Full wwPDB X-ray Structure Validation Report ⓘ

Aug 15, 2023 – 06:23 AM EDT

PDB ID	:	1XD4
Title	:	Crystal structure of the DH-PH-cat module of Son of Sevenless (SOS)
Authors	:	Sondermann, H.; Soisson, S.M.; Boykevisch, S.; Yang, S.S.; Bar-Sagi, D.; Kuriyan, J.
Deposited on	:	2004-09-03
Resolution	:	3.64 Å(reported)

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

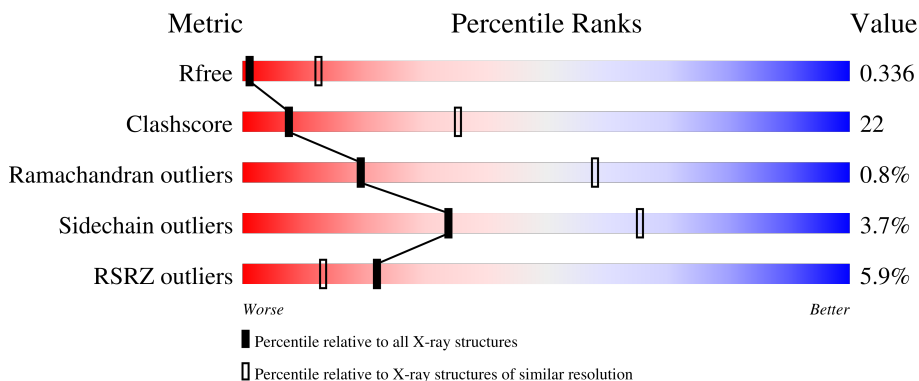|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

1 Overall quality at a glance ⓘ

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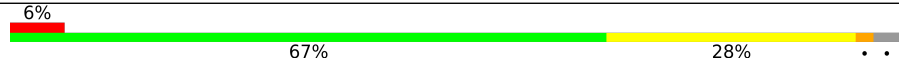*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.64 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	Percentile Ranks	Value
Rfree		0.336
Clashscore		22
Ramachandran outliers		0.8%
Sidechain outliers		3.7%
RSRZ outliers		5.9%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1341 (3.78-3.50)
Clashscore	141614	1439 (3.78-3.50)
Ramachandran outliers	138981	1391 (3.78-3.50)
Sidechain outliers	138945	1391 (3.78-3.50)
RSRZ outliers	127900	1242 (3.78-3.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	852	5% / 67% / 27% / · ·
1	B	852	6% / 67% / 28% / · ·

2 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 13542 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 Son of sevenless protein homolog 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	824	Total	C	N	O	S	0	0	0
			6771	4323	1159	1258	31			
1	B	824	Total	C	N	O	S	0	0	0
			6771	4323	1159	1258	31			

3 Residue-property plots ⓘ

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: Son of sevenless protein homolog 1

Chain A:

• Molecule 1: Son of sevenless protein homolog 1

Chain B:
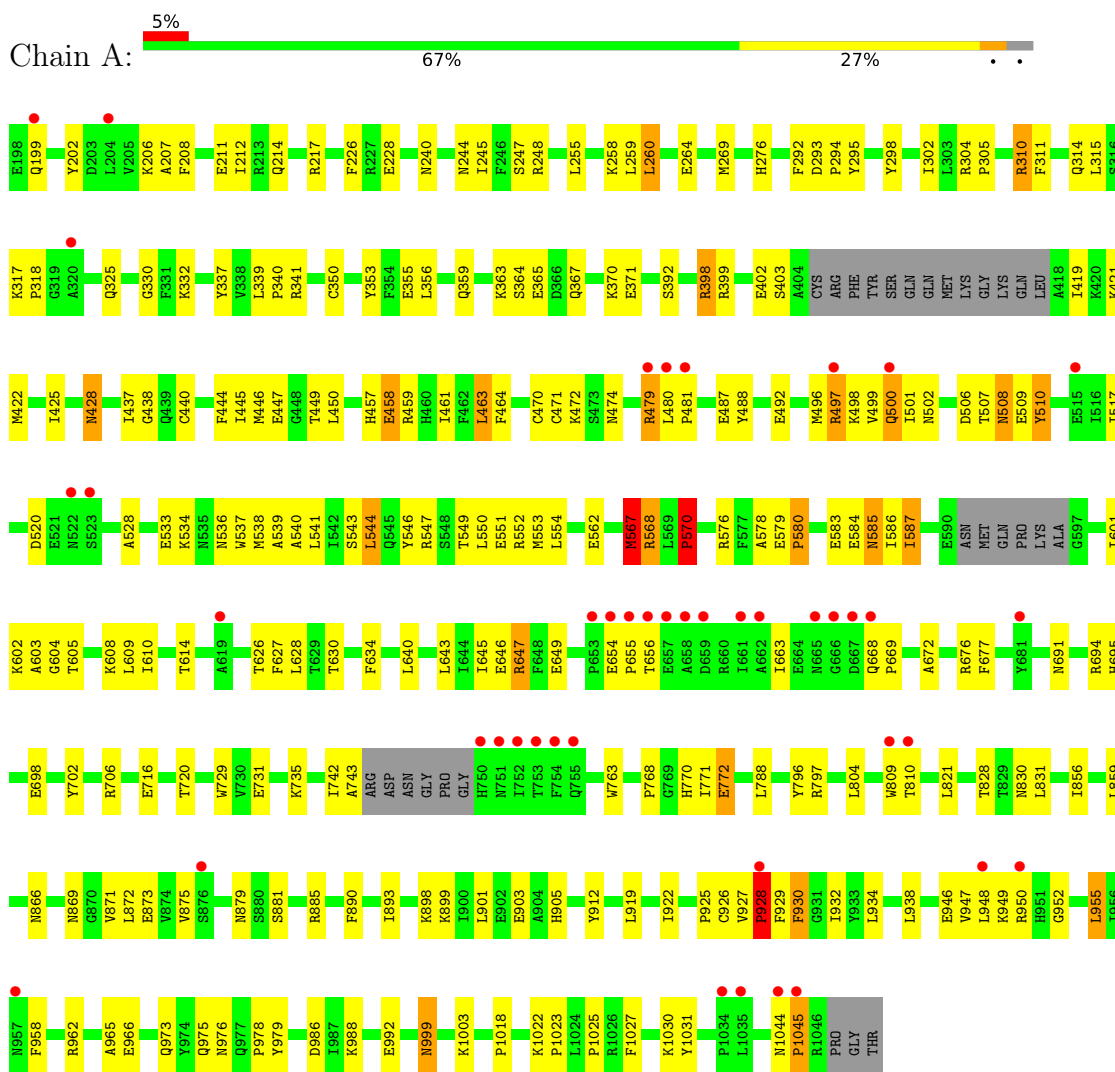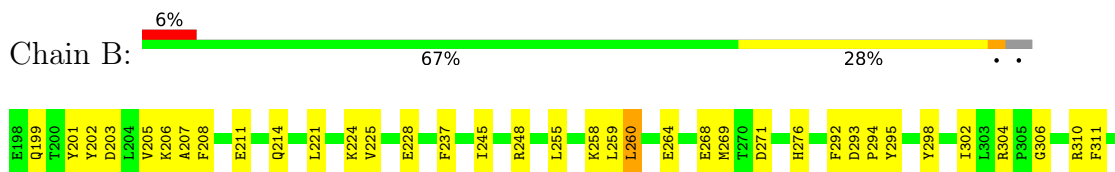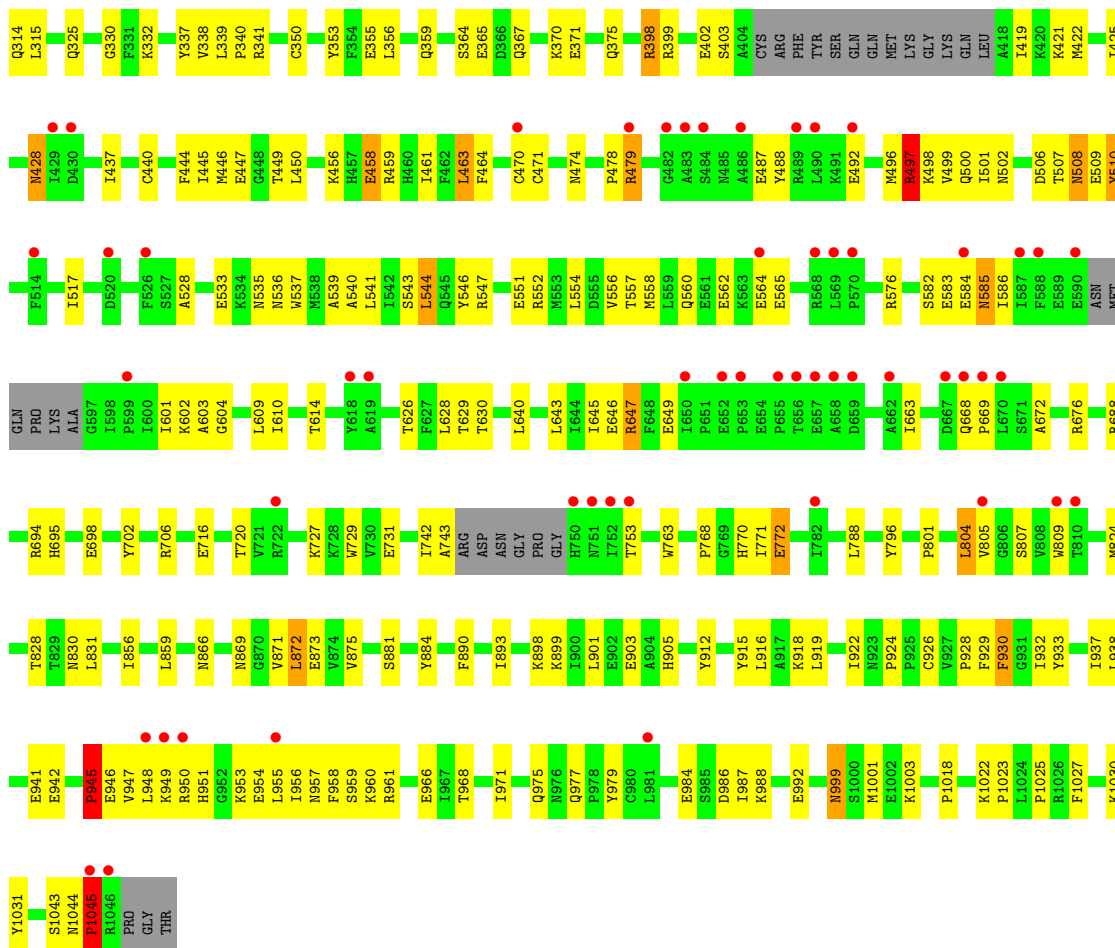
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	73.47Å 127.36Å 279.05Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	11.99 – 3.64 47.02 – 3.64	Depositor EDS
% Data completeness (in resolution range)	92.0 (11.99-3.64) 92.1 (47.02-3.64)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	0.04	Depositor
$< I/\sigma(I) >$ [1]	2.35 (at 3.66Å)	Xtriage
Refinement program	CNS 1.1, REFMAC	Depositor
R, R_{free}	0.307 , 0.371 0.287 , 0.336	Depositor DCC
R_{free} test set	2033 reflections (6.90%)	wwPDB-VP
Wilson B-factor (Å^2)	131.1	Xtriage
Anisotropy	0.455	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 149.0	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	13542	wwPDB-VP
Average B, all atoms (Å^2)	154.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.22% of the height of the origin peak. No significant pseudotranslation is detected.*

