



Full wwPDB EM Validation Report ⓘ

Mar 8, 2026 – 10:56 AM UTC

PDB ID : 4CI0 / pdb_00004ci0
EMDB ID : EMD-2513
Title : Electron cryo-microscopy of F420-reducing NiFe hydrogenase Frh
Authors : Allegretti, M.; Mills, D.J.; McMullan, G.; Kuehlbrandt, W.; Vonck, J.
Deposited on : 2013-12-05
Resolution : 3.36 Å(reported)
Based on initial model : 3ZFS

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:

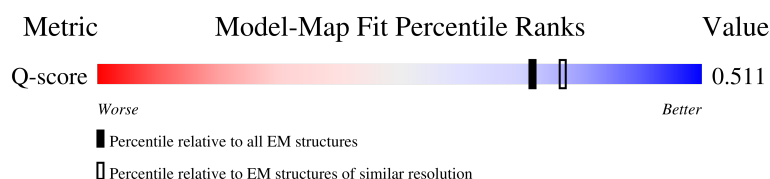
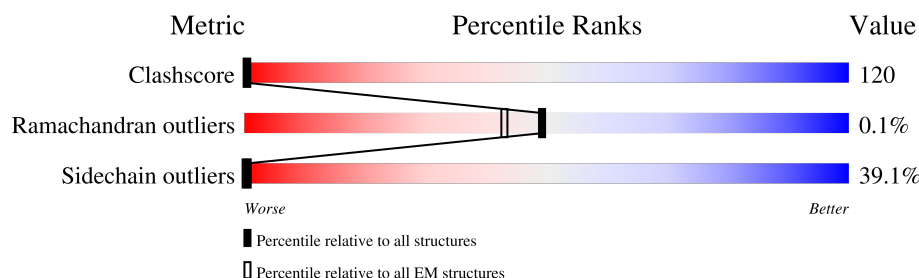
EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMD 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 3.36 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14332 (2.86 - 3.86)

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	386	13% 16% 51% 30% .
2	B	275	11% 11% 41% 28% . 17%
3	C	281	19% 14% 50% 31% .

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
7	SF4	B	1274	-	-	X	-
7	SF4	B	1275	-	-	X	-
7	SF4	B	1276	-	-	X	-
7	SF4	C	1282	-	-	X	-

2 Entry composition [i](#)

There are 9 unique types of molecules in this entry. The entry contains 6956 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 F420-REDUCING HYDROGENASE, SUBUNIT ALPHA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	385	Total	C	N	O	S	0	0
			2985	1875	532	561	17		

- Molecule 2 is a protein called F420-REDUCING HYDROGENASE, SUBUNIT GAMMA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	228	Total	C	N	O	S	0	0
			1737	1085	290	338	24		

- Molecule 3 is a protein called F420-REDUCING HYDROGENASE, SUBUNIT BETA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	280	Total	C	N	O	S	0	0
			2145	1376	347	407	15		

- Molecule 4 is FE (III) ION (CCD ID: FE) (formula: Fe).

Mol	Chain	Residues	Atoms		AltConf
4	A	1	Total	Fe	0
			1	1	

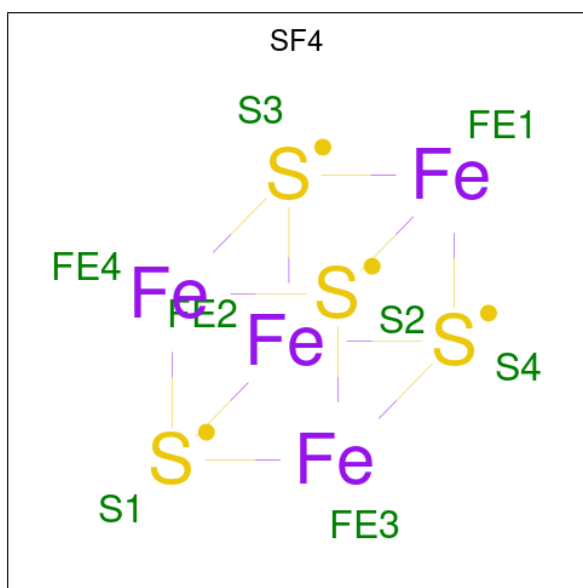
- Molecule 5 is NICKEL (II) ION (CCD ID: NI) (formula: Ni).

Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total	Ni	0
			1	1	

- Molecule 6 is FE (II) ION (CCD ID: FE2) (formula: Fe).

Mol	Chain	Residues	Atoms		AltConf
6	A	1	Total	Fe	0
			1	1	

- Molecule 7 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4).

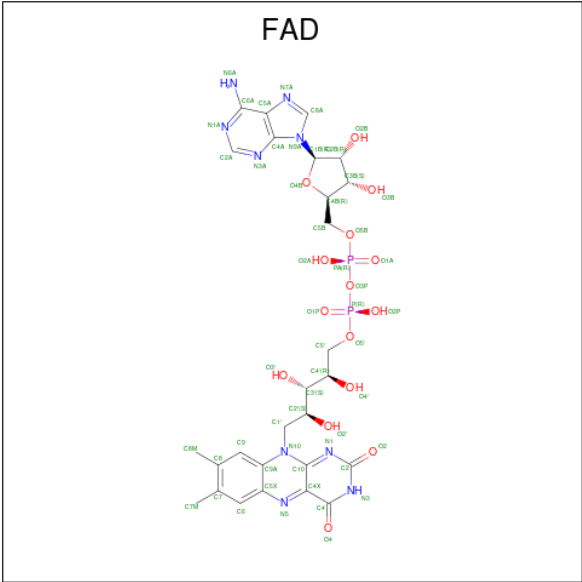


Mol	Chain	Residues	Atoms			AltConf
7	B	1	Total	Fe	S	0
			8	4	4	
7	B	1	Total	Fe	S	0
			8	4	4	
7	B	1	Total	Fe	S	0
			8	4	4	
7	C	1	Total	Fe	S	0
			8	4	4	

- Molecule 8 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
8	B	1	Total	Zn	0
			1	1	

- Molecule 9 is FLAVIN-ADENINE DINUCLEOTIDE (CCD ID: FAD) (formula: $\text{C}_{27}\text{H}_{33}\text{N}_9\text{O}_{15}\text{P}_2$).

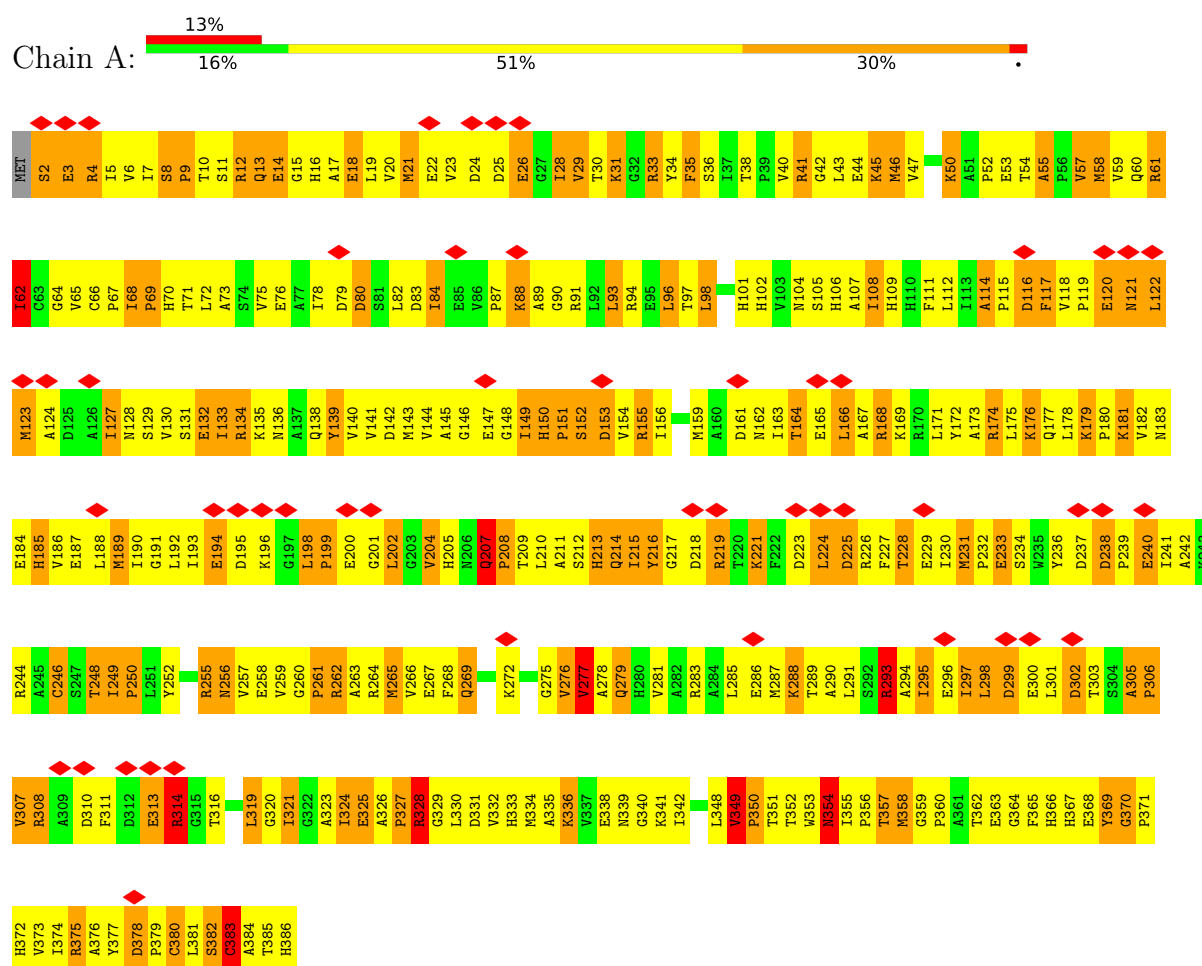


Mol	Chain	Residues	Atoms					AltConf
9	C	1	Total	C	N	O	P	0
			53	27	9	15	2	

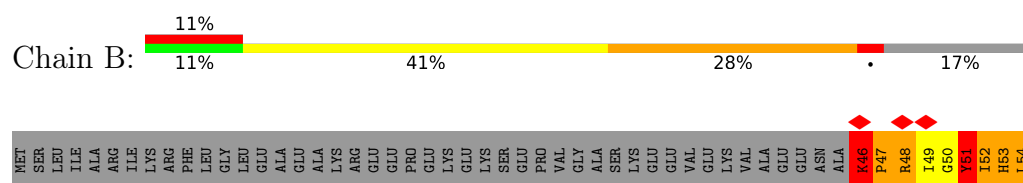
3 Residue-property plots

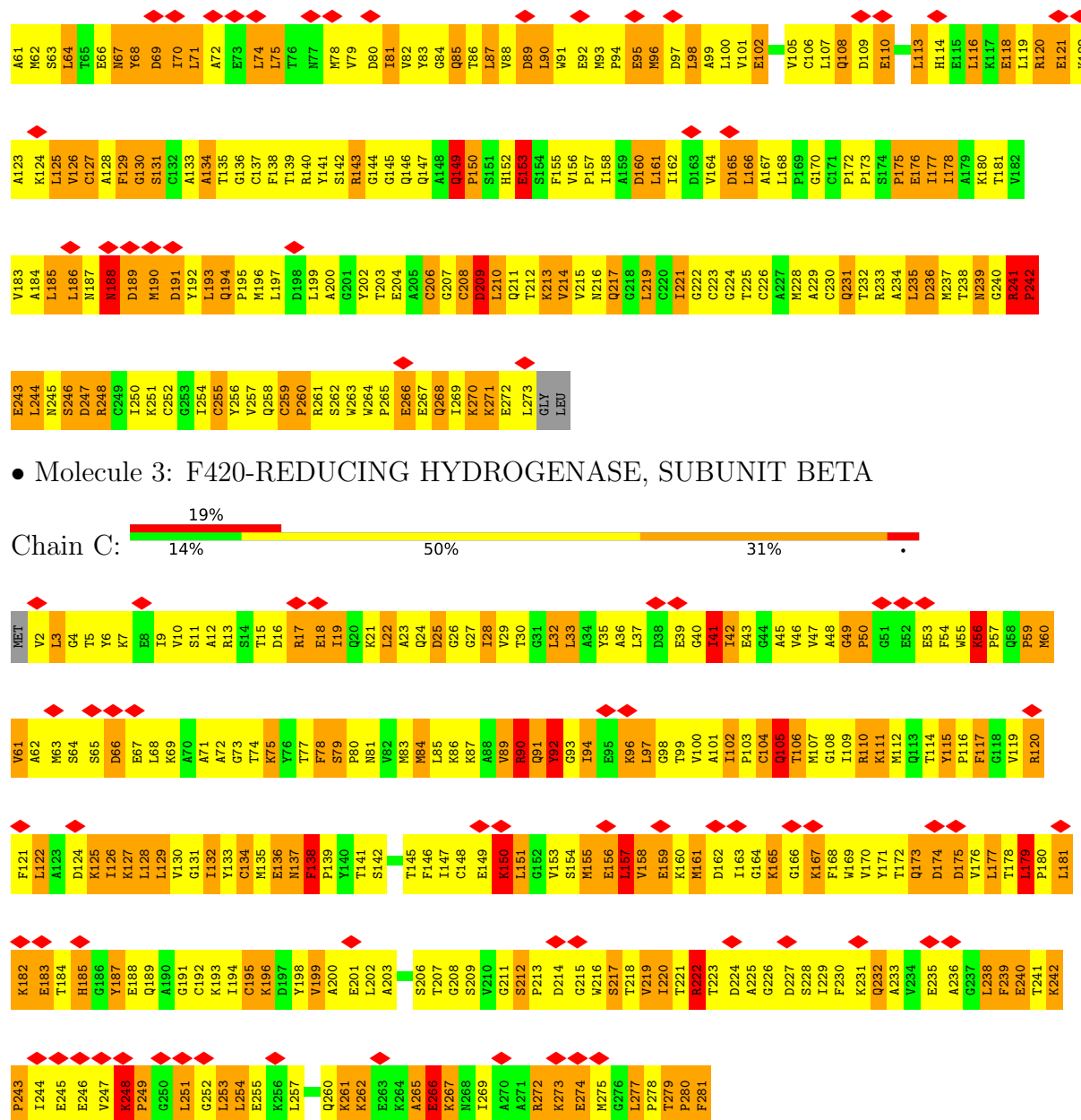
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

• Molecule 1: F420-REDUCING HYDROGENASE, SUBUNIT ALPHA



• Molecule 2: F420-REDUCING HYDROGENASE, SUBUNIT GAMMA





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, T	Depositor
Number of particles used	26000	Depositor
Resolution determination method	Not provided	
CTF correction method	EACH IMAGE	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	22	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	106000	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.628	Depositor
Minimum map value	-0.198	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.023	Depositor
Recommended contour level	0.09	Depositor
Map size ($\text{\AA}$)	295.68002, 295.68002, 295.68002	wwPDB
Map dimensions	224, 224, 224	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.32, 1.32, 1.32	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: FAD, ZN, FE, NI, FE2, SF4

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	0.99	24/3048 (0.8%)	1.25	45/4133 (1.1%)
2	B	0.93	10/1768 (0.6%)	1.34	30/2400 (1.2%)
3	C	0.94	12/2184 (0.5%)	1.33	35/2946 (1.2%)
All	All	0.96	46/7000 (0.7%)	1.30	110/9479 (1.2%)

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
1	A	0	2
2	B	0	1
3	C	0	3
All	All	0	6

All (46) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	241	ARG	C-N	6.30	1.40	1.33
1	A	198	LEU	C-N	6.18	1.41	1.33
1	A	150	HIS	C-N	6.06	1.40	1.33
3	C	212	SER	C-N	6.00	1.40	1.33
3	C	138	PHE	C-N	6.00	1.40	1.33
1	A	370	GLY	C-N	5.83	1.40	1.33
2	B	149	GLN	C-N	5.82	1.40	1.33
3	C	279	THR	C-N	5.69	1.40	1.33
3	C	179	LEU	C-N	5.67	1.41	1.33
1	A	305	ALA	C-N	5.67	1.41	1.33
2	B	46	LYS	C-N	5.64	1.41	1.33
1	A	207	GLN	C-N	5.62	1.41	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	249	PRO	N-CD	5.54	1.55	1.47
1	A	360	PRO	N-CD	5.49	1.55	1.47
1	A	9	PRO	N-CD	5.44	1.55	1.47
1	A	378	ASP	C-N	5.42	1.40	1.33
2	B	51	TYR	C-O	-5.39	1.18	1.24
3	C	280	PRO	N-CD	5.34	1.55	1.47
1	A	379	PRO	N-CD	5.33	1.55	1.47
1	A	55	ALA	C-N	5.31	1.41	1.34
2	B	242	PRO	N-CD	5.28	1.55	1.47
1	A	68	ILE	C-N	5.28	1.41	1.34
3	C	278	PRO	N-CD	5.25	1.55	1.47
1	A	179	LYS	C-N	5.22	1.41	1.34
2	B	194	GLN	C-N	5.22	1.41	1.34
3	C	115	TYR	C-N	5.22	1.41	1.34
1	A	239	PRO	N-CD	5.20	1.55	1.47
1	A	232	PRO	N-CD	5.17	1.54	1.47
1	A	306	PRO	N-CD	5.16	1.54	1.47
3	C	102	ILE	C-N	5.15	1.41	1.34
2	B	175	PRO	N-CD	5.14	1.54	1.47
1	A	359	GLY	C-N	5.14	1.40	1.33
1	A	114	ALA	C-N	5.10	1.41	1.34
1	A	208	PRO	N-CD	5.09	1.54	1.47
1	A	199	PRO	N-CD	5.08	1.54	1.47
1	A	355	ILE	C-N	5.08	1.41	1.34
1	A	151	PRO	N-CD	5.08	1.54	1.47
2	B	260	PRO	N-CD	5.07	1.54	1.47
3	C	59	PRO	N-CD	5.06	1.54	1.47
2	B	150	PRO	N-CD	5.06	1.54	1.47
2	B	47	PRO	N-CD	5.05	1.54	1.47
3	C	213	PRO	N-CD	5.04	1.54	1.47
1	A	350	PRO	N-CD	5.04	1.54	1.47
3	C	243	PRO	N-CD	5.03	1.54	1.47
1	A	115	PRO	N-CD	5.02	1.54	1.47
1	A	69	PRO	N-CD	5.01	1.54	1.47

All (110) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	130	GLY	N-CA-C	-10.60	99.66	112.48
3	C	25	ASP	CA-C-N	9.33	130.26	120.00
3	C	25	ASP	C-N-CA	9.33	130.26	120.00
2	B	209	ASP	N-CA-C	9.32	121.52	111.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	327	PRO	CA-N-CD	-9.07	99.31	112.00
3	C	187	TYR	N-CA-C	8.92	121.08	111.36
3	C	49	GLY	C-N-CD	8.68	139.69	120.60
2	B	214	VAL	N-CA-C	8.63	118.44	111.62
3	C	150	LYS	N-CA-C	8.46	120.58	111.36
2	B	134	ALA	N-CA-C	8.35	120.16	111.14
1	A	117	PHE	N-CA-C	8.26	120.36	111.36
1	A	8	SER	C-N-CD	8.19	138.61	120.60
3	C	248	LYS	C-N-CD	8.01	138.23	120.60
2	B	202	TYR	N-CA-C	7.88	119.50	111.07
3	C	90	ARG	N-CA-C	7.88	119.65	111.14
1	A	370	GLY	O-C-N	7.75	123.86	121.07
3	C	185	HIS	N-CA-C	7.75	119.72	111.28
1	A	153	ASP	N-CA-C	7.59	119.64	111.36
3	C	279	THR	CA-C-N	-7.56	113.04	120.52
3	C	279	THR	C-N-CA	-7.56	113.04	120.52
3	C	105	GLN	N-CA-C	-7.31	103.40	111.36
1	A	354	ASN	N-CA-C	6.94	118.92	111.36
3	C	212	SER	CA-C-N	-6.88	113.21	120.03
3	C	212	SER	C-N-CA	-6.88	113.21	120.03
2	B	46	LYS	CA-C-N	-6.74	113.02	119.76
2	B	46	LYS	C-N-CA	-6.74	113.02	119.76
3	C	157	LEU	N-CA-C	6.66	118.62	111.36
1	A	305	ALA	CA-C-N	-6.64	113.15	119.85
1	A	305	ALA	C-N-CA	-6.64	113.15	119.85
1	A	378	ASP	CA-C-N	-6.62	113.14	119.76
1	A	378	ASP	C-N-CA	-6.62	113.14	119.76
2	B	206	CYS	N-CA-C	-6.56	101.69	110.55
1	A	198	LEU	CA-C-N	-6.55	112.76	119.83
1	A	198	LEU	C-N-CA	-6.55	112.76	119.83
1	A	150	HIS	CA-C-N	-6.45	113.13	119.90
1	A	150	HIS	C-N-CA	-6.45	113.13	119.90
1	A	173	ALA	N-CA-C	-6.40	104.31	111.28
3	C	109	ILE	N-CA-C	6.35	116.50	110.53
3	C	179	LEU	CA-C-N	-6.31	113.48	119.85
3	C	179	LEU	C-N-CA	-6.31	113.48	119.85
3	C	138	PHE	CA-C-N	-6.21	113.88	120.03
3	C	138	PHE	C-N-CA	-6.21	113.88	120.03
1	A	207	GLN	CA-C-N	-6.18	113.58	119.76
1	A	207	GLN	C-N-CA	-6.18	113.58	119.76
3	C	148	CYS	N-CA-C	6.16	120.88	112.68
2	B	241	ARG	CA-C-N	-5.98	113.37	120.13

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	241	ARG	C-N-CA	-5.98	113.37	120.13
1	A	224	LEU	N-CA-C	-5.96	104.78	111.28
1	A	68	ILE	O-C-N	5.94	124.29	120.07
1	A	57	VAL	N-CA-C	5.93	116.11	110.42
2	B	149	GLN	CA-C-N	-5.90	113.54	119.56
2	B	149	GLN	C-N-CA	-5.90	113.54	119.56
2	B	207	GLY	N-CA-C	-5.86	105.56	113.24
2	B	191	ASP	N-CA-C	-5.86	104.97	111.36
2	B	226	CYS	N-CA-C	5.79	117.67	111.36
3	C	79	SER	CA-C-N	-5.74	112.67	119.84
3	C	79	SER	C-N-CA	-5.74	112.67	119.84
1	A	355	ILE	O-C-N	5.69	124.11	120.07
1	A	370	GLY	CA-C-N	-5.68	113.77	119.56
1	A	370	GLY	C-N-CA	-5.68	113.77	119.56
1	A	62	ILE	N-CA-C	-5.64	104.87	110.62
1	A	55	ALA	CA-C-N	-5.63	112.80	119.05
1	A	55	ALA	C-N-CA	-5.63	112.80	119.05
1	A	355	ILE	CA-C-N	-5.60	112.83	119.05
1	A	355	ILE	C-N-CA	-5.60	112.83	119.05
1	A	68	ILE	CA-C-N	-5.58	112.86	119.05
1	A	68	ILE	C-N-CA	-5.58	112.86	119.05
1	A	277	VAL	N-CA-C	-5.54	104.97	110.62
1	A	314	ARG	N-CA-C	-5.50	102.25	110.23
1	A	114	ALA	CA-C-N	-5.47	112.98	119.05
1	A	114	ALA	C-N-CA	-5.47	112.98	119.05
2	B	153	GLU	CA-C-N	-5.45	115.48	123.00
2	B	153	GLU	C-N-CA	-5.45	115.48	123.00
3	C	56	LYS	CA-C-N	-5.43	113.05	119.84
3	C	56	LYS	C-N-CA	-5.43	113.05	119.84
2	B	257	VAL	N-CA-C	5.43	116.16	110.62
1	A	349	VAL	CA-C-N	-5.42	113.04	119.05
1	A	349	VAL	C-N-CA	-5.42	113.04	119.05
1	A	261	PRO	N-CA-C	-5.41	106.01	113.53
1	A	238	ASP	CA-C-N	-5.38	113.08	119.05
1	A	238	ASP	C-N-CA	-5.38	113.08	119.05
3	C	115	TYR	CA-C-N	-5.36	113.10	119.05
3	C	115	TYR	C-N-CA	-5.36	113.10	119.05
2	B	102	GLU	N-CA-C	5.34	117.10	111.28
3	C	50	PRO	CA-N-CD	-5.29	104.09	111.50
3	C	266	GLU	N-CA-C	-5.29	104.42	112.04
2	B	59	GLY	N-CA-C	-5.25	106.43	112.73
3	C	175	ASP	N-CA-C	5.25	116.82	108.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	28	ILE	N-CA-C	5.24	115.97	110.62
1	A	383	CYS	N-CA-C	5.23	116.67	111.07
2	B	255	CYS	CA-C-N	-5.20	113.31	120.28
2	B	255	CYS	C-N-CA	-5.20	113.31	120.28
3	C	41	ILE	N-CA-C	-5.20	105.32	110.62
2	B	194	GLN	CA-C-N	-5.20	113.28	119.05
2	B	194	GLN	C-N-CA	-5.20	113.28	119.05
2	B	208	CYS	CA-C-N	5.19	127.66	120.29
2	B	208	CYS	C-N-CA	5.19	127.66	120.29
2	B	247	ASP	N-CA-C	-5.15	106.09	112.38
3	C	102	ILE	CA-C-N	-5.14	113.34	119.05
3	C	102	ILE	C-N-CA	-5.14	113.34	119.05
1	A	293	ARG	N-CA-C	-5.12	105.70	111.28
1	A	359	GLY	CA-C-N	-5.10	113.67	119.28
1	A	359	GLY	C-N-CA	-5.10	113.67	119.28
3	C	125	LYS	N-CA-C	5.08	116.82	111.28
3	C	92	TYR	N-CA-C	-5.08	99.69	108.52
2	B	188	ASN	N-CA-C	5.07	118.58	111.74
1	A	179	LYS	CA-C-N	-5.06	113.44	119.05
1	A	179	LYS	C-N-CA	-5.06	113.44	119.05
2	B	259	CYS	CA-C-N	-5.03	113.46	119.05
2	B	259	CYS	C-N-CA	-5.03	113.46	119.05

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	134	ARG	Sidechain
1	A	328	ARG	Sidechain
2	B	248	ARG	Sidechain
3	C	222	ARG	Sidechain
3	C	265	ALA	Peptide
3	C	272	ARG	Sidechain

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2985	0	2970	721	0
2	B	1737	0	1699	470	0
3	C	2145	0	2192	588	0
4	A	1	0	0	0	0
5	A	1	0	0	0	0
6	A	1	0	0	0	0
7	B	24	0	0	7	0
7	C	8	0	0	7	0
8	B	1	0	0	0	0
9	C	53	0	31	15	0
All	All	6956	0	6892	1657	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 120.

