



# wwPDB X-ray Structure Validation Summary Report ⓘ

May 21, 2020 – 09:00 pm BST

PDB ID : 3C8V  
Title : Crystal structure of putative acetyltransferase (YP\_390128.1) from Desulfovibrio desulfuricans G20 at 2.28 Å resolution  
Authors : Joint Center for Structural Genomics (JCSG)  
Deposited on : 2008-02-13  
Resolution : 2.28 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

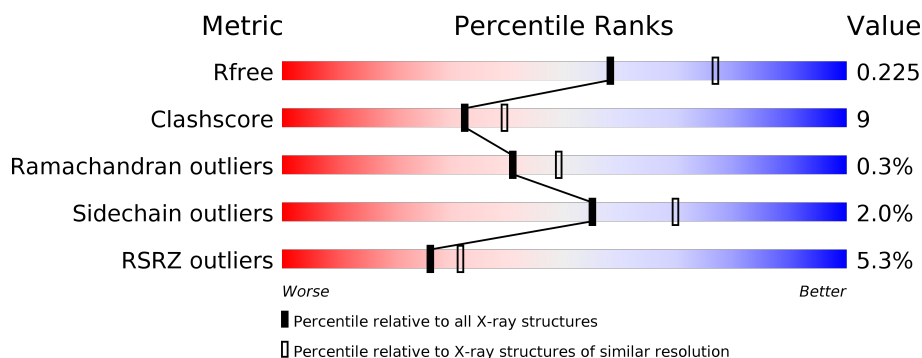
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.28 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	6980 (2.30-2.26)
Clashscore	141614	7711 (2.30-2.26)
Ramachandran outliers	138981	7597 (2.30-2.26)
Sidechain outliers	138945	7598 (2.30-2.26)
RSRZ outliers	127900	6849 (2.30-2.26)

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	496	<div> <div>2%</div> <div> <div></div> <div>76%</div> <div>15%</div> <div>9%</div> </div> </div>
1	B	496	<div> <div>3%</div> <div> <div></div> <div>77%</div> <div>15%</div> <div>7%</div> </div> </div>
1	C	496	<div> <div>9%</div> <div> <div></div> <div>75%</div> <div>18%</div> <div>6%</div> </div> </div>
1	D	496	<div> <div>5%</div> <div> <div></div> <div>74%</div> <div>19%</div> <div>6%</div> </div> </div>

## 2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 14949 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 Putative acetyltransferase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	453	Total	C	N	O	S	Se	0	2	0
			3533	2249	606	662	6	10			
1	B	461	Total	C	N	O	S	Se	0	1	0
			3594	2281	615	683	5	10			
1	C	465	Total	C	N	O	S	Se	0	1	0
			3567	2269	611	672	5	10			
1	D	464	Total	C	N	O	S	Se	0	1	0
			3590	2287	616	671	6	10			

There are 76 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-18	MSE	-	LEADER SEQUENCE	UNP Q30V63
A	-17	GLY	-	LEADER SEQUENCE	UNP Q30V63
A	-16	SER	-	LEADER SEQUENCE	UNP Q30V63
A	-15	ASP	-	LEADER SEQUENCE	UNP Q30V63
A	-14	LYS	-	LEADER SEQUENCE	UNP Q30V63
A	-13	ILE	-	LEADER SEQUENCE	UNP Q30V63
A	-12	HIS	-	LEADER SEQUENCE	UNP Q30V63
A	-11	HIS	-	LEADER SEQUENCE	UNP Q30V63
A	-10	HIS	-	LEADER SEQUENCE	UNP Q30V63
A	-9	HIS	-	LEADER SEQUENCE	UNP Q30V63
A	-8	HIS	-	LEADER SEQUENCE	UNP Q30V63
A	-7	HIS	-	LEADER SEQUENCE	UNP Q30V63
A	-6	GLU	-	LEADER SEQUENCE	UNP Q30V63
A	-5	ASN	-	LEADER SEQUENCE	UNP Q30V63
A	-4	LEU	-	LEADER SEQUENCE	UNP Q30V63
A	-3	TYR	-	LEADER SEQUENCE	UNP Q30V63
A	-2	PHE	-	LEADER SEQUENCE	UNP Q30V63
A	-1	GLN	-	LEADER SEQUENCE	UNP Q30V63
A	0	GLY	-	LEADER SEQUENCE	UNP Q30V63
B	-18	MSE	-	LEADER SEQUENCE	UNP Q30V63
B	-17	GLY	-	LEADER SEQUENCE	UNP Q30V63

