Full wwPDB X-ray Structure Validation Report (i)

Sep 8, 2025 – 10:19 PM JST

PDB ID	:	5XMJ / pdb_00005xmj
Title	:	Crystal structure of quinol:fumarate reductase from Desulfovibrio gigas
Authors	:	Guan, H.H.; Hsieh, Y.C.; Lin, P.R.; Chen, C.J.
Deposited on	:	2017-05-15
Resolution	:	3.60 Å(reported)

This is a Full wwPDB X-ray Structure 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/XrayValidationReportHelp
with specific help available everywhere you see the (i) 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 (i)) were used in the production of this report:

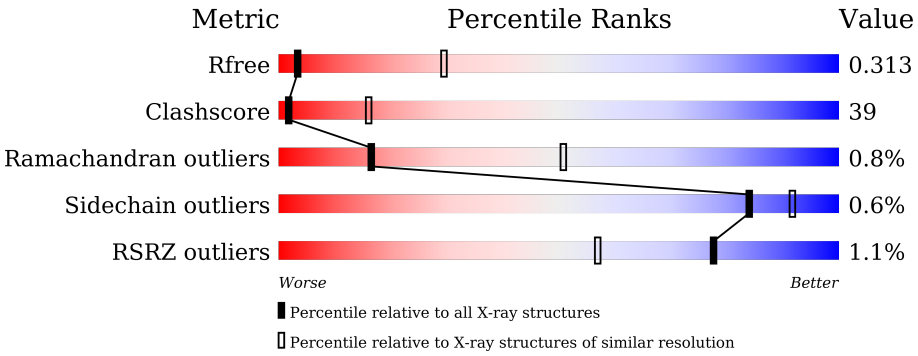
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.60 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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	1563 (3.70-3.50)
Clashscore	180529	1665 (3.70-3.50)
Ramachandran outliers	177936	1641 (3.70-3.50)
Sidechain outliers	177891	1640 (3.70-3.50)
RSRZ outliers	164620	1562 (3.70-3.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	627	47% 51%
1	E	627	2% 44% 55%
1	I	627	% 42% 55%
1	M	627	% 43% 54%
2	B	264	51% 39% 9%
2	F	264	2% 47% 43% 9%

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Mol	Chain	Length	Quality of chain
2	J	264	2% 43% 47% 9%
2	N	264	1% 46% 41% 9%
3	C	218	33% 60%
3	G	218	1% 39% 57%
3	K	218	3% 39% 57%
3	O	218	1% 38% 56%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
10	LMT	C	303	-	-	X	-
10	LMT	O	301	-	-	X	-
11	MQ7	C	304	-	-	X	-
5	FUM	A	702	-	-	X	-
5	FUM	E	702	-	-	X	-
5	FUM	M	702	-	-	X	-
6	F3S	F	301	-	-	X	-

2 Entry composition (i)

There are 11 unique types of molecules in this entry. The entry contains 34118 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 fumarate reductase flavoprotein subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	622	Total	C	N	O	S	0	0	0
			4769	2976	854	903	36			
1	E	622	Total	C	N	O	S	0	0	0
			4767	2975	853	903	36			
1	I	622	Total	C	N	O	S	0	0	0
			4767	2975	853	903	36			
1	M	622	Total	C	N	O	S	0	0	0
			4769	2976	854	903	36			

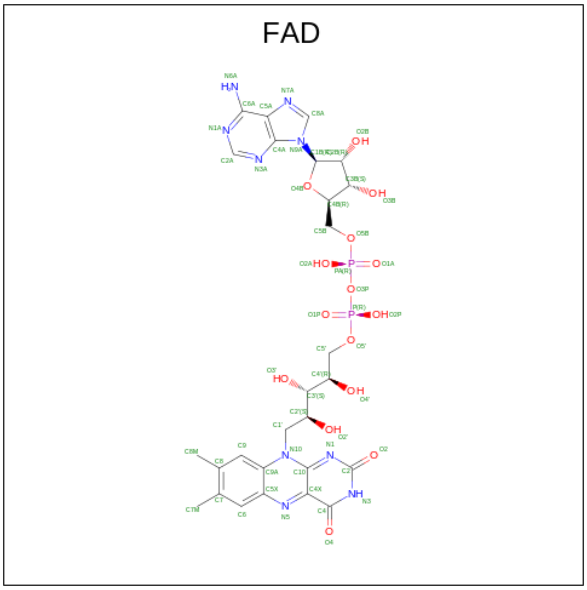
- Molecule 2 is a protein called Succinate dehydrogenase iron-sulfur subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	240	Total	C	N	O	S	0	0	0
			1879	1171	325	355	28			
2	F	240	Total	C	N	O	S	0	0	0
			1879	1171	325	355	28			
2	J	240	Total	C	N	O	S	0	0	0
			1879	1171	325	355	28			
2	N	240	Total	C	N	O	S	0	0	0
			1879	1171	325	355	28			

- Molecule 3 is a protein called fumarate reductase respiratory complex.

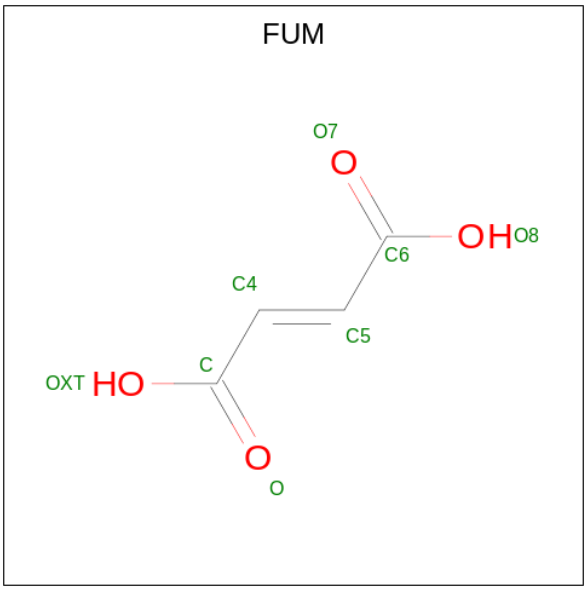
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	212	Total	C	N	O	S	0	0	0
			1693	1130	282	265	16			
3	G	212	Total	C	N	O	S	0	0	0
			1693	1130	282	265	16			
3	K	212	Total	C	N	O	S	0	0	0
			1693	1130	282	265	16			
3	O	212	Total	C	N	O	S	0	0	0
			1693	1130	282	265	16			

- Molecule 4 is FLAVIN-ADENINE DINUCLEOTIDE (CCD ID: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$).



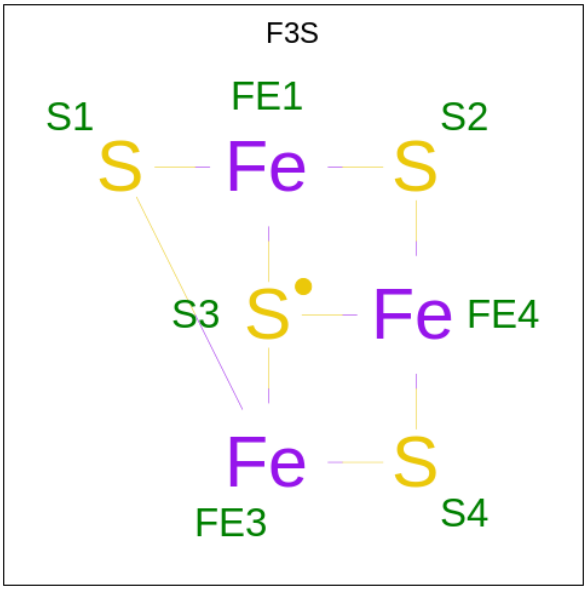
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
4	E	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
4	I	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
4	M	1	Total	C	N	O	P	0	0
			53	27	9	15	2		

- Molecule 5 is FUMARIC ACID (CCD ID: FUM) (formula: $C_4H_4O_4$).



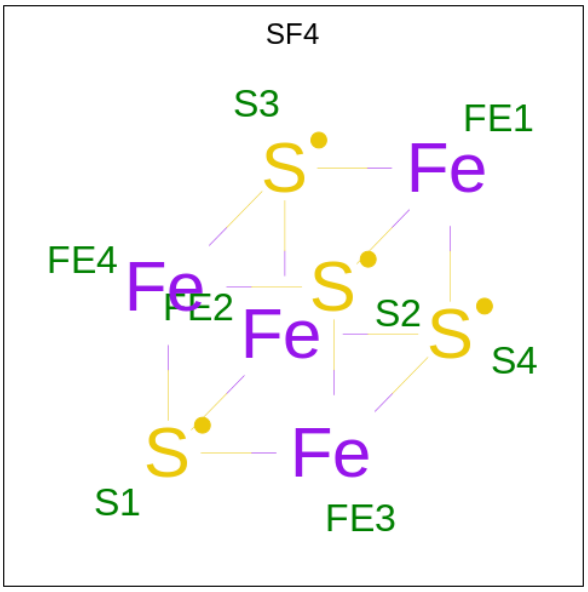
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O 8 4 4	0	0
5	E	1	Total C O 8 4 4	0	0
5	I	1	Total C O 8 4 4	0	0
5	M	1	Total C O 8 4 4	0	0

- Molecule 6 is FE3-S4 CLUSTER (CCD ID: F3S) (formula: Fe_3S_4).



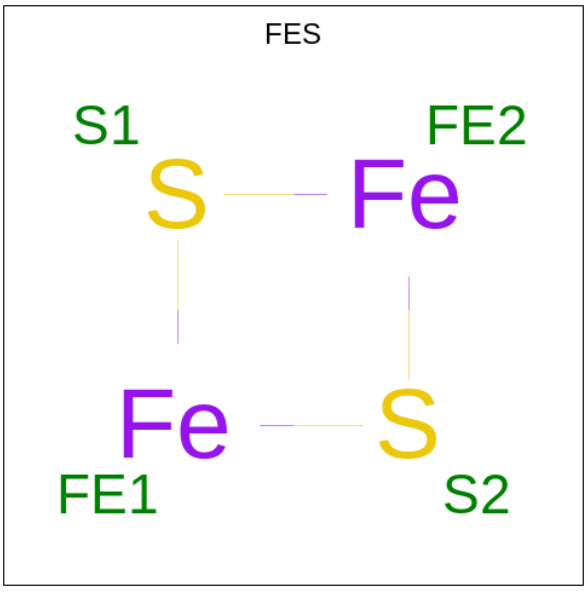
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total Fe S 7 3 4	0	0
6	F	1	Total Fe S 7 3 4	0	0
6	J	1	Total Fe S 7 3 4	0	0
6	N	1	Total Fe S 7 3 4	0	0

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



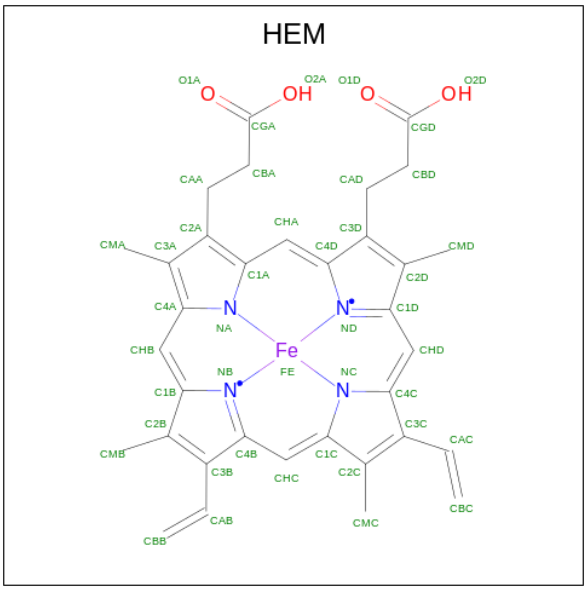
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	B	1	Total Fe S 8 4 4	0	0
7	F	1	Total Fe S 8 4 4	0	0
7	J	1	Total Fe S 8 4 4	0	0
7	N	1	Total Fe S 8 4 4	0	0

- Molecule 8 is FE2/S2 (INORGANIC) CLUSTER (CCD ID: FES) (formula: Fe_2S_2).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	B	1	Total Fe S 4 2 2	0	0
8	F	1	Total Fe S 4 2 2	0	0
8	J	1	Total Fe S 4 2 2	0	0
8	N	1	Total Fe S 4 2 2	0	0

- Molecule 9 is PROTOPORPHYRIN IX CONTAINING FE (CCD ID: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	C	1	Total C Fe N O 43 34 1 4 4	0	0
9	C	1	Total C Fe N O 43 34 1 4 4	0	0
9	G	1	Total C Fe N O 43 34 1 4 4	0	0
9	G	1	Total C Fe N O 43 34 1 4 4	0	0
9	K	1	Total C Fe N O 43 34 1 4 4	0	0
9	K	1	Total C Fe N O 43 34 1 4 4	0	0
9	O	1	Total C Fe N O 43 34 1 4 4	0	0

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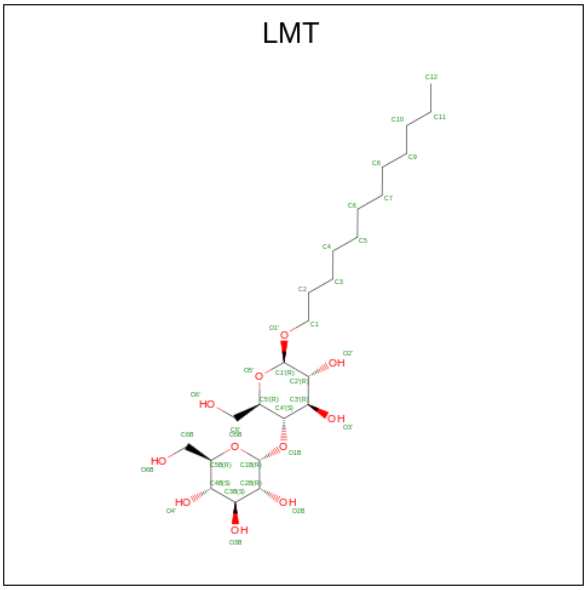
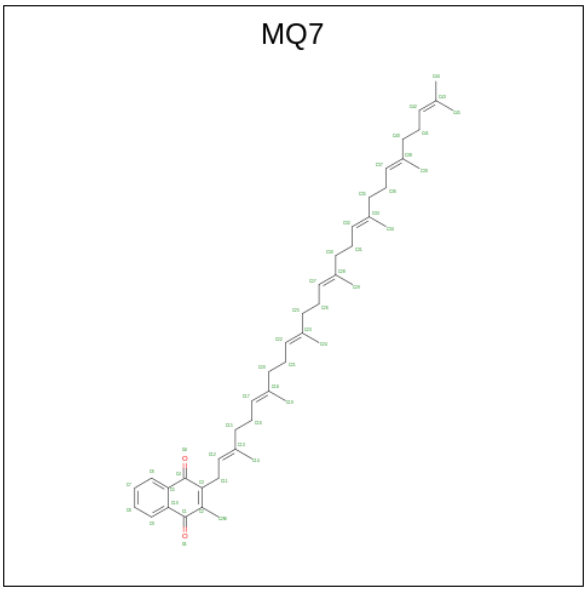
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
9	O	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 10 is DODECYL-BETA-D-MALTOSIDE (CCD ID: LMT) (formula: $C_{24}H_{46}O_{11}$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	C	1	Total	C	O	0	0
			35	24	11		
10	O	1	Total	C	O	0	0
			35	24	11		

- Molecule 11 is MENAQUINONE-7 (CCD ID: MQ7) (formula: $C_{46}H_{64}O_2$).



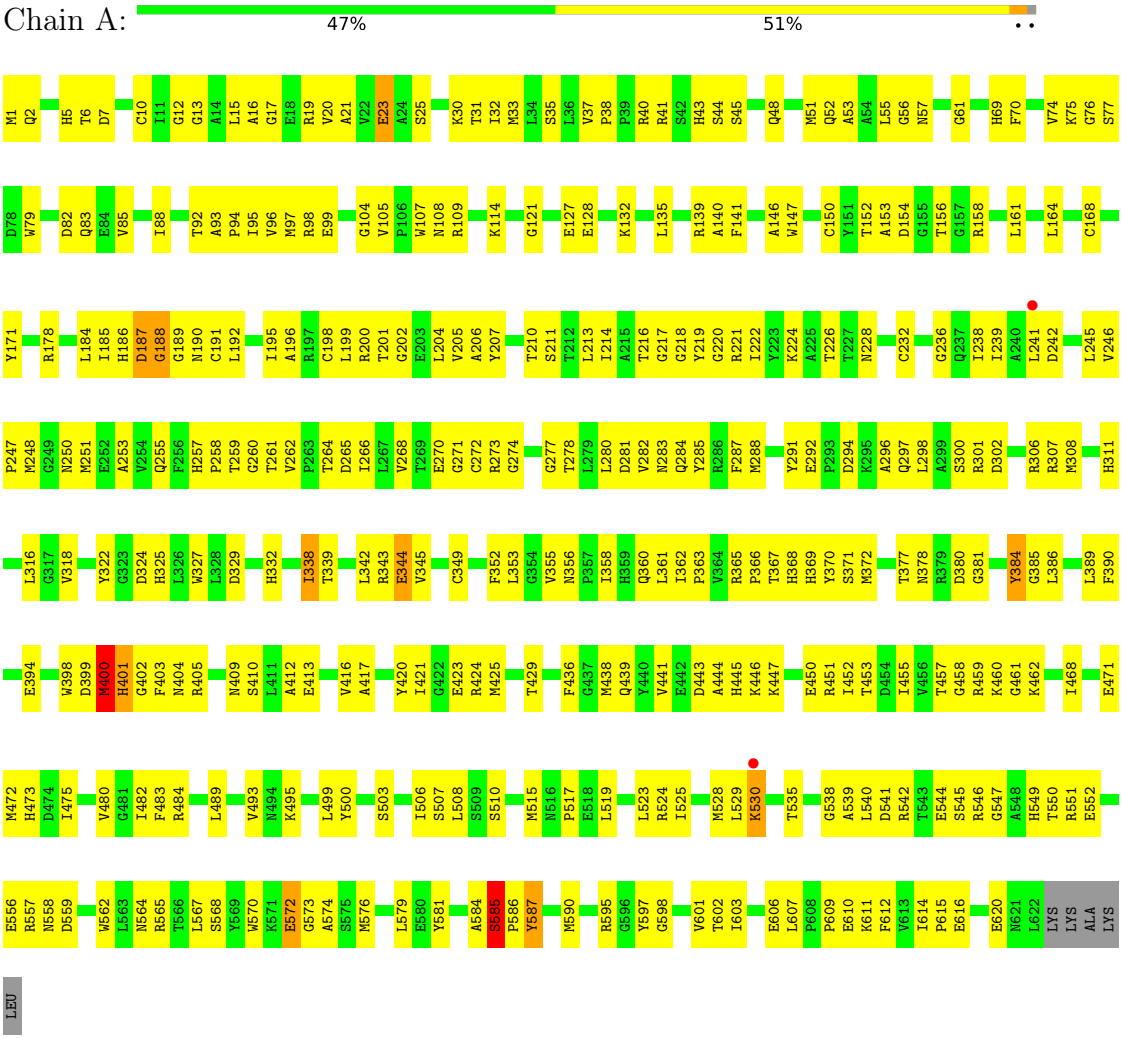
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
11	C	1	Total	C	O	0	0
			24	22	2		

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 electron 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 dot above a residue indicates a poor fit to the electron density (RSRZ > 2). 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.

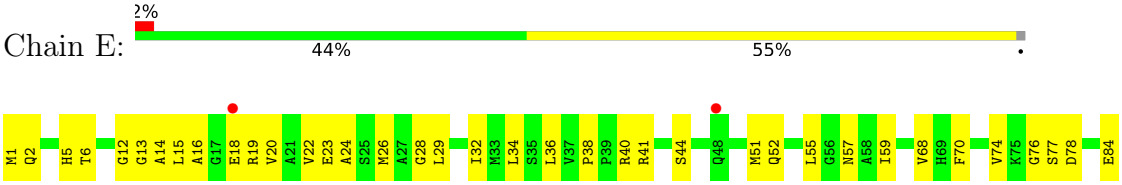
• Molecule 1: fumarate reductase flavoprotein subunit

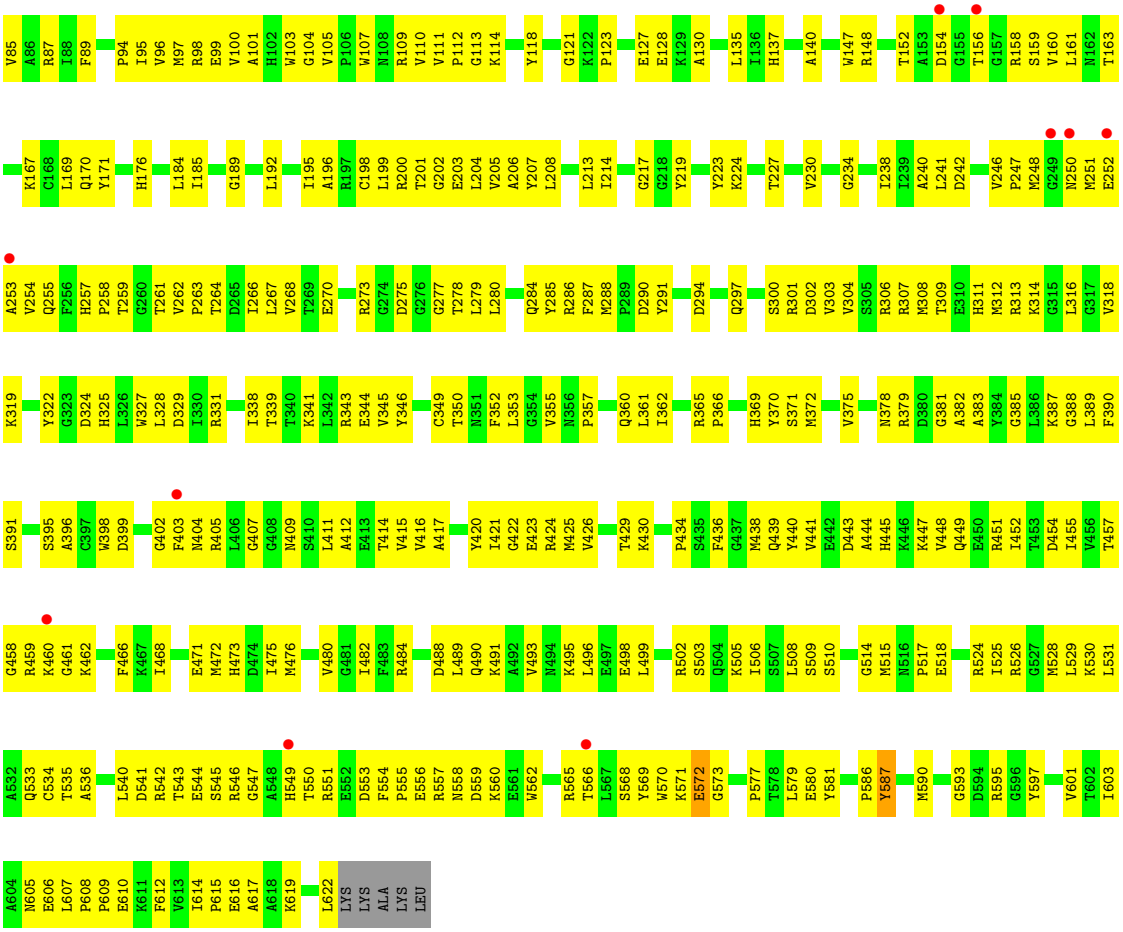
Chain A:



• Molecule 1: fumarate reductase flavoprotein subunit

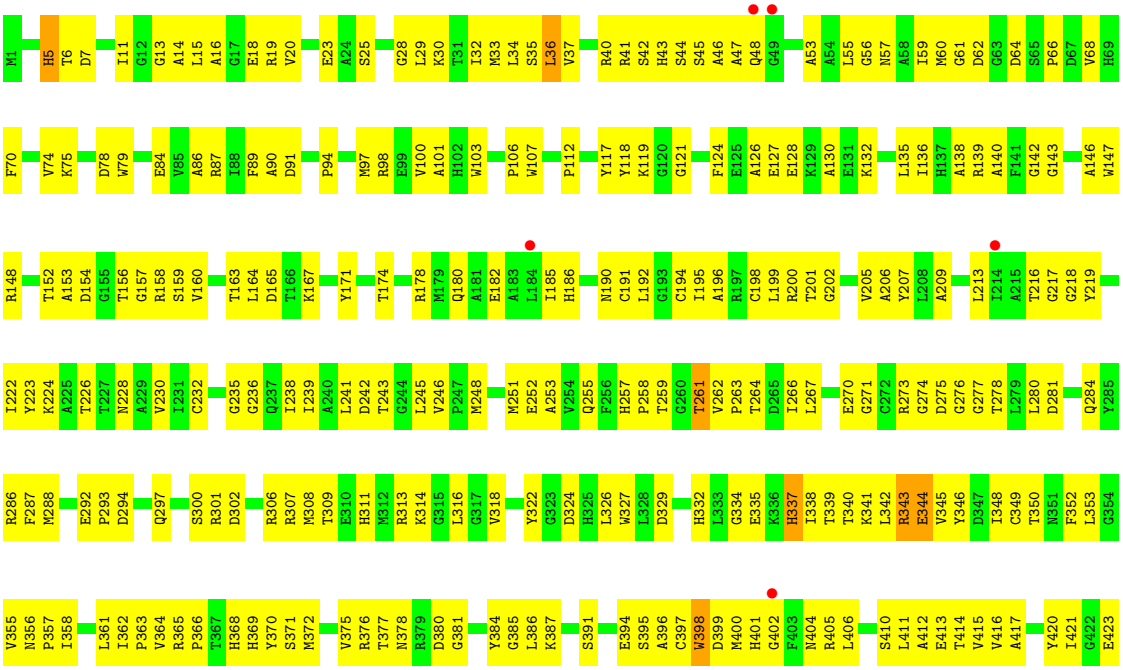
Chain E:

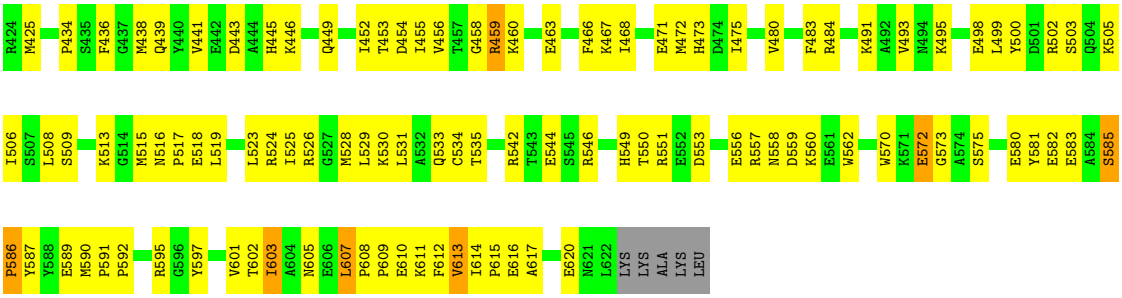




• Molecule 1: fumarate reductase flavoprotein subunit

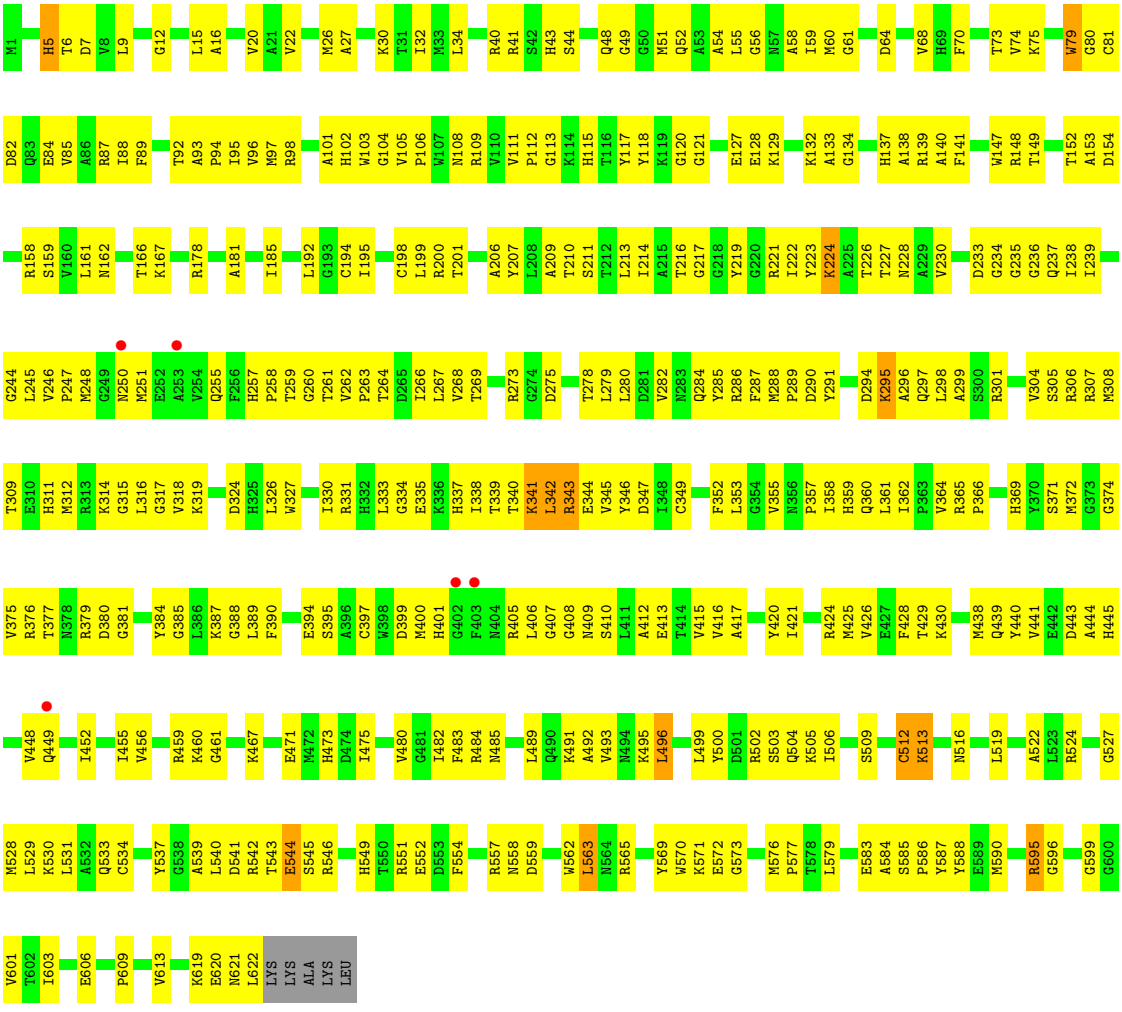
Chain I:





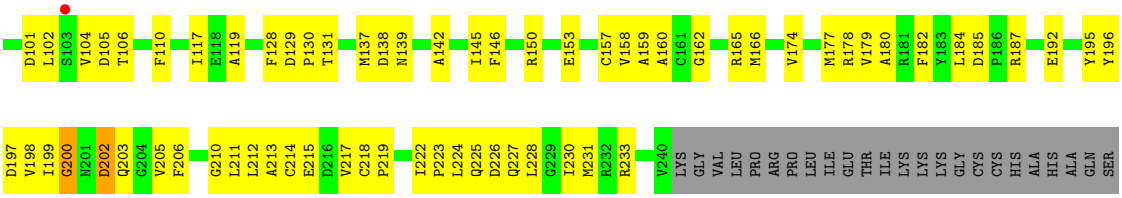
• Molecule 1: fumarate reductase flavoprotein subunit

Chain M:

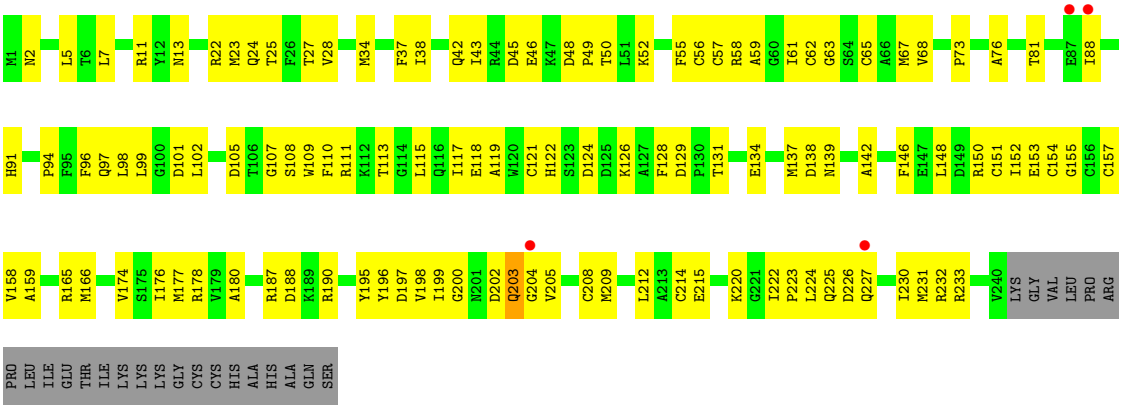


• Molecule 2: Succinate dehydrogenase iron-sulfur subunit

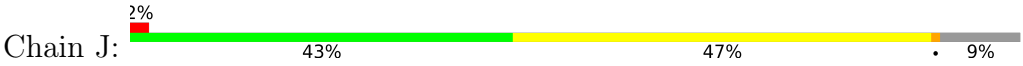
Chain B:

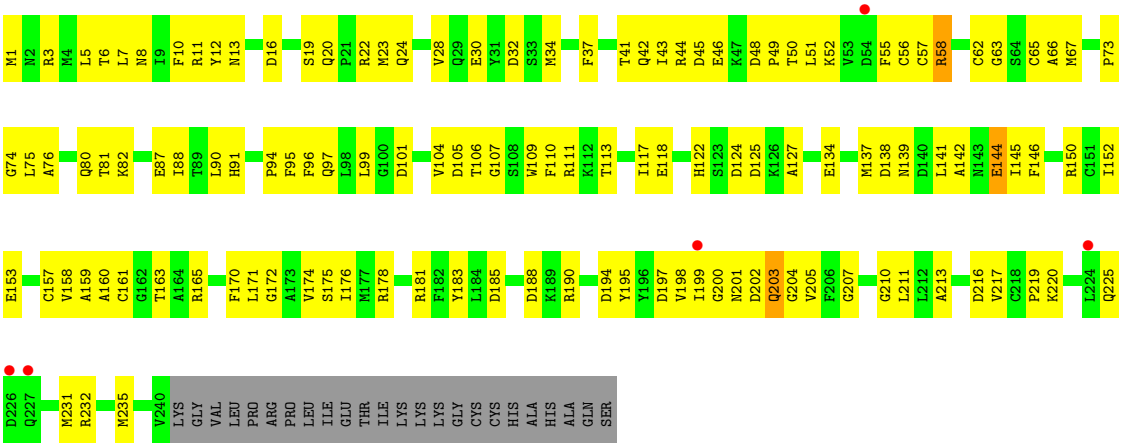


• Molecule 2: Succinate dehydrogenase iron-sulfur subunit

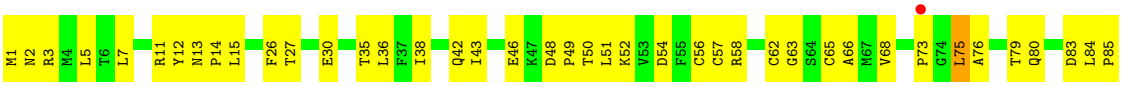


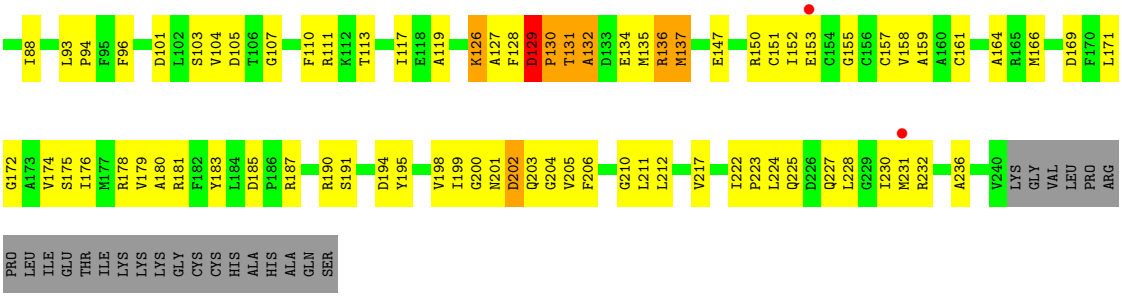
• Molecule 2: Succinate dehydrogenase iron-sulfur subunit





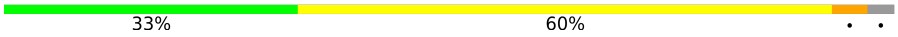
• Molecule 2: Succinate dehydrogenase iron-sulfur subunit





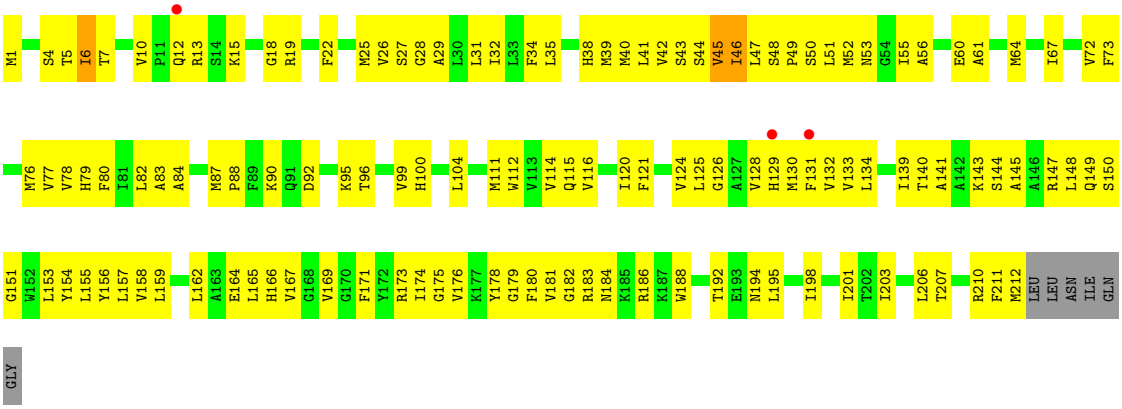
• Molecule 3: fumarate reductase respiratory complex

Chain C:



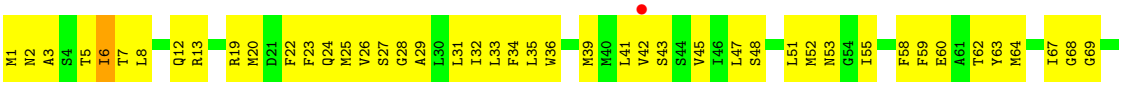
• Molecule 3: fumarate reductase respiratory complex

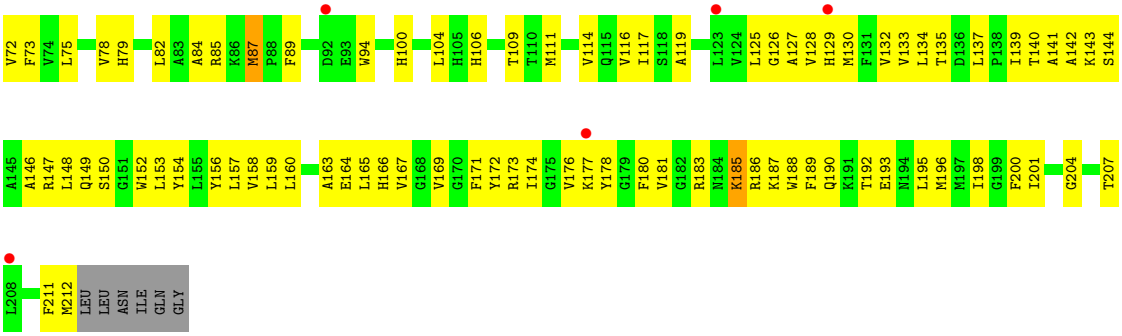
Chain G:



• Molecule 3: fumarate reductase respiratory complex

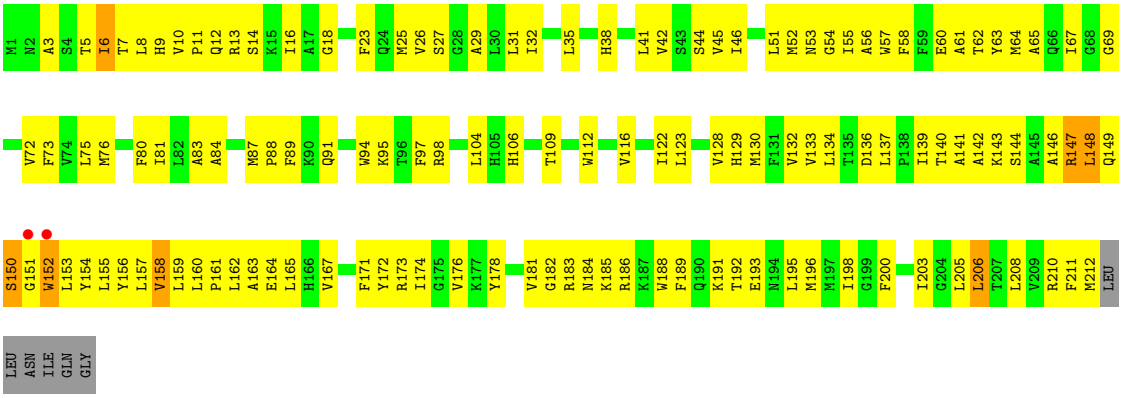
Chain K:





• Molecule 3: fumarate reductase respiratory complex

Chain O:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	112.14Å 131.77Å 195.43Å 90.00° 94.22° 90.00°	Depositor
Resolution (Å)	29.80 – 3.60 29.80 – 3.60	Depositor EDS
% Data completeness (in resolution range)	98.3 (29.80-3.60) 98.1 (29.80-3.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.87 (at 3.47Å)	Xtriage
Refinement program	PHENIX 1.10.1_2155	Depositor
R, R_{free}	0.232 , 0.313 0.235 , 0.313	Depositor DCC
R_{free} test set	3515 reflections (4.91%)	wwPDB-VP
Wilson B-factor (Å^2)	120.2	Xtriage
Anisotropy	0.152	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.20 , 15.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	34118	wwPDB-VP
Average B, all atoms (Å^2)	97.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.10% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: F3S, LMT, SF4, FAD, FES, FUM, MQ7, HEM

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	0.70	0/4868	1.07	16/6581 (0.2%)
1	E	0.54	0/4866	0.91	2/6579 (0.0%)
1	I	0.60	2/4866 (0.0%)	0.95	8/6579 (0.1%)
1	M	0.55	3/4868 (0.1%)	0.98	9/6581 (0.1%)
2	B	0.66	0/1915	1.02	2/2587 (0.1%)
2	F	0.57	0/1915	0.96	1/2587 (0.0%)
2	J	0.53	0/1915	0.86	0/2587
2	N	0.64	0/1915	1.07	9/2587 (0.3%)
3	C	0.62	0/1739	1.05	9/2355 (0.4%)
3	G	0.51	0/1739	0.95	5/2355 (0.2%)
3	K	0.61	2/1739 (0.1%)	0.94	2/2355 (0.1%)
3	O	0.59	0/1739	1.02	9/2355 (0.4%)
All	All	0.60	7/34084 (0.0%)	0.98	72/46088 (0.2%)

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	I	459	ARG	CA-C	12.41	1.58	1.52
3	K	183	ARG	NE-CZ	-8.63	1.23	1.33
1	M	595	ARG	NE-CZ	-6.41	1.26	1.33
1	I	337	HIS	CE1-NE2	-6.10	1.26	1.32
3	K	183	ARG	CZ-NH1	-6.02	1.24	1.32
1	M	595	ARG	CZ-NH2	-5.77	1.25	1.33
1	M	595	ARG	CD-NE	-5.33	1.38	1.46

All (72) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	I	459	ARG	CA-C-O	-8.79	114.76	119.77
1	M	79	TRP	N-CA-C	-8.07	101.18	111.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	400	MET	N-CA-C	-7.98	103.34	113.23
3	O	158	VAL	N-CA-C	-7.75	103.89	112.80
1	M	295	LYS	CA-C-N	7.66	135.49	121.70
1	M	295	LYS	C-N-CA	7.66	135.49	121.70
2	N	132	ALA	CA-C-N	7.65	136.16	121.54
2	N	132	ALA	C-N-CA	7.65	136.16	121.54
3	K	87	MET	N-CA-C	-7.24	100.45	109.64
3	C	5	THR	CA-C-N	6.72	134.07	121.97
3	C	5	THR	C-N-CA	6.72	134.07	121.97
1	A	584	ALA	N-CA-C	-6.67	99.16	109.76
3	C	148	LEU	O-C-N	6.56	131.31	122.59
1	I	572	GLU	CA-C-N	6.37	133.17	121.70
1	I	572	GLU	C-N-CA	6.37	133.17	121.70
3	G	45	VAL	CA-C-N	6.34	133.12	121.70
3	G	45	VAL	C-N-CA	6.34	133.12	121.70
1	M	496	LEU	CA-CB-CG	6.23	138.11	116.30
1	A	586	PRO	N-CA-C	-6.18	105.92	114.27
1	A	188	GLY	N-CA-C	-6.07	98.80	113.18
3	O	147	ARG	CA-C-N	6.02	132.53	121.70
3	O	147	ARG	C-N-CA	6.02	132.53	121.70
1	A	31	THR	N-CA-C	6.01	119.30	108.48
2	N	126	LYS	N-CA-C	6.00	120.30	112.92
3	C	137	LEU	CA-CB-CG	5.99	137.26	116.30
3	O	148	LEU	N-CA-C	5.95	127.67	111.00
1	M	342	LEU	CA-CB-CG	5.93	137.05	116.30
1	A	23	GLU	CA-CB-CG	-5.91	102.29	114.10
2	F	126	LYS	N-CA-C	5.90	127.51	111.00
1	A	398	TRP	CA-C-N	5.80	130.41	122.34
1	A	398	TRP	C-N-CA	5.80	130.41	122.34
3	G	46	ILE	CA-C-N	-5.71	114.00	122.56
3	G	46	ILE	C-N-CA	-5.71	114.00	122.56
1	A	572	GLU	CA-C-N	5.70	131.97	121.70
1	A	572	GLU	C-N-CA	5.70	131.97	121.70
2	N	134	GLU	CB-CA-C	-5.68	100.48	112.82
1	A	585	SER	CA-C-N	-5.65	113.93	120.04
1	A	585	SER	C-N-CA	-5.65	113.93	120.04
2	N	134	GLU	CA-CB-CG	5.65	125.40	114.10
2	B	200	GLY	CA-C-N	-5.62	110.49	121.06
2	B	200	GLY	C-N-CA	-5.62	110.49	121.06
3	C	57	TRP	CA-CB-CG	5.61	124.26	113.60
3	O	206	LEU	CA-CB-CG	5.57	135.80	116.30
1	M	563	LEU	CA-CB-CG	5.55	135.74	116.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	N	137	MET	N-CA-C	5.55	122.63	110.80
1	I	603	ILE	N-CA-C	-5.38	98.92	107.15
1	E	514	GLY	N-CA-C	-5.37	100.46	113.18
3	K	185	LYS	N-CA-C	-5.35	104.95	112.12
3	G	46	ILE	N-CA-C	5.31	125.87	111.00
1	A	401	HIS	CA-C-N	-5.30	111.01	121.41
1	A	401	HIS	C-N-CA	-5.30	111.01	121.41
1	M	342	LEU	CA-C-N	5.26	131.59	121.54
1	M	342	LEU	C-N-CA	5.26	131.59	121.54
3	O	147	ARG	CA-CB-CG	5.24	124.57	114.10
3	C	180	PHE	CA-C-N	5.23	131.39	121.97
3	C	180	PHE	C-N-CA	5.23	131.39	121.97
2	N	135	MET	CA-C-N	5.22	131.51	121.54
2	N	135	MET	C-N-CA	5.22	131.51	121.54
1	E	572	GLU	N-CA-C	-5.13	99.87	110.80
1	I	459	ARG	CA-C-N	5.12	130.92	121.70
1	I	459	ARG	C-N-CA	5.12	130.92	121.70
3	O	148	LEU	CA-C-N	5.10	131.28	121.54
3	O	148	LEU	C-N-CA	5.10	131.28	121.54
2	N	134	GLU	N-CA-CB	5.10	119.15	111.35
1	A	530	LYS	CA-C-N	-5.09	111.09	121.18
1	A	530	LYS	C-N-CA	-5.09	111.09	121.18
1	I	398	TRP	CA-C-N	5.08	129.40	122.34
1	I	398	TRP	C-N-CA	5.08	129.40	122.34
3	O	137	LEU	CA-CB-CG	5.07	134.04	116.30
3	C	144	SER	CA-C-N	5.01	130.73	121.70
3	C	144	SER	C-N-CA	5.01	130.73	121.70
1	M	563	LEU	N-CA-C	-5.01	96.02	107.48

There are no chirality outliers.

There are no planarity outliers.

