



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 5, 2026 – 07:56 AM UTC

PDB ID : 2WNL / pdb_00002wnl
Title : CRYSTAL STRUCTURE OF APLYSIA ACHBP IN COMPLEX WITH AN-
ABASEINE
Authors : Sulzenbacher, G.; Hibbs, R.; Shi, J.; Talley, T.; Conrod, S.; Kem, W.; Taylor,
P.; Marchot, P.; Bourne, Y.
Deposited on : 2009-07-09
Resolution : 2.70 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

<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

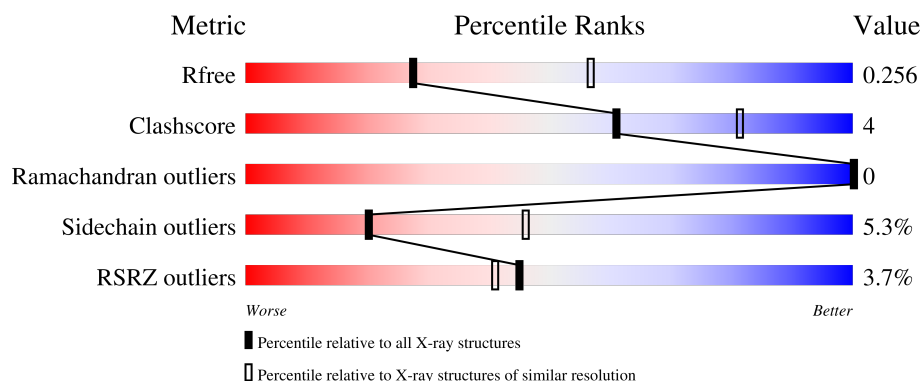
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.70 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.



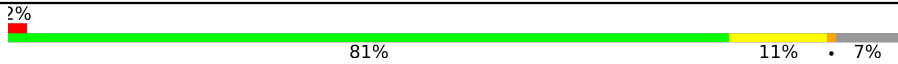
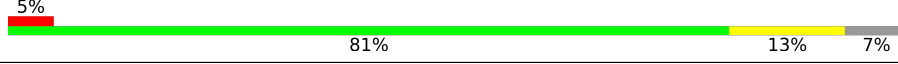
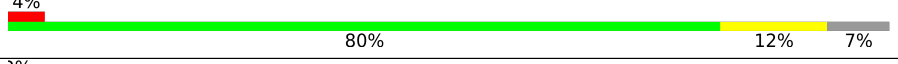
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	3538 (2.70-2.70)
Clashscore	190562	3843 (2.70-2.70)
Ramachandran outliers	187476	3778 (2.70-2.70)
Sidechain outliers	187428	3778 (2.70-2.70)
RSRZ outliers	180081	3538 (2.70-2.70)

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	227	3% 78% 15% 6%
1	B	227	3% 79% 13% 7%
1	C	227	0% 80% 12% 8%
1	D	227	6% 80% 12% 7%
1	E	227	5% 81% 13% 6%

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Mol	Chain	Length	Quality of chain
1	F	227	 2% 81% 11% 7%
1	G	227	 3% 80% 12% 7%
1	H	227	 5% 81% 13% 7%
1	I	227	 4% 80% 12% 7%
1	J	227	 2% 79% 13% 7%

2 Entry composition

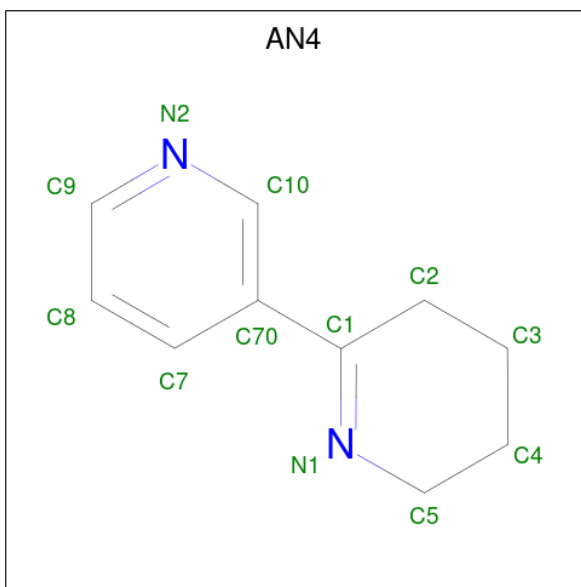
There are 7 unique types of molecules in this entry. The entry contains 17412 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 SOLUBLE ACETYLCHOLINE RECEPTOR.

