Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2018 – 04:54 pm GMT

PDB ID : 4AIM
Title : Crystal structure of C. crescentus PNPase bound to RNase E recognition pep-
tide
Authors : Hardwick, S.W.; Gubbey, T.; Hug, I.; Jenal, U.; Luisi, B.F.
Deposited on : 2012-02-10
Resolution : 3.30 Å(reported)

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

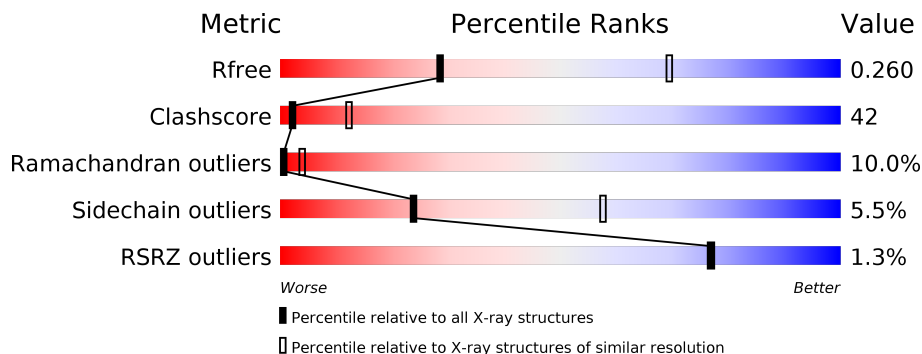|		
MolProbity	:	4.02b-467
Mogul	:	1.7.3 (157068), CSD as539be (2018)
Xtriage (Phenix)	:	1.13
EDS	:	trunk30967
Percentile statistics	:	20171227.v01 (using entries in the PDB archive December 27th 2017)
Refmac	:	5.8.0158
CCP4	:	7.0 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	trunk30967

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 3.30 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.

Metric	Percentile Ranks	Value
Rfree		0.260
Clashscore		42
Ramachandran outliers		10.0%
Sidechain outliers		5.5%
RSRZ outliers		1.3%

■ 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}	111664	1168 (3.36-3.24)
Clashscore	122126	1022 (3.34-3.26)
Ramachandran outliers	120053	1004 (3.34-3.26)
Sidechain outliers	120020	1003 (3.34-3.26)
RSRZ outliers	108989	1133 (3.36-3.24)

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 on the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria. 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	726	47% 40% 9% ··
2	C	14	21% 14% 21% 43%

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 4957 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 POLYRIBONUCLEOTIDE NUCLEOTIDYLTRANSFERAS E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	698	Total 4880	C 3071	N 826	O 960	S 23	0	0	0

There are 15 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-13	MET	-	expression tag	UNP Q9AC32
A	-12	GLY	-	expression tag	UNP Q9AC32
A	-11	SER	-	expression tag	UNP Q9AC32
A	-10	SER	-	expression tag	UNP Q9AC32
A	-9	HIS	-	expression tag	UNP Q9AC32
A	-8	HIS	-	expression tag	UNP Q9AC32
A	-7	HIS	-	expression tag	UNP Q9AC32
A	-6	HIS	-	expression tag	UNP Q9AC32
A	-5	HIS	-	expression tag	UNP Q9AC32
A	-4	HIS	-	expression tag	UNP Q9AC32
A	-3	SER	-	expression tag	UNP Q9AC32
A	-2	GLN	-	expression tag	UNP Q9AC32
A	-1	SER	-	expression tag	UNP Q9AC32
A	0	PRO	-	expression tag	UNP Q9AC32
A	623	ILE	VAL	conflict	UNP Q9AC32

- Molecule 2 is a protein called RIBONUCLEASE, RNE/RNG FAMILY PROTEIN.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	8	Total 70	C 47	N 16	O 7	0	0	0

- Molecule 3 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).

PO4

O3

O⁻

O2 O⁻ —— P ══ O O1

P

O⁻

O4

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 5	O 4	P 1	0	0

- Molecule 4 is water.

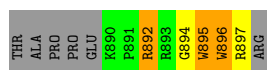| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	2	Total 2	O 2	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA and DNA 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: POLYRIBONUCLEOTIDE NUCLEOTIDYLTRANSFERASE

Chain A:

• Molecule 2: RIBONUCLEASE, RNE/RNG FAMILY PROTEIN

Chain C:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 63	Depositor
Cell constants a, b, c, α, β, γ	97.33Å 97.33Å 191.91Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	38.73 – 3.30 38.59 – 3.30	Depositor EDS
% Data completeness (in resolution range)	99.2 (38.73-3.30) 99.3 (38.59-3.30)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.32 (at 3.32Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.186 , 0.260 0.184 , 0.260	Depositor DCC
R_{free} test set	771 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å^2)	101.5	Xtriage
Anisotropy	0.063	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 83.5	EDS
L-test for twinning[2]	$< |L| > = 0.46, < L^2 > = 0.28$	Xtriage
Estimated twinning fraction	0.069 for h,-h-k,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	4957	wwPDB-VP
Average B, all atoms (Å^2)	104.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.96% 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: PO4

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	0.61	2/4960 (0.0%)	0.82	5/6767 (0.1%)
2	C	1.21	2/74 (2.7%)	1.06	0/101
All	All	0.63	4/5034 (0.1%)	0.82	5/6868 (0.1%)

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	2

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	11	TRP	CD2-CE2	5.27	1.47	1.41
2	C	895	TRP	CD2-CE2	5.21	1.47	1.41
1	A	613	TRP	CD2-CE2	5.21	1.47	1.41
2	C	896	TRP	CD2-CE2	5.20	1.47	1.41

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	94	LEU	CA-CB-CG	5.95	129.00	115.30
1	A	429	LEU	CA-CB-CG	5.61	128.19	115.30
1	A	80	ARG	NE-CZ-NH2	5.58	123.09	120.30
1	A	438	GLY	N-CA-C	-5.14	100.26	113.10
1	A	95	ILE	CB-CA-C	-5.11	101.39	111.60

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	554	ALA	Peptide
1	A	9	ILE	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	4880	0	4525	395	1
2	C	70	0	59	7	0
3	A	5	0	0	0	0
4	A	2	0	0	0	0
All	All	4957	0	4584	396	1

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 42.