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	4769	0	4681	317	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	4767	0	4674	359	0
1	I	4767	0	4674	396	1
1	M	4769	0	4681	421	1
2	B	1879	0	1821	101	0
2	F	1879	0	1823	128	1
2	J	1879	0	1821	135	0
2	N	1879	0	1821	149	0
3	C	1693	0	1775	235	0
3	G	1693	0	1775	165	0
3	K	1693	0	1775	166	1
3	O	1693	0	1775	186	0
4	A	53	0	28	2	0
4	E	53	0	29	4	0
4	I	53	0	31	17	0
4	M	53	0	31	13	0
5	A	8	0	1	7	0
5	E	8	0	1	5	0
5	I	8	0	1	3	0
5	M	8	0	1	5	0
6	B	7	0	0	0	0
6	F	7	0	0	3	0
6	J	7	0	0	0	0
6	N	7	0	0	0	0
7	B	8	0	0	1	0
7	F	8	0	0	0	0
7	J	8	0	0	0	0
7	N	8	0	0	1	0
8	B	4	0	0	1	0
8	F	4	0	0	1	0
8	J	4	0	0	0	0
8	N	4	0	0	1	0
9	C	86	0	60	23	0
9	G	86	0	60	20	0
9	K	86	0	60	25	0
9	O	86	0	60	20	0
10	C	35	0	46	31	0
10	O	35	0	46	24	0
11	C	24	0	23	21	0
All	All	34118	0	33574	2653	2

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 39.

All (2653) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:43:HIS:NE2	4:M:701:FAD:C8M	1.76	1.46
3:C:10:VAL:HG22	3:C:11:PRO:CD	1.42	1.45
1:M:43:HIS:NE2	4:M:701:FAD:HM81	1.12	1.39
1:M:43:HIS:CD2	4:M:701:FAD:HM83	1.58	1.36
1:I:43:HIS:NE2	4:I:701:FAD:C8M	1.89	1.35
3:C:130:MET:O	3:C:134:LEU:HB2	1.27	1.28
1:I:43:HIS:NE2	4:I:701:FAD:HM83	1.43	1.25
1:M:43:HIS:CD2	4:M:701:FAD:C8M	2.18	1.25
3:C:148:LEU:HB3	3:C:149:GLN:OE1	1.05	1.22
1:M:513:LYS:HE2	2:N:13:ASN:HB3	1.21	1.18
3:K:186:ARG:O	3:K:190:GLN:HB2	1.44	1.15
3:C:16:ILE:CD1	10:O:301:LMT:C6'	2.25	1.14
3:C:16:ILE:CG1	10:O:301:LMT:H6E	1.76	1.14
3:C:144:SER:HA	3:C:146:ALA:H	1.02	1.14
3:C:16:ILE:CD1	10:O:301:LMT:H6E	1.79	1.11
3:C:10:VAL:CG2	3:C:11:PRO:HD3	1.81	1.10
3:K:84:ALA:HA	3:K:87:MET:HG3	1.18	1.10
3:C:16:ILE:HG13	10:O:301:LMT:H6E	1.29	1.09
3:C:37:ALA:HA	11:C:304:MQ7:H2M1	1.24	1.09
3:C:148:LEU:CB	3:C:149:GLN:OE1	2.02	1.08
3:C:16:ILE:HD12	10:O:301:LMT:C6'	1.85	1.07
1:A:77:SER:CB	1:A:401:HIS:O	2.03	1.07
2:N:42:GLN:O	2:N:46:GLU:HB2	1.54	1.07
3:G:49:PRO:HD3	3:G:210:ARG:HH12	1.16	1.06
1:I:224:LYS:HG2	1:I:473:HIS:HB3	1.37	1.05
1:M:513:LYS:HE2	2:N:13:ASN:CB	1.87	1.04
3:C:148:LEU:HD23	3:C:149:GLN:HE22	1.17	1.04
3:G:130:MET:O	3:G:134:LEU:HB2	1.55	1.04
3:O:143:LYS:O	3:O:146:ALA:HB3	1.56	1.03
1:A:400:MET:HE2	1:A:401:HIS:CE1	1.94	1.03
1:I:43:HIS:NE2	4:I:701:FAD:HM81	1.70	1.03
3:C:53:ASN:HD21	3:C:140:THR:HA	1.19	1.02
1:M:79:TRP:HE1	1:M:563:LEU:HD12	1.27	1.00
3:O:133:VAL:HG23	3:O:147:ARG:HH22	1.24	1.00
2:N:128:PHE:HA	2:N:129:ASP:CG	1.87	1.00
1:A:413:GLU:O	1:A:417:ALA:HB3	1.61	1.00
1:A:82:ASP:HA	1:A:585:SER:HB2	1.41	0.99
1:E:273:ARG:HA	1:E:277:GLY:HA3	1.42	0.99
3:C:10:VAL:CG2	3:C:11:PRO:CD	2.38	0.99
1:M:51:MET:HE3	1:M:412:ALA:HA	1.41	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:77:SER:HB2	1:A:401:HIS:O	1.62	0.98
3:C:10:VAL:HG22	3:C:11:PRO:HD3	0.99	0.98
3:C:144:SER:HA	3:C:146:ALA:N	1.79	0.98
1:M:6:THR:HG22	1:M:30:LYS:HG3	1.45	0.97
1:I:558:ASN:HA	1:I:603:ILE:HB	1.46	0.96
1:M:43:HIS:HD2	4:M:701:FAD:HM83	1.28	0.96
3:O:53:ASN:HD21	3:O:141:ALA:H	1.10	0.96
1:I:608:PRO:HD2	1:I:609:PRO:HD3	1.48	0.96
1:E:480:VAL:HG23	1:E:484:ARG:HE	1.25	0.96
1:A:213:LEU:HB2	1:A:425:MET:HE1	1.43	0.96
1:E:300:SER:OG	1:E:302:ASP:OD2	1.84	0.96
3:O:150:SER:HA	3:O:152:TRP:CD1	2.01	0.95
3:C:10:VAL:HG22	3:C:11:PRO:HD2	1.47	0.95
1:I:338:ILE:HG23	1:I:342:LEU:H	1.29	0.95
1:I:341:LYS:O	1:I:342:LEU:HB2	1.65	0.94
3:O:139:ILE:HG13	3:O:143:LYS:HZ1	1.32	0.94
1:A:412:ALA:O	1:A:416:VAL:HB	1.68	0.93
3:G:1:MET:HA	2:J:23:MET:HE3	1.49	0.93
1:A:572:GLU:HB3	1:A:573:GLY:HA3	1.47	0.93
3:C:148:LEU:O	3:C:149:GLN:O	1.86	0.93
3:K:27:SER:O	3:K:31:LEU:HB3	1.69	0.93
10:C:303:LMT:O6'	3:O:16:ILE:CG2	2.17	0.92
3:O:95:LYS:NZ	10:O:301:LMT:H5'	1.83	0.92
3:C:37:ALA:HA	11:C:304:MQ7:C2M	1.99	0.92
1:A:77:SER:HB3	1:A:401:HIS:O	1.69	0.92
10:C:303:LMT:H2O1	10:C:303:LMT:H3O2	1.11	0.91
1:I:43:HIS:CD2	4:I:701:FAD:HM83	2.05	0.91
3:C:16:ILE:CD1	10:O:301:LMT:H6D	2.00	0.90
1:M:79:TRP:HH2	1:M:546:ARG:HE	1.14	0.90
3:C:57:TRP:HA	3:C:62:THR:HG22	1.51	0.90
3:C:176:VAL:HA	3:C:181:VAL:HG22	1.52	0.90
9:K:301:HEM:HBC2	9:K:301:HEM:HHD	1.54	0.89
10:C:303:LMT:H3'	10:C:303:LMT:H3B	1.53	0.89
1:E:77:SER:HB2	1:E:402:GLY:HA3	1.54	0.89
2:J:150:ARG:NH2	2:J:220:LYS:O	2.06	0.89
2:N:128:PHE:HA	2:N:129:ASP:CB	2.03	0.89
3:G:52:MET:O	3:G:56:ALA:HB3	1.72	0.89
1:A:273:ARG:HA	1:A:277:GLY:HA3	1.54	0.88
1:I:612:PHE:O	1:I:614:ILE:HG13	1.73	0.88
1:M:79:TRP:HB2	1:M:80:GLY:HA2	1.55	0.88
1:E:22:VAL:O	1:E:26:MET:HB2	1.74	0.88