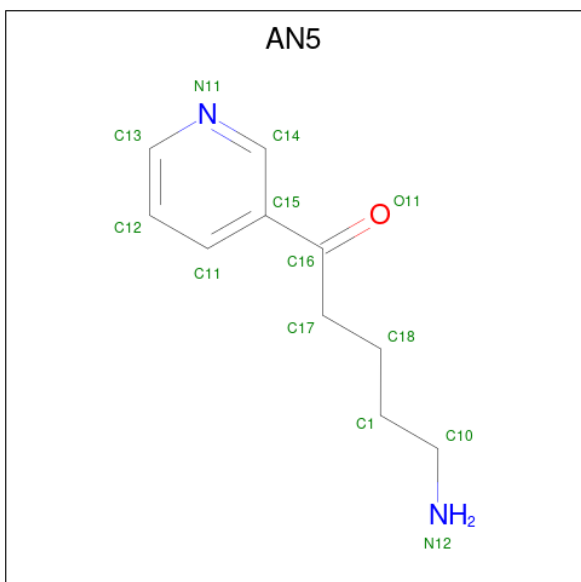
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	213	Total	C	N	O	S	0	2	0
			1713	1079	283	342	9			
1	B	211	Total	C	N	O	S	0	1	0
			1690	1065	281	336	8			
1	C	209	Total	C	N	O	S	0	1	0
			1677	1058	279	332	8			
1	D	212	Total	C	N	O	S	0	1	0
			1697	1071	282	335	9			
1	E	214	Total	C	N	O	S	0	0	0
			1708	1075	281	343	9			
1	F	211	Total	C	N	O	S	0	1	0
			1692	1068	281	334	9			
1	G	210	Total	C	N	O	S	0	0	0
			1677	1057	277	335	8			
1	H	212	Total	C	N	O	S	0	0	0
			1692	1067	279	337	9			
1	I	211	Total	C	N	O	S	0	1	0
			1692	1068	281	334	9			
1	J	212	Total	C	N	O	S	0	1	0
			1697	1071	282	335	9			

- Molecule 2 is 3,4,5,6-tetrahydro-2,3'-bipyridine (CCD ID: AN4) (formula: C₁₀H₁₂N₂).



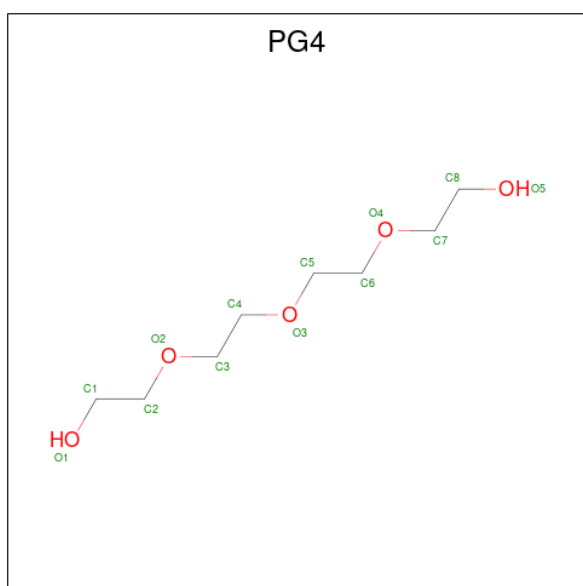
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	N	0	1
			12	10	2		
2	B	1	Total	C	N	0	0
			12	10	2		
2	E	1	Total	C	N	0	0
			12	10	2		
2	G	1	Total	C	N	0	0
			12	10	2		
2	J	1	Total	C	N	0	0
			12	10	2		

- Molecule 3 is 5-amino-1-pyridin-3-ylpentan-1-one (CCD ID: AN5) (formula: $C_{10}H_{14}N_2O$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	1
			13	10	2	1		
3	D	1	Total	C	N	O	0	0
			13	10	2	1		
3	F	1	Total	C	N	O	0	0
			13	10	2	1		
3	I	1	Total	C	N	O	0	0
			13	10	2	1		

- Molecule 4 is TETRAETHYLENE GLYCOL (CCD ID: PG4) (formula: $C_8H_{18}O_5$).