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

5 Model quality (i)

5.1 Standard geometry (i)

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	0.47	0/6918	0.69	5/9334 (0.1%)
1	B	0.47	0/6918	0.68	3/9334 (0.0%)
All	All	0.47	0/13836	0.68	8/18668 (0.0%)

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	945	PRO	CA-N-CD	-16.27	88.72	111.50
1	A	580	PRO	CA-N-CD	-16.02	89.06	111.50
1	A	928	PRO	CA-N-CD	-14.33	91.44	111.50
1	A	570	PRO	CA-N-CD	-9.07	98.81	111.50
1	A	310	ARG	NE-CZ-NH2	6.49	123.54	120.30
1	B	398	ARG	NE-CZ-NH2	6.49	123.54	120.30
1	A	398	ARG	NE-CZ-NH2	6.33	123.46	120.30
1	B	497	ARG	NE-CZ-NH2	5.59	123.10	120.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6771	0	6768	293	1
1	B	6771	0	6768	309	1
All	All	13542	0	13536	596	2

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 22.

All (596) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:626:THR:HG21	1:A:962:ARG:CD	1.57	1.35
1:B:584:GLU:CA	1:B:953:LYS:HG3	1.63	1.27
1:B:584:GLU:CB	1:B:953:LYS:HE3	1.68	1.24
1:A:587:ILE:HD13	1:A:603:ALA:CB	1.69	1.22
1:B:584:GLU:HA	1:B:953:LYS:CG	1.73	1.18
1:B:584:GLU:HB2	1:B:953:LYS:CE	1.74	1.15
1:A:587:ILE:CD1	1:A:603:ALA:HB3	1.77	1.13
1:A:603:ALA:HB2	1:A:948:LEU:HD12	1.26	1.12
1:B:584:GLU:HA	1:B:953:LYS:HG3	1.13	1.11
1:B:901:LEU:HG	1:B:905:HIS:CE1	1.86	1.10
1:A:626:THR:CG2	1:A:962:ARG:HD2	1.80	1.09
1:B:584:GLU:HB2	1:B:953:LYS:HE3	1.20	1.09
1:B:602:LYS:HE2	1:B:948:LEU:HD13	1.26	1.07
1:B:500:GLN:OE1	1:B:541:LEU:HB3	1.56	1.05
1:A:875:VAL:HG13	1:A:905:HIS:CD2	1.92	1.04
1:B:584:GLU:CB	1:B:953:LYS:HG3	1.89	1.01
1:A:496:MET:O	1:A:497:ARG:HG3	1.60	1.01
1:A:879:ASN:HD21	1:A:905:HIS:CD2	1.80	1.00
1:B:584:GLU:HB2	1:B:953:LYS:CD	1.91	0.99
1:B:341:ARG:NH2	1:B:536:ASN:HA	1.77	0.98
1:B:422:MET:HE3	1:B:437:ILE:HG22	1.48	0.96
1:A:879:ASN:HD21	1:A:905:HIS:HD2	1.07	0.95
1:A:583:GLU:HB3	1:A:950:ARG:HD2	1.46	0.95
1:A:398:ARG:O	1:A:402:GLU:HG2	1.66	0.94
1:A:317:LYS:HG2	1:A:318:PRO:HD2	1.48	0.93
1:A:626:THR:CG2	1:A:962:ARG:HG2	1.99	0.93
1:B:875:VAL:HG13	1:B:905:HIS:CD2	2.04	0.93
1:A:587:ILE:HD11	1:A:955:LEU:HD12	1.48	0.92
1:A:422:MET:HE3	1:A:437:ILE:HG22	1.51	0.92
1:B:630:THR:HG22	1:B:805:VAL:HG21	1.49	0.92
1:B:604:GLY:HA2	1:B:955:LEU:HD12	1.51	0.92
1:A:603:ALA:CB	1:A:948:LEU:HD12	2.00	0.92
1:B:796:TYR:OH	1:B:971:ILE:HG23	1.70	0.91
1:A:428:ASN:HD21	1:A:487:GLU:H	1.16	0.91
1:A:317:LYS:CG	1:A:318:PRO:HD2	2.01	0.91
1:B:796:TYR:CE2	1:B:975:GLN:HG2	2.05	0.91
1:A:330:GLY:HA3	1:A:546:TYR:CE2	2.07	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:628:LEU:HD12	1:B:695:HIS:HD2	1.37	0.88
1:B:716:GLU:O	1:B:720:THR:HG23	1.72	0.88
1:B:796:TYR:CE2	1:B:975:GLN:CG	2.57	0.88
1:A:716:GLU:O	1:A:720:THR:HG23	1.72	0.88
1:B:875:VAL:HG13	1:B:905:HIS:HD2	1.38	0.88
1:B:602:LYS:HE2	1:B:948:LEU:CD1	2.04	0.87
1:A:341:ARG:NH2	1:A:536:ASN:HA	1.89	0.87
1:A:628:LEU:HD12	1:A:695:HIS:HD2	1.37	0.87
1:A:919:LEU:HD11	1:A:928:PRO:HG3	1.56	0.87
1:A:919:LEU:CD1	1:A:928:PRO:HG3	2.05	0.87
1:B:269:MET:SD	1:B:729:TRP:CD1	2.68	0.86
1:B:584:GLU:HA	1:B:953:LYS:CB	2.04	0.86
1:A:428:ASN:ND2	1:A:487:GLU:H	1.72	0.86
1:B:630:THR:HG22	1:B:805:VAL:CG2	2.05	0.86
1:A:626:THR:HG22	1:A:958:PHE:CE2	2.10	0.86
1:B:915:TYR:CZ	1:B:929:PHE:HB3	2.10	0.86
1:A:499:VAL:HG12	1:A:501:ILE:CD1	2.06	0.85
1:B:428:ASN:ND2	1:B:487:GLU:H	1.73	0.85
1:B:398:ARG:O	1:B:402:GLU:HG3	1.75	0.85
1:A:626:THR:HG21	1:A:962:ARG:CG	2.07	0.85
1:B:499:VAL:HG12	1:B:501:ILE:CD1	2.06	0.85
1:A:626:THR:HG21	1:A:962:ARG:HD2	0.86	0.85
1:B:330:GLY:HA3	1:B:546:TYR:CE2	2.11	0.84
1:A:946:GLU:HG3	1:A:947:VAL:HG13	1.57	0.84
1:B:428:ASN:HD21	1:B:487:GLU:H	1.24	0.84
1:A:576:ARG:HD3	1:A:646:GLU:OE2	1.78	0.83
1:B:304:ARG:HD3	1:B:310:ARG:HH12	1.42	0.83
1:B:584:GLU:HB3	1:B:953:LYS:HE3	1.57	0.83
1:A:926:CYS:HA	1:A:979:TYR:OH	1.77	0.83
1:B:576:ARG:HD3	1:B:646:GLU:OE2	1.78	0.83
1:A:901:LEU:CD1	1:A:905:HIS:CE1	2.61	0.82
1:A:626:THR:CG2	1:A:962:ARG:CG	2.56	0.82
1:A:626:THR:HG22	1:A:958:PHE:HE2	1.41	0.82
1:B:629:THR:HG23	1:B:801:PRO:HB2	1.62	0.81
1:B:341:ARG:NH2	1:B:536:ASN:CA	2.43	0.81
1:B:629:THR:HG23	1:B:801:PRO:CB	2.11	0.81
1:A:828:THR:HG23	1:A:873:GLU:HG2	1.61	0.80
1:B:828:THR:HG23	1:B:873:GLU:HG2	1.64	0.80
1:B:584:GLU:CB	1:B:953:LYS:CG	2.59	0.80
1:B:901:LEU:CG	1:B:905:HIS:CE1	2.63	0.80
1:A:901:LEU:HD11	1:A:905:HIS:CE1	2.16	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:225:VAL:HG21	1:B:554:LEU:HB2	1.61	0.80
1:B:584:GLU:CB	1:B:953:LYS:CE	2.44	0.80
1:A:901:LEU:CD1	1:A:905:HIS:HE1	1.95	0.80
1:A:587:ILE:O	1:A:602:LYS:HB3	1.82	0.80
1:A:317:LYS:CG	1:A:318:PRO:CD	2.61	0.79
1:A:587:ILE:N	1:A:587:ILE:HD12	1.98	0.79
1:B:337:TYR:OH	1:B:502:ASN:ND2	2.15	0.79
1:A:583:GLU:O	1:A:950:ARG:HB3	1.82	0.78
1:A:496:MET:O	1:A:497:ARG:CG	2.31	0.78
1:B:330:GLY:CA	1:B:546:TYR:CE2	2.67	0.77
1:A:901:LEU:HG	1:A:905:HIS:CE1	2.20	0.77
1:A:499:VAL:CG1	1:A:501:ILE:CD1	2.63	0.77
1:A:500:GLN:NE2	1:A:538:MET:SD	2.58	0.76
1:B:584:GLU:CB	1:B:953:LYS:CD	2.62	0.76
1:B:628:LEU:HD12	1:B:695:HIS:CD2	2.20	0.76
1:A:500:GLN:HE22	1:A:538:MET:CE	1.98	0.76
1:A:626:THR:CG2	1:A:962:ARG:CD	2.49	0.76
1:B:446:MET:HE1	1:B:537:TRP:HA	1.67	0.76
1:A:628:LEU:HD12	1:A:695:HIS:CD2	2.20	0.76
1:B:499:VAL:CG1	1:B:501:ILE:CD1	2.63	0.76
1:A:634:PHE:CE2	1:A:958:PHE:HD1	2.05	0.75
1:B:271:ASP:OD2	1:B:695:HIS:HB2	1.86	0.75
1:A:634:PHE:CE2	1:A:958:PHE:CD1	2.74	0.75
1:A:317:LYS:HG2	1:A:318:PRO:CD	2.16	0.75
