



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 07:05 AM UTC

PDB ID : 6CHV / pdb_00006chv
Title : Proteus vulgaris HigA antitoxin bound to DNA
Authors : Schureck, M.A.; Hoffer, E.D.; Onuoha, N.; Dunham, C.M.
Deposited on : 2018-02-23
Resolution : 2.90 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
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

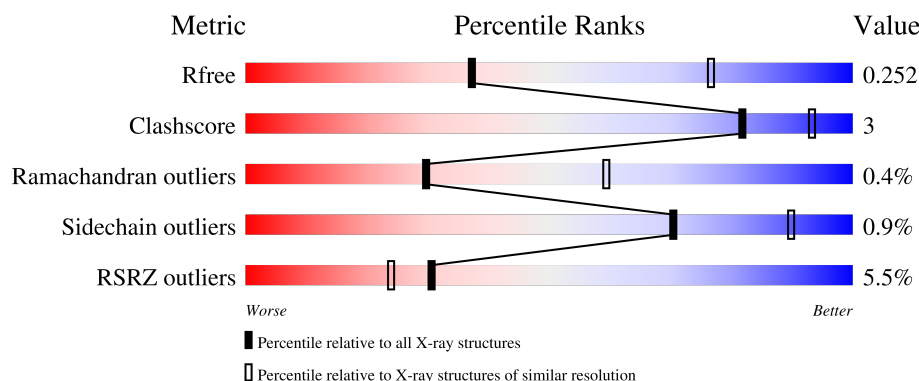
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	2481 (2.90-2.90)
Clashscore	190562	2690 (2.90-2.90)
Ramachandran outliers	187476	2623 (2.90-2.90)
Sidechain outliers	187428	2625 (2.90-2.90)
RSRZ outliers	180081	2481 (2.90-2.90)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	121	
1	B	121	
1	C	121	
1	D	121	
1	G	121	

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Mol	Chain	Length	Quality of chain
1	H	121	
2	E	21	
2	I	21	
2	K	21	
3	F	21	
3	J	21	
3	L	21	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	MG	F	101	-	-	-	X
4	MG	K	103	-	-	-	X

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 6744 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 Antitoxin HigA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	89	Total	C	N	O	S	0	0	0
			682	430	123	127	2			
1	C	88	Total	C	N	O	S	0	0	0
			678	428	122	126	2			
1	B	88	Total	C	N	O	S	0	0	0
			671	421	122	126	2			
1	D	91	Total	C	N	O	S	0	0	0
			694	433	126	133	2			
1	G	91	Total	C	N	O	S	0	0	0
			694	432	125	135	2			
1	H	86	Total	C	N	O	S	0	0	0
			655	410	119	124	2			

There are 102 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-16	GLY	-	expression tag	UNP Q7A224
A	-15	SER	-	expression tag	UNP Q7A224
A	-14	HIS	-	expression tag	UNP Q7A224
A	-13	MET	-	expression tag	UNP Q7A224
A	-12	ALA	-	expression tag	UNP Q7A224
A	-11	SER	-	expression tag	UNP Q7A224
A	-10	MET	-	expression tag	UNP Q7A224
A	-9	THR	-	expression tag	UNP Q7A224
A	-8	GLY	-	expression tag	UNP Q7A224
A	-7	GLY	-	expression tag	UNP Q7A224
A	-6	GLN	-	expression tag	UNP Q7A224
A	-5	GLN	-	expression tag	UNP Q7A224
A	-4	MET	-	expression tag	UNP Q7A224
A	-3	GLY	-	expression tag	UNP Q7A224
A	-2	ARG	-	expression tag	UNP Q7A224
A	-1	GLY	-	expression tag	UNP Q7A224
A	0	SER	-	expression tag	UNP Q7A224

