



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 04:03 AM UTC

PDB ID : 6S3Y / pdb_00006s3y
Title : CBDP35 SeMet structure
Authors : Hermoso, J.A.; Bartual, S.G.
Deposited on : 2019-06-26
Resolution : 2.04 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 ⓘ 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 ⓘ](#)) were used in the production of this report:

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

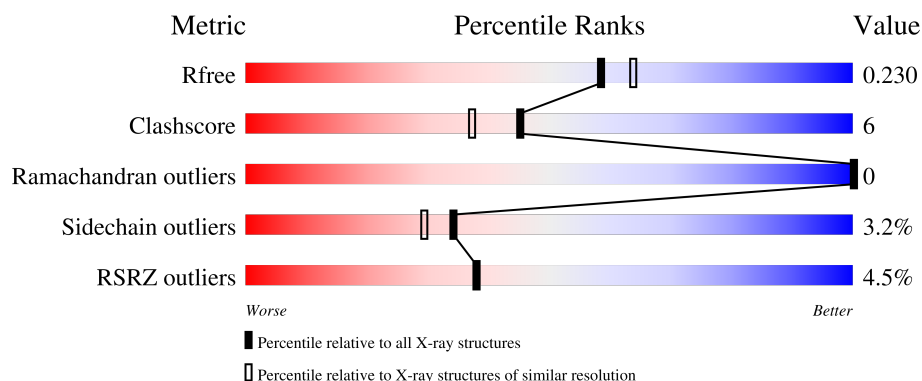
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.04 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}	180053	2260 (2.04-2.04)
Clashscore	190562	2333 (2.04-2.04)
Ramachandran outliers	187476	2318 (2.04-2.04)
Sidechain outliers	187428	2318 (2.04-2.04)
RSRZ outliers	180081	2260 (2.04-2.04)

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 $\leq 5\%$. 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	140	0% 86% 11% ..
1	B	140	2% 88% 11% .
1	C	140	6% 83% 14% ..
1	D	140	4% 86% 13% .
1	E	140	2% 89% 9% ..

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Mol	Chain	Length	Quality of chain
1	F	140	4% 89% 8% ..
1	G	140	3% 89% 8% ..
1	H	140	4% 86% 11% ..
1	I	140	9% 87% 9% ..
1	J	140	2% 89% 9% ..
1	K	140	4% 86% 11% ..
1	L	140	11% 87% 10% ...

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 15137 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 PlyP35.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	139	Total	C	N	O	S	Se	0	1	0
			1144	737	204	198	1	4			
1	B	140	Total	C	N	O	S	Se	0	0	0
			1145	738	205	197	1	4			
1	C	139	Total	C	N	O	S	Se	0	0	0
			1136	732	203	196	1	4			
1	D	139	Total	C	N	O	S	Se	0	0	0
			1135	732	202	196	1	4			
1	E	138	Total	C	N	O	S	Se	0	0	0
			1127	727	201	195	1	3			
1	F	139	Total	C	N	O	S	Se	0	0	0
			1135	732	202	196	1	4			
1	G	139	Total	C	N	O	S	Se	0	1	0
			1144	737	204	198	1	4			
1	H	139	Total	C	N	O	S	Se	0	0	0
			1135	732	202	196	1	4			
1	I	138	Total	C	N	O	S	Se	0	0	0
			1127	727	201	195	1	3			
1	J	137	Total	C	N	O	S	Se	0	1	0
			1127	726	201	196	1	3			
1	L	139	Total	C	N	O	S	Se	0	0	0
			1135	732	202	196	1	4			
1	K	139	Total	C	N	O	S	Se	0	0	0
			1135	732	202	196	1	4			

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	152	HIS	-	expression tag	UNP A8ATR6
A	153	MSE	-	expression tag	UNP A8ATR6
A	154	MSE	-	expression tag	UNP A8ATR6
B	152	HIS	-	expression tag	UNP A8ATR6
B	153	MSE	-	expression tag	UNP A8ATR6

