



Full wwPDB EM Validation Report ⓘ

Mar 2, 2026 – 12:25 AM UTC

PDB ID : 8GHN / pdb_00008ghn
EMDB ID : EMD-40037
Title : Composite model of the yeast Hir Complex with Asf1/H3/H4
Authors : Kim, H.J.; Murakami, K.
Deposited on : 2023-03-10
Resolution : 2.96 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

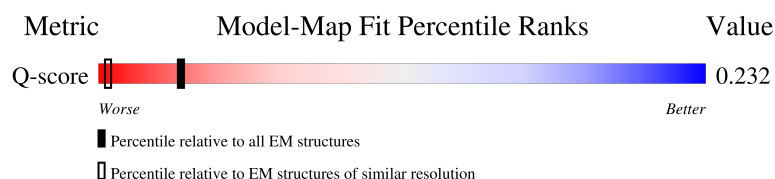
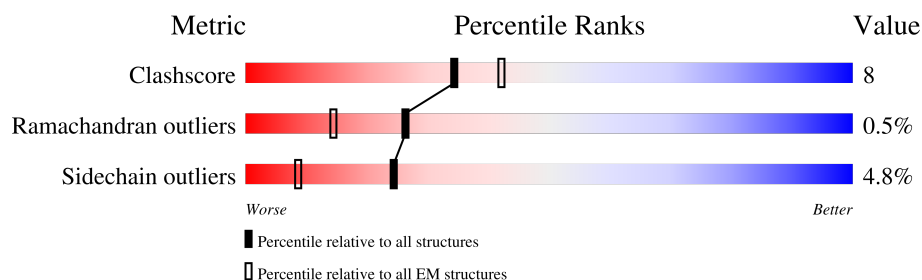
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh &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

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.96 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



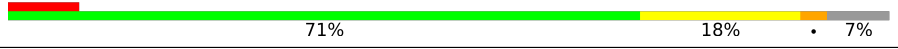
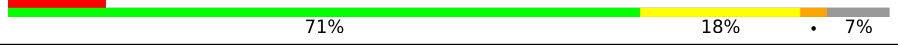
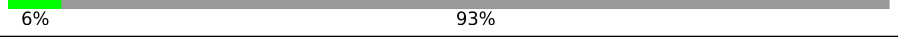
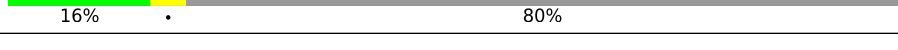
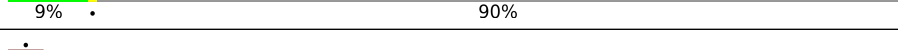
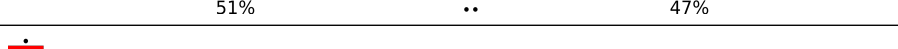
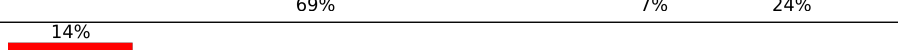
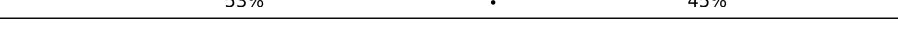
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	13155 (2.46 - 3.46)

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

Mol	Chain	Length	Quality of chain
1	A	840	
1	G	840	
2	B	875	
2	C	875	

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Mol	Chain	Length	Quality of chain
2	H	875	
2	I	875	
3	D	1648	
3	J	1648	
4	E	625	
4	F	625	
4	K	625	
4	L	625	
5	M	136	
6	N	103	
7	O	279	

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 59784 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Protein HIR1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	667	Total	C	N	O	S	0	0
			5272	3363	902	985	22		
1	G	651	Total	C	N	O	S	0	0
			5155	3289	880	964	22		

- Molecule 2 is a protein called Protein HIR2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	800	Total	C	N	O	S	0	0
			6359	4053	1061	1214	31		
2	C	377	Total	C	N	O	S	0	0
			3022	1936	498	571	17		
2	H	800	Total	C	N	O	S	0	0
			6359	4053	1061	1214	31		
2	I	377	Total	C	N	O	S	0	0
			3022	1936	498	571	17		

- Molecule 3 is a protein called Histone transcription regulator 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	1533	Total	C	N	O	S	0	0
			12616	8119	2086	2364	47		
3	J	1533	Total	C	N	O	S	0	0
			12617	8119	2086	2365	47		

- Molecule 4 is a protein called Histone promoter control protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	E	126	Total	C	N	O	S	0	0
			1012	651	162	198	1		
4	F	43	Total	C	N	O		0	0
			362	240	53	69			

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	K	126	Total	C	N	O	S	0	0
			1012	651	162	198	1		
4	L	64	Total	C	N	O		0	0
			540	356	76	108			

- Molecule 5 is a protein called Histone H3.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	M	72	Total	C	N	O	0	0
			584	369	110	105		

- Molecule 6 is a protein called Histone H4.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	N	78	Total	C	N	O	0	0
			618	391	119	108		

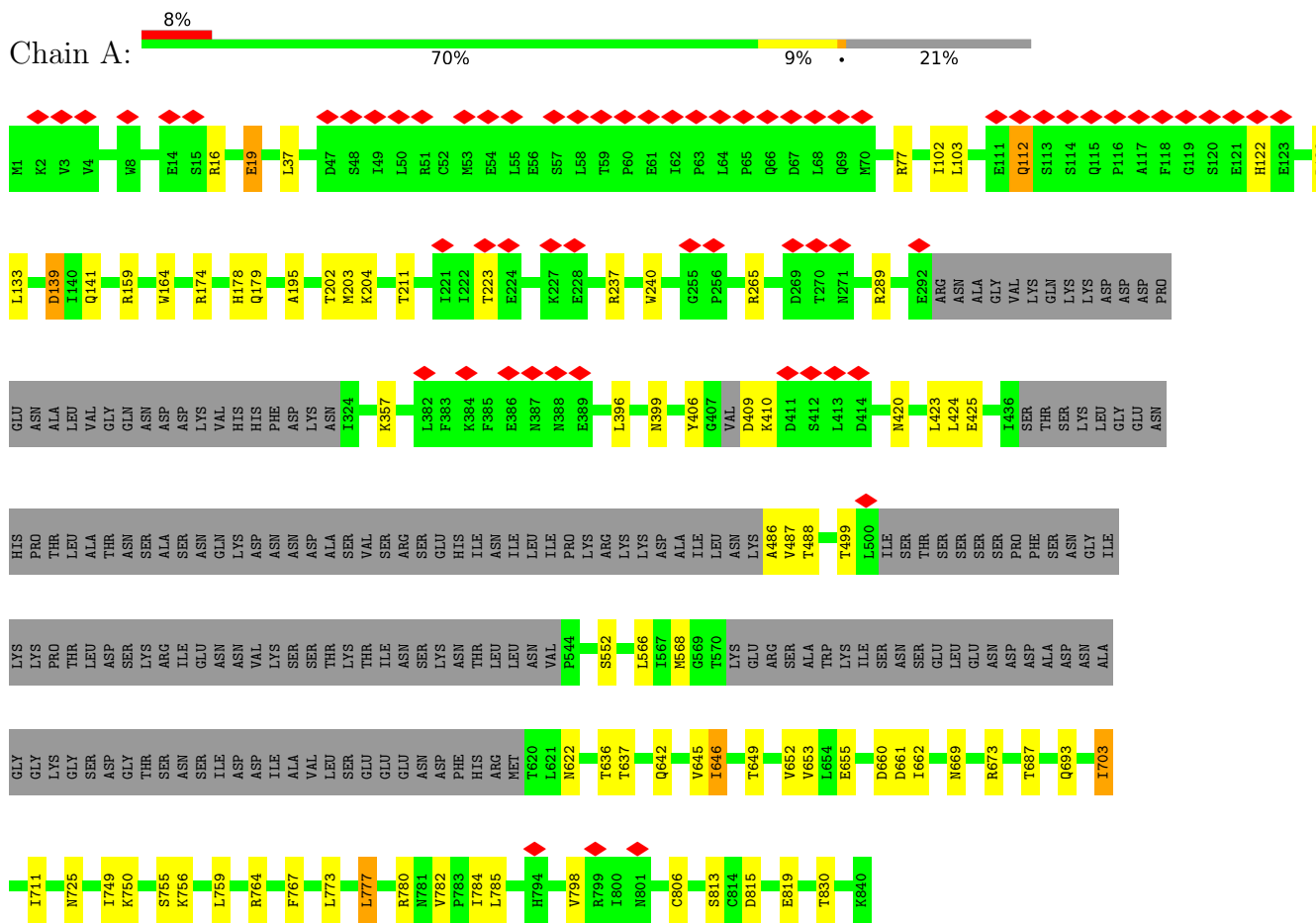
- Molecule 7 is a protein called Histone chaperone.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	O	154	Total	C	N	O	S	0	0
			1234	793	200	238	3		

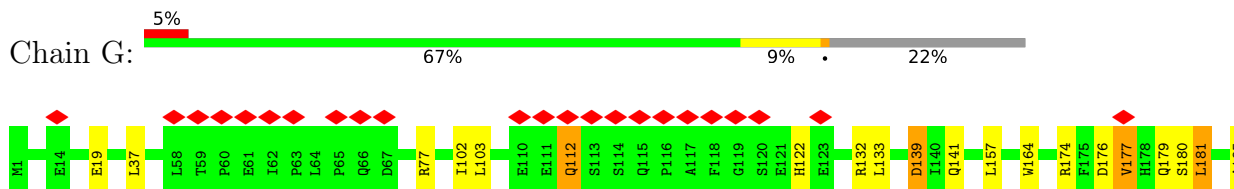
3 Residue-property plots

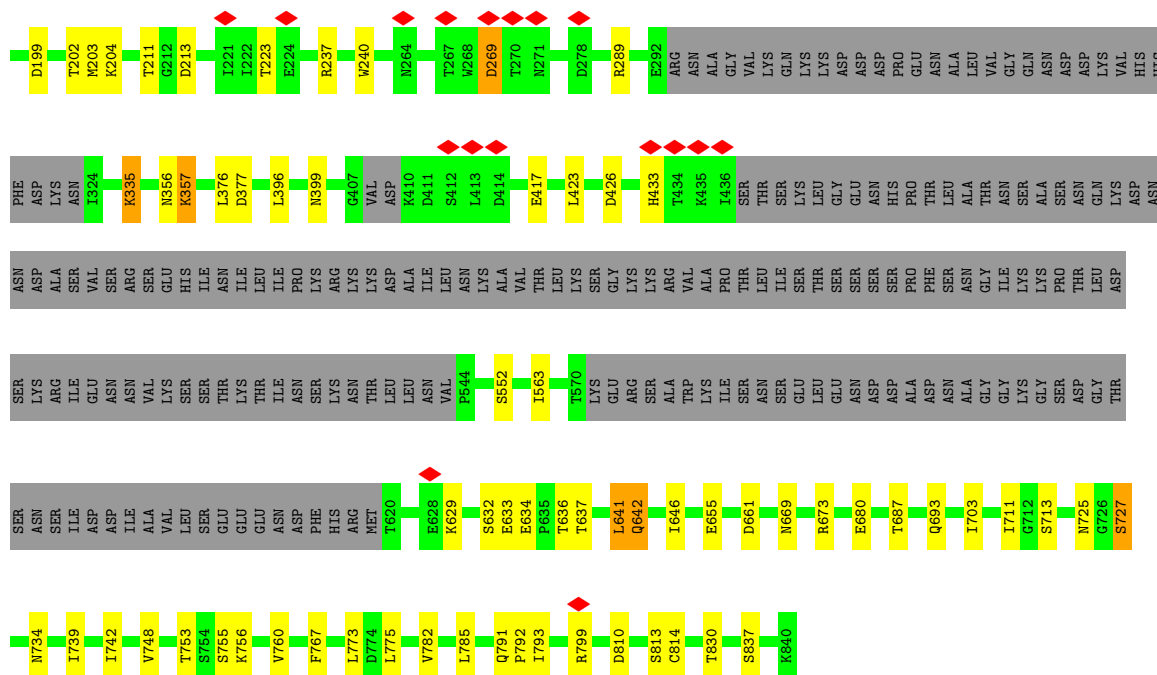
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

• Molecule 1: Protein HIR1

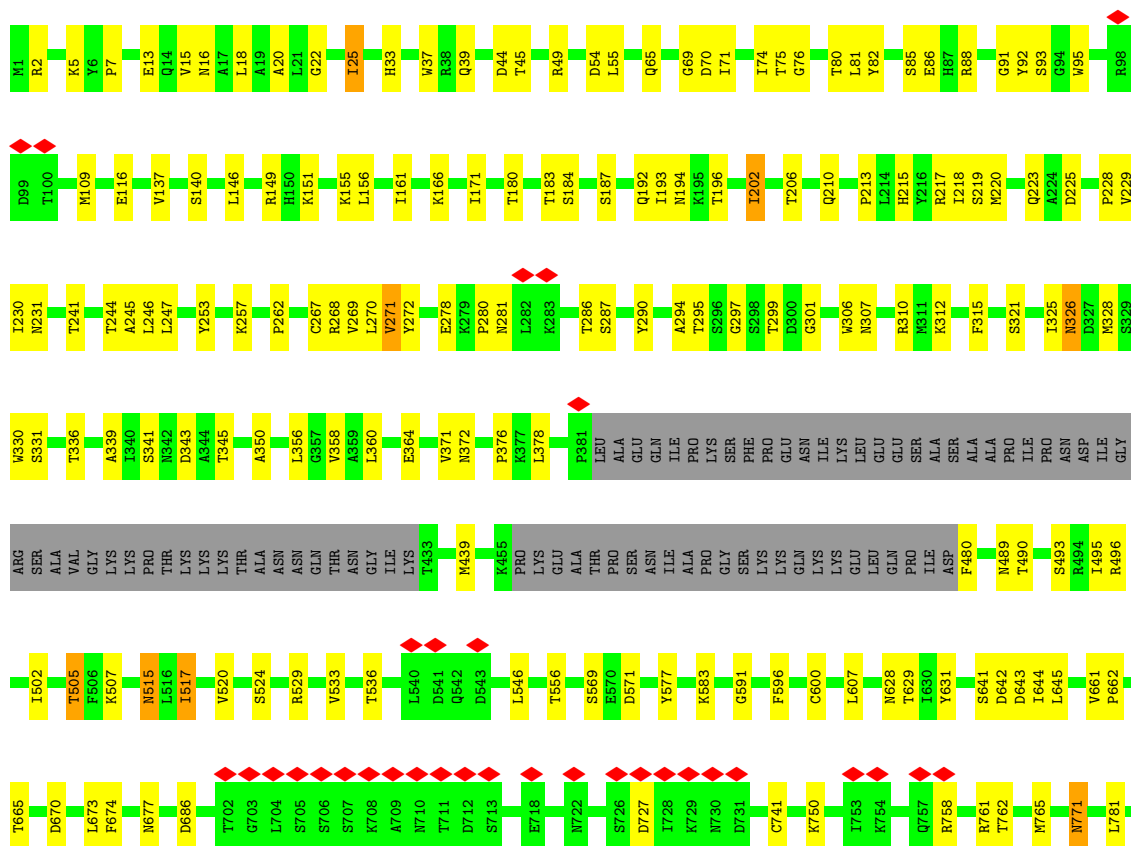


• Molecule 1: Protein HIR1



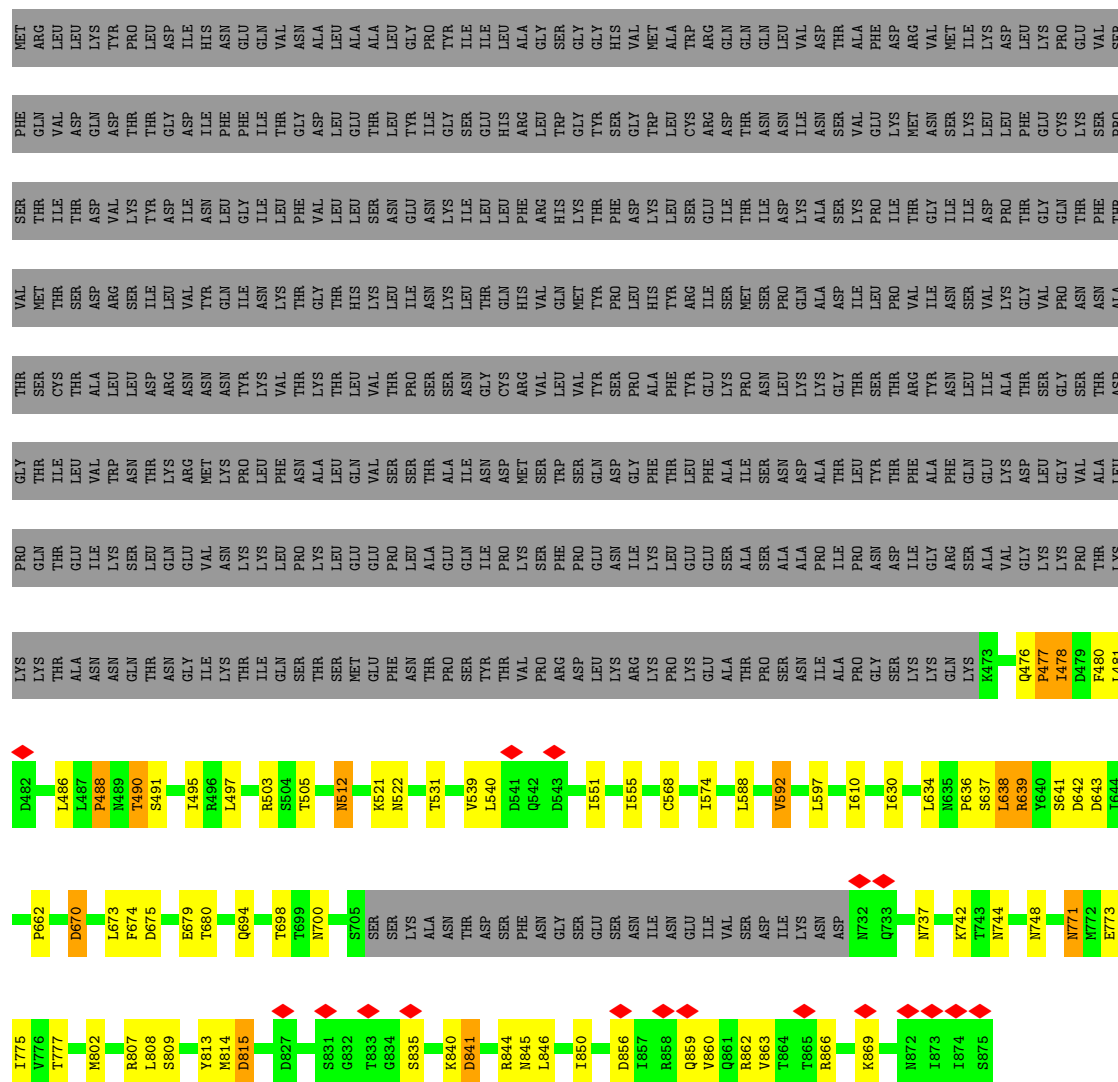
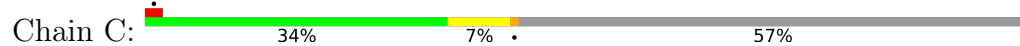


