



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 1, 2016 – 12:43 PM GMT

PDB ID : 3RY6
Title : Complex of fcγmariia (CD32) and the FC of human IGG1
Authors : Ramsland, P.A.; Farrugia, W.; Scott, A.M.; Hogarth, P.M.
Deposited on : 2011-05-11
Resolution : 3.80 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

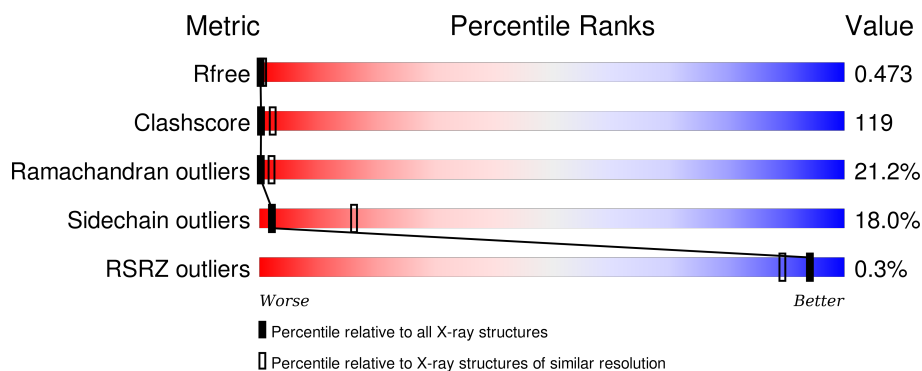
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.80 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}	91344	1317 (4.10-3.50)
Clashscore	102246	1458 (4.10-3.50)
Ramachandran outliers	100387	1397 (4.10-3.50)
Sidechain outliers	100360	1392 (4.10-3.50)
RSRZ outliers	91569	1325 (4.10-3.50)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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	214	
1	B	214	
2	C	167	

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	MAN	B	808	-	-	X	-
4	NAG	B	809	-	-	X	-
4	SIA	B	812	-	-	-	X
5	NAG	C	201	-	-	X	-
5	FUL	C	202	-	-	X	-
7	GOL	A	600	-	X	-	-
7	GOL	B	601	-	X	-	-
7	GOL	B	602	-	X	-	-
7	GOL	B	603	-	X	-	-

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 5145 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 Ig gamma-1 chain C region.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	214	Total	C	N	O	S	0	0	0
			1707	1086	289	325	7			
1	B	214	Total	C	N	O	S	0	0	0
			1707	1086	289	325	7			

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	272	GLN	GLU	SEE REMARK 999	UNP P01857
A	283	GLN	GLU	SEE REMARK 999	UNP P01857
A	294	GLN	GLU	SEE REMARK 999	UNP P01857
A	312	ASN	ASP	SEE REMARK 999	UNP P01857
A	315	ASP	ASN	SEE REMARK 999	UNP P01857
A	356	GLU	ASP	VARIANT	UNP P01857
A	358	MET	LEU	VARIANT	UNP P01857
B	272	GLN	GLU	SEE REMARK 999	UNP P01857
B	283	GLN	GLU	SEE REMARK 999	UNP P01857
B	294	GLN	GLU	SEE REMARK 999	UNP P01857
B	312	ASN	ASP	SEE REMARK 999	UNP P01857
B	315	ASP	ASN	SEE REMARK 999	UNP P01857
B	356	GLU	ASP	VARIANT	UNP P01857
B	358	MET	LEU	VARIANT	UNP P01857

- Molecule 2 is a protein called Low affinity immunoglobulin gamma Fc region receptor II-a.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	167	Total	C	N	O	S	0	0	0
			1331	841	229	256	5			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	134	ARG	HIS	ENGINEERED MUTATION	UNP P12318

- Molecule 3 is a polymer of unknown type called SUGAR (10-MER).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	10	Total	C	N	O	0	0
			130	73	5	52		

