WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Oct 19, 2024 – 06:21 PM EDT

PDB ID	:	2Z80
Title	:	Crystal structure of the TLR1-TLR2 heterodimer induced by binding of a tri-acylated lipopeptide
Authors	:	Lee, J.O.; Jin, M.S.; Kim, S.E.; Heo, J.Y.
Deposited on	:	2007-08-30
Resolution	:	1.80 Å(reported)

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

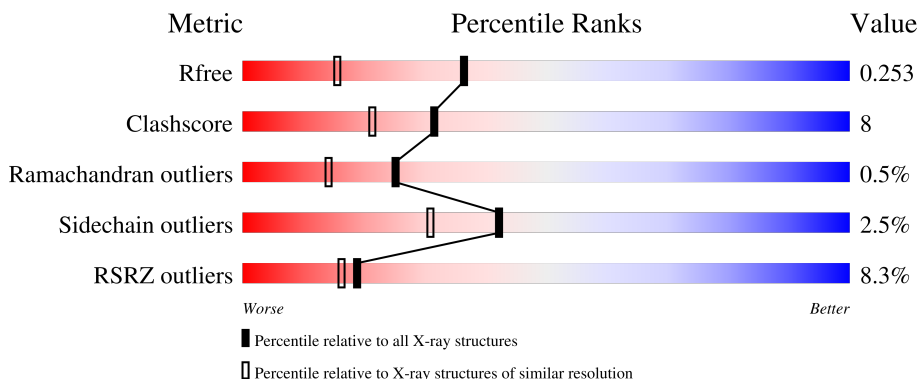|		
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1　Overall quality at a glance　ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.80 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	Percentile Ranks	Value
Rfree		0.253
Clashscore		8
Ramachandran outliers		0.5%
Sidechain outliers		2.5%
RSRZ outliers		8.3%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	7108 (1.80-1.80)
Clashscore	180529	8162 (1.80-1.80)
Ramachandran outliers	177936	8077 (1.80-1.80)
Sidechain outliers	177891	8076 (1.80-1.80)
RSRZ outliers	164620	7108 (1.80-1.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	353	8% / 77% / 13% / • / 9%
1	B	353	7% / 69% / 20% / • / 9%

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 5346 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 Toll-like receptor 2, Variable lymphocyte receptor B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	321	Total	C	N	O	S	0	0	0
			2538	1603	429	495	11			
1	B	320	Total	C	N	O	S	0	0	0
			2531	1599	428	493	11			

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	285	SER	-	linker	UNP O60603
A	286	ARG	-	linker	UNP O60603
A	287	ASN	-	linker	UNP O60603
A	288	GLN	-	linker	UNP O60603
A	289	LEU	-	linker	UNP O60603
B	285	SER	-	linker	UNP O60603
B	286	ARG	-	linker	UNP O60603
B	287	ASN	-	linker	UNP O60603
B	288	GLN	-	linker	UNP O60603
B	289	LEU	-	linker	UNP O60603

- Molecule 2 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		
2	A	1	14	8	1	5	0	0