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-16	SER	-	LEADER SEQUENCE	UNP Q30V63
B	-15	ASP	-	LEADER SEQUENCE	UNP Q30V63
B	-14	LYS	-	LEADER SEQUENCE	UNP Q30V63
B	-13	ILE	-	LEADER SEQUENCE	UNP Q30V63
B	-12	HIS	-	LEADER SEQUENCE	UNP Q30V63
B	-11	HIS	-	LEADER SEQUENCE	UNP Q30V63
B	-10	HIS	-	LEADER SEQUENCE	UNP Q30V63
B	-9	HIS	-	LEADER SEQUENCE	UNP Q30V63
B	-8	HIS	-	LEADER SEQUENCE	UNP Q30V63
B	-7	HIS	-	LEADER SEQUENCE	UNP Q30V63
B	-6	GLU	-	LEADER SEQUENCE	UNP Q30V63
B	-5	ASN	-	LEADER SEQUENCE	UNP Q30V63
B	-4	LEU	-	LEADER SEQUENCE	UNP Q30V63
B	-3	TYR	-	LEADER SEQUENCE	UNP Q30V63
B	-2	PHE	-	LEADER SEQUENCE	UNP Q30V63
B	-1	GLN	-	LEADER SEQUENCE	UNP Q30V63
B	0	GLY	-	LEADER SEQUENCE	UNP Q30V63
C	-18	MSE	-	LEADER SEQUENCE	UNP Q30V63
C	-17	GLY	-	LEADER SEQUENCE	UNP Q30V63
C	-16	SER	-	LEADER SEQUENCE	UNP Q30V63
C	-15	ASP	-	LEADER SEQUENCE	UNP Q30V63
C	-14	LYS	-	LEADER SEQUENCE	UNP Q30V63
C	-13	ILE	-	LEADER SEQUENCE	UNP Q30V63
C	-12	HIS	-	LEADER SEQUENCE	UNP Q30V63
C	-11	HIS	-	LEADER SEQUENCE	UNP Q30V63
C	-10	HIS	-	LEADER SEQUENCE	UNP Q30V63
C	-9	HIS	-	LEADER SEQUENCE	UNP Q30V63
C	-8	HIS	-	LEADER SEQUENCE	UNP Q30V63
C	-7	HIS	-	LEADER SEQUENCE	UNP Q30V63
C	-6	GLU	-	LEADER SEQUENCE	UNP Q30V63
C	-5	ASN	-	LEADER SEQUENCE	UNP Q30V63
C	-4	LEU	-	LEADER SEQUENCE	UNP Q30V63
C	-3	TYR	-	LEADER SEQUENCE	UNP Q30V63
C	-2	PHE	-	LEADER SEQUENCE	UNP Q30V63
C	-1	GLN	-	LEADER SEQUENCE	UNP Q30V63
C	0	GLY	-	LEADER SEQUENCE	UNP Q30V63
D	-18	MSE	-	LEADER SEQUENCE	UNP Q30V63
D	-17	GLY	-	LEADER SEQUENCE	UNP Q30V63
D	-16	SER	-	LEADER SEQUENCE	UNP Q30V63
D	-15	ASP	-	LEADER SEQUENCE	UNP Q30V63
D	-14	LYS	-	LEADER SEQUENCE	UNP Q30V63
D	-13	ILE	-	LEADER SEQUENCE	UNP Q30V63

