



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 04:33 AM UTC

PDB ID : 3A2W / pdb_00003a2w
Title : Peroxiredoxin (C50S) from *Aeropyrum pernix* K1 (peroxide-bound form)
Authors : Nakamura, T.; Kado, Y.; Yamaguchi, F.; Matsumura, H.; Ishikawa, K.; Inoue, T.
Deposited on : 2009-06-04
Resolution : 2.30 Å (reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

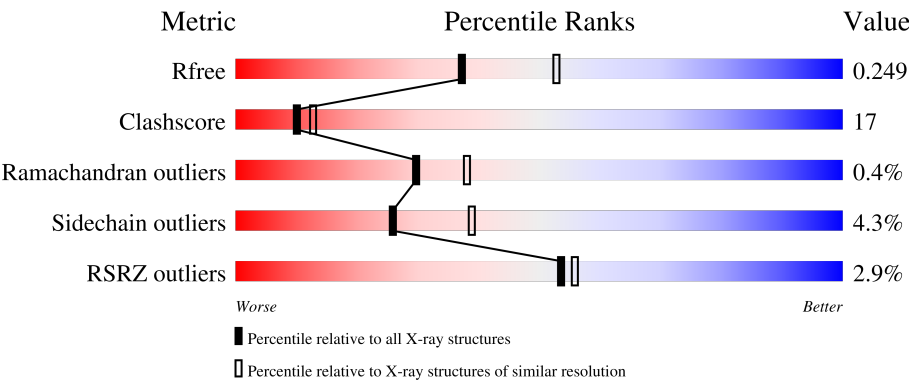
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.30 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.



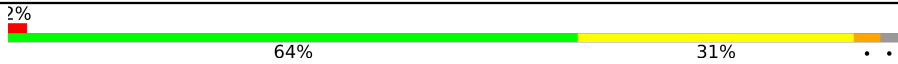
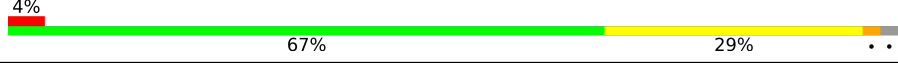
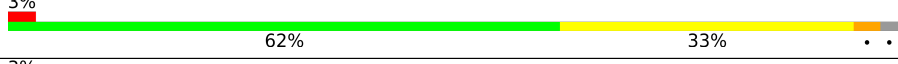
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R _{free}	180053	6319 (2.30-2.30)
Clashscore	190562	6919 (2.30-2.30)
Ramachandran outliers	187476	6854 (2.30-2.30)
Sidechain outliers	187428	6854 (2.30-2.30)
RSRZ outliers	180081	6325 (2.30-2.30)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	249	3% 68% 26% • •
1	B	249	3% 63% 30% 5% •
1	C	249	2% 67% 27% • •
1	D	249	2% 67% 28% • •
1	E	249	4% 65% 26% 7% •

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Mol	Chain	Length	Quality of chain
1	F	249	
1	G	249	
1	H	249	
1	I	249	
1	J	249	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	GOL	A	251	-	-	X	-
2	GOL	C	251	-	-	X	-
2	GOL	E	251	-	X	X	-
2	GOL	G	251	-	X	X	-

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 19948 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 Probable peroxiredoxin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	244	Total 1973	C 1268	N 347	O 352	S 6	0	0	0
1	B	244	Total 1973	C 1268	N 347	O 352	S 6	0	0	0
1	C	243	Total 1968	C 1265	N 346	O 351	S 6	0	0	0
1	D	244	Total 1973	C 1268	N 347	O 352	S 6	0	0	0
1	E	243	Total 1968	C 1265	N 346	O 351	S 6	0	0	0
1	F	244	Total 1973	C 1268	N 347	O 352	S 6	0	0	0
1	G	243	Total 1968	C 1265	N 346	O 351	S 6	0	0	0
1	H	244	Total 1973	C 1268	N 347	O 352	S 6	0	0	0
1	I	244	Total 1973	C 1268	N 347	O 352	S 6	0	0	0
1	J	244	Total 1973	C 1268	N 347	O 352	S 6	0	0	0

There are 10 discrepancies between the modelled and reference sequences:

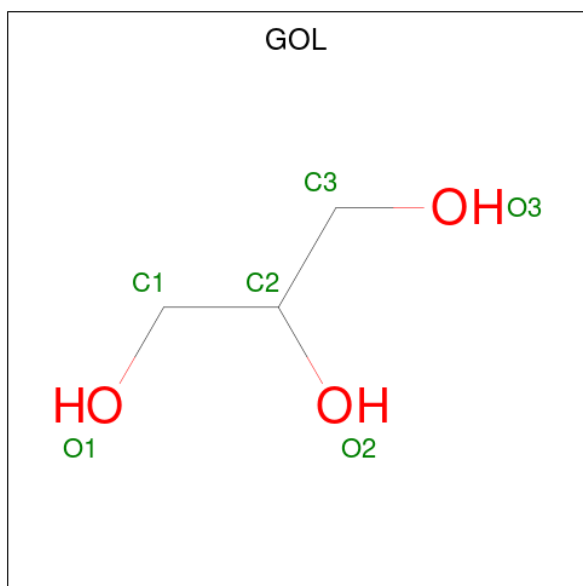
Chain	Residue	Modelled	Actual	Comment	Reference
A	50	SER	CYS	engineered mutation	UNP Q9Y9L0
B	50	SER	CYS	engineered mutation	UNP Q9Y9L0
C	50	SER	CYS	engineered mutation	UNP Q9Y9L0
D	50	SER	CYS	engineered mutation	UNP Q9Y9L0
E	50	SER	CYS	engineered mutation	UNP Q9Y9L0
F	50	SER	CYS	engineered mutation	UNP Q9Y9L0
G	50	SER	CYS	engineered mutation	UNP Q9Y9L0
H	50	SER	CYS	engineered mutation	UNP Q9Y9L0
I	50	SER	CYS	engineered mutation	UNP Q9Y9L0

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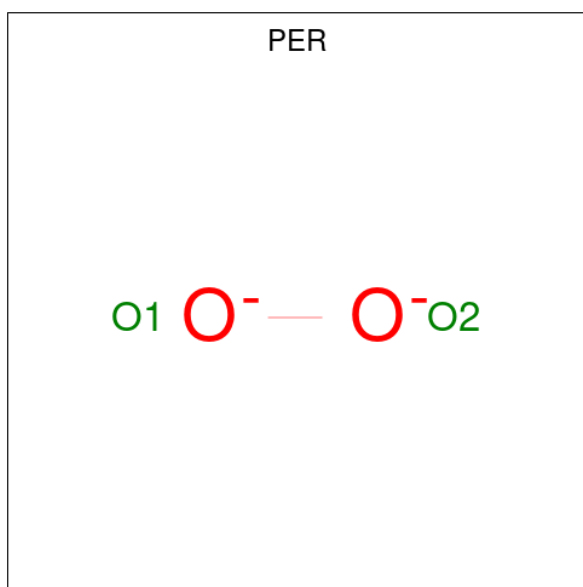
Chain	Residue	Modelled	Actual	Comment	Reference
J	50	SER	CYS	engineered mutation	UNP Q9Y9L0

- Molecule 2 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			6	3	3		
2	C	1	Total	C	O	0	0
			6	3	3		
2	D	1	Total	C	O	0	0
			6	3	3		
2	E	1	Total	C	O	0	0
			6	3	3		
2	G	1	Total	C	O	0	0
			6	3	3		
2	H	1	Total	C	O	0	0
			6	3	3		
2	J	1	Total	C	O	0	0
			6	3	3		

- Molecule 3 is PEROXIDE ION (CCD ID: PER) (formula: O_2).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total O 2 2	0	0
3	F	1	Total O 2 2	0	0
3	I	1	Total O 2 2	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	23	Total O 23 23	0	0
4	B	20	Total O 20 20	0	0
4	C	27	Total O 27 27	0	0
4	D	19	Total O 19 19	0	0
4	E	16	Total O 16 16	0	0
4	F	19	Total O 19 19	0	0
4	G	14	Total O 14 14	0	0
4	H	20	Total O 20 20	0	0
4	I	14	Total O 14 14	0	0

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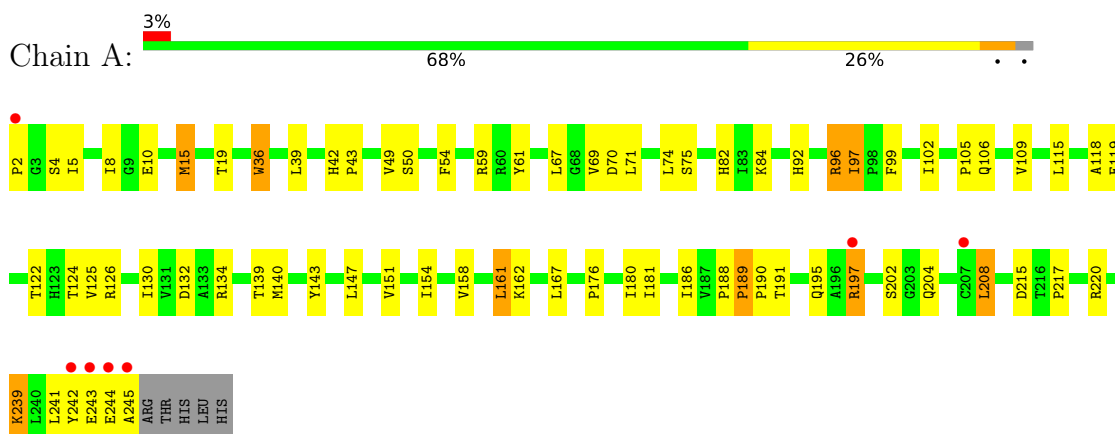
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	J	13	Total	O	0	0
			13	13		

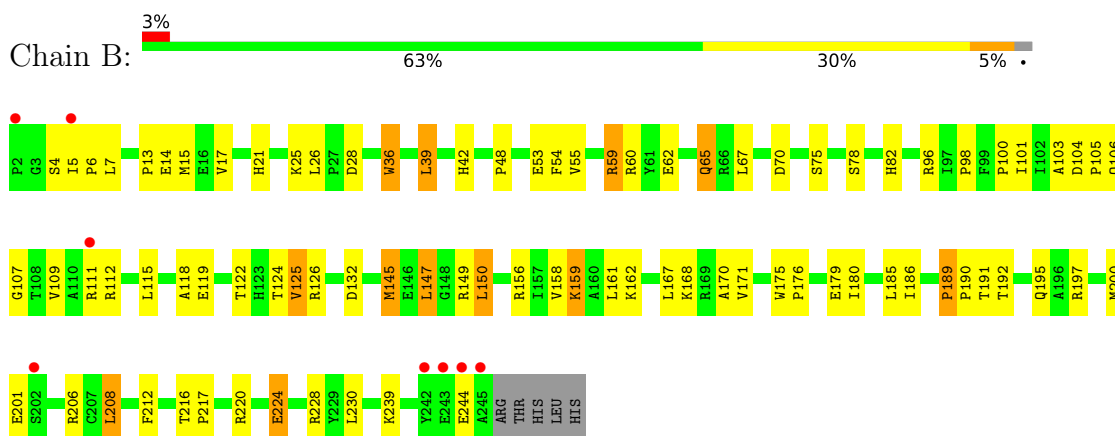
3 Residue-property plots [i](#)

