



# Full wwPDB X-ray Structure Validation Report ⓘ

Nov 30, 2021 – 11:12 am GMT

PDB ID : 7B2N  
Title : Crystal structure of Chlamydomonas reinhardtii chloroplastic Fructose biphosphate aldolase  
Authors : Le Moigne, T.; Lemaire, S.D.; Henri, J.  
Deposited on : 2020-11-27  
Resolution : 2.36 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 : 1.8.4 (270009), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.23.2  
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) : 2.23.2

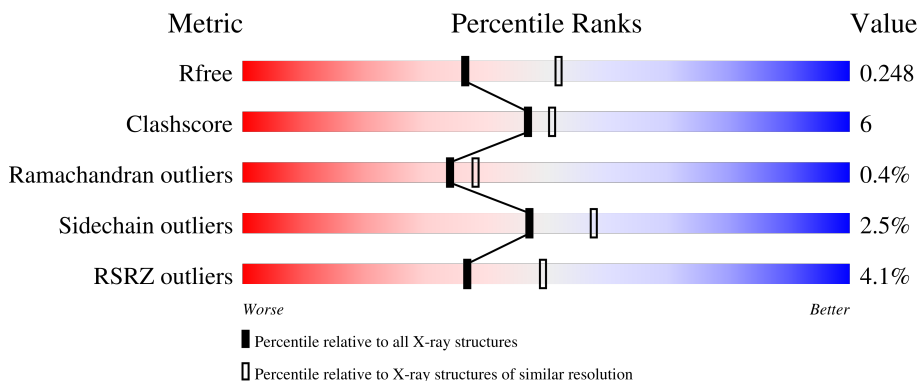
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.36 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.



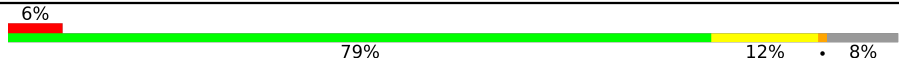


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1164 (2.36-2.36)
Clashscore	141614	1232 (2.36-2.36)
Ramachandran outliers	138981	1211 (2.36-2.36)
Sidechain outliers	138945	1212 (2.36-2.36)
RSRZ outliers	127900	1150 (2.36-2.36)

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	359	
1	B	359	
1	C	359	
1	D	359	
1	E	359	

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Mol	Chain	Length	Quality of chain
1	F	359	
1	G	359	
1	H	359	

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	SO4	D	404	-	-	X	-
2	SO4	F	405	-	-	X	-

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 21458 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 Fructose-bisphosphate aldolase 1, chloroplastic.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	332	2566	1613	450	488	15	0	3	0
1	B	332	2548	1603	448	482	15	0	1	0
1	C	332	2560	1610	449	485	16	0	2	0
1	D	329	2520	1588	441	476	15	0	0	0
1	E	333	2545	1602	445	482	16	0	0	0
1	F	331	2532	1594	443	480	15	0	0	0
1	G	330	2524	1590	442	477	15	0	0	0
1	H	330	2528	1592	442	479	15	0	0	0

There are 72 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	19	MET	-	initiating methionine	UNP Q42690
A	20	HIS	-	expression tag	UNP Q42690
A	21	HIS	-	expression tag	UNP Q42690
A	22	HIS	-	expression tag	UNP Q42690
A	23	HIS	-	expression tag	UNP Q42690
A	24	HIS	-	expression tag	UNP Q42690
A	25	HIS	-	expression tag	UNP Q42690
A	26	HIS	-	expression tag	UNP Q42690
A	27	MET	-	expression tag	UNP Q42690
B	19	MET	-	initiating methionine	UNP Q42690
B	20	HIS	-	expression tag	UNP Q42690
B	21	HIS	-	expression tag	UNP Q42690
B	22	HIS	-	expression tag	UNP Q42690

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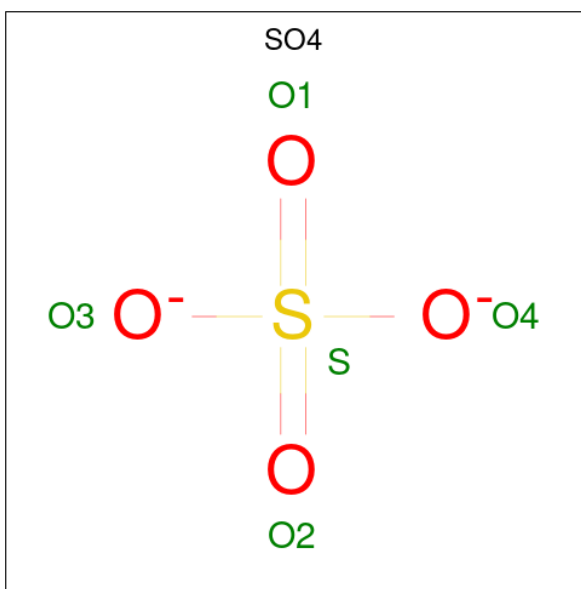
Chain	Residue	Modelled	Actual	Comment	Reference
B	23	HIS	-	expression tag	UNP Q42690
B	24	HIS	-	expression tag	UNP Q42690
B	25	HIS	-	expression tag	UNP Q42690
B	26	HIS	-	expression tag	UNP Q42690
B	27	MET	-	expression tag	UNP Q42690
C	19	MET	-	initiating methionine	UNP Q42690
C	20	HIS	-	expression tag	UNP Q42690
C	21	HIS	-	expression tag	UNP Q42690
C	22	HIS	-	expression tag	UNP Q42690
C	23	HIS	-	expression tag	UNP Q42690
C	24	HIS	-	expression tag	UNP Q42690
C	25	HIS	-	expression tag	UNP Q42690
C	26	HIS	-	expression tag	UNP Q42690
C	27	MET	-	expression tag	UNP Q42690
D	19	MET	-	initiating methionine	UNP Q42690
D	20	HIS	-	expression tag	UNP Q42690
D	21	HIS	-	expression tag	UNP Q42690
D	22	HIS	-	expression tag	UNP Q42690
D	23	HIS	-	expression tag	UNP Q42690
D	24	HIS	-	expression tag	UNP Q42690
D	25	HIS	-	expression tag	UNP Q42690
D	26	HIS	-	expression tag	UNP Q42690
D	27	MET	-	expression tag	UNP Q42690
E	19	MET	-	initiating methionine	UNP Q42690
E	20	HIS	-	expression tag	UNP Q42690
E	21	HIS	-	expression tag	UNP Q42690
E	22	HIS	-	expression tag	UNP Q42690
E	23	HIS	-	expression tag	UNP Q42690
E	24	HIS	-	expression tag	UNP Q42690
E	25	HIS	-	expression tag	UNP Q42690
E	26	HIS	-	expression tag	UNP Q42690
E	27	MET	-	expression tag	UNP Q42690
F	19	MET	-	initiating methionine	UNP Q42690
F	20	HIS	-	expression tag	UNP Q42690
F	21	HIS	-	expression tag	UNP Q42690
F	22	HIS	-	expression tag	UNP Q42690
F	23	HIS	-	expression tag	UNP Q42690
F	24	HIS	-	expression tag	UNP Q42690
F	25	HIS	-	expression tag	UNP Q42690
F	26	HIS	-	expression tag	UNP Q42690
F	27	MET	-	expression tag	UNP Q42690
G	19	MET	-	initiating methionine	UNP Q42690