All (396) 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:264:ASP:HA	1:A:267:GLU:CB	1.42	1.50
1:A:554:ALA:CB	1:A:555:PRO:HD3	1.72	1.20
1:A:652:HIS:CD2	1:A:654:SER:H	1.61	1.17
1:A:639:ALA:O	1:A:650:LEU:HD12	1.46	1.15
1:A:346:THR:HG22	1:A:351:GLN:HB2	1.21	1.14
1:A:1:MET:SD	1:A:22:ARG:HG3	1.88	1.12
1:A:614:ILE:O	1:A:618:THR:HG23	1.51	1.10
1:A:554:ALA:HB1	1:A:555:PRO:CD	1.81	1.10
1:A:590:ASP:HA	1:A:591:ILE:HG13	1.34	1.10
1:A:592:ASN:OD1	1:A:593:ASP:N	1.84	1.10
1:A:3:ASP:CA	1:A:4:ILE:HB	1.84	1.07
1:A:676:VAL:HG11	1:A:689:LEU:HD13	1.29	1.07
1:A:656:ILE:O	1:A:691:MET:HE3	1.54	1.06
1:A:652:HIS:CD2	1:A:654:SER:CB	2.38	1.06
1:A:428:ARG:O	1:A:429:LEU:HB2	1.46	1.05
1:A:615:LYS:HA	1:A:618:THR:OG1	1.54	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:652:HIS:HD2	1:A:654:SER:CB	1.71	1.04
1:A:3:ASP:HA	1:A:4:ILE:CB	1.87	1.03
1:A:656:ILE:O	1:A:691:MET:CE	2.07	1.03
1:A:694:VAL:HB	1:A:695:ASP:HB2	1.38	1.03
1:A:264:ASP:CA	1:A:267:GLU:CB	2.37	1.02
1:A:3:ASP:HA	1:A:4:ILE:HB	1.01	1.00
1:A:10:GLU:OE1	1:A:15:THR:HG23	1.58	1.00
1:A:630:LYS:C	1:A:641:VAL:HG23	1.81	0.99
1:A:639:ALA:O	1:A:650:LEU:CD1	2.13	0.96
1:A:253:ILE:HA	1:A:256:ALA:HB3	1.48	0.95
1:A:368:ASP:OD1	1:A:373:THR:HG22	1.67	0.93
1:A:652:HIS:CD2	1:A:654:SER:N	2.37	0.93
1:A:272:ALA:HB1	1:A:299:PHE:HE2	1.31	0.93
1:A:416:MET:CE	1:A:461:ARG:HB2	1.99	0.93
1:A:368:ASP:OD1	1:A:373:THR:CG2	2.18	0.92
1:A:37:GLU:HB2	1:A:121:ASP:HB3	1.51	0.91
1:A:416:MET:HE2	1:A:500:THR:HG21	1.52	0.91
1:A:554:ALA:HB1	1:A:555:PRO:HD3	0.92	0.91
1:A:675:LYS:O	1:A:693:VAL:HG21	1.71	0.90
1:A:323:VAL:HG12	1:A:480:LEU:HD23	1.52	0.89
1:A:346:THR:HG22	1:A:351:GLN:CB	2.03	0.89
1:A:652:HIS:CD2	1:A:654:SER:HB2	2.05	0.88
1:A:649:GLY:HA2	1:A:687:THR:OG1	1.76	0.86
1:A:327:ARG:HH22	1:A:438:GLY:HA3	1.41	0.86
1:A:3:ASP:HB2	1:A:4:ILE:O	1.74	0.86
1:A:635:VAL:O	1:A:637:PHE:N	2.09	0.85
1:A:630:LYS:C	1:A:641:VAL:CG2	2.43	0.85
1:A:692:LYS:O	1:A:694:VAL:HA	1.76	0.85
1:A:631:VAL:N	1:A:641:VAL:HG23	1.92	0.84
1:A:652:HIS:CD2	1:A:654:SER:HB3	2.11	0.84
1:A:283:SER:HB2	1:A:286:ASN:N	1.92	0.83
1:A:625:LYS:O	1:A:627:TYR:CE2	2.31	0.83
1:A:646:ALA:O	1:A:648:ASP:N	2.11	0.83
1:A:693:VAL:HA	1:A:694:VAL:HG12	1.61	0.82
1:A:656:ILE:HA	1:A:691:MET:CE	2.10	0.82
1:A:389:VAL:HG23	1:A:391:GLU:HG3	1.60	0.82
1:A:281:GLY:O	1:A:283:SER:N	2.13	0.82
1:A:340:HIS:O	1:A:455:ALA:HA	1.80	0.82
1:A:323:VAL:HG12	1:A:480:LEU:CD2	2.10	0.81
1:A:233:PHE:O	1:A:235:PRO:HD3	1.79	0.81
1:A:183:ALA:HA	1:A:213:GLN:HE22	1.46	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:246:LYS:O	1:A:250:GLY:N	2.15	0.80
1:A:252:ASP:O	1:A:256:ALA:HB2	1.82	0.80
1:A:202:LEU:HD11	1:A:521:MET:HB3	1.64	0.79
1:A:554:ALA:CB	1:A:555:PRO:CD	2.48	0.79
1:A:652:HIS:HD2	1:A:654:SER:H	1.24	0.79
1:A:590:ASP:HA	1:A:591:ILE:CG1	2.12	0.79
1:A:652:HIS:HD2	1:A:654:SER:HB3	1.48	0.78
1:A:315:GLY:O	1:A:322:ASP:HA	1.83	0.78
1:A:656:ILE:HA	1:A:691:MET:HE1	1.66	0.78
1:A:694:VAL:HB	1:A:695:ASP:CB	2.13	0.78
1:A:635:VAL:O	1:A:638:GLY:N	2.15	0.78
1:A:630:LYS:O	1:A:641:VAL:HG23	1.83	0.77
1:A:10:GLU:OE1	1:A:15:THR:CG2	2.33	0.77
1:A:689:LEU:O	1:A:689:LEU:HD12	1.84	0.77
1:A:630:LYS:O	1:A:641:VAL:CG2	2.31	0.77
1:A:625:LYS:O	1:A:627:TYR:CD2	2.38	0.76
1:A:148:PRO:HD3	2:C:896:TRP:HB2	1.67	0.76
1:A:652:HIS:HD2	1:A:654:SER:CA	1.99	0.76
1:A:72:LYS:NZ	1:A:373:THR:HG23	2.02	0.75
1:A:253:ILE:HA	1:A:256:ALA:CB	2.15	0.74
1:A:8:THR:O	1:A:9:ILE:HB	1.86	0.74