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:28:GLY:O	3:K:32:ILE:HB	1.74	0.88
3:O:95:LYS:HZ2	10:O:301:LMT:H5'	1.36	0.88
3:G:148:LEU:C	3:G:150:SER:O	2.17	0.88
1:I:139:ARG:NH2	1:I:271:GLY:O	2.07	0.88
3:C:16:ILE:HD11	10:O:301:LMT:H6D	1.54	0.87
3:C:148:LEU:HD23	3:C:149:GLN:NE2	1.88	0.87
1:A:343:ARG:HG2	1:A:345:VAL:HG12	1.56	0.87
3:O:184:ASN:OD1	3:O:185:LYS:NZ	2.07	0.87
1:A:224:LYS:HG2	1:A:473:HIS:HB3	1.54	0.86
2:N:128:PHE:HA	2:N:129:ASP:OD1	1.73	0.86
3:K:47:LEU:HB3	3:K:51:LEU:HD21	1.57	0.86
3:K:84:ALA:HA	3:K:87:MET:CG	2.05	0.86
1:A:262:VAL:HG22	1:A:365:ARG:HE	1.40	0.86
3:K:150:SER:HA	3:K:152:TRP:H	1.40	0.86
1:I:343:ARG:HB3	1:I:345:VAL:HG12	1.55	0.86
1:E:551:ARG:HB3	1:E:553:ASP:OD1	1.76	0.86
3:G:150:SER:HB3	3:G:151:GLY:CA	2.05	0.85
1:I:273:ARG:HA	1:I:277:GLY:HA3	1.57	0.85
3:K:8:LEU:HD13	3:K:13:ARG:HB3	1.56	0.85
1:I:413:GLU:O	1:I:417:ALA:HB3	1.77	0.85
3:K:84:ALA:CA	3:K:87:MET:HG3	2.06	0.85
1:A:178:ARG:HB3	1:A:199:LEU:HB2	1.58	0.84
1:M:40:ARG:HB3	1:M:158:ARG:HH22	1.41	0.84
2:N:62:CYS:SG	2:N:63:GLY:N	2.50	0.84
3:C:149:GLN:O	3:C:151:GLY:N	2.10	0.84
1:M:316:LEU:HB3	1:M:317:GLY:HA3	1.58	0.84
1:E:38:PRO:HD2	1:E:41:ARG:HH12	1.43	0.84
1:E:38:PRO:HD2	1:E:41:ARG:NH1	1.93	0.84
1:E:213:LEU:HB2	1:E:425:MET:HE1	1.60	0.84
3:K:5:THR:HG23	3:K:6:ILE:H	1.43	0.84
1:M:546:ARG:HH22	1:M:562:TRP:HB2	1.41	0.84
1:M:224:LYS:HG2	1:M:473:HIS:HB3	1.60	0.84
1:A:587:TYR:HE1	1:A:615:PRO:HA	1.42	0.84
1:E:242:ASP:OD2	1:E:530:LYS:NZ	2.11	0.83
1:E:509:SER:HB2	2:F:49:PRO:HG3	1.60	0.83
3:O:181:VAL:HG12	3:O:182:GLY:H	1.43	0.83
3:O:151:GLY:N	3:O:152:TRP:HA	1.92	0.83
1:M:248:MET:HE1	1:M:375:VAL:HG22	1.60	0.83
2:F:105:ASP:OD2	2:F:108:SER:OG	1.96	0.83
1:I:342:LEU:O	1:I:344:GLU:N	2.11	0.83
2:J:202:ASP:CG	2:J:203:GLN:H	1.86	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:270:GLU:OE2	1:I:301:ARG:NH2	2.11	0.83
3:C:94:TRP:CD1	10:C:303:LMT:H2O2	1.96	0.82
3:G:49:PRO:HD3	3:G:210:ARG:NH1	1.94	0.82
3:G:56:ALA:HB1	3:G:139:ILE:HG21	1.61	0.82
2:B:210:GLY:HA3	3:C:177:LYS:HD2	1.61	0.82
3:K:59:PHE:HD2	3:K:63:TYR:HA	1.43	0.82
3:C:40:MET:HB3	11:C:304:MQ7:H17	1.60	0.82
1:E:217:GLY:H	1:E:395:SER:HB3	1.46	0.81
3:K:6:ILE:HG22	3:K:7:THR:H	1.44	0.81
1:M:264:THR:HG21	1:M:352:PHE:HB3	1.61	0.81
1:M:282:VAL:HA	1:M:317:GLY:O	1.79	0.81
1:A:322:TYR:O	1:A:365:ARG:NH2	2.14	0.81
3:G:150:SER:HB3	3:G:151:GLY:HA2	1.62	0.81
3:K:64:MET:HB2	3:K:67:ILE:HG22	1.60	0.81
1:A:186:HIS:H	1:A:445:HIS:HE1	1.26	0.81
2:B:226:ASP:N	2:B:226:ASP:OD1	2.13	0.81
10:C:303:LMT:O6'	3:O:16:ILE:HG23	1.80	0.81
2:J:42:GLN:O	2:J:46:GLU:HB2	1.80	0.81
1:I:264:THR:HG21	1:I:352:PHE:HB3	1.62	0.81
1:M:316:LEU:HD22	1:M:324:ASP:HB3	1.60	0.81
2:N:130:PRO:O	2:N:131:THR:HB	1.79	0.80
1:A:270:GLU:OE2	1:A:301:ARG:NH1	2.13	0.80
1:A:558:ASN:HA	1:A:603:ILE:HB	1.60	0.80
3:K:43:SER:HA	3:K:207:THR:HG21	1.61	0.80
1:M:461:GLY:HA3	1:M:505:LYS:HB3	1.62	0.80
1:I:413:GLU:O	1:I:417:ALA:CB	2.29	0.80
1:I:518:GLU:HB2	2:J:49:PRO:HB2	1.63	0.80
1:M:316:LEU:HB3	1:M:317:GLY:CA	2.11	0.80
1:M:546:ARG:NH2	1:M:562:TRP:O	2.14	0.80
1:E:270:GLU:OE2	1:E:301:ARG:NH1	2.14	0.80
1:I:346:TYR:CE1	1:I:350:THR:HG21	2.17	0.80
3:G:188:TRP:NE1	3:G:192:THR:OG1	2.14	0.80
3:O:151:GLY:H	3:O:152:TRP:CD1	1.99	0.79
3:C:148:LEU:HB3	3:C:149:GLN:CD	2.06	0.79
3:G:166:HIS:CE1	9:G:302:HEM:NB	2.51	0.79
1:A:270:GLU:H	5:A:702:FUM:C	1.93	0.79
1:E:369:HIS:NE2	5:E:702:FUM:O7	2.13	0.79
1:A:405:ARG:NE	1:A:410:SER:OG	2.11	0.79
1:I:349:CYS:HB3	1:I:353:LEU:HD22	1.64	0.79
1:A:281:ASP:OD1	1:A:285:TYR:N	2.16	0.79
3:O:123:LEU:HD13	9:O:303:HEM:HBB1	1.64	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:439:GLN:O	1:A:443:ASP:HB2	1.83	0.79
2:J:188:ASP:OD1	2:J:195:TYR:OH	1.99	0.79
1:M:376:ARG:NH1	1:M:397:CYS:O	2.15	0.79
3:O:140:THR:H	3:O:143:LYS:HZ2	1.31	0.79
1:I:112:PRO:HB3	1:I:130:ALA:HA	1.65	0.79
1:I:251:MET:HG3	1:I:534:CYS:HB3	1.65	0.79
2:J:195:TYR:HB3	2:J:235:MET:HE1	1.65	0.79
1:I:612:PHE:O	1:I:614:ILE:N	2.16	0.78
2:J:1:MET:N	2:J:30:GLU:O	2.16	0.78
1:A:413:GLU:O	1:A:417:ALA:CB	2.31	0.78
2:B:165:ARG:NH2	3:O:3:ALA:O	2.15	0.78
1:M:227:THR:OG1	1:M:369:HIS:ND1	2.12	0.78
1:E:246:VAL:HG23	1:E:385:GLY:H	1.48	0.78
9:C:301:HEM:HMD1	9:C:301:HEM:HBD1	1.65	0.78
1:E:587:TYR:CE1	1:E:615:PRO:HB3	2.19	0.78
1:M:55:LEU:HD12	1:M:56:GLY:H	1.48	0.78
3:O:150:SER:HA	3:O:152:TRP:NE1	1.97	0.78
3:C:143:LYS:NZ	9:C:301:HEM:HBA1	1.99	0.78
10:C:303:LMT:O6'	3:O:16:ILE:HG21	1.82	0.78
1:I:121:GLY:HA3	1:I:286:ARG:HH12	1.48	0.78
1:I:132:LYS:HG2	1:I:135:LEU:HD12	1.66	0.78
3:G:45:VAL:HA	3:G:47:LEU:H	1.46	0.78
1:M:79:TRP:HH2	1:M:546:ARG:NE	1.81	0.78
1:E:587:TYR:HD1	1:E:614:ILE:HD11	1.48	0.78
3:G:48:SER:HA	3:G:210:ARG:NH1	1.98	0.78
2:F:230:ILE:HG22	2:F:233:ARG:HH21	1.49	0.77
1:I:40:ARG:HH22	2:J:178:ARG:HH21	1.29	0.77
2:N:157:CYS:SG	2:N:174:VAL:HG23	2.24	0.77
3:C:6:ILE:HD12	3:C:7:THR:HG22	1.66	0.77
9:G:302:HEM:HHD	9:G:302:HEM:HBC2	1.67	0.77
1:E:219:TYR:CE2	1:E:371:SER:HB3	2.19	0.77
1:I:255:GLN:HB2	1:I:372:MET:SD	2.25	0.77
3:G:53:ASN:HD21	3:G:140:THR:HA	1.50	0.77
3:K:12:GLN:HG2	3:K:13:ARG:HG2	1.64	0.77
1:E:40:ARG:HA	1:E:161:LEU:HD21	1.67	0.76
1:I:55:LEU:HD12	1:I:56:GLY:H	1.48	0.76
1:A:186:HIS:H	1:A:445:HIS:CE1	2.03	0.76
3:G:64:MET:HB2	3:G:67:ILE:HG22	1.68	0.76
2:N:225:GLN:HE22	3:O:186:ARG:HD3	1.51	0.76
2:J:16:ASP:OD2	2:J:19:SER:OG	2.03	0.76
1:E:34:LEU:HD21	1:E:207:TYR:CZ	2.21	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:263:PRO:HB3	1:E:322:TYR:CE2	2.21	0.76
1:E:480:VAL:HG23	1:E:484:ARG:NE	2.00	0.76
2:F:157:CYS:SG	2:F:174:VAL:HG23	2.26	0.76
1:M:200:ARG:NH1	2:N:105:ASP:OD2	2.19	0.76
1:M:544:GLU:OE1	1:M:546:ARG:HD2	1.86	0.76
1:M:288:MET:SD	1:M:288:MET:N	2.59	0.76
1:M:318:VAL:HA	1:M:319:LYS:HB2	1.67	0.76
1:E:114:LYS:HA	1:E:127:GLU:HA	1.66	0.75
1:I:84:GLU:HA	1:I:587:TYR:HE2	1.51	0.75
3:K:55:ILE:HA	3:K:58:PHE:CD2	2.22	0.75
3:K:185:LYS:O	3:K:188:TRP:N	2.19	0.75
1:I:439:GLN:O	1:I:443:ASP:HB2	1.85	0.75
1:M:440:TYR:O	1:M:445:HIS:ND1	2.19	0.75
3:G:5:THR:OG1	3:G:6:ILE:N	2.16	0.75
1:I:610:GLU:HG3	1:I:611:LYS:NZ	2.01	0.75
2:B:97:GLN:OE1	2:B:97:GLN:N	2.17	0.75
3:G:155:LEU:HD22	3:G:158:VAL:HG23	1.69	0.75
1:M:289:PRO:HG3	1:M:296:ALA:HB2	1.68	0.75
1:M:309:THR:HG21	1:M:482:ILE:HD13	1.69	0.75
3:O:159:LEU:HD22	9:O:302:HEM:HMD1	1.67	0.75
3:G:183:ARG:HA	3:G:186:ARG:HB3	1.69	0.74
2:B:225:GLN:HE22	3:C:186:ARG:HD3	1.51	0.74
1:M:178:ARG:HB3	1:M:199:LEU:HB2	1.67	0.74
1:M:524:ARG:HG3	1:M:528:MET:HE3	1.68	0.74
3:G:148:LEU:O	3:G:150:SER:O	2.05	0.74
1:I:405:ARG:NH1	5:I:702:FUM:O7	2.19	0.74
1:I:610:GLU:HG2	1:I:611:LYS:H	1.53	0.74
3:C:41:LEU:N	11:C:304:MQ7:H141	2.02	0.74
1:E:107:TRP:HA	1:E:152:THR:HG22	1.69	0.74
1:A:453:THR:HG23	1:A:519:LEU:HD21	1.69	0.74
1:I:117:TYR:HD1	1:I:126:ALA:HB3	1.53	0.74
3:O:53:ASN:ND2	3:O:141:ALA:H	1.85	0.74
3:C:35:LEU:HD13	3:C:167:VAL:HG11	1.69	0.74
1:I:154:ASP:HB2	1:I:343:ARG:O	1.86	0.74
1:A:472:MET:HE2	1:A:529:LEU:HD12	1.70	0.74
1:A:542:ARG:NE	1:A:544:GLU:OE2	2.21	0.74
1:M:105:VAL:O	2:N:187:ARG:NH2	2.19	0.74
1:A:247:PRO:HD2	1:A:384:TYR:HB2	1.70	0.73
1:E:288:MET:HE1	1:E:307:ARG:HB2	1.70	0.73
3:G:90:LYS:H	3:G:90:LYS:HD2	1.53	0.73
1:A:287:PHE:CE1	1:A:288:MET:HE2	2.22	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:381:GLY:HA3	1:A:421:ILE:HD12	1.69	0.73
3:O:95:LYS:NZ	10:O:301:LMT:C5'	2.51	0.73
2:B:157:CYS:SG	2:B:174:VAL:HG23	2.28	0.73
1:I:124:PHE:CE2	1:I:126:ALA:HB2	2.23	0.73
1:I:306:ARG:NH2	1:I:550:THR:OG1	2.20	0.73
3:G:133:VAL:HG12	3:G:147:ARG:HH12	1.53	0.73
1:A:607:LEU:O	1:A:610:GLU:HG3	1.88	0.73
1:M:104:GLY:HA2	2:N:187:ARG:HD2	1.71	0.73
1:M:79:TRP:NE1	1:M:563:LEU:HD12	2.02	0.73
3:O:151:GLY:H	3:O:152:TRP:HD1	1.34	0.73
1:A:140:ALA:HB2	1:A:147:TRP:CE2	2.23	0.72
3:C:139:ILE:HD11	3:C:143:LYS:HE2	1.71	0.72
1:I:405:ARG:NE	1:I:410:SER:OG	2.20	0.72
2:J:157:CYS:SG	2:J:174:VAL:HG23	2.29	0.72
1:M:280:LEU:HD21	1:M:327:TRP:HB2	1.71	0.72
3:O:56:ALA:HB1	3:O:62:THR:HA	1.71	0.72
1:A:105:VAL:O	2:B:187:ARG:NH2	2.22	0.72
2:B:117:ILE:HA	2:B:198:VAL:HG13	1.72	0.72
1:I:213:LEU:HB2	1:I:425:MET:HE1	1.69	0.72
2:J:210:GLY:O	3:K:173:ARG:NH1	2.22	0.72
3:K:25:MET:HG2	3:K:174:ILE:HD11	1.71	0.72
1:A:287:PHE:HE1	1:A:288:MET:HE2	1.52	0.72
1:M:278:THR:O	1:M:279:LEU:HG	1.90	0.72
1:A:41:ARG:HB3	2:B:62:CYS:HB2	1.70	0.72
3:C:59:PHE:O	3:C:63:TYR:N	2.21	0.72
2:J:11:ARG:NH1	2:J:24:GLN:OE1	2.23	0.72
3:K:171:PHE:HA	3:K:174:ILE:HG22	1.71	0.72
3:K:87:MET:HB2	3:K:89:PHE:CE2	2.24	0.72
3:O:143:LYS:O	3:O:146:ALA:CB	2.35	0.72
3:O:88:PRO:HD3	3:O:112:TRP:CH2	2.24	0.71
1:E:559:ASP:O	1:E:605:ASN:ND2	2.23	0.71
2:F:214:CYS:HB3	2:F:224:LEU:HD13	1.71	0.71
1:I:301:ARG:HB2	1:I:404:ASN:HD21	1.55	0.71
1:I:338:ILE:HG23	1:I:342:LEU:N	2.04	0.71
1:E:96:VAL:HG21	1:E:416:VAL:HA	1.72	0.71
2:F:150:ARG:NH2	2:F:220:LYS:O	2.23	0.71
1:I:106:PRO:HB3	2:J:145:ILE:HG22	1.72	0.71
2:J:10:PHE:HB2	2:J:91:HIS:CD2	2.26	0.71
1:I:370:TYR:CE1	1:I:394:GLU:HG3	2.26	0.71
2:N:42:GLN:O	2:N:46:GLU:CB	2.37	0.71
3:O:159:LEU:HD21	9:O:302:HEM:CBC	2.20	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:306:ARG:HH12	1:A:482:ILE:HG22	1.55	0.71
1:E:109:ARG:C	1:E:137:HIS:HB2	2.15	0.71
1:I:35:SER:OG	1:I:37:VAL:O	2.07	0.71
1:A:306:ARG:NH1	1:A:482:ILE:HG22	2.06	0.71
1:E:488:ASP:HA	1:E:491:LYS:HE2	1.73	0.71
1:M:79:TRP:HB2	1:M:80:GLY:CA	2.21	0.71
1:M:312:MET:HE1	1:M:324:ASP:HB2	1.73	0.71
1:A:349:CYS:SG	1:A:362:ILE:HD12	2.31	0.71
3:G:6:ILE:HG13	3:G:7:THR:H	1.56	0.71
1:M:54:ALA:HB3	1:M:94:PRO:HG3	1.72	0.71
3:O:147:ARG:CB	3:O:150:SER:O	2.39	0.71
1:E:5:HIS:O	1:E:6:THR:HG23	1.90	0.71
1:I:43:HIS:CE1	4:I:701:FAD:HM81	2.25	0.71
3:C:16:ILE:HG13	3:O:95:LYS:HZ1	1.56	0.70
1:I:219:TYR:CE2	1:I:371:SER:HB3	2.26	0.70
3:K:129:HIS:NE2	9:K:301:HEM:ND	2.37	0.70
1:M:108:ASN:HD21	1:M:153:ALA:H	1.39	0.70
1:A:606:GLU:O	1:A:609:PRO:HD2	1.91	0.70
1:I:200:ARG:NH1	2:J:105:ASP:OD2	2.24	0.70
3:K:150:SER:HA	3:K:152:TRP:N	2.04	0.70
1:M:73:THR:HA	1:M:406:LEU:HD12	1.73	0.70
2:N:171:LEU:O	2:N:175:SER:OG	2.08	0.70
1:A:472:MET:HE1	1:A:528:MET:HB3	1.72	0.70
3:C:37:ALA:CA	11:C:304:MQ7:H2M1	2.12	0.70
1:I:15:LEU:HD12	1:I:44:SER:HB3	1.73	0.70
2:N:224:LEU:O	2:N:228:LEU:HB2	1.91	0.70
1:A:255:GLN:HB2	1:A:372:MET:SD	2.31	0.70
1:M:500:TYR:HD1	1:M:529:LEU:HD11	1.56	0.70
1:A:245:LEU:O	1:A:385:GLY:HA3	1.91	0.70
1:A:556:GLU:HA	1:A:601:VAL:HG23	1.71	0.70
2:F:197:ASP:CG	3:G:13:ARG:HG3	2.14	0.70
1:A:545:SER:OG	1:A:551:ARG:N	2.22	0.70
3:G:27:SER:OG	3:G:79:HIS:ND1	2.19	0.70
2:F:208:CYS:O	2:F:232:ARG:NH1	2.17	0.70
3:O:161:PRO:O	3:O:165:LEU:HB2	1.92	0.70
3:O:203:ILE:HA	3:O:206:LEU:HD23	1.74	0.70
1:I:608:PRO:CD	1:I:609:PRO:HD3	2.20	0.70
1:A:372:MET:HE3	1:A:404:ASN:HA	1.74	0.70
2:B:202:ASP:OD1	2:B:203:GLN:N	2.23	0.70
2:F:208:CYS:HA	6:F:301:F3S:S1	2.32	0.70
2:N:211:LEU:HD22	3:O:109:THR:HA	1.74	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:308:MET:HE2	1:E:366:PRO:HD3	1.74	0.69
1:I:139:ARG:NH2	1:I:275:ASP:HB2	2.07	0.69
3:C:94:TRP:HD1	10:C:303:LMT:H2O2	1.40	0.69
1:I:405:ARG:HH21	1:I:410:SER:HB2	1.57	0.69
3:K:156:TYR:CD1	9:K:301:HEM:HAD2	2.27	0.69
3:C:40:MET:HE2	11:C:304:MQ7:H2M2	1.74	0.69
3:G:188:TRP:NE1	3:G:192:THR:HG1	1.90	0.69
2:N:126:LYS:N	2:N:127:ALA:HA	2.06	0.69
1:E:104:GLY:HA2	2:F:187:ARG:HD2	1.74	0.69
2:F:110:PHE:HE1	2:F:174:VAL:HG11	1.56	0.69
1:M:544:GLU:CD	1:M:546:ARG:HD2	2.18	0.69
1:I:97:MET:O	1:I:101:ALA:HB2	1.91	0.69
3:K:156:TYR:HD1	9:K:301:HEM:HAD2	1.57	0.69
9:O:303:HEM:HBB2	9:O:303:HEM:HMB1	1.73	0.69
1:A:57:ASN:HA	1:A:132:LYS:HD3	1.75	0.69
1:A:264:THR:HG21	1:A:352:PHE:HB3	1.75	0.69
1:A:530:LYS:HE3	1:A:570:TRP:CE2	2.27	0.69
3:C:176:VAL:HG23	3:C:177:LYS:HG3	1.75	0.69
1:E:378:ASN:OD1	1:E:382:ALA:N	2.26	0.69
3:G:48:SER:HA	3:G:210:ARG:HH12	1.57	0.69
1:M:6:THR:HG21	1:M:32:ILE:HG13	1.75	0.69
1:M:546:ARG:NH2	1:M:562:TRP:HB2	2.07	0.69
3:O:139:ILE:HA	3:O:143:LYS:HE3	1.74	0.69
1:A:273:ARG:NH1	1:A:297:GLN:O	2.26	0.69
2:J:171:LEU:O	2:J:175:SER:OG	2.10	0.69
3:O:129:HIS:CE1	9:O:302:HEM:ND	2.61	0.69
3:O:132:VAL:HG21	3:O:153:LEU:HD21	1.74	0.69
1:A:75:LYS:O	1:A:595:ARG:HD3	1.93	0.68
3:C:9:HIS:ND1	3:C:10:VAL:N	2.41	0.68
1:E:542:ARG:HA	1:E:562:TRP:CH2	2.28	0.68
1:I:55:LEU:HD21	1:I:138:ALA:HB2	1.73	0.68
1:I:513:LYS:NZ	2:J:13:ASN:HD21	1.91	0.68
3:K:69:GLY:HA3	3:K:134:LEU:HD13	1.75	0.68
3:C:149:GLN:OE1	3:C:149:GLN:N	2.25	0.68
1:E:261:THR:HG21	1:E:353:LEU:HD11	1.75	0.68
1:E:452:ILE:HD12	1:E:526:ARG:HH21	1.58	0.68
1:M:245:LEU:O	1:M:385:GLY:HA3	1.93	0.68
2:F:37:PHE:HA	2:F:55:PHE:CZ	2.28	0.68
3:C:53:ASN:ND2	3:C:140:THR:HA	2.02	0.68
2:F:222:ILE:HG22	2:F:223:PRO:HD2	1.75	0.68
1:M:221:ARG:NH1	1:M:228:ASN:O	2.24	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:151:CYS:SG	2:N:152:ILE:N	2.66	0.68
3:C:87:MET:SD	10:C:303:LMT:H123	2.34	0.68
3:O:188:TRP:CD1	3:O:192:THR:HG1	2.11	0.68
1:A:355:VAL:HG13	1:A:360:GLN:HB2	1.75	0.68
1:A:587:TYR:CE1	1:A:615:PRO:HA	2.27	0.68
3:C:64:MET:HB3	3:C:67:ILE:HG22	1.75	0.68
1:I:107:TRP:HA	1:I:152:THR:HG22	1.75	0.68
1:M:513:LYS:CE	2:N:13:ASN:CB	2.69	0.68
2:N:211:LEU:HD23	3:O:173:ARG:HH12	1.57	0.68
2:B:212:LEU:HD22	2:B:225:GLN:HG3	1.74	0.68
1:A:85:VAL:HG12	1:A:400:MET:HB3	1.76	0.68
1:E:343:ARG:HG2	1:E:345:VAL:HG12	1.74	0.68
1:I:14:ALA:HB2	4:I:701:FAD:H4B	1.74	0.68
3:K:23:PHE:HA	3:K:26:VAL:HB	1.76	0.68
3:K:163:ALA:O	3:K:167:VAL:HG13	1.94	0.68
1:A:188:GLY:O	1:A:189:GLY:C	2.34	0.68
3:C:125:LEU:HA	3:C:128:VAL:HG22	1.75	0.68
2:B:218:CYS:SG	2:B:222:ILE:HG12	2.34	0.67
3:C:94:TRP:HH2	3:C:117:ILE:HD11	1.59	0.67
1:A:378:ASN:OD1	1:A:381:GLY:N	2.26	0.67
3:C:148:LEU:HD11	3:C:212:MET:HB2	1.74	0.67
1:E:280:LEU:HB2	1:E:327:TRP:HB2	1.77	0.67
1:M:405:ARG:NH2	1:M:407:GLY:HA2	2.08	0.67
2:N:128:PHE:CA	2:N:129:ASP:CB	2.72	0.67
1:E:288:MET:HE3	1:E:304:VAL:HG13	1.75	0.67
2:N:232:ARG:O	2:N:236:ALA:CB	2.42	0.67
3:K:159:LEU:HD22	9:K:301:HEM:HMD1	1.76	0.67
1:I:195:ILE:HD13	1:I:206:ALA:HB2	1.75	0.67
1:M:185:ILE:HG22	1:M:192:LEU:HB2	1.76	0.67
2:N:136:ARG:HG3	2:N:137:MET:H	1.60	0.67
3:C:130:MET:HG2	3:C:134:LEU:HD22	1.75	0.67
1:A:484:ARG:O	1:A:552:GLU:N	2.21	0.67
3:G:52:MET:O	3:G:56:ALA:CB	2.42	0.67
1:I:185:ILE:HG22	1:I:192:LEU:HB2	1.77	0.67
1:I:186:HIS:H	1:I:445:HIS:CE1	2.12	0.67
1:M:312:MET:CG	1:M:326:LEU:HD11	2.25	0.67
3:C:34:PHE:O	3:C:37:ALA:N	2.28	0.67
3:K:180:PHE:HB3	3:K:181:VAL:HG23	1.75	0.67
1:M:79:TRP:CH2	1:M:546:ARG:NE	2.60	0.67
2:N:210:GLY:O	3:O:173:ARG:NH1	2.28	0.67
1:E:246:VAL:HG21	1:E:383:ALA:HB1	1.77	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:185:ILE:HA	1:A:445:HIS:CE1	2.30	0.67
3:C:97:PHE:CE1	3:C:112:TRP:HE3	2.13	0.67
1:I:513:LYS:HB2	1:I:516:ASN:HD22	1.57	0.67
2:J:199:ILE:HD11	2:J:235:MET:HE3	1.76	0.67
1:M:342:LEU:HD12	1:M:343:ARG:HG3	1.77	0.67
1:I:513:LYS:HZ2	2:J:13:ASN:HD21	1.42	0.66
1:M:500:TYR:CD1	1:M:529:LEU:HD11	2.30	0.66
2:B:7:LEU:HD23	2:B:88:ILE:HB	1.76	0.66
1:I:7:ASP:OD1	1:I:30:LYS:HB2	1.95	0.66
1:I:20:VAL:HG21	1:I:213:LEU:HD13	1.75	0.66
3:O:139:ILE:CG1	3:O:143:LYS:HZ1	2.06	0.66
2:B:48:ASP:OD1	2:B:50:THR:HG22	1.94	0.66
3:G:29:ALA:O	3:G:32:ILE:HG22	1.95	0.66
1:I:41:ARG:HB3	2:J:62:CYS:HB2	1.78	0.66
3:K:59:PHE:CD2	3:K:63:TYR:HA	2.29	0.66
1:M:334:GLY:O	1:M:338:ILE:HD11	1.95	0.66
1:I:241:LEU:HD13	1:I:248:MET:HG2	1.77	0.66
1:M:251:MET:HE2	1:M:531:LEU:HB2	1.77	0.66
1:A:195:ILE:HG13	1:A:445:HIS:HB3	1.77	0.66
10:C:303:LMT:H6D	10:C:303:LMT:O1'	1.95	0.66
3:K:119:ALA:HB1	9:K:302:HEM:HMB3	1.76	0.66
1:M:262:VAL:HG13	1:M:263:PRO:HD3	1.76	0.66
1:A:20:VAL:HG21	1:A:213:LEU:HD13	1.78	0.66
2:J:197:ASP:OD1	3:K:13:ARG:HG3	1.96	0.66
2:N:225:GLN:HE21	3:O:176:VAL:HG13	1.60	0.66
1:M:15:LEU:HD12	1:M:44:SER:HB3	1.77	0.66
1:M:619:LYS:NZ	1:M:621:ASN:O	2.27	0.66
9:C:302:HEM:HMB2	9:C:302:HEM:HBB2	1.78	0.66
3:O:84:ALA:HA	3:O:87:MET:HG3	1.77	0.66
1:E:559:ASP:HB3	1:E:605:ASN:HB2	1.78	0.66
1:I:499:LEU:HG	1:I:529:LEU:HD21	1.77	0.66
1:E:263:PRO:HB3	1:E:322:TYR:HE2	1.60	0.66
3:G:150:SER:CB	3:G:151:GLY:HA2	2.24	0.66
1:M:513:LYS:HD3	2:N:13:ASN:HB2	1.77	0.66
1:E:606:GLU:O	1:E:609:PRO:HD2	1.96	0.65
1:I:259:THR:CG2	1:I:273:ARG:HE	2.08	0.65
1:I:375:VAL:O	1:I:397:CYS:N	2.19	0.65
1:M:108:ASN:ND2	1:M:153:ALA:H	1.93	0.65
2:N:232:ARG:O	2:N:236:ALA:HB3	1.96	0.65
1:A:291:TYR:HB3	1:A:307:ARG:HE	1.61	0.65
2:J:146:PHE:O	2:J:150:ARG:HB2	1.96	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:3:ARG:O	2:N:30:GLU:HB3	1.97	0.65
2:B:94:PRO:HD2	2:B:159:ALA:HB1	1.76	0.65
1:E:278:THR:HB	1:E:329:ASP:HB3	1.78	0.65
1:E:311:HIS:CE1	1:E:316:LEU:HD13	2.30	0.65
1:A:308:MET:HE2	1:A:366:PRO:HD3	1.79	0.65
2:B:11:ARG:HH22	2:B:50:THR:HG23	1.62	0.65
1:E:217:GLY:N	1:E:395:SER:HB3	2.12	0.65
1:E:287:PHE:H	1:E:287:PHE:HD2	1.44	0.65
1:M:380:ASP:OD1	1:M:424:ARG:NH1	2.29	0.65
9:O:302:HEM:HHD	9:O:302:HEM:HBC2	1.79	0.65
1:E:200:ARG:NH1	2:F:105:ASP:OD2	2.30	0.65
1:M:185:ILE:HA	1:M:445:HIS:CE1	2.32	0.65
2:J:202:ASP:C	2:J:204:GLY:H	2.04	0.65
1:E:278:THR:HA	1:E:297:GLN:HE22	1.61	0.65
1:E:587:TYR:CD1	1:E:614:ILE:HD11	2.30	0.65
1:I:544:GLU:HG2	1:I:562:TRP:CG	2.32	0.65
1:I:605:ASN:CG	1:I:608:PRO:HD3	2.22	0.65
1:A:219:TYR:CE2	1:A:371:SER:HB3	2.31	0.65
1:E:255:GLN:HB2	1:E:372:MET:SD	2.37	0.65
1:E:278:THR:HA	1:E:297:GLN:NE2	2.12	0.65
1:A:154:ASP:OD2	1:A:344:GLU:HB3	1.96	0.64
1:A:380:ASP:OD1	1:A:424:ARG:NH1	2.31	0.64
1:A:539:ALA:O	1:A:551:ARG:NH1	2.30	0.64
2:B:210:GLY:O	3:C:173:ARG:NH1	2.30	0.64
1:E:95:ILE:HG23	2:F:131:THR:HG22	1.79	0.64
1:I:259:THR:HG23	1:I:273:ARG:HE	1.62	0.64
3:C:14:SER:OG	3:C:16:ILE:HG12	1.97	0.64
3:C:112:TRP:HA	3:C:115:GLN:OE1	1.97	0.64
1:E:140:ALA:HB2	1:E:147:TRP:CE2	2.32	0.64
1:I:40:ARG:HH22	2:J:178:ARG:NH2	1.93	0.64
1:I:452:ILE:O	1:I:455:ILE:HG22	1.97	0.64
2:J:165:ARG:HH11	3:K:100:HIS:HD2	1.45	0.64
1:M:512:CYS:HA	1:M:516:ASN:HD22	1.62	0.64
1:A:489:LEU:HD13	1:A:540:LEU:HA	1.79	0.64
1:E:41:ARG:HD3	2:F:62:CYS:O	1.98	0.64
1:I:288:MET:HE1	1:I:307:ARG:HB2	1.80	0.64
1:A:35:SER:OG	1:A:37:VAL:O	2.12	0.64
1:A:48:GLN:HB3	1:A:154:ASP:OD1	1.97	0.64
3:G:140:THR:H	3:G:143:LYS:HE3	1.61	0.64
1:M:376:ARG:HA	1:M:397:CYS:HB3	1.80	0.64
2:N:94:PRO:C	2:N:96:PHE:H	2.03	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:16:ALA:HB2	1:E:414:THR:HG22	1.79	0.64
1:I:198:CYS:SG	1:I:201:THR:HG23	2.38	0.64
1:M:141:PHE:HB2	1:M:149:THR:HG21	1.80	0.64
2:N:66:ALA:HB1	2:N:93:LEU:HD11	1.80	0.64
2:N:202:ASP:OD1	2:N:203:GLN:N	2.31	0.64
3:C:16:ILE:HG13	10:O:301:LMT:C6'	2.19	0.64
2:F:11:ARG:HB3	2:F:22:ARG:HG3	1.80	0.64
1:I:455:ILE:HD12	1:I:459:ARG:HH21	1.61	0.64
1:M:248:MET:HB3	1:M:251:MET:HG2	1.80	0.64
1:M:312:MET:HG2	1:M:326:LEU:HD11	1.78	0.64
1:A:185:ILE:HG22	1:A:192:LEU:HB2	1.80	0.64
9:C:301:HEM:HBC2	9:C:301:HEM:HHD	1.79	0.64
1:I:140:ALA:O	1:I:274:GLY:HA3	1.97	0.64
3:C:94:TRP:CH2	3:C:117:ILE:HD11	2.33	0.64
10:C:303:LMT:H3'	10:C:303:LMT:C3B	2.24	0.64
1:E:111:VAL:HG13	2:F:139:ASN:HD22	1.63	0.64
1:I:411:LEU:N	4:I:701:FAD:O2	2.23	0.64
1:A:139:ARG:HH11	1:A:271:GLY:HA3	1.63	0.63
1:A:400:MET:HE2	1:A:401:HIS:NE2	2.11	0.63
3:G:88:PRO:HD3	3:G:112:TRP:CH2	2.32	0.63
3:K:27:SER:O	3:K:31:LEU:CB	2.45	0.63
1:M:342:LEU:O	1:M:343:ARG:NE	2.31	0.63
3:O:147:ARG:HB3	3:O:150:SER:O	1.97	0.63
2:F:13:ASN:OD1	2:F:52:LYS:NZ	2.32	0.63
10:C:303:LMT:O3'	10:C:303:LMT:O2B	2.05	0.63
1:E:329:ASP:OD1	1:E:331:ARG:NE	2.31	0.63
1:I:257:HIS:ND1	1:I:258:PRO:HD2	2.12	0.63
1:M:134:GLY:HA3	2:N:136:ARG:HH11	1.61	0.63
1:M:216:THR:HG21	1:M:236:GLY:H	1.62	0.63
1:M:247:PRO:HD2	1:M:384:TYR:HB3	1.80	0.63
3:O:195:LEU:HA	3:O:198:ILE:HG22	1.80	0.63
1:A:79:TRP:CZ2	1:A:590:MET:HE3	2.33	0.63
3:G:169:VAL:HG12	3:G:173:ARG:HE	1.64	0.63
1:I:263:PRO:HB3	1:I:322:TYR:CE2	2.33	0.63
1:I:434:PRO:HG2	1:I:436:PHE:CZ	2.33	0.63
1:M:210:THR:HG21	1:M:429:THR:HG23	1.81	0.63
3:O:73:PHE:CD1	3:O:130:MET:HE3	2.34	0.63
1:A:85:VAL:HG12	1:A:400:MET:CB	2.28	0.63
10:C:303:LMT:H6'	3:O:16:ILE:CG2	2.11	0.63
2:F:225:GLN:HE22	3:G:186:ARG:HH11	1.47	0.63
3:G:80:PHE:HB2	9:G:302:HEM:CBB	2.28	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:183:ARG:O	3:C:186:ARG:HB3	1.98	0.63
1:E:40:ARG:HB3	1:E:158:ARG:HH22	1.64	0.63
1:E:250:ASN:HB2	1:E:565:ARG:HG3	1.79	0.63
1:E:379:ARG:NH2	1:E:619:LYS:HB2	2.14	0.63
1:M:595:ARG:H	1:M:596:GLY:HA3	1.64	0.63
10:O:301:LMT:O3'	10:O:301:LMT:H1B	1.98	0.63
3:C:140:THR:O	3:C:143:LYS:HG3	1.99	0.63
1:E:255:GLN:NE2	1:E:301:ARG:HE	1.96	0.63
1:E:262:VAL:HG13	1:E:365:ARG:HH21	1.63	0.63
1:I:613:VAL:C	1:I:615:PRO:HD3	2.24	0.63
3:O:44:SER:HB2	3:O:52:MET:HB3	1.81	0.63
1:A:210:THR:HG23	1:A:211:SER:H	1.64	0.62
1:E:472:MET:HE2	1:E:529:LEU:HD12	1.81	0.62
2:F:222:ILE:CG2	2:F:223:PRO:HD2	2.29	0.62
1:I:352:PHE:HA	2:J:80:GLN:HE21	1.63	0.62
1:M:227:THR:HG21	1:M:267:LEU:HB2	1.81	0.62
2:N:128:PHE:CA	2:N:129:ASP:HB3	2.29	0.62
3:O:155:LEU:C	3:O:157:LEU:H	2.07	0.62
3:O:159:LEU:HD21	9:O:302:HEM:HBC2	1.80	0.62
9:K:302:HEM:HBC2	9:K:302:HEM:HHD	1.80	0.62
1:M:491:LYS:HG3	1:M:495:LYS:HE3	1.81	0.62
1:E:587:TYR:HD1	1:E:614:ILE:CD1	2.13	0.62
3:G:72:VAL:O	3:G:76:MET:HB2	1.98	0.62
3:O:73:PHE:HD1	3:O:130:MET:HE3	1.64	0.62
2:F:190:ARG:HD3	2:F:195:TYR:CE1	2.34	0.62
1:I:277:GLY:O	1:I:297:GLN:NE2	2.31	0.62
1:M:233:ASP:HB3	1:M:528:MET:HE2	1.80	0.62
1:M:449:GLN:O	1:M:452:ILE:HG22	1.99	0.62
1:A:85:VAL:CG1	1:A:400:MET:HB3	2.30	0.62
1:A:405:ARG:HH21	1:A:410:SER:HB2	1.64	0.62
1:E:246:VAL:HG23	1:E:385:GLY:N	2.14	0.62
1:I:42:SER:O	1:I:45:SER:OG	2.18	0.62
1:M:59:ILE:HD13	1:M:128:GLU:HG2	1.81	0.62
1:M:410:SER:HB3	4:M:701:FAD:O3'	1.99	0.62
2:N:130:PRO:O	2:N:131:THR:CB	2.46	0.62
3:O:8:LEU:HB3	3:O:14:SER:HB3	1.81	0.62
3:O:69:GLY:HA3	3:O:134:LEU:HD11	1.81	0.62
1:E:399:ASP:OD2	1:E:565:ARG:NE	2.32	0.62
3:G:53:ASN:ND2	3:G:140:THR:HA	2.15	0.62
1:I:572:GLU:CB	1:I:573:GLY:HA3	2.29	0.62
1:M:12:GLY:HA2	4:M:701:FAD:H1B	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:27:ALA:HB1	1:M:430:LYS:NZ	2.14	0.62
1:M:455:ILE:O	1:M:459:ARG:HB3	1.99	0.62
2:N:222:ILE:HG22	2:N:223:PRO:HD2	1.82	0.62
3:O:9:HIS:CE1	3:O:14:SER:HA	2.34	0.62
3:O:140:THR:H	3:O:143:LYS:NZ	1.97	0.62
1:A:611:LYS:HG3	1:A:612:PHE:H	1.65	0.62
3:C:148:LEU:C	3:C:149:GLN:O	2.42	0.62
1:I:475:ILE:HD12	1:I:495:LYS:HD3	1.82	0.62
1:I:572:GLU:HB2	1:I:573:GLY:HA3	1.80	0.62
2:N:65:CYS:HB2	2:N:75:LEU:HB2	1.80	0.62
3:O:52:MET:HA	3:O:55:ILE:HG22	1.81	0.62
3:C:16:ILE:HD11	10:O:301:LMT:C6'	2.15	0.62
1:E:32:ILE:HG21	1:E:207:TYR:CE2	2.35	0.62
3:G:145:ALA:O	3:G:148:LEU:HG	2.00	0.62
3:O:10:VAL:HG22	3:O:11:PRO:CD	2.30	0.62
1:A:261:THR:HB	1:A:266:ILE:O	2.00	0.62
2:B:215:GLU:CD	3:C:183:ARG:HD3	2.24	0.62
3:C:41:LEU:HA	11:C:304:MQ7:H161	1.82	0.62
3:C:147:ARG:HG2	3:C:148:LEU:N	2.14	0.62
3:C:167:VAL:HG12	9:C:302:HEM:CAC	2.30	0.62
2:J:56:CYS:HB3	2:J:62:CYS:SG	2.39	0.62
1:M:40:ARG:HH22	2:N:178:ARG:HH12	1.47	0.62
1:M:542:ARG:HA	1:M:562:TRP:CH2	2.35	0.62
1:E:616:GLU:HG2	1:E:617:ALA:N	2.14	0.62
1:M:341:LYS:HG2	1:M:342:LEU:HB3	1.82	0.62
3:G:169:VAL:O	3:G:173:ARG:HB2	1.99	0.61
2:N:225:GLN:HE22	3:O:186:ARG:CD	2.12	0.61
1:E:314:LYS:HB2	1:E:316:LEU:HD12	1.83	0.61
3:G:53:ASN:OD1	3:G:141:ALA:N	2.29	0.61
3:G:120:ILE:HG13	3:G:121:PHE:N	2.14	0.61
9:K:301:HEM:HBB2	9:K:301:HEM:HMB2	1.82	0.61
1:M:213:LEU:HB2	1:M:425:MET:HE1	1.83	0.61
3:O:31:LEU:HD12	9:O:303:HEM:C3C	2.35	0.61
2:B:146:PHE:O	2:B:150:ARG:HB2	2.01	0.61
3:C:56:ALA:HB1	3:C:139:ILE:HG21	1.82	0.61
2:F:42:GLN:O	2:F:46:GLU:HB2	2.00	0.61
1:I:11:ILE:N	1:I:213:LEU:O	2.29	0.61
1:M:118:TYR:O	1:M:273:ARG:NH2	2.33	0.61
1:A:217:GLY:HA2	1:A:394:GLU:HB3	1.81	0.61
2:B:26:PHE:CE2	2:B:43:ILE:HG23	2.35	0.61
1:I:613:VAL:O	1:I:613:VAL:HG12	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:355:VAL:HG13	1:E:360:GLN:HB2	1.81	0.61
2:F:190:ARG:HD3	2:F:195:TYR:CZ	2.35	0.61
1:I:308:MET:HE3	1:I:326:LEU:HD12	1.83	0.61
1:A:343:ARG:O	1:A:345:VAL:N	2.32	0.61
1:E:571:LYS:O	1:E:572:GLU:HB2	2.00	0.61
3:G:60:GLU:H	3:G:60:GLU:CD	2.07	0.61
1:M:257:HIS:CE1	1:M:301:ARG:HH22	2.19	0.61
1:M:294:ASP:OD1	1:M:294:ASP:N	2.34	0.61
3:O:95:LYS:HZ2	10:O:301:LMT:C5'	2.09	0.61
1:A:93:ALA:HA	1:A:416:VAL:CG2	2.31	0.61
1:A:499:LEU:HG	1:A:529:LEU:HD21	1.82	0.61
10:C:303:LMT:O6B	3:O:9:HIS:HB2	2.01	0.61
9:G:302:HEM:HBB2	9:G:302:HEM:HMB2	1.83	0.61
1:I:377:THR:OG1	1:I:398:TRP:HA	2.01	0.61
1:A:216:THR:HG22	4:A:701:FAD:C4A	2.31	0.61
3:C:76:MET:HE2	9:C:302:HEM:HAB	1.82	0.61
3:C:142:ALA:O	3:C:144:SER:N	2.33	0.61
3:G:38:HIS:CE1	9:G:301:HEM:C3D	2.89	0.61
1:I:40:ARG:O	1:I:158:ARG:NH1	2.34	0.61
3:C:172:TYR:HA	3:C:189:PHE:CE1	2.36	0.61
1:E:258:PRO:HD2	1:E:301:ARG:HD2	1.83	0.61
1:I:14:ALA:HB2	4:I:701:FAD:C4B	2.31	0.61
2:J:190:ARG:HH21	2:J:194:ASP:CG	2.09	0.61
1:A:51:MET:HE3	1:A:412:ALA:HA	1.82	0.61
2:F:148:LEU:HD13	2:F:177:MET:HG2	1.83	0.61
3:K:5:THR:HG23	3:K:6:ILE:N	2.15	0.61
3:O:45:VAL:HG21	3:O:211:PHE:HA	1.82	0.61
2:B:185:ASP:OD2	2:B:187:ARG:NH1	2.34	0.60
3:C:60:GLU:HG3	3:C:64:MET:HB2	1.83	0.60
1:E:381:GLY:HA3	1:E:421:ILE:HG23	1.83	0.60
3:G:35:LEU:HD13	3:G:167:VAL:HG11	1.83	0.60
1:I:542:ARG:HD3	1:I:549:HIS:CD2	2.36	0.60
1:M:120:GLY:CA	1:M:297:GLN:HG2	2.31	0.60
1:A:186:HIS:O	1:A:187:ASP:HB2	2.00	0.60
1:A:250:ASN:OD1	1:A:565:ARG:HA	2.00	0.60
1:A:262:VAL:HG21	1:A:325:HIS:CB	2.31	0.60
1:I:245:LEU:O	1:I:385:GLY:HA3	2.00	0.60
1:I:472:MET:HE1	1:I:528:MET:HE2	1.83	0.60
1:M:388:GLY:HA2	1:M:428:PHE:CE2	2.36	0.60
1:M:500:TYR:OH	1:M:530:LYS:NZ	2.34	0.60
3:G:38:HIS:HE1	9:G:301:HEM:C3D	2.18	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:280:LEU:CD2	1:M:327:TRP:HB2	2.30	0.60
1:A:61:GLY:HA2	1:A:146:ALA:HB1	1.82	0.60
3:K:150:SER:CA	3:K:152:TRP:H	2.12	0.60
1:M:327:TRP:HB3	1:M:361:LEU:HD13	1.84	0.60
1:M:489:LEU:HB3	1:M:540:LEU:HB2	1.83	0.60
2:N:199:ILE:CG1	2:N:205:VAL:HG23	2.32	0.60
1:A:141:PHE:CE1	1:A:270:GLU:HB3	2.36	0.60
1:E:558:ASN:HA	1:E:603:ILE:HD12	1.83	0.60
3:G:129:HIS:NE2	9:G:301:HEM:ND	2.50	0.60
1:I:530:LYS:HE3	1:I:570:TRP:CD2	2.37	0.60
3:K:196:MET:O	3:K:200:PHE:HD2	1.84	0.60
2:N:191:SER:HB3	2:N:194:ASP:OD2	2.01	0.60
3:O:154:TYR:O	3:O:156:TYR:CD2	2.54	0.60
1:I:355:VAL:HG11	1:I:362:ILE:HD13	1.83	0.60
1:I:524:ARG:CZ	1:I:524:ARG:HB3	2.30	0.60
1:M:89:PHE:HB2	1:M:416:VAL:HG11	1.82	0.60
1:M:308:MET:HG2	1:M:326:LEU:HD13	1.82	0.60
3:O:55:ILE:HA	3:O:58:PHE:HB2	1.82	0.60
1:A:221:ARG:NH1	1:A:228:ASN:O	2.35	0.60
1:E:405:ARG:NH1	5:E:702:FUM:O8	2.33	0.60
2:J:183:TYR:CD2	2:J:231:MET:HE1	2.36	0.60
2:J:190:ARG:NH2	2:J:194:ASP:OD2	2.30	0.60
1:M:439:GLN:O	1:M:443:ASP:HB2	2.02	0.60
3:O:128:VAL:O	3:O:132:VAL:HG13	2.01	0.60
1:E:557:ARG:NH2	1:E:593:GLY:O	2.33	0.60
1:M:258:PRO:CB	1:M:308:MET:HE1	2.32	0.60
1:I:386:LEU:HD23	1:I:387:LYS:N	2.16	0.60
2:J:5:LEU:HD12	2:J:28:VAL:HG23	1.83	0.60
1:M:331:ARG:HA	1:M:338:ILE:HD13	1.83	0.60
1:I:246:VAL:HG12	1:I:385:GLY:H	1.67	0.60
1:A:377:THR:HB	1:A:381:GLY:HA2	1.83	0.59
1:M:261:THR:CG2	1:M:263:PRO:HD2	2.32	0.59
1:A:380:ASP:HB3	1:A:424:ARG:HG3	1.85	0.59
3:C:143:LYS:HZ2	9:C:301:HEM:HBA1	1.66	0.59
1:E:580:GLU:HG2	1:E:581:TYR:N	2.16	0.59
2:F:208:CYS:CA	6:F:301:F3S:S1	2.90	0.59
1:M:379:ARG:O	1:M:420:TYR:HE2	1.85	0.59
1:M:489:LEU:HD23	1:M:540:LEU:HA	1.84	0.59
1:A:262:VAL:HG21	1:A:325:HIS:HB3	1.83	0.59
1:E:339:THR:HB	1:E:343:ARG:HA	1.84	0.59
1:E:449:GLN:O	1:E:452:ILE:HG22	2.01	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:45:VAL:HG12	3:K:207:THR:HG23	1.85	0.59
1:M:546:ARG:NH2	1:M:558:ASN:O	2.35	0.59
1:A:1:MET:HG2	1:A:2:GLN:HG3	1.84	0.59
3:C:60:GLU:OE2	3:C:64:MET:HB2	2.02	0.59
3:G:48:SER:O	3:G:50:SER:N	2.34	0.59
2:J:199:ILE:HB	2:J:205:VAL:HG23	1.84	0.59
2:J:225:GLN:OE1	3:K:186:ARG:HD3	2.02	0.59
3:K:41:LEU:HG	3:K:42:VAL:HG23	1.83	0.59
3:O:164:GLU:HG2	3:O:200:PHE:HB3	1.84	0.59
1:I:61:GLY:HA2	1:I:146:ALA:HB1	1.85	0.59
2:N:199:ILE:HG13	2:N:205:VAL:HG23	1.85	0.59
1:A:5:HIS:HE1	1:M:5:HIS:HE1	1.49	0.59
2:B:44:ARG:HG2	2:B:49:PRO:HA	1.83	0.59
3:C:163:ALA:O	3:C:167:VAL:HG13	2.02	0.59
1:E:89:PHE:HE1	1:E:412:ALA:HB1	1.68	0.59
1:E:439:GLN:O	1:E:443:ASP:HB2	2.03	0.59
2:F:137:MET:HE2	2:F:142:ALA:HB2	1.85	0.59
3:G:150:SER:HB3	3:G:151:GLY:C	2.27	0.59
1:I:610:GLU:HG3	1:I:611:LYS:HZ3	1.65	0.59
1:M:341:LYS:HZ3	1:M:342:LEU:HD23	1.67	0.59
1:M:530:LYS:HG2	1:M:570:TRP:CZ2	2.38	0.59
2:N:202:ASP:O	2:N:203:GLN:HB3	2.01	0.59
3:O:106:HIS:HD2	3:O:109:THR:H	1.51	0.59
1:A:210:THR:HG21	1:A:429:THR:HG23	1.85	0.59
1:E:499:LEU:HG	1:E:529:LEU:HD21	1.84	0.59
3:G:188:TRP:CD1	3:G:192:THR:HG1	2.21	0.59
1:M:261:THR:HG21	1:M:353:LEU:HD11	1.85	0.59
1:A:140:ALA:HB3	1:A:274:GLY:O	2.02	0.59
2:B:119:ALA:HB1	2:B:182:PHE:CE2	2.37	0.59
3:C:149:GLN:O	3:C:150:SER:C	2.46	0.59
1:E:55:LEU:HD12	1:E:57:ASN:ND2	2.17	0.59
2:N:11:ARG:HA	2:N:101:ASP:OD1	2.02	0.59
3:O:83:ALA:HB1	9:O:303:HEM:C3A	2.38	0.59
2:F:202:ASP:OD1	2:F:203:GLN:N	2.36	0.59
2:J:106:THR:HB	2:J:110:PHE:HE2	1.67	0.59
3:O:29:ALA:O	3:O:32:ILE:HG22	2.03	0.59
1:A:10:CYS:SG	1:A:21:ALA:HB2	2.43	0.59
2:B:137:MET:HG2	2:B:142:ALA:HB2	1.85	0.59
3:K:48:SER:HB3	3:K:51:LEU:HG	1.85	0.59
1:A:40:ARG:O	1:A:158:ARG:NH1	2.37	0.58
1:E:277:GLY:O	1:E:297:GLN:NE2	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:216:THR:HG21	1:I:236:GLY:H	1.67	0.58
3:K:173:ARG:HG2	3:K:177:LYS:HE2	1.84	0.58
1:M:247:PRO:HD2	1:M:384:TYR:CB	2.33	0.58
1:A:5:HIS:CE1	1:M:5:HIS:HE1	2.21	0.58
1:A:400:MET:CG	1:A:401:HIS:CD2	2.86	0.58
3:C:103:MET:O	3:C:105:HIS:ND1	2.34	0.58
1:E:94:PRO:O	1:E:98:ARG:HD3	2.03	0.58
1:I:458:GLY:C	1:I:459:ARG:HD3	2.28	0.58
1:M:572:GLU:HB3	1:M:573:GLY:CA	2.32	0.58
2:N:35:THR:H	2:N:38:ILE:HD12	1.68	0.58
3:O:46:ILE:HD13	3:O:210:ARG:HB3	1.85	0.58
3:G:6:ILE:HG13	3:G:7:THR:N	2.18	0.58
3:G:56:ALA:CB	3:G:139:ILE:HG21	2.31	0.58
1:I:91:ASP:O	1:I:94:PRO:HD2	2.02	0.58
1:I:616:GLU:HG2	1:I:617:ALA:H	1.67	0.58
3:K:64:MET:O	3:K:68:GLY:N	2.25	0.58
3:K:148:LEU:HD12	3:K:149:GLN:N	2.17	0.58
1:M:537:TYR:CE1	1:M:576:MET:HE1	2.38	0.58
1:M:539:ALA:HB1	1:M:549:HIS:CE1	2.38	0.58
1:M:557:ARG:HD2	1:M:559:ASP:OD1	2.03	0.58
2:N:7:LEU:HD23	2:N:88:ILE:HB	1.85	0.58
1:A:52:GLN:HG2	1:A:69:HIS:NE2	2.18	0.58
1:A:152:THR:HG23	1:A:156:THR:HG23	1.84	0.58
1:E:346:TYR:O	1:E:350:THR:OG1	2.20	0.58
1:I:558:ASN:H	1:I:603:ILE:H	1.50	0.58
3:K:129:HIS:NE2	9:K:301:HEM:C4D	2.71	0.58
1:M:258:PRO:HD2	1:M:301:ARG:NH2	2.18	0.58
1:A:178:ARG:HA	1:A:199:LEU:HD12	1.85	0.58
2:B:110:PHE:CZ	2:B:153:GLU:HG2	2.39	0.58
3:K:129:HIS:HE1	9:K:301:HEM:HBA1	1.67	0.58
2:N:128:PHE:HA	2:N:129:ASP:HB3	1.85	0.58
3:O:154:TYR:CG	3:O:155:LEU:N	2.71	0.58
2:F:57:CYS:SG	2:F:61:ILE:O	2.62	0.58
3:K:186:ARG:HG3	3:K:190:GLN:NE2	2.18	0.58
1:M:546:ARG:HH12	1:M:562:TRP:HB2	1.68	0.58
3:O:188:TRP:HD1	3:O:192:THR:HG1	1.51	0.58
1:A:195:ILE:HD13	1:A:206:ALA:HB2	1.85	0.58
1:A:369:HIS:NE2	5:A:702:FUM:O7	2.33	0.58
1:E:257:HIS:O	1:E:366:PRO:HA	2.03	0.58
1:E:459:ARG:HG2	1:E:460:LYS:N	2.19	0.58
2:F:94:PRO:C	2:F:96:PHE:H	2.11	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:318:VAL:O	1:I:324:ASP:HA	2.03	0.58
2:B:224:LEU:O	2:B:228:LEU:HB2	2.04	0.58
1:E:200:ARG:HG2	2:F:99:LEU:HD22	1.85	0.58
2:F:165:ARG:NH2	3:K:3:ALA:O	2.35	0.58
1:I:458:GLY:HA3	1:I:459:ARG:HH11	1.69	0.58
1:M:405:ARG:NH2	5:M:702:FUM:O8	2.36	0.58
2:N:185:ASP:OD2	2:N:187:ARG:NH1	2.36	0.58
3:O:35:LEU:HD13	3:O:167:VAL:HG11	1.86	0.58
1:A:452:ILE:HA	1:A:455:ILE:HG22	1.86	0.58
1:E:279:LEU:HD12	1:E:297:GLN:HB3	1.86	0.58
3:G:149:GLN:HA	3:G:150:SER:O	2.03	0.58
1:I:346:TYR:CD1	1:I:350:THR:HG21	2.38	0.58
3:O:25:MET:HG2	3:O:174:ILE:HD11	1.86	0.58
1:A:484:ARG:O	1:A:551:ARG:HA	2.04	0.58
1:A:524:ARG:CZ	1:A:524:ARG:HB3	2.34	0.58
2:B:42:GLN:O	2:B:46:GLU:HB2	2.03	0.58
1:E:20:VAL:HG23	1:E:422:GLY:HA2	1.86	0.58
1:I:25:SER:OG	1:I:171:TYR:HB3	2.04	0.58
1:I:306:ARG:HG3	1:I:483:PHE:CZ	2.38	0.58
1:I:616:GLU:N	1:I:616:GLU:OE1	2.36	0.58
1:M:278:THR:HG23	1:M:286:ARG:HG3	1.85	0.58
1:E:19:ARG:NH2	1:E:99:GLU:OE1	2.31	0.57
3:G:206:LEU:O	3:G:210:ARG:HB2	2.03	0.57
1:I:70:PHE:CZ	1:I:74:VAL:HG21	2.39	0.57
1:I:121:GLY:HA3	1:I:286:ARG:NH1	2.17	0.57
1:M:512:CYS:O	1:M:513:LYS:HG2	2.04	0.57
1:M:513:LYS:HD3	2:N:13:ASN:CB	2.33	0.57
1:E:557:ARG:HD2	1:E:559:ASP:OD1	2.05	0.57
2:J:199:ILE:HD13	2:J:205:VAL:HG21	1.86	0.57
3:O:5:THR:HG23	3:O:6:ILE:H	1.69	0.57
3:O:133:VAL:HG23	3:O:147:ARG:NH2	2.07	0.57
1:E:185:ILE:HG22	1:E:192:LEU:HB2	1.86	0.57
1:M:217:GLY:H	1:M:395:SER:HB3	1.69	0.57
1:E:97:MET:O	1:E:101:ALA:HB2	2.05	0.57
3:G:40:MET:O	3:G:44:SER:OG	2.19	0.57
1:I:459:ARG:HB2	1:I:460:LYS:HA	1.84	0.57
3:O:80:PHE:HB2	9:O:303:HEM:CBB	2.35	0.57
1:A:184:LEU:O	1:A:445:HIS:NE2	2.37	0.57
1:A:302:ASP:HB2	1:A:306:ARG:HH21	1.69	0.57
3:C:149:GLN:C	3:C:151:GLY:N	2.58	0.57
1:E:378:ASN:ND2	1:E:382:ALA:HB3	2.19	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:454:ASP:O	1:E:458:GLY:N	2.38	0.57
1:I:348:ILE:O	1:I:352:PHE:HB2	2.05	0.57
1:M:493:VAL:HA	1:M:496:LEU:HD23	1.87	0.57
3:C:31:LEU:HD22	9:C:302:HEM:CAC	2.34	0.57
9:G:301:HEM:HMB2	9:G:301:HEM:HBB2	1.85	0.57
1:M:257:HIS:O	1:M:366:PRO:HA	2.03	0.57
1:M:444:ALA:HA	1:M:448:VAL:HG13	1.86	0.57
3:C:153:LEU:HD23	3:C:156:TYR:OH	2.04	0.57
3:G:121:PHE:HD2	3:G:162:LEU:HD13	1.69	0.57
1:I:40:ARG:HG2	1:I:165:ASP:OD2	2.04	0.57
1:I:278:THR:HB	1:I:329:ASP:HB3	1.85	0.57
1:I:340:THR:HG22	1:I:340:THR:O	2.03	0.57
1:M:306:ARG:HD2	1:M:482:ILE:HG22	1.87	0.57
2:N:190:ARG:HB2	2:N:195:TYR:CE2	2.40	0.57
3:O:130:MET:O	3:O:134:LEU:HB2	2.05	0.57
3:C:16:ILE:HD12	10:O:301:LMT:H6E	1.59	0.57
3:C:191:LYS:HD2	3:C:194:ASN:HB3	1.85	0.57
1:E:291:TYR:CD2	1:E:307:ARG:HD2	2.40	0.57
3:O:171:PHE:O	3:O:174:ILE:HG22	2.05	0.57
3:O:189:PHE:O	3:O:193:GLU:HB2	2.04	0.57
3:C:120:ILE:HG23	10:C:303:LMT:H121	1.87	0.57
1:E:510:SER:HB3	2:F:49:PRO:HG2	1.86	0.57
1:E:586:PRO:O	1:E:587:TYR:HB2	2.05	0.57
2:F:110:PHE:HA	2:F:113:THR:HG22	1.87	0.57
1:I:463:GLU:HB3	1:I:468:ILE:HD11	1.86	0.57
2:J:165:ARG:HH11	3:K:100:HIS:CD2	2.22	0.57
1:M:32:ILE:HD13	1:M:207:TYR:CE2	2.39	0.57
1:A:412:ALA:O	1:A:416:VAL:CB	2.49	0.57
3:G:154:TYR:CZ	3:G:155:LEU:HG	2.40	0.57
1:I:44:SER:OG	4:I:701:FAD:O5'	2.23	0.57
2:J:1:MET:HE1	2:J:82:LYS:HE2	1.85	0.57
2:J:6:THR:O	2:J:88:ILE:N	2.22	0.57
2:N:211:LEU:HD23	3:O:173:ARG:NH1	2.19	0.57
1:A:76:GLY:O	1:A:404:ASN:HB3	2.05	0.56
10:C:303:LMT:O6B	3:O:9:HIS:CB	2.52	0.56
1:E:255:GLN:HE22	1:E:301:ARG:HE	1.52	0.56
1:E:302:ASP:CG	1:E:595:ARG:HH12	2.12	0.56
1:E:517:PRO:HG2	2:F:49:PRO:O	2.05	0.56
2:F:65:CYS:HB3	2:F:76:ALA:H	1.70	0.56
2:N:131:THR:HG22	2:N:132:ALA:N	2.19	0.56
2:N:131:THR:HG22	2:N:132:ALA:H	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:108:ASN:OD1	1:A:153:ALA:N	2.20	0.56
1:A:417:ALA:O	1:A:421:ILE:HG12	2.05	0.56
1:E:595:ARG:HD2	1:E:597:TYR:HE1	1.70	0.56
3:G:140:THR:HB	3:G:143:LYS:HG3	1.87	0.56
1:I:301:ARG:NH2	5:I:702:FUM:O	2.39	0.56
3:K:31:LEU:HD11	9:K:302:HEM:C3C	2.40	0.56
1:M:301:ARG:NH1	1:M:405:ARG:HH12	2.03	0.56
3:O:10:VAL:HG22	3:O:11:PRO:HD3	1.87	0.56
1:A:32:ILE:HD13	1:A:207:TYR:CE2	2.40	0.56
1:A:210:THR:CG2	1:A:429:THR:HG23	2.35	0.56
1:A:214:ILE:HG23	1:A:236:GLY:HA3	1.88	0.56
3:C:77:VAL:O	3:C:80:PHE:HB3	2.06	0.56
1:E:51:MET:HG3	1:E:411:LEU:HB3	1.88	0.56
1:E:306:ARG:NH2	1:E:547:GLY:O	2.38	0.56
3:G:19:ARG:O	3:G:22:PHE:HB3	2.04	0.56
1:I:235:GLY:HA3	4:I:701:FAD:N6A	2.20	0.56
3:K:174:ILE:HD13	9:K:302:HEM:HBD1	1.87	0.56
1:M:92:THR:HA	1:M:95:ILE:HD12	1.86	0.56
1:M:98:ARG:O	1:M:102:HIS:ND1	2.38	0.56
1:A:74:VAL:HB	1:A:590:MET:HE2	1.87	0.56
1:E:312:MET:HE1	1:E:324:ASP:C	2.30	0.56
3:G:38:HIS:HE1	9:G:301:HEM:CAD	2.18	0.56
1:I:281:ASP:HB3	1:I:311:HIS:NE2	2.19	0.56
1:A:198:CYS:SG	1:A:201:THR:HG23	2.45	0.56
2:B:165:ARG:HD3	3:C:100:HIS:HB2	1.88	0.56
1:E:89:PHE:HA	1:E:416:VAL:HG11	1.85	0.56
1:I:607:LEU:HD12	1:I:607:LEU:N	2.20	0.56
1:M:259:THR:HB	1:M:268:VAL:CG2	2.35	0.56
1:M:338:ILE:HD12	1:M:358:ILE:HA	1.88	0.56
3:O:6:ILE:HG23	3:O:7:THR:N	2.20	0.56
1:A:344:GLU:OE2	2:B:150:ARG:HD2	2.05	0.56
2:F:200:GLY:C	2:F:202:ASP:H	2.12	0.56
3:G:12:GLN:HG3	3:G:13:ARG:H	1.71	0.56
3:G:27:SER:O	3:G:31:LEU:HB2	2.06	0.56
1:M:583:GLU:CD	1:M:586:PRO:HG3	2.31	0.56
3:O:188:TRP:O	3:O:192:THR:HB	2.06	0.56
1:A:257:HIS:CE1	5:A:702:FUM:H5	2.40	0.56
1:E:85:VAL:HG13	1:E:398:TRP:CE2	2.41	0.56
1:I:452:ILE:HD12	1:I:526:ARG:HH21	1.70	0.56
1:M:221:ARG:HD2	1:M:226:THR:HG21	1.86	0.56
1:M:306:ARG:HH22	1:M:483:PHE:HD1	1.53	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:278:THR:HB	1:A:329:ASP:HB3	1.87	0.56
1:A:510:SER:OG	2:B:49:PRO:HG2	2.06	0.56
2:B:214:CYS:HB2	2:B:224:LEU:HD13	1.86	0.56
1:E:312:MET:HE1	1:E:324:ASP:O	2.05	0.56
3:G:32:ILE:HA	9:G:302:HEM:HBC1	1.88	0.56
1:I:327:TRP:CE3	1:I:361:LEU:HB2	2.40	0.56
1:A:70:PHE:O	1:A:74:VAL:HG23	2.05	0.56
1:E:468:ILE:HD12	1:E:506:ILE:HD11	1.88	0.56
1:E:556:GLU:HA	1:E:601:VAL:HB	1.88	0.56
2:J:10:PHE:HB2	2:J:91:HIS:HD2	1.70	0.56
1:M:503:SER:HA	1:M:506:ILE:HD11	1.87	0.56
3:O:139:ILE:HA	3:O:143:LYS:CE	2.36	0.56
1:A:291:TYR:HB3	1:A:307:ARG:NE	2.20	0.56
1:E:251:MET:SD	1:E:534:CYS:HB3	2.46	0.56
1:I:163:THR:O	1:I:167:LYS:HG2	2.05	0.56
1:I:376:ARG:HG3	1:I:384:TYR:CD2	2.41	0.56
2:J:44:ARG:HG2	2:J:49:PRO:HA	1.87	0.56
3:K:144:SER:HB2	9:K:301:HEM:HAA1	1.87	0.56
3:K:148:LEU:HD12	3:K:149:GLN:H	1.71	0.56
1:A:311:HIS:CE1	1:A:316:LEU:HD12	2.41	0.55
1:A:338:ILE:O	1:A:343:ARG:HB2	2.05	0.55
1:E:475:ILE:HG21	1:E:496:LEU:HG	1.88	0.55
1:E:557:ARG:HB2	1:E:601:VAL:O	2.07	0.55
2:F:7:LEU:HD23	2:F:88:ILE:HB	1.87	0.55
1:I:370:TYR:CE2	1:I:372:MET:HA	2.41	0.55
1:M:22:VAL:O	1:M:26:MET:HB2	2.07	0.55
2:B:192:GLU:HA	2:B:195:TYR:HD2	1.71	0.55
3:C:116:VAL:HG13	10:C:303:LMT:H102	1.89	0.55
1:E:113:GLY:O	1:E:128:GLU:N	2.39	0.55
1:E:230:VAL:HG22	2:F:56:CYS:O	2.06	0.55
1:E:452:ILE:HD12	1:E:526:ARG:NH2	2.20	0.55
1:I:226:THR:HG1	1:I:368:HIS:HD1	1.52	0.55
1:M:509:SER:HB2	2:N:49:PRO:HG3	1.89	0.55
3:C:172:TYR:HA	3:C:189:PHE:HE1	1.72	0.55
1:E:23:GLU:HG2	1:E:423:GLU:HG2	1.87	0.55
1:M:59:ILE:HG22	1:M:60:MET:HE2	1.89	0.55
3:C:9:HIS:O	3:C:10:VAL:HG12	2.06	0.55
1:E:357:PRO:HB3	1:E:362:ILE:HD11	1.88	0.55
2:F:63:GLY:N	2:F:152:ILE:HD12	2.21	0.55
1:I:143:GLY:H	1:I:406:LEU:HD21	1.71	0.55
1:I:266:ILE:HG21	1:I:348:ILE:HD12	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:544:GLU:OE2	1:I:546:ARG:NH1	2.39	0.55
1:M:40:ARG:NH2	2:N:178:ARG:HH12	2.04	0.55
1:M:79:TRP:H	1:M:79:TRP:HE3	1.53	0.55
2:B:222:ILE:HG22	2:B:223:PRO:HD2	1.89	0.55
3:C:5:THR:OG1	3:C:6:ILE:N	2.39	0.55
3:C:21:ASP:OD2	3:C:178:TYR:OH	2.23	0.55
3:C:76:MET:HE1	3:C:123:LEU:HA	1.89	0.55
1:E:444:ALA:HA	1:E:448:VAL:HG23	1.89	0.55
1:I:32:ILE:HG21	1:I:207:TYR:CE2	2.41	0.55
2:J:202:ASP:CG	2:J:203:GLN:N	2.61	0.55
1:M:82:ASP:HA	1:M:585:SER:OG	2.06	0.55
1:M:222:ILE:HG13	1:M:223:TYR:CD1	2.41	0.55
1:M:394:GLU:OE1	4:M:701:FAD:H3'	2.06	0.55
2:N:225:GLN:HE21	3:O:176:VAL:CG1	2.19	0.55
2:N:225:GLN:NE2	3:O:186:ARG:HD3	2.20	0.55
3:O:158:VAL:O	3:O:162:LEU:HD12	2.06	0.55
1:A:6:THR:HG22	1:A:30:LYS:HG3	1.88	0.55
2:B:11:ARG:HE	2:B:101:ASP:CG	2.14	0.55
1:E:241:LEU:HD13	1:E:248:MET:HG2	1.89	0.55
3:G:31:LEU:HD22	9:G:302:HEM:CAC	2.37	0.55
3:K:34:PHE:CE1	3:K:72:VAL:HG11	2.42	0.55
1:M:84:GLU:O	1:M:88:ILE:HG13	2.07	0.55
2:N:166:MET:SD	3:O:97:PHE:HB2	2.47	0.55
2:F:96:PHE:O	2:F:98:LEU:HD12	2.07	0.55
3:G:128:VAL:HG12	3:K:128:VAL:HG12	1.88	0.55
1:I:124:PHE:HE2	1:I:126:ALA:HB2	1.66	0.55
1:I:560:LYS:HG3	1:I:607:LEU:HD11	1.87	0.55
1:M:108:ASN:OD1	1:M:152:THR:HA	2.06	0.55
1:M:262:VAL:CG1	1:M:263:PRO:HD3	2.37	0.55
1:A:400:MET:HG2	1:A:401:HIS:CD2	2.42	0.55
1:E:59:ILE:HG12	1:E:128:GLU:HA	1.89	0.55
1:E:436:PHE:HE2	1:I:438:MET:HG3	1.72	0.55
3:G:181:VAL:HG12	3:G:182:GLY:N	2.22	0.55
1:I:342:LEU:HD22	1:I:346:TYR:CD2	2.42	0.55
1:I:400:MET:HE2	1:I:401:HIS:CE1	2.42	0.55
1:I:595:ARG:HH11	1:I:597:TYR:HE1	1.55	0.55
1:M:81:CYS:HB2	1:M:399:ASP:O	2.06	0.55
1:M:308:MET:O	1:M:312:MET:HB2	2.06	0.55
1:A:403:PHE:HB3	1:A:547:GLY:HA3	1.88	0.55
2:B:199:ILE:HB	2:B:205:VAL:HG23	1.88	0.55
1:E:13:GLY:O	1:E:18:GLU:HG3	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:34:LEU:HD23	1:E:176:HIS:HB2	1.87	0.55
1:E:40:ARG:NH1	2:F:153:GLU:OE2	2.40	0.55
1:E:572:GLU:HB3	1:E:573:GLY:CA	2.37	0.55
1:I:559:ASP:OD2	1:I:592:PRO:HB3	2.07	0.55
1:I:610:GLU:HG3	1:I:611:LYS:HZ1	1.72	0.55
2:J:63:GLY:HA2	2:J:75:LEU:HD21	1.88	0.55
1:M:278:THR:HG22	1:M:279:LEU:H	1.71	0.55
3:C:181:VAL:HG12	3:C:182:GLY:N	2.22	0.55
1:I:186:HIS:NE2	1:I:243:THR:HB	2.22	0.55
1:M:460:LYS:C	1:M:505:LYS:HE3	2.32	0.55
3:O:95:LYS:HZ2	10:O:301:LMT:H1'	1.72	0.55
1:A:400:MET:HG3	1:A:401:HIS:CD2	2.41	0.54
1:I:152:THR:O	1:I:152:THR:OG1	2.25	0.54
1:I:238:ILE:HG13	1:I:239:ILE:N	2.22	0.54
1:I:342:LEU:C	1:I:344:GLU:H	2.14	0.54
1:I:620:GLU:HG3	1:I:620:GLU:O	2.07	0.54
3:K:176:VAL:O	3:K:178:TYR:N	2.36	0.54
1:M:61:GLY:O	1:M:64:ASP:HB2	2.07	0.54
1:M:257:HIS:NE2	1:M:259:THR:OG1	2.40	0.54
1:M:544:GLU:CD	1:M:546:ARG:HH11	2.14	0.54
2:N:180:ALA:O	2:N:183:TYR:N	2.37	0.54
1:E:499:LEU:HA	1:E:502:ARG:HB2	1.90	0.54
2:J:110:PHE:HE1	2:J:174:VAL:HG11	1.72	0.54
9:K:302:HEM:HMB2	9:K:302:HEM:HBB2	1.87	0.54
2:N:68:VAL:HA	2:N:73:PRO:HA	1.89	0.54
1:E:6:THR:HG21	1:E:32:ILE:HG13	1.89	0.54
1:E:185:ILE:HA	1:E:445:HIS:CE1	2.41	0.54
3:G:176:VAL:CG1	3:G:181:VAL:HG21	2.37	0.54
1:I:288:MET:O	1:I:292:GLU:N	2.40	0.54
2:J:1:MET:C	2:J:3:ARG:H	2.15	0.54
2:N:36:LEU:HB2	2:N:76:ALA:O	2.07	0.54
1:A:562:TRP:HZ3	1:A:581:TYR:CE2	2.25	0.54
3:C:41:LEU:CA	11:C:304:MQ7:H141	2.37	0.54
1:E:159:SER:O	1:E:163:THR:HG23	2.08	0.54
1:E:273:ARG:HD2	1:E:297:GLN:HB2	1.88	0.54
1:E:372:MET:HE3	1:E:403:PHE:O	2.07	0.54
3:G:32:ILE:CD1	3:G:167:VAL:HB	2.38	0.54
3:G:45:VAL:HA	3:G:47:LEU:N	2.18	0.54
1:I:117:TYR:OH	1:I:128:GLU:OE2	2.18	0.54
3:K:62:THR:HG23	3:K:139:ILE:HB	1.90	0.54
3:K:167:VAL:HG12	9:K:302:HEM:HAC	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:O:38:HIS:HD2	9:O:302:HEM:NB	2.02	0.54
10:C:303:LMT:H6'	3:O:16:ILE:HG21	1.72	0.54
1:I:342:LEU:HD13	1:I:346:TYR:CD2	2.42	0.54
3:K:6:ILE:HG22	3:K:7:THR:N	2.19	0.54
1:A:52:GLN:OE1	1:A:409:ASN:ND2	2.38	0.54
1:A:294:ASP:OD1	1:A:294:ASP:N	2.19	0.54
2:B:35:THR:HG22	2:B:80:GLN:HG2	1.89	0.54
2:B:94:PRO:C	2:B:96:PHE:H	2.15	0.54
1:E:248:MET:O	1:E:568:SER:N	2.32	0.54
1:E:257:HIS:NE2	1:E:259:THR:OG1	2.40	0.54
1:E:468:ILE:HG23	1:E:499:LEU:HD11	1.90	0.54
1:M:339:THR:O	1:M:344:GLU:HG3	2.07	0.54
1:M:563:LEU:HG	1:M:588:TYR:OH	2.07	0.54
1:A:572:GLU:HB3	1:A:573:GLY:CA	2.30	0.54
1:E:405:ARG:HH12	1:E:407:GLY:HA2	1.73	0.54
1:E:559:ASP:CB	1:E:605:ASN:HB2	2.37	0.54
1:I:500:TYR:HA	1:I:529:LEU:HD22	1.90	0.54
2:J:150:ARG:HH21	2:J:220:LYS:HB3	1.73	0.54
3:K:160:LEU:HD21	3:K:204:GLY:HA3	1.89	0.54
9:O:302:HEM:HBD1	9:O:302:HEM:CMD	2.38	0.54
3:C:37:ALA:HA	11:C:304:MQ7:H111	1.89	0.54
3:C:171:PHE:HD2	3:C:193:GLU:HG2	1.72	0.54
3:K:32:ILE:HD12	9:K:302:HEM:CBC	2.38	0.54
1:M:15:LEU:HB2	1:M:44:SER:OG	2.08	0.54
3:O:155:LEU:CD1	3:O:156:TYR:H	2.19	0.54
2:B:117:ILE:HA	2:B:198:VAL:CG1	2.37	0.54
1:E:547:GLY:HA2	1:E:595:ARG:HH22	1.73	0.54
3:K:185:LYS:HB2	3:K:189:PHE:HB2	1.89	0.54
1:A:6:THR:HG22	1:A:30:LYS:HE3	1.90	0.54
1:A:15:LEU:HD12	1:A:44:SER:HB3	1.90	0.54
2:B:34:MET:HA	2:B:38:ILE:HD12	1.90	0.54
2:J:7:LEU:HD23	2:J:88:ILE:HD13	1.90	0.54
1:M:198:CYS:SG	1:M:201:THR:HG23	2.48	0.54
1:M:267:LEU:HD21	5:M:702:FUM:O	2.08	0.54
1:A:38:PRO:HG2	1:A:41:ARG:NH1	2.23	0.53
1:A:292:GLU:OE1	1:A:598:GLY:N	2.30	0.53
3:C:32:ILE:HD11	3:C:167:VAL:HB	1.89	0.53
3:C:159:LEU:HD22	9:C:301:HEM:CMD	2.38	0.53
1:E:15:LEU:HD22	1:E:44:SER:HB3	1.90	0.53
1:E:572:GLU:HB3	1:E:573:GLY:HA3	1.91	0.53
3:G:1:MET:H2	2:J:91:HIS:CE1	2.25	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:124:ASP:N	2:J:124:ASP:OD1	2.38	0.53
2:J:213:ALA:O	2:J:217:VAL:HG22	2.07	0.53
3:K:132:VAL:HG21	3:K:153:LEU:HD21	1.90	0.53
1:M:262:VAL:HG23	1:M:365:ARG:NH2	2.23	0.53
1:M:291:TYR:CE1	1:M:311:HIS:HB2	2.43	0.53
3:O:6:ILE:HG23	3:O:7:THR:H	1.72	0.53
3:O:149:GLN:HG2	3:O:212:MET:HG3	1.88	0.53
3:C:148:LEU:HD21	3:C:212:MET:HA	1.90	0.53
1:E:223:TYR:OH	1:E:254:VAL:HG11	2.08	0.53
2:F:122:HIS:N	2:F:188:ASP:OD2	2.35	0.53
3:G:95:LYS:O	3:G:99:VAL:HG23	2.07	0.53
1:I:118:TYR:HD1	1:I:332:HIS:CE1	2.25	0.53
1:I:350:THR:HG22	1:I:355:VAL:O	2.08	0.53
2:J:75:LEU:HG	2:J:219:PRO:HG3	1.90	0.53
1:M:70:PHE:O	1:M:74:VAL:HG23	2.08	0.53
1:M:237:GLN:HE22	1:M:395:SER:HA	1.72	0.53
1:M:513:LYS:O	1:M:513:LYS:HG3	2.08	0.53
1:M:572:GLU:HB3	1:M:573:GLY:HA3	1.89	0.53
1:A:77:SER:HB2	1:A:402:GLY:HA3	1.90	0.53
1:A:530:LYS:HE3	1:A:570:TRP:CD2	2.43	0.53
2:B:7:LEU:HD12	2:B:43:ILE:HD11	1.90	0.53
3:C:16:ILE:HD12	10:O:301:LMT:O6'	2.07	0.53
3:G:149:GLN:CA	3:G:150:SER:O	2.57	0.53
1:I:314:LYS:HB2	1:I:316:LEU:HD12	1.90	0.53
2:J:125:ASP:C	2:J:127:ALA:H	2.15	0.53
3:O:172:TYR:HA	3:O:189:PHE:HE2	1.72	0.53
1:A:493:VAL:HG12	1:A:576:MET:HE1	1.89	0.53
3:C:135:THR:OG1	3:C:136:ASP:N	2.40	0.53
1:E:208:LEU:HG	1:E:436:PHE:CD1	2.42	0.53
3:G:83:ALA:O	3:G:87:MET:HG3	2.09	0.53
3:K:135:THR:O	3:K:137:LEU:HD23	2.09	0.53
1:A:6:THR:HG21	1:A:32:ILE:HG13	1.90	0.53
1:A:127:GLU:HG2	1:A:128:GLU:H	1.74	0.53
1:A:260:GLY:HA3	1:A:367:THR:OG1	2.08	0.53
3:C:97:PHE:CE1	3:C:113:VAL:HG23	2.43	0.53
1:E:87:ARG:HA	1:E:87:ARG:HE	1.73	0.53
1:E:318:VAL:HG21	1:E:327:TRP:NE1	2.24	0.53
3:G:125:LEU:HA	3:G:128:VAL:HG22	1.89	0.53
1:M:139:ARG:O	1:M:149:THR:HG22	2.09	0.53
1:M:326:LEU:N	1:M:326:LEU:HD12	2.23	0.53
3:O:31:LEU:HD23	3:O:75:LEU:CD2	2.39	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:5:HIS:CE1	1:M:5:HIS:CE1	2.97	0.53
2:B:211:LEU:HD22	3:C:109:THR:HA	1.90	0.53
3:C:38:HIS:CE1	9:C:301:HEM:ND	2.75	0.53
1:E:518:GLU:HB2	2:F:49:PRO:HB2	1.90	0.53
2:F:225:GLN:HE22	3:G:186:ARG:HD3	1.74	0.53
1:I:32:ILE:HA	1:I:174:THR:HG23	1.90	0.53
1:I:257:HIS:CD2	1:I:259:THR:H	2.26	0.53
1:I:386:LEU:HD23	1:I:387:LYS:H	1.73	0.53
1:I:508:LEU:HB2	1:I:518:GLU:OE1	2.07	0.53
2:J:211:LEU:HD22	3:K:109:THR:HA	1.91	0.53
3:K:133:VAL:HG12	3:K:147:ARG:NH2	2.24	0.53
1:M:106:PRO:HD2	1:M:159:SER:HB2	1.91	0.53
1:M:340:THR:O	1:M:341:LYS:O	2.26	0.53
3:O:41:LEU:HD13	3:O:63:TYR:CD2	2.44	0.53
3:O:181:VAL:HG12	3:O:182:GLY:N	2.18	0.53
1:E:14:ALA:HB3	4:E:701:FAD:O1P	2.09	0.53
1:E:248:MET:HE1	1:E:375:VAL:HG22	1.90	0.53
1:E:251:MET:SD	1:E:568:SER:OG	2.62	0.53
3:G:175:GLY:HA2	3:G:180:PHE:CD2	2.43	0.53
3:K:41:LEU:HD22	3:K:63:TYR:CZ	2.44	0.53
1:M:16:ALA:O	1:M:20:VAL:HG12	2.09	0.53
1:M:27:ALA:HB1	1:M:430:LYS:HZ1	1.72	0.53
3:O:151:GLY:N	3:O:152:TRP:CD1	2.73	0.53
1:A:199:LEU:HA	1:A:515:MET:HE3	1.90	0.53
1:E:203:GLU:HG2	1:E:204:LEU:H	1.74	0.53
1:I:64:ASP:OD2	1:I:148:ARG:HB3	2.09	0.53
1:I:556:GLU:HA	1:I:601:VAL:HG23	1.91	0.53
2:J:48:ASP:OD1	2:J:50:THR:HG22	2.09	0.53
2:J:202:ASP:C	2:J:204:GLY:N	2.65	0.53
3:K:87:MET:CB	3:K:89:PHE:CE2	2.92	0.53
2:N:36:LEU:HD12	2:N:79:THR:HB	1.91	0.53
2:N:48:ASP:OD2	2:N:50:THR:HG22	2.09	0.53
3:O:56:ALA:C	3:O:62:THR:H	2.16	0.53
3:O:95:LYS:HZ1	10:O:301:LMT:H5'	1.70	0.53
1:A:210:THR:HG23	1:A:211:SER:N	2.23	0.53
1:E:495:LYS:HA	1:E:498:GLU:HG2	1.91	0.53
2:F:97:GLN:OE1	2:F:97:GLN:N	2.42	0.53
1:I:463:GLU:OE1	1:I:502:ARG:NH2	2.39	0.53
3:K:119:ALA:HB1	9:K:302:HEM:CMB	2.38	0.53
1:M:471:GLU:O	1:M:475:ILE:HG13	2.08	0.53
3:C:94:TRP:HD1	10:C:303:LMT:H1'	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:16:ALA:O	1:E:20:VAL:HG12	2.09	0.53
1:E:96:VAL:HG13	1:E:415:VAL:HG12	1.91	0.53
2:F:98:LEU:HD13	3:K:5:THR:HG22	1.91	0.53
3:G:31:LEU:HD22	9:G:302:HEM:HAC	1.91	0.53
1:I:194:CYS:O	1:I:206:ALA:HA	2.09	0.53
1:I:349:CYS:CB	1:I:353:LEU:HD22	2.38	0.53
2:J:150:ARG:NH2	2:J:220:LYS:HB3	2.24	0.53
1:M:587:TYR:CG	1:M:587:TYR:O	2.62	0.53
3:O:129:HIS:NE2	9:O:302:HEM:ND	2.57	0.53
1:A:542:ARG:HD3	1:A:549:HIS:CD2	2.44	0.52
3:C:176:VAL:O	3:C:178:TYR:N	2.41	0.52
1:I:217:GLY:H	1:I:395:SER:HB3	1.74	0.52
1:I:468:ILE:HG23	1:I:499:LEU:HD11	1.91	0.52
1:M:482:ILE:H	1:M:482:ILE:HD12	1.75	0.52
2:N:227:GLN:O	2:N:230:ILE:HG13	2.08	0.52
2:B:84:LEU:HB3	2:B:88:ILE:CD1	2.38	0.52
1:E:238:ILE:HG22	1:E:531:LEU:HD23	1.90	0.52
1:E:369:HIS:HD2	1:E:405:ARG:HH21	1.57	0.52
1:I:357:PRO:HB3	1:I:362:ILE:HD11	1.92	0.52
1:M:530:LYS:HZ3	1:M:570:TRP:NE1	2.07	0.52
3:O:188:TRP:HD1	3:O:192:THR:OG1	1.92	0.52
3:G:49:PRO:CD	3:G:210:ARG:HH12	2.05	0.52
1:M:216:THR:HG21	1:M:236:GLY:N	2.24	0.52
1:M:258:PRO:HB3	1:M:308:MET:HE1	1.91	0.52
1:M:400:MET:HE2	1:M:401:HIS:CE1	2.44	0.52
1:M:544:GLU:HA	1:M:554:PHE:CD1	2.43	0.52
1:A:16:ALA:O	1:A:20:VAL:HG12	2.09	0.52
1:A:471:GLU:O	1:A:475:ILE:HG12	2.10	0.52
1:A:500:TYR:HE2	1:A:574:ALA:O	1.92	0.52
1:E:250:ASN:N	1:E:566:THR:O	2.42	0.52
1:E:338:ILE:O	1:E:343:ARG:HB2	2.10	0.52
1:E:459:ARG:HG2	1:E:460:LYS:H	1.75	0.52
1:I:557:ARG:N	1:I:601:VAL:O	2.41	0.52
2:J:1:MET:HE2	2:J:32:ASP:HA	1.90	0.52
1:M:576:MET:SD	1:M:577:PRO:HD2	2.49	0.52
1:A:15:LEU:HB2	1:A:44:SER:OG	2.10	0.52
1:A:327:TRP:HB3	1:A:361:LEU:HB3	1.91	0.52
3:C:41:LEU:H	11:C:304:MQ7:C14	2.22	0.52
3:G:84:ALA:HA	3:G:87:MET:HG3	1.92	0.52
1:I:201:THR:OG1	1:I:202:GLY:N	2.42	0.52
2:J:106:THR:O	2:J:109:TRP:N	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:52:GLN:CD	1:A:409:ASN:ND2	2.68	0.52
3:C:120:ILE:HG21	3:O:81:ILE:HD11	1.91	0.52
1:E:261:THR:HB	1:E:266:ILE:O	2.09	0.52
1:I:55:LEU:HD12	1:I:56:GLY:N	2.21	0.52
2:J:181:ARG:NH1	2:J:181:ARG:O	2.42	0.52
1:M:68:VAL:HB	1:M:148:ARG:HH22	1.74	0.52
2:N:107:GLY:O	2:N:111:ARG:HG3	2.09	0.52
2:N:152:ILE:O	2:N:153:GLU:HB3	2.09	0.52
3:O:53:ASN:OD1	3:O:140:THR:HA	2.10	0.52
1:A:288:MET:HB3	1:A:296:ALA:HB1	1.92	0.52
1:A:318:VAL:O	1:A:324:ASP:HA	2.10	0.52
1:E:97:MET:O	1:E:101:ALA:CB	2.57	0.52
1:E:118:TYR:CE1	1:E:123:PRO:HB3	2.44	0.52
1:E:609:PRO:HA	1:E:612:PHE:CE1	2.45	0.52
2:F:117:ILE:HA	2:F:198:VAL:HG13	1.91	0.52
1:I:57:ASN:HA	1:I:132:LYS:HD3	1.92	0.52
1:I:500:TYR:CE2	1:I:575:SER:HA	2.44	0.52
2:J:145:ILE:HD11	2:J:185:ASP:HA	1.91	0.52
3:K:60:GLU:HG2	3:K:64:MET:SD	2.49	0.52
1:M:217:GLY:N	1:M:395:SER:HB3	2.25	0.52
1:A:246:VAL:HA	1:A:385:GLY:H	1.73	0.52
3:C:95:LYS:O	3:C:99:VAL:HG23	2.10	0.52
1:E:273:ARG:HA	1:E:277:GLY:CA	2.29	0.52
1:E:472:MET:HE1	1:E:528:MET:HE2	1.92	0.52
3:G:125:LEU:HB3	3:G:159:LEU:HD12	1.91	0.52
1:I:475:ILE:CD1	1:I:495:LYS:HD3	2.40	0.52
2:J:10:PHE:CE2	2:J:12:TYR:HB3	2.44	0.52
2:N:93:LEU:HD13	2:N:155:GLY:O	2.09	0.52
1:A:83:GLN:H	1:A:585:SER:CB	2.23	0.52
1:A:281:ASP:OD2	1:A:285:TYR:HB3	2.10	0.52
1:A:503:SER:HA	1:A:506:ILE:HD11	1.92	0.52
1:E:420:TYR:HD1	1:E:622:LEU:HD13	1.72	0.52
1:E:531:LEU:HA	1:E:534:CYS:HB2	1.90	0.52
3:G:32:ILE:CA	9:G:302:HEM:HBC1	2.40	0.52
3:G:149:GLN:CA	3:G:150:SER:C	2.82	0.52
2:J:138:ASP:OD1	2:J:139:ASN:N	2.42	0.52
2:J:195:TYR:CB	2:J:235:MET:HE1	2.36	0.52
3:K:176:VAL:HG12	3:K:177:LYS:N	2.25	0.52
1:M:79:TRP:HE1	1:M:563:LEU:CD1	2.12	0.52
2:N:183:TYR:HA	2:N:195:TYR:CZ	2.44	0.52
1:I:509:SER:HB2	2:J:49:PRO:HG3	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:128:VAL:O	3:K:132:VAL:HG13	2.09	0.52
1:M:219:TYR:O	1:M:222:ILE:HG12	2.10	0.52
2:N:181:ARG:O	2:N:181:ARG:NH1	2.34	0.52
3:C:40:MET:HB2	11:C:304:MQ7:H142	1.91	0.51
3:C:95:LYS:NZ	10:C:303:LMT:H5B	2.25	0.51
3:C:116:VAL:HG13	10:C:303:LMT:C10	2.41	0.51
3:G:92:ASP:O	3:G:96:THR:HG23	2.09	0.51
3:G:180:PHE:N	3:G:180:PHE:CD1	2.78	0.51
1:I:252:GLU:HA	1:I:535:THR:HG23	1.93	0.51
2:J:216:ASP:OD1	3:K:186:ARG:NH2	2.43	0.51
1:M:280:LEU:HD12	1:M:284:GLN:HB2	1.92	0.51
1:M:606:GLU:O	1:M:609:PRO:HD2	2.10	0.51
2:N:96:PHE:CZ	2:N:158:VAL:HG21	2.45	0.51
1:E:440:TYR:O	1:E:445:HIS:ND1	2.43	0.51
2:F:121:CYS:HA	2:F:188:ASP:HB2	1.91	0.51
3:K:125:LEU:HB3	3:K:159:LEU:HD12	1.92	0.51
1:M:87:ARG:NH1	1:M:620:GLU:OE1	2.34	0.51
1:M:335:GLU:OE1	1:M:335:GLU:N	2.42	0.51
2:N:190:ARG:HB2	2:N:195:TYR:CZ	2.45	0.51
1:E:475:ILE:HD12	1:E:495:LYS:HD3	1.91	0.51
1:I:217:GLY:N	1:I:395:SER:HB3	2.26	0.51
1:I:553:ASP:OD1	1:I:553:ASP:N	2.30	0.51
3:K:35:LEU:HD23	3:K:35:LEU:O	2.10	0.51
3:K:192:THR:O	3:K:195:LEU:HB3	2.11	0.51
1:M:413:GLU:O	1:M:417:ALA:HB3	2.10	0.51
3:O:23:PHE:HA	3:O:26:VAL:HG12	1.93	0.51
1:A:140:ALA:HB2	1:A:147:TRP:NE1	2.25	0.51
3:G:176:VAL:HG12	3:G:181:VAL:HG21	1.92	0.51
1:I:48:GLN:HB3	1:I:154:ASP:OD1	2.10	0.51
1:M:255:GLN:HB2	1:M:372:MET:SD	2.50	0.51
1:M:405:ARG:NH1	5:M:702:FUM:O7	2.44	0.51
1:A:270:GLU:CD	1:A:301:ARG:NH1	2.68	0.51
2:B:180:ALA:HB2	2:B:231:MET:HE3	1.91	0.51
3:C:80:PHE:HD1	9:C:302:HEM:HMB2	1.76	0.51
1:E:417:ALA:O	1:E:421:ILE:HB	2.10	0.51
2:B:119:ALA:HB1	2:B:182:PHE:HE2	1.75	0.51
3:C:10:VAL:HG13	3:C:12:GLN:H	1.75	0.51
3:C:45:VAL:HG11	3:C:211:PHE:CG	2.46	0.51
1:E:524:ARG:HB3	1:E:524:ARG:CZ	2.39	0.51
3:K:198:ILE:HA	3:K:201:ILE:HG22	1.91	0.51
1:M:211:SER:HG	1:M:429:THR:HG1	1.41	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:258:PRO:CD	1:M:301:ARG:HH21	2.24	0.51
1:E:55:LEU:HD12	1:E:57:ASN:HD21	1.74	0.51
1:E:156:THR:O	1:E:160:VAL:HG22	2.10	0.51
1:E:328:LEU:HB3	1:E:362:ILE:HB	1.91	0.51
1:E:587:TYR:HE1	1:E:615:PRO:HB3	1.72	0.51
1:I:199:LEU:HA	1:I:515:MET:HE3	1.91	0.51
1:I:337:HIS:O	1:I:341:LYS:N	2.44	0.51
1:I:413:GLU:O	1:I:417:ALA:HB2	2.10	0.51
1:I:544:GLU:HG2	1:I:562:TRP:CD1	2.45	0.51
1:I:589:GLU:HA	1:I:613:VAL:HG22	1.92	0.51
2:J:170:PHE:HA	2:J:203:GLN:O	2.09	0.51
3:K:1:MET:HG3	3:K:2:ASN:H	1.75	0.51
1:M:238:ILE:HG22	1:M:531:LEU:HD23	1.92	0.51
3:O:203:ILE:HA	3:O:206:LEU:CD2	2.41	0.51
2:B:215:GLU:OE1	3:C:183:ARG:HD3	2.10	0.51
10:C:303:LMT:H3B	10:C:303:LMT:C3'	2.33	0.51
1:E:12:GLY:HA2	4:E:701:FAD:H1B	1.93	0.51
2:F:188:ASP:OD1	2:F:195:TYR:OH	2.29	0.51
1:I:230:VAL:HG22	2:J:56:CYS:O	2.10	0.51
1:I:313:ARG:HH21	1:I:483:PHE:HB2	1.76	0.51
3:C:5:THR:O	3:C:6:ILE:HG13	2.10	0.51
1:E:32:ILE:HG21	1:E:207:TYR:HE2	1.72	0.51
1:E:595:ARG:HD2	1:E:597:TYR:CE1	2.45	0.51
3:G:140:THR:H	3:G:143:LYS:CE	2.24	0.51
1:I:19:ARG:NH1	1:I:23:GLU:HB2	2.25	0.51
2:J:65:CYS:HB3	2:J:76:ALA:H	1.76	0.51
1:M:295:LYS:HA	1:M:296:ALA:HB3	1.92	0.51
1:M:500:TYR:C	1:M:500:TYR:CD2	2.89	0.51
2:N:11:ARG:HE	2:N:101:ASP:CG	2.18	0.51
2:N:15:LEU:HD23	2:N:15:LEU:O	2.11	0.51
2:N:179:VAL:HG11	2:N:199:ILE:HG21	1.91	0.51
3:G:46:ILE:HD11	3:G:203:ILE:O	2.11	0.51
1:I:119:LYS:HB3	1:I:124:PHE:HE1	1.75	0.51
2:J:211:LEU:O	3:K:106:HIS:CE1	2.64	0.51
1:M:309:THR:HA	1:M:312:MET:HB2	1.93	0.51
2:B:68:VAL:HA	2:B:73:PRO:HA	1.93	0.50
2:B:69:ILE:HG12	2:B:90:LEU:HD22	1.93	0.50
2:F:197:ASP:OD1	3:G:13:ARG:HG3	2.12	0.50
1:I:246:VAL:HG12	1:I:385:GLY:N	2.26	0.50
1:M:32:ILE:HD13	1:M:207:TYR:HE2	1.76	0.50
1:M:75:LYS:NZ	1:M:590:MET:O	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:338:ILE:HG22	1:M:338:ILE:O	2.11	0.50
3:C:115:GLN:O	3:C:119:ALA:HB2	2.11	0.50
3:G:194:ASN:O	3:G:198:ILE:HG13	2.10	0.50
1:I:6:THR:HG21	1:I:32:ILE:HG13	1.93	0.50
1:I:262:VAL:HB	1:I:263:PRO:HD3	1.92	0.50
1:I:276:GLY:HA2	1:I:332:HIS:CE1	2.46	0.50
3:K:20:MET:HE2	3:K:82:LEU:HD22	1.92	0.50
3:K:165:LEU:O	3:K:169:VAL:HG23	2.11	0.50
1:M:259:THR:HB	1:M:268:VAL:HG22	1.93	0.50
1:M:316:LEU:HB2	1:M:319:LYS:HG3	1.93	0.50
2:N:212:LEU:HD21	3:O:176:VAL:HG11	1.93	0.50
1:E:480:VAL:O	1:E:480:VAL:HG13	2.11	0.50
3:G:72:VAL:O	3:G:76:MET:CB	2.58	0.50
2:J:10:PHE:HA	2:J:23:MET:HE1	1.92	0.50
1:M:140:ALA:HB2	1:M:147:TRP:NE1	2.26	0.50
1:A:247:PRO:HD2	1:A:384:TYR:CB	2.40	0.50
1:A:261:THR:HG21	1:A:353:LEU:HD11	1.93	0.50
2:B:94:PRO:O	2:B:96:PHE:N	2.44	0.50
1:I:449:GLN:O	1:I:452:ILE:HG22	2.11	0.50
3:K:186:ARG:O	3:K:190:GLN:NE2	2.40	0.50
1:M:41:ARG:NH2	2:N:153:GLU:O	2.44	0.50
1:M:82:ASP:O	1:M:85:VAL:HG22	2.11	0.50
1:M:619:LYS:NZ	1:M:622:LEU:HB3	2.26	0.50
1:A:517:PRO:HG3	2:B:52:LYS:HG2	1.93	0.50
1:A:606:GLU:HG3	1:A:607:LEU:N	2.27	0.50
2:F:109:TRP:HZ3	2:F:110:PHE:CE1	2.29	0.50
2:F:190:ARG:HB2	2:F:195:TYR:CZ	2.47	0.50
2:F:209:MET:N	6:F:301:F3S:S1	2.85	0.50
1:I:84:GLU:CA	1:I:587:TYR:HE2	2.20	0.50
2:J:202:ASP:OD1	2:J:203:GLN:N	2.40	0.50
3:K:167:VAL:HG12	9:K:302:HEM:CAC	2.42	0.50
3:O:150:SER:CA	3:O:152:TRP:CD1	2.87	0.50
3:C:198:ILE:HG13	3:C:201:ILE:HD11	1.94	0.50
1:E:426:VAL:O	1:E:429:THR:N	2.43	0.50
2:F:176:ILE:HG12	2:F:199:ILE:HD11	1.94	0.50
3:G:78:VAL:O	3:G:82:LEU:HG	2.12	0.50
1:I:287:PHE:HZ	1:I:308:MET:HG2	1.76	0.50
1:M:59:ILE:HG12	1:M:129:LYS:H	1.77	0.50
1:M:258:PRO:HD2	1:M:301:ARG:HH21	1.75	0.50
1:M:261:THR:N	1:M:266:ILE:O	2.41	0.50
2:N:2:ASN:HD22	2:N:2:ASN:C	2.15	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:84:GLU:O	1:E:87:ARG:HB2	2.12	0.50
1:E:257:HIS:ND1	1:E:258:PRO:HD2	2.26	0.50
1:E:280:LEU:HD12	1:E:361:LEU:HD23	1.94	0.50
1:I:36:LEU:HD13	4:I:701:FAD:C6A	2.42	0.50
1:I:40:ARG:C	1:I:158:ARG:HH12	2.20	0.50
1:I:79:TRP:NE1	1:I:591:PRO:O	2.45	0.50
1:I:200:ARG:HG2	2:J:99:LEU:HD22	1.94	0.50
1:M:355:VAL:HG11	1:M:362:ILE:HD13	1.93	0.50
1:A:82:ASP:HA	1:A:585:SER:CB	2.29	0.50
2:B:110:PHE:CE2	2:B:153:GLU:HG2	2.47	0.50
