



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 1, 2016 – 11:06 PM GMT

PDB ID : 5AFJ
Title : alpha7-AChBP in complex with lobeline and fragment 1
Authors : Spurny, R.; Debaveye, S.; Farinha, A.; Veys, K.; Gossas, T.; Atack, J.;
Bertrand, D.; Kemp, J.; Vos, A.; Danielson, U.H.; Tresadern, G.; Ulens, C.
Deposited on : 2015-01-22
Resolution : 2.20 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

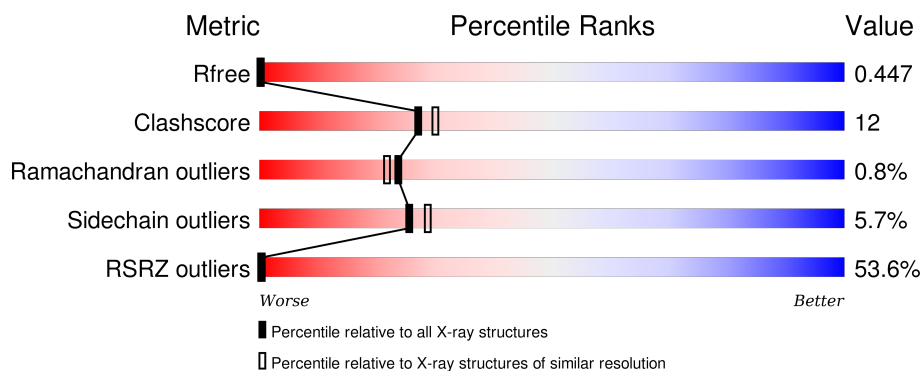
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 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	3774 (2.20-2.20)
Clashscore	102246	4477 (2.20-2.20)
Ramachandran outliers	100387	4404 (2.20-2.20)
Sidechain outliers	100360	4405 (2.20-2.20)
RSRZ outliers	91569	3781 (2.20-2.20)

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	205	<div> <div>45%</div> <div>76%</div> <div>22%</div> <div>.</div> </div>
1	B	205	<div> <div>46%</div> <div>72%</div> <div>27%</div> <div>.</div> </div>
1	C	205	<div> <div>56%</div> <div>70%</div> <div>28%</div> <div>.</div> </div>
1	D	205	<div> <div>63%</div> <div>79%</div> <div>17%</div> <div>.</div> </div>
1	E	205	<div> <div>58%</div> <div>82%</div> <div>15%</div> <div>.</div> </div>

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	B	301	-	-	-	X
3	42R	A	1205	-	-	-	X
3	42R	A	1206	-	-	-	X
3	42R	B	1205	-	-	-	X
3	42R	B	1206	-	-	X	X
3	42R	C	1205	-	-	-	X
3	42R	C	1206	-	-	-	X
3	42R	D	1206	-	-	-	X
3	42R	E	1205	-	-	-	X
3	42R	E	1206	-	-	-	X
4	L0B	B	1207	-	-	X	X
4	L0B	C	1207	-	-	-	X
4	L0B	D	1207	-	-	-	X
4	L0B	E	1207	-	-	-	X
5	GOL	C	1208	-	-	-	X
5	GOL	D	1208	-	-	-	X
5	GOL	E	1208	-	-	-	X

2 Entry composition [i](#)

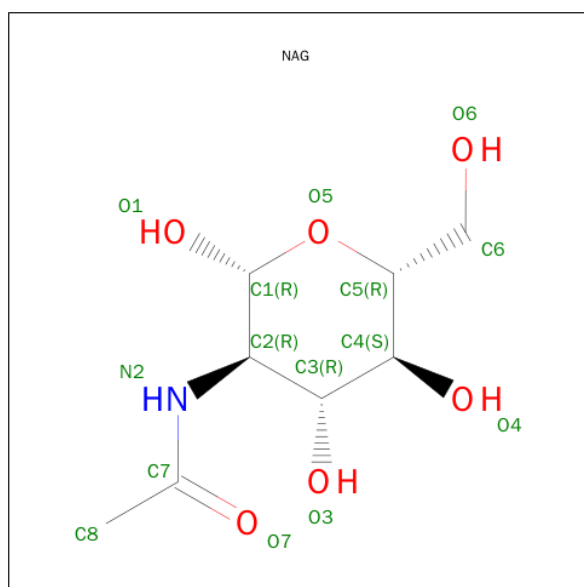
There are 8 unique types of molecules in this entry. The entry contains 9623 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 ACETYLCHOLINE-BINDING PROTEIN, NEURONAL ACETYLCHOLINE RECEPTOR SUBUNIT ALPHA-7.

