WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Dec 8, 2023 – 03:12 am GMT

PDB ID	:	2WAF
Title	:	PENICILLIN-BINDING PROTEIN 2B (PBP-2B) FROM STREPTOCOC-CUS PNEUMONIAE (STRAIN R6)
Authors	:	Contreras-Martel, C.; Dahout-Gonzalez, C.; Dos-Santos-Martins, A.; Kotnik, M.; Dessen, A.
Deposited on	:	2009-02-05
Resolution	:	3.29 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 (i) 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 (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 3.29 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.
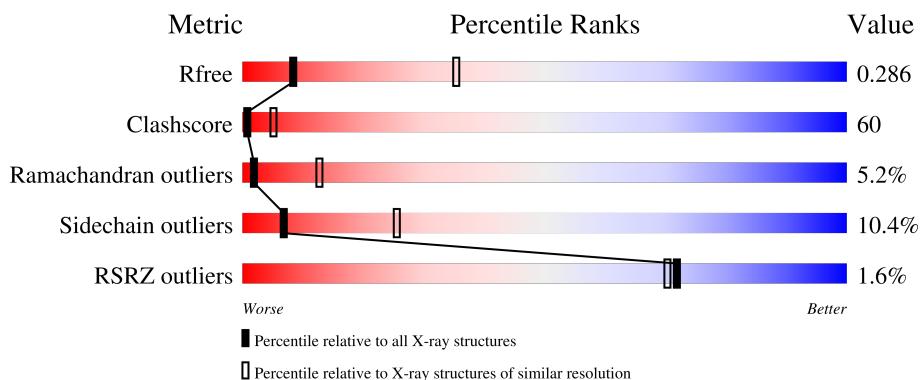
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1149 (3.34-3.26)
Clashscore	141614	1205 (3.34-3.26)
Ramachandran outliers	138981	1183 (3.34-3.26)
Sidechain outliers	138945	1182 (3.34-3.26)
RSRZ outliers	127900	1115 (3.34-3.26)

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	682	
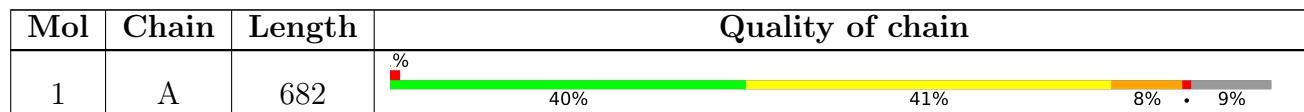
2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 4714 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 PENICILLIN-BINDING PROTEIN 2B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	619	Total 4701	C 2947	N 775	O 967	S 12	0	0	0

- Molecule 2 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	2	Total 2	Cl 2	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	11	Total 11	O 11	0	0

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: PENICILLIN-BINDING PROTEIN 2B
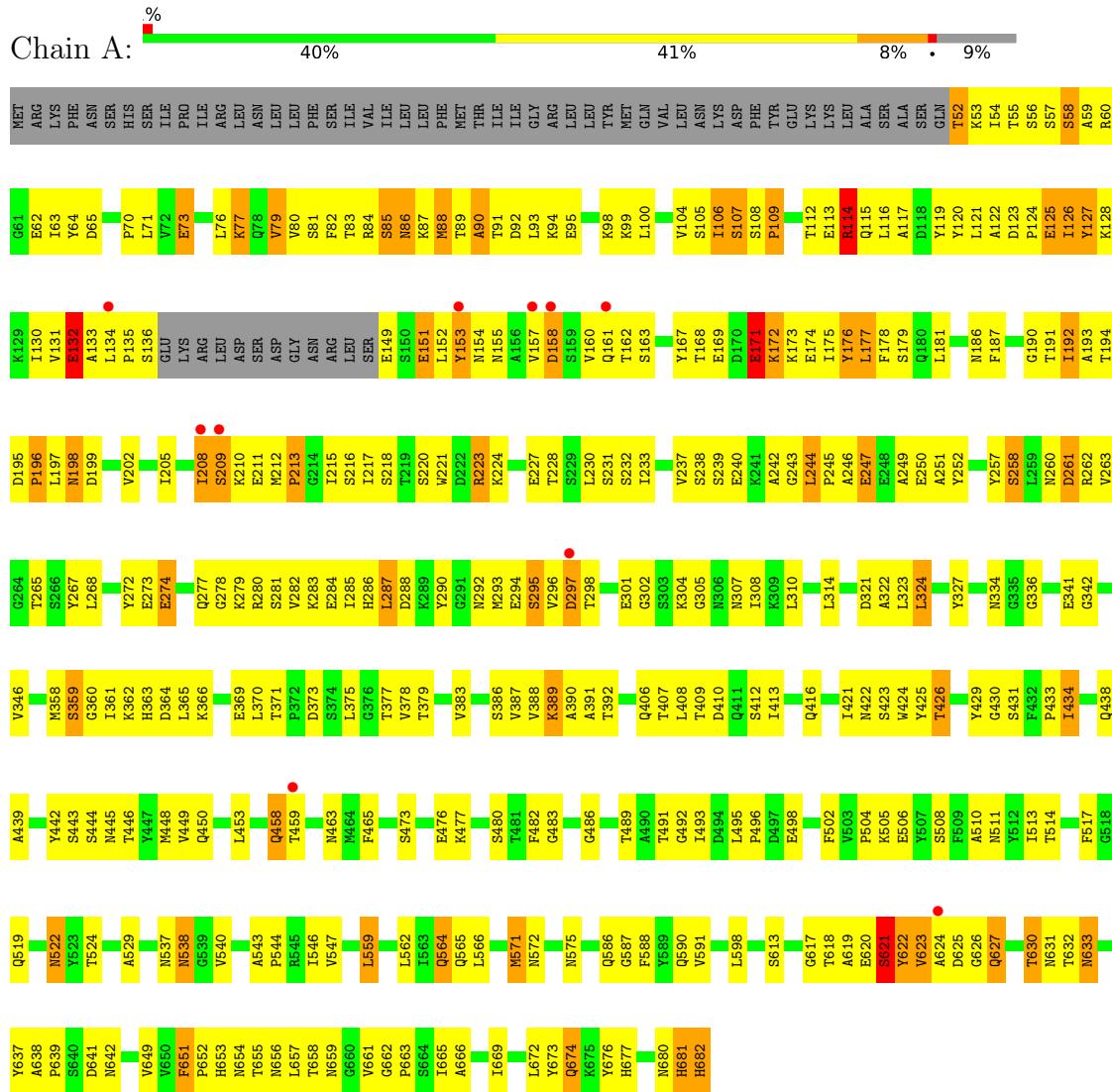
4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	193.90Å 51.59Å 121.44Å 90.00° 112.38° 90.00°	Depositor
Resolution (Å)	47.25 – 3.29 47.23 – 3.29	Depositor EDS
% Data completeness (in resolution range)	100.0 (47.25-3.29) 91.5 (47.23-3.29)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.10	Depositor
$< I/\sigma(I) >$ [1]	1.96 (at 3.33Å)	Xtriage
Refinement program	REFMAC 5.4.0067	Depositor
R, R_{free}	0.237 , 0.287 0.235 , 0.286	Depositor DCC
R_{free} test set	770 reflections (4.88%)	wwPDB-VP
Wilson B-factor (Å^2)	77.9	Xtriage
Anisotropy	0.359	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 129.2	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	0.91	EDS
Total number of atoms	4714	wwPDB-VP
Average B, all atoms (Å^2)	91.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.68% 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 ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: CL

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	0.48	0/4785	0.65	0/6501

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	621	SER	Peptide

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4701	0	4592	561	0
2	A	2	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	A	11	0	0	5	0
All	All	4714	0	4592	561	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 60.

