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

wwPDB X-ray Structure Validation Summary Report ⓘ

Dec 3, 2023 – 08:14 am GMT

PDB ID	:	1V1J
Title	:	Crystal structure of type II Dehydroquintae Dehydratase from Streptomyces coelicolor in complex with 3-fluoro
Authors	:	Roszak, A.W.; Coggins, J.R.; Lapthorn, A.J.
Deposited on	:	2004-04-16
Resolution	:	2.20 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 ⓘ 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:

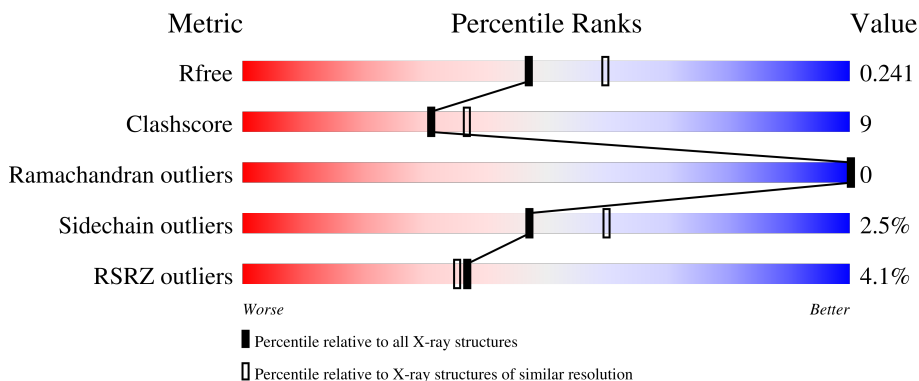|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance ⓘ

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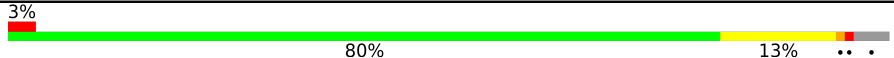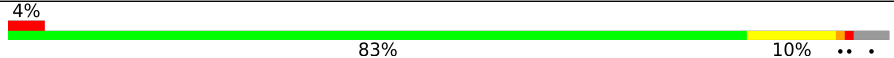*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.20 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.
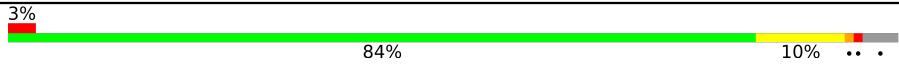
Metric	Percentile Ranks	Value
Rfree		0.241
Clashscore		9
Ramachandran outliers		0
Sidechain outliers		2.5%
RSRZ outliers		4.1%

Worse .... *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
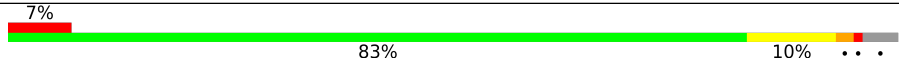
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4898 (2.20-2.20)
Clashscore	141614	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)
RSRZ outliers	127900	4800 (2.20-2.20)

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

Mol	Chain	Length	Quality of chain
1	A	157	3% / 80% / 13% ·· ·
1	B	157	4% / 83% / 10% ·· ·
1	C	157	6% / 81% / 13% ·· ·
1	D	157	3% / 81% / 13% ·· ·
1	E	157	3% / 81% / 13% ·· ·

Continued on next page...

Continued from previous page...