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

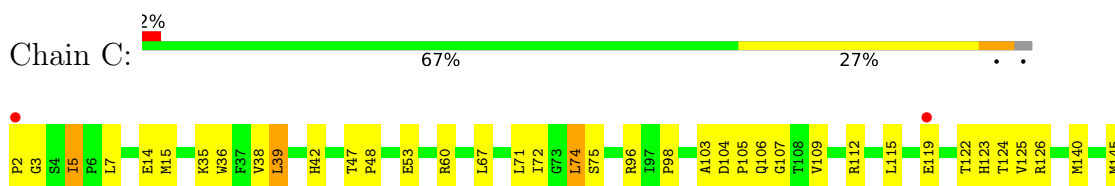
• Molecule 1: Probable peroxiredoxin

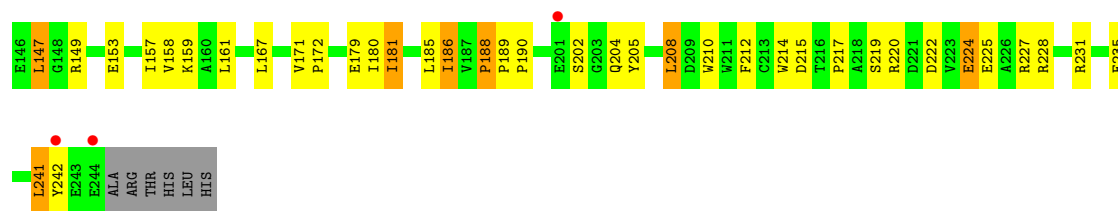


• Molecule 1: Probable peroxiredoxin

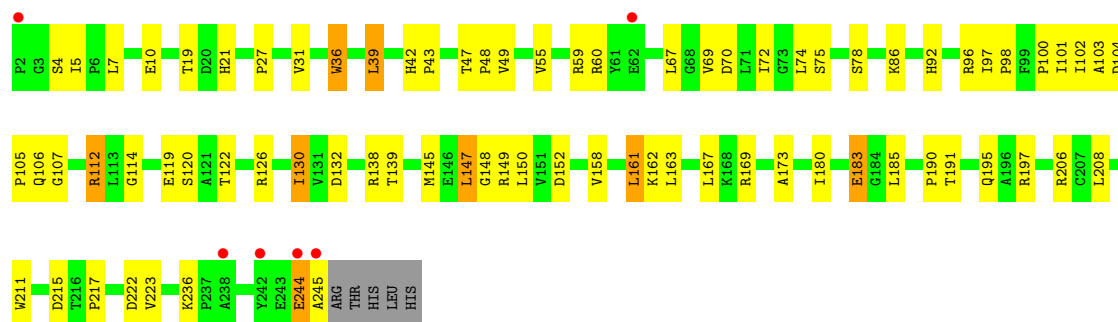


• Molecule 1: Probable peroxiredoxin

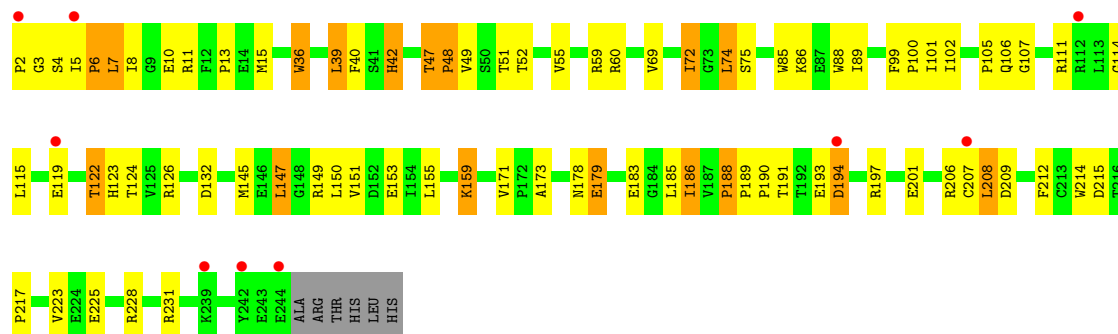




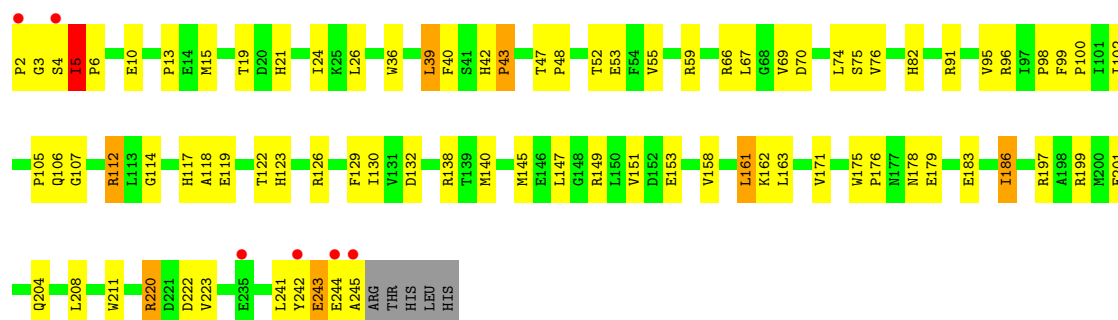
• Molecule 1: Probable peroxiredoxin



• Molecule 1: Probable peroxiredoxin

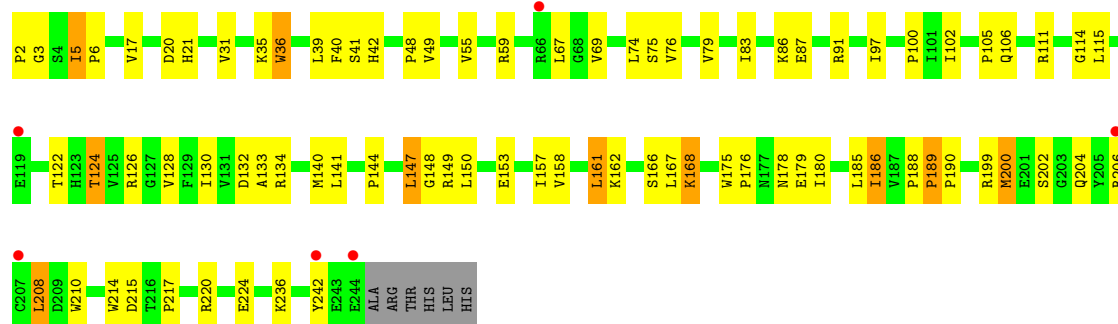


• Molecule 1: Probable peroxiredoxin



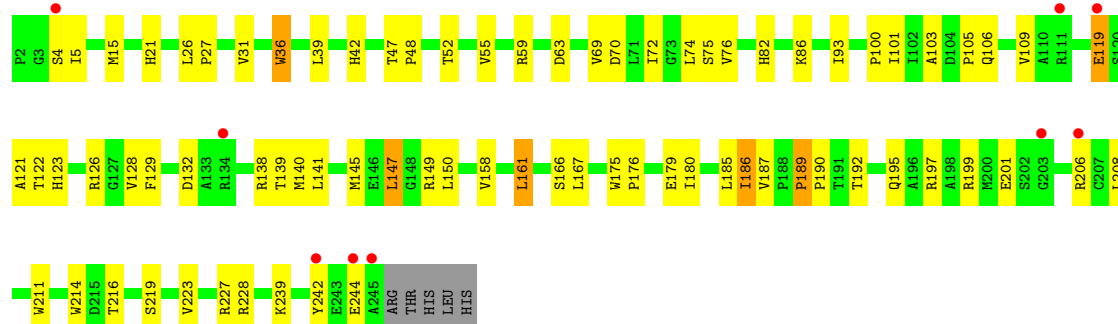
• Molecule 1: Probable peroxiredoxin

Chain G: 



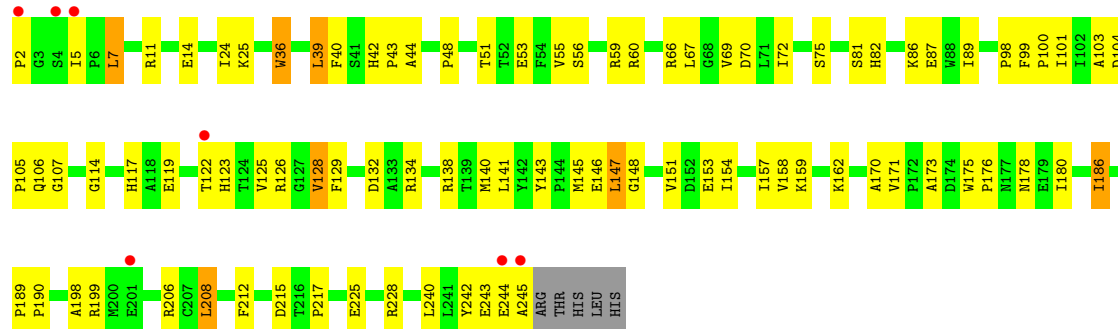
• Molecule 1: Probable peroxiredoxin

Chain H: 



• Molecule 1: Probable peroxiredoxin

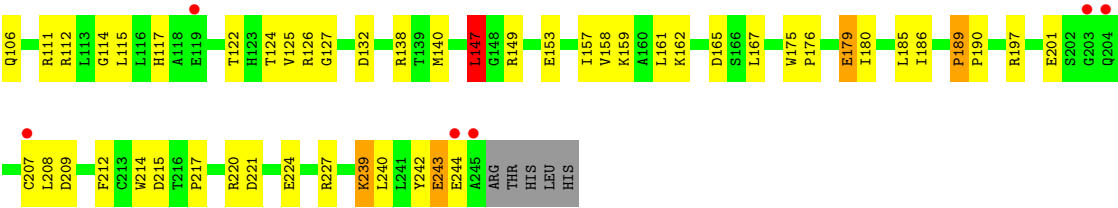
Chain I: 



• Molecule 1: Probable peroxiredoxin

Chain J: 





4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	76.26Å 103.33Å 104.55Å 105.72° 105.08° 92.63°	Depositor
Resolution (Å)	49.45 – 2.30 49.45 – 2.30	Depositor EDS
% Data completeness (in resolution range)	94.1 (49.45-2.30) 94.2 (49.45-2.30)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.27 (at 2.32Å)	Xtriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.202 , 0.249 0.202 , 0.249	Depositor DCC
R_{free} test set	6193 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å ²)	25.5	Xtriage
Anisotropy	0.323	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 50.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	19948	wwPDB-VP
Average B, all atoms (Å ²)	29.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.16% of the height of the origin peak. No significant pseudotranslation is detected.*

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: GOL, PER

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	0.44	0/2028	0.97	9/2757 (0.3%)
1	B	0.42	0/2028	0.99	10/2757 (0.4%)
1	C	0.46	0/2023	0.96	7/2750 (0.3%)
1	D	0.44	0/2028	0.94	4/2757 (0.1%)
1	E	0.45	0/2023	0.98	13/2750 (0.5%)
1	F	0.44	0/2028	0.96	7/2757 (0.3%)
1	G	0.42	0/2023	0.94	6/2750 (0.2%)
1	H	0.43	0/2028	0.94	7/2757 (0.3%)
1	I	0.45	0/2028	0.96	6/2757 (0.2%)
1	J	0.43	0/2028	0.96	7/2757 (0.3%)
All	All	0.44	0/20265	0.96	76/27549 (0.3%)

There are no bond length outliers.

