



Full wwPDB X-ray Structure Validation Report ⓘ

May 25, 2020 – 07:32 pm BST

PDB ID : 6JAL
Title : Crystal structure of ABC transporter alpha-glycoside-binding mutant protein R356A in ligand free form
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Deposited on : 2019-01-24
Resolution : 1.56 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The 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

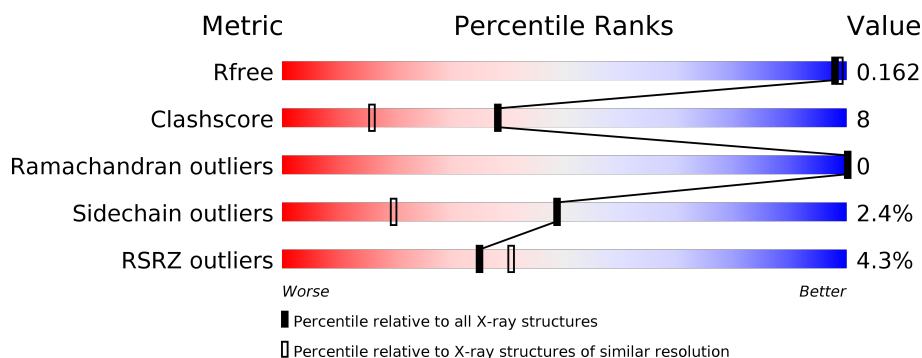
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.56 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	1483 (1.56-1.56)
Clashscore	141614	1529 (1.56-1.56)
Ramachandran outliers	138981	1498 (1.56-1.56)
Sidechain outliers	138945	1495 (1.56-1.56)
RSRZ outliers	127900	1465 (1.56-1.56)

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 ≥ 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	416	<div> <div>4%</div> <div>90%</div> <div>8%</div> </div>

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	ACT	A	501	-	-	-	X
2	ACT	A	502	-	-	X	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	PEG	A	504	-	X	X	-
4	PEG	A	505	-	X	X	-

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 4098 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 ABC transporter, periplasmic substrate-binding protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	416	3396	2157	619	608	12	0	14	0

There are 15 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-7	VAL	-	expression tag	UNP Q5SLD7
A	-6	PRO	-	expression tag	UNP Q5SLD7
A	-5	ARG	-	expression tag	UNP Q5SLD7
A	-4	GLY	-	expression tag	UNP Q5SLD7
A	-3	SER	-	expression tag	UNP Q5SLD7
A	-2	HIS	-	expression tag	UNP Q5SLD7
A	-1	MET	-	expression tag	UNP Q5SLD7
A	0	MET	-	expression tag	UNP Q5SLD7
A	356	ALA	ARG	engineered mutation	UNP Q5SLD7
A	403	HIS	-	expression tag	UNP Q5SLD7
A	404	HIS	-	expression tag	UNP Q5SLD7
A	405	HIS	-	expression tag	UNP Q5SLD7
A	406	HIS	-	expression tag	UNP Q5SLD7
A	407	HIS	-	expression tag	UNP Q5SLD7
A	408	HIS	-	expression tag	UNP Q5SLD7

- Molecule 2 is ACETATE ION (three-letter code: ACT) (formula: C₂H₃O₂).



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

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



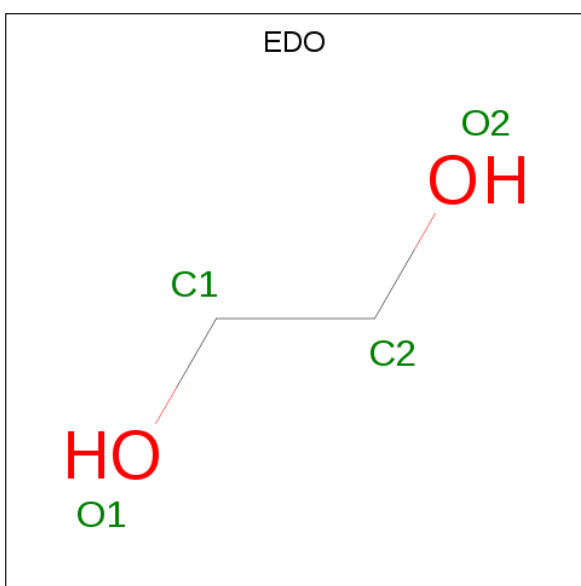
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			6	3	3		

