



# Full wwPDB X-ray Structure Validation Report ⓘ

Nov 24, 2021 – 06:14 pm GMT

PDB ID : 6Z9Y  
Title : Copper transporter OprC  
Authors : Bhamidimarri, S.P.; van den Berg, B.  
Deposited on : 2020-06-04  
Resolution : 2.95 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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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 : 2.23.2  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0267  
CCP4 : 7.1.010 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.23.2

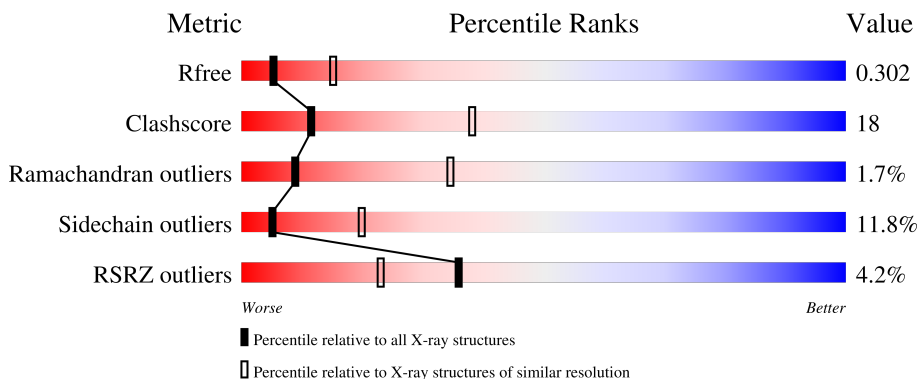
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.95 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	3104 (3.00-2.92)
Clashscore	141614	3462 (3.00-2.92)
Ramachandran outliers	138981	3340 (3.00-2.92)
Sidechain outliers	138945	3343 (3.00-2.92)
RSRZ outliers	127900	2986 (3.00-2.92)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	723	
1	B	723	
1	C	723	
1	D	723	

## 2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 20158 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 Putative copper transport outer membrane porin OprC.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	657	5092	3195	899	979	19	0	0	0
1	B	645	5004	3141	882	966	15	0	0	0
1	C	640	4970	3123	878	955	14	0	0	0
1	D	656	5088	3194	898	977	19	0	1	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	323	ALA	HIS	engineered mutation	UNP G3XD89
B	323	ALA	HIS	engineered mutation	UNP G3XD89
C	323	ALA	HIS	engineered mutation	UNP G3XD89
D	323	ALA	HIS	engineered mutation	UNP G3XD89

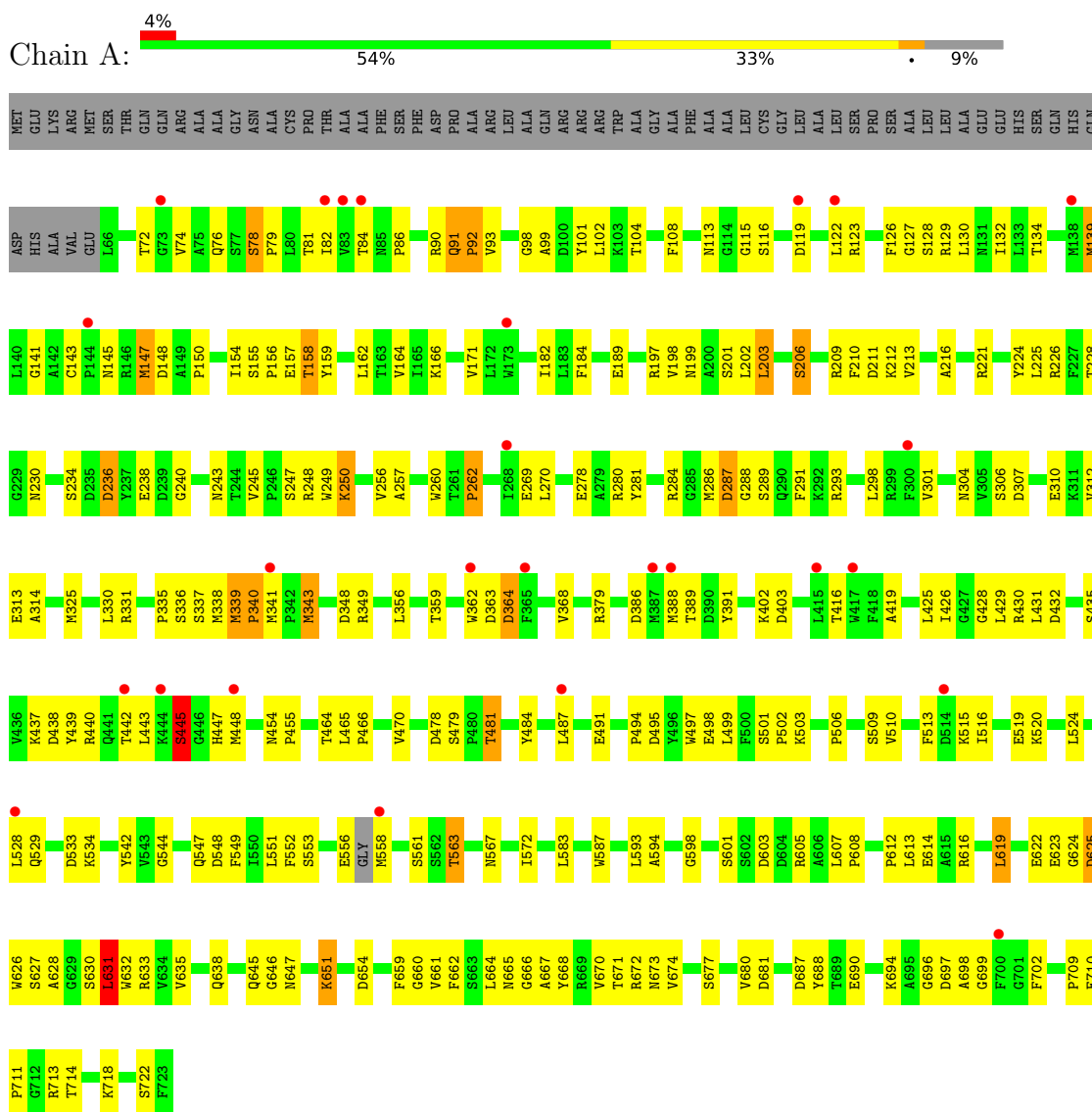
- Molecule 2 is COPPER (II) ION (three-letter code: CU) (formula: Cu).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total 1	Cu 1	0	0
2	B	1	Total 1	Cu 1	0	0
2	C	1	Total 1	Cu 1	0	0
2	D	1	Total 1	Cu 1	0	0

### 3 Residue-property plots

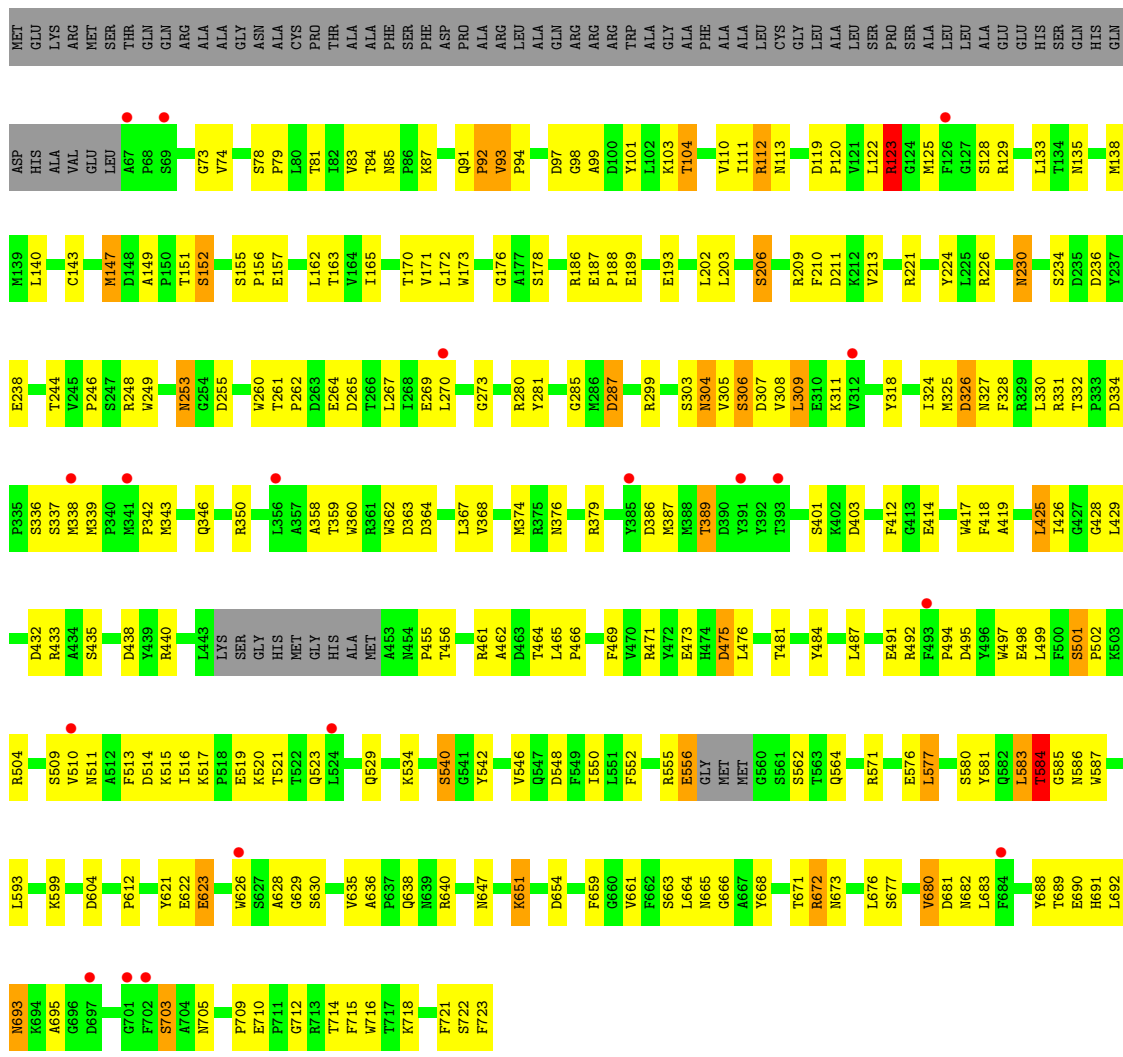
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Putative copper transport outer membrane porin OprC