• Molecule 2: Protein HIR2

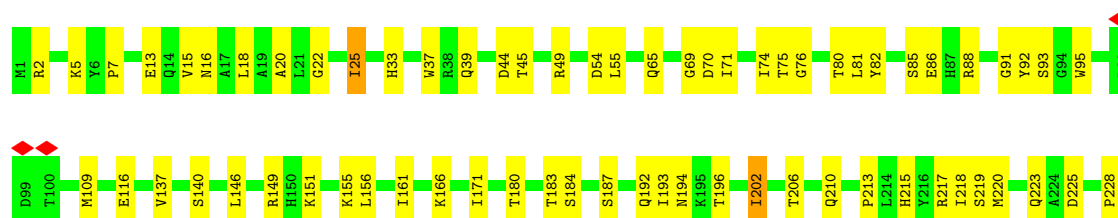


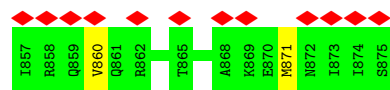


• Molecule 2: Protein HIR2

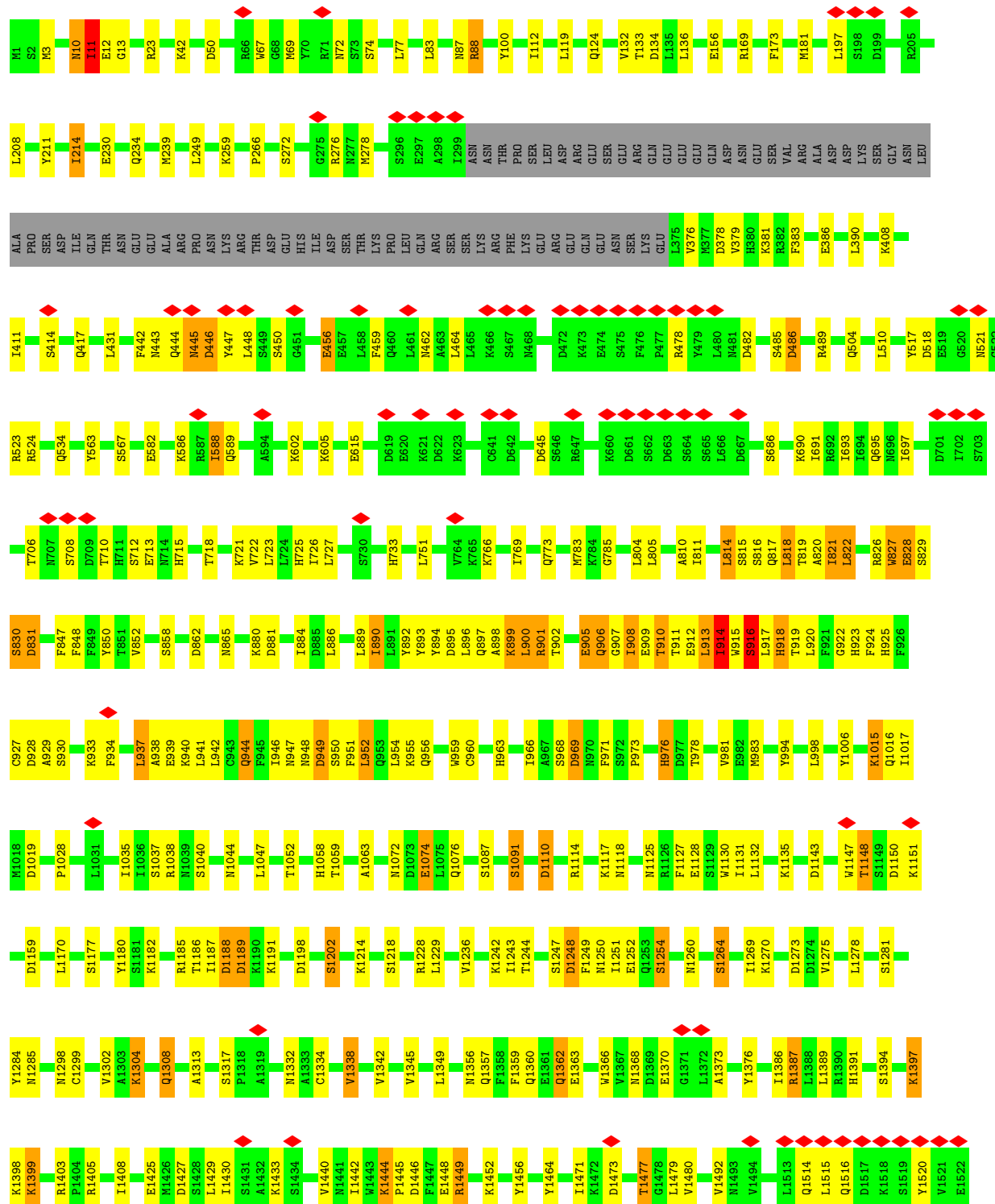


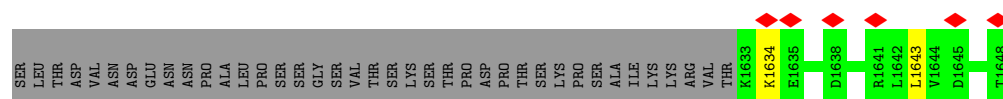
• Molecule 2: Protein HIR2





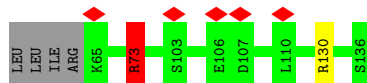
• Molecule 3: Histone transcription regulator 3



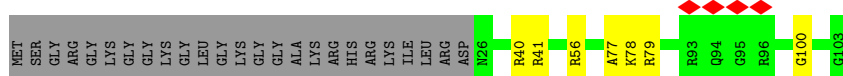


Chain J: 11% 71% 18% 7%

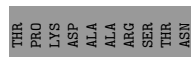
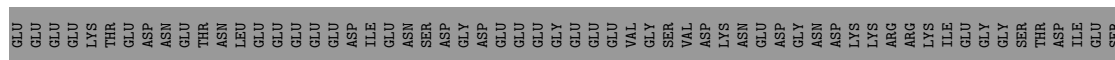
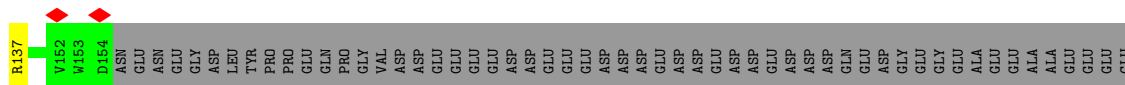
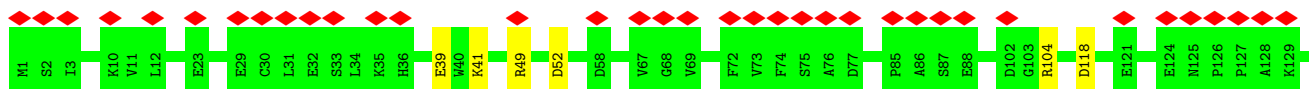




Chain N:



Chain O:



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	639629	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 ($e^-/\text{\AA}^2$)	42	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.190	Depositor
Minimum map value	0.000	Depositor
Average map value	0.006	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.02	Depositor
Map size (Å)	723.52, 754.8, 618.8	wwPDB
Map dimensions	532, 555, 455	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.36, 1.36, 1.36	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z > 5$	RMSZ	# $ Z > 5$
1	A	0.63	0/5386	1.06	7/7300 (0.1%)
1	G	0.63	0/5269	1.08	12/7144 (0.2%)
2	B	0.23	0/6482	0.54	0/8786
2	C	0.27	0/3080	0.66	3/4171 (0.1%)
2	H	0.23	0/6482	0.53	3/8786 (0.0%)
2	I	0.29	0/3080	0.71	5/4171 (0.1%)
3	D	0.30	0/12889	0.64	9/17409 (0.1%)
3	J	0.31	1/12890 (0.0%)	0.62	11/17410 (0.1%)
4	E	0.22	0/1032	0.48	0/1397
4	F	0.78	0/370	1.26	0/500
4	K	0.22	0/1032	0.48	0/1397
4	L	0.78	0/552	1.22	0/747
5	M	0.84	0/590	1.44	2/789 (0.3%)
6	N	0.87	0/625	1.44	3/837 (0.4%)
7	O	0.74	0/1263	1.22	2/1722 (0.1%)
All	All	0.41	1/61022 (0.0%)	0.76	57/82566 (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
2	C	0	2
2	I	0	1
3	D	0	4
3	J	0	4
4	F	0	1
4	L	0	1
5	M	0	1
6	N	0	2
7	O	0	2
All	All	0	18

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	J	194	VAL	C-N	5.05	1.40	1.33

All (57) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	588	ILE	N-CA-C	-9.78	103.15	112.83
1	G	642	GLN	CA-CB-CG	9.00	132.09	114.10
2	I	871	MET	N-CA-C	-8.65	102.74	113.38
1	G	791	GLN	CA-CB-CG	7.93	129.97	114.10
1	G	174	ARG	NE-CZ-NH2	7.27	125.74	119.20
1	A	174	ARG	NE-CZ-NH2	7.25	125.73	119.20
3	D	446	ASP	N-CA-C	7.19	117.47	108.19
3	J	588	ILE	N-CA-C	-7.10	103.35	113.07
1	G	269	ASP	CA-CB-CG	6.95	119.55	112.60
3	D	214	ILE	N-CA-C	6.74	113.42	106.21
3	J	193	LEU	CA-C-N	6.60	124.40	120.24
3	J	193	LEU	C-N-CA	6.60	124.40	120.24
1	A	139	ASP	CA-CB-CG	6.59	119.19	112.60
1	G	139	ASP	CA-CB-CG	6.52	119.12	112.60
6	N	41	ARG	NE-CZ-NH2	6.15	124.74	119.20
3	J	446	ASP	N-CA-C	6.12	116.09	108.19
3	D	814	LEU	CA-CB-CG	5.99	137.27	116.30
3	J	934	PHE	N-CA-CB	5.99	120.61	110.49
2	I	871	MET	CA-CB-CG	5.83	125.75	114.10
2	H	767	GLU	CA-CB-CG	5.79	125.69	114.10
7	O	118	ASP	CA-CB-CG	5.77	118.37	112.60
2	C	481	LEU	CA-CB-CG	5.76	136.47	116.30
3	J	816	SER	N-CA-C	-5.75	104.92	111.07
2	I	476	GLN	CA-CB-CG	5.74	125.59	114.10
1	A	237	ARG	NE-CZ-NH2	5.71	124.34	119.20
1	G	237	ARG	NE-CZ-NH2	5.70	124.33	119.20
3	J	876	SER	N-CA-C	-5.64	104.50	111.33
1	G	641	LEU	CA-C-N	5.61	132.26	121.54
1	G	641	LEU	C-N-CA	5.61	132.26	121.54
3	J	903	PRO	N-CA-CB	-5.61	97.36	103.25
2	C	814	MET	CB-CG-SD	5.57	129.40	112.70
1	G	112	GLN	OE1-CD-NE2	-5.56	117.04	122.60
1	A	112	GLN	OE1-CD-NE2	-5.52	117.08	122.60
5	M	130	ARG	NE-CZ-NH2	5.51	124.16	119.20
3	J	826	ARG	O-C-N	5.48	129.88	122.59
3	J	446	ASP	CA-C-N	5.33	135.59	126.32
3	J	446	ASP	C-N-CA	5.33	135.59	126.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	905	GLU	N-CA-C	-5.26	105.71	111.82
7	O	137	ARG	NE-CZ-NH2	5.26	123.93	119.20
1	A	289	ARG	NE-CZ-NH2	5.25	123.92	119.20
3	D	239	MET	CB-CG-SD	5.24	128.43	112.70
1	G	289	ARG	NE-CZ-NH2	5.23	123.91	119.20
1	G	141	GLN	OE1-CD-NE2	-5.17	117.43	122.60
3	D	197	LEU	CA-CB-CG	5.16	134.37	116.30
3	D	214	ILE	CB-CG1-CD1	5.16	124.63	113.80
5	M	73	ARG	NE-CZ-NH2	5.14	123.82	119.20
1	A	77	ARG	NE-CZ-NH2	5.12	123.81	119.20
6	N	79	ARG	NE-CZ-NH2	5.11	123.80	119.20
1	G	77	ARG	NE-CZ-NH2	5.09	123.78	119.20
2	H	766	LYS	CA-C-N	5.08	131.24	121.54
2	H	766	LYS	C-N-CA	5.08	131.24	121.54
1	A	141	GLN	OE1-CD-NE2	-5.08	117.52	122.60
2	I	871	MET	CG-SD-CE	5.08	112.06	100.90
3	D	456	GLU	CA-CB-CG	5.07	124.23	114.10
2	C	540	LEU	CA-CB-CG	5.06	134.01	116.30
6	N	40	ARG	NE-CZ-NH1	-5.02	116.48	121.50
2	I	764	LEU	CA-CB-CG	5.01	133.84	116.30

There are no chirality outliers.

All (18) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	C	476	GLN	Peptide
2	C	636	PRO	Peptide
3	D	10	ASN	Peptide
3	D	444	GLN	Peptide
3	D	445	ASN	Peptide
3	D	901	ARG	Sidechain
4	F	466	TYR	Sidechain
2	I	477	PRO	Peptide
3	J	444	GLN	Peptide
3	J	587	ARG	Peptide
3	J	826	ARG	Sidechain
3	J	901	ARG	Sidechain
4	L	466	TYR	Sidechain
5	M	73	ARG	Sidechain
6	N	100	GLY	Peptide
6	N	56	ARG	Sidechain
7	O	104	ARG	Sidechain

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Mol	Chain	Res	Type	Group
7	O	49	ARG	Sidechain

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5272	0	5314	82	0
1	G	5155	0	5180	55	0
2	B	6359	0	6419	114	0
2	C	3022	0	3048	44	0
2	H	6359	0	6419	113	0
2	I	3022	0	3048	31	0
3	D	12616	0	12567	284	0
3	J	12617	0	12567	278	0
4	E	1012	0	1019	14	0
4	F	362	0	345	3	0
4	K	1012	0	1019	16	0
4	L	540	0	504	6	0
5	M	584	0	614	1	0
6	N	618	0	660	23	0
7	O	1234	0	1219	1	0
All	All	59784	0	59942	965	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 8.