- Molecule 4 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			7	4	3		
4	A	1	Total	C	O	0	0
			7	4	3		

- Molecule 5 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		

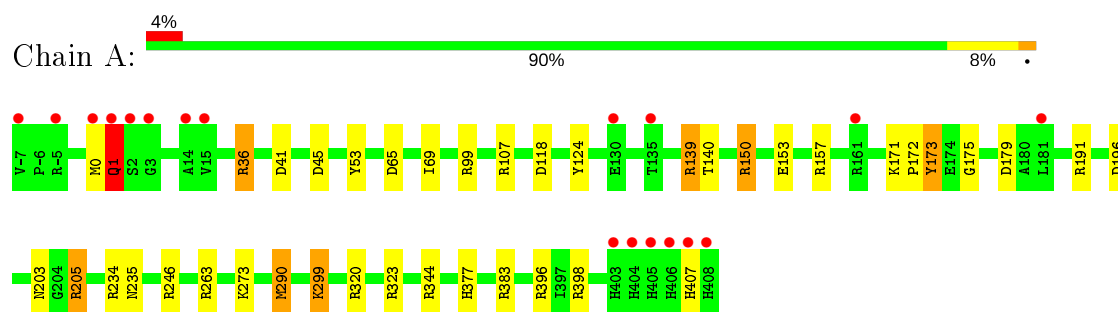
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	666	Total 666	O 666	0	0

3 Residue-property plots [i](#)

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: ABC transporter, periplasmic substrate-binding protein



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	53.04Å 85.13Å 55.34Å 90.00° 92.99° 90.00°	Depositor
Resolution (Å)	55.26 – 1.56 39.28 – 1.56	Depositor EDS
% Data completeness (in resolution range)	99.8 (55.26-1.56) 99.8 (39.28-1.56)	Depositor EDS
R_{merge}	0.03	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	14.40 (at 1.56Å)	Xtriage
Refinement program	REFMAC 5.8.0238	Depositor
R, R_{free}	0.127 , 0.150 0.136 , 0.162	Depositor DCC
R_{free} test set	3348 reflections (4.81%)	wwPDB-VP
Wilson B-factor (Å ²)	9.1	Xtriage
Anisotropy	0.268	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 53.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.005 for l,k,-h 0.027 for h,-k,-l 0.019 for l,-k,h	Xtriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	4098	wwPDB-VP
Average B, all atoms (Å ²)	12.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.68% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, PEG, EDO, ACT

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	1.09	5/3529 (0.1%)	1.19	34/4792 (0.7%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	139[A]	ARG	CZ-NH2	-9.39	1.20	1.33
1	A	139[B]	ARG	CZ-NH2	-9.39	1.20	1.33
1	A	153	GLU	CD-OE2	6.62	1.32	1.25
1	A	1	GLN	CG-CD	5.60	1.64	1.51
1	A	344	ARG	CZ-NH1	5.43	1.40	1.33

