WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Feb 15, 2024 – 06:10 AM EST

PDB ID	:	3NE5
Title	:	Crystal structure of the CusBA heavy-metal efflux complex from Escherichia coli
Authors	:	Su, C.-C.
Deposited on	:	2010-06-08
Resolution	:	2.90 Å(reported)

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

|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
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)	:	2.36

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.90 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		0.274
Clashscore		22
Ramachandran outliers		0.2%
Sidechain outliers		10.8%
RSRZ outliers		5.2%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
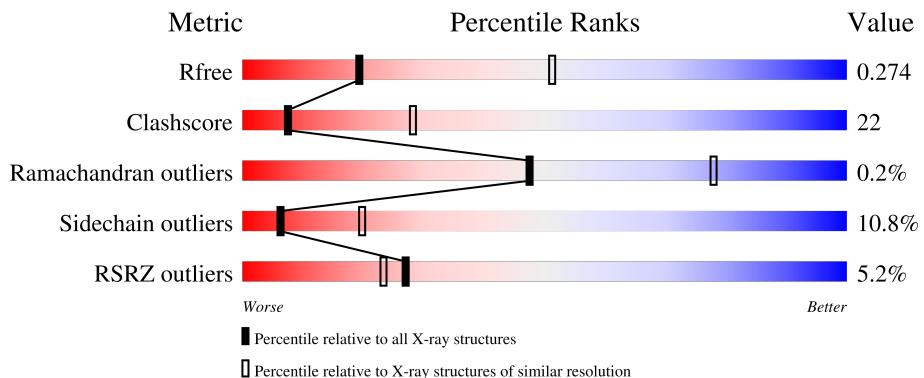
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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	B	413	% 50% 24% • 22%
1	C	413	53% 23% • 22%
2	A	1054	8% 53% 38% 6% •

2　Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 12873 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 Cation efflux system protein cusB.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	322	Total 2458	C 1555	N 428	O 469	S 6	0	0	0
1	C	324	Total 2473	C 1563	N 430	O 474	S 6	0	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	408	HIS	-	expression tag	UNP P77239
B	409	HIS	-	expression tag	UNP P77239
B	410	HIS	-	expression tag	UNP P77239
B	411	HIS	-	expression tag	UNP P77239
B	412	HIS	-	expression tag	UNP P77239
B	413	HIS	-	expression tag	UNP P77239
C	408	HIS	-	expression tag	UNP P77239
C	409	HIS	-	expression tag	UNP P77239
C	410	HIS	-	expression tag	UNP P77239
C	411	HIS	-	expression tag	UNP P77239
C	412	HIS	-	expression tag	UNP P77239
C	413	HIS	-	expression tag	UNP P77239

- Molecule 2 is a protein called Cation efflux system protein cusA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	A	1028	Total 7923	C 5124	N 1330	O 1433	S 36	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-6	HIS	-	expression tag	UNP P38054
A	-5	HIS	-	expression tag	UNP P38054

Continued on next page...

W O R L D W I D E
wwPDB
PROTEIN DATA BANK

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	-4	HIS	-	expression tag	UNP P38054
A	-3	HIS	-	expression tag	UNP P38054
A	-2	HIS	-	expression tag	UNP P38054
A	-1	HIS	-	expression tag	UNP P38054
A	0	MET	-	expression tag	UNP P38054
A	1	GLY	-	expression tag	UNP P38054

- Molecule 3 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	5	Total 5	O 5	0	0
3	C	10	Total 10	O 10	0	0
3	A	4	Total 4	O 4	0	0

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: Cation efflux system protein cusB
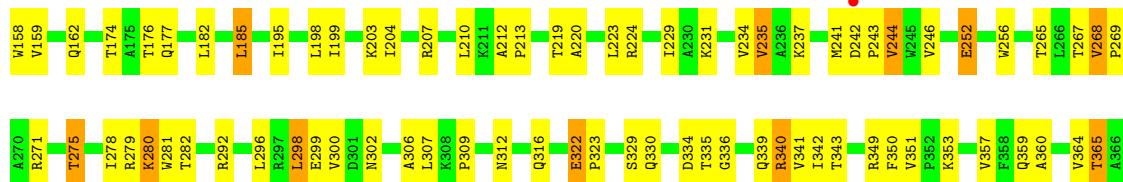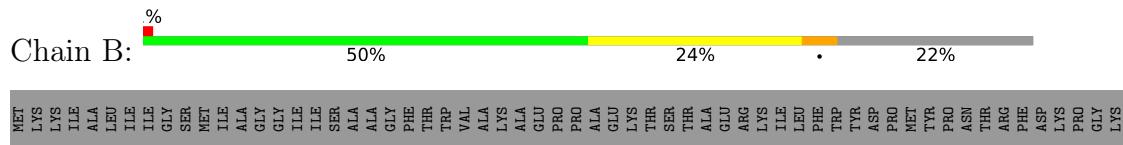
• Molecule 1: Cation efflux system protein cusB

• Molecule 2: Cation efflux system protein cusA
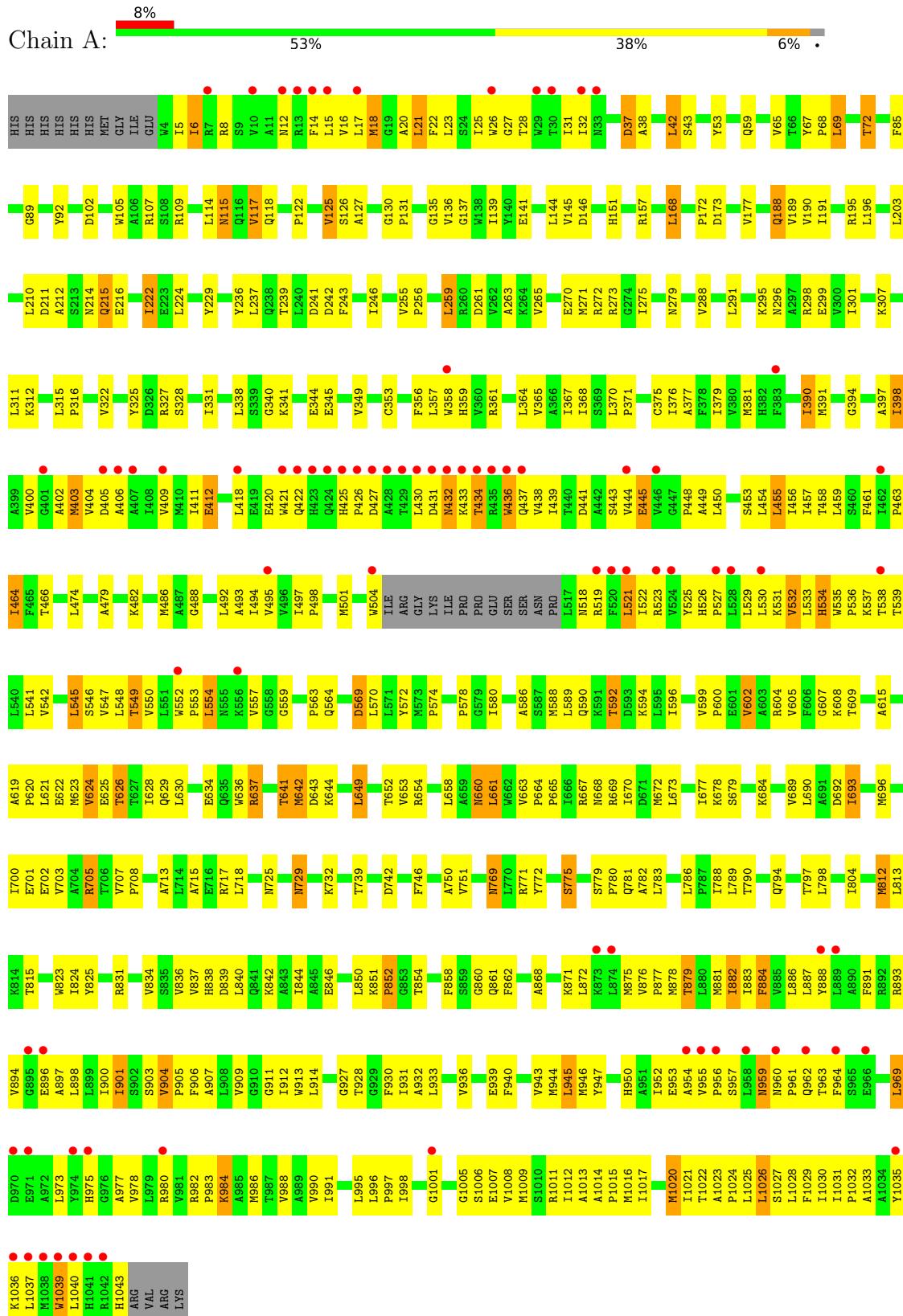
4 Data and refinement statistics (i)

