0.64
4:1:249:VAL:O	4:1:252:SER:OG	2.15	0.64
2:2:185:THR:O	2:2:189:PHE:N	2.26	0.64
3:0:571:VAL:HG21	4:1:375:LEU:HD13	1.79	0.64
4:1:49:GLN:N	4:1:61:ARG:O	2.30	0.64
9:A:623:GLU:O	9:A:627:ASP:HB2	1.98	0.64
4:1:259:ILE:HD13	4:1:263:TYR:HE2	1.62	0.64
4:1:188:ASN:HB3	4:1:191:LEU:HB2	1.79	0.64
10:7:357:LYS:NZ	10:7:429:THR:O	2.29	0.64
2:2:87:LEU:HA	2:2:100:LEU:HA	1.78	0.64
2:2:458:LEU:HD11	2:2:490:LYS:HB3	1.78	0.64
3:0:632:SER:OG	3:0:633:ARG:N	2.29	0.64
7:Y:5:DA:OP2	10:7:440:SER:O	2.15	0.64
1:E:102:TRP:HB2	1:E:165:PHE:CE2	2.33	0.64
1:E:148:MET:CE	9:A:652:LEU:HD12	2.27	0.64
2:2:61:ASP:N	2:2:61:ASP:OD1	2.28	0.64
8:W:9:DA:H2''	8:W:10:DC:H5''	1.80	0.64
9:A:585:PHE:CZ	9:A:659:ARG:HD3	2.32	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:7:495:ALA:HB2	10:7:521:ASP:HB3	1.80	0.64
2:2:415:LYS:HB3	2:2:431:GLN:O	1.99	0.63
3:0:90:MET:O	3:0:94:THR:HG23	1.97	0.63
2:2:475:ALA:O	2:2:479:GLY:N	2.31	0.63
3:0:278:ASP:O	3:0:281:LYS:NZ	2.31	0.63
3:0:325:ILE:HA	3:0:334:PHE:HE2	1.63	0.63
2:2:347:ILE:HD13	2:2:364:VAL:HG21	1.80	0.63
3:0:744:LEU:O	3:0:748:GLN:HB2	1.98	0.63
10:7:459:MET:O	10:7:470:SER:OG	2.14	0.63
4:1:58:MET:O	4:1:91:PHE:N	2.28	0.63
10:7:528:ASN:O	10:7:532:GLY:N	2.30	0.63
3:0:750:SER:OG	3:0:751:ARG:NH2	2.31	0.63
10:7:435:CYS:HA	10:7:453:VAL:HA	1.81	0.63
10:7:352:LEU:HD23	10:7:452:LEU:HD23	1.80	0.63
1:E:137:ILE:HD11	9:A:652:LEU:HD23	1.81	0.63
3:0:71:TYR:HB3	3:0:207:ILE:HG23	1.81	0.63
4:1:279:LYS:CG	4:1:283:PHE:CD2	2.82	0.63
1:E:125:LEU:HD21	1:E:149:ILE:HD11	1.80	0.63
2:2:67:ASN:ND2	2:2:67:ASN:H	1.97	0.63
4:1:27:LEU:N	4:1:40:VAL:O	2.26	0.63
5:4:120:ASN:OD1	5:4:121:VAL:N	2.32	0.63
6:6:191:ASP:OD1	6:6:191:ASP:N	2.30	0.63
8:W:26:DG:OP1	10:7:492:VAL:HG13	1.99	0.63
10:7:409:VAL:HG22	10:7:486:ILE:HD12	1.81	0.63
3:0:515:ASP:N	3:0:515:ASP:OD1	2.30	0.62
4:1:64:GLY:N	4:1:85:GLN:O	2.30	0.62
4:1:251:LEU:HB2	4:1:255:LYS:HG2	1.80	0.62
4:1:347:PRO:HB2	4:1:349:VAL:HG13	1.80	0.62
7:Y:-1:DC:H2''	7:Y:0:DT:H5''	1.80	0.62
3:0:294:HIS:CE1	3:0:297:ASP:HB3	2.34	0.62
3:0:301:ASP:HB3	3:0:304:GLU:HB2	1.80	0.62
4:1:27:LEU:HB2	4:1:42:LEU:HD21	1.81	0.62
10:7:303:ARG:HA	10:7:320:ASN:HA	1.82	0.62
4:1:279:LYS:HE2	4:1:279:LYS:H	1.63	0.62
5:4:201:PHE:HE1	6:6:374:THR:HB	1.62	0.62
1:E:104:MET:CE	9:A:656:LEU:HB3	2.29	0.62
2:2:10:VAL:HG11	2:2:201:TRP:CE3	2.35	0.62
4:1:488:GLN:CB	5:4:59:VAL:CG2	2.77	0.62
7:Y:4:DA:P	10:7:441:ASP:CB	2.87	0.62
4:1:507:ILE:HG23	5:4:264:LYS:CG	2.30	0.62
5:4:189:GLU:O	5:4:192:GLN:NE2	2.33	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:373:SER:O	6:6:376:LEU:N	2.33	0.62
10:7:622:MET:SD	10:7:622:MET:N	2.73	0.62
2:2:90:ASN:HB3	2:2:97:MET:HB2	1.82	0.62
3:0:142:LYS:NZ	3:0:146:GLU:OE2	2.32	0.62
5:4:254:ILE:HG21	5:4:261:ILE:CD1	2.30	0.62
2:2:347:ILE:O	2:2:347:ILE:HG22	2.00	0.62
3:0:166:GLU:O	3:0:198:ARG:NH1	2.32	0.62
3:0:274:VAL:O	3:0:278:ASP:N	2.30	0.62
5:4:293:LEU:HB2	6:6:380:TYR:HE1	1.64	0.62
3:0:70:ILE:HB	3:0:232:VAL:HG22	1.82	0.62
3:0:466:LEU:O	3:0:480:GLN:NE2	2.33	0.62
3:0:531:LYS:HG2	3:0:566:HIS:CE1	2.35	0.62
4:1:108:ILE:O	4:1:112:LYS:HG3	1.99	0.62
10:7:306:GLU:CD	10:7:346:ASP:HB2	2.20	0.62
10:7:576:LYS:HB2	10:7:576:LYS:HZ2	1.62	0.61
6:6:310:VAL:HG13	6:6:311:ASN:H	1.65	0.61
4:1:337:ILE:O	4:1:339:LEU:N	2.34	0.61
3:0:110:SER:CB	4:1:346:ASP:O	2.49	0.61
10:7:303:ARG:HB2	10:7:323:VAL:H	1.66	0.61
10:7:561:MET:SD	10:7:584:ASN:ND2	2.73	0.61
11:5:31:VAL:HA	11:5:42:VAL:HG13	1.81	0.61
3:0:537:MET:HG2	3:0:597:ILE:HG12	1.81	0.61
4:1:492:ASN:O	4:1:494:GLU:N	2.33	0.61
2:2:36:TYR:HE1	2:2:44:LYS:HA	1.65	0.61
3:0:103:PHE:N	3:0:173:LYS:HZ1	1.98	0.61
4:1:502:ARG:O	4:1:505:THR:OG1	2.16	0.61
1:E:148:MET:C	9:A:649:TRP:CE2	2.72	0.61
4:1:95:THR:O	4:1:99:ASN:ND2	2.33	0.61
5:4:226:GLN:CD	5:4:273:ARG:HE	2.03	0.61
8:W:15:DA:OP1	9:A:495:GLN:NE2	2.32	0.61
2:2:176:VAL:O	2:2:181:GLU:N	2.32	0.60
2:2:389:ASN:HB3	2:2:391:ILE:HG12	1.83	0.60
3:0:157:GLU:HA	3:0:160:GLU:HG2	1.82	0.60
1:E:139:ALA:HB2	9:A:628:GLY:HA2	1.83	0.60
4:1:185:LEU:HD12	4:1:192:MET:HA	1.82	0.60
4:1:116:ILE:O	4:1:120:LYS:HE3	2.01	0.60
5:4:218:SER:HA	5:4:237:HIS:HE2	1.65	0.60
1:E:101:LEU:CD2	9:A:657:ARG:HG2	2.29	0.60
1:E:125:LEU:HD23	1:E:149:ILE:CD1	2.30	0.60
3:0:529:PHE:HA	3:0:532:ILE:HG22	1.84	0.60
3:0:576:ALA:HB2	4:1:343:ILE:HG12	1.80	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:0:643:ARG:HH11	3:0:650:GLU:HG3	1.66	0.60
6:6:406:CYS:SG	6:6:407:GLN:N	2.74	0.60
5:4:254:ILE:HG21	5:4:261:ILE:HD13	1.83	0.60
5:4:289:CYS:HA	6:6:319:LEU:CD2	2.31	0.60
1:E:106:ILE:O	1:E:106:ILE:HG12	2.01	0.60
10:7:132:LEU:O	10:7:202:LYS:N	2.31	0.60
11:5:17:LYS:HE3	11:5:40:LEU:HD21	1.84	0.60
3:0:232:VAL:HG21	3:0:453:PHE:CD2	2.37	0.60
3:0:507:SER:OG	3:0:508:SER:N	2.34	0.60
5:4:24:SER:H	5:4:71:ASN:HD22	1.47	0.60
1:E:145:THR:O	1:E:145:THR:HG22	2.00	0.60
2:2:184:ILE:O	2:2:389:ASN:ND2	2.31	0.60
4:1:235:SER:O	4:1:239:PRO:HD2	2.01	0.60
1:E:99:ASP:O	1:E:103:SER:N	2.35	0.60
3:0:258:ARG:O	3:0:261:THR:OG1	2.14	0.60
4:1:279:LYS:CE	4:1:279:LYS:H	2.15	0.60
6:6:451:CYS:SG	6:6:454:CYS:HB2	2.40	0.60
7:Y:4:DA:H4'	10:7:466:ARG:HG3	1.84	0.59
3:0:576:ALA:HB3	4:1:343:ILE:HG12	1.81	0.59
6:6:399:ARG:H	6:6:426:ARG:HH12	1.50	0.59
4:1:27:LEU:CD1	4:1:104:LEU:HD11	2.32	0.59
4:1:291:LYS:O	4:1:294:ARG:N	2.36	0.59
6:6:336:CYS:SG	6:6:339:HIS:N	2.68	0.59
6:6:391:GLU:HA	6:6:427:TYR:HA	1.85	0.59
1:E:148:MET:HE3	9:A:652:LEU:CD1	2.33	0.59
2:2:461:ASP:HB3	11:5:3:ARG:CZ	2.32	0.59
3:0:259:ARG:HH22	3:0:397:THR:HG1	1.48	0.59
3:0:628:GLN:OE1	3:0:628:GLN:N	2.36	0.59
6:6:142:ARG:HB2	6:6:143:PRO:HD3	1.84	0.59
1:E:134:SER:O	9:A:628:GLY:O	2.20	0.59
2:2:273:LYS:NZ	2:2:285:ILE:O	2.32	0.59
2:2:464:THR:OG1	2:2:466:GLN:OE1	2.21	0.59
3:0:227:SER:OG	3:0:228:LYS:N	2.30	0.59
4:1:18:ILE:HA	4:1:27:LEU:HA	1.84	0.59
10:7:101:PRO:O	10:7:331:GLN:NE2	2.36	0.59
10:7:326:VAL:HG22	10:7:329:ARG:HH21	1.67	0.59
10:7:631:THR:HB	10:7:636:ARG:HE	1.67	0.59
10:7:696:ARG:NE	10:7:698:ASP:OD2	2.34	0.59
3:0:294:HIS:O	3:0:298:ILE:N	2.32	0.59
4:1:491:PRO:C	5:4:245:ILE:CD1	2.70	0.59
5:4:39:THR:O	5:4:43:GLU:N	2.30	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:4:311:GLN:NE2	5:4:312:PHE:O	2.35	0.59
6:6:195:ALA:O	6:6:198:SER:OG	2.19	0.59
2:2:415:LYS:C	2:2:432:VAL:HA	2.23	0.59
3:0:77:SER:HA	3:0:80:GLU:OE2	2.01	0.59
5:4:258:LEU:O	5:4:259:ARG:HG2	2.01	0.59
7:Y:4:DA:P	10:7:441:ASP:HB3	2.43	0.59
3:0:272:SER:OG	3:0:276:LYS:NZ	2.36	0.59
3:0:554:TRP:CD1	3:0:559:ILE:HG21	2.38	0.59
10:7:267:ASP:O	10:7:348:ARG:NH2	2.35	0.59
10:7:464:ARG:HA	10:7:466:ARG:CZ	2.32	0.59
10:7:527:LEU:HA	10:7:530:LEU:HB2	1.84	0.59
3:0:110:SER:OG	3:0:111:ARG:N	2.32	0.59
1:E:107:ARG:HH21	10:7:768:GLU:HB3	1.68	0.58
3:0:272:SER:O	3:0:275:ARG:NH2	2.36	0.58
3:0:286:TYR:HA	3:0:289:LEU:HD12	1.84	0.58
4:1:17:ALA:N	4:1:28:THR:O	2.32	0.58
3:0:747:HIS:O	3:0:751:ARG:HG2	2.04	0.58
4:1:18:ILE:HG21	4:1:107:ILE:CD1	2.33	0.58
4:1:278:PHE:O	4:1:282:GLU:OE2	2.21	0.58
7:Y:4:DA:H4'	10:7:466:ARG:CG	2.33	0.58
10:7:561:MET:HG3	10:7:562:THR:H	1.65	0.58
3:0:360:LEU:HD11	3:0:371:ARG:HB2	1.85	0.58
8:W:25:DA:OP1	10:7:462:ASN:ND2	2.37	0.58
2:2:473:LYS:NZ	2:2:477:ASP:OD1	2.36	0.58
6:6:390:ALA:O	6:6:428:ARG:N	2.36	0.58
9:A:658:ILE:HG22	9:A:662:LEU:HD22	1.84	0.58
10:7:269:LEU:HB2	10:7:304:GLU:HA	1.84	0.58
3:0:315:ASP:OD1	3:0:315:ASP:N	2.31	0.58
3:0:528:GLU:OE2	3:0:710:THR:OG1	2.19	0.58
2:2:72:LEU:HD23	2:2:72:LEU:N	2.15	0.58
4:1:194:VAL:O	4:1:198:THR:OG1	2.18	0.58
4:1:239:PRO:O	4:1:241:ALA:N	2.36	0.58
4:1:507:ILE:HD12	5:4:264:LYS:CG	2.34	0.58
6:6:168:GLN:OE1	6:6:168:GLN:N	2.37	0.58
3:0:627:PHE:HD1	3:0:654:LEU:HD12	1.67	0.58
6:6:293:ASP:OD2	6:6:296:HIS:N	2.31	0.58
9:A:623:GLU:O	9:A:627:ASP:CB	2.52	0.58
1:E:139:ALA:HB1	1:E:141:GLN:HG3	1.85	0.58
2:2:454:TYR:HE1	11:5:11:GLN:CB	2.05	0.58
4:1:501:LYS:HA	4:1:504:ILE:HD12	1.85	0.58
5:4:155:ALA:O	5:4:158:THR:OG1	2.18	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:4:312:PHE:CD2	6:6:319:LEU:HD11	2.38	0.58
6:6:175:ARG:NH1	6:6:202:GLN:OE1	2.37	0.58
11:5:48:GLU:O	11:5:52:HIS:ND1	2.35	0.58
2:2:356:GLN:HG3	2:2:403:HIS:CE1	2.39	0.58
10:7:556:GLU:HG2	10:7:707:SER:HB3	1.85	0.58
4:1:480:LEU:CB	5:4:51:ILE:HG21	2.34	0.58
1:E:149:ILE:CA	9:A:649:TRP:CE2	2.76	0.57
2:2:415:LYS:NZ	2:2:434:PRO:HG3	2.18	0.57
4:1:46:ASP:N	4:1:63:ILE:O	2.36	0.57
7:Y:4:DA:P	10:7:441:ASP:HB2	2.43	0.57
10:7:424:PHE:O	10:7:428:CYS:N	2.24	0.57
2:2:475:ALA:HA	2:2:478:ILE:HG12	1.85	0.57
3:0:145:LEU:HD13	3:0:153:VAL:HB	1.86	0.57
4:1:3:HIS:CB	4:1:103:THR:HG21	2.34	0.57
2:2:462:PHE:HB2	2:2:489:LYS:HB3	1.85	0.57
6:6:243:ASP:OD1	6:6:243:ASP:N	2.36	0.57
1:E:130:LEU:HD23	1:E:149:ILE:CB	2.29	0.57
2:2:132:LEU:O	2:2:286:ARG:NH2	2.37	0.57
2:2:450:ARG:HH21	11:5:54:LEU:HG	1.70	0.57
3:0:252:LEU:HB2	3:0:435:MET:HB3	1.86	0.57
3:0:730:PRO:HB2	3:0:732:ASP:OD1	2.04	0.57
4:1:193:LYS:O	4:1:196:GLN:NE2	2.37	0.57
5:4:114:MET:O	5:4:116:ARG:N	2.33	0.57
5:4:180:THR:HG23	5:4:214:LYS:HA	1.87	0.57
10:7:573:THR:HA	10:7:577:ARG:HD2	1.85	0.57
1:E:102:TRP:HD1	1:E:165:PHE:CG	2.23	0.57
1:E:137:ILE:CB	9:A:655:LYS:HD3	2.31	0.57
2:2:346:LYS:CE	2:2:377:GLN:HB2	2.17	0.57
2:2:494:SER:OG	2:2:496:GLU:OE2	2.21	0.57
3:0:227:SER:C	3:0:229:ASP:H	2.07	0.57
3:0:349:LEU:H	3:0:349:LEU:HD23	1.70	0.57
4:1:207:SER:OG	4:1:208:GLU:OE1	2.22	0.57
4:1:269:ALA:O	4:1:273:ASN:ND2	2.38	0.57
5:4:305:CYS:HB3	5:4:312:PHE:HZ	1.70	0.57
3:0:162:LEU:HD12	3:0:166:GLU:HB3	1.85	0.57
1:E:107:ARG:HH22	10:7:768:GLU:HB2	1.70	0.57
3:0:312:LEU:N	3:0:412:TYR:OH	2.24	0.57
4:1:606:GLU:O	4:1:610:ASN:N	2.33	0.57
2:2:9:SER:O	2:2:12:GLN:N	2.37	0.57
3:0:629:TYR:CZ	3:0:636:LYS:HE2	2.40	0.57
4:1:14:GLY:HA2	4:1:31:SER:HA	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:1:279:LYS:CB	4:1:283:PHE:CD2	2.87	0.57
4:1:282:GLU:OE2	4:1:282:GLU:N	2.36	0.57
4:1:346:ASP:OD1	4:1:346:ASP:N	2.35	0.57
1:E:149:ILE:HD11	9:A:649:TRP:CH2	2.32	0.57
2:2:7:LYS:HG2	2:2:9:SER:H	1.69	0.57
2:2:367:LYS:HB2	2:2:375:LEU:HD23	1.87	0.57
3:0:112:LYS:CG	4:1:345:ASP:CB	2.58	0.57
3:0:379:GLU:OE1	3:0:380:ARG:N	2.38	0.57
4:1:18:ILE:HG21	4:1:107:ILE:HD11	1.86	0.57
10:7:381:SER:HB3	10:7:509:ALA:HB1	1.85	0.57
1:E:130:LEU:CD2	1:E:149:ILE:CD1	2.53	0.56
2:2:18:PRO:HB2	2:2:20:GLN:HE22	1.70	0.56
2:2:32:CYS:HB3	2:2:104:PHE:HE1	1.69	0.56
3:0:112:LYS:HB3	4:1:345:ASP:O	2.05	0.56
3:0:719:GLN:OE1	3:0:722:ARG:NH1	2.38	0.56
3:0:726:GLN:CG	6:6:292:LEU:HD23	2.35	0.56
5:4:31:GLU:OE2	5:4:181:CYS:N	2.37	0.56
7:Y:11:DG:H2"	7:Y:12:DG:C8	2.40	0.56
5:4:239:GLU:OE2	5:4:242:GLU:N	2.37	0.56
10:7:411:CYS:SG	10:7:412:THR:N	2.77	0.56
4:1:279:LYS:O	4:1:283:PHE:HB3	2.04	0.56
5:4:137:LYS:H	5:4:140:ILE:HB	1.70	0.56
6:6:247:ILE:O	6:6:250:THR:OG1	2.22	0.56
9:A:579:ALA:HB1	9:A:612:ILE:HG12	1.88	0.56
10:7:366:GLN:HE22	10:7:394:LEU:HD22	1.70	0.56
1:E:149:ILE:HA	9:A:649:TRP:HZ2	0.42	0.56
7:Y:3:DC:OP1	10:7:415:VAL:HG13	2.04	0.56
10:7:406:SER:O	10:7:483:GLY:N	2.39	0.56
10:7:609:SER:HB2	10:7:615:LEU:HD13	1.87	0.56
3:0:68:LYS:HB2	3:0:230:SER:OG	2.04	0.56
3:0:311:VAL:HG11	3:0:317:LEU:HD11	1.86	0.56
4:1:491:PRO:CA	5:4:245:ILE:HD11	2.34	0.56
7:Y:10:DT:H2"	7:Y:11:DG:C8	2.40	0.56
10:7:606:ILE:HG13	10:7:667:ALA:CB	2.35	0.56
3:0:537:MET:HG3	3:0:538:VAL:N	2.21	0.56
10:7:409:VAL:HA	10:7:486:ILE:HB	1.87	0.56
1:E:139:ALA:HB2	9:A:628:GLY:C	2.26	0.56
3:0:395:ASP:N	3:0:395:ASP:OD1	2.32	0.56
3:0:440:LEU:HD22	3:0:638:ARG:HA	1.87	0.56
4:1:258:ASN:O	4:1:262:ASN:HB2	2.04	0.56
6:6:266:LEU:O	6:6:268:ALA:N	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:349:CYS:HB3	6:6:352:CYS:SG	2.45	0.56
10:7:343:PHE:HD1	10:7:344:ARG:N	2.01	0.56
3:0:675:ASP:OD1	3:0:676:TYR:N	2.38	0.56
4:1:48:LEU:O	9:A:98:VAL:N	2.39	0.56
9:A:214:TRP:O	9:A:215:LYS:HB2	2.05	0.56
10:7:306:GLU:O	10:7:341:TYR:HA	2.05	0.56
10:7:324:GLU:HA	10:7:327:LYS:HE2	1.88	0.56
10:7:343:PHE:CD1	10:7:378:ARG:HG3	2.41	0.56
1:E:148:MET:HB2	9:A:649:TRP:NE1	2.19	0.55
3:0:571:VAL:HA	3:0:599:LEU:HD12	1.87	0.55
4:1:51:THR:HG21	4:1:57:LYS:O	2.06	0.55
4:1:279:LYS:HB3	4:1:283:PHE:CD2	2.34	0.55
8:W:17:DA:C8	9:A:607:PRO:HG3	2.41	0.55
10:7:352:LEU:HD22	10:7:406:SER:HA	1.87	0.55
1:E:149:ILE:CB	9:A:649:TRP:HZ2	1.96	0.55
10:7:412:THR:HG22	10:7:489:GLU:HB2	1.87	0.55
2:2:347:ILE:O	2:2:373:MET:HE3	2.04	0.55
3:0:334:PHE:HD1	3:0:337:ARG:HH21	1.54	0.55
4:1:515:LYS:O	4:1:517:ASN:N	2.39	0.55
11:5:47:VAL:HG12	11:5:51:LYS:HE3	1.87	0.55
2:2:42:LEU:HD12	2:2:46:PHE:HE2	1.72	0.55
2:2:463:GLU:N	2:2:467:GLU:OE2	2.39	0.55
10:7:341:TYR:O	10:7:343:PHE:CD2	2.60	0.55
1:E:148:MET:HE3	9:A:652:LEU:HD12	1.88	0.55
2:2:82:LYS:O	2:2:85:HIS:ND1	2.40	0.55
3:0:11:LEU:HD23	3:0:93:ARG:HA	1.87	0.55
4:1:3:HIS:HB2	4:1:103:THR:HG21	1.88	0.55
3:0:619:THR:O	3:0:619:THR:OG1	2.19	0.55
5:4:52:LYS:NZ	5:4:242:GLU:O	2.36	0.55
9:A:240:LYS:O	9:A:241:ARG:NH1	2.39	0.55
3:0:112:LYS:CE	4:1:345:ASP:OD2	2.36	0.55
4:1:474:SER:CB	5:4:34:PRO:HB3	2.37	0.55
5:4:271:ASP:C	5:4:273:ARG:HD3	2.27	0.55
6:6:234:ILE:HB	6:6:263:VAL:HB	1.87	0.55
6:6:267:SER:O	6:6:267:SER:OG	2.23	0.55
10:7:601:ARG:NH2	10:7:669:CYS:SG	2.80	0.55
2:2:84:LEU:HD11	2:2:86:LEU:HD23	1.88	0.55
3:0:119:GLU:OE1	3:0:122:LYS:NZ	2.31	0.55
4:1:22:VAL:HG23	4:1:24:PRO:O	2.06	0.55
4:1:282:GLU:H	4:1:282:GLU:CD	2.09	0.55
4:1:300:LYS:O	4:1:302:MET:N	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:1:510:ASN:O	4:1:513:GLN:HG3	2.07	0.55
