



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 31, 2016 – 08:07 PM GMT

PDB ID : 1IPH
Title : STRUCTURE OF CATALASE HPII FROM ESCHERICHIA COLI
Authors : Bravo, J.; Loewen, P.C.; Fita, I.
Deposited on : 1995-12-31
Resolution : 2.80 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
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

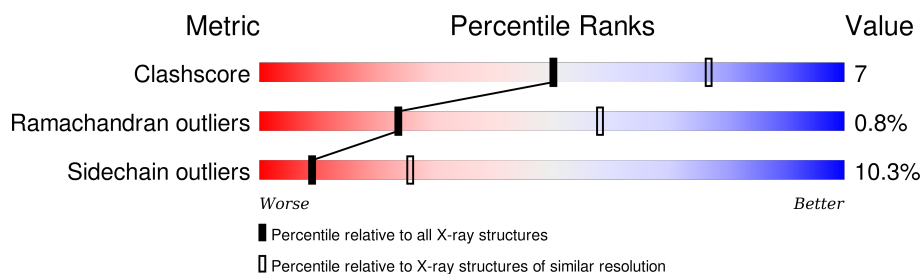
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 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))
Clashscore	102246	2827 (2.80-2.80)
Ramachandran outliers	100387	2782 (2.80-2.80)
Sidechain outliers	100360	2784 (2.80-2.80)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	753	 66% 24% 5% . .
1	B	753	 65% 25% 5% . .
1	C	753	 65% 25% 5% . .
1	D	753	 66% 24% 5% . .

2 Entry composition [i](#)

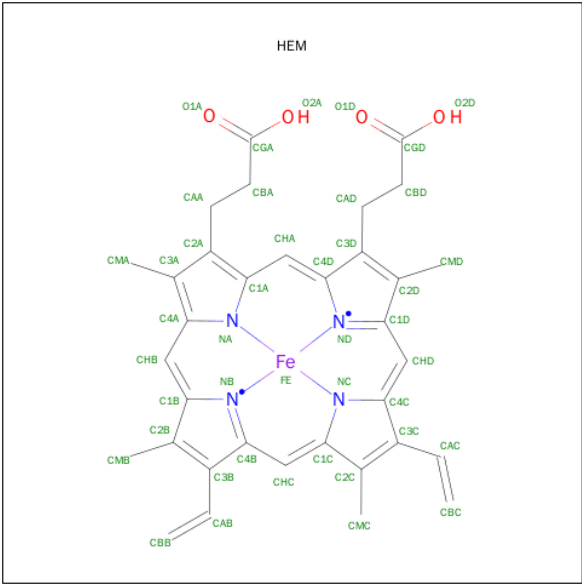
There are 2 unique types of molecules in this entry. The entry contains 23156 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 CATALASE HPIL.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	727	Total	C	N	O	S	0	0	0
			5746	3647	1005	1082	12			
1	B	727	Total	C	N	O	S	0	0	0
			5746	3647	1005	1082	12			
1	C	727	Total	C	N	O	S	0	0	0
			5746	3647	1005	1082	12			
1	D	727	Total	C	N	O	S	0	0	0
			5746	3647	1005	1082	12			

- Molecule 2 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



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

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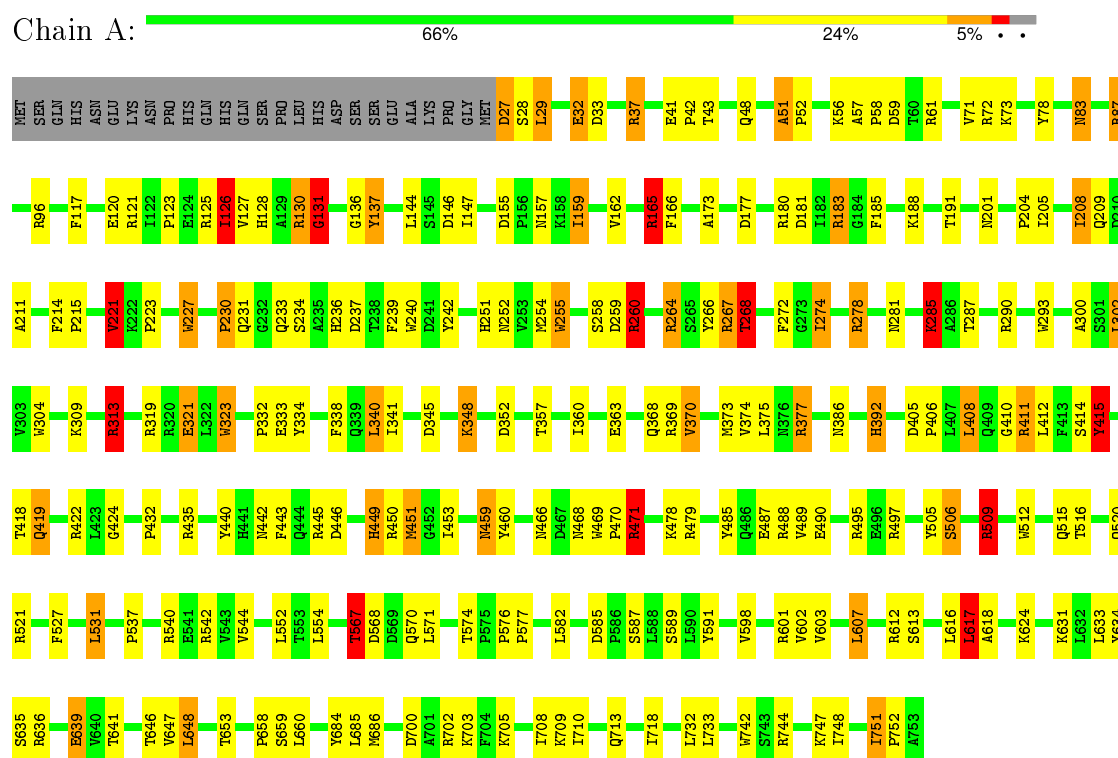
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	D	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

3 Residue-property plots

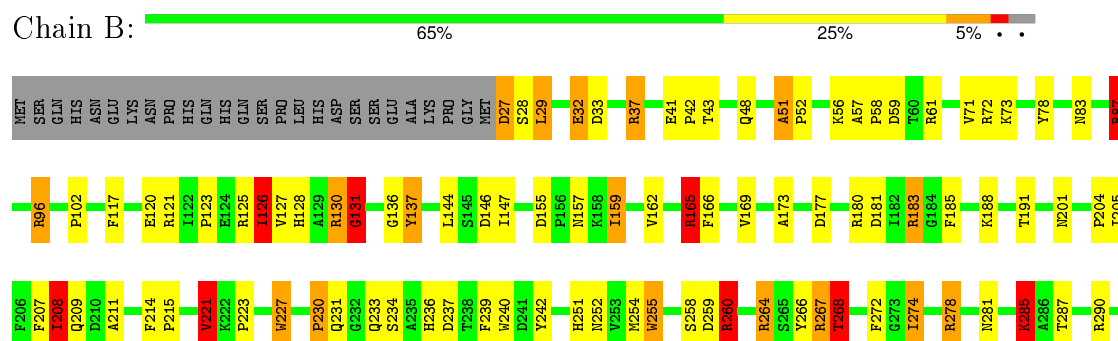
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according 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.

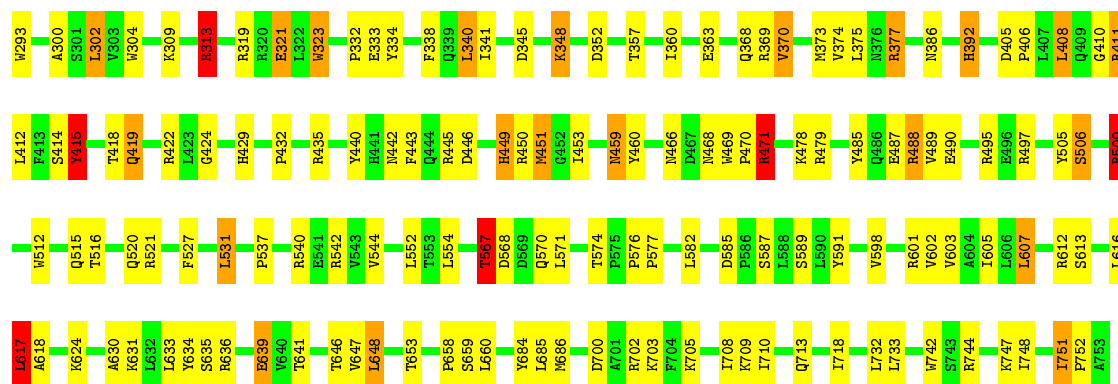
Note EDS was not executed.

• Molecule 1: CATALASE HP11



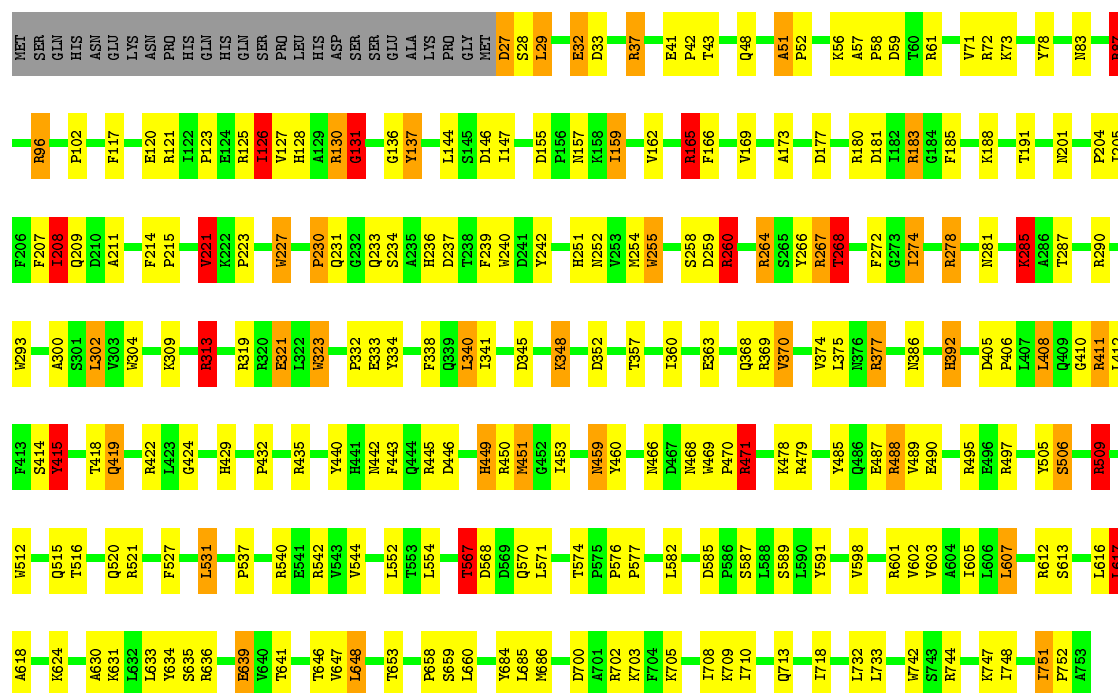
• Molecule 1: CATALASE HP11





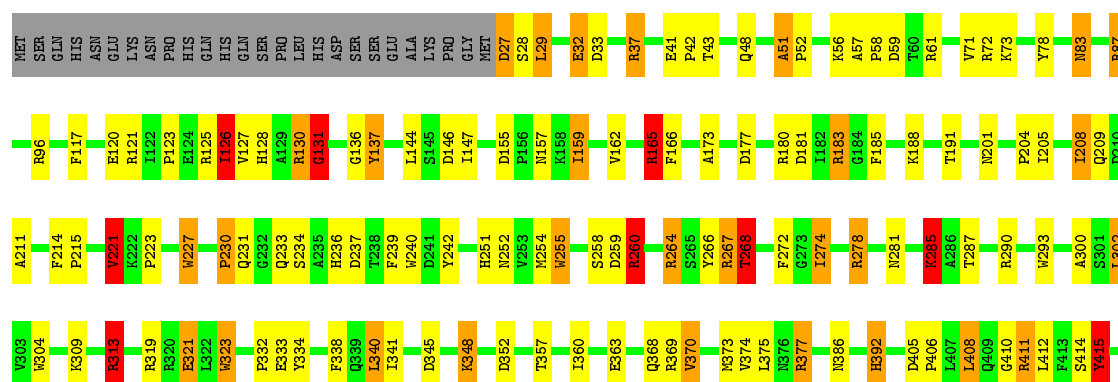
• Molecule 1: CATALASE HPII

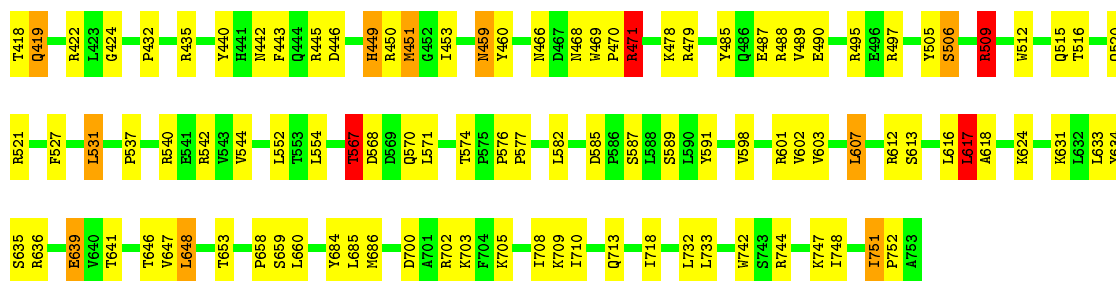
Chain C: 65% 25% 5% • •



• Molecule 1: CATALASE HPII

Chain D: 66% 24% 5% • •





4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section will therefore be incomplete.

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	95.20 Å 134.70 Å 124.40 Å 90.00° 109.40° 90.00°	Depositor
Resolution (Å)	(Not available) – 2.80	Depositor
% Data completeness (in resolution range)	(Not available) ((Not available)-2.80)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	X-PLOR	Depositor
R, R_{free}	0.200 , (Not available)	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	23156	wwPDB-VP
Average B, all atoms (Å ²)	9.0	wwPDB-VP

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 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	1.06	7/5902 (0.1%)	1.86	162/8024 (2.0%)
1	B	1.06	7/5902 (0.1%)	1.86	162/8024 (2.0%)
1	C	1.06	7/5902 (0.1%)	1.86	162/8024 (2.0%)
1	D	1.06	7/5902 (0.1%)	1.86	162/8024 (2.0%)
All	All	1.06	28/23608 (0.1%)	1.86	648/32096 (2.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	3
1	B	0	3
1	C	0	3
1	D	0	3
All	All	0	12

All (28) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	208	ILE	CA-CB	5.87	1.68	1.54
1	B	208	ILE	CA-CB	5.87	1.68	1.54
1	C	208	ILE	CA-CB	5.87	1.68	1.54
1	D	208	ILE	CA-CB	5.87	1.68	1.54
1	A	449	HIS	CB-CG	5.71	1.60	1.50
1	B	449	HIS	CB-CG	5.71	1.60	1.50
1	C	449	HIS	CB-CG	5.71	1.60	1.50
1	D	449	HIS	CB-CG	5.71	1.60	1.50
1	A	159	ILE	CA-CB	5.55	1.67	1.54
1	B	159	ILE	CA-CB	5.55	1.67	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	159	ILE	CA-CB	5.55	1.67	1.54
1	D	159	ILE	CA-CB	5.55	1.67	1.54
1	A	323	TRP	CD1-NE1	-5.29	1.28	1.38
1	B	323	TRP	CD1-NE1	-5.29	1.28	1.38
1	C	323	TRP	CD1-NE1	-5.29	1.28	1.38
1	D	323	TRP	CD1-NE1	-5.29	1.28	1.38
1	A	377	ARG	CZ-NH1	5.21	1.39	1.33
1	B	377	ARG	CZ-NH1	5.21	1.39	1.33
1	C	377	ARG	CZ-NH1	5.21	1.39	1.33
1	D	377	ARG	CZ-NH1	5.21	1.39	1.33
1	A	126	ILE	CA-CB	5.15	1.66	1.54
1	B	126	ILE	CA-CB	5.15	1.66	1.54
1	C	126	ILE	CA-CB	5.15	1.66	1.54
1	D	126	ILE	CA-CB	5.15	1.66	1.54
1	A	392	HIS	CD2-NE2	-5.07	1.26	1.38
1	B	392	HIS	CD2-NE2	-5.07	1.26	1.38
1	C	392	HIS	CD2-NE2	-5.07	1.26	1.38
1	D	392	HIS	CD2-NE2	-5.07	1.26	1.38

