



# wwPDB X-ray Structure Validation Summary Report ⓘ

May 25, 2020 – 11:35 pm BST

PDB ID : 2C57  
Title : H.pylori type II dehydroquinase in complex with FA1  
Authors : Robinson, D.A.; Lapthorn, A.J.  
Deposited on : 2005-10-26  
Resolution : 3.10 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](mailto: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.

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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  
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

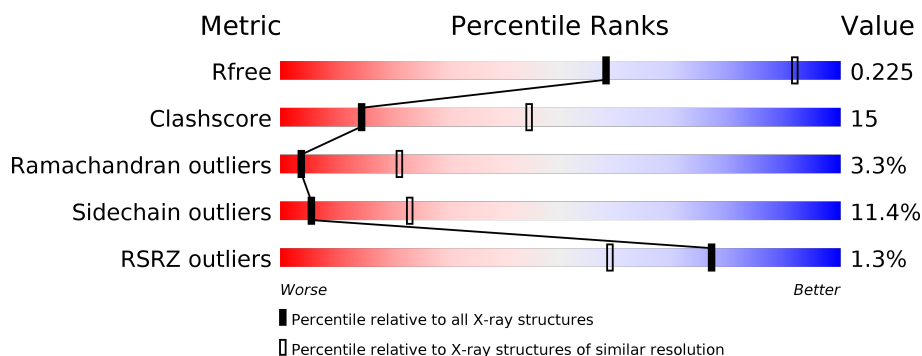
# 1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.10 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	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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 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	180	<div> <div>2%</div> <div> <div>54%</div> <div>29%</div> <div>7%</div> <div>9%</div> </div> </div>
1	B	180	<div> <div>%</div> <div> <div>52%</div> <div>26%</div> <div>7%</div> <div>15%</div> </div> </div>
1	C	180	<div> <div>%</div> <div> <div>56%</div> <div>24%</div> <div>5%</div> <div>15%</div> </div> </div>
1	D	180	<div> <div>2%</div> <div> <div>51%</div> <div>31%</div> <div>9%</div> <div>9%</div> </div> </div>
1	E	180	<div> <div>%</div> <div> <div>53%</div> <div>26%</div> <div>6%</div> <div>15%</div> </div> </div>
1	F	180	<div> <div>%</div> <div> <div>58%</div> <div>21%</div> <div>6%</div> <div>15%</div> </div> </div>

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Mol	Chain	Length	Quality of chain
1	G	180	<div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>2%</div><div>53%</div><div>31%</div><div>7%</div><div>9%</div></div></div>
1	H	180	<div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>2%</div><div>52%</div><div>25%</div><div>8%</div><div>15%</div></div></div>
1	I	180	<div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>%</div><div>54%</div><div>26%</div><div></div><div>15%</div></div></div>
1	J	180	<div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>2%</div><div>54%</div><div>28%</div><div>8%</div><div>9%</div></div></div>
1	K	180	<div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>%</div><div>51%</div><div>27%</div><div>7%</div><div>15%</div></div></div>
1	L	180	<div><div><div></div><div></div><div></div><div></div><div></div></div><div><div>%</div><div>55%</div><div>23%</div><div>6%</div><div>15%</div></div></div>

## 2 Entry composition

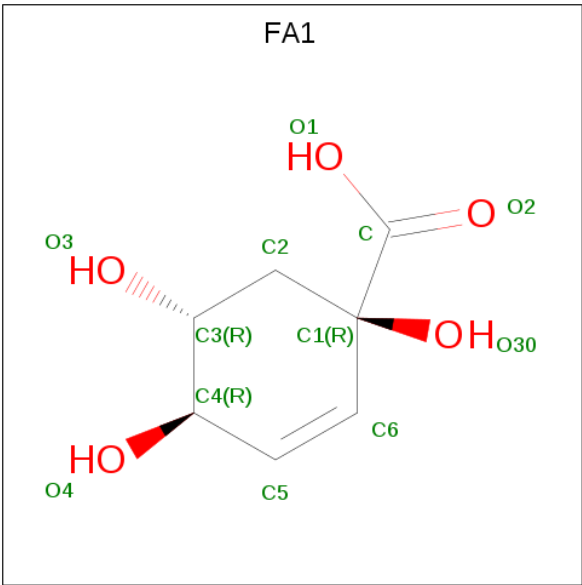
There are 2 unique types of molecules in this entry. The entry contains 14368 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 3-DEHYDROQUINATE DEHYDRATASE.