6:6:246:ASP:OD1	6:6:247:ILE:N	2.40	0.55
10:7:303:ARG:HB3	10:7:323:VAL:HG13	1.88	0.55
2:2:32:CYS:HB3	2:2:104:PHE:CE1	2.42	0.54
2:2:407:GLN:O	2:2:410:ARG:NH2	2.40	0.54
2:2:454:TYR:CE1	11:5:11:GLN:CB	2.71	0.54
4:1:280:GLU:O	4:1:284:TRP:CE3	2.60	0.54
5:4:303:ASN:HB2	5:4:311:GLN:HG2	1.90	0.54
4:1:279:LYS:HE2	4:1:279:LYS:N	2.22	0.54
10:7:622:MET:O	10:7:624:LYS:NZ	2.39	0.54
3:0:535:ASP:OD1	3:0:535:ASP:N	2.38	0.54
4:1:480:LEU:CB	5:4:51:ILE:HD13	2.37	0.54
1:E:130:LEU:CD2	1:E:149:ILE:HB	2.29	0.54
2:2:91:LYS:HA	2:2:95:THR:O	2.06	0.54
2:2:174:GLU:H	2:2:185:THR:N	2.05	0.54
3:0:117:HIS:CE1	3:0:119:GLU:HB3	2.41	0.54
4:1:14:GLY:HA2	4:1:32:THR:N	2.23	0.54
6:6:372:LEU:H	6:6:375:HIS:CE1	2.25	0.54
9:A:653:LEU:HD21	9:A:657:ARG:HH21	1.71	0.54
2:2:378:ILE:HD12	2:2:382:SER:HB2	1.90	0.54
4:1:279:LYS:HG3	4:1:283:PHE:CD2	2.43	0.54
3:0:515:ASP:O	3:0:517:SER:N	2.41	0.54
10:7:677:TYR:CE1	10:7:715:GLU:HG3	2.43	0.54
2:2:67:ASN:H	2:2:67:ASN:HD22	1.55	0.54
3:0:293:LEU:HD22	3:0:319:GLU:HA	1.88	0.54
4:1:19:ASN:O	4:1:26:GLU:N	2.33	0.54
5:4:288:ILE:HD11	5:4:293:LEU:HD12	1.89	0.54
7:Y:4:DA:OP1	10:7:439:THR:O	2.25	0.54
10:7:403:ILE:HD12	10:7:405:LYS:HB2	1.90	0.54
10:7:575:ARG:C	10:7:577:ARG:H	2.10	0.54
3:0:384:LEU:O	3:0:387:THR:OG1	2.22	0.54
2:2:110:ASN:O	2:2:115:GLY:N	2.41	0.54
2:2:160:SER:O	2:2:164:LEU:N	2.26	0.54
2:2:364:VAL:HA	2:2:382:SER:HB3	1.89	0.54
3:0:237:ALA:H	3:0:460:SER:HG	1.53	0.54
3:0:544:TYR:HB3	4:1:355:ASP:CB	2.38	0.54
4:1:597:PHE:CZ	4:1:613:THR:HA	2.43	0.54
6:6:352:CYS:SG	6:6:353:HIS:N	2.81	0.54
3:0:471:ARG:HH22	3:0:646:TYR:HB3	1.73	0.53
4:1:61:ARG:NE	4:1:88:MET:SD	2.81	0.53
4:1:236:THR:HA	4:1:239:PRO:HG2	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:7:412:THR:OG1	10:7:413:SER:N	2.41	0.53
2:2:338:SER:CA	2:2:407:GLN:CD	2.75	0.53
3:0:325:ILE:HG12	3:0:334:PHE:CE2	2.43	0.53
5:4:193:TYR:CE2	5:4:197:MET:HE1	2.43	0.53
10:7:365:TYR:OH	10:7:390:ALA:O	2.26	0.53
10:7:410:LEU:HB2	10:7:487:LEU:HD23	1.89	0.53
1:E:165:PHE:CE2	1:E:169:LEU:HD11	2.44	0.53
3:0:639:LEU:HG	3:0:650:GLU:HG2	1.90	0.53
4:1:49:GLN:O	4:1:61:ARG:N	2.38	0.53
6:6:293:ASP:CG	6:6:295:THR:HG1	2.12	0.53
10:7:436:ALA:HB1	10:7:444:GLU:HB3	1.89	0.53
1:E:148:MET:CE	9:A:652:LEU:CD1	2.86	0.53
2:2:365:HIS:HB3	2:2:385:ARG:HH22	1.73	0.53
3:0:43:PRO:HB3	3:0:696:TRP:CD2	2.42	0.53
3:0:573:THR:OG1	3:0:575:ASP:OD1	2.26	0.53
5:4:60:PHE:CG	5:4:248:LEU:HD22	2.43	0.53
6:6:217:ALA:O	6:6:220:LEU:N	2.42	0.53
10:7:477:LEU:HA	10:7:482:TRP:NE1	2.24	0.53
3:0:12:PHE:CE1	3:0:14:TYR:HB2	2.40	0.53
3:0:255:ASP:O	3:0:259:ARG:HG3	2.08	0.53
3:0:510:PHE:CE2	3:0:511:GLU:HB2	2.44	0.53
4:1:224:THR:O	4:1:226:GLN:N	2.42	0.53
3:0:643:ARG:NH1	3:0:650:GLU:H	2.06	0.53
4:1:235:SER:O	4:1:238:LYS:N	2.31	0.53
1:E:102:TRP:HB2	1:E:165:PHE:CD2	2.43	0.53
4:1:270:TYR:CZ	4:1:279:LYS:HE2	2.41	0.53
4:1:592:LYS:O	4:1:596:LEU:HG	2.09	0.53
5:4:28:VAL:HB	5:4:75:VAL:HG22	1.90	0.53
5:4:239:GLU:OE1	5:4:240:SER:N	2.42	0.53
8:W:17:DA:N6	9:A:554:ASN:HD21	2.07	0.53
10:7:558:TRP:HB3	10:7:711:LYS:HE2	1.89	0.53
2:2:384:ARG:HA	2:2:387:LEU:HB2	1.89	0.53
2:2:95:THR:OG1	2:2:96:LEU:N	2.42	0.53
3:0:217:LYS:HB2	3:0:308:GLU:HG3	1.91	0.53
4:1:279:LYS:H	4:1:279:LYS:CD	2.22	0.53
10:7:497:MET:HA	10:7:500:ARG:HE	1.74	0.53
2:2:346:LYS:HD3	2:2:377:GLN:HG3	1.91	0.52
2:2:347:ILE:HG22	2:2:373:MET:HE3	1.90	0.52
4:1:188:ASN:HD22	4:1:191:LEU:HG	1.74	0.52
10:7:354:ILE:HD12	10:7:404:LYS:HA	1.90	0.52
1:E:128:LYS:O	1:E:132:LYS:HG3	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:72:LEU:H	2:2:72:LEU:CD2	2.08	0.52
4:1:251:LEU:HD22	4:1:255:LYS:HE3	1.90	0.52
4:1:593:LEU:HA	4:1:596:LEU:HD12	1.89	0.52
10:7:656:LYS:NZ	10:7:686:ARG:HH21	2.06	0.52
3:0:343:LYS:HG2	3:0:347:LYS:HZ3	1.74	0.52
1:E:148:MET:HE1	9:A:652:LEU:HD12	1.91	0.52
2:2:396:ILE:O	2:2:400:LEU:HG	2.10	0.52
2:2:416:LEU:O	2:2:432:VAL:CG1	2.57	0.52
3:0:500:GLY:HA3	3:0:521:ASN:HD21	1.74	0.52
10:7:560:PRO:HD2	10:7:586:THR:HG21	1.92	0.52
5:4:64:HIS:HA	5:4:253:PHE:CZ	2.45	0.52
10:7:133:TRP:N	10:7:142:ILE:O	2.42	0.52
1:E:130:LEU:CB	1:E:149:ILE:HD12	2.33	0.52
4:1:2:SER:HA	4:1:99:ASN:HB3	1.91	0.52
4:1:48:LEU:HD21	4:1:104:LEU:CB	2.39	0.52
4:1:4:SER:HA	4:1:16:ILE:O	2.10	0.52
4:1:231:TYR:HA	4:1:385:MET:SD	2.50	0.52
5:4:305:CYS:HB3	5:4:312:PHE:CZ	2.45	0.52
6:6:175:ARG:CZ	6:6:202:GLN:HE22	2.23	0.52
2:2:346:LYS:HB3	2:2:348:TYR:CE1	2.45	0.52
2:2:419:LYS:NZ	2:2:426:CYS:O	2.40	0.52
3:0:308:GLU:CD	3:0:308:GLU:H	2.13	0.52
4:1:551:ARG:O	4:1:555:THR:OG1	2.21	0.52
10:7:499:ARG:NH1	10:7:525:GLY:O	2.36	0.52
10:7:549:ILE:HD13	10:7:549:ILE:N	2.15	0.52
2:2:17:ILE:HG23	2:2:21:VAL:HG23	1.92	0.52
3:0:440:LEU:HD13	3:0:641:PHE:HB2	1.91	0.52
5:4:258:LEU:C	5:4:260:PRO:HD3	2.30	0.52
7:Y:3:DC:H2"	7:Y:4:DA:C8	2.45	0.52
9:A:585:PHE:HZ	9:A:659:ARG:HD3	1.74	0.52
10:7:256:ILE:N	10:7:317:GLU:O	2.43	0.52
2:2:10:VAL:HG12	2:2:205:LEU:HD11	1.91	0.51
3:0:12:PHE:HD1	3:0:14:TYR:H	1.56	0.51
3:0:183:LYS:O	3:0:187:GLU:HG2	2.09	0.51
3:0:577:GLN:OE1	4:1:340:ASP:CG	2.49	0.51
5:4:87:TYR:CE1	5:4:121:VAL:HG22	2.45	0.51
5:4:90:SER:HB3	6:6:407:GLN:OE1	2.10	0.51
1:E:107:ARG:NH1	10:7:768:GLU:OE1	2.41	0.51
4:1:42:LEU:HB2	4:1:111:TYR:HE2	1.74	0.51
4:1:61:ARG:HD2	9:A:95:PHE:CD2	2.45	0.51
5:4:40:PHE:HA	5:4:43:GLU:CD	2.31	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:7:354:ILE:HB	10:7:404:LYS:HD2	1.90	0.51
1:E:126:SER:HA	1:E:159:PHE:CD1	2.39	0.51
4:1:490:VAL:O	4:1:492:ASN:N	2.41	0.51
5:4:126:VAL:HA	5:4:129:ILE:HG22	1.90	0.51
5:4:228:THR:HG21	5:4:235:TYR:HB2	1.92	0.51
5:4:298:ILE:O	5:4:300:PRO:HD3	2.10	0.51
9:A:374:ASP:OD1	9:A:391:ARG:NH2	2.43	0.51
3:0:109:THR:O	3:0:212:TYR:OH	2.13	0.51
3:0:625:ILE:HD11	3:0:658:ALA:HB1	1.92	0.51
6:6:300:LEU:O	6:6:303:GLU:HG2	2.09	0.51
3:0:65:GLU:O	3:0:67:ARG:HG2	2.10	0.51
11:5:27:MET:HE3	11:5:46:LYS:HB3	1.92	0.51
3:0:104:ARG:NH1	3:0:171:LEU:O	2.33	0.51
3:0:241:ASP:OD1	3:0:241:ASP:N	2.42	0.51
3:0:375:ARG:HG3	3:0:410:SER:OG	2.11	0.51
6:6:254:LEU:O	6:6:257:GLU:N	2.43	0.51
10:7:410:LEU:HD21	10:7:460:VAL:HG21	1.91	0.51
3:0:646:TYR:HA	3:0:647:ARG:CZ	2.40	0.51
4:1:12:VAL:HG11	4:1:36:LYS:HD2	1.93	0.51
4:1:25:ALA:O	4:1:111:TYR:OH	2.28	0.51
6:6:253:SER:O	6:6:256:SER:OG	2.16	0.51
10:7:369:SER:HB3	10:7:384:ILE:HD13	1.92	0.51
10:7:343:PHE:HB2	10:7:378:ARG:HH11	1.73	0.51
2:2:486:ASP:O	2:2:489:LYS:NZ	2.31	0.51
3:0:138:ASN:O	3:0:142:LYS:HG2	2.11	0.51
3:0:169:ASP:OD1	3:0:170:TYR:N	2.41	0.51
4:1:491:PRO:CB	5:4:245:ILE:HD13	2.33	0.51
7:Y:3:DC:OP2	10:7:415:VAL:HG11	2.11	0.51
10:7:165:SER:O	10:7:172:GLU:N	2.40	0.51
10:7:264:PRO:O	10:7:269:LEU:N	2.41	0.51
10:7:663:ASP:OD2	10:7:693:ALA:HB2	2.11	0.51
10:7:734:LYS:HE2	10:7:736:ILE:HD11	1.92	0.51
2:2:338:SER:CA	2:2:351:SER:CB	2.85	0.51
2:2:356:GLN:O	2:2:360:LEU:HG	2.11	0.51
2:2:397:ILE:O	2:2:401:GLU:HG2	2.11	0.51
3:0:56:THR:HG21	3:0:233:ILE:HD11	1.92	0.51
3:0:571:VAL:HG11	4:1:375:LEU:HD13	1.93	0.51
3:0:746:LYS:O	3:0:750:SER:HB3	2.10	0.51
3:0:18:TYR:HE2	3:0:673:LYS:HD2	1.76	0.50
3:0:97:LEU:O	3:0:100:GLN:NE2	2.43	0.50
3:0:156:CYS:C	3:0:158:TYR:H	2.15	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:0:422:PRO:HG2	3:0:423:TYR:HD1	1.76	0.50
7:Y:12:DG:H2''	7:Y:13:DA:OP2	2.11	0.50
9:A:377:ARG:O	9:A:377:ARG:HD3	2.11	0.50
10:7:490:VAL:HB	10:7:519:ARG:HH22	1.76	0.50
1:E:165:PHE:CZ	1:E:169:LEU:HD11	2.46	0.50
3:0:94:THR:HG22	3:0:101:GLU:HG2	1.93	0.50
3:0:169:ASP:CG	3:0:170:TYR:H	2.14	0.50
3:0:506:ILE:HG21	3:0:521:ASN:HD22	1.75	0.50
3:0:507:SER:OG	3:0:685:ARG:NH2	2.30	0.50
5:4:25:LEU:HG	5:4:27:THR:HG22	1.93	0.50
7:Y:3:DC:OP1	10:7:415:VAL:HG22	2.10	0.50
8:W:10:DC:H2''	8:W:11:DA:C8	2.46	0.50
2:2:56:GLU:HG3	2:2:97:MET:HB3	1.92	0.50
2:2:347:ILE:CD1	2:2:364:VAL:HG21	2.42	0.50
2:2:480:VAL:HG13	2:2:493:ILE:HD12	1.93	0.50
3:0:331:PHE:HA	3:0:334:PHE:CD2	2.46	0.50
3:0:492:PHE:CD2	3:0:494:PRO:HD3	2.46	0.50
10:7:446:PHE:HB3	10:7:473:VAL:HG22	1.93	0.50
11:5:10:VAL:HB	11:5:40:LEU:HB2	1.93	0.50
2:2:497:GLY:O	2:2:500:GLN:HG2	2.11	0.50
3:0:270:ARG:HA	3:0:273:GLU:CD	2.31	0.50
3:0:318:THR:OG1	3:0:319:GLU:N	2.45	0.50
6:6:119:GLN:O	6:6:120:ARG:HG2	2.11	0.50
6:6:120:ARG:HD3	6:6:309:PRO:HD3	1.93	0.50
10:7:303:ARG:HG2	10:7:304:GLU:H	1.76	0.50
1:E:148:MET:CA	9:A:649:TRP:CD1	2.92	0.50
2:2:382:SER:HA	2:2:385:ARG:HH11	1.75	0.50
3:0:123:GLU:HB3	3:0:129:VAL:HG22	1.92	0.50
4:1:501:LYS:O	4:1:505:THR:HG23	2.12	0.50
4:1:503:VAL:CG1	5:4:247:TYR:CE1	2.94	0.50
10:7:250:VAL:H	10:7:329:ARG:CZ	2.25	0.50
10:7:351:ASP:HA	10:7:405:LYS:HD3	1.94	0.50
1:E:107:ARG:NH2	10:7:768:GLU:CG	2.74	0.50
1:E:107:ARG:O	1:E:108:ASN:HB2	2.12	0.50
1:E:142:SER:OG	1:E:145:THR:OG1	2.18	0.50
3:0:275:ARG:NH2	3:0:276:LYS:HG3	2.22	0.50
3:0:510:PHE:CG	3:0:511:GLU:N	2.80	0.50
6:6:424:SER:O	6:6:426:ARG:N	2.45	0.50
10:7:624:LYS:HG3	10:7:653:PHE:HE1	1.76	0.50
4:1:51:THR:HG23	4:1:59:MET:O	2.12	0.50
4:1:66:VAL:HG21	4:1:81:VAL:HG22	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:4:50:ILE:O	5:4:53:VAL:N	2.45	0.50
10:7:677:TYR:HB3	10:7:718:TYR:CE2	2.46	0.50
2:2:417:GLU:CD	2:2:430:LEU:HD12	2.32	0.50
2:2:486:ASP:N	2:2:486:ASP:OD1	2.44	0.50
3:0:60:GLN:HE22	3:0:204:ASN:HB3	1.75	0.50
5:4:211:ASP:HB3	5:4:234:VAL:HG13	1.93	0.50
9:A:625:ALA:HA	9:A:655:LYS:HZ1	1.74	0.50
3:0:76:MET:HA	3:0:79:ILE:HB	1.93	0.50
3:0:94:THR:O	3:0:98:GLY:N	2.40	0.50
3:0:585:THR:HG21	4:1:383:GLU:HG2	1.93	0.50
10:7:446:PHE:O	10:7:447:GLN:HG2	2.12	0.50
3:0:21:GLN:O	3:0:25:MET:HG2	2.12	0.49
3:0:312:LEU:H	3:0:412:TYR:HH	1.51	0.49
3:0:492:PHE:HD2	3:0:494:PRO:HD3	1.77	0.49
3:0:615:GLN:OE1	3:0:615:GLN:N	2.36	0.49
3:0:625:ILE:HB	3:0:686:PHE:CZ	2.47	0.49
3:0:627:PHE:CD1	3:0:654:LEU:HD12	2.47	0.49
6:6:139:LYS:NZ	6:6:144:ASN:HB3	2.27	0.49
6:6:233:LEU:HA	6:6:262:LYS:O	2.12	0.49
4:1:9:PHE:O	4:1:12:VAL:HG12	2.11	0.49
5:4:38:THR:O	5:4:42:GLU:N	2.35	0.49
5:4:200:ILE:HG12	5:4:227:THR:HG23	1.95	0.49
8:W:24:DG:H4'	10:7:463:THR:HB	1.94	0.49
10:7:443:LYS:HE2	10:7:446:PHE:CZ	2.46	0.49
10:7:456:THR:HG23	10:7:459:MET:H	1.77	0.49
10:7:550:ALA:HB2	10:7:701:PHE:CD2	2.47	0.49
3:0:270:ARG:O	3:0:273:GLU:HG2	2.12	0.49
3:0:726:GLN:CD	6:6:292:LEU:CD2	2.75	0.49
4:1:51:THR:HG22	9:A:95:PHE:CD1	2.47	0.49
5:4:290:SER:O	5:4:293:LEU:N	2.44	0.49
10:7:306:GLU:OE1	10:7:346:ASP:HB2	2.11	0.49
10:7:407:VAL:HG13	10:7:484:PHE:HB3	1.94	0.49
3:0:65:GLU:N	3:0:65:GLU:OE1	2.45	0.49
3:0:123:GLU:OE1	3:0:124:ARG:N	2.45	0.49
3:0:397:THR:O	3:0:400:LYS:HG2	2.12	0.49
3:0:422:PRO:HG2	3:0:423:TYR:CD1	2.47	0.49
3:0:510:PHE:O	3:0:511:GLU:HG3	2.11	0.49
5:4:24:SER:HG	5:4:64:HIS:HE2	1.59	0.49
5:4:114:MET:C	5:4:116:ARG:N	2.63	0.49
3:0:374:LEU:HD11	3:0:406:ALA:HB1	1.95	0.49
3:0:496:ILE:HD12	3:0:686:PHE:HB3	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:1:235:SER:C	4:1:239:PRO:HD2	2.32	0.49
4:1:306:ARG:O	4:1:308:ASP:N	2.45	0.49
5:4:30:ILE:O	5:4:77:ALA:HA	2.12	0.49
7:Y:-1:DC:H2'	7:Y:0:DT:H71	1.94	0.49
10:7:705:PHE:HE2	10:7:723:GLN:HE22	1.58	0.49
2:2:86:LEU:O	2:2:101:ASN:N	2.25	0.49
3:0:108:LEU:HD22	3:0:200:ILE:HD11	1.94	0.49
3:0:586:TYR:OH	3:0:616:TYR:O	2.19	0.49
3:0:694:PRO:HG2	3:0:697:ILE:HG13	1.94	0.49
4:1:270:TYR:CD2	4:1:279:LYS:CB	2.96	0.49
5:4:27:THR:O	5:4:27:THR:OG1	2.14	0.49
10:7:550:ALA:CB	10:7:701:PHE:CG	2.96	0.49
11:5:36:ASP:OD1	11:5:39:HIS:N	2.46	0.49
10:7:457:TYR:HE1	10:7:487:LEU:HD22	1.76	0.49
2:2:378:ILE:HD11	2:2:383:ILE:HG22	1.93	0.49
3:0:575:ASP:OD1	3:0:575:ASP:N	2.46	0.49
3:0:629:TYR:CG	3:0:629:TYR:O	2.66	0.49
6:6:212:ASN:HD21	6:6:244:PRO:HG2	1.77	0.49
3:0:192:PRO:O	3:0:196:VAL:HG12	2.12	0.49
3:0:446:ILE:O	3:0:449:VAL:HG22	2.13	0.49
4:1:235:SER:O	4:1:237:ILE:N	2.46	0.49
4:1:285:ALA:HA	4:1:288:PHE:CD2	2.47	0.49
10:7:576:LYS:HB2	10:7:576:LYS:HZ3	1.77	0.49
11:5:8:ALA:HB2	11:5:44:PRO:HG3	1.94	0.49
2:2:382:SER:HA	2:2:385:ARG:NH1	2.28	0.49
10:7:460:VAL:HG22	10:7:474:MET:HE1	1.95	0.49
10:7:553:GLN:HB3	10:7:734:LYS:NZ	2.28	0.49
3:0:625:ILE:HD12	3:0:626:PRO:HD2	1.95	0.48
4:1:470:LEU:HA	5:4:38:THR:CB	2.42	0.48
6:6:209:SER:OG	6:6:212:ASN:OD1	2.18	0.48
6:6:376:LEU:O	6:6:379:SER:OG	2.22	0.48
8:W:18:DC:H2''	8:W:19:DA:C8	2.48	0.48
11:5:52:HIS:O	11:5:56:ARG:HG3	2.13	0.48
4:1:260:PHE:CG	4:1:267:LYS:HD3	2.48	0.48
3:0:255:ASP:N	3:0:255:ASP:OD1	2.45	0.48
10:7:693:ALA:HA	10:7:695:ARG:HH21	1.77	0.48
11:5:32:LEU:H	11:5:42:VAL:HA	1.76	0.48
1:E:139:ALA:HA	9:A:627:ASP:O	2.13	0.48
2:2:459:TYR:OH	2:2:493:ILE:O	2.25	0.48
3:0:452:ARG:HH21	3:0:453:PHE:HE1	1.61	0.48
10:7:434:ASN:OD1	10:7:450:SER:OG	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:56:GLU:OE1	2:2:56:GLU:N	2.46	0.48
3:0:38:SER:OG	3:0:479:LEU:N	2.32	0.48
3:0:306:PHE:CD2	3:0:307:VAL:HG23	2.47	0.48
3:0:529:PHE:O	3:0:533:THR:HG23	2.13	0.48
3:0:708:LEU:HB3	3:0:712:MET:HG3	1.94	0.48
4:1:199:VAL:HG22	4:1:204:LEU:O	2.13	0.48
4:1:279:LYS:CA	4:1:279:LYS:HE2	2.41	0.48
4:1:477:MET:CB	5:4:49:SER:CB	2.91	0.48
5:4:254:ILE:CG2	5:4:261:ILE:HD13	2.43	0.48
6:6:241:THR:OG1	6:6:243:ASP:OD1	2.19	0.48
6:6:309:PRO:HA	6:6:312:LYS:NZ	2.27	0.48
7:Y:20:DG:C2'	7:Y:21:DT:H71	2.43	0.48
10:7:303:ARG:HA	10:7:321:GLU:N	2.27	0.48
3:0:235:ASP:OD1	3:0:236:GLU:N	2.46	0.48
3:0:740:SER:H	3:0:744:LEU:HD22	1.77	0.48
4:1:208:GLU:OE1	4:1:208:GLU:N	2.23	0.48
10:7:386:LEU:HB2	10:7:392:LYS:HG3	1.96	0.48
