



Full wwPDB EM Validation Report ⓘ

Mar 15, 2026 – 07:28 AM UTC

PDB ID : 8Y80 / pdb_00008y80
EMDB ID : EMD-39028
Title : Cryo-EM structure of the tetrameric SPARSA gRNA-ssDNA complex
Authors : Zhang, J.T.; Cui, N.; Wei, X.Y.; Jia, N.
Deposited on : 2024-02-05
Resolution : 3.38 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

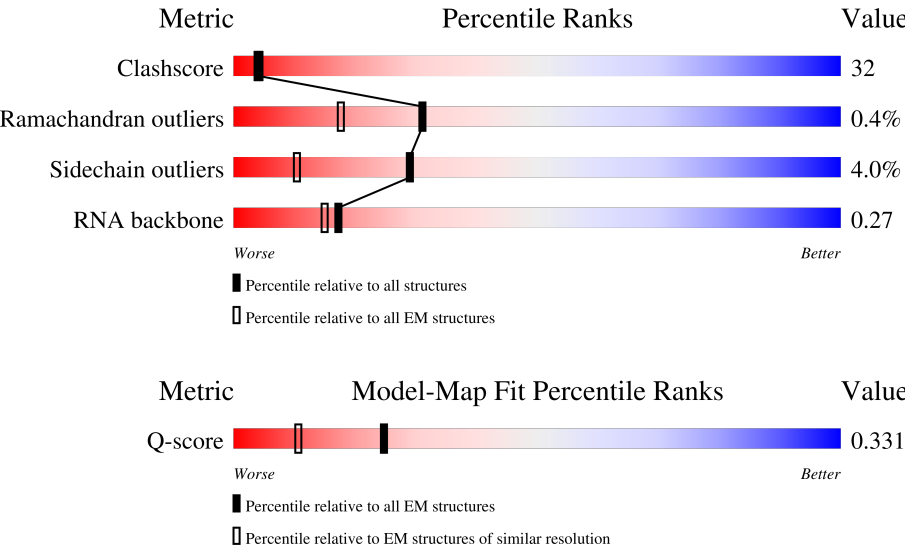
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.38 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	-
RNA backbone	8273	3508	-
Q-score	-	25397	14261 (2.88 - 3.88)

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	587	28% 47% 30% 21%
1	E	587	31% 53% 39% 6%
1	I	587	55% 48% 28% 21%

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Mol	Chain	Length	Quality of chain
1	M	587	
2	B	473	
2	F	473	
2	J	473	
2	N	473	
3	C	21	
3	G	21	
3	K	21	
3	O	21	
4	D	25	
4	H	25	
4	L	25	
4	P	25	

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 34473 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 Sir2 superfamily protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	462	Total	C	N	O	S	0	0
			3655	2346	633	664	12		
1	E	576	Total	C	N	O	S	0	0
			4612	2954	798	846	14		
1	I	463	Total	C	N	O	S	0	0
			3662	2351	634	665	12		
1	M	576	Total	C	N	O	S	0	0
			4612	2954	798	846	14		

- Molecule 2 is a protein called Piwi domain protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	456	Total	C	N	O	S	0	0
			3629	2327	613	671	18		
2	F	456	Total	C	N	O	S	0	0
			3629	2327	613	671	18		
2	J	456	Total	C	N	O	S	0	0
			3629	2327	613	671	18		
2	N	456	Total	C	N	O	S	0	0
			3629	2327	613	671	18		

- Molecule 3 is a RNA chain called RNA (21-mer).

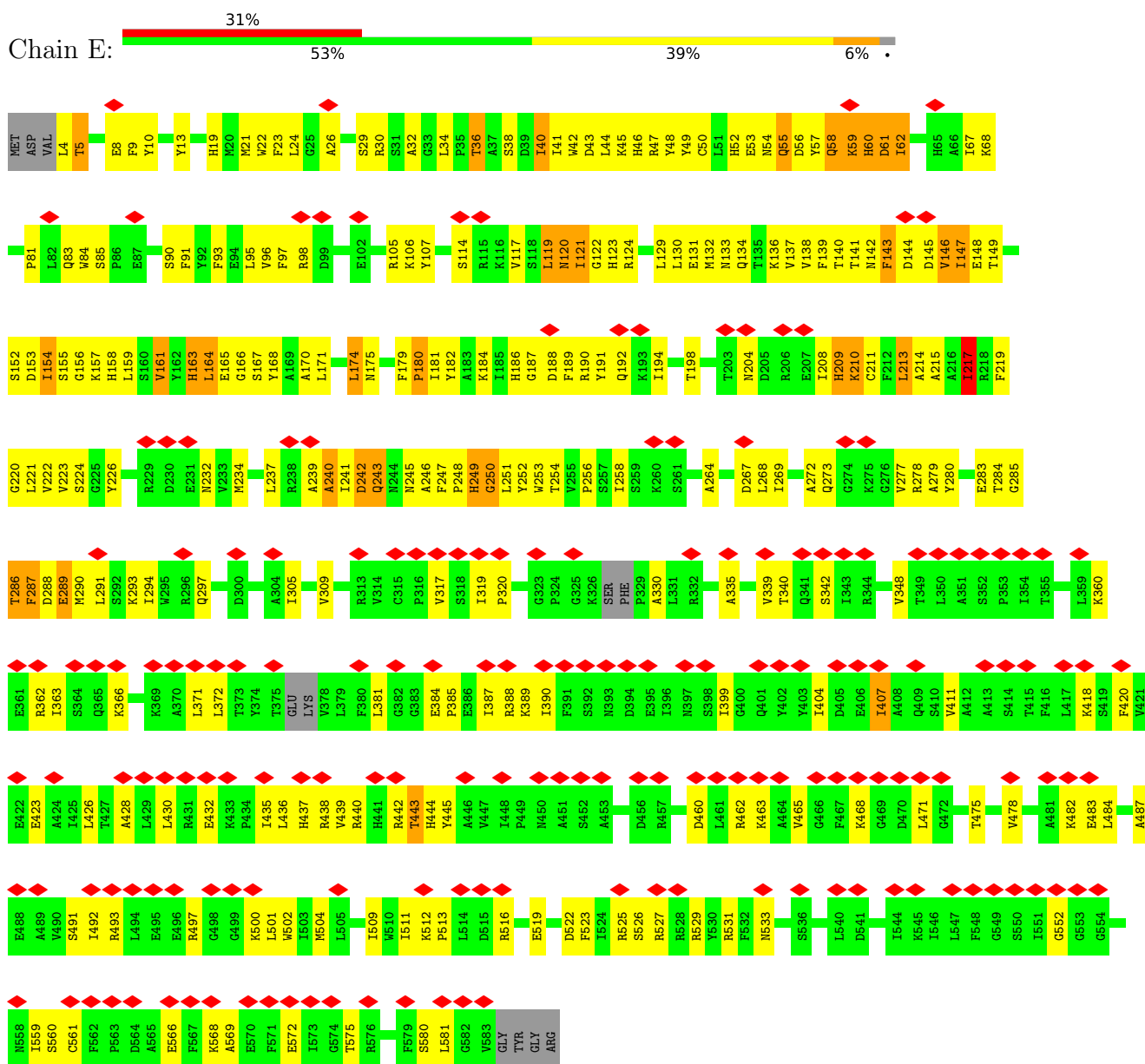
Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	21	Total	C	N	O	P	0	0
			442	198	73	150	21		
3	G	21	Total	C	N	O	P	0	0
			442	198	73	150	21		
3	K	21	Total	C	N	O	P	0	0
			442	198	73	150	21		
3	O	21	Total	C	N	O	P	0	0
			442	198	73	150	21		

- Molecule 4 is a DNA chain called DNA (25-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	20	Total 411	C 196	N 80	O 115	P 20	0	0
4	H	20	Total 411	C 196	N 80	O 115	P 20	0	0
4	L	20	Total 411	C 196	N 80	O 115	P 20	0	0
4	P	20	Total 411	C 196	N 80	O 115	P 20	0	0

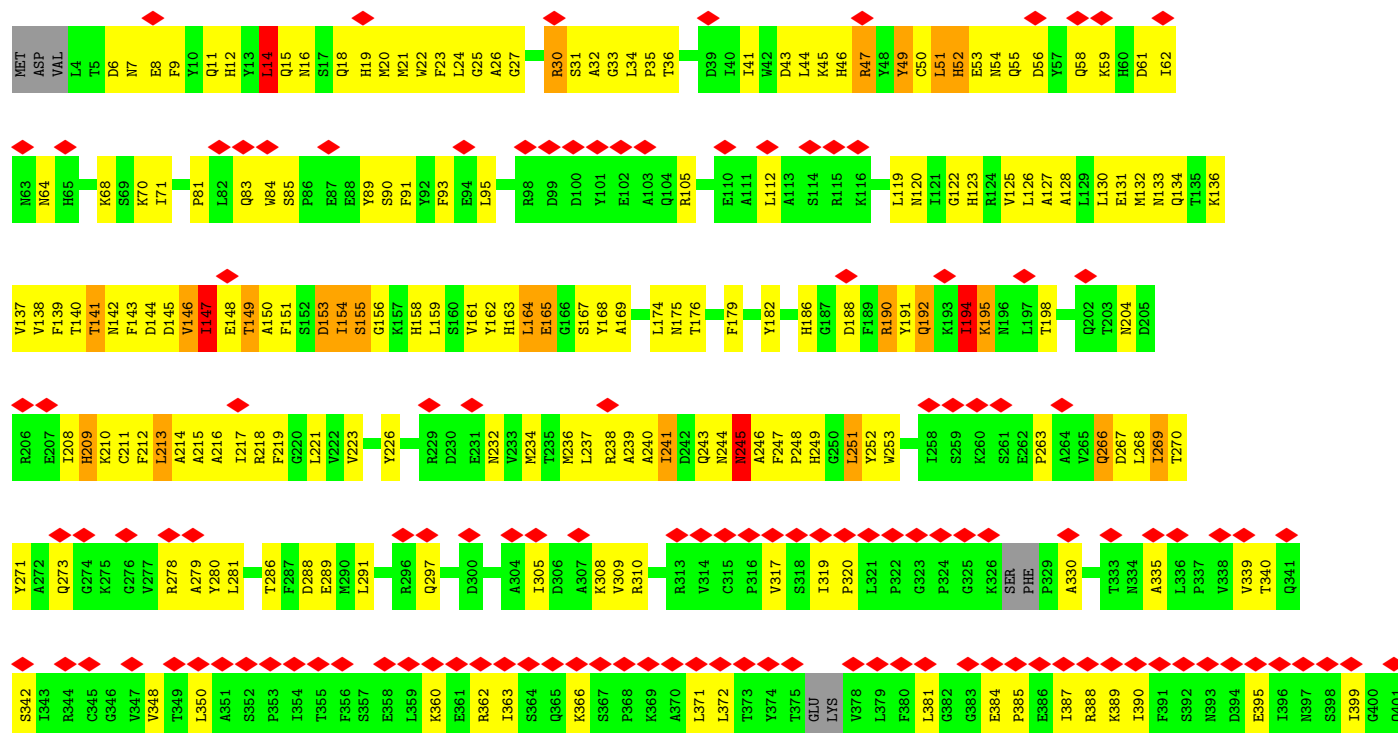
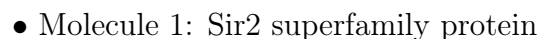
- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
5	C	1	Total 1	Mg 1	0
5	F	1	Total 1	Mg 1	0
5	K	1	Total 1	Mg 1	0
5	N	1	Total 1	Mg 1	0

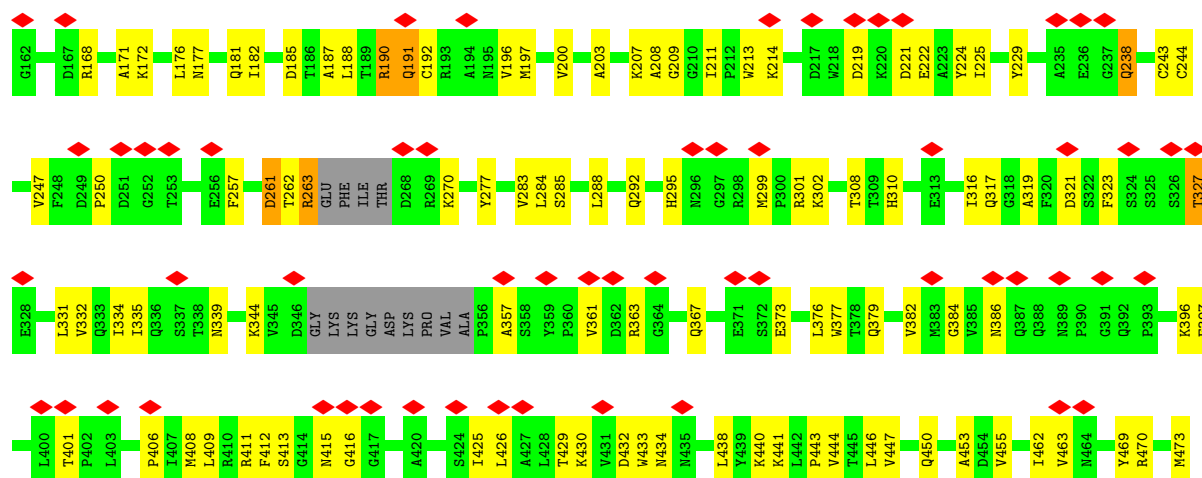


• Molecule 1: Sir2 superfamily protein

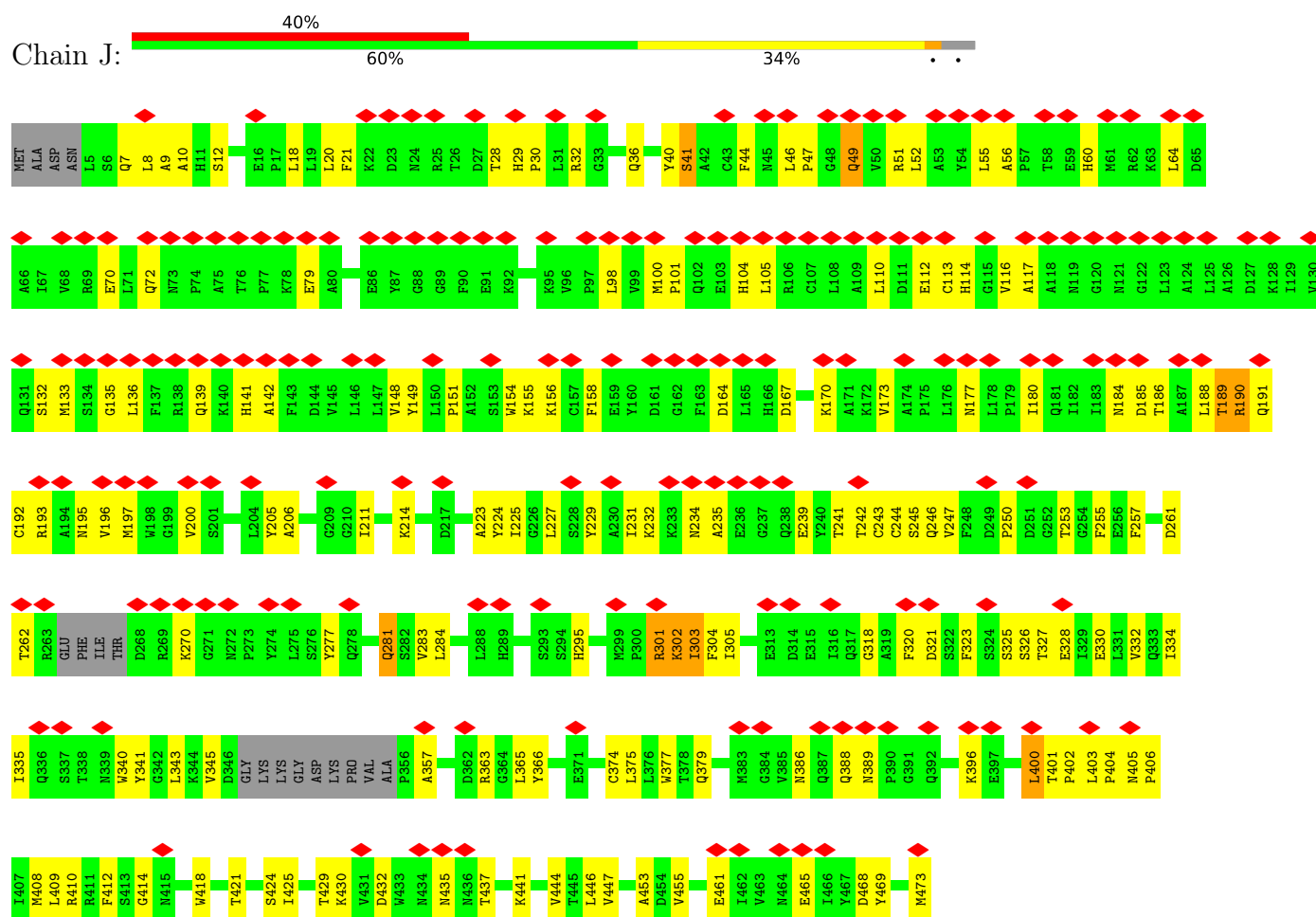






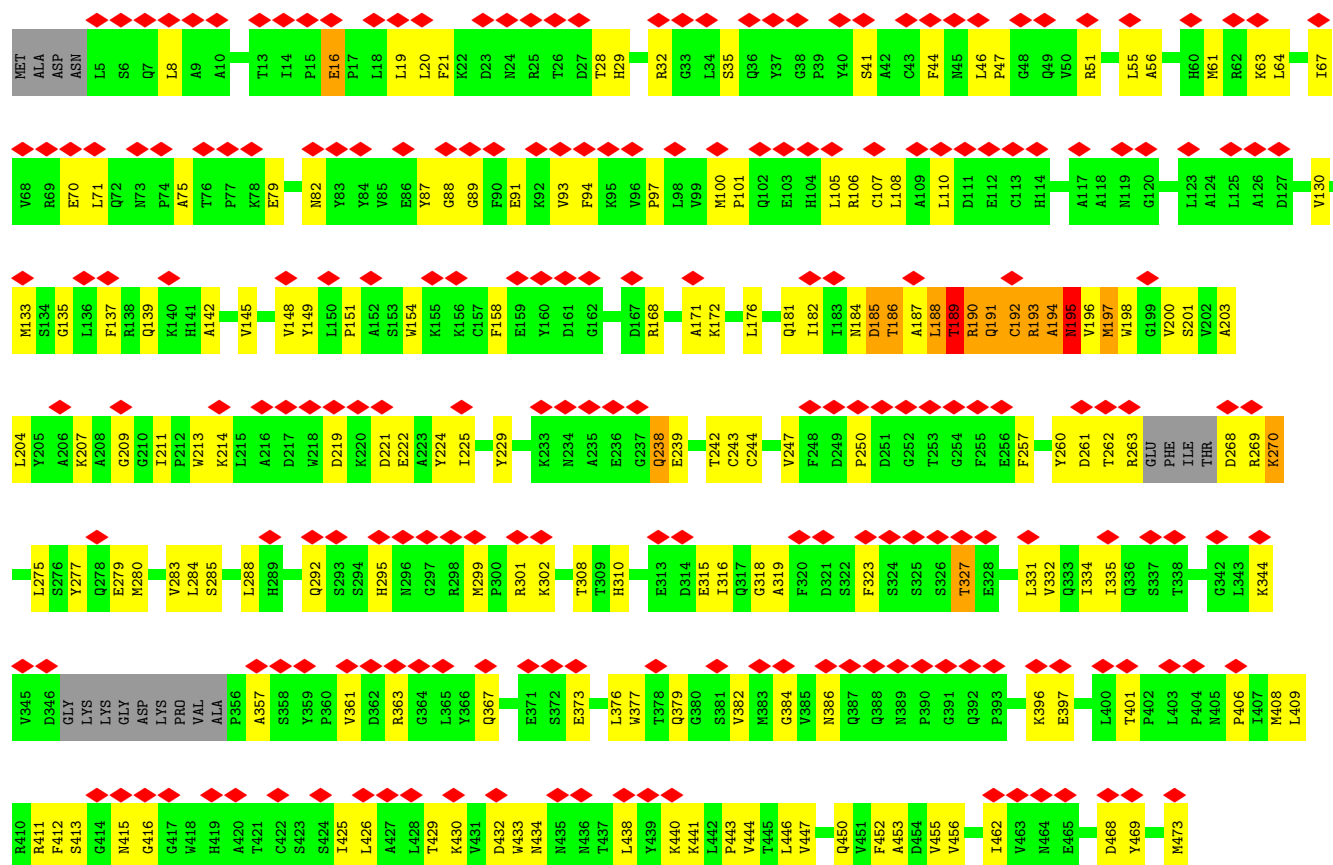


• Molecule 2: Piwi domain protein



• Molecule 2: Piwi domain protein

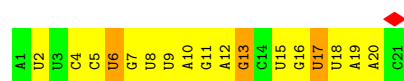




- Molecule 3: RNA (21-mer)



- Molecule 3: RNA (21-mer)



- Molecule 3: RNA (21-mer)



- Molecule 3: RNA (21-mer)



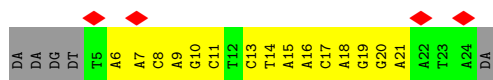
- Molecule 4: DNA (25-mer)



- Molecule 4: DNA (25-mer)



- Molecule 4: DNA (25-mer)



- Molecule 4: DNA (25-mer)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	36656	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.002	Depositor
Minimum map value	-1.084	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.052	Depositor
Recommended contour level	0.375	Depositor
Map size ($\text{\AA}$)	380.42, 380.42, 380.42	wwPDB
Map dimensions	460, 460, 460	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.827, 0.827, 0.827	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.33	0/3733	0.55	0/5048
1	E	0.51	1/4719 (0.0%)	0.75	16/6386 (0.3%)
1	I	0.32	0/3740	0.56	4/5058 (0.1%)
1	M	0.40	0/4719	0.72	10/6386 (0.2%)
2	B	0.34	0/3724	0.58	1/5060 (0.0%)
2	F	0.21	0/3724	0.45	1/5060 (0.0%)
2	J	0.25	0/3724	0.45	0/5060
2	N	0.30	0/3724	0.55	8/5060 (0.2%)
3	C	0.15	0/492	0.34	0/763
3	G	0.16	0/492	0.36	0/763
3	K	0.15	0/492	0.34	0/763
3	O	0.16	0/492	0.36	0/763
4	D	0.19	0/462	0.39	0/710
4	H	0.19	0/462	0.37	0/710
4	L	0.19	0/462	0.39	0/710
4	P	0.19	0/462	0.37	0/710
All	All	0.33	1/35623 (0.0%)	0.57	40/49010 (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	N	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	240	ALA	CA-C	-5.08	1.45	1.52

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	N	195	ASN	N-CA-C	-11.05	96.99	111.24
1	E	209	HIS	N-CA-C	-8.26	102.28	111.28
2	N	191	GLN	CA-C-N	-8.20	105.88	121.54
2	N	191	GLN	C-N-CA	-8.20	105.88	121.54
1	M	245	ASN	CB-CA-C	7.30	122.25	111.89
1	E	217	ILE	CA-C-N	7.21	130.52	120.29
1	E	217	ILE	C-N-CA	7.21	130.52	120.29
1	E	249	HIS	CA-CB-CG	-6.36	107.44	113.80
1	M	147	ILE	CA-C-N	-6.32	111.72	120.38
1	M	147	ILE	C-N-CA	-6.32	111.72	120.38
2	N	193	ARG	N-CA-C	5.82	119.44	112.93
1	M	239	ALA	N-CA-C	-5.79	105.05	111.36
1	M	52	HIS	CB-CA-C	5.76	120.00	110.90
1	E	59	LYS	CA-C-N	-5.67	115.00	122.99
1	E	59	LYS	C-N-CA	-5.67	115.00	122.99
1	E	213	LEU	CA-CB-CG	-5.55	96.86	116.30
2	N	189	THR	N-CA-C	-5.53	99.01	110.80
2	B	175	PRO	N-CA-C	-5.53	106.19	113.65
1	I	233	VAL	CA-C-N	-5.47	112.95	120.28
1	I	233	VAL	C-N-CA	-5.47	112.95	120.28
1	M	52	HIS	CA-C-N	5.41	129.62	122.42
1	M	52	HIS	C-N-CA	5.41	129.62	122.42
1	E	246	ALA	N-CA-C	-5.41	100.36	108.96
1	M	194	ILE	CB-CA-C	-5.40	102.43	111.29
2	N	462	ILE	N-CA-C	-5.33	108.08	113.20
2	F	462	ILE	N-CA-C	-5.30	108.11	113.20
1	E	161	VAL	CA-C-N	-5.25	115.21	123.13
1	E	161	VAL	C-N-CA	-5.25	115.21	123.13
1	E	5	THR	CA-C-N	5.20	127.25	120.28
1	E	5	THR	C-N-CA	5.20	127.25	120.28
1	I	15	GLN	CA-C-N	-5.16	116.12	123.03
1	I	15	GLN	C-N-CA	-5.16	116.12	123.03
1	M	14	LEU	N-CA-C	-5.16	105.66	111.28
2	N	194	ALA	CA-C-N	5.15	129.23	120.88
2	N	194	ALA	C-N-CA	5.15	129.23	120.88
1	E	146	VAL	CA-C-N	-5.13	112.74	121.97
1	E	146	VAL	C-N-CA	-5.13	112.74	121.97
1	E	249	HIS	CA-C-N	-5.11	111.40	121.41
1	E	249	HIS	C-N-CA	-5.11	111.40	121.41
1	M	266	GLN	N-CA-C	-5.02	105.81	111.28

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	N	188	LEU	Mainchain

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	3655	0	3677	250	0
1	E	4612	0	4595	464	0
1	I	3662	0	3685	246	0
1	M	4612	0	4595	429	0
2	B	3629	0	3564	254	0
2	F	3629	0	3564	182	0
2	J	3629	0	3564	206	0
2	N	3629	0	3564	210	0
3	C	442	0	224	17	0
3	G	442	0	224	21	0
3	K	442	0	224	13	0
3	O	442	0	224	14	0
4	D	411	0	225	15	0
4	H	411	0	225	18	0
4	L	411	0	225	14	0
4	P	411	0	225	15	0
5	C	1	0	0	0	0
5	F	1	0	0	0	0
5	K	1	0	0	0	0
5	N	1	0	0	0	0
All	All	34473	0	32604	2148	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 32.

All (2148) 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:M:49:TYR:CD2	1:M:71:ILE:HG12	1.32	1.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:24:LEU:HG	1:I:140:THR:CG2	1.31	1.61
2:B:70:GLU:HG3	2:B:197:MET:CE	1.33	1.57
2:B:250:PRO:HA	2:B:295:HIS:CE1	1.42	1.55
1:E:163:HIS:NE2	1:E:191:TYR:CE2	1.74	1.55
1:E:287:PHE:CE1	1:E:291:LEU:HD11	1.44	1.49
2:F:136:LEU:HB3	2:F:143:PHE:CE2	1.46	1.49
1:I:238:ARG:NH1	1:I:271:TYR:HB3	1.18	1.49
1:E:210:LYS:CD	1:I:244:ASN:ND2	1.74	1.48
1:E:163:HIS:CD2	1:E:191:TYR:CE2	2.00	1.46
1:E:117:VAL:HG21	1:E:146:VAL:CG1	1.44	1.46
1:E:287:PHE:CZ	1:E:291:LEU:HD11	1.51	1.44
1:E:46:HIS:CE1	1:E:57:TYR:CE1	2.07	1.42
2:N:87:TYR:CE2	2:N:197:MET:HB3	1.52	1.41
1:E:46:HIS:CE1	1:E:57:TYR:HE1	1.36	1.40
1:M:163:HIS:CD2	1:M:191:TYR:HE2	1.37	1.38
1:E:165:GLU:HG3	1:E:191:TYR:CD1	1.55	1.38
1:E:148:GLU:HG3	1:E:182:TYR:CE2	1.56	1.38
1:M:105:ARG:HD3	1:M:192:GLN:NE2	1.37	1.37
1:M:21:MET:HE3	1:M:139:PHE:CE1	1.58	1.36
2:B:70:GLU:CG	2:B:197:MET:CE	2.02	1.35
1:I:24:LEU:CG	1:I:140:THR:HG21	1.04	1.34
1:M:49:TYR:CD2	1:M:71:ILE:CG1	2.11	1.33
1:I:137:VAL:HG12	1:I:139:PHE:CE1	1.65	1.32
1:E:114:SER:CB	1:E:145:ASP:OD2	1.77	1.32
1:I:234:MET:SD	1:I:268:LEU:HD12	1.70	1.31
1:E:163:HIS:CD2	1:E:191:TYR:CD2	2.16	1.30
1:M:131:GLU:HG3	1:M:155:SER:OG	1.13	1.30
1:I:137:VAL:HG11	1:I:139:PHE:CZ	1.68	1.28
1:E:192:GLN:HB2	1:M:168:TYR:CZ	1.67	1.27
1:A:22:TRP:CD1	1:A:135:THR:HG1	1.51	1.27
2:B:250:PRO:CA	2:B:295:HIS:CE1	2.17	1.27
2:B:203:ALA:O	2:B:207:LYS:HG3	1.30	1.27
1:E:163:HIS:HD2	1:E:191:TYR:CD2	1.51	1.26
2:J:330:GLU:OE1	2:J:414:GLY:CA	1.82	1.26
1:M:127:ALA:HB1	1:M:151:PHE:CB	1.64	1.26
1:M:237:LEU:O	1:M:241:ILE:HG12	1.29	1.26
2:N:87:TYR:CD2	2:N:197:MET:HB3	1.70	1.25
1:E:148:GLU:CG	1:E:182:TYR:CE2	2.19	1.25
1:I:23:PHE:HA	1:I:139:PHE:O	1.36	1.25
1:M:49:TYR:HD2	1:M:71:ILE:CG1	1.44	1.25
2:N:262:THR:CG2	2:N:283:VAL:CG2	2.14	1.25