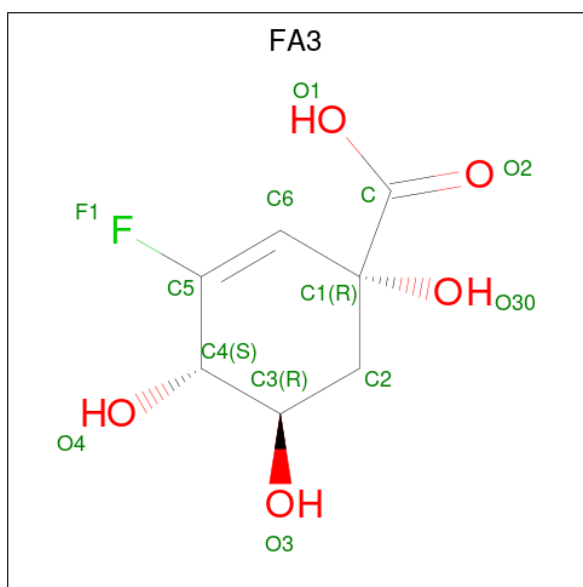| Mol	Chain	Length	Quality of chain
1	F	157	3% 84% 10%
1	G	157	4% 84% 10%
1	H	157	3% 83% 11%
1	I	157	2% 82% 13%
1	J	157	8% 80% 15%
1	K	157	3% 82% 12%
1	L	157	7% 83% 10%

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 14496 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	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	B	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	C	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	D	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	E	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	F	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	G	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	H	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	I	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	J	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	K	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0
1	L	150	Total 1134	C 706	N 212	O 211	S 5	0	2	0

- Molecule 2 is 2-ANHYDRO-3-FLUORO-QUINIC ACID (three-letter code: FA3) (formula: $C_7H_9FO_5$).

FA3

O1
HO

C6　　C　　O O2

F1 F

C5　　C1(R)　　OH O30

C4(S)
C3(R)　　C2

HO

O4

OH

O3

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total 13	C 7	F 1	O 5	0	0
2	B	1	Total 13	C 7	F 1	O 5	0	0
2	C	1	Total 13	C 7	F 1	O 5	0	0
2	D	1	Total 13	C 7	F 1	O 5	0	0
2	E	1	Total 13	C 7	F 1	O 5	0	0
2	F	1	Total 13	C 7	F 1	O 5	0	0
2	G	1	Total 13	C 7	F 1	O 5	0	0
2	H	1	Total 13	C 7	F 1	O 5	0	0
2	I	1	Total 13	C 7	F 1	O 5	0	0
2	J	1	Total 13	C 7	F 1	O 5	0	0
2	K	1	Total 13	C 7	F 1	O 5	0	0
2	L	1	Total 13	C 7	F 1	O 5	0	0

- Molecule 3 is 2-AMINO-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (three-letter code: TRS) (formula: $C_4H_{12}NO_3$).
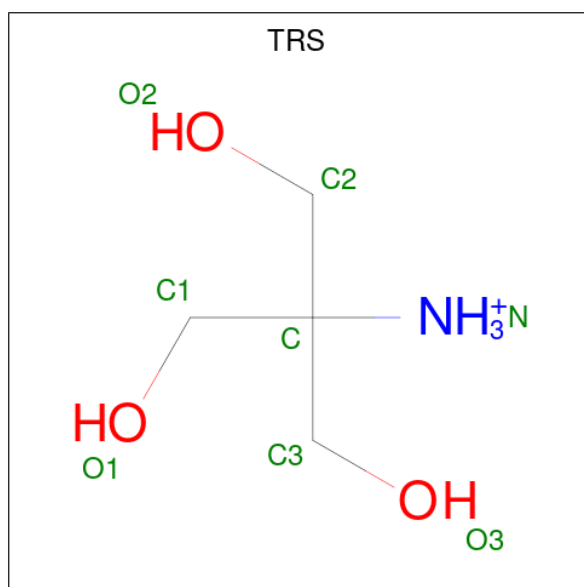
TRS

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 8	C 4	N 1	O 3	0	0
3	E	1	Total 8	C 4	N 1	O 3	0	0
3	I	1	Total 8	C 4	N 1	O 3	0	0
3	K	1	Total 8	C 4	N 1	O 3	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	58	Total 58	O 58	0	0
4	B	58	Total 58	O 58	0	0
4	C	58	Total 58	O 58	0	0
4	D	61	Total 61	O 61	0	0
4	E	54	Total 54	O 54	0	0
4	F	59	Total 59	O 59	0	0
4	G	58	Total 58	O 58	0	0
4	H	56	Total 56	O 56	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	I	63	Total 63	O 63	0	0
4	J	59	Total 59	O 59	0	0
4	K	56	Total 56	O 56	0	0
4	L	60	Total 60	O 60	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electro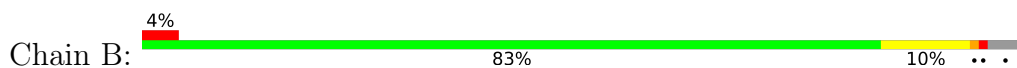n density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive 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: 3-DEHYDROQUINATE DEHYDRATASE

