



Full wwPDB X-ray Structure Validation Report ⓘ

May 26, 2022 – 04:15 pm BST

PDB ID : 7ZF7
Title : SARS-CoV-2 Omicron BA.2 RBD in complex with ACE2
Authors : Zhou, D.; Huo, J.; Ren, J.; Stuart, D.I.
Deposited on : 2022-04-01
Resolution : 3.46 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.28.1
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.28.1

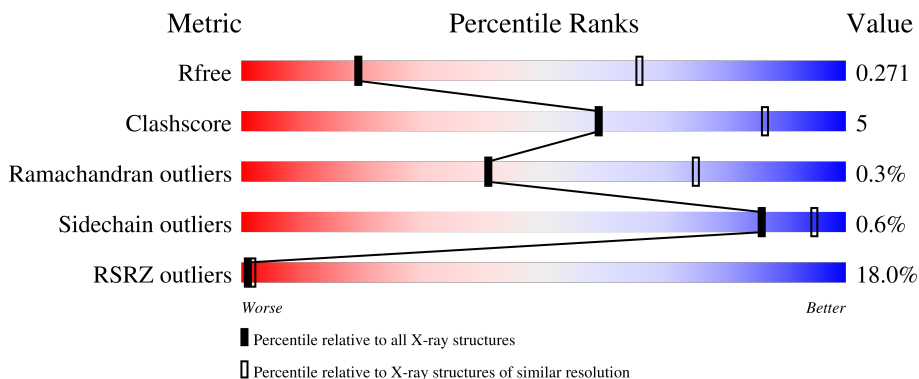
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.46 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}	130704	1291 (3.52-3.40)
Clashscore	141614	1372 (3.52-3.40)
Ramachandran outliers	138981	1337 (3.52-3.40)
Sidechain outliers	138945	1338 (3.52-3.40)
RSRZ outliers	127900	1205 (3.52-3.40)

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	604	 13% 93% 6% •
2	B	209	 32% 76% 16% • 7%

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 6505 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 Processed angiotensin-converting enzyme 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	597	4870	3115	806	920	29	0	0	0

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	616	ARG	-	expression tag	UNP Q9BYF1
A	617	HIS	-	expression tag	UNP Q9BYF1
A	618	HIS	-	expression tag	UNP Q9BYF1
A	619	HIS	-	expression tag	UNP Q9BYF1
A	620	HIS	-	expression tag	UNP Q9BYF1
A	621	HIS	-	expression tag	UNP Q9BYF1
A	622	HIS	-	expression tag	UNP Q9BYF1

- Molecule 2 is a protein called Spike protein S1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	194	1550	1002	261	279	8	0	0	0

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	339	ASP	GLY	variant	UNP P0DTC2
B	371	PHE	SER	variant	UNP P0DTC2
B	373	PRO	SER	variant	UNP P0DTC2
B	375	PHE	SER	variant	UNP P0DTC2
B	376	ALA	THR	variant	UNP P0DTC2
B	405	ASN	ASP	variant	UNP P0DTC2
B	408	SER	ARG	variant	UNP P0DTC2
B	417	ASN	LYS	variant	UNP P0DTC2
B	440	LYS	ASN	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	477	ASN	SER	variant	UNP P0DTC2
B	478	LYS	THR	variant	UNP P0DTC2
B	484	ALA	GLU	variant	UNP P0DTC2
B	493	ARG	GLN	variant	UNP P0DTC2
B	498	ARG	GLN	variant	UNP P0DTC2
B	501	TYR	ASN	variant	UNP P0DTC2
B	505	HIS	TYR	variant	UNP P0DTC2
B	533	HIS	-	expression tag	UNP P0DTC2
B	534	HIS	-	expression tag	UNP P0DTC2
B	535	HIS	-	expression tag	UNP P0DTC2
B	536	HIS	-	expression tag	UNP P0DTC2
B	537	HIS	-	expression tag	UNP P0DTC2
B	538	HIS	-	expression tag	UNP P0DTC2