Property	Value	Source
Space group	H 3 2	Depositor
Cell constants a, b, c, α, β, γ	160.27Å 160.27Å 682.84Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	39.49 – 2.90 39.50 – 2.90	Depositor EDS
% Data completeness (in resolution range)	78.9 (39.49-2.90) 88.6 (39.50-2.90)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.90 (at 2.90Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.229 , 0.267 0.238 , 0.274	Depositor DCC
R_{free} test set	3343 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	56.9	Xtriage
Anisotropy	0.357	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 48.8	EDS
L-test for twinning[2]	$< |L| > = 0.51, < L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	12873	wwPDB-VP
Average B, all atoms (Å^2)	69.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.34% of the height of the origin peak. No significant pseudotranslation is detected.*

---

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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	B	0.30	0/2498	0.49	1/3401 (0.0%)
1	C	0.23	0/2513	0.45	0/3421
2	A	0.24	0/8089	0.43	1/11015 (0.0%)
All	All	0.25	0/13100	0.44	2/17837 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	860	GLY	N-CA-C	-6.30	97.36	113.10
1	B	388	GLU	N-CA-C	5.96	127.08	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	2458	0	2522	99	0
1	C	2473	0	2533	75	0
2	A	7923	0	8166	427	0
3	A	4	0	0	0	0
3	B	5	0	0	0	0
3	C	10	0	0	0	0
All	All	12873	0	13221	577	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 22.

All (577) 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)
2:A:535:TRP:O	2:A:538:THR:HG22	1.53	1.09
1:B:280:LYS:HE3	1:B:281:TRP:H	1.17	1.06
2:A:459:LEU:HB3	2:A:882:ILE:HD11	1.38	1.05
2:A:588:MET:HE1	2:A:658:LEU:HD13	1.49	0.95
2:A:409:VAL:HB	2:A:450:LEU:HD11	1.49	0.94
2:A:964:PHE:CZ	2:A:1043:HIS:HB3	2.03	0.93
2:A:425:HIS:HB3	2:A:426:PRO:HD2	1.51	0.92
2:A:141:GLU:HG3	2:A:288:VAL:HG12	1.53	0.91
2:A:118:GLN:HE22	2:A:127:ALA:H	1.18	0.88
1:B:242:ASP:HB3	1:B:243:PRO:HD3	1.56	0.87
2:A:696:MET:HG3	2:A:854:THR:HG21	1.57	0.86
2:A:534:HIS:CD2	2:A:534:HIS:O	2.30	0.85
1:B:82:VAL:HG11	2:A:652:THR:HG23	1.56	0.84
1:B:280:LYS:HE3	1:B:281:TRP:N	1.92	0.83
2:A:493:ALA:HA	2:A:497:ILE:HB	1.58	0.83
2:A:660:ASN:H	2:A:660:ASN:ND2	1.75	0.83
2:A:534:HIS:O	2:A:535:TRP:C	2.15	0.81
2:A:534:HIS:O	2:A:534:HIS:HD2	1.62	0.81
2:A:534:HIS:CD2	2:A:534:HIS:C	2.53	0.81
1:C:254:ILE:HG22	1:C:257:LEU:HB2	1.64	0.79
2:A:364:LEU:O	2:A:368:ILE:HG12	1.82	0.79
1:B:174:THR:HB	1:B:177:GLN:HG3	1.64	0.79
1:C:271:ARG:HB3	1:C:274:LYS:HG3	1.65	0.79
2:A:574:PRO:HB2	2:A:658:LEU:HD11	1.63	0.78
2:A:68:PRO:O	2:A:72:THR:HG22	1.84	0.78
1:B:390:ASN:HD22	1:B:393:GLY:H	1.29	0.77
2:A:131:PRO:HD2	2:A:615:ALA:HB3	1.65	0.76
2:A:980:ARG:O	2:A:984:LYS:HB2	1.87	0.75
2:A:533:LEU:HA	2:A:536:PRO:HG3	1.68	0.75
2:A:964:PHE:HZ	2:A:1043:HIS:HB3	1.50	0.75
1:C:106:PHE:CE2	1:C:359:GLN:HG2	2.22	0.75
2:A:361:ARG:HB3	2:A:504:TRP:HB3	1.69	0.75
1:C:359:GLN:HG3	1:C:360:ALA:N	2.02	0.74
2:A:359:HIS:CE1	2:A:361:ARG:HB2	2.23	0.74
2:A:572:TYR:HB3	2:A:626:THR:HG23	1.70	0.74
1:C:302:ASN:HD21	1:C:307:LEU:H	1.36	0.74
1:C:242:ASP:HB3	1:C:243:PRO:HD3	1.69	0.73

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:38:ALA:O	2:A:390:ILE:HG22	1.88	0.73
2:A:345:GLU:HG2	2:A:997:PRO:HG2	1.71	0.72
2:A:964:PHE:CE2	2:A:1043:HIS:HB3	2.24	0.72
2:A:982:ARG:HB3	2:A:983:PRO:HD3	1.70	0.72
2:A:457:ILE:HD11	2:A:936:VAL:HG22	1.70	0.72
2:A:214:ASN:H	2:A:215:GLN:NE2	1.87	0.72
2:A:878:MET:O	2:A:882:ILE:HG22	1.90	0.72
2:A:239:THR:HG22	2:A:241:ASP:H	1.54	0.71
2:A:43:SER:HB2	2:A:673:LEU:HD23	1.73	0.71
1:B:252:GLU:HG3	1:C:270:ALA:HB2	1.73	0.71
2:A:349:VAL:HG11	2:A:404:VAL:HG11	1.73	0.70
2:A:535:TRP:N	2:A:536:PRO:HD3	2.06	0.70
1:B:390:ASN:HD21	1:B:392:SER:HB2	1.57	0.70
1:B:219:THR:OG1	1:B:237:LYS:HD3	1.91	0.69
2:A:960:ASN:HB2	2:A:961:PRO:HD3	1.74	0.69
1:B:399:ARG:O	1:B:400:SER:HB2	1.93	0.69
2:A:535:TRP:N	2:A:536:PRO:CD	2.54	0.69
2:A:977:ALA:O	2:A:980:ARG:HG2	1.93	0.69
2:A:85:PHE:HB2	2:A:92:TYR:HB2	1.75	0.69
2:A:518:ASN:HA	2:A:521:LEU:HD21	1.74	0.69
2:A:962:GLN:HG3	2:A:963:THR:N	2.07	0.69
1:C:254:ILE:HD11	2:A:797:THR:HG21	1.75	0.69
1:C:359:GLN:HG3	1:C:360:ALA:H	1.57	0.68
2:A:641:THR:HG23	2:A:644:LYS:HD2	1.76	0.68
2:A:534:HIS:O	2:A:535:TRP:O	2.10	0.68
2:A:529:LEU:O	2:A:532:VAL:HG12	1.93	0.68
1:C:167:LEU:C	1:C:167:LEU:HD12	2.14	0.68
2:A:570:LEU:HA	2:A:665:PRO:HD3	1.75	0.68
2:A:137:GLY:O	2:A:139:ILE:HG12	1.94	0.68
2:A:359:HIS:HE1	2:A:361:ARG:HE	1.42	0.68
2:A:454:LEU:O	2:A:458:THR:HG23	1.93	0.68
2:A:1023:ALA:HB3	2:A:1024:PRO:HD3	1.75	0.67
1:C:165:TYR:HE2	1:C:178:THR:HG23	1.59	0.67
1:C:106:PHE:HE2	1:C:359:GLN:HG2	1.59	0.67
2:A:574:PRO:HG2	2:A:624:VAL:HG13	1.77	0.67
1:B:123:ILE:HD13	1:B:237:LYS:HG3	1.76	0.67
1:C:353:LYS:HE2	1:C:375:GLU:OE2	1.95	0.67
2:A:684:LYS:HG2	2:A:823:TRP:CD1	2.30	0.66
2:A:453:SER:OG	2:A:939:GLU:HG2	1.95	0.66
2:A:546:SER:O	2:A:549:THR:HG22	1.96	0.66
2:A:534:HIS:HD2	2:A:535:TRP:HB3	1.60	0.66