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:5:THR:HG22	1:E:8:GLU:CD	1.62	1.25
2:N:239:GLU:OE2	2:N:269:ARG:HG2	1.33	1.25
2:J:302:LYS:NZ	2:J:330:GLU:CG	1.98	1.25
1:E:46:HIS:ND1	1:E:57:TYR:HE1	1.34	1.24
1:M:143:PHE:HE2	1:M:194:ILE:CG2	1.48	1.24
1:A:123:HIS:HE1	1:A:144:ASP:OD2	1.16	1.24
1:A:217:ILE:HD13	1:A:245:ASN:O	1.12	1.24
1:I:238:ARG:NH1	1:I:271:TYR:CB	2.01	1.24
1:M:24:LEU:HB2	1:M:140:THR:CG2	1.65	1.24
1:E:148:GLU:CD	1:E:161:VAL:HG11	1.62	1.23
1:E:168:TYR:OH	1:M:192:GLN:N	1.71	1.23
2:B:249:ASP:O	2:B:295:HIS:NE2	1.72	1.23
1:E:120:ASN:ND2	1:E:288:ASP:OD2	1.72	1.23
1:E:221:LEU:O	1:E:251:LEU:HD12	1.37	1.23
1:M:163:HIS:CD2	1:M:191:TYR:CE2	2.27	1.22
2:N:262:THR:CG2	2:N:283:VAL:HG21	1.67	1.22
2:J:186:THR:HA	2:J:189:THR:OG1	1.37	1.22
1:E:210:LYS:HD3	1:I:244:ASN:ND2	0.89	1.22
1:A:144:ASP:OD1	1:A:146:VAL:HG22	1.38	1.21
1:I:137:VAL:CG1	1:I:139:PHE:CZ	2.22	1.21
1:E:122:GLY:O	1:E:291:LEU:HD13	1.41	1.21
2:J:301:ARG:NH1	1:M:59:LYS:O	1.71	1.21
1:M:127:ALA:CB	1:M:151:PHE:HB2	1.70	1.21
2:F:136:LEU:HB3	2:F:143:PHE:CZ	1.74	1.20
2:J:330:GLU:OE1	2:J:414:GLY:HA3	1.03	1.20
1:E:221:LEU:CB	1:E:251:LEU:HD13	1.71	1.20
2:N:239:GLU:CD	2:N:269:ARG:HG2	1.65	1.20
1:E:4:LEU:HD12	1:E:8:GLU:OE1	1.38	1.20
1:E:192:GLN:CB	1:M:168:TYR:OH	1.90	1.19
2:F:261:ASP:OD2	2:F:463:VAL:CG1	1.88	1.19
2:F:261:ASP:OD2	2:F:463:VAL:HG12	1.05	1.19
1:E:117:VAL:CG2	1:E:146:VAL:CG1	2.21	1.19
2:N:70:GLU:HB3	2:N:197:MET:CE	1.71	1.19
1:A:217:ILE:CD1	1:A:245:ASN:O	1.89	1.18
1:E:137:VAL:HG22	1:E:181:ILE:HD11	1.18	1.17
1:M:131:GLU:CG	1:M:155:SER:OG	1.92	1.17
1:I:212:PHE:CD2	1:I:236:MET:SD	2.37	1.17
2:J:302:LYS:HZ3	2:J:330:GLU:CG	1.54	1.17
1:M:127:ALA:HB1	1:M:151:PHE:CA	1.75	1.17
1:M:143:PHE:CE2	1:M:194:ILE:HG22	1.79	1.16
1:E:114:SER:HB3	1:E:145:ASP:OD2	1.00	1.15

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:165:GLU:HG3	1:E:191:TYR:CG	1.80	1.15
1:I:24:LEU:HB2	1:I:140:THR:HB	1.21	1.15
2:N:280:MET:CE	2:N:315:GLU:HG2	1.76	1.15
1:A:11:GLN:OE1	1:E:96:VAL:HG13	1.45	1.15
1:E:21:MET:HE3	1:E:139:PHE:CE1	1.82	1.15
1:M:21:MET:CE	1:M:139:PHE:HE1	1.59	1.15
2:N:70:GLU:HB3	2:N:197:MET:HE3	1.27	1.15
2:B:249:ASP:O	2:B:295:HIS:CE1	2.01	1.14
1:E:287:PHE:CZ	1:E:291:LEU:CD1	2.29	1.14
1:I:212:PHE:CG	1:I:236:MET:SD	2.41	1.14
1:E:5:THR:CG2	1:E:8:GLU:CD	2.21	1.13
1:E:156:GLY:O	1:M:153:ASP:HB2	1.48	1.12
1:M:105:ARG:CD	1:M:192:GLN:HE22	1.60	1.13
1:M:127:ALA:HB1	1:M:151:PHE:HB2	1.16	1.12
2:J:223:ALA:CB	2:J:303:ILE:HD11	1.80	1.11
2:B:143:PHE:CZ	2:B:178:LEU:CD1	2.34	1.11
1:E:5:THR:HG23	1:E:8:GLU:CG	1.78	1.11
2:J:185:ASP:HA	2:J:188:LEU:HD21	1.32	1.11
1:M:234:MET:SD	1:M:268:LEU:HD12	1.91	1.11
1:M:252:TYR:HA	1:M:280:TYR:O	1.50	1.11
1:A:123:HIS:CE1	1:A:144:ASP:OD2	2.04	1.10
2:B:143:PHE:HZ	2:B:178:LEU:CD1	1.65	1.10
2:J:223:ALA:O	2:J:303:ILE:CD1	1.99	1.10
1:M:143:PHE:CE2	1:M:194:ILE:CG2	2.34	1.10
1:E:148:GLU:CD	1:E:161:VAL:CG1	2.25	1.09
1:E:156:GLY:O	1:M:153:ASP:CB	1.99	1.09
1:I:24:LEU:HB2	1:I:140:THR:CB	1.71	1.09
1:M:127:ALA:HB1	1:M:151:PHE:HA	1.34	1.09
2:N:262:THR:HG22	2:N:283:VAL:HG22	1.22	1.09
2:F:136:LEU:CB	2:F:143:PHE:CE2	2.33	1.09
1:I:137:VAL:CG1	1:I:139:PHE:CE1	2.36	1.09
1:M:9:PHE:CE1	1:M:252:TYR:CD2	2.38	1.09
2:B:260:TYR:OH	2:B:287:SER:CB	1.99	1.09
2:N:190:ARG:O	2:N:193:ARG:CG	2.01	1.09
2:N:262:THR:HG22	2:N:283:VAL:CG2	1.80	1.09
2:N:277:TYR:CE1	2:N:318:GLY:HA2	1.88	1.09
2:B:260:TYR:OH	2:B:287:SER:HB2	1.51	1.08
1:E:117:VAL:CG2	1:E:146:VAL:HG12	1.79	1.08
2:J:302:LYS:HZ3	2:J:330:GLU:HG3	0.94	1.08
1:E:217:ILE:HG21	1:I:217:ILE:HG21	1.36	1.08
2:J:186:THR:CA	2:J:189:THR:OG1	2.00	1.08

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:105:ARG:CD	1:M:192:GLN:NE2	2.15	1.08
2:N:190:ARG:O	2:N:193:ARG:HG2	1.53	1.07
1:A:244:ASN:HD21	1:M:213:LEU:HB2	1.18	1.07
2:J:79:GLU:OE1	2:J:190:ARG:NH2	1.87	1.07
2:N:70:GLU:CB	2:N:197:MET:HE3	1.85	1.07
1:E:221:LEU:HG	1:E:251:LEU:HD11	1.33	1.07
1:I:330:ALA:HB2	1:I:581:LEU:HA	1.24	1.07
2:N:191:GLN:O	2:N:193:ARG:N	1.86	1.07
2:B:70:GLU:CG	2:B:197:MET:HE3	1.77	1.06
2:J:223:ALA:O	2:J:303:ILE:HD12	1.54	1.06
2:J:302:LYS:CE	2:J:330:GLU:HG2	1.83	1.06
2:B:246:GLN:OE1	2:B:287:SER:OG	1.72	1.06
1:M:43:ASP:O	1:M:47:ARG:CG	2.02	1.06
1:M:25:GLY:O	1:M:142:ASN:ND2	1.89	1.05
2:B:143:PHE:CZ	2:B:178:LEU:HD11	1.90	1.05
1:M:21:MET:CE	1:M:139:PHE:CE1	2.35	1.04
1:A:217:ILE:HG13	1:M:217:ILE:HD13	1.36	1.04
2:J:223:ALA:HB3	2:J:303:ILE:CD1	1.88	1.04
1:M:24:LEU:HB2	1:M:140:THR:HG21	1.38	1.04
1:M:49:TYR:CE2	1:M:71:ILE:HG13	1.91	1.04
1:A:301:LYS:HE2	1:E:58:GLN:CD	1.82	1.04
1:I:217:ILE:HD12	1:I:245:ASN:O	1.54	1.04
2:J:302:LYS:HE2	2:J:330:GLU:HG2	1.38	1.04
2:N:262:THR:HB	2:N:283:VAL:CG2	1.86	1.04
2:J:40:TYR:HE2	2:J:214:LYS:HD3	1.22	1.04
2:J:190:ARG:HB3	2:J:190:ARG:HH11	1.18	1.03
1:M:24:LEU:CB	1:M:140:THR:CG2	2.36	1.03
1:E:287:PHE:CE1	1:E:291:LEU:CD1	2.40	1.03
1:A:12:HIS:HE1	1:A:20:MET:HE1	1.20	1.03
1:A:244:ASN:ND2	1:M:213:LEU:HB2	1.74	1.03
2:N:67:ILE:CD1	2:N:187:ALA:HB1	1.88	1.03
2:B:249:ASP:C	2:B:295:HIS:CE1	2.37	1.03
1:E:192:GLN:HB2	1:M:168:TYR:OH	1.51	1.03
1:E:5:THR:HG23	1:E:8:GLU:HG3	1.07	1.03
1:E:221:LEU:HB3	1:E:251:LEU:HD13	1.04	1.03
1:A:11:GLN:OE1	1:E:96:VAL:CG1	2.07	1.02
2:B:251:ASP:OD1	2:B:298:ARG:NH2	1.90	1.02
1:E:114:SER:HB3	1:E:145:ASP:CG	1.83	1.02
1:E:188:ASP:OD2	1:E:190:ARG:NH2	1.91	1.02
1:I:267:ASP:O	1:I:271:TYR:CD2	2.11	1.02
2:J:302:LYS:NZ	2:J:330:GLU:HG2	1.73	1.02

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:259:ALA:HB2	2:B:448:TYR:CE2	1.94	1.01
1:M:43:ASP:O	1:M:47:ARG:HG2	1.59	1.01
1:A:144:ASP:O	1:A:146:VAL:N	1.90	1.01
1:E:131:GLU:HG3	1:E:155:SER:OG	1.61	1.01
2:F:63:LYS:HB3	2:F:188:LEU:HD11	1.41	1.01
1:E:119:LEU:HD22	1:E:119:LEU:H	1.21	1.01
2:N:67:ILE:HD12	2:N:187:ALA:HB1	1.39	1.01
2:N:262:THR:HG21	2:N:283:VAL:HG21	1.35	1.01
2:B:250:PRO:HA	2:B:295:HIS:ND1	1.75	1.01
1:E:158:HIS:CD2	1:M:148:GLU:HB3	1.96	1.01
2:J:401:THR:OG1	2:J:402:PRO:HD2	1.57	1.01
1:M:9:PHE:HE1	1:M:252:TYR:HD2	1.05	1.01
1:E:5:THR:CG2	1:E:8:GLU:HG3	1.90	1.00
1:M:24:LEU:H	1:M:140:THR:HG22	1.24	1.00
2:N:262:THR:CB	2:N:283:VAL:CG2	2.40	1.00
1:M:163:HIS:CG	1:M:191:TYR:HE2	1.78	1.00
1:A:4:LEU:O	1:A:282:VAL:HG12	1.62	1.00
1:E:192:GLN:N	1:M:168:TYR:OH	1.94	1.00
1:E:137:VAL:HG11	1:E:139:PHE:CZ	1.96	0.99
1:A:121:ILE:H	1:A:121:ILE:HD12	1.28	0.99
1:I:24:LEU:CB	1:I:140:THR:HB	1.83	0.99
1:E:13:TYR:OH	1:E:129:LEU:CD1	2.11	0.98
2:N:87:TYR:CE2	2:N:197:MET:CB	2.45	0.98
2:B:188:LEU:HA	2:B:193:ARG:HH12	1.27	0.98
1:M:9:PHE:HE1	1:M:252:TYR:CD2	1.77	0.98
1:E:137:VAL:CG2	1:E:181:ILE:HD11	1.93	0.98
1:E:217:ILE:HD13	1:I:217:ILE:HG21	1.45	0.98
1:I:24:LEU:CB	1:I:140:THR:CB	2.28	0.98
1:E:117:VAL:HG21	1:E:146:VAL:HG12	1.00	0.98
1:M:131:GLU:HB2	1:M:151:PHE:CE2	1.99	0.98
1:A:221:LEU:CD2	1:A:251:LEU:CD1	2.42	0.97
1:E:137:VAL:HG22	1:E:181:ILE:CD1	1.93	0.97
1:M:126:LEU:HD23	1:M:147:ILE:HD12	1.44	0.97
1:M:237:LEU:O	1:M:241:ILE:CG1	2.12	0.97
1:A:209:HIS:HA	1:A:236:MET:HE2	1.47	0.97
2:N:280:MET:HE3	2:N:315:GLU:CG	1.95	0.97
1:A:124:ARG:HG2	1:A:309:VAL:HG12	1.47	0.97
1:A:137:VAL:HG22	1:A:181:ILE:HG12	1.44	0.97
1:E:156:GLY:O	1:M:153:ASP:CA	2.13	0.97
1:M:49:TYR:CE2	1:M:71:ILE:CG1	2.44	0.97
1:E:5:THR:CG2	1:E:8:GLU:CG	2.43	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:267:ASP:O	1:I:271:TYR:HD2	1.46	0.97
1:M:24:LEU:N	1:M:140:THR:HG22	1.80	0.96
2:J:401:THR:OG1	2:J:402:PRO:CD	2.13	0.96
2:N:280:MET:CE	2:N:315:GLU:CG	2.42	0.96
1:E:120:ASN:CG	1:E:288:ASP:OD2	2.07	0.96
1:E:148:GLU:OE2	1:E:182:TYR:CD2	2.19	0.96
2:N:277:TYR:HE1	2:N:318:GLY:HA2	1.24	0.96
1:E:221:LEU:HG	1:E:251:LEU:CD1	1.96	0.96
1:M:226:TYR:HD2	1:M:253:TRP:CH2	1.83	0.96
1:E:42:TRP:HB3	1:E:62:ILE:HD11	1.46	0.96
1:M:145:ASP:HB2	1:M:148:GLU:HB2	1.45	0.95
1:I:330:ALA:CB	1:I:581:LEU:HA	1.95	0.95
2:N:262:THR:CG2	2:N:283:VAL:HG22	1.86	0.95
1:E:46:HIS:ND1	1:E:57:TYR:CE1	2.25	0.95
1:E:222:VAL:HG22	1:E:252:TYR:HD2	1.29	0.95
1:I:217:ILE:CD1	1:I:245:ASN:HB3	1.96	0.95
1:M:126:LEU:HD23	1:M:147:ILE:CD1	1.97	0.95
1:E:148:GLU:OE2	1:E:161:VAL:CG1	2.13	0.95
2:B:143:PHE:CE2	2:B:178:LEU:HD11	2.02	0.94
2:B:249:ASP:C	2:B:295:HIS:HE1	1.73	0.94
2:N:280:MET:HE2	2:N:315:GLU:HG2	1.46	0.94
1:E:217:ILE:HG21	1:I:217:ILE:CG2	1.97	0.94
2:J:185:ASP:O	2:J:189:THR:HG23	1.66	0.94
1:M:148:GLU:CD	1:M:161:VAL:HG11	1.91	0.94
1:A:22:TRP:HD1	1:A:135:THR:OG1	1.49	0.94
1:E:148:GLU:CG	1:E:182:TYR:CD2	2.51	0.94
2:J:302:LYS:NZ	2:J:330:GLU:HG3	1.70	0.94
1:E:148:GLU:CG	1:E:182:TYR:HE2	1.66	0.94
1:I:234:MET:HE2	1:I:234:MET:HA	1.49	0.94
1:M:24:LEU:CB	1:M:140:THR:HG22	1.97	0.94
1:E:170:ALA:HB1	1:E:211:CYS:SG	2.08	0.94
1:A:213:LEU:CD1	1:A:240:ALA:HA	1.98	0.94
1:I:21:MET:CG	1:I:139:PHE:HE1	1.79	0.94
2:B:70:GLU:HG3	2:B:197:MET:HE1	1.45	0.93
2:B:189:THR:O	2:B:191:GLN:N	2.00	0.93
1:A:221:LEU:HD22	1:A:251:LEU:HD13	1.49	0.93
2:J:223:ALA:HB3	2:J:303:ILE:HD11	0.94	0.93
2:B:203:ALA:O	2:B:207:LYS:CG	2.14	0.93
1:A:12:HIS:HE1	1:A:20:MET:CE	1.81	0.93
1:M:9:PHE:CD1	1:M:252:TYR:CD2	2.55	0.93
1:M:119:LEU:HG	1:M:150:ALA:HB2	1.50	0.93