All (648) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	183	ARG	NE-CZ-NH1	17.51	129.05	120.30
1	B	183	ARG	NE-CZ-NH1	17.51	129.05	120.30
1	C	183	ARG	NE-CZ-NH1	17.51	129.05	120.30
1	D	183	ARG	NE-CZ-NH1	17.51	129.05	120.30
1	A	183	ARG	NE-CZ-NH2	-16.87	111.86	120.30
1	B	183	ARG	NE-CZ-NH2	-16.87	111.86	120.30
1	C	183	ARG	NE-CZ-NH2	-16.87	111.86	120.30
1	D	183	ARG	NE-CZ-NH2	-16.87	111.86	120.30
1	A	165	ARG	NE-CZ-NH1	14.54	127.57	120.30
1	B	165	ARG	NE-CZ-NH1	14.54	127.57	120.30
1	C	165	ARG	NE-CZ-NH1	14.54	127.57	120.30
1	D	165	ARG	NE-CZ-NH1	14.54	127.57	120.30
1	A	377	ARG	NE-CZ-NH2	-14.47	113.06	120.30
1	B	377	ARG	NE-CZ-NH2	-14.47	113.06	120.30
1	C	377	ARG	NE-CZ-NH2	-14.47	113.06	120.30
1	D	377	ARG	NE-CZ-NH2	-14.47	113.06	120.30
1	A	96	ARG	NE-CZ-NH1	14.01	127.31	120.30
1	B	96	ARG	NE-CZ-NH1	14.01	127.31	120.30
1	C	96	ARG	NE-CZ-NH1	14.01	127.31	120.30
1	D	96	ARG	NE-CZ-NH1	14.01	127.31	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	471	ARG	NE-CZ-NH2	-13.84	113.38	120.30
1	B	471	ARG	NE-CZ-NH2	-13.84	113.38	120.30
1	C	471	ARG	NE-CZ-NH2	-13.84	113.38	120.30
1	D	471	ARG	NE-CZ-NH2	-13.84	113.38	120.30
1	A	165	ARG	NE-CZ-NH2	-13.10	113.75	120.30
1	B	165	ARG	NE-CZ-NH2	-13.10	113.75	120.30
1	C	165	ARG	NE-CZ-NH2	-13.10	113.75	120.30
1	D	165	ARG	NE-CZ-NH2	-13.10	113.75	120.30
1	A	471	ARG	NE-CZ-NH1	12.76	126.68	120.30
1	B	471	ARG	NE-CZ-NH1	12.76	126.68	120.30
1	C	471	ARG	NE-CZ-NH1	12.76	126.68	120.30
1	D	471	ARG	NE-CZ-NH1	12.76	126.68	120.30
1	A	37	ARG	NE-CZ-NH1	12.74	126.67	120.30
1	B	37	ARG	NE-CZ-NH1	12.74	126.67	120.30
1	C	37	ARG	NE-CZ-NH1	12.74	126.67	120.30
1	D	37	ARG	NE-CZ-NH1	12.74	126.67	120.30
1	A	479	ARG	NE-CZ-NH1	12.60	126.60	120.30
1	B	479	ARG	NE-CZ-NH1	12.60	126.60	120.30
1	C	479	ARG	NE-CZ-NH1	12.60	126.60	120.30
1	D	479	ARG	NE-CZ-NH1	12.60	126.60	120.30
1	A	96	ARG	NE-CZ-NH2	-12.16	114.22	120.30
1	B	96	ARG	NE-CZ-NH2	-12.16	114.22	120.30
1	C	96	ARG	NE-CZ-NH2	-12.16	114.22	120.30
1	D	96	ARG	NE-CZ-NH2	-12.16	114.22	120.30
1	A	415	TYR	CB-CG-CD2	-11.30	114.22	121.00
1	B	415	TYR	CB-CG-CD2	-11.30	114.22	121.00
1	C	415	TYR	CB-CG-CD2	-11.30	114.22	121.00
1	D	415	TYR	CB-CG-CD2	-11.30	114.22	121.00
1	A	278	ARG	NE-CZ-NH1	10.76	125.68	120.30
1	B	278	ARG	NE-CZ-NH1	10.76	125.68	120.30
1	C	278	ARG	NE-CZ-NH1	10.76	125.68	120.30
1	D	278	ARG	NE-CZ-NH1	10.76	125.68	120.30
1	A	72	ARG	NE-CZ-NH1	10.29	125.44	120.30
1	B	72	ARG	NE-CZ-NH1	10.29	125.44	120.30
1	C	72	ARG	NE-CZ-NH1	10.29	125.44	120.30
1	D	72	ARG	NE-CZ-NH1	10.29	125.44	120.30
1	A	591	TYR	CB-CG-CD2	-9.93	115.05	121.00
1	B	591	TYR	CB-CG-CD2	-9.93	115.05	121.00
1	C	591	TYR	CB-CG-CD2	-9.93	115.05	121.00
1	D	591	TYR	CB-CG-CD2	-9.93	115.05	121.00
1	A	419	GLN	CA-CB-CG	-9.80	91.84	113.40
1	B	419	GLN	CA-CB-CG	-9.80	91.84	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	419	GLN	CA-CB-CG	-9.80	91.84	113.40
1	D	419	GLN	CA-CB-CG	-9.80	91.84	113.40
1	A	411	ARG	NE-CZ-NH1	9.79	125.19	120.30
1	B	411	ARG	NE-CZ-NH1	9.79	125.19	120.30
1	C	411	ARG	NE-CZ-NH1	9.79	125.19	120.30
1	D	411	ARG	NE-CZ-NH1	9.79	125.19	120.30
1	A	293	TRP	CD1-CG-CD2	9.73	114.09	106.30
1	B	293	TRP	CD1-CG-CD2	9.73	114.09	106.30
1	C	293	TRP	CD1-CG-CD2	9.73	114.09	106.30
1	D	293	TRP	CD1-CG-CD2	9.73	114.09	106.30
1	A	469	TRP	CD1-CG-CD2	9.62	113.99	106.30
1	B	469	TRP	CD1-CG-CD2	9.62	113.99	106.30
1	C	469	TRP	CD1-CG-CD2	9.62	113.99	106.30
1	D	469	TRP	CD1-CG-CD2	9.62	113.99	106.30
1	A	313	ARG	NE-CZ-NH1	9.50	125.05	120.30
1	B	313	ARG	NE-CZ-NH1	9.50	125.05	120.30
1	C	313	ARG	NE-CZ-NH1	9.50	125.05	120.30
1	D	313	ARG	NE-CZ-NH1	9.50	125.05	120.30
1	A	278	ARG	NE-CZ-NH2	-9.39	115.60	120.30
1	B	278	ARG	NE-CZ-NH2	-9.39	115.60	120.30
1	C	278	ARG	NE-CZ-NH2	-9.39	115.60	120.30
1	D	278	ARG	NE-CZ-NH2	-9.39	115.60	120.30
1	A	208	ILE	CA-CB-CG2	9.36	129.62	110.90
1	B	208	ILE	CA-CB-CG2	9.36	129.62	110.90
1	C	208	ILE	CA-CB-CG2	9.36	129.62	110.90
1	D	208	ILE	CA-CB-CG2	9.36	129.62	110.90
1	A	304	TRP	CD1-CG-CD2	9.13	113.60	106.30
1	B	304	TRP	CD1-CG-CD2	9.13	113.60	106.30
1	C	304	TRP	CD1-CG-CD2	9.13	113.60	106.30
1	D	304	TRP	CD1-CG-CD2	9.13	113.60	106.30
1	A	612	ARG	NE-CZ-NH2	-8.99	115.81	120.30
1	B	612	ARG	NE-CZ-NH2	-8.99	115.81	120.30
1	C	612	ARG	NE-CZ-NH2	-8.99	115.81	120.30
1	D	612	ARG	NE-CZ-NH2	-8.99	115.81	120.30
1	A	512	TRP	CD1-CG-CD2	8.82	113.36	106.30
1	B	512	TRP	CD1-CG-CD2	8.82	113.36	106.30
1	C	512	TRP	CD1-CG-CD2	8.82	113.36	106.30
1	D	512	TRP	CD1-CG-CD2	8.82	113.36	106.30
1	A	208	ILE	CA-CB-CG1	-8.82	94.24	111.00
1	B	208	ILE	CA-CB-CG1	-8.82	94.24	111.00
1	C	208	ILE	CA-CB-CG1	-8.82	94.24	111.00
1	D	208	ILE	CA-CB-CG1	-8.82	94.24	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	542	ARG	NE-CZ-NH1	8.62	124.61	120.30
1	B	542	ARG	NE-CZ-NH1	8.62	124.61	120.30
1	C	542	ARG	NE-CZ-NH1	8.62	124.61	120.30
1	D	542	ARG	NE-CZ-NH1	8.62	124.61	120.30
1	A	61	ARG	NE-CZ-NH1	8.54	124.57	120.30
1	B	61	ARG	NE-CZ-NH1	8.54	124.57	120.30
1	C	61	ARG	NE-CZ-NH1	8.54	124.57	120.30
1	D	61	ARG	NE-CZ-NH1	8.54	124.57	120.30
1	A	313	ARG	NE-CZ-NH2	-8.50	116.05	120.30
1	B	313	ARG	NE-CZ-NH2	-8.50	116.05	120.30
1	C	313	ARG	NE-CZ-NH2	-8.50	116.05	120.30
1	D	313	ARG	NE-CZ-NH2	-8.50	116.05	120.30
1	A	32	GLU	CA-C-N	-8.37	98.79	117.20
1	B	32	GLU	CA-C-N	-8.37	98.79	117.20
1	C	32	GLU	CA-C-N	-8.37	98.79	117.20
1	D	32	GLU	CA-C-N	-8.37	98.79	117.20
1	A	509	ARG	NE-CZ-NH2	-8.36	116.12	120.30
1	B	509	ARG	NE-CZ-NH2	-8.36	116.12	120.30
1	C	509	ARG	NE-CZ-NH2	-8.36	116.12	120.30
1	D	509	ARG	NE-CZ-NH2	-8.36	116.12	120.30
1	A	227	TRP	CD1-CG-CD2	8.25	112.90	106.30
1	B	227	TRP	CD1-CG-CD2	8.25	112.90	106.30
1	C	227	TRP	CD1-CG-CD2	8.25	112.90	106.30
1	D	227	TRP	CD1-CG-CD2	8.25	112.90	106.30
1	A	505	TYR	CB-CG-CD2	-8.25	116.05	121.00
1	B	505	TYR	CB-CG-CD2	-8.25	116.05	121.00
1	C	505	TYR	CB-CG-CD2	-8.25	116.05	121.00
1	D	505	TYR	CB-CG-CD2	-8.25	116.05	121.00
1	A	304	TRP	CE2-CD2-CG	-8.20	100.74	107.30
1	B	304	TRP	CE2-CD2-CG	-8.20	100.74	107.30
1	C	304	TRP	CE2-CD2-CG	-8.20	100.74	107.30
1	D	304	TRP	CE2-CD2-CG	-8.20	100.74	107.30
1	A	445	ARG	NE-CZ-NH2	8.15	124.38	120.30
1	B	445	ARG	NE-CZ-NH2	8.15	124.38	120.30
1	C	445	ARG	NE-CZ-NH2	8.15	124.38	120.30
1	D	445	ARG	NE-CZ-NH2	8.15	124.38	120.30
1	A	323	TRP	CE2-CD2-CG	-8.14	100.79	107.30
1	B	323	TRP	CE2-CD2-CG	-8.14	100.79	107.30
1	C	323	TRP	CE2-CD2-CG	-8.14	100.79	107.30
1	D	323	TRP	CE2-CD2-CG	-8.14	100.79	107.30
1	A	742	TRP	CD1-CG-CD2	8.11	112.79	106.30
1	B	742	TRP	CD1-CG-CD2	8.11	112.79	106.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	742	TRP	CD1-CG-CD2	8.11	112.79	106.30
1	D	742	TRP	CD1-CG-CD2	8.11	112.79	106.30
1	A	87	ARG	NE-CZ-NH1	8.10	124.35	120.30
1	B	87	ARG	NE-CZ-NH1	8.10	124.35	120.30
1	C	87	ARG	NE-CZ-NH1	8.10	124.35	120.30
1	D	87	ARG	NE-CZ-NH1	8.10	124.35	120.30
1	A	321	GLU	CA-CB-CG	8.09	131.21	113.40
1	B	321	GLU	CA-CB-CG	8.09	131.21	113.40
1	C	321	GLU	CA-CB-CG	8.09	131.21	113.40
1	D	321	GLU	CA-CB-CG	8.09	131.21	113.40
1	A	255	TRP	CD1-CG-CD2	8.06	112.75	106.30
1	B	255	TRP	CD1-CG-CD2	8.06	112.75	106.30
1	C	255	TRP	CD1-CG-CD2	8.06	112.75	106.30
1	D	255	TRP	CD1-CG-CD2	8.06	112.75	106.30
1	A	131	GLY	N-CA-C	8.06	133.24	113.10
1	B	131	GLY	N-CA-C	8.06	133.24	113.10
1	C	131	GLY	N-CA-C	8.06	133.24	113.10
1	D	131	GLY	N-CA-C	8.06	133.24	113.10
1	A	435	ARG	NE-CZ-NH1	8.04	124.32	120.30
1	B	435	ARG	NE-CZ-NH1	8.04	124.32	120.30
1	C	435	ARG	NE-CZ-NH1	8.04	124.32	120.30
1	D	435	ARG	NE-CZ-NH1	8.04	124.32	120.30
1	A	78	TYR	CB-CG-CD1	-8.02	116.19	121.00
1	B	78	TYR	CB-CG-CD1	-8.02	116.19	121.00
1	C	78	TYR	CB-CG-CD1	-8.02	116.19	121.00
1	D	78	TYR	CB-CG-CD1	-8.02	116.19	121.00
1	A	591	TYR	CB-CG-CD1	8.00	125.80	121.00
1	B	591	TYR	CB-CG-CD1	8.00	125.80	121.00
1	C	591	TYR	CB-CG-CD1	8.00	125.80	121.00
1	D	591	TYR	CB-CG-CD1	8.00	125.80	121.00
1	A	255	TRP	CE2-CD2-CG	-7.95	100.94	107.30
1	B	255	TRP	CE2-CD2-CG	-7.95	100.94	107.30
1	C	255	TRP	CE2-CD2-CG	-7.95	100.94	107.30
1	D	255	TRP	CE2-CD2-CG	-7.95	100.94	107.30
1	A	512	TRP	CE2-CD2-CG	-7.91	100.97	107.30
1	B	512	TRP	CE2-CD2-CG	-7.91	100.97	107.30
1	C	512	TRP	CE2-CD2-CG	-7.91	100.97	107.30
1	D	512	TRP	CE2-CD2-CG	-7.91	100.97	107.30
1	A	29	LEU	N-CA-C	-7.91	89.64	111.00
1	B	29	LEU	N-CA-C	-7.91	89.64	111.00
1	C	29	LEU	N-CA-C	-7.91	89.64	111.00
1	D	29	LEU	N-CA-C	-7.91	89.64	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	293	TRP	CE2-CD2-CG	-7.84	101.03	107.30
1	B	293	TRP	CE2-CD2-CG	-7.84	101.03	107.30
1	C	293	TRP	CE2-CD2-CG	-7.84	101.03	107.30
1	D	293	TRP	CE2-CD2-CG	-7.84	101.03	107.30
1	A	323	TRP	CG-CD2-CE3	7.80	140.92	133.90
1	B	323	TRP	CG-CD2-CE3	7.80	140.92	133.90
1	C	323	TRP	CG-CD2-CE3	7.80	140.92	133.90
1	D	323	TRP	CG-CD2-CE3	7.80	140.92	133.90
1	A	485	TYR	CB-CG-CD1	-7.75	116.35	121.00
1	B	485	TYR	CB-CG-CD1	-7.75	116.35	121.00
1	C	485	TYR	CB-CG-CD1	-7.75	116.35	121.00
1	D	485	TYR	CB-CG-CD1	-7.75	116.35	121.00
1	A	319	ARG	NE-CZ-NH1	7.75	124.18	120.30
1	B	319	ARG	NE-CZ-NH1	7.75	124.18	120.30
1	C	319	ARG	NE-CZ-NH1	7.75	124.18	120.30
1	D	319	ARG	NE-CZ-NH1	7.75	124.18	120.30
1	A	72	ARG	NE-CZ-NH2	-7.70	116.45	120.30
1	B	72	ARG	NE-CZ-NH2	-7.70	116.45	120.30
1	C	72	ARG	NE-CZ-NH2	-7.70	116.45	120.30
1	D	72	ARG	NE-CZ-NH2	-7.70	116.45	120.30
1	A	268	THR	N-CA-CB	-7.64	95.79	110.30
1	B	268	THR	N-CA-CB	-7.64	95.79	110.30
1	C	268	THR	N-CA-CB	-7.64	95.79	110.30
1	D	268	THR	N-CA-CB	-7.64	95.79	110.30
1	A	422	ARG	NE-CZ-NH1	7.62	124.11	120.30
1	B	422	ARG	NE-CZ-NH1	7.62	124.11	120.30