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:604:ARG:CG	2:A:604:ARG:HH21	2.09	0.66
2:A:955:VAL:HG12	2:A:956:PRO:HD3	1.75	0.66
1:B:341:VAL:HG21	1:B:371:LEU:HD11	1.78	0.65
2:A:522:ILE:HG23	2:A:526:HIS:CD2	2.30	0.65
2:A:991:ILE:O	2:A:995:LEU:HB2	1.95	0.65
2:A:370:LEU:HB2	2:A:371:PRO:HD3	1.77	0.65
2:A:537:LYS:HD3	2:A:1037:LEU:HD11	1.77	0.65
2:A:526:HIS:HA	2:A:529:LEU:HB3	1.79	0.65
1:B:84:ILE:HG12	1:B:85:ASP:N	2.11	0.65
1:C:165:TYR:HB2	1:C:181:ILE:HG21	1.78	0.65
2:A:361:ARG:O	2:A:365:VAL:HG23	1.96	0.65
1:B:125:GLN:HE21	1:C:228:ASN:H	1.44	0.65
2:A:541:LEU:O	2:A:545:LEU:HD22	1.96	0.65
2:A:660:ASN:H	2:A:660:ASN:HD22	1.42	0.65
2:A:547:VAL:O	2:A:550:VAL:HG12	1.95	0.65
2:A:940:PHE:CE2	2:A:944:MET:HG3	2.32	0.65
2:A:572:TYR:HE1	2:A:660:ASN:HB3	1.62	0.65
2:A:136:VAL:HG22	2:A:669:ARG:HB3	1.78	0.65
2:A:620:PRO:HB2	2:A:622:GLU:HG2	1.78	0.64
1:C:384:LEU:HD21	2:A:588:MET:HE3	1.79	0.64
1:C:94:VAL:HG21	1:C:385:ILE:HD11	1.80	0.64
2:A:518:ASN:HD22	2:A:518:ASN:H	1.46	0.64
2:A:642:MET:HA	2:A:642:MET:HE3	1.80	0.64
2:A:26:TRP:HD1	2:A:379:ILE:HD13	1.63	0.63
1:B:336:GLY:H	2:A:775:SER:HG	1.45	0.63
2:A:377:ALA:O	2:A:381:MET:HG3	1.98	0.63
2:A:607:GLY:HA2	2:A:626:THR:HB	1.79	0.63
2:A:804:ILE:HG13	2:A:804:ILE:O	1.98	0.63
2:A:904:VAL:HG22	2:A:905:PRO:HD3	1.81	0.63
1:B:385:ILE:HG13	2:A:272:ARG:HB2	1.80	0.63
2:A:425:HIS:HB3	2:A:426:PRO:CD	2.25	0.63
1:B:174:THR:H	1:B:177:GLN:HE21	1.46	0.63
1:C:163:SER:HB3	1:C:204:ILE:HD11	1.79	0.62
1:C:96:THR:OG1	1:C:376:LYS:HE3	1.98	0.62
2:A:940:PHE:HE1	2:A:984:LYS:HZ1	1.47	0.62
2:A:370:LEU:HD22	2:A:400:VAL:HG23	1.81	0.62
2:A:42:LEU:HD12	2:A:42:LEU:H	1.63	0.62
2:A:436:TRP:CD1	2:A:436:TRP:C	2.73	0.62
2:A:891:PHE:CE1	2:A:945:LEU:HD12	2.35	0.62
1:B:117:ASN:HD22	1:B:119:TYR:H	1.46	0.62
2:A:422:GLN:HG2	2:A:427:ASP:OD1	2.00	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:534:HIS:CD2	2:A:535:TRP:HB3	2.36	0.61
2:A:851:LYS:HB3	2:A:852:PRO:HD2	1.81	0.61
2:A:940:PHE:HE1	2:A:984:LYS:NZ	1.97	0.61
1:B:384:LEU:HD23	1:B:394:ALA:HB3	1.83	0.61
2:A:43:SER:HB2	2:A:673:LEU:CD2	2.31	0.61
2:A:707:VAL:HG21	2:A:840:LEU:HD23	1.82	0.61
2:A:356:PHE:HD2	2:A:986:MET:HB3	1.65	0.60
2:A:991:ILE:HG21	2:A:1020:MET:SD	2.40	0.60
1:B:387:SER:HB3	2:A:271:MET:HG3	1.83	0.60
2:A:534:HIS:HD2	2:A:534:HIS:C	2.01	0.60
2:A:580:ILE:HG22	2:A:622:GLU:HB2	1.84	0.60
2:A:780:PRO:O	2:A:804:ILE:HD11	2.01	0.60
1:B:336:GLY:N	2:A:775:SER:OG	2.34	0.60
1:B:117:ASN:ND2	1:B:119:TYR:H	1.99	0.60
2:A:394:GLY:O	2:A:398:ILE:HG22	2.02	0.60
2:A:897:ALA:O	2:A:901:ILE:HG22	2.02	0.60
1:B:223:LEU:HD12	1:B:235:VAL:HG12	1.84	0.59
2:A:72:THR:HG21	2:A:117:VAL:HG21	1.83	0.59
2:A:430:LEU:HB2	2:A:434:THR:HG21	1.84	0.59
1:B:342:ILE:HB	1:B:378:VAL:CG1	2.32	0.59
2:A:441:ASP:HA	2:A:444:VAL:HG23	1.83	0.59
2:A:122:PRO:HB2	2:A:125:VAL:HG13	1.83	0.59
1:B:387:SER:HA	2:A:771:ARG:HH12	1.66	0.59
2:A:449:ALA:O	2:A:453:SER:HB2	2.02	0.59
2:A:529:LEU:HD13	2:A:980:ARG:HH22	1.67	0.59
2:A:461:PHE:CZ	2:A:464:ILE:HD12	2.37	0.59
2:A:296:ASN:HB3	2:A:299:GLU:HB3	1.84	0.58
1:B:84:ILE:HD11	2:A:594:LYS:HD2	1.86	0.58
1:C:317:LEU:C	1:C:317:LEU:HD12	2.23	0.58
2:A:667:ARG:HH11	2:A:861:GLN:HE22	1.50	0.58
1:B:89:THR:H	2:A:590:GLN:HE22	1.51	0.58
1:B:302:ASN:HD21	1:B:307:LEU:H	1.52	0.58
2:A:411:ILE:HA	2:A:501:MET:HE3	1.85	0.58
1:B:340:ARG:HB3	1:B:353:LYS:O	2.04	0.58
1:B:343:THR:OG1	1:B:351:VAL:HG23	2.03	0.58
2:A:275:ILE:HB	2:A:609:THR:OG1	2.03	0.58
2:A:893:ARG:HB3	2:A:896:GLU:HB3	1.84	0.58
2:A:834:VAL:HG22	2:A:838:HIS:CD2	2.38	0.57
2:A:876:VAL:HB	2:A:877:PRO:HD3	1.86	0.57
1:B:123:ILE:HB	1:C:227:MET:CG	2.35	0.57
1:B:388:GLU:OE1	1:B:388:GLU:HA	2.05	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:219:THR:OG1	1:C:237:LYS:HD2	2.04	0.57
2:A:212:ALA:C	2:A:215:GLN:HE22	2.08	0.57
2:A:940:PHE:CE2	2:A:1027:SER:HB2	2.39	0.57
2:A:746:PHE:O	2:A:750:ALA:HB3	2.05	0.57
2:A:189:VAL:HG22	2:A:265:VAL:HG22	1.87	0.57
2:A:391:MET:HG2	2:A:474:LEU:O	2.05	0.57
1:B:117:ASN:HD22	1:B:117:ASN:C	2.08	0.56
1:B:125:GLN:NE2	1:C:228:ASN:H	2.03	0.56
1:B:387:SER:O	1:B:388:GLU:HB2	2.04	0.56
1:C:242:ASP:CB	1:C:243:PRO:HD3	2.35	0.56
2:A:572:TYR:CE1	2:A:660:ASN:HB3	2.40	0.56
2:A:559:GLY:H	2:A:834:VAL:HG12	1.70	0.56
2:A:661:LEU:HD22	2:A:663:VAL:HG13	1.87	0.56
2:A:677:ILE:HG22	2:A:679:SER:H	1.70	0.56
2:A:907:ALA:HB1	2:A:933:LEU:HD11	1.86	0.56
2:A:837:VAL:HG21	2:A:862:PHE:CE2	2.40	0.56
1:C:242:ASP:O	1:C:302:ASN:HB3	2.06	0.56
2:A:984:LYS:NZ	2:A:984:LYS:HB3	2.20	0.56
2:A:1007:GLU:O	2:A:1011:ARG:HD3	2.06	0.56
1:B:268:VAL:CG2	1:B:271:ARG:HB2	2.36	0.56
1:C:242:ASP:HB3	1:C:243:PRO:CD	2.34	0.56
2:A:553:PRO:HB2	2:A:912:ILE:CG2	2.36	0.56
1:B:244:VAL:HG12	1:B:300:VAL:HB	1.88	0.56
2:A:928:THR:HG21	2:A:1012:ILE:HD11	1.86	0.56
2:A:279:ASN:ND2	2:A:605:VAL:H	2.03	0.55
2:A:375:CYS:O	2:A:379:ILE:HG13	2.06	0.55
2:A:660:ASN:HD22	2:A:660:ASN:N	2.02	0.55
1:B:137:PRO:O	1:B:138:LEU:HD12	2.06	0.55
2:A:139:ILE:HG22	2:A:301:ILE:HD11	1.87	0.55
2:A:464:ILE:HD11	2:A:928:THR:HG23	1.89	0.55
2:A:578:PRO:HG2	2:A:717:ARG:HB2	1.89	0.55
2:A:950:HIS:HA	2:A:953:GLU:HB2	1.86	0.55
2:A:563:PRO:HG3	2:A:1011:ARG:HG2	1.89	0.55
1:B:390:ASN:ND2	1:B:392:SER:HB2	2.21	0.55
2:A:1036:LYS:O	2:A:1040:LEU:HG	2.06	0.55
1:B:387:SER:O	1:B:388:GLU:CB	2.50	0.55
1:B:121:TYR:OH	1:B:237:LYS:HE3	2.07	0.55
2:A:168:LEU:HB3	2:A:177:VAL:HG21	1.89	0.55
2:A:1026:LEU:O	2:A:1030:ILE:HG12	2.07	0.55
2:A:139:ILE:CG2	2:A:301:ILE:HD11	2.37	0.55
2:A:940:PHE:CE1	2:A:1024:PRO:HA	2.40	0.55