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Chain	Residue	Modelled	Actual	Comment	Reference
B	154	MSE	-	expression tag	UNP A8ATR6
C	152	HIS	-	expression tag	UNP A8ATR6
C	153	MSE	-	expression tag	UNP A8ATR6
C	154	MSE	-	expression tag	UNP A8ATR6
D	152	HIS	-	expression tag	UNP A8ATR6
D	153	MSE	-	expression tag	UNP A8ATR6
D	154	MSE	-	expression tag	UNP A8ATR6
E	152	HIS	-	expression tag	UNP A8ATR6
E	153	MSE	-	expression tag	UNP A8ATR6
E	154	MSE	-	expression tag	UNP A8ATR6
F	152	HIS	-	expression tag	UNP A8ATR6
F	153	MSE	-	expression tag	UNP A8ATR6
F	154	MSE	-	expression tag	UNP A8ATR6
G	152	HIS	-	expression tag	UNP A8ATR6
G	153	MSE	-	expression tag	UNP A8ATR6
G	154	MSE	-	expression tag	UNP A8ATR6
H	152	HIS	-	expression tag	UNP A8ATR6
H	153	MSE	-	expression tag	UNP A8ATR6
H	154	MSE	-	expression tag	UNP A8ATR6
I	152	HIS	-	expression tag	UNP A8ATR6
I	153	MSE	-	expression tag	UNP A8ATR6
I	154	MSE	-	expression tag	UNP A8ATR6
J	152	HIS	-	expression tag	UNP A8ATR6
J	153	MSE	-	expression tag	UNP A8ATR6
J	154	MSE	-	expression tag	UNP A8ATR6
L	152	HIS	-	expression tag	UNP A8ATR6
L	153	MSE	-	expression tag	UNP A8ATR6
L	154	MSE	-	expression tag	UNP A8ATR6
K	152	HIS	-	expression tag	UNP A8ATR6
K	153	MSE	-	expression tag	UNP A8ATR6
K	154	MSE	-	expression tag	UNP A8ATR6

- Molecule 2 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	148	Total O 148 148	0	0
2	B	114	Total O 114 114	0	0
2	C	114	Total O 114 114	0	0
2	D	175	Total O 175 175	0	0

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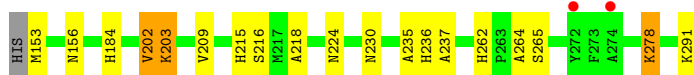
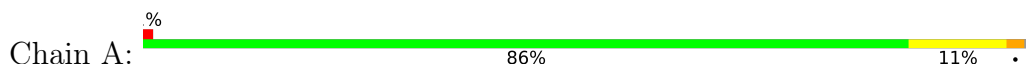
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	E	114	Total 114	O 114	0	0
2	F	102	Total 102	O 102	0	0
2	G	147	Total 147	O 147	0	0
2	H	165	Total 165	O 165	0	0
2	I	108	Total 108	O 108	0	0
2	J	79	Total 79	O 79	0	0
2	L	103	Total 103	O 103	0	0
2	K	143	Total 143	O 143	0	0

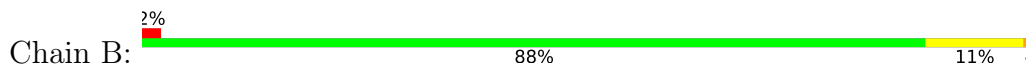
3 Residue-property plots [i](#)

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.

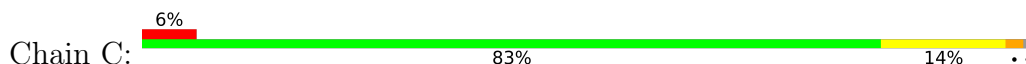
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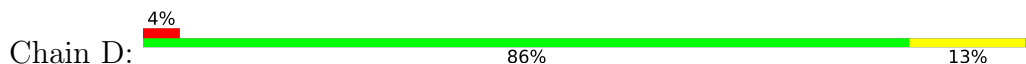
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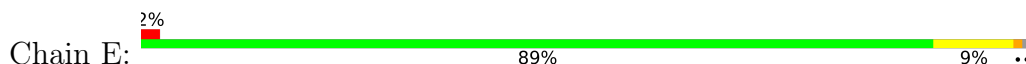
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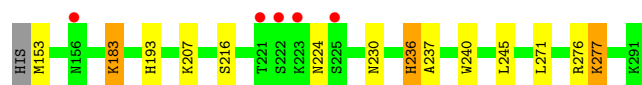
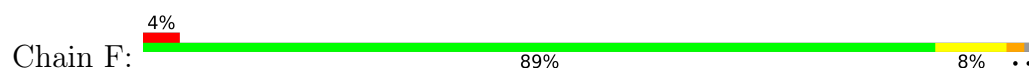
- Molecule 1: PlyP35



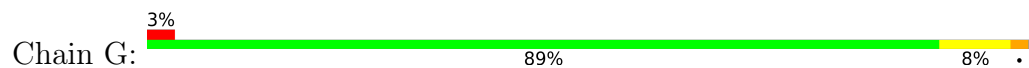
- Molecule 1: PlyP35



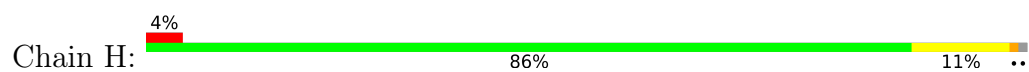
- Molecule 1: PlyP35



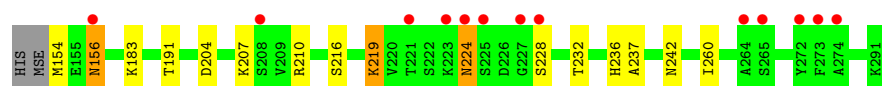
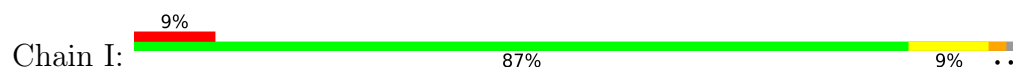
• Molecule 1: PlyP35