1	C	422	ARG	NE-CZ-NH1	7.62	124.11	120.30
1	D	422	ARG	NE-CZ-NH1	7.62	124.11	120.30
1	A	603	VAL	CG1-CB-CG2	-7.54	98.84	110.90
1	B	603	VAL	CG1-CB-CG2	-7.54	98.84	110.90
1	C	603	VAL	CG1-CB-CG2	-7.54	98.84	110.90
1	D	603	VAL	CG1-CB-CG2	-7.54	98.84	110.90
1	A	742	TRP	CE2-CD2-CG	-7.52	101.29	107.30
1	B	742	TRP	CE2-CD2-CG	-7.52	101.29	107.30
1	C	742	TRP	CE2-CD2-CG	-7.52	101.29	107.30
1	D	742	TRP	CE2-CD2-CG	-7.52	101.29	107.30
1	A	469	TRP	CE2-CD2-CG	-7.50	101.30	107.30
1	B	469	TRP	CE2-CD2-CG	-7.50	101.30	107.30
1	C	469	TRP	CE2-CD2-CG	-7.50	101.30	107.30
1	D	469	TRP	CE2-CD2-CG	-7.50	101.30	107.30
1	A	415	TYR	CB-CG-CD1	7.39	125.44	121.00
1	B	415	TYR	CB-CG-CD1	7.39	125.44	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	415	TYR	CB-CG-CD1	7.39	125.44	121.00
1	D	415	TYR	CB-CG-CD1	7.39	125.44	121.00
1	A	497	ARG	NE-CZ-NH1	7.26	123.93	120.30
1	B	497	ARG	NE-CZ-NH1	7.26	123.93	120.30
1	C	497	ARG	NE-CZ-NH1	7.26	123.93	120.30
1	D	497	ARG	NE-CZ-NH1	7.26	123.93	120.30
1	A	617	LEU	CA-CB-CG	7.25	131.97	115.30
1	B	617	LEU	CA-CB-CG	7.25	131.97	115.30
1	C	617	LEU	CA-CB-CG	7.25	131.97	115.30
1	D	617	LEU	CA-CB-CG	7.25	131.97	115.30
1	A	240	TRP	CD1-CG-CD2	7.05	111.94	106.30
1	B	240	TRP	CD1-CG-CD2	7.05	111.94	106.30
1	C	240	TRP	CD1-CG-CD2	7.05	111.94	106.30
1	D	240	TRP	CD1-CG-CD2	7.05	111.94	106.30
1	A	290	ARG	NE-CZ-NH1	7.02	123.81	120.30
1	B	290	ARG	NE-CZ-NH1	7.02	123.81	120.30
1	C	290	ARG	NE-CZ-NH1	7.02	123.81	120.30
1	D	290	ARG	NE-CZ-NH1	7.02	123.81	120.30
1	A	227	TRP	CE2-CD2-CG	-7.01	101.69	107.30
1	B	227	TRP	CE2-CD2-CG	-7.01	101.69	107.30
1	C	227	TRP	CE2-CD2-CG	-7.01	101.69	107.30
1	D	227	TRP	CE2-CD2-CG	-7.01	101.69	107.30
1	A	240	TRP	CE2-CD2-CG	-6.94	101.75	107.30
1	B	240	TRP	CE2-CD2-CG	-6.94	101.75	107.30
1	C	240	TRP	CE2-CD2-CG	-6.94	101.75	107.30
1	D	240	TRP	CE2-CD2-CG	-6.94	101.75	107.30
1	A	221	VAL	CB-CA-C	-6.88	98.34	111.40
1	B	221	VAL	CB-CA-C	-6.88	98.34	111.40
1	C	221	VAL	CB-CA-C	-6.88	98.34	111.40
1	D	221	VAL	CB-CA-C	-6.88	98.34	111.40
1	A	125	ARG	NE-CZ-NH1	6.85	123.73	120.30
1	B	125	ARG	NE-CZ-NH1	6.85	123.73	120.30
1	C	125	ARG	NE-CZ-NH1	6.85	123.73	120.30
1	D	125	ARG	NE-CZ-NH1	6.85	123.73	120.30
1	A	260	ARG	NE-CZ-NH1	6.85	123.72	120.30
1	B	260	ARG	NE-CZ-NH1	6.85	123.72	120.30
1	C	260	ARG	NE-CZ-NH1	6.85	123.72	120.30
1	D	260	ARG	NE-CZ-NH1	6.85	123.72	120.30
1	A	221	VAL	CG1-CB-CG2	6.74	121.68	110.90
1	B	221	VAL	CG1-CB-CG2	6.74	121.68	110.90
1	C	221	VAL	CG1-CB-CG2	6.74	121.68	110.90
1	D	221	VAL	CG1-CB-CG2	6.74	121.68	110.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	369	ARG	NE-CZ-NH2	-6.70	116.95	120.30
1	B	369	ARG	NE-CZ-NH2	-6.70	116.95	120.30
1	C	369	ARG	NE-CZ-NH2	-6.70	116.95	120.30
1	D	369	ARG	NE-CZ-NH2	-6.70	116.95	120.30
1	A	180	ARG	NE-CZ-NH1	6.61	123.61	120.30
1	B	180	ARG	NE-CZ-NH1	6.61	123.61	120.30
1	C	180	ARG	NE-CZ-NH1	6.61	123.61	120.30
1	D	180	ARG	NE-CZ-NH1	6.61	123.61	120.30
1	A	449	HIS	CA-C-N	-6.59	102.71	117.20
1	B	449	HIS	CA-C-N	-6.59	102.71	117.20
1	C	449	HIS	CA-C-N	-6.59	102.71	117.20
1	D	449	HIS	CA-C-N	-6.59	102.71	117.20
1	A	512	TRP	CG-CD2-CE3	6.54	139.79	133.90
1	B	512	TRP	CG-CD2-CE3	6.54	139.79	133.90
1	C	512	TRP	CG-CD2-CE3	6.54	139.79	133.90
1	D	512	TRP	CG-CD2-CE3	6.54	139.79	133.90
1	A	255	TRP	CG-CD2-CE3	6.53	139.78	133.90
1	B	255	TRP	CG-CD2-CE3	6.53	139.78	133.90
1	C	255	TRP	CG-CD2-CE3	6.53	139.78	133.90
1	D	255	TRP	CG-CD2-CE3	6.53	139.78	133.90
1	A	293	TRP	CG-CD1-NE1	-6.52	103.58	110.10
1	A	607	LEU	CA-CB-CG	6.52	130.30	115.30
1	B	293	TRP	CG-CD1-NE1	-6.52	103.58	110.10
1	B	607	LEU	CA-CB-CG	6.52	130.30	115.30
1	C	293	TRP	CG-CD1-NE1	-6.52	103.58	110.10
1	C	607	LEU	CA-CB-CG	6.52	130.30	115.30
1	D	293	TRP	CG-CD1-NE1	-6.52	103.58	110.10
1	D	607	LEU	CA-CB-CG	6.52	130.30	115.30
1	A	227	TRP	CG-CD1-NE1	-6.50	103.60	110.10
1	B	227	TRP	CG-CD1-NE1	-6.50	103.60	110.10
1	C	227	TRP	CG-CD1-NE1	-6.50	103.60	110.10
1	D	227	TRP	CG-CD1-NE1	-6.50	103.60	110.10
1	A	440	TYR	CB-CG-CD1	-6.46	117.12	121.00
1	B	440	TYR	CB-CG-CD1	-6.46	117.12	121.00
1	C	440	TYR	CB-CG-CD1	-6.46	117.12	121.00
1	D	440	TYR	CB-CG-CD1	-6.46	117.12	121.00
1	A	424	GLY	CA-C-N	6.45	129.09	116.20
1	B	424	GLY	CA-C-N	6.45	129.09	116.20
1	C	424	GLY	CA-C-N	6.45	129.09	116.20
1	D	424	GLY	CA-C-N	6.45	129.09	116.20
1	A	221	VAL	CA-CB-CG1	-6.42	101.27	110.90
1	B	221	VAL	CA-CB-CG1	-6.42	101.27	110.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	221	VAL	CA-CB-CG1	-6.42	101.27	110.90
1	D	221	VAL	CA-CB-CG1	-6.42	101.27	110.90
1	A	323	TRP	CD1-CG-CD2	6.42	111.43	106.30
1	B	323	TRP	CD1-CG-CD2	6.42	111.43	106.30
1	C	323	TRP	CD1-CG-CD2	6.42	111.43	106.30
1	D	323	TRP	CD1-CG-CD2	6.42	111.43	106.30
1	A	285	LYS	CG-CD-CE	6.41	131.14	111.90
1	A	352	ASP	CB-CG-OD1	6.41	124.07	118.30
1	B	285	LYS	CG-CD-CE	6.41	131.14	111.90
1	B	352	ASP	CB-CG-OD1	6.41	124.07	118.30
1	C	285	LYS	CG-CD-CE	6.41	131.14	111.90
1	C	352	ASP	CB-CG-OD1	6.41	124.07	118.30
1	D	285	LYS	CG-CD-CE	6.41	131.14	111.90
1	D	352	ASP	CB-CG-OD1	6.41	124.07	118.30
1	A	450	ARG	NE-CZ-NH1	6.40	123.50	120.30
1	B	450	ARG	NE-CZ-NH1	6.40	123.50	120.30
1	C	450	ARG	NE-CZ-NH1	6.40	123.50	120.30
1	D	450	ARG	NE-CZ-NH1	6.40	123.50	120.30
1	A	612	ARG	NE-CZ-NH1	6.38	123.49	120.30
1	B	612	ARG	NE-CZ-NH1	6.38	123.49	120.30
1	C	612	ARG	NE-CZ-NH1	6.38	123.49	120.30
1	D	612	ARG	NE-CZ-NH1	6.38	123.49	120.30
1	A	32	GLU	O-C-N	6.34	132.85	122.70
1	B	32	GLU	O-C-N	6.34	132.85	122.70
1	C	32	GLU	O-C-N	6.34	132.85	122.70
1	D	32	GLU	O-C-N	6.34	132.85	122.70
1	A	488	ARG	NE-CZ-NH2	-6.30	117.15	120.30
1	B	488	ARG	NE-CZ-NH2	-6.30	117.15	120.30
1	C	488	ARG	NE-CZ-NH2	-6.30	117.15	120.30
1	D	488	ARG	NE-CZ-NH2	-6.30	117.15	120.30
1	A	274	ILE	CA-C-N	6.27	130.99	117.20
1	B	274	ILE	CA-C-N	6.27	130.99	117.20
1	C	274	ILE	CA-C-N	6.27	130.99	117.20
1	D	274	ILE	CA-C-N	6.27	130.99	117.20
1	A	274	ILE	O-C-N	-6.25	112.70	122.70
1	B	274	ILE	O-C-N	-6.25	112.70	122.70
1	C	274	ILE	O-C-N	-6.25	112.70	122.70
1	D	274	ILE	O-C-N	-6.25	112.70	122.70
1	A	377	ARG	CA-CB-CG	-6.22	99.70	113.40
1	B	377	ARG	CA-CB-CG	-6.22	99.70	113.40
1	C	377	ARG	CA-CB-CG	-6.22	99.70	113.40
1	D	377	ARG	CA-CB-CG	-6.22	99.70	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	512	TRP	CB-CG-CD1	-6.19	118.95	127.00
1	B	512	TRP	CB-CG-CD1	-6.19	118.95	127.00
1	C	512	TRP	CB-CG-CD1	-6.19	118.95	127.00
1	D	512	TRP	CB-CG-CD1	-6.19	118.95	127.00
1	A	201	ASN	CB-CG-ND2	-6.19	101.85	116.70
1	B	201	ASN	CB-CG-ND2	-6.19	101.85	116.70
1	C	201	ASN	CB-CG-ND2	-6.19	101.85	116.70
1	D	201	ASN	CB-CG-ND2	-6.19	101.85	116.70
1	A	495	ARG	NE-CZ-NH2	6.17	123.38	120.30
1	B	495	ARG	NE-CZ-NH2	6.17	123.38	120.30
1	C	495	ARG	NE-CZ-NH2	6.17	123.38	120.30
1	D	495	ARG	NE-CZ-NH2	6.17	123.38	120.30
1	A	126	ILE	CB-CG1-CD1	-6.16	96.64	113.90
1	B	126	ILE	CB-CG1-CD1	-6.16	96.64	113.90
1	C	126	ILE	CB-CG1-CD1	-6.16	96.64	113.90
1	D	126	ILE	CB-CG1-CD1	-6.16	96.64	113.90
1	A	469	TRP	CG-CD1-NE1	-6.12	103.98	110.10
1	B	469	TRP	CG-CD1-NE1	-6.12	103.98	110.10
1	C	469	TRP	CG-CD1-NE1	-6.12	103.98	110.10
1	D	469	TRP	CG-CD1-NE1	-6.12	103.98	110.10
1	A	264	ARG	NE-CZ-NH2	-6.11	117.25	120.30
1	B	264	ARG	NE-CZ-NH2	-6.11	117.25	120.30
1	C	264	ARG	NE-CZ-NH2	-6.11	117.25	120.30
1	D	264	ARG	NE-CZ-NH2	-6.11	117.25	120.30
1	A	29	LEU	CA-C-N	6.05	130.51	117.20
1	B	29	LEU	CA-C-N	6.05	130.51	117.20
1	C	29	LEU	CA-C-N	6.05	130.51	117.20
1	D	29	LEU	CA-C-N	6.05	130.51	117.20
1	A	521	ARG	NE-CZ-NH2	-6.04	117.28	120.30
1	B	521	ARG	NE-CZ-NH2	-6.04	117.28	120.30
1	C	521	ARG	NE-CZ-NH2	-6.04	117.28	120.30
1	D	521	ARG	NE-CZ-NH2	-6.04	117.28	120.30
1	A	442	ASN	CA-C-N	6.03	130.46	117.20
1	B	442	ASN	CA-C-N	6.03	130.46	117.20
1	C	442	ASN	CA-C-N	6.03	130.46	117.20
1	D	442	ASN	CA-C-N	6.03	130.46	117.20
1	A	208	ILE	CB-CA-C	6.01	123.62	111.60
1	B	208	ILE	CB-CA-C	6.01	123.62	111.60
1	C	208	ILE	CB-CA-C	6.01	123.62	111.60
1	D	208	ILE	CB-CA-C	6.01	123.62	111.60
1	A	240	TRP	CG-CD2-CE3	5.99	139.29	133.90
1	B	240	TRP	CG-CD2-CE3	5.99	139.29	133.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	240	TRP	CG-CD2-CE3	5.99	139.29	133.90
1	D	240	TRP	CG-CD2-CE3	5.99	139.29	133.90
1	A	742	TRP	CB-CG-CD1	-5.98	119.23	127.00
1	B	742	TRP	CB-CG-CD1	-5.98	119.23	127.00
1	C	742	TRP	CB-CG-CD1	-5.98	119.23	127.00
1	D	742	TRP	CB-CG-CD1	-5.98	119.23	127.00
1	A	601	ARG	NE-CZ-NH1	5.97	123.28	120.30
1	B	601	ARG	NE-CZ-NH1	5.97	123.28	120.30
1	C	601	ARG	NE-CZ-NH1	5.97	123.28	120.30
1	D	601	ARG	NE-CZ-NH1	5.97	123.28	120.30
1	A	137	TYR	CB-CG-CD1	-5.90	117.46	121.00
1	B	137	TYR	CB-CG-CD1	-5.90	117.46	121.00
1	C	137	TYR	CB-CG-CD1	-5.90	117.46	121.00
1	D	137	TYR	CB-CG-CD1	-5.90	117.46	121.00
1	A	567	THR	CA-CB-CG2	5.88	120.63	112.40
1	B	567	THR	CA-CB-CG2	5.88	120.63	112.40
1	C	567	THR	CA-CB-CG2	5.88	120.63	112.40
1	D	567	THR	CA-CB-CG2	5.88	120.63	112.40
1	A	497	ARG	NE-CZ-NH2	-5.85	117.38	120.30
1	B	497	ARG	NE-CZ-NH2	-5.85	117.38	120.30
1	C	497	ARG	NE-CZ-NH2	-5.85	117.38	120.30
1	D	497	ARG	NE-CZ-NH2	-5.85	117.38	120.30
1	A	405	ASP	CB-CG-OD1	5.80	123.52	118.30
1	B	405	ASP	CB-CG-OD1	5.80	123.52	118.30
1	C	405	ASP	CB-CG-OD1	5.80	123.52	118.30
1	D	405	ASP	CB-CG-OD1	5.80	123.52	118.30
1	A	370	VAL	N-CA-CB	-5.80	98.75	111.50
1	B	370	VAL	N-CA-CB	-5.80	98.75	111.50
1	C	370	VAL	N-CA-CB	-5.80	98.75	111.50
1	D	370	VAL	N-CA-CB	-5.80	98.75	111.50
1	A	415	TYR	CA-CB-CG	5.79	124.40	113.40
1	B	415	TYR	CA-CB-CG	5.79	124.40	113.40
1	C	415	TYR	CA-CB-CG	5.79	124.40	113.40
