



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 15, 2017 – 03:49 am GMT

PDB ID : 4QYQ
Title : Crystal structure of the complex of goat lactoperoxidase with an antithyroid agent propylthiouracil at 2.5 Å resolution
Authors : Singh, R.P.; Singh, A.; Kushwaha, G.S.; Singh, A.K.; Sinha, M.; Tyagi, T.K.; Kaur, P.; Sharma, S.; Singh, T.P.
Deposited on : 2014-07-25
Resolution : 2.50 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	:	1.7.2 (RC1), CSD as538be (2017)
Xtriage (Phenix)	:	1.9-1692
EDS	:	trunk28620
Percentile statistics	:	20161228.v01 (using entries in the PDB archive December 28th 2016)
Refmac	:	5.8.0135
CCP4	:	6.5.0
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	recalc28949

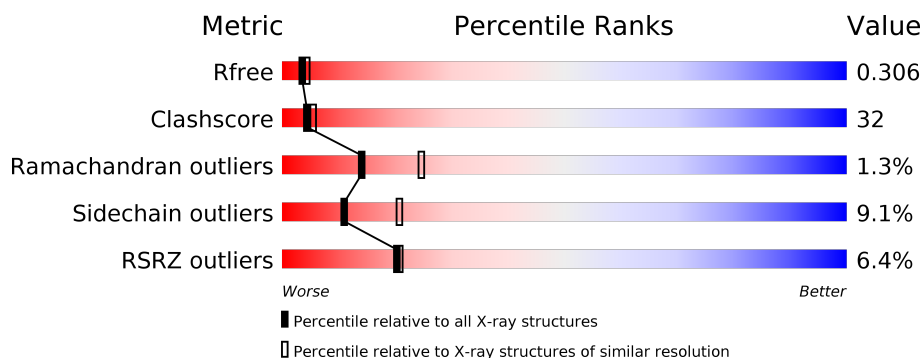
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	100719	3846 (2.50-2.50)
Clashscore	112137	4554 (2.50-2.50)
Ramachandran outliers	110173	4463 (2.50-2.50)
Sidechain outliers	110143	4465 (2.50-2.50)
RSRZ outliers	101464	3876 (2.50-2.50)

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 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.

Mol	Chain	Length	Quality of chain
1	A	595	<div> <div>5%</div> <div>50%</div> <div>45%</div> <div>5%</div> </div>
1	B	595	<div> <div>5%</div> <div>54%</div> <div>42%</div> <div>•</div> </div>
1	C	595	<div> <div>8%</div> <div>51%</div> <div>45%</div> <div>5%</div> </div>
1	D	595	<div> <div>7%</div> <div>46%</div> <div>49%</div> <div>5%</div> </div>

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 crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	HEM	C	605	-	-	X	-
6	3CJ	A	607	-	-	X	-
6	3CJ	B	607	-	-	X	-
6	3CJ	C	607	-	-	X	X
6	3CJ	D	607	-	-	X	X
7	NO3	A	608	-	-	-	X
7	NO3	A	610	-	-	-	X
7	NO3	B	610	-	-	-	X
7	NO3	C	608	-	-	-	X
7	NO3	C	610	-	-	X	X
7	NO3	D	608	-	-	X	-
7	NO3	D	609	-	-	X	-
7	NO3	D	610	-	-	X	X

2 Entry composition [i](#)

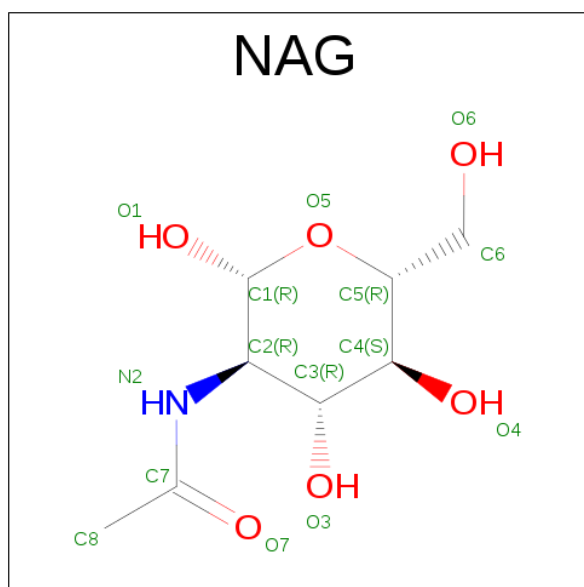
There are 8 unique types of molecules in this entry. The entry contains 20192 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Lactoperoxidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	595	Total	C	N	O	S	0	0	0
			4753	3021	844	862	26			
1	B	595	Total	C	N	O	S	0	0	0
			4753	3021	844	862	26			
1	C	595	Total	C	N	O	S	0	0	0
			4753	3021	844	862	26			
1	D	595	Total	C	N	O	S	0	0	0
			4753	3021	844	862	26			

- Molecule 2 is SUGAR (N-ACETYL-D-GLUCOSAMINE) (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		

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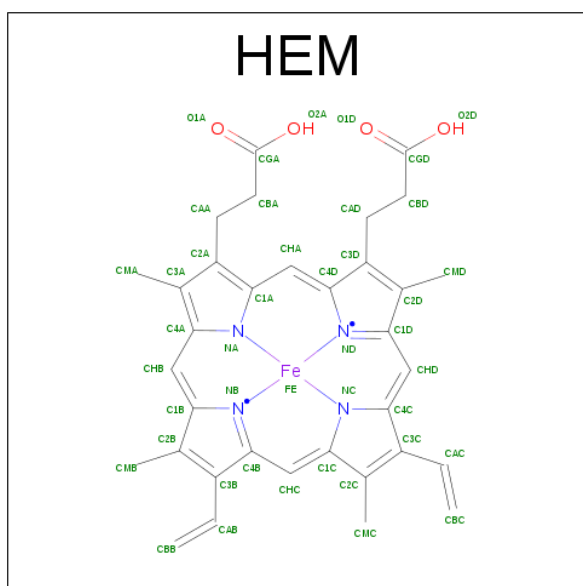
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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	B	1	Total 14	C 8	N 1	O 5	0	0
2	B	1	Total 14	C 8	N 1	O 5	0	0
2	C	1	Total 14	C 8	N 1	O 5	0	0
2	C	1	Total 14	C 8	N 1	O 5	0	0
2	D	1	Total 14	C 8	N 1	O 5	0	0
2	D	1	Total 14	C 8	N 1	O 5	0	0

- Molecule 3 is a polymer of unknown type called SUGAR (2-MER).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	2	Total 28	C 16	N 2	O 10	0	0
3	B	2	Total 28	C 16	N 2	O 10	0	0
3	C	2	Total 28	C 16	N 2	O 10	0	0
3	D	2	Total 28	C 16	N 2	O 10	0	0

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

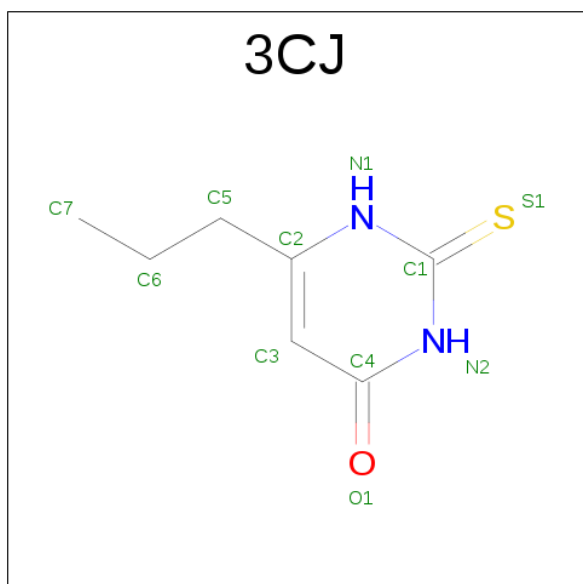


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
4	B	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
4	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
4	D	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	1	Total	Ca	0	0
			1	1		
5	A	1	Total	Ca	0	0
			1	1		
5	D	1	Total	Ca	0	0
			1	1		
5	C	1	Total	Ca	0	0
			1	1		

- Molecule 6 is 6-PROPYL-2-THIOXO-2,3-DIHYDROPYRIMIDIN-4(1H)-ONE (three-letter code: 3CJ) (formula: C₇H₁₀N₂OS).



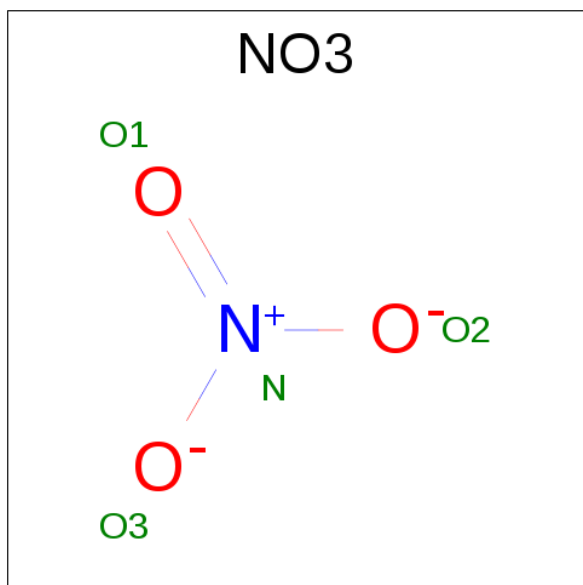
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
6	A	1	Total	C	N	O	S	0	0
			11	7	2	1	1		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
6	B	1	Total	C	N	O	S	0	0
			11	7	2	1	1		
6	C	1	Total	C	N	O	S	0	0
			11	7	2	1	1		
6	D	1	Total	C	N	O	S	0	0
			11	7	2	1	1		

- Molecule 7 is NITRATE ION (three-letter code: NO3) (formula: NO₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total	N	O	0	0
			4	1	3		
7	A	1	Total	N	O	0	0
			4	1	3		
7	A	1	Total	N	O	0	0
			4	1	3		
7	B	1	Total	N	O	0	0
			4	1	3		
7	B	1	Total	N	O	0	0
			4	1	3		
7	B	1	Total	N	O	0	0
			4	1	3		
7	C	1	Total	N	O	0	0
			4	1	3		
7	C	1	Total	N	O	0	0
			4	1	3		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	C	1	Total 4	N 1	O 3	0	0
7	D	1	Total 4	N 1	O 3	0	0
7	D	1	Total 4	N 1	O 3	0	0
7	D	1	Total 4	N 1	O 3	0	0

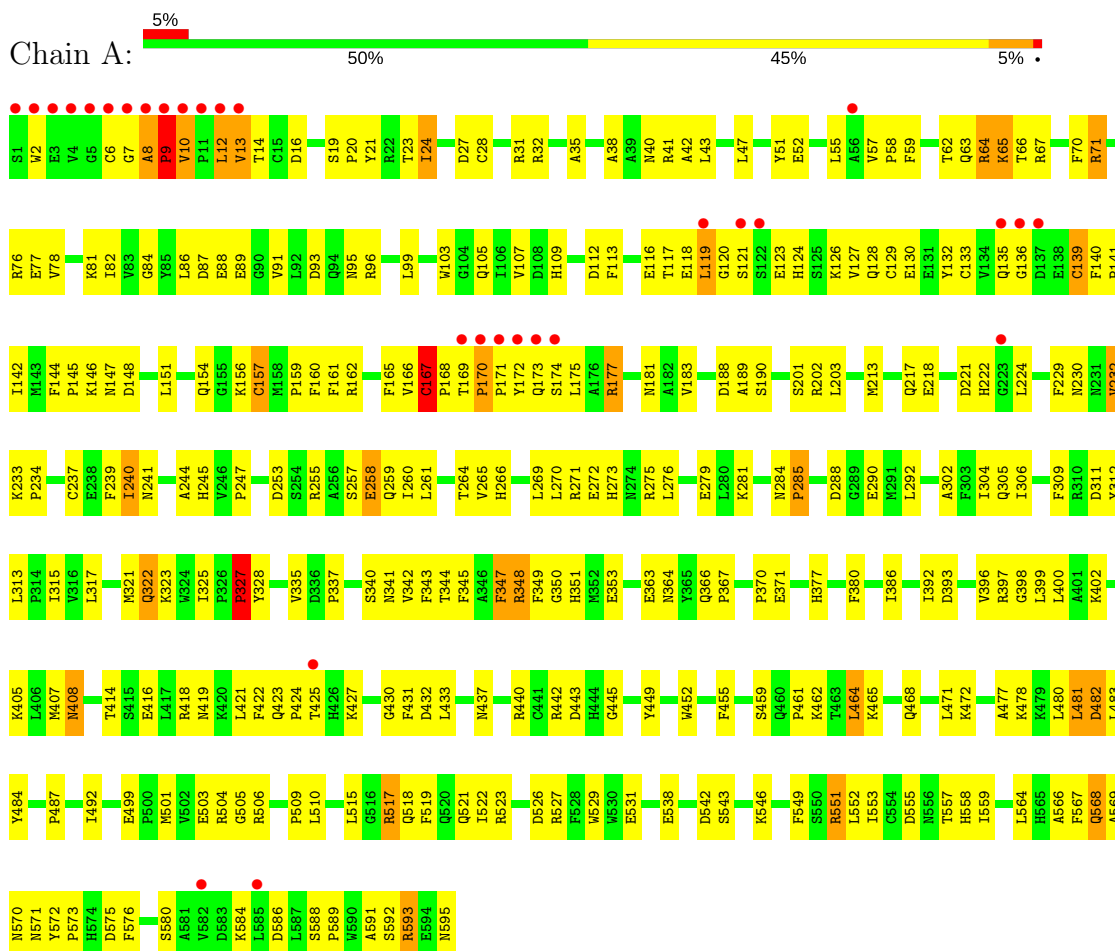
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	163	Total 163	O 163	0	0
8	B	168	Total 168	O 168	0	0
8	C	180	Total 180	O 180	0	0
8	D	177	Total 177	O 177	0	0

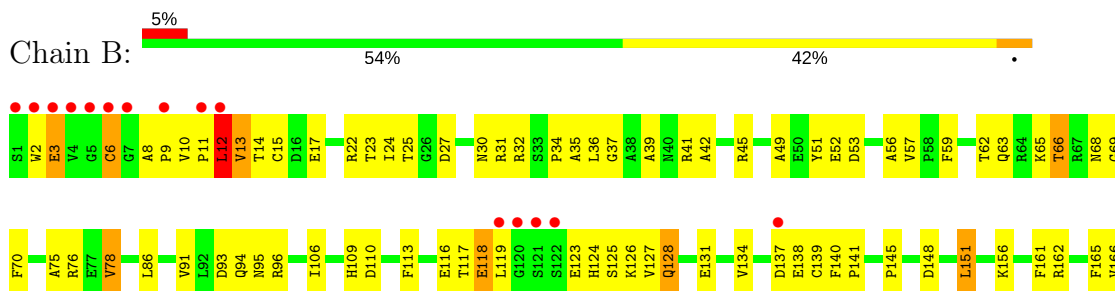
3 Residue-property plots

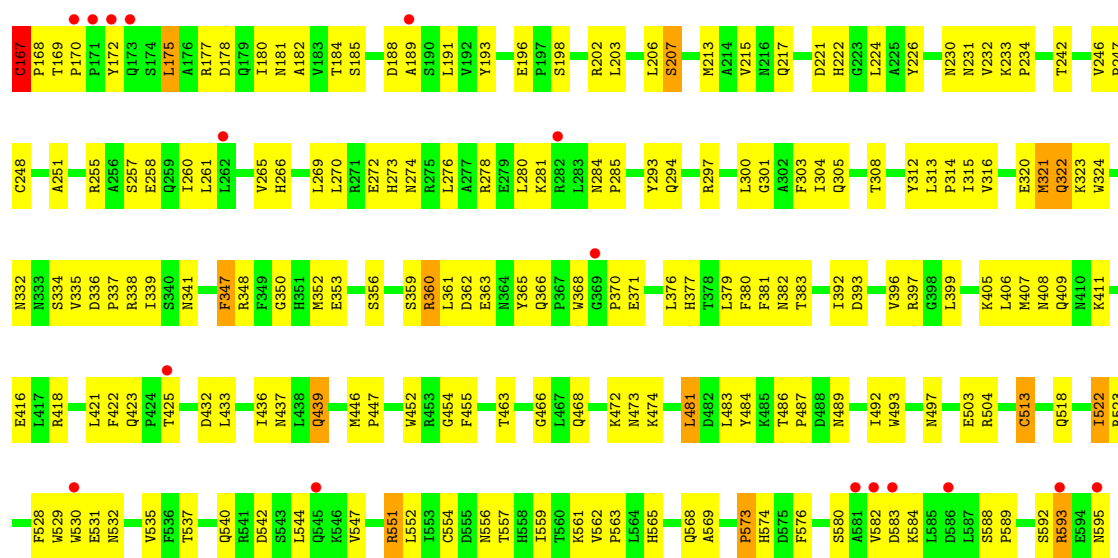
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are 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: Lactoperoxidase