All (1657) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:164:GLY:HA3	3:C:169:TRP:CZ3	1.46	1.48
2:B:101:VAL:HG21	2:B:158:ILE:CD1	1.54	1.35
1:A:18:GLU:HG2	1:A:35:PHE:CZ	1.61	1.35
2:B:195:PRO:HG3	3:C:115:TYR:CE2	1.62	1.34
2:B:219:LEU:CD1	3:C:272:ARG:HH21	1.40	1.33
3:C:78:PHE:HE2	3:C:189:GLN:NE2	1.23	1.33
2:B:219:LEU:CD1	3:C:272:ARG:NH2	1.92	1.32
3:C:36:ALA:CB	3:C:42:ILE:HD11	1.58	1.32
3:C:139:PRO:HD2	3:C:142:SER:CB	1.60	1.30
3:C:28:ILE:HG13	3:C:239:PHE:CE2	1.66	1.29
2:B:127:CYS:HB2	2:B:166:LEU:CD1	1.63	1.29
1:A:73:ALA:HB2	1:A:324:ILE:CD1	1.62	1.28
1:A:84:ILE:HD12	1:A:311:PHE:CB	1.63	1.26
2:B:267:GLU:O	2:B:270:LYS:HG3	1.34	1.25
3:C:203:ALA:O	3:C:222:ARG:HG3	1.16	1.25
3:C:114:THR:HG23	3:C:115:TYR:CD1	1.73	1.24
2:B:219:LEU:HD13	3:C:272:ARG:NH2	1.48	1.23
1:A:28:ILE:HG23	1:A:364:GLY:O	1.39	1.20
2:B:101:VAL:CG2	2:B:158:ILE:HD13	1.70	1.20
2:B:225:THR:HG22	7:B:1276:SF4:S1	1.80	1.19
3:C:242:LYS:CE	3:C:247:VAL:HG11	1.71	1.19
1:A:84:ILE:CG2	1:A:311:PHE:HB3	1.73	1.18
3:C:26:GLY:HA3	3:C:217:SER:HB3	1.22	1.17
1:A:143:MET:HE3	1:A:171:LEU:HG	1.19	1.17

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:199:PRO:CD	1:A:369:TYR:CE2	2.28	1.16
2:B:170:GLY:HA2	2:B:254:ILE:HD11	1.17	1.15
3:C:164:GLY:HA3	3:C:169:TRP:CE3	1.81	1.15
1:A:199:PRO:HD3	1:A:369:TYR:CE2	1.81	1.15
2:B:232:THR:HG21	2:B:248:ARG:O	1.47	1.15
1:A:71:THR:HG21	1:A:154:VAL:CG1	1.77	1.14
3:C:139:PRO:HD2	3:C:142:SER:HB3	1.17	1.13
3:C:275:MET:HE2	3:C:277:LEU:HD21	1.15	1.13
1:A:68:ILE:HD13	1:A:101:HIS:HD2	1.12	1.12
2:B:128:ALA:HB2	2:B:158:ILE:HD11	1.26	1.12
3:C:78:PHE:CE2	3:C:189:GLN:NE2	2.16	1.12
1:A:118:VAL:CG1	1:A:192:LEU:HD13	1.79	1.12
3:C:168:PHE:HB3	3:C:179:LEU:CD1	1.79	1.12
3:C:103:PRO:HG2	7:C:1282:SF4:S3	1.90	1.11
3:C:228:SER:O	3:C:232:GLN:HG2	1.48	1.11
1:A:71:THR:HG21	1:A:154:VAL:HG11	1.31	1.10
1:A:147:GLU:OE2	3:C:120:ARG:HD3	1.50	1.10
1:A:265:MET:HE2	1:A:269:GLN:HG3	1.33	1.10
3:C:9:ILE:HD13	3:C:220:ILE:HB	1.27	1.10
1:A:62:ILE:CG2	1:A:70:HIS:CD2	2.35	1.09
3:C:151:LEU:HD23	3:C:170:VAL:HG21	1.31	1.09
2:B:106:CYS:O	2:B:113:LEU:HD21	1.52	1.09
3:C:206:SER:OG	3:C:222:ARG:HD3	1.52	1.09
2:B:93:MET:HG3	2:B:122:LYS:HG3	1.32	1.08
2:B:260:PRO:HG3	3:C:108:GLY:HA2	1.29	1.08
3:C:242:LYS:HE3	3:C:247:VAL:HG11	1.16	1.08
1:A:96:LEU:HD11	1:A:144:VAL:HG11	1.20	1.08
1:A:68:ILE:HD13	1:A:101:HIS:CD2	1.88	1.08
3:C:85:LEU:HD21	3:C:99:THR:HG21	1.36	1.08
3:C:167:LYS:HD3	3:C:178:THR:CB	1.84	1.08
3:C:96:LYS:CG	3:C:127:LYS:HE3	1.83	1.08
3:C:28:ILE:CG2	3:C:207:THR:HG21	1.84	1.07
3:C:153:VAL:HG22	3:C:157:LEU:HD23	1.33	1.07
3:C:36:ALA:HB3	3:C:42:ILE:HD11	1.11	1.07
1:A:84:ILE:HD12	1:A:311:PHE:CG	1.88	1.07
2:B:237:MET:CE	3:C:80:PRO:CG	2.32	1.07
1:A:84:ILE:CD1	1:A:311:PHE:HB2	1.83	1.07
3:C:78:PHE:HE1	3:C:139:PRO:HA	1.18	1.07
3:C:28:ILE:HG22	3:C:207:THR:HG21	1.34	1.06
2:B:127:CYS:HB2	2:B:166:LEU:HD11	1.35	1.06
2:B:237:MET:HE2	3:C:80:PRO:CG	1.84	1.06

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:149:ILE:HD11	2:B:172:PRO:HG3	1.38	1.05
1:A:84:ILE:HD12	1:A:311:PHE:HB2	1.33	1.05
1:A:231:MET:HE3	1:A:248:THR:CG2	1.86	1.05
2:B:170:GLY:CA	2:B:254:ILE:HD11	1.87	1.05
3:C:133:TYR:OH	3:C:220:ILE:CG2	2.05	1.05
1:A:327:PRO:HD2	1:A:328:ARG:H	1.20	1.04
1:A:71:THR:CG2	1:A:154:VAL:HG11	1.86	1.04
2:B:125:LEU:HD21	2:B:165:ASP:CB	1.86	1.04
1:A:73:ALA:HB2	1:A:324:ILE:HD11	1.10	1.03
2:B:74:LEU:O	2:B:74:LEU:HD23	1.58	1.03
1:A:96:LEU:CD1	1:A:144:VAL:HG11	1.87	1.03
2:B:225:THR:CG2	2:B:260:PRO:HD3	1.88	1.03
3:C:24:GLN:NE2	3:C:74:THR:HB	1.73	1.03
1:A:18:GLU:HG2	1:A:35:PHE:CE1	1.93	1.03
1:A:207:GLN:HG3	1:A:256:ASN:O	1.56	1.03
3:C:28:ILE:HD13	3:C:219:VAL:HG11	1.39	1.03
3:C:96:LYS:HG2	3:C:127:LYS:HE3	1.40	1.03
3:C:203:ALA:O	3:C:222:ARG:CG	2.06	1.03
3:C:195:CYS:SG	3:C:261:LYS:NZ	2.30	1.03
1:A:190:ILE:HD11	1:A:285:LEU:HD21	1.39	1.03
2:B:49:ILE:CD1	2:B:98:LEU:HD22	1.88	1.03
3:C:242:LYS:HE3	3:C:247:VAL:CG1	1.89	1.03
1:A:84:ILE:HG23	1:A:311:PHE:HB3	1.06	1.02
2:B:237:MET:HE2	3:C:80:PRO:CB	1.89	1.02
3:C:164:GLY:CA	3:C:169:TRP:CZ3	2.41	1.02
3:C:28:ILE:HG13	3:C:239:PHE:HE2	0.88	1.02
1:A:14:GLU:OE1	1:A:65:VAL:HG21	1.59	1.02
1:A:214:GLN:OE1	1:A:214:GLN:N	1.92	1.02
2:B:74:LEU:HD23	2:B:74:LEU:C	1.85	1.02
3:C:142:SER:OG	3:C:187:TYR:HB3	1.58	1.02
3:C:279:THR:HG22	3:C:280:PRO:O	1.60	1.02
2:B:168:LEU:HD12	2:B:168:LEU:O	1.58	1.02
2:B:225:THR:HG21	2:B:260:PRO:HD3	1.07	1.01
1:A:172:TYR:HE1	1:A:176:LYS:HG3	1.23	1.01
1:A:313:GLU:OE1	1:A:313:GLU:N	1.93	1.01
1:A:231:MET:CE	1:A:248:THR:CG2	2.39	1.01
2:B:219:LEU:HD11	3:C:272:ARG:NH2	1.75	1.01
2:B:49:ILE:HD13	2:B:98:LEU:CD2	1.91	1.01
3:C:28:ILE:CG1	3:C:239:PHE:HE2	1.74	1.01
1:A:34:TYR:CD2	1:A:358:MET:HE2	1.96	1.00
3:C:114:THR:CG2	3:C:115:TYR:HD1	1.73	1.00

