Full wwPDB X-ray Structure Validation Report ⓘ

Jan 19, 2026 – 12:20 pm GMT

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PDB ID	:	9THQ / pdb_00009thq
Title	:	Crystal structure of the human serum transferrin with Fe(III) bound at the C-lobe only
Authors	:	Paolillo, M.; Ferraro, G.; Banneville, A.S.; Cornaciu, I.; Pica, A.; Merlino, A.
Deposited on	:	2025-12-03
Resolution	:	2.44 Å(reported)

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1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.44 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	Percentile Ranks	Value
Rfree		0.229
Clashscore		5
Ramachandran outliers		0.8%
Sidechain outliers		3.0%
RSRZ outliers		7.9%

Worse *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
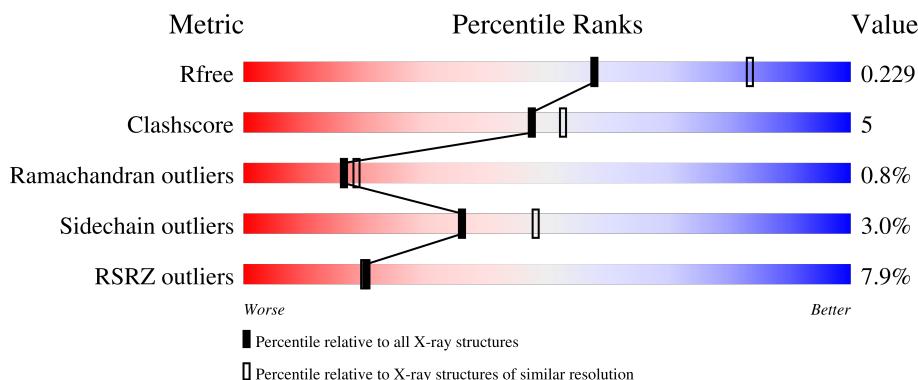
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	2124 (2.46-2.42)
Clashscore	180529	2259 (2.46-2.42)
Ramachandran outliers	177936	2244 (2.46-2.42)
Sidechain outliers	177891	2244 (2.46-2.42)
RSRZ outliers	164620	2124 (2.46-2.42)

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 <=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	AAA	679	8% / 84% / 13% / ..

2 Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 5579 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 Serotransferrin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	AAA	670	Total 5266	C 3304	N 916	O 999	S 47	0	7	0

- Molecule 2 is FE (III) ION (CCD ID: FE) (formula: Fe).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	AAA	1	Total 1	Fe 1	0	0

- Molecule 3 is MALONIC ACID (CCD ID: MLA) (formula: $C_3H_4O_4$) (labeled as "Ligand of Interest" by depositor).
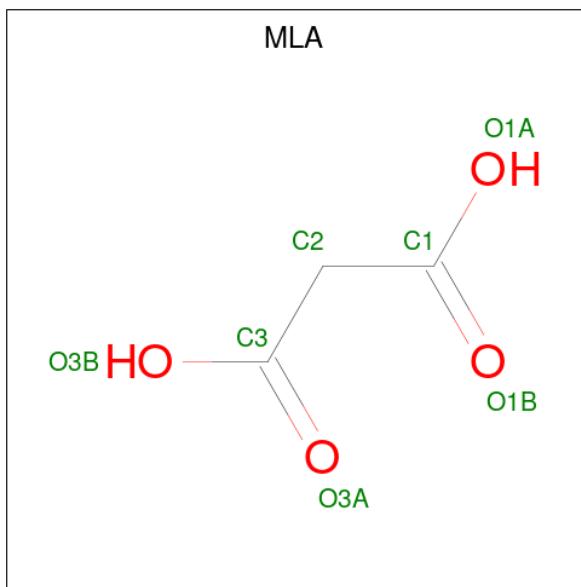
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	AAA	1	Total 7	C 3	O 4	0	0