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:70:GLU:CG	2:B:197:MET:HE1	1.97	0.93
2:B:145:VAL:HA	2:B:179:PRO:HG2	1.47	0.93
1:M:192:GLN:HA	1:M:192:GLN:HE21	1.34	0.93
2:F:149:TYR:HE2	2:F:188:LEU:HD12	1.29	0.93
1:A:175:ASN:HD21	1:M:245:ASN:HD22	1.07	0.92
1:E:156:GLY:CA	1:M:153:ASP:HA	2.00	0.92
2:B:190:ARG:O	2:B:192:CYS:N	2.02	0.92
2:N:87:TYR:HE2	2:N:197:MET:HB3	1.14	0.92
1:M:226:TYR:CD2	1:M:253:TRP:CH2	2.58	0.92
2:N:70:GLU:CB	2:N:197:MET:CE	2.44	0.92
2:J:188:LEU:HD23	2:J:188:LEU:H	1.32	0.92
1:A:125:VAL:CG1	1:A:291:LEU:HB3	1.99	0.92
1:M:128:ALA:HB2	1:M:154:ILE:HD11	1.51	0.92
2:B:258:VAL:HG11	2:B:290:LEU:HD11	1.51	0.91
1:E:222:VAL:HG22	1:E:252:TYR:CD2	2.04	0.91
1:I:21:MET:CG	1:I:139:PHE:CE1	2.53	0.91
2:J:341:TYR:CD2	2:J:403:LEU:HD23	2.05	0.91
1:M:105:ARG:HD3	1:M:192:GLN:HE21	1.25	0.91
2:N:87:TYR:CD2	2:N:197:MET:CB	2.54	0.91
1:M:21:MET:HE3	1:M:139:PHE:CZ	2.05	0.91
1:M:49:TYR:HE2	1:M:71:ILE:HG13	1.32	0.91
1:E:146:VAL:O	1:E:147:ILE:C	2.12	0.91
1:M:27:GLY:O	1:M:30:ARG:HB3	1.70	0.91
1:A:125:VAL:CG2	1:A:295:TRP:HB2	2.00	0.91
1:E:237:LEU:O	1:E:241:ILE:HD13	1.69	0.91
2:B:62:ARG:HG2	2:B:62:ARG:HH11	1.33	0.91
1:M:43:ASP:O	1:M:47:ARG:HG3	1.71	0.91
2:B:246:GLN:HG3	2:B:287:SER:OG	1.69	0.90
1:E:210:LYS:CD	1:I:244:ASN:HD21	1.54	0.90
1:I:448:ILE:HD13	1:I:474:ILE:HD12	1.54	0.90
2:B:250:PRO:HD2	2:B:254:GLY:O	1.71	0.90
2:B:70:GLU:HG2	2:B:197:MET:CE	1.98	0.90
2:B:100:MET:HE3	2:B:101:PRO:HD2	1.51	0.90
1:A:221:LEU:CD2	1:A:251:LEU:HD13	2.00	0.90
2:B:67:ILE:HD11	2:B:193:ARG:NH2	1.87	0.89
2:B:246:GLN:OE1	2:B:287:SER:O	1.90	0.89
2:B:260:TYR:OH	2:B:287:SER:OG	1.91	0.89
1:A:125:VAL:HG11	1:A:291:LEU:HB3	1.53	0.89
2:B:61:MET:CE	2:B:108:LEU:CD2	2.50	0.89
1:M:123:HIS:CE1	1:M:146:VAL:HG11	2.07	0.89
1:M:127:ALA:CB	1:M:151:PHE:CA	2.50	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:124:ARG:CG	1:A:309:VAL:HG12	2.03	0.89
1:E:163:HIS:NE2	1:E:191:TYR:HE2	1.62	0.89
2:B:143:PHE:HZ	2:B:178:LEU:HD13	1.37	0.89
1:E:221:LEU:C	1:E:251:LEU:HD12	1.98	0.89
1:E:146:VAL:O	1:E:149:THR:N	2.06	0.89
1:E:210:LYS:CG	1:I:244:ASN:HD21	1.85	0.89
2:J:100:MET:HE3	2:J:101:PRO:HD2	1.51	0.89
1:E:10:TYR:CE2	1:E:293:LYS:HD3	2.08	0.88
1:A:448:ILE:HD13	1:A:474:ILE:HD12	1.54	0.88
1:I:24:LEU:CG	1:I:140:THR:CG2	2.00	0.88
2:N:93:VAL:HG21	2:N:198:TRP:CH2	2.09	0.88
2:N:197:MET:O	2:N:201:SER:HB3	1.73	0.88
1:E:21:MET:HE3	1:E:139:PHE:CZ	2.08	0.88
1:E:165:GLU:CG	1:E:191:TYR:CD1	2.51	0.88
1:M:127:ALA:CB	1:M:151:PHE:CB	2.42	0.88
1:E:5:THR:HG22	1:E:8:GLU:OE1	1.71	0.88
1:M:119:LEU:HD21	1:M:149:THR:CG2	2.04	0.88
2:B:296:ASN:ND2	2:F:470:ARG:CZ	2.37	0.88
2:J:185:ASP:CA	2:J:188:LEU:HD21	2.04	0.88
1:M:127:ALA:CB	1:M:151:PHE:HA	2.03	0.87
2:B:144:ASP:O	2:B:179:PRO:HG3	1.73	0.87
1:M:16:ASN:O	1:M:16:ASN:ND2	2.08	0.87
2:N:262:THR:CB	2:N:283:VAL:HG21	2.00	0.87
1:E:221:LEU:CB	1:E:251:LEU:CD1	2.51	0.87
1:E:13:TYR:OH	1:E:129:LEU:HD13	1.74	0.87
2:B:70:GLU:HG3	2:B:197:MET:HE3	0.88	0.87
1:E:9:PHE:CE2	1:E:290:MET:HE3	2.10	0.87
1:E:163:HIS:NE2	1:E:191:TYR:CZ	2.12	0.87
2:N:239:GLU:OE2	2:N:269:ARG:CG	2.20	0.87
1:E:161:VAL:HG12	1:E:182:TYR:HD2	1.40	0.87
1:E:148:GLU:CD	1:E:182:TYR:CE2	2.51	0.87
1:E:210:LYS:CD	1:I:244:ASN:HD22	1.62	0.87
2:F:136:LEU:CB	2:F:143:PHE:CZ	2.57	0.87
2:N:190:ARG:O	2:N:193:ARG:HG3	1.74	0.87
1:I:16:ASN:O	1:I:16:ASN:ND2	2.07	0.86
1:I:234:MET:SD	1:I:268:LEU:CD1	2.59	0.86
2:J:302:LYS:HZ1	2:J:330:GLU:CD	1.83	0.86
1:M:148:GLU:HG2	1:M:161:VAL:HG11	1.54	0.86
2:N:277:TYR:CE1	2:N:318:GLY:CA	2.58	0.86
1:E:46:HIS:CE1	1:E:57:TYR:CD1	2.62	0.86
1:E:117:VAL:HG21	1:E:146:VAL:HG13	1.57	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:226:TYR:HD2	1:E:253:TRP:CZ2	1.93	0.86
1:I:217:ILE:HD11	1:I:245:ASN:HB3	1.55	0.86
2:B:46:LEU:HD22	2:F:137:PHE:CE2	2.11	0.86
2:B:70:GLU:CG	2:B:197:MET:HE2	2.05	0.86
2:F:136:LEU:HB3	2:F:143:PHE:HE2	1.40	0.86
1:A:16:ASN:HD21	1:A:20:MET:CE	1.88	0.86
1:M:248:PRO:O	1:M:278:ARG:NH1	2.08	0.86
2:F:221:ASP:HB3	2:F:301:ARG:HG2	1.58	0.86
1:A:14:LEU:HD11	1:A:297:GLN:HB2	1.56	0.86
1:A:16:ASN:ND2	1:A:16:ASN:O	2.07	0.86
2:J:190:ARG:HB3	2:J:190:ARG:NH1	1.89	0.86
1:I:330:ALA:HB1	1:I:580:SER:O	1.74	0.85
2:J:302:LYS:HZ1	2:J:330:GLU:CG	1.88	0.85
1:E:148:GLU:HG3	1:E:182:TYR:HE2	1.06	0.85
1:I:212:PHE:CD2	1:I:236:MET:CG	2.59	0.85
1:M:119:LEU:HD21	1:M:149:THR:HG21	1.58	0.85
1:A:301:LYS:HE2	1:E:58:GLN:NE2	1.91	0.85
1:E:137:VAL:CG1	1:E:139:PHE:CZ	2.59	0.85
1:I:234:MET:HA	1:I:234:MET:CE	2.04	0.85
2:B:250:PRO:N	2:B:295:HIS:HE1	1.75	0.85
1:M:148:GLU:CG	1:M:161:VAL:HG11	2.06	0.85
1:M:51:LEU:HD12	1:M:51:LEU:O	1.76	0.84
1:I:238:ARG:HH12	1:I:271:TYR:HB3	1.02	0.84
2:N:63:LYS:HB3	2:N:188:LEU:CD2	2.07	0.84
2:N:87:TYR:HE2	2:N:197:MET:CB	1.88	0.84
1:M:14:LEU:HD12	1:M:14:LEU:O	1.77	0.84
1:A:125:VAL:CG2	1:A:295:TRP:CB	2.55	0.84
1:E:44:LEU:HD21	1:E:107:TYR:CE2	2.12	0.84
1:E:148:GLU:OE2	1:E:161:VAL:HG12	1.77	0.84
1:E:165:GLU:CG	1:E:191:TYR:CG	2.59	0.84
2:F:149:TYR:CE2	2:F:188:LEU:HD12	2.12	0.84
1:A:125:VAL:HG21	1:A:295:TRP:CB	2.08	0.84
2:J:184:ASN:O	2:J:188:LEU:CD2	2.25	0.84
1:M:163:HIS:CG	1:M:191:TYR:CE2	2.59	0.84
2:N:280:MET:HE3	2:N:315:GLU:HG2	1.53	0.84
2:B:46:LEU:HD21	2:F:176:LEU:HD11	1.57	0.84
1:E:56:ASP:OD1	1:E:58:GLN:NE2	2.10	0.84
2:B:40:TYR:OH	2:B:253:THR:HB	1.77	0.84
2:B:246:GLN:CG	2:B:287:SER:OG	2.26	0.84
1:E:122:GLY:O	1:E:291:LEU:CD1	2.25	0.84
2:B:250:PRO:HB3	2:B:294:SER:OG	1.77	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:250:PRO:N	2:B:295:HIS:CE1	2.46	0.83
1:M:148:GLU:OE2	1:M:161:VAL:HG11	1.77	0.83
1:A:123:HIS:HE1	1:A:144:ASP:CG	1.86	0.83
2:B:70:GLU:HG2	2:B:197:MET:HE2	1.59	0.83
2:N:67:ILE:HD12	2:N:187:ALA:CB	2.07	0.83
1:A:144:ASP:OD1	1:A:146:VAL:CG2	2.25	0.83
1:I:330:ALA:HB2	1:I:581:LEU:CA	2.07	0.83
1:M:24:LEU:CB	1:M:140:THR:HG21	2.04	0.83
1:E:148:GLU:CD	1:E:182:TYR:HE2	1.87	0.83
1:A:22:TRP:CD1	1:A:135:THR:OG1	2.28	0.83
1:A:175:ASN:ND2	1:M:245:ASN:HD22	1.75	0.82
1:M:131:GLU:HB2	1:M:151:PHE:HE2	1.42	0.82
1:A:301:LYS:HE2	1:E:58:GLN:OE1	1.77	0.82
2:N:190:ARG:NE	2:N:190:ARG:HA	1.95	0.82
2:J:41:SER:OG	2:J:211:ILE:N	2.10	0.82
1:M:105:ARG:NE	1:M:192:GLN:HE22	1.75	0.82
2:B:246:GLN:CD	2:B:287:SER:OG	2.21	0.82
2:F:140:LYS:HZ3	2:F:140:LYS:HB2	1.43	0.82
2:J:186:THR:C	2:J:189:THR:OG1	2.22	0.82
1:A:213:LEU:HD13	1:A:240:ALA:HA	1.61	0.82
1:I:238:ARG:HH12	1:I:271:TYR:CB	1.76	0.82
1:A:136:LYS:HG2	1:A:179:PHE:CD2	2.14	0.82
1:E:171:LEU:O	1:E:171:LEU:HD12	1.80	0.82
1:E:226:TYR:HD2	1:E:253:TRP:HZ2	1.21	0.82
1:I:21:MET:HG2	1:I:139:PHE:CE1	2.13	0.82
2:J:330:GLU:CD	2:J:414:GLY:CA	2.52	0.82
2:N:221:ASP:HB3	2:N:301:ARG:HG2	1.58	0.82
2:B:258:VAL:HG21	2:B:290:LEU:CD1	2.10	0.82
1:E:165:GLU:CG	1:E:191:TYR:HB3	2.10	0.82
2:J:304:PHE:CE1	2:J:421:THR:HG22	2.14	0.82
1:A:161:VAL:HG12	1:A:182:TYR:HD2	1.43	0.82
2:J:185:ASP:HA	2:J:188:LEU:CD2	2.09	0.81
2:N:277:TYR:HE1	2:N:318:GLY:CA	1.93	0.81
1:A:144:ASP:C	1:A:146:VAL:H	1.87	0.81
2:B:246:GLN:CD	2:B:287:SER:HG	1.88	0.81
1:E:148:GLU:HG2	1:E:182:TYR:CD2	2.14	0.81
1:E:190:ARG:NH1	1:E:191:TYR:CE2	2.48	0.81
1:M:137:VAL:HG11	1:M:139:PHE:CZ	2.14	0.81
1:A:12:HIS:CE1	1:A:20:MET:HE1	2.09	0.81
2:J:44:PHE:CZ	2:J:253:THR:OG1	2.31	0.81
2:J:250:PRO:HD2	2:J:255:PHE:HA	1.62	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:146:VAL:O	1:E:148:GLU:N	2.13	0.81
2:F:136:LEU:CA	2:F:143:PHE:HE2	1.93	0.81
2:F:140:LYS:HB2	2:F:140:LYS:NZ	1.95	0.81
1:M:127:ALA:O	1:M:151:PHE:HD2	1.63	0.81
2:N:263:ARG:NH1	2:N:268:ASP:O	2.12	0.81
2:F:139:GLN:HB3	2:F:142:ALA:HB3	1.63	0.81
2:N:93:VAL:HG21	2:N:198:TRP:HH2	1.44	0.81
1:E:175:ASN:HD21	1:I:245:ASN:HD21	1.28	0.81
1:A:137:VAL:HG22	1:A:181:ILE:CG1	2.10	0.81
1:E:13:TYR:CE1	1:E:294:ILE:HG23	2.15	0.81
1:E:156:GLY:HA2	1:M:153:ASP:HA	1.61	0.81
1:E:221:LEU:CG	1:E:251:LEU:CD1	2.58	0.81
1:I:214:ALA:O	1:I:217:ILE:HG22	1.81	0.81
1:A:12:HIS:CE1	1:A:20:MET:CE	2.64	0.81
1:M:32:ALA:CB	1:M:146:VAL:HG21	2.10	0.81
1:M:148:GLU:HG2	1:M:161:VAL:CG1	2.11	0.81
2:B:61:MET:HE1	2:B:108:LEU:CD2	2.11	0.80
1:I:24:LEU:HG	1:I:140:THR:HG23	1.62	0.80
1:M:143:PHE:HE2	1:M:194:ILE:HG21	1.45	0.80
2:N:70:GLU:C	2:N:197:MET:HE3	2.06	0.80
1:A:221:LEU:HD23	1:A:221:LEU:O	1.81	0.80
2:B:144:ASP:O	2:B:179:PRO:CG	2.29	0.80
2:B:46:LEU:HD22	2:F:137:PHE:CZ	2.15	0.80
1:I:24:LEU:C	1:I:140:THR:HB	2.06	0.80
1:I:137:VAL:HG11	1:I:139:PHE:HZ	1.37	0.80
1:E:154:ILE:HD11	1:E:309:VAL:HG22	1.63	0.80
1:E:221:LEU:O	1:E:251:LEU:CD1	2.25	0.80
1:M:24:LEU:HB2	1:M:140:THR:HG22	1.57	0.80
1:M:24:LEU:HD11	1:M:126:LEU:HD22	1.63	0.80
1:M:131:GLU:CB	1:M:155:SER:OG	2.30	0.80
1:A:217:ILE:HD13	1:A:245:ASN:C	2.06	0.80
2:B:190:ARG:HD3	3:C:2:U:O4	1.82	0.80
1:E:10:TYR:HE1	1:E:294:ILE:HG13	1.47	0.80
1:M:126:LEU:CD2	1:M:147:ILE:HD12	2.12	0.80
1:E:154:ILE:CD1	1:E:309:VAL:HG22	2.12	0.79
1:I:240:ALA:O	1:I:243:GLN:HG3	1.83	0.79
2:B:259:ALA:HB2	2:B:448:TYR:CZ	2.17	0.79
1:E:440:ARG:HB3	1:E:445:TYR:HE2	1.44	0.79
2:N:67:ILE:CD1	2:N:187:ALA:CB	2.61	0.79
1:A:16:ASN:HD21	1:A:20:MET:HE3	1.47	0.79
4:H:8:DC:H2'	4:H:9:DA:H8	1.48	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:238:ARG:CZ	1:I:271:TYR:HB3	2.10	0.79
2:J:44:PHE:HZ	2:J:253:THR:HG1	1.24	0.79
1:I:241:ILE:HG23	1:I:277:VAL:HG21	1.63	0.79
1:A:237:LEU:HD22	1:A:268:LEU:HD11	1.63	0.79
2:B:251:ASP:HB2	2:F:177:ASN:ND2	1.97	0.79
1:E:439:VAL:HG23	1:E:443:THR:O	1.83	0.79
1:A:298:VAL:O	1:E:58:GLN:OE1	2.00	0.79
4:P:8:DC:H2'	4:P:9:DA:H8	1.48	0.78
2:B:61:MET:CE	2:B:108:LEU:HD22	2.13	0.78
1:E:146:VAL:HG23	1:E:147:ILE:H	1.48	0.78
1:E:258:ILE:HG22	1:E:283:GLU:OE1	1.82	0.78
1:M:212:PHE:CD2	1:M:236:MET:SD	2.77	0.78
2:N:239:GLU:OE1	2:N:269:ARG:HG2	1.83	0.78
1:I:326:LYS:HA	1:I:581:LEU:CB	2.13	0.78
1:E:148:GLU:OE2	1:E:182:TYR:CE2	2.37	0.78
1:M:143:PHE:CZ	1:M:194:ILE:HG22	2.18	0.78
1:E:13:TYR:HE1	1:E:294:ILE:HG23	1.47	0.78
2:J:40:TYR:CE2	2:J:214:LYS:HD3	2.13	0.78
2:J:185:ASP:O	2:J:189:THR:CG2	2.32	0.78
2:J:190:ARG:NH1	2:J:191:GLN:H	1.82	0.78
1:I:266:GLN:HA	1:I:266:GLN:NE2	1.97	0.77
1:M:154:ILE:CD1	1:M:309:VAL:HG22	2.13	0.77
1:M:163:HIS:NE2	1:M:191:TYR:CE2	2.52	0.77
1:A:125:VAL:HG21	1:A:295:TRP:HB3	1.65	0.77
1:M:192:GLN:NE2	1:M:192:GLN:HA	1.99	0.77
1:E:5:THR:N	1:E:8:GLU:OE1	2.17	0.77
1:I:331:LEU:HD23	1:I:331:LEU:O	1.85	0.77
2:N:263:ARG:HH11	2:N:268:ASP:C	1.92	0.77
1:E:226:TYR:CD2	1:E:253:TRP:HZ2	2.03	0.77
2:F:139:GLN:HB3	2:F:142:ALA:CB	2.15	0.77
1:I:212:PHE:CD2	1:I:236:MET:HG2	2.19	0.77
2:J:341:TYR:CE2	2:J:403:LEU:CD2	2.68	0.77
1:E:221:LEU:C	1:E:251:LEU:CD1	2.58	0.77
2:N:280:MET:CE	2:N:315:GLU:CD	2.57	0.77
1:A:175:ASN:OD1	1:M:245:ASN:ND2	2.18	0.77
1:E:21:MET:CE	1:E:139:PHE:CE1	2.65	0.77
1:E:106:LYS:HE3	1:M:176:THR:CG2	2.15	0.77
2:B:177:ASN:ND2	2:F:139:GLN:OE1	2.18	0.77
1:E:10:TYR:CZ	1:E:293:LYS:HB3	2.20	0.77
1:I:217:ILE:HB	1:I:243:GLN:NE2	2.00	0.77
1:A:381:LEU:HD11	1:A:569:ALA:HB2	1.68	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:164:LEU:HD22	1:E:187:GLY:HA3	1.67	0.76
1:E:122:GLY:CA	1:E:291:LEU:HD12	2.14	0.76
2:F:135:GLY:O	2:F:139:GLN:NE2	2.15	0.76
2:J:190:ARG:HH11	2:J:191:GLN:H	1.30	0.76
2:B:248:PHE:CE1	2:B:290:LEU:HD22	2.19	0.76
1:E:148:GLU:OE1	1:E:161:VAL:HG11	1.85	0.76
2:J:184:ASN:O	2:J:188:LEU:HD21	1.86	0.76
1:M:21:MET:HE3	1:M:139:PHE:HE1	0.97	0.76
2:J:51:ARG:NH2	2:J:141:HIS:O	2.19	0.76
2:J:190:ARG:HH11	2:J:190:ARG:CB	1.98	0.76
2:J:330:GLU:CD	2:J:414:GLY:HA2	2.10	0.76
1:M:195:LYS:HB2	1:M:195:LYS:NZ	2.00	0.76
1:E:42:TRP:HB3	1:E:62:ILE:CD1	2.15	0.76
1:E:148:GLU:OE2	1:E:184:LYS:HE2	1.86	0.76
1:I:217:ILE:HD12	1:I:245:ASN:HB3	1.68	0.76
2:N:93:VAL:HG13	2:N:94:PHE:HD1	1.51	0.76
1:E:10:TYR:CE1	1:E:294:ILE:HG13	2.19	0.76
2:B:251:ASP:OD2	2:B:295:HIS:HA	1.86	0.75
2:J:40:TYR:HE2	2:J:214:LYS:CD	1.99	0.75
1:M:213:LEU:N	1:M:213:LEU:HD23	2.01	0.75
1:A:221:LEU:CD2	1:A:251:LEU:HD12	2.15	0.75
1:E:117:VAL:CG2	1:E:146:VAL:HG11	2.15	0.75
1:I:217:ILE:HD11	1:I:245:ASN:CB	2.16	0.75
1:M:24:LEU:CA	1:M:140:THR:HG22	2.16	0.75
1:M:195:LYS:HB2	1:M:195:LYS:HZ3	1.51	0.75
1:A:213:LEU:HD11	1:A:240:ALA:HA	1.66	0.75
2:B:51:ARG:NH2	2:B:141:HIS:O	2.19	0.75
1:E:9:PHE:CZ	1:E:290:MET:HE3	2.20	0.75
1:I:144:ASP:O	1:I:145:ASP:HB3	1.85	0.75
1:E:210:LYS:HD3	1:I:244:ASN:HD21	0.94	0.75
1:M:123:HIS:ND1	1:M:146:VAL:HG11	2.00	0.75
1:E:124:ARG:NH2	2:F:321:ASP:OD1	2.19	0.75
2:F:93:VAL:HG13	2:F:94:PHE:HD1	1.51	0.75
1:I:217:ILE:HD12	1:I:245:ASN:C	2.12	0.75
2:N:192:CYS:O	2:N:195:ASN:HB2	1.87	0.75
1:E:222:VAL:CG2	1:E:252:TYR:HD2	1.98	0.74
2:N:396:LYS:HD3	2:N:397:GLU:HG3	1.69	0.74
1:A:297:GLN:NE2	1:E:50:CYS:O	2.19	0.74
1:E:166:GLY:HA2	1:M:165:GLU:HG3	1.68	0.74
1:I:381:LEU:HD11	1:I:569:ALA:HB2	1.68	0.74
2:F:136:LEU:CB	2:F:143:PHE:HE2	1.94	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:126:LEU:CD2	1:M:147:ILE:CD1	2.65	0.74
1:M:216:ALA:O	1:M:246:ALA:O	2.05	0.74
1:A:410:SER:HB2	1:A:417:LEU:HD23	1.70	0.74
1:E:192:GLN:HB3	1:M:168:TYR:OH	1.83	0.74
2:B:67:ILE:CD1	2:B:193:ARG:NH2	2.50	0.74
1:E:26:ALA:HA	1:E:142:ASN:OD1	1.88	0.74
1:M:24:LEU:CG	1:M:140:THR:HG21	2.17	0.74
2:B:164:ASP:OD1	3:C:1:A:N6	2.21	0.74
1:E:122:GLY:HA3	1:E:291:LEU:HD12	1.69	0.74
1:A:217:ILE:HG13	1:M:217:ILE:CD1	2.16	0.74
1:I:143:PHE:HD1	1:I:143:PHE:H	1.36	0.74
2:J:164:ASP:OD1	3:K:1:A:N6	2.21	0.74
1:E:239:ALA:O	1:E:242:ASP:HB2	1.88	0.73
1:E:164:LEU:HD12	1:E:208:ILE:CD1	2.17	0.73
1:I:344:ARG:HH21	1:I:567:PHE:HA	1.53	0.73
2:J:40:TYR:CD2	2:J:214:LYS:HB2	2.23	0.73
1:E:443:THR:OG1	1:E:493:ARG:NH1	2.22	0.73
1:M:24:LEU:O	1:M:140:THR:HA	1.88	0.73
1:A:344:ARG:HH21	1:A:567:PHE:HA	1.53	0.73
1:I:410:SER:HB2	1:I:417:LEU:HD23	1.70	0.73
1:E:192:GLN:CA	1:M:168:TYR:OH	2.37	0.73
1:I:330:ALA:HB2	1:I:581:LEU:HG	1.71	0.73
1:E:165:GLU:CG	1:E:191:TYR:CB	2.67	0.73
1:M:44:LEU:HA	1:M:47:ARG:HG3	1.71	0.73
1:E:9:PHE:CZ	1:E:290:MET:CE	2.72	0.73
2:J:188:LEU:HD23	2:J:188:LEU:N	2.03	0.73
2:F:396:LYS:HD3	2:F:397:GLU:HG3	1.69	0.73
2:B:61:MET:HE3	2:B:108:LEU:CD2	2.17	0.72
2:N:41:SER:HB3	2:N:211:ILE:HB	1.71	0.72
1:E:222:VAL:CG2	1:E:252:TYR:CD2	2.70	0.72
1:A:15:GLN:NE2	1:E:97:PHE:HE1	1.87	0.72
2:J:304:PHE:CE1	2:J:330:GLU:HB2	2.23	0.72
1:M:9:PHE:CE1	1:M:252:TYR:HD2	1.88	0.72
1:M:56:ASP:HB3	1:M:59:LYS:HB2	1.72	0.72
4:P:8:DC:H2'	4:P:9:DA:C8	2.25	0.72
2:J:341:TYR:HE2	2:J:403:LEU:HD21	1.55	0.72
2:B:190:ARG:HB3	2:B:190:ARG:CZ	2.19	0.72
2:B:299:MET:HG3	2:B:300:PRO:CD	2.19	0.72
1:E:60:HIS:HB2	1:E:67:ILE:HG21	1.70	0.72
1:E:221:LEU:CG	1:E:251:LEU:HD13	2.19	0.72
2:J:186:THR:O	2:J:189:THR:OG1	2.07	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:15:GLN:HE22	1:E:97:PHE:HE1	1.38	0.72
1:A:217:ILE:CG1	1:M:217:ILE:HD13	2.17	0.72
1:M:147:ILE:O	1:M:148:GLU:C	2.31	0.72
1:E:122:GLY:C	1:E:291:LEU:HD13	2.14	0.72
1:E:509:ILE:HD11	1:E:531:ARG:HH22	1.55	0.72
1:M:216:ALA:HB3	1:M:243:GLN:HE21	1.54	0.72
1:M:226:TYR:CD2	1:M:253:TRP:HH2	2.07	0.72
2:F:41:SER:HB3	2:F:211:ILE:HB	1.71	0.72
1:M:252:TYR:CA	1:M:280:TYR:O	2.36	0.72
2:B:363:ARG:NH2	2:B:429:THR:OG1	2.23	0.72
2:J:363:ARG:NH2	2:J:429:THR:OG1	2.23	0.72
1:E:13:TYR:OH	1:E:129:LEU:HD11	1.89	0.72
1:M:154:ILE:HD12	1:M:309:VAL:CG2	2.20	0.72
2:J:104:HIS:NE2	2:J:139:GLN:OE1	2.23	0.71
1:I:326:LYS:C	1:I:581:LEU:HB3	2.14	0.71
1:M:21:MET:HG3	1:M:219:PHE:HB2	1.71	0.71
1:A:430:LEU:HD23	1:A:435:ILE:HG13	1.71	0.71
1:M:164:LEU:CD1	1:M:208:ILE:HD12	2.20	0.71
1:E:249:HIS:O	1:E:250:GLY:O	2.08	0.71
1:M:49:TYR:OH	1:M:70:LYS:HE3	1.91	0.71
1:A:10:TYR:CE1	1:A:294:ILE:HG13	2.25	0.71
2:B:61:MET:HE1	2:B:108:LEU:HD23	1.71	0.71
1:E:143:PHE:O	1:E:189:PHE:CE2	2.42	0.71
2:F:63:LYS:HB3	2:F:188:LEU:CD1	2.20	0.71
4:H:8:DC:H2'	4:H:9:DA:C8	2.25	0.71
1:I:24:LEU:CD2	1:I:140:THR:HG21	2.15	0.71
4:L:8:DC:H2'	4:L:9:DA:H8	1.55	0.71
4:D:8:DC:H2'	4:D:9:DA:H8	1.55	0.71
4:D:8:DC:H2'	4:D:9:DA:C8	2.25	0.71
1:I:330:ALA:CB	1:I:581:LEU:HG	2.20	0.71
1:I:430:LEU:HD23	1:I:435:ILE:HG13	1.71	0.71
1:E:122:GLY:C	1:E:291:LEU:CD1	2.64	0.71
1:I:269:ILE:HD13	1:I:279:ALA:HB1	1.72	0.71
2:B:290:LEU:HD23	2:B:290:LEU:O	1.91	0.71
4:L:8:DC:H2'	4:L:9:DA:C8	2.25	0.71
2:J:341:TYR:CE2	2:J:403:LEU:HD21	2.26	0.70
2:B:203:ALA:C	2:B:207:LYS:HG3	2.13	0.70
1:E:164:LEU:HD12	1:E:208:ILE:HD12	1.73	0.70
1:I:231:GLU:O	1:I:235:THR:HG23	1.90	0.70
2:N:262:THR:HB	2:N:283:VAL:HG21	1.64	0.70
1:A:217:ILE:HD11	1:A:243:GLN:HG3	1.73	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:21:MET:HG3	1:E:219:PHE:HB2	1.71	0.70
2:J:242:THR:OG1	2:J:270:LYS:NZ	2.23	0.70
1:M:234:MET:SD	1:M:268:LEU:CD1	2.75	0.70
2:N:87:TYR:HD2	2:N:197:MET:HB3	1.50	0.70
2:B:104:HIS:NE2	2:B:139:GLN:OE1	2.23	0.70
1:E:221:LEU:O	1:E:251:LEU:HA	1.91	0.70
1:I:240:ALA:O	1:I:243:GLN:CG	2.39	0.70
1:A:511:ILE:HG22	1:A:513:PRO:HD2	1.74	0.70
2:B:242:THR:OG1	2:B:270:LYS:NZ	2.23	0.70
1:I:217:ILE:CD1	1:I:245:ASN:CB	2.69	0.70
1:E:165:GLU:HG3	1:E:191:TYR:CB	2.22	0.70
2:N:280:MET:HE1	2:N:315:GLU:CD	2.17	0.70
1:E:165:GLU:HG3	1:E:191:TYR:HD1	1.51	0.70
2:J:186:THR:C	2:J:189:THR:HG1	1.97	0.70
2:J:223:ALA:O	2:J:303:ILE:HD13	1.89	0.70
1:E:21:MET:HE3	1:E:139:PHE:HE1	1.52	0.70
1:A:10:TYR:HE1	1:A:294:ILE:HG13	1.57	0.70
1:A:175:ASN:HD21	1:M:245:ASN:ND2	1.87	0.70
1:E:165:GLU:HG2	1:E:191:TYR:HB3	1.72	0.70
2:B:62:ARG:HG2	2:B:62:ARG:NH1	2.01	0.69
2:F:82:ASN:OD1	2:F:386:ASN:ND2	2.25	0.69
1:M:268:LEU:C	1:M:268:LEU:HD23	2.16	0.69
1:M:509:ILE:HD11	1:M:531:ARG:HH22	1.55	0.69
3:K:11:G:H2'	3:K:12:A:C8	2.28	0.69
1:M:24:LEU:HB2	1:M:140:THR:CB	2.22	0.69
1:M:128:ALA:HB2	1:M:154:ILE:CD1	2.20	0.69
1:E:10:TYR:OH	1:E:290:MET:HA	1.92	0.69
2:F:425:ILE:HG23	2:F:443:PRO:HG3	1.74	0.69
2:B:248:PHE:HE2	2:B:294:SER:HB3	1.58	0.69
1:M:24:LEU:CG	1:M:140:THR:CG2	2.71	0.69
1:A:19:HIS:O	1:A:219:PHE:CB	2.41	0.69
1:A:19:HIS:O	1:A:219:PHE:HB2	1.93	0.69
2:B:291:TYR:CD2	2:B:300:PRO:HG3	2.28	0.69
2:F:261:ASP:OD2	2:F:463:VAL:CB	2.39	0.69
1:M:23:PHE:CE1	1:M:141:THR:CG2	2.76	0.69
2:F:137:PHE:HA	2:F:140:LYS:NZ	2.08	0.69
2:J:44:PHE:HZ	2:J:253:THR:CB	2.06	0.69
2:N:197:MET:N	2:N:197:MET:SD	2.65	0.69
1:E:319:ILE:HD12	1:E:320:PRO:HD2	1.75	0.68
1:I:21:MET:SD	1:I:139:PHE:CE1	2.86	0.68
1:M:131:GLU:CB	1:M:151:PHE:HE2	2.06	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:425:ILE:HG23	2:N:443:PRO:HG3	1.74	0.68
1:E:19:HIS:HB2	1:E:249:HIS:HD2	1.57	0.68
1:E:148:GLU:CD	1:E:161:VAL:HG12	2.15	0.68
1:E:164:LEU:HD13	1:E:164:LEU:N	2.07	0.68
2:N:63:LYS:HB3	2:N:188:LEU:HD22	1.75	0.68
2:N:239:GLU:OE2	2:N:269:ARG:HA	1.93	0.68
1:I:234:MET:HE2	1:I:234:MET:CA	2.21	0.68
1:I:511:ILE:HG22	1:I:513:PRO:HD2	1.74	0.68
1:E:140:THR:HG21	1:E:182:TYR:CZ	2.28	0.68
1:M:123:HIS:CG	1:M:146:VAL:CG1	2.76	0.68
2:N:82:ASN:OD1	2:N:386:ASN:ND2	2.24	0.68
1:E:4:LEU:CD1	1:E:8:GLU:OE1	2.30	0.68
2:N:91:GLU:HG3	2:N:97:PRO:HA	1.76	0.68
3:C:11:G:H2'	3:C:12:A:C8	2.28	0.68
1:E:23:PHE:HB2	1:E:221:LEU:HD11	1.76	0.68
1:E:497:ARG:NH1	2:F:373:GLU:OE2	2.27	0.68
2:B:46:LEU:HD21	2:F:176:LEU:CD1	2.23	0.68
1:E:190:ARG:NH1	1:E:191:TYR:HE2	1.91	0.68
1:I:124:ARG:HG2	1:I:309:VAL:HG12	1.76	0.67
1:M:154:ILE:HD13	1:M:309:VAL:HG22	1.75	0.67
2:N:71:LEU:HA	2:N:197:MET:HG3	1.75	0.67
1:M:23:PHE:HA	1:M:139:PHE:O	1.94	0.67
2:N:434:ASN:HB2	2:N:473:MET:HB2	1.76	0.67
1:E:106:LYS:HE3	1:M:176:THR:HG22	1.75	0.67
1:E:119:LEU:H	1:E:119:LEU:CD2	2.02	0.67
1:I:238:ARG:HH11	1:I:271:TYR:CB	2.04	0.67
1:A:22:TRP:HD1	1:A:135:THR:HG1	0.74	0.67
1:A:221:LEU:HD23	1:A:251:LEU:HD12	1.77	0.67
2:B:259:ALA:CB	2:B:448:TYR:CZ	2.77	0.67
2:B:44:PHE:CE2	2:B:253:THR:OG1	2.45	0.67
1:E:210:LYS:HG3	1:I:244:ASN:HD21	1.59	0.67
2:F:434:ASN:HB2	2:F:473:MET:HB2	1.76	0.67
1:E:165:GLU:OE2	1:M:168:TYR:OH	2.12	0.67
2:F:91:GLU:HG3	2:F:97:PRO:HA	1.76	0.67
2:F:105:LEU:HD22	2:F:143:PHE:HB3	1.74	0.67
1:E:26:ALA:H	1:E:142:ASN:ND2	1.93	0.67
1:I:326:LYS:HA	1:I:581:LEU:HB2	1.77	0.67
1:M:123:HIS:ND1	1:M:146:VAL:CG1	2.58	0.67
1:M:497:ARG:NH1	2:N:373:GLU:OE2	2.27	0.67
2:N:67:ILE:HD11	2:N:187:ALA:HB1	1.74	0.67
2:B:79:GLU:OE1	2:B:190:ARG:NH2	2.21	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:196:VAL:O	2:B:200:VAL:HG23	1.95	0.67
1:E:119:LEU:HD22	1:E:119:LEU:N	2.05	0.67
1:M:319:ILE:HD12	1:M:320:PRO:HD2	1.75	0.67
1:A:207:GLU:OE1	1:A:207:GLU:N	2.25	0.66
1:E:440:ARG:HB3	1:E:445:TYR:CE2	2.29	0.66
1:A:330:ALA:HB2	1:A:581:LEU:HG	1.77	0.66
2:F:301:ARG:HH12	2:F:302:LYS:HD2	1.60	0.66
1:I:21:MET:HG3	1:I:139:PHE:HE1	1.56	0.66
1:A:137:VAL:HG22	1:A:181:ILE:CD1	2.24	0.66
1:E:348:VAL:HG12	1:E:399:ILE:HG12	1.77	0.66
1:E:504:MET:HA	1:E:504:MET:HE3	1.77	0.66
2:F:137:PHE:HD1	2:F:140:LYS:HZ1	1.42	0.66
1:I:23:PHE:HD1	1:I:139:PHE:O	1.77	0.66
1:A:123:HIS:CE1	1:A:144:ASP:CG	2.68	0.66
1:I:326:LYS:HA	1:I:581:LEU:HB3	1.77	0.66
2:J:196:VAL:O	2:J:200:VAL:HG23	1.96	0.66
2:B:259:ALA:CB	2:B:448:TYR:CE2	2.77	0.66
1:M:9:PHE:HD1	1:M:252:TYR:CD2	2.12	0.66
2:N:301:ARG:HH12	2:N:302:LYS:HD2	1.60	0.66
2:B:143:PHE:CE2	2:B:178:LEU:CD1	2.73	0.66
1:E:170:ALA:CB	1:E:211:CYS:SG	2.82	0.66
2:B:299:MET:HG3	2:B:300:PRO:HD2	1.78	0.66
1:E:122:GLY:HA2	1:E:291:LEU:HB2	1.76	0.66
