



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 15, 2017 – 02:55 am GMT

PDB ID : 4TUG  
Title : Crystal structure of MjMre11-DNA2 complex  
Authors : Sung, S.; Cho, Y.  
Deposited on : 2014-06-24  
Resolution : 3.55 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Xtriage (Phenix) : 1.9-1692  
EDS : trunk28620  
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : recalc28949

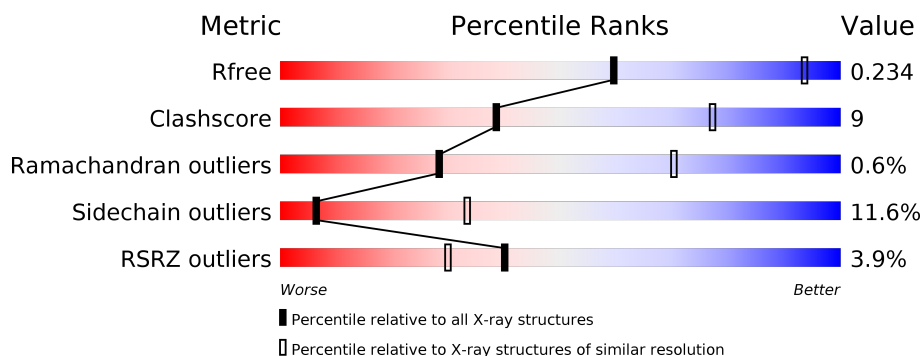
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 3.55 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))
$R_{free}$	100719	1072 (3.70-3.42)
Clashscore	112137	1003 (3.66-3.46)
Ramachandran outliers	110173	1153 (3.70-3.42)
Sidechain outliers	110143	1153 (3.70-3.42)
RSRZ outliers	101464	1098 (3.70-3.42)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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	337	<div> <div>3%</div> <div> <div></div> <div>65%</div> <div>25%</div> <div>•</div> <div>6%</div> </div> </div>
1	B	337	<div> <div>4%</div> <div> <div></div> <div>66%</div> <div>21%</div> <div>•</div> <div>9%</div> </div> </div>
1	C	337	<div> <div>%</div> <div> <div></div> <div>66%</div> <div>23%</div> <div>•</div> <div>7%</div> </div> </div>
1	D	337	<div> <div>3%</div> <div> <div></div> <div>64%</div> <div>24%</div> <div>•</div> <div>9%</div> </div> </div>
1	E	337	<div> <div>2%</div> <div> <div></div> <div>65%</div> <div>25%</div> <div>•</div> <div>7%</div> </div> </div>
1	F	337	<div> <div>10%</div> <div> <div></div> <div>61%</div> <div>26%</div> <div>•</div> <div>9%</div> </div> </div>

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Mol	Chain	Length	Quality of chain
2	G	14	
3	H	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 criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	MG	B	401	-	-	-	X
4	MG	D	401	-	-	-	X
4	MG	D	402	-	-	-	X

## 2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 16104 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 DNA double-strand break repair protein Mre11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	C	313	Total	C	N	O	S	0	0	0
			2601	1680	434	476	11			
1	A	317	Total	C	N	O	S	0	0	0
			2635	1698	444	482	11			
1	B	306	Total	C	N	O	S	0	0	0
			2546	1644	427	465	10			
1	D	307	Total	C	N	O	S	0	0	0
			2556	1650	430	466	10			
1	E	314	Total	C	N	O	S	0	0	0
			2605	1682	437	476	10			
1	F	305	Total	C	N	O	S	0	0	0
			2537	1640	428	459	10			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-3	ARG	-	expression tag	UNP Q58719
C	-2	GLY	-	expression tag	UNP Q58719
C	-1	SER	-	expression tag	UNP Q58719
C	0	HIS	-	expression tag	UNP Q58719
A	-3	ARG	-	expression tag	UNP Q58719
A	-2	GLY	-	expression tag	UNP Q58719
A	-1	SER	-	expression tag	UNP Q58719
A	0	HIS	-	expression tag	UNP Q58719
B	-3	ARG	-	expression tag	UNP Q58719
B	-2	GLY	-	expression tag	UNP Q58719
B	-1	SER	-	expression tag	UNP Q58719
B	0	HIS	-	expression tag	UNP Q58719
D	-3	ARG	-	expression tag	UNP Q58719
D	-2	GLY	-	expression tag	UNP Q58719
D	-1	SER	-	expression tag	UNP Q58719
D	0	HIS	-	expression tag	UNP Q58719
E	-3	ARG	-	expression tag	UNP Q58719

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-2	GLY	-	expression tag	UNP Q58719
E	-1	SER	-	expression tag	UNP Q58719
E	0	HIS	-	expression tag	UNP Q58719
F	-3	ARG	-	expression tag	UNP Q58719
F	-2	GLY	-	expression tag	UNP Q58719
F	-1	SER	-	expression tag	UNP Q58719
F	0	HIS	-	expression tag	UNP Q58719

- Molecule 2 is a DNA chain called DNA (5'-D(P\*GP\*CP\*AP\*CP\*GP\*TP\*AP\*GP\*GP\*AP\*CP\*AP\*GP\*C)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	G	14	Total	C	N	O	P	0	0	0
			290	136	59	81	14			

- Molecule 3 is a DNA chain called DNA (5'-D(P\*CP\*TP\*GP\*TP\*CP\*CP\*TP\*AP\*CP\*GP\*TP\*GP\*CP\*CP\*A)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	H	15	Total	C	N	O	P	0	0	0
			302	144	51	92	15			

- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	D	2	Total	Mg	0	0
			2	2		
4	E	2	Total	Mg	0	0
			2	2		
4	B	2	Total	Mg	0	0
			2	2		
4	C	2	Total	Mg	0	0
			2	2		
4	A	2	Total	Mg	0	0
			2	2		
4	F	2	Total	Mg	0	0
			2	2		

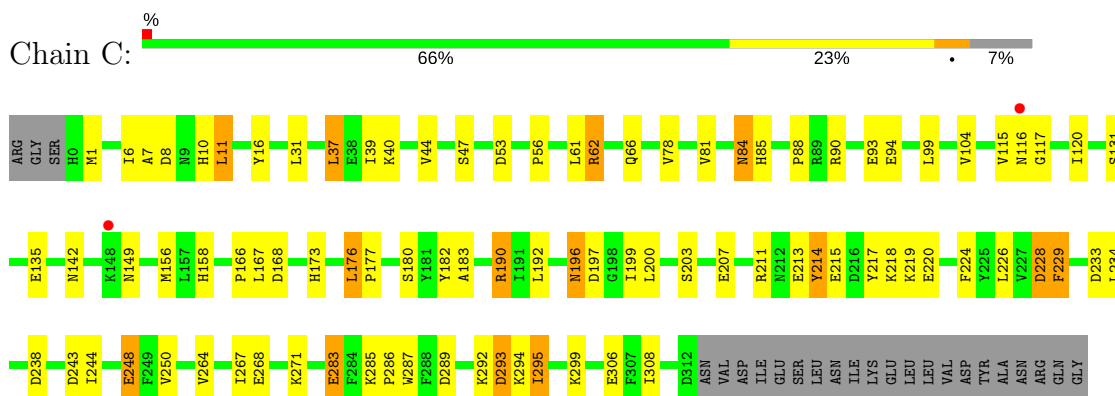
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	C	2	Total 2	O 2	0	0
5	A	7	Total 7	O 7	0	0
5	B	5	Total 5	O 5	0	0
5	D	2	Total 2	O 2	0	0
5	E	3	Total 3	O 3	0	0
5	F	1	Total 1	O 1	0	0

