



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 11:38 PM UTC

PDB ID : 2P4Q / pdb_00002p4q
Title : Crystal Structure Analysis of Gnd1 in *Saccharomyces cerevisiae*
Authors : He, W.; Wang, Y.; Liu, W.; Zhou, C.Z.
Deposited on : 2007-03-12
Resolution : 2.37 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The 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 : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

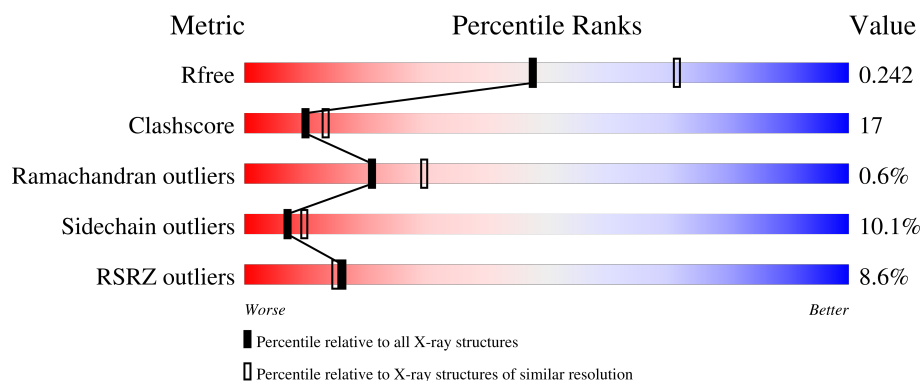
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.37 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}	180053	7164 (2.40-2.36)
Clashscore	190562	7722 (2.40-2.36)
Ramachandran outliers	187476	7626 (2.40-2.36)
Sidechain outliers	187428	7627 (2.40-2.36)
RSRZ outliers	180081	7170 (2.40-2.36)

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 ≥ 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	497	8% 69% 23% . .

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 3920 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.

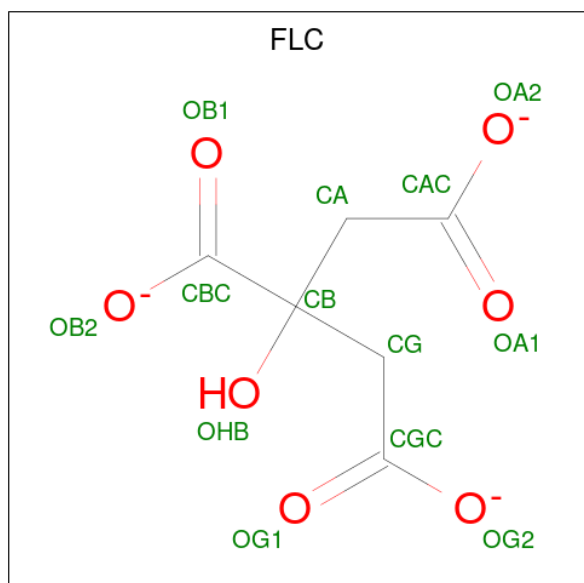
- Molecule 1 is a protein called 6-phosphogluconate dehydrogenase, decarboxylating 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	476	3682	2351	629	684	18	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-7	MET	-	expression tag	UNP P38720
A	-6	GLY	-	expression tag	UNP P38720
A	-5	HIS	-	expression tag	UNP P38720
A	-4	HIS	-	expression tag	UNP P38720
A	-3	HIS	-	expression tag	UNP P38720
A	-2	HIS	-	expression tag	UNP P38720
A	-1	HIS	-	expression tag	UNP P38720
A	0	HIS	-	expression tag	UNP P38720

- Molecule 2 is CITRATE ANION (CCD ID: FLC) (formula: $C_6H_5O_7$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			13	6	7		
2	A	1	Total	C	O	0	0
			13	6	7		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	212	Total	O	0	0
			212	212		