All (34) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	323	ARG	NE-CZ-NH2	12.16	126.38	120.30
1	A	139[A]	ARG	NE-CZ-NH2	-10.33	115.14	120.30
1	A	139[B]	ARG	NE-CZ-NH2	-10.33	115.14	120.30
1	A	0	MET	CG-SD-CE	-8.84	86.05	100.20
1	A	139[A]	ARG	NE-CZ-NH1	8.64	124.62	120.30
1	A	139[B]	ARG	NE-CZ-NH1	8.64	124.62	120.30
1	A	41	ASP	CB-CG-OD1	8.56	126.00	118.30
1	A	205	ARG	NE-CZ-NH1	-8.42	116.09	120.30
1	A	383	ARG	NE-CZ-NH1	8.16	124.38	120.30
1	A	344	ARG	NE-CZ-NH1	7.82	124.21	120.30
1	A	344	ARG	NE-CZ-NH2	-7.26	116.67	120.30
1	A	99	ARG	NE-CZ-NH1	6.63	123.62	120.30
1	A	45	ASP	CB-CG-OD1	6.52	124.17	118.30
1	A	290[A]	MET	CG-SD-CE	-6.33	90.07	100.20
1	A	290[B]	MET	CG-SD-CE	-6.33	90.07	100.20
1	A	53	TYR	CB-CG-CD1	6.24	124.74	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	323	ARG	NE-CZ-NH1	-6.23	117.19	120.30
1	A	191	ARG	NE-CZ-NH1	-6.06	117.27	120.30
1	A	171	LYS	CD-CE-NZ	-5.90	98.13	111.70
1	A	234	ARG	NE-CZ-NH1	-5.87	117.36	120.30
1	A	107	ARG	NE-CZ-NH2	-5.66	117.47	120.30
1	A	36	ARG	NE-CZ-NH2	-5.48	117.56	120.30
1	A	41	ASP	CB-CG-OD2	-5.43	113.41	118.30
1	A	196	ASP	CB-CG-OD1	5.38	123.15	118.30
1	A	1	GLN	CB-CG-CD	5.35	125.52	111.60
1	A	320	ARG	NE-CZ-NH2	5.34	122.97	120.30
1	A	65	ASP	CB-CG-OD2	-5.32	113.52	118.30
1	A	99	ARG	NE-CZ-NH2	-5.31	117.64	120.30
1	A	139[A]	ARG	CG-CD-NE	5.27	122.87	111.80
1	A	139[B]	ARG	CG-CD-NE	5.27	122.87	111.80
1	A	396	ARG	NE-CZ-NH2	-5.27	117.67	120.30
1	A	1	GLN	N-CA-CB	-5.17	101.30	110.60
1	A	124	TYR	CB-CG-CD2	-5.12	117.93	121.00
1	A	107	ARG	NE-CZ-NH1	5.11	122.86	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	3396	0	3368	37	0
2	A	8	0	6	4	0
3	A	6	0	8	0	0
4	A	14	0	19	24	0
5	A	8	0	12	2	0
6	A	666	0	0	17	5
All	All	4098	0	3413	52	5

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 8.