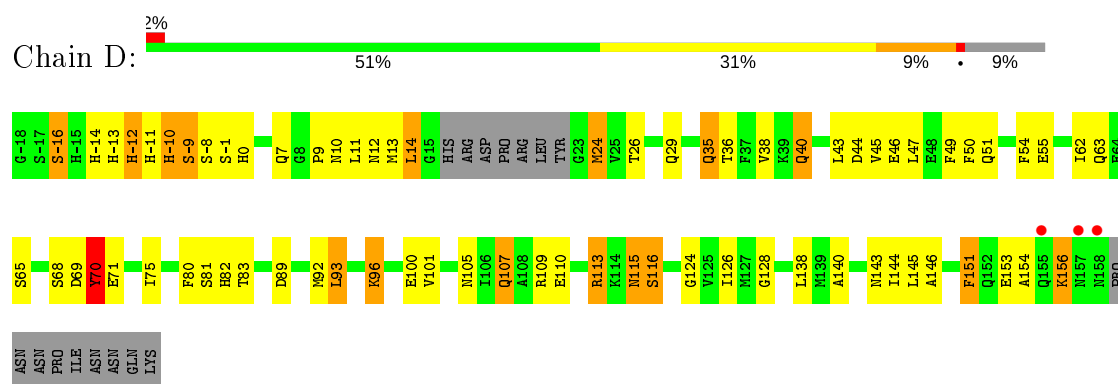
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	164	Total	C	N	O	S	0	0	0
			1250	787	215	237	11			
1	B	153	Total	C	N	O	S	0	0	0
			1153	732	190	221	10			
1	C	153	Total	C	N	O	S	0	0	0
			1153	732	190	221	10			
1	D	164	Total	C	N	O	S	0	0	0
			1250	787	215	237	11			
1	E	153	Total	C	N	O	S	0	0	0
			1153	732	190	221	10			
1	F	153	Total	C	N	O	S	0	0	0
			1153	732	190	221	10			
1	G	164	Total	C	N	O	S	0	0	0
			1250	787	215	237	11			
1	H	153	Total	C	N	O	S	0	0	0
			1153	732	190	221	10			
1	I	153	Total	C	N	O	S	0	0	0
			1153	732	190	221	10			
1	J	164	Total	C	N	O	S	0	0	0
			1250	787	215	237	11			
1	K	153	Total	C	N	O	S	0	0	0
			1153	732	190	221	10			
1	L	153	Total	C	N	O	S	0	0	0
			1153	732	190	221	10			

- Molecule 2 is 2,3 -ANHYDRO-QUINIC ACID (three-letter code: FA1) (formula: C<sub>7</sub>H<sub>10</sub>O<sub>5</sub>).

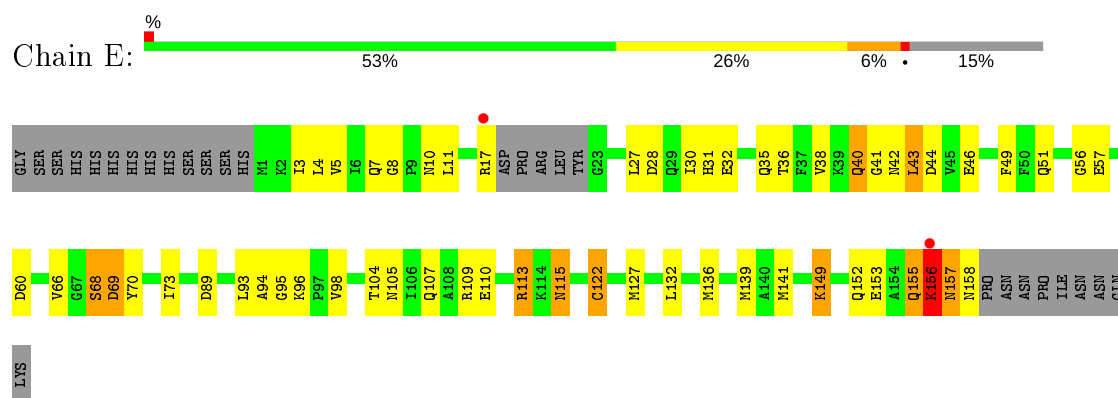


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			12	7	5		
2	B	1	Total	C	O	0	0
			12	7	5		
2	C	1	Total	C	O	0	0
			12	7	5		
2	D	1	Total	C	O	0	0
			12	7	5		
2	E	1	Total	C	O	0	0
			12	7	5		
2	F	1	Total	C	O	0	0
			12	7	5		
2	G	1	Total	C	O	0	0
			12	7	5		
2	H	1	Total	C	O	0	0
			12	7	5		
2	I	1	Total	C	O	0	0
			12	7	5		
2	J	1	Total	C	O	0	0
			12	7	5		
2	K	1	Total	C	O	0	0
			12	7	5		
2	L	1	Total	C	O	0	0
			12	7	5		