- Molecule 3 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
3	A	144	144	144	0	0
3	B	119	Total 119	O 119	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Toll-like receptor 2, Variable lymphocyte receptor B
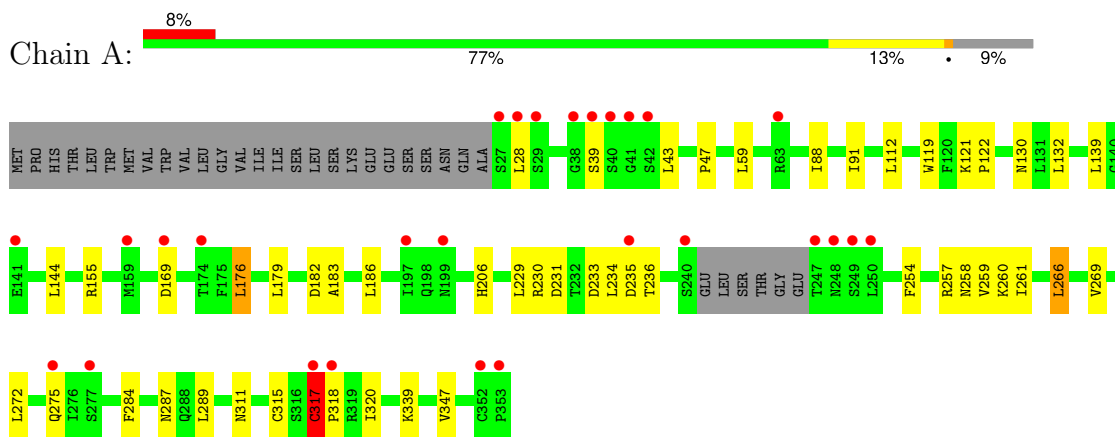
• Molecule 1: Toll-like receptor 2, Variable lymphocyte receptor B
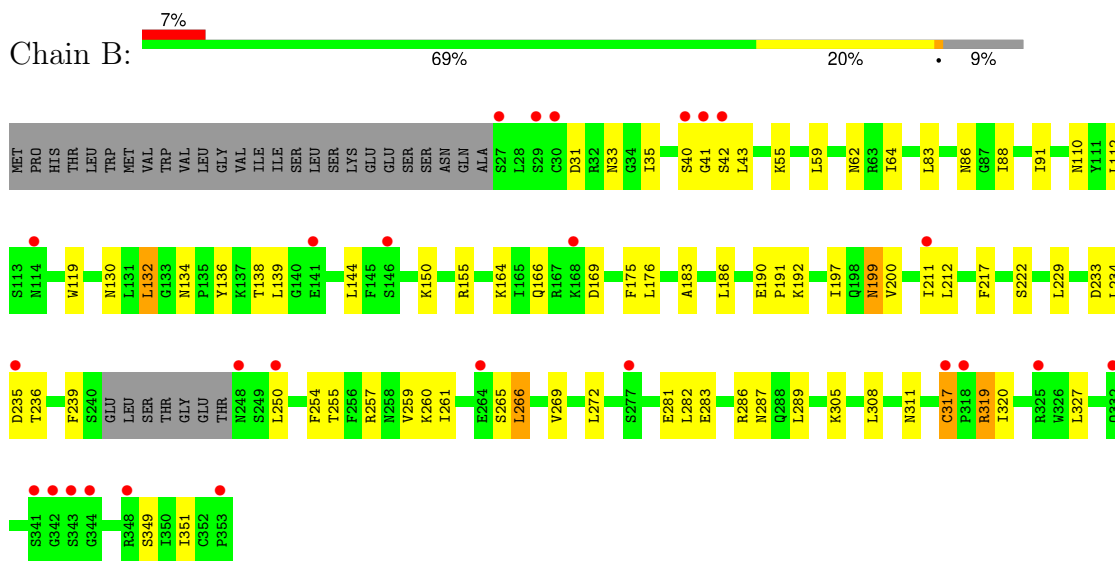
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	54.27Å 101.38Å 59.59Å 90.00° 99.82° 90.00°	Depositor
Resolution (Å)	39.89 – 1.80 39.89 – 1.80	Depositor EDS
% Data completeness (in resolution range)	97.7 (39.89-1.80) 97.7 (39.89-1.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.06	Depositor
$< I/\sigma(I) >$ [1]	10.06 (at 1.79Å)	Xtriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.220 , 0.254 0.220 , 0.253	Depositor DCC
R_{free} test set	2907 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å^2)	12.4	Xtriage
Anisotropy	0.067	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 37.4	EDS
L-test for twinning[2]	$< |L| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	5346	wwPDB-VP
Average B, all atoms (Å^2)	15.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.43% of the height of the origin peak. No significant pseudotranslation is detected.*

---

[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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	0.32	0/2581	0.66	2/3486 (0.1%)
1	B	0.32	0/2574	0.64	0/3476
All	All	0.32	0/5155	0.65	2/6962 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	317	CYS	N-CA-C	5.45	125.71	111.00
1	A	317	CYS	CA-CB-SG	-5.43	104.23	114.00

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	2538	0	2546	29	0
1	B	2531	0	2540	52	0
2	A	14	0	13	0	0
3	A	144	0	0	2	0
3	B	119	0	0	1	0
All	All	5346	0	5099	81	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 8.