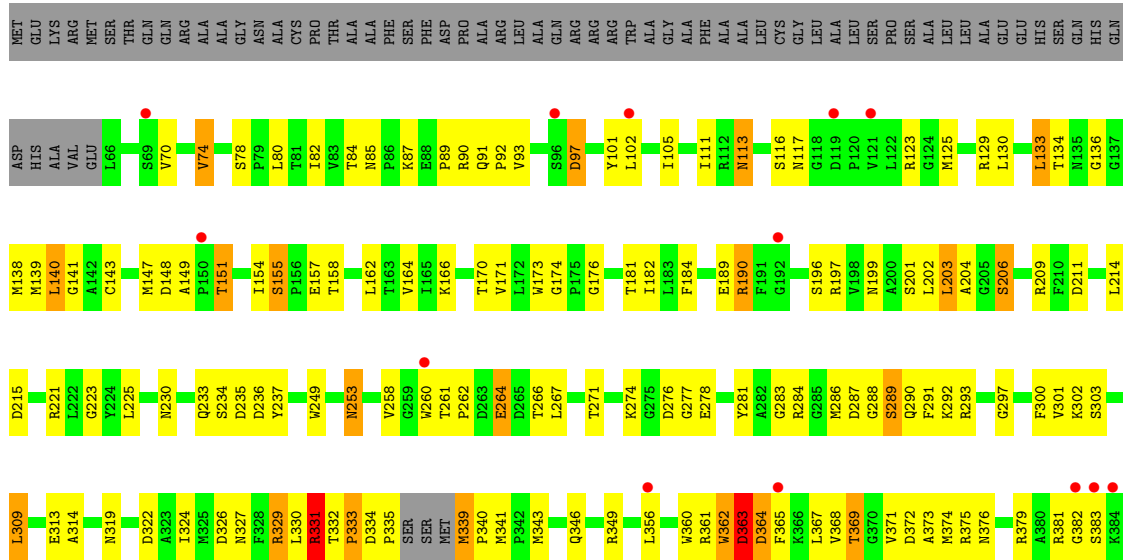


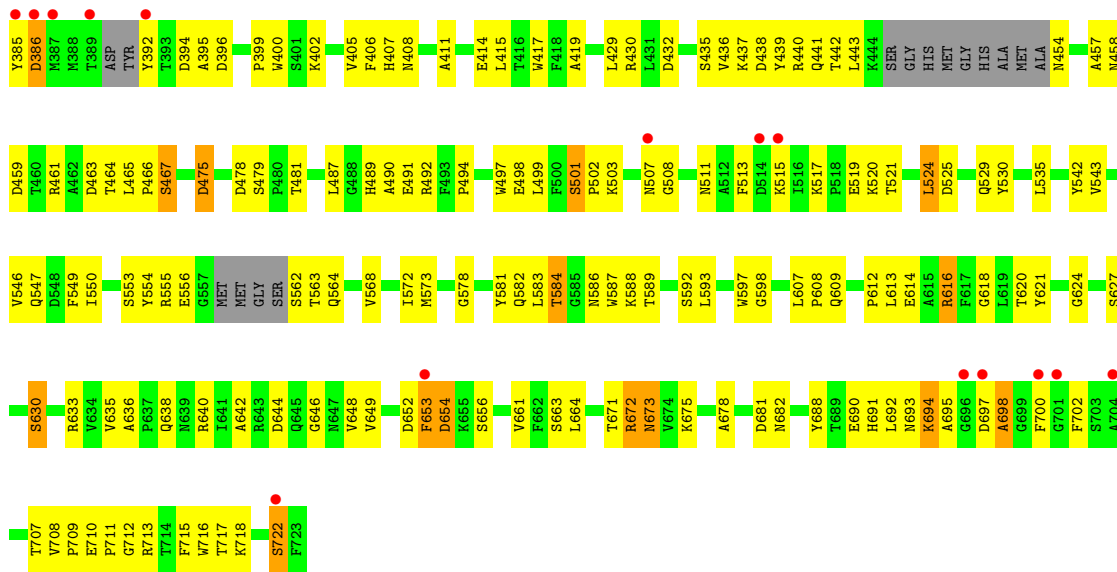
- Molecule 1: Putative copper transport outer membrane porin OprC



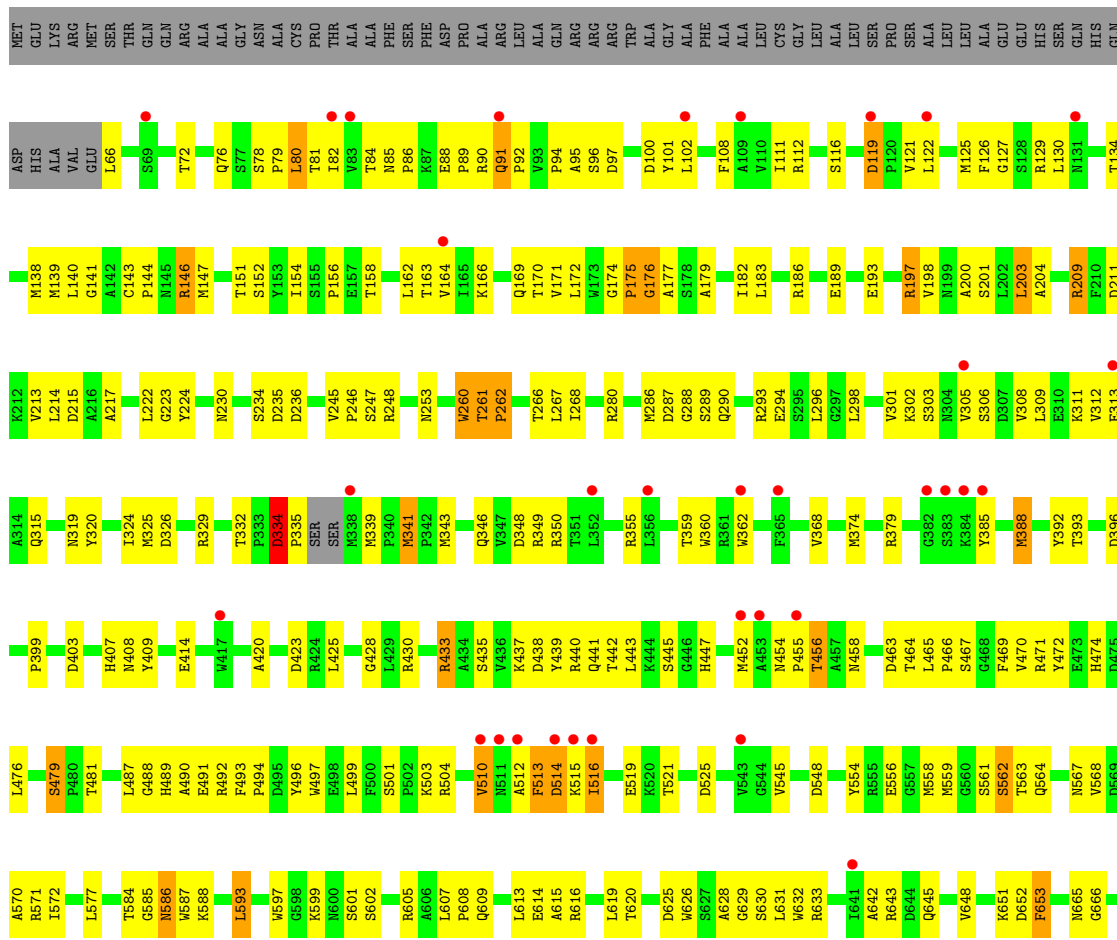


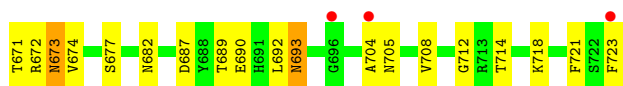
● Molecule 1: Putative copper transport outer membrane porin OprC





• Molecule 1: Putative copper transport outer membrane porin OprC





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	67.34Å 197.67Å 171.75Å 90.00° 88.75° 90.00°	Depositor
Resolution (Å)	85.85 – 2.95 171.71 – 2.95	Depositor EDS
% Data completeness (in resolution range)	98.0 (85.85-2.95) 93.7 (171.71-2.95)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.15 (at 2.96Å)	Xtrriage
Refinement program	PHENIX 1.18_3855	Depositor
R, $R_{free}$	0.242 , 0.302 0.244 , 0.302	Depositor DCC
$R_{free}$ test set	4619 reflections (4.91%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	69.5	Xtrriage
Anisotropy	0.404	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	(Not available) , (Not available)	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	0.238 for h,-k,-l	Xtrriage
$F_o, F_c$ correlation	0.88	EDS
Total number of atoms	20158	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	66.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.24% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.



## 5 Model quality

### 5.1 Standard geometry

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

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	0/5218	0.69	2/7072 (0.0%)
1	B	0.51	0/5127	0.70	0/6952
1	C	0.49	1/5090 (0.0%)	0.70	1/6898 (0.0%)
1	D	0.44	0/5217	0.67	2/7071 (0.0%)
All	All	0.48	1/20652 (0.0%)	0.69	5/27993 (0.0%)

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	B	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	713	ARG	CG-CD	5.56	1.65	1.51

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	340	PRO	C-N-CA	8.15	142.09	121.70
1	D	334	ASP	C-N-CD	6.40	141.84	128.40
1	C	102	LEU	CA-CB-CG	5.22	127.31	115.30
1	D	222	LEU	CA-CB-CG	5.21	127.29	115.30
1	A	631	LEU	CA-CB-CG	5.16	127.16	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	92	PRO	Peptide

## 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	5092	0	4870	170	0
1	B	5004	0	4779	171	0
1	C	4970	0	4759	195	0
1	D	5088	0	4870	164	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
All	All	20158	0	19278	692	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 18.