4:1:178:LEU:HA	4:1:181:GLN:OE1	2.14	0.48
7:Y:17:DT:H2'	7:Y:18:DG:C8	2.49	0.48
8:W:10:DC:H2''	8:W:11:DA:H8	1.79	0.48
1:E:148:MET:HG2	9:A:648:SER:HA	1.95	0.48
2:2:346:LYS:HD2	2:2:346:LYS:HA	1.49	0.48
10:7:407:VAL:H	10:7:452:LEU:HD22	1.79	0.48
10:7:633:GLN:HA	10:7:636:ARG:HB2	1.96	0.48
4:1:204:LEU:HD12	4:1:205:PRO:HD2	1.95	0.48
9:A:377:ARG:HA	9:A:383:MET:HG3	1.96	0.48
10:7:557:VAL:HG21	10:7:594:LEU:HD11	1.96	0.48
11:5:30:ILE:HG21	11:5:46:LYS:HB2	1.95	0.48
2:2:174:GLU:H	2:2:185:THR:H	1.61	0.48
3:0:169:ASP:O	3:0:198:ARG:NH2	2.41	0.48
3:0:742:GLU:OE2	3:0:746:LYS:NZ	2.43	0.48
5:4:276:CYS:HB3	5:4:279:THR:HB	1.94	0.48
7:Y:-3:DA:N1	8:W:28:DT:O2	2.47	0.48
9:A:359:MET:O	9:A:361:ARG:HD3	2.14	0.48
10:7:303:ARG:HB3	10:7:323:VAL:HG22	1.94	0.48
10:7:500:ARG:O	10:7:504:THR:OG1	2.25	0.48
10:7:624:LYS:HD2	10:7:651:THR:HB	1.95	0.48
3:0:326:ARG:O	3:0:380:ARG:NH2	2.47	0.47
3:0:541:PHE:HD2	3:0:547:MET:HE2	1.79	0.47
4:1:7:ALA:CB	4:1:16:ILE:HD12	2.44	0.47
4:1:93:ASN:OD1	4:1:94:ARG:N	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:372:LEU:HD22	6:6:375:HIS:HE1	1.79	0.47
2:2:405:HIS:NE2	2:2:409:ARG:HA	2.29	0.47
3:0:713:ALA:O	3:0:717:THR:HG22	2.14	0.47
4:1:259:ILE:O	4:1:263:TYR:N	2.40	0.47
3:0:17:ILE:HG22	3:0:739:TRP:O	2.13	0.47
3:0:312:LEU:O	3:0:314:GLN:N	2.48	0.47
3:0:737:SER:O	3:0:737:SER:OG	2.28	0.47
6:6:165:PRO:HG2	6:6:375:HIS:HB3	1.96	0.47
6:6:288:TYR:CG	6:6:288:TYR:O	2.65	0.47
7:Y:22:DC:H2'	7:Y:23:DA:C8	2.49	0.47
10:7:366:GLN:NE2	10:7:391:GLY:O	2.47	0.47
10:7:554:CYS:HB2	10:7:733:PHE:HA	1.96	0.47
10:7:613:TYR:CD2	10:7:766:LYS:HE2	2.47	0.47
3:0:119:GLU:HA	3:0:122:LYS:NZ	2.29	0.47
3:0:254:THR:HA	3:0:257:LEU:HD13	1.95	0.47
3:0:486:THR:O	3:0:486:THR:OG1	2.32	0.47
4:1:339:LEU:HA	4:1:342:ASN:HB3	1.96	0.47
6:6:160:PHE:HA	6:6:305:VAL:HG13	1.96	0.47
6:6:309:PRO:HA	6:6:312:LYS:CE	2.44	0.47
10:7:303:ARG:HA	10:7:320:ASN:CA	2.44	0.47
10:7:411:CYS:HB3	10:7:417:VAL:HG22	1.97	0.47
3:0:156:CYS:HB3	3:0:158:TYR:HD2	1.79	0.47
3:0:166:GLU:OE2	3:0:170:TYR:HA	2.14	0.47
3:0:259:ARG:NH1	3:0:398:ALA:HB2	2.30	0.47
4:1:284:TRP:HA	4:1:287:PHE:HB3	1.95	0.47
10:7:354:ILE:HG21	10:7:401:CYS:HA	1.97	0.47
10:7:610:ASP:OD2	10:7:676:HIS:N	2.47	0.47
2:2:346:LYS:CD	2:2:377:GLN:HG3	2.44	0.47
2:2:450:ARG:NH2	11:5:54:LEU:HG	2.30	0.47
3:0:37:ASN:HD22	3:0:475:PHE:HD2	1.63	0.47
3:0:173:LYS:HD2	3:0:173:LYS:HA	1.75	0.47
3:0:494:PRO:HB2	3:0:701:LEU:HD13	1.97	0.47
10:7:410:LEU:HA	10:7:455:SER:O	2.15	0.47
1:E:128:LYS:HZ2	10:7:765:LEU:HB2	1.79	0.47
1:E:137:ILE:O	9:A:625:ALA:O	2.33	0.47
3:0:286:TYR:HB3	3:0:326:ARG:NH2	2.29	0.47
3:0:349:LEU:HG	3:0:350:HIS:N	2.29	0.47
3:0:545:LEU:HB2	4:1:355:ASP:O	2.13	0.47
3:0:628:GLN:O	3:0:630:THR:N	2.48	0.47
4:1:18:ILE:HG22	4:1:20:GLU:CG	2.45	0.47
5:4:236:LEU:HA	5:4:236:LEU:HD23	1.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:144:ASN:OD1	6:6:146:HIS:N	2.48	0.47
10:7:475:ASP:O	10:7:478:THR:OG1	2.26	0.47
10:7:610:ASP:H	10:7:674:SER:CB	2.27	0.47
11:5:16:ILE:HD13	11:5:19:LEU:HD12	1.96	0.47
2:2:90:ASN:ND2	2:2:92:SER:HB2	2.30	0.47
2:2:412:ALA:O	2:2:416:LEU:HB2	2.14	0.47
3:0:257:LEU:O	3:0:261:THR:HG23	2.14	0.47
3:0:378:SER:O	3:0:382:SER:OG	2.33	0.47
3:0:580:SER:CA	4:1:339:LEU:CD2	2.74	0.47
4:1:103:THR:HG22	4:1:107:ILE:HD11	1.97	0.47
6:6:377:ALA:HA	6:6:380:TYR:CD2	2.49	0.47
9:A:98:VAL:O	9:A:98:VAL:HG13	2.14	0.47
10:7:461:ALA:HB3	10:7:497:MET:HB2	1.97	0.47
10:7:540:TRP:O	10:7:544:SER:OG	2.20	0.47
2:2:338:SER:CA	2:2:407:GLN:CB	2.85	0.47
3:0:743:ASP:O	3:0:747:HIS:N	2.44	0.47
2:2:19:GLN:HG3	2:2:85:HIS:CD2	2.50	0.47
3:0:313:PRO:O	3:0:314:GLN:HG2	2.14	0.47
4:1:517:ASN:O	4:1:519:VAL:N	2.48	0.47
4:1:561:LEU:O	4:1:564:PHE:N	2.48	0.47
5:4:255:ASP:N	5:4:256:PRO:HD2	2.24	0.46
6:6:227:HIS:HB3	6:6:318:THR:OG1	2.15	0.46
6:6:309:PRO:HA	6:6:312:LYS:HE3	1.96	0.46
9:A:658:ILE:HA	9:A:661:LYS:HG2	1.97	0.46
10:7:680:ARG:HB3	10:7:722:ARG:HB2	1.97	0.46
3:0:77:SER:O	3:0:80:GLU:HG2	2.14	0.46
3:0:119:GLU:HA	3:0:122:LYS:HZ3	1.79	0.46
3:0:478:VAL:HB	3:0:479:LEU:HD12	1.97	0.46
3:0:549:SER:O	3:0:553:MET:HG3	2.14	0.46
4:1:51:THR:HG22	9:A:95:PHE:HD1	1.81	0.46
4:1:336:ILE:HG22	4:1:337:ILE:HD13	1.97	0.46
6:6:349:CYS:HB3	6:6:353:HIS:H	1.80	0.46
10:7:385:VAL:HG13	10:7:537:GLU:HA	1.97	0.46
3:0:297:ASP:HB3	3:0:386:ARG:HH22	1.81	0.46
4:1:188:ASN:HB3	4:1:191:LEU:HD12	1.97	0.46
4:1:492:ASN:O	4:1:495:VAL:N	2.48	0.46
9:A:560:GLU:HB3	9:A:562:PHE:CE2	2.49	0.46
10:7:303:ARG:NE	10:7:321:GLU:O	2.31	0.46
4:1:18:ILE:HG22	4:1:20:GLU:HG3	1.97	0.46
7:Y:10:DT:C2'	7:Y:11:DG:C8	2.99	0.46
9:A:653:LEU:HD21	9:A:657:ARG:NH2	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:7:410:LEU:N	10:7:486:ILE:O	2.42	0.46
1:E:101:LEU:HD13	9:A:657:ARG:NH2	2.30	0.46
2:2:381:GLU:O	2:2:385:ARG:HD3	2.15	0.46
3:0:499:LYS:O	3:0:709:SER:HA	2.14	0.46
4:1:48:LEU:HD21	4:1:104:LEU:HB3	1.97	0.46
9:A:97:ASP:OD1	9:A:97:ASP:N	2.49	0.46
10:7:343:PHE:CD1	10:7:344:ARG:N	2.79	0.46
10:7:354:ILE:O	10:7:404:LYS:HE2	2.16	0.46
10:7:550:ALA:O	10:7:701:PHE:O	2.34	0.46
3:0:130:ASP:O	3:0:134:ARG:HG3	2.13	0.46
3:0:607:SER:OG	3:0:664:GLN:OE1	2.20	0.46
4:1:465:SER:O	4:1:470:LEU:N	2.48	0.46
5:4:64:HIS:HA	5:4:253:PHE:HZ	1.81	0.46
9:A:465:GLU:HG2	9:A:480:LYS:HD2	1.96	0.46
1:E:139:ALA:HB2	9:A:628:GLY:CA	2.46	0.46
3:0:97:LEU:HB3	3:0:100:GLN:OE1	2.15	0.46
3:0:123:GLU:OE1	3:0:125:LYS:N	2.47	0.46
3:0:193:TYR:OH	3:0:197:ARG:NH2	2.49	0.46
3:0:287:GLU:O	3:0:290:VAL:HG12	2.16	0.46
4:1:236:THR:HA	4:1:240:VAL:H	1.81	0.46
6:6:276:LEU:O	6:6:280:THR:HG23	2.16	0.46
7:Y:15:DG:C2	8:W:11:DA:C2	3.03	0.46
10:7:418:MET:HA	10:7:421:ARG:NH1	2.31	0.46
6:6:136:MET:HE2	6:6:145:ARG:HB3	1.98	0.46
10:7:383:ILE:HG13	10:7:528:ASN:HA	1.98	0.46
1:E:165:PHE:O	1:E:169:LEU:HG	2.16	0.46
2:2:13:TYR:O	2:2:16:GLU:HB3	2.15	0.46
2:2:405:HIS:CE1	2:2:409:ARG:HA	2.51	0.46
3:0:158:TYR:HB3	3:0:191:CYS:N	2.31	0.46
10:7:464:ARG:HG2	10:7:466:ARG:NH2	2.31	0.46
3:0:127:THR:HA	4:1:348:VAL:CG1	2.42	0.46
3:0:341:TYR:HE1	3:0:366:LEU:HD12	1.81	0.46
4:1:188:ASN:ND2	4:1:190:VAL:HB	2.26	0.46
6:6:145:ARG:HD3	6:6:266:LEU:HD12	1.98	0.46
2:2:465:SER:HA	2:2:489:LYS:HE3	1.98	0.45
3:0:142:LYS:HG3	3:0:143:ARG:N	2.30	0.45
3:0:191:CYS:HB2	13:0:801:SF4:S2	2.56	0.45
3:0:252:LEU:HD23	3:0:252:LEU:HA	1.69	0.45
3:0:343:LYS:HZ3	3:0:347:LYS:HD2	1.81	0.45
3:0:681:LEU:HD23	3:0:686:PHE:CE1	2.52	0.45
4:1:184:LEU:HD12	4:1:184:LEU:HA	1.66	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:101:LEU:HD13	9:A:657:ARG:NE	2.31	0.45
2:2:337:GLY:O	2:2:406:PRO:HB2	2.17	0.45
3:0:311:VAL:CG1	3:0:317:LEU:HD11	2.45	0.45
6:6:108:LYS:O	6:6:109:ARG:NE	2.48	0.45
6:6:164:ASN:O	6:6:166:ILE:N	2.49	0.45
6:6:429:CYS:SG	6:6:430:GLU:N	2.89	0.45
10:7:352:LEU:HD12	10:7:352:LEU:HA	1.76	0.45
3:0:273:GLU:HA	3:0:276:LYS:HE2	1.97	0.45
4:1:24:PRO:C	4:1:111:TYR:OH	2.54	0.45
5:4:135:LEU:HA	5:4:137:LYS:NZ	2.31	0.45
5:4:276:CYS:SG	5:4:279:THR:N	2.76	0.45
6:6:127:ILE:HG12	6:6:221:LEU:HD11	1.99	0.45
6:6:182:VAL:HG11	6:6:199:ILE:HD11	1.98	0.45
9:A:658:ILE:HA	9:A:661:LYS:HE2	1.97	0.45
10:7:135:SER:N	10:7:140:ARG:O	2.50	0.45
10:7:581:TYR:CD1	10:7:713:THR:HB	2.52	0.45
3:0:316:LEU:C	3:0:317:LEU:HD12	2.37	0.45
8:W:25:DA:H2''	8:W:26:DG:H5'	1.98	0.45
9:A:99:THR:HG22	9:A:100:ASP:H	1.81	0.45
10:7:370:LEU:HA	10:7:373:MET:HG3	1.97	0.45
1:E:133:ILE:HG21	9:A:656:LEU:HD11	1.99	0.45
3:0:92:TYR:OH	3:0:96:GLU:OE2	2.25	0.45
4:1:389:LEU:HD23	4:1:389:LEU:HA	1.60	0.45
9:A:392:ILE:O	9:A:398:GLY:HA3	2.16	0.45
10:7:501:VAL:O	10:7:505:ILE:HG12	2.17	0.45
3:0:140:GLN:HA	3:0:143:ARG:HE	1.81	0.45
3:0:380:ARG:O	3:0:383:LEU:HD23	2.16	0.45
3:0:408:LEU:HD23	3:0:408:LEU:HA	1.72	0.45
5:4:31:GLU:HG3	5:4:180:THR:HA	1.99	0.45
5:4:117:ARG:HA	5:4:120:ASN:ND2	2.31	0.45
2:2:7:LYS:NZ	2:2:9:SER:HA	2.32	0.45
4:1:251:LEU:O	4:1:255:LYS:N	2.26	0.45
10:7:394:LEU:HD21	10:7:424:PHE:CZ	2.52	0.45
10:7:495:ALA:HB1	10:7:527:LEU:HD21	1.98	0.45
1:E:128:LYS:NZ	10:7:765:LEU:HD22	2.32	0.45
1:E:130:LEU:HB2	1:E:149:ILE:HD11	1.97	0.45
2:2:43:ALA:O	2:2:47:ILE:HG12	2.17	0.45
5:4:177:LEU:HD12	5:4:211:ASP:O	2.17	0.45
10:7:449:GLU:H	10:7:449:GLU:HG2	1.55	0.45
10:7:550:ALA:HB1	10:7:701:PHE:CG	2.51	0.45
1:E:124:VAL:CG1	1:E:159:PHE:HB3	2.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:47:ILE:O	2:2:51:VAL:HG23	2.17	0.45
2:2:238:LYS:H	2:2:269:PHE:N	2.14	0.45
3:0:162:LEU:HG	3:0:167:VAL:HG23	1.98	0.45
5:4:60:PHE:CD1	5:4:248:LEU:HD22	2.52	0.45
10:7:498:PHE:CD2	10:7:527:LEU:HD22	2.52	0.45
3:0:223:SER:O	3:0:225:GLU:N	2.50	0.45
3:0:471:ARG:NH2	3:0:646:TYR:HB3	2.31	0.45
5:4:40:PHE:O	5:4:43:GLU:HG2	2.16	0.45
6:6:263:VAL:HG13	6:6:277:CYS:SG	2.56	0.45
7:Y:13:DA:H1'	7:Y:14:DT:H5'	1.99	0.45
10:7:417:VAL:HG21	10:7:456:THR:HB	1.98	0.45
1:E:137:ILE:C	9:A:628:GLY:O	2.55	0.44
3:0:525:MET:O	3:0:528:GLU:HG2	2.17	0.44
6:6:293:ASP:OD1	6:6:295:THR:N	2.44	0.44
9:A:585:PHE:HE2	9:A:655:LYS:HE2	1.82	0.44
10:7:484:PHE:CZ	10:7:511:LEU:HB2	2.52	0.44
1:E:101:LEU:HD22	9:A:657:ARG:CG	2.42	0.44
2:2:67:ASN:ND2	2:2:67:ASN:N	2.64	0.44
3:0:745:ILE:H	3:0:745:ILE:HG13	1.51	0.44
4:1:201:ASN:OD1	4:1:201:ASN:N	2.49	0.44
5:4:288:ILE:HD11	5:4:293:LEU:CD1	2.47	0.44
3:0:83:LEU:HD23	3:0:83:LEU:HA	1.56	0.44
3:0:327:ARG:HD2	3:0:329:GLU:HG2	1.98	0.44
3:0:341:TYR:CE2	3:0:345:ARG:HG3	2.52	0.44
3:0:594:ARG:HB3	3:0:594:ARG:NH1	2.32	0.44
3:0:668:ARG:HD3	3:0:668:ARG:HA	1.74	0.44
4:1:192:MET:O	4:1:196:GLN:HG3	2.17	0.44
9:A:212:LYS:HA	9:A:212:LYS:HE2	1.98	0.44
9:A:380:ALA:HB3	9:A:383:MET:HG2	1.99	0.44
10:7:252:GLY:HA2	10:7:316:PHE:CZ	2.52	0.44
3:0:209:SER:OG	3:0:210:TYR:N	2.51	0.44
3:0:338:LEU:O	3:0:342:LEU:HG	2.17	0.44
4:1:254:GLU:O	4:1:257:LEU:HG	2.17	0.44
4:1:270:TYR:OH	4:1:279:LYS:CE	2.65	0.44
5:4:175:ARG:HB3	5:4:209:PRO:HD2	1.99	0.44
10:7:715:GLU:N	10:7:715:GLU:OE1	2.50	0.44
3:0:25:MET:SD	3:0:55:LEU:HB2	2.57	0.44
3:0:279:SER:HA	3:0:282:LEU:HG	1.99	0.44
3:0:298:ILE:O	3:0:299:LEU:HD23	2.17	0.44
3:0:702:SER:N	3:0:705:ASP:OD2	2.51	0.44
10:7:353:ASP:HB3	10:7:451:GLY:CA	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:7:406:SER:HB2	10:7:482:TRP:CE3	2.52	0.44
2:2:370:PHE:HZ	2:2:375:LEU:HD22	1.82	0.44
3:0:272:SER:HA	3:0:275:ARG:HH21	1.83	0.44
4:1:26:GLU:CB	4:1:41:VAL:HA	2.48	0.44
5:4:60:PHE:CE1	5:4:253:PHE:HD1	2.35	0.44
5:4:224:LEU:O	5:4:228:THR:HG22	2.18	0.44
10:7:307:ASP:HA	10:7:340:GLU:O	2.17	0.44
10:7:347:HIS:CG	10:7:347:HIS:O	2.70	0.44
1:E:102:TRP:CD2	1:E:102:TRP:O	2.70	0.44
2:2:401:GLU:OE1	2:2:433:LEU:HD22	2.18	0.44
3:0:171:LEU:HB3	3:0:172:PRO:HD2	2.00	0.44
3:0:419:ILE:HG23	3:0:436:ARG:HB3	2.00	0.44
3:0:521:ASN:O	3:0:524:SER:OG	2.30	0.44
3:0:610:ILE:HD13	3:0:610:ILE:HA	1.79	0.44
4:1:270:TYR:CD2	4:1:279:LYS:HB2	2.46	0.44
5:4:255:ASP:H	5:4:256:PRO:HD2	1.64	0.44
9:A:273:LEU:HB3	9:A:278:VAL:CG1	2.48	0.44
10:7:385:VAL:HG13	10:7:538:ALA:H	1.82	0.44
10:7:392:LYS:HG2	10:7:513:LEU:HD13	2.00	0.44
10:7:438:PHE:CG	10:7:473:VAL:HG21	2.53	0.44
1:E:133:ILE:HG23	9:A:656:LEU:HD21	2.00	0.44
3:0:250:LEU:HD12	3:0:251:ASP:H	1.83	0.44
3:0:581:LEU:O	3:0:584:GLU:HG3	2.17	0.44
4:1:20:GLU:HA	4:1:25:ALA:HA	2.00	0.44
6:6:263:VAL:HG22	6:6:288:TYR:HD1	1.81	0.44
10:7:382:GLY:HA2	10:7:532:GLY:HA3	1.99	0.44
10:7:540:TRP:HE3	10:7:544:SER:HB3	1.82	0.44
11:5:35:LEU:HB2	11:5:39:HIS:HB2	2.00	0.44
2:2:338:SER:N	2:2:351:SER:HB2	2.33	0.44
2:2:386:ALA:HB1	2:2:391:ILE:HB	1.99	0.44
3:0:500:GLY:HA3	3:0:521:ASN:OD1	2.18	0.44
4:1:47:LYS:HB2	9:A:99:THR:OG1	2.17	0.44
5:4:163:ILE:O	5:4:166:GLU:HG3	2.18	0.44
7:Y:12:DG:H1'	7:Y:13:DA:C8	2.53	0.44
10:7:440:SER:HB3	10:7:467:SER:H	1.83	0.44
2:2:409:ARG:HB2	2:2:410:ARG:NH1	2.33	0.43
2:2:506:LYS:HD2	2:2:507:ARG:HH21	1.82	0.43
6:6:126:LEU:C	6:6:127:ILE:HD12	2.39	0.43
2:2:450:ARG:HH21	11:5:54:LEU:CG	2.30	0.43
2:2:460:SER:HB2	11:5:3:ARG:HD3	1.99	0.43
3:0:18:TYR:HD2	3:0:673:LYS:HZ1	1.65	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:0:594:ARG:HB3	3:0:594:ARG:HH11	1.83	0.43
3:0:732:ASP:OD1	3:0:733:GLN:N	2.51	0.43
3:0:745:ILE:HD12	3:0:746:LYS:N	2.33	0.43
6:6:137:LEU:HD23	6:6:137:LEU:HA	1.79	0.43
6:6:251:ILE:O	6:6:255:VAL:HG12	2.18	0.43
9:A:377:ARG:NH2	9:A:429:ASP:OD1	2.42	0.43
10:7:476:PHE:CE2	10:7:482:TRP:HZ2	2.35	0.43
10:7:690:ILE:HG22	10:7:694:LYS:NZ	2.33	0.43
1:E:130:LEU:CB	1:E:149:ILE:CD1	2.90	0.43
2:2:75:GLN:HA	2:2:78:ILE:HG12	2.00	0.43
3:0:294:HIS:O	3:0:294:HIS:CG	2.71	0.43
3:0:541:PHE:HE1	3:0:623:ILE:HG13	1.84	0.43
3:0:568:LEU:HD13	3:0:594:ARG:NH1	2.33	0.43
4:1:7:ALA:O	4:1:14:GLY:CA	2.66	0.43
10:7:497:MET:SD	10:7:498:PHE:N	2.91	0.43
2:2:450:ARG:HG2	11:5:54:LEU:HD21	2.01	0.43
3:0:79:ILE:HD13	3:0:79:ILE:HA	1.84	0.43
3:0:113:ASN:OD1	3:0:113:ASN:N	2.48	0.43
3:0:249:SER:OG	3:0:250:LEU:N	2.51	0.43
3:0:306:PHE:CE2	3:0:307:VAL:HG23	2.54	0.43
3:0:338:LEU:HD22	3:0:338:LEU:HA	1.81	0.43
3:0:409:ILE:HA	3:0:409:ILE:HD12	1.78	0.43
3:0:583:LEU:HA	3:0:583:LEU:HD12	1.79	0.43
3:0:726:GLN:CG	6:6:292:LEU:CD2	2.96	0.43
6:6:269:GLN:HG3	6:6:288:TYR:CE2	2.41	0.43
7:Y:13:DA:H2"	7:Y:14:DT:OP2	2.17	0.43
9:A:658:ILE:HG12	9:A:661:LYS:HE2	2.00	0.43
10:7:413:SER:O	10:7:417:VAL:N	2.42	0.43
1:E:149:ILE:CG1	9:A:649:TRP:CZ3	2.78	0.43
3:0:66:HIS:NE2	3:0:229:ASP:O	2.51	0.43
3:0:109:THR:OG1	3:0:113:ASN:ND2	2.48	0.43
3:0:110:SER:CB	4:1:346:ASP:HA	2.42	0.43
3:0:731:LYS:HE2	3:0:731:LYS:HB2	1.78	0.43
