



# Full wwPDB X-ray Structure Validation Report ⓘ

Nov 2, 2024 – 11:20 pm GMT

PDB ID : 1W6R  
Title : Complex of TcAChE with galanthamine derivative  
Authors : Greenblatt, H.M.; Guillou, C.; Guenard, D.; Badet, B.; Thal, C.; Silman, I.; Sussman, J.L.  
Deposited on : 2004-08-23  
Resolution : 2.05 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](mailto: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>.

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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	:	3.0
buster-report	:	1.1.7 (2018)
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

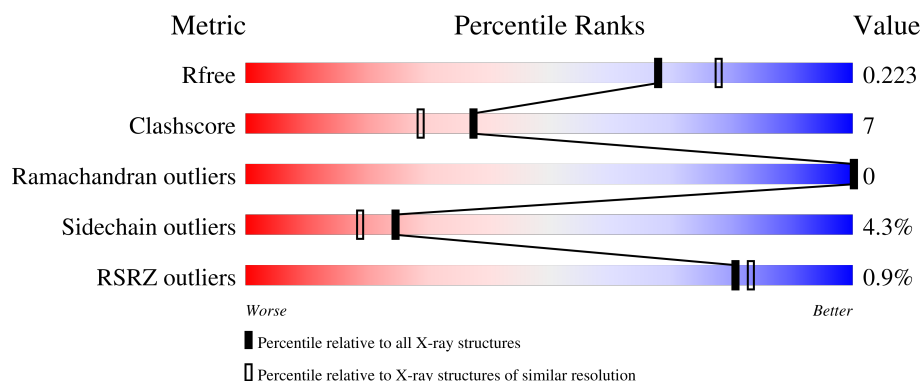
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.05 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))
$R_{free}$	164625	2096 (2.04-2.04)
Clashscore	180529	2229 (2.04-2.04)
Ramachandran outliers	177936	2217 (2.04-2.04)
Sidechain outliers	177891	2217 (2.04-2.04)
RSRZ outliers	164620	2096 (2.04-2.04)

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  $\geq 3$ , 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	543	

## 2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 4467 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 ACETYLCHOLINESTERASE.

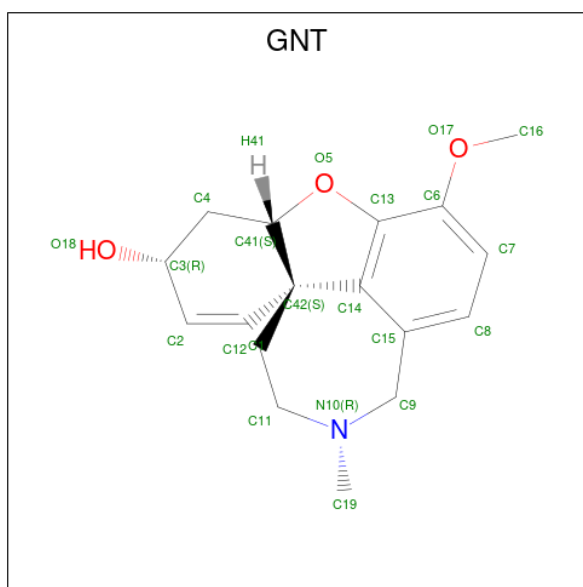
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	528	Total	C	N	O	S	0	0	0
			4171	2690	701	758	22			

- 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
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		

- Molecule 3 is (-)-GALANTHAMINE (three-letter code: GNT) (formula:  $C_{17}H_{21}NO_3$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			21	17	1	3		

- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

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

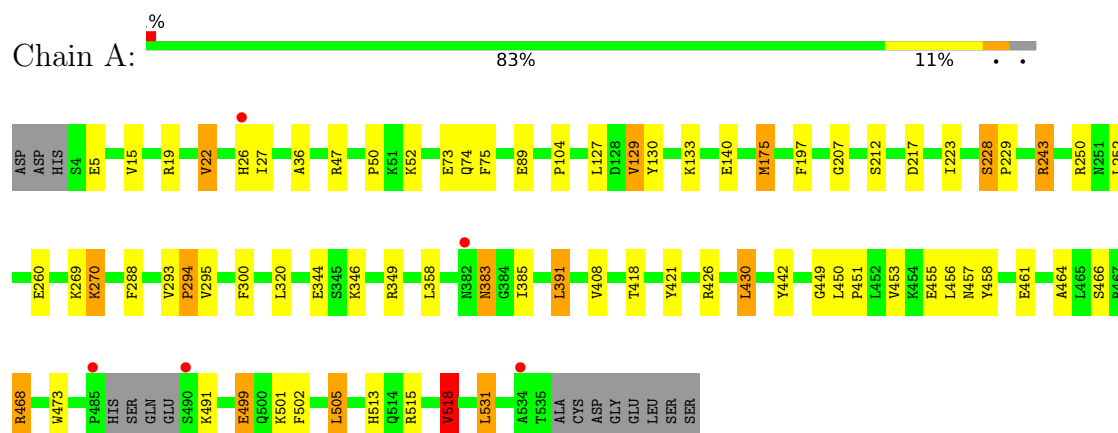
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	246	Total	O	0	0
			246	246		

### 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: ACETYLCHOLINESTERASE



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	111.75Å 111.75Å 137.17Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	32.32 – 2.05 32.32 – 2.05	Depositor EDS
% Data completeness (in resolution range)	98.1 (32.32-2.05) 98.0 (32.32-2.05)	Depositor EDS
$R_{merge}$	0.05	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.42 (at 2.05Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, $R_{free}$	0.199 , 0.232 0.191 , 0.223	Depositor DCC
$R_{free}$ test set	3040 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	33.4	Xtriage
Anisotropy	0.694	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.39 , 51.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.020 for -h,-k,l	Xtriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	4467	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	40.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.55% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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: MG, NAG, GNT

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	0.94	3/4292 (0.1%)	0.92	11/5828 (0.2%)

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	A	0	1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	175	MET	SD-CE	-7.05	1.38	1.77
1	A	344	GLU	CG-CD	-5.13	1.44	1.51
1	A	228	SER	CB-OG	-5.07	1.35	1.42

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	243	ARG	NE-CZ-NH2	-11.40	114.60	120.30
1	A	344	GLU	OE1-CD-OE2	-9.74	111.61	123.30
1	A	531	LEU	CA-CB-CG	7.52	132.60	115.30
1	A	518	VAL	CB-CA-C	-7.47	97.20	111.40
1	A	243	ARG	NE-CZ-NH1	7.14	123.87	120.30
1	A	22	VAL	CB-CA-C	-6.10	99.81	111.40
1	A	129	VAL	CB-CA-C	-5.77	100.44	111.40
1	A	243	ARG	CG-CD-NE	-5.62	100.00	111.80
1	A	518	VAL	CG1-CB-CG2	5.37	119.49	110.90
1	A	491	LYS	N-CA-C	5.22	125.09	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	217	ASP	CB-CG-OD1	5.16	122.94	118.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	442	TYR	Sidechain

## 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	4171	0	4015	57	0
2	A	28	0	26	0	0
3	A	21	0	21	0	0
4	A	1	0	0	0	0
5	A	246	0	0	7	0
All	All	4467	0	4062	57	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 7.

