WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Oct 15, 2023 – 12:15 PM EDT

PDB ID	:	7LFI
Title	:	MODEL OF MHC CLASS Ib H2-M3 WITH MOUSE ND1 N-TERMINAL HEPTAPEPTIDE REFINED AT 1.70 ANGSTROMS RESOLUTION
Authors	:	Tomchick, D.R.; Deisenhofer, J.; Shen, S.
Deposited on	:	2021-01-17
Resolution	:	1.70 Å(reported)

The following versions of software and data (see references ⓘ) were used in the production of this report:

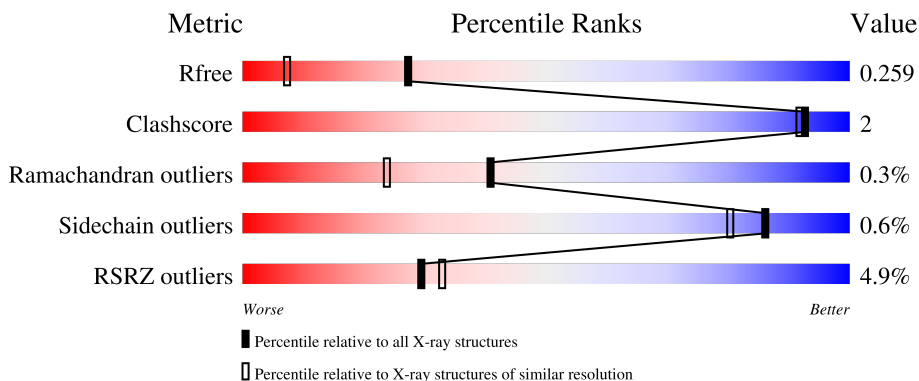|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 1.70 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		0.259
Clashscore		2
Ramachandran outliers		0.3%
Sidechain outliers		0.6%
RSRZ outliers		4.9%

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$_{free}$	130704	4298 (1.70-1.70)
Clashscore	141614	4695 (1.70-1.70)
Ramachandran outliers	138981	4610 (1.70-1.70)
Sidechain outliers	138945	4610 (1.70-1.70)
RSRZ outliers	127900	4222 (1.70-1.70)

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	A	282	6% ... 94% ...
1	D	282	4% ... 92% ... 5%
2	B	99	2% ... 95% ... 5%
2	E	99	2% ... 94% ... 6%
3	C	7	71% ... 43% ... 57%

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Mol	Chain	Length	Quality of chain
3	F	7	86% 14%

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
4	NAG	A	2001	-	-	-	X

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 12719 atoms, of which 6051 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 Histocompatibility 2, M region locus 3.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	275	Total 4411	C 1417	H 2164	N 398	O 420	S 12	0	3	0
1	D	275	Total 4382	C 1408	H 2149	N 396	O 418	S 11	0	0	0

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	GLY	deletion	UNP Q31093
A	277	HIS	-	expression tag	UNP Q31093
A	278	HIS	-	expression tag	UNP Q31093
A	279	HIS	-	expression tag	UNP Q31093
A	280	HIS	-	expression tag	UNP Q31093
A	281	HIS	-	expression tag	UNP Q31093
A	282	HIS	-	expression tag	UNP Q31093
D	?	-	GLY	deletion	UNP Q31093
D	277	HIS	-	expression tag	UNP Q31093
D	278	HIS	-	expression tag	UNP Q31093
D	279	HIS	-	expression tag	UNP Q31093
D	280	HIS	-	expression tag	UNP Q31093
D	281	HIS	-	expression tag	UNP Q31093
D	282	HIS	-	expression tag	UNP Q31093

- Molecule 2 is a protein called Beta-2-microglobulin.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
2	B	99	Total 1617	C 524	H 796	N 138	O 152	S 7	0	0	0
2	E	99	Total 1616	C 524	H 795	N 138	O 152	S 7	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	85	ASP	ALA	variant	UNP P01887
E	85	ASP	ALA	variant	UNP P01887

- Molecule 3 is a protein called Heptapeptide from NADH-ubiquinone oxidoreductase chain 1.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
3	C	7	Total 132	C 46	H 67	N 8	O 10	S 1	0	0	0
3	F	7	Total 132	C 46	H 67	N 8	O 10	S 1	0	0	0