All (561) 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:55:THR:HG21	1:A:258:SER:CB	1.16	1.61
1:A:336:GLY:HA2	1:A:655:THR:CG2	1.33	1.56
1:A:55:THR:CG2	1:A:258:SER:HB2	1.48	1.44
1:A:55:THR:CG2	1:A:258:SER:CB	1.98	1.41
1:A:168:THR:CG2	1:A:171:GLU:HB2	1.56	1.36
1:A:113:GLU:OE2	1:A:163:SER:CB	1.74	1.34
1:A:80:VAL:CG1	1:A:217:ILE:HD11	1.60	1.32
1:A:80:VAL:HG13	1:A:217:ILE:CD1	1.62	1.29
1:A:336:GLY:CA	1:A:655:THR:HG22	1.61	1.28
1:A:286:HIS:C	1:A:287:LEU:HD12	1.53	1.27
1:A:80:VAL:CG1	1:A:217:ILE:CD1	2.15	1.25
1:A:626:GLY:CA	1:A:627:GLN:HB3	1.65	1.22
1:A:283:LYS:HG2	1:A:297:ASP:O	1.33	1.20
1:A:626:GLY:CA	1:A:627:GLN:CB	2.19	1.19
1:A:106:ILE:O	1:A:173:LYS:HE2	1.40	1.17
1:A:134:LEU:CD2	1:A:160:VAL:HG21	1.73	1.17
1:A:360:GLY:O	1:A:361:ILE:HD13	1.41	1.16
1:A:105:SER:O	1:A:195:ASP:OD2	1.65	1.15
1:A:157:VAL:O	1:A:160:VAL:HG12	1.03	1.15
1:A:157:VAL:O	1:A:160:VAL:CG1	1.98	1.12
1:A:106:ILE:HA	1:A:195:ASP:OD2	1.47	1.12
1:A:336:GLY:CA	1:A:655:THR:CG2	2.24	1.10
1:A:626:GLY:HA3	1:A:627:GLN:HB3	1.15	1.10
1:A:168:THR:HG23	1:A:171:GLU:H	1.17	1.09
1:A:287:LEU:HD12	1:A:287:LEU:N	1.53	1.09
1:A:626:GLY:HA2	1:A:627:GLN:HB2	1.34	1.09
1:A:283:LYS:CG	1:A:297:ASP:O	2.01	1.08
1:A:168:THR:HG22	1:A:171:GLU:HB2	1.23	1.08
1:A:336:GLY:HA2	1:A:655:THR:HG21	1.31	1.08
1:A:87:LYS:O	1:A:89:THR:CG2	2.02	1.08
1:A:413:ILE:HD11	1:A:446:THR:HG23	1.09	1.07
1:A:134:LEU:HD21	1:A:160:VAL:HG21	1.38	1.06