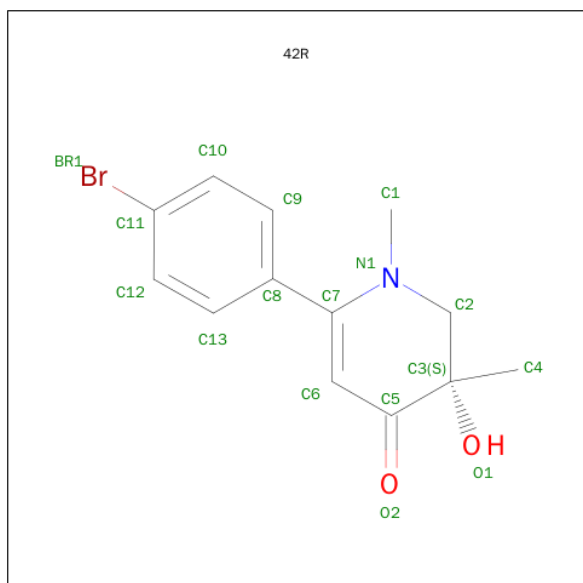
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	204	Total	C	N	O	S	0	5	0
			1703	1093	283	320	7			
1	B	205	Total	C	N	O	S	0	3	0
			1694	1088	282	317	7			
1	C	205	Total	C	N	O	S	0	4	0
			1698	1090	283	318	7			
1	D	205	Total	C	N	O	S	0	4	0
			1703	1096	283	317	7			
1	E	205	Total	C	N	O	S	0	2	0
			1687	1083	281	316	7			

- Molecule 2 is SUGAR (N-ACETYL-D-GLUCOSAMINE) (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



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

- Molecule 3 is (3S)-6-(4-BROMOPHENYL)-3-HYDROXY-1,3-DIMETHYL-2,3-DIHYDRO PYRIDIN-4(1H)-ONE (three-letter code: 42R) (formula: C₁₃H₁₄BrNO₂).



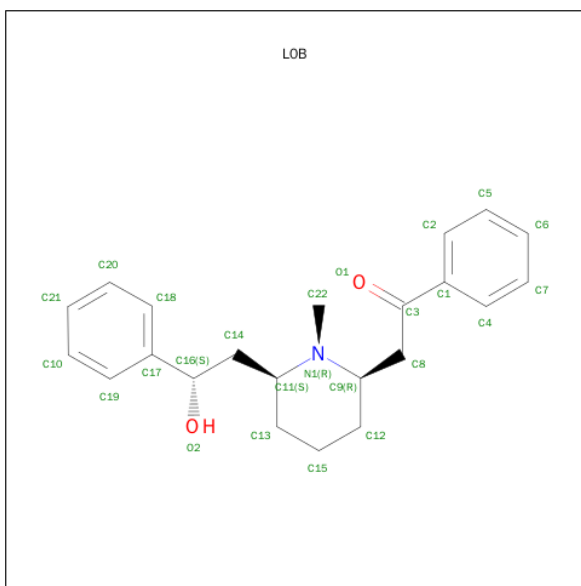
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		
3	B	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		
3	B	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		
3	C	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		
3	C	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		
3	D	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		
3	D	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		
3	E	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		
3	E	1	Total	Br	C	N	O	0	0
			17	1	13	1	2		

- Molecule 4 is ALPHA-LOBELINE (three-letter code: L0B) (formula: C₂₂H₂₇NO₂).



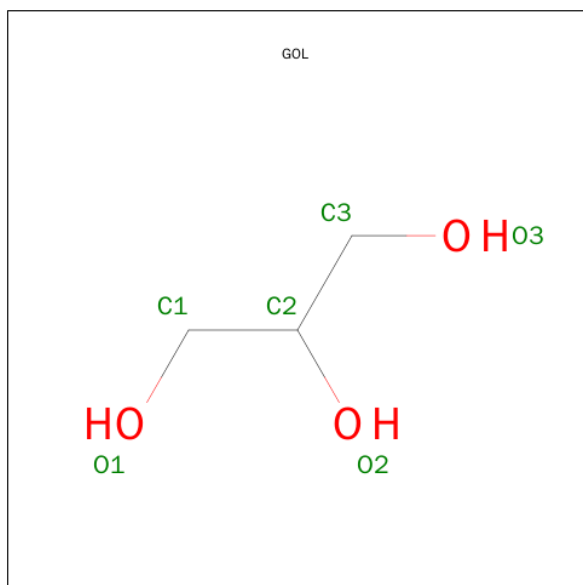
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			25	22	1	2		
4	B	1	Total	C	N	O	0	0
			25	22	1	2		

Continued on next page...

