W O R L D W I D E
wwPDB
PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 23, 2023 – 02:43 PM EDT

|		
PDB ID	:	3BPD
Title	:	Crystal structure of an uncharacterized protein (O28723_ARCFU) from Archaeoglobus fulgidus
Authors	:	Eswaramoorthy, S.; Burley, S.K.; Sauder, J.M.; Swaminathan, S.; New York SGX Research Center for Structural Genomics (NYSGXRC)
Deposited on	:	2007-12-18
Resolution	:	2.80 Å(reported)

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 2.80 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.
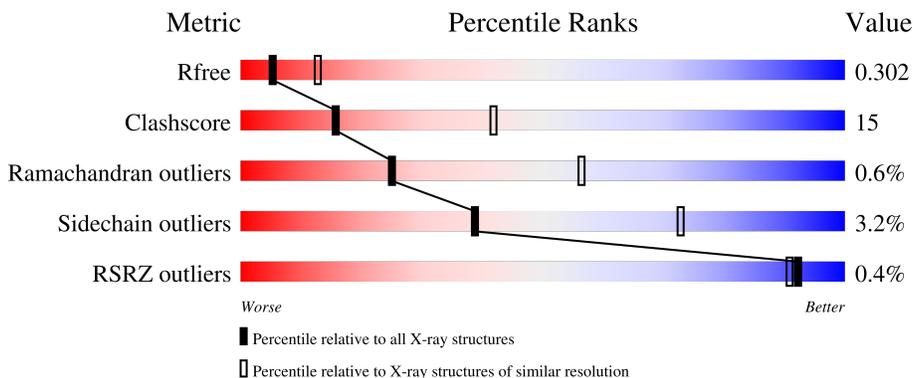
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	100	63%　　26%　•　9%
1	B	100	56%　　33%　•　9%
1	C	100	68%　　21%　•　9%
1	D	100	72%　　18%　•　9%
1	E	100	67%　　23%　•　9%

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Mol	Chain	Length	Quality of chain
1	F	100	70% 19% 8%
1	G	100	72% 17% 9%
1	H	100	% 61% 26% 9%
1	I	100	% 62% 27% 10%
1	J	100	% 66% 23% 9%
1	K	100	59% 29% 9%
1	L	100	71% 18% 9%
1	M	100	% 66% 23% 9%
1	N	100	% 57% 30% 10%

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 9922 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 Uncharacterized protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	91	Total	C	N	O	Se	0	0	0
			700	446	117	136	1			
1	B	91	Total	C	N	O	Se	0	0	0
			701	446	117	137	1			
1	C	91	Total	C	N	O	Se	0	0	0
			701	446	117	137	1			
1	D	91	Total	C	N	O	Se	0	0	0
			700	446	117	136	1			
1	E	91	Total	C	N	O	Se	0	0	0
			701	446	117	137	1			
1	F	92	Total	C	N	O	Se	0	0	0
			706	449	118	138	1			
1	G	91	Total	C	N	O	Se	0	0	0
			701	446	117	137	1			
1	H	91	Total	C	N	O	Se	0	0	0
			701	446	117	137	1			
1	I	90	Total	C	N	O	Se	0	0	0
			695	443	116	135	1			
1	J	91	Total	C	N	O	Se	0	0	0
			701	446	117	137	1			
1	K	91	Total	C	N	O	Se	0	0	0
			700	446	117	136	1			
1	L	91	Total	C	N	O	Se	0	0	0
			701	446	117	137	1			
1	M	91	Total	C	N	O	Se	0	0	0
			701	446	117	137	1			
1	N	90	Total	C	N	O	Se	0	0	0
			695	443	116	135	1			

There are 168 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	MSE	-	expression tag	UNP O28723