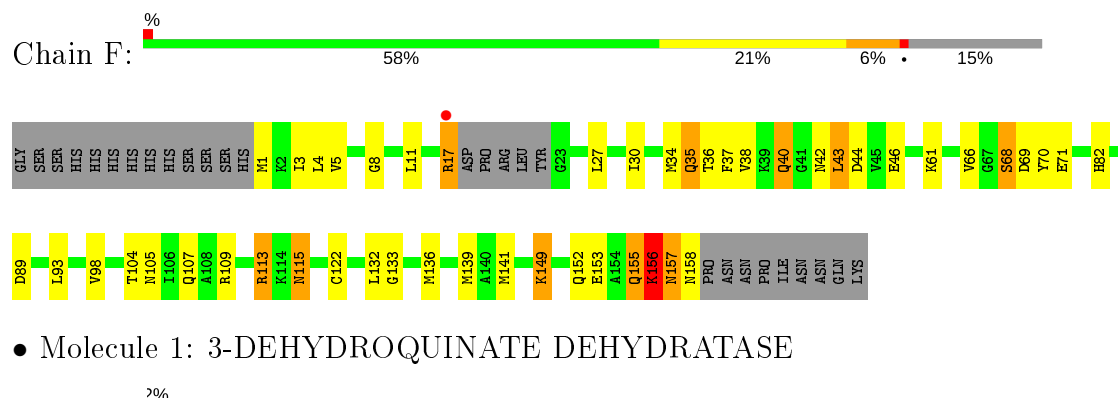




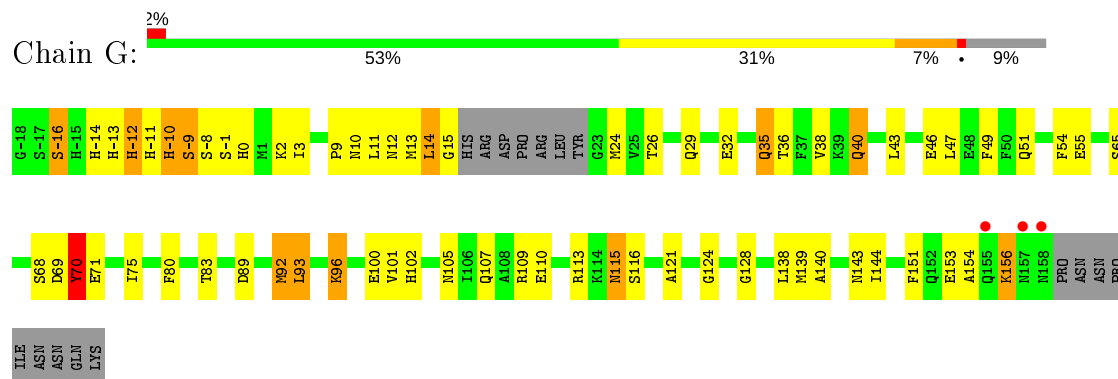
- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE



- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE



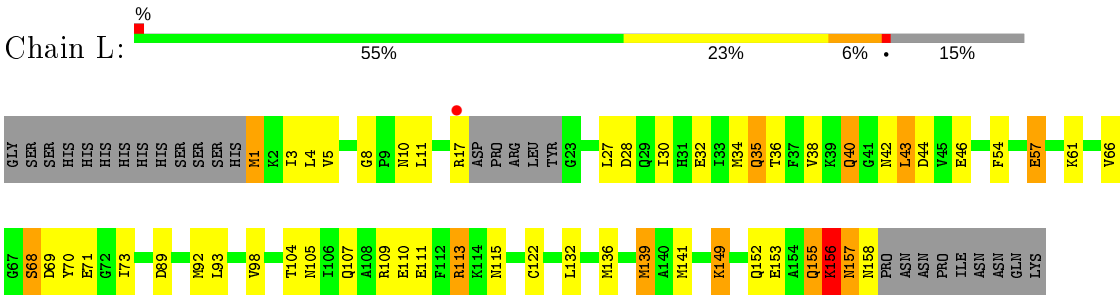
- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE



- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE







## 4 Data and refinement statistics

Property	Value	Source
Space group	P 31	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	103.86Å 103.86Å 217.53Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	25.00 – 3.10 24.95 – 3.10	Depositor EDS
% Data completeness (in resolution range)	83.8 (25.00-3.10) 83.8 (24.95-3.10)	Depositor EDS
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.44 (at 3.11Å)	Xtriage
Refinement program	REFMAC 5.2.0005	Depositor
R, $R_{free}$	0.207 , 0.237 0.195 , 0.225	Depositor DCC
$R_{free}$ test set	3968 reflections (9.96%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	63.9	Xtriage
Anisotropy	0.020	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.28 , 60.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.459 for -h,-k,l 0.468 for h,-h-k,-l 0.460 for -k,-h,-l	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	14368	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	61.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.99% 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: FA1

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	1.22	2/1272 (0.2%)	1.09	2/1713 (0.1%)
1	B	1.13	5/1169 (0.4%)	1.05	3/1577 (0.2%)
1	C	1.00	3/1169 (0.3%)	1.00	2/1577 (0.1%)
1	D	1.22	6/1272 (0.5%)	1.14	5/1713 (0.3%)
1	E	1.09	4/1169 (0.3%)	1.05	4/1577 (0.3%)
1	F	1.01	3/1169 (0.3%)	0.99	3/1577 (0.2%)
1	G	1.19	6/1272 (0.5%)	1.08	6/1713 (0.4%)
1	H	1.12	3/1169 (0.3%)	1.07	5/1577 (0.3%)
1	I	1.01	2/1169 (0.2%)	1.00	4/1577 (0.3%)
1	J	1.20	6/1272 (0.5%)	1.08	2/1713 (0.1%)
1	K	1.08	2/1169 (0.2%)	1.05	4/1577 (0.3%)
1	L	1.00	3/1169 (0.3%)	0.99	5/1577 (0.3%)
All	All	1.11	45/14440 (0.3%)	1.05	45/19468 (0.2%)

The worst 5 of 45 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	122	CYS	CB-SG	-9.38	1.66	1.82
1	D	115	ASN	CB-CG	7.10	1.67	1.51
1	D	55	GLU	CD-OE2	7.05	1.33	1.25
1	B	46	GLU	CG-CD	6.92	1.62	1.51
1	E	46	GLU	CG-CD	6.71	1.62	1.51

The worst 5 of 45 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	J	92	MET	CG-SD-CE	10.10	116.37	100.20
1	D	92	MET	CG-SD-CE	9.90	116.04	100.20
1	E	44	ASP	CB-CG-OD1	8.97	126.38	118.30
1	H	44	ASP	CB-CG-OD1	8.82	126.24	118.30
1	B	44	ASP	CB-CG-OD1	8.32	125.78	118.30

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	1250	0	1214	49	1
1	B	1153	0	1132	38	0
1	C	1153	0	1132	30	0
1	D	1250	0	1214	49	0
1	E	1153	0	1132	33	0
1	F	1153	0	1132	28	0
1	G	1250	0	1214	45	0
1	H	1153	0	1132	39	0
1	I	1153	0	1132	33	0
1	J	1250	0	1214	47	1
1	K	1153	0	1132	40	0
1	L	1153	0	1132	32	0
2	A	12	0	9	0	0
2	B	12	0	9	1	0
2	C	12	0	9	1	0
2	D	12	0	9	0	0
2	E	12	0	9	1	0
2	F	12	0	9	1	0
2	G	12	0	9	0	0
2	H	12	0	9	1	0
2	I	12	0	9	1	0
2	J	12	0	9	0	0
2	K	12	0	9	1	0
2	L	12	0	9	1	0
All	All	14368	0	14020	438	1

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 438 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:152:GLN:O	1:B:156:LYS:HG2	1.72	0.90
1:F:152:GLN:O	1:F:156:LYS:HG2	1.73	0.89
1:H:152:GLN:O	1:H:156:LYS:HG2	1.73	0.88
1:E:152:GLN:O	1:E:156:LYS:HG2	1.74	0.87
1:L:152:GLN:O	1:L:156:LYS:HG2	1.73	0.87