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-16	GLY	-	expression tag	UNP Q7A224
C	-15	SER	-	expression tag	UNP Q7A224
C	-14	HIS	-	expression tag	UNP Q7A224
C	-13	MET	-	expression tag	UNP Q7A224
C	-12	ALA	-	expression tag	UNP Q7A224
C	-11	SER	-	expression tag	UNP Q7A224
C	-10	MET	-	expression tag	UNP Q7A224
C	-9	THR	-	expression tag	UNP Q7A224
C	-8	GLY	-	expression tag	UNP Q7A224
C	-7	GLY	-	expression tag	UNP Q7A224
C	-6	GLN	-	expression tag	UNP Q7A224
C	-5	GLN	-	expression tag	UNP Q7A224
C	-4	MET	-	expression tag	UNP Q7A224
C	-3	GLY	-	expression tag	UNP Q7A224
C	-2	ARG	-	expression tag	UNP Q7A224
C	-1	GLY	-	expression tag	UNP Q7A224
C	0	SER	-	expression tag	UNP Q7A224
B	-16	GLY	-	expression tag	UNP Q7A224
B	-15	SER	-	expression tag	UNP Q7A224
B	-14	HIS	-	expression tag	UNP Q7A224
B	-13	MET	-	expression tag	UNP Q7A224
B	-12	ALA	-	expression tag	UNP Q7A224
B	-11	SER	-	expression tag	UNP Q7A224
B	-10	MET	-	expression tag	UNP Q7A224
B	-9	THR	-	expression tag	UNP Q7A224
B	-8	GLY	-	expression tag	UNP Q7A224
B	-7	GLY	-	expression tag	UNP Q7A224
B	-6	GLN	-	expression tag	UNP Q7A224
B	-5	GLN	-	expression tag	UNP Q7A224
B	-4	MET	-	expression tag	UNP Q7A224
B	-3	GLY	-	expression tag	UNP Q7A224
B	-2	ARG	-	expression tag	UNP Q7A224
B	-1	GLY	-	expression tag	UNP Q7A224
B	0	SER	-	expression tag	UNP Q7A224
D	-16	GLY	-	expression tag	UNP Q7A224
D	-15	SER	-	expression tag	UNP Q7A224
D	-14	HIS	-	expression tag	UNP Q7A224
D	-13	MET	-	expression tag	UNP Q7A224
D	-12	ALA	-	expression tag	UNP Q7A224
D	-11	SER	-	expression tag	UNP Q7A224
D	-10	MET	-	expression tag	UNP Q7A224
D	-9	THR	-	expression tag	UNP Q7A224

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-8	GLY	-	expression tag	UNP Q7A224
D	-7	GLY	-	expression tag	UNP Q7A224
D	-6	GLN	-	expression tag	UNP Q7A224
D	-5	GLN	-	expression tag	UNP Q7A224
D	-4	MET	-	expression tag	UNP Q7A224
D	-3	GLY	-	expression tag	UNP Q7A224
D	-2	ARG	-	expression tag	UNP Q7A224
D	-1	GLY	-	expression tag	UNP Q7A224
D	0	SER	-	expression tag	UNP Q7A224
G	-16	GLY	-	expression tag	UNP Q7A224
G	-15	SER	-	expression tag	UNP Q7A224
G	-14	HIS	-	expression tag	UNP Q7A224
G	-13	MET	-	expression tag	UNP Q7A224
G	-12	ALA	-	expression tag	UNP Q7A224
G	-11	SER	-	expression tag	UNP Q7A224
G	-10	MET	-	expression tag	UNP Q7A224
G	-9	THR	-	expression tag	UNP Q7A224
G	-8	GLY	-	expression tag	UNP Q7A224
G	-7	GLY	-	expression tag	UNP Q7A224
G	-6	GLN	-	expression tag	UNP Q7A224
G	-5	GLN	-	expression tag	UNP Q7A224
G	-4	MET	-	expression tag	UNP Q7A224
G	-3	GLY	-	expression tag	UNP Q7A224
G	-2	ARG	-	expression tag	UNP Q7A224
G	-1	GLY	-	expression tag	UNP Q7A224
G	0	SER	-	expression tag	UNP Q7A224
H	-16	GLY	-	expression tag	UNP Q7A224
H	-15	SER	-	expression tag	UNP Q7A224
H	-14	HIS	-	expression tag	UNP Q7A224
H	-13	MET	-	expression tag	UNP Q7A224
H	-12	ALA	-	expression tag	UNP Q7A224
H	-11	SER	-	expression tag	UNP Q7A224
H	-10	MET	-	expression tag	UNP Q7A224
H	-9	THR	-	expression tag	UNP Q7A224
H	-8	GLY	-	expression tag	UNP Q7A224
H	-7	GLY	-	expression tag	UNP Q7A224
H	-6	GLN	-	expression tag	UNP Q7A224
H	-5	GLN	-	expression tag	UNP Q7A224
H	-4	MET	-	expression tag	UNP Q7A224
H	-3	GLY	-	expression tag	UNP Q7A224
H	-2	ARG	-	expression tag	UNP Q7A224
H	-1	GLY	-	expression tag	UNP Q7A224