4 Data and refinement statistics

Property	Value	Source
Space group	P 65 2 2	Depositor
Cell constants a, b, c, α , β , γ	147.26Å 147.26Å 114.43Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	18.43 – 2.37 18.43 – 2.37	Depositor EDS
% Data completeness (in resolution range)	97.7 (18.43-2.37) 97.5 (18.43-2.37)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.87 (at 2.38Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.211 , 0.220 0.209 , 0.242	Depositor DCC
R_{free} test set	1493 reflections (4.91%)	wwPDB-VP
Wilson B-factor (Å ²)	38.8	Xtriage
Anisotropy	0.736	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 49.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.35$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	3920	wwPDB-VP
Average B, all atoms (Å ²)	48.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.97% 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: FLC

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	0.60	0/3762	0.91	1/5087 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	A	177	ALA	N-CA-C	5.64	117.43	111.28

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	3682	0	3679	128	0
2	A	26	0	10	3	0
3	A	212	0	0	5	0
All	All	3920	0	3689	128	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 17.

All (128) 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:155:ILE:HD13	3:A:628:HOH:O	1.30	1.26
1:A:12:VAL:HG12	1:A:131:GLU:HG3	1.27	1.14
1:A:12:VAL:CG1	1:A:131:GLU:HG3	1.79	1.12
1:A:12:VAL:CG1	1:A:131:GLU:CG	2.29	1.11
1:A:18:ILE:HD12	1:A:28:VAL:HG11	1.33	1.10
1:A:12:VAL:HG11	1:A:131:GLU:CG	1.83	1.08
1:A:98:ILE:HD13	1:A:123:VAL:HB	1.47	0.92
1:A:12:VAL:HG11	1:A:131:GLU:HG2	1.52	0.90
1:A:12:VAL:HG12	1:A:131:GLU:CG	1.98	0.90
1:A:380:ARG:HD3	3:A:701:HOH:O	1.71	0.89
1:A:98:ILE:CD1	1:A:123:VAL:HB	2.03	0.87
1:A:402:GLN:HE22	1:A:406:ARG:HH21	1.24	0.86
1:A:7:LEU:CB	1:A:18:ILE:HD11	2.06	0.85
1:A:185:HIS:CD2	1:A:186:ASN:HD22	1.94	0.84
1:A:203:MET:HE1	1:A:217:VAL:HG11	1.58	0.84
1:A:16:ASN:HD22	1:A:135:ARG:HB2	1.43	0.82
1:A:374:GLN:HG2	1:A:393:PHE:CE2	2.14	0.82
1:A:12:VAL:HB	1:A:131:GLU:OE1	1.81	0.81
1:A:185:HIS:HD2	1:A:186:ASN:ND2	1.81	0.79
1:A:148:ALA:O	1:A:152:ILE:HD13	1.83	0.78
1:A:185:HIS:HD2	1:A:186:ASN:HD22	1.30	0.78
1:A:88:VAL:HG13	1:A:120:ILE:HD11	1.66	0.78
1:A:259:LYS:HG3	2:A:501:FLC:OA1	1.83	0.77