All (692) 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:B:171:VAL:HG22	1:B:414:GLU:HG3	1.51	0.93
1:B:504:ARG:HH12	1:B:555:ARG:HB3	1.37	0.90
1:A:630:SER:HB3	1:A:664:LEU:HD23	1.53	0.88
1:D:253:ASN:HD22	1:D:293:ARG:HH21	1.26	0.84
1:D:324:ILE:HG12	1:D:346:GLN:HG3	1.59	0.84
1:D:476:LEU:HD12	1:D:481:THR:HB	1.59	0.83
1:B:111:ILE:HG22	1:B:692:LEU:HB3	1.60	0.82
1:B:386:ASP:HB3	1:B:389:THR:HG22	1.61	0.82
1:B:374:MET:SD	1:B:376:ASN:ND2	2.53	0.82
1:C:466:PRO:HG2	1:D:466:PRO:HG2	1.62	0.82
1:A:445:SER:HB2	1:A:503:LYS:HE3	1.62	0.81
1:B:129:ARG:NH1	1:B:519:GLU:OE1	2.13	0.81
1:C:614:GLU:OE2	1:C:633:ARG:NE	2.12	0.81
1:C:695:ALA:HB2	1:C:708:VAL:HG23	1.60	0.81
1:A:72:THR:HB	1:A:631:LEU:HD22	1.63	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:671:THR:HG23	1:B:673:ASN:H	1.46	0.80
1:C:300:PHE:HZ	1:C:302:LYS:HD2	1.47	0.80
1:D:548:ASP:HB3	1:D:567:ASN:HD22	1.47	0.80
1:D:172:LEU:HD21	1:D:414:GLU:HB2	1.62	0.80
1:C:695:ALA:HB3	1:C:707:THR:HA	1.64	0.79
1:B:672:ARG:H	1:B:672:ARG:HD2	1.47	0.78
1:C:286:MET:HG2	1:C:327:ASN:HB3	1.64	0.78
1:C:147:MET:HB3	1:C:284:ARG:HE	1.48	0.77
1:A:664:LEU:HB2	1:A:680:VAL:HG22	1.65	0.77
1:C:82:ILE:HD11	1:C:166:LYS:HE3	1.64	0.77
1:C:164:VAL:HG22	1:C:182:ILE:HG13	1.66	0.77
1:D:260:TRP:HB3	1:D:268:ILE:HD11	1.66	0.77
1:B:521:THR:HG23	1:B:546:VAL:HG22	1.67	0.76
1:A:466:PRO:HG2	1:B:466:PRO:HG2	1.68	0.76
1:C:612:PRO:HG3	1:C:638:GLN:HB2	1.68	0.76
1:D:176:GLY:HA3	1:D:492:ARG:HG3	1.67	0.75
1:A:499:LEU:HD22	1:A:513:PHE:HA	1.69	0.75
1:C:203:LEU:HB3	1:C:211:ASP:HB3	1.68	0.74
1:A:91:GLN:NE2	1:A:665:ASN:HB3	2.02	0.74
1:A:616:ARG:HE	1:A:633:ARG:HD2	1.52	0.74
1:D:671:THR:HG22	1:D:674:VAL:HG12	1.68	0.73
1:B:133:LEU:HD11	1:B:173:TRP:HB3	1.71	0.73
1:C:492:ARG:NH2	1:C:519:GLU:OE2	2.21	0.73
1:B:495:ASP:HB2	1:B:498:GLU:HG3	1.70	0.73
1:A:671:THR:HG22	1:A:674:VAL:HG12	1.70	0.72
1:B:203:LEU:HD12	1:B:718:LYS:HB2	1.71	0.72
1:A:129:ARG:NH1	1:A:519:GLU:OE1	2.23	0.72
1:B:504:ARG:HB3	1:B:564:GLN:HG3	1.71	0.72
1:A:99:ALA:HA	1:A:102:LEU:HD12	1.70	0.71
1:B:230:ASN:ND2	1:B:253:ASN:OD1	2.22	0.71
1:A:698:ALA:H	1:A:702:PHE:HB2	1.55	0.70
1:C:467:SER:HB3	1:C:490:ALA:HA	1.73	0.70
1:A:91:GLN:HB3	1:A:92:PRO:HD3	1.74	0.70
1:C:653:PHE:HD1	1:C:654:ASP:H	1.38	0.69
1:B:465:LEU:HB3	1:B:491:GLU:HB2	1.74	0.69
1:C:441:GLN:O	1:C:454:ASN:N	2.25	0.69
1:D:584:THR:HG22	1:D:587:TRP:HB2	1.75	0.69
1:C:221:ARG:O	1:C:261:THR:OG1	2.09	0.69
1:C:379:ARG:HA	1:C:402:LYS:HA	1.75	0.69
1:D:643:ARG:HH21	1:D:653:PHE:HE1	1.41	0.69
1:C:87:LYS:NZ	1:C:157:GLU:O	2.26	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:175:PRO:O	1:D:177:ALA:N	2.23	0.68
1:C:97:ASP:OD2	1:C:117:ASN:N	2.24	0.68
1:A:335:PRO:HA	1:A:340:PRO:HB3	1.76	0.68
1:D:163:THR:HB	1:D:183:LEU:HB2	1.75	0.68
1:D:455:PRO:HG3	1:D:510:VAL:HB	1.75	0.68
1:B:495:ASP:HB3	1:B:497:TRP:H	1.59	0.67
1:C:290:GLN:HB3	1:C:324:ILE:HG13	1.77	0.67
1:A:403:ASP:HB2	1:A:440:ARG:HG2	1.75	0.67
1:A:613:LEU:HD12	1:A:614:GLU:H	1.58	0.67
1:D:138:MET:HE3	1:D:140:LEU:HD21	1.77	0.67
1:C:214:LEU:HD12	1:C:215:ASP:H	1.60	0.67
1:C:465:LEU:HB3	1:C:491:GLU:HB2	1.77	0.67
1:B:84:THR:HG23	1:B:162:LEU:HB3	1.77	0.67
1:C:372:ASP:OD2	1:C:430:ARG:NH2	2.28	0.67
1:D:288:GLY:HA2	1:D:325:MET:HG2	1.77	0.67
1:C:274:LYS:HB2	1:C:292:LYS:HZ1	1.60	0.66
1:A:122:LEU:HG	1:A:123:ARG:HG3	1.78	0.66
1:A:583:LEU:HD12	1:A:587:TRP:HB3	1.78	0.66
1:A:497:TRP:O	1:A:501:SER:HB2	1.96	0.66
1:D:614:GLU:OE2	1:D:616:ARG:NH2	2.28	0.66
1:C:129:ARG:NH1	1:C:519:GLU:OE2	2.30	0.65
1:B:91:GLN:O	1:B:93:VAL:N	2.29	0.65
1:B:584:THR:HB	1:B:586:ASN:H	1.61	0.65
1:A:547:GLN:HG3	1:B:433:ARG:HH12	1.61	0.65
1:C:283:GLY:HA2	1:C:695:ALA:HA	1.77	0.65
1:D:441:GLN:NE2	1:D:458:ASN:OD1	2.29	0.65
1:B:672:ARG:HD2	1:B:672:ARG:N	2.12	0.65
1:C:274:LYS:HB2	1:C:292:LYS:NZ	2.11	0.65
1:D:467:SER:HB2	1:D:490:ALA:HA	1.78	0.65
1:C:584:THR:HB	1:C:586:ASN:H	1.62	0.65
1:C:682:ASN:HD22	1:C:712:GLY:HA2	1.61	0.65
1:D:616:ARG:HE	1:D:633:ARG:HD2	1.62	0.64
1:A:203:LEU:HD12	1:A:718:LYS:HB2	1.79	0.64
1:C:361:ARG:NH2	1:C:363:ASP:O	2.30	0.64
1:D:341:MET:HB3	1:D:385:TYR:HD1	1.62	0.64
1:D:503:LYS:HD3	1:D:562:SER:HB2	1.80	0.64
1:B:638:GLN:HG2	1:B:691:HIS:NE2	2.12	0.64
1:A:587:TRP:HZ3	1:A:619:LEU:HD21	1.63	0.64
1:B:635:VAL:HG11	1:B:659:PHE:CZ	2.32	0.64
1:B:83:VAL:HG22	1:B:163:THR:HG23	1.80	0.63
1:C:300:PHE:CZ	1:C:302:LYS:HD2	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:428:GLY:N	1:D:469:PHE:O	2.30	0.63
1:B:122:LEU:HG	1:B:123:ARG:HD3	1.80	0.63
1:B:484:TYR:OH	1:B:540:SER:HB2	1.98	0.63
1:C:116:SER:OG	1:C:117:ASN:N	2.31	0.62
1:C:546:VAL:HG11	1:C:549:PHE:HD1	1.64	0.62
1:C:264:GLU:CD	1:C:264:GLU:H	2.03	0.62
1:B:586:ASN:ND2	1:B:622:GLU:O	2.30	0.61
1:A:548:ASP:HB3	1:A:567:ASN:HD22	1.65	0.61
1:B:456:THR:HG21	1:B:511:ASN:HD21	1.65	0.61
1:C:206:SER:HG	1:C:715:PHE:H	1.48	0.61
1:D:465:LEU:HB3	1:D:491:GLU:HB2	1.82	0.61
1:A:437:LYS:HD3	1:A:439:TYR:CZ	2.36	0.61
1:D:262:PRO:HD2	1:D:266:THR:HB	1.82	0.61
1:A:141:GLY:O	1:A:349:ARG:HD3	2.00	0.61
1:D:236:ASP:HB3	1:D:245:VAL:O	2.01	0.61
1:B:693:ASN:OD1	1:B:693:ASN:N	2.25	0.61
1:C:407:HIS:HB2	1:C:435:SER:HB3	1.83	0.61
1:B:111:ILE:HD11	1:B:119:ASP:HB3	1.83	0.60
1:B:128:SER:OG	1:B:495:ASP:OD1	2.19	0.60
1:D:236:ASP:OD2	1:D:280:ARG:NH1	2.34	0.60
1:C:289:SER:OG	1:C:326:ASP:OD2	2.13	0.60
1:D:125:MET:HE3	1:D:572:ILE:HG21	1.82	0.60
1:B:638:GLN:HG2	1:B:691:HIS:CD2	2.36	0.60
1:C:682:ASN:ND2	1:C:712:GLY:HA2	2.16	0.60
1:C:237:TYR:OH	1:C:709:PRO:O	2.10	0.60
1:C:260:TRP:CE2	1:C:262:PRO:HG3	2.36	0.60
1:C:555:ARG:O	1:C:562:SER:N	2.34	0.60
1:D:129:ARG:NH2	1:D:519:GLU:OE2	2.35	0.60
1:A:608:PRO:HG3	1:A:645:GLN:HB3	1.84	0.60
1:B:311:LYS:HB3	1:B:359:THR:HG22	1.84	0.60
1:A:203:LEU:HB3	1:A:211:ASP:HB2	1.84	0.59
1:D:620:THR:HG22	1:D:629:GLY:HA3	1.84	0.59
1:D:203:LEU:HB3	1:D:211:ASP:HB2	1.84	0.59
1:C:417:TRP:CE2	1:C:419:ALA:HB2	2.37	0.59
1:C:125:MET:HE3	1:C:572:ILE:HG21	1.84	0.59
1:A:113:ASN:HB3	1:A:281:TYR:HD1	1.68	0.59
1:C:614:GLU:OE2	1:C:616:ARG:NH2	2.35	0.59
1:A:509:SER:OG	1:A:510:VAL:N	2.33	0.59
1:A:551:LEU:HD11	1:A:608:PRO:HG2	1.85	0.59
1:B:123:ARG:NH1	1:B:576:GLU:OE1	2.35	0.59
1:D:91:GLN:HG2	1:D:665:ASN:HB3	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:203:LEU:HD12	1:D:718:LYS:HB2	1.84	0.59
1:D:548:ASP:HB3	1:D:567:ASN:ND2	2.17	0.59
1:C:91:GLN:NE2	1:C:681:ASP:OD1	2.34	0.59
1:C:616:ARG:HE	1:C:633:ARG:HD2	1.67	0.59
1:A:416:THR:HG23	1:A:426:ILE:HG13	1.85	0.58
1:A:628:ALA:HA	1:A:666:GLY:HA2	1.85	0.58
1:B:555:ARG:HD2	1:B:556:GLU:H	1.68	0.58
1:D:493:PHE:CD1	1:D:494:PRO:HD2	2.38	0.58
1:D:294:GLU:HB2	1:D:320:TYR:HB3	1.85	0.58
1:B:209:ARG:HD2	1:B:234:SER:HB2	1.85	0.58
1:B:123:ARG:HG2	1:B:542:TYR:CE2	2.39	0.58
1:A:363:ASP:OD1	1:A:364:ASP:N	2.34	0.58
1:B:638:GLN:HE22	1:B:640:ARG:HB2	1.67	0.58
1:A:533:ASP:OD1	1:A:534:LYS:N	2.37	0.58
1:B:688:TYR:CE2	1:B:710:GLU:HG3	2.38	0.58
1:A:189:GLU:OE1	1:A:197:ARG:NH2	2.37	0.57
1:C:573:MET:HG3	1:C:597:TRP:HB3	1.85	0.57
1:B:339:MET:HG2	1:B:343:MET:SD	2.45	0.57
1:A:479:SER:OG	1:A:481:THR:OG1	2.21	0.57
1:C:441:GLN:HG3	1:C:457:ALA:HB1	1.86	0.57
1:D:705:ASN:OD1	1:D:705:ASN:N	2.33	0.57
1:C:394:ASP:O	1:C:396:ASP:N	2.30	0.57
1:A:209:ARG:NH1	1:A:211:ASP:OD2	2.32	0.57
1:A:622:GLU:HB3	1:A:627:SER:HB3	1.86	0.57
1:B:93:VAL:HG12	1:B:681:ASP:OD2	2.05	0.57
1:A:76:GLN:HE21	1:A:529:GLN:NE2	2.03	0.56
1:C:443:LEU:HD23	1:C:454:ASN:N	2.20	0.56
1:D:609:GLN:NE2	1:D:652:ASP:OD1	2.36	0.56
1:A:338:MET:HE3	1:A:339:MET:H	1.71	0.56
1:A:646:GLY:HA3	1:A:651:LYS:HA	1.86	0.56
1:B:583:LEU:HD12	1:B:587:TRP:HB3	1.87	0.56
1:D:201:SER:HB3	1:D:213:VAL:HB	1.86	0.56
1:D:260:TRP:NE1	1:D:262:PRO:HG3	2.21	0.56
1:B:364:ASP:HB3	1:B:418:PHE:HB2	1.87	0.56