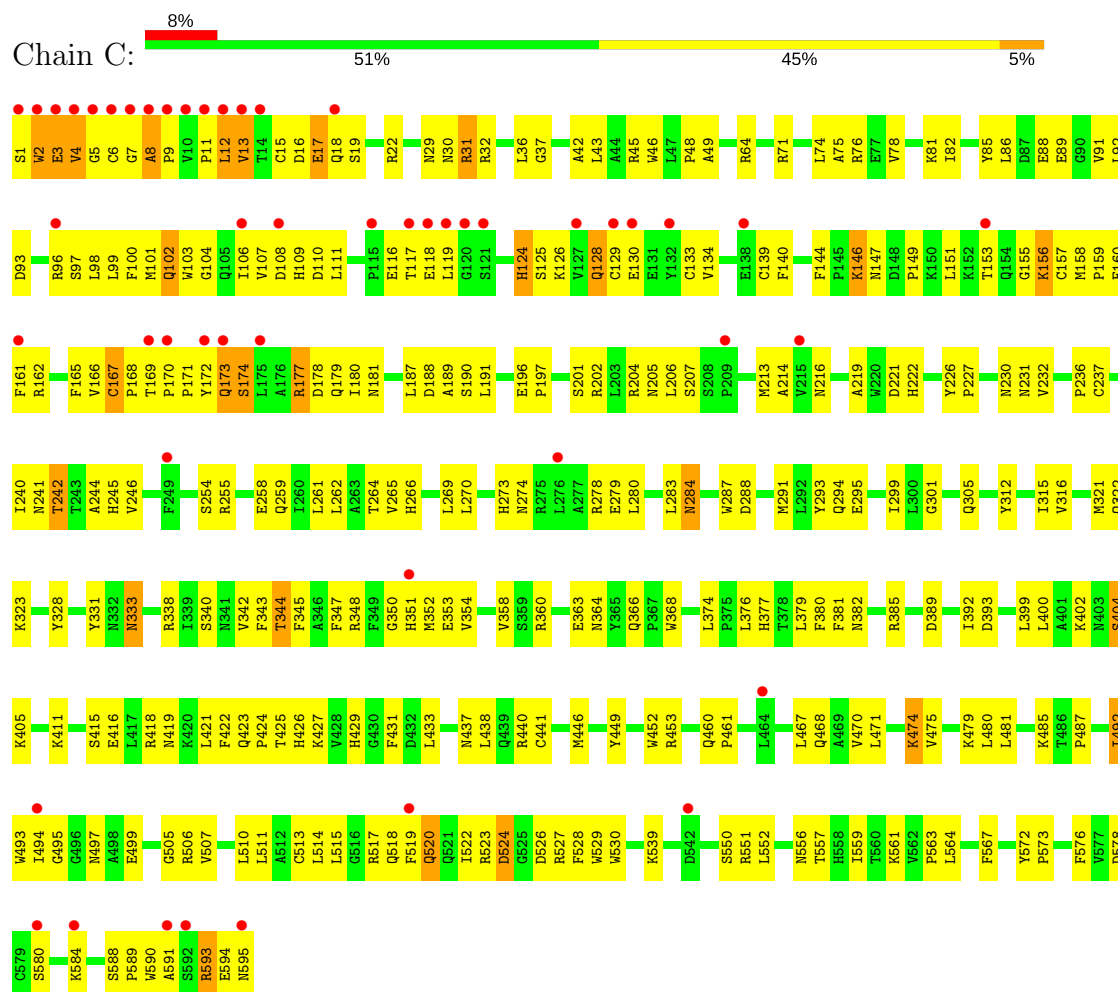


• Molecule 1: Lactoperoxidase



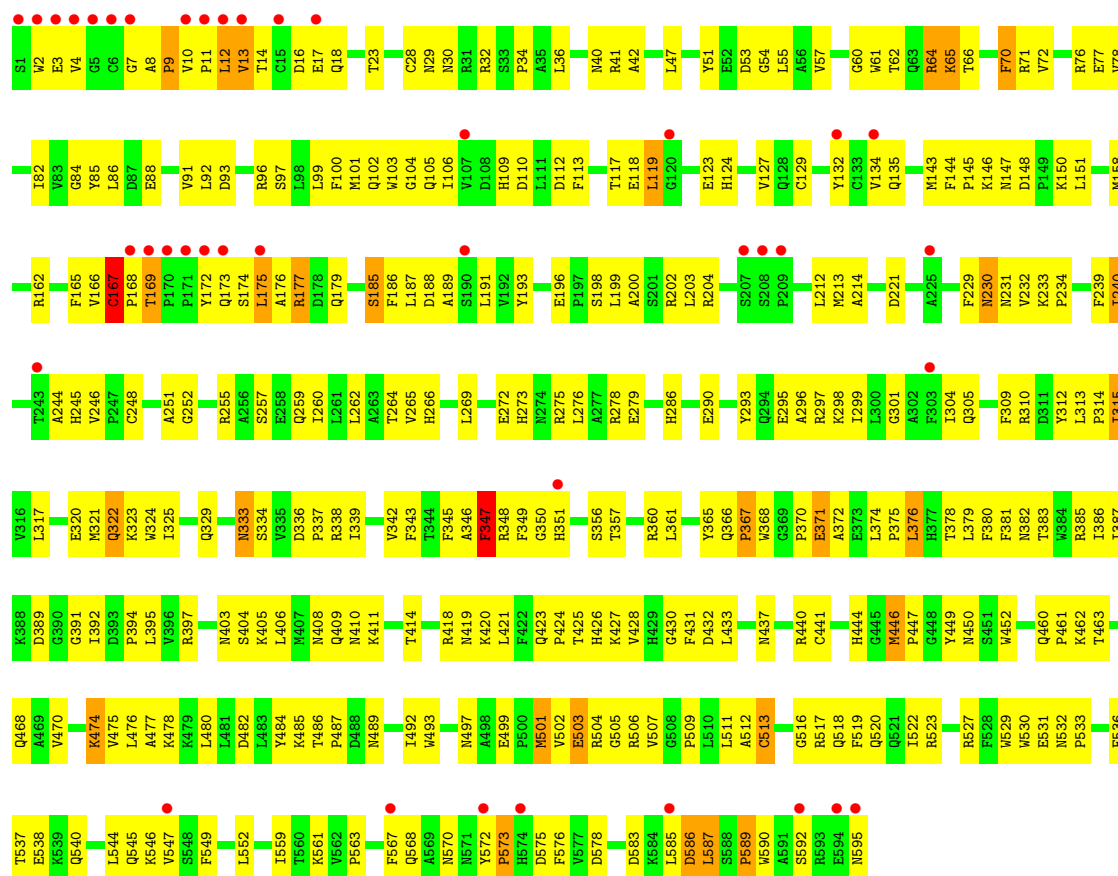


● Molecule 1: Lactoperoxidase



● Molecule 1: Lactoperoxidase





4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	80.22Å 82.59Å 95.08Å 80.91° 73.71° 89.96°	Depositor
Resolution (Å)	42.50 – 2.50 42.46 – 2.50	Depositor EDS
% Data completeness (in resolution range)	91.7 (42.50-2.50) 87.5 (42.46-2.50)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.05	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.19 (at 2.51Å)	Xtriage
Refinement program	REFMAC 5.8.0071	Depositor
R, R_{free}	0.245 , 0.284 0.253 , 0.306	Depositor DCC
R_{free} test set	3668 reflections (5.29%)	DCC
Wilson B-factor (Å ²)	41.2	Xtriage
Anisotropy	0.744	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.24 , 48.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	20192	wwPDB-VP
Average B, all atoms (Å ²)	45.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 40.53 % of the origin peak, indicating pseudo translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo translational symmetry is equal to 2.7003e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: HEM, CA, NO3, NAG, 3CJ

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	0.50	1/4882 (0.0%)	0.75	2/6632 (0.0%)
1	B	0.45	0/4882	0.75	1/6632 (0.0%)
1	C	0.48	0/4882	0.74	0/6632
1	D	0.50	0/4882	0.78	1/6632 (0.0%)
All	All	0.48	1/19528 (0.0%)	0.76	4/26528 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	171	PRO	N-CD	5.39	1.55	1.47

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	170	PRO	C-N-CD	5.51	139.97	128.40
1	A	349	PHE	N-CA-C	-5.38	96.49	111.00
1	B	12	LEU	CB-CG-CD2	5.22	119.87	111.00
1	D	167	CYS	CA-CB-SG	-5.20	104.64	114.00

There are no chirality outliers.

There are no planarity outliers.

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	4753	0	4646	303	0
1	B	4753	0	4644	243	0
1	C	4753	0	4649	340	0
1	D	4753	0	4647	294	0
2	A	28	0	26	0	0
2	B	28	0	26	1	0
2	C	28	0	26	0	0
2	D	28	0	26	1	0
3	A	28	0	25	1	0
3	B	28	0	25	2	0
3	C	28	0	25	1	0
3	D	28	0	25	0	0
4	A	43	0	30	14	0
4	B	43	0	30	17	0
4	C	43	0	30	28	0
4	D	43	0	30	12	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
5	D	1	0	0	0	0
6	A	11	0	10	12	0
6	B	11	0	10	14	0
6	C	11	0	10	20	0
6	D	11	0	10	11	0
7	A	12	0	0	1	0
7	B	12	0	0	1	0
7	C	12	0	0	4	0
7	D	12	0	0	8	0
8	A	163	0	0	14	0
8	B	168	0	0	15	0
8	C	180	0	0	21	0
8	D	177	0	0	18	0
All	All	20192	0	18950	1221	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 32.

All (1221) 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:D:167:CYS:HB3	1:D:168:PRO:CD	1.50	1.37
1:A:167:CYS:HB2	1:A:168:PRO:CD	1.55	1.32