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:113:GLU:CD	1:A:163:SER:HB2	1.74	1.06
1:A:87:LYS:O	1:A:89:THR:HG23	1.55	1.04
1:A:80:VAL:HG23	1:A:192:ILE:HG13	1.36	1.03
1:A:63:ILE:HG22	1:A:71:LEU:HD12	1.38	1.02
1:A:626:GLY:HA2	1:A:627:GLN:CB	1.85	1.02
1:A:52:THR:O	1:A:284:GLU:CB	2.06	1.02
1:A:191:THR:O	1:A:192:ILE:HD13	1.60	1.02
1:A:221:TRP:CE2	1:A:262:ARG:NH2	2.27	1.02
1:A:121:LEU:CD2	1:A:130:ILE:HD12	1.89	1.02
1:A:191:THR:CG2	1:A:192:ILE:H	1.71	1.02
1:A:80:VAL:HG23	1:A:192:ILE:CG1	1.89	1.01
1:A:168:THR:HG23	1:A:171:GLU:HB2	1.36	1.01
1:A:246:ALA:HA	1:A:249:ALA:CB	1.90	1.01
1:A:446:THR:HG22	1:A:450:GLN:HE21	1.22	1.01
1:A:55:THR:CG2	1:A:258:SER:OG	2.07	1.01
1:A:413:ILE:HD11	1:A:446:THR:CG2	1.90	1.01
1:A:508:SER:H	1:A:511:ASN:HD22	1.06	1.01
1:A:286:HIS:C	1:A:287:LEU:CD1	2.30	1.00
1:A:191:THR:HG22	1:A:192:ILE:N	1.60	1.00
1:A:392:THR:HB	1:A:448:MET:HE3	1.44	0.99
1:A:412:SER:OG	1:A:422:ASN:ND2	1.95	0.98
1:A:416:GLN:NE2	1:A:463:ASN:O	1.96	0.98
1:A:107:SER:O	1:A:109:PRO:HD3	1.62	0.98
1:A:537:ASN:O	1:A:538:ASN:HB2	1.58	0.97
1:A:113:GLU:OE2	1:A:163:SER:HB2	0.80	0.97
1:A:121:LEU:HD23	1:A:130:ILE:HD12	1.43	0.97
1:A:392:THR:HB	1:A:448:MET:CE	1.94	0.97
1:A:191:THR:HG22	1:A:192:ILE:H	0.81	0.96
1:A:412:SER:CB	1:A:422:ASN:HD21	1.78	0.96
1:A:53:LYS:CA	1:A:284:GLU:HB3	1.96	0.95
1:A:336:GLY:HA2	1:A:655:THR:HG22	0.95	0.95
1:A:285:ILE:HG23	1:A:293:MET:CE	1.97	0.95
1:A:502:PHE:O	1:A:504:PRO:HD3	1.67	0.95
1:A:258:SER:OG	1:A:260:ASN:OD1	1.85	0.94
1:A:221:TRP:NE1	1:A:262:ARG:NH2	2.14	0.94
1:A:389:LYS:HG2	1:A:448:MET:HG3	1.50	0.94
1:A:134:LEU:CD2	1:A:160:VAL:CG2	2.46	0.94
1:A:134:LEU:HD23	1:A:160:VAL:HG21	1.47	0.93
1:A:286:HIS:O	1:A:287:LEU:HG	1.67	0.93
1:A:52:THR:O	1:A:284:GLU:HB2	1.68	0.93
1:A:80:VAL:CA	1:A:217:ILE:HD13	1.99	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:106:ILE:O	1:A:173:LYS:CE	2.18	0.91
1:A:246:ALA:O	1:A:249:ALA:N	2.02	0.91
1:A:413:ILE:CD1	1:A:446:THR:HG23	1.97	0.91
1:A:287:LEU:N	1:A:287:LEU:CD1	2.31	0.91
1:A:168:THR:CG2	1:A:171:GLU:CB	2.46	0.91
1:A:171:GLU:OE1	1:A:171:GLU:HA	1.71	0.90
1:A:168:THR:O	1:A:171:GLU:HB3	1.71	0.90
1:A:80:VAL:HG12	1:A:217:ILE:CD1	1.98	0.90
1:A:168:THR:HG22	1:A:171:GLU:CB	2.02	0.90
1:A:168:THR:HG23	1:A:171:GLU:N	1.87	0.90
1:A:80:VAL:O	1:A:192:ILE:HG12	1.73	0.89
1:A:168:THR:O	1:A:171:GLU:CB	2.21	0.89
1:A:55:THR:HG23	1:A:258:SER:OG	1.73	0.88
1:A:654:ASN:OD1	1:A:655:THR:N	2.05	0.88
1:A:105:SER:C	1:A:195:ASP:OD2	2.12	0.88
1:A:53:LYS:HA	1:A:284:GLU:HB3	1.54	0.87
1:A:123:ASP:HB3	1:A:126:ILE:CG1	2.03	0.87
1:A:273:GLU:OE2	1:A:277:GLN:HB2	1.75	0.87
1:A:283:LYS:HG2	1:A:298:THR:HA	1.57	0.87
1:A:422:ASN:ND2	1:A:426:THR:HG21	1.90	0.87
1:A:80:VAL:HG13	1:A:217:ILE:HD11	0.90	0.87
1:A:389:LYS:CG	1:A:448:MET:HG3	2.05	0.86
1:A:631:ASN:OD1	1:A:652:PRO:HA	1.74	0.86
1:A:106:ILE:CA	1:A:195:ASP:OD2	2.23	0.86
1:A:620:GLU:O	1:A:621:SER:HB3	1.72	0.86
1:A:360:GLY:O	1:A:361:ILE:CD1	2.24	0.86
1:A:105:SER:O	1:A:195:ASP:CG	2.14	0.86
1:A:208:ILE:O	1:A:208:ILE:HG12	1.76	0.85
1:A:246:ALA:CA	1:A:249:ALA:HB2	2.05	0.85
1:A:586:GLN:HE21	1:A:590:GLN:NE2	1.75	0.85
1:A:157:VAL:C	1:A:160:VAL:HG12	1.97	0.85
1:A:80:VAL:CG1	1:A:217:ILE:HD13	2.04	0.84
1:A:285:ILE:HG23	1:A:293:MET:HE3	1.58	0.84
1:A:425:TYR:OH	1:A:444:SER:HB2	1.78	0.84
1:A:79:VAL:O	1:A:218:SER:N	2.11	0.84
1:A:508:SER:H	1:A:511:ASN:ND2	1.76	0.84
1:A:519:GLN:OE1	1:A:619:ALA:HA	1.78	0.84
1:A:246:ALA:HA	1:A:249:ALA:HB2	1.60	0.83
1:A:422:ASN:HD22	1:A:426:THR:HG21	1.44	0.83
1:A:586:GLN:HE21	1:A:590:GLN:HE21	1.26	0.82
1:A:453:LEU:HD11	1:A:458:GLN:HB3	1.60	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:134:LEU:HD21	1:A:160:VAL:CG2	2.06	0.82
1:A:210:LYS:HG2	1:A:295:SER:OG	1.78	0.81
1:A:658:THR:HB	2:A:700:CL:CL	2.17	0.81
1:A:191:THR:CG2	1:A:192:ILE:N	2.35	0.81
1:A:283:LYS:HG2	1:A:297:ASP:C	2.00	0.81
1:A:680:ASN:O	1:A:681:HIS:CG	2.34	0.81
1:A:246:ALA:HA	1:A:249:ALA:HB3	1.61	0.81
1:A:80:VAL:HG23	1:A:192:ILE:CB	2.10	0.81
1:A:169:GLU:OE2	1:A:172:LYS:CE	2.29	0.81
1:A:209:SER:OG	1:A:215:ILE:O	1.99	0.81
1:A:586:GLN:NE2	1:A:590:GLN:HE21	1.79	0.80
1:A:492:GLY:HA3	1:A:571:MET:HE1	1.62	0.80
1:A:62:GLU:H	1:A:307:ASN:ND2	1.80	0.80
1:A:168:THR:HG23	1:A:171:GLU:CB	2.11	0.80
1:A:80:VAL:O	1:A:192:ILE:CG1	2.29	0.80
1:A:85:SER:C	1:A:87:LYS:H	1.85	0.80
1:A:389:LYS:O	1:A:448:MET:HE1	1.82	0.80
1:A:246:ALA:CA	1:A:249:ALA:CB	2.60	0.79
1:A:89:THR:H	1:A:92:ASP:HB2	1.46	0.79
1:A:55:THR:HG21	1:A:258:SER:HB3	1.55	0.78
1:A:171:GLU:O	1:A:173:LYS:N	2.15	0.78
1:A:198:ASN:O	1:A:202:VAL:CG2	2.32	0.78
1:A:123:ASP:HB3	1:A:126:ILE:HG12	1.66	0.78
1:A:389:LYS:HG2	1:A:448:MET:CG	2.14	0.78
1:A:244:LEU:CD1	1:A:249:ALA:HA	2.14	0.78
1:A:410:ASP:O	1:A:431:SER:HA	1.85	0.77
1:A:240:GLU:CA	1:A:262:ARG:HD3	2.13	0.77
1:A:73:GLU:OE1	1:A:73:GLU:HA	1.83	0.77
1:A:169:GLU:OE2	1:A:172:LYS:NZ	2.17	0.77
1:A:80:VAL:HA	1:A:217:ILE:HD13	1.66	0.77
1:A:294:GLU:O	1:A:295:SER:CB	2.33	0.77
1:A:54:ILE:N	1:A:283:LYS:O	2.16	0.76
1:A:80:VAL:HG23	1:A:192:ILE:HB	1.67	0.76
1:A:198:ASN:O	1:A:202:VAL:HG23	1.83	0.76
1:A:296:VAL:CG1	1:A:297:ASP:N	2.49	0.76
1:A:80:VAL:N	1:A:217:ILE:HD13	2.01	0.76
1:A:52:THR:O	1:A:284:GLU:HB3	1.85	0.75
1:A:286:HIS:O	1:A:287:LEU:CG	2.33	0.75
1:A:283:LYS:NZ	1:A:298:THR:OG1	2.20	0.75
1:A:288:ASP:OD1	1:A:292:ASN:ND2	2.20	0.75
1:A:198:ASN:OD1	1:A:199:ASP:N	2.21	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:154:ASN:O	1:A:157:VAL:HG12	1.87	0.74
1:A:680:ASN:O	1:A:681:HIS:CD2	2.41	0.74
1:A:169:GLU:OE2	1:A:172:LYS:HE3	1.88	0.74
1:A:502:PHE:HB3	1:A:522:ASN:HB2	1.68	0.74
1:A:294:GLU:O	1:A:295:SER:HB2	1.88	0.73
1:A:105:SER:C	1:A:106:ILE:HG12	2.06	0.73
1:A:80:VAL:HA	1:A:217:ILE:HA	1.71	0.73
1:A:283:LYS:HD3	1:A:296:VAL:HG13	1.71	0.73