1	D	415	TYR	CA-CB-CG	5.79	124.40	113.40
1	A	125	ARG	NH1-CZ-NH2	-5.78	113.04	119.40
1	B	125	ARG	NH1-CZ-NH2	-5.78	113.04	119.40
1	C	125	ARG	NH1-CZ-NH2	-5.78	113.04	119.40
1	D	125	ARG	NH1-CZ-NH2	-5.78	113.04	119.40
1	A	242	TYR	CB-CG-CD1	-5.76	117.54	121.00
1	B	242	TYR	CB-CG-CD1	-5.76	117.54	121.00
1	C	242	TYR	CB-CG-CD1	-5.76	117.54	121.00
1	D	242	TYR	CB-CG-CD1	-5.76	117.54	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	686	MET	CG-SD-CE	-5.76	90.98	100.20
1	B	686	MET	CG-SD-CE	-5.76	90.98	100.20
1	C	686	MET	CG-SD-CE	-5.76	90.98	100.20
1	D	686	MET	CG-SD-CE	-5.76	90.98	100.20
1	A	702	ARG	CG-CD-NE	5.74	123.86	111.80
1	B	702	ARG	CG-CD-NE	5.74	123.86	111.80
1	C	702	ARG	CG-CD-NE	5.74	123.86	111.80
1	D	702	ARG	CG-CD-NE	5.74	123.86	111.80
1	A	267	ARG	NE-CZ-NH1	5.71	123.15	120.30
1	B	267	ARG	NE-CZ-NH1	5.71	123.15	120.30
1	C	267	ARG	NE-CZ-NH1	5.71	123.15	120.30
1	D	267	ARG	NE-CZ-NH1	5.71	123.15	120.30
1	A	183	ARG	CB-CG-CD	5.70	126.42	111.60
1	B	183	ARG	CB-CG-CD	5.70	126.42	111.60
1	C	183	ARG	CB-CG-CD	5.70	126.42	111.60
1	D	183	ARG	CB-CG-CD	5.70	126.42	111.60
1	A	309	LYS	CB-CG-CD	-5.67	96.86	111.60
1	B	309	LYS	CB-CG-CD	-5.67	96.86	111.60
1	C	309	LYS	CB-CG-CD	-5.67	96.86	111.60
1	D	309	LYS	CB-CG-CD	-5.67	96.86	111.60
1	A	236	HIS	CA-CB-CG	5.65	123.21	113.60
1	B	236	HIS	CA-CB-CG	5.65	123.21	113.60
1	C	236	HIS	CA-CB-CG	5.65	123.21	113.60
1	D	236	HIS	CA-CB-CG	5.65	123.21	113.60
1	A	285	LYS	CA-CB-CG	5.62	125.77	113.40
1	B	285	LYS	CA-CB-CG	5.62	125.77	113.40
1	C	285	LYS	CA-CB-CG	5.62	125.77	113.40
1	D	285	LYS	CA-CB-CG	5.62	125.77	113.40
1	A	445	ARG	NH1-CZ-NH2	-5.61	113.22	119.40
1	B	445	ARG	NH1-CZ-NH2	-5.61	113.22	119.40
1	C	445	ARG	NH1-CZ-NH2	-5.61	113.22	119.40
1	D	445	ARG	NH1-CZ-NH2	-5.61	113.22	119.40
1	A	544	VAL	CA-CB-CG2	-5.59	102.51	110.90
1	B	544	VAL	CA-CB-CG2	-5.59	102.51	110.90
1	C	544	VAL	CA-CB-CG2	-5.59	102.51	110.90
1	D	544	VAL	CA-CB-CG2	-5.59	102.51	110.90
1	A	377	ARG	NH1-CZ-NH2	5.55	125.50	119.40
1	B	377	ARG	NH1-CZ-NH2	5.55	125.50	119.40
1	C	377	ARG	NH1-CZ-NH2	5.55	125.50	119.40
1	D	377	ARG	NH1-CZ-NH2	5.55	125.50	119.40
1	A	512	TRP	CG-CD1-NE1	-5.55	104.55	110.10
1	B	512	TRP	CG-CD1-NE1	-5.55	104.55	110.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	512	TRP	CG-CD1-NE1	-5.55	104.55	110.10
1	D	512	TRP	CG-CD1-NE1	-5.55	104.55	110.10
1	A	27	ASP	N-CA-C	-5.54	96.03	111.00
1	B	27	ASP	N-CA-C	-5.54	96.03	111.00
1	C	27	ASP	N-CA-C	-5.54	96.03	111.00
1	D	27	ASP	N-CA-C	-5.54	96.03	111.00
1	A	183	ARG	CA-CB-CG	5.53	125.57	113.40
1	B	183	ARG	CA-CB-CG	5.53	125.57	113.40
1	C	183	ARG	CA-CB-CG	5.53	125.57	113.40
1	D	183	ARG	CA-CB-CG	5.53	125.57	113.40
1	A	177	ASP	CB-CG-OD1	5.52	123.27	118.30
1	B	177	ASP	CB-CG-OD1	5.52	123.27	118.30
1	C	177	ASP	CB-CG-OD1	5.52	123.27	118.30
1	D	177	ASP	CB-CG-OD1	5.52	123.27	118.30
1	A	471	ARG	CB-CG-CD	5.50	125.91	111.60
1	B	471	ARG	CB-CG-CD	5.50	125.91	111.60
1	C	471	ARG	CB-CG-CD	5.50	125.91	111.60
1	D	471	ARG	CB-CG-CD	5.50	125.91	111.60
1	A	432	PRO	O-C-N	-5.48	113.93	122.70
1	B	432	PRO	O-C-N	-5.48	113.93	122.70
1	C	432	PRO	O-C-N	-5.48	113.93	122.70
1	D	432	PRO	O-C-N	-5.48	113.93	122.70
1	A	505	TYR	CB-CG-CD1	5.47	124.28	121.00
1	B	505	TYR	CB-CG-CD1	5.47	124.28	121.00
1	C	505	TYR	CB-CG-CD1	5.47	124.28	121.00
1	D	505	TYR	CB-CG-CD1	5.47	124.28	121.00
1	A	587	SER	CA-CB-OG	5.46	125.94	111.20
1	B	587	SER	CA-CB-OG	5.46	125.94	111.20
1	C	587	SER	CA-CB-OG	5.46	125.94	111.20
1	D	587	SER	CA-CB-OG	5.46	125.94	111.20
1	A	83	ASN	CB-CG-ND2	5.45	129.78	116.70
1	B	83	ASN	CB-CG-ND2	5.45	129.78	116.70
1	C	83	ASN	CB-CG-ND2	5.45	129.78	116.70
1	D	83	ASN	CB-CG-ND2	5.45	129.78	116.70
1	A	460	TYR	CB-CG-CD1	-5.45	117.73	121.00
1	B	460	TYR	CB-CG-CD1	-5.45	117.73	121.00
1	C	460	TYR	CB-CG-CD1	-5.45	117.73	121.00
1	D	460	TYR	CB-CG-CD1	-5.45	117.73	121.00
1	A	181	ASP	CB-CG-OD1	5.43	123.19	118.30
1	B	181	ASP	CB-CG-OD1	5.43	123.19	118.30
1	C	181	ASP	CB-CG-OD1	5.43	123.19	118.30
1	D	181	ASP	CB-CG-OD1	5.43	123.19	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	648	LEU	CA-CB-CG	5.40	127.72	115.30
1	B	648	LEU	CA-CB-CG	5.40	127.72	115.30
1	C	648	LEU	CA-CB-CG	5.40	127.72	115.30
1	D	648	LEU	CA-CB-CG	5.40	127.72	115.30
1	A	201	ASN	CA-CB-CG	5.40	125.27	113.40
1	B	201	ASN	CA-CB-CG	5.40	125.27	113.40
1	C	201	ASN	CA-CB-CG	5.40	125.27	113.40
1	D	201	ASN	CA-CB-CG	5.40	125.27	113.40
1	A	422	ARG	NE-CZ-NH2	-5.36	117.62	120.30
1	B	422	ARG	NE-CZ-NH2	-5.36	117.62	120.30
1	C	422	ARG	NE-CZ-NH2	-5.36	117.62	120.30
1	D	422	ARG	NE-CZ-NH2	-5.36	117.62	120.30
1	A	155	ASP	CB-CG-OD1	5.35	123.12	118.30
1	B	155	ASP	CB-CG-OD1	5.35	123.12	118.30
1	C	155	ASP	CB-CG-OD1	5.35	123.12	118.30
1	D	155	ASP	CB-CG-OD1	5.35	123.12	118.30
1	A	255	TRP	CB-CG-CD1	-5.35	120.05	127.00
1	B	255	TRP	CB-CG-CD1	-5.35	120.05	127.00
1	C	255	TRP	CB-CG-CD1	-5.35	120.05	127.00
1	D	255	TRP	CB-CG-CD1	-5.35	120.05	127.00
1	A	636	ARG	CA-CB-CG	5.33	125.12	113.40
1	B	636	ARG	CA-CB-CG	5.33	125.12	113.40
1	C	636	ARG	CA-CB-CG	5.33	125.12	113.40
1	D	636	ARG	CA-CB-CG	5.33	125.12	113.40
1	A	37	ARG	CG-CD-NE	5.32	122.97	111.80
1	A	414	SER	N-CA-C	5.32	125.36	111.00
1	B	37	ARG	CG-CD-NE	5.32	122.97	111.80
1	B	414	SER	N-CA-C	5.32	125.36	111.00
1	C	37	ARG	CG-CD-NE	5.32	122.97	111.80
1	C	414	SER	N-CA-C	5.32	125.36	111.00
1	D	37	ARG	CG-CD-NE	5.32	122.97	111.80
1	D	414	SER	N-CA-C	5.32	125.36	111.00
1	A	208	ILE	N-CA-CB	-5.31	98.59	110.80
1	B	208	ILE	N-CA-CB	-5.31	98.59	110.80
1	C	208	ILE	N-CA-CB	-5.31	98.59	110.80
1	D	208	ILE	N-CA-CB	-5.31	98.59	110.80
1	A	408	LEU	CA-CB-CG	5.24	127.36	115.30
1	B	408	LEU	CA-CB-CG	5.24	127.36	115.30
1	C	408	LEU	CA-CB-CG	5.24	127.36	115.30
1	D	408	LEU	CA-CB-CG	5.24	127.36	115.30
1	A	751	ILE	CG1-CB-CG2	-5.22	99.92	111.40
1	B	751	ILE	CG1-CB-CG2	-5.22	99.92	111.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	751	ILE	CG1-CB-CG2	-5.22	99.92	111.40
1	D	751	ILE	CG1-CB-CG2	-5.22	99.92	111.40
1	A	255	TRP	CG-CD1-NE1	-5.21	104.89	110.10
1	B	255	TRP	CG-CD1-NE1	-5.21	104.89	110.10
1	C	255	TRP	CG-CD1-NE1	-5.21	104.89	110.10
1	D	255	TRP	CG-CD1-NE1	-5.21	104.89	110.10
1	A	432	PRO	CA-C-N	5.21	128.65	117.20
1	A	466	ASN	CB-CG-ND2	5.21	129.19	116.70
1	B	432	PRO	CA-C-N	5.21	128.65	117.20
1	B	466	ASN	CB-CG-ND2	5.21	129.19	116.70
1	C	432	PRO	CA-C-N	5.21	128.65	117.20
1	C	466	ASN	CB-CG-ND2	5.21	129.19	116.70
1	D	432	PRO	CA-C-N	5.21	128.65	117.20
1	D	466	ASN	CB-CG-ND2	5.21	129.19	116.70
1	A	466	ASN	OD1-CG-ND2	-5.19	109.96	121.90
1	B	466	ASN	OD1-CG-ND2	-5.19	109.96	121.90
1	C	466	ASN	OD1-CG-ND2	-5.19	109.96	121.90
1	D	466	ASN	OD1-CG-ND2	-5.19	109.96	121.90
1	A	334	TYR	CB-CG-CD2	-5.18	117.89	121.00
1	B	334	TYR	CB-CG-CD2	-5.18	117.89	121.00
1	C	334	TYR	CB-CG-CD2	-5.18	117.89	121.00
1	D	334	TYR	CB-CG-CD2	-5.18	117.89	121.00
1	A	411	ARG	NH1-CZ-NH2	-5.17	113.72	119.40
1	B	411	ARG	NH1-CZ-NH2	-5.17	113.72	119.40
1	C	411	ARG	NH1-CZ-NH2	-5.17	113.72	119.40
1	D	411	ARG	NH1-CZ-NH2	-5.17	113.72	119.40
1	A	266	TYR	CB-CG-CD1	-5.15	117.91	121.00
1	B	266	TYR	CB-CG-CD1	-5.15	117.91	121.00
1	C	266	TYR	CB-CG-CD1	-5.15	117.91	121.00
1	D	266	TYR	CB-CG-CD1	-5.15	117.91	121.00
1	A	742	TRP	CG-CD2-CE3	5.14	138.53	133.90
1	B	742	TRP	CG-CD2-CE3	5.14	138.53	133.90
1	C	742	TRP	CG-CD2-CE3	5.14	138.53	133.90
1	D	742	TRP	CG-CD2-CE3	5.14	138.53	133.90
1	A	567	THR	N-CA-CB	-5.13	100.56	110.30
1	B	567	THR	N-CA-CB	-5.13	100.56	110.30
1	C	567	THR	N-CA-CB	-5.13	100.56	110.30
1	D	567	THR	N-CA-CB	-5.13	100.56	110.30
1	A	585	ASP	CB-CG-OD2	-5.12	113.69	118.30
1	B	585	ASP	CB-CG-OD2	-5.12	113.69	118.30
1	C	585	ASP	CB-CG-OD2	-5.12	113.69	118.30
1	D	585	ASP	CB-CG-OD2	-5.12	113.69	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	319	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	B	319	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	C	319	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	D	319	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	A	702	ARG	NE-CZ-NH1	5.11	122.85	120.30
1	B	702	ARG	NE-CZ-NH1	5.11	122.85	120.30
1	C	702	ARG	NE-CZ-NH1	5.11	122.85	120.30
1	D	702	ARG	NE-CZ-NH1	5.11	122.85	120.30
1	A	125	ARG	NE-CZ-NH2	5.10	122.85	120.30
1	A	357	THR	CA-CB-CG2	5.10	119.54	112.40
1	B	125	ARG	NE-CZ-NH2	5.10	122.85	120.30
1	B	357	THR	CA-CB-CG2	5.10	119.54	112.40
1	C	125	ARG	NE-CZ-NH2	5.10	122.85	120.30
1	C	357	THR	CA-CB-CG2	5.10	119.54	112.40
1	D	125	ARG	NE-CZ-NH2	5.10	122.85	120.30
1	D	357	THR	CA-CB-CG2	5.10	119.54	112.40
1	A	451	MET	CA-C-N	5.08	126.35	116.20
1	B	451	MET	CA-C-N	5.08	126.35	116.20
1	C	451	MET	CA-C-N	5.08	126.35	116.20
1	D	451	MET	CA-C-N	5.08	126.35	116.20
1	A	123	PRO	CA-C-N	5.03	128.27	117.20
1	A	684	TYR	CB-CG-CD1	-5.03	117.98	121.00
1	B	123	PRO	CA-C-N	5.03	128.27	117.20
1	B	684	TYR	CB-CG-CD1	-5.03	117.98	121.00
1	C	123	PRO	CA-C-N	5.03	128.27	117.20
1	C	684	TYR	CB-CG-CD1	-5.03	117.98	121.00
1	D	123	PRO	CA-C-N	5.03	128.27	117.20
1	D	684	TYR	CB-CG-CD1	-5.03	117.98	121.00
1	A	240	TRP	CB-CG-CD1	-5.02	120.47	127.00
1	B	240	TRP	CB-CG-CD1	-5.02	120.47	127.00
1	C	240	TRP	CB-CG-CD1	-5.02	120.47	127.00
1	D	240	TRP	CB-CG-CD1	-5.02	120.47	127.00
1	A	468	ASN	N-CA-C	5.00	124.50	111.00
1	A	602	VAL	CG1-CB-CG2	-5.00	102.90	110.90
1	B	468	ASN	N-CA-C	5.00	124.50	111.00
1	B	602	VAL	CG1-CB-CG2	-5.00	102.90	110.90
1	C	468	ASN	N-CA-C	5.00	124.50	111.00
1	C	602	VAL	CG1-CB-CG2	-5.00	102.90	110.90
1	D	468	ASN	N-CA-C	5.00	124.50	111.00
1	D	602	VAL	CG1-CB-CG2	-5.00	102.90	110.90