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:317:LEU:HD12	1:C:317:LEU:O	2.07	0.55
2:A:837:VAL:HG21	2:A:862:PHE:CD2	2.41	0.55
1:B:322:GLU:HG3	1:B:323:PRO:HD2	1.89	0.54
2:A:596:ILE:HG12	2:A:653:VAL:HG21	1.89	0.54
2:A:85:PHE:HD1	2:A:812:MET:HE1	1.72	0.54
2:A:421:TRP:CE3	2:A:438:VAL:HB	2.42	0.54
2:A:592:THR:O	2:A:596:ILE:HG13	2.06	0.54
2:A:1022:THR:O	2:A:1026:LEU:HB2	2.08	0.54
2:A:246:ILE:HB	2:A:259:LEU:HB2	1.90	0.54
1:B:242:ASP:HB3	1:B:243:PRO:CD	2.35	0.54
2:A:940:PHE:CE1	2:A:984:LYS:NZ	2.74	0.54
1:B:158:TRP:O	1:B:162:GLN:HG3	2.07	0.54
2:A:65:VAL:O	2:A:68:PRO:HG2	2.08	0.54
2:A:327:ARG:O	2:A:331:ILE:HG12	2.08	0.54
2:A:359:HIS:CE1	2:A:361:ARG:HE	2.25	0.54
2:A:341:LYS:O	2:A:345:GLU:HG3	2.08	0.54
2:A:356:PHE:HD2	2:A:986:MET:CB	2.21	0.54
2:A:623:MET:HE3	2:A:625:GLU:HG3	1.90	0.54
2:A:696:MET:CE	2:A:850:LEU:HA	2.38	0.54
2:A:536:PRO:HB3	2:A:1033:ALA:HB1	1.89	0.53
2:A:911:GLY:HA3	2:A:930:PHE:HE2	1.73	0.53
2:A:418:LEU:HD21	2:A:438:VAL:HG11	1.91	0.53
1:B:267:THR:HG22	1:B:275:THR:HB	1.89	0.53
1:B:339:GLN:HG3	1:B:357:VAL:HG13	1.91	0.53
1:C:281:TRP:CB	1:C:298:LEU:HD23	2.38	0.53
2:A:430:LEU:HB2	2:A:434:THR:CG2	2.38	0.53
2:A:689:VAL:HB	2:A:692:ASP:HB2	1.91	0.53
2:A:944:MET:SD	2:A:980:ARG:HD2	2.49	0.53
2:A:349:VAL:CG1	2:A:404:VAL:HG11	2.39	0.53
2:A:580:ILE:CG2	2:A:622:GLU:HB2	2.39	0.53
2:A:834:VAL:HG22	2:A:838:HIS:HD2	1.73	0.53
2:A:224:LEU:HB2	2:A:229:TYR:CE1	2.44	0.53
2:A:6:ILE:HD13	2:A:6:ILE:O	2.09	0.53
2:A:18:MET:HA	2:A:21:LEU:HB3	1.89	0.53
2:A:364:LEU:HD23	2:A:367:ILE:HD12	1.91	0.53
2:A:1001:GLY:HA2	2:A:1006:SER:HB2	1.91	0.53
1:C:327:ILE:HG13	1:C:328:PRO:O	2.08	0.53
2:A:482:LYS:O	2:A:486:MET:HG2	2.08	0.53
2:A:977:ALA:HB1	2:A:980:ARG:NH2	2.24	0.53
1:B:223:LEU:CD1	1:B:235:VAL:HG12	2.39	0.52
2:A:365:VAL:HG11	2:A:411:ILE:HD11	1.90	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:81:GLY:HA2	1:C:87:THR:HG21	1.91	0.52
2:A:307:LYS:O	2:A:311:LEU:HG	2.09	0.52
2:A:690:LEU:HD22	2:A:718:LEU:HD23	1.91	0.52
2:A:599:VAL:HG21	2:A:649:LEU:HD12	1.91	0.52
1:B:334:ASP:OD2	1:B:339:GLN:HB3	2.10	0.52
2:A:195:ARG:HD3	2:A:261:ASP:O	2.09	0.52
2:A:940:PHE:C	2:A:940:PHE:CD2	2.82	0.52
2:A:553:PRO:HB2	2:A:912:ILE:HG22	1.91	0.52
2:A:270:GLU:HG2	2:A:271:MET:N	2.25	0.52
2:A:630:LEU:HD13	2:A:642:MET:HE1	1.92	0.52
2:A:877:PRO:O	2:A:881:MET:HG2	2.10	0.52
2:A:345:GLU:O	2:A:349:VAL:HG23	2.10	0.52
2:A:973:LEU:O	2:A:977:ALA:HB2	2.10	0.52
2:A:168:LEU:CB	2:A:177:VAL:HG21	2.41	0.51
2:A:930:PHE:CE2	2:A:1015:PRO:HB3	2.45	0.51
1:B:280:LYS:HE3	1:B:280:LYS:HA	1.92	0.51
2:A:69:LEU:O	2:A:72:THR:HG23	2.09	0.51
2:A:552:TRP:HB3	2:A:553:PRO:HD3	1.91	0.51
2:A:933:LEU:HB2	2:A:1016:MET:HG2	1.92	0.51
2:A:842:LYS:O	2:A:846:GLU:HG2	2.11	0.51
2:A:239:THR:HG22	2:A:241:ASP:N	2.24	0.51
2:A:604:ARG:HH21	2:A:604:ARG:HG2	1.75	0.51
2:A:707:VAL:HG13	2:A:708:PRO:HD2	1.91	0.51
2:A:118:GLN:HE22	2:A:127:ALA:N	1.99	0.51
1:B:174:THR:H	1:B:177:GLN:NE2	2.08	0.51
2:A:216:GLU:HG3	2:A:236:TYR:CD1	2.45	0.51
1:C:183:GLU:O	1:C:187:LEU:HG	2.11	0.51
2:A:291:LEU:HD21	2:A:295:LYS:O	2.11	0.51
2:A:406:ALA:HB2	2:A:454:LEU:HD11	1.93	0.51
2:A:751:VAL:O	2:A:771:ARG:HD2	2.11	0.51
2:A:549:THR:HG23	2:A:913:TRP:HE1	1.77	0.50
2:A:668:ASN:O	2:A:672:MET:HG3	2.11	0.50
1:B:387:SER:O	1:B:388:GLU:OE1	2.30	0.50
2:A:532:VAL:HG21	2:A:1029:PHE:HB3	1.92	0.50
2:A:390:ILE:HD12	2:A:1005:GLY:HA3	1.94	0.50
1:B:390:ASN:HD21	1:B:392:SER:CB	2.23	0.50
2:A:522:ILE:HG23	2:A:526:HIS:NE2	2.27	0.50
2:A:884:PHE:O	2:A:888:TYR:HB2	2.12	0.50
2:A:906:PHE:CD1	2:A:1026:LEU:HD23	2.46	0.50
1:B:220:ALA:HB3	1:B:237:LYS:HB2	1.94	0.50
1:B:132:ILE:CD1	1:B:229:ILE:HB	2.42	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:106:PHE:CZ	1:C:359:GLN:HG2	2.46	0.50
2:A:986:MET:O	2:A:990:VAL:HG13	2.12	0.49
2:A:1014:ALA:HB3	2:A:1015:PRO:HD3	1.94	0.49
2:A:553:PRO:O	2:A:557:VAL:HG22	2.12	0.49
1:B:342:ILE:O	1:B:378:VAL:HG12	2.12	0.49
2:A:107:ARG:NH1	2:A:130:GLY:O	2.46	0.49
2:A:411:ILE:HG12	2:A:501:MET:HE3	1.93	0.49
2:A:420:GLU:HG3	2:A:421:TRP:N	2.27	0.49
2:A:529:LEU:HD22	2:A:980:ARG:NH2	2.27	0.49
1:B:242:ASP:O	1:B:302:ASN:HB3	2.12	0.49
2:A:574:PRO:HG2	2:A:624:VAL:CG1	2.43	0.49
1:C:341:VAL:HG21	1:C:371:LEU:HD11	1.93	0.49
2:A:525:TYR:HE2	2:A:1029:PHE:CZ	2.30	0.49
2:A:696:MET:HE1	2:A:850:LEU:HA	1.95	0.49
1:B:336:GLY:CA	2:A:775:SER:OG	2.61	0.49
2:A:678:LYS:HE2	2:A:825:TYR:CD2	2.48	0.49
2:A:954:ALA:HB3	2:A:956:PRO:HD2	1.94	0.49
2:A:959:ASN:N	2:A:959:ASN:OD1	2.44	0.49
2:A:969:LEU:HD12	2:A:969:LEU:C	2.33	0.49