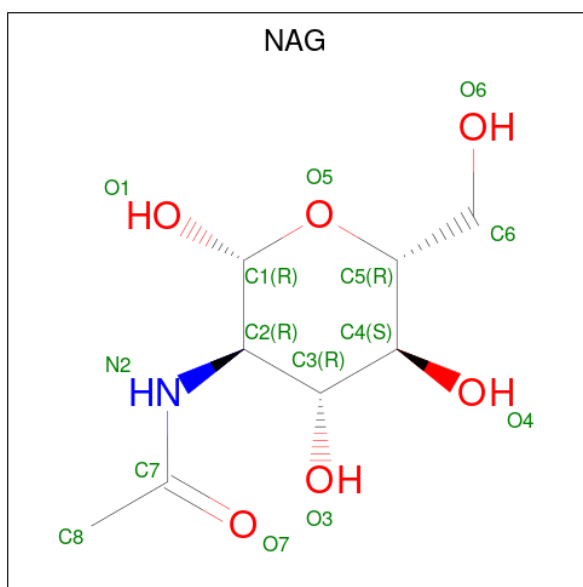


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total	C	O	0	0
			13	8	5		

- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	C	1	Total	Mg	0	0
			1	1		
5	E	1	Total	Mg	0	0
			1	1		
5	H	1	Total	Mg	0	0
			1	1		

- 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	E	1	Total	C	N	O	0	0
			14	8	1	5		
6	F	1	Total	C	N	O	0	0
			14	8	1	5		
6	H	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	47	Total	O	0	0
			47	47		
7	B	42	Total	O	0	0
			42	42		
7	C	32	Total	O	0	0
			32	32		
7	D	23	Total	O	0	0
			23	23		
7	E	23	Total	O	0	0
			23	23		
7	F	26	Total	O	0	0
			26	26		
7	G	27	Total	O	0	0
			27	27		
7	H	27	Total	O	0	0
			27	27		
7	I	29	Total	O	0	0
			29	29		

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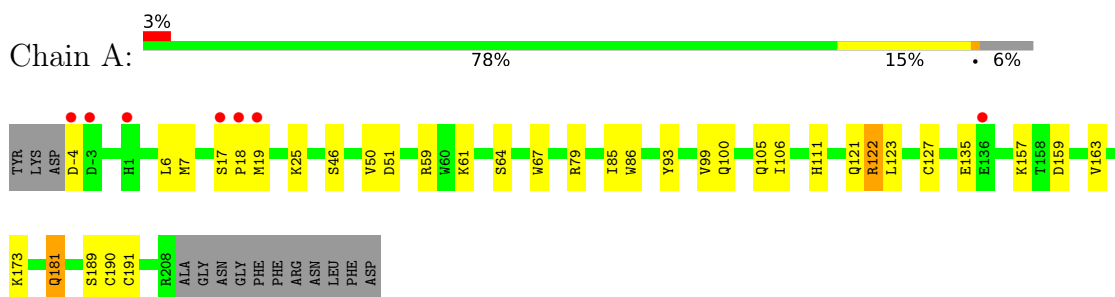
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	J	31	Total	O	0	0
			31	31		

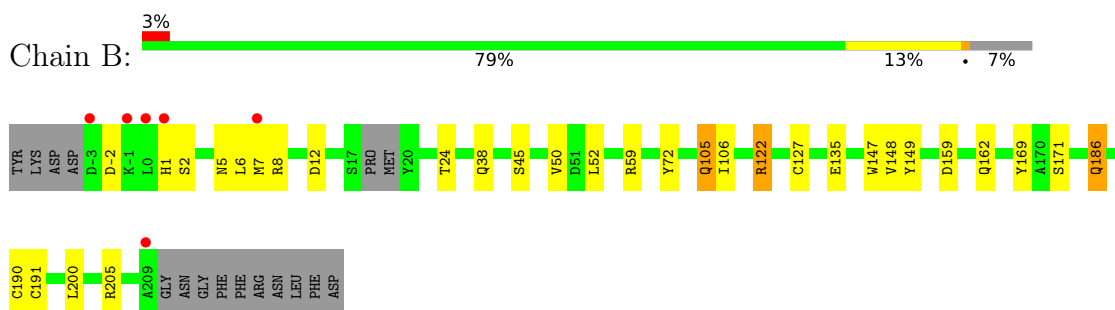
3 Residue-property plots [i](#)

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.