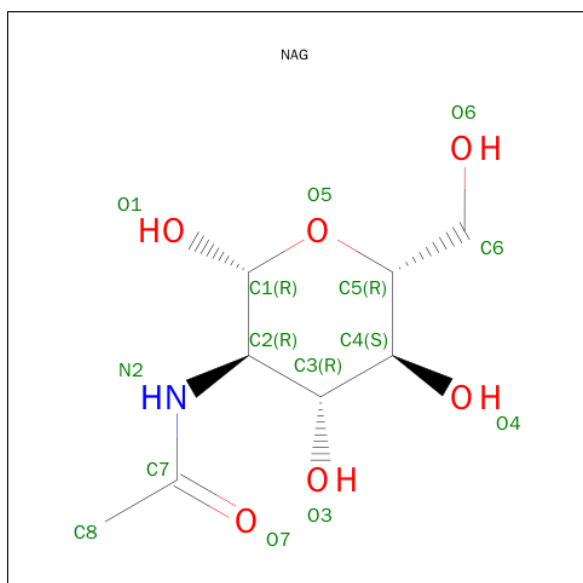
- Molecule 4 is a polymer of unknown type called SUGAR (12-MER).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	B	12	Total	C	N	O	0	0
			161	90	6	65		

- Molecule 5 is a polymer of unknown type called SUGAR (6-MER).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	C	6	Total	C	N	O	0	0
			71	40	2	29		

- Molecule 6 is SUGAR (N-ACETYL-D-GLUCOSAMINE) (three-letter code: 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		

- Molecule 7 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

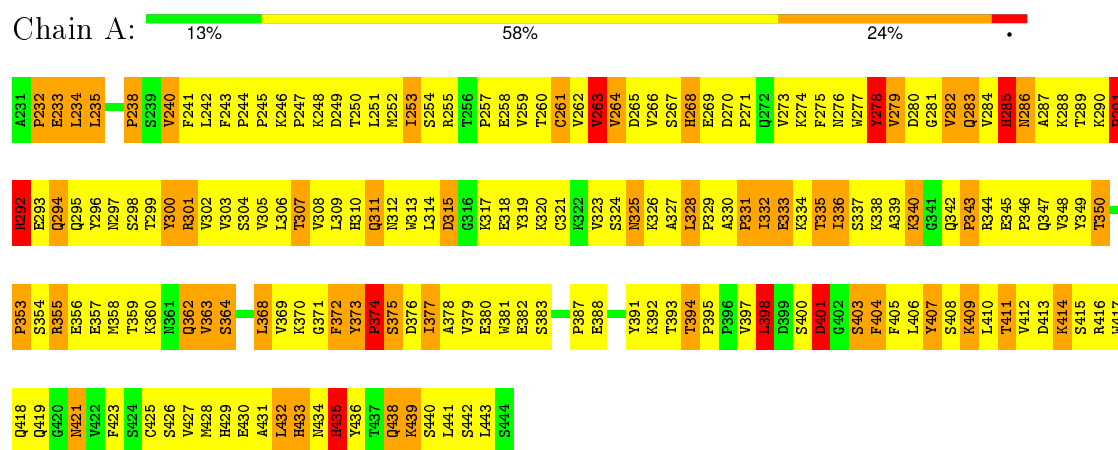


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total	C	O	0	0
			6	3	3		
7	B	1	Total	C	O	0	0
			6	3	3		
7	B	1	Total	C	O	0	0
			6	3	3		
7	B	1	Total	C	O	0	0
			6	3	3		

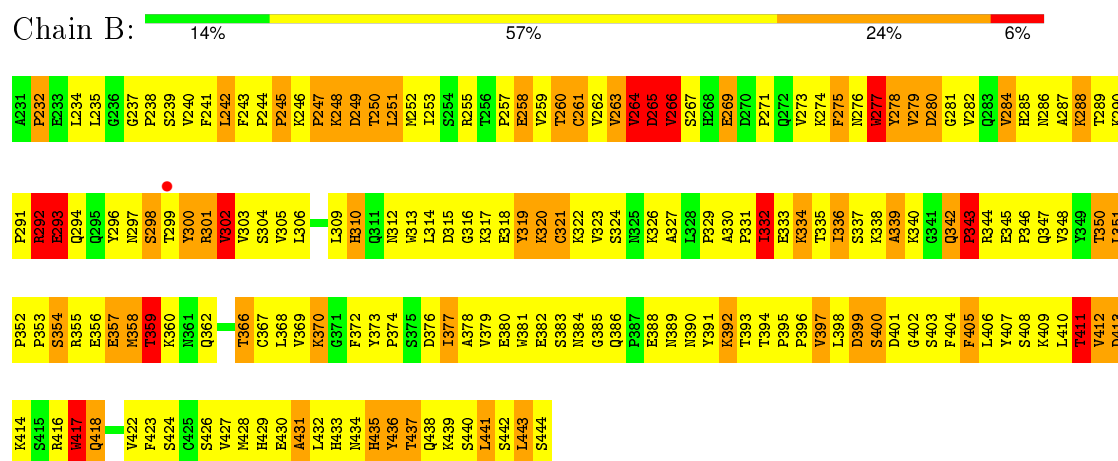
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