Continued from previous page...

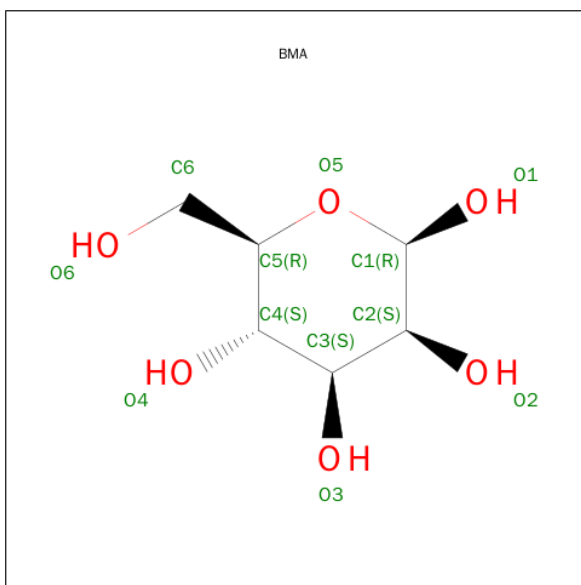
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	C	1	Total	C	N	O	0	0
			25	22	1	2		
4	D	1	Total	C	N	O	0	0
			25	22	1	2		
4	E	1	Total	C	N	O	0	0
			25	22	1	2		

- Molecule 5 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



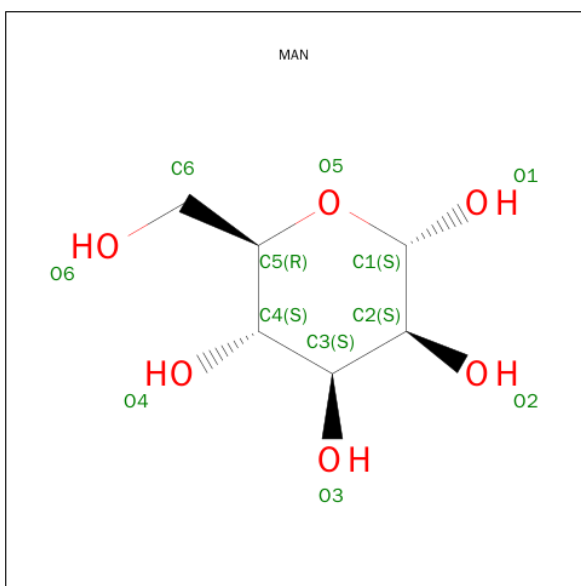
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	C	1	Total	C	O	0	0
			6	3	3		
5	D	1	Total	C	O	0	0
			6	3	3		
5	E	1	Total	C	O	0	0
			6	3	3		

- Molecule 6 is SUGAR (BETA-D-MANNOSE) (three-letter code: BMA) (formula: $C_6H_{12}O_6$).



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

- Molecule 7 is SUGAR (ALPHA-D-MANNOSE) (three-letter code: MAN) (formula: $C_6H_{12}O_6$).



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

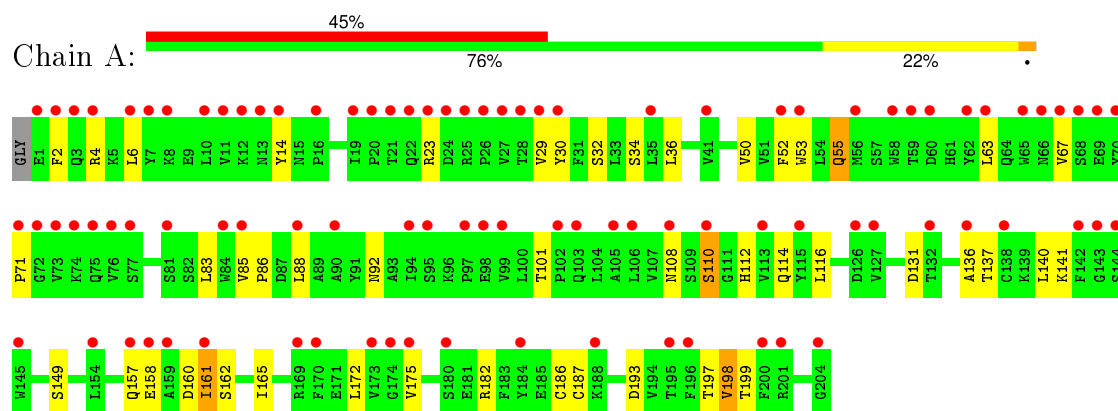
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	137	Total 137	O 137	0	0
8	B	126	Total 126	O 126	0	0
8	C	135	Total 135	O 135	0	0
8	D	155	Total 155	O 155	0	0
8	E	110	Total 110	O 110	0	0

