Full wwPDB EM Validation Report ⓘ

Oct 29, 2024 – 11:25 PM EDT

PDB ID	:	3J2T
EMDB ID	:	EMD-5186
Title	:	An improved model of the human apoptosome
Authors	:	Yuan, S.; Topf, M.; Akey, C.W.
Deposited on	:	2012-12-23
Resolution	:	9.50 Å(reported)
Based on initial models	:	2B4Z, 1Z6T, 3SFZ

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:

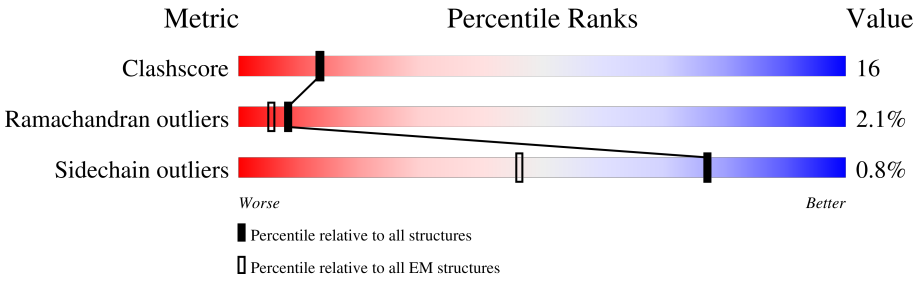
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 9.50 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=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 <=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	1263	13% 81% 9% • 9%
1	B	1263	13% 80% 9% • 9%
1	C	1263	13% 81% 9% • 9%
1	D	1263	13% 80% 9% • 9%
1	E	1263	13% 80% 9% • 9%
1	F	1263	13% 81% 8% • 9%
1	G	1263	13% 81% 8% • 9%
2	H	104	20% 81% 17% ••

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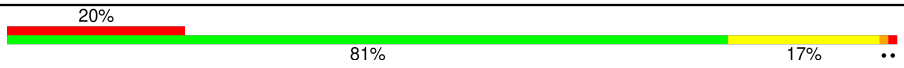
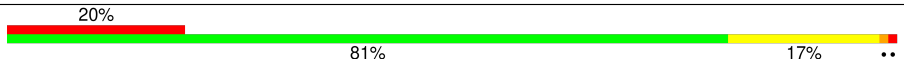
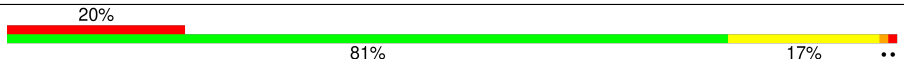
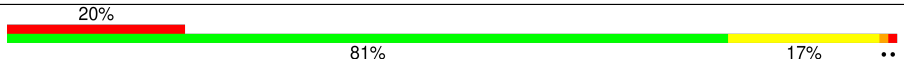
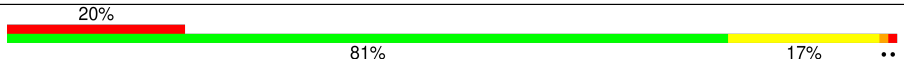
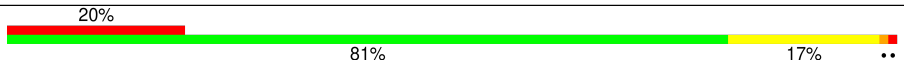
Mol	Chain	Length	Quality of chain
2	I	104	
2	J	104	
2	K	104	
2	L	104	
2	M	104	
2	N	104	

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 70189 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 Apoptotic protease-activating factor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1144	Total	C	N	O	S	0	0
			9139	5789	1569	1720	61		
1	B	1144	Total	C	N	O	S	0	0
			9139	5789	1569	1720	61		
1	C	1144	Total	C	N	O	S	0	0
			9139	5789	1569	1720	61		
1	D	1144	Total	C	N	O	S	0	0
			9139	5789	1569	1720	61		
1	E	1144	Total	C	N	O	S	0	0
			9139	5789	1569	1720	61		
1	F	1144	Total	C	N	O	S	0	0
			9139	5789	1569	1720	61		
1	G	1144	Total	C	N	O	S	0	0
			9139	5789	1569	1720	61		

There are 105 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	HIS	-	expression tag	UNP O14727
A	-4	HIS	-	expression tag	UNP O14727
A	-3	HIS	-	expression tag	UNP O14727
A	-2	HIS	-	expression tag	UNP O14727
A	-1	HIS	-	expression tag	UNP O14727
A	0	HIS	-	expression tag	UNP O14727
A	1249	HIS	-	expression tag	UNP O14727
A	1250	HIS	-	expression tag	UNP O14727
A	1251	HIS	-	expression tag	UNP O14727
A	1252	HIS	-	expression tag	UNP O14727
A	1253	HIS	-	expression tag	UNP O14727
A	1254	HIS	-	expression tag	UNP O14727
A	1255	HIS	-	expression tag	UNP O14727
A	1256	HIS	-	expression tag	UNP O14727
A	1257	HIS	-	expression tag	UNP O14727
B	-5	HIS	-	expression tag	UNP O14727

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-4	HIS	-	expression tag	UNP O14727
B	-3	HIS	-	expression tag	UNP O14727
B	-2	HIS	-	expression tag	UNP O14727
B	-1	HIS	-	expression tag	UNP O14727
B	0	HIS	-	expression tag	UNP O14727
B	1249	HIS	-	expression tag	UNP O14727
B	1250	HIS	-	expression tag	UNP O14727
B	1251	HIS	-	expression tag	UNP O14727
B	1252	HIS	-	expression tag	UNP O14727
B	1253	HIS	-	expression tag	UNP O14727
B	1254	HIS	-	expression tag	UNP O14727
B	1255	HIS	-	expression tag	UNP O14727
B	1256	HIS	-	expression tag	UNP O14727
B	1257	HIS	-	expression tag	UNP O14727
C	-5	HIS	-	expression tag	UNP O14727
C	-4	HIS	-	expression tag	UNP O14727
C	-3	HIS	-	expression tag	UNP O14727
C	-2	HIS	-	expression tag	UNP O14727
C	-1	HIS	-	expression tag	UNP O14727
C	0	HIS	-	expression tag	UNP O14727
C	1249	HIS	-	expression tag	UNP O14727
C	1250	HIS	-	expression tag	UNP O14727
C	1251	HIS	-	expression tag	UNP O14727
C	1252	HIS	-	expression tag	UNP O14727
C	1253	HIS	-	expression tag	UNP O14727
C	1254	HIS	-	expression tag	UNP O14727
C	1255	HIS	-	expression tag	UNP O14727
C	1256	HIS	-	expression tag	UNP O14727
C	1257	HIS	-	expression tag	UNP O14727
D	-5	HIS	-	expression tag	UNP O14727
D	-4	HIS	-	expression tag	UNP O14727
D	-3	HIS	-	expression tag	UNP O14727
D	-2	HIS	-	expression tag	UNP O14727
D	-1	HIS	-	expression tag	UNP O14727
D	0	HIS	-	expression tag	UNP O14727
D	1249	HIS	-	expression tag	UNP O14727
D	1250	HIS	-	expression tag	UNP O14727
D	1251	HIS	-	expression tag	UNP O14727
D	1252	HIS	-	expression tag	UNP O14727
D	1253	HIS	-	expression tag	UNP O14727
D	1254	HIS	-	expression tag	UNP O14727
D	1255	HIS	-	expression tag	UNP O14727

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Chain	Residue	Modelled	Actual	Comment	Reference
D	1256	HIS	-	expression tag	UNP O14727
D	1257	HIS	-	expression tag	UNP O14727
E	-5	HIS	-	expression tag	UNP O14727
E	-4	HIS	-	expression tag	UNP O14727
E	-3	HIS	-	expression tag	UNP O14727
E	-2	HIS	-	expression tag	UNP O14727
E	-1	HIS	-	expression tag	UNP O14727
E	0	HIS	-	expression tag	UNP O14727
E	1249	HIS	-	expression tag	UNP O14727
E	1250	HIS	-	expression tag	UNP O14727
E	1251	HIS	-	expression tag	UNP O14727
E	1252	HIS	-	expression tag	UNP O14727
E	1253	HIS	-	expression tag	UNP O14727
E	1254	HIS	-	expression tag	UNP O14727
E	1255	HIS	-	expression tag	UNP O14727
E	1256	HIS	-	expression tag	UNP O14727
E	1257	HIS	-	expression tag	UNP O14727
F	-5	HIS	-	expression tag	UNP O14727
F	-4	HIS	-	expression tag	UNP O14727
F	-3	HIS	-	expression tag	UNP O14727
F	-2	HIS	-	expression tag	UNP O14727
F	-1	HIS	-	expression tag	UNP O14727
F	0	HIS	-	expression tag	UNP O14727
F	1249	HIS	-	expression tag	UNP O14727
F	1250	HIS	-	expression tag	UNP O14727
F	1251	HIS	-	expression tag	UNP O14727
F	1252	HIS	-	expression tag	UNP O14727
F	1253	HIS	-	expression tag	UNP O14727
F	1254	HIS	-	expression tag	UNP O14727
F	1255	HIS	-	expression tag	UNP O14727
F	1256	HIS	-	expression tag	UNP O14727
F	1257	HIS	-	expression tag	UNP O14727
G	-5	HIS	-	expression tag	UNP O14727
G	-4	HIS	-	expression tag	UNP O14727
G	-3	HIS	-	expression tag	UNP O14727
G	-2	HIS	-	expression tag	UNP O14727
G	-1	HIS	-	expression tag	UNP O14727
G	0	HIS	-	expression tag	UNP O14727
G	1249	HIS	-	expression tag	UNP O14727
G	1250	HIS	-	expression tag	UNP O14727
G	1251	HIS	-	expression tag	UNP O14727
G	1252	HIS	-	expression tag	UNP O14727

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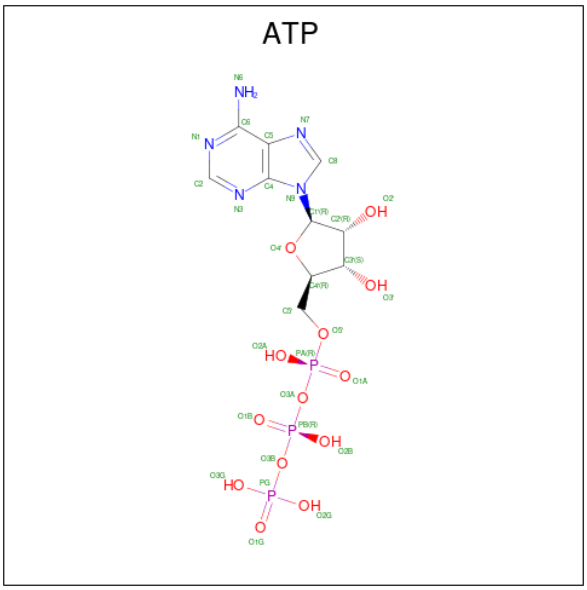
Chain	Residue	Modelled	Actual	Comment	Reference
G	1253	HIS	-	expression tag	UNP O14727
G	1254	HIS	-	expression tag	UNP O14727
G	1255	HIS	-	expression tag	UNP O14727
G	1256	HIS	-	expression tag	UNP O14727
G	1257	HIS	-	expression tag	UNP O14727

- Molecule 2 is a protein called Cytochrome c.

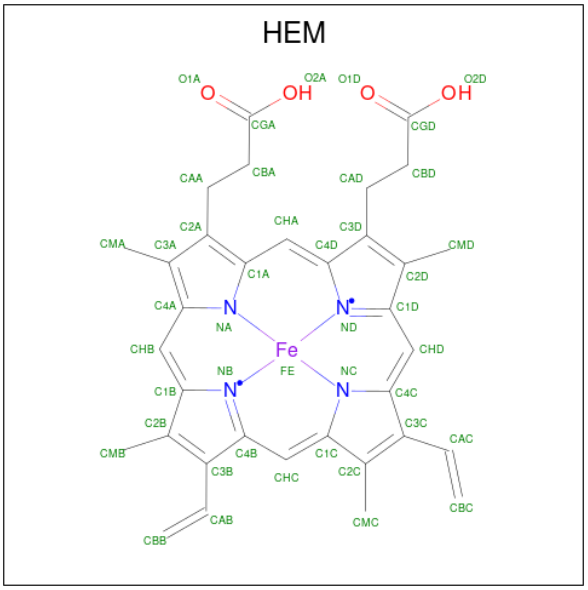
Mol	Chain	Residues	Atoms					AltConf	Trace
2	H	104	Total	C	N	O	S	0	0
			814	517	143	150	4		
2	I	104	Total	C	N	O	S	0	0
			814	517	143	150	4		
2	J	104	Total	C	N	O	S	0	0
			814	517	143	150	4		
2	K	104	Total	C	N	O	S	0	0
			814	517	143	150	4		
2	L	104	Total	C	N	O	S	0	0
			814	517	143	150	4		
2	M	104	Total	C	N	O	S	0	0
			814	517	143	150	4		
2	N	104	Total	C	N	O	S	0	0
			814	517	143	150	4		

- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	C	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	D	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	E	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	F	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	G	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 4 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



Mol	Chain	Residues	Atoms					AltConf
4	H	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
4	I	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
4	J	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
4	K	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

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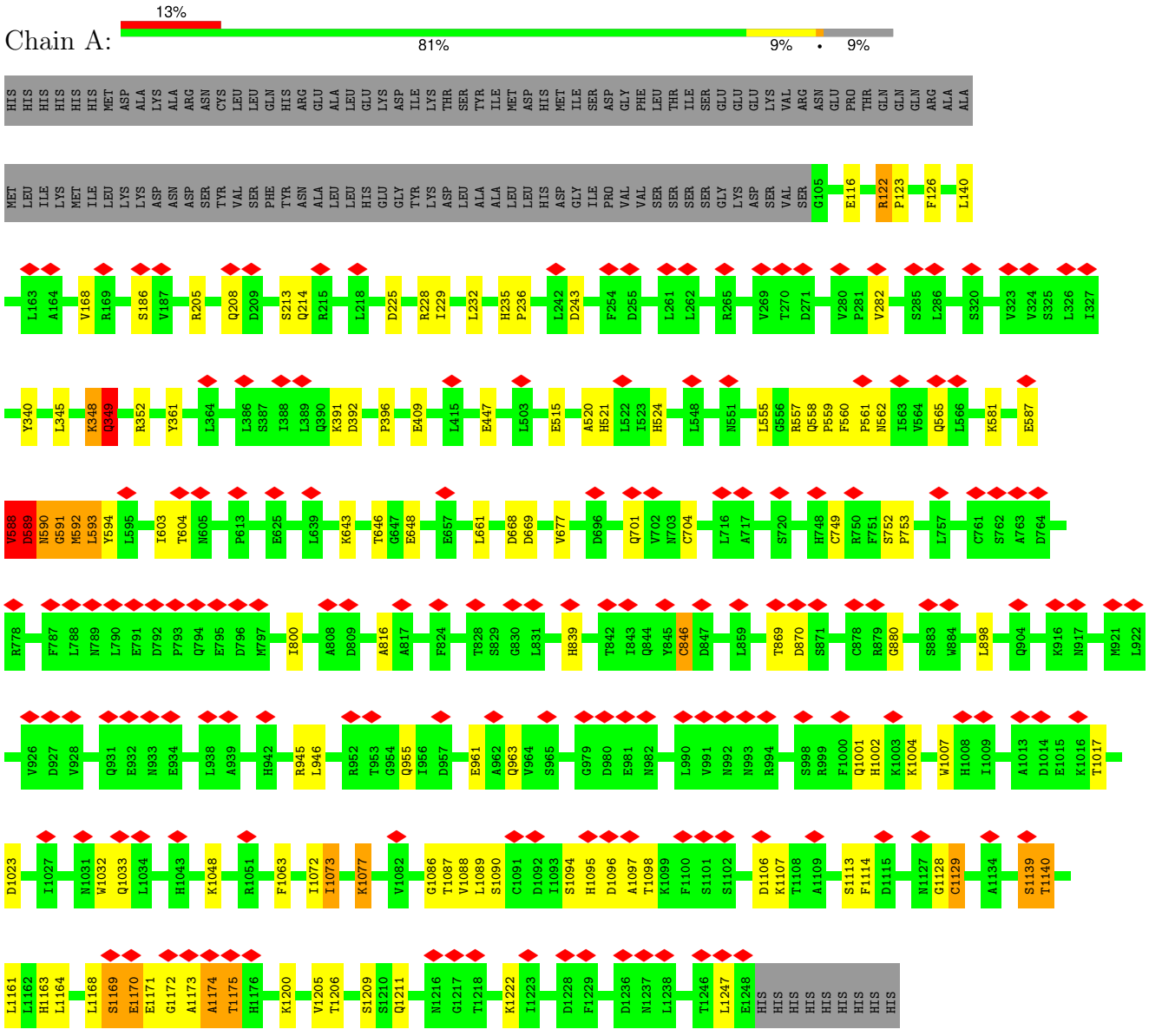
Mol	Chain	Residues	Atoms					AltConf
4	L	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
4	M	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
4	N	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

3 Residue-property plots (i)

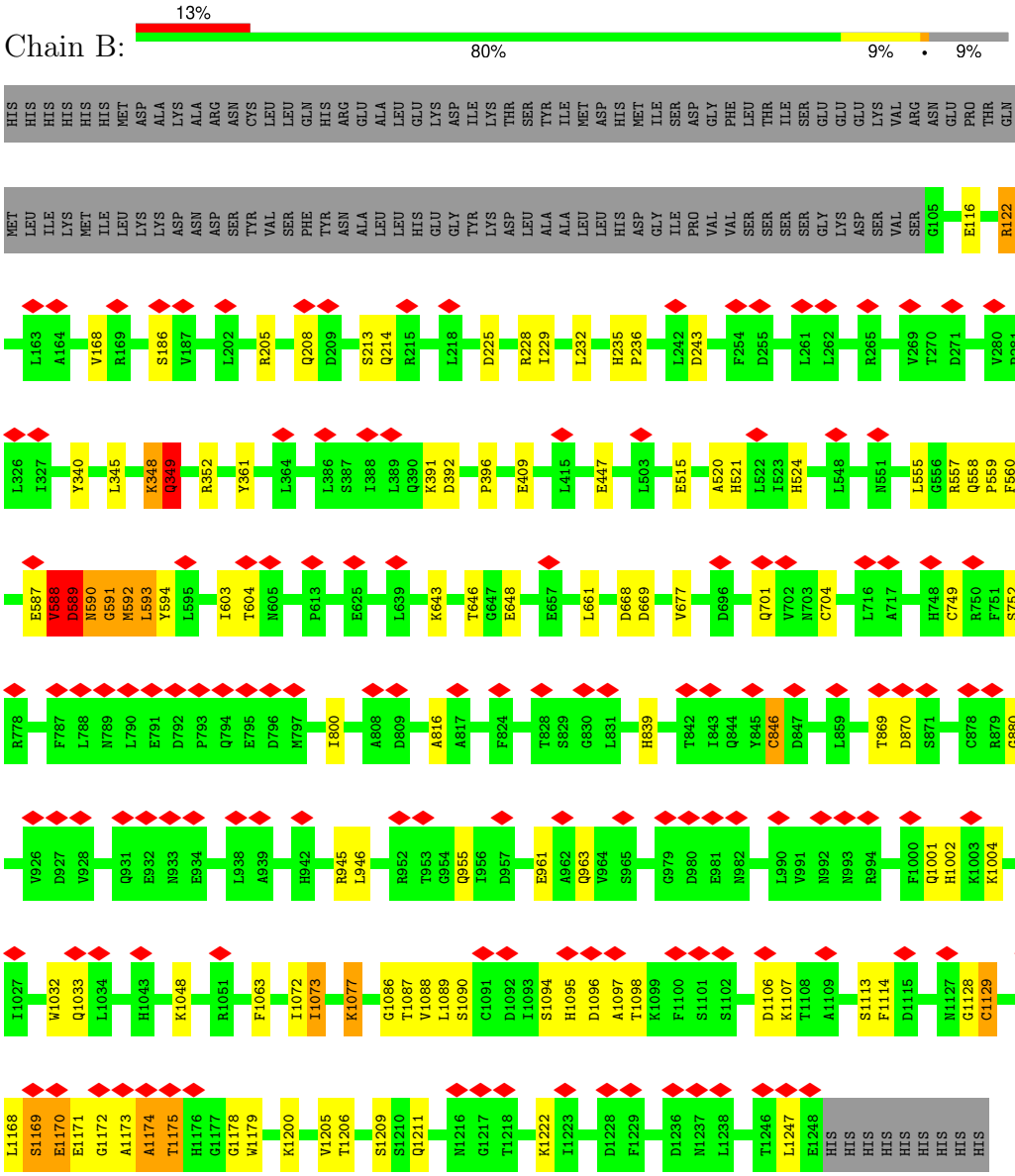
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Apoptotic protease-activating factor 1



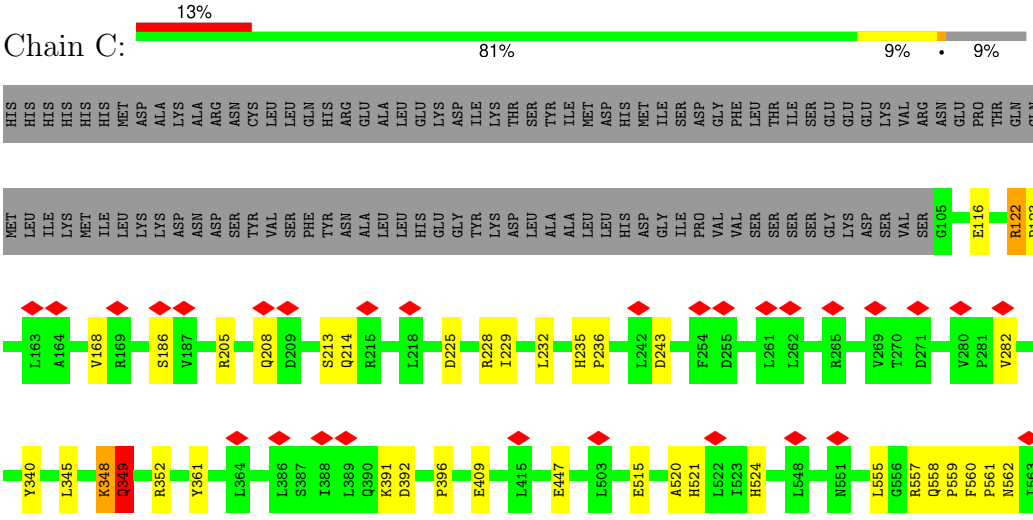
• Molecule 1: Apoptotic protease-activating factor 1

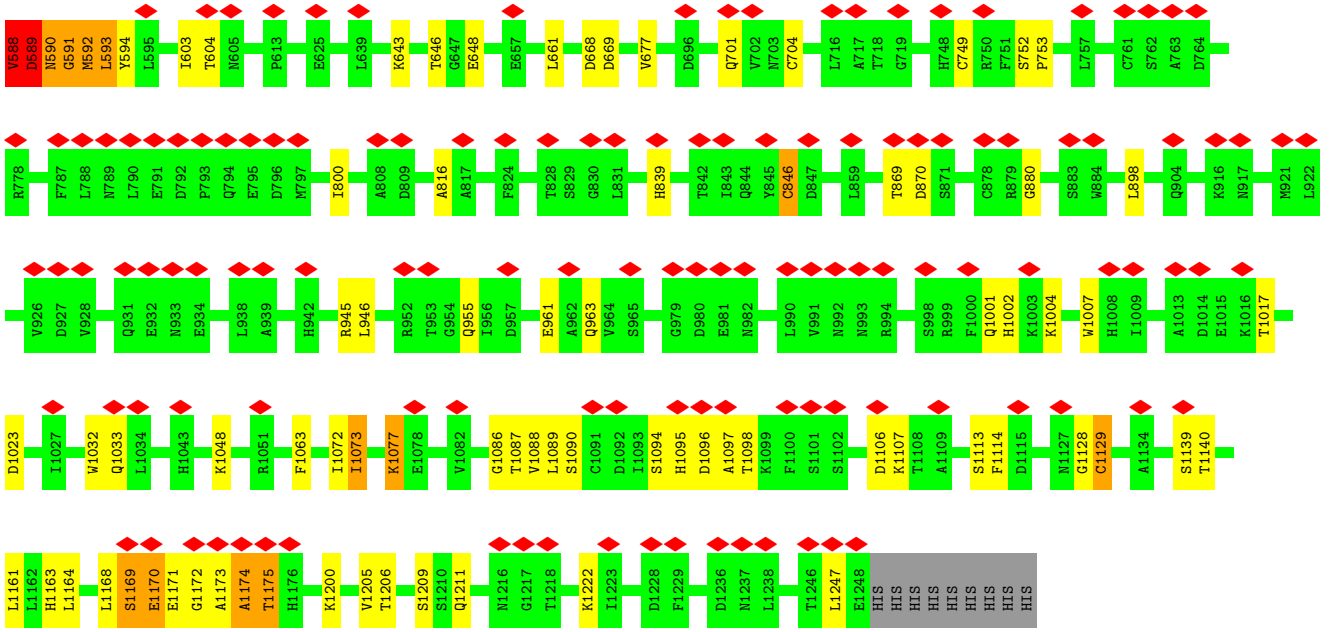
Chain B:



• Molecule 1: Apoptotic protease-activating factor 1

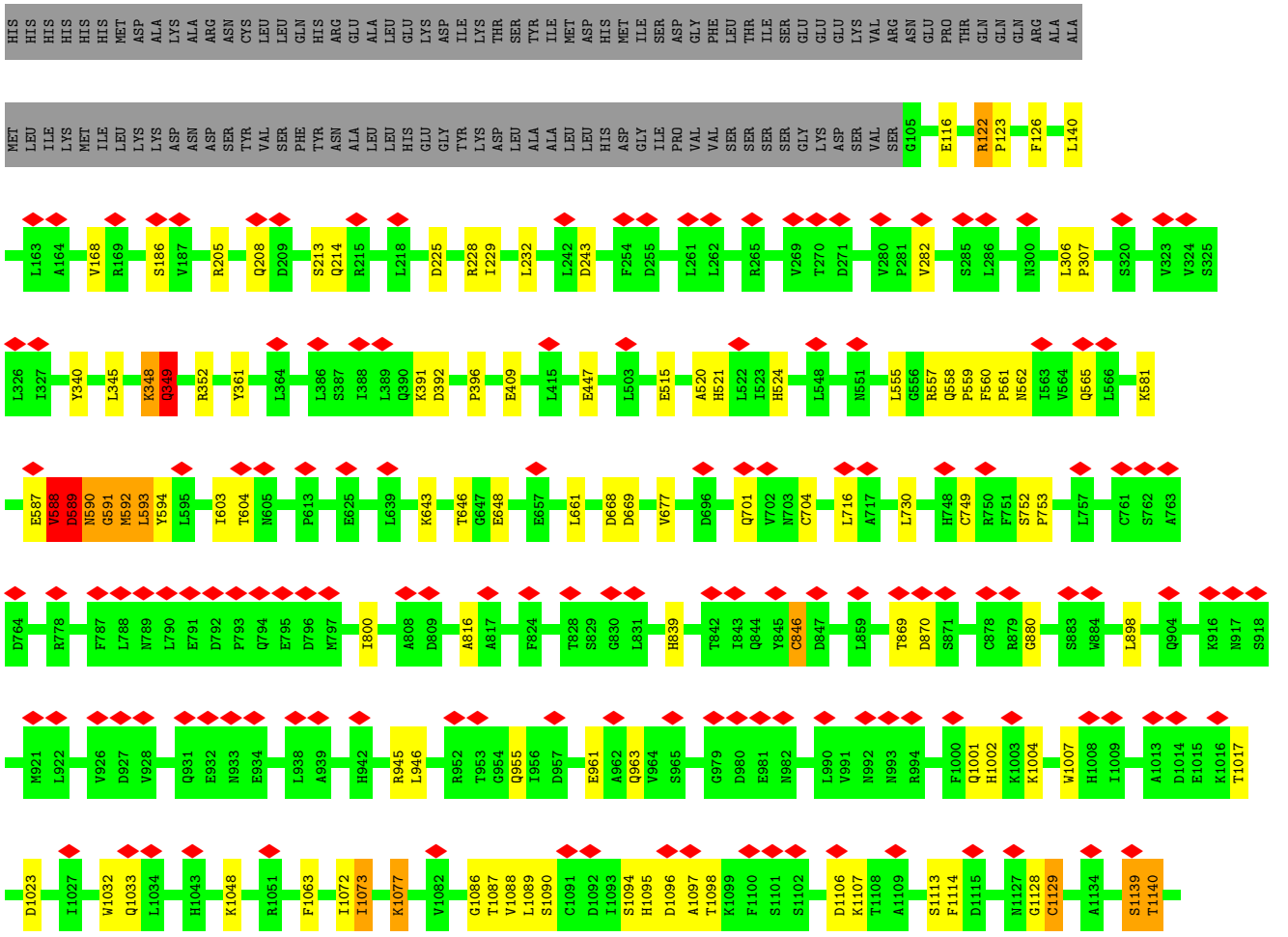
Chain C:

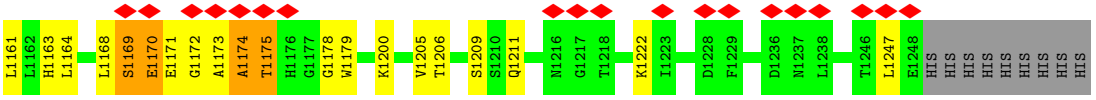




• Molecule 1: Apoptotic protease-activating factor 1

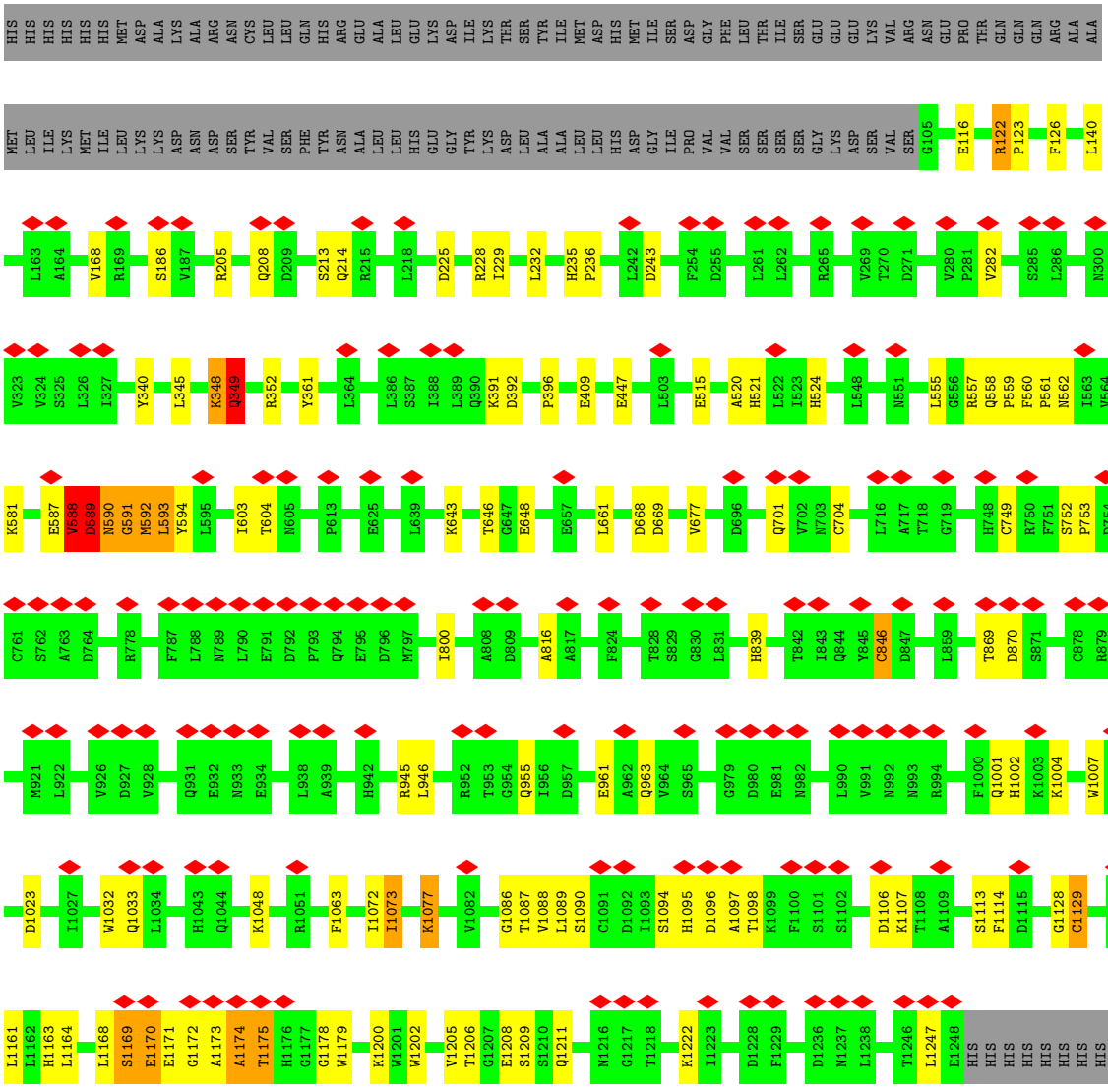
Chain D:





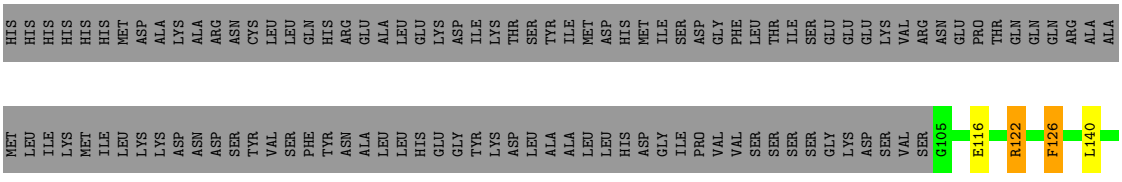
• Molecule 1: Apoptotic protease-activating factor 1

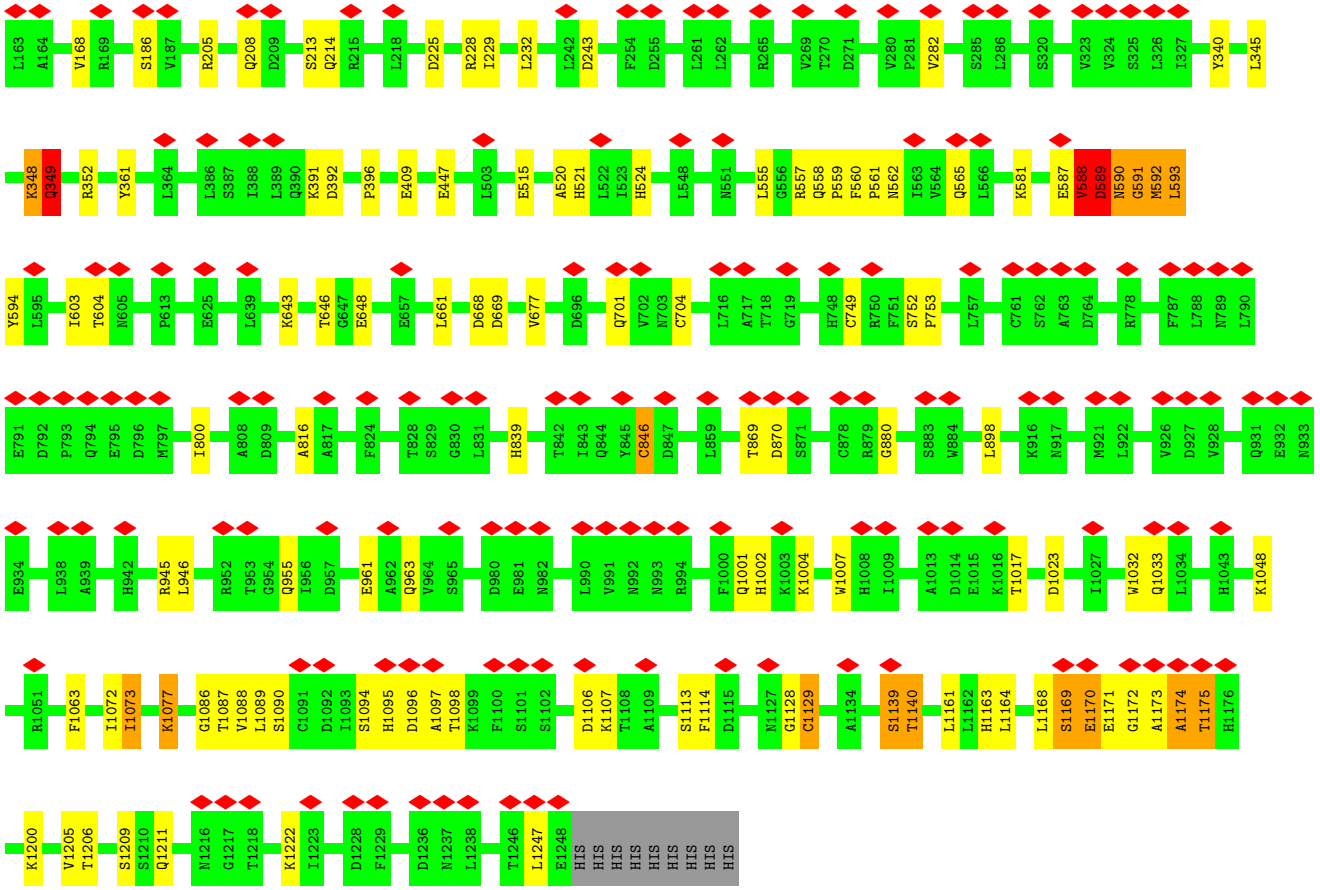
Chain E:



• Molecule 1: Apoptotic protease-activating factor 1

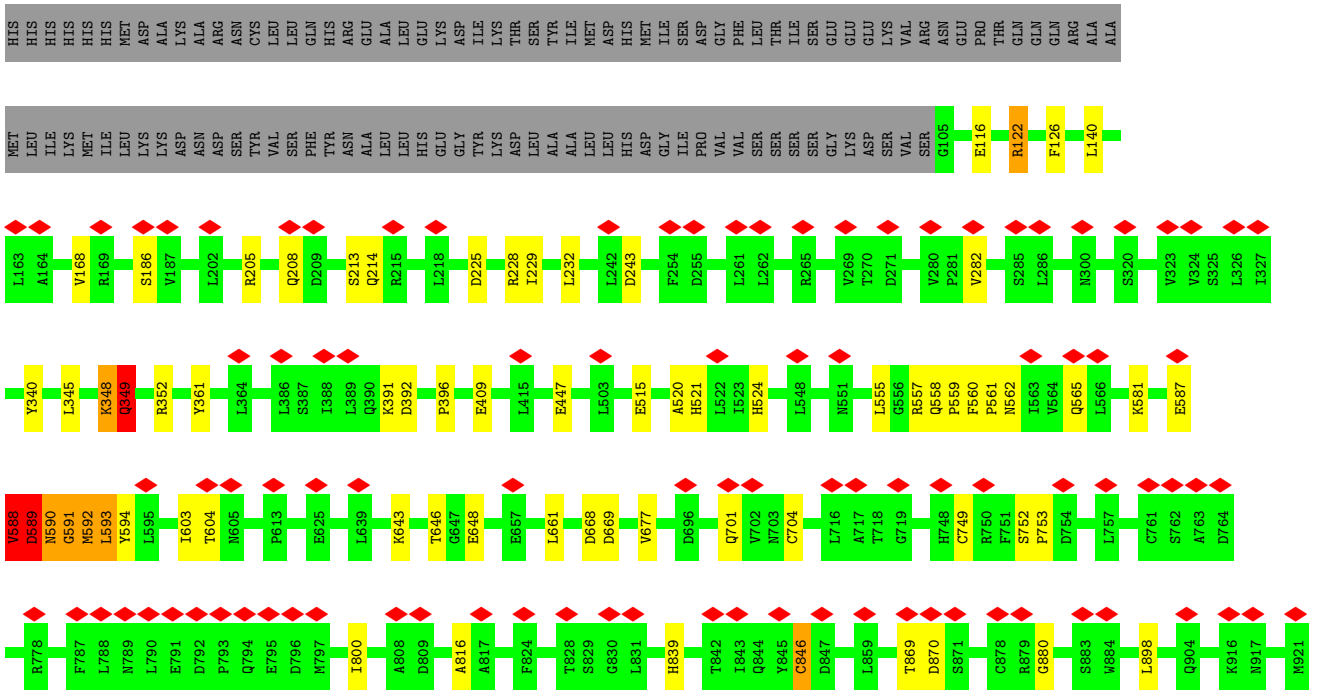
Chain F:

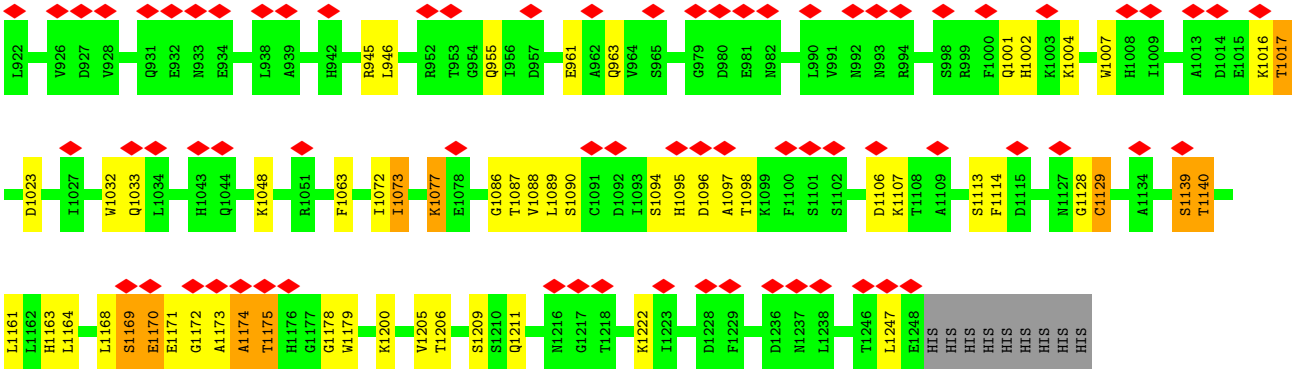




• Molecule 1: Apoptotic protease-activating factor 1

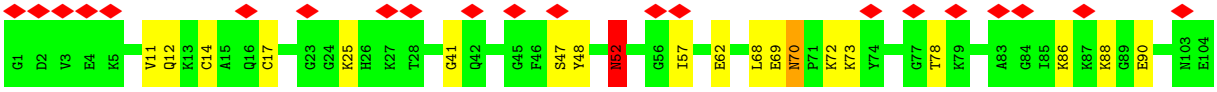
Chain G:





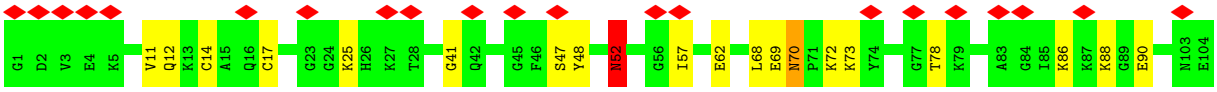
• Molecule 2: Cytochrome c

Chain H:



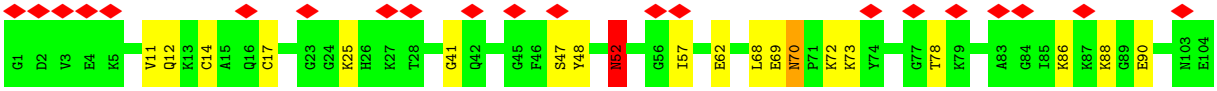
• Molecule 2: Cytochrome c

Chain I:



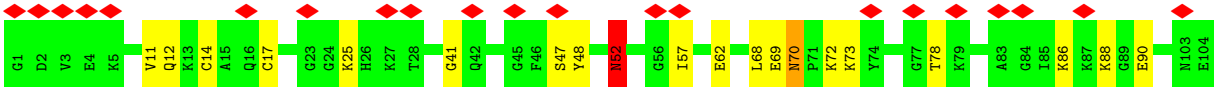
• Molecule 2: Cytochrome c

Chain J:



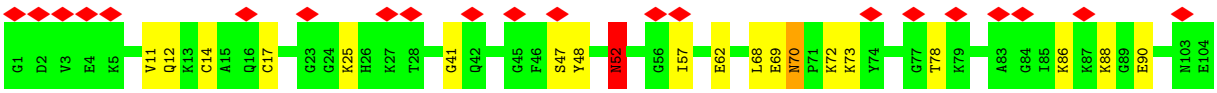
• Molecule 2: Cytochrome c

Chain K:



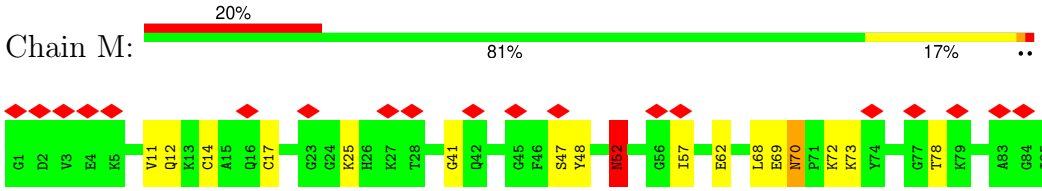
• Molecule 2: Cytochrome c

Chain L:



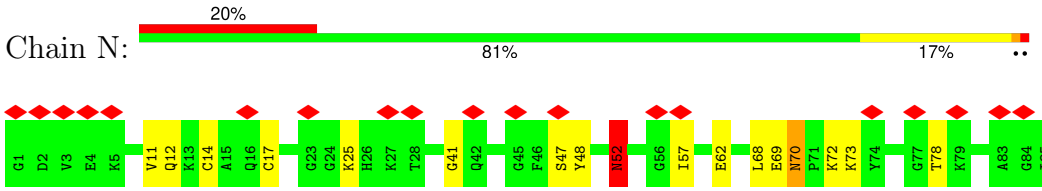
• Molecule 2: Cytochrome c

Chain M:



• Molecule 2: Cytochrome c

Chain N:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C7	Depositor
Number of particles used	34000	Depositor
Resolution determination method	Not provided	
CTF correction method	CTF correction was done on each particle image based on summed power spectra from each micrograph.	Depositor
Microscope	FEI TECNAI F20	Depositor
Voltage (kV)	120	Depositor
Electron dose ($e^-/Å^2$)	25	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	62000	Depositor
Image detector	KODAK SO-163 FILM	Depositor
Maximum map value	5.201	Depositor
Minimum map value	-3.319	Depositor
Average map value	0.035	Depositor
Map value standard deviation	0.250	Depositor
Recommended contour level	1.3	Depositor
Map size (Å)	452.0, 452.0, 452.0	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	2.26, 2.26, 2.26	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.85	1/9337 (0.0%)	0.82	8/12636 (0.1%)
1	B	0.85	1/9337 (0.0%)	0.82	8/12636 (0.1%)
1	C	0.85	1/9337 (0.0%)	0.82	8/12636 (0.1%)
1	D	0.85	1/9337 (0.0%)	0.82	8/12636 (0.1%)
1	E	0.85	1/9337 (0.0%)	0.82	8/12636 (0.1%)
1	F	0.85	1/9337 (0.0%)	0.82	8/12636 (0.1%)
1	G	0.85	1/9337 (0.0%)	0.82	8/12636 (0.1%)
2	H	0.86	4/830 (0.5%)	0.96	3/1105 (0.3%)
2	I	0.86	4/830 (0.5%)	0.96	3/1105 (0.3%)
2	J	0.86	4/830 (0.5%)	0.96	3/1105 (0.3%)
2	K	0.86	4/830 (0.5%)	0.96	3/1105 (0.3%)
2	L	0.86	4/830 (0.5%)	0.96	3/1105 (0.3%)
2	M	0.86	4/830 (0.5%)	0.96	3/1105 (0.3%)
2	N	0.86	4/830 (0.5%)	0.96	3/1105 (0.3%)
All	All	0.85	35/71169 (0.0%)	0.83	77/96187 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	B	0	2
1	C	0	2
1	D	0	2
1	E	0	2
1	F	0	2
1	G	0	2
2	H	0	1
2	I	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	J	0	1
2	K	0	1
2	L	0	1
2	M	0	1
2	N	0	1
All	All	0	21

All (35) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	N	52	ASN	CG-OD1	15.38	1.57	1.24
2	M	52	ASN	CG-OD1	15.37	1.57	1.24
2	L	52	ASN	CG-OD1	15.37	1.57	1.24
2	H	52	ASN	CG-OD1	15.36	1.57	1.24
2	J	52	ASN	CG-OD1	15.35	1.57	1.24
2	K	52	ASN	CG-OD1	15.35	1.57	1.24
2	I	52	ASN	CG-OD1	15.34	1.57	1.24
2	K	62	GLU	CG-CD	13.59	1.72	1.51
2	M	62	GLU	CG-CD	13.58	1.72	1.51
2	H	62	GLU	CG-CD	13.58	1.72	1.51
2	L	62	GLU	CG-CD	13.58	1.72	1.51
2	I	62	GLU	CG-CD	13.57	1.72	1.51
2	N	62	GLU	CG-CD	13.57	1.72	1.51
2	J	62	GLU	CG-CD	13.57	1.72	1.51
2	J	12	GLN	CB-CG	-6.21	1.35	1.52
2	K	12	GLN	CB-CG	-6.21	1.35	1.52
2	L	12	GLN	CB-CG	-6.21	1.35	1.52
2	H	12	GLN	CB-CG	-6.21	1.35	1.52
2	I	12	GLN	CB-CG	-6.21	1.35	1.52
2	M	12	GLN	CB-CG	-6.20	1.35	1.52
2	N	12	GLN	CB-CG	-6.20	1.35	1.52
2	J	52	ASN	CB-CG	5.38	1.63	1.51
2	L	52	ASN	CB-CG	5.38	1.63	1.51
2	I	52	ASN	CB-CG	5.38	1.63	1.51
2	K	52	ASN	CB-CG	5.37	1.63	1.51
2	N	52	ASN	CB-CG	5.37	1.63	1.51
2	H	52	ASN	CB-CG	5.37	1.63	1.51
2	M	52	ASN	CB-CG	5.37	1.63	1.51
1	G	396	PRO	N-CD	5.09	1.54	1.47
1	F	396	PRO	N-CD	5.08	1.54	1.47
1	E	396	PRO	N-CD	5.07	1.54	1.47
1	D	396	PRO	N-CD	5.07	1.54	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	396	PRO	N-CD	5.06	1.54	1.47
1	C	396	PRO	N-CD	5.03	1.54	1.47
1	A	396	PRO	N-CD	5.02	1.54	1.47

All (77) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	I	11	VAL	CG1-CB-CG2	-15.51	86.09	110.90
2	M	11	VAL	CG1-CB-CG2	-15.49	86.11	110.90
2	H	11	VAL	CG1-CB-CG2	-15.49	86.12	110.90
2	N	11	VAL	CG1-CB-CG2	-15.49	86.12	110.90
2	K	11	VAL	CG1-CB-CG2	-15.48	86.14	110.90
2	J	11	VAL	CG1-CB-CG2	-15.48	86.14	110.90
2	L	11	VAL	CG1-CB-CG2	-15.47	86.14	110.90
2	L	52	ASN	CB-CG-OD1	-12.31	96.98	121.60
2	N	52	ASN	CB-CG-OD1	-12.31	96.98	121.60
2	H	52	ASN	CB-CG-OD1	-12.31	96.99	121.60
2	K	52	ASN	CB-CG-OD1	-12.30	97.00	121.60
2	J	52	ASN	CB-CG-OD1	-12.30	97.00	121.60
2	M	52	ASN	CB-CG-OD1	-12.29	97.01	121.60
2	I	52	ASN	CB-CG-OD1	-12.29	97.03	121.60
1	E	1175	THR	C-N-CA	-8.28	101.01	121.70
1	A	1175	THR	C-N-CA	-8.27	101.02	121.70
1	G	1175	THR	C-N-CA	-8.27	101.03	121.70
1	B	1175	THR	C-N-CA	-8.26	101.05	121.70
1	C	1175	THR	C-N-CA	-8.26	101.05	121.70
1	D	1175	THR	C-N-CA	-8.25	101.07	121.70
1	F	1175	THR	C-N-CA	-8.25	101.07	121.70
1	C	588	VAL	CA-C-N	-8.00	99.61	117.20
1	F	588	VAL	CA-C-N	-7.99	99.61	117.20
1	D	588	VAL	CA-C-N	-7.99	99.62	117.20
1	A	588	VAL	CA-C-N	-7.99	99.62	117.20
1	G	588	VAL	CA-C-N	-7.99	99.62	117.20
1	B	588	VAL	CA-C-N	-7.99	99.63	117.20
1	E	588	VAL	CA-C-N	-7.99	99.63	117.20
2	N	12	GLN	CA-CB-CG	7.60	130.11	113.40
2	H	12	GLN	CA-CB-CG	7.59	130.09	113.40
2	J	12	GLN	CA-CB-CG	7.59	130.09	113.40
2	M	12	GLN	CA-CB-CG	7.58	130.09	113.40
2	I	12	GLN	CA-CB-CG	7.58	130.07	113.40
2	K	12	GLN	CA-CB-CG	7.58	130.07	113.40
2	L	12	GLN	CA-CB-CG	7.58	130.07	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	588	VAL	O-C-N	-7.49	110.72	122.70
1	D	588	VAL	O-C-N	-7.48	110.73	122.70
1	E	588	VAL	O-C-N	-7.48	110.73	122.70
1	A	588	VAL	O-C-N	-7.47	110.75	122.70
1	G	588	VAL	O-C-N	-7.46	110.77	122.70
1	B	588	VAL	O-C-N	-7.46	110.77	122.70
1	F	588	VAL	O-C-N	-7.45	110.79	122.70
1	F	1163	HIS	C-N-CA	6.42	137.74	121.70
1	B	1163	HIS	C-N-CA	6.41	137.72	121.70
1	A	1163	HIS	C-N-CA	6.41	137.71	121.70
1	E	1163	HIS	C-N-CA	6.40	137.71	121.70
1	C	1163	HIS	C-N-CA	6.40	137.70	121.70
1	G	1163	HIS	C-N-CA	6.40	137.70	121.70
1	D	1163	HIS	C-N-CA	6.40	137.70	121.70
1	D	588	VAL	CA-C-O	6.31	133.35	120.10
1	A	588	VAL	CA-C-O	6.30	133.33	120.10
1	C	588	VAL	CA-C-O	6.30	133.33	120.10
1	B	588	VAL	CA-C-O	6.30	133.32	120.10
1	E	588	VAL	CA-C-O	6.29	133.31	120.10
1	G	588	VAL	CA-C-O	6.29	133.30	120.10
1	F	588	VAL	CA-C-O	6.28	133.30	120.10
1	D	562	ASN	N-CA-C	-5.45	96.28	111.00
1	E	562	ASN	N-CA-C	-5.45	96.29	111.00
1	B	562	ASN	N-CA-C	-5.44	96.31	111.00
1	F	562	ASN	N-CA-C	-5.44	96.31	111.00
1	C	562	ASN	N-CA-C	-5.44	96.31	111.00
1	G	562	ASN	N-CA-C	-5.44	96.32	111.00
1	A	562	ASN	N-CA-C	-5.43	96.33	111.00
1	A	126	PHE	CA-C-N	-5.28	105.59	117.20
1	D	126	PHE	CA-C-N	-5.27	105.61	117.20
1	E	126	PHE	CA-C-N	-5.26	105.62	117.20
1	B	126	PHE	CA-C-N	-5.26	105.62	117.20
1	G	126	PHE	CA-C-N	-5.26	105.63	117.20
1	C	126	PHE	CA-C-N	-5.26	105.63	117.20
1	F	126	PHE	CA-C-N	-5.26	105.63	117.20
1	C	1161	LEU	N-CA-C	5.03	124.59	111.00
1	F	1161	LEU	N-CA-C	5.03	124.59	111.00
1	D	1161	LEU	N-CA-C	5.03	124.58	111.00
1	B	1161	LEU	N-CA-C	5.03	124.57	111.00
1	G	1161	LEU	N-CA-C	5.03	124.57	111.00
1	E	1161	LEU	N-CA-C	5.02	124.56	111.00
1	A	1161	LEU	N-CA-C	5.02	124.56	111.00

There are no chirality outliers.

All (21) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	361	TYR	Mainchain
1	A	588	VAL	Mainchain
1	B	361	TYR	Mainchain
1	B	588	VAL	Mainchain
1	C	361	TYR	Mainchain
1	C	588	VAL	Mainchain
1	D	361	TYR	Mainchain
1	D	588	VAL	Mainchain
1	E	361	TYR	Mainchain
1	E	588	VAL	Mainchain
1	F	361	TYR	Mainchain
1	F	588	VAL	Mainchain
1	G	361	TYR	Mainchain
1	G	588	VAL	Mainchain
2	H	52	ASN	Sidechain
2	I	52	ASN	Sidechain
2	J	52	ASN	Sidechain
2	K	52	ASN	Sidechain
2	L	52	ASN	Sidechain
2	M	52	ASN	Sidechain
2	N	52	ASN	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	9139	0	8998	336	0
1	B	9139	0	8998	330	0
1	C	9139	0	8998	333	0
1	D	9139	0	8998	337	0
1	E	9139	0	8998	336	0
1	F	9139	0	8998	338	0
1	G	9139	0	8998	337	0
2	H	814	0	833	92	0
2	I	814	0	833	90	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	J	814	0	833	90	0
2	K	814	0	833	88	0
2	L	814	0	833	88	0
2	M	814	0	833	91	0
2	N	814	0	833	91	0
3	A	31	0	12	1	0
3	B	31	0	12	2	0
3	C	31	0	12	1	0
3	D	31	0	12	1	0
3	E	31	0	12	1	0
3	F	31	0	12	2	0
3	G	31	0	12	1	0
4	H	43	0	30	7	0
4	I	43	0	30	10	0
4	J	43	0	30	7	0
4	K	43	0	30	6	0
4	L	43	0	30	6	0
4	M	43	0	30	8	0
4	N	43	0	30	7	0
All	All	70189	0	69111	2213	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 16.

All (2213) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:1063:PHE:CE2	2:L:86:LYS:HG3	1.14	1.66
1:D:1063:PHE:CE2	2:K:86:LYS:HG3	1.14	1.65
1:F:1063:PHE:CE2	2:M:86:LYS:HG3	1.14	1.64
1:A:1063:PHE:CE2	2:H:86:LYS:HG3	1.14	1.62
1:B:1063:PHE:CE2	2:I:86:LYS:HG3	1.14	1.61
1:C:1063:PHE:CE2	2:J:86:LYS:HG3	1.15	1.61
1:G:1063:PHE:CE2	2:N:86:LYS:HG3	1.14	1.60
1:A:1063:PHE:HE2	2:H:86:LYS:CG	1.16	1.57
1:B:1169:SER:HB3	1:B:1170:GLU:CB	1.35	1.56
1:C:1169:SER:HB3	1:C:1170:GLU:CB	1.35	1.56
1:A:1169:SER:HB3	1:A:1170:GLU:CB	1.35	1.56
1:D:1169:SER:HB3	1:D:1170:GLU:CB	1.35	1.55
1:E:1169:SER:HB3	1:E:1170:GLU:CB	1.35	1.55
1:F:1063:PHE:HE2	2:M:86:LYS:CG	1.16	1.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1169:SER:HB3	1:F:1170:GLU:CB	1.35	1.55
1:B:1063:PHE:HE2	2:I:86:LYS:CG	1.16	1.54
1:G:1169:SER:HB3	1:G:1170:GLU:CB	1.35	1.54
1:G:1063:PHE:HE2	2:N:86:LYS:CG	1.16	1.53
1:D:558:GLN:HG2	1:D:1171:GLU:CG	1.38	1.53
1:D:1169:SER:CB	1:D:1170:GLU:HB2	1.37	1.53
1:E:1169:SER:CB	1:E:1170:GLU:HB2	1.37	1.53
1:C:1063:PHE:HE2	2:J:86:LYS:CG	1.16	1.53
1:E:1063:PHE:HE2	2:L:86:LYS:CG	1.16	1.53
1:B:1169:SER:CB	1:B:1170:GLU:HB2	1.37	1.52
1:E:558:GLN:HG2	1:E:1171:GLU:CG	1.38	1.52
1:C:558:GLN:HG2	1:C:1171:GLU:CG	1.38	1.52
1:D:1063:PHE:HE2	2:K:86:LYS:CG	1.16	1.52
1:A:558:GLN:HG2	1:A:1171:GLU:CG	1.38	1.51
1:D:340:TYR:CE1	1:E:409:GLU:OE2	1.64	1.51
1:G:558:GLN:HG2	1:G:1171:GLU:CG	1.38	1.51
1:C:1169:SER:CB	1:C:1170:GLU:HB2	1.37	1.50
1:A:565:GLN:NE2	1:A:592:MET:HE3	1.18	1.50
1:G:1169:SER:CB	1:G:1170:GLU:HB2	1.37	1.50
1:F:340:TYR:CE1	1:G:409:GLU:OE2	1.64	1.50
1:A:1169:SER:CB	1:A:1170:GLU:HB2	1.37	1.49
1:B:558:GLN:HG2	1:B:1171:GLU:CG	1.38	1.49
1:A:565:GLN:NE2	1:A:592:MET:CE	1.76	1.49
1:E:340:TYR:CE1	1:F:409:GLU:OE2	1.64	1.49
1:A:340:TYR:CE1	1:B:409:GLU:OE2	1.64	1.49
1:A:409:GLU:OE2	1:G:340:TYR:CE1	1.64	1.49
1:C:340:TYR:CE1	1:D:409:GLU:OE2	1.64	1.49
1:A:558:GLN:CG	1:A:1171:GLU:HG3	1.42	1.48
1:E:565:GLN:NE2	1:E:592:MET:CE	1.76	1.48
1:B:340:TYR:CE1	1:C:409:GLU:OE2	1.64	1.48
1:D:558:GLN:CG	1:D:1171:GLU:HG3	1.42	1.48
1:D:565:GLN:NE2	1:D:592:MET:CE	1.76	1.48
1:G:565:GLN:NE2	1:G:592:MET:HE3	1.19	1.48
1:B:558:GLN:CG	1:B:1171:GLU:HG3	1.42	1.48
1:B:565:GLN:NE2	1:B:592:MET:CE	1.76	1.48
1:F:1169:SER:CB	1:F:1170:GLU:HB2	1.37	1.48
1:G:565:GLN:NE2	1:G:592:MET:CE	1.76	1.48
1:F:558:GLN:CG	1:F:1171:GLU:HG3	1.42	1.47
1:E:558:GLN:CG	1:E:1171:GLU:HG3	1.42	1.46
1:G:558:GLN:CG	1:G:1171:GLU:HG3	1.42	1.46
1:C:565:GLN:NE2	1:C:592:MET:CE	1.76	1.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:558:GLN:CG	1:C:1171:GLU:HG3	1.42	1.45
1:C:565:GLN:NE2	1:C:592:MET:HE3	1.20	1.45
1:F:558:GLN:HG2	1:F:1171:GLU:CG	1.38	1.45
1:F:565:GLN:NE2	1:F:592:MET:HE3	1.17	1.45
1:F:565:GLN:NE2	1:F:592:MET:CE	1.76	1.45
1:E:565:GLN:NE2	1:E:592:MET:HE3	1.22	1.44
1:D:565:GLN:NE2	1:D:592:MET:HE3	1.17	1.42
1:F:559:PRO:CB	1:F:1174:ALA:HA	1.53	1.38
1:A:559:PRO:CB	1:A:1174:ALA:HA	1.53	1.38
1:G:559:PRO:CB	1:G:1174:ALA:HA	1.53	1.38
1:E:559:PRO:CB	1:E:1174:ALA:HA	1.53	1.37
1:D:559:PRO:CB	1:D:1174:ALA:HA	1.53	1.36
1:B:1007:TRP:CZ2	2:I:73:LYS:NZ	1.94	1.36
1:B:559:PRO:CB	1:B:1174:ALA:HA	1.53	1.36
1:G:1007:TRP:CZ2	2:N:73:LYS:NZ	1.94	1.36
1:C:559:PRO:CB	1:C:1174:ALA:HA	1.53	1.36
1:E:1007:TRP:CZ2	2:L:73:LYS:NZ	1.94	1.35
1:C:1007:TRP:CZ2	2:J:73:LYS:NZ	1.94	1.35
1:A:1007:TRP:CZ2	2:H:73:LYS:NZ	1.94	1.35
1:E:555:LEU:CD2	1:E:560:PHE:HE1	1.41	1.34
1:C:555:LEU:CD2	1:C:560:PHE:HE1	1.41	1.34
1:D:1007:TRP:CZ2	2:K:73:LYS:NZ	1.94	1.34
1:F:1007:TRP:CZ2	2:M:73:LYS:NZ	1.94	1.34
1:A:555:LEU:CD2	1:A:560:PHE:HE1	1.41	1.34
1:G:555:LEU:CD2	1:G:560:PHE:HE1	1.40	1.34
1:B:555:LEU:CD2	1:B:560:PHE:HE1	1.41	1.33
1:F:555:LEU:CD2	1:F:560:PHE:HE1	1.41	1.32
1:D:555:LEU:CD2	1:D:560:PHE:HE1	1.41	1.32
1:D:1169:SER:CA	1:D:1170:GLU:HB2	1.62	1.30
1:E:1169:SER:CA	1:E:1170:GLU:HB2	1.62	1.29
1:B:1063:PHE:CE2	2:I:86:LYS:CG	1.99	1.29
1:C:1169:SER:CA	1:C:1170:GLU:HB2	1.62	1.29
1:A:555:LEU:CD2	1:A:560:PHE:CE1	2.15	1.29
1:E:555:LEU:CD2	1:E:560:PHE:CE1	2.15	1.29
1:C:555:LEU:CD2	1:C:560:PHE:CE1	2.15	1.28
1:F:555:LEU:CD2	1:F:560:PHE:CE1	2.15	1.28
1:F:1169:SER:CA	1:F:1170:GLU:HB2	1.62	1.28
1:G:555:LEU:CD2	1:G:560:PHE:CE1	2.15	1.28
1:G:1063:PHE:CE2	2:N:86:LYS:CG	1.99	1.28
1:B:1169:SER:CA	1:B:1170:GLU:HB2	1.62	1.28
1:D:560:PHE:CD1	1:D:561:PRO:HD2	1.69	1.28

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:555:LEU:CD2	1:D:560:PHE:CE1	2.15	1.28
1:A:1169:SER:CA	1:A:1170:GLU:HB2	1.62	1.27
1:G:1169:SER:CA	1:G:1170:GLU:HB2	1.62	1.27
1:B:555:LEU:CD2	1:B:560:PHE:CE1	2.15	1.27
1:C:560:PHE:CD1	1:C:561:PRO:HD2	1.69	1.27
1:F:560:PHE:CD1	1:F:561:PRO:HD2	1.69	1.27
1:A:1063:PHE:CE2	2:H:86:LYS:CG	1.99	1.26
1:E:560:PHE:CD1	1:E:561:PRO:HD2	1.69	1.26
1:B:560:PHE:CD1	1:B:561:PRO:HD2	1.69	1.26
1:E:340:TYR:HE1	1:F:409:GLU:OE2	0.96	1.26
1:B:340:TYR:HE1	1:C:409:GLU:OE2	0.96	1.26
1:G:560:PHE:CD1	1:G:561:PRO:HD2	1.69	1.25
1:A:560:PHE:CD1	1:A:561:PRO:HD2	1.69	1.25
1:C:340:TYR:HE1	1:D:409:GLU:OE2	0.96	1.25
1:B:565:GLN:NE2	1:B:592:MET:HE3	1.34	1.24
1:A:340:TYR:HE1	1:B:409:GLU:OE2	0.96	1.24
1:C:555:LEU:HD23	1:C:560:PHE:CE1	1.74	1.23
1:E:555:LEU:HD23	1:E:560:PHE:CE1	1.74	1.22
1:D:1004:LYS:NZ	2:K:73:LYS:HG2	1.55	1.21
1:C:1004:LYS:NZ	2:J:73:LYS:HG2	1.55	1.21
1:A:555:LEU:HD23	1:A:560:PHE:CE1	1.74	1.21
1:A:409:GLU:OE2	1:G:340:TYR:HE1	0.96	1.21
1:E:1004:LYS:NZ	2:L:73:LYS:HG2	1.55	1.20
1:A:1173:ALA:HB1	1:A:1211:GLN:OE1	1.42	1.20
1:G:555:LEU:HD23	1:G:560:PHE:CE1	1.74	1.20
1:C:1007:TRP:HZ2	2:J:73:LYS:NZ	1.34	1.20
1:C:1063:PHE:CE2	2:J:86:LYS:CG	1.99	1.20
1:F:555:LEU:HD23	1:F:560:PHE:CE1	1.74	1.20
1:F:1063:PHE:CE2	2:M:86:LYS:CG	1.99	1.20
1:B:1173:ALA:HB1	1:B:1211:GLN:OE1	1.42	1.20
1:D:340:TYR:HE1	1:E:409:GLU:OE2	0.96	1.20
1:D:555:LEU:HD23	1:D:560:PHE:CE1	1.74	1.19
1:B:555:LEU:HD23	1:B:560:PHE:CE1	1.74	1.19
1:B:1004:LYS:NZ	2:I:73:LYS:HG2	1.55	1.19
1:F:1173:ALA:HB1	1:F:1211:GLN:OE1	1.42	1.19
1:F:1004:LYS:NZ	2:M:73:LYS:HG2	1.55	1.19
1:F:1088:VAL:O	2:M:86:LYS:HE3	1.44	1.18
1:B:565:GLN:HE21	1:B:592:MET:HE2	1.02	1.17
1:D:1173:ALA:HB1	1:D:1211:GLN:OE1	1.42	1.17
1:E:1007:TRP:HZ2	2:L:73:LYS:NZ	1.34	1.17
1:A:1004:LYS:NZ	2:H:73:LYS:HG2	1.55	1.17

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1173:ALA:HB1	1:C:1211:GLN:OE1	1.42	1.17
1:F:559:PRO:HB3	1:F:1175:THR:H	1.00	1.17
1:G:1007:TRP:HZ2	2:N:73:LYS:NZ	1.34	1.17
1:D:1088:VAL:O	2:K:86:LYS:HE3	1.44	1.17
1:E:559:PRO:HB3	1:E:1175:THR:N	1.59	1.17
1:G:559:PRO:HB3	1:G:1175:THR:H	1.00	1.17
1:D:559:PRO:HB3	1:D:1175:THR:N	1.59	1.17
1:D:1063:PHE:CE2	2:K:86:LYS:CG	1.99	1.17
1:B:1088:VAL:O	2:I:86:LYS:HE3	1.44	1.17
1:G:1004:LYS:NZ	2:N:73:LYS:HG2	1.55	1.17
1:A:1088:VAL:O	2:H:86:LYS:HE3	1.44	1.16
1:E:559:PRO:HB3	1:E:1175:THR:H	1.00	1.16
1:B:520:ALA:HB1	1:B:646:THR:OG1	1.45	1.16
1:C:559:PRO:HB3	1:C:1175:THR:N	1.59	1.16
1:E:1063:PHE:CE2	2:L:86:LYS:CG	1.99	1.16
1:E:1088:VAL:O	2:L:86:LYS:HE3	1.44	1.16
1:F:559:PRO:HB3	1:F:1175:THR:N	1.59	1.16
1:G:1173:ALA:HB1	1:G:1211:GLN:OE1	1.42	1.16
2:K:14:CYS:SG	4:K:500:HEM:HAB	1.85	1.16
1:D:348:LYS:HG3	1:D:352:ARG:CD	1.76	1.16
1:E:348:LYS:HG3	1:E:352:ARG:CD	1.76	1.16
2:I:14:CYS:SG	4:I:500:HEM:HAB	1.85	1.16
1:C:520:ALA:HB1	1:C:646:THR:OG1	1.45	1.16
1:D:559:PRO:HB3	1:D:1175:THR:H	1.00	1.16
2:N:14:CYS:SG	4:N:500:HEM:HAB	1.85	1.16
1:C:701:GLN:CD	2:J:25:LYS:HD3	1.67	1.15
1:D:701:GLN:CD	2:K:25:LYS:HD3	1.67	1.15
1:E:1173:ALA:HB1	1:E:1211:GLN:OE1	1.42	1.15
1:F:340:TYR:HE1	1:G:409:GLU:OE2	0.96	1.15
2:J:14:CYS:SG	4:J:500:HEM:HAB	1.85	1.15
2:M:14:CYS:SG	4:M:500:HEM:HAB	1.85	1.15
1:A:520:ALA:HB1	1:A:646:THR:OG1	1.45	1.15
1:B:701:GLN:CD	2:I:25:LYS:HD3	1.67	1.15
1:C:348:LYS:HG3	1:C:352:ARG:CD	1.76	1.15
1:C:1088:VAL:O	2:J:86:LYS:HE3	1.44	1.15
1:E:1004:LYS:HZ3	2:L:73:LYS:HG2	1.00	1.15
1:F:348:LYS:HG3	1:F:352:ARG:CD	1.76	1.15
1:A:348:LYS:HG3	1:A:352:ARG:CD	1.76	1.15
1:E:701:GLN:CD	2:L:25:LYS:HD3	1.67	1.15
1:G:348:LYS:HG3	1:G:352:ARG:CD	1.76	1.15
1:A:559:PRO:HB3	1:A:1175:THR:H	1.00	1.15

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:559:PRO:HB3	1:A:1175:THR:N	1.59	1.15
1:B:559:PRO:HB3	1:B:1175:THR:N	1.59	1.15
2:H:14:CYS:SG	4:H:500:HEM:HAB	1.85	1.15
2:L:14:CYS:SG	4:L:500:HEM:HAB	1.85	1.15
1:B:1007:TRP:HZ2	2:I:73:LYS:NZ	1.34	1.14
1:D:558:GLN:HA	1:D:1171:GLU:HG2	1.27	1.14
1:G:559:PRO:HB3	1:G:1175:THR:N	1.59	1.14
1:G:1088:VAL:O	2:N:86:LYS:HE3	1.44	1.14
1:D:520:ALA:HB1	1:D:646:THR:OG1	1.45	1.14
1:G:701:GLN:CD	2:N:25:LYS:HD3	1.67	1.14
1:A:1089:LEU:HA	2:H:86:LYS:HE2	1.14	1.14
1:B:348:LYS:HG3	1:B:352:ARG:CD	1.76	1.14
1:C:559:PRO:HB3	1:C:1175:THR:H	1.00	1.14
1:A:208:GLN:HG2	1:B:229:ILE:CD1	1.78	1.14
1:C:208:GLN:HG2	1:D:229:ILE:CD1	1.78	1.14
1:C:558:GLN:HA	1:C:1171:GLU:HG2	1.27	1.14
1:A:701:GLN:CD	2:H:25:LYS:HD3	1.67	1.13
1:B:559:PRO:HB3	1:B:1175:THR:H	1.00	1.13
1:B:1004:LYS:HZ3	2:I:73:LYS:HG2	0.96	1.13
1:E:1089:LEU:HA	2:L:86:LYS:HE2	1.14	1.13
1:D:208:GLN:HG2	1:E:229:ILE:CD1	1.78	1.13
1:G:520:ALA:HB1	1:G:646:THR:OG1	1.45	1.13
1:G:1089:LEU:HA	2:N:86:LYS:HE2	1.14	1.13
1:E:520:ALA:HB1	1:E:646:THR:OG1	1.45	1.12
1:F:701:GLN:CD	2:M:25:LYS:HD3	1.67	1.13
1:B:1089:LEU:HA	2:I:86:LYS:HE2	1.14	1.12
1:B:208:GLN:HG2	1:C:229:ILE:CD1	1.78	1.12
1:E:558:GLN:HA	1:E:1171:GLU:HG2	1.27	1.12
1:F:1089:LEU:HA	2:M:86:LYS:HE2	1.14	1.12
1:F:208:GLN:HG2	1:G:229:ILE:CD1	1.78	1.12
1:A:229:ILE:CD1	1:G:208:GLN:HG2	1.78	1.12
1:D:1089:LEU:HA	2:K:86:LYS:HE2	1.14	1.12
1:F:520:ALA:HB1	1:F:646:THR:OG1	1.45	1.12
1:E:208:GLN:HG2	1:F:229:ILE:CD1	1.78	1.11
1:E:208:GLN:HG2	1:F:229:ILE:HD11	1.31	1.11
1:A:229:ILE:HD11	1:G:208:GLN:HG2	1.31	1.11
1:C:1089:LEU:HA	2:J:86:LYS:HE2	1.14	1.11
1:B:557:ARG:O	1:B:1171:GLU:OE2	1.69	1.11
1:E:557:ARG:O	1:E:1171:GLU:OE2	1.69	1.11
1:D:557:ARG:O	1:D:1171:GLU:OE2	1.69	1.10
1:F:208:GLN:HG2	1:G:229:ILE:HD11	1.31	1.10

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:14:CYS:SG	4:L:500:HEM:CAB	2.39	1.10
1:C:557:ARG:O	1:C:1171:GLU:OE2	1.69	1.10
2:I:14:CYS:SG	4:I:500:HEM:CAB	2.39	1.10
1:A:557:ARG:O	1:A:1171:GLU:OE2	1.69	1.10
1:B:558:GLN:HA	1:B:1171:GLU:HG2	1.27	1.10
1:F:557:ARG:O	1:F:1171:GLU:OE2	1.69	1.10
2:J:14:CYS:SG	4:J:500:HEM:CAB	2.39	1.10
2:K:14:CYS:SG	4:K:500:HEM:CAB	2.39	1.10
1:C:340:TYR:OH	1:D:409:GLU:CD	1.91	1.10
1:F:348:LYS:HG3	1:F:352:ARG:HD3	1.29	1.10
2:N:14:CYS:SG	4:N:500:HEM:CAB	2.39	1.10
1:E:340:TYR:OH	1:F:409:GLU:CD	1.91	1.09
2:H:14:CYS:SG	4:H:500:HEM:CAB	2.39	1.09
1:A:581:LYS:HZ1	1:A:1247:LEU:HD21	1.16	1.09
1:C:1004:LYS:HZ3	2:J:73:LYS:HG2	1.06	1.09
1:G:557:ARG:O	1:G:1171:GLU:OE2	1.69	1.09
1:C:1023:ASP:OD2	2:J:73:LYS:HD3	1.53	1.09
1:E:348:LYS:HG3	1:E:352:ARG:HD3	1.28	1.09
1:F:1023:ASP:OD2	2:M:73:LYS:HD3	1.53	1.09
1:A:340:TYR:OH	1:B:409:GLU:CD	1.91	1.09
1:D:1007:TRP:HZ2	2:K:73:LYS:NZ	1.33	1.09
1:A:409:GLU:CD	1:G:340:TYR:OH	1.91	1.09
1:D:1088:VAL:O	2:K:86:LYS:CE	2.00	1.09
1:F:340:TYR:OH	1:G:409:GLU:CD	1.91	1.09
1:F:558:GLN:HA	1:F:1171:GLU:HG2	1.27	1.09
1:G:1023:ASP:OD2	2:N:73:LYS:HD3	1.53	1.09
1:A:1007:TRP:HZ2	2:H:73:LYS:NZ	1.34	1.08
1:D:340:TYR:OH	1:E:409:GLU:CD	1.91	1.08
1:G:1088:VAL:O	2:N:86:LYS:CE	2.01	1.08
1:A:1023:ASP:CG	2:H:73:LYS:HD3	1.74	1.08
1:E:1088:VAL:O	2:L:86:LYS:CE	2.00	1.08
2:M:14:CYS:SG	4:M:500:HEM:CAB	2.39	1.08
1:A:208:GLN:HG2	1:B:229:ILE:HD11	1.31	1.08
1:A:1088:VAL:O	2:H:86:LYS:CE	2.01	1.08
1:B:340:TYR:OH	1:C:409:GLU:CD	1.91	1.08
1:B:1023:ASP:OD2	2:I:73:LYS:HD3	1.53	1.08
1:C:1088:VAL:O	2:J:86:LYS:CE	2.01	1.08
1:G:1023:ASP:CG	2:N:73:LYS:HD3	1.74	1.08
1:D:208:GLN:HG2	1:E:229:ILE:HD11	1.31	1.08
1:E:1023:ASP:OD2	2:L:73:LYS:HD3	1.53	1.08
1:F:1088:VAL:O	2:M:86:LYS:CE	2.00	1.08

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1023:ASP:CG	2:I:73:LYS:HD3	1.74	1.08
1:B:1088:VAL:O	2:I:86:LYS:CE	2.00	1.08
1:G:348:LYS:HG3	1:G:352:ARG:HD3	1.29	1.08
1:A:558:GLN:HA	1:A:1171:GLU:HG2	1.27	1.07
1:F:1023:ASP:CG	2:M:73:LYS:HD3	1.74	1.07
1:B:208:GLN:HG2	1:C:229:ILE:HD11	1.31	1.07
1:C:208:GLN:HG2	1:D:229:ILE:HD11	1.31	1.07
1:A:1023:ASP:OD2	2:H:73:LYS:HD3	1.53	1.07
1:C:1023:ASP:CG	2:J:73:LYS:HD3	1.74	1.07
1:C:1169:SER:CB	1:C:1170:GLU:CB	2.11	1.07
1:D:1023:ASP:OD2	2:K:73:LYS:HD3	1.53	1.07
1:C:348:LYS:HG3	1:C:352:ARG:HD3	1.29	1.07
1:E:1023:ASP:CG	2:L:73:LYS:HD3	1.74	1.07
1:F:1007:TRP:HZ2	2:M:73:LYS:NZ	1.34	1.07
1:C:348:LYS:HE3	1:C:447:GLU:HG2	1.37	1.06
1:D:348:LYS:HG3	1:D:352:ARG:HD3	1.29	1.06
1:D:1023:ASP:CG	2:K:73:LYS:HD3	1.74	1.06
1:B:348:LYS:HE3	1:B:447:GLU:HG2	1.37	1.06
1:D:348:LYS:HE3	1:D:447:GLU:HG2	1.37	1.06
1:G:558:GLN:HA	1:G:1171:GLU:HG2	1.27	1.06
1:G:1048:LYS:HD2	2:N:86:LYS:NZ	1.71	1.06
1:A:348:LYS:HG3	1:A:352:ARG:HD3	1.28	1.05
1:B:1048:LYS:HD2	2:I:86:LYS:NZ	1.71	1.05
1:F:1048:LYS:HD2	2:M:86:LYS:NZ	1.71	1.05
1:G:559:PRO:HB2	1:G:1174:ALA:HA	1.08	1.05
1:D:205:ARG:NH1	1:E:225:ASP:OD1	1.90	1.05
1:E:205:ARG:NH1	1:F:225:ASP:OD1	1.89	1.05
1:A:559:PRO:HB2	1:A:1174:ALA:HA	1.08	1.05
1:C:1048:LYS:HD2	2:J:86:LYS:NZ	1.71	1.05
1:A:225:ASP:OD1	1:G:205:ARG:NH1	1.89	1.05
1:B:348:LYS:HG3	1:B:352:ARG:HD3	1.29	1.05
1:B:565:GLN:HE22	1:B:592:MET:CE	1.53	1.05
1:C:205:ARG:NH1	1:D:225:ASP:OD1	1.89	1.05
1:E:1048:LYS:HD2	2:L:86:LYS:NZ	1.71	1.05
1:F:559:PRO:HB2	1:F:1174:ALA:HA	1.08	1.05
1:F:1004:LYS:HZ3	2:M:73:LYS:HG2	1.03	1.05
1:A:205:ARG:NH1	1:B:225:ASP:OD1	1.90	1.04
1:B:1169:SER:HB3	1:B:1170:GLU:CA	1.87	1.04
1:C:1169:SER:HB3	1:C:1170:GLU:CA	1.87	1.04
1:A:348:LYS:HE3	1:A:447:GLU:HG2	1.37	1.04
1:B:205:ARG:NH1	1:C:225:ASP:OD1	1.89	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1048:LYS:HD2	2:K:86:LYS:NZ	1.71	1.04
1:E:348:LYS:HE3	1:E:447:GLU:HG2	1.37	1.04
1:E:559:PRO:HB2	1:E:1174:ALA:HA	1.08	1.04
1:F:205:ARG:NH1	1:G:225:ASP:OD1	1.89	1.04
1:A:1169:SER:HB3	1:A:1170:GLU:CA	1.87	1.04
1:D:581:LYS:HZ1	1:D:1247:LEU:HD21	1.18	1.04
1:D:1169:SER:HB3	1:D:1170:GLU:CA	1.87	1.03
1:A:1048:LYS:HD2	2:H:86:LYS:NZ	1.71	1.03
1:B:559:PRO:HB2	1:B:1174:ALA:HA	1.08	1.03
1:D:559:PRO:HB2	1:D:1174:ALA:HA	1.08	1.03
1:D:559:PRO:HB3	1:D:1174:ALA:HA	1.38	1.03
1:E:559:PRO:HB3	1:E:1174:ALA:HA	1.38	1.03
1:G:646:THR:HG23	1:G:648:GLU:H	1.23	1.03
1:C:559:PRO:HB2	1:C:1174:ALA:HA	1.08	1.02
1:D:1169:SER:CB	1:D:1170:GLU:CB	2.11	1.02
1:B:1169:SER:CB	1:B:1170:GLU:CB	2.11	1.02
1:F:348:LYS:HE3	1:F:447:GLU:HG2	1.37	1.02
1:G:1169:SER:HB3	1:G:1170:GLU:CA	1.87	1.02
1:D:1004:LYS:HZ3	2:K:73:LYS:HG2	1.04	1.02
1:E:565:GLN:HE21	1:E:592:MET:HE2	1.23	1.02
1:G:348:LYS:HE3	1:G:447:GLU:HG2	1.37	1.02
1:E:1169:SER:HB3	1:E:1170:GLU:CA	1.87	1.02
1:G:581:LYS:HZ1	1:G:1247:LEU:HD21	1.24	1.02
1:A:1004:LYS:HZ3	2:H:73:LYS:HG2	1.07	1.01
1:B:1169:SER:N	1:B:1170:GLU:HB2	1.76	1.01
1:F:1169:SER:HB3	1:F:1170:GLU:CA	1.87	1.01
1:G:1169:SER:CB	1:G:1170:GLU:CB	2.11	1.01
1:C:1169:SER:N	1:C:1170:GLU:HB2	1.76	1.01
1:A:646:THR:HG23	1:A:648:GLU:H	1.24	1.01
1:D:557:ARG:C	1:D:1171:GLU:OE2	1.99	1.01
1:A:1169:SER:N	1:A:1170:GLU:HB2	1.76	1.01
1:C:557:ARG:C	1:C:1171:GLU:OE2	1.99	1.01
1:E:205:ARG:CZ	1:F:225:ASP:OD2	2.09	1.01
1:E:1169:SER:CB	1:E:1170:GLU:CB	2.11	1.01
1:F:205:ARG:CZ	1:G:225:ASP:OD2	2.09	1.01
1:C:559:PRO:HB3	1:C:1174:ALA:HA	1.38	1.00
1:A:225:ASP:OD2	1:G:205:ARG:CZ	2.09	1.00
1:D:205:ARG:CZ	1:E:225:ASP:OD2	2.09	1.00
1:D:1169:SER:N	1:D:1170:GLU:HB2	1.76	1.00
1:E:557:ARG:C	1:E:1171:GLU:OE2	1.99	1.00
1:E:1169:SER:N	1:E:1170:GLU:HB2	1.76	1.00

