



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 20, 2025 – 08:12 PM JST

PDB ID : 9WXS / pdb_00009wxs
Title : Silver-bound E.coli Malate dehydrogenase (C251S)
Authors : Wang, H.; Wang, M.; Sun, H.
Deposited on : 2025-09-25
Resolution : 1.56 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
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
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)	:	2.46

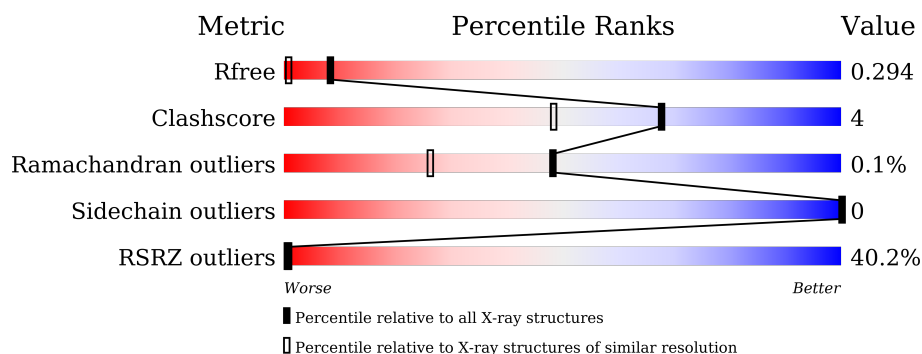
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.56 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	1935 (1.56-1.56)
Clashscore	180529	2073 (1.56-1.56)
Ramachandran outliers	177936	2037 (1.56-1.56)
Sidechain outliers	177891	2034 (1.56-1.56)
RSRZ outliers	164620	1935 (1.56-1.56)

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	312	
1	B	312	
1	C	312	
1	D	312	

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 9327 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 Malate dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	300	Total	C	N	O	S	0	0	0
			2174	1381	365	423	5			
1	B	304	Total	C	N	O	S	0	0	0
			2203	1399	372	427	5			
1	C	301	Total	C	N	O	S	0	0	0
			2179	1384	366	424	5			
1	D	300	Total	C	N	O	S	0	0	0
			2174	1381	365	423	5			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	251	SER	CYS	engineered mutation	UNP P61889
B	251	SER	CYS	engineered mutation	UNP P61889
C	251	SER	CYS	engineered mutation	UNP P61889
D	251	SER	CYS	engineered mutation	UNP P61889

- Molecule 2 is SILVER ION (CCD ID: AG) (formula: Ag).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Ag	0	0
			1	1		
2	B	1	Total	Ag	0	0
			1	1		
2	C	1	Total	Ag	0	0
			1	1		
2	D	1	Total	Ag	0	0
			1	1		

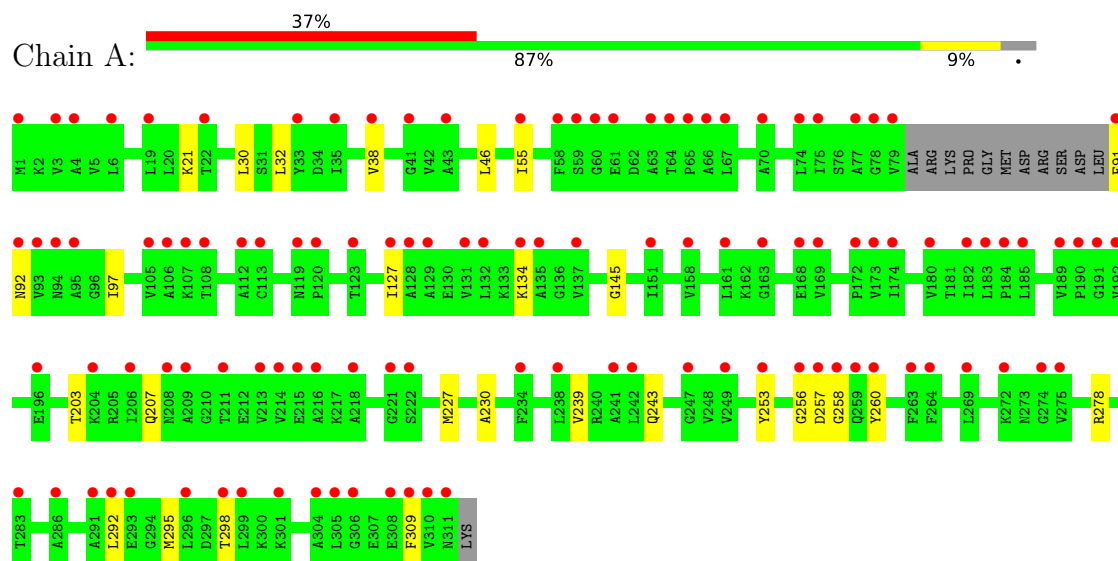
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	151	Total 151	O 151	0	0
3	B	169	Total 169	O 169	0	0
3	C	161	Total 161	O 161	0	0
3	D	112	Total 112	O 112	0	0