All (965) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:10:ASN:CA	3:D:11:ILE:HG22	1.26	1.61
3:D:1634:LYS:HD3	6:N:78:LYS:CB	1.29	1.61
3:D:10:ASN:CB	3:D:11:ILE:HG22	1.27	1.59
3:D:10:ASN:HB3	3:D:11:ILE:CG2	1.22	1.57
3:D:379:VAL:HG21	3:D:923:HIS:CD2	1.45	1.48
3:D:1634:LYS:CD	6:N:78:LYS:CB	1.87	1.48
3:D:10:ASN:CB	3:D:11:ILE:CG2	1.80	1.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:16:ARG:CG	1:A:488:THR:HG22	1.45	1.44
3:D:1634:LYS:CD	6:N:78:LYS:HB3	1.50	1.35
1:A:16:ARG:CD	1:A:488:THR:HG21	1.55	1.34
3:D:1634:LYS:CD	6:N:78:LYS:HB2	1.53	1.32
1:G:213:ASP:OD2	2:H:714:PHE:CZ	1.83	1.31
1:A:16:ARG:NE	1:A:488:THR:CG2	1.93	1.31
1:A:16:ARG:HG3	1:A:488:THR:CG2	1.63	1.29
1:A:16:ARG:CD	1:A:488:THR:CG2	2.10	1.28
3:D:884:ILE:CG2	3:D:930:SER:HB3	1.63	1.27
1:A:406:TYR:CD1	1:A:409:ASP:OD1	1.92	1.23
1:A:16:ARG:CG	1:A:488:THR:CG2	2.17	1.16
1:A:16:ARG:NE	1:A:488:THR:HG21	1.57	1.16
3:D:1634:LYS:HD2	6:N:78:LYS:HB2	1.16	1.13
3:D:902:THR:HB	3:D:905:GLU:HB2	1.28	1.12
3:D:10:ASN:HA	3:D:11:ILE:HG22	1.19	1.11
1:A:16:ARG:HE	1:A:488:THR:CG2	1.56	1.10
1:G:213:ASP:CG	2:H:714:PHE:CZ	2.27	1.10
3:D:818:LEU:HB3	3:D:889:LEU:HD11	1.32	1.09
3:J:891:LEU:HD21	3:J:914:ILE:HD11	1.13	1.09
1:A:406:TYR:HD1	1:A:409:ASP:CG	1.59	1.09
1:A:265:ARG:NH1	1:A:409:ASP:OD2	1.86	1.08
1:A:16:ARG:HD2	1:A:488:THR:HG21	1.35	1.08
1:A:179:GLN:O	2:B:765:MET:HB2	1.51	1.08
1:A:406:TYR:CD1	1:A:409:ASP:CG	2.30	1.07
3:D:379:VAL:HG21	3:D:923:HIS:NE2	1.70	1.07
3:J:891:LEU:CD2	3:J:914:ILE:HD11	1.83	1.06
1:A:16:ARG:HE	1:A:488:THR:HG23	0.94	1.05
3:D:1634:LYS:HB2	6:N:78:LYS:HD3	1.39	1.05
3:D:379:VAL:CG2	3:D:923:HIS:CD2	2.42	1.03
3:D:884:ILE:HG22	3:D:930:SER:HB3	1.31	1.03
1:G:213:ASP:OD2	2:H:714:PHE:CE1	2.12	1.02
3:D:10:ASN:CA	3:D:11:ILE:CG2	2.23	1.00
1:A:265:ARG:NE	1:A:409:ASP:OD1	1.96	0.98
1:A:16:ARG:NE	1:A:488:THR:HG23	1.68	0.97
1:A:265:ARG:HE	1:A:409:ASP:CG	1.71	0.96
3:J:891:LEU:HD11	3:J:910:THR:HG23	1.48	0.94
3:D:884:ILE:HG22	3:D:930:SER:CB	1.98	0.93
3:D:1634:LYS:HD2	6:N:78:LYS:CB	1.76	0.93
3:J:826:ARG:HB3	3:J:828:GLU:HG2	1.50	0.93
3:D:10:ASN:CG	3:D:11:ILE:CG2	2.41	0.93
3:J:380:HIS:HE1	3:J:920:LEU:HD11	1.34	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:827:TRP:HB3	3:J:940:LYS:HG2	1.53	0.91
3:D:1634:LYS:CB	6:N:78:LYS:HD3	2.01	0.90
3:J:891:LEU:HD21	3:J:914:ILE:CD1	2.00	0.90
3:D:880:LYS:HB3	3:D:929:ALA:HB2	1.51	0.90
1:G:213:ASP:CG	2:H:714:PHE:HZ	1.78	0.90
1:A:406:TYR:CE1	1:A:409:ASP:OD1	2.26	0.89
3:D:10:ASN:CB	3:D:11:ILE:HG23	1.70	0.89
1:A:159:ARG:CZ	2:B:765:MET:HG3	2.02	0.88
3:D:880:LYS:C	3:D:929:ALA:HB1	1.99	0.87
1:A:159:ARG:NE	2:B:765:MET:HG2	1.88	0.87
3:D:822:LEU:HB3	3:D:827:TRP:CE3	2.10	0.86
3:D:10:ASN:ND2	3:D:11:ILE:CG2	2.39	0.86
3:D:10:ASN:ND2	3:D:11:ILE:HG21	1.92	0.85
3:D:386:GLU:OE1	3:D:916:SER:HB3	1.77	0.84
3:J:376:VAL:CG1	3:J:923:HIS:NE2	2.40	0.84
1:G:213:ASP:OD1	2:H:714:PHE:HZ	1.59	0.84
1:A:179:GLN:O	2:B:765:MET:CB	2.25	0.84
1:A:159:ARG:CZ	2:B:765:MET:CG	2.57	0.83
3:D:884:ILE:CG2	3:D:930:SER:CB	2.54	0.82
1:A:265:ARG:NE	1:A:409:ASP:CG	2.38	0.82
3:D:884:ILE:HG21	3:D:930:SER:HB3	1.61	0.82
3:D:881:ASP:CG	3:D:930:SER:H	1.87	0.82
3:J:380:HIS:CE1	3:J:920:LEU:HD11	2.14	0.82
3:D:881:ASP:OD1	3:D:929:ALA:HA	1.78	0.81
3:J:826:ARG:HB3	3:J:828:GLU:CG	2.11	0.81
3:D:10:ASN:HB3	3:D:11:ILE:HG23	0.82	0.81
3:D:10:ASN:HD22	3:D:11:ILE:CG2	1.94	0.81
3:J:849:PHE:CZ	3:J:882:ILE:HG21	2.16	0.81
1:A:159:ARG:NH2	2:B:765:MET:HG3	1.96	0.80
1:G:213:ASP:OD1	2:H:714:PHE:CZ	2.33	0.80
3:D:10:ASN:HA	3:D:11:ILE:CG2	2.01	0.80
3:J:888:THR:HG23	3:J:937:LEU:HB3	1.64	0.80
3:D:1634:LYS:HB2	6:N:78:LYS:CD	2.11	0.79
3:J:910:THR:HG21	3:J:945:PHE:HE2	1.45	0.79
3:J:880:LYS:HB3	3:J:926:PHE:HD1	1.46	0.79
3:J:376:VAL:HG12	3:J:923:HIS:NE2	1.96	0.79
1:A:406:TYR:HB3	1:A:409:ASP:OD2	1.82	0.79
1:G:356:ASN:C	4:L:565:LEU:HD13	2.08	0.79
3:J:898:ALA:HB1	3:J:906:GLN:HA	1.64	0.79
3:D:881:ASP:N	3:D:929:ALA:HB1	1.98	0.78
3:D:10:ASN:HD22	3:D:11:ILE:HG21	1.46	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:891:LEU:HG	3:J:941:LEU:HD12	1.67	0.77
3:D:1634:LYS:HZ3	6:N:78:LYS:C	1.92	0.76
3:J:812:GLY:HA3	3:J:882:ILE:HG23	1.65	0.76
3:J:891:LEU:CD2	3:J:914:ILE:CD1	2.62	0.76
3:D:379:VAL:HG21	3:D:923:HIS:HD2	1.41	0.75
3:D:880:LYS:HB3	3:D:929:ALA:CB	2.17	0.74
3:D:884:ILE:HG21	3:D:929:ALA:O	1.87	0.74
3:D:10:ASN:C	3:D:11:ILE:HG22	2.11	0.74
3:D:379:VAL:HG12	3:D:920:LEU:HD13	1.70	0.74
3:J:10:ASN:C	3:J:12:GLU:H	1.94	0.74
3:D:379:VAL:CG2	3:D:923:HIS:NE2	2.48	0.73
3:J:902:THR:HB	3:J:905:GLU:HB2	1.69	0.73
3:J:879:MET:HG3	3:J:880:LYS:N	2.03	0.73
3:J:380:HIS:HE1	3:J:920:LEU:CD1	2.02	0.73
3:J:850:TYR:OH	3:J:920:LEU:HD22	1.89	0.72
3:D:383:PHE:HE2	3:D:917:LEU:CD2	2.01	0.72
3:D:902:THR:O	3:D:906:GLN:N	2.23	0.72
3:J:880:LYS:HB2	3:J:929:ALA:HB3	1.70	0.71
2:B:215:HIS:H	2:B:268:ARG:HH21	1.37	0.71
1:A:357:LYS:HZ3	1:A:487:VAL:CG2	2.04	0.71
3:J:898:ALA:C	3:J:906:GLN:HB2	2.16	0.70
3:J:826:ARG:O	3:J:828:GLU:HG2	1.91	0.70
1:A:265:ARG:CZ	1:A:409:ASP:OD2	2.39	0.70
3:J:891:LEU:HD22	3:J:914:ILE:HG12	1.74	0.70
3:D:881:ASP:OD1	3:D:929:ALA:CA	2.39	0.70
3:D:884:ILE:CB	3:D:930:SER:HB3	2.21	0.70
2:H:215:HIS:H	2:H:268:ARG:HH21	1.37	0.69
1:A:357:LYS:NZ	1:A:487:VAL:CG2	2.55	0.69
3:J:390:LEU:HD22	3:J:909:GLU:HB3	1.73	0.69
3:D:23:ARG:HH22	3:D:72:ASN:HD21	1.41	0.69
3:J:880:LYS:HB2	3:J:929:ALA:CB	2.21	0.69
3:D:881:ASP:O	3:D:930:SER:HB2	1.93	0.68
3:D:1634:LYS:HD3	6:N:78:LYS:HB3	0.69	0.68
3:J:891:LEU:HD22	3:J:914:ILE:CG1	2.22	0.68
3:J:892:TYR:HB2	3:J:937:LEU:HD11	1.75	0.68
1:A:159:ARG:CD	2:B:765:MET:HG2	2.24	0.68
3:D:881:ASP:OD1	3:D:930:SER:N	2.25	0.68
3:J:898:ALA:O	3:J:906:GLN:HB2	1.94	0.68
3:J:744:ILE:HG12	3:J:755:LEU:HD11	1.76	0.67
3:D:914:ILE:O	3:D:918:HIS:HB2	1.94	0.67
3:J:849:PHE:HB3	3:J:883:MET:SD	2.35	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1634:LYS:NZ	6:N:78:LYS:C	2.53	0.67
3:J:888:THR:CG2	3:J:937:LEU:HB3	2.24	0.67
3:D:697:ILE:HG13	3:D:715:HIS:HE1	1.60	0.67
3:D:880:LYS:C	3:D:929:ALA:CB	2.67	0.67
3:J:910:THR:HG21	3:J:945:PHE:CE2	2.28	0.67
1:G:176:ASP:HB2	2:H:761:ARG:NH1	2.10	0.66
3:D:914:ILE:HG12	3:D:938:ALA:HB1	1.76	0.66
3:J:868:PHE:HE2	3:J:879:MET:HG2	1.61	0.66
3:D:1634:LYS:NZ	6:N:77:ALA:O	2.27	0.66
1:A:357:LYS:NZ	1:A:487:VAL:HG21	2.11	0.65
3:J:383:PHE:CD2	3:J:916:SER:HB3	2.32	0.65
3:J:880:LYS:HB3	3:J:926:PHE:CD1	2.30	0.64
3:J:1452:LYS:O	3:J:1456:TYR:HB2	1.97	0.64
3:D:827:TRP:CG	3:D:937:LEU:HD13	2.32	0.64
3:J:825:ASN:O	3:J:826:ARG:HB2	1.98	0.64
3:J:879:MET:HG3	3:J:880:LYS:H	1.63	0.64
3:J:1189:ASP:OD1	3:J:1189:ASP:N	2.31	0.64
2:B:71:ILE:HA	2:B:85:SER:HA	1.80	0.64
1:A:669:ASN:HA	1:A:687:THR:HG22	1.79	0.63
3:D:1634:LYS:CE	6:N:78:LYS:O	2.45	0.63
2:H:71:ILE:HA	2:H:85:SER:HA	1.80	0.63
2:C:866:ARG:HA	2:C:869:LYS:HE2	1.80	0.63
1:G:179:GLN:HB2	2:H:765:MET:CB	2.28	0.63
3:D:1452:LYS:O	3:D:1456:TYR:HB2	1.97	0.63
1:G:552:SER:HB3	2:H:600:CYS:HB2	1.81	0.63
1:A:16:ARG:HG3	1:A:488:THR:HG22	0.68	0.63
3:D:1189:ASP:OD1	3:D:1189:ASP:N	2.31	0.63
3:J:850:TYR:OH	3:J:920:LEU:CD2	2.47	0.63
3:J:380:HIS:CE1	3:J:920:LEU:CD1	2.79	0.63
3:D:376:VAL:HB	3:D:924:PHE:CZ	2.34	0.62
3:J:956:GLN:NE2	3:J:960:CYS:SG	2.71	0.62
3:D:1182:LYS:NZ	3:D:1189:ASP:OD2	2.31	0.62
3:J:888:THR:HA	3:J:937:LEU:HD22	1.81	0.62
3:D:1281:SER:O	3:D:1285:ASN:ND2	2.33	0.62
3:J:1281:SER:O	3:J:1285:ASN:ND2	2.33	0.61
3:J:202:ILE:HA	3:J:205:ARG:HB3	1.82	0.61
3:J:376:VAL:HG12	3:J:923:HIS:CE1	2.35	0.61
2:I:477:PRO:HD2	2:I:478:ILE:HD12	1.82	0.61
3:J:850:TYR:CZ	3:J:920:LEU:HD21	2.36	0.61
3:J:1182:LYS:NZ	3:J:1189:ASP:OD2	2.31	0.61
3:J:1539:GLN:O	3:J:1543:VAL:HB	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:881:ASP:HA	3:D:930:SER:N	2.16	0.61
3:J:934:PHE:O	3:J:935:LEU:C	2.44	0.61
3:J:891:LEU:HD13	3:J:914:ILE:HG13	1.83	0.60
1:A:159:ARG:CZ	2:B:765:MET:HG2	2.27	0.60
3:D:1539:GLN:O	3:D:1543:VAL:HB	2.01	0.60
3:D:902:THR:CB	3:D:905:GLU:HB2	2.18	0.60
3:J:939:GLU:HB3	3:J:957:ILE:HG21	1.83	0.60
3:D:956:GLN:NE2	3:D:960:CYS:SG	2.71	0.60
2:H:95:TRP:HA	2:H:109:MET:HG2	1.83	0.60
4:F:598:PHE:CE1	3:J:16:TYR:HD2	2.20	0.60
3:J:10:ASN:C	3:J:12:GLU:N	2.60	0.60
3:J:670:TYR:HB3	3:J:673:TYR:HB2	1.84	0.60
2:B:95:TRP:HA	2:B:109:MET:HG2	1.83	0.60
2:B:267:CYS:HA	2:B:297:GLY:HA2	1.84	0.60
3:D:708:SER:HB2	3:D:712:SER:HB3	1.83	0.60
3:D:69:MET:SD	3:D:69:MET:N	2.75	0.60
3:D:383:PHE:HE2	3:D:917:LEU:HD23	1.65	0.59
3:J:902:THR:O	3:J:906:GLN:N	2.23	0.59
3:D:1634:LYS:HD3	6:N:78:LYS:CA	2.24	0.59
2:H:267:CYS:HA	2:H:297:GLY:HA2	1.84	0.59
2:H:65:GLN:NE2	2:H:69:GLY:O	2.35	0.59
2:H:520:VAL:HG22	2:H:533:VAL:HG22	1.83	0.59
3:J:1362:GLN:OE1	3:J:1387:ARG:NH2	2.35	0.59
3:D:133:THR:HG21	3:D:156:GLU:HB2	1.85	0.59
3:D:952:LEU:HA	3:D:955:LYS:HE2	1.85	0.59
3:J:133:THR:HG21	3:J:156:GLU:HB2	1.84	0.59
2:C:840:LYS:HE3	2:C:844:ARG:HD3	1.85	0.59
3:D:1430:ILE:HG12	3:D:1440:VAL:HG22	1.85	0.59
1:G:629:LYS:O	1:G:633:GLU:HB3	2.00	0.59
2:I:814:MET:HE1	2:I:860:VAL:HG12	1.84	0.59
3:J:526:ILE:O	3:J:672:ASN:ND2	2.36	0.59
1:A:406:TYR:CD1	1:A:409:ASP:OD2	2.55	0.59
2:B:815:ASP:OD1	2:B:815:ASP:N	2.36	0.59
2:B:65:GLN:NE2	2:B:69:GLY:O	2.35	0.58
3:D:1362:GLN:OE1	3:D:1387:ARG:NH2	2.35	0.58
3:D:1634:LYS:CE	6:N:78:LYS:HB2	2.28	0.58
4:E:499:LYS:NZ	4:E:573:ASP:O	2.37	0.58
2:B:187:SER:HA	2:B:206:THR:HA	1.85	0.58
2:B:490:THR:O	2:B:496:ARG:NH1	2.35	0.58
3:D:376:VAL:HB	3:D:924:PHE:HZ	1.67	0.58
3:D:912:GLU:O	3:D:916:SER:OG	2.21	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:827:TRP:HA	3:J:827:TRP:CE3	2.37	0.58
3:D:383:PHE:HE2	3:D:917:LEU:HD21	1.67	0.58
3:D:811:ILE:HA	3:D:814:LEU:HD23	1.85	0.58
1:G:669:ASN:HA	1:G:687:THR:HG22	1.84	0.58
4:K:499:LYS:NZ	4:K:573:ASP:O	2.37	0.58
1:G:357:LYS:HB3	1:G:376:LEU:HB2	1.85	0.58
2:B:480:PHE:N	2:B:502:ILE:O	2.36	0.58
3:D:1304:LYS:HG2	3:D:1308:GLN:HE22	1.69	0.58
1:G:176:ASP:HB2	2:H:761:ARG:HH12	1.69	0.58
1:G:792:PRO:HB2	2:H:485:LEU:HD23	1.86	0.58
2:H:217:ARG:HB3	2:H:269:VAL:HG13	1.84	0.58
3:J:952:LEU:HA	3:J:955:LYS:HE2	1.85	0.58
3:J:1430:ILE:HG12	3:J:1440:VAL:HG22	1.85	0.58
3:J:5:ASN:OD1	3:J:11:ILE:N	2.23	0.58
2:H:187:SER:HA	2:H:206:THR:HA	1.85	0.58
3:J:1270:LYS:HD2	3:J:1278:LEU:HD21	1.85	0.58
2:B:271:VAL:HG23	2:B:294:ALA:HB3	1.86	0.57
1:G:179:GLN:HB2	2:H:765:MET:HB3	1.86	0.57
3:D:445:ASN:H	3:D:588:ILE:HG22	1.70	0.57
3:D:1270:LYS:HD2	3:D:1278:LEU:HD21	1.85	0.57
2:H:271:VAL:HG23	2:H:294:ALA:HB3	1.86	0.57
3:D:456:GLU:HG2	3:D:588:ILE:HD13	1.85	0.57
3:J:383:PHE:CE2	3:J:916:SER:HB2	2.40	0.57
2:H:280:PRO:HA	2:H:287:SER:HA	1.85	0.57
3:J:1304:LYS:HG2	3:J:1308:GLN:HE22	1.69	0.57
3:J:903:PRO:HA	3:J:906:GLN:OE1	2.05	0.57
3:J:1356:ASN:HA	3:J:1359:PHE:HB2	1.86	0.57
2:C:859:GLN:O	2:C:862:ARG:NH2	2.38	0.57
3:D:822:LEU:HD13	3:D:827:TRP:HE3	1.69	0.57
3:D:1356:ASN:HA	3:D:1359:PHE:HB2	1.86	0.57
3:J:853:LEU:HD21	3:J:926:PHE:CE1	2.39	0.57
2:B:217:ARG:HB3	2:B:269:VAL:HG13	1.85	0.57
1:A:102:ILE:HG12	1:A:132:ARG:HH11	1.70	0.57
1:A:357:LYS:HZ3	1:A:487:VAL:HG23	1.69	0.57
3:D:230:GLU:OE1	3:D:234:GLN:NE2	2.38	0.57
2:B:280:PRO:HA	2:B:287:SER:HA	1.85	0.57
3:J:812:GLY:CA	3:J:882:ILE:HG23	2.33	0.57
1:G:725:ASN:O	2:I:639:ARG:NH2	2.38	0.56
1:A:646:ILE:O	1:A:673:ARG:NH2	2.38	0.56
2:B:520:VAL:HG22	2:B:533:VAL:HG22	1.86	0.56
3:D:74:SER:HB3	3:D:77:LEU:HG	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:379:VAL:HG12	3:D:920:LEU:CD1	2.34	0.56
2:I:764:LEU:HD12	2:I:765:MET:HB3	1.87	0.56
3:J:884:ILE:HD12	3:J:934:PHE:HB2	1.87	0.56
2:C:698:THR:HA	2:C:744:ASN:HD21	1.69	0.56
3:J:822:LEU:HB3	3:J:827:TRP:CZ3	2.40	0.56
1:G:767:PHE:HB2	1:G:782:VAL:HB	1.87	0.56
2:I:488:PRO:HD2	2:I:491:SER:HB3	1.87	0.56
3:J:876:SER:HB2	3:J:880:LYS:HE3	1.86	0.56
2:B:44:ASP:HB3	2:B:49:ARG:HB2	1.87	0.56
2:H:2:ARG:HB2	2:H:350:ALA:HB3	1.87	0.56
2:I:755:ASN:OD1	2:I:758:ARG:NH1	2.38	0.56
2:H:315:PHE:HB2	4:K:473:VAL:HB	1.88	0.56
3:J:442:PHE:HA	3:J:805:LEU:HD13	1.86	0.56
1:A:357:LYS:HZ3	1:A:487:VAL:HG21	1.67	0.56
2:B:315:PHE:HB2	4:E:473:VAL:HB	1.88	0.56
1:G:357:LYS:HB2	1:G:377:ASP:HB3	1.87	0.56
3:J:1180:TYR:O	3:J:1185:ARG:NH2	2.39	0.56
1:A:725:ASN:O	2:C:639:ARG:NH2	2.39	0.56
3:D:896:LEU:O	3:D:900:LEU:HG	2.06	0.56
4:F:598:PHE:CZ	3:J:16:TYR:HD2	2.24	0.56
2:H:44:ASP:HB3	2:H:49:ARG:HB2	1.86	0.56
3:D:826:ARG:HG2	3:D:940:LYS:HD3	1.87	0.55
3:D:949:ASP:OD1	3:D:949:ASP:N	2.39	0.55
3:D:1634:LYS:HZ2	6:N:78:LYS:HB2	1.71	0.55
3:J:853:LEU:CD2	3:J:926:PHE:CZ	2.89	0.55
3:J:1114:ARG:HA	3:J:1117:LYS:HD2	1.88	0.55
3:D:645:ASP:O	3:D:695:GLN:NE2	2.38	0.55
1:G:755:SER:OG	1:G:756:LYS:N	2.37	0.55
2:B:870:GLU:HG3	3:J:175:LEU:HD11	1.87	0.55
3:D:1114:ARG:HA	3:D:1117:LYS:HD2	1.88	0.55
1:G:102:ILE:HG12	1:G:132:ARG:HH11	1.70	0.55
2:H:247:LEU:HD13	2:H:253:TYR:HB3	1.88	0.55
2:B:2:ARG:HB2	2:B:350:ALA:HB3	1.87	0.55
3:D:928:ASP:OD1	3:D:928:ASP:N	2.40	0.55
3:D:1180:TYR:O	3:D:1185:ARG:NH2	2.39	0.55
2:I:654:CYS:HB2	2:I:664:VAL:HG22	1.89	0.55
3:J:898:ALA:CB	3:J:906:GLN:HA	2.36	0.55
2:C:637:SER:OG	2:C:638:LEU:N	2.36	0.55
3:J:826:ARG:O	3:J:827:TRP:C	2.49	0.55
3:J:949:ASP:N	3:J:949:ASP:OD1	2.39	0.55
2:B:192:GLN:NE2	2:B:376:PRO:O	2.33	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:272:SER:HB3	3:D:276:ARG:HH21	1.72	0.55
3:J:9:SER:HB2	3:J:12:GLU:HB3	1.89	0.55
3:J:935:LEU:HD11	3:J:978:THR:HG21	1.89	0.55
4:K:578:ASP:OD1	4:K:578:ASP:N	2.40	0.55
3:J:1110:ASP:OD1	3:J:1110:ASP:N	2.39	0.55
3:J:928:ASP:OD1	3:J:928:ASP:N	2.40	0.55
2:B:515:ASN:OD1	2:B:515:ASN:N	2.40	0.54
2:H:515:ASN:OD1	2:H:515:ASN:N	2.39	0.54
3:J:383:PHE:HD2	3:J:916:SER:HB3	1.71	0.54
3:D:524:ARG:HD3	3:D:563:TYR:HB3	1.88	0.54
3:D:822:LEU:HB3	3:D:827:TRP:CZ3	2.41	0.54
1:G:157:LEU:HD22	1:G:181:LEU:HB3	1.89	0.54
2:H:225:ASP:OD1	2:H:225:ASP:N	2.39	0.54
2:B:247:LEU:HD13	2:B:253:TYR:HB3	1.88	0.54
3:D:1059:THR:HA	3:D:1177:SER:HB2	1.89	0.54
1:G:157:LEU:CD2	1:G:181:LEU:HB3	2.37	0.54
2:H:192:GLN:NE2	2:H:376:PRO:O	2.33	0.54
1:A:655:GLU:HB2	1:A:662:ILE:HD11	1.90	0.54
1:A:755:SER:OG	1:A:756:LYS:N	2.38	0.54
3:D:826:ARG:O	3:D:827:TRP:C	2.49	0.54
3:D:1110:ASP:OD1	3:D:1110:ASP:N	2.39	0.54
4:E:578:ASP:N	4:E:578:ASP:OD1	2.40	0.54
3:J:853:LEU:HD21	3:J:926:PHE:CZ	2.43	0.54
3:J:891:LEU:CD1	3:J:910:THR:HG23	2.28	0.54
2:H:815:ASP:OD1	2:H:815:ASP:N	2.39	0.54
3:J:869:PHE:HE2	3:J:924:PHE:HB3	1.72	0.54
1:A:159:ARG:NE	2:B:765:MET:CG	2.63	0.54
2:C:694:GLN:NE2	2:C:773:GLU:OE1	2.41	0.54
3:D:383:PHE:CE2	3:D:917:LEU:CD2	2.88	0.54
3:J:1059:THR:HA	3:J:1177:SER:HB2	1.89	0.54
2:B:183:THR:HG1	2:B:187:SER:HG	1.54	0.54
3:J:891:LEU:CD2	3:J:914:ILE:CG1	2.86	0.54
2:H:758:ARG:HA	2:H:761:ARG:HD2	1.90	0.53
3:J:386:GLU:OE1	3:J:915:TRP:HZ3	1.91	0.53
3:J:673:TYR:HB3	3:J:676:ILE:HD12	1.90	0.53
3:D:1188:ASP:OD1	3:D:1188:ASP:N	2.39	0.53
3:J:1188:ASP:N	3:J:1188:ASP:OD1	2.39	0.53
3:D:881:ASP:CA	3:D:929:ALA:HB1	2.38	0.53
3:D:83:LEU:O	3:D:87:ASN:ND2	2.42	0.53
3:D:383:PHE:CE2	3:D:917:LEU:HD23	2.44	0.53
3:D:905:GLU:HA	3:D:908:ILE:HD12	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:955:LYS:HA	3:D:966:ILE:HD12	1.90	0.53
4:F:598:PHE:CE1	3:J:16:TYR:CD2	2.97	0.53
2:H:642:ASP:OD1	2:H:642:ASP:N	2.40	0.53
3:J:849:PHE:CD2	3:J:886:LEU:HD11	2.44	0.53
2:B:642:ASP:OD1	2:B:642:ASP:N	2.41	0.53
3:D:817:GLN:O	3:D:820:ALA:HB3	2.08	0.53
3:D:443:ASN:HB3	3:D:589:GLN:HA	1.91	0.53
3:J:902:THR:CB	3:J:905:GLU:HB2	2.39	0.53
2:B:45:THR:HG21	2:B:55:LEU:HD22	1.91	0.53
3:D:910:THR:O	3:D:914:ILE:HD12	2.08	0.53
3:D:1520:TYR:HA	3:D:1524:ILE:HD12	1.90	0.53
3:D:169:ARG:NH2	2:I:561:GLY:O	2.42	0.53
3:D:478:ARG:NH1	3:D:482:ASP:OD1	2.42	0.53
3:D:906:GLN:O	3:D:907:GLY:C	2.52	0.53
3:J:1252:GLU:OE1	4:K:500:ARG:NH1	2.42	0.53
3:J:1520:TYR:HA	3:J:1524:ILE:HD12	1.90	0.52
1:A:566:LEU:HG	2:B:645:LEU:HD12	1.91	0.52
2:H:183:THR:HG1	2:H:187:SER:HG	1.56	0.52
3:J:390:LEU:HD22	3:J:909:GLU:CB	2.39	0.52
3:J:955:LYS:HA	3:J:966:ILE:HD12	1.90	0.52
3:D:884:ILE:HB	3:D:930:SER:HB3	1.91	0.52
3:D:1252:GLU:OE1	4:E:500:ARG:NH1	2.42	0.52
1:A:19:GLU:OE1	1:A:486:ALA:HA	2.09	0.52
2:C:634:LEU:O	2:C:639:ARG:NH1	2.42	0.52
3:D:1269:ILE:O	3:D:1273:ASP:N	2.43	0.52
2:H:45:THR:HG21	2:H:55:LEU:HD22	1.91	0.52
3:J:737:ASP:HB3	3:J:740:MET:HG3	1.91	0.52
1:A:159:ARG:NH2	2:B:765:MET:CG	2.67	0.52
2:B:225:ASP:N	2:B:225:ASP:OD1	2.39	0.52
2:B:328:MET:HA	2:B:339:ALA:HA	1.91	0.52
3:D:156:GLU:HG2	3:D:181:MET:HE1	1.92	0.52
3:D:431:LEU:HD11	3:D:852:VAL:HG22	1.92	0.52
1:A:552:SER:HB3	2:B:600:CYS:HB2	1.92	0.52
2:I:634:LEU:O	2:I:639:ARG:NH1	2.43	0.52
3:J:1269:ILE:O	3:J:1273:ASP:N	2.43	0.52
3:J:850:TYR:CZ	3:J:920:LEU:CD2	2.93	0.52
2:C:856:ASP:OD1	2:C:856:ASP:N	2.41	0.52
3:D:208:LEU:HD11	3:D:214:ILE:HG21	1.91	0.52
3:D:773:GLN:OE1	3:D:830:SER:HB2	2.10	0.52
2:B:677:ASN:HD22	2:B:790:ARG:HH22	1.58	0.51
4:K:439:ILE:HA	4:K:454:ILE:HG12	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:5:ASN:HA	3:J:14:GLU:HG3	1.91	0.51
2:C:841:ASP:OD1	2:C:841:ASP:N	2.42	0.51
3:D:1357:GLN:O	3:D:1360:GLN:NE2	2.44	0.51
1:G:180:SER:HB3	1:G:199:ASP:HB2	1.92	0.51
2:H:228:PRO:HG3	2:H:272:TYR:HE1	1.76	0.51
2:H:328:MET:HA	2:H:339:ALA:HA	1.91	0.51
2:H:569:SER:OG	2:H:571:ASP:OD1	2.28	0.51
3:D:909:GLU:HA	3:D:912:GLU:HB2	1.93	0.51
3:D:1389:LEU:HD13	3:D:1408:ILE:HG13	1.92	0.51
2:B:228:PRO:HG3	2:B:272:TYR:HE1	1.76	0.51
3:D:1058:HIS:O	3:D:1063:ALA:N	2.44	0.51
4:E:439:ILE:HA	4:E:454:ILE:HG12	1.92	0.51
3:J:75:PRO:HA	3:J:78:ASP:HB2	1.93	0.51
3:J:376:VAL:HG11	3:J:923:HIS:NE2	2.23	0.51
3:J:879:MET:HE3	3:J:883:MET:HE2	1.93	0.51
3:J:969:ASP:OD1	3:J:969:ASP:N	2.43	0.51
2:B:5:LYS:HE3	2:B:345:THR:HG21	1.93	0.51
3:D:710:THR:HA	3:D:713:GLU:HB2	1.91	0.51
1:G:179:GLN:N	2:H:765:MET:HG3	2.25	0.51
2:H:5:LYS:HE3	2:H:345:THR:HG21	1.93	0.51
3:J:878:LYS:O	3:J:881:ASP:HB2	2.11	0.51
3:J:1389:LEU:HD13	3:J:1408:ILE:HG13	1.92	0.51
3:D:442:PHE:HA	3:D:805:LEU:HD13	1.93	0.51
3:D:1634:LYS:HB3	6:N:78:LYS:HD3	1.90	0.51
2:H:684:VAL:HG11	2:H:739:LEU:HD13	1.93	0.51
3:J:1058:HIS:O	3:J:1063:ALA:N	2.44	0.51
3:J:1357:GLN:O	3:J:1360:GLN:NE2	2.44	0.51
1:A:777:LEU:HD22	2:C:679:GLU:HG3	1.93	0.50
3:D:937:LEU:HD12	3:D:941:LEU:HG	1.92	0.50
3:D:1188:ASP:HA	3:D:1191:LYS:HD2	1.93	0.50
3:J:876:SER:O	3:J:880:LYS:HG3	2.11	0.50
2:B:219:SER:H	2:B:270:LEU:HD23	1.76	0.50
1:G:655:GLU:OE2	3:J:503:HIS:NE2	2.37	0.50
1:G:563:ILE:HG23	2:H:498:ALA:HB3	1.93	0.50
2:I:655:SER:OG	2:I:656:ILE:N	2.44	0.50
3:D:880:LYS:CB	3:D:929:ALA:HB2	2.35	0.50
2:H:219:SER:H	2:H:270:LEU:HD23	1.76	0.50
3:J:587:ARG:HG3	3:J:593:SER:HB3	1.91	0.50
1:A:660:ASP:OD2	1:A:660:ASP:N	2.36	0.50
2:B:192:GLN:HB2	2:B:202:ILE:HD13	1.93	0.50
2:H:16:ASN:HA	2:H:326:ASN:HD22	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:3:MET:O	3:J:14:GLU:OE2	2.28	0.50
3:J:1087:SER:O	3:J:1091:SER:OG	2.27	0.50
3:D:969:ASP:N	3:D:969:ASP:OD1	2.43	0.50
3:D:1128:GLU:HA	3:D:1131:ILE:HD12	1.92	0.50
3:J:1243:ILE:HG21	4:K:587:ARG:HD3	1.92	0.50
1:A:646:ILE:HG23	1:A:652:VAL:HG21	1.93	0.50
2:B:15:VAL:O	2:B:326:ASN:ND2	2.45	0.50
2:B:229:VAL:N	2:B:245:ALA:O	2.39	0.50
3:D:1243:ILE:HG21	4:E:587:ARG:HD3	1.92	0.50
3:D:1634:LYS:HE2	6:N:78:LYS:O	2.11	0.50
2:H:15:VAL:O	2:H:326:ASN:ND2	2.45	0.50
3:J:464:LEU:HD13	3:J:751:LEU:HD13	1.92	0.50
3:J:1188:ASP:HA	3:J:1191:LYS:HD2	1.93	0.50
3:D:804:LEU:HD11	3:D:848:PHE:HZ	1.77	0.50
2:H:229:VAL:HB	2:H:245:ALA:HB3	1.94	0.50
3:J:645:ASP:O	3:J:695:GLN:NE2	2.45	0.50
3:J:1298:ASN:O	3:J:1302:VAL:N	2.42	0.50
3:D:1515:LEU:HD22	3:D:1578:GLY:HA3	1.93	0.50
2:H:192:GLN:HB2	2:H:202:ILE:HD13	1.93	0.50
1:A:103:LEU:HD23	1:A:133:LEU:HD12	1.94	0.49
2:B:16:ASN:HA	2:B:326:ASN:HD22	1.77	0.49
2:I:815:ASP:N	2:I:815:ASP:OD2	2.45	0.49
3:J:7:LEU:O	3:J:8:ASN:C	2.55	0.49
3:J:1304:LYS:O	3:J:1308:GLN:NE2	2.45	0.49
1:A:425:GLU:OE2	2:B:858:ARG:NH1	2.45	0.49
2:B:229:VAL:HB	2:B:245:ALA:HB3	1.94	0.49
2:C:773:GLU:O	2:C:777:THR:OG1	2.29	0.49
3:D:1304:LYS:O	3:D:1308:GLN:NE2	2.45	0.49
2:H:325:ILE:HD13	2:H:341:SER:HB3	1.94	0.49
2:B:489:ASN:ND2	2:B:591:GLY:O	2.45	0.49
1:G:417:GLU:OE2	2:H:858:ARG:NH1	2.45	0.49
3:J:1128:GLU:HA	3:J:1131:ILE:HD12	1.92	0.49
2:B:137:VAL:HB	2:B:146:LEU:HB2	1.94	0.49
2:C:670:ASP:N	2:C:670:ASP:OD1	2.43	0.49
1:G:423:LEU:HB2	2:H:874:ILE:HD11	1.94	0.49
2:H:727:ASP:OD1	2:H:799:LYS:NZ	2.44	0.49
2:B:81:LEU:HB3	2:B:92:TYR:HB2	1.94	0.49
3:D:1298:ASN:O	3:D:1302:VAL:N	2.42	0.49
1:G:103:LEU:HD23	1:G:133:LEU:HD12	1.94	0.49
2:H:452:LEU:HD22	2:H:643:ASP:HB3	1.94	0.49
2:B:325:ILE:HD13	2:B:341:SER:HB3	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:67:TRP:HB2	3:D:69:MET:HE1	1.94	0.49
3:J:804:LEU:HD11	3:J:848:PHE:HZ	1.77	0.49
3:D:898:ALA:HB1	3:D:906:GLN:HB2	1.94	0.49
1:G:646:ILE:O	1:G:673:ARG:NH2	2.45	0.49
1:G:661:ASP:OD2	1:G:693:GLN:NE2	2.45	0.49
2:I:490:THR:O	2:I:490:THR:OG1	2.30	0.49
3:J:133:THR:HG23	3:J:152:ILE:HG13	1.94	0.49
3:J:769:ILE:HG21	3:J:822:LEU:HG	1.93	0.49
3:J:826:ARG:HB3	3:J:828:GLU:HG3	1.94	0.49
2:B:502:ILE:HG12	2:B:556:THR:HG22	1.93	0.49
3:D:818:LEU:HB3	3:D:889:LEU:CD1	2.23	0.49
3:D:829:SER:HA	3:D:892:TYR:OH	2.13	0.49
2:H:137:VAL:HB	2:H:146:LEU:HB2	1.94	0.49
2:H:229:VAL:N	2:H:245:ALA:O	2.39	0.49
3:J:937:LEU:O	3:J:937:LEU:HG	2.11	0.49
3:D:830:SER:N	3:D:892:TYR:OH	2.45	0.49
3:D:1368:ASN:ND2	3:D:1370:GLU:OE2	2.46	0.49
1:G:810:ASP:O	1:G:814:CYS:HA	2.13	0.49
2:H:7:PRO:HA	2:H:345:THR:HA	1.95	0.49
3:J:215:LYS:HG3	3:J:217:GLU:HG2	1.95	0.49
3:J:415:ASP:HA	3:J:417:GLN:HE21	1.77	0.49
1:A:767:PHE:HB2	1:A:782:VAL:HB	1.94	0.48
2:B:7:PRO:HA	2:B:345:THR:HA	1.95	0.48
2:B:310:ARG:NH2	4:E:471:GLY:O	2.36	0.48
1:G:734:ASN:ND2	2:I:819:ASP:OD2	2.46	0.48
3:J:723:LEU:HD23	3:J:726:ILE:HD12	1.94	0.48
3:J:1368:ASN:ND2	3:J:1370:GLU:OE2	2.46	0.48
2:C:675:ASP:O	2:C:679:GLU:N	2.46	0.48
3:D:1087:SER:O	3:D:1091:SER:OG	2.28	0.48
