



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 12:35 AM UTC

PDB ID : 8RP8 / pdb_00008rp8
Title : Structure of K2 Fab in complex with human CD47 ECD
Authors : Laursen, M.; Kelsas, V.; Rose, N.
Deposited on : 2024-01-12
Resolution : 2.00 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

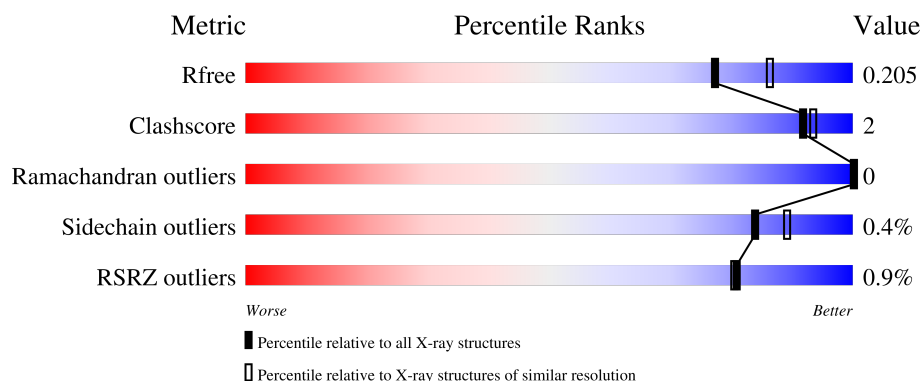
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 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	10052 (2.00-2.00)
Clashscore	190562	11152 (2.00-2.00)
Ramachandran outliers	187476	11031 (2.00-2.00)
Sidechain outliers	187428	11029 (2.00-2.00)
RSRZ outliers	180081	10067 (2.00-2.00)

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	223	% 91% 5%
1	H	223	2% 92% 5%
2	B	215	95% .
2	L	215	94% 5%
3	C	129	% 86% 5% 9%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
3	D	129	% 83% 9% 9%

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 9297 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 K2 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	212	Total	C	N	O	S	0	2	0
			1580	998	263	313	6			
1	H	211	Total	C	N	O	S	0	1	0
			1568	991	261	310	6			

- Molecule 2 is a protein called K2 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	214	Total	C	N	O	S	0	5	0
			1663	1038	281	338	6			
2	L	214	Total	C	N	O	S	0	4	0
			1662	1035	282	339	6			

- Molecule 3 is a protein called Leukocyte surface antigen CD47.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	118	Total	C	N	O	S	0	2	0
			950	606	151	189	4			
3	D	118	Total	C	N	O	S	0	1	0
			946	602	151	189	4			

There are 14 discrepancies between the modelled and reference sequences:

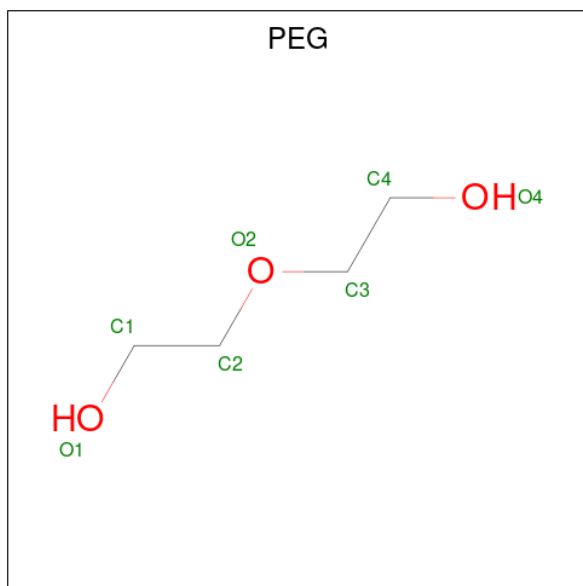
Chain	Residue	Modelled	Actual	Comment	Reference
C	15	GLY	CYS	conflict	UNP Q08722
C	124	HIS	-	expression tag	UNP Q08722
C	125	HIS	-	expression tag	UNP Q08722
C	126	HIS	-	expression tag	UNP Q08722
C	127	HIS	-	expression tag	UNP Q08722
C	128	HIS	-	expression tag	UNP Q08722
C	129	HIS	-	expression tag	UNP Q08722
D	15	GLY	CYS	conflict	UNP Q08722

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	124	HIS	-	expression tag	UNP Q08722
D	125	HIS	-	expression tag	UNP Q08722
D	126	HIS	-	expression tag	UNP Q08722
D	127	HIS	-	expression tag	UNP Q08722
D	128	HIS	-	expression tag	UNP Q08722
D	129	HIS	-	expression tag	UNP Q08722

