wwPDB NMR Structure Validation Summary Report

Mar 19, 2025 – 03:27 PM EDT

PDB ID	:	2RVN
BMRB ID	:	11606
Title	:	Solution structure of the chromodomain of HP1a with the phosphorylated N-terminal tail complexed with H3K9me3 peptide
Authors	:	Kawaguchi, A.; Nishimura, Y.
Deposited on	:	2015-12-18

This is a wwPDB NMR 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/NMRValidationReportHelp
with specific help available everywhere you see the (i) 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 (i)) were used in the production of this report:

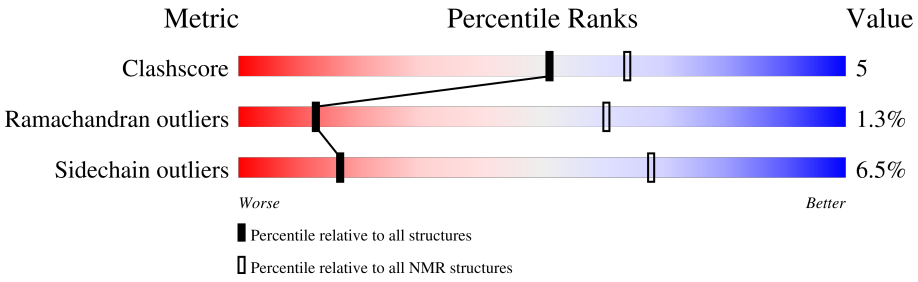
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
wwPDB-RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
wwPDB-ShiftChecker	:	v1.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.41.4

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
SOLUTION NMR

The overall completeness of chemical shifts assignment is 91%.

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)	NMR archive (#Entries)
Clashscore	210492	14027
Ramachandran outliers	207382	12486
Sidechain outliers	206894	12463

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and 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%

Mol	Chain	Length	Quality of chain
1	A	83	51% 6% • 41%
2	B	18	100%

2 Ensemble composition and analysis

This entry contains 20 models. Model 15 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *lowest energy*.

The following residues are included in the computation of the global validation metrics.

Well-defined (core) protein residues			
Well-defined core	**Residue range (total)**	**Backbone RMSD (Å)**	**Medoid model**
1	A:20-A:68 (49)	0.31	15

Ill-defined regions of proteins are excluded from the global statistics.

Ligands and non-protein polymers are included in the analysis.

The models can be grouped into 2 clusters and 3 single-model clusters were found.

Cluster number	Models
1	1, 2, 3, 4, 5, 7, 8, 10, 12, 13, 14, 15, 17, 18, 20
2	6, 19
Single-model clusters	9; 11; 16

3 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 1509 atoms, of which 665 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Chromobox protein homolog 5.

Mol	Chain	Residues	Atoms							Trace
1	A	83	Total	C	H	N	O	P	S	0
			1237	428	534	117	149	4	5	

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	expression tag	UNP Q61686
A	-1	SER	-	expression tag	UNP Q61686
A	0	HIS	-	expression tag	UNP Q61686

- Molecule 2 is a protein called 18-mer peptide of Histone H3.

Mol	Chain	Residues	Atoms					Trace
2	B	18	Total	C	H	N	O	0
			272	86	131	31	24	

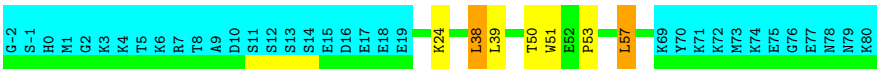
4 Residue-property plots

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.

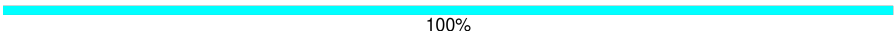
• Molecule 1: Chromobox protein homolog 5

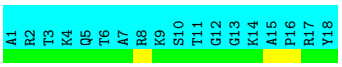
Chain A:



• Molecule 2: 18-mer peptide of Histone H3

Chain B:



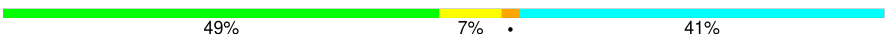


4.2 Residue scores for the representative (medoid) model from the NMR ensemble

The representative model is number 15. Colouring as in section 4.1 above.