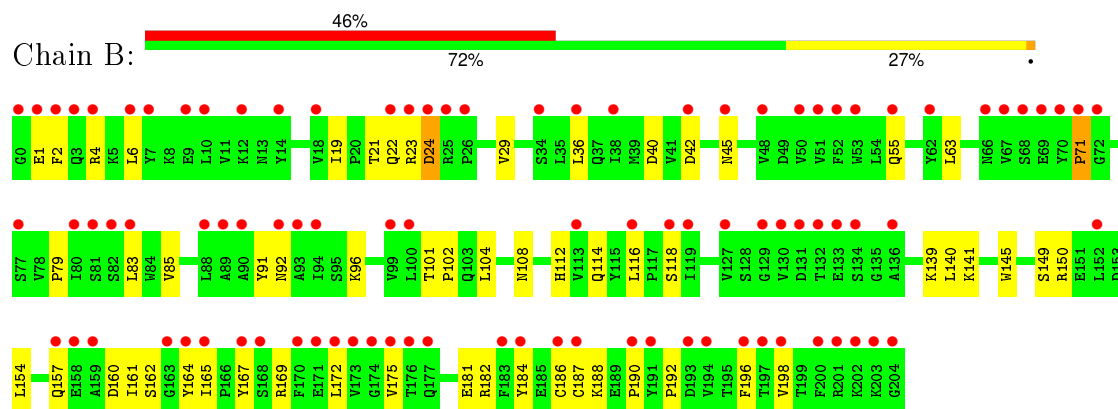
3 Residue-property plots

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.

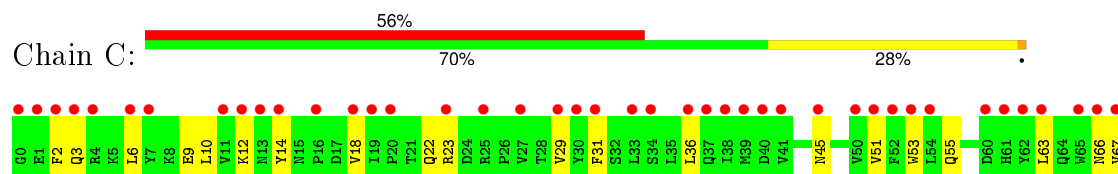
• Molecule 1: ACETYLCHOLINE-BINDING PROTEIN, NEURONAL ACETYLCHOLINE RECEPTOR SUBUNIT ALPHA-7