1:A:652:HIS:HD2	1:A:654:SER:N	1.78	0.74
1:A:206:ASN:O	1:A:210:GLN:OE1	2.05	0.73
1:A:695:ASP:OD1	1:A:696:GLN:N	2.22	0.73
1:A:97:ARG:NH1	1:A:188:MET:HG3	2.03	0.73
1:A:440:SER:O	1:A:444:THR:HG23	1.89	0.73
1:A:284:ASP:N	1:A:285:GLU:O	2.22	0.72
1:A:335:ILE:O	1:A:336:LEU:HG	1.90	0.72
1:A:694:VAL:CB	1:A:695:ASP:HB2	2.17	0.71
1:A:210:GLN:O	1:A:213:GLN:HB2	1.90	0.71
1:A:631:VAL:HG22	1:A:671:GLY:H	1.56	0.71
1:A:37:GLU:HB2	1:A:121:ASP:CB	2.20	0.71
1:A:433:ILE:HD12	1:A:440:SER:HB2	1.73	0.71
1:A:557:ILE:H	1:A:600:SER:HA	1.54	0.70
1:A:590:ASP:CB	1:A:591:ILE:HB	2.21	0.70
1:A:674:VAL:HG12	1:A:675:LYS:N	2.07	0.70
1:A:652:HIS:NE2	1:A:654:SER:HB2	2.07	0.70
1:A:645:GLY:O	1:A:647:LYS:N	2.25	0.69
1:A:272:ALA:CB	1:A:299:PHE:HE2	2.04	0.69
1:A:40:VAL:HG12	1:A:117:VAL:HA	1.75	0.69
1:A:556:LYS:HA	1:A:557:ILE:CB	2.23	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:692:LYS:C	1:A:694:VAL:HA	2.14	0.69
1:A:631:VAL:CA	1:A:641:VAL:HG23	2.23	0.68
1:A:266:TYR:CD1	1:A:269:VAL:HB	2.27	0.68
1:A:416:MET:HE2	1:A:461:ARG:HB2	1.73	0.68
1:A:622:GLU:HA	1:A:623:ILE:C	2.14	0.68
1:A:272:ALA:HB1	1:A:299:PHE:CE2	2.22	0.68
1:A:656:ILE:O	1:A:691:MET:HE2	1.90	0.68
1:A:266:TYR:O	1:A:269:VAL:HB	1.95	0.67
1:A:338:ARG:HA	1:A:553:PHE:HE1	1.59	0.67
1:A:471:ILE:HD13	1:A:471:ILE:N	2.09	0.67
1:A:615:LYS:CA	1:A:618:THR:OG1	2.39	0.67
1:A:333:VAL:CG1	1:A:454:ASP:HB2	2.25	0.67
1:A:674:VAL:HG12	1:A:675:LYS:H	1.59	0.67
1:A:418:PRO:HG3	1:A:458:PRO:HD2	1.76	0.66
1:A:4:ILE:HG22	1:A:20:THR:HG22	1.76	0.66
1:A:100:ARG:N	1:A:101:PRO:HD2	2.10	0.66
1:A:650:LEU:HD12	1:A:651:VAL:N	2.10	0.66
1:A:650:LEU:HD12	1:A:651:VAL:H	1.61	0.66
1:A:351:GLN:HG2	1:A:435:GLU:HB2	1.78	0.66
1:A:693:VAL:HA	1:A:694:VAL:CG1	2.26	0.66
1:A:556:LYS:O	1:A:601:ALA:O	2.14	0.65
1:A:614:ILE:O	1:A:618:THR:CG2	2.36	0.65
1:A:333:VAL:HG13	1:A:454:ASP:HB2	1.79	0.65
1:A:641:VAL:HG22	1:A:642:ASN:H	1.61	0.65
1:A:282:LEU:CB	1:A:291:ASP:HA	2.27	0.65
1:A:521:MET:O	1:A:524:ALA:HB3	1.97	0.65
1:A:622:GLU:N	1:A:627:TYR:OH	2.30	0.65
1:A:253:ILE:HD12	1:A:254:ALA:N	2.11	0.64
1:A:590:ASP:CA	1:A:591:ILE:HG13	2.22	0.64
1:A:198:GLU:N	1:A:198:GLU:OE1	2.29	0.64
1:A:377:SER:HB2	1:A:426:THR:HG22	1.80	0.64
1:A:250:GLY:O	1:A:253:ILE:HD11	1.98	0.63
1:A:621:ALA:HA	1:A:622:GLU:O	1.97	0.63
1:A:72:LYS:HZ1	1:A:373:THR:HG23	1.62	0.63
1:A:28:ASP:OD2	1:A:45:VAL:HA	1.98	0.63
1:A:333:VAL:HG12	1:A:334:GLY:N	2.12	0.63
1:A:161:TYR:OH	1:A:200:ILE:O	2.15	0.62
1:A:656:ILE:CA	1:A:691:MET:CE	2.77	0.62
1:A:635:VAL:HB	1:A:637:PHE:HB3	1.82	0.62
1:A:125:ASP:OD1	1:A:126:PRO:HD2	1.98	0.62
1:A:33:ALA:HB1	1:A:129:LEU:HD11	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:376:GLU:HG3	1:A:378:PHE:H	1.63	0.62
1:A:651:VAL:HG22	1:A:689:LEU:HD11	1.80	0.62
1:A:266:TYR:HA	1:A:269:VAL:CG2	2.31	0.61
1:A:622:GLU:HA	1:A:624:GLY:N	2.14	0.61
1:A:340:HIS:CE1	1:A:554:ALA:CB	2.83	0.61
1:A:693:VAL:HG12	1:A:693:VAL:O	1.99	0.61
1:A:656:ILE:C	1:A:691:MET:CE	2.68	0.61
1:A:631:VAL:HA	1:A:641:VAL:HG23	1.81	0.61
1:A:553:PHE:O	1:A:553:PHE:CD1	2.54	0.60
1:A:161:TYR:HB3	1:A:207:PHE:CD2	2.36	0.60
1:A:271:ALA:O	1:A:272:ALA:C	2.40	0.60
1:A:266:TYR:HA	1:A:269:VAL:HG23	1.82	0.60
1:A:4:ILE:CG2	1:A:20:THR:HG22	2.31	0.59
1:A:425:TYR:OH	1:A:556:LYS:HA	2.01	0.59
1:A:531:GLY:O	1:A:534:HIS:HB3	2.03	0.59
1:A:592:ASN:CG	1:A:593:ASP:N	2.45	0.59
1:A:592:ASN:OD1	1:A:594:ASP:N	2.30	0.59
1:A:337:PRO:O	1:A:338:ARG:HB2	2.03	0.59
1:A:11:TRP:N	1:A:14:LYS:O	2.29	0.58