All (81) 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:A:320:ILE:HD11	1:A:347:VAL:HG13	1.44	1.00
1:B:112:LEU:H	1:B:134:ASN:HD22	1.35	0.73
1:B:261:ILE:HD11	1:B:266:LEU:HA	1.71	0.72
1:A:287:ASN:H	1:A:311:ASN:HD21	1.39	0.69
1:A:315:CYS:SG	1:A:320:ILE:HD12	2.32	0.69
1:B:110:ASN:HB2	1:B:134:ASN:HD21	1.58	0.69
1:B:88:ILE:H	1:B:110:ASN:HD22	1.39	0.69
1:B:86:ASN:HB2	1:B:110:ASN:HD21	1.56	0.67
1:B:287:ASN:H	1:B:311:ASN:HD21	1.41	0.67
1:B:257:ARG:HD2	1:B:286:ARG:HD2	1.79	0.65
1:A:261:ILE:HD11	1:A:266:LEU:HA	1.80	0.64
1:B:43:LEU:H	1:B:62:ASN:HD22	1.46	0.63
1:B:62:ASN:HB2	1:B:86:ASN:HD21	1.65	0.62
1:A:183:ALA:HB1	1:A:186:LEU:HB2	1.83	0.61
1:B:199:ASN:HD22	1:B:200:VAL:N	1.98	0.61
1:A:287:ASN:HB2	1:A:289:LEU:HD13	1.85	0.58
1:B:150:LYS:HD3	3:B:429:HOH:O	2.03	0.58
1:A:28:LEU:HD22	1:A:47:PRO:HG2	1.86	0.57
1:B:64:ILE:H	1:B:86:ASN:HD22	1.52	0.57
1:B:287:ASN:H	1:B:311:ASN:ND2	2.03	0.56
1:A:272:LEU:O	1:A:275:GLN:HG2	2.07	0.55
1:B:183:ALA:HB1	1:B:186:LEU:HB2	1.90	0.53
1:B:33:ASN:O	1:B:55:LYS:HD2	2.09	0.53
1:B:139:LEU:HD12	1:B:169:ASP:HB3	1.91	0.52
1:B:317:CYS:C	1:B:319:ARG:H	2.11	0.52
1:B:289:LEU:H	1:B:311:ASN:HD22	1.57	0.52
1:B:235:ASP:O	1:B:236:THR:HB	2.10	0.52
1:B:132:LEU:HD22	1:B:155:ARG:HB3	1.91	0.52
1:B:317:CYS:HA	1:B:320:ILE:HG22	1.91	0.52
1:A:317:CYS:O	1:A:318:PRO:C	2.46	0.51
1:A:121:LYS:HB3	1:A:122:PRO:HD3	1.91	0.51
1:A:318:PRO:HD2	3:A:848:HOH:O	2.11	0.51
1:B:289:LEU:H	1:B:311:ASN:ND2	2.09	0.50
1:B:349:SER:O	1:B:351:ILE:HD12	2.12	0.50
1:A:139:LEU:HD12	1:A:169:ASP:HB3	1.95	0.49
1:A:289:LEU:H	1:A:311:ASN:ND2	2.09	0.49
1:B:259:VAL:HG22	1:B:287:ASN:OD1	2.12	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:261:ILE:HG13	1:B:265:SER:OG	2.13	0.48
1:B:320:ILE:O	1:B:320:ILE:HG13	2.13	0.48
1:B:211:ILE:HG23	1:B:212:LEU:HG	1.96	0.48
1:B:217:PHE:CE2	1:B:272:LEU:HD11	2.49	0.47
1:B:255:THR:HG23	1:B:283:GLU:HB3	1.96	0.47