3:J:443:ASN:HB3	3:J:589:GLN:HG2	1.93	0.48
1:A:568:MET:HE2	2:B:643:ASP:HA	1.94	0.48
2:H:81:LEU:HB3	2:H:92:TYR:HB2	1.94	0.48
3:J:1250:ASN:O	3:J:1254:SER:OG	2.30	0.48
3:J:10:ASN:O	3:J:12:GLU:N	2.43	0.48
3:J:1405:ARG:NH1	3:J:1425:GLU:O	2.42	0.48
3:D:1187:ILE:HG22	3:D:1191:LYS:HE3	1.95	0.48
3:D:816:SER:O	3:D:820:ALA:HB2	2.14	0.48
3:D:909:GLU:O	3:D:913:LEU:N	2.27	0.48
3:J:1187:ILE:HG22	3:J:1191:LYS:HE3	1.95	0.48
3:J:1518:LYS:HB3	3:J:1518:LYS:HE2	1.53	0.48
1:A:622:ASN:HB2	2:C:642:ASP:HB3	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:551:ILE:HD11	2:C:555:ILE:HD11	1.96	0.48
3:D:524:ARG:NH1	3:D:567:SER:OG	2.47	0.48
3:D:1473:ASP:O	3:D:1477:THR:OG1	2.32	0.48
1:A:406:TYR:HD1	1:A:409:ASP:OD1	1.53	0.48
3:D:10:ASN:HD22	3:D:11:ILE:HG23	1.76	0.48
3:D:884:ILE:HD12	3:D:934:PHE:HB3	1.95	0.48
3:J:721:LYS:O	3:J:733:HIS:NE2	2.47	0.48
3:J:963:HIS:NE2	3:J:978:THR:O	2.37	0.48
2:B:326:ASN:N	2:B:326:ASN:OD1	2.46	0.48
2:H:295:THR:OG1	2:H:306:TRP:NE1	2.36	0.48
3:J:412:GLY:HA3	3:J:425:THR:HG21	1.95	0.48
1:A:661:ASP:OD2	1:A:693:GLN:NE2	2.47	0.47
1:A:687:THR:OG1	1:A:703:ILE:O	2.31	0.47
1:G:739:ILE:HD13	1:G:775:LEU:HD13	1.96	0.47
2:H:290:TYR:OH	2:H:356:LEU:O	2.27	0.47
2:H:326:ASN:OD1	2:H:326:ASN:N	2.46	0.47
3:J:819:THR:HG23	3:J:889:LEU:HG	1.96	0.47
3:J:1127:PHE:HA	3:J:1130:TRP:HD1	1.78	0.47
2:C:477:PRO:HB2	2:C:478:ILE:H	1.44	0.47
2:C:490:THR:O	2:C:490:THR:OG1	2.31	0.47
3:D:881:ASP:HA	3:D:929:ALA:HB1	1.97	0.47
3:D:1218:SER:HA	3:D:1244:THR:HA	1.96	0.47
3:D:1250:ASN:O	3:D:1254:SER:OG	2.30	0.47
2:B:295:THR:OG1	2:B:306:TRP:NE1	2.36	0.47
2:I:512:ASN:OD1	2:I:512:ASN:N	2.40	0.47
3:J:686:SER:OG	3:J:690:LYS:NZ	2.48	0.47
3:D:42:LYS:NZ	1:G:426:ASP:OD2	2.46	0.47
3:D:1397:LYS:O	3:D:1397:LYS:NZ	2.45	0.47
2:H:662:PRO:HD2	2:H:674:PHE:HB3	1.95	0.47
3:J:159:LYS:O	3:J:163:LEU:N	2.46	0.47
3:J:850:TYR:CE2	3:J:920:LEU:CD2	2.98	0.47
3:J:1473:ASP:O	3:J:1477:THR:OG1	2.32	0.47
4:K:444:GLU:HA	4:K:450:PRO:HB3	1.96	0.47
3:D:383:PHE:CE2	3:D:917:LEU:HD21	2.49	0.47
3:J:853:LEU:HD22	3:J:926:PHE:CZ	2.50	0.47
3:J:1218:SER:HA	3:J:1244:THR:HA	1.96	0.47
1:A:406:TYR:CB	1:A:409:ASP:OD2	2.58	0.47
3:D:259:LYS:HE3	3:D:534:GLN:HG2	1.97	0.47
4:E:444:GLU:HA	4:E:450:PRO:HB3	1.97	0.47
1:G:357:LYS:HA	4:L:565:LEU:N	2.29	0.47
2:H:278:GLU:N	2:H:358:VAL:O	2.46	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:331:SER:N	2:B:336:THR:O	2.45	0.47
3:D:1127:PHE:HA	3:D:1130:TRP:HD1	1.78	0.47
2:H:171:ILE:N	2:H:180:THR:O	2.46	0.47
2:B:822:GLN:HB3	3:J:171:ARG:HH22	1.80	0.47
3:D:847:PHE:HA	3:D:850:TYR:HB3	1.96	0.47
3:D:1159:ASP:OD1	3:D:1242:LYS:NZ	2.45	0.47
1:G:687:THR:OG1	1:G:703:ILE:O	2.32	0.47
2:H:310:ARG:NH2	4:K:471:GLY:O	2.36	0.47
3:J:880:LYS:HD2	3:J:929:ALA:HB2	1.97	0.47
3:J:1399:LYS:HD2	3:J:1399:LYS:HA	1.72	0.47
1:A:265:ARG:CD	1:A:409:ASP:OD1	2.63	0.47
2:B:495:ILE:HD11	2:B:631:TYR:HB2	1.95	0.47
2:C:488:PRO:HD2	2:C:491:SER:HB3	1.97	0.47
3:D:814:LEU:O	3:D:818:LEU:N	2.36	0.47
3:D:1634:LYS:NZ	6:N:78:LYS:HB2	2.28	0.47
1:A:420:ASN:HA	1:A:423:LEU:HD12	1.97	0.46
2:B:146:LEU:HD22	2:B:155:LYS:HE3	1.98	0.46
3:D:448:LEU:HB2	3:D:810:ALA:HB1	1.97	0.46
3:D:773:GLN:HG2	3:D:893:TYR:OH	2.15	0.46
2:H:502:ILE:HG12	2:H:556:THR:HG22	1.96	0.46
2:B:20:ALA:HA	2:B:25:ILE:HA	1.98	0.46
3:D:50:ASP:OD1	3:D:88:ARG:NH2	2.48	0.46
3:D:1634:LYS:NZ	6:N:78:LYS:O	2.48	0.46
2:H:271:VAL:HB	2:H:330:TRP:CD1	2.50	0.46
3:J:968:SER:HB3	3:J:971:PHE:HB2	1.98	0.46
2:C:662:PRO:HD2	2:C:674:PHE:HB3	1.98	0.46
3:D:1405:ARG:NH1	3:D:1425:GLU:O	2.42	0.46
2:C:505:THR:HG22	2:C:521:LYS:HG3	1.98	0.46
3:D:898:ALA:CB	3:D:906:GLN:HB2	2.46	0.46
3:J:394:ILE:HB	3:J:901:ARG:HH11	1.81	0.46
2:B:662:PRO:HD2	2:B:674:PHE:HB3	1.97	0.46
2:H:146:LEU:HD22	2:H:155:LYS:HE3	1.98	0.46
3:J:773:GLN:NE2	3:J:822:LEU:HD11	2.31	0.46
1:A:785:LEU:HD23	2:C:486:LEU:HD12	1.97	0.46
3:D:769:ILE:HB	3:D:830:SER:HB3	1.98	0.46
3:D:968:SER:HB3	3:D:971:PHE:HB2	1.98	0.46
2:H:20:ALA:HA	2:H:25:ILE:HA	1.98	0.46
2:H:281:ASN:N	2:H:286:THR:O	2.48	0.46
2:H:577:TYR:OH	2:H:583:LYS:NZ	2.49	0.46
3:J:1363:GLU:HA	3:J:1366:TRP:CD1	2.51	0.46
2:B:290:TYR:OH	2:B:356:LEU:O	2.27	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:939:GLU:O	3:D:942:LEU:N	2.49	0.46
3:D:1399:LYS:HD2	3:D:1399:LYS:HA	1.72	0.46
3:J:167:LEU:HD12	3:J:206:TYR:HE2	1.80	0.46
3:J:721:LYS:HA	3:J:724:LEU:HB2	1.98	0.46
3:J:827:TRP:NE1	3:J:937:LEU:HB2	2.31	0.46
3:J:1143:ASP:HA	3:J:1147:TRP:HD1	1.81	0.46
2:H:183:THR:OG1	2:H:187:SER:OG	2.27	0.46
2:H:223:GLN:O	2:H:372:ASN:ND2	2.47	0.46
2:I:770:GLU:HB2	3:J:239:MET:HE1	1.98	0.46
3:J:718:THR:OG1	3:J:735:ASN:ND2	2.48	0.46
2:B:149:ARG:HB2	2:B:156:LEU:HD21	1.97	0.46
2:B:271:VAL:HB	2:B:330:TRP:CD1	2.50	0.46
3:D:414:SER:O	3:D:417:GLN:NE2	2.49	0.46
3:D:773:GLN:HG3	3:D:818:LEU:HD11	1.97	0.46
3:D:858:SER:O	3:D:862:ASP:N	2.49	0.46
3:D:1040:SER:O	3:D:1044:ASN:ND2	2.49	0.46
3:J:146:VAL:HG13	3:J:188:LEU:HD11	1.97	0.46
3:J:448:LEU:HB2	3:J:810:ALA:HB1	1.98	0.46
3:J:884:ILE:O	3:J:885:ASP:C	2.59	0.46
3:J:1350:THR:O	3:J:1353:SER:OG	2.30	0.46
1:A:265:ARG:CZ	1:A:409:ASP:CG	2.88	0.45
2:B:278:GLU:N	2:B:358:VAL:O	2.46	0.45
3:D:1143:ASP:HA	3:D:1147:TRP:HD1	1.81	0.45
2:H:22:GLY:O	2:H:39:GLN:NE2	2.50	0.45
2:H:310:ARG:HH21	2:H:312:LYS:HB2	1.81	0.45
2:H:448:VAL:HG23	2:I:476:GLN:HE21	1.81	0.45
3:J:380:HIS:NE2	3:J:857:SER:OG	2.39	0.45
3:J:946:ILE:HA	3:J:994:TYR:HE2	1.81	0.45
2:B:171:ILE:N	2:B:180:THR:O	2.46	0.45
2:B:641:SER:HB2	2:B:644:ILE:HG23	1.98	0.45
2:C:771:ASN:OD1	2:C:771:ASN:N	2.50	0.45
3:D:1444:LYS:HG3	3:D:1448:GLU:HB3	1.97	0.45
2:I:830:ILE:HB	2:I:837:PHE:HB3	1.99	0.45
1:A:806:CYS:O	1:A:819:GLU:HB3	2.16	0.45
2:B:22:GLY:O	2:B:39:GLN:NE2	2.49	0.45
2:B:210:GLN:HB3	2:B:231:ASN:HB3	1.99	0.45
2:B:262:PRO:HG3	4:E:594:PHE:HD1	1.80	0.45
3:D:884:ILE:HG22	3:D:930:SER:OG	2.16	0.45
3:D:1363:GLU:HA	3:D:1366:TRP:CD1	2.51	0.45
2:H:210:GLN:HB3	2:H:231:ASN:HB3	1.99	0.45
3:J:787:LEU:HD11	3:J:807:VAL:HG11	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:1040:SER:O	3:J:1044:ASN:ND2	2.49	0.45
2:B:670:ASP:OD1	2:B:670:ASP:N	2.49	0.45
3:D:946:ILE:HA	3:D:994:TYR:HE2	1.81	0.45
3:D:963:HIS:NE2	3:D:978:THR:O	2.38	0.45
1:G:195:ALA:HB1	1:G:203:MET:HE2	1.98	0.45
2:H:262:PRO:HG3	4:K:594:PHE:HD1	1.80	0.45
3:J:152:ILE:HD12	3:J:152:ILE:HA	1.90	0.45
3:J:823:ASN:HA	3:J:827:TRP:CG	2.52	0.45
1:A:813:SER:OG	1:A:815:ASP:OD2	2.34	0.45
2:C:637:SER:O	2:C:639:ARG:N	2.49	0.45
3:D:10:ASN:CG	3:D:11:ILE:HG22	2.16	0.45
3:D:446:ASP:HB3	3:D:447:TYR:H	1.55	0.45
3:D:915:TRP:O	3:D:919:THR:N	2.41	0.45
3:D:1247:SER:OG	3:D:1250:ASN:ND2	2.50	0.45
2:H:149:ARG:HB2	2:H:156:LEU:HD21	1.97	0.45
2:H:772:MET:HE2	2:H:772:MET:HB3	1.85	0.45
3:J:905:GLU:O	3:J:906:GLN:C	2.59	0.45
2:B:281:ASN:N	2:B:286:THR:O	2.48	0.45
2:B:517:ILE:HG23	2:B:536:THR:HB	1.98	0.45
3:D:723:LEU:HA	3:D:726:ILE:HD12	1.98	0.45
3:D:1313:ALA:O	3:D:1317:SER:OG	2.32	0.45
4:E:437:PRO:HB3	4:E:456:VAL:HG13	1.98	0.45
3:J:574:ASN:O	3:J:578:ASN:ND2	2.43	0.45
3:J:1444:LYS:HG3	3:J:1448:GLU:HB3	1.97	0.45
1:A:195:ALA:HB1	1:A:203:MET:HE2	1.98	0.45
1:A:357:LYS:HZ1	1:A:487:VAL:CG2	2.29	0.45
2:B:310:ARG:HH21	2:B:312:LYS:HB2	1.81	0.45
2:B:727:ASP:OD2	2:B:799:LYS:NZ	2.42	0.45
2:B:771:ASN:OD1	2:B:771:ASN:N	2.39	0.45
3:D:518:ASP:OD2	3:D:521:ASN:N	2.49	0.45
3:J:853:LEU:HD13	3:J:920:LEU:HD21	1.99	0.45
1:A:662:ILE:HG23	3:D:504:GLN:HG2	1.99	0.45
2:C:748:ASN:OD1	2:C:748:ASN:N	2.47	0.45
3:D:390:LEU:CD2	3:D:909:GLU:HA	2.47	0.45
3:D:1006:TYR:HE2	3:D:1132:LEU:HD21	1.82	0.45
1:G:727:SER:HA	1:G:742:ILE:O	2.17	0.45
3:J:9:SER:HB2	3:J:12:GLU:CB	2.47	0.45
3:J:1006:TYR:HE2	3:J:1132:LEU:HD21	1.82	0.45
3:J:1247:SER:OG	3:J:1250:ASN:ND2	2.50	0.45
2:C:574:ILE:HB	2:C:588:LEU:HB2	1.98	0.45
2:C:700:ASN:ND2	2:C:737:ASN:OD1	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:102:ILE:HG12	1:G:132:ARG:NH1	2.32	0.45
2:H:858:ARG:O	2:H:861:GLN:NE2	2.50	0.45
2:I:841:ASP:OD1	2:I:841:ASP:N	2.49	0.45
2:C:846:LEU:O	2:C:850:ILE:HD12	2.16	0.45
3:D:884:ILE:HG13	3:D:929:ALA:O	2.17	0.45
3:D:886:LEU:O	3:D:890:ILE:HB	2.17	0.45
3:D:939:GLU:HG3	3:D:954:LEU:HD11	1.99	0.45
3:J:383:PHE:CD2	3:J:916:SER:CB	3.00	0.45
3:J:383:PHE:CE2	3:J:916:SER:CB	3.00	0.45
3:J:881:ASP:N	3:J:929:ALA:HB1	2.31	0.45
2:B:750:LYS:O	2:B:750:LYS:NZ	2.40	0.44
3:D:827:TRP:CE3	3:D:937:LEU:HD22	2.51	0.44
3:D:925:HIS:HA	3:D:976:HIS:HA	1.99	0.44
3:D:1198:ASP:O	3:D:1202:SER:OG	2.32	0.44
3:D:1248:ASP:HA	3:D:1251:ILE:HD12	1.99	0.44
3:J:491:PHE:HE1	3:J:508:LYS:HG2	1.82	0.44
2:B:223:GLN:O	2:B:372:ASN:ND2	2.47	0.44
2:B:507:LYS:HD3	2:B:517:ILE:HD11	1.99	0.44
2:C:512:ASN:OD1	2:C:512:ASN:N	2.38	0.44
3:D:386:GLU:CD	3:D:916:SER:HB3	2.41	0.44
3:J:925:HIS:HA	3:J:976:HIS:HA	1.99	0.44
1:A:102:ILE:CG1	1:A:132:ARG:HH11	2.30	0.44
2:B:215:HIS:O	2:B:268:ARG:NE	2.50	0.44
3:D:769:ILE:HG23	3:D:821:ILE:HD12	2.00	0.44
3:D:902:THR:HB	3:D:905:GLU:CB	2.21	0.44
1:G:102:ILE:CG1	1:G:132:ARG:HH11	2.30	0.44
2:H:215:HIS:O	2:H:268:ARG:NE	2.50	0.44
2:H:596:PHE:HB2	2:H:607:LEU:HB3	2.00	0.44
3:J:819:THR:HB	3:J:933:LYS:HD2	1.98	0.44
3:J:891:LEU:CD1	3:J:914:ILE:HD11	2.48	0.44
2:B:301:GLY:HA3	2:B:321:SER:H	1.83	0.44
2:C:802:MET:HE2	2:C:802:MET:HB2	1.77	0.44
3:D:459:PHE:HB2	3:D:462:ASN:HB3	1.99	0.44
2:H:75:THR:OG1	2:H:76:GLY:N	2.51	0.44
2:H:80:THR:HA	2:H:93:SER:HA	2.00	0.44
2:I:764:LEU:HB2	3:J:113:LEU:HD22	1.99	0.44
3:J:850:TYR:CE2	3:J:920:LEU:HD21	2.53	0.44
2:B:194:ASN:ND2	2:B:196:THR:OG1	2.48	0.44
3:J:23:ARG:NH2	3:J:26:GLN:OE1	2.50	0.44
1:A:102:ILE:CD1	1:A:132:ARG:HH11	2.31	0.44
2:B:13:GLU:OE2	2:B:33:HIS:ND1	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:912:GLU:O	3:D:913:LEU:C	2.61	0.44
2:H:194:ASN:ND2	2:H:196:THR:OG1	2.48	0.44
2:H:301:GLY:HA3	2:H:321:SER:H	1.83	0.44
2:H:450:ARG:NH1	2:I:477:PRO:O	2.50	0.44
4:K:437:PRO:HB3	4:K:456:VAL:HG13	1.98	0.44
2:B:37:TRP:HZ3	2:B:55:LEU:HG	1.83	0.44
2:B:493:SER:OG	2:B:495:ILE:O	2.33	0.44
2:H:13:GLU:OE2	2:H:33:HIS:ND1	2.51	0.44
2:H:658:LYS:HB3	2:H:658:LYS:HE2	1.64	0.44
4:L:478:SER:CB	4:L:572:GLU:HG2	2.48	0.44
2:B:75:THR:OG1	2:B:76:GLY:N	2.51	0.44
2:B:360:LEU:HD13	2:B:364:GLU:HG2	2.00	0.44
3:D:112:ILE:HD13	3:D:112:ILE:HA	1.92	0.44
1:G:680:GLU:OE1	2:I:758:ARG:NH2	2.51	0.44
1:G:748:VAL:HG13	1:G:760:VAL:HG13	1.99	0.44
3:J:1074:GLU:H	3:J:1074:GLU:HG3	1.59	0.44
1:A:764:ARG:HA	1:A:764:ARG:HD3	1.81	0.44
2:B:80:THR:HA	2:B:93:SER:HA	2.00	0.44
2:B:166:LYS:O	2:B:184:SER:N	2.51	0.44
3:D:862:ASP:HB3	3:D:865:ASN:HD22	1.83	0.44
3:D:1150:ASP:OD1	3:D:1150:ASP:N	2.42	0.44
3:D:1391:HIS:O	3:D:1394:SER:OG	2.32	0.44
2:H:37:TRP:HZ3	2:H:55:LEU:HG	1.83	0.44
2:H:452:LEU:HD23	2:H:452:LEU:HA	1.89	0.44
3:J:1260:ASN:O	3:J:1264:SER:OG	2.28	0.44
2:B:569:SER:OG	2:B:571:ASP:OD1	2.34	0.43
1:G:177:VAL:O	1:G:204:LYS:HE3	2.18	0.43
1:G:335:LYS:HD2	4:L:565:LEU:HD12	1.99	0.43
1:G:785:LEU:HD13	2:I:486:LEU:HD23	2.00	0.43
2:H:307:ASN:ND2	4:K:466:TYR:OH	2.50	0.43
3:J:99:ASN:OD1	3:J:102:ARG:NH1	2.51	0.43
3:J:112:ILE:HD13	3:J:112:ILE:HA	1.91	0.43
3:J:755:LEU:HA	3:J:758:VAL:HG22	1.99	0.43
3:J:891:LEU:HD23	3:J:937:LEU:HD23	2.00	0.43
3:J:895:ASP:OD1	3:J:941:LEU:HD13	2.18	0.43
3:J:906:GLN:HG2	3:J:907:GLY:N	2.32	0.43
3:J:1198:ASP:O	3:J:1202:SER:OG	2.32	0.43
3:J:1248:ASP:HA	3:J:1251:ILE:HD12	1.99	0.43
2:B:218:ILE:HG23	2:B:270:LEU:HD22	2.00	0.43
2:C:592:VAL:HG11	2:C:610:ILE:HG23	2.00	0.43
3:D:582:GLU:O	3:D:586:LYS:HB2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1634:LYS:CB	6:N:78:LYS:CD	2.82	0.43
1:G:179:GLN:HB2	2:H:765:MET:HB2	2.00	0.43
2:H:360:LEU:HD13	2:H:364:GLU:HG2	2.00	0.43
2:C:522:ASN:HA	2:C:531:THR:HG23	1.99	0.43
3:D:959:TRP:NE1	3:D:973:PRO:HB3	2.33	0.43
2:B:307:ASN:ND2	4:E:466:TYR:OH	2.50	0.43
3:D:464:LEU:HD22	3:D:751:LEU:HD22	2.01	0.43
3:D:1250:ASN:ND2	4:E:580:GLU:OE2	2.51	0.43
2:I:683:LEU:HD11	2:I:686:ASP:HB3	2.00	0.43
3:J:880:LYS:CB	3:J:926:PHE:HD1	2.23	0.43
3:J:939:GLU:CB	3:J:957:ILE:HG21	2.46	0.43
3:J:959:TRP:NE1	3:J:973:PRO:HB3	2.33	0.43
3:J:1313:ALA:O	3:J:1317:SER:OG	2.32	0.43
2:B:82:TYR:HH	2:B:151:LYS:H	1.64	0.43
3:D:485:SER:HB2	3:D:489:ARG:HH22	1.83	0.43
3:D:722:VAL:HA	3:D:725:HIS:HB3	2.01	0.43
3:D:1349:LEU:HD12	3:D:1368:ASN:HA	2.01	0.43
2:H:82:TYR:HH	2:H:151:LYS:H	1.64	0.43
2:H:218:ILE:HG23	2:H:270:LEU:HD22	2.00	0.43
2:H:230:ILE:HA	2:H:244:THR:HA	2.00	0.43
3:J:1250:ASN:ND2	4:K:580:GLU:OE2	2.51	0.43
3:D:706:THR:HA	3:D:766:LYS:HA	2.00	0.43
4:E:504:MET:O	4:E:507:SER:OG	2.34	0.43
2:H:166:LYS:O	2:H:184:SER:N	2.51	0.43
2:C:841:ASP:O	2:C:845:ASN:ND2	2.42	0.43
3:D:1072:ASN:N	3:D:1076:GLN:OE1	2.51	0.43
3:D:1427:ASP:OD1	3:D:1464:TYR:OH	2.34	0.43
2:H:310:ARG:HE	2:H:310:ARG:HB3	1.64	0.43
3:J:853:LEU:CD1	3:J:920:LEU:HD21	2.48	0.43
3:J:1072:ASN:N	3:J:1076:GLN:OE1	2.51	0.43
3:J:1349:LEU:HD12	3:J:1368:ASN:HA	2.00	0.43
3:J:1391:HIS:O	3:J:1394:SER:OG	2.32	0.43
3:J:1449:ARG:H	3:J:1449:ARG:HG3	1.38	0.43
3:J:1510:LYS:HA	3:J:1515:LEU:HB3	2.01	0.43
7:O:39:GLU:CD	7:O:41:LYS:HE2	2.44	0.43
1:A:102:ILE:HG12	1:A:132:ARG:NH1	2.32	0.43
1:A:159:ARG:HH12	2:B:761:ARG:HB3	1.83	0.43
1:A:777:LEU:HD21	1:A:780:ARG:HB2	2.01	0.43
2:B:230:ILE:HA	2:B:244:THR:HA	2.00	0.43
3:D:686:SER:OG	3:D:690:LYS:NZ	2.52	0.43
3:D:939:GLU:O	3:D:940:LYS:C	2.60	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1047:LEU:HA	3:D:1170:LEU:HD13	2.00	0.43
2:I:543:ASP:N	2:I:543:ASP:OD1	2.50	0.43
3:J:275:GLY:O	3:J:602:LYS:NZ	2.43	0.43
3:J:910:THR:CG2	3:J:945:PHE:CE2	2.99	0.43
1:A:133:LEU:HD13	1:A:164:TRP:CE3	2.54	0.43
2:B:505:THR:HA	2:B:520:VAL:O	2.19	0.43
2:C:815:ASP:OD2	2:C:815:ASP:N	2.51	0.43
2:C:844:ARG:HA	2:C:844:ARG:HD2	1.85	0.43
3:D:727:LEU:HD11	3:D:785:GLY:HA3	2.01	0.43
1:G:102:ILE:CD1	1:G:132:ARG:HH11	2.31	0.43
3:J:11:ILE:O	3:J:15:GLN:HG3	2.18	0.43
3:J:769:ILE:HD11	3:J:825:ASN:CG	2.44	0.43
3:J:933:LYS:HE3	3:J:933:LYS:HB2	1.86	0.43
3:J:1518:LYS:H	3:J:1518:LYS:HG2	1.49	0.43
3:D:894:TYR:HA	3:D:897:GLN:HB2	2.01	0.43
3:D:910:THR:O	3:D:911:THR:C	2.61	0.43
3:D:914:ILE:O	3:D:915:TRP:C	2.61	0.43
1:G:133:LEU:HD13	1:G:164:TRP:CE3	2.54	0.43
1:G:629:LYS:O	1:G:633:GLU:CB	2.65	0.43
1:G:813:SER:O	1:G:813:SER:OG	2.36	0.43
2:B:596:PHE:HB2	2:B:607:LEU:HB3	2.00	0.42
3:D:278:MET:SD	3:D:278:MET:N	2.91	0.42
3:D:940:LYS:O	3:D:944:GLN:NE2	2.52	0.42
3:D:1028:PRO:HG2	3:D:1118:ASN:HB3	2.01	0.42
3:J:83:LEU:O	3:J:87:ASN:ND2	2.52	0.42
3:J:382:ARG:HH12	3:J:916:SER:HB3	1.84	0.42
3:J:827:TRP:CE2	3:J:937:LEU:HB2	2.54	0.42
3:J:849:PHE:CE1	3:J:882:ILE:HG21	2.54	0.42
3:J:1427:ASP:OD1	3:J:1464:TYR:OH	2.35	0.42
2:B:81:LEU:O	2:B:92:TYR:N	2.51	0.42
2:I:805:CYS:O	2:I:809:SER:OG	2.36	0.42
3:J:1373:ALA:HB3	3:J:1376:TYR:HD2	1.84	0.42
4:L:568:LYS:HA	4:L:568:LYS:HD3	1.74	0.42
1:A:178:HIS:ND1	1:A:204:LYS:HE2	2.34	0.42
2:B:758:ARG:O	2:B:762:THR:OG1	2.31	0.42
3:J:383:PHE:HE2	3:J:916:SER:HB2	1.82	0.42
3:J:583:ILE:O	3:J:588:ILE:N	2.51	0.42
4:K:504:MET:O	4:K:507:SER:OG	2.34	0.42
2:B:577:TYR:OH	2:B:583:LYS:NZ	2.52	0.42
2:C:742:LYS:HD3	2:C:742:LYS:HA	1.81	0.42
3:D:408:LYS:HA	3:D:411:ILE:HG12	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:697:ILE:O	3:D:715:HIS:ND1	2.51	0.42
3:D:899:LYS:NZ	3:D:906:GLN:OE1	2.51	0.42
3:D:1550:PRO:HD2	3:D:1553:ILE:HD12	2.01	0.42
2:H:82:TYR:HA	2:H:91:GLY:HA2	2.01	0.42
2:I:670:ASP:OD1	2:I:670:ASP:N	2.52	0.42
3:J:858:SER:HA	3:J:861:ASN:HB2	2.01	0.42
3:J:880:LYS:H	3:J:880:LYS:HG3	1.61	0.42
3:D:448:LEU:HD21	3:D:783:MET:HE3	2.02	0.42
3:D:715:HIS:CD2	3:D:718:THR:HB	2.54	0.42
3:D:721:LYS:O	3:D:733:HIS:NE2	2.53	0.42
3:D:1634:LYS:HD3	6:N:78:LYS:O	2.19	0.42
2:H:765:MET:SD	2:H:765:MET:N	2.93	0.42
2:H:825:TYR:OH	2:H:870:GLU:OE1	2.32	0.42
3:J:724:LEU:O	3:J:728:HIS:N	2.42	0.42
3:J:1148:THR:HG21	3:J:1151:LYS:HE3	2.01	0.42
3:D:819:THR:HG22	3:D:827:TRP:CZ3	2.54	0.42
3:D:1299:CYS:HA	3:D:1302:VAL:HB	2.01	0.42
2:B:781:LEU:HD23	2:B:781:LEU:HA	1.92	0.42
2:I:675:ASP:O	2:I:679:GLU:N	2.52	0.42
3:J:1028:PRO:HG2	3:J:1118:ASN:HB3	2.01	0.42
3:D:1260:ASN:O	3:D:1264:SER:OG	2.28	0.42
3:D:1449:ARG:H	3:D:1449:ARG:HG3	1.38	0.42
1:G:799:ARG:HA	1:G:799:ARG:HD3	1.92	0.42
3:J:1047:LEU:HA	3:J:1170:LEU:HD13	2.00	0.42
4:K:584:GLU:HG3	4:K:587:ARG:NH2	2.34	0.42
2:B:82:TYR:HA	2:B:91:GLY:HA2	2.01	0.42
3:D:602:LYS:HA	3:D:605:LYS:HD2	2.01	0.42
3:D:1074:GLU:H	3:D:1074:GLU:HG3	1.59	0.42
3:J:614:LEU:HD23	3:J:614:LEU:HA	1.91	0.42
3:J:721:LYS:HG2	3:J:724:LEU:HD12	2.02	0.42
3:J:808:LEU:HA	3:J:811:ILE:HD12	2.02	0.42
2:C:639:ARG:H	2:C:639:ARG:HG2	1.59	0.42
3:D:908:ILE:O	3:D:911:THR:N	2.53	0.42
3:D:1373:ALA:HB3	3:D:1376:TYR:HD2	1.84	0.42
2:H:802:MET:HE2	2:H:802:MET:HB2	1.86	0.42
3:J:202:ILE:HG23	3:J:205:ARG:HH21	1.85	0.42
3:J:802:GLN:O	3:J:806:THR:HG23	2.20	0.42
3:J:809:THR:HG23	3:J:882:ILE:HD11	2.02	0.42
3:J:868:PHE:HE2	3:J:879:MET:CG	2.32	0.42
3:J:886:LEU:HB3	3:J:890:ILE:HD12	2.02	0.42
3:J:948:ASN:HA	3:J:951:PHE:HB3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:1299:CYS:HA	3:J:1302:VAL:HB	2.01	0.42
1:A:357:LYS:NZ	1:A:487:VAL:HG23	2.28	0.41
2:C:641:SER:OG	2:C:643:ASP:OD2	2.33	0.41
3:D:947:ASN:O	3:D:950:SER:OG	2.35	0.41
3:J:891:LEU:HD11	3:J:914:ILE:CD1	2.50	0.41
3:J:905:GLU:HB3	3:J:909:GLU:OE2	2.20	0.41
3:J:1015:LYS:NZ	3:J:1019:ASP:OD2	2.51	0.41
3:J:1550:PRO:HD2	3:J:1553:ILE:HD12	2.01	0.41
1:A:798:VAL:HB	2:C:480:PHE:HA	2.01	0.41
2:C:694:GLN:OE1	2:C:807:ARG:NH2	2.53	0.41
3:D:1148:THR:HG21	3:D:1151:LYS:HE3	2.01	0.41
1:G:180:SER:HB3	1:G:199:ASP:CB	2.49	0.41
2:H:679:GLU:HG2	2:I:623:LEU:HD12	2.01	0.41
3:J:812:GLY:HA3	3:J:882:ILE:CG2	2.45	0.41
3:J:1334:CYS:O	3:J:1338:VAL:HB	2.20	0.41
1:A:646:ILE:HG13	1:A:652:VAL:HG11	2.01	0.41
2:B:524:SER:HB3	2:B:529:ARG:HE	1.84	0.41
3:D:913:LEU:O	3:D:914:ILE:C	2.63	0.41
4:E:584:GLU:HG3	4:E:587:ARG:NH2	2.34	0.41
3:J:891:LEU:HD11	3:J:914:ILE:HD11	2.00	0.41
3:D:1015:LYS:NZ	3:D:1019:ASP:OD2	2.51	0.41
3:D:1035:ILE:HG23	3:D:1038:ARG:HH22	1.84	0.41
2:H:75:THR:HG23	2:H:82:TYR:HB2	2.02	0.41
3:D:3:MET:SD	3:D:13:GLY:HA3	2.61	0.41
3:D:124:GLN:H	3:D:124:GLN:HG2	1.66	0.41
3:D:881:ASP:CB	3:D:930:SER:H	2.33	0.41
3:D:1006:TYR:OH	3:D:1135:LYS:NZ	2.42	0.41
2:H:686:ASP:OD1	2:H:686:ASP:N	2.53	0.41
3:J:423:PRO:HA	3:J:426:ASP:HB2	2.02	0.41
3:J:947:ASN:O	3:J:950:SER:OG	2.35	0.41
3:J:989:LEU:O	3:J:993:THR:OG1	2.32	0.41
3:J:1150:ASP:OD1	3:J:1150:ASP:N	2.42	0.41
1:A:749:ILE:HG22	1:A:750:LYS:HB3	2.02	0.41
2:C:568:CYS:HB3	2:C:597:LEU:HD22	2.03	0.41
3:J:903:PRO:O	3:J:906:GLN:HB3	2.20	0.41
3:J:910:THR:CG2	3:J:945:PHE:HE2	2.25	0.41
3:J:1584:LEU:HD13	3:J:1643:LEU:HD13	2.03	0.41
1:A:410:LYS:HE3	3:J:24:GLU:HB3	2.02	0.41
3:D:948:ASN:HA	3:D:951:PHE:HB3	2.02	0.41
3:D:983:MET:HE2	3:D:983:MET:HB3	1.80	0.41
2:H:447:THR:HB	2:I:478:ILE:HD13	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:830:ILE:O	2:I:833:THR:OG1	2.30	0.41
2:B:213:PRO:HB2	3:D:1038:ARG:HB2	2.02	0.41
2:B:246:LEU:HD12	2:B:257:LYS:HB2	2.03	0.41
2:B:686:ASP:OD1	2:B:686:ASP:N	2.53	0.41
2:H:88:ARG:HG2	2:H:116:GLU:HG3	2.03	0.41
2:I:503:ARG:O	2:I:522:ASN:ND2	2.48	0.41
3:J:5:ASN:HB2	3:J:14:GLU:CD	2.45	0.41
3:J:136:LEU:HD12	3:J:136:LEU:HA	1.88	0.41
2:B:75:THR:HG23	2:B:82:TYR:HB2	2.02	0.41
2:B:307:ASN:HB3	2:B:310:ARG:HB2	2.03	0.41
3:D:136:LEU:HD23	3:D:136:LEU:HA	1.92	0.41
3:D:819:THR:HG22	3:D:827:TRP:CH2	2.56	0.41
3:D:922:GLY:N	3:D:976:HIS:HD1	2.18	0.41
2:H:213:PRO:HB2	3:J:1038:ARG:HB2	2.02	0.41
2:H:528:GLN:H	2:H:528:GLN:HG3	1.73	0.41
2:C:808:LEU:HD22	2:C:813:TYR:HB2	2.03	0.41
3:D:517:TYR:N	3:D:523:ARG:O	2.53	0.41
3:D:942:LEU:HD22	3:D:950:SER:HB2	2.02	0.41
3:D:1334:CYS:O	3:D:1338:VAL:HB	2.20	0.41
3:D:1433:LYS:HA	3:D:1479:LEU:HD13	2.03	0.41
3:J:880:LYS:CD	3:J:926:PHE:HB2	2.51	0.41
3:J:922:GLY:N	3:J:976:HIS:HD1	2.18	0.41
1:A:202:THR:HG22	1:A:223:THR:HG22	2.03	0.40
2:B:88:ARG:HG2	2:B:116:GLU:HG3	2.03	0.40
2:C:809:SER:HA	2:C:860:VAL:HG11	2.02	0.40
3:D:378:ASP:HA	3:D:381:LYS:HD2	2.03	0.40
3:D:450:SER:O	3:D:817:GLN:NE2	2.54	0.40
3:D:815:SER:O	3:D:819:THR:OG1	2.31	0.40
3:D:1584:LEU:HD13	3:D:1643:LEU:HD13	2.03	0.40
1:G:202:THR:HG22	1:G:223:THR:HG22	2.03	0.40
2:H:246:LEU:HD12	2:H:257:LYS:HB2	2.03	0.40
4:L:573:ASP:CG	5:M:73:ARG:HH12	2.29	0.40
3:D:119:LEU:HD22	3:D:132:VAL:HG13	2.04	0.40
3:J:1006:TYR:OH	3:J:1135:LYS:NZ	2.42	0.40
3:J:1035:ILE:HG23	3:J:1038:ARG:HH22	1.84	0.40
4:K:439:ILE:HD12	4:K:484:LYS:HD2	2.03	0.40
2:C:503:ARG:O	2:C:522:ASN:ND2	2.51	0.40
3:D:376:VAL:HG11	3:D:924:PHE:CE1	2.57	0.40
2:H:331:SER:N	2:H:336:THR:O	2.45	0.40
3:J:857:SER:OG	3:J:924:PHE:CZ	2.74	0.40
3:J:942:LEU:HD12	3:J:957:ILE:HD12	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:1361:GLU:OE1	3:J:1387:ARG:NE	2.49	0.40
3:J:1433:LYS:HA	3:J:1479:LEU:HD13	2.03	0.40
4:K:577:ASP:O	4:K:581:LEU:N	2.47	0.40
2:B:341:SER:OG	2:B:343:ASP:OD1	2.35	0.40
3:D:693:ILE:O	3:D:697:ILE:HG12	2.21	0.40
3:D:1228:ARG:O	3:D:1236:VAL:N	2.45	0.40
2:H:307:ASN:HB3	2:H:310:ARG:HB2	2.03	0.40
2:B:151:LYS:HE3	2:B:151:LYS:HB2	1.95	0.40
2:B:802:MET:HB2	2:B:802:MET:HE2	1.82	0.40
3:D:510:LEU:HD23	3:D:510:LEU:HA	1.94	0.40
2:H:495:ILE:HD11	2:H:631:TYR:HB2	2.04	0.40
2:H:808:LEU:HD22	2:H:813:TYR:HB2	2.03	0.40
3:J:784:LYS:NZ	3:J:844:GLN:OE1	2.41	0.40
3:J:888:THR:HG21	3:J:933:LYS:HG3	2.04	0.40
3:J:1288:LYS:HA	3:J:1288:LYS:HD2	1.88	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	655/840 (78%)	620 (95%)	32 (5%)	3 (0%)	24	49
1	G	641/840 (76%)	600 (94%)	38 (6%)	3 (0%)	24	49
2	B	794/875 (91%)	768 (97%)	26 (3%)	0	100	100
2	C	373/875 (43%)	353 (95%)	15 (4%)	5 (1%)	9	26
2	H	794/875 (91%)	764 (96%)	29 (4%)	1 (0%)	48	72
2	I	373/875 (43%)	357 (96%)	14 (4%)	2 (0%)	24	49
3	D	1527/1648 (93%)	1445 (95%)	72 (5%)	10 (1%)	18	40
3	J	1527/1648 (93%)	1455 (95%)	59 (4%)	13 (1%)	14	34