All (76) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	36	TRP	N-CA-C	-8.23	98.66	110.59
1	C	208	LEU	N-CA-C	-8.08	103.63	113.97
1	E	36	TRP	N-CA-C	-7.99	99.01	110.59
1	G	188	PRO	CA-C-N	7.58	125.19	119.66
1	G	188	PRO	C-N-CA	7.58	125.19	119.66
1	A	208	LEU	N-CA-C	-7.53	104.22	113.41
1	B	208	LEU	N-CA-C	-7.32	104.49	113.50
1	G	189	PRO	N-CA-C	7.28	117.46	110.47
1	J	189	PRO	N-CA-C	7.05	119.30	110.70
1	E	206	ARG	N-CA-C	-7.03	99.88	110.28
1	C	188	PRO	CA-C-N	6.95	127.54	120.38
1	C	188	PRO	C-N-CA	6.95	127.54	120.38
1	I	208	LEU	N-CA-C	-6.84	105.06	113.41
1	A	189	PRO	N-CA-C	6.82	117.02	110.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	206	ARG	N-CA-C	-6.76	99.02	109.76
1	F	208	LEU	N-CA-C	-6.70	104.12	112.90
1	C	171	VAL	N-CA-C	6.47	115.11	107.73
1	F	151	VAL	N-CA-C	6.43	117.95	110.62
1	J	36	TRP	N-CA-C	-6.42	101.28	110.59
1	G	208	LEU	N-CA-C	-6.38	104.54	112.90
1	F	186	ILE	N-CA-C	6.36	117.74	108.58
1	A	36	TRP	N-CA-C	-6.34	101.14	110.52
1	H	186	ILE	N-CA-C	6.18	117.62	109.21
1	B	36	TRP	N-CA-C	-6.16	101.40	110.52
1	E	186	ILE	N-CA-C	6.14	117.42	108.58
1	H	36	TRP	N-CA-C	-6.04	101.83	110.59
1	F	21	HIS	N-CA-C	-6.03	105.22	113.30
1	I	36	TRP	N-CA-C	-6.00	102.44	110.55
1	A	188	PRO	CA-C-N	6.00	124.04	119.66
1	A	188	PRO	C-N-CA	6.00	124.04	119.66
1	B	216	THR	CA-C-N	5.94	125.56	119.56
1	B	216	THR	C-N-CA	5.94	125.56	119.56
1	B	189	PRO	N-CA-C	5.89	117.89	110.70
1	A	97	ILE	CA-C-N	5.86	125.40	119.19
1	A	97	ILE	C-N-CA	5.86	125.40	119.19
1	E	47	THR	CA-C-N	5.80	127.10	119.84
1	E	47	THR	C-N-CA	5.80	127.10	119.84
1	A	134	ARG	N-CA-C	-5.80	106.18	113.72
1	H	208	LEU	N-CA-C	-5.80	106.04	113.23
1	B	180	ILE	N-CA-C	5.73	116.78	111.45
1	F	47	THR	CA-C-N	5.72	126.99	119.84
1	F	47	THR	C-N-CA	5.72	126.99	119.84
1	G	186	ILE	N-CA-C	5.72	117.57	108.87
1	J	99	PHE	CA-C-N	5.72	126.17	119.99
1	J	99	PHE	C-N-CA	5.72	126.17	119.99
1	B	171	VAL	N-CA-C	5.70	114.16	107.77
1	B	200	MET	N-CA-C	5.67	117.26	111.14
1	D	36	TRP	N-CA-C	-5.65	102.16	110.52
1	G	36	TRP	N-CA-C	-5.50	103.13	110.55
1	I	206	ARG	N-CA-C	-5.47	100.37	109.46
1	I	151	VAL	N-CA-C	5.46	116.85	110.62
1	B	206	ARG	N-CA-C	-5.45	101.09	109.76
1	C	241	LEU	N-CA-C	5.44	117.91	111.33
1	H	189	PRO	N-CA-C	5.42	115.68	110.47
1	C	186	ILE	N-CA-C	5.41	117.10	108.87
1	H	93	ILE	N-CA-C	-5.41	107.09	113.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	206	ARG	N-CA-C	-5.35	101.75	110.20
1	E	188	PRO	CA-C-N	5.33	125.87	120.38
1	E	188	PRO	C-N-CA	5.33	125.87	120.38
1	J	11	ARG	N-CA-C	-5.30	102.43	110.28
1	E	11	ARG	N-CA-C	-5.29	102.64	110.48
1	E	7	LEU	N-CA-C	5.28	118.20	109.85
1	J	147	LEU	N-CA-C	5.28	117.01	108.41
1	A	118	ALA	N-CA-C	5.27	118.49	111.75
1	B	21	HIS	N-CA-C	-5.21	106.95	113.72
1	E	6	PRO	N-CA-C	-5.19	103.62	111.41
1	I	186	ILE	N-CA-C	5.17	115.72	108.89
1	F	5	ILE	N-CA-C	5.17	114.85	109.01
1	J	6	PRO	N-CA-C	-5.15	104.01	111.22
1	E	42	HIS	CA-C-N	5.11	126.23	119.84
1	E	42	HIS	C-N-CA	5.11	126.23	119.84
1	H	121	ALA	N-CA-C	-5.07	107.14	113.38
1	D	47	THR	CA-C-N	5.07	126.17	119.84
1	D	47	THR	C-N-CA	5.07	126.17	119.84
1	I	7	LEU	N-CA-C	5.03	117.80	109.85
1	E	151	VAL	N-CA-C	5.02	116.34	110.62

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	1973	0	1957	78	0
1	B	1973	0	1957	87	0
1	C	1968	0	1952	75	0
1	D	1973	0	1957	68	0
1	E	1968	0	1952	89	0
1	F	1973	0	1957	83	0
1	G	1968	0	1952	94	0
1	H	1973	0	1957	67	0
1	I	1973	0	1957	84	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	J	1973	0	1957	86	0
2	A	6	0	8	14	0
2	C	6	0	8	5	0
2	D	6	0	6	3	0
2	E	6	0	5	6	0
2	G	6	0	5	8	0
2	H	6	0	8	2	0
2	J	6	0	6	2	0
3	B	2	0	0	0	0
3	F	2	0	0	0	0
3	I	2	0	0	0	0
4	A	23	0	0	2	0
4	B	20	0	0	1	0
4	C	27	0	0	1	0
4	D	19	0	0	0	0
4	E	16	0	0	0	0
4	F	19	0	0	2	0
4	G	14	0	0	2	0
4	H	20	0	0	2	0
4	I	14	0	0	0	0
4	J	13	0	0	0	0
All	All	19948	0	19601	679	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 17.