1:A:340:HIS:CE1	1:A:554:ALA:HB2	2.38	0.58
1:A:368:ASP:OD1	1:A:373:THR:HG21	1.97	0.58
1:A:439:SER:OG	1:A:467:ALA:HB2	2.03	0.58
1:A:183:ALA:HA	1:A:213:GLN:NE2	2.16	0.58
1:A:98:PRO:HB2	1:A:149:ILE:CD1	2.32	0.58
1:A:253:ILE:CA	1:A:256:ALA:HB3	2.30	0.58
1:A:283:SER:HB3	1:A:284:ASP:C	2.24	0.58
1:A:333:VAL:HG11	1:A:543:MET:CE	2.34	0.58
1:A:630:LYS:O	1:A:641:VAL:HG22	2.02	0.58
1:A:99:ILE:CG2	1:A:103:PHE:HE1	2.17	0.57
1:A:97:ARG:HH12	1:A:188:MET:HG3	1.70	0.57
1:A:34:THR:HG23	1:A:39:VAL:HG22	1.86	0.57
1:A:99:ILE:HG23	1:A:103:PHE:HE1	1.70	0.57
1:A:346:THR:CG2	1:A:351:GLN:OE1	2.53	0.57
1:A:651:VAL:HG22	1:A:689:LEU:CD1	2.34	0.56
1:A:20:THR:HG23	1:A:21:GLY:N	2.19	0.56
1:A:272:ALA:CB	1:A:299:PHE:CE2	2.85	0.56
1:A:680:GLY:O	1:A:682:ASP:N	2.38	0.56
1:A:414:ARG:N	1:A:415:PRO:CD	2.69	0.55
1:A:338:ARG:HA	1:A:553:PHE:CE1	2.41	0.55
1:A:621:ALA:HA	1:A:622:GLU:C	2.26	0.55
1:A:625:LYS:O	1:A:626:ILE:O	2.23	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:433:ILE:CD1	1:A:440:SER:HB2	2.36	0.55
1:A:308:ARG:NH1	1:A:473:GLU:OE2	2.40	0.55
1:A:188:MET:HG2	1:A:189:VAL:N	2.20	0.55
1:A:346:THR:HG21	1:A:351:GLN:OE1	2.07	0.55
1:A:189:VAL:O	1:A:508:GLN:HA	2.06	0.55
1:A:656:ILE:C	1:A:691:MET:HE3	2.26	0.55
1:A:464:SER:HB3	1:A:539:MET:HE3	1.89	0.55
1:A:33:ALA:CB	1:A:129:LEU:HD11	2.37	0.55
1:A:688:LYS:O	1:A:689:LEU:HB3	2.07	0.55
1:A:107:PHE:CZ	1:A:109:ASN:HB2	2.43	0.54
1:A:268:ALA:O	1:A:271:ALA:HB3	2.06	0.54
1:A:98:PRO:HB2	1:A:149:ILE:HD13	1.88	0.54
1:A:266:TYR:O	1:A:269:VAL:N	2.41	0.54
1:A:649:GLY:HA3	1:A:689:LEU:HD21	1.87	0.54
1:A:10:GLU:HA	1:A:15:THR:HA	1.89	0.54
1:A:675:LYS:C	1:A:693:VAL:HG21	2.28	0.54
1:A:266:TYR:O	1:A:269:VAL:CB	2.54	0.54
1:A:333:VAL:CG1	1:A:334:GLY:N	2.71	0.54
1:A:266:TYR:O	1:A:266:TYR:HD1	1.91	0.54
1:A:211:GLN:HA	1:A:211:GLN:OE1	2.08	0.53
1:A:695:ASP:OD1	1:A:696:GLN:HG3	2.08	0.53
1:A:651:VAL:HA	1:A:689:LEU:O	2.09	0.53
1:A:302:LEU:O	1:A:306:VAL:HG23	2.08	0.53
1:A:259:ILE:HG21	1:A:265:ARG:N	2.24	0.53
1:A:340:HIS:CE1	1:A:554:ALA:HB3	2.43	0.53
1:A:624:GLY:HA3	1:A:678:LEU:HD22	1.89	0.53
1:A:639:ALA:C	1:A:650:LEU:CD1	2.78	0.53
1:A:629:GLY:HA3	1:A:642:ASN:O	2.09	0.53
1:A:663:LYS:O	1:A:665:SER:N	2.34	0.53
1:A:120:HIS:CD2	1:A:126:PRO:HD3	2.44	0.52
1:A:97:ARG:HH22	1:A:190:GLU:HB2	1.72	0.52
2:C:896:TRP:N	2:C:897:ARG:HA	2.24	0.52
1:A:410:TRP:CZ2	1:A:414:ARG:HD3	2.44	0.52
1:A:428:ARG:O	1:A:429:LEU:CB	2.33	0.52
1:A:323:VAL:HG11	1:A:478:ALA:HB1	1.92	0.52
1:A:543:MET:HE1	1:A:547:ARG:NH1	2.24	0.52
1:A:46:PHE:CD1	1:A:143:ALA:HB2	2.44	0.52
1:A:264:ASP:O	1:A:268:ALA:N	2.40	0.52
1:A:253:ILE:HD12	1:A:254:ALA:H	1.74	0.51
1:A:97:ARG:NH2	1:A:190:GLU:HB2	2.25	0.51
1:A:367:ILE:O	1:A:369:ALA:N	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:283:SER:HB3	1:A:285:GLU:N	2.26	0.51
1:A:38:THR:HA	1:A:119:GLN:O	2.10	0.51
1:A:38:THR:HG23	1:A:120:HIS:HA	1.92	0.51
1:A:653:VAL:HA	1:A:656:ILE:HD11	1.91	0.51
1:A:412:ALA:O	1:A:505:THR:HG21	2.11	0.51
1:A:123:GLU:OE1	1:A:123:GLU:HA	2.10	0.50
1:A:19:GLU:HB3	1:A:32:LEU:HB3	1.92	0.50
1:A:276:ALA:O	1:A:277:ILE:C	2.49	0.50
1:A:665:SER:HA	1:A:668:LEU:CB	2.41	0.50
1:A:590:ASP:CA	1:A:591:ILE:CB	2.89	0.50
1:A:620:GLU:O	1:A:621:ALA:HB2	2.12	0.50
1:A:649:GLY:HA3	1:A:689:LEU:CD2	2.42	0.50
1:A:167:LEU:HD11	1:A:371:GLU:HG3	1.92	0.50
1:A:34:THR:HG23	1:A:39:VAL:CG2	2.42	0.50
1:A:408:LEU:HD13	1:A:508:GLN:OE1	2.12	0.50
1:A:523:GLN:O	1:A:526:ALA:HB3	2.12	0.50
1:A:202:LEU:HD12	1:A:525:LEU:HD11	1.94	0.50