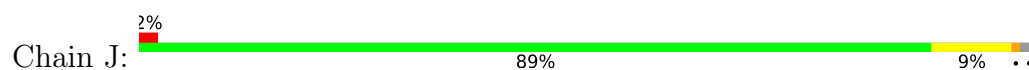
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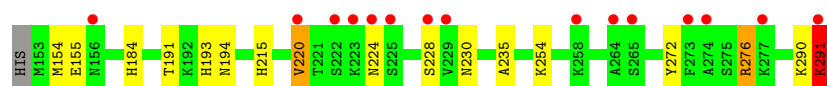
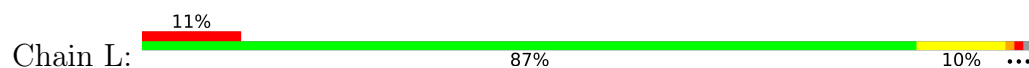
• Molecule 1: PlyP35



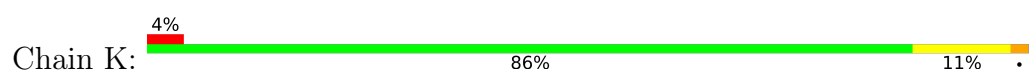
• Molecule 1: PlyP35



• Molecule 1: PlyP35



• Molecule 1: PlyP35



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	335.88Å 95.56Å 84.41Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.84 – 2.04 19.84 – 2.04	Depositor EDS
% Data completeness (in resolution range)	99.8 (19.84-2.04) 99.6 (19.84-2.04)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.89 (at 2.05Å)	Xtriage
Refinement program	REFMAC 5.8.0238	Depositor
R, R_{free}	0.203 , 0.226 0.209 , 0.230	Depositor DCC
R_{free} test set	8475 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	22.1	Xtriage
Anisotropy	0.638	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 47.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.017 for -h,-k,l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	15137	wwPDB-VP
Average B, all atoms (Å ²)	30.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 43.74 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.6884e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹ Intensities estimated from amplitudes.

² 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

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	1.02	0/1173	1.21	2/1570 (0.1%)
1	B	0.98	0/1174	1.28	2/1570 (0.1%)
1	C	0.99	0/1165	1.22	3/1559 (0.2%)
1	D	1.06	1/1164 (0.1%)	1.19	0/1558
1	E	1.03	1/1157 (0.1%)	1.27	5/1551 (0.3%)
1	F	1.05	1/1164 (0.1%)	1.22	2/1558 (0.1%)
1	G	1.02	0/1173	1.18	2/1570 (0.1%)
1	H	1.04	0/1164	1.23	2/1558 (0.1%)
1	I	0.97	0/1157	1.22	3/1551 (0.2%)
1	J	0.97	0/1157	1.18	0/1552
1	K	1.03	0/1164	1.19	0/1558
1	L	0.99	0/1164	1.24	4/1558 (0.3%)
All	All	1.01	3/13976 (0.0%)	1.22	25/18713 (0.1%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	264	ALA	C-O	5.43	1.30	1.23
1	E	277	LYS	N-CA	5.14	1.52	1.46
1	F	236	HIS	CE1-NE2	-5.05	1.27	1.32

