



# Full wwPDB X-ray Structure Validation Report ⓘ

Jul 20, 2019 – 03:14 PM EDT

PDB ID : 3CSB  
Title : Crystal Structure of Monobody YSX1/Maltose Binding Protein Fusion Complex  
Authors : Gilbreth, R.N.; Koide, S.  
Deposited on : 2008-04-09  
Resolution : 2.00 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

<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 : 1.8.0 (224370), CSD as540be (2019)  
Xtriage (Phenix) : 1.13  
EDS : 2.3.2  
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)  
Refmac : 5.8.0158  
CCP4 : 7.0 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.3.2

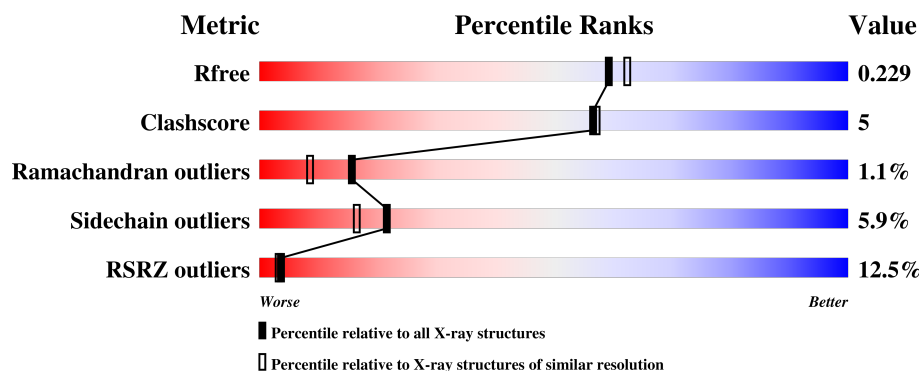
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.00 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))
$R_{free}$	111664	7193 (2.00-2.00)
Clashscore	122126	8267 (2.00-2.00)
Ramachandran outliers	120053	8166 (2.00-2.00)
Sidechain outliers	120020	8165 (2.00-2.00)
RSRZ outliers	108989	7011 (2.00-2.00)

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	465	<div> <div>12%</div> <div>85%</div> <div>13%</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
7	PEG	A	1005	-	X	X	-

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 3929 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.

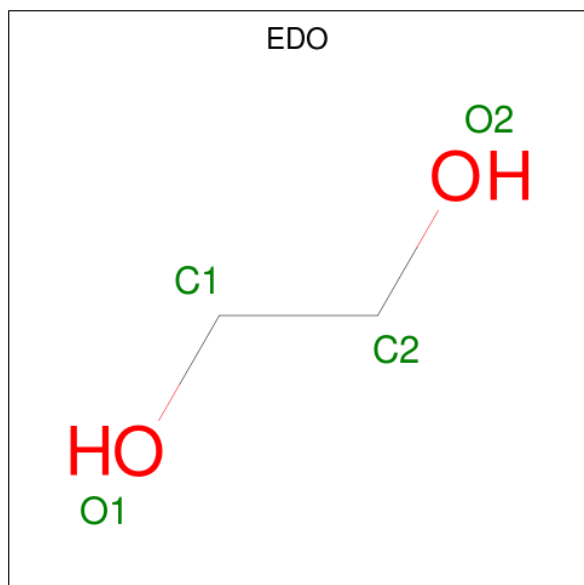
- Molecule 1 is a protein called Maltose-binding protein Monobody YSX1 Fusion.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	464	Total	C	N	O	S	0	4	0
			3607	2322	578	701	6			

- Molecule 2 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

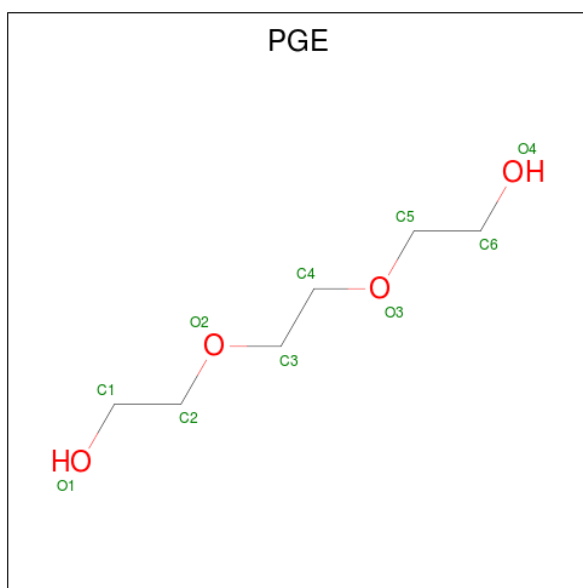
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	4	Total	Mn	0	0
			4	4		