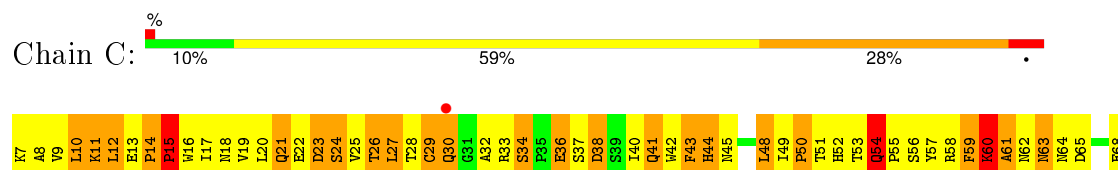
• Molecule 1: Ig gamma-1 chain C region



• Molecule 1: Ig gamma-1 chain C region



• Molecule 2: Low affinity immunoglobulin gamma Fc region receptor II-a



Y69	S129
I70	Q130
C71	K131
Q72	F132
T73	S133
G74	R134
Q75	L135
T76	D136
S77	P137
L78	T138
S79	F139
D80	S140
P81	I141
V82	P142
H83	Q143
L84	A144
T85	N145
V86	H146
L87	S147
S88	H148
E89	S149
W90	
L91	Y152
V92	H153
L93	C154
Q94	T155
T95	G156
P96	N157
I158	I158
G159	G159
L98	Y160
E99	T161
F100	L162
Q101	F163
E102	S164
G103	S164
E104	S165
T105	K166
I106	P167
M107	V168
L108	T169
R109	I170
C110	T171
H111	V172
S112	Q173
W113	
K114	
D115	
K116	
P117	
L118	
V119	
K120	
V121	
T122	
F123	
F124	
Q125	
N126	
G127	
K128	

4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	153.38Å 255.55Å 58.44Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.71 – 3.80 29.71 – 3.78	Depositor EDS
% Data completeness (in resolution range)	(Not available) (29.71-3.80) 93.9 (29.71-3.78)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.14	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.52 (at 3.75Å)	Xtriage
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.252 , 0.426 0.252 , 0.473	Depositor DCC
R_{free} test set	1207 reflections (12.11%)	DCC
Wilson B-factor (Å ²)	69.5	Xtriage
Anisotropy	0.526	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 283.7	EDS
Estimated twinning fraction	0.023 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.025 for 1/2*h+1/2*k,3/2*h-1/2*k,-l	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.31$	Xtriage
Outliers	0 of 11759 reflections	Xtriage
F_o, F_c correlation	0.79	EDS
Total number of atoms	5145	wwPDB-VP
Average B, all atoms (Å ²)	36.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.12% of the height of the origin peak. No significant pseudotranslation is detected.*

¹ Intensities estimated from amplitudes.

² Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 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: GOL, BMA, NAG, NDG, SIA, GAL, FUL, MAN

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	0/1754	0.76	0/2388
1	B	0.54	0/1754	0.83	1/2388 (0.0%)
2	C	0.49	0/1369	0.80	1/1865 (0.1%)
All	All	0.51	0/4877	0.80	2/6641 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	399	ASP	N-CA-C	-5.86	95.18	111.00
2	C	93	LEU	CA-CB-CG	5.46	127.87	115.30

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	1707	0	1678	382	0
1	B	1707	0	1679	462	0
2	C	1331	0	1273	351	1
3	A	130	0	110	16	0
4	B	161	0	135	25	0
5	C	71	0	61	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	C	14	0	13	0	0
7	A	6	0	4	0	0
7	B	18	0	12	3	0
All	All	5145	0	4965	1205	1

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 119.