There are no chirality outliers.

All (12) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	137	TYR	Sidechain
1	A	415	TYR	Sidechain
1	A	51	ALA	Peptide
1	B	137	TYR	Sidechain
1	B	415	TYR	Sidechain
1	B	51	ALA	Peptide
1	C	137	TYR	Sidechain
1	C	415	TYR	Sidechain
1	C	51	ALA	Peptide
1	D	137	TYR	Sidechain
1	D	415	TYR	Sidechain
1	D	51	ALA	Peptide

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5746	0	5578	82	94
1	B	5746	0	5578	88	94
1	C	5746	0	5578	87	94
1	D	5746	0	5578	83	94
2	A	43	0	30	4	0
2	B	43	0	30	3	0
2	C	43	0	30	3	0
2	D	43	0	30	4	0
All	All	23156	0	22432	319	188

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 7.

All (319) 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:A:392:HIS:CD2	1:A:415:TYR:HB2	2.02	0.94
1:D:392:HIS:CD2	1:D:415:TYR:HB2	2.02	0.94

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:392:HIS:CD2	1:C:415:TYR:HB2	2.02	0.94
1:B:392:HIS:CD2	1:B:415:TYR:HB2	2.02	0.94
1:C:281:ASN:ND2	1:C:285:LYS:HD3	1.95	0.82
1:B:281:ASN:ND2	1:B:285:LYS:HD3	1.95	0.82
1:A:281:ASN:ND2	1:A:285:LYS:HD3	1.95	0.82
1:D:281:ASN:ND2	1:D:285:LYS:HD3	1.95	0.81
1:C:509:ARG:HD2	1:C:576:PRO:HG2	1.64	0.79
1:B:509:ARG:HD2	1:B:576:PRO:HG2	1.64	0.79
1:A:509:ARG:HD2	1:A:576:PRO:HG2	1.64	0.78
1:D:509:ARG:HD2	1:D:576:PRO:HG2	1.64	0.78
1:A:710:ILE:HD13	1:A:718:ILE:HG13	1.68	0.75
1:D:710:ILE:HD13	1:D:718:ILE:HG13	1.68	0.75
1:B:710:ILE:HD13	1:B:718:ILE:HG13	1.68	0.74
1:C:710:ILE:HD13	1:C:718:ILE:HG13	1.68	0.73
1:D:392:HIS:HD2	1:D:415:TYR:CG	2.12	0.68
1:A:392:HIS:HD2	1:A:415:TYR:CG	2.12	0.68
1:C:392:HIS:HD2	1:C:415:TYR:CG	2.12	0.68
1:B:700:ASP:O	1:B:703:LYS:HG2	1.94	0.68
1:B:392:HIS:HD2	1:B:415:TYR:CG	2.12	0.67
1:C:700:ASP:O	1:C:703:LYS:HG2	1.94	0.67
1:A:392:HIS:CD2	1:A:415:TYR:CB	2.78	0.67
1:D:392:HIS:CD2	1:D:415:TYR:CB	2.78	0.67
1:C:392:HIS:CD2	1:C:415:TYR:CB	2.78	0.67
1:B:392:HIS:CD2	1:B:415:TYR:CB	2.78	0.67
1:D:700:ASP:O	1:D:703:LYS:HG2	1.94	0.67
1:A:700:ASP:O	1:A:703:LYS:HG2	1.94	0.67
1:B:708:ILE:HG13	1:B:710:ILE:HD12	1.79	0.65
1:C:708:ILE:HG13	1:C:710:ILE:HD12	1.79	0.64
1:A:708:ILE:HG13	1:A:710:ILE:HD12	1.79	0.64
1:D:708:ILE:HG13	1:D:710:ILE:HD12	1.79	0.63
1:B:338:PHE:HB3	1:B:340:LEU:HD13	1.82	0.62
1:C:338:PHE:HB3	1:C:340:LEU:HD13	1.82	0.62
1:A:147:ILE:HA	1:A:285:LYS:HE3	1.82	0.62
1:D:147:ILE:HA	1:D:285:LYS:HE3	1.82	0.62
1:D:338:PHE:HB3	1:D:340:LEU:HD13	1.82	0.62
1:A:338:PHE:HB3	1:A:340:LEU:HD13	1.82	0.62
1:A:264:ARG:HA	1:A:302:LEU:HD13	1.82	0.61
1:C:568:ASP:HA	1:C:571:LEU:HD23	1.82	0.61
1:D:264:ARG:HA	1:D:302:LEU:HD13	1.82	0.61
1:B:568:ASP:HA	1:B:571:LEU:HD23	1.82	0.61
1:D:392:HIS:HD2	1:D:415:TYR:CB	2.14	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:392:HIS:HD2	1:A:415:TYR:CB	2.14	0.61
1:C:345:ASP:HA	1:C:348:LYS:HD3	1.83	0.61
1:B:345:ASP:HA	1:B:348:LYS:HD3	1.83	0.61
1:C:147:ILE:HA	1:C:285:LYS:HE3	1.82	0.61
1:B:147:ILE:HA	1:B:285:LYS:HE3	1.82	0.61
1:A:392:HIS:HD2	1:A:415:TYR:HB2	1.61	0.60
1:D:392:HIS:HD2	1:D:415:TYR:HB2	1.61	0.60
1:C:392:HIS:HD2	1:C:415:TYR:HB2	1.61	0.60
1:B:392:HIS:HD2	1:B:415:TYR:HB2	1.61	0.60
1:A:568:ASP:HA	1:A:571:LEU:HD23	1.82	0.60
1:D:568:ASP:HA	1:D:571:LEU:HD23	1.82	0.60
1:B:264:ARG:HA	1:B:302:LEU:HD13	1.82	0.60
1:C:264:ARG:HA	1:C:302:LEU:HD13	1.82	0.60
1:D:345:ASP:HA	1:D:348:LYS:HD3	1.83	0.60
1:A:345:ASP:HA	1:A:348:LYS:HD3	1.83	0.60
1:C:392:HIS:HD2	1:C:415:TYR:CB	2.14	0.59
1:B:392:HIS:HD2	1:B:415:TYR:CB	2.14	0.59
1:D:131:GLY:HA2	1:D:166:PHE:O	2.03	0.59
1:A:131:GLY:HA2	1:A:166:PHE:O	2.03	0.59
1:C:516:THR:O	1:C:520:GLN:HG3	2.03	0.58
1:B:516:THR:O	1:B:520:GLN:HG3	2.03	0.58
1:B:131:GLY:HA2	1:B:166:PHE:O	2.03	0.58
1:C:131:GLY:HA2	1:C:166:PHE:O	2.03	0.58
1:D:516:THR:O	1:D:520:GLN:HG3	2.03	0.58
1:A:516:THR:O	1:A:520:GLN:HG3	2.03	0.58
1:A:634:TYR:O	1:A:653:THR:HA	2.04	0.57
1:D:634:TYR:O	1:D:653:THR:HA	2.04	0.57
1:C:634:TYR:O	1:C:653:THR:HA	2.04	0.57
1:B:264:ARG:HB3	1:B:268:THR:HG21	1.87	0.57
1:C:264:ARG:HB3	1:C:268:THR:HG21	1.87	0.57
1:B:634:TYR:O	1:B:653:THR:HA	2.04	0.57
1:D:264:ARG:HB3	1:D:268:THR:HG21	1.87	0.56
1:A:264:ARG:HB3	1:A:268:THR:HG21	1.87	0.56
1:A:515:GLN:HB2	1:A:520:GLN:HG2	1.89	0.55
1:D:515:GLN:HB2	1:D:520:GLN:HG2	1.89	0.55
1:D:333:GLU:HG2	1:D:374:VAL:HG22	1.89	0.55
1:B:333:GLU:HG2	1:B:374:VAL:HG22	1.89	0.55
1:A:333:GLU:HG2	1:A:374:VAL:HG22	1.89	0.55
1:C:333:GLU:HG2	1:C:374:VAL:HG22	1.89	0.55
1:C:527:PHE:O	1:C:531:LEU:HB2	2.07	0.55
1:B:527:PHE:O	1:B:531:LEU:HB2	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:268:THR:HG23	1:A:300:ALA:H	1.72	0.55
1:C:515:GLN:HB2	1:C:520:GLN:HG2	1.89	0.55
1:B:515:GLN:HB2	1:B:520:GLN:HG2	1.89	0.55
1:D:268:THR:HG23	1:D:300:ALA:H	1.72	0.54
1:B:537:PRO:HA	1:B:540:ARG:HG3	1.89	0.54
1:C:537:PRO:HA	1:C:540:ARG:HG3	1.89	0.54
1:B:313:ARG:HG2	1:B:658:PRO:HG2	1.90	0.54
1:C:313:ARG:HG2	1:C:658:PRO:HG2	1.90	0.54
1:A:527:PHE:O	1:A:531:LEU:HB2	2.07	0.54
1:A:449:HIS:CD2	1:A:451:MET:SD	3.00	0.54
1:D:527:PHE:O	1:D:531:LEU:HB2	2.07	0.54
1:D:449:HIS:CD2	1:D:451:MET:SD	3.00	0.54
1:B:449:HIS:CD2	1:B:451:MET:SD	3.00	0.54
1:B:268:THR:HG23	1:B:300:ALA:H	1.72	0.54
1:C:268:THR:HG23	1:C:300:ALA:H	1.72	0.54
1:C:449:HIS:CD2	1:C:451:MET:SD	3.00	0.54
1:B:567:THR:HG22	1:B:570:GLN:H	1.73	0.54
1:C:567:THR:HG22	1:C:570:GLN:H	1.73	0.54
1:A:221:VAL:HG13	1:A:239:PHE:CD1	2.43	0.54
1:D:221:VAL:HG13	1:D:239:PHE:CD1	2.43	0.54
1:B:221:VAL:HG13	1:B:239:PHE:CD1	2.43	0.53
1:C:221:VAL:HG13	1:C:239:PHE:CD1	2.43	0.53
1:B:705:LYS:HE3	1:B:710:ILE:HG22	1.91	0.53
1:D:223:PRO:HG3	1:D:230:PRO:O	2.09	0.53
1:A:223:PRO:HG3	1:A:230:PRO:O	2.09	0.53
1:D:567:THR:HG22	1:D:570:GLN:H	1.73	0.53
1:C:705:LYS:HE3	1:C:710:ILE:HG22	1.91	0.53
1:D:231:GLN:O	1:D:233:GLN:HG3	2.09	0.53
1:A:231:GLN:O	1:A:233:GLN:HG3	2.09	0.53
1:B:231:GLN:O	1:B:233:GLN:HG3	2.09	0.53
1:A:705:LYS:HE3	1:A:710:ILE:HG22	1.91	0.53
1:D:705:LYS:HE3	1:D:710:ILE:HG22	1.91	0.53
1:C:231:GLN:O	1:C:233:GLN:HG3	2.09	0.53
1:A:567:THR:HG22	1:A:570:GLN:H	1.73	0.53
1:C:392:HIS:CG	1:C:415:TYR:HB2	2.44	0.53
1:B:392:HIS:CG	1:B:415:TYR:HB2	2.44	0.53
1:A:537:PRO:HA	1:A:540:ARG:HG3	1.89	0.53
1:C:223:PRO:HG3	1:C:230:PRO:O	2.09	0.53
1:D:537:PRO:HA	1:D:540:ARG:HG3	1.89	0.53
1:B:223:PRO:HG3	1:B:230:PRO:O	2.09	0.53
1:D:51:ALA:O	1:D:323:TRP:HZ2	1.92	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:51:ALA:O	1:C:323:TRP:HZ2	1.92	0.52
1:A:639:GLU:HG3	1:A:647:VAL:HG13	1.92	0.52
1:D:313:ARG:HG2	1:D:658:PRO:HG2	1.90	0.52
1:B:267:ARG:HG2	1:B:332:PRO:HG3	1.91	0.52
1:A:51:ALA:O	1:A:323:TRP:HZ2	1.92	0.52
1:A:313:ARG:HG2	1:A:658:PRO:HG2	1.90	0.52
1:C:267:ARG:HG2	1:C:332:PRO:HG3	1.91	0.52
1:D:639:GLU:HG3	1:D:647:VAL:HG13	1.92	0.52
1:B:51:ALA:O	1:B:323:TRP:HZ2	1.92	0.52
1:B:443:PHE:HD2	1:B:459:ASN:HA	1.75	0.52
1:C:443:PHE:HD2	1:C:459:ASN:HA	1.75	0.52
1:A:258:SER:OG	1:A:260:ARG:HB2	2.09	0.52
1:B:453:ILE:HD12	1:D:71:VAL:HG23	1.92	0.52
1:A:71:VAL:HG23	1:C:453:ILE:HD12	1.92	0.52
1:D:392:HIS:CG	1:D:415:TYR:HB2	2.44	0.52
1:A:443:PHE:HD2	1:A:459:ASN:HA	1.75	0.52
1:D:443:PHE:HD2	1:D:459:ASN:HA	1.75	0.52
1:D:258:SER:OG	1:D:260:ARG:HB2	2.09	0.52
1:A:392:HIS:CG	1:A:415:TYR:HB2	2.44	0.52
1:C:258:SER:OG	1:C:260:ARG:HB2	2.09	0.52
1:B:258:SER:OG	1:B:260:ARG:HB2	2.09	0.52
1:B:639:GLU:HG3	1:B:647:VAL:HG13	1.92	0.52
1:C:639:GLU:HG3	1:C:647:VAL:HG13	1.92	0.52
1:A:267:ARG:HG2	1:A:332:PRO:HG3	1.91	0.51
1:A:459:ASN:HD22	1:A:459:ASN:H	1.59	0.51
1:D:267:ARG:HG2	1:D:332:PRO:HG3	1.91	0.51