All (679) 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:C:47:THR:CB	2:C:251:GOL:H12	1.76	1.12
1:A:49:VAL:HB	2:A:251:GOL:H31	1.15	1.09
1:A:49:VAL:HB	2:A:251:GOL:C3	1.84	1.07
1:C:47:THR:HB	2:C:251:GOL:C1	1.87	1.03
1:C:15:MET:HE1	1:C:109:VAL:HG13	1.43	1.01
1:G:206:ARG:HH21	1:G:214:TRP:HE1	1.12	0.92
1:I:128:VAL:HG13	1:I:141:LEU:HB2	1.51	0.92
1:E:47:THR:HB	2:E:251:GOL:H32	1.51	0.92
1:B:106:GLN:HE22	1:C:107:GLY:HA3	1.36	0.91
1:A:5:ILE:HG12	1:B:5:ILE:HD13	1.52	0.90
1:G:55:VAL:O	1:G:59:ARG:HG2	1.71	0.89
1:D:69:VAL:HG21	1:D:158:VAL:HG11	1.59	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:59:ARG:HH11	1:B:59:ARG:HB3	1.42	0.83
1:G:49:VAL:H	2:G:251:GOL:H31	1.42	0.83
1:G:206:ARG:NH2	1:G:214:TRP:HE1	1.75	0.83
1:C:47:THR:HB	2:C:251:GOL:H12	0.90	0.83
1:H:106:GLN:NE2	1:I:107:GLY:HA3	1.93	0.83
1:I:59:ARG:HH21	1:I:59:ARG:HG3	1.42	0.82
1:E:8:ILE:H	1:F:117:HIS:HD2	1.23	0.81
1:I:55:VAL:O	1:I:59:ARG:HG2	1.80	0.81
1:A:126:ARG:HH22	2:A:251:GOL:C3	1.93	0.81
1:G:161:LEU:HD13	1:H:147:LEU:HD12	1.64	0.80
1:E:72:ILE:HD11	1:E:102:ILE:HG13	1.62	0.80
1:A:15:MET:HE1	1:A:109:VAL:HG13	1.63	0.80
1:F:5:ILE:HG22	1:F:114:GLY:HA3	1.64	0.79
1:E:49:VAL:H	2:E:251:GOL:H31	1.47	0.79
1:A:69:VAL:HG21	1:A:158:VAL:HG11	1.61	0.79
1:A:220:ARG:NH1	1:A:220:ARG:HB2	1.97	0.78
1:D:183:GLU:O	1:D:183:GLU:HG2	1.81	0.78
1:I:69:VAL:HG21	1:I:158:VAL:HG11	1.66	0.78
1:B:15:MET:HE1	1:B:109:VAL:HG13	1.65	0.77
1:B:111:ARG:HH21	1:C:106:GLN:HE21	1.30	0.77
1:A:220:ARG:HB2	1:A:220:ARG:HH11	1.51	0.76
1:G:206:ARG:HH21	1:G:214:TRP:NE1	1.82	0.76
1:J:197:ARG:O	1:J:201:GLU:HG2	1.84	0.76
1:A:125:VAL:HG22	1:A:143:TYR:O	1.85	0.76
1:I:5:ILE:HD13	1:J:5:ILE:HD13	1.66	0.76
1:I:2:PRO:HB2	1:J:5:ILE:O	1.85	0.76
1:I:125:VAL:HG22	1:I:143:TYR:O	1.86	0.75
1:I:39:LEU:HD22	1:I:72:ILE:HG23	1.69	0.75
1:I:128:VAL:CG1	1:I:141:LEU:HB2	2.15	0.75
1:F:69:VAL:HG21	1:F:158:VAL:HG21	1.68	0.75
1:B:125:VAL:HA	1:B:145:MET:HE3	1.69	0.74
1:E:48:PRO:HG3	1:F:211:TRP:O	1.86	0.74
1:B:112:ARG:HG2	1:B:112:ARG:HH11	1.53	0.74
1:E:7:LEU:HD21	1:F:3:GLY:HA3	1.70	0.74
1:A:49:VAL:CB	2:A:251:GOL:H31	2.09	0.73
1:E:72:ILE:HG12	1:E:100:PRO:HG2	1.69	0.73
1:A:191:THR:H	1:A:195:GLN:NE2	1.87	0.73
1:A:49:VAL:N	2:A:251:GOL:H32	2.03	0.73
1:J:42:HIS:CE1	1:J:75:SER:HB3	2.23	0.73
1:I:2:PRO:HB3	1:J:6:PRO:HA	1.70	0.72
1:F:220:ARG:HH11	1:F:220:ARG:HB2	1.53	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:220:ARG:H	1:G:220:ARG:HD2	1.52	0.71
1:I:55:VAL:HG11	1:J:180:ILE:HD11	1.72	0.71
1:B:191:THR:H	1:B:195:GLN:NE2	1.86	0.71
1:G:17:VAL:HG11	1:G:102:ILE:HG12	1.70	0.71
1:H:15:MET:HE1	1:H:109:VAL:HG13	1.73	0.71
1:A:126:ARG:NH2	2:A:251:GOL:H31	2.04	0.71
1:G:69:VAL:HG21	1:G:158:VAL:HG11	1.73	0.70
1:C:186:ILE:HD13	1:D:48:PRO:HB2	1.74	0.70
1:E:42:HIS:CE1	1:E:75:SER:HB3	2.27	0.69
1:F:42:HIS:CE1	1:F:75:SER:HB3	2.28	0.69
1:F:67:LEU:O	1:F:162:LYS:HE3	1.92	0.69
1:A:119:GLU:HB2	4:A:260:HOH:O	1.92	0.69
1:G:236:LYS:HD3	1:H:227:ARG:NH1	2.07	0.69
1:C:5:ILE:HD12	1:D:5:ILE:CG1	2.23	0.69
1:C:5:ILE:HD12	1:D:5:ILE:HG13	1.74	0.68
1:C:48:PRO:HG2	2:C:251:GOL:O2	1.93	0.68
1:C:103:ALA:C	1:C:105:PRO:HD3	2.18	0.68
1:G:74:LEU:HD23	1:G:75:SER:N	2.08	0.68
1:C:180:ILE:HD11	1:D:55:VAL:HG21	1.76	0.68
1:C:15:MET:HE1	1:C:109:VAL:CG1	2.23	0.67
1:I:86:LYS:HZ1	1:I:101:ILE:HD13	1.60	0.67
1:I:153:GLU:O	1:I:157:ILE:HG12	1.93	0.67
1:C:179:GLU:HB3	1:D:59:ARG:NH2	2.10	0.67
1:J:197:ARG:HB2	1:J:197:ARG:NH1	2.09	0.67
1:J:105:PRO:O	1:J:106:GLN:HB2	1.95	0.66
1:H:105:PRO:O	1:H:106:GLN:HB2	1.93	0.66
1:D:107:GLY:HA3	1:E:106:GLN:HE22	1.60	0.66
1:E:10:GLU:CD	1:F:2:PRO:HD2	2.20	0.66
1:E:39:LEU:HD12	1:E:40:PHE:N	2.10	0.66
1:D:122:THR:OG1	1:E:105:PRO:HG2	1.96	0.66
1:E:51:THR:HG23	1:E:89:ILE:CD1	2.25	0.66
1:J:67:LEU:O	1:J:162:LYS:HE3	1.96	0.65
1:I:5:ILE:HG22	1:I:114:GLY:HA3	1.77	0.65
1:I:59:ARG:HG3	1:I:59:ARG:NH2	2.12	0.65
1:A:49:VAL:CB	2:A:251:GOL:C3	2.71	0.65
1:A:96:ARG:HG3	1:A:96:ARG:HH11	1.62	0.65
1:E:5:ILE:HG22	1:E:114:GLY:HA3	1.79	0.65
1:G:186:ILE:HD13	1:H:48:PRO:HB2	1.79	0.65
1:E:49:VAL:N	2:E:251:GOL:H31	2.11	0.65
1:B:60:ARG:HH11	1:B:60:ARG:HG3	1.62	0.64
1:G:20:ASP:HB2	1:G:83:ILE:HD11	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:119:GLU:OE1	1:I:145:MET:HG2	1.97	0.64
1:D:191:THR:H	1:D:195:GLN:NE2	1.96	0.64
1:E:4:SER:HA	1:F:4:SER:HA	1.79	0.64
1:G:220:ARG:HD2	1:G:220:ARG:N	2.12	0.64
1:A:151:VAL:HA	1:A:154:ILE:HD13	1.79	0.64
1:B:119:GLU:OE2	1:B:145:MET:HG2	1.97	0.64
1:G:48:PRO:HB2	1:H:186:ILE:HG21	1.80	0.64
1:J:74:LEU:HD23	1:J:102:ILE:CG2	2.28	0.64
1:F:105:PRO:HG2	1:G:122:THR:HB	1.80	0.64
1:J:185:LEU:HD12	1:J:217:PRO:HG2	1.79	0.64
1:B:15:MET:HE3	1:B:17:VAL:HG11	1.80	0.64
1:E:85:TRP:O	1:E:89:ILE:HG12	1.97	0.64
1:B:15:MET:HE3	1:B:17:VAL:CG1	2.28	0.63
1:G:17:VAL:HG13	1:G:102:ILE:HG23	1.78	0.63
1:G:49:VAL:H	2:G:251:GOL:C3	2.09	0.63
1:E:3:GLY:O	1:F:5:ILE:HD13	1.99	0.63
1:B:15:MET:HE1	1:B:109:VAL:CG1	2.28	0.63
1:G:48:PRO:HB2	1:H:186:ILE:HD13	1.81	0.63
1:E:2:PRO:CD	1:F:6:PRO:HA	2.29	0.63
1:I:51:THR:HG23	1:I:89:ILE:HD12	1.79	0.63
1:E:193:GLU:HG2	1:G:83:ILE:HD12	1.81	0.62
1:G:200:MET:HE3	1:G:200:MET:HA	1.79	0.62
1:G:5:ILE:HG22	1:G:114:GLY:HA3	1.80	0.62
1:I:51:THR:HG23	1:I:89:ILE:CD1	2.30	0.62
1:B:170:ALA:HB3	1:B:186:ILE:HB	1.82	0.62
1:E:72:ILE:CD1	1:E:102:ILE:HG13	2.28	0.62
1:B:111:ARG:HH21	1:C:106:GLN:NE2	1.96	0.62
1:E:48:PRO:HD2	2:E:251:GOL:H32	1.80	0.62
1:G:41:SER:HB2	1:G:124:THR:HG21	1.79	0.62
1:A:105:PRO:O	1:A:106:GLN:HB2	1.99	0.62
1:C:39:LEU:HD22	1:C:72:ILE:HG23	1.82	0.62
1:E:51:THR:HG23	1:E:89:ILE:HD12	1.81	0.62
1:G:49:VAL:N	2:G:251:GOL:H31	2.14	0.62
1:C:119:GLU:OE2	1:C:145:MET:HG2	2.00	0.61
1:A:49:VAL:H	2:A:251:GOL:H32	1.63	0.61
1:E:8:ILE:H	1:F:117:HIS:CD2	2.12	0.61
1:H:185:LEU:O	1:H:214:TRP:HB2	2.00	0.61
1:B:125:VAL:HA	1:B:145:MET:CE	2.30	0.61
1:C:5:ILE:HD13	1:C:5:ILE:H	1.64	0.61
1:E:185:LEU:O	1:E:214:TRP:HB2	2.01	0.61
1:D:112:ARG:HG3	1:D:112:ARG:HH11	1.65	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:10:GLU:OE1	1:F:2:PRO:HD2	2.01	0.61
1:E:74:LEU:HD12	1:E:75:SER:N	2.16	0.61
1:F:119:GLU:OE2	1:F:145:MET:HG2	2.01	0.61
1:G:179:GLU:HB3	1:H:59:ARG:HH12	1.66	0.61
1:B:107:GLY:HA3	1:C:106:GLN:HE22	1.65	0.61
1:G:59:ARG:HH12	1:H:179:GLU:HB3	1.65	0.61
1:E:2:PRO:HD2	1:F:6:PRO:HA	1.83	0.61
1:E:111:ARG:HB2	1:E:111:ARG:NH1	2.16	0.61
1:I:86:LYS:HE3	1:I:101:ILE:HD13	1.82	0.60
1:A:59:ARG:HH21	1:A:241:LEU:HD11	1.66	0.60
1:A:106:GLN:HG3	1:J:122:THR:HA	1.83	0.60
1:B:103:ALA:C	1:B:105:PRO:HD3	2.26	0.60
1:H:239:LYS:HE2	1:H:244:GLU:OE2	2.02	0.60
1:G:208:LEU:HD13	1:G:214:TRP:HZ3	1.67	0.60
1:J:7:LEU:HA	1:J:140:MET:HE1	1.84	0.60
1:B:54:PHE:HE2	1:B:101:ILE:CD1	2.14	0.60
1:A:59:ARG:HH21	1:A:241:LEU:HD21	1.66	0.60
1:E:225:GLU:HG3	1:E:228:ARG:HH21	1.67	0.59
1:H:106:GLN:HE21	1:I:107:GLY:HA3	1.67	0.59
1:A:215:ASP:OD1	1:A:217:PRO:HD3	2.02	0.59
1:A:126:ARG:NH2	2:A:251:GOL:C3	2.60	0.59
1:E:194:ASP:N	1:E:194:ASP:OD2	2.34	0.59
1:G:39:LEU:C	1:G:39:LEU:HD23	2.28	0.59
1:G:59:ARG:HH12	1:H:179:GLU:CB	2.14	0.59
1:I:42:HIS:CE1	1:I:75:SER:HB3	2.37	0.59
1:E:59:ARG:HD3	1:F:179:GLU:OE2	2.03	0.59
1:F:241:LEU:O	1:F:245:ALA:HB2	2.02	0.59
1:I:66:ARG:HH22	1:I:228:ARG:HH12	1.51	0.59
1:I:186:ILE:HG21	1:J:48:PRO:HB2	1.85	0.59
1:E:13:PRO:HB2	1:E:15:MET:HE3	1.84	0.58
1:A:125:VAL:HG22	1:A:126:ARG:H	1.68	0.58
1:C:227:ARG:NH2	1:D:236:LYS:HG2	2.18	0.58
1:E:7:LEU:O	1:E:10:GLU:HB2	2.04	0.58
1:E:208:LEU:HD22	1:E:214:TRP:HZ3	1.69	0.58
1:B:54:PHE:HE2	1:B:101:ILE:HD12	1.69	0.58
1:G:134:ARG:HH11	1:G:134:ARG:HG2	1.69	0.58
1:A:8:ILE:HG13	1:A:140:MET:HE2	1.85	0.58
