



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 12:44 PM UTC

PDB ID : 3REZ / pdb\_00003rez  
Title : glycoprotein GPIb variant  
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Deposited on : 2011-04-05  
Resolution : 2.35 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](mailto: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>.

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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)  
Xtrriage (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

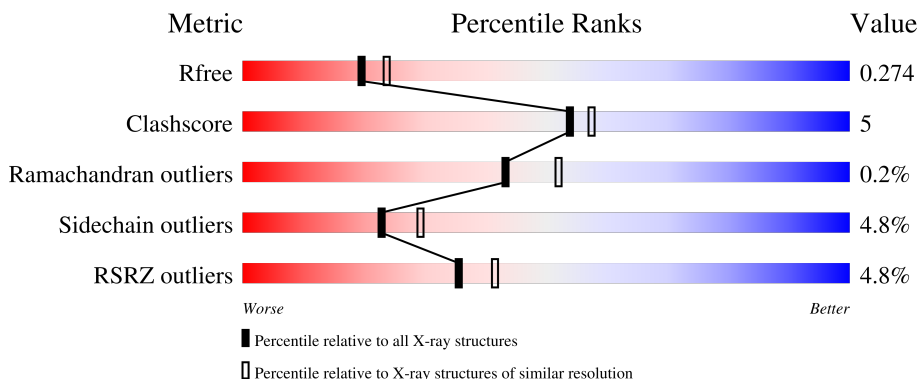
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.35 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	1596 (2.36-2.36)
Clashscore	190562	1663 (2.36-2.36)
Ramachandran outliers	187476	1646 (2.36-2.36)
Sidechain outliers	187428	1646 (2.36-2.36)
RSRZ outliers	180081	1598 (2.36-2.36)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	129	 5% 78% 9% 12%
1	B	129	 6% 79% 9% 12%
1	C	129	 2% 81% 8% 9%
1	D	129	 4% 72% 12% 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
2	NAG	C	130	X	-	-	-

## 2 Entry composition i

There are 6 unique types of molecules in this entry. The entry contains 3897 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 Platelet glycoprotein Ib beta chain, Platelet glycoprotein IX.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	113	872	547	164	153	8	6	1	0
1	B	114	888	557	168	155	8	6	3	0
1	C	117	884	554	165	157	8	0	0	1
1	D	111	862	541	163	151	7	0	1	0

There are 56 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	ALA	-	expression tag	UNP P13224
A	-1	ASP	-	expression tag	UNP P13224
A	0	PRO	-	expression tag	UNP P13224
A	116	GLY	-	expression tag	UNP P13224
A	117	PRO	-	expression tag	UNP P13224
A	118	LEU	-	expression tag	UNP P13224
A	119	SER	-	expression tag	UNP P13224
A	120	SER	-	expression tag	UNP P13224
A	121	HIS	-	expression tag	UNP P13224
A	122	HIS	-	expression tag	UNP P13224
A	123	HIS	-	expression tag	UNP P13224
A	124	HIS	-	expression tag	UNP P13224
A	125	HIS	-	expression tag	UNP P13224
A	126	HIS	-	expression tag	UNP P13224
B	-2	ALA	-	expression tag	UNP P13224
B	-1	ASP	-	expression tag	UNP P13224
B	0	PRO	-	expression tag	UNP P13224
B	116	GLY	-	expression tag	UNP P13224
B	117	PRO	-	expression tag	UNP P13224
B	118	LEU	-	expression tag	UNP P13224
B	119	SER	-	expression tag	UNP P13224