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	E	122/625 (20%)	118 (97%)	4 (3%)	0	100	100
4	F	39/625 (6%)	39 (100%)	0	0	100	100
4	K	122/625 (20%)	118 (97%)	4 (3%)	0	100	100
4	L	58/625 (9%)	55 (95%)	3 (5%)	0	100	100
5	M	70/136 (52%)	68 (97%)	2 (3%)	0	100	100
6	N	76/103 (74%)	74 (97%)	2 (3%)	0	100	100
7	O	152/279 (54%)	148 (97%)	4 (3%)	0	100	100
All	All	7323/11494 (64%)	6982 (95%)	304 (4%)	37 (0%)	26	49

All (37) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	477	PRO
2	C	478	ILE
2	C	488	PRO
3	D	11	ILE
2	I	488	PRO
3	J	11	ILE
3	J	826	ARG
3	J	903	PRO
1	A	112	GLN
1	A	642	GLN
2	C	835	SER
3	D	173	PHE
3	D	486	ASP
3	D	828	GLU
1	G	112	GLN
2	H	449	PRO
3	J	169	ARG
3	J	174	LEU
3	J	1519	SER
2	C	638	LEU
3	D	266	PRO
3	D	831	ASP
3	D	914	ILE
3	D	916	SER
3	J	170	HIS
3	J	906	GLN
3	J	934	PHE
3	J	936	ASP