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).
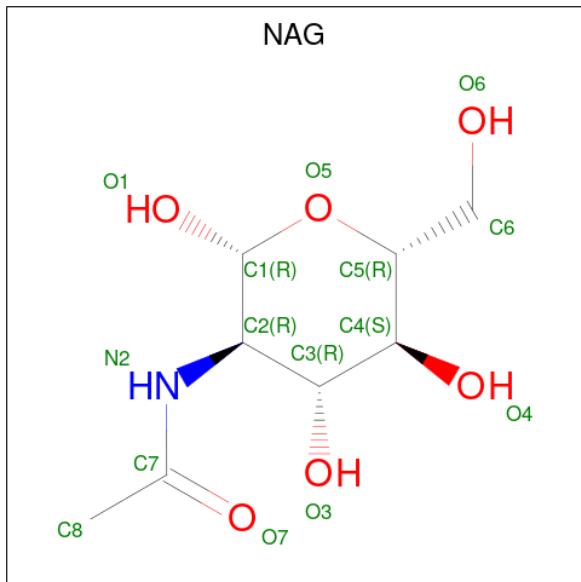
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
4	AAA	1	14	8	1	5	0	0

- Molecule 5 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).
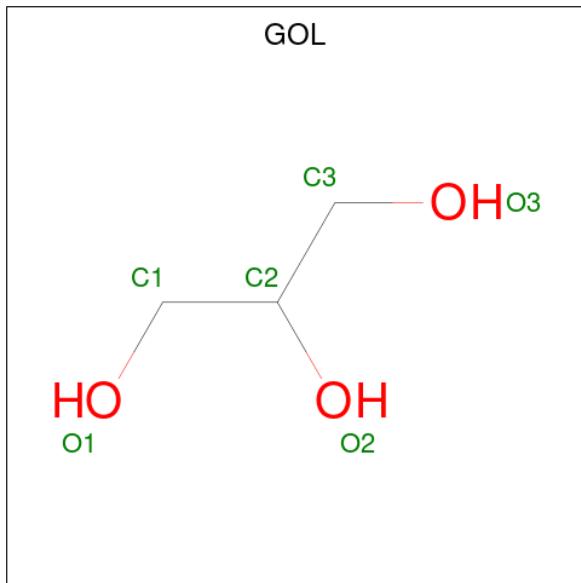
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
5	AAA	1	6	3	3	0	0

- Molecule 6 is BICARBONATE ION (CCD ID: BCT) (formula: CHO_3).

BCT

O1

O

OH O3

C

O⁻

O2
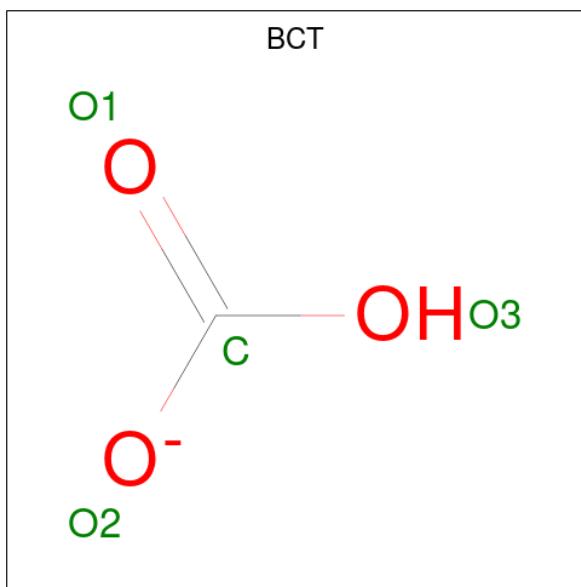
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	AAA	1	Total 4	C 1	O 3	0	0
6	AAA	1	Total 4	C 1	O 3	0	0
6	AAA	1	Total 4	C 1	O 3	0	0
6	AAA	1	Total 4	C 1	O 3	0	0
6	AAA	1	Total 4	C 1	O 3	0	0
6	AAA	1	Total 4	C 1	O 3	0	0
6	AAA	1	Total 4	C 1	O 3	0	0
6	AAA	1	Total 4	C 1	O 3	0	0
6	AAA	1	Total 4	C 1	O 3	0	0