1:B:385:ILE:CG1	2:A:272:ARG:H	2.25	0.49
2:A:456:ILE:HA	2:A:886:LEU:HD13	1.94	0.49
2:A:16:VAL:HG11	2:A:495:VAL:O	2.14	0.48
2:A:118:GLN:NE2	2:A:126:SER:HA	2.27	0.48
2:A:959:ASN:HA	2:A:962:GLN:HG2	1.95	0.48
1:C:165:TYR:HB2	1:C:181:ILE:CG2	2.43	0.48
2:A:431:ASP:CG	2:A:432:ASN:H	2.17	0.48
2:A:536:PRO:O	2:A:539:THR:OG1	2.26	0.48
2:A:188:GLN:HA	2:A:769:ASN:ND2	2.28	0.48
2:A:461:PHE:CE2	2:A:932:ALA:HB2	2.49	0.48
1:B:280:LYS:HA	1:B:280:LYS:CE	2.43	0.48
2:A:525:TYR:HE1	2:A:980:ARG:HE	1.60	0.48
2:A:642:MET:HA	2:A:642:MET:CE	2.44	0.48
1:C:345:ASP:OD1	1:C:346:ALA:N	2.43	0.48
2:A:102:ASP:HB3	2:A:105:TRP:HB3	1.96	0.48
2:A:466:THR:O	2:A:871:LYS:HE2	2.14	0.48
1:B:360:ALA:HA	1:B:365:THR:HA	1.95	0.48
2:A:604:ARG:CG	2:A:604:ARG:NH2	2.70	0.48
1:B:116:TYR:CE2	1:B:309:PRO:HG2	2.49	0.48
1:B:123:ILE:HB	1:C:227:MET:HG2	1.95	0.48
1:B:174:THR:HG22	1:B:176:THR:H	1.78	0.48
2:A:888:TYR:CE2	2:A:894:VAL:HG22	2.49	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:165:TYR:CE2	1:C:178:THR:HG23	2.44	0.48
1:C:223:LEU:C	1:C:224:ARG:HD2	2.33	0.48
2:A:497:ILE:O	2:A:501:MET:HG2	2.13	0.48
1:C:166:LEU:O	1:C:170:GLU:HG2	2.14	0.47
2:A:26:TRP:CD1	2:A:379:ILE:HD13	2.46	0.47
2:A:172:PRO:O	2:A:173:ASP:HB2	2.14	0.47
2:A:459:LEU:C	2:A:461:PHE:H	2.16	0.47
2:A:769:ASN:ND2	2:A:769:ASN:C	2.68	0.47
2:A:904:VAL:N	2:A:905:PRO:CD	2.77	0.47
1:C:196:ARG:O	1:C:199:ILE:HG12	2.14	0.47
1:C:279:ARG:NH1	1:C:279:ARG:HB2	2.29	0.47
2:A:22:PHE:HA	2:A:25:ILE:HG22	1.95	0.47
2:A:868:ALA:O	2:A:872:LEU:HG	2.15	0.47
2:A:984:LYS:CA	2:A:984:LYS:HE2	2.44	0.47
2:A:433:LYS:O	2:A:436:TRP:HB3	2.14	0.47
1:B:269:PRO:HD2	1:B:312:ASN:O	2.13	0.47
2:A:6:ILE:HG13	2:A:443:SER:HB3	1.96	0.47
2:A:461:PHE:HE1	2:A:479:ALA:HA	1.79	0.47
2:A:957:SER:O	2:A:961:PRO:HD2	2.14	0.47
2:A:1009:MET:O	2:A:1012:ILE:HG22	2.14	0.47
2:A:940:PHE:O	2:A:943:VAL:HG22	2.14	0.47
1:B:223:LEU:C	1:B:224:ARG:HD2	2.35	0.47
1:B:351:VAL:HG23	1:B:351:VAL:O	2.14	0.47
1:B:384:LEU:HD12	1:B:384:LEU:N	2.29	0.47
2:A:5:ILE:HB	2:A:494:ILE:HD11	1.96	0.47
2:A:534:HIS:C	2:A:536:PRO:HD3	2.34	0.47
2:A:689:VAL:O	2:A:693:ILE:HG23	2.15	0.47
2:A:779:SER:H	2:A:782:ALA:HB3	1.79	0.47
2:A:940:PHE:CZ	2:A:1024:PRO:HA	2.50	0.47
1:B:265:THR:HB	1:B:316:GLN:HB3	1.96	0.47
1:C:151:LEU:C	1:C:151:LEU:HD12	2.35	0.47
1:C:281:TRP:HB2	1:C:298:LEU:HD23	1.97	0.47
2:A:779:SER:HB2	2:A:780:PRO:HD2	1.97	0.47
2:A:1031:ILE:HB	2:A:1032:PRO:HD3	1.96	0.47
1:B:153:LEU:HD11	1:B:155:ILE:HD11	1.96	0.47
1:C:94:VAL:CG2	1:C:385:ILE:HD11	2.43	0.47
1:C:128:ALA:HA	1:C:231:LYS:HD3	1.97	0.47
1:C:342:ILE:HB	1:C:378:VAL:CG1	2.45	0.47
2:A:356:PHE:O	2:A:357:LEU:HD12	2.14	0.47
2:A:397:ALA:O	2:A:400:VAL:HG12	2.14	0.47
2:A:550:VAL:HG21	2:A:909:VAL:HA	1.97	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:281:TRP:HB3	1:C:298:LEU:HD23	1.97	0.47
2:A:596:ILE:HG21	2:A:628:ILE:HG12	1.95	0.47
2:A:933:LEU:HD22	2:A:933:LEU:O	2.15	0.47
2:A:955:VAL:N	2:A:956:PRO:CD	2.77	0.47
1:C:269:PRO:HG3	1:C:314:TRP:NE1	2.30	0.46
2:A:20:ALA:HA	2:A:23:LEU:HB3	1.97	0.46
2:A:102:ASP:O	2:A:105:TRP:HB3	2.15	0.46
2:A:436:TRP:HD1	2:A:437:GLN:N	2.13	0.46
2:A:844:ILE:HD12	2:A:858:PHE:HZ	1.80	0.46
1:B:195:ILE:O	1:B:198:LEU:HB3	2.16	0.46
2:A:900:ILE:O	2:A:903:SER:HB3	2.15	0.46
2:A:42:LEU:HD13	2:A:670:ILE:HD13	1.97	0.46
2:A:275:ILE:HD13	2:A:586:ALA:HB2	1.96	0.46
1:C:383:PHE:CE1	2:A:580:ILE:HB	2.51	0.46
2:A:871:LYS:O	2:A:875:MET:HB2	2.15	0.46
2:A:984:LYS:HE2	2:A:984:LYS:HA	1.97	0.46
1:B:114:VAL:HG22	1:B:246:VAL:HG22	1.98	0.46
2:A:146:ASP:OD2	2:A:151:HIS:HD2	1.99	0.46
2:A:729:ASN:C	2:A:729:ASN:HD22	2.19	0.46
2:A:995:LEU:O	2:A:1017:ILE:HD11	2.15	0.46
2:A:988:VAL:HG21	2:A:1024:PRO:HB3	1.97	0.46
2:A:518:ASN:H	2:A:518:ASN:ND2	2.13	0.46
2:A:243:PHE:HB3	2:A:265:VAL:HG21	1.98	0.46
2:A:270:GLU:HG2	2:A:271:MET:H	1.81	0.46
2:A:390:ILE:HD12	2:A:1005:GLY:CA	2.46	0.46
2:A:572:TYR:HE1	2:A:660:ASN:CB	2.28	0.46
2:A:578:PRO:CG	2:A:717:ARG:HB2	2.45	0.46
2:A:769:ASN:C	2:A:769:ASN:HD22	2.18	0.46
2:A:831:ARG:NH2	2:A:839:ASP:OD1	2.43	0.46
2:A:896:GLU:OE1	2:A:945:LEU:HG	2.15	0.46
2:A:1020:MET:HA	2:A:1020:MET:CE	2.46	0.46
1:C:120:GLN:HE22	1:C:243:PRO:HD2	1.80	0.46
2:A:977:ALA:HA	2:A:980:ARG:CZ	2.46	0.46
1:B:153:LEU:H	1:B:153:LEU:HD23	1.81	0.46
1:B:220:ALA:HB3	1:B:237:LYS:CB	2.46	0.45
2:A:538:THR:O	2:A:542:VAL:HG23	2.16	0.45
2:A:947:TYR:OH	2:A:983:PRO:HG2	2.16	0.45
1:B:336:GLY:HA3	2:A:775:SER:OG	2.16	0.45
2:A:338:LEU:HG	2:A:390:ILE:HA	1.98	0.45
2:A:15:LEU:HD23	2:A:15:LEU:HA	1.80	0.45
2:A:312:LYS:HA	2:A:312:LYS:HD3	1.77	0.45