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:10:VAL:HG11	1:B:41:ARG:NH1	1.48	1.28
1:C:167:CYS:HB3	1:C:168:PRO:CD	1.67	1.17
1:A:62:THR:HG21	1:A:65:LYS:HB2	1.15	1.15
1:D:166:VAL:O	1:D:167:CYS:HB2	1.42	1.15
1:C:96:ARG:HH21	1:C:506:ARG:HG2	1.00	1.09
4:C:605:HEM:HBD2	6:C:607:3CJ:C6	1.81	1.09
1:C:96:ARG:NE	1:C:506:ARG:HG3	1.65	1.09
4:D:605:HEM:HAA1	6:D:607:3CJ:H5	1.22	1.09
1:A:62:THR:HG21	1:A:65:LYS:CB	1.82	1.08
1:C:167:CYS:HB3	1:C:168:PRO:HD2	1.29	1.08
1:C:96:ARG:HH12	1:C:315:ILE:HB	1.13	1.08
1:B:167:CYS:HB3	1:B:168:PRO:HD2	1.11	1.07
1:A:167:CYS:HB2	1:A:168:PRO:HD3	1.25	1.07
1:C:96:ARG:HD3	1:C:100:PHE:CD2	1.90	1.07
3:B:603:NAG:O4	3:B:604:NAG:N2	1.88	1.06
1:A:167:CYS:CB	1:A:168:PRO:HD3	1.84	1.06
1:C:96:ARG:HE	1:C:506:ARG:CG	1.67	1.06
1:B:167:CYS:CB	1:B:168:PRO:HD2	1.87	1.04
4:C:605:HEM:CAA	6:C:607:3CJ:H5	1.86	1.04
1:D:8:ALA:HB3	1:D:167:CYS:HA	1.34	1.04
4:C:605:HEM:HBD2	6:C:607:3CJ:H4	1.06	1.04
1:C:96:ARG:HE	1:C:506:ARG:HG3	1.09	1.04
1:A:117:THR:HG22	1:A:162:ARG:O	1.56	1.04
1:D:167:CYS:CB	1:D:168:PRO:HD3	1.87	1.04
4:C:605:HEM:HAA1	6:C:607:3CJ:C6	1.89	1.03
1:A:169:THR:H	1:A:170:PRO:HD2	1.20	1.02
1:C:42:ALA:HB2	1:C:166:VAL:HG11	1.41	1.02
1:B:167:CYS:HB3	1:B:168:PRO:CD	1.89	1.02
1:C:423:GLN:HG2	8:C:745:HOH:O	1.59	1.00
1:C:96:ARG:CD	1:C:100:PHE:CE2	2.45	0.99
1:A:402:LYS:HD2	7:A:609:NO3:O3	1.61	0.98
1:B:42:ALA:HB2	1:B:166:VAL:HG11	1.46	0.98
1:A:167:CYS:CB	1:A:168:PRO:CD	2.38	0.98
1:A:169:THR:N	1:A:170:PRO:HD2	1.75	0.98
1:D:167:CYS:CB	1:D:168:PRO:CD	2.41	0.98
1:A:557:THR:OG1	1:A:559:ILE:HG12	1.65	0.97
1:C:167:CYS:CB	1:C:168:PRO:HD2	1.92	0.97
1:C:96:ARG:NH2	1:C:506:ARG:HG2	1.79	0.96
1:C:593:ARG:NH1	1:C:593:ARG:HB3	1.81	0.95
1:B:94:GLN:O	1:B:569:ALA:HB3	1.66	0.95
1:D:13:VAL:HG12	1:D:14:THR:H	1.29	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:167:CYS:HB3	1:D:168:PRO:HD3	0.96	0.94
1:C:312:TYR:O	1:C:315:ILE:HG12	1.68	0.94
1:B:8:ALA:HB1	1:B:9:PRO:HD2	1.50	0.94
1:B:10:VAL:HG11	1:B:41:ARG:HH12	1.12	0.93
1:B:10:VAL:CG1	1:B:41:ARG:HH12	1.81	0.93
4:C:605:HEM:CBD	6:C:607:3CJ:H4	1.96	0.93
1:C:96:ARG:NH1	1:C:315:ILE:HB	1.83	0.92
1:B:113:PHE:HE1	6:B:607:3CJ:H5	1.35	0.92
1:A:62:THR:CG2	1:A:65:LYS:HB2	1.98	0.91
1:C:167:CYS:CB	1:C:168:PRO:CD	2.47	0.91
1:C:102:GLN:OE1	1:C:259:GLN:NE2	2.03	0.90
1:B:537:THR:OG1	1:B:540:GLN:HG3	1.71	0.90
1:C:96:ARG:CD	1:C:100:PHE:CD2	2.53	0.90
1:C:96:ARG:HH12	1:C:315:ILE:CB	1.84	0.90
1:A:8:ALA:HB1	8:A:815:HOH:O	1.71	0.89
1:A:129:CYS:O	1:A:133:CYS:HA	1.73	0.88
4:C:605:HEM:HAA1	6:C:607:3CJ:H5	0.93	0.87
1:B:10:VAL:HG11	1:B:41:ARG:CZ	2.03	0.87
1:C:481:LEU:HD21	1:C:487:PRO:HG3	1.55	0.87
1:C:96:ARG:HD3	1:C:100:PHE:CE2	2.07	0.87
4:B:605:HEM:HMC2	4:B:605:HEM:HBC2	1.56	0.87
1:A:377:HIS:HB3	1:A:416:GLU:OE1	1.74	0.87
1:A:167:CYS:HB2	1:A:168:PRO:HD2	1.52	0.87
1:B:12:LEU:HG	1:B:13:VAL:H	1.39	0.87
1:A:113:PHE:CE1	6:A:607:3CJ:H5	2.10	0.86
1:C:350:GLY:HA3	4:C:605:HEM:CBC	2.06	0.86
1:B:167:CYS:CB	1:B:168:PRO:CD	2.51	0.86
1:C:593:ARG:HB3	1:C:593:ARG:HH11	1.38	0.86
1:B:537:THR:HG23	1:B:540:GLN:OE1	1.76	0.85
1:C:96:ARG:HH21	1:C:506:ARG:CG	1.86	0.85
1:D:403:ASN:HB2	7:D:609:NO3:O1	1.76	0.85
4:C:605:HEM:HHA	6:C:607:3CJ:H4	1.59	0.85
1:D:8:ALA:CB	1:D:167:CYS:HA	2.05	0.85
1:A:42:ALA:HB2	1:A:166:VAL:HG11	1.58	0.85
1:B:2:TRP:HH2	1:C:86:LEU:HD13	1.41	0.84
1:D:348:ARG:HH11	1:D:437:ASN:ND2	1.75	0.84
1:C:37:GLY:H	1:C:338:ARG:HG2	1.41	0.84
1:C:350:GLY:HA3	4:C:605:HEM:HBC2	1.60	0.84
1:D:166:VAL:O	1:D:167:CYS:CB	2.24	0.84
1:D:185:SER:HB3	1:D:339:ILE:HG12	1.58	0.84
1:D:530:TRP:CZ2	7:D:610:NO3:O2	2.30	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:421:LEU:HG	8:C:745:HOH:O	1.76	0.84
1:C:230:ASN:HD21	1:C:232:VAL:HG22	1.42	0.83
1:B:113:PHE:CE1	6:B:607:3CJ:H5	2.12	0.83
1:B:12:LEU:HG	1:B:13:VAL:N	1.92	0.83
1:C:11:PRO:O	1:C:12:LEU:HB3	1.78	0.82
1:A:169:THR:N	1:A:170:PRO:CD	2.40	0.82
4:A:605:HEM:HBC2	4:A:605:HEM:HMC2	1.62	0.82
1:C:146:LYS:HG3	1:C:147:ASN:OD1	1.79	0.81
1:A:119:LEU:HD12	1:A:120:GLY:H	1.45	0.81
1:D:572:TYR:CE1	1:D:573:PRO:HB3	2.15	0.81
1:D:92:LEU:HD13	7:D:609:NO3:O1	1.80	0.81
1:D:310:ARG:O	1:D:314:PRO:HG2	1.81	0.80
4:C:605:HEM:HH A	6:C:607:3CJ:C6	2.10	0.80
1:D:172:TYR:HB3	8:D:865:HOH:O	1.81	0.80
1:B:276:LEU:O	1:B:280:LEU:HG	1.81	0.80
1:C:513:CYS:O	1:C:517:ARG:HG3	1.82	0.80
4:C:605:HEM:O1D	6:C:607:3CJ:H2	1.82	0.80
1:D:8:ALA:HB3	1:D:167:CYS:CA	2.12	0.80
3:B:603:NAG:C4	3:B:604:NAG:HN2	1.95	0.79
1:D:113:PHE:CE1	6:D:607:3CJ:H6	2.18	0.79
1:B:332:ASN:OD1	1:B:334:SER:HB2	1.81	0.79
1:D:333:ASN:HD22	1:D:333:ASN:H	1.29	0.79
4:A:605:HEM:HBC2	4:A:605:HEM:CMC	2.13	0.79
4:D:605:HEM:HMC1	4:D:605:HEM:HBC2	1.64	0.79
4:B:605:HEM:HBB2	4:B:605:HEM:CMB	2.12	0.79
4:A:605:HEM:HBD2	6:A:607:3CJ:H7	1.64	0.79
1:C:423:GLN:HB3	1:C:426:HIS:HD2	1.48	0.79
1:D:230:ASN:OD1	1:D:232:VAL:HG22	1.82	0.79
1:B:10:VAL:CG1	1:B:41:ARG:NH1	2.38	0.78
1:D:13:VAL:HG12	1:D:14:THR:N	1.98	0.78
1:D:119:LEU:HD12	8:D:740:HOH:O	1.83	0.78
1:C:312:TYR:O	1:C:315:ILE:CG1	2.32	0.78
1:C:12:LEU:HG	1:C:13:VAL:H	1.48	0.77
1:A:322:GLN:H	1:A:322:GLN:HE21	1.30	0.77
1:C:468:GLN:HG2	1:C:474:LYS:HA	1.66	0.77
1:B:123:GLU:HB2	1:B:126:LYS:HG3	1.64	0.77
1:B:551:ARG:HD2	1:B:583:ASP:O	1.84	0.77
1:B:551:ARG:HD3	1:B:584:LYS:HA	1.67	0.77
1:A:169:THR:H	1:A:170:PRO:CD	1.95	0.77
1:A:551:ARG:NH1	1:A:584:LYS:HG2	2.00	0.77
1:C:96:ARG:HD2	1:C:100:PHE:CE2	2.20	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:418:ARG:HG2	1:B:432:ASP:OD2	1.85	0.76
1:A:351:HIS:CE1	1:A:433:LEU:HD21	2.20	0.76
4:B:605:HEM:HBB2	4:B:605:HEM:HMB2	1.68	0.76
1:C:12:LEU:HG	1:C:13:VAL:N	1.99	0.76
1:D:295:GLU:O	1:D:299:ILE:HG13	1.86	0.76
1:A:13:VAL:HG12	1:A:14:THR:H	1.49	0.76
1:C:125:SER:HA	1:C:128:GLN:HB3	1.67	0.76
1:D:265:VAL:O	1:D:269:LEU:HG	1.86	0.75
1:D:350:GLY:HA3	4:D:605:HEM:CBC	2.17	0.75
1:C:76:ARG:NH1	1:C:418:ARG:HH12	1.83	0.75
1:C:146:LYS:HE3	1:C:147:ASN:HD21	1.52	0.75
1:C:348:ARG:HH11	1:C:437:ASN:ND2	1.84	0.75
1:C:452:TRP:HH2	7:C:610:NO3:O3	1.69	0.75
1:C:167:CYS:HB3	1:C:168:PRO:HD3	1.68	0.75
1:B:301:GLY:O	1:B:305:GLN:HG3	1.86	0.75
1:B:94:GLN:O	1:B:569:ALA:CB	2.34	0.75
1:C:96:ARG:HD3	1:C:100:PHE:CG	2.21	0.75
3:A:604:NAG:H62	3:A:604:NAG:O3	1.87	0.74
1:A:261:LEU:O	1:A:264:THR:HB	1.85	0.74
1:C:348:ARG:HB2	1:C:493:TRP:CD1	2.23	0.74
1:C:159:PRO:HD2	1:C:431:PHE:HE1	1.51	0.73
1:B:551:ARG:NH2	8:B:755:HOH:O	2.22	0.73
1:C:519:PHE:HA	1:C:522:ILE:HG13	1.69	0.73
1:A:113:PHE:HE1	6:A:607:3CJ:H5	1.52	0.73
4:B:605:HEM:HHA	6:B:607:3CJ:H7	1.70	0.73
1:C:146:LYS:CE	1:C:147:ASN:HD21	2.02	0.73
1:C:348:ARG:HB2	1:C:493:TRP:NE1	2.02	0.73
1:A:260:ILE:HG23	1:A:261:LEU:HD23	1.70	0.73
1:A:588:SER:HB2	1:A:589:PRO:HD3	1.71	0.73
1:A:327:PRO:HA	8:A:855:HOH:O	1.89	0.73
1:C:170:PRO:HA	8:C:879:HOH:O	1.89	0.73
1:B:8:ALA:HB1	1:B:9:PRO:CD	2.17	0.72
1:B:409:GLN:NE2	1:B:473:ASN:HD22	1.86	0.72
1:D:375:PRO:HG2	1:D:378:THR:HG23	1.70	0.72
1:A:421:LEU:HB3	1:A:431:PHE:HB2	1.72	0.72
1:C:552:LEU:HD12	1:C:556:ASN:ND2	2.05	0.72
1:C:348:ARG:CB	1:C:493:TRP:HE1	2.02	0.72
1:C:530:TRP:NE1	7:C:608:NO3:O2	2.22	0.72
4:D:605:HEM:HAA1	6:D:607:3CJ:C6	2.12	0.71
1:C:96:ARG:HE	1:C:506:ARG:CD	2.02	0.71
1:B:2:TRP:CZ2	1:C:86:LEU:HD22	2.25	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:528:PHE:HB3	8:C:752:HOH:O	1.89	0.71
1:C:76:ARG:HH22	1:C:419:ASN:ND2	1.88	0.71
1:A:239:PHE:HZ	1:A:427:LYS:HB3	1.55	0.71
1:C:452:TRP:CH2	7:C:610:NO3:O3	2.44	0.71
1:A:119:LEU:CD1	1:A:120:GLY:N	2.53	0.71
1:B:300:LEU:O	1:B:304:ILE:HD13	1.91	0.71
1:C:427:LYS:N	1:C:427:LYS:HD2	2.05	0.71
1:C:177:ARG:O	1:C:178:ASP:OD1	2.09	0.71
1:C:96:ARG:NH2	1:C:506:ARG:CG	2.50	0.70
1:D:345:PHE:CD2	1:D:446:MET:SD	2.84	0.70
1:C:342:VAL:HB	1:C:452:TRP:CZ2	2.27	0.70
1:D:106:ILE:HG23	1:D:191:LEU:HD11	1.73	0.70
1:D:322:GLN:CD	1:D:322:GLN:H	1.91	0.70
1:B:213:MET:HG2	1:B:273:HIS:CD2	2.26	0.70
1:C:7:GLY:O	1:C:8:ALA:CB	2.38	0.70
1:B:377:HIS:HA	1:B:380:PHE:CE2	2.26	0.70
1:A:148:ASP:O	1:A:151:LEU:HB2	1.91	0.70
1:A:230:ASN:HD21	1:A:232:VAL:HG22	1.55	0.70
1:A:340:SER:OG	1:A:343:PHE:HB2	1.92	0.70
1:B:139:CYS:SG	1:B:141:PRO:HD3	2.32	0.70
1:C:519:PHE:HA	1:C:522:ILE:CG1	2.22	0.70
1:D:42:ALA:HB2	1:D:166:VAL:HG11	1.74	0.70
1:A:103:TRP:O	1:A:107:VAL:HG23	1.92	0.70
1:A:119:LEU:HD12	1:A:120:GLY:N	2.06	0.70
1:B:39:ALA:HB1	1:B:182:ALA:O	1.92	0.70
1:B:257:SER:HB2	8:B:701:HOH:O	1.91	0.69
1:B:272:GLU:O	1:B:276:LEU:HG	1.93	0.69
1:C:188:ASP:OD1	1:C:190:SER:HB3	1.92	0.69
1:B:421:LEU:HD12	1:B:422:PHE:H	1.57	0.69
1:A:99:LEU:HD23	1:A:566:ALA:HB1	1.74	0.69
1:B:42:ALA:HB2	1:B:166:VAL:CG1	2.21	0.69
1:D:530:TRP:HZ2	7:D:610:NO3:O2	1.72	0.69
1:C:418:ARG:HG2	1:C:418:ARG:HH11	1.58	0.69
1:C:517:ARG:NH2	1:C:517:ARG:HB3	2.07	0.69
1:B:273:HIS:HD2	1:B:274:ASN:OD1	1.74	0.69
4:B:605:HEM:O1D	6:B:607:3CJ:H3	1.91	0.68
1:C:124:HIS:CE1	1:C:128:GLN:HB2	2.28	0.68
1:C:423:GLN:HB2	1:C:426:HIS:HB2	1.75	0.68
1:D:409:GLN:HB3	1:D:476:LEU:HD22	1.74	0.68
1:B:463:THR:HA	8:B:850:HOH:O	1.92	0.68
1:D:113:PHE:HE1	6:D:607:3CJ:H6	1.58	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:261:LEU:HD13	1:B:399:LEU:HD21	1.73	0.68
1:A:119:LEU:CD1	1:A:120:GLY:H	2.06	0.68
1:A:421:LEU:HB3	1:A:431:PHE:CB	2.24	0.68
1:C:423:GLN:HB3	1:C:426:HIS:CD2	2.28	0.68
1:D:196:GLU:HB3	8:D:743:HOH:O	1.93	0.68
1:D:570:ASN:HB3	1:D:575:ASP:HB2	1.75	0.68
1:A:367:PRO:HB2	1:D:64:ARG:NH2	2.09	0.68
1:D:7:GLY:C	1:D:9:PRO:HD3	2.14	0.68
1:D:167:CYS:SG	8:D:758:HOH:O	2.53	0.67
1:A:88:GLU:O	1:A:91:VAL:HG22	1.94	0.67
1:D:30:ASN:O	1:D:34:PRO:HA	1.95	0.67
1:C:146:LYS:HE3	1:C:147:ASN:ND2	2.09	0.67
1:C:76:ARG:HH22	1:C:419:ASN:HD21	1.38	0.67
1:A:13:VAL:HG12	1:A:14:THR:N	2.10	0.67
4:A:605:HEM:O1D	6:A:607:3CJ:H3	1.94	0.67
1:A:66:THR:HB	1:A:70:PHE:C	2.13	0.67
1:A:12:LEU:HG	1:A:13:VAL:H	1.59	0.67
1:D:530:TRP:NE1	7:D:610:NO3:O2	2.26	0.67
1:A:464:LEU:HD12	1:A:464:LEU:O	1.94	0.67
1:B:551:ARG:CD	1:B:584:LYS:HA	2.24	0.67
1:A:322:GLN:H	1:A:322:GLN:NE2	1.92	0.67
1:D:12:LEU:HG	1:D:13:VAL:N	2.10	0.67
1:C:159:PRO:HD2	1:C:431:PHE:CE1	2.29	0.66
1:D:10:VAL:CG1	1:D:11:PRO:HD2	2.25	0.66
1:D:385:ARG:O	1:D:389:ASP:HB3	1.95	0.66
1:A:188:ASP:OD1	1:A:190:SER:HB3	1.95	0.66
1:C:204:ARG:HA	1:C:213:MET:HA	1.78	0.66
1:C:316:VAL:O	1:C:507:VAL:HG22	1.95	0.66
1:B:2:TRP:HZ2	1:C:86:LEU:HD22	1.59	0.66
1:B:280:LEU:O	1:B:284:ASN:N	2.28	0.66
1:C:146:LYS:NZ	1:C:147:ASN:HD21	1.93	0.66
1:D:370:PRO:HG2	1:D:371:GLU:OE1	1.95	0.66
1:A:2:TRP:HD1	1:A:175:LEU:HD23	1.60	0.66
1:C:345:PHE:O	1:C:493:TRP:HD1	1.79	0.66
1:D:570:ASN:HB3	1:D:575:ASP:CB	2.26	0.66
1:C:287:TRP:HA	8:C:769:HOH:O	1.95	0.66
1:A:165:PHE:CD2	1:A:177:ARG:HD2	2.31	0.66
1:C:204:ARG:CZ	1:C:206:LEU:HD21	2.25	0.66
1:D:10:VAL:HG12	1:D:11:PRO:HD2	1.77	0.66
1:D:530:TRP:CE2	7:D:610:NO3:O2	2.47	0.66
1:B:117:THR:OG1	1:B:119:LEU:HD23	1.95	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:51:TYR:HB3	1:B:57:VAL:O	1.96	0.65
1:D:11:PRO:O	1:D:13:VAL:HG23	1.96	0.65
1:A:167:CYS:HB3	1:A:168:PRO:HD3	1.77	0.65
1:C:96:ARG:CZ	1:C:506:ARG:HG3	2.26	0.65
1:C:96:ARG:NE	1:C:506:ARG:CG	2.37	0.65
1:D:123:GLU:HG3	8:D:740:HOH:O	1.95	0.65
1:A:253:ASP:OD2	1:A:255:ARG:HB2	1.96	0.65
1:B:3:GLU:HB3	1:B:175:LEU:HD12	1.78	0.65
1:A:322:GLN:N	1:A:322:GLN:HE21	1.94	0.65
1:C:37:GLY:N	1:C:338:ARG:HG2	2.11	0.65
1:C:98:LEU:HA	1:C:404:SER:OG	1.97	0.65
1:D:167:CYS:HB3	1:D:168:PRO:HD2	1.70	0.65
1:A:370:PRO:O	1:D:71:ARG:NH2	2.29	0.65
1:A:95:ASN:O	1:A:96:ARG:HD3	1.97	0.65
1:C:348:ARG:HB2	1:C:493:TRP:HE1	1.58	0.65
1:B:407:MET:SD	1:B:408:ASN:N	2.69	0.65
1:C:109:HIS:HA	1:C:255:ARG:NH2	2.11	0.65
1:C:201:SER:HA	8:C:762:HOH:O	1.95	0.65
1:A:551:ARG:NH1	1:A:584:LYS:CG	2.60	0.65
1:C:17:GLU:HB3	1:C:18:GLN:OE1	1.96	0.65
1:B:10:VAL:HG21	1:B:41:ARG:HH12	1.62	0.65
1:B:145:PRO:O	1:B:148:ASP:HB2	1.97	0.65
4:B:605:HEM:HAA1	6:B:607:3CJ:H4	1.78	0.65
1:A:62:THR:HG23	1:A:64:ARG:H	1.62	0.64
1:B:537:THR:OG1	1:B:540:GLN:CG	2.44	0.64
1:B:109:HIS:HE2	6:B:607:3CJ:C1	2.10	0.64
1:A:71:ARG:CZ	1:A:71:ARG:HB3	2.25	0.64
1:B:551:ARG:NH1	1:B:582:VAL:O	2.29	0.64
1:A:123:GLU:HB2	1:A:126:LYS:HG3	1.78	0.64
1:C:48:PRO:HG2	8:C:735:HOH:O	1.98	0.64
1:D:408:ASN:O	1:D:411:LYS:N	2.28	0.64
1:D:463:THR:HB	8:D:791:HOH:O	1.95	0.64
1:D:478:LYS:O	1:D:482:ASP:CG	2.35	0.64
1:A:148:ASP:O	1:A:151:LEU:CB	2.46	0.64
1:C:76:ARG:NH1	1:C:418:ARG:NH1	2.45	0.64
1:A:142:ILE:HD12	1:A:160:PHE:HB2	1.77	0.64
1:A:546:LYS:HZ1	1:A:586:ASP:H	1.46	0.64
1:C:351:HIS:CE1	1:C:433:LEU:HD21	2.32	0.64
1:A:62:THR:CG2	1:A:65:LYS:H	2.10	0.64
4:B:605:HEM:C1A	6:B:607:3CJ:N1	2.65	0.64
1:C:393:ASP:OD1	1:C:557:THR:HB	1.96	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:265:VAL:O	1:B:269:LEU:HG	1.98	0.63
1:C:264:THR:HG23	1:C:392:ILE:HG23	1.81	0.63
4:B:605:HEM:CMC	4:B:605:HEM:HBC2	2.28	0.63
1:D:368:TRP:O	1:D:372:ALA:HB2	1.98	0.63
1:D:424:PRO:O	1:D:425:THR:HB	1.96	0.63
1:B:145:PRO:HD2	1:B:148:ASP:OD2	1.96	0.63
1:A:8:ALA:HA	8:A:822:HOH:O	1.97	0.63
1:B:230:ASN:OD1	1:B:232:VAL:HG22	1.98	0.63
1:C:110:ASP:OD1	1:C:187:LEU:HA	1.99	0.63
1:D:8:ALA:N	1:D:9:PRO:HD3	2.13	0.63
1:B:532:ASN:O	1:B:535:VAL:HG23	1.98	0.63
1:A:16:ASP:HB3	1:A:19:SER:HB2	1.80	0.63
1:A:123:GLU:CB	1:A:126:LYS:HG3	2.29	0.63
1:B:167:CYS:SG	1:B:168:PRO:CD	2.87	0.63
1:A:121:SER:O	1:A:123:GLU:N	2.30	0.63
1:D:7:GLY:HA2	1:D:166:VAL:HB	1.80	0.62
1:C:146:LYS:HE3	1:C:147:ASN:OD1	1.98	0.62
1:C:96:ARG:NH1	1:C:315:ILE:HD12	2.13	0.62
1:C:140:PHE:O	1:C:160:PHE:HB3	1.99	0.62
1:D:10:VAL:HG12	1:D:11:PRO:CD	2.29	0.62
1:D:13:VAL:CG1	1:D:14:THR:H	2.08	0.62
1:D:91:VAL:O	1:D:406:LEU:N	2.28	0.62
4:A:605:HEM:CBD	6:A:607:3CJ:H7	2.29	0.62
1:C:468:GLN:OE1	1:C:474:LYS:HB3	1.98	0.62
1:D:77:GLU:HG3	1:D:145:PRO:HB3	1.81	0.62
1:A:2:TRP:CD1	1:A:175:LEU:HD23	2.34	0.62
1:A:350:GLY:HA3	4:A:605:HEM:CBC	2.29	0.62
1:B:353:GLU:HA	1:B:405:LYS:O	2.00	0.62
1:D:16:ASP:O	1:D:18:GLN:N	2.30	0.62
1:A:567:PHE:O	1:A:568:GLN:C	2.37	0.62
1:A:136:GLY:HA2	1:C:124:HIS:CD2	2.35	0.62
1:D:191:LEU:H	1:D:191:LEU:HD23	1.63	0.62
1:C:518:GLN:HE21	1:C:522:ILE:HG23	1.63	0.62
1:A:370:PRO:HG2	1:A:371:GLU:OE1	1.99	0.62
1:D:425:THR:HG21	8:D:807:HOH:O	2.00	0.62
1:D:446:MET:HE3	7:D:608:NO3:O1	1.99	0.62
1:A:12:LEU:N	1:A:12:LEU:HD23	2.15	0.61
1:B:52:GLU:HG3	1:B:59:PHE:HA	1.81	0.61
1:A:260:ILE:HD11	1:A:386:ILE:HG13	1.82	0.61
1:B:11:PRO:O	1:B:12:LEU:HB3	2.00	0.61
1:D:342:VAL:HB	1:D:446:MET:HE1	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:503:GLU:O	1:D:504:ARG:HB2	2.00	0.61
1:A:172:TYR:HE2	1:A:175:LEU:HB2	1.65	0.61
4:C:605:HEM:HBD2	6:C:607:3CJ:C7	2.30	0.61
1:A:12:LEU:H	1:A:12:LEU:HD23	1.65	0.61
1:C:425:THR:O	1:C:425:THR:HG22	2.01	0.61
1:D:309:PHE:HA	1:D:313:LEU:HD12	1.82	0.61
1:D:240:ILE:HD13	1:D:382:ASN:HA	1.81	0.61
1:A:459:SER:O	1:A:461:PRO:HD3	2.01	0.61
1:A:313:LEU:HD11	1:A:519:PHE:CG	2.36	0.61
4:C:605:HEM:CHA	6:C:607:3CJ:H4	2.29	0.61
1:D:186:PHE:O	1:D:188:ASP:N	2.33	0.61
1:D:301:GLY:O	1:D:305:GLN:HG3	2.01	0.61
1:A:174:SER:O	1:A:175:LEU:HG	2.01	0.61
1:B:35:ALA:HB1	1:B:41:ARG:NE	2.16	0.61
1:D:101:MET:SD	1:D:101:MET:C	2.79	0.61
1:D:9:PRO:HG2	1:D:41:ARG:HH22	1.66	0.61
1:A:62:THR:HG21	1:A:65:LYS:H	1.66	0.61
1:C:168:PRO:HG3	1:C:172:TYR:HD2	1.66	0.61
1:D:325:ILE:O	1:D:325:ILE:HG22	2.01	0.61
1:B:11:PRO:O	1:B:12:LEU:HD23	2.01	0.60
1:A:165:PHE:CZ	1:A:169:THR:O	2.53	0.60
1:A:272:GLU:O	1:A:276:LEU:HG	2.01	0.60
1:C:539:LYS:HE2	1:C:589:PRO:HG3	1.81	0.60
1:C:7:GLY:O	1:C:8:ALA:HB2	1.99	0.60
1:C:96:ARG:CZ	1:C:506:ARG:CG	2.79	0.60
1:A:239:PHE:CZ	1:A:427:LYS:HB3	2.36	0.60
1:C:151:LEU:HD11	1:C:156:LYS:HD2	1.82	0.60
1:C:169:THR:N	1:C:170:PRO:CD	2.64	0.60
1:B:551:ARG:O	1:B:552:LEU:C	2.34	0.60
1:D:144:PHE:CE1	1:D:158:MET:HG3	2.37	0.60
1:A:62:THR:HG21	1:A:65:LYS:N	2.16	0.60
1:B:110:ASP:OD2	1:B:189:ALA:HA	2.02	0.60
1:C:350:GLY:CA	4:C:605:HEM:HBC2	2.30	0.60
1:D:200:ALA:O	1:D:204:ARG:HG3	2.01	0.60
1:D:315:ILE:O	1:D:505:GLY:HA2	2.00	0.60
1:C:351:HIS:ND1	1:C:433:LEU:HD21	2.17	0.60
1:D:586:ASP:O	1:D:589:PRO:HD2	2.02	0.60
1:A:81:LYS:HB2	1:A:483:LEU:HD11	1.84	0.60
1:D:8:ALA:N	1:D:9:PRO:CD	2.65	0.60
1:A:325:ILE:O	1:A:325:ILE:HG22	2.02	0.60
1:C:418:ARG:NH1	1:C:418:ARG:HG2	2.16	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:396:VAL:HA	1:A:399:LEU:HD12	1.83	0.60
1:B:258:GLU:O	1:B:380:PHE:HA	2.01	0.60
1:D:492:ILE:HG23	1:D:493:TRP:N	2.17	0.60
1:A:392:ILE:O	1:A:396:VAL:HG23	2.00	0.59
1:C:191:LEU:HD23	1:C:191:LEU:H	1.67	0.59
1:D:165:PHE:CZ	1:D:169:THR:O	2.54	0.59
1:D:348:ARG:NH1	1:D:437:ASN:ND2	2.47	0.59
1:A:342:VAL:HG11	1:A:452:TRP:CH2	2.37	0.59
1:C:12:LEU:O	1:C:13:VAL:HB	2.01	0.59
1:B:409:GLN:HE22	1:B:473:ASN:HB2	1.66	0.59
1:C:385:ARG:O	1:C:389:ASP:O	2.20	0.59
1:C:169:THR:N	1:C:170:PRO:HD3	2.18	0.59
1:A:165:PHE:CG	1:A:177:ARG:HD2	2.37	0.59
1:C:165:PHE:CZ	1:C:169:THR:O	2.56	0.59
1:D:425:THR:O	1:D:425:THR:HG22	2.02	0.59
1:A:229:PHE:CD1	1:A:247:PRO:HG2	2.38	0.59
1:C:481:LEU:O	1:C:485:LYS:N	2.33	0.59
1:A:156:LYS:HG3	8:A:802:HOH:O	2.02	0.59
1:C:557:THR:OG1	1:C:559:ILE:HG12	2.02	0.59
1:A:146:LYS:O	1:A:147:ASN:HB2	2.04	0.58
1:D:419:ASN:O	1:D:430:GLY:HA2	2.03	0.58
1:B:118:GLU:HG3	1:B:119:LEU:N	2.18	0.58
1:A:8:ALA:N	1:A:9:PRO:CD	2.66	0.58
1:C:99:LEU:HA	1:C:399:LEU:HD22	1.85	0.58
1:C:522:ILE:O	1:C:526:ASP:HB2	2.03	0.58
1:D:106:ILE:HG23	1:D:191:LEU:CD1	2.33	0.58
1:D:96:ARG:HG3	1:D:506:ARG:HE	1.67	0.58
1:A:9:PRO:HB2	1:A:41:ARG:NH2	2.18	0.58
1:D:117:THR:HG22	1:D:162:ARG:O	2.04	0.58
1:D:9:PRO:HG2	1:D:41:ARG:NH2	2.19	0.58
1:C:301:GLY:O	1:C:305:GLN:HG3	2.03	0.58
1:D:486:THR:HG23	1:D:489:ASN:H	1.69	0.58
1:D:501:MET:HA	1:D:507:VAL:O	2.03	0.58
1:A:504:ARG:HD3	8:A:846:HOH:O	2.02	0.58
1:A:66:THR:HB	1:A:70:PHE:O	2.03	0.58
1:D:199:LEU:HD12	1:D:199:LEU:O	2.04	0.58
1:A:222:HIS:HB3	8:A:778:HOH:O	2.04	0.58
1:B:348:ARG:HH11	1:B:437:ASN:ND2	2.02	0.58
4:C:605:HEM:HH4	6:C:607:3CJ:H5	1.85	0.58