1:D:459:ASN:HD22	1:D:459:ASN:H	1.59	0.51
1:A:453:ILE:HD12	1:C:71:VAL:HG23	1.92	0.51
1:B:71:VAL:HG23	1:D:453:ILE:HD12	1.92	0.51
1:D:285:LYS:HE2	1:D:287:THR:OG1	2.11	0.51
1:A:285:LYS:HE2	1:A:287:THR:OG1	2.11	0.51
1:B:459:ASN:H	1:B:459:ASN:HD22	1.59	0.50
1:C:459:ASN:HD22	1:C:459:ASN:H	1.59	0.50
1:D:418:THR:HG21	2:D:754:HEM:HBD1	1.93	0.50
1:A:418:THR:HG21	2:A:754:HEM:HBD1	1.93	0.50
1:C:418:THR:HG21	2:C:754:HEM:HBD1	1.93	0.50
1:B:490:GLU:HA	1:C:489:VAL:O	2.11	0.50
1:B:285:LYS:HE2	1:B:287:THR:OG1	2.11	0.50
1:B:418:THR:HG21	2:B:754:HEM:HBD1	1.93	0.50
1:B:471:ARG:NH2	1:D:27:ASP:N	2.60	0.50
1:A:27:ASP:N	1:C:471:ARG:NH2	2.60	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:489:VAL:O	1:C:490:GLU:HA	2.11	0.50
1:C:285:LYS:HE2	1:C:287:THR:OG1	2.11	0.50
1:A:489:VAL:O	1:D:490:GLU:HA	2.11	0.50
1:A:490:GLU:HA	1:D:489:VAL:O	2.11	0.49
1:A:471:ARG:NH2	1:C:27:ASP:N	2.60	0.49
1:B:27:ASP:N	1:D:471:ARG:NH2	2.60	0.49
1:C:162:VAL:HA	1:C:188:LYS:O	2.13	0.49
1:B:162:VAL:HA	1:B:188:LYS:O	2.13	0.49
1:B:363:GLU:HB2	1:B:582:LEU:HD21	1.95	0.48
1:C:363:GLU:HB2	1:C:582:LEU:HD21	1.95	0.48
1:A:162:VAL:HA	1:A:188:LYS:O	2.13	0.48
1:D:162:VAL:HA	1:D:188:LYS:O	2.13	0.48
1:D:506:SER:HB3	1:D:577:PRO:O	2.14	0.48
1:B:214:PHE:HB3	1:B:215:PRO:HD3	1.96	0.48
1:A:506:SER:HB3	1:A:577:PRO:O	2.14	0.48
1:C:214:PHE:HB3	1:C:215:PRO:HD3	1.96	0.48
1:A:214:PHE:HB3	1:A:215:PRO:HD3	1.96	0.48
1:D:214:PHE:HB3	1:D:215:PRO:HD3	1.96	0.48
1:C:255:TRP:HE3	1:C:260:ARG:HG2	1.80	0.47
1:B:255:TRP:HE3	1:B:260:ARG:HG2	1.80	0.47
1:B:506:SER:HB3	1:B:577:PRO:O	2.14	0.47
1:A:363:GLU:HB2	1:A:582:LEU:HD21	1.95	0.47
1:B:641:THR:HA	1:B:646:THR:O	2.14	0.47
1:A:117:PHE:CE1	1:B:126:ILE:HD11	2.50	0.47
1:D:363:GLU:HB2	1:D:582:LEU:HD21	1.95	0.47
1:C:126:ILE:HD11	1:D:117:PHE:CE1	2.50	0.47
1:C:506:SER:HB3	1:C:577:PRO:O	2.14	0.47
1:A:278:ARG:HH22	1:A:487:GLU:CD	2.18	0.47
1:C:641:THR:HA	1:C:646:THR:O	2.14	0.47
1:D:128:HIS:O	1:D:165:ARG:NH2	2.47	0.47
1:D:278:ARG:HH22	1:D:487:GLU:CD	2.18	0.47
1:D:641:THR:HA	1:D:646:THR:O	2.14	0.47
1:A:268:THR:HG23	1:A:300:ALA:N	2.30	0.47
1:D:268:THR:HG23	1:D:300:ALA:N	2.30	0.47
1:C:117:PHE:CE1	1:D:126:ILE:HD11	2.50	0.47
1:A:641:THR:HA	1:A:646:THR:O	2.14	0.47
1:B:748:ILE:HA	1:B:751:ILE:HD13	1.96	0.47
1:A:126:ILE:HD11	1:B:117:PHE:CE1	2.50	0.47
1:B:128:HIS:O	1:B:165:ARG:NH2	2.47	0.47
1:A:128:HIS:O	1:A:165:ARG:NH2	2.47	0.47
1:C:128:HIS:O	1:C:165:ARG:NH2	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:744:ARG:HA	1:A:747:LYS:HD2	1.97	0.47
1:C:748:ILE:HA	1:C:751:ILE:HD13	1.96	0.47
1:D:744:ARG:HA	1:D:747:LYS:HD2	1.97	0.47
2:C:754:HEM:HBC2	2:C:754:HEM:HMC1	1.97	0.47
1:A:748:ILE:HA	1:A:751:ILE:HD13	1.96	0.47
1:D:748:ILE:HA	1:D:751:ILE:HD13	1.96	0.47
2:B:754:HEM:HBC2	2:B:754:HEM:HMC1	1.97	0.46
1:B:744:ARG:HA	1:B:747:LYS:HD2	1.97	0.46
1:C:744:ARG:HA	1:C:747:LYS:HD2	1.97	0.46
1:B:268:THR:HG23	1:B:300:ALA:N	2.30	0.46
1:A:255:TRP:HE3	1:A:260:ARG:HG2	1.80	0.46
1:D:255:TRP:HE3	1:D:260:ARG:HG2	1.80	0.46
1:C:268:THR:HG23	1:C:300:ALA:N	2.30	0.46
2:A:754:HEM:HMC1	2:A:754:HEM:HBC2	1.97	0.46
2:D:754:HEM:HMC1	2:D:754:HEM:HBC2	1.97	0.46
1:A:121:ARG:NH2	1:B:126:ILE:HD12	2.32	0.45
1:C:126:ILE:HD12	1:D:121:ARG:NH2	2.32	0.45
1:A:710:ILE:CD1	1:A:718:ILE:HG13	2.43	0.45
1:D:710:ILE:CD1	1:D:718:ILE:HG13	2.43	0.45
1:C:121:ARG:NH2	1:D:126:ILE:HD12	2.32	0.45
1:A:126:ILE:HD12	1:B:121:ARG:NH2	2.32	0.45
1:B:278:ARG:HH22	1:B:487:GLU:CD	2.18	0.45
1:C:278:ARG:HH22	1:C:487:GLU:CD	2.18	0.45
1:C:87:ARG:HG2	1:C:87:ARG:H	1.62	0.45
1:B:87:ARG:HG2	1:B:87:ARG:H	1.62	0.44
1:B:234:SER:HB2	1:B:239:PHE:CD2	2.53	0.43
1:C:234:SER:HB2	1:C:239:PHE:CD2	2.53	0.43
1:B:449:HIS:HD2	1:B:451:MET:SD	2.41	0.43
1:D:234:SER:HB2	1:D:239:PHE:CD2	2.53	0.43
1:A:255:TRP:CE3	1:A:260:ARG:HG2	2.54	0.43
1:D:443:PHE:CZ	1:D:470:PRO:HD2	2.54	0.43
1:D:255:TRP:CE3	1:D:260:ARG:HG2	2.54	0.43
1:C:443:PHE:CZ	1:C:470:PRO:HD2	2.54	0.43
1:A:443:PHE:CZ	1:A:470:PRO:HD2	2.54	0.43
1:D:28:SER:O	1:D:29:LEU:HB2	2.19	0.43
1:A:28:SER:O	1:A:29:LEU:HB2	2.19	0.43
1:A:234:SER:HB2	1:A:239:PHE:CD2	2.53	0.43
1:B:443:PHE:CZ	1:B:470:PRO:HD2	2.54	0.43
1:A:43:THR:HG21	1:A:48:GLN:HG3	2.01	0.43
1:B:631:LYS:HB3	1:B:633:LEU:HD13	2.01	0.43
1:C:631:LYS:HB3	1:C:633:LEU:HD13	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:43:THR:HG21	1:D:48:GLN:HG3	2.01	0.42
1:D:136:GLY:HA3	1:D:374:VAL:O	2.20	0.42
1:A:136:GLY:HA3	1:A:374:VAL:O	2.20	0.42
1:D:411:ARG:HG2	2:D:754:HEM:C2C	2.54	0.42
1:A:411:ARG:HG2	2:A:754:HEM:C2C	2.54	0.42
1:A:449:HIS:HD2	1:A:451:MET:SD	2.41	0.42
1:C:411:ARG:HG2	2:C:754:HEM:C2C	2.54	0.42
1:B:411:ARG:HG2	2:B:754:HEM:C2C	2.54	0.42
1:D:449:HIS:HD2	1:D:451:MET:SD	2.41	0.42
1:C:204:PRO:HB3	1:C:272:PHE:CD1	2.55	0.42
1:B:28:SER:O	1:B:29:LEU:HB2	2.19	0.42
1:B:204:PRO:HB3	1:B:272:PHE:CD1	2.55	0.42
1:C:28:SER:O	1:C:29:LEU:HB2	2.19	0.42
1:B:136:GLY:HA3	1:B:374:VAL:O	2.20	0.42
1:C:255:TRP:CE3	1:C:260:ARG:HG2	2.54	0.42
1:D:631:LYS:HB3	1:D:633:LEU:HD13	2.01	0.42
1:C:136:GLY:HA3	1:C:374:VAL:O	2.20	0.42
1:B:255:TRP:CE3	1:B:260:ARG:HG2	2.54	0.42
1:A:631:LYS:HB3	1:A:633:LEU:HD13	2.01	0.42
1:B:446:ASP:HB2	1:D:120:GLU:HG2	2.02	0.42
1:C:710:ILE:CD1	1:C:718:ILE:HG13	2.43	0.42
1:A:120:GLU:HG2	1:C:446:ASP:HB2	2.02	0.42
1:D:204:PRO:HB3	1:D:272:PHE:CD1	2.55	0.42
1:A:204:PRO:HB3	1:A:272:PHE:CD1	2.55	0.42
1:B:43:THR:HG21	1:B:48:GLN:HG3	2.01	0.41
1:C:43:THR:HG21	1:C:48:GLN:HG3	2.01	0.41
1:B:710:ILE:CD1	1:B:718:ILE:HG13	2.43	0.41
2:A:754:HEM:HAC	2:A:754:HEM:HHD	1.83	0.41
1:A:446:ASP:HB2	1:C:120:GLU:HG2	2.02	0.41
1:A:333:GLU:HA	1:A:373:MET:O	2.21	0.41
1:B:120:GLU:HG2	1:D:446:ASP:HB2	2.02	0.41
1:D:333:GLU:HA	1:D:373:MET:O	2.21	0.41
1:D:209:GLN:O	1:D:406:PRO:HG2	2.20	0.41
1:A:144:LEU:HD11	1:A:370:VAL:HG13	2.02	0.41
1:A:209:GLN:O	1:A:406:PRO:HG2	2.20	0.41
1:D:144:LEU:HD11	1:D:370:VAL:HG13	2.02	0.41
1:D:211:ALA:CB	1:D:410:GLY:HA3	2.51	0.41
1:B:144:LEU:HD11	1:B:370:VAL:HG13	2.02	0.41
1:A:211:ALA:CB	1:A:410:GLY:HA3	2.51	0.41
1:C:209:GLN:O	1:C:406:PRO:HG2	2.20	0.41
1:B:429:HIS:CD2	1:D:83:ASN:HB3	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:251:HIS:O	1:B:254:MET:HB2	2.21	0.41
1:A:83:ASN:HB3	1:C:429:HIS:CD2	2.56	0.41
1:B:207:PHE:C	1:B:208:ILE:HD12	2.41	0.41
1:A:130:ARG:HA	1:A:173:ALA:HA	2.01	0.41
1:C:207:PHE:C	1:C:208:ILE:HD12	2.41	0.41
1:B:209:GLN:O	1:B:406:PRO:HG2	2.20	0.41
1:C:144:LEU:HD11	1:C:370:VAL:HG13	2.02	0.41
1:A:341:ILE:HD11	1:A:360:ILE:HD13	2.02	0.41
1:C:251:HIS:O	1:C:254:MET:HB2	2.21	0.41
1:B:341:ILE:HD11	1:B:360:ILE:HD13	2.02	0.41
2:D:754:HEM:HAC	2:D:754:HEM:HHD	1.83	0.41
1:D:130:ARG:HA	1:D:173:ALA:HA	2.01	0.41
1:C:341:ILE:HD11	1:C:360:ILE:HD13	2.02	0.41
1:D:341:ILE:HD11	1:D:360:ILE:HD13	2.02	0.41
1:C:96:ARG:HA	1:C:102:PRO:O	2.21	0.41
1:B:130:ARG:HA	1:B:173:ALA:HA	2.01	0.41
1:B:96:ARG:HA	1:B:102:PRO:O	2.21	0.41
1:C:130:ARG:HA	1:C:173:ALA:HA	2.01	0.41
1:B:488:ARG:HD2	1:B:488:ARG:HH11	1.74	0.41
1:C:488:ARG:HH11	1:C:488:ARG:HD2	1.74	0.41
1:B:211:ALA:CB	1:B:410:GLY:HA3	2.51	0.41
1:C:605:ILE:HD12	1:C:630:ALA:HB1	2.02	0.40
1:C:211:ALA:CB	1:C:410:GLY:HA3	2.51	0.40
1:B:128:HIS:CE1	1:B:169:VAL:HG22	2.57	0.40
1:B:605:ILE:HD12	1:B:630:ALA:HB1	2.02	0.40
1:C:128:HIS:CE1	1:C:169:VAL:HG22	2.57	0.40
1:D:251:HIS:O	1:D:254:MET:HB2	2.21	0.40
1:A:251:HIS:O	1:A:254:MET:HB2	2.21	0.40
1:B:333:GLU:HA	1:B:373:MET:O	2.21	0.40
1:C:126:ILE:HD11	1:D:117:PHE:CZ	2.56	0.40