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Chain	Residue	Modelled	Actual	Comment	Reference
A	0	SER	-	expression tag	UNP O28723
A	1	LEU	-	expression tag	UNP O28723
A	70	MSE	LEU	engineered mutation	UNP O28723
A	91	GLU	-	expression tag	UNP O28723
A	92	GLY	-	expression tag	UNP O28723
A	93	HIS	-	expression tag	UNP O28723
A	94	HIS	-	expression tag	UNP O28723
A	95	HIS	-	expression tag	UNP O28723
A	96	HIS	-	expression tag	UNP O28723
A	97	HIS	-	expression tag	UNP O28723
A	98	HIS	-	expression tag	UNP O28723
B	-1	MSE	-	expression tag	UNP O28723
B	0	SER	-	expression tag	UNP O28723
B	1	LEU	-	expression tag	UNP O28723
B	70	MSE	LEU	engineered mutation	UNP O28723
B	91	GLU	-	expression tag	UNP O28723
B	92	GLY	-	expression tag	UNP O28723
B	93	HIS	-	expression tag	UNP O28723
B	94	HIS	-	expression tag	UNP O28723
B	95	HIS	-	expression tag	UNP O28723
B	96	HIS	-	expression tag	UNP O28723
B	97	HIS	-	expression tag	UNP O28723
B	98	HIS	-	expression tag	UNP O28723
C	-1	MSE	-	expression tag	UNP O28723
C	0	SER	-	expression tag	UNP O28723
C	1	LEU	-	expression tag	UNP O28723
C	70	MSE	LEU	engineered mutation	UNP O28723
C	91	GLU	-	expression tag	UNP O28723
C	92	GLY	-	expression tag	UNP O28723
C	93	HIS	-	expression tag	UNP O28723
C	94	HIS	-	expression tag	UNP O28723
C	95	HIS	-	expression tag	UNP O28723
C	96	HIS	-	expression tag	UNP O28723
C	97	HIS	-	expression tag	UNP O28723
C	98	HIS	-	expression tag	UNP O28723
D	-1	MSE	-	expression tag	UNP O28723
D	0	SER	-	expression tag	UNP O28723
D	1	LEU	-	expression tag	UNP O28723
D	70	MSE	LEU	engineered mutation	UNP O28723
D	91	GLU	-	expression tag	UNP O28723
D	92	GLY	-	expression tag	UNP O28723
D	93	HIS	-	expression tag	UNP O28723

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Chain	Residue	Modelled	Actual	Comment	Reference
D	94	HIS	-	expression tag	UNP O28723
D	95	HIS	-	expression tag	UNP O28723
D	96	HIS	-	expression tag	UNP O28723
D	97	HIS	-	expression tag	UNP O28723
D	98	HIS	-	expression tag	UNP O28723
E	-1	MSE	-	expression tag	UNP O28723
E	0	SER	-	expression tag	UNP O28723
E	1	LEU	-	expression tag	UNP O28723
E	70	MSE	LEU	engineered mutation	UNP O28723
E	91	GLU	-	expression tag	UNP O28723
E	92	GLY	-	expression tag	UNP O28723
E	93	HIS	-	expression tag	UNP O28723
E	94	HIS	-	expression tag	UNP O28723
E	95	HIS	-	expression tag	UNP O28723
E	96	HIS	-	expression tag	UNP O28723
E	97	HIS	-	expression tag	UNP O28723
E	98	HIS	-	expression tag	UNP O28723
F	-1	MSE	-	expression tag	UNP O28723
F	0	SER	-	expression tag	UNP O28723
F	1	LEU	-	expression tag	UNP O28723
F	70	MSE	LEU	engineered mutation	UNP O28723
F	91	GLU	-	expression tag	UNP O28723
F	92	GLY	-	expression tag	UNP O28723
F	93	HIS	-	expression tag	UNP O28723
F	94	HIS	-	expression tag	UNP O28723
F	95	HIS	-	expression tag	UNP O28723
F	96	HIS	-	expression tag	UNP O28723
F	97	HIS	-	expression tag	UNP O28723
F	98	HIS	-	expression tag	UNP O28723
G	-1	MSE	-	expression tag	UNP O28723
G	0	SER	-	expression tag	UNP O28723
G	1	LEU	-	expression tag	UNP O28723
G	70	MSE	LEU	engineered mutation	UNP O28723
G	91	GLU	-	expression tag	UNP O28723
G	92	GLY	-	expression tag	UNP O28723
G	93	HIS	-	expression tag	UNP O28723
G	94	HIS	-	expression tag	UNP O28723
G	95	HIS	-	expression tag	UNP O28723
G	96	HIS	-	expression tag	UNP O28723
G	97	HIS	-	expression tag	UNP O28723
G	98	HIS	-	expression tag	UNP O28723
H	-1	MSE	-	expression tag	UNP O28723