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$) (labeled as "Ligand of Interest" by depositor).
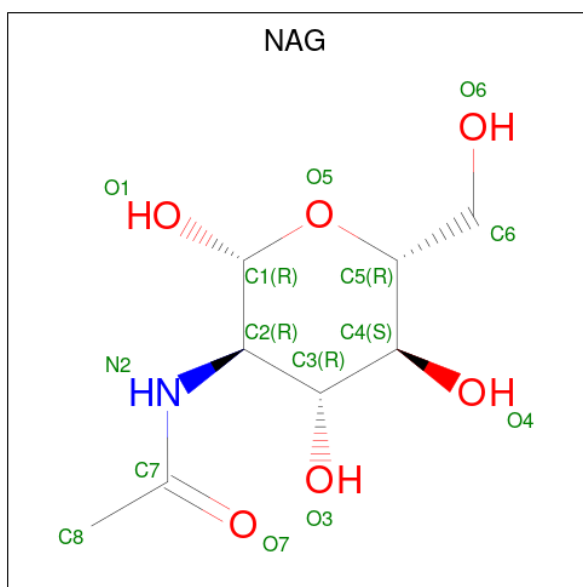
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total 27	C 8	H 13	N 1	O 5	0	0

- Molecule 5 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total 1	Na 1	0	0
5	E	1	Total 1	Na 1	0	0

- Molecule 6 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	144	Total 150	O 150	0	6
6	B	65	Total 66	O 66	0	1
6	C	3	Total 3	O 3	0	0
6	D	133	Total 136	O 136	0	3
6	E	40	Total 41	O 41	0	1
6	F	4	Total 4	O 4	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.
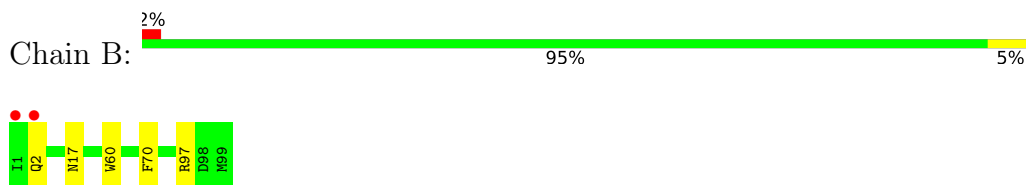
• Molecule 1: Histocompatibility 2, M region locus 3
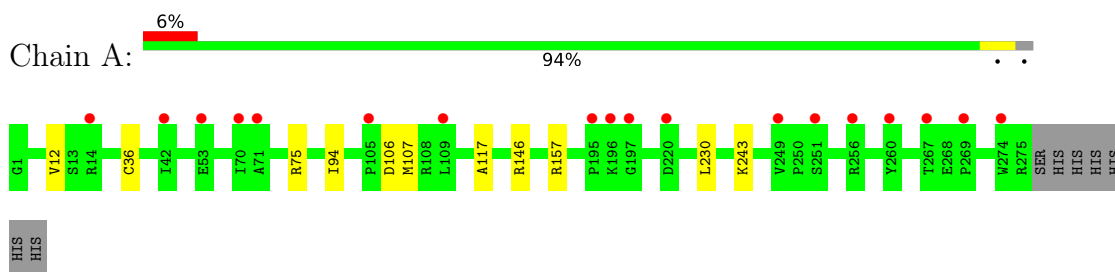
Chain A:

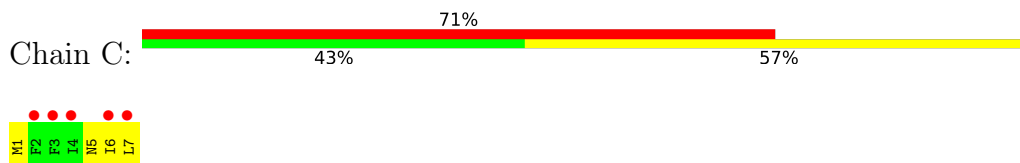• Molecule 1: Histocompatibility 2, M region locus 3

Chain D:

• Molecule 2: Beta-2-microglobulin
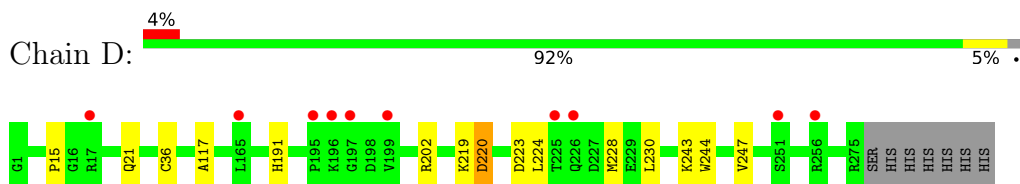
Chain B:

• Molecule 2: Beta-2-microglobulin
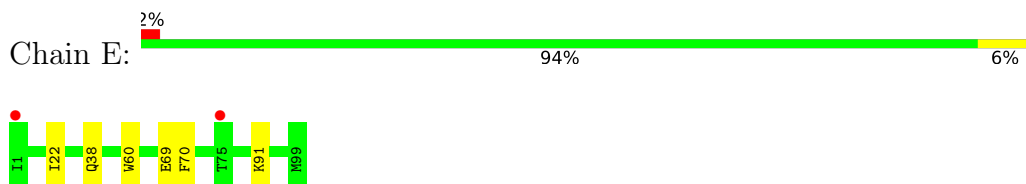
Chain E:

• Molecule 3: Heptapeptide from NADH-ubiquinone oxidoreductase chain 1

Chain C:

• Molecule 3: Heptapeptide from NADH-ubiquinone oxidoreductase chain 1

Chain F:

86%   14%

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	63.57Å 68.65Å 54.97Å 101.99° 95.10° 113.50°	Depositor
Resolution (Å)	33.53 – 1.70 33.53 – 1.70	Depositor EDS
% Data completeness (in resolution range)	94.6 (33.53-1.70) 94.6 (33.53-1.70)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.14 (at 1.70Å)	Xtriage
Refinement program	PHENIX 1.18.2-3874	Depositor
R, R_{free}	0.223 , 0.259 0.223 , 0.259	Depositor DCC
R_{free} test set	4321 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å^2)	23.1	Xtriage
Anisotropy	0.029	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 52.1	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	12719	wwPDB-VP
Average B, all atoms (Å^2)	41.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.74% 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 $< |L| >$, $< L^2 >$ 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, FME, NA

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	0.71	1/2315 (0.0%)	0.62	0/3140
1	D	0.66	1/2293 (0.0%)	0.64	0/3111
2	B	0.74	0/847	0.63	0/1148
2	E	0.68	0/847	0.62	0/1148
3	C	0.67	0/56	0.50	0/73
3	F	0.77	0/56	0.48	0/73
All	All	0.69	2/6414 (0.0%)	0.62	0/8693

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	36	CYS	CB-SG	-5.60	1.72	1.81
1	A	36	CYS	CB-SG	-5.13	1.73	1.81

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	2247	2164	2160	7	0
1	D	2233	2149	2149	8	0
2	B	821	796	796	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	E	821	795	795	3	0
3	C	65	67	67	2	0
3	F	65	67	67	0	0
4	A	14	13	13	0	0
5	A	1	0	0	0	0
5	E	1	0	0	0	0
6	A	150	0	0	2	0
6	B	66	0	0	0	0
6	C	3	0	0	0	0
6	D	136	0	0	1	0
6	E	41	0	0	1	0
6	F	4	0	0	0	0
All	All	6668	6051	6047	19	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 2.

