



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 22, 2023 – 01:23 pm BST

PDB ID : 8CKP
Title : X-ray structure of the crystallization-prone form of subfamily III haloalkane dehalogenase DhmeA from *Haloferax mediterranei*
Authors : Marek, M.; Chmelova, K.; Schenkmyerova, A.; Croll, T.; Read, R.J.; Diederichs, K.
Deposited on : 2023-02-16
Resolution : 3.31 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 : 4.02b-467
Xtriage (Phenix) : 1.13
EDS : 2.35
buster-report : 1.1.7 (2018)
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) : 2.35

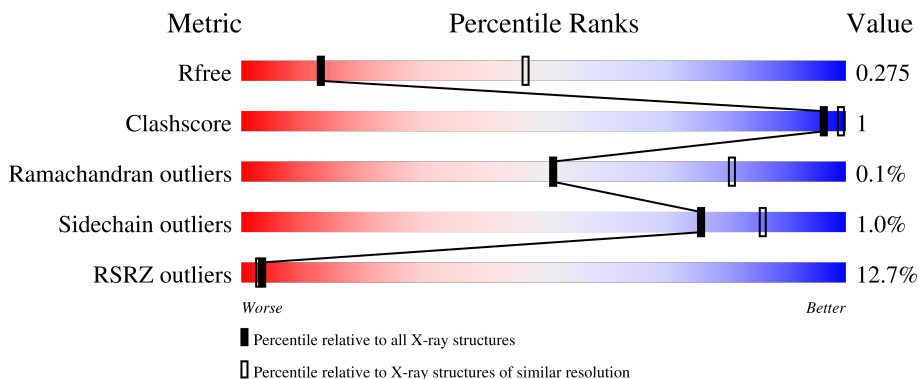
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.31 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	1089 (3.36-3.28)
Clashscore	141614	1137 (3.36-3.28)
Ramachandran outliers	138981	1115 (3.36-3.28)
Sidechain outliers	138945	1114 (3.36-3.28)
RSRZ outliers	127900	1059 (3.36-3.28)

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	311	 7% 88% 5% 8%
1	B	311	 13% 91% 7%
1	C	311	 14% 94%
1	D	311	 13% 93%
1	E	311	 12% 95%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	311	
1	G	311	
1	H	311	
1	I	311	
1	J	311	

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
2	CL	F	1001	-	-	-	X

2 Entry composition i

There are 3 unique types of molecules in this entry. The entry contains 23884 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 Alpha/beta fold hydrolase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	D	302	Total 2442	C 1548	N 424	O 461	S 9	0	0	0
1	F	292	Total 2349	C 1482	N 410	O 450	S 7	0	0	0
1	G	300	Total 2433	C 1544	N 423	O 457	S 9	0	0	0
1	H	291	Total 2348	C 1485	N 409	O 447	S 7	0	0	0
1	I	300	Total 2428	C 1541	N 421	O 457	S 9	0	0	0
1	J	286	Total 2314	C 1465	N 405	O 437	S 7	0	0	0
1	A	287	Total 2320	C 1467	N 407	O 439	S 7	0	0	0
1	B	288	Total 2328	C 1472	N 408	O 441	S 7	0	0	0
1	C	305	Total 2468	C 1563	N 431	O 465	S 9	0	0	0
1	E	303	Total 2452	C 1554	N 427	O 462	S 9	0	0	0

There are 80 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	GLY	deletion	UNP I3R766
D	?	-	GLY	deletion	UNP I3R766
D	306	HIS	-	expression tag	UNP I3R766
D	307	HIS	-	expression tag	UNP I3R766
D	308	HIS	-	expression tag	UNP I3R766
D	309	HIS	-	expression tag	UNP I3R766
D	310	HIS	-	expression tag	UNP I3R766
D	311	HIS	-	expression tag	UNP I3R766
F	?	-	GLY	deletion	UNP I3R766

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
F	?	-	GLY	deletion	UNP I3R766
F	306	HIS	-	expression tag	UNP I3R766
F	307	HIS	-	expression tag	UNP I3R766
F	308	HIS	-	expression tag	UNP I3R766
F	309	HIS	-	expression tag	UNP I3R766
F	310	HIS	-	expression tag	UNP I3R766
F	311	HIS	-	expression tag	UNP I3R766
G	?	-	GLY	deletion	UNP I3R766
G	?	-	GLY	deletion	UNP I3R766
G	306	HIS	-	expression tag	UNP I3R766
G	307	HIS	-	expression tag	UNP I3R766
G	308	HIS	-	expression tag	UNP I3R766
G	309	HIS	-	expression tag	UNP I3R766
G	310	HIS	-	expression tag	UNP I3R766
G	311	HIS	-	expression tag	UNP I3R766
H	?	-	GLY	deletion	UNP I3R766
H	?	-	GLY	deletion	UNP I3R766
H	306	HIS	-	expression tag	UNP I3R766
H	307	HIS	-	expression tag	UNP I3R766
H	308	HIS	-	expression tag	UNP I3R766
H	309	HIS	-	expression tag	UNP I3R766
H	310	HIS	-	expression tag	UNP I3R766
H	311	HIS	-	expression tag	UNP I3R766
I	?	-	GLY	deletion	UNP I3R766
I	?	-	GLY	deletion	UNP I3R766
I	306	HIS	-	expression tag	UNP I3R766
I	307	HIS	-	expression tag	UNP I3R766
I	308	HIS	-	expression tag	UNP I3R766
I	309	HIS	-	expression tag	UNP I3R766
I	310	HIS	-	expression tag	UNP I3R766
I	311	HIS	-	expression tag	UNP I3R766
J	?	-	GLY	deletion	UNP I3R766
J	?	-	GLY	deletion	UNP I3R766
J	306	HIS	-	expression tag	UNP I3R766
J	307	HIS	-	expression tag	UNP I3R766
J	308	HIS	-	expression tag	UNP I3R766
J	309	HIS	-	expression tag	UNP I3R766
J	310	HIS	-	expression tag	UNP I3R766
J	311	HIS	-	expression tag	UNP I3R766
A	?	-	GLY	deletion	UNP I3R766
A	?	-	GLY	deletion	UNP I3R766
A	306	HIS	-	expression tag	UNP I3R766