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Chain	Residue	Modelled	Actual	Comment	Reference
G	20	HIS	-	expression tag	UNP Q42690
G	21	HIS	-	expression tag	UNP Q42690
G	22	HIS	-	expression tag	UNP Q42690
G	23	HIS	-	expression tag	UNP Q42690
G	24	HIS	-	expression tag	UNP Q42690
G	25	HIS	-	expression tag	UNP Q42690
G	26	HIS	-	expression tag	UNP Q42690
G	27	MET	-	expression tag	UNP Q42690
H	19	MET	-	initiating methionine	UNP Q42690
H	20	HIS	-	expression tag	UNP Q42690
H	21	HIS	-	expression tag	UNP Q42690
H	22	HIS	-	expression tag	UNP Q42690
H	23	HIS	-	expression tag	UNP Q42690
H	24	HIS	-	expression tag	UNP Q42690
H	25	HIS	-	expression tag	UNP Q42690
H	26	HIS	-	expression tag	UNP Q42690
H	27	MET	-	expression tag	UNP Q42690

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



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

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

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	F	1	Total	O	S	0	0
			5	4	1		
2	G	1	Total	O	S	0	0
			5	4	1		
2	G	1	Total	O	S	0	0
			5	4	1		
2	G	1	Total	O	S	0	0
			5	4	1		
2	H	1	Total	O	S	0	0
			5	4	1		

- Molecule 3 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	1	Total	Cl	0	0
			1	1		

- Molecule 4 is water.

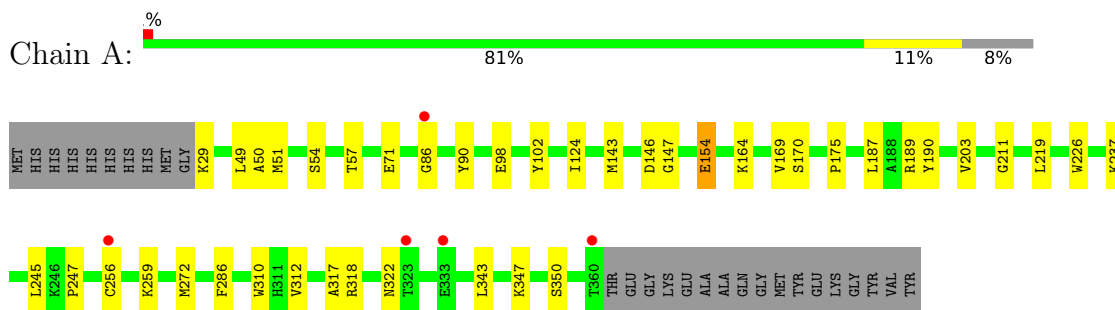
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	140	Total	O	0	0
			140	140		
4	B	170	Total	O	0	0
			170	170		
4	C	152	Total	O	0	0
			152	152		
4	D	114	Total	O	0	0
			114	114		
4	E	86	Total	O	0	0
			86	86		
4	F	138	Total	O	0	0
			138	138		
4	G	87	Total	O	0	0
			87	87		
4	H	102	Total	O	0	0
			102	102		



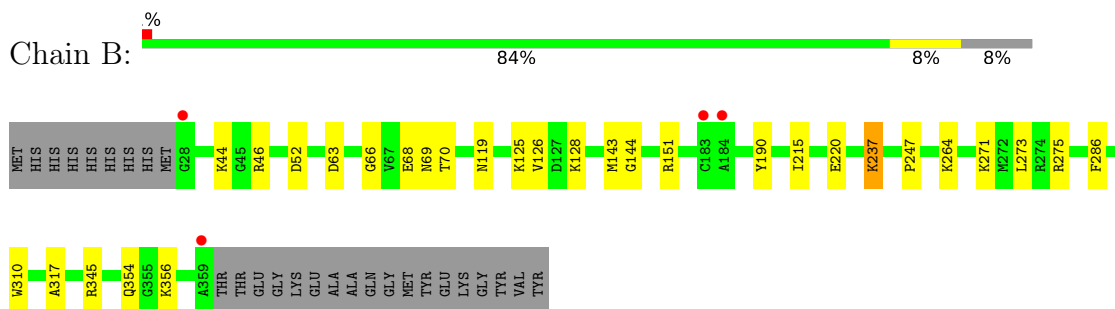
### 3 Residue-property plots [i](#)

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.

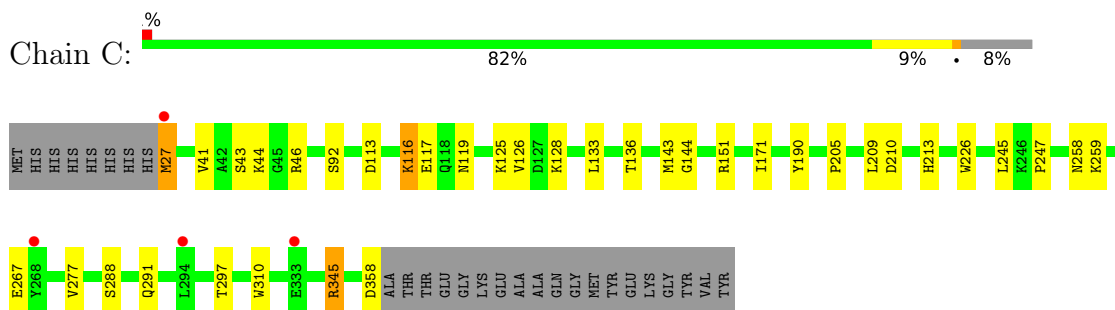
- Molecule 1: Fructose-bisphosphate aldolase 1, chloroplastic



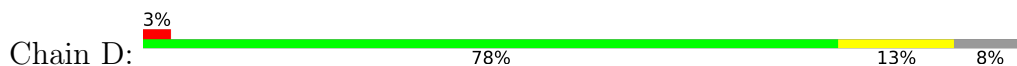
- Molecule 1: Fructose-bisphosphate aldolase 1, chloroplastic