4:1:43:SER:N	4:1:111:TYR:CE2	2.86	0.43
4:1:104:LEU:O	4:1:108:ILE:HG12	2.17	0.43
5:4:218:SER:HA	5:4:237:HIS:NE2	2.33	0.43
9:A:266:VAL:HG21	9:A:316:TRP:HA	1.99	0.43
1:E:106:ILE:O	1:E:106:ILE:HG23	2.17	0.43
1:E:168:VAL:HG11	9:A:649:TRP:CG	2.53	0.43
3:0:140:GLN:O	3:0:144:LYS:HG3	2.19	0.43
3:0:394:GLU:HA	3:0:397:THR:HG23	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:0:497:ILE:HD12	3:0:713:ALA:HB2	2.00	0.43
3:0:572:GLU:OE2	3:0:579:THR:HG23	2.17	0.43
9:A:160:GLU:HG2	9:A:370:TYR:HE1	1.84	0.43
10:7:598:HIS:HB2	10:7:605:ILE:HD11	1.99	0.43
2:2:458:LEU:HG	11:5:5:ARG:HD3	1.99	0.43
3:0:424:GLU:H	3:0:432:ASN:HD21	1.67	0.43
3:0:571:VAL:HG22	3:0:572:GLU:H	1.83	0.43
4:1:194:VAL:O	4:1:197:GLU:HG2	2.19	0.43
6:6:214:LEU:HA	6:6:214:LEU:HD13	1.82	0.43
6:6:432:CYS:N	6:6:454:CYS:SG	2.91	0.43
10:7:433:GLU:OE2	10:7:434:ASN:ND2	2.52	0.43
10:7:459:MET:HG2	10:7:470:SER:HB2	2.00	0.43
10:7:548:HIS:O	10:7:694:LYS:O	2.36	0.43
10:7:698:ASP:HB2	10:7:701:PHE:CB	2.46	0.43
3:0:333:SER:HB2	3:0:337:ARG:NH1	2.34	0.43
5:4:137:LYS:O	5:4:140:ILE:HB	2.18	0.43
6:6:126:LEU:O	6:6:169:MET:HA	2.19	0.43
10:7:349:ASN:O	10:7:405:LYS:CE	2.66	0.43
2:2:63:ASP:HA	2:2:74:PHE:CE2	2.53	0.43
2:2:201:TRP:CE3	2:2:201:TRP:HA	2.54	0.43
2:2:380:ARG:HG2	2:2:384:ARG:HH22	1.84	0.43
3:0:104:ARG:HH22	3:0:171:LEU:HB2	1.83	0.43
4:1:48:LEU:CB	9:A:98:VAL:O	2.67	0.43
6:6:124:ARG:NH1	6:6:305:VAL:O	2.39	0.43
6:6:282:TYR:CD1	6:6:282:TYR:N	2.84	0.43
6:6:300:LEU:HD23	6:6:300:LEU:HA	1.87	0.43
1:E:124:VAL:HG13	1:E:159:PHE:HB3	2.01	0.43
2:2:67:ASN:HD22	2:2:67:ASN:N	2.16	0.43
3:0:132:LYS:HE3	3:0:132:LYS:HB2	1.60	0.43
3:0:223:SER:O	3:0:226:VAL:HG22	2.19	0.43
3:0:265:ASN:O	3:0:269:GLU:HG2	2.19	0.43
3:0:568:LEU:HA	3:0:568:LEU:HD12	1.67	0.43
3:0:625:ILE:HB	3:0:686:PHE:CE1	2.54	0.43
4:1:66:VAL:HG22	4:1:66:VAL:O	2.17	0.43
4:1:254:GLU:OE1	4:1:254:GLU:N	2.36	0.43
4:1:374:ILE:O	4:1:378:MET:HG2	2.19	0.43
6:6:149:ILE:HD13	6:6:149:ILE:HA	1.82	0.43
7:Y:17:DT:H5"	9:A:294:MET:HG3	2.01	0.43
2:2:71:LYS:H	2:2:71:LYS:HG3	1.63	0.42
3:0:18:TYR:CE2	3:0:673:LYS:HD2	2.54	0.42
3:0:263:GLY:O	3:0:267:LEU:HG	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:4:216:GLY:O	5:4:237:HIS:HE1	2.02	0.42
5:4:305:CYS:O	5:4:307:ALA:N	2.52	0.42
9:A:300:LEU:HD22	9:A:356:GLU:HG2	2.01	0.42
9:A:378:ARG:NH2	9:A:421:GLU:OE2	2.52	0.42
9:A:588:VAL:HG22	9:A:589:GLU:H	1.83	0.42
10:7:385:VAL:HB	10:7:514:THR:HB	2.00	0.42
10:7:425:LEU:HA	10:7:425:LEU:HD13	1.86	0.42
10:7:609:SER:CB	10:7:674:SER:HB2	2.48	0.42
1:E:148:MET:HB2	9:A:649:TRP:CE2	2.53	0.42
2:2:359:VAL:HA	2:2:362:LEU:HG	2.00	0.42
2:2:380:ARG:O	2:2:384:ARG:HB2	2.18	0.42
2:2:381:GLU:HG2	2:2:384:ARG:HH21	1.84	0.42
3:0:289:LEU:HB2	3:0:326:ARG:NH1	2.34	0.42
3:0:533:THR:OG1	3:0:567:LYS:NZ	2.53	0.42
3:0:544:TYR:OH	3:0:574:PRO:HD3	2.19	0.42
3:0:570:LEU:HD23	3:0:570:LEU:HA	1.84	0.42
5:4:228:THR:OG1	5:4:234:VAL:N	2.52	0.42
10:7:252:GLY:HA2	10:7:316:PHE:HZ	1.84	0.42
10:7:407:VAL:HB	10:7:452:LEU:HD13	2.02	0.42
10:7:550:ALA:HB2	10:7:701:PHE:CG	2.54	0.42
1:E:134:SER:O	1:E:139:ALA:HB3	2.19	0.42
1:E:146:ILE:HG22	1:E:149:ILE:HB	2.01	0.42
2:2:7:LYS:HG2	2:2:9:SER:N	2.34	0.42
2:2:12:GLN:N	2:2:12:GLN:OE1	2.51	0.42
2:2:18:PRO:HB2	2:2:20:GLN:NE2	2.32	0.42
2:2:20:GLN:OE1	2:2:20:GLN:N	2.49	0.42
2:2:481:LEU:HD13	2:2:484:LYS:HG2	2.01	0.42
3:0:241:ASP:OD1	3:0:242:ASN:N	2.53	0.42
3:0:432:ASN:OD1	3:0:432:ASN:N	2.51	0.42
1:E:102:TRP:HD1	1:E:165:PHE:CB	2.32	0.42
1:E:138:GLY:HA3	9:A:626:ILE:O	2.18	0.42
2:2:32:CYS:O	2:2:35:ILE:HG12	2.20	0.42
2:2:338:SER:N	2:2:351:SER:CB	2.83	0.42
3:0:53:LEU:HD12	3:0:85:GLU:OE2	2.20	0.42
3:0:383:LEU:O	3:0:387:THR:HG23	2.19	0.42
3:0:514:ASN:ND2	3:0:553:MET:HG2	2.34	0.42
3:0:545:LEU:HD22	4:1:355:ASP:C	2.31	0.42
4:1:197:GLU:HA	4:1:201:ASN:OD1	2.19	0.42
4:1:259:ILE:HD13	4:1:263:TYR:CE2	2.50	0.42
4:1:265:ILE:HG13	4:1:266:VAL:N	2.33	0.42
4:1:288:PHE:O	4:1:292:LEU:HB2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:1:329:LEU:HA	4:1:329:LEU:HD13	1.83	0.42
5:4:275:SER:HB2	5:4:281:ARG:C	2.40	0.42
10:7:308:ASP:O	10:7:340:GLU:N	2.46	0.42
10:7:344:ARG:NH1	10:7:378:ARG:HH21	2.17	0.42
10:7:383:ILE:O	10:7:534:LYS:HA	2.19	0.42
4:1:210:TRP:O	4:1:213:ARG:N	2.52	0.42
4:1:262:ASN:HB3	4:1:263:TYR:CE2	2.55	0.42
4:1:552:MET:O	4:1:556:THR:HG22	2.20	0.42
6:6:107:LYS:HG2	6:6:109:ARG:HH12	1.84	0.42
8:W:14:DC:H2''	8:W:15:DA:C8	2.54	0.42
8:W:24:DG:H2''	8:W:25:DA:C8	2.55	0.42
10:7:308:ASP:O	10:7:340:GLU:HG2	2.19	0.42
3:0:527:VAL:HB	3:0:559:ILE:HD11	2.01	0.42
4:1:264:PRO:O	4:1:268:LYS:HG2	2.19	0.42
4:1:556:THR:O	4:1:560:PHE:HD1	2.01	0.42
5:4:263:VAL:C	5:4:265:PRO:HD3	2.40	0.42
10:7:469:ASP:O	10:7:473:VAL:HG23	2.19	0.42
10:7:663:ASP:OD1	10:7:663:ASP:N	2.46	0.42
3:0:154:GLU:OE1	3:0:154:GLU:N	2.52	0.42
3:0:161:ASN:HA	3:0:164:ASN:OD1	2.19	0.42
3:0:244:CYS:O	3:0:247:SER:OG	2.22	0.42
3:0:253:THR:HG22	3:0:255:ASP:H	1.84	0.42
3:0:494:PRO:HA	3:0:679:MET:O	2.19	0.42
4:1:49:GLN:HA	9:A:97:ASP:HA	2.01	0.42
7:Y:5:DA:P	10:7:467:SER:HB3	2.59	0.42
2:2:338:SER:O	2:2:407:GLN:OE1	2.38	0.42
4:1:371:THR:O	4:1:374:ILE:HB	2.20	0.42
9:A:436:ASP:OD1	9:A:436:ASP:N	2.53	0.42
10:7:306:GLU:OE2	10:7:346:ASP:HB2	2.19	0.42
10:7:498:PHE:CE2	10:7:527:LEU:HD22	2.55	0.42
10:7:559:CYS:HA	10:7:560:PRO:HD3	1.92	0.42
10:7:690:ILE:HG22	10:7:694:LYS:HZ2	1.85	0.42
2:2:51:VAL:HG12	2:2:52:PHE:CD1	2.55	0.42
3:0:201:SER:HA	3:0:225:GLU:CD	2.41	0.42
4:1:16:ILE:HA	4:1:29:TRP:HA	2.01	0.42
4:1:48:LEU:HD11	4:1:104:LEU:HB3	2.01	0.42
6:6:143:PRO:HB2	6:6:147:ALA:HB3	2.02	0.42
6:6:325:PRO:HB2	6:6:347:TYR:HB3	2.00	0.42
10:7:365:TYR:HA	10:7:368:LYS:HG2	2.01	0.42
2:2:360:LEU:O	2:2:364:VAL:HG12	2.20	0.42
3:0:237:ALA:N	3:0:460:SER:OG	2.45	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:1:112:LYS:HD2	9:A:102:ASN:OD1	2.20	0.42
5:4:87:TYR:HB3	5:4:88:PRO:HD3	2.02	0.42
6:6:130:LEU:HD23	6:6:130:LEU:HA	1.80	0.42
6:6:347:TYR:O	6:6:355:LYS:HA	2.20	0.42
10:7:565:PHE:HE2	10:7:763:VAL:HG11	1.84	0.42
2:2:346:LYS:NZ	2:2:376:GLY:O	2.45	0.41
2:2:457:SER:O	2:2:492:PHE:HA	2.20	0.41
3:0:53:LEU:HD23	3:0:53:LEU:HA	1.69	0.41
3:0:188:LYS:O	3:0:190:LEU:HD23	2.20	0.41
3:0:322:PRO:O	3:0:325:ILE:HG13	2.20	0.41
3:0:553:MET:O	3:0:556:THR:HB	2.20	0.41
4:1:273:ASN:HA	4:1:276:LYS:NZ	2.34	0.41
4:1:281:PRO:HD2	4:1:282:GLU:OE2	2.20	0.41
6:6:137:LEU:HG	6:6:204:PRO:HG2	2.01	0.41
6:6:152:TYR:CG	6:6:297:LEU:HD21	2.54	0.41
8:W:4:DA:C4	8:W:5:DC:C5	3.08	0.41
9:A:159:ASN:OD1	9:A:274:ARG:NH1	2.48	0.41
3:0:97:LEU:HD23	3:0:97:LEU:HA	1.75	0.41
5:4:175:ARG:HA	5:4:208:CYS:SG	2.60	0.41
5:4:254:ILE:HD12	5:4:254:ILE:O	2.19	0.41
5:4:293:LEU:HD13	5:4:293:LEU:HA	1.82	0.41
10:7:386:LEU:HD12	10:7:513:LEU:HD22	2.01	0.41
10:7:544:SER:O	10:7:549:ILE:HD11	2.20	0.41
1:E:101:LEU:HD23	1:E:101:LEU:HA	1.66	0.41
1:E:137:ILE:HD11	9:A:652:LEU:CD2	2.49	0.41
3:0:76:MET:HB3	4:1:346:ASP:OD2	2.21	0.41
3:0:143:ARG:O	3:0:147:GLU:HG2	2.20	0.41
4:1:274:VAL:N	4:1:275:PRO:HD2	2.35	0.41
5:4:33:ALA:HB3	5:4:36:LEU:CB	2.50	0.41
6:6:224:VAL:O	6:6:230:ARG:NH2	2.53	0.41
6:6:246:ASP:OD1	6:6:248:HIS:N	2.53	0.41
7:Y:9:T64:N3T	7:Y:9:T64:H2'	2.34	0.41
1:E:107:ARG:HH22	10:7:768:GLU:CG	2.31	0.41
1:E:125:LEU:CD2	1:E:149:ILE:CD1	2.89	0.41
3:0:294:HIS:NE2	3:0:297:ASP:HB3	2.35	0.41
3:0:505:ALA:HB1	3:0:684:ARG:HB3	2.02	0.41
4:1:253:ARG:HA	4:1:256:ILE:HG12	2.01	0.41
4:1:562:LYS:HA	4:1:562:LYS:HD2	1.80	0.41
6:6:107:LYS:HE3	6:6:107:LYS:HB3	1.92	0.41
10:7:693:ALA:HA	10:7:695:ARG:NH2	2.36	0.41
3:0:27:ASP:N	3:0:27:ASP:OD1	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:1:66:VAL:O	4:1:66:VAL:HG13	2.19	0.41
4:1:270:TYR:HE2	4:1:284:TRP:NE1	2.19	0.41
4:1:321:PHE:O	4:1:324:LYS:HG2	2.19	0.41
5:4:126:VAL:O	5:4:129:ILE:HG22	2.20	0.41
5:4:273:ARG:CG	5:4:273:ARG:HH21	2.33	0.41
8:W:4:DA:H2 <sup>?</sup>	8:W:5:DC:H6	1.85	0.41
10:7:510:LYS:HB2	10:7:531:ILE:HG23	2.01	0.41
3:0:127:THR:CA	4:1:348:VAL:HG11	2.47	0.41
3:0:312:LEU:HB3	3:0:315:ASP:OD1	2.20	0.41
3:0:629:TYR:OH	3:0:636:LYS:HE2	2.21	0.41
3:0:680:VAL:C	3:0:681:LEU:HD12	2.41	0.41
3:0:685:ARG:HB3	3:0:689:LYS:NZ	2.34	0.41
9:A:513:ILE:HD12	9:A:514:LYS:O	2.20	0.41
9:A:585:PHE:HZ	9:A:659:ARG:HH11	1.66	0.41
10:7:219:SER:O	10:7:336:PRO:HG2	2.21	0.41
10:7:372:LYS:HD3	10:7:535:LEU:O	2.20	0.41
3:0:309:THR:O	3:0:309:THR:OG1	2.33	0.41
3:0:393:VAL:O	3:0:396:PHE:N	2.43	0.41
4:1:188:ASN:CG	4:1:191:LEU:H	2.24	0.41
5:4:90:SER:HB3	6:6:407:GLN:HE22	1.84	0.41
10:7:415:VAL:HB	10:7:419:GLN:NE2	2.35	0.41
10:7:421:ARG:NH1	10:7:437:VAL:HG11	2.36	0.41
3:0:341:TYR:CE1	3:0:366:LEU:HD12	2.55	0.41
3:0:577:GLN:OE1	4:1:340:ASP:OD2	2.39	0.41
3:0:709:SER:OG	3:0:710:THR:N	2.52	0.41
5:4:62:ASN:OD1	5:4:118:PHE:HB3	2.20	0.41
6:6:449:HIS:ND1	6:6:449:HIS:N	2.69	0.41
1:E:102:TRP:O	1:E:102:TRP:CE3	2.74	0.41
2:2:20:GLN:O	2:2:24:ARG:HG2	2.20	0.41
2:2:334:ILE:C	2:2:409:ARG:HH22	2.13	0.41
2:2:347:ILE:HD11	2:2:378:ILE:HB	2.02	0.41
2:2:431:GLN:HE21	2:2:431:GLN:HB2	1.54	0.41
3:0:113:ASN:O	3:0:114:LEU:HD23	2.21	0.41
3:0:117:HIS:HD2	3:0:156:CYS:HA	1.86	0.41
3:0:519:VAL:HG11	3:0:553:MET:HE1	2.03	0.41
3:0:654:LEU:HD13	3:0:654:LEU:HA	1.90	0.41
3:0:710:THR:O	3:0:714:ILE:HG12	2.21	0.41
3:0:741:TYR:O	3:0:743:ASP:N	2.54	0.41
4:1:5:GLY:O	4:1:16:ILE:N	2.54	0.41
4:1:18:ILE:HG23	4:1:26:GLU:O	2.20	0.41
4:1:194:VAL:HA	4:1:197:GLU:CD	2.42	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:1:257:LEU:HA	4:1:260:PHE:CD2	2.56	0.41
4:1:259:ILE:HG23	4:1:263:TYR:CD2	2.56	0.41
5:4:118:PHE:N	5:4:118:PHE:CD1	2.89	0.41
6:6:132:CYS:O	6:6:175:ARG:HG2	2.21	0.41
6:6:287:PHE:N	6:6:287:PHE:CD1	2.89	0.41
6:6:308:LEU:HD23	6:6:308:LEU:H	1.86	0.41
9:A:292:THR:HG21	9:A:390:ARG:NH1	2.36	0.41
9:A:316:TRP:CD2	9:A:347:LEU:HD23	2.56	0.41
10:7:330:CYS:HA	10:7:335:TYR:HB2	2.03	0.41
10:7:349:ASN:HA	10:7:350:PRO:HD2	1.92	0.41
10:7:362:ILE:HD11	10:7:367:GLU:HB3	2.03	0.41
3:0:471:ARG:HH22	3:0:647:ARG:H	1.69	0.41
3:0:588:LYS:HE3	3:0:588:LYS:HB2	1.88	0.41
3:0:746:LYS:HE3	3:0:746:LYS:HB2	1.85	0.41
4:1:6:ALA:HA	4:1:14:GLY:O	2.20	0.41
4:1:26:GLU:OE1	4:1:41:VAL:HG22	2.21	0.41
4:1:204:LEU:HD21	4:1:208:GLU:HG2	2.03	0.41
6:6:139:LYS:HZ1	6:6:144:ASN:HB3	1.84	0.41
10:7:519:ARG:NE	10:7:521:ASP:HB2	2.35	0.41
3:0:227:SER:C	3:0:229:ASP:N	2.74	0.40
4:1:100:ILE:O	4:1:104:LEU:HD13	2.21	0.40
5:4:66:ALA:HB2	5:4:118:PHE:HZ	1.85	0.40
5:4:137:LYS:HG3	5:4:139:GLN:HG3	2.01	0.40
5:4:228:THR:O	5:4:233:GLY:N	2.51	0.40
6:6:145:ARG:O	6:6:149:ILE:HG12	2.21	0.40
9:A:377:ARG:HD2	9:A:428:ARG:HB3	2.02	0.40
10:7:633:GLN:OE1	10:7:636:ARG:NH1	2.54	0.40
3:0:133:CYS:HB2	13:0:801:SF4:S4	2.61	0.40
3:0:689:LYS:O	3:0:692:GLN:N	2.47	0.40
5:4:233:GLY:O	5:4:263:VAL:HG11	2.21	0.40
5:4:271:ASP:HB3	5:4:273:ARG:NH2	2.36	0.40
6:6:141:LEU:HD23	6:6:145:ARG:HG2	2.02	0.40
6:6:222:LEU:HD22	6:6:222:LEU:HA	1.75	0.40
6:6:237:GLY:HA2	6:6:266:LEU:HG	2.03	0.40
10:7:265:PRO:O	10:7:269:LEU:HG	2.21	0.40
10:7:376:ASN:H	10:7:380:ARG:NH2	2.19	0.40
10:7:581:TYR:CZ	10:7:715:GLU:HB2	2.56	0.40
10:7:696:ARG:HG2	10:7:701:PHE:CZ	2.56	0.40
2:2:86:LEU:HD12	2:2:87:LEU:N	2.36	0.40
2:2:381:GLU:CD	2:2:384:ARG:HE	2.24	0.40
3:0:213:LEU:HD12	3:0:213:LEU:HA	1.79	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:0:267:LEU:HD11	3:0:399:LEU:HD13	2.03	0.40
3:0:379:GLU:H	3:0:379:GLU:HG3	1.54	0.40
3:0:481:LYS:HA	3:0:481:LYS:HD3	1.73	0.40
4:1:339:LEU:HD12	4:1:342:ASN:HD22	1.85	0.40
5:4:87:TYR:HE1	5:4:121:VAL:HG22	1.87	0.40
9:A:155:GLY:HA3	9:A:366:TYR:CE2	2.57	0.40
9:A:182:LEU:O	9:A:185:PRO:HD3	2.22	0.40
9:A:387:VAL:HG12	9:A:391:ARG:HD2	2.03	0.40
10:7:267:ASP:C	10:7:348:ARG:HH21	2.24	0.40
11:5:17:LYS:NZ	11:5:37:ASP:HA	2.37	0.40
2:2:19:GLN:O	2:2:22:GLN:HB2	2.21	0.40
2:2:394:ASP:OD1	2:2:395:GLN:N	2.49	0.40
2:2:478:ILE:HD13	2:2:500:GLN:HE22	1.86	0.40
3:0:227:SER:HA	3:0:230:SER:OG	2.21	0.40
3:0:346:MET:SD	3:0:435:MET:HE2	2.62	0.40
3:0:545:LEU:HA	3:0:545:LEU:HD13	1.79	0.40
5:4:266:ASN:CG	5:4:267:HIS:H	2.24	0.40
6:6:182:VAL:HG21	6:6:199:ILE:HD11	2.04	0.40
6:6:227:HIS:CD2	6:6:320:VAL:HG11	2.57	0.40
9:A:281:ARG:HD2	9:A:327:TRP:CZ3	2.56	0.40
9:A:662:LEU:HD12	9:A:662:LEU:HA	1.95	0.40
10:7:354:ILE:HD11	10:7:405:LYS:O	2.22	0.40
10:7:408:ILE:HG23	10:7:482:TRP:CE3	2.56	0.40
2:2:361:SER:HA	2:2:364:VAL:HG12	2.03	0.40
2:2:380:ARG:HG2	2:2:384:ARG:NH2	2.37	0.40
2:2:410:ARG:H	2:2:410:ARG:NE	2.18	0.40
3:0:37:ASN:HA	3:0:456:VAL:O	2.21	0.40
3:0:131:GLU:OE1	3:0:132:LYS:N	2.55	0.40
3:0:158:TYR:HB2	3:0:191:CYS:HB3	2.04	0.40
3:0:493:LEU:HD11	3:0:720:PHE:HB2	2.04	0.40
3:0:509:ARG:HB2	3:0:685:ARG:CZ	2.52	0.40
3:0:754:GLN:H	3:0:754:GLN:HG3	1.64	0.40
5:4:157:LEU:HA	5:4:157:LEU:HD23	1.86	0.40
5:4:192:GLN:O	5:4:195:PRO:HD2	2.22	0.40
6:6:161:PHE:CG	6:6:189:PRO:HG3	2.56	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	58/177 (33%)	47 (81%)	9 (16%)	2 (3%)	3	21
2	2	456/513 (89%)	380 (83%)	71 (16%)	5 (1%)	12	47
3	0	752/778 (97%)	632 (84%)	118 (16%)	2 (0%)	37	73
4	1	475/642 (74%)	387 (82%)	50 (10%)	38 (8%)	1	9
5	4	280/338 (83%)	210 (75%)	65 (23%)	5 (2%)	7	35
6	6	349/461 (76%)	284 (81%)	59 (17%)	6 (2%)	7	37
9	A	516/754 (68%)	490 (95%)	25 (5%)	1 (0%)	44	78
10	7	634/843 (75%)	562 (89%)	65 (10%)	7 (1%)	12	47
11	5	64/72 (89%)	59 (92%)	5 (8%)	0	100	100
All	All	3584/4578 (78%)	3051 (85%)	467 (13%)	66 (2%)	9	35