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	307	HIS	-	expression tag	UNP I3R766
A	308	HIS	-	expression tag	UNP I3R766
A	309	HIS	-	expression tag	UNP I3R766
A	310	HIS	-	expression tag	UNP I3R766
A	311	HIS	-	expression tag	UNP I3R766
B	?	-	GLY	deletion	UNP I3R766
B	?	-	GLY	deletion	UNP I3R766
B	306	HIS	-	expression tag	UNP I3R766
B	307	HIS	-	expression tag	UNP I3R766
B	308	HIS	-	expression tag	UNP I3R766
B	309	HIS	-	expression tag	UNP I3R766
B	310	HIS	-	expression tag	UNP I3R766
B	311	HIS	-	expression tag	UNP I3R766
C	?	-	GLY	deletion	UNP I3R766
C	?	-	GLY	deletion	UNP I3R766
C	306	HIS	-	expression tag	UNP I3R766
C	307	HIS	-	expression tag	UNP I3R766
C	308	HIS	-	expression tag	UNP I3R766
C	309	HIS	-	expression tag	UNP I3R766
C	310	HIS	-	expression tag	UNP I3R766
C	311	HIS	-	expression tag	UNP I3R766
E	?	-	GLY	deletion	UNP I3R766
E	?	-	GLY	deletion	UNP I3R766
E	306	HIS	-	expression tag	UNP I3R766
E	307	HIS	-	expression tag	UNP I3R766
E	308	HIS	-	expression tag	UNP I3R766
E	309	HIS	-	expression tag	UNP I3R766
E	310	HIS	-	expression tag	UNP I3R766
E	311	HIS	-	expression tag	UNP I3R766

- Molecule 2 is CHLORIDE ION (three-letter code: CL) (formula: Cl) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	F	1	Total Cl 1 1	0	0

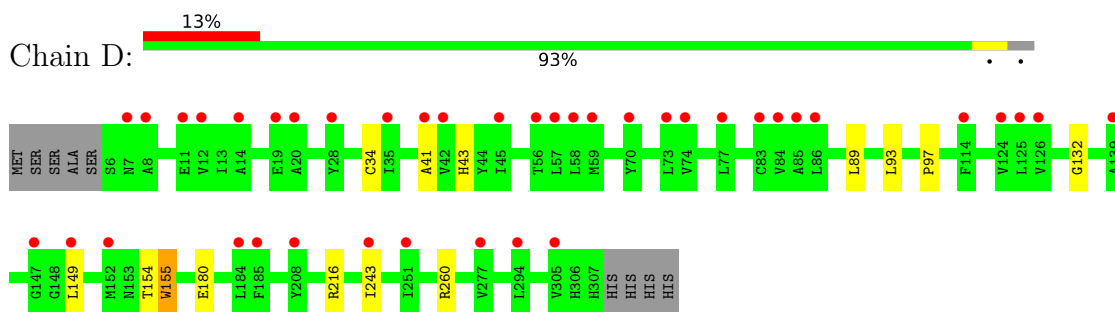
- Molecule 3 is water.

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

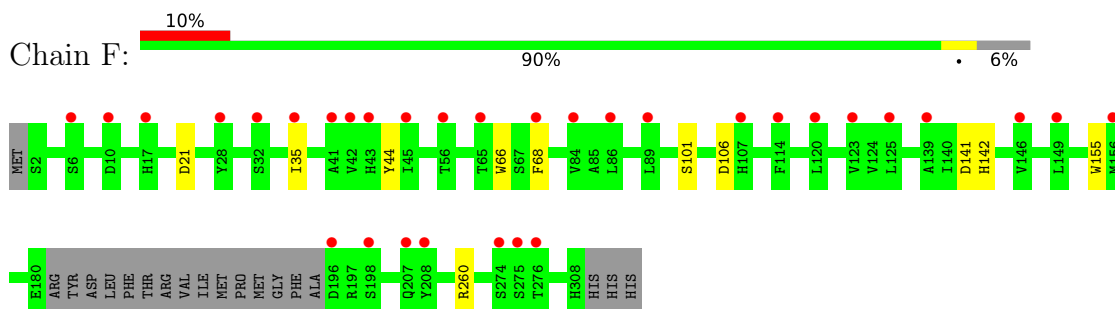
3 Residue-property plots [i](#)

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.