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1048:LYS:CD	2:M:86:LYS:NZ	2.25	1.00
1:F:1169:SER:N	1:F:1170:GLU:HB2	1.75	1.00
1:G:557:ARG:C	1:G:1171:GLU:OE2	1.99	1.00
1:A:557:ARG:C	1:A:1171:GLU:OE2	1.99	1.00
1:A:1169:SER:CB	1:A:1170:GLU:CB	2.11	1.00
1:C:646:THR:HG23	1:C:648:GLU:H	1.23	1.00
1:E:1048:LYS:HG3	2:L:86:LYS:NZ	1.76	1.00
1:F:1169:SER:CB	1:F:1170:GLU:CB	2.11	1.00
1:G:1048:LYS:CD	2:N:86:LYS:NZ	2.25	1.00
1:B:557:ARG:C	1:B:1171:GLU:OE2	1.99	0.99
1:D:1048:LYS:CD	2:K:86:LYS:NZ	2.25	0.99
1:D:1048:LYS:HG3	2:K:86:LYS:NZ	1.76	0.99
1:F:1048:LYS:HG3	2:M:86:LYS:NZ	1.76	0.99
1:G:1169:SER:N	1:G:1170:GLU:HB2	1.76	0.99
1:A:1048:LYS:CD	2:H:86:LYS:NZ	2.25	0.99
1:G:565:GLN:HE22	1:G:592:MET:CE	1.53	0.99
1:A:205:ARG:CZ	1:B:225:ASP:OD2	2.09	0.99
1:C:581:LYS:HZ1	1:C:1247:LEU:HD21	1.23	0.99
1:E:214:GLN:OE1	1:F:213:SER:OG	1.73	0.99
1:G:1048:LYS:HG3	2:N:86:LYS:NZ	1.76	0.99
1:B:1048:LYS:CD	2:I:86:LYS:NZ	2.25	0.99
1:C:205:ARG:CZ	1:D:225:ASP:OD2	2.09	0.99
1:G:559:PRO:HB3	1:G:1174:ALA:HA	1.38	0.99
1:C:1048:LYS:CD	2:J:86:LYS:NZ	2.25	0.99
1:E:559:PRO:CB	1:E:1174:ALA:CA	2.41	0.99
1:F:559:PRO:CB	1:F:1174:ALA:CA	2.41	0.99
1:B:205:ARG:CZ	1:C:225:ASP:OD2	2.09	0.99
1:B:559:PRO:HB3	1:B:1174:ALA:HA	1.38	0.99
1:E:1048:LYS:CD	2:L:86:LYS:NZ	2.25	0.99
1:G:559:PRO:CB	1:G:1174:ALA:CA	2.41	0.99
1:A:1048:LYS:CG	2:H:86:LYS:NZ	2.26	0.99
1:F:565:GLN:HE22	1:F:592:MET:CE	1.53	0.99
1:A:409:GLU:CD	1:G:340:TYR:HH	1.65	0.99
1:A:559:PRO:CB	1:A:1174:ALA:CA	2.41	0.99
1:D:646:THR:HG23	1:D:648:GLU:H	1.23	0.99
1:D:1169:SER:CA	1:D:1170:GLU:CB	2.39	0.99
1:E:646:THR:HG23	1:E:648:GLU:H	1.23	0.99
1:D:559:PRO:CB	1:D:1174:ALA:CA	2.41	0.99
1:F:557:ARG:C	1:F:1171:GLU:OE2	1.99	0.99
1:G:1048:LYS:CG	2:N:86:LYS:NZ	2.26	0.99
1:F:646:THR:HG23	1:F:648:GLU:H	1.24	0.98

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:559:PRO:HB3	1:A:1174:ALA:HA	1.38	0.98
1:B:1004:LYS:HZ3	2:I:73:LYS:CG	1.75	0.98
1:D:1048:LYS:CG	2:K:86:LYS:NZ	2.26	0.98
1:B:559:PRO:CB	1:B:1174:ALA:CA	2.41	0.98
1:C:559:PRO:CB	1:C:1174:ALA:CA	2.41	0.98
1:A:581:LYS:HZ1	1:A:1247:LEU:CD2	1.76	0.98
1:C:1048:LYS:HG3	2:J:86:LYS:NZ	1.76	0.98
1:F:581:LYS:HZ1	1:F:1247:LEU:HD21	1.26	0.98
1:C:1169:SER:CA	1:C:1170:GLU:CB	2.39	0.98
1:A:565:GLN:HE22	1:A:592:MET:CE	1.53	0.98
1:B:581:LYS:HZ1	1:B:1247:LEU:HD21	1.24	0.97
1:B:1048:LYS:CG	2:I:86:LYS:NZ	2.26	0.97
1:B:1169:SER:CA	1:B:1170:GLU:CB	2.39	0.97
1:E:565:GLN:HE22	1:E:592:MET:CE	1.53	0.97
1:A:1048:LYS:HG3	2:H:86:LYS:NZ	1.76	0.97
1:B:646:THR:HG23	1:B:648:GLU:H	1.23	0.97
1:B:1048:LYS:HG3	2:I:86:LYS:NZ	1.76	0.97
1:F:1048:LYS:CG	2:M:86:LYS:NZ	2.26	0.97
1:E:1048:LYS:HG3	2:L:86:LYS:HZ1	1.29	0.97
1:A:214:GLN:OE1	1:B:213:SER:OG	1.73	0.97
1:D:214:GLN:OE1	1:E:213:SER:OG	1.73	0.97
1:A:213:SER:OG	1:G:214:GLN:OE1	1.74	0.97
1:C:1048:LYS:CG	2:J:86:LYS:NZ	2.26	0.97
1:F:214:GLN:OE1	1:G:213:SER:OG	1.74	0.97
1:B:340:TYR:HH	1:C:409:GLU:CD	1.65	0.97
1:D:560:PHE:CG	1:D:561:PRO:HD2	2.00	0.97
1:C:565:GLN:HE21	1:C:592:MET:HE2	1.30	0.96
1:D:581:LYS:HZ1	1:D:1247:LEU:CD2	1.76	0.96
1:E:520:ALA:O	1:E:524:HIS:CD2	2.19	0.96
1:E:558:GLN:CB	1:E:1171:GLU:HG3	1.95	0.96
1:F:520:ALA:O	1:F:524:HIS:CD2	2.19	0.96
1:C:560:PHE:CG	1:C:561:PRO:HD2	2.00	0.96
1:E:1048:LYS:CG	2:L:86:LYS:NZ	2.26	0.96
1:G:520:ALA:O	1:G:524:HIS:CD2	2.19	0.96
1:C:558:GLN:CB	1:C:1171:GLU:HG3	1.95	0.96
1:E:560:PHE:CG	1:E:561:PRO:HD2	2.00	0.96
1:F:559:PRO:HB3	1:F:1174:ALA:HA	1.38	0.96
1:A:1048:LYS:HG3	2:H:86:LYS:HZ1	1.27	0.96
1:D:520:ALA:O	1:D:524:HIS:CD2	2.18	0.96
1:C:565:GLN:HE22	1:C:592:MET:CE	1.53	0.96
1:D:565:GLN:HE22	1:D:592:MET:CE	1.53	0.96

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:560:PHE:CG	1:F:561:PRO:HD2	2.00	0.96
1:E:581:LYS:HZ1	1:E:1247:LEU:HD21	1.29	0.96
1:A:520:ALA:O	1:A:524:HIS:CD2	2.18	0.96
1:D:558:GLN:CB	1:D:1171:GLU:HG3	1.95	0.96
1:G:560:PHE:CG	1:G:561:PRO:HD2	2.00	0.96
1:G:1004:LYS:HZ2	2:N:73:LYS:CG	1.79	0.96
1:C:1048:LYS:HG3	2:J:86:LYS:HZ1	1.30	0.95
1:D:1048:LYS:HG3	2:K:86:LYS:HZ1	1.28	0.95
1:A:558:GLN:CB	1:A:1171:GLU:HG3	1.95	0.95
1:A:1048:LYS:CD	2:H:86:LYS:HZ3	1.78	0.95
1:F:558:GLN:CB	1:F:1171:GLU:HG3	1.95	0.95
1:G:1004:LYS:NZ	2:N:73:LYS:CG	2.29	0.95
1:B:560:PHE:CG	1:B:561:PRO:HD2	2.00	0.95
1:B:1004:LYS:NZ	2:I:73:LYS:CG	2.29	0.95
1:G:558:GLN:CB	1:G:1171:GLU:HG3	1.95	0.95
1:E:1004:LYS:NZ	2:L:73:LYS:CG	2.29	0.95
1:G:555:LEU:HD21	1:G:560:PHE:CE1	2.02	0.95
1:A:558:GLN:HG2	1:A:1171:GLU:CD	1.87	0.94
1:C:520:ALA:O	1:C:524:HIS:CD2	2.18	0.94
1:C:581:LYS:HZ1	1:C:1247:LEU:CD2	1.79	0.94
1:F:555:LEU:HD21	1:F:560:PHE:CE1	2.02	0.94
1:G:581:LYS:HZ1	1:G:1247:LEU:CD2	1.79	0.94
1:A:560:PHE:CG	1:A:561:PRO:HD2	2.00	0.94
1:B:558:GLN:HG2	1:B:1171:GLU:CD	1.86	0.94
1:C:348:LYS:HE3	1:C:447:GLU:CG	1.97	0.94
1:B:520:ALA:O	1:B:524:HIS:CD2	2.19	0.94
1:D:1048:LYS:CD	2:K:86:LYS:HZ3	1.80	0.94
1:B:558:GLN:CB	1:B:1171:GLU:HG3	1.95	0.94
1:D:1004:LYS:NZ	2:K:73:LYS:CG	2.29	0.94
1:D:1048:LYS:HD2	2:K:86:LYS:HZ3	1.32	0.94
1:G:1004:LYS:HZ2	2:N:73:LYS:HG2	1.33	0.94
1:G:558:GLN:HG2	1:G:1171:GLU:CD	1.87	0.94
1:A:1004:LYS:NZ	2:H:73:LYS:CG	2.29	0.94
1:C:558:GLN:HG2	1:C:1171:GLU:CD	1.87	0.94
1:D:348:LYS:HE3	1:D:447:GLU:CG	1.97	0.94
1:F:1004:LYS:NZ	2:M:73:LYS:CG	2.29	0.94
1:B:214:GLN:OE1	1:C:213:SER:OG	1.73	0.94
1:B:348:LYS:HE3	1:B:447:GLU:CG	1.97	0.94
1:B:1089:LEU:HA	2:I:86:LYS:CE	1.97	0.94
1:C:1089:LEU:HA	2:J:86:LYS:CE	1.98	0.94
1:D:1089:LEU:HA	2:K:86:LYS:CE	1.97	0.94

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1169:SER:HB3	1:D:1170:GLU:CG	1.98	0.94
1:E:1004:LYS:HZ3	2:L:73:LYS:CG	1.80	0.94
1:E:1169:SER:HB3	1:E:1170:GLU:CG	1.98	0.94
1:F:581:LYS:HZ1	1:F:1247:LEU:CD2	1.80	0.94
1:B:581:LYS:HZ1	1:B:1247:LEU:CD2	1.79	0.94
1:C:1169:SER:HB3	1:C:1170:GLU:CG	1.98	0.94
1:D:558:GLN:HG2	1:D:1171:GLU:CD	1.87	0.93
1:E:1169:SER:CA	1:E:1170:GLU:CB	2.39	0.93
1:F:558:GLN:HG2	1:F:1171:GLU:CD	1.87	0.93
1:G:565:GLN:HE21	1:G:592:MET:CE	1.58	0.93
1:A:1089:LEU:HA	2:H:86:LYS:CE	1.98	0.93
1:C:555:LEU:HD21	1:C:560:PHE:CE1	2.02	0.93
1:E:555:LEU:HD21	1:E:560:PHE:CE1	2.02	0.93
1:E:558:GLN:HG2	1:E:1171:GLU:CD	1.87	0.93
1:E:1089:LEU:HA	2:L:86:LYS:CE	1.98	0.93
1:A:1169:SER:HB3	1:A:1170:GLU:CG	1.98	0.93
1:C:1004:LYS:NZ	2:J:73:LYS:CG	2.29	0.93
1:E:348:LYS:HE3	1:E:447:GLU:CG	1.97	0.93
1:D:555:LEU:HD21	1:D:560:PHE:CE1	2.02	0.93
1:F:1169:SER:HB3	1:F:1170:GLU:CG	1.98	0.93
1:E:1048:LYS:CD	2:L:86:LYS:HZ3	1.82	0.93
1:G:348:LYS:HE3	1:G:447:GLU:CG	1.97	0.93
1:A:555:LEU:HD21	1:A:560:PHE:CE1	2.02	0.93
1:F:348:LYS:HE3	1:F:447:GLU:CG	1.97	0.93
1:A:348:LYS:HE3	1:A:447:GLU:CG	1.97	0.92
1:F:1089:LEU:HA	2:M:86:LYS:CE	1.98	0.92
1:G:581:LYS:NZ	1:G:1247:LEU:CD2	2.33	0.92
1:G:1169:SER:HB3	1:G:1170:GLU:CG	1.98	0.92
1:C:1169:SER:CB	1:C:1170:GLU:CA	2.47	0.92
1:F:1023:ASP:CG	2:M:73:LYS:CD	2.38	0.92
1:F:208:GLN:CB	1:G:229:ILE:HD13	1.99	0.92
1:F:581:LYS:NZ	1:F:1247:LEU:CD2	2.33	0.92
1:A:229:ILE:HD13	1:G:208:GLN:CB	1.99	0.92
1:A:1169:SER:CA	1:A:1170:GLU:CB	2.39	0.92
1:G:1048:LYS:HD2	2:N:86:LYS:HZ1	1.29	0.92
1:E:565:GLN:HE21	1:E:592:MET:CE	1.58	0.92
1:G:1004:LYS:HZ3	2:N:73:LYS:HG2	1.22	0.92
1:A:1048:LYS:HD2	2:H:86:LYS:HZ3	1.29	0.92
1:B:1169:SER:HB3	1:B:1170:GLU:CG	1.98	0.92
1:C:208:GLN:CB	1:D:229:ILE:HD13	1.99	0.92
1:C:565:GLN:HE21	1:C:592:MET:CE	1.58	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1048:LYS:CD	2:J:86:LYS:HZ3	1.82	0.92
1:D:1023:ASP:CG	2:K:73:LYS:CD	2.38	0.92
1:E:208:GLN:CB	1:F:229:ILE:HD13	1.99	0.92
1:F:1169:SER:CA	1:F:1170:GLU:CB	2.39	0.92
1:A:581:LYS:NZ	1:A:1247:LEU:CD2	2.33	0.91
1:B:555:LEU:HD21	1:B:560:PHE:CE1	2.02	0.91
1:E:581:LYS:NZ	1:E:1247:LEU:CD2	2.33	0.91
1:E:1023:ASP:CG	2:L:73:LYS:CD	2.38	0.91
1:A:1023:ASP:CG	2:H:73:LYS:CD	2.38	0.91
1:B:581:LYS:NZ	1:B:1247:LEU:CD2	2.33	0.91
1:C:581:LYS:NZ	1:C:1247:LEU:CD2	2.33	0.91
1:D:208:GLN:CB	1:E:229:ILE:HD13	1.99	0.91
1:D:558:GLN:HA	1:D:1171:GLU:CG	2.00	0.91
1:E:581:LYS:HZ1	1:E:1247:LEU:CD2	1.82	0.91
1:G:1023:ASP:CG	2:N:73:LYS:CD	2.38	0.91
1:G:565:GLN:HE21	1:G:592:MET:HE2	1.35	0.91
1:G:1089:LEU:HA	2:N:86:LYS:CE	1.98	0.91
1:C:558:GLN:HA	1:C:1171:GLU:CG	2.00	0.91
1:C:1023:ASP:CG	2:J:73:LYS:CD	2.38	0.91
1:A:208:GLN:CB	1:B:229:ILE:HD13	1.99	0.91
1:C:340:TYR:HH	1:D:409:GLU:CD	1.73	0.91
1:D:559:PRO:CB	1:D:1175:THR:H	1.84	0.91
1:F:559:PRO:CB	1:F:1175:THR:H	1.84	0.91
1:G:559:PRO:CB	1:G:1175:THR:H	1.84	0.91
1:A:565:GLN:HE21	1:A:592:MET:HE2	1.36	0.91
1:C:559:PRO:HB3	1:C:1174:ALA:CA	2.01	0.91
1:E:558:GLN:HA	1:E:1171:GLU:CG	2.00	0.91
1:F:559:PRO:HB2	1:F:1174:ALA:CA	2.01	0.91
1:B:208:GLN:CB	1:C:229:ILE:HD13	1.99	0.90
1:B:1088:VAL:C	2:I:86:LYS:HE3	1.91	0.90
1:C:1088:VAL:C	2:J:86:LYS:HE3	1.91	0.90
1:A:558:GLN:HA	1:A:1171:GLU:CG	2.00	0.90
1:F:565:GLN:HE21	1:F:592:MET:CE	1.58	0.90
1:G:558:GLN:HA	1:G:1171:GLU:CG	2.00	0.90
1:B:1023:ASP:CG	2:I:73:LYS:CD	2.38	0.90
1:D:558:GLN:CG	1:D:1171:GLU:CG	2.21	0.90
1:F:1048:LYS:HG3	2:M:86:LYS:HZ1	1.32	0.90
1:G:1169:SER:CB	1:G:1170:GLU:CA	2.47	0.90
1:A:559:PRO:HB3	1:A:1174:ALA:CA	2.01	0.90
1:B:559:PRO:CB	1:B:1175:THR:H	1.84	0.90
1:C:1063:PHE:CZ	2:J:86:LYS:HG3	2.06	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:581:LYS:NZ	1:D:1247:LEU:CD2	2.33	0.90
1:E:1169:SER:CB	1:E:1170:GLU:CA	2.47	0.90
1:A:559:PRO:HB2	1:A:1174:ALA:CA	2.01	0.90
1:A:581:LYS:NZ	1:A:1247:LEU:HD21	1.87	0.90
1:B:581:LYS:NZ	1:B:1247:LEU:HD21	1.87	0.90
1:E:559:PRO:HB3	1:E:1174:ALA:CA	2.01	0.90
1:A:1088:VAL:C	2:H:86:LYS:HE3	1.91	0.90
1:B:558:GLN:HA	1:B:1171:GLU:CG	2.00	0.90
1:F:558:GLN:HA	1:F:1171:GLU:CG	2.00	0.90
1:A:559:PRO:CB	1:A:1175:THR:H	1.84	0.90
1:B:1048:LYS:HG3	2:I:86:LYS:HZ1	1.36	0.90
1:D:559:PRO:HB3	1:D:1174:ALA:CA	2.01	0.90
1:E:559:PRO:CB	1:E:1175:THR:H	1.84	0.90
1:F:1088:VAL:C	2:M:86:LYS:HE3	1.91	0.90
1:G:559:PRO:HB3	1:G:1174:ALA:CA	2.01	0.90
1:D:1088:VAL:C	2:K:86:LYS:HE3	1.91	0.89
1:F:559:PRO:HB3	1:F:1174:ALA:CA	2.01	0.89
1:B:1169:SER:CB	1:B:1170:GLU:CA	2.47	0.89
1:C:581:LYS:NZ	1:C:1247:LEU:HD21	1.87	0.89
1:A:565:GLN:HE21	1:A:592:MET:CE	1.58	0.89
1:C:559:PRO:CB	1:C:1175:THR:H	1.84	0.89
1:G:581:LYS:NZ	1:G:1247:LEU:HD21	1.87	0.89
1:G:1088:VAL:C	2:N:86:LYS:HE3	1.91	0.89
1:B:565:GLN:HE22	1:B:592:MET:HE3	0.73	0.89
1:C:1023:ASP:HB2	2:J:73:LYS:HZ3	1.37	0.89
1:D:1023:ASP:HB2	2:K:73:LYS:HZ3	1.37	0.89
1:E:1088:VAL:C	2:L:86:LYS:HE3	1.91	0.89
1:B:559:PRO:HB3	1:B:1174:ALA:CA	2.01	0.89
1:C:559:PRO:HB2	1:C:1174:ALA:CA	2.01	0.89
1:B:1063:PHE:CZ	2:I:86:LYS:HG3	2.06	0.89
1:F:581:LYS:NZ	1:F:1247:LEU:HD21	1.87	0.89
1:F:1048:LYS:CD	2:M:86:LYS:HZ3	1.86	0.89
1:C:1048:LYS:HD2	2:J:86:LYS:HZ3	1.35	0.88
1:D:559:PRO:HB2	1:D:1174:ALA:CA	2.01	0.88
1:D:581:LYS:NZ	1:D:1247:LEU:HD21	1.87	0.88
1:E:581:LYS:NZ	1:E:1247:LEU:HD21	1.87	0.88
1:F:340:TYR:CE1	1:G:409:GLU:CD	2.47	0.88
1:G:559:PRO:HB2	1:G:1174:ALA:CA	2.01	0.88
1:G:1169:SER:CA	1:G:1170:GLU:CB	2.39	0.88
1:C:340:TYR:CE1	1:D:409:GLU:CD	2.47	0.88
1:A:340:TYR:HH	1:B:409:GLU:CD	1.73	0.88