All (66) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	2	335	PRO
4	1	230	PRO
4	1	236	THR
4	1	239	PRO
4	1	338	ASP
4	1	344	GLN
4	1	354	PRO
4	1	518	ASN
5	4	255	ASP
6	6	411	PRO
6	6	425	SER
2	2	331	ASN
2	2	341	VAL
4	1	225	SER
4	1	240	VAL
4	1	241	ALA

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
4	1	247	VAL
4	1	277	ASN
4	1	301	ILE
4	1	307	GLY
4	1	352	ASN
4	1	389	LEU
4	1	492	ASN
4	1	516	HIS
5	4	115	TYR
10	7	625	PRO
1	E	147	GLU
4	1	235	SER
4	1	244	GLU
4	1	246	LYS
4	1	281	PRO
4	1	493	ASN
4	1	494	GLU
4	1	517	ASN
6	6	417	LYS
6	6	422	LEU
9	A	603	SER
10	7	576	LYS
1	E	106	ILE
2	2	70	GLY
3	0	228	LYS
4	1	243	SER
4	1	309	VAL
4	1	353	ARG
4	1	467	GLN
4	1	495	VAL
5	4	114	MET
6	6	412	ILE
6	6	415	ASN
10	7	655	SER
10	7	696	ARG
10	7	741	GLY
3	0	172	PRO
4	1	67	ASP
4	1	487	ASN
10	7	667	ALA
4	1	232	ASN
4	1	238	LYS