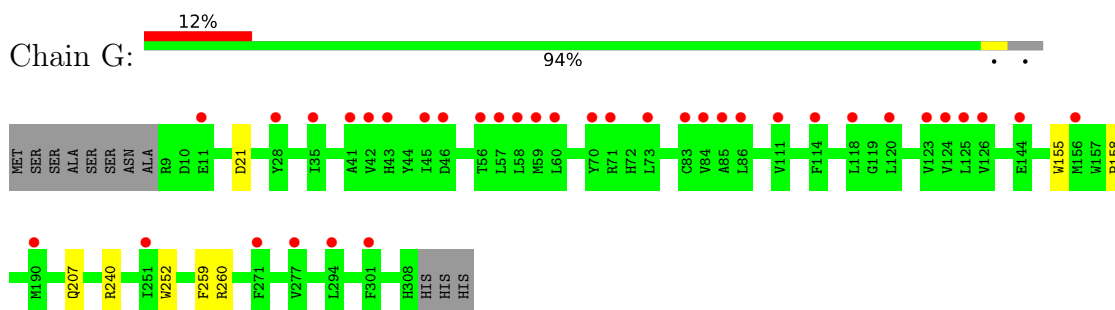
- Molecule 1: Alpha/beta fold hydrolase



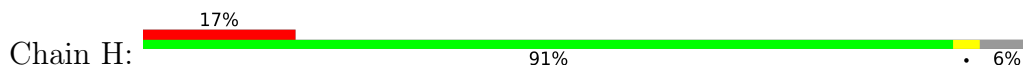
- Molecule 1: Alpha/beta fold hydrolase

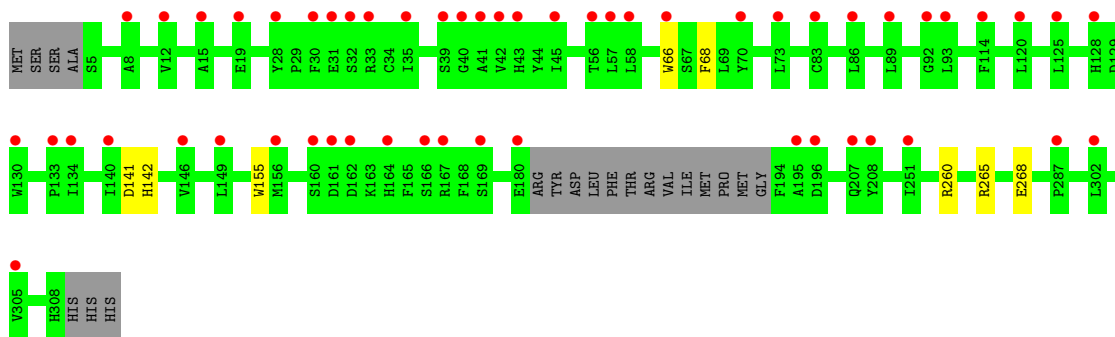


- Molecule 1: Alpha/beta fold hydrolase

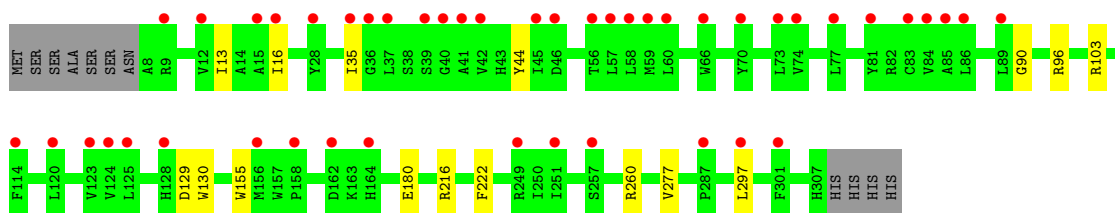
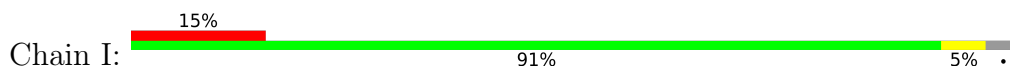


- Molecule 1: Alpha/beta fold hydrolase

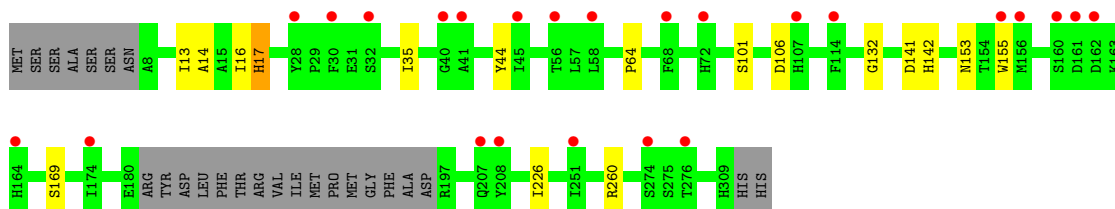
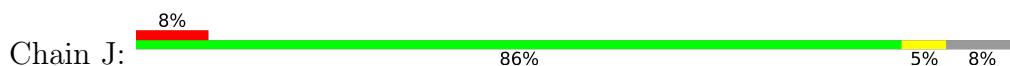




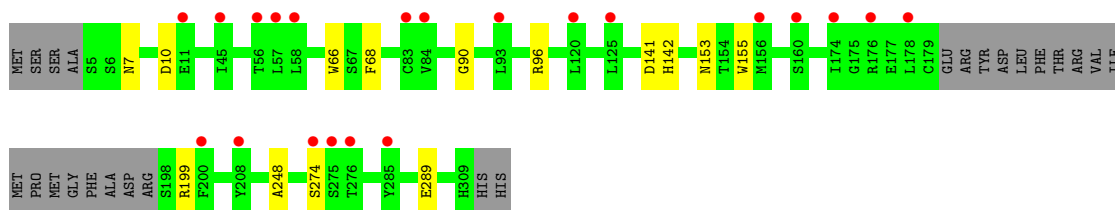
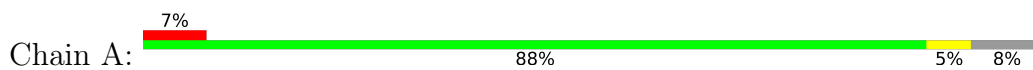
- Molecule 1: Alpha/beta fold hydrolase