- Molecule 4 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



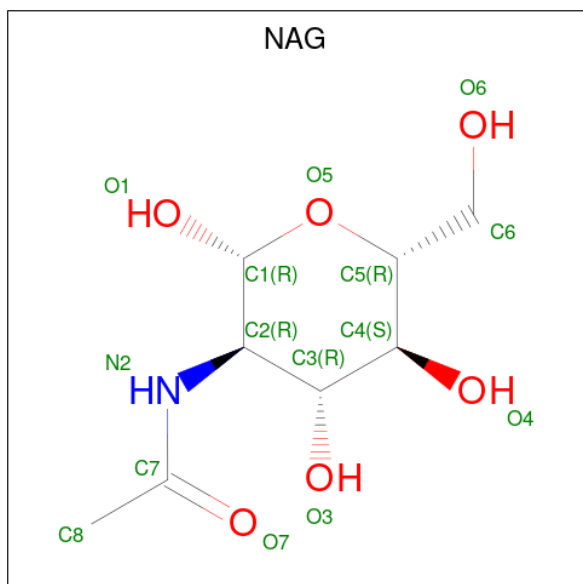
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			7	4	3		
4	H	1	Total	C	O	0	0
			7	4	3		

- Molecule 5 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	B	1	Total	C	O	0	0
			6	3	3		
5	L	1	Total	C	O	0	0
			6	3	3		

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	C	1	Total	C	N	O	0	0
			14	8	1	5		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	C	1	Total	C	N	O	0	0
			14	8	1	5		
6	C	1	Total	C	N	O	0	0
			14	8	1	5		
6	D	1	Total	C	N	O	0	0
			14	8	1	5		
6	D	1	Total	C	N	O	0	0
			14	8	1	5		
6	D	1	Total	C	N	O	0	0
			14	8	1	5		

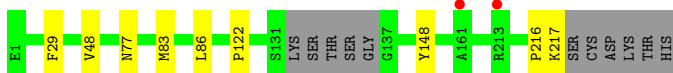
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	108	Total	O	0	0
			108	108		
7	B	185	Total	O	0	2
			185	185		
7	C	96	Total	O	0	0
			96	96		
7	D	115	Total	O	0	0
			115	115		
7	H	127	Total	O	0	0
			127	127		
7	L	187	Total	O	0	0
			187	187		

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: K2 Fab heavy chain



- Molecule 1: K2 Fab heavy chain



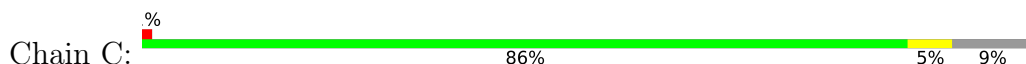
- Molecule 2: K2 Fab light chain



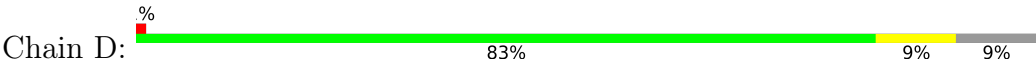
- Molecule 2: K2 Fab light chain



- Molecule 3: Leukocyte surface antigen CD47



- Molecule 3: Leukocyte surface antigen CD47



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	69.42Å 71.81Å 78.38Å 109.45° 95.55° 118.90°	Depositor
Resolution (Å)	20.06 – 2.00 20.06 – 2.00	Depositor EDS
% Data completeness (in resolution range)	97.4 (20.06-2.00) 97.3 (20.06-2.00)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	7.25 (at 2.01Å)	Xtriage
Refinement program	BUSTER 2.11.8, REFMAC 5.8.0419	Depositor
R, R_{free}	0.180 , 0.214 0.174 , 0.205	Depositor DCC
R_{free} test set	3862 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å ²)	29.2	Xtriage
Anisotropy	0.404	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 44.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	9297	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 6.78% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, PEG, GOL, PCA

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	0.62	0/1623	0.88	0/2208
1	H	0.63	0/1608	0.89	1/2188 (0.0%)
2	B	0.73	1/1707 (0.1%)	0.95	1/2316 (0.0%)
2	L	0.74	1/1700 (0.1%)	0.95	1/2306 (0.0%)
3	C	0.64	0/963	0.92	1/1305 (0.1%)
3	D	0.66	0/956	0.92	2/1295 (0.2%)
All	All	0.68	2/8557 (0.0%)	0.92	6/11618 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	L	4	MET	SD-CE	-5.16	1.66	1.79
2	B	4	MET	SD-CE	-5.12	1.66	1.79

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	17	ASP	CA-CB-CG	7.79	120.39	112.60
2	L	17	ASP	CA-CB-CG	7.66	120.26	112.60
3	C	14	PHE	CA-CB-CG	-6.52	107.28	113.80
3	D	14	PHE	CA-CB-CG	-6.33	107.47	113.80
3	D	6	LYS	N-CA-C	5.28	118.30	110.48
1	H	48	VAL	CB-CA-C	5.08	115.89	110.91

There are no chirality outliers.