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:139:PRO:HD2	3:C:142:SER:HB2	1.42	1.00
3:C:164:GLY:CA	3:C:169:TRP:HZ3	1.75	1.00
1:A:202:LEU:HA	1:A:365:PHE:CE2	1.97	1.00
3:C:89:VAL:HG21	3:C:125:LYS:HD3	1.41	1.00
3:C:153:VAL:CG2	3:C:157:LEU:HD23	1.91	0.99
2:B:128:ALA:CB	2:B:158:ILE:HD11	1.91	0.99
3:C:9:ILE:CD1	3:C:220:ILE:HB	1.91	0.99
2:B:125:LEU:HD21	2:B:165:ASP:HB2	1.40	0.98
2:B:49:ILE:HD13	2:B:98:LEU:HD22	1.01	0.98
3:C:37:LEU:HD23	3:C:42:ILE:HD13	1.42	0.98
2:B:219:LEU:HD11	3:C:272:ARG:HH21	1.27	0.98
1:A:210:LEU:CD2	1:A:330:LEU:HD22	1.93	0.98
3:C:36:ALA:CB	3:C:42:ILE:CD1	2.41	0.98
3:C:16:ASP:HB2	3:C:19:ILE:HG12	1.44	0.98
3:C:24:GLN:HE21	3:C:74:THR:HB	1.24	0.98
3:C:111:LYS:O	3:C:114:THR:HG22	1.62	0.98
3:C:96:LYS:CB	3:C:127:LYS:HE3	1.94	0.97
1:A:97:THR:OG1	1:A:144:VAL:HG21	1.64	0.97
3:C:7:LYS:HD3	3:C:227:ASP:OD2	1.64	0.97
3:C:28:ILE:CD1	3:C:219:VAL:HG11	1.94	0.97
1:A:70:HIS:HE1	1:A:349:VAL:CG1	1.76	0.97
1:A:201:GLY:O	1:A:365:PHE:HZ	1.46	0.97
3:C:133:TYR:CD2	3:C:208:GLY:HA3	1.98	0.97
1:A:84:ILE:HG23	1:A:311:PHE:CB	1.94	0.97
3:C:96:LYS:HB3	3:C:127:LYS:CE	1.94	0.97
1:A:238:ASP:HB2	1:A:241:ILE:HG22	1.42	0.97
2:B:144:GLY:H	2:B:153:GLU:HB2	1.27	0.97
1:A:118:VAL:HG12	1:A:192:LEU:HD13	1.44	0.96
3:C:25:ASP:OD2	3:C:209:SER:HA	1.64	0.96
3:C:30:THR:OG1	3:C:72:ALA:HB2	1.65	0.96
3:C:36:ALA:HB3	3:C:42:ILE:CD1	1.95	0.96
3:C:96:LYS:HB3	3:C:127:LYS:HE3	1.46	0.96
1:A:210:LEU:HB3	1:A:259:VAL:HG12	1.47	0.96
1:A:323:ALA:HB2	1:A:332:VAL:HG12	1.44	0.96
2:B:195:PRO:CG	3:C:115:TYR:HE2	1.78	0.96
2:B:237:MET:CE	3:C:80:PRO:HG2	1.95	0.96
1:A:41:ARG:HG3	1:A:41:ARG:HH11	1.25	0.96
2:B:125:LEU:CD2	2:B:165:ASP:HB2	1.95	0.95
3:C:167:LYS:HD3	3:C:178:THR:OG1	1.65	0.95
1:A:18:GLU:CG	1:A:35:PHE:CZ	2.47	0.95
3:C:169:TRP:CD1	3:C:178:THR:HG22	2.01	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:246:CYS:SG	1:A:385:THR:CG2	2.55	0.95
3:C:102:ILE:HG23	3:C:103:PRO:HD2	1.49	0.95
2:B:98:LEU:HD13	2:B:185:LEU:HD23	1.49	0.94
2:B:195:PRO:HG3	3:C:115:TYR:HE2	1.00	0.94
1:A:319:LEU:CB	1:A:336:LYS:HG2	1.96	0.94
3:C:151:LEU:CD2	3:C:170:VAL:HG21	1.97	0.94
3:C:139:PRO:CD	3:C:142:SER:HB3	1.98	0.93
3:C:168:PHE:HB3	3:C:179:LEU:HD11	1.50	0.93
1:A:265:MET:HE2	1:A:269:GLN:CG	1.98	0.93
3:C:275:MET:HE2	3:C:277:LEU:CD2	1.98	0.93
1:A:107:ALA:HB2	1:A:133:ILE:HD11	1.48	0.93
1:A:286:GLU:O	1:A:289:THR:HG22	1.68	0.93
1:A:34:TYR:CE2	1:A:358:MET:HE2	2.04	0.93
1:A:159:MET:HB2	1:A:307:VAL:HG11	1.49	0.92
3:C:114:THR:HG23	3:C:115:TYR:HD1	0.80	0.92
1:A:231:MET:HE3	1:A:248:THR:HG22	1.46	0.92
2:B:219:LEU:HD13	3:C:272:ARG:HH22	1.22	0.92
1:A:8:SER:OG	1:A:18:GLU:HB2	1.69	0.92
1:A:199:PRO:HD3	1:A:369:TYR:CZ	2.04	0.92
2:B:121:GLU:N	2:B:121:GLU:OE1	2.03	0.92
1:A:238:ASP:HB2	1:A:241:ILE:CG2	1.99	0.92
3:C:153:VAL:HG22	3:C:157:LEU:CD2	1.99	0.92
3:C:78:PHE:HE2	3:C:189:GLN:CD	1.79	0.91
3:C:275:MET:CE	3:C:277:LEU:HD21	1.99	0.91
1:A:46:MET:CE	2:B:142:SER:CA	2.49	0.91
1:A:73:ALA:CB	1:A:324:ILE:CD1	2.48	0.91
2:B:237:MET:HG3	3:C:83:MET:HE3	1.52	0.91
1:A:147:GLU:O	1:A:151:PRO:HA	1.70	0.91
2:B:70:ILE:HG23	2:B:78:MET:HE1	1.52	0.91
2:B:120:ARG:NH1	2:B:126:VAL:HG12	1.83	0.91
2:B:143:ARG:HG2	2:B:143:ARG:HH11	1.35	0.91
2:B:139:THR:CG2	2:B:155:PHE:HB2	2.01	0.91
1:A:62:ILE:CG1	1:A:386:HIS:HB3	2.01	0.91
1:A:46:MET:CE	2:B:142:SER:HA	2.01	0.90
1:A:120:GLU:N	1:A:120:GLU:OE1	2.03	0.90
3:C:167:LYS:HD3	3:C:178:THR:HB	1.52	0.90
1:A:26:GLU:N	1:A:26:GLU:OE1	2.04	0.90
1:A:244:ARG:HH11	1:A:244:ARG:HG2	1.34	0.90
2:B:90:LEU:HD22	2:B:90:LEU:H	1.32	0.90
1:A:84:ILE:CD1	1:A:311:PHE:CB	2.44	0.90
1:A:71:THR:CG2	1:A:154:VAL:CG1	2.47	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:24:GLN:HE21	3:C:74:THR:CB	1.84	0.90
1:A:109:HIS:CD2	1:A:378:ASP:CG	2.49	0.90
1:A:264:ARG:HD3	1:A:325:GLU:HG2	1.54	0.90
3:C:253:LEU:HD13	3:C:254:LEU:N	1.87	0.90
1:A:46:MET:HE3	2:B:142:SER:HA	1.54	0.90
1:A:143:MET:CE	1:A:171:LEU:HG	2.01	0.90
1:A:172:TYR:HE1	1:A:176:LYS:CG	1.85	0.89
1:A:62:ILE:HG23	1:A:70:HIS:CD2	2.08	0.89
1:A:210:LEU:HD21	1:A:330:LEU:HD22	1.54	0.89
1:A:349:VAL:HG21	1:A:383:CYS:O	1.73	0.88
3:C:28:ILE:HD13	3:C:219:VAL:CG1	2.03	0.88
1:A:65:VAL:C	1:A:67:PRO:CD	2.46	0.88
3:C:78:PHE:CE1	3:C:139:PRO:HA	2.08	0.88
3:C:154:SER:H	3:C:157:LEU:CD2	1.86	0.88
2:B:85:GLN:HA	2:B:85:GLN:NE2	1.86	0.88
2:B:267:GLU:O	2:B:270:LYS:CG	2.21	0.88
1:A:10:THR:HB	1:A:13:GLN:NE2	1.88	0.88
3:C:23:ALA:HB1	3:C:27:GLY:HA2	1.53	0.88
1:A:70:HIS:HE1	1:A:349:VAL:HG13	1.36	0.88
1:A:175:LEU:HD12	1:A:298:LEU:HD23	1.53	0.88
1:A:43:LEU:CD2	2:B:138:PHE:CE2	2.57	0.88
1:A:71:THR:O	1:A:75:VAL:HG23	1.74	0.88
1:A:201:GLY:O	1:A:365:PHE:CZ	2.26	0.88
2:B:135:THR:HG23	2:B:203:THR:O	1.74	0.88
1:A:189:MET:O	1:A:193:ILE:HD12	1.73	0.87
1:A:323:ALA:CB	1:A:332:VAL:HG12	2.03	0.87
2:B:144:GLY:N	2:B:153:GLU:HB2	1.87	0.87
1:A:19:LEU:HD13	1:A:374:ILE:HD11	1.54	0.87
1:A:36:SER:HB2	1:A:381:LEU:HD12	1.56	0.87
1:A:159:MET:HB2	1:A:307:VAL:CG1	2.04	0.87
1:A:3:GLU:O	1:A:23:VAL:HG22	1.73	0.87
2:B:109:ASP:O	2:B:113:LEU:HD23	1.75	0.87
3:C:132:ILE:CG2	9:C:1283:FAD:H1'2	2.03	0.87
1:A:308:ARG:HG3	1:A:308:ARG:HH11	1.39	0.87
1:A:227:PHE:CZ	1:A:348:LEU:HD11	2.10	0.87
2:B:237:MET:HE3	3:C:80:PRO:HG2	1.53	0.87
3:C:151:LEU:HD23	3:C:170:VAL:CG2	2.05	0.87
2:B:160:ASP:OD1	2:B:161:LEU:HD23	1.75	0.87
1:A:185:HIS:O	1:A:188:LEU:HG	1.75	0.86
2:B:235:LEU:HD13	7:B:1275:SF4:S2	2.14	0.86
3:C:26:GLY:HA3	3:C:217:SER:CB	2.05	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:102:HIS:HE1	1:A:325:GLU:O	1.58	0.86
3:C:78:PHE:CE2	3:C:189:GLN:CD	2.52	0.86
1:A:319:LEU:HB3	1:A:336:LYS:CG	2.05	0.86
1:A:123:MET:O	1:A:127:ILE:HG22	1.76	0.86
1:A:143:MET:HE3	1:A:171:LEU:CG	2.05	0.86
2:B:232:THR:CG2	2:B:248:ARG:O	2.24	0.86
1:A:265:MET:CE	1:A:269:GLN:OE1	2.23	0.85
2:B:58:THR:HG22	2:B:58:THR:O	1.75	0.85
3:C:129:LEU:HD12	3:C:130:VAL:N	1.92	0.85
2:B:101:VAL:HG23	2:B:101:VAL:O	1.74	0.85
3:C:55:TRP:HZ2	3:C:159:GLU:O	1.58	0.85
3:C:78:PHE:HE2	3:C:189:GLN:HE22	1.20	0.85
1:A:260:GLY:H	1:A:263:ALA:HB3	1.40	0.85
2:B:265:PRO:HG2	2:B:268:GLN:OE1	1.77	0.85
3:C:80:PRO:O	3:C:83:MET:HG2	1.77	0.85
2:B:260:PRO:CG	3:C:108:GLY:HA2	2.06	0.85
1:A:52:PRO:CD	1:A:340:GLY:O	2.25	0.84
1:A:119:PRO:HB2	1:A:121:ASN:ND2	1.91	0.84
3:C:91:GLN:N	3:C:91:GLN:HE21	1.76	0.84
3:C:226:GLY:O	3:C:229:ILE:HG22	1.75	0.84
1:A:52:PRO:HD3	1:A:340:GLY:O	1.76	0.84
3:C:158:VAL:O	3:C:158:VAL:CG2	2.24	0.84
1:A:96:LEU:HB2	1:A:297:ILE:HD11	1.59	0.84
2:B:48:ARG:HB2	2:B:48:ARG:HH11	1.42	0.84
1:A:132:GLU:HG3	1:A:181:LYS:HZ1	1.43	0.84
2:B:237:MET:HG3	3:C:83:MET:CE	2.06	0.84
1:A:10:THR:HB	1:A:13:GLN:HE21	1.43	0.84
1:A:34:TYR:CE2	1:A:358:MET:CE	2.60	0.84
1:A:70:HIS:CE1	1:A:349:VAL:CG1	2.61	0.84
2:B:49:ILE:HG23	2:B:98:LEU:HD21	1.60	0.84
1:A:88:LYS:HB2	1:A:88:LYS:NZ	1.91	0.84
1:A:326:ALA:HB1	1:A:327:PRO:HD3	1.60	0.84
3:C:96:LYS:CG	3:C:127:LYS:CE	2.56	0.84
2:B:74:LEU:C	2:B:74:LEU:CD2	2.51	0.83
2:B:93:MET:HE3	2:B:118:GLU:HG2	1.59	0.83
1:A:62:ILE:HD13	1:A:62:ILE:O	1.79	0.83
2:B:186:LEU:HD22	2:B:186:LEU:O	1.79	0.83
3:C:24:GLN:OE1	3:C:160:LYS:HE3	1.78	0.83
3:C:32:LEU:HD12	3:C:32:LEU:O	1.79	0.83
1:A:43:LEU:CD1	1:A:62:ILE:HB	2.07	0.83
2:B:266:GLU:O	2:B:269:ILE:HG22	1.76	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:26:GLY:CA	3:C:217:SER:HB3	2.06	0.83
3:C:43:GLU:HB3	3:C:94:ILE:HG23	1.59	0.83
1:A:43:LEU:CD2	2:B:138:PHE:HE2	1.91	0.83
1:A:96:LEU:HB2	1:A:297:ILE:CD1	2.08	0.83
1:A:43:LEU:HD11	1:A:62:ILE:HA	1.61	0.83
2:B:120:ARG:CZ	2:B:126:VAL:HG12	2.08	0.83
3:C:254:LEU:HD12	3:C:254:LEU:O	1.77	0.83
3:C:251:LEU:HD13	3:C:252:GLY:N	1.93	0.83
1:A:231:MET:CE	1:A:248:THR:HG22	2.06	0.82
2:B:139:THR:HG21	2:B:155:PHE:CB	2.09	0.82
2:B:225:THR:CG2	7:B:1276:SF4:S1	2.65	0.82
1:A:175:LEU:CD1	1:A:298:LEU:HD23	2.08	0.82
2:B:116:LEU:HD12	2:B:162:ILE:HD13	1.61	0.82
1:A:36:SER:CB	1:A:381:LEU:HD12	2.09	0.82
1:A:190:ILE:HD11	1:A:285:LEU:CD2	2.09	0.82
2:B:237:MET:HE2	3:C:80:PRO:HB3	1.57	0.82
2:B:106:CYS:O	2:B:113:LEU:CD2	2.28	0.82
2:B:48:ARG:HH11	2:B:48:ARG:CB	1.93	0.82
2:B:127:CYS:CB	2:B:166:LEU:CD1	2.53	0.82
1:A:249:ILE:CG2	1:A:356:PRO:HG3	2.10	0.82
1:A:265:MET:CE	1:A:269:GLN:HG3	2.08	0.81
1:A:327:PRO:HD2	1:A:328:ARG:N	1.93	0.81
1:A:380:CYS:SG	1:A:383:CYS:HB2	2.19	0.81
2:B:119:LEU:HD13	2:B:119:LEU:O	1.80	0.81
2:B:127:CYS:HB2	2:B:166:LEU:HD13	1.60	0.81
3:C:28:ILE:CG2	3:C:207:THR:CG2	2.58	0.81
1:A:175:LEU:CD1	1:A:298:LEU:CD2	2.59	0.81
2:B:58:THR:HA	2:B:102:GLU:OE1	1.80	0.81
1:A:54:THR:CG2	1:A:58:MET:HE2	2.10	0.81
1:A:65:VAL:C	1:A:67:PRO:HD2	2.04	0.81
1:A:328:ARG:HH12	1:A:380:CYS:HB3	1.45	0.81
3:C:132:ILE:HG22	9:C:1283:FAD:H1'2	1.61	0.81
1:A:57:VAL:CG2	2:B:248:ARG:NH1	2.43	0.81
1:A:62:ILE:HG21	1:A:70:HIS:CD2	2.16	0.81
1:A:208:PRO:O	1:A:257:VAL:HG23	1.80	0.81
3:C:17:ARG:HB3	3:C:17:ARG:CZ	2.10	0.81
3:C:39:GLU:HB3	3:C:41:ILE:HD11	1.60	0.81
1:A:62:ILE:CG2	1:A:70:HIS:HD2	1.93	0.81
1:A:231:MET:HE3	1:A:248:THR:CB	2.11	0.81
3:C:175:ASP:OD1	3:C:176:VAL:N	2.14	0.81
3:C:277:LEU:HD23	3:C:277:LEU:H	1.45	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:46:MET:HE2	2:B:142:SER:N	1.96	0.80
1:A:118:VAL:CG1	1:A:192:LEU:CD1	2.56	0.80
1:A:118:VAL:HG12	1:A:192:LEU:CD1	2.10	0.80
1:A:147:GLU:OE2	3:C:120:ARG:CD	2.29	0.80
2:B:168:LEU:HB2	3:C:117:PHE:HE1	1.45	0.80
3:C:122:LEU:HD12	3:C:122:LEU:O	1.81	0.80
3:C:179:LEU:HD12	3:C:179:LEU:H	1.45	0.80
1:A:213:HIS:HB3	1:A:216:TYR:O	1.81	0.80
1:A:43:LEU:CD1	1:A:62:ILE:CB	2.60	0.80
2:B:93:MET:CG	2:B:122:LYS:HG3	2.10	0.80
1:A:109:HIS:NE2	1:A:378:ASP:HB2	1.96	0.80
1:A:293:ARG:CD	1:A:297:ILE:CG2	2.59	0.80
1:A:319:LEU:CA	1:A:336:LYS:HG2	2.11	0.80
2:B:244:LEU:O	2:B:244:LEU:HD13	1.81	0.80
3:C:15:THR:N	3:C:238:LEU:O	2.14	0.80
1:A:246:CYS:SG	1:A:385:THR:HG21	2.21	0.80
1:A:319:LEU:CB	1:A:336:LYS:CG	2.59	0.80
3:C:168:PHE:HB3	3:C:179:LEU:HD12	1.64	0.80
2:B:177:ILE:HB	3:C:116:PRO:HG2	1.64	0.80
1:A:164:THR:OG1	3:C:92:TYR:HA	1.81	0.80
2:B:260:PRO:HG3	3:C:108:GLY:CA	2.10	0.80
1:A:199:PRO:CD	1:A:369:TYR:CZ	2.64	0.79
3:C:119:VAL:HG12	3:C:122:LEU:HB3	1.62	0.79
2:B:225:THR:HG21	2:B:260:PRO:CD	2.03	0.79
3:C:142:SER:O	3:C:145:THR:HG22	1.82	0.79
2:B:108:GLN:OE1	2:B:108:GLN:N	2.15	0.79
3:C:171:TYR:HD1	3:C:176:VAL:HG12	1.47	0.79
1:A:102:HIS:CE1	1:A:325:GLU:O	2.35	0.79
1:A:262:ARG:HD2	1:A:262:ARG:C	2.05	0.79
3:C:253:LEU:O	3:C:253:LEU:HD22	1.83	0.79
1:A:231:MET:SD	2:B:147:GLN:NE2	2.56	0.79
1:A:140:VAL:HG22	1:A:171:LEU:HD22	1.63	0.79
2:B:71:LEU:HD22	2:B:71:LEU:O	1.82	0.79
1:A:199:PRO:HD2	1:A:369:TYR:CE2	2.17	0.79
2:B:224:GLY:N	7:B:1276:SF4:S3	2.55	0.79
1:A:213:HIS:CB	1:A:216:TYR:O	2.31	0.79
1:A:262:ARG:HD2	1:A:262:ARG:O	1.83	0.79
1:A:210:LEU:HD23	1:A:330:LEU:HD22	1.63	0.79
1:A:9:PRO:HG2	2:B:85:GLN:CG	2.14	0.78
3:C:248:LYS:HG3	3:C:249:PRO:HA	1.65	0.78
1:A:257:VAL:HG11	1:A:353:TRP:CE3	2.19	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:291:LEU:HD23	1:A:291:LEU:O	1.83	0.78
3:C:182:LYS:HA	3:C:185:HIS:CE1	2.19	0.78
1:A:96:LEU:O	1:A:96:LEU:HD22	1.81	0.78
2:B:58:THR:HA	2:B:102:GLU:CD	2.08	0.78
1:A:43:LEU:HD13	1:A:62:ILE:HB	1.65	0.78
1:A:60:GLN:HE21	1:A:61:ARG:NH1	1.80	0.78
2:B:192:TYR:O	2:B:195:PRO:HD2	1.84	0.78
3:C:221:THR:HG21	3:C:227:ASP:CB	2.14	0.78
1:A:319:LEU:HB3	1:A:336:LYS:HG2	1.63	0.78
2:B:49:ILE:HG23	2:B:98:LEU:CD2	2.14	0.78
2:B:57:CYS:N	7:B:1274:SF4:S3	2.57	0.78
2:B:98:LEU:CD1	2:B:185:LEU:HD23	2.15	0.77
2:B:210:LEU:HD12	2:B:211:GLN:N	1.98	0.77
1:A:60:GLN:HE21	1:A:61:ARG:HH12	1.33	0.77
1:A:66:CYS:N	1:A:67:PRO:CD	2.47	0.77
1:A:88:LYS:NZ	1:A:88:LYS:CB	2.46	0.77
1:A:132:GLU:HG3	1:A:181:LYS:NZ	1.98	0.77
1:A:261:PRO:HB3	1:A:286:GLU:HG3	1.66	0.77
2:B:261:ARG:O	3:C:280:PRO:HB3	1.84	0.77
1:A:208:PRO:HD3	1:A:255:ARG:NH1	1.99	0.77
1:A:257:VAL:CG1	1:A:353:TRP:HE3	1.97	0.77
3:C:89:VAL:CG2	3:C:125:LYS:HD3	2.12	0.77
1:A:175:LEU:HD12	1:A:298:LEU:CD2	2.13	0.77
3:C:221:THR:HG21	3:C:227:ASP:HB2	1.65	0.77
3:C:216:TRP:CH2	3:C:240:GLU:CG	2.68	0.77
2:B:101:VAL:CG2	2:B:101:VAL:O	2.32	0.77
1:A:128:ASN:OD1	2:B:72:ALA:CB	2.33	0.77
3:C:96:LYS:CB	3:C:127:LYS:CE	2.60	0.77
3:C:151:LEU:CD2	3:C:170:VAL:CG2	2.61	0.77
1:A:97:THR:OG1	1:A:144:VAL:CG2	2.32	0.77
2:B:166:LEU:HD12	2:B:166:LEU:H	1.49	0.77
3:C:90:ARG:HB3	3:C:91:GLN:NE2	2.00	0.77
3:C:206:SER:OG	3:C:222:ARG:CD	2.33	0.77
3:C:272:ARG:NH1	3:C:277:LEU:HD12	1.99	0.77
1:A:9:PRO:CG	2:B:85:GLN:HG2	2.15	0.77
1:A:119:PRO:HB2	1:A:121:ASN:HD21	1.45	0.77
1:A:231:MET:CE	1:A:248:THR:HG21	2.15	0.77
2:B:116:LEU:CD1	2:B:162:ILE:HD13	2.15	0.77
3:C:164:GLY:CA	3:C:169:TRP:CE3	2.63	0.77
1:A:114:ALA:O	1:A:118:VAL:HG22	1.85	0.76
3:C:167:LYS:CD	3:C:178:THR:HB	2.14	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:62:ILE:HG12	1:A:386:HIS:HB3	1.67	0.76
1:A:65:VAL:C	1:A:67:PRO:HD3	2.09	0.76
3:C:139:PRO:CD	3:C:142:SER:CB	2.54	0.76
2:B:85:GLN:HA	2:B:85:GLN:HE21	1.49	0.76
3:C:164:GLY:HA3	3:C:169:TRP:HZ3	0.95	0.76
1:A:227:PHE:CE2	1:A:348:LEU:HD11	2.21	0.76
3:C:55:TRP:NE1	3:C:158:VAL:HG22	1.99	0.76
3:C:169:TRP:CD1	3:C:178:THR:CG2	2.69	0.76
1:A:43:LEU:HD21	2:B:138:PHE:CZ	2.20	0.76
1:A:80:ASP:OD1	1:A:320:GLY:HA3	1.86	0.76
2:B:191:ASP:OD1	2:B:192:TYR:N	2.18	0.76
3:C:35:TYR:CZ	3:C:39:GLU:CG	2.69	0.76
3:C:216:TRP:HH2	3:C:240:GLU:CG	1.98	0.76
1:A:172:TYR:CE1	1:A:176:LYS:CG	2.69	0.76
1:A:249:ILE:HG22	1:A:356:PRO:HG3	1.66	0.76
1:A:73:ALA:CB	1:A:324:ILE:HD11	2.04	0.76
1:A:188:LEU:HD12	1:A:189:MET:N	2.01	0.75
1:A:230:ILE:HD12	1:A:234:SER:OG	1.86	0.75
3:C:16:ASP:HB2	3:C:19:ILE:CG1	2.16	0.75
1:A:149:ILE:HD11	2:B:172:PRO:CG	2.15	0.75
1:A:238:ASP:CB	1:A:241:ILE:HG22	2.17	0.75
1:A:127:ILE:HD12	2:B:72:ALA:HA	1.67	0.75
1:A:321:ILE:N	1:A:321:ILE:HD12	2.02	0.75
1:A:167:ALA:HB2	3:C:93:GLY:H	1.50	0.75
3:C:102:ILE:HG22	3:C:104:CYS:H	1.50	0.75
3:C:176:VAL:C	3:C:177:LEU:HD12	2.12	0.75
1:A:210:LEU:HB3	1:A:259:VAL:CG1	2.17	0.74
2:B:237:MET:CE	3:C:80:PRO:HG3	2.16	0.74
3:C:78:PHE:HE1	3:C:139:PRO:CA	1.97	0.74
3:C:87:LYS:HB2	3:C:87:LYS:HZ3	1.53	0.74
1:A:118:VAL:HG13	1:A:192:LEU:HD13	1.65	0.74
1:A:221:LYS:NZ	1:A:221:LYS:HB3	2.02	0.74
3:C:36:ALA:C	3:C:42:ILE:HD11	2.13	0.74
1:A:90:GLY:HA2	1:A:307:VAL:HG12	1.69	0.74
1:A:275:GLY:H	1:A:278:ALA:HB3	1.53	0.74
1:A:295:ILE:HD12	1:A:295:ILE:O	1.88	0.74
1:A:210:LEU:CD2	1:A:330:LEU:CD2	2.65	0.74
3:C:28:ILE:HG21	3:C:207:THR:CG2	2.18	0.74
3:C:133:TYR:OH	3:C:220:ILE:HG23	1.87	0.74
3:C:168:PHE:O	3:C:178:THR:HA	1.88	0.74
3:C:28:ILE:CG1	3:C:239:PHE:CE2	2.56	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:90:LEU:HD22	2:B:90:LEU:N	2.03	0.73
2:B:144:GLY:HA3	2:B:153:GLU:CB	2.16	0.73
3:C:55:TRP:NE1	3:C:158:VAL:CG2	2.51	0.73
1:A:286:GLU:O	1:A:289:THR:CG2	2.37	0.73
2:B:98:LEU:HD23	2:B:98:LEU:O	1.88	0.73
2:B:143:ARG:HG2	2:B:143:ARG:NH1	1.99	0.73
3:C:62:ALA:HB1	3:C:67:GLU:HB3	1.69	0.73
3:C:132:ILE:CG2	9:C:1283:FAD:C1'	2.66	0.73
1:A:295:ILE:HD12	1:A:295:ILE:C	2.14	0.73
1:A:90:GLY:HA2	1:A:307:VAL:CG1	2.19	0.73
1:A:210:LEU:HD21	1:A:330:LEU:CD2	2.17	0.73
2:B:125:LEU:HD21	2:B:165:ASP:HB3	1.66	0.73
2:B:238:THR:OG1	2:B:243:GLU:OE1	2.06	0.73
3:C:55:TRP:CZ2	3:C:159:GLU:O	2.41	0.73
3:C:87:LYS:HB2	3:C:87:LYS:NZ	2.02	0.73
1:A:72:LEU:HD12	1:A:98:LEU:HG	1.71	0.73
3:C:12:ALA:HB2	3:C:241:THR:HG22	1.70	0.73
3:C:23:ALA:CB	3:C:27:GLY:HA2	2.18	0.73
1:A:9:PRO:HG2	2:B:85:GLN:HG2	1.70	0.73
3:C:19:ILE:N	3:C:19:ILE:HD13	2.02	0.73
2:B:101:VAL:CG2	2:B:158:ILE:CD1	2.45	0.72
3:C:36:ALA:HB1	3:C:42:ILE:CD1	2.19	0.72
1:A:133:ILE:HD12	1:A:133:ILE:C	2.14	0.72
1:A:297:ILE:HD12	1:A:297:ILE:C	2.15	0.72
2:B:101:VAL:HG21	2:B:158:ILE:HD13	0.78	0.72
3:C:167:LYS:CA	3:C:181:LEU:CD2	2.67	0.72
1:A:96:LEU:C	1:A:96:LEU:HD13	2.15	0.72
1:A:121:ASN:H	1:A:121:ASN:HD22	1.36	0.72
1:A:223:ASP:HB2	1:A:226:ARG:HB2	1.71	0.72
3:C:7:LYS:NZ	3:C:224:ASP:CG	2.47	0.72
3:C:23:ALA:HB1	3:C:27:GLY:CA	2.20	0.72
2:B:139:THR:HG22	2:B:155:PHE:HB2	1.71	0.72
3:C:42:ILE:CG2	3:C:98:GLY:N	2.53	0.72
1:A:3:GLU:HG2	1:A:23:VAL:HG23	1.70	0.72
2:B:144:GLY:CA	2:B:153:GLU:HB2	2.18	0.72
1:A:177:GLN:O	1:A:180:PRO:HD2	1.90	0.72
1:A:249:ILE:HG23	1:A:356:PRO:HD3	1.70	0.72
1:A:8:SER:O	2:B:91:TRP:CD1	2.42	0.72
1:A:166:LEU:HD13	3:C:43:GLU:OE2	1.89	0.72
3:C:154:SER:H	3:C:157:LEU:HD22	1.54	0.72
2:B:120:ARG:CZ	2:B:126:VAL:CG1	2.67	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:170:GLY:HA2	2:B:254:ILE:CD1	2.09	0.72
3:C:253:LEU:HD13	3:C:253:LEU:C	2.15	0.71
1:A:186:VAL:HG21	1:A:288:LYS:HE3	1.70	0.71
1:A:349:VAL:HG11	1:A:383:CYS:SG	2.29	0.71
2:B:166:LEU:HD12	2:B:166:LEU:N	2.04	0.71
3:C:228:SER:O	3:C:232:GLN:CG	2.32	0.71
3:C:254:LEU:HD12	3:C:254:LEU:C	2.15	0.71
1:A:14:GLU:OE1	1:A:65:VAL:CG2	2.37	0.71
1:A:146:GLY:CA	1:A:153:ASP:OD2	2.38	0.71
2:B:186:LEU:HD13	2:B:186:LEU:C	2.15	0.71
3:C:280:PRO:HG2	3:C:281:PHE:CD1	2.25	0.71
1:A:152:SER:O	1:A:155:ARG:NH1	2.22	0.71
1:A:264:ARG:CD	1:A:325:GLU:HG2	2.21	0.71
1:A:201:GLY:C	1:A:365:PHE:CZ	2.69	0.71
3:C:96:LYS:HG2	3:C:127:LYS:CE	2.20	0.71
3:C:167:LYS:C	3:C:181:LEU:HD21	2.16	0.71