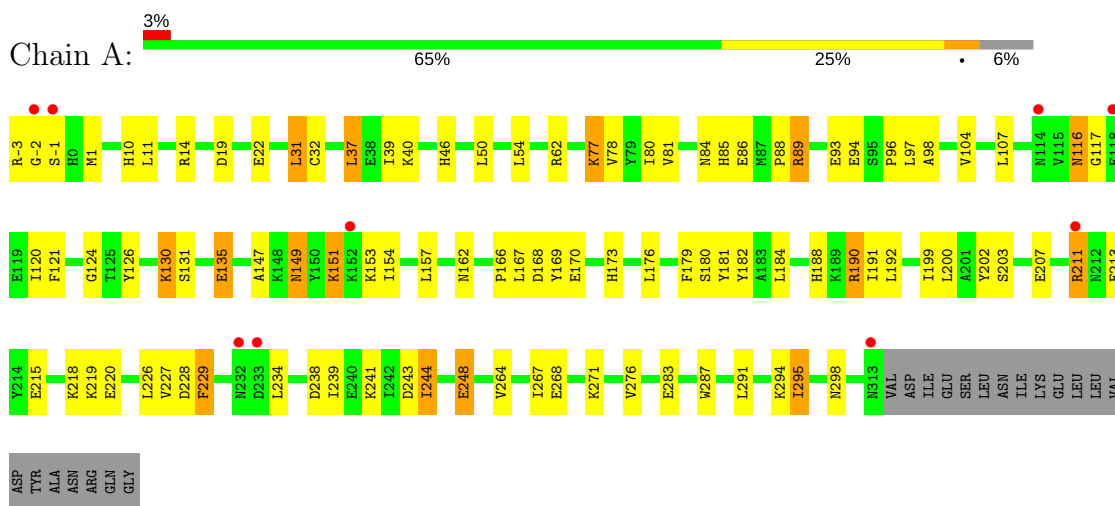
### 3 Residue-property plots

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.

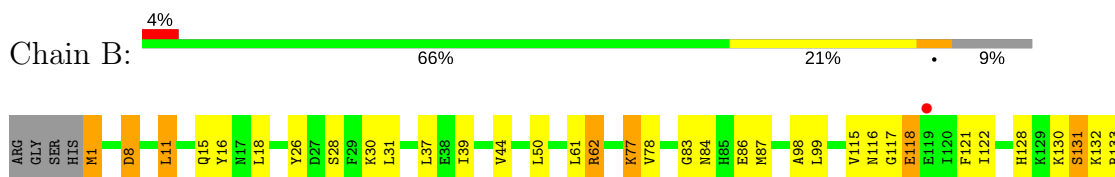
- Molecule 1: DNA double-strand break repair protein Mre11