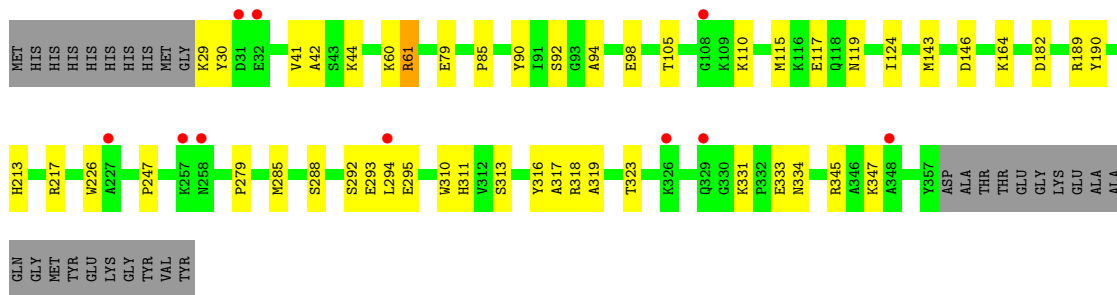


- Molecule 1: Fructose-bisphosphate aldolase 1, chloroplastic

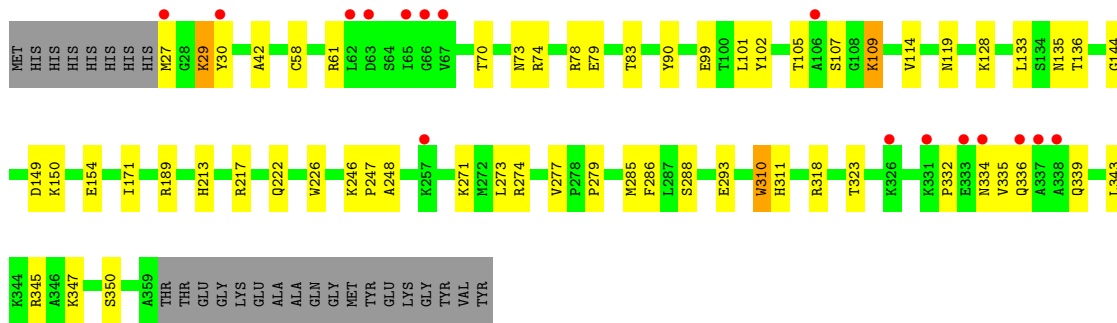
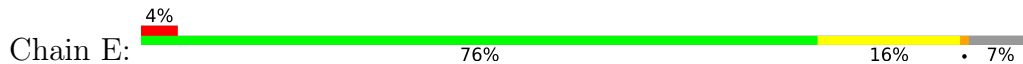


- Molecule 1: Fructose-bisphosphate aldolase 1, chloroplastic

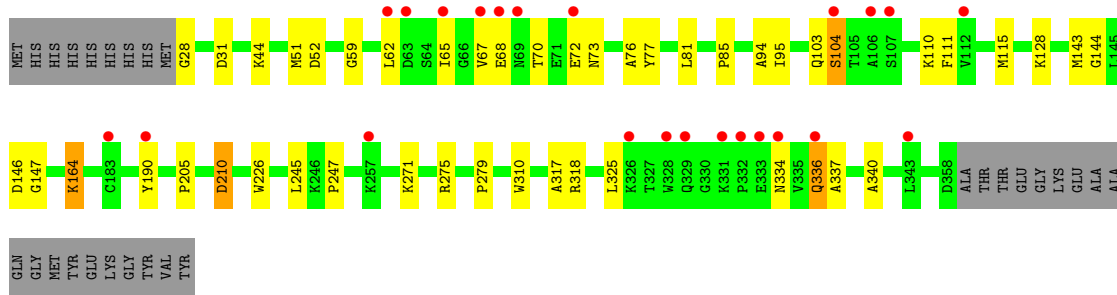
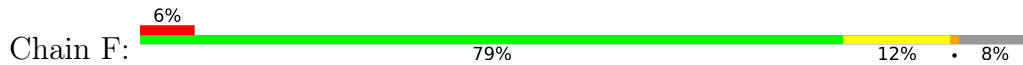




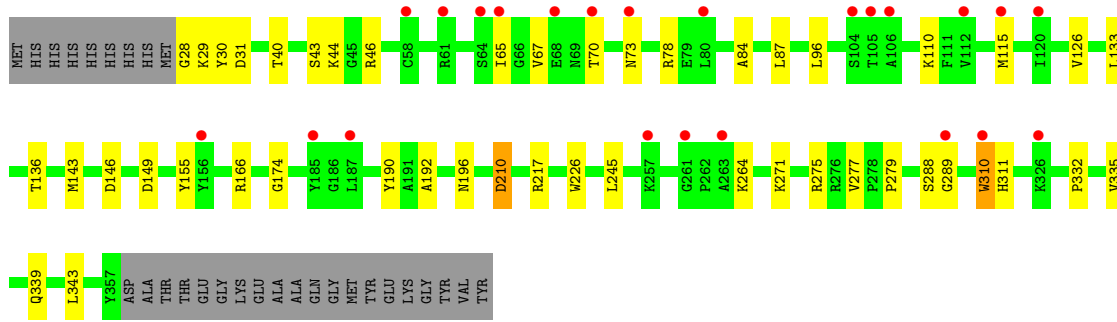
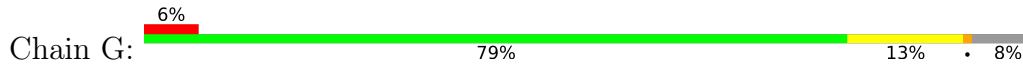
• Molecule 1: Fructose-bisphosphate aldolase 1, chloroplastic



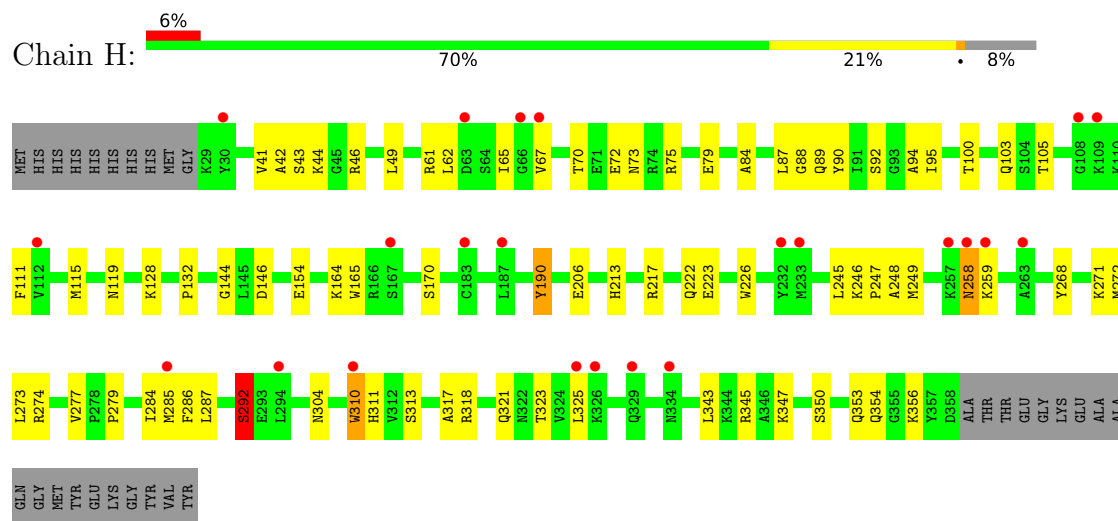
• Molecule 1: Fructose-bisphosphate aldolase 1, chloroplastic