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Mol	Chain	Res	Type
4	1	249	VAL
4	1	484	LEU
5	4	290	SER
10	7	551	ASN
2	2	337	GLY
4	1	280	GLU
5	4	256	PRO
4	1	491	PRO

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	E	56/165 (34%)	50 (89%)	6 (11%)	5	19
2	2	258/468 (55%)	227 (88%)	31 (12%)	4	16
3	0	686/707 (97%)	595 (87%)	91 (13%)	3	13
4	1	277/589 (47%)	243 (88%)	34 (12%)	4	15
5	4	198/300 (66%)	165 (83%)	33 (17%)	2	9
6	6	247/418 (59%)	208 (84%)	39 (16%)	2	10
9	A	474/678 (70%)	459 (97%)	15 (3%)	34	53
10	7	417/737 (57%)	389 (93%)	28 (7%)	13	34
11	5	53/66 (80%)	52 (98%)	1 (2%)	52	69
All	All	2666/4128 (65%)	2388 (90%)	278 (10%)	8	19

All (278) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	103	SER
1	E	104	MET
1	E	107	ARG
1	E	147	GLU
1	E	148	MET
1	E	149	ILE

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	2	8	HIS
2	2	11	THR
2	2	14	LEU
2	2	16	GLU
2	2	17	ILE
2	2	28	SER
2	2	61	ASP
2	2	67	ASN
2	2	71	LYS
2	2	72	LEU
2	2	84	LEU
2	2	87	LEU
2	2	95	THR
2	2	100	LEU
2	2	112	LEU
2	2	286	ARG
2	2	346	LYS
2	2	348	TYR
2	2	356	GLN
2	2	385	ARG
2	2	387	LEU
2	2	410	ARG
2	2	413	GLU
2	2	416	LEU
2	2	431	GLN
2	2	432	VAL
2	2	433	LEU
2	2	450	ARG
2	2	474	TYR
2	2	484	LYS
2	2	486	ASP
3	0	6	ASP
3	0	32	LEU
3	0	34	VAL
3	0	39	ILE
3	0	46	THR
3	0	48	LYS
3	0	66	HIS
3	0	72	CYS
3	0	80	GLU
3	0	109	THR
3	0	110	SER

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
3	0	124	ARG
3	0	130	ASP
3	0	131	GLU
3	0	148	ASP
3	0	155	LEU
3	0	157	GLU
3	0	159	HIS
3	0	162	LEU
3	0	170	TYR
3	0	173	LYS
3	0	196	VAL
3	0	198	ARG
3	0	206	ILE
3	0	207	ILE
3	0	208	TYR
3	0	218	ILE
3	0	221	ARG
3	0	227	SER
3	0	231	ILE
3	0	239	ASN
3	0	248	LEU
3	0	249	SER
3	0	254	THR
3	0	255	ASP
3	0	262	ARG
3	0	275	ARG
3	0	280	GLN
3	0	284	ASP
3	0	290	VAL
3	0	298	ILE
3	0	312	LEU
3	0	318	THR
3	0	337	ARG
3	0	338	LEU
3	0	349	LEU
3	0	350	HIS
3	0	355	THR
3	0	377	CYS
3	0	379	GLU
3	0	382	SER
3	0	383	LEU
3	0	395	ASP

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
3	0	413	GLU
3	0	417	LEU
3	0	438	THR
3	0	462	THR
3	0	477	THR
3	0	487	LEU
3	0	506	ILE
3	0	515	ASP
3	0	533	THR
3	0	537	MET
3	0	538	VAL
3	0	539	VAL
3	0	563	VAL
3	0	568	LEU
3	0	573	THR
3	0	598	LEU
3	0	599	LEU
3	0	614	HIS
3	0	620	VAL
3	0	625	ILE
3	0	647	ARG
3	0	649	ARG
3	0	651	ASN
3	0	654	LEU
3	0	657	ASP
3	0	659	MET
3	0	664	GLN
3	0	674	ASP
3	0	680	VAL
3	0	683	ASP
3	0	705	ASP
3	0	710	THR
3	0	711	ASP
3	0	715	SER
3	0	729	ASP
3	0	741	TYR
3	0	745	ILE
3	0	747	HIS
4	1	16	ILE
4	1	19	ASN
4	1	49	GLN
4	1	51	THR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
4	1	57	LYS
4	1	71	LYS
4	1	72	ARG
4	1	75	ASN
4	1	83	LYS
4	1	86	ARG
4	1	94	ARG
4	1	119	GLU
4	1	185	LEU
4	1	189	LYS
4	1	198	THR
4	1	214	ILE
4	1	216	LEU
4	1	262	ASN
4	1	263	TYR
4	1	266	VAL
4	1	276	LYS
4	1	279	LYS
4	1	280	GLU
4	1	282	GLU
4	1	287	PHE
4	1	339	LEU
4	1	346	ASP
4	1	382	SER
4	1	389	LEU
4	1	551	ARG
4	1	553	LEU
4	1	558	CYS
4	1	585	HIS
4	1	597	PHE
5	4	26	LEU
5	4	27	THR
5	4	30	ILE
5	4	131	LYS
5	4	134	GLU
5	4	136	GLU
5	4	137	LYS
5	4	149	LEU
5	4	162	ARG
5	4	163	ILE
5	4	176	LEU
5	4	180	THR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
5	4	191	PHE
5	4	210	ILE
5	4	211	ASP
5	4	212	VAL
5	4	228	THR
5	4	234	VAL
5	4	236	LEU
5	4	237	HIS
5	4	244	LEU
5	4	247	TYR
5	4	260	PRO
5	4	261	ILE
5	4	263	VAL
5	4	264	LYS
5	4	272	PHE
5	4	273	ARG
5	4	274	THR
5	4	276	CYS
5	4	287	PHE
5	4	297	SER
5	4	311	GLN
6	6	108	LYS
6	6	112	LYS
6	6	116	THR
6	6	118	TYR
6	6	119	GLN
6	6	125	SER
6	6	136	MET
6	6	161	PHE
6	6	164	ASN
6	6	166	ILE
6	6	191	ASP
6	6	194	ASP
6	6	202	GLN
6	6	214	LEU
6	6	222	LEU
6	6	243	ASP
6	6	267	SER
6	6	274	LYS
6	6	290	ILE
6	6	292	LEU
6	6	293	ASP

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
6	6	297	LEU
6	6	306	THR
6	6	310	VAL
6	6	311	ASN
6	6	319	LEU
6	6	326	THR
6	6	336	CYS
6	6	352	CYS
6	6	353	HIS
6	6	356	VAL
6	6	363	CYS
6	6	372	LEU
6	6	381	HIS
6	6	382	HIS
6	6	384	MET
6	6	406	CYS
6	6	429	CYS
6	6	448	LEU
9	A	90	TYR
9	A	96	GLU
9	A	166	ARG
9	A	170	LYS
9	A	197	ARG
9	A	217	THR
9	A	294	MET
9	A	325	LYS
9	A	361	ARG
9	A	377	ARG
9	A	429	ASP
9	A	441	LEU
9	A	451	GLN
9	A	590	PHE
9	A	662	LEU
10	7	342	ASP
10	7	343	PHE
10	7	348	ARG
10	7	349	ASN
10	7	356	LEU
10	7	357	LYS
10	7	378	ARG
10	7	393	THR
10	7	424	PHE

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Mol	Chain	Res	Type
10	7	440	SER
10	7	444	GLU
10	7	445	MET
10	7	446	PHE
10	7	449	GLU
10	7	477	LEU
10	7	490	VAL
10	7	514	THR
10	7	534	LYS
10	7	549	ILE
10	7	575	ARG
10	7	586	THR
10	7	607	VAL
10	7	622	MET
10	7	681	ARG
10	7	695	ARG
10	7	701	PHE
10	7	709	VAL
10	7	737	THR
11	5	54	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
2	2	67	ASN
2	2	69	ASN
2	2	431	GLN
3	0	21	GLN
4	1	3	HIS
4	1	99	ASN
4	1	196	GLN
6	6	227	HIS
6	6	375	HIS
9	A	154	HIS
10	7	366	GLN
10	7	584	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
7	T64	Y	9	7	41,44,45	4.22	18 (43%)	53,69,72	2.15	17 (32%)

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
7	T64	Y	9	7	-	11/22/76/77	0/3/5/5

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	Y	9	T64	C6T-N1T	11.81	1.58	1.38
7	Y	9	T64	C6-C4T	10.24	1.64	1.51
7	Y	9	T64	C6T-C5T	9.92	1.50	1.34
7	Y	9	T64	C2-N3	8.33	1.52	1.38
7	Y	9	T64	C2-N1	7.98	1.51	1.36
7	Y	9	T64	C2T-N3T	6.76	1.49	1.36
7	Y	9	T64	C4-N3	6.37	1.47	1.37
7	Y	9	T64	C5A-C5	5.96	1.62	1.52
7	Y	9	T64	C2T-N1T	5.87	1.52	1.40
7	Y	9	T64	PB-O3R	4.37	1.72	1.59
7	Y	9	T64	C4T-N3T	4.11	1.44	1.31
7	Y	9	T64	C1'-N1	3.74	1.50	1.45
7	Y	9	T64	C5M-C5T	2.71	1.57	1.50
7	Y	9	T64	C2'-C3R	-2.48	1.47	1.52
7	Y	9	T64	PB-O5R	2.32	1.68	1.59
7	Y	9	T64	C6-N1	2.15	1.50	1.46
7	Y	9	T64	O2T-C2T	-2.12	1.19	1.23
7	Y	9	T64	O4-C4	-2.01	1.19	1.22



All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	Y	9	T64	C6T-N1T-C2T	-6.21	112.68	120.95
7	Y	9	T64	C6-C5-C4	5.20	117.81	109.70
7	Y	9	T64	C5T-C4T-N3T	-4.40	119.82	123.61
7	Y	9	T64	C4-N3-C2	-4.16	120.40	126.67
7	Y	9	T64	C2T-N3T-C4T	4.15	122.77	119.02
7	Y	9	T64	C5M-C5T-C4T	3.53	122.14	118.28
7	Y	9	T64	C5M-C5T-C6T	-3.39	118.26	122.85
7	Y	9	T64	C5-C4-N3	3.33	119.61	115.23
7	Y	9	T64	C1R-N1T-C6T	3.22	126.15	120.74
7	Y	9	T64	O4-C4-C5	-3.14	120.28	123.13
7	Y	9	T64	N3-C2-N1	3.02	119.95	116.78
7	Y	9	T64	O5P-PB-O3R	2.65	117.47	106.70
7	Y	9	T64	O2-C2-N1	-2.35	119.92	123.44
7	Y	9	T64	PB-O5R-C5R	-2.28	108.29	121.35
7	Y	9	T64	O2T-C2T-N3T	-2.24	118.80	122.33
7	Y	9	T64	O5P-PB-O5R	2.12	117.17	107.57
7	Y	9	T64	N1T-C2T-N3T	2.06	122.38	118.80

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	Y	9	T64	C5R-O5R-PB-O4P
7	Y	9	T64	C3'-C4'-C5R-O5R
7	Y	9	T64	O4R-C4'-C5R-O5R
7	Y	9	T64	C3R-C4R-C5'-O5'
7	Y	9	T64	C2R-C1R-N1T-C6T
7	Y	9	T64	O4'-C4R-C5'-O5'
7	Y	9	T64	C4R-C5'-O5'-P
7	Y	9	T64	C2R-C1R-N1T-C2T
7	Y	9	T64	O4R-C1R-N1T-C6T
7	Y	9	T64	O4R-C1R-N1T-C2T
7	Y	9	T64	C3R-O3R-PB-O5P

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	Y	9	T64	1	0

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 7 are monoatomic - leaving 1 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
13	SF4	0	801	3	0,12,12	-	-	-		

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
13	SF4	0	801	3	-	-	0/6/5/5

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.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
13	0	801	SF4	2	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

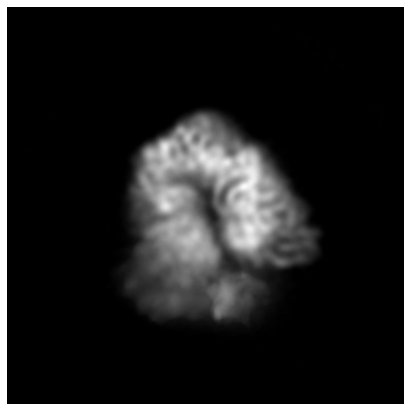
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-22588. These allow visual inspection of the internal detail of the map and identification of artifacts.