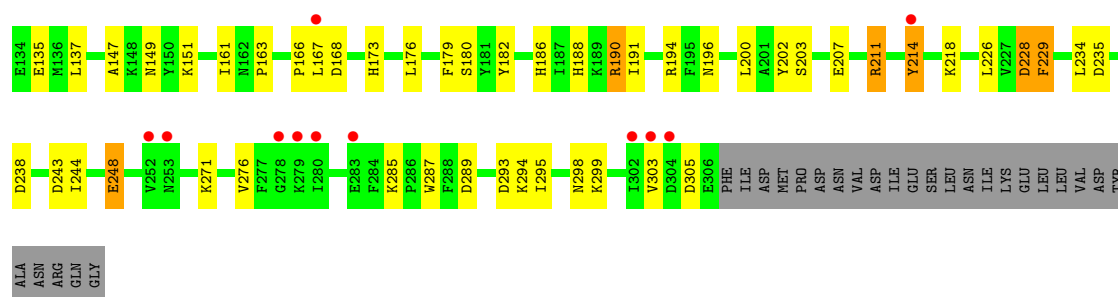


- Molecule 1: DNA double-strand break repair protein Mre11

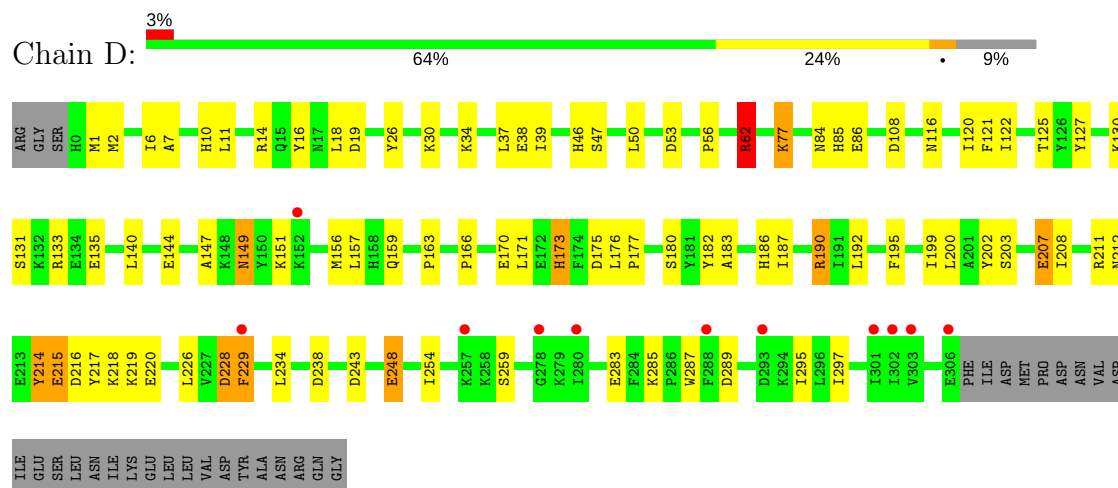


- Molecule 1: DNA double-strand break repair protein Mre11

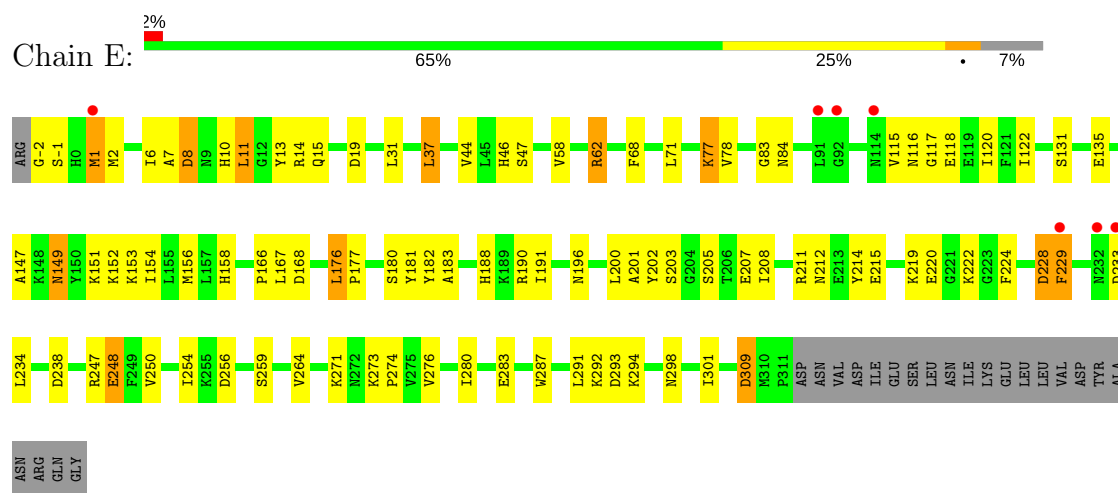




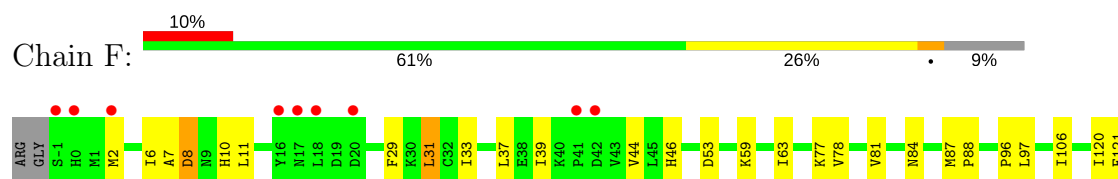
- Molecule 1: DNA double-strand break repair protein Mre11



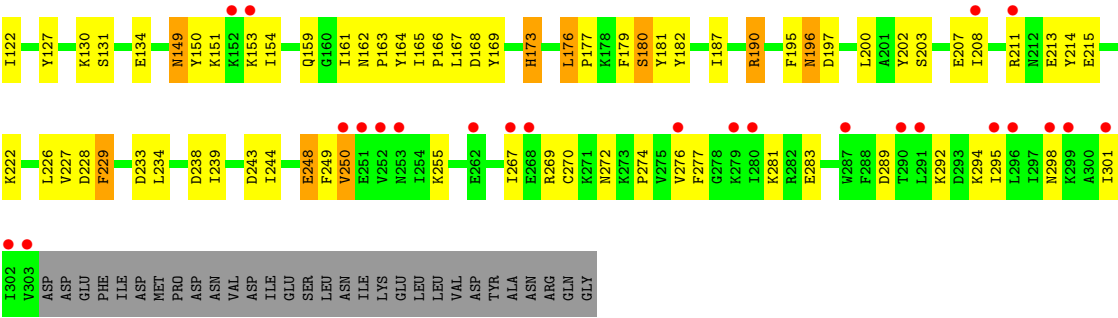
- Molecule 1: DNA double-strand break repair protein Mre11



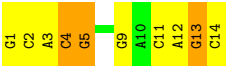
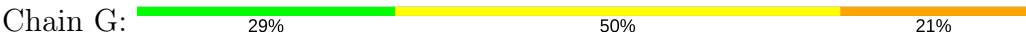
- Molecule 1: DNA double-strand break repair protein Mre11



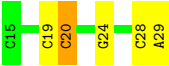




• Molecule 2: DNA (5'-D(P\*GP\*CP\*AP\*CP\*GP\*TP\*AP\*GP\*GP\*AP\*CP\*AP\*GP\*C)-3')



• Molecule 3: DNA (5'-D(P\*CP\*TP\*GP\*TP\*CP\*CP\*TP\*AP\*CP\*GP\*TP\*GP\*CP\*CP\*A)-3')



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	91.53Å 185.62Å 106.21Å 90.00° 99.86° 90.00°	Depositor
Resolution (Å)	42.42 – 3.55 43.05 – 3.55	Depositor EDS
% Data completeness (in resolution range)	94.1 (42.42-3.55) 94.2 (43.05-3.55)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.31 (at 3.57Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.8_1069)	Depositor
R, $R_{free}$	0.184 , 0.236 0.185 , 0.234	Depositor DCC
$R_{free}$ test set	1996 reflections (5.05%)	DCC
Wilson B-factor (Å <sup>2</sup> )	79.8	Xtriage
Anisotropy	0.097	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 101.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	16104	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	144.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.00% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality

### 5.1 Standard geometry

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	0.35	0/2692	0.56	0/3613
1	B	0.33	0/2600	0.55	0/3489
1	C	0.35	0/2657	0.56	0/3567
1	D	0.33	0/2611	0.57	1/3504 (0.0%)
1	E	0.33	0/2662	0.53	0/3574
1	F	0.29	0/2592	0.52	0/3478
2	G	0.58	0/326	1.53	6/501 (1.2%)
3	H	0.75	0/336	1.63	4/515 (0.8%)
All	All	0.35	0/16476	0.63	11/22241 (0.0%)

There are no bond length outliers.

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	H	28	DC	O4'-C1'-N1	10.39	115.27	108.00
2	G	11	DC	O4'-C1'-N1	9.35	114.55	108.00
2	G	4	DC	O4'-C1'-N1	9.24	114.47	108.00
2	G	14	DC	O4'-C1'-N1	7.22	113.05	108.00
3	H	29	DA	O4'-C1'-N9	6.95	112.87	108.00
2	G	13	DG	O4'-C1'-N9	-6.56	103.41	108.00
2	G	9	DG	O4'-C1'-N9	6.06	112.24	108.00
3	H	20	DC	O4'-C1'-N1	5.94	112.16	108.00
2	G	5	DG	C4'-C3'-C2'	5.88	108.39	103.10
3	H	24	DG	O4'-C1'-N9	-5.85	103.91	108.00
1	D	62	ARG	NE-CZ-NH1	5.38	122.99	120.30

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2635	0	2650	56	0
1	B	2546	0	2572	39	0
1	C	2601	0	2618	40	0
1	D	2556	0	2579	42	0
1	E	2605	0	2620	46	0
1	F	2537	0	2570	59	0
2	G	290	0	156	7	0
3	H	302	0	170	1	0
4	A	2	0	0	0	0
4	B	2	0	0	0	0
4	C	2	0	0	0	0
4	D	2	0	0	0	0
4	E	2	0	0	0	0
4	F	2	0	0	0	0
5	A	7	0	0	1	0
5	B	5	0	0	0	0
5	C	2	0	0	0	0
5	D	2	0	0	0	0
5	E	3	0	0	0	0
5	F	1	0	0	0	0
All	All	16104	0	15935	275	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.