1:E:78:ASP:OD2	1:E:546:ARG:HG3	2.12	0.50
1:E:262:VAL:HG22	1:E:365:ARG:HE	1.77	0.50
1:E:451:ARG:O	1:E:455:ILE:HG12	2.12	0.50
2:F:199:ILE:O	2:F:199:ILE:HG12	2.11	0.50
3:G:51:LEU:O	3:G:55:ILE:HG22	2.12	0.50
3:G:206:LEU:O	3:G:210:ARG:CB	2.60	0.50
1:I:16:ALA:HB2	1:I:414:THR:HG22	1.94	0.50
1:I:68:VAL:HG12	1:I:148:ARG:HH22	1.76	0.50
1:I:89:PHE:HA	1:I:416:VAL:HG11	1.94	0.50
1:I:191:CYS:HB2	1:I:386:LEU:HD22	1.94	0.50
1:I:222:ILE:HG13	1:I:223:TYR:CD1	2.47	0.50
1:I:582:GLU:HG2	1:I:583:GLU:N	2.27	0.50
3:K:29:ALA:O	3:K:32:ILE:HG22	2.12	0.50
3:O:147:ARG:O	3:O:147:ARG:NH1	2.39	0.50
2:F:227:GLN:O	2:F:230:ILE:HG13	2.12	0.50
1:I:140:ALA:HB2	1:I:147:TRP:NE1	2.26	0.50
1:I:381:GLY:HA3	1:I:421:ILE:HD12	1.94	0.50
2:J:211:LEU:O	3:K:106:HIS:HE1	1.94	0.50
3:K:34:PHE:CD1	3:K:72:VAL:HG11	2.47	0.50
3:K:36:TRP:CZ3	3:K:200:PHE:CZ	3.00	0.50
1:M:315:GLY:O	1:M:316:LEU:HD12	2.12	0.50
1:M:358:ILE:HG13	1:M:359:HIS:CE1	2.47	0.50
1:M:599:GLY:O	1:M:601:VAL:HG23	2.12	0.50
2:N:117:ILE:HA	2:N:198:VAL:HG13	1.94	0.50
1:A:96:VAL:HG21	1:A:416:VAL:HA	1.93	0.49
1:A:262:VAL:HB	1:A:363:PRO:HB2	1.94	0.49
3:C:8:LEU:HD22	3:C:14:SER:HB3	1.94	0.49
3:C:46:ILE:HD11	3:C:207:THR:N	2.27	0.49
1:E:135:LEU:HD22	2:F:134:GLU:HG2	1.94	0.49
1:E:378:ASN:HD21	1:E:382:ALA:HB3	1.76	0.49
1:I:180:GLN:HB2	1:I:199:LEU:HD11	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:253:ALA:C	1:I:372:MET:HE2	2.36	0.49
1:I:257:HIS:O	1:I:366:PRO:HA	2.12	0.49
1:I:495:LYS:HA	1:I:498:GLU:HG3	1.93	0.49
1:I:557:ARG:H	1:I:602:THR:HA	1.76	0.49
1:M:52:GLN:HG3	1:M:148:ARG:HG3	1.92	0.49
2:N:3:ARG:HG2	2:N:30:GLU:OE2	2.12	0.49
3:O:188:TRP:O	3:O:192:THR:CB	2.60	0.49
1:E:338:ILE:HG23	1:E:341:LYS:C	2.37	0.49
1:E:369:HIS:HD2	1:E:405:ARG:NH2	2.10	0.49
2:F:196:TYR:O	2:F:200:GLY:N	2.43	0.49
3:G:39:MET:O	3:G:43:SER:HB3	2.12	0.49
3:G:181:VAL:CG1	3:G:182:GLY:H	2.25	0.49
1:I:270:GLU:O	1:I:274:GLY:N	2.26	0.49
1:I:300:SER:OG	1:I:404:ASN:OD1	2.25	0.49
3:K:171:PHE:HD2	3:K:193:GLU:OE2	1.94	0.49
1:M:492:ALA:HA	1:M:495:LYS:HG2	1.93	0.49
1:A:207:TYR:N	1:A:207:TYR:CD1	2.80	0.49
1:A:457:THR:HA	1:A:508:LEU:CD2	2.42	0.49
2:B:227:GLN:OE1	2:B:230:ILE:HD11	2.12	0.49
3:C:1:MET:HG3	3:C:2:ASN:H	1.77	0.49
1:I:142:GLY:H	1:I:270:GLU:CD	2.20	0.49
1:I:267:LEU:HD13	1:I:369:HIS:CE1	2.47	0.49
1:I:306:ARG:CZ	1:I:306:ARG:HB2	2.41	0.49
1:M:559:ASP:HB2	1:M:603:ILE:O	2.12	0.49
1:M:619:LYS:HZ1	1:M:622:LEU:HB3	1.78	0.49
2:N:5:LEU:O	2:N:27:THR:HA	2.12	0.49
2:N:26:PHE:CD2	2:N:43:ILE:HD13	2.47	0.49
1:A:480:VAL:HG23	1:A:484:ARG:NE	2.28	0.49
3:C:152:TRP:CD1	3:O:136:ASP:OD2	2.66	0.49
3:C:159:LEU:HD22	9:C:301:HEM:HMD3	1.94	0.49
1:E:121:GLY:N	1:E:286:ARG:HH12	2.10	0.49
1:E:198:CYS:SG	1:E:201:THR:HG23	2.52	0.49
1:M:68:VAL:HB	1:M:148:ARG:NH2	2.27	0.49
1:M:381:GLY:HA3	1:M:421:ILE:HD12	1.93	0.49
1:M:531:LEU:HA	1:M:534:CYS:HB2	1.94	0.49
1:M:554:PHE:CD1	1:M:554:PHE:C	2.90	0.49
9:O:302:HEM:HBB2	9:O:302:HEM:HMB1	1.93	0.49
1:A:104:GLY:HA2	2:B:187:ARG:CZ	2.42	0.49
3:C:149:GLN:C	3:C:151:GLY:H	2.20	0.49
1:E:460:LYS:HG3	1:E:462:LYS:HE3	1.93	0.49
2:F:107:GLY:O	2:F:111:ARG:HG3	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:111:MET:O	3:G:115:GLN:HG3	2.12	0.49
3:G:148:LEU:HB3	3:G:153:LEU:HD22	1.94	0.49
1:I:531:LEU:HA	1:I:534:CYS:HB2	1.95	0.49
3:K:140:THR:HB	3:K:143:LYS:HG2	1.94	0.49
1:M:162:ASN:O	1:M:166:THR:HG23	2.13	0.49
1:M:543:THR:O	1:M:544:GLU:HB3	2.13	0.49
2:N:26:PHE:HD2	2:N:43:ILE:HD13	1.78	0.49
3:O:116:VAL:HG13	10:O:301:LMT:H121	1.94	0.49
1:A:104:GLY:HA2	2:B:187:ARG:NH1	2.28	0.49
1:A:139:ARG:NH1	1:A:271:GLY:HA3	2.27	0.49
1:I:306:ARG:HG3	1:I:483:PHE:CE2	2.48	0.49
1:M:7:ASP:OD1	1:M:30:LYS:HB3	2.13	0.49
1:M:9:LEU:HD21	1:M:194:CYS:SG	2.53	0.49
1:M:55:LEU:HD13	1:M:58:ALA:H	1.76	0.49
1:M:111:VAL:HG23	1:M:115:HIS:NE2	2.28	0.49
1:M:140:ALA:HB3	1:M:273:ARG:HH11	1.77	0.49
1:M:503:SER:O	1:M:504:GLN:C	2.55	0.49
2:N:54:ASP:OD2	2:N:103:SER:OG	2.18	0.49
1:E:224:LYS:HG3	1:E:473:HIS:HB3	1.95	0.49
1:E:234:GLY:O	1:E:238:ILE:HG23	2.11	0.49
2:F:63:GLY:H	2:F:152:ILE:HD12	1.77	0.49
3:K:111:MET:O	3:K:114:VAL:HG22	2.11	0.49
3:K:172:TYR:HD1	3:K:189:PHE:HE1	1.60	0.49
1:M:230:VAL:HG22	2:N:56:CYS:O	2.13	0.49
2:B:84:LEU:HB3	2:B:88:ILE:HD12	1.94	0.49
3:C:6:ILE:HG13	3:C:7:THR:H	1.77	0.49
3:C:130:MET:HG3	9:C:301:HEM:HHC	1.94	0.49
1:E:434:PRO:HG2	1:E:436:PHE:CE2	2.47	0.49
1:I:257:HIS:NE2	1:I:259:THR:OG1	2.44	0.49
1:M:222:ILE:HG13	1:M:223:TYR:HD1	1.78	0.49
1:M:587:TYR:CD1	1:M:613:VAL:HG11	2.47	0.49
1:A:459:ARG:HG2	1:A:460:LYS:H	1.78	0.49
2:B:44:ARG:HD2	2:B:45:ASP:OD1	2.13	0.49
3:C:142:ALA:C	3:C:144:SER:H	2.21	0.49
9:C:301:HEM:HMD1	9:C:301:HEM:CBD	2.40	0.49
1:E:52:GLN:OE1	1:E:409:ASN:ND2	2.45	0.49
1:E:105:VAL:O	2:F:187:ARG:NH2	2.46	0.49
1:E:169:LEU:HD22	2:F:115:LEU:HD12	1.94	0.49
1:E:255:GLN:HE21	1:E:301:ARG:CB	2.26	0.49
1:E:370:TYR:HB2	1:E:405:ARG:HE	1.78	0.49
1:E:389:LEU:C	1:E:390:PHE:HD1	2.21	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:23:MET:N	2:F:23:MET:SD	2.86	0.49
1:I:261:THR:HG21	1:I:353:LEU:HD11	1.95	0.49
1:I:377:THR:HB	1:I:381:GLY:HA2	1.94	0.49
3:C:111:MET:O	3:C:114:VAL:HG22	2.12	0.49
1:E:196:ALA:O	1:E:204:LEU:HA	2.13	0.49
2:F:212:LEU:HD11	3:G:176:VAL:HG11	1.94	0.49
1:I:294:ASP:OD1	1:I:294:ASP:N	2.33	0.49
3:K:73:PHE:CE1	3:K:130:MET:HE3	2.48	0.49
3:K:164:GLU:O	3:K:167:VAL:HG22	2.13	0.49
3:K:176:VAL:HG12	3:K:177:LYS:H	1.77	0.49
3:K:176:VAL:C	3:K:178:TYR:H	2.21	0.49
1:M:343:ARG:HB2	1:M:347:ASP:OD2	2.12	0.49
1:M:405:ARG:CZ	1:M:407:GLY:HA2	2.43	0.49
1:M:554:PHE:C	1:M:554:PHE:HD1	2.21	0.49
3:O:139:ILE:HG13	3:O:143:LYS:NZ	2.16	0.49
1:A:270:GLU:N	5:A:702:FUM:OXT	2.46	0.48
2:B:2:ASN:HD22	2:B:2:ASN:C	2.15	0.48
3:C:8:LEU:HD13	3:C:14:SER:H	1.76	0.48
3:C:37:ALA:HA	11:C:304:MQ7:C2	2.42	0.48
3:C:148:LEU:HD21	3:C:212:MET:CA	2.43	0.48
2:F:52:LYS:HB2	2:F:101:ASP:HB2	1.93	0.48
3:G:1:MET:N	2:J:91:HIS:CE1	2.81	0.48
3:G:182:GLY:HA3	3:G:183:ARG:C	2.36	0.48
1:I:340:THR:O	1:I:341:LYS:C	2.56	0.48
1:I:343:ARG:C	1:I:345:VAL:H	2.20	0.48
1:I:517:PRO:HG2	2:J:49:PRO:O	2.13	0.48
1:M:52:GLN:NE2	1:M:407:GLY:O	2.46	0.48
1:M:109:ARG:NH1	2:N:136:ARG:O	2.46	0.48
1:M:298:LEU:HD23	1:M:299:ALA:N	2.28	0.48
1:M:500:TYR:HB2	1:M:529:LEU:HD11	1.94	0.48
1:M:546:ARG:NH1	1:M:562:TRP:HB2	2.27	0.48
2:N:172:GLY:O	2:N:176:ILE:HG13	2.13	0.48
3:O:25:MET:HB2	3:O:178:TYR:CZ	2.48	0.48
3:O:38:HIS:O	3:O:42:VAL:HG12	2.13	0.48
1:E:247:PRO:HB3	1:E:569:TYR:CE1	2.49	0.48
2:F:94:PRO:O	2:F:96:PHE:N	2.45	0.48
3:G:10:VAL:O	3:G:12:GLN:N	2.45	0.48
1:I:218:GLY:O	1:I:232:CYS:HB3	2.12	0.48
3:K:5:THR:CG2	3:K:6:ILE:H	2.21	0.48
3:K:186:ARG:HG3	3:K:190:GLN:HE21	1.77	0.48
1:M:280:LEU:HB2	1:M:284:GLN:HA	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:136:ARG:CG	2:N:137:MET:H	2.26	0.48
1:A:250:ASN:ND2	1:A:399:ASP:OD2	2.46	0.48
2:F:190:ARG:HB2	2:F:195:TYR:CE2	2.48	0.48
1:I:459:ARG:HD3	1:I:459:ARG:N	2.29	0.48
2:N:2:ASN:O	2:N:2:ASN:ND2	2.30	0.48
1:A:32:ILE:HD13	1:A:207:TYR:CD2	2.49	0.48
1:E:266:ILE:HD13	2:F:59:ALA:HA	1.94	0.48
1:E:301:ARG:NH2	5:E:702:FUM:O8	2.47	0.48
1:E:484:ARG:O	1:E:551:ARG:HA	2.14	0.48
3:G:73:PHE:CD1	3:G:130:MET:HE3	2.47	0.48
1:I:178:ARG:HB3	1:I:199:LEU:HB2	1.94	0.48
1:M:257:HIS:HB2	1:M:369:HIS:HB2	1.95	0.48
2:N:11:ARG:HH22	2:N:50:THR:HG23	1.79	0.48
3:O:56:ALA:O	3:O:62:THR:N	2.47	0.48
3:C:31:LEU:HD22	9:C:302:HEM:CBC	2.43	0.48
1:E:482:ILE:O	1:E:550:THR:OG1	2.31	0.48
1:E:542:ARG:HA	1:E:562:TRP:CZ3	2.49	0.48
2:F:148:LEU:HD11	2:F:227:GLN:HG2	1.94	0.48
3:G:156:TYR:OH	9:G:301:HEM:C3D	2.62	0.48
3:G:164:GLU:HA	3:G:167:VAL:HG22	1.96	0.48
2:J:37:PHE:O	2:J:41:THR:OG1	2.25	0.48
1:M:113:GLY:O	1:M:128:GLU:HB3	2.11	0.48
1:M:259:THR:HG22	1:M:364:VAL:HG21	1.95	0.48
1:E:438:MET:HG3	1:I:436:PHE:HE2	1.78	0.48
1:E:587:TYR:CZ	1:E:615:PRO:HB3	2.48	0.48
2:F:212:LEU:HD22	2:F:225:GLN:HG3	1.93	0.48
3:K:78:VAL:O	3:K:82:LEU:HG	2.13	0.48
1:M:493:VAL:HA	1:M:496:LEU:CD2	2.43	0.48
3:O:84:ALA:HA	3:O:87:MET:CG	2.42	0.48
1:A:519:LEU:O	1:A:523:LEU:HG	2.14	0.48
3:C:34:PHE:CD1	3:C:72:VAL:HG11	2.49	0.48
1:E:420:TYR:HD2	1:E:421:ILE:HD13	1.77	0.48
1:E:560:LYS:HD3	1:E:606:GLU:HG2	1.96	0.48
2:F:202:ASP:C	2:F:204:GLY:H	2.21	0.48
1:M:7:ASP:O	1:M:209:ALA:HB1	2.12	0.48
1:M:512:CYS:HA	1:M:516:ASN:HB2	1.95	0.48
2:N:42:GLN:HA	2:N:46:GLU:HG3	1.96	0.48
3:O:140:THR:HG22	3:O:142:ALA:H	1.78	0.48
1:A:282:VAL:HA	1:A:318:VAL:HG22	1.96	0.48
1:A:380:ASP:HA	1:A:420:TYR:HE2	1.79	0.48
1:A:480:VAL:HG23	1:A:484:ARG:CZ	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:34:PHE:CE1	3:C:72:VAL:HG11	2.48	0.48
1:E:264:THR:HG21	1:E:352:PHE:HB3	1.96	0.48
1:I:5:HIS:O	1:I:6:THR:HG23	2.14	0.48
1:M:330:ILE:O	1:M:338:ILE:HG23	2.13	0.48
3:C:70:PRO:O	3:C:74:VAL:HG22	2.14	0.48
3:C:116:VAL:O	3:C:119:ALA:HB3	2.13	0.48
3:C:149:GLN:CD	3:C:149:GLN:N	2.72	0.48
1:E:303:VAL:O	1:E:307:ARG:HG2	2.14	0.48
1:E:468:ILE:HD12	1:E:506:ILE:CD1	2.43	0.48
3:G:111:MET:HA	3:G:114:VAL:HG22	1.94	0.48
1:I:377:THR:O	1:I:384:TYR:HE2	1.97	0.48
1:I:467:LYS:O	1:I:471:GLU:HG3	2.14	0.48
1:I:610:GLU:CG	1:I:611:LYS:H	2.25	0.48
3:K:53:ASN:HD21	3:K:141:ALA:N	2.11	0.48
1:M:6:THR:CG2	1:M:32:ILE:HG13	2.44	0.48
1:M:79:TRP:CB	1:M:80:GLY:HA2	2.33	0.48
1:M:247:PRO:HB3	1:M:569:TYR:CE2	2.49	0.48
3:O:87:MET:HE2	10:O:301:LMT:H123	1.96	0.48
1:A:141:PHE:CZ	1:A:270:GLU:HB3	2.49	0.48
1:A:557:ARG:HD2	1:A:559:ASP:OD1	2.14	0.48
1:E:252:GLU:HA	1:E:535:THR:HG23	1.96	0.48
1:E:444:ALA:O	1:E:447:LYS:N	2.41	0.48
1:E:542:ARG:NH2	1:E:544:GLU:OE2	2.47	0.48
3:G:41:LEU:HG	3:G:42:VAL:HG23	1.95	0.48
1:I:356:ASN:OD1	1:I:358:ILE:HG12	2.14	0.48
3:K:132:VAL:HG21	3:K:153:LEU:CD2	2.43	0.48
1:M:288:MET:HB3	1:M:307:ARG:HH22	1.77	0.48
1:M:426:VAL:O	1:M:430:LYS:HB2	2.14	0.48
3:O:155:LEU:HD12	3:O:156:TYR:H	1.78	0.48
3:C:41:LEU:CA	11:C:304:MQ7:H161	2.44	0.47
3:C:81:ILE:HD13	3:O:89:PHE:HE1	1.79	0.47
1:E:29:LEU:HD22	1:E:430:LYS:HE3	1.95	0.47
1:E:152:THR:O	1:E:152:THR:OG1	2.31	0.47
1:E:543:THR:HB	1:E:554:PHE:CD1	2.49	0.47
2:F:23:MET:HE2	3:K:1:MET:HB2	1.96	0.47
2:F:94:PRO:HD2	2:F:159:ALA:HB1	1.95	0.47
1:I:399:ASP:OD1	1:I:402:GLY:N	2.47	0.47
3:K:64:MET:O	3:K:67:ILE:N	2.47	0.47
1:M:259:THR:O	1:M:268:VAL:HG22	2.14	0.47
1:M:345:VAL:HG22	1:M:349:CYS:SG	2.54	0.47
1:M:545:SER:OG	1:M:551:ARG:N	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:40:ARG:HA	1:A:161:LEU:HD21	1.95	0.47
3:C:60:GLU:CG	3:C:64:MET:HB2	2.45	0.47
3:C:116:VAL:CG1	10:C:303:LMT:H102	2.44	0.47
1:E:570:TRP:CZ3	1:E:577:PRO:HB3	2.49	0.47
3:G:84:ALA:HA	3:G:87:MET:CG	2.44	0.47
1:I:23:GLU:OE1	1:I:423:GLU:HG2	2.13	0.47
3:O:140:THR:HG22	3:O:142:ALA:N	2.29	0.47
1:A:253:ALA:HB1	1:A:372:MET:HE2	1.96	0.47
1:A:280:LEU:HB3	1:A:284:GLN:HA	1.95	0.47
2:B:57:CYS:O	2:B:58:ARG:HG3	2.13	0.47
2:B:62:CYS:SG	2:B:63:GLY:N	2.88	0.47
2:B:233:ARG:HG3	3:C:178:TYR:O	2.14	0.47
1:E:100:VAL:HA	1:E:103:TRP:HB2	1.97	0.47
1:E:261:THR:CG2	1:E:353:LEU:HD11	2.44	0.47
1:E:327:TRP:CE3	1:E:361:LEU:HB2	2.49	0.47
2:F:98:LEU:HD13	3:K:5:THR:CG2	2.45	0.47
2:F:174:VAL:CG1	2:F:178:ARG:HH21	2.26	0.47
1:I:19:ARG:HB2	1:I:164:LEU:HD21	1.96	0.47
1:I:34:LEU:HD21	1:I:207:TYR:CZ	2.49	0.47
1:I:306:ARG:O	1:I:309:THR:HG22	2.14	0.47
2:J:200:GLY:C	2:J:202:ASP:H	2.21	0.47
1:M:127:GLU:HG2	1:M:128:GLU:H	1.79	0.47
2:N:84:LEU:HB3	2:N:88:ILE:HD11	1.95	0.47
2:N:94:PRO:C	2:N:96:PHE:N	2.72	0.47
3:O:164:GLU:HA	3:O:167:VAL:HG22	1.97	0.47
1:A:35:SER:O	1:A:178:ARG:N	2.47	0.47
1:E:387:LYS:HG3	1:E:388:GLY:N	2.28	0.47
2:F:233:ARG:NH1	3:G:179:GLY:HA3	2.29	0.47
1:I:15:LEU:HD22	1:I:414:THR:HB	1.96	0.47
1:I:405:ARG:HH12	5:I:702:FUM:C6	2.24	0.47
1:M:343:ARG:O	1:M:346:TYR:HB3	2.14	0.47
1:M:355:VAL:HG13	1:M:360:GLN:HB2	1.96	0.47
2:N:131:THR:CG2	2:N:132:ALA:H	2.27	0.47
1:A:32:ILE:HG21	1:A:207:TYR:CD2	2.49	0.47
2:B:40:LEU:HD13	2:B:53:VAL:HG11	1.96	0.47
3:C:107:LYS:O	3:C:110:THR:N	2.48	0.47
3:C:147:ARG:NH2	3:C:211:PHE:CG	2.82	0.47
1:E:280:LEU:HB3	1:E:284:GLN:HA	1.95	0.47
1:E:515:MET:HA	1:E:515:MET:HE2	1.97	0.47
2:F:146:PHE:O	2:F:150:ARG:HB2	2.13	0.47
1:I:513:LYS:NZ	2:J:13:ASN:ND2	2.59	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:41:LEU:HG	3:K:42:VAL:N	2.29	0.47
1:M:111:VAL:HG23	1:M:115:HIS:CE1	2.50	0.47
1:M:341:LYS:NZ	1:M:342:LEU:HD23	2.30	0.47
1:A:370:TYR:CE2	1:A:372:MET:HA	2.49	0.47
2:B:11:ARG:NH2	2:B:50:THR:HG23	2.29	0.47
3:C:116:VAL:HG13	10:C:303:LMT:H122	1.96	0.47
1:E:196:ALA:HB3	1:E:205:VAL:CG1	2.44	0.47
1:E:300:SER:HB2	1:E:597:TYR:CZ	2.50	0.47
1:E:343:ARG:C	1:E:345:VAL:H	2.22	0.47
2:F:48:ASP:OD1	2:F:50:THR:HG22	2.15	0.47
2:F:196:TYR:OH	3:G:18:GLY:N	2.41	0.47
1:I:53:ALA:CB	1:I:97:MET:HG3	2.44	0.47
1:I:257:HIS:CG	1:I:258:PRO:HD2	2.50	0.47
1:I:391:SER:OG	1:I:396:ALA:HB2	2.14	0.47
2:J:232:ARG:NH1	3:K:177:LYS:HD2	2.28	0.47
1:M:288:MET:HE2	1:M:288:MET:HB2	1.78	0.47
1:M:519:LEU:HA	1:M:522:ALA:HB3	1.96	0.47
3:O:57:TRP:HA	3:O:61:ALA:HA	1.96	0.47
1:A:88:ILE:HG12	1:A:620:GLU:HG2	1.97	0.47
1:A:218:GLY:O	1:A:232:CYS:HB3	2.14	0.47
1:A:530:LYS:HG2	1:A:570:TRP:CZ2	2.50	0.47
2:B:162:GLY:H	2:B:211:LEU:HD12	1.78	0.47
3:C:149:GLN:CD	3:C:149:GLN:H	2.23	0.47
1:E:201:THR:OG1	1:E:202:GLY:N	2.47	0.47
2:F:110:PHE:CE1	2:F:174:VAL:HG11	2.44	0.47
1:I:338:ILE:HD12	1:I:358:ILE:HG22	1.96	0.47
1:I:370:TYR:CD2	1:I:405:ARG:HD2	2.49	0.47
1:I:370:TYR:HE2	1:I:372:MET:HA	1.78	0.47
3:K:20:MET:HB2	3:K:20:MET:HE3	1.47	0.47
3:K:166:HIS:HE1	9:K:302:HEM:C1B	2.32	0.47
1:M:258:PRO:HB2	1:M:308:MET:HE1	1.96	0.47
1:M:261:THR:HG23	1:M:263:PRO:HD2	1.96	0.47
1:M:537:TYR:HE2	1:M:579:LEU:HG	1.80	0.47
1:A:43:HIS:CE1	1:A:228:ASN:HA	2.50	0.47
2:B:128:PHE:CZ	2:B:130:PRO:HG3	2.49	0.47
3:C:198:ILE:HA	3:C:201:ILE:HG13	1.97	0.47
3:G:115:GLN:OE1	3:G:173:ARG:NE	2.48	0.47
3:G:143:LYS:HD2	3:G:144:SER:N	2.30	0.47
3:G:156:TYR:OH	9:G:301:HEM:C2D	2.68	0.47
3:G:195:LEU:HA	3:G:198:ILE:HD12	1.96	0.47
1:I:75:LYS:HG3	1:I:590:MET:CE	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:43:HIS:CD2	4:M:701:FAD:C8	2.94	0.47
1:M:513:LYS:CD	2:N:13:ASN:CB	2.93	0.47
2:N:129:ASP:CG	2:N:130:PRO:HD2	2.40	0.47
3:O:155:LEU:HD12	3:O:156:TYR:N	2.30	0.47
1:A:12:GLY:HA2	4:A:701:FAD:H1B	1.96	0.47
1:A:343:ARG:HG2	1:A:345:VAL:CG1	2.37	0.47
1:A:447:LYS:O	1:A:451:ARG:HB2	2.15	0.47
1:A:525:ILE:HD13	1:A:525:ILE:HA	1.70	0.47
3:C:20:MET:SD	3:O:91:GLN:HB3	2.54	0.47
3:C:116:VAL:HG13	10:C:303:LMT:C11	2.45	0.47
1:E:349:CYS:O	1:E:353:LEU:HB2	2.14	0.47
2:F:57:CYS:O	2:F:58:ARG:NH1	2.46	0.47
2:F:61:ILE:O	8:F:303:FES:S1	2.73	0.47
3:G:181:VAL:CG1	3:G:182:GLY:N	2.78	0.47
1:I:7:ASP:N	1:I:30:LYS:O	2.43	0.47
1:I:30:LYS:HD3	1:I:30:LYS:HA	1.67	0.47
1:I:491:LYS:O	1:I:495:LYS:HG2	2.14	0.47
2:J:7:LEU:CD1	2:J:43:ILE:HD11	2.45	0.47
1:M:233:ASP:CB	1:M:528:MET:HE2	2.44	0.47
1:M:387:LYS:HE3	1:M:428:PHE:HE1	1.79	0.47
1:A:389:LEU:C	1:A:390:PHE:HD1	2.23	0.47
2:B:197:ASP:OD1	3:C:13:ARG:HD3	2.14	0.47
1:E:22:VAL:HG13	1:E:26:MET:HE2	1.97	0.47
3:G:115:GLN:HE22	3:G:173:ARG:HD2	1.80	0.47
2:N:117:ILE:HG13	2:N:119:ALA:HB2	1.97	0.47
3:O:155:LEU:C	3:O:157:LEU:N	2.73	0.47
1:A:13:GLY:CA	1:A:33:MET:HE3	2.45	0.46
1:A:259:THR:O	1:A:268:VAL:HG22	2.15	0.46
3:C:49:PRO:HB3	3:C:141:ALA:CB	2.45	0.46
1:E:110:VAL:HG23	1:E:135:LEU:O	2.15	0.46
1:E:338:ILE:C	1:E:343:ARG:HB2	2.40	0.46
1:E:444:ALA:O	1:E:445:HIS:C	2.56	0.46
3:G:4:SER:HB3	3:G:5:THR:H	1.44	0.46
1:I:455:ILE:HD12	1:I:459:ARG:NH2	2.29	0.46
3:K:116:VAL:O	3:K:119:ALA:HB3	2.15	0.46
3:K:127:ALA:HA	3:K:130:MET:CE	2.45	0.46
1:M:250:ASN:ND2	1:M:399:ASP:OD2	2.48	0.46
1:A:445:HIS:O	1:A:446:LYS:C	2.58	0.46
3:C:95:LYS:HZ3	10:C:303:LMT:C6B	2.28	0.46
3:C:118:SER:O	3:C:122:ILE:HG23	2.16	0.46
3:C:129:HIS:O	3:C:133:VAL:HG22	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:258:PRO:CD	1:E:301:ARG:HD2	2.45	0.46
2:F:117:ILE:HG13	2:F:119:ALA:HB2	1.97	0.46
3:G:111:MET:HB3	3:G:169:VAL:HG11	1.96	0.46
1:I:14:ALA:CB	4:I:701:FAD:H4B	2.42	0.46
1:I:300:SER:OG	1:I:301:ARG:N	2.48	0.46
1:M:412:ALA:O	1:M:416:VAL:HB	2.15	0.46
1:M:546:ARG:HH12	1:M:562:TRP:CB	2.28	0.46
2:N:191:SER:HB3	2:N:194:ASP:CG	2.40	0.46
2:N:199:ILE:HG13	2:N:205:VAL:CG2	2.44	0.46
3:O:147:ARG:HB2	3:O:150:SER:O	2.12	0.46
3:C:35:LEU:HD13	3:C:167:VAL:CG1	2.44	0.46
1:E:189:GLY:O	1:E:387:LYS:N	2.38	0.46
1:E:503:SER:HB3	1:E:529:LEU:HD22	1.97	0.46
1:I:59:ILE:HG21	1:I:127:GLU:O	2.15	0.46
1:I:264:THR:C	1:I:266:ILE:H	2.24	0.46
1:I:322:TYR:O	1:I:365:ARG:NH2	2.49	0.46
3:K:166:HIS:HE1	9:K:302:HEM:CHB	2.29	0.46
3:O:69:GLY:O	3:O:73:PHE:HB2	2.16	0.46
1:A:38:PRO:HG2	1:A:41:ARG:HH12	1.81	0.46
3:C:60:GLU:CD	3:C:64:MET:HB2	2.40	0.46
1:E:74:VAL:HB	1:E:590:MET:HE1	1.96	0.46
1:I:60:MET:HB2	1:I:147:TRP:CD2	2.50	0.46
3:K:185:LYS:H	3:K:185:LYS:HD3	1.79	0.46
1:M:44:SER:OG	4:M:701:FAD:O5'	2.33	0.46
1:M:195:ILE:HA	1:M:206:ALA:HA	1.98	0.46
1:M:413:GLU:O	1:M:417:ALA:CB	2.63	0.46
1:M:480:VAL:HG23	1:M:484:ARG:CZ	2.46	0.46
2:N:1:MET:HG2	2:N:30:GLU:OE2	2.14	0.46
2:N:12:TYR:HE2	2:N:14:PRO:HB3	1.81	0.46
1:A:55:LEU:HG	1:A:56:GLY:H	1.80	0.46
1:A:248:MET:HB2	1:A:568:SER:OG	2.16	0.46
2:B:54:ASP:HB3	2:B:64:SER:OG	2.15	0.46
3:C:172:TYR:HD1	3:C:189:PHE:HE1	1.61	0.46
2:F:22:ARG:NH2	2:F:24:GLN:OE1	2.48	0.46
3:K:171:PHE:O	3:K:174:ILE:HG22	2.15	0.46
1:M:96:VAL:HG21	1:M:416:VAL:HA	1.97	0.46
1:M:279:LEU:HA	1:M:327:TRP:O	2.15	0.46
1:M:358:ILE:HG13	1:M:359:HIS:ND1	2.31	0.46
1:A:399:ASP:OD2	1:A:565:ARG:NE	2.48	0.46
2:B:34:MET:HG3	2:B:38:ILE:HB	1.97	0.46
1:E:378:ASN:OD1	1:E:381:GLY:N	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:154:CYS:SG	2:F:155:GLY:N	2.89	0.46
2:F:215:GLU:OE2	2:F:225:GLN:HB2	2.14	0.46
1:I:16:ALA:O	1:I:20:VAL:HG12	2.15	0.46
1:I:47:ALA:HB3	1:I:157:GLY:HA3	1.96	0.46
2:J:6:THR:HB	2:J:87:GLU:HA	1.98	0.46
2:J:11:ARG:HH22	2:J:50:THR:HG23	1.79	0.46
2:J:104:VAL:HG23	2:J:106:THR:HG23	1.97	0.46
2:J:190:ARG:NE	2:J:190:ARG:HA	2.30	0.46
1:M:237:GLN:NE2	1:M:395:SER:HA	2.29	0.46
3:O:31:LEU:HD12	9:O:303:HEM:CAC	2.46	0.46
1:A:257:HIS:HE1	1:A:301:ARG:NH1	2.11	0.46
3:C:162:LEU:HD23	3:C:162:LEU:HA	1.77	0.46
1:E:438:MET:HA	1:E:441:VAL:HG12	1.98	0.46
1:E:622:LEU:O	1:E:622:LEU:HD23	2.15	0.46
2:F:180:ALA:HB2	2:F:231:MET:HE3	1.98	0.46
1:I:152:THR:HG23	1:I:156:THR:HG23	1.98	0.46
1:I:346:TYR:O	1:I:350:THR:OG1	2.12	0.46
2:J:7:LEU:HD13	2:J:43:ILE:HD11	1.96	0.46
2:J:96:PHE:CD2	2:J:106:THR:HG22	2.50	0.46
3:K:24:GLN:OE1	3:K:85:ARG:NH2	2.49	0.46
3:K:142:ALA:O	3:K:146:ALA:N	2.48	0.46
1:M:6:THR:HA	1:M:30:LYS:HG2	1.98	0.46
1:M:185:ILE:HG23	1:M:445:HIS:CE1	2.51	0.46
1:M:316:LEU:CB	1:M:319:LYS:HG3	2.46	0.46
1:M:341:LYS:CG	1:M:342:LEU:HB3	2.46	0.46
1:M:440:TYR:C	1:M:445:HIS:ND1	2.73	0.46
2:N:129:ASP:CG	2:N:130:PRO:CD	2.89	0.46
3:O:104:LEU:HA	3:O:104:LEU:HD12	1.68	0.46
1:A:40:ARG:C	1:A:158:ARG:HH12	2.22	0.46
1:A:545:SER:O	1:A:557:ARG:HA	2.16	0.46
1:A:614:ILE:N	1:A:615:PRO:HD3	2.30	0.46
2:F:124:ASP:OD1	2:F:124:ASP:N	2.48	0.46
3:G:28:GLY:O	3:G:32:ILE:HB	2.16	0.46
1:I:586:PRO:O	1:I:587:TYR:HB3	2.16	0.46
2:J:12:TYR:CE1	2:J:19:SER:O	2.68	0.46
2:J:137:MET:SD	2:J:142:ALA:HB2	2.56	0.46
1:M:55:LEU:CD2	1:M:138:ALA:HB2	2.45	0.46
3:O:156:TYR:HA	3:O:159:LEU:HB3	1.98	0.46
1:A:20:VAL:HG11	1:A:213:LEU:HD13	1.97	0.46
1:A:45:SER:HB3	1:A:158:ARG:HH11	1.80	0.46
1:A:53:ALA:HB3	1:A:97:MET:HG3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2:ASN:O	2:B:2:ASN:ND2	2.28	0.46
3:C:128:VAL:O	3:C:132:VAL:HG13	2.15	0.46
3:C:184:ASN:OD1	3:C:185:LYS:N	2.41	0.46
1:E:112:PRO:HB3	1:E:130:ALA:HA	1.98	0.46
1:E:288:MET:HE1	1:E:307:ARG:CB	2.43	0.46
2:F:233:ARG:CZ	3:G:179:GLY:HA3	2.46	0.46
1:I:64:ASP:OD1	1:I:148:ARG:NH2	2.48	0.46
1:I:612:PHE:HB3	1:I:613:VAL:H	1.59	0.46
2:J:13:ASN:HD22	2:J:16:ASP:HB3	1.81	0.46
3:K:45:VAL:HG21	3:K:211:PHE:HA	1.98	0.46
1:M:259:THR:HA	1:M:364:VAL:HB	1.97	0.46
3:O:27:SER:O	3:O:31:LEU:HB2	2.15	0.46
1:A:10:CYS:HB2	1:A:33:MET:HG3	1.98	0.46
1:E:491:LYS:O	1:E:495:LYS:HG2	2.15	0.46
1:E:606:GLU:HG3	1:E:607:LEU:N	2.31	0.46
3:G:25:MET:CG	3:G:174:ILE:HD11	2.46	0.46
1:I:36:LEU:HD13	4:I:701:FAD:C5A	2.46	0.46
1:I:335:GLU:O	1:I:338:ILE:HG22	2.16	0.46
1:M:279:LEU:HD23	1:M:327:TRP:O	2.16	0.46
1:M:346:TYR:HA	1:M:357:PRO:HG3	1.98	0.46
2:N:180:ALA:HB2	2:N:231:MET:HE3	1.98	0.46
3:O:12:GLN:HG2	3:O:13:ARG:HG3	1.98	0.46
1:E:154:ASP:CG	1:E:344:GLU:HB3	2.42	0.45
1:E:255:GLN:HE21	1:E:301:ARG:CG	2.30	0.45
3:G:175:GLY:HA2	3:G:180:PHE:HD2	1.81	0.45
1:I:559:ASP:CB	1:I:605:ASN:HB3	2.45	0.45
1:I:580:GLU:HG2	1:I:581:TYR:H	1.81	0.45
1:M:269:THR:HA	5:M:702:FUM:O	2.15	0.45
1:M:280:LEU:CD1	1:M:284:GLN:HB2	2.46	0.45
1:M:513:LYS:HD3	2:N:13:ASN:CG	2.41	0.45
2:N:201:ASN:O	2:N:202:ASP:O	2.33	0.45
1:A:200:ARG:NH1	2:B:105:ASP:OD2	2.49	0.45
1:A:489:LEU:HD13	1:A:540:LEU:CA	2.43	0.45
2:B:138:ASP:OD1	2:B:139:ASN:N	2.49	0.45
3:C:148:LEU:HD21	3:C:212:MET:CB	2.46	0.45
1:E:542:ARG:CG	1:E:549:HIS:CE1	2.99	0.45
2:F:102:LEU:HA	2:F:102:LEU:HD23	1.58	0.45
1:I:6:THR:HB	1:I:30:LYS:O	2.16	0.45
2:J:94:PRO:HD2	2:J:159:ALA:HB1	1.97	0.45
2:J:110:PHE:CE1	2:J:174:VAL:HG11	2.51	0.45
2:J:117:ILE:HA	2:J:198:VAL:HG13	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:211:LEU:HD23	3:K:173:ARG:HH12	1.81	0.45
3:K:8:LEU:CD1	3:K:13:ARG:HB3	2.38	0.45
3:K:51:LEU:HD12	3:K:52:MET:N	2.31	0.45
3:K:172:TYR:O	3:K:176:VAL:HG23	2.16	0.45
3:O:116:VAL:CG1	10:O:301:LMT:H121	2.45	0.45
1:A:40:ARG:HB3	1:A:158:ARG:HH22	1.82	0.45
3:C:38:HIS:CE1	9:C:301:HEM:C4D	3.05	0.45
1:E:294:ASP:OD1	1:E:294:ASP:N	2.45	0.45
1:E:343:ARG:O	1:E:345:VAL:N	2.48	0.45
1:E:526:ARG:O	1:E:530:LYS:HG3	2.16	0.45
2:F:96:PHE:CZ	2:F:158:VAL:HG21	2.51	0.45
3:G:87:MET:HE2	3:G:87:MET:HB3	1.82	0.45
1:I:158:ARG:HE	2:J:152:ILE:HA	1.82	0.45
1:I:484:ARG:O	1:I:551:ARG:HA	2.16	0.45
2:J:1:MET:HE1	2:J:82:LYS:CE	2.46	0.45
1:M:117:TYR:OH	1:M:137:HIS:NE2	2.49	0.45
2:B:180:ALA:CB	2:B:231:MET:HE3	2.46	0.45
3:C:37:ALA:CA	11:C:304:MQ7:C2M	2.83	0.45
3:C:92:ASP:O	3:C:96:THR:OG1	2.26	0.45
1:E:259:THR:O	1:E:268:VAL:HG22	2.17	0.45
2:F:24:GLN:HE21	2:F:25:THR:N	2.15	0.45
3:G:130:MET:O	3:G:134:LEU:CB	2.46	0.45
1:I:216:THR:HG21	1:I:236:GLY:N	2.30	0.45
1:I:559:ASP:C	1:I:605:ASN:HB3	2.42	0.45
2:J:55:PHE:CD1	2:J:65:CYS:SG	3.09	0.45
1:M:233:ASP:CG	1:M:528:MET:HE2	2.41	0.45
1:M:380:ASP:O	1:M:421:ILE:HG23	2.17	0.45
1:M:444:ALA:O	1:M:445:HIS:C	2.60	0.45
1:M:529:LEU:C	1:M:529:LEU:HD12	2.41	0.45
2:N:222:ILE:CG2	2:N:223:PRO:HD2	2.47	0.45
3:O:35:LEU:O	3:O:35:LEU:HD23	2.17	0.45
3:O:72:VAL:HG23	3:O:130:MET:SD	2.57	0.45
3:O:146:ALA:O	3:O:148:LEU:O	2.35	0.45
3:C:44:SER:HB2	3:C:52:MET:HB2	1.98	0.45
1:E:199:LEU:HD23	1:E:199:LEU:HA	1.74	0.45
1:I:57:ASN:HB2	1:I:136:ILE:O	2.16	0.45
1:I:182:GLU:HB3	1:I:449:GLN:HG3	1.99	0.45
1:I:219:TYR:CD1	1:I:531:LEU:HD13	2.52	0.45
1:I:313:ARG:NH2	1:I:483:PHE:HB2	2.31	0.45
2:J:106:THR:HB	2:J:110:PHE:CE2	2.49	0.45
3:K:126:GLY:O	3:K:130:MET:CB	2.65	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:55:LEU:CD1	1:M:56:GLY:H	2.26	0.45
1:M:406:LEU:O	1:M:409:ASN:HB2	2.17	0.45
2:N:48:ASP:CG	2:N:50:THR:HG22	2.40	0.45
2:N:73:PRO:HG2	2:N:217:VAL:HG21	1.98	0.45
3:O:10:VAL:HG22	3:O:11:PRO:HD2	1.99	0.45
3:C:52:MET:O	3:C:56:ALA:HB2	2.17	0.45
1:E:570:TRP:HD1	1:E:572:GLU:O	1.99	0.45
2:F:118:GLU:O	2:F:122:HIS:HE1	2.00	0.45
3:G:153:LEU:O	3:G:153:LEU:HD23	2.16	0.45
1:I:449:GLN:O	1:I:453:THR:HG23	2.16	0.45
2:N:169:ASP:HB2	2:N:203:GLN:OE1	2.16	0.45
2:N:185:ASP:OD1	2:N:187:ARG:N	2.49	0.45
1:A:32:ILE:HD13	1:A:207:TYR:HE2	1.82	0.45
1:A:300:SER:HB2	1:A:597:TYR:CE1	2.52	0.45
1:A:438:MET:HA	1:A:441:VAL:HG12	1.99	0.45
3:C:143:LYS:HD2	3:C:144:SER:N	2.32	0.45
1:E:457:THR:HG23	1:E:508:LEU:HD21	1.98	0.45
1:I:100:VAL:HG22	1:I:103:TRP:CE3	2.51	0.45
1:I:118:TYR:CD1	1:I:332:HIS:CE1	3.05	0.45
1:I:257:HIS:CE1	1:I:258:PRO:HD2	2.51	0.45
1:I:460:LYS:HG2	1:I:505:LYS:HA	1.98	0.45
1:I:605:ASN:ND2	1:I:608:PRO:HD3	2.32	0.45
1:M:260:GLY:HA2	1:M:267:LEU:HA	1.98	0.45
1:M:333:LEU:HB2	1:M:338:ILE:H	1.82	0.45
1:M:579:LEU:HD23	1:M:579:LEU:HA	1.82	0.45
3:O:25:MET:CG	3:O:174:ILE:HD11	2.46	0.45
3:O:183:ARG:O	3:O:186:ARG:HB3	2.16	0.45
1:A:7:ASP:N	1:A:7:ASP:OD1	2.49	0.45
10:C:303:LMT:H2O1	10:C:303:LMT:C3'	2.24	0.45
10:C:303:LMT:O5B	10:C:303:LMT:H5'	2.16	0.45
1:E:28:GLY:C	1:E:29:LEU:HD23	2.41	0.45
2:F:61:ILE:O	2:F:62:CYS:SG	2.74	0.45
1:I:19:ARG:HH12	1:I:23:GLU:HB2	1.81	0.45
2:J:8:ASN:O	2:J:90:LEU:N	2.37	0.45
2:J:113:THR:O	2:J:117:ILE:HG12	2.17	0.45
3:K:185:LYS:O	3:K:187:LYS:N	2.50	0.45
1:M:304:VAL:HG12	1:M:308:MET:CE	2.46	0.45
1:M:308:MET:HE3	1:M:308:MET:HB2	1.54	0.45
1:M:387:LYS:HE3	1:M:428:PHE:CE1	2.51	0.45
1:M:441:VAL:HA	1:M:445:HIS:ND1	2.32	0.45
2:N:51:LEU:HD12	2:N:52:LYS:H	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:171:LEU:HD11	2:N:204:GLY:HA3	1.98	0.45
1:A:20:VAL:HG21	1:A:213:LEU:CD1	2.46	0.45
1:A:23:GLU:OE1	1:A:423:GLU:HG2	2.17	0.45
1:A:564:ASN:OD1	1:A:564:ASN:N	2.48	0.45
3:C:20:MET:HE2	3:C:82:LEU:HD22	1.98	0.45
3:C:38:HIS:CE1	3:C:39:MET:HE3	2.52	0.45
3:C:59:PHE:HB3	3:C:63:TYR:HA	1.98	0.45
1:E:471:GLU:O	1:E:475:ILE:HG12	2.17	0.45
3:G:38:HIS:CE1	9:G:301:HEM:C2D	3.05	0.45
1:I:195:ILE:HD12	1:I:446:LYS:HB2	1.98	0.45
1:M:140:ALA:CB	1:M:273:ARG:HH11	2.30	0.45
1:M:338:ILE:HG21	1:M:357:PRO:O	2.17	0.45
1:M:405:ARG:NH2	5:M:702:FUM:C6	2.80	0.45
1:A:238:ILE:HG13	1:A:239:ILE:N	2.26	0.45
1:A:458:GLY:O	1:A:459:ARG:HB2	2.17	0.45
3:C:32:ILE:HD12	3:C:32:ILE:HA	1.87	0.45
2:F:2:ASN:HD22	2:F:2:ASN:C	2.19	0.45
2:F:202:ASP:CG	2:F:203:GLN:H	2.25	0.45
3:G:1:MET:N	2:J:91:HIS:HE1	2.15	0.45
1:I:301:ARG:HG3	1:I:405:ARG:O	2.16	0.45
2:J:55:PHE:HD1	2:J:65:CYS:SG	2.40	0.45
1:M:261:THR:HG22	1:M:263:PRO:HD2	1.99	0.45
1:M:369:HIS:HE1	4:M:701:FAD:C7	2.30	0.45
1:M:485:ASN:O	1:M:489:LEU:HD13	2.16	0.45
1:M:489:LEU:HD23	1:M:540:LEU:CA	2.46	0.45
1:M:565:ARG:NH2	1:M:584:ALA:HB1	2.32	0.45
2:N:48:ASP:OD1	2:N:50:THR:HG22	2.17	0.45
2:N:199:ILE:HD12	2:N:204:GLY:HA3	1.99	0.45
3:O:25:MET:HB2	3:O:178:TYR:OH	2.17	0.45
9:O:303:HEM:HBB2	9:O:303:HEM:CMB	2.43	0.45
1:I:106:PRO:HB3	2:J:145:ILE:CG2	2.46	0.44
1:I:513:LYS:HE3	1:I:513:LYS:HB3	1.49	0.44
3:K:147:ARG:HA	3:K:150:SER:O	2.17	0.44
1:M:406:LEU:HD23	1:M:407:GLY:N	2.32	0.44
1:A:365:ARG:HG3	1:A:367:THR:HG23	1.99	0.44
1:E:170:GLN:NE2	1:E:171:TYR:HE2	2.16	0.44
1:E:255:GLN:HE21	1:E:301:ARG:HG2	1.82	0.44
1:I:306:ARG:CZ	1:I:550:THR:OG1	2.65	0.44
1:I:337:HIS:O	1:I:338:ILE:C	2.60	0.44
1:I:530:LYS:HE3	1:I:570:TRP:CE2	2.52	0.44
1:I:583:GLU:OE1	1:I:586:PRO:HD3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:148:LEU:HD23	3:K:212:MET:HG3	1.99	0.44
1:M:305:SER:O	1:M:309:THR:HG23	2.16	0.44
2:N:62:CYS:N	8:N:303:FES:S1	2.90	0.44
2:N:211:LEU:O	3:O:106:HIS:NE2	2.42	0.44
3:O:156:TYR:O	3:O:160:LEU:HB2	2.17	0.44
1:A:188:GLY:O	1:A:190:ASN:N	2.51	0.44
3:C:142:ALA:C	3:C:144:SER:N	2.74	0.44
1:E:262:VAL:HG12	1:E:263:PRO:N	2.32	0.44
1:E:270:GLU:CD	1:E:301:ARG:NH1	2.74	0.44
1:E:484:ARG:HD3	1:E:489:LEU:HD21	2.00	0.44
2:F:230:ILE:HG22	2:F:233:ARG:NH2	2.26	0.44
3:G:139:ILE:HD12	3:G:143:LYS:HZ1	1.83	0.44
3:G:212:MET:HE2	3:G:212:MET:HB3	1.83	0.44
1:I:235:GLY:HA2	1:I:524:ARG:HH21	1.81	0.44
3:K:127:ALA:HA	3:K:130:MET:HE2	1.99	0.44
1:M:178:ARG:HA	1:M:199:LEU:HD12	1.99	0.44
1:M:261:THR:CG2	1:M:353:LEU:HD11	2.47	0.44
2:N:131:THR:CG2	2:N:132:ALA:N	2.80	0.44
3:O:65:ALA:O	3:O:134:LEU:HD11	2.16	0.44
3:O:98:ARG:NH1	10:O:301:LMT:O2'	2.50	0.44
1:A:462:LYS:HA	1:A:507:SER:HB2	1.99	0.44
3:C:140:THR:O	3:C:143:LYS:HE3	2.17	0.44
3:C:156:TYR:CD1	9:C:301:HEM:HAD1	2.52	0.44
1:E:184:LEU:HD12	1:E:240:ALA:HA	2.00	0.44
2:F:34:MET:O	2:F:81:THR:HG23	2.17	0.44
1:I:140:ALA:HB2	1:I:147:TRP:CE2	2.52	0.44
2:J:66:ALA:HA	2:J:74:GLY:O	2.17	0.44
3:K:29:ALA:O	3:K:33:LEU:HG	2.18	0.44
3:K:35:LEU:HD13	3:K:167:VAL:HG11	1.98	0.44
1:M:34:LEU:HD23	1:M:34:LEU:HA	1.65	0.44
1:M:40:ARG:HA	1:M:161:LEU:HD21	1.99	0.44
1:M:97:MET:HE3	1:M:97:MET:HB2	1.81	0.44
1:M:377:THR:HB	1:M:381:GLY:HA2	1.99	0.44
1:M:584:ALA:HA	1:M:585:SER:HA	1.55	0.44
1:A:214:ILE:CG2	1:A:236:GLY:HA3	2.46	0.44
2:B:60:GLY:HA2	8:B:303:FES:S1	2.57	0.44
2:B:179:VAL:HB	2:B:199:ILE:HD13	1.99	0.44
3:C:56:ALA:HB1	3:C:139:ILE:CG2	2.45	0.44
3:G:39:MET:HA	3:G:43:SER:HB2	1.99	0.44
1:I:530:LYS:HG2	1:I:570:TRP:CZ2	2.52	0.44
1:M:32:ILE:HG21	1:M:207:TYR:CD2	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:112:PRO:HG3	1:M:133:ALA:HB2	1.98	0.44
1:M:248:MET:HA	1:M:374:GLY:O	2.17	0.44
1:M:338:ILE:CD1	1:M:358:ILE:HA	2.46	0.44
1:A:92:THR:HB	1:A:416:VAL:HG13	1.99	0.44
3:C:155:LEU:O	3:C:159:LEU:N	2.43	0.44
1:E:490:GLN:HB2	1:E:540:LEU:HD13	1.99	0.44
2:F:67:MET:O	2:F:73:PRO:HA	2.18	0.44
1:I:60:MET:HB2	1:I:147:TRP:CE3	2.53	0.44
1:I:136:ILE:N	2:J:134:GLU:OE2	2.43	0.44
1:I:346:TYR:HE1	1:I:350:THR:HG21	1.74	0.44
1:I:417:ALA:O	1:I:421:ILE:HG12	2.18	0.44
3:K:34:PHE:CE2	9:K:301:HEM:HMC2	2.52	0.44
3:K:137:LEU:HD13	3:K:143:LYS:NZ	2.32	0.44
1:M:389:LEU:HD12	1:M:389:LEU:HA	1.73	0.44
1:M:460:LYS:O	1:M:505:LYS:HE3	2.17	0.44
2:N:206:PHE:CZ	3:O:18:GLY:HA2	2.52	0.44
1:A:270:GLU:O	1:A:270:GLU:HG2	2.17	0.44
1:A:274:GLY:HA2	1:A:298:LEU:HD21	1.98	0.44
2:B:96:PHE:HZ	2:B:158:VAL:HG21	1.83	0.44
10:C:303:LMT:C3'	10:C:303:LMT:C2B	2.95	0.44
1:E:261:THR:OG1	1:E:268:VAL:HG13	2.17	0.44
2:F:137:MET:HG3	2:F:138:ASP:N	2.33	0.44
2:F:222:ILE:HG22	2:F:223:PRO:CD	2.46	0.44
1:I:66:PRO:HB3	1:I:91:ASP:HA	1.99	0.44
3:K:192:THR:O	3:K:196:MET:HG2	2.18	0.44
1:M:60:MET:HB2	1:M:147:TRP:CE3	2.53	0.44
2:N:161:CYS:HB3	2:N:164:ALA:HB3	2.00	0.44
1:A:556:GLU:HG3	1:A:603:ILE:HG13	2.00	0.44
3:C:94:TRP:CG	10:C:303:LMT:H22	2.53	0.44
3:C:171:PHE:HB3	3:C:193:GLU:OE2	2.18	0.44
1:E:24:ALA:HA	1:E:426:VAL:CG2	2.47	0.44
1:E:587:TYR:CD2	1:E:587:TYR:O	2.71	0.44
1:I:121:GLY:O	1:I:332:HIS:NE2	2.50	0.44
1:I:139:ARG:HG3	1:I:139:ARG:NH1	2.32	0.44
1:M:103:TRP:CD1	1:M:167:LYS:HE2	2.53	0.44
2:N:110:PHE:HA	2:N:113:THR:HG22	2.00	0.44
2:N:210:GLY:C	3:O:173:ARG:NH1	2.76	0.44
3:O:64:MET:HB2	3:O:67:ILE:HG22	2.00	0.44
1:A:97:MET:SD	1:A:107:TRP:CZ2	3.11	0.44
2:B:215:GLU:OE2	2:B:225:GLN:N	2.42	0.44
1:E:309:THR:O	1:E:313:ARG:HG3	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:312:MET:HB3	1:E:312:MET:HE2	1.87	0.44
1:E:466:PHE:CZ	2:F:45:ASP:HA	2.53	0.44
2:F:199:ILE:HD13	2:F:205:VAL:HB	2.00	0.44
3:G:34:PHE:HE2	9:G:301:HEM:HMC2	1.83	0.44
3:G:111:MET:O	3:G:114:VAL:HG22	2.16	0.44
1:I:119:LYS:HB3	1:I:124:PHE:CE1	2.51	0.44
1:I:302:ASP:O	1:I:306:ARG:HB3	2.18	0.44
1:I:405:ARG:HE	1:I:410:SER:HG	1.59	0.44
1:I:467:LYS:HD2	1:I:467:LYS:HA	1.78	0.44
3:K:195:LEU:HD12	3:K:196:MET:HE2	2.00	0.44
1:M:129:LYS:HE3	1:M:132:LYS:HG2	1.99	0.44
1:M:452:ILE:O	1:M:455:ILE:HG22	2.17	0.44
1:M:595:ARG:N	1:M:596:GLY:HA3	2.30	0.44
2:N:127:ALA:O	2:N:129:ASP:CG	2.61	0.44
1:A:121:GLY:O	1:A:332:HIS:HE1	2.00	0.43
1:A:152:THR:O	1:A:152:THR:OG1	2.33	0.43
3:C:121:PHE:HD2	3:C:162:LEU:HD13	1.83	0.43
1:E:257:HIS:CG	1:E:258:PRO:HD2	2.53	0.43
1:E:559:ASP:HB2	1:E:603:ILE:O	2.18	0.43
2:F:151:CYS:SG	2:F:152:ILE:N	2.90	0.43
3:G:181:VAL:HG12	3:G:182:GLY:H	1.80	0.43
1:I:493:VAL:HG13	1:I:533:GLN:OE1	2.18	0.43
9:K:301:HEM:HAD1	9:K:301:HEM:HMD2	1.74	0.43
1:M:496:LEU:HG	1:M:533:GLN:HB2	1.98	0.43
2:N:96:PHE:HZ	2:N:158:VAL:HG21	1.82	0.43
3:O:191:LYS:O	3:O:195:LEU:HD23	2.17	0.43
2:B:213:ALA:O	2:B:217:VAL:HG13	2.17	0.43
10:C:303:LMT:H3'	10:C:303:LMT:C2B	2.48	0.43
1:E:587:TYR:HD1	1:E:614:ILE:CG1	2.29	0.43
1:E:605:ASN:CG	1:E:608:PRO:HD3	2.43	0.43
2:F:11:ARG:HA	2:F:101:ASP:OD1	2.17	0.43
2:F:226:ASP:OD1	2:F:226:ASP:N	2.46	0.43
3:G:22:PHE:O	3:G:26:VAL:HG23	2.19	0.43
3:G:87:MET:HG2	9:G:302:HEM:HMA3	1.99	0.43
1:I:190:ASN:C	1:I:386:LEU:HD21	2.42	0.43
1:I:546:ARG:NH2	1:I:562:TRP:O	2.50	0.43
3:K:154:TYR:CD2	3:K:154:TYR:O	2.70	0.43
1:M:40:ARG:HH22	2:N:178:ARG:NH1	2.14	0.43
2:N:57:CYS:O	2:N:58:ARG:HG3	2.18	0.43
3:O:45:VAL:HB	3:O:211:PHE:CZ	2.53	0.43
3:O:153:LEU:O	3:O:155:LEU:HG	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:11:ARG:NH2	2:B:51:LEU:HA	2.34	0.43
3:C:5:THR:HG23	3:C:6:ILE:H	1.83	0.43
3:C:159:LEU:HD23	3:C:163:ALA:HB2	1.99	0.43
1:E:158:ARG:HD2	1:E:158:ARG:HA	1.65	0.43
1:E:253:ALA:C	1:E:372:MET:HE2	2.42	0.43
1:E:339:THR:HB	1:E:343:ARG:HG3	2.00	0.43
2:F:226:ASP:O	2:F:230:ILE:HG23	2.18	0.43
3:G:22:PHE:O	3:G:25:MET:HE2	2.18	0.43
1:I:78:ASP:HB3	1:I:546:ARG:HG3	1.99	0.43
1:I:261:THR:CG2	1:I:353:LEU:HD11	2.48	0.43
2:J:52:LYS:HB2	2:J:101:ASP:HB2	2.00	0.43
2:J:110:PHE:HA	2:J:113:THR:HG22	1.99	0.43
3:K:47:LEU:HB2	3:K:51:LEU:HD11	1.98	0.43
1:M:214:ILE:HG23	1:M:236:GLY:HA3	2.00	0.43
1:M:619:LYS:O	1:M:621:ASN:N	2.51	0.43
2:N:63:GLY:N	2:N:152:ILE:HD12	2.33	0.43
3:O:60:GLU:OE1	3:O:64:MET:HB3	2.18	0.43
1:A:301:ARG:NH2	5:A:702:FUM:O8	2.50	0.43
3:C:40:MET:CE	11:C:304:MQ7:H2M2	2.46	0.43
3:C:181:VAL:HG12	3:C:182:GLY:H	1.83	0.43
1:E:238:ILE:HG22	1:E:531:LEU:CD2	2.48	0.43
1:E:614:ILE:N	1:E:615:PRO:HD2	2.34	0.43
2:F:177:MET:SD	2:F:222:ILE:HG21	2.59	0.43
1:I:14:ALA:HB2	4:I:701:FAD:C3B	2.48	0.43
1:I:153:ALA:HB3	2:J:146:PHE:CZ	2.53	0.43
1:I:318:VAL:HG21	1:I:327:TRP:NE1	2.33	0.43
1:M:75:LYS:HB3	1:M:595:ARG:HB3	1.99	0.43
1:M:109:ARG:HG3	2:N:137:MET:O	2.18	0.43
1:M:267:LEU:HD13	1:M:369:HIS:CE1	2.54	0.43
2:N:183:TYR:CD2	2:N:231:MET:HE1	2.52	0.43
3:O:41:LEU:HD22	3:O:63:TYR:CE2	2.53	0.43
1:A:32:ILE:HG21	1:A:207:TYR:CE2	2.54	0.43
1:A:248:MET:O	1:A:567:LEU:HA	2.19	0.43
2:B:219:PRO:HD2	7:B:302:SF4:S3	2.58	0.43
2:B:225:GLN:NE2	3:C:186:ARG:HD3	2.24	0.43
3:C:5:THR:CG2	3:C:6:ILE:H	2.30	0.43
3:C:37:ALA:O	11:C:304:MQ7:H142	2.18	0.43
2:F:22:ARG:H	2:F:22:ARG:HG2	1.62	0.43
2:F:96:PHE:HZ	2:F:158:VAL:HG21	1.84	0.43
3:G:176:VAL:C	3:G:178:TYR:H	2.26	0.43
1:I:97:MET:HE3	1:I:136:ILE:HD13	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:456:VAL:HG11	1:I:519:LEU:HD13	2.00	0.43
1:M:247:PRO:HB3	1:M:569:TYR:CZ	2.54	0.43
1:M:484:ARG:O	1:M:551:ARG:HA	2.19	0.43
3:O:122:ILE:HG21	3:O:122:ILE:HD13	1.76	0.43
1:A:109:ARG:HB3	1:A:135:LEU:O	2.19	0.43
1:A:196:ALA:HB3	1:A:205:VAL:CG1	2.49	0.43
1:A:370:TYR:HE2	1:A:372:MET:HA	1.83	0.43
1:A:609:PRO:HA	1:A:612:PHE:CD1	2.53	0.43
2:B:225:GLN:HE22	3:C:186:ARG:CD	2.27	0.43
3:C:41:LEU:HB2	11:C:304:MQ7:C14	2.49	0.43
3:C:72:VAL:HG21	9:C:301:HEM:HAB	2.01	0.43
2:F:166:MET:HE3	2:F:166:MET:HB3	1.71	0.43
3:G:73:PHE:CE1	3:G:130:MET:HE3	2.53	0.43
9:G:302:HEM:HBB2	9:G:302:HEM:CMB	2.46	0.43
1:I:59:ILE:HA	1:I:62:ASP:HB2	2.01	0.43
1:I:378:ASN:OD1	1:I:381:GLY:N	2.51	0.43
1:I:529:LEU:O	1:I:530:LYS:C	2.61	0.43
2:J:160:ALA:C	3:K:100:HIS:HE2	2.26	0.43
2:J:163:THR:HG21	2:J:207:GLY:O	2.19	0.43
3:K:188:TRP:C	3:K:188:TRP:CD1	2.96	0.43
1:M:318:VAL:HA	1:M:319:LYS:CB	2.39	0.43
2:N:57:CYS:C	2:N:58:ARG:HG3	2.43	0.43
2:N:94:PRO:O	2:N:96:PHE:N	2.52	0.43
2:N:158:VAL:HG23	2:N:159:ALA:H	1.81	0.43
1:A:192:LEU:HD13	1:A:436:PHE:HA	2.00	0.43
3:C:41:LEU:CB	11:C:304:MQ7:H141	2.49	0.43
3:C:97:PHE:O	3:C:101:ALA:CB	2.66	0.43
1:I:380:ASP:HA	1:I:420:TYR:HE2	1.84	0.43
1:I:562:TRP:CD1	1:I:562:TRP:N	2.86	0.43
1:I:607:LEU:N	1:I:608:PRO:CD	2.82	0.43
2:J:57:CYS:O	2:J:58:ARG:NH1	2.51	0.43
3:K:47:LEU:CB	3:K:51:LEU:HD11	2.48	0.43
3:K:140:THR:O	3:K:144:SER:OG	2.33	0.43
1:M:235:GLY:CA	1:M:524:ARG:HH21	2.31	0.43
1:M:390:PHE:CE2	1:M:425:MET:HG3	2.54	0.43
2:N:117:ILE:HA	2:N:198:VAL:CG1	2.49	0.43
3:O:172:TYR:O	3:O:176:VAL:HG23	2.19	0.43
3:O:205:LEU:O	3:O:208:LEU:HB3	2.18	0.43
1:A:595:ARG:HD2	1:A:597:TYR:CE1	2.53	0.43
2:B:1:MET:HE2	2:B:32:ASP:HA	1.99	0.43
3:C:10:VAL:HG13	3:C:11:PRO:N	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:43:SER:OG	3:C:207:THR:OG1	2.11	0.43
3:C:97:PHE:O	3:C:101:ALA:HB2	2.19	0.43
3:C:123:LEU:C	3:C:123:LEU:HD23	2.43	0.43
1:E:489:LEU:O	1:E:493:VAL:HG23	2.19	0.43
1:E:525:ILE:HD13	1:E:525:ILE:HA	1.87	0.43
1:E:616:GLU:HG2	1:E:617:ALA:H	1.81	0.43
2:F:215:GLU:OE1	3:G:183:ARG:CZ	2.67	0.43
1:I:7:ASP:O	1:I:209:ALA:HB1	2.18	0.43
1:I:13:GLY:O	1:I:18:GLU:HG3	2.19	0.43
1:M:492:ALA:HA	1:M:495:LYS:CG	2.49	0.43
2:N:151:CYS:CB	7:N:302:SF4:S1	3.04	0.43
1:A:306:ARG:HG3	1:A:483:PHE:CZ	2.53	0.43
1:A:444:ALA:O	1:A:445:HIS:C	2.61	0.43
1:A:587:TYR:OH	1:A:615:PRO:HB3	2.18	0.43
2:B:196:TYR:O	2:B:200:GLY:N	2.50	0.43
3:C:74:VAL:O	3:C:78:VAL:HG23	2.18	0.43
3:C:201:ILE:HD12	3:C:202:THR:N	2.32	0.43
1:E:5:HIS:O	1:E:6:THR:CG2	2.64	0.43
1:E:118:TYR:O	1:E:275:ASP:HA	2.19	0.43
1:E:223:TYR:CZ	1:E:254:VAL:HG11	2.54	0.43
1:E:370:TYR:CB	1:E:405:ARG:HE	2.32	0.43
1:E:531:LEU:O	1:E:534:CYS:HB2	2.18	0.43
1:I:258:PRO:HG2	1:I:273:ARG:NH2	2.34	0.43
1:I:559:ASP:HB3	1:I:605:ASN:HB3	2.00	0.43
2:J:11:ARG:O	2:J:22:ARG:HG2	2.19	0.43
3:K:104:LEU:HG	3:K:106:HIS:HB2	2.00	0.43
1:M:441:VAL:O	1:M:445:HIS:HB2	2.19	0.43
1:M:541:ASP:O	1:M:562:TRP:HH2	2.01	0.43
2:N:51:LEU:HD12	2:N:52:LYS:N	2.34	0.43
3:O:144:SER:O	3:O:147:ARG:C	2.62	0.43
3:O:157:LEU:O	3:O:161:PRO:HD2	2.19	0.43
1:A:51:MET:N	1:A:150:CYS:O	2.40	0.43
1:A:343:ARG:C	1:A:345:VAL:H	2.23	0.43
1:A:542:ARG:HA	1:A:562:TRP:CH2	2.53	0.43
3:C:45:VAL:HG21	3:C:211:PHE:CD1	2.53	0.43
3:C:146:ALA:O	3:C:153:LEU:HB2	2.19	0.43
1:E:424:ARG:HD3	1:E:424:ARG:HA	1.65	0.43
1:E:560:LYS:HA	1:E:605:ASN:OD1	2.18	0.43
3:G:73:PHE:O	3:G:77:VAL:HG23	2.19	0.43
1:I:570:TRP:HD1	1:I:572:GLU:O	2.02	0.43
3:K:47:LEU:HB3	3:K:51:LEU:CD2	2.39	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:346:TYR:HD1	1:M:357:PRO:HG2	1.84	0.43
3:O:44:SER:HB3	3:O:51:LEU:HD22	2.00	0.43
3:O:87:MET:HE2	3:O:87:MET:HB3	1.75	0.43
3:O:91:GLN:OE1	3:O:91:GLN:N	2.49	0.43
3:O:153:LEU:O	3:O:154:TYR:C	2.61	0.43
1:A:19:ARG:HH21	1:A:99:GLU:CD	2.27	0.42
3:C:143:LYS:HZ3	9:C:301:HEM:HBA1	1.79	0.42
3:C:167:VAL:HG12	9:C:302:HEM:CBC	2.49	0.42
1:E:163:THR:O	1:E:167:LYS:HG2	2.19	0.42
1:E:545:SER:HG	1:E:551:ARG:H	1.63	0.42
2:F:52:LYS:HG3	2:F:101:ASP:OD2	2.19	0.42
2:J:42:GLN:O	2:J:46:GLU:CB	2.61	0.42
2:J:43:ILE:HD13	2:J:43:ILE:HG21	1.80	0.42
3:K:180:PHE:HA	3:K:181:VAL:HA	1.76	0.42
1:M:317:GLY:HA3	1:M:318:VAL:C	2.43	0.42
1:M:559:ASP:H	1:M:603:ILE:HG23	1.83	0.42
3:O:63:TYR:C	3:O:64:MET:HG2	2.44	0.42
1:A:257:HIS:ND1	1:A:301:ARG:HD2	2.34	0.42
1:A:283:ASN:O	1:A:284:GLN:HB2	2.18	0.42
1:A:318:VAL:HG21	1:A:327:TRP:CE2	2.54	0.42
1:A:460:LYS:O	1:A:461:GLY:C	2.62	0.42
1:A:499:LEU:CG	1:A:529:LEU:HD21	2.46	0.42
3:C:172:TYR:HD1	3:C:189:PHE:CE1	2.37	0.42
1:E:76:GLY:O	1:E:404:ASN:HB3	2.19	0.42
1:E:140:ALA:HB2	1:E:147:TRP:CZ2	2.54	0.42
1:I:13:GLY:CA	1:I:33:MET:HE3	2.49	0.42
1:I:70:PHE:CB	1:I:87:ARG:HH11	2.33	0.42
1:I:228:ASN:HD22	4:I:701:FAD:C8M	2.33	0.42
1:I:441:VAL:O	1:I:446:LYS:HB3	2.19	0.42
1:I:607:LEU:HD12	1:I:607:LEU:H	1.84	0.42
2:J:12:TYR:CG	2:J:13:ASN:N	2.87	0.42
2:J:34:MET:O	2:J:81:THR:HG23	2.18	0.42
3:K:73:PHE:HE1	3:K:130:MET:HE3	1.84	0.42
3:O:143:LYS:HG2	3:O:144:SER:N	2.34	0.42
1:A:262:VAL:HG13	1:A:365:ARG:HH21	1.83	0.42
2:B:11:ARG:NE	2:B:101:ASP:OD1	2.49	0.42
3:C:40:MET:HE3	11:C:304:MQ7:C17	2.49	0.42
3:C:59:PHE:O	3:C:60:GLU:C	2.61	0.42
1:E:251:MET:O	1:E:535:THR:HG23	2.19	0.42
1:E:300:SER:OG	1:E:301:ARG:N	2.51	0.42
1:E:318:VAL:HG21	1:E:327:TRP:CE2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:45:VAL:O	3:G:207:THR:HG23	2.19	0.42
3:G:149:GLN:N	3:G:150:SER:O	2.53	0.42
1:I:235:GLY:HA3	4:I:701:FAD:H61A	1.85	0.42
1:M:49:GLY:HA3	1:M:141:PHE:CZ	2.54	0.42
1:M:248:MET:SD	1:M:374:GLY:C	3.02	0.42
1:M:379:ARG:NH2	1:M:424:ARG:HH12	2.17	0.42
3:O:163:ALA:O	3:O:167:VAL:HG13	2.19	0.42
1:A:104:GLY:HA2	2:B:187:ARG:HD2	2.02	0.42
2:B:104:VAL:HG23	2:B:106:THR:HG23	2.01	0.42
3:C:80:PHE:HB2	9:C:302:HEM:CBB	2.49	0.42
3:C:94:TRP:CD1	10:C:303:LMT:H1'	2.52	0.42
3:C:206:LEU:O	3:C:210:ARG:HB2	2.18	0.42
9:C:301:HEM:HBB2	9:C:301:HEM:HMB1	2.00	0.42
1:E:214:ILE:O	1:E:391:SER:OG	2.35	0.42
1:E:227:THR:CG2	1:E:267:LEU:HB2	2.50	0.42
2:F:128:PHE:CG	2:F:129:ASP:N	2.86	0.42
2:F:202:ASP:C	2:F:204:GLY:N	2.77	0.42
3:G:126:GLY:O	3:G:130:MET:CB	2.67	0.42
1:I:28:GLY:C	1:I:29:LEU:HD23	2.45	0.42
1:I:196:ALA:HB3	1:I:205:VAL:CG1	2.49	0.42
1:I:264:THR:HB	1:I:266:ILE:HG13	2.01	0.42
1:I:412:ALA:O	1:I:416:VAL:HB	2.20	0.42
1:M:452:ILE:O	1:M:456:VAL:HG23	2.20	0.42
1:A:97:MET:HE3	1:A:97:MET:HB3	1.81	0.42
1:A:468:ILE:HG22	1:A:529:LEU:HD11	2.01	0.42
1:A:541:ASP:O	1:A:562:TRP:HH2	2.01	0.42
3:C:16:ILE:HG13	3:O:95:LYS:NZ	2.28	0.42
3:C:97:PHE:HE1	3:C:113:VAL:HG23	1.85	0.42
1:E:240:ALA:HB1	1:E:246:VAL:CG1	2.50	0.42
1:E:247:PRO:HB3	1:E:569:TYR:CD1	2.54	0.42
2:F:199:ILE:CD1	2:F:205:VAL:HB	2.50	0.42
3:G:124:VAL:O	3:G:128:VAL:HG13	2.20	0.42
1:I:127:GLU:HG2	1:I:128:GLU:H	1.84	0.42
1:I:198:CYS:HB3	1:I:201:THR:OG1	2.19	0.42
1:I:251:MET:CG	1:I:534:CYS:HB3	2.44	0.42
1:I:525:ILE:HA	1:I:525:ILE:HD13	1.78	0.42
2:J:52:LYS:HG3	2:J:101:ASP:OD2	2.20	0.42
2:J:171:LEU:HD13	2:J:175:SER:HB2	2.01	0.42
1:M:5:HIS:O	1:M:6:THR:HG23	2.19	0.42
1:M:216:THR:HG21	1:M:236:GLY:HA3	2.01	0.42
1:M:287:PHE:O	1:M:290:ASP:HB2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:318:VAL:HB	1:M:319:LYS:C	2.44	0.42
2:N:117:ILE:HD11	2:N:178:ARG:HG2	2.01	0.42
3:O:54:GLY:O	3:O:58:PHE:N	2.53	0.42
3:C:84:ALA:O	3:C:85:ARG:C	2.62	0.42
3:C:187:LYS:HB2	3:C:187:LYS:HE2	1.69	0.42
1:E:26:MET:SD	1:E:171:TYR:CZ	3.13	0.42
1:E:127:GLU:HG2	1:E:128:GLU:H	1.83	0.42
1:E:484:ARG:NH1	1:E:549:HIS:HA	2.33	0.42
3:G:34:PHE:CE2	9:G:301:HEM:HMC2	2.55	0.42
1:I:224:LYS:CG	1:I:473:HIS:HB3	2.27	0.42
1:I:280:LEU:HB3	1:I:284:GLN:HA	2.01	0.42
1:I:334:GLY:O	1:I:338:ILE:HB	2.19	0.42
2:J:67:MET:O	2:J:73:PRO:HA	2.18	0.42
3:K:79:HIS:HE1	9:K:302:HEM:C1D	2.37	0.42
9:K:302:HEM:HBB2	9:K:302:HEM:CMB	2.49	0.42
1:M:244:GLY:O	1:M:571:LYS:HE3	2.19	0.42
1:M:273:ARG:CZ	1:M:273:ARG:HB3	2.50	0.42
1:M:544:GLU:OE1	1:M:545:SER:N	2.52	0.42
3:O:80:PHE:CD1	9:O:303:HEM:HBB2	2.55	0.42
3:O:167:VAL:HG12	9:O:303:HEM:CAC	2.49	0.42
1:A:55:LEU:HD12	1:A:57:ASN:HB2	2.02	0.42
1:A:356:ASN:OD1	1:A:358:ILE:HG12	2.19	0.42
3:C:104:LEU:HG	3:C:106:HIS:HB2	2.00	0.42
1:E:36:LEU:N	4:E:701:FAD:O2B	2.47	0.42
1:E:189:GLY:O	1:E:387:LYS:HB3	2.20	0.42
1:E:262:VAL:HG21	1:E:325:HIS:CB	2.50	0.42
1:E:480:VAL:CG2	1:E:484:ARG:HH21	2.33	0.42
3:G:12:GLN:C	3:G:13:ARG:HG2	2.44	0.42
1:I:7:ASP:OD2	1:I:29:LEU:HB3	2.20	0.42
1:I:454:ASP:O	1:I:459:ARG:NH1	2.52	0.42
1:I:608:PRO:N	1:I:609:PRO:CD	2.83	0.42
2:J:20:GLN:N	2:J:20:GLN:OE1	2.53	0.42
1:M:121:GLY:N	1:M:297:GLN:HG2	2.35	0.42
1:M:286:ARG:CZ	1:M:288:MET:HE1	2.49	0.42
1:M:537:TYR:CE2	1:M:579:LEU:HG	2.54	0.42
1:A:187:ASP:OD1	1:A:188:GLY:N	2.52	0.42
1:A:191:CYS:HB2	1:A:386:LEU:HD22	2.00	0.42
3:C:182:GLY:HA3	3:C:186:ARG:HB2	2.02	0.42
1:E:255:GLN:HB2	1:E:372:MET:HE1	2.00	0.42
1:E:389:LEU:C	1:E:390:PHE:CD1	2.96	0.42
1:E:420:TYR:O	1:E:424:ARG:HG2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:7:LEU:O	2:F:25:THR:HA	2.19	0.42
2:F:137:MET:HG3	2:F:138:ASP:H	1.84	0.42
3:G:61:ALA:HA	3:G:64:MET:HG3	2.01	0.42
3:G:87:MET:HE3	3:G:116:VAL:HG13	2.02	0.42
3:G:149:GLN:HA	3:G:150:SER:C	2.44	0.42
1:I:156:THR:O	1:I:160:VAL:HG22	2.20	0.42
2:J:11:ARG:HH21	2:J:51:LEU:HA	1.85	0.42
2:J:95:PHE:CD2	2:J:95:PHE:C	2.97	0.42
3:K:62:THR:CG2	3:K:139:ILE:HB	2.50	0.42
1:M:236:GLY:O	1:M:239:ILE:HG12	2.19	0.42
1:M:262:VAL:HG23	1:M:365:ARG:CZ	2.49	0.42
1:A:220:GLY:HA3	1:A:228:ASN:OD1	2.19	0.42
2:B:213:ALA:O	2:B:217:VAL:HG22	2.20	0.42
3:C:147:ARG:CG	3:C:148:LEU:N	2.81	0.42
1:E:369:HIS:CD2	1:E:405:ARG:NH2	2.88	0.42
1:E:391:SER:OG	1:E:396:ALA:HB2	2.20	0.42
1:E:555:PRO:O	1:E:601:VAL:HG21	2.20	0.42
1:E:570:TRP:HZ3	1:E:577:PRO:HB3	1.85	0.42
2:F:199:ILE:O	2:F:205:VAL:HG12	2.19	0.42
2:J:6:THR:O	2:J:88:ILE:HD12	2.20	0.42
2:J:96:PHE:O	2:J:97:GLN:C	2.63	0.42
1:M:235:GLY:HA2	1:M:524:ARG:HH21	1.84	0.42
1:M:316:LEU:HD23	1:M:319:LYS:H	1.85	0.42
3:O:172:TYR:HA	3:O:189:PHE:CE2	2.54	0.42
1:A:16:ALA:O	1:A:17:GLY:C	2.61	0.42
1:A:95:ILE:H	1:A:95:ILE:HG13	1.61	0.42
1:A:164:LEU:HD12	1:A:164:LEU:HA	1.69	0.42
1:A:261:THR:O	1:A:265:ASP:HA	2.20	0.42
1:A:282:VAL:HB	1:A:316:LEU:O	2.20	0.42
3:C:172:TYR:CD1	3:C:189:PHE:HE1	2.38	0.42
1:E:70:PHE:O	1:E:74:VAL:HG23	2.19	0.42
2:F:148:LEU:HD21	2:F:223:PRO:HG2	2.02	0.42
1:I:64:ASP:OD1	1:I:146:ALA:HB3	2.19	0.42
1:I:259:THR:HG21	1:I:273:ARG:HE	1.82	0.42
1:I:343:ARG:O	1:I:345:VAL:N	2.50	0.42
2:J:1:MET:HG2	2:J:30:GLU:OE2	2.19	0.42
2:J:201:ASN:OD1	2:J:201:ASN:N	2.52	0.42
3:K:12:GLN:HG2	3:K:13:ARG:CG	2.43	0.42
3:K:34:PHE:HZ	9:K:301:HEM:CHC	2.33	0.42
1:M:262:VAL:HG13	1:M:263:PRO:CD	2.48	0.42
1:M:513:LYS:HE2	2:N:13:ASN:CG	2.42	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:O:156:TYR:O	3:O:160:LEU:N	2.38	0.42
3:O:196:MET:HE3	3:O:196:MET:HB3	1.90	0.42
1:A:20:VAL:HG11	1:A:213:LEU:CD1	2.51	0.41
1:A:222:ILE:HG21	1:A:222:ILE:HD13	1.81	0.41
1:A:270:GLU:N	5:A:702:FUM:C	2.72	0.41
1:A:339:THR:OG1	1:A:343:ARG:HA	2.20	0.41
1:A:342:LEU:HA	1:A:342:LEU:HD12	1.74	0.41
2:B:34:MET:O	2:B:81:THR:HG23	2.21	0.41
1:E:405:ARG:NH1	1:E:407:GLY:HA2	2.34	0.41
1:E:476:MET:CE	1:E:480:VAL:HG11	2.50	0.41
2:F:34:MET:HA	2:F:38:ILE:HD12	2.01	0.41
3:G:48:SER:HA	3:G:210:ARG:CZ	2.49	0.41
4:I:701:FAD:H8A	4:I:701:FAD:H2B	1.68	0.41
3:K:19:ARG:O	3:K:22:PHE:HB3	2.20	0.41
1:M:365:ARG:HG2	1:M:366:PRO:N	2.32	0.41
1:M:405:ARG:HH21	1:M:408:GLY:H	1.67	0.41
2:N:200:GLY:O	2:N:206:PHE:CE2	2.73	0.41
3:O:151:GLY:N	3:O:152:TRP:CA	2.73	0.41
2:B:227:GLN:O	2:B:230:ILE:HG13	2.20	0.41
3:C:100:HIS:HE2	3:C:104:LEU:HD22	1.86	0.41
1:E:114:LYS:O	1:E:114:LYS:HG3	2.18	0.41
1:E:590:MET:HB3	1:E:590:MET:HE2	1.56	0.41
1:I:503:SER:HA	1:I:506:ILE:HD11	2.02	0.41
1:I:523:LEU:HD12	1:I:524:ARG:N	2.35	0.41
1:I:560:LYS:HE3	1:I:603:ILE:HG22	2.02	0.41
2:J:11:ARG:HB3	2:J:22:ARG:HG3	2.02	0.41
3:K:35:LEU:HD23	3:K:39:MET:HG2	2.02	0.41
1:M:181:ALA:H	4:M:701:FAD:C2A	2.33	0.41
1:M:238:ILE:HD13	1:M:527:GLY:HA3	2.02	0.41
1:M:512:CYS:HA	1:M:516:ASN:ND2	2.33	0.41
1:A:226:THR:HA	1:A:368:HIS:HB3	2.02	0.41
1:A:361:LEU:HD12	1:A:361:LEU:N	2.35	0.41
3:C:39:MET:HE2	3:C:39:MET:HA	2.02	0.41
3:C:40:MET:HB3	11:C:304:MQ7:C17	2.42	0.41
3:C:97:PHE:CE1	3:C:112:TRP:CE3	3.01	0.41
1:E:68:VAL:HB	1:E:148:ARG:NH2	2.35	0.41
1:E:355:VAL:HG11	1:E:362:ILE:HD13	2.01	0.41
1:E:461:GLY:CA	1:E:505:LYS:HB3	2.50	0.41
3:G:145:ALA:HB2	3:G:211:PHE:HD1	1.85	0.41
1:I:376:ARG:HG3	1:I:384:TYR:CE2	2.55	0.41
2:J:107:GLY:O	2:J:111:ARG:HG3	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:94:TRP:HH2	3:K:117:ILE:HD11	1.85	0.41
1:M:22:VAL:HG13	1:M:26:MET:HE2	2.03	0.41
1:M:247:PRO:HG3	1:M:569:TYR:CZ	2.55	0.41
1:M:500:TYR:HB2	1:M:529:LEU:CD1	2.50	0.41
9:O:302:HEM:HBD1	9:O:302:HEM:HMD2	2.01	0.41
1:A:5:HIS:HE1	1:M:5:HIS:CE1	2.33	0.41
1:A:270:GLU:N	5:A:702:FUM:O	2.32	0.41
2:B:177:MET:SD	2:B:222:ILE:HG21	2.61	0.41
1:E:515:MET:HA	1:E:515:MET:CE	2.50	0.41
1:E:579:LEU:HD23	1:E:579:LEU:HA	1.94	0.41
3:G:129:HIS:HA	3:G:132:VAL:HG12	2.01	0.41
1:I:25:SER:C	1:I:28:GLY:H	2.28	0.41
1:I:87:ARG:HD2	1:I:87:ARG:HA	1.82	0.41
1:I:139:ARG:HG3	1:I:139:ARG:HH11	1.85	0.41
1:I:472:MET:HE1	1:I:528:MET:CE	2.50	0.41
3:K:53:ASN:OD1	3:K:139:ILE:HG23	2.20	0.41
1:M:48:GLN:HB3	1:M:154:ASP:OD1	2.20	0.41
1:A:242:ASP:OD2	1:A:530:LYS:NZ	2.44	0.41
1:A:258:PRO:HA	1:A:366:PRO:HA	2.02	0.41
2:B:177:MET:O	2:B:180:ALA:HB3	2.20	0.41
3:C:187:LYS:O	3:C:190:GLN:N	2.53	0.41
3:G:171:PHE:HA	3:G:174:ILE:HG22	2.03	0.41
1:I:362:ILE:O	1:I:364:VAL:HG13	2.21	0.41
1:I:585:SER:C	1:I:586:PRO:O	2.62	0.41
2:J:96:PHE:CZ	2:J:158:VAL:HG21	2.56	0.41
1:M:6:THR:HA	1:M:30:LYS:CG	2.50	0.41
1:M:216:THR:HG21	1:M:236:GLY:CA	2.50	0.41
1:M:273:ARG:HH21	1:M:275:ASP:CG	2.28	0.41
1:M:308:MET:HG2	1:M:326:LEU:CD1	2.49	0.41
1:M:333:LEU:HD22	1:M:337:HIS:HB2	2.02	0.41
2:N:129:ASP:OD2	2:N:130:PRO:HD2	2.21	0.41
1:A:94:PRO:HB3	1:A:98:ARG:NH1	2.36	0.41
1:A:546:ARG:NH2	1:A:559:ASP:OD1	2.53	0.41
1:A:614:ILE:O	1:A:616:GLU:N	2.54	0.41
3:C:94:TRP:O	3:C:95:LYS:C	2.64	0.41
3:C:143:LYS:O	3:C:146:ALA:N	2.52	0.41
1:E:541:ASP:O	1:E:562:TRP:HH2	2.03	0.41
1:E:566:THR:HG22	1:E:579:LEU:HD22	2.03	0.41
3:G:32:ILE:HD12	3:G:167:VAL:HB	2.01	0.41
3:G:100:HIS:NE2	3:G:104:LEU:HD22	2.36	0.41
1:I:55:LEU:HD11	1:I:138:ALA:HB2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:110:PHE:CD1	2:J:153:GLU:HG3	2.55	0.41
3:O:172:TYR:CD1	3:O:172:TYR:C	2.98	0.41
3:O:182:GLY:HA3	3:O:183:ARG:C	2.45	0.41
1:A:245:LEU:C	1:A:385:GLY:HA3	2.46	0.41
1:A:264:THR:O	1:A:265:ASP:HB2	2.19	0.41
1:A:446:LYS:O	1:A:450:GLU:HB3	2.21	0.41
1:A:541:ASP:O	1:A:562:TRP:CH2	2.73	0.41
2:B:40:LEU:HD11	2:B:90:LEU:CD1	2.50	0.41
1:E:100:VAL:HG22	1:E:103:TRP:HE3	1.86	0.41
1:E:261:THR:CG2	1:E:263:PRO:HD2	2.51	0.41
1:E:270:GLU:H	5:E:702:FUM:C	2.30	0.41
1:E:403:PHE:HZ	1:E:542:ARG:NH1	2.19	0.41
2:F:68:VAL:HG23	2:F:91:HIS:O	2.21	0.41
3:G:60:GLU:HA	3:G:61:ALA:HA	1.81	0.41
3:G:88:PRO:HD2	3:G:116:VAL:HG21	2.02	0.41
3:G:131:PHE:HE2	3:K:153:LEU:HD12	1.85	0.41
1:I:159:SER:O	1:I:163:THR:HG23	2.21	0.41
1:I:292:GLU:HA	1:I:293:PRO:HD3	1.94	0.41
1:I:480:VAL:HG23	1:I:484:ARG:NE	2.35	0.41
2:J:157:CYS:O	2:J:161:CYS:HB2	2.21	0.41
3:K:154:TYR:O	3:K:154:TYR:CG	2.73	0.41
1:M:51:MET:HE1	1:M:415:VAL:HB	2.03	0.41
1:M:93:ALA:HA	1:M:416:VAL:CG2	2.50	0.41
1:M:306:ARG:HD2	1:M:482:ILE:CG2	2.50	0.41
1:M:485:ASN:HB3	1:M:552:GLU:OE2	2.21	0.41
3:O:46:ILE:HD11	3:O:210:ARG:CZ	2.50	0.41
3:C:176:VAL:O	3:C:177:LYS:HB2	2.21	0.41
1:E:195:ILE:HA	1:E:206:ALA:HA	2.03	0.41
1:E:306:ARG:NE	1:E:550:THR:HG21	2.36	0.41
1:E:533:GLN:HA	1:E:536:ALA:HB3	2.03	0.41
1:E:605:ASN:C	1:E:608:PRO:HD2	2.46	0.41
2:F:2:ASN:O	2:F:2:ASN:ND2	2.33	0.41
3:G:39:MET:SD	3:G:43:SER:HB2	2.60	0.41
3:G:207:THR:O	3:G:211:PHE:CD2	2.73	0.41
1:I:86:ALA:O	1:I:90:ALA:HB2	2.21	0.41
1:I:199:LEU:HD23	1:I:515:MET:HE1	2.03	0.41
1:I:335:GLU:O	1:I:337:HIS:N	2.54	0.41
3:K:41:LEU:HD22	3:K:63:TYR:CE1	2.55	0.41
1:A:191:CYS:HB2	1:A:386:LEU:CD2	2.51	0.41
1:A:257:HIS:CE1	1:A:301:ARG:NH1	2.89	0.41
1:A:500:TYR:HA	1:A:503:SER:OG	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:53:VAL:HG12	2:B:102:LEU:HD12	2.02	0.41
2:B:84:LEU:HD23	2:B:88:ILE:HD12	2.03	0.41
2:B:117:ILE:HD11	2:B:178:ARG:NH1	2.36	0.41
2:B:145:ILE:HG12	2:B:184:LEU:HD12	2.03	0.41
2:B:223:PRO:O	2:B:227:GLN:HB2	2.21	0.41
3:C:60:GLU:HG3	3:C:64:MET:N	2.36	0.41
3:C:95:LYS:HE2	3:O:9:HIS:HB3	2.02	0.41
3:C:205:LEU:O	3:C:205:LEU:HD23	2.21	0.41
1:E:15:LEU:HA	1:E:15:LEU:HD12	1.69	0.41
4:E:701:FAD:O2'	4:E:701:FAD:H9	2.21	0.41
2:F:5:LEU:HB2	2:F:28:VAL:O	2.20	0.41
3:G:154:TYR:CG	3:G:155:LEU:N	2.89	0.41
1:I:46:ALA:O	1:I:48:GLN:HG3	2.21	0.41
1:I:261:THR:HB	1:I:266:ILE:O	2.21	0.41
1:I:560:LYS:HE3	1:I:560:LYS:HB2	1.92	0.41
1:I:585:SER:O	1:I:586:PRO:O	2.39	0.41
1:I:611:LYS:HA	1:I:614:ILE:HD11	2.02	0.41
2:J:141:LEU:HA	2:J:144:GLU:HB2	2.03	0.41
2:J:172:GLY:O	2:J:176:ILE:HG13	2.21	0.41
3:K:55:ILE:HA	3:K:58:PHE:CE2	2.55	0.41
3:K:58:PHE:C	3:K:58:PHE:CD1	2.98	0.41
3:K:126:GLY:O	3:K:130:MET:HB2	2.21	0.41
1:M:41:ARG:HB3	2:N:62:CYS:HB2	2.03	0.41
1:M:98:ARG:O	1:M:101:ALA:HB3	2.21	0.41
1:M:120:GLY:C	1:M:297:GLN:HG2	2.45	0.41
1:M:139:ARG:C	1:M:149:THR:HG22	2.45	0.41
1:M:152:THR:O	1:M:152:THR:OG1	2.39	0.41
1:M:513:LYS:HB2	1:M:513:LYS:HE3	1.69	0.41
1:M:546:ARG:CZ	1:M:562:TRP:HB2	2.49	0.41
1:M:572:GLU:HB3	1:M:573:GLY:C	2.46	0.41
2:N:35:THR:HG22	2:N:80:GLN:HG2	2.02	0.41
3:O:129:HIS:HE1	9:O:302:HEM:C1A	2.38	0.41
1:A:192:LEU:HA	1:A:192:LEU:HD23	1.83	0.41
1:A:216:THR:HG21	1:A:236:GLY:H	1.85	0.41
1:A:405:ARG:HE	1:A:410:SER:HG	1.52	0.41
1:A:439:GLN:C	1:A:443:ASP:HB2	2.44	0.41
1:A:460:LYS:O	1:A:462:LYS:N	2.54	0.41
1:A:538:GLY:HA2	1:A:579:LEU:HD11	2.02	0.41
3:C:41:LEU:N	11:C:304:MQ7:C14	2.74	0.41
3:C:161:PRO:O	3:C:165:LEU:HB2	2.21	0.41
1:E:405:ARG:NH2	5:E:702:FUM:O7	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:509:SER:N	1:E:518:GLU:OE1	2.54	0.41
1:E:544:GLU:OE1	1:E:557:ARG:O	2.38	0.41
1:I:262:VAL:CG2	1:I:363:PRO:HB2	2.51	0.41
1:I:278:THR:HB	1:I:329:ASP:CB	2.49	0.41
1:I:459:ARG:CB	1:I:460:LYS:HA	2.50	0.41
1:I:508:LEU:HB2	1:I:518:GLU:CD	2.46	0.41
3:K:33:LEU:O	3:K:36:TRP:HB2	2.21	0.41
1:M:235:GLY:O	1:M:238:ILE:N	2.54	0.41
1:M:467:LYS:O	1:M:471:GLU:HG3	2.21	0.41
4:M:701:FAD:H8A	4:M:701:FAD:H2B	1.62	0.41
2:N:128:PHE:N	2:N:129:ASP:HB3	2.36	0.41
3:O:72:VAL:O	3:O:76:MET:HB3	2.20	0.41
3:O:164:GLU:HG2	3:O:200:PHE:CB	2.48	0.41
10:O:301:LMT:H122	10:O:301:LMT:H92	1.80	0.41
1:A:114:LYS:HA	1:A:127:GLU:HA	2.03	0.40
1:A:201:THR:OG1	1:A:202:GLY:N	2.54	0.40
1:A:241:LEU:HD13	1:A:248:MET:HG2	2.03	0.40
1:E:34:LEU:CD2	1:E:176:HIS:HB2	2.50	0.40
1:E:279:LEU:O	1:E:286:ARG:HA	2.21	0.40
2:F:7:LEU:HD12	2:F:43:ILE:HD11	2.02	0.40
3:G:165:LEU:O	3:G:169:VAL:HG23	2.21	0.40
1:I:117:TYR:CD1	1:I:126:ALA:HB3	2.43	0.40
1:I:278:THR:CB	1:I:329:ASP:HB3	2.50	0.40
1:I:281:ASP:O	1:I:327:TRP:HD1	2.05	0.40
1:I:452:ILE:O	1:I:456:VAL:HG23	2.21	0.40
3:K:153:LEU:O	3:K:156:TYR:HE2	2.04	0.40
1:M:279:LEU:C	1:M:280:LEU:HD23	2.45	0.40
2:N:84:LEU:HA	2:N:84:LEU:HD13	1.77	0.40
2:N:110:PHE:CD2	2:N:153:GLU:HG2	2.56	0.40
2:N:232:ARG:O	2:N:236:ALA:HB2	2.18	0.40
1:A:188:GLY:C	1:A:190:ASN:N	2.76	0.40
1:A:204:LEU:H	1:A:204:LEU:HG	1.46	0.40
2:B:68:VAL:HB	2:B:91:HIS:HB2	2.02	0.40
3:C:156:TYR:HB3	9:C:301:HEM:HAD1	2.02	0.40
1:E:461:GLY:HA3	1:E:505:LYS:HB3	2.02	0.40
1:E:545:SER:OG	1:E:551:ARG:N	2.46	0.40
2:F:94:PRO:C	2:F:96:PHE:N	2.76	0.40
3:G:15:LYS:HA	3:G:15:LYS:HD3	1.92	0.40
3:G:201:ILE:HD13	3:G:201:ILE:HG21	1.88	0.40
1:I:339:THR:O	1:I:343:ARG:HA	2.22	0.40
1:I:411:LEU:O	1:I:415:VAL:HG23	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:157:LEU:CD2	3:K:158:VAL:HG23	2.52	0.40
3:K:160:LEU:HD12	3:K:160:LEU:HA	1.83	0.40
1:M:413:GLU:O	1:M:413:GLU:HG2	2.21	0.40
1:M:417:ALA:O	1:M:421:ILE:HG12	2.20	0.40
1:M:424:ARG:HA	1:M:424:ARG:HD3	1.77	0.40
1:M:438:MET:HA	1:M:441:VAL:HG12	2.02	0.40
1:M:499:LEU:HA	1:M:502:ARG:HB2	2.03	0.40
2:N:93:LEU:O	2:N:104:VAL:HG11	2.21	0.40
2:N:127:ALA:C	2:N:129:ASP:HB3	2.46	0.40
2:N:150:ARG:HE	2:N:150:ARG:HB2	1.78	0.40
3:O:94:TRP:CD1	10:O:301:LMT:H21	2.56	0.40
3:O:139:ILE:HA	3:O:143:LYS:NZ	2.36	0.40
1:A:25:SER:OG	1:A:171:TYR:HB3	2.22	0.40
1:A:251:MET:O	1:A:535:THR:HG23	2.20	0.40
1:A:288:MET:HE1	1:A:307:ARG:HB2	2.03	0.40
1:A:343:ARG:C	1:A:345:VAL:N	2.79	0.40
1:A:475:ILE:CD1	1:A:495:LYS:HD3	2.52	0.40
2:B:73:PRO:HG3	2:B:160:ALA:HB2	2.04	0.40
2:B:206:PHE:CE2	3:C:18:GLY:HA2	2.56	0.40
3:C:9:HIS:O	3:C:10:VAL:C	2.64	0.40
3:C:131:PHE:CD2	3:O:128:VAL:HB	2.57	0.40
3:C:187:LYS:HA	3:C:190:GLN:HB2	2.03	0.40
1:E:1:MET:C	1:E:2:GLN:HG3	2.41	0.40
1:E:199:LEU:HA	1:E:515:MET:HE3	2.03	0.40
1:E:324:ASP:OD1	1:E:324:ASP:N	2.52	0.40
1:E:490:GLN:HG2	1:E:540:LEU:HD22	2.03	0.40
1:E:508:LEU:H	1:E:508:LEU:HD23	1.87	0.40
3:G:111:MET:HE3	3:G:169:VAL:HG21	2.01	0.40
3:G:155:LEU:HA	3:G:155:LEU:HD23	1.81	0.40
1:I:98:ARG:O	1:I:101:ALA:HB3	2.21	0.40
1:I:264:THR:C	1:I:266:ILE:N	2.80	0.40
1:I:466:PHE:CZ	2:J:45:ASP:HA	2.57	0.40
2:J:118:GLU:OE1	2:J:122:HIS:NE2	2.55	0.40
3:K:171:PHE:CA	3:K:174:ILE:HG22	2.46	0.40
1:M:40:ARG:HH12	2:N:178:ARG:HH12	1.69	0.40
1:M:51:MET:CE	1:M:412:ALA:HA	2.30	0.40
1:M:246:VAL:HG23	1:M:384:TYR:CB	2.51	0.40
1:M:503:SER:OG	1:M:504:GLN:N	2.54	0.40
1:A:33:MET:HE2	1:A:33:MET:HB3	1.95	0.40
2:B:162:GLY:O	2:B:166:MET:HB2	2.21	0.40
3:C:6:ILE:CD1	3:C:7:THR:HG22	2.45	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:59:PHE:CD2	3:C:60:GLU:HG2	2.55	0.40
1:E:251:MET:H	1:E:251:MET:HG3	1.76	0.40
1:E:319:LYS:HA	1:E:319:LYS:HD3	1.90	0.40
2:F:225:GLN:NE2	3:G:186:ARG:HH11	2.14	0.40
3:G:198:ILE:HG13	3:G:198:ILE:H	1.73	0.40
1:I:517:PRO:HG2	2:J:50:THR:HA	2.02	0.40
1:I:542:ARG:HA	1:I:562:TRP:CH2	2.55	0.40
3:K:5:THR:CG2	3:K:6:ILE:N	2.84	0.40
3:K:6:ILE:CG2	3:K:7:THR:H	2.18	0.40
3:K:31:LEU:HB2	3:K:75:LEU:HD21	2.03	0.40
3:K:164:GLU:HA	3:K:167:VAL:HG22	2.04	0.40
1:M:219:TYR:CE2	1:M:371:SER:HB3	2.57	0.40
2:N:147:GLU:O	2:N:150:ARG:HG2	2.22	0.40
3:O:206:LEU:O	3:O:210:ARG:HG2	2.21	0.40
1:A:270:GLU:C	1:A:272:CYS:N	2.78	0.40
1:A:281:ASP:HB3	1:A:311:HIS:NE2	2.36	0.40
2:B:26:PHE:CD2	2:B:43:ILE:HG23	2.56	0.40
2:B:129:ASP:HB3	2:B:131:THR:HG22	2.03	0.40
3:C:149:GLN:O	3:C:151:GLY:O	2.40	0.40
1:E:185:ILE:HD13	1:E:441:VAL:HG23	2.03	0.40
1:E:285:TYR:OH	1:E:290:ASP:OD1	2.26	0.40
1:E:287:PHE:HZ	1:E:308:MET:HG2	1.86	0.40
1:E:349:CYS:HA	1:E:353:LEU:HD22	2.03	0.40
1:E:609:PRO:O	1:E:610:GLU:C	2.63	0.40
1:I:121:GLY:CA	1:I:286:ARG:HH12	2.26	0.40
1:I:242:ASP:OD2	1:I:530:LYS:NZ	2.51	0.40
3:K:171:PHE:CD2	3:K:193:GLU:OE2	2.72	0.40
1:M:6:THR:HG21	1:M:32:ILE:CG1	2.49	0.40
1:M:234:GLY:O	1:M:237:GLN:HB2	2.21	0.40
2:N:158:VAL:H	2:N:158:VAL:HG22	1.51	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:187:LYS:NZ	1:M:285:TYR:OH[1_454]	1.97	0.23
2:F:27:THR:OG1	1:I:575:SER:OG[2_545]	2.19	0.01