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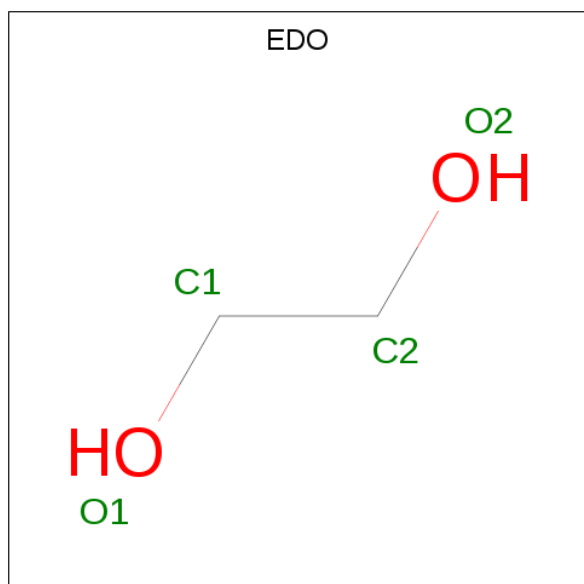
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Chain	Residue	Modelled	Actual	Comment	Reference
D	-12	HIS	-	LEADER SEQUENCE	UNP Q30V63
D	-11	HIS	-	LEADER SEQUENCE	UNP Q30V63
D	-10	HIS	-	LEADER SEQUENCE	UNP Q30V63
D	-9	HIS	-	LEADER SEQUENCE	UNP Q30V63
D	-8	HIS	-	LEADER SEQUENCE	UNP Q30V63
D	-7	HIS	-	LEADER SEQUENCE	UNP Q30V63
D	-6	GLU	-	LEADER SEQUENCE	UNP Q30V63
D	-5	ASN	-	LEADER SEQUENCE	UNP Q30V63
D	-4	LEU	-	LEADER SEQUENCE	UNP Q30V63
D	-3	TYR	-	LEADER SEQUENCE	UNP Q30V63
D	-2	PHE	-	LEADER SEQUENCE	UNP Q30V63
D	-1	GLN	-	LEADER SEQUENCE	UNP Q30V63
D	0	GLY	-	LEADER SEQUENCE	UNP Q30V63

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

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	B	3	Total Cl 3 3	0	0
2	A	3	Total Cl 3 3	0	0
2	D	4	Total Cl 4 4	0	0
2	C	2	Total Cl 2 2	0	0

- Molecule 3 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>).



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

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

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	C	1	Total	Mg	0	0
			1	1		

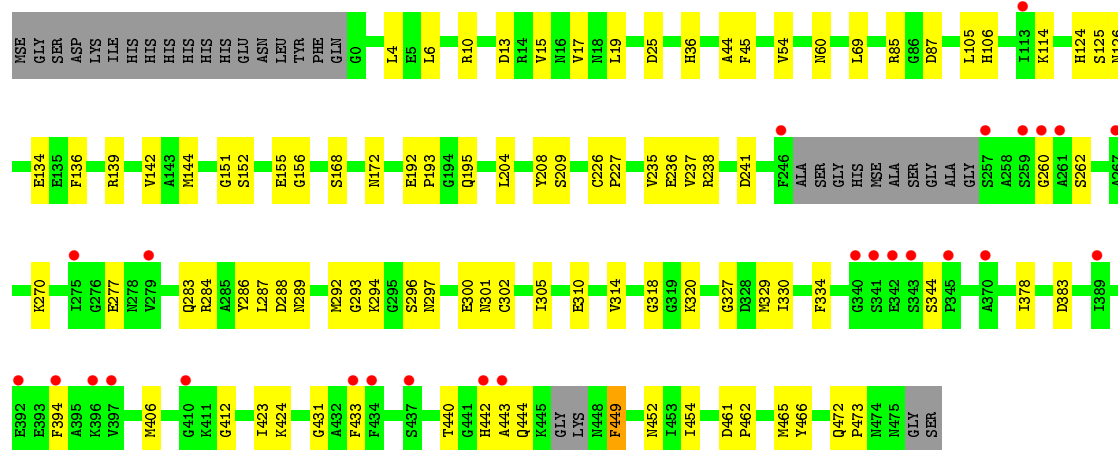
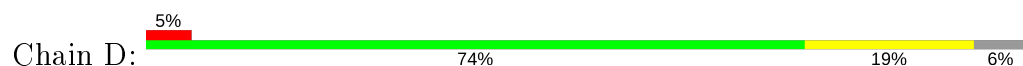
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	183	Total	O	0	0
			183	183		
5	B	132	Total	O	0	0
			132	132		
5	C	93	Total	O	0	0
			93	93		
5	D	132	Total	O	0	0
			132	132		