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Chain	Residue	Modelled	Actual	Comment	Reference
H	0	SER	-	expression tag	UNP Q7A224

- Molecule 2 is a DNA chain called pHigCryst3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	I	21	Total	C	N	O	P	0	0	0
			424	205	77	122	20			
2	E	21	Total	C	N	O	P	0	0	0
			424	205	77	122	20			
2	K	21	Total	C	N	O	P	0	0	0
			424	205	77	122	20			

- Molecule 3 is a DNA chain called pHigCryst4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	J	21	Total	C	N	O	P	0	0	0
			431	208	77	126	20			
3	F	21	Total	C	N	O	P	0	0	0
			431	208	77	126	20			
3	L	21	Total	C	N	O	P	0	0	0
			431	208	77	126	20			

- Molecule 4 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	J	1	Total	Mg	0	0
			1	1		
4	F	1	Total	Mg	0	0
			1	1		
4	K	3	Total	Mg	0	0
			3	3		
4	L	1	Total	Mg	0	0
			1	1		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	11	Total	O	0	0
			11	11		
5	C	7	Total	O	0	0
			7	7		

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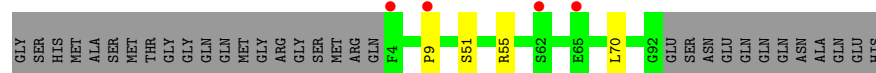
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	I	8	Total 8	O 8	0	0
5	J	10	Total 10	O 10	0	0
5	B	16	Total 16	O 16	0	0
5	D	7	Total 7	O 7	0	0
5	E	7	Total 7	O 7	0	0
5	F	14	Total 14	O 14	0	0
5	G	4	Total 4	O 4	0	0
5	H	7	Total 7	O 7	0	0
5	K	2	Total 2	O 2	0	0
5	L	6	Total 6	O 6	0	0

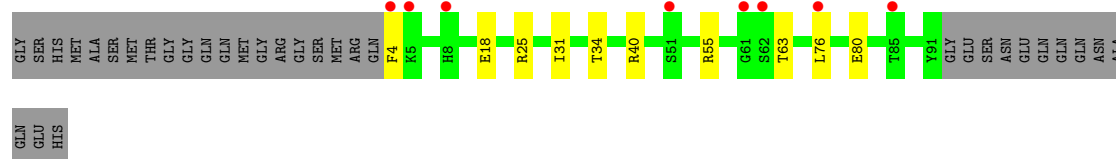
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Antitoxin HgA