1:A:437:ASN:O	1:A:485:GLY:N	2.45	0.50
1:A:649:GLY:CA	1:A:687:THR:OG1	2.56	0.50
1:A:3:ASP:HB3	1:A:20:THR:O	2.11	0.49
1:A:399:GLY:O	1:A:403:ILE:HG13	2.11	0.49
1:A:678:LEU:HD23	1:A:678:LEU:O	2.13	0.49
1:A:381:HIS:O	1:A:430:VAL:HA	2.12	0.49
1:A:643:PHE:O	1:A:643:PHE:CG	2.65	0.49
1:A:223:ALA:HB1	2:C:896:TRP:CH2	2.47	0.49
1:A:148:PRO:HG2	1:A:216:ILE:HG23	1.94	0.49
1:A:692:LYS:O	1:A:695:ASP:HA	2.13	0.49
1:A:324:LYS:HA	1:A:527:GLN:NE2	2.28	0.49
1:A:394:ARG:O	1:A:395:MET:HB2	2.12	0.49
1:A:681:PHE:CB	1:A:686:LYS:O	2.60	0.49
1:A:684:ARG:C	1:A:686:LYS:H	2.16	0.49
1:A:689:LEU:C	1:A:689:LEU:HD12	2.33	0.48
1:A:425:TYR:CZ	1:A:557:ILE:CB	2.96	0.48
1:A:517:THR:OG1	1:A:520:ILE:HG12	2.13	0.48
1:A:225:HIS:O	1:A:226:ALA:HB2	2.14	0.48
1:A:364:GLU:HG2	1:A:426:THR:CG2	2.42	0.48
1:A:333:VAL:HG11	1:A:543:MET:HE2	1.94	0.48
1:A:317:ARG:HG3	1:A:321:ARG:O	2.14	0.48
1:A:35:MET:O	1:A:124:ASN:ND2	2.46	0.48
1:A:351:GLN:HG3	1:A:434:THR:OG1	2.13	0.48
1:A:590:ASP:HA	1:A:591:ILE:CB	2.42	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:656:ILE:HA	1:A:691:MET:HE2	1.94	0.47
1:A:674:VAL:CG1	1:A:675:LYS:N	2.76	0.47
1:A:631:VAL:CG2	1:A:670:GLU:HA	2.44	0.47
1:A:156:TRP:CZ2	1:A:159:GLY:HA2	2.49	0.47
1:A:366:PHE:C	1:A:367:ILE:HD13	2.35	0.47
1:A:488:ASP:C	1:A:490:LEU:H	2.17	0.47
1:A:74:PRO:HD2	1:A:79:LYS:O	2.15	0.47
1:A:340:HIS:NE2	1:A:554:ALA:HB2	2.30	0.47
1:A:57:PHE:CE2	1:A:59:LEU:HB2	2.50	0.47
1:A:285:GLU:CB	1:A:286:ASN:CB	2.92	0.47
1:A:492:ASP:HB3	1:A:513:ILE:HG12	1.96	0.47
1:A:625:LYS:C	1:A:626:ILE:O	2.53	0.47
1:A:439:SER:CB	1:A:467:ALA:HB2	2.45	0.47
1:A:543:MET:CE	1:A:547:ARG:NH1	2.78	0.47
1:A:62:ASN:HB2	1:A:114:VAL:HG22	1.96	0.47
1:A:427:ILE:HD12	1:A:452:MET:CE	2.45	0.46
1:A:301:GLU:O	1:A:304:ALA:HB3	2.16	0.46
1:A:230:PRO:HG3	2:C:894:GLY:H	1.79	0.46
1:A:341:GLY:HA3	1:A:455:ALA:HB2	1.97	0.46
1:A:368:ASP:HA	1:A:373:THR:HG22	1.98	0.46
1:A:97:ARG:HH11	1:A:510:ASP:CG	2.19	0.46
1:A:98:PRO:O	1:A:101:PRO:HG2	2.16	0.46
1:A:335:ILE:HG13	1:A:335:ILE:H	1.50	0.46
1:A:405:HIS:CD2	1:A:441:SER:HB3	2.50	0.46
1:A:197:SER:O	1:A:201:VAL:HG23	2.16	0.45
1:A:54:GLN:NE2	1:A:56:PHE:O	2.48	0.45
1:A:674:VAL:CG1	1:A:675:LYS:H	2.27	0.45
1:A:129:LEU:O	1:A:132:VAL:HB	2.16	0.45
1:A:253:ILE:HD13	1:A:306:VAL:CG1	2.46	0.45
1:A:317:ARG:HD3	1:A:487:GLU:OE2	2.16	0.45
1:A:642:ASN:OD1	1:A:644:PHE:N	2.50	0.45
1:A:374:TYR:C	1:A:374:TYR:CD1	2.89	0.45
1:A:427:ILE:HG13	1:A:427:ILE:O	2.17	0.45
1:A:361:GLY:HA2	1:A:364:GLU:HG3	1.98	0.45
1:A:3:ASP:HA	1:A:4:ILE:CG1	2.47	0.45
1:A:317:ARG:NH2	1:A:481:SER:O	2.46	0.45
1:A:281:GLY:C	1:A:283:SER:N	2.64	0.45
1:A:340:HIS:CD2	1:A:340:HIS:H	2.35	0.44
1:A:626:ILE:HA	1:A:677:LYS:HA	1.99	0.44
1:A:157:VAL:O	1:A:159:GLY:N	2.44	0.44
1:A:333:VAL:HG11	1:A:543:MET:HE3	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:68:PHE:C	1:A:68:PHE:CD1	2.91	0.44
1:A:621:ALA:O	1:A:627:TYR:OH	2.34	0.44
1:A:621:ALA:HA	1:A:622:GLU:CB	2.47	0.44
1:A:308:ARG:CZ	1:A:471:ILE:HG23	2.48	0.44
1:A:457:VAL:HA	1:A:458:PRO:HD3	1.89	0.44
1:A:630:LYS:C	1:A:641:VAL:HG22	2.37	0.44
1:A:681:PHE:HA	1:A:687:THR:HA	2.00	0.44
1:A:39:VAL:HB	1:A:119:GLN:HB3	1.98	0.44
1:A:264:ASP:HA	1:A:267:GLU:CA	2.36	0.44
1:A:266:TYR:HD1	1:A:269:VAL:HB	1.77	0.44
1:A:253:ILE:HD13	1:A:306:VAL:HG11	2.00	0.44
1:A:339:THR:O	1:A:341:GLY:N	2.51	0.44
1:A:412:ALA:HA	1:A:505:THR:HG23	2.00	0.44
1:A:675:LYS:O	1:A:693:VAL:CG2	2.55	0.44
1:A:656:ILE:CA	1:A:691:MET:HE1	2.41	0.44