1:B:804:LEU:HD23	1:B:968:THR:HG22	1.68	0.75
1:B:582:SER:OG	1:B:584:GLU:HG2	1.86	0.75
1:A:520:ASP:OD1	1:A:520:ASP:O	2.05	0.75
1:A:587:ILE:HD11	1:A:955:LEU:CD1	2.16	0.75
1:A:502:ASN:HD21	1:A:534:LYS:NZ	1.85	0.74
1:B:202:TYR:CE2	1:B:206:LYS:HD3	2.22	0.74
1:B:831:LEU:HD23	1:B:873:GLU:OE1	1.87	0.74
1:B:604:GLY:N	1:B:955:LEU:HB3	2.02	0.74
1:A:926:CYS:SG	1:A:928:PRO:HD2	2.28	0.74
1:B:584:GLU:CA	1:B:953:LYS:CG	2.44	0.74
1:A:831:LEU:HD23	1:A:873:GLU:OE1	1.87	0.74
1:A:202:TYR:CE2	1:A:206:LYS:HD3	2.22	0.74
1:A:500:GLN:NE2	1:A:538:MET:CE	2.50	0.74
1:B:547:ARG:O	1:B:551:GLU:HG2	1.88	0.74
1:B:1018:PRO:HB3	1:B:1022:LYS:HD3	1.69	0.73
1:B:603:ALA:HA	1:B:956:ILE:O	1.88	0.73
1:A:446:MET:HE1	1:A:537:TRP:HA	1.69	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:449:THR:HG21	1:B:458:GLU:OE1	1.89	0.73
1:A:925:PRO:HG2	1:A:978:PRO:O	1.89	0.73
1:A:449:THR:HG21	1:A:458:GLU:OE1	1.89	0.73
1:A:1018:PRO:HB3	1:A:1022:LYS:HD3	1.69	0.72
1:A:422:MET:CE	1:A:437:ILE:HG22	2.20	0.72
1:B:221:LEU:HA	1:B:554:LEU:HD22	1.71	0.72
1:A:626:THR:CG2	1:A:958:PHE:HE2	2.03	0.71
1:A:901:LEU:HD11	1:A:905:HIS:HE1	1.51	0.71
1:A:207:ALA:O	1:A:211:GLU:HG3	1.91	0.71
1:B:901:LEU:HD11	1:B:905:HIS:NE2	2.06	0.71
1:B:207:ALA:O	1:B:211:GLU:HG3	1.91	0.71
1:B:626:THR:HG21	1:B:958:PHE:CZ	2.25	0.71
1:B:796:TYR:HE2	1:B:975:GLN:CG	2.03	0.71
1:B:614:THR:OG1	1:B:647:ARG:HD3	1.90	0.71
1:A:614:THR:OG1	1:A:647:ARG:HD3	1.90	0.70
1:A:901:LEU:CG	1:A:905:HIS:HE1	2.03	0.70
1:B:199:GLN:HB3	1:B:203:ASP:HB2	1.72	0.70
1:B:341:ARG:HH22	1:B:536:ASN:N	1.88	0.70
1:B:912:TYR:HB2	1:B:932:ILE:HD11	1.72	0.70
1:B:916:LEU:HD21	1:B:932:ILE:HG21	1.73	0.70
1:B:422:MET:CE	1:B:437:ILE:HG22	2.20	0.70
1:A:480:LEU:HD12	1:A:481:PRO:HD2	1.71	0.70
1:A:859:LEU:HD11	1:A:871:VAL:HG13	1.74	0.70
1:B:809:TRP:HH2	1:B:937:ILE:HG22	1.55	0.70
1:B:947:VAL:HG21	1:B:954:GLU:HG3	1.74	0.70
1:B:419:ILE:HG22	1:B:419:ILE:O	1.91	0.69
1:A:419:ILE:HG22	1:A:419:ILE:O	1.91	0.69
1:A:912:TYR:CD2	1:A:932:ILE:HD11	2.27	0.69
1:A:585:ASN:HA	1:A:955:LEU:HD22	1.75	0.69
1:B:268:GLU:OE1	1:B:688:ARG:NH2	2.25	0.69
1:A:330:GLY:CA	1:A:546:TYR:CE2	2.75	0.69
1:A:958:PHE:CE2	1:A:962:ARG:HG2	2.28	0.69
1:B:796:TYR:HE2	1:B:975:GLN:HG2	1.58	0.68
1:A:355:GLU:HG3	1:A:359:GLN:HE21	1.58	0.68
1:B:225:VAL:CG2	1:B:554:LEU:HB2	2.22	0.68
1:A:500:GLN:OE1	1:A:541:LEU:HB2	1.94	0.68
1:B:341:ARG:HH21	1:B:536:ASN:HA	1.58	0.68
1:A:879:ASN:ND2	1:A:905:HIS:CD2	2.60	0.68
1:A:539:ALA:O	1:A:543:SER:HB2	1.94	0.68
1:A:587:ILE:HD13	1:A:603:ALA:HB3	0.81	0.68
1:A:276:HIS:HE1	1:A:365:GLU:H	1.42	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:881:SER:OG	1:B:881:SER:N	2.27	0.67
1:B:355:GLU:HG3	1:B:359:GLN:HE21	1.58	0.67
1:A:341:ARG:HG3	1:A:403:SER:OG	1.95	0.67
1:B:276:HIS:HE1	1:B:365:GLU:H	1.42	0.67
1:A:881:SER:N	1:B:881:SER:OG	2.28	0.67
1:B:498:LYS:HD2	1:B:517:ILE:O	1.95	0.67
1:B:341:ARG:HG3	1:B:403:SER:OG	1.95	0.66
1:A:226:PHE:HZ	1:A:550:LEU:HD13	1.61	0.66
1:B:947:VAL:HB	1:B:955:LEU:O	1.94	0.66
1:B:445:ILE:HD13	1:B:544:LEU:HD23	1.78	0.66
1:B:341:ARG:NH2	1:B:536:ASN:OD1	2.28	0.66
1:A:499:VAL:HG12	1:A:501:ILE:HD12	1.78	0.66
1:A:498:LYS:HD2	1:A:517:ILE:O	1.95	0.66
1:A:507:THR:C	1:A:509:GLU:H	1.99	0.66
1:A:901:LEU:CG	1:A:905:HIS:CE1	2.78	0.66
1:B:507:THR:C	1:B:509:GLU:H	1.99	0.65
1:B:630:THR:CA	1:B:805:VAL:HG11	2.26	0.65
1:B:237:PHE:HD1	1:B:314:GLN:OE1	1.78	0.65
1:A:269:MET:SD	1:A:729:TRP:CD1	2.89	0.65
1:B:872:LEU:N	1:B:872:LEU:CD2	2.60	0.65
1:A:1044:ASN:N	1:A:1045:PRO:HD3	2.12	0.65
1:B:926:CYS:O	1:B:928:PRO:HD3	1.96	0.65
1:A:444:PHE:HZ	1:A:447:GLU:HB2	1.62	0.65
1:B:901:LEU:CD1	1:B:905:HIS:NE2	2.60	0.65
1:B:872:LEU:N	1:B:872:LEU:HD23	2.12	0.64
1:A:926:CYS:SG	1:A:928:PRO:CD	2.85	0.64
1:B:444:PHE:HZ	1:B:447:GLU:HB2	1.62	0.64
1:A:502:ASN:HD21	1:A:534:LYS:HZ3	1.46	0.64
1:B:1044:ASN:N	1:B:1045:PRO:HD3	2.12	0.64
1:B:796:TYR:CE2	1:B:975:GLN:HG3	2.31	0.64
1:A:226:PHE:CZ	1:A:550:LEU:HD13	2.33	0.64
1:B:584:GLU:HA	1:B:953:LYS:HB3	1.80	0.64
1:A:496:MET:C	1:A:497:ARG:HG3	2.17	0.64
1:A:586:ILE:HD11	1:A:601:ILE:HG13	1.78	0.64
1:B:445:ILE:CD1	1:B:544:LEU:HD23	2.27	0.64
1:A:796:TYR:CD1	1:A:930:PHE:HD2	2.16	0.64
1:B:459:ARG:HH11	1:B:459:ARG:HG2	1.63	0.64
1:B:330:GLY:HA3	1:B:546:TYR:CD2	2.34	0.63
1:B:584:GLU:HB2	1:B:953:LYS:HD2	1.77	0.63
1:A:480:LEU:CD1	1:A:481:PRO:HD2	2.27	0.63
1:A:499:VAL:CG1	1:A:501:ILE:HD11	2.28	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:901:LEU:HG	1:B:905:HIS:HE1	1.53	0.63
1:A:459:ARG:HG2	1:A:459:ARG:HH11	1.63	0.63
1:A:919:LEU:HD13	1:A:928:PRO:HG3	1.81	0.63
1:B:341:ARG:HH12	1:B:535:ASN:HB3	1.63	0.63
1:A:499:VAL:HG11	1:A:501:ILE:HD11	1.80	0.63
1:A:585:ASN:ND2	1:A:586:ILE:HG22	2.14	0.63
1:A:797:ARG:NH1	1:A:975:GLN:O	2.31	0.63
1:B:869:ASN:O	1:B:873:GLU:HG3	1.99	0.63
1:A:788:LEU:HD13	1:A:831:LEU:HD21	1.81	0.62
1:B:499:VAL:CG1	1:B:501:ILE:HD11	2.28	0.62
1:B:584:GLU:HB3	1:B:953:LYS:HG3	1.79	0.62
1:B:957:ASN:OD1	1:B:960:LYS:HB2	1.97	0.62
1:B:499:VAL:HG11	1:B:501:ILE:HD11	1.80	0.62
1:B:809:TRP:HH2	1:B:937:ILE:CG2	2.11	0.62
1:B:859:LEU:HD11	1:B:871:VAL:HG13	1.82	0.62
1:B:237:PHE:CD1	1:B:314:GLN:OE1	2.53	0.62
1:B:499:VAL:HG12	1:B:501:ILE:HD12	1.78	0.62
1:A:869:ASN:O	1:A:873:GLU:HG3	1.99	0.62
1:B:224:LYS:HB3	1:B:557:THR:HG21	1.82	0.62
1:B:269:MET:SD	1:B:729:TRP:NE1	2.72	0.62
1:A:317:LYS:HG3	1:A:318:PRO:HD2	1.79	0.62
1:B:445:ILE:HD11	1:B:544:LEU:CD2	2.30	0.62
1:B:999:ASN:C	1:B:999:ASN:HD22	2.02	0.62