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:340:TYR:CE1	1:E:409:GLU:CD	2.47	0.88
1:E:340:TYR:CE1	1:F:409:GLU:CD	2.47	0.87
1:A:409:GLU:CD	1:G:340:TYR:CE1	2.47	0.87
1:B:559:PRO:HB2	1:B:1174:ALA:CA	2.01	0.87
1:A:409:GLU:OE2	1:G:340:TYR:CZ	2.28	0.87
1:B:340:TYR:CZ	1:C:409:GLU:OE2	2.28	0.87
1:C:214:GLN:OE1	1:D:213:SER:OG	1.74	0.87
1:A:348:LYS:HG3	1:A:352:ARG:HD2	1.57	0.87
1:A:1063:PHE:CZ	2:H:86:LYS:HG3	2.06	0.87
1:E:340:TYR:CZ	1:F:409:GLU:OE2	2.28	0.87
1:D:340:TYR:CZ	1:E:409:GLU:OE2	2.28	0.87
1:B:348:LYS:HG3	1:B:352:ARG:HD2	1.57	0.86
1:A:340:TYR:CZ	1:B:409:GLU:OE2	2.28	0.86
1:C:340:TYR:CZ	1:D:409:GLU:OE2	2.28	0.86
1:E:340:TYR:HH	1:F:409:GLU:CD	1.76	0.86
1:C:348:LYS:HG3	1:C:352:ARG:HD2	1.57	0.86
1:F:340:TYR:HH	1:G:409:GLU:CD	1.73	0.86
1:A:340:TYR:CE1	1:B:409:GLU:CD	2.47	0.86
1:E:348:LYS:HG3	1:E:352:ARG:HD2	1.57	0.86
1:F:340:TYR:CZ	1:G:409:GLU:OE2	2.28	0.86
1:F:1004:LYS:HZ3	2:M:73:LYS:CG	1.83	0.86
1:C:1089:LEU:CA	2:J:86:LYS:HE2	2.04	0.86
1:B:340:TYR:CE1	1:C:409:GLU:CD	2.47	0.86
1:G:1063:PHE:CZ	2:N:86:LYS:HG3	2.06	0.86
1:A:1048:LYS:CG	2:H:86:LYS:HZ1	1.88	0.85
1:D:1169:SER:CB	1:D:1170:GLU:CA	2.47	0.85
1:F:1048:LYS:CG	2:M:86:LYS:HZ1	1.88	0.85
1:D:1089:LEU:CA	2:K:86:LYS:HE2	2.04	0.85
1:F:560:PHE:CD2	1:F:561:PRO:O	2.30	0.85
1:G:348:LYS:HG3	1:G:352:ARG:HD2	1.57	0.85
1:D:588:VAL:HG12	1:D:589:ASP:N	1.92	0.85
1:C:560:PHE:CD2	1:C:561:PRO:O	2.30	0.85
1:F:348:LYS:HG3	1:F:352:ARG:HD2	1.57	0.85
2:I:14:CYS:HG	4:I:500:HEM:HAB	1.41	0.85
1:D:340:TYR:HH	1:E:409:GLU:CD	1.76	0.85
1:F:1063:PHE:CZ	2:M:86:LYS:HG3	2.06	0.85
1:B:558:GLN:CG	1:B:1171:GLU:CG	2.21	0.85
1:G:560:PHE:CD2	1:G:561:PRO:O	2.30	0.85
1:B:1089:LEU:CA	2:I:86:LYS:HE2	2.04	0.85
1:C:588:VAL:HG12	1:C:589:ASP:N	1.92	0.85
1:C:1048:LYS:CG	2:J:86:LYS:HZ1	1.88	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:588:VAL:HG12	1:A:589:ASP:N	1.92	0.85
1:D:560:PHE:CD2	1:D:561:PRO:O	2.30	0.85
1:A:1169:SER:CB	1:A:1170:GLU:CA	2.47	0.84
1:E:560:PHE:CD2	1:E:561:PRO:O	2.30	0.84
1:F:1169:SER:CB	1:F:1170:GLU:CA	2.47	0.84
1:B:560:PHE:CD2	1:B:561:PRO:O	2.30	0.84
1:E:208:GLN:CG	1:F:229:ILE:CD1	2.55	0.84
1:F:208:GLN:CG	1:G:229:ILE:CD1	2.55	0.84
1:F:588:VAL:HG12	1:F:589:ASP:N	1.92	0.84
1:A:560:PHE:CD2	1:A:561:PRO:O	2.30	0.84
1:E:558:GLN:CG	1:E:1171:GLU:CG	2.21	0.84
1:E:588:VAL:HG12	1:E:589:ASP:N	1.92	0.84
1:F:1089:LEU:CA	2:M:86:LYS:HE2	2.04	0.84
1:A:409:GLU:CD	1:G:340:TYR:CZ	2.51	0.84
1:B:208:GLN:CG	1:C:229:ILE:CD1	2.55	0.84
1:B:1048:LYS:CD	2:I:86:LYS:HZ3	1.90	0.84
1:D:348:LYS:HG3	1:D:352:ARG:HD2	1.57	0.84
1:D:565:GLN:HE21	1:D:592:MET:CE	1.58	0.84
1:A:229:ILE:CD1	1:G:208:GLN:CG	2.55	0.84
1:B:1169:SER:N	1:B:1170:GLU:CB	2.41	0.84
1:E:340:TYR:CZ	1:F:409:GLU:CD	2.51	0.84
1:G:1048:LYS:CD	2:N:86:LYS:HZ1	1.84	0.84
1:A:1169:SER:N	1:A:1170:GLU:CB	2.41	0.84
1:B:588:VAL:HG12	1:B:589:ASP:N	1.92	0.84
1:E:1023:ASP:HB2	2:L:73:LYS:NZ	1.93	0.84
1:F:558:GLN:CG	1:F:1171:GLU:CG	2.21	0.84
1:C:168:VAL:O	1:C:168:VAL:HG12	1.78	0.84
1:E:1063:PHE:CZ	2:L:86:LYS:HG3	2.06	0.84
1:C:208:GLN:CG	1:D:229:ILE:CD1	2.55	0.83
1:G:1089:LEU:CA	2:N:86:LYS:HE2	2.04	0.83
1:A:208:GLN:CG	1:B:229:ILE:CD1	2.55	0.83
1:D:1023:ASP:HB2	2:K:73:LYS:NZ	1.93	0.83
1:E:565:GLN:HE22	1:E:592:MET:HE3	0.78	0.83
1:E:1089:LEU:CA	2:L:86:LYS:HE2	2.04	0.83
1:D:208:GLN:CG	1:E:229:ILE:CD1	2.55	0.83
1:E:1048:LYS:CG	2:L:86:LYS:HZ1	1.88	0.83
1:F:1023:ASP:HB2	2:M:73:LYS:NZ	1.93	0.83
1:G:1169:SER:N	1:G:1170:GLU:CB	2.41	0.83
1:F:1169:SER:N	1:F:1170:GLU:CB	2.41	0.83
1:G:588:VAL:HG12	1:G:589:ASP:N	1.92	0.83
1:A:1089:LEU:CA	2:H:86:LYS:HE2	2.04	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:558:GLN:CG	1:C:1171:GLU:CG	2.21	0.83
1:C:565:GLN:HE22	1:C:592:MET:HE3	0.82	0.83
1:A:340:TYR:CZ	1:B:409:GLU:CD	2.51	0.83
1:C:1169:SER:N	1:C:1170:GLU:CB	2.41	0.83
1:D:340:TYR:CZ	1:E:409:GLU:CD	2.51	0.83
1:D:1169:SER:N	1:D:1170:GLU:CB	2.41	0.83
1:C:1004:LYS:HZ3	2:J:73:LYS:CG	1.87	0.83
1:E:1169:SER:N	1:E:1170:GLU:CB	2.41	0.83
1:F:340:TYR:CZ	1:G:409:GLU:CD	2.51	0.83
1:A:168:VAL:O	1:A:168:VAL:HG12	1.77	0.82
1:B:340:TYR:CZ	1:C:409:GLU:CD	2.51	0.82
1:C:588:VAL:HG12	1:C:589:ASP:H	1.44	0.82
1:D:168:VAL:O	1:D:168:VAL:HG12	1.77	0.82
1:G:1048:LYS:HG3	2:N:86:LYS:HZ1	1.40	0.82
1:B:1048:LYS:CD	2:I:86:LYS:HZ1	1.89	0.82
1:E:168:VAL:O	1:E:168:VAL:HG12	1.77	0.82
1:F:565:GLN:HE21	1:F:592:MET:HE2	1.43	0.82
1:G:168:VAL:O	1:G:168:VAL:HG12	1.77	0.82
1:E:588:VAL:HG12	1:E:589:ASP:H	1.44	0.82
1:C:1023:ASP:HB2	2:J:73:LYS:NZ	1.93	0.82
1:C:1063:PHE:CE2	2:J:86:LYS:HG2	2.14	0.82
1:D:1004:LYS:HZ3	2:K:73:LYS:CG	1.85	0.82
1:C:340:TYR:CZ	1:D:409:GLU:CD	2.51	0.82
1:D:1063:PHE:CE2	2:K:86:LYS:HG2	2.14	0.82
1:B:1048:LYS:HD2	2:I:86:LYS:HZ1	1.36	0.82
1:D:588:VAL:HG12	1:D:589:ASP:H	1.44	0.82
1:F:168:VAL:O	1:F:168:VAL:HG12	1.78	0.82
1:G:1023:ASP:HB2	2:N:73:LYS:NZ	1.93	0.82
1:B:588:VAL:HG12	1:B:589:ASP:H	1.44	0.82
1:A:558:GLN:CG	1:A:1171:GLU:CG	2.21	0.82
1:A:588:VAL:HG12	1:A:589:ASP:H	1.44	0.82
1:D:1063:PHE:CZ	2:K:86:LYS:HG3	2.06	0.82
1:B:1023:ASP:HB2	2:I:73:LYS:NZ	1.93	0.82
1:B:168:VAL:O	1:B:168:VAL:HG12	1.77	0.81
1:A:1004:LYS:HZ3	2:H:73:LYS:CG	1.88	0.81
1:E:565:GLN:NE2	1:E:592:MET:HE2	1.82	0.81
1:A:1023:ASP:HB2	2:H:73:LYS:NZ	1.93	0.81
1:B:1063:PHE:CE2	2:I:86:LYS:HG2	2.14	0.81
1:G:588:VAL:HG12	1:G:589:ASP:H	1.44	0.81
1:G:1023:ASP:HB2	2:N:73:LYS:HZ3	1.45	0.81
1:G:1048:LYS:CG	2:N:86:LYS:HZ1	1.90	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:17:CYS:HG	4:N:500:HEM:CAC	1.93	0.81
1:E:1063:PHE:CE2	2:L:86:LYS:HG2	2.14	0.81
1:F:1048:LYS:HD2	2:M:86:LYS:HZ1	1.42	0.81
1:F:588:VAL:HG12	1:F:589:ASP:H	1.44	0.81
1:D:1048:LYS:CG	2:K:86:LYS:HZ1	1.88	0.80
1:C:1023:ASP:OD2	2:J:73:LYS:CD	2.30	0.80
1:F:1048:LYS:CD	2:M:86:LYS:HZ1	1.93	0.80
1:E:559:PRO:HB2	1:E:1174:ALA:CA	2.01	0.80
1:F:1023:ASP:OD2	2:M:73:LYS:CD	2.30	0.80
1:B:1023:ASP:OD2	2:I:73:LYS:CD	2.30	0.80
1:C:565:GLN:NE2	1:C:592:MET:HE2	1.87	0.80
1:A:1023:ASP:OD2	2:H:73:LYS:CD	2.30	0.79
1:G:1023:ASP:OD2	2:N:73:LYS:CD	2.30	0.79
1:A:1063:PHE:CE2	2:H:86:LYS:HG2	2.14	0.79
1:B:1048:LYS:CG	2:I:86:LYS:HZ1	1.89	0.79
2:H:14:CYS:HG	4:H:500:HEM:HAB	1.46	0.79
1:B:340:TYR:OH	1:C:409:GLU:CG	2.31	0.79
1:C:340:TYR:OH	1:D:409:GLU:CG	2.31	0.79
1:B:588:VAL:CG1	1:B:589:ASP:H	1.96	0.79
1:D:340:TYR:OH	1:E:409:GLU:CG	2.31	0.79
1:G:588:VAL:CG1	1:G:589:ASP:H	1.96	0.79
1:F:1048:LYS:HD2	2:M:86:LYS:HZ3	1.41	0.78
1:G:1063:PHE:CE2	2:N:86:LYS:HG2	2.14	0.78
1:A:340:TYR:OH	1:B:409:GLU:CG	2.31	0.78
1:D:588:VAL:CG1	1:D:589:ASP:H	1.96	0.78
1:F:1063:PHE:CE2	2:M:86:LYS:HG2	2.14	0.78
1:E:588:VAL:CG1	1:E:589:ASP:H	1.96	0.78
1:A:588:VAL:CG1	1:A:589:ASP:H	1.96	0.78
1:E:340:TYR:OH	1:F:409:GLU:CG	2.31	0.78
1:E:1048:LYS:HD2	2:L:86:LYS:HZ3	1.35	0.78
1:F:588:VAL:CG1	1:F:589:ASP:H	1.96	0.78
1:F:565:GLN:NE2	1:F:592:MET:HE2	1.95	0.78
1:E:205:ARG:CZ	1:F:225:ASP:CG	2.53	0.77
1:G:1168:LEU:C	1:G:1170:GLU:OE1	2.23	0.77
1:C:1168:LEU:C	1:C:1170:GLU:OE1	2.23	0.77
1:C:348:LYS:CG	1:C:352:ARG:CD	2.62	0.77
1:C:588:VAL:CG1	1:C:589:ASP:H	1.96	0.77
1:A:409:GLU:CG	1:G:340:TYR:OH	2.31	0.77
1:B:205:ARG:CZ	1:C:225:ASP:CG	2.53	0.77
1:B:1168:LEU:C	1:B:1170:GLU:OE1	2.23	0.77
1:F:1168:LEU:C	1:F:1170:GLU:OE1	2.23	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:348:LYS:CG	1:B:352:ARG:CD	2.62	0.77
1:A:225:ASP:CG	1:G:205:ARG:CZ	2.53	0.77
1:A:565:GLN:HE22	1:A:592:MET:HE3	0.87	0.77
1:E:1168:LEU:C	1:E:1170:GLU:OE1	2.23	0.77
1:A:1023:ASP:HB2	2:H:73:LYS:HZ3	1.49	0.77
1:B:1048:LYS:HD2	2:I:86:LYS:HZ3	1.46	0.77
1:D:565:GLN:HE22	1:D:592:MET:HE3	0.98	0.77
1:D:565:GLN:HE21	1:D:592:MET:HE2	1.49	0.77
1:E:1173:ALA:O	1:E:1174:ALA:HB3	1.85	0.77
1:A:558:GLN:CA	1:A:1171:GLU:HG2	2.13	0.76
1:C:1004:LYS:HZ2	2:J:73:LYS:CG	1.98	0.76
1:D:1168:LEU:C	1:D:1170:GLU:OE1	2.23	0.76
1:F:340:TYR:OH	1:G:409:GLU:CG	2.31	0.76
1:B:565:GLN:NE2	1:B:592:MET:HE2	1.65	0.76
1:F:205:ARG:CZ	1:G:225:ASP:CG	2.53	0.76
1:G:558:GLN:CG	1:G:1171:GLU:CG	2.21	0.76
1:D:205:ARG:CZ	1:E:225:ASP:CG	2.53	0.76
1:G:1048:LYS:CD	2:N:86:LYS:HZ3	1.95	0.76
1:C:1173:ALA:O	1:C:1174:ALA:HB3	1.85	0.76
1:B:1173:ALA:O	1:B:1174:ALA:HB3	1.85	0.76
1:A:205:ARG:CZ	1:B:225:ASP:CG	2.53	0.76
1:E:1023:ASP:OD2	2:L:73:LYS:CD	2.30	0.76
1:A:1168:LEU:C	1:A:1170:GLU:OE1	2.23	0.76
1:C:205:ARG:CZ	1:D:225:ASP:CG	2.53	0.76
1:F:565:GLN:HE22	1:F:592:MET:HE3	0.93	0.76
1:A:1004:LYS:HZ2	2:H:73:LYS:CG	1.97	0.75
1:C:555:LEU:HD22	1:C:560:PHE:HE1	1.50	0.75
2:L:17:CYS:HG	4:L:500:HEM:CAC	1.98	0.75
1:G:565:GLN:HE22	1:G:592:MET:HE3	0.86	0.75
1:F:1173:ALA:O	1:F:1174:ALA:HB3	1.86	0.75
1:E:1048:LYS:HD2	2:L:86:LYS:HZ1	1.48	0.75
1:F:558:GLN:CA	1:F:1171:GLU:HG2	2.13	0.75
1:C:1004:LYS:HZ2	2:J:73:LYS:HG2	1.49	0.75
1:D:1023:ASP:OD2	2:K:73:LYS:CD	2.30	0.75
1:G:1173:ALA:O	1:G:1174:ALA:HB3	1.86	0.75
1:E:208:GLN:CA	1:F:229:ILE:HD13	2.17	0.75
1:G:559:PRO:HB3	1:G:1174:ALA:C	2.07	0.75
1:C:208:GLN:CA	1:D:229:ILE:HD13	2.17	0.75
1:D:1173:ALA:O	1:D:1174:ALA:HB3	1.86	0.75
1:D:559:PRO:HB3	1:D:1174:ALA:C	2.07	0.75
1:E:559:PRO:HB3	1:E:1174:ALA:C	2.07	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:208:GLN:CA	1:C:229:ILE:HD13	2.17	0.74
1:C:560:PHE:CE1	1:C:561:PRO:HD2	2.22	0.74
1:B:559:PRO:HB3	1:B:1174:ALA:C	2.07	0.74
1:F:348:LYS:CG	1:F:352:ARG:CD	2.62	0.74
1:A:1173:ALA:O	1:A:1174:ALA:HB3	1.86	0.74
1:B:555:LEU:HD23	1:B:560:PHE:CD1	2.22	0.74
1:D:560:PHE:CE1	1:D:561:PRO:HD2	2.22	0.74
1:F:208:GLN:CA	1:G:229:ILE:HD13	2.17	0.74
1:A:208:GLN:CA	1:B:229:ILE:HD13	2.17	0.74
1:A:229:ILE:HD13	1:G:208:GLN:CA	2.17	0.74
1:C:558:GLN:CB	1:C:1171:GLU:CG	2.63	0.74
1:E:1023:ASP:HB2	2:L:73:LYS:HZ3	1.52	0.74
1:C:555:LEU:HD23	1:C:560:PHE:CD1	2.22	0.74
1:C:558:GLN:CA	1:C:1171:GLU:HG2	2.13	0.74
1:D:565:GLN:HE21	1:D:592:MET:HE3	1.13	0.74
1:A:555:LEU:HD23	1:A:560:PHE:CD1	2.22	0.74
1:A:559:PRO:HB3	1:A:1174:ALA:C	2.07	0.74
1:D:348:LYS:CG	1:D:352:ARG:CD	2.62	0.74
1:F:559:PRO:HB3	1:F:1174:ALA:C	2.07	0.74
1:G:558:GLN:CB	1:G:1171:GLU:CG	2.63	0.74
1:F:558:GLN:CB	1:F:1171:GLU:CG	2.63	0.74
1:C:348:LYS:HE3	1:C:447:GLU:CD	2.09	0.73
1:D:208:GLN:CA	1:E:229:ILE:HD13	2.17	0.73
1:E:560:PHE:CE1	1:E:561:PRO:HD2	2.22	0.73
1:F:555:LEU:HD23	1:F:560:PHE:CD1	2.22	0.73
1:G:348:LYS:CG	1:G:352:ARG:CD	2.62	0.73
1:C:559:PRO:HB3	1:C:1174:ALA:C	2.07	0.73
1:A:348:LYS:HE3	1:A:447:GLU:CD	2.09	0.73
1:B:348:LYS:HE3	1:B:447:GLU:CD	2.09	0.73
1:D:348:LYS:HE3	1:D:447:GLU:CD	2.09	0.73
1:D:1004:LYS:HZ2	2:K:73:LYS:HG2	1.52	0.73
1:D:555:LEU:HD23	1:D:560:PHE:CD1	2.22	0.73
1:E:555:LEU:HD22	1:E:560:PHE:HE1	1.50	0.73
1:G:348:LYS:HE3	1:G:447:GLU:CD	2.09	0.73
1:G:558:GLN:CA	1:G:1171:GLU:HG2	2.13	0.73
1:A:565:GLN:HG2	1:A:594:TYR:OH	1.89	0.73
1:C:565:GLN:HG2	1:C:594:TYR:OH	1.89	0.73
1:A:1063:PHE:CD1	2:H:69:GLU:OE1	2.42	0.73
1:G:555:LEU:HD22	1:G:560:PHE:HE1	1.50	0.73
1:G:1063:PHE:CD1	2:N:69:GLU:OE1	2.42	0.73
1:A:565:GLN:HG2	1:A:594:TYR:CE2	2.24	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:565:GLN:HG2	1:B:594:TYR:CE2	2.24	0.73
1:C:565:GLN:HG2	1:C:594:TYR:CE2	2.24	0.73
1:E:348:LYS:HE3	1:E:447:GLU:CD	2.09	0.73
1:F:1063:PHE:CD1	2:M:69:GLU:OE1	2.42	0.73
1:G:555:LEU:HD23	1:G:560:PHE:CD1	2.22	0.73
1:E:565:GLN:HG2	1:E:594:TYR:OH	1.89	0.73
1:E:1063:PHE:CD1	2:L:69:GLU:OE1	2.42	0.73
1:F:348:LYS:HE3	1:F:447:GLU:CD	2.09	0.73
1:G:565:GLN:HG2	1:G:594:TYR:OH	1.89	0.73
1:G:565:GLN:HG2	1:G:594:TYR:CE2	2.24	0.73
1:B:565:GLN:HG2	1:B:594:TYR:OH	1.89	0.72
1:D:565:GLN:HG2	1:D:594:TYR:OH	1.89	0.72
1:F:560:PHE:CE1	1:F:561:PRO:HD2	2.22	0.72
1:F:1004:LYS:HZ2	2:M:73:LYS:HG2	1.53	0.72
2:H:17:CYS:SG	4:H:500:HEM:CAC	2.78	0.72
2:L:17:CYS:SG	4:L:500:HEM:CAC	2.78	0.72
1:B:558:GLN:CA	1:B:1171:GLU:HG2	2.13	0.72
1:G:565:GLN:NE2	1:G:592:MET:HE2	1.90	0.72
2:N:17:CYS:SG	4:N:500:HEM:CAC	2.77	0.72
1:D:558:GLN:CB	1:D:1171:GLU:CG	2.63	0.72
1:E:558:GLN:CG	1:E:1171:GLU:CD	2.55	0.72
1:F:1004:LYS:HZ2	2:M:73:LYS:CG	2.02	0.72
1:B:1063:PHE:CD1	2:I:69:GLU:OE1	2.42	0.72
1:D:565:GLN:HG2	1:D:594:TYR:CE2	2.24	0.72
2:I:17:CYS:SG	4:I:500:HEM:CAC	2.78	0.72
1:A:560:PHE:CE1	1:A:561:PRO:HD2	2.22	0.72
1:E:558:GLN:CB	1:E:1171:GLU:CG	2.63	0.72
1:D:565:GLN:NE2	1:D:592:MET:HE1	1.98	0.72
1:E:348:LYS:CG	1:E:352:ARG:CD	2.62	0.72
1:E:555:LEU:HD23	1:E:560:PHE:CD1	2.22	0.72
1:E:565:GLN:HG2	1:E:594:TYR:CE2	2.24	0.72
1:A:348:LYS:CG	1:A:352:ARG:CD	2.62	0.72
1:A:555:LEU:HD23	1:A:560:PHE:HE1	1.21	0.72
2:K:17:CYS:SG	4:K:500:HEM:CAC	2.77	0.72
1:B:560:PHE:CE1	1:B:561:PRO:HD2	2.22	0.72
2:J:17:CYS:SG	4:J:500:HEM:CAC	2.78	0.72
1:A:348:LYS:HG2	1:A:352:ARG:HB2	1.72	0.72
1:A:1086:GLY:HA2	2:H:88:LYS:HB3	1.72	0.72
1:D:208:GLN:HA	1:E:229:ILE:HD13	1.72	0.72
1:F:1086:GLY:HA2	2:M:88:LYS:HB3	1.72	0.72
1:G:1086:GLY:HA2	2:N:88:LYS:HB3	1.72	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:17:CYS:SG	4:M:500:HEM:CAC	2.78	0.72
1:A:558:GLN:CB	1:A:1171:GLU:CG	2.63	0.71
1:E:1086:GLY:HA2	2:L:88:LYS:HB3	1.72	0.71
1:F:205:ARG:CZ	1:G:225:ASP:OD1	2.38	0.71
1:F:565:GLN:HG2	1:F:594:TYR:CE2	2.24	0.71
1:B:348:LYS:HG2	1:B:352:ARG:HB2	1.72	0.71
1:F:558:GLN:CG	1:F:1171:GLU:CD	2.55	0.71
1:G:348:LYS:HG2	1:G:352:ARG:HB2	1.72	0.71
1:B:558:GLN:HG2	1:B:1171:GLU:HG3	0.72	0.71
1:C:208:GLN:HA	1:D:229:ILE:HD13	1.72	0.71
1:D:558:GLN:CA	1:D:1171:GLU:HG2	2.13	0.71
1:D:1063:PHE:CD1	2:K:69:GLU:OE1	2.42	0.71
1:E:205:ARG:NH1	1:F:225:ASP:CG	2.44	0.71
1:F:208:GLN:HB3	1:G:229:ILE:HG21	1.73	0.71
1:F:565:GLN:HG2	1:F:594:TYR:OH	1.89	0.71
1:D:565:GLN:NE2	1:D:592:MET:HE2	1.98	0.71
1:E:208:GLN:HA	1:F:229:ILE:HD13	1.72	0.71
1:A:229:ILE:HG21	1:G:208:GLN:HB3	1.73	0.71
1:B:555:LEU:HD22	1:B:560:PHE:HE1	1.50	0.71
1:D:205:ARG:NH1	1:E:225:ASP:CG	2.44	0.71
1:E:208:GLN:HB3	1:F:229:ILE:HG21	1.73	0.71
1:F:348:LYS:HG2	1:F:352:ARG:HB2	1.72	0.71
1:C:1063:PHE:CD1	2:J:69:GLU:OE1	2.42	0.71
1:G:560:PHE:CE1	1:G:561:PRO:HD2	2.22	0.71
1:F:558:GLN:HG2	1:F:1171:GLU:HG3	0.72	0.71
1:F:1173:ALA:CB	1:F:1211:GLN:OE1	2.33	0.71
2:I:17:CYS:HG	4:I:500:HEM:CAC	2.03	0.71
1:D:558:GLN:HG2	1:D:1171:GLU:HG3	0.72	0.71
1:E:558:GLN:HG2	1:E:1171:GLU:HG3	0.72	0.71
1:A:701:GLN:CG	2:H:25:LYS:HD3	2.21	0.71
1:B:208:GLN:HA	1:C:229:ILE:HD13	1.72	0.71
1:B:1086:GLY:HA2	2:I:88:LYS:HB3	1.72	0.71
1:G:558:GLN:CA	1:G:1171:GLU:CG	2.69	0.71
1:A:205:ARG:CZ	1:B:225:ASP:OD1	2.38	0.71
1:A:225:ASP:OD1	1:G:205:ARG:CZ	2.38	0.71
1:D:1004:LYS:HZ2	2:K:73:LYS:CG	2.01	0.71
1:F:558:GLN:CA	1:F:1171:GLU:CG	2.69	0.71
1:B:701:GLN:CG	2:I:25:LYS:HD3	2.21	0.70
1:C:348:LYS:HG2	1:C:352:ARG:HB2	1.72	0.70
1:D:205:ARG:CZ	1:E:225:ASP:OD1	2.39	0.70
1:D:1086:GLY:HA2	2:K:88:LYS:HB3	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:205:ARG:CZ	1:F:225:ASP:OD1	2.38	0.70
1:B:558:GLN:CA	1:B:1171:GLU:CG	2.69	0.70
1:D:208:GLN:HB3	1:E:229:ILE:HG21	1.73	0.70
1:G:701:GLN:CG	2:N:25:LYS:HD3	2.21	0.70
1:A:208:GLN:HB3	1:B:229:ILE:HG21	1.73	0.70
1:A:208:GLN:HA	1:B:229:ILE:HD13	1.72	0.70
1:C:1048:LYS:HD2	2:J:86:LYS:HZ1	1.48	0.70
1:E:701:GLN:CG	2:L:25:LYS:HD3	2.21	0.70
1:F:345:LEU:HG	1:F:349:GLN:HB3	1.74	0.70
1:F:1023:ASP:HB2	2:M:73:LYS:HZ3	1.55	0.70
1:A:225:ASP:CG	1:G:205:ARG:NH1	2.44	0.70
1:A:558:GLN:CA	1:A:1171:GLU:CG	2.69	0.70
1:B:588:VAL:O	1:B:589:ASP:C	2.30	0.70
1:E:558:GLN:CA	1:E:1171:GLU:HG2	2.13	0.70
1:F:205:ARG:NH1	1:G:225:ASP:CG	2.44	0.70
1:A:205:ARG:NH1	1:B:225:ASP:CG	2.44	0.70
1:C:205:ARG:CZ	1:D:225:ASP:OD1	2.38	0.70
1:C:588:VAL:CG1	1:C:589:ASP:N	2.55	0.70
1:F:208:GLN:HA	1:G:229:ILE:HD13	1.72	0.70
1:G:345:LEU:HG	1:G:349:GLN:HB3	1.74	0.70
1:A:229:ILE:HD13	1:G:208:GLN:HA	1.72	0.70
1:C:646:THR:HG23	1:C:648:GLU:N	2.04	0.70
1:C:1086:GLY:HA2	2:J:88:LYS:HB3	1.72	0.70
1:A:588:VAL:O	1:A:589:ASP:C	2.30	0.70
1:G:348:LYS:CG	1:G:352:ARG:HD2	2.21	0.70
1:A:348:LYS:CG	1:A:352:ARG:HD2	2.21	0.70
1:B:208:GLN:HB3	1:C:229:ILE:HG21	1.73	0.70
1:B:646:THR:HG23	1:B:648:GLU:N	2.04	0.70
1:E:345:LEU:HG	1:E:349:GLN:HB3	1.74	0.70
1:B:205:ARG:CZ	1:C:225:ASP:OD1	2.38	0.70
1:C:205:ARG:NH1	1:D:225:ASP:CG	2.44	0.70
1:C:208:GLN:HB3	1:D:229:ILE:HG21	1.73	0.70
1:E:1173:ALA:O	1:E:1174:ALA:CB	2.40	0.70
1:F:646:THR:HG23	1:F:648:GLU:N	2.04	0.70
1:C:558:GLN:HG2	1:C:1171:GLU:HG3	0.72	0.70
1:C:701:GLN:CG	2:J:25:LYS:HD3	2.21	0.70
1:C:1173:ALA:CB	1:C:1211:GLN:OE1	2.33	0.70
1:F:701:GLN:CG	2:M:25:LYS:HD3	2.21	0.70
1:A:345:LEU:HG	1:A:349:GLN:HB3	1.74	0.69
1:B:205:ARG:NH1	1:C:225:ASP:CG	2.44	0.69
1:B:348:LYS:CG	1:B:352:ARG:HD2	2.21	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:558:GLN:HG2	1:G:1171:GLU:HG3	0.72	0.69
1:C:348:LYS:CG	1:C:352:ARG:HD2	2.21	0.69
1:D:1048:LYS:HD2	2:K:86:LYS:HZ1	1.50	0.69
1:E:348:LYS:HG2	1:E:352:ARG:HB2	1.72	0.69
1:F:555:LEU:HD23	1:F:560:PHE:HE1	1.21	0.69
1:F:1173:ALA:O	1:F:1174:ALA:CB	2.40	0.69
1:A:1173:ALA:O	1:A:1174:ALA:CB	2.40	0.69
1:C:558:GLN:CA	1:C:1171:GLU:CG	2.69	0.69
1:C:588:VAL:O	1:C:589:ASP:C	2.30	0.69
1:E:558:GLN:CA	1:E:1171:GLU:CG	2.69	0.69
1:B:345:LEU:HG	1:B:349:GLN:HB3	1.74	0.69
1:C:1007:TRP:HZ2	2:J:73:LYS:HZ1	0.72	0.69
1:D:1173:ALA:O	1:D:1174:ALA:CB	2.40	0.69
1:G:1169:SER:HB3	1:G:1170:GLU:HA	1.74	0.69
1:B:1173:ALA:O	1:B:1174:ALA:CB	2.40	0.69
1:D:345:LEU:HG	1:D:349:GLN:HB3	1.74	0.69
1:D:701:GLN:CG	2:K:25:LYS:HD3	2.21	0.69
1:G:1173:ALA:O	1:G:1174:ALA:CB	2.40	0.69
1:F:558:GLN:OE1	1:F:1170:GLU:N	2.26	0.69
1:D:348:LYS:CG	1:D:352:ARG:HD2	2.21	0.69
1:D:348:LYS:HG2	1:D:352:ARG:HB2	1.72	0.69
1:A:588:VAL:CG1	1:A:589:ASP:N	2.55	0.69
1:A:1077:LYS:O	1:A:1077:LYS:HD2	1.93	0.69
1:C:345:LEU:HG	1:C:349:GLN:HB3	1.74	0.69
1:D:558:GLN:OE1	1:D:1170:GLU:N	2.26	0.69
1:D:588:VAL:O	1:D:589:ASP:C	2.30	0.69
1:D:646:THR:HG23	1:D:648:GLU:N	2.04	0.69
1:E:348:LYS:CG	1:E:352:ARG:HD2	2.21	0.69
1:F:348:LYS:CG	1:F:352:ARG:HD2	2.21	0.69
1:D:558:GLN:CA	1:D:1171:GLU:CG	2.69	0.69
1:D:1173:ALA:CB	1:D:1211:GLN:OE1	2.33	0.69
1:G:558:GLN:CG	1:G:1171:GLU:CD	2.55	0.69
1:C:558:GLN:OE1	1:C:1170:GLU:N	2.26	0.69
1:C:1048:LYS:CD	2:J:86:LYS:HZ1	1.97	0.69
1:C:1077:LYS:HD2	1:C:1077:LYS:O	1.93	0.69
1:D:1087:THR:H	2:K:88:LYS:H	1.40	0.69
1:E:588:VAL:O	1:E:589:ASP:C	2.30	0.69
1:G:1048:LYS:HG3	2:N:86:LYS:HZ2	1.56	0.69
1:F:1077:LYS:HD2	1:F:1077:LYS:O	1.93	0.68
1:F:1169:SER:HB3	1:F:1170:GLU:HA	1.74	0.68
1:G:558:GLN:OE1	1:G:1170:GLU:N	2.26	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:208:GLN:HB3	1:B:229:ILE:HD13	1.76	0.68
1:B:208:GLN:HB3	1:C:229:ILE:HD13	1.76	0.68
1:D:1169:SER:HB3	1:D:1170:GLU:HA	1.74	0.68
1:G:588:VAL:O	1:G:589:ASP:C	2.30	0.68
1:A:558:GLN:CG	1:A:1171:GLU:CD	2.55	0.68
1:A:565:GLN:NE2	1:A:592:MET:HE2	1.90	0.68
1:B:558:GLN:OE1	1:B:1170:GLU:N	2.26	0.68
1:C:1173:ALA:O	1:C:1174:ALA:CB	2.40	0.68
1:A:558:GLN:OE1	1:A:1170:GLU:N	2.26	0.68
1:C:1169:SER:HB3	1:C:1170:GLU:HA	1.74	0.68
1:E:558:GLN:OE1	1:E:1170:GLU:N	2.26	0.68
1:E:1169:SER:HB3	1:E:1170:GLU:HA	1.74	0.68
1:B:558:GLN:CB	1:B:1171:GLU:CG	2.63	0.68
1:E:560:PHE:CD1	1:E:561:PRO:CD	2.64	0.68
1:G:1087:THR:H	2:N:88:LYS:H	1.40	0.68
1:B:565:GLN:HE21	1:B:592:MET:CE	1.58	0.68
1:C:560:PHE:CD1	1:C:561:PRO:CD	2.64	0.68
1:F:588:VAL:O	1:F:589:ASP:C	2.30	0.68
1:A:229:ILE:HD13	1:G:208:GLN:HB3	1.76	0.68
1:C:208:GLN:HB3	1:D:229:ILE:HD13	1.76	0.68
1:A:558:GLN:HG2	1:A:1171:GLU:HG3	0.72	0.68
1:B:1087:THR:H	2:I:88:LYS:H	1.40	0.68
1:C:560:PHE:CG	1:C:561:PRO:CD	2.76	0.68
1:D:560:PHE:CG	1:D:561:PRO:CD	2.76	0.68
1:E:1048:LYS:CD	2:L:86:LYS:HZ1	1.97	0.67
1:B:1077:LYS:HD2	1:B:1077:LYS:O	1.93	0.67
1:D:555:LEU:HD22	1:D:560:PHE:HE1	1.50	0.67
1:D:1077:LYS:O	1:D:1077:LYS:HD2	1.93	0.67
1:A:560:PHE:CG	1:A:561:PRO:CD	2.76	0.67
1:A:1087:THR:H	2:H:88:LYS:H	1.40	0.67
1:B:558:GLN:CG	1:B:1171:GLU:CD	2.55	0.67
1:E:1077:LYS:HD2	1:E:1077:LYS:O	1.93	0.67
1:G:1077:LYS:O	1:G:1077:LYS:HD2	1.93	0.67
1:A:646:THR:HG23	1:A:648:GLU:N	2.04	0.67
1:A:1048:LYS:HD2	2:H:86:LYS:HZ1	1.53	0.67
1:D:208:GLN:HB3	1:E:229:ILE:HD13	1.75	0.67
1:E:1087:THR:H	2:L:88:LYS:H	1.40	0.67
1:F:1087:THR:H	2:M:88:LYS:H	1.40	0.67
1:B:560:PHE:CG	1:B:561:PRO:CD	2.76	0.67
1:C:588:VAL:O	1:C:590:ASN:CG	2.33	0.67
1:F:208:GLN:HB3	1:G:229:ILE:HD13	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:560:PHE:CG	1:G:561:PRO:CD	2.76	0.67
1:A:588:VAL:O	1:A:590:ASN:CG	2.33	0.67
1:B:588:VAL:O	1:B:590:ASN:CG	2.33	0.67
1:F:560:PHE:CG	1:F:561:PRO:CD	2.76	0.67
1:B:1169:SER:HB3	1:B:1170:GLU:HA	1.74	0.67
1:C:581:LYS:NZ	1:C:1247:LEU:HD22	2.10	0.67
1:F:588:VAL:O	1:F:590:ASN:CG	2.33	0.67
1:E:208:GLN:HB3	1:F:229:ILE:HD13	1.76	0.67
1:D:560:PHE:CD1	1:D:561:PRO:CD	2.64	0.67
1:E:588:VAL:O	1:E:590:ASN:CG	2.33	0.67
1:B:581:LYS:NZ	1:B:1247:LEU:HD22	2.10	0.66
1:B:1173:ALA:CB	1:B:1211:GLN:OE1	2.33	0.66
1:E:560:PHE:CG	1:E:561:PRO:CD	2.76	0.66
1:D:588:VAL:O	1:D:590:ASN:CG	2.33	0.66
1:F:555:LEU:HD22	1:F:560:PHE:HE1	1.50	0.66
1:G:588:VAL:O	1:G:590:ASN:CG	2.33	0.66
1:A:581:LYS:NZ	1:A:1247:LEU:HD22	2.10	0.66
1:C:1087:THR:H	2:J:88:LYS:H	1.40	0.66
1:C:1063:PHE:CE2	2:J:86:LYS:NZ	2.61	0.66
1:D:208:GLN:CG	1:E:229:ILE:HD13	2.25	0.66
1:E:1004:LYS:HZ2	2:L:73:LYS:HG2	1.56	0.66
1:C:558:GLN:CG	1:C:1171:GLU:CD	2.55	0.66
2:M:17:CYS:HG	4:M:500:HEM:CAC	2.08	0.66
1:A:208:GLN:CG	1:B:229:ILE:HD13	2.25	0.66
1:F:1077:LYS:O	1:F:1077:LYS:CG	2.44	0.66
1:D:520:ALA:CB	1:D:646:THR:OG1	2.36	0.66
1:D:581:LYS:NZ	1:D:1247:LEU:HD22	2.10	0.66
1:A:1173:ALA:CB	1:A:1211:GLN:OE1	2.33	0.66
1:A:1063:PHE:CE2	2:H:86:LYS:NZ	2.61	0.65
1:A:1063:PHE:CD2	2:H:86:LYS:CG	2.77	0.65
1:C:1087:THR:N	2:J:88:LYS:H	1.94	0.65
1:D:558:GLN:CG	1:D:1171:GLU:CD	2.55	0.65
1:D:1087:THR:N	2:K:88:LYS:H	1.94	0.65
1:F:208:GLN:CG	1:G:229:ILE:HD13	2.25	0.65
1:G:1087:THR:N	2:N:88:LYS:H	1.94	0.65
1:C:208:GLN:HB3	1:D:229:ILE:CG2	2.27	0.65
1:F:1063:PHE:CD2	2:M:86:LYS:CG	2.77	0.65
1:D:208:GLN:HB3	1:E:229:ILE:CG2	2.27	0.65
1:E:1063:PHE:CE2	2:L:86:LYS:NZ	2.61	0.65
1:F:565:GLN:NE2	1:F:592:MET:HE1	2.01	0.65
1:B:1169:SER:CB	1:B:1170:GLU:HA	2.26	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1077:LYS:O	1:D:1077:LYS:CG	2.44	0.65
1:E:1077:LYS:O	1:E:1077:LYS:CG	2.44	0.65
1:E:1169:SER:CB	1:E:1170:GLU:HA	2.26	0.65
1:A:229:ILE:HD13	1:G:208:GLN:CG	2.25	0.65
1:A:1077:LYS:O	1:A:1077:LYS:CG	2.44	0.65
1:A:1169:SER:HB3	1:A:1170:GLU:HA	1.74	0.65
1:B:208:GLN:HB3	1:C:229:ILE:CG2	2.27	0.65
1:B:565:GLN:HG2	1:B:594:TYR:CZ	2.32	0.65
1:D:1007:TRP:HZ2	2:K:73:LYS:HZ1	0.73	0.65
1:D:1063:PHE:CD2	2:K:86:LYS:CG	2.77	0.65
1:A:565:GLN:HG2	1:A:594:TYR:CZ	2.32	0.65
1:F:1169:SER:CB	1:F:1170:GLU:HA	2.26	0.65
1:G:1077:LYS:O	1:G:1077:LYS:CG	2.44	0.65
1:A:555:LEU:HD22	1:A:560:PHE:HE1	1.50	0.65
1:B:1087:THR:N	2:I:88:LYS:H	1.94	0.65
1:C:565:GLN:HG2	1:C:594:TYR:CZ	2.32	0.65
1:C:1077:LYS:O	1:C:1077:LYS:CG	2.44	0.65
1:D:559:PRO:N	1:D:1175:THR:HG22	2.12	0.65
1:E:1087:THR:N	2:L:88:LYS:H	1.94	0.65
1:F:565:GLN:HG2	1:F:594:TYR:CZ	2.32	0.65
1:B:1077:LYS:O	1:B:1077:LYS:CG	2.44	0.65
1:B:559:PRO:N	1:B:1175:THR:HG22	2.12	0.64
1:C:559:PRO:N	1:C:1175:THR:HG22	2.12	0.64
1:E:565:GLN:HG2	1:E:594:TYR:CZ	2.32	0.64
1:F:581:LYS:NZ	1:F:1247:LEU:HD22	2.10	0.64
1:A:208:GLN:HB3	1:B:229:ILE:CG2	2.27	0.64
1:A:1077:LYS:O	1:A:1077:LYS:CD	2.46	0.64
1:G:560:PHE:CD1	1:G:561:PRO:CD	2.64	0.64
1:G:581:LYS:NZ	1:G:1247:LEU:HD22	2.10	0.64
1:A:559:PRO:N	1:A:1175:THR:HG22	2.12	0.64
1:G:1077:LYS:O	1:G:1077:LYS:CD	2.46	0.64
1:A:229:ILE:CG2	1:G:208:GLN:HB3	2.27	0.64
1:B:1077:LYS:O	1:B:1077:LYS:CD	2.46	0.64
1:E:581:LYS:NZ	1:E:1247:LEU:HD22	2.10	0.64
1:E:1173:ALA:CB	1:E:1211:GLN:OE1	2.33	0.64
1:G:565:GLN:HG2	1:G:594:TYR:CZ	2.32	0.64
1:G:1063:PHE:HE2	2:N:86:LYS:CD	2.06	0.64
1:G:1169:SER:CB	1:G:1170:GLU:HA	2.26	0.64
1:E:646:THR:HG23	1:E:648:GLU:N	2.04	0.64
1:G:1048:LYS:HD2	2:N:86:LYS:HZ3	1.53	0.64
1:B:1063:PHE:CD2	2:I:86:LYS:CG	2.77	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:208:GLN:CG	1:D:229:ILE:HD13	2.25	0.64
1:F:208:GLN:HB3	1:G:229:ILE:CG2	2.27	0.64
1:G:646:THR:HG23	1:G:648:GLU:N	2.04	0.64
1:G:1173:ALA:CB	1:G:1211:GLN:OE1	2.33	0.64
1:B:1023:ASP:HB2	2:I:73:LYS:HZ3	1.60	0.64
1:D:565:GLN:HG2	1:D:594:TYR:CZ	2.32	0.64
1:A:1087:THR:N	2:H:88:LYS:H	1.94	0.64
1:D:1169:SER:CB	1:D:1170:GLU:HA	2.26	0.64
1:E:559:PRO:N	1:E:1175:THR:HG22	2.12	0.64
1:F:1063:PHE:CE2	2:M:86:LYS:NZ	2.61	0.64
1:F:1087:THR:N	2:M:88:LYS:H	1.94	0.64
1:B:1087:THR:HB	2:I:86:LYS:HG2	1.80	0.64
1:D:1088:VAL:O	2:K:86:LYS:NZ	2.31	0.64
1:A:1004:LYS:HZ2	2:H:73:LYS:HG2	1.48	0.63
1:C:1077:LYS:O	1:C:1077:LYS:CD	2.46	0.63
1:C:1088:VAL:O	2:J:86:LYS:NZ	2.31	0.63
1:D:1063:PHE:CE2	2:K:86:LYS:NZ	2.61	0.63
1:E:1087:THR:HB	2:L:86:LYS:HG2	1.80	0.63
1:G:559:PRO:N	1:G:1175:THR:HG22	2.12	0.63
1:A:1087:THR:HB	2:H:86:LYS:HG2	1.80	0.63
1:A:1169:SER:CB	1:A:1170:GLU:HA	2.26	0.63
1:D:1077:LYS:O	1:D:1077:LYS:CD	2.46	0.63
1:E:208:GLN:HB3	1:F:229:ILE:CG2	2.27	0.63
1:F:1007:TRP:CE2	2:M:73:LYS:NZ	2.63	0.63
1:B:1063:PHE:HE2	2:I:86:LYS:CD	2.06	0.63
1:D:1087:THR:HB	2:K:86:LYS:HG2	1.80	0.63
1:E:1077:LYS:O	1:E:1077:LYS:CD	2.46	0.63
1:F:559:PRO:N	1:F:1175:THR:HG22	2.12	0.63
1:B:1087:THR:H	2:I:88:LYS:N	1.96	0.63
1:B:1088:VAL:O	2:I:86:LYS:NZ	2.31	0.63
1:C:520:ALA:CB	1:C:646:THR:OG1	2.36	0.63
1:C:1087:THR:H	2:J:88:LYS:N	1.97	0.63
1:F:1077:LYS:O	1:F:1077:LYS:CD	2.46	0.63
1:G:1007:TRP:CE2	2:N:73:LYS:NZ	2.63	0.63
1:B:1048:LYS:HG3	2:I:86:LYS:HZ2	1.61	0.63
1:C:208:GLN:HG2	1:D:229:ILE:HD13	1.78	0.63
1:A:1007:TRP:CE2	2:H:73:LYS:NZ	2.63	0.63
1:A:1063:PHE:HE2	2:H:86:LYS:CD	2.06	0.63
1:E:1088:VAL:O	2:L:86:LYS:NZ	2.31	0.63
1:F:1087:THR:H	2:M:88:LYS:N	1.96	0.63
1:G:1087:THR:H	2:N:88:LYS:N	1.96	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1087:THR:HB	2:M:86:LYS:HG2	1.80	0.63
1:G:1087:THR:HB	2:N:86:LYS:HG2	1.80	0.63
1:D:1087:THR:H	2:K:88:LYS:N	1.96	0.62
1:E:1004:LYS:HZ2	2:L:73:LYS:CG	2.06	0.62
1:G:1063:PHE:CE2	2:N:86:LYS:NZ	2.61	0.62
1:A:1087:THR:H	2:H:88:LYS:N	1.97	0.62
1:E:701:GLN:NE2	2:L:25:LYS:HD3	2.14	0.62
1:A:520:ALA:CB	1:A:646:THR:OG1	2.36	0.62
1:A:565:GLN:CG	1:A:594:TYR:HE2	2.12	0.62
1:A:1048:LYS:CD	2:H:86:LYS:HZ1	2.02	0.62
1:D:701:GLN:NE2	2:K:25:LYS:HD3	2.14	0.62
1:E:1007:TRP:CE2	2:L:73:LYS:NZ	2.63	0.62
1:F:701:GLN:NE2	2:M:25:LYS:HD3	2.14	0.62
1:G:520:ALA:CB	1:G:646:THR:OG1	2.36	0.62
1:A:229:ILE:CD1	1:G:208:GLN:CB	2.77	0.62
1:B:1004:LYS:HZ2	2:I:73:LYS:CG	2.12	0.62
1:D:565:GLN:HE22	1:D:592:MET:HE1	1.53	0.62
1:D:565:GLN:CG	1:D:594:TYR:HE2	2.12	0.62
1:G:701:GLN:NE2	2:N:25:LYS:HD3	2.14	0.62
1:A:565:GLN:NE2	1:A:592:MET:HE1	2.04	0.62
1:C:1087:THR:HB	2:J:86:LYS:HG2	1.80	0.62
1:A:560:PHE:CD1	1:A:561:PRO:CD	2.64	0.62
1:A:701:GLN:NE2	2:H:25:LYS:HD3	2.14	0.62
1:A:1088:VAL:O	2:H:86:LYS:NZ	2.31	0.62
1:B:520:ALA:CB	1:B:646:THR:OG1	2.36	0.62
1:B:565:GLN:CG	1:B:594:TYR:HE2	2.12	0.62
1:C:1169:SER:CB	1:C:1170:GLU:HA	2.26	0.62
2:J:72:LYS:HD3	2:J:78:THR:HG22	1.82	0.62
1:E:208:GLN:CG	1:F:229:ILE:HD13	2.25	0.62
1:E:1087:THR:H	2:L:88:LYS:N	1.96	0.62
1:A:590:ASN:O	1:A:592:MET:HG2	2.00	0.62
1:C:565:GLN:CG	1:C:594:TYR:HE2	2.12	0.62
1:D:588:VAL:CG1	1:D:589:ASP:N	2.55	0.62
1:E:588:VAL:CG1	1:E:589:ASP:N	2.55	0.62
1:E:590:ASN:O	1:E:592:MET:HG2	2.00	0.62
1:F:1088:VAL:O	2:M:86:LYS:NZ	2.31	0.62
1:G:590:ASN:O	1:G:592:MET:HG2	2.00	0.62
1:B:559:PRO:CD	1:B:1175:THR:HG22	2.30	0.62
1:C:701:GLN:NE2	2:J:25:LYS:HD3	2.14	0.62
1:D:559:PRO:CD	1:D:1175:THR:HG22	2.30	0.62
1:F:588:VAL:CG1	1:F:589:ASP:N	2.55	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:590:ASN:O	1:D:592:MET:HG2	2.00	0.61
1:F:565:GLN:CG	1:F:594:TYR:HE2	2.12	0.61
2:I:72:LYS:HD3	2:I:78:THR:HG22	1.82	0.61
1:B:1007:TRP:CE2	2:I:73:LYS:NZ	2.63	0.61
1:E:559:PRO:CD	1:E:1175:THR:HG22	2.30	0.61
1:F:565:GLN:HE21	1:F:592:MET:HE3	1.18	0.61
2:K:72:LYS:HD3	2:K:78:THR:HG22	1.82	0.61
1:C:559:PRO:CD	1:C:1175:THR:HG22	2.31	0.61
1:E:565:GLN:CG	1:E:594:TYR:HE2	2.12	0.61
2:M:72:LYS:HD3	2:M:78:THR:HG22	1.82	0.61
1:C:1007:TRP:CE2	2:J:73:LYS:NZ	2.63	0.61
1:G:1088:VAL:O	2:N:86:LYS:NZ	2.31	0.61
1:A:558:GLN:OE1	1:A:1169:SER:O	2.19	0.61
1:A:565:GLN:CG	1:A:594:TYR:CE2	2.84	0.61
1:B:208:GLN:HG2	1:C:229:ILE:HD13	1.78	0.61
1:C:558:GLN:OE1	1:C:1169:SER:O	2.19	0.61
1:F:590:ASN:O	1:F:592:MET:HG2	2.00	0.61
1:F:1048:LYS:HG3	2:M:86:LYS:HZ2	1.64	0.61
1:F:1063:PHE:HE2	2:M:86:LYS:CD	2.06	0.61
1:G:559:PRO:CD	1:G:1175:THR:HG22	2.30	0.61
1:B:558:GLN:OE1	1:B:1169:SER:O	2.19	0.61
1:C:1063:PHE:CD2	2:J:86:LYS:CG	2.77	0.61
1:G:565:GLN:CG	1:G:594:TYR:HE2	2.12	0.61
2:N:72:LYS:HD3	2:N:78:THR:HG22	1.82	0.61
1:A:559:PRO:HD3	1:A:1175:THR:CG2	2.31	0.61
1:B:590:ASN:O	1:B:592:MET:HG2	2.00	0.61
1:B:701:GLN:NE2	2:I:25:LYS:HD3	2.14	0.61
1:E:559:PRO:HD3	1:E:1175:THR:CG2	2.31	0.61
1:E:1063:PHE:CD2	2:L:86:LYS:CG	2.77	0.61
1:F:520:ALA:CB	1:F:646:THR:OG1	2.36	0.61
1:F:559:PRO:HD3	1:F:1175:THR:CG2	2.31	0.61
2:H:72:LYS:HD3	2:H:78:THR:HG22	1.82	0.61
1:C:565:GLN:CG	1:C:594:TYR:CE2	2.84	0.61
1:E:581:LYS:HZ1	1:E:1247:LEU:CD1	2.13	0.61
1:F:565:GLN:CG	1:F:594:TYR:CE2	2.84	0.61
1:G:559:PRO:HD3	1:G:1175:THR:CG2	2.31	0.61
1:C:590:ASN:O	1:C:592:MET:HG2	2.00	0.60
1:B:565:GLN:CG	1:B:594:TYR:CE2	2.84	0.60
1:D:565:GLN:CG	1:D:594:TYR:CE2	2.84	0.60
1:B:208:GLN:CG	1:C:229:ILE:HD13	2.25	0.60
1:C:559:PRO:HD3	1:C:1175:THR:CG2	2.31	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:565:GLN:CG	1:E:594:TYR:CE2	2.84	0.60
1:E:1063:PHE:HE2	2:L:86:LYS:CD	2.06	0.60
1:A:559:PRO:CD	1:A:1175:THR:HG22	2.30	0.60
1:D:558:GLN:OE1	1:D:1169:SER:O	2.19	0.60
1:D:559:PRO:HD3	1:D:1175:THR:CG2	2.31	0.60
1:D:1007:TRP:CE2	2:K:73:LYS:NZ	2.63	0.60
1:G:558:GLN:OE1	1:G:1169:SER:O	2.19	0.60
2:L:72:LYS:HD3	2:L:78:THR:HG22	1.82	0.60
1:C:208:GLN:CB	1:D:229:ILE:CD1	2.77	0.60
1:B:1063:PHE:CE2	2:I:86:LYS:NZ	2.61	0.60
1:G:565:GLN:CG	1:G:594:TYR:CE2	2.84	0.60
1:B:559:PRO:HD3	1:B:1175:THR:CG2	2.31	0.60
1:B:560:PHE:CD1	1:B:561:PRO:CD	2.64	0.60
1:C:1063:PHE:HE2	2:J:86:LYS:CD	2.06	0.60
1:F:559:PRO:CD	1:F:1175:THR:HG22	2.30	0.60
1:G:565:GLN:NE2	1:G:592:MET:HE1	2.05	0.60
1:A:565:GLN:HE21	1:A:592:MET:HE3	1.25	0.60
1:D:1063:PHE:HE2	2:K:86:LYS:CD	2.06	0.60
1:E:348:LYS:HE2	1:E:352:ARG:HB3	1.84	0.60
1:F:348:LYS:HE2	1:F:352:ARG:HB3	1.84	0.60
1:E:558:GLN:OE1	1:E:1169:SER:O	2.19	0.59
1:F:558:GLN:OE1	1:F:1169:SER:O	2.19	0.59
1:F:560:PHE:CD1	1:F:561:PRO:CD	2.64	0.59
1:G:1063:PHE:CD2	2:N:86:LYS:CG	2.77	0.59
1:B:1023:ASP:CB	2:I:73:LYS:HZ2	2.14	0.59
1:A:348:LYS:HE2	1:A:352:ARG:HB3	1.84	0.59
1:A:1007:TRP:HZ2	2:H:73:LYS:HZ1	0.65	0.59
1:C:560:PHE:CE2	1:C:561:PRO:O	2.56	0.59
1:G:348:LYS:HE2	1:G:352:ARG:HB3	1.84	0.59
1:E:560:PHE:CE2	1:E:561:PRO:O	2.56	0.59
1:G:560:PHE:CE2	1:G:561:PRO:O	2.56	0.59
1:A:208:GLN:HG2	1:B:229:ILE:HD13	1.78	0.59
1:C:1023:ASP:CB	2:J:73:LYS:NZ	2.65	0.59
1:D:348:LYS:HE2	1:D:352:ARG:HB3	1.84	0.59
1:B:348:LYS:HE2	1:B:352:ARG:HB3	1.84	0.59
1:A:560:PHE:CE2	1:A:561:PRO:O	2.56	0.59
1:C:348:LYS:HE2	1:C:352:ARG:HB3	1.84	0.59
1:E:1089:LEU:CA	2:L:86:LYS:CE	2.74	0.59
1:B:1023:ASP:CG	2:I:73:LYS:HZ2	2.05	0.58
1:B:1077:LYS:O	1:B:1077:LYS:HG3	2.03	0.58
1:D:560:PHE:CE2	1:D:561:PRO:O	2.56	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:560:PHE:CE2	1:F:561:PRO:O	2.56	0.58
1:F:1007:TRP:HZ2	2:M:73:LYS:HZ1	0.62	0.58
1:G:1023:ASP:CB	2:N:73:LYS:NZ	2.66	0.58
1:C:1077:LYS:O	1:C:1077:LYS:HG3	2.03	0.58
1:D:1077:LYS:O	1:D:1077:LYS:HG3	2.03	0.58
1:E:1048:LYS:HG3	2:L:86:LYS:HZ2	1.68	0.58
1:F:1023:ASP:CB	2:M:73:LYS:NZ	2.65	0.58
1:B:559:PRO:CB	1:B:1175:THR:N	2.51	0.58
1:B:591:GLY:O	1:B:593:LEU:N	2.37	0.58
1:D:348:LYS:CE	1:D:447:GLU:CD	2.72	0.58
1:D:1023:ASP:CB	2:K:73:LYS:NZ	2.65	0.58
1:E:520:ALA:CB	1:E:646:THR:OG1	2.36	0.58
1:G:1077:LYS:O	1:G:1077:LYS:HG3	2.03	0.58
1:A:1023:ASP:CB	2:H:73:LYS:NZ	2.65	0.58
1:B:560:PHE:CE2	1:B:561:PRO:O	2.56	0.58
1:G:1007:TRP:HZ2	2:N:73:LYS:HZ1	0.67	0.58
1:E:348:LYS:CE	1:E:447:GLU:CD	2.72	0.58
1:C:348:LYS:CE	1:C:447:GLU:CD	2.72	0.58
1:D:1048:LYS:CD	2:K:86:LYS:HZ1	2.00	0.58
1:F:1077:LYS:O	1:F:1077:LYS:HG3	2.03	0.58
1:A:1077:LYS:O	1:A:1077:LYS:HG3	2.03	0.58
1:E:1023:ASP:CB	2:L:73:LYS:NZ	2.65	0.57
1:A:348:LYS:CE	1:A:447:GLU:CD	2.72	0.57
1:B:348:LYS:CE	1:B:447:GLU:CD	2.72	0.57
1:B:1004:LYS:HZ2	2:I:73:LYS:HG2	1.60	0.57
1:D:1089:LEU:CA	2:K:86:LYS:CE	2.74	0.57
1:E:1077:LYS:O	1:E:1077:LYS:HG3	2.03	0.57
1:F:348:LYS:CE	1:F:447:GLU:CD	2.72	0.57
1:G:348:LYS:CE	1:G:447:GLU:CD	2.72	0.57
1:A:557:ARG:O	1:A:1171:GLU:CD	2.43	0.57
1:A:591:GLY:O	1:A:593:LEU:N	2.37	0.57
1:C:591:GLY:O	1:C:593:LEU:N	2.37	0.57
1:D:591:GLY:O	1:D:593:LEU:N	2.37	0.57
1:A:1063:PHE:CD2	2:H:86:LYS:HG2	2.39	0.57
1:B:168:VAL:O	1:B:168:VAL:CG1	2.51	0.57
1:C:1048:LYS:HG3	2:J:86:LYS:HZ2	1.68	0.57
1:D:1128:GLY:O	1:D:1129:CYS:HB2	2.05	0.57
1:E:591:GLY:O	1:E:593:LEU:N	2.37	0.57
1:F:591:GLY:O	1:F:593:LEU:N	2.37	0.57
1:G:559:PRO:HD3	1:G:1175:THR:HG22	1.87	0.57
1:G:591:GLY:O	1:G:593:LEU:N	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:1128:GLY:O	1:E:1129:CYS:HB2	2.05	0.57
1:G:1063:PHE:CD2	2:N:86:LYS:HG2	2.39	0.57
1:A:559:PRO:HD3	1:A:1175:THR:HG22	1.87	0.57
1:F:559:PRO:HD3	1:F:1175:THR:HG22	1.87	0.57
1:F:581:LYS:HZ1	1:F:1247:LEU:CD1	2.17	0.57
1:F:1023:ASP:CG	2:M:73:LYS:HZ2	2.07	0.57
1:F:1089:LEU:CA	2:M:86:LYS:CE	2.74	0.57
1:B:1063:PHE:CD2	2:I:86:LYS:HG2	2.39	0.57
1:B:1089:LEU:CA	2:I:86:LYS:CE	2.74	0.57
1:D:946:LEU:C	1:D:946:LEU:HD12	2.26	0.57
1:E:946:LEU:C	1:E:946:LEU:HD12	2.26	0.57
1:F:557:ARG:O	1:F:1171:GLU:CD	2.43	0.57
1:B:557:ARG:O	1:B:1171:GLU:CD	2.43	0.57
1:G:946:LEU:C	1:G:946:LEU:HD12	2.26	0.57
1:A:1089:LEU:CA	2:H:86:LYS:CE	2.74	0.56
1:F:946:LEU:C	1:F:946:LEU:HD12	2.26	0.56
1:A:946:LEU:HD12	1:A:946:LEU:C	2.25	0.56
1:B:1173:ALA:HB1	1:B:1211:GLN:CD	2.24	0.56
1:C:946:LEU:C	1:C:946:LEU:HD12	2.26	0.56
1:D:1048:LYS:HG3	2:K:86:LYS:HZ2	1.70	0.56
1:A:229:ILE:HD13	1:G:208:GLN:HG2	1.78	0.56
1:B:559:PRO:HD3	1:B:1175:THR:HG22	1.87	0.56
1:B:946:LEU:C	1:B:946:LEU:HD12	2.25	0.56
1:C:1128:GLY:O	1:C:1129:CYS:HB2	2.05	0.56
1:E:559:PRO:HD3	1:E:1175:THR:HG22	1.87	0.56
1:F:1063:PHE:CD2	2:M:86:LYS:HG2	2.39	0.56
1:A:1173:ALA:HB1	1:A:1211:GLN:CD	2.24	0.56
1:E:1063:PHE:CD2	2:L:86:LYS:O	2.59	0.56
1:E:1023:ASP:CG	2:L:73:LYS:HZ2	2.09	0.56
1:A:1128:GLY:O	1:A:1129:CYS:HB2	2.05	0.56
1:C:1063:PHE:CD2	2:J:86:LYS:HG2	2.39	0.56
1:A:1063:PHE:CD2	2:H:86:LYS:O	2.59	0.56
1:F:1128:GLY:O	1:F:1129:CYS:HB2	2.05	0.56
1:D:168:VAL:O	1:D:168:VAL:CG1	2.51	0.56
1:D:559:PRO:HD3	1:D:1175:THR:HG22	1.87	0.56
1:E:557:ARG:O	1:E:1171:GLU:CD	2.43	0.56
1:B:1063:PHE:CD2	2:I:86:LYS:O	2.59	0.56
1:C:557:ARG:O	1:C:1171:GLU:CD	2.43	0.56
1:D:1063:PHE:CD2	2:K:86:LYS:O	2.59	0.56
1:G:581:LYS:HZ1	1:G:1247:LEU:CD1	2.19	0.56
1:G:1089:LEU:CA	2:N:86:LYS:CE	2.74	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:1128:GLY:O	1:G:1129:CYS:HB2	2.05	0.56
1:C:1063:PHE:CD2	2:J:86:LYS:O	2.59	0.56
1:C:1173:ALA:HB1	1:C:1211:GLN:CD	2.24	0.56
1:E:348:LYS:CE	1:E:352:ARG:HB3	2.36	0.56
1:B:1128:GLY:O	1:B:1129:CYS:HB2	2.05	0.55
1:C:559:PRO:HD3	1:C:1175:THR:HG22	1.87	0.55
1:F:1063:PHE:CD2	2:M:86:LYS:O	2.59	0.55
1:B:581:LYS:HZ1	1:B:1247:LEU:CD1	2.19	0.55
1:D:557:ARG:O	1:D:1171:GLU:CD	2.43	0.55
1:D:348:LYS:CE	1:D:352:ARG:HB3	2.36	0.55
1:D:1169:SER:HB3	1:D:1170:GLU:HG3	1.87	0.55
1:G:348:LYS:CE	1:G:352:ARG:HB3	2.36	0.55
1:G:677:VAL:HG22	2:N:25:LYS:HZ3	1.72	0.55
1:G:1063:PHE:CD2	2:N:86:LYS:O	2.59	0.55
1:C:348:LYS:CE	1:C:352:ARG:HB3	2.36	0.55
1:C:1106:ASP:OD2	2:J:90:GLU:HG3	2.07	0.55
1:D:1063:PHE:CD2	2:K:86:LYS:HG2	2.39	0.55
1:E:1063:PHE:CD2	2:L:86:LYS:HG2	2.39	0.55
1:C:898:LEU:HD12	1:C:898:LEU:O	2.07	0.55
1:G:1106:ASP:OD2	2:N:90:GLU:HG3	2.07	0.55
1:G:1113:SER:O	1:G:1114:PHE:HB2	2.06	0.55
1:A:1113:SER:O	1:A:1114:PHE:HB2	2.06	0.55
1:B:1106:ASP:OD2	2:I:90:GLU:HG3	2.07	0.55
1:E:898:LEU:HD12	1:E:898:LEU:O	2.07	0.55
1:D:1106:ASP:OD2	2:K:90:GLU:HG3	2.07	0.55
1:E:581:LYS:HZ1	1:E:1247:LEU:HD11	1.71	0.55
1:A:559:PRO:CB	1:A:1175:THR:N	2.51	0.55
1:E:581:LYS:HZ2	1:E:1247:LEU:CD2	2.20	0.55
1:G:1173:ALA:HB1	1:G:1211:GLN:CD	2.24	0.55
1:A:348:LYS:CE	1:A:352:ARG:HB3	2.36	0.55
1:C:1128:GLY:O	1:C:1129:CYS:CB	2.55	0.55
1:E:1106:ASP:OD2	2:L:90:GLU:HG3	2.07	0.55
1:F:348:LYS:CE	1:F:352:ARG:HB3	2.36	0.55
1:A:225:ASP:OD2	1:G:205:ARG:NE	2.40	0.54
1:C:581:LYS:HZ1	1:C:1247:LEU:CD1	2.20	0.54
1:E:205:ARG:NE	1:F:225:ASP:OD2	2.41	0.54
1:F:205:ARG:NE	1:G:225:ASP:OD2	2.41	0.54
1:B:1007:TRP:HZ2	2:I:73:LYS:HZ1	0.60	0.54
1:B:1128:GLY:O	1:B:1129:CYS:CB	2.55	0.54
1:E:1007:TRP:HZ2	2:L:73:LYS:HZ1	0.63	0.54
1:E:1169:SER:HB3	1:E:1170:GLU:HG3	1.87	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1106:ASP:OD2	2:H:90:GLU:HG3	2.07	0.54