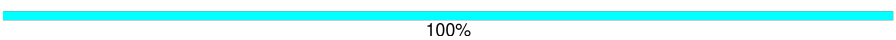
• Molecule 1: Chromobox protein homolog 5

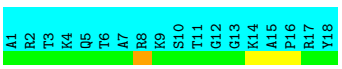
Chain A:



• Molecule 2: 18-mer peptide of Histone H3

Chain B:





5 Refinement protocol and experimental data overview

The models were refined using the following method: *torsion angle dynamics*.

Of the 600 calculated structures, 20 were deposited, based on the following criterion: *structures with the lowest energy*.

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

Software name	Classification	Version
CYANA	structure solution	
CYANA	refinement	

The following table shows chemical shift validation statistics as aggregates over all chemical shift files. Detailed validation can be found in section 7 of this report.

Chemical shift file(s)	working_cs.cif
Number of chemical shift lists	2
Total number of shifts	1111
Number of shifts mapped to atoms	975
Number of unparsed shifts	0
Number of shifts with mapping errors	136
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	91%

6 Model quality

6.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: M3L, SEP

There are no covalent bond-length or bond-angle outliers.

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 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 each 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 averaged over the ensemble.

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	419	336	414	4±1
2	B	0	0	0	0±0
All	All	8380	6720	8280	89

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 5.

5 of 19 unique clashes are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:38:LEU:HD23	1:A:51:TRP:CE2	0.57	2.34	16	20
1:A:38:LEU:HD22	1:A:50:THR:O	0.56	2.00	16	20
1:A:26:LEU:HD12	1:A:38:LEU:HD12	0.53	1.78	6	5
1:A:25:VAL:HG21	1:A:63:ILE:HD13	0.50	1.83	9	1
1:A:26:LEU:HD22	1:A:38:LEU:HD12	0.49	1.83	16	1

6.3 Torsion angles (i)

6.3.1 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 PDB entries followed by that with respect to all NMR entries. 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	49/83 (59%)	45±1 (91±2%)	4±1 (8±1%)	1±0 (1±1%)	13 60
2	B	0	-	-	-	-
All	All	980/2020 (49%)	891 (91%)	76 (8%)	13 (1%)	13 60

All 1 unique Ramachandran outliers are listed below.

Mol	Chain	Res	Type	Models (Total)
1	A	57	LEU	13

6.3.2 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 PDB entries followed by that with respect to all NMR entries. 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	47/73 (64%)	44±1 (94±2%)	3±1 (6±2%)	17 68
2	B	0	-	-	-
All	All	940/1700 (55%)	879 (94%)	61 (6%)	17 68

5 of 13 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	A	38	LEU	20
1	A	24	LYS	18
1	A	23	GLU	4
1	A	34	GLN	4
1	A	40	LYS	3

6.3.3 RNA (i)

There are no RNA molecules in this entry.

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

5 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds for which Mogul statistics could be retrieved, the number of bonds that are observed in the model and the number of bonds 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 is the number of standard deviations the observed value is removed from the expected value. A bond length with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the average root-mean-square of all Z scores of the bond lengths.

Mol	Type	Chain	Res	Link	Bond lengths		
					Counts	RMSZ	#Z>2
1	SEP	A	13	1	8,9,10	0.77±0.00	0±0 (0±0%)
1	SEP	A	12	1	8,9,10	0.77±0.01	0±0 (0±0%)
1	SEP	A	14	1	8,9,10	0.77±0.00	0±0 (0±0%)
1	SEP	A	11	1	8,9,10	0.77±0.01	0±0 (0±0%)
2	M3L	B	9	2	10,11,12	0.80±0.00	0±0 (0±0%)

In the following table, the Counts columns list the number of angles for which Mogul statistics could be retrieved, the number of angles that are observed in the model and the number of 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 angle is the number of standard deviations the observed value is removed from the expected value. A bond angle with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the average root-mean-square of all Z scores of the bond angles.