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	AAA	249	Total 249	O 249	0	0

3 Residue-property plots ⓘ

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: Serotransferrin
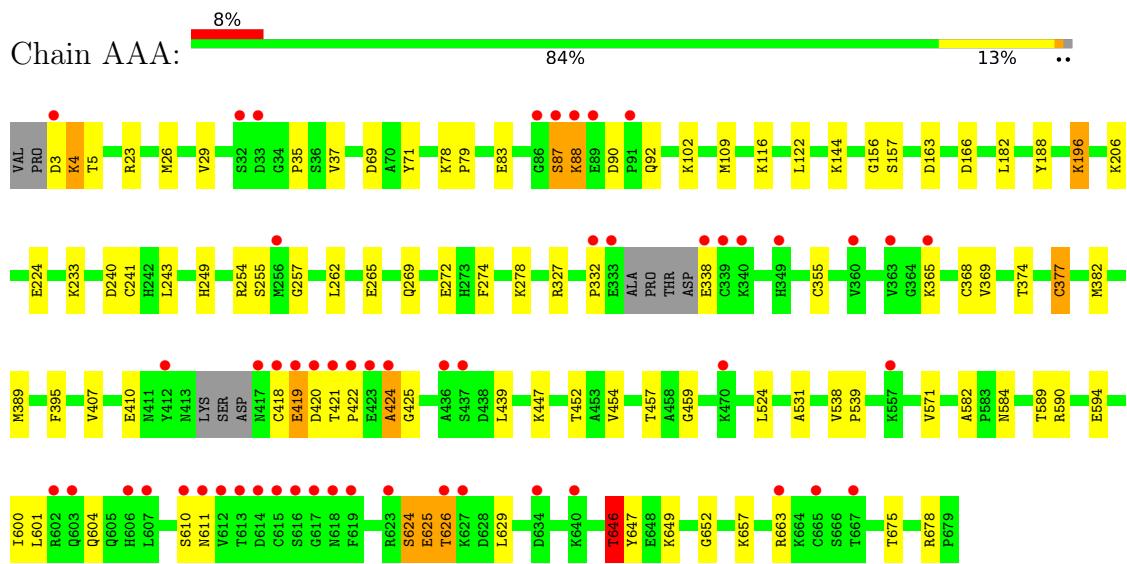
4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	138.23Å 158.13Å 107.71Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	79.10 – 2.44 79.10 – 2.44	Depositor EDS
% Data completeness (in resolution range)	96.5 (79.10-2.44) 96.5 (79.10-2.44)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.04 (at 2.45Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.188 , 0.231 0.193 , 0.229	Depositor DCC
R_{free} test set	2117 reflections (4.81%)	wwPDB-VP
Wilson B-factor (Å^2)	30.3	Xtriage
Anisotropy	0.076	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 44.7	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5579	wwPDB-VP
Average B, all atoms (Å^2)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.94% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< \lvert L \rvert >$, $< L^2 >$ 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: NAG, FE, GOL, MLA, BCT

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	AAA	1.08	3/5384 (0.1%)	1.41	8/7273 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	AAA	0	1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	AAA	589	THR	C-O	5.67	1.30	1.23
1	AAA	196	LYS	C-O	-5.41	1.17	1.24
1	AAA	224	GLU	C-O	5.03	1.30	1.24

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	AAA	652	GLY	CA-C-O	-5.70	118.30	122.23
1	AAA	647	TYR	CA-C-O	-5.41	114.81	120.55
1	AAA	79	PRO	CB-CA-C	-5.27	105.08	111.46
1	AAA	424	ALA	CA-C-N	5.18	126.56	120.71
1	AAA	424	ALA	C-N-CA	5.18	126.56	120.71
1	AAA	646	THR	CA-CB-OG1	-5.17	101.84	109.60
1	AAA	4	LYS	CB-CA-C	5.09	117.97	111.40
1	AAA	590	ARG	CA-C-O	-5.05	115.66	121.47