3:C:194:ILE:HB	3:C:269:ILE:HD11	1.73	0.71
1:A:96:LEU:HB2	1:A:297:ILE:CG1	2.21	0.71
1:A:231:MET:HE3	1:A:248:THR:HB	1.72	0.71
2:B:261:ARG:NH2	3:C:191:GLY:O	2.23	0.71
3:C:154:SER:N	3:C:157:LEU:HD22	2.06	0.71
1:A:104:ASN:OD1	1:A:134:ARG:NH1	2.23	0.71
1:A:291:LEU:HD23	1:A:291:LEU:C	2.16	0.71
3:C:154:SER:HB3	3:C:157:LEU:HD22	1.73	0.71
2:B:93:MET:HB2	2:B:96:MET:HE2	1.72	0.70
3:C:41:ILE:HD13	3:C:41:ILE:N	2.03	0.70
1:A:117:PHE:HE2	1:A:193:ILE:HG12	1.56	0.70
1:A:145:ALA:C	1:A:153:ASP:HB2	2.15	0.70
3:C:11:SER:HA	3:C:218:THR:HA	1.71	0.70
3:C:165:LYS:N	3:C:165:LYS:HD2	2.04	0.70
2:B:244:LEU:C	2:B:244:LEU:HD22	2.15	0.70
3:C:236:ALA:CB	3:C:238:LEU:HD22	2.22	0.70
1:A:18:GLU:O	1:A:35:PHE:CE1	2.44	0.70
1:A:293:ARG:HD3	1:A:297:ILE:HG23	1.73	0.70
2:B:119:LEU:HD13	2:B:119:LEU:C	2.15	0.70
3:C:25:ASP:OD2	3:C:209:SER:CA	2.39	0.70
3:C:150:LYS:HE2	3:C:183:GLU:OE2	1.92	0.70
2:B:237:MET:HE3	3:C:80:PRO:CG	2.16	0.70
2:B:239:ASN:O	2:B:239:ASN:ND2	2.25	0.70
2:B:194:GLN:HA	2:B:194:GLN:NE2	2.05	0.70
3:C:46:VAL:HG22	3:C:99:THR:HB	1.74	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:167:LYS:HG2	3:C:178:THR:HB	1.74	0.70
1:A:127:ILE:HD13	1:A:127:ILE:C	2.15	0.70
3:C:167:LYS:CA	3:C:181:LEU:HD21	2.21	0.70
2:B:86:THR:HG22	2:B:87:LEU:CD1	2.22	0.70
2:B:139:THR:CG2	2:B:155:PHE:CB	2.68	0.70
1:A:43:LEU:CD1	1:A:62:ILE:HG12	2.21	0.70
2:B:49:ILE:HG13	2:B:79:VAL:HG11	1.73	0.70
3:C:35:TYR:CE2	3:C:39:GLU:HG3	2.27	0.70
2:B:101:VAL:HG22	2:B:128:ALA:HA	1.73	0.69
3:C:30:THR:HG1	3:C:72:ALA:HB2	1.57	0.69
3:C:36:ALA:CA	3:C:42:ILE:HD11	2.21	0.69
3:C:111:LYS:O	3:C:115:TYR:N	2.23	0.69
3:C:216:TRP:HH2	3:C:240:GLU:HG3	1.55	0.69
1:A:4:ARG:HA	1:A:21:MET:O	1.92	0.69
1:A:84:ILE:HD13	1:A:311:PHE:HB2	1.70	0.69
3:C:47:VAL:HG21	3:C:71:ALA:CB	2.22	0.69
3:C:30:THR:OG1	3:C:72:ALA:CB	2.40	0.69
3:C:158:VAL:O	3:C:158:VAL:HG23	1.92	0.69
1:A:88:LYS:HB2	1:A:88:LYS:HZ2	1.57	0.69
1:A:116:ASP:OD1	1:A:116:ASP:N	2.26	0.69
1:A:43:LEU:HD21	2:B:138:PHE:HZ	1.58	0.69
1:A:308:ARG:HG3	1:A:308:ARG:NH1	2.02	0.69
2:B:128:ALA:O	2:B:167:ALA:HA	1.93	0.69
3:C:102:ILE:CG2	3:C:103:PRO:HD2	2.21	0.69
3:C:134:CYS:SG	7:C:1282:SF4:FE4	1.83	0.69
3:C:168:PHE:CB	3:C:179:LEU:CD1	2.67	0.69
3:C:177:LEU:HD12	3:C:177:LEU:N	2.05	0.69
3:C:218:THR:HG23	3:C:218:THR:O	1.93	0.69
3:C:251:LEU:HD13	3:C:252:GLY:H	1.57	0.69
1:A:44:GLU:H	2:B:146:GLN:NE2	1.90	0.69
1:A:68:ILE:CD1	1:A:101:HIS:HD2	1.98	0.69
1:A:79:ASP:OD1	1:A:80:ASP:N	2.26	0.69
1:A:207:GLN:CD	1:A:256:ASN:ND2	2.50	0.69
1:A:246:CYS:SG	1:A:385:THR:HG22	2.31	0.69
1:A:319:LEU:HB3	1:A:336:LYS:CD	2.22	0.69
2:B:129:PHE:CD2	2:B:178:ILE:HD11	2.27	0.69
1:A:65:VAL:O	1:A:101:HIS:CE1	2.46	0.69
1:A:214:GLN:O	1:A:215:ILE:HD12	1.93	0.69
1:A:221:LYS:HB3	1:A:221:LYS:HZ3	1.58	0.69
1:A:117:PHE:CE2	1:A:193:ILE:HG12	2.28	0.69
1:A:326:ALA:HB3	1:A:350:PRO:HG2	1.74	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:134:CYS:HG	7:C:1282:SF4:FE4	1.08	0.69
1:A:165:GLU:OE1	1:A:168:ARG:NH1	2.25	0.68
2:B:168:LEU:HD12	2:B:168:LEU:C	2.18	0.68
2:B:98:LEU:CD1	2:B:185:LEU:CD2	2.71	0.68
2:B:209:ASP:O	2:B:213:LYS:HB2	1.92	0.68
3:C:36:ALA:C	3:C:42:ILE:CD1	2.66	0.68
3:C:244:ILE:HG13	3:C:251:LEU:HB3	1.74	0.68
1:A:289:THR:HG23	1:A:290:ALA:N	2.09	0.68
1:A:327:PRO:CD	1:A:328:ARG:H	2.03	0.68
2:B:237:MET:HB2	3:C:83:MET:HE1	1.76	0.68
3:C:157:LEU:N	3:C:157:LEU:HD13	2.09	0.68
2:B:192:TYR:HD1	2:B:193:LEU:HD22	1.58	0.68
3:C:9:ILE:HD11	3:C:220:ILE:HD13	1.75	0.68
1:A:202:LEU:HA	1:A:365:PHE:CZ	2.28	0.68
1:A:255:ARG:NH1	1:A:255:ARG:HG2	2.08	0.68
3:C:39:GLU:CB	3:C:41:ILE:HD11	2.24	0.68
3:C:133:TYR:CE2	3:C:208:GLY:HA3	2.27	0.68
2:B:210:LEU:O	2:B:214:VAL:HG12	1.93	0.68
3:C:45:ALA:HA	3:C:98:GLY:O	1.94	0.68
3:C:220:ILE:HG12	3:C:222:ARG:NH1	2.09	0.68
1:A:172:TYR:CE1	1:A:176:LYS:HG3	2.16	0.68
3:C:221:THR:HG21	3:C:227:ASP:CA	2.24	0.68
1:A:43:LEU:CD1	1:A:62:ILE:CG1	2.71	0.68
1:A:66:CYS:O	1:A:69:PRO:HG2	1.94	0.68
1:A:214:GLN:C	1:A:215:ILE:HD12	2.19	0.68
2:B:193:LEU:N	2:B:193:LEU:HD23	2.07	0.68
3:C:266:GLU:HG3	3:C:267:LYS:N	2.07	0.68
1:A:349:VAL:HG12	1:A:350:PRO:HD3	1.75	0.68
2:B:232:THR:HG22	2:B:248:ARG:HG2	1.74	0.68
2:B:260:PRO:CG	3:C:108:GLY:CA	2.71	0.68
3:C:111:LYS:HA	3:C:114:THR:HG22	1.75	0.68
3:C:4:GLY:HA3	3:C:201:GLU:HG3	1.75	0.67
3:C:9:ILE:HD11	3:C:220:ILE:CD1	2.24	0.67
1:A:70:HIS:CE1	1:A:349:VAL:HG13	2.23	0.67
2:B:52:ILE:N	2:B:100:LEU:O	2.26	0.67
2:B:125:LEU:CD2	2:B:165:ASP:CB	2.63	0.67
2:B:210:LEU:HD12	2:B:210:LEU:C	2.18	0.67
3:C:111:LYS:C	3:C:114:THR:HG22	2.18	0.67
3:C:129:LEU:HD12	3:C:129:LEU:C	2.20	0.67
1:A:107:ALA:CB	1:A:133:ILE:HD11	2.22	0.67
1:A:328:ARG:NH1	1:A:380:CYS:HB3	2.10	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:192:TYR:HD1	2:B:193:LEU:CD2	2.08	0.67
2:B:235:LEU:CD1	7:B:1275:SF4:S2	2.82	0.67
1:A:119:PRO:HG2	1:A:122:LEU:HB2	1.76	0.67
3:C:60:MET:HE2	3:C:67:GLU:HG2	1.75	0.67
1:A:82:LEU:O	1:A:83:ASP:HB2	1.94	0.67
3:C:6:TYR:HB3	3:C:220:ILE:HD11	1.76	0.67
3:C:62:ALA:HB2	3:C:67:GLU:HG2	1.76	0.67
3:C:233:ALA:O	3:C:236:ALA:HB3	1.94	0.67
3:C:47:VAL:CG2	3:C:71:ALA:CB	2.73	0.67
1:A:155:ARG:HD3	2:B:248:ARG:HH22	1.60	0.67
3:C:7:LYS:HZ2	3:C:224:ASP:CG	2.02	0.67
3:C:64:SER:OG	3:C:67:GLU:HB2	1.95	0.67
2:B:83:TYR:H	2:B:90:LEU:HD21	1.59	0.66
2:B:125:LEU:HD23	2:B:126:VAL:N	2.10	0.66
2:B:221:ILE:HG21	7:C:1282:SF4:S4	2.35	0.66
3:C:90:ARG:HB3	3:C:91:GLN:HE22	1.60	0.66
1:A:28:ILE:CG2	1:A:364:GLY:O	2.32	0.66
1:A:121:ASN:HD22	1:A:121:ASN:N	1.94	0.66
1:A:319:LEU:HA	1:A:336:LYS:HG2	1.78	0.66
2:B:51:TYR:HA	2:B:100:LEU:O	1.95	0.66
3:C:45:ALA:CB	3:C:98:GLY:O	2.43	0.66
3:C:133:TYR:CD1	3:C:199:VAL:HA	2.30	0.66
1:A:127:ILE:CD1	2:B:72:ALA:HA	2.26	0.66
1:A:14:GLU:CD	1:A:65:VAL:HG21	2.21	0.66
1:A:349:VAL:CG2	1:A:383:CYS:O	2.43	0.66
2:B:131:SER:OG	2:B:252:CYS:O	2.14	0.66
1:A:46:MET:HE2	2:B:142:SER:CA	2.23	0.66
1:A:275:GLY:N	1:A:278:ALA:HB3	2.10	0.66
2:B:264:TRP:CH2	3:C:107:MET:O	2.48	0.66
1:A:166:LEU:CD1	3:C:43:GLU:OE2	2.44	0.66
2:B:83:TYR:HA	2:B:90:LEU:CD2	2.26	0.66
3:C:147:ILE:HD12	3:C:155:MET:SD	2.36	0.66
1:A:276:VAL:HG21	1:A:373:VAL:HA	1.78	0.66
1:A:41:ARG:HG3	1:A:41:ARG:NH1	2.04	0.65
1:A:43:LEU:HD11	1:A:62:ILE:CA	2.27	0.65
1:A:131:SER:HB3	2:B:68:TYR:HB3	1.79	0.65
3:C:3:LEU:HD13	3:C:3:LEU:N	2.11	0.65
3:C:36:ALA:O	3:C:40:GLY:N	2.28	0.65
3:C:133:TYR:OH	3:C:220:ILE:HG21	1.96	0.65
3:C:133:TYR:CE1	3:C:199:VAL:HG23	2.31	0.65
1:A:46:MET:CE	2:B:142:SER:CB	2.74	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:240:GLU:O	1:A:244:ARG:HG3	1.96	0.65
2:B:83:TYR:O	2:B:83:TYR:CD2	2.48	0.65
3:C:167:LYS:N	3:C:181:LEU:CD2	2.60	0.65
1:A:9:PRO:HG2	2:B:85:GLN:HG3	1.78	0.65
1:A:62:ILE:HD13	1:A:62:ILE:C	2.20	0.65
1:A:73:ALA:CA	1:A:324:ILE:HD12	2.26	0.65
1:A:255:ARG:HG2	1:A:255:ARG:HH11	1.61	0.65
2:B:264:TRP:CZ2	2:B:268:GLN:NE2	2.65	0.65
1:A:183:ASN:O	1:A:186:VAL:HG22	1.96	0.65
1:A:199:PRO:HD3	1:A:369:TYR:HE2	1.52	0.65
1:A:249:ILE:CG2	1:A:356:PRO:CG	2.74	0.65
2:B:52:ILE:O	2:B:101:VAL:HA	1.96	0.65
3:C:23:ALA:CB	3:C:27:GLY:CA	2.75	0.65
1:A:178:LEU:HD12	1:A:178:LEU:O	1.96	0.65
3:C:85:LEU:CD2	3:C:99:THR:HG21	2.22	0.65
3:C:42:ILE:HG22	3:C:98:GLY:N	2.12	0.65
1:A:265:MET:HE1	1:A:269:GLN:OE1	1.97	0.65
2:B:271:LYS:HG3	2:B:272:GLU:N	2.12	0.65
3:C:77:THR:HG22	3:C:78:PHE:N	2.12	0.65
3:C:92:TYR:O	3:C:94:ILE:HG13	1.97	0.65
1:A:202:LEU:HD22	1:A:373:VAL:HG22	1.78	0.65
1:A:313:GLU:H	1:A:313:GLU:CD	1.96	0.65
3:C:171:TYR:CD1	3:C:176:VAL:HG12	2.31	0.65
1:A:14:GLU:OE2	1:A:65:VAL:HG23	1.96	0.65
1:A:43:LEU:CD2	2:B:138:PHE:CZ	2.80	0.65
1:A:46:MET:HE3	2:B:142:SER:CA	2.21	0.65
1:A:155:ARG:HD3	2:B:248:ARG:NH2	2.12	0.65
2:B:89:ASP:N	2:B:89:ASP:OD1	2.27	0.65
2:B:241:ARG:HG3	2:B:241:ARG:HH11	1.61	0.65
1:A:96:LEU:HB2	1:A:297:ILE:HG12	1.77	0.64
1:A:162:ASN:HB2	1:A:307:VAL:CG2	2.27	0.64
1:A:191:GLY:HA2	1:A:194:GLU:OE1	1.96	0.64
3:C:4:GLY:O	3:C:6:TYR:HD1	1.78	0.64
3:C:17:ARG:HB3	3:C:17:ARG:NH1	2.13	0.64
1:A:369:TYR:O	1:A:372:HIS:HB2	1.96	0.64
2:B:144:GLY:HA3	2:B:153:GLU:HB2	1.77	0.64
3:C:28:ILE:HG13	3:C:239:PHE:CD2	2.30	0.64
3:C:167:LYS:CG	3:C:178:THR:HB	2.27	0.64
1:A:98:LEU:HD12	1:A:216:TYR:HD1	1.62	0.64
1:A:162:ASN:HB2	1:A:307:VAL:HG22	1.78	0.64
1:A:227:PHE:CZ	1:A:348:LEU:CD1	2.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:154:SER:HB3	3:C:157:LEU:CD2	2.28	0.64
1:A:26:GLU:H	1:A:26:GLU:CD	1.97	0.64
1:A:293:ARG:HD2	1:A:297:ILE:CG2	2.27	0.64
1:A:354:ASN:HD22	1:A:354:ASN:N	1.95	0.64
2:B:127:CYS:CB	2:B:166:LEU:HD13	2.23	0.64
3:C:158:VAL:O	3:C:158:VAL:HG22	1.97	0.64
1:A:106:HIS:HB2	1:A:287:MET:HE2	1.78	0.64
3:C:179:LEU:HD12	3:C:179:LEU:N	2.13	0.64
1:A:293:ARG:O	1:A:297:ILE:HG23	1.97	0.64
1:A:70:HIS:CE1	1:A:349:VAL:HG11	2.31	0.64
1:A:262:ARG:HH11	1:A:262:ARG:CG	2.10	0.64
1:A:366:HIS:O	1:A:369:TYR:HB2	1.97	0.64
3:C:111:LYS:O	3:C:114:THR:CG2	2.42	0.64
1:A:190:ILE:CD1	1:A:285:LEU:HD21	2.22	0.64
3:C:167:LYS:N	3:C:181:LEU:HD21	2.11	0.64
1:A:19:LEU:HD22	1:A:374:ILE:HD12	1.79	0.64
1:A:41:ARG:HH11	1:A:41:ARG:CG	2.08	0.64
2:B:49:ILE:CD1	2:B:98:LEU:CD2	2.63	0.64
2:B:71:LEU:HD22	2:B:71:LEU:C	2.22	0.64
3:C:32:LEU:HD12	3:C:32:LEU:C	2.23	0.64
1:A:207:GLN:CD	1:A:256:ASN:HD21	2.07	0.63
1:A:168:ARG:HG2	1:A:168:ARG:HH11	1.63	0.63
1:A:201:GLY:C	1:A:365:PHE:HZ	2.06	0.63
2:B:93:MET:HG3	2:B:122:LYS:CG	2.19	0.63
1:A:62:ILE:HG23	1:A:70:HIS:HD2	1.58	0.63
3:C:221:THR:CG2	3:C:227:ASP:HB2	2.28	0.63
2:B:241:ARG:HH11	2:B:241:ARG:CG	2.12	0.63
1:A:329:GLY:O	1:A:350:PRO:HG3	1.99	0.63
1:A:43:LEU:HD11	1:A:62:ILE:CB	2.29	0.63
1:A:57:VAL:HG21	2:B:248:ARG:NH1	2.12	0.63
2:B:266:GLU:OE1	2:B:266:GLU:HA	1.98	0.63
3:C:53:GLU:HA	3:C:53:GLU:OE1	1.97	0.63
3:C:253:LEU:HD22	3:C:253:LEU:C	2.24	0.63
1:A:244:ARG:HH11	1:A:244:ARG:CG	2.10	0.63
1:A:65:VAL:O	1:A:67:PRO:HD2	1.98	0.62
2:B:58:THR:O	2:B:58:THR:CG2	2.45	0.62
2:B:203:THR:HG22	2:B:204:GLU:N	2.14	0.62
3:C:236:ALA:HB1	3:C:238:LEU:HD22	1.81	0.62
3:C:246:GLU:OE2	3:C:247:VAL:HG12	1.99	0.62
2:B:89:ASP:O	2:B:91:TRP:HZ3	1.80	0.62
2:B:139:THR:HG21	2:B:155:PHE:HB3	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:235:LEU:HD12	2:B:244:LEU:HB2	1.80	0.62
3:C:42:ILE:HG21	3:C:98:GLY:HA3	1.80	0.62
3:C:55:TRP:NE1	3:C:158:VAL:O	2.26	0.62
3:C:17:ARG:HG3	3:C:17:ARG:HH11	1.64	0.62
3:C:167:LYS:HA	3:C:181:LEU:CD2	2.28	0.62
1:A:89:ALA:HB2	1:A:305:ALA:HB3	1.81	0.62
1:A:219:ARG:HB3	1:A:219:ARG:CZ	2.29	0.62
1:A:214:GLN:H	1:A:214:GLN:CD	1.97	0.62
1:A:258:GLU:HG3	1:A:377:TYR:CE2	2.33	0.62
1:A:326:ALA:HB1	1:A:327:PRO:CD	2.27	0.62
3:C:135:MET:HG2	3:C:198:TYR:HE1	1.65	0.62
1:A:46:MET:CE	2:B:142:SER:N	2.61	0.62
1:A:257:VAL:HG11	1:A:353:TRP:HE3	1.55	0.62
1:A:330:LEU:HG	1:A:331:ASP:N	2.14	0.62
1:A:349:VAL:HG12	1:A:350:PRO:CD	2.30	0.62
3:C:180:PRO:O	3:C:183:GLU:HB3	1.99	0.62
1:A:8:SER:O	2:B:91:TRP:HD1	1.83	0.62
1:A:18:GLU:CG	1:A:35:PHE:HZ	2.08	0.62
1:A:127:ILE:HD11	2:B:71:LEU:HD13	1.81	0.62
1:A:149:ILE:HD13	1:A:149:ILE:H	1.64	0.62
2:B:90:LEU:O	2:B:90:LEU:HD23	1.99	0.62
2:B:232:THR:O	2:B:233:ARG:HB2	1.99	0.62
3:C:212:SER:OG	3:C:218:THR:HB	1.99	0.62
1:A:184:GLU:OE2	1:A:188:LEU:HD23	1.99	0.61
2:B:53:HIS:HB2	2:B:102:GLU:CB	2.29	0.61
2:B:248:ARG:O	2:B:248:ARG:HG2	2.00	0.61
1:A:262:ARG:HH11	1:A:262:ARG:HG3	1.65	0.61
2:B:206:CYS:HB3	2:B:208:CYS:H	1.63	0.61
1:A:128:ASN:OD1	2:B:72:ALA:HB3	2.00	0.61
1:A:276:VAL:HG22	1:A:376:ALA:CB	2.31	0.61
2:B:180:LYS:O	2:B:183:VAL:HG12	2.00	0.61
2:B:268:GLN:HG2	2:B:269:ILE:N	2.15	0.61
1:A:65:VAL:O	1:A:101:HIS:HE1	1.83	0.61
1:A:84:ILE:HG21	1:A:311:PHE:HB3	1.78	0.61
3:C:168:PHE:CB	3:C:179:LEU:HD11	2.29	0.61
1:A:43:LEU:HD11	1:A:62:ILE:HG12	1.82	0.61
1:A:293:ARG:HD3	1:A:297:ILE:CG2	2.29	0.61
3:C:42:ILE:HG21	3:C:98:GLY:N	2.16	0.61
3:C:147:ILE:HD13	3:C:158:VAL:HG11	1.82	0.61
1:A:43:LEU:HD12	1:A:62:ILE:CG1	2.31	0.61
1:A:174:ARG:HG2	1:A:174:ARG:HH11	1.66	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:263:ALA:O	1:A:267:GLU:HG2	2.01	0.61
1:A:265:MET:CE	1:A:269:GLN:CD	2.73	0.61
1:A:310:ASP:OD1	1:A:311:PHE:N	2.34	0.61
1:A:79:ASP:O	1:A:83:ASP:N	2.34	0.61
3:C:248:LYS:HG3	3:C:249:PRO:CA	2.31	0.61
1:A:178:LEU:HD11	1:A:182:VAL:HG23	1.82	0.61
2:B:66:GLU:HB2	2:B:175:PRO:HB3	1.82	0.61
2:B:187:ASN:C	2:B:188:ASN:HD22	2.09	0.61
2:B:209:ASP:O	2:B:213:LYS:N	2.21	0.61
3:C:90:ARG:C	3:C:91:GLN:HE21	2.08	0.61
1:A:139:TYR:CD2	1:A:174:ARG:HD2	2.35	0.61
1:A:215:ILE:HG22	1:A:216:TYR:N	2.13	0.61
2:B:98:LEU:HD13	2:B:185:LEU:CD2	2.25	0.61
3:C:132:ILE:HG22	9:C:1283:FAD:C1'	2.30	0.61
1:A:71:THR:HG21	1:A:154:VAL:HG13	1.80	0.60
2:B:186:LEU:HD13	2:B:187:ASN:N	2.17	0.60
2:B:237:MET:HB2	3:C:83:MET:CE	2.31	0.60
1:A:29:VAL:HG13	1:A:363:GLU:HA	1.82	0.60
3:C:17:ARG:HH11	3:C:17:ARG:CG	2.14	0.60
1:A:33:ARG:CG	1:A:33:ARG:HH11	2.14	0.60
1:A:41:ARG:NH2	1:A:62:ILE:O	2.33	0.60
1:A:255:ARG:HH11	1:A:255:ARG:CG	2.14	0.60
3:C:28:ILE:HG21	3:C:207:THR:HG23	1.83	0.60
1:A:233:GLU:HA	1:A:242:ALA:HB1	1.82	0.60
1:A:256:ASN:HD22	1:A:256:ASN:N	1.99	0.60
3:C:106:THR:HG23	3:C:202:LEU:HB2	1.82	0.60
1:A:14:GLU:CG	2:B:58:THR:HG21	2.32	0.60
1:A:19:LEU:HD13	1:A:374:ILE:CD1	2.30	0.60
1:A:54:THR:HG23	1:A:58:MET:HE2	1.82	0.60
3:C:221:THR:HG21	3:C:227:ASP:HA	1.83	0.60
2:B:74:LEU:HA	2:B:78:MET:HB2	1.83	0.60
3:C:211:GLY:HA2	3:C:249:PRO:HG2	1.83	0.60
3:C:226:GLY:O	3:C:229:ILE:CG2	2.46	0.60
2:B:83:TYR:HE1	2:B:91:TRP:O	1.84	0.60
2:B:93:MET:HB2	2:B:96:MET:CE	2.30	0.60
3:C:128:LEU:O	3:C:128:LEU:HG	2.02	0.60
1:A:240:GLU:HG3	1:A:241:ILE:N	2.15	0.60
3:C:7:LYS:HE3	3:C:224:ASP:HB2	1.82	0.60
3:C:162:ASP:OD1	3:C:163:ILE:N	2.35	0.60
3:C:216:TRP:CH2	3:C:240:GLU:HG2	2.36	0.60
1:A:174:ARG:HH11	1:A:174:ARG:CG	2.15	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:219:ARG:HG3	1:A:219:ARG:HH11	1.67	0.60
1:A:291:LEU:O	1:A:294:ALA:HB3	2.02	0.60
2:B:136:GLY:O	2:B:139:THR:HB	2.02	0.60
3:C:146:PHE:HA	3:C:150:LYS:HG2	1.83	0.60
3:C:163:ILE:CG2	3:C:181:LEU:HD11	2.32	0.60
1:A:199:PRO:CG	1:A:369:TYR:CE2	2.84	0.59
1:A:358:MET:HE3	1:A:374:ILE:HG23	1.84	0.59
2:B:237:MET:CG	3:C:83:MET:CE	2.78	0.59
1:A:219:ARG:HH11	1:A:219:ARG:CG	2.14	0.59
3:C:9:ILE:HD13	3:C:220:ILE:CB	2.17	0.59
3:C:92:TYR:HD1	3:C:92:TYR:H	1.45	0.59
1:A:201:GLY:O	1:A:204:VAL:HG22	2.02	0.59
2:B:46:LYS:HG3	2:B:47:PRO:N	2.17	0.59
2:B:192:TYR:CD1	2:B:193:LEU:CD2	2.85	0.59
1:A:71:THR:HG22	1:A:154:VAL:HG11	1.78	0.59
1:A:262:ARG:HG3	1:A:262:ARG:NH1	2.17	0.59
1:A:327:PRO:CD	1:A:328:ARG:N	2.62	0.59
3:C:55:TRP:HE1	3:C:158:VAL:HG22	1.67	0.59
2:B:186:LEU:HD22	2:B:186:LEU:C	2.27	0.59
1:A:55:ALA:O	1:A:59:VAL:HG23	2.03	0.59
3:C:273:LYS:HE3	3:C:279:THR:HB	1.84	0.59
1:A:46:MET:HE1	2:B:142:SER:HB3	1.84	0.59
2:B:70:ILE:HG22	2:B:74:LEU:HB2	1.84	0.59
2:B:125:LEU:HD23	2:B:165:ASP:HB2	1.80	0.59
3:C:66:ASP:OD1	3:C:66:ASP:N	2.24	0.59
3:C:169:TRP:NE1	3:C:178:THR:HG21	2.17	0.59
3:C:281:PHE:HD1	3:C:281:PHE:N	2.00	0.59
1:A:118:VAL:HG23	1:A:123:MET:HG3	1.84	0.59
3:C:101:ALA:HB3	3:C:129:LEU:HD11	1.85	0.59
3:C:111:LYS:CA	3:C:114:THR:HG22	2.32	0.59
1:A:145:ALA:O	1:A:153:ASP:HB2	2.02	0.58
2:B:106:CYS:HB2	2:B:155:PHE:CE2	2.38	0.58
3:C:220:ILE:HG12	3:C:222:ARG:HH11	1.66	0.58
1:A:119:PRO:CB	1:A:121:ASN:HD21	2.13	0.58
1:A:147:GLU:OE2	3:C:120:ARG:HG3	2.03	0.58
2:B:128:ALA:HB1	2:B:133:ALA:HB1	1.86	0.58
1:A:14:GLU:OE2	1:A:65:VAL:CG2	2.51	0.58
1:A:43:LEU:HD12	1:A:62:ILE:HG12	1.85	0.58
1:A:73:ALA:HB2	1:A:324:ILE:HD12	1.78	0.58
3:C:41:ILE:HD13	3:C:41:ILE:H	1.67	0.58
3:C:42:ILE:HG21	3:C:98:GLY:CA	2.34	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:147:ILE:HD12	3:C:155:MET:CE	2.33	0.58
3:C:158:VAL:HG21	3:C:161:MET:CE	2.33	0.58
1:A:43:LEU:HD22	2:B:138:PHE:HE2	1.66	0.58
2:B:195:PRO:CG	3:C:115:TYR:CE2	2.56	0.58
1:A:262:ARG:O	1:A:266:VAL:HG23	2.04	0.58
3:C:35:TYR:CZ	3:C:39:GLU:HG2	2.37	0.58
3:C:137:ASN:HB3	9:C:1283:FAD:HM73	1.86	0.58
1:A:70:HIS:NE2	1:A:383:CYS:SG	2.76	0.58
3:C:35:TYR:CE2	3:C:39:GLU:CG	2.87	0.58
1:A:4:ARG:HB2	1:A:21:MET:O	2.04	0.58
1:A:96:LEU:HD13	1:A:97:THR:N	2.19	0.58
2:B:168:LEU:O	2:B:168:LEU:CD1	2.43	0.58
3:C:92:TYR:CD1	3:C:92:TYR:N	2.72	0.58
1:A:12:ARG:HB3	1:A:375:ARG:HD2	1.84	0.58
1:A:18:GLU:CD	1:A:35:PHE:HZ	2.11	0.58
1:A:46:MET:HE2	2:B:142:SER:HA	1.83	0.58
1:A:329:GLY:O	1:A:350:PRO:CG	2.51	0.58
2:B:83:TYR:N	2:B:90:LEU:HD21	2.19	0.58
3:C:102:ILE:H	3:C:105:GLN:HG3	1.68	0.58
1:A:210:LEU:HD23	1:A:330:LEU:CD2	2.32	0.58
1:A:319:LEU:HB3	1:A:336:LYS:HD3	1.85	0.58
3:C:106:THR:CG2	3:C:202:LEU:HB2	2.33	0.58
1:A:36:SER:HB3	1:A:381:LEU:HD12	1.85	0.57
1:A:139:TYR:CE2	1:A:174:ARG:NE	2.72	0.57
1:A:189:MET:O	1:A:193:ILE:CD1	2.50	0.57
2:B:88:VAL:HG12	2:B:89:ASP:N	2.19	0.57
2:B:230:CYS:SG	2:B:233:ARG:N	2.77	0.57
1:A:14:GLU:CD	1:A:65:VAL:CG2	2.77	0.57
1:A:14:GLU:HG3	2:B:58:THR:HG21	1.86	0.57
1:A:62:ILE:HG12	1:A:386:HIS:CB	2.34	0.57
2:B:53:HIS:HB2	2:B:102:GLU:HB3	1.85	0.57
1:A:33:ARG:NH1	1:A:33:ARG:HG2	2.19	0.57
1:A:109:HIS:CD2	1:A:378:ASP:HB2	2.39	0.57
1:A:188:LEU:O	1:A:192:LEU:HG	2.03	0.57
1:A:199:PRO:HD2	1:A:369:TYR:CZ	2.38	0.57
1:A:264:ARG:NH1	1:A:286:GLU:CD	2.62	0.57