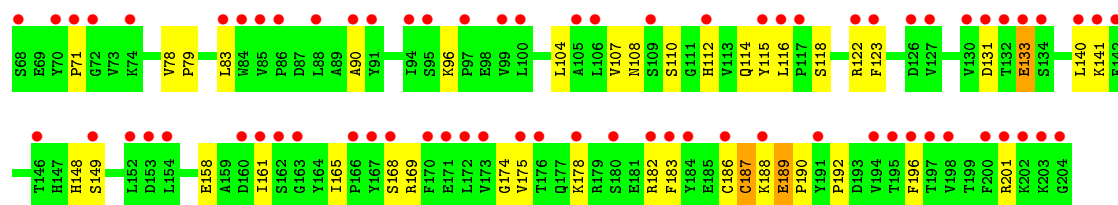


• Molecule 1: ACETYLCHOLINE-BINDING PROTEIN, NEURONAL ACETYLCHOLINE RECEPTOR SUBUNIT ALPHA-7



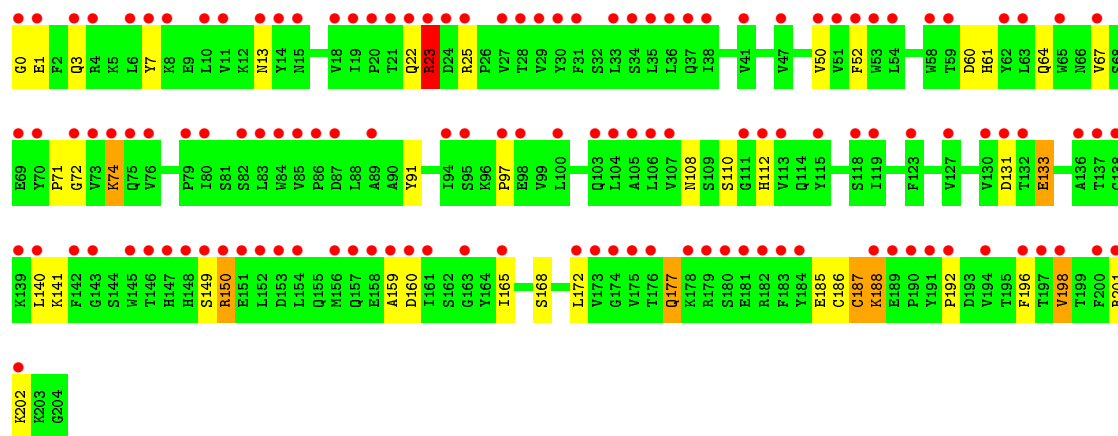
• Molecule 1: ACETYLCHOLINE-BINDING PROTEIN, NEURONAL ACETYLCHOLINE RECEPTOR SUBUNIT ALPHA-7





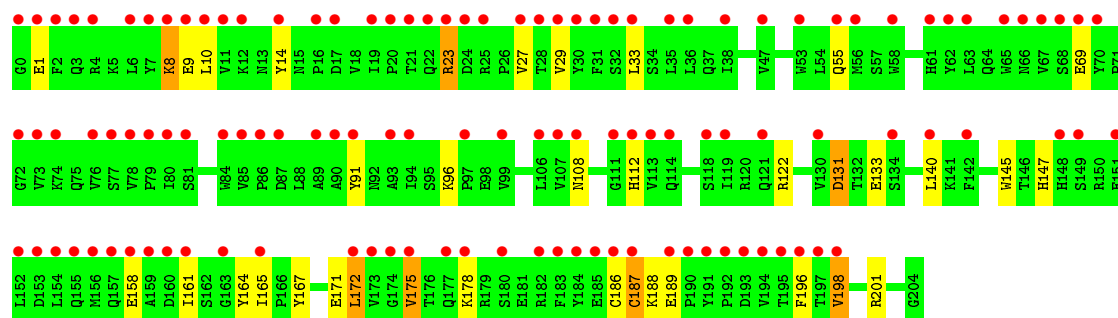
● Molecule 1: ACETYLCHOLINE-BINDING PROTEIN, NEURONAL ACETYLCHOLINE RECEPTOR SUBUNIT ALPHA-7

Chain D: 63% 79% 17%



● Molecule 1: ACETYLCHOLINE-BINDING PROTEIN, NEURONAL ACETYLCHOLINE RECEPTOR SUBUNIT ALPHA-7

Chain E: 58% 82% 15%



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	85.20Å 106.48Å 140.99Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.38 – 2.20 48.38 – 2.20	Depositor EDS
% Data completeness (in resolution range)	93.4 (48.38-2.20) 91.8 (48.38-2.20)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.60 (at 2.20Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.168 , 0.233 0.432 , 0.447	Depositor DCC
R_{free} test set	3018 reflections (5.27%)	DCC
Wilson B-factor (Å ²)	41.9	Xtriage
Anisotropy	0.164	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 82.7	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Outliers	1 of 60281 reflections (0.002%)	Xtriage
F_o, F_c correlation	0.76	EDS
Total number of atoms	9623	wwPDB-VP
Average B, all atoms (Å ²)	51.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.83% 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, 0.375 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, 42R, L0B, 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	0.38	0/1748	0.55	0/2380
1	B	0.40	0/1740	0.56	0/2367
1	C	0.40	0/1743	0.57	0/2373
1	D	0.43	0/1749	0.58	0/2382
1	E	0.39	0/1733	0.56	0/2357
All	All	0.40	0/8713	0.56	0/11859

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	1703	0	1666	33	0
1	B	1694	0	1653	46	2
1	C	1698	0	1664	56	0
1	D	1703	0	1669	36	0
1	E	1687	0	1645	26	2
2	A	28	0	26	3	0
2	B	28	0	26	2	0
2	C	28	0	26	4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	D	28	0	26	5	0
2	E	28	0	26	2	0
3	A	34	0	26	4	0
3	B	34	0	26	9	0
3	C	34	0	26	6	0
3	D	34	0	26	5	0
3	E	34	0	26	6	0
4	A	25	0	27	3	0
4	B	25	0	27	10	0
4	C	25	0	27	3	0
4	D	25	0	27	4	0
4	E	25	0	27	7	0
5	C	6	0	8	0	0
5	D	6	0	8	1	0
5	E	6	0	8	0	0
6	D	11	0	10	1	0
7	D	11	0	10	0	0
8	A	137	0	0	10	0
8	B	126	0	0	12	0
8	C	135	0	0	18	0
8	D	155	0	0	11	0
8	E	110	0	0	9	0
All	All	9623	0	8736	212	2

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 12.