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	153	MSE	CG-SE-CE	13.38	128.37	98.92
1	E	276	ARG	CA-C-N	-8.17	109.45	123.25
1	E	276	ARG	C-N-CA	-8.17	109.45	123.25
1	E	276	ARG	CA-C-O	-7.38	112.28	121.88
1	I	154	MSE	CG-SE-CE	7.19	114.75	98.92
1	L	154	MSE	CG-SE-CE	6.37	112.93	98.92
1	I	224	ASN	CB-CG-ND2	6.36	125.94	116.40
1	F	153	MSE	CG-SE-CE	6.27	112.72	98.92
1	C	192	LYS	CG-CD-CE	6.20	125.56	111.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	192	LYS	CG-CD-CE	6.09	125.30	111.30
1	E	276	ARG	N-CA-C	-5.73	101.52	110.17
1	E	170	LYS	CG-CD-CE	5.72	124.45	111.30
1	L	291	LYS	CA-C-O	-5.71	111.09	120.80
1	B	154	MSE	CG-SE-CE	5.60	111.25	98.92
1	L	276	ARG	CG-CD-NE	-5.56	99.78	112.00
1	I	224	ASN	CB-CG-OD1	-5.54	109.72	120.80
1	G	192	LYS	CG-CD-CE	5.41	123.75	111.30
1	C	289	ILE	CA-C-N	5.16	130.99	121.70
1	C	289	ILE	C-N-CA	5.16	130.99	121.70
1	H	290	LYS	N-CA-C	-5.14	106.96	113.18
1	A	202	VAL	N-CA-CB	-5.14	105.33	112.52
1	F	271	LEU	CA-C-O	-5.11	114.83	120.30
1	L	276	ARG	CA-CB-CG	-5.07	103.97	114.10
1	G	254	LYS	CA-CB-CG	5.06	124.22	114.10
1	A	278	LYS	CG-CD-CE	5.04	122.90	111.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1144	0	1137	19	0
1	B	1145	0	1137	12	0
1	C	1136	0	1124	20	0
1	D	1135	0	1130	13	0
1	E	1127	0	1121	11	0
1	F	1135	0	1130	9	0
1	G	1144	0	1137	11	0
1	H	1135	0	1130	23	0
1	I	1127	0	1121	14	0
1	J	1127	0	1115	16	0
1	K	1135	0	1130	24	0
1	L	1135	0	1130	15	0
2	A	148	0	0	8	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	114	0	0	1	0
2	C	114	0	0	3	0
2	D	175	0	0	7	0
2	E	114	0	0	7	0
2	F	102	0	0	2	0
2	G	147	0	0	6	0
2	H	165	0	0	10	0
2	I	108	0	0	2	0
2	J	79	0	0	5	0
2	K	143	0	0	6	0
2	L	103	0	0	5	0
All	All	15137	0	13542	160	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 6.