1:E:192:GLN:HB2	1:M:168:TYR:CE1	2.29	0.66
1:I:296:ARG:NH2	2:J:328:GLU:OE2	2.27	0.66
1:M:14:LEU:HD22	1:M:297:GLN:HB3	1.78	0.66
1:M:119:LEU:HD21	1:M:149:THR:HG22	1.78	0.66
2:N:191:GLN:O	2:N:192:CYS:C	2.34	0.66
1:E:117:VAL:HG23	1:E:146:VAL:HG11	1.78	0.66
2:B:248:PHE:CZ	2:B:290:LEU:HD22	2.31	0.66
1:I:268:LEU:HD23	1:I:268:LEU:O	1.95	0.66
1:M:237:LEU:C	1:M:241:ILE:HG12	2.19	0.66
1:M:237:LEU:O	1:M:241:ILE:N	2.28	0.65
1:M:238:ARG:HA	1:M:241:ILE:HG13	1.77	0.65
2:N:16:GLU:OE2	2:N:363:ARG:NH1	2.29	0.65
2:N:263:ARG:NH1	2:N:268:ASP:C	2.53	0.65
2:N:87:TYR:HD2	2:N:197:MET:CB	2.05	0.65
2:N:186:THR:O	2:N:190:ARG:HB2	1.95	0.65
2:N:261:ASP:H	2:N:452:PHE:HE2	1.42	0.65
1:A:454:LYS:HZ2	1:A:462:ARG:HH12	1.44	0.65
1:M:46:HIS:HB2	1:M:62:ILE:HD13	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:348:VAL:HG12	1:M:399:ILE:HG12	1.77	0.65
1:E:165:GLU:HG2	1:E:191:TYR:CB	2.27	0.65
1:A:221:LEU:HD21	1:A:251:LEU:CD1	2.26	0.65
1:E:156:GLY:O	1:M:153:ASP:N	2.30	0.65
1:I:528:ARG:HA	1:I:531:ARG:HG3	1.78	0.65
1:A:243:GLN:HG2	1:A:246:ALA:HB2	1.79	0.65
2:B:243:CYS:HB3	2:B:260:TYR:O	1.95	0.65
1:E:192:GLN:CB	1:M:168:TYR:CZ	2.55	0.65
1:E:241:ILE:O	1:E:242:ASP:C	2.39	0.65
2:F:136:LEU:O	2:F:143:PHE:CE2	2.49	0.65
2:J:190:ARG:HH12	2:J:192:CYS:H	1.44	0.65
1:M:127:ALA:CA	1:M:151:PHE:HB2	2.27	0.65
1:E:164:LEU:CD1	1:E:208:ILE:CD1	2.74	0.65
1:M:511:ILE:HG22	1:M:513:PRO:HD2	1.79	0.65
1:A:130:LEU:O	1:A:133:ASN:N	2.28	0.65
1:E:13:TYR:CE1	1:E:294:ILE:CG2	2.79	0.65
1:E:13:TYR:HH	1:E:129:LEU:HD13	1.62	0.65
1:E:145:ASP:O	1:E:149:THR:OG1	2.10	0.65
1:M:154:ILE:HD12	1:M:309:VAL:HG23	1.79	0.65
1:M:504:MET:HA	1:M:504:MET:HE3	1.77	0.65
2:B:190:ARG:HD2	4:D:21:DA:N6	2.11	0.65
1:E:148:GLU:CD	1:E:182:TYR:CD2	2.71	0.65
1:E:348:VAL:HG11	1:E:387:ILE:HG21	1.79	0.65
2:F:16:GLU:OE2	2:F:363:ARG:NH1	2.29	0.65
1:I:326:LYS:CA	1:I:581:LEU:HB3	2.27	0.65
2:J:432:ASP:OD1	2:J:469:TYR:OH	2.12	0.65
1:E:148:GLU:OE2	1:E:182:TYR:HD2	1.75	0.64
1:M:137:VAL:CG1	1:M:139:PHE:CZ	2.80	0.64
1:I:21:MET:HG2	1:I:139:PHE:HE1	1.56	0.64
1:M:24:LEU:HG	1:M:140:THR:CG2	2.28	0.64
1:M:154:ILE:CD1	1:M:309:VAL:CG2	2.74	0.64
1:E:163:HIS:HB3	1:E:188:ASP:H	1.63	0.64
2:N:149:TYR:OH	2:N:188:LEU:HD11	1.97	0.64
1:A:161:VAL:HG12	1:A:182:TYR:CD2	2.29	0.64
2:B:304:PHE:HE1	2:B:421:THR:HG22	1.63	0.64
1:E:210:LYS:HD3	1:I:244:ASN:HD22	0.83	0.64
1:E:213:LEU:HD21	1:E:240:ALA:HB2	1.80	0.64
2:N:63:LYS:HB3	2:N:188:LEU:HD21	1.79	0.64
1:A:296:ARG:NH1	1:E:54:ASN:OD1	2.31	0.64
2:J:223:ALA:C	2:J:303:ILE:CD1	2.71	0.64
1:M:348:VAL:HG11	1:M:387:ILE:HG21	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:528:ARG:HA	1:A:531:ARG:HG3	1.78	0.64
2:J:304:PHE:HE1	2:J:421:THR:HG22	1.59	0.64
1:A:16:ASN:HD21	1:A:20:MET:HE2	1.63	0.64
2:N:263:ARG:CZ	2:N:268:ASP:O	2.45	0.64
2:B:260:TYR:HH	2:B:287:SER:CB	1.99	0.64
4:P:9:DA:H2'	4:P:10:DG:C8	2.33	0.64
1:I:217:ILE:HB	1:I:243:GLN:HE22	1.62	0.64
2:J:326:SER:O	1:M:59:LYS:NZ	2.24	0.64
1:M:132:MET:O	1:M:134:GLN:NE2	2.29	0.64
1:M:219:PHE:O	1:M:248:PRO:HD2	1.98	0.64
1:M:238:ARG:HA	1:M:241:ILE:CG1	2.28	0.64
2:B:67:ILE:HD11	2:B:193:ARG:HH21	1.61	0.63
2:B:251:ASP:OD2	2:B:295:HIS:C	2.41	0.63
1:M:34:LEU:HD11	1:M:144:ASP:OD2	1.98	0.63
1:E:117:VAL:HG23	1:E:146:VAL:CG1	2.27	0.63
1:E:210:LYS:CG	1:I:244:ASN:ND2	2.51	0.63
1:A:296:ARG:NH2	2:B:328:GLU:OE2	2.27	0.63
2:B:68:VAL:O	2:B:71:LEU:HB2	1.97	0.63
1:E:366:LYS:NZ	1:E:389:LYS:O	2.32	0.63
1:M:31:SER:O	1:M:33:GLY:N	2.30	0.63
2:N:280:MET:HE3	2:N:315:GLU:CB	2.28	0.63
4:H:9:DA:H2'	4:H:10:DG:C8	2.33	0.63
2:J:425:ILE:O	2:J:429:THR:HG23	1.99	0.63
1:M:128:ALA:CB	1:M:154:ILE:HD11	2.27	0.63
1:A:533:ASN:ND2	2:B:357:ALA:O	2.32	0.63
2:B:425:ILE:O	2:B:429:THR:HG23	1.99	0.63
1:M:216:ALA:HB3	1:M:243:GLN:NE2	2.13	0.63
1:E:511:ILE:HG22	1:E:513:PRO:HD2	1.79	0.63
1:M:226:TYR:O	1:M:253:TRP:HZ2	1.82	0.63
1:E:114:SER:HB2	1:E:145:ASP:OD2	1.94	0.63
1:E:137:VAL:HG12	1:E:139:PHE:CE1	2.32	0.63
2:F:443:PRO:HD2	2:F:446:LEU:HD12	1.80	0.63
2:J:341:TYR:CE2	2:J:403:LEU:HD23	2.33	0.63
1:M:237:LEU:HA	1:M:240:ALA:HB3	1.79	0.63
2:N:443:PRO:HD2	2:N:446:LEU:HD12	1.80	0.63
2:B:396:LYS:HD2	2:B:437:THR:HB	1.80	0.63
2:F:20:LEU:N	2:F:214:LYS:O	2.30	0.63
1:A:144:ASP:C	1:A:146:VAL:N	2.50	0.62
2:B:177:ASN:CG	2:F:139:GLN:OE1	2.42	0.62
1:I:241:ILE:CG2	1:I:277:VAL:HG21	2.28	0.62
2:J:396:LYS:HD2	2:J:437:THR:HB	1.80	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:11:GLN:O	1:M:15:GLN:HB2	1.99	0.62
1:A:124:ARG:HG2	1:A:309:VAL:CG1	2.26	0.62
1:A:513:PRO:HB2	1:A:516:ARG:HB2	1.81	0.62
1:E:132:MET:O	1:E:134:GLN:NE2	2.29	0.62
1:M:387:ILE:HA	1:M:390:ILE:HD12	1.80	0.62
1:E:121:ILE:HD11	2:F:317:GLN:NE2	2.14	0.62
2:F:224:TYR:HB2	2:F:247:VAL:HG22	1.81	0.62
2:J:341:TYR:CD2	2:J:403:LEU:CD2	2.82	0.62
2:N:20:LEU:N	2:N:214:LYS:O	2.30	0.62
2:F:51:ARG:NH2	2:F:144:ASP:OD1	2.33	0.62
1:M:16:ASN:ND2	1:M:20:MET:HE2	2.15	0.62
1:A:221:LEU:HD23	1:A:221:LEU:C	2.25	0.62
2:B:471:PHE:HE1	2:F:138:ARG:HD2	1.65	0.62
3:C:12:A:H2'	3:C:13:G:C8	2.34	0.62
2:J:302:LYS:HB2	2:J:328:GLU:HB2	1.80	0.62
1:M:428:ALA:HB2	1:M:561:CYS:HB3	1.80	0.62
2:F:277:TYR:OH	2:F:321:ASP:OD2	2.18	0.62
2:J:79:GLU:HB2	2:J:192:CYS:HB2	1.82	0.62
3:K:12:A:H2'	3:K:13:G:C8	2.34	0.62
2:N:145:VAL:HG11	2:N:204:LEU:HD22	1.80	0.62
2:B:255:PHE:HD2	2:B:433:TRP:CH2	2.16	0.62
1:I:326:LYS:C	1:I:582:GLY:O	2.43	0.62
1:I:513:PRO:HB2	1:I:516:ARG:HB2	1.81	0.62
1:M:123:HIS:CG	1:M:146:VAL:HG11	2.34	0.62
1:E:428:ALA:HB2	1:E:561:CYS:HB3	1.80	0.62
1:I:533:ASN:ND2	2:J:357:ALA:O	2.32	0.62
2:J:304:PHE:CE1	2:J:330:GLU:CB	2.82	0.62
1:A:175:ASN:ND2	1:M:245:ASN:ND2	2.46	0.61
1:E:174:LEU:O	1:E:174:LEU:HD23	1.99	0.61
2:J:304:PHE:CD1	2:J:330:GLU:HB2	2.35	0.61
1:M:30:ARG:HE	1:M:36:THR:HG21	1.65	0.61
1:M:44:LEU:CA	1:M:47:ARG:HG3	2.29	0.61
2:N:242:THR:HG22	2:N:270:LYS:HZ2	1.64	0.61
1:E:286:THR:HG23	1:E:289:GLU:HB3	1.81	0.61
2:F:82:ASN:ND2	4:H:23:DT:OP2	2.33	0.61
2:F:107:CYS:SG	2:F:108:LEU:N	2.73	0.61
1:I:296:ARG:NH1	1:M:54:ASN:OD1	2.31	0.61
1:M:23:PHE:CE1	1:M:141:THR:HG23	2.35	0.61
2:B:184:ASN:ND2	3:C:1:A:N3	2.42	0.61
1:E:387:ILE:HA	1:E:390:ILE:HD12	1.80	0.61
2:J:64:LEU:HD11	2:J:149:TYR:HB2	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:263:PRO:O	1:M:267:ASP:CG	2.43	0.61
2:F:71:LEU:HD21	2:F:200:VAL:HG12	1.82	0.61
1:I:268:LEU:HD23	1:I:268:LEU:C	2.26	0.61
1:M:237:LEU:O	1:M:241:ILE:CD1	2.48	0.61
1:M:366:LYS:NZ	1:M:389:LYS:O	2.32	0.61
2:B:248:PHE:CE2	2:B:294:SER:HB3	2.35	0.61
2:N:224:TYR:HB2	2:N:247:VAL:HG22	1.81	0.61
2:B:432:ASP:OD1	2:B:469:TYR:OH	2.13	0.61
2:N:82:ASN:ND2	4:P:23:DT:OP2	2.33	0.61
2:N:186:THR:HB	3:O:2:U:OP2	1.99	0.61
1:A:4:LEU:HB3	1:A:282:VAL:HG12	1.81	0.61
1:E:192:GLN:OE1	1:E:192:GLN:HA	2.00	0.61
2:N:71:LEU:HD21	2:N:200:VAL:HG12	1.82	0.61
1:A:4:LEU:O	1:A:282:VAL:CG1	2.46	0.61
2:B:79:GLU:HB2	2:B:192:CYS:HB2	1.82	0.61
2:B:190:ARG:CG	2:B:190:ARG:HH11	2.14	0.61
1:E:156:GLY:O	1:M:153:ASP:HA	2.01	0.61
2:F:190:ARG:NH1	4:H:21:DA:C6	2.69	0.61
2:F:187:ALA:HB1	3:G:2:U:C6	2.36	0.60
1:I:213:LEU:N	1:I:213:LEU:HD23	2.15	0.60
4:L:9:DA:H2'	4:L:10:DG:C8	2.36	0.60
2:F:145:VAL:CG2	2:F:208:ALA:HB2	2.32	0.60
2:J:250:PRO:HA	2:J:295:HIS:CE1	2.34	0.60
2:N:269:ARG:HB3	2:N:269:ARG:CZ	2.31	0.60
1:A:124:ARG:HG3	1:A:309:VAL:HG12	1.83	0.60
1:E:153:ASP:CA	1:M:156:GLY:O	2.49	0.60
1:I:171:LEU:CD1	1:I:211:CYS:HA	2.30	0.60
1:M:212:PHE:HD2	1:M:236:MET:SD	2.23	0.60
1:M:226:TYR:O	1:M:253:TRP:CZ2	2.54	0.60
2:N:335:ILE:HB	2:N:408:MET:HB3	1.84	0.60
1:A:405:ASP:OD1	1:A:405:ASP:N	2.35	0.60
1:M:213:LEU:HD22	1:M:240:ALA:HA	1.83	0.60
1:M:362:ARG:NH2	1:M:390:ILE:O	2.33	0.60
2:B:67:ILE:HD11	2:B:193:ARG:HH22	1.66	0.60
1:I:241:ILE:HA	1:I:246:ALA:CB	2.32	0.60
2:J:281:GLN:OE1	2:J:321:ASP:CB	2.50	0.60
1:M:204:ASN:OD1	1:M:232:ASN:ND2	2.35	0.60
2:N:188:LEU:C	2:N:189:THR:O	2.44	0.60
2:B:258:VAL:HG21	2:B:290:LEU:HD12	1.82	0.60
1:E:153:ASP:HA	1:M:156:GLY:O	2.02	0.60
1:E:288:ASP:OD2	2:F:277:TYR:HE2	1.85	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:250:PRO:HA	2:F:295:HIS:CE1	2.37	0.60
1:A:121:ILE:HD12	1:A:121:ILE:N	2.09	0.60
2:J:184:ASN:ND2	3:K:1:A:N3	2.42	0.60
1:M:131:GLU:HB2	1:M:155:SER:OG	2.02	0.60
2:N:107:CYS:SG	2:N:108:LEU:N	2.74	0.60
2:B:261:ASP:OD1	2:B:262:THR:N	2.35	0.59
2:B:301:ARG:NH1	1:E:59:LYS:O	2.35	0.59
4:D:9:DA:H2'	4:D:10:DG:C8	2.36	0.59
1:E:30:ARG:O	1:E:30:ARG:HD3	2.02	0.59
1:E:204:ASN:OD1	1:E:232:ASN:ND2	2.35	0.59
1:M:23:PHE:HB2	1:M:221:LEU:HD11	1.84	0.59
2:N:262:THR:CB	2:N:283:VAL:HG22	2.20	0.59
1:E:106:LYS:HE3	1:M:176:THR:HG21	1.84	0.59
1:E:168:TYR:HH	1:M:192:GLN:N	1.98	0.59
2:F:335:ILE:HB	2:F:408:MET:HB3	1.84	0.59
2:J:44:PHE:HZ	2:J:253:THR:HB	1.65	0.59
1:E:213:LEU:HB3	1:E:243:GLN:HE22	1.67	0.59
1:E:241:ILE:N	1:E:241:ILE:HD12	2.16	0.59
2:F:262:THR:O	2:F:262:THR:HG22	2.02	0.59
2:J:261:ASP:OD1	2:J:262:THR:N	2.35	0.59
1:M:24:LEU:O	1:M:140:THR:CA	2.50	0.59
1:E:164:LEU:HD22	1:E:187:GLY:CA	2.32	0.59
1:E:362:ARG:NH2	1:E:390:ILE:O	2.33	0.59
3:K:10:A:H2'	3:K:11:G:C8	2.38	0.59
4:L:9:DA:H2'	4:L:10:DG:H8	1.67	0.59
1:M:41:ILE:HD11	1:M:89:TYR:HB2	1.83	0.59
2:J:281:GLN:OE1	2:J:321:ASP:HB3	2.01	0.59
1:M:161:VAL:HG12	1:M:182:TYR:HD2	1.66	0.59
2:N:184:ASN:C	2:N:186:THR:H	2.10	0.59
2:B:44:PHE:HB2	2:B:46:LEU:HG	1.84	0.59
2:B:190:ARG:HH11	2:B:190:ARG:HG2	1.68	0.59
3:C:10:A:H2'	3:C:11:G:C8	2.38	0.59
1:M:148:GLU:OE2	1:M:161:VAL:CG1	2.49	0.59
1:E:156:GLY:C	1:M:153:ASP:HB2	2.26	0.59
2:J:400:LEU:N	2:J:400:LEU:HD23	2.16	0.59
1:M:268:LEU:HD22	1:M:269:ILE:HD13	1.85	0.59
1:A:151:PHE:HD2	1:A:159:LEU:HB2	1.67	0.59
1:A:338:VAL:HG22	1:A:573:ILE:HG13	1.85	0.59
1:E:30:ARG:NH1	1:E:36:THR:OG1	2.34	0.59
1:I:319:ILE:HD11	2:J:418:TRP:CE2	2.38	0.59
1:M:552:GLY:HA2	1:M:575:THR:HG23	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:124:ARG:NH1	1:A:308:LYS:O	2.36	0.59
2:F:136:LEU:CA	2:F:143:PHE:CE2	2.75	0.59
2:N:75:ALA:H	2:N:87:TYR:HB3	1.68	0.59
2:N:250:PRO:HA	2:N:295:HIS:CE1	2.37	0.59
1:A:209:HIS:HA	1:A:236:MET:CE	2.26	0.58
1:A:245:ASN:HB3	1:M:214:ALA:HB2	1.85	0.58
2:B:231:ILE:HB	4:D:15:DA:H5'	1.85	0.58
2:J:185:ASP:O	2:J:189:THR:OG1	2.21	0.58
2:N:51:ARG:NH1	2:N:142:ALA:O	2.35	0.58
1:E:26:ALA:H	1:E:142:ASN:CG	2.10	0.58
1:I:330:ALA:HB1	1:I:580:SER:C	2.27	0.58
1:E:136:LYS:HB3	1:E:179:PHE:CD1	2.39	0.58
1:E:171:LEU:HD12	1:E:171:LEU:C	2.27	0.58
2:F:75:ALA:H	2:F:87:TYR:HB3	1.68	0.58
1:M:131:GLU:CA	1:M:151:PHE:HE2	2.15	0.58
1:I:151:PHE:HD2	1:I:159:LEU:HB2	1.67	0.58
1:M:51:LEU:HD12	1:M:51:LEU:C	2.27	0.58
1:E:22:TRP:HE3	1:E:24:LEU:HD21	1.67	0.58
1:E:44:LEU:HD21	1:E:107:TYR:CZ	2.37	0.58
1:E:241:ILE:O	1:E:243:GLN:N	2.36	0.58
1:I:257:SER:HB3	1:I:260:LYS:HG2	1.86	0.58
1:M:566:GLU:CD	1:M:566:GLU:H	2.12	0.58
3:O:11:G:H2'	3:O:12:A:C8	2.39	0.58
1:A:301:LYS:CE	1:E:58:GLN:NE2	2.63	0.58
2:B:177:ASN:OD1	2:B:471:PHE:HZ	1.86	0.58
4:D:9:DA:H2'	4:D:10:DG:H8	1.66	0.58
1:M:190:ARG:NH1	1:M:191:TYR:CE1	2.72	0.58
1:A:333:THR:HG21	2:B:340:TRP:HE3	1.69	0.58
1:I:330:ALA:O	2:J:345:VAL:HG22	2.03	0.58
1:M:430:LEU:HD22	1:M:437:HIS:HB2	1.86	0.58
1:A:11:GLN:NE2	1:E:96:VAL:O	2.37	0.58
1:E:407:ILE:O	1:E:411:VAL:HG22	2.04	0.58
2:F:105:LEU:CD2	2:F:143:PHE:HD2	2.17	0.58
1:A:20:MET:O	1:A:135:THR:OG1	2.21	0.58
1:M:112:LEU:HB3	1:M:144:ASP:HB2	1.83	0.58
1:M:119:LEU:HG	1:M:150:ALA:CB	2.29	0.58
1:A:244:ASN:HD22	1:M:210:LYS:HA	1.68	0.58
1:E:13:TYR:HH	1:E:129:LEU:CD1	2.16	0.58
1:E:552:GLY:HA2	1:E:575:THR:HG23	1.84	0.58
2:N:261:ASP:HB2	2:N:456:VAL:HG21	1.85	0.58
2:B:296:ASN:HD22	2:F:470:ARG:CZ	2.14	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:566:GLU:CD	1:E:566:GLU:H	2.12	0.57
2:F:79:GLU:HG3	2:F:192:CYS:HB2	1.86	0.57
1:I:333:THR:HG21	2:J:340:TRP:HE3	1.69	0.57
1:I:338:VAL:HG22	1:I:573:ILE:HG13	1.85	0.57
1:M:12:HIS:HB3	1:M:252:TYR:OH	2.03	0.57
1:M:19:HIS:HB2	1:M:249:HIS:NE2	2.19	0.57
2:N:263:ARG:NE	2:N:268:ASP:O	2.37	0.57
1:M:14:LEU:HD12	1:M:14:LEU:C	2.25	0.57
1:M:273:GLN:NE2	1:M:279:ALA:O	2.37	0.57
1:A:257:SER:HB3	1:A:260:LYS:HG2	1.86	0.57
1:A:319:ILE:HD11	2:B:418:TRP:CE2	2.38	0.57
1:A:355:THR:HG23	1:A:358:GLU:H	1.70	0.57
1:E:62:ILE:O	1:E:62:ILE:HG13	2.03	0.57
2:J:301:ARG:O	2:J:327:THR:HA	2.03	0.57
1:M:162:TYR:CD2	1:M:169:ALA:HB3	2.39	0.57
1:M:533:ASN:ND2	2:N:357:ALA:O	2.36	0.57
2:B:55:LEU:HD23	2:B:148:VAL:HG22	1.87	0.57
2:B:262:THR:HG22	2:B:283:VAL:HG21	1.86	0.57
1:E:226:TYR:CD2	1:E:253:TRP:CZ2	2.83	0.57
3:G:11:G:H2'	3:G:12:A:C8	2.39	0.57
1:E:41:ILE:HG22	1:E:45:LYS:HE2	1.85	0.57
1:E:273:GLN:NE2	1:E:279:ALA:O	2.37	0.57
4:H:9:DA:H2'	4:H:10:DG:H8	1.69	0.57
1:I:212:PHE:CE2	1:I:236:MET:SD	2.96	0.57
1:I:454:LYS:HZ2	1:I:462:ARG:HH12	1.52	0.57
2:J:40:TYR:OH	2:J:214:LYS:HE2	2.05	0.57
1:E:156:GLY:C	1:M:153:ASP:HA	2.28	0.57
1:E:174:LEU:HD13	1:E:214:ALA:HB3	1.87	0.57
1:I:360:LYS:HA	1:I:363:ILE:HD12	1.87	0.57
1:M:407:ILE:O	1:M:411:VAL:HG22	2.04	0.57
1:I:405:ASP:OD1	1:I:405:ASP:N	2.35	0.57
2:B:177:ASN:OD1	2:B:471:PHE:CZ	2.57	0.57
1:E:120:ASN:OD1	1:E:288:ASP:OD2	2.22	0.57
2:J:231:ILE:HB	4:L:15:DA:H5''	1.85	0.57
1:I:300:ASP:OD1	1:M:58:GLN:NE2	2.37	0.57
1:M:9:PHE:CD1	1:M:252:TYR:CE2	2.93	0.57
1:M:209:HIS:HD1	1:M:209:HIS:C	2.12	0.57
2:N:262:THR:HB	2:N:283:VAL:HG23	1.81	0.57
1:A:175:ASN:CG	1:M:245:ASN:ND2	2.63	0.57
1:A:429:LEU:HG	1:A:547:LEU:HD12	1.87	0.57
2:B:257:PHE:CE1	2:B:448:TYR:HD2	2.23	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:5:THR:CG2	1:E:8:GLU:OE1	2.41	0.57
2:J:386:ASN:ND2	2:J:389:ASN:O	2.32	0.57
1:A:248:PRO:HB2	1:M:175:ASN:ND2	2.20	0.56
1:E:430:LEU:HD22	1:E:437:HIS:HB2	1.86	0.56
1:M:221:LEU:HB2	1:M:247:PHE:CE1	2.40	0.56
2:N:239:GLU:OE1	2:N:269:ARG:CG	2.53	0.56
1:A:217:ILE:HD12	1:A:245:ASN:O	2.00	0.56
1:I:143:PHE:N	1:I:143:PHE:CD1	2.72	0.56
1:M:119:LEU:CG	1:M:150:ALA:HB2	2.31	0.56
1:E:19:HIS:HB2	1:E:249:HIS:CD2	2.40	0.56
1:E:439:VAL:CG2	1:E:443:THR:O	2.52	0.56
1:I:330:ALA:CB	1:I:580:SER:O	2.49	0.56
2:J:40:TYR:HB3	2:J:211:ILE:O	2.04	0.56
1:M:23:PHE:HE1	1:M:141:THR:CG2	2.18	0.56
1:M:251:LEU:O	1:M:251:LEU:HG	2.05	0.56
2:B:46:LEU:HD22	2:F:137:PHE:HE2	1.70	0.56
2:F:334:ILE:HG13	2:F:446:LEU:HD11	1.87	0.56
2:J:40:TYR:CE2	2:J:214:LYS:CD	2.82	0.56
1:E:513:PRO:HB2	1:E:516:ARG:HB2	1.88	0.56
1:E:533:ASN:ND2	2:F:357:ALA:O	2.36	0.56
2:F:188:LEU:HD23	2:F:188:LEU:O	2.04	0.56
2:N:334:ILE:HG13	2:N:446:LEU:HD11	1.87	0.56
2:B:61:MET:HE1	2:B:108:LEU:HD22	1.84	0.56
2:B:143:PHE:CZ	2:B:178:LEU:HD13	2.24	0.56
2:B:386:ASN:ND2	2:B:389:ASN:O	2.32	0.56
1:E:154:ILE:CD1	1:E:309:VAL:CG2	2.83	0.56
2:F:136:LEU:C	2:F:143:PHE:CE2	2.83	0.56
2:F:187:ALA:CB	3:G:2:U:C6	2.87	0.56
1:I:367:SER:O	1:I:367:SER:OG	2.21	0.56
1:M:131:GLU:HG3	1:M:155:SER:HG	1.60	0.56
2:N:184:ASN:C	2:N:186:THR:N	2.61	0.56
1:A:4:LEU:HB3	1:A:282:VAL:CG1	2.36	0.56
1:E:165:GLU:OE1	1:E:165:GLU:HA	2.05	0.56
2:F:440:LYS:HD2	2:F:447:VAL:HG11	1.88	0.56
1:I:23:PHE:CD1	1:I:140:THR:HA	2.41	0.56
2:J:262:THR:HG22	2:J:283:VAL:HG21	1.86	0.56
2:B:58:THR:HA	2:B:61:MET:HE2	1.86	0.56
1:E:120:ASN:HA	2:F:321:ASP:CG	2.31	0.56
1:E:164:LEU:HA	1:E:167:SER:HB2	1.87	0.56
1:E:221:LEU:HB2	1:E:247:PHE:CE1	2.40	0.56
1:I:139:PHE:O	1:I:140:THR:HG23	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:212:PHE:CE2	1:I:236:MET:HG2	2.41	0.56
1:A:136:LYS:CG	1:A:179:PHE:CD2	2.87	0.56
2:B:54:TYR:CD1	2:B:64:LEU:HD21	2.41	0.56
1:E:146:VAL:C	1:E:148:GLU:N	2.63	0.56
2:F:19:LEU:HB3	2:F:21:PHE:HE1	1.71	0.56
1:I:139:PHE:CD1	1:I:139:PHE:N	2.73	0.56
1:E:208:ILE:O	1:E:209:HIS:C	2.47	0.56
1:M:163:HIS:CE1	1:M:191:TYR:CE2	2.94	0.56
2:N:261:ASP:OD2	2:N:263:ARG:HB2	2.06	0.56
1:A:219:PHE:N	1:A:219:PHE:CD1	2.73	0.55
1:A:360:LYS:HA	1:A:363:ILE:HD12	1.87	0.55
2:B:435:ASN:OD1	2:B:437:THR:OG1	2.18	0.55
2:B:468:ASP:OD1	2:B:469:TYR:N	2.39	0.55
2:J:468:ASP:OD1	2:J:469:TYR:N	2.39	0.55
1:E:254:THR:HG21	1:E:290:MET:HE1	1.88	0.55
1:I:429:LEU:HG	1:I:547:LEU:HD12	1.87	0.55
1:M:475:THR:HG23	1:M:487:ALA:HB2	1.89	0.55
1:A:15:GLN:NE2	1:E:97:PHE:CE1	2.70	0.55
2:B:54:TYR:CG	2:B:64:LEU:HD21	2.41	0.55
1:I:143:PHE:HD1	1:I:143:PHE:N	2.04	0.55
1:M:18:GLN:O	1:M:134:GLN:O	2.25	0.55
2:N:70:GLU:CA	2:N:197:MET:HE3	2.35	0.55
1:A:125:VAL:HG23	1:A:295:TRP:CB	2.34	0.55
1:A:302:PRO:HD2	1:A:305:ILE:HD12	1.88	0.55
2:B:251:ASP:OD2	2:B:295:HIS:CA	2.53	0.55
1:E:137:VAL:CG1	1:E:139:PHE:CE1	2.88	0.55
1:I:22:TRP:HB2	1:I:138:VAL:HG22	1.88	0.55
1:M:174:LEU:HD11	1:M:215:ALA:HB2	1.87	0.55
1:A:136:LYS:HB3	1:A:179:PHE:CG	2.42	0.55
1:I:253:TRP:CE2	1:I:265:VAL:HG22	2.42	0.55
1:I:355:THR:HG23	1:I:358:GLU:H	1.70	0.55
2:J:244:CYS:SG	2:J:245:SER:N	2.80	0.55
2:N:440:LYS:HD2	2:N:447:VAL:HG11	1.88	0.55
1:A:11:GLN:OE1	1:E:96:VAL:HG12	2.03	0.55
1:A:121:ILE:HG21	1:A:292:SER:OG	2.07	0.55
1:E:105:ARG:HB2	1:E:194:ILE:HD11	1.88	0.55
1:E:137:VAL:HG12	1:E:139:PHE:CZ	2.40	0.55
1:E:217:ILE:HD13	1:I:217:ILE:CG2	2.28	0.55
4:L:15:DA:H8	4:L:15:DA:H5'	1.72	0.55
2:B:244:CYS:SG	2:B:245:SER:N	2.80	0.55
1:E:140:THR:HG23	1:E:140:THR:O	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:55:LEU:HD23	2:J:148:VAL:HG22	1.87	0.55
2:J:170:LYS:HA	2:J:173:VAL:HG12	1.88	0.55
2:J:302:LYS:NZ	2:J:330:GLU:CD	2.50	0.55
1:M:483:GLU:OE2	1:M:516:ARG:NE	2.40	0.55
2:N:32:ARG:NH2	2:N:384:GLY:O	2.40	0.55
1:A:14:LEU:CD1	1:A:297:GLN:HB2	2.33	0.55
1:I:302:PRO:HD2	1:I:305:ILE:HD12	1.89	0.55
2:J:328:GLU:HG3	1:M:59:LYS:HE3	1.89	0.55
1:A:128:ALA:HB1	1:A:305:ILE:CG2	2.37	0.55
2:B:186:THR:O	2:B:187:ALA:C	2.49	0.55
1:A:13:TYR:C	1:A:13:TYR:CD1	2.85	0.55
1:M:24:LEU:HB2	1:M:140:THR:HB	1.89	0.55
1:M:24:LEU:O	1:M:140:THR:HB	2.07	0.55
1:M:317:VAL:HG21	2:N:411:ARG:HB3	1.89	0.55
1:A:212:PHE:CD1	1:A:212:PHE:C	2.85	0.54
2:B:189:THR:C	2:B:191:GLN:N	2.65	0.54
1:E:143:PHE:O	1:E:189:PHE:CD2	2.60	0.54
1:E:210:LYS:HD2	1:I:244:ASN:ND2	2.07	0.54
1:E:483:GLU:OE2	1:E:516:ARG:NE	2.40	0.54
3:K:11:G:H2'	3:K:12:A:H8	1.72	0.54
1:M:120:ASN:ND2	1:M:288:ASP:OD2	2.40	0.54
2:N:188:LEU:O	2:N:189:THR:O	2.24	0.54
2:B:146:LEU:HD22	2:B:178:LEU:HD21	1.90	0.54
2:B:170:LYS:HA	2:B:173:VAL:HG12	1.89	0.54
1:E:133:ASN:OD1	1:E:136:LYS:NZ	2.27	0.54
1:E:475:THR:HG23	1:E:487:ALA:HB2	1.89	0.54
1:E:580:SER:OG	2:F:367:GLN:NE2	2.40	0.54
1:E:4:LEU:HD12	1:E:8:GLU:CD	2.26	0.54
1:I:429:LEU:HD13	1:I:559:ILE:HD13	1.89	0.54
1:M:24:LEU:O	1:M:140:THR:CB	2.55	0.54
1:M:162:TYR:CE2	1:M:169:ALA:HB1	2.43	0.54
4:P:9:DA:H2'	4:P:10:DG:H8	1.69	0.54
1:A:130:LEU:O	1:A:131:GLU:C	2.48	0.54
2:B:190:ARG:CD	3:C:2:U:O4	2.54	0.54
1:E:106:LYS:CE	1:M:176:THR:HG22	2.37	0.54
1:E:122:GLY:CA	1:E:291:LEU:CD1	2.82	0.54
2:F:32:ARG:NH2	2:F:384:GLY:O	2.40	0.54
4:H:14:DT:H2''	4:H:15:DA:H8	1.73	0.54
1:I:21:MET:HG2	1:I:139:PHE:CD1	2.42	0.54
1:I:144:ASP:O	1:I:145:ASP:CB	2.54	0.54
2:J:401:THR:HG1	2:J:402:PRO:HD2	1.68	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:23:PHE:O	1:M:23:PHE:HD1	1.91	0.54
4:D:15:DA:H8	4:D:15:DA:H5'	1.72	0.54
2:F:187:ALA:CB	3:G:2:U:C5	2.90	0.54
1:I:552:GLY:HA2	1:I:575:THR:HG22	1.90	0.54
1:M:49:TYR:CD1	1:M:49:TYR:C	2.85	0.54
1:M:580:SER:OG	2:N:367:GLN:NE2	2.40	0.54
1:M:164:LEU:CD1	1:M:208:ILE:CD1	2.86	0.54
1:A:121:ILE:H	1:A:121:ILE:CD1	1.99	0.54
1:A:125:VAL:HG23	1:A:295:TRP:CG	2.43	0.54
1:A:214:ALA:HA	1:M:217:ILE:HG21	1.90	0.54
2:B:377:TRP:CE2	2:B:406:PRO:HB3	2.43	0.54
1:E:26:ALA:H	1:E:142:ASN:HD21	1.56	0.54
1:I:16:ASN:HD22	1:I:16:ASN:C	2.06	0.54
1:M:168:TYR:CD1	1:M:168:TYR:C	2.86	0.54
2:N:275:LEU:HB2	2:N:280:MET:HE2	1.89	0.54
1:A:552:GLY:HA2	1:A:575:THR:HG22	1.90	0.54
2:B:299:MET:HG3	2:B:300:PRO:HD3	1.89	0.54
1:M:271:TYR:CD1	1:M:271:TYR:C	2.85	0.54
1:M:513:PRO:HB2	1:M:516:ARG:HB2	1.88	0.54
2:N:70:GLU:CB	2:N:197:MET:HE1	2.36	0.54
1:A:19:HIS:O	1:A:219:PHE:HB3	2.08	0.54
2:B:229:TYR:HA	2:B:241:THR:O	2.08	0.54
2:F:203:ALA:O	2:F:207:LYS:HG3	2.08	0.54
2:N:61:MET:HE1	2:N:106:ARG:HG3	1.90	0.54
1:A:16:ASN:ND2	1:A:20:MET:CE	2.67	0.53
2:B:296:ASN:ND2	2:F:470:ARG:NE	2.56	0.53
2:F:61:MET:HE1	2:F:106:ARG:HG3	1.90	0.53
2:N:19:LEU:HB3	2:N:21:PHE:HE1	1.71	0.53
2:N:47:PRO:HG3	2:N:209:GLY:HA3	1.90	0.53
2:N:261:ASP:N	2:N:452:PHE:HE2	2.06	0.53
1:A:429:LEU:HD13	1:A:559:ILE:HD13	1.89	0.53
2:B:67:ILE:CD1	2:B:193:ARG:HH22	2.18	0.53
2:B:471:PHE:CE1	2:F:138:ARG:HD2	2.42	0.53
1:E:158:HIS:CG	1:M:148:GLU:HB3	2.42	0.53
1:E:168:TYR:OH	1:M:191:TYR:C	2.48	0.53
1:E:317:VAL:HG21	2:F:411:ARG:HB3	1.89	0.53
1:I:269:ILE:HD13	1:I:279:ALA:CB	2.38	0.53
1:M:30:ARG:NE	1:M:36:THR:HG21	2.24	0.53
1:M:248:PRO:C	1:M:278:ARG:NH1	2.66	0.53
1:A:21:MET:HE3	1:A:221:LEU:HB2	1.90	0.53
2:B:190:ARG:CZ	2:B:190:ARG:CB	2.85	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:288:ASP:CG	2:F:277:TYR:HE2	2.16	0.53
2:J:229:TYR:HA	2:J:241:THR:O	2.08	0.53
2:N:93:VAL:HG13	2:N:94:PHE:CD1	2.38	0.53
4:P:14:DT:H2''	4:P:15:DA:H8	1.73	0.53
1:A:121:ILE:CG2	1:A:292:SER:OG	2.57	0.53
2:B:133:MET:SD	2:B:178:LEU:HD23	2.49	0.53
1:E:164:LEU:HD21	1:E:186:HIS:C	2.33	0.53
2:J:377:TRP:CE2	2:J:406:PRO:HB3	2.43	0.53
2:N:308:THR:HG23	2:N:446:LEU:HD22	1.90	0.53
1:A:572:GLU:N	1:A:572:GLU:OE1	2.42	0.53