1:B:62:THR:HB	1:B:65:LYS:HB2	1.84	0.58
1:C:124:HIS:HE1	1:C:128:GLN:HB2	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:9:PRO:HB2	1:A:41:ARG:CZ	2.34	0.58
1:A:348:ARG:HG2	4:A:605:HEM:C2D	2.39	0.58
1:B:148:ASP:HB3	1:B:151:LEU:HD22	1.85	0.58
1:D:478:LYS:O	1:D:482:ASP:OD2	2.21	0.58
1:D:10:VAL:HG12	1:D:11:PRO:N	2.19	0.57
1:A:421:LEU:HG	1:A:422:PHE:N	2.18	0.57
1:D:10:VAL:CG1	1:D:11:PRO:CD	2.82	0.57
1:D:342:VAL:HB	1:D:446:MET:CE	2.33	0.57
1:C:196:GLU:HB3	8:C:845:HOH:O	2.03	0.57
1:C:197:PRO:HD2	8:C:845:HOH:O	2.03	0.57
1:C:2:TRP:N	1:C:2:TRP:CE3	2.73	0.57
1:C:96:ARG:CZ	1:C:315:ILE:HB	2.34	0.57
1:D:361:LEU:HD13	1:D:365:TYR:O	2.05	0.57
1:B:95:ASN:ND2	2:B:601:NAG:O7	2.37	0.57
1:D:234:PRO:HB2	8:D:742:HOH:O	2.04	0.57
1:A:233:LYS:NZ	1:B:322:GLN:HB2	2.20	0.57
1:B:66:THR:HB	1:B:70:PHE:O	2.05	0.57
1:C:258:GLU:O	1:C:380:PHE:HA	2.04	0.57
4:A:605:HEM:HBD2	6:A:607:3CJ:C5	2.33	0.57
4:A:605:HEM:CBC	4:A:605:HEM:HMC2	2.30	0.57
1:D:421:LEU:HD22	1:D:433:LEU:HB2	1.86	0.57
1:C:167:CYS:HB2	1:C:168:PRO:HD2	1.85	0.57
1:D:231:ASN:O	1:D:233:LYS:HE2	2.04	0.57
1:B:138:GLU:OE1	1:B:162:ARG:HB2	2.04	0.57
1:B:168:PRO:CG	1:B:172:TYR:HB3	2.35	0.57
1:B:392:ILE:O	1:B:396:VAL:HG23	2.05	0.57
1:B:425:THR:O	1:B:425:THR:HG22	2.05	0.57
1:C:299:ILE:HD11	1:C:590:TRP:NE1	2.20	0.57
1:B:406:LEU:HG	1:B:407:MET:N	2.19	0.57
1:A:13:VAL:HG21	1:A:27:ASP:OD2	2.05	0.56
1:A:71:ARG:HB3	1:A:71:ARG:NH1	2.20	0.56
1:A:117:THR:O	1:A:161:PHE:HB3	2.05	0.56
1:C:475:VAL:HG12	1:C:479:LYS:HE2	1.88	0.56
1:D:572:TYR:CD1	1:D:573:PRO:HB3	2.38	0.56
4:D:605:HEM:CMC	4:D:605:HEM:HBC2	2.35	0.56
1:A:99:LEU:HG	1:A:567:PHE:HE1	1.70	0.56
1:C:168:PRO:HB2	1:C:170:PRO:HD2	1.87	0.56
1:C:81:LYS:HB3	8:C:750:HOH:O	2.03	0.56
1:B:10:VAL:CG2	1:B:41:ARG:HH12	2.16	0.56
1:C:96:ARG:HD2	1:C:100:PHE:CD2	2.33	0.56
1:D:492:ILE:HG23	1:D:493:TRP:H	1.68	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:605:HEM:O1D	6:B:607:3CJ:C5	2.53	0.56
4:B:605:HEM:CHA	6:B:607:3CJ:N1	2.68	0.56
1:C:173:GLN:O	1:C:174:SER:HB2	2.04	0.56
1:D:109:HIS:HA	1:D:255:ARG:NH2	2.20	0.56
1:A:113:PHE:HE1	6:A:607:3CJ:C6	2.16	0.56
1:A:275:ARG:HD2	1:A:555:ASP:HB3	1.88	0.56
1:A:281:LYS:HD2	1:A:285:PRO:HA	1.87	0.56
4:A:605:HEM:O1D	6:A:607:3CJ:C5	2.53	0.56
1:A:62:THR:CG2	1:A:65:LYS:N	2.69	0.56
1:B:193:TYR:CE2	1:B:297:ARG:HG3	2.41	0.56
1:C:315:ILE:O	1:C:505:GLY:HA2	2.06	0.56
1:C:517:ARG:HB3	1:C:517:ARG:HH21	1.70	0.56
1:A:189:ALA:HB2	1:A:304:ILE:HD12	1.87	0.56
1:C:204:ARG:CZ	1:C:206:LEU:CD2	2.84	0.56
1:A:144:PHE:CE2	1:A:157:CYS:N	2.74	0.56
1:A:367:PRO:HB2	1:D:64:ARG:CZ	2.35	0.56
1:A:465:LYS:HA	1:A:468:GLN:HE21	1.71	0.56
1:C:133:CYS:HB2	8:C:721:HOH:O	2.06	0.56
1:C:368:TRP:HH2	1:C:389:ASP:OD1	1.89	0.56
1:D:96:ARG:HD2	1:D:100:PHE:CD2	2.40	0.56
1:B:193:TYR:CD2	1:B:297:ARG:HG3	2.40	0.55
1:C:1:SER:C	1:C:2:TRP:CE3	2.80	0.55
1:D:29:ASN:HD21	1:D:527:ARG:H	1.53	0.55
1:A:113:PHE:O	1:A:181:ASN:HA	2.05	0.55
1:A:393:ASP:OD2	1:A:558:HIS:HB2	2.06	0.55
1:A:105:GLN:HB2	4:A:605:HEM:C2C	2.41	0.55
1:A:169:THR:OG1	1:A:170:PRO:HD3	2.07	0.55
1:A:213:MET:CB	1:A:270:LEU:HD11	2.36	0.55
1:B:167:CYS:SG	1:B:168:PRO:HD2	2.46	0.55
1:D:529:TRP:CD1	1:D:531:GLU:HB2	2.40	0.55
1:D:199:LEU:O	1:D:203:LEU:HG	2.06	0.55
4:B:605:HEM:HMB2	4:B:605:HEM:CBB	2.36	0.55
4:C:605:HEM:CHA	6:C:607:3CJ:C6	2.83	0.55
1:D:146:LYS:O	1:D:147:ASN:HB2	2.06	0.55
1:C:107:VAL:O	1:C:111:LEU:HG	2.07	0.55
1:C:125:SER:CA	1:C:128:GLN:HB3	2.36	0.55
1:A:284:ASN:OD1	1:A:592:SER:N	2.39	0.55
1:B:118:GLU:HG3	8:B:713:HOH:O	2.07	0.55
1:B:123:GLU:CB	1:B:126:LYS:HG3	2.34	0.55
1:C:134:VAL:HA	8:C:846:HOH:O	2.07	0.55
1:A:499:GLU:OE1	1:A:509:PRO:HG2	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:381:PHE:CZ	1:C:424:PRO:HG3	2.43	0.54
1:A:87:ASP:OD1	1:A:89:GLU:HB2	2.07	0.54
1:A:43:LEU:HD13	1:A:341:ASN:HA	1.89	0.54
1:A:367:PRO:HB2	1:D:64:ARG:HH21	1.70	0.54
1:C:97:SER:O	1:C:98:LEU:C	2.46	0.54
1:D:333:ASN:HD22	1:D:333:ASN:N	2.03	0.54
1:D:272:GLU:O	1:D:276:LEU:HG	2.07	0.54
1:B:409:GLN:HE21	1:B:473:ASN:HD22	1.55	0.54
1:C:342:VAL:HG21	1:C:452:TRP:CE2	2.42	0.54
1:D:113:PHE:CD1	6:D:607:3CJ:H6	2.42	0.54
1:D:544:LEU:O	1:D:547:VAL:HG22	2.07	0.54
1:D:97:SER:O	1:D:404:SER:OG	2.26	0.54
1:B:377:HIS:ND1	1:B:416:GLU:OE1	2.40	0.54
1:C:348:ARG:NH1	1:C:437:ASN:ND2	2.54	0.54
1:A:203:LEU:HD13	1:A:213:MET:HE1	1.89	0.54
1:A:109:HIS:NE2	6:A:607:3CJ:S1	2.81	0.54
1:B:593:ARG:HG3	1:B:595:ASN:H	1.73	0.54
1:A:62:THR:O	1:A:63:GLN:HB3	2.07	0.54
1:B:117:THR:HG22	1:B:161:PHE:HB3	1.88	0.54
1:C:280:LEU:O	1:C:284:ASN:ND2	2.41	0.54
1:D:96:ARG:NH2	1:D:315:ILE:HB	2.23	0.54
1:B:341:ASN:HB3	1:B:446:MET:HE1	1.90	0.54
1:C:1:SER:C	1:C:2:TRP:HE3	2.10	0.54
1:D:193:TYR:OH	1:D:297:ARG:HA	2.07	0.54
1:D:9:PRO:CG	1:D:41:ARG:NH2	2.71	0.54
1:A:408:ASN:OD1	1:A:408:ASN:C	2.46	0.53
4:B:605:HEM:O1D	6:B:607:3CJ:C7	2.56	0.53
1:C:213:MET:HG2	1:C:273:HIS:NE2	2.24	0.53
1:C:259:GLN:OE1	1:C:261:LEU:HB2	2.08	0.53
4:C:605:HEM:ND	6:C:607:3CJ:S1	2.81	0.53
1:D:96:ARG:CZ	1:D:315:ILE:HB	2.38	0.53
1:C:82:ILE:HD12	1:C:480:LEU:HD23	1.91	0.53
1:D:103:TRP:O	1:D:106:ILE:N	2.36	0.53
1:D:214:ALA:HA	2:D:602:NAG:O7	2.08	0.53
1:D:9:PRO:HG3	1:D:41:ARG:CZ	2.39	0.53
1:A:367:PRO:HB2	1:D:64:ARG:NE	2.24	0.53
1:B:522:ILE:HG13	1:B:523:ARG:N	2.22	0.53
1:B:117:THR:CG2	1:B:161:PHE:HB3	2.38	0.53
1:B:30:ASN:O	1:B:34:PRO:HA	2.07	0.53
1:B:109:HIS:NE2	6:B:607:3CJ:S1	2.81	0.53
4:B:605:HEM:CHA	6:B:607:3CJ:H7	2.36	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:551:ARG:O	1:C:552:LEU:C	2.45	0.53
1:D:589:PRO:HB2	1:D:590:TRP:CE3	2.43	0.53
1:D:446:MET:CE	7:D:608:NO3:O1	2.56	0.53
1:A:62:THR:HG21	1:A:65:LYS:CA	2.37	0.53
1:B:8:ALA:HB3	8:B:848:HOH:O	2.08	0.53
1:D:177:ARG:NH1	8:D:841:HOH:O	2.41	0.53
1:A:99:LEU:CD2	1:A:566:ALA:HB1	2.39	0.53
1:C:452:TRP:CD1	1:C:492:ILE:HG12	2.43	0.53
1:D:563:PRO:HD3	1:D:576:PHE:CE2	2.44	0.53
1:A:142:ILE:CD1	1:A:160:PHE:HB2	2.38	0.53
1:B:128:GLN:HG3	1:B:134:VAL:HG21	1.91	0.53
1:B:165:PHE:CZ	1:B:169:THR:O	2.62	0.53
1:C:205:ASN:HB2	1:C:214:ALA:HA	1.90	0.53
1:A:233:LYS:HZ2	1:B:322:GLN:HB2	1.73	0.53
1:D:376:LEU:HD21	1:D:380:PHE:HE1	1.74	0.53
1:D:105:GLN:NE2	6:D:607:3CJ:S1	2.70	0.53
1:A:241:ASN:ND2	1:A:244:ALA:HB2	2.24	0.52
1:C:237:CYS:HA	1:C:381:PHE:O	2.09	0.52
1:C:523:ARG:HG3	1:C:529:TRP:CE2	2.43	0.52
1:D:255:ARG:HH11	6:D:607:3CJ:H7	1.74	0.52
1:C:11:PRO:O	1:C:12:LEU:CB	2.51	0.52
1:C:204:ARG:HB2	1:C:206:LEU:HG	1.91	0.52
1:C:96:ARG:HH22	1:C:315:ILE:HB	1.73	0.52
1:B:167:CYS:SG	1:B:168:PRO:HD3	2.49	0.52
1:C:144:PHE:HE1	1:C:158:MET:HG3	1.74	0.52
1:C:437:ASN:O	1:C:440:ARG:N	2.40	0.52
1:B:2:TRP:CH2	1:C:86:LEU:HD13	2.31	0.52
1:A:492:ILE:HD11	1:A:510:LEU:HD21	1.90	0.52
1:C:125:SER:O	1:C:128:GLN:HB3	2.08	0.52
1:C:97:SER:O	1:C:99:LEU:N	2.42	0.52
1:D:397:ARG:HG3	1:D:559:ILE:HD12	1.91	0.52
1:D:424:PRO:O	1:D:425:THR:CB	2.58	0.52
1:D:513:CYS:O	1:D:517:ARG:HG2	2.09	0.52
1:C:400:LEU:HD13	1:C:563:PRO:HD2	1.91	0.52
4:C:605:HEM:C2A	6:C:607:3CJ:C3	2.92	0.52
1:D:348:ARG:HH22	1:D:440:ARG:HG2	1.73	0.52
1:A:168:PRO:HB2	1:A:170:PRO:O	2.10	0.52
1:C:117:THR:HG22	1:C:162:ARG:O	2.09	0.52
1:C:552:LEU:HD12	1:C:556:ASN:HD22	1.74	0.52
1:A:52:GLU:OE2	1:A:62:THR:HG22	2.09	0.52
1:B:93:ASP:OD2	1:B:406:LEU:HD12	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:202:ARG:HD2	8:C:702:HOH:O	2.09	0.52
1:C:29:ASN:HD21	1:C:527:ARG:H	1.57	0.52
1:C:64:ARG:HA	1:C:71:ARG:NH2	2.25	0.52
4:D:605:HEM:HBD2	6:D:607:3CJ:H7	1.92	0.52
1:A:128:GLN:HA	1:A:132:TYR:HD1	1.75	0.52
1:B:347:PHE:O	4:B:605:HEM:HAC	2.10	0.52
1:B:352:MET:O	1:B:405:LYS:HD3	2.10	0.52
1:C:221:ASP:HB2	1:C:226:TYR:CZ	2.44	0.52
1:C:96:ARG:HE	1:C:506:ARG:NE	2.08	0.52
1:D:143:MET:HG2	8:D:726:HOH:O	2.09	0.52
1:D:16:ASP:O	1:D:17:GLU:HB3	2.10	0.52
1:B:418:ARG:HH11	1:B:418:ARG:HG2	1.75	0.52
1:D:230:ASN:ND2	8:D:739:HOH:O	2.43	0.52
1:D:244:ALA:O	1:D:245:HIS:HB2	2.10	0.52
1:B:42:ALA:CB	1:B:166:VAL:HG11	2.30	0.52
1:C:165:PHE:CG	1:C:177:ARG:HD2	2.45	0.52
1:C:288:ASP:OD1	1:C:291:MET:HB3	2.10	0.51
1:D:102:GLN:OE1	1:D:259:GLN:NE2	2.35	0.51
1:A:258:GLU:O	1:A:380:PHE:HA	2.09	0.51
1:A:343:PHE:CD1	1:A:518:GLN:HG2	2.46	0.51
1:B:118:GLU:HG3	1:B:119:LEU:H	1.75	0.51
1:B:397:ARG:NH2	1:B:559:ILE:HD13	2.25	0.51
1:B:10:VAL:CB	1:B:41:ARG:HH12	2.23	0.51
1:C:29:ASN:HD21	1:C:527:ARG:N	2.08	0.51
1:B:169:THR:N	1:B:170:PRO:HD2	2.26	0.51
1:C:96:ARG:NH2	1:C:315:ILE:HB	2.25	0.51
1:D:257:SER:O	1:D:381:PHE:HA	2.11	0.51
1:A:340:SER:HG	1:A:343:PHE:HB2	1.75	0.51
1:A:551:ARG:HD2	1:A:584:LYS:HA	1.91	0.51
1:C:561:LYS:HD3	1:C:576:PHE:HB3	1.92	0.51
1:D:379:LEU:HA	1:D:382:ASN:HB2	1.91	0.51
1:A:8:ALA:N	1:A:9:PRO:HD2	2.26	0.51
1:B:530:TRP:CG	1:B:531:GLU:N	2.78	0.51
1:C:146:LYS:HE3	1:C:147:ASN:CG	2.30	0.51
1:C:287:TRP:CZ3	1:C:295:GLU:HG3	2.45	0.51
1:C:348:ARG:CB	1:C:493:TRP:NE1	2.68	0.51
1:C:75:ALA:HB1	1:C:438:LEU:HB2	1.92	0.51
1:B:25:THR:O	1:B:184:THR:HG22	2.10	0.51
1:B:37:GLY:H	1:B:338:ARG:HG2	1.76	0.51
1:D:349:PHE:CD1	1:D:350:GLY:N	2.78	0.51
1:A:345:PHE:CE1	1:A:440:ARG:HG3	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:593:ARG:HD2	1:A:595:ASN:H	1.75	0.51
1:A:7:GLY:O	1:A:8:ALA:HB3	2.10	0.51
1:B:180:ILE:HG22	1:B:181:ASN:N	2.25	0.51
1:A:315:ILE:O	1:A:505:GLY:HA2	2.11	0.51
1:B:11:PRO:O	1:B:12:LEU:CB	2.59	0.51
1:B:447:PRO:HG2	1:B:452:TRP:NE1	2.25	0.51
1:C:177:ARG:HG3	1:C:178:ASP:N	2.24	0.51
1:C:15:CYS:HB3	1:C:17:GLU:OE2	2.11	0.51
1:C:441:CYS:O	1:C:446:MET:HB2	2.10	0.51
1:D:349:PHE:CD1	1:D:349:PHE:C	2.84	0.51
1:A:99:LEU:HG	1:A:567:PHE:CE1	2.45	0.51
1:B:503:GLU:O	1:B:504:ARG:HB2	2.10	0.51
1:D:499:GLU:OE1	1:D:509:PRO:HG2	2.11	0.51
1:D:312:TYR:N	1:D:567:PHE:HE2	2.08	0.51
1:B:321:MET:C	1:B:323:LYS:H	2.13	0.51
1:B:556:ASN:O	1:B:557:THR:HG23	2.10	0.51
1:B:56:ALA:O	1:B:162:ARG:NH1	2.40	0.51
1:D:474:LYS:HB3	1:D:474:LYS:NZ	2.26	0.50
1:B:409:GLN:NE2	1:B:473:ASN:ND2	2.59	0.50
1:C:116:GLU:O	1:C:117:THR:HB	2.10	0.50
1:D:338:ARG:NH2	8:D:749:HOH:O	2.43	0.50
1:A:245:HIS:CG	1:A:245:HIS:O	2.65	0.50
1:A:63:GLN:O	1:A:63:GLN:HG3	2.11	0.50
1:B:78:VAL:HA	1:B:483:LEU:HD13	1.93	0.50
1:C:358:VAL:HB	1:C:379:LEU:CD1	2.41	0.50
1:C:415:SER:HB2	8:C:727:HOH:O	2.11	0.50
1:D:112:ASP:OD1	4:D:605:HEM:O2D	2.30	0.50
1:A:312:TYR:O	1:A:315:ILE:HG12	2.12	0.50
4:C:605:HEM:CMC	4:C:605:HEM:HBC2	2.41	0.50
1:D:221:ASP:OD1	1:D:221:ASP:C	2.50	0.50
1:C:125:SER:HA	1:C:128:GLN:CB	2.40	0.50
1:C:93:ASP:OD2	1:C:96:ARG:HG3	2.11	0.50
1:B:166:VAL:HG22	1:B:178:ASP:O	2.11	0.50
1:C:124:HIS:HD1	1:C:125:SER:N	2.09	0.50
1:C:259:GLN:HG3	1:C:262:LEU:HB3	1.94	0.50
1:D:204:ARG:HH22	1:D:290:GLU:HA	1.77	0.50
1:D:298:LYS:HG2	1:D:536:PHE:CZ	2.47	0.50
1:D:376:LEU:O	1:D:379:LEU:N	2.39	0.50
1:D:248:CYS:HA	1:D:383:THR:HG21	1.94	0.50
1:B:341:ASN:HB3	7:B:608:NO3:O1	2.12	0.50
1:C:342:VAL:HB	1:C:452:TRP:HZ2	1.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:294:GLN:OE1	1:B:294:GLN:HA	2.12	0.49
1:C:227:PRO:HG3	1:C:270:LEU:HD22	1.93	0.49
1:C:98:LEU:CD1	1:C:101:MET:HE2	2.42	0.49
1:D:84:GLY:HA2	8:D:797:HOH:O	2.11	0.49
1:A:139:CYS:SG	1:A:141:PRO:HD3	2.52	0.49
1:A:234:PRO:HB2	8:A:754:HOH:O	2.12	0.49
1:B:274:ASN:O	1:B:278:ARG:HG3	2.12	0.49
1:D:240:ILE:CD1	1:D:382:ASN:HA	2.42	0.49
1:A:313:LEU:HD11	1:A:519:PHE:CD2	2.48	0.49
1:A:442:ARG:O	1:A:445:GLY:N	2.45	0.49
4:B:605:HEM:CHA	6:B:607:3CJ:H9	2.25	0.49
1:C:347:PHE:HB3	4:C:605:HEM:HMD3	1.94	0.49
1:C:74:LEU:O	1:C:78:VAL:CG1	2.60	0.49
1:D:346:ALA:O	1:D:348:ARG:N	2.44	0.49
1:D:502:VAL:O	1:D:502:VAL:HG23	2.13	0.49
1:A:31:ARG:NH2	1:A:527:ARG:NH1	2.61	0.49
1:B:418:ARG:O	1:B:432:ASP:CB	2.61	0.49
1:D:346:ALA:C	1:D:348:ARG:H	2.16	0.49
1:D:449:TYR:OH	1:D:470:VAL:HG11	2.12	0.49
1:A:229:PHE:CG	1:A:247:PRO:HG2	2.47	0.49
1:C:342:VAL:CB	1:C:452:TRP:CZ2	2.94	0.49
1:C:527:ARG:HH11	1:C:527:ARG:HG2	1.77	0.49
4:C:605:HEM:CHA	6:C:607:3CJ:N1	2.75	0.49
1:D:502:VAL:O	1:D:503:GLU:C	2.50	0.49
1:A:284:ASN:HD21	1:A:591:ALA:HA	1.77	0.49
1:C:331:TYR:CE2	1:C:333:ASN:HB3	2.48	0.49
1:C:363:GLU:H	1:C:363:GLU:CD	2.15	0.49
1:D:343:PHE:CD1	1:D:518:GLN:HG2	2.47	0.49
1:D:450:ASN:HD21	1:D:487:PRO:HB2	1.78	0.49
1:A:168:PRO:HB3	1:A:170:PRO:HG2	1.95	0.49
1:D:246:VAL:HG11	1:D:387:ILE:HD12	1.95	0.49
1:D:317:LEU:HD12	1:D:321:MET:HA	1.95	0.49
1:D:62:THR:HB	1:D:65:LYS:HB2	1.95	0.49
1:A:551:ARG:CZ	1:A:584:LYS:HG2	2.41	0.49
1:C:1:SER:H2	1:C:2:TRP:HZ3	1.49	0.49
1:C:17:GLU:CG	1:C:31:ARG:HH21	2.25	0.49
1:D:110:ASP:OD2	1:D:189:ALA:N	2.45	0.49
1:D:314:PRO:HD3	1:D:321:MET:HE1	1.94	0.49
1:A:42:ALA:HB2	1:A:166:VAL:CG1	2.36	0.48
1:A:347:PHE:O	1:A:347:PHE:HD1	1.95	0.48
1:A:62:THR:O	1:A:63:GLN:CB	2.61	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:30:ASN:HD21	1:C:333:ASN:HB2	1.78	0.48
1:C:43:LEU:HD12	1:C:179:GLN:HB2	1.95	0.48
1:A:503:GLU:O	1:A:504:ARG:HB2	2.13	0.48
1:A:76:ARG:NH1	1:A:432:ASP:OD2	2.46	0.48
1:B:312:TYR:CE2	1:B:316:VAL:HG21	2.48	0.48
1:B:554:CYS:SG	1:B:562:VAL:HG21	2.52	0.48
1:C:125:SER:O	1:C:126:LYS:C	2.50	0.48
1:C:151:LEU:HA	1:C:155:GLY:O	2.13	0.48
1:A:464:LEU:O	1:A:468:GLN:HG3	2.12	0.48
1:A:51:TYR:HB3	1:A:57:VAL:O	2.13	0.48
1:B:10:VAL:HG11	1:B:41:ARG:NH2	2.28	0.48
1:C:180:ILE:HG22	1:C:181:ASN:N	2.29	0.48
1:C:350:GLY:CA	4:C:605:HEM:CBC	2.84	0.48
1:C:353:GLU:HA	1:C:405:LYS:O	2.13	0.48
1:C:593:ARG:HB3	1:C:593:ARG:CZ	2.43	0.48
1:D:144:PHE:HE1	1:D:158:MET:HG3	1.75	0.48
1:D:380:PHE:HE2	1:D:420:LYS:O	1.96	0.48
1:A:144:PHE:HD2	1:A:156:LYS:C	2.17	0.48
1:A:244:ALA:O	1:A:245:HIS:HB3	2.14	0.48
1:A:275:ARG:CD	1:A:555:ASP:HB3	2.43	0.48
1:A:58:PRO:HG3	1:A:162:ARG:CZ	2.43	0.48
1:C:377:HIS:ND1	1:C:416:GLU:OE1	2.43	0.48
1:D:408:ASN:HB3	1:D:411:LYS:HB2	1.95	0.48
1:B:213:MET:HB3	1:B:270:LEU:HD11	1.94	0.48
1:B:140:PHE:CE2	1:B:439:GLN:HG3	2.48	0.48
1:C:96:ARG:HD3	1:C:100:PHE:CZ	2.48	0.48
1:D:150:LYS:HE2	1:D:419:ASN:HD22	1.78	0.48
1:A:317:LEU:HD12	1:A:321:MET:SD	2.53	0.48
1:A:481:LEU:HA	1:A:484:TYR:O	2.14	0.48
1:C:102:GLN:HB2	1:C:399:LEU:HD21	1.96	0.48
1:C:22:ARG:CZ	1:C:528:PHE:HB2	2.44	0.48
1:D:187:LEU:HD21	1:D:304:ILE:HG22	1.95	0.48
1:A:91:VAL:HA	8:A:860:HOH:O	2.12	0.48
1:D:193:TYR:CZ	1:D:297:ARG:HA	2.49	0.48
1:D:93:ASP:OD2	1:D:96:ARG:HG3	2.13	0.48
1:A:146:LYS:HB3	8:A:764:HOH:O	2.12	0.48
1:C:18:GLN:N	1:C:18:GLN:CD	2.66	0.48
1:C:204:ARG:NE	1:C:206:LEU:HD21	2.29	0.48
1:C:344:THR:HB	4:C:605:HEM:O2D	2.14	0.48
1:D:275:ARG:O	1:D:279:GLU:HG2	2.14	0.48
1:A:165:PHE:CZ	1:A:169:THR:C	2.87	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:91:VAL:CG1	1:B:411:LYS:HD3	2.44	0.47
1:D:357:THR:HB	1:D:374:LEU:O	2.14	0.47
1:A:130:GLU:HG3	1:A:159:PRO:HD3	1.95	0.47
1:A:20:PRO:O	1:A:21:TYR:CD1	2.67	0.47
1:A:367:PRO:CB	1:D:64:ARG:NE	2.77	0.47
1:A:414:THR:HG22	8:A:723:HOH:O	2.14	0.47
1:C:36:LEU:HD23	1:C:338:ARG:HD3	1.96	0.47
1:D:213:MET:HG2	1:D:273:HIS:CD2	2.49	0.47
1:A:67:ARG:N	1:A:70:PHE:O	2.45	0.47
1:A:84:GLY:CA	1:A:418:ARG:NE	2.78	0.47
1:B:124:HIS:O	1:B:127:VAL:HB	2.14	0.47
1:B:113:PHE:HB2	1:B:255:ARG:NH2	2.29	0.47
1:D:212:LEU:HD21	1:D:278:ARG:HG3	1.95	0.47
1:A:571:ASN:O	1:A:575:ASP:HB2	2.15	0.47
1:D:370:PRO:HG2	1:D:371:GLU:H	1.79	0.47
1:A:351:HIS:NE2	1:A:433:LEU:HD21	2.30	0.47
1:A:52:GLU:HG3	1:A:59:PHE:CD1	2.50	0.47
1:B:168:PRO:HG2	1:B:172:TYR:HB3	1.97	0.47
1:B:96:ARG:NH2	1:B:315:ILE:O	2.46	0.47
1:C:169:THR:HG22	8:C:729:HOH:O	2.13	0.47
1:C:322:GLN:HG3	8:C:817:HOH:O	2.13	0.47
1:D:7:GLY:O	1:D:167:CYS:N	2.47	0.47
1:D:259:GLN:O	1:D:262:LEU:HB3	2.15	0.47
1:D:264:THR:HG23	1:D:392:ILE:HG23	1.96	0.47
1:A:345:PHE:HE1	1:A:440:ARG:HG3	1.80	0.47
1:A:76:ARG:HH22	1:A:419:ASN:ND2	2.13	0.47
1:C:230:ASN:ND2	1:C:232:VAL:HG22	2.22	0.47
1:B:30:ASN:ND2	1:B:36:LEU:HD12	2.29	0.47
1:B:544:LEU:O	1:B:547:VAL:HG22	2.14	0.47
1:C:16:ASP:O	1:C:18:GLN:N	2.46	0.47
1:C:511:LEU:O	1:C:515:LEU:HG	2.14	0.47
1:D:468:GLN:HG2	1:D:474:LYS:HA	1.96	0.47
1:A:363:GLU:HG2	8:A:811:HOH:O	2.15	0.47
1:A:62:THR:HG21	1:A:65:LYS:CG	2.42	0.47
1:B:466:GLY:HA3	8:B:835:HOH:O	2.14	0.47
1:C:423:GLN:CB	1:C:426:HIS:CD2	2.97	0.47
1:A:233:LYS:HA	1:A:234:PRO:C	2.34	0.47
1:A:224:LEU:HB2	1:A:271:ARG:NH2	2.30	0.47
1:A:302:ALA:O	1:A:306:ILE:HG13	2.14	0.47
1:B:376:LEU:HA	1:B:379:LEU:HD12	1.96	0.47
1:B:433:LEU:HD12	1:B:433:LEU:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:453:ARG:HD2	1:C:510:LEU:HD13	1.96	0.47
1:D:530:TRP:CE2	1:D:531:GLU:HG3	2.49	0.47
1:B:361:LEU:HB3	1:B:365:TYR:HA	1.96	0.47
1:C:146:LYS:NZ	1:C:147:ASN:ND2	2.60	0.47
1:D:351:HIS:CD2	4:D:605:HEM:C4C	3.03	0.47
1:A:400:LEU:HD21	1:A:553:ILE:CD1	2.45	0.46
1:A:343:PHE:CG	1:A:518:GLN:HG2	2.49	0.46
1:A:284:ASN:ND2	1:A:591:ALA:HA	2.30	0.46
1:B:273:HIS:CD2	1:B:274:ASN:OD1	2.61	0.46
1:C:22:ARG:NH1	1:C:528:PHE:HB2	2.30	0.46
1:B:335:VAL:HG12	1:B:336:ASP:N	2.30	0.46
1:B:418:ARG:O	1:B:432:ASP:OD2	2.33	0.46
1:B:561:LYS:O	1:B:562:VAL:HG13	2.16	0.46
1:C:144:PHE:CE1	1:C:158:MET:HG3	2.50	0.46
1:C:221:ASP:O	1:C:222:HIS:C	2.53	0.46
1:C:563:PRO:HD3	1:C:576:PHE:CE2	2.51	0.46
1:D:346:ALA:C	1:D:348:ARG:N	2.68	0.46
1:D:343:PHE:CG	1:D:518:GLN:HG2	2.50	0.46
1:B:185:SER:HB3	1:B:339:ILE:HG12	1.97	0.46
1:B:363:GLU:N	1:B:363:GLU:CD	2.67	0.46
1:B:6:CYS:N	8:B:788:HOH:O	2.48	0.46
1:C:30:ASN:ND2	1:C:333:ASN:HB2	2.30	0.46
1:C:572:TYR:HA	1:C:573:PRO:HA	1.62	0.46
1:D:113:PHE:CD1	1:D:255:ARG:HD3	2.50	0.46
1:A:265:VAL:O	1:A:269:LEU:HG	2.16	0.46
1:B:303:PHE:HD2	1:B:304:ILE:HD12	1.80	0.46
1:B:557:THR:OG1	1:B:559:ILE:HG12	2.15	0.46
1:B:66:THR:HB	1:B:70:PHE:C	2.36	0.46
1:C:236:PRO:CB	1:C:424:PRO:HB3	2.45	0.46
1:D:313:LEU:HB2	1:D:314:PRO:HD3	1.97	0.46
1:A:112:ASP:HA	1:A:183:VAL:CG2	2.46	0.46
1:A:348:ARG:HH11	1:A:437:ASN:ND2	2.14	0.46
1:C:117:THR:O	1:C:161:PHE:HB3	2.15	0.46
1:C:171:PRO:HD3	8:C:879:HOH:O	2.15	0.46
1:D:54:GLY:HA2	8:D:730:HOH:O	2.15	0.46
1:D:99:LEU:HD21	1:D:549:PHE:CD2	2.50	0.46
1:A:522:ILE:O	1:A:526:ASP:HB2	2.16	0.46