1:B:1003:LYS:HE3	1:B:1003:LYS:HA	1.82	0.62
1:B:630:THR:CB	1:B:805:VAL:HG11	2.29	0.62
1:A:317:LYS:HG3	1:A:318:PRO:CD	2.29	0.61
1:A:446:MET:HE3	1:A:537:TRP:CE3	2.34	0.61
1:A:999:ASN:C	1:A:999:ASN:HD22	2.02	0.61
1:B:496:MET:O	1:B:497:ARG:CG	2.48	0.61
1:B:954:GLU:C	1:B:955:LEU:HD22	2.20	0.61
1:B:672:ALA:O	1:B:676:ARG:HG3	2.00	0.61
1:A:630:THR:HG22	1:A:965:ALA:HB2	1.82	0.61
1:A:364:SER:HB3	1:A:370:LYS:HG2	1.83	0.61
1:A:450:LEU:HD12	1:A:461:ILE:HD12	1.83	0.61
1:A:672:ALA:O	1:A:676:ARG:HG3	2.00	0.61
1:B:450:LEU:HD12	1:B:461:ILE:HD12	1.83	0.61
1:A:586:ILE:HA	1:A:603:ALA:O	2.01	0.61
1:A:866:ASN:HB3	1:A:926:CYS:HB2	1.83	0.61
1:B:367:GLN:O	1:B:371:GLU:HG2	2.01	0.61
1:B:585:ASN:C	1:B:955:LEU:HD11	2.21	0.61
1:A:202:TYR:O	1:A:206:LYS:HG3	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:540:ALA:O	1:A:544:LEU:HB2	2.01	0.61
1:B:788:LEU:HD13	1:B:831:LEU:HD21	1.81	0.61
1:A:367:GLN:O	1:A:371:GLU:HG2	2.01	0.61
1:B:364:SER:HB3	1:B:370:LYS:HG2	1.83	0.61
1:B:540:ALA:O	1:B:544:LEU:HB2	2.01	0.60
1:A:1003:LYS:HE3	1:A:1003:LYS:HA	1.82	0.60
1:B:645:ILE:O	1:B:649:GLU:HG2	2.01	0.60
1:A:260:LEU:HD22	1:A:264:GLU:HG3	1.83	0.60
1:A:269:MET:CE	1:A:729:TRP:CD1	2.84	0.60
1:A:645:ILE:O	1:A:649:GLU:HG2	2.01	0.60
1:B:260:LEU:HD22	1:B:264:GLU:HG3	1.83	0.60
1:A:337:TYR:CD2	1:A:538:MET:CB	2.84	0.60
1:A:587:ILE:O	1:A:602:LYS:N	2.33	0.60
1:A:796:TYR:HD1	1:A:930:PHE:HD2	1.49	0.60
1:B:202:TYR:O	1:B:206:LYS:HG3	2.01	0.60
1:B:539:ALA:O	1:B:543:SER:HB3	2.01	0.60
1:B:364:SER:HB3	1:B:370:LYS:CG	2.31	0.60
1:B:584:GLU:OE1	1:B:953:LYS:HE3	2.02	0.60
1:A:364:SER:HB3	1:A:370:LYS:CG	2.32	0.60
1:B:564:GLU:HB2	1:B:676:ARG:NH1	2.16	0.60
1:B:496:MET:O	1:B:497:ARG:HG3	2.01	0.60
1:B:630:THR:HB	1:B:805:VAL:HG11	1.83	0.59
1:A:539:ALA:O	1:A:543:SER:CB	2.50	0.59
1:B:330:GLY:HA2	1:B:546:TYR:CE2	2.37	0.59
1:B:445:ILE:HD11	1:B:544:LEU:HD21	1.83	0.59
1:B:807:SER:OG	1:B:941:GLU:CG	2.51	0.59
1:B:807:SER:OG	1:B:941:GLU:HG3	2.02	0.59
1:A:925:PRO:CG	1:A:978:PRO:O	2.50	0.59
1:B:260:LEU:O	1:B:264:GLU:HG3	2.03	0.59
1:B:603:ALA:HB1	1:B:955:LEU:CB	2.33	0.59
1:A:796:TYR:CD1	1:A:930:PHE:CD2	2.90	0.59
1:A:500:GLN:OE1	1:A:541:LEU:CB	2.50	0.58
1:B:946:GLU:HG3	1:B:947:VAL:HG13	1.83	0.58
1:A:260:LEU:O	1:A:264:GLU:HG3	2.03	0.58
1:A:958:PHE:CE2	1:A:962:ARG:CG	2.86	0.58
1:B:221:LEU:CA	1:B:554:LEU:HD22	2.32	0.58
1:B:245:ILE:HD11	1:B:314:GLN:HG2	1.85	0.58
1:A:587:ILE:HD12	1:A:587:ILE:H	1.67	0.58
1:B:926:CYS:HA	1:B:979:TYR:OH	2.03	0.58
1:B:445:ILE:CD1	1:B:544:LEU:CD2	2.81	0.58
1:B:498:LYS:HB3	1:B:517:ILE:O	2.04	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:337:TYR:CD2	1:A:538:MET:HB3	2.38	0.58
1:B:630:THR:HA	1:B:805:VAL:HG11	1.86	0.58
1:B:901:LEU:CD1	1:B:905:HIS:CE1	2.86	0.58
1:A:276:HIS:CE1	1:A:365:GLU:H	2.22	0.58
1:B:890:PHE:O	1:B:898:LYS:HE2	2.04	0.58
1:A:890:PHE:O	1:A:898:LYS:HE2	2.04	0.57
1:A:498:LYS:HB3	1:A:517:ILE:O	2.04	0.57
1:A:950:ARG:HB2	1:A:955:LEU:HD11	1.87	0.57
1:A:537:TRP:O	1:A:541:LEU:HG	2.03	0.57
1:A:796:TYR:CE1	1:A:930:PHE:CD2	2.92	0.57
1:B:341:ARG:NH2	1:B:536:ASN:N	2.51	0.57
1:B:446:MET:HE3	1:B:537:TRP:CE3	2.40	0.57
1:B:875:VAL:CG1	1:B:905:HIS:HD2	2.12	0.57
1:A:549:THR:O	1:A:552:ARG:HB3	2.05	0.56
1:A:634:PHE:CZ	1:A:958:PHE:CD1	2.92	0.56
1:B:809:TRP:CH2	1:B:937:ILE:CG2	2.88	0.56
1:B:498:LYS:HD3	1:B:499:VAL:H	1.71	0.56
1:B:583:GLU:OE2	1:B:950:ARG:HB3	2.05	0.56
1:A:445:ILE:HD13	1:A:544:LEU:HD23	1.88	0.56
1:A:976:ASN:O	1:A:978:PRO:HD3	2.06	0.56
1:B:626:THR:CG2	1:B:958:PHE:CZ	2.89	0.55
1:B:629:THR:HG23	1:B:801:PRO:HB3	1.86	0.55
1:B:276:HIS:CE1	1:B:365:GLU:H	2.22	0.55
1:A:479:ARG:HG2	1:A:479:ARG:HH11	1.71	0.55
1:B:479:ARG:HG2	1:B:479:ARG:HH11	1.72	0.55
1:A:866:ASN:O	1:A:926:CYS:HB2	2.06	0.55
1:A:341:ARG:NH2	1:A:536:ASN:CA	2.66	0.55
1:A:498:LYS:HD3	1:A:499:VAL:H	1.71	0.55
1:B:915:TYR:OH	1:B:929:PHE:N	2.39	0.55
1:B:201:TYR:O	1:B:205:VAL:HG23	2.07	0.55
1:B:224:LYS:NZ	1:B:558:MET:HG2	2.22	0.55
1:A:694:ARG:O	1:A:698:GLU:HB2	2.07	0.54
1:B:582:SER:H	1:B:585:ASN:HD21	1.54	0.54
1:B:694:ARG:O	1:B:698:GLU:HB2	2.07	0.54
1:B:919:LEU:HD12	1:B:922:ILE:HD11	1.88	0.54
1:A:445:ILE:CD1	1:A:544:LEU:HD23	2.38	0.54
1:A:544:LEU:HD13	1:A:544:LEU:O	2.08	0.54
1:B:938:LEU:O	1:B:942:GLU:HG2	2.07	0.54
1:A:587:ILE:O	1:A:602:LYS:CB	2.54	0.54
1:B:330:GLY:CA	1:B:546:TYR:HE2	2.20	0.54
1:B:330:GLY:HA3	1:B:546:TYR:HE2	1.69	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:507:THR:O	1:B:509:GLU:N	2.40	0.54
1:A:585:ASN:OD1	1:A:608:LYS:HE3	2.08	0.54
1:B:604:GLY:O	1:B:956:ILE:HG12	2.08	0.54
1:A:507:THR:O	1:A:509:GLU:N	2.40	0.53
1:B:560:GLN:C	1:B:562:GLU:H	2.10	0.53
1:B:727:LYS:O	1:B:731:GLU:HG2	2.09	0.53
1:B:809:TRP:CH2	1:B:937:ILE:HG22	2.41	0.53
1:A:587:ILE:N	1:A:603:ALA:O	2.34	0.53
1:B:544:LEU:HD13	1:B:544:LEU:O	2.10	0.52
1:B:958:PHE:C	1:B:960:LYS:H	2.12	0.52
1:A:269:MET:HG3	1:A:691:ASN:OD1	2.10	0.52
1:B:912:TYR:CE1	1:B:929:PHE:CE2	2.98	0.52
1:B:915:TYR:OH	1:B:929:PHE:HB3	2.08	0.52
1:A:311:PHE:O	1:A:315:LEU:HD13	2.09	0.52
1:A:626:THR:HG23	1:A:962:ARG:HG2	1.89	0.52
1:A:872:LEU:HD12	1:A:929:PHE:CG	2.45	0.52
1:A:810:THR:HB	1:B:999:ASN:O	2.09	0.51
1:B:221:LEU:CD1	1:B:554:LEU:HD22	2.40	0.51
1:B:933:TYR:O	1:B:937:ILE:HG13	2.10	0.51
1:B:796:TYR:HE2	1:B:975:GLN:HG3	1.73	0.51
1:B:585:ASN:CA	1:B:955:LEU:HD11	2.40	0.51
1:A:543:SER:O	1:A:547:ARG:HB3	2.11	0.51
1:A:474:ASN:HB2	1:A:479:ARG:HH21	1.75	0.51
1:A:630:THR:CG2	1:A:965:ALA:HB2	2.40	0.51