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Chain	Residue	Modelled	Actual	Comment	Reference
H	0	SER	-	expression tag	UNP O28723
H	1	LEU	-	expression tag	UNP O28723
H	70	MSE	LEU	engineered mutation	UNP O28723
H	91	GLU	-	expression tag	UNP O28723
H	92	GLY	-	expression tag	UNP O28723
H	93	HIS	-	expression tag	UNP O28723
H	94	HIS	-	expression tag	UNP O28723
H	95	HIS	-	expression tag	UNP O28723
H	96	HIS	-	expression tag	UNP O28723
H	97	HIS	-	expression tag	UNP O28723
H	98	HIS	-	expression tag	UNP O28723
I	-1	MSE	-	expression tag	UNP O28723
I	0	SER	-	expression tag	UNP O28723
I	1	LEU	-	expression tag	UNP O28723
I	70	MSE	LEU	engineered mutation	UNP O28723
I	91	GLU	-	expression tag	UNP O28723
I	92	GLY	-	expression tag	UNP O28723
I	93	HIS	-	expression tag	UNP O28723
I	94	HIS	-	expression tag	UNP O28723
I	95	HIS	-	expression tag	UNP O28723
I	96	HIS	-	expression tag	UNP O28723
I	97	HIS	-	expression tag	UNP O28723
I	98	HIS	-	expression tag	UNP O28723
J	-1	MSE	-	expression tag	UNP O28723
J	0	SER	-	expression tag	UNP O28723
J	1	LEU	-	expression tag	UNP O28723
J	70	MSE	LEU	engineered mutation	UNP O28723
J	91	GLU	-	expression tag	UNP O28723
J	92	GLY	-	expression tag	UNP O28723
J	93	HIS	-	expression tag	UNP O28723
J	94	HIS	-	expression tag	UNP O28723
J	95	HIS	-	expression tag	UNP O28723
J	96	HIS	-	expression tag	UNP O28723
J	97	HIS	-	expression tag	UNP O28723
J	98	HIS	-	expression tag	UNP O28723
K	-1	MSE	-	expression tag	UNP O28723
K	0	SER	-	expression tag	UNP O28723
K	1	LEU	-	expression tag	UNP O28723
K	70	MSE	LEU	engineered mutation	UNP O28723
K	91	GLU	-	expression tag	UNP O28723
K	92	GLY	-	expression tag	UNP O28723
K	93	HIS	-	expression tag	UNP O28723

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Chain	Residue	Modelled	Actual	Comment	Reference
K	94	HIS	-	expression tag	UNP O28723
K	95	HIS	-	expression tag	UNP O28723
K	96	HIS	-	expression tag	UNP O28723
K	97	HIS	-	expression tag	UNP O28723
K	98	HIS	-	expression tag	UNP O28723
L	-1	MSE	-	expression tag	UNP O28723
L	0	SER	-	expression tag	UNP O28723
L	1	LEU	-	expression tag	UNP O28723
L	70	MSE	LEU	engineered mutation	UNP O28723
L	91	GLU	-	expression tag	UNP O28723
L	92	GLY	-	expression tag	UNP O28723
L	93	HIS	-	expression tag	UNP O28723
L	94	HIS	-	expression tag	UNP O28723
L	95	HIS	-	expression tag	UNP O28723
L	96	HIS	-	expression tag	UNP O28723
L	97	HIS	-	expression tag	UNP O28723
L	98	HIS	-	expression tag	UNP O28723
M	-1	MSE	-	expression tag	UNP O28723
M	0	SER	-	expression tag	UNP O28723
M	1	LEU	-	expression tag	UNP O28723
M	70	MSE	LEU	engineered mutation	UNP O28723
M	91	GLU	-	expression tag	UNP O28723
M	92	GLY	-	expression tag	UNP O28723
M	93	HIS	-	expression tag	UNP O28723
M	94	HIS	-	expression tag	UNP O28723
M	95	HIS	-	expression tag	UNP O28723
M	96	HIS	-	expression tag	UNP O28723
M	97	HIS	-	expression tag	UNP O28723
M	98	HIS	-	expression tag	UNP O28723
N	-1	MSE	-	expression tag	UNP O28723
N	0	SER	-	expression tag	UNP O28723
N	1	LEU	-	expression tag	UNP O28723
N	70	MSE	LEU	engineered mutation	UNP O28723
N	91	GLU	-	expression tag	UNP O28723
N	92	GLY	-	expression tag	UNP O28723
N	93	HIS	-	expression tag	UNP O28723
N	94	HIS	-	expression tag	UNP O28723
N	95	HIS	-	expression tag	UNP O28723
N	96	HIS	-	expression tag	UNP O28723
N	97	HIS	-	expression tag	UNP O28723
N	98	HIS	-	expression tag	UNP O28723