Mol	Type	Chain	Res	Link	Bond angles		
					Counts	RMSZ	#Z>2
1	SEP	A	13	1	7,12,14	1.33±0.01	1±0 (14±0%)
1	SEP	A	12	1	7,12,14	1.33±0.01	1±0 (14±0%)
1	SEP	A	14	1	7,12,14	1.34±0.01	1±0 (14±0%)
1	SEP	A	11	1	7,12,14	1.33±0.01	1±0 (14±0%)
2	M3L	B	9	2	9,14,16	0.45±0.00	0±0 (0±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
1	SEP	A	12	1	-	0±0,6,8,10	-
2	M3L	B	9	2	-	0±0,9,10,12	-
1	SEP	A	11	1	-	0±0,6,8,10	-
1	SEP	A	13	1	-	0±0,6,8,10	-
1	SEP	A	14	1	-	0±0,6,8,10	-

There are no bond-length outliers.

All unique angle outliers are listed below. They are sorted according to the Z-score of the worst occurrence in the ensemble.

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})	Models	
								Worst	Total
1	A	14	SEP	OG-CB-CA	3.06	111.13	108.14	11	20
1	A	12	SEP	OG-CB-CA	3.02	111.08	108.14	2	20
1	A	13	SEP	OG-CB-CA	3.01	111.07	108.14	9	20
1	A	11	SEP	OG-CB-CA	3.00	111.06	108.14	14	20

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

6.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

6.6 Ligand geometry (i)

There are no ligands in this entry.

6.7 Other polymers (i)

There are no such molecules in this entry.

6.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

7 Chemical shift validation

The completeness of assignment taking into account all chemical shift lists is 91% for the well-defined parts and 79% for the entire structure.

7.1 Chemical shift list 1

File name: working_cs.cif

Chemical shift list name: *assigned_chem_shift_list_1*

7.1.1 Bookkeeping

The following table shows the results of parsing the chemical shift list and reports the number of nuclei with statistically unusual chemical shifts.

Total number of shifts	1008
Number of shifts mapped to atoms	894
Number of unparsed shifts	0
Number of shifts with mapping errors	114
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	1

The following assigned chemical shifts were not mapped to the molecules present in the coordinate file.

- No matching atom found in the structure. First 5 (of 114) occurrences are reported below.

List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	0	HIS	HB2	3.159	0.040	2
1	A	1	MET	HB2	2.06	0.040	2
1	A	1	MET	HG2	2.505	0.040	2
1	A	3	LYS	HB2	1.796	0.040	2
1	A	4	LYS	HB2	1.795	0.040	2
1	A	6	LYS	HB2	1.809	0.040	2
1	A	7	ARG	HB2	1.815	0.040	2
1	A	7	ARG	HG2	1.593	0.040	2
1	A	7	ARG	HD2	3.156	0.040	2
1	A	10	ASP	HB2	2.715	0.040	2
1	A	15	GLU	HB2	1.889	0.040	2
1	A	16	ASP	HB2	2.715	0.040	2
1	A	17	GLU	HB2	1.859	0.040	2
1	A	18	GLU	HB2	2.016	0.040	2