1:B:311:PHE:O	1:B:315:LEU:HD13	2.10	0.51
1:B:610:ILE:HD12	1:B:643:LEU:HD13	1.93	0.51
1:A:630:THR:OG1	1:A:958:PHE:CZ	2.64	0.51
1:A:899:LYS:O	1:A:903:GLU:HG2	2.11	0.51
1:B:899:LYS:O	1:B:903:GLU:HG2	2.11	0.51
1:A:499:VAL:HG12	1:A:500:GLN:N	2.26	0.51
1:B:552:ARG:O	1:B:556:VAL:HG23	2.11	0.51
1:A:810:THR:HA	1:B:1001:MET:CE	2.40	0.50
1:A:912:TYR:CG	1:A:932:ILE:HD11	2.45	0.50
1:B:771:ILE:HG22	1:B:986:ASP:HB3	1.94	0.50
1:A:634:PHE:CE2	1:A:958:PHE:CE1	2.99	0.50
1:B:304:ARG:HD3	1:B:310:ARG:NH1	2.20	0.50
1:B:988:LYS:O	1:B:992:GLU:HG3	2.11	0.50
1:A:568:ARG:HH12	1:A:656:THR:HG22	1.77	0.50
1:B:499:VAL:HG12	1:B:500:GLN:N	2.26	0.50
1:B:866:ASN:HB3	1:B:926:CYS:HB2	1.93	0.50
1:B:763:TRP:CE2	1:B:768:PRO:HG3	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:480:LEU:CG	1:A:481:PRO:HD2	2.41	0.50
1:A:500:GLN:NE2	1:A:538:MET:HE1	2.25	0.50
1:A:584:GLU:O	1:A:955:LEU:HD21	2.11	0.50
1:A:628:LEU:CD1	1:A:695:HIS:HD2	2.15	0.50
1:A:912:TYR:CE2	1:A:932:ILE:HD11	2.47	0.50
1:A:988:LYS:O	1:A:992:GLU:HG3	2.11	0.50
1:A:500:GLN:HE22	1:A:538:MET:HE3	1.75	0.50
1:B:474:ASN:HB2	1:B:479:ARG:HH21	1.75	0.50
1:B:628:LEU:CD1	1:B:695:HIS:HD2	2.15	0.50
1:B:955:LEU:HD22	1:B:955:LEU:N	2.27	0.50
1:A:445:ILE:HD11	1:A:544:LEU:CD2	2.42	0.49
1:B:539:ALA:O	1:B:543:SER:CB	2.61	0.49
1:B:977:GLN:OE1	1:B:977:GLN:N	2.44	0.49
1:B:446:MET:CE	1:B:463:LEU:HD12	2.43	0.49
1:A:446:MET:CE	1:A:463:LEU:HD12	2.42	0.49
1:A:771:ILE:HG22	1:A:986:ASP:HB3	1.95	0.49
1:B:399:ARG:O	1:B:402:GLU:HB2	2.13	0.49
1:B:306:GLY:O	1:B:310:ARG:HD2	2.13	0.49
1:A:269:MET:CE	1:A:729:TRP:HD1	2.25	0.49
1:A:480:LEU:HG	1:A:481:PRO:HD2	1.95	0.49
1:A:610:ILE:HD12	1:A:643:LEU:HD13	1.93	0.49
1:A:763:TRP:CE2	1:A:768:PRO:HG3	2.47	0.49
1:A:445:ILE:HD11	1:A:544:LEU:HD21	1.94	0.48
1:A:419:ILE:O	1:A:419:ILE:CG2	2.60	0.48
1:A:474:ASN:CB	1:A:479:ARG:HH21	2.26	0.48
1:B:1030:LYS:HD2	1:B:1031:TYR:CZ	2.48	0.48
1:A:796:TYR:CE1	1:A:930:PHE:CE2	3.01	0.48
1:A:866:ASN:HB3	1:A:926:CYS:CB	2.43	0.48
1:A:337:TYR:CD2	1:A:538:MET:HB2	2.48	0.48
1:A:502:ASN:ND2	1:A:534:LYS:NZ	2.59	0.48
1:B:603:ALA:CB	1:B:955:LEU:HB2	2.44	0.48
1:A:217:ARG:HH12	1:A:554:LEU:HD23	1.79	0.48
1:A:587:ILE:HD12	1:A:603:ALA:O	2.14	0.48
1:A:1030:LYS:HD2	1:A:1031:TYR:CZ	2.48	0.48
1:B:630:THR:HG22	1:B:805:VAL:HG22	1.92	0.48
1:A:446:MET:HE2	1:A:463:LEU:HD12	1.96	0.48
1:B:474:ASN:CB	1:B:479:ARG:HH21	2.27	0.48
1:A:568:ARG:NH1	1:A:656:THR:HG22	2.29	0.48
1:B:875:VAL:HG22	1:B:905:HIS:CD2	2.49	0.48
1:A:449:THR:CG2	1:A:458:GLU:OE1	2.61	0.48
1:A:587:ILE:HG13	1:A:950:ARG:HG3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:260:LEU:HD22	1:B:264:GLU:CG	2.44	0.47
1:A:950:ARG:C	1:A:952:GLY:H	2.17	0.47
1:B:507:THR:C	1:B:509:GLU:N	2.67	0.47
1:A:399:ARG:O	1:A:402:GLU:HB2	2.14	0.47
1:A:634:PHE:CZ	1:A:958:PHE:HD1	2.31	0.47
1:A:562:GLU:HG2	1:A:562:GLU:O	2.15	0.47
1:A:926:CYS:SG	1:A:928:PRO:HD3	2.54	0.47
1:A:245:ILE:HD11	1:A:314:GLN:HG2	1.96	0.47
1:A:341:ARG:NH2	1:A:536:ASN:OD1	2.47	0.47
1:A:445:ILE:CD1	1:A:544:LEU:CD2	2.92	0.47
1:A:446:MET:CE	1:A:540:ALA:HB3	2.45	0.47
1:A:654:GLU:HG2	1:A:655:PRO:HD2	1.95	0.47
1:B:500:GLN:C	1:B:501:ILE:HD12	2.35	0.47
1:B:603:ALA:CB	1:B:955:LEU:CB	2.92	0.47
1:B:922:ILE:HD12	1:B:922:ILE:O	2.13	0.47
1:B:947:VAL:CB	1:B:955:LEU:O	2.60	0.47
1:A:458:GLU:O	1:A:458:GLU:HG3	2.14	0.47
1:A:528:ALA:HB1	1:A:533:GLU:HB3	1.97	0.47
1:A:567:MET:SD	1:A:567:MET:N	2.87	0.47
1:B:458:GLU:O	1:B:458:GLU:HG3	2.13	0.47
1:B:585:ASN:C	1:B:955:LEU:CD1	2.83	0.47
1:A:228:GLU:OE1	1:A:228:GLU:HA	2.15	0.47
1:A:634:PHE:HE2	1:A:958:PHE:CD1	2.26	0.47
1:B:585:ASN:HD22	1:B:586:ILE:N	2.13	0.47
1:A:668:GLN:HA	1:A:669:PRO:HD3	1.82	0.47
1:B:228:GLU:HA	1:B:228:GLU:OE1	2.15	0.47
1:A:421:LYS:O	1:A:425:ILE:HG13	2.15	0.46
1:A:500:GLN:C	1:A:501:ILE:HD12	2.35	0.46
1:A:217:ARG:HG3	1:A:217:ARG:HH11	1.80	0.46
1:B:603:ALA:C	1:B:955:LEU:HB3	2.35	0.46
1:A:506:ASP:C	1:A:508:ASN:N	2.68	0.46
1:A:770:HIS:HA	1:A:772:GLU:OE2	2.15	0.46
1:B:528:ALA:HB1	1:B:533:GLU:HB3	1.97	0.46
1:B:629:THR:CG2	1:B:801:PRO:HB3	2.45	0.46
1:B:510:TYR:CD1	1:B:510:TYR:O	2.69	0.46
1:B:824:MET:HE3	1:B:930:PHE:CD2	2.51	0.46
1:A:510:TYR:O	1:A:510:TYR:CD1	2.69	0.46
1:A:587:ILE:CD1	1:A:603:ALA:CB	2.61	0.46
1:A:949:LYS:O	1:A:950:ARG:HG2	2.16	0.46
1:B:338:VAL:HG22	1:B:543:SER:HB2	1.98	0.46
1:B:984:GLU:HG2	1:B:987:ILE:HD12	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:809:TRP:CZ2	1:A:938:LEU:HB2	2.51	0.46
1:B:506:ASP:C	1:B:508:ASN:N	2.68	0.46
1:B:584:GLU:HB3	1:B:953:LYS:CE	2.33	0.46
1:B:585:ASN:C	1:B:585:ASN:HD22	2.19	0.46
1:B:918:LYS:HG3	1:B:918:LYS:O	2.15	0.46
1:B:1025:PRO:HG2	1:B:1027:PHE:CE1	2.51	0.46
1:A:260:LEU:HD22	1:A:264:GLU:CG	2.44	0.46
1:A:627:PHE:HA	1:A:958:PHE:HZ	1.81	0.46
1:B:500:GLN:OE1	1:B:541:LEU:CB	2.46	0.46
1:B:770:HIS:HA	1:B:772:GLU:OE2	2.15	0.46
1:A:585:ASN:HA	1:A:955:LEU:CD2	2.45	0.46
1:B:564:GLU:OE1	1:B:564:GLU:HA	2.16	0.46
1:B:933:TYR:HB3	1:B:971:ILE:HD11	1.98	0.46
1:A:627:PHE:HA	1:A:958:PHE:CZ	2.51	0.45
1:B:421:LYS:O	1:B:425:ILE:HG13	2.15	0.45
1:B:602:LYS:CE	1:B:948:LEU:CD1	2.86	0.45
1:A:583:GLU:HB3	1:A:950:ARG:CD	2.33	0.45
1:B:199:GLN:HB3	1:B:203:ASP:CB	2.43	0.45
1:A:446:MET:HE2	1:A:540:ALA:HB3	1.97	0.45
1:B:449:THR:CG2	1:B:458:GLU:OE1	2.61	0.45
1:B:221:LEU:CB	1:B:554:LEU:HD22	2.46	0.45
1:B:419:ILE:O	1:B:419:ILE:CG2	2.62	0.45
1:B:949:LYS:NZ	1:B:954:GLU:HB2	2.32	0.45
1:A:626:THR:HG22	1:A:958:PHE:CZ	2.52	0.45
1:A:1025:PRO:HG2	1:A:1027:PHE:CE1	2.51	0.45