1:B:166:GLN:HA	1:B:190:GLU:HG3	1.95	0.47
1:B:236:THR:O	1:B:236:THR:HG22	2.15	0.47
1:B:233:ASP:HA	1:B:260:LYS:HB2	1.97	0.47
1:A:182:ASP:HA	1:A:206:HIS:HB2	1.96	0.46
1:A:259:VAL:HG22	1:A:287:ASN:OD1	2.15	0.46
1:B:91:ILE:HB	1:B:119:TRP:CZ2	2.51	0.46
1:B:175:PHE:HD1	1:B:199:ASN:HB3	1.81	0.46
1:B:199:ASN:HD22	1:B:199:ASN:C	2.16	0.46
1:B:31:ASP:OD2	1:B:35:ILE:HB	2.16	0.46
1:B:222:SER:O	1:B:250:LEU:HD12	2.16	0.46
1:A:234:LEU:HD13	1:A:269:VAL:HG21	1.97	0.45
1:A:320:ILE:HG12	1:A:320:ILE:O	2.16	0.45
1:B:139:LEU:O	1:B:144:LEU:HD11	2.16	0.45
1:A:339:LYS:HD3	3:A:880:HOH:O	2.17	0.45
1:B:239:PHE:CE1	1:B:272:LEU:HD13	2.51	0.45
1:B:308:LEU:HD12	1:B:327:LEU:HD21	1.99	0.45
1:B:138:THR:HG22	1:B:164:LYS:HB2	1.98	0.44
1:A:230:ARG:HG2	1:A:257:ARG:HB3	1.99	0.44
1:A:176:LEU:HD23	1:A:179:LEU:HB2	2.00	0.44
1:A:231:ASP:HA	1:A:258:ASN:O	2.18	0.44
1:B:234:LEU:HD13	1:B:269:VAL:HG21	2.00	0.44
1:A:272:LEU:HD12	1:A:275:GLN:HE21	1.82	0.44
1:B:40:SER:O	1:B:42:SER:N	2.38	0.43
1:B:235:ASP:O	1:B:236:THR:CB	2.66	0.43
1:A:130:ASN:OD1	1:A:132:LEU:HB2	2.18	0.43
1:A:235:ASP:O	1:A:236:THR:OG1	2.31	0.43
1:A:91:ILE:HB	1:A:119:TRP:CZ2	2.54	0.42
1:A:88:ILE:O	1:A:112:LEU:HD12	2.20	0.42
1:B:130:ASN:OD1	1:B:132:LEU:HB2	2.19	0.41
1:B:261:ILE:HD11	1:B:266:LEU:CA	2.47	0.41
1:B:281:GLU:HG2	1:B:305:LYS:HB2	2.02	0.41
1:A:233:ASP:HA	1:A:260:LYS:HB2	2.02	0.41
1:A:132:LEU:HD22	1:A:155:ARG:HB3	2.02	0.41
1:B:191:PRO:O	1:B:192:LYS:HB2	2.20	0.41
1:B:134:ASN:HB2	1:B:136:TYR:CE2	2.55	0.41
1:B:317:CYS:C	1:B:319:ARG:N	2.74	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:43:LEU:CD1	1:A:59:LEU:HD22	2.51	0.40
1:B:197:ILE:HG21	1:B:200:VAL:CG2	2.52	0.40
1:B:59:LEU:HB2	1:B:83:LEU:HD23	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	317/353 (90%)	299 (94%)	17 (5%)	1 (0%)	37	25
1	B	316/353 (90%)	301 (95%)	13 (4%)	2 (1%)	22	11
All	All	633/706 (90%)	600 (95%)	30 (5%)	3 (0%)	25	14