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 X-ray entries followed by that with respect to entries of similar resolution.

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	620/627 (99%)	556 (90%)	59 (10%)	5 (1%)	16	51
1	E	620/627 (99%)	558 (90%)	61 (10%)	1 (0%)	44	73
1	I	620/627 (99%)	552 (89%)	63 (10%)	5 (1%)	16	51
1	M	620/627 (99%)	550 (89%)	65 (10%)	5 (1%)	16	51
2	B	238/264 (90%)	216 (91%)	21 (9%)	1 (0%)	30	63
2	F	238/264 (90%)	209 (88%)	28 (12%)	1 (0%)	30	63
2	J	238/264 (90%)	215 (90%)	21 (9%)	2 (1%)	16	51
2	N	238/264 (90%)	207 (87%)	25 (10%)	6 (2%)	4	29
3	C	210/218 (96%)	180 (86%)	25 (12%)	5 (2%)	5	30
3	G	210/218 (96%)	181 (86%)	27 (13%)	2 (1%)	13	46
3	K	210/218 (96%)	180 (86%)	29 (14%)	1 (0%)	25	59
3	O	210/218 (96%)	181 (86%)	28 (13%)	1 (0%)	25	59
All	All	4272/4436 (96%)	3785 (89%)	452 (11%)	35 (1%)	16	51