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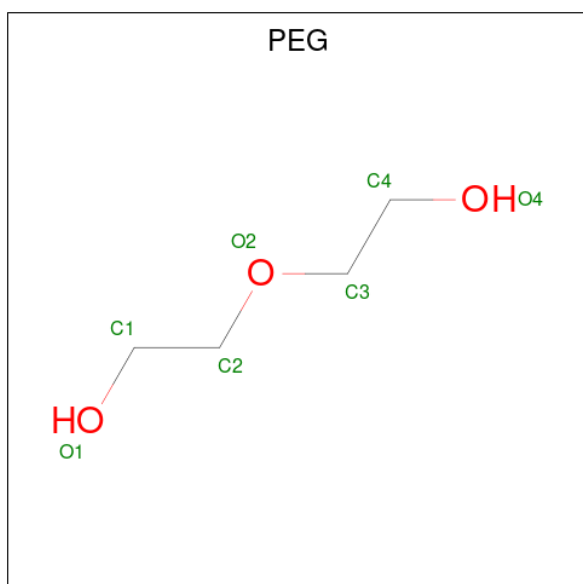
Chain	Residue	Modelled	Actual	Comment	Reference
B	120	SER	-	expression tag	UNP P13224
B	121	HIS	-	expression tag	UNP P13224
B	122	HIS	-	expression tag	UNP P13224
B	123	HIS	-	expression tag	UNP P13224
B	124	HIS	-	expression tag	UNP P13224
B	125	HIS	-	expression tag	UNP P13224
B	126	HIS	-	expression tag	UNP P13224
C	-2	ALA	-	expression tag	UNP P13224
C	-1	ASP	-	expression tag	UNP P13224
C	0	PRO	-	expression tag	UNP P13224
C	116	GLY	-	expression tag	UNP P13224
C	117	PRO	-	expression tag	UNP P13224
C	118	LEU	-	expression tag	UNP P13224
C	119	SER	-	expression tag	UNP P13224
C	120	SER	-	expression tag	UNP P13224
C	121	HIS	-	expression tag	UNP P13224
C	122	HIS	-	expression tag	UNP P13224
C	123	HIS	-	expression tag	UNP P13224
C	124	HIS	-	expression tag	UNP P13224
C	125	HIS	-	expression tag	UNP P13224
C	126	HIS	-	expression tag	UNP P13224
D	-2	ALA	-	expression tag	UNP P13224
D	-1	ASP	-	expression tag	UNP P13224
D	0	PRO	-	expression tag	UNP P13224
D	116	GLY	-	expression tag	UNP P13224
D	117	PRO	-	expression tag	UNP P13224
D	118	LEU	-	expression tag	UNP P13224
D	119	SER	-	expression tag	UNP P13224
D	120	SER	-	expression tag	UNP P13224
D	121	HIS	-	expression tag	UNP P13224
D	122	HIS	-	expression tag	UNP P13224
D	123	HIS	-	expression tag	UNP P13224
D	124	HIS	-	expression tag	UNP P13224
D	125	HIS	-	expression tag	UNP P13224
D	126	HIS	-	expression tag	UNP P13224

- Molecule 2 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).



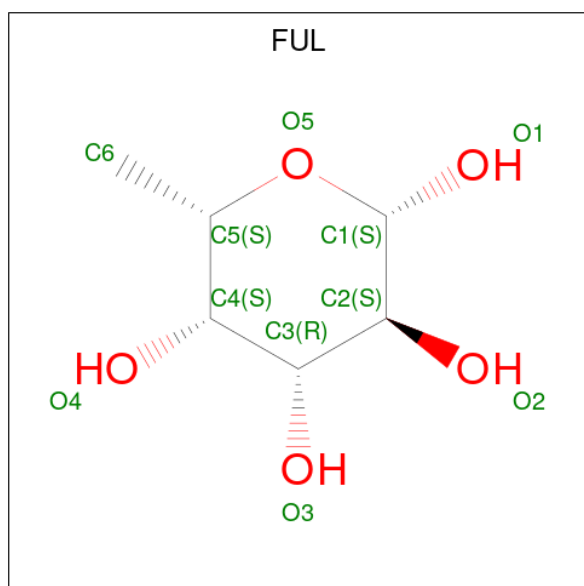
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	Total 14	C 8	N 1	O 5	0	0
2	B	1	Total 13	C 8	N 1	O 4	0	0
2	C	1	Total 14	C 8	N 1	O 5	0	0
2	C	1	Total 14	C 8	N 1	O 5	0	0
2	D	1	Total 14	C 8	N 1	O 5	0	0

- Molecule 3 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula:  $C_4H_{10}O_3$ ).



