wwPDB X-ray Structure Validation Summary Report (i)

May 13, 2020 – 08:33 pm BST

PDB ID	:	1NC7
Title	:	Crystal Structure of Thermotoga maritima 1070
Authors	:	Kim, Y.; Joachimiak, A.; Edwards, A.; Skarina, T.; Savchenko, A.; Midwest Center for Structural Genomics (MCSG)
Deposited on	:	2002-12-04
Resolution	:	1.55 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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 (i) symbol.

The following versions of software and data (see references (1)) were used in the production of this report:

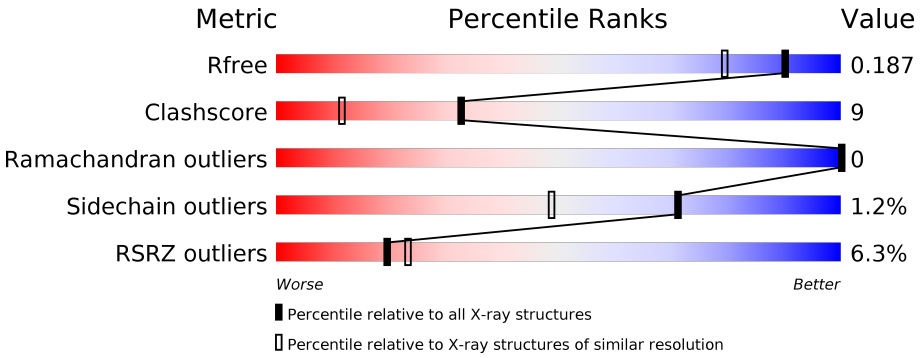
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.55 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	1483 (1.56-1.56)
Clashscore	141614	1529 (1.56-1.56)
Ramachandran outliers	138981	1498 (1.56-1.56)
Sidechain outliers	138945	1495 (1.56-1.56)
RSRZ outliers	127900	1465 (1.56-1.56)

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 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	138	4% 64% 20% 16%
1	B	138	5% 70% 14% • 16%
1	C	138	5% 72% 12% • 16%
1	D	138	6% 70% 14% 15%

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 crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	FMT	A	1307	-	-	X	-
5	FMT	C	1305	-	-	X	-

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 4302 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 hypothetical protein TM1070.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	116	Total	C	N	O	S	Se	0	3	0
			958	612	164	174	2	6			
1	B	116	Total	C	N	O	S	Se	0	0	0
			926	593	156	169	2	6			
1	C	116	Total	C	N	O	S	Se	0	0	0
			926	593	156	169	2	6			
1	D	117	Total	C	N	O	S	Se	0	0	0
			936	599	159	170	2	6			

There are 120 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-21	MSE	-	CLONING ARTIFACT	UNP Q9X0F9
A	-20	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
A	-19	SER	-	CLONING ARTIFACT	UNP Q9X0F9
A	-18	SER	-	CLONING ARTIFACT	UNP Q9X0F9
A	-17	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
A	-16	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
A	-15	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
A	-14	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
A	-13	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
A	-12	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
A	-11	SER	-	CLONING ARTIFACT	UNP Q9X0F9
A	-10	SER	-	CLONING ARTIFACT	UNP Q9X0F9
A	-9	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
A	-8	ARG	-	CLONING ARTIFACT	UNP Q9X0F9
A	-7	GLU	-	CLONING ARTIFACT	UNP Q9X0F9
A	-6	ASN	-	CLONING ARTIFACT	UNP Q9X0F9
A	-5	LEU	-	CLONING ARTIFACT	UNP Q9X0F9
A	-4	TYR	-	CLONING ARTIFACT	UNP Q9X0F9
A	-3	PHE	-	CLONING ARTIFACT	UNP Q9X0F9
A	-2	GLN	-	CLONING ARTIFACT	UNP Q9X0F9
A	-1	GLY	-	CLONING ARTIFACT	UNP Q9X0F9