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



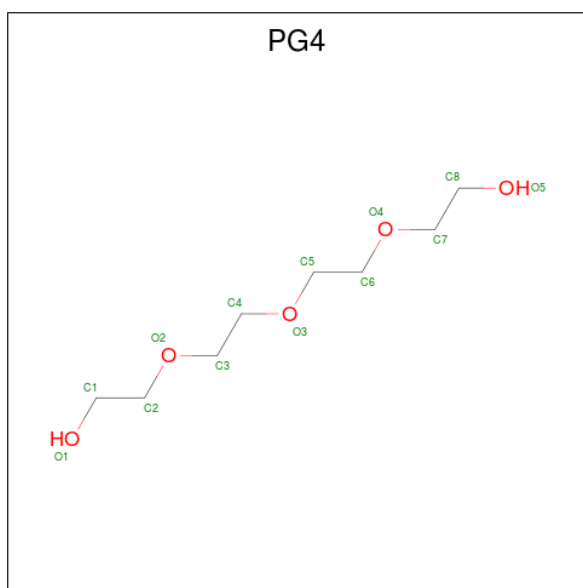
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			4	2	2		
3	A	1	Total	C	O	0	0
			4	2	2		

- Molecule 4 is TRIETHYLENE GLYCOL (three-letter code: PGE) (formula:  $C_6H_{14}O_4$ ).



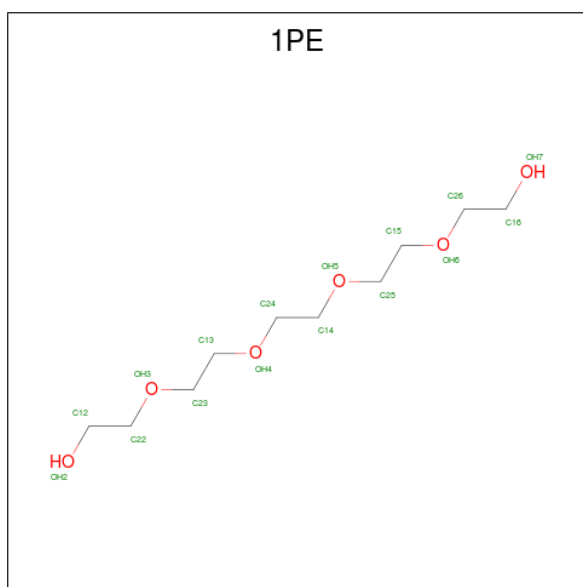
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			10	6	4		

- Molecule 5 is TETRAETHYLENE GLYCOL (three-letter code: PG4) (formula:  $C_8H_{18}O_5$ ).



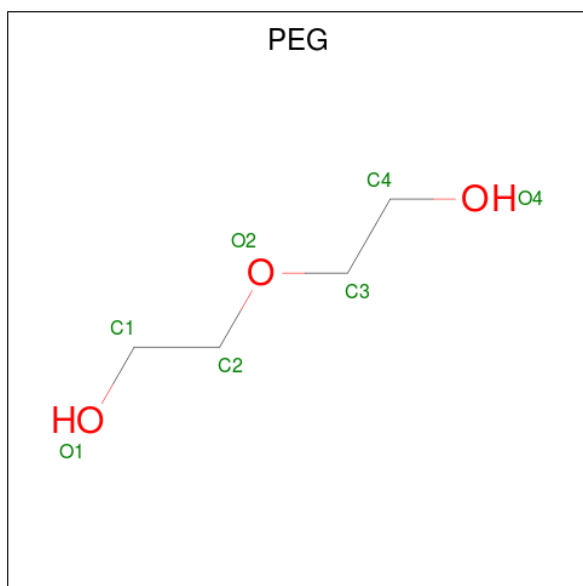
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			13	8	5		

- Molecule 6 is PENTAETHYLENE GLYCOL (three-letter code: 1PE) (formula:  $C_{10}H_{22}O_6$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total	C	O	0	0
			16	10	6		

- Molecule 7 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula:  $C_4H_{10}O_3$ ).