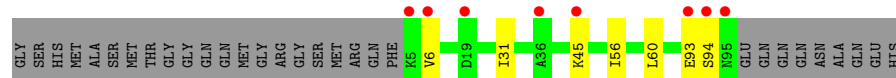
- Molecule 1: Antitoxin HgA



- Molecule 1: Antitoxin HgA



- Molecule 1: Antitoxin HgA



- Molecule 1: Antitoxin HgA



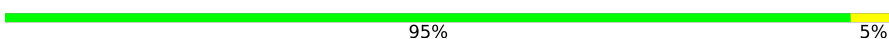
ASN
ALA
GLN
GLU
HIS

- Molecule 1: Antitoxin HigA

Chain H: 

GLY SER HIS MET MET ALA SER MET THR GLY GLY GLN GLN MET MET GLY ARG GLY MET MET ARG GLN PHE LYS VAL S7 M12 I13 A14 R15 R26 T34 P35 A36 R40 G61 S62 R69 L76 Y91 G92 GLU SER ASN GLN GLN GLN ASN ALA GLN HIS

- Molecule 2: pHigCryst3

Chain I: 

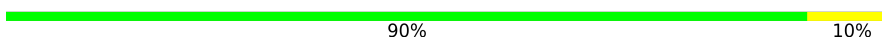
G1 G15 C21

- Molecule 2: pHigCryst3

Chain E: 

G1 C9 A10 C21

- Molecule 2: pHigCryst3

Chain K: 

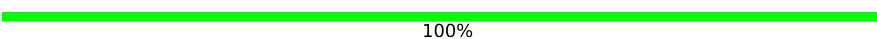
G1 T2 G15 C21

- Molecule 3: pHigCryst4

Chain J: 

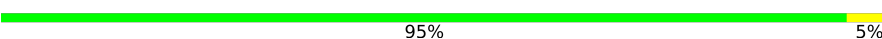
G1 T2 T9 G10 C21

- Molecule 3: pHigCryst4

Chain F: 

There are no outlier residues recorded for this chain.

- Molecule 3: pHigCryst4

Chain L: 

G1 G15 C21

4 Data and refinement statistics

Property	Value	Source
Space group	P 65	Depositor
Cell constants a, b, c, α , β , γ	79.45Å 79.45Å 399.43Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	39.72 – 2.90 39.72 – 2.90	Depositor EDS
% Data completeness (in resolution range)	98.2 (39.72-2.90) 93.9 (39.72-2.90)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.24 (at 2.69Å)	Xtriage
Refinement program	PHENIX 1.13-2998	Depositor
R, R_{free}	0.225 , 0.260 0.217 , 0.252	Depositor DCC
R_{free} test set	1937 reflections (4.83%)	wwPDB-VP
Wilson B-factor (Å ²)	51.8	Xtriage
Anisotropy	1.131	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 54.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.52$, $\langle L^2 \rangle = 0.35$	Xtriage
Estimated twinning fraction	0.069 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	6744	wwPDB-VP
Average B, all atoms (Å ²)	91.0	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 20.98 % 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 7.7387e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

²Theoretical 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 [i](#)

5.1 Standard geometry [i](#)

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

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	0.25	0/694	0.35	0/940
1	B	0.25	0/682	0.37	0/924
1	C	0.29	0/690	0.35	0/935
1	D	0.26	0/705	0.35	0/955
1	G	0.28	0/705	0.34	0/956
1	H	0.22	0/666	0.33	0/903
2	E	0.23	0/475	0.39	0/730
2	I	0.19	0/475	0.38	0/730
2	K	0.18	0/475	0.37	0/730
3	F	0.25	0/483	0.42	0/745
3	J	0.21	0/483	0.41	0/745
3	L	0.21	0/483	0.42	0/745
All	All	0.24	0/7016	0.37	0/10038