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Chain	Residue	Modelled	Actual	Comment	Reference
A	0	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
A	1	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
A	31	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
A	61	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
A	82	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
A	91	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
A	106	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
A	115	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
A	116	SER	-	CLONING ARTIFACT	UNP Q9X0F9
B	-21	MSE	-	CLONING ARTIFACT	UNP Q9X0F9
B	-20	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
B	-19	SER	-	CLONING ARTIFACT	UNP Q9X0F9
B	-18	SER	-	CLONING ARTIFACT	UNP Q9X0F9
B	-17	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
B	-16	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
B	-15	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
B	-14	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
B	-13	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
B	-12	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
B	-11	SER	-	CLONING ARTIFACT	UNP Q9X0F9
B	-10	SER	-	CLONING ARTIFACT	UNP Q9X0F9
B	-9	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
B	-8	ARG	-	CLONING ARTIFACT	UNP Q9X0F9
B	-7	GLU	-	CLONING ARTIFACT	UNP Q9X0F9
B	-6	ASN	-	CLONING ARTIFACT	UNP Q9X0F9
B	-5	LEU	-	CLONING ARTIFACT	UNP Q9X0F9
B	-4	TYR	-	CLONING ARTIFACT	UNP Q9X0F9
B	-3	PHE	-	CLONING ARTIFACT	UNP Q9X0F9
B	-2	GLN	-	CLONING ARTIFACT	UNP Q9X0F9
B	-1	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
B	0	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
B	1	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
B	31	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
B	61	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
B	82	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
B	91	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
B	106	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
B	115	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
B	116	SER	-	CLONING ARTIFACT	UNP Q9X0F9
C	-21	MSE	-	CLONING ARTIFACT	UNP Q9X0F9
C	-20	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
C	-19	SER	-	CLONING ARTIFACT	UNP Q9X0F9

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-18	SER	-	CLONING ARTIFACT	UNP Q9X0F9
C	-17	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
C	-16	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
C	-15	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
C	-14	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
C	-13	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
C	-12	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
C	-11	SER	-	CLONING ARTIFACT	UNP Q9X0F9
C	-10	SER	-	CLONING ARTIFACT	UNP Q9X0F9
C	-9	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
C	-8	ARG	-	CLONING ARTIFACT	UNP Q9X0F9
C	-7	GLU	-	CLONING ARTIFACT	UNP Q9X0F9
C	-6	ASN	-	CLONING ARTIFACT	UNP Q9X0F9
C	-5	LEU	-	CLONING ARTIFACT	UNP Q9X0F9
C	-4	TYR	-	CLONING ARTIFACT	UNP Q9X0F9
C	-3	PHE	-	CLONING ARTIFACT	UNP Q9X0F9
C	-2	GLN	-	CLONING ARTIFACT	UNP Q9X0F9
C	-1	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
C	0	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
C	1	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
C	31	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
C	61	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
C	82	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
C	91	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
C	106	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
C	115	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
C	116	SER	-	CLONING ARTIFACT	UNP Q9X0F9
D	-21	MSE	-	CLONING ARTIFACT	UNP Q9X0F9
D	-20	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
D	-19	SER	-	CLONING ARTIFACT	UNP Q9X0F9
D	-18	SER	-	CLONING ARTIFACT	UNP Q9X0F9
D	-17	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
D	-16	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
D	-15	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
D	-14	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
D	-13	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
D	-12	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
D	-11	SER	-	CLONING ARTIFACT	UNP Q9X0F9
D	-10	SER	-	CLONING ARTIFACT	UNP Q9X0F9
D	-9	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
D	-8	ARG	-	CLONING ARTIFACT	UNP Q9X0F9
D	-7	GLU	-	CLONING ARTIFACT	UNP Q9X0F9

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-6	ASN	-	CLONING ARTIFACT	UNP Q9X0F9
D	-5	LEU	-	CLONING ARTIFACT	UNP Q9X0F9
D	-4	TYR	-	CLONING ARTIFACT	UNP Q9X0F9
D	-3	PHE	-	CLONING ARTIFACT	UNP Q9X0F9
D	-2	GLN	-	CLONING ARTIFACT	UNP Q9X0F9
D	-1	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
D	0	HIS	-	CLONING ARTIFACT	UNP Q9X0F9
D	1	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
D	31	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
D	61	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
D	82	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
D	91	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
D	106	MSE	MET	MODIFIED RESIDUE	UNP Q9X0F9
D	115	GLY	-	CLONING ARTIFACT	UNP Q9X0F9
D	116	SER	-	CLONING ARTIFACT	UNP Q9X0F9

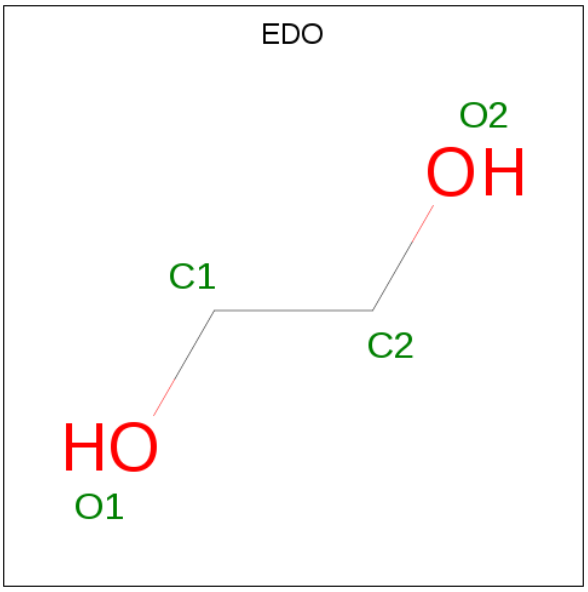
- Molecule 2 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Cl 1 1	0	0
2	D	1	Total Cl 1 1	0	0