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

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

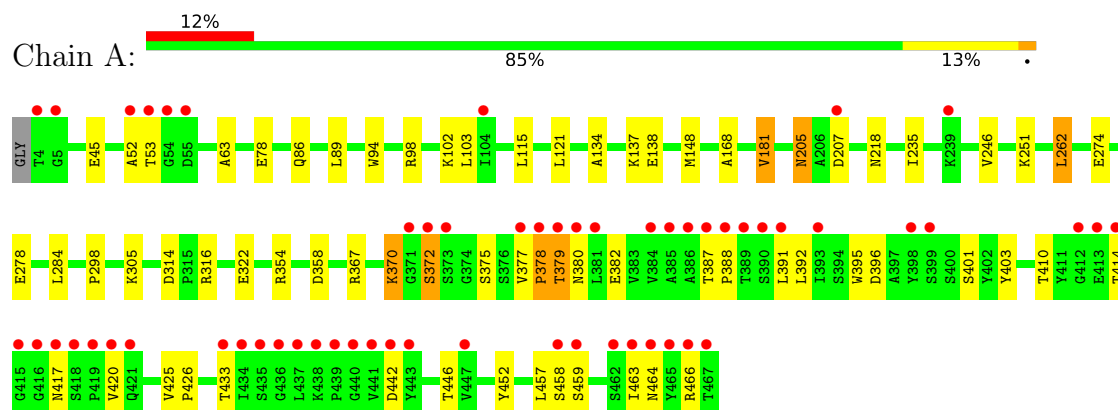
- Molecule 8 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	208	Total O 208 208	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: Maltose-binding protein Monobody YSX1 Fusion



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	98.82Å 98.82Å 134.62Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.00 19.91 – 2.00	Depositor EDS
% Data completeness (in resolution range)	99.9 (20.00-2.00) 99.9 (19.91-2.00)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.16 (at 2.01Å)	Xtriage
Refinement program	REFMAC 5.2.0019, CNS 5.2.0019	Depositor
R, $R_{free}$	0.195 , 0.236 0.193 , 0.229	Depositor DCC
$R_{free}$ test set	4569 reflections (10.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	29.7	Xtriage
Anisotropy	0.010	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.38 , 55.9	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	3929	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.04% 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: PGE, MN, EDO, 1PE, PG4, PEG

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	0.75	0/3707	0.73	0/5046

There are no bond length outliers.

There are no bond angle outliers.

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	3607	0	3554	39	0
2	A	4	0	0	0	0
3	A	8	0	12	2	0
4	A	10	0	13	2	0
5	A	13	0	18	0	0
6	A	16	0	22	0	0
7	A	63	0	90	11	0
8	A	208	0	0	5	0
All	All	3929	0	3709	40	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 5.