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



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

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

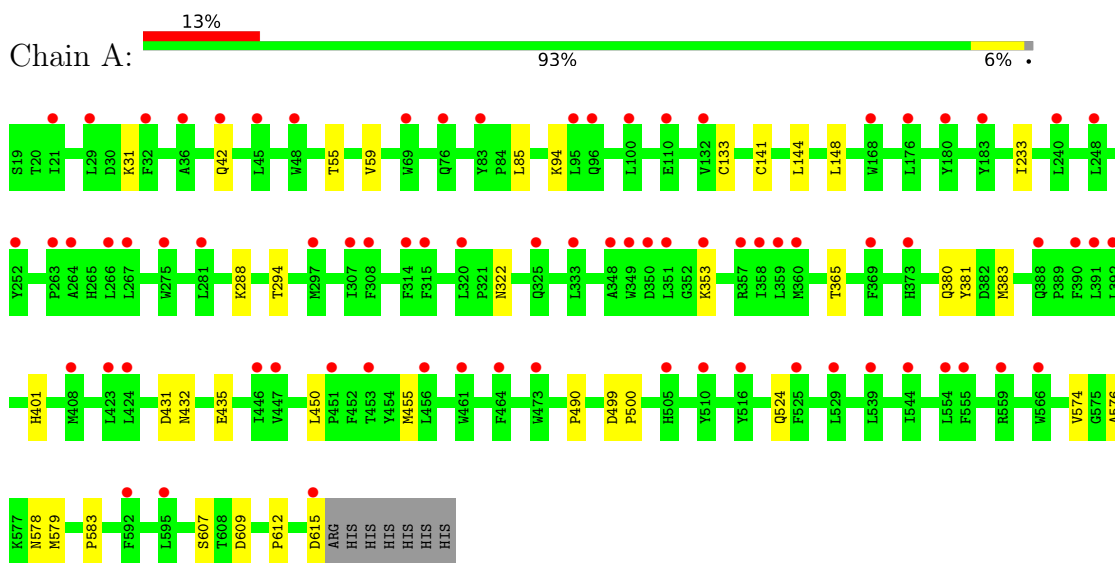
- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Zn	0	0
			1	1		

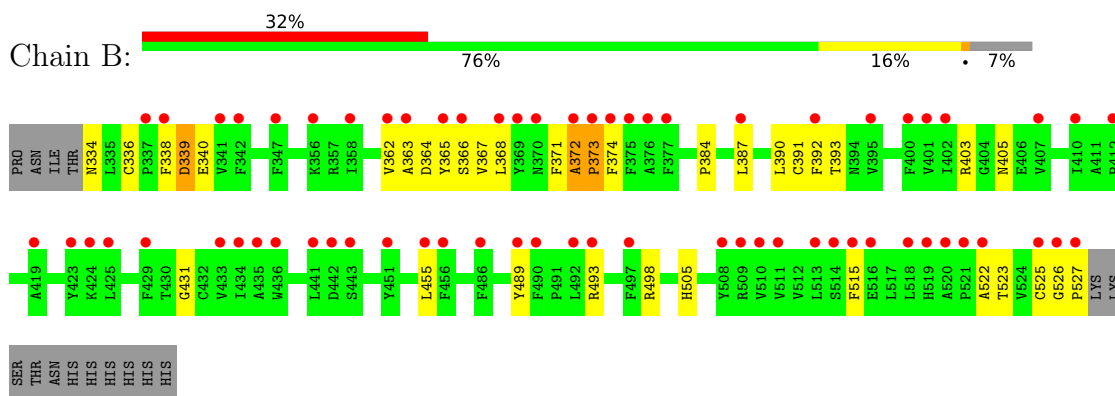
3 Residue-property plots [i](#)

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: Processed angiotensin-converting enzyme 2



- Molecule 2: Spike protein S1



4 Data and refinement statistics

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α , β , γ	104.15Å 104.15Å 223.70Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	76.22 – 3.46 76.22 – 3.46	Depositor EDS
% Data completeness (in resolution range)	95.6 (76.22-3.46) 95.6 (76.22-3.46)	Depositor EDS
R_{merge}	0.70	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.96 (at 3.49Å)	Xtriage
Refinement program	PHENIX 1.19_4092	Depositor
R, R_{free}	0.258 , 0.269 0.259 , 0.271	Depositor DCC
R_{free} test set	802 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	111.9	Xtriage
Anisotropy	0.187	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.30$, $\langle L^2 \rangle = 0.15$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	6505	wwPDB-VP
Average B, all atoms (Å ²)	125.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.48% 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 [i](#)

5.1 Standard geometry [i](#)

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

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	0.24	0/5007	0.42	0/6803
2	B	0.25	0/1598	0.47	1/2175 (0.0%)
All	All	0.24	0/6605	0.43	1/8978 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	339	ASP	CB-CG-OD2	5.20	122.98	118.30