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

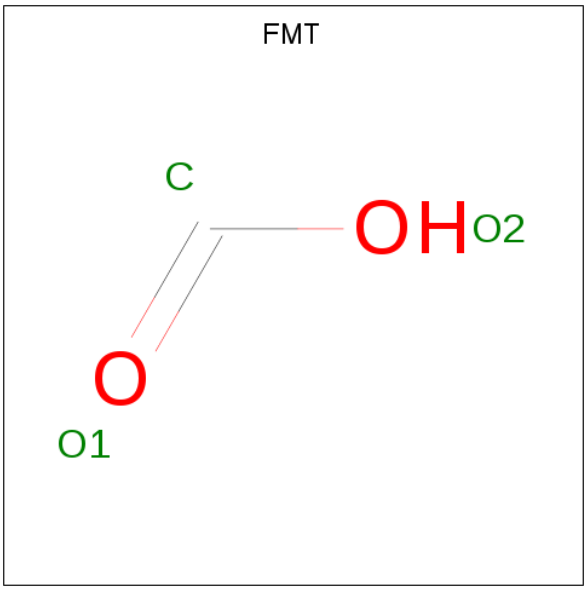
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	4	Total Mg 4 4	0	0

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 4 2 2	0	0
4	B	1	Total C O 4 2 2	0	0
4	D	1	Total C O 4 2 2	0	0

- Molecule 5 is FORMIC ACID (three-letter code: FMT) (formula: CH_2O_2).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O 3 1 2	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	C	1	Total C O 3 1 2	0	0
5	D	1	Total C O 3 1 2	0	0
5	D	1	Total C O 3 1 2	0	0

- Molecule 6 is water.

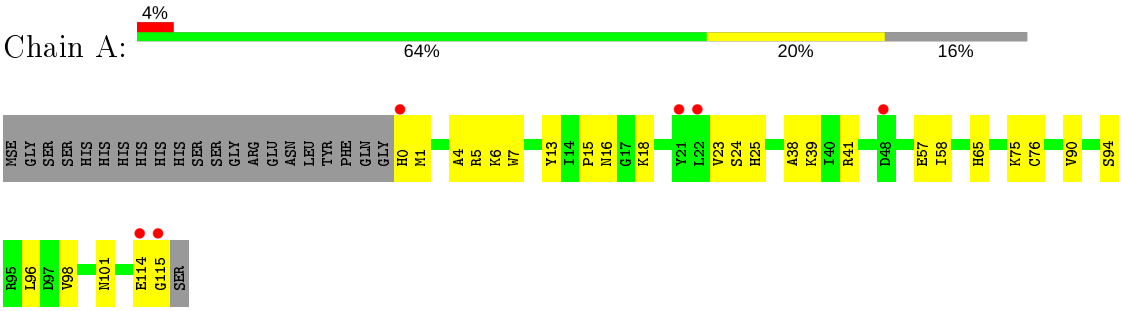
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	128	Total O 128 128	0	0
6	B	132	Total O 132 132	0	0
6	C	127	Total O 127 127	0	0
6	D	139	Total O 139 139	0	0

3 Residue-property plots (i)

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.

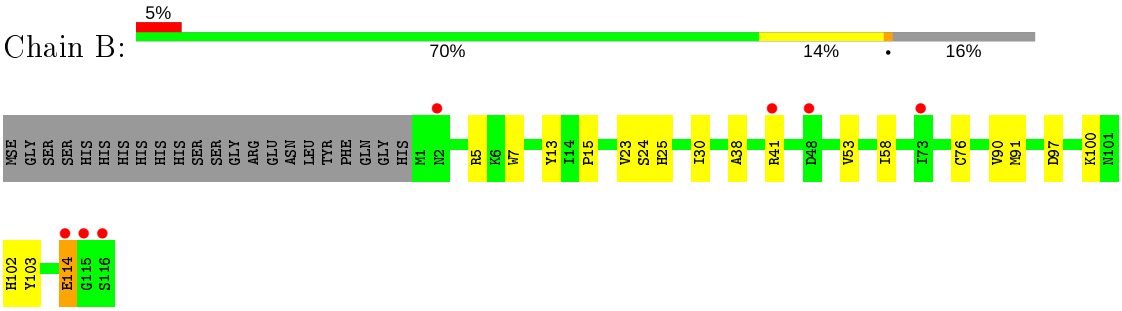
- Molecule 1: hypothetical protein TM1070