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	AAA	157	SER	Peptide

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	AAA	5266	0	5069	57	0
2	AAA	1	0	0	0	0
3	AAA	7	0	2	0	0
4	AAA	14	0	13	0	0
5	AAA	6	0	8	0	0
6	AAA	36	0	1	1	0
7	AAA	249	0	0	4	0
All	All	5579	0	5093	57	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (57) 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:AAA:188:TYR:CE1	1:AAA:206:LYS:HG3	2.10	0.86
1:AAA:425:GLY:HA2	1:AAA:584:ASN:OD1	1.82	0.78
1:AAA:69:ASP:OD1	1:AAA:327:ARG:NH2	2.23	0.71
1:AAA:663[B]:ARG:O	1:AAA:663[B]:ARG:HD2	1.91	0.70
1:AAA:663[A]:ARG:HH12	1:AAA:675[A]:THR:HG21	1.57	0.70
1:AAA:272:GLU:O	1:AAA:278:LYS:HE2	1.95	0.67
1:AAA:188:TYR:CZ	1:AAA:206:LYS:HG3	2.31	0.65
1:AAA:109:MET:HE1	1:AAA:243:LEU:HD21	1.79	0.63
1:AAA:663[A]:ARG:NH1	1:AAA:675[A]:THR:HG21	2.15	0.61
1:AAA:182:LEU:HD12	7:AAA:913:HOH:O	2.02	0.59
1:AAA:23:ARG:HG3	1:AAA:37:VAL:O	2.03	0.57
1:AAA:26:MET:HE2	1:AAA:274:PHE:CE2	2.39	0.57
1:AAA:418:CYS:O	1:AAA:419:GLU:C	2.47	0.57
1:AAA:83:GLU:OE2	1:AAA:249:HIS:HD2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AAA:26:MET:CE	1:AAA:274:PHE:CD2	2.88	0.56
1:AAA:163:ASP:OD2	1:AAA:166:ASP:OD2	2.25	0.55
1:AAA:3:ASP:CG	1:AAA:5:THR:HG22	2.33	0.54
1:AAA:646:THR:HG22	1:AAA:649:LYS:H	1.73	0.54
1:AAA:26:MET:HE2	1:AAA:274:PHE:HE2	1.75	0.52
1:AAA:87:SER:OG	1:AAA:88:LYS:N	2.43	0.51
1:AAA:407:VAL:HG12	1:AAA:594:GLU:HG3	1.94	0.50
1:AAA:196:LYS:NZ	7:AAA:802:HOH:O	2.35	0.50
1:AAA:26:MET:CE	1:AAA:274:PHE:HD2	2.25	0.49
1:AAA:374:THR:HG21	1:AAA:395:PHE:CD2	2.47	0.49
1:AAA:538:VAL:HG11	1:AAA:571:VAL:HG21	1.94	0.49
1:AAA:600:ILE:O	1:AAA:604:GLN:HG2	2.13	0.48
1:AAA:410:GLU:O	1:AAA:584:ASN:ND2	2.48	0.47
1:AAA:26:MET:HE1	1:AAA:274:PHE:HD2	1.79	0.47
1:AAA:26:MET:HE1	1:AAA:274:PHE:CD2	2.50	0.47
1:AAA:240:ASP:OD1	1:AAA:678:ARG:NH2	2.47	0.47
1:AAA:233:LYS:HD2	1:AAA:241:CYS:HB2	1.96	0.46
1:AAA:26:MET:CE	1:AAA:274:PHE:CE2	2.99	0.45
1:AAA:457:THR:HG21	1:AAA:582:ALA:HB1	1.99	0.45
1:AAA:4:LYS:O	1:AAA:35:PRO:HA	2.18	0.44
1:AAA:262:LEU:HD12	1:AAA:262:LEU:HA	1.80	0.44
1:AAA:90:ASP:OD1	1:AAA:92[A]:GLN:NE2	2.51	0.44
1:AAA:625:GLU:O	1:AAA:626:THR:O	2.36	0.43
1:AAA:538:VAL:HB	1:AAA:539:PRO:HD3	2.00	0.43
1:AAA:254:ARG:NH1	1:AAA:257:GLY:O	2.52	0.43
1:AAA:452:THR:OG1	1:AAA:459:GLY:HA3	2.19	0.43
1:AAA:327:ARG:NH1	7:AAA:814:HOH:O	2.51	0.42
1:AAA:377:CYS:HB3	1:AAA:389:MET:SD	2.59	0.42
1:AAA:538:VAL:O	1:AAA:539:PRO:C	2.63	0.42
1:AAA:439:LEU:HD21	1:AAA:447:LYS:HD2	2.01	0.41
1:AAA:109:MET:HB2	1:AAA:109:MET:HE2	1.86	0.41
1:AAA:382:MET:O	6:AAA:711:BCT:O1	2.38	0.41
1:AAA:624:SER:HB3	1:AAA:629:LEU:HB2	2.03	0.41
1:AAA:109:MET:CE	1:AAA:243:LEU:HD21	2.47	0.41
1:AAA:116:LYS:HA	1:AAA:156:GLY:O	2.21	0.41
1:AAA:524:LEU:HB2	1:AAA:531:ALA:HB2	2.02	0.41
1:AAA:421:THR:CG2	1:AAA:424:ALA:HB3	2.51	0.41
1:AAA:265:GLU:O	1:AAA:269:GLN:HG3	2.21	0.40
1:AAA:144:LYS:HG3	7:AAA:869:HOH:O	2.21	0.40
1:AAA:418:CYS:O	1:AAA:420:ASP:N	2.55	0.40
1:AAA:78:LYS:HD3	1:AAA:255:SER:HA	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AAA:272:GLU:O	1:AAA:278:LYS:CE	2.66	0.40
1:AAA:355:CYS:C	1:AAA:368:CYS:SG	3.04	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	AAA	671/679 (99%)	630 (94%)	36 (5%)	5 (1%)	19 22