Chain A:

- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain B:

- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

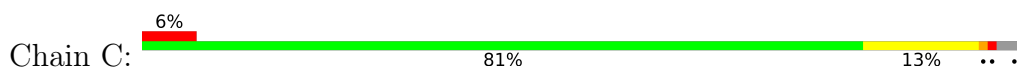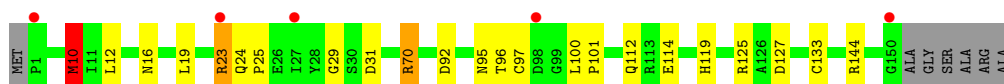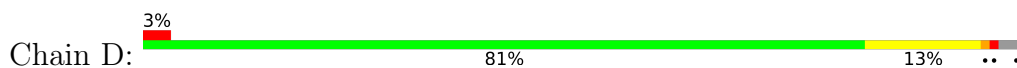Chain C:

- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain D:

- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain E:

- Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain F:

3%

84%

10%

MET P1 R2 N6 M10 I11 L12 N16 L19 R23 Q24 P25 G29 D35 D52 R70 N95 T96 C97 D98 R125 R144 G150 ALA GLY SER ALA ARG ALA

• Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain G:

4%

84%

10%

MET P1 M10 N16 L19 R23 Q24 P25 E26 G29 D35 R70 D92 T96 C97 D98 G99 L100 P101 H111 D127 R144 G150 ALA GLY SER ALA ARG ALA

• Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain H:

3%

83%

11%

MET P1 M10 I11 L12 N16 L19 R23 Q24 P25 E26 G29 S30 D31 D35 R70 D92 N95 T96 C97 R125 A126 D127 E143 R144 G150 ALA GLY SER ALA ARG ALA

• Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain I:

2%

82%

13%

MET P1 M10 N16 L19 R23 Q24 P25 G29 S30 D31 D35 R70 D92 N95 T96 L100 P101 Q112 R113 E114 P115 V122 R125 A126 D127 R144 G150 ALA GLY SER ALA ARG ALA

• Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain J:

8%

80%

15%

MET P1 R2 S3 L4 A5 N6 A7 M10 I11 L12 N16 L19 R23 Q24 P25 G29 D35 V36 E37 V41 A45 D52 R70 D92 N95 T96 C97 D98 G99 L100 P101 E114 R125 A126 D127 E143 R144 A149 G150 ALA GLY SER ALA

ARG ALA

• Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain K:

3%

82%

12%

MET P1 M10 I11 L12 N16 L19 R23 Q24 P25 G29 S30 D31 D35 R70 N95 T96 C97 D98 G99 L100 P101 H119 Q124 R125 A126 D127 R144 G150 ALA GLY SER ALA ARG ALA

• Molecule 1: 3-DEHYDROQUINATE DEHYDRATASE

Chain L:

7%

83%

10%

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	116.47Å 138.94Å 141.93Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.20 33.08 – 2.20	Depositor EDS
% Data completeness (in resolution range)	85.3 (20.00-2.20) 85.3 (33.08-2.20)	Depositor EDS
R_{merge}	0.16	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.73 (at 2.20Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.215 , 0.238 0.221 , 0.241	Depositor DCC
R_{free} test set	11345 reflections (10.02%)	wwPDB-VP
Wilson B-factor (Å^2)	20.7	Xtriage
Anisotropy	0.460	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 37.4	EDS
L-test for twinning[2]	$< |L| > = 0.51, < L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.000 for -h,l,k	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	14496	wwPDB-VP
Average B, all atoms (Å^2)	27.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 54.14 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 3.8095e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