1:A:7:LEU:HB3	1:A:18:ILE:HD11	1.64	0.77
1:A:12:VAL:CG1	1:A:131:GLU:CD	2.58	0.77
1:A:372:LEU:HD13	1:A:375:ILE:HD12	1.67	0.76
1:A:18:ILE:HD12	1:A:28:VAL:CG1	2.14	0.76
1:A:88:VAL:HG13	1:A:120:ILE:CD1	2.17	0.75
1:A:186:ASN:OD1	1:A:261:THR:HG21	1.88	0.74
1:A:274:MET:CE	1:A:339:MET:HB3	2.19	0.73
1:A:447:ASP:OD1	1:A:472:HIS:HD2	1.73	0.72
1:A:185:HIS:CD2	1:A:186:ASN:ND2	2.57	0.71
1:A:97:ILE:CD1	1:A:97:ILE:N	2.53	0.71
1:A:61:ILE:HD11	1:A:87:ILE:HD12	1.74	0.69
1:A:84:ILE:O	1:A:88:VAL:HG23	1.93	0.68
1:A:7:LEU:HB2	1:A:18:ILE:HD11	1.78	0.66
1:A:12:VAL:CB	1:A:131:GLU:OE1	2.44	0.66
1:A:203:MET:CE	1:A:217:VAL:HG11	2.28	0.64
1:A:12:VAL:CG1	1:A:131:GLU:OE1	2.47	0.63
1:A:137:GLY:O	1:A:161:ALA:HB2	1.98	0.63
1:A:402:GLN:NE2	1:A:406:ARG:HH21	1.96	0.62
1:A:259:LYS:HG3	2:A:501:FLC:CAC	2.30	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:438:PRO:HA	1:A:440:ASN:ND2	2.14	0.61
1:A:391:ASN:HD21	1:A:393:PHE:HB3	1.67	0.60
1:A:438:PRO:HA	1:A:440:ASN:HD21	1.68	0.58
1:A:91:LEU:CD2	1:A:97:ILE:HD11	2.32	0.58
1:A:274:MET:HE2	1:A:339:MET:HB3	1.85	0.58
1:A:16:ASN:ND2	1:A:135:ARG:HB2	2.17	0.58
1:A:377:LYS:O	1:A:381:GLU:HG3	2.04	0.58
1:A:52:ILE:HD12	1:A:63:LYS:HD3	1.86	0.58
1:A:374:GLN:HG2	1:A:393:PHE:CZ	2.39	0.57
1:A:26:PHE:CE1	1:A:155:ILE:HD12	2.39	0.57
1:A:42:LEU:HD11	1:A:53:GLY:HA3	1.85	0.57
1:A:71:MET:HE2	1:A:98:ILE:HG21	1.87	0.57
1:A:78:ALA:N	1:A:79:PRO:HD2	2.20	0.57
1:A:185:HIS:CE1	1:A:365:CYS:HB2	2.40	0.57
1:A:12:VAL:HG12	1:A:131:GLU:OE1	2.04	0.56
1:A:97:ILE:N	1:A:97:ILE:HD13	2.20	0.56
1:A:12:VAL:HG12	1:A:131:GLU:CD	2.29	0.55
1:A:402:GLN:O	1:A:406:ARG:HG3	2.06	0.55
1:A:461:ALA:CB	1:A:467:VAL:HG22	2.37	0.55
1:A:440:ASN:H	1:A:440:ASN:HD22	1.55	0.55
1:A:259:LYS:CG	2:A:501:FLC:OA1	2.53	0.54
1:A:174:PRO:HG2	1:A:350:TRP:CD1	2.42	0.54
1:A:12:VAL:HG11	1:A:131:GLU:CD	2.30	0.54
1:A:469:LYS:O	1:A:471:ILE:HD12	2.08	0.53
1:A:391:ASN:ND2	1:A:393:PHE:HB3	2.24	0.53
1:A:128:SER:HB2	1:A:182:LYS:HE3	1.90	0.53
1:A:60:PHE:HE1	1:A:70:VAL:HG13	1.75	0.52
1:A:276:VAL:HG21	1:A:340:LEU:HG	1.91	0.52
1:A:203:MET:HE1	1:A:217:VAL:CG1	2.36	0.52
1:A:203:MET:CE	1:A:221:TRP:CH2	2.93	0.51
1:A:313:LYS:HG2	1:A:314:ASP:H	1.76	0.51
1:A:313:LYS:H	1:A:313:LYS:NZ	2.09	0.51
1:A:402:GLN:HE22	1:A:406:ARG:NH2	2.02	0.51
1:A:113:GLU:HG3	3:A:558:HOH:O	2.11	0.50
1:A:98:ILE:HD12	1:A:123:VAL:HB	1.88	0.50