There are no planarity outliers.

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	A	1580	0	1546	5	0
1	H	1568	0	1533	2	0
2	B	1663	0	1631	5	0
2	L	1662	0	1621	9	0
3	C	950	0	936	3	0
3	D	946	0	927	5	0
4	A	7	0	10	0	0
4	H	7	0	10	0	0
5	B	6	0	8	0	0
5	L	6	0	8	0	0
6	C	42	0	39	1	0
6	D	42	0	39	1	0
7	A	108	0	0	0	0
7	B	185	0	0	0	0
7	C	96	0	0	0	0
7	D	115	0	0	0	0
7	H	127	0	0	0	0
7	L	187	0	0	0	0
All	All	9297	0	8308	26	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 (26) 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)
2:B:40:PRO:HG2	2:B:166:GLU:HG3	1.76	0.68
3:D:12:PHE:HB3	6:D:201:NAG:H82	1.79	0.65
3:C:12:PHE:HB3	6:C:201:NAG:H82	1.80	0.64
2:L:40:PRO:HG2	2:L:166:GLU:HG3	1.80	0.63
2:B:164[A]:VAL:HG22	2:B:176:LEU:HD12	1.91	0.52
1:A:122:PRO:HB3	1:A:148:TYR:HB3	1.92	0.50
1:H:122:PRO:HB3	1:H:148:TYR:HB3	1.94	0.49
2:L:4:MET:HE2	2:L:33:LEU:CD1	2.43	0.49
2:L:146:LYS:HB3	2:L:198:THR:HB	1.95	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:99:THR:HG23	3:C:104:GLU:HG2	1.95	0.48
2:B:146:LYS:HB3	2:B:198:THR:HB	1.96	0.48
3:D:99:THR:HG23	3:D:104:GLU:HG2	1.96	0.47
1:A:83:MET:HE2	1:A:86:LEU:HD21	1.98	0.46
3:D:45:ARG:NH1	3:D:62:ASP:OD2	2.49	0.46
1:A:29:PHE:HB3	1:A:77:ASN:HD22	1.82	0.44
2:B:7[B]:SER:OG	2:L:17:ASP:HB3	2.17	0.44
2:B:17:ASP:HB3	2:L:7[A]:SER:OG	2.18	0.43
3:C:28:MET:HG3	3:C:76:GLY:HA2	2.01	0.43
3:D:28:MET:HG3	3:D:76:GLY:HA2	2.01	0.42
1:A:83:MET:HB3	1:A:86:LEU:HD21	2.01	0.42
1:A:216:PRO:O	1:A:217:LYS:HB3	2.19	0.42
1:H:216:PRO:O	1:H:217:LYS:HB3	2.20	0.40
3:D:37:TYR:CG	2:L:93:PRO:HG2	2.57	0.40
2:L:4:MET:HE3	2:L:23:CYS:SG	2.61	0.40
2:L:14:SER:O	2:L:17:ASP:HB2	2.21	0.40
2:L:4:MET:HE2	2:L:33:LEU:HD12	2.04	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	210/223 (94%)	203 (97%)	7 (3%)	0	100	100
1	H	208/223 (93%)	202 (97%)	6 (3%)	0	100	100
2	B	217/215 (101%)	210 (97%)	7 (3%)	0	100	100
2	L	216/215 (100%)	210 (97%)	6 (3%)	0	100	100
3	C	118/129 (92%)	116 (98%)	2 (2%)	0	100	100
3	D	117/129 (91%)	115 (98%)	2 (2%)	0	100	100
All	All	1086/1134 (96%)	1056 (97%)	30 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	176/184 (96%)	175 (99%)	1 (1%)	78	85
1	H	174/184 (95%)	173 (99%)	1 (1%)	78	85
2	B	193/189 (102%)	192 (100%)	1 (0%)	81	87
2	L	192/189 (102%)	191 (100%)	1 (0%)	81	87
3	C	108/117 (92%)	108 (100%)	0	100	100
3	D	107/117 (92%)	107 (100%)	0	100	100
All	All	950/980 (97%)	946 (100%)	4 (0%)	84	89

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

Mol	Chain	Res	Type
1	A	48	VAL
2	B	90	GLN
1	H	48	VAL
2	L	90	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	39	GLN
1	A	77	ASN
1	A	82	GLN
1	A	84	ASN
2	B	38	GLN
2	B	79	GLN
2	B	190	HIS
2	B	211	ASN
1	H	39	GLN
1	H	82	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	H	84	ASN
1	H	167	HIS
1	H	202	ASN
2	L	38	GLN
2	L	79	GLN
2	L	138	ASN
2	L	190	HIS
2	L	211	ASN