1:C:179:GLU:HB3	1:D:59:ARG:HH21	1.68	0.58
1:D:103:ALA:C	1:D:105:PRO:HD3	2.29	0.58
1:G:59:ARG:HG3	1:G:59:ARG:HH11	1.68	0.58
1:G:42:HIS:CE1	1:G:75:SER:HB3	2.39	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:119:GLU:OE2	1:H:145:MET:HG2	2.04	0.57
1:G:67:LEU:O	1:G:162:LYS:HE3	2.04	0.57
1:G:115:LEU:HB3	1:G:124:THR:OG1	2.03	0.57
1:H:129:PHE:CE2	1:H:140:MET:HE3	2.38	0.57
1:D:74:LEU:HD13	1:D:74:LEU:C	2.29	0.57
1:E:99:PHE:HB2	1:E:100:PRO:HD2	1.84	0.57
1:A:67:LEU:O	1:A:162:LYS:HE3	2.03	0.57
1:D:78:SER:OG	1:E:123:HIS:HE1	1.88	0.57
1:E:2:PRO:HD2	1:F:10:GLU:OE1	2.03	0.57
1:A:106:GLN:HE22	1:J:111:ARG:HH12	1.53	0.57
1:B:67:LEU:O	1:B:162:LYS:HE3	2.05	0.57
1:I:5:ILE:HD11	1:J:5:ILE:HG21	1.87	0.57
1:H:69:VAL:HG21	1:H:158:VAL:HG11	1.86	0.57
1:I:86:LYS:CE	1:I:101:ILE:HD13	2.34	0.57
1:C:42:HIS:CE1	1:C:75:SER:HB3	2.40	0.57
1:F:19:THR:HG22	1:F:102:ILE:HG12	1.86	0.57
1:F:91:ARG:HH11	1:F:91:ARG:HG2	1.70	0.57
1:G:215:ASP:OD1	1:G:217:PRO:HD3	2.05	0.57
1:B:14:GLU:HG3	1:B:25:LYS:HZ3	1.70	0.57
1:F:96:ARG:O	1:F:98:PRO:HD3	2.05	0.57
1:B:25:LYS:HZ2	1:B:28:ASP:CG	2.12	0.56
1:C:7:LEU:HA	1:C:140:MET:HE1	1.88	0.56
1:F:163:LEU:HD11	1:F:222:ASP:HB3	1.87	0.56
1:G:166:SER:O	1:G:168:LYS:HE2	2.05	0.56
1:D:126:ARG:HB3	1:D:149:ARG:CZ	2.35	0.56
1:A:220:ARG:HH11	1:A:220:ARG:CB	2.17	0.56
1:B:75:SER:OG	1:B:82:HIS:HE1	1.89	0.56
1:F:39:LEU:HD12	1:F:40:PHE:N	2.21	0.56
1:H:122:THR:HG23	1:H:123:HIS:CD2	2.41	0.56
1:A:180:ILE:HD11	1:B:55:VAL:HG21	1.86	0.56
1:F:24:ILE:HD11	1:F:26:LEU:HD21	1.88	0.56
1:J:99:PHE:HB2	1:J:100:PRO:HD2	1.88	0.56
1:D:130:ILE:HG13	1:D:139:THR:HB	1.88	0.56
1:I:48:PRO:HB2	1:J:186:ILE:HD13	1.88	0.56
1:F:197:ARG:O	1:F:201:GLU:HG3	2.06	0.56
1:B:96:ARG:NH1	1:B:96:ARG:HB3	2.21	0.55
1:C:74:LEU:C	1:C:74:LEU:HD13	2.31	0.55
1:G:210:TRP:NE1	1:I:87:GLU:OE2	2.39	0.55
1:B:122:THR:HA	1:C:106:GLN:HG2	1.88	0.55
1:B:220:ARG:O	1:B:224:GLU:HB2	2.06	0.55
1:E:105:PRO:O	1:E:106:GLN:HB2	2.05	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:191:THR:HG22	1:E:191:THR:O	2.06	0.55
1:H:75:SER:OG	1:H:82:HIS:HE1	1.89	0.55
1:I:100:PRO:C	1:I:101:ILE:HD12	2.32	0.55
1:G:3:GLY:O	1:H:4:SER:HA	2.07	0.55
1:A:74:LEU:HD13	1:A:102:ILE:HB	1.89	0.55
1:A:191:THR:H	1:A:195:GLN:HE22	1.54	0.55
1:J:85:TRP:O	1:J:89:ILE:HG12	2.06	0.55
1:J:227:ARG:HH11	1:J:227:ARG:HG3	1.72	0.55
1:C:185:LEU:O	1:C:214:TRP:HB2	2.07	0.55
1:D:104:ASP:N	1:D:105:PRO:HD3	2.21	0.55
1:H:199:ARG:NH1	4:H:254:HOH:O	2.40	0.55
1:E:215:ASP:OD2	1:E:217:PRO:HD3	2.06	0.55
1:F:106:GLN:NE2	1:G:76:VAL:HG11	2.21	0.55
1:H:42:HIS:CE1	1:H:75:SER:HB3	2.42	0.55
1:G:17:VAL:HG11	1:G:102:ILE:CG1	2.37	0.54
1:C:126:ARG:HB3	1:C:149:ARG:CZ	2.37	0.54
1:D:92:HIS:O	1:D:245:ALA:HB1	2.07	0.54
1:G:105:PRO:O	1:G:106:GLN:HB2	2.06	0.54
1:J:207:CYS:SG	1:J:209:ASP:O	2.66	0.54
1:A:244:GLU:OE2	1:A:244:GLU:N	2.40	0.54
1:H:126:ARG:HB3	1:H:149:ARG:CZ	2.37	0.54
1:A:105:PRO:O	1:A:106:GLN:CB	2.56	0.54
1:B:105:PRO:O	1:B:106:GLN:HB2	2.08	0.54
1:E:150:LEU:HD22	1:F:153:GLU:OE1	2.08	0.54
1:E:173:ALA:HB2	1:F:53:GLU:HG2	1.89	0.54
1:F:76:VAL:HG22	1:F:76:VAL:O	2.07	0.54
1:I:243:GLU:HB2	1:I:244:GLU:OE2	2.08	0.54
1:A:122:THR:HB	1:J:105:PRO:HG2	1.90	0.54
1:C:172:PRO:HG3	1:C:181:ILE:HD11	1.89	0.54
1:F:129:PHE:CE2	1:F:140:MET:HE3	2.43	0.54
1:G:202:SER:OG	1:G:204:GLN:HG2	2.07	0.54
1:J:74:LEU:HD23	1:J:102:ILE:HB	1.90	0.54
1:J:215:ASP:OD2	1:J:217:PRO:HD3	2.07	0.54
1:E:52:THR:HB	1:F:178:ASN:HD21	1.73	0.53
1:F:107:GLY:HA3	1:G:106:GLN:HE22	1.73	0.53
1:G:59:ARG:HG3	1:G:59:ARG:NH1	2.23	0.53
1:E:193:GLU:CG	1:G:83:ILE:HD12	2.38	0.53
1:D:163:LEU:HD11	1:D:222:ASP:HB3	1.89	0.53
1:H:132:ASP:OD2	1:H:138:ARG:HD3	2.08	0.53
1:B:145:MET:HE2	1:B:145:MET:HA	1.90	0.53
1:B:244:GLU:CD	1:B:244:GLU:H	2.15	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:43:PRO:HG3	1:F:145:MET:SD	2.48	0.53
1:A:59:ARG:HG2	1:A:59:ARG:HH11	1.74	0.53
1:E:48:PRO:HD2	2:E:251:GOL:C3	2.37	0.53
1:H:47:THR:HB	2:H:251:GOL:H31	1.89	0.53
1:A:59:ARG:HG2	1:A:59:ARG:NH1	2.22	0.53
1:D:49:VAL:H	2:D:251:GOL:H31	1.73	0.53
1:F:244:GLU:HG2	1:F:244:GLU:O	2.08	0.53
1:A:2:PRO:HB3	1:B:5:ILE:O	2.08	0.53
1:B:15:MET:HE2	1:B:26:LEU:HD12	1.90	0.53
1:B:112:ARG:HG2	1:B:112:ARG:NH1	2.23	0.53
1:I:43:PRO:HG3	1:I:145:MET:SD	2.49	0.53
1:B:13:PRO:HB3	1:B:112:ARG:NH1	2.24	0.53
1:G:17:VAL:CG1	1:G:102:ILE:HG23	2.39	0.53
1:B:111:ARG:NH2	1:C:106:GLN:HE21	2.01	0.52
1:G:5:ILE:HD13	1:G:5:ILE:H	1.73	0.52
1:H:106:GLN:HE22	1:I:107:GLY:HA3	1.71	0.52
1:I:132:ASP:OD2	1:I:138:ARG:HD3	2.08	0.52
1:B:60:ARG:HG3	1:B:60:ARG:NH1	2.24	0.52
1:I:86:LYS:NZ	1:I:101:ILE:HD13	2.24	0.52
1:I:178:ASN:HD21	1:J:52:THR:HB	1.74	0.52
1:J:126:ARG:HB3	1:J:149:ARG:CZ	2.38	0.52
1:F:36:TRP:CD2	1:F:132:ASP:HA	2.44	0.52
1:B:53:GLU:OE1	1:B:126:ARG:NH1	2.43	0.52
1:C:112:ARG:HH11	1:C:112:ARG:HG2	1.73	0.52
1:A:5:ILE:HG12	1:B:5:ILE:CD1	2.31	0.52
1:B:100:PRO:C	1:B:101:ILE:HD13	2.34	0.52
1:B:185:LEU:HD12	1:B:217:PRO:HG2	1.90	0.52
1:G:236:LYS:HD3	1:H:227:ARG:CZ	2.40	0.52
1:G:242:TYR:CD1	1:H:214:TRP:HH2	2.27	0.52
1:E:147:LEU:HD23	1:F:171:VAL:HB	1.91	0.52
1:J:74:LEU:C	1:J:74:LEU:HD13	2.35	0.52
1:D:42:HIS:CE1	1:D:75:SER:HB3	2.45	0.52
1:H:103:ALA:C	1:H:105:PRO:HD3	2.35	0.52
1:C:202:SER:OG	1:C:204:GLN:HG2	2.10	0.52
1:D:36:TRP:CD2	1:D:132:ASP:HA	2.45	0.52
1:B:100:PRO:O	1:B:101:ILE:HD13	2.09	0.51
1:D:74:LEU:HD23	1:D:102:ILE:HB	1.92	0.51
1:G:5:ILE:CG1	1:G:140:MET:HE1	2.40	0.51
1:I:7:LEU:HD13	1:J:117:HIS:HA	1.92	0.51
1:J:197:ARG:HB2	1:J:197:ARG:HH11	1.73	0.51
1:H:74:LEU:HD12	1:H:75:SER:N	2.25	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:60:ARG:HG3	1:C:60:ARG:HH11	1.75	0.51
1:J:167:LEU:HD23	1:J:217:PRO:HG2	1.93	0.51
1:J:220:ARG:O	1:J:224:GLU:HG3	2.08	0.51
1:I:99:PHE:HB2	1:I:100:PRO:HD2	1.91	0.51
1:G:48:PRO:HD3	1:H:211:TRP:O	2.11	0.51
1:I:105:PRO:O	1:I:106:GLN:HB2	2.10	0.51
1:E:207:CYS:SG	1:E:209:ASP:O	2.68	0.51
1:G:220:ARG:HG2	1:G:220:ARG:HH11	1.75	0.51
1:B:65:GLN:HE21	1:B:65:GLN:CA	2.24	0.51
1:E:214:TRP:HH2	1:F:242:TYR:CD1	2.29	0.51
1:B:122:THR:HA	1:C:106:GLN:CG	2.41	0.51
1:C:215:ASP:OD2	1:C:217:PRO:HD3	2.11	0.51
1:I:44:ALA:HB2	1:I:123:HIS:HD2	1.76	0.50
1:B:179:GLU:CD	1:B:179:GLU:H	2.18	0.50
1:G:36:TRP:CD2	1:G:132:ASP:HA	2.47	0.50
1:I:103:ALA:C	1:I:105:PRO:HD3	2.36	0.50
1:B:59:ARG:HH11	1:B:59:ARG:CB	2.21	0.50
1:J:13:PRO:HB2	1:J:15:MET:HE3	1.92	0.50
1:B:39:LEU:C	1:B:39:LEU:HD13	2.37	0.50
1:B:96:ARG:O	1:B:98:PRO:HD3	2.12	0.50
1:F:55:VAL:O	1:F:59:ARG:HG3	2.11	0.50
1:H:86:LYS:HE3	1:H:101:ILE:CD1	2.42	0.50
1:I:154:ILE:HD12	1:I:154:ILE:N	2.27	0.50
1:D:27:PRO:O	1:D:31:VAL:HG23	2.11	0.50
1:D:39:LEU:HD22	1:D:72:ILE:HG23	1.92	0.50
1:D:67:LEU:O	1:D:162:LYS:HE3	2.11	0.50
1:I:170:ALA:HB3	1:I:186:ILE:HB	1.94	0.50
1:A:239:LYS:HD3	1:A:243:GLU:OE1	2.12	0.50
1:G:49:VAL:CB	2:G:251:GOL:H31	2.41	0.50
1:G:5:ILE:HG12	1:G:6:PRO:O	2.12	0.50
1:G:200:MET:HA	1:G:200:MET:CE	2.41	0.50
1:J:105:PRO:O	1:J:106:GLN:CB	2.60	0.50
1:I:125:VAL:HG22	1:I:126:ARG:H	1.77	0.49
1:J:227:ARG:HG3	1:J:227:ARG:NH1	2.27	0.49
1:C:224:GLU:OE1	1:C:231:ARG:NH2	2.46	0.49
1:I:48:PRO:HB2	1:J:186:ILE:HG21	1.94	0.49
1:H:176:PRO:HG2	1:H:227:ARG:HG3	1.93	0.49
1:I:14:GLU:HG2	1:I:25:LYS:HE2	1.94	0.49
1:J:91:ARG:HG2	1:J:91:ARG:HH11	1.77	0.49
1:J:240:LEU:O	1:J:243:GLU:HB2	2.11	0.49
1:C:67:LEU:HD13	1:C:158:VAL:HG23	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:86:LYS:HE3	1:E:101:ILE:CD1	2.42	0.49
1:E:115:LEU:HB3	1:E:124:THR:HB	1.93	0.49
1:E:126:ARG:HB3	1:E:149:ARG:CZ	2.43	0.49
1:J:96:ARG:O	1:J:98:PRO:HD3	2.13	0.49
1:D:208:LEU:N	1:D:208:LEU:HD12	2.27	0.49