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Mol	Chain	Res	Type
1	A	122	HIS
1	G	122	HIS
2	I	477	PRO
3	J	10	ASN
3	D	908	ILE
1	G	634	GLU
3	J	821	ILE
3	D	1445	PRO
3	J	1445	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	596/753 (79%)	574 (96%)	22 (4%)	30	55
1	G	583/753 (77%)	557 (96%)	26 (4%)	24	50
2	B	727/790 (92%)	697 (96%)	30 (4%)	27	53
2	C	343/790 (43%)	326 (95%)	17 (5%)	22	47
2	H	727/790 (92%)	701 (96%)	26 (4%)	31	56
2	I	343/790 (43%)	325 (95%)	18 (5%)	21	46
3	D	1419/1528 (93%)	1333 (94%)	86 (6%)	17	40
3	J	1420/1528 (93%)	1328 (94%)	92 (6%)	15	37
4	E	114/557 (20%)	112 (98%)	2 (2%)	51	72
4	F	40/557 (7%)	39 (98%)	1 (2%)	42	66
4	K	114/557 (20%)	112 (98%)	2 (2%)	51	72
4	L	60/557 (11%)	58 (97%)	2 (3%)	33	58
5	M	62/113 (55%)	62 (100%)	0	100	100
6	N	65/81 (80%)	65 (100%)	0	100	100
7	O	142/252 (56%)	141 (99%)	1 (1%)	76	87
All	All	6755/10396 (65%)	6430 (95%)	325 (5%)	24	48