2:B:135:GLY:O	2:B:139:GLN:NE2	2.41	0.53
1:E:140:THR:HG21	1:E:182:TYR:CE1	2.43	0.53
1:E:237:LEU:O	1:E:241:ILE:CD1	2.50	0.53
1:E:241:ILE:N	1:E:241:ILE:CD1	2.72	0.53
1:I:212:PHE:CD1	1:I:236:MET:SD	3.01	0.53
1:I:324:PRO:HB3	2:J:7:GLN:HG2	1.90	0.53
1:I:462:ARG:HD3	1:I:474:ILE:HG23	1.91	0.53
2:J:135:GLY:O	2:J:139:GLN:NE2	2.41	0.53
1:M:34:LEU:HD13	1:M:144:ASP:HB3	1.90	0.53
1:E:335:ALA:HB2	1:E:504:MET:HE1	1.90	0.53
2:F:47:PRO:HG3	2:F:209:GLY:HA3	1.90	0.53
2:F:187:ALA:HB1	3:G:2:U:C5	2.44	0.53
1:M:164:LEU:HA	1:M:167:SER:HB2	1.89	0.53
2:B:54:TYR:CG	2:B:64:LEU:CD2	2.92	0.53
2:B:136:LEU:HA	2:B:139:GLN:HE21	1.73	0.53
1:E:121:ILE:HD13	1:E:124:ARG:HH21	1.73	0.53
2:N:203:ALA:O	2:N:207:LYS:HG3	2.08	0.53
1:A:349:THR:HB	1:A:397:ASN:HB2	1.91	0.53
2:B:284:LEU:HD11	2:B:305:ILE:HD11	1.91	0.53
1:E:60:HIS:HB3	1:E:67:ILE:CD1	2.39	0.53
1:I:349:THR:HB	1:I:397:ASN:HB2	1.91	0.53
1:I:572:GLU:N	1:I:572:GLU:OE1	2.42	0.53
2:J:136:LEU:HA	2:J:139:GLN:HE21	1.73	0.53
2:J:277:TYR:OH	2:J:321:ASP:OD2	2.27	0.53
2:N:277:TYR:CD1	2:N:318:GLY:CA	2.92	0.53
1:A:9:PHE:CE1	1:A:13:TYR:HB2	2.44	0.52
1:A:125:VAL:HG21	1:A:295:TRP:HB2	1.76	0.52
2:B:444:VAL:HA	2:B:447:VAL:HG12	1.91	0.52
3:C:13:G:H2'	3:C:14:C:C6	2.44	0.52
1:M:163:HIS:NE2	1:M:191:TYR:CZ	2.77	0.52
1:E:139:PHE:N	1:E:139:PHE:CD1	2.77	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:40:TYR:CE2	2:J:214:LYS:CE	2.92	0.52
1:M:162:TYR:HD2	1:M:169:ALA:HB3	1.74	0.52
1:M:268:LEU:HD23	1:M:268:LEU:O	2.08	0.52
1:E:21:MET:HB3	1:E:139:PHE:HE1	1.73	0.52
1:E:131:GLU:HG3	1:E:155:SER:HG	1.71	0.52
2:F:93:VAL:HG13	2:F:94:PHE:CD1	2.38	0.52
3:G:12:A:H2'	3:G:13:G:C8	2.44	0.52
3:O:12:A:H2'	3:O:13:G:C8	2.44	0.52
2:B:259:ALA:HB2	2:B:448:TYR:CD2	2.44	0.52
2:F:137:PHE:HA	2:F:140:LYS:HZ1	1.75	0.52
2:F:308:THR:HG23	2:F:446:LEU:HD22	1.90	0.52
1:I:213:LEU:N	1:I:213:LEU:CD2	2.73	0.52
1:I:213:LEU:HB3	1:I:243:GLN:OE1	2.09	0.52
2:J:435:ASN:OD1	2:J:437:THR:OG1	2.18	0.52
1:E:122:GLY:C	1:E:291:LEU:HD12	2.31	0.52
2:J:193:ARG:O	2:J:197:MET:HG2	2.09	0.52
2:B:143:PHE:HE2	2:B:178:LEU:HD11	1.68	0.52
2:B:250:PRO:CA	2:B:295:HIS:HE1	1.97	0.52
1:M:188:ASP:HB3	1:M:190:ARG:CD	2.39	0.52
2:N:87:TYR:CB	2:N:198:TRP:HE1	2.22	0.52
2:N:184:ASN:O	2:N:186:THR:N	2.43	0.52
2:B:334:ILE:HD11	2:B:425:ILE:HD13	1.91	0.52
3:C:11:G:H2'	3:C:12:A:H8	1.72	0.52
2:F:284:LEU:HD13	2:F:323:PHE:HE1	1.75	0.52
1:I:212:PHE:CB	1:I:236:MET:SD	2.98	0.52
2:J:223:ALA:CB	2:J:303:ILE:CD1	2.67	0.52
2:J:374:CYS:SG	2:J:375:LEU:N	2.82	0.52
3:K:13:G:H2'	3:K:14:C:C6	2.44	0.52
2:B:173:VAL:O	2:B:176:LEU:HB2	2.09	0.52
2:B:190:ARG:CB	2:B:190:ARG:NH1	2.73	0.52
1:I:7:ASN:HD22	1:M:52:HIS:CE1	2.26	0.52
1:I:24:LEU:HG	1:I:140:THR:HG21	0.52	0.52
1:M:253:TRP:C	1:M:253:TRP:CD1	2.88	0.52
2:B:277:TYR:OH	2:B:321:ASP:OD2	2.27	0.52
1:E:4:LEU:HD11	1:E:8:GLU:HB2	1.92	0.52
1:E:46:HIS:HE1	1:E:57:TYR:CE1	2.13	0.52
2:F:262:THR:HG23	2:F:283:VAL:CG2	2.40	0.52
2:N:269:ARG:CB	2:N:269:ARG:NH1	2.73	0.52
1:A:299:LYS:NZ	1:E:47:ARG:HH22	2.08	0.52
1:I:267:ASP:C	1:I:271:TYR:CD2	2.84	0.52
2:J:444:VAL:HA	2:J:447:VAL:HG12	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:188:ASP:HB3	1:M:190:ARG:HD3	1.92	0.52
1:A:16:ASN:ND2	1:A:20:MET:HE2	2.25	0.51
1:A:462:ARG:HD3	1:A:474:ILE:HG23	1.91	0.51
1:A:512:LYS:HB3	1:A:513:PRO:HD3	1.93	0.51
2:F:105:LEU:CD2	2:F:143:PHE:HB3	2.39	0.51
2:J:196:VAL:HG12	3:K:2:U:C4	2.44	0.51
2:J:284:LEU:HD11	2:J:305:ILE:HD11	1.91	0.51
1:M:32:ALA:CB	1:M:146:VAL:CG2	2.87	0.51
2:B:374:CYS:SG	2:B:375:LEU:N	2.82	0.51
1:E:146:VAL:HG23	1:E:147:ILE:N	2.22	0.51
1:M:335:ALA:HB2	1:M:504:MET:HE1	1.90	0.51
2:N:277:TYR:CE1	2:N:318:GLY:N	2.77	0.51
2:N:284:LEU:HD13	2:N:323:PHE:HE1	1.75	0.51
2:B:196:VAL:HG12	3:C:2:U:C4	2.44	0.51
2:F:28:THR:O	2:F:430:LYS:NZ	2.42	0.51
1:M:440:ARG:HB3	1:M:445:TYR:HE2	1.76	0.51
2:B:174:ALA:N	2:B:175:PRO:CD	2.72	0.51
1:M:192:GLN:NE2	1:M:192:GLN:CA	2.73	0.51
2:N:89:GLY:O	2:N:93:VAL:HG12	2.11	0.51
1:E:442:ARG:HG2	4:H:10:DG:OP2	2.10	0.51
2:F:46:LEU:HB2	2:F:47:PRO:HD3	1.92	0.51
1:I:459:LEU:O	1:I:462:ARG:HB2	2.10	0.51
2:J:149:TYR:OH	2:J:185:ASP:OD1	2.25	0.51
2:N:46:LEU:HB2	2:N:47:PRO:HD3	1.91	0.51
2:N:426:LEU:O	2:N:429:THR:OG1	2.29	0.51
1:E:190:ARG:HH12	1:E:191:TYR:HE2	1.57	0.51
1:A:459:LEU:O	1:A:462:ARG:HB2	2.10	0.51
1:E:580:SER:HB3	2:F:8:LEU:HB2	1.92	0.51
2:J:105:LEU:HD21	2:J:142:ALA:HB3	1.92	0.51
2:B:193:ARG:O	2:B:197:MET:HG2	2.09	0.51
1:E:560:SER:HB2	1:E:568:LYS:HD3	1.93	0.51
1:I:267:ASP:C	1:I:271:TYR:HD2	2.15	0.51
1:M:23:PHE:HE1	1:M:141:THR:HG23	1.76	0.51
2:N:28:THR:O	2:N:430:LYS:NZ	2.42	0.51
2:N:242:THR:HG22	2:N:270:LYS:NZ	2.26	0.51
1:E:30:ARG:HB2	1:E:36:THR:CG2	2.41	0.51
1:E:143:PHE:CD1	1:E:143:PHE:N	2.77	0.51
1:M:580:SER:HB3	2:N:8:LEU:HB2	1.92	0.51
2:B:291:TYR:HD2	2:B:300:PRO:HG3	1.76	0.51
1:E:40:ILE:CD1	1:E:107:TYR:OH	2.59	0.51
2:J:55:LEU:HD22	2:J:133:MET:HB3	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:131:GLU:HG3	1:M:155:SER:CB	2.29	0.51
2:N:190:ARG:HA	2:N:190:ARG:HE	1.74	0.51
1:A:21:MET:HG2	1:A:137:VAL:O	2.11	0.50
1:E:43:ASP:O	1:E:47:ARG:HG3	2.11	0.50
1:I:139:PHE:O	1:I:140:THR:CG2	2.59	0.50
2:J:334:ILE:HD11	2:J:425:ILE:HD13	1.91	0.50
1:M:9:PHE:CE1	1:M:252:TYR:CE2	2.98	0.50
1:M:31:SER:C	1:M:33:GLY:N	2.69	0.50
1:M:41:ILE:HG22	1:M:45:LYS:HE3	1.92	0.50
2:B:133:MET:SD	2:B:178:LEU:CD2	2.99	0.50
2:B:243:CYS:SG	2:B:453:ALA:HA	2.51	0.50
2:J:379:GLN:NE2	2:J:405:ASN:O	2.44	0.50
1:M:137:VAL:HG11	1:M:139:PHE:CE2	2.46	0.50
2:B:105:LEU:HD21	2:B:142:ALA:HB3	1.93	0.50
2:B:114:HIS:O	2:B:117:ALA:HB3	2.11	0.50
2:B:296:ASN:HD22	2:F:470:ARG:NH2	2.09	0.50
1:E:224:SER:HB2	1:E:254:THR:OG1	2.11	0.50
1:I:313:ARG:HB2	2:J:320:PHE:CE2	2.46	0.50
2:J:243:CYS:SG	2:J:453:ALA:HA	2.51	0.50
1:M:133:ASN:OD1	1:M:136:LYS:NZ	2.27	0.50
1:M:238:ARG:HG3	1:M:271:TYR:CZ	2.45	0.50
2:B:248:PHE:HE1	2:B:290:LEU:HD22	1.70	0.50
1:E:48:TYR:HE1	1:E:52:HIS:NE2	2.08	0.50
1:E:164:LEU:HD12	1:E:208:ILE:HD11	1.92	0.50
2:F:292:GLN:NE2	2:F:299:MET:SD	2.85	0.50
1:I:330:ALA:CB	1:I:581:LEU:CA	2.80	0.50
2:J:196:VAL:HG12	3:K:2:U:C5	2.47	0.50
1:M:195:LYS:O	1:M:195:LYS:HG2	2.10	0.50
2:N:269:ARG:HB3	2:N:269:ARG:NH1	2.26	0.50
2:N:292:GLN:NE2	2:N:299:MET:SD	2.85	0.50
1:E:213:LEU:HB3	1:E:243:GLN:NE2	2.27	0.50
1:E:283:GLU:HG3	1:E:283:GLU:O	2.12	0.50
1:I:268:LEU:C	1:I:268:LEU:CD2	2.84	0.50
1:I:481:ALA:HB1	1:I:484:LEU:HD13	1.92	0.50
1:I:525:ARG:HH12	1:I:529:ARG:HH11	1.60	0.50
2:J:186:THR:HA	2:J:189:THR:HG1	1.67	0.50
1:A:481:ALA:HB1	1:A:484:LEU:HD13	1.92	0.50
2:B:55:LEU:HD11	2:B:132:SER:HB3	1.92	0.50
1:I:21:MET:SD	1:I:221:LEU:HD12	2.52	0.50
1:M:163:HIS:NE2	1:M:191:TYR:OH	2.38	0.50
1:A:176:THR:O	1:M:19:HIS:CE1	2.65	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:165:GLU:OE2	1:M:168:TYR:CZ	2.65	0.50
1:E:500:LYS:HE2	1:E:502:TRP:HZ2	1.77	0.50
2:F:136:LEU:C	2:F:143:PHE:HE2	2.17	0.50
1:M:252:TYR:HD1	1:M:280:TYR:HB2	1.76	0.50
2:B:290:LEU:HD23	2:B:290:LEU:C	2.36	0.50
2:F:89:GLY:O	2:F:93:VAL:HG12	2.11	0.50
1:I:232:ASN:ND2	1:I:233:VAL:HG13	2.27	0.50
1:I:416:PHE:HE2	3:K:17:U:H1'	1.77	0.50
1:M:244:ASN:N	1:M:244:ASN:ND2	2.60	0.50
1:M:500:LYS:HE2	1:M:502:TRP:HZ2	1.77	0.50
2:N:432:ASP:OD1	2:N:469:TYR:OH	2.23	0.50
1:A:244:ASN:CG	1:M:213:LEU:HB2	2.36	0.50
1:A:313:ARG:HB2	2:B:320:PHE:CE2	2.46	0.50
2:F:426:LEU:O	2:F:429:THR:OG1	2.29	0.50
1:I:238:ARG:NH1	1:I:271:TYR:HB2	2.14	0.50
1:I:324:PRO:HB3	2:J:7:GLN:CG	2.42	0.50
1:A:416:PHE:HE2	3:C:17:U:H1'	1.77	0.49
2:B:196:VAL:HG12	3:C:2:U:C5	2.47	0.49
2:B:323:PHE:CD2	2:B:327:THR:HG21	2.47	0.49
1:E:478:VAL:HG13	1:E:523:PHE:CD2	2.47	0.49
1:M:268:LEU:C	1:M:268:LEU:CD2	2.85	0.49
1:M:269:ILE:HD13	1:M:269:ILE:N	2.27	0.49
2:N:56:ALA:HB2	2:N:149:TYR:HB3	1.94	0.49
3:O:11:G:H2'	3:O:12:A:H8	1.77	0.49
1:A:232:ASN:ND2	1:A:233:VAL:HG13	2.27	0.49
1:A:244:ASN:ND2	1:M:210:LYS:O	2.45	0.49
2:B:222:GLU:HG2	2:B:302:LYS:HB3	1.94	0.49
2:B:301:ARG:CZ	1:E:59:LYS:O	2.61	0.49
1:I:253:TRP:CZ3	1:I:268:LEU:HD13	2.46	0.49
2:J:167:ASP:OD2	2:J:455:VAL:HA	2.13	0.49
2:J:323:PHE:CD2	2:J:327:THR:HG21	2.47	0.49
1:M:478:VAL:HG13	1:M:523:PHE:CD2	2.47	0.49
2:N:415:ASN:OD1	2:N:416:GLY:N	2.45	0.49
1:E:148:GLU:OE2	1:E:184:LYS:CE	2.60	0.49
1:E:384:GLU:O	1:E:388:ARG:HG2	2.12	0.49
3:G:11:G:H2'	3:G:12:A:H8	1.77	0.49
2:J:55:LEU:HD11	2:J:132:SER:HB3	1.93	0.49
2:B:250:PRO:CD	2:B:254:GLY:O	2.54	0.49
2:F:415:ASN:OD1	2:F:416:GLY:N	2.45	0.49
1:I:512:LYS:HB3	1:I:513:PRO:HD3	1.92	0.49
2:F:56:ALA:HB2	2:F:149:TYR:HB3	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:440:ARG:HB3	1:M:445:TYR:CE2	2.47	0.49
2:N:335:ILE:HD12	4:P:12:DT:H5''	1.94	0.49
1:A:125:VAL:HG13	1:A:291:LEU:HB3	1.93	0.49
2:B:55:LEU:HD22	2:B:133:MET:HB3	1.94	0.49
2:B:167:ASP:OD2	2:B:455:VAL:HA	2.13	0.49
2:F:134:SER:O	2:F:137:PHE:HB2	2.11	0.49
2:J:114:HIS:O	2:J:117:ALA:HB3	2.11	0.49
2:F:335:ILE:HD12	4:H:12:DT:H5''	1.94	0.49
1:M:428:ALA:HB1	1:M:559:ILE:HG13	1.94	0.49
3:O:10:A:H2'	3:O:11:G:C8	2.48	0.49
1:A:9:PHE:CD1	1:A:9:PHE:C	2.89	0.49
1:E:210:LYS:CA	1:E:210:LYS:CE	2.89	0.49
4:P:7:DA:H2'	4:P:8:DC:C6	2.48	0.49
1:A:561:CYS:SG	1:A:569:ALA:HB3	2.53	0.49
2:B:260:TYR:HA	2:B:452:PHE:CE2	2.48	0.49
1:I:209:HIS:O	1:I:213:LEU:HD23	2.12	0.49
1:M:140:THR:C	1:M:142:ASN:H	2.20	0.49
2:N:181:GLN:NE2	2:N:182:ILE:O	2.45	0.49
1:A:525:ARG:HH12	1:A:529:ARG:HH11	1.60	0.49
1:A:536:SER:HB3	2:B:343:LEU:HD21	1.94	0.49
2:B:190:ARG:CG	2:B:190:ARG:NH1	2.73	0.49
1:E:174:LEU:C	1:E:174:LEU:CD2	2.85	0.49
2:F:139:GLN:HB3	2:F:142:ALA:HB2	1.95	0.49
2:F:181:GLN:NE2	2:F:182:ILE:O	2.45	0.49
1:I:24:LEU:HB2	1:I:140:THR:OG1	2.09	0.49
1:I:331:LEU:HD13	2:J:365:LEU:HD21	1.93	0.49
2:N:344:LYS:HB2	2:N:361:VAL:HA	1.94	0.49
1:E:217:ILE:HG21	1:I:217:ILE:HG23	1.89	0.48
1:I:536:SER:HB3	2:J:343:LEU:HD21	1.94	0.48
1:M:509:ILE:HD11	1:M:531:ARG:NH2	2.27	0.48
1:E:428:ALA:HB1	1:E:559:ILE:HG13	1.94	0.48
1:I:322:PRO:HD2	2:J:9:ALA:HB1	1.94	0.48
1:M:23:PHE:CD1	1:M:23:PHE:C	2.92	0.48
2:N:242:THR:CG2	2:N:270:LYS:HZ2	2.25	0.48
1:A:245:ASN:HD22	1:M:214:ALA:HB1	1.77	0.48
2:B:257:PHE:CE1	2:B:448:TYR:CD2	3.01	0.48
2:B:257:PHE:CE2	2:B:444:VAL:HB	2.48	0.48
1:M:32:ALA:HB1	1:M:146:VAL:CG2	2.43	0.48
1:M:236:MET:O	1:M:240:ALA:N	2.43	0.48
1:M:560:SER:HB2	1:M:568:LYS:HD3	1.93	0.48
2:N:280:MET:HE3	2:N:315:GLU:CD	2.33	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:284:LEU:HD13	2:N:323:PHE:CE1	2.48	0.48
1:A:18:GLN:H	1:A:18:GLN:NE2	2.11	0.48
1:E:121:ILE:CD1	2:F:317:GLN:NE2	2.76	0.48
1:E:248:PRO:O	1:E:278:ARG:NH1	2.47	0.48
4:H:6:DA:H2'	4:H:7:DA:C8	2.49	0.48
1:I:407:ILE:O	1:I:411:VAL:HG13	2.13	0.48
2:J:49:GLN:NE2	2:J:49:GLN:H	2.11	0.48
1:M:41:ILE:O	1:M:45:LYS:HG3	2.13	0.48
1:M:226:TYR:CD2	1:M:253:TRP:CZ2	3.00	0.48
1:M:463:LYS:HD2	1:M:463:LYS:O	2.13	0.48
2:B:137:PHE:CZ	2:B:176:LEU:CD1	2.96	0.48
1:E:163:HIS:ND1	1:E:163:HIS:N	2.60	0.48
1:E:423:GLU:OE1	1:E:444:HIS:NE2	2.33	0.48
4:H:7:DA:H2'	4:H:8:DC:C6	2.48	0.48
1:M:221:LEU:O	1:M:251:LEU:HA	2.13	0.48
1:M:384:GLU:O	1:M:388:ARG:HG2	2.12	0.48
1:E:154:ILE:HD11	1:E:309:VAL:CG2	2.40	0.48
1:I:309:VAL:HG23	1:I:310:ARG:H	1.79	0.48
1:I:561:CYS:SG	1:I:569:ALA:HB3	2.53	0.48
2:J:70:GLU:HB3	2:J:197:MET:HE1	1.96	0.48
2:J:206:ALA:HB3	2:J:473:MET:HE1	1.96	0.48
1:M:151:PHE:CD1	1:M:151:PHE:C	2.91	0.48
1:M:164:LEU:CD2	1:M:186:HIS:C	2.87	0.48
2:N:285:SER:HA	2:N:288:LEU:CD2	2.44	0.48
4:P:6:DA:H2'	4:P:7:DA:H8	1.79	0.48
1:A:177:GLU:OE2	1:A:218:ARG:NH2	2.47	0.48
2:B:29:HIS:HD2	2:B:30:PRO:HD2	1.79	0.48
1:E:26:ALA:CA	1:E:142:ASN:OD1	2.60	0.48
2:F:100:MET:HG2	2:F:101:PRO:HD2	1.96	0.48
3:G:10:A:H2'	3:G:11:G:C8	2.48	0.48
1:I:269:ILE:CD1	1:I:279:ALA:HB1	2.39	0.48
1:M:423:GLU:OE1	1:M:444:HIS:NE2	2.33	0.48
1:M:460:ASP:N	1:M:460:ASP:OD1	2.47	0.48
1:A:407:ILE:O	1:A:411:VAL:HG13	2.13	0.48
4:D:16:DA:H2''	4:D:17:DC:H5''	1.96	0.48
1:E:190:ARG:NH1	1:E:191:TYR:CZ	2.82	0.48
1:E:240:ALA:O	1:E:243:GLN:HG3	2.13	0.48
1:I:13:TYR:OH	1:I:22:TRP:NE1	2.42	0.48
2:N:280:MET:HE3	2:N:315:GLU:HB3	1.95	0.48
1:A:245:ASN:HD22	1:M:214:ALA:CB	2.27	0.48
2:B:49:GLN:NE2	2:B:49:GLN:H	2.11	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:290:LEU:C	2:B:290:LEU:CD2	2.87	0.48
1:E:164:LEU:CD1	1:E:208:ILE:HD11	2.43	0.48
1:E:463:LYS:HD2	1:E:463:LYS:O	2.14	0.48
2:F:284:LEU:HD13	2:F:323:PHE:CE1	2.48	0.48
1:I:213:LEU:HD13	1:I:240:ALA:HA	1.95	0.48
1:M:32:ALA:HB2	1:M:146:VAL:HG21	1.91	0.48
1:A:254:THR:O	1:A:254:THR:OG1	2.25	0.48
1:A:508:GLU:OE2	1:A:517:ARG:NH1	2.43	0.48
2:B:251:ASP:HB2	2:F:177:ASN:HD22	1.77	0.48
2:B:332:VAL:HG11	2:B:409:LEU:HD23	1.96	0.48
4:D:18:DA:H4'	4:D:19:DG:OP1	2.14	0.48
2:J:386:ASN:ND2	2:J:388:GLN:O	2.47	0.48
1:M:484:LEU:HD21	1:M:519:GLU:HB2	1.96	0.48
2:N:242:THR:CG2	2:N:270:LYS:NZ	2.77	0.48
1:A:419:SER:HA	1:A:422:GLU:HG2	1.96	0.47
2:B:149:TYR:OH	2:B:185:ASP:OD1	2.25	0.47
2:B:409:LEU:HD21	2:B:425:ILE:HD12	1.97	0.47
2:B:465:GLU:OE1	2:B:465:GLU:N	2.47	0.47
2:F:285:SER:HA	2:F:288:LEU:CD2	2.44	0.47
2:F:327:THR:O	2:F:327:THR:OG1	2.31	0.47
4:H:18:DA:H2''	4:H:19:DG:O5'	2.14	0.47
1:I:295:TRP:O	1:I:298:VAL:HG12	2.15	0.47
1:M:44:LEU:HD23	1:M:47:ARG:HD3	1.96	0.47
1:A:374:TYR:HD1	1:A:375:THR:N	2.13	0.47
2:B:190:ARG:NH1	2:B:190:ARG:HA	2.29	0.47
1:E:209:HIS:CE1	1:E:213:LEU:HD11	2.49	0.47
1:E:288:ASP:OD1	2:F:277:TYR:CE2	2.67	0.47
2:F:344:LYS:HB2	2:F:361:VAL:HA	1.95	0.47
4:H:23:DT:H2''	4:H:24:DA:OP2	2.15	0.47
1:I:419:SER:HA	1:I:422:GLU:HG2	1.96	0.47
2:J:56:ALA:HB2	2:J:149:TYR:HB3	1.96	0.47
4:P:6:DA:H2'	4:P:7:DA:C8	2.49	0.47
1:A:367:SER:O	1:A:367:SER:OG	2.21	0.47
1:E:163:HIS:CD2	1:E:191:TYR:HE2	2.06	0.47
4:L:16:DA:H2''	4:L:17:DC:H5''	1.96	0.47
1:M:31:SER:C	1:M:33:GLY:H	2.22	0.47
1:A:12:HIS:ND1	1:A:12:HIS:C	2.72	0.47
2:B:206:ALA:HB3	2:B:473:MET:HE1	1.96	0.47
2:F:134:SER:HA	2:F:137:PHE:CD2	2.49	0.47
2:J:184:ASN:C	2:J:188:LEU:HD21	2.40	0.47
1:M:522:ASP:O	1:M:526:SER:N	2.38	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:22:TRP:HB2	1:A:138:VAL:HG22	1.96	0.47
1:A:381:LEU:HB2	1:A:420:PHE:HZ	1.80	0.47
2:B:386:ASN:ND2	2:B:388:GLN:O	2.47	0.47
4:H:6:DA:H2'	4:H:7:DA:H8	1.79	0.47
1:I:240:ALA:O	1:I:243:GLN:HG2	2.15	0.47
1:I:325:GLY:HA3	2:J:10:ALA:HB2	1.95	0.47
1:I:483:GLU:OE2	1:I:516:ARG:NE	2.47	0.47
1:M:244:ASN:N	1:M:244:ASN:HD22	2.10	0.47
2:N:195:ASN:HD22	2:N:195:ASN:HA	1.56	0.47
2:N:401:THR:HB	3:O:6:U:H5''	1.96	0.47
1:A:483:GLU:OE2	1:A:516:ARG:NE	2.47	0.47
2:B:401:THR:HB	3:C:6:U:H4'	1.95	0.47
1:E:4:LEU:HD11	1:E:8:GLU:CB	2.44	0.47
1:I:141:THR:HG21	1:I:226:TYR:CE1	2.49	0.47
1:I:217:ILE:CD1	1:I:245:ASN:CA	2.93	0.47
1:I:253:TRP:HZ3	1:I:268:LEU:HD13	1.79	0.47
1:I:508:GLU:OE2	1:I:517:ARG:NH1	2.43	0.47
1:M:31:SER:O	1:M:32:ALA:C	2.56	0.47
1:M:81:PRO:HD2	1:M:91:PHE:CE2	2.49	0.47
1:A:209:HIS:ND1	1:A:209:HIS:C	2.73	0.47
1:A:309:VAL:HG23	1:A:310:ARG:H	1.79	0.47
1:E:60:HIS:HB3	1:E:67:ILE:HD12	1.96	0.47
1:E:445:TYR:CE1	1:E:491:SER:HB3	2.49	0.47
1:I:305:ILE:O	1:I:309:VAL:HG22	2.15	0.47
1:I:374:TYR:HD1	1:I:375:THR:N	2.13	0.47
2:J:29:HIS:HD2	2:J:30:PRO:HD2	1.79	0.47
1:M:127:ALA:O	1:M:151:PHE:CD2	2.54	0.47
1:M:209:HIS:C	1:M:209:HIS:ND1	2.72	0.47
4:P:18:DA:H2''	4:P:19:DG:O5'	2.14	0.47
1:E:81:PRO:HD2	1:E:91:PHE:CE2	2.49	0.47
1:E:217:ILE:CG2	1:I:217:ILE:HG21	2.26	0.47
1:E:484:LEU:HD21	1:E:519:GLU:HB2	1.96	0.47
2:F:87:TYR:CE2	2:F:197:MET:HB3	2.49	0.47
2:F:171:ALA:HB2	2:F:455:VAL:HG13	1.97	0.47
2:F:219:ASP:HB3	2:F:222:GLU:HG3	1.97	0.47
2:F:401:THR:HB	3:G:6:U:H5''	1.96	0.47
1:I:139:PHE:C	1:I:140:THR:HG23	2.40	0.47
1:M:26:ALA:HA	1:M:142:ASN:OD1	2.15	0.47
1:M:445:TYR:CE1	1:M:491:SER:HB3	2.49	0.47
2:N:219:ASP:HB3	2:N:222:GLU:HG3	1.97	0.47
2:N:277:TYR:HE1	2:N:318:GLY:N	2.12	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:141:THR:HG21	1:A:226:TYR:CE1	2.50	0.47
1:E:62:ILE:O	1:E:68:LYS:HG3	2.15	0.47
2:F:444:VAL:HA	2:F:447:VAL:HG22	1.96	0.47
1:M:221:LEU:CB	1:M:247:PHE:CE1	2.98	0.47
1:A:440:ARG:HG2	1:A:441:HIS:ND1	2.30	0.47
1:A:580:SER:HB3	2:B:8:LEU:HB2	1.97	0.47
1:E:83:GLN:O	1:E:85:SER:N	2.48	0.47
1:E:140:THR:CG2	1:E:182:TYR:CE1	2.97	0.47
1:I:580:SER:HB3	2:J:8:LEU:HB2	1.97	0.47
1:M:61:ASP:OD1	1:M:64:ASN:N	2.46	0.47
1:M:502:TRP:HH2	2:N:8:LEU:HD21	1.80	0.47
1:A:305:ILE:O	1:A:309:VAL:HG22	2.15	0.46
2:B:12:SER:HB2	2:B:366:TYR:CE2	2.50	0.46
2:B:379:GLN:NE2	2:B:405:ASN:O	2.48	0.46
1:E:223:VAL:HG11	1:E:253:TRP:CD2	2.50	0.46
2:B:56:ALA:HB2	2:B:149:TYR:HB3	1.96	0.46
1:I:121:ILE:H	1:I:121:ILE:HD12	1.81	0.46
1:I:217:ILE:HD12	1:I:245:ASN:CB	2.40	0.46
1:I:495:GLU:OE2	2:J:340:TRP:NE1	2.32	0.46
2:J:155:LYS:HA	2:J:158:PHE:CG	2.50	0.46
2:J:185:ASP:O	2:J:189:THR:CB	2.63	0.46
1:M:8:GLU:O	1:M:12:HIS:ND1	2.47	0.46
1:M:247:PHE:O	1:M:278:ARG:NH1	2.48	0.46
2:B:190:ARG:C	2:B:192:CYS:N	2.72	0.46
1:E:139:PHE:HZ	1:E:215:ALA:CB	2.27	0.46
2:F:229:TYR:O	2:F:450:GLN:NE2	2.40	0.46
3:K:8:U:H2'	3:K:9:U:C6	2.51	0.46
1:M:21:MET:HE2	1:M:139:PHE:HE1	1.64	0.46
1:M:83:GLN:O	1:M:85:SER:N	2.48	0.46
2:N:444:VAL:HA	2:N:447:VAL:HG22	1.96	0.46
4:P:23:DT:H2''	4:P:24:DA:OP2	2.15	0.46
1:A:295:TRP:O	1:A:298:VAL:HG12	2.15	0.46
2:B:330:GLU:N	2:B:330:GLU:OE1	2.48	0.46
1:E:509:ILE:HD11	1:E:531:ARG:NH2	2.27	0.46
1:M:125:VAL:HG12	1:M:291:LEU:HD12	1.98	0.46
3:C:11:G:N2	4:D:14:DT:O2	2.49	0.46
1:E:468:LYS:HA	1:E:468:LYS:HD2	1.73	0.46
2:F:136:LEU:HA	2:F:143:PHE:HE2	1.78	0.46
2:F:225:ILE:HG23	2:F:244:CYS:SG	2.56	0.46
1:I:238:ARG:HH11	1:I:271:TYR:HB2	1.78	0.46
1:I:440:ARG:HG2	1:I:441:HIS:ND1	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:83:GLN:HG3	1:M:84:TRP:H	1.81	0.46
1:M:286:THR:HG23	1:M:289:GLU:H	1.80	0.46
2:B:296:ASN:ND2	2:F:470:ARG:NH2	2.64	0.46
2:F:44:PHE:HD2	2:F:46:LEU:HG	1.80	0.46
2:J:224:TYR:HB2	2:J:247:VAL:HG12	1.97	0.46
2:J:277:TYR:CE1	2:J:281:GLN:HG3	2.50	0.46
2:J:332:VAL:HG11	2:J:409:LEU:HD23	1.96	0.46
1:M:162:TYR:CD2	1:M:169:ALA:CB	2.98	0.46
3:O:18:U:H2'	3:O:19:A:C8	2.51	0.46
1:A:384:GLU:O	1:A:388:ARG:HG2	2.16	0.46
1:E:10:TYR:HB3	1:E:297:GLN:OE1	2.15	0.46
1:E:148:GLU:OE2	1:E:161:VAL:CB	2.64	0.46
1:E:460:ASP:N	1:E:460:ASP:OD1	2.47	0.46
2:F:143:PHE:O	2:F:143:PHE:CD1	2.69	0.46
1:I:238:ARG:HH12	1:I:271:TYR:C	2.24	0.46
1:I:381:LEU:HB2	1:I:420:PHE:HZ	1.80	0.46
2:J:173:VAL:HG21	2:J:180:ILE:HD11	1.97	0.46
2:J:190:ARG:HH11	2:J:191:GLN:N	2.07	0.46
2:J:408:MET:HE3	2:J:408:MET:HB2	1.82	0.46
1:M:339:VAL:HG12	1:M:572:GLU:HG3	1.97	0.46
2:N:225:ILE:HG23	2:N:244:CYS:SG	2.56	0.46
2:B:224:TYR:HB2	2:B:247:VAL:HG12	1.97	0.46
1:E:174:LEU:HD13	1:E:214:ALA:CB	2.46	0.46
2:F:316:ILE:HD11	2:F:412:PHE:HD2	1.81	0.46
1:I:384:GLU:O	1:I:388:ARG:HG2	2.16	0.46
2:J:12:SER:HB2	2:J:366:TYR:CE2	2.50	0.46
2:J:246:GLN:O	2:J:257:PHE:HA	2.16	0.46
2:J:409:LEU:HD21	2:J:425:ILE:HD12	1.97	0.46
4:L:15:DA:H5'	4:L:15:DA:C8	2.51	0.46
1:M:50:CYS:O	1:M:53:GLU:O	2.33	0.46
1:M:213:LEU:HA	1:M:243:GLN:HE22	1.81	0.46
2:N:44:PHE:HD2	2:N:46:LEU:HG	1.79	0.46
2:N:100:MET:HG2	2:N:101:PRO:HD2	1.96	0.46
1:A:212:PHE:C	1:A:212:PHE:HD1	2.24	0.46
1:A:299:LYS:HZ1	1:E:47:ARG:HH22	1.63	0.46
2:B:155:LYS:HA	2:B:158:PHE:CG	2.50	0.46
2:B:379:GLN:NE2	2:B:441:LYS:HD2	2.31	0.46
2:B:430:LYS:HE2	2:B:430:LYS:HB3	1.78	0.46
1:E:58:GLN:HE21	1:E:58:GLN:HB2	1.62	0.46
1:E:502:TRP:HH2	2:F:8:LEU:HD21	1.81	0.46
1:I:497:ARG:HD3	1:I:497:ARG:HA	1.62	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:L:18:DA:H4'	4:L:19:DG:OP1	2.14	0.46
1:A:213:LEU:HD13	1:A:243:GLN:HE22	1.80	0.46
2:B:248:PHE:HE2	2:B:294:SER:CB	2.25	0.46
3:C:8:U:H2'	3:C:9:U:C6	2.51	0.46
1:E:10:TYR:CE1	1:E:293:LYS:HB3	2.50	0.46
1:E:213:LEU:HA	1:E:213:LEU:HD23	1.48	0.46
1:E:339:VAL:HG12	1:E:572:GLU:HG3	1.97	0.46
2:F:432:ASP:OD1	2:F:469:TYR:OH	2.23	0.46
1:M:91:PHE:CZ	1:M:95:LEU:HD12	2.51	0.46
1:M:492:ILE:HA	1:M:504:MET:O	2.16	0.46
2:N:270:LYS:HE3	2:N:279:GLU:OE1	2.15	0.46
1:A:9:PHE:CD1	1:A:9:PHE:O	2.70	0.45
2:B:258:VAL:C	2:B:448:TYR:HE2	2.24	0.45
1:E:23:PHE:HB3	1:E:223:VAL:HG23	1.98	0.45
1:E:223:VAL:HG11	1:E:253:TRP:CE3	2.50	0.45
1:I:291:LEU:HD23	1:I:291:LEU:HA	1.79	0.45
2:J:302:LYS:HE3	2:J:328:GLU:HB3	1.97	0.45
3:K:11:G:N2	4:L:14:DT:O2	2.49	0.45
2:N:191:GLN:CD	2:N:191:GLN:N	2.71	0.45
2:B:173:VAL:HG21	2:B:180:ILE:HD11	1.97	0.45
2:B:173:VAL:HG22	2:B:178:LEU:HB3	1.96	0.45
2:B:255:PHE:HD2	2:B:433:TRP:CZ2	2.33	0.45
1:E:83:GLN:HG3	1:E:84:TRP:H	1.81	0.45
1:E:91:PHE:CZ	1:E:95:LEU:HD12	2.51	0.45
1:E:287:PHE:CE2	1:E:291:LEU:CD1	2.94	0.45
2:F:262:THR:HG23	2:F:283:VAL:HG23	1.98	0.45
4:H:16:DA:H2''	4:H:17:DC:H5''	1.97	0.45
2:N:171:ALA:HB2	2:N:455:VAL:HG13	1.97	0.45
1:A:298:VAL:HG13	1:A:301:LYS:HD3	1.99	0.45
2:N:316:ILE:HD11	2:N:412:PHE:HD2	1.81	0.45
1:E:49:TYR:HE2	1:E:60:HIS:NE2	2.15	0.45
1:E:159:LEU:CD1	1:E:180:PRO:HG2	2.47	0.45
1:E:220:GLY:HA2	1:E:247:PHE:HB3	1.98	0.45
2:J:379:GLN:NE2	2:J:441:LYS:HD2	2.31	0.45
1:M:24:LEU:CG	1:M:140:THR:HG22	2.45	0.45
1:M:46:HIS:HD2	1:M:71:ILE:HD11	1.82	0.45
1:M:174:LEU:HD21	1:M:218:ARG:HD3	1.99	0.45
1:E:213:LEU:HD21	1:E:240:ALA:CB	2.45	0.45
1:E:288:ASP:CG	2:F:277:TYR:CE2	2.94	0.45