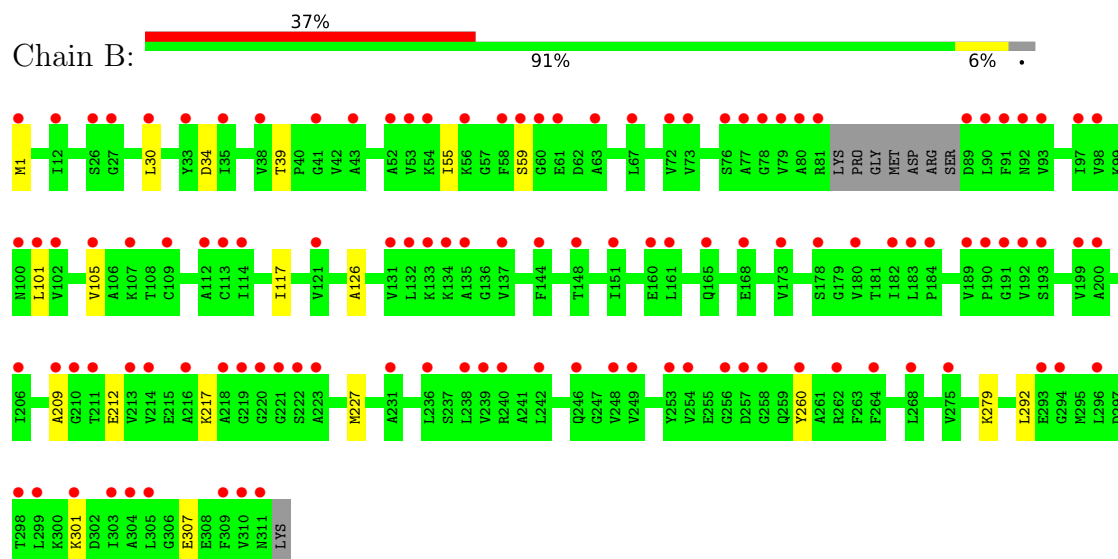
3 Residue-property plots [i](#)