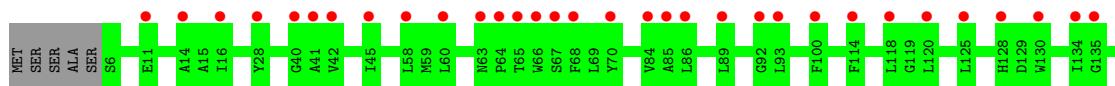
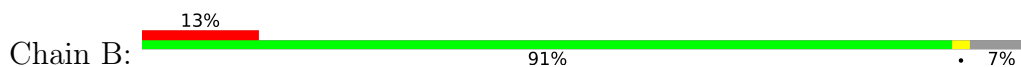
- Molecule 1: Alpha/beta fold hydrolase

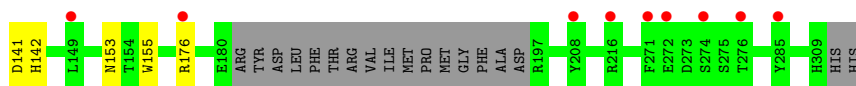


- Molecule 1: Alpha/beta fold hydrolase

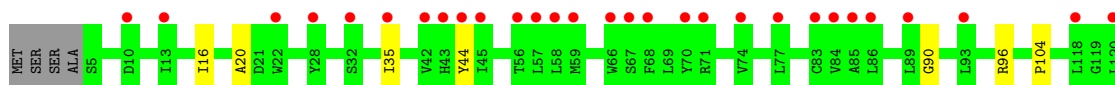


- Molecule 1: Alpha/beta fold hydrolase

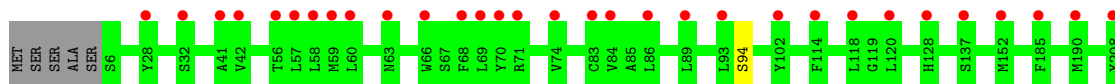




- Molecule 1: Alpha/beta fold hydrolase



- Molecule 1: Alpha/beta fold hydrolase



4 Data and refinement statistics i

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	172.76Å 289.90Å 168.31Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.47 – 3.31 49.47 – 3.31	Depositor EDS
% Data completeness (in resolution range)	99.6 (49.47-3.31) 99.6 (49.47-3.31)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.96 (at 3.33Å)	Xtrriage
Refinement program	PHENIX 1.20.1-4487	Depositor
R, R_{free}	0.236 , 0.275 0.232 , 0.275	Depositor DCC
R_{free} test set	3153 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	151.5	Xtrriage
Anisotropy	0.239	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 101.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtrriage
Estimated twinning fraction	0.000 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.021 for 1/2*h+1/2*k,3/2*h-1/2*k,-l	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	23884	wwPDB-VP
Average B, all atoms (Å ²)	155.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.27% of the height of the origin peak. No significant pseudotranslation is detected.*

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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 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	0.25	0/2385	0.55	0/3239
1	B	0.25	0/2393	0.54	0/3250
1	C	0.24	0/2538	0.53	0/3447
1	D	0.25	0/2510	0.54	0/3409
1	E	0.25	0/2521	0.54	0/3424
1	F	0.24	0/2413	0.54	0/3277
1	G	0.25	0/2502	0.54	0/3398
1	H	0.25	0/2413	0.53	0/3277
1	I	0.24	0/2496	0.54	0/3390
1	J	0.24	0/2379	0.54	0/3231
All	All	0.25	0/24550	0.54	0/33342

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	1
1	G	0	1
1	I	0	1
All	All	0	3

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	176	ARG	Sidechain
1	G	21	ASP	Peptide
1	I	103	ARG	Sidechain

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	2320	0	2171	6	0
1	B	2328	0	2174	1	0
1	C	2468	0	2312	6	0
1	D	2442	0	2293	9	0
1	E	2452	0	2300	3	0
1	F	2349	0	2191	4	0
1	G	2433	0	2284	3	0
1	H	2348	0	2190	4	0
1	I	2428	0	2282	6	0
1	J	2314	0	2163	6	0
2	F	1	0	0	0	0
3	D	1	0	0	0	0
All	All	23884	0	22360	46	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 1.