Chain A:



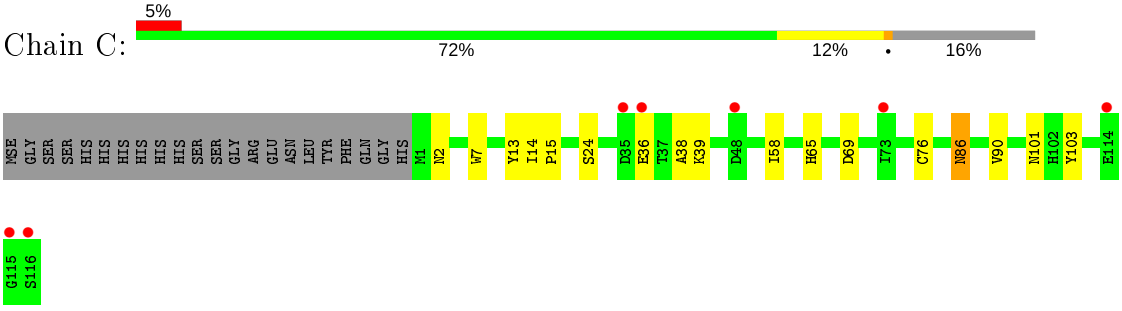
- Molecule 1: hypothetical protein TM1070

Chain B:



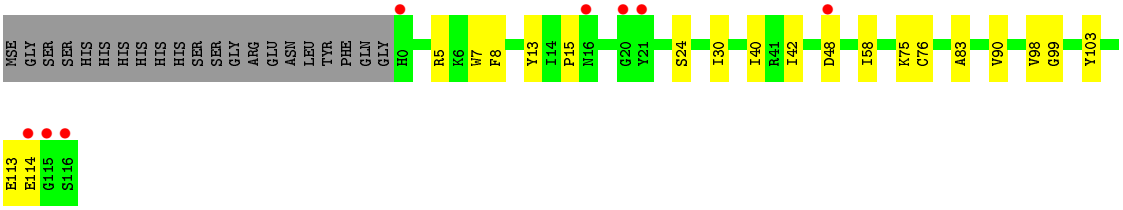
- Molecule 1: hypothetical protein TM1070

Chain C:



- Molecule 1: hypothetical protein TM1070

Chain D:


MSE GLY SER SER HIS HIS HIS HIS HIS HIS SER SER GLY ARG GLU ASN LEU TYR PHE GLN GLY
H0 R5 K6 W7 F8 Y13 I14 P15 N16 G20 Y21 S24 I30 I40 R41 I42 D48 I58 K75 C76 A83 V90 V98 G99 Y103
E113 E114 G115 S116

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	54.44Å 54.45Å 55.18Å 63.18° 62.27° 89.81°	Depositor
Resolution (Å)	29.40 – 1.55 46.90 – 1.55	Depositor EDS
% Data completeness (in resolution range)	93.9 (29.40-1.55) 94.0 (46.90-1.55)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.19 (at 1.55Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.170 , 0.190 0.166 , 0.187	Depositor DCC
R_{free} test set	6695 reflections (9.94%)	wwPDB-VP
Wilson B-factor (Å^2)	8.2	Xtriage
Anisotropy	0.070	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.39 , 50.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.022 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	4302	wwPDB-VP
Average B, all atoms (Å^2)	14.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.88% of the height of the origin peak. No significant pseudotranslation is detected.*

[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, FMT, EDO, CL

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	0.29	0/976	0.61	0/1307
1	B	0.30	0/944	0.62	0/1265
1	C	0.29	0/944	0.62	0/1265
1	D	0.29	0/954	0.63	0/1277
All	All	0.29	0/3818	0.62	0/5114

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.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	958	0	955	25	0
1	B	926	0	931	11	0
1	C	926	0	931	17	0
1	D	936	0	938	15	0
2	A	1	0	0	0	0
2	D	1	0	0	0	0
3	A	4	0	0	0	0
4	A	4	0	6	0	0
4	B	4	0	6	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	4	0	6	0	0
5	A	3	0	1	2	0
5	C	3	0	1	2	0
5	D	6	0	2	0	0
6	A	128	0	0	1	0
6	B	132	0	0	4	0
6	C	127	0	0	0	0
6	D	139	0	0	7	0
All	All	4302	0	3777	66	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 9.