1:A:8:THR:O	1:A:9:ILE:CB	2.56	0.44
1:A:312:LEU:HD22	1:A:477:PHE:HA	2.00	0.43
1:A:413:LEU:HD23	1:A:463:VAL:HG11	1.99	0.43
1:A:497:VAL:HG21	1:A:528:ALA:CB	2.48	0.43
1:A:652:HIS:CD2	1:A:654:SER:CA	2.84	0.43
1:A:445:VAL:CG2	1:A:446:CYS:N	2.81	0.43
1:A:624:GLY:HA3	1:A:678:LEU:CD2	2.49	0.43
1:A:353:ILE:HD12	1:A:434:THR:HG21	2.00	0.43
1:A:46:PHE:CE1	1:A:143:ALA:HB2	2.53	0.43
1:A:627:TYR:N	1:A:676:VAL:O	2.51	0.43
1:A:655:GLN:CB	1:A:690:SER:HB3	2.48	0.43
1:A:78:PHE:C	1:A:80:ARG:H	2.21	0.43
1:A:379:LEU:O	1:A:428:ARG:O	2.37	0.43
1:A:333:VAL:HG11	1:A:454:ASP:HB2	1.99	0.43
1:A:256:ALA:O	1:A:259:ILE:HB	2.18	0.43
1:A:31:VAL:HG11	1:A:136:ALA:HB3	2.01	0.43
1:A:275:LYS:O	1:A:278:ALA:HB3	2.18	0.43
1:A:553:PHE:HA	1:A:554:ALA:HA	1.75	0.43
1:A:615:LYS:O	1:A:619:ASP:N	2.40	0.43
1:A:29:GLY:HA3	1:A:137:ALA:O	2.19	0.42
1:A:556:LYS:CA	1:A:557:ILE:CB	2.95	0.42
1:A:423:PHE:CE2	1:A:425:TYR:HB2	2.54	0.42
1:A:3:ASP:CA	1:A:4:ILE:CB	2.61	0.42
1:A:624:GLY:CA	1:A:625:LYS:CB	2.97	0.42
1:A:695:ASP:CG	1:A:696:GLN:H	2.11	0.42
1:A:470:LEU:O	1:A:470:LEU:HG	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:49:SER:O	1:A:109:ASN:ND2	2.52	0.42
1:A:85:SER:HG	1:A:88:GLU:H	1.63	0.42
1:A:264:ASP:O	1:A:267:GLU:N	2.53	0.42
1:A:322:ASP:O	1:A:324:LYS:N	2.52	0.42
1:A:346:THR:HG22	1:A:351:GLN:OE1	2.19	0.42
1:A:77:PHE:CD1	1:A:77:PHE:O	2.73	0.42
1:A:3:ASP:N	1:A:3:ASP:OD1	2.51	0.42
1:A:635:VAL:C	1:A:637:PHE:N	2.73	0.42
1:A:462:PRO:HG2	1:A:536:LEU:HD11	2.01	0.42
1:A:625:LYS:O	1:A:626:ILE:C	2.57	0.42
1:A:592:ASN:OD1	1:A:593:ASP:CA	2.63	0.42
1:A:283:SER:HB2	1:A:285:GLU:C	2.40	0.42
1:A:427:ILE:HD12	1:A:452:MET:HE3	2.01	0.41
1:A:445:VAL:HG22	1:A:446:CYS:N	2.35	0.41
1:A:59:LEU:HB3	1:A:100:ARG:NH2	2.35	0.41
1:A:191:SER:HG	1:A:507:LEU:H	1.66	0.41
1:A:261:LYS:O	1:A:263:GLN:N	2.53	0.41
1:A:85:SER:OG	1:A:88:GLU:HB2	2.20	0.41
1:A:249:VAL:O	1:A:253:ILE:HG13	2.21	0.41
1:A:281:GLY:C	1:A:283:SER:H	2.08	0.41
1:A:450:LEU:HD21	1:A:539:MET:HB3	2.02	0.41
1:A:46:PHE:HB2	1:A:111:VAL:HG22	2.02	0.41
1:A:687:THR:O	1:A:687:THR:OG1	2.31	0.41
1:A:624:GLY:HA2	1:A:627:TYR:HE2	1.85	0.41
1:A:224:GLU:O	2:C:892:ARG:CG	2.69	0.41
1:A:104:VAL:HG21	2:C:895:TRP:CH2	2.56	0.41
1:A:416:MET:CE	1:A:460:VAL:HG22	2.51	0.41
1:A:683:ASP:HA	1:A:684:ARG:HA	1.77	0.41
1:A:450:LEU:O	1:A:452:MET:N	2.54	0.41
1:A:450:LEU:HD21	1:A:539:MET:CB	2.50	0.41
1:A:333:VAL:CG1	1:A:334:GLY:H	2.34	0.41
1:A:418:PRO:HB3	1:A:458:PRO:HB2	2.02	0.41
1:A:643:PHE:CD1	1:A:643:PHE:C	2.94	0.41
1:A:78:PHE:O	1:A:80:ARG:N	2.54	0.41
1:A:223:ALA:HB1	2:C:896:TRP:CZ2	2.55	0.41
1:A:364:GLU:HG2	1:A:426:THR:HG22	2.03	0.41
1:A:590:ASP:CB	1:A:591:ILE:CB	2.94	0.41
1:A:282:LEU:CB	1:A:292:PRO:HD3	2.51	0.41
1:A:333:VAL:CG1	1:A:454:ASP:CB	2.98	0.41
1:A:477:PHE:C	1:A:477:PHE:CD1	2.94	0.41
1:A:661:VAL:O	1:A:663:LYS:N	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:590:ASP:CA	1:A:591:ILE:CG1	2.92	0.40
1:A:60:THR:O	1:A:112:GLN:HA	2.21	0.40
1:A:326:VAL:CG1	1:A:327:ARG:N	2.84	0.40
1:A:382:TYR:CE2	1:A:405:HIS:HB3	2.57	0.40
1:A:624:GLY:HA2	1:A:625:LYS:O	2.21	0.40
1:A:221:ASP:O	1:A:225:HIS:CE1	2.74	0.40
1:A:259:ILE:HB	1:A:265:ARG:HA	2.03	0.40
1:A:64:GLN:HG3	1:A:116:THR:HG23	2.03	0.40
1:A:419:THR:C	1:A:421:GLU:N	2.74	0.40
1:A:199:GLU:OE1	1:A:199:GLU:N	2.51	0.40
1:A:497:VAL:HG21	1:A:528:ALA:HB1	2.03	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:119:GLN:NE2	1:A:337:PRO:O[3_555]	1.99	0.21