All (52) 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)
4:A:505:PEG:C4	4:A:505:PEG:O4	1.65	1.43
2:A:502:ACT:H1	6:A:674:HOH:O	1.45	1.14
1:A:118[B]:ASP:OD2	4:A:505:PEG:H42	1.51	1.10
1:A:205:ARG:HH21	4:A:504:PEG:H42	1.29	0.96
1:A:205:ARG:NH2	4:A:504:PEG:H42	1.83	0.93
4:A:505:PEG:C4	4:A:505:PEG:H12	2.03	0.88
4:A:505:PEG:H12	4:A:505:PEG:H41	1.57	0.87
1:A:205:ARG:HH21	4:A:504:PEG:C4	1.91	0.83
1:A:118[B]:ASP:OD2	4:A:505:PEG:C4	2.26	0.82
1:A:407:HIS:NE2	6:A:602:HOH:O	2.14	0.80
1:A:139[A]:ARG:NE	6:A:603:HOH:O	2.16	0.78
1:A:1:GLN:H	1:A:1:GLN:HE21	1.29	0.77
4:A:505:PEG:H32	6:A:1039:HOH:O	1.83	0.77
1:A:118[B]:ASP:OD1	4:A:505:PEG:H31	1.87	0.74
2:A:501:ACT:O	5:A:506:EDO:O2	2.05	0.74
1:A:1:GLN:OE1	6:A:601:HOH:O	2.06	0.74
1:A:139[A]:ARG:CZ	6:A:603:HOH:O	2.36	0.73
1:A:118[B]:ASP:CG	4:A:505:PEG:H31	2.09	0.72
1:A:1:GLN:HG2	1:A:36:ARG:NH2	2.04	0.71
1:A:398:ARG:NH2	6:A:606:HOH:O	2.22	0.68
1:A:118[B]:ASP:CG	4:A:505:PEG:H42	2.17	0.65
4:A:505:PEG:C1	4:A:505:PEG:H41	2.31	0.59
1:A:150[A]:ARG:NH1	6:A:611:HOH:O	2.39	0.56
1:A:118[B]:ASP:OD2	4:A:505:PEG:C3	2.53	0.56
1:A:1:GLN:HG3	1:A:36:ARG:CZ	2.38	0.54
1:A:299[B]:LYS:HG2	6:A:646:HOH:O	2.06	0.54
1:A:1:GLN:CG	1:A:36:ARG:NH2	2.70	0.53
4:A:505:PEG:C3	6:A:1039:HOH:O	2.49	0.53
1:A:118[B]:ASP:OD2	4:A:505:PEG:H31	2.09	0.52
4:A:505:PEG:C4	4:A:505:PEG:HO4	2.09	0.52
1:A:205:ARG:NH2	4:A:504:PEG:C4	2.59	0.51
1:A:1:GLN:H	1:A:1:GLN:NE2	2.04	0.51
1:A:1:GLN:O	1:A:1:GLN:HG2	2.10	0.51
4:A:505:PEG:H12	6:A:676:HOH:O	2.11	0.50
1:A:203:ASN:ND2	4:A:504:PEG:H32	2.26	0.50
5:A:507:EDO:H12	6:A:940:HOH:O	2.11	0.50
1:A:118[B]:ASP:OD1	4:A:505:PEG:C3	2.60	0.50
1:A:1:GLN:CG	1:A:36:ARG:CZ	2.90	0.50
1:A:1:GLN:HG3	1:A:36:ARG:NH1	2.26	0.50
1:A:69:ILE:HG21	1:A:290[A]:MET:HE2	1.95	0.48
2:A:502:ACT:OXT	6:A:604:HOH:O	2.20	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1:GLN:O	1:A:1:GLN:CG	2.64	0.46
1:A:299[B]:LYS:CG	6:A:646:HOH:O	2.64	0.45
1:A:1:GLN:HG2	1:A:36:ARG:HH22	1.77	0.45
4:A:504:PEG:O4	6:A:605:HOH:O	2.21	0.43
1:A:235[B]:ASN:ND2	6:A:624:HOH:O	2.52	0.43
1:A:173:TYR:CZ	1:A:175:GLY:HA3	2.53	0.43
4:A:504:PEG:H11	4:A:504:PEG:H31	1.67	0.42
1:A:172:PRO:HD3	1:A:377:HIS:CE1	2.54	0.42
2:A:502:ACT:C	6:A:604:HOH:O	2.68	0.41
1:A:118[B]:ASP:CG	4:A:505:PEG:C3	2.85	0.41
1:A:140:THR:HA	1:A:273:LYS:O	2.21	0.40

All (5) 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)
6:A:787:HOH:O	6:A:918:HOH:O[2_645]	1.90	0.30
6:A:1140:HOH:O	6:A:1240:HOH:O[2_645]	1.96	0.24
6:A:721:HOH:O	6:A:1107:HOH:O[2_656]	2.04	0.16
6:A:649:HOH:O	6:A:814:HOH:O[2_656]	2.08	0.12
6:A:1038:HOH:O	6:A:1107:HOH:O[2_656]	2.19	0.01

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	428/416 (103%)	421 (98%)	7 (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	353/339 (104%)	342 (97%)	11 (3%)	40	11

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	GLN
1	A	150[A]	ARG
1	A	150[B]	ARG
1	A	157	ARG
1	A	173	TYR
1	A	179	ASP
1	A	246	ARG
1	A	263[A]	ARG
1	A	263[B]	ARG
1	A	299[A]	LYS
1	A	299[B]	LYS

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

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 carbohydrates in this entry.