1:I:531:ARG:O	2:J:402:PRO:HB3	2.16	0.45
2:N:158:PHE:O	3:O:1:A:N6	2.35	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:239:GLU:CD	2:N:269:ARG:CG	2.60	0.45
2:N:239:GLU:OE1	2:N:269:ARG:CD	2.64	0.45
4:P:16:DA:H2''	4:P:17:DC:H5''	1.97	0.45
1:E:134:GLN:CD	1:E:134:GLN:N	2.75	0.45
1:E:385:PRO:O	1:E:389:LYS:HG3	2.17	0.45
2:F:187:ALA:HB2	3:G:2:U:C5	2.51	0.45
2:J:113:CYS:O	2:J:116:VAL:HG12	2.16	0.45
1:A:387:ILE:HA	1:A:390:ILE:HG22	1.99	0.45
1:E:30:ARG:HD3	1:E:30:ARG:C	2.41	0.45
1:E:219:PHE:O	1:E:248:PRO:HD2	2.17	0.45
1:E:492:ILE:HA	1:E:504:MET:O	2.16	0.45
1:I:267:ASP:HB3	1:I:271:TYR:HE2	1.82	0.45
1:I:326:LYS:CA	1:I:581:LEU:CB	2.87	0.45
2:J:40:TYR:O	2:J:40:TYR:CD1	2.70	0.45
2:J:281:GLN:OE1	2:J:321:ASP:HB2	2.14	0.45
1:M:195:LYS:NZ	1:M:195:LYS:CB	2.72	0.45
1:A:291:LEU:HD23	1:A:291:LEU:HA	1.79	0.45
1:A:463:LYS:HD2	1:A:463:LYS:HA	1.73	0.45
2:B:52:LEU:O	2:B:101:PRO:HB3	2.17	0.45
1:E:305:ILE:O	1:E:309:VAL:HG23	2.17	0.45
1:E:360:LYS:HD3	1:E:360:LYS:HA	1.77	0.45
2:F:247:VAL:HG12	2:F:257:PHE:CD1	2.51	0.45
2:F:301:ARG:NH1	2:F:302:LYS:HD2	2.29	0.45
2:J:277:TYR:CD1	2:J:281:GLN:HG3	2.52	0.45
1:M:134:GLN:CD	1:M:134:GLN:N	2.75	0.45
1:A:333:THR:HG22	1:A:334:ASN:H	1.81	0.45
2:B:61:MET:HE3	2:B:108:LEU:HD21	1.96	0.45
2:F:191:GLN:OE1	2:F:191:GLN:N	2.50	0.45
2:F:310:HIS:HB2	2:F:412:PHE:CZ	2.51	0.45
3:G:18:U:H2'	3:G:19:A:C8	2.51	0.45
1:I:463:LYS:HD2	1:I:463:LYS:HA	1.73	0.45
1:I:468:LYS:HB3	1:I:468:LYS:HE3	1.74	0.45
2:J:185:ASP:CA	2:J:188:LEU:CD2	2.80	0.45
2:J:330:GLU:OE2	2:J:414:GLY:HA2	2.16	0.45
1:M:6:ASP:OD1	1:M:7:ASN:N	2.50	0.45
1:A:160:SER:O	1:A:182:TYR:HB3	2.17	0.45
1:E:13:TYR:CG	1:E:13:TYR:O	2.70	0.45
1:E:106:LYS:NZ	1:M:176:THR:HG22	2.32	0.45
1:E:122:GLY:HA2	1:E:291:LEU:CB	2.45	0.45
1:E:256:PRO:HA	1:E:285:GLY:O	2.17	0.45
1:I:238:ARG:HH12	1:I:271:TYR:CA	2.29	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:281:GLN:HG2	2:J:318:GLY:O	2.17	0.45
1:A:418:LYS:NZ	4:D:11:DC:OP1	2.50	0.44
1:E:10:TYR:HH	1:E:290:MET:HA	1.82	0.44
1:E:13:TYR:O	1:E:13:TYR:CD1	2.70	0.44
1:E:30:ARG:HH11	1:E:36:THR:HG1	1.60	0.44
1:E:60:HIS:ND1	1:E:60:HIS:N	2.66	0.44
1:E:252:TYR:HA	1:E:280:TYR:O	2.17	0.44
1:E:342:SER:HA	1:E:404:ILE:O	2.17	0.44
1:E:381:LEU:HB2	1:E:420:PHE:HZ	1.82	0.44
1:I:387:ILE:HA	1:I:390:ILE:HG22	1.99	0.44
1:I:418:LYS:NZ	4:L:11:DC:OP1	2.50	0.44
2:J:377:TRP:CD2	2:J:406:PRO:HB3	2.53	0.44
1:M:23:PHE:O	1:M:23:PHE:CD1	2.70	0.44
1:M:119:LEU:HD12	1:M:146:VAL:HG13	1.98	0.44
1:A:19:HIS:HB2	1:A:219:PHE:HB3	1.98	0.44
1:A:221:LEU:CD2	1:A:221:LEU:C	2.85	0.44
2:B:113:CYS:O	2:B:116:VAL:HG12	2.16	0.44
2:B:234:ASN:OD1	2:B:235:ALA:N	2.50	0.44
1:E:152:SER:OG	1:M:158:HIS:HA	2.17	0.44
1:E:174:LEU:HD23	1:E:174:LEU:C	2.41	0.44
2:F:35:SER:HA	2:F:93:VAL:HG23	1.98	0.44
1:I:331:LEU:HD13	2:J:365:LEU:CD2	2.47	0.44
2:J:185:ASP:C	2:J:188:LEU:CD2	2.91	0.44
2:J:465:GLU:N	2:J:465:GLU:OE1	2.47	0.44
1:M:34:LEU:CD1	1:M:144:ASP:HB3	2.48	0.44
2:N:247:VAL:HG12	2:N:257:PHE:CD1	2.51	0.44
2:N:260:TYR:O	2:N:260:TYR:CD1	2.70	0.44
1:A:131:GLU:HB2	1:A:151:PHE:HE1	1.83	0.44
2:B:377:TRP:CD2	2:B:406:PRO:HB3	2.53	0.44
2:F:55:LEU:HB3	2:F:148:VAL:HG22	2.00	0.44
2:J:52:LEU:O	2:J:101:PRO:HB3	2.17	0.44
1:M:61:ASP:OD2	1:M:64:ASN:HB2	2.17	0.44
1:M:226:TYR:C	1:M:253:TRP:HZ2	2.25	0.44
1:M:371:LEU:HD21	1:M:423:GLU:HG2	2.00	0.44
2:N:310:HIS:HB2	2:N:412:PHE:CZ	2.51	0.44
1:E:161:VAL:HG12	1:E:182:TYR:CD2	2.33	0.44
2:F:29:HIS:CG	2:F:32:ARG:HB3	2.53	0.44
2:F:44:PHE:CD2	2:F:46:LEU:HG	2.52	0.44
2:F:139:GLN:HE21	2:F:139:GLN:H	1.65	0.44
2:F:376:LEU:HD22	2:F:409:LEU:HD11	2.00	0.44
1:M:385:PRO:O	1:M:389:LYS:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:29:HIS:CG	2:N:32:ARG:HB3	2.53	0.44
1:A:248:PRO:HB2	1:M:175:ASN:CG	2.42	0.44
1:E:121:ILE:HD12	1:E:121:ILE:HA	1.78	0.44
1:E:130:LEU:HD21	1:E:138:VAL:HG23	2.00	0.44
1:E:254:THR:OG1	1:E:254:THR:O	2.19	0.44
1:E:512:LYS:HB3	1:E:513:PRO:HD3	1.99	0.44
2:J:234:ASN:OD1	2:J:235:ALA:N	2.50	0.44
1:M:305:ILE:O	1:M:309:VAL:HG23	2.17	0.44
2:N:275:LEU:HB2	2:N:280:MET:CE	2.48	0.44
2:N:284:LEU:HD23	2:N:284:LEU:HA	1.74	0.44
2:N:376:LEU:HD22	2:N:409:LEU:HD11	1.99	0.44
2:B:248:PHE:CZ	2:B:290:LEU:CD2	2.99	0.44
1:E:60:HIS:CB	1:E:67:ILE:HD12	2.48	0.44
1:E:163:HIS:CD2	1:E:165:GLU:HB2	2.53	0.44
1:I:241:ILE:HA	1:I:246:ALA:HB1	2.00	0.44
1:M:44:LEU:HA	1:M:47:ARG:CG	2.46	0.44
1:M:137:VAL:CG1	1:M:139:PHE:CE2	3.00	0.44
2:N:35:SER:HA	2:N:93:VAL:HG23	1.98	0.44
2:N:87:TYR:HD1	2:N:88:GLY:N	2.16	0.44
2:N:105:LEU:HD23	2:N:105:LEU:HA	1.82	0.44
2:N:284:LEU:HD12	2:N:319:ALA:HA	2.00	0.44
1:A:175:ASN:CG	1:M:248:PRO:HB3	2.42	0.44
2:B:232:LYS:HB3	2:B:239:GLU:HB3	1.99	0.44
4:D:6:DA:H2'	4:D:7:DA:H8	1.82	0.44
2:F:379:GLN:HE21	2:F:441:LYS:HG3	1.83	0.44
3:G:11:G:N2	4:H:14:DT:O2	2.51	0.44
1:I:330:ALA:HB2	1:I:581:LEU:CG	2.44	0.44
1:I:333:THR:HG22	1:I:334:ASN:H	1.81	0.44
2:J:185:ASP:OD1	2:J:188:LEU:HD11	2.18	0.44
2:J:232:LYS:HB3	2:J:239:GLU:HB3	1.99	0.44
2:J:341:TYR:HD2	2:J:403:LEU:HD23	1.69	0.44
2:J:410:ARG:HG2	2:J:412:PHE:CE2	2.53	0.44
1:M:269:ILE:HG13	1:M:281:LEU:HB2	2.00	0.44
2:N:196:VAL:HG12	2:N:197:MET:SD	2.57	0.44
4:P:18:DA:H4'	4:P:19:DG:OP1	2.18	0.44
2:B:258:VAL:CG1	2:B:290:LEU:HD11	2.37	0.44
1:E:148:GLU:CG	1:E:161:VAL:CG1	2.95	0.44
1:E:168:TYR:CE1	1:M:192:GLN:N	2.85	0.44
1:E:371:LEU:HD21	1:E:423:GLU:HG2	2.00	0.44
2:F:270:LYS:HA	2:F:270:LYS:HD2	1.84	0.44
1:I:342:SER:OG	1:I:404:ILE:O	2.32	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:225:ILE:N	2:J:304:PHE:O	2.48	0.44
1:A:394:ASP:OD1	1:A:395:GLU:N	2.51	0.44
4:D:15:DA:H5'	4:D:15:DA:C8	2.51	0.44
1:E:61:ASP:OD1	1:E:61:ASP:N	2.50	0.44
1:E:148:GLU:HG2	1:E:182:TYR:HD2	1.78	0.44
1:E:223:VAL:CG1	1:E:253:TRP:CD2	3.01	0.44
2:F:55:LEU:HD23	2:F:148:VAL:HG22	1.99	0.44
2:F:87:TYR:HD1	2:F:88:GLY:N	2.16	0.44
2:F:149:TYR:CE2	2:F:188:LEU:CD1	2.95	0.44
1:M:342:SER:HA	1:M:404:ILE:O	2.17	0.44
1:M:502:TRP:CH2	2:N:8:LEU:HD21	2.53	0.44
2:N:44:PHE:CD2	2:N:46:LEU:HG	2.52	0.44
1:A:218:ARG:HB3	1:A:218:ARG:HH11	1.83	0.43
2:B:410:ARG:HG2	2:B:412:PHE:CE2	2.53	0.43
1:E:482:LYS:HB3	1:E:482:LYS:HE2	1.77	0.43
1:I:131:GLU:HB2	1:I:151:PHE:HE1	1.83	0.43
1:I:310:ARG:HB2	2:J:325:SER:HB2	2.00	0.43
2:J:40:TYR:CE2	2:J:214:LYS:HB2	2.52	0.43
1:M:24:LEU:H	1:M:140:THR:CG2	2.13	0.43
1:M:136:LYS:HB3	1:M:179:PHE:CG	2.53	0.43
1:M:381:LEU:HB2	1:M:420:PHE:HZ	1.82	0.43
2:N:229:TYR:O	2:N:450:GLN:NE2	2.40	0.43
2:N:327:THR:O	2:N:327:THR:OG1	2.31	0.43
1:A:309:VAL:HG23	1:A:310:ARG:N	2.33	0.43
2:B:70:GLU:CB	2:B:197:MET:HE1	2.48	0.43
2:F:187:ALA:CB	3:G:2:U:H6	2.30	0.43
2:F:331:LEU:HB2	2:F:413:SER:HB3	2.00	0.43
3:G:7:G:H2'	3:G:8:U:C6	2.54	0.43
1:I:214:ALA:O	1:I:217:ILE:CG2	2.59	0.43
1:M:426:LEU:HG	1:M:444:HIS:CD2	2.53	0.43
1:M:497:ARG:HD3	1:M:497:ARG:HA	1.70	0.43
1:M:512:LYS:HB3	1:M:513:PRO:HD3	1.99	0.43
3:O:17:U:H2'	3:O:18:U:C6	2.54	0.43
1:A:130:LEU:O	1:A:132:MET:N	2.51	0.43
1:E:9:PHE:HZ	1:E:290:MET:CE	2.29	0.43
1:E:247:PHE:HA	1:E:248:PRO:HD2	1.73	0.43
4:H:18:DA:H4'	4:H:19:DG:OP1	2.18	0.43
2:J:195:ASN:OD1	3:K:2:U:N3	2.48	0.43
2:J:223:ALA:CA	2:J:303:ILE:CD1	2.96	0.43
1:M:437:HIS:C	1:M:438:ARG:HD2	2.44	0.43
2:N:79:GLU:HG3	2:N:192:CYS:HB2	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:221:LEU:HG	1:A:222:VAL:N	2.32	0.43
2:B:18:LEU:HD23	2:B:28:THR:HG22	2.00	0.43
2:B:259:ALA:HB3	2:B:448:TYR:CZ	2.54	0.43
1:E:272:ALA:O	1:E:277:VAL:HG12	2.19	0.43
1:E:426:LEU:HG	1:E:444:HIS:CD2	2.53	0.43
1:E:437:HIS:C	1:E:438:ARG:HD2	2.43	0.43
2:F:136:LEU:O	2:F:143:PHE:HE2	2.00	0.43
1:I:285:GLY:HA3	1:I:289:GLU:OE1	2.18	0.43
1:I:298:VAL:HG13	1:I:301:LYS:HD3	1.99	0.43
2:J:304:PHE:CZ	2:J:421:THR:HG22	2.54	0.43
4:L:6:DA:H2'	4:L:7:DA:H8	1.83	0.43
1:A:217:ILE:HG23	1:A:245:ASN:HD22	1.83	0.43
1:A:576:ARG:HA	1:A:576:ARG:HD3	1.92	0.43
1:I:482:LYS:HA	1:I:482:LYS:HD3	1.90	0.43
2:J:446:LEU:HD23	2:J:446:LEU:HA	1.84	0.43
1:M:330:ALA:HB2	1:M:581:LEU:HA	2.01	0.43
2:N:135:GLY:O	2:N:139:GLN:NE2	2.52	0.43
2:N:269:ARG:HH11	2:N:269:ARG:HB2	1.83	0.43
3:O:11:G:N2	4:P:14:DT:O2	2.51	0.43
1:A:16:ASN:ND2	1:A:16:ASN:C	2.75	0.43
1:A:254:THR:OG1	1:A:290:MET:HE1	2.19	0.43
1:E:217:ILE:HA	1:E:245:ASN:O	2.19	0.43
1:E:502:TRP:CH2	2:F:8:LEU:HD21	2.53	0.43
3:G:17:U:H2'	3:G:18:U:C6	2.53	0.43
1:I:309:VAL:HG23	1:I:310:ARG:N	2.33	0.43
1:M:130:LEU:HD21	1:M:138:VAL:HG23	2.00	0.43
1:A:249:HIS:CE1	1:M:175:ASN:O	2.71	0.43
1:A:362:ARG:HD2	1:A:391:PHE:HE1	1.83	0.43
1:E:234:MET:SD	1:E:268:LEU:HD13	2.58	0.43
2:F:63:LYS:CB	2:F:188:LEU:HD11	2.28	0.43
2:F:262:THR:OG1	2:F:283:VAL:HG21	2.17	0.43
2:J:117:ALA:O	2:J:156:LYS:NZ	2.39	0.43
2:J:188:LEU:CD2	2:J:188:LEU:N	2.73	0.43
1:M:209:HIS:HE1	1:M:213:LEU:HD11	1.84	0.43
1:M:238:ARG:HA	1:M:241:ILE:HG12	1.99	0.43
2:N:55:LEU:HD23	2:N:148:VAL:HG22	1.99	0.43
2:N:238:GLN:OE1	3:O:12:A:H4'	2.19	0.43
1:A:125:VAL:HG23	1:A:295:TRP:HB2	1.91	0.43
1:A:171:LEU:HD12	1:A:171:LEU:HA	1.92	0.43
1:A:310:ARG:HB2	2:B:325:SER:HB2	2.00	0.43
2:N:379:GLN:HE21	2:N:441:LYS:HG3	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:61:MET:CE	2:B:108:LEU:HD23	2.34	0.43
1:E:137:VAL:HA	1:E:181:ILE:HG12	2.01	0.43
1:E:165:GLU:HG3	1:E:191:TYR:HB3	1.86	0.43
2:F:61:MET:HE2	2:F:61:MET:HB3	1.79	0.43
2:J:21:PHE:HZ	2:J:30:PRO:HA	1.84	0.43
2:J:46:LEU:HD11	2:N:137:PHE:CD2	2.53	0.43
1:M:22:TRP:CE3	1:M:24:LEU:HD21	2.54	0.43
1:M:22:TRP:HE3	1:M:24:LEU:HD21	1.83	0.43
1:M:164:LEU:HD11	1:M:208:ILE:HD12	2.00	0.43
1:M:310:ARG:HE	1:M:310:ARG:HB2	1.67	0.43
2:J:20:LEU:HD12	2:J:20:LEU:HA	1.83	0.43
1:M:468:LYS:HA	1:M:468:LYS:HD2	1.73	0.43
2:N:377:TRP:CD2	2:N:406:PRO:HB3	2.54	0.43
3:O:8:U:H2'	3:O:9:U:C6	2.54	0.43
1:A:125:VAL:HG13	1:A:291:LEU:HD13	2.00	0.42
1:A:128:ALA:HB1	1:A:305:ILE:HG21	2.00	0.42
1:A:242:ASP:OD2	1:A:275:LYS:NZ	2.51	0.42
1:A:322:PRO:HD2	2:B:9:ALA:HB1	2.01	0.42
2:B:229:TYR:HB3	2:B:242:THR:HG22	2.01	0.42
1:E:44:LEU:CD2	1:E:107:TYR:CZ	3.02	0.42
2:F:377:TRP:CD2	2:F:406:PRO:HB3	2.54	0.42
3:G:8:U:H2'	3:G:9:U:C6	2.54	0.42
1:I:265:VAL:CG1	1:I:281:LEU:CD1	2.97	0.42
2:J:18:LEU:HD23	2:J:28:THR:HG22	2.00	0.42
1:M:218:ARG:HE	1:M:218:ARG:HB3	1.57	0.42
1:M:360:LYS:HD3	1:M:360:LYS:HA	1.77	0.42
1:M:465:VAL:HG11	1:M:527:ARG:NH2	2.34	0.42
2:N:55:LEU:HB3	2:N:148:VAL:HG22	2.00	0.42
2:N:61:MET:HE2	2:N:61:MET:HB3	1.79	0.42
2:N:280:MET:HE1	2:N:315:GLU:OE1	2.18	0.42
1:E:154:ILE:HD13	1:E:309:VAL:CG2	2.48	0.42
1:E:525:ARG:O	1:E:529:ARG:HG3	2.19	0.42
2:F:19:LEU:HB3	2:F:21:PHE:CE1	2.52	0.42
2:F:382:VAL:HG11	2:F:438:LEU:HD21	2.01	0.42
2:J:301:ARG:O	2:J:328:GLU:N	2.49	0.42
1:M:525:ARG:O	1:M:529:ARG:HG3	2.19	0.42
2:N:19:LEU:HB3	2:N:21:PHE:CE1	2.52	0.42
3:O:7:G:H2'	3:O:8:U:C6	2.54	0.42
1:A:237:LEU:O	1:A:241:ILE:HG13	2.20	0.42
1:A:343:ILE:HD12	1:A:343:ILE:HA	1.86	0.42
1:I:394:ASP:OD1	1:I:395:GLU:N	2.51	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:229:TYR:HB3	2:J:242:THR:HG22	2.01	0.42
1:M:432:GLU:OE1	1:M:432:GLU:N	2.52	0.42
2:N:280:MET:CE	2:N:315:GLU:OE1	2.66	0.42
1:A:176:THR:O	1:M:19:HIS:HE1	2.02	0.42
1:A:217:ILE:CD1	1:A:245:ASN:C	2.79	0.42
1:A:285:GLY:HA3	1:A:289:GLU:OE1	2.18	0.42
2:B:72:GLN:HG3	2:B:98:LEU:HD23	2.01	0.42
2:B:195:ASN:OD1	3:C:2:U:N3	2.49	0.42
1:E:137:VAL:HA	1:E:181:ILE:CG1	2.49	0.42
1:E:168:TYR:HE2	1:M:165:GLU:OE2	2.03	0.42
1:E:522:ASP:O	1:E:526:SER:N	2.38	0.42
2:F:284:LEU:HD12	2:F:319:ALA:HA	2.00	0.42
1:I:362:ARG:HD2	1:I:391:PHE:HE1	1.83	0.42
2:J:72:GLN:HG3	2:J:98:LEU:HD23	2.01	0.42
2:J:461:GLU:O	2:J:461:GLU:HG2	2.19	0.42
2:N:301:ARG:NH1	2:N:302:LYS:HD2	2.29	0.42
1:A:241:ILE:HG23	1:A:277:VAL:HG21	2.02	0.42
2:B:188:LEU:H	2:B:188:LEU:HG	1.40	0.42
1:E:213:LEU:CD2	1:E:240:ALA:CB	2.98	0.42
2:F:238:GLN:OE1	3:G:12:A:H4'	2.19	0.42
1:M:216:ALA:C	1:M:246:ALA:O	2.63	0.42
2:N:213:TRP:CE2	2:N:433:TRP:HD1	2.38	0.42
2:N:331:LEU:HB2	2:N:413:SER:HB3	2.00	0.42
2:N:382:VAL:HG11	2:N:438:LEU:HD21	2.02	0.42
1:A:124:ARG:HD3	1:A:309:VAL:HA	2.02	0.42
2:B:363:ARG:NH2	2:B:429:THR:HG1	2.15	0.42
1:E:245:ASN:HD22	1:E:245:ASN:HA	1.57	0.42
1:M:241:ILE:HG12	1:M:241:ILE:H	1.48	0.42
2:N:168:ARG:HE	2:N:172:LYS:HE2	1.85	0.42
1:I:321:LEU:O	1:I:322:PRO:O	2.36	0.42
1:M:291:LEU:HD13	1:M:291:LEU:HA	1.81	0.42
1:A:304:ALA:O	1:A:308:LYS:HG2	2.20	0.42
1:E:32:ALA:HB2	1:E:123:HIS:NE2	2.34	0.42
1:E:155:SER:HB3	1:E:157:LYS:HE2	2.02	0.42
1:E:219:PHE:C	1:E:248:PRO:HD2	2.45	0.42
1:E:465:VAL:HG11	1:E:527:ARG:NH2	2.34	0.42
2:F:168:ARG:HE	2:F:172:LYS:HE2	1.85	0.42
1:I:223:VAL:HG13	1:I:253:TRP:HA	2.02	0.42
2:J:177:ASN:O	2:J:177:ASN:ND2	2.52	0.42
2:J:363:ARG:HH22	2:J:429:THR:HG1	1.68	0.42
1:M:237:LEU:HB3	1:M:241:ILE:HD11	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:332:ARG:HD3	1:A:537:TYR:HE1	1.85	0.42
1:A:366:LYS:HA	1:A:366:LYS:HD2	1.86	0.42
1:A:468:LYS:HB3	1:A:468:LYS:HE3	1.74	0.42
1:A:495:GLU:OE2	2:B:340:TRP:NE1	2.32	0.42
2:B:146:LEU:CD2	2:B:178:LEU:HD21	2.49	0.42
1:E:330:ALA:HB2	1:E:581:LEU:HA	2.01	0.42
2:F:130:VAL:O	2:F:133:MET:HB2	2.20	0.42
2:F:139:GLN:NE2	2:F:139:GLN:H	2.18	0.42
1:M:151:PHE:CD1	1:M:159:LEU:HD22	2.55	0.42
1:M:165:GLU:OE1	1:M:165:GLU:HA	2.11	0.42
1:M:395:GLU:H	1:M:395:GLU:HG2	1.66	0.42
2:B:47:PRO:HG3	2:B:205:TYR:CZ	2.55	0.42
2:B:151:PRO:HD2	2:B:154:TRP:CE3	2.55	0.42
2:B:461:GLU:HG2	2:B:461:GLU:O	2.19	0.42
1:E:137:VAL:HG13	1:E:181:ILE:HD11	2.01	0.42
2:F:105:LEU:HD23	2:F:105:LEU:HA	1.82	0.42
1:I:22:TRP:HD1	1:I:135:THR:OG1	2.03	0.42
1:M:122:GLY:N	1:M:288:ASP:OD1	2.53	0.42
1:M:154:ILE:HB	1:M:308:LYS:HB2	2.02	0.42
2:N:151:PRO:HD2	2:N:154:TRP:CE3	2.55	0.42
2:B:21:PHE:HZ	2:B:30:PRO:HA	1.84	0.41
2:B:221:ASP:HA	2:B:291:TYR:OH	2.19	0.41
1:E:136:LYS:HB3	1:E:179:PHE:CG	2.55	0.41
1:E:140:THR:HG21	1:E:182:TYR:OH	2.19	0.41
2:F:196:VAL:HG22	3:G:2:U:C4	2.55	0.41
1:I:430:LEU:HD22	1:I:437:HIS:HB2	2.01	0.41
1:I:484:LEU:HD23	1:I:511:ILE:HG21	2.02	0.41
2:B:227:LEU:HD23	2:B:244:CYS:HB2	2.02	0.41
4:D:20:DG:H2'	4:D:21:DA:H8	1.85	0.41
1:E:153:ASP:N	1:M:156:GLY:O	2.53	0.41
1:I:177:GLU:OE2	1:I:218:ARG:NH2	2.53	0.41
2:J:224:TYR:CE2	2:J:424:SER:HB2	2.55	0.41
4:L:20:DG:H2'	4:L:21:DA:H8	1.85	0.41
1:M:132:MET:HE2	1:M:134:GLN:OE1	2.20	0.41
1:M:162:TYR:CE2	1:M:169:ALA:CB	3.02	0.41
2:N:110:LEU:HD12	2:N:110:LEU:H	1.85	0.41
1:A:16:ASN:HB2	1:A:19:HIS:CE1	2.55	0.41
1:A:241:ILE:HG22	1:A:275:LYS:HD2	2.01	0.41
1:A:484:LEU:HD23	1:A:511:ILE:HG21	2.02	0.41
2:B:110:LEU:HD12	2:B:112:GLU:H	1.85	0.41
2:B:137:PHE:CE1	2:B:176:LEU:CD1	3.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:248:PHE:CE2	2:B:294:SER:CB	3.03	0.41
1:E:526:SER:HA	1:E:529:ARG:HG3	2.02	0.41
2:F:145:VAL:HG22	2:F:208:ALA:HB2	2.01	0.41
2:F:213:TRP:CE2	2:F:433:TRP:HD1	2.38	0.41
1:I:217:ILE:HA	1:I:245:ASN:O	2.20	0.41
1:I:552:GLY:O	1:I:576:ARG:NE	2.53	0.41
2:J:47:PRO:HG3	2:J:205:TYR:CZ	2.55	0.41
1:M:411:VAL:HG21	1:M:501:LEU:HD21	2.01	0.41
2:N:70:GLU:HB2	2:N:197:MET:CE	2.42	0.41
2:N:262:THR:HG21	2:N:283:VAL:CG2	2.12	0.41
2:N:285:SER:O	2:N:288:LEU:HD23	2.20	0.41
1:A:478:VAL:HG13	1:A:481:ALA:HB3	2.02	0.41
2:B:303:ILE:HG13	2:B:323:PHE:CE2	2.56	0.41
1:E:120:ASN:HA	2:F:321:ASP:HB3	2.02	0.41
1:E:340:THR:OG1	1:E:572:GLU:HG2	2.20	0.41
1:E:493:ARG:NH2	2:F:339:ASN:OD1	2.51	0.41
2:F:261:ASP:HB2	2:F:463:VAL:HA	2.02	0.41
1:I:440:ARG:HD3	1:I:510:TRP:CZ3	2.56	0.41
1:I:478:VAL:HG13	1:I:481:ALA:HB3	2.02	0.41
1:E:497:ARG:HD3	1:E:497:ARG:HA	1.70	0.41
1:E:561:CYS:SG	1:E:569:ALA:HB3	2.60	0.41
2:F:285:SER:O	2:F:288:LEU:HD23	2.20	0.41
1:I:212:PHE:CZ	1:I:237:LEU:HG	2.55	0.41
2:J:44:PHE:CD2	2:N:176:LEU:HD21	2.56	0.41
1:M:23:PHE:O	1:M:223:VAL:HG23	2.21	0.41
2:N:130:VAL:O	2:N:133:MET:HB2	2.20	0.41
2:B:179:PRO:HG2	2:B:179:PRO:O	2.21	0.41
2:B:257:PHE:HE2	2:B:444:VAL:HB	1.83	0.41
1:E:268:LEU:HD23	1:E:269:ILE:HD13	2.02	0.41
2:F:140:LYS:NZ	2:F:140:LYS:CB	2.73	0.41
1:I:362:ARG:O	1:I:365:GLN:HG2	2.21	0.41
2:J:151:PRO:HD2	2:J:154:TRP:CE3	2.55	0.41
2:J:335:ILE:HA	4:L:13:DC:OP1	2.21	0.41
1:M:436:LEU:HD12	1:M:436:LEU:HA	1.90	0.41
2:N:269:ARG:CB	2:N:269:ARG:HH11	2.33	0.41
1:A:482:LYS:HA	1:A:482:LYS:HD3	1.90	0.41
1:A:497:ARG:HD3	1:A:497:ARG:HA	1.62	0.41
2:B:224:TYR:CE2	2:B:424:SER:HB2	2.55	0.41
1:E:22:TRP:CE3	1:E:24:LEU:HD21	2.53	0.41
2:F:151:PRO:HD2	2:F:154:TRP:CE3	2.55	0.41
2:N:64:LEU:HD21	2:N:149:TYR:HB2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:213:LEU:HD22	1:E:243:GLN:NE2	2.36	0.41
1:E:411:VAL:HG21	1:E:501:LEU:HD21	2.01	0.41
2:F:64:LEU:HD21	2:F:149:TYR:HB2	2.03	0.41
2:F:196:VAL:HG22	3:G:2:U:C5	2.55	0.41
2:F:243:CYS:SG	2:F:453:ALA:HA	2.61	0.41
2:F:332:VAL:HG22	2:F:411:ARG:HG2	2.02	0.41
3:G:7:G:H2'	3:G:8:U:H6	1.86	0.41
1:I:135:THR:HG23	1:I:135:THR:O	2.21	0.41
1:I:171:LEU:HD13	1:I:211:CYS:CA	2.50	0.41
1:I:241:ILE:CG1	1:I:247:PHE:HE2	2.34	0.41
1:M:340:THR:OG1	1:M:572:GLU:HG2	2.20	0.41
1:M:561:CYS:SG	1:M:569:ALA:HB3	2.60	0.41
2:N:75:ALA:HB1	2:N:194:ALA:HB2	2.02	0.41
1:A:123:HIS:CE1	1:A:144:ASP:OD1	2.74	0.41
1:A:343:ILE:HG22	1:A:404:ILE:HD11	2.03	0.41
1:A:362:ARG:O	1:A:365:GLN:HG2	2.20	0.41
1:A:552:GLY:O	1:A:576:ARG:NE	2.53	0.41
2:B:70:GLU:OE1	2:B:70:GLU:HA	2.21	0.41
1:E:29:SER:O	1:E:34:LEU:HB2	2.20	0.41
1:E:132:MET:HE2	1:E:134:GLN:OE1	2.20	0.41
1:E:418:LYS:NZ	4:H:11:DC:OP1	2.54	0.41
2:F:62:ARG:HA	2:F:65:ASP:OD2	2.21	0.41
1:I:4:LEU:HD12	1:I:4:LEU:HA	1.93	0.41
1:I:304:ALA:O	1:I:308:LYS:HG2	2.20	0.41
1:I:386:GLU:H	1:I:386:GLU:HG2	1.61	0.41
1:I:425:ILE:HG21	1:I:503:ILE:HD11	2.03	0.41
2:J:64:LEU:HD11	2:J:149:TYR:CB	2.48	0.41
2:J:110:LEU:HD12	2:J:112:GLU:H	1.85	0.41
1:M:16:ASN:HD21	1:M:20:MET:HE2	1.85	0.41
1:M:24:LEU:CD1	1:M:140:THR:HG21	2.51	0.41
1:M:24:LEU:HD12	1:M:140:THR:HG21	2.03	0.41
1:M:164:LEU:HD21	1:M:186:HIS:HA	2.02	0.41
1:M:217:ILE:HG23	1:M:245:ASN:OD1	2.21	0.41
1:E:49:TYR:CZ	1:E:55:GLN:HG3	2.56	0.41
2:F:110:LEU:HD12	2:F:110:LEU:H	1.85	0.41
2:F:261:ASP:CG	2:F:263:ARG:HD3	2.46	0.41
1:I:332:ARG:HD3	1:I:537:TYR:HE1	1.85	0.41
1:M:363:ILE:HD11	1:M:372:LEU:HD13	2.03	0.41
1:M:462:ARG:HG2	1:M:471:LEU:HG	2.03	0.41
1:A:440:ARG:HD3	1:A:510:TRP:CZ3	2.56	0.40
2:B:223:ALA:HB3	2:B:303:ILE:HD13	2.01	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:432:GLU:OE1	1:E:432:GLU:N	2.52	0.40
1:E:462:ARG:HG2	1:E:471:LEU:HG	2.03	0.40
2:F:18:LEU:HD12	2:F:18:LEU:H	1.87	0.40
3:G:19:A:H2'	3:G:20:A:O4'	2.21	0.40
1:I:9:PHE:HB2	1:I:282:VAL:HG11	2.03	0.40
1:I:23:PHE:CD1	1:I:139:PHE:O	2.66	0.40
2:J:227:LEU:HD23	2:J:244:CYS:HB2	2.02	0.40
1:M:62:ILE:O	1:M:68:LYS:HG3	2.21	0.40
1:M:123:HIS:CD2	1:M:146:VAL:HG11	2.56	0.40
1:M:149:THR:HG22	1:M:150:ALA:N	2.35	0.40
2:N:243:CYS:SG	2:N:453:ALA:HA	2.61	0.40
3:O:19:A:H2'	3:O:20:A:O4'	2.21	0.40
1:A:147:ILE:HG21	1:A:182:TYR:CE1	2.57	0.40
1:A:430:LEU:HD22	1:A:437:HIS:HB2	2.01	0.40
2:B:32:ARG:O	2:B:36:GLN:HG2	2.21	0.40
3:C:13:G:H2'	3:C:14:C:H6	1.84	0.40
1:E:363:ILE:HD11	1:E:372:LEU:HD13	2.03	0.40
2:F:262:THR:O	2:F:262:THR:CG2	2.69	0.40
1:I:366:LYS:HA	1:I:366:LYS:HD2	1.86	0.40
2:J:32:ARG:O	2:J:36:GLN:HG2	2.21	0.40
1:M:35:PRO:HG2	1:M:112:LEU:CD2	2.51	0.40
1:M:49:TYR:O	1:M:49:TYR:HD1	2.04	0.40
1:M:90:SER:CB	1:M:198:THR:H	2.34	0.40
1:M:188:ASP:HB3	1:M:190:ARG:HD2	2.03	0.40
1:M:266:GLN:HE21	1:M:270:THR:HG23	1.86	0.40
1:A:177:GLU:HB2	1:M:19:HIS:NE2	2.36	0.40
2:B:255:PHE:CD2	2:B:433:TRP:CZ2	3.09	0.40
2:B:335:ILE:HA	4:D:13:DC:OP1	2.21	0.40
1:E:436:LEU:HD12	1:E:436:LEU:HA	1.90	0.40
1:M:41:ILE:CG2	1:M:45:LYS:HE3	2.51	0.40
1:M:143:PHE:CE2	1:M:194:ILE:HG21	2.33	0.40
2:N:332:VAL:HG22	2:N:411:ARG:HG2	2.02	0.40
1:A:135:THR:HG23	1:A:135:THR:O	2.21	0.40
1:A:248:PRO:CB	1:M:175:ASN:ND2	2.84	0.40
1:E:90:SER:CB	1:E:198:THR:H	2.34	0.40
1:E:210:LYS:HB2	1:E:210:LYS:HE3	1.51	0.40
1:E:435:ILE:H	1:E:435:ILE:HG12	1.71	0.40
2:F:51:ARG:CZ	2:F:144:ASP:OD1	2.69	0.40
2:F:379:GLN:NE2	2:F:441:LYS:HG3	2.37	0.40
1:I:343:ILE:HG22	1:I:404:ILE:HD11	2.03	0.40
1:I:437:HIS:O	1:I:438:ARG:HD2	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:24:LEU:HG	1:M:140:THR:HG21	1.93	0.40
1:M:35:PRO:HG2	1:M:112:LEU:HD21	2.01	0.40
2:N:197:MET:O	2:N:201:SER:CB	2.57	0.40
1:A:8:GLU:OE2	1:E:98:ARG:HD2	2.22	0.40
1:A:139:PHE:CD2	1:A:212:PHE:CD2	3.09	0.40
1:A:335:ALA:HB1	1:A:502:TRP:HB3	2.03	0.40
2:B:44:PHE:HE2	2:B:253:THR:OG1	2.00	0.40
2:B:190:ARG:NH1	2:B:190:ARG:CA	2.84	0.40
1:E:53:GLU:O	1:E:55:GLN:HG2	2.22	0.40
1:E:137:VAL:CG1	1:E:181:ILE:HD11	2.52	0.40
1:E:264:ALA:HA	1:E:267:ASP:OD2	2.20	0.40
1:E:371:LEU:HD23	1:E:371:LEU:HA	1.87	0.40
2:J:430:LYS:HE2	2:J:430:LYS:HB3	1.78	0.40
2:N:239:GLU:OE1	2:N:269:ARG:HD2	2.21	0.40
2:N:242:THR:HG21	2:N:275:LEU:HD21	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	450/587 (77%)	428 (95%)	20 (4%)	2 (0%)	30	58
1	E	570/587 (97%)	531 (93%)	36 (6%)	3 (0%)	24	53
1	I	451/587 (77%)	430 (95%)	18 (4%)	3 (1%)	18	46
1	M	570/587 (97%)	536 (94%)	33 (6%)	1 (0%)	43	70
2	B	450/473 (95%)	426 (95%)	22 (5%)	2 (0%)	30	58
2	F	450/473 (95%)	432 (96%)	17 (4%)	1 (0%)	43	70
2	J	450/473 (95%)	427 (95%)	22 (5%)	1 (0%)	43	70
2	N	450/473 (95%)	427 (95%)	20 (4%)	3 (1%)	18	46