1:A:213:VAL:HG23	1:A:230:ASN:HB3	1.87	0.56
1:A:78:SER:O	1:A:529:GLN:NE2	2.38	0.56
1:A:206:SER:HB2	1:A:714:THR:HG23	1.88	0.56
1:B:311:LYS:HB3	1:B:359:THR:CG2	2.35	0.56
1:C:441:GLN:NE2	1:C:458:ASN:OD1	2.39	0.56
1:A:260:TRP:NE1	1:A:262:PRO:HG3	2.21	0.56
1:C:581:TYR:HD2	1:C:582:GLN:H	1.53	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:497:TRP:O	1:C:502:PRO:HD3	2.05	0.56
1:D:494:PRO:HB2	1:D:499:LEU:HD22	1.88	0.56
1:B:238:GLU:HG3	1:B:244:THR:HG22	1.87	0.56
1:C:339:MET:HG3	1:C:340:PRO:HD3	1.87	0.55
1:C:653:PHE:CZ	1:C:707:THR:HG21	2.41	0.55
1:D:608:PRO:HG3	1:D:645:GLN:HB3	1.87	0.55
1:A:616:ARG:HA	1:A:632:TRP:O	2.06	0.55
1:C:85:ASN:O	1:C:87:LYS:N	2.40	0.55
1:C:189:GLU:OE1	1:C:197:ARG:NH2	2.35	0.55
1:A:667:ALA:HB2	1:A:677:SER:HB3	1.89	0.55
1:C:151:THR:HA	1:C:154:ILE:HG13	1.89	0.55
1:B:133:LEU:CD1	1:B:173:TRP:HB3	2.35	0.55
1:B:689:THR:HG22	1:B:709:PRO:HA	1.89	0.55
1:C:140:LEU:HB3	1:C:349:ARG:HD3	1.88	0.55
1:C:521:THR:HG23	1:C:546:VAL:HG22	1.88	0.55
1:D:682:ASN:HD22	1:D:712:GLY:HA2	1.71	0.55
1:B:112:ARG:HB3	1:B:693:ASN:HB3	1.87	0.55
1:C:141:GLY:O	1:C:349:ARG:HD2	2.07	0.55
1:C:498:GLU:HG2	1:C:550:ILE:HG21	1.87	0.55
1:A:698:ALA:HA	1:A:702:PHE:H	1.72	0.55
1:D:91:GLN:HB3	1:D:92:PRO:HD3	1.89	0.55
1:A:598:GLY:HA3	1:A:607:LEU:HD12	1.88	0.54
1:B:85:ASN:O	1:B:87:LYS:N	2.40	0.54
1:C:608:PRO:HB2	1:C:646:GLY:HA2	1.90	0.54
1:A:143:CYS:SG	1:A:147:MET:HG3	2.47	0.54
1:A:491:GLU:OE2	1:A:520:LYS:HE3	2.08	0.54
1:B:432:ASP:O	1:B:464:THR:HA	2.06	0.54
1:B:672:ARG:H	1:B:672:ARG:CD	2.18	0.54
1:C:616:ARG:HH21	1:C:633:ARG:NE	2.06	0.54
1:D:463:ASP:OD1	1:D:464:THR:N	2.40	0.54
1:D:690:GLU:HB2	1:D:693:ASN:OD1	2.07	0.54
1:A:198:VAL:HG23	1:A:216:ALA:HB2	1.88	0.54
1:C:301:VAL:HG22	1:C:313:GLU:HG2	1.89	0.54
1:A:260:TRP:CE2	1:A:262:PRO:HG3	2.43	0.54
1:A:603:ASP:HB3	1:A:605:ARG:HE	1.72	0.54
1:C:360:TRP:HE1	1:C:369:THR:CG2	2.21	0.54
1:D:169:GLN:OE1	1:D:471:ARG:NH1	2.40	0.54
1:C:143:CYS:SG	1:C:147:MET:HG2	2.47	0.54
1:C:364:ASP:N	1:C:364:ASP:OD1	2.41	0.54
1:A:301:VAL:HA	1:A:312:VAL:O	2.08	0.54
1:A:91:GLN:HE21	1:A:665:ASN:HB3	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:223:GLY:HA2	1:C:261:THR:HG23	1.90	0.54
1:A:442:THR:O	1:A:443:LEU:HD23	2.08	0.53
1:B:101:TYR:CD1	1:B:156:PRO:HG2	2.42	0.53
1:D:584:THR:OG1	1:D:585:GLY:N	2.40	0.53
1:D:143:CYS:SG	1:D:147:MET:HG3	2.48	0.53
1:D:359:THR:HG23	1:D:368:VAL:HG12	1.91	0.53
1:D:141:GLY:O	1:D:349:ARG:HD3	2.09	0.53
1:D:171:VAL:HG22	1:D:414:GLU:HG3	1.91	0.53
1:C:583:LEU:HD12	1:C:587:TRP:HB3	1.90	0.53
1:C:547:GLN:NE2	1:D:433:ARG:HE	2.05	0.53
1:C:190:ARG:HE	1:C:190:ARG:HA	1.74	0.53
1:D:628:ALA:HA	1:D:666:GLY:HA2	1.91	0.53
1:C:74:VAL:CG2	1:C:105:ILE:HG12	2.39	0.53
1:C:682:ASN:HD22	1:C:712:GLY:CA	2.22	0.53
1:D:261:THR:O	1:D:261:THR:OG1	2.24	0.52
1:B:265:ASP:OD1	1:B:304:ASN:ND2	2.42	0.52
1:D:96:SER:O	1:D:96:SER:OG	2.25	0.52
1:A:84:THR:HG22	1:A:162:LEU:HB3	1.92	0.52
1:B:171:VAL:HG23	1:B:412:PHE:HB2	1.90	0.52
1:C:385:TYR:CG	1:C:386:ASP:N	2.75	0.52
1:D:671:THR:CG2	1:D:674:VAL:HG12	2.37	0.52
1:A:506:PRO:HB2	1:A:515:LYS:HD3	1.91	0.52
1:B:157:GLU:OE1	1:B:718:LYS:NZ	2.27	0.52
1:C:586:ASN:HB3	1:C:621:TYR:CE2	2.45	0.52
1:C:613:LEU:HD23	1:C:614:GLU:H	1.75	0.52
1:A:108:PHE:HZ	1:A:182:ILE:HD11	1.74	0.52
1:B:326:ASP:HA	1:B:343:MET:O	2.10	0.52
1:B:471:ARG:HD2	1:B:473:GLU:OE2	2.10	0.52
1:C:123:ARG:HB3	1:C:542:TYR:OH	2.10	0.52
1:C:555:ARG:NH2	1:C:562:SER:OG	2.43	0.52
1:C:609:GLN:NE2	1:C:652:ASP:OD1	2.35	0.52
1:D:119:ASP:OD2	1:D:146:ARG:NH1	2.43	0.52
1:D:290:GLN:HB3	1:D:324:ILE:H	1.74	0.52
1:A:363:ASP:CG	1:A:364:ASP:H	2.12	0.52
1:C:475:ASP:N	1:C:475:ASP:OD1	2.42	0.52
1:D:479:SER:OG	1:D:481:THR:OG1	2.14	0.52
1:A:209:ARG:HD2	1:A:234:SER:HB2	1.92	0.52
1:B:189:GLU:HB2	1:B:224:TYR:CD2	2.45	0.52
1:B:403:ASP:HB2	1:B:440:ARG:HG2	1.92	0.52
1:D:76:GLN:HE21	1:D:166:LYS:HE3	1.74	0.52
1:D:341:MET:HB3	1:D:385:TYR:CD1	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:613:LEU:HD12	1:A:614:GLU:N	2.25	0.51
1:B:682:ASN:HB3	1:B:712:GLY:O	2.10	0.51
1:C:343:MET:HB2	1:C:383:SER:OG	2.11	0.51
1:B:203:LEU:HB3	1:B:211:ASP:HB2	1.92	0.51
1:C:438:ASP:OD1	1:C:439:TYR:N	2.43	0.51
1:D:348:ASP:OD2	1:D:379:ARG:NH2	2.43	0.51
1:B:103:LYS:HG2	1:B:110:VAL:HG21	1.91	0.51
1:D:91:GLN:CG	1:D:665:ASN:HB3	2.40	0.51
1:C:203:LEU:HD12	1:C:718:LYS:HG3	1.92	0.51
1:C:613:LEU:HD23	1:C:614:GLU:N	2.25	0.51
1:A:202:LEU:HD13	1:C:225:LEU:HD12	1.93	0.51
1:A:115:GLY:N	1:A:247:SER:HB2	2.26	0.51
1:D:309:LEU:HD12	1:D:360:TRP:CH2	2.46	0.51
1:D:577:LEU:CD2	1:D:593:LEU:HB3	2.41	0.51
1:A:314:ALA:HB2	1:A:356:LEU:HD12	1.93	0.51
1:A:623:GLU:O	1:A:625:ASP:N	2.40	0.51
1:D:614:GLU:OE2	1:D:633:ARG:NE	2.31	0.51
1:A:671:THR:HG22	1:A:674:VAL:CG1	2.40	0.51
1:D:445:SER:OG	1:D:445:SER:O	2.26	0.50
1:A:74:VAL:HG23	1:A:104:THR:O	2.11	0.50
1:B:176:GLY:O	1:B:492:ARG:HD3	2.11	0.50
1:C:138:MET:O	1:C:319:ASN:ND2	2.40	0.50
1:A:126:PHE:CG	1:A:127:GLY:N	2.79	0.50
1:A:386:ASP:HB3	1:A:391:TYR:H	1.75	0.50
1:B:498:GLU:HB3	1:B:550:ILE:HG21	1.92	0.50
1:C:461:ARG:NH1	1:C:513:PHE:O	2.43	0.50
1:C:549:PHE:N	1:C:568:VAL:O	2.35	0.50
1:B:91:GLN:HE22	1:B:663:SER:HB3	1.76	0.50
1:B:172:LEU:HD21	1:B:414:GLU:HB2	1.93	0.50
1:B:260:TRP:CE2	1:B:262:PRO:HG3	2.47	0.50
1:B:586:ASN:ND2	1:B:623:GLU:HB2	2.26	0.50
1:C:463:ASP:OD1	1:C:464:THR:N	2.43	0.50
1:C:84:THR:HG21	1:C:90:ARG:HH12	1.76	0.50
1:D:512:ALA:O	1:D:514:ASP:N	2.45	0.50
1:A:549:PHE:HE2	1:A:551:LEU:HD13	1.75	0.50
1:C:202:LEU:O	1:C:718:LYS:HA	2.12	0.50
1:C:642:ALA:O	1:C:652:ASP:HB2	2.11	0.50
1:D:97:ASP:HA	1:D:154:ILE:O	2.11	0.50
1:A:671:THR:HG23	1:A:673:ASN:H	1.77	0.50
1:C:171:VAL:HG22	1:C:414:GLU:OE2	2.12	0.50
1:C:287:ASP:OD1	1:C:331:ARG:HD3	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:379:ARG:HD2	1:C:400:TRP:HB3	1.92	0.50
1:C:618:GLY:HA2	1:C:630:SER:O	2.12	0.50
1:A:379:ARG:HG2	1:A:402:LYS:HB2	1.94	0.49
1:A:544:GLY:O	1:A:572:ILE:HG13	2.11	0.49
1:C:661:VAL:HG21	1:C:688:TYR:CZ	2.47	0.49
1:D:72:THR:HG22	1:D:631:LEU:HD22	1.92	0.49
1:A:238:GLU:HA	1:A:243:ASN:O	2.11	0.49
1:C:148:ASP:HB3	1:C:291:PHE:CE1	2.47	0.49
1:A:248:ARG:HD3	1:A:280:ARG:NH2	2.27	0.49
1:B:113:ASN:HB3	1:B:281:TYR:CD1	2.47	0.49
1:D:454:ASN:OD1	1:D:456:THR:N	2.43	0.49
1:D:586:ASN:N	1:D:586:ASN:OD1	2.46	0.49
1:B:703:SER:O	1:B:703:SER:OG	2.23	0.49
1:A:633:ARG:NH2	1:A:690:GLU:OE1	2.41	0.49
1:A:236:ASP:N	1:A:236:ASP:OD1	2.43	0.49
1:A:339:MET:HE2	1:A:343:MET:HB3	1.94	0.49
1:D:84:THR:HG23	1:D:162:LEU:HB3	1.95	0.49
1:D:497:TRP:O	1:D:501:SER:HB2	2.13	0.49
1:D:554:TYR:CD2	1:D:651:LYS:HB3	2.48	0.49
1:A:113:ASN:HB3	1:A:281:TYR:CD1	2.47	0.49
1:B:494:PRO:HA	1:B:498:GLU:OE1	2.12	0.49
1:A:287:ASP:OD2	1:A:331:ARG:HG2	2.13	0.49
1:C:155:SER:HB3	1:C:158:THR:HG23	1.95	0.49
1:C:234:SER:HB3	1:C:249:TRP:CE2	2.48	0.49
1:A:91:GLN:O	1:A:93:VAL:N	2.45	0.48
1:C:70:VAL:HG22	1:C:89:PRO:HB2	1.94	0.48
1:D:513:PHE:HD1	1:D:513:PHE:O	1.96	0.48
1:D:584:THR:HG23	1:D:586:ASN:N	2.28	0.48
1:A:119:ASP:HB3	1:A:126:PHE:HE1	1.77	0.48
1:B:91:GLN:HG3	1:B:665:ASN:CG	2.33	0.48
1:B:91:GLN:HG2	1:B:716:TRP:HZ2	1.78	0.48
1:D:95:ALA:HB3	1:D:100:ASP:OD2	2.13	0.48
1:D:197:ARG:CZ	1:D:197:ARG:HB2	2.41	0.48
1:A:164:VAL:HG13	1:A:182:ILE:HD13	1.96	0.48
1:A:269:GLU:O	1:A:298:LEU:HD12	2.13	0.48
1:B:224:TYR:OH	1:B:269:GLU:OE1	2.19	0.48
1:A:82:ILE:HD11	1:A:166:LYS:HE2	1.96	0.48
1:B:306:SER:OG	1:B:307:ASP:N	2.46	0.48
1:C:203:LEU:HB3	1:C:211:ASP:CB	2.40	0.48
1:C:309:LEU:HD13	1:C:360:TRP:CE3	2.49	0.48
1:A:552:PHE:HB2	1:A:647:ASN:HA	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:698:ALA:HB2	1:C:702:PHE:HB2	1.96	0.48
1:A:630:SER:HB2	1:A:662:PHE:CZ	2.49	0.48
1:B:264:GLU:CD	1:B:264:GLU:H	2.16	0.48