3:C:18:GLU:N	3:C:18:GLU:OE1	2.37	0.57
3:C:53:GLU:HB3	3:C:56:LYS:HB2	1.87	0.57
3:C:166:GLY:C	3:C:181:LEU:HD23	2.28	0.57
3:C:244:ILE:HG23	3:C:245:GLU:N	2.19	0.57
1:A:84:ILE:HG21	1:A:311:PHE:HD2	1.68	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:229:GLU:OE2	1:A:248:THR:OG1	2.22	0.57
3:C:29:VAL:HG21	3:C:132:ILE:CD1	2.34	0.57
3:C:36:ALA:HB1	3:C:42:ILE:CG1	2.35	0.57
1:A:96:LEU:HD11	1:A:144:VAL:CG1	2.13	0.57
3:C:114:THR:CG2	3:C:115:TYR:CD1	2.63	0.57
1:A:43:LEU:HD22	2:B:138:PHE:CE2	2.38	0.57
1:A:109:HIS:CG	1:A:378:ASP:OD2	2.58	0.57
1:A:208:PRO:CD	1:A:255:ARG:NH1	2.68	0.57
1:A:265:MET:CE	1:A:269:GLN:CG	2.75	0.57
2:B:239:ASN:N	2:B:239:ASN:HD22	2.00	0.57
3:C:135:MET:HG2	3:C:198:TYR:CE1	2.40	0.57
1:A:62:ILE:HG13	1:A:386:HIS:HB3	1.85	0.57
1:A:293:ARG:CD	1:A:297:ILE:HG22	2.35	0.57
2:B:70:ILE:HG23	2:B:78:MET:CE	2.32	0.57
2:B:91:TRP:HE3	2:B:91:TRP:N	2.03	0.57
3:C:55:TRP:HZ2	3:C:159:GLU:C	2.13	0.57
1:A:212:SER:O	1:A:268:PHE:CZ	2.58	0.57
1:A:329:GLY:C	1:A:350:PRO:HB3	2.30	0.57
2:B:270:LYS:C	2:B:270:LYS:HD3	2.30	0.57
3:C:35:TYR:CZ	3:C:39:GLU:HG3	2.39	0.57
3:C:121:PHE:O	3:C:125:LYS:HD2	2.04	0.57
3:C:163:ILE:HG21	3:C:181:LEU:HD11	1.85	0.57
3:C:227:ASP:CG	3:C:231:LYS:HE3	2.30	0.56
3:C:236:ALA:HB3	3:C:238:LEU:HD22	1.86	0.56
1:A:57:VAL:CG2	2:B:248:ARG:HH11	2.16	0.56
1:A:68:ILE:CD1	1:A:101:HIS:CD2	2.78	0.56
1:A:156:ILE:HG22	1:A:311:PHE:CE2	2.40	0.56
2:B:91:TRP:N	2:B:91:TRP:CE3	2.73	0.56
3:C:36:ALA:CB	3:C:42:ILE:CG1	2.83	0.56
3:C:103:PRO:CG	7:C:1282:SF4:S3	2.81	0.56
3:C:132:ILE:HG21	9:C:1283:FAD:H1'1	1.87	0.56
1:A:35:PHE:CD1	1:A:35:PHE:N	2.73	0.56
1:A:76:GLU:O	1:A:79:ASP:OD1	2.23	0.56
2:B:51:TYR:HB2	2:B:100:LEU:HB2	1.85	0.56
3:C:133:TYR:OH	3:C:220:ILE:HG22	2.03	0.56
3:C:227:ASP:OD1	3:C:231:LYS:HE3	2.04	0.56
3:C:281:PHE:CD1	3:C:281:PHE:N	2.73	0.56
1:A:199:PRO:HD3	1:A:369:TYR:OH	2.06	0.56
2:B:83:TYR:HA	2:B:90:LEU:HD21	1.86	0.56
2:B:98:LEU:HD23	2:B:98:LEU:C	2.30	0.56
2:B:131:SER:HB3	2:B:137:CYS:HB2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:47:VAL:HG23	3:C:47:VAL:O	2.05	0.56
3:C:150:LYS:HE2	3:C:183:GLU:CD	2.31	0.56
3:C:28:ILE:HD11	3:C:230:PHE:CE1	2.40	0.56
3:C:91:GLN:HE21	3:C:91:GLN:CA	2.17	0.56
3:C:133:TYR:HE1	3:C:199:VAL:HG23	1.68	0.56
3:C:187:TYR:CD1	3:C:187:TYR:N	2.73	0.56
1:A:82:LEU:HB3	1:A:84:ILE:HD11	1.88	0.56
1:A:109:HIS:CD2	1:A:378:ASP:CB	2.89	0.56
1:A:138:GLN:HE21	2:B:66:GLU:CD	2.14	0.56
1:A:215:ILE:O	1:A:325:GLU:HB2	2.06	0.56
1:A:381:LEU:N	1:A:381:LEU:HD22	2.21	0.56
3:C:239:PHE:N	3:C:239:PHE:CD1	2.73	0.56
1:A:89:ALA:HB2	1:A:302:ASP:OD2	2.04	0.56
1:A:231:MET:HE2	2:B:147:GLN:HB3	1.87	0.56
3:C:62:ALA:CB	3:C:67:GLU:HG2	2.35	0.56
1:A:66:CYS:HB2	1:A:69:PRO:HG3	1.87	0.56
1:A:351:THR:CG2	1:A:384:ALA:HB2	2.36	0.56
2:B:264:TRP:HH2	3:C:107:MET:O	1.89	0.56
3:C:138:PHE:CD1	3:C:138:PHE:N	2.74	0.56
1:A:256:ASN:ND2	1:A:256:ASN:N	2.53	0.56
2:B:196:MET:HG3	3:C:117:PHE:HZ	1.71	0.56
3:C:36:ALA:HB1	3:C:42:ILE:HG13	1.87	0.56
3:C:37:LEU:HD23	3:C:42:ILE:CD1	2.28	0.56
3:C:46:VAL:HG12	3:C:61:VAL:HB	1.88	0.56
3:C:84:MET:HE3	3:C:87:LYS:HD2	1.88	0.56
1:A:71:THR:CG2	1:A:154:VAL:HG13	2.33	0.55
2:B:192:TYR:CD1	2:B:193:LEU:HD22	2.40	0.55
2:B:214:VAL:HG23	2:B:219:LEU:CB	2.36	0.55
2:B:101:VAL:HG23	2:B:133:ALA:CB	2.36	0.55
1:A:46:MET:HE2	2:B:141:TYR:C	2.31	0.55
2:B:86:THR:HG22	2:B:87:LEU:HD13	1.89	0.55
1:A:62:ILE:CD1	1:A:383:CYS:HA	2.36	0.55
2:B:66:GLU:O	2:B:68:TYR:CD1	2.59	0.55
3:C:135:MET:HE3	3:C:136:GLU:HG3	1.87	0.55
2:B:101:VAL:HG23	2:B:133:ALA:HB2	1.87	0.55
2:B:127:CYS:SG	2:B:166:LEU:HD13	2.47	0.55
1:A:68:ILE:HB	1:A:101:HIS:CD2	2.41	0.55
1:A:97:THR:HG1	1:A:144:VAL:HG21	1.70	0.55
2:B:137:CYS:SG	2:B:138:PHE:N	2.80	0.55
1:A:64:GLY:C	1:A:67:PRO:HD3	2.31	0.55
1:A:138:GLN:O	1:A:141:VAL:HG12	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:249:ILE:HG23	1:A:356:PRO:CD	2.37	0.55
1:A:66:CYS:C	1:A:69:PRO:HD2	2.31	0.55
1:A:75:VAL:CG1	1:A:156:ILE:HA	2.37	0.55
1:A:300:GLU:HG3	1:A:300:GLU:O	2.06	0.55
3:C:216:TRP:CH2	3:C:240:GLU:HG3	2.36	0.55
1:A:12:ARG:NH2	1:A:116:ASP:OD1	2.39	0.55
1:A:209:THR:HB	1:A:263:ALA:HB1	1.88	0.55
3:C:265:ALA:O	3:C:269:ILE:HG12	2.07	0.55
1:A:143:MET:HE2	1:A:171:LEU:HD21	1.89	0.54
1:A:236:TYR:HB3	1:A:241:ILE:HG23	1.89	0.54
2:B:269:ILE:HG23	2:B:270:LYS:N	2.22	0.54
3:C:84:MET:CE	3:C:87:LYS:HD2	2.37	0.54
1:A:311:PHE:CD1	1:A:311:PHE:C	2.85	0.54
2:B:135:THR:HG22	2:B:135:THR:O	2.06	0.54
3:C:81:ASN:ND2	3:C:100:VAL:O	2.40	0.54
3:C:153:VAL:HG23	3:C:157:LEU:HD23	1.82	0.54
1:A:366:HIS:CD2	1:A:368:GLU:HG2	2.42	0.54
2:B:67:ASN:O	2:B:71:LEU:HB2	2.07	0.54
3:C:57:PRO:HB3	3:C:75:LYS:HG3	1.89	0.54
2:B:192:TYR:CD1	2:B:192:TYR:C	2.86	0.54
3:C:96:LYS:HA	3:C:125:LYS:O	2.08	0.54
3:C:247:VAL:HG23	3:C:247:VAL:O	2.07	0.54
2:B:237:MET:CG	3:C:83:MET:HE3	2.33	0.54
3:C:7:LYS:HE3	3:C:224:ASP:CB	2.37	0.54
3:C:45:ALA:CA	3:C:98:GLY:O	2.55	0.54
1:A:329:GLY:CA	1:A:350:PRO:HB3	2.38	0.54
3:C:9:ILE:HG22	3:C:244:ILE:HB	1.89	0.54
3:C:10:VAL:HG11	3:C:241:THR:HB	1.89	0.54
3:C:280:PRO:C	3:C:281:PHE:CD1	2.85	0.54
1:A:66:CYS:N	1:A:67:PRO:HD3	2.19	0.54
1:A:84:ILE:HG21	1:A:311:PHE:CD2	2.43	0.54
1:A:87:PRO:HG3	1:A:306:PRO:O	2.07	0.54
1:A:108:ILE:HG12	1:A:134:ARG:NH2	2.23	0.54
1:A:231:MET:HE1	1:A:248:THR:HG21	1.90	0.54
1:A:367:HIS:O	1:A:371:PRO:HD3	2.07	0.54
2:B:241:ARG:HH21	3:C:189:GLN:HE21	1.56	0.54
3:C:2:VAL:HG23	3:C:3:LEU:O	2.07	0.54
3:C:165:LYS:HD2	3:C:165:LYS:H	1.71	0.54
1:A:105:SER:O	1:A:108:ILE:HG22	2.07	0.54
2:B:129:PHE:CD1	2:B:129:PHE:C	2.85	0.54
2:B:173:PRO:HB2	2:B:178:ILE:HD12	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:42:ILE:HD12	3:C:42:ILE:H	1.73	0.54
3:C:101:ALA:O	3:C:131:GLY:HA2	2.07	0.54
1:A:381:LEU:O	1:A:384:ALA:N	2.41	0.54
2:B:120:ARG:HD3	2:B:126:VAL:HG11	1.90	0.54
3:C:45:ALA:HB1	3:C:98:GLY:O	2.08	0.54
2:B:192:TYR:HB3	2:B:193:LEU:HD23	1.90	0.53
2:B:244:LEU:HD22	2:B:245:ASN:N	2.24	0.53
3:C:4:GLY:O	3:C:222:ARG:NH2	2.40	0.53
1:A:219:ARG:NH1	1:A:321:ILE:O	2.42	0.53
1:A:257:VAL:CG1	1:A:353:TRP:CE3	2.81	0.53
2:B:51:TYR:OH	2:B:61:ALA:HB2	2.08	0.53
2:B:63:SER:OG	2:B:172:PRO:CG	2.56	0.53
1:A:172:TYR:CE1	1:A:176:LYS:HG2	2.44	0.53
1:A:172:TYR:CD1	1:A:172:TYR:C	2.86	0.53
1:A:381:LEU:O	1:A:382:SER:C	2.51	0.53
2:B:69:ASP:OD1	2:B:69:ASP:N	2.37	0.53
3:C:110:ARG:HG3	3:C:202:LEU:HB3	1.90	0.53
1:A:219:ARG:CZ	1:A:219:ARG:CB	2.86	0.53
2:B:221:ILE:HD12	2:B:222:GLY:N	2.24	0.53
1:A:73:ALA:HA	1:A:324:ILE:HD12	1.89	0.53
1:A:139:TYR:O	1:A:143:MET:HB2	2.09	0.53
1:A:148:GLY:HA2	1:A:149:ILE:C	2.34	0.53
3:C:102:ILE:CG2	3:C:103:PRO:CD	2.85	0.53
3:C:103:PRO:HD2	3:C:134:CYS:HB3	1.91	0.53
1:A:76:GLU:OE1	1:A:324:ILE:CG2	2.57	0.53
1:A:249:ILE:HG21	1:A:356:PRO:HB3	1.90	0.53
1:A:293:ARG:NE	1:A:297:ILE:HG22	2.24	0.53
3:C:35:TYR:OH	3:C:39:GLU:CD	2.52	0.53
1:A:26:GLU:HB2	1:A:28:ILE:HD13	1.90	0.53
2:B:64:LEU:O	2:B:67:ASN:OD1	2.27	0.53
2:B:213:LYS:HB3	2:B:256:TYR:CE1	2.44	0.53
3:C:7:LYS:CD	3:C:227:ASP:OD2	2.48	0.53
3:C:142:SER:OG	3:C:187:TYR:CB	2.45	0.53
1:A:9:PRO:HB3	1:A:16:HIS:HB3	1.91	0.53
1:A:52:PRO:HD2	1:A:340:GLY:O	2.06	0.53
1:A:54:THR:HG21	1:A:58:MET:HE2	1.90	0.53
1:A:146:GLY:N	1:A:153:ASP:OD2	2.42	0.53
2:B:57:CYS:O	2:B:58:THR:HB	2.09	0.53
2:B:134:ALA:HB2	2:B:167:ALA:HB1	1.90	0.53
2:B:262:SER:HG	2:B:263:TRP:CD1	2.26	0.53
3:C:55:TRP:CD1	3:C:158:VAL:HG22	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:119:VAL:CG1	3:C:122:LEU:HB3	2.37	0.53
1:A:257:VAL:C	1:A:357:THR:HG21	2.34	0.53
2:B:83:TYR:HA	2:B:90:LEU:HD23	1.91	0.53
3:C:280:PRO:C	3:C:281:PHE:HD1	2.17	0.53
1:A:147:GLU:OE2	3:C:120:ARG:CG	2.56	0.53
3:C:28:ILE:HD11	3:C:230:PHE:CZ	2.43	0.53
3:C:242:LYS:HE2	3:C:247:VAL:HG11	1.83	0.53
3:C:169:TRP:NE1	3:C:178:THR:CG2	2.72	0.52
1:A:127:ILE:HD12	2:B:72:ALA:CA	2.37	0.52
1:A:172:TYR:CZ	1:A:295:ILE:HD13	2.44	0.52
2:B:101:VAL:O	2:B:133:ALA:HB2	2.08	0.52
1:A:72:LEU:CD1	1:A:98:LEU:HG	2.38	0.52
2:B:54:LEU:HD21	2:B:116:LEU:HD22	1.91	0.52
1:A:18:GLU:CD	1:A:35:PHE:CZ	2.86	0.52
1:A:59:VAL:O	1:A:62:ILE:HG22	2.10	0.52
1:A:88:LYS:HB2	1:A:88:LYS:HZ3	1.70	0.52
2:B:214:VAL:HG23	2:B:219:LEU:HB2	1.91	0.52
3:C:29:VAL:O	3:C:33:LEU:HB2	2.10	0.52
3:C:122:LEU:HD12	3:C:122:LEU:C	2.31	0.52
1:A:28:ILE:HG23	1:A:364:GLY:C	2.26	0.52
1:A:174:ARG:CG	1:A:174:ARG:NH1	2.73	0.52
2:B:93:MET:CE	2:B:118:GLU:HB3	2.40	0.52
3:C:103:PRO:HD3	3:C:132:ILE:O	2.09	0.52
1:A:24:ASP:OD1	1:A:30:THR:HG22	2.10	0.52
1:A:143:MET:CE	1:A:171:LEU:CD2	2.86	0.52
2:B:265:PRO:O	2:B:268:GLN:OE1	2.27	0.52
3:C:181:LEU:CD2	3:C:181:LEU:N	2.73	0.52
1:A:381:LEU:N	1:A:381:LEU:CD2	2.73	0.52
2:B:70:ILE:N	2:B:70:ILE:HD13	2.24	0.52
2:B:193:LEU:N	2:B:193:LEU:CD2	2.73	0.52
3:C:53:GLU:HB3	3:C:56:LYS:CB	2.40	0.52
3:C:192:CYS:HG	7:C:1282:SF4:FE3	1.27	0.52
1:A:293:ARG:O	1:A:294:ALA:C	2.52	0.52
2:B:113:LEU:CD2	2:B:113:LEU:N	2.73	0.52
2:B:235:LEU:HD12	2:B:244:LEU:CB	2.39	0.52
3:C:220:ILE:CD1	3:C:222:ARG:NH1	2.73	0.52
1:A:12:ARG:HG2	1:A:112:LEU:O	2.10	0.52
2:B:270:LYS:CD	2:B:271:LYS:N	2.73	0.52
3:C:37:LEU:N	3:C:42:ILE:CD1	2.73	0.52
1:A:11:SER:OG	1:A:375:ARG:NH1	2.43	0.52
1:A:156:ILE:O	1:A:311:PHE:HE2	1.93	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:219:ARG:NH1	1:A:219:ARG:CB	2.73	0.52
1:A:265:MET:HE3	1:A:269:GLN:OE1	2.06	0.52
2:B:83:TYR:CG	2:B:93:MET:HB3	2.45	0.52
2:B:90:LEU:N	2:B:90:LEU:CD2	2.73	0.52
3:C:57:PRO:HG2	3:C:79:SER:HB2	1.91	0.52
3:C:132:ILE:HG23	9:C:1283:FAD:O4'	2.09	0.52
3:C:251:LEU:HD13	3:C:251:LEU:C	2.34	0.52
2:B:67:ASN:ND2	2:B:175:PRO:O	2.43	0.51
2:B:221:ILE:HD12	2:B:221:ILE:C	2.35	0.51
2:B:223:CYS:O	3:C:105:GLN:NE2	2.43	0.51
3:C:137:ASN:CB	9:C:1283:FAD:HM73	2.40	0.51
3:C:179:LEU:HD13	3:C:179:LEU:O	2.09	0.51
3:C:181:LEU:N	3:C:181:LEU:HD22	2.25	0.51
9:C:1283:FAD:N1	9:C:1283:FAD:H2'	2.25	0.51
1:A:25:ASP:N	1:A:26:GLU:OE1	2.43	0.51
1:A:244:ARG:HG2	1:A:244:ARG:NH1	2.12	0.51
1:A:261:PRO:O	1:A:265:MET:HG3	2.09	0.51
1:A:262:ARG:HH11	1:A:262:ARG:HB3	1.76	0.51
1:A:319:LEU:HB2	1:A:336:LYS:CG	2.41	0.51
1:A:336:LYS:NZ	1:A:336:LYS:CB	2.73	0.51
3:C:157:LEU:N	3:C:157:LEU:CD1	2.73	0.51
1:A:140:VAL:HG21	1:A:175:LEU:HD21	1.92	0.51
1:A:172:TYR:C	1:A:172:TYR:HD1	2.19	0.51
1:A:246:CYS:SG	1:A:385:THR:CB	2.99	0.51
2:B:192:TYR:HE1	2:B:196:MET:HE1	1.75	0.51
2:B:241:ARG:HH21	3:C:189:GLN:NE2	2.08	0.51
3:C:17:ARG:NH1	3:C:17:ARG:CG	2.73	0.51
3:C:25:ASP:OD2	3:C:209:SER:CB	2.58	0.51
3:C:177:LEU:N	3:C:177:LEU:CD1	2.73	0.51
3:C:240:GLU:HG3	3:C:240:GLU:O	2.08	0.51
1:A:33:ARG:CG	1:A:33:ARG:NH1	2.73	0.51
2:B:186:LEU:CD1	2:B:187:ASN:ND2	2.73	0.51
3:C:3:LEU:N	3:C:3:LEU:CD1	2.73	0.51
3:C:19:ILE:O	3:C:23:ALA:CB	2.58	0.51
3:C:132:ILE:HG21	9:C:1283:FAD:C1'	2.40	0.51
1:A:162:ASN:OD1	1:A:162:ASN:C	2.53	0.51
1:A:277:VAL:O	1:A:281:VAL:HG23	2.10	0.51
2:B:113:LEU:N	2:B:113:LEU:HD22	2.25	0.51
2:B:195:PRO:HG3	3:C:115:TYR:CZ	2.36	0.51
3:C:160:LYS:CG	3:C:171:TYR:HD2	2.23	0.51
3:C:208:GLY:O	3:C:218:THR:HG22	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3:GLU:O	1:A:23:VAL:CG2	2.55	0.51
1:A:121:ASN:ND2	1:A:122:LEU:H	2.09	0.51
1:A:319:LEU:C	1:A:319:LEU:HD12	2.36	0.51
3:C:248:LYS:HA	3:C:249:PRO:C	2.35	0.51
1:A:88:LYS:CB	1:A:88:LYS:HZ3	2.24	0.51
1:A:117:PHE:CE2	1:A:193:ILE:HG23	2.46	0.51
2:B:66:GLU:O	2:B:68:TYR:CE1	2.63	0.51
2:B:189:ASP:C	2:B:190:MET:SD	2.94	0.51
1:A:16:HIS:H	1:A:38:THR:CG2	2.24	0.51
2:B:93:MET:HE3	2:B:118:GLU:CG	2.37	0.51
3:C:154:SER:CB	3:C:157:LEU:HD22	2.39	0.51
1:A:87:PRO:CG	1:A:306:PRO:O	2.59	0.51
1:A:90:GLY:HA2	1:A:307:VAL:HG13	1.93	0.51
1:A:184:GLU:OE1	1:A:185:HIS:N	2.43	0.51
2:B:97:ASP:HA	2:B:124:LYS:HE2	1.92	0.50
3:C:35:TYR:HH	3:C:39:GLU:CD	2.19	0.50
3:C:120:ARG:O	3:C:121:PHE:HB2	2.10	0.50
3:C:160:LYS:HG2	3:C:171:TYR:HD2	1.76	0.50
1:A:54:THR:OG1	2:B:247:ASP:O	2.25	0.50
1:A:57:VAL:HG22	2:B:248:ARG:NH1	2.24	0.50
1:A:227:PHE:HZ	1:A:348:LEU:HD21	1.76	0.50
2:B:93:MET:HE1	2:B:118:GLU:HB3	1.92	0.50
2:B:139:THR:HG21	2:B:155:PHE:HB2	1.72	0.50
2:B:195:PRO:HG2	2:B:196:MET:SD	2.51	0.50
2:B:242:PRO:O	2:B:242:PRO:HG2	2.11	0.50
1:A:143:MET:CE	1:A:171:LEU:CG	2.76	0.50
1:A:186:VAL:HG21	1:A:288:LYS:CE	2.39	0.50
2:B:98:LEU:HD12	2:B:185:LEU:HD21	1.93	0.50
2:B:236:ASP:O	2:B:243:GLU:O	2.29	0.50
3:C:218:THR:O	3:C:218:THR:CG2	2.58	0.50
3:C:223:THR:HG22	3:C:224:ASP:N	2.26	0.50
3:C:273:LYS:HA	3:C:273:LYS:HE2	1.93	0.50
3:C:33:LEU:CD2	3:C:100:VAL:HG23	2.41	0.50
1:A:227:PHE:CD1	1:A:228:THR:N	2.80	0.50
2:B:156:VAL:HB	2:B:160:ASP:OD2	2.11	0.50
2:B:203:THR:HG22	2:B:204:GLU:H	1.76	0.50
3:C:167:LYS:N	3:C:181:LEU:HD23	2.26	0.50
3:C:231:LYS:O	3:C:235:GLU:HG3	2.10	0.50
3:C:251:LEU:C	3:C:251:LEU:HD22	2.36	0.50
9:C:1283:FAD:N1	9:C:1283:FAD:C2'	2.73	0.50
1:A:98:LEU:HD12	1:A:216:TYR:CD1	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:249:ILE:CG2	1:A:356:PRO:HB3	2.42	0.50
1:A:265:MET:HE2	1:A:269:GLN:CD	2.36	0.50
1:A:319:LEU:C	1:A:319:LEU:CD1	2.85	0.50
2:B:229:ALA:HB1	2:B:254:ILE:HG22	1.93	0.50
3:C:226:GLY:C	3:C:229:ILE:HG22	2.37	0.50
2:B:53:HIS:C	2:B:53:HIS:CD2	2.88	0.50
2:B:84:GLY:O	2:B:88:VAL:N	2.45	0.50
3:C:209:SER:N	9:C:1283:FAD:O2	2.45	0.50
1:A:3:GLU:HG2	1:A:23:VAL:CG2	2.39	0.50
1:A:231:MET:CE	1:A:248:THR:HB	2.39	0.50
2:B:49:ILE:HG13	2:B:79:VAL:CG1	2.41	0.50
2:B:114:HIS:CD2	2:B:114:HIS:C	2.88	0.50
2:B:241:ARG:CG	2:B:241:ARG:NH1	2.73	0.50
3:C:4:GLY:C	3:C:222:ARG:NH2	2.69	0.50
3:C:6:TYR:HB3	3:C:220:ILE:CD1	2.41	0.50
3:C:199:VAL:HG22	3:C:200:ALA:N	2.27	0.50
3:C:220:ILE:HD11	3:C:222:ARG:NH1	2.26	0.50
3:C:220:ILE:CG1	3:C:222:ARG:NH1	2.74	0.50
3:C:242:LYS:NZ	3:C:247:VAL:HG11	2.26	0.50
2:B:234:ALA:HB2	2:B:248:ARG:O	2.12	0.50
3:C:7:LYS:HE3	3:C:224:ASP:CA	2.41	0.50
3:C:145:THR:HG23	3:C:146:PHE:N	2.26	0.50
1:A:14:GLU:OE1	2:B:62:MET:HE3	2.11	0.49
1:A:24:ASP:HB2	1:A:26:GLU:OE1	2.11	0.49
2:B:125:LEU:CD2	2:B:125:LEU:C	2.85	0.49
3:C:165:LYS:N	3:C:165:LYS:CD	2.73	0.49
3:C:7:LYS:HZ1	3:C:224:ASP:CG	2.20	0.49
3:C:202:LEU:HD22	3:C:202:LEU:N	2.27	0.49
3:C:223:THR:CG2	3:C:224:ASP:N	2.75	0.49
1:A:4:ARG:CA	1:A:21:MET:O	2.59	0.49
1:A:18:GLU:OE2	1:A:35:PHE:HZ	1.94	0.49
1:A:28:ILE:CD1	1:A:28:ILE:N	2.75	0.49
1:A:258:GLU:HG3	1:A:377:TYR:HE2	1.75	0.49
2:B:98:LEU:HA	2:B:125:LEU:O	2.12	0.49
3:C:196:LYS:HD2	3:C:265:ALA:HB3	1.94	0.49
1:A:155:ARG:NH1	2:B:248:ARG:NH2	2.60	0.49
2:B:83:TYR:O	2:B:83:TYR:CG	2.65	0.49
1:A:139:TYR:HD2	1:A:174:ARG:HD2	1.75	0.49
3:C:47:VAL:CG2	3:C:71:ALA:HB1	2.42	0.49
1:A:128:ASN:OD1	2:B:72:ALA:HB2	2.12	0.49
1:A:141:VAL:HG13	1:A:142:ASP:N	2.26	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:221:ILE:C	2:B:221:ILE:CD1	2.85	0.49
3:C:150:LYS:N	3:C:150:LYS:CD	2.75	0.49
1:A:47:VAL:O	1:A:50:LYS:HB2	2.13	0.49
1:A:78:ILE:HD13	1:A:335:ALA:HB3	1.94	0.49
1:A:218:ASP:HB2	1:A:221:LYS:HG3	1.95	0.49
3:C:17:ARG:NH1	3:C:17:ARG:CB	2.75	0.49
1:A:259:VAL:HG23	1:A:259:VAL:O	2.13	0.49
2:B:210:LEU:C	2:B:210:LEU:CD1	2.85	0.49
1:A:6:VAL:HG23	1:A:6:VAL:O	2.12	0.49
1:A:62:ILE:C	1:A:62:ILE:CD1	2.86	0.49
1:A:136:ASN:O	1:A:139:TYR:HB2	2.12	0.49
1:A:210:LEU:CD1	1:A:252:TYR:CE2	2.96	0.49
2:B:217:GLN:NE2	2:B:217:GLN:N	2.60	0.49
3:C:96:LYS:HB3	3:C:127:LYS:CD	2.41	0.49
1:A:172:TYR:HE2	1:A:299:ASP:HB2	1.78	0.49
1:A:212:SER:O	1:A:268:PHE:HZ	1.95	0.49
1:A:338:GLU:O	1:A:339:ASN:HB2	2.12	0.49
2:B:88:VAL:CG1	2:B:89:ASP:N	2.76	0.49
3:C:54:PHE:CE2	3:C:156:GLU:CD	2.91	0.49
1:A:20:VAL:HG23	1:A:35:PHE:HE1	1.77	0.48
2:B:110:GLU:HA	2:B:110:GLU:OE1	2.13	0.48
2:B:206:CYS:HB3	2:B:208:CYS:SG	2.52	0.48
3:C:15:THR:OG1	3:C:238:LEU:O	2.28	0.48
3:C:55:TRP:HE1	3:C:158:VAL:CG2	2.25	0.48
3:C:133:TYR:HD1	3:C:199:VAL:HA	1.76	0.48
1:A:22:GLU:O	1:A:30:THR:HG23	2.14	0.48
1:A:22:GLU:OE1	1:A:31:LYS:HB2	2.13	0.48
1:A:41:ARG:NH1	1:A:41:ARG:CG	2.72	0.48
1:A:73:ALA:CB	1:A:324:ILE:HD12	2.34	0.48
1:A:260:GLY:O	1:A:264:ARG:N	2.39	0.48
2:B:53:HIS:HB2	2:B:102:GLU:HB2	1.95	0.48
2:B:168:LEU:HB2	3:C:117:PHE:CE1	2.37	0.48
2:B:210:LEU:HD23	2:B:255:CYS:HB2	1.95	0.48
2:B:90:LEU:H	2:B:90:LEU:CD2	2.14	0.48
2:B:213:LYS:HG2	2:B:256:TYR:CZ	2.48	0.48
2:B:228:MET:HG3	3:C:86:LYS:HB2	1.94	0.48
1:A:142:ASP:HA	1:A:146:GLY:O	2.13	0.48
1:A:178:LEU:CD1	1:A:182:VAL:HG23	2.43	0.48
1:A:249:ILE:HG23	1:A:356:PRO:CG	2.43	0.48
2:B:106:CYS:HB2	2:B:155:PHE:CD2	2.48	0.48
2:B:89:ASP:O	2:B:91:TRP:CZ3	2.64	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:125:LEU:CD2	2:B:126:VAL:N	2.77	0.48
3:C:164:GLY:CA	3:C:169:TRP:HE3	2.24	0.48
1:A:43:LEU:HD11	1:A:62:ILE:CG1	2.41	0.48
1:A:46:MET:HE3	2:B:142:SER:CB	2.42	0.48
1:A:75:VAL:HG21	1:A:154:VAL:HG22	1.96	0.48
1:A:14:GLU:CD	2:B:58:THR:HG21	2.38	0.48
1:A:43:LEU:HD23	2:B:138:PHE:HE2	1.71	0.48
1:A:44:GLU:N	2:B:146:GLN:HE21	2.12	0.48
1:A:96:LEU:CB	1:A:297:ILE:HD11	2.36	0.48
1:A:143:MET:HG3	3:C:90:ARG:O	2.14	0.48
2:B:244:LEU:HD13	2:B:244:LEU:C	2.37	0.48
3:C:25:ASP:HB3	3:C:26:GLY:H	1.18	0.48
3:C:86:LYS:O	3:C:90:ARG:HB2	2.14	0.48
1:A:75:VAL:HG13	1:A:156:ILE:HA	1.95	0.48
2:B:223:CYS:HB2	3:C:105:GLN:HA	1.96	0.48
2:B:46:LYS:HG3	2:B:47:PRO:CD	2.43	0.48
2:B:176:GLU:O	2:B:180:LYS:HG2	2.14	0.48