All (19) 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:D:191:HIS:ND1	6:D:301:HOH:O	2.28	0.61
3:C:6:ILE:HG22	3:C:7:LEU:HG	1.82	0.59
1:A:146:ARG:NH2	3:C:5:ASN:O	2.36	0.58
1:D:228:MET:HB3	1:D:247:VAL:HG12	1.89	0.53
1:D:202:ARG:HD2	1:D:244:TRP:CD2	2.42	0.53
1:D:117:ALA:HB2	2:E:60:TRP:CE2	2.44	0.53
1:A:75:ARG:NH2	6:A:2108:HOH:O	2.44	0.50
2:B:17:ASN:OD1	2:B:97:ARG:NH2	2.44	0.50
1:D:223:ASP:O	1:D:224:LEU:HD23	2.14	0.47
1:D:15:PRO:HG3	1:D:21:GLN:HG3	1.96	0.47
1:A:12:VAL:HG22	1:A:94:ILE:HD13	1.98	0.46
1:A:157:ARG:NH2	6:A:2111:HOH:O	2.48	0.46
1:A:117:ALA:HB2	2:B:60:TRP:CE2	2.51	0.46
2:E:91:LYS:NZ	6:E:207:HOH:O	2.51	0.44
1:D:230:LEU:HD11	1:D:243:LYS:HE3	2.00	0.43
2:E:22:ILE:HD13	2:E:69:GLU:HA	2.00	0.43
1:A:230:LEU:HD22	1:A:243:LYS:HE3	2.02	0.41
1:D:219:LYS:HB2	1:D:224:LEU:HD11	2.02	0.40
1:A:106:ASP:O	1:A:107:MET:HB2	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	276/282 (98%)	267 (97%)	9 (3%)	0	100	100
1	D	273/282 (97%)	268 (98%)	4 (2%)	1 (0%)	34	18
2	B	97/99 (98%)	95 (98%)	1 (1%)	1 (1%)	15	4
2	E	97/99 (98%)	94 (97%)	3 (3%)	0	100	100
3	C	5/7 (71%)	5 (100%)	0	0	100	100
3	F	5/7 (71%)	5 (100%)	0	0	100	100
All	All	753/776 (97%)	734 (98%)	17 (2%)	2 (0%)	41	24

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	220	ASP
2	B	2	GLN

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	239/244 (98%)	239 (100%)	0	100	100
1	D	237/244 (97%)	236 (100%)	1 (0%)	91	87
2	B	94/94 (100%)	93 (99%)	1 (1%)	73	63
2	E	94/94 (100%)	92 (98%)	2 (2%)	53	36
3	C	6/6 (100%)	6 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	F	6/6 (100%)	6 (100%)	0	100	100
All	All	676/688 (98%)	672 (99%)	4 (1%)	86	80

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	70	PHE
1	D	220	ASP
2	E	38	GLN
2	E	70	PHE

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 ⓘ

2 non-standard protein/DNA/RNA residues 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	#$|Z| > 2$
3	FME	C	1	3	8,9,10	1.11	1 (12%)	7,9,11	0.88	0
3	FME	F	1	3	8,9,10	1.11	1 (12%)	7,9,11	0.75	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	FME	C	1	3	-	1/7/9/11	-
3	FME	F	1	3	-	1/7/9/11	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	1	FME	CB-CA	-2.26	1.49	1.53
3	C	1	FME	CE-SD	-2.07	1.66	1.78

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	1	FME	CB-CA-N-CN
3	F	1	FME	CB-CA-N-CN

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 3 ligands modelled in this entry, 2 are monoatomic - leaving 1 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	$\#|Z| > 2$
4	NAG	A	2001	1	14,14,15	0.30	0	17,19,21	0.35	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral

centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	A	2001	1	-	1/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	2001	NAG	C4-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