All (46) 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:154:THR:HG22	1:D:155:TRP:H	1.58	0.69
1:D:132:GLY:HA3	1:D:154:THR:HG21	1.77	0.64
1:J:14:ALA:HA	1:J:17:HIS:CD2	2.33	0.62
1:I:180:GLU:O	1:I:216:ARG:NH1	2.33	0.61
1:D:154:THR:HG22	1:D:155:TRP:N	2.19	0.55
1:B:141:ASP:OD1	1:B:142:HIS:ND1	2.30	0.55
1:H:141:ASP:OD1	1:H:142:HIS:ND1	2.38	0.55
1:F:141:ASP:OD1	1:F:142:HIS:ND1	2.39	0.52
1:A:141:ASP:OD1	1:A:142:HIS:ND1	2.39	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:252:TRP:HZ2	1:E:259:PHE:HB3	1.75	0.51
1:D:154:THR:CG2	1:D:155:TRP:H	2.24	0.50
1:D:34:CYS:SG	1:D:41:ALA:HB1	2.52	0.49
1:D:180:GLU:O	1:D:216:ARG:NH1	2.40	0.49
1:C:129:ASP:CG	1:C:130:TRP:H	2.16	0.49
1:A:7:ASN:HA	1:A:10:ASP:OD2	2.13	0.49
1:E:260:ARG:N	1:E:263:GLU:OE1	2.43	0.47
1:D:43:HIS:CD2	1:D:93:LEU:HD23	2.50	0.47
1:A:66:TRP:CZ2	1:A:68:PHE:HB2	2.50	0.46
1:C:141:ASP:OD1	1:C:142:HIS:ND1	2.49	0.46
1:D:89:LEU:HD21	1:D:97:PRO:HG3	1.97	0.45
1:F:66:TRP:CZ2	1:F:68:PHE:HB2	2.52	0.45
1:A:199:ARG:NH1	1:A:289:GLU:OE2	2.48	0.45
1:J:35:ILE:HG12	1:J:44:TYR:CE1	2.53	0.44
1:C:35:ILE:HG12	1:C:44:TYR:CE1	2.54	0.43
1:I:90:GLY:HA2	1:I:96:ARG:HG2	2.01	0.43
1:F:35:ILE:HG12	1:F:44:TYR:CE1	2.53	0.43
1:J:101:SER:OG	1:J:106:ASP:OD2	2.24	0.43
1:I:13:ILE:O	1:I:16:ILE:HG12	2.19	0.43
1:C:90:GLY:HA2	1:C:96:ARG:HG2	2.01	0.43
1:I:35:ILE:HG12	1:I:44:TYR:CE1	2.53	0.42
1:D:149:LEU:HD11	1:D:243:ILE:HD11	2.02	0.42
1:J:13:ILE:HA	1:J:16:ILE:HG12	2.01	0.42
1:H:66:TRP:CZ2	1:H:68:PHE:HB2	2.55	0.42
1:I:129:ASP:CG	1:I:130:TRP:H	2.23	0.42
1:I:277:VAL:HG11	1:I:297:LEU:HD13	2.00	0.42
1:G:240:ARG:NH1	1:H:268:GLU:O	2.53	0.41
1:J:141:ASP:OD1	1:J:142:HIS:ND1	2.43	0.41
1:A:90:GLY:HA2	1:A:96:ARG:HG2	2.03	0.41
1:G:158:PRO:HG2	1:H:265:ARG:NH2	2.36	0.41
1:A:248:ALA:O	1:A:274:SER:HA	2.21	0.41
1:G:252:TRP:HZ2	1:G:259:PHE:HB3	1.86	0.40
1:C:104:PRO:HG3	1:C:222:PHE:CE1	2.57	0.40
1:F:101:SER:OG	1:F:106:ASP:OD2	2.26	0.40
1:J:169:SER:OG	1:J:226:ILE:HB	2.22	0.40
1:C:16:ILE:O	1:C:20:ALA:HB3	2.21	0.40
1:E:286:VAL:HB	1:E:287:PRO:HD3	2.03	0.40

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	283/311 (91%)	267 (94%)	15 (5%)	1 (0%)	34	66
1	B	284/311 (91%)	266 (94%)	17 (6%)	1 (0%)	34	66
1	C	303/311 (97%)	291 (96%)	12 (4%)	0	100	100
1	D	300/311 (96%)	287 (96%)	13 (4%)	0	100	100
1	E	301/311 (97%)	289 (96%)	12 (4%)	0	100	100
1	F	288/311 (93%)	274 (95%)	14 (5%)	0	100	100
1	G	298/311 (96%)	288 (97%)	10 (3%)	0	100	100
1	H	287/311 (92%)	278 (97%)	9 (3%)	0	100	100
1	I	298/311 (96%)	282 (95%)	16 (5%)	0	100	100
1	J	282/311 (91%)	272 (96%)	8 (3%)	2 (1%)	22	55
All	All	2924/3110 (94%)	2794 (96%)	126 (4%)	4 (0%)	51	81

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	153	ASN
1	J	153	ASN
1	A	153	ASN
1	J	132	GLY

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	245/266 (92%)	244 (100%)	1 (0%)	91	95
1	B	245/266 (92%)	244 (100%)	1 (0%)	91	95
1	C	260/266 (98%)	257 (99%)	3 (1%)	71	84
1	D	257/266 (97%)	255 (99%)	2 (1%)	81	89
1	E	258/266 (97%)	255 (99%)	3 (1%)	71	84
1	F	248/266 (93%)	245 (99%)	3 (1%)	71	84
1	G	256/266 (96%)	253 (99%)	3 (1%)	71	84
1	H	247/266 (93%)	245 (99%)	2 (1%)	81	89
1	I	255/266 (96%)	252 (99%)	3 (1%)	71	84
1	J	243/266 (91%)	239 (98%)	4 (2%)	62	80
All	All	2514/2660 (94%)	2489 (99%)	25 (1%)	76	86

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

Mol	Chain	Res	Type
1	D	155	TRP
1	D	260	ARG
1	F	21	ASP
1	F	155	TRP
1	F	260	ARG
1	G	155	TRP
1	G	207	GLN
1	G	260	ARG
1	H	155	TRP
1	H	260	ARG
1	I	155	TRP
1	I	222	PHE
1	I	260	ARG
1	J	17	HIS
1	J	64	PRO
1	J	155	TRP
1	J	260	ARG
1	A	155	TRP
1	B	155	TRP
1	C	155	TRP
1	C	222	PHE
1	C	260	ARG
1	E	94	SER
1	E	241	ASP
1	E	260	ARG

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

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 1 ligands modelled in this entry, 1 is 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 [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	287/311 (92%)	0.48	21 (7%) 15 15	123, 154, 193, 226	0
1	B	288/311 (92%)	0.72	41 (14%) 2 2	119, 146, 189, 225	0
1	C	305/311 (98%)	0.85	45 (14%) 2 1	119, 149, 194, 211	0
1	D	302/311 (97%)	0.66	40 (13%) 3 2	134, 163, 201, 228	0
1	E	303/311 (97%)	0.66	37 (12%) 4 3	126, 157, 197, 225	0
1	F	292/311 (93%)	0.63	32 (10%) 5 5	108, 141, 205, 226	0
1	G	300/311 (96%)	0.67	36 (12%) 4 3	125, 158, 190, 214	0
1	H	291/311 (93%)	0.79	54 (18%) 1 1	115, 147, 205, 230	0
1	I	300/311 (96%)	0.86	46 (15%) 2 1	121, 149, 181, 221	0
1	J	286/311 (91%)	0.45	24 (8%) 11 11	126, 152, 184, 223	0
All	All	2954/3110 (94%)	0.68	376 (12%) 3 3	108, 152, 197, 230	0