All (57) 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:19:ARG:HE	1:A:26:HIS:HB3	1.35	0.90
1:A:22:VAL:HG13	1:A:133:LYS:HG3	1.63	0.79
1:A:19:ARG:HE	1:A:26:HIS:CB	2.00	0.75
1:A:260:GLU:H	1:A:260:GLU:CD	1.90	0.75
1:A:19:ARG:NE	1:A:26:HIS:HB3	2.05	0.72
1:A:140:GLU:HB3	5:A:2081:HOH:O	1.89	0.71
1:A:19:ARG:NH2	1:A:26:HIS:HB2	2.08	0.69
1:A:19:ARG:NE	1:A:26:HIS:CB	2.57	0.68
1:A:468:ARG:HD3	5:A:2224:HOH:O	1.94	0.67
1:A:383:ASN:C	1:A:383:ASN:HD22	1.98	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:453:VAL:HG22	1:A:456:LEU:HG	1.79	0.64
1:A:127:LEU:HD12	1:A:130:TYR:CE2	2.36	0.61
1:A:455:GLU:CD	1:A:455:GLU:H	2.06	0.59
1:A:36:ALA:HB2	1:A:175:MET:HE2	1.85	0.58
1:A:250:ARG:NE	5:A:2132:HOH:O	2.36	0.58
1:A:19:ARG:CZ	1:A:26:HIS:HB2	2.33	0.57
1:A:499:GLU:HG2	1:A:501:LYS:HE3	1.86	0.57
1:A:346:LYS:HG2	1:A:385:ILE:HD13	1.87	0.57
1:A:270:LYS:HE3	1:A:270:LYS:HA	1.86	0.56
1:A:19:ARG:HH21	1:A:26:HIS:HB2	1.72	0.55
1:A:50:PRO:HA	1:A:175:MET:HE3	1.89	0.54
1:A:449:GLY:HA2	1:A:466:SER:OG	2.08	0.54
1:A:408:VAL:HG23	1:A:418:THR:HG21	1.90	0.53
1:A:451:PRO:HA	1:A:458:TYR:CD1	2.44	0.53
1:A:421:TYR:HB2	1:A:505:LEU:HD22	1.90	0.52
1:A:408:VAL:CG2	1:A:418:THR:HG21	2.39	0.52
1:A:27:ILE:HD11	1:A:133:LYS:HB2	1.92	0.51
1:A:197:PHE:CB	1:A:223:ILE:HB	2.41	0.50
1:A:228:SER:HB2	1:A:229:PRO:HD2	1.94	0.50
1:A:19:ARG:NE	1:A:26:HIS:HB2	2.26	0.49
1:A:515:ARG:O	1:A:518:VAL:HG22	2.13	0.49
1:A:36:ALA:HB2	1:A:175:MET:CE	2.42	0.49
1:A:320:LEU:C	1:A:320:LEU:HD23	2.33	0.49
1:A:464:ALA:O	1:A:468:ARG:HG2	2.14	0.48
1:A:74:GLN:NE2	5:A:2036:HOH:O	2.45	0.48
1:A:461:GLU:H	1:A:461:GLU:CD	2.17	0.47
1:A:197:PHE:HB2	1:A:223:ILE:HB	1.97	0.46
1:A:223:ILE:HA	1:A:320:LEU:O	2.15	0.46
1:A:293:VAL:HB	1:A:294:PRO:HD2	1.96	0.46
1:A:453:VAL:CG2	1:A:456:LEU:HG	2.44	0.45
1:A:5:GLU:OE2	1:A:104:PRO:HA	2.17	0.45
1:A:456:LEU:O	1:A:457:ASN:HB2	2.17	0.44
1:A:47:ARG:NH1	5:A:2016:HOH:O	2.51	0.44
1:A:349:ARG:HA	1:A:349:ARG:HD2	1.82	0.44
1:A:73:GLU:HG3	5:A:2031:HOH:O	2.18	0.43
1:A:499:GLU:CG	1:A:501:LYS:HE3	2.49	0.43
1:A:515:ARG:NE	5:A:2239:HOH:O	2.51	0.43
1:A:74:GLN:HG3	1:A:75:PHE:CE2	2.55	0.42
1:A:391:LEU:HD12	1:A:391:LEU:HA	1.94	0.42
1:A:426:ARG:CZ	1:A:430:LEU:HD12	2.49	0.42
1:A:252:LEU:HB3	1:A:269:LYS:HE3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:260:GLU:CD	1:A:260:GLU:N	2.67	0.42
1:A:207:GLY:HA3	1:A:229:PRO:HD3	2.01	0.41
1:A:212:SER:HB2	1:A:300:PHE:CE1	2.55	0.41
1:A:502:PHE:CZ	1:A:513:HIS:HB2	2.56	0.40
1:A:421:TYR:CD1	1:A:421:TYR:C	2.94	0.40
1:A:450:LEU:N	1:A:451:PRO:CD	2.84	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	524/543 (96%)	500 (95%)	24 (5%)	0	100	100

There are no Ramachandran outliers to report.