All (275) 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:B:1:MET:HG3	1:B:115:VAL:HG21	1.57	0.84
1:F:179:PHE:HB2	1:F:182:TYR:HE1	1.53	0.74
2:G:2:DC:H2'	2:G:3:DA:H8	1.54	0.73
1:F:127:TYR:HA	1:F:159:GLN:HE22	1.55	0.71
1:A:14:ARG:NH2	1:A:19:ASP:OD2	2.26	0.69
1:F:31:LEU:HD23	1:F:244:ILE:HD12	1.75	0.69
1:B:131:SER:HB2	1:B:132:LYS:HD2	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:2:DC:H2'	2:G:3:DA:C8	2.27	0.68
1:F:2:MET:HA	1:F:228:ASP:HA	1.76	0.67
1:F:121:PHE:HB2	1:F:150:TYR:HD1	1.60	0.67
1:C:44:VAL:HB	1:C:78:VAL:HG22	1.77	0.67
1:A:14:ARG:HG3	1:A:22:GLU:HB2	1.78	0.66
1:C:84:ASN:OD1	1:C:158:HIS:NE2	2.29	0.64
1:E:8:ASP:OD2	1:E:10:HIS:NE2	2.28	0.64
1:C:88:PRO:HB3	1:C:93:GLU:HB3	1.79	0.64
1:F:190:ARG:NH2	1:F:243:ASP:OD2	2.28	0.64
1:F:182:TYR:HB2	1:F:200:LEU:HA	1.80	0.63
1:F:44:VAL:HB	1:F:78:VAL:HG22	1.81	0.63
1:A:191:ILE:HB	1:A:202:TYR:HB2	1.81	0.63
1:F:179:PHE:HB2	1:F:182:TYR:CE1	2.34	0.62
1:D:228:ASP:OD1	1:D:229:PHE:N	2.33	0.61
1:D:219:LYS:HG2	1:D:220:GLU:HG2	1.82	0.61
1:F:289:ASP:HA	1:F:292:LYS:HB3	1.84	0.60
1:F:274:PRO:HG2	1:F:295:ILE:HG13	1.82	0.60
1:E:68:PHE:HD1	1:E:71:LEU:HD12	1.67	0.60
1:A:153:LYS:HG3	1:A:179:PHE:HA	1.83	0.59
1:E:182:TYR:HB2	1:E:200:LEU:HA	1.84	0.59
1:E:264:VAL:HG22	1:E:291:LEU:HD11	1.85	0.58
1:A:-3:ARG:O	1:A:-1:SER:OG	2.22	0.58
1:E:44:VAL:HB	1:E:78:VAL:HG22	1.84	0.58
1:F:187:ILE:HD12	1:F:202:TYR:CZ	2.39	0.58
1:F:39:ILE:HD13	1:F:226:LEU:HD22	1.86	0.58
1:A:-2:GLY:N	1:F:166:PRO:O	2.37	0.57
1:F:161:ILE:HG22	1:F:163:PRO:HD2	1.86	0.57
1:F:154:ILE:HG23	1:F:181:TYR:HB3	1.87	0.57
1:C:90:ARG:NH2	1:C:93:GLU:OE2	2.37	0.57
1:B:228:ASP:OD1	1:B:229:PHE:N	2.37	0.57
1:E:8:ASP:OD2	1:E:188:HIS:NE2	2.38	0.57
1:C:306:GLU:HB2	1:B:62:ARG:HD2	1.86	0.57
1:D:215:GLU:OE1	1:D:216:ASP:N	2.38	0.57
1:C:6:ILE:HG13	1:C:224:PHE:HB3	1.86	0.57
1:B:194:ARG:NE	1:B:235:ASP:OD1	2.37	0.56
1:A:211:ARG:NH2	5:A:502:HOH:O	2.38	0.56
1:B:39:ILE:HD13	1:B:226:LEU:HD22	1.87	0.56
1:D:62:ARG:CG	1:D:62:ARG:HH11	2.19	0.55
1:C:182:TYR:HB2	1:C:200:LEU:HA	1.88	0.55
1:C:293:ASP:OD1	1:C:293:ASP:N	2.40	0.55
1:A:98:ALA:HB1	1:B:62:ARG:NH2	2.21	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:127:TYR:HA	1:D:159:GLN:HE22	1.71	0.55
1:F:248:GLU:OE2	1:F:272:ASN:N	2.36	0.55
1:E:147:ALA:HB1	1:E:153:LYS:HD2	1.89	0.55
1:C:228:ASP:OD1	1:C:229:PHE:N	2.40	0.54
1:A:190:ARG:NH2	1:A:243:ASP:OD1	2.41	0.54
1:D:18:LEU:HD11	1:D:297:ILE:HD12	1.89	0.54
1:C:39:ILE:HD13	1:C:226:LEU:HD22	1.90	0.54
1:E:228:ASP:OD1	1:E:229:PHE:N	2.40	0.54
1:F:182:TYR:HD2	1:F:200:LEU:HD12	1.73	0.54
1:F:153:LYS:HG3	1:F:179:PHE:HA	1.90	0.54
1:A:228:ASP:OD1	1:A:229:PHE:N	2.40	0.53
1:E:215:GLU:O	1:E:219:LYS:HB3	2.08	0.53
1:B:8:ASP:OD2	1:B:188:HIS:NE2	2.41	0.53
1:F:228:ASP:OD1	1:F:229:PHE:N	2.41	0.53
1:D:163:PRO:HG3	1:D:173:HIS:CD2	2.43	0.53
1:B:44:VAL:HB	1:B:78:VAL:HG22	1.91	0.53
1:B:26:TYR:O	1:B:30:LYS:HG3	2.09	0.53
1:B:61:LEU:HD22	1:B:99:LEU:HD12	1.91	0.53
1:B:116:ASN:N	1:B:116:ASN:OD1	2.40	0.52
1:D:121:PHE:CE2	1:D:147:ALA:HB2	2.45	0.52
1:E:248:GLU:OE2	1:E:271:LYS:N	2.41	0.52
1:E:68:PHE:CD1	1:E:71:LEU:HD12	2.45	0.52
1:D:218:LYS:NZ	1:D:248:GLU:OE1	2.39	0.52
1:E:14:ARG:NH2	1:E:19:ASP:OD2	2.43	0.52
1:F:59:LYS:O	1:F:63:ILE:HG13	2.10	0.52
1:F:8:ASP:OD2	1:F:10:HIS:NE2	2.32	0.52
1:D:16:TYR:HB2	1:D:18:LEU:HD13	1.92	0.52
1:F:29:PHE:O	1:F:33:ILE:HG12	2.10	0.51
1:C:16:TYR:CD1	1:C:299:LYS:HE3	2.45	0.51
1:A:227:VAL:HG22	1:A:239:ILE:HG12	1.92	0.51
1:A:192:LEU:HD11	1:A:199:ILE:HD11	1.92	0.51
1:A:62:ARG:NH1	1:B:98:ALA:HB1	2.26	0.51
1:C:292:LYS:HE3	1:A:135:GLU:HG3	1.92	0.51
1:D:156:MET:HG2	1:D:183:ALA:HB3	1.93	0.50
1:F:127:TYR:HA	1:F:159:GLN:NE2	2.22	0.50
1:A:31:LEU:HB3	1:A:244:ILE:HD12	1.93	0.50
1:D:62:ARG:HG3	1:D:62:ARG:HH11	1.75	0.50
2:G:4:DC:H2''	2:G:5:DG:C8	2.46	0.50
1:B:50:LEU:N	1:B:86:GLU:OE2	2.45	0.50
1:E:276:VAL:HG13	1:E:298:ASN:HA	1.94	0.49
1:A:181:TYR:CE2	1:A:227:VAL:HG21	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:177:PRO:O	1:E:182:TYR:OH	2.25	0.49
1:F:167:LEU:HD12	1:F:168:ASP:HB3	1.95	0.49