All (376) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	28	TYR	6.9
1	G	57	LEU	6.6
1	G	56	THR	6.1
1	I	84	VAL	6.0
1	G	84	VAL	6.0
1	H	93	LEU	5.9
1	I	57	LEU	5.7
1	C	59	MET	5.7
1	D	83	CYS	5.3
1	I	70	TYR	5.3
1	G	45	ILE	5.2
1	I	59	MET	5.2
1	I	58	LEU	5.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	G	70	TYR	5.1
1	E	57	LEU	5.0
1	J	28	TYR	4.9
1	B	45	ILE	4.8
1	B	86	LEU	4.8
1	D	35	ILE	4.7
1	B	41	ALA	4.7
1	B	40	GLY	4.7
1	H	28	TYR	4.6
1	C	45	ILE	4.5
1	E	42	VAL	4.4
1	B	28	TYR	4.4
1	C	83	CYS	4.4
1	G	251	ILE	4.4
1	I	114	PHE	4.4
1	D	74	VAL	4.3
1	G	83	CYS	4.3
1	D	84	VAL	4.3
1	H	195	ALA	4.3
1	C	57	LEU	4.3
1	C	22	TRP	4.3
1	H	45	ILE	4.3
1	G	114	PHE	4.2
1	I	83	CYS	4.2
1	D	57	LEU	4.2
1	I	9	ARG	4.2
1	E	32	SER	4.1
1	D	41	ALA	4.1
1	E	287	PRO	4.1
1	B	89	LEU	4.1
1	H	41	ALA	4.1
1	H	196	ASP	4.1
1	B	208	TYR	4.1
1	E	251	ILE	4.1
1	A	174	ILE	4.0
1	H	40	GLY	4.0
1	G	156	MET	3.9
1	B	42	VAL	3.8
1	I	77	LEU	3.8
1	I	89	LEU	3.8
1	A	178	LEU	3.8
1	D	114	PHE	3.8

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	F	68	PHE	3.8
1	H	149	LEU	3.8
1	E	41	ALA	3.7
1	E	68	PHE	3.7
1	C	32	SER	3.7
1	G	85	ALA	3.7
1	D	59	MET	3.7
1	D	125	LEU	3.7
1	I	35	ILE	3.7
1	D	12	VAL	3.7
1	C	58	LEU	3.7
1	C	66	TRP	3.7
1	C	85	ALA	3.7
1	C	28	TYR	3.6
1	I	36	GLY	3.6
1	D	86	LEU	3.6
1	B	176	ARG	3.6
1	D	42	VAL	3.6
1	H	146	VAL	3.5
1	G	35	ILE	3.5
1	D	56	THR	3.5
1	F	41	ALA	3.5
1	J	32	SER	3.5
1	I	37	LEU	3.5
1	E	102	TYR	3.5
1	E	63	ASN	3.5
1	E	89	LEU	3.5
1	D	251	ILE	3.4
1	F	86	LEU	3.4
1	G	120	LEU	3.4
1	I	120	LEU	3.4
1	I	45	ILE	3.4
1	A	274	SER	3.4
1	D	124	VAL	3.4
1	A	57	LEU	3.4
1	E	83	CYS	3.3
1	G	86	LEU	3.3
1	F	10	ASP	3.3
1	H	305	VAL	3.3
1	H	42	VAL	3.3
1	J	40	GLY	3.3
1	B	274	SER	3.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	86	LEU	3.3
1	C	56	THR	3.3
1	D	85	ALA	3.3
1	I	16	ILE	3.3
1	E	128	HIS	3.3
1	B	93	LEU	3.3
1	E	120	LEU	3.3
1	E	185	PHE	3.3
1	J	41	ALA	3.2
1	D	11	GLU	3.2
1	J	174	ILE	3.2
1	J	156	MET	3.2
1	C	123	VAL	3.2
1	C	84	VAL	3.2
1	F	196	ASP	3.2
1	J	161	ASP	3.2
1	C	251	ILE	3.2
1	H	70	TYR	3.2
1	B	114	PHE	3.1
1	H	156	MET	3.1
1	I	162	ASP	3.1
1	H	56	THR	3.1
1	A	176	ARG	3.1
1	H	125	LEU	3.1
1	I	123	VAL	3.1
1	G	125	LEU	3.1
1	C	301	PHE	3.1
1	H	180	GLU	3.1
1	D	277	VAL	3.0
1	E	152	MET	3.0
1	F	207	GLN	3.0
1	D	185	PHE	3.0
1	B	65	THR	3.0
1	H	207	GLN	3.0
1	A	93	LEU	3.0
1	J	45	ILE	3.0
1	J	251	ILE	3.0
1	G	43	HIS	3.0
1	D	28	TYR	3.0
1	F	32	SER	3.0
1	H	8	ALA	3.0
1	I	257	SER	3.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	93	LEU	3.0
1	A	156	MET	3.0
1	H	86	LEU	2.9
1	F	208	TYR	2.9
1	C	35	ILE	2.9
1	I	40	GLY	2.9
1	H	208	TYR	2.9
1	J	58	LEU	2.9
1	B	134	ILE	2.9
1	B	85	ALA	2.9
1	J	160	SER	2.8
1	G	42	VAL	2.8
1	I	164	HIS	2.8
1	A	58	LEU	2.8
1	E	60	LEU	2.8
1	H	160	SER	2.8
1	B	100	PHE	2.8
1	G	60	LEU	2.8
1	E	71	ARG	2.8
1	I	85	ALA	2.8
1	F	146	VAL	2.8
1	E	137	SER	2.8
1	A	208	TYR	2.8
1	C	125	LEU	2.8
1	I	156	MET	2.8
1	G	144	GLU	2.8
1	I	158	PRO	2.8
1	G	41	ALA	2.8
1	B	285	TYR	2.8
1	H	12	VAL	2.8
1	D	77	LEU	2.7
1	F	120	LEU	2.7
1	C	118	LEU	2.7
1	I	60	LEU	2.7
1	C	124	VAL	2.7
1	D	126	VAL	2.7
1	C	10	ASP	2.7
1	E	70	TYR	2.7
1	I	86	LEU	2.7
1	C	68	PHE	2.7
1	J	107	HIS	2.7
1	I	74	VAL	2.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	J	56	THR	2.7
1	G	111	VAL	2.7
1	B	272	GLU	2.7
1	F	275	SER	2.7
1	H	114	PHE	2.7
1	I	42	VAL	2.7
1	F	125	LEU	2.6
1	B	67	SER	2.6
1	E	86	LEU	2.6
1	C	162	ASP	2.6
1	D	184	LEU	2.6
1	F	276	THR	2.6
1	G	124	VAL	2.6
1	B	118	LEU	2.6
1	G	11	GLU	2.6
1	C	156	MET	2.6
1	D	45	ILE	2.6
1	G	58	LEU	2.6
1	F	42	VAL	2.6
1	B	130	TRP	2.6
1	E	59	MET	2.6
1	J	30	PHE	2.6
1	H	58	LEU	2.6
1	B	66	TRP	2.6
1	F	28	TYR	2.6
1	E	234	SER	2.6
1	D	305	VAL	2.6
1	G	59	MET	2.6
1	D	58	LEU	2.6
1	A	120	LEU	2.6
1	B	276	THR	2.6
1	C	120	LEU	2.5
1	H	140	ILE	2.5
1	A	11	GLU	2.5
1	H	161	ASP	2.5
1	I	287	PRO	2.5
1	B	92	GLY	2.5
1	H	89	LEU	2.5
1	C	67	SER	2.5
1	G	28	TYR	2.5
1	A	285	TYR	2.5
1	I	73	LEU	2.5