1:H:190:PRO:HB3	1:H:195:GLN:HB3	1.95	0.49
1:G:126:ARG:HB3	1:G:149:ARG:CZ	2.43	0.49
1:A:106:GLN:NE2	1:J:111:ARG:HH12	2.10	0.49
1:C:219:SER:HB3	1:C:222:ASP:OD2	2.13	0.49
1:J:111:ARG:HG3	1:J:111:ARG:HH11	1.78	0.49
1:E:36:TRP:HB2	1:E:69:VAL:HG22	1.95	0.49
1:E:39:LEU:HD12	1:E:39:LEU:C	2.38	0.49
1:F:129:PHE:HE2	1:F:140:MET:HE3	1.77	0.49
1:F:183:GLU:OE1	1:F:223:VAL:HG21	2.12	0.49
1:G:199:ARG:NH1	4:G:254:HOH:O	2.45	0.49
1:H:36:TRP:HB2	1:H:69:VAL:HG22	1.95	0.49
1:E:5:ILE:HB	1:E:6:PRO:HD2	1.94	0.49
1:D:197:ARG:HH11	1:D:197:ARG:HB2	1.78	0.48
1:H:63:ASP:CG	1:H:228:ARG:HH22	2.21	0.48
1:C:48:PRO:HG2	2:C:251:GOL:HO2	1.78	0.48
1:E:208:LEU:HD22	1:E:214:TRP:CZ3	2.48	0.48
1:I:14:GLU:CG	1:I:25:LYS:HE2	2.43	0.48
1:I:104:ASP:OD2	1:I:107:GLY:HA2	2.13	0.48
1:A:42:HIS:CE1	1:A:75:SER:HB3	2.48	0.48
1:D:183:GLU:HG3	1:D:223:VAL:CG2	2.43	0.48
1:H:175:TRP:CG	1:H:176:PRO:HA	2.48	0.48
1:J:208:LEU:HD13	1:J:214:TRP:HZ3	1.79	0.48
1:A:154:ILE:O	1:A:158:VAL:HG23	2.14	0.48
1:F:5:ILE:HB	1:F:6:PRO:HD2	1.95	0.48
1:J:51:THR:HG23	1:J:89:ILE:CD1	2.43	0.48
1:B:126:ARG:HB3	1:B:149:ARG:CZ	2.44	0.48
1:E:197:ARG:O	1:E:201:GLU:HB2	2.13	0.48
1:J:83:ILE:O	1:J:87:GLU:HG3	2.14	0.48
1:A:59:ARG:NH2	1:A:241:LEU:HD21	2.28	0.48
1:D:96:ARG:O	1:D:98:PRO:HD3	2.14	0.48
1:D:72:ILE:CD1	1:D:100:PRO:HG2	2.44	0.48
1:G:179:GLU:CB	1:H:59:ARG:HH12	2.27	0.48
1:A:49:VAL:HB	2:A:251:GOL:H32	1.85	0.48
1:B:55:VAL:O	1:B:59:ARG:HG3	2.13	0.48
1:C:242:TYR:CD1	1:C:242:TYR:C	2.91	0.48
1:B:6:PRO:O	1:B:7:LEU:HD23	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:192:THR:OG1	1:B:195:GLN:HG3	2.13	0.48
1:F:105:PRO:O	1:F:106:GLN:HB2	2.13	0.48
1:J:244:GLU:OE2	1:J:244:GLU:HA	2.14	0.48
1:F:55:VAL:HG22	1:F:95:VAL:HG21	1.95	0.48
1:H:76:VAL:HG11	1:I:106:GLN:NE2	2.28	0.48
1:J:74:LEU:HD21	1:J:104:ASP:HB2	1.95	0.48
1:J:138:ARG:NH2	1:J:165:ASP:OD2	2.46	0.48
1:D:72:ILE:HD13	1:D:100:PRO:HG2	1.96	0.47
1:E:147:LEU:HG	1:F:161:LEU:HD13	1.95	0.47
1:F:59:ARG:HG2	1:F:59:ARG:HH11	1.79	0.47
1:F:175:TRP:CG	1:F:176:PRO:HA	2.49	0.47
1:B:103:ALA:O	1:B:105:PRO:HD3	2.15	0.47
1:C:153:GLU:OE1	1:D:150:LEU:HD22	2.15	0.47
1:G:208:LEU:HD13	1:G:214:TRP:CZ3	2.48	0.47
1:B:14:GLU:HG3	1:B:25:LYS:NZ	2.29	0.47
1:C:181:ILE:HG12	1:C:181:ILE:O	2.13	0.47
1:F:99:PHE:HB2	1:F:100:PRO:HD2	1.96	0.47
1:I:215:ASP:OD2	1:I:217:PRO:HD3	2.14	0.47
1:F:76:VAL:HB	4:F:257:HOH:O	2.14	0.47
1:H:242:TYR:CD1	1:H:242:TYR:C	2.93	0.47
1:I:147:LEU:HD22	1:I:148:GLY:N	2.28	0.47
1:B:115:LEU:HB3	1:B:124:THR:HB	1.97	0.47
1:F:122:THR:OG1	1:F:123:HIS:CD2	2.67	0.47
1:J:54:PHE:HE2	1:J:101:ILE:CD1	2.26	0.47
1:A:4:SER:HA	1:B:4:SER:HA	1.96	0.47
1:B:168:LYS:N	1:B:168:LYS:HD2	2.30	0.47
1:B:228:ARG:HB3	1:B:228:ARG:NH1	2.29	0.47
1:C:5:ILE:H	1:C:5:ILE:CD1	2.27	0.47
1:C:96:ARG:O	1:C:98:PRO:HD3	2.14	0.47
1:D:19:THR:HG22	1:D:102:ILE:HG12	1.97	0.47
1:G:2:PRO:HB3	1:H:5:ILE:O	2.15	0.47
1:I:60:ARG:HH11	1:I:60:ARG:HG3	1.79	0.47
1:J:208:LEU:HD13	1:J:214:TRP:CZ3	2.50	0.47
1:J:242:TYR:CD1	1:J:242:TYR:C	2.93	0.47
1:A:106:GLN:HE21	1:J:111:ARG:HH22	1.63	0.47
1:C:147:LEU:HD12	1:D:161:LEU:HD13	1.96	0.47
1:D:105:PRO:HB2	1:E:122:THR:OG1	2.15	0.47
1:E:105:PRO:O	1:E:106:GLN:CB	2.62	0.47
1:I:122:THR:HG23	1:I:123:HIS:ND1	2.29	0.47
1:D:183:GLU:HG3	1:D:223:VAL:HG21	1.97	0.47
1:G:220:ARG:H	1:G:220:ARG:CD	2.25	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:192:THR:HG23	1:H:195:GLN:NE2	2.30	0.47
1:C:179:GLU:H	1:C:179:GLU:CD	2.23	0.46
1:G:144:PRO:HD3	1:H:139:THR:OG1	2.15	0.46
1:B:42:HIS:CE1	1:B:75:SER:HB3	2.49	0.46
1:E:212:PHE:C	1:E:212:PHE:CD2	2.93	0.46
1:F:5:ILE:HD13	1:F:5:ILE:H	1.80	0.46
1:H:166:SER:OG	1:H:167:LEU:HD22	2.14	0.46
1:B:54:PHE:CE2	1:B:101:ILE:HD12	2.50	0.46
1:B:150:LEU:HD22	4:B:255:HOH:O	2.16	0.46
1:D:49:VAL:HB	2:D:251:GOL:H31	1.97	0.46
1:B:106:GLN:HG3	1:C:122:THR:HA	1.98	0.46
1:J:112:ARG:HG2	1:J:112:ARG:HH11	1.80	0.46
1:A:10:GLU:HG3	1:B:118:ALA:HB2	1.97	0.46
1:D:86:LYS:HE2	1:D:97:ILE:CG2	2.46	0.46
1:D:190:PRO:HA	1:D:195:GLN:NE2	2.31	0.46
1:A:180:ILE:HG22	1:A:181:ILE:HG23	1.97	0.46
1:C:190:PRO:HG2	1:C:210:TRP:CE3	2.51	0.46
1:D:236:LYS:HD2	1:D:236:LYS:C	2.40	0.46
1:B:175:TRP:CG	1:B:176:PRO:HA	2.51	0.46
1:C:3:GLY:O	1:D:4:SER:HA	2.16	0.46
1:E:212:PHE:C	1:E:212:PHE:HD2	2.24	0.46
1:G:49:VAL:HG23	2:G:251:GOL:H31	1.98	0.46
1:I:39:LEU:HD13	1:I:40:PHE:N	2.31	0.46
1:I:82:HIS:NE2	1:I:101:ILE:HG22	2.31	0.46
1:A:92:HIS:O	1:A:245:ALA:HB1	2.16	0.46
1:C:35:LYS:HG2	4:C:274:HOH:O	2.15	0.46
1:E:225:GLU:HG3	1:E:228:ARG:NH2	2.30	0.46
1:G:31:VAL:HG13	1:G:133:ALA:O	2.16	0.46
1:G:147:LEU:HD22	1:G:148:GLY:O	2.16	0.46
1:I:240:LEU:HD12	1:I:242:TYR:HE2	1.81	0.46
1:E:48:PRO:HB2	1:F:186:ILE:HG21	1.98	0.45
1:G:5:ILE:HG13	1:G:140:MET:HE1	1.98	0.45
1:G:55:VAL:HG21	1:H:180:ILE:HD11	1.98	0.45
1:H:128:VAL:HB	1:H:141:LEU:HB2	1.98	0.45
1:I:175:TRP:CG	1:I:176:PRO:HA	2.51	0.45
1:C:225:GLU:HG3	1:C:228:ARG:NH1	2.31	0.45
1:G:49:VAL:HB	2:G:251:GOL:H31	1.98	0.45
1:J:51:THR:HG23	1:J:89:ILE:HD12	1.98	0.45
1:E:183:GLU:OE1	1:E:223:VAL:HG21	2.16	0.45
1:H:55:VAL:O	1:H:59:ARG:HG2	2.16	0.45
1:E:197:ARG:HB2	1:E:197:ARG:NH1	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:39:LEU:HD13	1:J:72:ILE:HG23	1.99	0.45
1:D:86:LYS:HE3	1:D:101:ILE:CD1	2.47	0.45
1:F:48:PRO:O	1:F:52:THR:HG23	2.16	0.45
1:E:10:GLU:OE2	1:F:2:PRO:HD2	2.17	0.45
1:G:48:PRO:CB	1:H:186:ILE:HG21	2.46	0.45
1:H:15:MET:HE2	1:H:26:LEU:HD12	1.98	0.45
1:J:239:LYS:HD3	1:J:243:GLU:OE1	2.17	0.45
1:E:179:GLU:OE1	1:F:59:ARG:HD3	2.16	0.45
1:F:36:TRP:HB2	1:F:69:VAL:HG22	1.98	0.45
1:F:66:ARG:HG3	1:F:66:ARG:HH11	1.80	0.45
1:F:199:ARG:NH1	4:F:254:HOH:O	2.50	0.45
1:H:27:PRO:O	1:H:31:VAL:HG23	2.17	0.45
1:A:2:PRO:HB3	1:B:6:PRO:HA	1.99	0.45
1:A:99:PHE:HA	4:A:265:HOH:O	2.16	0.45
1:G:105:PRO:O	1:G:106:GLN:CB	2.64	0.45
1:A:130:ILE:HG13	1:A:139:THR:HB	1.98	0.44
1:A:186:ILE:HD13	1:B:48:PRO:HB2	1.99	0.44
1:G:79:VAL:O	1:G:83:ILE:HG12	2.17	0.44
1:I:53:GLU:OE1	1:I:126:ARG:NH1	2.49	0.44
1:I:180:ILE:HD11	1:J:55:VAL:HG21	1.99	0.44
1:A:36:TRP:CD2	1:A:132:ASP:HA	2.53	0.44
1:G:21:HIS:CG	1:G:100:PRO:HB3	2.51	0.44
1:G:83:ILE:O	1:G:87:GLU:HG3	2.17	0.44
1:I:186:ILE:HG21	1:J:48:PRO:CB	2.47	0.44
1:C:5:ILE:HD12	1:D:5:ILE:HG12	1.98	0.44
1:G:86:LYS:HE2	1:G:97:ILE:CG2	2.47	0.44
1:E:48:PRO:CB	1:F:186:ILE:HD13	2.48	0.44
1:I:36:TRP:CD2	1:I:132:ASP:HA	2.51	0.44
1:A:202:SER:C	1:A:204:GLN:N	2.72	0.44
1:C:241:LEU:HB2	1:D:180:ILE:HA	1.99	0.44
1:G:74:LEU:HD23	1:G:74:LEU:C	2.42	0.44
1:I:132:ASP:OD1	1:I:134:ARG:HB2	2.16	0.44
1:A:54:PHE:HD2	1:A:97:ILE:HD13	1.83	0.44
1:A:122:THR:HA	1:J:106:GLN:HG3	1.99	0.44
1:E:55:VAL:O	1:E:59:ARG:HG3	2.18	0.44
1:I:59:ARG:NH2	1:I:59:ARG:CG	2.79	0.44
1:I:146:GLU:OE2	1:I:146:GLU:N	2.36	0.44
1:A:19:THR:HG22	1:A:102:ILE:HG12	1.99	0.44
1:A:50:SER:H	2:A:251:GOL:C3	2.31	0.44
1:A:197:ARG:HD3	1:A:197:ARG:HA	1.75	0.44
1:G:35:LYS:HD3	4:G:258:HOH:O	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:14:GLU:CD	1:B:25:LYS:HZ1	2.26	0.44
1:E:10:GLU:HG3	1:F:118:ALA:HB2	2.00	0.44
1:G:49:VAL:N	2:G:251:GOL:C3	2.75	0.44
1:H:197:ARG:NH1	1:H:197:ARG:HB3	2.33	0.44
1:B:111:ARG:NH2	1:C:106:GLN:NE2	2.63	0.44
1:C:38:VAL:HB	1:C:71:LEU:HD23	1.99	0.44
1:C:158:VAL:HG23	1:C:159:LYS:N	2.32	0.44
1:A:59:ARG:NH2	1:A:241:LEU:HD11	2.31	0.43
1:C:60:ARG:HG3	1:C:60:ARG:NH1	2.32	0.43
1:D:21:HIS:CG	1:D:100:PRO:HB3	2.52	0.43
1:H:15:MET:HE1	1:H:109:VAL:CG1	2.46	0.43
1:H:187:VAL:HG23	1:H:214:TRP:HA	2.00	0.43
1:I:5:ILE:O	1:J:2:PRO:HB3	2.17	0.43
1:I:44:ALA:HB2	1:I:123:HIS:CD2	2.52	0.43
1:J:175:TRP:CG	1:J:176:PRO:HA	2.53	0.43