All (40) 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:A:314:ASP:OD1	1:A:316:ARG:HD3	1.70	0.92
1:A:378:PRO:HD2	1:A:396:ASP:OD1	1.74	0.87
1:A:205:ASN:HD22	1:A:207:ASP:H	1.23	0.86
1:A:305:LYS:NZ	3:A:1009:EDO:H12	1.96	0.80
1:A:102:LYS:HZ1	7:A:1005:PEG:H21	1.46	0.79
1:A:305:LYS:HZ3	3:A:1009:EDO:H12	1.45	0.79
1:A:377:VAL:HG13	1:A:396:ASP:OD2	1.86	0.74
1:A:102:LYS:NZ	7:A:1005:PEG:H21	2.07	0.69
1:A:63:ALA:HB2	7:A:1012:PEG:H11	1.79	0.64
1:A:205:ASN:ND2	1:A:207:ASP:H	1.94	0.64
1:A:377:VAL:HG11	1:A:395:TRP:HB2	1.81	0.62
1:A:367:ARG:HA	1:A:370:LYS:HD3	1.82	0.61
1:A:86:GLN:CD	7:A:1004:PEG:O4	2.40	0.60
1:A:53:THR:HG23	7:A:1006:PEG:O1	2.04	0.58
1:A:98:ARG:HH12	7:A:1004:PEG:C3	2.19	0.56
1:A:401:SER:HG	1:A:403:TYR:HD1	1.52	0.55
1:A:382:GLU:HB2	1:A:463:ILE:HD13	1.88	0.55
1:A:410:THR:HB	1:A:446:THR:HG23	1.87	0.55
1:A:78:GLU:HB2	7:A:1005:PEG:H42	1.88	0.54
1:A:298:PRO:HB2	4:A:1011:PGE:H32	1.89	0.54
1:A:372:SER:HB3	8:A:1063:HOH:O	2.09	0.53
1:A:314:ASP:OD1	1:A:316:ARG:CD	2.50	0.53
1:A:414:THR:HG21	1:A:464:ASN:HD21	1.74	0.52
1:A:425:VAL:HG22	1:A:426:PRO:HD2	1.90	0.52
1:A:102:LYS:NZ	7:A:1005:PEG:C2	2.73	0.51
1:A:89:LEU:HD22	1:A:94:TRP:CZ2	2.46	0.50
1:A:316:ARG:HH12	4:A:1011:PGE:H62	1.77	0.49
1:A:218:ASN:HD21	1:A:235:ILE:HG12	1.77	0.49
1:A:387:THR:HB	1:A:388:PRO:CD	2.44	0.47
1:A:52:ALA:HA	1:A:53:THR:HA	1.66	0.45
1:A:137:LYS:HE2	8:A:1145:HOH:O	2.16	0.45
1:A:134:ALA:O	1:A:138:GLU:HG3	2.17	0.45
1:A:251:LYS:NZ	7:A:1003:PEG:H22	2.32	0.44
1:A:168:ALA:O	1:A:181:VAL:HB	2.18	0.44
1:A:246:VAL:HG11	1:A:322:GLU:CD	2.38	0.43
1:A:262:LEU:HB2	7:A:1012:PEG:H31	2.00	0.43
1:A:148:MET:HG2	8:A:1040:HOH:O	2.20	0.42
1:A:274:GLU:O	1:A:278:GLU:HG3	2.19	0.42
1:A:354:ARG:NH1	8:A:1057:HOH:O	2.53	0.41
7:A:1012:PEG:H22	8:A:1186:HOH:O	2.20	0.41

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	466/465 (100%)	446 (96%)	15 (3%)	5 (1%)	16 8

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	379	THR
1	A	370	LYS
1	A	378	PRO
1	A	417	ASN
1	A	459	SER

### 5.3.2 Protein sidechains [i](#)

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	380/376 (101%)	358 (94%)	22 (6%)	22 17

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	45	GLU
1	A	103	LEU
1	A	115	LEU

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Mol	Chain	Res	Type
1	A	121	LEU
1	A	181	VAL
1	A	205	ASN
1	A	262	LEU
1	A	284	LEU
1	A	358	ASP
1	A	372	SER
1	A	375	SER
1	A	379	THR
1	A	380	ASN
1	A	391	LEU
1	A	392	LEU
1	A	420	VAL
1	A	433	THR
1	A	442	ASP
1	A	452	TYR
1	A	457	LEU
1	A	458	SER
1	A	466	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	18	ASN
1	A	201	ASN
1	A	205	ASN
1	A	218	ASN
1	A	325	GLN
1	A	349	ASN
1	A	464	ASN

### 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 [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 18 ligands modelled in this entry, 4 are monoatomic - leaving 14 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
7	PEG	A	1001	-	6,6,6	0.59	0	5,5,5	1.43	1 (20%)
7	PEG	A	1002	-	6,6,6	0.59	0	5,5,5	1.41	2 (40%)
7	PEG	A	1003	-	6,6,6	0.66	0	5,5,5	1.36	1 (20%)
7	PEG	A	1004	-	6,6,6	0.53	0	5,5,5	1.38	1 (20%)
7	PEG	A	1005	-	6,6,6	0.60	0	5,5,5	1.55	2 (40%)
7	PEG	A	1006	-	6,6,6	0.46	0	5,5,5	1.10	0
7	PEG	A	1007	-	6,6,6	0.60	0	5,5,5	1.23	1 (20%)
7	PEG	A	1008	-	6,6,6	0.59	0	5,5,5	1.37	1 (20%)
3	EDO	A	1009	-	3,3,3	0.32	0	2,2,2	0.36	0
3	EDO	A	1010	-	3,3,3	0.43	0	2,2,2	0.43	0
4	PGE	A	1011	-	9,9,9	1.31	1 (11%)	8,8,8	1.33	2 (25%)
7	PEG	A	1012	-	6,6,6	0.61	0	5,5,5	1.31	1 (20%)
5	PG4	A	1013	-	12,12,12	0.55	0	11,11,11	1.37	1 (9%)
6	1PE	A	1014	-	15,15,15	0.36	0	14,14,14	0.98	1 (7%)