1:B:95:ASN:O	1:B:568:GLN:HA	2.15	0.46
1:D:213:MET:HG2	1:D:273:HIS:NE2	2.31	0.46
1:D:313:LEU:O	1:D:314:PRO:C	2.54	0.46
4:D:605:HEM:NA	6:D:607:3CJ:C1	2.78	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:32:ARG:NH2	8:B:768:HOH:O	2.48	0.46
1:D:148:ASP:O	1:D:151:LEU:CB	2.64	0.46
1:D:255:ARG:HD2	6:D:607:3CJ:C2	2.45	0.46
1:A:71:ARG:CB	1:A:71:ARG:NH1	2.79	0.46
1:B:137:ASP:CG	1:B:138:GLU:H	2.19	0.46
1:B:17:GLU:OE2	1:B:31:ARG:HG2	2.15	0.46
1:C:129:CYS:O	1:C:133:CYS:HA	2.15	0.46
1:C:213:MET:HG2	1:C:273:HIS:CD2	2.51	0.46
1:D:239:PHE:CZ	1:D:427:LYS:CG	2.99	0.46
1:D:351:HIS:HD2	4:D:605:HEM:C1C	2.34	0.46
1:D:570:ASN:HB3	1:D:575:ASP:HB3	1.98	0.46
1:A:166:VAL:C	1:A:167:CYS:SG	2.94	0.46
1:A:213:MET:HB2	1:A:270:LEU:HD11	1.98	0.46
1:B:421:LEU:HD22	1:B:433:LEU:HB2	1.97	0.46
1:B:93:ASP:CG	1:B:96:ARG:HB2	2.36	0.46
1:C:108:ASP:HB2	1:C:347:PHE:CE2	2.50	0.46
1:A:213:MET:HG2	1:A:273:HIS:CD2	2.51	0.46
1:A:47:LEU:HD21	1:A:455:PHE:HD2	1.81	0.46
1:C:423:GLN:HG3	1:C:431:PHE:CD2	2.51	0.46
1:C:449:TYR:OH	1:C:470:VAL:HG11	2.16	0.46
1:D:418:ARG:HG2	1:D:432:ASP:OD2	2.15	0.46
1:D:545:GLN:OE1	1:D:545:GLN:HA	2.16	0.46
1:A:260:ILE:HG23	1:A:261:LEU:N	2.31	0.45
1:A:348:ARG:HG2	4:A:605:HEM:C3D	2.50	0.45
1:B:324:TRP:CZ2	1:B:513:CYS:HB2	2.51	0.45
1:B:433:LEU:HA	1:B:436:ILE:HD12	1.97	0.45
1:C:244:ALA:HB1	1:C:246:VAL:HG23	1.97	0.45
3:C:603:NAG:H82	8:C:809:HOH:O	2.16	0.45
1:D:336:ASP:OD2	1:D:338:ARG:NH2	2.48	0.45
1:D:561:LYS:HE3	1:D:578:ASP:HA	1.98	0.45
1:A:144:PHE:HE2	1:A:157:CYS:N	2.14	0.45
1:A:377:HIS:CB	1:A:416:GLU:OE1	2.57	0.45
1:A:419:ASN:O	1:A:430:GLY:HA2	2.17	0.45
1:A:82:ILE:HD13	1:A:480:LEU:HD23	1.98	0.45
1:A:86:LEU:HD23	1:D:55:LEU:HD23	1.98	0.45
1:B:257:SER:O	1:B:381:PHE:HA	2.16	0.45
1:B:418:ARG:NH1	1:B:418:ARG:HG2	2.31	0.45
4:C:605:HEM:O1D	6:C:607:3CJ:C7	2.59	0.45
1:A:418:ARG:HG2	1:A:418:ARG:HH11	1.81	0.45
1:B:360:ARG:O	1:B:368:TRP:HB3	2.17	0.45
1:C:294:GLN:OE1	1:C:294:GLN:HA	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:96:ARG:CD	1:C:100:PHE:CZ	2.98	0.45
1:D:519:PHE:HA	1:D:522:ILE:HG12	1.97	0.45
1:A:353:GLU:HA	1:A:405:LYS:O	2.16	0.45
4:B:605:HEM:O1D	6:B:607:3CJ:H6	2.16	0.45
1:C:523:ARG:HG3	1:C:529:TRP:CD2	2.51	0.45
1:C:100:PHE:HA	1:C:567:PHE:CD1	2.52	0.45
1:C:99:LEU:HA	1:C:399:LEU:CD2	2.45	0.45
1:D:421:LEU:O	1:D:431:PHE:HB2	2.16	0.45
1:A:392:ILE:HG22	1:A:396:VAL:CG2	2.47	0.45
4:C:605:HEM:C3A	6:C:607:3CJ:C4	3.00	0.45
1:C:8:ALA:H	1:C:9:PRO:HD2	1.82	0.45
1:D:97:SER:O	1:D:100:PHE:HB3	2.15	0.45
1:D:474:LYS:O	1:D:477:ALA:HB3	2.16	0.45
1:A:95:ASN:HA	1:A:569:ALA:HB3	1.97	0.45
1:B:348:ARG:NH1	1:B:437:ASN:ND2	2.64	0.45
1:B:454:GLY:O	1:B:455:PHE:C	2.55	0.45
1:B:528:PHE:HZ	8:B:734:HOH:O	1.99	0.45
1:D:246:VAL:CG1	1:D:387:ILE:HD12	2.46	0.45
1:D:484:TYR:O	1:D:485:LYS:HB2	2.17	0.45
1:D:561:LYS:CE	1:D:578:ASP:HA	2.47	0.45
1:A:173:GLN:O	1:A:174:SER:HB3	2.17	0.45
1:B:35:ALA:HB1	1:B:41:ARG:HE	1.79	0.45
1:C:130:GLU:HB2	1:C:159:PRO:HB3	1.99	0.45
1:C:168:PRO:HG3	1:C:172:TYR:CD2	2.49	0.45
1:C:552:LEU:O	1:C:556:ASN:ND2	2.46	0.45
1:D:165:PHE:HZ	1:D:169:THR:O	1.98	0.45
1:D:590:TRP:HE3	1:D:590:TRP:H	1.65	0.45
1:A:135:GLN:HB3	1:A:135:GLN:HE21	1.49	0.45
1:A:418:ARG:HG2	1:A:418:ARG:NH1	2.32	0.45
1:A:442:ARG:O	1:A:443:ASP:C	2.53	0.45
1:B:180:ILE:CG2	1:B:181:ASN:N	2.79	0.45
1:B:221:ASP:HB2	1:B:226:TYR:CZ	2.52	0.45
8:A:729:HOH:O	1:D:173:GLN:HB2	2.17	0.45
1:D:175:LEU:HD23	1:D:176:ALA:H	1.82	0.45
1:D:229:PHE:CZ	1:D:387:ILE:HD13	2.52	0.45
1:D:345:PHE:CE1	1:D:441:CYS:HA	2.52	0.45
1:A:59:PHE:CG	1:A:67:ARG:HD2	2.52	0.45
1:A:82:ILE:HD13	1:A:480:LEU:CD2	2.46	0.45
1:B:206:LEU:O	1:B:207:SER:C	2.54	0.45
1:B:75:ALA:N	8:B:761:HOH:O	2.43	0.45
1:C:527:ARG:NH1	1:C:527:ARG:HG2	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:144:PHE:HB2	1:D:151:LEU:HD13	1.98	0.45
1:D:546:LYS:NZ	1:D:546:LYS:HB2	2.31	0.45
1:A:328:TYR:CD2	1:A:531:GLU:HB3	2.52	0.45
1:B:137:ASP:CG	1:B:138:GLU:N	2.70	0.45
1:B:563:PRO:HD3	1:B:576:PHE:CE2	2.51	0.45
1:C:551:ARG:HD3	1:C:584:LYS:HA	1.99	0.45
1:D:10:VAL:HG13	1:D:11:PRO:HD2	1.98	0.45
1:A:27:ASP:OD1	1:A:38:ALA:HB1	2.17	0.44
1:A:449:TYR:HB3	1:A:487:PRO:O	2.18	0.44
1:A:400:LEU:HD21	1:A:553:ILE:HD13	1.99	0.44
1:C:29:ASN:ND2	1:C:527:ARG:H	2.14	0.44
1:D:260:ILE:HG13	1:D:386:ILE:HD11	1.99	0.44
1:D:9:PRO:HG3	1:D:41:ARG:NH1	2.32	0.44
1:D:315:ILE:HD11	1:D:567:PHE:CD2	2.52	0.44
1:D:9:PRO:HG2	1:D:10:VAL:H	1.81	0.44
1:A:165:PHE:CE2	1:A:170:PRO:O	2.70	0.44
1:A:553:ILE:O	1:A:557:THR:HG23	2.17	0.44
1:B:188:ASP:N	1:B:188:ASP:OD1	2.48	0.44
1:B:260:ILE:HG13	1:B:382:ASN:O	2.17	0.44
1:B:76:ARG:NH2	8:B:726:HOH:O	2.50	0.44
1:C:517:ARG:CB	1:C:517:ARG:HH21	2.30	0.44
1:D:12:LEU:C	1:D:13:VAL:HG23	2.38	0.44
1:A:113:PHE:CE1	6:A:607:3CJ:C6	2.91	0.44
1:A:213:MET:HB3	1:A:270:LEU:HD11	1.98	0.44
1:B:393:ASP:OD1	1:B:557:THR:HB	2.18	0.44
1:C:124:HIS:O	1:C:125:SER:C	2.54	0.44
1:C:188:ASP:OD1	1:C:190:SER:CB	2.64	0.44
1:A:145:PRO:O	1:A:148:ASP:HB2	2.17	0.44
1:B:408:ASN:HB3	1:B:411:LYS:O	2.17	0.44
1:B:588:SER:HB2	1:B:589:PRO:HD3	2.00	0.44
1:B:91:VAL:HG11	1:B:411:LYS:HD3	1.99	0.44
1:C:188:ASP:CG	1:C:190:SER:HB3	2.37	0.44
1:C:2:TRP:CD2	1:C:2:TRP:N	2.84	0.44
1:C:468:GLN:CG	1:C:474:LYS:HA	2.40	0.44
1:C:88:GLU:O	1:C:91:VAL:HG22	2.17	0.44
1:D:260:ILE:HD13	1:D:395:LEU:HD21	2.00	0.44
1:A:313:LEU:HD11	1:A:519:PHE:CD1	2.53	0.44
1:A:559:ILE:HD13	1:A:559:ILE:N	2.33	0.44
1:C:421:LEU:HD22	1:C:433:LEU:HB2	1.98	0.44
1:A:123:GLU:HB3	1:A:126:LYS:HG3	2.00	0.44
1:A:27:ASP:OD1	1:A:38:ALA:CB	2.65	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:424:PRO:O	1:A:425:THR:HB	2.18	0.44
1:A:462:LYS:HA	1:A:462:LYS:HE2	1.98	0.44
1:C:168:PRO:HD2	1:C:172:TYR:HE2	1.82	0.44
1:C:242:THR:O	1:C:245:HIS:CE1	2.71	0.44
1:C:279:GLU:O	1:C:283:LEU:HG	2.17	0.44
1:D:196:GLU:HG3	8:D:825:HOH:O	2.18	0.44
1:A:144:PHE:CD2	1:A:156:LYS:C	2.91	0.44
1:C:124:HIS:C	1:C:124:HIS:ND1	2.70	0.44
1:C:265:VAL:O	1:C:269:LEU:HG	2.18	0.44
1:C:402:LYS:HD3	7:C:609:NO3:O1	2.17	0.44
1:D:549:PHE:O	1:D:552:LEU:HB3	2.17	0.44
1:D:88:GLU:O	1:D:91:VAL:HG22	2.17	0.44
1:A:109:HIS:NE2	6:A:607:3CJ:C1	2.80	0.44
1:A:172:TYR:CE2	1:A:175:LEU:HB2	2.48	0.44
1:A:568:GLN:O	1:A:568:GLN:HG2	2.17	0.44
4:A:605:HEM:CMB	4:A:605:HEM:HBB2	2.48	0.44
1:B:421:LEU:HD12	1:B:422:PHE:N	2.30	0.44
1:C:231:ASN:HB2	8:C:858:HOH:O	2.17	0.44
1:D:3:GLU:HG2	1:D:4:VAL:H	1.83	0.44
1:D:60:GLY:CA	1:D:72:VAL:HG21	2.48	0.44
1:D:76:ARG:NH1	1:D:432:ASP:OD2	2.51	0.44
1:A:203:LEU:HD22	8:A:763:HOH:O	2.17	0.44
1:A:363:GLU:CG	8:A:811:HOH:O	2.65	0.44
1:B:117:THR:HG21	1:B:138:GLU:OE1	2.18	0.44
1:D:425:THR:HG23	8:D:810:HOH:O	2.18	0.44
1:B:10:VAL:HG21	1:B:41:ARG:NH1	2.32	0.43
1:C:299:ILE:HD11	1:C:590:TRP:CD1	2.52	0.43
4:C:605:HEM:C1A	6:C:607:3CJ:C1	3.01	0.43
1:D:187:LEU:HD23	1:D:305:GLN:HA	2.00	0.43
1:C:45:ARG:CZ	1:C:49:ALA:HB2	2.48	0.43
1:C:29:ASN:O	1:C:527:ARG:HD3	2.18	0.43
1:C:74:LEU:O	1:C:78:VAL:HG13	2.18	0.43
1:D:85:TYR:CE2	1:D:91:VAL:HG11	2.53	0.43
1:A:440:ARG:HD3	1:A:440:ARG:HA	1.80	0.43
1:A:305:GLN:NE2	1:A:529:TRP:CE3	2.86	0.43
1:C:342:VAL:HG13	1:C:343:PHE:N	2.33	0.43
1:D:18:GLN:NE2	1:D:18:GLN:HA	2.32	0.43
1:D:28:CYS:O	1:D:29:ASN:C	2.57	0.43
1:A:55:LEU:HD13	1:A:173:GLN:HA	2.00	0.43
1:B:221:ASP:O	1:B:224:LEU:HB2	2.17	0.43
1:C:385:ARG:HA	1:C:385:ARG:HD3	1.86	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:520:GLN:O	1:C:524:ASP:HB2	2.19	0.43
1:C:91:VAL:HG23	1:C:92:LEU:HD23	2.01	0.43
1:D:497:ASN:OD1	1:D:511:LEU:HD11	2.18	0.43
1:D:82:ILE:HD13	1:D:480:LEU:CD2	2.49	0.43
1:B:518:GLN:O	1:B:522:ILE:HG23	2.19	0.43
1:C:328:TYR:CZ	1:C:529:TRP:CD1	3.07	0.43
1:D:187:LEU:HG	1:D:187:LEU:O	2.17	0.43
1:D:312:TYR:O	1:D:315:ILE:HG12	2.17	0.43
1:D:441:CYS:SG	1:D:492:ILE:CG2	3.07	0.43
1:D:320:GLU:HG3	1:D:512:ALA:HB1	2.00	0.43
1:A:14:THR:O	1:A:28:CYS:SG	2.77	0.43
1:B:11:PRO:C	1:B:12:LEU:HD23	2.39	0.43
1:B:222:HIS:HA	8:B:714:HOH:O	2.19	0.43
1:B:68:ASN:ND2	1:B:489:ASN:OD1	2.44	0.43
1:C:366:GLN:HA	1:C:366:GLN:OE1	2.18	0.43
1:C:528:PHE:O	1:C:529:TRP:C	2.57	0.43
1:A:343:PHE:CE1	1:A:515:LEU:HD23	2.53	0.43
1:A:398:GLY:O	1:A:402:LYS:HB2	2.19	0.43
1:A:519:PHE:O	1:A:522:ILE:HG12	2.18	0.43
1:C:96:ARG:NE	1:C:506:ARG:NE	2.66	0.43
1:D:204:ARG:HG2	1:D:293:TYR:CE1	2.53	0.43
1:D:408:ASN:O	1:D:410:ASN:N	2.51	0.43
1:D:585:LEU:O	1:D:587:LEU:N	2.52	0.43
1:A:279:GLU:HA	1:A:279:GLU:OE2	2.19	0.43
1:A:519:PHE:HA	1:A:522:ILE:HG12	2.00	0.43
1:A:9:PRO:O	1:A:10:VAL:C	2.55	0.43
1:B:11:PRO:O	1:B:12:LEU:CD2	2.65	0.43
1:B:172:TYR:OH	1:B:177:ARG:HA	2.17	0.43
1:C:441:CYS:HB3	8:C:718:HOH:O	2.18	0.43
1:C:81:LYS:HE2	8:C:750:HOH:O	2.19	0.43
1:D:312:TYR:O	1:D:315:ILE:CG1	2.67	0.43
1:B:447:PRO:HG2	1:B:452:TRP:CE2	2.54	0.43
1:C:108:ASP:HB2	1:C:347:PHE:CD2	2.54	0.43
1:C:37:GLY:H	1:C:338:ARG:CG	2.20	0.43
1:D:391:GLY:O	1:D:394:PRO:HD2	2.19	0.43
1:A:112:ASP:HA	1:A:183:VAL:HG22	2.01	0.43
1:A:345:PHE:HE1	1:A:440:ARG:CG	2.32	0.43
1:A:65:LYS:HE3	1:A:65:LYS:HB3	1.60	0.43
1:C:3:GLU:O	1:C:5:GLY:N	2.52	0.43
4:C:605:HEM:HMC2	4:C:605:HEM:HBC2	2.01	0.43
1:D:12:LEU:O	1:D:13:VAL:HB	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:93:ASP:CG	1:A:96:ARG:HB2	2.39	0.42
1:C:110:ASP:OD2	1:C:189:ALA:N	2.49	0.42
1:C:227:PRO:HG3	1:C:270:LEU:CD2	2.48	0.42
1:C:467:LEU:HA	1:C:467:LEU:HD12	1.89	0.42
1:A:258:GLU:OE1	1:A:259:GLN:CG	2.66	0.42
1:A:84:GLY:HA2	1:A:418:ARG:NE	2.34	0.42
1:C:109:HIS:HA	1:C:255:ARG:HH22	1.81	0.42
1:C:168:PRO:CG	1:C:172:TYR:CD2	3.03	0.42
1:A:165:PHE:CE1	1:A:177:ARG:CZ	3.01	0.42
1:A:16:ASP:HB3	1:A:19:SER:CB	2.47	0.42
1:A:543:SER:OG	1:A:589:PRO:HG2	2.19	0.42
1:B:116:GLU:HB3	8:B:801:HOH:O	2.18	0.42
1:B:191:LEU:H	1:B:191:LEU:HD23	1.85	0.42
1:C:283:LEU:HD13	1:C:591:ALA:HB2	2.00	0.42
1:D:119:LEU:HB3	8:D:876:HOH:O	2.19	0.42
1:D:146:LYS:O	1:D:147:ASN:CB	2.65	0.42
1:D:148:ASP:O	1:D:151:LEU:HB2	2.19	0.42
1:B:232:VAL:O	1:B:232:VAL:HG23	2.20	0.42
1:B:260:ILE:CG2	1:B:261:LEU:N	2.83	0.42
1:C:368:TRP:CH2	1:C:389:ASP:OD1	2.72	0.42
1:C:347:PHE:HB3	4:C:605:HEM:CMD	2.49	0.42
1:A:239:PHE:CZ	1:A:427:LYS:CB	3.02	0.42
1:A:281:LYS:HD3	1:A:292:LEU:HD11	2.01	0.42
1:B:335:VAL:CG1	1:B:336:ASP:N	2.82	0.42
1:C:76:ARG:HH12	1:C:418:ARG:NH1	2.17	0.42
1:D:53:ASP:CG	1:D:57:VAL:HG23	2.40	0.42
1:A:77:GLU:O	1:A:81:LYS:HG3	2.19	0.42
1:B:246:VAL:HA	1:B:247:PRO:HD3	1.80	0.42
1:C:321:MET:HB3	1:C:322:GLN:OE1	2.19	0.42
1:D:99:LEU:O	1:D:100:PHE:C	2.57	0.42
1:D:376:LEU:HD21	1:D:380:PHE:CE1	2.53	0.42
1:A:363:GLU:OE2	1:A:397:ARG:NH1	2.52	0.42
1:A:572:TYR:CG	1:A:573:PRO:HA	2.55	0.42
1:A:57:VAL:HA	1:A:58:PRO:HD3	1.91	0.42
1:B:233:LYS:HB3	1:B:234:PRO:HA	2.00	0.42
1:B:248:CYS:HB3	1:B:257:SER:OG	2.19	0.42
1:B:281:LYS:HD2	1:B:285:PRO:HA	2.01	0.42
1:B:293:TYR:OH	1:B:297:ARG:HD2	2.18	0.42
1:B:313:LEU:N	1:B:314:PRO:CD	2.83	0.42
1:B:565:HIS:HB2	1:B:568:GLN:HG2	2.00	0.42
1:C:322:GLN:CD	1:C:322:GLN:H	2.23	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:36:LEU:CD2	1:C:338:ARG:HD3	2.50	0.42
1:C:529:TRP:O	1:C:530:TRP:C	2.58	0.42
1:D:272:GLU:O	1:D:276:LEU:CG	2.68	0.42
1:D:348:ARG:HH11	1:D:437:ASN:HD21	1.60	0.42
1:D:460:GLN:HA	1:D:461:PRO:HD2	1.91	0.42
1:A:124:HIS:O	1:A:127:VAL:HB	2.20	0.42
1:C:180:ILE:CG2	1:C:181:ASN:N	2.83	0.42
1:C:101:MET:SD	1:C:354:VAL:HG22	2.60	0.42
1:C:550:SER:OG	1:C:563:PRO:O	2.26	0.42
1:D:446:MET:HA	1:D:447:PRO:HD3	1.93	0.42
1:A:464:LEU:HD12	1:A:464:LEU:C	2.40	0.42
1:C:106:ILE:HG13	1:C:265:VAL:HG11	2.02	0.42
1:C:348:ARG:HB3	1:C:493:TRP:HE1	1.80	0.42
1:A:146:LYS:HE3	1:A:147:ASN:OD1	2.20	0.42
1:A:24:ILE:HD13	1:A:24:ILE:HA	1.93	0.42
1:B:166:VAL:CG2	1:B:178:ASP:HB2	2.50	0.42
1:B:215:VAL:O	1:B:217:GLN:NE2	2.53	0.42
1:B:45:ARG:NH1	1:B:49:ALA:HA	2.35	0.42
1:A:217:GLN:HA	1:A:217:GLN:OE1	2.20	0.41
1:A:237:CYS:O	1:A:240:ILE:HG13	2.20	0.41
1:B:113:PHE:O	1:B:181:ASN:HA	2.20	0.41
1:B:117:THR:HG23	1:B:161:PHE:HD2	1.85	0.41
1:C:240:ILE:O	1:C:241:ASN:HB2	2.20	0.41
1:C:348:ARG:NH1	1:C:437:ASN:HD22	2.18	0.41
1:C:1:SER:N	1:C:2:TRP:CE3	2.82	0.41
1:D:103:TRP:O	1:D:104:GLY:C	2.58	0.41
1:D:60:GLY:HA2	1:D:72:VAL:CG2	2.50	0.41
1:B:31:ARG:O	1:B:32:ARG:C	2.59	0.41
1:B:350:GLY:HA3	4:B:605:HEM:CBC	2.49	0.41
1:C:333:ASN:HD22	1:C:333:ASN:H	1.67	0.41
1:C:494:ILE:HG23	1:C:495:GLY:N	2.36	0.41
1:D:132:TYR:HB3	1:D:134:VAL:HG23	2.02	0.41
1:D:532:ASN:HA	1:D:533:PRO:HD3	1.89	0.41
4:D:605:HEM:C1A	6:D:607:3CJ:N1	2.88	0.41
1:A:321:MET:C	1:A:323:LYS:H	2.22	0.41
1:A:522:ILE:HG13	1:A:523:ARG:N	2.36	0.41
1:B:23:THR:O	1:B:297:ARG:NH2	2.44	0.41
1:B:203:LEU:HD11	1:B:251:ALA:O	2.20	0.41
1:B:588:SER:N	1:B:589:PRO:CD	2.83	0.41
1:C:101:MET:HB3	1:C:101:MET:HE2	1.52	0.41
1:A:117:THR:O	1:A:117:THR:HG23	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:140:PHE:N	1:A:141:PRO:HD3	2.34	0.41
1:A:335:VAL:O	1:A:337:PRO:HD3	2.20	0.41
1:A:423:GLN:HA	1:A:424:PRO:HD3	1.92	0.41
1:C:146:LYS:CE	1:C:147:ASN:ND2	2.73	0.41
1:C:109:HIS:NE2	6:C:607:3CJ:S1	2.93	0.41
1:A:407:MET:SD	1:A:408:ASN:N	2.94	0.41
1:A:478:LYS:O	1:A:482:ASP:OD1	2.38	0.41
1:B:481:LEU:HD21	1:B:487:PRO:HG3	2.02	0.41
1:C:18:GLN:H	1:C:18:GLN:CD	2.23	0.41
1:C:216:ASN:OD1	1:C:219:ALA:N	2.31	0.41
1:D:96:ARG:HD2	1:D:100:PHE:CG	2.55	0.41
1:D:12:LEU:HA	8:D:706:HOH:O	2.20	0.41
1:D:474:LYS:HZ1	1:D:474:LYS:HB3	1.85	0.41
1:D:47:LEU:HD12	1:D:452:TRP:CZ3	2.56	0.41
1:D:91:VAL:HG12	1:D:411:LYS:HD3	2.02	0.41
1:A:471:LEU:O	1:A:472:LYS:HB2	2.21	0.41
1:B:14:THR:HG22	1:B:15:CYS:N	2.35	0.41
1:B:362:ASP:O	1:B:397:ARG:NE	2.53	0.41
1:B:529:TRP:CD1	1:B:531:GLU:HB3	2.55	0.41
1:C:82:ILE:HD12	1:C:480:LEU:CD2	2.51	0.41
1:D:251:ALA:O	1:D:252:GLY:C	2.58	0.41
1:D:347:PHE:HA	1:D:347:PHE:HD1	1.73	0.41
1:D:91:VAL:HB	1:D:405:LYS:HG3	2.02	0.41
1:D:9:PRO:O	1:D:10:VAL:CG2	2.69	0.41
1:A:572:TYR:HD2	1:A:576:PHE:CG	2.37	0.41
4:A:605:HEM:O1D	6:A:607:3CJ:C7	2.66	0.41
1:B:119:LEU:O	1:B:123:GLU:OE1	2.39	0.41
1:B:481:LEU:O	1:B:484:TYR:O	2.38	0.41
1:C:421:LEU:HD12	1:C:422:PHE:H	1.85	0.41
1:D:213:MET:CG	1:D:273:HIS:CD2	3.04	0.41
1:D:589:PRO:HB2	1:D:590:TRP:CZ3	2.56	0.41
1:A:165:PHE:HE2	1:A:170:PRO:O	2.03	0.41
1:A:35:ALA:HB1	1:A:41:ARG:CD	2.50	0.41
1:A:501:MET:SD	1:A:506:ARG:HA	2.61	0.41
1:B:106:ILE:HD11	1:B:265:VAL:HB	2.03	0.41
1:B:127:VAL:O	1:B:131:GLU:HB3	2.20	0.41
1:B:213:MET:HG2	1:B:273:HIS:NE2	2.35	0.41
1:B:493:TRP:O	1:B:497:ASN:ND2	2.53	0.41
1:C:100:PHE:HA	1:C:567:PHE:HD1	1.85	0.41
1:C:149:PRO:C	1:C:151:LEU:N	2.73	0.41
1:C:46:TRP:CE2	1:C:340:SER:HB3	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:69:GLY:HA2	1:C:374:LEU:HD22	2.02	0.41
1:C:3:GLU:C	1:C:5:GLY:H	2.24	0.41
1:C:481:LEU:CD2	1:C:487:PRO:HG3	2.39	0.41
1:C:8:ALA:N	1:C:9:PRO:HD2	2.35	0.41
1:D:179:GLN:HG2	1:D:444:HIS:CD2	2.56	0.41
1:A:418:ARG:O	1:A:432:ASP:HA	2.21	0.41
1:A:477:ALA:O	1:A:478:LYS:C	2.59	0.41
1:B:248:CYS:HB2	8:B:705:HOH:O	2.20	0.41
1:B:95:ASN:C	1:B:569:ALA:H	2.24	0.41
1:C:588:SER:N	1:C:589:PRO:CD	2.84	0.41
1:D:272:GLU:OE2	1:D:276:LEU:HG	2.20	0.41
1:D:336:ASP:OD1	1:D:338:ARG:HB2	2.21	0.41
1:D:423:GLN:O	1:D:426:HIS:HB2	2.20	0.41
1:D:51:TYR:HB3	1:D:57:VAL:O	2.20	0.41
1:D:523:ARG:HG3	1:D:529:TRP:CE2	2.56	0.41
1:D:537:THR:OG1	1:D:540:GLN:HG3	2.20	0.41
1:A:121:SER:C	1:A:123:GLU:N	2.75	0.41
1:A:288:ASP:OD2	1:A:290:GLU:HB3	2.20	0.41
1:B:399:LEU:HA	1:B:399:LEU:HD23	1.92	0.41
1:B:537:THR:HG23	1:B:540:GLN:CD	2.39	0.41
1:B:580:SER:HB3	8:B:826:HOH:O	2.20	0.41
1:C:1:SER:N	1:C:2:TRP:CZ3	2.68	0.41
1:C:363:GLU:N	1:C:363:GLU:CD	2.74	0.41
1:C:419:ASN:HD22	1:C:419:ASN:HA	1.70	0.41
1:D:366:GLN:HB3	1:D:367:PRO:CD	2.51	0.41
1:A:221:ASP:HB3	1:A:224:LEU:HB2	2.03	0.40
1:A:424:PRO:O	1:A:425:THR:CB	2.69	0.40
1:B:362:ASP:OD1	1:B:366:GLN:HB2	2.22	0.40
1:C:124:HIS:HD1	1:C:125:SER:CA	2.34	0.40
1:C:460:GLN:HA	1:C:461:PRO:HD2	1.90	0.40
1:C:85:TYR:CD2	1:C:411:LYS:HA	2.57	0.40
1:D:165:PHE:CD1	1:D:165:PHE:N	2.89	0.40
1:D:70:PHE:CD1	1:D:70:PHE:N	2.89	0.40
1:A:517:ARG:NH2	1:A:521:GLN:OE1	2.54	0.40
1:B:138:GLU:O	1:B:162:ARG:HG3	2.20	0.40
1:B:2:TRP:HE1	1:B:175:LEU:HA	1.85	0.40
1:B:24:ILE:HD13	1:B:24:ILE:HA	1.93	0.40
1:B:332:ASN:OD1	1:B:334:SER:N	2.45	0.40
1:B:468:GLN:HG2	1:B:474:LYS:HA	2.03	0.40
1:C:103:TRP:O	1:C:104:GLY:C	2.58	0.40
1:C:274:ASN:O	1:C:278:ARG:HG3	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:382:ASN:OD1	1:C:385:ARG:HB2	2.21	0.40
1:C:424:PRO:O	1:C:425:THR:CB	2.69	0.40
1:C:497:ASN:HA	1:C:511:LEU:HD11	2.03	0.40
1:D:351:HIS:CD2	4:D:605:HEM:C1C	3.09	0.40
1:A:309:PHE:CZ	1:A:522:ILE:HD11	2.55	0.40
1:A:549:PHE:O	1:A:552:LEU:HB3	2.21	0.40
1:B:308:THR:HA	1:B:312:TYR:HB3	2.03	0.40
1:B:418:ARG:O	1:B:432:ASP:HB2	2.21	0.40
1:C:471:LEU:HD23	1:C:499:GLU:HA	2.02	0.40
1:D:61:TRP:CE2	1:D:135:GLN:NE2	2.89	0.40
1:D:324:TRP:O	1:D:520:GLN:HB2	2.21	0.40
1:D:572:TYR:HA	1:D:573:PRO:HA	1.75	0.40
1:A:367:PRO:HB2	1:D:64:ARG:HE	1.86	0.40
1:A:203:LEU:HD23	1:A:203:LEU:HA	1.86	0.40
1:A:260:ILE:CG2	1:A:261:LEU:N	2.84	0.40
1:A:588:SER:N	1:A:589:PRO:CD	2.84	0.40
1:B:45:ARG:NH2	1:B:177:ARG:O	2.53	0.40
1:B:320:GLU:O	1:B:323:LYS:HB3	2.21	0.40
1:B:551:ARG:NH1	1:B:582:VAL:HG12	2.37	0.40
1:C:514:LEU:O	1:C:515:LEU:C	2.60	0.40
1:D:78:VAL:O	1:D:82:ILE:HB	2.21	0.40
1:A:518:GLN:O	1:A:522:ILE:HG23	2.21	0.40
1:A:568:GLN:O	1:A:570:ASN:ND2	2.54	0.40
1:A:77:GLU:CG	1:A:81:LYS:HD2	2.51	0.40
1:B:213:MET:CB	1:B:270:LEU:HD11	2.52	0.40
1:C:124:HIS:O	1:C:126:LYS:N	2.54	0.40
1:C:539:LYS:HG2	1:C:589:PRO:HG3	2.03	0.40
1:D:2:TRP:CD1	1:D:175:LEU:CD2	3.04	0.40
1:D:296:ALA:HA	1:D:299:ILE:HD12	2.03	0.40
1:D:28:CYS:HA	1:D:34:PRO:CB	2.51	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	593/595 (100%)	516 (87%)	71 (12%)	6 (1%)	18	32
1	B	593/595 (100%)	518 (87%)	68 (12%)	7 (1%)	15	27
1	C	593/595 (100%)	523 (88%)	61 (10%)	9 (2%)	12	21
1	D	593/595 (100%)	516 (87%)	68 (12%)	9 (2%)	12	21
All	All	2372/2380 (100%)	2073 (87%)	268 (11%)	31 (1%)	14	25