All (160) 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:I:156:ASN:ND2	1:I:260:ILE:HG21	1.83	0.93
1:C:262:HIS:HE1	1:J:262:HIS:HE1	1.20	0.89
1:A:262:HIS:HE1	1:H:262:HIS:HE1	1.21	0.89
1:I:156:ASN:ND2	1:I:260:ILE:CG2	2.38	0.87
1:A:262:HIS:HE1	1:H:262:HIS:CE1	1.94	0.85
1:C:262:HIS:CE1	1:J:262:HIS:HE1	1.95	0.84
1:A:262:HIS:CE1	1:H:262:HIS:HE1	1.96	0.82
1:H:206:ASN:HB2	2:H:430:HOH:O	1.80	0.80
1:G:260:ILE:HB	2:G:392:HOH:O	1.81	0.80
1:E:193:HIS:HD2	2:E:402:HOH:O	1.65	0.80
1:I:156:ASN:HD21	1:I:260:ILE:HG21	1.50	0.77
1:B:156:ASN:ND2	1:K:156:ASN:OD1	2.17	0.76
1:G:219:LYS:HD3	2:G:440:HOH:O	1.86	0.75
1:J:156:ASN:HB3	2:J:335:HOH:O	1.85	0.75
1:L:272:TYR:HB3	2:L:399:HOH:O	1.86	0.74
1:A:224:ASN:HD21	1:A:230:ASN:HD21	1.37	0.73
1:L:220:VAL:HG13	2:L:347:HOH:O	1.88	0.73
1:L:184:HIS:HD2	1:L:235:ALA:H	1.37	0.72
1:H:156:ASN:HB3	2:H:383:HOH:O	1.90	0.72
1:A:184:HIS:HD2	1:A:235:ALA:H	1.39	0.71
1:C:184:HIS:HD2	1:C:235:ALA:H	1.38	0.71
1:A:262:HIS:CE1	1:H:262:HIS:CE1	2.74	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:262:HIS:HE1	1:J:262:HIS:CE1	2.05	0.70
1:H:184:HIS:HD2	1:H:235:ALA:H	1.39	0.70
1:H:184:HIS:HE1	2:H:432:HOH:O	1.75	0.70
1:K:184:HIS:HD2	1:K:235:ALA:H	1.37	0.70
1:G:184:HIS:HD2	1:G:235:ALA:H	1.40	0.69
1:D:249:ASP:OD2	1:D:276:ARG:NH2	2.26	0.69
1:J:184:HIS:HD2	1:J:235:ALA:H	1.38	0.69
1:K:156:ASN:ND2	1:K:262:HIS:CD2	2.60	0.69
1:H:193:HIS:HD2	2:H:435:HOH:O	1.76	0.67
1:F:224:ASN:HD21	1:F:230:ASN:HD21	1.42	0.67
1:I:204:ASP:O	1:I:207:LYS:HG2	1.95	0.65
1:K:193:HIS:HD2	2:K:422:HOH:O	1.80	0.64
1:K:156:ASN:ND2	1:K:262:HIS:NE2	2.46	0.64
1:J:193:HIS:HD2	2:J:372:HOH:O	1.80	0.62
1:L:290:LYS:O	1:L:291:LYS:HD2	1.99	0.62
1:E:276:ARG:NH2	2:E:303:HOH:O	2.32	0.62
1:C:262:HIS:CE1	1:J:262:HIS:CE1	2.81	0.62
1:D:224:ASN:HD21	1:D:230:ASN:HD21	1.46	0.62
1:I:183:LYS:HE2	2:K:424:HOH:O	1.98	0.62
1:A:202:VAL:HG12	1:A:209:VAL:HG13	1.82	0.61
1:C:224:ASN:HD21	1:C:230:ASN:HD21	1.49	0.61
1:F:193:HIS:HD2	2:F:395:HOH:O	1.84	0.61
1:D:156:ASN:HB3	2:D:424:HOH:O	2.01	0.60
1:B:152:HIS:CE1	1:K:260:ILE:HG23	2.37	0.60
1:D:276:ARG:NH1	2:D:303:HOH:O	2.25	0.59
1:I:224:ASN:N	1:I:224:ASN:OD1	2.34	0.59
1:K:184:HIS:HE1	2:K:415:HOH:O	1.84	0.59
1:G:193:HIS:NE2	1:H:193:HIS:HE1	2.02	0.58
1:I:191:THR:HG22	1:I:228:SER:HA	1.85	0.57
1:L:224:ASN:HD21	1:L:230:ASN:HD21	1.52	0.57
1:H:290:LYS:O	1:H:291:LYS:HB2	2.05	0.56
1:A:156:ASN:ND2	1:H:156:ASN:ND2	2.54	0.56
1:L:191:THR:HG22	1:L:228:SER:HA	1.88	0.56
1:C:152:HIS:HE1	1:J:260:ILE:HG13	1.70	0.55
1:L:191:THR:HG23	2:L:394:HOH:O	2.05	0.55
1:B:276:ARG:HG3	2:B:329:HOH:O	2.05	0.55
2:A:303:HOH:O	1:H:277:LYS:HG2	2.06	0.54
1:G:219:LYS:CD	2:G:440:HOH:O	2.52	0.54
1:B:262:HIS:NE2	1:K:262:HIS:HE1	2.06	0.54
1:C:156:ASN:ND2	1:J:156:ASN:ND2	2.56	0.53
1:J:177:LYS:N	1:J:177:LYS:HD3	2.24	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:156:ASN:CB	2:J:335:HOH:O	2.52	0.53
1:D:216:SER:OG	1:D:236:HIS:HE1	1.92	0.53
1:L:193:HIS:NE2	1:K:193:HIS:HE1	2.07	0.52
1:D:277:LYS:HE3	2:D:306:HOH:O	2.10	0.52
1:K:254:LYS:NZ	1:K:254:LYS:HB3	2.25	0.52
1:H:216:SER:OG	1:H:236:HIS:HE1	1.93	0.52
1:L:215:HIS:HE1	2:L:310:HOH:O	1.93	0.52
1:C:216:SER:OG	1:C:236:HIS:HE1	1.94	0.51
1:I:216:SER:OG	1:I:236:HIS:HE1	1.94	0.51
1:L:290:LYS:O	1:L:291:LYS:CD	2.58	0.51
1:G:193:HIS:NE2	1:H:193:HIS:CE1	2.78	0.51
1:B:152:HIS:HE1	1:K:260:ILE:HG23	1.76	0.51
1:J:176:SER:C	1:J:177:LYS:HD3	2.36	0.51
1:C:290:LYS:N	1:C:290:LYS:HD3	2.27	0.50
1:E:169:ASP:OD2	1:E:177:LYS:HE3	2.10	0.50
1:B:152:HIS:CE1	2:K:370:HOH:O	2.64	0.50
1:F:216:SER:OG	1:F:236:HIS:HE1	1.95	0.50
1:A:216:SER:OG	1:A:236:HIS:HE1	1.94	0.49
1:E:216:SER:OG	1:E:236:HIS:HE1	1.95	0.49
1:A:224:ASN:ND2	1:A:230:ASN:HD21	2.08	0.49
1:E:236:HIS:HD2	1:E:237:ALA:O	1.96	0.49
1:F:276:ARG:C	1:F:277:LYS:HG2	2.38	0.49
1:D:266:ASP:O	2:D:301:HOH:O	2.20	0.48
1:H:156:ASN:CB	2:H:383:HOH:O	2.56	0.48
1:E:183:LYS:HE2	2:E:411:HOH:O	2.13	0.48
1:B:272:TYR:HB2	1:K:272:TYR:OH	2.13	0.48
1:F:236:HIS:HD2	1:F:237:ALA:O	1.96	0.48
1:I:219:LYS:HB3	1:I:232:THR:HG22	1.96	0.47
1:A:203:LYS:HD3	2:A:390:HOH:O	2.14	0.47
1:C:203:LYS:HD3	2:C:316:HOH:O	2.14	0.47
1:E:215:HIS:HE1	2:E:304:HOH:O	1.96	0.47