1:E:205:SER:O	1:E:222:LYS:HD3	2.13	0.49
1:E:256:ASP:H	1:E:259:SER:HG	1.61	0.49
1:E:219:LYS:HG2	1:E:220:GLU:HG2	1.95	0.49
1:C:286:PRO:HB3	1:A:126:TYR:CZ	2.47	0.49
1:C:61:LEU:HD22	1:C:99:LEU:HD12	1.95	0.48
1:F:173:HIS:HB2	1:F:195:PHE:CE2	2.48	0.48
1:C:176:LEU:HA	1:C:177:PRO:HD3	1.61	0.48
1:D:39:ILE:HD13	1:D:226:LEU:HD22	1.94	0.48
1:A:116:ASN:HA	1:A:117:GLY:HA2	1.57	0.48
1:A:276:VAL:HG13	1:A:298:ASN:HA	1.95	0.48
1:C:167:LEU:HA	1:C:168:ASP:HA	1.57	0.48
1:C:94:GLU:OE1	1:D:62:ARG:NH1	2.47	0.48
1:B:115:VAL:HG23	1:B:118:GLU:H	1.77	0.48
1:F:149:ASN:N	1:F:149:ASN:OD1	2.38	0.48
1:C:215:GLU:O	1:C:219:LYS:HB3	2.14	0.48
1:D:77:LYS:HD2	1:D:77:LYS:HA	1.57	0.48
1:A:248:GLU:OE2	1:A:271:LYS:N	2.46	0.47
1:A:37:LEU:O	1:A:40:LYS:HG2	2.14	0.47
1:C:192:LEU:HD11	1:C:199:ILE:HD11	1.95	0.47
1:C:219:LYS:HG2	1:C:220:GLU:HG2	1.95	0.47
1:D:149:ASN:N	1:D:149:ASN:OD1	2.36	0.47
1:C:248:GLU:OE2	1:C:271:LYS:N	2.47	0.47
1:E:1:MET:HG2	1:E:115:VAL:HG21	1.95	0.47
1:B:276:VAL:HG13	1:B:298:ASN:HA	1.96	0.47
1:F:249:PHE:HB3	1:F:277:PHE:CE2	2.49	0.47
1:A:267:ILE:HD13	1:A:295:ILE:HD11	1.96	0.47
1:F:167:LEU:HA	1:F:168:ASP:HA	1.49	0.47
1:B:116:ASN:HA	1:B:117:GLY:HA2	1.51	0.47
1:A:182:TYR:HB2	1:A:200:LEU:HA	1.97	0.47
1:C:62:ARG:O	1:C:66:GLN:HB2	2.15	0.47
1:E:156:MET:HG2	1:E:183:ALA:HB3	1.95	0.47
1:A:10:HIS:NE2	1:A:188:HIS:CE1	2.83	0.47
1:E:13:TYR:CE2	1:E:15:GLN:HB2	2.50	0.46
1:F:2:MET:HG2	1:F:228:ASP:HB2	1.96	0.46
1:C:285:LYS:HZ3	1:C:289:ASP:CG	2.19	0.46
1:F:222:LYS:O	1:F:244:ILE:N	2.48	0.46
1:A:154:ILE:HG23	1:A:181:TYR:HB3	1.97	0.46
1:E:6:ILE:HG13	1:E:224:PHE:HB3	1.97	0.46
1:A:-3:ARG:O	1:F:167:LEU:HD13	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:140:LEU:HD21	1:D:157:LEU:HD11	1.98	0.46
1:D:14:ARG:NH2	1:D:19:ASP:OD2	2.48	0.46
1:F:6:ILE:O	1:F:46:HIS:HA	2.16	0.46
1:A:10:HIS:CE1	1:A:85:HIS:CD2	3.04	0.46
1:A:88:PRO:HB3	1:A:93:GLU:HB3	1.98	0.46
1:C:7:ALA:HB2	1:C:47:SER:HB2	1.98	0.46
1:D:187:ILE:HD12	1:D:202:TYR:CE2	2.51	0.46
2:G:1:DG:H2'	2:G:1:DG:N3	2.30	0.46
1:C:264:VAL:O	1:C:268:GLU:HG2	2.16	0.46
1:E:176:LEU:HA	1:E:177:PRO:HD3	1.61	0.46
1:A:264:VAL:HG22	1:A:291:LEU:HD11	1.98	0.46
1:D:207:GLU:OE1	1:D:208:ILE:N	2.49	0.46
1:D:254:ILE:HA	1:D:259:SER:OG	2.16	0.46
1:B:179:PHE:HB2	1:B:182:TYR:CE1	2.50	0.46
2:G:12:DA:H2''	2:G:13:DG:H5''	1.98	0.45
1:B:167:LEU:HA	1:B:168:ASP:HA	1.59	0.45
1:D:127:TYR:HA	1:D:159:GLN:NE2	2.31	0.45
1:D:144:GLU:OE1	1:D:177:PRO:HB3	2.16	0.45
1:D:192:LEU:HD11	1:D:199:ILE:HD11	1.97	0.45
1:F:270:CYS:SG	1:F:274:PRO:HB3	2.57	0.45
1:A:-3:ARG:HG2	1:F:169:TYR:H	1.80	0.45
1:E:116:ASN:HA	1:E:117:GLY:HA2	1.49	0.45
1:F:276:VAL:HG13	1:F:298:ASN:HA	1.98	0.45
1:C:78:VAL:HG12	1:C:104:VAL:HG13	1.98	0.45
1:A:130:LYS:HG3	1:A:170:GLU:HA	1.99	0.45
1:E:254:ILE:HD12	1:E:280:ILE:HG12	1.97	0.45
1:C:190:ARG:NH2	1:C:243:ASP:OD1	2.49	0.45
1:F:196:ASN:HB3	1:F:197:ASP:H	1.67	0.45
1:A:149:ASN:N	1:A:149:ASN:OD1	2.36	0.45
1:C:56:PRO:HG2	1:C:61:LEU:HD21	1.99	0.45
1:F:208:ILE:HG23	1:F:213:GLU:HB2	1.99	0.45
1:E:11:LEU:HD12	1:E:11:LEU:HA	1.77	0.45
1:F:162:ASN:HB2	1:F:169:TYR:CE2	2.52	0.45
1:A:39:ILE:HD13	1:A:226:LEU:HD22	1.99	0.44
1:B:121:PHE:CE2	1:B:147:ALA:HB2	2.53	0.44
1:F:97:LEU:HB3	1:F:106:ILE:HD11	1.98	0.44
1:A:78:VAL:HG12	1:A:104:VAL:HG13	1.99	0.44
1:A:46:HIS:HB3	1:A:80:ILE:HG13	1.99	0.44
1:B:77:LYS:HA	1:B:77:LYS:HD2	1.63	0.44
1:D:7:ALA:HB2	1:D:47:SER:HB2	1.99	0.44
1:F:173:HIS:HB2	1:F:195:PHE:CZ	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:83:GLY:O	1:B:87:MET:HG2	2.17	0.44
1:E:6:ILE:O	1:E:46:HIS:HA	2.17	0.44
1:F:187:ILE:HD12	1:F:202:TYR:CE2	2.52	0.44
1:B:28:SER:HB2	1:B:244:ILE:HG21	2.00	0.44
1:C:167:LEU:HD12	1:C:168:ASP:HA	1.99	0.44
1:F:244:ILE:HA	1:F:244:ILE:HD13	1.84	0.44
1:D:6:ILE:O	1:D:46:HIS:HA	2.17	0.44
1:E:191:ILE:HB	1:E:202:TYR:HB2	1.99	0.44
1:A:167:LEU:HA	1:A:168:ASP:HA	1.57	0.44
1:D:62:ARG:CB	1:D:62:ARG:HH11	2.31	0.44
1:E:2:MET:HA	1:E:228:ASP:HA	2.00	0.44
1:F:176:LEU:HA	1:F:177:PRO:HD3	1.79	0.44
1:F:227:VAL:HG22	1:F:239:ILE:HG12	2.00	0.44
1:B:293:ASP:OD2	1:B:293:ASP:N	2.51	0.44