All (31) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	8	ALA
1	A	13	VAL
1	A	167	CYS
1	B	167	CYS
1	C	8	ALA
1	C	12	LEU
1	C	167	CYS
1	C	174	SER
1	D	13	VAL
1	D	167	CYS
1	D	174	SER
1	B	12	LEU
1	B	13	VAL
1	A	327	PRO
1	B	27	ASP
1	C	128	GLN
1	C	352	MET
1	D	9	PRO
1	D	347	PHE
1	D	587	LEU
1	B	370	PRO
1	C	13	VAL
1	D	367	PRO
1	D	589	PRO
1	C	4	VAL
1	C	492	ILE
1	A	285	PRO
1	B	492	ILE
1	A	9	PRO
1	D	516	GLY

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Mol	Chain	Res	Type
1	B	573	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	517/517 (100%)	469 (91%)	48 (9%)	10	20
1	B	517/517 (100%)	473 (92%)	44 (8%)	12	23
1	C	517/517 (100%)	474 (92%)	43 (8%)	13	25
1	D	517/517 (100%)	463 (90%)	54 (10%)	8	15
All	All	2068/2068 (100%)	1879 (91%)	189 (9%)	11	21

All (189) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	CYS
1	A	9	PRO
1	A	10	VAL
1	A	12	LEU
1	A	23	THR
1	A	24	ILE
1	A	32	ARG
1	A	40	ASN
1	A	64	ARG
1	A	65	LYS
1	A	71	ARG
1	A	78	VAL
1	A	116	GLU
1	A	118	GLU
1	A	119	LEU
1	A	139	CYS
1	A	154	GLN
1	A	157	CYS
1	A	167	CYS
1	A	177	ARG