1:A:151:GLU:H	1:A:151:GLU:CD	1.90	0.72
1:A:237:VAL:HG12	1:A:238:SER:N	2.03	0.72
1:A:623:VAL:O	1:A:623:VAL:HG13	1.88	0.72
1:A:79:VAL:C	1:A:217:ILE:HD13	2.10	0.72
1:A:52:THR:C	1:A:284:GLU:HB3	2.08	0.72
1:A:221:TRP:CD1	1:A:262:ARG:NH2	2.57	0.72
1:A:80:VAL:CG2	1:A:192:ILE:HG13	2.17	0.72
1:A:112:THR:OG1	1:A:115:GLN:HG3	1.89	0.72
1:A:677:HIS:O	1:A:677:HIS:CD2	2.43	0.71
1:A:194:THR:HG23	1:A:195:ASP:N	2.06	0.71
1:A:346:VAL:CG1	1:A:529:ALA:HB2	2.21	0.70
1:A:80:VAL:CG2	1:A:192:ILE:HB	2.21	0.70
1:A:55:THR:HG23	1:A:258:SER:CB	2.17	0.70
1:A:296:VAL:HG13	1:A:297:ASP:H	1.55	0.70
1:A:91:THR:O	1:A:95:GLU:HG2	1.90	0.70
1:A:286:HIS:CA	1:A:287:LEU:HD12	2.22	0.70
1:A:63:ILE:CG2	1:A:71:LEU:HD12	2.17	0.70
1:A:191:THR:C	1:A:192:ILE:HG12	2.11	0.70
1:A:564:GLN:O	1:A:564:GLN:HG2	1.92	0.70
1:A:123:ASP:HB3	1:A:126:ILE:HG13	1.72	0.69
1:A:62:GLU:H	1:A:307:ASN:HD22	1.37	0.69
1:A:186:ASN:O	1:A:187:PHE:HB2	1.91	0.69
1:A:283:LYS:HD3	1:A:296:VAL:CG1	2.22	0.69
1:A:308:ILE:HG23	1:A:308:ILE:O	1.90	0.69
1:A:285:ILE:HG23	1:A:293:MET:HE1	1.74	0.69
1:A:285:ILE:CG2	1:A:293:MET:CE	2.70	0.69
1:A:81:SER:N	1:A:216:SER:O	2.24	0.69
1:A:174:GLU:HA	1:A:177:LEU:HD12	1.75	0.69
1:A:125:GLU:O	1:A:128:LYS:HB3	1.92	0.69
1:A:73:GLU:HB3	1:A:224:LYS:HG2	1.75	0.68
1:A:491:THR:HG23	1:A:498:GLU:OE2	1.92	0.68
1:A:681:HIS:O	1:A:682:HIS:C	2.32	0.68
1:A:562:LEU:HD21	1:A:565:GLN:HG3	1.74	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:473:SER:HA	1:A:476:GLU:OE2	1.94	0.68
1:A:171:GLU:C	1:A:173:LYS:H	1.98	0.68
1:A:244:LEU:HD11	1:A:249:ALA:HA	1.75	0.68
1:A:286:HIS:C	1:A:287:LEU:CG	2.63	0.68
1:A:336:GLY:C	1:A:655:THR:HG22	2.14	0.68
1:A:519:GLN:OE1	1:A:619:ALA:CB	2.42	0.67
1:A:58:SER:OG	1:A:302:GLY:HA3	1.95	0.67
1:A:80:VAL:HG12	1:A:217:ILE:HG12	1.77	0.67
1:A:369:GLU:HG2	1:A:370:LEU:N	2.10	0.67
1:A:53:LYS:HA	1:A:284:GLU:CB	2.25	0.66
1:A:121:LEU:HD21	1:A:130:ILE:HD12	1.75	0.66
1:A:127:TYR:HD1	1:A:127:TYR:O	1.78	0.66
1:A:80:VAL:HG12	1:A:217:ILE:CG1	2.24	0.66
1:A:88:MET:C	1:A:89:THR:HG23	2.16	0.66
1:A:134:LEU:HD21	1:A:160:VAL:CB	2.25	0.66
1:A:240:GLU:N	1:A:262:ARG:HD3	2.11	0.66
1:A:473:SER:O	1:A:476:GLU:HG2	1.96	0.65
1:A:87:LYS:O	1:A:89:THR:HG22	1.96	0.65
1:A:239:SER:OG	1:A:242:ALA:HB2	1.96	0.65
1:A:85:SER:C	1:A:87:LYS:N	2.49	0.65
1:A:422:ASN:ND2	1:A:426:THR:CG2	2.58	0.65
1:A:446:THR:HG22	1:A:450:GLN:NE2	2.05	0.65
1:A:293:MET:CE	1:A:295:SER:C	2.65	0.65
1:A:519:GLN:OE1	1:A:619:ALA:CA	2.44	0.65
1:A:508:SER:N	1:A:511:ASN:HD22	1.89	0.64
1:A:391:ALA:HB1	1:A:482:PHE:CD1	2.33	0.64
1:A:63:ILE:HA	1:A:308:ILE:HG22	1.80	0.64
1:A:85:SER:O	1:A:87:LYS:N	2.30	0.64
1:A:134:LEU:HD23	1:A:160:VAL:CG2	2.22	0.64
1:A:547:VAL:HG12	1:A:566:LEU:CD1	2.28	0.64
1:A:79:VAL:C	1:A:217:ILE:CD1	2.67	0.63
1:A:425:TYR:CD1	1:A:598:LEU:HD13	2.34	0.63
1:A:53:LYS:HA	1:A:284:GLU:HA	1.81	0.63
1:A:79:VAL:O	1:A:217:ILE:HA	1.98	0.63
1:A:620:GLU:O	1:A:621:SER:CB	2.43	0.63
1:A:378:VAL:HG23	1:A:379:THR:HG23	1.81	0.63
1:A:191:THR:C	1:A:192:ILE:CG1	2.67	0.62
1:A:336:GLY:CA	1:A:655:THR:HG21	2.11	0.62
1:A:473:SER:O	1:A:477:LYS:HG3	1.99	0.62
1:A:123:ASP:O	1:A:126:ILE:HB	2.00	0.62
1:A:412:SER:CB	1:A:422:ASN:ND2	2.59	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:105:SER:O	1:A:195:ASP:CB	2.48	0.62
1:A:105:SER:O	1:A:195:ASP:HB2	2.00	0.61
1:A:369:GLU:HG2	1:A:370:LEU:H	1.65	0.61
1:A:547:VAL:CG1	1:A:566:LEU:HD11	2.30	0.61
1:A:134:LEU:HD11	1:A:157:VAL:HG23	1.82	0.61
1:A:246:ALA:O	1:A:249:ALA:CB	2.48	0.61
1:A:446:THR:CG2	1:A:450:GLN:HE21	2.04	0.61
1:A:106:ILE:N	1:A:195:ASP:OD2	2.34	0.61
1:A:413:ILE:HB	1:A:421:ILE:HB	1.81	0.61
1:A:157:VAL:HG13	1:A:158:ASP:N	2.14	0.61
1:A:237:VAL:CG1	1:A:238:SER:N	2.64	0.61
1:A:171:GLU:OE1	1:A:171:GLU:CA	2.47	0.61
1:A:88:MET:HE3	1:A:293:MET:HB2	1.83	0.61
1:A:240:GLU:CB	1:A:262:ARG:HD3	2.30	0.60
1:A:321:ASP:OD2	1:A:359:SER:HB3	2.01	0.60
1:A:510:ALA:O	1:A:514:THR:HG23	2.01	0.60
1:A:288:ASP:OD2	1:A:292:ASN:OD1	2.18	0.60
1:A:392:THR:CB	1:A:448:MET:HE3	2.28	0.60
1:A:654:ASN:OD1	1:A:656:ASN:N	2.31	0.60
1:A:387:VAL:HG13	1:A:617:GLY:HA3	1.83	0.60
1:A:120:TYR:O	1:A:126:ILE:HG21	2.01	0.59
1:A:124:PRO:O	1:A:125:GLU:C	2.40	0.59
1:A:73:GLU:OE1	1:A:73:GLU:CA	2.49	0.59
1:A:424:TRP:CH2	1:A:598:LEU:HD22	2.38	0.59
1:A:308:ILE:O	1:A:308:ILE:CG2	2.49	0.59
1:A:658:THR:HG23	1:A:659:ASN:H	1.66	0.59
1:A:304:LYS:HG2	1:A:305:GLY:H	1.67	0.59
1:A:58:SER:HB2	1:A:278:GLY:O	2.03	0.59
1:A:53:LYS:CB	1:A:284:GLU:HB3	2.33	0.59
1:A:283:LYS:CB	1:A:297:ASP:O	2.51	0.59
1:A:88:MET:C	1:A:89:THR:CG2	2.71	0.59
1:A:191:THR:O	1:A:192:ILE:CD1	2.43	0.59
1:A:246:ALA:O	1:A:249:ALA:HB3	2.02	0.59
1:A:246:ALA:O	1:A:247:GLU:C	2.41	0.59
1:A:73:GLU:CB	1:A:224:LYS:HG2	2.33	0.58
1:A:547:VAL:O	1:A:566:LEU:HD12	2.02	0.58
1:A:58:SER:C	1:A:221:TRP:CH2	2.76	0.58
1:A:157:VAL:CG1	1:A:158:ASP:N	2.66	0.58
1:A:422:ASN:HB3	1:A:426:THR:HG22	1.84	0.58
1:A:79:VAL:O	1:A:217:ILE:HG23	2.04	0.58
1:A:480:SER:HB3	3:A:2007:HOH:O	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:519:GLN:OE1	1:A:619:ALA:HB1	2.03	0.58
1:A:680:ASN:O	1:A:681:HIS:CB	2.51	0.58
1:A:79:VAL:O	1:A:217:ILE:CA	2.51	0.58
1:A:127:TYR:O	1:A:131:VAL:HG12	2.04	0.58
1:A:346:VAL:HG13	1:A:529:ALA:HB2	1.86	0.58
1:A:363:HIS:CE1	1:A:365:LEU:HD23	2.39	0.58
1:A:59:ALA:HB3	1:A:304:LYS:HA	1.86	0.58
1:A:98:LYS:HG3	1:A:99:LYS:N	2.18	0.58
1:A:116:LEU:HD23	1:A:175:ILE:HG21	1.84	0.58
1:A:292:ASN:OD1	1:A:292:ASN:O	2.22	0.58
1:A:537:ASN:O	1:A:538:ASN:CB	2.39	0.58
1:A:198:ASN:O	1:A:202:VAL:HG21	2.02	0.58
1:A:246:ALA:N	1:A:249:ALA:HB2	2.19	0.57
1:A:661:VAL:O	1:A:665:ILE:HG13	2.03	0.57
1:A:64:TYR:CD2	1:A:559:LEU:HG	2.39	0.57
1:A:84:ARG:O	1:A:85:SER:HB2	2.03	0.57
1:A:283:LYS:HE3	1:A:298:THR:OG1	2.04	0.57
1:A:619:ALA:O	1:A:630:THR:HB	2.05	0.57