1:B:470:CYS:HB2	1:B:492:GLU:HB2	1.99	0.45
1:B:731:GLU:OE1	1:B:731:GLU:HA	2.16	0.45
1:B:912:TYR:CZ	1:B:929:PHE:CE2	3.05	0.45
1:A:364:SER:HB3	1:A:370:LYS:HG3	1.99	0.45
1:A:634:PHE:CZ	1:A:958:PHE:CE1	3.05	0.45
1:B:298:TYR:CE2	1:B:302:ILE:HG13	2.52	0.45
1:B:364:SER:HB3	1:B:370:LYS:HG3	1.99	0.45
1:B:583:GLU:HG3	1:B:951:HIS:CD2	2.52	0.45
1:A:240:ASN:OD1	1:A:244:ASN:ND2	2.50	0.45
1:A:247:SER:OG	1:A:248:ARG:N	2.45	0.45
1:A:507:THR:C	1:A:509:GLU:N	2.68	0.45
1:B:471:CYS:HB3	1:B:488:TYR:HB3	2.00	0.44
1:A:470:CYS:HB2	1:A:492:GLU:HB2	1.99	0.44
1:B:945:PRO:HB3	1:B:947:VAL:O	2.17	0.44
1:A:601:ILE:N	1:A:601:ILE:HD12	2.32	0.44
1:B:602:LYS:HG2	1:B:948:LEU:HD12	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:603:ALA:HB1	1:B:955:LEU:HB2	1.99	0.44
1:B:603:ALA:HB1	1:B:955:LEU:HB3	1.99	0.44
1:B:558:MET:C	1:B:560:GLN:H	2.21	0.44
1:A:298:TYR:CE2	1:A:302:ILE:HG13	2.52	0.44
1:B:371:GLU:O	1:B:375:GLN:HG2	2.18	0.44
1:A:578:ALA:O	1:A:579:GLU:C	2.54	0.44
1:B:224:LYS:HZ3	1:B:558:MET:HG2	1.83	0.44
1:A:292:PHE:HE2	1:A:353:TYR:CE2	2.36	0.44
1:A:341:ARG:HH22	1:A:536:ASN:N	2.16	0.44
1:A:999:ASN:ND2	1:B:938:LEU:HD11	2.33	0.44
1:B:958:PHE:C	1:B:960:LYS:N	2.71	0.44
1:B:248:ARG:HA	1:B:248:ARG:NE	2.33	0.43
1:B:422:MET:HG2	1:B:464:PHE:HE2	1.83	0.43
1:B:601:ILE:HD12	1:B:601:ILE:N	2.32	0.43
1:A:567:MET:HB2	1:A:568:ARG:H	1.54	0.43
1:B:292:PHE:HE2	1:B:353:TYR:CE2	2.36	0.43
1:A:422:MET:HE1	1:A:438:GLY:HA2	2.00	0.43
1:A:471:CYS:HB3	1:A:488:TYR:HB3	1.99	0.43
1:A:654:GLU:CG	1:A:655:PRO:HD2	2.48	0.43
1:A:856:ILE:O	1:A:859:LEU:HB3	2.18	0.43
1:B:237:PHE:HE1	1:B:314:GLN:HG3	1.83	0.43
1:B:663:ILE:HG13	1:B:669:PRO:HG3	1.99	0.43
1:B:1022:LYS:HG3	1:B:1023:PRO:HD2	2.00	0.43
1:A:663:ILE:HG13	1:A:669:PRO:HG3	2.00	0.43
1:A:885:ARG:HB3	1:B:884:TYR:CE2	2.53	0.43
1:A:499:VAL:CG1	1:A:500:GLN:N	2.82	0.43
1:A:828:THR:HA	1:A:873:GLU:OE2	2.19	0.43
1:B:856:ILE:O	1:B:859:LEU:HB3	2.18	0.43
1:A:293:ASP:N	1:A:294:PRO:CD	2.82	0.43
1:A:422:MET:HG2	1:A:464:PHE:HE2	1.82	0.43
1:A:742:ILE:HG13	1:A:743:ALA:N	2.34	0.43
1:B:585:ASN:HA	1:B:955:LEU:HD11	2.00	0.43
1:A:339:LEU:N	1:A:340:PRO:HD2	2.34	0.43
1:B:459:ARG:HG2	1:B:459:ARG:NH1	2.32	0.43
1:B:499:VAL:CG1	1:B:500:GLN:N	2.82	0.43
1:B:742:ILE:HG13	1:B:743:ALA:N	2.34	0.43
1:A:1022:LYS:HG3	1:A:1023:PRO:HD2	2.01	0.43
1:A:605:THR:HG23	1:A:955:LEU:HD22	2.00	0.42
1:B:583:GLU:CG	1:B:951:HIS:HD2	2.31	0.42
1:B:824:MET:CE	1:B:930:PHE:CD2	3.02	0.42
1:B:872:LEU:HD23	1:B:872:LEU:H	1.81	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:269:MET:HE2	1:A:729:TRP:HD1	1.85	0.42
1:B:293:ASP:N	1:B:294:PRO:CD	2.82	0.42
1:B:999:ASN:C	1:B:999:ASN:ND2	2.72	0.42
1:B:201:TYR:CD2	1:B:364:SER:HA	2.55	0.42
1:B:422:MET:HG2	1:B:464:PHE:CE2	2.54	0.42
1:B:630:THR:CG2	1:B:805:VAL:HG21	2.36	0.42
1:A:199:GLN:O	1:A:363:LYS:NZ	2.47	0.42
1:A:634:PHE:HE2	1:A:958:PHE:CE1	2.38	0.42
1:B:912:TYR:CZ	1:B:929:PHE:HE2	2.38	0.42
1:A:702:TYR:O	1:A:706:ARG:HG3	2.19	0.42
1:B:339:LEU:N	1:B:340:PRO:HD2	2.34	0.42
1:A:325:GLN:HG3	1:A:332:LYS:HD2	2.02	0.42
1:A:459:ARG:HG2	1:A:459:ARG:NH1	2.32	0.42
1:B:582:SER:H	1:B:585:ASN:ND2	2.16	0.42
1:B:702:TYR:O	1:B:706:ARG:HG3	2.19	0.42
1:B:446:MET:HE2	1:B:463:LEU:HD12	2.01	0.42
1:B:560:GLN:C	1:B:562:GLU:N	2.74	0.42
1:B:828:THR:HA	1:B:873:GLU:OE2	2.19	0.42
1:A:958:PHE:CD2	1:A:962:ARG:HG3	2.55	0.42
1:B:208:PHE:CE1	1:B:353:TYR:HE1	2.37	0.42
1:B:796:TYR:CZ	1:B:971:ILE:HG23	2.52	0.42
1:A:217:ARG:NH1	1:A:554:LEU:HD23	2.35	0.41
1:A:226:PHE:HZ	1:A:550:LEU:CD1	2.31	0.41
1:A:422:MET:HG2	1:A:464:PHE:CE2	2.54	0.41
1:B:325:GLN:HG3	1:B:332:LYS:HD2	2.02	0.41
1:B:338:VAL:CG2	1:B:543:SER:HB2	2.50	0.41
1:B:564:GLU:HB2	1:B:676:ARG:HH12	1.82	0.41
1:B:901:LEU:HD11	1:B:905:HIS:CE1	2.55	0.41
1:A:208:PHE:CE1	1:A:353:TYR:HE1	2.37	0.41
1:A:295:TYR:CD1	1:A:350:CYS:HB2	2.55	0.41
1:A:630:THR:CG2	1:A:965:ALA:CB	2.97	0.41
1:A:402:GLU:HA	1:A:402:GLU:OE1	2.19	0.41
1:B:583:GLU:HG3	1:B:951:HIS:HD2	1.86	0.41
1:B:558:MET:C	1:B:560:GLN:N	2.74	0.41
1:A:459:ARG:NE	1:A:492:GLU:OE1	2.54	0.41
1:A:567:MET:O	1:A:568:ARG:CB	2.69	0.41
1:B:668:GLN:HA	1:B:669:PRO:HD3	1.82	0.41
1:A:304:ARG:HA	1:A:305:PRO:HD3	1.98	0.41
1:A:371:GLU:HA	1:A:371:GLU:OE1	2.21	0.41
1:B:269:MET:O	1:B:269:MET:HG2	2.21	0.41
1:B:295:TYR:CD1	1:B:350:CYS:HB2	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:893:ILE:O	1:B:898:LYS:HE3	2.20	0.41
1:A:570:PRO:HD2	1:A:677:PHE:CZ	2.56	0.41
1:A:922:ILE:C	1:A:922:ILE:HD12	2.41	0.41
1:B:496:MET:C	1:B:497:ARG:HG3	2.41	0.41
1:B:926:CYS:C	1:B:928:PRO:HD3	2.40	0.41
1:A:474:ASN:HB2	1:A:479:ARG:NH2	2.36	0.41
1:A:586:ILE:HA	1:A:604:GLY:HA2	2.03	0.41
1:A:731:GLU:HG2	1:A:735:LYS:HE3	2.02	0.40
1:A:893:ILE:O	1:A:898:LYS:HE3	2.20	0.40
1:B:953:LYS:HD3	1:B:953:LYS:HA	1.94	0.40
1:B:1043:SER:C	1:B:1045:PRO:HD3	2.41	0.40
1:A:552:ARG:O	1:A:553:MET:C	2.60	0.40
1:B:456:LYS:H	1:B:456:LYS:HG2	1.62	0.40
1:B:459:ARG:NE	1:B:492:GLU:OE1	2.54	0.40
1:A:217:ARG:HH21	1:A:551:GLU:HG2	1.85	0.40
1:A:457:HIS:CD2	1:A:472:LYS:NZ	2.90	0.40
1:A:479:ARG:HG2	1:A:479:ARG:NH1	2.35	0.40
1:A:821:LEU:HD11	1:A:934:LEU:HD21	2.02	0.40
1:A:927:VAL:O	1:A:928:PRO:C	2.59	0.40
1:B:221:LEU:HD12	1:B:554:LEU:HB2	2.03	0.40
1:B:371:GLU:HA	1:B:371:GLU:OE1	2.21	0.40
1:B:961:ARG:H	1:B:961:ARG:HD2	1.86	0.40
1:A:901:LEU:O	1:A:905:HIS:ND1	2.51	0.40
1:B:604:GLY:CA	1:B:955:LEU:HD12	2.37	0.40
1:A:212:ILE:CG2	1:A:260:LEU:HG	2.51	0.40
1:B:419:ILE:CG2	1:B:422:MET:HB2	2.52	0.40