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	AAA	419	GLU
1	AAA	626	THR
1	AAA	422	PRO
1	AAA	625	GLU
1	AAA	332	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	AAA	571/572 (100%)	554 (97%)	17 (3%)	36 48

All (17) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	AAA	29	VAL
1	AAA	71	TYR
1	AAA	87	SER
1	AAA	88	LYS
1	AAA	102	LYS
1	AAA	122	LEU
1	AAA	338	GLU
1	AAA	365	LYS
1	AAA	369	VAL
1	AAA	377	CYS
1	AAA	454	VAL
1	AAA	601	LEU
1	AAA	610	SER
1	AAA	611	ASN
1	AAA	624	SER
1	AAA	646	THR
1	AAA	657	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 13 ligands modelled in this entry, 1 is monoatomic - leaving 12 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	#$|Z| > 2$
3	MLA	AAA	702	2	6,6,6	0.76	0	7,7,7	1.51	1 (14%)
6	BCT	AAA	713	-	2,3,3	1.15	0	2,3,3	1.63	1 (50%)
6	BCT	AAA	707	-	2,3,3	1.50	1 (50%)	2,3,3	1.43	1 (50%)
6	BCT	AAA	709	-	2,3,3	0.84	0	2,3,3	1.71	1 (50%)
6	BCT	AAA	710	-	2,3,3	0.36	0	2,3,3	1.94	1 (50%)
6	BCT	AAA	708	-	2,3,3	0.48	0	2,3,3	1.86	1 (50%)
6	BCT	AAA	706	-	2,3,3	1.03	0	2,3,3	2.16	1 (50%)
4	NAG	AAA	703	1	14,14,15	0.91	0	17,19,21	1.55	4 (23%)
6	BCT	AAA	712	-	2,3,3	0.80	0	2,3,3	1.99	1 (50%)
6	BCT	AAA	711	-	2,3,3	0.41	0	2,3,3	1.43	0
6	BCT	AAA	705	-	2,3,3	0.69	0	2,3,3	1.36	0
5	GOL	AAA	704	-	5,5,5	0.18	0	5,5,5	0.37	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
3	MLA	AAA	702	2	-	0/4/4/4	-
5	GOL	AAA	704	-	-	2/4/4/4	-
4	NAG	AAA	703	1	-	2/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	AAA	707	BCT	O2-C	-2.06	1.15	1.33