- Molecule 1: Putative acetyltransferase



## 4 Data and refinement statistics

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	249.62Å 249.62Å 104.90Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	48.06 – 2.28 48.04 – 2.28	Depositor EDS
% Data completeness (in resolution range)	95.1 (48.06-2.28) 95.1 (48.04-2.28)	Depositor EDS
$R_{merge}$	0.05	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.05 (at 2.29Å)	Xtriage
Refinement program	REFMAC 5.4.0067, PHENIX	Depositor
R, $R_{free}$	0.180 , 0.223 0.185 , 0.225	Depositor DCC
$R_{free}$ test set	5271 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	40.0	Xtriage
Anisotropy	0.263	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.30 , 52.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.015 for h,-h-k,-l	Xtriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	14949	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	49.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.18% 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 [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: MG, EDO, CL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z  > 5$	RMSZ	$\# Z  > 5$
1	A	0.68	0/3609	0.82	1/4865 (0.0%)
1	B	0.60	0/3670	0.80	0/4947
1	C	0.52	0/3640	0.80	0/4910
1	D	0.60	0/3667	0.81	2/4945 (0.0%)
All	All	0.60	0/14586	0.81	3/19667 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	25	ASP	CB-CG-OD1	5.40	123.16	118.30
1	A	14	ARG	NE-CZ-NH1	5.32	122.96	120.30
1	D	449	PHE	CB-CG-CD1	5.16	124.41	120.80

There are no chirality outliers.

There are no planarity outliers.

### 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	3533	0	3415	56	0
1	B	3594	0	3437	56	0
1	C	3567	0	3400	71	0
1	D	3590	0	3435	65	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	3	0	0	0	0
2	B	3	0	0	0	0
2	C	2	0	0	0	0
2	D	4	0	0	0	0
3	A	40	0	60	3	0
3	B	28	0	42	0	0
3	C	8	0	12	0	0
3	D	36	0	54	3	0
4	C	1	0	0	0	0
5	A	183	0	0	3	0
5	B	132	0	0	2	0
5	C	93	0	0	3	0
5	D	132	0	0	1	0
All	All	14949	0	13855	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)
5:A:564:HOH:O	3:D:490:EDO:H11	1.59	1.01
1:B:240:GLU:HG3	1:B:241:ASP:N	1.75	0.99
1:B:283:GLN:O	1:B:300:GLU:HG2	1.61	0.98
1:B:85:ARG:NH1	1:B:87:ASP:OD2	2.00	0.95
1:B:310:GLU:O	1:B:311:ARG:HB2	1.71	0.89

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	449/496 (90%)	433 (96%)	13 (3%)	3 (1%)	22	25
1	B	454/496 (92%)	436 (96%)	17 (4%)	1 (0%)	47	57
1	C	458/496 (92%)	437 (95%)	20 (4%)	1 (0%)	47	57
1	D	459/496 (92%)	440 (96%)	18 (4%)	1 (0%)	47	57
All	All	1820/1984 (92%)	1746 (96%)	68 (4%)	6 (0%)	41	49

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	311	ARG
1	A	311	ARG
1	A	429	GLU
1	C	219	ILE
1	A	64	ALA

### 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	376/408 (92%)	370 (98%)	6 (2%)	62	76
1	B	382/408 (94%)	375 (98%)	7 (2%)	59	72
1	C	372/408 (91%)	362 (97%)	10 (3%)	44	59
1	D	377/408 (92%)	370 (98%)	7 (2%)	57	71
All	All	1507/1632 (92%)	1477 (98%)	30 (2%)	55	70