All (325) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	19	GLU
1	A	37	LEU
1	A	139	ASP
1	A	211	THR
1	A	240	TRP
1	A	396	LEU
1	A	399	ASN
1	A	424	LEU
1	A	499	THR
1	A	636	THR
1	A	637	THR
1	A	645	VAL
1	A	646	ILE
1	A	649	THR
1	A	653	VAL
1	A	703	ILE
1	A	711	ILE
1	A	759	LEU
1	A	773	LEU
1	A	777	LEU
1	A	784	ILE
1	A	830	THR
2	B	18	LEU
2	B	25	ILE
2	B	54	ASP
2	B	70	ASP
2	B	74	ILE
2	B	86	GLU
2	B	140	SER
2	B	161	ILE
2	B	193	ILE
2	B	202	ILE
2	B	220	MET
2	B	241	THR
2	B	271	VAL
2	B	299	THR
2	B	326	ASN
2	B	371	VAL
2	B	378	LEU
2	B	439	MET
2	B	505	THR
2	B	515	ASN

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Mol	Chain	Res	Type
2	B	517	ILE
2	B	546	LEU
2	B	628	ASN
2	B	629	THR
2	B	661	VAL
2	B	665	THR
2	B	673	LEU
2	B	741	CYS
2	B	771	ASN
2	B	874	ILE
2	C	490	THR
2	C	495	ILE
2	C	497	LEU
2	C	512	ASN
2	C	539	VAL
2	C	592	VAL
2	C	630	ILE
2	C	639	ARG
2	C	645	LEU
2	C	670	ASP
2	C	673	LEU
2	C	680	THR
2	C	771	ASN
2	C	775	ILE
2	C	815	ASP
2	C	841	ASP
2	C	863	VAL
3	D	11	ILE
3	D	12	GLU
3	D	88	ARG
3	D	100	TYR
3	D	134	ASP
3	D	211	TYR
3	D	249	LEU
3	D	486	ASP
3	D	615	GLU
3	D	691	ILE
3	D	818	LEU
3	D	821	ILE
3	D	822	LEU
3	D	827	TRP
3	D	828	GLU

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Mol	Chain	Res	Type
3	D	830	SER
3	D	831	ASP
3	D	890	ILE
3	D	895	ASP
3	D	899	LYS
3	D	900	LEU
3	D	901	ARG
3	D	906	GLN
3	D	910	THR
3	D	913	LEU
3	D	914	ILE
3	D	916	SER
3	D	918	HIS
3	D	927	CYS
3	D	933	LYS
3	D	937	LEU
3	D	944	GLN
3	D	949	ASP
3	D	952	LEU
3	D	969	ASP
3	D	976	HIS
3	D	981	VAL
3	D	998	LEU
3	D	1015	LYS
3	D	1016	GLN
3	D	1017	ILE
3	D	1037	SER
3	D	1052	THR
3	D	1074	GLU
3	D	1091	SER
3	D	1110	ASP
3	D	1125	ASN
3	D	1148	THR
3	D	1186	THR
3	D	1188	ASP
3	D	1189	ASP
3	D	1202	SER
3	D	1214	LYS
3	D	1229	LEU
3	D	1248	ASP
3	D	1249	PHE
3	D	1254	SER

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Mol	Chain	Res	Type
3	D	1264	SER
3	D	1275	VAL
3	D	1284	TYR
3	D	1304	LYS
3	D	1308	GLN
3	D	1332	ASN
3	D	1338	VAL
3	D	1342	VAL
3	D	1345	VAL
3	D	1362	GLN
3	D	1386	ILE
3	D	1387	ARG
3	D	1397	LYS
3	D	1398	LYS
3	D	1399	LYS
3	D	1403	ARG
3	D	1429	LEU
3	D	1442	ILE
3	D	1444	LYS
3	D	1446	ASP
3	D	1449	ARG
3	D	1471	ILE
3	D	1477	THR
3	D	1480	VAL
3	D	1492	VAL
3	D	1514	GLN
3	D	1516	GLN
3	D	1543	VAL
3	D	1559	LEU
4	E	578	ASP
4	E	591	LYS
4	F	463	THR
1	G	19	GLU
1	G	37	LEU
1	G	139	ASP
1	G	177	VAL
1	G	181	LEU
1	G	211	THR
1	G	240	TRP
1	G	269	ASP
1	G	335	LYS
1	G	357	LYS

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Mol	Chain	Res	Type
1	G	396	LEU
1	G	399	ASN
1	G	433	HIS
1	G	632	SER
1	G	636	THR
1	G	637	THR
1	G	641	LEU
1	G	642	GLN
1	G	711	ILE
1	G	713	SER
1	G	727	SER
1	G	753	THR
1	G	773	LEU
1	G	793	ILE
1	G	830	THR
1	G	837	SER
2	H	18	LEU
2	H	25	ILE
2	H	54	ASP
2	H	70	ASP
2	H	74	ILE
2	H	86	GLU
2	H	140	SER
2	H	161	ILE
2	H	193	ILE
2	H	202	ILE
2	H	220	MET
2	H	241	THR
2	H	271	VAL
2	H	299	THR
2	H	326	ASN
2	H	371	VAL
2	H	378	LEU
2	H	483	THR
2	H	509	SER
2	H	515	ASN
2	H	627	THR
2	H	665	THR
2	H	678	MET
2	H	785	ILE
2	H	802	MET
2	H	806	ILE

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Mol	Chain	Res	Type
2	I	489	ASN
2	I	490	THR
2	I	493	SER
2	I	512	ASN
2	I	537	SER
2	I	542	GLN
2	I	605	LEU
2	I	628	ASN
2	I	646	THR
2	I	654	CYS
2	I	680	THR
2	I	683	LEU
2	I	735	ILE
2	I	779	SER
2	I	825	TYR
2	I	828	LEU
2	I	841	ASP
2	I	854	CYS
3	J	8	ASN
3	J	9	SER
3	J	136	LEU
3	J	174	LEU
3	J	182	MET
3	J	213	ASP
3	J	239	MET
3	J	553	LEU
3	J	672	ASN
3	J	744	ILE
3	J	817	GLN
3	J	818	LEU
3	J	824	SER
3	J	826	ARG
3	J	827	TRP
3	J	863	VAL
3	J	875	SER
3	J	878	LYS
3	J	879	MET
3	J	880	LYS
3	J	881	ASP
3	J	883	MET
3	J	888	THR
3	J	895	ASP

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Mol	Chain	Res	Type
3	J	897	GLN
3	J	899	LYS
3	J	903	PRO
3	J	906	GLN
3	J	910	THR
3	J	916	SER
3	J	918	HIS
3	J	927	CYS
3	J	933	LYS
3	J	935	LEU
3	J	937	LEU
3	J	939	GLU
3	J	944	GLN
3	J	949	ASP
3	J	952	LEU
3	J	969	ASP
3	J	976	HIS
3	J	981	VAL
3	J	998	LEU
3	J	1015	LYS
3	J	1016	GLN
3	J	1017	ILE
3	J	1037	SER
3	J	1052	THR
3	J	1074	GLU
3	J	1091	SER
3	J	1110	ASP
3	J	1125	ASN
3	J	1148	THR
3	J	1186	THR
3	J	1188	ASP
3	J	1189	ASP
3	J	1202	SER
3	J	1214	LYS
3	J	1229	LEU
3	J	1248	ASP
3	J	1249	PHE
3	J	1254	SER
3	J	1264	SER
3	J	1275	VAL
3	J	1284	TYR
3	J	1304	LYS

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Mol	Chain	Res	Type
3	J	1308	GLN
3	J	1332	ASN
3	J	1338	VAL
3	J	1342	VAL
3	J	1345	VAL
3	J	1362	GLN
3	J	1386	ILE
3	J	1387	ARG
3	J	1397	LYS
3	J	1398	LYS
3	J	1399	LYS
3	J	1403	ARG
3	J	1429	LEU
3	J	1442	ILE
3	J	1444	LYS
3	J	1446	ASP
3	J	1449	ARG
3	J	1471	ILE
3	J	1477	THR
3	J	1480	VAL
3	J	1492	VAL
3	J	1515	LEU
3	J	1516	GLN
3	J	1518	LYS
3	J	1543	VAL
3	J	1559	LEU
4	K	578	ASP
4	K	591	LYS
4	L	463	THR
4	L	568	LYS
7	O	52	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (82) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	27	HIS
1	A	246	HIS
1	A	421	GLN
1	A	642	GLN
1	A	746	HIS
2	B	39	GLN
2	B	65	GLN

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Mol	Chain	Res	Type
2	B	87	HIS
2	B	677	ASN
2	C	548	GLN
2	C	822	GLN
3	D	10	ASN
3	D	72	ASN
3	D	118	ASN
3	D	184	ASN
3	D	200	ASN
3	D	246	ASN
3	D	481	ASN
3	D	549	ASN
3	D	628	HIS
3	D	728	HIS
3	D	735	ASN
3	D	802	GLN
3	D	825	ASN
3	D	865	ASN
3	D	948	ASN
3	D	1044	ASN
3	D	1250	ASN
3	D	1260	ASN
3	D	1475	ASN
4	E	476	ASN
4	F	460	GLN
4	F	486	HIS
1	G	27	HIS
1	G	179	GLN
1	G	356	ASN
1	G	746	HIS
1	G	801	ASN
2	H	39	GLN
2	H	65	GLN
2	H	87	HIS
2	H	818	ASN
2	H	822	GLN
2	H	861	GLN
2	I	542	GLN
2	I	628	ASN
2	I	737	ASN
2	I	783	ASN
2	I	861	GLN

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Mol	Chain	Res	Type
3	J	43	ASN
3	J	79	ASN
3	J	87	ASN
3	J	118	ASN
3	J	124	GLN
3	J	125	HIS
3	J	160	GLN
3	J	162	ASN
3	J	246	ASN
3	J	277	ASN
3	J	417	GLN
3	J	443	ASN
3	J	589	GLN
3	J	687	GLN
3	J	695	GLN
3	J	707	ASN
3	J	735	ASN
3	J	948	ASN
3	J	953	GLN
3	J	970	ASN
3	J	1044	ASN
3	J	1250	ASN
3	J	1260	ASN
3	J	1346	ASN
3	J	1475	ASN
3	J	1516	GLN
4	K	476	ASN
4	L	460	GLN
4	L	486	HIS
5	M	77	GLN
5	M	86	GLN
7	O	36	HIS
7	O	115	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

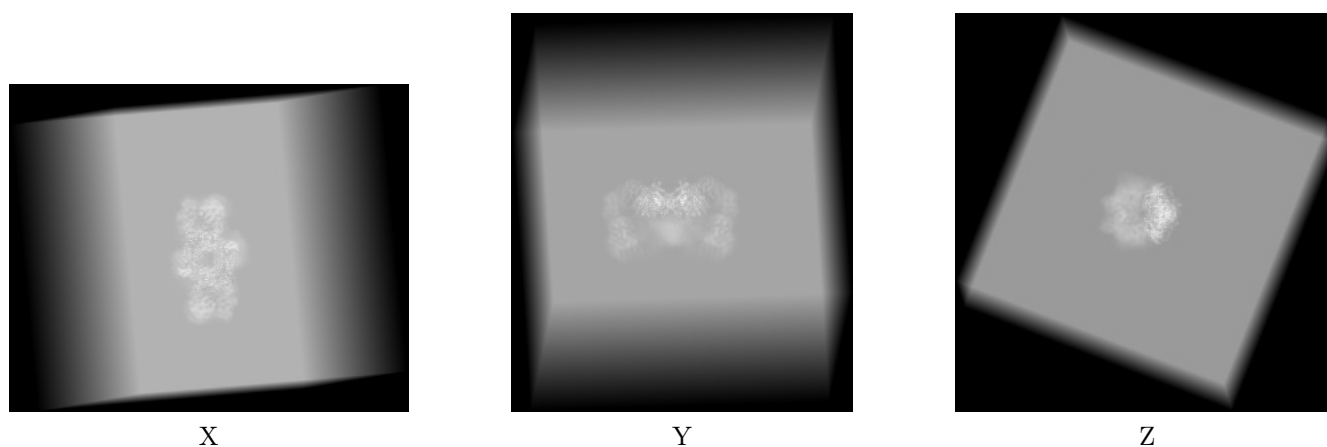
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-40037. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

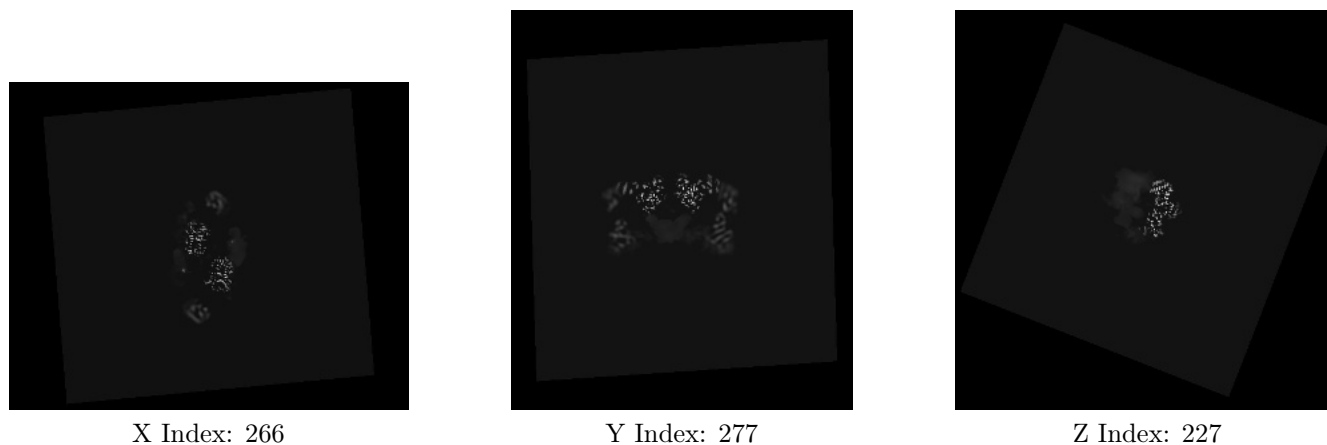
6.1.1 Primary map



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

6.2 Central slices [i](#)

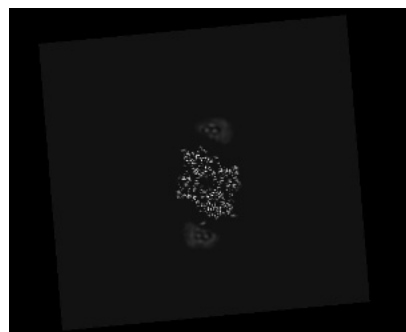
6.2.1 Primary map



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

6.3 Largest variance slices [i](#)

6.3.1 Primary map



X Index: 282



Y Index: 285

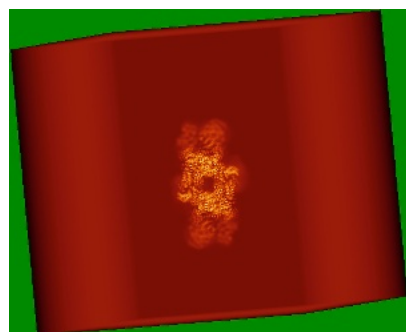


Z Index: 229

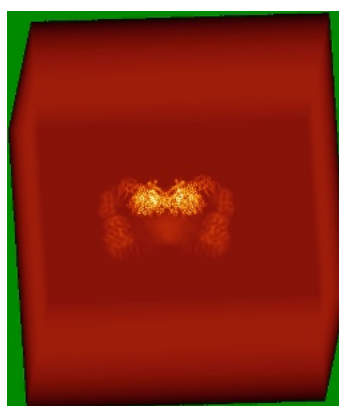
The images above show the largest variance slices of the map in three orthogonal directions.