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:952:ILE:HG21	2:A:1039:TRP:NE1	2.32	0.45
1:B:385:ILE:HG13	2:A:272:ARG:H	1.81	0.45
1:C:158:TRP:O	1:C:162:GLN:HG3	2.16	0.45
2:A:135:GLY:O	2:A:669:ARG:HG2	2.17	0.45
2:A:370:LEU:CD2	2:A:403:MET:HG3	2.46	0.45
2:A:554:LEU:HD21	2:A:912:ILE:HG12	1.98	0.45
2:A:519:ARG:O	2:A:523:ARG:HG3	2.15	0.45
1:C:264:PHE:HE1	1:C:281:TRP:CE2	2.35	0.45
2:A:464:ILE:CD1	2:A:928:THR:HG23	2.47	0.45
2:A:402:ALA:HB3	2:A:486:MET:CE	2.47	0.45
2:A:563:PRO:HG2	2:A:1008:VAL:HA	1.98	0.45
2:A:693:ILE:HD11	2:A:718:LEU:HD22	1.99	0.45
2:A:729:ASN:HB3	2:A:732:LYS:HB2	1.99	0.45
2:A:984:LYS:CE	2:A:988:VAL:HG23	2.47	0.45
2:A:301:ILE:HD12	2:A:328:SER:HB3	1.99	0.45
2:A:529:LEU:CD1	2:A:980:ARG:HH22	2.30	0.45
2:A:237:LEU:HD12	2:A:242:ASP:HB3	1.98	0.45
2:A:406:ALA:CB	2:A:454:LEU:HD11	2.47	0.45
2:A:418:LEU:HA	2:A:438:VAL:HG21	1.99	0.45
2:A:564:GLN:NE2	2:A:664:PRO:HG2	2.32	0.45
1:B:83:ARG:CZ	1:C:90:GLN:HB3	2.47	0.44
2:A:532:VAL:HG23	2:A:539:THR:HG21	1.99	0.44
2:A:884:PHE:CD1	2:A:884:PHE:C	2.90	0.44
1:B:162:GLN:HB2	1:B:204:ILE:HG23	1.98	0.44
1:C:324:MET:HB2	1:C:366:ALA:HB1	1.99	0.44
2:A:27:GLY:O	2:A:31:ILE:HG22	2.16	0.44
2:A:572:TYR:CD1	2:A:574:PRO:HD3	2.53	0.44
2:A:1029:PHE:CD2	2:A:1029:PHE:N	2.85	0.44
1:B:278:ILE:HG21	1:B:298:LEU:HD13	1.99	0.44
1:B:281:TRP:HB2	1:B:296:LEU:HD21	1.99	0.44
1:B:399:ARG:O	1:B:400:SER:CB	2.64	0.44
2:A:445:GLU:O	2:A:448:PRO:HD2	2.17	0.44
2:A:619:ALA:HB1	2:A:623:MET:HE2	1.98	0.44
2:A:661:LEU:HD11	2:A:679:SER:HB3	1.98	0.44
1:C:234:VAL:O	1:C:234:VAL:CG2	2.65	0.44
2:A:725:ASN:O	2:A:804:ILE:HA	2.17	0.44
2:A:746:PHE:CZ	2:A:788:ILE:HG23	2.52	0.44
1:B:279:ARG:HE	1:B:279:ARG:HB2	1.59	0.44
1:B:302:ASN:ND2	1:B:307:LEU:H	2.14	0.44
2:A:421:TRP:HD1	2:A:421:TRP:O	2.00	0.44
1:C:302:ASN:ND2	1:C:307:LEU:H	2.10	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:222:ILE:HD11	2:A:224:LEU:HD21	1.99	0.44
2:A:619:ALA:HA	2:A:620:PRO:HD3	1.85	0.44
2:A:402:ALA:O	2:A:405:ASP:HB3	2.17	0.44
2:A:85:PHE:HD1	2:A:812:MET:CE	2.30	0.44
2:A:604:ARG:HB2	2:A:629:GLN:HE21	1.82	0.44
1:B:292:ARG:HG3	1:C:312:ASN:HD21	1.83	0.44
2:A:930:PHE:CD2	2:A:1015:PRO:HB3	2.53	0.44
1:B:256:TRP:HE1	1:B:359:GLN:NE2	2.17	0.43
2:A:315:LEU:HA	2:A:316:PRO:HD3	1.92	0.43
2:A:702:GLU:O	2:A:705:ARG:HG3	2.18	0.43
2:A:940:PHE:CD1	2:A:984:LYS:HE3	2.53	0.43
1:C:197:ARG:HE	1:C:197:ARG:HB2	1.57	0.43
2:A:14:PHE:O	2:A:17:LEU:HB3	2.18	0.43
2:A:996:LEU:N	2:A:997:PRO:CD	2.81	0.43
2:A:984:LYS:HB3	2:A:984:LYS:HZ3	1.83	0.43
1:C:352:PRO:HB2	1:C:398:MET:SD	2.59	0.43
2:A:836:VAL:O	2:A:840:LEU:HG	2.17	0.43
1:B:151:LEU:HD11	1:B:210:LEU:HD12	2.01	0.43
2:A:28:THR:O	2:A:32:ILE:HG13	2.18	0.43
2:A:533:LEU:HD22	2:A:1036:LYS:HD3	2.01	0.43
2:A:961:PRO:HA	2:A:1043:HIS:HE1	1.83	0.43
1:C:395:LEU:O	1:C:399:ARG:HG3	2.19	0.43
2:A:53:TYR:O	2:A:89:GLY:HA2	2.19	0.43
2:A:214:ASN:H	2:A:215:GLN:HE21	1.64	0.43
2:A:255:VAL:HA	2:A:256:PRO:HD3	1.83	0.43
1:B:123:ILE:CD1	1:B:237:LYS:HG3	2.45	0.43
1:C:106:PHE:HE2	1:C:359:GLN:CG	2.29	0.43
2:A:518:ASN:O	2:A:521:LEU:HG	2.19	0.43
2:A:701:GLU:O	2:A:705:ARG:HG2	2.18	0.43
2:A:927:GLY:O	2:A:931:ILE:HG12	2.18	0.43
2:A:42:LEU:HD12	2:A:42:LEU:N	2.32	0.43
2:A:272:ARG:O	2:A:621:LEU:HD11	2.18	0.43
2:A:400:VAL:HA	2:A:403:MET:CG	2.49	0.43
1:B:278:ILE:HG13	1:B:298:LEU:HD13	2.01	0.43
2:A:365:VAL:HG11	2:A:501:MET:HB3	2.01	0.43
2:A:418:LEU:CD2	2:A:438:VAL:HG11	2.49	0.43
1:B:128:ALA:HA	1:B:231:LYS:HD2	2.01	0.42
1:B:280:LYS:HE3	1:B:280:LYS:CA	2.49	0.42
2:A:599:VAL:HA	2:A:600:PRO:HD3	1.83	0.42
2:A:412:GLU:CD	2:A:982:ARG:HG2	2.39	0.42
2:A:570:LEU:HD23	2:A:628:ILE:HB	2.00	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:599:VAL:HG21	2:A:649:LEU:CD1	2.48	0.42
2:A:739:THR:O	2:A:742:ASP:HB2	2.18	0.42
1:C:174:THR:HG22	1:C:176:THR:H	1.84	0.42