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	696/726 (96%)	517 (74%)	109 (16%)	70 (10%)	0	4
2	C	6/14 (43%)	6 (100%)	0	0	100	100
All	All	702/740 (95%)	523 (74%)	109 (16%)	70 (10%)	0	4

All (70) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	226	ALA
1	A	263	GLN

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Mol	Chain	Res	Type
1	A	271	ALA
1	A	273	LYS
1	A	278	ALA
1	A	286	ASN
1	A	287	PRO
1	A	427	ILE
1	A	437	ASN
1	A	554	ALA
1	A	591	ILE
1	A	592	ASN
1	A	619	ASP
1	A	626	ILE
1	A	636	ASP
1	A	637	PHE
1	A	646	ALA
1	A	647	LYS
1	A	4	ILE
1	A	5	LYS
1	A	8	THR
1	A	9	ILE
1	A	52	PRO
1	A	262	LYS
1	A	269	VAL
1	A	279	ALA
1	A	281	GLY
1	A	323	VAL
1	A	368	ASP
1	A	395	MET
1	A	489	HIS
1	A	621	ALA
1	A	624	GLY
1	A	670	GLU
1	A	681	PHE
1	A	1	MET
1	A	159	GLY
1	A	272	ALA
1	A	340	HIS
1	A	429	LEU
1	A	555	PRO
1	A	557	ILE
1	A	593	ASP
1	A	648	ASP