The worst 5 of 1205 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:C:40:ILE:HG13	2:C:54:GLN:H	1.04	1.19
1:B:377:ILE:HG12	1:B:378:ALA:H	1.10	1.13
1:A:328:LEU:HD23	1:A:329:PRO:HD2	1.22	1.12
1:B:380:GLU:HB2	1:B:426:SER:HB3	1.19	1.12
3:A:809:NAG:H62	3:A:810:GAL:H2	1.27	1.11

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:77:SER:O	2:C:77:SER:O[4_557]	2.14	0.06

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	212/214 (99%)	120 (57%)	50 (24%)	42 (20%)	0	2
1	B	212/214 (99%)	108 (51%)	55 (26%)	49 (23%)	0	1
2	C	165/167 (99%)	78 (47%)	53 (32%)	34 (21%)	0	2

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	589/595 (99%)	306 (52%)	158 (27%)	125 (21%)	0 2

5 of 125 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	234	LEU
1	A	268	HIS
1	A	282	VAL
1	A	285	HIS
1	A	291	PRO

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	198/198 (100%)	164 (83%)	34 (17%)	2 18
1	B	198/198 (100%)	161 (81%)	37 (19%)	2 14
2	C	154/154 (100%)	126 (82%)	28 (18%)	2 15
All	All	550/550 (100%)	451 (82%)	99 (18%)	2 16

5 of 99 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	292	ARG
1	B	359	THR
2	C	123	PHE
1	B	300	TYR
1	B	332	ILE

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 24 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	311	GLN
1	B	384	ASN

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Mol	Chain	Res	Type
2	C	143	GLN
1	B	347	GLN
1	B	362	GLN

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 ⓘ

28 carbohydrates 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	NDG	A	801	3	14,14,15	0.76	0	15,19,21	1.31	2 (13%)
3	FUL	A	802	3	10,10,11	0.87	1 (10%)	14,14,16	0.68	0
3	NAG	A	803	3	14,14,15	0.52	0	15,19,21	1.14	2 (13%)
3	BMA	A	804	3	11,11,12	0.58	0	14,15,17	1.03	2 (14%)
3	MAN	A	805	3	11,11,12	0.75	0	14,15,17	0.71	0
3	NAG	A	806	3	14,14,15	0.72	0	15,19,21	1.05	2 (13%)
3	MAN	A	808	3	11,11,12	1.19	1 (9%)	14,15,17	0.85	0
3	NAG	A	809	3	14,14,15	0.88	1 (7%)	15,19,21	0.96	1 (6%)
3	GAL	A	810	3	11,11,12	0.77	0	14,15,17	1.28	1 (7%)
3	SIA	A	811	3	16,20,21	0.95	1 (6%)	18,28,31	0.95	1 (5%)
4	NAG	B	801	1,4	14,14,15	0.83	1 (7%)	15,19,21	0.99	0
4	FUL	B	802	4	10,10,11	0.62	0	14,14,16	0.81	0
4	NAG	B	803	4	14,14,15	0.74	1 (7%)	15,19,21	0.71	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	BMA	B	804	4	11,11,12	1.34	1 (9%)	14,15,17	1.39	2 (14%)
4	MAN	B	805	4	11,11,12	0.79	0	14,15,17	1.02	1 (7%)
4	NAG	B	806	4	14,14,15	0.72	0	15,19,21	1.29	2 (13%)
4	GAL	B	807	4	11,11,12	0.97	0	14,15,17	0.58	0
4	MAN	B	808	4	11,11,12	0.95	1 (9%)	14,15,17	1.24	2 (14%)
4	NAG	B	809	4	14,14,15	0.70	0	15,19,21	2.03	4 (26%)
4	GAL	B	810	4	11,11,12	0.49	0	14,15,17	0.44	0
4	SIA	B	811	4	16,20,21	0.93	1 (6%)	18,28,31	0.92	0
4	SIA	B	812	4	16,20,21	1.41	2 (12%)	18,28,31	1.00	1 (5%)
5	NDG	C	200	5	14,14,15	0.91	1 (7%)	15,19,21	1.07	1 (6%)
5	NAG	C	201	5	14,14,15	0.96	1 (7%)	15,19,21	0.74	0
5	FUL	C	202	5	10,10,11	0.87	0	14,14,16	0.92	1 (7%)
5	MAN	C	203	5	11,11,12	0.94	1 (9%)	14,15,17	1.96	3 (21%)
5	MAN	C	204	5	11,11,12	0.66	0	14,15,17	1.56	2 (14%)
5	BMA	C	205	5	11,11,12	0.55	0	14,15,17	1.15	2 (14%)

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	NDG	A	801	3	-	0/6/23/26	0/1/1/1
3	FUL	A	802	3	-	0/0/17/20	0/1/1/1
3	NAG	A	803	3	-	0/6/23/26	0/1/1/1
3	BMA	A	804	3	-	0/2/19/22	0/1/1/1
3	MAN	A	805	3	-	0/2/19/22	0/1/1/1
3	NAG	A	806	3	-	0/6/23/26	0/1/1/1
3	MAN	A	808	3	-	0/2/19/22	0/1/1/1
3	NAG	A	809	3	-	0/6/23/26	0/1/1/1
3	GAL	A	810	3	-	0/2/19/22	0/1/1/1
3	SIA	A	811	3	-	0/14/34/38	0/1/1/1
4	NAG	B	801	1,4	-	0/6/23/26	0/1/1/1
4	FUL	B	802	4	-	0/0/17/20	0/1/1/1
4	NAG	B	803	4	-	1/6/23/26	0/1/1/1
4	BMA	B	804	4	-	0/2/19/22	0/1/1/1
4	MAN	B	805	4	-	0/2/19/22	0/1/1/1
4	NAG	B	806	4	-	0/6/23/26	0/1/1/1
4	GAL	B	807	4	-	0/2/19/22	0/1/1/1
4	MAN	B	808	4	-	0/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	B	809	4	-	0/6/23/26	0/1/1/1
4	GAL	B	810	4	-	0/2/19/22	0/1/1/1
4	SIA	B	811	4	-	0/14/34/38	0/1/1/1
4	SIA	B	812	4	-	0/14/34/38	0/1/1/1
5	NDG	C	200	5	-	0/6/23/26	0/1/1/1
5	NAG	C	201	5	-	0/6/23/26	0/1/1/1
5	FUL	C	202	5	-	0/0/17/20	0/1/1/1
5	MAN	C	203	5	-	0/2/19/22	0/1/1/1
5	MAN	C	204	5	-	0/2/19/22	0/1/1/1
5	BMA	C	205	5	-	0/2/19/22	0/1/1/1

The worst 5 of 14 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	811	SIA	C6-C5	2.11	1.56	1.53
5	C	203	MAN	C2-C3	2.12	1.55	1.52
3	A	802	FUL	C2-C3	2.18	1.55	1.52
4	B	803	NAG	C1-C2	2.24	1.55	1.52
3	A	809	NAG	C1-C2	2.29	1.55	1.52

The worst 5 of 32 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	809	NAG	C4-C3-C2	-4.81	103.76	111.23
4	B	809	NAG	C2-N2-C7	-4.31	117.50	123.04
3	A	801	NDG	C2-N2-C7	-3.37	118.71	123.04
3	A	801	NDG	C4-C3-C2	-3.06	106.47	111.23
4	B	812	SIA	C3-C4-C5	-2.81	108.34	111.47

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	803	NAG	O7-C7-N2-C2

There are no ring outliers.

23 monomers are involved in 55 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	802	FUL	1	0
3	A	803	NAG	5	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	805	MAN	2	0
3	A	806	NAG	2	0
3	A	808	MAN	2	0
3	A	809	NAG	5	0
3	A	810	GAL	3	0
3	A	811	SIA	4	0
4	B	801	NAG	4	0
4	B	802	FUL	4	0
4	B	803	NAG	2	0
4	B	805	MAN	2	0
4	B	806	NAG	3	0
4	B	807	GAL	1	0
4	B	808	MAN	6	0
4	B	809	NAG	12	0
4	B	810	GAL	1	0
4	B	811	SIA	1	0
4	B	812	SIA	1	0
5	C	200	NDG	4	0
5	C	201	NAG	13	0
5	C	202	FUL	9	0
5	C	203	MAN	2	0

5.6 Ligand geometry ⓘ

5 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
7	GOL	A	600	-	5,5,5	4.63	5 (100%)	5,5,5	4.28	3 (60%)
7	GOL	B	601	-	5,5,5	4.66	5 (100%)	5,5,5	4.29	3 (60%)
7	GOL	B	602	-	5,5,5	4.74	5 (100%)	5,5,5	4.24	3 (60%)
7	GOL	B	603	-	5,5,5	4.73	5 (100%)	5,5,5	4.27	3 (60%)
6	NAG	C	206	2	14,14,15	0.53	0	15,19,21	0.67	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
7	GOL	A	600	-	-	0/4/4/4	0/0/0/0
7	GOL	B	601	-	-	0/4/4/4	0/0/0/0
7	GOL	B	602	-	-	0/4/4/4	0/0/0/0
7	GOL	B	603	-	-	0/4/4/4	0/0/0/0
6	NAG	C	206	2	-	1/6/23/26	0/1/1/1