1:A:123:VAL:HG21	1:A:152:ILE:HD12	1.94	0.49
1:A:1:MET:HB3	1:A:63:LYS:HA	1.94	0.49
1:A:288:LEU:HD22	1:A:295:ARG:HD3	1.93	0.49
1:A:374:GLN:NE2	1:A:377:LYS:HD3	2.27	0.49
1:A:448:TYR:C	1:A:448:TYR:CD1	2.91	0.49
1:A:91:LEU:HD23	1:A:97:ILE:HD11	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:233:ILE:C	1:A:233:ILE:HD12	2.38	0.48
1:A:155:ILE:CD1	1:A:155:ILE:N	2.77	0.48
1:A:278:LEU:HD13	1:A:333:SER:HB2	1.95	0.48
1:A:35:GLN:NE2	1:A:55:THR:HA	2.29	0.48
1:A:98:ILE:CD1	1:A:123:VAL:CB	2.87	0.47
1:A:361:TRP:O	1:A:365:CYS:SG	2.73	0.47
1:A:213:GLU:O	1:A:217:VAL:HG23	2.14	0.46
1:A:464:ASN:HD22	1:A:464:ASN:H	1.63	0.46
1:A:180:TYR:O	1:A:183:MET:HB3	2.16	0.46
1:A:226:LEU:HD13	1:A:326:LEU:HD13	1.97	0.46
1:A:447:ASP:OD1	1:A:472:HIS:CD2	2.62	0.46
1:A:249:VAL:HA	1:A:252:ILE:HD12	1.97	0.46
1:A:440:ASN:HD22	1:A:440:ASN:N	2.12	0.46
1:A:35:GLN:HE22	1:A:55:THR:HA	1.81	0.45
1:A:4:ASP:O	1:A:69:LYS:HE2	2.17	0.45
1:A:278:LEU:HD12	1:A:425:ALA:HB2	1.99	0.45
1:A:60:PHE:CE1	1:A:70:VAL:HG13	2.51	0.45
1:A:313:LYS:HG2	1:A:314:ASP:N	2.32	0.44
1:A:57:ILE:H	1:A:57:ILE:HD13	1.82	0.44
1:A:42:LEU:HD11	1:A:53:GLY:CA	2.48	0.44
1:A:57:ILE:HD13	1:A:57:ILE:N	2.32	0.44
1:A:186:ASN:HB3	1:A:261:THR:HG23	1.99	0.43
1:A:464:ASN:HD22	1:A:464:ASN:N	2.15	0.43
1:A:71:MET:HE1	1:A:156:PHE:CE1	2.53	0.43
1:A:16:ASN:HD22	1:A:135:ARG:CB	2.24	0.43
1:A:97:ILE:N	1:A:97:ILE:HD12	2.33	0.43
1:A:47:LYS:N	3:A:629:HOH:O	2.51	0.42
1:A:57:ILE:HG21	1:A:86:GLN:HE21	1.83	0.42
1:A:61:ILE:HG21	1:A:90:LEU:O	2.19	0.42
1:A:61:ILE:HD12	1:A:91:LEU:CD1	2.49	0.42
1:A:419:THR:HB	1:A:422:PHE:HB2	2.01	0.42
1:A:215:SER:HB2	1:A:238:LEU:HB3	2.02	0.42
1:A:81:ASP:OD1	1:A:110:ARG:NH2	2.53	0.42
1:A:88:VAL:N	1:A:89:PRO:HD2	2.35	0.41
1:A:12:VAL:HB	1:A:131:GLU:CD	2.43	0.41
1:A:361:TRP:HA	1:A:365:CYS:SG	2.61	0.41
1:A:148:ALA:C	1:A:152:ILE:HD13	2.43	0.41
1:A:257:GLY:O	1:A:286:ARG:NH1	2.47	0.41
1:A:362:ARG:NH1	3:A:621:HOH:O	2.53	0.41
1:A:203:MET:HE3	1:A:322:LEU:HD13	2.03	0.41
1:A:274:MET:HE3	1:A:339:MET:HB3	2.00	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:75:LYS:O	1:A:79:PRO:HG2	2.21	0.40
1:A:17:LEU:HD21	1:A:138:PRO:HG3	2.02	0.40
1:A:2:SER:O	1:A:3:ALA:HB2	2.22	0.40
1:A:35:GLN:O	1:A:36:SER:C	2.65	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	474/497 (95%)	446 (94%)	25 (5%)	3 (1%)	21	30