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	682	0	691	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	671	0	682	6	0
1	C	678	0	688	6	0
1	D	694	0	699	4	0
1	G	694	0	692	10	0
1	H	655	0	660	8	0
2	E	424	0	239	1	0
2	I	424	0	239	1	0
2	K	424	0	239	2	0
3	F	431	0	241	0	0
3	J	431	0	241	2	0
3	L	431	0	241	2	0
4	F	1	0	0	0	0
4	J	1	0	0	0	0
4	K	3	0	0	0	0
4	L	1	0	0	0	0
5	A	11	0	0	0	0
5	B	16	0	0	0	0
5	C	7	0	0	0	0
5	D	7	0	0	0	0
5	E	7	0	0	0	0
5	F	14	0	0	0	0
5	G	4	0	0	0	0
5	H	7	0	0	0	0
5	I	8	0	0	0	0
5	J	10	0	0	0	0
5	K	2	0	0	0	0
5	L	6	0	0	1	0
All	All	6744	0	5552	31	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 3.

All (31) 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:G:36:ALA:O	1:G:40:ARG:HG3	1.84	0.77
1:H:26:ARG:HD2	5:L:204:HOH:O	1.92	0.69
1:B:88:ILE:HD12	1:D:31:ILE:HA	1.79	0.64
1:B:12:MET:HE2	1:H:61:GLY:HA3	1.79	0.63
1:B:11:GLU:OE2	1:B:15:ARG:NH2	2.33	0.62
1:H:36:ALA:O	1:H:40:ARG:HG3	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:31:ILE:HB	1:G:55:ARG:HB3	1.89	0.54
1:G:25:ARG:NH1	2:K:2:DT:OP2	2.42	0.51
1:G:37:THR:OG1	3:L:15:DG:OP2	2.26	0.51
1:B:19:ASP:OD1	1:H:69:ARG:NH2	2.35	0.50
1:G:50:PRO:HA	1:G:68:LEU:HD21	1.93	0.50
1:C:76:LEU:O	1:C:80:GLU:HG2	2.12	0.49
3:J:9:DT:H2''	3:J:10:DG:C8	2.48	0.49
1:G:69:ARG:NH2	1:H:69:ARG:HB2	2.27	0.49
1:A:51:SER:O	1:A:55:ARG:HD2	2.13	0.48
1:D:6:VAL:O	1:D:6:VAL:HG13	2.14	0.48
2:E:9:DC:H2''	2:E:10:DA:C8	2.49	0.47
1:G:40:ARG:NH2	3:L:15:DG:N7	2.53	0.47
1:C:34:THR:HG21	2:I:15:DG:H2'	1.96	0.46
1:C:31:ILE:HB	1:C:55:ARG:HB3	1.98	0.46
1:D:93:GLU:HG3	1:D:94:SER:N	2.31	0.45
1:C:63:THR:HG22	1:B:69:ARG:NH1	2.32	0.45
1:H:12:MET:HG3	1:H:15:ARG:HH21	1.81	0.44
1:D:56:ILE:HG23	1:D:60:LEU:HD12	2.01	0.43
1:C:4:PHE:HD2	1:G:84:ASP:HB2	1.85	0.42
1:H:34:THR:HG21	2:K:15:DG:H2'	2.01	0.42
1:B:13:ILE:HG23	1:B:60:LEU:HD11	2.01	0.42
1:A:9:PRO:HB3	1:A:70:LEU:HB3	2.01	0.41
1:G:66:PHE:O	1:G:70:LEU:HD13	2.20	0.41
1:C:25:ARG:NH1	3:J:2:DT:OP2	2.51	0.41
1:G:68:LEU:HD12	1:H:76:LEU:HD11	2.02	0.41

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	87/121 (72%)	86 (99%)	1 (1%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	86/121 (71%)	83 (96%)	2 (2%)	1 (1%)	10	34
1	C	86/121 (71%)	85 (99%)	1 (1%)	0	100	100
1	D	89/121 (74%)	86 (97%)	3 (3%)	0	100	100
1	G	89/121 (74%)	88 (99%)	1 (1%)	0	100	100
1	H	84/121 (69%)	81 (96%)	2 (2%)	1 (1%)	10	34
All	All	521/726 (72%)	509 (98%)	10 (2%)	2 (0%)	30	59