1:D:190:ARG:NH2	1:D:243:ASP:OD1	2.51	0.44
1:C:1:MET:SD	1:C:115:VAL:HG21	2.58	0.43
1:B:191:ILE:HB	1:B:202:TYR:HB2	1.99	0.43
1:D:26:TYR:O	1:D:30:LYS:HG3	2.18	0.43
1:D:2:MET:HA	1:D:228:ASP:HA	1.98	0.43
1:B:285:LYS:NZ	1:B:289:ASP:OD1	2.43	0.43
1:C:116:ASN:HA	1:C:117:GLY:HA2	1.54	0.43
1:D:34:LYS:HE2	1:D:38:GLU:OE2	2.18	0.43
1:E:62:ARG:HE	1:E:62:ARG:HB3	1.56	0.43
1:F:120:ILE:HD11	1:F:154:ILE:HD11	2.00	0.43
3:H:19:DC:H2'	3:H:20:DC:C6	2.53	0.43
1:E:208:ILE:HD11	1:E:214:TYR:HD1	1.83	0.43
1:E:7:ALA:HB2	1:E:47:SER:HB2	2.00	0.43
1:C:37:LEU:O	1:C:40:LYS:HG2	2.19	0.43
1:D:10:HIS:CE1	1:D:85:HIS:CD2	3.06	0.43
1:F:250:VAL:HG21	1:F:267:ILE:HG12	2.00	0.43
1:A:89:ARG:NH2	2:G:4:DC:O3'	2.51	0.43
1:E:167:LEU:HA	1:E:168:ASP:HA	1.60	0.43
1:E:274:PRO:HD2	1:E:294:LYS:O	2.18	0.43
1:B:161:ILE:HG22	1:B:163:PRO:HD2	2.01	0.43
1:C:214:TYR:O	1:C:217:TYR:HB3	2.19	0.43
1:A:264:VAL:O	1:A:268:GLU:HG2	2.19	0.43
1:B:190:ARG:NH2	1:B:243:ASP:OD2	2.51	0.43
1:A:-3:ARG:NE	1:F:169:TYR:O	2.51	0.43
1:F:208:ILE:HD13	1:F:214:TYR:HA	2.00	0.43
1:F:77:LYS:HD2	1:F:77:LYS:HA	1.66	0.43
1:E:37:LEU:HD13	1:E:37:LEU:HA	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:241:LYS:HE2	1:F:134:GLU:OE2	2.19	0.42
1:F:255:LYS:HA	1:F:281:LYS:HD2	2.00	0.42
1:A:151:LYS:H	1:A:151:LYS:HG2	1.44	0.42
1:A:97:LEU:HA	1:A:97:LEU:HD23	1.84	0.42
1:B:248:GLU:OE2	1:B:271:LYS:N	2.51	0.42
1:B:132:LYS:N	1:B:132:LYS:HD2	2.35	0.42
1:E:-2:GLY:HA3	1:E:-1:SER:HA	1.57	0.42
2:G:12:DA:H2''	2:G:13:DG:C5'	2.49	0.42
1:E:58:VAL:HG11	1:F:96:PRO:HA	2.01	0.42
1:C:156:MET:HG2	1:C:183:ALA:HB3	2.01	0.42
1:D:108:ASP:OD1	1:D:125:THR:OG1	2.29	0.42
1:D:182:TYR:HB2	1:D:200:LEU:HA	2.02	0.42
1:D:285:LYS:NZ	1:D:289:ASP:OD2	2.53	0.42
1:E:120:ILE:HG13	1:E:152:LYS:O	2.19	0.42
1:F:153:LYS:N	1:F:180:SER:OG	2.49	0.42
1:C:283:GLU:HG2	1:A:94:GLU:HG2	2.01	0.42
1:E:247:ARG:NH1	1:E:273:LYS:O	2.51	0.42
1:D:133:ARG:NH2	1:D:175:ASP:OD2	2.43	0.41
1:A:32:CYS:SG	1:A:244:ILE:HG13	2.61	0.41
1:C:10:HIS:CE1	1:C:85:HIS:CD2	3.08	0.41
1:F:164:TYR:HH	1:F:195:PHE:HD2	1.69	0.41
1:A:120:ILE:HD11	1:A:154:ILE:HD11	2.00	0.41
1:E:118:GLU:OE1	1:E:152:LYS:NZ	2.36	0.41
1:F:7:ALA:HA	1:F:46:HIS:CE1	2.56	0.41
1:B:182:TYR:HB2	1:B:200:LEU:HA	2.01	0.41
1:C:267:ILE:HD13	1:C:295:ILE:HD11	2.01	0.41
1:D:173:HIS:HB2	1:D:195:PHE:CE2	2.55	0.41
1:E:83:GLY:HA2	1:E:158:HIS:CD2	2.55	0.41
1:B:11:LEU:HD12	1:B:11:LEU:HA	1.83	0.41
1:B:303:VAL:HG12	1:B:305:ASP:H	1.86	0.41
1:B:77:LYS:HD2	1:B:78:VAL:H	1.86	0.41
1:F:165:ILE:HA	1:F:166:PRO:HD2	1.88	0.41
1:A:77:LYS:HD2	1:A:77:LYS:HA	1.69	0.41
1:D:10:HIS:CE1	1:D:85:HIS:HD2	2.37	0.41
1:A:162:ASN:HB2	1:A:169:TYR:CD2	2.56	0.41
1:C:196:ASN:HB3	1:C:197:ASP:H	1.53	0.41
1:B:133:ARG:O	1:B:137:LEU:HG	2.21	0.41
1:D:50:LEU:HB3	1:D:86:GLU:OE2	2.20	0.41
1:A:244:ILE:HD13	1:A:244:ILE:HA	1.77	0.41
1:A:50:LEU:N	1:A:86:GLU:OE2	2.53	0.41
1:C:116:ASN:N	1:C:116:ASN:OD1	2.44	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:116:ASN:OD1	1:D:116:ASN:N	2.41	0.41
1:E:301:ILE:H	1:E:301:ILE:HG13	1.73	0.41
1:A:-2:GLY:HA3	1:A:-1:SER:HA	1.86	0.41
1:A:-3:ARG:HB3	1:F:167:LEU:HD12	2.02	0.41
1:B:163:PRO:HG3	1:B:173:HIS:HB3	2.01	0.41
1:C:11:LEU:HD12	1:C:11:LEU:HA	1.76	0.41
1:A:107:LEU:HD13	1:A:124:GLY:N	2.36	0.41
1:F:87:MET:HA	1:F:88:PRO:HD3	1.83	0.41
1:A:219:LYS:HG2	1:A:220:GLU:HG2	2.02	0.40
1:A:54:LEU:O	1:A:96:PRO:HD3	2.21	0.40
1:D:214:TYR:O	1:D:217:TYR:HB3	2.21	0.40
1:E:149:ASN:N	1:E:149:ASN:OD1	2.39	0.40
1:E:154:ILE:HG23	1:E:181:TYR:HB3	2.03	0.40
1:E:77:LYS:HA	1:E:77:LYS:HD2	1.57	0.40
1:B:16:TYR:CD1	1:B:299:LYS:HE3	2.57	0.40
1:B:211:ARG:O	1:B:214:TYR:HB3	2.22	0.40
1:E:292:LYS:HG3	1:E:293:ASP:N	2.35	0.40
1:B:15:GLN:HG2	1:B:16:TYR:CD2	2.56	0.40
1:D:170:GLU:O	1:D:171:LEU:HD23	2.21	0.40
1:A:121:PHE:CE2	1:A:147:ALA:HB2	2.56	0.40
1:E:191:ILE:O	1:E:201:ALA:HA	2.20	0.40
1:A:157:LEU:HB2	1:A:184:LEU:HD22	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	315/337 (94%)	299 (95%)	14 (4%)	2 (1%)	28	70
1	B	304/337 (90%)	290 (95%)	12 (4%)	2 (1%)	25	68
1	C	311/337 (92%)	293 (94%)	16 (5%)	2 (1%)	28	70