1:B:475:ASP:OD1	1:B:475:ASP:N	2.46	0.48
1:B:206:SER:HG	1:B:715:PHE:H	1.61	0.48
1:C:162:LEU:HD13	1:C:184:PHE:CE2	2.49	0.48
1:C:578:GLY:HA2	1:C:592:SER:HA	1.94	0.48
1:D:151:THR:HA	1:D:154:ILE:HD12	1.96	0.48
1:D:467:SER:HB2	1:D:489:HIS:O	2.14	0.48
1:A:428:GLY:O	1:A:429:LEU:HD23	2.14	0.48
1:A:668:TYR:HE2	1:A:670:VAL:HG22	1.78	0.48
1:B:280:ARG:HA	1:B:287:ASP:HB3	1.95	0.48
1:C:494:PRO:HB2	1:C:499:LEU:HG	1.95	0.48
1:C:497:TRP:O	1:C:501:SER:HB2	2.14	0.48
1:D:631:LEU:HD12	1:D:632:TRP:N	2.28	0.48
1:B:99:ALA:HB1	1:B:110:VAL:HG13	1.94	0.48
1:C:432:ASP:O	1:C:464:THR:HA	2.14	0.48
1:C:515:LYS:NZ	1:D:514:ASP:OD2	2.47	0.48
1:D:298:LEU:O	1:D:315:GLN:HA	2.14	0.48
1:D:423:ASP:OD2	1:D:472:TYR:OH	2.28	0.48
1:D:584:THR:HG23	1:D:586:ASN:H	1.78	0.48
1:A:445:SER:O	1:A:445:SER:OG	2.27	0.48
1:D:101:TYR:CD1	1:D:156:PRO:HG2	2.49	0.48
1:D:197:ARG:HH12	1:D:217:ALA:HB3	1.79	0.48
1:D:577:LEU:HD21	1:D:593:LEU:HB3	1.96	0.48
1:A:79:PRO:HB3	1:A:484:TYR:CD2	2.48	0.47
1:A:495:ASP:HB2	1:A:498:GLU:HG3	1.96	0.47
1:A:694:LYS:HB3	1:A:694:LYS:HE3	1.55	0.47
1:B:584:THR:HG22	1:B:585:GLY:H	1.78	0.47
1:B:635:VAL:HG22	1:B:636:ALA:O	2.14	0.47
1:C:520:LYS:NZ	1:D:464:THR:O	2.38	0.47
1:D:80:LEU:HD22	1:D:166:LYS:O	2.14	0.47
1:B:309:LEU:HD21	1:B:358:ALA:HB1	1.96	0.47
1:A:91:GLN:HB3	1:A:92:PRO:CD	2.42	0.47
1:A:128:SER:OG	1:A:495:ASP:OD1	2.24	0.47
1:B:84:THR:OG1	1:B:85:ASN:N	2.41	0.47
1:B:236:ASP:OD2	1:B:280:ARG:NH1	2.47	0.47
1:B:501:SER:N	1:B:502:PRO:HD2	2.30	0.47
1:C:82:ILE:HG21	1:C:105:ILE:HD13	1.96	0.47
1:D:325:MET:HE2	1:D:325:MET:HB2	1.73	0.47
1:C:74:VAL:HG23	1:C:105:ILE:HG12	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:176:GLY:HA3	1:C:492:ARG:HG3	1.96	0.47
1:C:314:ALA:HB2	1:C:356:LEU:HD12	1.94	0.47
1:C:588:LYS:HB3	1:C:620:THR:OG1	2.15	0.47
1:A:432:ASP:O	1:A:464:THR:HA	2.14	0.47
1:A:491:GLU:HA	1:A:519:GLU:O	2.14	0.47
1:D:438:ASP:OD1	1:D:439:TYR:N	2.48	0.47
1:B:334:ASP:O	1:B:337:SER:OG	2.33	0.47
1:D:334:ASP:N	1:D:334:ASP:OD1	2.47	0.47
1:A:431:LEU:HD13	1:A:466:PRO:HB3	1.97	0.47
1:B:635:VAL:HG11	1:B:659:PHE:CE2	2.50	0.47
1:B:661:VAL:HG21	1:B:688:TYR:CZ	2.50	0.47
1:C:385:TYR:O	1:C:386:ASP:HB2	2.14	0.47
1:B:143:CYS:SG	1:B:147:MET:HG3	2.55	0.47
1:B:305:VAL:HB	1:B:309:LEU:HB3	1.96	0.47
1:B:350:ARG:HH22	1:B:379:ARG:NH2	2.13	0.47
1:C:91:GLN:O	1:C:93:VAL:N	2.47	0.47
1:D:214:LEU:HD12	1:D:215:ASP:N	2.29	0.47
1:A:681:ASP:O	1:A:713:ARG:HA	2.15	0.47
1:B:213:VAL:HG22	1:B:230:ASN:HB2	1.97	0.47
1:B:221:ARG:NH1	1:B:264:GLU:OE2	2.48	0.47
1:B:517:LYS:HD3	1:B:548:ASP:OD2	2.14	0.47
1:D:108:PHE:HA	1:D:121:VAL:O	2.15	0.47
1:D:463:ASP:HB3	1:D:465:LEU:HD11	1.97	0.47
1:B:84:THR:CG2	1:B:162:LEU:HB3	2.43	0.46
1:B:638:GLN:NE2	1:B:640:ARG:HB2	2.29	0.46
1:C:204:ALA:HA	1:C:209:ARG:O	2.16	0.46
1:A:101:TYR:OH	1:A:157:GLU:HG3	2.14	0.46
1:B:91:GLN:HG3	1:B:665:ASN:OD1	2.16	0.46
1:B:491:GLU:HA	1:B:519:GLU:O	2.15	0.46
1:C:373:ALA:HA	1:C:408:ASN:O	2.15	0.46
1:C:672:ARG:HG2	1:C:672:ARG:HH21	1.80	0.46
1:D:108:PHE:CE1	1:D:122:LEU:HB2	2.49	0.46
1:A:257:ALA:HA	1:A:270:LEU:O	2.15	0.46
1:B:491:GLU:OE1	1:B:520:LYS:HG2	2.16	0.46
1:C:489:HIS:HA	1:C:521:THR:O	2.16	0.46
1:D:407:HIS:HB2	1:D:435:SER:OG	2.15	0.46
1:C:97:ASP:O	1:C:101:TYR:HD1	1.98	0.46
1:D:139:MET:O	1:D:140:LEU:HD23	2.16	0.46
1:A:556:GLU:OE1	1:A:561:SER:HB3	2.15	0.46
1:A:593:LEU:HD21	1:A:613:LEU:HD11	1.98	0.46
1:B:626:TRP:HB3	1:B:668:TYR:HD1	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:266:THR:OG1	1:C:302:LYS:HE3	2.16	0.46
1:C:436:VAL:HG22	1:C:513:PHE:HE2	1.81	0.46
1:C:691:HIS:O	1:C:691:HIS:ND1	2.49	0.46
1:B:91:GLN:NE2	1:B:664:LEU:O	2.49	0.46
1:B:111:ILE:HG12	1:B:119:ASP:O	2.15	0.46
1:B:638:GLN:NE2	1:B:640:ARG:H	2.13	0.46
1:D:204:ALA:HA	1:D:209:ARG:O	2.15	0.46
1:D:593:LEU:HD12	1:D:615:ALA:HB2	1.98	0.46
1:A:287:ASP:CG	1:A:331:ARG:HE	2.19	0.46
1:B:73:GLY:HA2	1:B:104:THR:O	2.14	0.46
1:C:555:ARG:HH12	1:C:564:GLN:HB2	1.81	0.46
1:A:240:GLY:HA3	1:A:687:ASP:HA	1.98	0.46
1:B:93:VAL:HG11	1:B:716:TRP:CD1	2.51	0.46
1:C:555:ARG:HB3	1:C:555:ARG:CZ	2.46	0.46
1:C:672:ARG:HG2	1:C:672:ARG:NH2	2.31	0.46
1:D:267:LEU:HD12	1:D:268:ILE:H	1.81	0.46
1:A:464:THR:C	1:A:465:LEU:HD23	2.36	0.46
1:D:248:ARG:HD3	1:D:280:ARG:NH2	2.31	0.46
1:D:689:THR:HG23	1:D:708:VAL:O	2.16	0.45
1:A:359:THR:HG23	1:A:368:VAL:HG22	1.97	0.45
1:A:623:GLU:HG2	1:A:626:TRP:NE1	2.30	0.45
1:A:667:ALA:CB	1:A:677:SER:HB3	2.45	0.45
1:A:710:GLU:HG3	1:A:711:PRO:HD2	1.97	0.45
1:B:690:GLU:HB2	1:B:693:ASN:OD1	2.17	0.45
1:D:267:LEU:HD12	1:D:268:ILE:N	2.31	0.45
1:B:81:THR:HG22	1:B:165:ILE:HD13	1.99	0.45
1:A:429:LEU:HD21	1:B:429:LEU:HD11	1.99	0.45
1:D:89:PRO:HG3	1:D:718:LYS:HD3	1.99	0.45
1:A:171:VAL:HB	1:A:430:ARG:HB3	1.99	0.45
1:A:612:PRO:HB3	1:A:638:GLN:HB2	1.99	0.45
1:B:367:LEU:HD12	1:B:414:GLU:O	2.16	0.45
1:D:504:ARG:HG3	1:D:564:GLN:HG3	1.98	0.45
1:D:673:ASN:OD1	1:D:673:ASN:N	2.48	0.45
1:B:202:LEU:O	1:B:718:LYS:HA	2.15	0.45
1:D:139:MET:SD	1:D:319:ASN:HB3	2.57	0.45
1:A:158:THR:CG2	1:A:230:ASN:HD22	2.29	0.45
1:B:103:LYS:HG2	1:B:110:VAL:CG2	2.45	0.45
1:B:327:ASN:OD1	1:B:342:PRO:HA	2.17	0.45
1:C:170:THR:HG21	1:C:173:TRP:HD1	1.81	0.45
1:C:694:LYS:HB3	1:C:695:ALA:H	1.69	0.45
1:D:437:LYS:HD3	1:D:439:TYR:CZ	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:214:LEU:HD12	1:C:215:ASP:N	2.29	0.45
1:C:276:ASP:OD1	1:C:277:GLY:N	2.44	0.45
1:C:437:LYS:HG3	1:C:459:ASP:O	2.17	0.45
1:B:651:LYS:HB3	1:B:651:LYS:HE2	1.55	0.45
1:C:230:ASN:OD1	1:C:253:ASN:ND2	2.47	0.45
1:C:638:GLN:N	1:C:656:SER:OG	2.36	0.45
1:D:198:VAL:CG1	1:D:723:PHE:HB2	2.47	0.45
1:D:472:TYR:CZ	1:D:474:HIS:HB2	2.51	0.45
1:A:250:LYS:HB2	1:A:278:GLU:HG2	1.98	0.44
1:A:661:VAL:HG21	1:A:688:TYR:CE1	2.52	0.44
1:D:438:ASP:OD1	1:D:440:ARG:HG3	2.17	0.44
1:D:515:LYS:O	1:D:516:ILE:HG12	2.17	0.44
1:A:108:PHE:CE2	1:A:122:LEU:HD13	2.53	0.44
1:B:120:PRO:HG3	1:B:151:THR:HG21	1.98	0.44
1:D:158:THR:OG1	1:D:186:ARG:NH2	2.50	0.44
1:A:313:GLU:O	1:A:356:LEU:HA	2.17	0.44
1:A:697:ASP:C	1:A:699:GLY:H	2.21	0.44
1:B:555:ARG:HD2	1:B:556:GLU:N	2.32	0.44
1:B:359:THR:OG1	1:B:368:VAL:HG22	2.16	0.44
1:C:371:VAL:HA	1:C:411:ALA:HA	1.99	0.44
1:D:343:MET:HA	1:D:392:TYR:HE2	1.81	0.44
1:A:698:ALA:N	1:A:702:PHE:HB2	2.28	0.44
1:C:710:GLU:HB3	1:C:711:PRO:HD2	1.99	0.44
1:A:443:LEU:HG	1:A:454:ASN:HB2	1.98	0.44
1:C:367:LEU:HB2	1:C:415:LEU:HD23	2.00	0.44
1:A:86:PRO:HG2	1:A:159:TYR:O	2.18	0.44
1:B:476:LEU:HD23	1:B:476:LEU:HA	1.84	0.44
1:C:113:ASN:HB2	1:C:281:TYR:HD2	1.82	0.44
1:C:374:MET:SD	1:C:376:ASN:ND2	2.89	0.44
1:D:374:MET:HE3	1:D:408:ASN:HB3	2.00	0.44
1:A:494:PRO:HB2	1:A:499:LEU:HG	1.99	0.44
1:B:481:THR:HA	1:B:529:GLN:O	2.17	0.44
1:B:516:ILE:HA	1:B:516:ILE:HD13	1.80	0.44
1:D:350:ARG:HH22	1:D:379:ARG:NH2	2.16	0.44
1:A:189:GLU:HB2	1:A:224:TYR:CD1	2.52	0.44
1:A:661:VAL:HG21	1:A:688:TYR:CZ	2.53	0.44
1:B:304:ASN:OD1	1:B:304:ASN:N	2.50	0.44
1:B:428:GLY:O	1:B:429:LEU:HD23	2.18	0.44
1:D:84:THR:CG2	1:D:162:LEU:HB3	2.48	0.44
1:D:85:ASN:ND2	1:D:88:GLU:HG2	2.33	0.44
1:D:597:TRP:CH2	1:D:599:LYS:HB2	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:608:PRO:HB3	1:D:642:ALA:HB3	2.00	0.44
1:A:157:GLU:H	1:A:157:GLU:CD	2.21	0.43
1:B:125:MET:HB3	1:B:129:ARG:HD2	2.00	0.43
1:C:133:LEU:HD13	1:C:136:GLY:O	2.17	0.43
1:C:140:LEU:HB3	1:C:349:ARG:CD	2.48	0.43
1:D:76:GLN:HE21	1:D:166:LYS:CE	2.31	0.43
1:B:111:ILE:CG2	1:B:692:LEU:HB3	2.39	0.43
1:B:189:GLU:OE1	1:B:226:ARG:HD2	2.18	0.43
1:C:284:ARG:NH1	1:C:694:LYS:HG3	2.32	0.43
1:C:292:LYS:HB3	1:C:322:ASP:HB3	2.00	0.43
1:C:581:TYR:CD2	1:C:582:GLN:N	2.86	0.43
1:D:326:ASP:OD2	1:D:329:ARG:NE	2.51	0.43
1:B:149:ALA:O	1:B:152:SER:N	2.42	0.43
1:C:84:THR:CG2	1:C:90:ARG:HH12	2.31	0.43
1:D:334:ASP:HB2	1:D:335:PRO:HD3	2.00	0.43
