



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 21, 2024 – 05:35 PM EDT

PDB ID : 3G7R  
Title : Crystal structure of SCO4454, a TetR-family transcriptional regulator from *Streptomyces coelicolor*  
Authors : Singer, A.U.; Xu, X.; Chang, C.; Gu, J.; Edwards, A.M.; Joachimiak, A.; Savchenko, A.; Midwest Center for Structural Genomics (MCSG)  
Deposited on : 2009-02-10  
Resolution : 1.38 Å(reported)

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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.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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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 : 2022.3.0, CSD as543be (2022)  
Xtriage (Phenix) : 1.20.1  
EDS : 3.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
CCP4 : 9.0.003 (Gargrove)  
Density-Fitness : 1.0.11  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.39

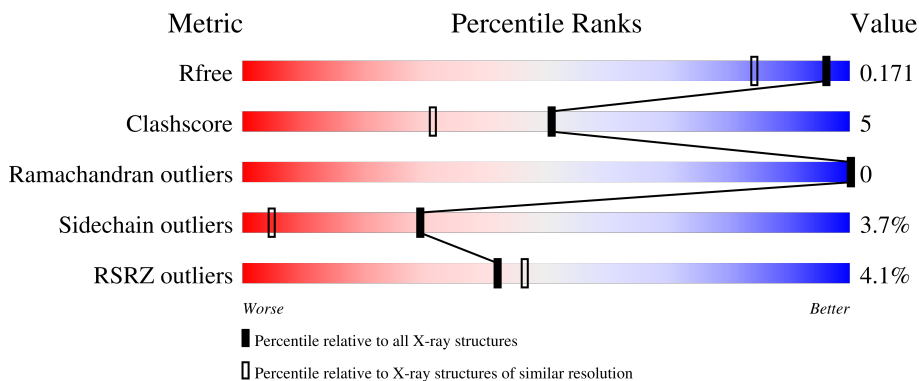
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.38 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))
$R_{free}$	164625	3869 (1.40-1.36)
Clashscore	180529	4183 (1.40-1.36)
Ramachandran outliers	177936	4116 (1.40-1.36)
Sidechain outliers	177891	4115 (1.40-1.36)
RSRZ outliers	164620	3867 (1.40-1.36)

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  $\geq 3$ , 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	221	 78% 7% 14%
1	B	221	 81% 10% 9%

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	EDO	B	972	-	-	X	-

## 2 Entry composition i

There are 7 unique types of molecules in this entry. The entry contains 3973 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 transcriptional regulator.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	S	Se			
1	A	189	1531	952	289	286	2	2	0	11	0
1	B	202	1632	1017	309	301	2	3	0	14	0

There are 42 discrepancies between the modelled and reference sequences:

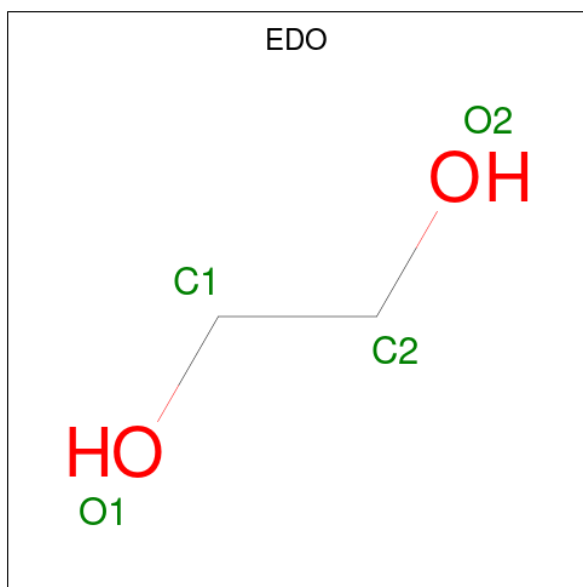
Chain	Residue	Modelled	Actual	Comment	Reference
A	-21	MSE	-	expression tag	UNP Q9KZX2
A	-20	GLY	-	expression tag	UNP Q9KZX2
A	-19	SER	-	expression tag	UNP Q9KZX2
A	-18	SER	-	expression tag	UNP Q9KZX2
A	-17	HIS	-	expression tag	UNP Q9KZX2
A	-16	HIS	-	expression tag	UNP Q9KZX2
A	-15	HIS	-	expression tag	UNP Q9KZX2
A	-14	HIS	-	expression tag	UNP Q9KZX2
A	-13	HIS	-	expression tag	UNP Q9KZX2
A	-12	HIS	-	expression tag	UNP Q9KZX2
A	-11	SER	-	expression tag	UNP Q9KZX2
A	-10	SER	-	expression tag	UNP Q9KZX2
A	-9	GLY	-	expression tag	UNP Q9KZX2
A	-8	ARG	-	expression tag	UNP Q9KZX2
A	-7	GLU	-	expression tag	UNP Q9KZX2
A	-6	ASN	-	expression tag	UNP Q9KZX2
A	-5	LEU	-	expression tag	UNP Q9KZX2
A	-4	TYR	-	expression tag	UNP Q9KZX2
A	-3	PHE	-	expression tag	UNP Q9KZX2
A	-2	GLN	-	expression tag	UNP Q9KZX2
A	0	GLY	-	expression tag	UNP Q9KZX2
B	-20	MSE	-	expression tag	UNP Q9KZX2
B	-19	GLY	-	expression tag	UNP Q9KZX2
B	-18	SER	-	expression tag	UNP Q9KZX2
B	-17	SER	-	expression tag	UNP Q9KZX2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-16	HIS	-	expression tag	UNP Q9KZX2
B	-15	HIS	-	expression tag	UNP Q9KZX2
B	-14	HIS	-	expression tag	UNP Q9KZX2
B	-13	HIS	-	expression tag	UNP Q9KZX2
B	-12	HIS	-	expression tag	UNP Q9KZX2
B	-11	HIS	-	expression tag	UNP Q9KZX2
B	-10	SER	-	expression tag	UNP Q9KZX2
B	-9	SER	-	expression tag	UNP Q9KZX2
B	-8	GLY	-	expression tag	UNP Q9KZX2
B	-7	ARG	-	expression tag	UNP Q9KZX2
B	-6	GLU	-	expression tag	UNP Q9KZX2
B	-5	ASN	-	expression tag	UNP Q9KZX2
B	-4	LEU	-	expression tag	UNP Q9KZX2
B	-3	TYR	-	expression tag	UNP Q9KZX2
B	-2	PHE	-	expression tag	UNP Q9KZX2
B	-1	GLN	-	expression tag	UNP Q9KZX2
B	0	GLY	-	expression tag	UNP Q9KZX2

- Molecule 2 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
2	A	1	Total	C	O	0	0
			4	2	2		
2	A	1	Total	C	O	0	0
			4	2	2		
2	A	1	Total	C	O	0	0
			4	2	2		

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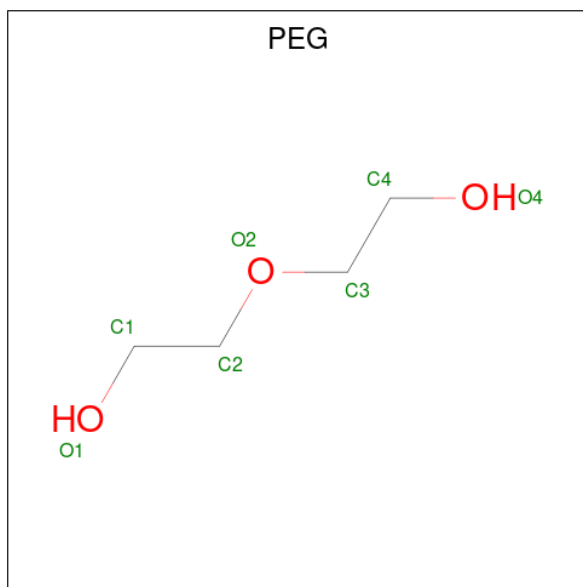
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 8	C 4	O 4	0	1
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 4	C 2	O 2	0	0
2	A	1	Total 8	C 4	O 4	0	1
2	B	1	Total 4	C 2	O 2	0	0
2	B	1	Total 4	C 2	O 2	0	0
2	B	1	Total 4	C 2	O 2	0	0
2	B	1	Total 4	C 2	O 2	0	0
2	B	1	Total 4	C 2	O 2	0	0
2	B	1	Total 4	C 2	O 2	0	0
2	B	1	Total 4	C 2	O 2	0	0
2	B	1	Total 4	C 2	O 2	0	0
2	B	1	Total 4	C 2	O 2	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	B	1	Total	C	O	0	0
			4	2	2		
2	B	1	Total	C	O	0	0
			4	2	2		
2	B	1	Total	C	O	0	1
			8	4	4		

- Molecule 3 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C<sub>4</sub>H<sub>10</sub>O<sub>3</sub>).



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

- Molecule 4 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Na	0	0
			1	1		
4	B	1	Total	Na	0	0
			1	1		

- Molecule 5 is IODIDE ION (three-letter code: IOD) (formula: I).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total I 1 1	0	0
5	B	2	Total I 2 2	0	0

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	3	Total Cl 3 3	0	0

- Molecule 7 is water.

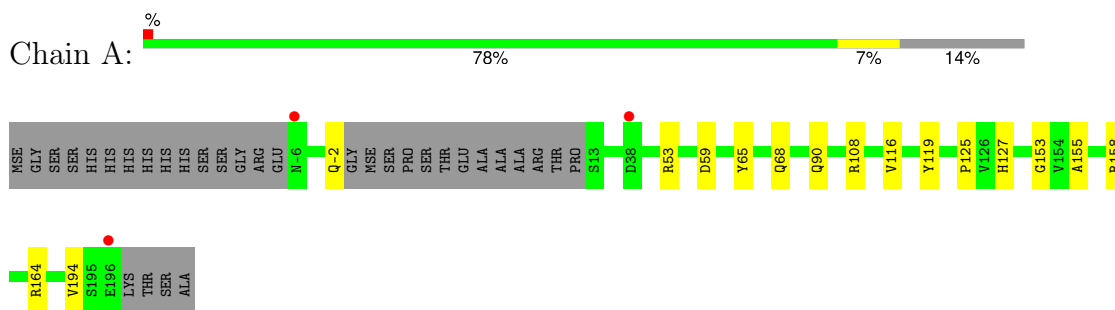
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	351	Total O 351 351	0	0
7	B	317	Total O 317 317	0	0



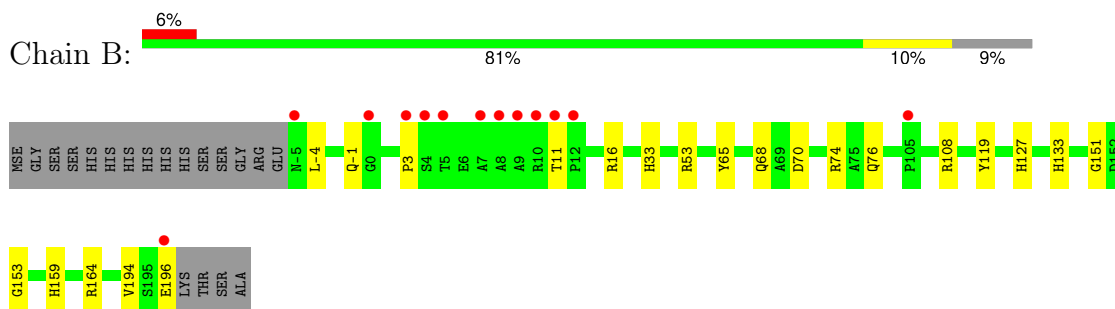
### 3 Residue-property plots [i](#)

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 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: Putative transcriptional regulator



- Molecule 1: Putative transcriptional regulator



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	119.10Å 59.13Å 66.89Å 90.00° 101.38° 90.00°	Depositor
Resolution (Å)	27.39 – 1.38 27.39 – 1.38	Depositor EDS
% Data completeness (in resolution range)	99.7 (27.39-1.38) 99.7 (27.39-1.38)	Depositor EDS
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.36 (at 1.38Å)	Xtrriage
Refinement program	REFMAC 5.2.0019	Depositor
R, $R_{free}$	0.150 , 0.174 0.148 , 0.171	Depositor DCC
$R_{free}$ test set	4637 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	12.0	Xtrriage
Anisotropy	0.166	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.34 , 45.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	3973	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	15.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.89% 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: EDO, NA, CL, PEG, IOD

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	0.35	0/1556	0.54	0/2104
1	B	0.36	0/1671	0.53	0/2259
All	All	0.36	0/3227	0.54	0/4363

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

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	1531	0	1495	12	0
1	B	1632	0	1623	19	0
2	A	68	0	102	7	0
2	B	52	0	78	9	0
3	A	7	0	10	3	0
3	B	7	0	10	3	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
5	A	1	0	0	0	0
5	B	2	0	0	0	0
6	B	3	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	A	351	0	0	3	0
7	B	317	0	0	5	0
All	All	3973	0	3318	34	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 (34) 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:194:VAL:HB	2:A:967:EDO:H11	1.48	0.95
1:B:68:GLN:O	2:B:985:EDO:H11	1.79	0.82
1:A:155:ALA:HB1	2:A:966:EDO:H22	1.70	0.72
1:B:194:VAL:HB	2:B:972:EDO:H11	1.76	0.68
1:A:-2:GLN:HE21	1:A:68[A]:GLN:HE22	1.39	0.68
1:B:133:HIS:HE1	2:B:961:EDO:O2	1.77	0.67
1:A:59:ASP:OD2	3:A:201:PEG:H21	1.95	0.66
1:B:3:PRO:HB2	2:B:985:EDO:H21	1.78	0.65
1:B:70:ASP:OD1	1:B:133:HIS:HD2	1.80	0.64
1:A:158[A]:ARG:HD2	7:A:843:HOH:O	1.99	0.62
1:B:33:HIS:HE1	3:B:201:PEG:C4	2.13	0.61
1:A:153:GLY:HA2	2:A:967:EDO:H21	1.83	0.61
1:B:-4:LEU:H	1:B:-1:GLN:HE21	1.49	0.59
1:B:74:ARG:HB3	2:B:964:EDO:H12	1.86	0.57
2:A:966:EDO:H11	7:B:308:HOH:O	2.07	0.55
1:A:125:PRO:HG2	3:A:201:PEG:H11	1.90	0.54
1:A:127:HIS:HE1	7:B:270:HOH:O	1.91	0.52
1:B:153:GLY:HA2	2:B:972:EDO:H21	1.91	0.52
7:A:236:HOH:O	1:B:127:HIS:HE1	1.92	0.52
1:B:68:GLN:HB2	7:B:334:HOH:O	2.09	0.51
1:B:-4:LEU:H	1:B:-1:GLN:NE2	2.09	0.50
1:B:119:TYR:O	1:B:127:HIS:HD2	1.95	0.50
1:A:153:GLY:CA	2:A:967:EDO:H21	2.42	0.49
1:B:33:HIS:HE1	3:B:201:PEG:O4	1.97	0.48
1:B:76:GLN:HG3	7:B:338:HOH:O	2.14	0.47
1:A:90:GLN:HE22	2:A:971:EDO:C1	2.28	0.47
2:A:984:EDO:H21	7:A:1012:HOH:O	2.15	0.47
2:B:972:EDO:H12	7:B:343:HOH:O	2.16	0.46
1:A:125:PRO:HG2	3:A:201:PEG:C1	2.47	0.45
1:A:119:TYR:O	1:A:127:HIS:HD2	2.01	0.44
1:B:33:HIS:CE1	3:B:201:PEG:C4	2.97	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:11:THR:HG23	1:B:16:ARG:HD3	2.00	0.43
1:B:151:GLY:H	2:B:972:EDO:H12	1.83	0.42
1:B:153:GLY:CA	2:B:972:EDO:H21	2.49	0.42

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	196/221 (89%)	195 (100%)	1 (0%)	0	100	100
1	B	214/221 (97%)	212 (99%)	2 (1%)	0	100	100
All	All	410/442 (93%)	407 (99%)	3 (1%)	0	100	100

There are no Ramachandran outliers to report.

### 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	154/164 (94%)	149 (97%)	5 (3%)	34	7
1	B	166/164 (101%)	160 (96%)	6 (4%)	30	5
All	All	320/328 (98%)	309 (97%)	11 (3%)	29	6

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

Mol	Chain	Res	Type
1	A	53	ARG
1	A	65	TYR
1	A	108	ARG
1	A	116	VAL
1	A	164	ARG
1	B	53	ARG
1	B	65	TYR
1	B	108	ARG
1	B	159	HIS
1	B	164	ARG
1	B	196	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	-6	ASN
1	A	90	GLN
1	A	127	HIS
1	B	-1	GLN
1	B	33	HIS
1	B	127	HIS
1	B	133	HIS
1	B	159	HIS

### 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 oligosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

Of 40 ligands modelled in this entry, 8 are monoatomic - leaving 32 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	$\# Z  > 2$
2	EDO	A	971	-	3,3,3	0.33	0	2,2,2	0.57	0
2	EDO	B	964	-	3,3,3	0.23	0	2,2,2	0.77	0
2	EDO	A	969	-	3,3,3	0.36	0	2,2,2	0.34	0
2	EDO	B	981	-	3,3,3	0.41	0	2,2,2	0.25	0
3	PEG	B	201	-	6,6,6	0.35	0	5,5,5	0.44	0
2	EDO	A	962	-	3,3,3	0.42	0	2,2,2	0.36	0
2	EDO	B	987	-	3,3,3	0.50	0	2,2,2	0.14	0
2	EDO	A	980	-	3,3,3	0.42	0	2,2,2	0.37	0
2	EDO	A	982[A]	-	3,3,3	0.43	0	2,2,2	0.39	0
2	EDO	A	988[A]	-	3,3,3	0.54	0	2,2,2	0.15	0
3	PEG	A	201	-	6,6,6	0.41	0	5,5,5	0.40	0
2	EDO	A	979	-	3,3,3	0.44	0	2,2,2	0.31	0
2	EDO	A	963	-	3,3,3	0.48	0	2,2,2	0.35	0
2	EDO	B	976	-	3,3,3	0.42	0	2,2,2	0.41	0
2	EDO	B	972	-	3,3,3	0.32	0	2,2,2	0.24	0
2	EDO	B	961	-	3,3,3	0.45	0	2,2,2	0.30	0
2	EDO	B	978	-	3,3,3	0.42	0	2,2,2	0.41	0
2	EDO	A	983	-	3,3,3	0.40	0	2,2,2	0.38	0
2	EDO	A	984	-	3,3,3	0.53	0	2,2,2	0.19	0
2	EDO	A	986	-	3,3,3	0.43	0	2,2,2	0.26	0
2	EDO	B	973	-	3,3,3	0.35	0	2,2,2	0.52	0
2	EDO	B	985	-	3,3,3	0.36	0	2,2,2	0.42	0
2	EDO	B	977	-	3,3,3	0.45	0	2,2,2	0.25	0
2	EDO	B	989[B]	-	3,3,3	0.35	0	2,2,2	0.41	0
2	EDO	A	965	-	3,3,3	0.27	0	2,2,2	0.03	0
2	EDO	B	970	-	3,3,3	0.32	0	2,2,2	0.48	0
2	EDO	A	967	-	3,3,3	0.25	0	2,2,2	0.47	0
2	EDO	A	982[B]	-	3,3,3	0.44	0	2,2,2	0.34	0
2	EDO	A	988[B]	-	3,3,3	0.44	0	2,2,2	0.52	0
2	EDO	A	960	-	3,3,3	0.39	0	2,2,2	0.27	0
2	EDO	A	966	-	3,3,3	0.53	0	2,2,2	0.22	0
2	EDO	B	989[A]	-	3,3,3	0.32	0	2,2,2	0.54	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
2	EDO	A	971	-	-	1/1/1/1	-
2	EDO	B	964	-	-	1/1/1/1	-
2	EDO	A	969	-	-	0/1/1/1	-
2	EDO	B	981	-	-	1/1/1/1	-
3	PEG	B	201	-	-	4/4/4/4	-
2	EDO	A	962	-	-	1/1/1/1	-
2	EDO	B	987	-	-	1/1/1/1	-
2	EDO	A	980	-	-	0/1/1/1	-
2	EDO	A	982[A]	-	-	0/1/1/1	-
2	EDO	A	988[A]	-	-	1/1/1/1	-
3	PEG	A	201	-	-	4/4/4/4	-
2	EDO	A	979	-	-	1/1/1/1	-
2	EDO	A	963	-	-	0/1/1/1	-
2	EDO	B	976	-	-	0/1/1/1	-
2	EDO	B	972	-	-	1/1/1/1	-
2	EDO	B	961	-	-	0/1/1/1	-
2	EDO	B	978	-	-	0/1/1/1	-
2	EDO	A	983	-	-	1/1/1/1	-
2	EDO	A	984	-	-	1/1/1/1	-
2	EDO	A	986	-	-	1/1/1/1	-
2	EDO	B	973	-	-	0/1/1/1	-
2	EDO	B	985	-	-	1/1/1/1	-
2	EDO	B	977	-	-	0/1/1/1	-
2	EDO	B	989[B]	-	-	1/1/1/1	-
2	EDO	A	965	-	-	1/1/1/1	-
2	EDO	B	970	-	-	1/1/1/1	-
2	EDO	A	967	-	-	1/1/1/1	-
2	EDO	A	982[B]	-	-	0/1/1/1	-
2	EDO	A	988[B]	-	-	1/1/1/1	-
2	EDO	A	960	-	-	0/1/1/1	-
2	EDO	A	966	-	-	0/1/1/1	-
2	EDO	B	989[A]	-	-	0/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (25) torsion outliers are listed below:



Mol	Chain	Res	Type	Atoms
3	B	201	PEG	O2-C3-C4-O4
2	A	967	EDO	O1-C1-C2-O2
2	B	972	EDO	O1-C1-C2-O2
2	B	981	EDO	O1-C1-C2-O2
3	A	201	PEG	O1-C1-C2-O2
3	B	201	PEG	O1-C1-C2-O2
2	A	971	EDO	O1-C1-C2-O2
2	A	986	EDO	O1-C1-C2-O2
2	B	985	EDO	O1-C1-C2-O2
3	A	201	PEG	O2-C3-C4-O4
2	A	962	EDO	O1-C1-C2-O2
2	B	989[B]	EDO	O1-C1-C2-O2
3	B	201	PEG	C1-C2-O2-C3
3	A	201	PEG	C4-C3-O2-C2
2	A	979	EDO	O1-C1-C2-O2
2	A	984	EDO	O1-C1-C2-O2
2	A	988[A]	EDO	O1-C1-C2-O2
2	B	964	EDO	O1-C1-C2-O2
2	B	970	EDO	O1-C1-C2-O2
2	A	965	EDO	O1-C1-C2-O2
2	A	983	EDO	O1-C1-C2-O2
3	B	201	PEG	C4-C3-O2-C2
3	A	201	PEG	C1-C2-O2-C3
2	B	987	EDO	O1-C1-C2-O2
2	A	988[B]	EDO	O1-C1-C2-O2

There are no ring outliers.

10 monomers are involved in 22 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	971	EDO	1	0
2	B	964	EDO	1	0
3	B	201	PEG	3	0
3	A	201	PEG	3	0
2	B	972	EDO	5	0
2	B	961	EDO	1	0
2	A	984	EDO	1	0
2	B	985	EDO	2	0
2	A	967	EDO	3	0
2	A	966	EDO	2	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 [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	187/221 (84%)	-0.22	3 (1%) 70 76	4, 11, 19, 29	11 (5%)
1	B	199/221 (90%)	-0.03	13 (6%) 26 29	4, 11, 22, 31	14 (7%)
All	All	386/442 (87%)	-0.12	16 (4%) 42 46	4, 11, 20, 31	25 (6%)

All (16) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	11	THR	9.6
1	B	9	ALA	5.4
1	B	8	ALA	4.8
1	B	7	ALA	4.7
1	B	12	PRO	4.1
1	B	4[A]	SER	3.7
1	B	196	GLU	3.3
1	A	-6	ASN	3.2
1	B	0	GLY	3.2
1	B	3	PRO	3.2
1	B	10	ARG	3.1
1	B	-5	ASN	2.9
1	B	5	THR	2.5
1	A	196	GLU	2.4
1	B	105	PRO	2.2
1	A	38	ASP	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 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, 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
3	PEG	A	201	7/7	0.53	0.22	34,40,43,44	0
2	EDO	B	987	4/4	0.57	0.17	32,32,32,34	0
2	EDO	A	979	4/4	0.64	0.22	31,33,33,36	0
2	EDO	A	980	4/4	0.72	0.14	36,37,37,37	0
2	EDO	A	988[A]	4/4	0.73	0.23	22,24,24,25	4
2	EDO	A	988[B]	4/4	0.73	0.23	20,20,21,22	4
2	EDO	A	983	4/4	0.75	0.18	31,32,35,36	0
2	EDO	B	978	4/4	0.76	0.13	35,38,40,42	0
2	EDO	A	965	4/4	0.78	0.17	20,21,21,25	0
2	EDO	A	966	4/4	0.78	0.16	22,25,26,27	0
2	EDO	B	976	4/4	0.79	0.15	31,37,40,44	0
3	PEG	B	201	7/7	0.79	0.17	18,26,30,32	0
2	EDO	A	971	4/4	0.80	0.16	31,32,32,33	0
2	EDO	B	970	4/4	0.81	0.14	29,31,31,32	0
2	EDO	A	962	4/4	0.81	0.15	24,25,26,31	0
2	EDO	A	984	4/4	0.83	0.13	27,27,28,28	0
2	EDO	B	981	4/4	0.84	0.13	30,30,31,32	0
2	EDO	A	982[A]	4/4	0.85	0.10	25,26,26,29	4
2	EDO	B	989[A]	4/4	0.85	0.21	8,12,13,16	4
2	EDO	B	989[B]	4/4	0.85	0.21	17,18,18,21	4
2	EDO	A	982[B]	4/4	0.85	0.10	30,30,32,34	4
2	EDO	A	986	4/4	0.85	0.19	16,22,24,28	0
2	EDO	B	964	4/4	0.86	0.15	10,19,19,21	0
2	EDO	A	967	4/4	0.87	0.17	20,24,24,24	0
2	EDO	B	972	4/4	0.87	0.20	21,22,25,25	0
2	EDO	B	985	4/4	0.89	0.16	16,21,23,26	0
2	EDO	B	977	4/4	0.89	0.10	29,29,29,33	0
2	EDO	B	973	4/4	0.91	0.13	20,25,26,27	0
4	NA	B	204	1/1	0.92	0.09	25,25,25,25	0
2	EDO	A	969	4/4	0.96	0.07	25,27,27,28	0
2	EDO	A	963	4/4	0.98	0.04	11,11,12,12	0
4	NA	A	202	1/1	0.98	0.08	20,20,20,20	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	EDO	A	960	4/4	0.98	0.04	10,10,11,11	0
6	CL	B	205	1/1	0.98	0.15	28,28,28,28	0
5	IOD	B	206	1/1	0.99	0.19	29,29,29,29	1
5	IOD	B	207	1/1	0.99	0.07	19,19,19,19	1
6	CL	B	203	1/1	0.99	0.05	9,9,9,9	0
2	EDO	B	961	4/4	0.99	0.04	11,11,12,12	0
5	IOD	A	203	1/1	1.00	0.04	15,15,15,15	1
6	CL	B	202	1/1	1.00	0.02	13,13,13,13	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.