- Molecule 2 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	3	Total 3	Mg 3	0	0
2	B	2	Total 2	Mg 2	0	0
2	C	3	Total 3	Mg 3	0	0
2	D	1	Total 1	Mg 1	0	0
2	E	1	Total 1	Mg 1	0	0
2	F	4	Total 4	Mg 4	0	0
2	G	4	Total 4	Mg 4	0	0
2	H	1	Total 1	Mg 1	0	0
2	I	1	Total 1	Mg 1	0	0
2	J	1	Total 1	Mg 1	0	0
2	K	3	Total 3	Mg 3	0	0
2	L	3	Total 3	Mg 3	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	3	Total 3	O 3	0	0
3	B	5	Total 5	O 5	0	0
3	C	5	Total 5	O 5	0	0
3	D	11	Total 11	O 11	0	0
3	E	10	Total 10	O 10	0	0
3	F	8	Total 8	O 8	0	0
3	G	8	Total 8	O 8	0	0
3	H	4	Total 4	O 4	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	I	2	Total 2	O 2	0	0
3	J	9	Total 9	O 9	0	0
3	K	5	Total 5	O 5	0	0
3	L	13	Total 13	O 13	0	0
3	M	4	Total 4	O 4	0	0
3	N	4	Total 4	O 4	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.
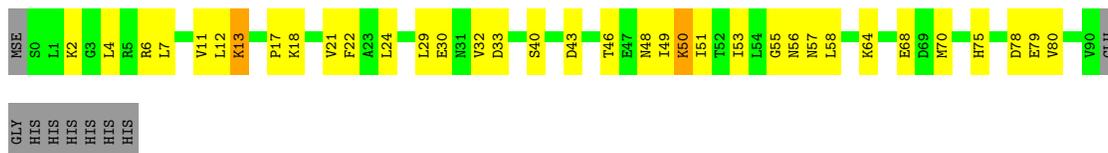
- Molecule 1: Uncharacterized protein

Chain A:

- Molecule 1: Uncharacterized protein

Chain B:

- Molecule 1: Uncharacterized protein

Chain C:

- Molecule 1: Uncharacterized protein

Chain D:

- Molecule 1: Uncharacterized protein

Chain E:

- Molecule 1: Uncharacterized protein

Chain F:

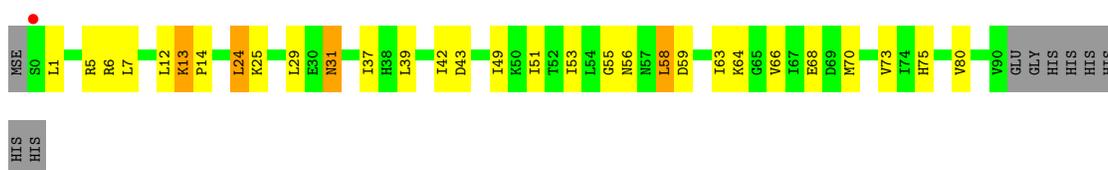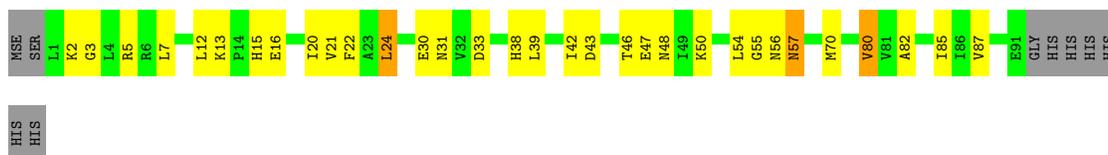70%   19%   •   8%

MSE S0 L1 K2 G3 L4 R5 R6 I20 V21 F22 A23 L24 K25 L29 E30 N31 D43 T46 I53 N56 N57 Q62 M70 H75 I86 E91 GLY HIS HIS HIS HIS HIS HIS

• Molecule 1: Uncharacterized protein

Chain G:

72%   17%   •   9%

MSE S0 L1 K2 G3 L4 R5 R6 K13 F22 A23 L24 N31 L39 S40 E41 I42 D43 Q44 E47 N48 I53 N56 M70 H75 V81 E88 S89 V90 GLU GLY HIS HIS HIS HIS HIS HIS