1:A:78:SER:HB2	1:A:81:THR:HB	2.01	0.43
1:A:154:ILE:HG21	1:A:184:PHE:CD2	2.54	0.43
1:A:162:LEU:HD13	1:A:184:PHE:CE1	2.52	0.43
1:B:438:ASP:HB2	1:B:513:PHE:CE2	2.53	0.43
1:C:116:SER:HG	1:C:117:ASN:H	1.66	0.43
1:C:524:LEU:HD23	1:C:543:VAL:HG22	2.01	0.43
1:A:249:TRP:O	1:A:250:LYS:HG2	2.18	0.43
1:A:288:GLY:HA3	1:A:291:PHE:CZ	2.53	0.43
1:A:438:ASP:HB2	1:A:513:PHE:CE2	2.54	0.43
1:B:577:LEU:HD11	1:B:593:LEU:HD22	2.00	0.43
1:B:324:ILE:HG12	1:B:346:GLN:HG3	2.01	0.43
1:B:612:PRO:HG2	1:B:635:VAL:CG2	2.49	0.43
1:C:278:GLU:HA	1:C:288:GLY:O	2.18	0.43
1:D:234:SER:OG	1:D:235:ASP:N	2.51	0.43
1:D:584:THR:HG23	1:D:587:TRP:H	1.83	0.43
1:B:85:ASN:C	1:B:87:LYS:H	2.22	0.43
1:B:363:ASP:CG	1:B:364:ASP:H	2.20	0.43
1:C:261:THR:OG1	1:C:261:THR:O	2.36	0.43
1:C:346:GLN:NE2	1:C:381:ARG:HD2	2.33	0.43
1:C:581:TYR:HD2	1:C:582:GLN:N	2.16	0.43
1:A:635:VAL:HG21	1:A:659:PHE:CZ	2.54	0.43
1:B:91:GLN:NE2	1:B:680:VAL:O	2.52	0.43
1:B:248:ARG:HG2	1:B:249:TRP:N	2.34	0.43
1:B:255:ASP:HA	1:B:273:GLY:HA3	2.00	0.43
1:C:199:ASN:HB2	1:C:215:ASP:HB3	2.01	0.43
1:C:515:LYS:HB2	1:C:515:LYS:HE2	1.89	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:143:CYS:HB2	1:A:325:MET:SD	2.59	0.43
1:B:203:LEU:O	1:B:210:PHE:HA	2.19	0.43
1:C:371:VAL:HG12	1:C:411:ALA:HB2	2.01	0.43
1:C:405:VAL:O	1:C:436:VAL:HA	2.17	0.43
1:C:363:ASP:OD2	1:C:363:ASP:N	2.51	0.43
1:D:334:ASP:HB2	1:D:335:PRO:CD	2.48	0.43
1:A:587:TRP:CZ3	1:A:619:LEU:HD21	2.49	0.42
1:C:203:LEU:HB2	1:C:718:LYS:HG3	2.01	0.42
1:C:672:ARG:N	1:C:672:ARG:HD3	2.34	0.42
1:A:289:SER:HB3	1:A:330:LEU:CD1	2.49	0.42
1:D:189:GLU:HB2	1:D:224:TYR:CZ	2.53	0.42
1:A:341:MET:H	1:A:341:MET:HG2	1.66	0.42
1:A:631:LEU:HD12	1:A:632:TRP:N	2.33	0.42
1:D:443:LEU:O	1:D:452:MET:HB2	2.19	0.42
1:A:93:VAL:HG12	1:A:681:ASP:OD2	2.20	0.42
1:C:673:ASN:OD1	1:C:673:ASN:N	2.52	0.42
1:D:102:LEU:HD22	1:D:108:PHE:CE2	2.54	0.42
1:D:143:CYS:HA	1:D:144:PRO:HD3	1.83	0.42
1:D:489:HIS:HA	1:D:521:THR:O	2.19	0.42
1:A:101:TYR:CD1	1:A:156:PRO:HG2	2.54	0.42
1:A:501:SER:N	1:A:502:PRO:HD2	2.34	0.42
1:C:678:ALA:HA	1:C:716:TRP:O	2.20	0.42
1:D:469:PHE:HA	1:D:488:GLY:HA2	2.01	0.42
1:A:145:ASN:O	1:A:284:ARG:NH1	2.49	0.42
1:A:245:VAL:CG2	1:A:709:PRO:HG2	2.50	0.42
1:B:309:LEU:HG	1:B:360:TRP:CZ3	2.55	0.42
1:C:638:GLN:OE1	1:C:640:ARG:N	2.41	0.42
1:D:163:THR:O	1:D:183:LEU:N	2.51	0.42
1:A:608:PRO:HB3	1:A:645:GLN:O	2.20	0.42
1:C:271:THR:O	1:C:297:GLY:N	2.53	0.42
1:C:333:PRO:O	1:C:335:PRO:HD3	2.20	0.42
1:D:189:GLU:OE1	1:D:197:ARG:NH1	2.52	0.42
1:A:139:MET:HE1	1:A:293:ARG:HG3	2.01	0.42
1:B:91:GLN:HG3	1:B:665:ASN:HB3	2.01	0.42
1:B:202:LEU:HD23	1:B:721:PHE:HE2	1.85	0.42
1:C:375:ARG:HA	1:C:406:PHE:O	2.20	0.42
1:D:350:ARG:NH2	1:D:379:ARG:NH2	2.68	0.42
1:B:425:LEU:O	1:B:426:ILE:HG13	2.20	0.42
1:B:495:ASP:HB2	1:B:498:GLU:H	1.84	0.42
1:B:540:SER:O	1:B:540:SER:OG	2.38	0.42
1:B:586:ASN:HB3	1:B:621:TYR:CE1	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:130:LEU:HD23	1:D:179:ALA:HB3	2.01	0.42
1:D:467:SER:CB	1:D:490:ALA:HA	2.48	0.42
1:D:571:ARG:HG3	1:D:601:SER:OG	2.19	0.42
1:B:79:PRO:O	1:B:81:THR:HG23	2.19	0.42
1:B:499:LEU:HD23	1:B:516:ILE:HB	2.01	0.42
1:C:101:TYR:OH	1:C:157:GLU:HG2	2.20	0.42
1:C:381:ARG:NH1	1:C:396:ASP:OD1	2.52	0.42
1:A:98:GLY:HA2	1:A:156:PRO:CG	2.50	0.41
1:A:633:ARG:O	1:A:660:GLY:HA2	2.20	0.41
1:B:628:ALA:HA	1:B:666:GLY:HA2	2.02	0.41
1:C:253:ASN:HB3	1:C:293:ARG:HH12	1.85	0.41
1:C:379:ARG:HG2	1:C:402:LYS:HB3	2.01	0.41
1:D:111:ILE:HG23	1:D:692:LEU:O	2.20	0.41
1:A:225:LEU:HD23	1:A:226:ARG:N	2.34	0.41
1:C:125:MET:CE	1:C:572:ILE:HG21	2.48	0.41
1:D:339:MET:O	1:D:339:MET:HG3	2.19	0.41
1:A:155:SER:HB3	1:A:157:GLU:OE1	2.20	0.41
1:A:553:SER:O	1:A:563:THR:HA	2.19	0.41
1:B:571:ARG:NH2	1:B:599:LYS:HD3	2.35	0.41
1:C:598:GLY:O	1:C:607:LEU:HB2	2.21	0.41
1:A:101:TYR:CD2	1:A:156:PRO:HB2	2.55	0.41
1:C:479:SER:OG	1:C:481:THR:HG23	2.19	0.41
1:C:688:TYR:CE1	1:C:710:GLU:HB2	2.55	0.41
1:D:301:VAL:HA	1:D:312:VAL:O	2.21	0.41
1:A:132:ILE:HA	1:A:182:ILE:HB	2.03	0.41
1:A:447:HIS:CE1	1:A:448:MET:HG2	2.55	0.41
1:A:465:LEU:HB3	1:A:491:GLU:HB2	2.03	0.41
1:C:174:GLY:HA2	1:C:430:ARG:NH2	2.35	0.41
1:C:261:THR:HG22	1:C:267:LEU:HD23	2.03	0.41
1:C:290:GLN:OE1	1:C:292:LYS:HB2	2.21	0.41
1:D:286:MET:HG3	1:D:326:ASP:O	2.20	0.41
1:D:311:LYS:HE2	1:D:313:GLU:HB2	2.01	0.41
1:A:593:LEU:HD23	1:A:594:ALA:N	2.36	0.41
1:B:111:ILE:HD13	1:B:111:ILE:HG21	1.74	0.41
1:C:113:ASN:HB2	1:C:281:TYR:CD2	2.55	0.41
1:C:125:MET:HE3	1:C:572:ILE:HD13	2.03	0.41
1:D:174:GLY:O	1:D:430:ARG:NH1	2.53	0.41
1:A:155:SER:CB	1:A:230:ASN:HD21	2.34	0.41
1:A:524:LEU:O	1:A:542:TYR:HA	2.21	0.41
1:A:668:TYR:CE2	1:A:670:VAL:HG22	2.55	0.41
1:B:328:PHE:CD1	1:B:342:PRO:HB2	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:455:PRO:HB2	1:B:510:VAL:CG1	2.51	0.41
1:B:583:LEU:HB2	1:B:587:TRP:HB2	2.01	0.41
1:C:362:TRP:CD1	1:C:365:PHE:HB2	2.56	0.41
1:B:103:LYS:CG	1:B:110:VAL:HG21	2.51	0.41
1:B:417:TRP:CE2	1:B:419:ALA:HA	2.55	0.41
1:C:367:LEU:HB2	1:C:415:LEU:CD2	2.51	0.41
1:C:671:THR:OG1	1:C:672:ARG:N	2.53	0.41
1:A:455:PRO:HB2	1:A:510:VAL:CG1	2.50	0.41
1:A:696:GLY:HA3	1:A:702:PHE:CG	2.56	0.41
1:B:261:THR:HG22	1:B:267:LEU:HD13	2.03	0.41
1:B:318:TYR:OH	1:B:350:ARG:HD3	2.20	0.41
1:B:428:GLY:HA3	1:B:469:PHE:CE1	2.56	0.41
1:C:203:LEU:HA	1:C:717:THR:O	2.21	0.41
1:D:82:ILE:HD11	1:D:166:LYS:HE2	2.03	0.41
1:D:86:PRO:C	1:D:88:GLU:H	2.24	0.41
1:D:90:ARG:HB2	1:D:94:PRO:HD3	2.03	0.41
1:D:182:ILE:O	1:D:183:LEU:HD23	2.21	0.41
1:D:349:ARG:HH12	1:D:496:TYR:HB3	1.85	0.41
1:D:497:TRP:HB3	1:D:648:VAL:HG21	2.03	0.41
1:D:570:ALA:HB1	1:D:607:LEU:HD11	2.03	0.41
1:B:94:PRO:HG2	1:B:101:TYR:CZ	2.56	0.41
1:B:360:TRP:HB2	1:B:362:TRP:HZ3	1.86	0.41
1:B:692:LEU:HD23	1:B:692:LEU:HA	1.79	0.41
1:C:202:LEU:HA	1:C:202:LEU:HD23	1.84	0.41
1:D:126:PHE:CG	1:D:127:GLY:N	2.89	0.41
1:A:134:THR:HG23	1:A:134:THR:O	2.21	0.40
1:A:139:MET:O	1:A:150:PRO:HB3	2.22	0.40
1:A:304:ASN:N	1:A:310:GLU:O	2.50	0.40
1:A:348:ASP:OD2	1:A:379:ARG:NH2	2.46	0.40
1:B:138:MET:SD	1:B:140:LEU:HD11	2.61	0.40
1:B:188:PRO:HG3	1:B:299:ARG:HH22	1.85	0.40
1:B:629:GLY:N	1:B:665:ASN:O	2.49	0.40
1:C:554:TYR:HB2	1:C:644:ASP:O	2.21	0.40
1:C:635:VAL:HG12	1:C:636:ALA:O	2.21	0.40
1:D:79:PRO:O	1:D:81:THR:N	2.54	0.40
1:D:200:ALA:HB3	1:D:721:PHE:HB2	2.03	0.40
1:D:438:ASP:HB2	1:D:513:PHE:CE2	2.56	0.40
1:D:568:VAL:HB	1:D:602:SER:HB2	2.02	0.40
1:B:285:GLY:HA2	1:B:331:ARG:HH12	1.86	0.40
1:B:461:ARG:HE	1:B:461:ARG:HB2	1.65	0.40
1:C:111:ILE:HG23	1:C:692:LEU:O	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:360:TRP:HE1	1:C:369:THR:HG21	1.84	0.40
1:C:690:GLU:H	1:C:693:ASN:ND2	2.19	0.40
1:D:513:PHE:O	1:D:513:PHE:CD1	2.75	0.40
1:A:339:MET:N	1:A:340:PRO:HD3	2.36	0.40
1:A:454:ASN:HA	1:A:455:PRO:HD3	1.96	0.40
1:B:435:SER:HB3	1:B:462:ALA:HB2	2.03	0.40
1:C:329:ARG:HE	1:C:329:ARG:HB2	1.57	0.40
1:C:503:LYS:HB3	1:C:503:LYS:NZ	2.37	0.40
1:C:535:LEU:HD23	1:C:535:LEU:C	2.42	0.40
1:D:81:THR:HA	1:D:164:VAL:O	2.22	0.40
1:D:625:ASP:HB3	1:D:626:TRP:HD1	1.85	0.40
1:A:166:LYS:HB2	1:A:166:LYS:HE3	1.84	0.40
1:B:98:GLY:HA3	1:B:151:THR:HB	2.03	0.40
1:B:534:LYS:HB2	1:B:581:TYR:HE1	1.87	0.40
1:A:157:GLU:OE1	1:A:157:GLU:N	2.50	0.40
1:B:135:ASN:HD21	1:B:186:ARG:NH1	2.20	0.40
1:B:515:LYS:HD2	1:B:515:LYS:O	2.22	0.40
1:B:552:PHE:HB2	1:B:647:ASN:HA	2.03	0.40
1:C:181:THR:C	1:C:182:ILE:HD12	2.41	0.40
1:C:673:ASN:O	1:C:722:SER:N	2.51	0.40
1:D:223:GLY:N	1:D:261:THR:HG23	2.35	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	653/723 (90%)	577 (88%)	68 (10%)	8 (1%)	13	43
1	B	639/723 (88%)	582 (91%)	50 (8%)	7 (1%)	14	46
1	C	630/723 (87%)	541 (86%)	74 (12%)	15 (2%)	6	26
1	D	653/723 (90%)	578 (88%)	60 (9%)	15 (2%)	6	27