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	4870	0	4637	28	0
2	B	1550	0	1473	41	0
3	A	84	0	78	0	0
4	A	1	0	0	0	0
All	All	6505	0	6188	59	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 (59) 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:372:ALA:HB3	2:B:373:PRO:HD3	1.10	1.09
1:A:31:LYS:HD2	2:B:489:TYR:CD1	1.87	1.08
2:B:372:ALA:HB3	2:B:373:PRO:CD	1.89	1.00
2:B:372:ALA:CB	2:B:373:PRO:HD3	1.92	0.98
2:B:390:LEU:HD11	2:B:392:PHE:CZ	1.99	0.97
2:B:338:PHE:CD2	2:B:368:LEU:HD11	2.02	0.95
2:B:364:ASP:O	2:B:367:VAL:HG12	1.73	0.88
2:B:455:LEU:HD22	2:B:493:ARG:HG3	1.62	0.80
1:A:31:LYS:CD	2:B:489:TYR:CD1	2.67	0.78
2:B:384:PRO:HA	2:B:387:LEU:HG	1.68	0.76
1:A:490:PRO:HA	1:A:612:PRO:HG2	1.69	0.75
2:B:365:TYR:HB3	2:B:387:LEU:HD13	1.75	0.66
2:B:364:ASP:HB3	2:B:367:VAL:HG12	1.77	0.66
2:B:364:ASP:HB3	2:B:367:VAL:CG1	2.28	0.64
2:B:362:VAL:HG13	2:B:526:GLY:HA3	1.79	0.63
2:B:393:THR:O	2:B:523:THR:OG1	2.17	0.62
2:B:338:PHE:CG	2:B:368:LEU:HD11	2.36	0.60
1:A:607:SER:OG	1:A:609:ASP:OD1	2.19	0.60
2:B:390:LEU:HD11	2:B:392:PHE:CE1	2.38	0.58
1:A:133:CYS:HA	1:A:141:CYS:HA	1.86	0.57
1:A:85:LEU:HD22	1:A:94:LYS:HG3	1.87	0.57
1:A:353:LYS:C	2:B:505:HIS:CD2	2.79	0.56
2:B:391:CYS:HA	2:B:525:CYS:HB3	1.88	0.56
1:A:31:LYS:CD	2:B:489:TYR:HD1	2.19	0.54
1:A:574:VAL:HG23	1:A:576:ALA:H	1.71	0.54
1:A:42:GLN:HG2	2:B:498:ARG:NH2	2.24	0.52
2:B:392:PHE:CE1	2:B:515:PHE:HB3	2.45	0.51
1:A:615:ASP:OD1	1:A:615:ASP:N	2.43	0.51
2:B:338:PHE:CD2	2:B:368:LEU:CD1	2.85	0.51
2:B:391:CYS:HB3	2:B:522:ALA:HB1	1.93	0.50
2:B:372:ALA:CB	2:B:373:PRO:CD	2.61	0.50
1:A:294:THR:HG23	1:A:365:THR:HA	1.95	0.49
1:A:432:ASN:HA	1:A:435:GLU:HG3	1.95	0.48
1:A:288:LYS:NZ	1:A:431:ASP:OD2	2.29	0.47
2:B:374:PHE:CD1	2:B:374:PHE:C	2.89	0.47
2:B:339:ASP:OD1	2:B:340:GLU:N	2.49	0.47
1:A:524:GLN:HG2	1:A:583:PRO:HG2	1.96	0.46
2:B:338:PHE:HE2	2:B:363:ALA:HB1	1.79	0.46
1:A:31:LYS:HD2	2:B:489:TYR:CE1	2.46	0.45
1:A:353:LYS:HA	2:B:505:HIS:NE2	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:390:LEU:C	2:B:390:LEU:HD12	2.37	0.44
2:B:364:ASP:C	2:B:366:SER:H	2.21	0.43
2:B:526:GLY:HA2	2:B:527:PRO:HD3	1.88	0.43
1:A:144:LEU:HA	1:A:148:LEU:HB2	2.01	0.42
1:A:55:THR:O	1:A:59:VAL:HG23	2.20	0.42
2:B:364:ASP:C	2:B:366:SER:N	2.73	0.42
1:A:322:ASN:OD1	1:A:322:ASN:N	2.52	0.42
1:A:42:GLN:CG	2:B:498:ARG:NH2	2.82	0.42
1:A:578:ASN:OD1	1:A:579:MET:N	2.52	0.42
2:B:336:CYS:SG	2:B:363:ALA:HB2	2.60	0.42
1:A:499:ASP:N	1:A:500:PRO:HD2	2.35	0.41
1:A:233:ILE:HD13	1:A:450:LEU:HD13	2.02	0.41
2:B:431:GLY:HA2	2:B:515:PHE:CD2	2.56	0.41
2:B:403:ARG:HH21	2:B:405:ASN:HD22	1.69	0.40
1:A:85:LEU:HD23	1:A:85:LEU:HA	1.93	0.40
1:A:380:GLN:HA	1:A:383:MET:HE2	2.04	0.40
2:B:334:ASN:O	2:B:362:VAL:N	2.43	0.40
1:A:353:LYS:HA	2:B:505:HIS:CD2	2.56	0.40
1:A:353:LYS:CA	2:B:505:HIS:CD2	3.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	595/604 (98%)	587 (99%)	8 (1%)	0	100	100
2	B	192/209 (92%)	177 (92%)	13 (7%)	2 (1%)	15	52
All	All	787/813 (97%)	764 (97%)	21 (3%)	2 (0%)	41	75