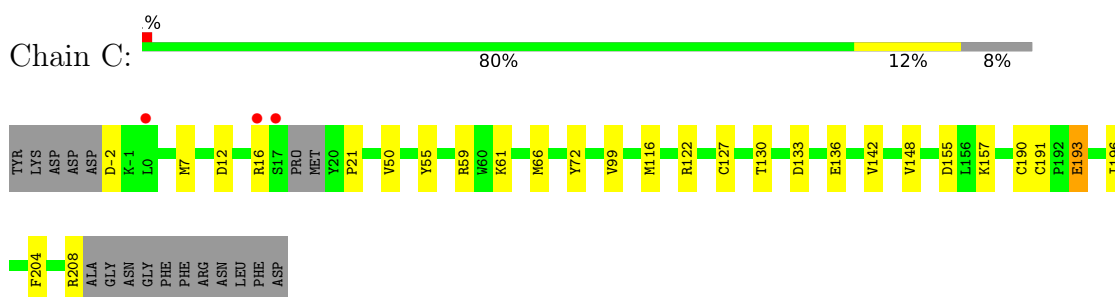
• Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR



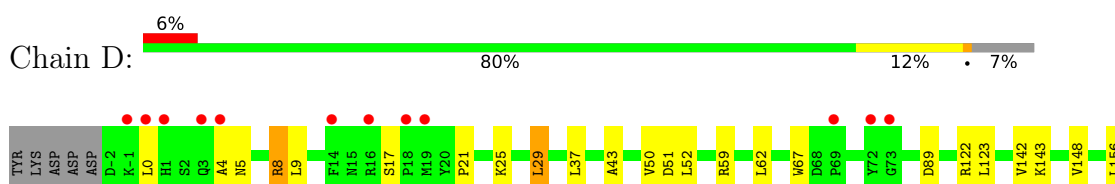
• Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR

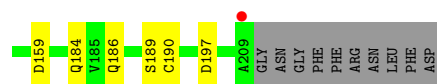


• Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR

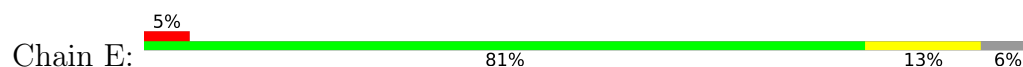


• Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR

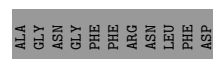
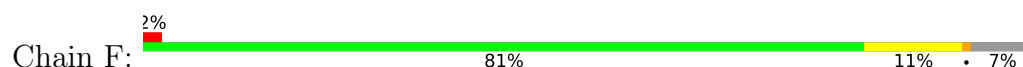




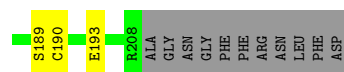
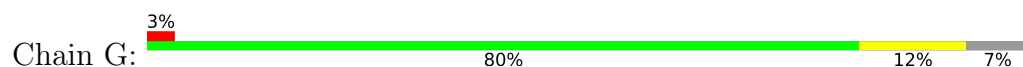
● Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR



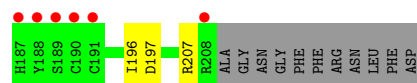
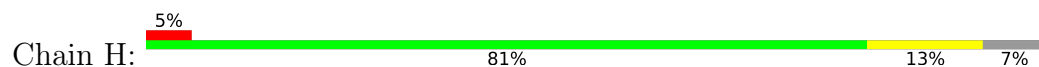
● Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR



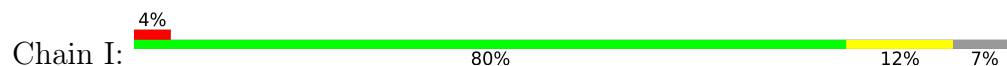
● Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR

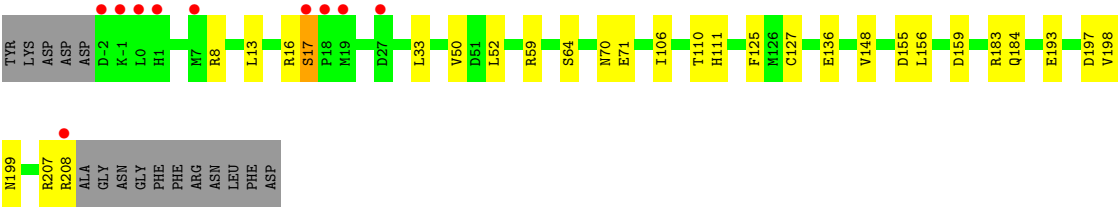


● Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR

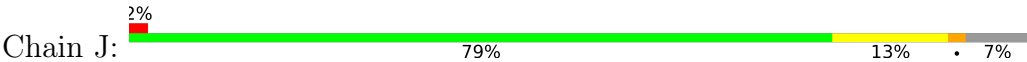


● Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR





● Molecule 1: SOLUBLE ACETYLCHOLINE RECEPTOR



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	84.25Å 125.77Å 257.00Å 90.00° 95.40° 90.00°	Depositor
Resolution (Å)	258.20 – 2.70 255.86 – 2.70	Depositor EDS
% Data completeness (in resolution range)	99.5 (258.20-2.70) 99.5 (255.86-2.70)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.26 (at 2.69Å)	Xtriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.202 , 0.251 0.212 , 0.256	Depositor DCC
R_{free} test set	2199 reflections (3.02%)	wwPDB-VP
Wilson B-factor (Å ²)	40.7	Xtriage
Anisotropy	0.588	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 26.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	17412	wwPDB-VP
Average B, all atoms (Å ²)	40.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.17% 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: AN4, MG, AN5, NAG, PG4

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	0.51	0/1760	0.76	1/2399 (0.0%)
1	B	0.50	0/1732	0.71	0/2359
1	C	0.48	0/1719	0.73	0/2341
1	D	0.49	0/1741	0.72	0/2373
1	E	0.50	0/1749	0.72	0/2384
1	F	0.52	0/1736	0.74	1/2365 (0.0%)
1	G	0.48	0/1716	0.71	0/2337
1	H	0.50	0/1733	0.73	0/2362
1	I	0.50	0/1736	0.72	0/2366
1	J	0.48	0/1741	0.75	0/2373
All	All	0.50	0/17363	0.73	2/23659 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1
1	D	0	1
All	All	0	2

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	140	CYS	CA-CB-SG	-5.52	101.71	114.40
1	A	181	GLN	CB-CA-C	-5.16	104.71	112.09

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	190	CYS	Peptide
1	D	190	CYS	Peptide

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	1713	0	1642	21	0
1	B	1690	0	1622	22	0
1	C	1677	0	1613	14	0
1	D	1697	0	1635	14	0
1	E	1708	0	1628	11	0
1	F	1692	0	1629	19	0
1	G	1677	0	1604	13	0
1	H	1692	0	1620	10	0
1	I	1692	0	1630	14	0
1	J	1697	0	1635	21	0
2	A	12	0	12	2	0
2	B	12	0	12	2	0
2	E	12	0	12	0	0
2	G	12	0	12	2	0
2	J	12	0	12	4	0
3	A	13	0	14	1	0
3	D	13	0	14	0	0
3	F	13	0	14	3	0
3	I	13	0	14	0	0
4	C	13	0	18	1	0
5	C	1	0	0	0	0
5	E	1	0	0	0	0
5	H	1	0	0	0	0
6	E	14	0	13	1	0
6	F	14	0	13	0	0
6	H	14	0	13	0	0
7	A	47	0	0	0	0
7	B	42	0	0	0	0
7	C	32	0	0	0	0
7	D	23	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	E	23	0	0	0	0
7	F	26	0	0	0	0
7	G	27	0	0	0	0
7	H	27	0	0	0	0
7	I	29	0	0	0	0
7	J	31	0	0	0	0
All	All	17412	0	16431	141	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 4.

The worst 5 of 141 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:F:93:TYR:HB3	3:F:300:AN5:H14	1.45	0.97
1:A:93:TYR:HB3	3:A:301[A]:AN5:H14	1.54	0.88
1:J:185:VAL:HG22	1:J:196:ILE:HD13	1.58	0.86
1:F:18:PRO:HG2	1:J:7:MET:SD	2.18	0.84
1:C:12:ASP:OD2	1:C:72:TYR:OH	1.96	0.81