2:B:214:VAL:HG13	2:B:215:VAL:N	2.29	0.48
3:C:73:GLY:O	9:C:1283:FAD:H51A	2.14	0.48
3:C:151:LEU:HD21	3:C:170:VAL:HG23	1.96	0.48
3:C:224:ASP:OD1	3:C:224:ASP:O	2.32	0.48
1:A:244:ARG:CG	1:A:244:ARG:NH1	2.73	0.48
1:A:46:MET:HE1	2:B:142:SER:CB	2.42	0.47
1:A:57:VAL:HG21	2:B:248:ARG:HH11	1.77	0.47
1:A:212:SER:C	1:A:268:PHE:CZ	2.92	0.47
1:A:214:GLN:C	1:A:215:ILE:CD1	2.85	0.47
1:A:275:GLY:N	1:A:278:ALA:CB	2.76	0.47
1:A:289:THR:CG2	1:A:290:ALA:N	2.75	0.47
2:B:164:VAL:O	2:B:164:VAL:HG23	2.14	0.47
3:C:214:ASP:OD1	3:C:215:GLY:N	2.47	0.47
1:A:109:HIS:CD2	1:A:378:ASP:OD2	2.67	0.47
1:A:132:GLU:CG	1:A:181:LYS:HZ1	2.21	0.47
1:A:293:ARG:HD3	1:A:293:ARG:C	2.38	0.47
2:B:186:LEU:HD13	2:B:187:ASN:ND2	2.28	0.47
1:A:43:LEU:HD23	2:B:138:PHE:CE2	2.45	0.47
1:A:238:ASP:CA	1:A:241:ILE:HG22	2.44	0.47
3:C:9:ILE:CD1	3:C:220:ILE:CD1	2.90	0.47
3:C:112:MET:HE3	3:C:112:MET:HB3	1.72	0.47
2:B:213:LYS:HG2	2:B:256:TYR:CE1	2.50	0.47
3:C:280:PRO:HG2	3:C:281:PHE:CE1	2.49	0.47
1:A:60:GLN:NE2	1:A:61:ARG:HH12	2.09	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:246:CYS:SG	1:A:385:THR:HB	2.55	0.47
1:A:293:ARG:HD3	1:A:293:ARG:O	2.14	0.47
1:A:328:ARG:NH1	1:A:328:ARG:HG3	2.28	0.47
3:C:133:TYR:HH	3:C:220:ILE:CG2	2.25	0.47
1:A:11:SER:CB	2:B:89:ASP:HB3	2.44	0.47
2:B:60:ASP:OD2	2:B:130:GLY:HA3	2.15	0.47
2:B:116:LEU:CD1	2:B:162:ILE:CD1	2.90	0.47
1:A:96:LEU:HD22	1:A:96:LEU:C	2.40	0.47
1:A:127:ILE:HD12	2:B:72:ALA:CB	2.44	0.47
1:A:129:SER:O	1:A:133:ILE:HG23	2.14	0.47
1:A:147:GLU:O	1:A:151:PRO:CA	2.53	0.47
1:A:221:LYS:NZ	1:A:221:LYS:CB	2.73	0.47
1:A:319:LEU:HD12	1:A:319:LEU:O	2.14	0.47
2:B:60:ASP:CG	2:B:102:GLU:HG3	2.39	0.47
3:C:112:MET:SD	3:C:119:VAL:HG21	2.54	0.47
3:C:135:MET:HE3	3:C:136:GLU:CG	2.44	0.47
3:C:244:ILE:CG1	3:C:251:LEU:HB3	2.43	0.47
3:C:280:PRO:O	3:C:281:PHE:HB2	2.13	0.47
3:C:280:PRO:CG	3:C:281:PHE:CD1	2.96	0.47
1:A:106:HIS:CB	1:A:287:MET:CE	2.93	0.47
1:A:165:GLU:CD	1:A:168:ARG:NH1	2.73	0.47
1:A:336:LYS:NZ	1:A:336:LYS:HB3	2.29	0.47
1:A:367:HIS:O	1:A:370:GLY:N	2.45	0.47
2:B:86:THR:CG2	2:B:87:LEU:HD13	2.44	0.47
2:B:89:ASP:C	2:B:91:TRP:CZ3	2.92	0.47
1:A:18:GLU:O	1:A:35:PHE:CD1	2.68	0.47
1:A:145:ALA:O	1:A:151:PRO:HB2	2.15	0.47
2:B:239:ASN:HA	2:B:240:GLY:HA2	1.70	0.47
1:A:223:ASP:HB3	1:A:226:ARG:H	1.80	0.47
1:A:224:LEU:HD11	1:A:321:ILE:HG12	1.97	0.47
2:B:66:GLU:O	2:B:68:TYR:CG	2.68	0.47
3:C:173:GLN:O	3:C:174:ASP:CB	2.63	0.47
2:B:81:ILE:HG23	2:B:81:ILE:O	2.14	0.46
2:B:87:LEU:C	2:B:88:VAL:HG23	2.40	0.46
2:B:129:PHE:CE2	2:B:178:ILE:HD11	2.49	0.46
2:B:187:ASN:C	2:B:188:ASN:ND2	2.73	0.46
2:B:224:GLY:HA3	3:C:80:PRO:HB3	1.96	0.46
3:C:47:VAL:HG23	3:C:71:ALA:CB	2.45	0.46
1:A:10:THR:CB	1:A:13:GLN:HE21	2.20	0.46
1:A:55:ALA:HB2	1:A:342:ILE:HD11	1.97	0.46
1:A:138:GLN:HA	1:A:141:VAL:HG12	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:209:ASP:OD1	2:B:210:LEU:N	2.48	0.46
3:C:37:LEU:N	3:C:42:ILE:HD11	2.30	0.46
1:A:15:GLY:HA3	1:A:381:LEU:HB2	1.97	0.46
1:A:41:ARG:N	1:A:386:HIS:OXT	2.48	0.46
2:B:244:LEU:C	2:B:244:LEU:CD2	2.85	0.46
3:C:19:ILE:HD13	3:C:19:ILE:H	1.77	0.46
3:C:227:ASP:O	3:C:231:LYS:HG3	2.15	0.46
1:A:154:VAL:C	1:A:155:ARG:HG2	2.41	0.46
1:A:186:VAL:HG23	1:A:187:GLU:N	2.30	0.46
2:B:83:TYR:HB2	2:B:94:PRO:HD2	1.97	0.46
3:C:198:TYR:HA	3:C:261:LYS:HE3	1.98	0.46
3:C:262:LYS:HE3	3:C:262:LYS:HB2	1.70	0.46
1:A:33:ARG:HH11	1:A:33:ARG:HG2	1.77	0.46
1:A:34:TYR:CD1	1:A:374:ILE:HD13	2.50	0.46
1:A:285:LEU:O	1:A:288:LYS:HB3	2.14	0.46
2:B:164:VAL:HG23	2:B:200:ALA:HB1	1.97	0.46
3:C:4:GLY:C	3:C:222:ARG:HH22	2.23	0.46
3:C:110:ARG:HG3	3:C:202:LEU:HD12	1.97	0.46
3:C:120:ARG:C	3:C:122:LEU:H	2.22	0.46
3:C:269:ILE:O	3:C:273:LYS:HB2	2.16	0.46
1:A:314:ARG:HE	1:A:314:ARG:HB2	1.60	0.46
3:C:167:LYS:C	3:C:181:LEU:CD2	2.88	0.46
1:A:54:THR:HG23	2:B:247:ASP:O	2.15	0.46
1:A:93:LEU:HD13	1:A:93:LEU:HA	1.84	0.46
1:A:199:PRO:HG3	1:A:369:TYR:CE2	2.49	0.46
1:A:283:ARG:HH11	1:A:283:ARG:CG	2.29	0.46
3:C:13:ARG:O	3:C:239:PHE:HA	2.16	0.46
3:C:19:ILE:N	3:C:19:ILE:CD1	2.69	0.46
3:C:60:MET:CE	3:C:67:GLU:CG	2.94	0.46
3:C:164:GLY:N	3:C:169:TRP:HE3	2.13	0.46
1:A:67:PRO:HG2	1:A:68:ILE:HD12	1.97	0.46
2:B:143:ARG:HH11	2:B:143:ARG:CG	2.13	0.46
2:B:210:LEU:O	2:B:214:VAL:CG1	2.62	0.46
3:C:7:LYS:HE3	3:C:224:ASP:HA	1.98	0.46
3:C:65:SER:O	3:C:69:LYS:HD2	2.16	0.46
1:A:262:ARG:HH11	1:A:262:ARG:CB	2.29	0.46
2:B:75:LEU:O	2:B:79:VAL:O	2.34	0.46
2:B:252:CYS:SG	2:B:254:ILE:HG12	2.55	0.46
3:C:60:MET:CE	3:C:67:GLU:HG2	2.45	0.46
3:C:225:ALA:O	3:C:228:SER:OG	2.25	0.46
1:A:289:THR:HG23	1:A:290:ALA:H	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:221:ILE:CG2	2:B:261:ARG:NH2	2.79	0.46
2:B:270:LYS:C	2:B:270:LYS:CD	2.88	0.46
3:C:46:VAL:HG23	3:C:46:VAL:O	2.16	0.46
3:C:77:THR:CG2	3:C:78:PHE:N	2.79	0.46
1:A:119:PRO:CG	1:A:121:ASN:HD21	2.29	0.45
1:A:209:THR:HB	1:A:263:ALA:CB	2.46	0.45
1:A:215:ILE:CD1	1:A:215:ILE:N	2.80	0.45
2:B:237:MET:HE3	2:B:240:GLY:O	2.16	0.45
3:C:105:GLN:H	3:C:105:GLN:HG2	1.58	0.45
3:C:206:SER:HG	3:C:222:ARG:HD3	1.72	0.45
1:A:62:ILE:CD1	1:A:386:HIS:HB3	2.46	0.45
1:A:124:ALA:O	1:A:127:ILE:HG23	2.16	0.45
1:A:140:VAL:O	1:A:144:VAL:HG13	2.16	0.45
1:A:213:HIS:O	1:A:264:ARG:HD3	2.17	0.45
2:B:183:VAL:HG13	2:B:184:ALA:N	2.32	0.45
2:B:214:VAL:HG23	2:B:219:LEU:HB3	1.98	0.45
2:B:237:MET:CB	3:C:83:MET:CE	2.94	0.45
2:B:260:PRO:HG2	3:C:108:GLY:CA	2.45	0.45
1:A:106:HIS:HB3	1:A:287:MET:CE	2.46	0.45
1:A:286:GLU:C	1:A:289:THR:HG22	2.40	0.45
3:C:62:ALA:HB1	3:C:67:GLU:CB	2.45	0.45
9:C:1283:FAD:HI'1	9:C:1283:FAD:H9	1.79	0.45
1:A:182:VAL:O	1:A:186:VAL:HG13	2.16	0.45
1:A:302:ASP:OD1	1:A:302:ASP:N	2.49	0.45
1:A:144:VAL:HG23	1:A:145:ALA:N	2.30	0.45
1:A:146:GLY:HA3	1:A:153:ASP:OD2	2.13	0.45
1:A:321:ILE:N	1:A:321:ILE:CD1	2.73	0.45
1:A:362:THR:HG21	1:A:374:ILE:HG13	1.98	0.45
3:C:135:MET:C	3:C:136:GLU:HG3	2.39	0.45
1:A:42:GLY:HA2	2:B:146:GLN:NE2	2.32	0.45
2:B:53:HIS:CD2	2:B:56:GLY:H	2.35	0.45
3:C:29:VAL:CG1	3:C:100:VAL:HG21	2.47	0.45
3:C:163:ILE:HG12	3:C:168:PHE:CE2	2.52	0.45
2:B:63:SER:HA	2:B:66:GLU:HG2	1.98	0.45
2:B:145:GLY:N	2:B:150:PRO:O	2.49	0.45
2:B:248:ARG:O	2:B:248:ARG:CG	2.65	0.45
3:C:25:ASP:CG	3:C:209:SER:HG	2.25	0.45
3:C:251:LEU:N	3:C:251:LEU:CD1	2.79	0.45
1:A:47:VAL:HG12	1:A:342:ILE:HD13	1.99	0.45
1:A:62:ILE:HD11	1:A:383:CYS:HA	1.98	0.45
2:B:51:TYR:CA	2:B:100:LEU:O	2.64	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:53:HIS:CD2	2:B:53:HIS:O	2.70	0.45
2:B:221:ILE:CD1	2:B:223:CYS:H	2.30	0.45
3:C:131:GLY:HA3	3:C:200:ALA:CB	2.47	0.45
3:C:154:SER:CA	3:C:157:LEU:HD22	2.46	0.45
1:A:47:VAL:CG1	1:A:342:ILE:HD13	2.47	0.45
1:A:68:ILE:O	1:A:72:LEU:HG	2.16	0.45
2:B:190:MET:SD	2:B:190:MET:N	2.90	0.45
2:B:217:GLN:N	2:B:217:GLN:HE21	2.15	0.45
3:C:25:ASP:HB3	3:C:217:SER:HB2	1.99	0.45
3:C:199:VAL:CG2	3:C:200:ALA:N	2.79	0.45
3:C:277:LEU:HD23	3:C:277:LEU:N	2.24	0.45
9:C:1283:FAD:H1'2	9:C:1283:FAD:O4'	2.16	0.45
1:A:109:HIS:HB2	1:A:378:ASP:OD2	2.17	0.45
1:A:167:ALA:CB	3:C:93:GLY:H	2.26	0.45
1:A:205:HIS:CD2	1:A:377:TYR:OH	2.69	0.45
1:A:219:ARG:CG	1:A:219:ARG:NH1	2.73	0.45
2:B:105:VAL:CG2	2:B:116:LEU:HD23	2.47	0.45
3:C:90:ARG:C	3:C:91:GLN:NE2	2.73	0.45
1:A:210:LEU:CB	1:A:259:VAL:HG12	2.33	0.44
2:B:56:GLY:C	2:B:58:THR:N	2.74	0.44
2:B:98:LEU:CD1	2:B:185:LEU:HD21	2.47	0.44
2:B:221:ILE:CG2	7:C:1282:SF4:S4	3.05	0.44
2:B:232:THR:O	2:B:233:ARG:CB	2.64	0.44
3:C:36:ALA:HB3	3:C:42:ILE:CG1	2.47	0.44
3:C:257:LEU:HD12	3:C:257:LEU:HA	1.75	0.44
1:A:143:MET:HE2	1:A:171:LEU:CD2	2.46	0.44
2:B:107:LEU:HB2	2:B:108:GLN:OE1	2.17	0.44
2:B:129:PHE:CD1	2:B:129:PHE:O	2.70	0.44
1:A:66:CYS:O	1:A:69:PRO:CG	2.65	0.44
1:A:132:GLU:C	1:A:132:GLU:CD	2.85	0.44
1:A:279:GLN:HE21	1:A:279:GLN:HB3	1.54	0.44
2:B:263:TRP:O	2:B:263:TRP:CE3	2.70	0.44
2:B:83:TYR:CA	2:B:90:LEU:HD21	2.47	0.44
3:C:6:TYR:CD1	3:C:6:TYR:N	2.86	0.44
3:C:19:ILE:O	3:C:23:ALA:HB3	2.16	0.44
3:C:222:ARG:H	3:C:222:ARG:HG2	1.55	0.44
3:C:232:GLN:HG2	3:C:232:GLN:H	1.54	0.44
1:A:159:MET:HE3	1:A:159:MET:HB3	1.80	0.44
1:A:225:ASP:OD1	1:A:225:ASP:N	2.36	0.44
2:B:185:LEU:HD12	2:B:185:LEU:HA	1.85	0.44
2:B:221:ILE:HG23	2:B:261:ARG:NH2	2.33	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:111:LYS:HA	3:C:114:THR:CG2	2.46	0.44
3:C:163:ILE:HG12	3:C:168:PHE:CD2	2.53	0.44
1:A:4:ARG:CB	1:A:21:MET:O	2.66	0.44
2:B:71:LEU:C	2:B:71:LEU:CD2	2.91	0.44
3:C:37:LEU:CD1	3:C:63:MET:O	2.66	0.44
3:C:41:ILE:H	3:C:41:ILE:CD1	2.27	0.44
3:C:119:VAL:HG11	3:C:122:LEU:HD23	1.99	0.44
3:C:236:ALA:CB	3:C:238:LEU:CD2	2.94	0.44
1:A:78:ILE:HD13	1:A:335:ALA:CB	2.47	0.44
2:B:269:ILE:CG2	2:B:270:LYS:N	2.81	0.44
1:A:82:LEU:HD21	1:A:313:GLU:HA	2.00	0.44
2:B:51:TYR:O	2:B:51:TYR:CD1	2.70	0.44
2:B:194:GLN:NE2	2:B:194:GLN:CA	2.73	0.44
3:C:19:ILE:H	3:C:19:ILE:CD1	2.30	0.44
3:C:26:GLY:CA	3:C:217:SER:CB	2.82	0.44
3:C:29:VAL:CG1	3:C:100:VAL:CG2	2.95	0.44
3:C:126:ILE:H	3:C:126:ILE:HG12	1.61	0.44
1:A:261:PRO:HG2	1:A:283:ARG:NH1	2.33	0.44
1:A:367:HIS:C	1:A:370:GLY:H	2.26	0.44
2:B:79:VAL:CG1	2:B:80:ASP:N	2.81	0.44
2:B:264:TRP:CH2	2:B:268:GLN:NE2	2.86	0.44
3:C:78:PHE:N	3:C:78:PHE:CD1	2.75	0.44
3:C:274:GLU:OE1	3:C:275:MET:N	2.50	0.44
1:A:57:VAL:HG21	2:B:248:ARG:HG3	1.99	0.43
1:A:96:LEU:HD12	1:A:144:VAL:HG11	1.89	0.43
2:B:144:GLY:HA3	2:B:153:GLU:CA	2.47	0.43
3:C:139:PRO:CD	3:C:142:SER:HB2	2.31	0.43
3:C:239:PHE:N	3:C:239:PHE:HD1	2.14	0.43
1:A:184:GLU:C	1:A:184:GLU:CD	2.85	0.43
1:A:256:ASN:ND2	1:A:256:ASN:H	2.14	0.43
3:C:138:PHE:HE2	3:C:184:THR:CG2	2.31	0.43
3:C:236:ALA:HB1	3:C:238:LEU:CD2	2.48	0.43
3:C:253:LEU:HD13	3:C:254:LEU:CA	2.47	0.43
1:A:45:LYS:HB2	2:B:146:GLN:HB2	2.00	0.43
1:A:82:LEU:HB3	1:A:84:ILE:CD1	2.48	0.43
1:A:84:ILE:CG2	1:A:311:PHE:CB	2.66	0.43
2:B:237:MET:HE2	3:C:80:PRO:HG2	1.68	0.43
3:C:49:GLY:O	3:C:60:MET:SD	2.76	0.43
3:C:242:LYS:CE	3:C:247:VAL:CG1	2.61	0.43
1:A:2:SER:HB2	1:A:3:GLU:H	1.63	0.43
3:C:48:ALA:HA	3:C:59:PRO:HA	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:133:TYR:HD2	3:C:208:GLY:HA3	1.70	0.43
1:A:120:GLU:N	1:A:120:GLU:CD	2.76	0.43
1:A:336:LYS:HB3	1:A:336:LYS:HZ3	1.84	0.43
1:A:73:ALA:CA	1:A:324:ILE:CD1	2.92	0.43
1:A:141:VAL:CG1	1:A:142:ASP:N	2.82	0.43
1:A:168:ARG:NH1	1:A:168:ARG:HG2	2.30	0.43
2:B:114:HIS:CD2	2:B:114:HIS:O	2.70	0.43
3:C:78:PHE:H	3:C:78:PHE:HD1	1.60	0.43
3:C:179:LEU:HD22	3:C:183:GLU:HG2	2.00	0.43
3:C:244:ILE:CG2	3:C:245:GLU:N	2.82	0.43
1:A:121:ASN:ND2	1:A:121:ASN:N	2.60	0.43
2:B:239:ASN:ND2	2:B:239:ASN:N	2.67	0.43
3:C:196:LYS:HD2	3:C:265:ALA:CB	2.49	0.43
1:A:36:SER:HB3	1:A:381:LEU:CD1	2.49	0.43
2:B:48:ARG:CB	2:B:48:ARG:NH1	2.73	0.43
2:B:125:LEU:HD23	2:B:126:VAL:H	1.84	0.43
3:C:96:LYS:HB3	3:C:127:LYS:HE2	1.95	0.43
1:A:106:HIS:CB	1:A:287:MET:HE2	2.44	0.43
1:A:139:TYR:CE2	1:A:174:ARG:CD	3.02	0.43
2:B:266:GLU:O	2:B:269:ILE:CG2	2.60	0.43
3:C:176:VAL:HG23	3:C:176:VAL:O	2.18	0.43
1:A:12:ARG:CG	1:A:112:LEU:O	2.67	0.43
1:A:162:ASN:OD1	1:A:163:ILE:N	2.52	0.43
1:A:172:TYR:HD1	1:A:172:TYR:O	2.02	0.43
2:B:128:ALA:HB1	2:B:158:ILE:HD11	1.93	0.43
2:B:180:LYS:O	2:B:183:VAL:CG1	2.65	0.43
3:C:18:GLU:O	3:C:22:LEU:HG	2.19	0.43
3:C:35:TYR:OH	3:C:39:GLU:OE2	2.30	0.43
3:C:36:ALA:C	3:C:42:ILE:HD12	2.44	0.43
1:A:152:SER:OG	2:B:231:GLN:O	2.31	0.42
1:A:213:HIS:HB2	1:A:217:GLY:HA2	2.01	0.42
3:C:7:LYS:NZ	3:C:224:ASP:OD1	2.41	0.42
1:A:207:GLN:CG	1:A:256:ASN:ND2	2.82	0.42
2:B:116:LEU:HD11	2:B:162:ILE:HD13	1.97	0.42
2:B:156:VAL:CG2	2:B:160:ASP:OD2	2.68	0.42
3:C:46:VAL:HG22	3:C:99:THR:CB	2.46	0.42
3:C:189:GLN:HG3	3:C:192:CYS:SG	2.59	0.42
2:B:62:MET:O	2:B:66:GLU:HG2	2.19	0.42
3:C:42:ILE:CG2	3:C:98:GLY:H	2.28	0.42
3:C:65:SER:OG	3:C:69:LYS:NZ	2.50	0.42
1:A:8:SER:HA	1:A:9:PRO:HA	1.81	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:50:GLY:O	2:B:99:ALA:HA	2.19	0.42
3:C:7:LYS:CE	3:C:224:ASP:HA	2.49	0.42
3:C:29:VAL:HG21	3:C:132:ILE:HD11	2.01	0.42
3:C:85:LEU:HD22	3:C:97:LEU:HD11	2.02	0.42
3:C:153:VAL:HG22	3:C:157:LEU:HB2	2.02	0.42
1:A:33:ARG:HA	1:A:33:ARG:HD3	1.69	0.42
1:A:57:VAL:HG11	2:B:232:THR:HG23	2.00	0.42
1:A:132:GLU:CG	1:A:181:LYS:NZ	2.76	0.42
2:B:149:GLN:HG3	2:B:152:HIS:NE2	2.34	0.42
3:C:33:LEU:HD12	3:C:33:LEU:HA	1.78	0.42
3:C:175:ASP:OD1	3:C:177:LEU:HD12	2.19	0.42
3:C:187:TYR:H	3:C:187:TYR:HD1	1.66	0.42
1:A:44:GLU:N	2:B:146:GLN:NE2	2.62	0.42
1:A:59:VAL:CG1	1:A:333:HIS:HE1	2.32	0.42
1:A:154:VAL:O	1:A:155:ARG:HG2	2.20	0.42
1:A:165:GLU:OE1	1:A:169:LYS:NZ	2.52	0.42
1:A:293:ARG:CZ	1:A:297:ILE:HG22	2.50	0.42
2:B:95:GLU:HA	2:B:122:LYS:O	2.19	0.42
2:B:176:GLU:O	2:B:180:LYS:CG	2.67	0.42
1:A:202:LEU:HD22	1:A:373:VAL:CG2	2.47	0.42
1:A:223:ASP:HB2	1:A:226:ARG:CB	2.46	0.42
1:A:250:PRO:HB3	1:A:348:LEU:HD22	2.02	0.42
1:A:338:GLU:O	1:A:339:ASN:CB	2.66	0.42
2:B:56:GLY:CA	7:B:1274:SF4:S3	3.07	0.42
2:B:79:VAL:HG12	2:B:80:ASP:N	2.34	0.42
2:B:113:LEU:CD2	2:B:113:LEU:H	2.32	0.42
2:B:241:ARG:HA	2:B:241:ARG:HD3	1.72	0.42
3:C:182:LYS:HZ2	3:C:182:LYS:HG3	1.55	0.42
2:B:120:ARG:NE	2:B:126:VAL:HG11	2.34	0.42
2:B:232:THR:CG2	2:B:248:ARG:HG2	2.44	0.42
3:C:39:GLU:HB3	3:C:41:ILE:CD1	2.41	0.42
1:A:111:PHE:CD2	1:A:112:LEU:HD23	2.55	0.42
2:B:124:LYS:HE2	2:B:124:LYS:HB3	1.73	0.42
2:B:261:ARG:O	3:C:280:PRO:CB	2.63	0.42
2:B:74:LEU:HD22	2:B:75:LEU:HD12	2.02	0.42
3:C:102:ILE:HG22	3:C:103:PRO:N	2.33	0.42
1:A:185:HIS:HA	1:A:188:LEU:CD2	2.50	0.41
1:A:366:HIS:HD2	1:A:368:GLU:H	1.68	0.41
1:A:127:ILE:C	1:A:127:ILE:CD1	2.85	0.41
1:A:249:ILE:CG2	1:A:356:PRO:CB	2.98	0.41
2:B:170:GLY:N	2:B:254:ILE:HD11	2.31	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:280:PRO:HB2	3:C:281:PHE:HD1	1.85	0.41
1:A:84:ILE:HD12	1:A:311:PHE:CD2	2.49	0.41
1:A:167:ALA:HB2	3:C:93:GLY:N	2.28	0.41
2:B:99:ALA:HB2	2:B:123:ALA:HB2	2.02	0.41
2:B:114:HIS:O	2:B:114:HIS:HD2	2.04	0.41
3:C:242:LYS:O	3:C:243:PRO:C	2.61	0.41
3:C:245:GLU:HG2	3:C:246:GLU:N	2.35	0.41
1:A:14:GLU:O	1:A:381:LEU:HD23	2.20	0.41
1:A:89:ALA:CB	1:A:305:ALA:HB3	2.49	0.41
2:B:70:ILE:O	2:B:74:LEU:HB2	2.19	0.41
2:B:175:PRO:HG3	3:C:121:PHE:CE1	2.56	0.41
3:C:229:ILE:HG23	3:C:230:PHE:N	2.34	0.41
1:A:59:VAL:HG11	1:A:333:HIS:CE1	2.55	0.41
1:A:162:ASN:HB2	1:A:307:VAL:HG21	2.02	0.41
2:B:82:VAL:HG21	2:B:94:PRO:HG2	2.02	0.41
2:B:157:PRO:HG2	2:B:203:THR:HG23	2.01	0.41
2:B:208:CYS:O	2:B:211:GLN:HB3	2.20	0.41
1:A:161:ASP:CG	3:C:91:GLN:HG2	2.46	0.41
2:B:66:GLU:O	2:B:68:TYR:N	2.54	0.41
2:B:231:GLN:H	2:B:231:GLN:HG2	1.55	0.41
1:A:264:ARG:NH1	1:A:286:GLU:OE2	2.53	0.41
1:A:291:LEU:C	1:A:291:LEU:CD2	2.87	0.41
3:C:181:LEU:O	3:C:184:THR:N	2.54	0.41
1:A:91:ARG:HG3	1:A:91:ARG:HH11	1.86	0.41
2:B:127:CYS:HB2	2:B:166:LEU:HD12	1.84	0.41
1:A:62:ILE:CG1	1:A:386:HIS:CB	2.87	0.41
1:A:246:CYS:SG	1:A:246:CYS:O	2.79	0.41
1:A:250:PRO:HG2	1:A:353:TRP:HA	2.03	0.41
1:A:296:GLU:O	1:A:297:ILE:C	2.64	0.41
2:B:66:GLU:O	2:B:68:TYR:CZ	2.74	0.41
2:B:246:SER:C	2:B:248:ARG:N	2.78	0.41
3:C:97:LEU:O	3:C:126:ILE:HA	2.21	0.41
3:C:219:VAL:O	3:C:219:VAL:HG22	2.20	0.41
1:A:65:VAL:N	1:A:67:PRO:HD3	2.36	0.41
1:A:106:HIS:HB3	1:A:287:MET:HE3	2.03	0.41
1:A:188:LEU:HD12	1:A:188:LEU:C	2.45	0.41
1:A:324:ILE:HD13	1:A:324:ILE:N	2.36	0.41
2:B:185:LEU:HD12	2:B:190:MET:HE1	2.03	0.41
2:B:221:ILE:CD1	2:B:223:CYS:HB3	2.51	0.41
3:C:49:GLY:HA2	3:C:50:PRO:HA	1.90	0.41
3:C:57:PRO:CG	3:C:79:SER:HB2	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:17:ALA:HB3	1:A:34:TYR:OH	2.20	0.40
1:A:61:ARG:HA	1:A:150:HIS:HE1	1.85	0.40
1:A:202:LEU:HD23	1:A:365:PHE:CD2	2.56	0.40
1:A:349:VAL:CG1	1:A:383:CYS:SG	3.05	0.40
2:B:46:LYS:N	2:B:47:PRO:HD2	2.36	0.40
2:B:63:SER:OG	2:B:172:PRO:HB2	2.21	0.40
2:B:250:ILE:O	2:B:251:LYS:HB2	2.20	0.40
3:C:24:GLN:NE2	3:C:74:THR:CB	2.54	0.40
3:C:248:LYS:CG	3:C:249:PRO:HA	2.44	0.40
1:A:117:PHE:CE2	1:A:193:ILE:CG1	3.03	0.40
1:A:250:PRO:CG	1:A:353:TRP:HA	2.51	0.40
2:B:265:PRO:HG2	2:B:265:PRO:O	2.20	0.40
3:C:47:VAL:HG21	3:C:71:ALA:HB3	2.02	0.40
3:C:85:LEU:HD13	3:C:126:ILE:HD12	2.03	0.40
3:C:165:LYS:HD3	3:C:165:LYS:O	2.21	0.40
1:A:144:VAL:CG2	1:A:145:ALA:N	2.85	0.40
1:A:211:ALA:HB2	1:A:264:ARG:HA	2.04	0.40
1:A:231:MET:CE	1:A:248:THR:CB	2.86	0.40
2:B:120:ARG:CD	2:B:126:VAL:HG11	2.50	0.40
2:B:168:LEU:C	2:B:168:LEU:CD1	2.90	0.40
3:C:9:ILE:HD11	3:C:220:ILE:HD12	2.02	0.40
3:C:129:LEU:HD12	3:C:130:VAL:H	1.80	0.40
1:A:29:VAL:CG2	1:A:30:THR:N	2.85	0.40
1:A:205:HIS:CD2	1:A:377:TYR:HH	2.40	0.40
1:A:283:ARG:CG	1:A:283:ARG:NH1	2.84	0.40
1:A:293:ARG:HD2	1:A:297:ILE:HG21	1.99	0.40
2:B:46:LYS:HG3	2:B:47:PRO:HD3	2.03	0.40
2:B:64:LEU:HA	2:B:64:LEU:HD23	1.83	0.40
2:B:165:ASP:O	2:B:197:LEU:HD23	2.22	0.40
3:C:55:TRP:NE1	3:C:158:VAL:HG23	2.35	0.40
3:C:160:LYS:HG2	3:C:171:TYR:CD2	2.56	0.40
1:A:61:ARG:HA	1:A:150:HIS:CE1	2.57	0.40
1:A:150:HIS:NE2	2:B:57:CYS:SG	2.92	0.40
1:A:199:PRO:HD2	1:A:202:LEU:HD12	2.03	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	383/386 (99%)	369 (96%)	13 (3%)	1 (0%)	36	63
2	B	226/275 (82%)	216 (96%)	10 (4%)	0	100	100
3	C	278/281 (99%)	271 (98%)	7 (2%)	0	100	100
All	All	887/942 (94%)	856 (96%)	30 (3%)	1 (0%)	49	76