2:A:599:VAL:O	2:A:602:VAL:HG13	2.20	0.42
2:A:1021:ILE:O	2:A:1025:LEU:HB2	2.18	0.42
1:B:329:SER:HA	1:B:365:THR:HG23	2.01	0.42
1:C:242:ASP:CB	1:C:243:PRO:CD	2.97	0.42
2:A:135:GLY:C	2:A:669:ARG:HG2	2.40	0.42
2:A:995:LEU:HD21	2:A:1016:MET:HE3	2.02	0.42
2:A:115:ASN:C	2:A:115:ASN:ND2	2.73	0.42
2:A:353:CYS:O	2:A:357:LEU:HB2	2.19	0.42
2:A:982:ARG:HH21	2:A:982:ARG:HG3	1.85	0.42
2:A:37:ASP:HA	2:A:331:ILE:HD12	2.01	0.42
2:A:790:THR:OG1	2:A:794:GLN:HB2	2.20	0.42
2:A:980:ARG:O	2:A:983:PRO:HD2	2.20	0.42
1:C:341:VAL:HB	1:C:377:VAL:CG2	2.50	0.42
1:C:360:ALA:HB2	1:C:365:THR:HB	2.02	0.42
2:A:21:LEU:O	2:A:21:LEU:HD22	2.20	0.42
2:A:191:ILE:HG21	2:A:196:LEU:HD11	2.01	0.42
2:A:340:GLY:O	2:A:344:GLU:HG3	2.19	0.42
2:A:518:ASN:OD1	2:A:982:ARG:NH2	2.52	0.42
2:A:525:TYR:CE1	2:A:980:ARG:NH2	2.87	0.42
2:A:771:ARG:HG3	2:A:772:TYR:N	2.35	0.42
2:A:975:HIS:C	2:A:977:ALA:H	2.23	0.42
1:C:342:ILE:O	1:C:378:VAL:HG12	2.19	0.42
2:A:191:ILE:HA	2:A:263:ALA:HB2	2.02	0.42
2:A:338:LEU:HD21	2:A:390:ILE:HG13	2.01	0.42
2:A:436:TRP:CD1	2:A:437:GLN:N	2.88	0.42
2:A:455:LEU:HD13	2:A:459:LEU:HD13	2.01	0.42
2:A:940:PHE:CZ	2:A:944:MET:HG3	2.54	0.42
1:B:185:LEU:HD12	1:B:185:LEU:HA	1.80	0.42
1:C:134:LYS:HG3	1:C:135:VAL:N	2.34	0.42
2:A:67:TYR:N	2:A:68:PRO:HD2	2.34	0.42
2:A:883:ILE:O	2:A:887:LEU:HG	2.19	0.42
2:A:365:VAL:CG1	2:A:411:ILE:HD11	2.50	0.42
2:A:715:ALA:HB2	2:A:824:ILE:HG23	2.02	0.41
1:B:302:ASN:HD21	1:B:306:ALA:N	2.18	0.41
2:A:412:GLU:OE1	2:A:983:PRO:HG3	2.20	0.41
2:A:660:ASN:ND2	2:A:660:ASN:N	2.46	0.41
2:A:705:ARG:NH1	2:A:713:ALA:O	2.53	0.41
2:A:932:ALA:O	2:A:936:VAL:HG23	2.20	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:88:GLN:HG2	2:A:654:ARG:O	2.20	0.41
2:A:463:PRO:HG2	2:A:879:THR:OG1	2.19	0.41
2:A:952:ILE:O	2:A:952:ILE:HG22	2.20	0.41
2:A:984:LYS:NZ	2:A:984:LYS:CB	2.84	0.41
1:C:223:LEU:O	1:C:224:ARG:HD2	2.21	0.41
2:A:707:VAL:HA	2:A:708:PRO:HD3	1.88	0.41
1:C:284:LEU:HD12	1:C:295:GLN:HB2	2.03	0.41
2:A:38:ALA:HB2	2:A:331:ILE:HD13	2.03	0.41
2:A:998:ILE:CD1	2:A:1013:ALA:HB2	2.51	0.41
2:A:1035:TYR:O	2:A:1039:TRP:HB2	2.21	0.41
1:C:161:ALA:HB3	1:C:185:LEU:HD11	2.01	0.41
2:A:425:HIS:CB	2:A:426:PRO:HD2	2.34	0.41
2:A:636:TRP:CD1	2:A:636:TRP:N	2.89	0.41
2:A:962:GLN:CG	2:A:963:THR:N	2.81	0.41
2:A:390:ILE:HD11	2:A:1008:VAL:CG1	2.50	0.41
2:A:439:ILE:HG23	2:A:501:MET:HE2	2.03	0.41
2:A:700:ILE:HA	2:A:703:VAL:HG22	2.03	0.41
1:B:124:VAL:HB	1:B:235:VAL:HG22	2.03	0.41
1:B:335:THR:HG22	1:B:391:ILE:HD12	2.02	0.41
2:A:27:GLY:HA3	2:A:375:CYS:HB3	2.02	0.41
2:A:114:LEU:HD12	2:A:114:LEU:HA	1.86	0.41
2:A:526:HIS:N	2:A:527:PRO:CD	2.84	0.41
2:A:530:LEU:C	2:A:530:LEU:HD12	2.41	0.41
2:A:569:ASP:OD2	2:A:629:GLN:HG2	2.20	0.41
2:A:786:LEU:HB3	2:A:798:LEU:HB2	2.02	0.41
2:A:984:LYS:CA	2:A:984:LYS:CE	2.99	0.41
1:C:257:LEU:HD12	1:C:257:LEU:HA	1.92	0.41
2:A:403:MET:H	2:A:403:MET:HG2	1.52	0.41
2:A:411:ILE:HA	2:A:501:MET:CE	2.49	0.41
2:A:975:HIS:HA	2:A:978:VAL:HG12	2.03	0.41
1:B:242:ASP:O	1:B:302:ASN:N	2.54	0.40
1:C:219:THR:HG21	1:C:239:GLN:OE1	2.21	0.40
1:C:283:LEU:HD23	1:C:283:LEU:HA	1.80	0.40
2:A:141:GLU:HB3	2:A:325:TYR:HB3	2.01	0.40
2:A:376:ILE:HG21	2:A:488:GLY:HA3	2.03	0.40
2:A:497:ILE:HB	2:A:498:PRO:HD3	2.03	0.40
2:A:589:LEU:HD22	2:A:609:THR:HG23	2.03	0.40
2:A:637:ARG:HH11	2:A:637:ARG:HB2	1.86	0.40
2:A:914:LEU:HD23	2:A:1014:ALA:O	2.20	0.40
1:B:212:ALA:HA	1:B:213:PRO:HD3	1.86	0.40
1:B:350:PHE:HB3	1:B:398:MET:HE3	2.03	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:38:ALA:O	2:A:390:ILE:CG2	2.66	0.40
2:A:608:LYS:HE2	2:A:625:GLU:HB2	2.02	0.40
2:A:898:LEU:HD23	2:A:898:LEU:O	2.21	0.40
2:A:1028:LEU:O	2:A:1032:PRO:HG2	2.22	0.40
1:C:174:THR:H	1:C:177:GLN:HE21	1.68	0.40
2:A:554:LEU:HD23	2:A:912:ILE:HG21	2.03	0.40
1:B:242:ASP:CB	1:B:243:PRO:HD3	2.38	0.40