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	18	GLU	HG2	2.21	0.040	2
1	A	19	GLU	HB2	1.786	0.040	2
1	A	19	GLU	HG2	2.132	0.040	2
1	A	20	TYR	HB2	3.169	0.040	2
1	A	23	GLU	HG2	2.22	0.040	2
1	A	24	LYS	HB2	1.568	0.040	2
1	A	24	LYS	HG2	1.281	0.040	2
1	A	24	LYS	HD2	1.641	0.040	2
1	A	24	LYS	HE2	2.926	0.040	2
1	A	26	LEU	HB2	1.275	0.040	2
1	A	27	ASP	HB2	2.496	0.040	2
1	A	28	ARG	HB2	1.386	0.040	2
1	A	28	ARG	HG2	1.166	0.040	2
1	A	28	ARG	HD2	2.941	0.040	2
1	A	29	ARG	HB2	1.514	0.040	2
1	A	30	MET	HB2	1.811	0.040	2
1	A	30	MET	HG2	2.23	0.040	2
1	A	32	LYS	HB2	1.949	0.040	2
1	A	32	LYS	HG2	1.364	0.040	2
1	A	32	LYS	HD2	1.663	0.040	2
1	A	32	LYS	HE2	2.919	0.040	2
1	A	34	GLN	HB2	2.285	0.040	2
1	A	34	GLN	HG2	2.292	0.040	2
1	A	36	GLU	HB2	1.819	0.040	2
1	A	36	GLU	HG2	2.157	0.040	2
1	A	37	TYR	HB2	2.591	0.040	2
1	A	38	LEU	HB2	-1.8	0.040	2
1	A	39	LEU	HB2	0.837	0.040	2
1	A	41	TRP	HB2	3.079	0.040	2
1	A	42	LYS	HB2	1.917	0.040	2
1	A	44	PHE	HB2	3.259	0.040	2
1	A	45	SER	HB2	4.383	0.040	2
1	A	46	GLU	HB2	2.055	0.040	2
1	A	46	GLU	HG2	2.346	0.040	2
1	A	47	GLU	HB2	1.942	0.040	2
1	A	47	GLU	HG2	1.998	0.040	2
1	A	48	HIS	HB2	3.305	0.040	2
1	A	49	ASN	HB2	2.347	0.040	2
1	A	51	TRP	HB2	2.894	0.040	2
1	A	52	GLU	HB2	2.166	0.040	2
1	A	52	GLU	HG2	2.515	0.040	2

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	53	PRO	HB2	2.439	0.040	2
1	A	53	PRO	HG2	2.097	0.040	2
1	A	53	PRO	HD2	4.147	0.040	2
1	A	54	GLU	HB2	2.265	0.040	2
1	A	54	GLU	HG2	2.289	0.040	2
1	A	55	LYS	HB2	1.936	0.040	2
1	A	55	LYS	HG2	1.416	0.040	2
1	A	55	LYS	HD2	1.649	0.040	2
1	A	55	LYS	HE2	2.938	0.040	2
1	A	56	ASN	HB2	3.643	0.040	2
1	A	57	LEU	HB2	1.922	0.040	2
1	A	58	ASP	HB2	2.895	0.040	2
1	A	59	CYS	HB2	3.01	0.040	2
1	A	60	PRO	HB2	2.245	0.040	2
1	A	60	PRO	HG2	2.256	0.040	2
1	A	60	PRO	HD2	3.667	0.040	2
1	A	61	GLU	HB2	1.912	0.040	2
1	A	61	GLU	HG2	2.28	0.040	2
1	A	62	LEU	HB2	1.406	0.040	2
1	A	63	ILE	HG12	1.301	0.040	2
1	A	64	SER	HB2	3.969	0.040	2
1	A	65	GLU	HB2	2.109	0.040	2
1	A	65	GLU	HG2	2.4	0.040	2
1	A	66	PHE	HB2	3.324	0.040	2
1	A	67	MET	HB2	2.266	0.040	2
1	A	67	MET	HG2	2.898	0.040	2
1	A	68	LYS	HB2	2.114	0.040	2
1	A	68	LYS	HG2	1.648	0.040	2
1	A	68	LYS	HD2	1.652	0.040	2
1	A	68	LYS	HE2	2.917	0.040	2
1	A	69	LYS	HB2	1.749	0.040	2
1	A	69	LYS	HG2	1.386	0.040	2
1	A	69	LYS	HD2	1.603	0.040	2
1	A	69	LYS	HE2	2.923	0.040	2
1	A	70	TYR	HB2	2.766	0.040	2
1	A	71	LYS	HB2	1.753	0.040	2
1	A	71	LYS	HG2	1.433	0.040	2
1	A	71	LYS	HD2	1.706	0.040	2
1	A	71	LYS	HE2	2.949	0.040	2
1	A	72	LYS	HB2	1.776	0.040	2
1	A	72	LYS	HG2	1.412	0.040	2