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	6	VAL
1	H	91	TYR

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	73/98 (74%)	73 (100%)	0	100	100
1	B	72/98 (74%)	71 (99%)	1 (1%)	59	85
1	C	73/98 (74%)	71 (97%)	2 (3%)	39	73
1	D	75/98 (76%)	74 (99%)	1 (1%)	61	86
1	G	75/98 (76%)	75 (100%)	0	100	100
1	H	70/98 (71%)	70 (100%)	0	100	100
All	All	438/588 (74%)	434 (99%)	4 (1%)	70	90

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	18	GLU
1	C	40	ARG
1	B	45	LYS
1	D	45	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 6 ligands modelled in this entry, 6 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	A	89/121 (73%)	0.61	4 (4%)	38	30	54, 78, 112, 134	0
1	B	88/121 (72%)	0.38	4 (4%)	38	30	44, 66, 103, 132	0
1	C	88/121 (72%)	0.67	8 (9%)	15	12	49, 76, 124, 144	0
1	D	91/121 (75%)	0.70	8 (8%)	15	13	56, 77, 126, 168	0
1	G	91/121 (75%)	0.72	8 (8%)	15	13	64, 98, 132, 160	0
1	H	86/121 (71%)	0.62	4 (4%)	36	28	56, 83, 134, 159	0
2	E	21/21 (100%)	0.04	0	100	100	78, 98, 114, 118	0
2	I	21/21 (100%)	0.28	0	100	100	81, 97, 120, 121	0
2	K	21/21 (100%)	0.33	0	100	100	81, 100, 125, 128	0
3	F	21/21 (100%)	0.11	0	100	100	84, 98, 117, 119	0
3	J	21/21 (100%)	0.25	0	100	100	80, 98, 119, 123	0
3	L	21/21 (100%)	0.36	0	100	100	86, 106, 129, 137	0
All	All	659/852 (77%)	0.54	36 (5%)	30	24	44, 84, 126, 168	0

All (36) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	6	VAL	5.3
1	D	19	ASP	4.0
1	C	61	GLY	3.7
1	A	9	PRO	3.3
1	H	62	SER	3.3
1	H	61	GLY	3.1
1	D	95	ASN	3.0
1	D	93	GLU	3.0
1	H	92	GLY	3.0
1	G	6	VAL	3.0
1	B	5	LYS	2.8

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Mol	Chain	Res	Type	RSRZ
1	A	4	PHE	2.8
1	G	95	ASN	2.8
1	C	5	LYS	2.6
1	C	76	LEU	2.6
1	D	45	LYS	2.5
1	G	7	SER	2.5
1	A	65	GLU	2.5
1	G	76	LEU	2.4
1	C	4	PHE	2.4
1	C	8	HIS	2.4
1	B	6	VAL	2.3
1	D	5	LYS	2.3
1	G	80	GLU	2.3
1	G	83	ILE	2.3
1	G	62	SER	2.3
1	A	62	SER	2.3
1	D	94	SER	2.2
1	H	13	ILE	2.2
1	G	46	THR	2.1
1	C	51	SER	2.1
1	C	62	SER	2.1
1	B	19	ASP	2.0
1	B	50	PRO	2.0
1	C	85	THR	2.0
1	D	36	ALA	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](#)

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($\text{\AA}^2$)	Q<0.9
4	MG	F	101	1/1	0.61	0.53	92,92,92,92	0
4	MG	K	103	1/1	0.66	0.45	96,96,96,96	0
4	MG	J	101	1/1	0.84	0.42	85,85,85,85	0
4	MG	K	102	1/1	0.85	0.35	80,80,80,80	0
4	MG	L	101	1/1	0.85	0.39	94,94,94,94	0
4	MG	K	101	1/1	0.93	0.33	77,77,77,77	0

6.5 Other polymers [i](#)

There are no such residues in this entry.