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
7	PEG	A	1001	-	-	2/4/4/4	-
7	PEG	A	1002	-	-	3/4/4/4	-
7	PEG	A	1003	-	-	2/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	PEG	A	1004	-	-	3/4/4/4	-
7	PEG	A	1005	-	-	4/4/4/4	-
7	PEG	A	1006	-	-	4/4/4/4	-
7	PEG	A	1007	-	-	1/4/4/4	-
7	PEG	A	1008	-	-	1/4/4/4	-
3	EDO	A	1009	-	-	0/1/1/1	-
3	EDO	A	1010	-	-	1/1/1/1	-
4	PGE	A	1011	-	-	6/7/7/7	-
7	PEG	A	1012	-	-	2/4/4/4	-
5	PG4	A	1013	-	-	5/10/10/10	-
6	1PE	A	1014	-	-	2/13/13/13	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1011	PGE	O4-C6	-3.75	1.22	1.42

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	A	1005	PEG	O2-C2-C1	2.66	121.86	110.12
7	A	1001	PEG	O2-C2-C1	2.49	121.12	110.12
7	A	1004	PEG	O2-C2-C1	2.40	120.75	110.12
7	A	1003	PEG	C3-O2-C2	2.32	123.34	113.30
7	A	1012	PEG	O2-C2-C1	2.28	120.19	110.12
7	A	1007	PEG	O2-C2-C1	2.27	120.17	110.12
4	A	1011	PGE	O3-C4-C3	2.27	120.72	110.40
7	A	1002	PEG	O2-C2-C1	2.25	120.08	110.12
7	A	1008	PEG	O2-C2-C1	2.19	119.81	110.12
7	A	1005	PEG	C3-O2-C2	2.18	122.77	113.30
7	A	1002	PEG	C3-O2-C2	2.15	122.62	113.30
6	A	1014	1PE	OH6-C26-C16	2.11	119.45	110.12
4	A	1011	PGE	C5-O3-C4	2.10	122.42	113.30
5	A	1013	PG4	C7-O4-C6	2.10	122.40	113.30

There are no chirality outliers.

All (36) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	A	1001	PEG	C4-C3-O2-C2

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Mol	Chain	Res	Type	Atoms
5	A	1013	PG4	O3-C5-C6-O4
7	A	1008	PEG	O2-C3-C4-O4
7	A	1002	PEG	O2-C3-C4-O4
4	A	1011	PGE	C3-C4-O3-C5
6	A	1014	1PE	OH2-C12-C22-OH3
7	A	1003	PEG	O2-C3-C4-O4
7	A	1002	PEG	O1-C1-C2-O2
7	A	1006	PEG	O2-C3-C4-O4
7	A	1004	PEG	O2-C3-C4-O4
4	A	1011	PGE	O3-C5-C6-O4
7	A	1007	PEG	O1-C1-C2-O2
3	A	1010	EDO	O1-C1-C2-O2
4	A	1011	PGE	O2-C3-C4-O3
4	A	1011	PGE	C6-C5-O3-C4
4	A	1011	PGE	O1-C1-C2-O2
5	A	1013	PG4	O2-C3-C4-O3
7	A	1005	PEG	C1-C2-O2-C3
6	A	1014	1PE	OH7-C16-C26-OH6
7	A	1006	PEG	C4-C3-O2-C2
7	A	1001	PEG	C1-C2-O2-C3
7	A	1006	PEG	C1-C2-O2-C3
7	A	1005	PEG	O2-C3-C4-O4
7	A	1005	PEG	C4-C3-O2-C2
5	A	1013	PG4	C5-C6-O4-C7
4	A	1011	PGE	C4-C3-O2-C2
7	A	1005	PEG	O1-C1-C2-O2
5	A	1013	PG4	C8-C7-O4-C6
7	A	1002	PEG	C1-C2-O2-C3
7	A	1004	PEG	C1-C2-O2-C3
7	A	1003	PEG	O1-C1-C2-O2
7	A	1012	PEG	C4-C3-O2-C2
7	A	1012	PEG	C1-C2-O2-C3
5	A	1013	PG4	C3-C4-O3-C5
7	A	1004	PEG	C4-C3-O2-C2
7	A	1006	PEG	O1-C1-C2-O2

There are no ring outliers.

7 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	A	1003	PEG	1	0
7	A	1004	PEG	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	A	1005	PEG	4	0
7	A	1006	PEG	1	0
3	A	1009	EDO	2	0
4	A	1011	PGE	2	0
7	A	1012	PEG	3	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, 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	464/465 (99%)	0.65	58 (12%) 4 3	17, 30, 83, 91	1 (0%)

All (58) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	381	LEU	13.2
1	A	418	SER	10.2
1	A	388	PRO	9.2
1	A	380	ASN	8.8
1	A	415	GLY	8.8
1	A	437	LEU	8.6
1	A	386	ALA	8.5
1	A	417	ASN	8.5
1	A	373	SER	8.2
1	A	419	PRO	7.8
1	A	54	GLY	7.7
1	A	441	VAL	7.7
1	A	416	GLY	7.5
1	A	439	PRO	6.9
1	A	379	THR	6.7
1	A	436	GLY	5.9
1	A	466	ARG	5.9
1	A	458	SER	5.4
1	A	52	ALA	5.0
1	A	390	SER	4.9
1	A	463	ILE	4.7
1	A	389	THR	4.7
1	A	387	THR	4.7
1	A	465	TYR	4.7
1	A	384	VAL	4.6
1	A	55	ASP	4.5
1	A	398	TYR	4.5

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Mol	Chain	Res	Type	RSRZ
1	A	4	THR	4.4
1	A	53	THR	4.4
1	A	464	ASN	4.3
1	A	442	ASP	4.3
1	A	414	THR	4.3
1	A	413	GLU	4.2
1	A	420	VAL	4.1
1	A	391	LEU	4.1
1	A	378	PRO	4.0
1	A	467	THR	3.9
1	A	377	VAL	3.8
1	A	412	GLY	3.7
1	A	371	GLY	3.4
1	A	440	GLY	3.3
1	A	435	SER	3.3
1	A	438	LYS	3.3
1	A	447	VAL	3.3
1	A	443	TYR	3.0
1	A	5	GLY	2.9
1	A	459	SER	2.8
1	A	239	LYS	2.5
1	A	372	SER	2.5
1	A	399	SER	2.3
1	A	462	SER	2.3
1	A	421	GLN	2.3
1	A	433	THR	2.1
1	A	104	ILE	2.1
1	A	434	ILE	2.1
1	A	385	ALA	2.1
1	A	207	ASP	2.1
1	A	393	ILE	2.1

## 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(Å <sup>2</sup> )	Q<0.9
7	PEG	A	1003	7/7	0.54	0.27	59,61,62,62	0
7	PEG	A	1012	7/7	0.61	0.18	54,55,57,58	0
2	MN	A	1225	1/1	0.67	0.17	84,84,84,84	0
7	PEG	A	1002	7/7	0.70	0.25	68,69,69,70	0
7	PEG	A	1008	7/7	0.71	0.25	46,52,58,58	0
2	MN	A	1223	1/1	0.76	0.15	102,102,102,102	0
7	PEG	A	1004	7/7	0.80	0.17	56,58,59,63	0
5	PG4	A	1013	13/13	0.81	0.25	49,52,55,58	0
7	PEG	A	1005	7/7	0.81	0.17	63,64,64,65	0
7	PEG	A	1001	7/7	0.83	0.21	64,65,67,67	0
2	MN	A	1224	1/1	0.86	0.08	64,64,64,64	0
7	PEG	A	1007	7/7	0.88	0.12	46,50,58,58	0
3	EDO	A	1010	4/4	0.88	0.14	54,55,55,56	0
4	PGE	A	1011	10/10	0.89	0.15	44,47,51,52	0
7	PEG	A	1006	7/7	0.90	0.14	50,53,55,55	0
3	EDO	A	1009	4/4	0.92	0.18	40,42,44,47	0
2	MN	A	1226	1/1	0.93	0.06	56,56,56,56	0
6	1PE	A	1014	16/16	0.94	0.11	33,36,43,49	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.