• Molecule 1: Fructose-bisphosphate aldolase 1, chloroplastic



- Molecule 1: Fructose-bisphosphate aldolase 1, chloroplastic



## 4 Data and refinement statistics i

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	109.49Å 251.07Å 126.41Å 90.00° 90.11° 90.00°	Depositor
Resolution (Å)	46.67 – 2.36 46.67 – 2.36	Depositor EDS
% Data completeness (in resolution range)	99.4 (46.67-2.36) 99.4 (46.67-2.36)	Depositor EDS
$R_{merge}$	0.20	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.30 (at 2.37Å)	Xtrriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, $R_{free}$	0.203 , 0.252 0.201 , 0.248	Depositor DCC
$R_{free}$ test set	1984 reflections (1.43%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	40.2	Xtrriage
Anisotropy	0.355	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	(Not available) , (Not available)	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	0.012 for h,-k,-l	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	21458	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	46.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.67% 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: SO4, 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	0.28	0/2613	0.44	0/3534
1	B	0.33	0/2595	0.47	0/3509
1	C	0.29	0/2607	0.45	0/3524
1	D	0.27	0/2567	0.45	0/3472
1	E	0.29	0/2592	0.47	0/3505
1	F	0.27	0/2579	0.45	0/3488
1	G	0.31	0/2571	0.45	0/3477
1	H	0.29	0/2575	0.46	0/3483
All	All	0.29	0/20699	0.45	0/27992

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	2566	0	2572	26	0
1	B	2548	0	2559	17	0
1	C	2560	0	2568	27	0
1	D	2520	0	2535	35	0
1	E	2545	0	2556	45	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	2532	0	2542	33	0
1	G	2524	0	2538	35	0
1	H	2528	0	2539	53	0
2	A	20	0	0	1	0
2	B	25	0	0	2	0
2	C	25	0	0	1	0
2	D	20	0	0	3	0
2	E	10	0	0	0	0
2	F	25	0	0	4	0
2	G	15	0	0	1	0
2	H	5	0	0	0	0
3	B	1	0	0	0	0
4	A	140	0	0	2	0
4	B	170	0	0	2	0
4	C	152	0	0	3	0
4	D	114	0	0	5	0
4	E	86	0	0	4	0
4	F	138	0	0	1	0
4	G	87	0	0	2	0
4	H	102	0	0	2	0
All	All	21458	0	20409	252	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 6.