1:A:336:GLY:O	1:A:655:THR:HB	2.05	0.57
1:A:245:PRO:C	1:A:249:ALA:HB2	2.25	0.57
1:A:53:LYS:N	1:A:284:GLU:HB3	2.20	0.57
1:A:283:LYS:HG2	1:A:298:THR:CA	2.32	0.57
1:A:429:TYR:HE2	1:A:598:LEU:HD21	1.69	0.57
1:A:168:THR:HG23	1:A:171:GLU:CA	2.34	0.57
1:A:273:GLU:O	1:A:274:GLU:C	2.41	0.57
1:A:410:ASP:OD2	1:A:425:TYR:CE2	2.58	0.57
1:A:100:LEU:HD23	1:A:177:LEU:HD22	1.85	0.56
1:A:285:ILE:CG2	1:A:293:MET:HE3	2.33	0.56
1:A:77:LYS:HE3	1:A:220:SER:C	2.25	0.56
1:A:283:LYS:CE	1:A:298:THR:OG1	2.53	0.56
1:A:123:ASP:CB	1:A:126:ILE:HG12	2.35	0.56
1:A:492:GLY:HA3	1:A:571:MET:CE	2.33	0.56
1:A:244:LEU:HD12	1:A:249:ALA:CB	2.36	0.56
1:A:444:SER:O	1:A:448:MET:HG2	2.06	0.56
1:A:53:LYS:HA	1:A:284:GLU:CA	2.36	0.56
1:A:86:ASN:N	1:A:86:ASN:OD1	2.37	0.56
1:A:656:ASN:O	1:A:658:THR:N	2.39	0.56
1:A:681:HIS:O	1:A:682:HIS:O	2.24	0.56
1:A:210:LYS:HA	1:A:295:SER:OG	2.06	0.55
1:A:342:GLY:O	1:A:652:PRO:HD2	2.06	0.55
1:A:98:LYS:HG3	1:A:99:LYS:H	1.72	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:502:PHE:CE2	1:A:504:PRO:HG3	2.40	0.55
1:A:55:THR:HG21	1:A:258:SER:HB2	0.57	0.55
1:A:547:VAL:HG12	1:A:566:LEU:HD12	1.89	0.55
1:A:637:TYR:O	1:A:638:ALA:HB2	2.06	0.55
1:A:425:TYR:HB2	1:A:429:TYR:HD2	1.71	0.55
1:A:413:ILE:O	1:A:421:ILE:N	2.40	0.55
1:A:571:MET:O	1:A:572:ASN:HB3	2.06	0.55
1:A:623:VAL:HG12	1:A:627:GLN:O	2.07	0.55
1:A:57:SER:C	1:A:221:TRP:HH2	2.09	0.54
1:A:100:LEU:O	1:A:104:VAL:HG22	2.06	0.54
1:A:246:ALA:CA	1:A:249:ALA:HB3	2.35	0.54
1:A:543:ALA:HB2	1:A:571:MET:SD	2.47	0.54
1:A:82:PHE:HD1	1:A:215:ILE:HD13	1.72	0.54
1:A:176:TYR:O	1:A:179:SER:N	2.40	0.54
1:A:389:LYS:HG3	1:A:448:MET:HG3	1.86	0.54
1:A:90:ALA:HB1	1:A:122:ALA:HB1	1.90	0.54
1:A:123:ASP:OD1	1:A:125:GLU:HB3	2.08	0.54
1:A:537:ASN:ND2	1:A:540:VAL:HB	2.23	0.54
1:A:53:LYS:HB3	1:A:284:GLU:HB3	1.90	0.54
1:A:662:GLY:N	1:A:663:PRO:HD2	2.22	0.54
1:A:79:VAL:N	1:A:218:SER:O	2.32	0.53
1:A:117:ALA:HA	1:A:161:GLN:NE2	2.23	0.53
1:A:286:HIS:HD2	3:A:2003:HOH:O	1.91	0.53
1:A:80:VAL:O	1:A:192:ILE:HG13	2.04	0.53
1:A:80:VAL:CG2	1:A:192:ILE:CB	2.82	0.53
1:A:296:VAL:HG12	1:A:297:ASP:N	2.21	0.53
1:A:658:THR:CG2	1:A:659:ASN:H	2.21	0.53
1:A:586:GLN:NE2	1:A:590:GLN:NE2	2.45	0.53
1:A:658:THR:HG23	1:A:659:ASN:N	2.23	0.53
1:A:83:THR:HG22	1:A:84:ARG:N	2.24	0.53
1:A:240:GLU:HB2	1:A:262:ARG:HD3	1.89	0.53
1:A:391:ALA:HB1	1:A:482:PHE:HD1	1.74	0.53
1:A:113:GLU:CG	1:A:163:SER:CB	2.86	0.53
1:A:287:LEU:HA	1:A:294:GLU:CG	2.39	0.53
1:A:64:TYR:CE1	1:A:70:PRO:HB3	2.44	0.52
1:A:56:SER:OG	1:A:281:SER:HB3	2.09	0.52
1:A:168:THR:O	1:A:171:GLU:HB2	2.05	0.52
1:A:293:MET:HE2	1:A:295:SER:C	2.29	0.52
1:A:336:GLY:C	1:A:655:THR:CG2	2.76	0.52
1:A:524:THR:HG21	3:A:2008:HOH:O	2.10	0.52
1:A:89:THR:O	1:A:92:ASP:N	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:416:GLN:HG3	1:A:465:PHE:CG	2.44	0.52
1:A:244:LEU:HD12	1:A:249:ALA:HB1	1.91	0.52
1:A:304:LYS:HG2	1:A:305:GLY:N	2.24	0.52
1:A:410:ASP:OD2	1:A:425:TYR:HE2	1.93	0.52
1:A:587:GLY:O	1:A:591:VAL:HG23	2.10	0.52
1:A:243:GLY:O	1:A:261:ASP:O	2.28	0.52
1:A:250:GLU:O	1:A:252:TYR:N	2.42	0.52
1:A:412:SER:HA	1:A:422:ASN:ND2	2.25	0.52
1:A:125:GLU:O	1:A:126:ILE:C	2.49	0.51
1:A:152:LEU:O	1:A:155:ASN:HB2	2.09	0.51
1:A:221:TRP:CD2	1:A:262:ARG:NH2	2.76	0.51
1:A:60:ARG:HG2	1:A:223:ARG:NH1	2.26	0.51
1:A:508:SER:O	1:A:511:ASN:HB2	2.11	0.51
1:A:128:LYS:O	1:A:131:VAL:CG1	2.59	0.51
1:A:363:HIS:CE1	1:A:365:LEU:CD2	2.94	0.51
1:A:495:LEU:HB3	1:A:496:PRO:HD2	1.93	0.51
1:A:267:TYR:OH	1:A:375:LEU:HD13	2.10	0.51
1:A:641:ASP:HB2	3:A:2011:HOH:O	2.10	0.51
1:A:81:SER:HA	1:A:190:GLY:O	2.11	0.50
1:A:168:THR:HG22	1:A:171:GLU:CG	2.41	0.50
1:A:238:SER:OG	1:A:262:ARG:HA	2.11	0.50
1:A:113:GLU:CG	1:A:163:SER:HB2	2.41	0.50
1:A:191:THR:C	1:A:192:ILE:HD13	2.31	0.50
1:A:82:PHE:CD2	1:A:181:LEU:HD22	2.46	0.50
1:A:257:TYR:CD1	1:A:280:ARG:NH1	2.80	0.50
1:A:422:ASN:HB3	1:A:426:THR:CG2	2.41	0.50
1:A:336:GLY:O	1:A:655:THR:CB	2.60	0.50
1:A:128:LYS:O	1:A:131:VAL:HG12	2.11	0.50
1:A:632:THR:O	1:A:662:GLY:HA3	2.12	0.50
1:A:547:VAL:CG1	1:A:566:LEU:CD1	2.88	0.49
1:A:88:MET:HE3	1:A:293:MET:CB	2.42	0.49
1:A:119:TYR:HD1	1:A:178:PHE:CD2	2.30	0.49
1:A:63:ILE:HA	1:A:308:ILE:CG2	2.41	0.49
1:A:83:THR:HG22	1:A:84:ARG:H	1.78	0.49
1:A:293:MET:HE2	1:A:295:SER:CA	2.42	0.49
1:A:391:ALA:HB3	1:A:482:PHE:HE1	1.77	0.49
1:A:60:ARG:HG2	1:A:223:ARG:HH12	1.78	0.49
1:A:517:PHE:CE2	1:A:519:GLN:HG3	2.48	0.49
1:A:58:SER:O	1:A:221:TRP:CH2	2.66	0.49
1:A:176:TYR:O	1:A:177:LEU:C	2.51	0.49
1:A:623:VAL:O	1:A:623:VAL:CG1	2.58	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:237:VAL:HG13	1:A:263:VAL:C	2.32	0.49
1:A:64:TYR:HE1	1:A:70:PRO:HB3	1.77	0.48
1:A:82:PHE:CD2	1:A:181:LEU:CD2	2.95	0.48
1:A:360:GLY:HA3	1:A:373:ASP:O	2.13	0.48
1:A:362:LYS:HB3	1:A:371:THR:OG1	2.13	0.48
1:A:655:THR:CG2	1:A:656:ASN:N	2.76	0.48
1:A:453:LEU:HG	1:A:458:GLN:O	2.13	0.48
1:A:52:THR:C	1:A:284:GLU:CB	2.70	0.48
1:A:424:TRP:CZ2	1:A:598:LEU:HD22	2.48	0.48
1:A:132:GLU:OE2	1:A:132:GLU:HA	2.13	0.48
1:A:283:LYS:CG	1:A:298:THR:HA	2.34	0.48
1:A:336:GLY:O	1:A:655:THR:HG22	2.13	0.48
1:A:633:ASN:OD1	1:A:633:ASN:N	2.46	0.48
1:A:392:THR:CB	1:A:448:MET:CE	2.81	0.48
1:A:63:ILE:HG12	1:A:308:ILE:HG21	1.95	0.48
1:A:127:TYR:CD1	1:A:127:TYR:C	2.87	0.48
1:A:160:VAL:HG13	1:A:161:GLN:N	2.28	0.48
1:A:677:HIS:O	1:A:677:HIS:CG	2.64	0.48
1:A:409:THR:HA	1:A:433:PRO:HA	1.95	0.48
1:A:87:LYS:HE3	1:A:290:TYR:O	2.14	0.47
1:A:89:THR:N	1:A:92:ASP:HB2	2.19	0.47
1:A:127:TYR:HD1	1:A:127:TYR:C	2.17	0.47
1:A:239:SER:OG	1:A:242:ALA:CB	2.61	0.47
1:A:491:THR:H	1:A:498:GLU:CD	2.16	0.47
1:A:58:SER:OG	1:A:279:LYS:O	2.29	0.47
1:A:308:ILE:HD11	1:A:547:VAL:HG21	1.96	0.47
1:A:416:GLN:HG3	1:A:465:PHE:CD1	2.50	0.47
1:A:79:VAL:O	1:A:217:ILE:HD13	2.15	0.47
1:A:89:THR:O	1:A:90:ALA:C	2.53	0.47