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	E	66	TRP	2.5
1	B	16	ILE	2.5
1	D	70	TYR	2.5
1	C	13	ILE	2.5
1	D	147	GLY	2.5
1	H	66	TRP	2.5
1	D	7	ASN	2.5
1	B	125	LEU	2.5
1	E	208	TYR	2.5
1	J	208	TYR	2.4
1	J	162	ASP	2.4
1	I	12	VAL	2.4
1	E	56	THR	2.4
1	F	45	ILE	2.4
1	H	43	HIS	2.4
1	C	43	HIS	2.4
1	B	11	GLU	2.4
1	D	139	ALA	2.4
1	H	166	SER	2.4
1	J	68	PHE	2.4
1	F	65	THR	2.4
1	A	276	THR	2.4
1	E	58	LEU	2.4
1	G	271	PHE	2.4
1	F	107	HIS	2.4
1	G	73	LEU	2.4
1	B	149	LEU	2.4
1	I	124	VAL	2.3
1	G	301	PHE	2.3
1	I	66	TRP	2.3
1	E	84	VAL	2.3
1	G	190	MET	2.3
1	D	73	LEU	2.3
1	F	89	LEU	2.3
1	G	118	LEU	2.3
1	B	64	PRO	2.3
1	F	123	VAL	2.3
1	F	198	SER	2.3
1	F	274	SER	2.3
1	C	234	SER	2.3
1	F	56	THR	2.3
1	A	45	ILE	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	I	301	PHE	2.3
1	J	72	HIS	2.3
1	I	249	ARG	2.3
1	E	118	LEU	2.3
1	I	297	LEU	2.3
1	B	120	LEU	2.3
1	E	298	VAL	2.3
1	H	134	ILE	2.3
1	F	17	HIS	2.3
1	D	243	ILE	2.3
1	H	251	ILE	2.3
1	F	139	ALA	2.3
1	A	83	CYS	2.2
1	C	152	MET	2.2
1	B	271	PHE	2.2
1	C	44	TYR	2.2
1	B	128	HIS	2.2
1	F	156	MET	2.2
1	E	69	LEU	2.2
1	C	145	ASN	2.2
1	H	287	PRO	2.2
1	C	208	TYR	2.2
1	H	169	SER	2.2
1	A	275	SER	2.2
1	I	46	ASP	2.2
1	B	63	ASN	2.2
1	H	120	LEU	2.2
1	C	77	LEU	2.2
1	J	114	PHE	2.2
1	G	46	ASP	2.2
1	C	42	VAL	2.2
1	G	71	ARG	2.2
1	I	56	THR	2.2
1	H	39	SER	2.2
1	H	133	PRO	2.2
1	C	148	GLY	2.2
1	J	155	TRP	2.2
1	D	14	ALA	2.2
1	H	302	LEU	2.2
1	F	35	ILE	2.2
1	I	128	HIS	2.2
1	B	135	GLY	2.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	20	ALA	2.2
1	I	125	LEU	2.2
1	C	74	VAL	2.2
1	E	190	MET	2.2
1	C	147	GLY	2.2
1	B	68	PHE	2.2
1	C	305	VAL	2.2
1	H	128	HIS	2.2
1	A	125	LEU	2.1
1	B	58	LEU	2.1
1	G	277	VAL	2.1
1	I	251	ILE	2.1
1	E	93	LEU	2.1
1	D	8	ALA	2.1
1	H	32	SER	2.1
1	J	207	GLN	2.1
1	B	14	ALA	2.1
1	E	114	PHE	2.1
1	H	31	GLU	2.1
1	C	160	SER	2.1
1	H	73	LEU	2.1
1	I	41	ALA	2.1
1	J	164	HIS	2.1
1	C	70	TYR	2.1
1	J	276	THR	2.1
1	E	301	PHE	2.1
1	B	84	VAL	2.1
1	A	160	SER	2.1
1	I	28	TYR	2.1
1	C	71	ARG	2.1
1	E	277	VAL	2.1
1	H	92	GLY	2.1
1	C	89	LEU	2.1
1	G	123	VAL	2.1
1	H	19	GLU	2.1
1	D	152	MET	2.1
1	F	149	LEU	2.1
1	B	60	LEU	2.1
1	E	74	VAL	2.1
1	A	56	THR	2.1
1	F	6	SER	2.1
1	I	81	TYR	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	164	HIS	2.1
1	H	167	ARG	2.1
1	A	200	PHE	2.1
1	I	15	ALA	2.1
1	H	83	CYS	2.1
1	H	162	ASP	2.1
1	H	33	ARG	2.1
1	H	15	ALA	2.1
1	F	114	PHE	2.0
1	H	30	PHE	2.0
1	H	130	TRP	2.0
1	B	216	ARG	2.0
1	D	149	LEU	2.0
1	J	274	SER	2.0
1	C	164	HIS	2.0
1	G	126	VAL	2.0
1	B	70	TYR	2.0
1	D	294	LEU	2.0
1	H	35	ILE	2.0
1	D	19	GLU	2.0
1	I	39	SER	2.0
1	A	84	VAL	2.0
1	G	294	LEU	2.0
1	F	43	HIS	2.0
1	D	208	TYR	2.0
1	F	84	VAL	2.0
1	H	57	LEU	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 monosaccharides in this entry.