All (252) 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:G:279:PRO:HA	1:G:310:TRP:HE1	1.29	0.96
1:C:27:MET:HE1	1:E:135:ASN:HD21	1.32	0.95
1:C:27:MET:CE	1:E:135:ASN:HD21	1.84	0.91
1:D:60:LYS:HE3	1:D:61:ARG:HH12	1.38	0.86
1:B:128:LYS:HD3	1:B:144:GLY:HA2	1.63	0.81
1:H:279:PRO:HA	1:H:310:TRP:HE1	1.44	0.81
1:D:311:HIS:HD2	4:D:592:HOH:O	1.65	0.80
1:E:70:THR:HG23	1:E:73:ASN:H	1.46	0.80
1:E:83:THR:HG22	1:E:114:VAL:HG11	1.63	0.79
1:G:279:PRO:HA	1:G:310:TRP:NE1	1.99	0.77
1:B:44:LYS:HE2	2:B:401:SO4:O3	1.87	0.75
1:H:61:ARG:HB3	1:H:325:LEU:HD21	1.69	0.74
1:H:84:ALA:HB3	1:H:87:LEU:HG	1.69	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:339:GLN:O	1:E:343:LEU:HD12	1.89	0.71
1:E:27:MET:HG3	1:E:27:MET:O	1.91	0.70
1:A:256:CYS:SG	4:A:588:HOH:O	2.51	0.69
1:H:304:ASN:ND2	1:H:353:GLN:O	2.25	0.69
1:H:285:MET:SD	1:H:313:SER:HB3	2.34	0.68
1:E:29:LYS:NZ	4:E:501:HOH:O	2.27	0.67
1:G:28:GLY:HA3	1:G:31:ASP:OD2	1.94	0.67
1:A:86:GLY:H	1:A:343:LEU:HD11	1.60	0.67
1:H:279:PRO:HA	1:H:310:TRP:NE1	2.10	0.66
1:C:128:LYS:HG3	1:C:144:GLY:HA2	1.77	0.66
1:H:42:ALA:O	1:H:311:HIS:ND1	2.25	0.66
1:E:42:ALA:O	1:E:311:HIS:ND1	2.29	0.65
1:F:336:GLN:HG3	1:F:337:ALA:H	1.62	0.65
1:F:70:THR:HG23	1:F:73:ASN:H	1.62	0.63
1:E:279:PRO:HA	1:E:310:TRP:HE1	1.61	0.63
1:H:222:GLN:NE2	1:H:248:ALA:O	2.30	0.62
1:E:189:ARG:NH1	4:E:503:HOH:O	2.32	0.62
1:G:84:ALA:HB1	1:G:343:LEU:HD21	1.80	0.62
1:E:279:PRO:HA	1:E:310:TRP:NE1	2.14	0.62
1:A:54:SER:HB3	1:A:57:THR:H	1.64	0.62
1:E:277:VAL:O	1:E:310:TRP:HZ2	1.83	0.62
1:E:293:GLU:HG3	1:E:345:ARG:CZ	2.30	0.61
1:E:273:LEU:HD11	1:E:286:PHE:HZ	1.65	0.61
1:A:317:ALA:HB3	1:A:318:ARG:NH2	2.15	0.61
1:A:49:LEU:HG	1:A:51:MET:HG3	1.83	0.60
1:F:128:LYS:HD3	1:F:144:GLY:HA2	1.83	0.59
1:H:323:THR:HB	1:H:345:ARG:NH2	2.17	0.59
1:A:318:ARG:O	1:A:322:ASN:HB2	2.03	0.59
1:G:84:ALA:HB3	1:G:87:LEU:HG	1.83	0.59
1:H:70:THR:HG23	1:H:73:ASN:H	1.68	0.58
1:D:42:ALA:O	1:D:311:HIS:ND1	2.37	0.58
1:F:226:TRP:HZ2	1:F:247:PRO:HB3	1.69	0.58
1:B:52:ASP:OD2	1:B:125:LYS:HE2	2.03	0.58
1:C:113:ASP:O	1:C:117:GLU:HG3	2.03	0.58
1:D:292:SER:HB3	1:D:295:GLU:HB2	1.84	0.58
1:H:128:LYS:HE3	1:H:144:GLY:HA2	1.86	0.58
1:H:46:ARG:NH2	1:H:119:ASN:O	2.37	0.57
1:F:334:ASN:HA	1:F:336:GLN:HG2	1.86	0.57
1:C:116:LYS:NZ	4:C:507:HOH:O	2.36	0.57
1:D:117:GLU:C	1:D:119:ASN:H	2.08	0.57
1:G:96:LEU:HD11	1:G:115:MET:HE1	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:98:GLU:HA	1:A:124:ILE:HD11	1.85	0.57
1:E:310:TRP:CZ2	1:G:279:PRO:HG2	2.40	0.57
1:F:337:ALA:HA	1:F:340:ALA:HB3	1.86	0.57
1:D:292:SER:OG	1:D:293:GLU:N	2.38	0.57
1:E:226:TRP:HZ2	1:E:247:PRO:HB3	1.70	0.56
1:H:273:LEU:HD22	1:H:284:ILE:HD13	1.86	0.56
1:D:323:THR:HB	1:D:345:ARG:CZ	2.35	0.56
1:F:164:LYS:NZ	4:F:502:HOH:O	2.26	0.56
1:B:126:VAL:O	1:B:151:ARG:NH2	2.39	0.56
1:A:90:TYR:CZ	1:A:347:LYS:HG3	2.42	0.55
1:D:98:GLU:HA	1:D:124:ILE:HD11	1.88	0.55
1:H:206:GLU:HG3	1:H:287:LEU:HD21	1.89	0.54
1:G:332:PRO:HA	1:G:335:VAL:HG23	1.88	0.54
1:F:226:TRP:CZ2	1:F:247:PRO:HB3	2.42	0.54
1:E:90:TYR:CZ	1:E:347:LYS:HG3	2.43	0.54
1:E:274:ARG:HA	1:E:310:TRP:HH2	1.73	0.54
1:H:62:LEU:HB3	1:H:67:VAL:HB	1.88	0.54
1:H:273:LEU:HD11	1:H:286:PHE:HZ	1.72	0.54
1:C:27:MET:HE3	1:E:135:ASN:HD21	1.70	0.53
1:E:61:ARG:NH2	1:E:318:ARG:HE	2.05	0.53
1:E:226:TRP:CZ2	1:E:247:PRO:HB3	2.43	0.53
1:H:323:THR:HB	1:H:345:ARG:HH21	1.73	0.53
1:F:77:TYR:CZ	1:F:81:LEU:HD11	2.44	0.53
1:B:143:MET:HE2	1:H:146:ASP:HA	1.90	0.53
1:F:318:ARG:NH1	2:F:405:SO4:O3	2.42	0.53
1:B:273:LEU:HD11	1:B:286:PHE:HZ	1.75	0.52
1:D:316:TYR:HB3	1:D:319:ALA:HB3	1.91	0.52
1:G:166:ARG:NH1	4:G:508:HOH:O	2.40	0.52
1:H:89:GLN:HG2	1:H:90:TYR:CE1	2.44	0.52
1:E:277:VAL:O	1:E:310:TRP:CZ2	2.63	0.52
1:H:100:THR:HG23	1:H:103:GLN:HE21	1.75	0.52
1:A:146:ASP:HA	1:D:143:MET:HE2	1.92	0.51
1:F:65:ILE:HG13	1:F:67:VAL:HG23	1.91	0.51
1:F:318:ARG:NH1	2:F:405:SO4:S	2.83	0.51
1:E:293:GLU:HG3	1:E:345:ARG:NH1	2.25	0.51
1:F:51:MET:HG2	1:F:95:ILE:O	2.11	0.51
1:H:111:PHE:O	1:H:115:MET:HG3	2.10	0.51
1:C:27:MET:HE1	1:E:135:ASN:ND2	2.14	0.50
1:C:297:THR:OG1	1:C:345:ARG:NH2	2.44	0.50
1:D:317:ALA:HB3	2:D:404:SO4:O3	2.11	0.50
1:F:226:TRP:CH2	1:F:245:LEU:HG	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:29:LYS:HG3	1:E:30:TYR:H	1.76	0.50
1:G:40:THR:O	1:G:43:SER:OG	2.22	0.50
1:B:271:LYS:HD2	1:B:275:ARG:NH2	2.27	0.50
1:D:79:GLU:HG3	1:D:105:THR:HG22	1.92	0.50
1:G:339:GLN:O	1:G:343:LEU:HG	2.12	0.50
1:H:292:SER:N	4:H:512:HOH:O	2.45	0.50
1:A:147:GLY:H	1:D:143:MET:HE2	1.77	0.50
1:A:226:TRP:HZ2	1:A:247:PRO:HB3	1.77	0.50
1:F:44:LYS:HG2	2:F:403:SO4:O3	2.11	0.50
1:H:44:LYS:HE2	1:H:311:HIS:CD2	2.46	0.49
1:G:133:LEU:O	1:G:136:THR:OG1	2.29	0.49
1:H:213:HIS:HA	1:H:217:ARG:HH21	1.76	0.49
1:F:317:ALA:HB3	2:F:405:SO4:O3	2.12	0.49
1:C:277:VAL:O	1:F:279:PRO:HD3	2.12	0.49
1:G:226:TRP:CH2	1:G:245:LEU:HG	2.48	0.49
1:D:279:PRO:HG3	1:H:279:PRO:HG3	1.95	0.49
1:F:103:GLN:HE21	1:F:111:PHE:HE2	1.60	0.49
1:D:164:LYS:HD2	4:D:508:HOH:O	2.11	0.49
1:E:90:TYR:HB3	1:E:350:SER:HB2	1.95	0.49
1:A:226:TRP:CZ2	1:A:247:PRO:HB3	2.48	0.49
1:F:52:ASP:HB3	1:F:95:ILE:HG22	1.94	0.49
1:E:74:ARG:NH1	1:E:99:GLU:OE2	2.46	0.49
1:G:43:SER:HB2	1:G:46:ARG:HD3	1.95	0.49
1:D:292:SER:OG	1:D:294:LEU:N	2.46	0.48
1:C:128:LYS:HB2	1:C:143:MET:HG3	1.95	0.48
1:E:336:GLN:HG2	4:E:544:HOH:O	2.12	0.48
1:E:246:LYS:HA	1:E:285:MET:O	2.13	0.48
1:F:111:PHE:O	1:F:115:MET:HG3	2.13	0.48
1:E:279:PRO:HG3	1:G:279:PRO:HG3	1.95	0.48
1:H:100:THR:HA	1:H:103:GLN:HG2	1.96	0.48