5.6 Ligand geometry

7 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	ACT	A	502	-	1,3,3	0.96	0	0,3,3	0.00	-
4	PEG	A	505	-	6,6,6	2.16	2 (33%)	5,5,5	2.59	3 (60%)
5	EDO	A	506	-	3,3,3	0.28	0	2,2,2	0.40	0
3	GOL	A	503	-	5,5,5	0.44	0	5,5,5	0.71	0
5	EDO	A	507	-	3,3,3	0.65	0	2,2,2	0.38	0
2	ACT	A	501	-	1,3,3	0.09	0	0,3,3	0.00	-
4	PEG	A	504	-	6,6,6	2.26	1 (16%)	5,5,5	2.39	3 (60%)

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
5	EDO	A	506	-	-	0/1/1/1	-
3	GOL	A	503	-	-	2/4/4/4	-
4	PEG	A	505	-	-	2/4/4/4	-
4	PEG	A	504	-	-	2/4/4/4	-
5	EDO	A	507	-	-	1/1/1/1	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	504	PEG	O4-C4	-5.09	1.15	1.42
4	A	505	PEG	O4-C4	4.57	1.65	1.42
4	A	505	PEG	O2-C2	2.02	1.50	1.42

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	504	PEG	O2-C3-C4	-3.99	92.53	110.07
4	A	505	PEG	O1-C1-C2	3.62	132.78	111.81
4	A	505	PEG	C3-O2-C2	-2.73	101.44	113.29
4	A	505	PEG	O4-C4-C3	2.60	126.89	111.81
4	A	504	PEG	O4-C4-C3	-2.28	98.56	111.81
4	A	504	PEG	C3-O2-C2	-2.05	104.42	113.29

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	503	GOL	O2-C2-C3-O3
4	A	505	PEG	O2-C3-C4-O4
4	A	504	PEG	C1-C2-O2-C3
3	A	503	GOL	C1-C2-C3-O3
5	A	507	EDO	O1-C1-C2-O2
4	A	504	PEG	C4-C3-O2-C2
4	A	505	PEG	C4-C3-O2-C2

There are no ring outliers.

6 monomers are involved in 29 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	502	ACT	3	0
4	A	505	PEG	17	0
5	A	506	EDO	1	0
5	A	507	EDO	1	0
2	A	501	ACT	1	0
4	A	504	PEG	7	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	416/416 (100%)	0.42	18 (4%) 35 40	4, 8, 21, 72	0

All (18) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	404	HIS	8.0
1	A	405	HIS	7.7
1	A	15	VAL	5.7
1	A	1	GLN	5.3
1	A	408	HIS	5.2
1	A	406	HIS	5.0
1	A	14	ALA	4.5
1	A	135	THR	4.0
1	A	403	HIS	3.9
1	A	407	HIS	3.5
1	A	-7	VAL	3.4
1	A	-5	ARG	3.3
1	A	0	MET	3.2
1	A	3	GLY	2.8
1	A	2	SER	2.5
1	A	130	GLU	2.4
1	A	161	ARG	2.3
1	A	181	LEU	2.0

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

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, 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(\AA^2)	Q<0.9
2	ACT	A	501	4/4	0.69	0.46	28,29,38,39	0
4	PEG	A	505	7/7	0.80	0.17	15,18,22,23	0
5	EDO	A	507	4/4	0.81	0.15	29,32,35,41	0
3	GOL	A	503	6/6	0.82	0.18	20,30,34,46	0
5	EDO	A	506	4/4	0.84	0.13	37,38,40,42	0
2	ACT	A	502	4/4	0.88	0.20	26,28,31,37	0
4	PEG	A	504	7/7	0.88	0.17	16,24,29,30	0

6.5 Other polymers [i](#)

There are no such residues in this entry.