



Full wwPDB NMR Structure Validation Report ⓘ

May 7, 2024 – 01:30 pm BST

PDB ID : 1QMS
Title : Head-to-Tail Dimer of Calicheamicin gamma-1-I Oligosaccharide Bound to DNA Duplex, NMR, 9 Structures
Authors : Bifulco, G.; Galeone, A.; Nicolaou, K.C.; Chazin, W.J.; Gomez-Paloma, L.
Deposited on : 1999-10-06

This is a Full wwPDB NMR 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/NMRValidationReportHelp>

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 : **FAILED**
Mogul : 1.8.4, CSD as541be (2020)
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
wwPDB-RCI : v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV : Wang et al. (2010)
wwPDB-ShiftChecker : v1.2
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment was not calculated.

There are no overall percentile quality scores available for this entry.

The sequence quality summary graphics cannot be shown.

2 Ensemble composition and analysis

This entry contains 9 models. This entry does not contain polypeptide chains, therefore identification of well-defined residues and clustering analysis are not possible. All residues are included in the validation scores.

3 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 1009 atoms, of which 401 are hydrogens and 0 are deuteriums.

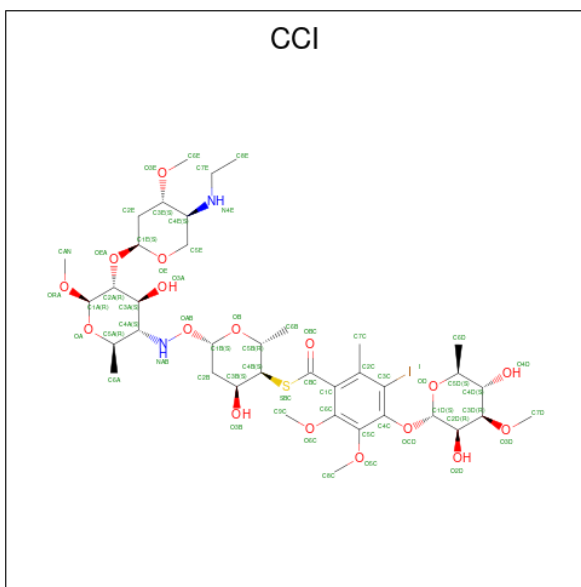
- Molecule 1 is a DNA chain called DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3').

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	P	
1	A	12	Total	C	H	N	O	P	0
			373	114	137	39	72	11	

- Molecule 2 is a DNA chain called DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3').

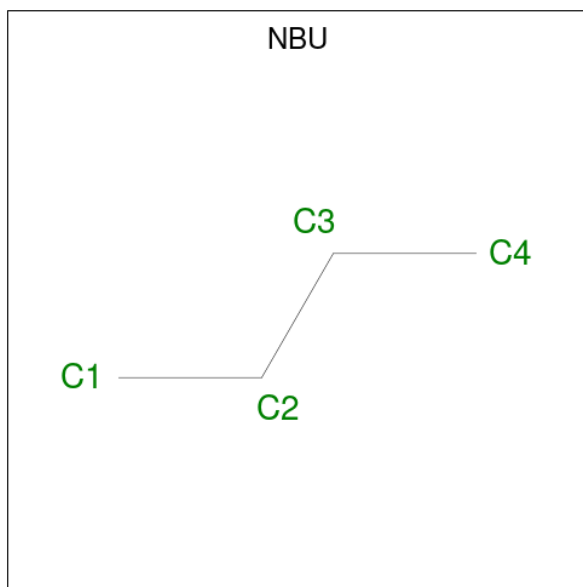
Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	P	
2	B	12	Total	C	H	N	O	P	0
			385	118	135	53	68	11	

- Molecule 3 is CALICHEAMICIN GAMMA-1-OLIGOSACCHARIDE (three-letter code: CCI) (formula: C₃₈H₆₁IN₂O₁₇S).



Mol	Chain	Residues	Atoms						
			Total	C	H	I	N	O	S
3	B	1	Total	C	H	I	N	O	S
			120	38	61	1	2	17	1
3	B	1	Total	C	H	I	N	O	S
			119	38	60	1	2	17	1

- Molecule 4 is N-BUTANE (three-letter code: NBU) (formula: C₄H₁₀).




Mol	Chain	Residues	Atoms		
			Total	C	H
4	B	1	12	4	8

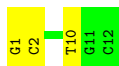
4 Residue-property plots

4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-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. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A: 



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

Chain B: 



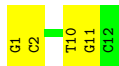
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A: 




- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

Chain B: 



4.2.2 Score per residue for model 2

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A:  83% 17%



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

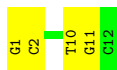
Chain B:  42% 58%



4.2.3 Score per residue for model 3

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A:  67% 33%



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

Chain B:  67% 33%



4.2.4 Score per residue for model 4

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A:  75% 25%



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

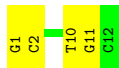
Chain B:  58% 42%



4.2.5 Score per residue for model 5

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A:  67% 33%



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

Chain B:  42% 58%



4.2.6 Score per residue for model 6

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A:  67% 33%



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

Chain B:  42% 58%



4.2.7 Score per residue for model 7

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A:  67% 33%



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

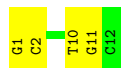
Chain B:  42% 58%



4.2.8 Score per residue for model 8

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A:  67% 33%



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

Chain B:  42% 58%



4.2.9 Score per residue for model 9

- Molecule 1: DNA (5'-D(*GP*CP*AP*CP*CP*TP*TP*CP*CP*TP*GP*C)-3')

Chain A:  75% 25%



- Molecule 2: DNA (5'-D(*GP*CP*AP*GP*GP*AP*AP*GP*GP*TP*GP*C)-3')

Chain B:  58% 42%



5 Refinement protocol and experimental data overview

The models were refined using the following method: *RESTRAINED MOLECULAR DYNAMICS*.

Of the 20 calculated structures, 9 were deposited, based on the following criterion: *LOWEST RESTRAINT VIOLATION*.

The following table shows the software used for structure solution, optimisation and refinement.

Software name	Classification	Version
Amber	refinement	4.1
Amber	structure solution	4.1

No chemical shift data was provided.

6 Model quality [i](#)

6.1 Standard geometry [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.2 Too-close contacts [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.3 Torsion angles [i](#)

6.3.1 Protein backbone [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.3.3 RNA [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.4 Non-standard residues in protein, DNA, RNA chains [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.5 Carbohydrates [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.6 Ligand geometry [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.7 Other polymers [i](#)

MolProbity failed to run properly - this section will have to be empty.

6.8 Polymer linkage issues

There are no chain breaks in this entry.

7 Chemical shift validation

No chemical shift data were provided