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	72	LYS	HD2	1.7	0.040	2
1	A	72	LYS	HE2	2.939	0.040	2
1	A	73	MET	HB2	2.069	0.040	2
1	A	73	MET	HG2	2.603	0.040	2
1	A	74	LYS	HB2	1.708	0.040	2
1	A	74	LYS	HG2	1.285	0.040	2
1	A	74	LYS	HD2	1.583	0.040	2
1	A	74	LYS	HE2	2.92	0.040	2
1	A	75	GLU	HB2	2.014	0.040	2
1	A	75	GLU	HG2	2.257	0.040	2
1	A	77	GLU	HB2	2.033	0.040	2
1	A	77	GLU	HG2	2.202	0.040	2
1	A	78	ASN	HB2	2.816	0.040	2
1	A	79	ASN	HB2	2.808	0.040	2
1	A	80	LYS	HB2	1.795	0.040	2
1	A	80	LYS	HG2	1.357	0.040	2
1	A	80	LYS	HD2	1.635	0.040	2
1	A	80	LYS	HE2	2.96	0.040	2

7.1.2 Chemical shift referencing

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction ± precision, *ppm*	Suggested action
$^{13}C_{\alpha}$	77	0.02 ± 0.19	None needed (< 0.5 ppm)
$^{13}C_{\beta}$	73	0.19 ± 0.13	None needed (< 0.5 ppm)
$^{13}C'$	77	0.06 ± 0.33	None needed (< 0.5 ppm)
^{15}N	74	-0.56 ± 0.41	None needed (imprecise)

7.1.3 Completeness of resonance assignments

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 91%, i.e. 651 atoms were assigned a chemical shift out of a possible 716. 0 out of 10 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	242/243 (100%)	97/98 (99%)	98/98 (100%)	47/47 (100%)
Sidechain	351/404 (87%)	231/259 (89%)	115/130 (88%)	5/15 (33%)
Aromatic	58/69 (84%)	29/34 (85%)	27/32 (84%)	2/3 (67%)
Overall	651/716 (91%)	357/391 (91%)	240/260 (92%)	54/65 (83%)

7.1.4 Statistically unusual chemical shifts (i)

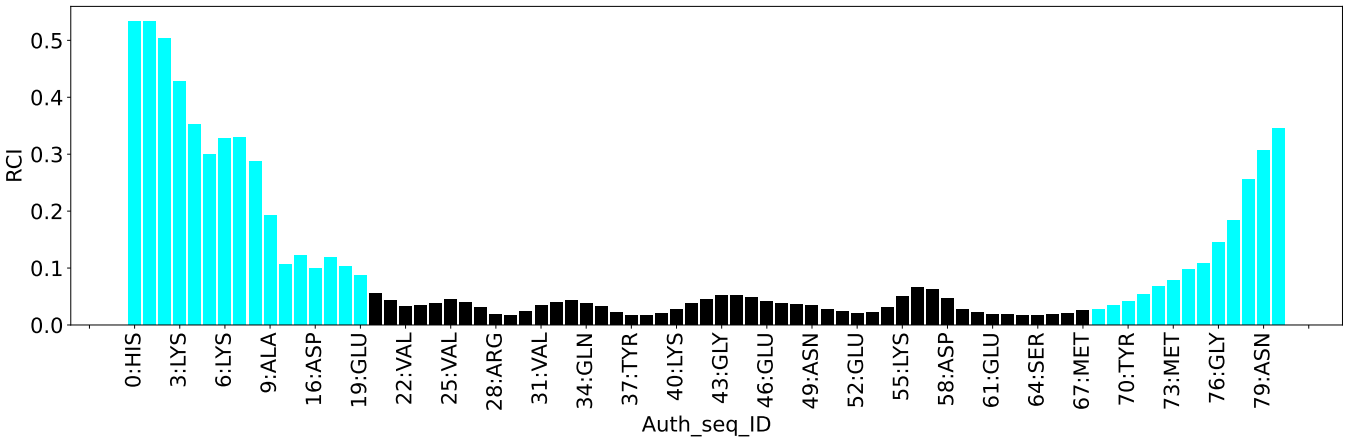
The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