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: Malate dehydrogenase

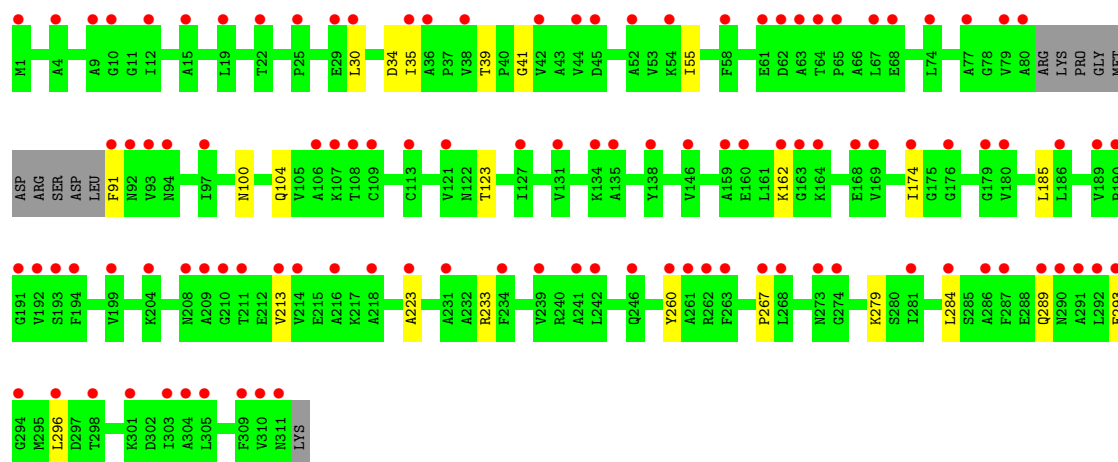


• Molecule 1: Malate dehydrogenase

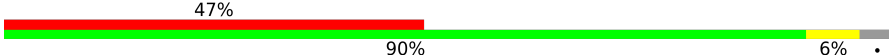


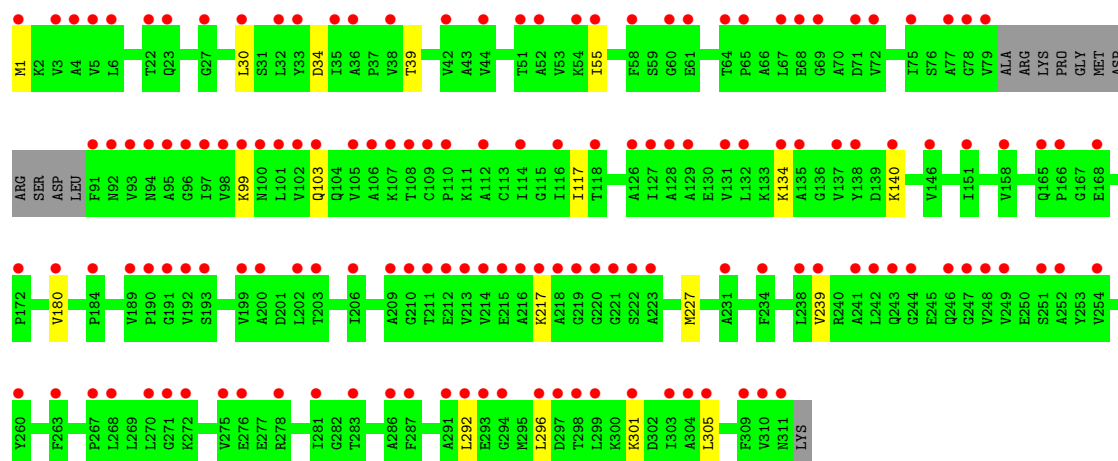
• Molecule 1: Malate dehydrogenase

Chain C: 



• Molecule 1: Malate dehydrogenase

Chain D: 



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	51.56Å 156.28Å 77.39Å 90.00° 109.20° 90.00°	Depositor
Resolution (Å)	36.54 – 1.56 36.54 – 1.56	Depositor EDS
% Data completeness (in resolution range)	97.3 (36.54-1.56) 97.4 (36.54-1.56)	Depositor EDS
R_{merge}	0.22	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.08 (at 1.56Å)	Xtriage
Refinement program	PHENIX 1.16_3549:000	Depositor
R, R_{free}	0.266 , 0.296 0.266 , 0.294	Depositor DCC
R_{free} test set	7977 reflections (4.88%)	wwPDB-VP
Wilson B-factor (Å ²)	15.7	Xtriage
Anisotropy	1.303	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 37.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.036 for h,-k,-h-l	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	9327	wwPDB-VP
Average B, all atoms (Å ²)	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.73% 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:
AG

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	0.26	0/2200	0.50	0/2982
1	B	0.29	0/2229	0.52	0/3021
1	C	0.30	0/2205	0.52	0/2989
1	D	0.24	0/2200	0.46	0/2982
All	All	0.27	0/8834	0.50	0/11974

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	2174	0	2252	21	0
1	B	2203	0	2283	14	0
1	C	2179	0	2257	15	0
1	D	2174	0	2252	11	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
3	A	151	0	0	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	169	0	0	4	0
3	C	161	0	0	1	0
3	D	112	0	0	2	0
All	All	9327	0	9044	59	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 4.