1:B:68:GLU:HG2	1:B:70:THR:HG23	1.95	0.48
1:B:354:GLN:HB2	1:B:356:LYS:HG2	1.95	0.48
1:H:246:LYS:HA	1:H:285:MET:O	2.14	0.48
1:B:69:ASN:N	4:B:515:HOH:O	2.47	0.48
1:C:171:ILE:HD12	1:C:213:HIS:CE1	2.48	0.48
1:E:222:GLN:NE2	1:E:248:ALA:O	2.45	0.47
1:C:226:TRP:CZ2	1:C:247:PRO:HB3	2.49	0.47
1:B:237:LYS:HE2	4:B:628:HOH:O	2.14	0.47
1:C:44:LYS:NZ	4:C:512:HOH:O	2.47	0.47
1:A:219:LEU:HD12	1:A:272:MET:HB2	1.95	0.47
1:A:169:VAL:HB	1:A:175:PRO:HG3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:222:GLN:HB3	1:H:272:MET:SD	2.54	0.47
1:C:46:ARG:NH2	1:C:119:ASN:O	2.40	0.47
1:C:288:SER:O	1:C:291:GLN:HG2	2.15	0.47
1:F:70:THR:CG2	1:F:73:ASN:H	2.25	0.47
1:G:29:LYS:HD3	1:G:30:TYR:CE2	2.50	0.47
1:G:271:LYS:HD2	1:G:275:ARG:NH2	2.30	0.46
1:A:317:ALA:HB3	1:A:318:ARG:HH22	1.81	0.46
1:H:43:SER:OG	1:H:46:ARG:HD3	2.15	0.46
1:E:107:SER:HB2	1:E:109:LYS:HD3	1.98	0.46
1:F:271:LYS:HD2	1:F:275:ARG:NH2	2.30	0.46
1:B:63:ASP:O	1:B:66:GLY:N	2.39	0.46
1:B:46:ARG:NH2	1:B:119:ASN:O	2.48	0.46
1:H:90:TYR:HB3	1:H:350:SER:HB2	1.96	0.46
1:C:226:TRP:HZ2	1:C:247:PRO:HB3	1.79	0.46
1:D:311:HIS:CD2	4:D:592:HOH:O	2.52	0.46
1:E:133:LEU:HD23	1:E:136:THR:HG21	1.98	0.46
1:H:90:TYR:CE1	1:H:347:LYS:HE2	2.50	0.46
1:C:226:TRP:CH2	1:C:245:LEU:HG	2.51	0.46
1:D:285:MET:SD	1:D:313:SER:HB3	2.56	0.45
1:E:171:ILE:HD12	1:E:213:HIS:CE1	2.51	0.45
1:H:65:ILE:HG13	1:H:67:VAL:HG23	1.99	0.45
1:G:70:THR:HG23	1:G:73:ASN:H	1.81	0.45
1:A:143:MET:HE2	1:D:146:ASP:HA	1.97	0.45
1:E:128:LYS:HE2	1:E:144:GLY:HA2	1.99	0.45
1:G:279:PRO:CA	1:G:310:TRP:HE1	2.15	0.45
1:B:247:PRO:HG2	1:B:286:PHE:CE1	2.52	0.45
1:D:189:ARG:NH1	4:D:505:HOH:O	2.33	0.45
1:E:323:THR:HG21	1:E:345:ARG:HG3	1.98	0.45
1:A:247:PRO:HG2	1:A:286:PHE:CE1	2.52	0.45
1:F:143:MET:HE2	1:G:146:ASP:HA	1.99	0.45
1:A:102:TYR:OH	1:A:154[A]:GLU:OE2	2.30	0.45
1:E:149:ASP:OD1	1:E:150:LYS:N	2.50	0.45
1:G:65:ILE:HG13	1:G:67:VAL:HG23	1.98	0.45
1:C:288:SER:OG	2:C:404:SO4:O2	2.35	0.44
1:F:51:MET:SD	1:F:94:ALA:HB1	2.57	0.44
1:E:279:PRO:HD3	1:G:277:VAL:O	2.17	0.44
1:H:165:TRP:HB3	1:H:190:TYR:CE2	2.53	0.44
1:D:334:ASN:HA	4:D:511:HOH:O	2.18	0.44
1:D:110:LYS:HB3	1:D:110:LYS:HE2	1.74	0.44
1:G:78:ARG:NH1	4:G:515:HOH:O	2.47	0.44
1:A:226:TRP:CH2	1:A:245:LEU:HG	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:210:ASP:OD1	1:G:210:ASP:N	2.51	0.44
1:A:29:LYS:N	4:A:524:HOH:O	2.51	0.44
1:D:90:TYR:CZ	1:D:347:LYS:HG3	2.52	0.44
1:D:94:ALA:HB3	1:D:115:MET:HE3	2.00	0.44
1:H:226:TRP:HZ2	1:H:247:PRO:HB3	1.83	0.44
1:A:211:GLY:HA3	2:A:402:SO4:O3	2.18	0.44
1:H:226:TRP:CZ2	1:H:247:PRO:HB3	2.53	0.43
1:A:237:LYS:NZ	1:B:220:GLU:OE2	2.45	0.43
1:C:210:ASP:OD1	1:C:210:ASP:N	2.51	0.43
1:E:90:TYR:CE1	1:E:347:LYS:HG3	2.54	0.43
1:H:258:ASN:OD1	1:H:258:ASN:N	2.51	0.43
1:F:146:ASP:HB2	1:G:146:ASP:OD2	2.17	0.43
1:H:279:PRO:CA	1:H:310:TRP:HE1	2.24	0.43
1:H:354:GLN:HB3	1:H:356:LYS:HG2	2.00	0.43
1:D:226:TRP:CZ2	1:D:247:PRO:HB3	2.53	0.43
1:G:174:GLY:O	1:G:217:ARG:NH2	2.52	0.43
1:H:79:GLU:HG3	1:H:105:THR:HG22	2.00	0.43
1:H:87:LEU:C	1:H:89:GLN:H	2.21	0.43
1:C:267:GLU:OE2	1:C:267:GLU:HA	2.19	0.43
1:H:249:MET:HE2	1:H:249:MET:HB2	1.85	0.43
1:E:154:GLU:HG3	4:E:504:HOH:O	2.19	0.42
1:E:101:LEU:HD23	1:E:102:TYR:CE1	2.54	0.42
1:F:325:LEU:HD23	1:F:325:LEU:HA	1.77	0.42
1:A:189:ARG:NH1	1:D:182:ASP:OD1	2.52	0.42
1:H:223:GLU:HG3	1:H:272:MET:HG3	2.02	0.42
1:D:117:GLU:C	1:D:119:ASN:N	2.73	0.42
1:D:318:ARG:NH2	2:D:404:SO4:S	2.92	0.42
1:F:28:GLY:HA3	1:F:31:ASP:OD2	2.20	0.42
1:H:268:TYR:HA	1:H:271:LYS:HD3	2.00	0.42
1:E:79:GLU:HG3	1:E:105:THR:HG22	2.01	0.42
1:G:110:LYS:HB2	1:G:110:LYS:HE2	1.92	0.42
1:H:49:LEU:O	1:H:94:ALA:HA	2.19	0.42
1:H:226:TRP:CH2	1:H:245:LEU:HG	2.54	0.42
1:C:43:SER:OG	1:C:46:ARG:HD3	2.20	0.42
1:C:259:LYS:HE3	1:C:259:LYS:HB3	1.85	0.42
1:D:41:VAL:HA	1:D:92:SER:HB2	2.02	0.42
1:G:126:VAL:HG12	1:G:155:TYR:CE2	2.55	0.42
1:G:277:VAL:O	1:G:310:TRP:HZ2	2.02	0.42
1:H:274:ARG:NH2	4:H:517:HOH:O	2.53	0.42
1:F:104:SER:OG	1:F:110:LYS:HA	2.20	0.41
1:B:215:ILE:HG21	1:B:264:LYS:HE2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:94:ALA:HB3	1:H:115:MET:HE1	2.02	0.41
1:A:50:ALA:HB3	1:A:317:ALA:HB2	2.01	0.41
1:D:90:TYR:CE1	1:D:347:LYS:HG3	2.56	0.41
1:A:187:LEU:HD22	1:A:203:VAL:HG13	2.02	0.41
1:C:125:LYS:HD2	4:C:510:HOH:O	2.20	0.41
1:H:72:GLU:OE2	1:H:72:GLU:HA	2.19	0.41
1:B:317:ALA:HB3	2:B:404:SO4:O2	2.20	0.41
1:F:59:GLY:HA2	1:F:62:LEU:HD12	2.02	0.41
1:H:277:VAL:HB	1:H:310:TRP:CH2	2.56	0.41
1:D:226:TRP:HZ2	1:D:247:PRO:HB3	1.85	0.41
1:E:58:CYS:SG	1:E:74:ARG:HG2	2.61	0.41
1:C:209:LEU:HD23	1:C:209:LEU:HA	1.89	0.41
1:D:29:LYS:HE2	1:D:30:TYR:CE2	2.56	0.41
1:D:318:ARG:NH2	2:D:404:SO4:O3	2.54	0.41
1:F:72:GLU:O	1:F:76:ALA:N	2.47	0.41
1:H:41:VAL:HA	1:H:92:SER:HB2	2.03	0.41
1:H:317:ALA:O	1:H:321:GLN:HB2	2.21	0.41
1:E:273:LEU:HD11	1:E:286:PHE:CZ	2.52	0.41
1:G:311:HIS:HA	2:G:401:SO4:O3	2.21	0.41
1:H:95:ILE:HD13	1:H:164:LYS:HD3	2.03	0.41
1:C:41:VAL:HA	1:C:92:SER:HB2	2.02	0.40
1:C:126:VAL:O	1:C:151[B]:ARG:NH2	2.54	0.40
1:C:133:LEU:HD23	1:C:136:THR:HG21	2.04	0.40
1:F:210:ASP:OD1	1:F:210:ASP:N	2.54	0.40
1:A:286:PHE:HE2	1:A:312:VAL:HG13	1.86	0.40
1:E:332:PRO:HA	1:E:335:VAL:HG23	2.03	0.40
1:G:192:ALA:O	1:G:196:ASN:ND2	2.39	0.40
1:F:146:ASP:HA	1:G:143:MET:HE2	2.03	0.40
1:G:149:ASP:OD1	1:G:149:ASP:N	2.55	0.40
1:G:277:VAL:HB	1:G:310:TRP:CZ2	2.56	0.40
1:H:75:ARG:NH1	1:H:79:GLU:OE1	2.49	0.40
1:D:213:HIS:HA	1:D:217:ARG:HH21	1.87	0.40
1:F:147:GLY:H	1:G:143:MET:HE2	1.87	0.40
1:D:331:LYS:HD2	1:D:333:GLU:OE2	2.21	0.40