All (35) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	C	149	GLN
3	C	150	SER
1	E	587	TYR
1	I	343	ARG
1	I	613	VAL
1	M	341	LYS
2	N	129	ASP
1	A	585	SER
1	A	587	TYR
3	C	10	VAL
3	C	136	ASP
2	F	203	GLN

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Mol	Chain	Res	Type
2	J	203	GLN
3	K	6	ILE
1	M	343	ARG
2	N	131	THR
1	A	187	ASP
2	B	202	ASP
3	G	6	ILE
1	I	585	SER
1	A	344	GLU
1	I	586	PRO
1	M	512	CYS
1	M	544	GLU
2	N	136	ARG
3	O	6	ILE
3	G	184	ASN
2	J	58	ARG
1	M	314	LYS
1	I	344	GLU
2	N	202	ASP
1	A	338	ILE
3	C	6	ILE
2	N	85	PRO
2	N	130	PRO

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	495/500 (99%)	489 (99%)	6 (1%)	67 82
1	E	494/500 (99%)	494 (100%)	0	100 100
1	I	494/500 (99%)	490 (99%)	4 (1%)	79 88
1	M	495/500 (99%)	492 (99%)	3 (1%)	84 92
2	B	208/228 (91%)	208 (100%)	0	100 100
2	F	208/228 (91%)	208 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	J	208/228 (91%)	207 (100%)	1 (0%)	86 93
2	N	208/228 (91%)	205 (99%)	3 (1%)	62 79
3	C	180/185 (97%)	178 (99%)	2 (1%)	70 83
3	G	180/185 (97%)	179 (99%)	1 (1%)	84 92
3	K	180/185 (97%)	180 (100%)	0	100 100
3	O	180/185 (97%)	178 (99%)	2 (1%)	70 83
All	All	3530/3652 (97%)	3508 (99%)	22 (1%)	84 92

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	168	CYS
1	A	384	TYR
1	A	400	MET
1	A	550	THR
1	A	585	SER
1	A	602	THR
3	C	53	ASN
3	C	149	GLN
3	G	157	LEU
1	I	5	HIS
1	I	36	LEU
1	I	261	THR
1	I	607	LEU
2	J	144	GLU
1	M	5	HIS
1	M	224	LYS
1	M	513	LYS
2	N	75	LEU
2	N	83	ASP
2	N	129	ASP
3	O	150	SER
3	O	152	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (54) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	43	HIS
1	A	57	ASN

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Mol	Chain	Res	Type
1	A	186	HIS
1	A	255	GLN
1	A	325	HIS
1	A	332	HIS
1	A	351	ASN
1	A	359	HIS
1	A	401	HIS
1	A	445	HIS
1	A	449	GLN
2	B	201	ASN
2	B	203	GLN
2	B	225	GLN
3	C	106	HIS
1	E	43	HIS
1	E	57	ASN
1	E	180	GLN
1	E	228	ASN
1	E	255	GLN
2	F	78	HIS
2	F	225	GLN
2	F	238	HIS
3	G	24	GLN
3	G	38	HIS
1	I	108	ASN
1	I	228	ASN
1	I	255	GLN
1	I	351	ASN
1	I	445	HIS
1	I	473	HIS
1	I	516	ASN
2	J	8	ASN
2	J	13	ASN
2	J	80	GLN
2	J	91	HIS
2	J	227	GLN
3	K	100	HIS
3	K	190	GLN
1	M	5	HIS
1	M	228	ASN
1	M	255	GLN
1	M	311	HIS
1	M	332	HIS

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Mol	Chain	Res	Type
1	M	401	HIS
1	M	490	GLN
1	M	494	ASN
1	M	504	GLN
1	M	549	HIS
2	N	8	ASN
2	N	91	HIS
2	N	225	GLN
3	O	53	ASN
3	O	129	HIS

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

31 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	$\#\|Z\| > 2$
5	FUM	E	702	-	7,7,7	1.62	1 (14%)	8,8,8	0.92	0
6	F3S	B	301	2	0,9,9	-	-	-		
8	FES	J	303	2	0,4,4	-	-	-		

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	FUM	M	702	-	7,7,7	1.37	0	8,8,8	1.19	1 (12%)
4	FAD	A	701	-	53,58,58	3.60	18 (33%)	68,89,89	2.38	21 (30%)
8	FES	F	303	2	0,4,4	-	-	-		
9	HEM	C	302	3	41,50,50	1.76	7 (17%)	45,82,82	1.51	8 (17%)
7	SF4	J	302	2	0,12,12	-	-	-		
5	FUM	A	702	-	7,7,7	1.53	1 (14%)	8,8,8	1.23	2 (25%)
9	HEM	C	301	3	41,50,50	1.76	8 (19%)	45,82,82	1.45	5 (11%)
9	HEM	K	301	3	41,50,50	1.77	8 (19%)	45,82,82	2.63	12 (26%)
8	FES	B	303	2	0,4,4	-	-	-		
4	FAD	I	701	-	53,58,58	3.77	18 (33%)	68,89,89	2.19	21 (30%)
8	FES	N	303	2	0,4,4	-	-	-		
4	FAD	M	701	-	53,58,58	3.66	15 (28%)	68,89,89	2.35	19 (27%)
7	SF4	B	302	2	0,12,12	-	-	-		
4	FAD	E	701	-	53,58,58	3.62	15 (28%)	68,89,89	2.27	15 (22%)
10	LMT	C	303	-	36,36,36	0.46	0	47,47,47	0.83	1 (2%)
10	LMT	O	301	-	36,36,36	0.40	0	47,47,47	0.69	1 (2%)
6	F3S	N	301	2	0,9,9	-	-	-		
9	HEM	O	302	3	41,50,50	1.54	5 (12%)	45,82,82	1.46	7 (15%)
11	MQ7	C	304	-	25,25,49	2.99	11 (44%)	31,34,63	1.60	4 (12%)
6	F3S	F	301	2	0,9,9	-	-	-		
9	HEM	G	302	3	41,50,50	1.72	7 (17%)	45,82,82	1.57	8 (17%)
9	HEM	K	302	3	41,50,50	1.68	6 (14%)	45,82,82	1.23	4 (8%)
7	SF4	N	302	2	0,12,12	-	-	-		
6	F3S	J	301	2	0,9,9	-	-	-		
7	SF4	F	302	2	0,12,12	-	-	-		
9	HEM	G	301	3	41,50,50	1.68	7 (17%)	45,82,82	1.67	9 (20%)
9	HEM	O	303	3	41,50,50	1.74	7 (17%)	45,82,82	1.92	12 (26%)
5	FUM	I	702	-	7,7,7	1.20	0	8,8,8	1.65	2 (25%)

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
5	FUM	E	702	-	-	4/5/5/5	-
6	F3S	B	301	2	-	-	0/3/3/3
8	FES	J	303	2	-	-	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	FUM	M	702	-	-	4/5/5/5	-
4	FAD	A	701	-	-	15/30/50/50	0/6/6/6
8	FES	F	303	2	-	-	0/1/1/1
9	HEM	C	302	3	-	1/12/54/54	-
7	SF4	J	302	2	-	-	0/6/5/5
5	FUM	A	702	-	-	4/5/5/5	-
9	HEM	C	301	3	-	6/12/54/54	-
9	HEM	K	301	3	-	5/12/54/54	-
8	FES	B	303	2	-	-	0/1/1/1
4	FAD	I	701	-	-	16/30/50/50	0/6/6/6
8	FES	N	303	2	-	-	0/1/1/1
4	FAD	M	701	-	-	12/30/50/50	0/6/6/6
7	SF4	B	302	2	-	-	0/6/5/5
4	FAD	E	701	-	-	13/30/50/50	0/6/6/6
10	LMT	C	303	-	-	13/21/61/61	0/2/2/2
10	LMT	O	301	-	-	10/21/61/61	0/2/2/2
6	F3S	N	301	2	-	-	0/3/3/3
9	HEM	O	302	3	-	10/12/54/54	-
11	MQ7	C	304	-	-	5/13/33/61	0/2/2/2
6	F3S	F	301	2	-	-	0/3/3/3
9	HEM	G	302	3	-	1/12/54/54	-
9	HEM	K	302	3	-	1/12/54/54	-
7	SF4	N	302	2	-	-	0/6/5/5
6	F3S	J	301	2	-	-	0/3/3/3
9	HEM	G	301	3	-	1/12/54/54	-
7	SF4	F	302	2	-	-	0/6/5/5
9	HEM	O	303	3	-	1/12/54/54	-
5	FUM	I	702	-	-	2/5/5/5	-

All (134) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	M	701	FAD	C2B-C1B	-16.32	1.29	1.53
4	E	701	FAD	O4B-C1B	15.44	1.62	1.41
4	I	701	FAD	C2B-C1B	-15.36	1.30	1.53
4	A	701	FAD	C2B-C1B	-15.34	1.30	1.53
4	I	701	FAD	O4B-C1B	15.20	1.62	1.41
4	E	701	FAD	C2B-C1B	-14.88	1.31	1.53
4	A	701	FAD	O4B-C1B	14.39	1.61	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	M	701	FAD	O4B-C1B	14.32	1.61	1.41
11	C	304	MQ7	C3-C2	8.56	1.50	1.35
4	I	701	FAD	C4X-N5	6.98	1.44	1.30
4	E	701	FAD	C4X-N5	6.69	1.43	1.30
4	A	701	FAD	O4B-C4B	-6.48	1.30	1.45
4	I	701	FAD	O4B-C4B	-6.12	1.31	1.45
4	A	701	FAD	C4X-N5	5.98	1.42	1.30
4	M	701	FAD	C4X-N5	5.82	1.42	1.30
4	E	701	FAD	O4B-C4B	-5.77	1.32	1.45
9	K	301	HEM	FE-NB	5.69	2.25	1.96
9	C	301	HEM	C3C-C2C	-5.55	1.32	1.40
4	M	701	FAD	O4B-C4B	-5.49	1.32	1.45
9	C	302	HEM	C3C-C2C	-5.44	1.32	1.40
11	C	304	MQ7	C5-C4	5.38	1.58	1.48
9	K	302	HEM	C3C-C2C	-5.37	1.32	1.40
11	C	304	MQ7	C10-C1	5.19	1.58	1.48
4	I	701	FAD	C10-N1	4.87	1.43	1.33
9	G	302	HEM	FE-ND	4.87	2.21	1.96
4	M	701	FAD	C10-N1	4.75	1.43	1.33
9	O	303	HEM	C3C-CAC	4.48	1.57	1.47
4	M	701	FAD	C9A-N10	4.39	1.48	1.41
11	C	304	MQ7	C11-C12	4.36	1.57	1.50
4	M	701	FAD	C2-N1	4.35	1.47	1.36
4	A	701	FAD	C10-N1	4.28	1.42	1.33
11	C	304	MQ7	C11-C3	4.23	1.58	1.51
9	G	301	HEM	C3C-C2C	-4.22	1.34	1.40
4	I	701	FAD	C2-N1	4.17	1.46	1.36
9	O	303	HEM	FE-ND	4.17	2.17	1.96
9	K	301	HEM	C3C-C2C	-4.14	1.34	1.40
4	A	701	FAD	O4-C4	-4.12	1.15	1.23
9	G	301	HEM	FE-ND	4.07	2.17	1.96
4	I	701	FAD	C9A-N10	4.07	1.48	1.41
9	G	302	HEM	C3C-C2C	-4.06	1.34	1.40
9	O	302	HEM	C3C-CAC	4.04	1.56	1.47
9	K	302	HEM	C3C-CAC	4.02	1.56	1.47
4	A	701	FAD	C2A-N3A	3.98	1.38	1.32
9	O	302	HEM	C3C-C2C	-3.88	1.35	1.40
9	C	301	HEM	FE-ND	3.87	2.16	1.96
9	O	303	HEM	C3C-C2C	-3.78	1.35	1.40
4	E	701	FAD	C10-N1	3.75	1.40	1.33
4	I	701	FAD	O4-C4	-3.75	1.16	1.23
9	G	301	HEM	C3C-CAC	3.74	1.55	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	C	302	HEM	C3C-CAC	3.71	1.55	1.47
4	E	701	FAD	C2A-N3A	3.69	1.38	1.32
9	K	302	HEM	FE-ND	3.65	2.14	1.96
9	K	301	HEM	C3C-CAC	3.65	1.55	1.47
4	E	701	FAD	C5X-N5	3.64	1.46	1.39
4	E	701	FAD	C2-N1	3.64	1.45	1.36
4	I	701	FAD	C2A-N3A	3.59	1.37	1.32
4	A	701	FAD	C6A-N6A	3.59	1.47	1.34
9	G	302	HEM	C3C-CAC	3.58	1.55	1.47
4	A	701	FAD	C2-N1	3.52	1.45	1.36
4	E	701	FAD	O4-C4	-3.48	1.17	1.23
4	M	701	FAD	C6A-N6A	3.45	1.46	1.34
4	I	701	FAD	C6A-N6A	3.45	1.46	1.34
4	I	701	FAD	O2B-C2B	3.41	1.51	1.43
4	E	701	FAD	C9A-N10	3.39	1.47	1.41
4	E	701	FAD	C2-N3	3.38	1.46	1.39
9	O	302	HEM	FE-ND	3.33	2.13	1.96
4	A	701	FAD	O2-C2	-3.31	1.18	1.24
4	M	701	FAD	C2A-N3A	3.31	1.37	1.32
4	M	701	FAD	O4-C4	-3.31	1.17	1.23
9	G	301	HEM	FE-NB	3.29	2.13	1.96
4	E	701	FAD	C6A-N6A	3.27	1.46	1.34
4	E	701	FAD	O2B-C2B	3.26	1.50	1.43
4	I	701	FAD	C5X-N5	3.25	1.45	1.39
4	M	701	FAD	C2-N3	3.16	1.46	1.39
9	C	301	HEM	C3C-CAC	3.07	1.54	1.47
11	C	304	MQ7	C15-C13	3.03	1.57	1.51
9	C	302	HEM	CAA-C2A	2.98	1.56	1.52
9	O	302	HEM	CAB-C3B	2.98	1.55	1.47
9	C	302	HEM	CAB-C3B	2.98	1.55	1.47
4	M	701	FAD	C10-N10	2.98	1.43	1.37
9	G	301	HEM	CAB-C3B	2.97	1.55	1.47
9	C	301	HEM	CAB-C3B	2.91	1.55	1.47
4	A	701	FAD	O3B-C3B	-2.90	1.36	1.43
4	A	701	FAD	O2B-C2B	2.89	1.49	1.43
9	K	301	HEM	CAB-C3B	2.88	1.55	1.47
4	I	701	FAD	C5A-C4A	-2.84	1.33	1.40
4	M	701	FAD	O2B-C2B	2.83	1.49	1.43
9	C	301	HEM	CAA-C2A	2.83	1.56	1.52
11	C	304	MQ7	C16-C17	2.81	1.59	1.50
9	O	303	HEM	CAB-C3B	2.81	1.55	1.47
4	M	701	FAD	C5X-N5	2.78	1.44	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	I	701	FAD	C2-N3	2.76	1.45	1.39
4	A	701	FAD	C5X-N5	2.74	1.44	1.39
11	C	304	MQ7	C20-C18	2.71	1.59	1.51
4	A	701	FAD	C9A-N10	2.70	1.45	1.41
9	O	303	HEM	CAA-C2A	2.64	1.55	1.52
4	E	701	FAD	C5A-C4A	-2.62	1.34	1.40
9	G	302	HEM	CAB-C3B	2.61	1.54	1.47
5	E	702	FUM	C4-C	2.61	1.54	1.48
4	A	701	FAD	C9A-C5X	-2.49	1.37	1.41
4	M	701	FAD	O3B-C3B	-2.48	1.37	1.43
9	K	302	HEM	CAB-C3B	2.41	1.54	1.47
9	G	302	HEM	CMB-C2B	2.37	1.55	1.50
11	C	304	MQ7	O1-C1	-2.37	1.18	1.23
4	A	701	FAD	C2-N3	2.36	1.44	1.39
4	A	701	FAD	C2A-N1A	2.36	1.38	1.33
4	I	701	FAD	C4'-C3'	-2.32	1.49	1.53
9	G	301	HEM	CMB-C2B	2.30	1.55	1.50
9	C	302	HEM	CAD-C3D	2.29	1.57	1.51
9	O	303	HEM	CMB-C2B	2.26	1.55	1.50
9	K	302	HEM	CAA-C2A	2.25	1.55	1.52
9	G	302	HEM	CAA-C2A	2.25	1.55	1.52
9	K	301	HEM	C3D-C2D	-2.25	1.31	1.36
4	E	701	FAD	O3B-C3B	-2.25	1.37	1.43
11	C	304	MQ7	C17-C18	2.23	1.38	1.33
4	I	701	FAD	C9-C9A	2.23	1.43	1.39
9	C	301	HEM	C1B-NB	-2.22	1.36	1.40
9	K	301	HEM	C4A-NA	2.22	1.40	1.36
9	K	301	HEM	CMB-C2B	2.21	1.55	1.50
4	I	701	FAD	O3B-C3B	-2.20	1.37	1.43
4	A	701	FAD	C10-N10	2.19	1.42	1.37
9	G	301	HEM	CAA-C2A	2.18	1.55	1.52
5	A	702	FUM	C4-C	2.18	1.53	1.48
9	C	301	HEM	CMD-C2D	2.17	1.55	1.50
9	O	303	HEM	C1A-NA	2.15	1.40	1.36
11	C	304	MQ7	O4-C4	-2.12	1.18	1.23
9	K	302	HEM	CMB-C2B	2.11	1.55	1.50
9	C	301	HEM	CMB-C2B	2.10	1.55	1.50
4	I	701	FAD	C6-C5X	2.09	1.43	1.40
9	C	302	HEM	CMB-C2B	2.09	1.55	1.50
9	O	302	HEM	CMB-C2B	2.07	1.55	1.50
9	K	301	HEM	C1A-NA	2.06	1.40	1.36
9	C	302	HEM	C3B-C2B	-2.06	1.33	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	G	302	HEM	C1A-NA	2.02	1.40	1.36

All (152) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	E	701	FAD	C7M-C7-C6	-8.74	103.33	119.49
4	M	701	FAD	C7M-C7-C6	-8.13	104.46	119.49
4	A	701	FAD	C7M-C7-C6	-8.11	104.50	119.49
4	E	701	FAD	C7M-C7-C8	7.69	136.50	120.74
4	A	701	FAD	C7M-C7-C8	7.33	135.76	120.74
9	K	301	HEM	CAD-C3D-C2D	-7.04	114.77	127.88
4	M	701	FAD	C7M-C7-C8	6.94	134.96	120.74
9	K	301	HEM	CAD-C3D-C4D	6.84	136.62	124.66
4	I	701	FAD	C7M-C7-C6	-6.46	107.55	119.49
4	A	701	FAD	N3A-C2A-N1A	-6.39	118.70	128.68
4	E	701	FAD	N3A-C2A-N1A	-6.35	118.75	128.68
9	K	301	HEM	C4C-CHD-C1D	6.17	130.71	122.56
4	I	701	FAD	C7M-C7-C8	6.15	133.33	120.74
11	C	304	MQ7	C11-C12-C13	-6.14	116.56	126.79
4	I	701	FAD	N3A-C2A-N1A	-6.10	119.15	128.68
9	K	301	HEM	CBA-CAA-C2A	-5.75	102.81	112.62
4	M	701	FAD	N3A-C2A-N1A	-5.68	119.80	128.68
4	M	701	FAD	O4B-C1B-C2B	-5.64	98.68	106.93
9	O	303	HEM	CBA-CAA-C2A	5.63	122.22	112.62
9	K	301	HEM	CHD-C1D-ND	5.40	130.30	124.43
4	A	701	FAD	C5A-C6A-N6A	5.39	128.54	120.35
4	A	701	FAD	C4-N3-C2	-5.31	115.84	125.64
9	G	302	HEM	CBA-CAA-C2A	-5.11	103.91	112.62
9	C	301	HEM	CBA-CAA-C2A	4.97	121.10	112.62
9	O	303	HEM	C4C-CHD-C1D	4.81	128.91	122.56
4	E	701	FAD	C5A-C6A-N6A	4.80	127.65	120.35
4	I	701	FAD	O4B-C1B-C2B	-4.64	100.14	106.93
4	M	701	FAD	C4'-C3'-C2'	-4.44	104.13	113.36
9	G	301	HEM	C4C-CHD-C1D	-4.39	116.76	122.56
4	M	701	FAD	C5A-C6A-N6A	4.28	126.86	120.35
9	K	301	HEM	CAD-CBD-CGD	-4.23	104.50	113.60
4	E	701	FAD	C3B-C2B-C1B	4.04	107.06	100.98
9	K	301	HEM	C3D-C4D-ND	-4.02	105.69	110.17
9	K	301	HEM	C4D-ND-C1D	3.99	109.19	105.07
9	G	301	HEM	CAD-CBD-CGD	-3.98	105.04	113.60
4	A	701	FAD	N6A-C6A-N1A	-3.94	110.39	118.57
4	I	701	FAD	C1B-N9A-C4A	3.92	133.54	126.64

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	E	701	FAD	C4X-C10-N10	3.91	122.20	116.48
4	I	701	FAD	C5A-C6A-N6A	3.90	126.27	120.35
4	E	701	FAD	N6A-C6A-N1A	-3.88	110.53	118.57
4	M	701	FAD	C4-N3-C2	-3.86	118.51	125.64
9	C	302	HEM	C4C-CHD-C1D	3.81	127.59	122.56
4	E	701	FAD	C4-N3-C2	-3.81	118.61	125.64
9	O	303	HEM	CAA-CBA-CGA	-3.81	103.08	113.76
4	I	701	FAD	C4X-C4-N3	3.61	122.35	113.19
4	I	701	FAD	C4-N3-C2	-3.59	119.01	125.64
4	M	701	FAD	C4-C4X-C10	3.54	122.74	116.79
9	O	302	HEM	C4C-CHD-C1D	3.50	127.17	122.56
4	M	701	FAD	O4-C4-C4X	-3.47	117.39	126.60
4	A	701	FAD	O4-C4-C4X	-3.46	117.42	126.60
9	C	301	HEM	C4C-CHD-C1D	3.44	127.10	122.56
9	G	301	HEM	CAD-C3D-C4D	3.37	130.54	124.66
4	M	701	FAD	C2B-C3B-C4B	-3.34	96.15	102.64
11	C	304	MQ7	C19-C18-C20	3.32	119.78	115.98
9	K	301	HEM	CHA-C4D-C3D	3.30	131.51	125.33
4	I	701	FAD	P-O3P-PA	-3.30	121.52	132.83
9	G	301	HEM	CAD-C3D-C2D	-3.27	121.79	127.88
4	A	701	FAD	C4X-C4-N3	3.26	121.48	113.19
5	I	702	FUM	C5-C4-C	-3.26	110.51	127.26
9	O	303	HEM	CMA-C3A-C4A	-3.24	123.48	128.46
4	A	701	FAD	C3B-C2B-C1B	3.24	105.85	100.98
9	O	303	HEM	C2C-C3C-C4C	3.20	109.14	106.90
4	I	701	FAD	O4'-C4'-C5'	3.20	117.12	109.92
9	G	301	HEM	CBA-CAA-C2A	-3.19	107.18	112.62
9	G	302	HEM	C4B-CHC-C1C	3.11	126.67	122.56
9	C	301	HEM	CMA-C3A-C4A	-3.09	123.72	128.46
4	A	701	FAD	O2-C2-N1	-3.08	116.72	121.83
4	A	701	FAD	C4X-C10-N1	-3.08	117.58	124.73
4	M	701	FAD	C4X-C10-N1	-3.08	117.59	124.73
9	K	302	HEM	CBA-CAA-C2A	-3.08	107.37	112.62
4	E	701	FAD	C4X-C4-N3	3.06	120.95	113.19
9	G	302	HEM	CHA-C4D-ND	3.00	128.09	124.38
4	A	701	FAD	C4-C4X-C10	3.00	121.83	116.79
11	C	304	MQ7	C14-C13-C12	-2.99	116.01	123.68
4	E	701	FAD	O4-C4-C4X	-2.98	118.71	126.60
9	G	302	HEM	C2C-C3C-C4C	2.97	108.97	106.90
4	I	701	FAD	C4-C4X-N5	2.95	122.42	118.23
4	A	701	FAD	C4X-C10-N10	2.91	120.73	116.48
4	I	701	FAD	C4X-C10-N10	2.83	120.62	116.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	701	FAD	C4'-C3'-C2'	-2.83	107.48	113.36
9	C	302	HEM	C2C-C3C-C4C	2.83	108.87	106.90
9	G	301	HEM	C4D-ND-C1D	2.79	107.95	105.07
9	O	303	HEM	CHD-C1D-C2D	2.77	129.31	124.98
9	O	302	HEM	CAA-CBA-CGA	-2.76	106.02	113.76
4	A	701	FAD	O2'-C2'-C3'	-2.75	102.40	109.10
9	C	302	HEM	CHD-C1D-C2D	2.74	129.26	124.98
9	O	302	HEM	C1B-NB-C4B	2.67	107.83	105.07
9	C	302	HEM	CHB-C1B-NB	-2.66	121.10	124.38
4	I	701	FAD	N6A-C6A-N1A	-2.65	113.08	118.57
4	I	701	FAD	O2'-C2'-C1'	-2.64	103.40	109.80
9	O	302	HEM	CMD-C2D-C1D	-2.61	121.06	125.04
4	I	701	FAD	C10-N1-C2	2.61	122.13	116.90
4	I	701	FAD	C3B-C2B-C1B	2.61	104.90	100.98
4	M	701	FAD	C4X-C4-N3	2.60	119.78	113.19
9	G	301	HEM	CMA-C3A-C4A	-2.60	124.47	128.46
9	O	303	HEM	CMD-C2D-C1D	2.59	128.99	125.04
9	O	303	HEM	C3C-C4C-NC	-2.55	106.13	110.94
4	A	701	FAD	C5X-C9A-N10	2.52	120.56	117.95
9	C	302	HEM	C4B-CHC-C1C	2.51	125.87	122.56
4	M	701	FAD	N6A-C6A-N1A	-2.50	113.39	118.57
4	M	701	FAD	C3B-C2B-C1B	2.49	104.73	100.98
10	O	301	LMT	C1B-O1B-C4'	-2.49	111.80	117.96
4	M	701	FAD	O3'-C3'-C4'	2.48	114.80	108.81
11	C	304	MQ7	C15-C13-C12	2.47	126.12	121.12
4	E	701	FAD	C1'-N10-C9A	2.46	124.61	120.51
9	C	302	HEM	CMA-C3A-C4A	-2.45	124.70	128.46
4	I	701	FAD	C10-C4X-N5	-2.43	119.69	124.86
4	A	701	FAD	C5B-C4B-C3B	-2.41	106.14	115.18
5	M	702	FUM	C5-C4-C	-2.39	114.96	127.26
4	I	701	FAD	C4'-C3'-C2'	-2.39	108.40	113.36
9	O	303	HEM	C1D-C2D-C3D	2.38	109.45	106.96
4	I	701	FAD	C9A-C5X-N5	-2.36	119.86	122.43
4	M	701	FAD	C5'-C4'-C3'	-2.36	107.65	112.20
4	A	701	FAD	C10-C4X-N5	-2.35	119.86	124.86
9	O	302	HEM	C4A-C3A-C2A	2.34	108.62	107.00
9	C	302	HEM	CAA-CBA-CGA	-2.32	107.26	113.76
9	K	301	HEM	CAA-CBA-CGA	-2.31	107.28	113.76
9	C	301	HEM	CHA-C4D-ND	-2.31	121.53	124.38
4	E	701	FAD	O2-C2-N1	-2.30	118.02	121.83
9	O	303	HEM	CHC-C4B-C3B	2.30	128.09	124.57
9	K	302	HEM	C4C-CHD-C1D	2.30	125.59	122.56

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	O	302	HEM	C3B-C2B-C1B	2.27	108.17	106.49
9	O	303	HEM	C4A-C3A-C2A	2.26	108.57	107.00
9	G	302	HEM	CAD-CBD-CGD	-2.26	108.75	113.60
5	A	702	FUM	OXT-C-O	-2.25	117.99	122.67
4	E	701	FAD	O2'-C2'-C1'	-2.25	104.36	109.80
4	I	701	FAD	C2B-C3B-C4B	-2.25	98.27	102.64
4	I	701	FAD	O4-C4-C4X	-2.25	120.64	126.60
9	O	303	HEM	C2D-C1D-ND	-2.24	107.19	109.88
4	M	701	FAD	O3'-C3'-C2'	2.20	114.12	108.81
9	G	302	HEM	C4A-C3A-C2A	2.19	108.52	107.00
9	C	301	HEM	C2C-C3C-C4C	2.16	108.41	106.90
4	A	701	FAD	C5'-C4'-C3'	-2.15	108.05	112.20
9	K	301	HEM	C2D-C1D-ND	-2.14	107.31	109.88
5	I	702	FUM	C4-C5-C6	-2.14	116.29	127.26
9	K	301	HEM	C1D-C2D-C3D	2.13	109.20	106.96
9	G	302	HEM	C3C-C4C-NC	-2.13	106.92	110.94
4	A	701	FAD	N3-C2-N1	2.12	123.55	119.38
9	K	302	HEM	O1A-CGA-CBA	-2.12	116.28	123.08
9	G	302	HEM	CMA-C3A-C4A	-2.11	125.22	128.46
5	A	702	FUM	C4-C5-C6	-2.09	116.50	127.26
9	C	302	HEM	CHD-C1D-ND	-2.09	122.16	124.43
9	G	301	HEM	C3C-C4C-NC	-2.09	107.00	110.94
4	M	701	FAD	C4X-C10-N10	2.08	119.52	116.48
4	M	701	FAD	C5X-C9A-N10	2.08	120.10	117.95
9	K	302	HEM	C4B-CHC-C1C	-2.07	119.83	122.56
4	E	701	FAD	C10-C4X-N5	-2.07	120.47	124.86
4	A	701	FAD	O3'-C3'-C2'	2.05	113.77	108.81
10	C	303	LMT	C3B-C4B-C5B	2.04	113.87	110.24
4	E	701	FAD	C5X-C9A-N10	2.03	120.05	117.95
9	G	301	HEM	C3D-C4D-ND	-2.03	107.91	110.17
9	O	302	HEM	O1A-CGA-CBA	-2.01	116.64	123.08

There are no chirality outliers.