---

[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: FA3, TRS

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	1.25	4/1168 (0.3%)	1.36	12/1591 (0.8%)
1	B	0.98	0/1168	1.01	6/1591 (0.4%)
1	C	1.02	0/1168	1.07	5/1591 (0.3%)
1	D	0.97	0/1168	0.98	5/1591 (0.3%)
1	E	1.02	2/1168 (0.2%)	1.04	7/1591 (0.4%)
1	F	1.01	0/1168	1.02	5/1591 (0.3%)
1	G	0.99	2/1168 (0.2%)	1.06	6/1591 (0.4%)
1	H	1.03	0/1168	1.05	7/1591 (0.4%)
1	I	0.96	0/1168	0.99	5/1591 (0.3%)
1	J	1.01	0/1168	1.09	7/1591 (0.4%)
1	K	0.98	0/1168	1.02	7/1591 (0.4%)
1	L	0.99	1/1168 (0.1%)	1.04	5/1591 (0.3%)
All	All	1.02	9/14016 (0.1%)	1.07	77/19092 (0.4%)

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	A	0	2

The worst 5 of 9 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	144[A]	ARG	CZ-NH1	-15.11	1.13	1.33
1	A	144[B]	ARG	CZ-NH1	-15.11	1.13	1.33
1	A	144[A]	ARG	CZ-NH2	-10.41	1.19	1.33
1	A	144[B]	ARG	CZ-NH2	-10.41	1.19	1.33
1	L	70	ARG	CZ-NH2	6.58	1.41	1.33

The worst 5 of 77 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	144[A]	ARG	NH1-CZ-NH2	-16.88	100.84	119.40
1	A	144[B]	ARG	NH1-CZ-NH2	-16.88	100.84	119.40
1	A	144[A]	ARG	NE-CZ-NH1	15.64	128.12	120.30
1	A	144[B]	ARG	NE-CZ-NH1	15.64	128.12	120.30
1	G	10	MET	CG-SD-CE	11.60	118.76	100.20

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	144[A]	ARG	Sidechain
1	A	144[B]	ARG	Sidechain

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	1134	0	1106	28	0
1	B	1134	0	1106	21	0
1	C	1134	0	1106	24	0
1	D	1134	0	1106	31	0
1	E	1134	0	1106	25	0
1	F	1134	0	1106	22	0
1	G	1134	0	1106	23	0
1	H	1134	0	1106	24	0
1	I	1134	0	1106	25	0
1	J	1134	0	1106	24	0
1	K	1134	0	1106	22	0
1	L	1134	0	1106	26	0
2	A	13	0	8	0	0
2	B	13	0	8	0	0
2	C	13	0	8	0	0
2	D	13	0	8	0	0
2	E	13	0	8	0	0
2	F	13	0	8	0	0
2	G	13	0	8	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	H	13	0	8	0	0
2	I	13	0	8	0	0
2	J	13	0	8	0	0
2	K	13	0	8	0	0
2	L	13	0	8	0	0
3	A	8	0	12	0	0
3	E	8	0	12	0	0
3	I	8	0	12	0	0
3	K	8	0	12	0	0
4	A	58	0	0	0	0
4	B	58	0	0	1	0
4	C	58	0	0	3	0
4	D	61	0	0	2	0
4	E	54	0	0	1	0
4	F	59	0	0	0	0
4	G	58	0	0	1	0
4	H	56	0	0	2	0
4	I	63	0	0	2	0
4	J	59	0	0	3	0
4	K	56	0	0	1	0
4	L	60	0	0	1	0
All	All	14496	0	13416	249	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 249 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:K:23:ARG:HG3	1:K:24:GLN:HE21	1.24	1.03
1:J:23:ARG:HG3	1:J:24:GLN:HE21	1.24	1.00
1:A:23:ARG:HG3	1:A:24:GLN:HE21	1.27	0.99
1:L:23:ARG:HG3	1:L:24:GLN:HE21	1.30	0.96
1:H:23:ARG:HG3	1:H:24:GLN:HE21	1.27	0.96