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	333/359 (93%)	322 (97%)	11 (3%)	0	100	100
1	B	331/359 (92%)	321 (97%)	10 (3%)	0	100	100
1	C	332/359 (92%)	321 (97%)	10 (3%)	1 (0%)	41	47
1	D	327/359 (91%)	314 (96%)	12 (4%)	1 (0%)	41	47
1	E	331/359 (92%)	318 (96%)	12 (4%)	1 (0%)	41	47
1	F	329/359 (92%)	314 (95%)	11 (3%)	4 (1%)	13	11
1	G	328/359 (91%)	317 (97%)	10 (3%)	1 (0%)	41	47
1	H	328/359 (91%)	314 (96%)	12 (4%)	2 (1%)	25	27
All	All	2639/2872 (92%)	2541 (96%)	88 (3%)	10 (0%)	34	38

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	29	LYS
1	F	336	GLN
1	G	289	GLY
1	F	68	GLU
1	H	292	SER
1	C	205	PRO
1	D	85	PRO
1	H	88	GLY
1	F	85	PRO
1	F	205	PRO

### 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	268/286 (94%)	258 (96%)	10 (4%)	34	42
1	B	265/286 (93%)	261 (98%)	4 (2%)	65	76
1	C	267/286 (93%)	260 (97%)	7 (3%)	46	56
1	D	263/286 (92%)	258 (98%)	5 (2%)	57	68
1	E	265/286 (93%)	257 (97%)	8 (3%)	41	50
1	F	264/286 (92%)	259 (98%)	5 (2%)	57	68
1	G	263/286 (92%)	257 (98%)	6 (2%)	50	61
1	H	264/286 (92%)	254 (96%)	10 (4%)	33	41
All	All	2119/2288 (93%)	2064 (97%)	55 (3%)	47	56

All (55) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	71	GLU
1	A	154[A]	GLU
1	A	154[B]	GLU
1	A	164	LYS
1	A	170[A]	SER
1	A	170[B]	SER
1	A	190	TYR
1	A	259	LYS
1	A	310	TRP
1	A	350	SER
1	B	190	TYR
1	B	237	LYS
1	B	310	TRP
1	B	345	ARG
1	C	27	MET
1	C	116	LYS
1	C	190	TYR
1	C	258	ASN
1	C	310	TRP
1	C	345	ARG
1	C	358	ASP
1	D	44	LYS
1	D	61	ARG
1	D	190	TYR

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Mol	Chain	Res	Type
1	D	288	SER
1	D	310	TRP
1	E	78	ARG
1	E	109	LYS
1	E	119	ASN
1	E	217	ARG
1	E	271	LYS
1	E	288	SER
1	E	310	TRP
1	E	334	ASN
1	F	104	SER
1	F	164	LYS
1	F	190	TYR
1	F	210	ASP
1	F	310	TRP
1	G	44	LYS
1	G	190	TYR
1	G	210	ASP
1	G	264	LYS
1	G	288	SER
1	G	310	TRP
1	H	132	PRO
1	H	154	GLU
1	H	170	SER
1	H	190	TYR
1	H	258	ASN
1	H	259	LYS
1	H	292	SER
1	H	310	TRP
1	H	318	ARG
1	H	343	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	137	ASN
1	C	196	ASN
1	C	258	ASN
1	D	329	GLN
1	E	89	GLN
1	E	119	ASN
1	E	135	ASN

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Mol	Chain	Res	Type
1	G	258	ASN
1	G	291	GLN
1	H	103	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 30 ligands modelled in this entry, 1 is monoatomic - leaving 29 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