1:F:224:ASN:ND2	1:F:230:ASN:HD21	2.09	0.47
2:A:404:HOH:O	1:H:262:HIS:CD2	2.67	0.47
1:G:156:ASN:HB2	2:G:392:HOH:O	2.14	0.47
1:B:154:MSE:HE3	1:K:257:PHE:CZ	2.50	0.47
1:C:224:ASN:ND2	1:C:230:ASN:HD21	2.13	0.47
1:I:236:HIS:HD2	1:I:237:ALA:O	1.98	0.46
1:C:236:HIS:HD2	1:C:237:ALA:O	1.98	0.46
1:G:265:SER:N	2:G:308:HOH:O	2.45	0.46
1:E:203:LYS:HD3	2:E:318:HOH:O	2.16	0.46
1:D:236:HIS:HD2	1:D:237:ALA:O	1.99	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:203:LYS:HD3	2:K:307:HOH:O	2.16	0.45
1:D:192:LYS:HE3	2:D:426:HOH:O	2.16	0.45
1:D:273:PHE:HA	2:D:302:HOH:O	2.16	0.45
1:L:254:LYS:HA	2:L:307:HOH:O	2.15	0.45
1:C:242:ASN:HB2	2:C:353:HOH:O	2.15	0.45
1:L:224:ASN:ND2	1:L:230:ASN:HD21	2.15	0.45
1:A:236:HIS:HD2	1:A:237:ALA:O	1.99	0.45
1:H:236:HIS:HD2	1:H:237:ALA:O	1.99	0.45
1:H:276:ARG:HD3	2:H:329:HOH:O	2.17	0.45
1:J:154:MSE:N	2:J:308:HOH:O	2.49	0.45
1:H:216:SER:OG	1:H:236:HIS:CE1	2.70	0.44
1:K:156:ASN:HD22	1:K:156:ASN:HA	1.60	0.44
1:D:216:SER:OG	1:D:236:HIS:CE1	2.70	0.44
1:B:154:MSE:HE3	1:K:257:PHE:HZ	1.81	0.44
1:E:281:TYR:OH	2:E:301:HOH:O	2.20	0.44
1:F:240:TRP:CE3	1:F:245:LEU:HD22	2.53	0.44
1:H:175:ASN:ND2	2:H:304:HOH:O	2.43	0.44
1:G:224:ASN:ND2	2:G:309:HOH:O	2.49	0.43
1:A:156:ASN:HB3	2:H:383:HOH:O	2.17	0.43
1:H:215:HIS:HD2	2:H:431:HOH:O	2.01	0.43
1:I:216:SER:OG	1:I:236:HIS:CE1	2.70	0.43
1:H:264:ALA:HA	2:H:326:HOH:O	2.19	0.43
1:I:242:ASN:HB2	2:I:316:HOH:O	2.18	0.43
1:J:272:TYR:HB3	2:J:375:HOH:O	2.17	0.43
1:K:207:LYS:N	1:K:207:LYS:HD2	2.34	0.43
1:K:218:ALA:O	2:K:302:HOH:O	2.20	0.43
1:D:189:LYS:HD2	1:K:290:LYS:HE3	2.00	0.43
1:L:193:HIS:NE2	1:K:193:HIS:CE1	2.86	0.43
1:C:220:VAL:O	1:C:220:VAL:HG23	2.18	0.43
1:K:207:LYS:N	1:K:207:LYS:CD	2.81	0.43
1:E:215:HIS:HD2	2:E:383:HOH:O	2.01	0.43
1:G:290:LYS:H	1:G:290:LYS:HG2	1.50	0.43
1:A:215:HIS:HD2	2:A:416:HOH:O	2.02	0.42
1:C:216:SER:OG	1:C:236:HIS:CE1	2.71	0.42
1:A:218:ALA:O	2:A:301:HOH:O	2.21	0.42
1:B:152:HIS:CD2	1:K:258:LYS:O	2.73	0.42
1:A:216:SER:OG	1:A:236:HIS:CE1	2.72	0.42
1:C:272:TYR:HB2	1:J:272:TYR:OH	2.20	0.42
1:E:216:SER:OG	1:E:236:HIS:CE1	2.72	0.42
1:C:152:HIS:CE1	1:J:260:ILE:HG13	2.53	0.42
1:A:264:ALA:HA	2:A:427:HOH:O	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:240:TRP:CE3	1:K:245:LEU:HD22	2.55	0.42
1:C:223:LYS:HE3	1:C:227:GLY:HA2	2.02	0.41
1:I:210:ARG:NH2	2:I:301:HOH:O	2.25	0.41
1:L:290:LYS:O	1:L:291:LYS:HE2	2.20	0.41
1:F:183:LYS:NZ	2:F:308:HOH:O	2.53	0.41
1:I:204:ASP:O	1:I:207:LYS:CG	2.66	0.41
1:A:265:SER:N	2:A:306:HOH:O	2.45	0.41
1:F:216:SER:OG	1:F:236:HIS:CE1	2.73	0.41
1:B:192:LYS:HE2	1:B:194:ASN:O	2.21	0.41
1:G:276:ARG:HH11	1:G:276:ARG:HG3	1.85	0.41
1:D:274:ALA:N	2:D:302:HOH:O	2.22	0.41
1:B:240:TRP:CE3	1:B:245:LEU:HD22	2.56	0.40
1:L:194:ASN:HB3	1:K:194:ASN:HB3	2.04	0.40
1:C:220:VAL:HG22	2:C:350:HOH:O	2.20	0.40
1:A:215:HIS:HE1	2:A:307:HOH:O	2.04	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	138/140 (99%)	135 (98%)	3 (2%)	0	100	100
1	B	138/140 (99%)	136 (99%)	2 (1%)	0	100	100
1	C	137/140 (98%)	135 (98%)	2 (2%)	0	100	100
1	D	137/140 (98%)	133 (97%)	4 (3%)	0	100	100
1	E	136/140 (97%)	133 (98%)	3 (2%)	0	100	100
1	F	137/140 (98%)	134 (98%)	3 (2%)	0	100	100
1	G	138/140 (99%)	134 (97%)	4 (3%)	0	100	100
1	H	137/140 (98%)	134 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	I	136/140 (97%)	134 (98%)	2 (2%)	0	100	100
1	J	136/140 (97%)	133 (98%)	3 (2%)	0	100	100
1	K	137/140 (98%)	134 (98%)	3 (2%)	0	100	100
1	L	137/140 (98%)	134 (98%)	3 (2%)	0	100	100
All	All	1644/1680 (98%)	1609 (98%)	35 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	123/119 (103%)	119 (97%)	4 (3%)	33	28
1	B	123/119 (103%)	116 (94%)	7 (6%)	18	11
1	C	122/119 (102%)	115 (94%)	7 (6%)	18	11
1	D	122/119 (102%)	119 (98%)	3 (2%)	42	39
1	E	121/119 (102%)	119 (98%)	2 (2%)	53	53
1	F	122/119 (102%)	119 (98%)	3 (2%)	42	39
1	G	123/119 (103%)	118 (96%)	5 (4%)	27	21
1	H	122/119 (102%)	120 (98%)	2 (2%)	55	56
1	I	121/119 (102%)	119 (98%)	2 (2%)	53	53
1	J	121/119 (102%)	117 (97%)	4 (3%)	33	28
1	K	122/119 (102%)	118 (97%)	4 (3%)	33	28
1	L	122/119 (102%)	118 (97%)	4 (3%)	33	28
All	All	1464/1428 (102%)	1417 (97%)	47 (3%)	34	29