• Molecule 1: Uncharacterized protein

%

Chain H:

61%   26%   •   9%

MSE S0 L1 R5 R6 L7 L12 K13 P14 L24 K25 L29 E30 N31 I37 H38 L39 I42 D43 I49 K50 I51 T52 I53 L54 G55 N56 N57 L58 D59 I63 K64 G65 V66 I67 E68 D69 M70 V73 I74 H75 V80 V90 GLU GLY HIS HIS HIS HIS

HIS HIS

• Molecule 1: Uncharacterized protein

%

Chain I:

62%   27%   •   10%

MSE SER L1 K2 G3 L4 R5 R6 V11 E16 P17 V21 L24 E30 N31 V35 N36 I37 D43 I51 T52 I53 N56 N57 I63 K64 E68 D69 M70 V80 I85 I86 V90 GLU GLY HIS HIS HIS HIS HIS

• Molecule 1: Uncharacterized protein

%

Chain J:

66%   23%   •   9%

MSE S0 L1 K2 R6 K13 E16 P17 K18 T19 I20 V21 F22 A23 L24 K25 L26 E30 N31 N36 D43 Q44 T52 I53 N56 D59 Q62 I67 M70 H75 I85 V90 GLU GLY HIS HIS HIS HIS HIS HIS

• Molecule 1: Uncharacterized protein

Chain K:

59%   29%   •   9%

MSE SER L1 K2 G3 L4 R5 R6 L7 L12 K13 P14 H15 E16 I20 V21 F22 A23 L24 E30 N31 V32 D33 H38 L39 I42 D43 T46 E47 N48 I49 K50 L54 G55 N56 N57 M70 V80 V81 A82 I85 I86 V87 E91 GLY HIS HIS HIS HIS

HIS HIS

• Molecule 1: Uncharacterized protein

Chain L:

71%   18%   •   9%

MSE S0 L1 K2 K13 P14 H15 E16 P17 K18 V21 K25 E30 N31 V32 D33 N36 D43 Q44 G55 N56 N57 L58 M70 H75 V90 GLU GLY HIS HIS HIS HIS HIS HIS

• Molecule 1: Uncharacterized protein

Chain M:

%

66%   23%   •   9%

MSE S0 L1 K2 G3 L4 V11 L12 K13 P14 H15 E16 V21 L26 L29 V35 D43 Q44 I51 T52 I53 N56 N57 Q62 I63 V66 M70 H75 S76 V77 K84 I85 V90 GLU GLY HIS HIS HIS HIS HIS HIS

• Molecule 1: Uncharacterized protein

Chain N:

%

57%   30%   •   10%

MSE SER L1 K2 G3 L4 R5 R6 E16 P17 K18 T19 I20 V21 K25 E30 N31 V32 D33 N36 D43 Q44 A45 T46 T52 I53 L54 G55 N56 N57 L58 D59 Q62 I63 K64 G65 V66 I67 E68 D69 M70 H75 I85 V90 GLU GLY HIS HIS HIS HIS

HIS HIS

4   Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	88.51Å 97.36Å 179.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.00 – 2.80 46.97 – 2.40	Depositor EDS
% Data completeness (in resolution range)	99.3 (50.00-2.80) 98.7 (46.97-2.40)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.76 (at 2.39Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.242 , 0.305 0.242 , 0.302	Depositor DCC
R_{free} test set	1940 reflections (3.21%)	wwPDB-VP
Wilson B-factor (Å^2)	46.7	Xtriage
Anisotropy	0.074	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 41.1	EDS
L-test for twinning[2]	$< |L| > = 0.53, < L^2 > = 0.37$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	9922	wwPDB-VP
Average B, all atoms (Å^2)	34.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.67% 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: 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	0.41	0/705	0.66	0/952
1	B	0.39	0/706	0.66	0/953
1	C	0.39	0/706	0.69	0/953
1	D	0.37	0/705	0.69	0/952
1	E	0.43	0/706	0.71	0/953
1	F	0.39	0/711	0.68	0/960
1	G	0.41	0/706	0.68	0/953
1	H	0.40	0/706	0.70	0/953
1	I	0.37	0/700	0.65	0/945
1	J	0.41	0/706	0.65	0/953
1	K	0.39	0/705	0.71	0/952
1	L	0.44	0/706	0.70	0/953
1	M	0.44	0/706	0.70	0/953
1	N	0.38	0/700	0.68	0/945
All	All	0.40	0/9874	0.68	0/13330

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 ⓘ

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.