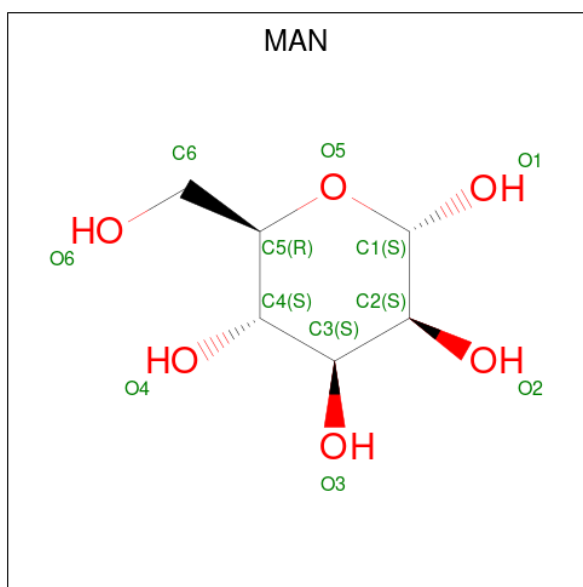
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	C	1	Total C O 4 2 2	0	0
3	C	1	Total C O 4 2 2	0	0
3	D	1	Total C O 4 2 2	0	0
3	D	1	Total C O 4 2 2	0	0
3	D	1	Total C O 4 2 2	0	0

- Molecule 4 is beta-L-fucopyranose (CCD ID: FUL) (formula: C<sub>6</sub>H<sub>12</sub>O<sub>5</sub>).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	C	1	Total C O 10 6 4	0	0

- Molecule 5 is alpha-D-mannopyranose (CCD ID: MAN) (formula: C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	C	1	Total C O 11 6 5	0	0

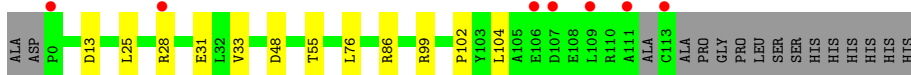
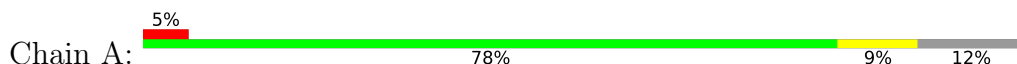
- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	65	Total O 65 65	0	0
6	B	67	Total O 67 67	0	0
6	C	68	Total O 68 68	0	0
6	D	73	Total O 73 73	0	0

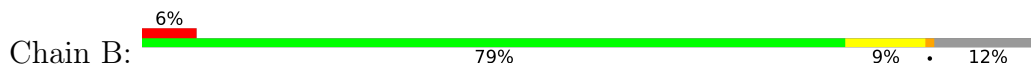
### 3 Residue-property plots [i](#)

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.

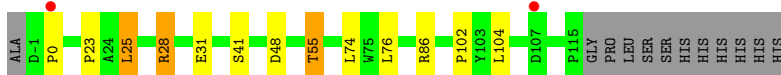
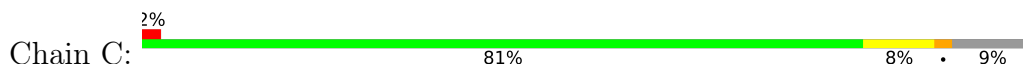
- Molecule 1: Platelet glycoprotein Ib beta chain, Platelet glycoprotein IX



- Molecule 1: Platelet glycoprotein Ib beta chain, Platelet glycoprotein IX



- Molecule 1: Platelet glycoprotein Ib beta chain, Platelet glycoprotein IX



- Molecule 1: Platelet glycoprotein Ib beta chain, Platelet glycoprotein IX



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	72.01Å 72.01Å 171.73Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	42.17 – 2.35 42.17 – 2.35	Depositor EDS
% Data completeness (in resolution range)	92.5 (42.17-2.35) 92.5 (42.17-2.35)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	4.21 (at 2.34Å)	Xtrriage
Refinement program	REFMAC 5.5.0109	Depositor
R, $R_{free}$	0.211 , 0.259 0.224 , 0.274	Depositor DCC
$R_{free}$ test set	1037 reflections (4.66%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	27.4	Xtrriage
Anisotropy	0.106	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 24.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.039 for -h,-k,l	Xtrriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	3897	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	26.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.36% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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: FUL, NAG, MAN, PEG