1:A:283:LYS:CD	1:A:297:ASP:O	2.61	0.47
1:A:423:SER:H	1:A:426:THR:HB	1.79	0.47
1:A:58:SER:O	1:A:59:ALA:C	2.53	0.46
1:A:58:SER:CB	1:A:279:LYS:O	2.63	0.46
1:A:191:THR:C	1:A:192:ILE:CD1	2.84	0.46
1:A:238:SER:O	1:A:262:ARG:HD2	2.15	0.46
1:A:408:LEU:O	1:A:433:PRO:HA	2.15	0.46
1:A:53:LYS:HB3	1:A:284:GLU:CG	2.45	0.46
1:A:240:GLU:HA	1:A:262:ARG:HD3	1.95	0.46
1:A:135:PRO:O	1:A:136:SER:C	2.53	0.46
1:A:267:TYR:CZ	1:A:375:LEU:HD13	2.50	0.46
1:A:483:GLY:O	1:A:489:THR:HG21	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:654:ASN:OD1	1:A:654:ASN:C	2.53	0.46
1:A:293:MET:HE3	1:A:295:SER:H	1.80	0.46
1:A:268:LEU:HD23	1:A:268:LEU:HA	1.77	0.46
1:A:288:ASP:C	1:A:290:TYR:H	2.18	0.46
1:A:486:GLY:HA2	1:A:489:THR:HG22	1.98	0.46
1:A:641:ASP:CB	3:A:2011:HOH:O	2.64	0.46
1:A:212:MET:O	1:A:213:PRO:C	2.54	0.46
1:A:324:LEU:HD12	1:A:324:LEU:HA	1.67	0.46
1:A:88:MET:CE	1:A:293:MET:CB	2.94	0.45
1:A:364:ASP:OD1	1:A:366:LYS:N	2.46	0.45
1:A:638:ALA:HB1	1:A:639:PRO:HA	1.99	0.45
1:A:438:GLN:HB3	1:A:442:TYR:CE2	2.52	0.45
1:A:633:ASN:HA	1:A:649:VAL:O	2.17	0.45
1:A:638:ALA:HA	1:A:639:PRO:C	2.36	0.45
1:A:215:ILE:CG2	1:A:216:SER:N	2.79	0.45
1:A:674:GLN:HE21	1:A:674:GLN:HB3	1.54	0.45
1:A:120:TYR:CE2	1:A:130:ILE:HD11	2.52	0.45
1:A:244:LEU:CD1	1:A:249:ALA:CA	2.91	0.45
1:A:387:VAL:HG23	1:A:388:VAL:HG13	1.97	0.45
1:A:588:PHE:HB3	1:A:613:SER:HB3	1.99	0.45
1:A:106:ILE:O	1:A:173:LYS:NZ	2.50	0.45
1:A:205:ILE:HG21	1:A:217:ILE:HG12	1.98	0.45
1:A:293:MET:HG3	1:A:294:GLU:N	2.32	0.45
1:A:117:ALA:HA	1:A:161:GLN:HE21	1.82	0.45
1:A:198:ASN:OD1	1:A:198:ASN:C	2.54	0.45
1:A:288:ASP:CG	1:A:292:ASN:OD1	2.55	0.45
1:A:82:PHE:CD1	1:A:215:ILE:HD13	2.49	0.44
1:A:210:LYS:CG	1:A:295:SER:OG	2.58	0.44
1:A:80:VAL:CB	1:A:217:ILE:HD13	2.45	0.44
1:A:113:GLU:OE2	1:A:163:SER:CA	2.59	0.44
1:A:272:TYR:CE1	1:A:547:VAL:HG21	2.52	0.44
1:A:134:LEU:HA	1:A:135:PRO:HD3	1.85	0.44
1:A:246:ALA:C	1:A:249:ALA:CB	2.86	0.44
1:A:154:ASN:HA	1:A:157:VAL:HG12	2.00	0.44
1:A:336:GLY:O	1:A:655:THR:CG2	2.66	0.44
1:A:673:TYR:O	1:A:676:TYR:HB3	2.17	0.44
1:A:194:THR:O	1:A:195:ASP:OD1	2.35	0.44
1:A:52:THR:O	1:A:284:GLU:CA	2.63	0.44
1:A:149:GLU:O	1:A:153:TYR:HB2	2.18	0.44
1:A:391:ALA:CB	1:A:482:PHE:CE1	3.01	0.44
1:A:631:ASN:OD1	1:A:653:HIS:N	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:54:ILE:HD12	1:A:285:ILE:HD11	2.00	0.44
1:A:82:PHE:CE2	1:A:181:LEU:HD22	2.53	0.43
1:A:652:PRO:O	1:A:653:HIS:C	2.55	0.43
1:A:167:TYR:CD1	1:A:171:GLU:HG3	2.53	0.43
1:A:422:ASN:CB	1:A:426:THR:HG21	2.47	0.43
1:A:244:LEU:HD13	1:A:245:PRO:HD2	1.99	0.43
1:A:425:TYR:HH	1:A:444:SER:HB2	1.78	0.43
1:A:651:PHE:CD1	1:A:651:PHE:C	2.90	0.43
1:A:89:THR:O	1:A:92:ASP:HB2	2.18	0.43
1:A:334:ASN:OD1	1:A:334:ASN:C	2.57	0.43
1:A:113:GLU:CD	1:A:163:SER:CB	2.57	0.43
1:A:114:ARG:H	1:A:114:ARG:HG2	1.58	0.43
1:A:227:GLU:C	1:A:228:THR:CG2	2.86	0.43
1:A:293:MET:CE	1:A:295:SER:H	2.30	0.43
1:A:422:ASN:CB	1:A:426:THR:CG2	2.97	0.43
1:A:94:LYS:HE2	1:A:119:TYR:CZ	2.54	0.43
1:A:383:VAL:HG12	1:A:522:ASN:HD21	1.84	0.43
1:A:283:LYS:CD	1:A:296:VAL:CG1	2.96	0.43
1:A:77:LYS:HE3	1:A:221:TRP:N	2.34	0.43
1:A:134:LEU:HD21	1:A:160:VAL:HG11	2.01	0.42
1:A:342:GLY:HA3	1:A:361:ILE:O	2.19	0.42
1:A:245:PRO:O	1:A:246:ALA:C	2.57	0.42
1:A:622:TYR:O	1:A:623:VAL:HB	2.19	0.42
1:A:666:ALA:HA	1:A:669:ILE:HD12	2.01	0.42
1:A:58:SER:N	1:A:221:TRP:HH2	2.17	0.42
1:A:82:PHE:N	1:A:190:GLY:O	2.45	0.42
1:A:105:SER:C	1:A:106:ILE:CG1	2.83	0.42
1:A:322:ALA:O	1:A:323:LEU:C	2.57	0.42
1:A:491:THR:N	1:A:498:GLU:OE1	2.51	0.42
1:A:422:ASN:CG	1:A:426:THR:HG21	2.40	0.42
1:A:642:ASN:ND2	1:A:642:ASN:O	2.52	0.42
1:A:121:LEU:HD21	1:A:130:ILE:CD1	2.45	0.42
1:A:310:LEU:HA	1:A:310:LEU:HD23	1.69	0.42
1:A:651:PHE:C	1:A:651:PHE:HD1	2.23	0.42
1:A:230:LEU:O	1:A:231:SER:C	2.57	0.42
1:A:212:MET:N	1:A:213:PRO:CD	2.81	0.42
1:A:287:LEU:HA	1:A:294:GLU:HG3	2.01	0.42
1:A:177:LEU:O	1:A:178:PHE:C	2.56	0.42
1:A:327:TYR:CD2	1:A:665:ILE:HG12	2.54	0.42
1:A:424:TRP:CE2	1:A:425:TYR:HD1	2.38	0.42
1:A:449:VAL:HG13	1:A:513:ILE:HG23	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:167:TYR:HD1	1:A:171:GLU:CG	2.32	0.42
1:A:658:THR:CG2	1:A:659:ASN:N	2.81	0.42
1:A:227:GLU:O	1:A:228:THR:HG22	2.20	0.41
1:A:285:ILE:HG21	1:A:293:MET:SD	2.60	0.41
1:A:630:THR:HG23	1:A:657:LEU:HD13	2.02	0.41
1:A:209:SER:C	1:A:211:GLU:H	2.23	0.41
1:A:195:ASP:O	1:A:196:PRO:O	2.38	0.41
1:A:233:ILE:O	1:A:267:TYR:HB3	2.21	0.41
1:A:434:ILE:HD11	1:A:439:ALA:HA	2.02	0.41
1:A:473:SER:O	1:A:476:GLU:CG	2.66	0.41
1:A:56:SER:O	1:A:57:SER:C	2.57	0.41
1:A:618:THR:HA	1:A:631:ASN:O	2.20	0.41
1:A:655:THR:HG23	1:A:656:ASN:N	2.34	0.41
1:A:131:VAL:O	1:A:133:ALA:N	2.54	0.41
1:A:406:GLN:HG3	1:A:407:THR:N	2.36	0.41
1:A:123:ASP:OD1	1:A:124:PRO:HD2	2.20	0.41
1:A:215:ILE:HG22	1:A:216:SER:N	2.36	0.41
1:A:445:ASN:O	1:A:446:THR:C	2.59	0.41
1:A:105:SER:O	1:A:106:ILE:HD13	2.20	0.41
1:A:281:SER:C	1:A:282:VAL:CG2	2.89	0.41
1:A:502:PHE:O	1:A:504:PRO:CD	2.54	0.41
1:A:631:ASN:OD1	1:A:652:PRO:CA	2.57	0.41
1:A:391:ALA:HB3	1:A:482:PHE:CE1	2.55	0.41
1:A:123:ASP:CG	1:A:126:ILE:HG12	2.41	0.41
1:A:134:LEU:CD2	1:A:160:VAL:CB	2.92	0.41
1:A:562:LEU:CD2	1:A:565:GLN:HG3	2.47	0.41
1:A:656:ASN:C	1:A:658:THR:H	2.24	0.41
1:A:79:VAL:O	1:A:217:ILE:CD1	2.68	0.40
1:A:157:VAL:CG1	1:A:158:ASP:H	2.33	0.40
1:A:298:THR:HG21	1:A:301:GLU:HG3	2.02	0.40
1:A:310:LEU:HD22	1:A:546:ILE:HG22	2.03	0.40
1:A:493:ILE:HA	1:A:544:PRO:O	2.20	0.40
1:A:197:LEU:HB3	1:A:202:VAL:HG22	2.04	0.40
1:A:641:ASP:C	1:A:641:ASP:OD1	2.60	0.40
1:A:54:ILE:CD1	1:A:285:ILE:HD11	2.51	0.40
1:A:197:LEU:HD23	1:A:197:LEU:HA	1.82	0.40
1:A:390:ALA:O	1:A:391:ALA:C	2.60	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	A	615/682 (90%)	514 (84%)	69 (11%)	32 (5%)	2 13