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	39	SER
1	B	41	GLY
1	B	319	ARG

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.

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	301/330 (91%)	294 (98%)	7 (2%)	45	34
1	B	300/330 (91%)	292 (97%)	8 (3%)	40	28
All	All	601/660 (91%)	586 (98%)	15 (2%)	42	31

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	144	LEU
1	A	176	LEU
1	A	229	LEU
1	A	254	PHE
1	A	266	LEU
1	A	284	PHE
1	A	317	CYS
1	B	132	LEU
1	B	176	LEU
1	B	199	ASN
1	B	229	LEU
1	B	254	PHE
1	B	266	LEU
1	B	282	LEU
1	B	317	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	61	ASN
1	A	69	ASN
1	A	73	GLN
1	A	152	GLN
1	A	166	GLN
1	A	187	GLN
1	A	198	GLN
1	A	275	GLN
1	A	288	GLN
1	A	311	ASN
1	B	62	ASN
1	B	69	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	73	GLN
1	B	86	ASN
1	B	104	HIS
1	B	110	ASN
1	B	134	ASN
1	B	198	GLN
1	B	199	ASN
1	B	311	ASN

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 ⓘ

There are no oligosaccharides in this entry.

5.6   Ligand geometry ⓘ

1 ligand is 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	$\#|Z| > 2$
2	NAG	A	801	1	14,14,15	0.50	0	17,19,21	0.68	1 (5%)

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.

Full wwPDB X-ray Structure Validation Report

'-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	A	801	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	801	NAG	C2-N2-C7	-2.15	120.02	122.90

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	801	NAG	C8-C7-N2-C2
2	A	801	NAG	O7-C7-N2-C2

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	321/353 (90%)	0.43	27 (8%)	18	16	5, 13, 26, 48	0
1	B	320/353 (90%)	0.40	26 (8%)	19	17	3, 14, 27, 42	0
All	All	641/706 (90%)	0.41	53 (8%)	19	16	3, 14, 27, 48	0

All (53) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	318	PRO	12.2
1	A	317	CYS	9.5
1	B	317	CYS	8.6
1	A	39	SER	8.1
1	A	248	ASN	6.3
1	A	247	THR	5.9
1	A	41	GLY	5.8
1	A	318	PRO	5.3
1	A	40	SER	5.0
1	B	27	SER	4.8
1	A	353	PRO	4.5
1	A	42	SER	4.0
1	B	235	ASP	3.5
1	B	248	ASN	3.5
1	A	27	SER	3.4
1	A	352	CYS	3.4
1	B	344	GLY	3.4
1	B	343	SER	3.4
1	B	277	SER	3.4
1	A	250	LEU	3.3
1	B	141	GLU	3.2
1	B	353	PRO	3.1
1	B	332	GLN	3.1
1	A	235	ASP	3.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	249	SER	2.9
1	B	42	SER	2.8
1	B	341	SER	2.8
1	B	250	LEU	2.8
1	B	264	GLU	2.8
1	A	275	GLN	2.7
1	A	169	ASP	2.7
1	B	40	SER	2.6
1	A	199	ASN	2.5
1	B	342	GLY	2.5
1	B	168	LYS	2.5
1	A	197	ILE	2.5
1	B	114	ASN	2.4
1	B	146	SER	2.4
1	A	63	ARG	2.3
1	A	28	LEU	2.3
1	B	211	ILE	2.3
1	A	38	GLY	2.3
1	A	174	THR	2.3
1	A	277	SER	2.3
1	B	41	GLY	2.2
1	A	159	MET	2.2
1	A	240	SER	2.2
1	B	325	ARG	2.2
1	B	348	ARG	2.1
1	B	29	SER	2.1
1	A	141	GLU	2.0
1	B	30	CYS	2.0
1	A	29	SER	2.0

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

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

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
2	NAG	A	801	14/15	0.63	0.23	41,46,51,53	0

6.5 Other polymers (i)

There are no such residues in this entry.