All (188) 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)
1:A:59:ASP:CA	1:D:58:PRO:CB[2_555]	0.44	1.76
1:B:58:PRO:CB	1:C:59:ASP:CA[2_545]	0.44	1.76
1:A:58:PRO:CB	1:D:59:ASP:CA[2_555]	0.44	1.76
1:B:59:ASP:CA	1:C:58:PRO:CB[2_545]	0.44	1.76
1:A:59:ASP:OD2	1:D:57:ALA:C[2_555]	0.67	1.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:57:ALA:C	1:C:59:ASP:OD2[2_545]	0.67	1.53
1:B:59:ASP:OD2	1:C:57:ALA:C[2_545]	0.67	1.53
1:A:57:ALA:C	1:D:59:ASP:OD2[2_555]	0.67	1.53
1:A:59:ASP:CG	1:D:58:PRO:N[2_555]	0.67	1.53
1:B:58:PRO:N	1:C:59:ASP:CG[2_545]	0.67	1.53
1:A:58:PRO:N	1:D:59:ASP:CG[2_555]	0.67	1.53
1:B:59:ASP:CG	1:C:58:PRO:N[2_545]	0.67	1.53
1:B:59:ASP:OD2	1:C:58:PRO:N[2_545]	1.03	1.17
1:A:58:PRO:N	1:D:59:ASP:OD2[2_555]	1.03	1.17
1:B:58:PRO:N	1:C:59:ASP:OD2[2_545]	1.03	1.17
1:A:59:ASP:OD2	1:D:58:PRO:N[2_555]	1.03	1.17
1:A:58:PRO:CA	1:D:59:ASP:CG[2_555]	1.16	1.04
1:B:59:ASP:CG	1:C:58:PRO:CA[2_545]	1.16	1.04
1:A:59:ASP:CG	1:D:58:PRO:CA[2_555]	1.16	1.04
1:B:58:PRO:CA	1:C:59:ASP:CG[2_545]	1.16	1.04
1:A:58:PRO:CB	1:D:59:ASP:CB[2_555]	1.20	1.00
1:B:59:ASP:CB	1:C:58:PRO:CB[2_545]	1.20	1.00
1:A:59:ASP:CB	1:D:58:PRO:CB[2_555]	1.20	1.00
1:B:58:PRO:CB	1:C:59:ASP:CB[2_545]	1.20	1.00
1:B:58:PRO:CA	1:C:59:ASP:CB[2_545]	1.24	0.96
1:A:59:ASP:CB	1:D:58:PRO:CA[2_555]	1.24	0.96
1:B:59:ASP:CB	1:C:58:PRO:CA[2_545]	1.24	0.96
1:A:58:PRO:CA	1:D:59:ASP:CB[2_555]	1.24	0.96
1:B:58:PRO:CG	1:C:59:ASP:CB[2_545]	1.25	0.95
1:A:59:ASP:CB	1:D:58:PRO:CG[2_555]	1.25	0.95
1:B:59:ASP:CB	1:C:58:PRO:CG[2_545]	1.25	0.95
1:A:58:PRO:CG	1:D:59:ASP:CB[2_555]	1.25	0.95
1:B:59:ASP:CG	1:C:57:ALA:C[2_545]	1.26	0.94
1:A:57:ALA:C	1:D:59:ASP:CG[2_555]	1.26	0.94
1:B:57:ALA:C	1:C:59:ASP:CG[2_545]	1.26	0.94
1:A:59:ASP:CG	1:D:57:ALA:C[2_555]	1.26	0.94
1:A:58:PRO:N	1:D:59:ASP:CB[2_555]	1.30	0.90
1:B:59:ASP:CB	1:C:58:PRO:N[2_545]	1.30	0.90
1:A:59:ASP:CB	1:D:58:PRO:N[2_555]	1.30	0.90
1:B:58:PRO:N	1:C:59:ASP:CB[2_545]	1.30	0.90
1:A:58:PRO:CB	1:D:59:ASP:C[2_555]	1.45	0.75
1:B:59:ASP:C	1:C:58:PRO:CB[2_545]	1.45	0.75
1:A:59:ASP:C	1:D:58:PRO:CB[2_555]	1.45	0.75
1:B:58:PRO:CB	1:C:59:ASP:C[2_545]	1.45	0.75
1:A:58:PRO:CD	1:D:59:ASP:CB[2_555]	1.50	0.70
1:B:59:ASP:CB	1:C:58:PRO:CD[2_545]	1.50	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:59:ASP:CB	1:D:58:PRO:CD[2_555]	1.50	0.70
1:B:58:PRO:CD	1:C:59:ASP:CB[2_545]	1.50	0.70
1:A:59:ASP:CA	1:D:58:PRO:CA[2_555]	1.54	0.66
1:B:58:PRO:CA	1:C:59:ASP:CA[2_545]	1.54	0.66
1:A:58:PRO:CA	1:D:59:ASP:CA[2_555]	1.54	0.66
1:B:59:ASP:CA	1:C:58:PRO:CA[2_545]	1.54	0.66
1:C:471:ARG:NH2	1:D:157:ASN:ND2[2_555]	1.55	0.65
1:A:471:ARG:NH2	1:B:157:ASN:ND2[2_555]	1.55	0.65
1:A:157:ASN:ND2	1:B:471:ARG:NH2[2_555]	1.55	0.65
1:C:157:ASN:ND2	1:D:471:ARG:NH2[2_555]	1.55	0.65
1:A:624:LYS:NZ	1:D:624:LYS:NZ[2_555]	1.55	0.65
1:B:624:LYS:NZ	1:C:624:LYS:NZ[2_545]	1.55	0.65
1:B:58:PRO:O	1:C:58:PRO:O[2_545]	1.60	0.60
1:A:58:PRO:O	1:D:58:PRO:O[2_555]	1.60	0.60
1:A:57:ALA:O	1:D:59:ASP:OD1[2_555]	1.60	0.60
1:B:59:ASP:OD1	1:C:57:ALA:O[2_545]	1.60	0.60
1:A:59:ASP:OD1	1:D:57:ALA:O[2_555]	1.60	0.60
1:B:57:ALA:O	1:C:59:ASP:OD1[2_545]	1.60	0.60
1:B:58:PRO:CA	1:C:59:ASP:OD1[2_545]	1.61	0.59
1:A:59:ASP:OD1	1:D:58:PRO:CA[2_555]	1.61	0.59
1:B:59:ASP:OD1	1:C:58:PRO:CA[2_545]	1.61	0.59
1:A:58:PRO:CA	1:D:59:ASP:OD1[2_555]	1.61	0.59
1:A:57:ALA:CA	1:D:59:ASP:OD2[2_555]	1.65	0.55
1:B:59:ASP:OD2	1:C:57:ALA:CA[2_545]	1.65	0.55
1:A:59:ASP:OD2	1:D:57:ALA:CA[2_555]	1.65	0.55
1:B:57:ALA:CA	1:C:59:ASP:OD2[2_545]	1.65	0.55
1:A:617:LEU:CD2	1:D:617:LEU:C[2_555]	1.66	0.54
1:B:617:LEU:C	1:C:617:LEU:CD2[2_545]	1.66	0.54
1:A:617:LEU:C	1:D:617:LEU:CD2[2_555]	1.66	0.54
1:B:617:LEU:CD2	1:C:617:LEU:C[2_545]	1.66	0.54
1:A:59:ASP:OD2	1:D:57:ALA:O[2_555]	1.67	0.53
1:B:57:ALA:O	1:C:59:ASP:OD2[2_545]	1.67	0.53
1:A:57:ALA:O	1:D:59:ASP:OD2[2_555]	1.67	0.53
1:B:59:ASP:OD2	1:C:57:ALA:O[2_545]	1.67	0.53
1:A:42:PRO:CG	1:D:41:GLU:OE1[2_555]	1.68	0.52
1:B:41:GLU:OE1	1:C:42:PRO:CG[2_545]	1.68	0.52
1:A:41:GLU:OE1	1:D:42:PRO:CG[2_555]	1.68	0.52
1:B:42:PRO:CG	1:C:41:GLU:OE1[2_545]	1.68	0.52
1:A:617:LEU:CD2	1:D:617:LEU:CD2[2_555]	1.71	0.49
1:B:617:LEU:CD2	1:C:617:LEU:CD2[2_545]	1.71	0.49
1:B:58:PRO:C	1:C:58:PRO:C[2_545]	1.78	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:58:PRO:C	1:D:58:PRO:C[2_555]	1.78	0.42
1:B:59:ASP:N	1:C:58:PRO:CB[2_545]	1.80	0.40
1:A:58:PRO:CB	1:D:59:ASP:N[2_555]	1.80	0.40
1:B:58:PRO:CB	1:C:59:ASP:N[2_545]	1.80	0.40
1:A:59:ASP:N	1:D:58:PRO:CB[2_555]	1.80	0.40
1:A:624:LYS:NZ	1:D:624:LYS:CE[2_555]	1.81	0.39
1:B:624:LYS:CE	1:C:624:LYS:NZ[2_545]	1.81	0.39
1:B:624:LYS:NZ	1:C:624:LYS:CE[2_545]	1.81	0.39
1:A:624:LYS:CE	1:D:624:LYS:NZ[2_555]	1.81	0.39
1:A:59:ASP:CG	1:D:57:ALA:O[2_555]	1.81	0.39
1:B:57:ALA:O	1:C:59:ASP:CG[2_545]	1.81	0.39
1:A:57:ALA:O	1:D:59:ASP:CG[2_555]	1.81	0.39
1:B:59:ASP:CG	1:C:57:ALA:O[2_545]	1.81	0.39
1:C:490:GLU:OE2	1:D:490:GLU:OE1[1_455]	1.83	0.37
1:A:490:GLU:OE2	1:B:490:GLU:OE1[1_655]	1.83	0.37
1:A:490:GLU:OE1	1:B:490:GLU:OE2[1_655]	1.83	0.37
1:C:490:GLU:OE1	1:D:490:GLU:OE2[1_455]	1.83	0.37
1:A:59:ASP:CA	1:D:58:PRO:CG[2_555]	1.84	0.36
1:B:58:PRO:CG	1:C:59:ASP:CA[2_545]	1.84	0.36
1:A:58:PRO:CG	1:D:59:ASP:CA[2_555]	1.84	0.36
1:B:59:ASP:CA	1:C:58:PRO:CG[2_545]	1.84	0.36
1:A:57:ALA:C	1:D:59:ASP:OD1[2_555]	1.91	0.29
1:B:59:ASP:OD1	1:C:57:ALA:C[2_545]	1.91	0.29
1:A:59:ASP:OD1	1:D:57:ALA:C[2_555]	1.91	0.29
1:B:57:ALA:C	1:C:59:ASP:OD1[2_545]	1.91	0.29
1:B:58:PRO:N	1:C:59:ASP:OD1[2_545]	1.92	0.28
1:A:59:ASP:OD1	1:D:58:PRO:N[2_555]	1.92	0.28
1:B:59:ASP:OD1	1:C:58:PRO:N[2_545]	1.92	0.28
1:A:58:PRO:N	1:D:59:ASP:OD1[2_555]	1.92	0.28
1:A:58:PRO:CG	1:D:59:ASP:C[2_555]	1.94	0.26
1:B:59:ASP:C	1:C:58:PRO:CG[2_545]	1.94	0.26
1:A:59:ASP:C	1:D:58:PRO:CG[2_555]	1.94	0.26
1:B:58:PRO:CG	1:C:59:ASP:C[2_545]	1.94	0.26
1:B:58:PRO:C	1:C:59:ASP:N[2_545]	1.95	0.25
1:A:59:ASP:N	1:D:58:PRO:C[2_555]	1.95	0.25
1:B:59:ASP:N	1:C:58:PRO:C[2_545]	1.95	0.25
1:A:58:PRO:C	1:D:59:ASP:N[2_555]	1.95	0.25
1:A:617:LEU:CD2	1:D:617:LEU:CG[2_555]	1.96	0.24
1:B:617:LEU:CG	1:C:617:LEU:CD2[2_545]	1.96	0.24
1:A:617:LEU:CG	1:D:617:LEU:CD2[2_555]	1.96	0.24
1:B:617:LEU:CD2	1:C:617:LEU:CG[2_545]	1.96	0.24

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:490:GLU:OE1	1:B:490:GLU:OE1[1_655]	2.01	0.19
1:C:490:GLU:OE1	1:D:490:GLU:OE1[1_455]	2.01	0.19
1:A:59:ASP:OD2	1:D:58:PRO:CD[2_555]	2.04	0.16
1:B:58:PRO:CD	1:C:59:ASP:OD2[2_545]	2.04	0.16
1:A:58:PRO:CD	1:D:59:ASP:OD2[2_555]	2.04	0.16
1:B:59:ASP:OD2	1:C:58:PRO:CD[2_545]	2.04	0.16
1:B:58:PRO:O	1:C:58:PRO:C[2_545]	2.05	0.15
1:A:58:PRO:C	1:D:58:PRO:O[2_555]	2.05	0.15
1:B:58:PRO:C	1:C:58:PRO:O[2_545]	2.05	0.15
1:A:58:PRO:O	1:D:58:PRO:C[2_555]	2.05	0.15
1:B:59:ASP:O	1:C:58:PRO:CB[2_545]	2.08	0.12
1:A:58:PRO:CB	1:D:59:ASP:O[2_555]	2.08	0.12
1:B:58:PRO:CB	1:C:59:ASP:O[2_545]	2.08	0.12
1:A:59:ASP:O	1:D:58:PRO:CB[2_555]	2.08	0.12
1:B:59:ASP:N	1:C:59:ASP:N[2_545]	2.09	0.11
1:A:59:ASP:N	1:D:59:ASP:N[2_555]	2.09	0.11
1:A:41:GLU:CB	1:D:42:PRO:CD[2_555]	2.09	0.11
1:B:42:PRO:CD	1:C:41:GLU:CB[2_545]	2.09	0.11
1:B:41:GLU:CB	1:C:42:PRO:CD[2_545]	2.09	0.11
1:A:42:PRO:CD	1:D:41:GLU:CB[2_555]	2.09	0.11
1:A:58:PRO:CA	1:D:59:ASP:N[2_555]	2.10	0.10
1:B:59:ASP:N	1:C:58:PRO:CA[2_545]	2.10	0.10
1:A:59:ASP:N	1:D:58:PRO:CA[2_555]	2.10	0.10
1:B:58:PRO:CA	1:C:59:ASP:N[2_545]	2.10	0.10
1:A:617:LEU:CB	1:D:617:LEU:CD2[2_555]	2.10	0.10
1:B:617:LEU:CD2	1:C:617:LEU:CB[2_545]	2.10	0.10
1:A:617:LEU:CD2	1:D:617:LEU:CB[2_555]	2.10	0.10
1:B:617:LEU:CB	1:C:617:LEU:CD2[2_545]	2.10	0.10
1:A:59:ASP:CG	1:D:58:PRO:CD[2_555]	2.11	0.09
1:B:58:PRO:CD	1:C:59:ASP:CG[2_545]	2.11	0.09
1:A:58:PRO:CD	1:D:59:ASP:CG[2_555]	2.11	0.09
1:B:59:ASP:CG	1:C:58:PRO:CD[2_545]	2.11	0.09
1:A:617:LEU:CD2	1:D:617:LEU:O[2_555]	2.13	0.07
1:B:617:LEU:O	1:C:617:LEU:CD2[2_545]	2.13	0.07
1:B:617:LEU:CD2	1:C:617:LEU:O[2_545]	2.13	0.07
1:A:617:LEU:O	1:D:617:LEU:CD2[2_555]	2.13	0.07
1:A:490:GLU:OE1	1:B:490:GLU:CD[1_655]	2.14	0.06
1:C:490:GLU:OE1	1:D:490:GLU:CD[1_455]	2.14	0.06
1:C:490:GLU:CD	1:D:490:GLU:OE1[1_455]	2.14	0.06
1:A:490:GLU:CD	1:B:490:GLU:OE1[1_655]	2.14	0.06
1:A:42:PRO:CB	1:D:41:GLU:OE1[2_555]	2.15	0.05

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:41:GLU:OE1	1:C:42:PRO:CB[2_545]	2.15	0.05
1:A:41:GLU:OE1	1:D:42:PRO:CB[2_555]	2.15	0.05
1:B:42:PRO:CB	1:C:41:GLU:OE1[2_545]	2.15	0.05
1:A:59:ASP:CG	1:D:58:PRO:C[2_555]	2.15	0.05
1:B:58:PRO:C	1:C:59:ASP:CG[2_545]	2.15	0.05
1:A:58:PRO:C	1:D:59:ASP:CG[2_555]	2.15	0.05
1:B:59:ASP:CG	1:C:58:PRO:C[2_545]	2.15	0.05
1:A:618:ALA:N	1:D:617:LEU:CD2[2_555]	2.16	0.04
1:B:617:LEU:CD2	1:C:618:ALA:N[2_545]	2.16	0.04
1:A:617:LEU:CD2	1:D:618:ALA:N[2_555]	2.16	0.04
1:B:618:ALA:N	1:C:617:LEU:CD2[2_545]	2.16	0.04
1:B:58:PRO:C	1:C:59:ASP:OD1[2_545]	2.17	0.03
1:A:59:ASP:OD1	1:D:58:PRO:C[2_555]	2.17	0.03
1:B:59:ASP:OD1	1:C:58:PRO:C[2_545]	2.17	0.03
1:A:58:PRO:C	1:D:59:ASP:OD1[2_555]	2.17	0.03
1:A:58:PRO:CG	1:D:59:ASP:O[2_555]	2.18	0.02
1:B:59:ASP:O	1:C:58:PRO:CG[2_545]	2.18	0.02
1:A:59:ASP:O	1:D:58:PRO:CG[2_555]	2.18	0.02
1:B:58:PRO:CG	1:C:59:ASP:O[2_545]	2.18	0.02