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	2575/2892 (89%)	2278 (88%)	252 (10%)	45 (2%)	9	34

All (45) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	624	GLY
1	B	583	LEU
1	C	386	ASP
1	C	395	ALA
1	D	175	PRO
1	D	246	PRO
1	D	334	ASP
1	D	513	PHE
1	A	148	ASP
1	A	206	SER
1	B	584	THR
1	C	382	GLY
1	C	624	GLY
1	C	697	ASP
1	D	80	LEU
1	D	447	HIS
1	D	514	ASP
1	A	262	PRO
1	A	419	ALA
1	A	445	SER
1	B	695	ALA
1	D	420	ALA
1	D	516	ILE
1	B	123	ARG
1	C	363	ASP
1	C	694	LYS
1	C	698	ALA
1	D	362	TRP
1	D	388	MET
1	D	704	ALA
1	B	92	PRO
1	C	331	ARG
1	C	333	PRO
1	C	399	PRO
1	C	511	ASN
1	D	262	PRO
1	A	91	GLN

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Mol	Chain	Res	Type
1	B	336	SER
1	C	508	GLY
1	D	176	GLY
1	A	92	PRO
1	B	246	PRO
1	C	149	ALA
1	C	92	PRO
1	D	399	PRO

### 5.3.2 Protein sidechains [i](#)

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	525/572 (92%)	477 (91%)	48 (9%)	9	31
1	B	516/572 (90%)	455 (88%)	61 (12%)	5	20
1	C	512/572 (90%)	439 (86%)	73 (14%)	3	13
1	D	524/572 (92%)	460 (88%)	64 (12%)	5	19
All	All	2077/2288 (91%)	1831 (88%)	246 (12%)	5	20