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

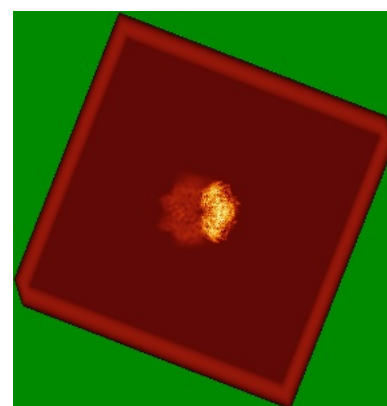
6.4.1 Primary map



X



Y

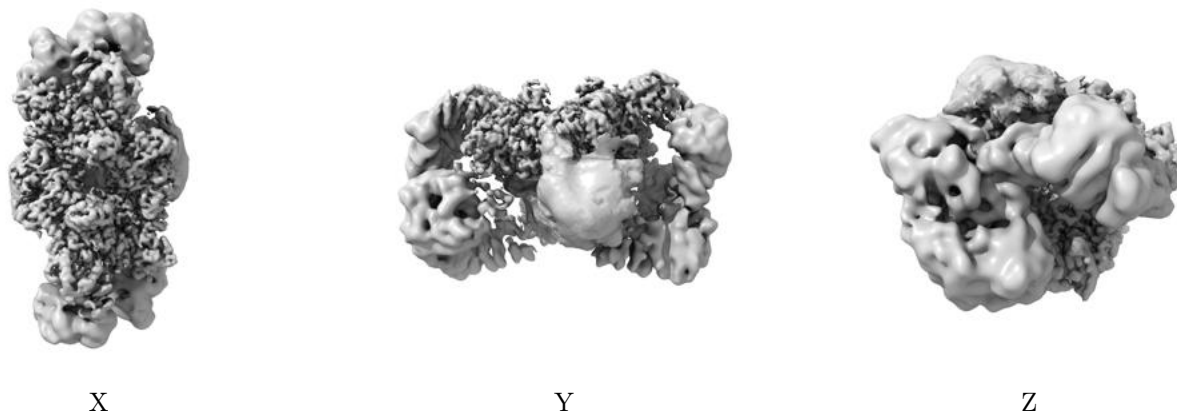


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.02. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

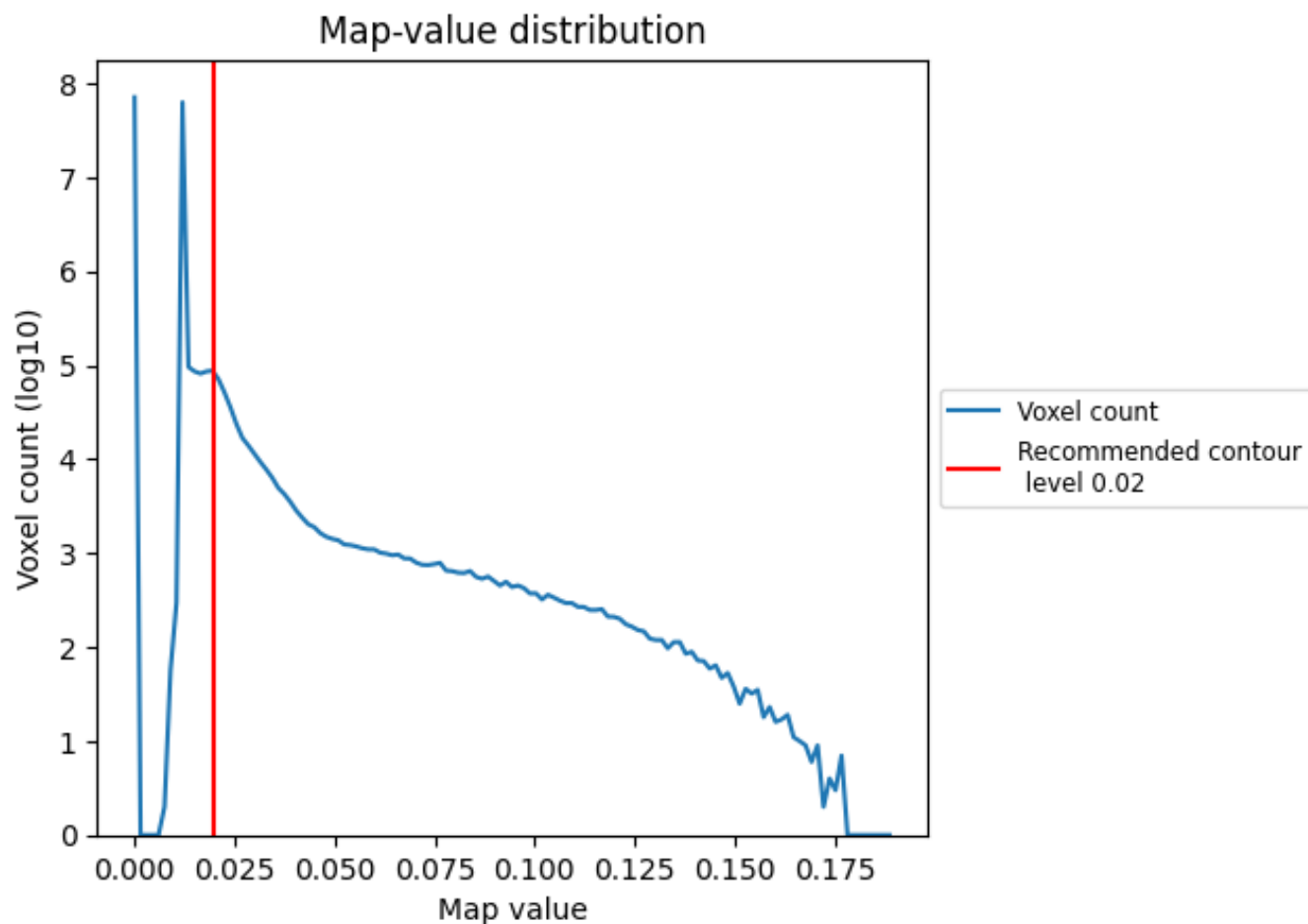
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

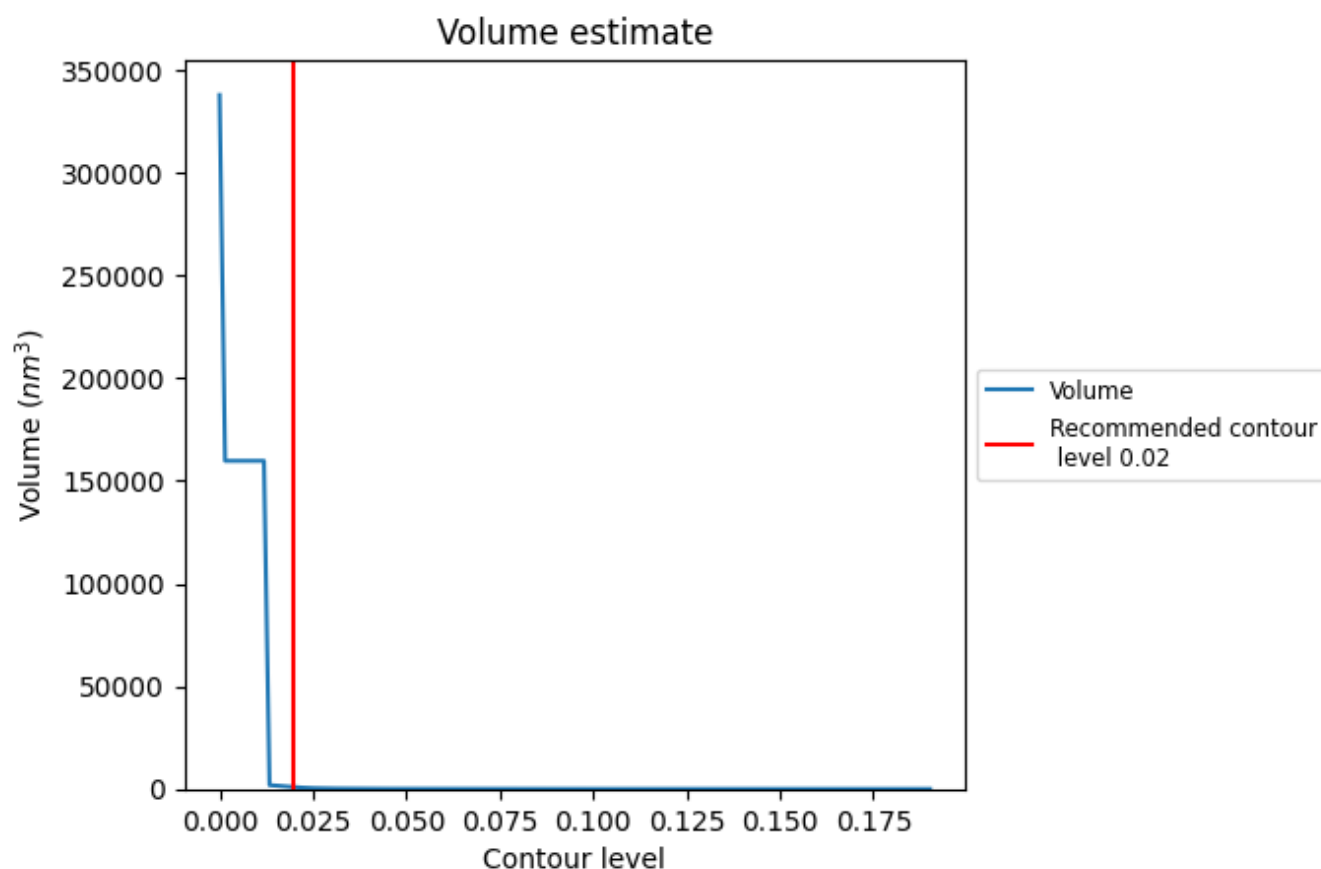
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

7.2 Volume estimate [i](#)



The volume at the recommended contour level is 910 nm³; this corresponds to an approximate mass of 822 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](#)

This section was not generated. The rotationally averaged power spectrum is only generated for cubic maps.

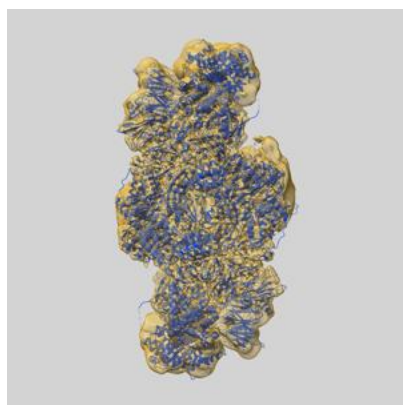
8 Fourier-Shell correlation

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

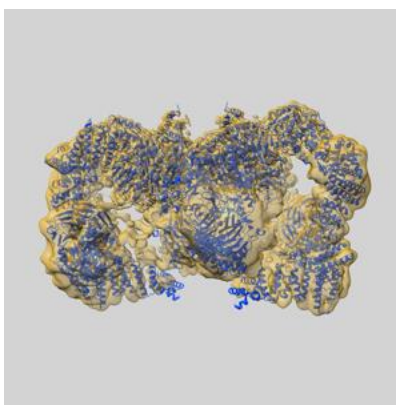
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-40037 and PDB model 8GHN. Per-residue inclusion information can be found in [section 3](#) on [page 6](#).

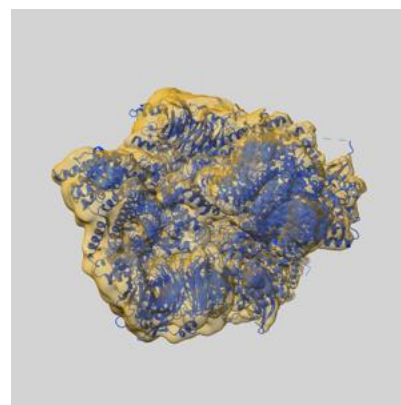
9.1 Map-model overlay [i](#)



X



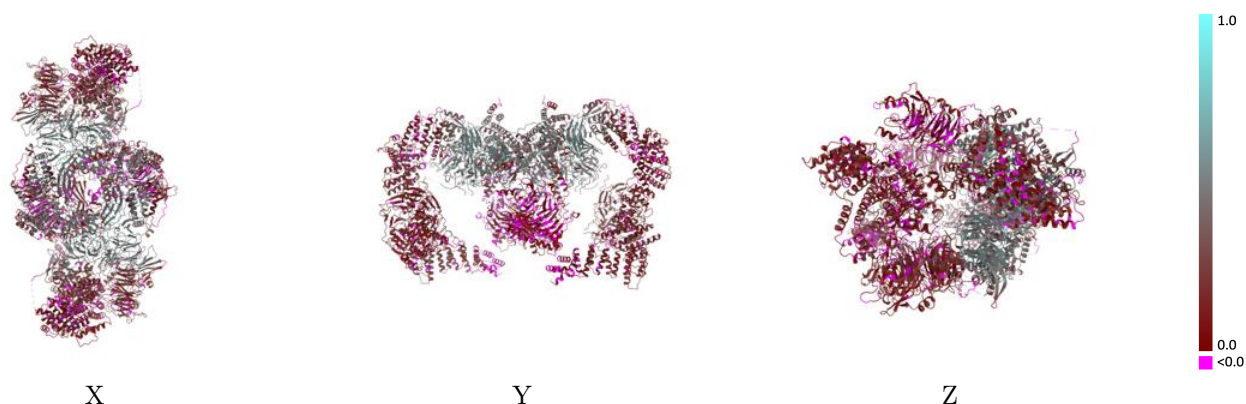
Y



Z

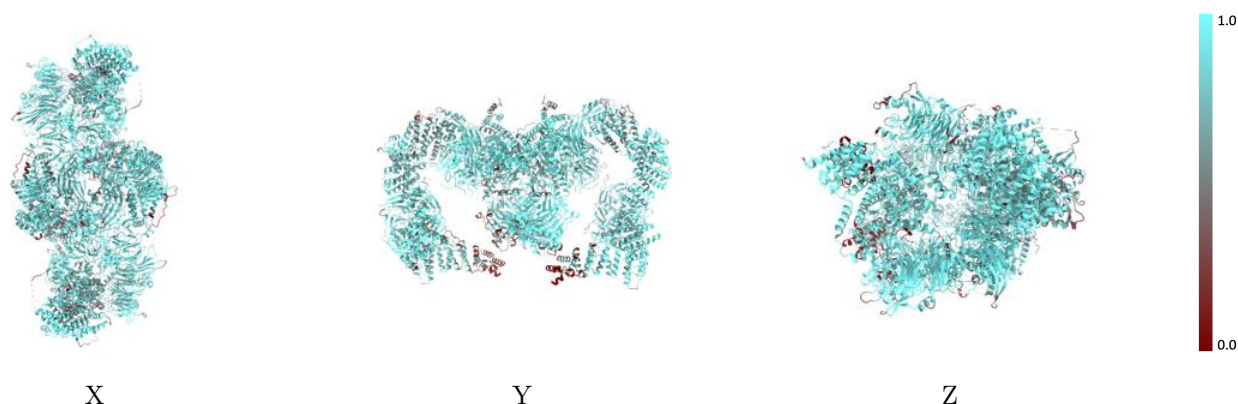
The images above show the 3D surface view of the map at the recommended contour level 0.02 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



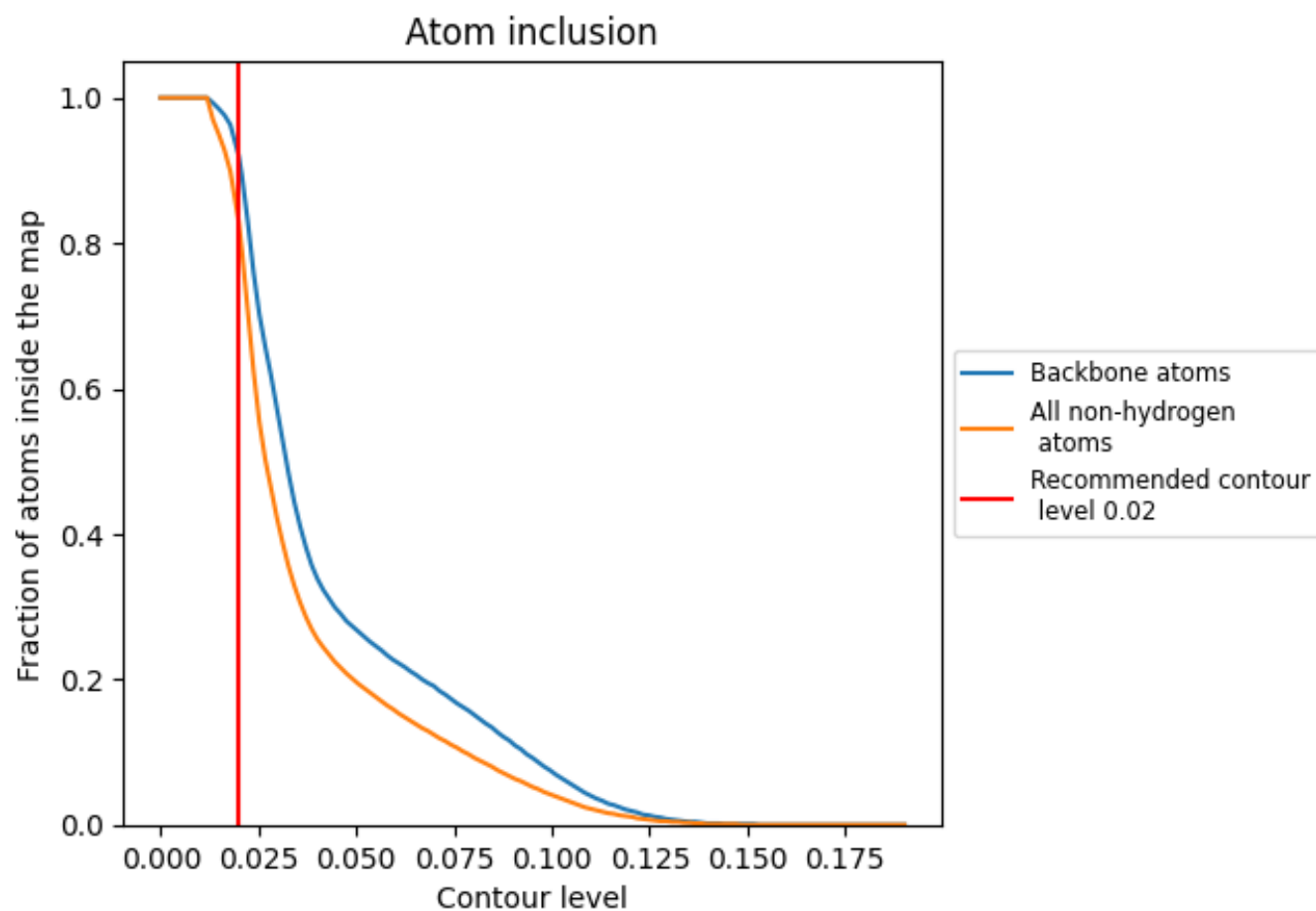
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.02).

9.4 Atom inclusion ⓘ



At the recommended contour level, 92% of all backbone atoms, 83% 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 (0.02) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8290	 0.2320
A	 0.8490	 0.2160
B	 0.8800	 0.3060
C	 0.8750	 0.4510
D	 0.8060	 0.1860
E	 0.8510	 0.1440
F	 0.4610	 -0.0110
G	 0.8980	 0.2180
H	 0.8720	 0.2980
I	 0.8660	 0.4540
J	 0.7590	 0.1820
K	 0.8010	 0.1290
L	 0.9060	 0.0290
M	 0.8920	 0.0190
N	 0.8910	 0.0470
O	 0.7220	 0.0400