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Mol	Chain	Res	Type
1	A	201	SER
1	A	202	ARG
1	A	218	GLU
1	A	232	VAL
1	A	240	ILE
1	A	257	SER
1	A	258	GLU
1	A	266	HIS
1	A	311	ASP
1	A	322	GLN
1	A	327	PRO
1	A	344	THR
1	A	347	PHE
1	A	348	ARG
1	A	364	ASN
1	A	366	GLN
1	A	408	ASN
1	A	464	LEU
1	A	481	LEU
1	A	482	ASP
1	A	517	ARG
1	A	538	GLU
1	A	542	ASP
1	A	551	ARG
1	A	564	LEU
1	A	568	GLN
1	A	580	SER
1	A	593	ARG
1	B	3	GLU
1	B	6	CYS
1	B	22	ARG
1	B	53	ASP
1	B	63	GLN
1	B	66	THR
1	B	78	VAL
1	B	86	LEU
1	B	118	GLU
1	B	125	SER
1	B	128	GLN
1	B	151	LEU
1	B	156	LYS
1	B	167	CYS

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Mol	Chain	Res	Type
1	B	175	LEU
1	B	196	GLU
1	B	198	SER
1	B	202	ARG
1	B	207	SER
1	B	231	ASN
1	B	242	THR
1	B	266	HIS
1	B	321	MET
1	B	322	GLN
1	B	337	PRO
1	B	347	PHE
1	B	356	SER
1	B	359	SER
1	B	360	ARG
1	B	371	GLU
1	B	383	THR
1	B	423	GLN
1	B	439	GLN
1	B	472	LYS
1	B	481	LEU
1	B	486	THR
1	B	513	CYS
1	B	522	ILE
1	B	542	ASP
1	B	551	ARG
1	B	573	PRO
1	B	574	HIS
1	B	592	SER
1	B	593	ARG
1	C	2	TRP
1	C	3	GLU
1	C	4	VAL
1	C	6	CYS
1	C	17	GLU
1	C	19	SER
1	C	31	ARG
1	C	32	ARG
1	C	89	GLU
1	C	102	GLN
1	C	118	GLU
1	C	119	LEU

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Mol	Chain	Res	Type
1	C	124	HIS
1	C	139	CYS
1	C	146	LYS
1	C	153	THR
1	C	156	LYS
1	C	157	CYS
1	C	173	GLN
1	C	177	ARG
1	C	207	SER
1	C	242	THR
1	C	254	SER
1	C	266	HIS
1	C	284	ASN
1	C	293	TYR
1	C	323	LYS
1	C	333	ASN
1	C	344	THR
1	C	360	ARG
1	C	364	ASN
1	C	376	LEU
1	C	404	SER
1	C	429	HIS
1	C	474	LYS
1	C	520	GLN
1	C	524	ASP
1	C	564	LEU
1	C	578	ASP
1	C	580	SER
1	C	593	ARG
1	C	594	GLU
1	C	595	ASN
1	D	12	LEU
1	D	23	THR
1	D	32	ARG
1	D	36	LEU
1	D	40	ASN
1	D	64	ARG
1	D	65	LYS
1	D	66	THR
1	D	70	PHE
1	D	86	LEU
1	D	118	GLU

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Mol	Chain	Res	Type
1	D	119	LEU
1	D	124	HIS
1	D	127	VAL
1	D	129	CYS
1	D	167	CYS
1	D	169	THR
1	D	175	LEU
1	D	177	ARG
1	D	185	SER
1	D	198	SER
1	D	202	ARG
1	D	230	ASN
1	D	240	ILE
1	D	266	HIS
1	D	286	HIS
1	D	315	ILE
1	D	322	GLN
1	D	323	LYS
1	D	329	GLN
1	D	333	ASN
1	D	334	SER
1	D	337	PRO
1	D	347	PHE
1	D	356	SER
1	D	360	ARG
1	D	371	GLU
1	D	376	LEU
1	D	414	THR
1	D	428	VAL
1	D	446	MET
1	D	462	LYS
1	D	474	LYS
1	D	475	VAL
1	D	501	MET
1	D	503	GLU
1	D	513	CYS
1	D	538	GLU
1	D	568	GLN
1	D	573	PRO
1	D	583	ASP
1	D	586	ASP
1	D	592	SER

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Mol	Chain	Res	Type
1	D	595	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (51) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	128	GLN
1	A	135	GLN
1	A	230	ASN
1	A	250	GLN
1	A	322	GLN
1	A	366	GLN
1	A	419	ASN
1	A	437	ASN
1	A	468	GLN
1	A	565	HIS
1	B	217	GLN
1	B	231	ASN
1	B	273	HIS
1	B	305	GLN
1	B	322	GLN
1	B	409	GLN
1	B	410	ASN
1	B	429	HIS
1	B	437	ASN
1	B	468	GLN
1	B	545	GLN
1	B	574	HIS
1	C	94	GLN
1	C	135	GLN
1	C	147	ASN
1	C	154	GLN
1	C	217	GLN
1	C	222	HIS
1	C	230	ASN
1	C	250	GLN
1	C	286	HIS
1	C	333	ASN
1	C	403	ASN
1	C	419	ASN
1	C	426	HIS
1	C	437	ASN
1	C	521	GLN

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Mol	Chain	Res	Type
1	C	558	HIS
1	C	595	ASN
1	D	18	GLN
1	D	29	ASN
1	D	40	ASN
1	D	128	GLN
1	D	135	GLN
1	D	154	GLN
1	D	245	HIS
1	D	322	GLN
1	D	329	GLN
1	D	333	ASN
1	D	403	ASN
1	D	437	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

8 carbohydrates are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
3	NAG	A	603	1,3	14,14,15	1.29	2 (14%)	15,19,21	1.55	1 (6%)
3	NAG	A	604	3	14,14,15	0.90	1 (7%)	15,19,21	3.00	6 (40%)
3	NAG	B	603	1,3	14,14,15	1.44	2 (14%)	15,19,21	2.11	5 (33%)
3	NAG	B	604	3	14,14,15	0.99	1 (7%)	15,19,21	2.06	5 (33%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	C	602	3	14,14,15	0.28	0	15,19,21	0.57	0
3	NAG	C	603	1,3	14,14,15	0.26	0	15,19,21	0.54	0
3	NAG	D	603	1,3	14,14,15	0.82	0	15,19,21	1.59	3 (20%)
3	NAG	D	604	3	14,14,15	0.71	0	15,19,21	1.74	3 (20%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	A	603	1,3	-	0/6/23/26	0/1/1/1
3	NAG	A	604	3	-	0/6/23/26	0/1/1/1
3	NAG	B	603	1,3	-	0/6/23/26	0/1/1/1
3	NAG	B	604	3	-	0/6/23/26	0/1/1/1
3	NAG	C	602	3	-	0/6/23/26	0/1/1/1
3	NAG	C	603	1,3	-	0/6/23/26	0/1/1/1
3	NAG	D	603	1,3	-	0/6/23/26	0/1/1/1
3	NAG	D	604	3	-	0/6/23/26	0/1/1/1

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	603	NAG	C2-N2	-2.71	1.41	1.46
3	A	603	NAG	O5-C1	-2.63	1.39	1.43
3	A	604	NAG	C2-N2	-2.42	1.42	1.46
3	B	603	NAG	O5-C1	-2.04	1.40	1.43
3	B	604	NAG	C1-C2	2.06	1.55	1.52
3	B	603	NAG	C1-C2	2.98	1.56	1.52

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	604	NAG	C4-C3-C2	-4.86	103.90	111.02
3	A	603	NAG	C2-N2-C7	-4.28	116.70	122.94
3	D	604	NAG	C3-C4-C5	-4.11	102.98	110.22
3	A	604	NAG	O4-C4-C3	-3.82	102.04	110.36
3	D	603	NAG	O5-C1-C2	-3.81	106.17	111.47
3	B	603	NAG	O4-C4-C3	-3.37	103.02	110.36
3	D	603	NAG	C2-N2-C7	-3.34	118.07	122.94
3	A	604	NAG	O5-C1-C2	-3.23	106.98	111.47
3	B	603	NAG	C6-C5-C4	-2.75	106.56	113.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	604	NAG	O3-C3-C4	-2.68	104.53	110.36
3	D	603	NAG	C6-C5-C4	-2.57	106.99	113.00
3	D	604	NAG	O5-C1-C2	-2.47	108.04	111.47
3	B	603	NAG	O4-C4-C5	-2.46	103.09	109.28
3	A	604	NAG	C2-N2-C7	-2.19	119.75	122.94
3	B	604	NAG	O4-C4-C3	2.01	114.74	110.36
3	B	604	NAG	C2-N2-C7	2.03	125.91	122.94
3	D	604	NAG	C1-O5-C5	2.62	115.78	112.17
3	B	604	NAG	C1-O5-C5	2.99	116.29	112.17
3	B	603	NAG	C3-C4-C5	3.13	115.72	110.22
3	B	604	NAG	O3-C3-C2	4.02	117.99	109.39
3	A	604	NAG	C4-C3-C2	4.17	117.14	111.02
3	B	603	NAG	O3-C3-C2	4.61	119.27	109.39
3	A	604	NAG	C1-O5-C5	8.44	123.80	112.17

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	604	NAG	1	0
3	B	603	NAG	2	0
3	B	604	NAG	2	0
3	C	603	NAG	1	0

5.6 Ligand geometry [i](#)

Of 32 ligands modelled in this entry, 4 are monoatomic - leaving 28 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	NAG	A	601	1	14,14,15	1.00	0	15,19,21	2.38	7 (46%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	NAG	A	602	1	14,14,15	0.28	0	15,19,21	0.57	0
4	HEM	A	605	1	28,50,50	2.15	10 (35%)	17,82,82	1.89	4 (23%)
6	3CJ	A	607	-	8,11,11	1.98	2 (25%)	9,14,14	2.88	5 (55%)
7	NO3	A	608	-	1,3,3	1.50	0	0,3,3	0.00	-
7	NO3	A	609	-	1,3,3	4.43	1 (100%)	0,3,3	0.00	-
7	NO3	A	610	-	1,3,3	0.36	0	0,3,3	0.00	-
2	NAG	B	601	1	14,14,15	0.28	0	15,19,21	0.56	0
2	NAG	B	602	1	14,14,15	1.16	1 (7%)	15,19,21	1.93	6 (40%)
4	HEM	B	605	1	28,50,50	2.10	10 (35%)	17,82,82	1.93	4 (23%)
6	3CJ	B	607	-	8,11,11	2.36	3 (37%)	9,14,14	3.26	5 (55%)
7	NO3	B	608	-	1,3,3	0.37	0	0,3,3	0.00	-
7	NO3	B	609	-	1,3,3	4.45	1 (100%)	0,3,3	0.00	-
7	NO3	B	610	-	1,3,3	0.50	0	0,3,3	0.00	-
2	NAG	C	601	1	14,14,15	0.29	0	15,19,21	0.57	0
2	NAG	C	604	1	14,14,15	0.28	0	15,19,21	0.57	0
4	HEM	C	605	1	28,50,50	2.01	8 (28%)	17,82,82	1.76	3 (17%)
6	3CJ	C	607	-	8,11,11	3.04	3 (37%)	9,14,14	3.15	5 (55%)
7	NO3	C	608	-	1,3,3	0.36	0	0,3,3	0.00	-
7	NO3	C	609	-	1,3,3	4.31	1 (100%)	0,3,3	0.00	-
7	NO3	C	610	-	1,3,3	0.33	0	0,3,3	0.00	-
2	NAG	D	601	1	14,14,15	0.79	0	15,19,21	2.18	5 (33%)
2	NAG	D	602	1	14,14,15	0.29	0	15,19,21	0.57	0
4	HEM	D	605	1	28,50,50	2.17	7 (25%)	17,82,82	1.50	3 (17%)
6	3CJ	D	607	-	8,11,11	2.64	3 (37%)	9,14,14	3.97	6 (66%)
7	NO3	D	608	-	1,3,3	0.36	0	0,3,3	0.00	-
7	NO3	D	609	-	1,3,3	4.44	1 (100%)	0,3,3	0.00	-
7	NO3	D	610	-	1,3,3	0.37	0	0,3,3	0.00	-