All (32) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	85	SER
1	A	126	ILE
1	A	172	LYS
1	A	196	PRO
1	A	247	GLU
1	A	251	ALA
1	A	295	SER
1	A	621	SER
1	A	622	TYR
1	A	623	VAL
1	A	627	GLN
1	A	681	HIS
1	A	86	ASN
1	A	109	PRO
1	A	114	ARG
1	A	213	PRO
1	A	125	GLU
1	A	171	GLU
1	A	176	TYR
1	A	624	ALA
1	A	90	ALA
1	A	132	GLU
1	A	192	ILE
1	A	193	ALA
1	A	261	ASP
1	A	430	GLY
1	A	177	LEU
1	A	198	ASN

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Mol	Chain	Res	Type
1	A	274	GLU
1	A	538	ASN
1	A	106	ILE
1	A	434	ILE

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	518/577 (90%)	464 (90%)	54 (10%)	7	25

All (54) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	52	THR
1	A	58	SER
1	A	65	ASP
1	A	73	GLU
1	A	76	LEU
1	A	77	LYS
1	A	79	VAL
1	A	88	MET
1	A	93	LEU
1	A	107	SER
1	A	108	SER
1	A	114	ARG
1	A	127	TYR
1	A	132	GLU
1	A	151	GLU
1	A	153	TYR
1	A	158	ASP
1	A	162	THR
1	A	171	GLU
1	A	208	ILE
1	A	209	SER
1	A	223	ARG