The worst 5 of 212 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)
3:B:1206:42R:H10	1:C:53:TRP:HH2	1.40	0.85
8:A:2096:HOH:O	1:B:102:PRO:O	1.95	0.84
1:B:141:LYS:NZ	3:B:1206:42R:O1	2.09	0.84
3:B:1206:42R:H10	1:C:53:TRP:CH2	2.14	0.81
1:E:186:CYS:SG	1:E:187:CYS:N	2.56	0.78

All (2) 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)
1:B:188:LYS:CE	1:E:69:GLU:OE1[3_545]	2.13	0.07
1:B:188:LYS:NZ	1:E:69:GLU:OE1[3_545]	2.19	0.01

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	207/205 (101%)	199 (96%)	7 (3%)	1 (0%)	34	35
1	B	206/205 (100%)	200 (97%)	3 (2%)	3 (2%)	13	9
1	C	207/205 (101%)	200 (97%)	5 (2%)	2 (1%)	19	16
1	D	207/205 (101%)	202 (98%)	3 (1%)	2 (1%)	19	16
1	E	205/205 (100%)	195 (95%)	10 (5%)	0	100	100
All	All	1032/1025 (101%)	996 (96%)	28 (3%)	8 (1%)	24	22

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	23	ARG
1	C	71	PRO
1	D	23	ARG
1	B	24	ASP
1	C	22	GLN

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	195/190 (103%)	180 (92%)	15 (8%)	16	16
1	B	193/190 (102%)	189 (98%)	4 (2%)	61	74
1	C	194/190 (102%)	182 (94%)	12 (6%)	23	25
1	D	194/190 (102%)	182 (94%)	12 (6%)	23	25
1	E	192/190 (101%)	181 (94%)	11 (6%)	25	29
All	All	968/950 (102%)	914 (94%)	54 (6%)	25	29

5 of 54 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	133	GLU
1	C	189	GLU
1	E	140	LEU
1	C	140	LEU
1	C	168	SER

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	108	ASN
1	C	112	HIS
1	E	108	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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