The worst 5 of 66 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:D:40:ILE:HG22	6:D:1505:HOH:O	1.91	0.69
1:C:86:ASN:H	1:C:86:ASN:HD22	1.41	0.69
1:C:39:LYS:H	1:C:86:ASN:ND2	1.99	0.61
1:D:42:ILE:HG12	6:D:1505:HOH:O	2.00	0.61
1:C:86:ASN:N	1:C:86:ASN:HD22	1.98	0.60

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	117/138 (85%)	113 (97%)	4 (3%)	0	100	100
1	B	114/138 (83%)	110 (96%)	4 (4%)	0	100	100
1	C	114/138 (83%)	111 (97%)	3 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	D	115/138 (83%)	110 (96%)	5 (4%)	0	100	100
All	All	460/552 (83%)	444 (96%)	16 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	107/116 (92%)	107 (100%)	0	100	100
1	B	104/116 (90%)	102 (98%)	2 (2%)	57	28
1	C	104/116 (90%)	102 (98%)	2 (2%)	57	28
1	D	105/116 (90%)	104 (99%)	1 (1%)	76	57
All	All	420/464 (90%)	415 (99%)	5 (1%)	71	49

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	103	TYR
1	B	114	GLU
1	C	86	ASN
1	C	103	TYR
1	D	103	TYR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 11 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	54	HIS
1	B	102	HIS
1	C	65	HIS
1	B	25	HIS
1	C	54	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

Of 13 ligands modelled in this entry, 6 are monoatomic - leaving 7 for Mogul analysis.

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	$\#\|Z\| > 2$
5	FMT	D	1306	-	0,2,2	0.00	-	0,1,1	0.00	-
4	EDO	D	1301	-	3,3,3	0.60	0	2,2,2	0.43	0
5	FMT	C	1305	-	0,2,2	0.00	-	0,1,1	0.00	-
5	FMT	D	1304	-	0,2,2	0.00	-	0,1,1	0.00	-
4	EDO	A	1303	-	3,3,3	0.62	0	2,2,2	0.44	0
4	EDO	B	1302	-	3,3,3	0.64	0	2,2,2	0.48	0
5	FMT	A	1307	-	0,2,2	0.00	-	0,1,1	0.00	-

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
4	EDO	A	1303	-	-	1/1/1/1	-
4	EDO	B	1302	-	-	1/1/1/1	-
4	EDO	D	1301	-	-	0/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1303	EDO	O1-C1-C2-O2
4	B	1302	EDO	O1-C1-C2-O2

There are no ring outliers.

3 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	C	1305	FMT	2	0
4	B	1302	EDO	1	0
5	A	1307	FMT	2	0

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} 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	110/138 (79%)	0.51	6 (5%)	25	29	3, 10, 22, 48	0
1	B	110/138 (79%)	0.44	7 (6%)	19	23	3, 10, 21, 61	0
1	C	110/138 (79%)	0.52	7 (6%)	19	23	3, 10, 22, 71	0
1	D	111/138 (80%)	0.49	8 (7%)	15	18	3, 9, 24, 64	0
All	All	441/552 (79%)	0.49	28 (6%)	20	23	3, 10, 22, 71	0

The worst 5 of 28 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	115	GLY	13.3
1	D	116	SER	12.3
1	C	115	GLY	11.0
1	C	116	SER	10.6
1	B	115	GLY	8.6

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, 95^{th} 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
5	FMT	A	1307	3/3	0.39	0.31	36,36,37,39	0
3	MG	A	1503	1/1	0.55	0.30	41,41,41,41	0
5	FMT	D	1306	3/3	0.71	0.33	36,36,36,36	0
4	EDO	A	1303	4/4	0.78	0.26	34,35,36,36	0
5	FMT	C	1305	3/3	0.83	0.30	31,31,31,31	0
4	EDO	B	1302	4/4	0.89	0.19	13,17,21,24	0
5	FMT	D	1304	3/3	0.90	0.16	27,27,28,28	0
3	MG	A	1504	1/1	0.91	0.11	20,20,20,20	0
4	EDO	D	1301	4/4	0.95	0.08	12,15,18,20	0
2	CL	D	1402	1/1	0.99	0.08	16,16,16,16	0
3	MG	A	1502	1/1	1.00	0.05	6,6,6,6	0
2	CL	A	1401	1/1	1.00	0.06	4,4,4,4	0
3	MG	A	1501	1/1	1.00	0.06	4,4,4,4	0

6.5 Other polymers (i)

There are no such residues in this entry.