1:A:1169:SER:HB3	1:A:1170:GLU:HG3	1.87	0.54
1:C:1113:SER:O	1:C:1114:PHE:HB2	2.07	0.54
1:D:205:ARG:NE	1:E:225:ASP:OD2	2.40	0.54
1:D:1128:GLY:O	1:D:1129:CYS:CB	2.55	0.54
1:F:1023:ASP:CB	2:M:73:LYS:HZ2	2.20	0.54
1:G:588:VAL:CG1	1:G:589:ASP:N	2.55	0.54
1:A:898:LEU:HD12	1:A:898:LEU:O	2.07	0.54
1:F:1113:SER:O	1:F:1114:PHE:HB2	2.06	0.54
1:A:208:GLN:CB	1:B:229:ILE:CD1	2.77	0.54
1:B:348:LYS:CE	1:B:352:ARG:HB3	2.36	0.54
1:B:1113:SER:O	1:B:1114:PHE:HB2	2.06	0.54
1:D:898:LEU:HD12	1:D:898:LEU:O	2.07	0.54
2:I:41:GLY:HA2	2:I:48:TYR:CZ	2.43	0.54
2:J:41:GLY:HA2	2:J:48:TYR:CZ	2.43	0.54
1:C:1169:SER:HB3	1:C:1170:GLU:HG3	1.87	0.54
1:D:1173:ALA:HB1	1:D:1211:GLN:CD	2.24	0.54
1:E:1128:GLY:O	1:E:1129:CYS:CB	2.55	0.54
1:E:1174:ALA:O	1:E:1200:LYS:NZ	2.41	0.54
1:F:1106:ASP:OD2	2:M:90:GLU:HG3	2.07	0.54
1:A:1128:GLY:O	1:A:1129:CYS:CB	2.56	0.54
1:F:1128:GLY:O	1:F:1129:CYS:CB	2.55	0.54
2:H:41:GLY:HA2	2:H:48:TYR:CZ	2.43	0.54
1:B:898:LEU:HD12	1:B:898:LEU:O	2.07	0.54
1:B:1170:GLU:HG2	1:B:1170:GLU:O	2.08	0.54
1:D:1113:SER:O	1:D:1114:PHE:HB2	2.06	0.54
1:E:559:PRO:HA	1:E:1171:GLU:HG2	1.90	0.54
1:E:1113:SER:O	1:E:1114:PHE:HB2	2.06	0.54
1:G:898:LEU:HD12	1:G:898:LEU:O	2.07	0.54
1:G:1174:ALA:O	1:G:1200:LYS:NZ	2.41	0.54
1:C:869:THR:O	1:C:870:ASP:HB2	2.08	0.54
1:F:208:GLN:HG2	1:G:229:ILE:HD13	1.78	0.54
1:F:898:LEU:HD12	1:F:898:LEU:O	2.07	0.54
1:A:168:VAL:O	1:A:168:VAL:CG1	2.51	0.53
1:A:282:VAL:HG12	1:A:282:VAL:O	2.08	0.53
1:A:1023:ASP:CG	2:H:73:LYS:HZ2	2.11	0.53
1:A:1170:GLU:HG2	1:A:1170:GLU:O	2.08	0.53
1:F:559:PRO:HA	1:F:1171:GLU:HG2	1.90	0.53
1:G:869:THR:O	1:G:870:ASP:HB2	2.08	0.53
1:D:559:PRO:HA	1:D:1171:GLU:HG2	1.90	0.53
1:D:869:THR:O	1:D:870:ASP:HB2	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:869:THR:O	1:F:870:ASP:HB2	2.08	0.53
1:G:1128:GLY:O	1:G:1129:CYS:CB	2.55	0.53
2:N:41:GLY:HA2	2:N:48:TYR:CZ	2.43	0.53
1:B:869:THR:O	1:B:870:ASP:HB2	2.08	0.53
1:E:869:THR:O	1:E:870:ASP:HB2	2.09	0.53
2:K:41:GLY:HA2	2:K:48:TYR:CZ	2.43	0.53
1:A:869:THR:O	1:A:870:ASP:HB2	2.08	0.53
1:B:282:VAL:O	1:B:282:VAL:HG12	2.08	0.53
1:C:205:ARG:NE	1:D:225:ASP:OD2	2.40	0.53
1:B:1023:ASP:CB	2:I:73:LYS:NZ	2.65	0.53
1:C:1089:LEU:CA	2:J:86:LYS:CE	2.74	0.53
1:C:1170:GLU:O	1:C:1170:GLU:HG2	2.08	0.53
1:F:1173:ALA:HB1	1:F:1211:GLN:CD	2.24	0.53
1:A:1048:LYS:CE	2:H:86:LYS:HZ3	2.21	0.53
1:C:168:VAL:O	1:C:168:VAL:CG1	2.51	0.53
2:L:41:GLY:HA2	2:L:48:TYR:CZ	2.43	0.53
1:C:559:PRO:HA	1:C:1171:GLU:HG2	1.90	0.53
1:F:1169:SER:HB3	1:F:1170:GLU:HG3	1.87	0.53
1:G:1170:GLU:HG2	1:G:1170:GLU:O	2.08	0.53
1:F:168:VAL:O	1:F:168:VAL:CG1	2.51	0.53
1:G:1169:SER:HB3	1:G:1170:GLU:HG3	1.87	0.53
1:D:282:VAL:O	1:D:282:VAL:HG12	2.08	0.53
1:E:208:GLN:CB	1:F:229:ILE:CD1	2.77	0.53
1:E:1170:GLU:O	1:E:1170:GLU:HG2	2.08	0.53
1:E:1173:ALA:HB1	1:E:1211:GLN:CD	2.24	0.53
1:D:348:LYS:HG2	1:D:352:ARG:CB	2.40	0.53
1:G:282:VAL:O	1:G:282:VAL:HG12	2.08	0.53
1:B:565:GLN:CG	1:B:594:TYR:OH	2.57	0.52
1:C:282:VAL:O	1:C:282:VAL:HG12	2.08	0.52
1:F:1170:GLU:O	1:F:1170:GLU:HG2	2.08	0.52
1:G:555:LEU:HD21	1:G:560:PHE:CZ	2.44	0.52
1:G:559:PRO:HA	1:G:1171:GLU:HG2	1.90	0.52
1:A:565:GLN:CG	1:A:594:TYR:OH	2.57	0.52
1:E:282:VAL:O	1:E:282:VAL:HG12	2.08	0.52
1:C:565:GLN:CG	1:C:594:TYR:OH	2.57	0.52
1:C:1048:LYS:CE	2:J:86:LYS:HZ3	2.22	0.52
1:D:1170:GLU:HG2	1:D:1170:GLU:O	2.08	0.52
1:G:565:GLN:CG	1:G:594:TYR:OH	2.57	0.52
2:M:41:GLY:HA2	2:M:48:TYR:CZ	2.43	0.52
1:B:816:ALA:HB3	1:B:846:CYS:SG	2.50	0.52
1:F:282:VAL:O	1:F:282:VAL:HG12	2.08	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:701:GLN:HG2	2:M:25:LYS:HZ3	1.74	0.52
1:A:559:PRO:HA	1:A:1171:GLU:HG2	1.90	0.52
1:B:205:ARG:NE	1:C:225:ASP:OD2	2.40	0.52
1:C:1094:SER:O	1:C:1095:HIS:HB2	2.10	0.52
1:D:565:GLN:CG	1:D:594:TYR:OH	2.57	0.52
1:D:1094:SER:O	1:D:1095:HIS:HB2	2.10	0.52
1:E:555:LEU:HD21	1:E:560:PHE:CZ	2.44	0.52
1:A:555:LEU:HD21	1:A:560:PHE:CZ	2.44	0.52
1:A:1174:ALA:O	1:A:1200:LYS:NZ	2.41	0.52
1:D:1048:LYS:CE	2:K:86:LYS:HZ3	2.22	0.52
1:E:1023:ASP:CB	2:L:73:LYS:HZ2	2.23	0.52
1:F:701:GLN:OE1	2:M:25:LYS:HB3	2.10	0.52
1:G:816:ALA:HB3	1:G:846:CYS:SG	2.50	0.52
1:A:816:ALA:HB3	1:A:846:CYS:SG	2.50	0.52
1:A:1169:SER:N	1:A:1170:GLU:HB3	2.25	0.52
1:B:208:GLN:CD	1:C:229:ILE:HG12	2.30	0.52
1:B:348:LYS:HG2	1:B:352:ARG:CB	2.39	0.52
1:C:1169:SER:N	1:C:1170:GLU:HB3	2.25	0.52
1:E:1048:LYS:CE	2:L:86:LYS:HZ3	2.22	0.52
1:F:565:GLN:HE22	1:F:592:MET:HE1	1.59	0.52
1:F:590:ASN:N	1:F:590:ASN:OD1	2.43	0.52
1:F:816:ALA:HB3	1:F:846:CYS:SG	2.50	0.52
1:G:520:ALA:O	1:G:524:HIS:HD2	1.89	0.52
1:A:229:ILE:HG12	1:G:208:GLN:CD	2.30	0.52
1:B:559:PRO:HA	1:B:1171:GLU:HG2	1.90	0.52
1:B:677:VAL:HG22	2:I:25:LYS:HZ3	1.75	0.52
1:E:208:GLN:CD	1:F:229:ILE:HG12	2.30	0.52
1:G:1094:SER:O	1:G:1095:HIS:HB2	2.10	0.52
1:A:591:GLY:O	1:A:592:MET:C	2.49	0.52
1:A:1094:SER:O	1:A:1095:HIS:HB2	2.10	0.52
1:C:208:GLN:CD	1:D:229:ILE:HG12	2.30	0.52
1:D:591:GLY:O	1:D:592:MET:C	2.49	0.52
1:F:1174:ALA:O	1:F:1200:LYS:NZ	2.41	0.52
1:C:701:GLN:OE1	2:J:25:LYS:HB3	2.10	0.52
1:D:701:GLN:OE1	2:K:25:LYS:HB3	2.10	0.52
1:D:1174:ALA:O	1:D:1200:LYS:NZ	2.41	0.52
1:E:701:GLN:OE1	2:L:25:LYS:HB3	2.10	0.52
1:E:816:ALA:HB3	1:E:846:CYS:SG	2.50	0.52
1:E:1094:SER:O	1:E:1095:HIS:HB2	2.10	0.52
1:F:581:LYS:HZ1	1:F:1247:LEU:HD11	1.74	0.52
1:G:590:ASN:OD1	1:G:590:ASN:N	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1048:LYS:HG3	2:H:86:LYS:HZ2	1.71	0.51
1:B:701:GLN:OE1	2:I:25:LYS:HB3	2.10	0.51
1:C:816:ALA:HB3	1:C:846:CYS:SG	2.50	0.51
1:C:1174:ALA:O	1:C:1200:LYS:NZ	2.41	0.51
1:E:348:LYS:HG2	1:E:352:ARG:CB	2.40	0.51
1:A:205:ARG:NE	1:B:225:ASP:OD2	2.40	0.51
1:B:1094:SER:O	1:B:1095:HIS:HB2	2.10	0.51
1:E:590:ASN:OD1	1:E:590:ASN:N	2.43	0.51
1:F:555:LEU:HD21	1:F:560:PHE:CZ	2.44	0.51
1:F:581:LYS:HZ2	1:F:1247:LEU:CD2	2.22	0.51
1:F:661:LEU:HD11	2:M:25:LYS:NZ	2.26	0.51
1:G:565:GLN:NE2	1:G:594:TYR:OH	2.43	0.51
1:A:208:GLN:CD	1:B:229:ILE:HG12	2.30	0.51
1:B:591:GLY:O	1:B:592:MET:C	2.49	0.51
1:B:1174:ALA:O	1:B:1200:LYS:NZ	2.41	0.51
1:D:565:GLN:NE2	1:D:594:TYR:OH	2.44	0.51
1:F:208:GLN:CD	1:G:229:ILE:HG12	2.30	0.51
1:F:565:GLN:NE2	1:F:594:TYR:OH	2.43	0.51
1:F:591:GLY:O	1:F:592:MET:C	2.49	0.51
1:G:581:LYS:NZ	1:G:1247:LEU:CD1	2.74	0.51
1:G:1023:ASP:CG	2:N:73:LYS:HZ2	2.13	0.51
1:A:661:LEU:HD11	2:H:25:LYS:NZ	2.26	0.51
1:B:643:LYS:HD2	1:B:646:THR:HG22	1.92	0.51
1:B:661:LEU:HD11	2:I:25:LYS:NZ	2.26	0.51
1:C:643:LYS:HD2	1:C:646:THR:HG22	1.92	0.51
1:D:816:ALA:HB3	1:D:846:CYS:SG	2.50	0.51
1:E:208:GLN:HG2	1:F:229:ILE:HD13	1.78	0.51
1:E:661:LEU:HD11	2:L:25:LYS:NZ	2.26	0.51
1:G:661:LEU:HD11	2:N:25:LYS:NZ	2.26	0.51
1:C:661:LEU:HD11	2:J:25:LYS:NZ	2.26	0.51
1:G:701:GLN:OE1	2:N:25:LYS:HB3	2.10	0.51
1:A:643:LYS:HD2	1:A:646:THR:HG22	1.92	0.51
1:B:208:GLN:CB	1:C:229:ILE:CD1	2.77	0.51
1:B:581:LYS:NZ	1:B:1247:LEU:CD1	2.74	0.51
1:D:208:GLN:CD	1:E:229:ILE:HG12	2.30	0.51
1:G:800:ILE:CD1	2:N:47:SER:HB3	2.41	0.51
2:I:41:GLY:CA	2:I:52:ASN:ND2	2.74	0.51
1:B:1169:SER:HB3	1:B:1170:GLU:HG3	1.87	0.51
1:C:565:GLN:NE2	1:C:594:TYR:OH	2.44	0.51
1:C:590:ASN:N	1:C:590:ASN:OD1	2.43	0.51
1:C:800:ILE:CD1	2:J:47:SER:HB3	2.41	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:581:LYS:NZ	1:D:1247:LEU:CD1	2.74	0.51
1:D:661:LEU:HD11	2:K:25:LYS:NZ	2.26	0.51
1:D:800:ILE:CD1	2:K:47:SER:HB3	2.41	0.51
1:E:588:VAL:O	1:E:590:ASN:N	2.44	0.51
1:E:591:GLY:O	1:E:592:MET:C	2.49	0.51
1:A:565:GLN:NE2	1:A:594:TYR:OH	2.43	0.51
1:D:588:VAL:O	1:D:590:ASN:N	2.44	0.51
1:D:1169:SER:N	1:D:1170:GLU:HB3	2.25	0.51
1:G:557:ARG:O	1:G:1171:GLU:CD	2.43	0.51
1:G:591:GLY:O	1:G:592:MET:C	2.49	0.51
2:L:41:GLY:CA	2:L:52:ASN:ND2	2.74	0.51
1:C:581:LYS:NZ	1:C:1247:LEU:CD1	2.74	0.51
1:G:565:GLN:HE21	1:G:592:MET:HE3	1.26	0.51
1:C:555:LEU:HD21	1:C:560:PHE:CZ	2.44	0.51
1:E:559:PRO:CB	1:E:1175:THR:N	2.51	0.51
1:E:565:GLN:NE2	1:E:594:TYR:OH	2.43	0.51
1:F:1094:SER:O	1:F:1095:HIS:HB2	2.10	0.51
2:H:41:GLY:CA	2:H:52:ASN:ND2	2.74	0.51
2:J:41:GLY:CA	2:J:52:ASN:ND2	2.74	0.51
1:A:701:GLN:OE1	2:H:25:LYS:HB3	2.10	0.50
1:B:565:GLN:NE2	1:B:594:TYR:OH	2.43	0.50
1:B:800:ILE:CD1	2:I:47:SER:HB3	2.41	0.50
1:E:581:LYS:NZ	1:E:1247:LEU:CD1	2.74	0.50
1:F:643:LYS:HD2	1:F:646:THR:HG22	1.92	0.50
1:G:348:LYS:HG2	1:G:352:ARG:CB	2.40	0.50
1:A:590:ASN:N	1:A:590:ASN:OD1	2.43	0.50
1:A:800:ILE:CD1	2:H:47:SER:HB3	2.41	0.50
1:B:555:LEU:HD21	1:B:560:PHE:CZ	2.44	0.50
1:G:1023:ASP:CB	2:N:73:LYS:HD3	2.42	0.50
2:M:41:GLY:CA	2:M:52:ASN:ND2	2.74	0.50
1:A:345:LEU:HA	1:A:349:GLN:HA	1.94	0.50
1:D:590:ASN:N	1:D:590:ASN:OD1	2.43	0.50
1:E:800:ILE:CD1	2:L:47:SER:HB3	2.41	0.50
1:F:1048:LYS:CE	2:M:86:LYS:HZ3	2.23	0.50
1:A:348:LYS:HG2	1:A:352:ARG:CB	2.39	0.50
1:A:565:GLN:HE22	1:A:592:MET:HE1	1.66	0.50
1:A:581:LYS:NZ	1:A:1247:LEU:CD1	2.74	0.50
1:B:590:ASN:OD1	1:B:590:ASN:N	2.43	0.50
1:C:701:GLN:OE1	2:J:25:LYS:HD3	2.10	0.50
1:E:643:LYS:HD2	1:E:646:THR:HG22	1.92	0.50
1:F:800:ILE:CD1	2:M:47:SER:HB3	2.41	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1023:ASP:CB	2:M:73:LYS:HD3	2.42	0.50
1:G:345:LEU:HA	1:G:349:GLN:HA	1.94	0.50
1:G:643:LYS:HD2	1:G:646:THR:HG22	1.92	0.50
1:B:581:LYS:HZ1	1:B:1247:LEU:HD11	1.77	0.50
1:B:588:VAL:O	1:B:590:ASN:N	2.44	0.50
1:C:603:ILE:C	1:C:603:ILE:HD12	2.32	0.50
1:F:348:LYS:O	1:F:349:GLN:O	2.30	0.50
1:G:588:VAL:O	1:G:590:ASN:N	2.44	0.50
1:G:1168:LEU:O	1:G:1169:SER:HB2	2.11	0.50
2:N:41:GLY:CA	2:N:52:ASN:ND2	2.74	0.50
1:B:348:LYS:O	1:B:349:GLN:O	2.30	0.50
1:C:348:LYS:O	1:C:349:GLN:O	2.30	0.50
1:D:555:LEU:HD21	1:D:560:PHE:CZ	2.44	0.50
1:D:643:LYS:HD2	1:D:646:THR:HG22	1.92	0.50
1:A:348:LYS:O	1:A:349:GLN:O	2.30	0.50
1:A:1023:ASP:CB	2:H:73:LYS:HD3	2.42	0.50
1:C:348:LYS:HG2	1:C:352:ARG:CB	2.40	0.50
1:C:591:GLY:O	1:C:592:MET:C	2.49	0.50
1:E:1168:LEU:O	1:E:1169:SER:HB2	2.11	0.50
1:F:348:LYS:HG2	1:F:352:ARG:CB	2.39	0.50
1:F:581:LYS:NZ	1:F:1247:LEU:CD1	2.74	0.50
1:G:588:VAL:O	1:G:590:ASN:OD1	2.30	0.50
2:K:41:GLY:CA	2:K:52:ASN:ND2	2.74	0.50
1:A:588:VAL:O	1:A:590:ASN:N	2.44	0.50
1:B:205:ARG:NH1	1:C:228:ARG:HH22	2.10	0.50
1:E:565:GLN:CG	1:E:594:TYR:OH	2.57	0.50
1:F:588:VAL:O	1:F:590:ASN:N	2.44	0.50
1:G:348:LYS:O	1:G:349:GLN:O	2.30	0.50
1:G:1004:LYS:HZ2	2:N:73:LYS:CD	2.24	0.50
2:K:41:GLY:HA2	2:K:48:TYR:CE1	2.47	0.50
1:A:588:VAL:O	1:A:590:ASN:OD1	2.30	0.50
1:A:701:GLN:OE1	2:H:25:LYS:HD3	2.10	0.50
1:A:1171:GLU:O	1:A:1173:ALA:N	2.45	0.50
1:B:1168:LEU:O	1:B:1169:SER:HB2	2.11	0.50
1:C:1168:LEU:O	1:C:1169:SER:HB2	2.11	0.50
1:D:1168:LEU:O	1:D:1169:SER:HB2	2.11	0.50
1:D:1171:GLU:O	1:D:1173:ALA:N	2.45	0.50
1:F:345:LEU:HA	1:F:349:GLN:HA	1.94	0.50
1:A:1168:LEU:O	1:A:1169:SER:HB2	2.11	0.49
1:B:345:LEU:HA	1:B:349:GLN:HA	1.94	0.49
1:B:1077:LYS:HD2	1:B:1077:LYS:C	2.33	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1171:GLU:O	1:B:1173:ALA:N	2.45	0.49
1:C:1023:ASP:CB	2:J:73:LYS:HD3	2.42	0.49
1:F:588:VAL:O	1:F:590:ASN:OD1	2.30	0.49
1:F:1077:LYS:HD2	1:F:1077:LYS:C	2.33	0.49
1:F:1168:LEU:O	1:F:1169:SER:HB2	2.11	0.49
1:G:1077:LYS:HD2	1:G:1077:LYS:C	2.33	0.49
2:L:41:GLY:HA2	2:L:48:TYR:CE1	2.47	0.49
1:A:205:ARG:NH1	1:B:228:ARG:HH22	2.10	0.49
1:B:1023:ASP:CB	2:I:73:LYS:HD3	2.42	0.49
1:C:205:ARG:NH1	1:D:228:ARG:HH22	2.10	0.49
1:D:208:GLN:CB	1:E:229:ILE:CD1	2.77	0.49
1:D:348:LYS:O	1:D:349:GLN:O	2.30	0.49
1:E:348:LYS:O	1:E:349:GLN:O	2.30	0.49
1:G:559:PRO:CB	1:G:1175:THR:N	2.51	0.49
1:D:348:LYS:HA	1:D:352:ARG:HD2	1.95	0.49
1:E:1023:ASP:CB	2:L:73:LYS:HD3	2.42	0.49
1:G:581:LYS:HZ1	1:G:1247:LEU:HD11	1.77	0.49
1:C:348:LYS:HA	1:C:352:ARG:HD2	1.95	0.49
1:E:1171:GLU:O	1:E:1173:ALA:N	2.45	0.49
1:G:603:ILE:C	1:G:603:ILE:HD12	2.32	0.49
1:E:348:LYS:HA	1:E:352:ARG:HD2	1.95	0.49
1:E:603:ILE:C	1:E:603:ILE:HD12	2.32	0.49
1:A:603:ILE:HD12	1:A:603:ILE:C	2.32	0.49
1:B:1169:SER:N	1:B:1170:GLU:HB3	2.25	0.49
1:C:588:VAL:O	1:C:590:ASN:N	2.44	0.49
1:C:1077:LYS:HD2	1:C:1077:LYS:C	2.33	0.49
1:D:208:GLN:HG2	1:E:229:ILE:HD13	1.78	0.49
1:D:588:VAL:O	1:D:590:ASN:OD1	2.30	0.49
1:D:1077:LYS:HD2	1:D:1077:LYS:C	2.33	0.49
1:E:701:GLN:HG2	2:L:25:LYS:HZ3	1.78	0.49
1:F:898:LEU:HD12	1:F:898:LEU:C	2.33	0.49
1:F:1089:LEU:O	1:F:1090:SER:HB3	2.13	0.49
1:G:1128:GLY:C	1:G:1129:CYS:SG	2.91	0.49
1:G:1171:GLU:O	1:G:1173:ALA:N	2.45	0.49
1:A:898:LEU:HD12	1:A:898:LEU:C	2.33	0.49
1:C:701:GLN:HG2	2:J:25:LYS:HZ3	1.77	0.49
1:E:898:LEU:HD12	1:E:898:LEU:C	2.33	0.49
1:E:1169:SER:N	1:E:1170:GLU:HB3	2.25	0.49
1:F:348:LYS:HA	1:F:352:ARG:HD2	1.95	0.49
1:F:603:ILE:C	1:F:603:ILE:HD12	2.32	0.49
2:I:41:GLY:HA2	2:I:48:TYR:CE1	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:70:ASN:C	2:L:70:ASN:HD22	2.16	0.49
1:B:588:VAL:O	1:B:590:ASN:OD1	2.30	0.49
1:C:898:LEU:HD12	1:C:898:LEU:C	2.33	0.49
1:E:168:VAL:O	1:E:168:VAL:CG1	2.51	0.49
1:F:565:GLN:CG	1:F:594:TYR:OH	2.57	0.49
2:N:70:ASN:C	2:N:70:ASN:HD22	2.16	0.49
1:A:520:ALA:O	1:A:524:HIS:HD2	1.89	0.49
1:A:1128:GLY:C	1:A:1129:CYS:SG	2.91	0.49
1:B:565:GLN:CD	1:B:594:TYR:CE2	2.87	0.49
1:B:1128:GLY:C	1:B:1129:CYS:SG	2.91	0.49
1:C:345:LEU:HA	1:C:349:GLN:HA	1.94	0.49
1:C:1128:GLY:C	1:C:1129:CYS:SG	2.91	0.49
1:C:1171:GLU:O	1:C:1173:ALA:N	2.45	0.49
1:E:345:LEU:HA	1:E:349:GLN:HA	1.94	0.49
1:E:588:VAL:O	1:E:590:ASN:OD1	2.30	0.49
1:F:1171:GLU:O	1:F:1173:ALA:N	2.45	0.49
1:G:348:LYS:HA	1:G:352:ARG:HD2	1.95	0.49
1:G:898:LEU:HD12	1:G:898:LEU:C	2.33	0.49
2:N:41:GLY:HA2	2:N:48:TYR:CE1	2.47	0.49
1:A:1004:LYS:HG3	2:H:73:LYS:HD3	1.94	0.49
1:B:348:LYS:HA	1:B:352:ARG:HD2	1.95	0.49
1:C:565:GLN:CD	1:C:594:TYR:CE2	2.87	0.49
1:D:205:ARG:NH1	1:E:228:ARG:HH22	2.10	0.49
1:D:345:LEU:HA	1:D:349:GLN:HA	1.94	0.49
1:D:701:GLN:HG2	2:K:25:LYS:HZ3	1.78	0.49
1:E:565:GLN:CD	1:E:594:TYR:CE2	2.87	0.49
1:G:1004:LYS:HG3	2:N:73:LYS:HD3	1.94	0.49
2:J:41:GLY:HA2	2:J:48:TYR:CE1	2.47	0.49
1:A:348:LYS:HA	1:A:352:ARG:HD2	1.95	0.48
1:B:1168:LEU:CA	1:B:1170:GLU:OE1	2.61	0.48
1:C:581:LYS:HZ1	1:C:1247:LEU:HD11	1.78	0.48
1:E:205:ARG:NH1	1:F:228:ARG:HH22	2.10	0.48
1:E:1077:LYS:HD2	1:E:1077:LYS:C	2.33	0.48
1:G:1089:LEU:O	1:G:1090:SER:HB3	2.13	0.48
2:H:41:GLY:HA2	2:H:48:TYR:CE1	2.47	0.48
1:B:603:ILE:C	1:B:603:ILE:HD12	2.32	0.48
1:C:588:VAL:O	1:C:590:ASN:OD1	2.30	0.48
1:D:603:ILE:C	1:D:603:ILE:HD12	2.32	0.48
2:I:70:ASN:C	2:I:70:ASN:HD22	2.16	0.48
2:J:70:ASN:HD22	2:J:70:ASN:C	2.16	0.48
1:A:1023:ASP:CB	2:H:73:LYS:HZ2	2.25	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:565:GLN:CD	1:A:594:TYR:CE2	2.87	0.48
1:A:1077:LYS:HD2	1:A:1077:LYS:C	2.33	0.48
1:A:1168:LEU:C	1:A:1170:GLU:HB2	2.34	0.48
1:D:1168:LEU:CA	1:D:1170:GLU:OE1	2.61	0.48
1:E:1023:ASP:OD1	2:L:73:LYS:CD	2.62	0.48
1:F:205:ARG:NH1	1:G:228:ARG:HH22	2.10	0.48
2:M:41:GLY:HA2	2:M:48:TYR:CE1	2.47	0.48
1:B:898:LEU:HD12	1:B:898:LEU:C	2.33	0.48
1:B:1089:LEU:O	1:B:1090:SER:HB3	2.13	0.48
1:B:1168:LEU:C	1:B:1170:GLU:HB2	2.34	0.48
1:D:898:LEU:HD12	1:D:898:LEU:C	2.33	0.48
1:E:1089:LEU:O	1:E:1090:SER:HB3	2.13	0.48
1:F:1168:LEU:CA	1:F:1170:GLU:OE1	2.61	0.48
1:G:1168:LEU:CA	1:G:1170:GLU:OE1	2.61	0.48
1:A:1089:LEU:O	1:A:1090:SER:HB3	2.13	0.48
1:D:558:GLN:OE1	1:D:1169:SER:C	2.52	0.48
1:D:565:GLN:CD	1:D:594:TYR:CE2	2.87	0.48
1:D:581:LYS:HZ1	1:D:1247:LEU:CD1	2.26	0.48
1:D:1023:ASP:OD1	2:K:73:LYS:CD	2.62	0.48
1:E:558:GLN:OE1	1:E:1169:SER:C	2.52	0.48
1:E:1023:ASP:CG	2:L:73:LYS:HD2	2.32	0.48
1:E:1168:LEU:CA	1:E:1170:GLU:OE1	2.61	0.48
1:G:558:GLN:N	1:G:1171:GLU:OE2	2.47	0.48
1:G:1023:ASP:OD1	2:N:73:LYS:CD	2.62	0.48
1:C:122:ARG:HA	1:C:123:PRO:HD3	1.77	0.48
1:D:1023:ASP:CB	2:K:73:LYS:HD3	2.42	0.48
1:F:559:PRO:CB	1:F:1175:THR:N	2.51	0.48
1:F:800:ILE:HD13	2:M:47:SER:HB3	1.95	0.48
1:F:1004:LYS:HG3	2:M:73:LYS:HD3	1.94	0.48
1:F:1023:ASP:CG	2:M:73:LYS:HD2	2.32	0.48
1:F:1023:ASP:OD1	2:M:73:LYS:CD	2.62	0.48
1:G:558:GLN:OE1	1:G:1169:SER:C	2.52	0.48
1:A:228:ARG:HH22	1:G:205:ARG:NH1	2.10	0.48
1:A:558:GLN:OE1	1:A:1169:SER:C	2.52	0.48
1:A:1168:LEU:CA	1:A:1170:GLU:OE1	2.61	0.48
1:B:1004:LYS:HG3	2:I:73:LYS:HD3	1.94	0.48
1:B:1048:LYS:CE	2:I:86:LYS:HZ3	2.25	0.48
1:C:1168:LEU:CA	1:C:1170:GLU:OE1	2.61	0.48
1:D:1004:LYS:HG3	2:K:73:LYS:HD3	1.94	0.48
1:D:1128:GLY:C	1:D:1129:CYS:SG	2.91	0.48
1:E:1128:GLY:C	1:E:1129:CYS:SG	2.91	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1128:GLY:C	1:F:1129:CYS:SG	2.91	0.48
1:G:565:GLN:CD	1:G:594:TYR:CE2	2.87	0.48
2:M:70:ASN:HD22	2:M:70:ASN:C	2.16	0.48
1:A:520:ALA:C	1:A:524:HIS:CD2	2.88	0.48
1:C:1089:LEU:O	1:C:1090:SER:HB3	2.13	0.48
1:G:800:ILE:HD13	2:N:47:SER:CB	2.44	0.48
1:E:1004:LYS:HG3	2:L:73:LYS:HD3	1.94	0.48
1:E:1089:LEU:HD21	2:L:86:LYS:HB3	1.85	0.48
1:G:168:VAL:O	1:G:168:VAL:CG1	2.51	0.48
1:G:701:GLN:OE1	2:N:25:LYS:HD3	2.10	0.48
1:B:581:LYS:HZ2	1:B:1247:LEU:CD2	2.24	0.47
1:C:558:GLN:OE1	1:C:1169:SER:C	2.52	0.47
1:E:800:ILE:HD13	2:L:47:SER:CB	2.44	0.47
1:F:565:GLN:CD	1:F:594:TYR:CE2	2.87	0.47
1:F:1169:SER:N	1:F:1170:GLU:HB3	2.25	0.47
1:A:232:LEU:HD13	1:G:116:GLU:OE1	2.14	0.47
1:E:116:GLU:OE1	1:F:232:LEU:HD13	2.14	0.47
1:E:701:GLN:OE1	2:L:25:LYS:HD3	2.10	0.47
1:E:800:ILE:HD13	2:L:47:SER:HB3	1.95	0.47
1:G:800:ILE:HD13	2:N:47:SER:HB3	1.95	0.47
1:A:116:GLU:OE1	1:B:232:LEU:HD13	2.14	0.47
1:C:1004:LYS:HG3	2:J:73:LYS:HD3	1.94	0.47
1:D:1089:LEU:O	1:D:1090:SER:HB3	2.13	0.47
2:H:70:ASN:C	2:H:70:ASN:HD22	2.16	0.47
1:D:116:GLU:OE1	1:E:232:LEU:HD13	2.14	0.47
1:D:205:ARG:NH2	1:E:225:ASP:OD2	2.46	0.47
1:D:1048:LYS:HE2	1:D:1048:LYS:O	2.14	0.47
1:G:1048:LYS:O	1:G:1048:LYS:HE2	2.14	0.47
1:A:1048:LYS:HE2	1:A:1048:LYS:O	2.14	0.47
1:C:800:ILE:HD13	2:J:47:SER:HB3	1.95	0.47
1:C:1023:ASP:OD1	2:J:73:LYS:CD	2.62	0.47
1:D:558:GLN:N	1:D:1171:GLU:OE2	2.47	0.47
3:D:1301:ATP:O2G	3:D:1301:ATP:O2B	2.33	0.47
1:E:205:ARG:NH2	1:F:225:ASP:OD2	2.46	0.47
1:F:558:GLN:OE1	1:F:1169:SER:C	2.52	0.47
1:F:701:GLN:OE1	2:M:25:LYS:HD3	2.10	0.47
1:F:800:ILE:HD13	2:M:47:SER:CB	2.44	0.47
1:G:520:ALA:C	1:G:524:HIS:CD2	2.87	0.47
1:B:205:ARG:NH2	1:C:225:ASP:OD2	2.46	0.47
1:C:800:ILE:HD13	2:J:47:SER:CB	2.44	0.47
1:G:581:LYS:HZ2	1:G:1247:LEU:CD2	2.24	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:1106:ASP:OD2	2:N:90:GLU:CG	2.63	0.47
1:B:800:ILE:HD13	2:I:47:SER:HB3	1.96	0.47
1:C:1106:ASP:OD2	2:J:90:GLU:CG	2.63	0.47
1:D:800:ILE:HD13	2:K:47:SER:CB	2.44	0.47
1:E:1048:LYS:HE2	1:E:1048:LYS:O	2.14	0.47
1:E:1106:ASP:OD2	2:L:90:GLU:CG	2.63	0.47
3:E:1301:ATP:O2G	3:E:1301:ATP:O2B	2.33	0.47
1:F:1048:LYS:HE2	1:F:1048:LYS:O	2.14	0.47
1:A:409:GLU:OE1	1:G:340:TYR:OH	2.12	0.47
1:A:1106:ASP:OD2	2:H:90:GLU:CG	2.63	0.47
1:C:558:GLN:N	1:C:1171:GLU:OE2	2.47	0.47
1:D:1023:ASP:CG	2:K:73:LYS:HD2	2.32	0.47
1:F:116:GLU:OE1	1:G:232:LEU:HD13	2.14	0.47
1:F:558:GLN:N	1:F:1171:GLU:OE2	2.47	0.47
2:K:70:ASN:C	2:K:70:ASN:HD22	2.16	0.47
1:A:800:ILE:HD13	2:H:47:SER:CB	2.44	0.47
3:A:1301:ATP:O2G	3:A:1301:ATP:O2B	2.33	0.47
1:B:701:GLN:OE1	2:I:25:LYS:HD3	2.10	0.47
1:C:565:GLN:NE2	1:C:592:MET:HE1	2.07	0.47
1:F:1106:ASP:OD2	2:M:90:GLU:CG	2.63	0.47
1:B:116:GLU:OE1	1:C:232:LEU:HD13	2.14	0.47
1:B:558:GLN:OE1	1:B:1169:SER:C	2.52	0.47
1:D:520:ALA:C	1:D:524:HIS:CD2	2.87	0.47
1:D:800:ILE:HD13	2:K:47:SER:HB3	1.95	0.47
1:B:800:ILE:HD13	2:I:47:SER:CB	2.44	0.46
3:B:1301:ATP:O2G	3:B:1301:ATP:O2B	2.33	0.46
1:C:186:SER:HA	1:C:243:ASP:HB3	1.98	0.46
1:C:205:ARG:NH2	1:D:225:ASP:OD2	2.46	0.46
1:D:1106:ASP:OD2	2:K:90:GLU:CG	2.63	0.46
1:E:520:ALA:C	1:E:524:HIS:CD2	2.88	0.46
1:F:520:ALA:C	1:F:524:HIS:CD2	2.87	0.46
1:G:186:SER:HA	1:G:243:ASP:HB3	1.98	0.46
3:G:1301:ATP:O2G	3:G:1301:ATP:O2B	2.33	0.46
1:A:677:VAL:HG22	2:H:25:LYS:HZ3	1.80	0.46
1:B:1023:ASP:OD1	2:I:73:LYS:CD	2.62	0.46
1:B:1048:LYS:HE2	1:B:1048:LYS:O	2.14	0.46
3:C:1301:ATP:O2G	3:C:1301:ATP:O2B	2.33	0.46
1:G:1023:ASP:CG	2:N:73:LYS:HD2	2.32	0.46
1:A:800:ILE:HD13	2:H:47:SER:HB3	1.95	0.46
1:C:1048:LYS:HE2	1:C:1048:LYS:O	2.14	0.46
1:D:1023:ASP:CG	2:K:73:LYS:HZ2	2.19	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:1169:SER:N	1:G:1170:GLU:HB3	2.25	0.46
1:B:1106:ASP:OD2	2:I:90:GLU:CG	2.63	0.46
1:C:116:GLU:OE1	1:D:232:LEU:HD13	2.14	0.46
1:D:186:SER:HA	1:D:243:ASP:HB3	1.98	0.46
1:G:1048:LYS:CE	2:N:86:LYS:HZ3	2.27	0.46
1:A:186:SER:HA	1:A:243:ASP:HB3	1.98	0.46
1:C:1023:ASP:CG	2:J:73:LYS:HZ2	2.19	0.46
1:F:205:ARG:NH2	1:G:225:ASP:OD2	2.46	0.46
3:F:1301:ATP:O2G	3:F:1301:ATP:O2B	2.33	0.46
1:B:186:SER:HA	1:B:243:ASP:HB3	1.98	0.46
1:D:565:GLN:CD	1:D:594:TYR:HE2	2.19	0.46
1:D:701:GLN:OE1	2:K:25:LYS:HD3	2.10	0.46
1:F:186:SER:HA	1:F:243:ASP:HB3	1.98	0.46
1:F:349:GLN:H	1:F:349:GLN:HG3	1.49	0.46
1:B:555:LEU:HD23	1:B:560:PHE:HE1	1.21	0.46
1:E:186:SER:HA	1:E:243:ASP:HB3	1.98	0.46
1:E:349:GLN:H	1:E:349:GLN:HG3	1.49	0.46
1:A:1023:ASP:OD1	2:H:73:LYS:CD	2.62	0.46
2:I:14:CYS:HG	4:I:500:HEM:CAB	2.08	0.46
1:F:559:PRO:HD3	1:F:1175:THR:HG23	1.98	0.46
1:G:752:SER:HB2	1:G:753:PRO:HD2	1.98	0.46
1:A:752:SER:HB2	1:A:753:PRO:HD2	1.98	0.45
1:B:558:GLN:N	1:B:1171:GLU:OE2	2.47	0.45
1:C:520:ALA:C	1:C:524:HIS:CD2	2.87	0.45
1:C:565:GLN:CD	1:C:594:TYR:HE2	2.19	0.45
1:D:1001:GLN:O	1:D:1002:HIS:HB2	2.16	0.45
1:F:558:GLN:HG3	1:F:1171:GLU:OE2	2.17	0.45
1:F:1001:GLN:O	1:F:1002:HIS:HB2	2.16	0.45
1:A:558:GLN:HG3	1:A:1171:GLU:OE2	2.17	0.45
1:B:345:LEU:O	1:B:349:GLN:HG3	2.17	0.45
1:B:565:GLN:CD	1:B:594:TYR:HE2	2.19	0.45
1:D:349:GLN:H	1:D:349:GLN:HG3	1.49	0.45
1:E:559:PRO:HD3	1:E:1175:THR:HG23	1.98	0.45
1:A:345:LEU:O	1:A:349:GLN:HG3	2.17	0.45
1:B:520:ALA:O	1:B:524:HIS:HD2	1.89	0.45
1:D:521:HIS:HA	1:D:524:HIS:HD2	1.82	0.45
1:D:558:GLN:HG3	1:D:1171:GLU:OE2	2.17	0.45
1:E:565:GLN:CD	1:E:594:TYR:HE2	2.19	0.45
1:E:1001:GLN:O	1:E:1002:HIS:HB2	2.16	0.45
1:F:345:LEU:O	1:F:349:GLN:HG3	2.17	0.45
1:G:559:PRO:HD3	1:G:1175:THR:HG23	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:559:PRO:HD3	1:A:1175:THR:HG23	1.98	0.45
1:B:208:GLN:HG2	1:C:229:ILE:CG1	2.44	0.45
1:B:1001:GLN:O	1:B:1002:HIS:HB2	2.16	0.45
1:C:558:GLN:CG	1:C:1171:GLU:OE2	2.65	0.45
1:E:521:HIS:HA	1:E:524:HIS:HD2	1.82	0.45
1:F:521:HIS:HA	1:F:524:HIS:HD2	1.82	0.45
1:G:345:LEU:O	1:G:349:GLN:HG3	2.17	0.45
1:G:1048:LYS:CG	2:N:86:LYS:HZ2	2.21	0.45
1:A:565:GLN:CD	1:A:594:TYR:HE2	2.19	0.45
1:B:521:HIS:HA	1:B:524:HIS:HD2	1.82	0.45
1:C:345:LEU:O	1:C:349:GLN:HG3	2.17	0.45
1:C:558:GLN:HG3	1:C:1171:GLU:OE2	2.17	0.45
1:E:345:LEU:O	1:E:349:GLN:HG3	2.17	0.45
1:F:208:GLN:HG2	1:G:229:ILE:CG1	2.44	0.45
1:A:225:ASP:OD2	1:G:205:ARG:NH2	2.46	0.45
1:A:1001:GLN:O	1:A:1002:HIS:HB2	2.16	0.45
1:B:752:SER:HB2	1:B:753:PRO:HD2	1.98	0.45
1:B:1023:ASP:CG	2:I:73:LYS:HD2	2.33	0.45
1:C:581:LYS:HZ2	1:C:1247:LEU:CD2	2.25	0.45
1:C:1001:GLN:O	1:C:1002:HIS:HB2	2.16	0.45
1:D:345:LEU:O	1:D:349:GLN:HG3	2.17	0.45
1:A:521:HIS:HA	1:A:524:HIS:HD2	1.82	0.45
1:B:1023:ASP:OD1	2:I:73:LYS:HD2	2.17	0.45
1:C:521:HIS:HA	1:C:524:HIS:HD2	1.82	0.45
1:D:559:PRO:HD3	1:D:1175:THR:HG23	1.98	0.45
1:G:565:GLN:CD	1:G:594:TYR:HE2	2.19	0.45
2:M:17:CYS:SG	4:M:500:HEM:C3C	3.10	0.45
1:B:558:GLN:CG	1:B:1171:GLU:OE2	2.65	0.45
1:B:1048:LYS:CG	2:I:86:LYS:HZ2	2.23	0.45
1:C:1023:ASP:CG	2:J:73:LYS:HD2	2.32	0.45
1:C:1023:ASP:OD1	2:J:73:LYS:HD2	2.17	0.45
1:F:565:GLN:CD	1:F:594:TYR:HE2	2.19	0.45
1:G:558:GLN:HG3	1:G:1171:GLU:OE2	2.17	0.45
1:A:205:ARG:NH2	1:B:225:ASP:OD2	2.46	0.45
1:A:1023:ASP:OD1	2:H:73:LYS:HD2	2.17	0.45
1:D:677:VAL:HG22	2:K:25:LYS:NZ	2.32	0.45
1:E:558:GLN:HG3	1:E:1171:GLU:OE2	2.17	0.45
1:F:752:SER:HB2	1:F:753:PRO:HD2	1.98	0.45
1:G:521:HIS:HA	1:G:524:HIS:HD2	1.82	0.45
1:A:229:ILE:CG1	1:G:208:GLN:HG2	2.44	0.44
1:C:559:PRO:HD3	1:C:1175:THR:HG23	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:677:VAL:HG22	2:J:25:LYS:NZ	2.32	0.44
1:D:752:SER:HB2	1:D:753:PRO:HD2	1.99	0.44
1:G:391:LYS:HA	1:G:392:ASP:HA	1.68	0.44
2:L:17:CYS:SG	4:L:500:HEM:C3C	3.10	0.44
1:B:677:VAL:HG22	2:I:25:LYS:NZ	2.32	0.44
1:D:558:GLN:CG	1:D:1171:GLU:OE2	2.65	0.44
1:E:208:GLN:HG2	1:F:229:ILE:CG1	2.44	0.44
1:E:1168:LEU:C	1:E:1170:GLU:HB2	2.34	0.44
1:G:677:VAL:HG22	2:N:25:LYS:NZ	2.32	0.44
1:G:701:GLN:CD	2:N:25:LYS:CD	2.61	0.44
1:C:1048:LYS:CG	2:J:86:LYS:HZ2	2.26	0.44
1:F:677:VAL:HG22	2:M:25:LYS:NZ	2.32	0.44
1:G:1023:ASP:OD1	2:N:73:LYS:HD2	2.17	0.44
1:B:122:ARG:HA	1:B:123:PRO:HD3	1.77	0.44
2:K:17:CYS:SG	4:K:500:HEM:C3C	3.10	0.44
1:A:558:GLN:CG	1:A:1171:GLU:OE2	2.65	0.44
1:A:1023:ASP:CG	2:H:73:LYS:HD2	2.32	0.44
1:B:520:ALA:C	1:B:524:HIS:CD2	2.87	0.44
1:E:558:GLN:N	1:E:1171:GLU:OE2	2.47	0.44
1:F:345:LEU:HG	1:F:349:GLN:CB	2.46	0.44
1:F:643:LYS:HB3	1:F:646:THR:HG22	1.99	0.44
1:A:677:VAL:HG22	2:H:25:LYS:NZ	2.32	0.44
1:A:701:GLN:HG2	2:H:25:LYS:HZ3	1.82	0.44
1:B:643:LYS:HB3	1:B:646:THR:HG22	1.99	0.44
1:E:677:VAL:HG22	2:L:25:LYS:NZ	2.32	0.44
1:G:1171:GLU:C	1:G:1173:ALA:N	2.71	0.44
2:H:14:CYS:CB	4:H:500:HEM:HAB	2.47	0.44
2:H:17:CYS:SG	4:H:500:HEM:C3C	3.10	0.44
2:K:14:CYS:CB	4:K:500:HEM:HAB	2.47	0.44
1:B:558:GLN:HG3	1:B:1171:GLU:OE2	2.17	0.44
1:B:559:PRO:HD3	1:B:1175:THR:HG23	1.98	0.44
1:C:752:SER:HB2	1:C:753:PRO:HD2	1.98	0.44
1:D:1023:ASP:OD1	2:K:73:LYS:HD2	2.17	0.44
1:F:1168:LEU:C	1:F:1170:GLU:HB2	2.34	0.44
1:G:558:GLN:CG	1:G:1171:GLU:OE2	2.65	0.44
1:G:1023:ASP:CB	2:N:73:LYS:HZ2	2.30	0.44
1:D:122:ARG:HA	1:D:123:PRO:HD3	1.77	0.44
1:E:391:LYS:HB2	1:E:392:ASP:HA	2.00	0.44
1:E:643:LYS:HB3	1:E:646:THR:HG22	1.99	0.44
1:E:1171:GLU:C	1:E:1173:ALA:N	2.71	0.44
1:F:1023:ASP:OD1	2:M:73:LYS:HD2	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:1001:GLN:O	1:G:1002:HIS:HB2	2.16	0.44
2:J:17:CYS:SG	4:J:500:HEM:C3C	3.10	0.44
1:A:643:LYS:HB3	1:A:646:THR:HG22	1.99	0.44
1:C:208:GLN:HG2	1:D:229:ILE:CG1	2.44	0.44
1:D:1171:GLU:C	1:D:1173:ALA:N	2.71	0.44
1:F:558:GLN:CG	1:F:1171:GLU:OE2	2.65	0.44
1:C:559:PRO:CB	1:C:1175:THR:N	2.51	0.43
1:E:752:SER:HB2	1:E:753:PRO:HD2	1.99	0.43
1:E:1023:ASP:OD1	2:L:73:LYS:HD2	2.17	0.43
1:F:391:LYS:HB2	1:F:392:ASP:HA	2.00	0.43
1:F:1089:LEU:HD21	2:M:86:LYS:HB3	1.85	0.43
1:A:558:GLN:N	1:A:1171:GLU:OE2	2.47	0.43
1:A:581:LYS:HZ1	1:A:1247:LEU:CD1	2.29	0.43
1:A:588:VAL:HG12	1:A:589:ASP:HB2	2.00	0.43
1:B:588:VAL:HG12	1:B:589:ASP:HB2	2.00	0.43
1:C:588:VAL:HG12	1:C:589:ASP:HB2	2.00	0.43
1:D:306:LEU:HA	1:D:307:PRO:HD3	1.82	0.43
1:D:588:VAL:HG12	1:D:589:ASP:HB2	2.00	0.43
1:D:559:PRO:CB	1:D:1175:THR:N	2.51	0.43
1:D:1168:LEU:C	1:D:1170:GLU:HB2	2.34	0.43
1:E:515:GLU:HG3	1:E:560:PHE:CZ	2.53	0.43
1:F:515:GLU:HG3	1:F:560:PHE:CZ	2.53	0.43
1:G:588:VAL:HG12	1:G:589:ASP:HB2	2.00	0.43
2:M:14:CYS:CB	4:M:500:HEM:HAB	2.47	0.43
1:A:515:GLU:HG3	1:A:560:PHE:CZ	2.53	0.43
1:A:704:CYS:SG	1:A:749:CYS:N	2.92	0.43
1:D:515:GLU:HG3	1:D:560:PHE:CZ	2.53	0.43
1:F:588:VAL:HG12	1:F:589:ASP:HB2	2.00	0.43
1:G:391:LYS:HB2	1:G:392:ASP:HA	2.00	0.43
1:G:515:GLU:HG3	1:G:560:PHE:CZ	2.53	0.43
1:G:643:LYS:HB3	1:G:646:THR:HG22	1.99	0.43
2:J:72:LYS:HD3	2:J:78:THR:CG2	2.48	0.43
1:A:345:LEU:HG	1:A:349:GLN:CB	2.46	0.43
1:C:643:LYS:HB3	1:C:646:THR:HG22	1.99	0.43
1:D:391:LYS:HB2	1:D:392:ASP:HA	2.00	0.43
1:D:590:ASN:O	1:D:592:MET:CG	2.64	0.43
1:E:558:GLN:CG	1:E:1171:GLU:OE2	2.65	0.43
1:G:349:GLN:HG3	1:G:349:GLN:H	1.49	0.43
1:G:1168:LEU:C	1:G:1170:GLU:HB2	2.34	0.43
2:M:72:LYS:HD3	2:M:78:THR:CG2	2.48	0.43
1:B:391:LYS:HB2	1:B:392:ASP:HA	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:515:GLU:HG3	1:B:560:PHE:CZ	2.53	0.43
1:B:704:CYS:SG	1:B:749:CYS:N	2.92	0.43
1:C:515:GLU:HG3	1:C:560:PHE:CZ	2.53	0.43
1:C:704:CYS:SG	1:C:749:CYS:N	2.92	0.43
1:D:704:CYS:SG	1:D:749:CYS:N	2.92	0.43
1:E:588:VAL:HG12	1:E:589:ASP:HB2	2.00	0.43
1:F:1171:GLU:C	1:F:1173:ALA:N	2.71	0.43
2:I:17:CYS:SG	4:I:500:HEM:C3C	3.10	0.43
1:C:391:LYS:HB2	1:C:392:ASP:HA	2.00	0.43
1:D:643:LYS:HB3	1:D:646:THR:HG22	1.99	0.43
1:G:704:CYS:SG	1:G:749:CYS:N	2.92	0.43
2:L:72:LYS:HD3	2:L:78:THR:CG2	2.48	0.43
1:A:208:GLN:HG2	1:B:229:ILE:CG1	2.44	0.43
1:D:208:GLN:HG2	1:E:229:ILE:CG1	2.44	0.43
1:E:704:CYS:SG	1:E:749:CYS:N	2.92	0.43
1:F:668:ASP:O	1:F:669:ASP:HB2	2.19	0.43
1:G:1072:ILE:O	1:G:1073:ILE:HB	2.19	0.43
2:K:72:LYS:HD3	2:K:78:THR:CG2	2.48	0.43
1:A:391:LYS:HB2	1:A:392:ASP:HA	2.00	0.43
1:A:1048:LYS:CG	2:H:86:LYS:HZ2	2.27	0.43
1:E:345:LEU:HG	1:E:349:GLN:CB	2.46	0.43
1:F:1032:TRP:O	1:F:1033:GLN:HB3	2.19	0.43
1:G:345:LEU:HG	1:G:349:GLN:CB	2.46	0.43
2:I:14:CYS:CB	4:I:500:HEM:HAB	2.47	0.43
1:C:1171:GLU:C	1:C:1173:ALA:N	2.71	0.42
1:F:704:CYS:SG	1:F:749:CYS:N	2.92	0.42
1:F:1096:ASP:O	1:F:1097:ALA:C	2.58	0.42
2:N:72:LYS:HD3	2:N:78:THR:CG2	2.48	0.42
1:A:1004:LYS:HZ2	2:H:73:LYS:CD	2.32	0.42
1:B:1072:ILE:O	1:B:1073:ILE:HB	2.19	0.42
1:E:1164:LEU:N	1:E:1164:LEU:HD12	2.35	0.42
1:G:1032:TRP:O	1:G:1033:GLN:HB3	2.19	0.42
2:N:17:CYS:SG	4:N:500:HEM:C3C	3.10	0.42
1:D:1032:TRP:O	1:D:1033:GLN:HB3	2.19	0.42
1:D:1164:LEU:HD12	1:D:1164:LEU:N	2.35	0.42
1:F:1164:LEU:HD12	1:F:1164:LEU:N	2.35	0.42
1:A:229:ILE:HG12	1:G:208:GLN:CG	2.50	0.42
1:A:1032:TRP:O	1:A:1033:GLN:HB3	2.19	0.42
1:D:701:GLN:CD	2:K:25:LYS:CD	2.61	0.42
1:E:668:ASP:O	1:E:669:ASP:HB2	2.19	0.42
2:N:14:CYS:CB	4:N:500:HEM:HAB	2.47	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:208:GLN:CG	1:B:229:ILE:HG12	2.50	0.42
1:A:1096:ASP:O	1:A:1097:ALA:C	2.58	0.42
1:B:1164:LEU:N	1:B:1164:LEU:HD12	2.35	0.42
1:D:668:ASP:O	1:D:669:ASP:HB2	2.19	0.42
1:D:1072:ILE:O	1:D:1073:ILE:HB	2.19	0.42
1:E:1072:ILE:O	1:E:1073:ILE:HB	2.19	0.42
1:F:208:GLN:CG	1:G:229:ILE:HG12	2.50	0.42
1:F:340:TYR:OH	1:G:409:GLU:OE1	2.12	0.42
1:G:1164:LEU:HD12	1:G:1164:LEU:N	2.35	0.42
1:C:1032:TRP:O	1:C:1033:GLN:HB3	2.19	0.42
1:E:340:TYR:OH	1:F:409:GLU:HG2	2.18	0.42
1:E:677:VAL:HG22	2:L:25:LYS:HZ3	1.85	0.42
1:G:668:ASP:O	1:G:669:ASP:HB2	2.19	0.42
2:H:68:LEU:HD21	4:H:500:HEM:HMB2	2.02	0.42
1:D:340:TYR:OH	1:E:409:GLU:OE1	2.12	0.42
1:D:1088:VAL:C	2:K:86:LYS:CE	2.72	0.42
1:E:1096:ASP:O	1:E:1097:ALA:C	2.58	0.42
2:N:68:LEU:HD21	4:N:500:HEM:HMB2	2.02	0.42
1:B:348:LYS:CA	1:B:352:ARG:HD2	2.50	0.42
1:B:1032:TRP:O	1:B:1033:GLN:HB3	2.19	0.42
1:C:208:GLN:CG	1:D:229:ILE:HG12	2.50	0.42
1:F:348:LYS:CA	1:F:352:ARG:HD2	2.50	0.42
1:F:1072:ILE:O	1:F:1073:ILE:HB	2.19	0.42
2:J:14:CYS:SG	4:J:500:HEM:CBB	3.05	0.42
1:C:348:LYS:CA	1:C:352:ARG:HD2	2.50	0.42
2:I:68:LEU:HD21	4:I:500:HEM:HMB2	2.02	0.42
2:M:17:CYS:SG	4:M:500:HEM:HAC	2.60	0.42
1:A:348:LYS:CA	1:A:352:ARG:HD2	2.50	0.42
1:B:1171:GLU:C	1:B:1173:ALA:N	2.71	0.42
1:C:668:ASP:O	1:C:669:ASP:HB2	2.19	0.42
1:C:1072:ILE:O	1:C:1073:ILE:HB	2.19	0.42
1:C:1168:LEU:C	1:C:1170:GLU:HB2	2.34	0.42
1:A:668:ASP:O	1:A:669:ASP:HB2	2.19	0.41
1:B:208:GLN:CG	1:C:229:ILE:HG12	2.50	0.41
1:B:668:ASP:O	1:B:669:ASP:HB2	2.19	0.41
1:D:581:LYS:HZ1	1:D:1247:LEU:HD11	1.84	0.41
1:E:208:GLN:CG	1:F:229:ILE:HG12	2.50	0.41
1:A:1072:ILE:O	1:A:1073:ILE:HB	2.19	0.41
1:B:1096:ASP:O	1:B:1097:ALA:C	2.58	0.41
2:I:17:CYS:SG	4:I:500:HEM:HAC	2.60	0.41
2:M:68:LEU:HD21	4:M:500:HEM:HMB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1171:GLU:C	1:A:1173:ALA:N	2.71	0.41
1:B:340:TYR:OH	1:C:409:GLU:HG2	2.18	0.41
1:C:391:LYS:CB	1:C:392:ASP:HA	2.49	0.41
1:C:1096:ASP:O	1:C:1097:ALA:C	2.58	0.41
1:D:122:ARG:H	1:D:122:ARG:HD3	1.86	0.41
1:D:348:LYS:CA	1:D:352:ARG:HD2	2.50	0.41
1:D:1096:ASP:O	1:D:1097:ALA:C	2.58	0.41
1:F:701:GLN:NE2	2:M:25:LYS:CD	2.83	0.41
1:G:122:ARG:HD3	1:G:122:ARG:H	1.86	0.41
2:J:14:CYS:CB	4:J:500:HEM:HAB	2.47	0.41
1:C:1164:LEU:N	1:C:1164:LEU:HD12	2.35	0.41
1:D:345:LEU:HG	1:D:349:GLN:CB	2.46	0.41
1:E:391:LYS:HA	1:E:392:ASP:HA	1.68	0.41
1:E:1032:TRP:O	1:E:1033:GLN:HB3	2.19	0.41
1:A:945:ARG:HD2	1:A:961:GLU:HB2	2.03	0.41
1:E:1094:SER:O	1:E:1096:ASP:N	2.53	0.41
1:G:348:LYS:CA	1:G:352:ARG:HD2	2.50	0.41
2:K:57:ILE:C	2:K:57:ILE:HD12	2.41	0.41
1:A:122:ARG:H	1:A:122:ARG:HD3	1.86	0.41
1:B:345:LEU:HG	1:B:349:GLN:CB	2.46	0.41
1:B:945:ARG:HD2	1:B:961:GLU:HB2	2.03	0.41
1:C:349:GLN:HG3	1:C:349:GLN:H	1.49	0.41
1:C:520:ALA:O	1:C:524:HIS:HD2	1.89	0.41
1:D:340:TYR:OH	1:E:409:GLU:HG2	2.18	0.41
1:G:945:ARG:HD2	1:G:961:GLU:HB2	2.03	0.41
2:J:68:LEU:HD21	4:J:500:HEM:HMB2	2.02	0.41
2:N:57:ILE:C	2:N:57:ILE:HD12	2.41	0.41
1:A:587:GLU:CB	1:A:590:ASN:HD21	2.34	0.41
1:A:1164:LEU:N	1:A:1164:LEU:HD12	2.35	0.41
1:C:122:ARG:H	1:C:122:ARG:HD3	1.86	0.41
1:D:1139:SER:O	1:D:1140:THR:HB	2.21	0.41
1:E:348:LYS:CA	1:E:352:ARG:HD2	2.50	0.41
1:F:945:ARG:HD2	1:F:961:GLU:HB2	2.03	0.41
2:H:57:ILE:C	2:H:57:ILE:HD12	2.41	0.41
1:C:677:VAL:HG22	2:J:25:LYS:HZ3	1.86	0.41
1:C:945:ARG:HD2	1:C:961:GLU:HB2	2.03	0.41
1:E:1139:SER:O	1:E:1140:THR:HB	2.21	0.41
1:F:587:GLU:HB3	1:F:590:ASN:ND2	2.36	0.41
1:G:587:GLU:HB3	1:G:590:ASN:ND2	2.36	0.41
1:G:701:GLN:NE2	2:N:25:LYS:CD	2.83	0.41
1:G:1139:SER:O	1:G:1140:THR:HB	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:57:ILE:HD12	2:I:57:ILE:C	2.41	0.41
1:A:122:ARG:HA	1:A:123:PRO:HD3	1.77	0.41
1:B:587:GLU:CB	1:B:590:ASN:HD21	2.34	0.41
1:C:345:LEU:HG	1:C:349:GLN:CB	2.46	0.41
1:C:587:GLU:HB3	1:C:590:ASN:ND2	2.36	0.41
1:C:1004:LYS:HZ2	2:J:73:LYS:CD	2.33	0.41
1:D:208:GLN:CG	1:E:229:ILE:HG12	2.50	0.41
1:D:587:GLU:HB3	1:D:590:ASN:ND2	2.36	0.41
1:D:587:GLU:CB	1:D:590:ASN:HD21	2.34	0.41
1:D:1094:SER:O	1:D:1096:ASP:N	2.53	0.41
1:E:587:GLU:HB3	1:E:590:ASN:ND2	2.36	0.41
1:F:122:ARG:H	1:F:122:ARG:HD3	1.86	0.41
1:F:587:GLU:CB	1:F:590:ASN:HD21	2.34	0.41
1:F:701:GLN:CD	2:M:25:LYS:CD	2.61	0.41
2:M:57:ILE:HD12	2:M:57:ILE:C	2.41	0.41
1:A:587:GLU:HB3	1:A:590:ASN:ND2	2.36	0.41
1:A:701:GLN:NE2	2:H:25:LYS:CD	2.83	0.41
1:B:587:GLU:HB3	1:B:590:ASN:ND2	2.36	0.41
1:B:1178:GLY:O	1:B:1179:TRP:HB3	2.21	0.41
1:C:340:TYR:OH	1:D:409:GLU:HG2	2.18	0.41
1:E:122:ARG:HD3	1:E:122:ARG:H	1.86	0.41
1:E:122:ARG:HA	1:E:123:PRO:HD3	1.77	0.41
1:G:1096:ASP:O	1:G:1097:ALA:C	2.58	0.41
2:H:72:LYS:HD3	2:H:78:THR:CG2	2.48	0.41
1:D:677:VAL:HG22	2:K:25:LYS:HZ3	1.85	0.40
1:D:1178:GLY:O	1:D:1179:TRP:HB3	2.21	0.40
1:F:581:LYS:NZ	1:F:1247:LEU:HD11	2.37	0.40
1:G:581:LYS:NZ	1:G:1247:LEU:HD11	2.37	0.40
1:G:587:GLU:CB	1:G:590:ASN:HD21	2.34	0.40
1:G:592:MET:O	1:G:593:LEU:HB3	2.22	0.40
1:A:1139:SER:O	1:A:1140:THR:HB	2.21	0.40
1:C:592:MET:O	1:C:593:LEU:HB3	2.22	0.40
1:D:716:LEU:HB2	1:D:730:LEU:HD21	2.03	0.40
1:D:945:ARG:HD2	1:D:961:GLU:HB2	2.03	0.40
1:E:945:ARG:HD2	1:E:961:GLU:HB2	2.03	0.40
1:F:1094:SER:O	1:F:1096:ASP:N	2.53	0.40
1:F:1139:SER:O	1:F:1140:THR:HB	2.21	0.40
1:G:1089:LEU:HD21	2:N:86:LYS:HB3	1.85	0.40
1:G:1178:GLY:O	1:G:1179:TRP:HB3	2.21	0.40
2:K:68:LEU:HD21	4:K:500:HEM:HMB2	2.02	0.40
1:B:122:ARG:HD3	1:B:122:ARG:H	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:587:GLU:CB	1:E:590:ASN:HD21	2.34	0.40
1:E:1178:GLY:O	1:E:1179:TRP:HB3	2.21	0.40
2:J:57:ILE:HD12	2:J:57:ILE:C	2.41	0.40
1:A:208:GLN:CG	1:B:229:ILE:CG1	3.00	0.40
1:A:559:PRO:HA	1:A:1171:GLU:HA	2.04	0.40
1:B:126:PHE:HA	3:B:1301:ATP:C2	2.57	0.40
1:B:235:HIS:N	1:B:236:PRO:CD	2.85	0.40
1:B:1139:SER:O	1:B:1140:THR:HB	2.21	0.40
1:C:235:HIS:N	1:C:236:PRO:CD	2.85	0.40
1:D:208:GLN:CG	1:E:229:ILE:CG1	3.00	0.40
1:E:235:HIS:N	1:E:236:PRO:CD	2.85	0.40
1:F:126:PHE:HA	3:F:1301:ATP:C2	2.57	0.40
1:F:592:MET:O	1:F:593:LEU:HB3	2.22	0.40
1:A:235:HIS:N	1:A:236:PRO:CD	2.85	0.40
1:A:592:MET:O	1:A:593:LEU:HB3	2.22	0.40
1:A:701:GLN:CD	2:H:25:LYS:CD	2.61	0.40
1:C:581:LYS:NZ	1:C:1247:LEU:HD11	2.37	0.40
1:C:1089:LEU:HD21	2:J:86:LYS:HB3	1.85	0.40
1:E:306:LEU:HA	1:E:307:PRO:HD3	1.82	0.40
1:E:1202:TRP:HA	1:E:1208:GLU:HA	2.04	0.40
1:F:208:GLN:CB	1:G:229:ILE:CD1	2.77	0.40
1:F:520:ALA:O	1:F:524:HIS:HD2	1.89	0.40
1:F:559:PRO:HA	1:F:1171:GLU:HA	2.04	0.40
1:G:1016:LYS:O	1:G:1017:THR:HB	2.22	0.40
2:L:57:ILE:HD12	2:L:57:ILE:C	2.41	0.40
2:L:68:LEU:HD21	4:L:500:HEM:HMB2	2.02	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	1142/1263 (90%)	1048 (92%)	68 (6%)	26 (2%)	5 28
1	B	1142/1263 (90%)	1048 (92%)	68 (6%)	26 (2%)	5 28
1	C	1142/1263 (90%)	1048 (92%)	68 (6%)	26 (2%)	5 28
1	D	1142/1263 (90%)	1048 (92%)	68 (6%)	26 (2%)	5 28
1	E	1142/1263 (90%)	1048 (92%)	68 (6%)	26 (2%)	5 28
1	F	1142/1263 (90%)	1049 (92%)	67 (6%)	26 (2%)	5 28
1	G	1142/1263 (90%)	1048 (92%)	68 (6%)	26 (2%)	5 28
2	H	102/104 (98%)	99 (97%)	3 (3%)	0	100 100
2	I	102/104 (98%)	99 (97%)	3 (3%)	0	100 100
2	J	102/104 (98%)	99 (97%)	3 (3%)	0	100 100
2	K	102/104 (98%)	99 (97%)	3 (3%)	0	100 100
2	L	102/104 (98%)	99 (97%)	3 (3%)	0	100 100
2	M	102/104 (98%)	99 (97%)	3 (3%)	0	100 100
2	N	102/104 (98%)	99 (97%)	3 (3%)	0	100 100
All	All	8708/9569 (91%)	8030 (92%)	496 (6%)	182 (2%)	8 30