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	3841/4240 (91%)	3637 (95%)	188 (5%)	16 (0%)	31 58

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	145	ASP
2	B	190	ARG
2	B	191	GLN
1	I	145	ASP
2	N	189	THR
1	E	242	ASP
1	I	141	THR
2	N	192	CYS
1	E	147	ILE
1	M	141	THR
1	I	322	PRO
1	A	131	GLU
2	F	261	ASP
2	N	185	ASP
1	E	250	GLY
2	J	404	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	389/502 (78%)	374 (96%)	15 (4%)	28 53
1	E	493/502 (98%)	464 (94%)	29 (6%)	18 44
1	I	390/502 (78%)	367 (94%)	23 (6%)	18 44
1	M	493/502 (98%)	466 (94%)	27 (6%)	19 46
2	B	394/407 (97%)	383 (97%)	11 (3%)	38 60
2	F	394/407 (97%)	385 (98%)	9 (2%)	44 63
2	J	394/407 (97%)	384 (98%)	10 (2%)	42 62

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	N	394/407 (97%)	384 (98%)	10 (2%)	42 62
All	All	3341/3636 (92%)	3207 (96%)	134 (4%)	29 53

All (134) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	16	ASN
1	A	18	GLN
1	A	19	HIS
1	A	21	MET
1	A	121	ILE
1	A	141	THR
1	A	142	ASN
1	A	143	PHE
1	A	161	VAL
1	A	181	ILE
1	A	208	ILE
1	A	218	ARG
1	A	219	PHE
1	A	221	LEU
1	A	314	VAL
2	B	49	GLN
2	B	60	HIS
2	B	64	LEU
2	B	67	ILE
2	B	176	LEU
2	B	188	LEU
2	B	190	ARG
2	B	207	LYS
2	B	256	GLU
2	B	258	VAL
2	B	293	SER
1	E	36	THR
1	E	38	SER
1	E	40	ILE
1	E	55	GLN
1	E	58	GLN
1	E	60	HIS
1	E	61	ASP
1	E	62	ILE
1	E	93	PHE
1	E	119	LEU

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Mol	Chain	Res	Type
1	E	120	ASN
1	E	121	ILE
1	E	141	THR
1	E	143	PHE
1	E	144	ASP
1	E	154	ILE
1	E	163	HIS
1	E	164	LEU
1	E	174	LEU
1	E	180	PRO
1	E	210	LYS
1	E	217	ILE
1	E	243	GLN
1	E	284	THR
1	E	286	THR
1	E	287	PHE
1	E	289	GLU
1	E	407	ILE
1	E	443	THR
2	F	16	GLU
2	F	139	GLN
2	F	140	LYS
2	F	185	ASP
2	F	190	ARG
2	F	191	GLN
2	F	238	GLN
2	F	263	ARG
2	F	327	THR
1	I	15	GLN
1	I	16	ASN
1	I	20	MET
1	I	139	PHE
1	I	141	THR
1	I	143	PHE
1	I	161	VAL
1	I	213	LEU
1	I	234	MET
1	I	237	LEU
1	I	242	ASP
1	I	243	GLN
1	I	244	ASN
1	I	265	VAL

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Mol	Chain	Res	Type
1	I	266	GLN
1	I	267	ASP
1	I	269	ILE
1	I	275	LYS
1	I	314	VAL
1	I	326	LYS
1	I	329	PRO
1	I	331	LEU
1	I	359	LEU
2	J	41	SER
2	J	49	GLN
2	J	60	HIS
2	J	189	THR
2	J	190	ARG
2	J	281	GLN
2	J	301	ARG
2	J	302	LYS
2	J	303	ILE
2	J	400	LEU
1	M	14	LEU
1	M	30	ARG
1	M	47	ARG
1	M	49	TYR
1	M	51	LEU
1	M	55	GLN
1	M	93	PHE
1	M	146	VAL
1	M	147	ILE
1	M	149	THR
1	M	153	ASP
1	M	154	ILE
1	M	155	SER
1	M	164	LEU
1	M	165	GLU
1	M	190	ARG
1	M	192	GLN
1	M	194	ILE
1	M	195	LYS
1	M	209	HIS
1	M	211	CYS
1	M	213	LEU
1	M	241	ILE

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Mol	Chain	Res	Type
1	M	245	ASN
1	M	251	LEU
1	M	269	ILE
1	M	350	LEU
2	N	16	GLU
2	N	185	ASP
2	N	186	THR
2	N	190	ARG
2	N	195	ASN
2	N	197	MET
2	N	238	GLN
2	N	270	LYS
2	N	327	THR
2	N	468	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (59) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	12	HIS
1	A	16	ASN
1	A	18	GLN
1	A	19	HIS
1	A	123	HIS
1	A	243	GLN
1	A	244	ASN
1	A	245	ASN
1	A	249	HIS
2	B	45	ASN
2	B	60	HIS
2	B	73	ASN
2	B	114	HIS
2	B	295	HIS
2	B	296	ASN
2	B	379	GLN
1	E	16	ASN
1	E	46	HIS
1	E	55	GLN
1	E	58	GLN
1	E	72	GLN
1	E	83	GLN
1	E	175	ASN
1	E	243	GLN

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Mol	Chain	Res	Type
1	E	244	ASN
1	E	538	GLN
2	F	72	GLN
2	F	114	HIS
2	F	141	HIS
2	F	177	ASN
2	F	272	ASN
2	F	295	HIS
2	F	333	GLN
2	F	379	GLN
2	F	386	ASN
2	F	434	ASN
1	I	7	ASN
1	I	142	ASN
1	I	244	ASN
2	J	45	ASN
2	J	379	GLN
1	M	55	GLN
1	M	83	GLN
1	M	123	HIS
1	M	192	GLN
1	M	244	ASN
1	M	245	ASN
1	M	266	GLN
2	N	72	GLN
2	N	114	HIS
2	N	139	GLN
2	N	195	ASN
2	N	272	ASN
2	N	281	GLN
2	N	295	HIS
2	N	333	GLN
2	N	379	GLN
2	N	386	ASN
2	N	434	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	C	20/21 (95%)	7 (35%)	0
3	G	20/21 (95%)	7 (35%)	0

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	K	20/21 (95%)	7 (35%)	0
3	O	20/21 (95%)	7 (35%)	0
All	All	80/84 (95%)	28 (35%)	0

All (28) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
3	C	4	C
3	C	5	C
3	C	12	A
3	C	13	G
3	C	15	U
3	C	16	G
3	C	17	U
3	G	4	C
3	G	5	C
3	G	6	U
3	G	13	G
3	G	15	U
3	G	16	G
3	G	17	U
3	K	4	C
3	K	5	C
3	K	12	A
3	K	13	G
3	K	15	U
3	K	16	G
3	K	17	U
3	O	4	C
3	O	5	C
3	O	6	U
3	O	13	G
3	O	15	U
3	O	16	G
3	O	17	U

There are no RNA pucker outliers to report.

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](#)

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

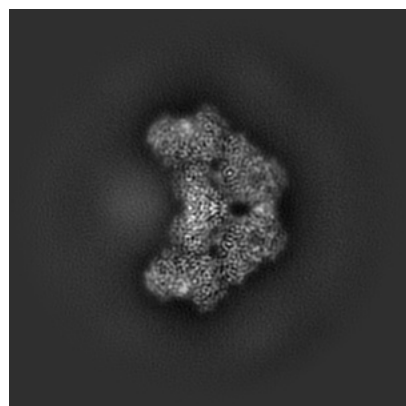
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-39028. These allow visual inspection of the internal detail of the map and identification of artifacts.

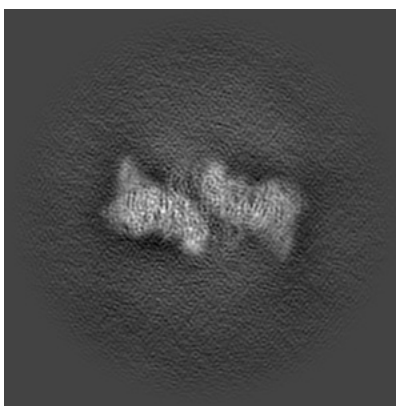
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

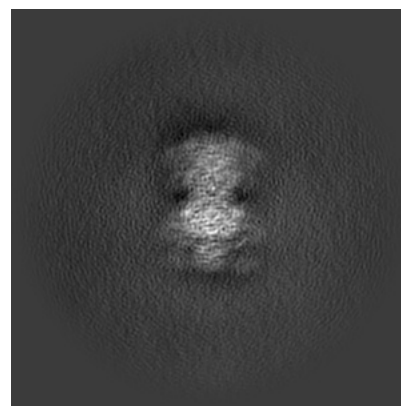
6.1.1 Primary map



X

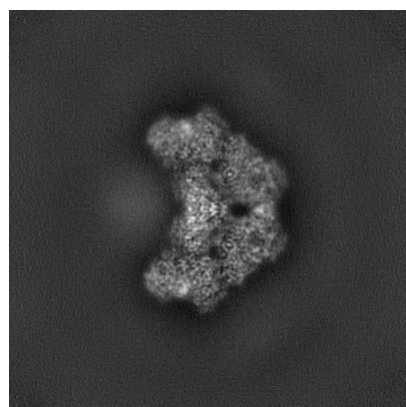


Y

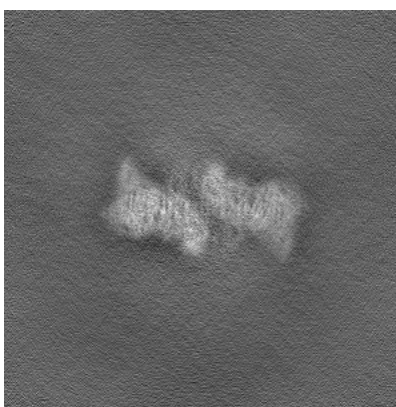


Z

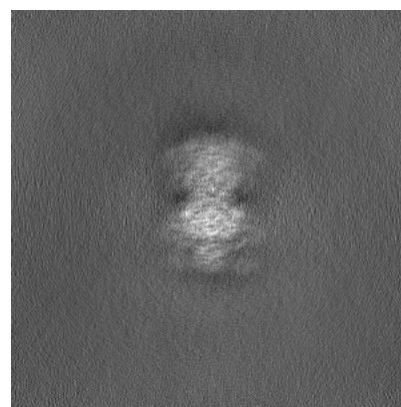
6.1.2 Raw map



X



Y

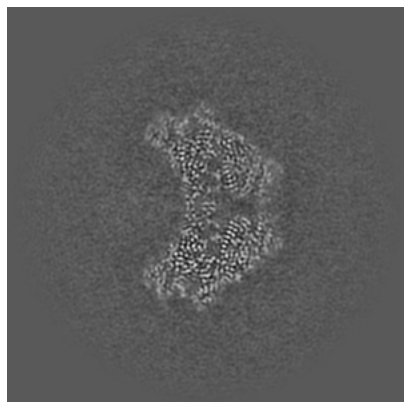


Z

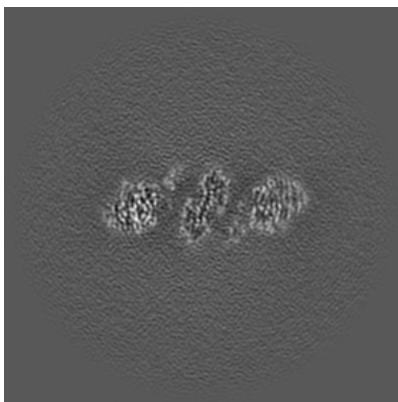
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 230

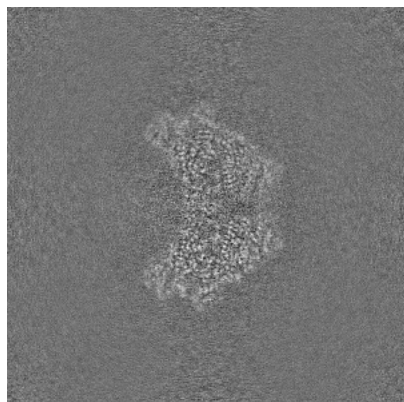


Y Index: 230

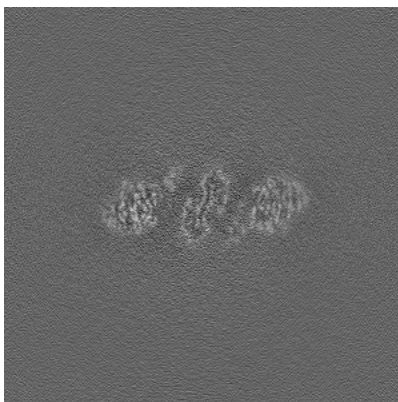


Z Index: 230

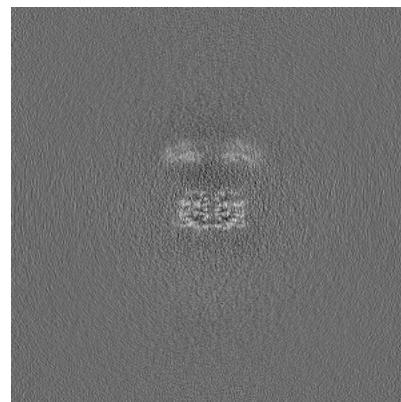
6.2.2 Raw map



X Index: 230



Y Index: 230

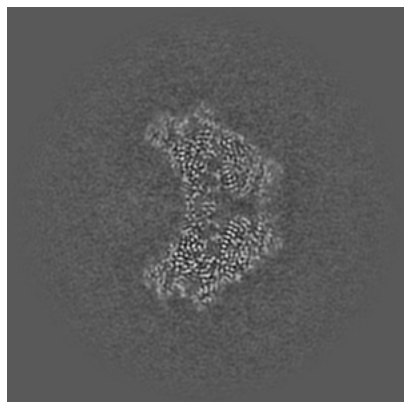


Z Index: 230

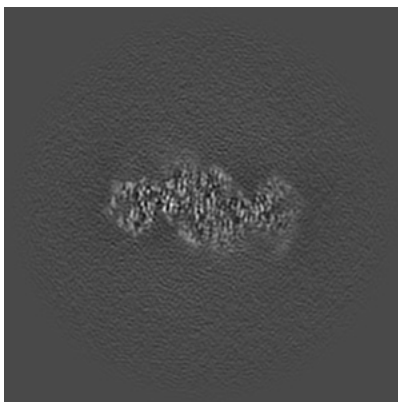
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

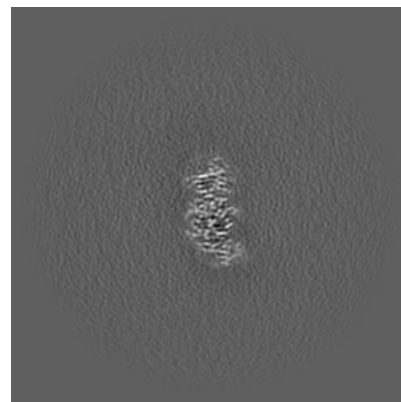
6.3.1 Primary map



X Index: 230

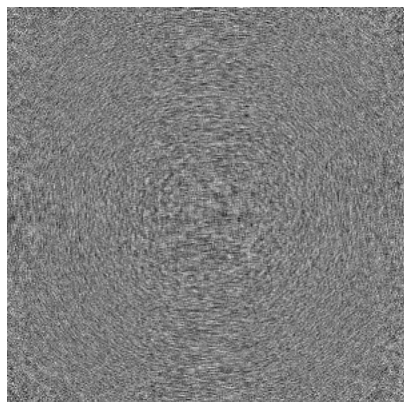


Y Index: 213

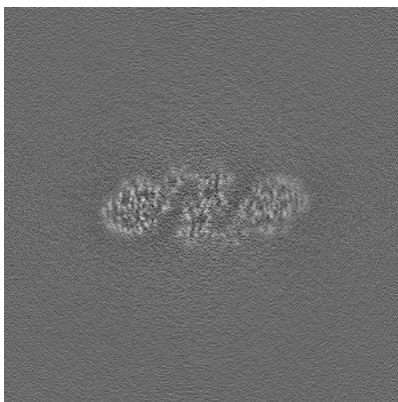


Z Index: 167

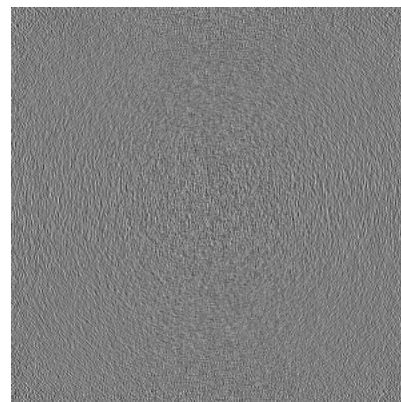
6.3.2 Raw map



X Index: 0



Y Index: 227

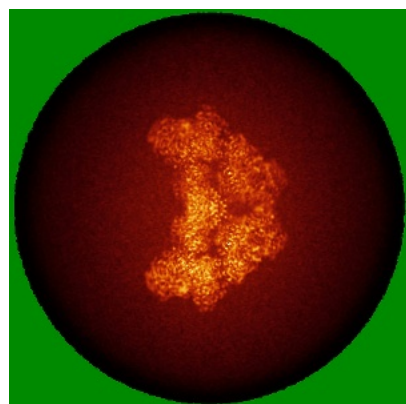


Z Index: 0

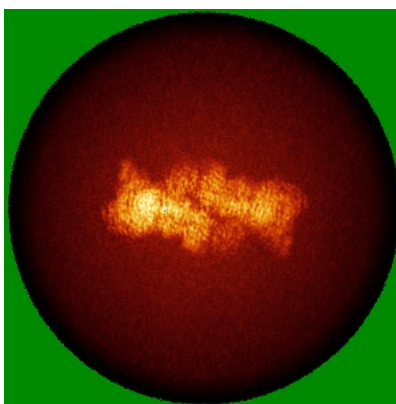
The images above show the largest variance slices of the map in three orthogonal directions.