The worst 5 of 20 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	B	602	GOL	C3-C2	-8.03	1.21	1.52
7	B	603	GOL	C3-C2	-7.98	1.21	1.52
7	B	601	GOL	C3-C2	-7.71	1.22	1.52
7	A	600	GOL	C3-C2	-7.64	1.23	1.52
7	B	601	GOL	C1-C2	-3.05	1.40	1.52

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	B	602	GOL	O1-C1-C2	2.48	122.22	110.18
7	B	601	GOL	O1-C1-C2	2.48	122.23	110.18
7	A	600	GOL	O1-C1-C2	2.53	122.44	110.18
7	B	603	GOL	O1-C1-C2	2.55	122.56	110.18
7	B	602	GOL	O2-C2-C3	6.06	136.44	108.65

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	C	206	NAG	O7-C7-N2-C2

There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	B	601	GOL	3	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [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	214/214 (100%)	-0.44	0 100 100	1, 28, 70, 118	0
1	B	214/214 (100%)	-0.24	1 (0%) 91 85	1, 33, 72, 108	0
2	C	167/167 (100%)	-0.26	1 (0%) 90 82	1, 35, 76, 113	0
All	All	595/595 (100%)	-0.32	2 (0%) 94 89	1, 31, 74, 118	0

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	299	THR	3.0
2	C	30	GLN	2.1

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](#)

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(Å ²)	Q<0.9
4	SIA	B	812	20/21	0.77	0.45	5.57	51,51,138,142	0
5	MAN	C	204	11/12	0.82	0.27	0.52	42,52,64,68	0
4	GAL	B	807	11/12	0.87	0.32	-0.12	31,71,72,72	0
5	NDG	C	200	14/15	0.86	0.22	-0.30	26,27,62,62	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
4	NAG	B	803	14/15	0.81	0.24	-	36,43,59,75	0
4	MAN	B	808	11/12	0.81	0.25	-	37,87,96,106	0
4	NAG	B	806	14/15	0.88	0.18	-	34,47,69,71	0
5	FUL	C	202	10/11	0.83	0.29	-	69,69,69,69	0
5	MAN	C	203	11/12	0.88	0.17	-	68,78,90,94	0
4	NAG	B	801	14/15	0.85	0.22	-	22,71,80,86	0
3	GAL	A	810	11/12	0.79	0.37	-	81,81,82,82	0
3	MAN	A	808	11/12	0.82	0.22	-	15,55,56,56	0
4	SIA	B	811	20/21	0.83	0.26	-	40,40,64,64	0
3	MAN	A	805	11/12	0.93	0.25	-	41,41,67,68	0
3	NAG	A	806	14/15	0.90	0.21	-	17,17,17,62	0
4	NAG	B	809	14/15	0.89	0.15	-	1,1,1,1	0
3	NAG	A	809	14/15	0.84	0.22	-	86,86,87,87	0
3	NAG	A	803	14/15	0.81	0.31	-	25,29,53,63	0
3	NDG	A	801	14/15	0.84	0.32	-	36,36,112,112	0
4	FUL	B	802	10/11	0.89	0.21	-	11,21,32,43	0
3	FUL	A	802	10/11	0.81	0.46	-	65,65,71,81	0
4	GAL	B	810	11/12	0.85	0.28	-	46,131,132,132	0
4	MAN	B	805	11/12	0.83	0.28	-	65,65,65,65	0
5	BMA	C	205	11/12	0.89	0.22	-	71,82,94,98	0
3	BMA	A	804	11/12	0.90	0.40	-	68,78,90,94	0
3	SIA	A	811	20/21	0.74	0.34	-	59,92,97,98	0
4	BMA	B	804	11/12	0.81	0.25	-	54,54,96,141	0
5	NAG	C	201	14/15	0.90	0.26	-	24,81,82,82	0

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(\AA^2)	Q<0.9
6	NAG	C	206	14/15	0.86	0.29	-	57,61,63,65	0
7	GOL	B	603	6/6	0.66	0.36	-	23,26,27,31	0
7	GOL	B	601	6/6	0.89	0.27	-	23,26,27,31	0
7	GOL	A	600	6/6	0.87	0.25	-	23,26,27,31	0
7	GOL	B	602	6/6	0.86	0.23	-	23,26,27,31	0

6.5 Other polymers ⓘ

There are no such residues in this entry.