All (124) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	701	FAD	C5B-O5B-PA-O3P
4	A	701	FAD	C2'-C3'-C4'-C5'
4	A	701	FAD	O3'-C3'-C4'-C5'
4	E	701	FAD	C5B-O5B-PA-O1A
4	E	701	FAD	N10-C1'-C2'-O2'
4	E	701	FAD	N10-C1'-C2'-C3'

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Mol	Chain	Res	Type	Atoms
4	E	701	FAD	C1'-C2'-C3'-C4'
4	E	701	FAD	O2'-C2'-C3'-C4'
4	E	701	FAD	C2'-C3'-C4'-O4'
4	E	701	FAD	C2'-C3'-C4'-C5'
4	I	701	FAD	C5B-O5B-PA-O3P
4	I	701	FAD	N10-C1'-C2'-O2'
4	I	701	FAD	N10-C1'-C2'-C3'
4	I	701	FAD	C1'-C2'-C3'-O3'
4	I	701	FAD	C1'-C2'-C3'-C4'
4	I	701	FAD	O2'-C2'-C3'-O3'
4	I	701	FAD	O2'-C2'-C3'-C4'
4	I	701	FAD	C2'-C3'-C4'-C5'
4	M	701	FAD	C1'-C2'-C3'-O3'
4	M	701	FAD	C1'-C2'-C3'-C4'
4	M	701	FAD	C2'-C3'-C4'-O4'
4	M	701	FAD	C2'-C3'-C4'-C5'
4	M	701	FAD	O3'-C3'-C4'-O4'
4	M	701	FAD	O3'-C3'-C4'-C5'
5	A	702	FUM	O-C-C4-C5
9	C	301	HEM	C2A-CAA-CBA-CGA
9	C	301	HEM	C2D-C3D-CAD-CBD
9	C	301	HEM	C4D-C3D-CAD-CBD
9	G	301	HEM	C3D-CAD-CBD-CGD
9	O	302	HEM	C1A-C2A-CAA-CBA
9	O	302	HEM	C2D-C3D-CAD-CBD
10	C	303	LMT	C2-C1-O1'-C1'
11	C	304	MQ7	C17-C18-C20-C21
11	C	304	MQ7	C19-C18-C20-C21
10	C	303	LMT	O5B-C1B-O1B-C4'
5	A	702	FUM	OXT-C-C4-C5
5	E	702	FUM	OXT-C-C4-C5
9	O	302	HEM	C4D-C3D-CAD-CBD
10	C	303	LMT	C3'-C4'-O1B-C1B
10	C	303	LMT	C4B-C5B-C6B-O6B
10	C	303	LMT	O5B-C5B-C6B-O6B
4	A	701	FAD	O3'-C3'-C4'-O4'
4	E	701	FAD	O2'-C2'-C3'-O3'
4	M	701	FAD	O2'-C2'-C3'-O3'
5	E	702	FUM	O-C-C4-C5
5	E	702	FUM	C4-C5-C6-O8
5	M	702	FUM	C4-C5-C6-O8
4	A	701	FAD	C2'-C3'-C4'-O4'

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Mol	Chain	Res	Type	Atoms
4	I	701	FAD	C2'-C3'-C4'-O4'
4	M	701	FAD	O2'-C2'-C3'-C4'
9	K	301	HEM	C3D-CAD-CBD-CGD
11	C	304	MQ7	C14-C13-C15-C16
11	C	304	MQ7	C12-C13-C15-C16
4	E	701	FAD	O3'-C3'-C4'-C5'
4	I	701	FAD	O3'-C3'-C4'-C5'
5	A	702	FUM	C4-C5-C6-O7
5	E	702	FUM	C4-C5-C6-O7
5	M	702	FUM	C4-C5-C6-O7
10	C	303	LMT	C2B-C1B-O1B-C4'
5	A	702	FUM	C4-C5-C6-O8
5	I	702	FUM	C4-C5-C6-O7
5	I	702	FUM	C4-C5-C6-O8
9	K	301	HEM	C2A-CAA-CBA-CGA
10	C	303	LMT	C4'-C5'-C6'-O6'
11	C	304	MQ7	C13-C15-C16-C17
5	M	702	FUM	OXT-C-C4-C5
4	E	701	FAD	O3'-C3'-C4'-O4'
4	I	701	FAD	O3'-C3'-C4'-O4'
10	C	303	LMT	C11-C10-C9-C8
9	C	301	HEM	C3D-CAD-CBD-CGD
5	M	702	FUM	O-C-C4-C5
10	O	301	LMT	C5-C6-C7-C8
10	O	301	LMT	C11-C10-C9-C8
10	O	301	LMT	C2'-C1'-O1'-C1
9	K	301	HEM	C4D-C3D-CAD-CBD
9	O	302	HEM	C2A-CAA-CBA-CGA
4	A	701	FAD	O2'-C2'-C3'-O3'
10	O	301	LMT	C4-C5-C6-C7
9	O	302	HEM	C3D-CAD-CBD-CGD
10	O	301	LMT	C1-C2-C3-C4
9	K	301	HEM	C2D-C3D-CAD-CBD
4	M	701	FAD	P-O3P-PA-O1A
10	C	303	LMT	C3-C4-C5-C6
4	A	701	FAD	PA-O3P-P-O5'
4	E	701	FAD	PA-O3P-P-O5'
4	I	701	FAD	PA-O3P-P-O5'
4	M	701	FAD	PA-O3P-P-O5'
10	C	303	LMT	O1'-C1-C2-C3
10	O	301	LMT	C3'-C4'-O1B-C1B
10	C	303	LMT	O5'-C5'-C6'-O6'

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Mol	Chain	Res	Type	Atoms
10	C	303	LMT	C5'-C4'-O1B-C1B
10	O	301	LMT	C5'-C4'-O1B-C1B
10	O	301	LMT	C3-C4-C5-C6
4	M	701	FAD	C5'-O5'-P-O3P
4	A	701	FAD	P-O3P-PA-O2A
10	C	303	LMT	C5-C6-C7-C8
4	A	701	FAD	O2'-C2'-C3'-C4'
4	A	701	FAD	C5B-O5B-PA-O1A
4	I	701	FAD	C5B-O5B-PA-O1A
4	I	701	FAD	C5B-O5B-PA-O2A
4	E	701	FAD	C1'-C2'-C3'-O3'
9	O	302	HEM	C3A-C2A-CAA-CBA
10	O	301	LMT	C7-C8-C9-C10
9	G	302	HEM	C3D-CAD-CBD-CGD
4	A	701	FAD	O4B-C4B-C5B-O5B
9	C	302	HEM	C3D-CAD-CBD-CGD
9	K	302	HEM	C3D-CAD-CBD-CGD
9	O	303	HEM	C3D-CAD-CBD-CGD
4	I	701	FAD	P-O3P-PA-O2A
9	C	301	HEM	CAA-CBA-CGA-O2A
9	O	302	HEM	CAA-CBA-CGA-O2A
9	C	301	HEM	CAA-CBA-CGA-O1A
9	O	302	HEM	CAD-CBD-CGD-O2D
9	O	302	HEM	CAA-CBA-CGA-O1A
4	E	701	FAD	O4B-C4B-C5B-O5B
4	A	701	FAD	P-O3P-PA-O1A
4	A	701	FAD	C5B-O5B-PA-O2A
4	I	701	FAD	O4B-C4B-C5B-O5B
4	M	701	FAD	O4B-C4B-C5B-O5B
4	A	701	FAD	C1'-C2'-C3'-O3'
9	K	301	HEM	CAD-CBD-CGD-O1D
9	O	302	HEM	CAD-CBD-CGD-O1D
4	A	701	FAD	N10-C1'-C2'-O2'
10	O	301	LMT	C9-C10-C11-C12

There are no ring outliers.

25 monomers are involved in 228 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	E	702	FUM	5	0
5	M	702	FUM	5	0
4	A	701	FAD	2	0

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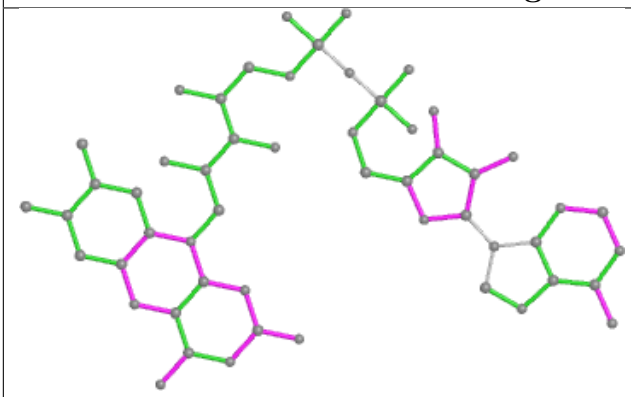
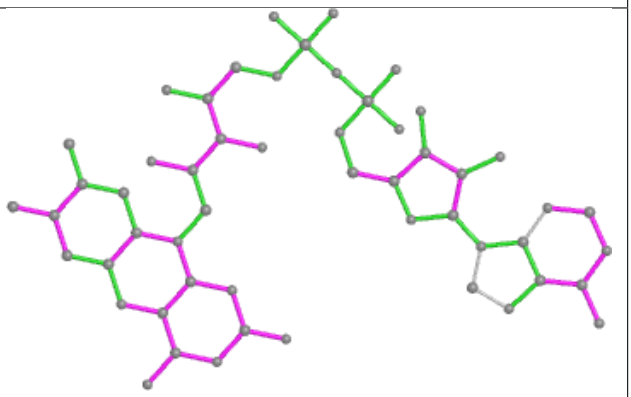
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	F	303	FES	1	0
9	C	302	HEM	8	0
5	A	702	FUM	7	0
9	C	301	HEM	15	0
9	K	301	HEM	12	0
8	B	303	FES	1	0
4	I	701	FAD	17	0
8	N	303	FES	1	0
4	M	701	FAD	13	0
7	B	302	SF4	1	0
4	E	701	FAD	4	0
10	C	303	LMT	31	0
10	O	301	LMT	24	0
9	O	302	HEM	11	0
11	C	304	MQ7	21	0
6	F	301	F3S	3	0
9	G	302	HEM	10	0
9	K	302	HEM	13	0
7	N	302	SF4	1	0
9	G	301	HEM	10	0
9	O	303	HEM	9	0
5	I	702	FUM	3	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.

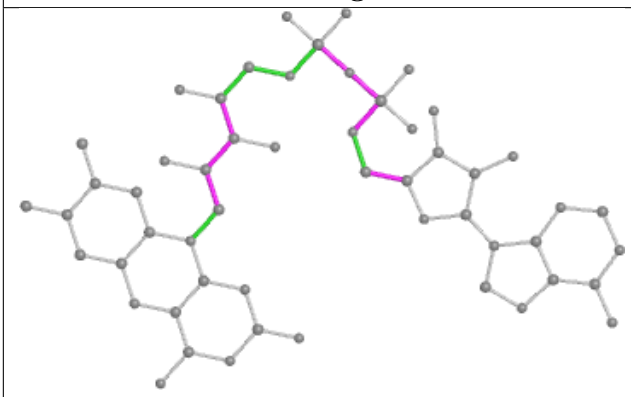
Ligand FAD A 701



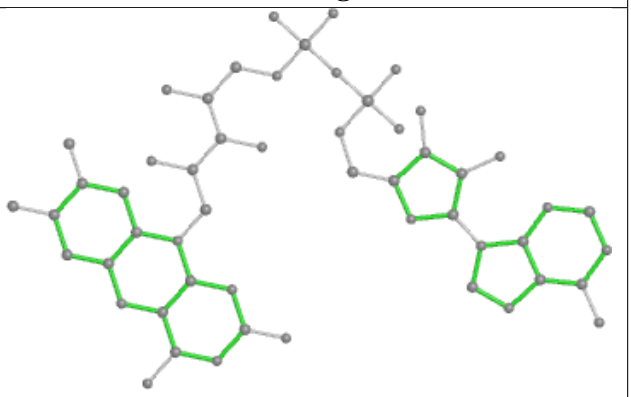
Bond lengths



Bond angles

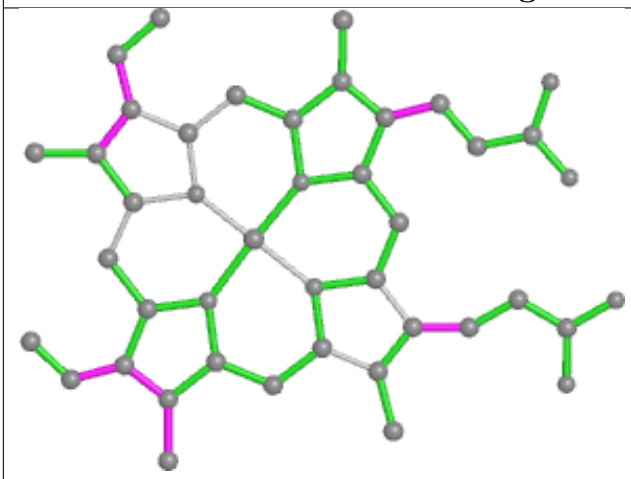


Torsions



Rings

Ligand HEM C 302



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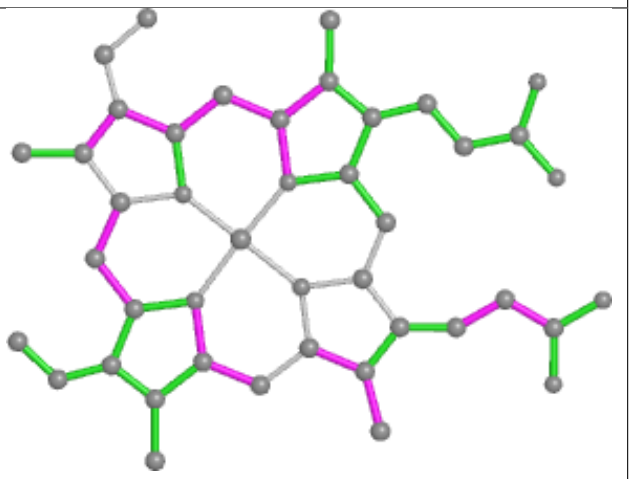
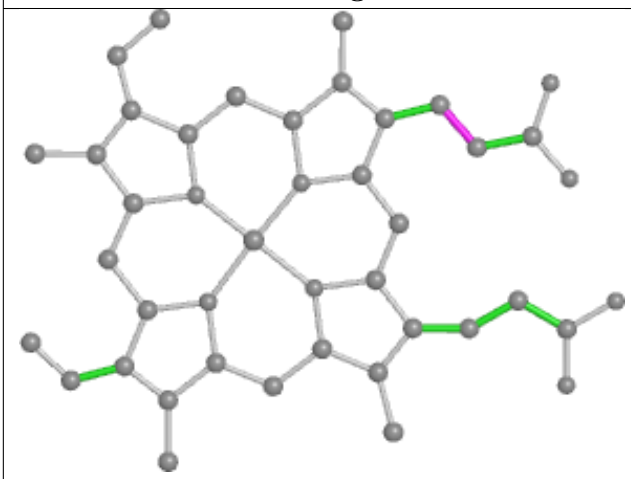


Bond angles



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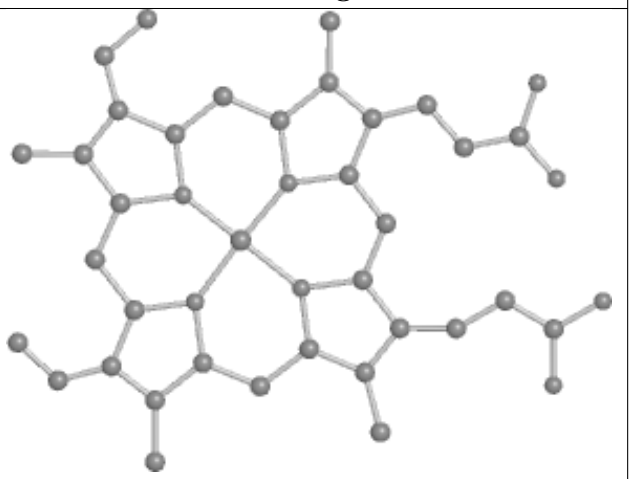
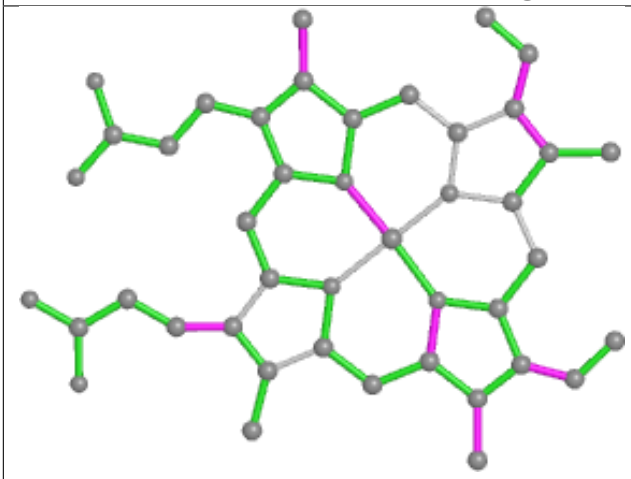


Rings

Ligand HEM C 301



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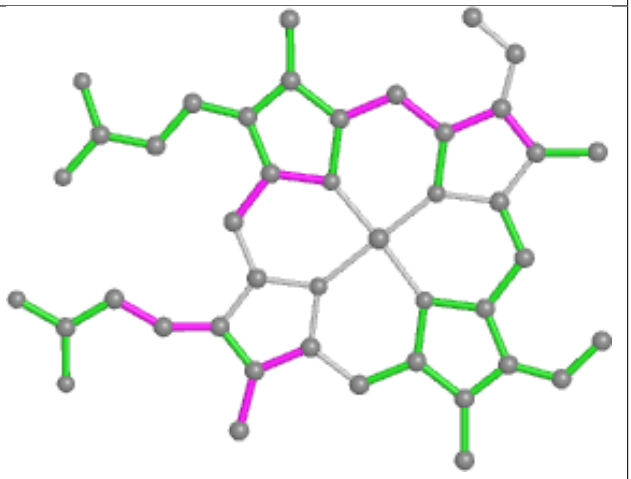
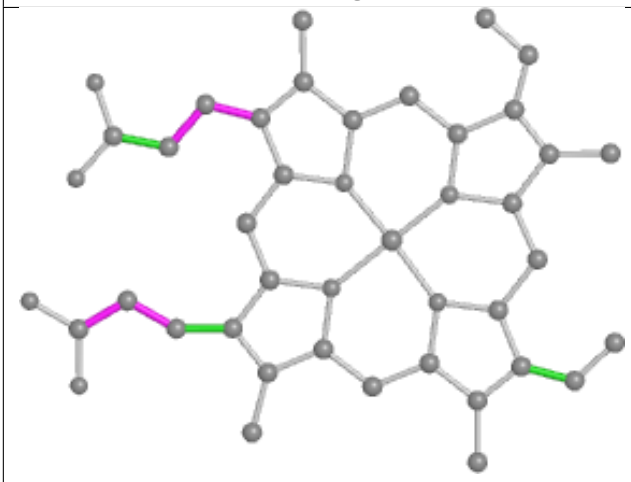


Bond angles



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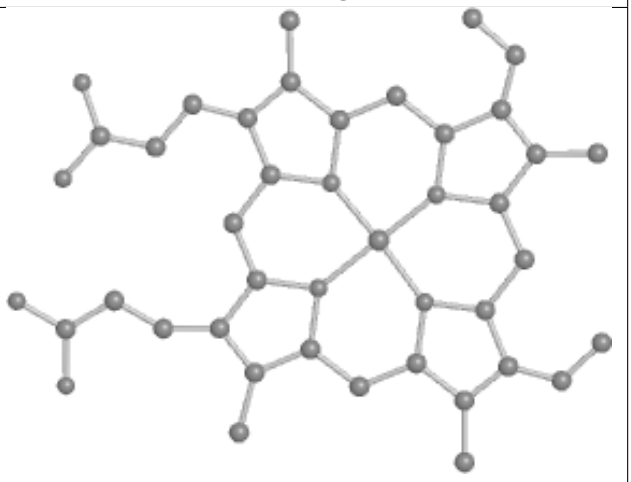

Rings

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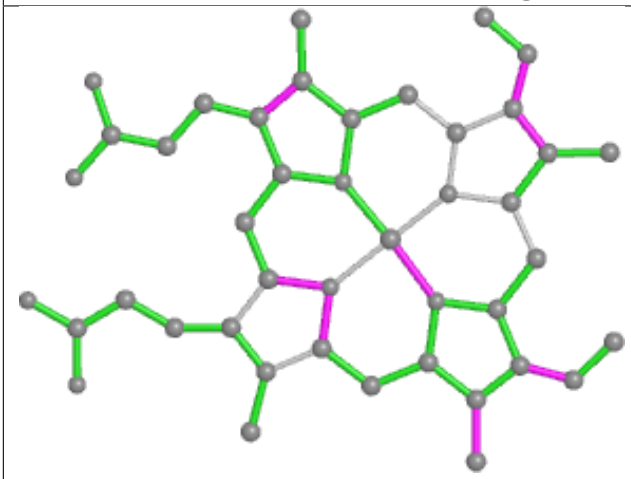

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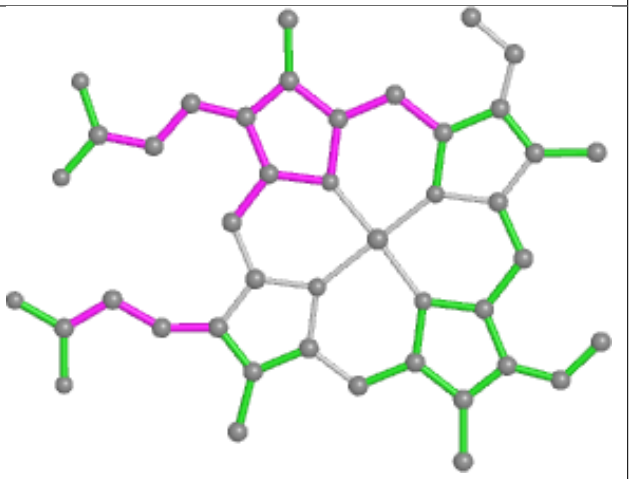

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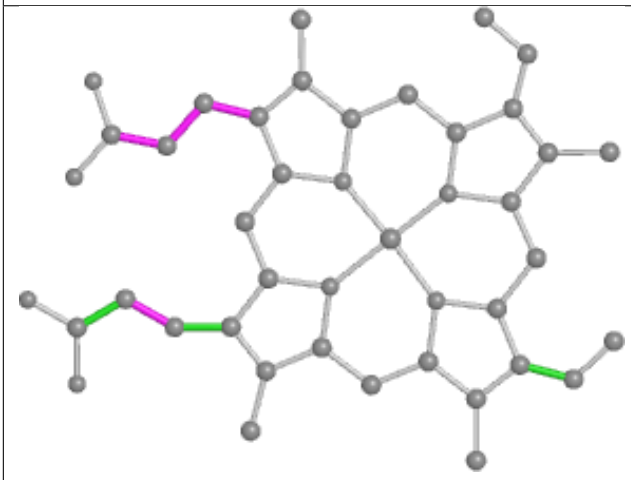

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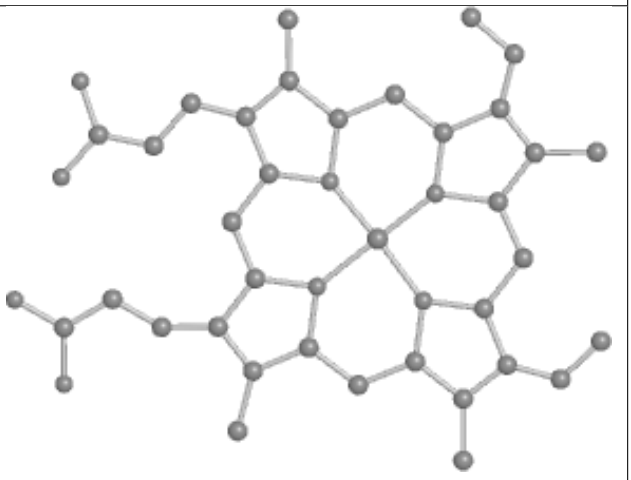
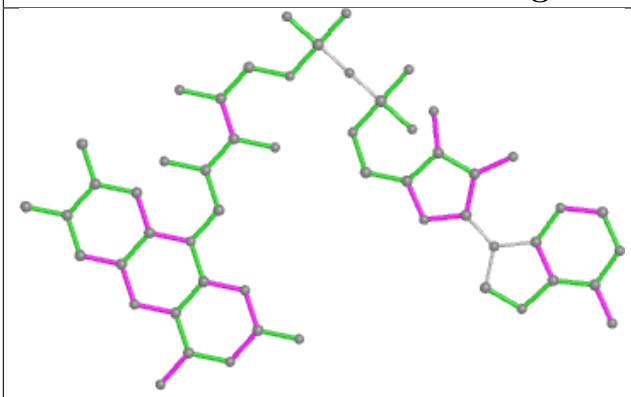


Rings

Ligand FAD I 701



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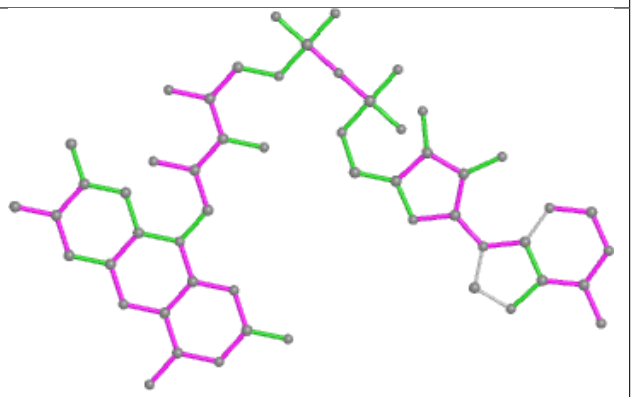

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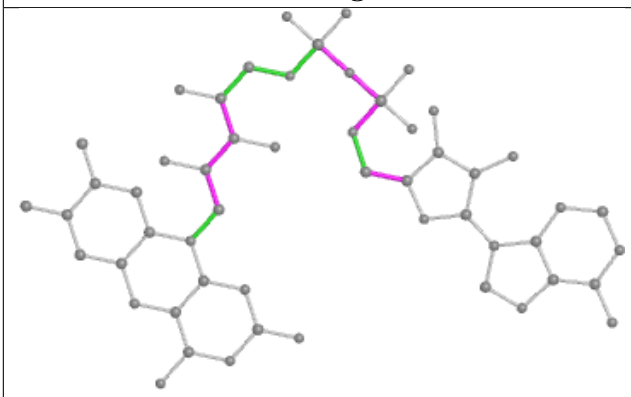

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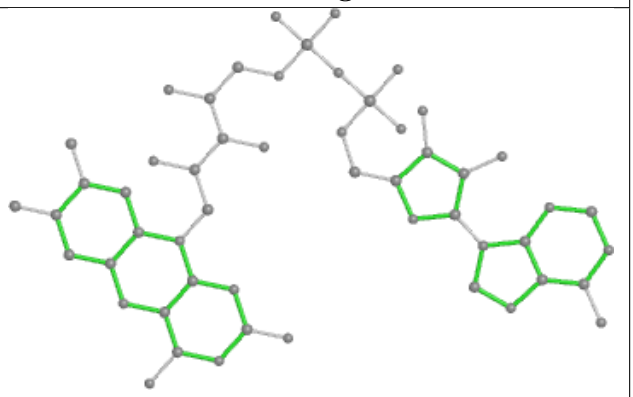
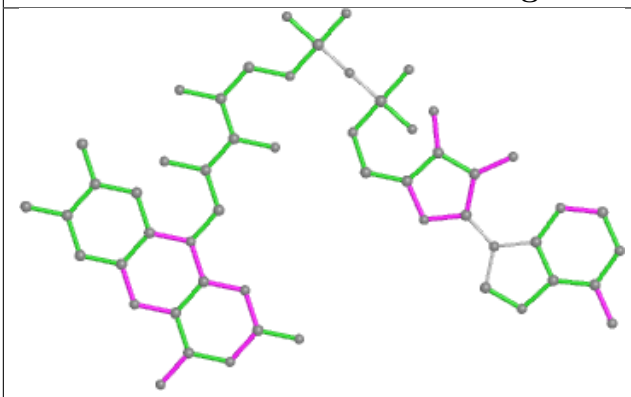


Rings

Ligand FAD M 701



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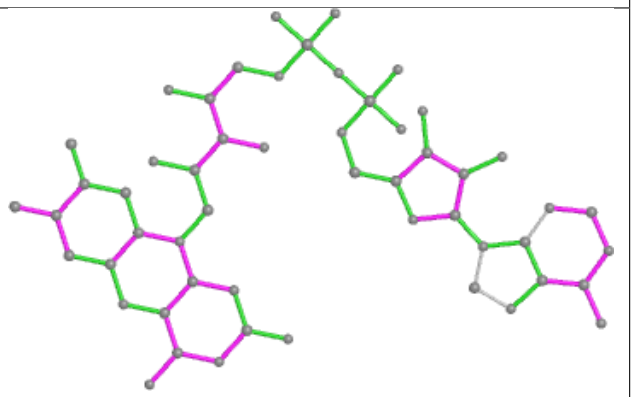

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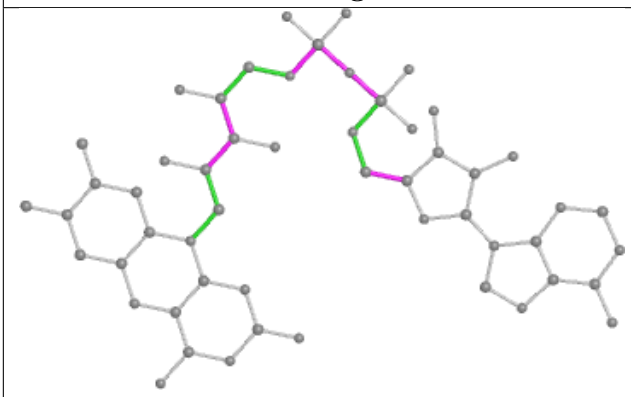

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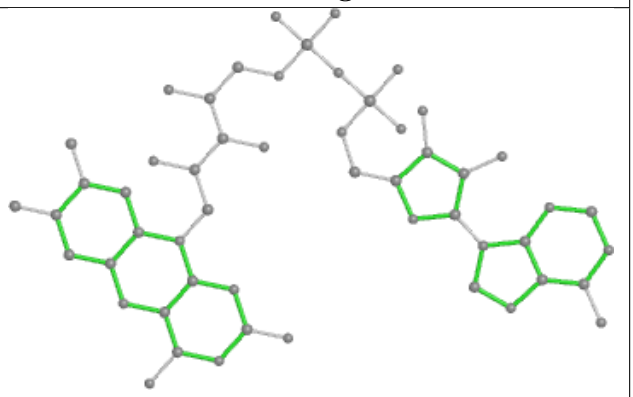
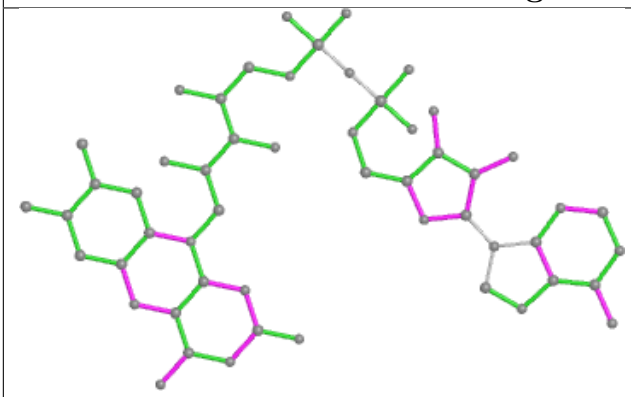


Rings

Ligand FAD E 701



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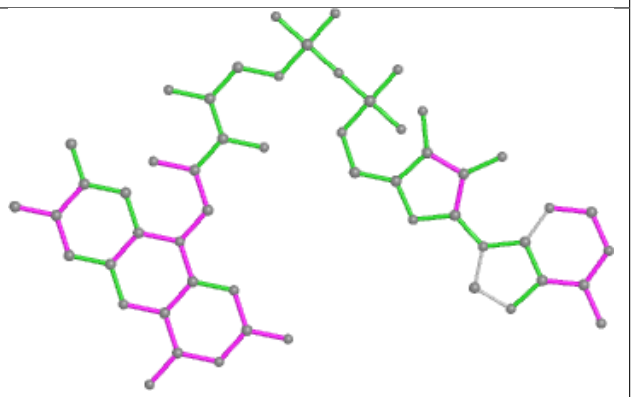

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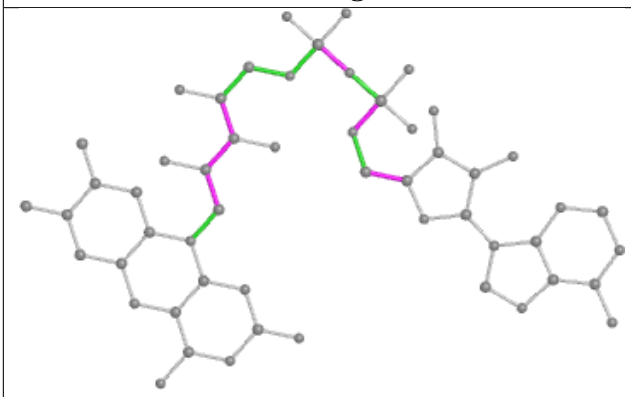

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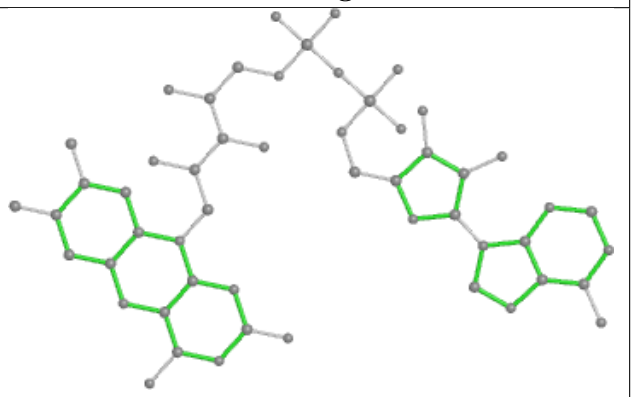
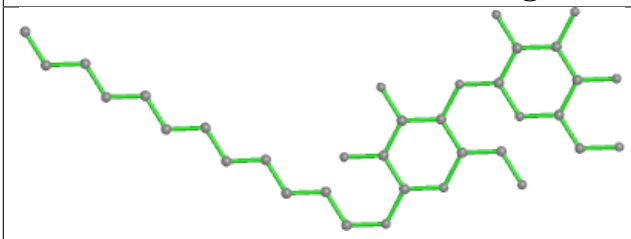


Rings

Ligand LMT C 303



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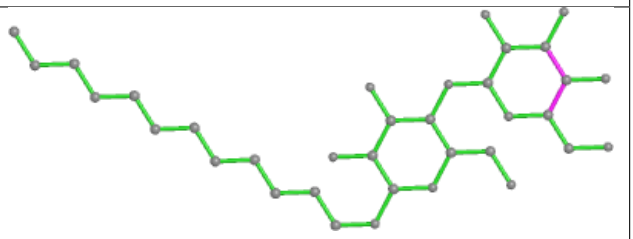

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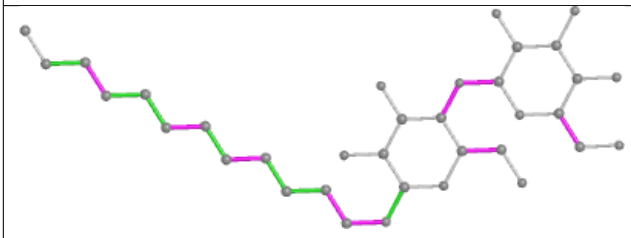

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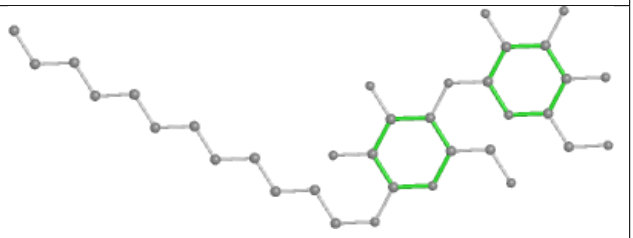
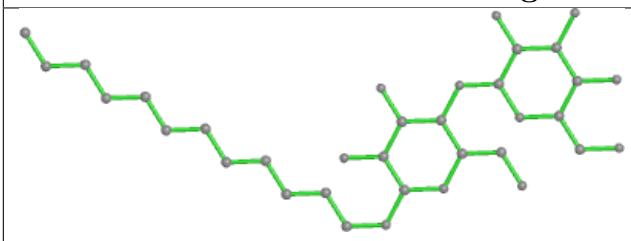


Rings

Ligand LMT O 301



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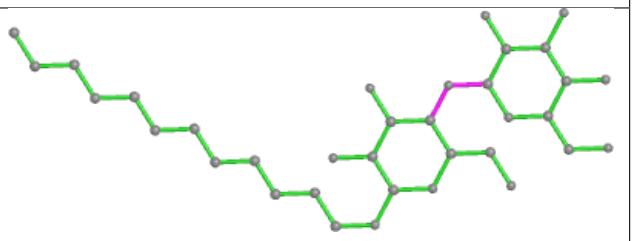
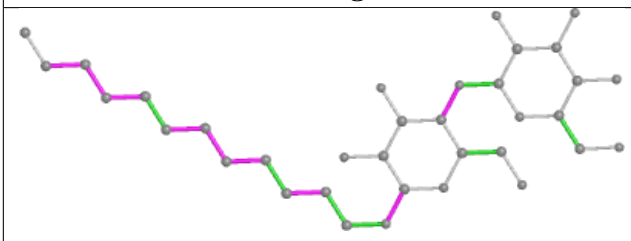


Bond angles



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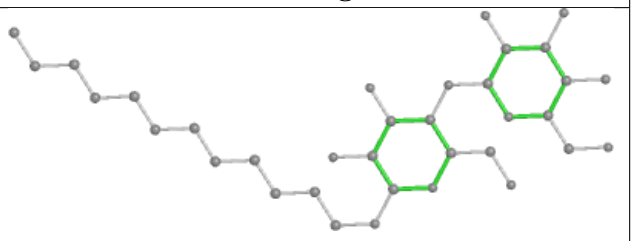
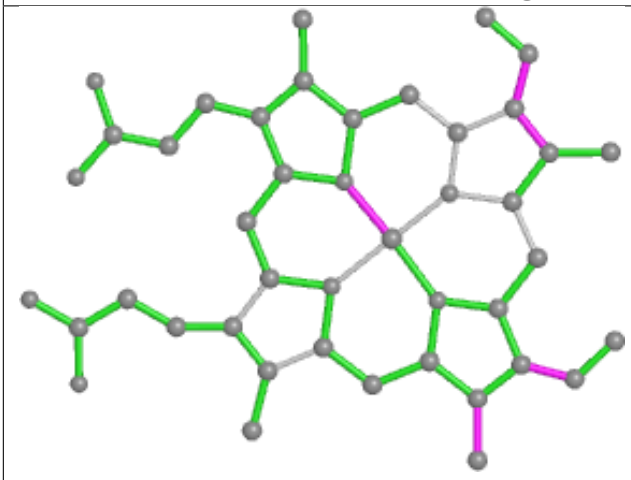


Rings

Ligand HEM O 302



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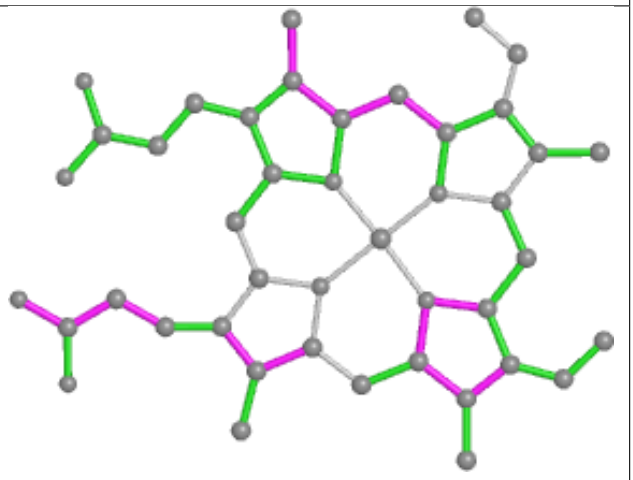

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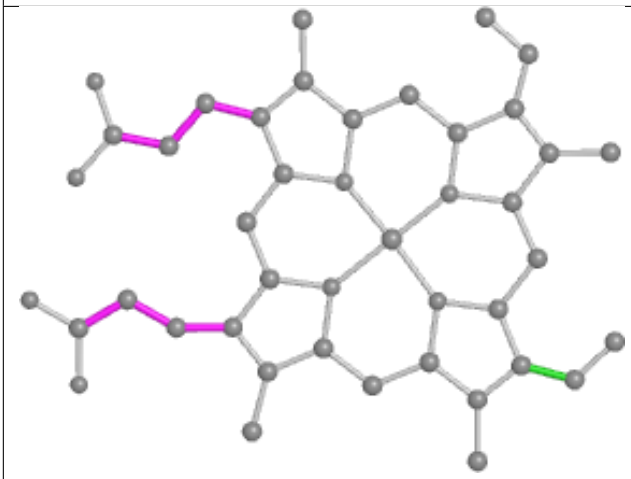

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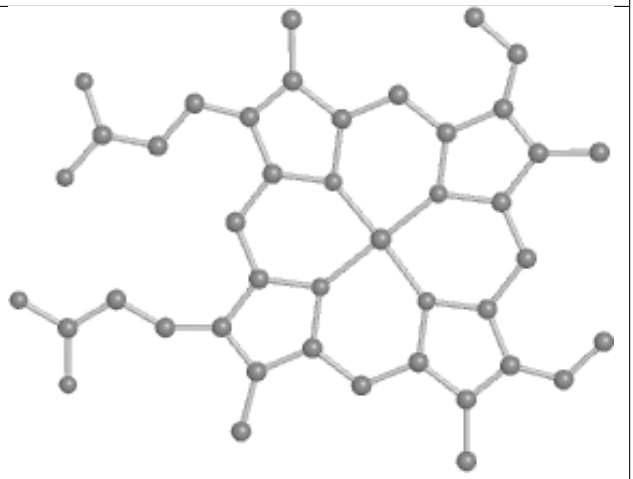
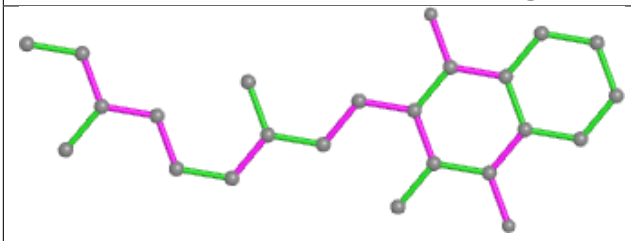