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

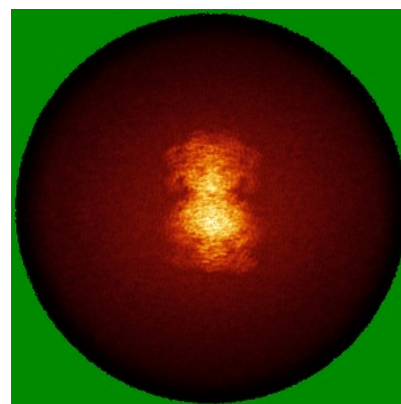
6.4.1 Primary map



X

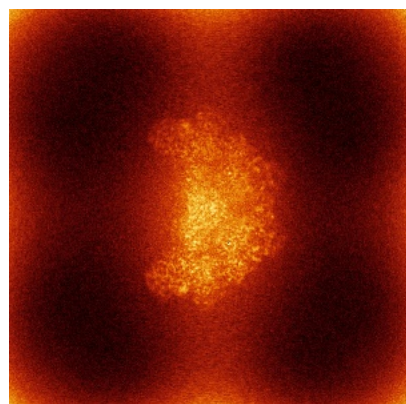


Y

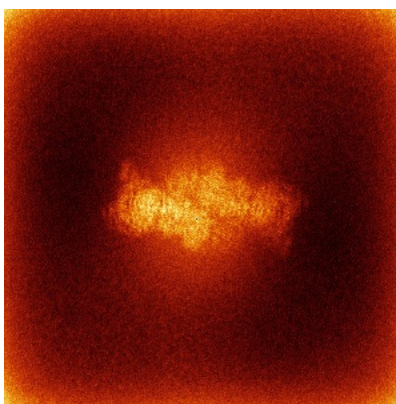


Z

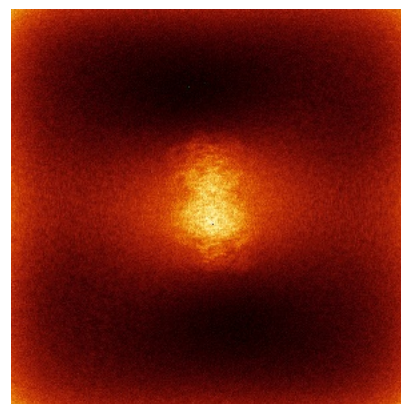
6.4.2 Raw map



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](#)

This section was not generated.

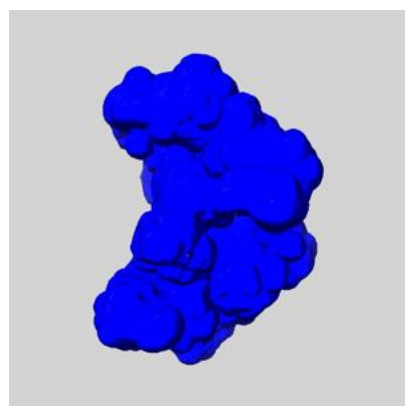
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

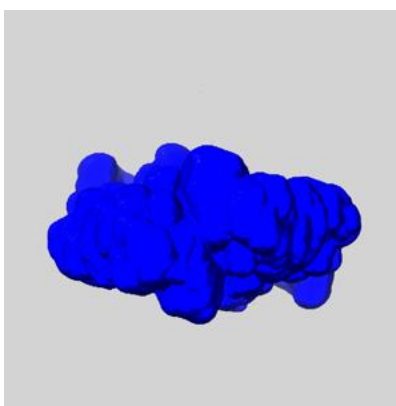
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

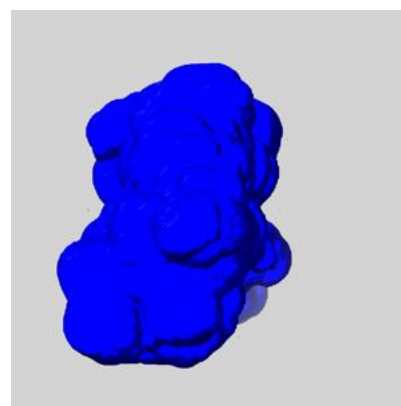
6.6.1 emd_39028_msk_1.map [i](#)



X



Y

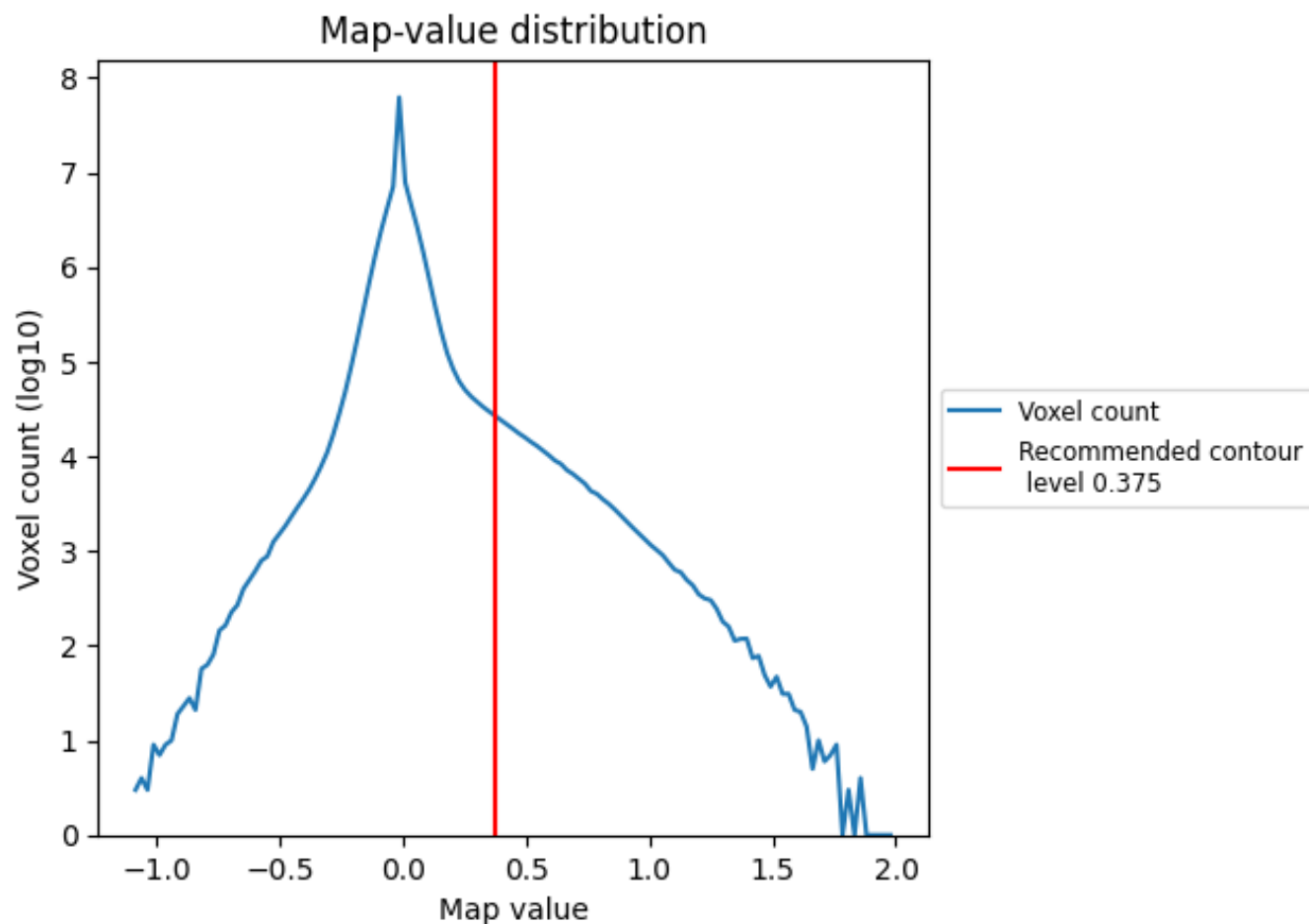


Z

7 Map analysis [i](#)

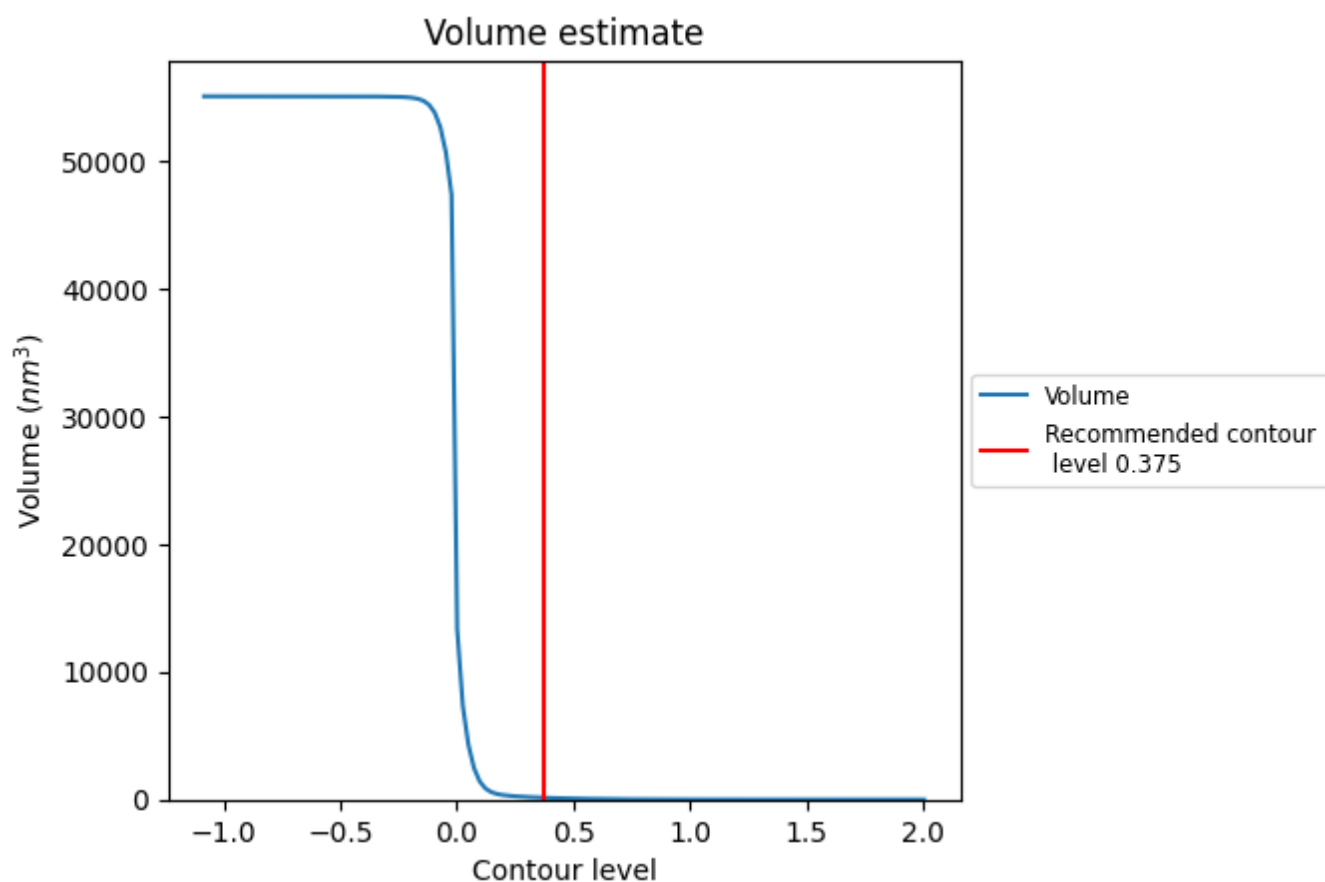
This section contains the results of statistical analysis of the map.

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.

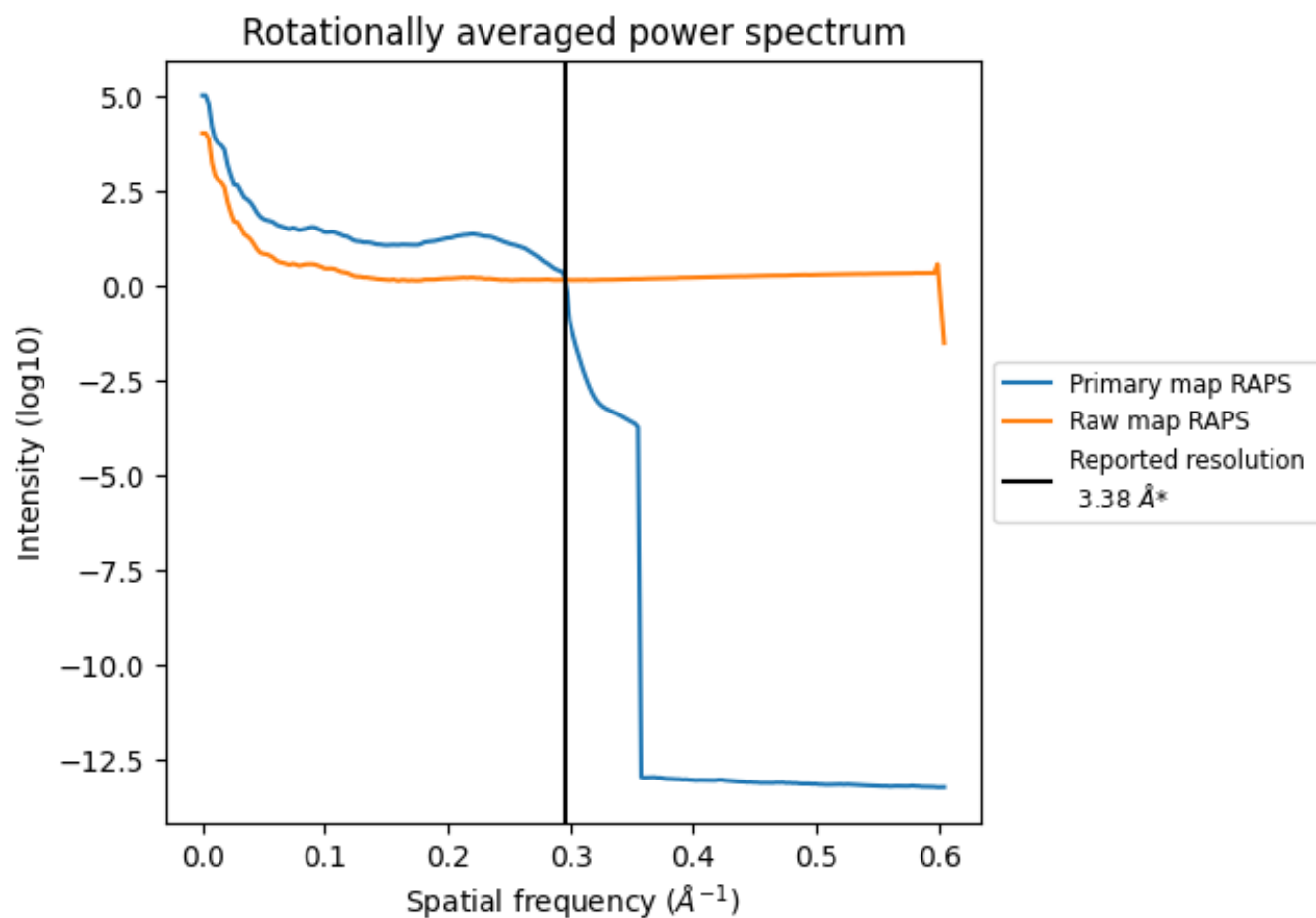
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 142 nm³; this corresponds to an approximate mass of 128 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

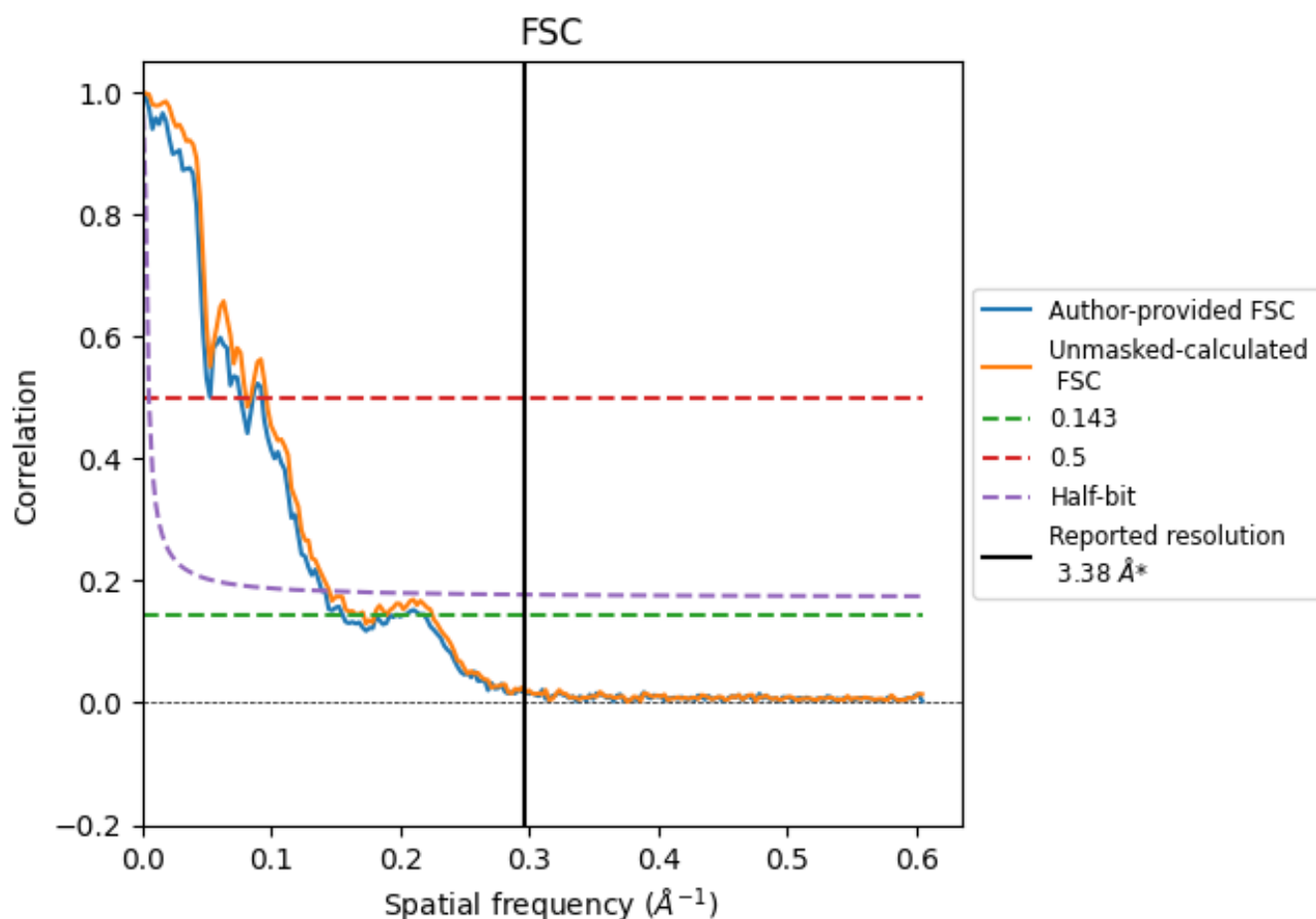


*Reported resolution corresponds to spatial frequency of 0.296 Å⁻¹

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 0.296 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.38	-	-
Author-provided FSC curve	6.44	19.05	7.09
Unmasked-calculated*	5.83	12.44	6.90

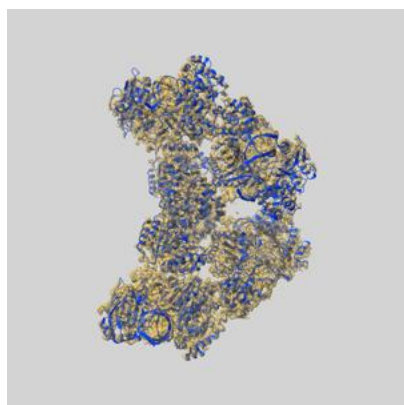
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 6.44 differs from the reported value 3.38 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 5.83 differs from the reported value 3.38 by more than 10 %

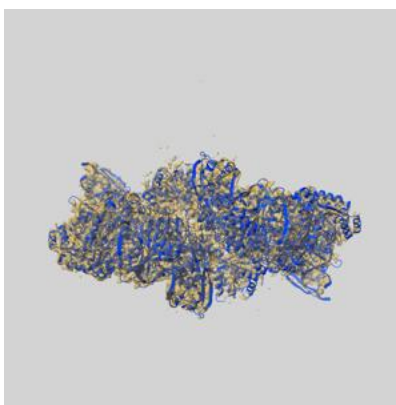
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-39028 and PDB model 8Y80. Per-residue inclusion information can be found in [section 3](#) on [page 6](#).

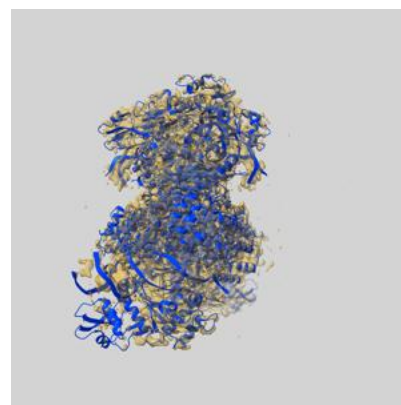
9.1 Map-model overlay [i](#)



X



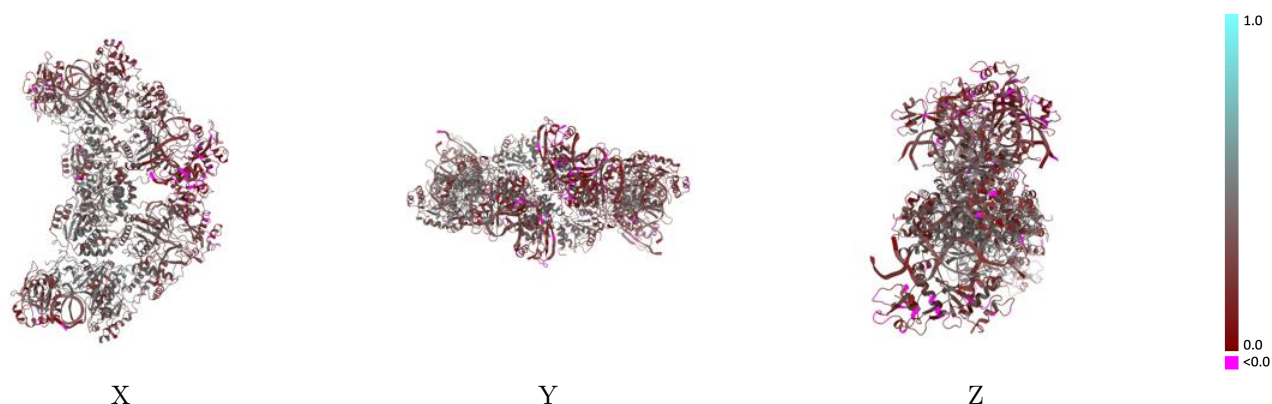
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.375 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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

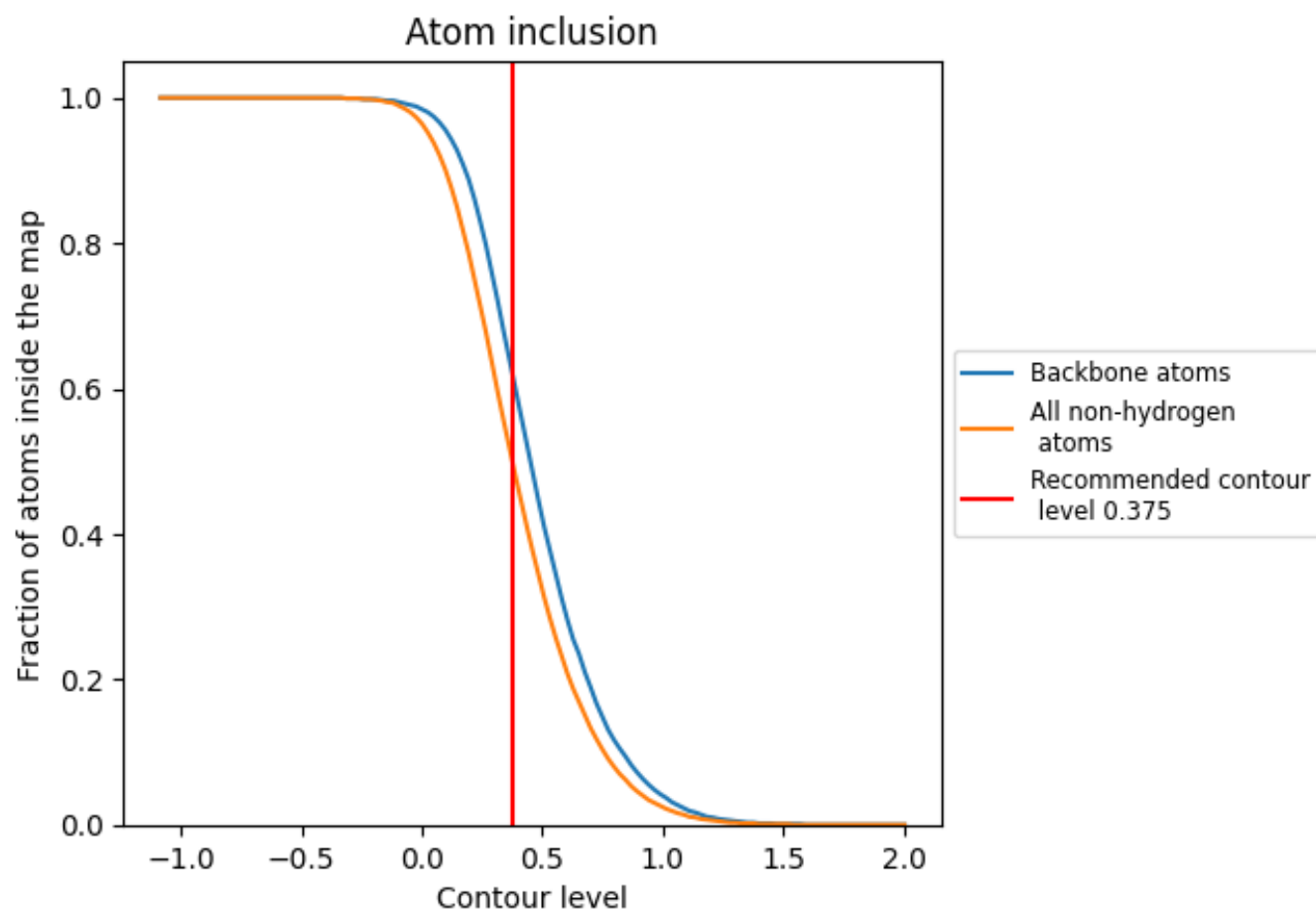


The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

This section was not generated.

9.4 Atom inclusion [i](#)



At the recommended contour level, 62% of all backbone atoms, 50% 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 (0.375) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5000	 0.3310
A	 0.5130	 0.3510
B	 0.6620	 0.4180
C	 0.7130	 0.3200
D	 0.7450	 0.3530
E	 0.5390	 0.3370
F	 0.5890	 0.3720
G	 0.7040	 0.3300
H	 0.7010	 0.3210
I	 0.2830	 0.2840
J	 0.4500	 0.3430
K	 0.5330	 0.2810
L	 0.4940	 0.2810
M	 0.4420	 0.2900
N	 0.4200	 0.3030
O	 0.5410	 0.2350
P	 0.4960	 0.2090