There are no symmetry-related clashes.

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	B	320/413 (78%)	304 (95%)	15 (5%)	1 (0%)	41	71
1	C	322/413 (78%)	312 (97%)	9 (3%)	1 (0%)	41	71
2	A	1024/1054 (97%)	969 (95%)	54 (5%)	1 (0%)	51	82
All	All	1666/1880 (89%)	1585 (95%)	78 (5%)	3 (0%)	47	78

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	A	852	PRO
1	C	137	PRO
1	B	137	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	B	263/338 (78%)	229 (87%)	34 (13%)	4	13
1	C	265/338 (78%)	237 (89%)	28 (11%)	6	20
2	A	847/871 (97%)	761 (90%)	86 (10%)	7	22
All	All	1375/1547 (89%)	1227 (89%)	148 (11%)	6	20

All (148) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	84	ILE
1	B	105	THR
1	B	117	ASN
1	B	121	TYR
1	B	134	LYS
1	B	140	VAL
1	B	159	VAL
1	B	182	LEU
1	B	185	LEU
1	B	199	ILE
1	B	203	LYS
1	B	207	ARG
1	B	234	VAL
1	B	235	VAL
1	B	241	MET
1	B	244	VAL
1	B	252	GLU
1	B	268	VAL
1	B	275	THR
1	B	280	LYS
1	B	282	THR
1	B	298	LEU
1	B	299	GLU
1	B	322	GLU
1	B	330	GLN
1	B	340	ARG
1	B	349	ARG
1	B	364	VAL
1	B	365	THR
1	B	367	LEU
1	B	379	SER

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	385	ILE
1	B	388	GLU
1	B	396	GLU
1	C	96	THR
1	C	98	THR
1	C	104	LEU
1	C	105	THR
1	C	121	TYR
1	C	138	LEU
1	C	140	VAL
1	C	150	LEU
1	C	167	LEU
1	C	182	LEU
1	C	185	LEU
1	C	206	THR
1	C	235	VAL
1	C	258	VAL
1	C	276	LEU
1	C	283	LEU
1	C	292	ARG
1	C	317	LEU
1	C	330	GLN
1	C	339	GLN
1	C	343	THR
1	C	351	VAL
1	C	354	ARG
1	C	364	VAL
1	C	365	THR
1	C	373	GLU
1	C	377	VAL
1	C	378	VAL
2	A	6	ILE
2	A	8	ARG
2	A	12	ASN
2	A	18	MET
2	A	21	LEU
2	A	37	ASP
2	A	42	LEU
2	A	59	GLN
2	A	69	LEU
2	A	72	THR
2	A	109	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	A	115	ASN
2	A	117	VAL
2	A	125	VAL
2	A	144	LEU
2	A	145	VAL
2	A	157	ARG
2	A	168	LEU
2	A	188	GLN
2	A	190	VAL
2	A	203	LEU
2	A	210	LEU
2	A	211	ASP
2	A	215	GLN
2	A	222	ILE
2	A	259	LEU
2	A	273	ARG
2	A	298	ARG
2	A	322	VAL
2	A	358	TRP
2	A	390	ILE
2	A	398	ILE
2	A	403	MET
2	A	412	GLU
2	A	432	ASN
2	A	434	THR
2	A	436	TRP
2	A	445	GLU
2	A	455	LEU
2	A	464	ILE
2	A	492	LEU
2	A	521	LEU
2	A	531	LYS
2	A	532	VAL
2	A	534	HIS
2	A	545	LEU
2	A	548	LEU
2	A	549	THR
2	A	554	LEU
2	A	569	ASP
2	A	592	THR
2	A	602	VAL
2	A	624	VAL

Continued from previous page...

Mol	Chain	Res	Type
2	A	626	THR
2	A	634	GLU
2	A	637	ARG
2	A	641	THR
2	A	642	MET
2	A	643	ASP
2	A	649	LEU
2	A	660	ASN
2	A	661	LEU
2	A	693	ILE
2	A	705	ARG
2	A	729	ASN
2	A	769	ASN
2	A	775	SER
2	A	781	GLN
2	A	783	LEU
2	A	789	LEU
2	A	812	MET
2	A	813	LEU
2	A	815	THR
2	A	879	THR
2	A	882	ILE
2	A	884	PHE
2	A	901	ILE
2	A	904	VAL
2	A	945	LEU
2	A	946	MET
2	A	959	ASN
2	A	969	LEU
2	A	984	LYS
2	A	1020	MET
2	A	1026	LEU
2	A	1039	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	117	ASN
1	B	125	GLN
1	B	177	GLN
1	B	295	GLN
1	B	302	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	359	GLN
1	B	390	ASN
1	C	120	GLN
1	C	125	GLN
1	C	177	GLN
1	C	295	GLN
1	C	302	ASN
2	A	115	ASN
2	A	118	GLN
2	A	151	HIS
2	A	194	GLN
2	A	215	GLN
2	A	238	GLN
2	A	279	ASN
2	A	329	GLN
2	A	337	ASN
2	A	359	HIS
2	A	423	HIS
2	A	432	ASN
2	A	470	GLN
2	A	526	HIS
2	A	534	HIS
2	A	564	GLN
2	A	629	GLN
2	A	633	GLN
2	A	651	ASN
2	A	660	ASN
2	A	729	ASN
2	A	744	GLN
2	A	769	ASN
2	A	795	GLN
2	A	838	HIS
2	A	869	ASN
2	A	1043	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	B	322/413 (77%)	-0.29	6 (1%)	66	65	20, 42, 81, 134	0
1	C	324/413 (78%)	-0.37	0	100	100	20, 43, 81, 131	0
2	A	1028/1054 (97%)	0.10	81 (7%)	12	10	20, 67, 181, 263	0
All	All	1674/1880 (89%)	-0.07	87 (5%)	27	23	20, 54, 155, 263	0

All (87) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	A	428	ALA	8.4
2	A	7	ARG	7.8
2	A	429	THR	7.0
2	A	427	ASP	6.4
2	A	520	PHE	6.3
2	A	530	LEU	5.5
2	A	421	TRP	5.1
1	B	79	ALA	4.9
2	A	430	LEU	4.5
2	A	960	ASN	4.5
2	A	426	PRO	4.4
2	A	1036	LYS	4.4
2	A	1037	LEU	4.3
2	A	405	ASP	4.2
2	A	418	LEU	4.0
2	A	964	PHE	4.0
2	A	29	TRP	4.0
2	A	1038	MET	3.9
1	B	386	ASP	3.8
2	A	519	ARG	3.7
2	A	958	LEU	3.7
2	A	424	GLN	3.7
2	A	504	TRP	3.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
2	A	432	ASN	3.6
2	A	444	VAL	3.6
2	A	873	LYS	3.6
2	A	425	HIS	3.6
2	A	528	LEU	3.5
2	A	896	GLU	3.5
2	A	435	ARG	3.4
2	A	1001	GLY	3.3
2	A	889	LEU	3.2
2	A	422	GLN	3.2
2	A	523	ARG	3.1
2	A	971	GLU	3.1
2	A	436	TRP	3.1
1	B	80	SER	3.1
2	A	433	LYS	3.1
2	A	970	ASP	2.9
1	B	388	GLU	2.9
2	A	538	THR	2.9
2	A	26	TRP	2.9
2	A	1039	TRP	2.9
2	A	874	LEU	2.8
1	B	387	SER	2.8
2	A	17	LEU	2.8
2	A	14	PHE	2.7
2	A	895	GLY	2.7
2	A	15	LEU	2.7
2	A	954	ALA	2.7
2	A	524	VAL	2.7
2	A	437	GLN	2.6
2	A	431	ASP	2.6
2	A	434	THR	2.6
2	A	423	HIS	2.6
2	A	401	GLY	2.6
2	A	962	GLN	2.5
2	A	406	ALA	2.5
2	A	888	TYR	2.5
1	B	242	ASP	2.5
2	A	955	VAL	2.4
2	A	10	VAL	2.4
2	A	33	ASN	2.4
2	A	462	ILE	2.4
2	A	974	TYR	2.4

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
2	A	1041	HIS	2.3
2	A	521	LEU	2.3
2	A	966	GLU	2.3
2	A	495	VAL	2.3
2	A	32	ILE	2.3
2	A	30	THR	2.2
2	A	358	TRP	2.2
2	A	383	PHE	2.2
2	A	409	VAL	2.2
2	A	407	ALA	2.2
2	A	13	ARG	2.2
2	A	446	VAL	2.2
2	A	527	PRO	2.2
2	A	556	LYS	2.2
2	A	980	ARG	2.2
2	A	956	PRO	2.1
2	A	975	HIS	2.1
2	A	1035	TYR	2.1
2	A	1042	ARG	2.1
2	A	12	ASN	2.0
2	A	1040	LEU	2.0
2	A	552	TRP	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.