All (59) 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:C:35:ILE:H	1:C:35:ILE:HD12	1.64	0.62
1:D:30:LEU:HD23	1:D:55:ILE:HD12	1.83	0.61
1:D:140:LYS:HG3	3:D:549:HOH:O	2.02	0.58
1:A:30:LEU:O	1:A:55:ILE:HA	2.05	0.57
1:A:256:GLY:HA2	1:A:278:ARG:HE	1.71	0.56
1:C:30:LEU:O	1:C:55:ILE:HA	2.06	0.55
1:D:34:ASP:HB3	1:D:39:THR:OG1	2.06	0.55
1:C:233:ARG:HA	3:C:637:HOH:O	2.06	0.54
1:A:295:MET:O	1:A:298:THR:OG1	2.23	0.54
1:A:91:PHE:CE1	1:A:127:ILE:HD11	2.43	0.54
1:C:289:GLN:O	1:C:293:GLU:HG3	2.09	0.53
1:B:301:LYS:HG2	3:B:550:HOH:O	2.09	0.52
1:B:117:ILE:HG23	1:B:227:MET:HE2	1.92	0.52
1:C:34:ASP:HB3	1:C:39:THR:OG1	2.10	0.52
1:D:301:LYS:O	1:D:305:LEU:HG	2.09	0.52
1:B:279:LYS:HE2	3:B:595:HOH:O	2.10	0.51
1:A:30:LEU:HD23	1:A:55:ILE:HD12	1.93	0.51
1:B:209:ALA:O	1:B:212:GLU:HB2	2.11	0.50
1:B:1:MET:N	3:B:501:HOH:O	2.41	0.50
1:D:1:MET:HG2	1:D:239:VAL:HG13	1.94	0.49
1:C:91:PHE:CE1	1:C:123:THR:HG21	2.49	0.48
1:C:41:GLY:HA3	1:D:217:LYS:HG2	1.96	0.47
1:A:97:ILE:HG13	3:A:552:HOH:O	2.14	0.47
1:A:227:MET:HE3	1:A:230:ALA:HB3	1.97	0.46
1:A:256:GLY:HA2	1:A:278:ARG:NE	2.29	0.46
1:C:260:TYR:HB3	1:C:296:LEU:HD21	1.98	0.45
1:C:174:ILE:HD13	1:C:185:LEU:HD11	1.98	0.45
1:B:34:ASP:HB3	1:B:39:THR:OG1	2.17	0.45
1:B:34:ASP:O	1:B:59:SER:HA	2.17	0.44
1:C:267:PRO:HB2	1:C:279:LYS:HB2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:260:TYR:CE1	1:A:292:LEU:HD21	2.52	0.44
1:C:91:PHE:HE1	1:C:123:THR:HG21	1.82	0.44
1:A:91:PHE:HE1	1:A:127:ILE:HD11	1.81	0.44
1:A:32:LEU:HD11	1:A:55:ILE:HD11	2.00	0.44
1:A:145:GLY:HA3	1:A:253:TYR:HB3	2.00	0.44
1:C:284:LEU:HB3	1:C:289:GLN:HG3	1.99	0.44
1:A:256:GLY:HA3	3:A:562:HOH:O	2.19	0.43
1:D:99:LYS:O	1:D:103:GLN:HG3	2.18	0.43
1:D:117:ILE:HG23	1:D:227:MET:HE2	2.00	0.43
1:C:100:ASN:O	1:C:104:GLN:HG3	2.19	0.43
1:A:227:MET:HE3	1:A:227:MET:HA	2.00	0.43
1:C:162:LYS:HD3	1:C:162:LYS:HA	1.62	0.43
1:D:180:VAL:HG22	3:D:556:HOH:O	2.18	0.42
1:B:30:LEU:O	1:B:55:ILE:HA	2.20	0.42
1:A:257:ASP:OD1	1:A:258:GLY:N	2.52	0.42
1:A:38:VAL:HG23	1:B:217:LYS:HB3	2.02	0.42
1:A:239:VAL:O	1:A:243:GLN:HG3	2.20	0.41
1:A:21:LYS:HE3	1:A:46:LEU:O	2.20	0.41
1:B:126:ALA:HB1	1:B:307:GLU:HG3	2.02	0.41
1:D:292:LEU:O	1:D:296:LEU:HG	2.21	0.41
1:A:203:THR:O	1:A:207:GLN:HG3	2.20	0.41
1:B:260:TYR:CE1	1:B:292:LEU:HD21	2.56	0.41
1:C:213:VAL:HG21	1:C:223:ALA:HB2	2.03	0.41
1:D:134:LYS:HE3	1:D:134:LYS:HB2	1.76	0.41
1:A:134:LYS:HG3	3:A:571:HOH:O	2.21	0.41
1:A:91:PHE:HZ	1:A:309:PHE:HB2	1.86	0.40
1:B:30:LEU:HD23	1:B:55:ILE:HD12	2.04	0.40
1:B:101:LEU:O	1:B:105:VAL:HG23	2.22	0.40
1:B:1:MET:HB3	3:B:584:HOH:O	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	296/312 (95%)	292 (99%)	3 (1%)	1 (0%)	37	18
1	B	300/312 (96%)	297 (99%)	3 (1%)	0	100	100
1	C	297/312 (95%)	295 (99%)	2 (1%)	0	100	100
1	D	296/312 (95%)	293 (99%)	3 (1%)	0	100	100
All	All	1189/1248 (95%)	1177 (99%)	11 (1%)	1 (0%)	48	26