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	213/227 (94%)	210 (99%)	3 (1%)	0	100	100
1	B	208/227 (92%)	201 (97%)	7 (3%)	0	100	100
1	C	206/227 (91%)	201 (98%)	5 (2%)	0	100	100
1	D	211/227 (93%)	207 (98%)	4 (2%)	0	100	100
1	E	212/227 (93%)	207 (98%)	5 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	F	210/227 (92%)	204 (97%)	6 (3%)	0	100	100
1	G	206/227 (91%)	200 (97%)	6 (3%)	0	100	100
1	H	210/227 (92%)	208 (99%)	2 (1%)	0	100	100
1	I	210/227 (92%)	206 (98%)	4 (2%)	0	100	100
1	J	211/227 (93%)	206 (98%)	5 (2%)	0	100	100
All	All	2097/2270 (92%)	2050 (98%)	47 (2%)	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	196/205 (96%)	185 (94%)	11 (6%)	19	44
1	B	192/205 (94%)	184 (96%)	8 (4%)	26	55
1	C	191/205 (93%)	180 (94%)	11 (6%)	18	42
1	D	193/205 (94%)	185 (96%)	8 (4%)	27	56
1	E	195/205 (95%)	181 (93%)	14 (7%)	13	32
1	F	193/205 (94%)	185 (96%)	8 (4%)	27	56
1	G	191/205 (93%)	181 (95%)	10 (5%)	21	47
1	H	193/205 (94%)	181 (94%)	12 (6%)	16	39
1	I	193/205 (94%)	185 (96%)	8 (4%)	27	56
1	J	193/205 (94%)	181 (94%)	12 (6%)	16	39
All	All	1930/2050 (94%)	1828 (95%)	102 (5%)	20	46

5 of 102 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F	76	THR
1	H	11	SER

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Mol	Chain	Res	Type
1	J	185	VAL
1	F	122	ARG
1	G	135	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 32 such sidechains are listed below:

Mol	Chain	Res	Type
1	J	70	ASN
1	J	74	ASN
1	D	74	ASN
1	D	63	ASN
1	J	100	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](#)

Of 16 ligands modelled in this entry, 3 are monoatomic - leaving 13 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	$\# Z > 2$
2	AN4	E	300	-	13,13,13	0.88	1 (7%)	14,16,16	2.13	3 (21%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	AN4	J	300	-	13,13,13	1.15	1 (7%)	14,16,16	1.97	4 (28%)
6	NAG	H	400	1	14,14,15	0.43	0	17,19,21	1.03	0
3	AN5	F	300	-	13,13,13	0.79	1 (7%)	14,15,15	2.11	4 (28%)
3	AN5	I	300	-	13,13,13	0.79	0	14,15,15	0.84	1 (7%)
4	PG4	C	300	-	12,12,12	0.50	0	11,11,11	0.26	0
2	AN4	B	300	-	13,13,13	0.97	1 (7%)	14,16,16	2.30	4 (28%)
3	AN5	D	300	-	13,13,13	0.33	0	14,15,15	1.57	4 (28%)
3	AN5	A	301[A]	-	13,13,13	0.54	0	14,15,15	1.29	2 (14%)
2	AN4	A	300[B]	-	13,13,13	0.92	1 (7%)	14,16,16	1.98	2 (14%)
6	NAG	E	400	1	14,14,15	0.59	0	17,19,21	1.04	2 (11%)
2	AN4	G	300	-	13,13,13	1.02	1 (7%)	14,16,16	2.29	2 (14%)
6	NAG	F	400	1	14,14,15	0.50	0	17,19,21	0.99	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. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	AN4	E	300	-	-	0/4/12/12	0/2/2/2
2	AN4	J	300	-	-	3/4/12/12	0/2/2/2
6	NAG	H	400	1	-	0/6/23/26	0/1/1/1
3	AN5	F	300	-	-	6/9/9/9	0/1/1/1
3	AN5	I	300	-	-	7/9/9/9	0/1/1/1
4	PG4	C	300	-	-	4/10/10/10	-
2	AN4	B	300	-	-	3/4/12/12	0/2/2/2
3	AN5	D	300	-	-	7/9/9/9	0/1/1/1
3	AN5	A	301[A]	-	-	5/9/9/9	0/1/1/1
2	AN4	A	300[B]	-	-	3/4/12/12	0/2/2/2
6	NAG	E	400	1	-	0/6/23/26	0/1/1/1
2	AN4	G	300	-	-	3/4/12/12	0/2/2/2
6	NAG	F	400	1	-	2/6/23/26	0/1/1/1