30 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	42R	A	1205	-	16,18,18	2.41	5 (31%)	20,27,27	1.54	3 (15%)
3	42R	A	1206	-	16,18,18	2.41	5 (31%)	20,27,27	1.41	3 (15%)
4	L0B	A	1207	-	27,27,27	0.60	0	30,36,36	1.22	2 (6%)
2	NAG	A	301	-	14,14,15	0.54	0	15,19,21	1.18	1 (6%)
2	NAG	A	302	-	14,14,15	0.55	0	15,19,21	0.63	0
3	42R	B	1205	-	16,18,18	2.36	6 (37%)	20,27,27	1.53	3 (15%)
3	42R	B	1206	-	16,18,18	2.43	5 (31%)	20,27,27	1.88	5 (25%)
4	L0B	B	1207	-	27,27,27	0.73	1 (3%)	30,36,36	1.61	7 (23%)
2	NAG	B	301	-	14,14,15	0.52	0	15,19,21	1.58	2 (13%)
2	NAG	B	302	-	14,14,15	0.50	0	15,19,21	0.67	0
3	42R	C	1205	-	16,18,18	2.45	5 (31%)	20,27,27	1.79	3 (15%)
3	42R	C	1206	-	16,18,18	2.45	6 (37%)	20,27,27	1.50	3 (15%)
4	L0B	C	1207	-	27,27,27	0.64	0	30,36,36	0.86	2 (6%)
5	GOL	C	1208	-	5,5,5	0.26	0	5,5,5	0.39	0
2	NAG	C	301	-	14,14,15	0.44	0	15,19,21	1.28	2 (13%)
2	NAG	C	302	-	14,14,15	0.47	0	15,19,21	0.96	1 (6%)
3	42R	D	1205	-	16,18,18	2.32	4 (25%)	20,27,27	1.51	4 (20%)
3	42R	D	1206	-	16,18,18	2.46	6 (37%)	20,27,27	1.57	3 (15%)
4	L0B	D	1207	-	27,27,27	0.62	1 (3%)	30,36,36	1.17	3 (10%)
5	GOL	D	1208	-	5,5,5	0.32	0	5,5,5	0.35	0
2	NAG	D	301	-	14,14,15	0.50	0	15,19,21	1.88	4 (26%)
2	NAG	D	302	-	14,14,15	0.51	0	15,19,21	1.87	3 (20%)
6	BMA	D	303	-	11,11,12	0.42	0	14,15,17	1.72	2 (14%)
7	MAN	D	304	-	11,11,12	0.54	0	14,15,17	1.07	1 (7%)
3	42R	E	1205	-	16,18,18	2.33	5 (31%)	20,27,27	1.87	6 (30%)
3	42R	E	1206	-	16,18,18	2.44	6 (37%)	20,27,27	1.48	3 (15%)
4	L0B	E	1207	-	27,27,27	0.58	1 (3%)	30,36,36	1.30	5 (16%)
5	GOL	E	1208	-	5,5,5	0.39	0	5,5,5	0.22	0
2	NAG	E	301	-	14,14,15	0.55	0	15,19,21	1.35	2 (13%)
2	NAG	E	302	-	14,14,15	0.47	0	15,19,21	0.88	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	42R	A	1205	-	-	0/4/23/23	0/2/2/2
3	42R	A	1206	-	-	0/4/23/23	0/2/2/2
4	L0B	A	1207	-	-	0/16/30/30	0/3/3/3
2	NAG	A	301	-	-	0/6/23/26	0/1/1/1
2	NAG	A	302	-	-	2/6/23/26	0/1/1/1
3	42R	B	1205	-	-	0/4/23/23	0/2/2/2
3	42R	B	1206	-	-	0/4/23/23	0/2/2/2
4	L0B	B	1207	-	-	0/16/30/30	0/3/3/3
2	NAG	B	301	-	-	0/6/23/26	0/1/1/1
2	NAG	B	302	-	-	0/6/23/26	0/1/1/1
3	42R	C	1205	-	-	0/4/23/23	0/2/2/2
3	42R	C	1206	-	-	0/4/23/23	0/2/2/2
4	L0B	C	1207	-	-	0/16/30/30	0/3/3/3
5	GOL	C	1208	-	-	0/4/4/4	0/0/0/0
2	NAG	C	301	-	-	0/6/23/26	0/1/1/1
2	NAG	C	302	-	-	0/6/23/26	0/1/1/1
3	42R	D	1205	-	-	0/4/23/23	0/2/2/2
3	42R	D	1206	-	-	0/4/23/23	0/2/2/2
4	L0B	D	1207	-	-	0/16/30/30	0/3/3/3
5	GOL	D	1208	-	-	0/4/4/4	0/0/0/0
2	NAG	D	301	-	-	0/6/23/26	0/1/1/1
2	NAG	D	302	-	-	0/6/23/26	0/1/1/1
6	BMA	D	303	-	-	0/2/19/22	0/1/1/1
7	MAN	D	304	-	-	0/2/19/22	0/1/1/1
3	42R	E	1205	-	-	0/4/23/23	0/2/2/2
3	42R	E	1206	-	-	0/4/23/23	0/2/2/2
4	L0B	E	1207	-	-	0/16/30/30	0/3/3/3
5	GOL	E	1208	-	-	0/4/4/4	0/0/0/0
2	NAG	E	301	-	-	0/6/23/26	0/1/1/1
2	NAG	E	302	-	-	0/6/23/26	0/1/1/1

The worst 5 of 56 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1206	42R	O1-C3	-4.48	1.35	1.43
3	D	1205	42R	O1-C3	-4.20	1.35	1.43
3	C	1206	42R	O1-C3	-4.08	1.36	1.43
3	E	1205	42R	O1-C3	-4.07	1.36	1.43
3	B	1205	42R	O1-C3	-4.06	1.36	1.43

The worst 5 of 73 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	1205	42R	C1-N1-C2	-6.16	108.62	117.29
2	D	302	NAG	C2-N2-C7	-4.66	117.05	123.04
3	D	1206	42R	C1-N1-C2	-4.42	111.07	117.29
4	E	1207	L0B	C22-N1-C11	-4.39	109.40	113.20
2	D	301	NAG	C1-O5-C5	-4.32	106.77	112.25

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	302	NAG	O7-C7-N2-C2
2	A	302	NAG	C8-C7-N2-C2

There are no ring outliers.