All (47) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	153	MSE

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Mol	Chain	Res	Type
1	A	203	LYS
1	A	278	LYS
1	A	291	LYS
1	B	153	MSE
1	B	203	LYS
1	B	207	LYS
1	B	219	LYS
1	B	220	VAL
1	B	255	ARG
1	B	265	SER
1	C	152	HIS
1	C	153	MSE
1	C	203	LYS
1	C	244	LYS
1	C	254	LYS
1	C	277	LYS
1	C	290	LYS
1	D	153	MSE
1	D	203	LYS
1	D	245	LEU
1	E	203	LYS
1	E	245	LEU
1	F	183	LYS
1	F	207	LYS
1	F	277	LYS
1	G	153	MSE
1	G	203	LYS
1	G	254	LYS
1	G	276	ARG
1	G	290	LYS
1	H	203	LYS
1	H	291	LYS
1	I	156	ASN
1	I	219	LYS
1	J	177	LYS
1	J	203	LYS
1	J	254	LYS
1	J	290	LYS
1	L	155	GLU
1	L	220	VAL
1	L	276	ARG
1	L	291	LYS

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Mol	Chain	Res	Type
1	K	153	MSE
1	K	156	ASN
1	K	203	LYS
1	K	254	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (65) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	156	ASN
1	A	184	HIS
1	A	215	HIS
1	A	230	ASN
1	A	236	HIS
1	A	262	HIS
1	B	152	HIS
1	B	156	ASN
1	B	175	ASN
1	B	196	HIS
1	C	152	HIS
1	C	156	ASN
1	C	172	GLN
1	C	184	HIS
1	C	215	HIS
1	C	230	ASN
1	C	236	HIS
1	C	262	HIS
1	D	168	GLN
1	D	172	GLN
1	D	230	ASN
1	D	236	HIS
1	E	193	HIS
1	E	215	HIS
1	E	236	HIS
1	F	175	ASN
1	F	193	HIS
1	F	224	ASN
1	F	236	HIS
1	F	262	HIS
1	G	184	HIS
1	G	215	HIS
1	G	224	ASN
1	G	230	ASN