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	92	ASN

5.3.2 Protein sidechains ⓘ

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	230/241 (95%)	230 (100%)	0	100	100
1	B	232/241 (96%)	232 (100%)	0	100	100
1	C	230/241 (95%)	230 (100%)	0	100	100
1	D	230/241 (95%)	230 (100%)	0	100	100
All	All	922/964 (96%)	922 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	290	ASN
1	B	290	ASN
1	D	100	ASN
1	D	229	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 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, 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	300/312 (96%)	1.91	114 (38%) 1 1	15, 23, 37, 65	0
1	B	304/312 (97%)	1.83	115 (37%) 1 1	13, 22, 34, 55	0
1	C	301/312 (96%)	1.82	110 (36%) 1 1	14, 22, 36, 66	0
1	D	300/312 (96%)	2.17	146 (48%) 0 0	13, 25, 44, 96	0
All	All	1205/1248 (96%)	1.93	485 (40%) 1 0	13, 23, 38, 96	0

All (485) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	91	PHE	11.4
1	D	93	VAL	10.4
1	D	79	VAL	9.9
1	A	91	PHE	9.7
1	D	214	VAL	9.0
1	C	80	ALA	8.8
1	D	92	ASN	8.0
1	D	211	THR	7.3
1	C	192	VAL	7.1
1	C	91	PHE	7.1
1	D	218	ALA	7.1
1	D	216	ALA	6.7
1	A	93	VAL	6.5
1	C	311	ASN	6.4
1	A	79	VAL	6.4
1	A	92	ASN	6.0
1	B	80	ALA	5.9
1	D	213	VAL	5.8
1	A	214	VAL	5.4
1	C	93	VAL	5.4
1	D	305	LEU	5.1

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Mol	Chain	Res	Type	RSRZ
1	D	215	GLU	5.1
1	C	310	VAL	5.0
1	A	183	LEU	4.9
1	C	35	ILE	4.8
1	C	92	ASN	4.7
1	D	210	GLY	4.7
1	C	287	PHE	4.6
1	B	92	ASN	4.6
1	A	196	GLU	4.6
1	D	61	GLU	4.4
1	D	247	GLY	4.4
1	D	100	ASN	4.4
1	A	192	VAL	4.4
1	D	309	PHE	4.3
1	A	257	ASP	4.3
1	C	79	VAL	4.3
1	B	79	VAL	4.2
1	A	211	THR	4.2
1	C	296	LEU	4.1
1	B	93	VAL	4.1
1	C	190	PRO	4.1
1	B	301	LYS	4.0
1	D	219	GLY	4.0
1	D	304	ALA	4.0
1	D	97	ILE	4.0
1	B	81	ARG	4.0
1	C	163	GLY	4.0
1	A	310	VAL	4.0
1	D	52	ALA	4.0
1	A	309	PHE	3.9
1	B	249	VAL	3.9
1	D	311	ASN	3.8
1	D	108	THR	3.8
1	B	214	VAL	3.8
1	C	213	VAL	3.8
1	B	35	ILE	3.8
1	B	178	SER	3.8
1	A	283	THR	3.8
1	B	293	GLU	3.7
1	B	135	ALA	3.7
1	D	222	SER	3.7
1	C	211	THR	3.7

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Mol	Chain	Res	Type	RSRZ
1	B	211	THR	3.6
1	C	286	ALA	3.6
1	B	89	ASP	3.6
1	B	218	ALA	3.5
1	D	223	ALA	3.5
1	B	131	VAL	3.5
1	B	213	VAL	3.5
1	D	310	VAL	3.5
1	A	304	ALA	3.4
1	C	189	VAL	3.4
1	B	223	ALA	3.4
1	C	77	ALA	3.4
1	D	95	ALA	3.4
1	B	114	ILE	3.4
1	A	190	PRO	3.4
1	D	244	GLY	3.4
1	A	107	LYS	3.4
1	D	242	LEU	3.4
1	A	127	ILE	3.4
1	D	35	ILE	3.4
1	C	194	PHE	3.4
1	B	60	GLY	3.4
1	D	55	ILE	3.3
1	B	219	GLY	3.3
1	C	214	VAL	3.3
1	D	275	VAL	3.3
1	D	114	ILE	3.3
1	A	1	MET	3.2
1	B	180	VAL	3.2
1	D	137	VAL	3.2
1	A	151	ILE	3.2
1	B	97	ILE	3.2
1	C	290	ASN	3.2
1	A	184	PRO	3.2
1	D	138	TYR	3.2
1	D	94	ASN	3.2
1	A	242	LEU	3.2
1	D	249	VAL	3.2
1	D	127	ILE	3.2
1	B	191	GLY	3.2
1	D	77	ALA	3.1
1	D	291	ALA	3.1