All (246) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	78	SER
1	A	90	ARG
1	A	116	SER
1	A	130	LEU
1	A	139	MET
1	A	147	MET
1	A	158	THR
1	A	199	ASN
1	A	201	SER
1	A	203	LEU
1	A	210	PHE
1	A	212	LYS
1	A	221	ARG

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	228	THR
1	A	236	ASP
1	A	250	LYS
1	A	256	VAL
1	A	286	MET
1	A	287	ASP
1	A	306	SER
1	A	307	ASP
1	A	336	SER
1	A	337	SER
1	A	339	MET
1	A	343	MET
1	A	362	TRP
1	A	364	ASP
1	A	388	MET
1	A	389	THR
1	A	425	LEU
1	A	435	SER
1	A	445	SER
1	A	470	VAL
1	A	478	ASP
1	A	481	THR
1	A	487	LEU
1	A	516	ILE
1	A	528	LEU
1	A	558	MET
1	A	563	THR
1	A	601	SER
1	A	619	LEU
1	A	625	ASP
1	A	631	LEU
1	A	651	LYS
1	A	654	ASP
1	A	672	ARG
1	A	722	SER
1	B	74	VAL
1	B	78	SER
1	B	93	VAL
1	B	97	ASP
1	B	104	THR
1	B	112	ARG
1	B	123	ARG

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	B	147	MET
1	B	152	SER
1	B	155	SER
1	B	170	THR
1	B	178	SER
1	B	187	GLU
1	B	193	GLU
1	B	206	SER
1	B	230	ASN
1	B	253	ASN
1	B	270	LEU
1	B	287	ASP
1	B	303	SER
1	B	304	ASN
1	B	306	SER
1	B	308	VAL
1	B	309	LEU
1	B	325	MET
1	B	326	ASP
1	B	330	LEU
1	B	332	THR
1	B	338	MET
1	B	387	MET
1	B	389	THR
1	B	401	SER
1	B	425	LEU
1	B	475	ASP
1	B	487	LEU
1	B	501	SER
1	B	509	SER
1	B	514	ASP
1	B	523	GLN
1	B	540	SER
1	B	556	GLU
1	B	562	SER
1	B	577	LEU
1	B	580	SER
1	B	584	THR
1	B	604	ASP
1	B	623	GLU
1	B	630	SER
1	B	651	LYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	B	654	ASP
1	B	672	ARG
1	B	676	LEU
1	B	677	SER
1	B	680	VAL
1	B	683	LEU
1	B	693	ASN
1	B	703	SER
1	B	705	ASN
1	B	714	THR
1	B	722	SER
1	B	723	PHE
1	C	74	VAL
1	C	78	SER
1	C	80	LEU
1	C	97	ASP
1	C	113	ASN
1	C	130	LEU
1	C	133	LEU
1	C	134	THR
1	C	139	MET
1	C	140	LEU
1	C	151	THR
1	C	155	SER
1	C	190	ARG
1	C	196	SER
1	C	201	SER
1	C	203	LEU
1	C	206	SER
1	C	233	GLN
1	C	235	ASP
1	C	236	ASP
1	C	253	ASN
1	C	258	VAL
1	C	264	GLU
1	C	289	SER
1	C	303	SER
1	C	309	LEU
1	C	329	ARG
1	C	330	LEU
1	C	331	ARG
1	C	332	THR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	C	334	ASP
1	C	339	MET
1	C	341	MET
1	C	362	TRP
1	C	363	ASP
1	C	364	ASP
1	C	368	VAL
1	C	369	THR
1	C	392	TYR
1	C	429	LEU
1	C	440	ARG
1	C	442	THR
1	C	467	SER
1	C	475	ASP
1	C	478	ASP
1	C	487	LEU
1	C	501	SER
1	C	507	ASN
1	C	517	LYS
1	C	524	LEU
1	C	525	ASP
1	C	529	GLN
1	C	530	TYR
1	C	553	SER
1	C	556	GLU
1	C	563	THR
1	C	584	THR
1	C	589	THR
1	C	593	LEU
1	C	616	ARG
1	C	627	SER
1	C	630	SER
1	C	648	VAL
1	C	649	VAL
1	C	653	PHE
1	C	654	ASP
1	C	663	SER
1	C	664	LEU
1	C	672	ARG
1	C	673	ASN
1	C	675	LYS
1	C	700	PHE

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	C	722	SER
1	D	66	LEU
1	D	78	SER
1	D	91	GLN
1	D	112	ARG
1	D	116	SER
1	D	119	ASP
1	D	134	THR
1	D	146	ARG
1	D	152	SER
1	D	170	THR
1	D	193	GLU
1	D	197	ARG
1	D	203	LEU
1	D	209	ARG
1	D	230	ASN
1	D	247	SER
1	D	260	TRP
1	D	261	THR
1	D	287	ASP
1	D	289	SER
1	D	296	LEU
1	D	302	LYS
1	D	303	SER
1	D	305	VAL
1	D	306	SER
1	D	308	VAL
1	D	332	THR
1	D	341	MET
1	D	355	ARG
1	D	388	MET
1	D	393	THR
1	D	396	ASP
1	D	403	ASP
1	D	409	TYR
1	D	425	LEU
1	D	433	ARG
1	D	442	THR
1	D	456	THR
1	D	470	VAL
1	D	479	SER
1	D	487	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	D	510	VAL
1	D	525	ASP
1	D	545	VAL
1	D	556	GLU
1	D	558	MET
1	D	559	MET
1	D	561	SER
1	D	562	SER
1	D	563	THR
1	D	586	ASN
1	D	588	LYS
1	D	593	LEU
1	D	605	ARG
1	D	613	LEU
1	D	619	LEU
1	D	630	SER
1	D	653	PHE
1	D	672	ARG
1	D	673	ASN
1	D	677	SER
1	D	687	ASP
1	D	693	ASN
1	D	714	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	91	GLN
1	A	230	ASN
1	A	523	GLN
1	A	529	GLN
1	B	76	GLN
1	B	507	ASN
1	B	638	GLN
1	C	135	ASN
1	C	230	ASN
1	C	253	ASN
1	C	346	GLN
1	C	547	GLN
1	D	76	GLN
1	D	253	ASN
1	D	441	GLN

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Mol	Chain	Res	Type
1	D	458	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 4 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 [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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	657/723 (90%)	0.38	26 (3%) 38 25	42, 61, 91, 122	0
1	B	645/723 (89%)	0.36	19 (2%) 51 35	40, 59, 85, 121	0
1	C	640/723 (88%)	0.41	28 (4%) 34 21	44, 67, 102, 132	0
1	D	656/723 (90%)	0.42	36 (5%) 25 15	45, 68, 101, 131	0
All	All	2598/2892 (89%)	0.39	109 (4%) 36 23	40, 64, 96, 132	0

All (109) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	362	TRP	7.2
1	C	385	TYR	5.7
1	A	558	MET	5.6
1	D	723	PHE	5.2
1	C	389	THR	4.9
1	A	362	TRP	4.8
1	D	382	GLY	4.5
1	B	69	SER	4.4
1	D	514	ASP	4.4
1	C	701	GLY	4.4
1	C	386	ASP	4.3
1	C	192	GLY	4.2
1	B	702	PHE	4.2
1	B	626	TRP	4.2
1	C	700	PHE	4.2
1	C	515	LYS	3.9
1	C	387	MET	3.7
1	C	392	TYR	3.7
1	C	119	ASP	3.7
1	D	119	ASP	3.6
1	D	102	LEU	3.6

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	D	313	GLU	3.5
1	B	697	ASP	3.5
1	A	417	TRP	3.4
1	B	338	MET	3.4
1	C	383	SER	3.4
1	D	69	SER	3.3
1	C	514	ASP	3.3
1	D	453	ALA	3.2
1	C	102	LEU	3.1
1	C	697	ASP	3.1
1	B	341	MET	3.1
1	B	270	LEU	3.0
1	B	510	VAL	3.0
1	D	356	LEU	3.0
1	C	96	SER	3.0
1	A	448	MET	2.9
1	D	384	LYS	2.8
1	D	455	PRO	2.8
1	A	119	ASP	2.8
1	D	383	SER	2.8
1	D	641	ILE	2.7
1	B	391	TYR	2.6
1	C	704	ALA	2.6
1	D	512	ALA	2.6
1	D	704	ALA	2.6
1	B	67	ALA	2.6
1	B	524	LEU	2.6
1	D	122	LEU	2.6
1	C	69	SER	2.6
1	A	365	PHE	2.6
1	C	382	GLY	2.5
1	A	487	LEU	2.5
1	A	444	LYS	2.5
1	C	365	PHE	2.5
1	B	393	THR	2.5
1	C	722	SER	2.5
1	D	696	GLY	2.5
1	C	696	GLY	2.4
1	D	515	LYS	2.4
1	B	493	PHE	2.4
1	D	510	VAL	2.4
1	A	84	THR	2.4

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	A	122	LEU	2.4
1	D	83	VAL	2.4
1	A	173	TRP	2.4
1	A	415	LEU	2.4
1	A	514	ASP	2.3
1	D	452	MET	2.3
1	D	131	ASN	2.3
1	D	511	ASN	2.3
1	A	387	MET	2.3
1	C	260	TRP	2.3
1	C	384	LYS	2.3
1	B	356	LEU	2.3
1	A	144	PRO	2.3
1	A	528	LEU	2.3
1	D	91	GLN	2.3
1	A	73	GLY	2.2
1	D	109	ALA	2.2
1	D	417	TRP	2.2
1	B	701	GLY	2.2
1	C	150	PRO	2.2
1	D	365	PHE	2.2
1	D	516	ILE	2.2
1	D	385	TYR	2.2
1	C	121	VAL	2.2
1	D	82	ILE	2.2
1	A	388	MET	2.2
1	A	700	PHE	2.1
1	A	83	VAL	2.1
1	A	442	THR	2.1
1	B	312	VAL	2.1
1	A	300	PHE	2.1
1	A	268	ILE	2.1
1	A	341	MET	2.1
1	A	138	MET	2.1
1	A	82	ILE	2.1
1	C	356	LEU	2.1
1	C	653	PHE	2.1
1	D	164	VAL	2.0
1	D	352	LEU	2.0
1	B	385	TYR	2.0
1	D	305	VAL	2.0
1	D	338	MET	2.0

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Mol	Chain	Res	Type	RSRZ
1	D	543	VAL	2.0
1	B	126	PHE	2.0
1	B	684	PHE	2.0
1	C	507	ASN	2.0

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

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

## 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q < 0.9
2	CU	B	801	1/1	0.92	0.11	99,99,99,99	0
2	CU	C	801	1/1	0.92	0.14	109,109,109,109	0
2	CU	A	801	1/1	0.94	0.18	85,85,85,85	0
2	CU	D	801	1/1	0.98	0.12	98,98,98,98	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.