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Mol	Chain	Res	Type
1	G	262	HIS
1	H	156	ASN
1	H	172	GLN
1	H	175	ASN
1	H	184	HIS
1	H	193	HIS
1	H	215	HIS
1	H	234	ASN
1	H	236	HIS
1	H	262	HIS
1	I	156	ASN
1	I	196	HIS
1	I	215	HIS
1	I	236	HIS
1	I	242	ASN
1	I	262	HIS
1	J	156	ASN
1	J	175	ASN
1	J	184	HIS
1	J	193	HIS
1	J	224	ASN
1	J	230	ASN
1	J	262	HIS
1	L	184	HIS
1	L	215	HIS
1	L	230	ASN
1	K	156	ASN
1	K	175	ASN
1	K	184	HIS
1	K	193	HIS
1	K	262	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	135/140 (96%)	-0.14	2 (1%) 72 73	9, 21, 43, 56	1 (0%)
1	B	136/140 (97%)	0.15	3 (2%) 62 64	15, 26, 49, 86	0
1	C	135/140 (96%)	0.37	8 (5%) 28 28	15, 31, 56, 94	0
1	D	135/140 (96%)	-0.23	5 (3%) 45 45	13, 19, 46, 71	0
1	E	135/140 (96%)	0.15	3 (2%) 62 64	16, 25, 45, 70	0
1	F	135/140 (96%)	0.29	5 (3%) 45 45	17, 28, 50, 67	0
1	G	135/140 (96%)	0.00	4 (2%) 52 53	8, 23, 46, 58	1 (0%)
1	H	135/140 (96%)	-0.08	6 (4%) 39 39	13, 21, 46, 61	0
1	I	135/140 (96%)	0.67	13 (9%) 13 13	20, 34, 70, 109	0
1	J	134/140 (95%)	0.50	3 (2%) 62 64	13, 34, 56, 77	1 (0%)
1	K	135/140 (96%)	0.02	6 (4%) 39 39	16, 23, 47, 71	0
1	L	135/140 (96%)	0.67	15 (11%) 10 10	17, 32, 64, 78	0
All	All	1620/1680 (96%)	0.20	73 (4%) 38 38	8, 27, 55, 109	3 (0%)

All (73) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	I	274	ALA	5.6
1	L	274	ALA	4.5
1	B	152	HIS	4.5
1	C	152	HIS	4.4
1	L	223	LYS	4.4
1	H	274	ALA	4.1
1	I	225	SER	3.8
1	I	272	TYR	3.8
1	I	224	ASN	3.8
1	K	277	LYS	3.5
1	D	274	ALA	3.4

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Mol	Chain	Res	Type	RSRZ
1	H	291	LYS	3.4
1	L	291	LYS	3.3
1	I	273	PHE	3.3
1	C	290	LYS	3.2
1	C	264	ALA	3.1
1	F	223	LYS	3.1
1	E	156	ASN	3.1
1	D	265	SER	3.0
1	L	225	SER	3.0
1	I	223	LYS	3.0
1	K	206	ASN	3.0
1	L	264	ALA	2.9
1	G	274	ALA	2.9
1	H	290	LYS	2.9
1	D	264	ALA	2.9
1	F	156	ASN	2.7
1	A	274	ALA	2.7
1	L	224	ASN	2.6
1	I	228	SER	2.6
1	H	265	SER	2.6
1	J	277	LYS	2.6
1	I	227	GLY	2.6
1	K	207	LYS	2.6
1	L	273	PHE	2.6
1	I	265	SER	2.5
1	J	272	TYR	2.5
1	F	221	THR	2.5
1	H	263	PRO	2.5
1	K	274	ALA	2.5
1	A	272	TYR	2.4
1	D	272	TYR	2.4
1	F	222	SER	2.4
1	I	156	ASN	2.4
1	L	228	SER	2.4
1	F	225	SER	2.3
1	G	291	LYS	2.3
1	C	289	ILE	2.3
1	G	290	LYS	2.3
1	L	229	VAL	2.3
1	B	264	ALA	2.3
1	E	281	TYR	2.3
1	C	156	ASN	2.2

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Mol	Chain	Res	Type	RSRZ
1	J	290	LYS	2.2
1	B	265	SER	2.2
1	C	221	THR	2.2
1	C	265	SER	2.2
1	L	277	LYS	2.2
1	C	155	GLU	2.1
1	E	208	SER	2.1
1	L	265	SER	2.1
1	L	258	LYS	2.1
1	L	156	ASN	2.1
1	D	276	ARG	2.1
1	L	220	VAL	2.1
1	I	208	SER	2.1
1	L	222	SER	2.1
1	K	272	TYR	2.0
1	I	264	ALA	2.0
1	H	156	ASN	2.0
1	K	156	ASN	2.0
1	G	276	ARG	2.0
1	I	221	THR	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.