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Mol	Chain	Res	Type	RSRZ
1	B	183	LEU	3.1
1	D	296	LEU	3.1
1	D	248	VAL	3.1
1	A	61	GLU	3.1
1	D	220	GLY	3.1
1	B	311	ASN	3.1
1	D	200	ALA	3.1
1	C	309	PHE	3.1
1	A	35	ILE	3.1
1	A	63	ALA	3.1
1	B	262	ARG	3.1
1	A	60	GLY	3.1
1	B	238	LEU	3.1
1	B	199	VAL	3.1
1	D	38	VAL	3.1
1	D	54	LYS	3.0
1	B	209	ALA	3.0
1	D	135	ALA	3.0
1	D	281	ILE	3.0
1	A	258	GLY	3.0
1	D	268	LEU	3.0
1	B	193	SER	3.0
1	B	63	ALA	3.0
1	A	168	GLU	3.0
1	D	23	GLN	3.0
1	D	260	TYR	3.0
1	B	101	LEU	3.0
1	C	305	LEU	3.0
1	A	112	ALA	3.0
1	A	241	ALA	3.0
1	B	210	GLY	3.0
1	A	64	THR	2.9
1	A	213	VAL	2.9
1	A	275	VAL	2.9
1	B	38	VAL	2.9
1	D	239	VAL	2.9
1	A	182	ILE	2.9
1	B	222	SER	2.9
1	A	305	LEU	2.9
1	A	221	GLY	2.9
1	B	298	THR	2.9
1	C	1	MET	2.9

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Mol	Chain	Res	Type	RSRZ
1	B	137	VAL	2.9
1	B	192	VAL	2.9
1	D	33	TYR	2.9
1	B	296	LEU	2.9
1	D	110	PRO	2.9
1	D	4	ALA	2.9
1	A	137	VAL	2.9
1	C	138	TYR	2.9
1	D	191	GLY	2.9
1	D	168	GLU	2.9
1	C	164	LYS	2.9
1	D	140	LYS	2.9
1	A	222	SER	2.9
1	B	216	ALA	2.9
1	D	278	ARG	2.9
1	D	3	VAL	2.8
1	B	78	GLY	2.8
1	B	221	GLY	2.8
1	C	191	GLY	2.8
1	B	165	GLN	2.8
1	C	246	GLN	2.8
1	D	301	LYS	2.8
1	B	112	ALA	2.8
1	C	223	ALA	2.8
1	D	96	GLY	2.8
1	B	73	VAL	2.8
1	A	67	LEU	2.8
1	B	90	LEU	2.8
1	C	268	LEU	2.8
1	D	132	LEU	2.8
1	D	241	ALA	2.8
1	D	78	GLY	2.8
1	C	38	VAL	2.8
1	C	169	VAL	2.8
1	A	120	PRO	2.8
1	B	1	MET	2.8
1	C	291	ALA	2.8
1	B	134	LYS	2.8
1	B	91	PHE	2.7
1	B	190	PRO	2.7
1	B	173	VAL	2.7
1	B	189	VAL	2.7

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Mol	Chain	Res	Type	RSRZ
1	C	42	VAL	2.7
1	C	193	SER	2.7
1	B	220	GLY	2.7
1	C	134	LYS	2.7
1	D	134	LYS	2.7
1	B	59	SER	2.7
1	A	249	VAL	2.7
1	B	105	VAL	2.7
1	B	275	VAL	2.7
1	B	304	ALA	2.7
1	C	159	ALA	2.7
1	B	260	TYR	2.7
1	A	298	THR	2.7
1	D	212	GLU	2.7
1	A	191	GLY	2.7
1	A	256	GLY	2.7
1	C	262	ARG	2.7
1	D	102	VAL	2.7
1	D	287	PHE	2.7
1	A	253	TYR	2.7
1	C	260	TYR	2.7
1	A	238	LEU	2.6
1	D	6	LEU	2.6
1	C	204	LYS	2.6
1	D	297	ASP	2.6
1	D	298	THR	2.6
1	D	103	GLN	2.6
1	D	27	GLY	2.6
1	C	218	ALA	2.6
1	B	107	LYS	2.6
1	A	131	VAL	2.6
1	A	263	PHE	2.6
1	B	98	VAL	2.6
1	A	296	LEU	2.6
1	B	305	LEU	2.6
1	D	1	MET	2.6
1	D	246	GLN	2.6
1	D	64	THR	2.6
1	A	274	GLY	2.6
1	C	113	CYS	2.6
1	A	106	ALA	2.6
1	A	218	ALA	2.6