WORLDWIDE wwPDB PROTEIN DATA BANK

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	700	0	734	24	0
1	B	701	0	737	26	0
1	C	701	0	737	20	0
1	D	700	0	734	18	0
1	E	701	0	737	19	0
1	F	706	0	739	20	0
1	G	701	0	737	15	0
1	H	701	0	737	30	0
1	I	695	0	732	24	0
1	J	701	0	737	24	0
1	K	700	0	734	24	0
1	L	701	0	737	23	0
1	M	701	0	737	33	0
1	N	695	0	732	42	0
2	A	3	0	0	0	0
2	B	2	0	0	0	0
2	C	3	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0
2	F	4	0	0	0	0
2	G	4	0	0	0	0
2	H	1	0	0	0	0
2	I	1	0	0	0	0
2	J	1	0	0	0	0
2	K	3	0	0	0	0
2	L	3	0	0	0	0
3	A	3	0	0	0	0
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	11	0	0	1	0
3	E	10	0	0	0	0
3	F	8	0	0	1	0
3	G	8	0	0	0	0
3	H	4	0	0	0	0
3	I	2	0	0	0	0
3	J	9	0	0	0	0
3	K	5	0	0	1	0
3	L	13	0	0	2	0
3	M	4	0	0	0	0
3	N	4	0	0	2	0
All	All	9922	0	10301	296	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 15.

The worst 5 of 296 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:M:85:ILE:CD1	1:N:54:LEU:HD23	1.54	1.36
1:M:85:ILE:HD11	1:N:54:LEU:CD2	1.72	1.19
1:M:85:ILE:CD1	1:N:54:LEU:CD2	2.29	1.07
1:L:25:LYS:HG3	1:L:70:MSE:HE1	1.35	1.04
1:D:1:LEU:HD23	1:D:56:ASN:ND2	1.80	0.96

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	89/100 (89%)	85 (96%)	3 (3%)	1 (1%)	14	41
1	B	89/100 (89%)	87 (98%)	1 (1%)	1 (1%)	14	41
1	C	89/100 (89%)	87 (98%)	2 (2%)	0	100	100
1	D	89/100 (89%)	85 (96%)	4 (4%)	0	100	100
1	E	89/100 (89%)	85 (96%)	4 (4%)	0	100	100
1	F	90/100 (90%)	86 (96%)	4 (4%)	0	100	100
1	G	89/100 (89%)	86 (97%)	3 (3%)	0	100	100
1	H	89/100 (89%)	79 (89%)	8 (9%)	2 (2%)	6	22
1	I	88/100 (88%)	79 (90%)	9 (10%)	0	100	100
1	J	89/100 (89%)	84 (94%)	5 (6%)	0	100	100
1	K	89/100 (89%)	84 (94%)	4 (4%)	1 (1%)	14	41
1	L	89/100 (89%)	87 (98%)	1 (1%)	1 (1%)	14	41
1	M	89/100 (89%)	86 (97%)	3 (3%)	0	100	100
1	N	88/100 (88%)	83 (94%)	3 (3%)	2 (2%)	6	21

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	1245/1400 (89%)	1183 (95%)	54 (4%)	8 (1%)	25	56

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	H	58	LEU
1	N	45	ALA
1	H	31	ASN
1	K	30	GLU
1	N	57	ASN

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	80/87 (92%)	75 (94%)	5 (6%)	18	46
1	B	81/87 (93%)	77 (95%)	4 (5%)	25	57
1	C	81/87 (93%)	78 (96%)	3 (4%)	34	68
1	D	80/87 (92%)	79 (99%)	1 (1%)	69	91
1	E	81/87 (93%)	80 (99%)	1 (1%)	71	92
1	F	81/87 (93%)	78 (96%)	3 (4%)	34	68
1	G	81/87 (93%)	79 (98%)	2 (2%)	47	80
1	H	81/87 (93%)	79 (98%)	2 (2%)	47	80
1	I	80/87 (92%)	78 (98%)	2 (2%)	47	80
1	J	81/87 (93%)	78 (96%)	3 (4%)	34	68
1	K	80/87 (92%)	77 (96%)	3 (4%)	33	67
1	L	81/87 (93%)	80 (99%)	1 (1%)	71	92
1	M	81/87 (93%)	78 (96%)	3 (4%)	34	68
1	N	80/87 (92%)	77 (96%)	3 (4%)	33	67
All	All	1129/1218 (93%)	1093 (97%)	36 (3%)	39	73