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	725/753 (96%)	685 (94%)	34 (5%)	6 (1%)	24	58
1	B	725/753 (96%)	685 (94%)	34 (5%)	6 (1%)	24	58
1	C	725/753 (96%)	685 (94%)	34 (5%)	6 (1%)	24	58
1	D	725/753 (96%)	685 (94%)	34 (5%)	6 (1%)	24	58
All	All	2900/3012 (96%)	2740 (94%)	136 (5%)	24 (1%)	24	58

All (24) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	33	ASP
1	B	33	ASP
1	C	33	ASP
1	D	33	ASP
1	A	130	ARG
1	A	131	GLY
1	B	130	ARG
1	B	131	GLY
1	C	130	ARG
1	C	131	GLY
1	D	130	ARG
1	D	131	GLY
1	A	274	ILE
1	B	274	ILE
1	C	274	ILE
1	D	274	ILE
1	A	752	PRO
1	B	752	PRO
1	C	752	PRO
1	D	752	PRO
1	A	52	PRO
1	B	52	PRO
1	C	52	PRO
1	D	52	PRO

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	612/636 (96%)	549 (90%)	63 (10%)	9	26
1	B	612/636 (96%)	549 (90%)	63 (10%)	9	26
1	C	612/636 (96%)	549 (90%)	63 (10%)	9	26
1	D	612/636 (96%)	549 (90%)	63 (10%)	9	26
All	All	2448/2544 (96%)	2196 (90%)	252 (10%)	9	26

All (252) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	32	GLU
1	A	37	ARG
1	A	56	LYS
1	A	73	LYS
1	A	87	ARG
1	A	126	ILE
1	A	127	VAL
1	A	146	ASP
1	A	159	ILE
1	A	165	ARG
1	A	183	ARG
1	A	185	PHE
1	A	191	THR
1	A	205	ILE
1	A	208	ILE
1	A	221	VAL
1	A	227	TRP
1	A	230	PRO
1	A	237	ASP
1	A	252	ASN
1	A	259	ASP
1	A	260	ARG
1	A	268	THR
1	A	285	LYS
1	A	302	LEU
1	A	313	ARG
1	A	321	GLU
1	A	340	LEU
1	A	348	LYS
1	A	368	GLN
1	A	375	LEU
1	A	377	ARG
1	A	386	ASN
1	A	408	LEU
1	A	412	LEU
1	A	415	TYR
1	A	419	GLN
1	A	459	ASN
1	A	471	ARG
1	A	478	LYS
1	A	506	SER
1	A	509	ARG
1	A	531	LEU

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Mol	Chain	Res	Type
1	A	552	LEU
1	A	554	LEU
1	A	567	THR
1	A	574	THR
1	A	589	SER
1	A	598	VAL
1	A	607	LEU
1	A	613	SER
1	A	616	LEU
1	A	617	LEU
1	A	635	SER
1	A	639	GLU
1	A	648	LEU
1	A	659	SER
1	A	660	LEU
1	A	685	LEU
1	A	709	LYS
1	A	713	GLN
1	A	732	LEU
1	A	733	LEU
1	B	32	GLU
1	B	37	ARG
1	B	56	LYS
1	B	73	LYS
1	B	87	ARG
1	B	126	ILE
1	B	127	VAL
1	B	146	ASP
1	B	159	ILE
1	B	165	ARG
1	B	183	ARG
1	B	185	PHE
1	B	191	THR
1	B	205	ILE
1	B	208	ILE
1	B	221	VAL
1	B	227	TRP
1	B	230	PRO
1	B	237	ASP
1	B	252	ASN
1	B	259	ASP
1	B	260	ARG

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Mol	Chain	Res	Type
1	B	268	THR
1	B	285	LYS
1	B	302	LEU
1	B	313	ARG
1	B	321	GLU
1	B	340	LEU
1	B	348	LYS
1	B	368	GLN
1	B	375	LEU
1	B	377	ARG
1	B	386	ASN
1	B	408	LEU
1	B	412	LEU
1	B	415	TYR
1	B	419	GLN
1	B	459	ASN
1	B	471	ARG
1	B	478	LYS
1	B	506	SER
1	B	509	ARG
1	B	531	LEU
1	B	552	LEU
1	B	554	LEU
1	B	567	THR
1	B	574	THR
1	B	589	SER
1	B	598	VAL
1	B	607	LEU
1	B	613	SER
1	B	616	LEU
1	B	617	LEU
1	B	635	SER
1	B	639	GLU
1	B	648	LEU
1	B	659	SER
1	B	660	LEU
1	B	685	LEU
1	B	709	LYS
1	B	713	GLN
1	B	732	LEU
1	B	733	LEU
1	C	32	GLU

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Mol	Chain	Res	Type
1	C	37	ARG
1	C	56	LYS
1	C	73	LYS
1	C	87	ARG
1	C	126	ILE
1	C	127	VAL
1	C	146	ASP
1	C	159	ILE
1	C	165	ARG
1	C	183	ARG
1	C	185	PHE
1	C	191	THR
1	C	205	ILE
1	C	208	ILE
1	C	221	VAL
1	C	227	TRP
1	C	230	PRO
1	C	237	ASP
1	C	252	ASN
1	C	259	ASP
1	C	260	ARG
1	C	268	THR
1	C	285	LYS
1	C	302	LEU
1	C	313	ARG
1	C	321	GLU
1	C	340	LEU
1	C	348	LYS
1	C	368	GLN
1	C	375	LEU
1	C	377	ARG
1	C	386	ASN
1	C	408	LEU
1	C	412	LEU
1	C	415	TYR
1	C	419	GLN
1	C	459	ASN
1	C	471	ARG
1	C	478	LYS
1	C	506	SER
1	C	509	ARG
1	C	531	LEU

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Mol	Chain	Res	Type
1	C	552	LEU
1	C	554	LEU
1	C	567	THR
1	C	574	THR
1	C	589	SER
1	C	598	VAL
1	C	607	LEU
1	C	613	SER
1	C	616	LEU
1	C	617	LEU
1	C	635	SER
1	C	639	GLU
1	C	648	LEU
1	C	659	SER
1	C	660	LEU
1	C	685	LEU
1	C	709	LYS
1	C	713	GLN
1	C	732	LEU
1	C	733	LEU
1	D	32	GLU
1	D	37	ARG
1	D	56	LYS
1	D	73	LYS
1	D	87	ARG
1	D	126	ILE
1	D	127	VAL
1	D	146	ASP
1	D	159	ILE
1	D	165	ARG
1	D	183	ARG
1	D	185	PHE
1	D	191	THR
1	D	205	ILE
1	D	208	ILE
1	D	221	VAL
1	D	227	TRP
1	D	230	PRO
1	D	237	ASP
1	D	252	ASN
1	D	259	ASP
1	D	260	ARG

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Mol	Chain	Res	Type
1	D	268	THR
1	D	285	LYS
1	D	302	LEU
1	D	313	ARG
1	D	321	GLU
1	D	340	LEU
1	D	348	LYS
1	D	368	GLN
1	D	375	LEU
1	D	377	ARG
1	D	386	ASN
1	D	408	LEU
1	D	412	LEU
1	D	415	TYR
1	D	419	GLN
1	D	459	ASN
1	D	471	ARG
1	D	478	LYS
1	D	506	SER
1	D	509	ARG
1	D	531	LEU
1	D	552	LEU
1	D	554	LEU
1	D	567	THR
1	D	574	THR
1	D	589	SER
1	D	598	VAL
1	D	607	LEU
1	D	613	SER
1	D	616	LEU
1	D	617	LEU
1	D	635	SER
1	D	639	GLU
1	D	648	LEU
1	D	659	SER
1	D	660	LEU
1	D	685	LEU
1	D	709	LYS
1	D	713	GLN
1	D	732	LEU
1	D	733	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such

sidechains are listed below:

Mol	Chain	Res	Type
1	A	368	GLN
1	A	386	ASN
1	A	392	HIS
1	A	449	HIS
1	A	459	ASN
1	B	368	GLN
1	B	386	ASN
1	B	392	HIS
1	B	449	HIS
1	B	459	ASN
1	C	368	GLN
1	C	386	ASN
1	C	392	HIS
1	C	449	HIS
1	C	459	ASN
1	D	368	GLN
1	D	386	ASN
1	D	392	HIS
1	D	449	HIS
1	D	459	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

4 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
2	HEM	A	754	1	30,50,50	2.76	12 (40%)	24,82,82	2.79	10 (41%)
2	HEM	B	754	1	30,50,50	2.76	12 (40%)	24,82,82	2.79	10 (41%)
2	HEM	C	754	1	30,50,50	2.76	12 (40%)	24,82,82	2.79	10 (41%)
2	HEM	D	754	1	30,50,50	2.76	12 (40%)	24,82,82	2.79	10 (41%)

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
2	HEM	A	754	1	-	0/10/54/54	0/0/8/8
2	HEM	B	754	1	-	0/10/54/54	0/0/8/8
2	HEM	C	754	1	-	0/10/54/54	0/0/8/8
2	HEM	D	754	1	-	0/10/54/54	0/0/8/8

All (48) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	754	HEM	C3D-C4D	-6.55	1.43	1.51
2	B	754	HEM	C3D-C4D	-6.55	1.43	1.51
2	D	754	HEM	C3D-C4D	-6.55	1.43	1.51
2	A	754	HEM	C3D-C4D	-6.55	1.43	1.51
2	C	754	HEM	C3B-CAB	-6.13	1.39	1.51
2	B	754	HEM	C3B-CAB	-6.13	1.39	1.51
2	D	754	HEM	C3B-CAB	-6.13	1.39	1.51
2	A	754	HEM	C3B-CAB	-6.13	1.39	1.51
2	C	754	HEM	C3C-CAC	-5.97	1.40	1.51
2	B	754	HEM	C3C-CAC	-5.97	1.40	1.51
2	D	754	HEM	C3C-CAC	-5.97	1.40	1.51
2	A	754	HEM	C3C-CAC	-5.97	1.40	1.51
2	C	754	HEM	C2D-C3D	-5.72	1.37	1.54
2	B	754	HEM	C2D-C3D	-5.72	1.37	1.54
2	D	754	HEM	C2D-C3D	-5.72	1.37	1.54
2	A	754	HEM	C2D-C3D	-5.72	1.37	1.54
2	C	754	HEM	C3B-C4B	-4.83	1.47	1.51
2	B	754	HEM	C3B-C4B	-4.83	1.47	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	754	HEM	C3B-C4B	-4.83	1.47	1.51
2	A	754	HEM	C3B-C4B	-4.83	1.47	1.51
2	C	754	HEM	CAD-C3D	-2.84	1.48	1.54
2	B	754	HEM	CAD-C3D	-2.84	1.48	1.54
2	D	754	HEM	CAD-C3D	-2.84	1.48	1.54
2	A	754	HEM	CAD-C3D	-2.84	1.48	1.54
2	C	754	HEM	C2C-C1C	-2.68	1.47	1.52
2	B	754	HEM	C2C-C1C	-2.68	1.47	1.52
2	D	754	HEM	C2C-C1C	-2.68	1.47	1.52
2	A	754	HEM	C2C-C1C	-2.68	1.47	1.52
2	C	754	HEM	C2D-C1D	-2.42	1.43	1.51
2	B	754	HEM	C2D-C1D	-2.42	1.43	1.51
2	D	754	HEM	C2D-C1D	-2.42	1.43	1.51
2	A	754	HEM	C2D-C1D	-2.42	1.43	1.51
2	C	754	HEM	C4C-NC	2.16	1.38	1.36
2	B	754	HEM	C4C-NC	2.16	1.38	1.36
2	D	754	HEM	C4C-NC	2.16	1.38	1.36
2	A	754	HEM	C4C-NC	2.16	1.38	1.36
2	C	754	HEM	C1C-NC	2.38	1.38	1.36
2	B	754	HEM	C1C-NC	2.38	1.38	1.36
2	D	754	HEM	C1C-NC	2.38	1.38	1.36
2	A	754	HEM	C1C-NC	2.38	1.38	1.36
2	C	754	HEM	CBC-CAC	2.58	1.44	1.29
2	B	754	HEM	CBC-CAC	2.58	1.44	1.29
2	D	754	HEM	CBC-CAC	2.58	1.44	1.29
2	A	754	HEM	CBC-CAC	2.58	1.44	1.29
2	C	754	HEM	CBB-CAB	2.65	1.44	1.29
2	B	754	HEM	CBB-CAB	2.65	1.44	1.29
2	D	754	HEM	CBB-CAB	2.65	1.44	1.29
2	A	754	HEM	CBB-CAB	2.65	1.44	1.29

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	754	HEM	CBD-CAD-C3D	-7.16	92.71	113.55
2	B	754	HEM	CBD-CAD-C3D	-7.16	92.71	113.55
2	D	754	HEM	CBD-CAD-C3D	-7.16	92.71	113.55
2	A	754	HEM	CBD-CAD-C3D	-7.16	92.71	113.55
2	C	754	HEM	C2C-C1C-CHC	2.06	126.81	123.68
2	B	754	HEM	C2C-C1C-CHC	2.06	126.81	123.68
2	D	754	HEM	C2C-C1C-CHC	2.06	126.81	123.68
2	A	754	HEM	C2C-C1C-CHC	2.06	126.81	123.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	754	HEM	C3B-C4B-CHC	2.28	126.37	123.16
2	B	754	HEM	C3B-C4B-CHC	2.28	126.37	123.16
2	D	754	HEM	C3B-C4B-CHC	2.28	126.37	123.16
2	A	754	HEM	C3B-C4B-CHC	2.28	126.37	123.16
2	C	754	HEM	CBA-CAA-C2A	2.35	116.75	112.53
2	B	754	HEM	CBA-CAA-C2A	2.35	116.75	112.53
2	D	754	HEM	CBA-CAA-C2A	2.35	116.75	112.53
2	A	754	HEM	CBA-CAA-C2A	2.35	116.75	112.53
2	C	754	HEM	CAD-C3D-C4D	3.01	123.08	112.47
2	B	754	HEM	CAD-C3D-C4D	3.01	123.08	112.47
2	D	754	HEM	CAD-C3D-C4D	3.01	123.08	112.47
2	A	754	HEM	CAD-C3D-C4D	3.01	123.08	112.47
2	C	754	HEM	CMD-C2D-C3D	3.40	129.37	114.35
2	B	754	HEM	CMD-C2D-C3D	3.40	129.37	114.35
2	D	754	HEM	CMD-C2D-C3D	3.40	129.37	114.35
2	A	754	HEM	CMD-C2D-C3D	3.40	129.37	114.35
2	C	754	HEM	CMC-C2C-C3C	3.92	126.33	116.53
2	B	754	HEM	CMC-C2C-C3C	3.92	126.33	116.53
2	D	754	HEM	CMC-C2C-C3C	3.92	126.33	116.53
2	A	754	HEM	CMC-C2C-C3C	3.92	126.33	116.53
2	C	754	HEM	CAD-C3D-C2D	4.83	127.11	113.22
2	B	754	HEM	CAD-C3D-C2D	4.83	127.11	113.22
2	D	754	HEM	CAD-C3D-C2D	4.83	127.11	113.22
2	A	754	HEM	CAD-C3D-C2D	4.83	127.11	113.22
2	C	754	HEM	C2D-C3D-C4D	4.89	109.79	101.50
2	B	754	HEM	C2D-C3D-C4D	4.89	109.79	101.50
2	D	754	HEM	C2D-C3D-C4D	4.89	109.79	101.50
2	A	754	HEM	C2D-C3D-C4D	4.89	109.79	101.50
2	C	754	HEM	CMB-C2B-C3B	5.12	129.32	116.53
2	B	754	HEM	CMB-C2B-C3B	5.12	129.32	116.53
2	D	754	HEM	CMB-C2B-C3B	5.12	129.32	116.53
2	A	754	HEM	CMB-C2B-C3B	5.12	129.32	116.53

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	754	HEM	4	0
2	B	754	HEM	3	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	754	HEM	3	0
2	D	754	HEM	4	0

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 ⓘ

EDS was not executed - this section will therefore be empty.

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

EDS was not executed - this section will therefore be empty.

6.3 Carbohydrates ⓘ

EDS was not executed - this section will therefore be empty.

6.4 Ligands ⓘ

EDS was not executed - this section will therefore be empty.

6.5 Other polymers ⓘ

EDS was not executed - this section will therefore be empty.