List Id	Chain	Res	Type	Atom	Shift, *ppm*	Expected range, *ppm*	Z-score
1	A	38	LEU	HB2	-1.80	-0.07 – 3.30	-10.1

7.1.5 Random Coil Index (RCI) plots (i)

The image below reports *random coil index* values for the protein chains in the structure. The height of each bar gives a probability of a given residue to be disordered, as predicted from the available chemical shifts and the amino acid sequence. A value above 0.2 is an indication of significant predicted disorder. The colour of the bar shows whether the residue is in the well-defined core (black) or in the ill-defined residue ranges (cyan), as described in section 2 on ensemble composition.If well-defined core and ill-defined regions are not identified then it is shown as gray bars.

Random coil index (RCI) for chain A:



7.2 Chemical shift list 2

File name: working_cs.cif

Chemical shift list name: *assigned_chem_shift_list_2*

7.2.1 Bookkeeping (i)

The following table shows the results of parsing the chemical shift list and reports the number of nuclei with statistically unusual chemical shifts.

Total number of shifts	103
Number of shifts mapped to atoms	81
Number of unparsed shifts	0
Number of shifts with mapping errors	22
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	0

The following assigned chemical shifts were not mapped to the molecules present in the coordinate file.

- No matching atom found in the structure. First 5 (of 22) occurrences are reported below.

List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
2	B	4	LYS	HB2	1.676	0.040	2
2	B	4	LYS	HG2	1.391	0.040	2
2	B	4	LYS	HD2	1.635	0.040	2
2	B	4	LYS	HE2	2.91	0.040	2
2	B	5	GLN	HB2	2.044	0.040	2
2	B	5	GLN	HG2	2.263	0.040	2
2	B	8	ARG	HG2	1.679	0.040	2
2	B	8	ARG	HD2	3.17	0.040	2
2	B	9	M3L	HG1	0.897	0.040	2
2	B	9	M3L	HE1	0.887	0.040	2
2	B	10	SER	HB2	3.995	0.040	2
2	B	14	LYS	HB2	1.727	0.040	2
2	B	14	LYS	HG2	1.373	0.040	2
2	B	14	LYS	HD2	1.727	0.040	2
2	B	14	LYS	HE2	2.963	0.040	2
2	B	16	PRO	HB2	2.284	0.040	2
2	B	16	PRO	HG2	2.0	0.040	2
2	B	16	PRO	HD2	3.785	0.040	2
2	B	17	ARG	HB2	1.792	0.040	2
2	B	17	ARG	HG2	1.65	0.040	2
2	B	17	ARG	HD2	3.186	0.040	2
2	B	18	TYR	HB2	3.032	0.040	2

7.2.2 Chemical shift referencing (i)

No chemical shift referencing corrections were calculated (not enough data).

7.2.3 Completeness of resonance assignments

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 0%, i.e. 0 atoms were assigned a chemical shift out of a possible 716. 0 out of 10 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^{1}H	^{13}C	^{15}N
Backbone	0/243 (0%)	0/98 (0%)	0/98 (0%)	0/47 (0%)
Sidechain	0/404 (0%)	0/259 (0%)	0/130 (0%)	0/15 (0%)
Aromatic	0/69 (0%)	0/34 (0%)	0/32 (0%)	0/3 (0%)
Overall	0/716 (0%)	0/391 (0%)	0/260 (0%)	0/65 (0%)

7.2.4 Statistically unusual chemical shifts

There are no statistically unusual chemical shifts.

7.2.5 Random Coil Index (RCI) plots

The image below reports *random coil index* values for the protein chains in the structure. The height of each bar gives a probability of a given residue to be disordered, as predicted from the available chemical shifts and the amino acid sequence. A value above 0.2 is an indication of significant predicted disorder. The colour of the bar shows whether the residue is in the well-defined core (black) or in the ill-defined residue ranges (cyan), as described in section 2 on ensemble composition.If well-defined core and ill-defined regions are not identified then it is shown as gray bars.

Random coil index (RCI) for chain B: