



wwPDB X-ray Structure Validation Summary Report ⓘ

Dec 12, 2022 – 03:37 pm GMT

PDB ID : 7PO7
Title : Phosphoglycolate phosphatase from *Mus musculus*
Authors : Schloetzer, J.; Schindelin, H.; Fratz, S.
Deposited on : 2021-09-08
Resolution : 2.31 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 : 2.31.3
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

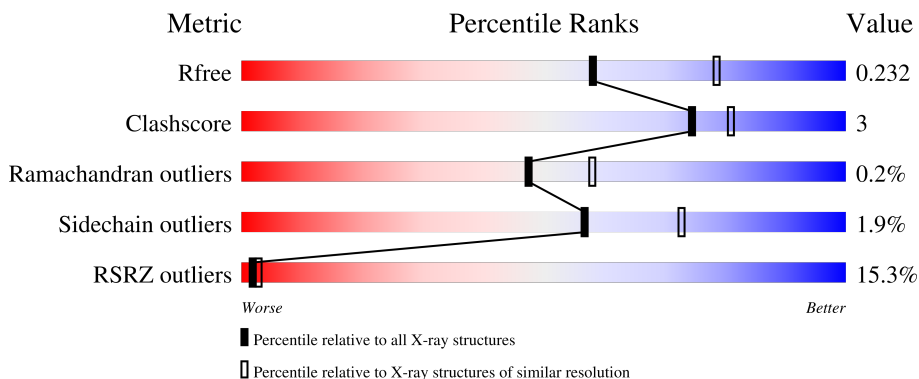
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.31 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	5974 (2.34-2.30)
Clashscore	141614	6604 (2.34-2.30)
Ramachandran outliers	138981	6523 (2.34-2.30)
Sidechain outliers	138945	6523 (2.34-2.30)
RSRZ outliers	127900	5855 (2.34-2.30)

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 $\leq 5\%$. 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	321	 21% 84% 10% 6%
1	B	321	 26% 86% 11% 6%
1	C	321	 6% 88% 7% 6%
1	D	321	 6% 89% 7% 6%
1	E	321	 10% 86% 10% 6%

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Mol	Chain	Length	Quality of chain
1	F	321	
1	G	321	
1	H	321	

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
3	SO4	H	407	-	-	-	X

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 36998 atoms, of which 18482 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 Glycerol-3-phosphate phosphatase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
1	A	302	4653	1460	2346	402	430	15	0	2	0
1	B	310	4738	1486	2387	411	441	13	0	0	0
1	C	310	4738	1486	2387	411	441	13	0	0	0
1	D	310	4767	1498	2402	411	441	15	0	3	0
1	E	310	4769	1498	2405	411	441	14	0	2	0
1	F	311	4774	1496	2406	415	444	13	0	1	0
1	G	207	3216	1021	1616	274	296	9	0	1	0
1	H	311	4746	1488	2390	412	443	13	0	0	0

There are 16 discrepancies between the modelled and reference sequences:

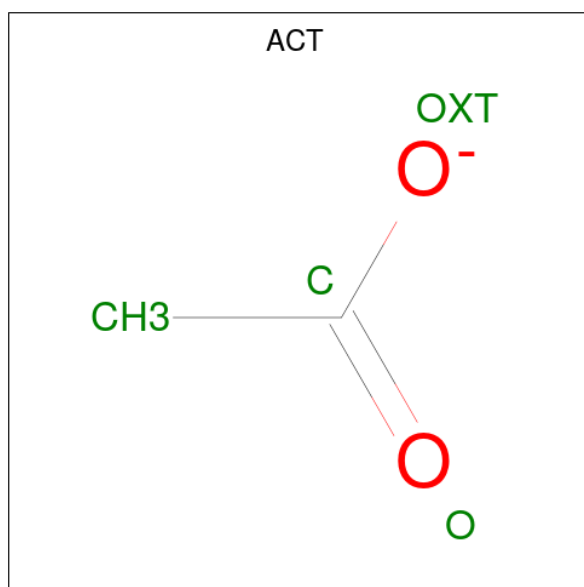
Chain	Residue	Modelled	Actual	Comment	Reference
A	34	ASN	ASP	engineered mutation	UNP Q8CHP8
A	297	SER	CYS	engineered mutation	UNP Q8CHP8
B	34	ASN	ASP	engineered mutation	UNP Q8CHP8
B	297	SER	CYS	engineered mutation	UNP Q8CHP8
C	34	ASN	ASP	engineered mutation	UNP Q8CHP8
C	297	SER	CYS	engineered mutation	UNP Q8CHP8
D	34	ASN	ASP	engineered mutation	UNP Q8CHP8
D	297	SER	CYS	engineered mutation	UNP Q8CHP8
E	34	ASN	ASP	engineered mutation	UNP Q8CHP8
E	297	SER	CYS	engineered mutation	UNP Q8CHP8
F	34	ASN	ASP	engineered mutation	UNP Q8CHP8
F	297	SER	CYS	engineered mutation	UNP Q8CHP8
G	34	ASN	ASP	engineered mutation	UNP Q8CHP8

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Chain	Residue	Modelled	Actual	Comment	Reference
G	297	SER	CYS	engineered mutation	UNP Q8CHP8
H	34	ASN	ASP	engineered mutation	UNP Q8CHP8
H	297	SER	CYS	engineered mutation	UNP Q8CHP8

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	H	O		
2	A	1	7	2	3	2	0	0
2	B	1	7	2	3	2	0	0
2	C	1	7	2	3	2	0	0
2	D	1	7	2	3	2	0	0
2	E	1	7	2	3	2	0	0
2	F	1	7	2	3	2	0	0
2	G	1	7	2	3	2	0	0
2	H	1	7	2	3	2	0	0

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		
3	C	1	Total	O	S	0	0
			5	4	1		
3	D	1	Total	O	S	0	0
			5	4	1		
3	E	1	Total	O	S	0	0
			5	4	1		
3	F	1	Total	O	S	0	0
			5	4	1		
3	F	1	Total	O	S	0	0
			5	4	1		
3	H	1	Total	O	S	0	0
			5	4	1		

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	B	1	Total	C	H	O	0	0
			14	3	8	3		
4	B	1	Total	C	H	O	0	0
			14	3	8	3		
4	C	1	Total	C	H	O	0	0
			14	3	8	3		
4	C	1	Total	C	H	O	0	0
			14	3	8	3		
4	C	1	Total	C	H	O	0	0
			14	3	8	3		
4	D	1	Total	C	H	O	0	0
			14	3	8	3		
4	D	1	Total	C	H	O	0	0
			14	3	8	3		
4	E	1	Total	C	H	O	0	0
			14	3	8	3		
4	F	1	Total	C	H	O	0	0
			13	3	7	3		
4	F	1	Total	C	H	O	0	0
			14	3	8	3		
4	G	1	Total	C	H	O	0	0
			14	3	8	3		
4	H	1	Total	C	H	O	0	0
			14	3	8	3		
4	H	1	Total	C	H	O	0	0
			14	3	8	3		
4	H	1	Total	C	H	O	0	0
			14	3	8	3		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	
4	H	1	Total	C	H	O	0	0
			14	3	8	3		

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	H	1	Total	Ca	0	0
			1	1		

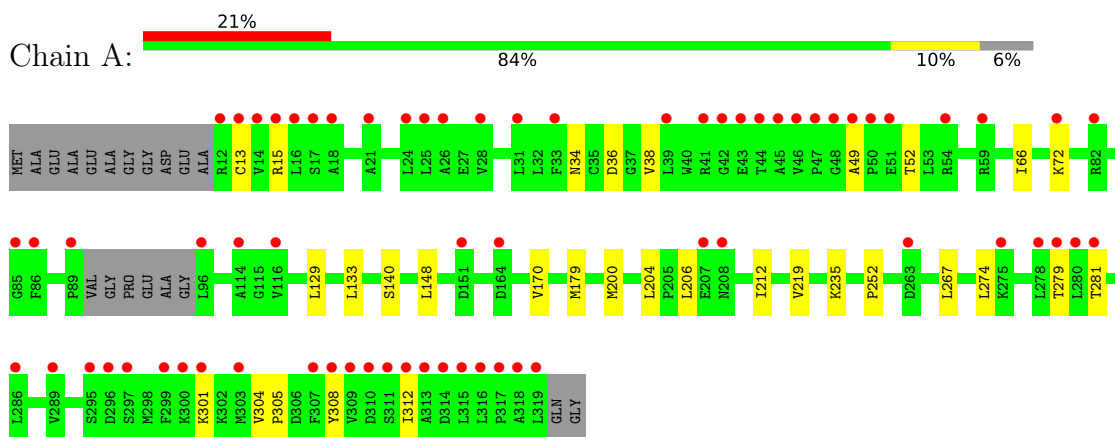
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	15	Total	O	0	1
			16	16		
6	B	34	Total	O	0	1
			35	35		
6	C	86	Total	O	0	0
			86	86		
6	D	37	Total	O	0	0
			37	37		
6	E	27	Total	O	0	1
			28	28		
6	F	52	Total	O	0	1
			53	53		
6	G	5	Total	O	0	0
			5	5		
6	H	31	Total	O	0	0
			31	31		

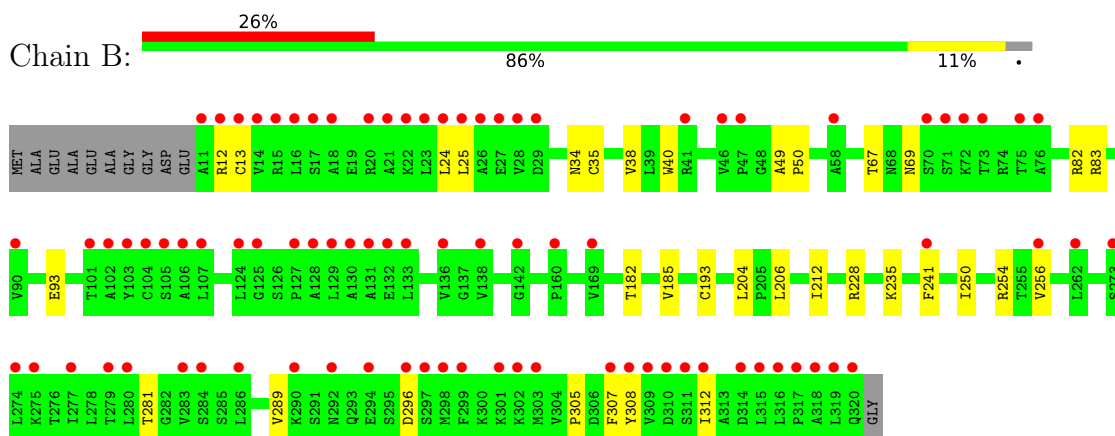
3 Residue-property plots [i](#)

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.

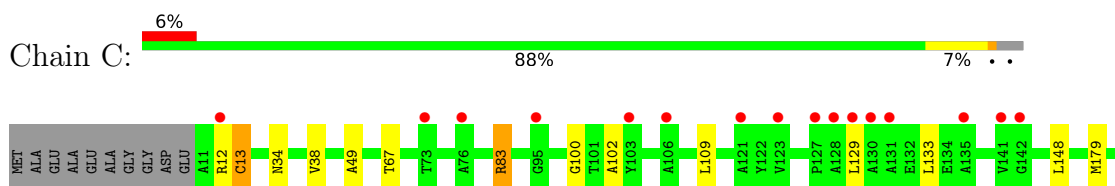
- Molecule 1: Glycerol-3-phosphate phosphatase




- Molecule 1: Glycerol-3-phosphate phosphatase

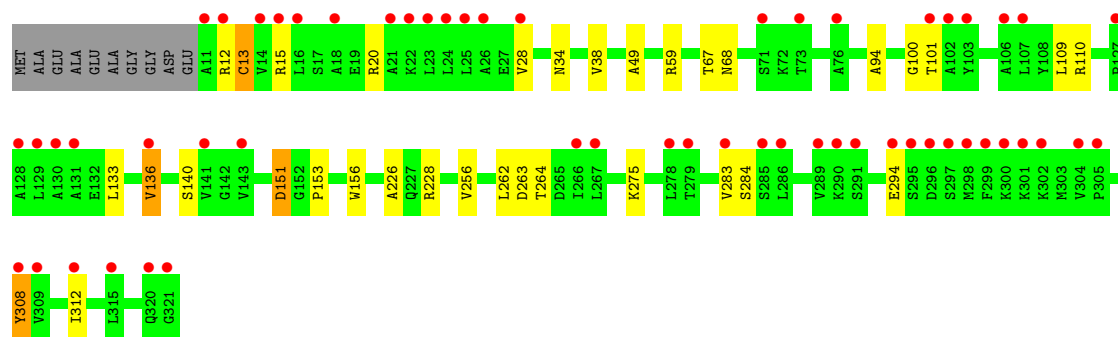


- Molecule 1: Glycerol-3-phosphate phosphatase



- Molecule 1: Glycerol-3-phosphate phosphatase

Chain H:  17% 86% 9% ..



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	84.26Å 91.20Å 101.32Å 103.46° 89.98° 104.63°	Depositor
Resolution (Å)	19.97 – 2.31 49.17 – 2.31	Depositor EDS
% Data completeness (in resolution range)	71.3 (19.97-2.31) 71.3 (49.17-2.31)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.09 (at 2.32Å)	Xtriage
Refinement program	PHENIX 1.14_3260	Depositor
R, R_{free}	0.208 , 0.230 0.211 , 0.232	Depositor DCC
R_{free} test set	2233 reflections (2.51%)	wwPDB-VP
Wilson B-factor (Å ²)	50.9	Xtriage
Anisotropy	0.026	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	36998	wwPDB-VP
Average B, all atoms (Å ²)	77.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.69% 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: CA, SO4, ACT, GOL

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	0.28	0/2353	0.53	0/3190
1	B	0.28	0/2393	0.51	0/3247
1	C	0.28	0/2393	0.51	0/3247
1	D	0.29	0/2417	0.52	0/3279
1	E	0.28	0/2413	0.52	0/3273
1	F	0.28	0/2413	0.53	0/3273
1	G	0.26	0/1633	0.45	0/2215
1	H	0.28	0/2398	0.51	0/3252
All	All	0.28	0/18413	0.51	0/24976

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	2307	2346	2350	20	0
1	B	2351	2387	2387	17	2
1	C	2351	2387	2387	12	1
1	D	2365	2402	2406	13	0
1	E	2364	2405	2405	19	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	2368	2406	2406	16	1
1	G	1600	1616	1612	4	1
1	H	2356	2390	2390	17	1
2	A	4	3	3	0	0
2	B	4	3	3	0	0
2	C	4	3	3	0	0
2	D	4	3	3	0	0
2	E	4	3	3	0	0
2	F	4	3	3	0	0
2	G	4	3	3	0	0
2	H	4	3	3	0	0
3	A	5	0	0	0	0
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	5	0	0	0	0
3	E	5	0	0	0	0
3	F	10	0	0	0	0
3	H	5	0	0	0	0
4	B	12	16	16	0	0
4	C	18	24	24	0	0
4	D	12	16	16	1	0
4	E	6	8	8	0	0
4	F	12	15	16	1	0
4	G	6	8	8	0	0
4	H	24	32	32	0	0
5	H	1	0	0	0	0
6	A	16	0	0	0	0
6	B	35	0	0	1	0
6	C	86	0	0	0	0
6	D	37	0	0	0	0
6	E	28	0	0	0	0
6	F	53	0	0	0	0
6	G	5	0	0	0	0
6	H	31	0	0	0	0
All	All	18516	18482	18487	118	3

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 3.

The worst 5 of 118 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:38:VAL:HG12	1:A:312:ILE:HD11	1.47	0.96
1:A:38:VAL:CG1	1:A:312:ILE:HD11	2.00	0.92
1:H:28:VAL:HG11	1:H:256:VAL:HG23	1.60	0.84
1:H:151:ASP:N	1:H:151:ASP:OD1	2.17	0.76
1:B:67:THR:HG22	1:B:69:ASN:H	1.52	0.73

All (3) 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)
1:B:93:GLU:OE2	1:G:254:ARG:NH1[1_455]	1.97	0.23
1:C:83:ARG:NH1	1:H:94:ALA:O[1_556]	2.04	0.16
1:B:82:ARG:NH1	1:F:91:GLY:O[1_455]	2.10	0.10

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	300/321 (94%)	297 (99%)	3 (1%)	0	100	100
1	B	308/321 (96%)	305 (99%)	2 (1%)	1 (0%)	41	50
1	C	308/321 (96%)	303 (98%)	4 (1%)	1 (0%)	41	50
1	D	311/321 (97%)	307 (99%)	3 (1%)	1 (0%)	41	50
1	E	310/321 (97%)	306 (99%)	4 (1%)	0	100	100
1	F	310/321 (97%)	304 (98%)	5 (2%)	1 (0%)	41	50
1	G	200/321 (62%)	198 (99%)	2 (1%)	0	100	100
1	H	309/321 (96%)	305 (99%)	3 (1%)	1 (0%)	41	50
All	All	2356/2568 (92%)	2325 (99%)	26 (1%)	5 (0%)	47	58

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	13	CYS
1	F	13	CYS
1	H	13	CYS
1	B	13	CYS
1	C	13	CYS

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	251/258 (97%)	244 (97%)	7 (3%)	43 59
1	B	253/258 (98%)	246 (97%)	7 (3%)	43 59
1	C	253/258 (98%)	246 (97%)	7 (3%)	43 59
1	D	256/258 (99%)	254 (99%)	2 (1%)	81 90
1	E	255/258 (99%)	254 (100%)	1 (0%)	91 96
1	F	255/258 (99%)	252 (99%)	3 (1%)	71 83
1	G	174/258 (67%)	172 (99%)	2 (1%)	73 85
1	H	253/258 (98%)	245 (97%)	8 (3%)	39 53
All	All	1950/2064 (94%)	1913 (98%)	37 (2%)	57 73

5 of 37 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	267	LEU
1	H	294	GLU
1	H	59	ARG
1	H	140	SER
1	B	296	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	H	246	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 32 ligands modelled in this entry, 1 is monoatomic - leaving 31 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	ACT	B	402	-	3,3,3	1.19	0	3,3,3	1.61	0
4	GOL	H	405	-	5,5,5	0.88	0	5,5,5	0.99	0
4	GOL	H	402	-	5,5,5	0.85	0	5,5,5	0.97	0
4	GOL	C	404	-	5,5,5	0.88	0	5,5,5	0.80	0
4	GOL	D	401	-	5,5,5	0.94	0	5,5,5	0.97	0
2	ACT	F	402	-	3,3,3	1.22	0	3,3,3	1.62	1 (33%)
2	ACT	G	401	-	3,3,3	1.18	0	3,3,3	1.46	0
3	SO4	A	402	-	4,4,4	0.14	0	6,6,6	0.05	0
4	GOL	H	403	-	5,5,5	0.86	0	5,5,5	0.89	0
4	GOL	D	403	-	5,5,5	0.87	0	5,5,5	0.98	0
2	ACT	A	401	-	3,3,3	1.24	0	3,3,3	1.45	0
4	GOL	B	401	-	5,5,5	0.87	0	5,5,5	0.94	0
2	ACT	H	401	-	3,3,3	1.21	0	3,3,3	1.48	0
3	SO4	B	404	-	4,4,4	0.14	0	6,6,6	0.06	0
4	GOL	B	403	-	5,5,5	0.87	0	5,5,5	0.97	0
3	SO4	F	405	-	4,4,4	0.14	0	6,6,6	0.05	0
3	SO4	C	405	-	4,4,4	0.14	0	6,6,6	0.06	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	SO4	D	404	-	4,4,4	0.14	0	6,6,6	0.06	0
4	GOL	F	401	-	5,5,5	0.85	0	5,5,5	1.04	0
4	GOL	F	403	-	5,5,5	0.88	0	5,5,5	0.99	0
3	SO4	F	404	-	4,4,4	0.14	0	6,6,6	0.05	0
2	ACT	D	402	-	3,3,3	1.08	0	3,3,3	1.47	0
4	GOL	C	403	-	5,5,5	0.88	0	5,5,5	1.01	0
4	GOL	E	402	-	5,5,5	0.90	0	5,5,5	0.98	0
3	SO4	H	407	-	4,4,4	0.14	0	6,6,6	0.06	0
3	SO4	E	403	-	4,4,4	0.14	0	6,6,6	0.07	0
4	GOL	H	404	-	5,5,5	0.89	0	5,5,5	1.01	0
4	GOL	C	401	-	5,5,5	0.88	0	5,5,5	1.03	0
2	ACT	C	402	-	3,3,3	1.21	0	3,3,3	1.52	0
2	ACT	E	401	-	3,3,3	1.19	0	3,3,3	1.59	0
4	GOL	G	402	-	5,5,5	0.84	0	5,5,5	0.82	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
4	GOL	C	401	-	-	0/4/4/4	-
4	GOL	F	401	-	-	0/4/4/4	-
4	GOL	F	403	-	-	0/4/4/4	-
4	GOL	H	403	-	-	0/4/4/4	-
4	GOL	H	405	-	-	0/4/4/4	-
4	GOL	D	403	-	-	1/4/4/4	-
4	GOL	H	402	-	-	0/4/4/4	-
4	GOL	C	404	-	-	2/4/4/4	-
4	GOL	C	403	-	-	0/4/4/4	-
4	GOL	B	401	-	-	0/4/4/4	-
4	GOL	B	403	-	-	0/4/4/4	-
4	GOL	E	402	-	-	0/4/4/4	-
4	GOL	H	404	-	-	0/4/4/4	-
4	GOL	D	401	-	-	2/4/4/4	-
4	GOL	G	402	-	-	0/4/4/4	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	402	ACT	O-C-CH3	-2.00	114.54	122.33

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	D	401	GOL	O1-C1-C2-C3
4	C	404	GOL	O2-C2-C3-O3
4	C	404	GOL	C1-C2-C3-O3
4	D	401	GOL	O1-C1-C2-O2
4	D	403	GOL	O1-C1-C2-C3

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	D	401	GOL	1	0
4	F	401	GOL	1	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, 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	302/321 (94%)	1.24	68 (22%) 0 1	40, 82, 131, 145	0
1	B	310/321 (96%)	1.49	85 (27%) 0 0	38, 73, 133, 157	0
1	C	310/321 (96%)	0.63	19 (6%) 21 27	28, 48, 82, 136	0
1	D	310/321 (96%)	0.55	20 (6%) 18 24	35, 57, 97, 131	0
1	E	310/321 (96%)	0.76	33 (10%) 6 9	37, 68, 124, 158	0
1	F	311/321 (96%)	0.96	40 (12%) 3 5	30, 54, 97, 160	0
1	G	207/321 (64%)	1.38	42 (20%) 1 1	46, 74, 136, 165	0
1	H	311/321 (96%)	1.16	56 (18%) 1 1	35, 67, 114, 176	0
All	All	2371/2568 (92%)	1.00	363 (15%) 2 3	28, 64, 124, 176	0

The worst 5 of 363 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	308	TYR	11.0
1	G	307	PHE	10.4
1	G	278	LEU	10.1
1	G	309	VAL	9.5
1	G	79	GLU	8.5

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, 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
4	GOL	G	402	6/6	0.52	0.26	102,123,128,128	0
4	GOL	H	405	6/6	0.60	0.21	107,129,135,137	0
3	SO4	H	407	5/5	0.63	0.48	132,133,134,137	0
4	GOL	C	404	6/6	0.67	0.33	78,94,111,112	0
4	GOL	C	403	6/6	0.77	0.35	87,105,110,111	0
3	SO4	B	404	5/5	0.78	0.34	137,139,139,140	0
4	GOL	E	402	6/6	0.78	0.23	91,110,114,114	0
4	GOL	H	404	6/6	0.80	0.28	81,98,111,111	0
4	GOL	H	403	6/6	0.84	0.30	76,92,95,99	0
4	GOL	B	401	6/6	0.84	0.31	76,93,102,110	0
4	GOL	B	403	6/6	0.84	0.33	75,91,93,100	0
4	GOL	D	403	6/6	0.85	0.13	78,95,103,104	0
4	GOL	F	403	6/6	0.85	0.16	89,108,117,119	0
3	SO4	A	402	5/5	0.87	0.40	151,152,152,152	0
2	ACT	F	402	4/4	0.87	0.14	45,55,55,57	0
3	SO4	F	404	5/5	0.87	0.17	136,137,138,138	0
3	SO4	E	403	5/5	0.89	0.20	125,125,126,127	0
4	GOL	D	401	6/6	0.89	0.13	62,75,80,88	0
2	ACT	A	401	4/4	0.89	0.15	70,72,87,87	0
4	GOL	H	402	6/6	0.90	0.22	79,95,101,102	0
2	ACT	G	401	4/4	0.90	0.09	75,78,92,92	0
3	SO4	F	405	5/5	0.92	0.16	105,106,107,109	0
2	ACT	E	401	4/4	0.92	0.15	58,62,71,71	0
3	SO4	C	405	5/5	0.92	0.17	99,100,104,104	0
4	GOL	F	401	6/6	0.93	0.25	49,69,84,87	0
3	SO4	D	404	5/5	0.94	0.23	106,107,108,108	0
4	GOL	C	401	6/6	0.94	0.28	43,61,78,79	0
2	ACT	B	402	4/4	0.95	0.14	59,66,80,80	0
2	ACT	D	402	4/4	0.95	0.23	63,65,79,79	0
5	CA	H	406	1/1	0.96	0.19	57,57,57,57	0
2	ACT	C	402	4/4	0.97	0.14	49,54,67,67	0
2	ACT	H	401	4/4	0.97	0.13	58,60,74,74	0

6.5 Other polymers [i](#)

There are no such residues in this entry.