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	250	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	321/322 (100%)	201 (63%)	120 (37%)	0	0
2	B	194/232 (84%)	115 (59%)	79 (41%)	0	0
3	C	229/230 (100%)	137 (60%)	92 (40%)	0	0
All	All	744/784 (95%)	453 (61%)	291 (39%)	0	0

All (291) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	SER
1	A	3	GLU

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Mol	Chain	Res	Type
1	A	4	ARG
1	A	5	ILE
1	A	7	ILE
1	A	12	ARG
1	A	13	GLN
1	A	14	GLU
1	A	18	GLU
1	A	21	MET
1	A	26	GLU
1	A	28	ILE
1	A	29	VAL
1	A	31	LYS
1	A	33	ARG
1	A	35	PHE
1	A	40	VAL
1	A	41	ARG
1	A	45	LYS
1	A	46	MET
1	A	50	LYS
1	A	53	GLU
1	A	58	MET
1	A	61	ARG
1	A	62	ILE
1	A	80	ASP
1	A	84	ILE
1	A	88	LYS
1	A	93	LEU
1	A	94	ARG
1	A	96	LEU
1	A	98	LEU
1	A	108	ILE
1	A	116	ASP
1	A	120	GLU
1	A	121	ASN
1	A	122	LEU
1	A	123	MET
1	A	127	ILE
1	A	130	VAL
1	A	132	GLU
1	A	133	ILE
1	A	135	LYS
1	A	139	TYR

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Mol	Chain	Res	Type
1	A	149	ILE
1	A	152	SER
1	A	155	ARG
1	A	164	THR
1	A	166	LEU
1	A	168	ARG
1	A	174	ARG
1	A	176	LYS
1	A	179	LYS
1	A	181	LYS
1	A	185	HIS
1	A	189	MET
1	A	194	GLU
1	A	195	ASP
1	A	196	LYS
1	A	198	LEU
1	A	200	GLU
1	A	202	LEU
1	A	204	VAL
1	A	207	GLN
1	A	213	HIS
1	A	214	GLN
1	A	215	ILE
1	A	216	TYR
1	A	219	ARG
1	A	221	LYS
1	A	225	ASP
1	A	228	THR
1	A	231	MET
1	A	233	GLU
1	A	237	ASP
1	A	240	GLU
1	A	246	CYS
1	A	248	THR
1	A	249	ILE
1	A	255	ARG
1	A	256	ASN
1	A	262	ARG
1	A	265	MET
1	A	269	GLN
1	A	272	LYS
1	A	276	VAL

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Mol	Chain	Res	Type
1	A	277	VAL
1	A	279	GLN
1	A	288	LYS
1	A	293	ARG
1	A	295	ILE
1	A	297	ILE
1	A	298	LEU
1	A	299	ASP
1	A	301	LEU
1	A	302	ASP
1	A	303	THR
1	A	307	VAL
1	A	308	ARG
1	A	313	GLU
1	A	314	ARG
1	A	316	THR
1	A	319	LEU
1	A	321	ILE
1	A	324	ILE
1	A	325	GLU
1	A	328	ARG
1	A	334	MET
1	A	336	LYS
1	A	341	LYS
1	A	349	VAL
1	A	352	THR
1	A	354	ASN
1	A	357	THR
1	A	358	MET
1	A	369	TYR
1	A	375	ARG
1	A	380	CYS
1	A	382	SER
1	A	383	CYS
2	B	46	LYS
2	B	48	ARG
2	B	51	TYR
2	B	52	ILE
2	B	53	HIS
2	B	54	LEU
2	B	60	ASP
2	B	64	LEU

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Mol	Chain	Res	Type
2	B	67	ASN
2	B	68	TYR
2	B	69	ASP
2	B	70	ILE
2	B	71	LEU
2	B	74	LEU
2	B	75	LEU
2	B	81	ILE
2	B	85	GLN
2	B	87	LEU
2	B	89	ASP
2	B	90	LEU
2	B	92	GLU
2	B	95	GLU
2	B	96	MET
2	B	98	LEU
2	B	108	GLN
2	B	110	GLU
2	B	113	LEU
2	B	116	LEU
2	B	118	GLU
2	B	120	ARG
2	B	121	GLU
2	B	125	LEU
2	B	126	VAL
2	B	127	CYS
2	B	129	PHE
2	B	131	SER
2	B	140	ARG
2	B	143	ARG
2	B	149	GLN
2	B	153	GLU
2	B	160	ASP
2	B	161	LEU
2	B	165	ASP
2	B	166	LEU
2	B	176	GLU
2	B	177	ILE
2	B	178	ILE
2	B	181	THR
2	B	185	LEU
2	B	186	LEU

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Mol	Chain	Res	Type
2	B	188	ASN
2	B	189	ASP
2	B	190	MET
2	B	193	LEU
2	B	199	LEU
2	B	209	ASP
2	B	210	LEU
2	B	212	THR
2	B	213	LYS
2	B	216	ASN
2	B	217	GLN
2	B	219	LEU
2	B	221	ILE
2	B	231	GLN
2	B	235	LEU
2	B	236	ASP
2	B	239	ASN
2	B	241	ARG
2	B	242	PRO
2	B	243	GLU
2	B	244	LEU
2	B	246	SER
2	B	258	GLN
2	B	259	CYS
2	B	266	GLU
2	B	268	GLN
2	B	270	LYS
2	B	271	LYS
2	B	273	LEU
3	C	3	LEU
3	C	5	THR
3	C	17	ARG
3	C	18	GLU
3	C	19	ILE
3	C	21	LYS
3	C	22	LEU
3	C	32	LEU
3	C	33	LEU
3	C	41	ILE
3	C	42	ILE
3	C	56	LYS
3	C	60	MET

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Mol	Chain	Res	Type
3	C	61	VAL
3	C	66	ASP
3	C	68	LEU
3	C	75	LYS
3	C	78	PHE
3	C	84	MET
3	C	89	VAL
3	C	90	ARG
3	C	91	GLN
3	C	92	TYR
3	C	94	ILE
3	C	96	LYS
3	C	97	LEU
3	C	104	CYS
3	C	105	GLN
3	C	106	THR
3	C	110	ARG
3	C	111	LYS
3	C	117	PHE
3	C	120	ARG
3	C	122	LEU
3	C	124	ASP
3	C	126	ILE
3	C	127	LYS
3	C	128	LEU
3	C	129	LEU
3	C	132	ILE
3	C	134	CYS
3	C	136	GLU
3	C	137	ASN
3	C	138	PHE
3	C	141	THR
3	C	149	GLU
3	C	150	LYS
3	C	151	LEU
3	C	155	MET
3	C	156	GLU
3	C	157	LEU
3	C	158	VAL
3	C	159	GLU
3	C	161	MET
3	C	165	LYS

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Mol	Chain	Res	Type
3	C	167	LYS
3	C	172	THR
3	C	173	GLN
3	C	174	ASP
3	C	177	LEU
3	C	179	LEU
3	C	181	LEU
3	C	182	LYS
3	C	183	GLU
3	C	188	GLU
3	C	193	LYS
3	C	195	CYS
3	C	196	LYS
3	C	199	VAL
3	C	217	SER
3	C	219	VAL
3	C	220	ILE
3	C	222	ARG
3	C	232	GLN
3	C	238	LEU
3	C	239	PHE
3	C	240	GLU
3	C	242	LYS
3	C	248	LYS
3	C	251	LEU
3	C	253	LEU
3	C	254	LEU
3	C	255	GLU
3	C	260	GLN
3	C	261	LYS
3	C	262	LYS
3	C	266	GLU
3	C	267	LYS
3	C	273	LYS
3	C	274	GLU
3	C	277	LEU
3	C	281	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	60	GLN

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Mol	Chain	Res	Type
1	A	70	HIS
1	A	101	HIS
1	A	102	HIS
1	A	106	HIS
1	A	121	ASN
1	A	256	ASN
1	A	279	GLN
1	A	280	HIS
1	A	354	ASN
1	A	366	HIS
2	B	53	HIS
2	B	85	GLN
2	B	114	HIS
2	B	146	GLN
2	B	147	GLN
2	B	149	GLN
2	B	187	ASN
2	B	188	ASN
2	B	194	GLN
2	B	216	ASN
2	B	217	GLN
2	B	231	GLN
2	B	239	ASN
3	C	20	GLN
3	C	24	GLN
3	C	91	GLN
3	C	105	GLN
3	C	185	HIS
3	C	189	GLN
3	C	268	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 4 are monoatomic - leaving 5 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
7	SF4	B	1276	2	0,12,12	-	-	-		
7	SF4	B	1274	2	0,12,12	-	-	-		
7	SF4	B	1275	2	0,12,12	-	-	-		
7	SF4	C	1282	3	0,12,12	-	-	-		
9	FAD	C	1283	-	58,58,58	1.43	10 (17%)	85,89,89	1.64	18 (21%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	SF4	B	1276	2	-	-	0/6/5/5
7	SF4	B	1274	2	-	-	0/6/5/5
7	SF4	B	1275	2	-	-	0/6/5/5
7	SF4	C	1282	3	-	-	0/6/5/5
9	FAD	C	1283	-	-	12/34/50/50	0/6/6/6

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	C	1283	FAD	C9A-C5X	4.36	1.48	1.41
9	C	1283	FAD	C5A-C4A	3.69	1.45	1.39
9	C	1283	FAD	C5A-N7A	-3.11	1.33	1.39
9	C	1283	FAD	C4-N3	-2.96	1.33	1.38
9	C	1283	FAD	C5X-N5	-2.81	1.34	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	C	1283	FAD	C8A-N9A	-2.54	1.33	1.37
9	C	1283	FAD	C4A-N9A	-2.51	1.32	1.37
9	C	1283	FAD	C8-C7	2.41	1.46	1.40
9	C	1283	FAD	C2-N3	-2.30	1.33	1.39
9	C	1283	FAD	C5A-C6A	2.27	1.47	1.41

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	C	1283	FAD	C5A-C4A-N3A	-5.63	118.97	126.72
9	C	1283	FAD	N3A-C4A-N9A	4.32	134.51	127.17
9	C	1283	FAD	C4A-C5A-N7A	-3.79	106.25	110.58
9	C	1283	FAD	C2A-N3A-C4A	3.61	120.65	111.83
9	C	1283	FAD	N3A-C2A-N1A	-3.23	123.69	128.58
9	C	1283	FAD	C4A-N9A-C8A	2.94	108.82	105.74
9	C	1283	FAD	C4-C4X-N5	2.87	122.17	118.21
9	C	1283	FAD	C5A-N7A-C8A	2.83	107.89	103.45
9	C	1283	FAD	O2-C2-N1	-2.64	117.41	121.80
9	C	1283	FAD	O4-C4-C4X	-2.55	119.79	126.53
9	C	1283	FAD	N9A-C8A-N7A	-2.42	110.50	113.94
9	C	1283	FAD	C4X-C10-N10	2.32	119.81	116.48
9	C	1283	FAD	C4X-C10-N1	-2.29	118.97	124.59
9	C	1283	FAD	C4X-C4-N3	2.29	119.08	113.25
9	C	1283	FAD	C4-N3-C2	-2.26	121.64	125.64
9	C	1283	FAD	C6A-C5A-N7A	2.22	136.38	132.09
9	C	1283	FAD	C10-N1-C2	2.21	121.63	116.85
9	C	1283	FAD	O3'-C3'-C2'	-2.06	104.25	108.93

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	C	1283	FAD	C5B-O5B-PA-O2A
9	C	1283	FAD	C2'-C1'-N10-C10
9	C	1283	FAD	C2'-C3'-C4'-O4'
9	C	1283	FAD	O3'-C3'-C4'-O4'
9	C	1283	FAD	C3'-C4'-C5'-O5'
9	C	1283	FAD	O4'-C4'-C5'-O5'
9	C	1283	FAD	O3'-C3'-C4'-C5'
9	C	1283	FAD	C2'-C3'-C4'-C5'
9	C	1283	FAD	O4B-C4B-C5B-O5B
9	C	1283	FAD	C3B-C4B-C5B-O5B

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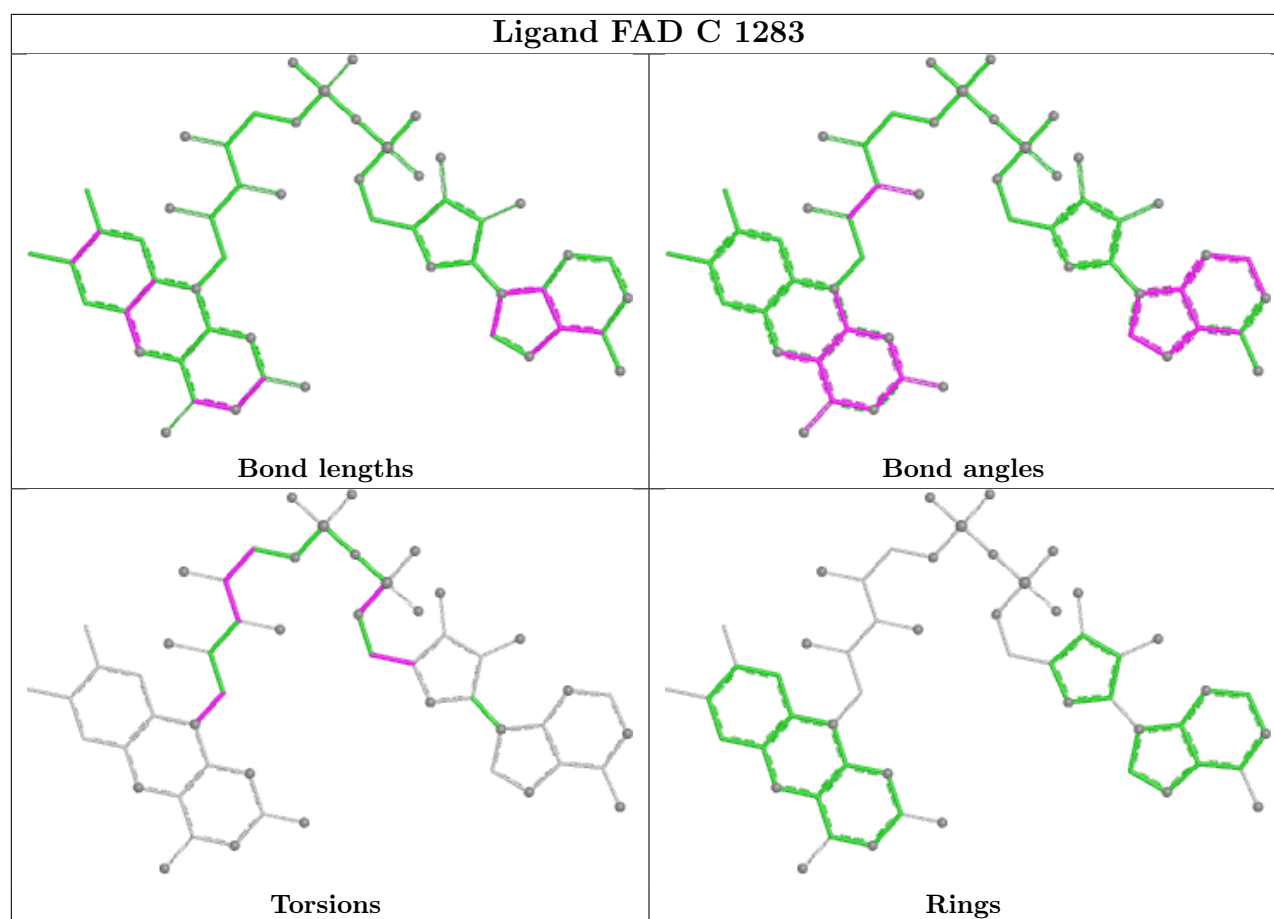
Mol	Chain	Res	Type	Atoms
9	C	1283	FAD	C5B-O5B-PA-O1A
9	C	1283	FAD	C5B-O5B-PA-O3P

There are no ring outliers.

5 monomers are involved in 29 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	B	1276	SF4	3	0
7	B	1274	SF4	2	0
7	B	1275	SF4	2	0
7	C	1282	SF4	7	0
9	C	1283	FAD	15	0

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



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

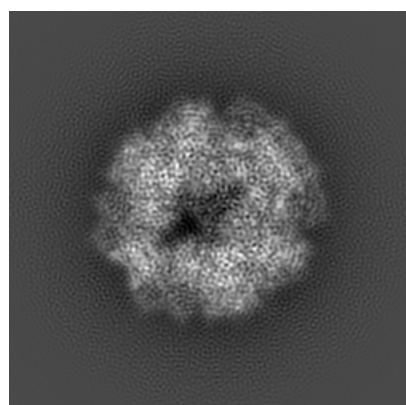
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-2513. These allow visual inspection of the internal detail of the map and identification of artifacts.