5 of 36 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	K	80	VAL
1	N	56	ASN
1	L	70	MSE
1	M	85	ILE
1	D	42	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 35 such sidechains are listed below:

Mol	Chain	Res	Type
1	K	75	HIS
1	L	44	GLN
1	M	75	HIS
1	E	56	ASN
1	E	44	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 27 ligands modelled in this entry, 27 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 (i)

6.1 Protein, DNA and RNA chains (i)

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	90/100 (90%)	-0.38	0	100	100	20, 35, 47, 54	0
1	B	90/100 (90%)	-0.48	0	100	100	24, 34, 46, 49	0
1	C	90/100 (90%)	-0.34	0	100	100	23, 34, 45, 52	0
1	D	90/100 (90%)	-0.56	0	100	100	18, 28, 38, 54	0
1	E	90/100 (90%)	-0.48	0	100	100	19, 32, 44, 48	0
1	F	91/100 (91%)	-0.28	0	100	100	19, 29, 41, 56	0
1	G	90/100 (90%)	-0.48	0	100	100	14, 30, 42, 45	0
1	H	90/100 (90%)	-0.10	1 (1%)	80	75	30, 42, 51, 54	0
1	I	89/100 (89%)	-0.17	1 (1%)	80	75	26, 41, 52, 59	0
1	J	90/100 (90%)	-0.37	1 (1%)	80	75	23, 35, 44, 51	0
1	K	90/100 (90%)	-0.38	0	100	100	18, 31, 44, 59	0
1	L	90/100 (90%)	-0.37	0	100	100	17, 28, 40, 54	0
1	M	90/100 (90%)	-0.27	1 (1%)	80	75	22, 37, 48, 50	0
1	N	89/100 (89%)	-0.17	1 (1%)	80	75	28, 38, 50, 55	0
All	All	1259/1400 (89%)	-0.34	5 (0%)	92	91	14, 34, 48, 59	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	0	SER	3.6
1	I	31	ASN	2.7
1	N	1	LEU	2.3
1	M	0	SER	2.1
1	J	0	SER	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 monosaccharides in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	MG	J	119	1/1	0.38	0.21	40,40,40,40	0
2	MG	K	106	1/1	0.58	0.13	16,16,16,16	0
2	MG	C	105	1/1	0.60	0.17	33,33,33,33	0
2	MG	F	111	1/1	0.64	0.13	31,31,31,31	0
2	MG	K	121	1/1	0.66	0.16	31,31,31,31	0
2	MG	B	117	1/1	0.67	0.10	45,45,45,45	0
2	MG	G	113	1/1	0.71	0.17	37,37,37,37	0
2	MG	B	116	1/1	0.76	0.11	24,24,24,24	0
2	MG	K	107	1/1	0.77	0.16	44,44,44,44	0
2	MG	F	110	1/1	0.79	0.07	30,30,30,30	0
2	MG	D	120	1/1	0.81	0.12	21,21,21,21	0
2	MG	C	104	1/1	0.83	0.17	26,26,26,26	0
2	MG	G	127	1/1	0.84	0.15	43,43,43,43	0
2	MG	F	124	1/1	0.84	0.10	20,20,20,20	0
2	MG	F	125	1/1	0.84	0.12	38,38,38,38	0
2	MG	C	118	1/1	0.84	0.09	24,24,24,24	0
2	MG	G	126	1/1	0.84	0.10	22,22,22,22	0
2	MG	H	101	1/1	0.86	0.20	36,36,36,36	0
2	MG	I	103	1/1	0.87	0.11	30,30,30,30	0
2	MG	E	122	1/1	0.88	0.08	30,30,30,30	0
2	MG	L	123	1/1	0.89	0.13	37,37,37,37	0
2	MG	L	109	1/1	0.91	0.14	29,29,29,29	0
2	MG	L	108	1/1	0.91	0.16	25,25,25,25	0
2	MG	G	112	1/1	0.92	0.11	15,15,15,15	0
2	MG	A	102	1/1	0.93	0.18	31,31,31,31	0
2	MG	A	114	1/1	0.93	0.09	29,29,29,29	0
2	MG	A	115	1/1	0.96	0.09	33,33,33,33	0

6.5 Other polymers ⓘ

There are no such residues in this entry.