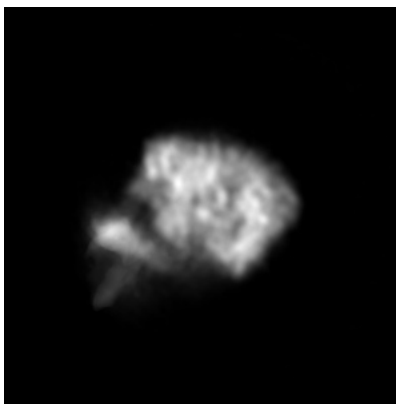
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

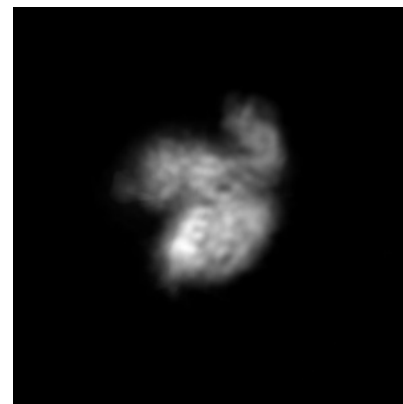
#### 6.1.1 Primary map



X

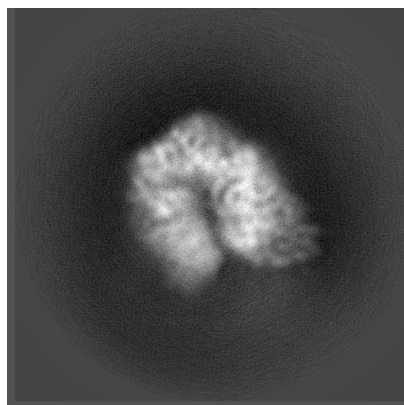


Y

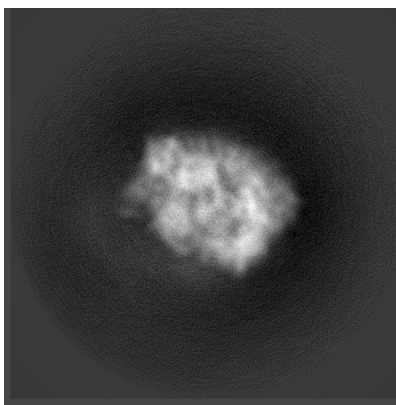


Z

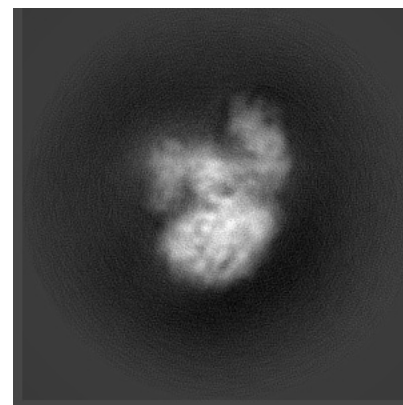
#### 6.1.2 Raw map



X



Y

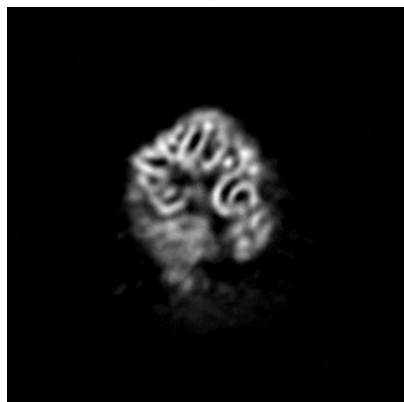


Z

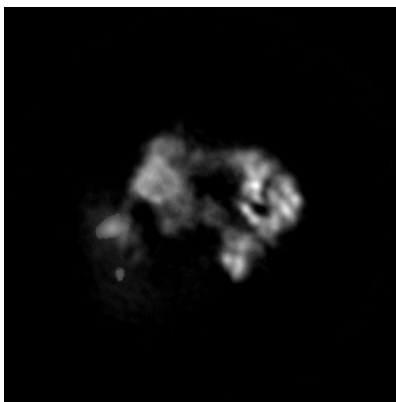
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

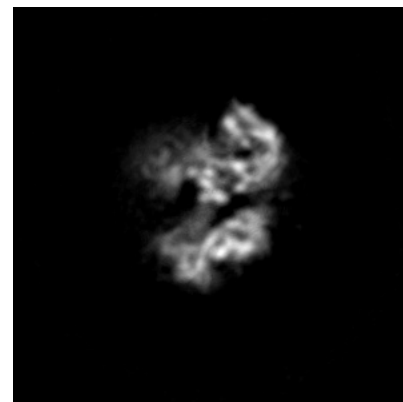
### 6.2.1 Primary map



X Index: 150

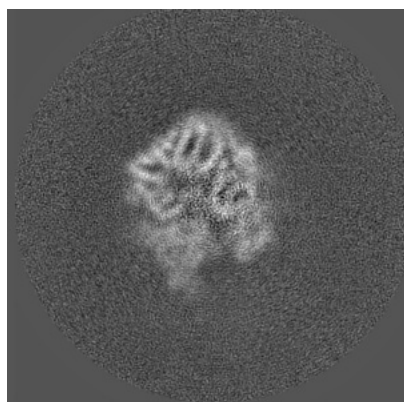


Y Index: 150

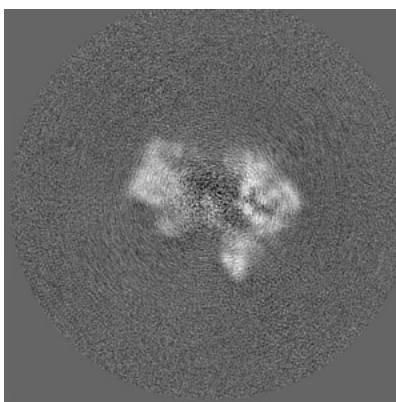


Z Index: 150

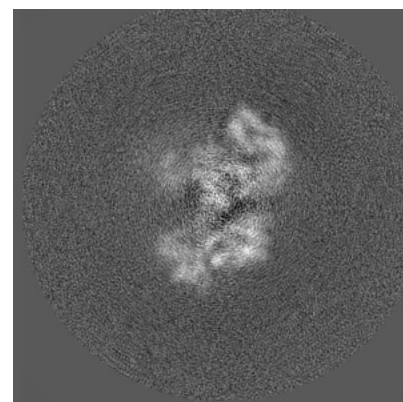
### 6.2.2 Raw map



X Index: 150



Y Index: 150

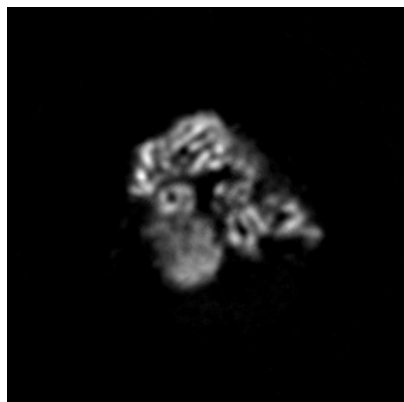


Z Index: 150

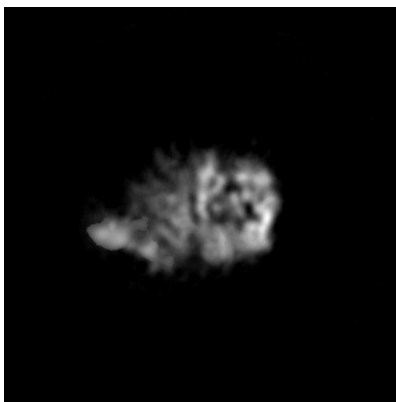
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

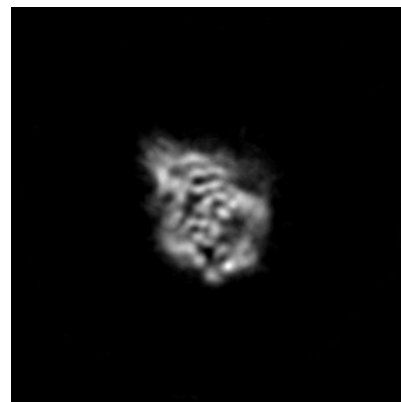
### 6.3.1 Primary map



X Index: 161

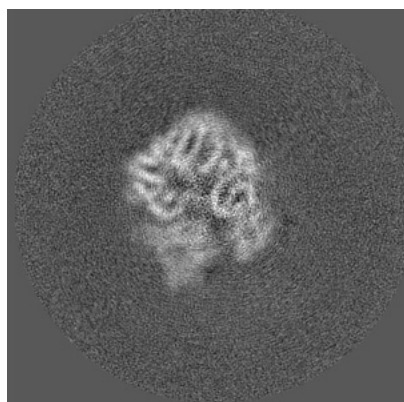


Y Index: 118

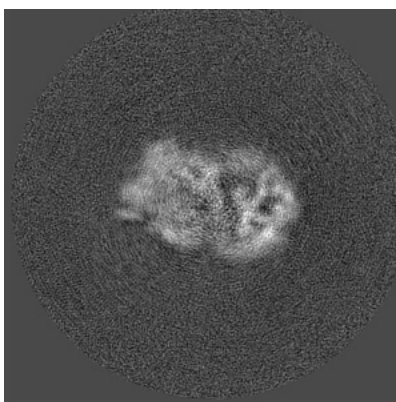


Z Index: 184

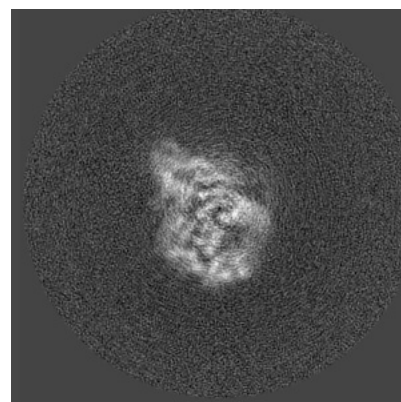
### 6.3.2 Raw map



X Index: 152



Y Index: 135



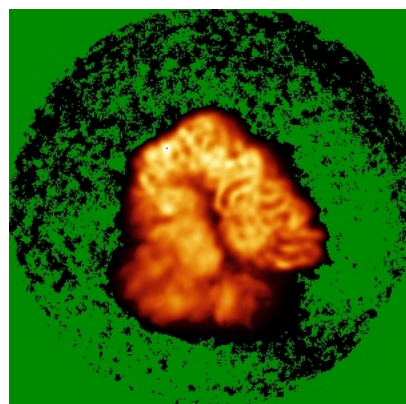
Z Index: 185

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

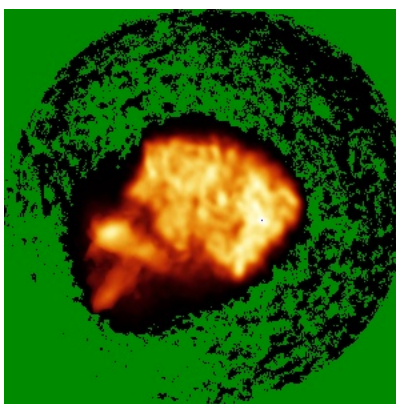


## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

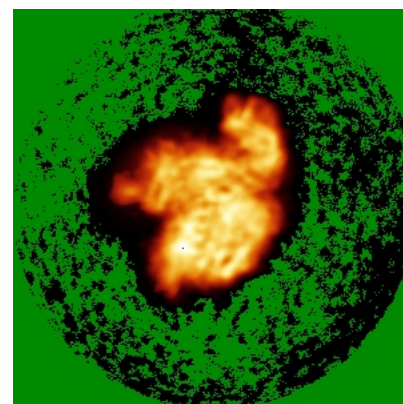
### 6.4.1 Primary map



X

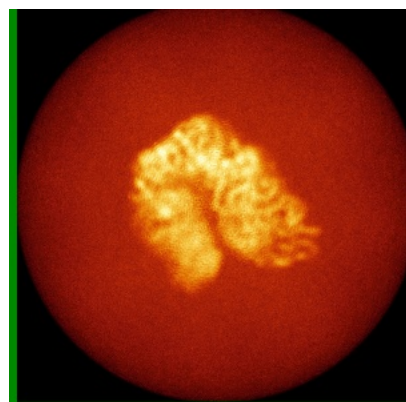


Y

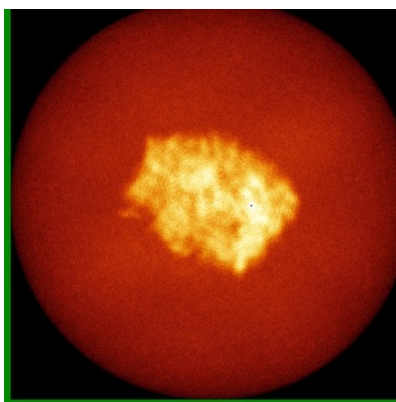


Z

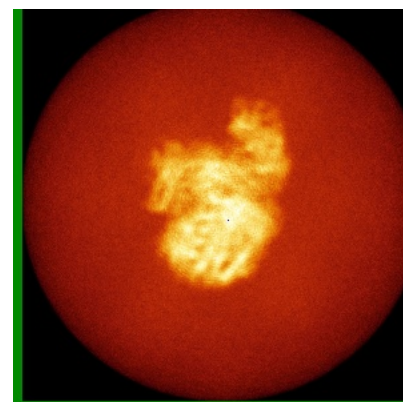
### 6.4.2 Raw map



X



Y



Z

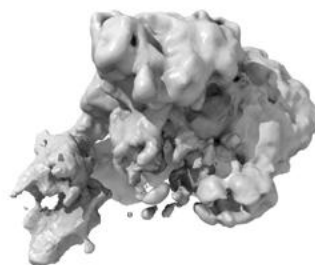
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



X



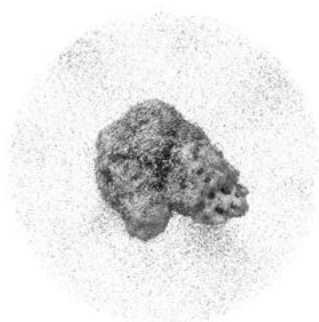
Y



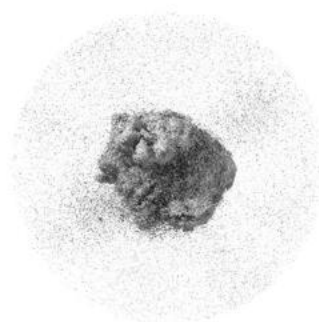
Z

The images above show the 3D surface view of the map at the recommended contour level 0.00167. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

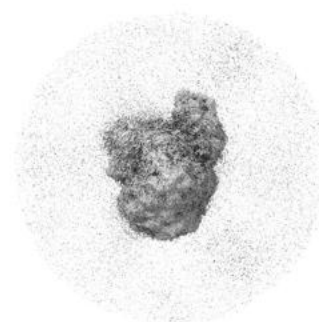
### 6.5.2 Raw map



X



Y



Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

## 6.6 Mask visualisation [i](#)

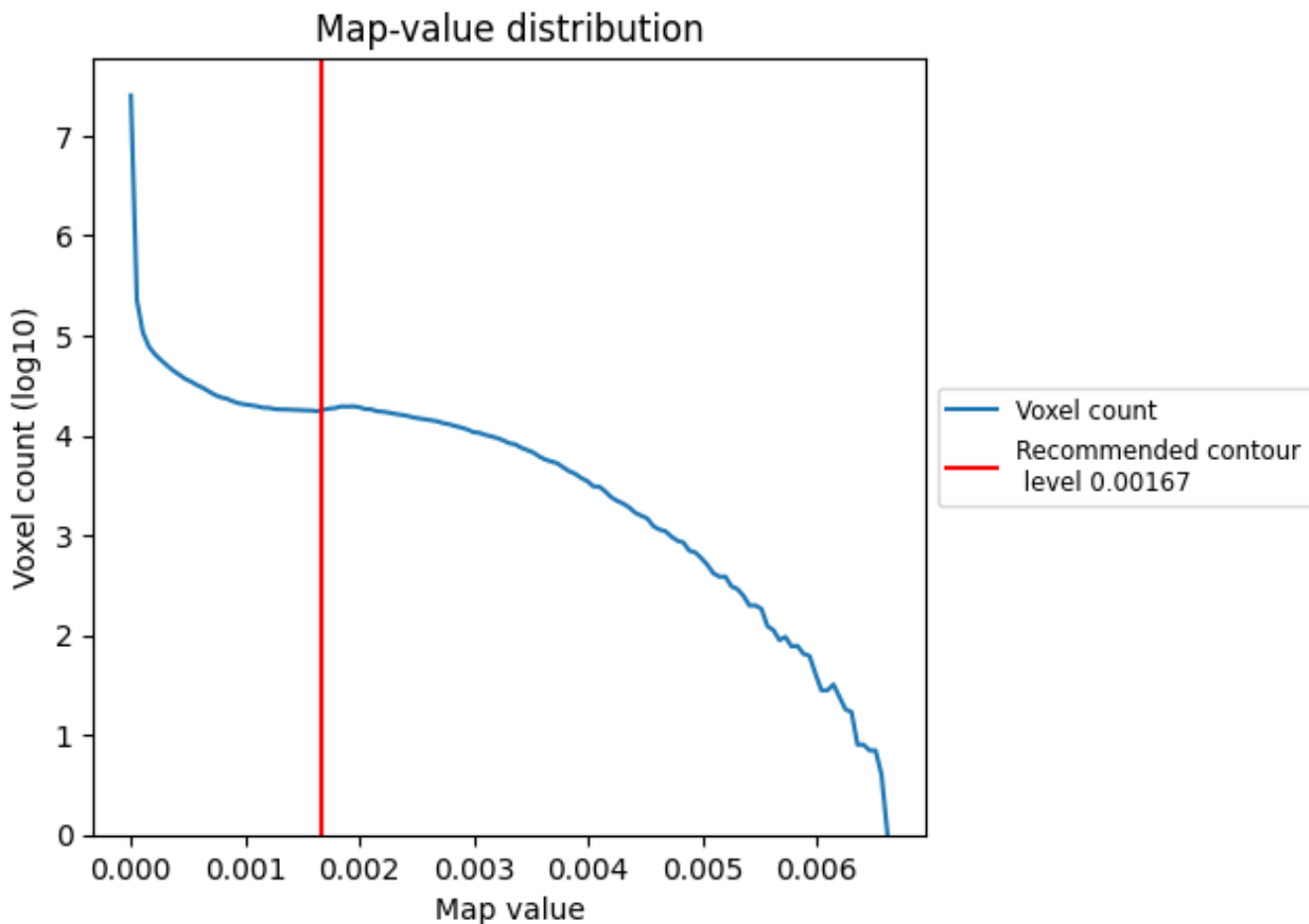
This section was not generated. No masks/segmentation were deposited.



## 7 Map analysis [i](#)

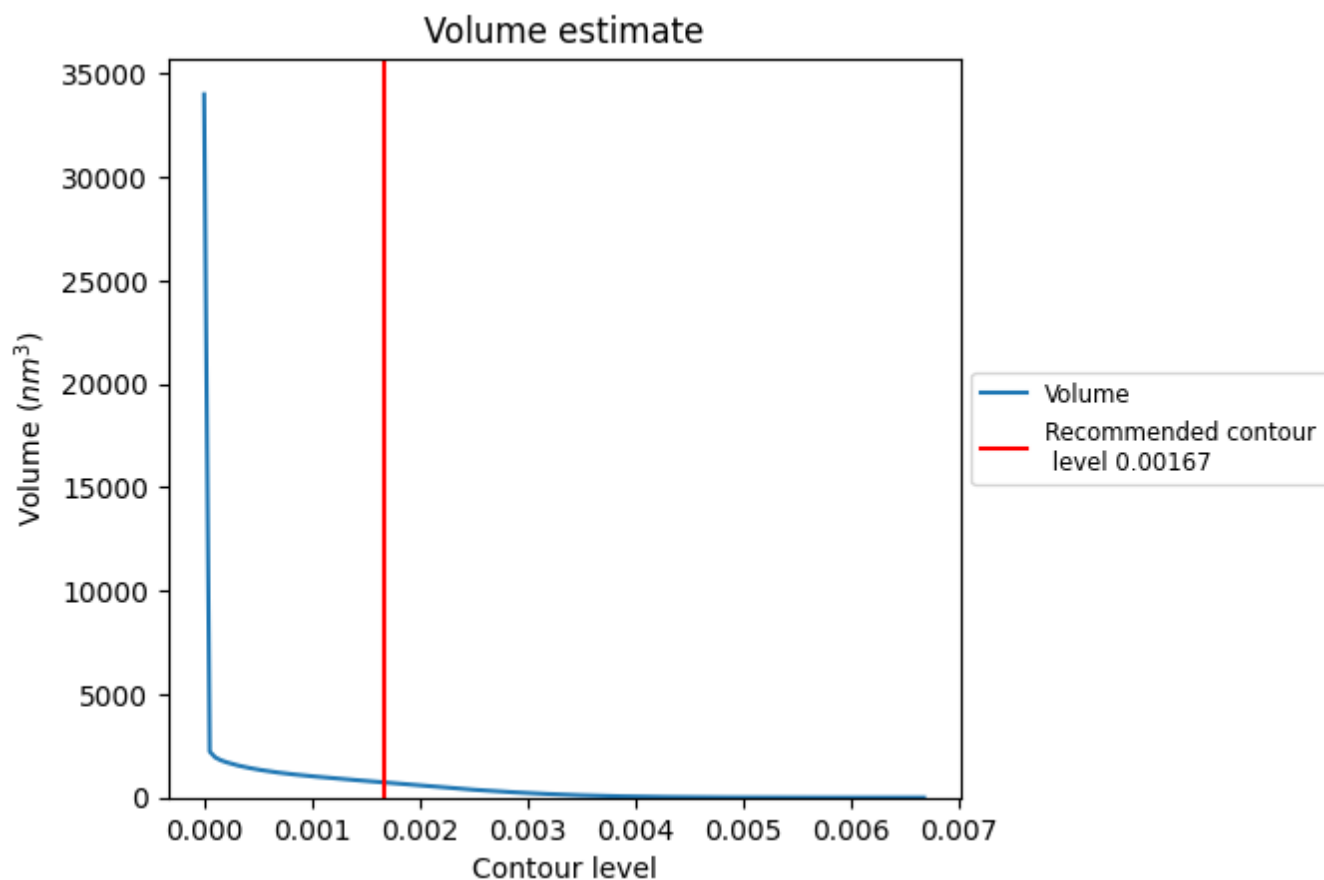
This section contains the results of statistical analysis of the map.