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Mol	Chain	Res	Type	RSRZ
1	D	112	ALA	2.6
1	A	174	ILE	2.6
1	D	303	ILE	2.6
1	A	180	VAL	2.6
1	D	192	VAL	2.6
1	A	19	LEU	2.6
1	A	299	LEU	2.6
1	C	284	LEU	2.6
1	C	292	LEU	2.6
1	D	221	GLY	2.6
1	C	289	GLN	2.6
1	A	33	TYR	2.5
1	B	254	VAL	2.5
1	D	146	VAL	2.5
1	A	269	LEU	2.5
1	B	256	GLY	2.5
1	B	76	SER	2.5
1	A	70	ALA	2.5
1	A	113	CYS	2.5
1	B	52	ALA	2.5
1	D	109	CYS	2.5
1	A	204	LYS	2.5
1	B	54	LYS	2.5
1	C	303	ILE	2.5
1	D	107	LYS	2.5
1	B	67	LEU	2.5
1	C	199	VAL	2.5
1	C	242	LEU	2.5
1	D	101	LEU	2.5
1	B	264	PHE	2.5
1	A	77	ALA	2.5
1	A	216	ALA	2.5
1	C	216	ALA	2.5
1	D	283	THR	2.5
1	A	94	ASN	2.5
1	D	270	LEU	2.5
1	B	248	VAL	2.5
1	D	254	VAL	2.5
1	C	58	PHE	2.5
1	B	113	CYS	2.5
1	C	4	ALA	2.5
1	C	304	ALA	2.5

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Mol	Chain	Res	Type	RSRZ
1	C	273	ASN	2.5
1	D	294	GLY	2.5
1	A	260	TYR	2.4
1	A	38	VAL	2.4
1	A	189	VAL	2.4
1	D	105	VAL	2.4
1	A	293	GLU	2.4
1	C	208	ASN	2.4
1	A	78	GLY	2.4
1	C	9	ALA	2.4
1	C	231	ALA	2.4
1	D	36	ALA	2.4
1	D	128	ALA	2.4
1	D	165	GLN	2.4
1	B	133	LYS	2.4
1	A	75	ILE	2.4
1	B	268	LEU	2.4
1	C	30	LEU	2.4
1	D	292	LEU	2.4
1	D	158	VAL	2.4
1	C	10	GLY	2.4
1	C	63	ALA	2.4
1	C	241	ALA	2.4
1	D	252	ALA	2.4
1	B	109	CYS	2.4
1	D	234	PHE	2.4
1	A	259	GLN	2.4
1	D	65	PRO	2.4
1	A	272	LYS	2.4
1	B	12	ILE	2.4
1	B	303	ILE	2.4
1	C	127	ILE	2.4
1	B	299	LEU	2.4
1	A	158	VAL	2.4
1	D	189	VAL	2.4
1	A	135	ALA	2.4
1	C	107	LYS	2.4
1	D	272	LYS	2.4
1	B	144	PHE	2.4
1	B	309	PHE	2.4
1	C	25	PRO	2.4
1	B	26	SER	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	258	GLY	2.3
1	D	271	GLY	2.3
1	B	33	TYR	2.3
1	B	168	GLU	2.3
1	D	67	LEU	2.3
1	D	299	LEU	2.3
1	A	108	THR	2.3
1	C	64	THR	2.3
1	C	298	THR	2.3
1	D	22	THR	2.3
1	C	209	ALA	2.3
1	C	239	VAL	2.3
1	A	65	PRO	2.3
1	A	234	PHE	2.3
1	C	234	PHE	2.3
1	D	263	PHE	2.3
1	A	308	GLU	2.3
1	C	179	GLY	2.3
1	C	293	GLU	2.3
1	D	68	GLU	2.3
1	C	162	LYS	2.3
1	A	292	LEU	2.3
1	C	108	THR	2.3
1	D	118	THR	2.3
1	A	209	ALA	2.3
1	A	291	ALA	2.3
1	B	77	ALA	2.3
1	D	106	ALA	2.3
1	D	172	PRO	2.3
1	D	190	PRO	2.3
1	C	131	VAL	2.3
1	D	131	VAL	2.3
1	A	163	GLY	2.3
1	B	56	LYS	2.3
1	B	132	LEU	2.3
1	B	161	LEU	2.3
1	B	182	ILE	2.3
1	D	231	ALA	2.3
1	C	61	GLU	2.3
1	D	184	PRO	2.3
1	D	293	GLU	2.3
1	A	3	VAL	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	208	ASN	2.2
1	A	264	PHE	2.2
1	B	58	PHE	2.2
1	D	58	PHE	2.2
1	A	123	THR	2.2
1	A	43	ALA	2.2
1	B	184	PRO	2.2
1	B	242	LEU	2.2
1	D	238	LEU	2.2
1	B	151	ILE	2.2
1	C	12	ILE	2.2
1	C	97	ILE	2.2
1	D	151	ILE	2.2
1	C	109	CYS	2.2
1	C	301	LYS	2.2
1	D	99	LYS	2.2
1	B	257	ASP	2.2
1	B	239	VAL	2.2
1	C	44	VAL	2.2
1	D	72	VAL	2.2
1	C	68	GLU	2.2
1	A	22	THR	2.2
1	A	58	PHE	2.2
1	A	95	ALA	2.2
1	D	166	PRO	2.2
1	A	6	LEU	2.2
1	A	185	LEU	2.2
1	A	306	GLY	2.2
1	C	19	LEU	2.2
1	B	240	ARG	2.2
1	A	311	ASN	2.2
1	B	100	ASN	2.2
1	C	29	GLU	2.2
1	B	246	GLN	2.2
1	B	72	VAL	2.2
1	B	310	VAL	2.2
1	C	180	VAL	2.2
1	D	98	VAL	2.2
1	D	180	VAL	2.2
1	D	51	THR	2.2
1	D	203	THR	2.2
1	C	62	ASP	2.2