1:A:49:VAL:CA	2:A:251:GOL:H32	2.48	0.43
1:A:50:SER:H	2:A:251:GOL:H32	1.84	0.43
1:I:101:ILE:HD12	1:I:101:ILE:N	2.33	0.43
1:J:115:LEU:HB3	1:J:124:THR:HB	1.99	0.43
1:C:188:PRO:HA	1:C:189:PRO:HD3	1.70	0.43
1:D:5:ILE:HG22	1:D:114:GLY:HA3	1.99	0.43
1:F:75:SER:OG	1:F:82:HIS:HE1	2.01	0.43
1:G:220:ARG:O	1:G:224:GLU:HG3	2.18	0.43
1:J:48:PRO:HD2	2:J:1:GOL:H32	1.99	0.43
1:B:106:GLN:HA	1:B:106:GLN:NE2	2.34	0.43
1:C:212:PHE:C	1:C:212:PHE:CD2	2.96	0.43
1:B:67:LEU:HD13	1:B:158:VAL:HG23	1.99	0.43
1:G:128:VAL:HB	1:G:141:LEU:HB2	2.00	0.43
1:C:74:LEU:C	1:C:74:LEU:CD1	2.92	0.43
1:C:189:PRO:HG3	1:D:48:PRO:HG3	2.01	0.43
1:C:212:PHE:C	1:C:212:PHE:HD2	2.26	0.43
1:F:132:ASP:OD2	1:F:138:ARG:HD3	2.18	0.43
1:F:175:TRP:CD1	1:F:176:PRO:HA	2.54	0.43
1:D:60:ARG:HE	1:D:152:ASP:CG	2.26	0.43
1:I:189:PRO:HA	1:I:190:PRO:HD3	1.82	0.43
1:C:74:LEU:HD13	1:C:75:SER:N	2.34	0.43
1:C:186:ILE:HG21	1:D:48:PRO:HB2	1.99	0.43
1:G:175:TRP:CG	1:G:176:PRO:HA	2.53	0.43
1:A:161:LEU:HD13	1:B:147:LEU:HD12	2.01	0.43
1:C:3:GLY:HA3	1:D:7:LEU:HD21	2.00	0.43
1:F:243:GLU:C	1:F:245:ALA:H	2.26	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:56:SER:HA	1:J:179:GLU:OE1	2.19	0.43
1:J:212:PHE:C	1:J:212:PHE:CD2	2.97	0.43
1:A:122:THR:HA	1:J:106:GLN:CG	2.48	0.43
1:B:190:PRO:HA	1:B:195:GLN:HE21	1.83	0.43
1:E:48:PRO:HB3	1:F:186:ILE:HD13	2.01	0.43
1:E:155:LEU:O	1:E:159:LYS:HB2	2.18	0.43
1:E:178:ASN:HD21	1:F:52:THR:HB	1.83	0.43
1:H:105:PRO:O	1:H:106:GLN:CB	2.63	0.43
1:J:36:TRP:CD2	1:J:132:ASP:HA	2.54	0.43
1:D:147:LEU:HD22	1:D:148:GLY:O	2.18	0.42
1:E:171:VAL:HB	1:F:147:LEU:HD12	2.00	0.42
1:J:5:ILE:HG22	1:J:114:GLY:HA3	2.00	0.42
1:A:186:ILE:HG21	1:B:48:PRO:HB2	2.00	0.42
1:B:78:SER:OG	1:C:123:HIS:HE1	2.02	0.42
1:F:13:PRO:HG2	1:F:15:MET:HE3	2.01	0.42
1:F:126:ARG:HB3	1:F:149:ARG:CZ	2.48	0.42
1:G:49:VAL:HG23	2:G:251:GOL:H11	2.01	0.42
1:G:161:LEU:HD13	1:H:147:LEU:CD1	2.41	0.42
1:J:74:LEU:HD23	1:J:102:ILE:CB	2.48	0.42
1:J:74:LEU:HD23	1:J:102:ILE:HG22	2.00	0.42
1:A:61:TYR:HD1	1:A:71:LEU:HD12	1.83	0.42
1:B:197:ARG:O	1:B:201:GLU:HG2	2.19	0.42
1:B:212:PHE:HD2	1:B:212:PHE:C	2.28	0.42
1:C:204:GLN:HG3	1:C:205:TYR:CD1	2.54	0.42
1:D:43:PRO:HB3	1:D:145:MET:HE1	2.01	0.42
1:D:163:LEU:HD23	1:D:163:LEU:HA	1.84	0.42
1:D:190:PRO:HA	1:D:195:GLN:HE21	1.85	0.42
1:F:59:ARG:HG2	1:F:59:ARG:NH1	2.34	0.42
1:G:39:LEU:HD23	1:G:40:PHE:N	2.35	0.42
1:G:185:LEU:O	1:G:214:TRP:HB2	2.19	0.42
1:I:159:LYS:NZ	1:I:225:GLU:OE2	2.49	0.42
1:J:54:PHE:HE2	1:J:101:ILE:HD12	1.84	0.42
1:J:91:ARG:HG2	1:J:91:ARG:NH1	2.33	0.42
1:E:47:THR:HB	2:E:251:GOL:C3	2.36	0.42
1:G:178:ASN:HD21	1:H:52:THR:HB	1.84	0.42
1:G:189:PRO:HA	1:G:190:PRO:HD3	1.90	0.42
1:H:105:PRO:HB2	1:I:122:THR:OG1	2.19	0.42
1:A:49:VAL:CB	2:A:251:GOL:H32	2.47	0.42
1:B:158:VAL:HG23	1:B:159:LYS:N	2.34	0.42
1:C:48:PRO:HD3	1:D:211:TRP:O	2.18	0.42
1:C:112:ARG:HG2	1:C:112:ARG:NH1	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:119:GLU:OE2	1:E:145:MET:HG2	2.19	0.42
1:I:75:SER:OG	1:I:82:HIS:HE1	2.03	0.42
1:I:171:VAL:HB	1:J:147:LEU:HD23	2.02	0.42
1:A:42:HIS:HB2	1:A:43:PRO:HD2	2.00	0.42
1:D:132:ASP:OD2	1:D:138:ARG:HD3	2.20	0.42
1:E:188:PRO:HA	1:E:189:PRO:HD3	1.75	0.42
1:F:106:GLN:HG3	1:G:122:THR:HA	2.01	0.42
1:J:48:PRO:HG2	2:J:1:GOL:H32	2.00	0.42
1:J:74:LEU:HD22	1:J:75:SER:N	2.34	0.42
1:J:189:PRO:HA	1:J:190:PRO:HD3	1.86	0.42
1:A:15:MET:HE3	1:A:109:VAL:HG22	2.00	0.42
1:B:124:THR:O	1:B:145:MET:HE1	2.19	0.42
1:C:153:GLU:O	1:C:157:ILE:HG13	2.19	0.42
1:G:153:GLU:OE1	1:H:150:LEU:HD22	2.19	0.42
1:I:67:LEU:O	1:I:162:LYS:HE2	2.20	0.42
1:I:154:ILE:N	1:I:154:ILE:CD1	2.83	0.42
1:I:242:TYR:HA	1:I:245:ALA:HB3	2.01	0.42
1:J:112:ARG:HG2	1:J:112:ARG:NH1	2.34	0.42
1:D:36:TRP:HB2	1:D:69:VAL:HG22	2.02	0.42
1:I:212:PHE:C	1:I:212:PHE:CD2	2.98	0.42
1:B:15:MET:CE	1:B:109:VAL:HG13	2.45	0.42
1:B:239:LYS:HE2	1:B:239:LYS:HB3	1.82	0.42
1:I:212:PHE:C	1:I:212:PHE:HD2	2.28	0.42
1:D:169:ARG:HB3	1:D:185:LEU:HB3	2.02	0.41
1:E:111:ARG:HB2	1:E:111:ARG:CZ	2.50	0.41
1:F:74:LEU:HD12	1:F:75:SER:N	2.35	0.41
1:F:105:PRO:O	1:F:106:GLN:CB	2.68	0.41
1:J:111:ARG:HG3	1:J:111:ARG:NH1	2.35	0.41
1:A:84:LYS:HB3	1:A:84:LYS:HE3	1.90	0.41
1:B:106:GLN:CG	1:C:122:THR:HA	2.51	0.41
1:C:53:GLU:HG2	1:D:173:ALA:HB2	2.01	0.41
1:E:36:TRP:CD2	1:E:132:ASP:HA	2.55	0.41
1:F:112:ARG:NH1	1:F:112:ARG:HG3	2.36	0.41
1:H:216:THR:HA	4:H:257:HOH:O	2.20	0.41
1:I:198:ALA:O	1:I:199:ARG:C	2.63	0.41
1:A:242:TYR:CD1	1:A:242:TYR:C	2.98	0.41
1:B:212:PHE:C	1:B:212:PHE:CD2	2.97	0.41
1:E:189:PRO:HA	1:E:190:PRO:HD3	1.91	0.41
1:G:59:ARG:HH12	1:H:179:GLU:HG2	1.86	0.41
1:A:189:PRO:HA	1:A:190:PRO:HD3	1.87	0.41
1:E:153:GLU:OE1	1:E:153:GLU:HA	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:112:ARG:HG3	1:F:112:ARG:HH11	1.85	0.41
1:B:189:PRO:HA	1:B:190:PRO:HD3	1.84	0.41
1:C:104:ASP:N	1:C:105:PRO:HD3	2.36	0.41
1:J:40:PHE:HA	1:J:127:GLY:O	2.20	0.41
1:J:153:GLU:OE1	1:J:153:GLU:HA	2.20	0.41
1:A:2:PRO:HB3	1:B:5:ILE:C	2.46	0.41
1:A:96:ARG:HH11	1:A:96:ARG:CG	2.31	0.41
1:J:158:VAL:HG23	1:J:159:LYS:N	2.35	0.41
1:J:179:GLU:H	1:J:179:GLU:HG2	1.57	0.41
1:B:156:ARG:HD3	1:B:230:LEU:HD21	2.03	0.41
1:C:103:ALA:O	1:C:105:PRO:HD3	2.20	0.41
1:D:49:VAL:CB	2:D:251:GOL:H31	2.50	0.41
1:E:60:ARG:HG3	1:E:60:ARG:HH11	1.86	0.41
1:F:220:ARG:HH11	1:F:220:ARG:CB	2.28	0.41
1:G:180:ILE:HD11	1:H:55:VAL:HG21	2.02	0.41
1:G:130:ILE:CD1	1:G:157:ILE:HG21	2.51	0.41
1:J:88:TRP:O	1:J:92:HIS:HD2	2.03	0.41
1:A:115:LEU:HB3	1:A:124:THR:HB	2.03	0.41
1:F:13:PRO:HG2	1:F:15:MET:CE	2.51	0.41
1:H:39:LEU:HD13	1:H:72:ILE:HG23	2.01	0.41
1:H:47:THR:HB	2:H:251:GOL:C3	2.49	0.41
1:H:161:LEU:HD12	1:H:161:LEU:HA	1.86	0.41
1:H:189:PRO:HA	1:H:190:PRO:HD3	1.90	0.41
1:H:219:SER:O	1:H:223:VAL:HG23	2.20	0.41
1:I:11:ARG:NH1	1:I:11:ARG:HG2	2.35	0.41
1:I:86:LYS:HE3	1:I:101:ILE:CD1	2.47	0.41
1:I:117:HIS:ND1	1:J:8:ILE:HG12	2.36	0.41
1:I:129:PHE:CE2	1:I:140:MET:HE3	2.55	0.41
1:J:60:ARG:HG3	1:J:60:ARG:HH11	1.86	0.41
1:A:75:SER:OG	1:A:82:HIS:HE1	2.04	0.41
1:D:215:ASP:OD2	1:D:217:PRO:HD3	2.22	0.41
1:D:244:GLU:H	1:D:244:GLU:CD	2.29	0.41
1:F:91:ARG:HG2	1:F:91:ARG:NH1	2.35	0.41
1:G:111:ARG:HH11	1:G:111:ARG:HG3	1.86	0.41
1:G:130:ILE:HD12	1:G:157:ILE:HG21	2.02	0.41
1:H:21:HIS:CG	1:H:100:PRO:HB3	2.55	0.41
1:E:186:ILE:HG21	1:F:48:PRO:CG	2.51	0.40
1:F:130:ILE:N	1:F:130:ILE:HD12	2.36	0.40
1:I:173:ALA:HB2	1:J:53:GLU:HG2	2.03	0.40
1:C:2:PRO:N	1:D:10:GLU:OE2	2.54	0.40
1:E:88:TRP:CE3	1:E:89:ILE:HD13	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:54:PHE:HE2	1:B:101:ILE:HD11	1.86	0.40
1:C:115:LEU:HB3	1:C:124:THR:HB	2.04	0.40
1:D:72:ILE:HD12	1:D:100:PRO:O	2.21	0.40
1:E:5:ILE:HD13	1:F:5:ILE:HD12	2.03	0.40
1:E:7:LEU:CD2	1:F:3:GLY:HA3	2.47	0.40
1:B:36:TRP:CD2	1:B:132:ASP:HA	2.56	0.40
1:E:185:LEU:HD12	1:E:217:PRO:HG2	2.02	0.40
1:I:81:SER:O	1:I:82:HIS:C	2.64	0.40
1:D:106:GLN:HE22	1:E:107:GLY:HA3	1.86	0.40
1:J:153:GLU:O	1:J:157:ILE:HG13	2.22	0.40
1:J:212:PHE:C	1:J:212:PHE:HD2	2.29	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	242/249 (97%)	236 (98%)	6 (2%)	0	100	100
1	B	242/249 (97%)	232 (96%)	8 (3%)	2 (1%)	16	20
1	C	241/249 (97%)	229 (95%)	11 (5%)	1 (0%)	30	38
1	D	242/249 (97%)	231 (96%)	10 (4%)	1 (0%)	30	38
1	E	241/249 (97%)	233 (97%)	7 (3%)	1 (0%)	30	38
1	F	242/249 (97%)	231 (96%)	9 (4%)	2 (1%)	16	20
1	G	241/249 (97%)	229 (95%)	12 (5%)	0	100	100
1	H	242/249 (97%)	230 (95%)	11 (4%)	1 (0%)	30	38
1	I	242/249 (97%)	231 (96%)	11 (4%)	0	100	100
1	J	242/249 (97%)	231 (96%)	10 (4%)	1 (0%)	30	38
All	All	2417/2490 (97%)	2313 (96%)	95 (4%)	9 (0%)	30	38