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:478:PRO:CB	1:B:753:THR:OG1[4_555]	1.85	0.35
1:A:392:SER:CB	1:A:507:THR:CG2[4_556]	2.00	0.20

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	816/852 (96%)	774 (95%)	36 (4%)	6 (1%)	22	61
1	B	816/852 (96%)	775 (95%)	34 (4%)	7 (1%)	17	56
All	All	1632/1704 (96%)	1549 (95%)	70 (4%)	13 (1%)	19	58

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	567	MET
1	A	1045	PRO
1	B	1045	PRO
1	A	497	ARG
1	A	508	ASN
1	A	568	ARG
1	B	497	ARG
1	B	508	ASN
1	A	440	CYS
1	B	440	CYS
1	B	565	GLU
1	B	959	SER
1	B	924	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	754/777 (97%)	723 (96%)	31 (4%)	30	63
1	B	754/777 (97%)	729 (97%)	25 (3%)	38	68
All	All	1508/1554 (97%)	1452 (96%)	56 (4%)	34	65

All (56) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	214	GLN
1	A	255	LEU
1	A	258	LYS
1	A	259	LEU
1	A	260	LEU
1	A	310	ARG
1	A	356	LEU
1	A	428	ASN
1	A	458	GLU
1	A	463	LEU
1	A	479	ARG
1	A	500	GLN
1	A	510	TYR
1	A	544	LEU
1	A	567	MET
1	A	570	PRO
1	A	580	PRO
1	A	585	ASN
1	A	587	ILE
1	A	609	LEU
1	A	640	LEU
1	A	647	ARG
1	A	772	GLU
1	A	804	LEU
1	A	830	ASN
1	A	928	PRO
1	A	930	PHE
1	A	955	LEU
1	A	966	GLU
1	A	973	GLN
1	A	999	ASN
1	B	214	GLN
1	B	255	LEU
1	B	258	LYS
1	B	259	LEU
1	B	260	LEU
1	B	356	LEU
1	B	428	ASN
1	B	458	GLU
1	B	463	LEU
1	B	479	ARG
1	B	510	TYR
1	B	544	LEU