### 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.

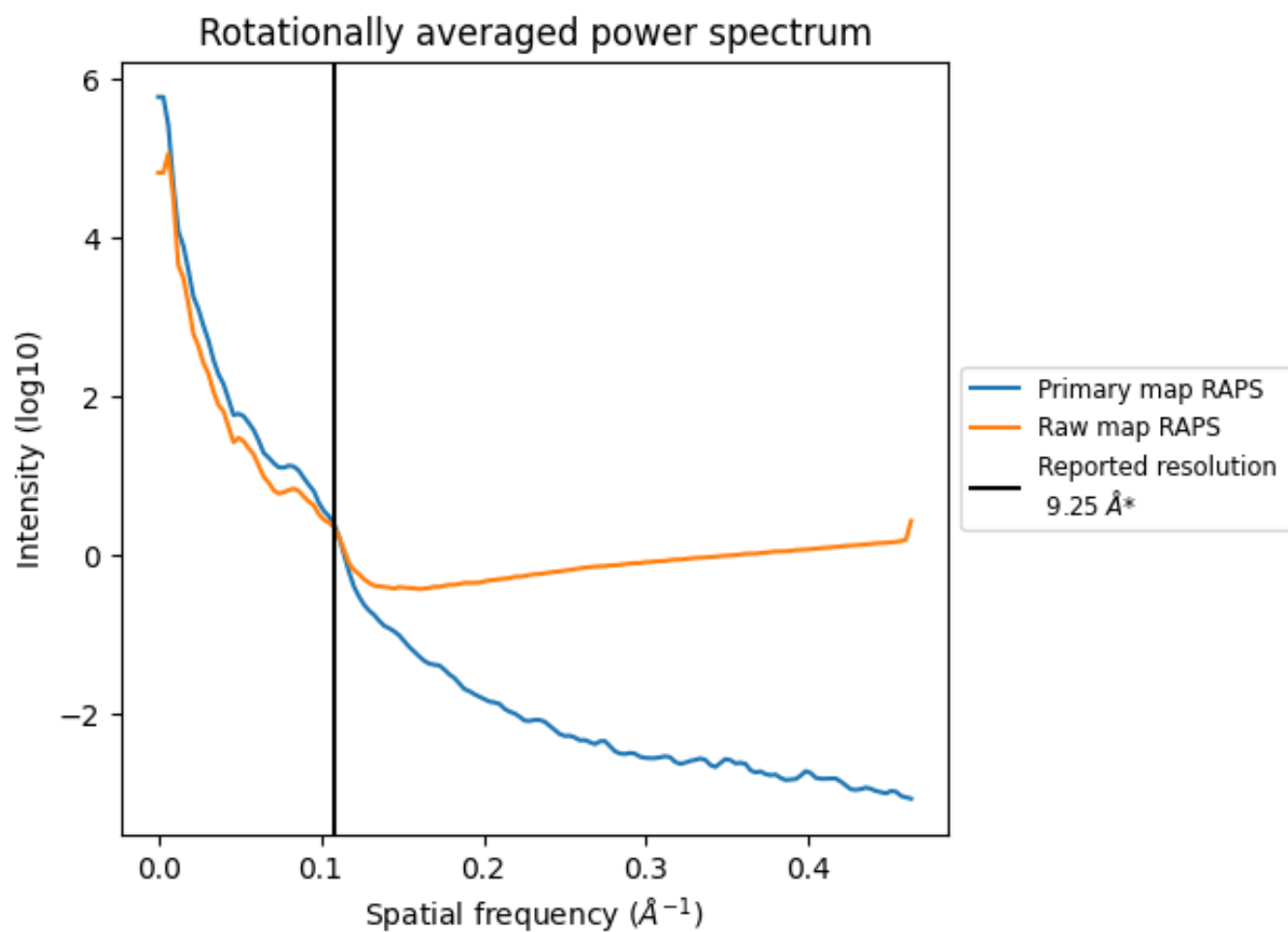
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 733  $\text{nm}^3$ ; this corresponds to an approximate mass of 662 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

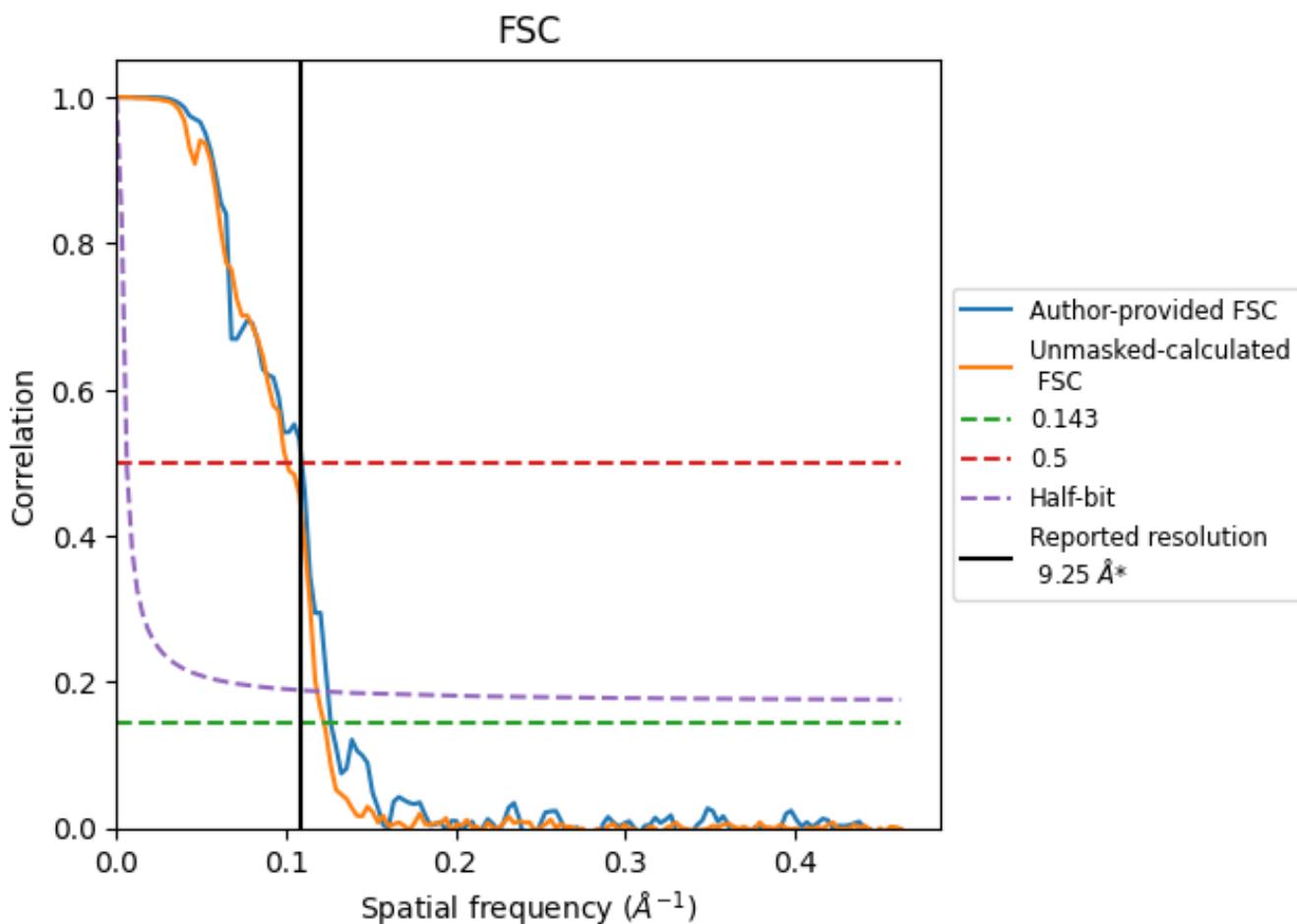


\*Reported resolution corresponds to spatial frequency of 0.108 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.108 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	9.25	-	-
Author-provided FSC curve	7.91	9.14	8.02
Unmasked-calculated*	8.17	9.94	8.45

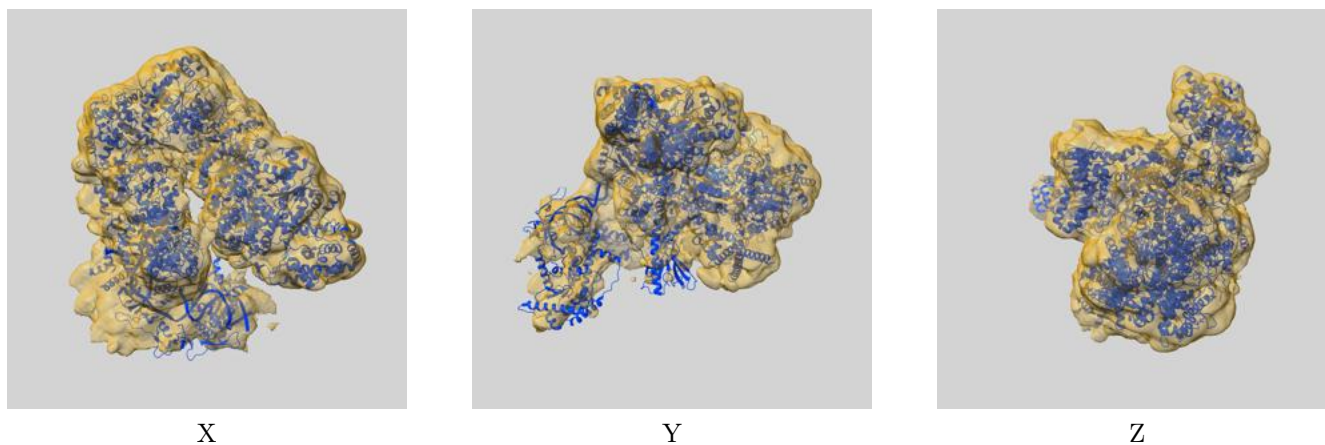
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 7.91 differs from the reported value 9.25 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 8.17 differs from the reported value 9.25 by more than 10 %

## 9 Map-model fit [i](#)

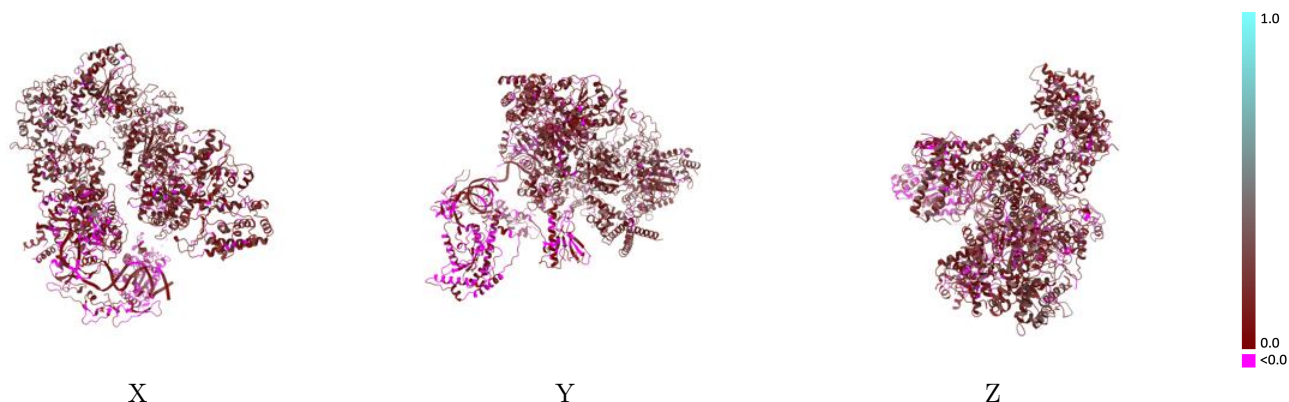
This section contains information regarding the fit between EMDB map EMD-22588 and PDB model 7K04. Per-residue inclusion information can be found in section 3 on page 7.

### 9.1 Map-model overlay [i](#)



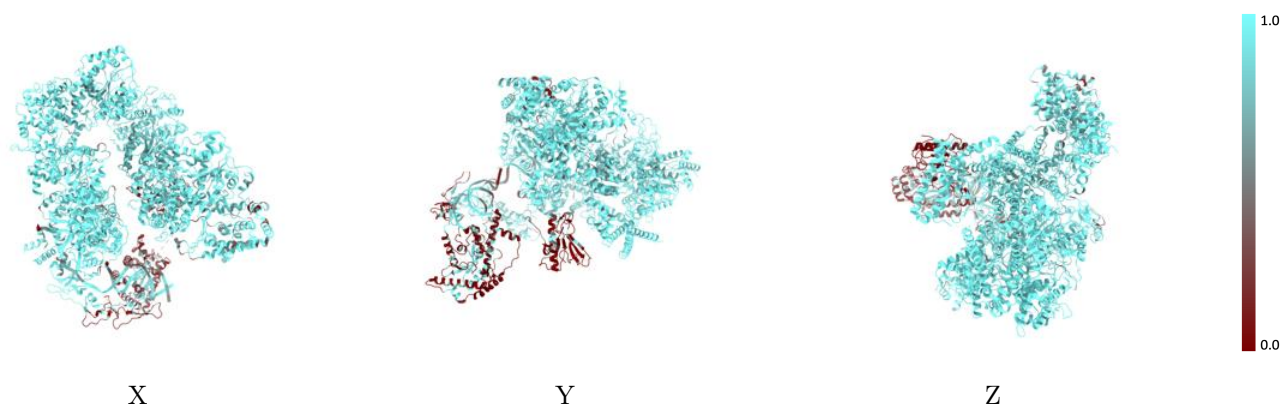
The images above show the 3D surface view of the map at the recommended contour level 0.00167 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



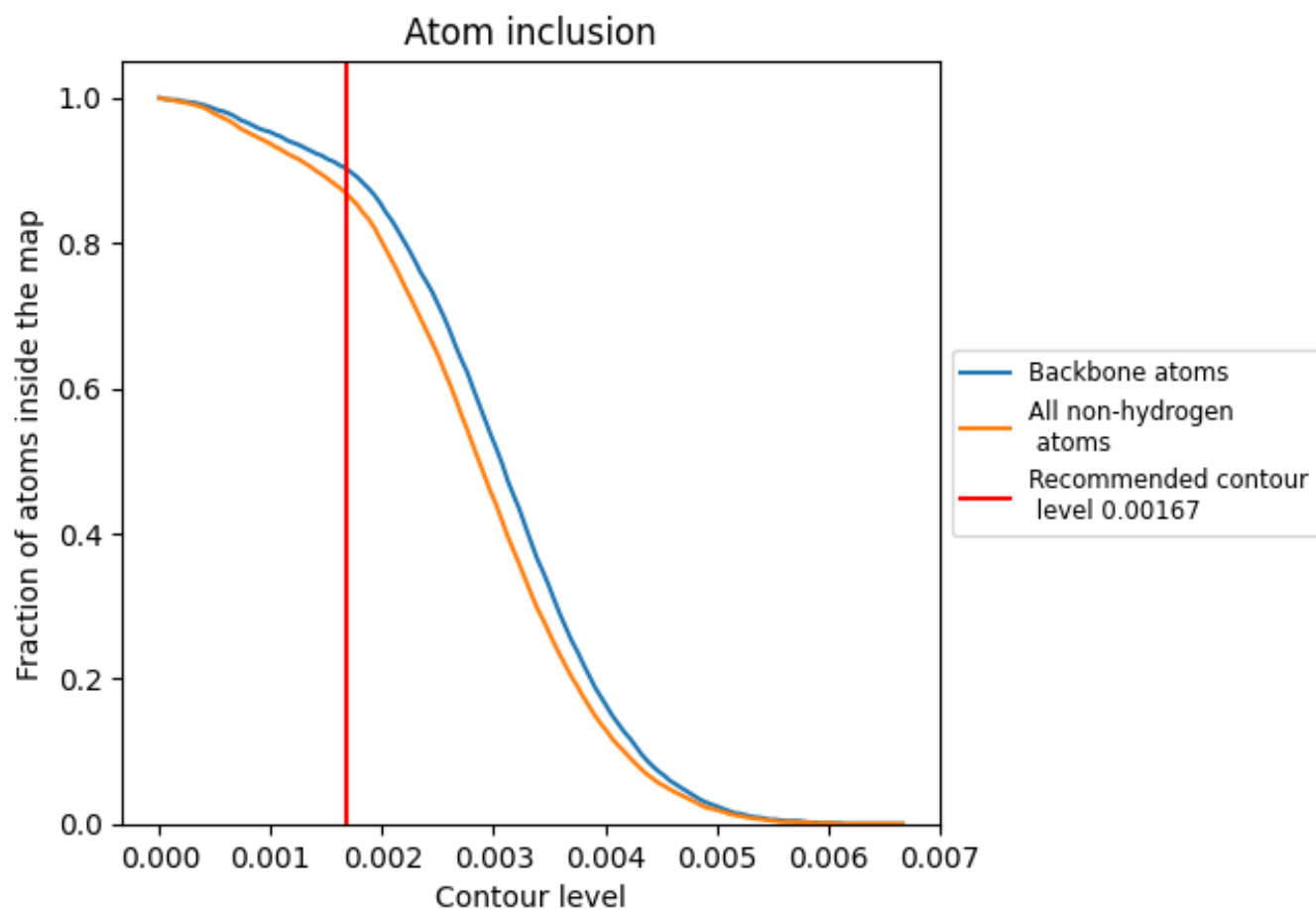
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.00167).

## 9.4 Atom inclusion [i](#)



























At the recommended contour level, 90% of all backbone atoms, 87% of all non-hydrogen atoms, are inside the map.



## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.00167) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8690	 0.1220
0	 0.9280	 0.1490
1	 0.7370	 0.1430
2	 0.9660	 0.1740
4	 0.9600	 0.1740
5	 0.9920	 0.1370
6	 0.9270	 0.1710
7	 0.9660	 0.1010
A	 0.4730	 0.0230
E	 0.8670	 0.0600
W	 0.7990	 0.0730
Y	 0.6950	 0.0460