5 of 30 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	52	ASP
1	C	136	PHE
1	D	344	SER
1	C	131	GLU
1	C	212	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	475	ASN
1	B	106	HIS
1	C	22	GLN
1	D	458	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 41 ligands modelled in this entry, 13 are monoatomic - leaving 28 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
3	EDO	D	490	-	3,3,3	0.53	0	2,2,2	0.28	0
3	EDO	B	482	-	3,3,3	0.85	0	2,2,2	0.30	0
3	EDO	A	487	-	3,3,3	0.67	0	2,2,2	0.46	0
3	EDO	D	486	-	3,3,3	0.54	0	2,2,2	0.18	0
3	EDO	B	481	-	3,3,3	0.50	0	2,2,2	0.22	0
3	EDO	D	484	-	3,3,3	0.66	0	2,2,2	0.12	0
3	EDO	A	482	-	3,3,3	0.46	0	2,2,2	0.22	0
3	EDO	A	486	-	3,3,3	0.54	0	2,2,2	0.18	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	EDO	D	489	-	3,3,3	0.52	0	2,2,2	0.06	0
3	EDO	D	487	-	3,3,3	0.45	0	2,2,2	0.32	0
3	EDO	B	483	-	3,3,3	0.49	0	2,2,2	0.14	0
3	EDO	A	490	-	3,3,3	0.49	0	2,2,2	0.13	0
3	EDO	A	489	-	3,3,3	0.41	0	2,2,2	0.38	0
3	EDO	A	481	-	3,3,3	0.58	0	2,2,2	0.14	0
3	EDO	A	484	-	3,3,3	0.51	0	2,2,2	0.56	0
3	EDO	A	485	-	3,3,3	0.57	0	2,2,2	0.16	0
3	EDO	D	485	-	3,3,3	0.56	0	2,2,2	0.20	0
3	EDO	B	485	-	3,3,3	0.52	0	2,2,2	0.23	0
3	EDO	A	488	-	3,3,3	0.39	0	2,2,2	0.54	0
3	EDO	D	483	-	3,3,3	0.52	0	2,2,2	0.28	0
3	EDO	D	482	-	3,3,3	0.64	0	2,2,2	0.02	0
3	EDO	D	488	-	3,3,3	0.55	0	2,2,2	0.35	0
3	EDO	A	483	-	3,3,3	0.54	0	2,2,2	0.08	0
3	EDO	B	487	-	3,3,3	0.55	0	2,2,2	0.20	0
3	EDO	B	486	-	3,3,3	0.47	0	2,2,2	0.30	0
3	EDO	C	481	-	3,3,3	0.46	0	2,2,2	0.16	0
3	EDO	C	482	-	3,3,3	0.52	0	2,2,2	0.32	0
3	EDO	B	484	-	3,3,3	0.46	0	2,2,2	0.40	0

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
3	EDO	D	490	-	-	1/1/1/1	-
3	EDO	B	482	-	-	1/1/1/1	-
3	EDO	A	487	-	-	1/1/1/1	-
3	EDO	D	486	-	-	1/1/1/1	-
3	EDO	B	481	-	-	1/1/1/1	-
3	EDO	D	484	-	-	1/1/1/1	-
3	EDO	A	482	-	-	0/1/1/1	-
3	EDO	A	486	-	-	1/1/1/1	-
3	EDO	D	489	-	-	1/1/1/1	-
3	EDO	D	487	-	-	1/1/1/1	-
3	EDO	B	483	-	-	0/1/1/1	-
3	EDO	A	490	-	-	1/1/1/1	-
3	EDO	A	489	-	-	1/1/1/1	-
3	EDO	A	481	-	-	1/1/1/1	-
3	EDO	A	484	-	-	1/1/1/1	-
3	EDO	A	485	-	-	1/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	EDO	D	485	-	-	1/1/1/1	-
3	EDO	B	485	-	-	1/1/1/1	-
3	EDO	A	488	-	-	0/1/1/1	-
3	EDO	D	483	-	-	0/1/1/1	-
3	EDO	D	482	-	-	0/1/1/1	-
3	EDO	D	488	-	-	1/1/1/1	-
3	EDO	A	483	-	-	0/1/1/1	-
3	EDO	B	487	-	-	1/1/1/1	-
3	EDO	B	486	-	-	1/1/1/1	-
3	EDO	C	481	-	-	0/1/1/1	-
3	EDO	C	482	-	-	1/1/1/1	-
3	EDO	B	484	-	-	0/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 20 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	D	488	EDO	O1-C1-C2-O2
3	D	490	EDO	O1-C1-C2-O2
3	B	482	EDO	O1-C1-C2-O2
3	A	486	EDO	O1-C1-C2-O2
3	A	490	EDO	O1-C1-C2-O2

There are no ring outliers.