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Mol	Chain	Res	Type
1	B	585	ASN
1	B	609	LEU
1	B	640	LEU
1	B	647	ARG
1	B	772	GLU
1	B	804	LEU
1	B	830	ASN
1	B	872	LEU
1	B	930	PHE
1	B	945	PRO
1	B	966	GLU
1	B	999	ASN
1	B	1045	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	244	ASN
1	A	276	HIS
1	A	359	GLN
1	A	375	GLN
1	A	428	ASN
1	A	457	HIS
1	A	477	GLN
1	A	500	GLN
1	A	502	ASN
1	A	508	ASN
1	A	545	GLN
1	A	585	ASN
1	A	695	HIS
1	A	699	HIS
1	A	712	GLN
1	A	755	GLN
1	A	860	GLN
1	A	879	ASN
1	A	905	HIS
1	A	999	ASN
1	B	240	ASN
1	B	244	ASN
1	B	276	HIS
1	B	359	GLN
1	B	428	ASN

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Mol	Chain	Res	Type
1	B	457	HIS
1	B	477	GLN
1	B	585	ASN
1	B	695	HIS
1	B	712	GLN
1	B	860	GLN
1	B	905	HIS
1	B	951	HIS
1	B	999	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

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	824/852 (96%)	0.12	43 (5%)	27	18	35, 135, 288, 306	0
1	B	824/852 (96%)	0.19	54 (6%)	18	11	29, 143, 289, 306	0
All	All	1648/1704 (96%)	0.15	97 (5%)	22	13	29, 139, 289, 306	0

All (97) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	750	HIS	15.1
1	A	751	ASN	9.7
1	A	1045	PRO	9.2
1	B	751	ASN	8.6
1	A	752	ILE	8.1
1	B	1046	ARG	8.1
1	A	481	PRO	6.4
1	A	658	ALA	6.4
1	B	948	LEU	5.5
1	A	1044	ASN	5.4
1	A	662	ALA	4.9
1	A	1035	LEU	4.8
1	B	484	SER	4.5
1	B	949	LYS	4.4
1	A	666	GLY	4.3
1	B	658	ALA	4.3
1	A	657	GLU	4.3
1	A	928	PRO	4.3
1	A	667	ASP	4.2
1	A	656	THR	4.1
1	B	950	ARG	4.1
1	A	1034	PRO	4.1
1	A	950	ARG	4.1
1	A	754	PHE	4.1

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Mol	Chain	Res	Type	RSRZ
1	B	656	THR	4.0
1	B	520	ASP	3.7
1	A	479	ARG	3.7
1	A	659	ASP	3.7
1	B	753	THR	3.6
1	A	480	LEU	3.5
1	B	1045	PRO	3.5
1	B	486	ALA	3.5
1	B	569	LEU	3.4
1	A	809	TRP	3.4
1	B	750	HIS	3.4
1	B	489	ARG	3.4
1	B	722	ARG	3.4
1	B	588	PHE	3.3
1	B	655	PRO	3.3
1	A	948	LEU	3.3
1	B	570	PRO	3.2
1	B	514	PHE	3.2
1	A	753	THR	3.2
1	A	653	PRO	3.1
1	A	665	ASN	3.1
1	B	526	PHE	3.1
1	A	876	SER	3.1
1	B	599	PRO	3.0
1	A	523	SER	3.0
1	B	653	PRO	3.0
1	A	500	GLN	3.0
1	B	659	ASP	3.0
1	B	805	VAL	2.9
1	B	479	ARG	2.9
1	A	668	GLN	2.9
1	B	587	ILE	2.8
1	B	810	THR	2.8
1	B	619	ALA	2.7
1	A	755	GLN	2.7
1	B	564	GLU	2.7
1	A	957	ASN	2.6
1	B	657	GLU	2.6
1	B	568	ARG	2.6
1	B	668	GLN	2.6
1	A	619	ALA	2.6
1	B	955	LEU	2.5

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Mol	Chain	Res	Type	RSRZ
1	A	655	PRO	2.5
1	B	667	ASP	2.5
1	B	752	ILE	2.5
1	B	662	ALA	2.4
1	B	482	GLY	2.4
1	B	483	ALA	2.4
1	A	661	ILE	2.4
1	B	590	GLU	2.4
1	A	204	LEU	2.4
1	A	320	ALA	2.3
1	A	681	TYR	2.3
1	B	782	ILE	2.3
1	A	654	GLU	2.3
1	B	670	LEU	2.2
1	B	430	ASP	2.2
1	B	650	ILE	2.2
1	B	584	GLU	2.2
1	A	199	GLN	2.2
1	B	809	TRP	2.2
1	B	618	TYR	2.2
1	B	652	GLU	2.2
1	A	497	ARG	2.2
1	B	492	GLU	2.2
1	B	429	ILE	2.2
1	A	522	ASN	2.1
1	A	810	THR	2.1
1	B	981	LEU	2.1
1	B	490	LEU	2.0
1	A	515	GLU	2.0
1	B	470	CYS	2.0
1	B	669	PRO	2.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.