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:-15:HIS:ND1	1:J:-17:SER:OG[3_554]	2.16	0.04

## 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	158/180 (88%)	131 (83%)	23 (15%)	4 (2%)	5	27
1	B	149/180 (83%)	132 (89%)	11 (7%)	6 (4%)	3	17
1	C	149/180 (83%)	133 (89%)	12 (8%)	4 (3%)	5	25
1	D	158/180 (88%)	132 (84%)	22 (14%)	4 (2%)	5	27
1	E	149/180 (83%)	132 (89%)	11 (7%)	6 (4%)	3	17
1	F	149/180 (83%)	135 (91%)	10 (7%)	4 (3%)	5	25
1	G	158/180 (88%)	133 (84%)	21 (13%)	4 (2%)	5	27
1	H	149/180 (83%)	134 (90%)	8 (5%)	7 (5%)	2	14
1	I	149/180 (83%)	134 (90%)	10 (7%)	5 (3%)	3	21
1	J	158/180 (88%)	137 (87%)	17 (11%)	4 (2%)	5	27
1	K	149/180 (83%)	132 (89%)	10 (7%)	7 (5%)	2	14
1	L	149/180 (83%)	134 (90%)	10 (7%)	5 (3%)	3	21
All	All	1824/2160 (84%)	1599 (88%)	165 (9%)	60 (3%)	4	21

5 of 60 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	-12	HIS
1	A	68	SER
1	B	66	VAL
1	B	68	SER
1	B	69	ASP

### 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	133/151 (88%)	116 (87%)	17 (13%)	4	18
1	B	120/151 (80%)	108 (90%)	12 (10%)	7	28
1	C	120/151 (80%)	107 (89%)	13 (11%)	6	25
1	D	133/151 (88%)	115 (86%)	18 (14%)	4	16
1	E	120/151 (80%)	108 (90%)	12 (10%)	7	28
1	F	120/151 (80%)	108 (90%)	12 (10%)	7	28
1	G	133/151 (88%)	115 (86%)	18 (14%)	4	16
1	H	120/151 (80%)	107 (89%)	13 (11%)	6	25
1	I	120/151 (80%)	108 (90%)	12 (10%)	7	28
1	J	133/151 (88%)	115 (86%)	18 (14%)	4	16
1	K	120/151 (80%)	108 (90%)	12 (10%)	7	28
1	L	120/151 (80%)	107 (89%)	13 (11%)	6	25
All	All	1492/1812 (82%)	1322 (89%)	170 (11%)	5	23

5 of 170 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F	61	LYS
1	G	93	LEU
1	L	1	MET
1	F	139	MET

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Mol	Chain	Res	Type
1	G	-1	SER

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 18 such sidechains are listed below:

Mol	Chain	Res	Type
1	F	35	GLN
1	G	-11	HIS
1	J	-11	HIS
1	D	143	ASN
1	E	35	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](#)

12 ligands are modelled in this entry.

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
2	FA1	B	1159	-	7,12,12	2.10	3 (42%)	7,18,18	2.39	4 (57%)
2	FA1	K	1159	-	7,12,12	1.58	2 (28%)	7,18,18	2.86	5 (71%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	FA1	I	1159	-	7,12,12	1.28	1 (14%)	7,18,18	1.46	0
2	FA1	D	1159	-	7,12,12	2.21	2 (28%)	7,18,18	2.06	2 (28%)
2	FA1	J	1159	-	7,12,12	0.78	0	7,18,18	1.57	1 (14%)
2	FA1	F	1159	-	7,12,12	1.45	2 (28%)	7,18,18	1.27	1 (14%)
2	FA1	L	1159	-	7,12,12	0.99	0	7,18,18	1.28	1 (14%)
2	FA1	H	1159	-	7,12,12	1.53	1 (14%)	7,18,18	2.40	4 (57%)
2	FA1	G	1159	-	7,12,12	1.27	1 (14%)	7,18,18	2.29	1 (14%)
2	FA1	E	1159	-	7,12,12	1.79	3 (42%)	7,18,18	3.01	4 (57%)
2	FA1	C	1159	-	7,12,12	1.03	1 (14%)	7,18,18	1.70	1 (14%)
2	FA1	A	1159	-	7,12,12	0.98	0	7,18,18	2.24	3 (42%)