Rings

Ligand MQ7 C 304



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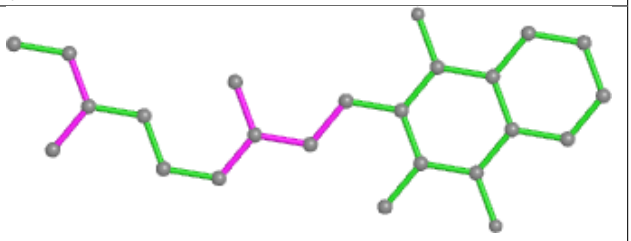
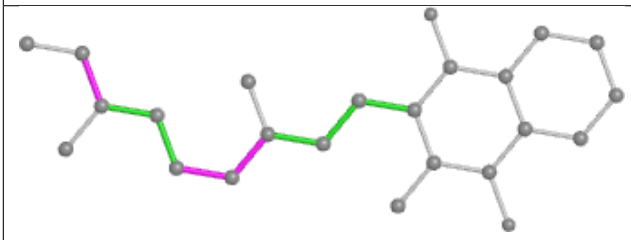


Bond angles



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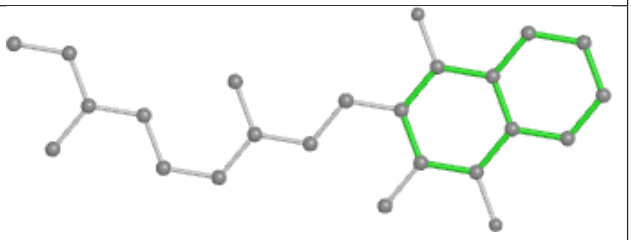

Rings

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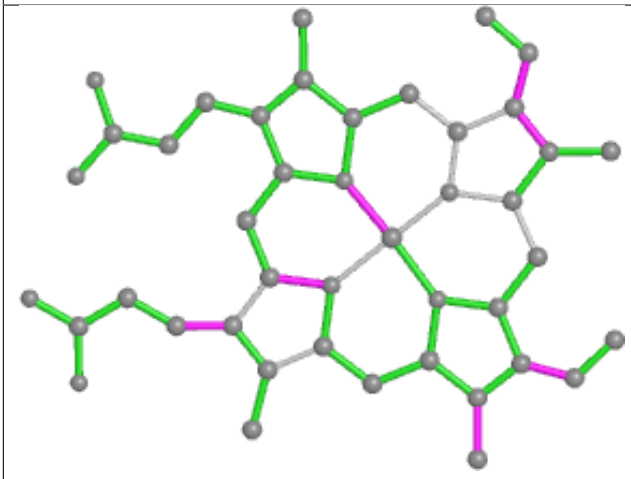
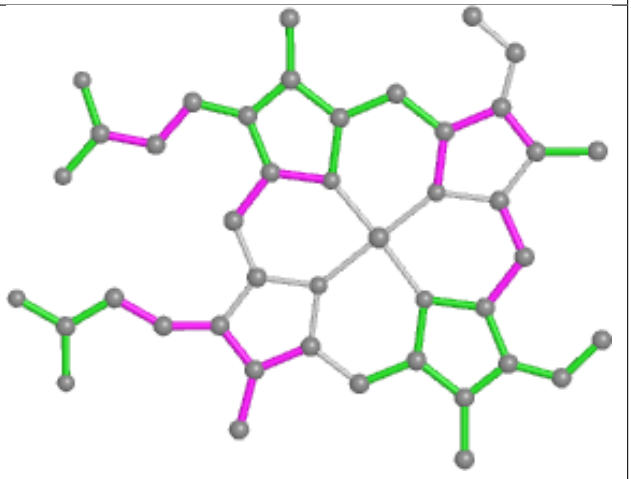
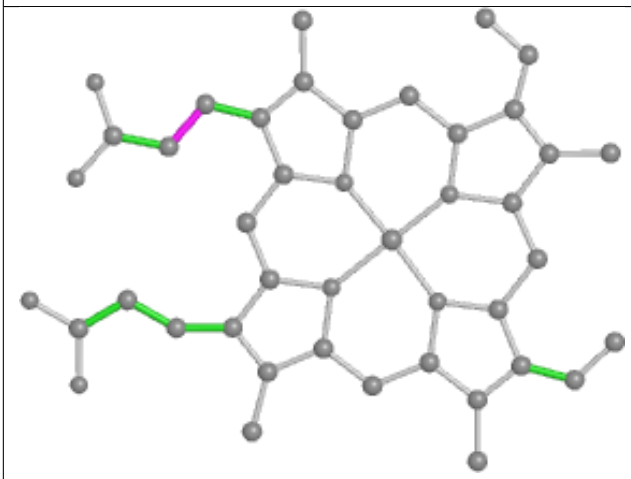


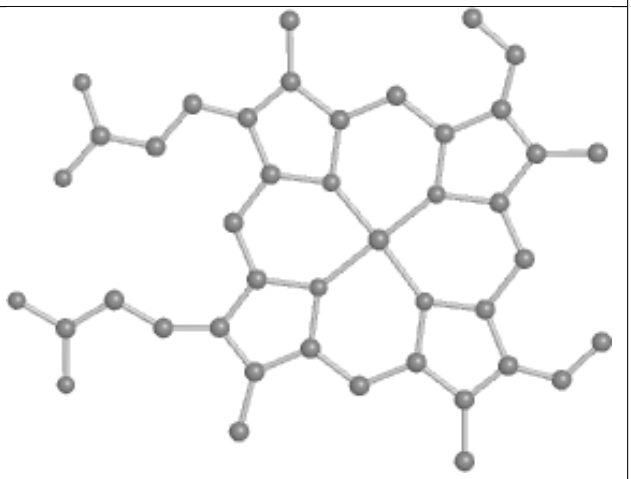
Bond lengths



Bond angles

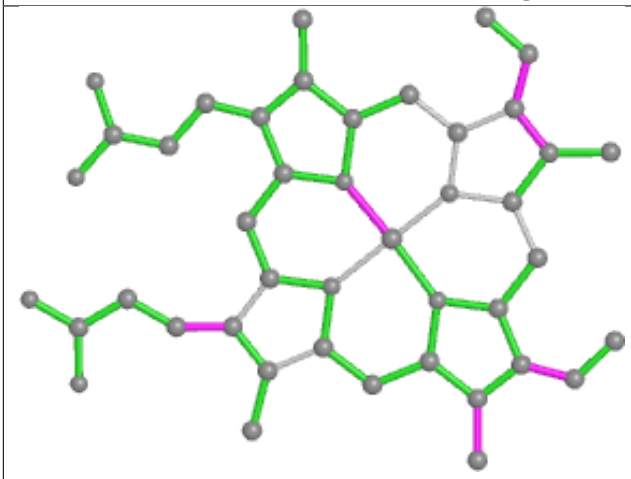


Torsions

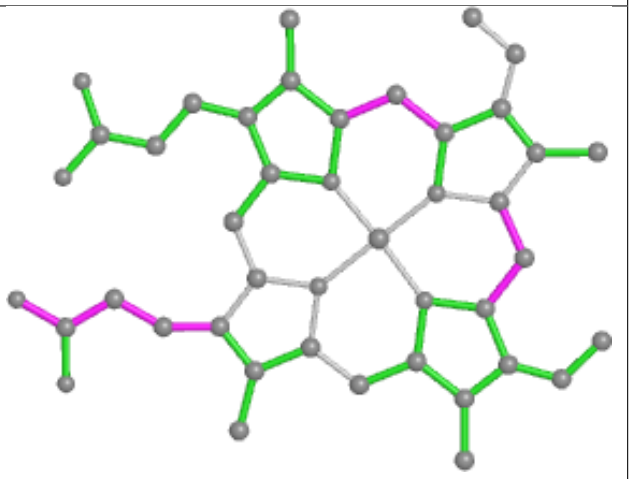


Rings

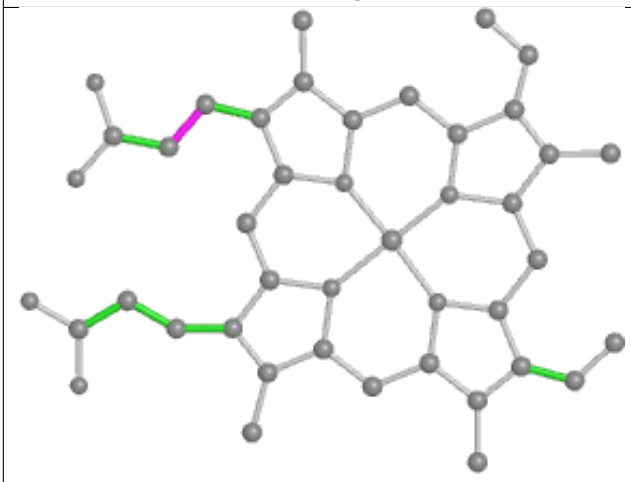
Ligand HEM K 302



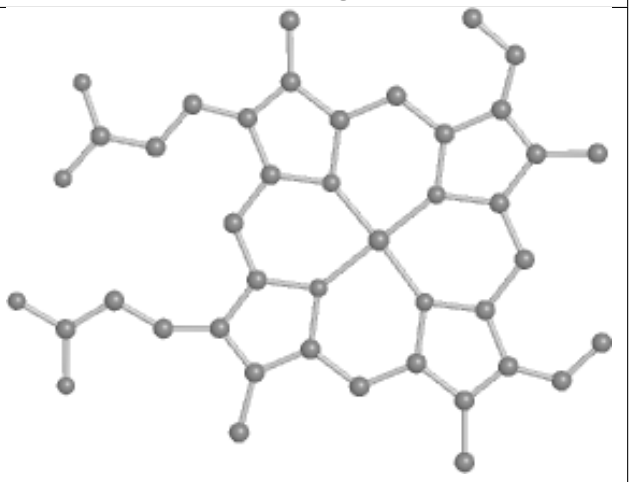
Bond lengths



Bond angles

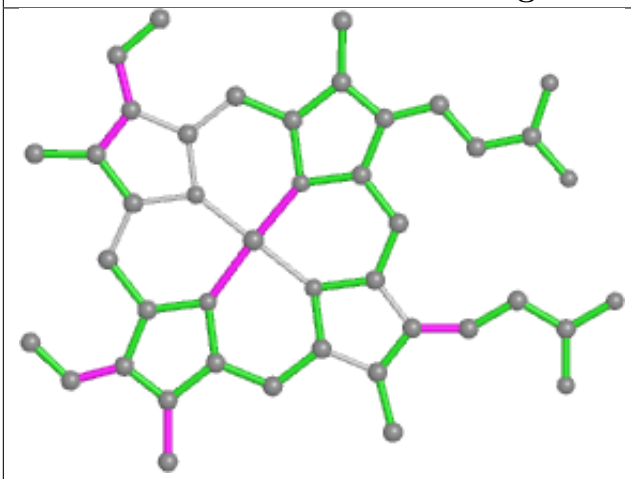


Torsions

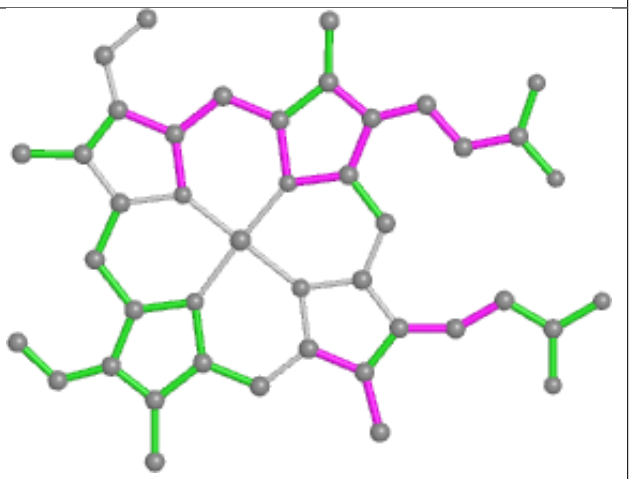


Rings

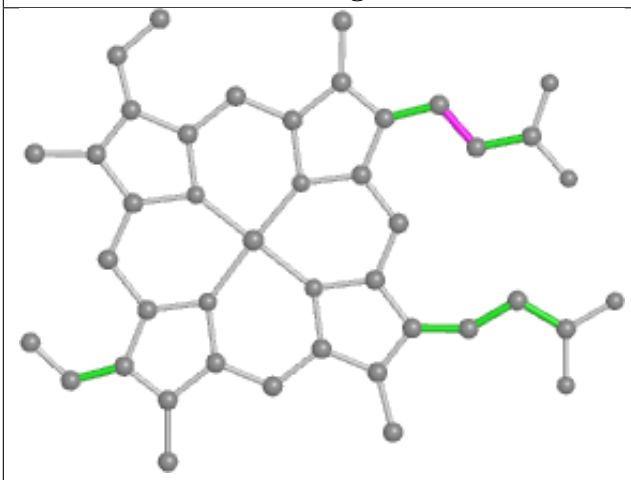
Ligand HEM G 301



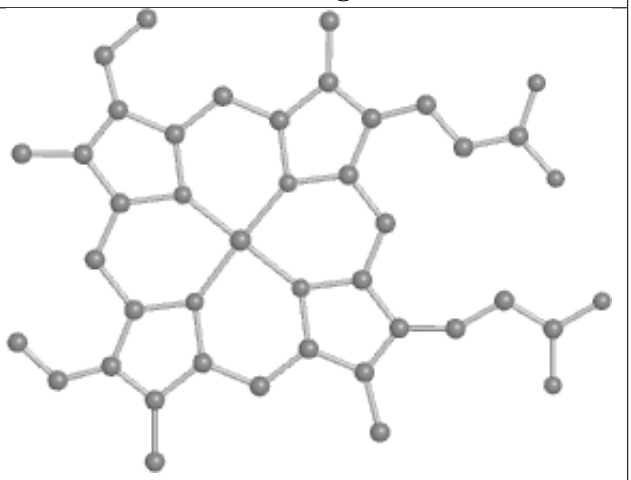
Bond lengths



Bond angles

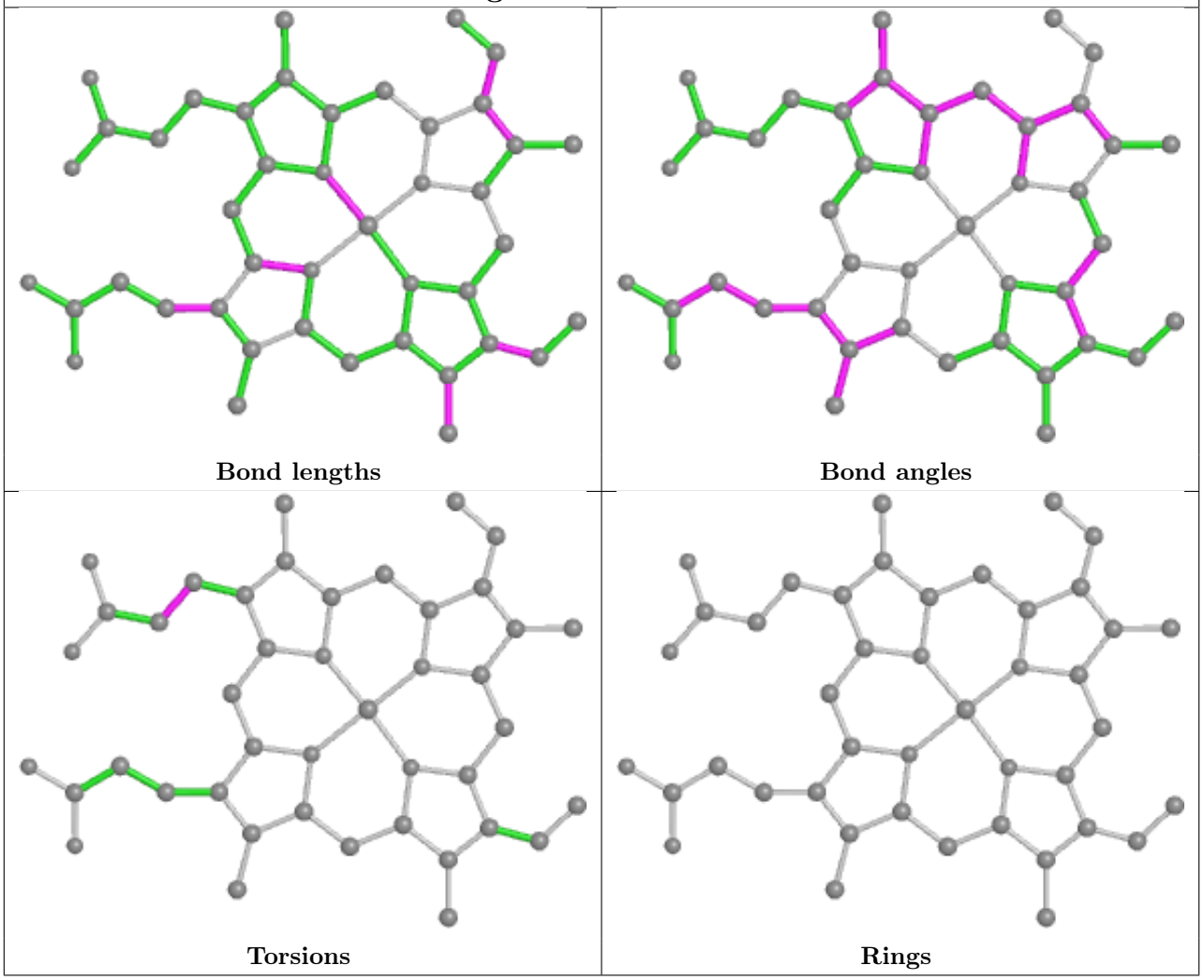


Torsions



Rings

Ligand HEM O 303



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	622/627 (99%)	-0.65	2 (0%) 90 79	34, 66, 101, 137	0
1	E	622/627 (99%)	-0.46	12 (1%) 66 45	47, 95, 142, 168	0
1	I	622/627 (99%)	-0.52	5 (0%) 82 64	45, 93, 154, 198	0
1	M	622/627 (99%)	-0.48	5 (0%) 82 64	48, 117, 178, 257	0
2	B	240/264 (90%)	-0.68	1 (0%) 89 76	43, 69, 109, 128	0
2	F	240/264 (90%)	-0.47	4 (1%) 69 48	53, 90, 143, 323	0
2	J	240/264 (90%)	-0.50	5 (2%) 63 42	55, 97, 153, 204	0
2	N	240/264 (90%)	-0.52	3 (1%) 74 53	44, 84, 171, 232	0
3	C	212/218 (97%)	-0.62	0 100 100	53, 84, 130, 177	0
3	G	212/218 (97%)	-0.47	3 (1%) 73 52	66, 109, 164, 206	0
3	K	212/218 (97%)	-0.38	6 (2%) 55 35	70, 122, 171, 190	0
3	O	212/218 (97%)	-0.51	2 (0%) 81 62	55, 100, 156, 178	0
All	All	4296/4436 (96%)	-0.52	48 (1%) 77 57	34, 92, 159, 323	0

All (48) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	252	GLU	8.1
2	J	226	ASP	7.3
1	E	403	PHE	7.0
1	M	253	ALA	6.6
1	M	402	GLY	5.5
2	N	153	GLU	5.2
1	M	403	PHE	5.1
1	E	154	ASP	4.3
2	J	54	ASP	3.8
3	K	177	LYS	3.5
1	I	49	GLY	3.4

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Mol	Chain	Res	Type	RSRZ
1	E	549	HIS	3.4
1	E	156	THR	3.3
2	F	88	ILE	3.3
3	O	151	GLY	3.3
2	F	87	GLU	3.2
3	K	42	VAL	3.2
1	E	250	ASN	3.1
1	E	566	THR	3.0
2	J	224	LEU	2.9
1	A	241	LEU	2.9
1	E	18	GLU	2.9
1	I	214	ILE	2.8
3	K	123	LEU	2.7
1	E	253	ALA	2.7
2	F	227	GLN	2.6
3	K	92	ASP	2.6
1	I	184	LEU	2.6
1	E	249	GLY	2.6
2	F	204	GLY	2.6
1	I	402	GLY	2.6
2	J	227	GLN	2.5
3	G	129	HIS	2.5
1	M	449	GLN	2.4
3	K	129	HIS	2.4
1	M	250	ASN	2.4
2	N	73	PRO	2.4
1	E	48	GLN	2.4
3	G	12	GLN	2.4
1	E	460	LYS	2.3
1	A	530	LYS	2.3
2	J	199	ILE	2.2
2	N	231	MET	2.2
3	O	152	TRP	2.2
3	K	208	LEU	2.1
2	B	103	SER	2.1
1	I	48	GLN	2.0
3	G	131	PHE	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (i)

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

6.3 Carbohydrates (i)

There are no oligosaccharides in this entry.

6.4 Ligands (i)

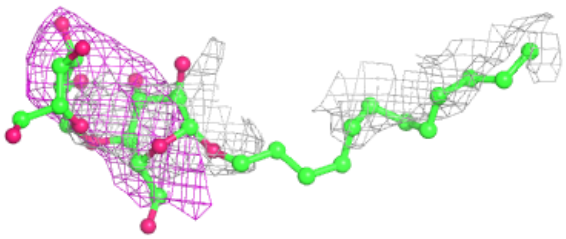
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

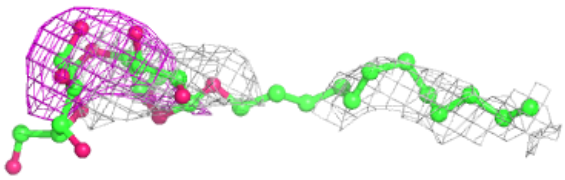
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
10	LMT	C	303	35/35	0.58	0.14	58,92,105,118	0
10	LMT	O	301	35/35	0.72	0.10	56,118,126,130	0
11	MQ7	C	304	24/48	0.81	0.08	112,112,112,112	0
5	FUM	A	702	8/8	0.82	0.14	67,72,80,85	0
5	FUM	M	702	8/8	0.85	0.06	119,124,128,130	0
6	F3S	F	301	7/7	0.88	0.11	45,77,94,97	0
4	FAD	M	701	53/53	0.89	0.08	51,94,119,122	0
9	HEM	K	301	43/43	0.90	0.14	117,130,147,159	0
4	FAD	I	701	53/53	0.91	0.08	57,72,102,107	0
5	FUM	I	702	8/8	0.91	0.11	92,97,107,109	0
9	HEM	G	301	43/43	0.92	0.11	111,125,139,144	0
9	HEM	C	301	43/43	0.93	0.14	69,87,103,126	0
5	FUM	E	702	8/8	0.93	0.14	79,90,95,96	0
4	FAD	A	701	53/53	0.93	0.07	35,51,65,73	0
4	FAD	E	701	53/53	0.94	0.06	46,69,85,93	0
9	HEM	G	302	43/43	0.94	0.11	77,95,104,110	0
9	HEM	O	302	43/43	0.95	0.10	92,104,130,138	0
9	HEM	K	302	43/43	0.95	0.13	83,103,115,123	0
9	HEM	O	303	43/43	0.96	0.09	58,74,86,92	0
9	HEM	C	302	43/43	0.97	0.09	54,71,83,92	0
8	FES	B	303	4/4	0.98	0.04	42,60,69,73	0
8	FES	F	303	4/4	0.98	0.05	60,61,65,101	0
8	FES	J	303	4/4	0.98	0.03	68,73,76,85	0
8	FES	N	303	4/4	0.98	0.03	61,69,71,72	0
6	F3S	J	301	7/7	0.98	0.04	56,76,84,97	0
7	SF4	F	302	8/8	0.99	0.02	36,43,62,67	0
7	SF4	J	302	8/8	0.99	0.02	40,52,55,57	0
7	SF4	N	302	8/8	0.99	0.04	42,63,66,74	0
6	F3S	B	301	7/7	0.99	0.04	25,46,54,70	0
6	F3S	N	301	7/7	0.99	0.03	45,55,65,70	0
7	SF4	B	302	8/8	0.99	0.03	24,29,53,55	0

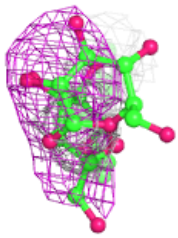
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around LMT C 303:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

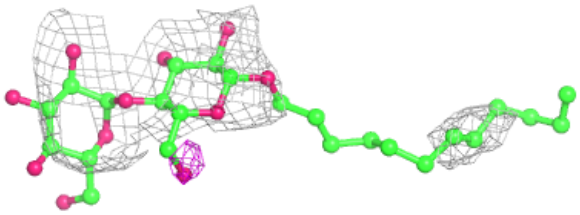


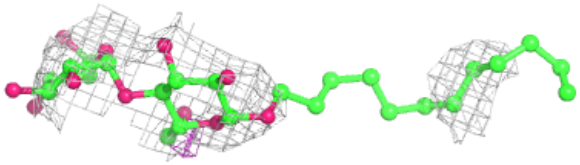


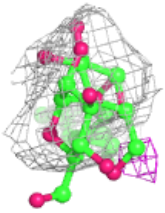


Electron density around LMT O 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

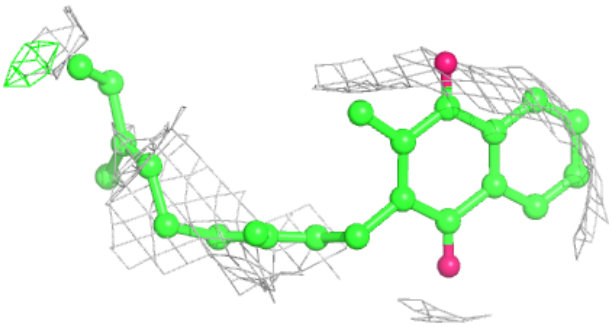


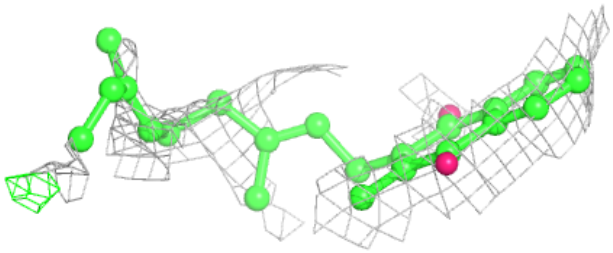


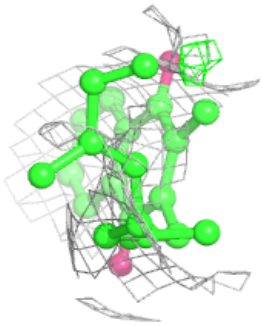


Electron density around MQ7 C 304:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

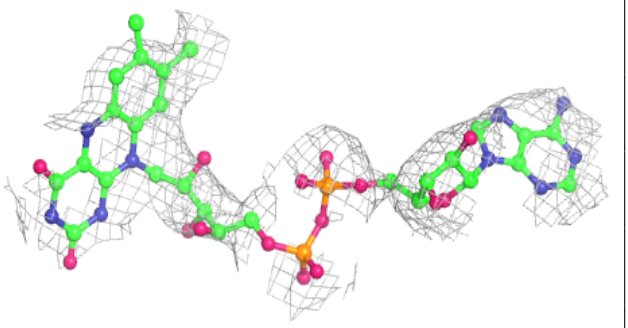


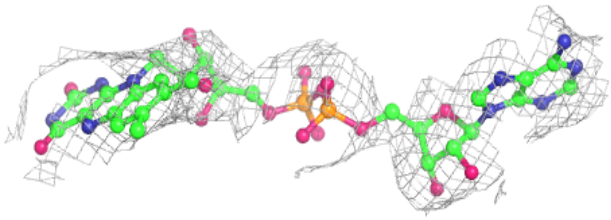


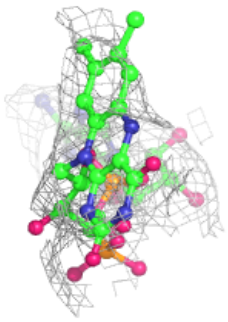


Electron density around FAD M 701:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

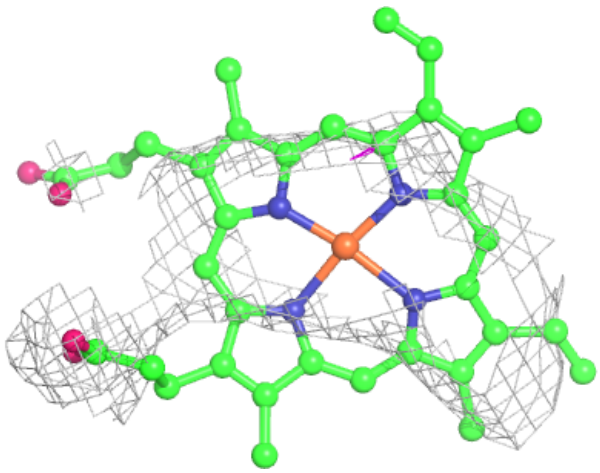


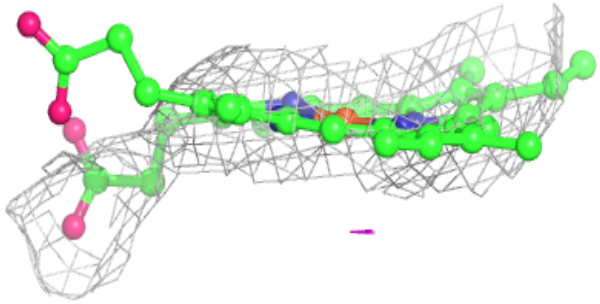


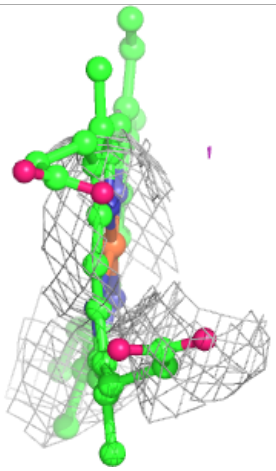


Electron density around HEM K 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

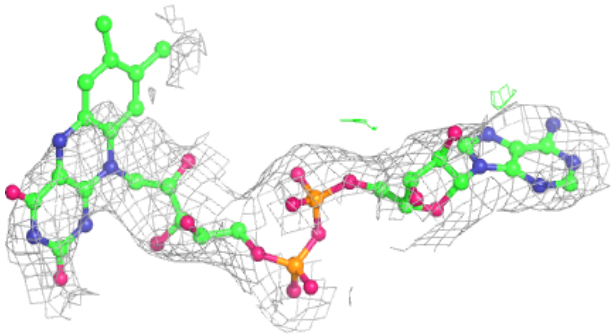


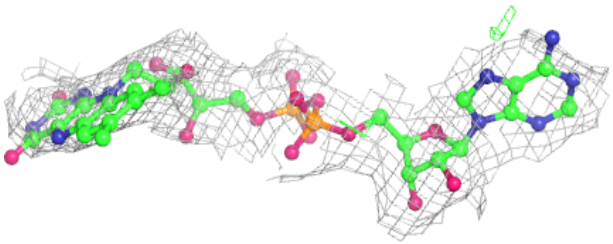


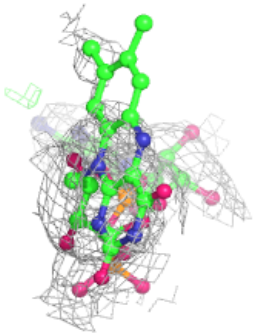


Electron density around FAD I 701:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

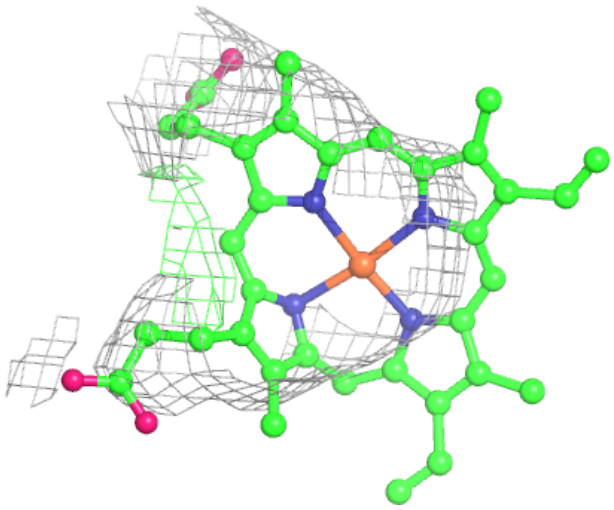


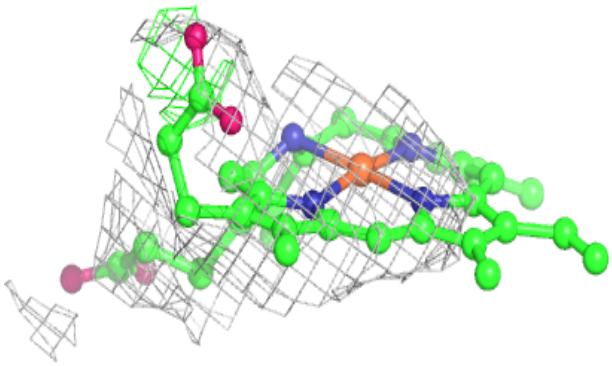


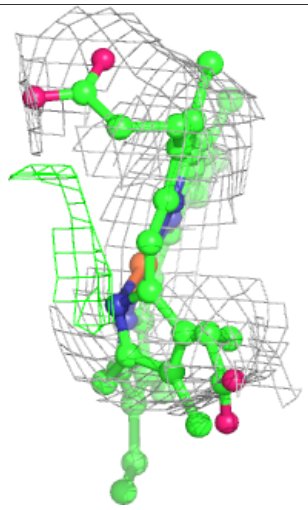


Electron density around HEM G 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

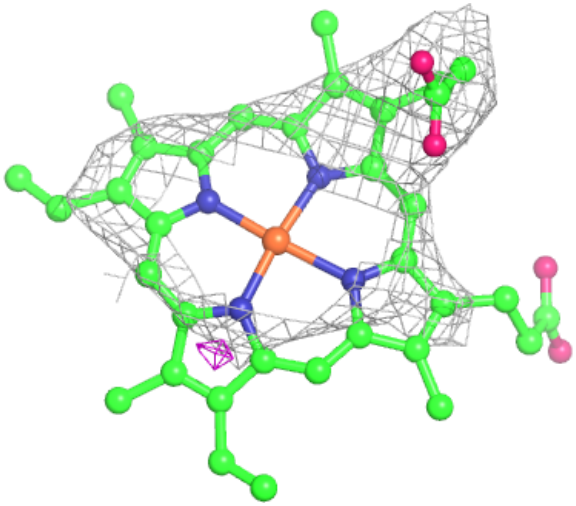


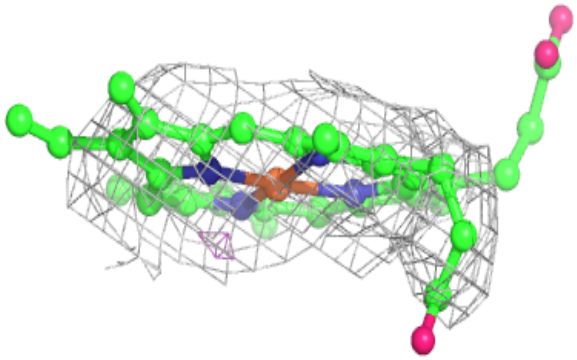


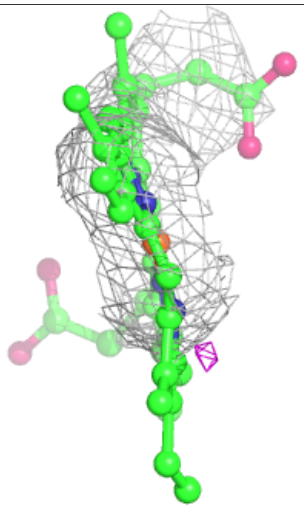


Electron density around HEM C 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

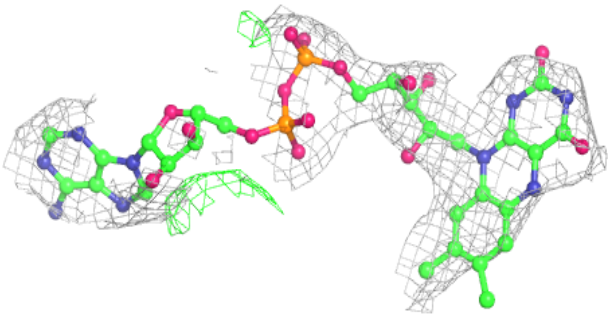


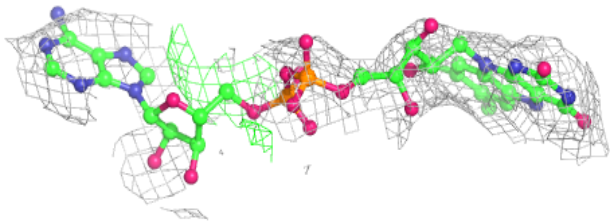


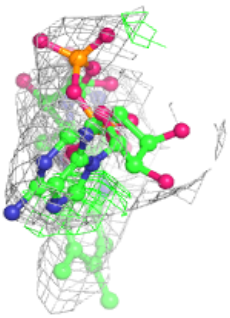


Electron density around FAD A 701:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

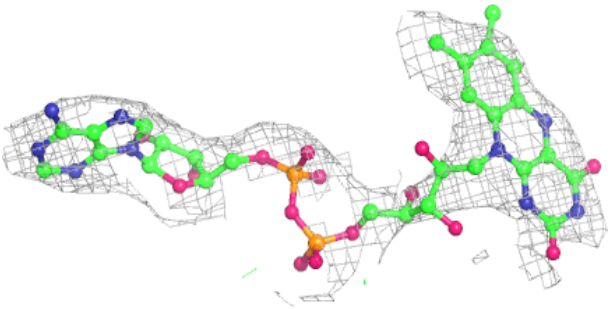


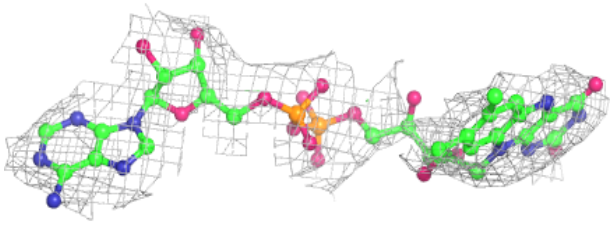


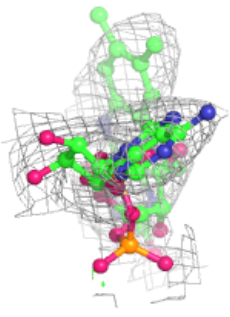


Electron density around FAD E 701:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

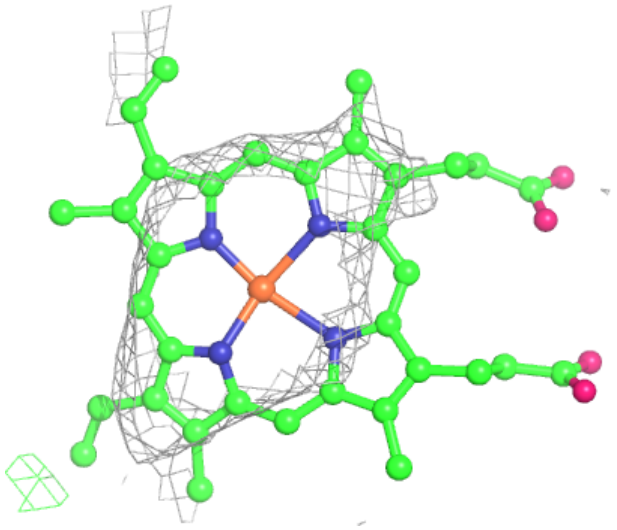


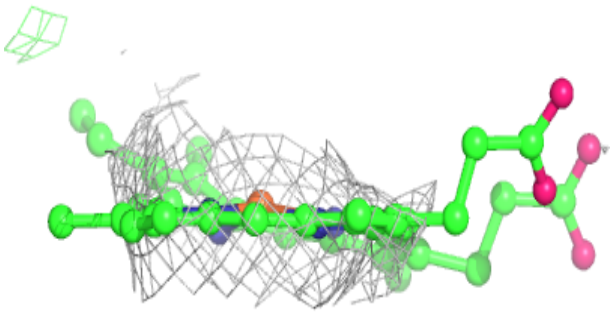


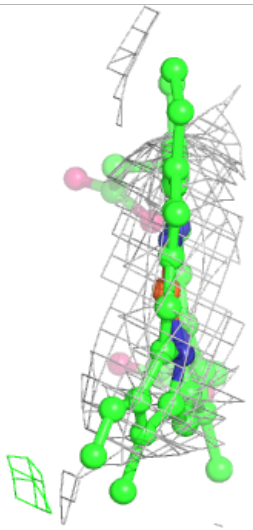


Electron density around HEM G 302:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

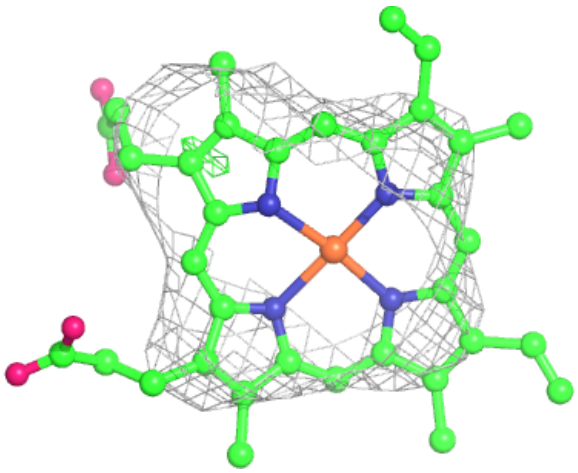


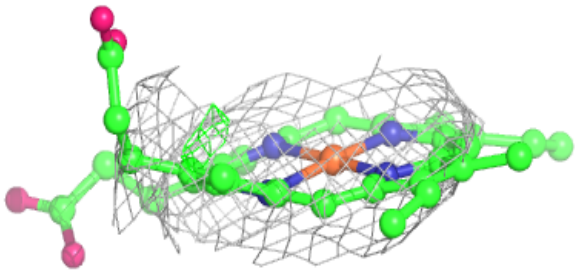


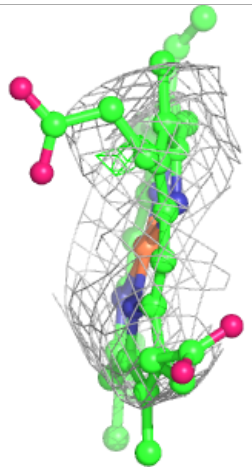


Electron density around HEM O 302:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

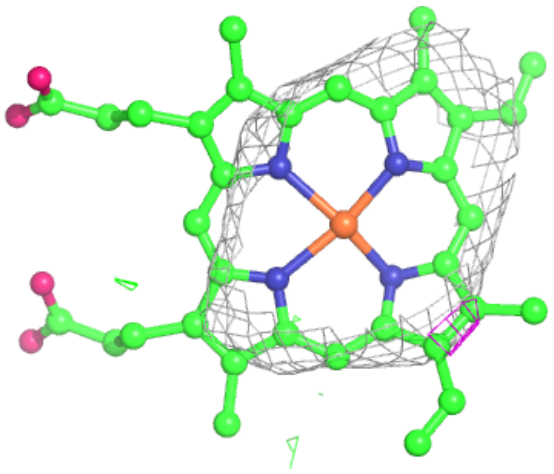


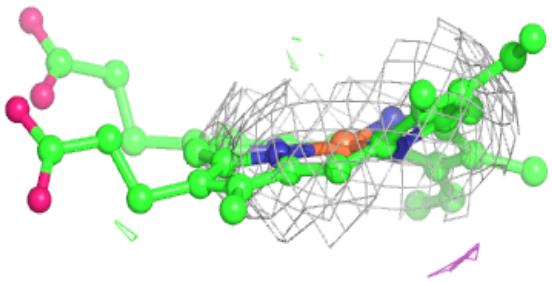


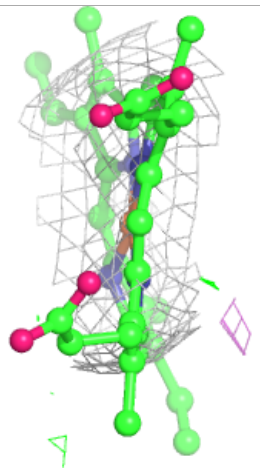


Electron density around HEM K 302:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

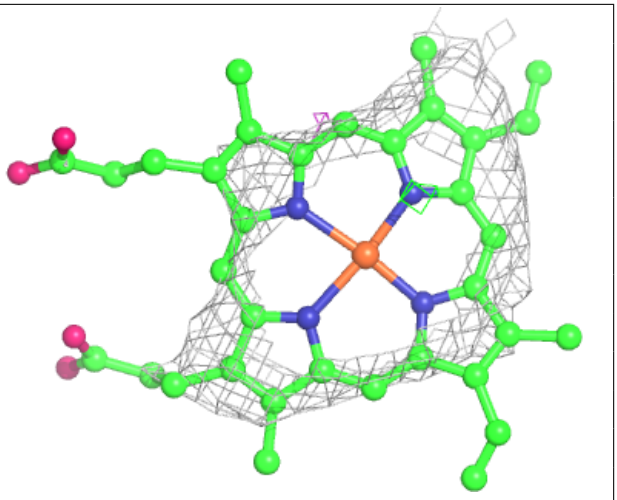


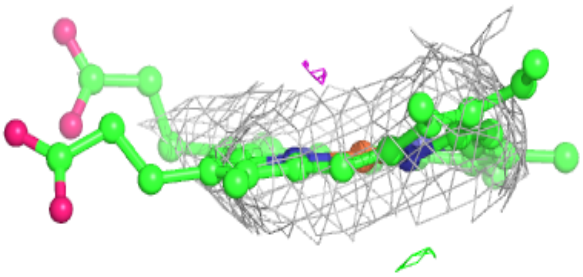


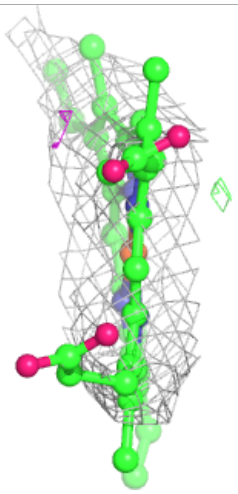


Electron density around HEM O 303:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

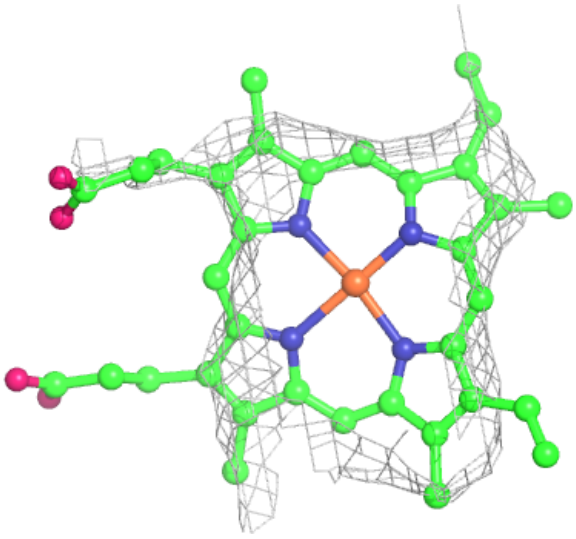


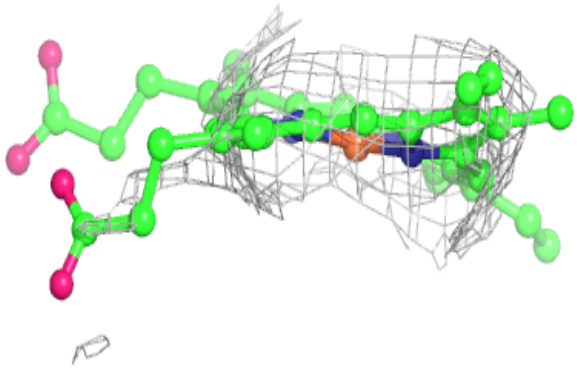


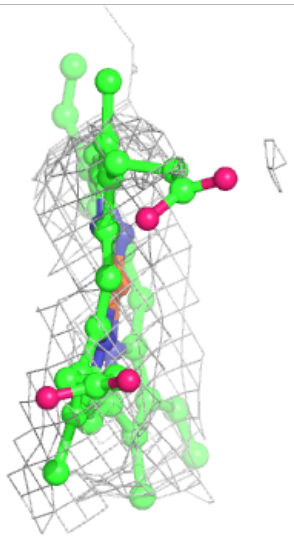


Electron density around HEM C 302:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)







6.5 Other polymers

There are no such residues in this entry.