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	120	SER
1	F	243	GLU
1	H	119	GLU
1	E	48	PRO
1	J	125	VAL
1	F	43	PRO
1	B	104	ASP
1	B	125	VAL
1	C	125	VAL

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	210/215 (98%)	199 (95%)	11 (5%)	21	31
1	B	210/215 (98%)	197 (94%)	13 (6%)	16	24
1	C	210/215 (98%)	198 (94%)	12 (6%)	18	27
1	D	210/215 (98%)	200 (95%)	10 (5%)	23	35
1	E	210/215 (98%)	200 (95%)	10 (5%)	23	35
1	F	210/215 (98%)	203 (97%)	7 (3%)	33	50
1	G	210/215 (98%)	201 (96%)	9 (4%)	26	39
1	H	210/215 (98%)	206 (98%)	4 (2%)	50	69
1	I	210/215 (98%)	203 (97%)	7 (3%)	33	50
1	J	210/215 (98%)	202 (96%)	8 (4%)	29	44
All	All	2100/2150 (98%)	2009 (96%)	91 (4%)	26	39

All (91) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	15	MET
1	A	39	LEU
1	A	70	ASP

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Mol	Chain	Res	Type
1	A	96	ARG
1	A	147	LEU
1	A	161	LEU
1	A	167	LEU
1	A	176	PRO
1	A	197	ARG
1	A	208	LEU
1	A	239	LYS
1	B	39	LEU
1	B	59	ARG
1	B	62	GLU
1	B	65	GLN
1	B	70	ASP
1	B	145	MET
1	B	147	LEU
1	B	150	LEU
1	B	159	LYS
1	B	161	LEU
1	B	167	LEU
1	B	208	LEU
1	B	224	GLU
1	C	5	ILE
1	C	14	GLU
1	C	39	LEU
1	C	74	LEU
1	C	147	LEU
1	C	161	LEU
1	C	167	LEU
1	C	181	ILE
1	C	208	LEU
1	C	220	ARG
1	C	224	GLU
1	C	235	GLU
1	D	39	LEU
1	D	70	ASP
1	D	112	ARG
1	D	119	GLU
1	D	130	ILE
1	D	147	LEU
1	D	161	LEU
1	D	167	LEU
1	D	183	GLU

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Mol	Chain	Res	Type
1	D	244	GLU
1	E	39	LEU
1	E	72	ILE
1	E	74	LEU
1	E	122	THR
1	E	147	LEU
1	E	159	LYS
1	E	179	GLU
1	E	194	ASP
1	E	208	LEU
1	E	231	ARG
1	F	5	ILE
1	F	39	LEU
1	F	70	ASP
1	F	112	ARG
1	F	161	LEU
1	F	204	GLN
1	F	220	ARG
1	G	5	ILE
1	G	91	ARG
1	G	124	THR
1	G	147	LEU
1	G	150	LEU
1	G	161	LEU
1	G	167	LEU
1	G	168	LYS
1	G	200	MET
1	H	70	ASP
1	H	147	LEU
1	H	161	LEU
1	H	201	GLU
1	I	24	ILE
1	I	39	LEU
1	I	70	ASP
1	I	98	PRO
1	I	128	VAL
1	I	147	LEU
1	I	208	LEU
1	J	35	LYS
1	J	74	LEU
1	J	147	LEU
1	J	161	LEU

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Mol	Chain	Res	Type
1	J	179	GLU
1	J	221	ASP
1	J	239	LYS
1	J	243	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (42) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	92	HIS
1	A	106	GLN
1	A	123	HIS
1	A	195	GLN
1	A	204	GLN
1	B	65	GLN
1	B	92	HIS
1	B	106	GLN
1	B	195	GLN
1	C	33	GLN
1	C	65	GLN
1	C	106	GLN
1	C	123	HIS
1	C	204	GLN
1	D	29	HIS
1	D	42	HIS
1	D	106	GLN
1	D	123	HIS
1	D	195	GLN
1	D	204	GLN
1	E	42	HIS
1	E	92	HIS
1	E	106	GLN
1	E	123	HIS
1	F	65	GLN
1	F	117	HIS
1	F	123	HIS
1	F	204	GLN
1	G	29	HIS
1	G	42	HIS
1	G	92	HIS
1	G	106	GLN
1	G	123	HIS
1	G	195	GLN

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Mol	Chain	Res	Type
1	H	92	HIS
1	H	106	GLN
1	H	123	HIS
1	I	92	HIS
1	I	195	GLN
1	J	42	HIS
1	J	92	HIS
1	J	123	HIS

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

10 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	GOL	E	251	-	5,5,5	2.60	2 (40%)	5,5,5	2.97	2 (40%)
3	PER	F	251	-	1,1,1	0.42	0	-		
2	GOL	G	251	-	5,5,5	2.21	2 (40%)	5,5,5	1.70	2 (40%)
3	PER	B	1	-	1,1,1	0.40	0	-		
2	GOL	C	251	-	5,5,5	0.36	0	5,5,5	0.31	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	GOL	D	251	-	5,5,5	2.04	1 (20%)	5,5,5	2.61	3 (60%)
2	GOL	A	251	-	5,5,5	0.39	0	5,5,5	0.32	0
2	GOL	H	251	-	5,5,5	0.70	0	5,5,5	1.17	0
3	PER	I	251	-	1,1,1	0.41	0	-		
2	GOL	J	1	-	5,5,5	1.67	1 (20%)	5,5,5	1.07	0

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	GOL	E	251	-	-	2/4/4/4	-
2	GOL	G	251	-	-	4/4/4/4	-
2	GOL	C	251	-	-	2/4/4/4	-
2	GOL	D	251	-	-	1/4/4/4	-
2	GOL	A	251	-	-	4/4/4/4	-
2	GOL	H	251	-	-	3/4/4/4	-
2	GOL	J	1	-	-	4/4/4/4	-

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	251	GOL	O2-C2	-5.03	1.28	1.43
2	G	251	GOL	C3-C2	-3.97	1.36	1.51
2	D	251	GOL	O2-C2	-3.92	1.32	1.43
2	J	1	GOL	O2-C2	-2.82	1.35	1.43
2	G	251	GOL	O3-C3	-2.19	1.33	1.42
2	E	251	GOL	C3-C2	-2.11	1.43	1.51

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	251	GOL	O2-C2-C3	-5.65	85.79	109.18
2	D	251	GOL	O1-C1-C2	3.92	128.02	110.38
2	D	251	GOL	O2-C2-C3	-3.47	94.82	109.18
2	E	251	GOL	C3-C2-C1	3.33	124.00	111.80
2	G	251	GOL	O3-C3-C2	-2.44	99.40	110.38
2	G	251	GOL	O2-C2-C3	2.44	119.27	109.18
2	D	251	GOL	O3-C3-C2	2.12	119.93	110.38

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	251	GOL	O1-C1-C2-C3
2	A	251	GOL	C1-C2-C3-O3
2	C	251	GOL	C1-C2-C3-O3
2	E	251	GOL	O2-C2-C3-O3
2	G	251	GOL	O1-C1-C2-C3
2	G	251	GOL	C1-C2-C3-O3
2	H	251	GOL	O1-C1-C2-C3
2	J	1	GOL	O1-C1-C2-O2
2	J	1	GOL	O1-C1-C2-C3
2	J	1	GOL	C1-C2-C3-O3
2	A	251	GOL	O1-C1-C2-O2
2	J	1	GOL	O2-C2-C3-O3
2	E	251	GOL	C1-C2-C3-O3
2	C	251	GOL	O2-C2-C3-O3
2	D	251	GOL	O1-C1-C2-O2
2	G	251	GOL	O1-C1-C2-O2
2	H	251	GOL	O1-C1-C2-O2
2	A	251	GOL	O2-C2-C3-O3
2	G	251	GOL	O2-C2-C3-O3
2	H	251	GOL	O2-C2-C3-O3

There are no ring outliers.

7 monomers are involved in 40 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	251	GOL	6	0
2	G	251	GOL	8	0
2	C	251	GOL	5	0
2	D	251	GOL	3	0
2	A	251	GOL	14	0
2	H	251	GOL	2	0
2	J	1	GOL	2	0

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	244/249 (97%)	0.00	7 (2%) 53 56	15, 26, 46, 65	0
1	B	244/249 (97%)	-0.00	8 (3%) 49 51	15, 27, 51, 78	0
1	C	243/249 (97%)	-0.14	5 (2%) 63 65	14, 24, 48, 76	0
1	D	244/249 (97%)	-0.02	6 (2%) 58 60	14, 25, 47, 73	0
1	E	243/249 (97%)	-0.01	9 (3%) 45 48	15, 26, 49, 78	1 (0%)
1	F	244/249 (97%)	0.10	6 (2%) 58 60	17, 28, 48, 77	0
1	G	243/249 (97%)	0.09	6 (2%) 58 60	16, 29, 50, 84	0
1	H	244/249 (97%)	0.05	9 (3%) 45 48	17, 28, 51, 82	0
1	I	244/249 (97%)	0.02	7 (2%) 53 56	16, 25, 47, 76	0
1	J	244/249 (97%)	0.04	8 (3%) 49 51	14, 27, 52, 82	0
All	All	2437/2490 (97%)	0.01	71 (2%) 53 56	14, 26, 51, 84	1 (0%)

All (71) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	I	245	ALA	5.0
1	F	242	TYR	4.5
1	E	242	TYR	4.2
1	F	245	ALA	4.1
1	B	2	PRO	4.1
1	J	119	GLU	4.0
1	E	244	GLU	3.9
1	A	245	ALA	3.8
1	J	245	ALA	3.7
1	E	119	GLU	3.7
1	H	245	ALA	3.6
1	D	245	ALA	3.6
1	I	4	SER	3.5

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Mol	Chain	Res	Type	RSRZ
1	J	2	PRO	3.5
1	E	207	CYS	3.5
1	J	207	CYS	3.4
1	G	242	TYR	3.3
1	D	242	TYR	3.3
1	B	245	ALA	3.2
1	H	203	GLY	3.2
1	D	238	ALA	3.2
1	E	194	ASP	3.1
1	G	119	GLU	3.1
1	G	244	GLU	3.0
1	A	2	PRO	3.0
1	F	4	SER	2.9
1	B	244	GLU	2.8
1	A	242	TYR	2.8
1	B	5	ILE	2.8
1	E	2	PRO	2.8
1	F	235	GLU	2.8
1	E	112	ARG	2.8
1	G	207	CYS	2.7
1	J	204	GLN	2.7
1	C	119	GLU	2.6
1	I	244	GLU	2.6
1	H	134	ARG	2.6
1	I	2	PRO	2.6
1	H	119	GLU	2.5
1	I	201	GLU	2.5
1	D	62	GLU	2.4
1	H	242	TYR	2.4
1	D	2	PRO	2.4
1	F	2	PRO	2.4
1	J	4	SER	2.4
1	H	111	ARG	2.4
1	H	206	ARG	2.3
1	B	242	TYR	2.3
1	H	4	SER	2.3
1	A	207	CYS	2.3
1	C	2	PRO	2.3
1	C	242	TYR	2.3
1	A	244	GLU	2.3
1	B	243	GLU	2.3
1	D	244	GLU	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	202	SER	2.2
1	G	66	ARG	2.2
1	G	206	ARG	2.2
1	J	244	GLU	2.2
1	A	197	ARG	2.2
1	F	244	GLU	2.2
1	J	203	GLY	2.2
1	B	111	ARG	2.1
1	I	122	THR	2.1
1	H	244	GLU	2.1
1	A	243	GLU	2.0
1	C	201	GLU	2.0
1	E	5	ILE	2.0
1	I	5	ILE	2.0
1	E	239	LYS	2.0
1	C	244	GLU	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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	B-factors(Å ²)	Q<0.9
2	GOL	E	251	6/6	0.76	0.22	46,56,60,63	0
2	GOL	H	251	6/6	0.79	0.20	42,52,56,59	0
2	GOL	A	251	6/6	0.81	0.24	51,56,62,63	0
2	GOL	J	1	6/6	0.83	0.14	37,49,54,54	0
2	GOL	C	251	6/6	0.84	0.18	39,44,49,57	0
2	GOL	G	251	6/6	0.89	0.12	36,49,53,53	0
2	GOL	D	251	6/6	0.90	0.12	32,40,46,48	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	PER	B	1	2/2	0.92	0.11	25,25,25,28	0
3	PER	I	251	2/2	0.94	0.07	20,20,20,26	0
3	PER	F	251	2/2	0.95	0.07	19,19,19,31	0

6.5 Other polymers [i](#)

There are no such residues in this entry.