### 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	332/359 (92%)	0.21	5 (1%) 73 81	23, 40, 59, 72	0
1	B	332/359 (92%)	0.07	4 (1%) 79 86	23, 32, 55, 72	0
1	C	332/359 (92%)	0.06	4 (1%) 79 86	25, 39, 60, 77	0
1	D	329/359 (91%)	0.39	10 (3%) 50 61	26, 49, 68, 77	0
1	E	333/359 (92%)	0.34	16 (4%) 30 43	29, 52, 79, 89	0
1	F	331/359 (92%)	0.41	23 (6%) 16 24	28, 43, 77, 91	0
1	G	330/359 (91%)	0.59	23 (6%) 16 24	33, 52, 70, 81	0
1	H	330/359 (91%)	0.73	23 (6%) 16 24	30, 54, 74, 86	0
All	All	2649/2872 (92%)	0.35	108 (4%) 37 49	23, 45, 71, 91	0

All (108) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	27	MET	6.9
1	E	67	VAL	5.6
1	E	333	GLU	5.1
1	G	65	ILE	4.7
1	F	106	ALA	4.4
1	C	27	MET	4.4
1	E	338	ALA	4.1
1	F	329	GLN	3.9
1	B	359	ALA	3.8
1	E	326	LYS	3.8
1	D	257	LYS	3.7
1	B	28	GLY	3.7
1	E	337	ALA	3.6
1	G	263	ALA	3.6
1	F	112	VAL	3.6
1	H	263	ALA	3.4

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	D	258	ASN	3.4
1	G	115	MET	3.3
1	F	62	LEU	3.3
1	E	334	ASN	3.3
1	H	329	GLN	3.3
1	F	65	ILE	3.2
1	A	256	CYS	3.2
1	F	328	TRP	3.2
1	D	32	GLU	3.2
1	F	107	SER	3.1
1	F	331	LYS	3.1
1	E	63	ASP	3.0
1	G	58	CYS	3.0
1	G	70	THR	3.0
1	H	30	TYR	3.0
1	H	108	GLY	2.9
1	H	259	LYS	2.9
1	H	325	LEU	2.9
1	G	257	LYS	2.9
1	G	80	LEU	2.9
1	D	108	GLY	2.9
1	G	73	ASN	2.8
1	H	109	LYS	2.8
1	H	294	LEU	2.8
1	E	65	ILE	2.7
1	F	63	ASP	2.7
1	G	106	ALA	2.7
1	F	343	LEU	2.7
1	G	187	LEU	2.7
1	E	257	LYS	2.7
1	F	67	VAL	2.7
1	D	294	LEU	2.7
1	C	294	LEU	2.6
1	G	61	ARG	2.6
1	D	31	ASP	2.6
1	B	183	CYS	2.6
1	E	30	TYR	2.6
1	G	185	TYR	2.6
1	H	63	ASP	2.6
1	C	268	TYR	2.5
1	G	310	TRP	2.5
1	H	285	MET	2.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	G	104	SER	2.5
1	D	348	ALA	2.5
1	F	183	CYS	2.5
1	F	336	GLN	2.5
1	E	66	GLY	2.5
1	H	112	VAL	2.5
1	H	257	LYS	2.5
1	H	232	TYR	2.5
1	F	69	ASN	2.5
1	F	334	ASN	2.5
1	F	68	GLU	2.5
1	H	326	LYS	2.5
1	E	331	LYS	2.5
1	G	289	GLY	2.4
1	H	187	LEU	2.4
1	H	183	CYS	2.4
1	H	258	ASN	2.4
1	H	310	TRP	2.4
1	F	257	LYS	2.3
1	F	190	TYR	2.3
1	G	156	TYR	2.3
1	G	68	GLU	2.3
1	F	332	PRO	2.3
1	A	360	THR	2.3
1	G	112	VAL	2.3
1	G	64	SER	2.3
1	G	261	GLY	2.2
1	D	326	LYS	2.2
1	G	326	LYS	2.2
1	F	72	GLU	2.2
1	F	104	SER	2.2
1	H	66	GLY	2.2
1	E	336	GLN	2.2
1	H	167	SER	2.2
1	F	326	LYS	2.1
1	A	323	THR	2.1
1	E	106	ALA	2.1
1	A	333	GLU	2.1
1	D	329	GLN	2.1
1	B	184	ALA	2.1
1	H	233	MET	2.1
1	C	333	GLU	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	62	LEU	2.1
1	G	120	ILE	2.1
1	F	333	GLU	2.1
1	G	105	THR	2.1
1	H	67	VAL	2.1
1	A	86	GLY	2.0
1	H	334	ASN	2.0
1	D	227	ALA	2.0

## 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
2	SO4	F	405	5/5	0.77	0.21	59,61,74,92	0
2	SO4	B	404	5/5	0.81	0.20	45,49,73,75	0
2	SO4	A	404	5/5	0.82	0.25	75,77,81,96	0
2	SO4	G	401	5/5	0.83	0.28	80,80,88,94	0
2	SO4	G	402	5/5	0.84	0.21	62,67,80,85	0
2	SO4	B	405	5/5	0.85	0.23	53,57,61,91	0
2	SO4	A	401	5/5	0.85	0.19	58,74,94,101	0
2	SO4	E	401	5/5	0.87	0.15	74,78,86,99	0
2	SO4	D	401	5/5	0.87	0.20	69,86,92,99	0
2	SO4	D	403	5/5	0.88	0.30	57,57,68,87	0
2	SO4	D	404	5/5	0.89	0.22	67,68,81,85	0
2	SO4	C	405	5/5	0.89	0.19	72,78,87,99	0
2	SO4	F	403	5/5	0.89	0.18	60,60,68,68	0
2	SO4	A	403	5/5	0.90	0.18	67,72,75,86	0
2	SO4	C	401	5/5	0.91	0.32	67,78,89,90	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	SO4	F	401	5/5	0.91	0.17	51,61,74,91	0
2	SO4	C	404	5/5	0.91	0.14	62,63,74,87	0
2	SO4	C	403	5/5	0.92	0.17	56,63,75,84	0
2	SO4	B	401	5/5	0.93	0.12	44,50,69,72	0
2	SO4	C	402	5/5	0.93	0.15	58,59,63,64	0
2	SO4	A	402	5/5	0.94	0.16	51,53,71,75	0
2	SO4	F	404	5/5	0.95	0.29	59,61,72,83	0
2	SO4	B	402	5/5	0.96	0.22	67,70,75,78	0
2	SO4	G	403	5/5	0.96	0.19	58,60,63,68	0
2	SO4	H	401	5/5	0.96	0.15	49,58,68,69	0
2	SO4	D	402	5/5	0.98	0.11	47,47,52,61	0
2	SO4	F	402	5/5	0.98	0.12	47,48,50,51	0
2	SO4	E	402	5/5	0.98	0.14	43,50,53,58	0
3	CL	B	406	1/1	0.98	0.10	50,50,50,50	0
2	SO4	B	403	5/5	0.99	0.12	37,38,41,42	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.