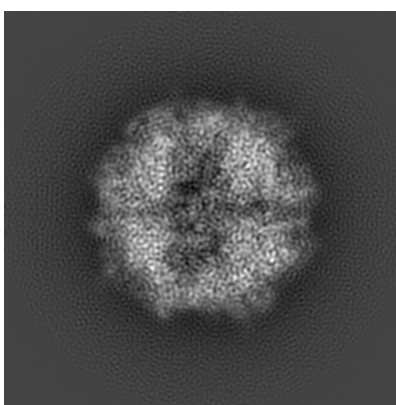
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

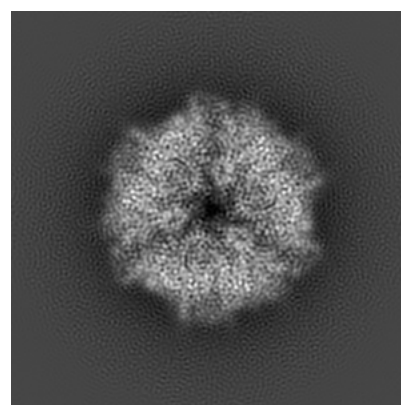
6.1.1 Primary map



X



Y

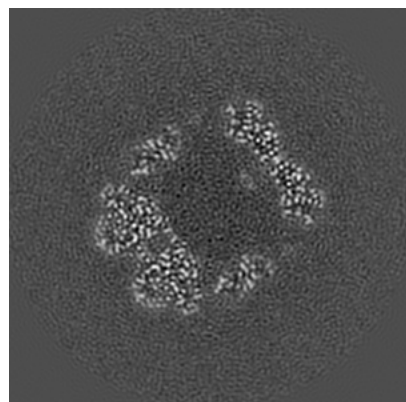


Z

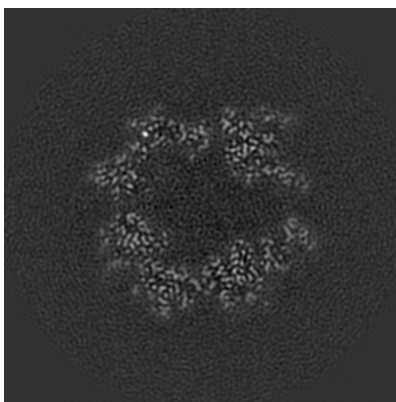
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

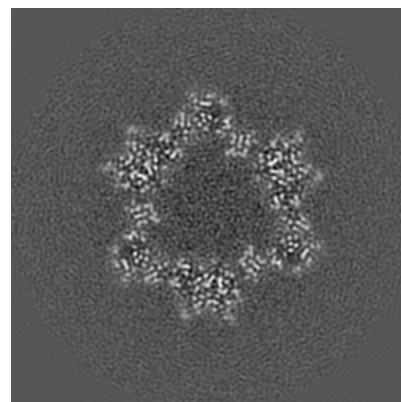
6.2.1 Primary map



X Index: 112



Y Index: 112

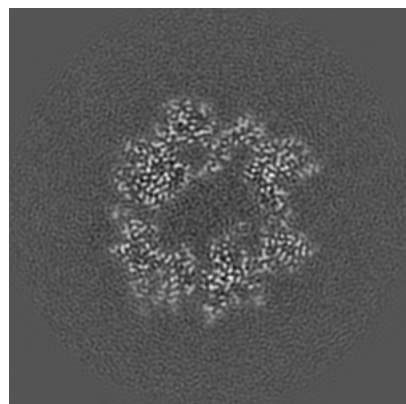


Z Index: 112

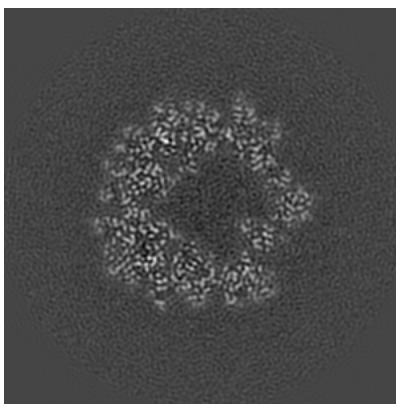
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

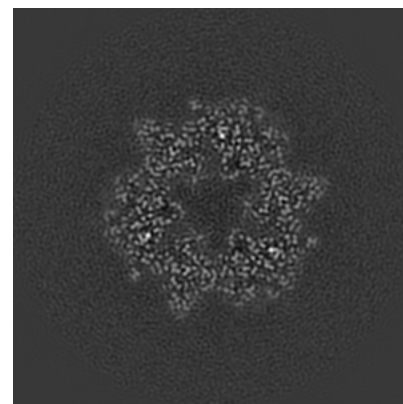
6.3.1 Primary map



X Index: 129



Y Index: 125

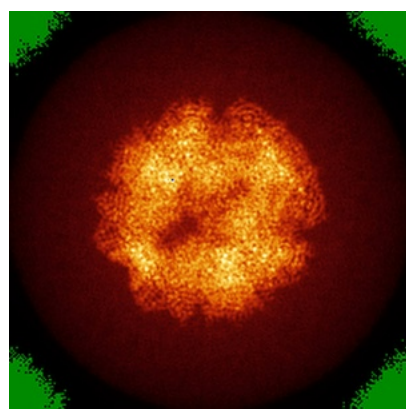


Z Index: 132

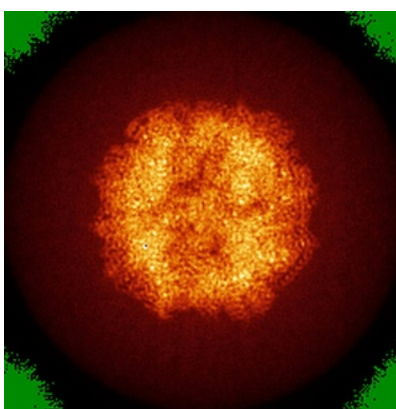
The images above show the largest variance slices of the map in three orthogonal directions.

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

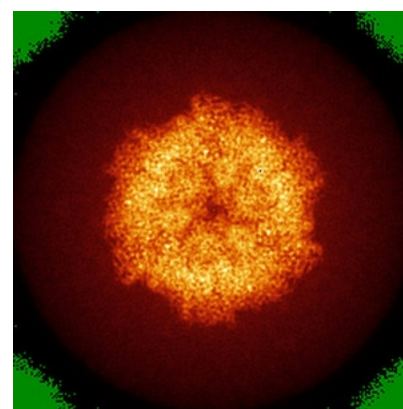
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views

This section was not generated.

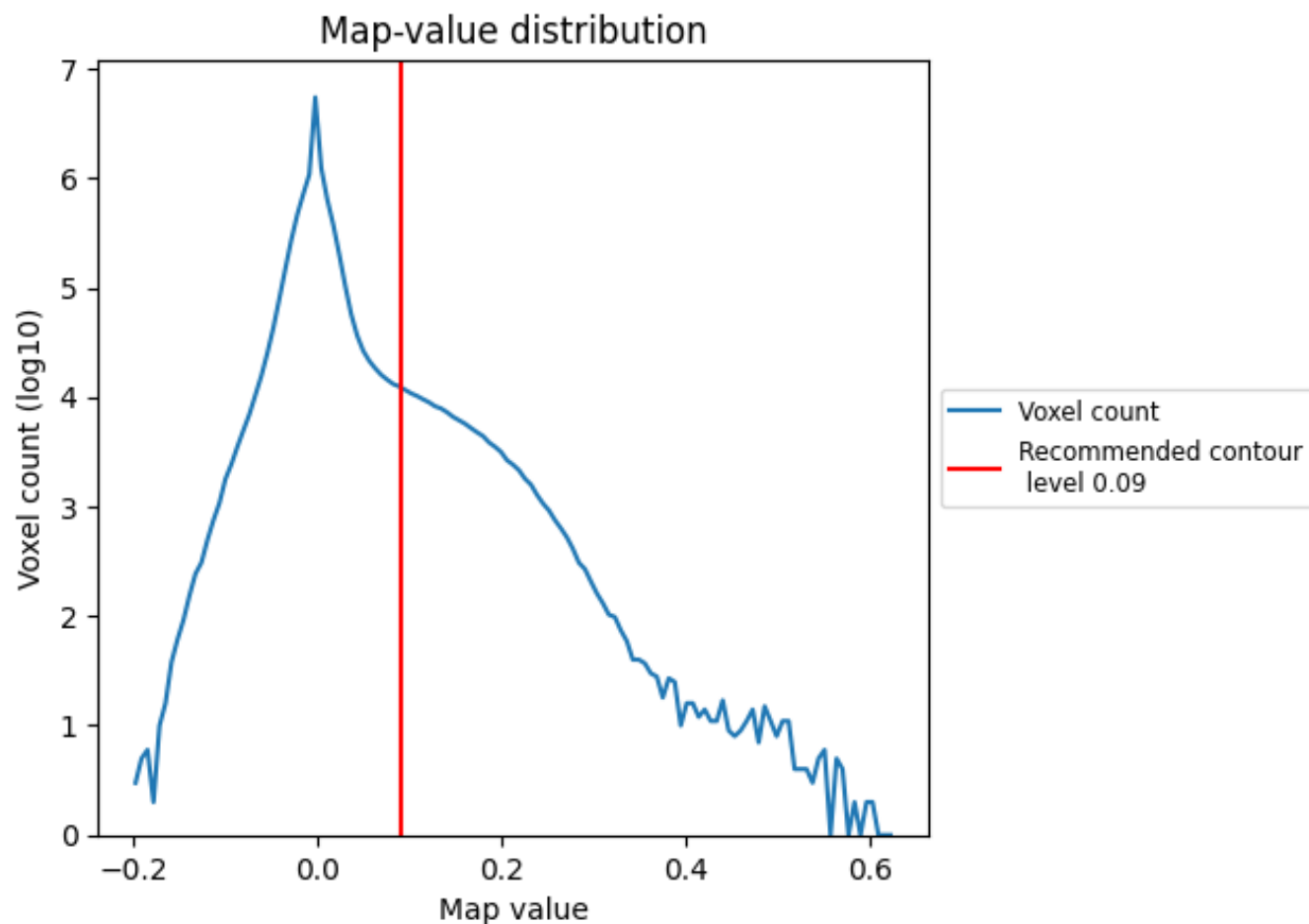
6.6 Mask visualisation

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

7 Map analysis [i](#)

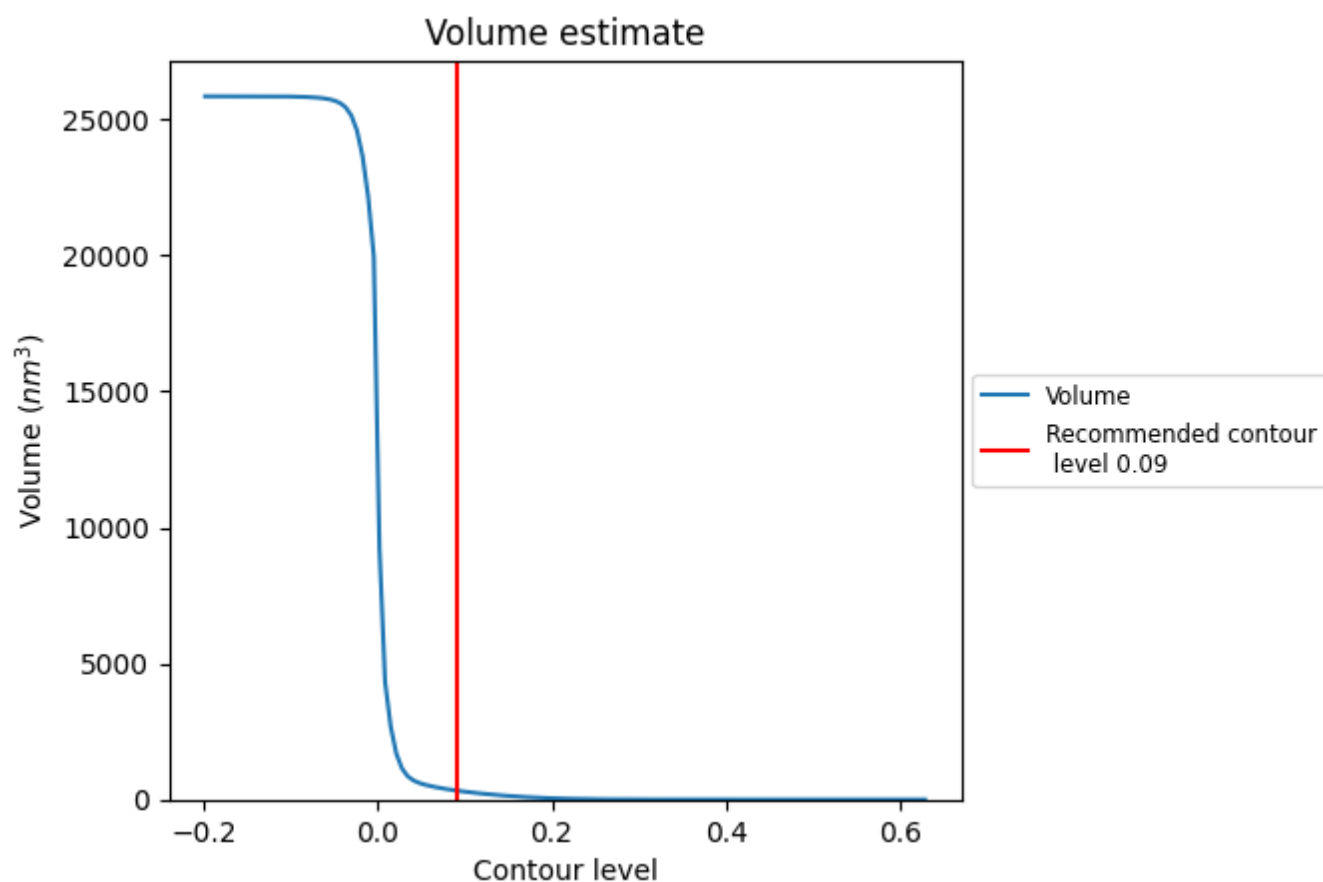
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

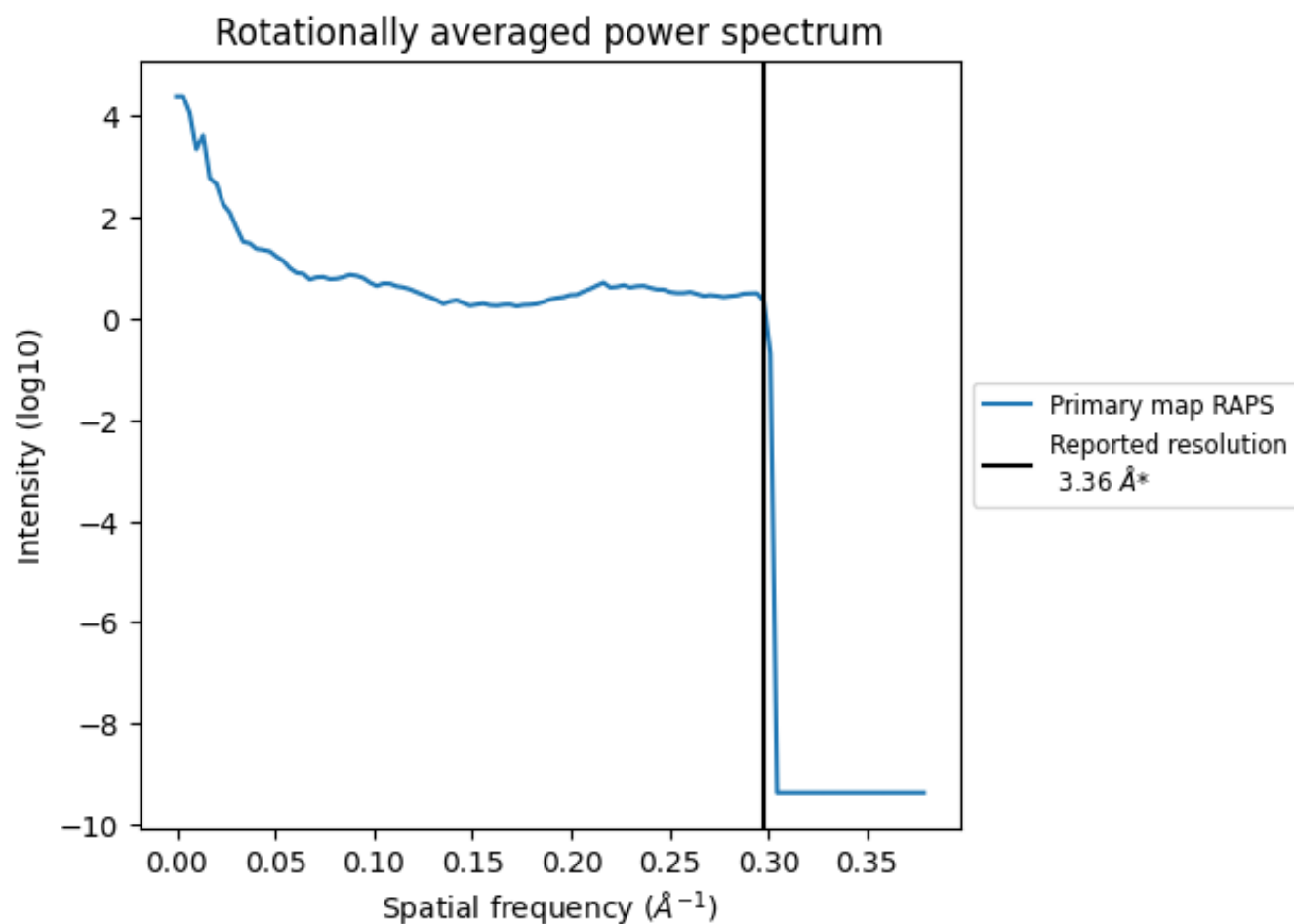
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 333 nm³; this corresponds to an approximate mass of 301 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 0.298 Å⁻¹

8 Fourier-Shell correlation

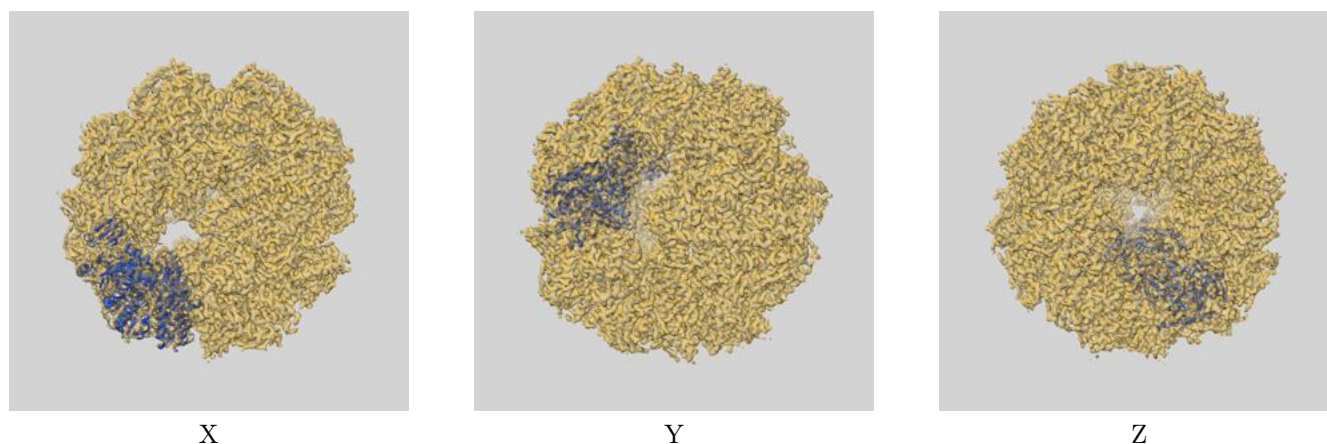
This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

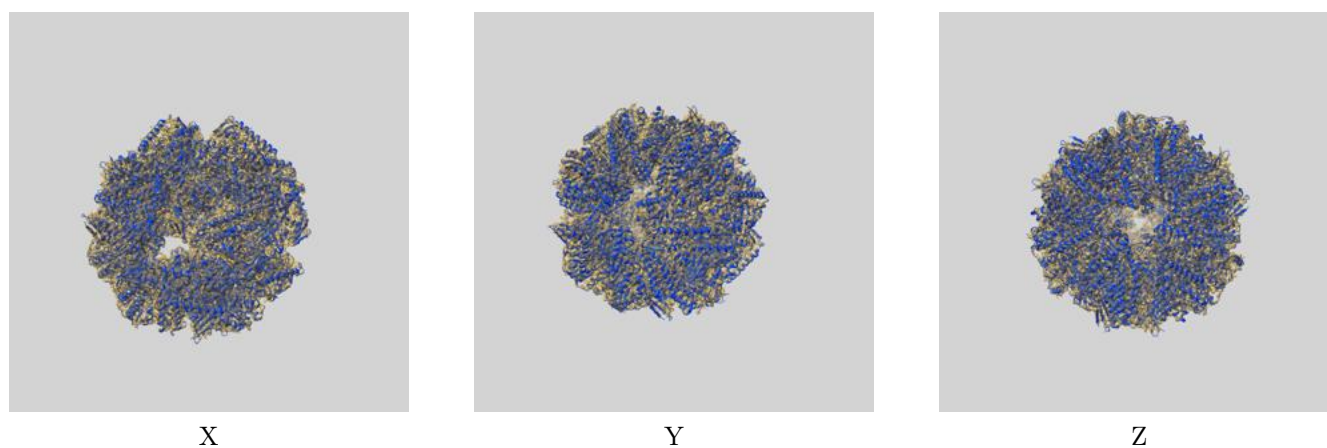
This section contains information regarding the fit between EMDB map EMD-2513 and PDB model 4CI0. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlays

9.1.1 Map-model overlay [i](#)

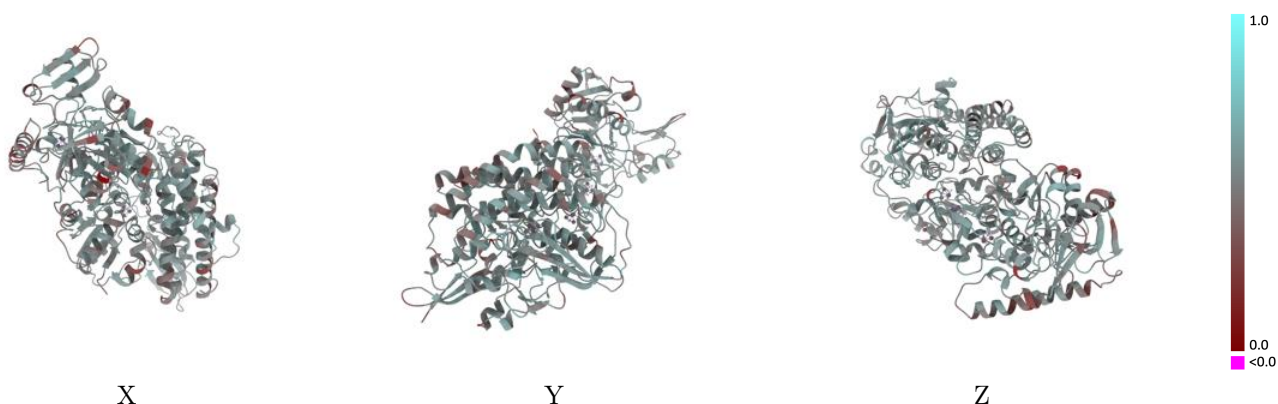


9.1.2 Map-model assembly overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.09 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](#)

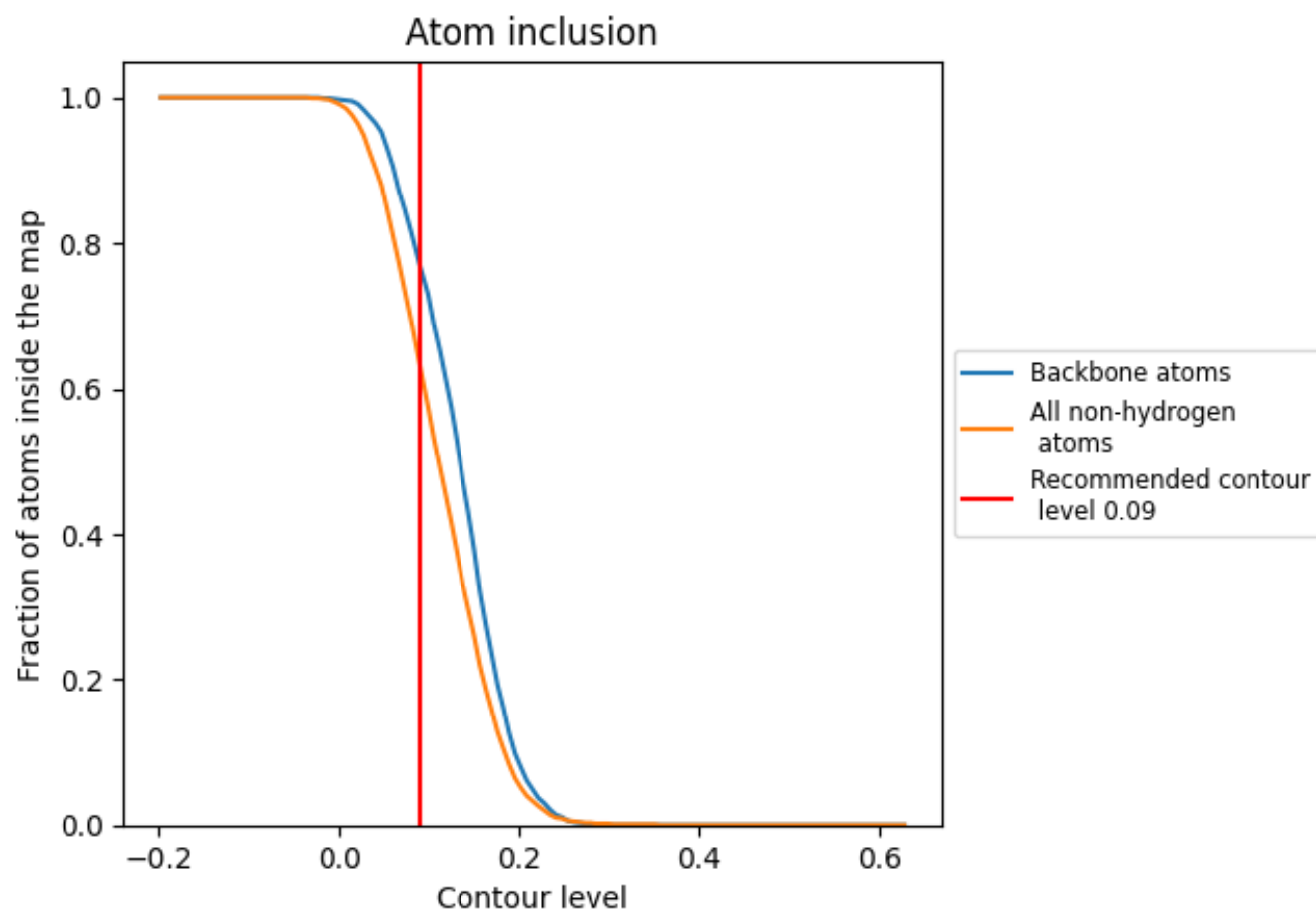


The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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, 77% of all backbone atoms, 63% 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 (0.09) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6300	0.5110
A	0.6370	0.5200
B	0.6590	0.5140
C	0.5970	0.4970