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	B	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	C	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	D	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	E	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	F	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	G	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	H	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	I	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	J	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	K	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
1	L	150/157 (96%)	147 (98%)	3 (2%)	0	100	100
All	All	1800/1884 (96%)	1764 (98%)	36 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	B	119/121 (98%)	115 (97%)	4 (3%)	37	47

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	D	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	E	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	F	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	G	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	H	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	I	119/121 (98%)	116 (98%)	3 (2%)	47	60
1	J	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	K	119/121 (98%)	115 (97%)	4 (3%)	37	47
1	L	119/121 (98%)	115 (97%)	4 (3%)	37	47
All	All	1428/1452 (98%)	1381 (97%)	47 (3%)	47	49

5 of 47 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	10	MET
1	J	10	MET
1	H	23	ARG
1	I	23	ARG
1	J	144[A]	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 36 such sidechains are listed below:

Mol	Chain	Res	Type
1	J	95	ASN
1	L	124	GLN
1	J	124	GLN
1	K	124	GLN
1	E	24	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5   Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6   Ligand geometry ⓘ

16 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	FA3	G	201	-	9,13,13	2.86	5 (55%)	7,20,20	1.46	2 (28%)
3	TRS	E	1151	-	7,7,7	0.64	0	9,9,9	1.62	2 (22%)
2	FA3	K	201	-	9,13,13	2.59	2 (22%)	7,20,20	1.26	1 (14%)
2	FA3	B	201	-	9,13,13	3.53	3 (33%)	7,20,20	1.35	2 (28%)
2	FA3	C	201	-	9,13,13	3.19	5 (55%)	7,20,20	1.76	1 (14%)
3	TRS	I	1151	-	7,7,7	0.82	0	9,9,9	1.29	2 (22%)
2	FA3	A	201	-	9,13,13	2.89	2 (22%)	7,20,20	1.10	1 (14%)
3	TRS	A	1151	-	7,7,7	0.75	0	9,9,9	0.99	1 (11%)
2	FA3	F	201	-	9,13,13	2.46	3 (33%)	7,20,20	1.26	0
3	TRS	K	1151	-	7,7,7	0.46	0	9,9,9	1.02	0
2	FA3	E	201	-	9,13,13	2.89	2 (22%)	7,20,20	1.45	1 (14%)
2	FA3	L	201	-	9,13,13	3.71	4 (44%)	7,20,20	1.89	3 (42%)
2	FA3	I	201	-	9,13,13	3.56	3 (33%)	7,20,20	1.76	3 (42%)
2	FA3	H	201	-	9,13,13	3.49	4 (44%)	7,20,20	1.28	1 (14%)
2	FA3	J	201	-	9,13,13	3.72	3 (33%)	7,20,20	0.94	0
2	FA3	D	201	-	9,13,13	3.42	3 (33%)	7,20,20	1.77	2 (28%)

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	FA3	G	201	-	-	3/6/24/24	0/1/1/1
3	TRS	E	1151	-	-	0/9/9/9	-
2	FA3	K	201	-	-	2/6/24/24	0/1/1/1
2	FA3	B	201	-	-	2/6/24/24	0/1/1/1
2	FA3	C	201	-	-	3/6/24/24	0/1/1/1
3	TRS	I	1151	-	-	0/9/9/9	-
2	FA3	A	201	-	-	2/6/24/24	0/1/1/1
3	TRS	A	1151	-	-	1/9/9/9	-
2	FA3	F	201	-	-	3/6/24/24	0/1/1/1
3	TRS	K	1151	-	-	0/9/9/9	-
2	FA3	E	201	-	-	4/6/24/24	0/1/1/1
2	FA3	L	201	-	-	2/6/24/24	0/1/1/1
2	FA3	I	201	-	-	4/6/24/24	0/1/1/1
2	FA3	H	201	-	-	4/6/24/24	0/1/1/1
2	FA3	J	201	-	-	1/6/24/24	0/1/1/1
2	FA3	D	201	-	-	3/6/24/24	0/1/1/1