22 monomers are involved in 68 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1206	42R	4	0
4	A	1207	L0B	3	0
2	A	301	NAG	3	0
3	B	1206	42R	9	0
4	B	1207	L0B	10	0
2	B	301	NAG	2	0
2	B	302	NAG	1	0
3	C	1205	42R	1	0
3	C	1206	42R	5	0
4	C	1207	L0B	3	0
2	C	301	NAG	4	0
3	D	1206	42R	5	0
4	D	1207	L0B	4	0
5	D	1208	GOL	1	0
2	D	301	NAG	4	0
2	D	302	NAG	2	0
6	D	303	BMA	1	0
3	E	1205	42R	1	0
3	E	1206	42R	5	0
4	E	1207	L0B	7	0
2	E	301	NAG	2	0
2	E	302	NAG	1	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	204/205 (99%)	2.40	93 (45%) 0 0	27, 46, 92, 155	0
1	B	205/205 (100%)	2.13	94 (45%) 0 0	26, 45, 95, 123	0
1	C	205/205 (100%)	2.52	114 (55%) 0 0	26, 45, 95, 130	0
1	D	205/205 (100%)	2.83	130 (63%) 0 0	23, 37, 81, 112	0
1	E	205/205 (100%)	3.05	118 (57%) 0 0	25, 41, 91, 158	0
All	All	1024/1025 (99%)	2.59	549 (53%) 0 0	23, 43, 93, 158	0

The worst 5 of 549 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	0	GLY	29.2
1	E	67	VAL	17.9
1	A	70	TYR	15.5
1	C	172[A]	LEU	13.8
1	C	2	PHE	13.5

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 carbohydrates 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. 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
5	GOL	D	1208	6/6	0.58	0.66	8.17	51,62,64,66	0
3	42R	B	1206	17/17	0.64	0.61	7.51	76,123,132,133	1
3	42R	C	1205	17/17	0.51	0.62	5.26	35,118,131,134	1
3	42R	A	1206	17/17	0.67	0.47	5.06	53,99,109,115	1
5	GOL	C	1208	6/6	0.48	0.44	4.72	60,78,80,84	0
4	L0B	B	1207	25/25	0.61	0.47	3.40	51,83,98,101	0
3	42R	D	1206	17/17	0.57	0.70	3.07	87,127,135,135	1
4	L0B	C	1207	25/25	0.73	0.39	3.04	37,50,78,84	0
3	42R	C	1206	17/17	0.51	0.46	2.75	51,100,108,109	1
5	GOL	E	1208	6/6	0.46	0.36	2.72	48,70,75,79	0
3	42R	E	1206	17/17	0.65	0.36	2.48	98,116,130,134	1
4	L0B	D	1207	25/25	0.56	0.45	2.34	44,62,92,94	0
2	NAG	B	301	14/15	0.71	0.28	2.26	83,98,108,108	0
4	L0B	E	1207	25/25	0.56	0.46	1.93	63,82,124,126	0
3	42R	B	1205	17/17	0.63	0.50	1.55	36,99,109,110	1
4	L0B	A	1207	25/25	0.79	0.30	1.25	36,50,64,83	0
3	42R	A	1205	17/17	0.49	0.53	0.66	40,78,98,98	1
3	42R	E	1205	17/17	0.67	0.48	0.42	23,32,41,48	1
3	42R	D	1205	17/17	0.70	0.23	-1.23	29,35,48,50	1
2	NAG	E	302	14/15	0.42	0.85	-	98,110,118,120	0
2	NAG	C	302	14/15	0.72	0.32	-	93,110,116,118	0
2	NAG	D	302	14/15	0.57	0.37	-	49,79,88,89	0
2	NAG	E	301	14/15	0.53	0.37	-	61,71,75,75	0
2	NAG	C	301	14/15	0.69	0.23	-	61,78,87,97	0
6	BMA	D	303	11/12	0.43	0.44	-	115,124,132,135	0
2	NAG	D	301	14/15	0.50	0.31	-	46,63,73,85	0
2	NAG	A	301	14/15	0.60	0.32	-	67,75,83,85	0
2	NAG	A	302	14/15	0.48	0.68	-	122,136,139,140	0
2	NAG	B	302	14/15	0.59	0.36	-	101,127,138,138	0
7	MAN	D	304	11/12	0.47	0.40	-	100,116,122,124	0

6.5 Other polymers ⓘ

There are no such residues in this entry.