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	D	305/337 (90%)	290 (95%)	13 (4%)	2 (1%)	25	68
1	E	312/337 (93%)	295 (95%)	15 (5%)	2 (1%)	28	70
1	F	303/337 (90%)	289 (95%)	13 (4%)	1 (0%)	44	80
All	All	1850/2022 (92%)	1756 (95%)	83 (4%)	11 (1%)	28	70

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	186	HIS
1	E	309	ASP
1	C	166	PRO
1	B	186	HIS
1	C	213	GLU
1	A	213	GLU
1	A	166	PRO
1	B	166	PRO
1	D	166	PRO
1	E	166	PRO
1	F	301	ILE

### 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	290/308 (94%)	258 (89%)	32 (11%)	7	36
1	B	280/308 (91%)	246 (88%)	34 (12%)	6	30
1	C	286/308 (93%)	249 (87%)	37 (13%)	5	28
1	D	281/308 (91%)	248 (88%)	33 (12%)	6	33
1	E	286/308 (93%)	255 (89%)	31 (11%)	7	37
1	F	279/308 (91%)	249 (89%)	30 (11%)	7	37
All	All	1702/1848 (92%)	1505 (88%)	197 (12%)	6	33

All (197) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	8	ASP
1	C	11	LEU
1	C	31	LEU
1	C	37	LEU
1	C	53	ASP
1	C	62	ARG
1	C	81	VAL
1	C	84	ASN
1	C	120	ILE
1	C	131	SER
1	C	135	GLU
1	C	142	ASN
1	C	149	ASN
1	C	173	HIS
1	C	176	LEU
1	C	180	SER
1	C	190	ARG
1	C	196	ASN
1	C	203	SER
1	C	207	GLU
1	C	211	ARG
1	C	214	TYR
1	C	218	LYS
1	C	228	ASP
1	C	229	PHE
1	C	233	ASP
1	C	234	LEU
1	C	238	ASP
1	C	244	ILE
1	C	248	GLU
1	C	250	VAL
1	C	283	GLU
1	C	287	TRP
1	C	293	ASP
1	C	294	LYS
1	C	295	ILE
1	C	308	ILE
1	A	1	MET
1	A	11	LEU
1	A	31	LEU
1	A	37	LEU
1	A	77	LYS
1	A	81	VAL

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Mol	Chain	Res	Type
1	A	84	ASN
1	A	89	ARG
1	A	116	ASN
1	A	130	LYS
1	A	131	SER
1	A	135	GLU
1	A	149	ASN
1	A	151	LYS
1	A	173	HIS
1	A	176	LEU
1	A	180	SER
1	A	190	ARG
1	A	203	SER
1	A	207	GLU
1	A	211	ARG
1	A	215	GLU
1	A	218	LYS
1	A	229	PHE
1	A	234	LEU
1	A	238	ASP
1	A	244	ILE
1	A	248	GLU
1	A	283	GLU
1	A	287	TRP
1	A	294	LYS
1	A	295	ILE
1	B	1	MET
1	B	8	ASP
1	B	11	LEU
1	B	18	LEU
1	B	31	LEU
1	B	37	LEU
1	B	62	ARG
1	B	77	LYS
1	B	84	ASN
1	B	118	GLU
1	B	122	ILE
1	B	128	HIS
1	B	130	LYS
1	B	131	SER
1	B	135	GLU
1	B	149	ASN

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Mol	Chain	Res	Type
1	B	151	LYS
1	B	176	LEU
1	B	180	SER
1	B	190	ARG
1	B	196	ASN
1	B	203	SER
1	B	207	GLU
1	B	211	ARG
1	B	214	TYR
1	B	218	LYS
1	B	228	ASP
1	B	229	PHE
1	B	234	LEU
1	B	238	ASP
1	B	248	GLU
1	B	287	TRP
1	B	294	LYS
1	B	295	ILE
1	D	1	MET
1	D	11	LEU
1	D	37	LEU
1	D	53	ASP
1	D	56	PRO
1	D	62	ARG
1	D	77	LYS
1	D	84	ASN
1	D	120	ILE
1	D	122	ILE
1	D	130	LYS
1	D	131	SER
1	D	135	GLU
1	D	149	ASN
1	D	151	LYS
1	D	173	HIS
1	D	176	LEU
1	D	180	SER
1	D	190	ARG
1	D	203	SER
1	D	207	GLU
1	D	211	ARG
1	D	212	ASN
1	D	214	TYR