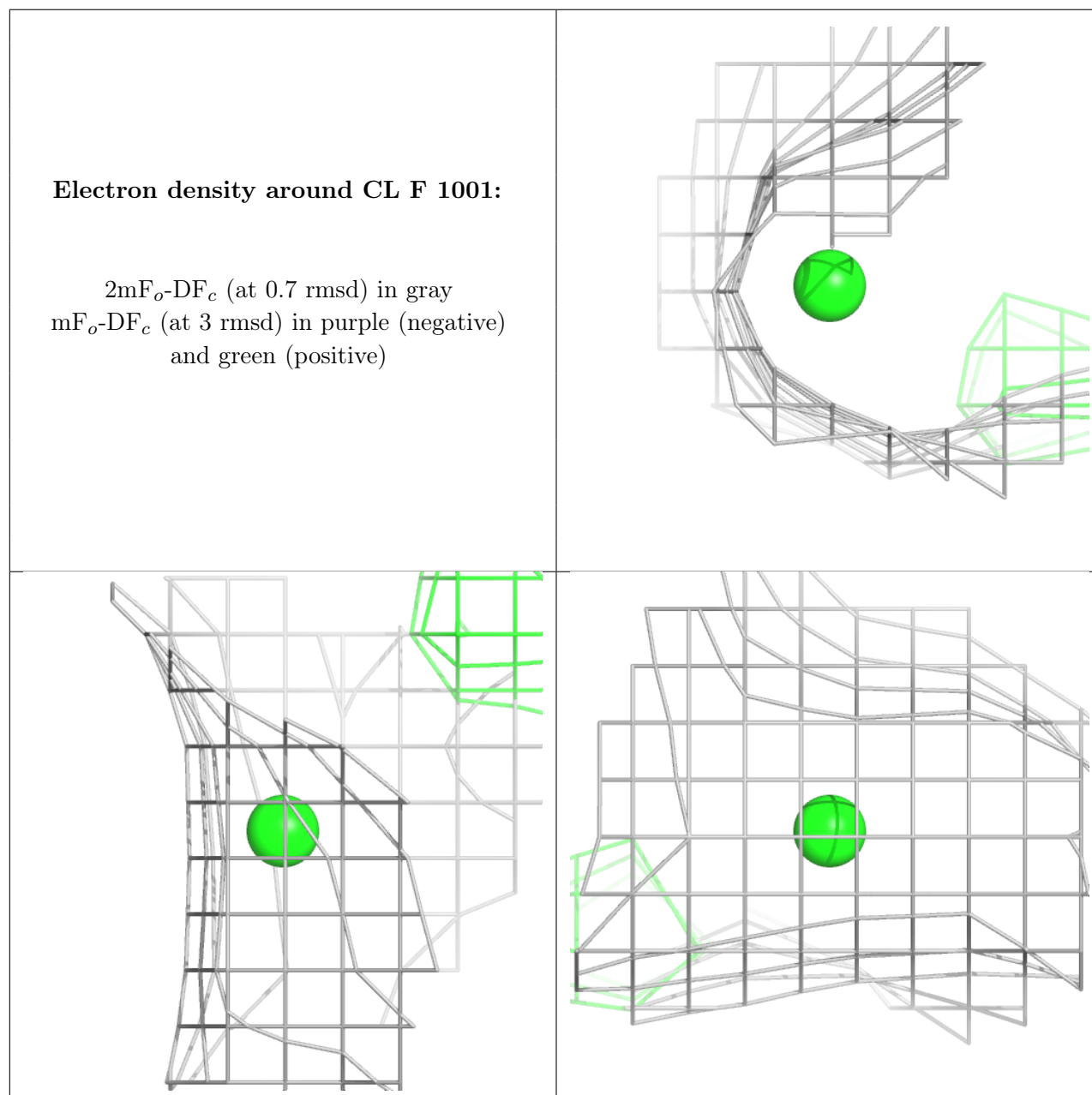
6.4 Ligands [i](#)

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(Å ²)	Q<0.9
2	CL	F	1001	1/1	0.70	0.47	138,138,138,138	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



6.5 Other polymers [i](#)

There are no such residues in this entry.