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
2	FA1	B	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	K	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	I	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	D	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	J	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	F	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	L	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	H	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	G	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	E	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	C	1159	-	-	0/0/21/21	0/1/1/1
2	FA1	A	1159	-	-	0/0/21/21	0/1/1/1

The worst 5 of 16 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	1159	FA1	C1-C6	4.04	1.54	1.50
2	D	1159	FA1	O30-C1	3.84	1.49	1.43
2	B	1159	FA1	C1-C6	3.63	1.54	1.50
2	H	1159	FA1	C1-C6	2.83	1.53	1.50
2	E	1159	FA1	C2-C3	2.80	1.57	1.53

The worst 5 of 27 bond angle outliers are listed below:



Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	1159	FA1	O4-C4-C3	-5.23	100.34	109.42
2	E	1159	FA1	C3-C4-C5	5.21	119.35	111.65
2	A	1159	FA1	O4-C4-C3	-4.68	101.31	109.42
2	K	1159	FA1	O4-C4-C3	-4.24	102.06	109.42
2	K	1159	FA1	C2-C3-C4	-4.11	105.19	111.40

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

8 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	1159	FA1	1	0
2	K	1159	FA1	1	0
2	I	1159	FA1	1	0
2	F	1159	FA1	1	0
2	L	1159	FA1	1	0
2	H	1159	FA1	1	0
2	E	1159	FA1	1	0
2	C	1159	FA1	1	0

## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	G	1
1	J	1
1	A	1
1	D	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	G	-8:SER	C	-1:SER	N	11.86
1	J	-8:SER	C	-1:SER	N	11.84

*Continued on next page...*

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	-8:SER	C	-1:SER	N	11.83
1	D	-8:SER	C	-1:SER	N	11.80

## 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, 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	164/180 (91%)	-0.37	3 (1%) 68 47	60, 61, 62, 63	0
1	B	153/180 (85%)	-0.47	2 (1%) 77 59	60, 61, 62, 62	0
1	C	153/180 (85%)	-0.42	1 (0%) 87 75	60, 61, 62, 62	0
1	D	164/180 (91%)	-0.35	3 (1%) 68 47	60, 61, 62, 63	0
1	E	153/180 (85%)	-0.47	2 (1%) 77 59	61, 61, 62, 62	0
1	F	153/180 (85%)	-0.41	1 (0%) 87 75	60, 61, 62, 62	0
1	G	164/180 (91%)	-0.37	3 (1%) 68 47	60, 61, 62, 63	0
1	H	153/180 (85%)	-0.47	3 (1%) 65 44	60, 61, 62, 62	0
1	I	153/180 (85%)	-0.41	1 (0%) 87 75	60, 61, 62, 62	0
1	J	164/180 (91%)	-0.38	3 (1%) 68 47	59, 61, 62, 63	0
1	K	153/180 (85%)	-0.46	1 (0%) 87 75	60, 61, 62, 62	0
1	L	153/180 (85%)	-0.40	1 (0%) 87 75	60, 61, 62, 62	0
All	All	1880/2160 (87%)	-0.41	24 (1%) 77 59	59, 61, 62, 63	0

The worst 5 of 24 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	158	ASN	5.1
1	D	158	ASN	5.0
1	A	158	ASN	4.6
1	G	155	GLN	4.3
1	K	17	ARG	3.9

### 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. 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	B-factors( $\text{\AA}^2$ )	Q<0.9
2	FA1	B	1159	12/12	0.96	0.22	60,61,62,64	0
2	FA1	L	1159	12/12	0.96	0.19	61,61,62,63	0
2	FA1	E	1159	12/12	0.96	0.24	60,61,62,64	0
2	FA1	D	1159	12/12	0.97	0.17	60,61,62,62	0
2	FA1	J	1159	12/12	0.97	0.18	60,61,62,63	0
2	FA1	F	1159	12/12	0.97	0.17	61,61,62,63	0
2	FA1	K	1159	12/12	0.97	0.23	60,61,62,64	0
2	FA1	H	1159	12/12	0.97	0.22	61,61,62,63	0
2	FA1	I	1159	12/12	0.97	0.17	60,61,62,63	0
2	FA1	C	1159	12/12	0.97	0.20	60,61,62,63	0
2	FA1	G	1159	12/12	0.98	0.20	60,61,62,62	0
2	FA1	A	1159	12/12	0.98	0.20	60,61,62,62	0

### 6.5 Other polymers [i](#)

There are no such residues in this entry.