### 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	446/474 (94%)	427 (96%)	19 (4%)	25	19

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	15	VAL
1	A	52	LYS
1	A	89	GLU
1	A	129	VAL
1	A	243	ARG
1	A	270	LYS
1	A	288	PHE
1	A	294	PRO
1	A	295	VAL
1	A	358	LEU
1	A	383	ASN
1	A	391	LEU
1	A	430	LEU
1	A	468	ARG
1	A	473	TRP
1	A	499	GLU
1	A	505	LEU
1	A	518	VAL
1	A	531	LEU

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

Mol	Chain	Res	Type
1	A	68	GLN
1	A	383	ASN
1	A	457	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

Of 4 ligands modelled in this entry, 1 is monoatomic - leaving 3 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	GNT	A	1536	-	24,24,24	4.66	10 (41%)	34,37,37	2.79	14 (41%)
2	NAG	A	1416	1	14,14,15	0.89	1 (7%)	17,19,21	1.08	2 (11%)
2	NAG	A	1059	1	14,14,15	0.90	1 (7%)	17,19,21	1.40	3 (17%)

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	GNT	A	1536	-	-	0/2/38/38	0/4/4/4
2	NAG	A	1416	1	-	2/6/23/26	0/1/1/1
2	NAG	A	1059	1	-	4/6/23/26	0/1/1/1

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1536	GNT	C9-N10	-14.59	1.30	1.47
3	A	1536	GNT	C4-C3	12.01	1.64	1.52
3	A	1536	GNT	C42-C1	6.78	1.59	1.51
3	A	1536	GNT	C12-C42	4.74	1.59	1.54
3	A	1536	GNT	C42-C14	-4.18	1.47	1.52
3	A	1536	GNT	O5-C41	-3.56	1.42	1.47
3	A	1536	GNT	O17-C6	3.53	1.42	1.37
3	A	1536	GNT	C3-C2	3.41	1.54	1.49
3	A	1536	GNT	C8-C15	3.00	1.44	1.39
3	A	1536	GNT	C9-C15	-2.79	1.47	1.51
2	A	1059	NAG	O5-C5	2.18	1.47	1.43
2	A	1416	NAG	O5-C5	2.18	1.47	1.43

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1536	GNT	C14-C42-C41	-7.20	95.58	99.91
3	A	1536	GNT	O5-C41-C42	6.31	110.06	105.81
3	A	1536	GNT	O18-C3-C2	-5.24	101.44	110.02
3	A	1536	GNT	C4-C41-C42	-4.89	110.82	115.06
3	A	1536	GNT	C13-O5-C41	-4.14	99.38	105.48
3	A	1536	GNT	C41-C4-C3	-4.10	107.05	113.29
3	A	1536	GNT	C12-C42-C41	3.72	116.51	110.68
2	A	1059	NAG	C4-C3-C2	-3.51	105.87	111.02
3	A	1536	GNT	C12-C42-C1	-3.11	108.26	112.29
2	A	1059	NAG	C2-N2-C7	-3.09	118.50	122.90
3	A	1536	GNT	C19-N10-C11	3.04	117.09	110.30
3	A	1536	GNT	C11-C12-C42	-2.99	112.06	116.05
3	A	1536	GNT	C3-C2-C1	-2.70	121.59	124.09
3	A	1536	GNT	C12-C42-C14	2.59	118.41	114.48
3	A	1536	GNT	O5-C41-C4	2.57	112.75	109.65
2	A	1416	NAG	C6-C5-C4	-2.34	107.53	113.00
2	A	1416	NAG	C1-O5-C5	2.10	115.04	112.19
3	A	1536	GNT	C7-C6-C13	-2.08	117.09	120.43
2	A	1059	NAG	O5-C1-C2	-2.01	108.12	111.29

There are no chirality outliers.