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	AAA	703	NAG	O3-C3-C2	3.28	116.26	109.47
6	AAA	706	BCT	O2-C-O1	2.92	127.13	119.55
6	AAA	712	BCT	O2-C-O1	2.57	126.21	119.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	AAA	710	BCT	O2-C-O1	2.45	125.90	119.55
4	AAA	703	NAG	C6-C5-C4	2.34	118.49	113.00
3	AAA	702	MLA	O1B-C1-C2	-2.34	115.24	122.08
6	AAA	709	BCT	O2-C-O1	2.32	125.57	119.55
4	AAA	703	NAG	C2-N2-C7	2.31	126.20	122.90
4	AAA	703	NAG	O5-C5-C4	-2.31	105.22	110.83
6	AAA	713	BCT	O2-C-O1	2.25	125.39	119.55
6	AAA	708	BCT	O2-C-O1	2.18	125.21	119.55
6	AAA	707	BCT	O2-C-O1	2.00	124.74	119.55

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	AAA	704	GOL	O1-C1-C2-C3
4	AAA	703	NAG	C4-C5-C6-O6
4	AAA	703	NAG	O5-C5-C6-O6
5	AAA	704	GOL	O1-C1-C2-O2

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	AAA	711	BCT	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand MLA AAA 702

Bond lengths

Bond angles

Torsions

Rings
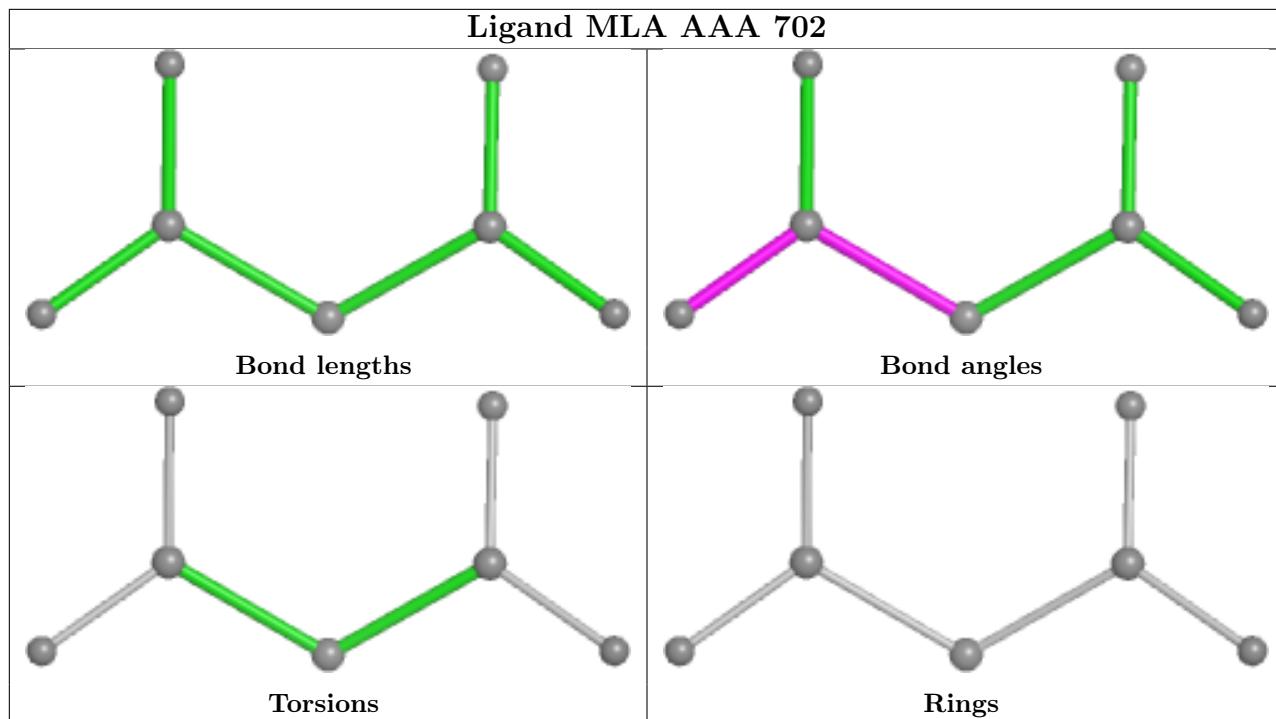
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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	AAA	670/679 (98%)	0.12	53 (7%)	20	20	9, 31, 76, 129	7 (1%)