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	372	ALA
2	B	373	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	527/534 (99%)	524 (99%)	3 (1%)	86 95
2	B	166/181 (92%)	165 (99%)	1 (1%)	86 95
All	All	693/715 (97%)	689 (99%)	4 (1%)	86 95

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

Mol	Chain	Res	Type
1	A	381	TYR
1	A	401	HIS
1	A	455	MET
2	B	371	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	42	GLN
2	B	505	HIS

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 7 ligands modelled in this entry, 1 is monoatomic - leaving 6 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	A	804	1	14,14,15	0.24	0	17,19,21	0.61	0
3	NAG	A	803	1	14,14,15	0.24	0	17,19,21	0.49	0
3	NAG	A	801	1	14,14,15	0.31	0	17,19,21	0.51	0
3	NAG	A	802	1	14,14,15	0.25	0	17,19,21	0.43	0
3	NAG	A	805	1	14,14,15	0.37	0	17,19,21	0.52	0
3	NAG	A	806	1	14,14,15	0.30	0	17,19,21	0.38	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	NAG	A	804	1	-	2/6/23/26	0/1/1/1
3	NAG	A	803	1	-	0/6/23/26	0/1/1/1
3	NAG	A	801	1	-	0/6/23/26	0/1/1/1
3	NAG	A	802	1	-	0/6/23/26	0/1/1/1
3	NAG	A	805	1	-	0/6/23/26	0/1/1/1
3	NAG	A	806	1	-	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 (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	804	NAG	C4-C5-C6-O6
3	A	804	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

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

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	597/604 (98%)	0.81	76 (12%) 3 5	90, 114, 151, 179	0
2	B	194/209 (92%)	1.63	66 (34%) 0 0	112, 143, 209, 263	0
All	All	791/813 (97%)	1.01	142 (17%) 1 2	90, 121, 180, 263	0

All (142) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	365	TYR	11.5
2	B	515	PHE	8.4
2	B	338	PHE	7.9
2	B	519	HIS	7.1
2	B	521	PRO	6.6
2	B	375	PHE	6.0
1	A	349	TRP	5.7
2	B	410	ILE	5.5
2	B	520	ALA	5.5
2	B	522	ALA	5.4
2	B	369	TYR	5.1
2	B	368	LEU	4.8
2	B	513	LEU	4.8
2	B	527	PRO	4.6
2	B	374	PHE	4.5
1	A	358	ILE	4.5
2	B	436	TRP	4.4
1	A	357	ARG	4.4
2	B	402	ILE	4.3
2	B	392	PHE	4.3
2	B	514	SER	4.2
1	A	423	LEU	4.1
1	A	32	PHE	4.1
2	B	373	PRO	4.0

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Mol	Chain	Res	Type	RSRZ
1	A	180	TYR	3.9
1	A	359	LEU	3.9
2	B	508	TYR	3.9
1	A	333	LEU	3.7
2	B	492	LEU	3.7
1	A	555	PHE	3.7
2	B	434	ILE	3.7
2	B	372	ALA	3.6
1	A	390	PHE	3.6
2	B	433	VAL	3.6
2	B	370	ASN	3.6
1	A	348	ALA	3.4
2	B	435	ALA	3.4
2	B	510	VAL	3.4
2	B	425	LEU	3.3
1	A	544	ILE	3.3
1	A	559	ARG	3.2
2	B	342	PHE	3.2
2	B	366	SER	3.2
1	A	100	LEU	3.1
2	B	341	VAL	3.1
1	A	168	TRP	3.1
2	B	489	TYR	3.1
1	A	408	MET	3.1
2	B	337	PRO	3.1
2	B	400	PHE	3.0
2	B	518	LEU	3.0
1	A	369	PHE	3.0
1	A	351	LEU	3.0
1	A	83	TYR	3.0
2	B	362	VAL	3.0
2	B	526	GLY	3.0
1	A	69	TRP	3.0
1	A	391	LEU	2.9
1	A	96	GLN	2.9
1	A	76	GLN	2.9
1	A	263	PRO	2.9
1	A	566	TRP	2.9
2	B	407	VAL	2.9
2	B	423	TYR	2.9
1	A	373	HIS	2.9
1	A	132	VAL	2.9

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Mol	Chain	Res	Type	RSRZ
1	A	529	LEU	2.9
1	A	275	TRP	2.8
1	A	314	PHE	2.8
1	A	525	PHE	2.8
1	A	360	MET	2.8
2	B	525	CYS	2.8
1	A	183	TYR	2.8
1	A	281	LEU	2.8
1	A	176	LEU	2.7
2	B	412	PRO	2.7
2	B	377	PHE	2.7
1	A	36	ALA	2.7
1	A	392	LEU	2.7
2	B	455	LEU	2.7
2	B	497	PHE	2.7
2	B	511	VAL	2.7
2	B	395	VAL	2.7
1	A	297	MET	2.6
2	B	363	ALA	2.6
1	A	315	PHE	2.6
2	B	516	GLU	2.6
1	A	350	ASP	2.6
1	A	505	HIS	2.6
1	A	464	PHE	2.6
2	B	376	ALA	2.6
1	A	447	VAL	2.6
1	A	42	GLN	2.5
2	B	490	PHE	2.5
1	A	21	ILE	2.5
1	A	307	ILE	2.5
2	B	356	LYS	2.5
1	A	45	LEU	2.5
1	A	446	ILE	2.5
1	A	516	TYR	2.5
2	B	401	VAL	2.5
1	A	592	PHE	2.5
1	A	252	TYR	2.4
1	A	95	LEU	2.4
2	B	456	PHE	2.4
1	A	453	THR	2.4
1	A	461	TRP	2.4
1	A	320	LEU	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	308	PHE	2.4
1	A	110	GLU	2.4
1	A	539	LEU	2.4
1	A	240	LEU	2.3
2	B	424	LYS	2.3
2	B	387	LEU	2.3
1	A	267	LEU	2.3
2	B	442	ASP	2.2
2	B	509	ARG	2.2
2	B	429	PHE	2.2
1	A	595	LEU	2.2
1	A	473	TRP	2.2
2	B	358	ILE	2.2
1	A	388	GLN	2.2
1	A	264	ALA	2.2
1	A	48	TRP	2.2
1	A	29	LEU	2.1
2	B	419	ALA	2.1
2	B	451	TYR	2.1
1	A	554	LEU	2.1
2	B	347	PHE	2.1
1	A	456	LEU	2.1
1	A	451	PRO	2.1
1	A	615	ASP	2.1
2	B	441	LEU	2.1
1	A	353	LYS	2.1
2	B	443	SER	2.0
1	A	266	LEU	2.0
1	A	424	LEU	2.0
2	B	486	PHE	2.0
1	A	510	TYR	2.0
2	B	493	ARG	2.0
1	A	325	GLN	2.0
1	A	248	LEU	2.0

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 monosaccharides 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(Å ²)	Q<0.9
3	NAG	A	801	14/15	0.57	0.32	122,147,152,153	0
3	NAG	A	802	14/15	0.57	0.34	144,150,160,167	0
3	NAG	A	803	14/15	0.69	0.27	122,152,161,163	0
3	NAG	A	805	14/15	0.69	0.30	132,137,144,145	0
3	NAG	A	806	14/15	0.80	0.24	138,150,162,163	0
3	NAG	A	804	14/15	0.85	0.18	146,152,158,159	0
4	ZN	A	807	1/1	0.89	0.19	123,123,123,123	0

6.5 Other polymers [i](#)

There are no such residues in this entry.