All (182) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	348	LYS
1	A	349	GLN
1	A	591	GLY
1	A	592	MET
1	A	839	HIS
1	A	955	GLN
1	A	1107	LYS
1	A	1140	THR
1	A	1169	SER
1	A	1170	GLU
1	B	348	LYS
1	B	349	GLN
1	B	591	GLY
1	B	592	MET
1	B	839	HIS
1	B	955	GLN
1	B	1107	LYS
1	B	1140	THR
1	B	1169	SER

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Mol	Chain	Res	Type
1	B	1170	GLU
1	C	348	LYS
1	C	349	GLN
1	C	591	GLY
1	C	592	MET
1	C	839	HIS
1	C	955	GLN
1	C	1107	LYS
1	C	1140	THR
1	C	1169	SER
1	C	1170	GLU
1	D	348	LYS
1	D	349	GLN
1	D	591	GLY
1	D	592	MET
1	D	839	HIS
1	D	955	GLN
1	D	1107	LYS
1	D	1140	THR
1	D	1169	SER
1	D	1170	GLU
1	E	348	LYS
1	E	349	GLN
1	E	591	GLY
1	E	592	MET
1	E	839	HIS
1	E	955	GLN
1	E	1107	LYS
1	E	1140	THR
1	E	1169	SER
1	E	1170	GLU
1	F	348	LYS
1	F	349	GLN
1	F	591	GLY
1	F	592	MET
1	F	839	HIS
1	F	955	GLN
1	F	1107	LYS
1	F	1140	THR
1	F	1169	SER
1	F	1170	GLU
1	G	348	LYS

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Mol	Chain	Res	Type
1	G	349	GLN
1	G	591	GLY
1	G	592	MET
1	G	839	HIS
1	G	955	GLN
1	G	1107	LYS
1	G	1140	THR
1	G	1169	SER
1	G	1170	GLU
1	A	589	ASP
1	A	1098	THR
1	A	1174	ALA
1	B	589	ASP
1	B	1098	THR
1	B	1174	ALA
1	C	589	ASP
1	C	1098	THR
1	C	1174	ALA
1	D	589	ASP
1	D	1098	THR
1	D	1174	ALA
1	E	589	ASP
1	E	1098	THR
1	E	1174	ALA
1	F	589	ASP
1	F	1098	THR
1	F	1174	ALA
1	G	589	ASP
1	G	1098	THR
1	G	1174	ALA
1	A	963	GLN
1	A	1129	CYS
1	A	1139	SER
1	A	1222	LYS
1	B	963	GLN
1	B	1129	CYS
1	B	1139	SER
1	B	1222	LYS
1	C	963	GLN
1	C	1129	CYS
1	C	1139	SER
1	C	1222	LYS

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Mol	Chain	Res	Type
1	D	963	GLN
1	D	1129	CYS
1	D	1139	SER
1	D	1222	LYS
1	E	963	GLN
1	E	1129	CYS
1	E	1139	SER
1	E	1222	LYS
1	F	963	GLN
1	F	1129	CYS
1	F	1139	SER
1	F	1222	LYS
1	G	963	GLN
1	G	1129	CYS
1	G	1139	SER
1	G	1222	LYS
1	A	593	LEU
1	A	604	THR
1	A	1205	VAL
1	B	593	LEU
1	B	604	THR
1	B	1205	VAL
1	C	593	LEU
1	C	604	THR
1	C	1205	VAL
1	D	593	LEU
1	D	604	THR
1	D	1205	VAL
1	E	593	LEU
1	E	604	THR
1	E	1205	VAL
1	F	593	LEU
1	F	604	THR
1	F	1205	VAL
1	G	593	LEU
1	G	604	THR
1	G	1205	VAL
1	A	1017	THR
1	A	1172	GLY
1	A	1206	THR
1	B	1017	THR
1	B	1172	GLY

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Mol	Chain	Res	Type
1	B	1206	THR
1	C	1017	THR
1	C	1172	GLY
1	C	1206	THR
1	D	1017	THR
1	D	1172	GLY
1	D	1206	THR
1	E	1017	THR
1	E	1172	GLY
1	E	1206	THR
1	F	1017	THR
1	F	1172	GLY
1	F	1206	THR
1	G	1017	THR
1	G	1172	GLY
1	G	1206	THR
1	A	1209	SER
1	B	1209	SER
1	C	1209	SER
1	D	1209	SER
1	E	1209	SER
1	F	1209	SER
1	G	1209	SER
1	A	880	GLY
1	B	880	GLY
1	D	880	GLY
1	E	880	GLY
1	F	880	GLY
1	G	880	GLY
1	A	1073	ILE
1	B	1073	ILE
1	C	880	GLY
1	C	1073	ILE
1	D	1073	ILE
1	E	1073	ILE
1	F	1073	ILE
1	G	1073	ILE

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	1027/1134 (91%)	1020 (99%)	7 (1%)	81	87
1	B	1027/1134 (91%)	1020 (99%)	7 (1%)	81	87
1	C	1027/1134 (91%)	1020 (99%)	7 (1%)	81	87
1	D	1027/1134 (91%)	1020 (99%)	7 (1%)	81	87
1	E	1027/1134 (91%)	1020 (99%)	7 (1%)	81	87
1	F	1027/1134 (91%)	1020 (99%)	7 (1%)	81	87
1	G	1027/1134 (91%)	1020 (99%)	7 (1%)	81	87
2	H	84/84 (100%)	82 (98%)	2 (2%)	44	62
2	I	84/84 (100%)	82 (98%)	2 (2%)	44	62
2	J	84/84 (100%)	82 (98%)	2 (2%)	44	62
2	K	84/84 (100%)	82 (98%)	2 (2%)	44	62
2	L	84/84 (100%)	82 (98%)	2 (2%)	44	62
2	M	84/84 (100%)	82 (98%)	2 (2%)	44	62
2	N	84/84 (100%)	82 (98%)	2 (2%)	44	62
All	All	7777/8526 (91%)	7714 (99%)	63 (1%)	77	85

All (63) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	122	ARG
1	A	140	LEU
1	A	349	GLN
1	A	589	ASP
1	A	590	ASN
1	A	846	CYS
1	A	1077	LYS
1	B	122	ARG
1	B	140	LEU
1	B	349	GLN
1	B	589	ASP
1	B	590	ASN
1	B	846	CYS
1	B	1077	LYS
1	C	122	ARG

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Mol	Chain	Res	Type
1	C	140	LEU
1	C	349	GLN
1	C	589	ASP
1	C	590	ASN
1	C	846	CYS
1	C	1077	LYS
1	D	122	ARG
1	D	140	LEU
1	D	349	GLN
1	D	589	ASP
1	D	590	ASN
1	D	846	CYS
1	D	1077	LYS
1	E	122	ARG
1	E	140	LEU
1	E	349	GLN
1	E	589	ASP
1	E	590	ASN
1	E	846	CYS
1	E	1077	LYS
1	F	122	ARG
1	F	140	LEU
1	F	349	GLN
1	F	589	ASP
1	F	590	ASN
1	F	846	CYS
1	F	1077	LYS
1	G	122	ARG
1	G	140	LEU
1	G	349	GLN
1	G	589	ASP
1	G	590	ASN
1	G	846	CYS
1	G	1077	LYS
2	H	52	ASN
2	H	70	ASN
2	I	52	ASN
2	I	70	ASN
2	J	52	ASN
2	J	70	ASN
2	K	52	ASN
2	K	70	ASN

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Mol	Chain	Res	Type
2	L	52	ASN
2	L	70	ASN
2	M	52	ASN
2	M	70	ASN
2	N	52	ASN
2	N	70	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (56) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	441	GLN
1	A	565	GLN
1	A	583	GLN
1	A	693	HIS
1	A	712	HIS
1	B	441	GLN
1	B	565	GLN
1	B	583	GLN
1	B	693	HIS
1	B	712	HIS
1	C	441	GLN
1	C	565	GLN
1	C	583	GLN
1	C	693	HIS
1	C	712	HIS
1	D	441	GLN
1	D	565	GLN
1	D	583	GLN
1	D	693	HIS
1	D	712	HIS
1	E	441	GLN
1	E	565	GLN
1	E	583	GLN
1	E	693	HIS
1	E	712	HIS
1	F	441	GLN
1	F	565	GLN
1	F	583	GLN
1	F	693	HIS
1	F	712	HIS
1	G	441	GLN
1	G	565	GLN

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Mol	Chain	Res	Type
1	G	583	GLN
1	G	693	HIS
1	G	712	HIS
2	H	52	ASN
2	H	54	ASN
2	H	70	ASN
2	I	52	ASN
2	I	54	ASN
2	I	70	ASN
2	J	52	ASN
2	J	54	ASN
2	J	70	ASN
2	K	52	ASN
2	K	54	ASN
2	K	70	ASN
2	L	52	ASN
2	L	54	ASN
2	L	70	ASN
2	M	52	ASN
2	M	54	ASN
2	M	70	ASN
2	N	52	ASN
2	N	54	ASN
2	N	70	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

There are no oligosaccharides in this entry.

5.6 Ligand geometry

14 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	ATP	B	1301	-	28,33,33	1.73	4 (14%)	34,52,52	1.46	4 (11%)
3	ATP	G	1301	-	28,33,33	1.73	4 (14%)	34,52,52	1.46	4 (11%)
4	HEM	H	500	2	42,50,50	2.06	12 (28%)	46,82,82	1.88	12 (26%)
4	HEM	L	500	2	42,50,50	2.06	12 (28%)	46,82,82	1.88	12 (26%)
3	ATP	C	1301	-	28,33,33	1.72	4 (14%)	34,52,52	1.46	4 (11%)
4	HEM	M	500	2	42,50,50	2.07	13 (30%)	46,82,82	1.87	12 (26%)
3	ATP	D	1301	-	28,33,33	1.73	4 (14%)	34,52,52	1.45	4 (11%)
3	ATP	A	1301	-	28,33,33	1.74	4 (14%)	34,52,52	1.46	4 (11%)
3	ATP	E	1301	-	28,33,33	1.73	4 (14%)	34,52,52	1.46	4 (11%)
3	ATP	F	1301	-	28,33,33	1.73	4 (14%)	34,52,52	1.46	4 (11%)
4	HEM	J	500	2	42,50,50	2.06	12 (28%)	46,82,82	1.87	12 (26%)
4	HEM	N	500	2	42,50,50	2.06	12 (28%)	46,82,82	1.88	12 (26%)
4	HEM	K	500	2	42,50,50	2.06	12 (28%)	46,82,82	1.88	12 (26%)
4	HEM	I	500	2	42,50,50	2.06	12 (28%)	46,82,82	1.87	12 (26%)

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
3	ATP	B	1301	-	-	5/18/38/38	0/3/3/3
3	ATP	G	1301	-	-	5/18/38/38	0/3/3/3
4	HEM	H	500	2	-	2/12/54/54	-
4	HEM	L	500	2	-	2/12/54/54	-
3	ATP	C	1301	-	-	5/18/38/38	0/3/3/3
4	HEM	M	500	2	-	2/12/54/54	-
3	ATP	D	1301	-	-	5/18/38/38	0/3/3/3
3	ATP	A	1301	-	-	5/18/38/38	0/3/3/3
3	ATP	E	1301	-	-	5/18/38/38	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	ATP	F	1301	-	-	5/18/38/38	0/3/3/3
4	HEM	J	500	2	-	2/12/54/54	-
4	HEM	N	500	2	-	2/12/54/54	-
4	HEM	K	500	2	-	2/12/54/54	-
4	HEM	I	500	2	-	2/12/54/54	-

All (113) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1301	ATP	PB-O3B	-7.18	1.51	1.59
3	F	1301	ATP	PB-O3B	-7.14	1.51	1.59
3	E	1301	ATP	PB-O3B	-7.14	1.51	1.59
3	D	1301	ATP	PB-O3B	-7.13	1.51	1.59
3	B	1301	ATP	PB-O3B	-7.12	1.51	1.59
3	G	1301	ATP	PB-O3B	-7.10	1.51	1.59
3	C	1301	ATP	PB-O3B	-7.09	1.51	1.59
4	M	500	HEM	C3C-C4C	6.65	1.51	1.41
4	N	500	HEM	C3C-C4C	6.65	1.51	1.41
4	J	500	HEM	C3C-C4C	6.65	1.51	1.41
4	I	500	HEM	C3C-C4C	6.65	1.51	1.41
4	L	500	HEM	C3C-C4C	6.64	1.51	1.41
4	H	500	HEM	C3C-C4C	6.64	1.51	1.41
4	K	500	HEM	C3C-C4C	6.64	1.51	1.41
4	M	500	HEM	C3C-CAC	-4.33	1.37	1.47
4	H	500	HEM	C3C-CAC	-4.33	1.37	1.47
4	N	500	HEM	C3C-CAC	-4.32	1.37	1.47
4	I	500	HEM	C3C-CAC	-4.32	1.37	1.47
4	L	500	HEM	C3C-CAC	-4.32	1.37	1.47
4	K	500	HEM	C3C-CAC	-4.31	1.37	1.47
4	J	500	HEM	C3C-CAC	-4.31	1.37	1.47
4	K	500	HEM	C3B-C2B	3.86	1.45	1.37
4	I	500	HEM	C3B-C2B	3.84	1.45	1.37
4	N	500	HEM	C3B-C2B	3.84	1.45	1.37
4	H	500	HEM	C3B-C2B	3.84	1.45	1.37
4	J	500	HEM	C3B-C2B	3.83	1.44	1.37
4	L	500	HEM	C3B-C2B	3.83	1.44	1.37
4	M	500	HEM	C3B-C2B	3.82	1.44	1.37
4	I	500	HEM	C1B-NB	-3.48	1.34	1.40
4	M	500	HEM	C1B-NB	-3.47	1.34	1.40
4	H	500	HEM	C1B-NB	-3.46	1.34	1.40
4	N	500	HEM	C1B-NB	-3.46	1.34	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	L	500	HEM	C1B-NB	-3.46	1.34	1.40
4	J	500	HEM	C1B-NB	-3.46	1.34	1.40
4	K	500	HEM	C1B-NB	-3.45	1.34	1.40
4	N	500	HEM	O2A-CGA	-3.41	1.19	1.30
4	I	500	HEM	O2A-CGA	-3.41	1.19	1.30
4	H	500	HEM	O2A-CGA	-3.40	1.19	1.30
4	L	500	HEM	O2A-CGA	-3.40	1.19	1.30
4	M	500	HEM	O2A-CGA	-3.40	1.19	1.30
4	K	500	HEM	O2A-CGA	-3.40	1.19	1.30
4	J	500	HEM	O2A-CGA	-3.39	1.19	1.30
4	K	500	HEM	C3B-C4B	-3.28	1.38	1.44
4	M	500	HEM	C3B-C4B	-3.27	1.38	1.44
4	I	500	HEM	C3B-C4B	-3.26	1.38	1.44
4	N	500	HEM	C3B-C4B	-3.26	1.38	1.44
4	H	500	HEM	C3B-C4B	-3.25	1.38	1.44
4	L	500	HEM	C3B-C4B	-3.24	1.38	1.44
4	J	500	HEM	C3B-C4B	-3.22	1.38	1.44
4	M	500	HEM	C4A-CHB	-2.77	1.33	1.41
4	J	500	HEM	C4A-CHB	-2.76	1.33	1.41
4	L	500	HEM	C4A-CHB	-2.76	1.33	1.41
4	N	500	HEM	C4A-CHB	-2.76	1.33	1.41
4	H	500	HEM	C4A-CHB	-2.75	1.33	1.41
4	I	500	HEM	C4A-CHB	-2.75	1.33	1.41
4	K	500	HEM	C4A-CHB	-2.75	1.33	1.41
4	L	500	HEM	CHB-C1B	2.56	1.40	1.34
4	H	500	HEM	CHB-C1B	2.55	1.40	1.34
4	J	500	HEM	CHB-C1B	2.55	1.40	1.34
4	N	500	HEM	CHB-C1B	2.55	1.40	1.34
4	M	500	HEM	CHB-C1B	2.54	1.40	1.34
4	I	500	HEM	CHB-C1B	2.53	1.40	1.34
4	K	500	HEM	CHB-C1B	2.52	1.40	1.34
3	G	1301	ATP	PA-O3A	2.52	1.62	1.59
3	D	1301	ATP	PA-O3A	2.51	1.62	1.59
3	F	1301	ATP	PA-O3A	2.50	1.62	1.59
3	B	1301	ATP	PA-O3A	2.48	1.62	1.59
3	A	1301	ATP	PA-O3A	2.47	1.62	1.59
3	C	1301	ATP	PA-O3A	2.46	1.62	1.59
3	E	1301	ATP	PA-O3A	2.44	1.62	1.59
3	A	1301	ATP	PG-O1G	2.40	1.57	1.50
3	D	1301	ATP	PG-O1G	2.40	1.57	1.50
3	B	1301	ATP	PG-O1G	2.38	1.57	1.50
3	C	1301	ATP	PG-O1G	2.38	1.57	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	1301	ATP	PG-O1G	2.38	1.57	1.50
3	E	1301	ATP	PG-O1G	2.37	1.57	1.50
3	F	1301	ATP	PG-O1G	2.36	1.57	1.50
4	I	500	HEM	C1D-C2D	2.35	1.49	1.44
4	N	500	HEM	C1D-C2D	2.34	1.49	1.44
4	M	500	HEM	C1D-C2D	2.33	1.49	1.44
4	L	500	HEM	C1D-C2D	2.33	1.49	1.44
4	H	500	HEM	C1D-C2D	2.33	1.49	1.44
4	K	500	HEM	C1D-C2D	2.32	1.49	1.44
3	D	1301	ATP	O4'-C1'	2.30	1.43	1.40
3	A	1301	ATP	O4'-C1'	2.30	1.43	1.40
4	J	500	HEM	C1D-C2D	2.29	1.49	1.44
3	B	1301	ATP	O4'-C1'	2.29	1.43	1.40
3	G	1301	ATP	O4'-C1'	2.29	1.43	1.40
3	C	1301	ATP	O4'-C1'	2.28	1.43	1.40
3	E	1301	ATP	O4'-C1'	2.27	1.43	1.40
3	F	1301	ATP	O4'-C1'	2.26	1.43	1.40
4	J	500	HEM	C1A-NA	2.18	1.40	1.36
4	I	500	HEM	C1A-NA	2.18	1.40	1.36
4	M	500	HEM	C1A-NA	2.18	1.40	1.36
4	N	500	HEM	C1A-NA	2.18	1.40	1.36
4	H	500	HEM	C1A-NA	2.17	1.40	1.36
4	K	500	HEM	C1A-NA	2.17	1.40	1.36
4	L	500	HEM	C1A-NA	2.16	1.40	1.36
4	M	500	HEM	O2D-CGD	-2.11	1.23	1.30
4	I	500	HEM	O2D-CGD	-2.10	1.23	1.30
4	J	500	HEM	O2D-CGD	-2.09	1.23	1.30
4	H	500	HEM	O2D-CGD	-2.09	1.23	1.30
4	L	500	HEM	O2D-CGD	-2.09	1.23	1.30
4	K	500	HEM	O2D-CGD	-2.09	1.23	1.30
4	N	500	HEM	O2D-CGD	-2.08	1.23	1.30
4	I	500	HEM	C4D-C3D	2.07	1.48	1.45
4	J	500	HEM	C4D-C3D	2.06	1.48	1.45
4	L	500	HEM	C4D-C3D	2.06	1.48	1.45
4	H	500	HEM	C4D-C3D	2.03	1.48	1.45
4	N	500	HEM	C4D-C3D	2.03	1.48	1.45
4	M	500	HEM	C1D-ND	-2.02	1.34	1.38
4	M	500	HEM	C4D-C3D	2.00	1.48	1.45
4	K	500	HEM	C4D-C3D	2.00	1.48	1.45