All (6) torsion outliers are listed below:

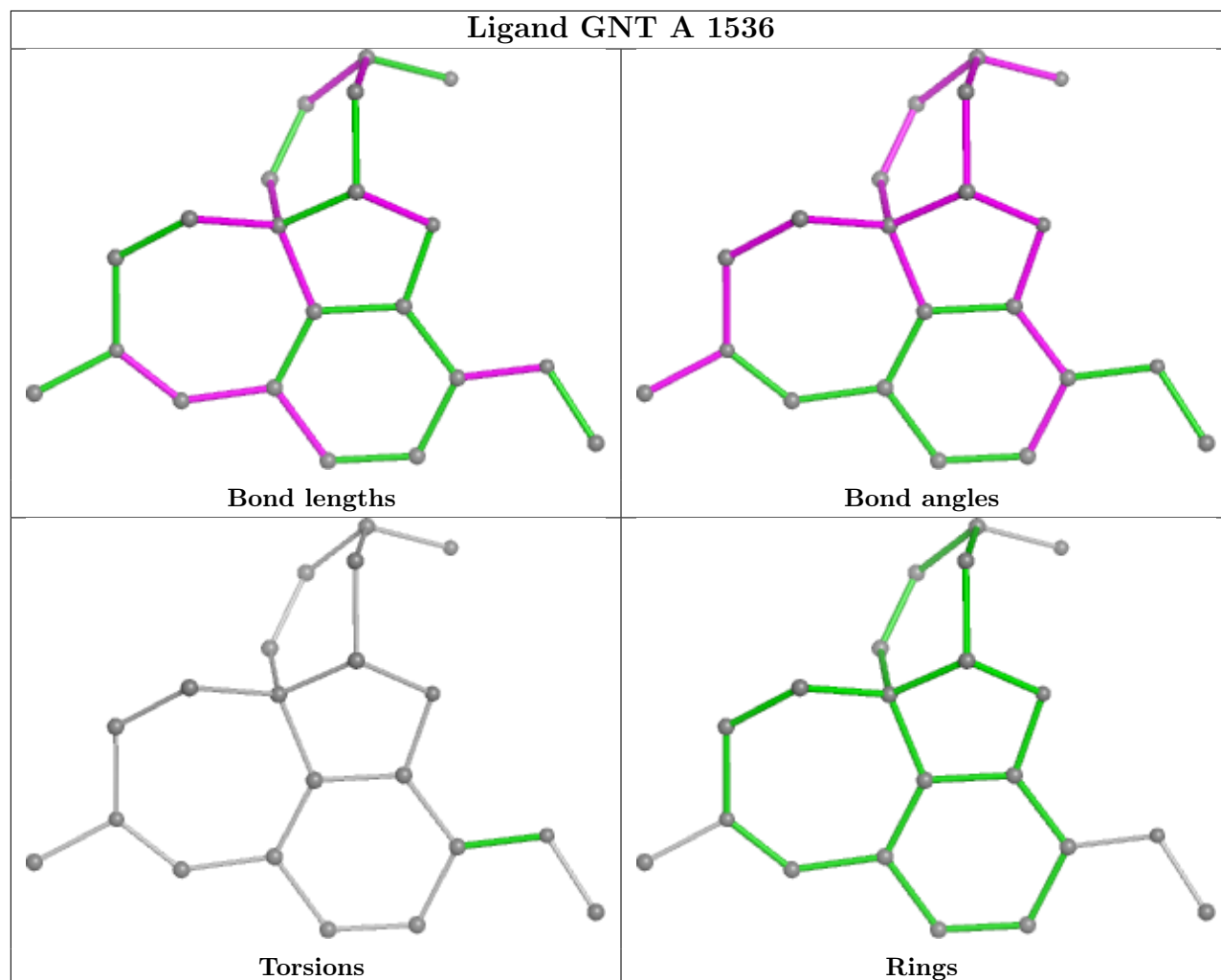
Mol	Chain	Res	Type	Atoms
2	A	1059	NAG	O5-C5-C6-O6
2	A	1059	NAG	C8-C7-N2-C2
2	A	1059	NAG	O7-C7-N2-C2
2	A	1416	NAG	O5-C5-C6-O6
2	A	1059	NAG	C4-C5-C6-O6
2	A	1416	NAG	C4-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring

in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



## 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	528/543 (97%)	-0.21	5 (0%) 81 83	28, 39, 53, 70	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	485	PRO	3.1
1	A	534	ALA	3.0
1	A	490	SER	2.9
1	A	26	HIS	2.9
1	A	382	ASN	2.3

### 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, 95<sup>th</sup> 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.