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	NAG	A	601	1	-	0/6/23/26	0/1/1/1
2	NAG	A	602	1	-	0/6/23/26	0/1/1/1
4	HEM	A	605	1	-	0/6/54/54	0/0/8/8
6	3CJ	A	607	-	-	0/3/3/3	0/1/1/1
7	NO3	A	608	-	-	0/0/0/0	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	NO3	A	609	-	-	0/0/0/0	0/0/0/0
7	NO3	A	610	-	-	0/0/0/0	0/0/0/0
2	NAG	B	601	1	-	0/6/23/26	0/1/1/1
2	NAG	B	602	1	-	0/6/23/26	0/1/1/1
4	HEM	B	605	1	-	0/6/54/54	0/0/8/8
6	3CJ	B	607	-	-	0/3/3/3	0/1/1/1
7	NO3	B	608	-	-	0/0/0/0	0/0/0/0
7	NO3	B	609	-	-	0/0/0/0	0/0/0/0
7	NO3	B	610	-	-	0/0/0/0	0/0/0/0
2	NAG	C	601	1	-	0/6/23/26	0/1/1/1
2	NAG	C	604	1	-	0/6/23/26	0/1/1/1
4	HEM	C	605	1	-	0/6/54/54	0/0/8/8
6	3CJ	C	607	-	-	0/3/3/3	0/1/1/1
7	NO3	C	608	-	-	0/0/0/0	0/0/0/0
7	NO3	C	609	-	-	0/0/0/0	0/0/0/0
7	NO3	C	610	-	-	0/0/0/0	0/0/0/0
2	NAG	D	601	1	-	0/6/23/26	0/1/1/1
2	NAG	D	602	1	-	0/6/23/26	0/1/1/1
4	HEM	D	605	1	-	0/6/54/54	0/0/8/8
6	3CJ	D	607	-	-	0/3/3/3	0/1/1/1
7	NO3	D	608	-	-	0/0/0/0	0/0/0/0
7	NO3	D	609	-	-	0/0/0/0	0/0/0/0
7	NO3	D	610	-	-	0/0/0/0	0/0/0/0

All (51) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	C	607	3CJ	C5-C2	-6.78	1.36	1.51
4	B	605	HEM	C3B-C2B	-5.16	1.33	1.40
4	D	605	HEM	C1B-NB	-5.02	1.30	1.36
4	A	605	HEM	C1B-NB	-4.92	1.31	1.36
4	D	605	HEM	C3B-C2B	-4.67	1.34	1.40
4	A	605	HEM	C4D-ND	-4.60	1.31	1.36
4	A	605	HEM	C3B-C2B	-4.42	1.34	1.40
4	C	605	HEM	C1B-NB	-4.29	1.31	1.36
4	B	605	HEM	C4D-ND	-4.10	1.31	1.36
4	B	605	HEM	C1B-NB	-4.01	1.32	1.36
4	C	605	HEM	C4D-ND	-3.83	1.32	1.36
4	C	605	HEM	C3B-C2B	-3.75	1.35	1.40
4	D	605	HEM	C3C-C2C	-3.66	1.35	1.40
4	A	605	HEM	C3C-C2C	-3.62	1.35	1.40
4	D	605	HEM	C1C-NC	-3.55	1.32	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	605	HEM	C4C-NC	-3.13	1.33	1.36
4	C	605	HEM	C3C-C2C	-3.03	1.36	1.40
4	C	605	HEM	C4C-NC	-3.02	1.33	1.36
4	B	605	HEM	C3C-C2C	-2.94	1.36	1.40
4	D	605	HEM	C4D-ND	-2.93	1.33	1.36
4	A	605	HEM	C1D-ND	-2.69	1.30	1.36
4	B	605	HEM	C1C-NC	-2.64	1.33	1.36
6	C	607	3CJ	C1-S1	-2.62	1.61	1.66
4	A	605	HEM	C1D-CHD	-2.50	1.33	1.40
4	D	605	HEM	C1D-ND	-2.48	1.30	1.36
4	C	605	HEM	C4B-NB	-2.48	1.30	1.36
4	C	605	HEM	C1C-NC	-2.47	1.33	1.36
4	B	605	HEM	C3D-C2D	-2.40	1.30	1.37
4	B	605	HEM	CAD-C3D	-2.40	1.47	1.52
4	B	605	HEM	CAA-C2A	-2.33	1.48	1.52
2	B	602	NAG	C4-C5	-2.30	1.48	1.53
4	C	605	HEM	CMB-C2B	-2.25	1.46	1.51
4	B	605	HEM	C2A-C3A	-2.12	1.31	1.37
4	B	605	HEM	C4B-NB	-2.12	1.31	1.36
4	A	605	HEM	C1A-CHA	-2.06	1.34	1.40
4	A	605	HEM	C4B-NB	-2.05	1.31	1.36
4	A	605	HEM	C4C-NC	-2.04	1.34	1.36
4	A	605	HEM	C1C-NC	-2.02	1.34	1.36
6	B	607	3CJ	C4-N2	2.02	1.36	1.33
6	D	607	3CJ	C2-N1	2.45	1.39	1.34
6	A	607	3CJ	C1-S1	2.82	1.72	1.66
6	B	607	3CJ	C1-S1	3.84	1.74	1.66
6	D	607	3CJ	C1-S1	4.24	1.75	1.66
6	C	607	3CJ	O1-C4	4.31	1.35	1.24
7	C	609	NO3	O1-N	4.31	1.40	1.23
7	A	609	NO3	O1-N	4.43	1.40	1.23
7	D	609	NO3	O1-N	4.44	1.40	1.23
7	B	609	NO3	O1-N	4.45	1.40	1.23
6	A	607	3CJ	O1-C4	4.51	1.35	1.24
6	B	607	3CJ	O1-C4	4.77	1.36	1.24
6	D	607	3CJ	O1-C4	5.18	1.37	1.24

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	B	607	3CJ	C3-C2-N1	-5.89	116.53	122.91
2	D	601	NAG	O5-C1-C2	-5.44	103.90	111.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	605	HEM	CAD-CBD-CGD	-4.67	104.67	112.66
6	A	607	3CJ	C3-C2-N1	-4.55	117.98	122.91
4	A	605	HEM	CBD-CAD-C3D	-4.54	103.81	112.47
2	A	601	NAG	C4-C3-C2	-4.22	104.83	111.02
6	C	607	3CJ	C3-C4-N2	-4.03	119.30	124.06
6	D	607	3CJ	C3-C2-N1	-3.77	118.83	122.91
2	B	602	NAG	O5-C1-C2	-3.72	106.30	111.47
4	A	605	HEM	C1D-C2D-C3D	-3.56	104.52	107.00
2	D	601	NAG	C2-N2-C7	-3.55	117.76	122.94
6	C	607	3CJ	C3-C2-N1	-3.51	119.10	122.91
6	D	607	3CJ	C3-C4-N2	-3.48	119.95	124.06
2	A	601	NAG	C2-N2-C7	-3.26	118.18	122.94
2	A	601	NAG	C3-C4-C5	-3.15	104.67	110.22
4	C	605	HEM	CBA-CAA-C2A	-3.07	106.62	112.48
4	B	605	HEM	CBD-CAD-C3D	-2.97	106.80	112.47
6	D	607	3CJ	C5-C2-C3	-2.86	117.33	121.19
4	B	605	HEM	CAA-C2A-C3A	-2.78	121.06	129.00
2	B	602	NAG	C2-N2-C7	-2.75	118.94	122.94
2	B	602	NAG	O6-C6-C5	-2.65	102.42	111.34
4	A	605	HEM	CMD-C2D-C1D	-2.59	124.48	128.46
4	C	605	HEM	C1D-C2D-C3D	-2.51	105.25	107.00
6	A	607	3CJ	C3-C4-N2	-2.50	121.10	124.06
6	B	607	3CJ	C3-C4-N2	-2.48	121.13	124.06
4	D	605	HEM	CBD-CAD-C3D	-2.43	107.83	112.47
2	B	602	NAG	O3-C3-C4	-2.38	105.17	110.36
2	B	602	NAG	C6-C5-C4	-2.37	107.45	113.00
2	D	601	NAG	O3-C3-C4	-2.32	105.32	110.36
4	D	605	HEM	CMA-C3A-C4A	-2.28	124.96	128.46
2	D	601	NAG	C8-C7-N2	-2.27	112.00	116.11
4	B	605	HEM	C1D-C2D-C3D	-2.22	105.45	107.00
2	A	601	NAG	O4-C4-C3	-2.16	105.66	110.36
2	D	601	NAG	C4-C3-C2	2.05	114.03	111.02
6	C	607	3CJ	C1-N1-C2	2.12	120.37	115.10
6	D	607	3CJ	C1-N1-C2	2.76	121.97	115.10
6	A	607	3CJ	C1-N1-C2	2.84	122.17	115.10
2	B	602	NAG	C1-O5-C5	3.02	116.32	112.17
4	A	605	HEM	CMD-C2D-C3D	3.21	130.99	124.94
4	D	605	HEM	CMC-C2C-C3C	3.25	130.92	124.89
2	A	601	NAG	O4-C4-C5	3.34	117.69	109.28
2	A	601	NAG	C1-C2-N2	3.38	116.27	110.49
2	A	601	NAG	C1-O5-C5	3.42	116.88	112.17
6	B	607	3CJ	C5-C2-N1	3.42	120.73	115.78

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	B	607	3CJ	C1-N1-C2	3.56	123.95	115.10
6	A	607	3CJ	C5-C2-C3	3.68	126.16	121.19
4	C	605	HEM	CMB-C2B-C3B	4.15	132.59	124.89
6	C	607	3CJ	C5-C2-N1	4.27	121.96	115.78
6	A	607	3CJ	C4-N2-C1	4.87	119.38	114.74
6	B	607	3CJ	C4-N2-C1	5.31	119.80	114.74
6	D	607	3CJ	C5-C2-N1	5.48	123.71	115.78
6	C	607	3CJ	C4-N2-C1	5.53	120.02	114.74
6	D	607	3CJ	C4-N2-C1	8.19	122.56	114.74

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

18 monomers are involved in 104 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	605	HEM	14	0
6	A	607	3CJ	12	0
7	A	609	NO3	1	0
2	B	601	NAG	1	0
4	B	605	HEM	17	0
6	B	607	3CJ	14	0
7	B	608	NO3	1	0
4	C	605	HEM	28	0
6	C	607	3CJ	20	0
7	C	608	NO3	1	0
7	C	609	NO3	1	0
7	C	610	NO3	2	0
2	D	602	NAG	1	0
4	D	605	HEM	12	0
6	D	607	3CJ	11	0
7	D	608	NO3	2	0
7	D	609	NO3	2	0
7	D	610	NO3	4	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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, 95th 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	595/595 (100%)	0.23	30 (5%)	30 31	16, 42, 76, 100	0
1	B	595/595 (100%)	0.25	32 (5%)	26 27	20, 43, 76, 100	0
1	C	595/595 (100%)	0.41	50 (8%)	12 11	20, 43, 83, 100	0
1	D	595/595 (100%)	0.33	40 (6%)	19 19	14, 41, 79, 100	0
All	All	2380/2380 (100%)	0.31	152 (6%)	20 21	14, 42, 79, 100	0

All (152) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	4	VAL	19.5
1	C	6	CYS	14.5
1	D	2	TRP	11.3
1	A	171	PRO	11.2
1	D	7	GLY	10.8
1	D	13	VAL	10.4
1	A	5	GLY	10.1
1	A	2	TRP	9.9
1	B	2	TRP	9.1
1	D	1	SER	8.9
1	A	4	VAL	8.9
1	B	121	SER	8.8
1	B	1	SER	8.7
1	A	1	SER	8.6
1	C	5	GLY	8.6
1	B	6	CYS	8.2
1	C	4	VAL	8.2
1	D	3	GLU	8.0
1	B	11	PRO	7.9
1	B	4	VAL	7.3
1	A	172	TYR	7.2

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Mol	Chain	Res	Type	RSRZ
1	B	5	GLY	6.9
1	D	12	LEU	6.9
1	C	7	GLY	6.6
1	A	119	LEU	6.3
1	C	1	SER	6.3
1	D	11	PRO	6.2
1	C	121	SER	6.1
1	D	169	THR	5.9
1	B	122	SER	5.9
1	A	170	PRO	5.8
1	C	9	PRO	5.7
1	C	2	TRP	5.7
1	C	3	GLU	5.6
1	C	129	CYS	5.6
1	A	3	GLU	5.5
1	C	8	ALA	5.4
1	A	6	CYS	5.4
1	A	13	VAL	5.2
1	A	121	SER	5.1
1	B	170	PRO	5.0
1	B	120	GLY	5.0
1	D	170	PRO	4.8
1	C	132	TYR	4.8
1	D	5	GLY	4.8
1	D	592	SER	4.8
1	B	582	VAL	4.7
1	C	119	LEU	4.6
1	D	120	GLY	4.6
1	D	172	TYR	4.6
1	D	6	CYS	4.5
1	B	3	GLU	4.5
1	C	172	TYR	4.5
1	C	13	VAL	4.4
1	B	595	ASN	4.4
1	A	585	LEU	4.3
1	B	189	ALA	4.2
1	A	173	GLN	4.2
1	C	138	GLU	4.1
1	C	249	PHE	4.1
1	D	207	SER	4.0
1	A	122	SER	4.0
1	A	169	THR	4.0

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Mol	Chain	Res	Type	RSRZ
1	D	595	ASN	4.0
1	C	96	ARG	4.0
1	B	171	PRO	3.9
1	A	12	LEU	3.9
1	C	591	ALA	3.8
1	C	117	THR	3.8
1	C	161	PHE	3.7
1	A	136	GLY	3.6
1	C	153	THR	3.6
1	A	223	GLY	3.5
1	A	8	ALA	3.5
1	C	11	PRO	3.5
1	A	7	GLY	3.5
1	D	10	VAL	3.5
1	A	9	PRO	3.5
1	D	173	GLN	3.4
1	C	580	SER	3.4
1	C	209	PRO	3.3
1	B	172	TYR	3.3
1	B	369	GLY	3.3
1	B	173	GLN	3.2
1	B	530	TRP	3.2
1	B	425	THR	3.1
1	D	209	PRO	3.1
1	B	9	PRO	3.0
1	B	137	ASP	3.0
1	B	282	ARG	3.0
1	B	581	ALA	2.9
1	C	106	ILE	2.9
1	B	262	LEU	2.9
1	B	7	GLY	2.8
1	B	545	GLN	2.8
1	D	190	SER	2.8
1	D	132	TYR	2.7
1	C	215	VAL	2.7
1	C	595	ASN	2.7
1	C	464	LEU	2.7
1	C	351	HIS	2.7
1	C	10	VAL	2.7
1	A	56	ALA	2.7
1	C	12	LEU	2.7
1	D	574	HIS	2.7

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Mol	Chain	Res	Type	RSRZ
1	A	582	VAL	2.7
1	B	583	ASP	2.7
1	C	175	LEU	2.6
1	C	127	VAL	2.6
1	C	542	ASP	2.6
1	A	174	SER	2.6
1	C	120	GLY	2.6
1	D	585	LEU	2.6
1	C	169	THR	2.5
1	D	225	ALA	2.5
1	D	107	VAL	2.5
1	A	425	THR	2.5
1	C	173	GLN	2.4
1	D	243	THR	2.4
1	D	175	LEU	2.4
1	C	115	PRO	2.4
1	B	12	LEU	2.3
1	C	276	LEU	2.3
1	D	17	GLU	2.3
1	A	137	ASP	2.3
1	D	351	HIS	2.3
1	C	494	ILE	2.3
1	D	567	PHE	2.3
1	C	592	SER	2.3
1	C	118	GLU	2.3
1	A	11	PRO	2.2
1	B	593	ARG	2.2
1	C	18	GLN	2.2
1	C	14	THR	2.2
1	C	130	GLU	2.2
1	D	168	PRO	2.2
1	D	171	PRO	2.2
1	D	15	CYS	2.2
1	D	134	VAL	2.1
1	C	170	PRO	2.1
1	B	586	ASP	2.1
1	A	10	VAL	2.1
1	D	572	TYR	2.1
1	B	119	LEU	2.1
1	D	594	GLU	2.1
1	C	108	ASP	2.0
1	D	208	SER	2.0

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Mol	Chain	Res	Type	RSRZ
1	C	519	PHE	2.0
1	A	135	GLN	2.0
1	C	584	LYS	2.0
1	D	547	VAL	2.0
1	D	303	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](#)

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th 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	LLDF	B-factors(Å ²)	Q<0.9
3	NAG	C	603	14/15	0.86	0.25	1.86	20,20,20,20	0
3	NAG	B	603	14/15	0.84	0.20	0.36	36,50,59,66	0
3	NAG	A	603	14/15	0.93	0.14	-0.52	33,41,52,54	0
3	NAG	D	603	14/15	0.95	0.12	-0.87	70,79,82,85	0
3	NAG	A	604	14/15	0.87	0.20	-	43,50,51,52	14
3	NAG	B	604	14/15	0.78	0.27	-	45,53,55,58	14
3	NAG	D	604	14/15	0.86	0.20	-	61,67,70,70	14
3	NAG	C	602	14/15	0.84	0.21	-	49,56,63,63	14

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th 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	LLDF	B-factors(Å ²)	Q<0.9
7	NO3	D	610	4/4	0.94	0.46	10.59	23,23,26,30	0
7	NO3	C	608	4/4	0.92	0.56	8.85	24,27,29,31	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
7	NO3	B	610	4/4	0.91	0.66	7.74	24,24,24,28	0
7	NO3	A	610	4/4	0.96	0.40	6.48	23,24,26,27	0
7	NO3	C	610	4/4	0.85	0.27	4.86	24,28,29,30	0
7	NO3	A	608	4/4	0.96	0.30	3.87	23,23,24,26	0
6	3CJ	D	607	11/11	0.79	0.41	3.16	31,48,60,60	0
6	3CJ	C	607	11/11	0.72	0.36	2.30	74,84,92,93	0
7	NO3	D	608	4/4	0.95	0.23	1.96	21,24,24,26	0
7	NO3	B	608	4/4	0.89	0.20	1.83	22,25,27,28	0
2	NAG	B	602	14/15	0.90	0.16	1.25	55,63,73,75	0
6	3CJ	B	607	11/11	0.79	0.24	1.01	42,47,53,54	0
4	HEM	B	605	43/43	0.94	0.22	0.78	31,41,53,62	0
2	NAG	C	604	14/15	0.87	0.21	0.70	48,55,60,61	0
4	HEM	A	605	43/43	0.95	0.21	0.63	26,37,45,49	0
5	CA	C	606	1/1	0.95	0.22	0.56	46,46,46,46	0
6	3CJ	A	607	11/11	0.90	0.22	0.29	47,53,56,60	0
5	CA	A	606	1/1	0.91	0.17	0.23	43,43,43,43	0
5	CA	D	606	1/1	0.97	0.23	0.14	36,36,36,36	0
2	NAG	C	601	14/15	0.66	0.38	-0.05	78,86,89,90	0
2	NAG	A	602	14/15	0.94	0.13	-0.43	38,46,51,54	0
4	HEM	D	605	43/43	0.95	0.16	-0.60	13,22,35,44	0
5	CA	B	606	1/1	0.93	0.14	-0.61	44,44,44,44	0
2	NAG	D	602	14/15	0.83	0.17	-0.79	46,54,59,60	0
2	NAG	D	601	14/15	0.84	0.20	-0.81	52,60,65,66	0
4	HEM	C	605	43/43	0.95	0.15	-0.89	31,41,45,52	0
7	NO3	A	609	4/4	0.97	0.18	-	24,26,28,32	0
7	NO3	B	609	4/4	0.90	0.38	-	26,26,27,29	0
7	NO3	C	609	4/4	0.86	0.45	-	24,24,27,31	0
7	NO3	D	609	4/4	0.89	0.37	-	25,26,27,28	0
2	NAG	B	601	14/15	0.82	0.26	-	64,73,77,81	0
2	NAG	A	601	14/15	0.80	0.18	-	64,79,81,81	0

6.5 Other polymers

There are no such residues in this entry.