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	PCA	C	1	3	7,8,9	0.78	0	9,10,12	1.29	1 (11%)
3	PCA	D	1	3	7,8,9	0.82	0	9,10,12	1.69	2 (22%)

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	PCA	C	1	3	-	0/0/11/13	0/1/1/1
3	PCA	D	1	3	-	0/0/11/13	0/1/1/1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	1	PCA	CB-CA-C	-3.23	108.22	112.66
3	C	1	PCA	CB-CA-C	-2.75	108.89	112.66
3	D	1	PCA	OE-CD-CG	-2.13	122.92	126.72

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

10 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	$\# Z > 2$
6	NAG	C	201	3	14,14,15	0.31	0	17,19,21	0.52	0
6	NAG	D	202	3	14,14,15	0.28	0	17,19,21	0.57	0
5	GOL	B	301	-	5,5,5	0.07	0	5,5,5	0.33	0
4	PEG	H	301	-	6,6,6	0.15	0	5,5,5	0.12	0
4	PEG	A	301	-	6,6,6	0.11	0	5,5,5	0.14	0
6	NAG	C	202	3	14,14,15	0.27	0	17,19,21	0.56	0
5	GOL	L	301	-	5,5,5	0.05	0	5,5,5	0.27	0
6	NAG	C	203	3	14,14,15	0.28	0	17,19,21	0.52	0
6	NAG	D	201	3	14,14,15	0.31	0	17,19,21	0.58	0
6	NAG	D	203	3	14,14,15	0.28	0	17,19,21	0.52	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
6	NAG	C	201	3	-	0/6/23/26	0/1/1/1
6	NAG	D	202	3	-	0/6/23/26	0/1/1/1
5	GOL	B	301	-	-	2/4/4/4	-
4	PEG	H	301	-	-	3/4/4/4	-
4	PEG	A	301	-	-	2/4/4/4	-
6	NAG	C	202	3	-	0/6/23/26	0/1/1/1
5	GOL	L	301	-	-	0/4/4/4	-
6	NAG	C	203	3	-	0/6/23/26	0/1/1/1
6	NAG	D	201	3	-	0/6/23/26	0/1/1/1
6	NAG	D	203	3	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	H	301	PEG	O1-C1-C2-O2
4	A	301	PEG	O1-C1-C2-O2
5	B	301	GOL	C1-C2-C3-O3
4	H	301	PEG	C4-C3-O2-C2
4	A	301	PEG	O2-C3-C4-O4
4	H	301	PEG	C1-C2-O2-C3
5	B	301	GOL	O2-C2-C3-O3

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	C	201	NAG	1	0
6	D	201	NAG	1	0

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	212/223 (95%)	-0.01	2 (0%) 81 80	21, 38, 65, 76	2 (0%)
1	H	211/223 (94%)	-0.07	4 (1%) 66 66	21, 37, 67, 79	1 (0%)
2	B	214/215 (99%)	-0.30	1 (0%) 87 87	13, 30, 54, 75	5 (2%)
2	L	214/215 (99%)	-0.30	1 (0%) 87 87	12, 29, 55, 81	4 (1%)
3	C	117/129 (90%)	-0.32	1 (0%) 81 80	17, 35, 46, 52	2 (1%)
3	D	117/129 (90%)	-0.36	1 (0%) 81 80	17, 32, 44, 50	1 (0%)
All	All	1085/1134 (95%)	-0.21	10 (0%) 81 80	12, 34, 59, 81	15 (1%)

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	C	116	VAL	2.5
1	H	194	THR	2.4
1	H	161	ALA	2.4
2	B	213	GLY	2.4
1	A	213	ARG	2.3
1	A	161	ALA	2.3
1	H	137	GLY	2.1
3	D	116	VAL	2.1
2	L	213	GLY	2.1
1	H	197	TYR	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [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
3	PCA	C	1	8/9	0.80	0.15	35,39,43,51	0
3	PCA	D	1	8/9	0.89	0.09	33,37,40,48	0

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
6	NAG	C	202	14/15	0.58	0.14	66,69,69,70	0
6	NAG	D	202	14/15	0.69	0.12	59,61,62,63	0
4	PEG	H	301	7/7	0.77	0.16	55,56,58,58	0
6	NAG	C	203	14/15	0.78	0.10	60,63,63,64	0
6	NAG	D	203	14/15	0.79	0.09	55,57,59,59	0
5	GOL	B	301	6/6	0.80	0.13	60,60,60,60	0
5	GOL	L	301	6/6	0.81	0.13	63,63,64,64	0
6	NAG	C	201	14/15	0.82	0.10	40,46,50,51	0
4	PEG	A	301	7/7	0.86	0.12	48,50,51,52	0
6	NAG	D	201	14/15	0.86	0.08	35,41,45,46	0

6.5 Other polymers [i](#)

There are no such residues in this entry.