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	0.50	0/898	0.83	0/1229
1	B	0.48	0/921	0.81	0/1261
1	C	0.52	0/908	0.84	0/1246
1	D	0.53	0/887	0.83	0/1213
All	All	0.51	0/3614	0.83	0/4949

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	872	0	869	6	0
1	B	888	0	894	6	0
1	C	884	0	878	6	0
1	D	862	0	868	16	0
2	A	14	0	13	0	0
2	B	13	0	10	4	0
2	C	28	0	26	3	0
2	D	14	0	13	0	0
3	A	4	0	5	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	4	0	5	0	0
3	C	8	0	10	0	0
3	D	12	0	15	1	0
4	C	10	0	10	0	0
5	C	11	0	10	1	0
6	A	65	0	0	0	0
6	B	67	0	0	0	0
6	C	68	0	0	1	0
6	D	73	0	0	1	0
All	All	3897	0	3626	35	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 (35) 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:110[B]:ARG:HH11	1:D:110[B]:ARG:CG	1.68	1.06
1:D:110[B]:ARG:HH11	1:D:110[B]:ARG:HG2	0.89	1.05
1:D:110[B]:ARG:HG2	1:D:110[B]:ARG:NH1	1.68	0.96
1:B:38:ASN:ND2	2:B:127:NAG:O5	2.08	0.87
1:D:28:ARG:O	1:D:28:ARG:HD3	1.92	0.69
2:C:128:NAG:H4	5:C:129:MAN:C1	2.28	0.64
1:B:86:ARG:HG2	1:B:102:PRO:HG3	1.81	0.61
1:D:75:TRP:HE3	1:D:76:LEU:HD12	1.66	0.60
1:D:70:THR:O	1:D:74:LEU:HD22	2.03	0.57
1:B:38:ASN:ND2	2:B:127:NAG:C1	2.68	0.56
1:A:31:GLU:HG3	1:A:55:THR:HB	1.86	0.56
1:C:86:ARG:HG2	1:C:102:PRO:HG3	1.88	0.55
1:C:28:ARG:O	1:C:28:ARG:HD3	2.08	0.54
1:D:110[B]:ARG:CG	1:D:110[B]:ARG:NH1	2.40	0.52
1:B:101:LEU:HA	1:B:104:LEU:HD22	1.92	0.51
1:D:28:ARG:NE	1:D:52:GLN:HG3	2.27	0.50
1:D:86:ARG:HG2	1:D:102:PRO:HG3	1.94	0.49
1:D:75:TRP:CE3	1:D:76:LEU:HD12	2.46	0.49
1:D:71:TYR:HA	1:D:74:LEU:CD2	2.43	0.49
1:D:45:GLY:HA3	3:D:129:PEG:H22	1.95	0.48
1:C:31:GLU:HG3	1:C:55:THR:OG1	2.13	0.47
2:B:127:NAG:O3	2:C:128:NAG:C1	2.62	0.47
1:D:40:THR:HG22	6:D:202:HOH:O	2.17	0.45
1:A:13:ASP:HA	1:A:33:VAL:HB	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:41:SER:HB3	6:C:206:HOH:O	2.17	0.44
1:D:31:GLU:HG3	1:D:55:THR:HB	1.99	0.43
1:A:99:ARG:HA	1:C:48:ASP:OD2	2.19	0.43
2:C:130:NAG:O7	2:C:130:NAG:H3	2.18	0.43
1:B:38:ASN:ND2	2:B:127:NAG:C5	2.82	0.42
1:A:28:ARG:HG3	1:A:28:ARG:O	2.20	0.42
1:B:2:PRO:HG2	1:B:5:CYS:HB2	2.02	0.42
1:C:23:PRO:O	1:C:25:LEU:HD22	2.19	0.41
1:A:86:ARG:HG2	1:A:102:PRO:HG3	2.02	0.41
1:D:90:CYS:HB2	1:D:96:LEU:O	2.19	0.41
1:A:48:ASP:OD2	1:D:99:ARG:HA	2.21	0.41

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	111/129 (86%)	109 (98%)	2 (2%)	0	100	100
1	B	115/129 (89%)	112 (97%)	3 (3%)	0	100	100
1	C	115/129 (89%)	113 (98%)	1 (1%)	1 (1%)	14	14
1	D	109/129 (84%)	107 (98%)	2 (2%)	0	100	100
All	All	450/516 (87%)	441 (98%)	8 (2%)	1 (0%)	43	52

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	0	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	A	94/105 (90%)	91 (97%)	3 (3%)	34	46
1	B	96/105 (91%)	90 (94%)	6 (6%)	16	19
1	C	94/105 (90%)	88 (94%)	6 (6%)	16	18
1	D	93/105 (89%)	90 (97%)	3 (3%)	34	46
All	All	377/420 (90%)	359 (95%)	18 (5%)	23	29

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	25	LEU
1	A	76	LEU
1	A	104	LEU
1	B	25	LEU
1	B	28	ARG
1	B	55	THR
1	B	76	LEU
1	B	104	LEU
1	B	113	CYS
1	C	25	LEU
1	C	28	ARG
1	C	55	THR
1	C	74	LEU
1	C	76	LEU
1	C	104	LEU
1	D	25	LEU
1	D	28	ARG
1	D	74	LEU

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	52	GLN

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Mol	Chain	Res	Type
1	B	38	ASN
1	B	52	GLN
1	C	52	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](#)

14 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	$\# Z  > 2$
3	PEG	C	132	-	3,3,6	0.43	0	2,2,5	0.35	0
2	NAG	C	128	-	14,14,15	0.52	0	17,19,21	1.01	2 (11%)
2	NAG	B	127	-	13,13,15	0.59	0	16,18,21	1.79	4 (25%)
3	PEG	D	128	-	3,3,6	0.44	0	2,2,5	0.25	0
5	MAN	C	129	-	11,11,12	0.56	0	15,15,17	0.51	0
2	NAG	C	130	1	14,14,15	0.71	0	17,19,21	2.12	7 (41%)
3	PEG	D	130	-	3,3,6	0.43	0	2,2,5	0.38	0
3	PEG	D	129	-	3,3,6	0.42	0	2,2,5	0.36	0
3	PEG	A	128	-	3,3,6	0.41	0	2,2,5	0.40	0
3	PEG	B	128	-	3,3,6	0.44	0	2,2,5	0.30	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	PEG	C	131	-	3,3,6	0.41	0	2,2,5	0.41	0
2	NAG	A	127	1	14,14,15	0.55	0	17,19,21	0.77	0
2	NAG	D	127	1	14,14,15	0.59	0	17,19,21	1.26	2 (11%)
4	FUL	C	127	-	10,10,11	0.66	0	14,14,16	0.49	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	PEG	C	132	-	-	1/1/1/4	-
2	NAG	C	128	-	-	0/6/23/26	0/1/1/1
2	NAG	B	127	-	-	2/4/21/26	0/1/1/1
3	PEG	D	128	-	-	0/1/1/4	-
5	MAN	C	129	-	-	2/2/19/22	0/1/1/1
2	NAG	C	130	1	1/1/5/7	3/6/23/26	0/1/1/1
3	PEG	D	130	-	-	0/1/1/4	-
3	PEG	D	129	-	-	1/1/1/4	-
3	PEG	A	128	-	-	0/1/1/4	-
3	PEG	B	128	-	-	0/1/1/4	-
3	PEG	C	131	-	-	0/1/1/4	-
2	NAG	A	127	1	-	2/6/23/26	0/1/1/1
2	NAG	D	127	1	-	2/6/23/26	0/1/1/1
4	FUL	C	127	-	-	-	0/1/1/1

There are no bond length outliers.

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	130	NAG	C2-N2-C7	5.35	130.07	122.90
2	B	127	NAG	C1-C2-N2	3.63	116.15	110.43
2	D	127	NAG	O5-C5-C6	3.57	114.60	107.66
2	B	127	NAG	C2-N2-C7	3.44	127.51	122.90
2	C	130	NAG	O5-C1-C2	2.75	115.55	111.29
2	C	130	NAG	C1-C2-N2	-2.52	106.47	110.43
2	C	130	NAG	O5-C5-C6	2.45	112.44	107.66
2	B	127	NAG	O5-C1-C2	2.45	115.08	111.29
2	B	127	NAG	C3-C4-C5	-2.36	106.22	109.81
2	C	130	NAG	O5-C5-C4	-2.29	105.24	110.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	130	NAG	O7-C7-N2	2.23	125.93	121.98
2	C	128	NAG	C3-C4-C5	2.21	114.23	110.23
2	C	130	NAG	C4-C3-C2	2.10	114.10	111.02
2	D	127	NAG	C3-C4-C5	-2.01	106.59	110.23
2	C	128	NAG	C4-C3-C2	2.00	113.95	111.02

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	C	130	NAG	C1

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	127	NAG	C1-C2-N2-C7
2	C	130	NAG	C3-C2-N2-C7
2	C	130	NAG	O5-C5-C6-O6
2	D	127	NAG	C4-C5-C6-O6
5	C	129	MAN	C4-C5-C6-O6
2	C	130	NAG	C4-C5-C6-O6
2	D	127	NAG	O5-C5-C6-O6
5	C	129	MAN	O5-C5-C6-O6
2	A	127	NAG	C4-C5-C6-O6
3	C	132	PEG	O1-C1-C2-O2
2	B	127	NAG	C3-C2-N2-C7
2	A	127	NAG	O5-C5-C6-O6
3	D	129	PEG	O1-C1-C2-O2

There are no ring outliers.

5 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	128	NAG	2	0
2	B	127	NAG	4	0
5	C	129	MAN	1	0
2	C	130	NAG	1	0
3	D	129	PEG	1	0

## 5.7 Other polymers [i](#)

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	113/129 (87%)	0.29	7 (6%) 26 30	14, 24, 51, 82	2 (1%)
1	B	114/129 (88%)	0.23	8 (7%) 22 25	13, 23, 52, 70	4 (3%)
1	C	117/129 (90%)	0.20	2 (1%) 69 74	14, 25, 40, 50	0
1	D	111/129 (86%)	0.25	5 (4%) 38 44	14, 23, 40, 78	1 (0%)
All	All	455/516 (88%)	0.24	22 (4%) 35 41	13, 24, 48, 82	7 (1%)

All (22) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	110[A]	ARG	4.9
1	A	111	ALA	4.2
1	B	112	ALA	4.1
1	B	111	ALA	4.0
1	A	28	ARG	3.9
1	A	107	ASP	3.5
1	B	0	PRO	3.5
1	A	0	PRO	3.1
1	D	107	ASP	3.0
1	B	113	CYS	2.8
1	A	113	CYS	2.6
1	C	0	PRO	2.6
1	A	109	LEU	2.6
1	B	109	LEU	2.6
1	A	106	GLU	2.5
1	B	28	ARG	2.5
1	C	107	ASP	2.4
1	D	106	GLU	2.4
1	D	0	PRO	2.4
1	D	28	ARG	2.3
1	B	107	ASP	2.2
1	B	25	LEU	2.2

## 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
2	NAG	D	127	14/15	0.59	0.15	30,36,38,38	0
2	NAG	A	127	14/15	0.62	0.16	31,37,39,39	0
4	FUL	C	127	10/11	0.65	0.22	65,66,66,66	0
2	NAG	C	130	14/15	0.69	0.14	29,34,35,36	0
2	NAG	C	128	14/15	0.70	0.16	56,57,57,57	0
2	NAG	B	127	13/15	0.72	0.17	46,48,49,50	0
5	MAN	C	129	11/12	0.72	0.15	49,51,52,52	0
3	PEG	D	130	4/7	0.73	0.17	33,34,35,36	0
3	PEG	B	128	4/7	0.74	0.21	29,29,30,30	0
3	PEG	C	131	4/7	0.75	0.11	45,45,45,45	0
3	PEG	D	128	4/7	0.79	0.15	36,37,37,37	0
3	PEG	C	132	4/7	0.82	0.14	39,40,41,41	0
3	PEG	A	128	4/7	0.85	0.13	48,48,48,49	0
3	PEG	D	129	4/7	0.87	0.15	37,37,37,37	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.