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	3	ALA
1	A	243	VAL
1	A	137	GLY

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	386/402 (96%)	347 (90%)	39 (10%)	7	10

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	MET
1	A	10	LEU
1	A	19	LEU
1	A	32	ASN
1	A	45	GLU
1	A	50	SER
1	A	57	ILE
1	A	66	ARG
1	A	73	LEU
1	A	83	LEU
1	A	97	ILE
1	A	113	GLU
1	A	121	LEU
1	A	131	GLU
1	A	147	GLU
1	A	152	ILE
1	A	155	ILE
1	A	225	VAL
1	A	233	ILE
1	A	238	LEU
1	A	243	VAL
1	A	270	LEU
1	A	288	LEU
1	A	291	LEU
1	A	313	LYS
1	A	322	LEU
1	A	326	LEU
1	A	340	LEU
1	A	352	LEU
1	A	359	LEU
1	A	372	LEU
1	A	384	ASP
1	A	392	LYS
1	A	426	LEU
1	A	440	ASN
1	A	442	LEU
1	A	464	ASN
1	A	467	VAL
1	A	473	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	16	ASN
1	A	32	ASN
1	A	35	GLN
1	A	86	GLN
1	A	185	HIS
1	A	374	GLN
1	A	391	ASN
1	A	402	GLN
1	A	440	ASN
1	A	443	GLN
1	A	464	ASN
1	A	472	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](#)

2 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	FLC	A	502	-	12,12,12	1.03	0	17,17,17	1.47	2 (11%)
2	FLC	A	501	-	12,12,12	1.06	0	17,17,17	1.56	2 (11%)

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	FLC	A	502	-	-	3/16/16/16	-
2	FLC	A	501	-	-	0/16/16/16	-

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	501	FLC	OB2-CBC-CB	3.85	120.53	113.14
2	A	502	FLC	OB2-CBC-CB	3.66	120.16	113.14
2	A	501	FLC	OB1-CBC-CB	-3.56	115.19	122.09
2	A	502	FLC	OB1-CBC-CB	-2.29	117.66	122.09

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	502	FLC	OHB-CB-CG-CGC
2	A	502	FLC	CA-CB-CG-CGC
2	A	502	FLC	CBC-CB-CG-CGC

There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	501	FLC	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, 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	476/497 (95%)	0.34	41 (8%) 16 15	27, 44, 67, 78	41 (8%)

All (41) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	165	GLY	9.5
1	A	33	ARG	5.6
1	A	309	LYS	5.0
1	A	32	ASN	5.0
1	A	36	SER	4.7
1	A	384	ASP	4.2
1	A	2	SER	3.9
1	A	117	LYS	3.8
1	A	66	ARG	3.6
1	A	476	THR	3.6
1	A	44	ASN	3.4
1	A	162	LYS	3.4
1	A	49	LYS	3.0
1	A	243	VAL	3.0
1	A	1	MET	3.0
1	A	132	GLU	2.8
1	A	362	ARG	2.7
1	A	313	LYS	2.7
1	A	134	ALA	2.6
1	A	45	GLU	2.6
1	A	41	PHE	2.6
1	A	473	ILE	2.5
1	A	380	ARG	2.5
1	A	18	ILE	2.5
1	A	131	GLU	2.4
1	A	34	THR	2.4
1	A	87	ILE	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	237	ILE	2.4
1	A	261	THR	2.3
1	A	136	TYR	2.3
1	A	102	ASN	2.2
1	A	62	SER	2.2
1	A	471	ILE	2.2
1	A	10	LEU	2.2
1	A	97	ILE	2.2
1	A	465	LEU	2.2
1	A	467	VAL	2.2
1	A	310	ASP	2.1
1	A	58	GLU	2.1
1	A	259	LYS	2.1
1	A	30	ALA	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 oligosaccharides 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($\text{\AA}^2$)	Q<0.9
2	FLC	A	501	13/13	0.83	0.12	52,57,65,66	0
2	FLC	A	502	13/13	0.83	0.11	59,63,65,65	0

6.5 Other polymers [i](#)

There are no such residues in this entry.