All (112) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	N	500	HEM	C2C-C3C-C4C	-5.52	103.04	106.90
4	I	500	HEM	C2C-C3C-C4C	-5.49	103.06	106.90
4	H	500	HEM	C2C-C3C-C4C	-5.48	103.07	106.90
4	K	500	HEM	C2C-C3C-C4C	-5.48	103.07	106.90
4	J	500	HEM	C2C-C3C-C4C	-5.46	103.08	106.90
4	M	500	HEM	C2C-C3C-C4C	-5.45	103.09	106.90
4	L	500	HEM	C2C-C3C-C4C	-5.45	103.09	106.90
3	G	1301	ATP	N3-C2-N1	-4.24	122.91	128.67
3	A	1301	ATP	N3-C2-N1	-4.24	122.92	128.67
3	F	1301	ATP	N3-C2-N1	-4.23	122.93	128.67
3	C	1301	ATP	N3-C2-N1	-4.22	122.94	128.67
3	B	1301	ATP	N3-C2-N1	-4.22	122.95	128.67
3	E	1301	ATP	N3-C2-N1	-4.22	122.95	128.67
3	D	1301	ATP	N3-C2-N1	-4.19	122.98	128.67
4	L	500	HEM	C3B-C2B-C1B	-3.85	103.52	106.41
4	K	500	HEM	C3B-C2B-C1B	-3.84	103.53	106.41
4	I	500	HEM	C3B-C2B-C1B	-3.84	103.53	106.41
4	M	500	HEM	C3B-C2B-C1B	-3.84	103.53	106.41
4	H	500	HEM	C3B-C2B-C1B	-3.82	103.54	106.41
4	N	500	HEM	C3B-C2B-C1B	-3.81	103.55	106.41
4	J	500	HEM	C3B-C2B-C1B	-3.81	103.55	106.41
4	K	500	HEM	C3B-C4B-NB	3.57	112.03	109.47
4	N	500	HEM	C3B-C4B-NB	3.53	112.00	109.47
4	H	500	HEM	C3B-C4B-NB	3.50	111.98	109.47
4	L	500	HEM	C3B-C4B-NB	3.49	111.97	109.47
4	I	500	HEM	C3B-C4B-NB	3.48	111.97	109.47
4	M	500	HEM	C3B-C4B-NB	3.48	111.97	109.47
4	J	500	HEM	C3B-C4B-NB	3.46	111.95	109.47
4	N	500	HEM	CMA-C3A-C4A	-3.31	123.61	128.46
4	H	500	HEM	CMA-C3A-C4A	-3.28	123.65	128.46
4	J	500	HEM	CMA-C3A-C4A	-3.28	123.65	128.46
4	L	500	HEM	CMA-C3A-C4A	-3.27	123.66	128.46
4	K	500	HEM	CMA-C3A-C4A	-3.27	123.66	128.46
4	M	500	HEM	CMA-C3A-C4A	-3.27	123.67	128.46
4	I	500	HEM	CMA-C3A-C4A	-3.24	123.70	128.46
4	L	500	HEM	C2B-C1B-NB	3.07	113.37	109.84
4	L	500	HEM	C4A-C3A-C2A	3.06	109.13	107.00
4	M	500	HEM	C4A-C3A-C2A	3.05	109.12	107.00
4	N	500	HEM	C2B-C1B-NB	3.05	113.34	109.84
4	I	500	HEM	CBD-CAD-C3D	-3.04	104.12	112.53
4	H	500	HEM	C2B-C1B-NB	3.04	113.33	109.84
4	K	500	HEM	CBD-CAD-C3D	-3.04	104.13	112.53
4	H	500	HEM	CBD-CAD-C3D	-3.04	104.13	112.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	J	500	HEM	CBD-CAD-C3D	-3.04	104.13	112.53
4	L	500	HEM	CBD-CAD-C3D	-3.04	104.13	112.53
4	N	500	HEM	CBD-CAD-C3D	-3.04	104.14	112.53
4	M	500	HEM	CBD-CAD-C3D	-3.03	104.15	112.53
4	K	500	HEM	C2B-C1B-NB	3.03	113.32	109.84
4	H	500	HEM	C4A-C3A-C2A	3.03	109.10	107.00
4	J	500	HEM	C4A-C3A-C2A	3.03	109.10	107.00
4	N	500	HEM	C4A-C3A-C2A	3.03	109.10	107.00
4	I	500	HEM	C2B-C1B-NB	3.02	113.32	109.84
4	J	500	HEM	C2B-C1B-NB	3.01	113.31	109.84
4	M	500	HEM	C2B-C1B-NB	3.00	113.29	109.84
4	K	500	HEM	C4A-C3A-C2A	3.00	109.08	107.00
3	C	1301	ATP	O3B-PB-O1B	2.99	119.71	110.70
4	I	500	HEM	C4A-C3A-C2A	2.99	109.08	107.00
3	E	1301	ATP	O3B-PB-O1B	2.99	119.69	110.70
3	F	1301	ATP	O3B-PB-O1B	2.99	119.69	110.70
3	B	1301	ATP	O3B-PB-O1B	2.99	119.68	110.70
3	A	1301	ATP	O3B-PB-O1B	2.98	119.68	110.70
3	D	1301	ATP	O3B-PB-O1B	2.98	119.67	110.70
3	G	1301	ATP	O3B-PB-O1B	2.98	119.66	110.70
4	J	500	HEM	CAD-CBD-CGD	2.52	120.34	113.67
4	L	500	HEM	CAD-CBD-CGD	2.51	120.33	113.67
4	H	500	HEM	CAD-CBD-CGD	2.51	120.33	113.67
4	N	500	HEM	CAD-CBD-CGD	2.51	120.33	113.67
4	K	500	HEM	CAD-CBD-CGD	2.51	120.32	113.67
4	M	500	HEM	CAD-CBD-CGD	2.51	120.32	113.67
4	I	500	HEM	CAD-CBD-CGD	2.50	120.30	113.67
3	C	1301	ATP	O3A-PB-O1B	-2.47	103.26	110.70
3	E	1301	ATP	O3A-PB-O1B	-2.47	103.27	110.70
3	A	1301	ATP	O3A-PB-O1B	-2.47	103.27	110.70
3	F	1301	ATP	O3A-PB-O1B	-2.47	103.28	110.70
3	B	1301	ATP	O3A-PB-O1B	-2.46	103.29	110.70
3	G	1301	ATP	O3A-PB-O1B	-2.46	103.30	110.70
3	D	1301	ATP	O3A-PB-O1B	-2.46	103.31	110.70
4	H	500	HEM	C4C-CHD-C1D	2.44	125.78	122.56
4	N	500	HEM	C4C-CHD-C1D	2.44	125.78	122.56
4	K	500	HEM	C4C-CHD-C1D	2.43	125.77	122.56
4	I	500	HEM	C4C-CHD-C1D	2.43	125.77	122.56
4	M	500	HEM	C4C-CHD-C1D	2.42	125.75	122.56
4	J	500	HEM	C4C-CHD-C1D	2.41	125.74	122.56
4	L	500	HEM	C4C-CHD-C1D	2.41	125.73	122.56
4	L	500	HEM	O2D-CGD-CBD	2.31	121.30	114.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	M	500	HEM	O2D-CGD-CBD	2.30	121.28	114.00
4	I	500	HEM	O2D-CGD-CBD	2.30	121.26	114.00
4	K	500	HEM	O2D-CGD-CBD	2.30	121.26	114.00
4	H	500	HEM	O2D-CGD-CBD	2.30	121.25	114.00
4	N	500	HEM	O2D-CGD-CBD	2.29	121.25	114.00
4	J	500	HEM	O2D-CGD-CBD	2.28	121.22	114.00
4	M	500	HEM	C1D-C2D-C3D	-2.22	104.65	106.98
4	N	500	HEM	C1D-C2D-C3D	-2.19	104.68	106.98
4	H	500	HEM	C1D-C2D-C3D	-2.18	104.68	106.98
4	K	500	HEM	C1D-C2D-C3D	-2.18	104.69	106.98
4	I	500	HEM	C1D-C2D-C3D	-2.18	104.69	106.98
4	J	500	HEM	C1D-C2D-C3D	-2.16	104.70	106.98
4	L	500	HEM	C1D-C2D-C3D	-2.15	104.71	106.98
4	M	500	HEM	C4B-CHC-C1C	2.14	125.39	122.56
4	K	500	HEM	C4B-CHC-C1C	2.13	125.38	122.56
4	L	500	HEM	C4B-CHC-C1C	2.12	125.36	122.56
4	H	500	HEM	C4B-CHC-C1C	2.12	125.36	122.56
4	J	500	HEM	C4B-CHC-C1C	2.12	125.35	122.56
4	I	500	HEM	C4B-CHC-C1C	2.11	125.34	122.56
4	N	500	HEM	C4B-CHC-C1C	2.10	125.33	122.56
3	A	1301	ATP	O2B-PB-O3B	2.07	112.87	107.27
3	E	1301	ATP	O2B-PB-O3B	2.07	112.87	107.27
3	C	1301	ATP	O2B-PB-O3B	2.07	112.87	107.27
3	F	1301	ATP	O2B-PB-O3B	2.07	112.86	107.27
3	B	1301	ATP	O2B-PB-O3B	2.06	112.85	107.27
3	D	1301	ATP	O2B-PB-O3B	2.06	112.84	107.27
3	G	1301	ATP	O2B-PB-O3B	2.05	112.81	107.27

There are no chirality outliers.

All (49) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1301	ATP	C5'-O5'-PA-O1A
3	B	1301	ATP	C5'-O5'-PA-O1A
3	C	1301	ATP	C5'-O5'-PA-O1A
3	D	1301	ATP	C5'-O5'-PA-O1A
3	E	1301	ATP	C5'-O5'-PA-O1A
3	F	1301	ATP	C5'-O5'-PA-O1A
3	G	1301	ATP	C5'-O5'-PA-O1A
3	A	1301	ATP	O4'-C4'-C5'-O5'
3	B	1301	ATP	O4'-C4'-C5'-O5'
3	C	1301	ATP	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
3	D	1301	ATP	O4'-C4'-C5'-O5'
3	E	1301	ATP	O4'-C4'-C5'-O5'
3	F	1301	ATP	O4'-C4'-C5'-O5'
3	G	1301	ATP	O4'-C4'-C5'-O5'
4	H	500	HEM	C2B-C3B-CAB-CBB
4	I	500	HEM	C2B-C3B-CAB-CBB
4	J	500	HEM	C2B-C3B-CAB-CBB
4	K	500	HEM	C2B-C3B-CAB-CBB
4	L	500	HEM	C2B-C3B-CAB-CBB
4	M	500	HEM	C2B-C3B-CAB-CBB
4	N	500	HEM	C2B-C3B-CAB-CBB
3	A	1301	ATP	C3'-C4'-C5'-O5'
3	E	1301	ATP	C3'-C4'-C5'-O5'
3	F	1301	ATP	C3'-C4'-C5'-O5'
3	B	1301	ATP	C3'-C4'-C5'-O5'
3	C	1301	ATP	C3'-C4'-C5'-O5'
3	D	1301	ATP	C3'-C4'-C5'-O5'
3	G	1301	ATP	C3'-C4'-C5'-O5'
4	H	500	HEM	C4B-C3B-CAB-CBB
4	I	500	HEM	C4B-C3B-CAB-CBB
4	J	500	HEM	C4B-C3B-CAB-CBB
4	K	500	HEM	C4B-C3B-CAB-CBB
4	L	500	HEM	C4B-C3B-CAB-CBB
4	M	500	HEM	C4B-C3B-CAB-CBB
4	N	500	HEM	C4B-C3B-CAB-CBB
3	A	1301	ATP	PG-O3B-PB-O2B
3	B	1301	ATP	PG-O3B-PB-O2B
3	C	1301	ATP	PG-O3B-PB-O2B
3	D	1301	ATP	PG-O3B-PB-O2B
3	E	1301	ATP	PG-O3B-PB-O2B
3	F	1301	ATP	PG-O3B-PB-O2B
3	G	1301	ATP	PG-O3B-PB-O2B
3	A	1301	ATP	PG-O3B-PB-O1B
3	B	1301	ATP	PG-O3B-PB-O1B
3	C	1301	ATP	PG-O3B-PB-O1B
3	D	1301	ATP	PG-O3B-PB-O1B
3	E	1301	ATP	PG-O3B-PB-O1B
3	F	1301	ATP	PG-O3B-PB-O1B
3	G	1301	ATP	PG-O3B-PB-O1B

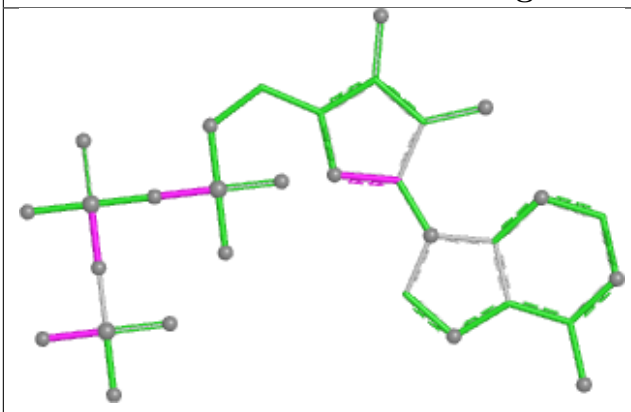
There are no ring outliers.

14 monomers are involved in 60 short contacts:

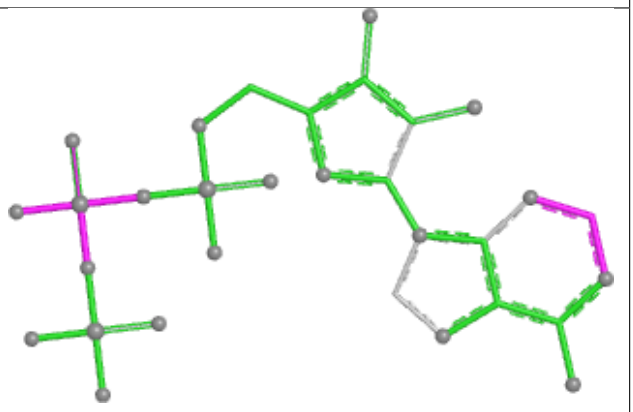
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	1301	ATP	2	0
3	G	1301	ATP	1	0
4	H	500	HEM	7	0
4	L	500	HEM	6	0
3	C	1301	ATP	1	0
4	M	500	HEM	8	0
3	D	1301	ATP	1	0
3	A	1301	ATP	1	0
3	E	1301	ATP	1	0
3	F	1301	ATP	2	0
4	J	500	HEM	7	0
4	N	500	HEM	7	0
4	K	500	HEM	6	0
4	I	500	HEM	10	0

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 then 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.

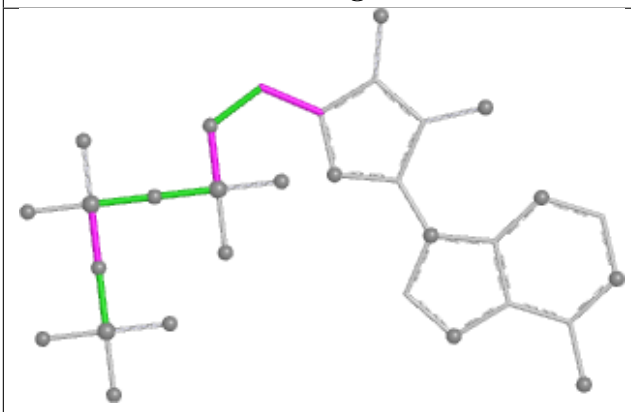
Ligand ATP B 1301



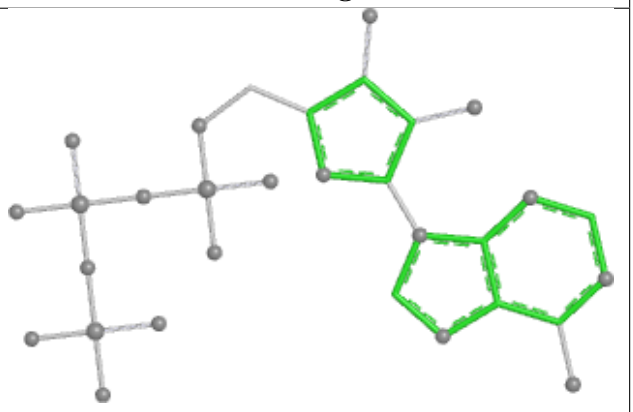
Bond lengths



Bond angles

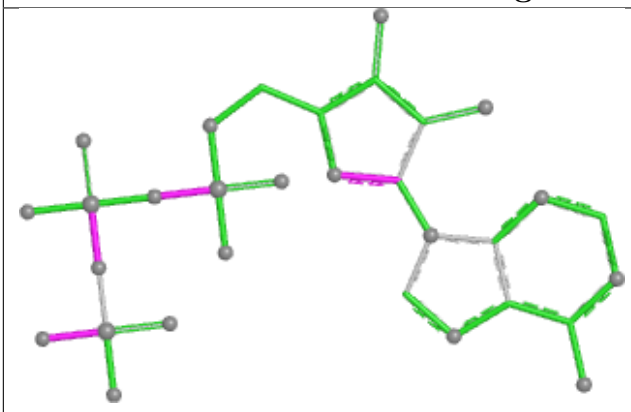


Torsions

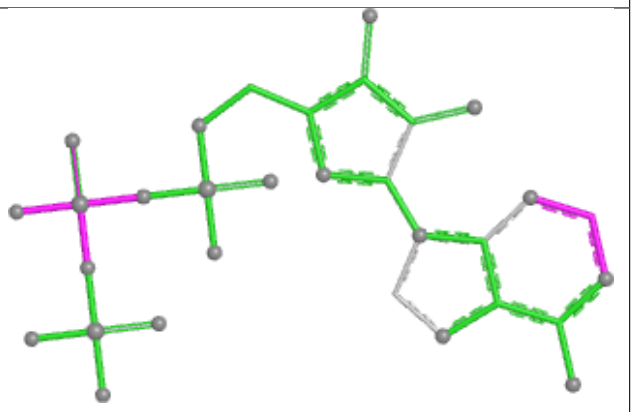


Rings

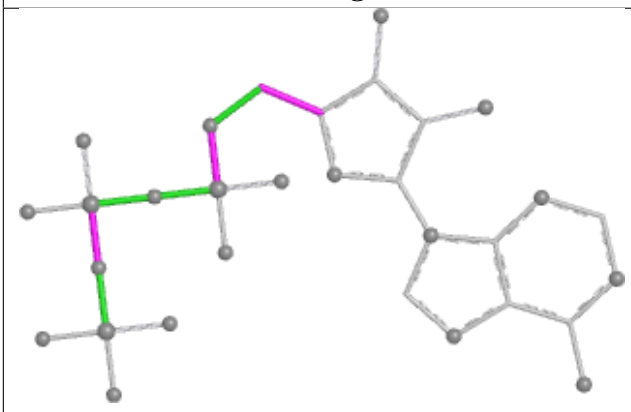
Ligand ATP G 1301



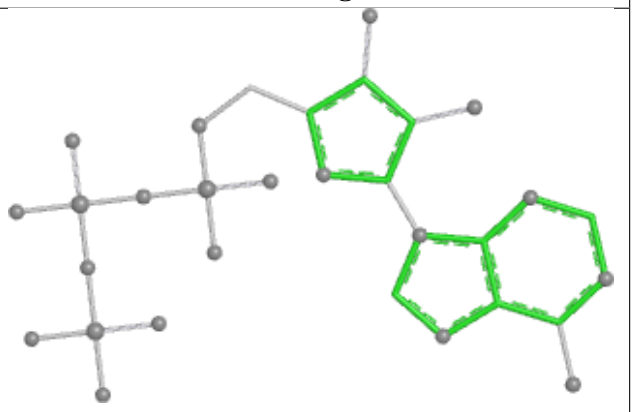
Bond lengths



Bond angles

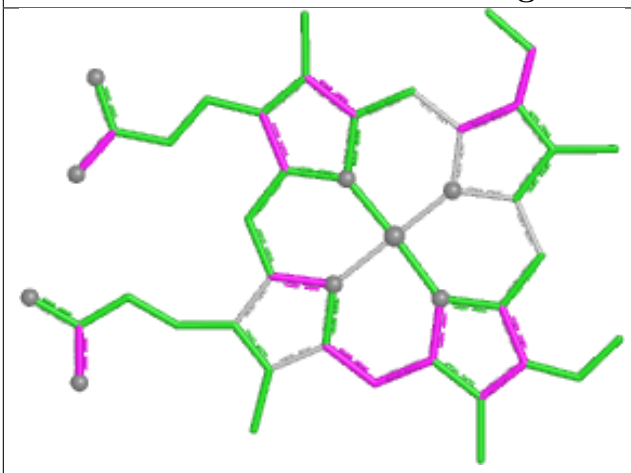


Torsions

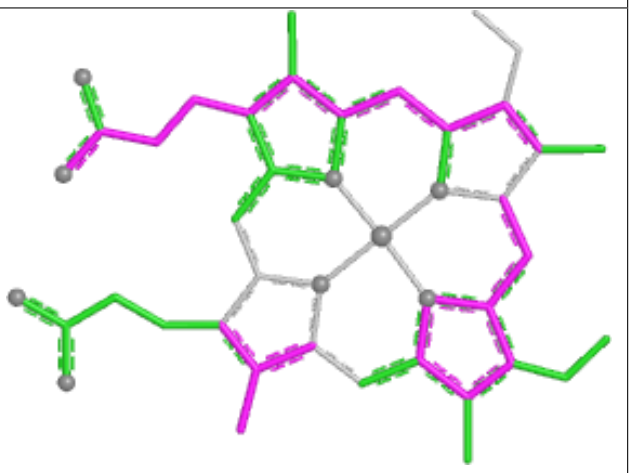


Rings

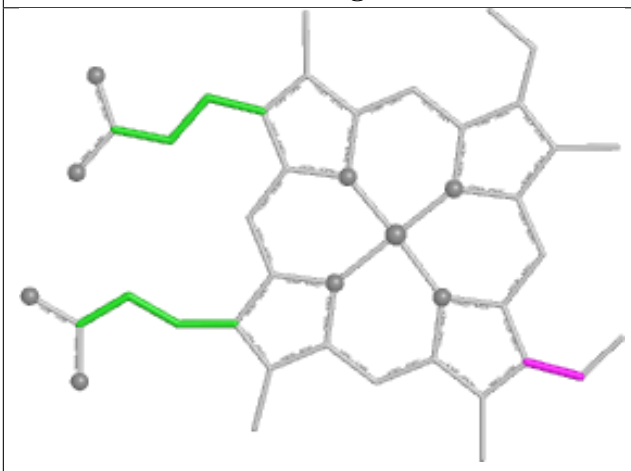
Ligand HEM H 500



Bond lengths



Bond angles



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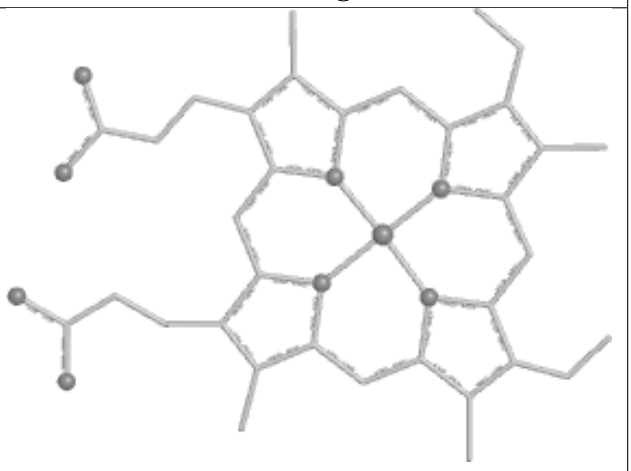
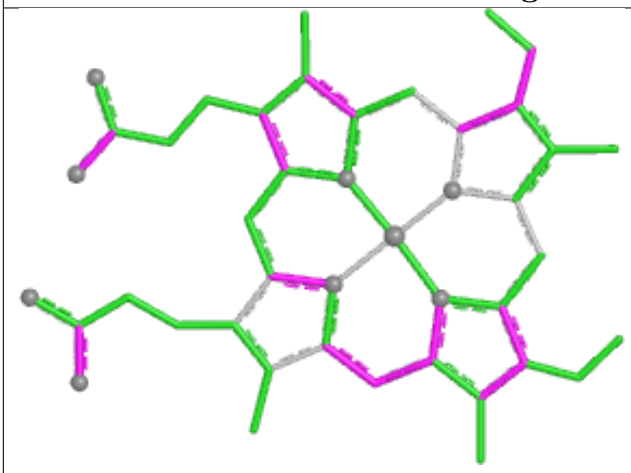
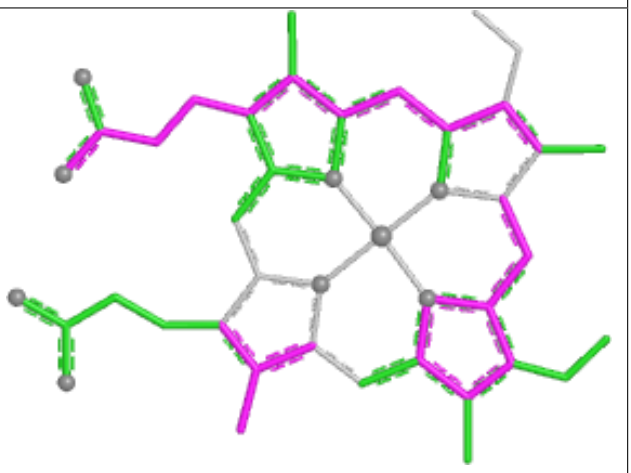


Rings

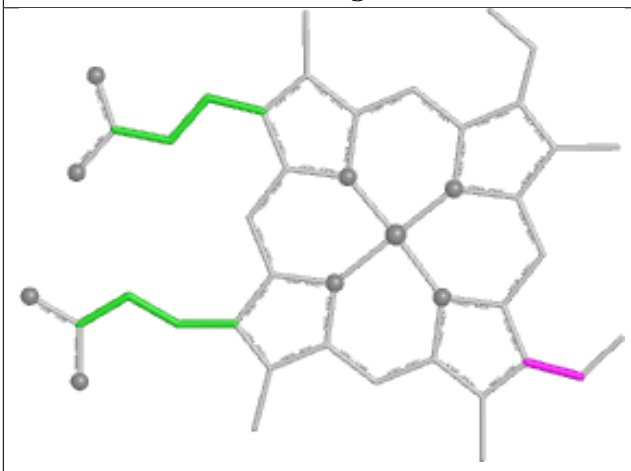
Ligand HEM L 500



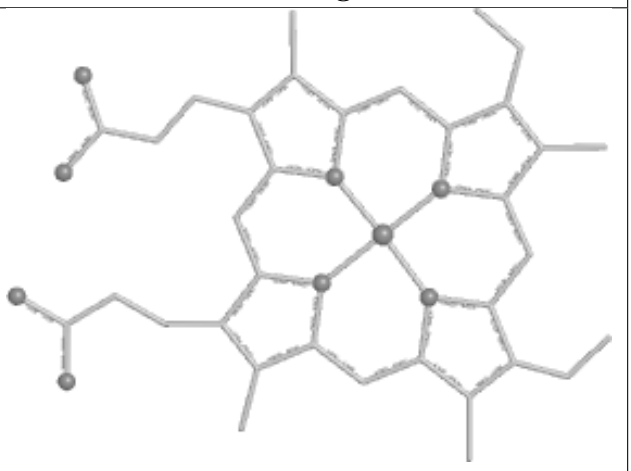
Bond lengths



Bond angles

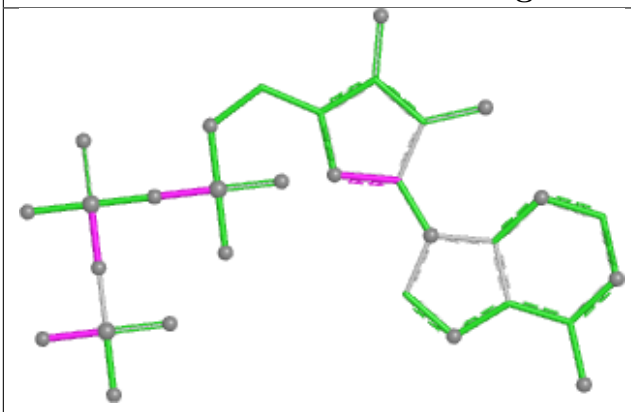


Torsions

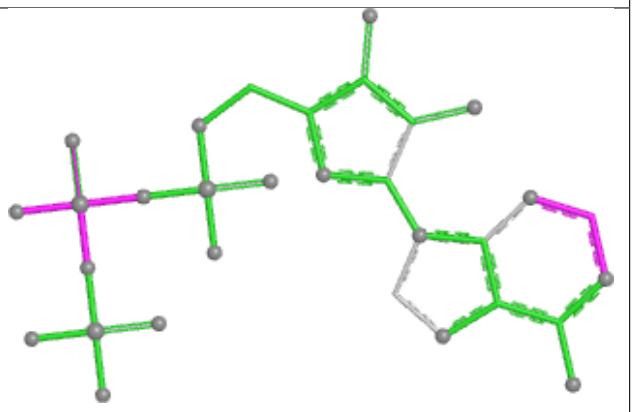


Rings

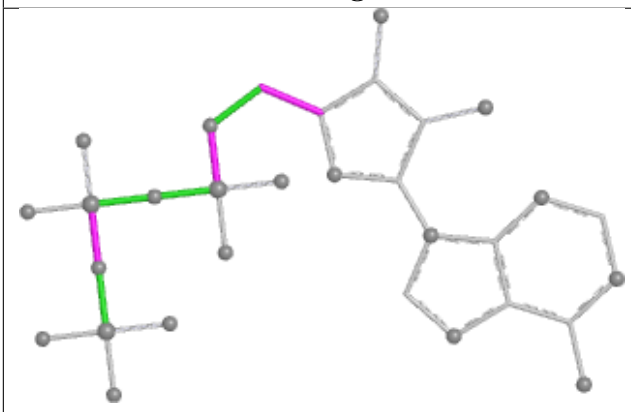
Ligand ATP C 1301



Bond lengths



Bond angles



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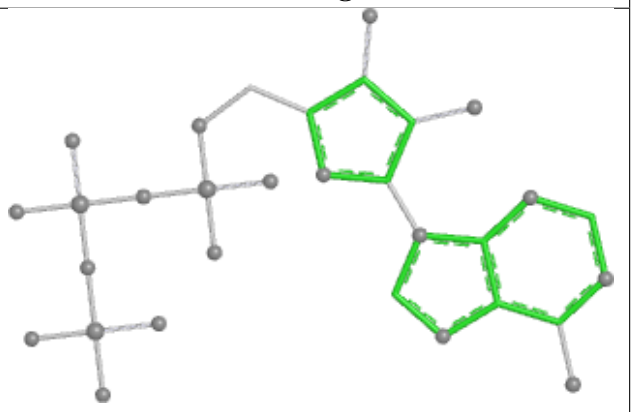
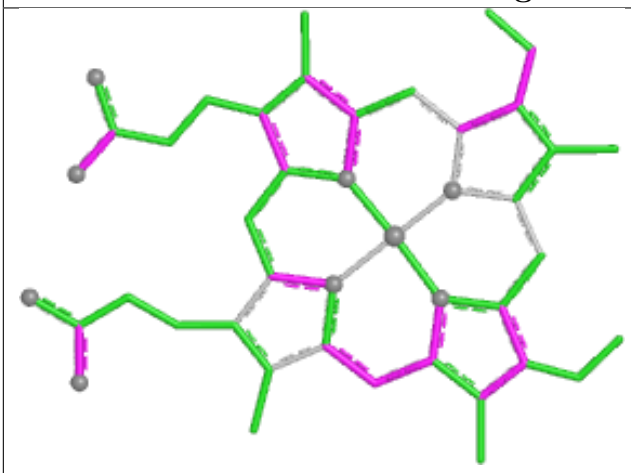
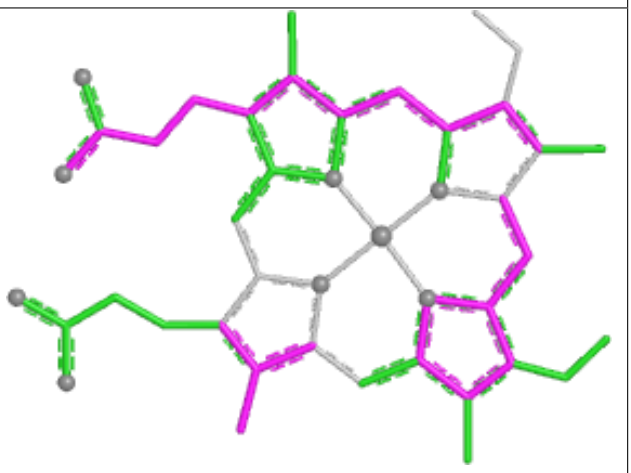