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Mol	Chain	Res	Type
1	A	232	SER
1	A	244	LEU
1	A	258	SER
1	A	265	THR
1	A	287	LEU
1	A	297	ASP
1	A	314	LEU
1	A	324	LEU
1	A	341	GLU
1	A	358	MET
1	A	359	SER
1	A	377	THR
1	A	386	SER
1	A	389	LYS
1	A	426	THR
1	A	443	SER
1	A	458	GLN
1	A	459	THR
1	A	505	LYS
1	A	506	GLU
1	A	522	ASN
1	A	559	LEU
1	A	564	GLN
1	A	571	MET
1	A	575	ASN
1	A	625	ASP
1	A	630	THR
1	A	633	ASN
1	A	651	PHE
1	A	672	LEU
1	A	674	GLN
1	A	682	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	201	GLN
1	A	307	ASN
1	A	422	ASN
1	A	427	GLN
1	A	450	GLN
1	A	511	ASN

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Mol	Chain	Res	Type
1	A	522	ASN
1	A	553	ASN
1	A	575	ASN
1	A	590	GLN
1	A	642	ASN
1	A	674	GLN
1	A	677	HIS
1	A	681	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 ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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	619/682 (90%)	0.15	10 (1%)	72	70	66, 91, 108, 127	0

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	624	ALA	4.0
1	A	209	SER	4.0
1	A	157	VAL	3.3
1	A	459	THR	3.2
1	A	208	ILE	3.1
1	A	158	ASP	2.7
1	A	161	GLN	2.7
1	A	153	TYR	2.6
1	A	134	LEU	2.6
1	A	297	ASP	2.4

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 ⓘ

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	CL	A	700	1/1	0.95	0.12	61,61,61,61	0
2	CL	A	701	1/1	0.95	0.10	63,63,63,63	0

6.5　Other polymers ⓘ

There are no such residues in this entry.