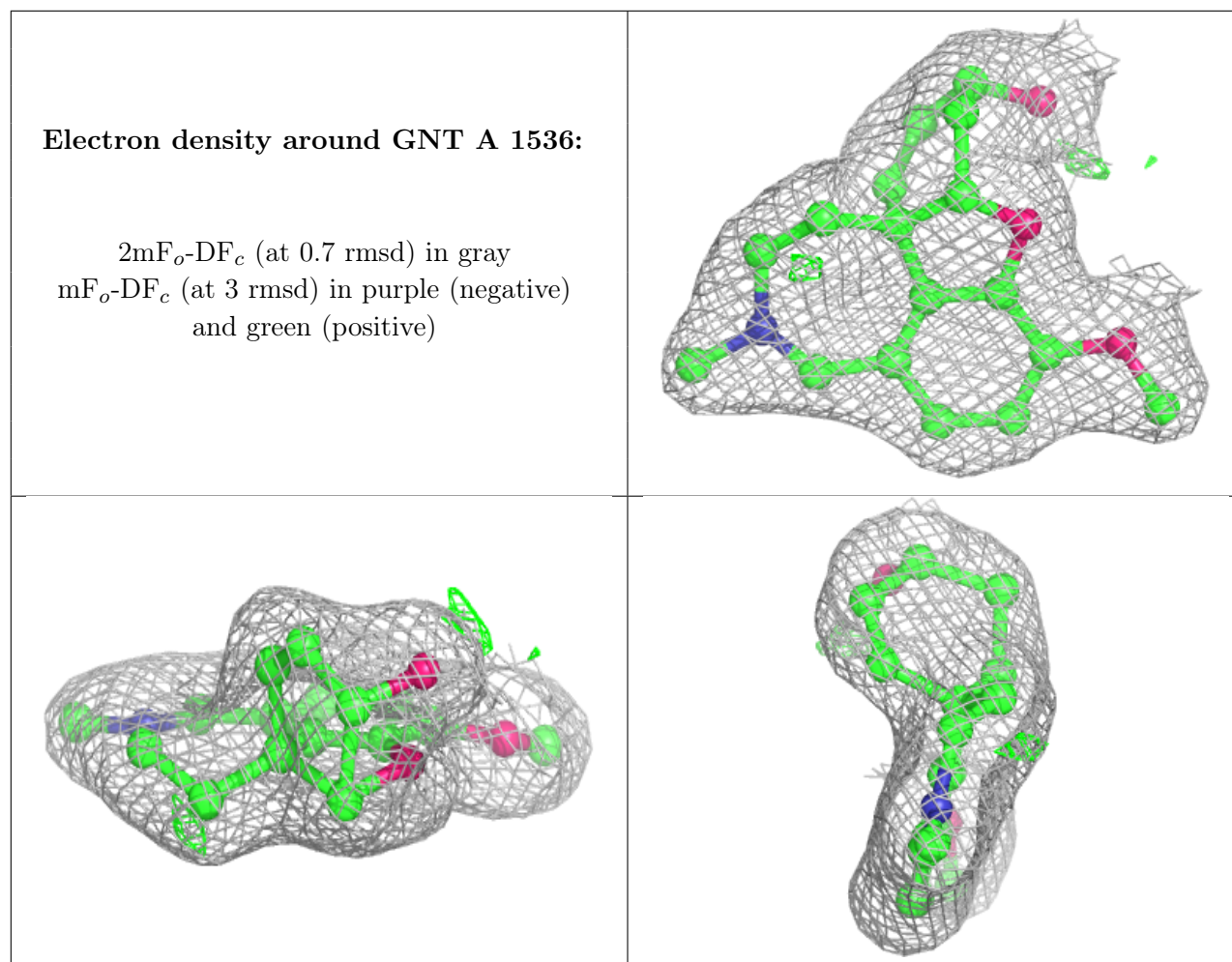
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	NAG	A	1059	14/15	0.73	0.15	66,70,73,75	0
2	NAG	A	1416	14/15	0.86	0.12	48,51,57,57	0

*Continued on next page...*

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
3	GNT	A	1536	21/21	0.96	0.07	31,33,34,37	0
4	MG	A	1537	1/1	0.99	0.03	48,48,48,48	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



## 6.5 Other polymers ⓘ

There are no such residues in this entry.