All (53) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	AAA	424	ALA	7.6
1	AAA	422	PRO	7.4
1	AAA	606[A]	HIS	7.2
1	AAA	88	LYS	6.1
1	AAA	419	GLU	5.2
1	AAA	87	SER	5.1
1	AAA	423	GLU	5.0
1	AAA	333	GLU	4.7
1	AAA	613	THR	4.5
1	AAA	418	CYS	4.2
1	AAA	421	THR	4.0
1	AAA	417	ASN	3.8
1	AAA	626	THR	3.8
1	AAA	615	CYS	3.8
1	AAA	89	GLU	3.6
1	AAA	663[A]	ARG	3.6
1	AAA	340	LYS	3.6
1	AAA	612	VAL	3.6
1	AAA	86	GLY	3.6
1	AAA	338	GLU	3.5
1	AAA	611	ASN	3.4
1	AAA	623	ARG	3.4
1	AAA	614	ASP	3.3
1	AAA	437	SER	3.3
1	AAA	91	PRO	3.2
1	AAA	332	PRO	3.1
1	AAA	412[A]	TYR	3.0

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Mol	Chain	Res	Type	RSRZ
1	AAA	360	VAL	3.0
1	AAA	436	ALA	3.0
1	AAA	339	CYS	3.0
1	AAA	363	VAL	3.0
1	AAA	667	THR	3.0
1	AAA	616	SER	2.8
1	AAA	627	LYS	2.8
1	AAA	420	ASP	2.7
1	AAA	349	HIS	2.7
1	AAA	32	SER	2.6
1	AAA	557	LYS	2.5
1	AAA	634	ASP	2.5
1	AAA	256	MET	2.4
1	AAA	365	LYS	2.4
1	AAA	617	GLY	2.4
1	AAA	602	ARG	2.3
1	AAA	603	GLN	2.3
1	AAA	3	ASP	2.3
1	AAA	618	ASN	2.3
1	AAA	665	CYS	2.3
1	AAA	470	LYS	2.2
1	AAA	33	ASP	2.1
1	AAA	610	SER	2.1
1	AAA	607	LEU	2.1
1	AAA	619	PHE	2.1
1	AAA	640	LYS	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

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	NAG	AAA	703	14/15	0.63	0.25	96,105,114,119	0
6	BCT	AAA	711	4/4	0.73	0.25	22,27,29,32	4
6	BCT	AAA	710	4/4	0.75	0.21	39,45,55,57	0
6	BCT	AAA	712	4/4	0.82	0.15	55,59,63,66	0
6	BCT	AAA	708	4/4	0.84	0.15	39,48,48,56	0
6	BCT	AAA	709	4/4	0.86	0.15	48,54,60,60	0
6	BCT	AAA	705	4/4	0.89	0.14	48,48,48,60	0
6	BCT	AAA	707	4/4	0.93	0.08	31,34,35,42	0
6	BCT	AAA	706	4/4	0.93	0.10	32,35,40,51	0
5	GOL	AAA	704	6/6	0.96	0.08	27,30,32,32	0
3	MLA	AAA	702	7/7	0.97	0.08	23,24,25,26	0
6	BCT	AAA	713	4/4	0.98	0.05	27,29,29,32	0
2	FE	AAA	701	1/1	1.00	0.02	28,28,28,28	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around MLA AAA 702:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

6.5 Other polymers ⓘ

There are no such residues in this entry.