The worst 5 of 39 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	L	201	FA3	C1-C6	-9.49	1.37	1.50
2	J	201	FA3	C1-C6	-9.47	1.37	1.50
2	B	201	FA3	C1-C6	-9.06	1.37	1.50
2	D	201	FA3	C1-C6	-8.92	1.38	1.50
2	A	201	FA3	C1-C6	-7.80	1.39	1.50

The worst 5 of 22 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	201	FA3	O1-C-O2	-3.46	112.80	123.82
2	D	201	FA3	O3-C3-C4	3.34	115.36	109.73
3	E	1151	TRS	C1-C-N	2.75	116.17	107.98
2	K	201	FA3	O1-C-O2	-2.67	115.33	123.82
2	L	201	FA3	O30-C1-C2	2.62	114.06	107.98

There are no chirality outliers.

5 of 34 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	201	FA3	O1-C-C1-O30
2	A	201	FA3	O2-C-C1-C6
2	B	201	FA3	O1-C-C1-O30
2	B	201	FA3	O2-C-C1-C6
2	C	201	FA3	O1-C-C1-O30

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

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	150/157 (95%)	-0.21	4 (2%) 54	52	12, 23, 58, 79	0
1	B	150/157 (95%)	-0.07	7 (4%) 31	30	13, 23, 58, 79	0
1	C	150/157 (95%)	0.16	9 (6%) 21	20	13, 23, 58, 79	0
1	D	150/157 (95%)	-0.14	5 (3%) 46	44	12, 23, 58, 79	0
1	E	150/157 (95%)	-0.23	4 (2%) 54	52	13, 22, 58, 79	0
1	F	150/157 (95%)	-0.17	5 (3%) 46	44	13, 22, 58, 79	0
1	G	150/157 (95%)	-0.10	6 (4%) 38	36	13, 22, 58, 79	0
1	H	150/157 (95%)	-0.23	4 (2%) 54	52	12, 22, 58, 79	0
1	I	150/157 (95%)	-0.18	3 (2%) 65	63	13, 22, 58, 79	0
1	J	150/157 (95%)	0.09	12 (8%) 12	11	13, 23, 58, 79	0
1	K	150/157 (95%)	-0.13	4 (2%) 54	52	13, 23, 58, 79	0
1	L	150/157 (95%)	-0.05	11 (7%) 15	14	13, 23, 58, 79	0
All	All	1800/1884 (95%)	-0.11	74 (4%) 37	35	12, 23, 62, 79	0

The worst 5 of 74 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1	PRO	10.4
1	C	1	PRO	9.6
1	F	1	PRO	9.4
1	I	1	PRO	9.1
1	G	1	PRO	8.9

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

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

WORLDWIDE
wwPDB
PROTEIN DATA BANK

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
3	TRS	A	1151	8/8	0.86	0.19	23,25,27,28	0
3	TRS	E	1151	8/8	0.90	0.16	28,29,30,31	0
3	TRS	I	1151	8/8	0.92	0.14	21,23,26,26	0
2	FA3	C	201	13/13	0.93	0.11	15,19,23,23	0
2	FA3	J	201	13/13	0.95	0.09	14,18,23,24	0
2	FA3	B	201	13/13	0.95	0.09	12,16,18,19	0
2	FA3	A	201	13/13	0.95	0.09	13,15,17,17	0
2	FA3	D	201	13/13	0.95	0.11	14,16,17,18	0
3	TRS	K	1151	8/8	0.95	0.10	20,21,23,23	0
2	FA3	H	201	13/13	0.96	0.08	14,15,17,18	0
2	FA3	G	201	13/13	0.96	0.10	11,14,14,14	0
2	FA3	K	201	13/13	0.96	0.08	12,14,16,18	0
2	FA3	L	201	13/13	0.96	0.08	15,19,21,23	0
2	FA3	F	201	13/13	0.97	0.07	10,12,15,18	0
2	FA3	E	201	13/13	0.97	0.09	14,16,18,19	0
2	FA3	I	201	13/13	0.98	0.07	8,11,13,16	0

6.5 Other polymers (i)

There are no such residues in this entry.