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	J	300	AN4	C1-N1	-3.62	1.25	1.28
2	B	300	AN4	C1-N1	-3.19	1.25	1.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	300	AN4	C1-N1	-3.17	1.26	1.28
2	A	300[B]	AN4	C1-N1	-2.40	1.26	1.28
2	E	300	AN4	C1-N1	-2.28	1.26	1.28

The worst 5 of 29 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	300	AN4	C5-N1-C1	7.12	130.87	117.44
2	B	300	AN4	C5-N1-C1	6.65	129.97	117.44
2	E	300	AN4	C5-N1-C1	6.33	129.37	117.44
2	A	300[B]	AN4	C5-N1-C1	6.09	128.92	117.44
3	F	300	AN5	C17-C16-C15	5.84	127.22	119.07

There are no chirality outliers.

5 of 43 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	300[B]	AN4	N1-C1-C70-C7
2	A	300[B]	AN4	N1-C1-C70-C10
2	A	300[B]	AN4	C2-C1-C70-C7
2	B	300	AN4	N1-C1-C70-C7
2	B	300	AN4	N1-C1-C70-C10

There are no ring outliers.

8 monomers are involved in 16 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	J	300	AN4	4	0
3	F	300	AN5	3	0
4	C	300	PG4	1	0
2	B	300	AN4	2	0
3	A	301[A]	AN5	1	0
2	A	300[B]	AN4	2	0
6	E	400	NAG	1	0
2	G	300	AN4	2	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	213/227 (93%)	-0.09	7 (3%)	49	45	16, 32, 57, 81	2 (0%)
1	B	211/227 (92%)	0.02	6 (2%)	55	51	14, 35, 74, 100	1 (0%)
1	C	209/227 (92%)	0.05	3 (1%)	73	72	16, 36, 70, 95	1 (0%)
1	D	212/227 (93%)	0.33	13 (6%)	27	24	17, 41, 82, 111	1 (0%)
1	E	214/227 (94%)	0.25	12 (5%)	30	26	25, 41, 69, 93	0
1	F	211/227 (92%)	-0.14	5 (2%)	59	56	20, 31, 54, 77	1 (0%)
1	G	210/227 (92%)	0.20	6 (2%)	53	50	23, 38, 73, 101	0
1	H	212/227 (93%)	0.20	12 (5%)	29	26	26, 39, 67, 77	0
1	I	211/227 (92%)	0.12	10 (4%)	36	33	15, 36, 74, 102	1 (0%)
1	J	212/227 (93%)	0.05	5 (2%)	59	56	14, 37, 62, 78	1 (0%)
All	All	2115/2270 (93%)	0.10	79 (3%)	45	41	14, 37, 70, 111	8 (0%)

The worst 5 of 79 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	19	MET	3.9
1	F	18	PRO	3.9
1	D	0	LEU	3.8
1	D	-1	LYS	3.8
1	F	19	MET	3.7

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, 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
6	NAG	F	400	14/15	0.51	0.17	35,40,43,44	0
6	NAG	E	400	14/15	0.52	0.17	37,43,45,46	0
3	AN5	D	300	13/13	0.76	0.18	37,39,39,41	0
2	AN4	A	300[B]	12/12	0.77	0.18	27,28,29,29	12
3	AN5	A	301[A]	13/13	0.80	0.17	29,31,32,32	13
3	AN5	F	300	13/13	0.81	0.15	28,32,33,33	0
5	MG	H	1209	1/1	0.85	0.23	60,60,60,60	0
3	AN5	I	300	13/13	0.86	0.13	33,36,38,38	0
4	PG4	C	300	13/13	0.89	0.17	67,69,70,70	0
2	AN4	J	300	12/12	0.89	0.16	47,48,48,48	0
5	MG	E	1209	1/1	0.90	0.08	45,45,45,45	0
2	AN4	G	300	12/12	0.92	0.13	45,45,46,46	0
2	AN4	E	300	12/12	0.93	0.12	55,55,56,56	0
2	AN4	B	300	12/12	0.94	0.14	44,45,45,45	0
6	NAG	H	400	14/15	0.94	0.08	27,28,29,29	0
5	MG	C	1209	1/1	0.98	0.11	34,34,34,34	0

6.5 Other polymers [i](#)

There are no such residues in this entry.