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Mol	Chain	Res	Type	RSRZ
1	C	15	ALA	2.2
1	C	135	ALA	2.2
1	D	129	ALA	2.2
1	A	247	GLY	2.2
1	D	30	LEU	2.2
1	B	206	ILE	2.2
1	C	174	ILE	2.2
1	A	59	SER	2.2
1	B	253	TYR	2.2
1	D	217	LYS	2.2
1	C	22	THR	2.1
1	D	5	VAL	2.1
1	C	168	GLU	2.1
1	A	172	PRO	2.1
1	C	65	PRO	2.1
1	C	94	ASN	2.1
1	A	41	GLY	2.1
1	B	294	GLY	2.1
1	C	176	GLY	2.1
1	C	274	GLY	2.1
1	B	231	ALA	2.1
1	D	286	ALA	2.1
1	A	161	LEU	2.1
1	C	74	LEU	2.1
1	D	32	LEU	2.1
1	A	55	ILE	2.1
1	A	206	ILE	2.1
1	A	301	LYS	2.1
1	D	116	ILE	2.1
1	D	206	ILE	2.1
1	B	148	THR	2.1
1	D	243	GLN	2.1
1	C	146	VAL	2.1
1	B	27	GLY	2.1
1	D	60	GLY	2.1
1	A	66	ALA	2.1
1	B	43	ALA	2.1
1	C	106	ALA	2.1
1	D	209	ALA	2.1
1	C	160	GLU	2.1
1	C	263	PHE	2.1
1	D	202	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	C	210	GLY	2.1
1	C	294	GLY	2.1
1	D	251	SER	2.1
1	A	169	VAL	2.1
1	A	173	VAL	2.1
1	D	44	VAL	2.1
1	A	134	LYS	2.1
1	C	54	LYS	2.1
1	A	128	ALA	2.1
1	B	200	ALA	2.1
1	C	261	ALA	2.1
1	C	67	LEU	2.1
1	D	75	ILE	2.1
1	B	61	GLU	2.1
1	D	193	SER	2.1
1	D	276	GLU	2.1
1	D	267	PRO	2.0
1	C	45	ASP	2.0
1	D	71	ASP	2.0
1	A	129	ALA	2.0
1	B	53	VAL	2.0
1	B	102	VAL	2.0
1	B	121	VAL	2.0
1	C	36	ALA	2.0
1	D	42	VAL	2.0
1	D	126	ALA	2.0
1	A	74	LEU	2.0
1	A	132	LEU	2.0
1	B	30	LEU	2.0
1	B	236	LEU	2.0
1	C	186	LEU	2.0
1	B	41	GLY	2.0
1	D	69	GLY	2.0
1	C	281	ILE	2.0
1	C	267	PRO	2.0
1	A	119	ASN	2.0
1	A	4	ALA	2.0
1	A	286	ALA	2.0
1	C	52	ALA	2.0
1	A	105	VAL	2.0
1	C	121	VAL	2.0
1	D	199	VAL	2.0

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Mol	Chain	Res	Type	RSRZ
1	A	215	GLU	2.0
1	B	160	GLU	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 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	AG	A	401	1/1	0.98	0.07	19,19,19,19	1
2	AG	C	401	1/1	0.98	0.05	21,21,21,21	1
2	AG	B	401	1/1	0.99	0.05	20,20,20,20	1
2	AG	D	401	1/1	0.99	0.05	29,29,29,29	1

6.5 Other polymers [i](#)

There are no such residues in this entry.