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Mol	Chain	Res	Type
1	D	215	GLU
1	D	228	ASP
1	D	229	PHE
1	D	234	LEU
1	D	238	ASP
1	D	248	GLU
1	D	283	GLU
1	D	287	TRP
1	D	295	ILE
1	E	1	MET
1	E	8	ASP
1	E	11	LEU
1	E	31	LEU
1	E	37	LEU
1	E	62	ARG
1	E	77	LYS
1	E	84	ASN
1	E	122	ILE
1	E	131	SER
1	E	135	GLU
1	E	149	ASN
1	E	151	LYS
1	E	176	LEU
1	E	180	SER
1	E	190	ARG
1	E	196	ASN
1	E	203	SER
1	E	207	GLU
1	E	211	ARG
1	E	212	ASN
1	E	228	ASP
1	E	229	PHE
1	E	233	ASP
1	E	234	LEU
1	E	238	ASP
1	E	248	GLU
1	E	250	VAL
1	E	283	GLU
1	E	287	TRP
1	E	309	ASP
1	F	8	ASP
1	F	11	LEU

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Mol	Chain	Res	Type
1	F	31	LEU
1	F	37	LEU
1	F	53	ASP
1	F	81	VAL
1	F	84	ASN
1	F	122	ILE
1	F	130	LYS
1	F	131	SER
1	F	149	ASN
1	F	151	LYS
1	F	173	HIS
1	F	176	LEU
1	F	180	SER
1	F	190	ARG
1	F	196	ASN
1	F	203	SER
1	F	207	GLU
1	F	211	ARG
1	F	215	GLU
1	F	229	PHE
1	F	233	ASP
1	F	234	LEU
1	F	238	ASP
1	F	248	GLU
1	F	250	VAL
1	F	269	ARG
1	F	283	GLU
1	F	294	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	85	HIS
1	A	5	HIS
1	A	196	ASN
1	B	74	ASN
1	B	253	ASN
1	D	85	HIS
1	D	128	HIS
1	D	159	GLN
1	E	159	GLN
1	F	128	HIS

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Mol	Chain	Res	Type
1	F	159	GLN

### 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 carbohydrates in this entry.

### 5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 12 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 [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<sup>th</sup> 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 <sup>2</sup> )	Q < 0.9
1	A	317/337 (94%)	-0.17	9 (2%)	53	41	70, 114, 179, 243	0
1	B	306/337 (90%)	-0.04	12 (3%)	40	30	66, 130, 208, 285	0
1	C	313/337 (92%)	-0.20	2 (0%)	89	82	78, 114, 178, 221	0
1	D	307/337 (91%)	0.08	11 (3%)	43	33	78, 129, 232, 306	0
1	E	314/337 (93%)	-0.20	7 (2%)	62	49	79, 129, 208, 267	0
1	F	305/337 (90%)	0.36	33 (10%)	6	6	103, 191, 279, 339	0
2	G	14/14 (100%)	0.15	0	100	100	131, 184, 233, 233	0
3	H	15/15 (100%)	0.29	0	100	100	134, 174, 222, 393	0
All	All	1891/2051 (92%)	-0.03	74 (3%)	40	30	66, 132, 240, 393	0

All (74) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	211	ARG	6.2
1	F	253	ASN	6.1
1	D	278	GLY	5.7
1	F	279	LYS	5.3
1	F	296	LEU	5.2
1	F	301	ILE	4.8
1	D	301	ILE	4.3
1	B	279	LYS	4.0
1	A	-2	GLY	4.0
1	E	232	ASN	3.9
1	F	280	ILE	3.7
1	F	303	VAL	3.6
1	B	253	ASN	3.5
1	F	41	PRO	3.5
1	F	298	ASN	3.4
1	A	313	ASN	3.4

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Mol	Chain	Res	Type	RSRZ
1	F	290	THR	3.3
1	B	283	GLU	3.2
1	E	229	PHE	3.2
1	D	257	LYS	3.1
1	F	20	ASP	3.1
1	F	152	LYS	3.0
1	A	232	ASN	3.0
1	D	306	GLU	3.0
1	B	252	VAL	2.9
1	F	252	VAL	2.9
1	F	276	VAL	2.9
1	E	91	LEU	2.9
1	F	42	ASP	2.9
1	E	92	GLY	2.9
1	B	167	LEU	2.9
1	F	287	TRP	2.8
1	F	295	ILE	2.7
1	E	233	ASP	2.7
1	F	267	ILE	2.7
1	F	17	ASN	2.7
1	D	280	ILE	2.6
1	A	-1	SER	2.6
1	B	280	ILE	2.5
1	B	303	VAL	2.5
1	B	119	GLU	2.5
1	E	1	MET	2.5
1	B	302	ILE	2.5
1	F	-1	SER	2.5
1	C	116	ASN	2.5
1	D	288	PHE	2.5
1	B	214	TYR	2.4
1	D	303	VAL	2.4
1	F	153	LYS	2.4
1	F	250	VAL	2.4
1	F	299	LYS	2.4
1	F	208	ILE	2.4
1	F	268	GLU	2.4
1	F	302	ILE	2.3
1	A	233	ASP	2.3
1	F	16	TYR	2.3
1	A	118	GLU	2.3
1	D	302	ILE	2.3

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Mol	Chain	Res	Type	RSRZ
1	F	262	GLU	2.3
1	F	251	GLU	2.2
1	B	278	GLY	2.2
1	B	304	ASP	2.2
1	F	0	HIS	2.2
1	C	148	LYS	2.2
1	F	2	MET	2.2
1	A	211	ARG	2.1
1	F	291	LEU	2.1
1	D	293	ASP	2.1
1	F	18	LEU	2.1
1	E	114	ASN	2.1
1	D	152	LYS	2.0
1	D	229	PHE	2.0
1	A	152	LYS	2.0
1	A	114	ASN	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 carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> 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	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
4	MG	B	401	1/1	0.93	0.36	2.76	57,57,57,57	0
4	MG	D	402	1/1	0.99	0.24	2.22	61,61,61,61	0
4	MG	D	401	1/1	0.99	0.24	2.10	45,45,45,45	0
4	MG	B	402	1/1	0.95	0.33	1.60	77,77,77,77	0
4	MG	E	402	1/1	0.98	0.23	1.49	102,102,102,102	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
4	MG	A	402	1/1	0.98	0.28	1.43	55,55,55,55	0
4	MG	A	401	1/1	0.98	0.28	1.33	54,54,54,54	0
4	MG	F	401	1/1	0.92	0.20	1.18	77,77,77,77	0
4	MG	F	402	1/1	0.95	0.20	0.96	121,121,121,121	0
4	MG	C	401	1/1	0.98	0.24	0.81	50,50,50,50	0
4	MG	C	402	1/1	0.98	0.18	-0.32	77,77,77,77	0
4	MG	E	401	1/1	0.99	0.20	-	70,70,70,70	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.