Rings

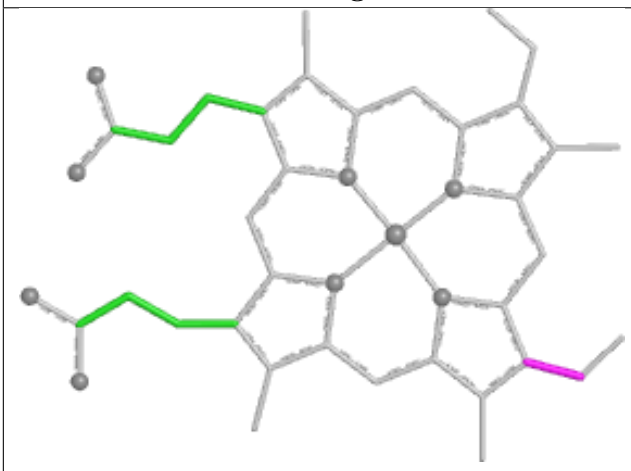
Ligand HEM M 500



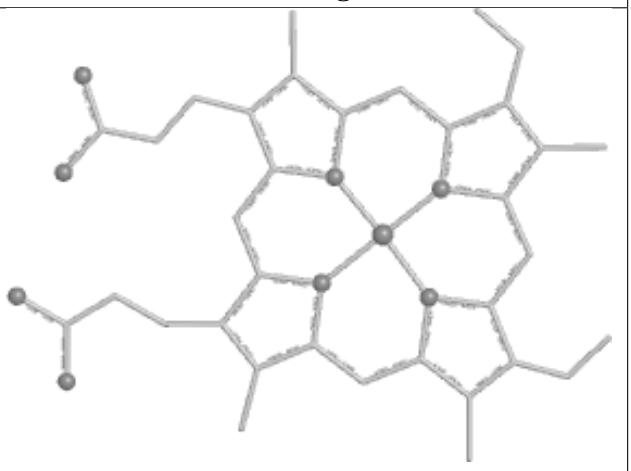
Bond lengths



Bond angles

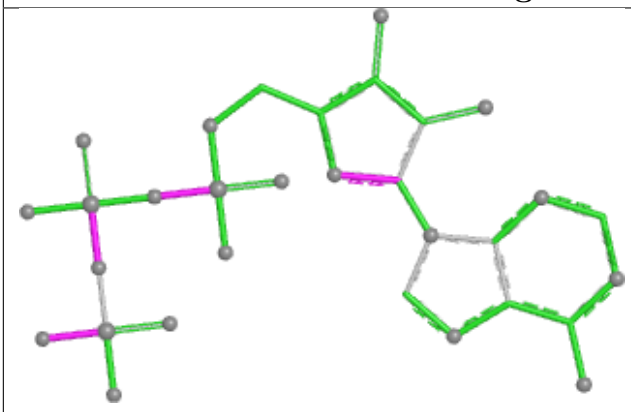


Torsions

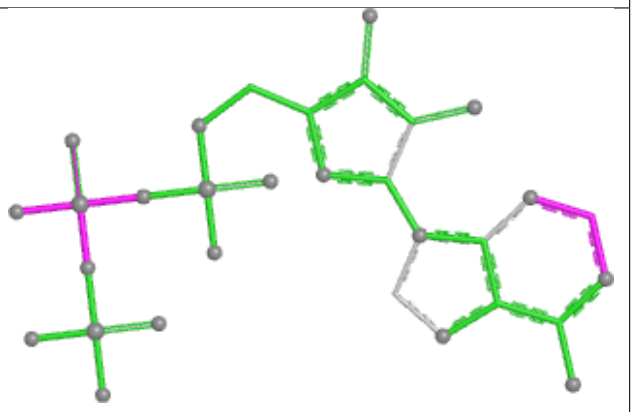


Rings

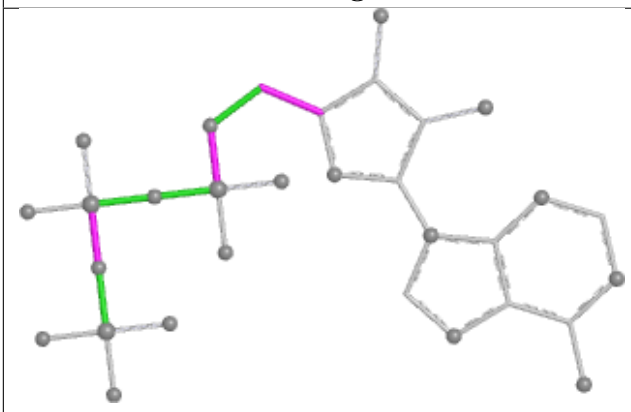
Ligand ATP D 1301



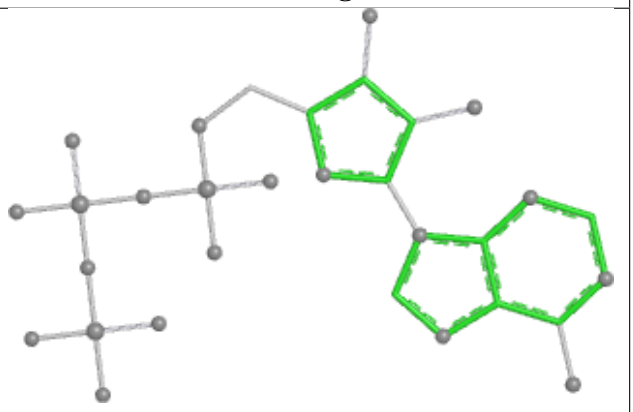
Bond lengths



Bond angles

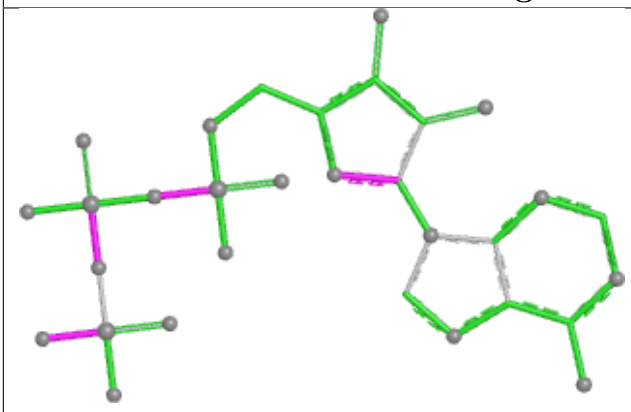


Torsions

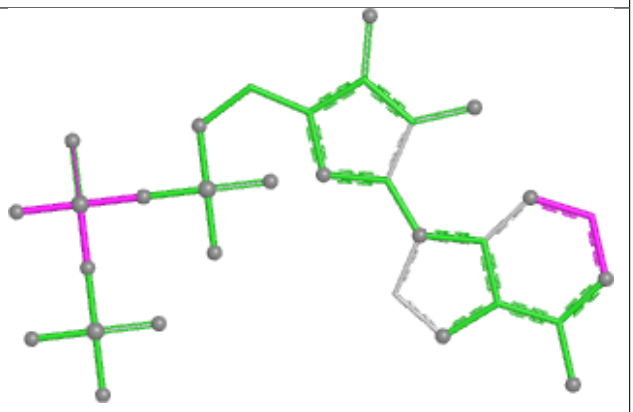


Rings

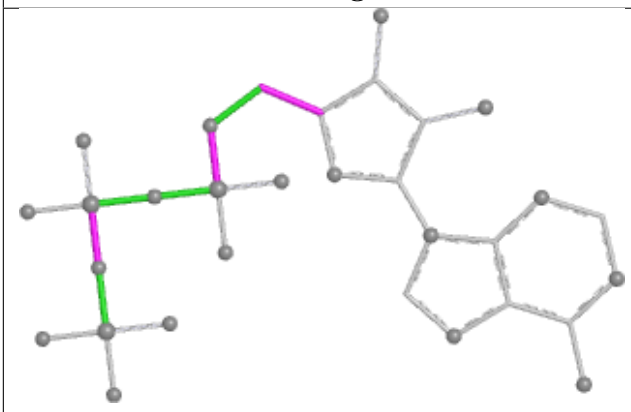
Ligand ATP A 1301



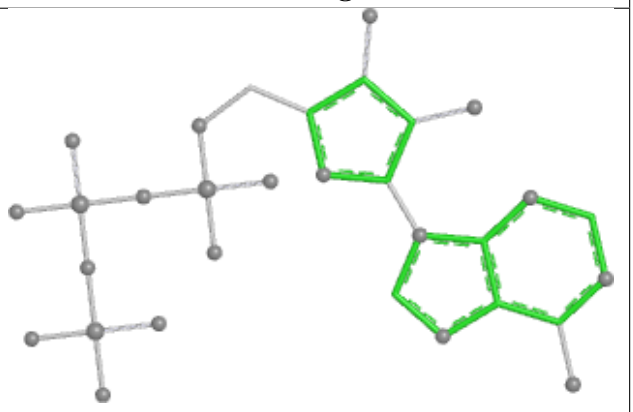
Bond lengths



Bond angles

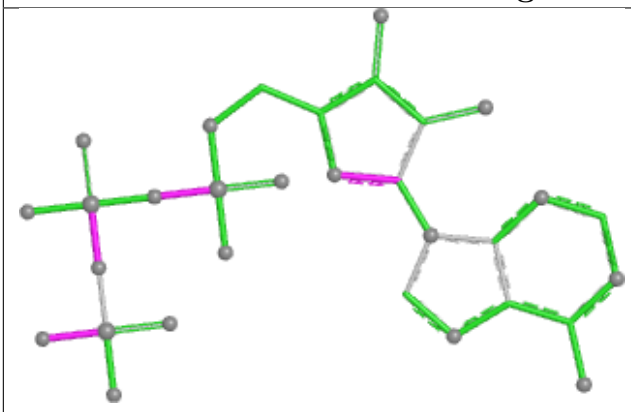


Torsions

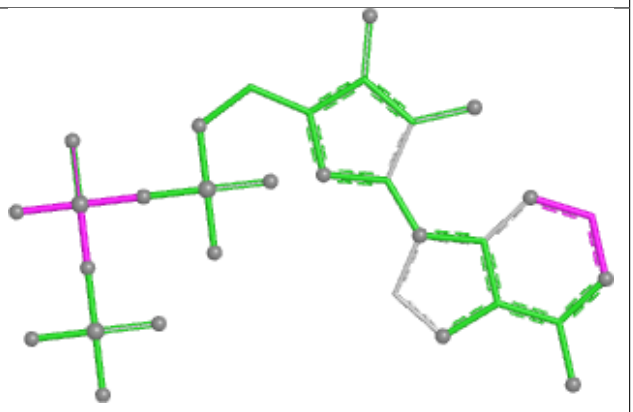


Rings

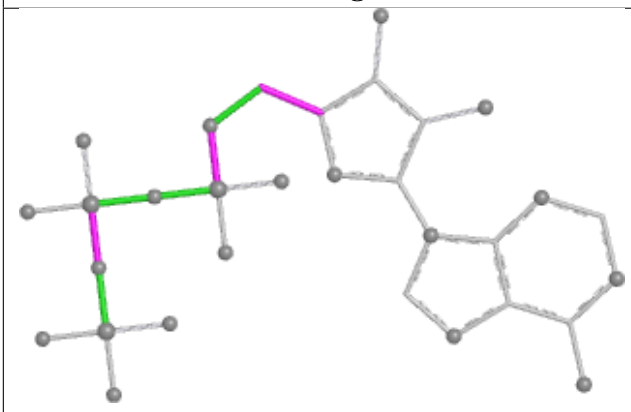
Ligand ATP E 1301



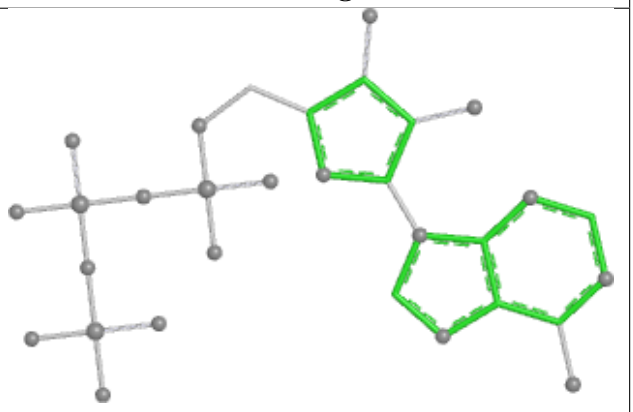
Bond lengths



Bond angles

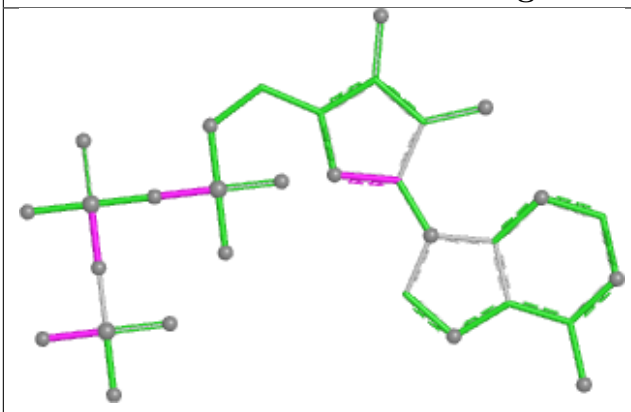


Torsions

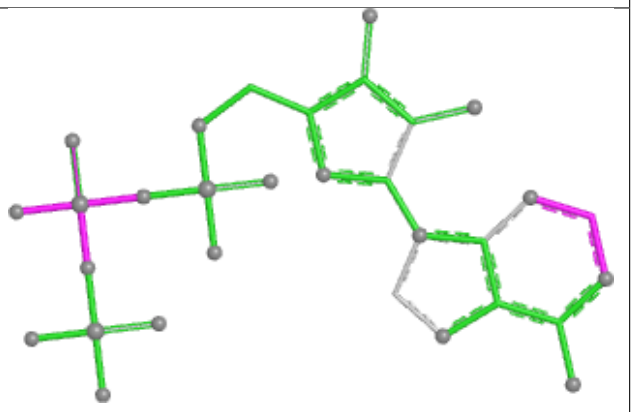


Rings

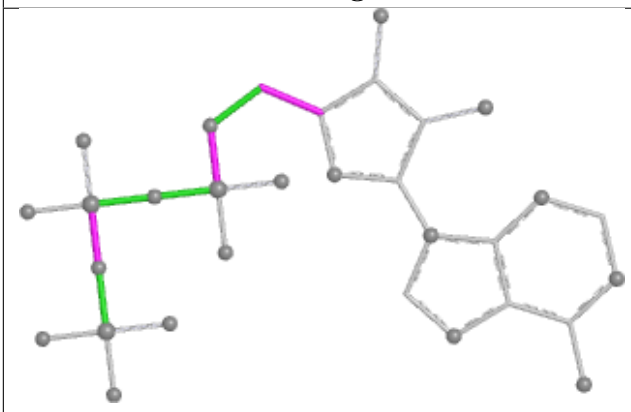
Ligand ATP F 1301



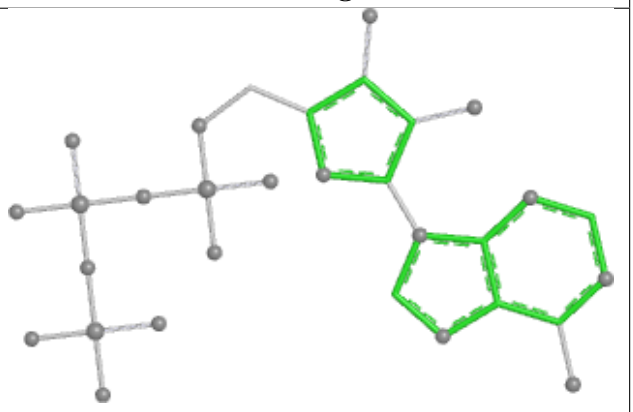
Bond lengths



Bond angles

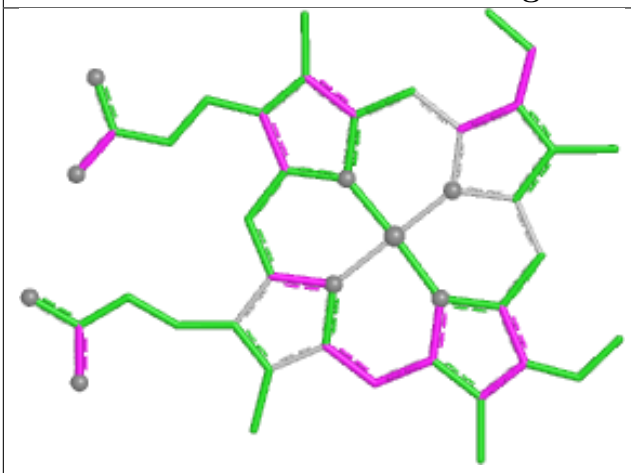


Torsions

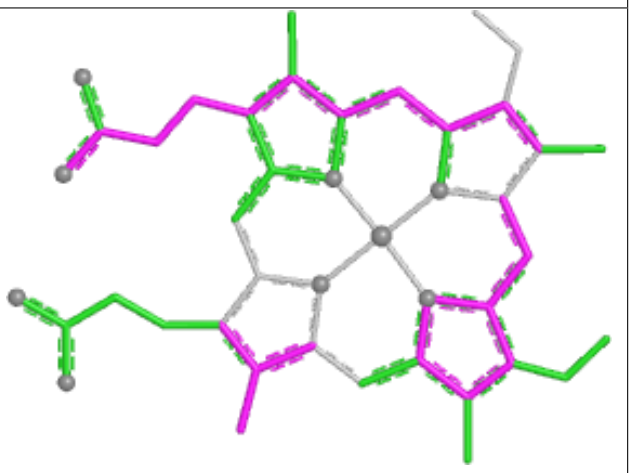


Rings

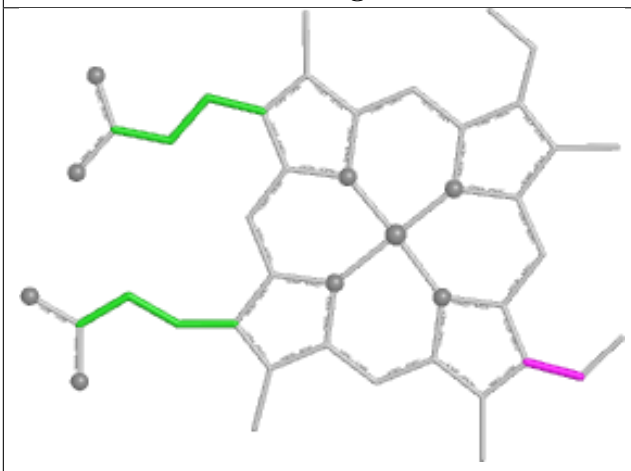
Ligand HEM J 500



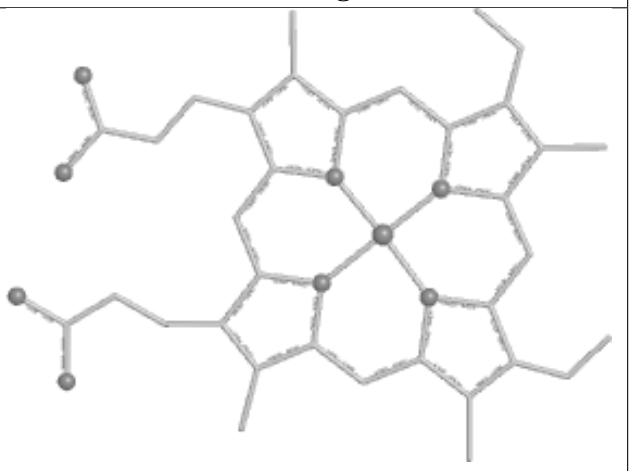
Bond lengths



Bond angles

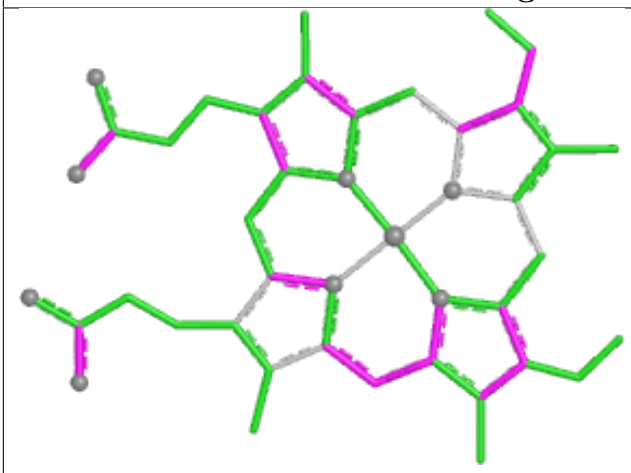


Torsions

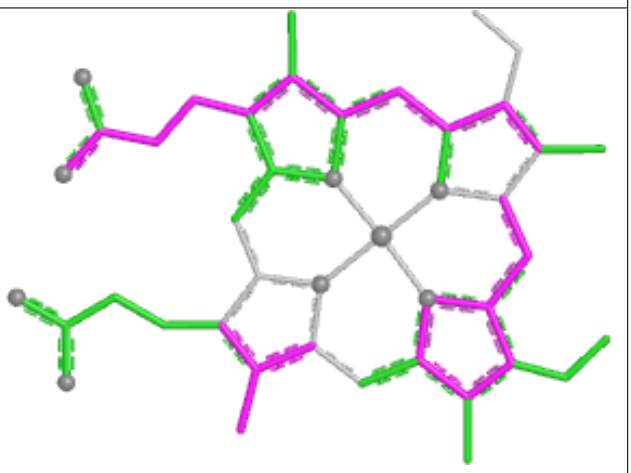


Rings

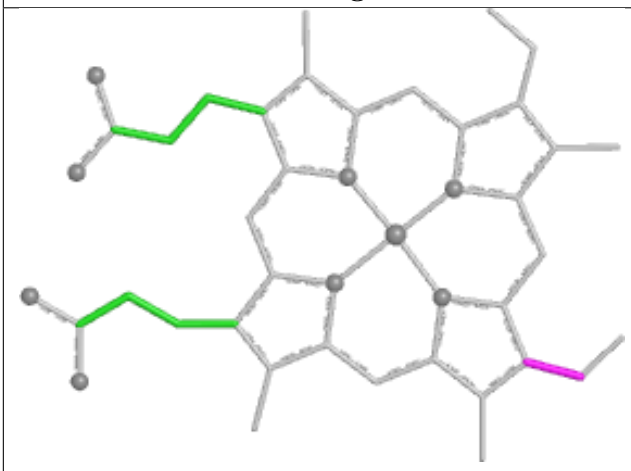
Ligand HEM N 500



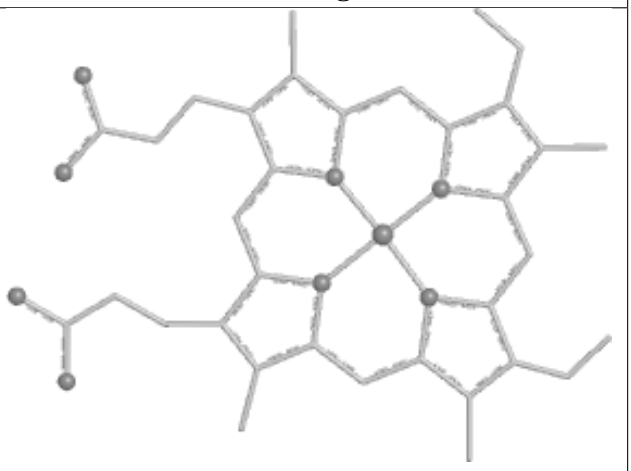
Bond lengths



Bond angles

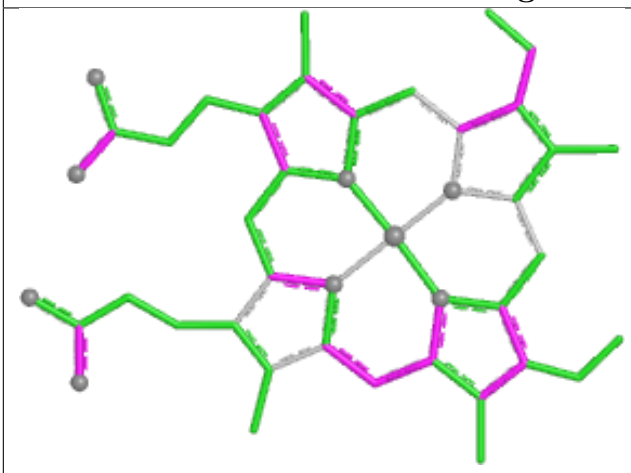


Torsions

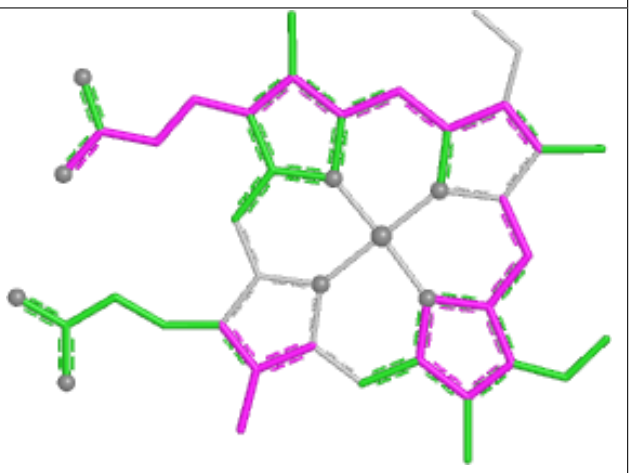


Rings

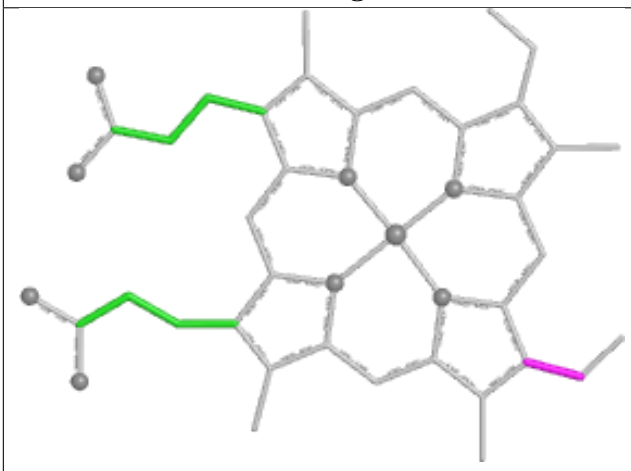
Ligand HEM K 500



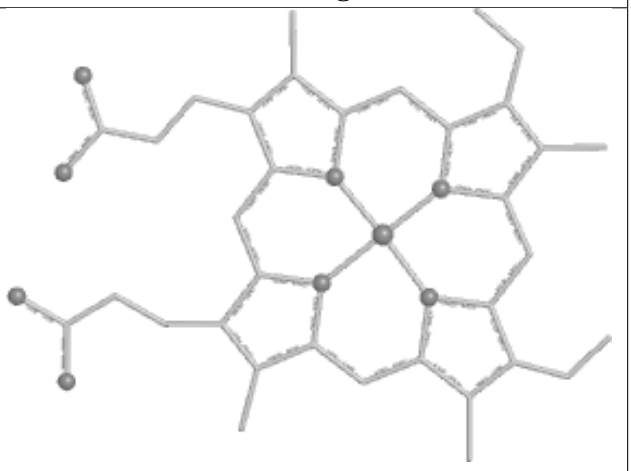
Bond lengths



Bond angles

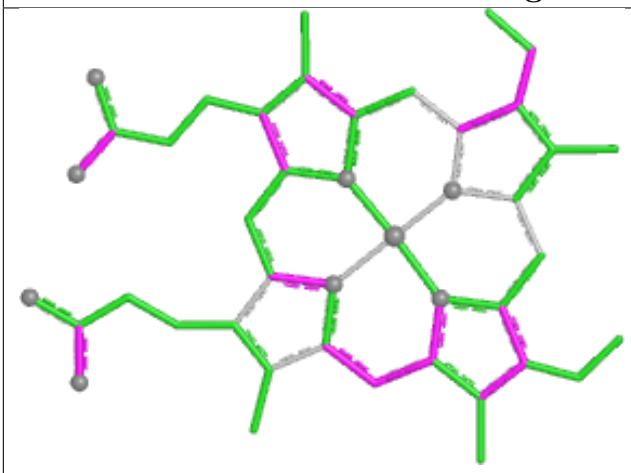


Torsions

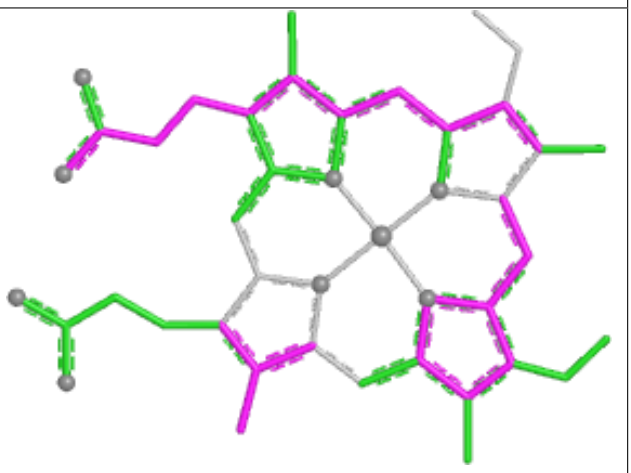


Rings

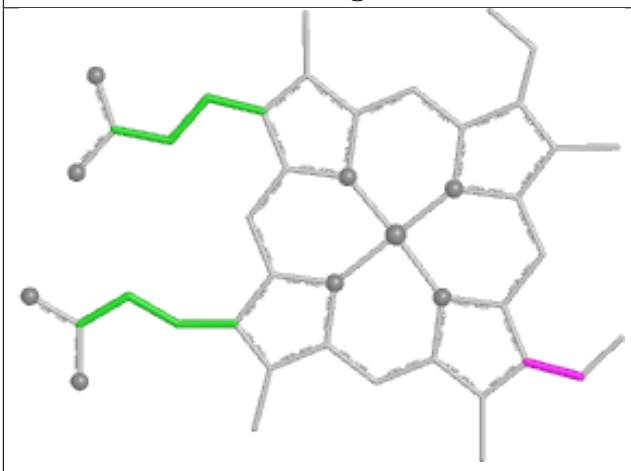
Ligand HEM I 500



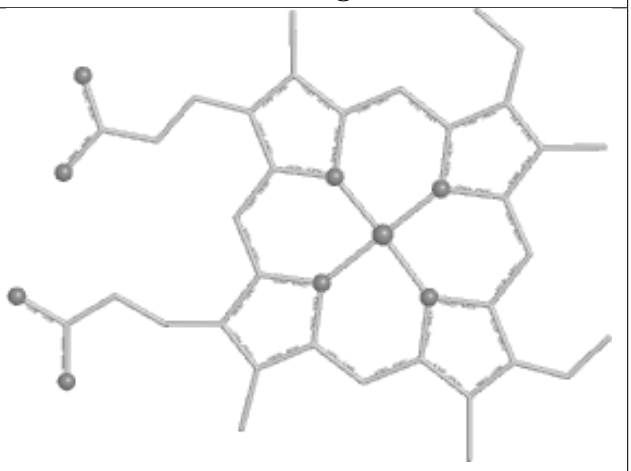
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

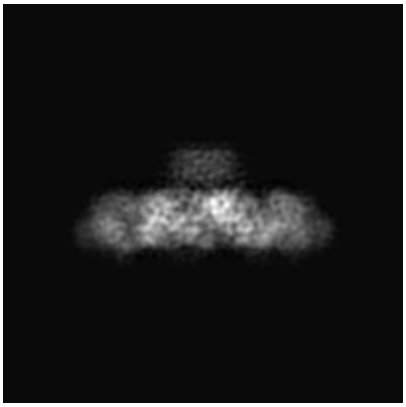
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-5186. These allow visual inspection of the internal detail of the map and identification of artifacts.

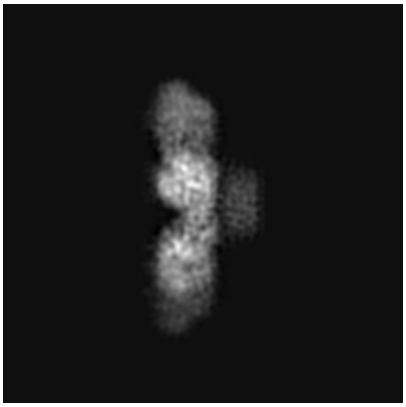
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

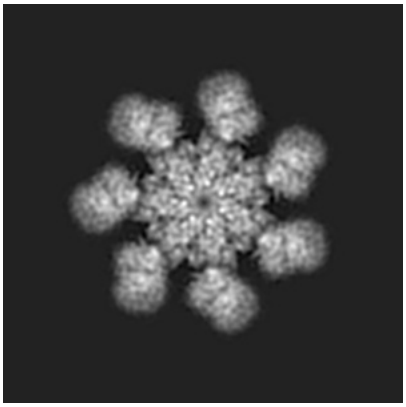
6.1.1 Primary map



X



Y



Z

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

6.2 Central slices

6.2.1 Primary map

X Index: 100

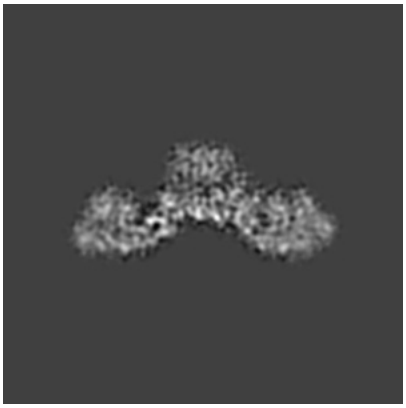
Y Index: 100

Z Index: 100

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

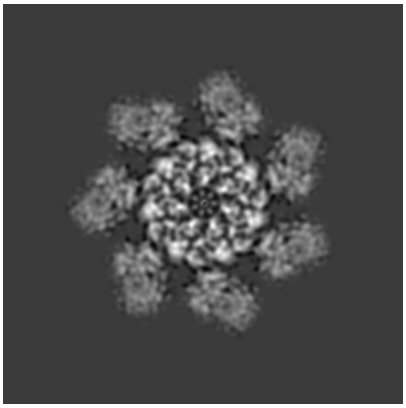
6.3 Largest variance slices (i)

6.3.1 Primary map



X Index: 109

Y Index: 105

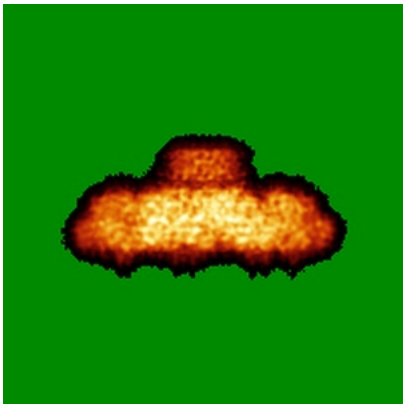


Z Index: 92

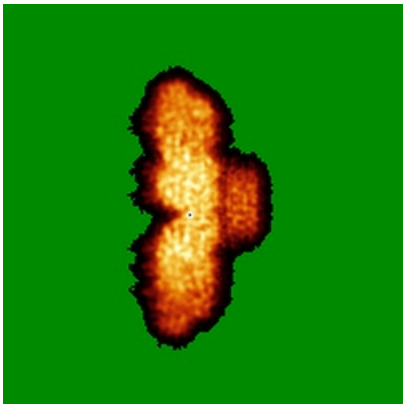
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map



X



Y

Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 1.3. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

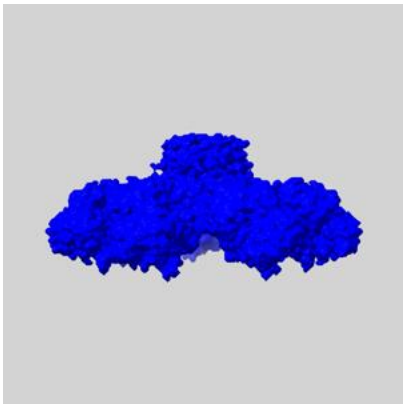
6.6 Mask visualisation

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

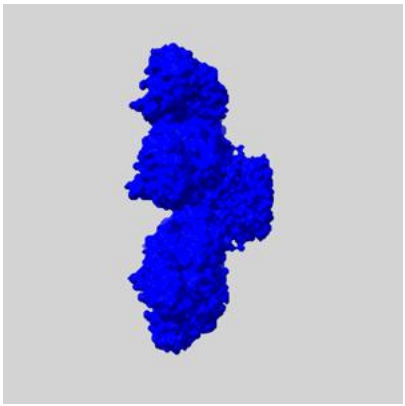
A mask typically either:

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

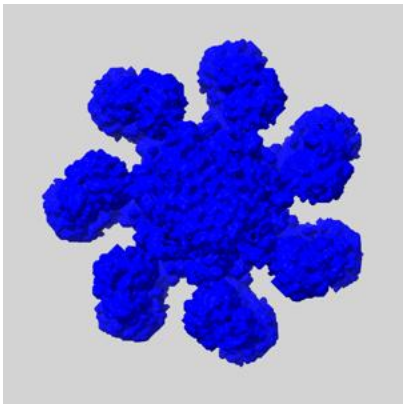
6.6.1 emd_5186_msk_1.map



X



Y

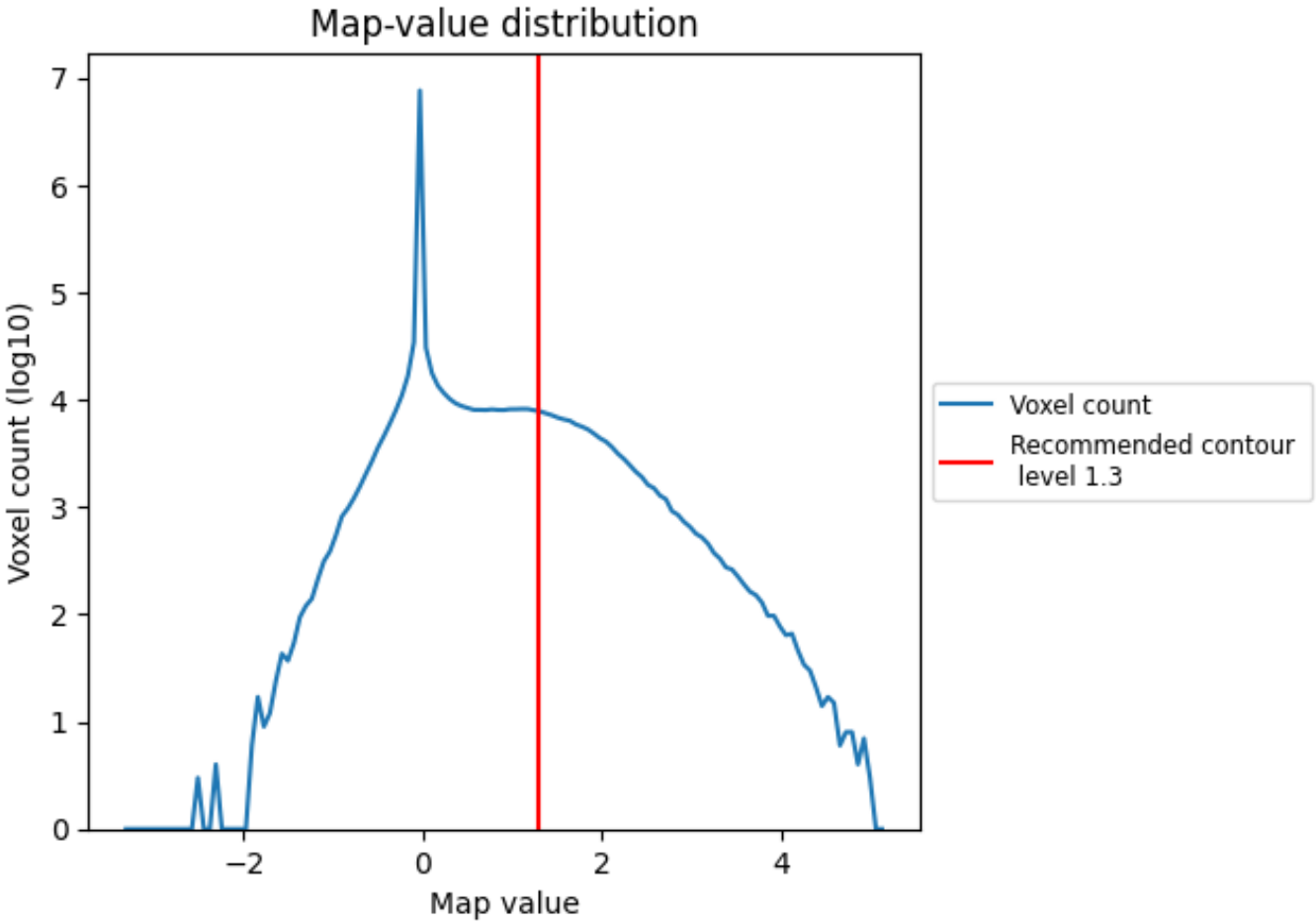


Z

7 Map analysis

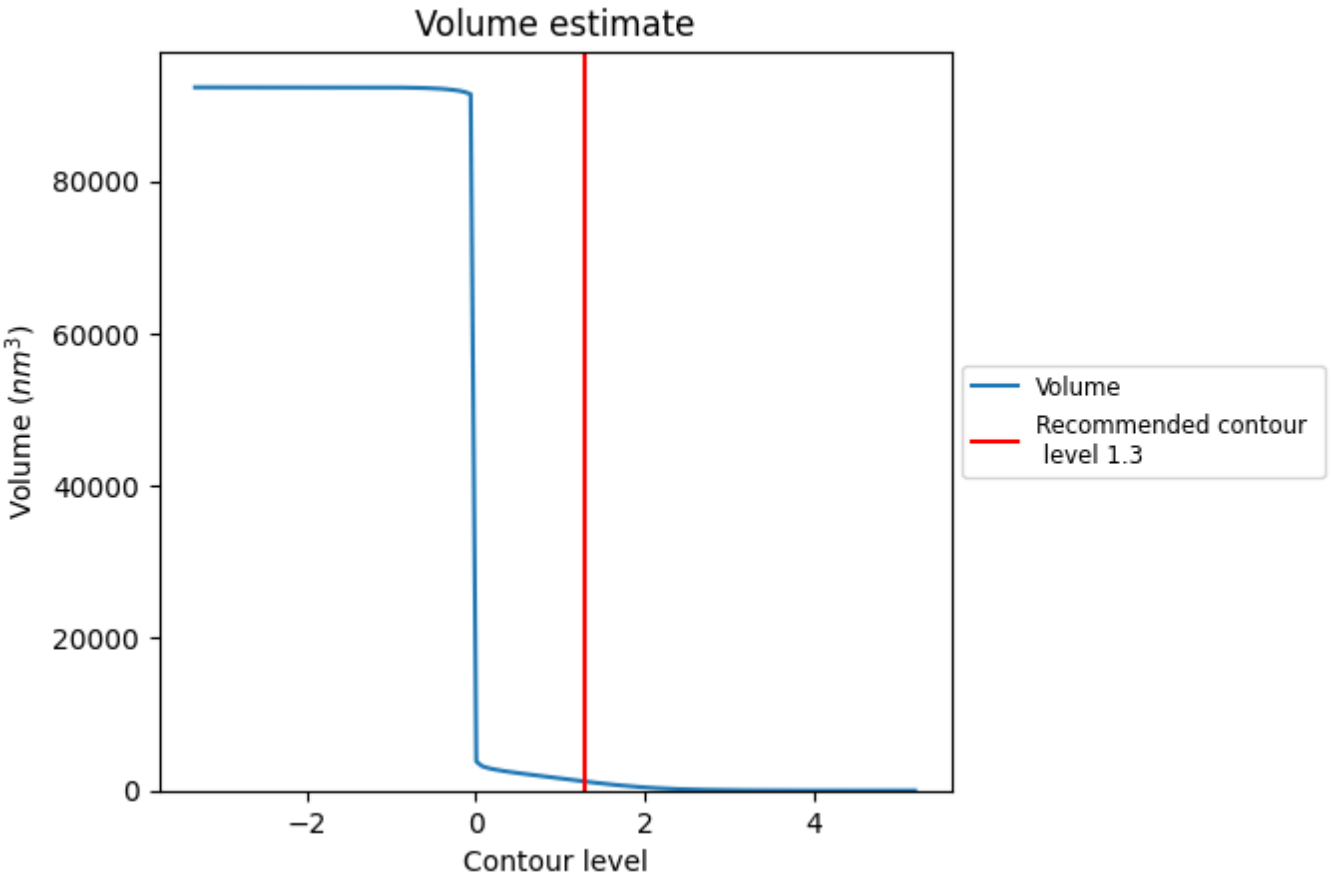
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

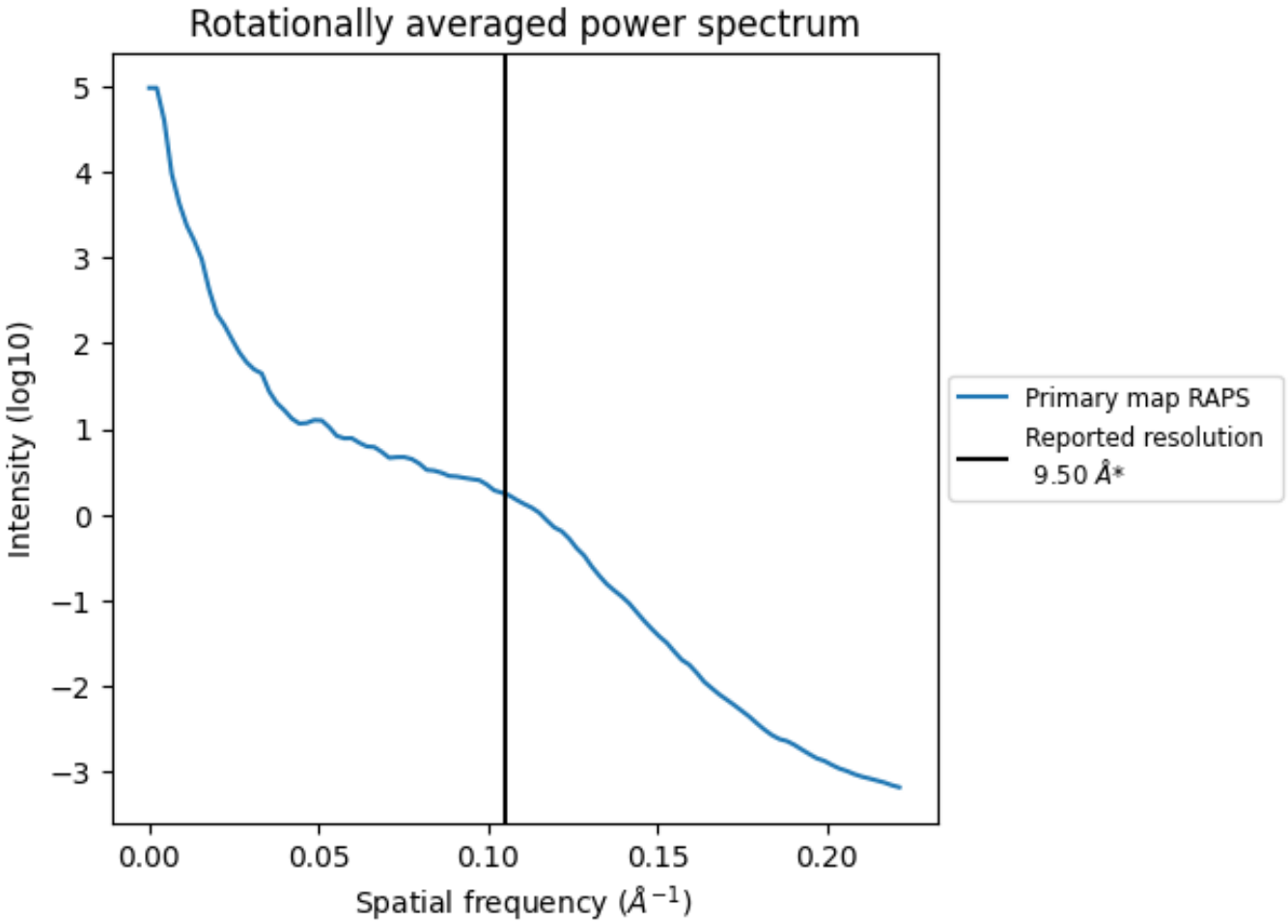
7.2 Volume estimate



The volume at the recommended contour level is 1182 nm^3; this corresponds to an approximate mass of 1068 kDa.

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

7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.105 Å^{-1}

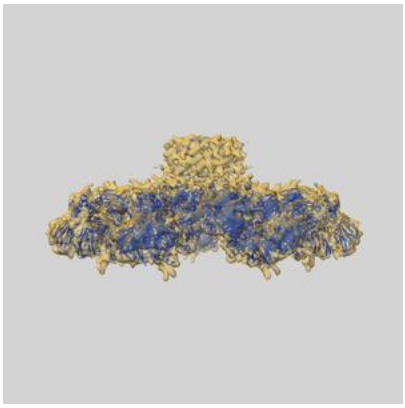
8 Fourier-Shell correlation

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

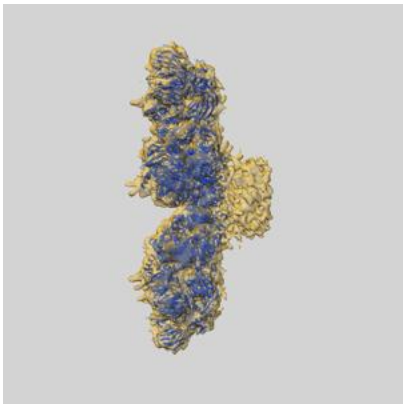
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-5186 and PDB model 3J2T. Per-residue inclusion information can be found in section 3 on page 10.

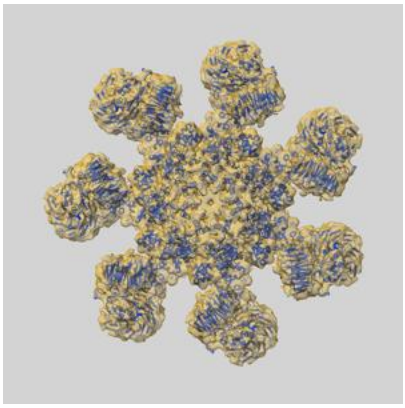
9.1 Map-model overlay



X



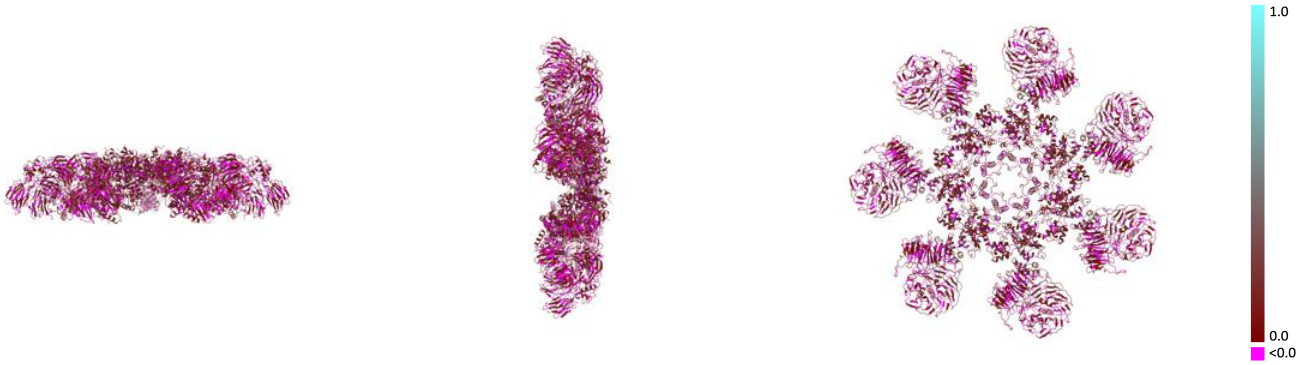
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 1.3 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.

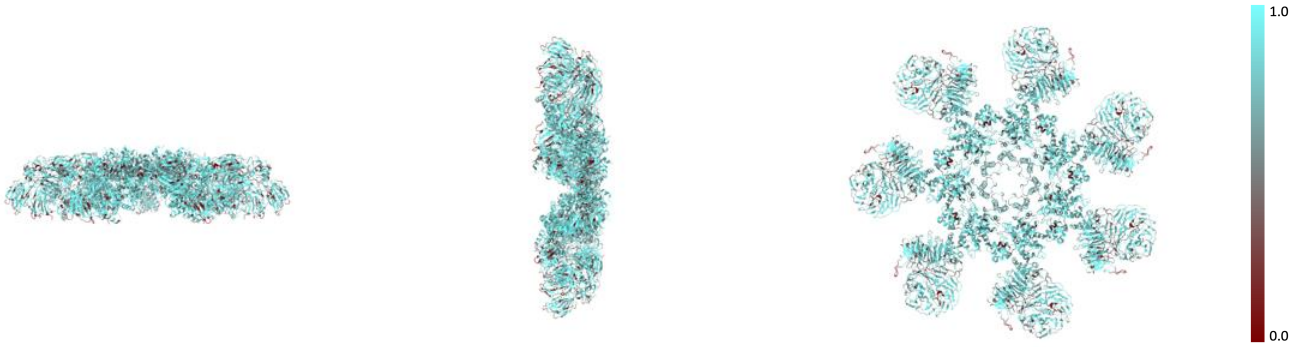
9.2 Q-score mapped to coordinate model



X Y Z

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

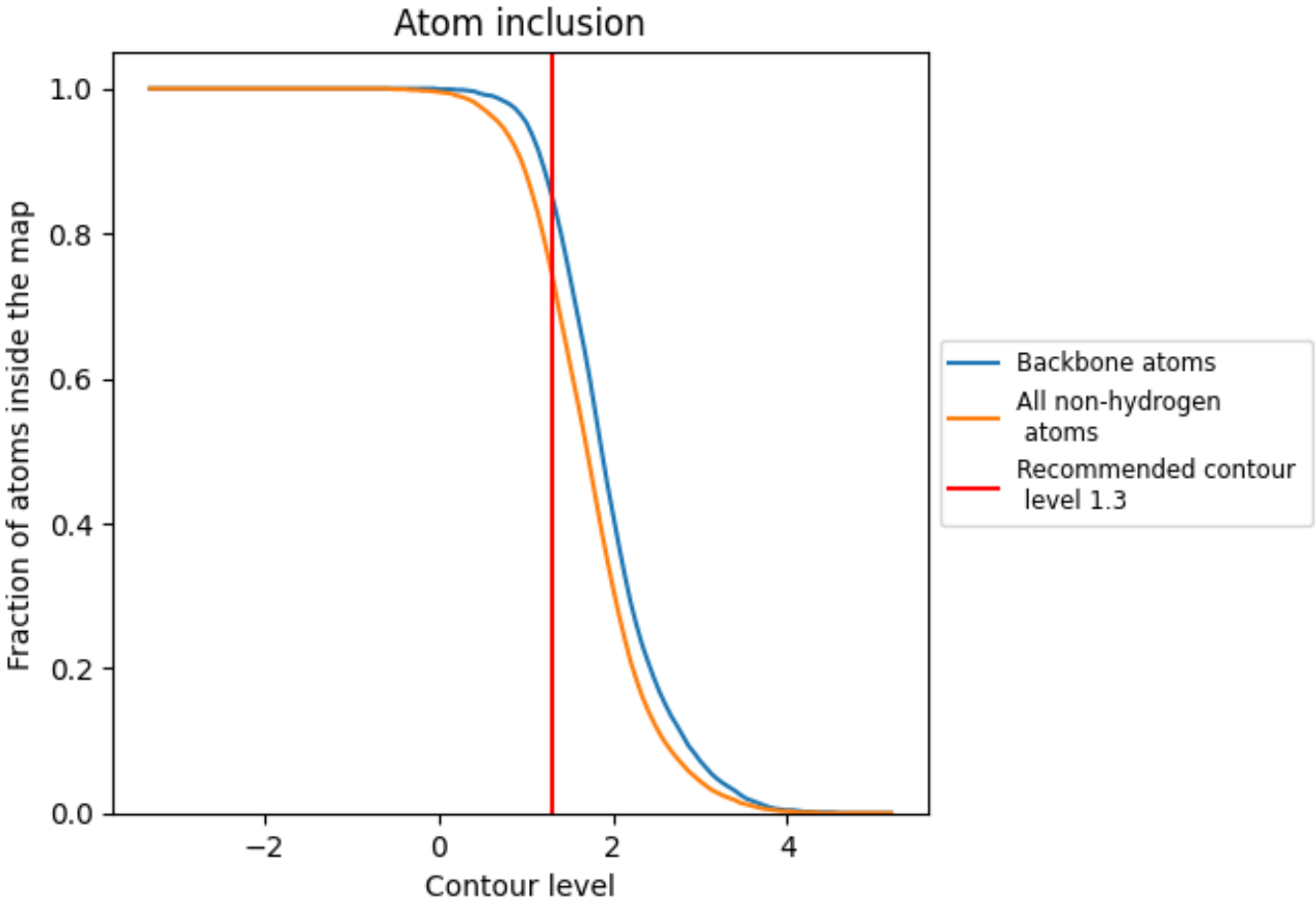
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (1.3).

9.4 Atom inclusion (i)



At the recommended contour level, 85% of all backbone atoms, 74% 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 (1.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7450	0.0880
A	0.7470	0.0900
B	0.7490	0.0900
C	0.7480	0.0890
D	0.7500	0.0890
E	0.7460	0.0880
F	0.7480	0.0890
G	0.7480	0.0890
H	0.7090	0.0750
I	0.7160	0.0740
J	0.7060	0.0710
K	0.7120	0.0750
L	0.7120	0.0760
M	0.7150	0.0790
N	0.7060	0.0760