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 NAG A 2001

Bond lengths

Bond angles

Torsions

Rings
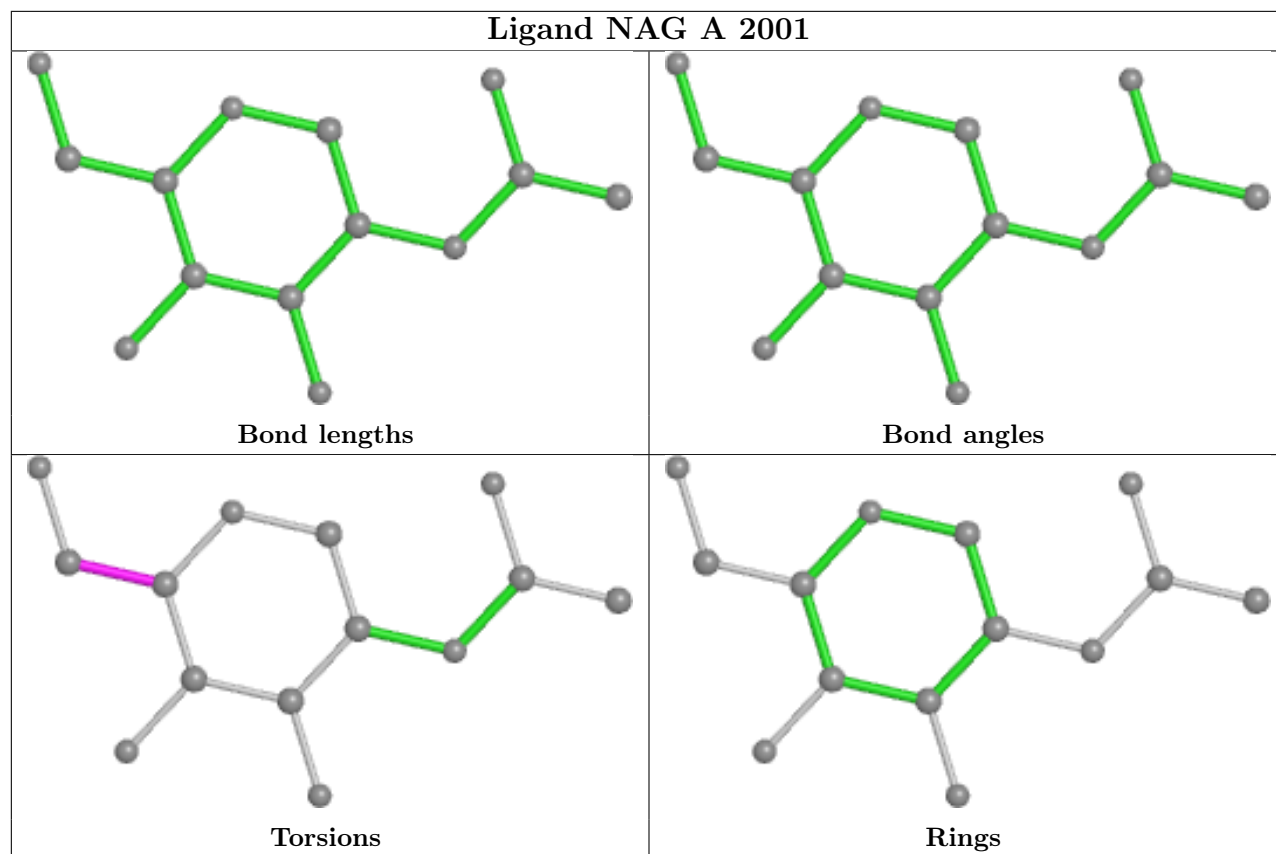
5.7 Other polymers ⓘ

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	A	275/282 (97%)	0.45	18 (6%)	18	21	14, 37, 65, 106	0
1	D	275/282 (97%)	0.32	10 (3%)	42	47	18, 33, 65, 83	0
2	B	99/99 (100%)	0.25	2 (2%)	65	69	17, 31, 62, 74	0
2	E	99/99 (100%)	0.21	2 (2%)	65	69	21, 34, 58, 92	0
3	C	6/7 (85%)	3.07	5 (83%)	0	0	34, 39, 46, 48	0
3	F	6/7 (85%)	0.76	0	100	100	23, 31, 42, 57	0
All	All	760/776 (97%)	0.37	37 (4%)	29	33	14, 34, 63, 106	0

All (37) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	E	1	ILE	9.7
1	A	274	TRP	5.7
2	B	1	ILE	5.3
1	A	220	ASP	5.2
3	C	4	ILE	4.3
1	D	197	GLY	4.2
1	D	195	PRO	4.0
1	D	17	ARG	3.9
3	C	3	PHE	3.7
1	D	196	LYS	3.6
3	C	2	PHE	3.6
1	A	70	ILE	3.2
3	C	6	ILE	3.1
1	D	226	GLN	3.1
1	A	197	GLY	3.0
1	A	195	PRO	2.9
1	A	14	ARG	2.9
1	A	251	SER	2.8
1	A	269	PRO	2.7

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Mol	Chain	Res	Type	RSRZ
1	D	165	LEU	2.7
1	D	225	THR	2.7
1	A	260	TYR	2.6
1	A	105	PRO	2.6
1	D	256	ARG	2.5
1	D	251	SER	2.5
1	D	199	VAL	2.5
1	A	53	GLU	2.4
1	A	256	ARG	2.4
1	A	42	ILE	2.3
1	A	249	VAL	2.2
2	E	75	THR	2.1
1	A	267	THR	2.1
1	A	196	LYS	2.1
1	A	71	ALA	2.1
3	C	7	LEU	2.1
2	B	2	GLN	2.0
1	A	109	LEU	2.0