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Mol	Chain	Res	Type
1	A	662	ALA
1	A	664	PRO
1	A	686	LYS
1	A	689	LEU
1	A	71	GLY
1	A	79	LYS
1	A	274	LYS
1	A	275	LYS
1	A	284	ASP
1	A	451	ALA
1	A	620	GLU
1	A	623	ILE
1	A	660	ARG
1	A	104	VAL
1	A	277	ILE
1	A	280	LEU
1	A	282	LEU
1	A	348	GLY
1	A	235	PRO
1	A	259	ILE
1	A	293	LEU
1	A	314	THR
1	A	658	ASN
1	A	21	GLY
1	A	315	GLY
1	A	567	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	452/578 (78%)	428 (95%)	24 (5%)	25	58
2	C	5/12 (42%)	4 (80%)	1 (20%)	1	6
All	All	457/590 (78%)	432 (94%)	25 (6%)	24	57

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	26	GLN
1	A	31	VAL
1	A	45	VAL
1	A	60	THR
1	A	225	HIS
1	A	241	ILE
1	A	247	ASP
1	A	266	TYR
1	A	283	SER
1	A	335	ILE
1	A	379	LEU
1	A	430	VAL
1	A	448	SER
1	A	460	VAL
1	A	472	LEU
1	A	511	ILE
1	A	517	THR
1	A	520	ILE
1	A	560	ILE
1	A	591	ILE
1	A	643	PHE
1	A	651	VAL
1	A	678	LEU
1	A	696	GLN
2	C	892	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	62	ASN
1	A	213	GLN
1	A	405	HIS
1	A	527	GLN
1	A	561	ASN
1	A	652	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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

1 ligand is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#|Z| > 2$	Counts	RMSZ	$\#|Z| > 2$
3	PO4	A	1697	-	4,4,4	0.76	0	6,6,6	0.60	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PO4	A	1697	-	-	0/0/0/0	0/0/0/0

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	698/726 (96%)	-0.31	9 (1%)	77	77	49, 96, 180, 230	1 (0%)
2	C	8/14 (57%)	-0.33	0	100	100	79, 107, 118, 122	0
All	All	706/740 (95%)	-0.31	9 (1%)	77	77	49, 96, 180, 230	1 (0%)

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	603	ASP	4.5
1	A	657	SER	3.3
1	A	587	ALA	3.2
1	A	279	ALA	2.7
1	A	678	LEU	2.6
1	A	690	SER	2.1
1	A	602	SER	2.1
1	A	595	GLY	2.1
1	A	658	ASN	2.1

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 carbohydrates 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
3	PO4	A	1697	5/5	0.87	0.40	119,124,140,147	0

6.5　Other polymers ⓘ

There are no such residues in this entry.

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