3 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	490	EDO	2	0
3	A	490	EDO	3	0
3	D	488	EDO	1	0

## 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 [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	443/496 (89%)	0.08	10 (2%) 60 66	36, 46, 68, 94	0
1	B	451/496 (90%)	0.28	17 (3%) 40 45	34, 47, 68, 91	0
1	C	455/496 (91%)	0.40	43 (9%) 8 10	34, 47, 66, 96	0
1	D	454/496 (91%)	0.34	26 (5%) 23 28	36, 47, 74, 94	0
All	All	1803/1984 (90%)	0.27	96 (5%) 26 31	34, 47, 69, 96	0

The worst 5 of 96 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	257	SER	9.5
1	A	257	SER	6.9
1	B	257	SER	6.9
1	C	104	PRO	5.4
1	C	248	SER	4.9

### 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	CL	C	479	1/1	0.68	0.26	94,94,94,94	0
3	EDO	D	482	4/4	0.81	0.22	50,51,53,61	0
3	EDO	B	485	4/4	0.83	0.24	64,65,67,68	0
3	EDO	D	484	4/4	0.84	0.23	71,76,76,77	0
3	EDO	B	486	4/4	0.85	0.57	80,82,87,87	0
3	EDO	A	486	4/4	0.88	0.31	65,67,72,73	0
3	EDO	A	481	4/4	0.88	0.24	66,74,75,77	0
3	EDO	B	482	4/4	0.88	0.16	45,51,52,58	0
3	EDO	A	489	4/4	0.89	0.21	66,71,72,72	0
3	EDO	D	488	4/4	0.89	0.18	47,52,52,54	0
3	EDO	D	487	4/4	0.89	0.36	77,78,79,79	0
3	EDO	D	490	4/4	0.90	0.24	37,46,49,55	0
3	EDO	A	490	4/4	0.90	0.21	55,58,59,63	0
2	CL	B	480	1/1	0.90	0.06	74,74,74,74	0
3	EDO	A	487	4/4	0.91	0.19	58,58,60,62	0
3	EDO	D	489	4/4	0.92	0.15	68,69,69,73	0
3	EDO	B	481	4/4	0.92	0.18	44,46,46,49	0
2	CL	D	478	1/1	0.92	0.08	61,61,61,61	0
3	EDO	B	487	4/4	0.92	0.16	65,71,74,78	0
3	EDO	D	485	4/4	0.92	0.15	60,60,63,64	0
2	CL	B	479	1/1	0.93	0.10	67,67,67,67	0
2	CL	D	481	1/1	0.93	0.07	72,72,72,72	0
3	EDO	C	481	4/4	0.94	0.41	49,50,51,51	0
2	CL	A	480	1/1	0.94	0.07	67,67,67,67	0
3	EDO	A	483	4/4	0.94	0.22	40,43,44,49	0
2	CL	C	478	1/1	0.94	0.06	76,76,76,76	0
3	EDO	A	488	4/4	0.95	0.11	42,46,50,51	0
3	EDO	B	484	4/4	0.95	0.12	58,58,58,62	0
3	EDO	C	482	4/4	0.95	0.24	58,59,61,61	0
3	EDO	D	486	4/4	0.95	0.27	52,54,54,55	0
2	CL	A	478	1/1	0.96	0.10	71,71,71,71	0
3	EDO	A	485	4/4	0.96	0.27	45,56,59,61	0
3	EDO	A	482	4/4	0.96	0.09	43,45,46,54	0
3	EDO	A	484	4/4	0.97	0.17	33,34,42,44	0
3	EDO	D	483	4/4	0.97	0.07	44,49,51,56	0
2	CL	D	480	1/1	0.97	0.07	59,59,59,59	0
4	MG	C	480	1/1	0.97	0.10	44,44,44,44	0
3	EDO	B	483	4/4	0.97	0.07	41,47,51,56	0
2	CL	B	478	1/1	0.98	0.06	43,43,43,43	0
2	CL	D	479	1/1	0.98	0.06	40,40,40,40	0
2	CL	A	479	1/1	1.00	0.05	33,33,33,33	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.