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

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
3	FME	C	1	10/11	0.94	0.13	22,27,38,38	0
3	FME	F	1	10/11	0.97	0.10	20,25,31,31	0

6.3 Carbohydrates ⓘ
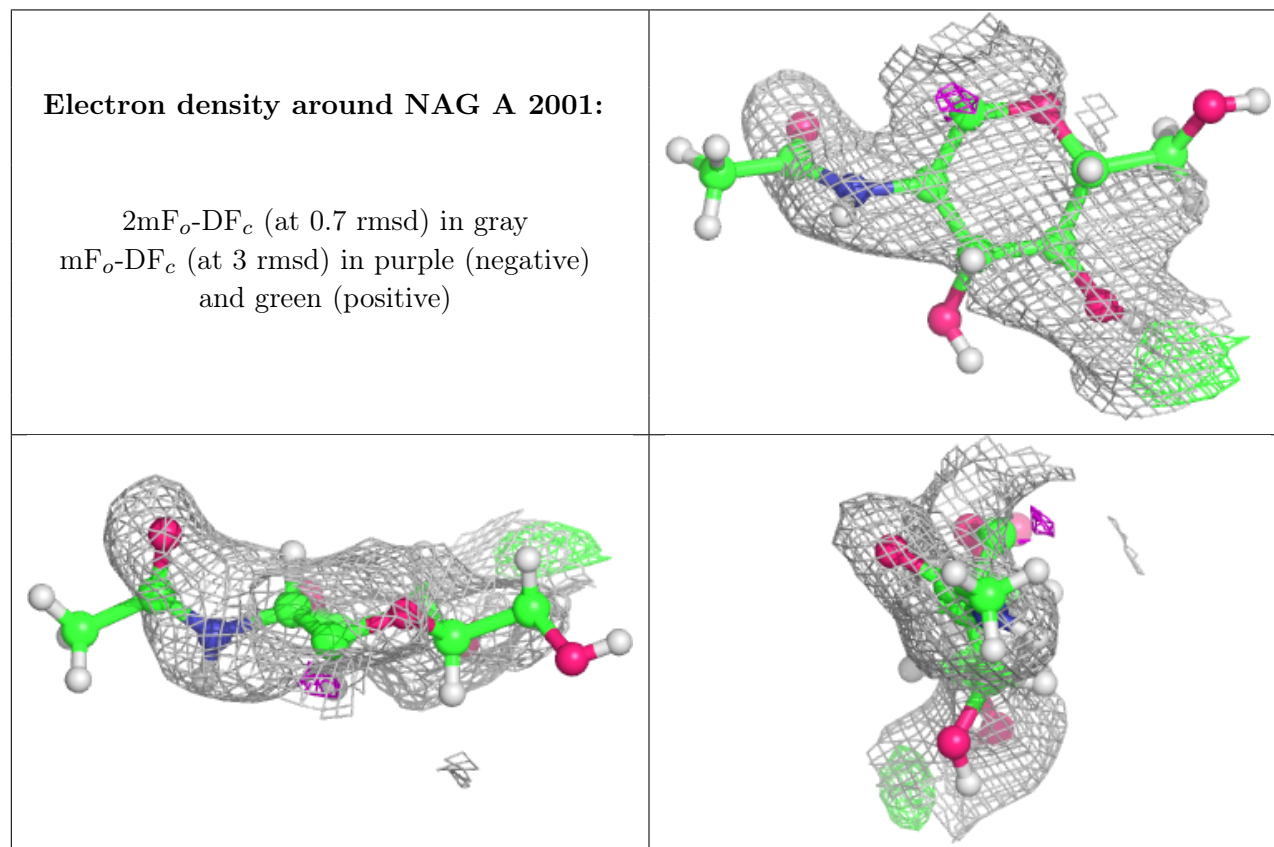
There are no monosaccharides in this entry.

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	A	2001	14/15	0.64	0.41	59,72,87,96	0
5	NA	E	101	1/1	0.91	0.16	42,42,42,42	0
5	NA	A	2002	1/1	0.97	0.04	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 NAG A 2001:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)

6.5 Other polymers ⓘ

There are no such residues in this entry.